SEW EURODRIVE

Catalog



DRN.. Gearmotors

and EDRN.. Gearmotors with HazLoc-NA®

Edition 07/2021

24833231/EN-US

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1 Introduction

1.1 The SEW-EURODRIVE group of companies

1.1.1 Global presence

SEW-EURODRIVE is driving the world with innovative drive solutions for all industries and every application. Products and systems from SEW-EURODRIVE are used in a multitude of applications worldwide. Whether it is in the automotive, building materials, food and beverage or metal-processing industry, the decision to use drive technology "made by SEW-EURODRIVE" stands for reliability and quality.

Our products and services are used in the most important branches of industry across the globe. Our presence is also global, with subsidiaries, Drive Technology Centers, and production plants all over the world.

1.1.2 Always the right drive solution

The SEW-EURODRIVE modular concept offers millions of combinations. This wide selection enables you to choose the correct drive for all applications, based upon your required speed, torque, available space, and ambient conditions. In addition, there are ample sizes available within each gear type, which provides a unit that closely matches your torque requirement without having to drastically oversize.

The modular DRN.. motor includes the energy-efficiency for type IE3 and is designed for all worldwide efficiency requirements. The energy-efficient DRN.. motor achieves the highest efficiency in combination with SEW-EURODRIVE gear units.

Inverters

The proven inverter series MOVITRAC®, MOVIDRIVE® and MOVIAXIS® enhance the gearmotors, forming a combination that blends in perfectly with the existing SEW-EURODRIVE systems program.

MOVI-C® - Modular automation system

With its brand MOVI-C®, SEW-EURODRIVE launches a new generation of drive and automation technology. MOVI-C® is the modular automation system that allows for the highest level of system and machine automation. It comprises drive technology, MotionControl, control technology and visualization.

MOVIDRIVE® modular is the application inverter for all types of applications, ranging from simple open-loop speed control to servo drives with kinematic model. MOVIDRIVE® modular can be supplemented by connecting MOVIDRIVE® system single-axis devices. These possess comparable functionalities as axis modules, but have their own line connection. MOVIDRIVE® system complements the modular application inverter, especially in the upper power range.

MOVIDRIVE® modular and MOVIDRIVE® system are intended for operation at the MOVI-C® CONTROLLER, the controller from SEW-EURODRIVE. They offer a powerful clock-synchronous connection via the integrated EtherCAT®/SBus^{PLUS} communication interface. EtherCAT® stations from SEW-EURODRIVE, or other manufacturers, can be controlled and diagnosed by the MOVI-C® CONTROLLER.

The MOVISUITE® engineering software, with its unique operating philosophy, prevails over all MOVI-C® hardware and software components. MOVISUITE® was developed with a focus on systematically shortening the startup time. It covers the entire engineering process, from planning to diagnostics.

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Decentralized drive technology

For economical, decentralized installations, SEW-EURODRIVE offers decentralized drive technology components, such as MOVIMOT®, the gearmotor with integrated frequency inverter or MOVI-SWITCH®, the gearmotor with integrated switching and protection function. SEW-EURODRIVE hybrid cables have been designed specifically to ensure cost-effective solutions, independent of the philosophy behind the system or the size of the system.

The decentralized drive technology portfolio is complemented by the DRC.. electronic motor, MOVIGEAR® mechatronic drive system, MOVIFIT® decentralized drive controller, MOVIPRO® decentralized drive, positioning, and application controller, as well as MOVITRANS® system components for contactless energy transfer.

The smart energy management system MOVI-DPS® enhances the modular product portfolio. With MOVI-DPS®, SEW-EURODRIVE offers the perfect combination to conserve resources and to reduce costs.

MOVI-DPS® allows for stable power grids, no power failures, and consequently reliable system availability. MOVI-DPS® shows what it can do in both mobile and stationary applications. In addition, MOVI-DPS® can be combined with other systems such as the contactless energy transfer system MOVITRANS®, resulting in further synergy effects.

Industrial gear units (IG)

Power, quality, and sturdy design are combined in one standard product. With high torque levels, industrial gear units from SEW-EURODRIVE are capable of handling major movements. Its modular concept provides optimum adaptation to meet a wide range of different applications.

MAXOLUTION® – Individual system solutions

MAXOLUTION® from SEW-EURODRIVE provides individual application solutions in all areas of system and machine automation. From electromechanical drives, controllers and communication to visualization and the contactless energy transfer system MOVITRANS® up to a comprehensive service portfolio, MAXOLUTION® offers all modules required to design customer-specific solutions for machines and systems.

MAXOLUTION® combines individual products of the proven modular system with innovative system components to form individual solutions that perfectly match the requirements of the specific application – "powered by SEW-EURODRIVE".

safetyDRIVE – Safe, flexible, effective

Ensuring the safety of all employees and preventing work accidents while ensuring trouble-free production processes are demands placed on all production areas. safetyDRIVE, the comprehensive safety concept, allows you to implement your machines "safely", in accordance with current guidelines.

All of our drive and frequency inverters provide the function that safely stops the electrical power to the motor (STO). The MOVISAFE® components complete the portfolio – integrated into the inverter as option cards DFS..B or DCS..B, or modular as safety monitors UCS..B. The MOVIFIT® and MOVIPRO® drive technologies, with integrated safety functions, are ready for use in decentralized installations.

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1.1.3 Your ideal partner

Its global presence, extensive product range and broad spectrum of services make SEW-EURODRIVE the ideal partner for drive solutions in all industries and applications.

In addition to its products and systems, SEW-EURODRIVE offers the following comprehensive range of services.

- Technical application assistance
- Application and calculation software
- Seminars and training
- PT Pilot® online configurator/quotation program
- Extensive technical documentation
- 2D/3D CAD files
- Worldwide customer service

Visit our USA website at

→ **www.seweurodrive.com**

The website provides comprehensive information, services, and downloads.

1.2 Documentation

1.2.1 Content of this publication

This "DRN.. Gearmotors (IE3)" 60Hz catalog describes the following product groups from SEW-EURODRIVE in detail:

- DRN.. /EDRN helical gearmotors (R, RX-series)
- DRN.. /EDRN theSnuggler® helical gearmotors (F-series)
- DRN.. /EDRN helical-bevel gearmotors (K-series)
- DRN.. /EDRN helical-worm gearmotors (S-series)
- DRN.. /EDRN SPIROPLAN® gearmotors (W-series)

1.2.2 Additional documentation

In addition to this catalog, you can download other technical documents from our USA website at:

→ **www.seweurodrive.com**

Catalogs

- Gear units
- Servo gear units
- AC motors
- Synchronous servomotors
- Synchronous servo gearmotors
- Asynchronous servo gearmotors
- DRC.. gearmotors
- Geared torque motors

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Drive Engineering – Practical Implementation

Detailed documentation about the entire topic of electrical drive engineering is available within the "Drive Engineering - Practical Implementation" publications listed below. See also (→ 🗎 41).

- Project planning for drives
- EMC in Drive Engineering – Basic Theoretical Principles and EMC-Compliant Installation in Practice
- Efficient Plant Automation with Mechatronic Drive Solutions

1.3 Product names and trademarks

All product names included in this documentation are trademarks or registered trademarks of the respective titleholders.

1.4 Copyright notice

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2 Product description

2.1 Product features

2.1.1 Operating temperatures

Gear units and gearmotors from SEW-EURODRIVE can operate in a wide ambient temperature range.

Gear unit

The following table shows the temperature range for the standard oil supplied with each gear unit. Alternate oils are available per the lubricant table (→ 🗎 110).

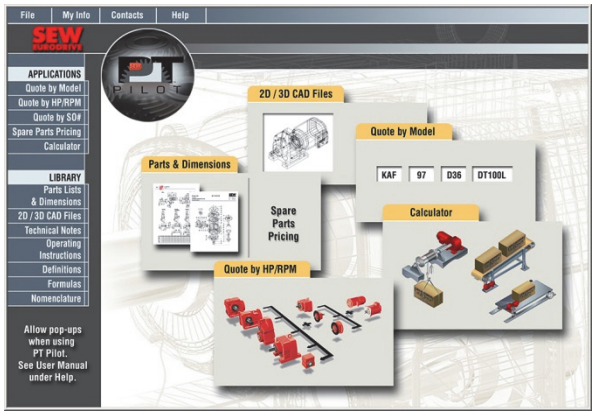
Gear unit	Standard Lubricant	Temperature range
R	CLP VG220	-15°C to +40°C
F		
K..7		
K..9	CLP (PG) VG460	-20°C to +40°C
S	CLP (PG) VG680	0°C to +40°C
W	CLP (SEW PG) VG460	-20°C to +40°C

The rated data of the gearmotors specified in this catalog refer to an ambient temperature of +25°C (77°F).

With proper project planning, gear units from SEW-EURODRIVE can operate from -40°C to +60°C (-40°F to +140°F). Project planning must consider special operating conditions and use appropriate lubricants and seals. It is especially important for the following gear units:

- R, K, F gear units > size 87 with small ratios due to oil churning heat
- All S gear units (helical-worm), due to sliding friction – especially with large ratios or low input speeds.

SEW-EURODRIVE will perform this project planning for you. Or, you may visit **www.ptpilot.com.** PT Pilot gives you a complete quotation and calculates your oil sump temperature based upon your mounting position, ambient temperature, and ratio. Where applicable, PT Pilot adds synthetic oil and FKM seals for proper protection against heat.



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Motors

The motors of the DRN.. series are designed for use in a temperature range from -20°C to +40°C (-4°F to 104°F).

This expands the standard temperature range required by IEC 60034.

Using the motors outside the above temperature range is possible with some special adjustments. Please contact SEW-EURODRIVE for available options.

INFORMATION

If the motor is controlled by a frequency inverter, you must also consider the project planning notes for the inverter and take into account the thermal effects of inverter operation.

2.1.2 Altitude

Due to the low air density at high installation altitudes, heat dissipation decreases on the surface of motors and gear units. The rated data listed in the catalog applies to a maximum installation altitude of 3280 feet above sea level. Proper project planning must be considered for higher altitudes to ensure proper cooling (→ 🗎 56).

2.1.3 Power and torque

The power and torque ratings refer to mounting position M1 and similar mounting positions in which the input stage is not completely submerged in oil. In addition, the gearmotors are assumed to be standard versions with standard lubrication and under normal ambient conditions.

2.1.4 Speeds

The output speeds shown are based upon the rated motor speed and the gear unit ratio. Please note that the actual output speed depends on the motor load and the line voltage conditions.

2.1.5 Noise

The noise levels of all SEW-EURODRIVE gear units, motors and gearmotors are well within the maximum permitted noise levels set forth in the VDI guideline 2159 for gear units and IEC/EN 60034 for motors.

2.1.6 Reduced backlash

Helical (R-series), theSnuggler® helical (F-series) and helical-bevel (K..7 series) gear units with reduced backlash are available in gear size 37 and larger. K..9 helical-bevel gear units are not available with reduced backlash.

The rotational clearance (backlash) of these gear units is considerably less than that of the standard designs; therefore, positioning tasks can be solved with great precision. The rotational clearance is specified in angular minutes and is shown in the "Possible combinations" section within each gear unit chapter (→ 🗎 159).

The rotational clearance for the output shaft is specified without load (max. 1% of the rated output torque) with the gear unit input end blocked.

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2.1.7 Paint colors

The gear units and motors from SEW-EURODRIVE in USA are coated as follows. The alternate colors shown are available at no extra charge. Special coatings are available upon request.

Color	Surface Protection		
	Standard	OS2	OS4
Standard (default)	RAL 5001 Green Blue		RAL 9007 Metallic Gray
Alternate	RAL 9003 Signal White RAL 9005 Jet Black RAL 7031 Blue Gray RAL 3020 Traffic Red RAL 9007 Metallic Gray		RAL 9003 Signal White RAL 9005 Jet Black RAL 3020 Traffic Red

2.1.8 Surface and anti-corrosion protection

If required, all gear units, motors and gearmotors from SEW-EURODRIVE can also be supplied with OS2 or OS4 surface protection for applications in extremely humid and/or chemically aggressive environments (→ 🗎 16).

2.1.9 Heat dissipation and accessibility

Make sure to maintain adequate distance from heat-sensitive components when installing gearmotors/geared brakemotors to the driven machine. The distance is necessary for air circulation/heat dissipation, and for maintenance of the brake or MOVIMOT® inverter, if installed.

2.1.10 Weights

Please note that all weight specifications in the catalogs apply to gear units and gearmotors without lubricant. The weights vary according to gear unit design and size. The lubricant volume depends on the mounting position. Suggested values for lubricant fill quantities based on the mounting position are provided in the chapter "Oil fill quantities" (→ 🗎 112). The exact weight is shown on the order confirmation.

2.1.11 Compound (multi-stage) gearmotors

Particularly low output speeds are possible by using compound (multi-stage) gear units (ex: K87R57). These units contain an additional helical gear unit on the input in order to achieve much higher ratios than those in a single gear unit.

However, it may be necessary to limit the motor power or to provide torque overload protection in order to ensure that the maximum permissible output torque of the gear unit is not exceeded.

2.1.12 Shaft diameters

All gear units are available with either an inch or a metric diameter output shaft, except RM/FM/KM and RZ/FZ/KZ which are available with metric diameter only. In addition, several diameters are available for each output shaft at no extra charge. See “Output shaft sizes” at the end of each dimension section.

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2.1.13 Agitator drives – RM/FM/KM

RM, FM, and KM gearmotors are a special type of helical gear unit with an extended output bearing hub. They are designed especially for mixing applications to allow for high overhung loads, axial loads, and bending moments. You can find special project planning notes for RM gearmotors (→ 🗎 59).

2.1.14 SPIROPLAN® gearmotors

SPIROPLAN® (W-series) are robust right-angle gear units with either single or two stage gearing. Unlike the helical-worm gear units (S-series) that use both bronze and metal gears with sliding friction, the SPIROPLAN® units use only steel gears with a special meshing pattern that incorporates both sliding and rolling friction for greater efficiency. In addition, the housing is aluminum. Therefore, SPIROPLAN® gearmotors are wear-free, lightweight, and compact. The wear-free gearing and the life-long lubrication provide a long period of maintenance-free operation.

For maximum mounting versatility, the spacing of the holes on the feet is the same on all three sides. In addition, the shaft height remains the same regardless of the side upon which the unit is mounted. Also, two different flange diameters are available for each unit. As an option, SPIROPLAN® gearmotors can be equipped with a torque arm.

2.1.15 Brakemotors

Motors and gearmotors can be supplied with an optional integrated mechanical brake. The SEW-EURODRIVE brake is an electromagnetic disk brake with a DC coil that releases electrically. Braking occurs via a combination of adjustable spring forces. Due to its operating principle, the brake is automatically applied during a power failure, meeting basic safety requirements. The brake can be released mechanically if equipped with manual brake release that is available as either an adjustable setscrew or as a hand lever with automatic reset. The brake is controlled via a rectifier that is installed in either the motor conduit box or inside the control cabinet.

The brake bearing endshield is a part of both the motor and the brake, yielding an integral design and a very compact brakemotor.

2.1.16 Motor adapters

The following adapters are available between the motor and input of gear unit:

- For mounting IEC or NEMA motors with the option of a backstop
- For mounting servomotors with a square flange
- With torque limiting safety couplings and speed or slip monitor
- With hydraulic start-up coupling and the option of a disk brake or backstop

2.1.17 Swing base

A swing base is a drive unit consisting of helical-bevel gear unit, hydraulic centrifugal coupling and motor. The complete arrangement is mounted to a rigid mounting rail. Swing bases are available with the following optional accessories:

- Torque arm
- Mechanical thermal monitoring unit
- Contactless thermal monitoring unit

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2.1.18 International markets

The following countries have special requirements for motors. SEW-EURODRIVE products contain logos on the main nameplate, gear unit, or motor as a certificate of compliance.

Europe

Mark	Explanation
CE	CE mark to state compliance with European guidelines, such as the Low Voltage Directive
Ex	ATEX mark to state compliance with the European Directive 2014/34/EU

Canada

Mark	Explanation
MC170602 CSA® EnergyVerified	SEW-EURODRIVE motors for Canada comply with the general motor standards and, if required, the efficiency requirements of the Canadian Energy Efficiency Regulations of the 2011 (EER2011). The CSA-certified explosion-proof motors of the type EDRN.. contain the required CSA logo on the nameplate.
MC170602 C CSA® US EnergyVerified	The cCSAus logo indicates that the motors are tested by CSA to meet the Canadian and American standards. Both the DRN.. and EDRN.. motors contain the cCSAus logo.

USA

Mark	Explanation
®	Motors for the USA comply with the requirements stipulated by Underwriters Laboratories as a UL Recognized Component per E337323. Thus, they contain the UR label.
ee CC056A	The motors that fulfill the efficiency requirements according to CFR 431 have the energy efficiency logo of the Department of Energy (DoE)
MC170602 C CSA® US EnergyVerified	The explosion-proof motors of the type EDRN.. are CSA certified. The cCSAus logo indicates that the motors meet both the Canadian and American standards.
NEMA Premium®	All DRN.. and EDRN.. motors meet the minimal efficiency requirements for NEMA premium efficient motors per MG1 Table 12-12, as well as IEC 60034-30-1.

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Brazil	Mark	Explanation
		SEW-EURODRIVE motors for the Brazilian market are registered at ABNT. They have the PROCED logo if they fulfill the efficiency requirements. Explosion-proof motors have an additional certification based on the IECEx agreement. They are not shown in this catalog.

2.2 Corrosion and surface protection

2.2.1 General information

For motor and gear unit operation in aggressive environments, SEW-EURODRIVE offers the following options:

- Corrosion protection for motors
- Surface protection OS2 and OS4 for motors and gear units

For motors, the best protection is a combination of corrosion protection and OS surface protection. For the output shaft, additional options are available.

2.2.2 Corrosion protection

Corrosion protection for motors contains the following procedures:

- All retaining screws that are loosened during operation are made of stainless steel.
- Stainless steel nameplates.
- Various motor parts are coated with a finishing varnish.
- The flange contact surfaces and shaft ends are treated with temporary rust preventive.
- Additional procedures are performed for brakemotors.

INFORMATION

The following motor options do not receive additional corrosion protection. However, they can be ordered with a gearmotor that does receive corrosion protection.

- /V forced cooling fan
- Shaft-centered encoders /ES, /ES7, /EG, /EG7, /EV7, /AS, /AS7, /AG, /AG7, /AV7

2.2.3 OS surface protection

Instead of the standard surface protection, motors and gear units are available with OS2 or OS4 surface protection as an option. The protection layers shown below reflect the current methods in the USA. Options may differ in Canada.

OS Type[1) 2)]	Protection layers	Ambient conditions	Comments/sample applications
OSG	• Dip primer • Acrylic primer	• N/A	• Primer only – not a finish coat • Customer to supply additional paint coating depending on application.
STD 	• Dip primer • Acrylic top coat	Indoors – clean atmosphere, heated buildings Similar to corrosivity category[3)]: • C1 (negligible)	• Machines and systems in the automobile industry • Transport systems in logistics • Conveyor belts at airports
OS2 	• Dip Primer • Acrylic primer • Acrylic top coat + UV protection	Indoors – high humidity, condensation, or splashing water Outdoors – direct weathering and low pollution According to corrosivity category[3)]: • C3 (moderate)	• Sports halls, depots • Applications in amusement parks • Applications in gravel plants • Systems in nuclear power plants • Wastewater treatment plants
OS4 	• Dip Primer • Epoxy primer **(2 layers)** • Polyurethane top coat • Polyurethane clear coat + UV protection	Indoors – pressure spray, chemical washdown, brine solutions, regular acidic or caustic wet cleaning Outdoors – high humidity, high pollution, severe atmospheric or chemical contamination, salinity According to corrosivity category[3)]: • C5-1 (very high)	• Breweries • Beverage industry • Food processing • Chemical plants • Dairies • Coastal areas

1) Motors/brakemotors in degree of protection IP56 or IP66 are only available with OS2 or OS4 surface protection.
2) Gearmotors with OS2 or OS4 surface protection are offered only in combination with corrosion protection.
3) According to DIN EN ISO 12944-2, classification of ambient conditions

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2.2.4 Seal and shaft protection

Gearmotor output shafts can be supplied with the options below for operation in severe environmental pollution or in particularly demanding applications.

Feature	Design	Suitable for:
FKM oil seal	High quality material	Drives subject to chemicals or high temperature.
Stainless steel output shaft	Surface protection through non-corrosive material. All TorqLOC® shafts and many keyed hollow shafts are available in stainless steel.	Heavy washdown or demanding applications where anti-corrosion is mandatory.

2.2.5 NOCO® fluid

As standard, SEW-EURODRIVE supplies NOCO® fluid corrosion protection and lubricant with every hollow shaft gear unit. NOCO® fluid should be used when installing hollow shaft gear units to prevent contact corrosion and to make it easier to disassemble the drive at a later time. NOCO® fluid can also be used to protect machined metal surfaces that do not have corrosion protection, such as output shafts or flanges. You can order NOCO® fluid in the quantities listed below.

Batch size	Packaging type	Part number
5.5g	Sachet	09107819
100g	Tube	03253147
1 kg	Tub	09107827

NOCO® fluid is a food grade substance according to NSF-H1. It has a corresponding NSF-H1 label on the packaging.

2.3 Extended storage

SEW-EURODRIVE recommends the "extended storage" option for storage periods lasting longer than 9 months. The gear unit oil is mixed with a VCI (**v**olatile **c**orrosion **i**nhibitors) anti-corrosion agent. Please note that VCI is effective only in a temperature range of -25°C to +50°C.

The flange contact surfaces and output shafts are also treated with an anti-corrosion agent. As standard, the gear unit with "extended storage" option is supplied with OS2 surface protection. However, OS4 is available as an alternative.

INFORMATION

To prevent the VCI anti-corrosion agent from evaporating, the gear units with "extended storage" must remain tightly sealed until startup.

The gear units come with the oil fill according to the specified mounting position (M1 – M6). Always check the oil level before placing the gear unit into operation.

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Observe the storage conditions specified in the following table:

Climate zone	Packaging[1)]	Storage[2)]	Storage duration
Temperate (Europe, USA, Canada, China and Russia, excluding tropical zones)	• Packed in containers • With desiccant and moisture indicator sealed in the plastic wrap	• Roofed • Protected against rain and snow • Shock-free	Up to 3 years with regular checks of the packaging and moisture indicator (humidity < 50%)
	Open	• Under roof and enclosed at constant temperature between 5°C to 50°C • No sudden temperature variations • Relative humidity < 50% • Controlled ventilation with filter (free from dust and dirt) • No aggressive vapors • No shocks	2 years or more with regular inspections • Check for cleanliness • Check for mechanical damage • Check for corrosion
Tropical (Asia, Africa, Central and South America, Australia, New Zealand, excluding temperate zones)	• Packed in containers • With desiccant and moisture indicator sealed in the plastic wrap • Protected against insect damage and mildew by chemical treatment	• Roofed • Protected against rain and snow • Shock-free	Up to 3 years with regular checks of the packaging and moisture indicator (humidity < 50%)
	Open	• Under roof and enclosed at constant temperature between 5°C to 50°C • No sudden temperature variations • Relative humidity < 50% • Controlled ventilation with filter (free from dust and dirt) • No aggressive vapors • No shocks • Protected against insect damage	2 years or more with regular inspections • Check for cleanliness • Check for mechanical damage • Check for corrosion

1) The packaging must be carried out by an experienced company using the packaging materials that have been explicitly specified for the particular application.
2) SEW-EURODRIVE recommends storing the gear units in the same orientation as the mtg position on the nameplate.

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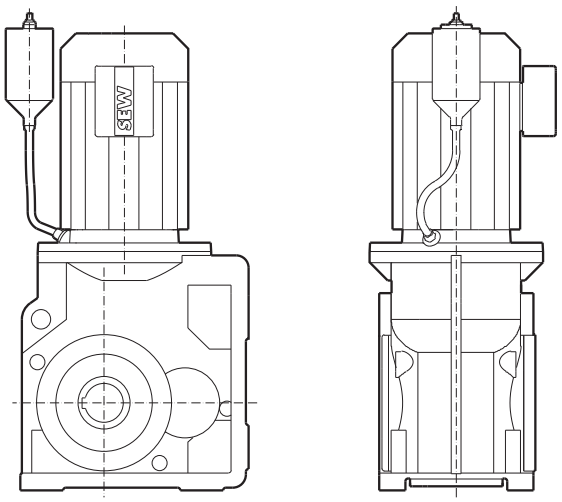
2.4 Oil expansion tank (M4 only)

The oil expansion tank allows the lubricant or air space of the gear unit to expand. This means no lubricant can escape the breather valve at high operating temperatures.

SEW-EURODRIVE recommends using an oil expansion tank for gear units and gearmotors in M4 mounting position under the following conditions.

- For input speeds > 2000 rpm.
- For sizes 77-97 with input speeds > 1800 rpm
- For all gear units size 107 and larger

The following figure shows the oil expansion tank of a gearmotor.



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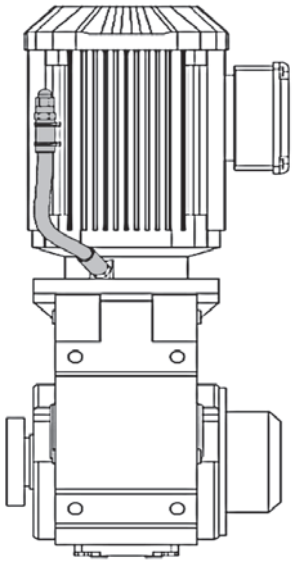
The oil expansion tank is delivered as assembly kit for mounting onto the gearmotor. In case of limited space or of gear units without motor, the oil expansion tank can also be mounted to nearby machine parts. See also breather riser hose assembly (2.6)

2.5 Breather Riser Hose Assembly (M4 only)

The breather riser hose assembly is available for integral gearmotors sizes 37-67 and K19-K49 in an M4 mounting position.

Like an expansion tank, it provides space for oil or foam to expand when temperature rises. The design consists of a tube with either an M10 or an M12 fitting that threads into the motor flange. The tube is secured via clips that attach to the motor fins.

This inexpensive option is highly desirable for the baggage handling industry.



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2.6 Oil aging monitor: DUO10A

The oil condition monitoring option consists of a temperature sensor and the evaluation unit. Service life curves for oils supplied by SEW-EURODRIVE are stored in the evaluation unit. In addition, SEW-EURODRIVE can customize any other oil grade in the diagnostic unit. During operation, the evaluation unit uses the oil temperature to continuously calculate the remaining service life in days until the next oil change. The remaining life is displayed directly on the evaluation unit. When the service life is expired, a binary signal can be sent to a higher-level system and evaluated.

Using the DUO10A diagnostic unit, the system operator no longer has to replace the oil within predefined intervals, but can adapt the replacement interval individually to the actual load. The benefits are reduced maintenance costs and increased uptime.

For more information, (→ 🗎 156).

2.7 Agitator designs

All gear units in agitator design are equipped with an extended bearing hub particularly suited for mixing and agitator applications.

Advantages:

- Finite Element Method (FEM) optimized housing and special agitator flange suitable for high overhung loads
- No additional bearing required for the agitator shaft
- Shaft and flange dimensions are compatible with standard dimensions
- Many different options for optimum adaptation to the particular application
- Gear units/gearmotors available in explosion-proof design

	RM..	FM../FAM..	KM../KAM..
Sizes:	57 – 167	67 – 157	67 – 157
Gear Ratio:	4.29 – 289.74	3.87 – 281.71	5.20 – 197.37
Maximum output torque (lb-in)	3980 – 176800	7250 – 176800	7250 – 176800
Maximum OHL (lbs):	900 – 26980	7870 – 30350	4500 – 30350

Available options:

- Double oil seal on the output side for additional protection against leakage
- Grease nipple for periodic greasing of output shaft bearings
- Motor power range: 0.16 – 275 HP
- Motor adapter AM.. for mounting IEC or NEMA motors
- Reinforced bearings opposite the output side (FM../FAM.., KM../KAM..), which increase the allowable overhung load, particularly for high output speeds.
- Drywell design with leak sensor to prevent the product from being contaminated in the event of oil leakage (FM../FAM.., KM../KAM..).

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3 Nomenclature and options

3.1 Gear options

3.1.1 Helical gear units

Nomenclature	Description
RX..	Foot-mounted with 1 gearing stage
RXF..	B5 flange with 1 gearing stage
R..	Foot-mounted
R..F	Foot-mounted with B5 flange
RF..	B5 flange
RZ..	B14 flange (tapped holes) with solid shaft
RM..	B5 flange with extended bearing hub for agitator design

3.1.2 theSnuggler® helical gear units

Nomenclature	Description
F..	Foot-mounted (tapped holes) with solid shaft
FA..B	Foot-mounted (tapped holes) with keyed hollow shaft
FH..B	Foot-mounted (tapped holes) w/keyless hollow shaft and shrink disk
FV..B	Foot-mounted (tapped holes) with DIN 5480 splined hollow shaft
FF..	B5 flange with solid shaft
FAF..	B5 flange with keyed hollow shaft
FHF..	B5 flange with keyless hollow shaft and shrink disk
FVF..	B5 flange with DIN 5480 splined hollow shaft
FTF..	B5 flange with keyless hollow shaft and TorqLOC® taper bushing
FA..	Keyed hollow shaft
FH..	Keyless hollow shaft with shrink disk
FM..	B5 flange with extended bearing hub for agitator design
FT..	Keyless hollow shaft with TorqLOC® taper bushing system
FV..	DIN 5480 splined hollow shaft
FZ..	B14 flange (tapped holes) and solid shaft
FAZ..	B14 flange (tapped holes) and keyed hollow shaft
FHZ..	B14 flange (tapped holes) and keyless hollow shaft w/shrink disk
FVZ..	B14 flange (tapped holes) and DIN 5480 splined hollow shaft

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3.1.3 Helical-bevel gear units

Nomenclature	Description
K..	Foot-mounted with solid shaft
KA..B	Foot-mounted with keyed hollow shaft
KH..B	Foot-mounted with keyless hollow shaft and shrink disk
KV..B	Foot-mounted with DIN 5480 splined hollow shaft
KF..	B5 flange with solid shaft
KAF..	B5 flange with keyed hollow shaft
KHF..	B5 flange with keyless hollow shaft and shrink disk
KTF..	B5 flange with keyless hollow shaft and TorqLOC® taper bushing system
KVF..	B5 flange with DIN 5480 splined hollow shaft
KA..	Keyed hollow shaft
KH..	Keyless hollow shaft with shrink disk
KM..	B5 flange with extended bearing hub for agitator design
KT..	Keyless hollow shaft with TorqLOC® taper bushing system
KV..	DIN 5480 splined hollow shaft
KZ..	B14 flange (tapped holes) with solid shaft
KAZ..	B14 flange (tapped holes) with keyed hollow shaft
KHZ..	B14 flange (tapped holes) w/keyless hollow shaft and shrink disk
KVZ..	B14 flange (tapped holes) with DIN 5480 splined hollow shaft

3.1.4 Helical-worm gear units

Nomenclature	Description
S..	Foot-mounted with solid shaft
SF..	B5 flange with solid shaft
SAF..	B5 flange with keyed hollow shaft
SHF..	B5 flange with keyless hollow shaft and shrink disk
SA..	Keyed hollow shaft
SH..	Keyless hollow shaft with shrink disk
ST..	Keyless hollow shaft with TorqLOC® taper bushing system
SAZ..	B14 flange (tapped holes) with keyed hollow shaft
STF..	B5 flange with keyless hollowshaft and TorqLOC® taper bushing system
SHZ..	B14 flange (tapped holes) w/keyless hollow shaft and shrink disk

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3.1.5 SPIROPLAN® gear units

Nomenclature	Description
W..	Foot-mounted with solid shaft
WF..	B5 flange with solid shaft
WAF..	B5 flange with keyed hollow shaft
WA..	Keyed hollow shaft
WA..B	Foot-mounted with keyed hollow shaft
WH..B	Foot-mounted with keyless hollow shaft and shrink disk
WHF..	B5 flange with keyless hollow shaft and shrink disk
WH..	Keyless hollow shaft with shrink disk
WT..	Keyless hollow shaft with TorqLOC® taper bushing system

3.1.6 Miscellaneous Options

Nomenclature	Description	R	F	K	S	W
/R	Reduced backlash	X	X	X	-	-
/T	With torque arm	-	1)	X	X	X
/G	With rubber buffers (to provide cushioning of torque arm)	-	X	2)	2)	-

1) F-series has built-in torque arm so optional torque arm is unnecessary
2) The torque arm available for the K-series and S-series contains an integrated rubber bushing. No additional nomenclature is necessary.

3.1.7 Condition monitoring

Nomenclature	Description
/DUO	Diagnostic Unit Oil = Oil aging sensor
/DUV	Diagnostic Unit Vibration = Vibration sensor

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3.2 Motor options

3.2.1 Size designation

Nomenclature	HazLoc-NA®	Description
DRN..	-	Energy-efficient motors of energy efficiency class IE3
EDRN..	X	Motor for hazardous locations, 60Hz, energy efficiency class IE3
63 – 315	X	Sizes: 80 / 90 / 100 / 112 / 132 / 160 / 180 / 200 / 225 / 250 / 280 / 315
K, S, M, L, MC, LC, ME, MS, MK, H, LS, LM	X	Lengths
R, Q	X	Power designation (identification of motors with same size, but different power)
2	-	Number of poles (60Hz values): (2=3600 rpm, 4=1800 rpm, 6=1200 rpm, 8=900 rpm)
4	X	
6	-	
8	-	

3.2.2 Mounting types

Nomenclature	HazLoc-NA®	Description	Size
/FI	X	IEC foot-mounted motor	63MS – 315H
/F.A /F.B	X	Universal foot-mounted motor: /F.A = motor feet enclosed in delivery /F.B = motor feet mounted at factory	71MS – 132S 225S – 315H
/FE	X	IEC flange-mounted motor with bore and IEC feet	63MS – 315H
/FF	X	IEC flange-mounted motor with bore	63MS – 315H
/FG	X	Integral motor, as stand-alone motor	63MS – 315H
/FK	X	Flange-mounted motor (deviating from IEC) with feet	63MS – 280M
/FL	X	Flange mounted motor (deviating from IEC)	63MS – 315H
/FM	X	Integral motor with IEC feet	63MS – 315H
/FT	X	IEC flange-mounted motor with threads	63MS – 100L
/FY	X	IEC flange-mounted motor with threads and IEC feet	63MS – 100L
/FC	X	C-face motor; flange and shaft dimensions in inch	63MS – 160L (48C – 256TC)

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3.2.3 Brake and backstop

Nomenclature	HazLoc-NA®	Description	Size
/BE..	X	Spring-loaded brake with size designation	63MS – 315H
HR	X	Manual brake release (hand lever), with automatic re-engaging	63MS – 315H
HF	X	Manual brake release (screw), lockable	63MS – 315H
/RS	X	Backstop	63MS – 315H

3.2.4 Built-in encoder

Nomenclature	HazLoc-NA®	Description	Size
/EI7C[1)]	-	Built-in incremental encoder with HTL interface, 24 pulses	63MS – 132S
/EI76	-	Built-in incremental encoder with HTL interface and 6 PPR	71MS – 132S
/EI72	-	Built-in incremental encoder with HTL interface and 2 PPR	71MS – 132S
/EI71	-	Built-in incremental encoder with HTL interface and 1 PPR	71MS – 132S
/EI8R	-	Built-in incremental encoder with TTL interface and 1024 periods (4096 increments)	71MS – 132L
/EI8C	-	Built-in incremental encoder with HTL interface and 1024 periods (4096 increments)	71MS – 132L

1) 71MS - 132S also available in functional safety design

3.2.5 Add-on encoder

Nomenclature	HazLoc-NA®	Description	Size
/EK8S[1)]	-	Add-on encoder with sin/cos interface	71 – 132L
/EV8S	-		71 – 132L
/EK8R	-	Add-on encoder with TTL(RS422) interface	71 – 132L
/EV8R	-		71 – 132S
/EK8C	-	Add-on encoder with HTL interface	71 – 132L
/EV8C	-		71 – 132S
/AK8W[1)]	-	Add-on absolute encoder with sin/cos and RS485 interface (multi-turn)	71 – 132L
/AV8W	-		71 – 132L
/AK8Y[1)]	-	Add-on absolute encoder with sin/cos and SSI interface (multi-turn)	71 – 132L
/AV8Y	-		71 – 132L

1) Also available in functional safety design

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Nomenclature	HazLoc-NA®	Description	Size
/AK8H	-	Add-on absolute encoder with sin/cos and RS485 interface and HIPERFACE® protocol	71 – 132L
/AV8H	-		71 – 132L
/EG7S[1)]	-	Add-on encoder with sin/cos interface	132M – 280M
/ES7S[1)]	-		80MS – 132S
/EV7S	-		80MS – 280M
/EH7S	-		315S – 315H
/ES7R	-	Add-on encoder with TTL(RS422) interface	80MS – 132S
/EG7R	-		132M – 280M
/EV7R	-		80MS – 280M
/EH7R	-		315S – 315H
/AS7W[1)]	-	Add-on absolute encoder with sin/cos and RS485 interface (multi-turn)	80MS – 132S
/AG7W[1)]	-		132M – 280M
/AV7W	-		80MS – 280M
/AS7Y[1)]	-	Add-on absolute encoder with sin/cos and SSI interface (multi-turn)	80MS – 132S
/AG7Y[1)]	-		132M – 280M
/AV7Y	-		80MS – 280M
/AH7Y	-		315S – 315H
/ES7C	-	Add-on encoder with HTL interface	80MS – 132S
/EG7C	-		132M – 280M
/EV7C	-		80MS – 280M
/EH7C	-		315S – 315H
/EH7T	-	Add-on encoder with TTL(RS422) interface	315S – 315H

1) Also available in functional safety design

3.2.6 Thermal monitoring

Nomenclature	HazLoc-NA®	Description	Size
/TF	X	Temperature sensor (PTC thermistor or PTC resistor)	63MS – 315H
/TH	-	Thermostat (bimetallic switch)	63MS – 315H
/PT	X	1 or 3 PT100 sensor(s)	63MS – 315H
/PK	X	1 or 3 PT1000 sensor(s)	63MS – 315H

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3.2.7 Plug connector

Nomenclature	HazLoc-NA®	Description	Size
/IS	-	Integrated plug connector with terminal block in terminal box cover	63MS – 132S
/ISU	-	Integrated plug connector without terminal block in terminal box cover	63MS – 132S
/AFL.	-	Round plug connector Molex/Amphenol, 4-pole power 7/8" (AFL8 housing Al), 3-pole brake connection 7/8", 3 ends, max. 25 A, BG/BGE/BSR/BUR brake	71M – 100L
/AFQ.	-	Round plug connector Molex/Amphenol, 4-pole power 1 3/8" (AFQ8 housing Al), 3-pole brake connection 7/8", 3 fixed ends, max. 25 A, BG/BGE/BSR/BUR brake	71M – 132S
/ASE.	-	Mounted Han® 10ES plug connector on terminal box with single locking latch (cage clamp contacts on the motor side)	63MS – 132S
/ASB.	-	Mounted Han® 10ES plug connector on terminal box with double locking latch (cage clamp contacts on the motor side)	63MS – 132S
/ACE.	-	Mounted Han® 10E plug connector on terminal box with single locking latch (crimp contacts on the motor side)	63MS – 132M
/ACB.	-	Mounted Han® 10E plug connector on terminal box with double locking latch (crimp contacts on the motor side)	71MS – 225M
/AME.	-	Mounted Han® Modular 10B plug connector on terminal box with single locking latch (crimp contacts on the motor side)	71MS – 225M
/ABE.	-		132M – 225M
/ADE.	-		63MS – 132M
/AKE.	-		71MS – 225M
/AMB.	-	Mounted Han® Modular 10B plug connector on terminal box with double locking latch (crimp contacts on the motor side)	71MS – 225M
/ABB.	-		132M – 225M
/ADB.	-		63MS – 132M
/AKB.	-		63MS – 225M
/AND.	-	Harting Han® Q8/0, single locking latch	63MS – 132S
/IV	-	Other industrial plug connectors according to customer specifications	63MS – 132S

3.2.8 Condition monitoring

Nomenclature	HazLoc-NA®	Description	Size
/DUE	-	Diagnostic Unit Eddy Current = function/wear monitoring for BE1 – BE122 brake	80M – 315H

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3.2.9 Ventilation

Nomenclature	HazLoc-NA®	Description	Size
None	X	Plastic fan guard	63MS – 90L
None	X	Steel fan guard	63MS – 315H
/LN	X	Noise-reducing fan guard	100L – 132S
/C	X	Canopy for fan guard	63MS – 315H
/V	-	Forced cooling fan	71MS – 315H
/AL	X	Aluminum fan	63MS – 315H
/Z	-	Additional inertia mass (flywheel fan)	63MS – 132L

3.2.10 Motor Bearings

Nomenclature	HazLoc-NA®	Description	Size
/NS	X	Grease nipples provided for lubrication	225S – 315H
/ERF	X	Reinforced bearings on A-side with rolling bearing	250M – 315H
/NIB	X	Insulated bearing B-side	200L – 315H

3.2.11 Hazardous location options

Nomenclature	HazLoc-NA®	Description
/CID2	X	Motors suitable for use in Class I, Division 2, Groups A, B, C & D Gas atmosphere
/CIID2	X	Motors suitable for use in Class II, Division 2, Groups F&G Dust atmosphere
/CICIID2	X	Motors suitable for use in Class I, Division 2, Groups A, B, C & D + Class II, Division 2, Groups F&G; gas or dust atmosphere

3.2.12 Other additional features

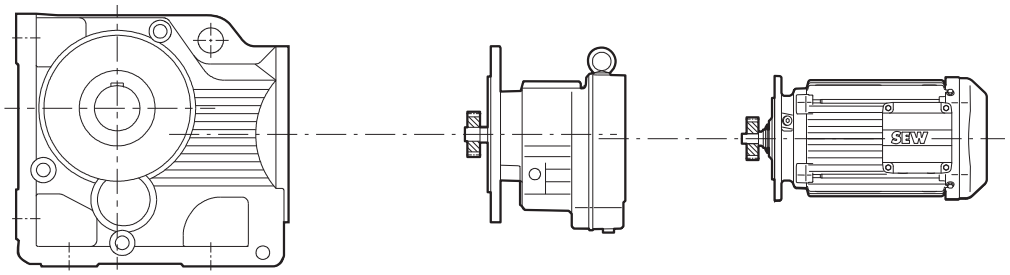
Nomenclature	HazLoc-NA®	Description	Size
/DH	-	Condensation drain hole	80M – 315H
/RI	X	Reinforced winding insulation	80M – 315H
/RI2	-	Reinforced winding insulation with increased resistance against partial discharge	112M – 315H
/2W	X	2nd shaft end on the motor/brakemotor	80M – 315H

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3.3 Model type example

The model type shown on the nameplate of the gearmotor is a combination of gear and motor components represented as letters and numbers, beginning at the output shaft. The following is an example of a compound helical-bevel gearmotor.

Example: K107R77DRN90L4 /TF		
Gear unit series	K	Gear unit - large
Gear unit size	107	
Gear unit series	R	Gear unit - small
Gear unit size	77	
Motor series	DRN..	Motor
Motor size	90L	
Number of poles	4	
Motor option temperature sensor	/TF	Motor Option



K107 R77 DRN90L4/TF

9007212622923531

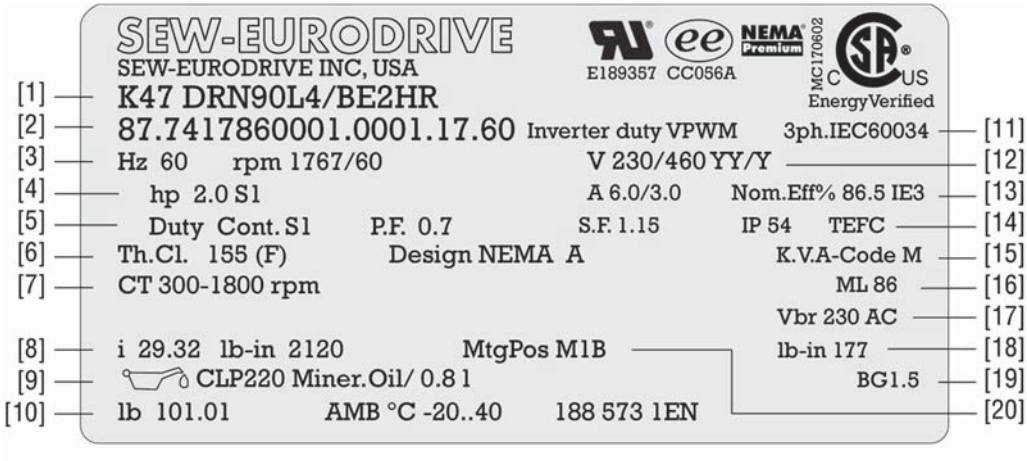
3.4 Serial number example

Example: 87.74178600 01. 0001. 17. 60	
87.	Sales organization / Country code (USA=87)
74178600	Order number (8 digits)
01.	Order line item
0001.	Specific unit ID (within batch of identical gearmotors)
17.	Year of manufacturing
60	Assembly facility (10=Lyman, SC; 50=Troy, OH; 60=Hayward, CA; 80=Dallas, TX; 90=Bridgeport, NJ)

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3.5 Nameplate example

The following is an example of a USA nameplate on a DRN.. gearmotor.



Nameplate_US

[1]	Model Type
[2]	Serial number
[3]	Frequency Motor speed / Output speed of gearmotor
[4]	Motor rated power (HP) / Duty type
[5]	Duty Type Power factor
[6]	Thermal class NEMA design
[7]	Constant torque speed range
[8]	Ratio Output torque
[9]	Oil type / volume (liters) based upon mounting position
[10]	Weight (lbs) Ambient temperature
[11]	Suitability for inverter operation Number of phases and performance standard
[12]	Nominal voltage and connection type
[13]	Full load amps Efficiency and energy efficiency class
[14]	Motor service factor according to NEMA Degree of protection according to IEC 60034-12 Motor enclosure type
[15]	KVA code according to NEMA MG1
[16]	Manufacturing location: 85=Troy, OH; 86=Hayward, CA; 87=Lyman, SC; 88=Dallas, TX; 89=Bridgeport, NJ
[17]	Nominal brake voltage
[18]	Braking torque
[19]	Brake control rectifier
[20]	Mounting position

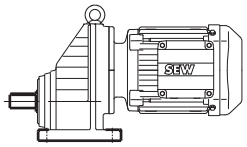
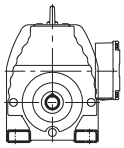
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3.6 Gearmotor types

INFORMATION

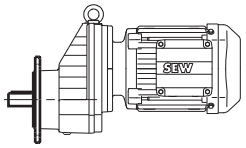
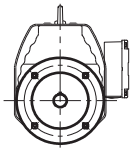
The options described in this chapter refer to gearmotors available from SEW-EURODRIVE. They also apply to gear units without motors.

3.6.1 Helical gearmotors

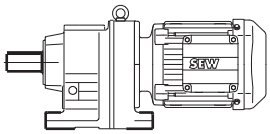
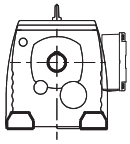
RX..DRN..

Helical gearmotor (single stage), foot-mounted

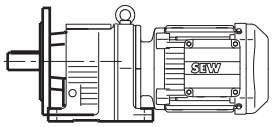
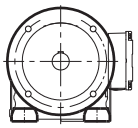
RXF..DRN..

Single-stage helical gearmotor with B5 flange

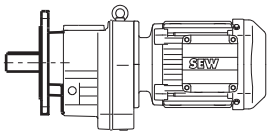
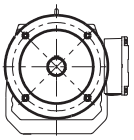
R..DRN..

Helical gearmotor, foot-mounted

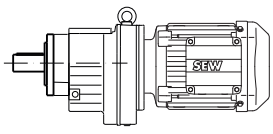
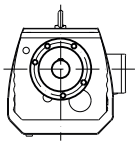
R..F DRN..

Helical gearmotor foot-mounted with B5 flange

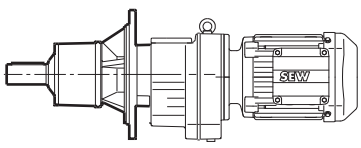
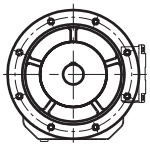
RF..DRN..

Helical gearmotor with B5 flange

RZ..DRN..

Helical gearmotor with B14 flange

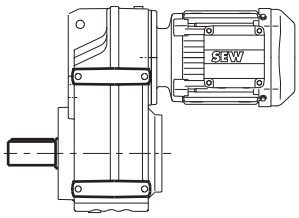
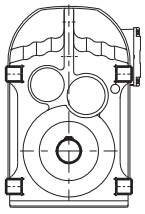



RM..DRN..

Helical gearmotor with B5 flange and extended bearing hub

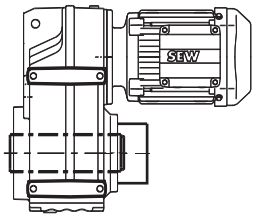
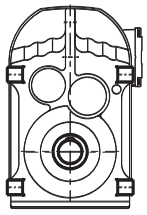
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3.6.2 theSnuggler® helical gearmotors

F..DRN..

theSnuggler® helical gearmotor with solid shaft and tapped rail holes for foot mounting

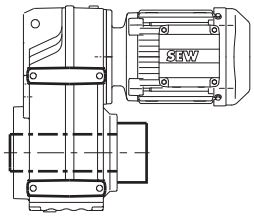
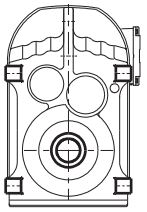



FA..B DRN..

theSnuggler® helical gearmotor with keyed hollow shaft and tapped rail holes for foot mounting

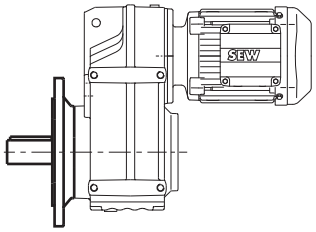
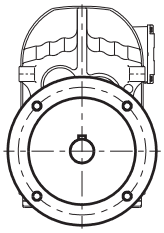
FV..B DRN..

theSnuggler® helical gearmotor with DIN 5480 splined hollow shaft and tapped rail holes for foot mounting

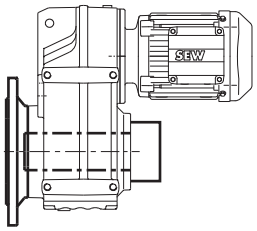
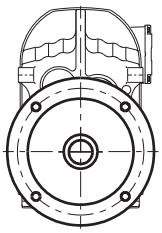
FH..B DRN..

theSnuggler® helical gearmotor with keyless hollow shaft, shrink disk, and tapped rail holes for foot mounting

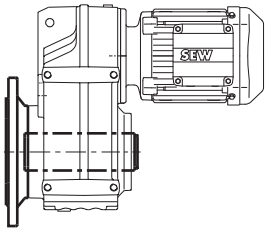
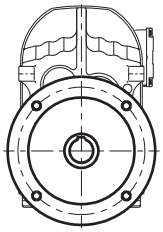
FF..DRN..

theSnuggler® helical gearmotor with B5 flange and solid shaft

FHF..DRN..

theSnuggler® helical gearmotor with B5 flange and keyless hollow shaft with shrink disk

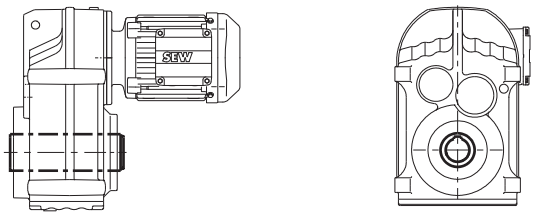
FAF..DRN..

theSnuggler® helical gearmotor with B5 flange and keyed hollow shaft

FVF..DRN..

theSnuggler® helical gearmotor with B5 flange and DIN 5480 splined hollow shaft

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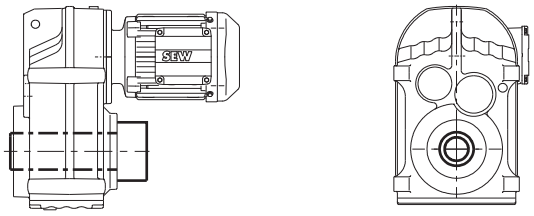


FA..DRN..

theSnuggler® helical gearmotor with keyed hollow shaft

FV..DRN..

theSnuggler® helical gearmotor with DIN 5480 splined hollow shaft

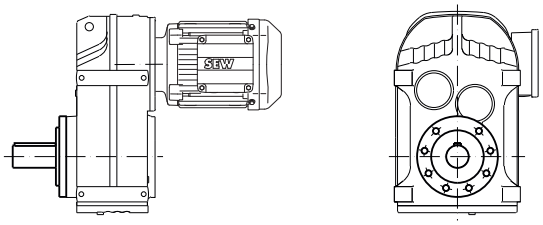


FH..DRN..

theSnuggler® helical gearmotor with keyless hollow shaft and shrink disk

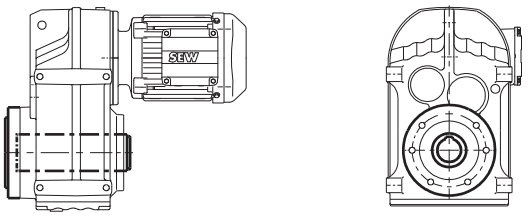
FT..DRN..

theSnuggler® helical gearmotor with keyless hollow shaft and TorqLOC® tapered bushing system



FZ..DRN..

theSnuggler® helical gearmotor with B14 flange (tapped holes) and solid shaft

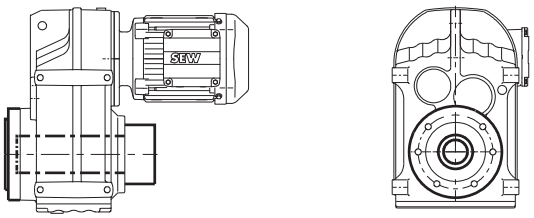


FAZ..DRN..

theSnuggler® helical gearmotor with B14 flange (tapped holes) and keyed hollow shaft

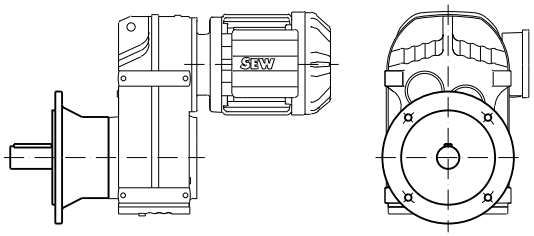
FVZ..DRN..

theSnuggler® helical gearmotor with B14 flange (tapped holes) and DIN 5480 splined hollow shaft



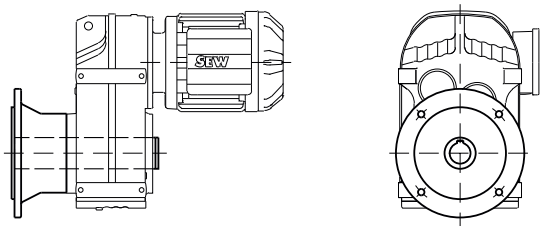
FHZ..DRN..

theSnuggler® helical gearmotor with B14 flange (tapped holes) and keyless hollow shaft with shrink disk



FM..DRN..

theSnuggler® helical gearmotor in B5 flange-mounted design with extended bearing hub and solid shaft for use with agitators and mixers

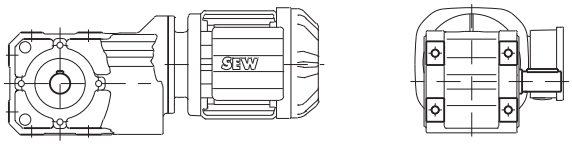


FAM..DRN..

theSnuggler® helical gearmotor in B5 flange-mounted design with extended bearing hub and keyed hollow shaft for use with agitators and mixers

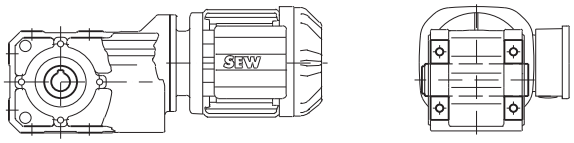
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3.6.3 Helical-bevel gearmotors sizes K..19 and K..29



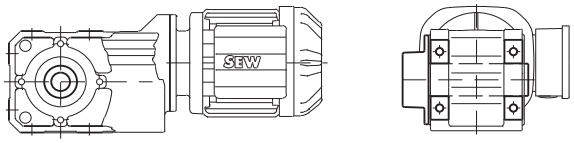
K19 DRN.., K29 DRN..

Helical-bevel gearmotor, foot-mounted with solid shaft



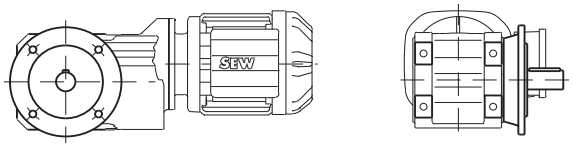
KA19B DRN.., KA29B DRN..

Helical-bevel gearmotor, foot-mounted with keyed hollow shaft



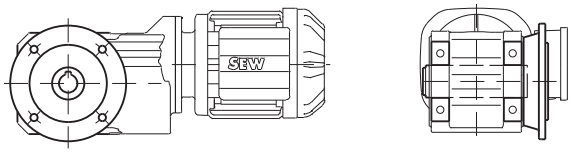
KH19B DRN.., KH29B DRN..

Helical-bevel gearmotor, foot-mounted with keyless hollow shaft and shrink disk



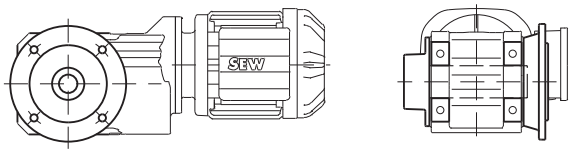
KF19B DRN.., KF29B DRN..

Helical-bevel gearmotor, foot-mounted with B5 flange and solid shaft



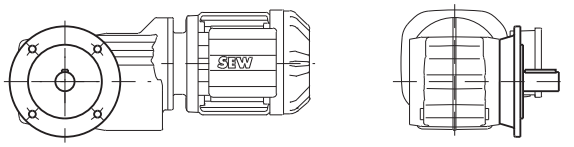
KAF19B DRN.., KAF29B DRN..

Helical-bevel gearmotor, foot-mounted with B5 flange and keyed hollow shaft



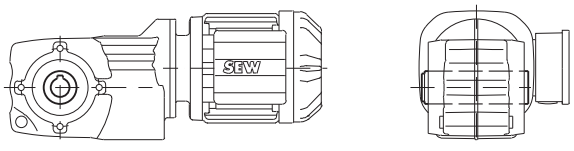
KHF19B DRN.., KHF29B DRN..

Helical-bevel gearmotor, foot-mounted with B5 flange, keyless hollow shaft and shrink disk



KF19 DRN.., KF29 DRN..

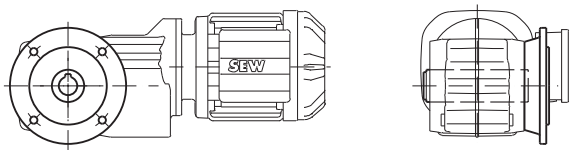
Helical-bevel gearmotor with B5 flange and solid shaft



KA19 DRN.., KA29 DRN..

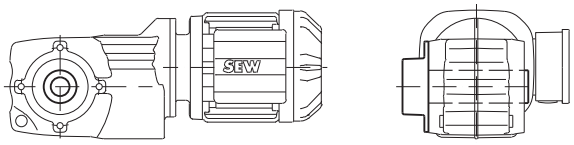
Helical-bevel gearmotor with keyed hollow shaft

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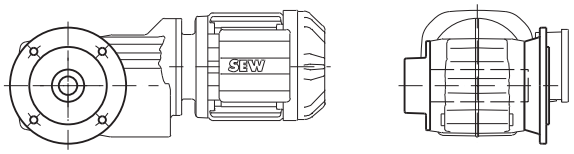
KAF19 DRN.., KAF29 DRN..

Helical-bevel gearmotor with B5 flange and keyed hollow shaft



KH19 DRN.., KH29 DRN..

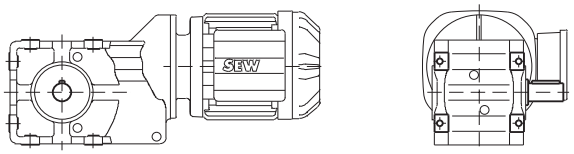
Helical-bevel gearmotor with keyless hollow shaft and shrink disk



KHF19 DRN.., KHF29 DRN..

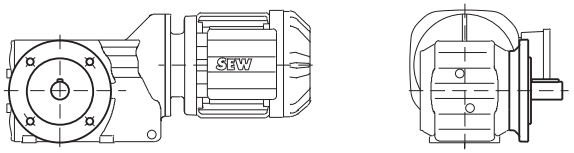
Helical-bevel gearmotor with B5 flange and keyless hollow shaft with shrink disk

3.6.4 Helical-bevel gearmotors, sizes K..39 and K..49



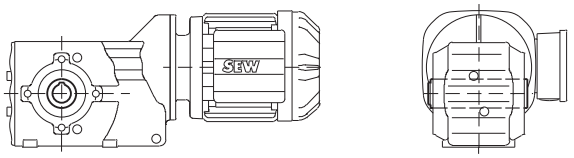
K39 DRN.., K49 DRN..

Helical-bevel gearmotor, foot-mounted with solid shaft



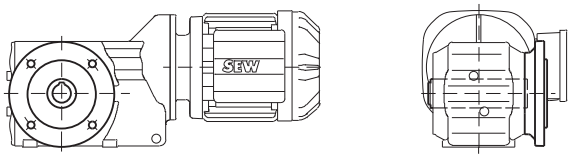
KF39 DRN.., KF49 DRN..

Helical-bevel gearmotor with B5 flange and solid shaft



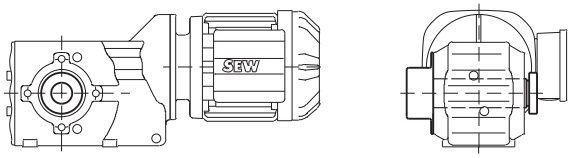
KA39 DRN.., KA49 DRN..

Helical-bevel gearmotor with keyed hollow shaft



KAF39 DRN.., KAF49 DRN..

Helical-bevel gearmotor with B5 flange and keyed hollow shaft



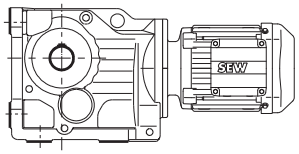
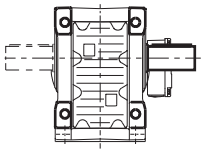
KT39 DRN.., KT49 DRN..

Helical-bevel gearmotor with keyless hollow shaft and TorqLOC® taper bushing system

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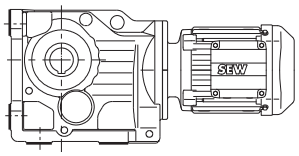
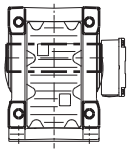
3.6.5 Helical-bevel gearmotors, sizes K..7

:

K..7 DRN..

Helical-bevel gearmotor, foot-mounted with solid shaft

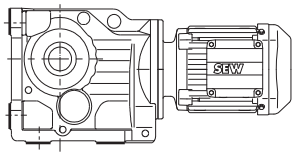
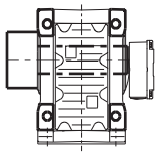



KA..7B DRN..

Helical-bevel gearmotor, foot-mounted with keyed hollow shaft

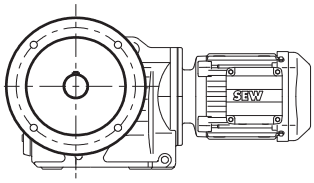
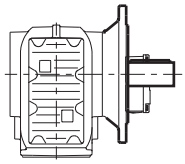
KV..7B DRN..

Helical-bevel gearmotor, foot-mounted with DIN 5480 splined hollow shaft

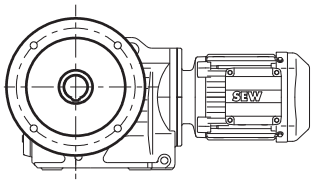
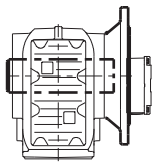
KH..7B DRN..

Helical-bevel gearmotor, foot-mounted with keyless hollow shaft and shrink disk

KF..7 DRN..

Helical-bevel gearmotor with B5 flange and solid shaft

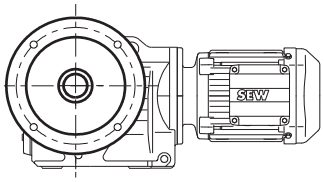
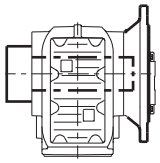



KAF..7 DRN..

Helical-bevel gearmotor with B5 flange and keyed hollow shaft

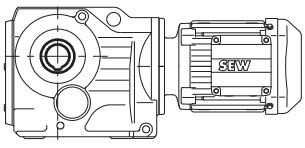
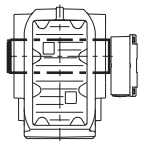
KVF..7 DRN..

Helical-bevel gearmotor with B5 flange and DIN 5480 splined hollow shaft

KHF..7 DRN..

Helical-bevel gearmotor with B5 flange with keyless hollow shaft and shrink disk

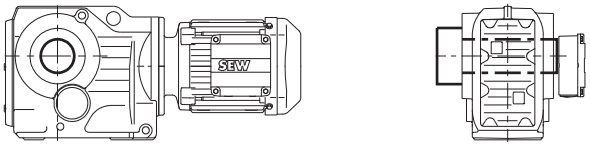
KA..7 DRN..

Helical-bevel gearmotor with keyed hollow shaft

KV..7 DRN..

Helical-bevel gearmotor with DIN 5480 splined hollow shaft

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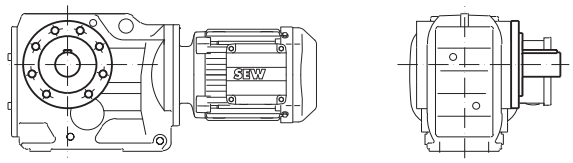


KH..7 DRN..

Helical-bevel gearmotor with keyless hollow shaft and shrink disk

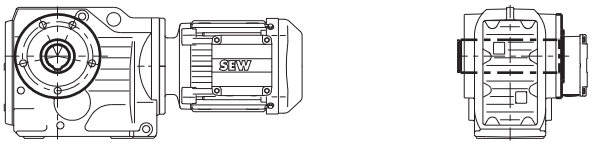
KT..7 DRN..

Helical-bevel gearmotor with keyless hollow shaft and TorqLOC® tapered bushing system



KZ..7 DRN..

Helical-bevel gearmotor with B14 flange (tapped holes)

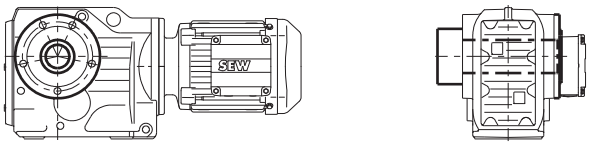


KAZ..7 DRN..

Helical-bevel gearmotor with B14 flange (tapped holes) and keyed hollow shaft

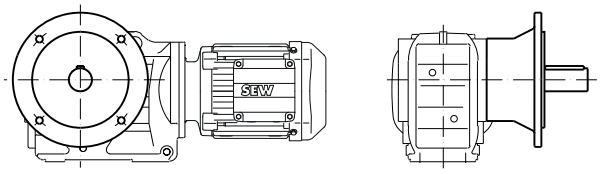
KVZ..7 DRN..

Helical-bevel gearmotor with B14 flange (tapped holes) with DIN 5480 splined hollow shaft



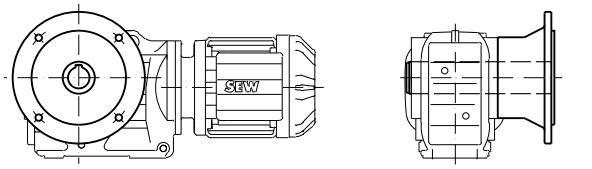
KHZ..7 DRN..

Helical-bevel gearmotor with B14 flange (tapped holes) with keyless hollow shaft and shrink disk



KM..7 DRN..

Helical-bevel gearmotor in B5 flange-mounted design with extended bearing hub and solid shaft for use with agitators and mixers

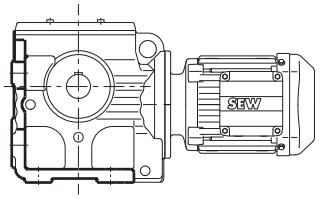
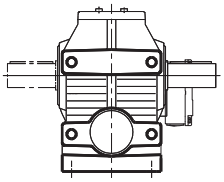


KAM..7 DRN..

Helical-bevel gearmotor in B5 flange-mounted design with extended bearing hub and keyed hollow shaft for use with agitators and mixers

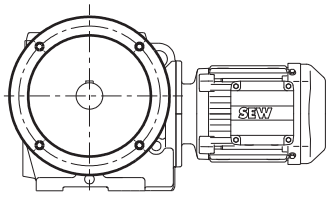
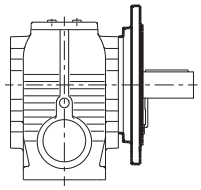
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3.6.6 Helical-worm gearmotors

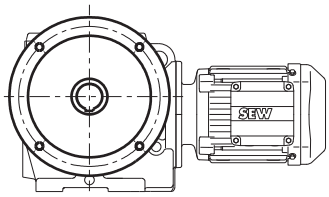
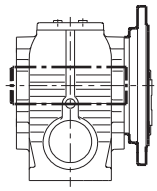
S..DRN..

Helical-worm gearmotor, foot-mounted with solid shaft

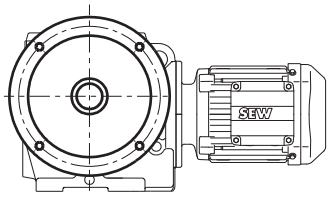
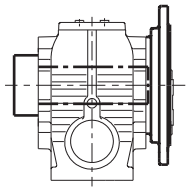
SF..DRN..

Helical-worm gearmotor with B5 flange and solid shaft

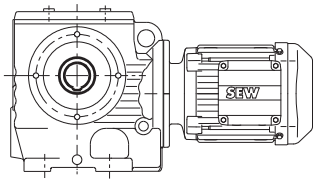
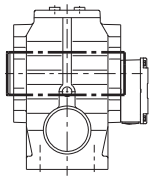
SAF..DRN..

Helical-worm gearmotor with B5 flange and keyed hollow shaft

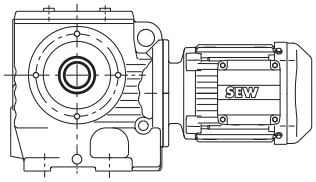
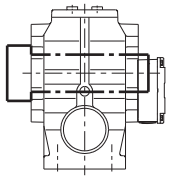
SHF..DRN..

Helical-worm gearmotor with B5 flange and keyless hollow shaft with shrink disk

SA..DRN..

Helical-worm gearmotor with keyed hollow shaft

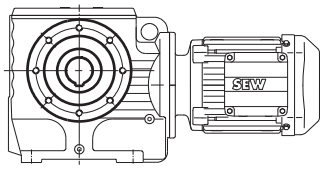
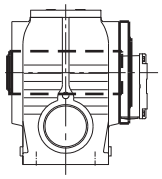
SH..DRN..

Helical-worm gearmotor with keyless hollow shaft and shrink disk

ST..DRN..

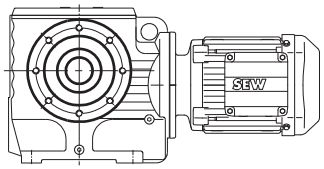
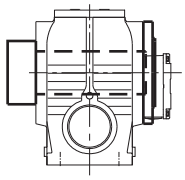
Helical-worm gearmotor with keyless hollow shaft and TorqLOC® taper bushing system

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SAZ..DRN..

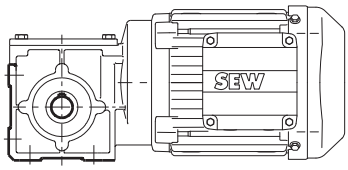
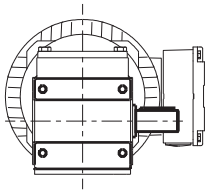
Helical-worm gearmotor with B14 flange (tapped holes) and keyed hollow shaft

SHZ..DRN..

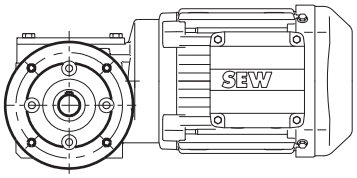
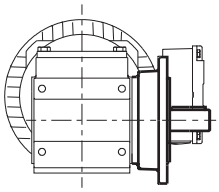
Helical-worm gearmotor with B14 flange and keyless hollow shaft with shrink disk

3.6.7 SPIROPLAN® gearmotors, sizes W..10, W..20, W..30

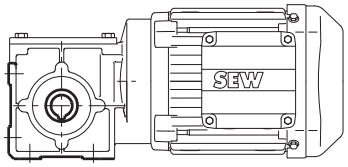
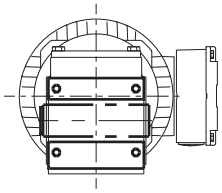
W10 DRN.., W20 DRN.., W30 DRN..,

SPIROPLAN® gearmotor, foot-mounted with solid shaft

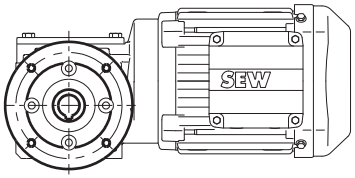
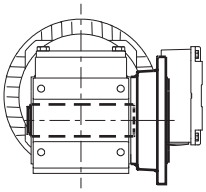
WF10 DRN.., WF20 DRN.., WF30 DRN..

SPIROPLAN® gearmotor with B5 flange and solid shaft

WA10 DRN.., WA20 DRN.., WA30 DRN..

SPIROPLAN® gearmotor with keyed hollow shaft

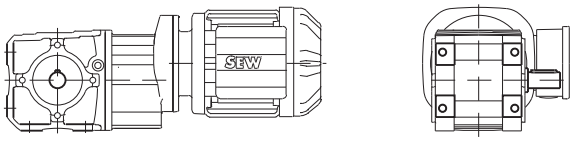



WAF10 DRN.., WAF20 DRN.., WAF30 DRN..

SPIROPLAN® gearmotor with B5 flange and keyed hollow shaft

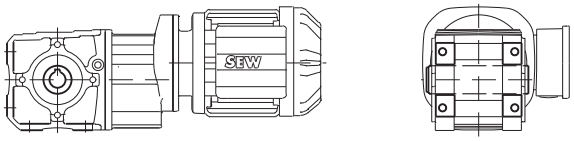
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3.6.8 SPIROPLAN® gearmotors, sizes W..37 and W..47



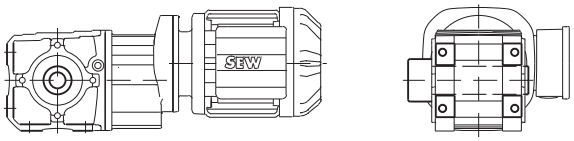
W37 DRN.., W47 DRN..

SPIROPLAN® gearmotor, foot-mounted with solid shaft



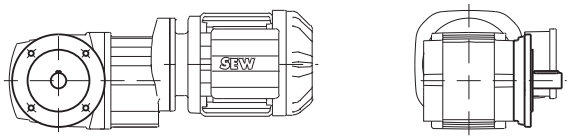
WA37B DRN.., WA47B DRN..

SPIROPLAN® gearmotor, foot-mounted with keyed hollow shaft



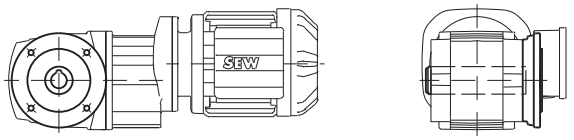
WH37B DRN.., WH47B DRN..

SPIROPLAN® gearmotor, foot-mounted with keyless hollow shaft and shrink disk



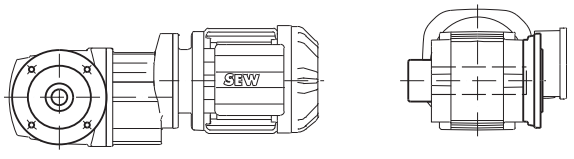
WF37 DRN.., WF47 DRN..

SPIROPLAN® gearmotor with B5 flange and solid shaft



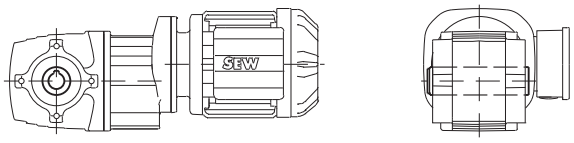
WAF37 DRN.., WAF47 DRN..

SPIROPLAN® gearmotor with B5 flange and keyed hollow shaft



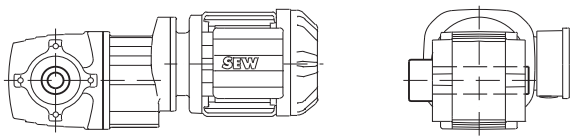
WHF37 DRN.., WHF47 DRN..

SPIROPLAN® gearmotor with B5 flange and keyless hollow shaft with shrink disk



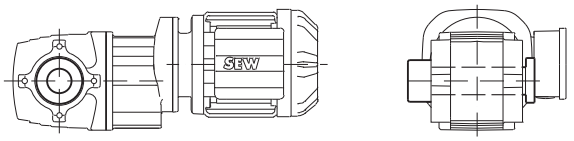
WA37 DRN.., WA47 DRN..

SPIROPLAN® gearmotor with keyed hollow shaft



WH37 DRN.., WH47 DRN..

SPIROPLAN® gearmotor with keyless hollow shaft and shrink disk



WT37 DRN.., WT47 DRN..

SPIROPLAN® gearmotor with keyless hollow shaft and TorqLOC® tapered bushing system

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4 Project planning for drives

4.1 Additional publications

For more details on the subject of project planning for drives, visit the documentation section of the SEW-EURODRIVE website where you can download the following publications of the "Drive Engineering – Practical Implementation" series:

- Project Planning for Drives.
  This industry-leading publication is a must for engineers! It provides a comprehensive collection of all important formulas needed for the most frequently used applications – with or without an inverter. Download “Project Planning for Drives” by scanning the bar code below, or from one of the following links:

  → https://download.sew-eurodrive.com/download/pdf/10522913.pdf

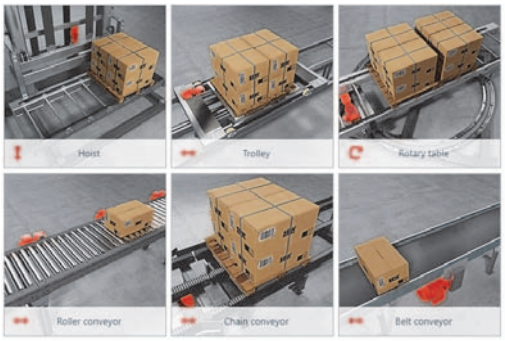
- EMC in Drive Engineering – Basic Theoretical Principles and EMC-Compliant Installation in Practice
- Efficient Plant Automation with Mechatronic Drive Solutions
- SEW encoder systems
- Servo Technology

INFORMATION

Online assistance for conveyors, hoists, and travel drives is available through SEW-EURODRIVE’s online calculator.

Simply enter your application parameters and let SEW-EURODRIVE do all of the work to select a drive.

→www.seweurodrive.com/calculator



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4.2 Application data required

The following application data is required for project planning:

Abbreviation	Meaning	Unit
n_{a_min}	Minimum output speed	rpm
n_{a_max}	Maximum output speed	rpm
P_a at n_{a_min}	Output power at minimum output speed	HP
P_a at n_{a_max}	Output power at maximum output speed	HP
T_a at n_{a_min}	Output torque at minimum output speed	lb-in
T_a at n_{a_max}	Output torque at maximum output speed	lb-in
F_A	Axial load (tension and compression) on the output shaft	lb
F_R	Overhung loads acting on the output shaft	lb
J_{load}	Mass moment of inertia of the load to be driven	lb-ft^2
R, F, K, S, W	Required gear unit type	-
f_B	Service factor	-
M1 – M6	Mounting position (→ 🗎 68)	-
IP..	Required degree of protection for motor	-
$\vartheta_{ambient}$	Ambient temperature	°C
H	Installation altitude	feet above sea level
S.., ..% cdf	Duty type and cyclic duration factor (cdf), or exact load cycle	-
Z	Starting frequency (or exact load cycle)	per hour
f_{line}	Line frequency	Hz
V_{Mot}	Operating voltage of the motor	V
V_{brake}	Operating voltage of the brake	V
T_B	Required braking torque	lb-in
Control mode	For inverter operation only (CFC, VFC, supercharge, etc)	Hz
Hz range	For inverter operation only	Hz

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4.3 Project planning procedure

4.3.1 Drive selection – non-controlled operation (without inverter)

The following flow diagram illustrates the project planning procedure for a non-controlled drive (without inverter). The gearmotor receives constant voltage “across-the-line”.

Required information about the application
- Technical data and environmental conditions
- Stopping accuracy
- Output speed
- Starting acceleration and deceleration
- Cyclic duration factor and starting frequency

↓

Calculation of the application data
- Static and dynamic power
- Speeds
- Torques, power ratings
- Travel diagram, if required
- Service factor, f_B

↓

Motor selection
- Torque/power/speed (number of poles)
- Acceleration torque/starting torque
- Switching frequency
- Energy efficiency class IE
- Mechanical brake (braking work, braking torque, brake service life)
- Motor equipment (brake, plug connector, thermal motor protection, etc.)

↓

Gear unit selection
- Gear unit type, size
- Gear ratio
- Position accuracy (verify)
- Service factor, f_B

↓

Make sure that all requirements have been met.

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4.3.2 Drive selection – controlled operation (with inverter)

The following flow diagram illustrates the project planning procedure for a drive controlled by an inverter.

Required information about the application
- Technical data and ambient conditions
- Positioning accuracy
- Speed setting range

↓

Calculation of the application data
- Travel diagram
- Speeds
- Static, dynamic torques
- Regenerative power

↓

Gear unit selection
- Gear unit type, size, ratio
- Check the positioning accuracy
- Gear unit torque capacity must exceed load torque ($T_{a\,max} \geq T_a$)
- Check the input speed (churning losses)

↓

Motor selection
- Maximum torque
- With dynamic drives: effective torque at medium speed
- Maximum speed
- Dynamic and thermal torque curves
- Motor equipment (encoder, brake, plug connector, thermistors, etc.)

↓

Inverter selection
- Motor/inverter assignment
- Continuous current and peak current for current-controlled inverters/axes

↓

Braking resistor selection
- Based on the calculated regenerative power, cdf and peak braking power

↓

Options
- EMC measures
- Operation/communication
- Additional functions

↓

Make sure that all requirements have been met.

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4.4 Gear efficiency and thermal losses

The efficiency of gear units is determined by the gearing and bearing friction as well as churning losses. Keep in mind that the starting efficiency of a gear unit is always less than its efficiency at operating speed. This applies in particular to helical-worm and SPIROPLAN® right-angle gear units. Gear units are listed below from highest to lowest efficiency.

4.4.1 R, F, and K

The helical (R), theSnuggler® (F), and helical-bevel (K) gear units (excluding K19, K29, K39, K49) contain 100% rolling friction and the highest efficiency. As a general rule, efficiency loss is 1.5% per gear stage. Therefore, efficiency is approximately 96% (3-stage), 97% (2-stage) and 98% (1-stage).

4.4.2 K..19 – K..49

These right-angle units contain 2-stage hypoid gearing that combines rolling friction with minor sliding friction. Their efficiency ranges from 90% to 96%, depending on the ratio. Current sizes include K19, K29, K39, and K49.

4.4.3 W-SPIROPLAN®

The SPIROPLAN® gear units (W-series) combine rolling friction with some sliding friction, similar to hypoid gearing. The sliding friction induces some loss and an efficiency that is lower than R, F, and K, but higher than helical-worm (S-series).

The SPIROPLAN® sizes W37 and W47 contain a helical input stage. Therefore, they have the highest efficiency of all of the SPIROPLAN (>90%), dropping only slightly for larger ratios.

The efficiency depends on the following factors:

- Gear ratio
- Input speed
- Ambient temperature

4.4.4 S-series

The helical-worm (S-series) gear units contain a first stage helical gear set and a second stage worm set. Various degrees of sliding friction occur in the worm set, depending on the number of “starts” on the worm gear. Therefore, these gears have higher losses and lower efficiency than other SEW-EURODRIVE gear units. However, they are still significantly more efficient than single-stage worm gears units that are commonly used in the industry.

The efficiency depends on the following factors:

- Gear ratio due to number of starts on worm gear. The efficiency may reach $\eta < 0.5$ if the helical-worm gear stage has a very high ratio.
- Input speed (Ex: See how efficiency changes (→ 🗎 807) based on input speed)
- Ambient temperature

4.4.5 Self-locking

Backdriving torque in helical-worm or SPIROPLAN® gear units produces an efficiency of $\eta' = 2 - 1/\eta$, which is significantly less favorable than the forward efficiency, η. The helical-worm or SPIROPLAN® gear unit is self-locking if the forward efficiency is ≤ 0.5. Some SPIROPLAN® gear units are also dynamically self-locking. Contact SEW-EURODRIVE if you want to make technical use of the braking effect of self-locking characteristics.

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INFORMATION

The self-locking effect of helical-worm and SPIROPLAN® gear units should not be used as the sole safety function for hoists.

4.4.6 Run-in phase

When gears are initially manufactured, the tooth flanks of helical-worm and SPIROPLAN® gear units are not 100% smooth. They require a run-in period in order to achieve their maximum polish. Therefore, there is a greater friction angle and less efficiency during initial operation. This effect intensifies with higher gear ratios.

To determine the startup efficiency, subtract the following values from the listed efficiency.

	Worm (S-series)	
	Ratio Range	η reduction
1-start	approx. 50 – 280	approx. 12%
2-start	approx. 20 – 75	approx. 6%
3-start	approx. 20 – 90	approx. 3%
5-start	approx. 6 – 25	approx. 3%
6 start	approx. 7 – 25	approx. 2%

SPIROPLAN® W10 to W30		SPIROPLAN® W37 and W47	
Ratio range	η reduction	Ratio range	η reduction
approx. 35 – 75	approx. 15%	-	-
approx. 20 – 35	approx. 10%	-	-
approx. 10 – 20	approx. 8%	approx. 30 – 70	approx. 8%
approx. 8	approx. 5%	approx. 10 – 30	approx. 5%
approx. 6	approx. 3%	approx. 3 – 10	approx. 3%

The run-in phase usually lasts 48 hours. The following conditions must be met for helical-worm and SPIROPLAN® gear units to achieve their nominal efficiency ratings:

- The gear unit has been completely run-in.
- The gear unit has reached nominal operating temperature.
- The recommended lubricant has been used.
- The gear unit is operating in the nominal load range.

4.4.7 Thermal (churning) losses

In certain gear unit mounting positions, the first gearing stage is completely immersed in the lubricant. When the circumferential velocity of the input gear stage is high, considerable churning losses occur, especially in larger gear units (> size 87) or with input speeds > 1750 rpm. As a result, the gear unit may have a reduced input HP rating. Substituting synthetic oil and FKM seals often permits a higher operating temperature and increases the HP rating.

To keep churning losses to a minimum, use gear units in M1 mounting position.

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4.5 Inertias

In order to determine the proper service factor, inertias must be known.

The inertia acceleration factor, ***IAF***, is the ratio between the system (load) inertias and the motor inertia. It is an important factor that determines system stability and gear unit service factor. It is calculated at the motor shaft, as follows.

Inertia Acceleration Factor
$IAF = \frac{J_{gear} + J_{apt} + J_x}{J_{Mot} + J_z}$

J_{gear} = Inertia of gear unit (ratio dependent)
J_{apt} = Inertia of input motor adapter, if applicable
J_x = Inertia of all load components, reflected to the motor shaft
J_{Mot} = J_{Mot} for inertia of motor without brake
= J_{BMot} for inertia of motor with brake
J_z = Inertia of the cast iron flywheel fan (Z-fan) on motor, if applicable. Not available on HazLoc-NA® motors.

The values for J_{Mot}, J_{BMot}, and J_z are available in the motor section (→ 🖹 928). Both J_{gear} and J_{apt} are often negligible on smaller gear units.

Use the application formula below to calculate J_x.

Linear Motion (Conveyor, Travel Drive, Hoist)	Rotational Motion (Turntable, Solid Cylinder)
$J_x = \frac{W_T}{39.5} \times \left(\frac{V_{Max}}{n_m}\right)^2$	$J_x = \frac{W_T}{2} \times \left(\frac{D}{24}\right)^2 \times \left(\frac{n_t}{n_m}\right)^2$

W_T = Total weight (lbs)
V_{Max} = Maximum velocity (feet per minute)
D = Diameter of turntable or cylinder (in)
n_t = Turntable speed (rpm)
n_m = Motor full-load speed (rpm)

4.6 Load classification

There are three load classifications, based upon the inertia acceleration factor:

Load Class	Type	IAF
(I)	Uniform	IAF ≤ 0.2
(II)	Moderate Shock	0.2 < IAF ≤ 3.0
(III)	Heavy Shock	3.0 < IAF ≤ 10

Contact SEW-EURODRIVE for inertia acceleration factor >10.

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4.7 Service factor

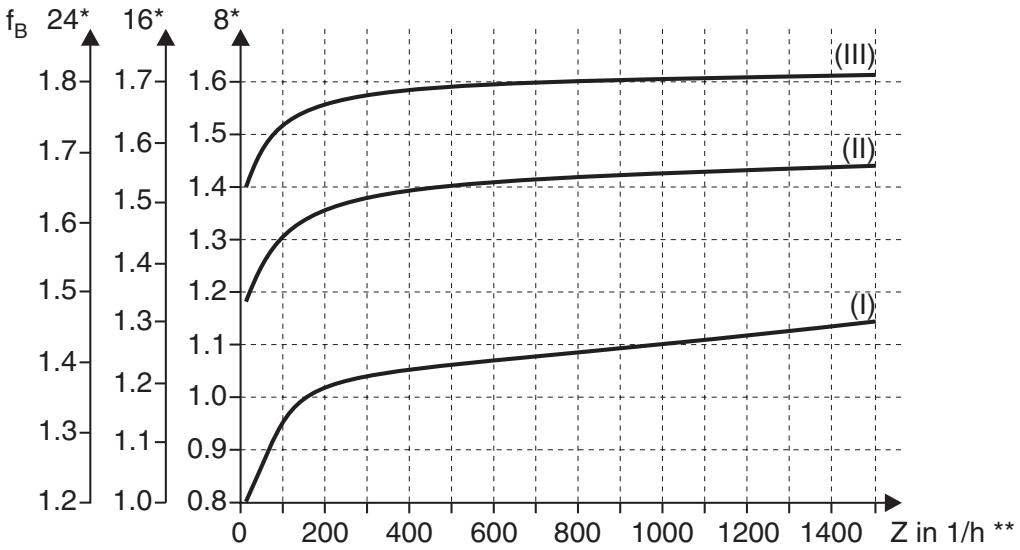
The load from the driven machine imposes a shock onto the gear unit. The degree of shock depends upon the load inertia, motor inertia, daily operating time, and starting frequency. The SEW service factor, f_B, considers all of these variables.

Since the method for determining the maximum output torque rating can vary among gear manufacturers, the required SEW service factor applies to SEW gear units. As such, this service factor may differ from an AGMA service factor or the service factor from another manufacturer. However, even when f_B=1.0, the SEW gear unit contains a high level of safety and reliability in the fatigue strength range.

Service factor is determined from the figure below, using the load classifications I, II, III as defined on the previous page. For proper project planning, the maximum permissible output torque of the gear unit, T_{aMax}, must be greater than the load torque multiplied by the SEW service factor, f_B, as shown in the following equation.

$$T_{aMax} \geq (T_a \times f_B)$$

T_a = load torque
T_{aMax} = maximum permissible output torque from gear unit tables
f_B = SEW service factor



* Daily operating time in hours/day

** Starting frequency Z, is the sum of all load changes within one hour, which includes all instances of starting, braking, and speed changes.

Example: In one hour, a 2-speed motor starts 50 times, switches from low to high speed 50 times, switches from high to low speed 50 times, and stops 50 times. In this case Z=200.

I, II, III Load classification (→ 🗎 47)

Service factors f_B > 1.8 may occur with large mass acceleration factors (> 10), high levels of backlash in the transmission elements, or large overhung loads. Contact SEW-EURODRIVE for these applications.

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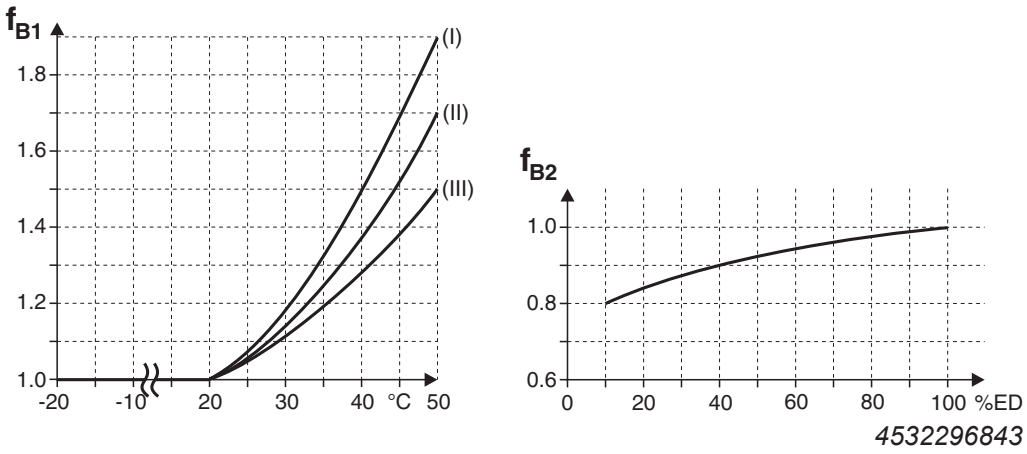
4.7.1 Helical-worm gear unit

For helical-worm gear units (S-series), two additional service factors, f_{B1} and f_{B2}, are required.

- f_{B1} = Service factor from ambient temperature and load classification (→ 🗎 47). Contact SEW-EURODRIVE if the temperature < -20°C (-4° F)
- f_{B2} = Service factor from cyclic duration factor, ED, which is the amount of time the motor is operating compared to the time that it is resting, as figured below.

$$\%ED = \frac{Time\ under\ load\ in\ min/hr}{60} \times 100$$

f_{B1} and f_{B2} are obtained from the figures below.



Therefore, the total service factor for a helical-worm gear unit becomes:

$$F_{Btot} = (f_B \times f_{B1} \times f_{B2})$$

f_{Btot}	=	Total service factor
f_B	=	SEW service factor
f_{B1}	=	Service factor from ambient temperature
f_{B2}	=	Service factor from cyclic duration factor

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4.7.2 Example #1

- Inertia acceleration factor = 2.5
- 14 hours/day operation
- 300 load changes/hour
- K-series gear unit required
- Load torque = 6800 lb-in
- Ratio = 30:1

Using the load classification table (→ 🗎 47), when IAF = 2.5, then

Load class = II

From service factor figure (→ 🗎 48): 14 hours/day rounds to 16. Using the column for 16 hours/day along with Load class = II,

$f_B = 1.5$

Therefore, the K-series gear unit must have a torque rating where,

T_{aMax} > (load torque x 1.5)

T_{aMax} > (6800 x 1.5)

T_{aMax} > 10,200 lb-in

Solution: K77, 30.89:1, has T_{aMax} = 13,700 lb-in, which is sufficient (→ 🗎 541).

4.7.3 Example #2

Change Example #1 to use a helical-worm gear unit with additional conditions below.

- Ambient temperature = 40°C
- Time under load = 40 min per hour

From Example #1 results, Load class = II, $f_B = 1.5$.

Calculate %ED,

ED = 40/60 = 66.7%

Using the charts for FB1 and FB2 (→ 🗎 49) ,

$f_{B1} = 1.40$

$f_{B2} = 0.95$

Therefore,

$f_{Btot} = 1.5 \times 1.40 \times 0.95 = 2.0$

And,

T_{aMax} > (load torque x 2)

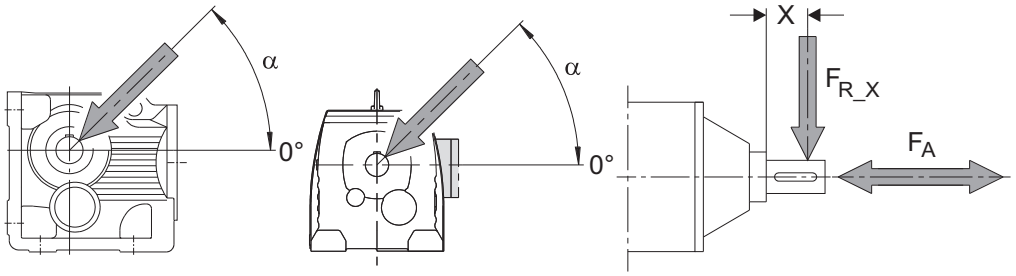
T_{aMax} > (6800 x 2) = 13,600 lb-in

Solution: S87, 31.43:1, has T_{aMax} = 14,100 lb-in, which is sufficient (→ 🗎 747).

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4.8 Overhung and axial loads

Overhung and axial loads are defined by the following figure.



F_{R_X} = Allowable overhung load at point x in lbs

F_A = Allowable axial load in lbs

α = Angle of force (side A)

4.8.1 Calculating overhung load

The type of transmission component that is mounted onto the output shaft has a direct impact on the overhung load. Some components impart higher forces than others, as shown by the transmission factor, f_Z, in the following table.

Component	Transmission factor, f_Z	Comments
Gears	1.15	< 17 teeth
Sprockets	1.40	< 13 teeth
Sprockets	1.25	< 20 teeth
Narrow V-belt pulleys	1.75	Due to pretension force
Flat belt pulleys	2.50	Due to pretension force
Timing or toothed belt pulleys	2.0 – 2.50	Due to pretension force
Gear rack pinion, normal mesh	1.00	
Gear rack pinion, tightly meshed	2.00	Tightly meshed gears increase pretension force

The overhung load force exerted on the gear unit shaft is calculated as follows:

$$F_R = \frac{2 \times T}{d_0} \times f_Z$$

F_R = Overhung load (lbs)

T = Load Torque (lb-in)

d_0 = Diameter of gear, sprocket, or pulley (in)

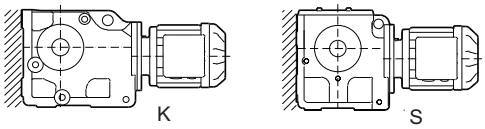
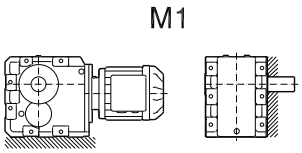
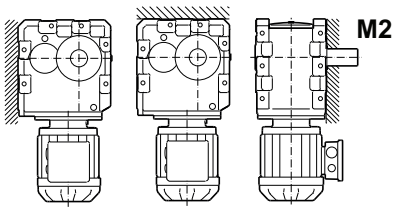
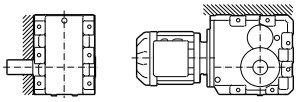
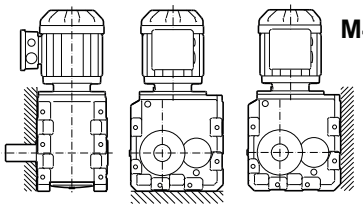
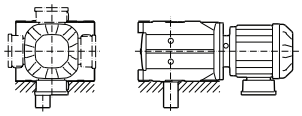
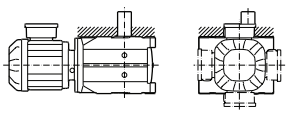
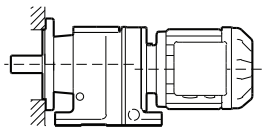
f_Z = Transmission factor

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4.8.2 Allowable overhung load, F_{Ra}

The following is important information regarding the overhung load value, F_{Ra}, that is shown in the rating tables of this catalog:

- F_{Ra} is calculated from the rated bearing service life L_{10h} (according to ISO 281).
- F_{Ra} is the allowable force that can be applied at the **center** of a **solid** output shaft with standard length. For allowable overhung load values of a hollow shaft gear unit, please contact SEW-EURODRIVE.
- For right-angle gear units, the angle of force, α, is viewed by looking into side A.
- Both the direction of rotation and the angle of force impact the allowable overhung load. The F_{Ra} values shown in the catalog are based upon the most **unfavorable** conditions (worst case scenario).
- In certain situations, the allowable overhung load (OHL) is not equal to F_{Ra} and must be limited, as shown below.

Mounting Surface	Gear Units	Mtg Pos	Restriction
M1 	K37 – K157 S37 – S97	M1	When mounting via vertical shaded feet OHL = **50%** x F_{Ra}
M1  M2 	K167 K187	M1 M2 M3 M4	When mounting via shaded feet, OHL = 100% x F_{Ra} When mounting via feet that are not shaded, OHL = **50%** x F_{Ra}
M3  M4 			
M5  M6 	K167 K187	M5 M6	When mounting via shaded feet, OHL = 100% x F_{Ra} Contact SEW for all other
	R07F – R87F	ALL	For all foot/flange units mounted via the flange, OHL = **50%** x F_{Ra}

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4.8.3 Allowable axial force, F_A

If there is no overhung load present, then the allowable axial force, F_A (tension or compression), is equal to **50%** of the value shown for F_{Ra} in the selection tables.

This condition applies to the following gearmotors:

- Helical gearmotors except for R..137 to R..167.
- Parallel shaft and helical-bevel gearmotors with solid shaft except for F97.
- Helical-worm gearmotors with solid shaft

INFORMATION

Contact SEW-EURODRIVE for all other types of gear units or when there is a combination of overhung load and axial forces.

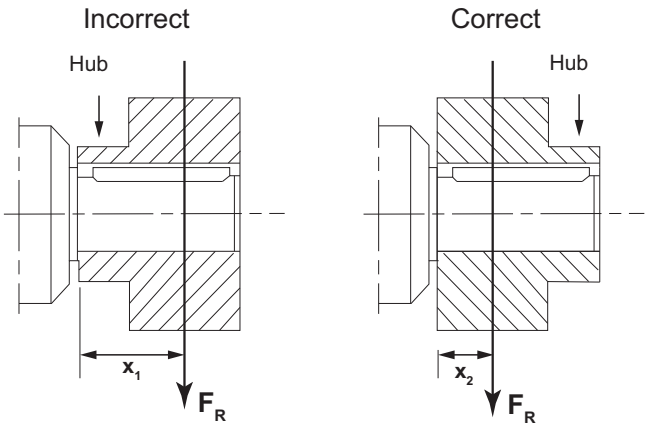
4.8.4 Increasing overhung load capacity

The allowable overhung values shown in the catalog are based upon the worst case angle and direction of rotation. If the actual angle of force is more favorable, there is normally an increase in the allowable overhung load.

Furthermore, if heavy duty bearings are used, especially with R, F and K gear units, higher overhung and axial load forces are allowed.

For either case above, contact SEW-EURODRIVE.

Also, when installing components onto the output shaft, such as sprockets and pulleys, position the component as close to the gear unit housing as possible. For components with a hub, position the hub away from the gear unit so that the force acting through the belt or chain is closest to the gear unit. In the example below, placing the hub in the correct location moves the overhung load force, F_R, closer to the gear unit such that $x_2 < x_1$.



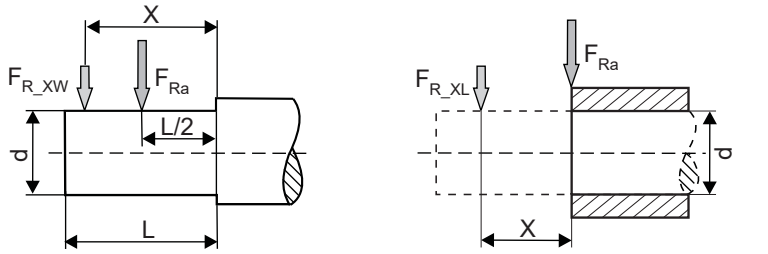
HUB_OHL

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4.8.5 Overhung load conversion

When the overhung load force is not applied at the midpoint of the output shaft, the following formulas should be used on R, F, K, S, W units to determine two overhung load values; F_{R_XL} for bearing life, and F_{R_XW} for shaft strength. The allowable overhung load is the **smaller of the two values of F_{R_XL} and F_{R_XW}**.

For RM units, an additional value for flange strength, F_{R_XF}, is required.



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F_{R_XW}, based upon shaft strength (excludes RM units):

$$F_{R_XW} = \frac{c \times 10^3}{f + x} \quad [lb]$$

F_{R_XF}, based upon flange tensile strength (RM units only):

$$F_{R_XF} = \frac{c_F}{F_F + x} \quad [lb]$$

F_{R_XL}, based upon bearing life:

$$F_{R_XL} = F_{Ra} \times \frac{a}{b + x} \quad [lb]$$

F_{Ra} = Allowable overhung load (lb) as shown in the selection tables when the force occurs at the midpoint of the solid output shaft of a footed gear unit. For RM units, the force occurs at 39.4 inches (1 meter). See (→ 🗎 60) for RM values.

X = Distance (inches) from the shaft shoulder to the force application point.

a, b, f, F_F = Gear unit constants for overhung load conversion (inches)

c, c_F = Gear unit constants for overhung load conversion (lb-in)

For constants: R, K, F, S, W units, see (→ 🗎 55). RM units, see (→ 🗎 61).

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Constants for OHL conversion

Gear unit	a (in)	b (in)	c (lb-in)	d (in)	f (in)	l (in)
RM57 – RM167	See (→ 🗎 61)					
RX57	1.71	0.93	1.34	0.750	1.35	1.57
RX67	2.07	1.08	2.14	1.000	1.56	1.97
RX77	2.38	1.2	1.73	1.250	0	2.36
RX87	2.89	1.32	6.81	1.625	1.93	3.15
RX97	3.41	1.44	12.66	2.125	2.12	3.94
RX107	4.04	1.67	21.86	2.375	2.45	4.72
R07	2.83	2.05	0.41	0.750	0.43	1.57
R17	3.48	2.7	0.58	0.750	0.67	1.57
R27	4.19	3.21	1.38	1.000	0.46	1.97
R37	4.65	3.66	1.1	1.000	0	1.97
R47	5.39	4.21	2.16	1.250	0.59	2.36
R57	5.81	4.43	3.34	1.375	0.71	2.76
R67	6.63	5.26	2.35	1.375	0	2.76
R77	6.84	5.26	3.51	1.625	0	3.15
R87	8.53	6.56	7.5	2.125	0	3.94
R97	10.06	7.7	9.38	2.375	0	4.72
R107	11.24	8.48	18.23	2.875	0	5.51
R127	12.24	8.90	43.63	3.625	0	6.69
R137	13.52	10.18	40.53	3.625	0	6.69
R147	15.83	11.69	76.55	4.375	1.3	8.27
R167	17.72	13.58	111.51	1.750	0	8.27
F27	4.31	3.33	1	1.000	0	1.97
F37	4.86	3.88	0.95	1.000	0	1.97
F47	6.04	4.86	1.24	1.250	0	2.36
F57	6.72	5.34	2.39	1.375	0	2.76
F67	7.14	5.56	3.65	1.625	0	3.15
F77	8.5	6.53	6.96	2.000	0	3.94
F87	10.35	7.99	9.38	2.375	0	4.72
F97	13.78	11.02	18.5	2.875	0	5.51
F107	14.7	11.36	37.44	3.625	0	6.69
F127	17.42	13.29	83.63	4.375	0	8.27
F157	20.16	16.02	92.93	4.750	0	8.27
K19	4.08	3.3	0.77	0.750	0	1.57
K29	4.9	3.92	1.12	1.000	0	1.97
K37	4.86	3.88	1.15	1.000	0	1.97
K39	6.12	4.94	1.99	1.250	0	2.36
K47	6.04	4.86	1.24	1.250	0	2.36
K49	7.22	5.85	2.33	1.375	0	2.76
K57	6.68	5.3	2.39	1.375	0	2.76
K67	7.14	5.56	3.65	1.625	0	3.15
K77	8.5	6.53	6.81	2.000	0	3.94
K87	9.92	7.56	14.51	2.375	0	4.72
K97	12.56	9.8	24.78	2.875	0	5.51
K107	14.7	11.36	48.94	3.625	0	6.69
K127	17.46	13.33	73.54	4.375	0	8.27
K157	20.04	15.91	104.43	4.750	0	8.27
K167	24.47	19.55	166.38	6.250	0	9.84
K187	28.37	22.07	269.04	7.50	0	12.60
S37	4.67	3.88	0.53	0.750	0	1.57
S47	5.12	4.13	1.18	1.000	0	1.97
S57	5.91	4.72	1.89	1.250	0	2.36
S67	7.24	5.87	2.69	1.375	0	2.76

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Gear unit	a (in)	b (in)	c (lb-in)	d (in)	f (in)	l (in)
S77	8.82	7.05	4.66	1.750	0	3.54
S87	11.08	8.72	14.87	2.375	0	4.72
S97	12.85	10.09	22.48	2.875	0	5.51
W10	3.34	2.55	0.32	0.625	0	1.57
W20	3.88	3.09	0.39	0.750	0	1.57
W30	4.31	3.52	0.53	0.750	0	1.57
W37	4.77	3.98	0.62	0.750	0	1.57
W47	5.73	4.55	3.77	1.250	1.4	2.36

4.9 Altitude and temperature

The rated power, P_m, of a motor is dependent upon ambient temperature and altitude. The power shown on the nameplate applies to an ambient temperature of up to 40°C and a maximum altitude of 3280 ft (1000 meters) above sea level.

For deviations, the rated power must be reduced according to the following formula.

$$P_{N1} = P_N \times f_T \times f_H$$

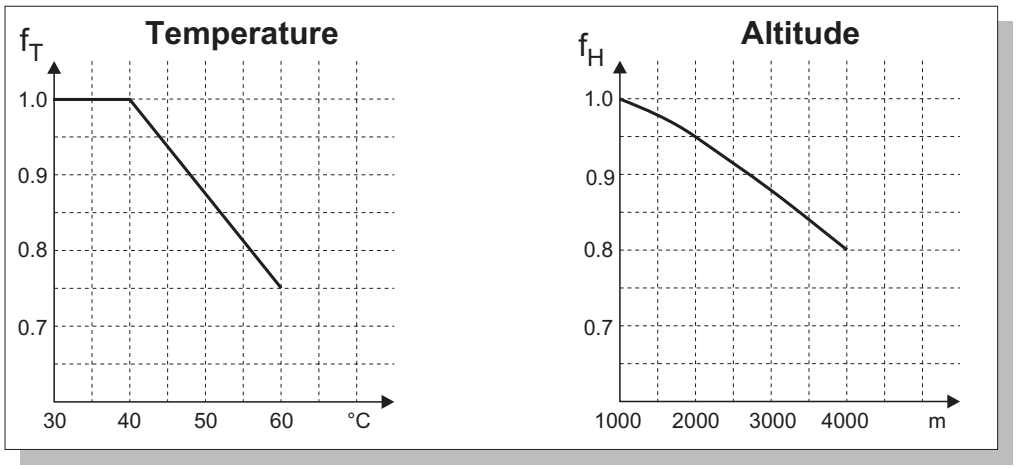
P_{N1} = Reduced rated power (HP)

P_N = Rated power (HP), as shown in selection tables

f_T = Factor due to ambient temperature

f_H = Factor due to altitude

The values for f_T and f_H are obtained from the graphs below.



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4.10 Compound (multi-stage) gearmotors

You can achieve particularly low output speeds by using a compound gearmotor. It contains an additional gear unit (type RF) between the motor and the larger gear unit.

A compound gearmotor is capable of producing a large output torque due to its high ratio. Often, the motor torque multiplied by the gear ratio is much larger than the rated torque (T_{aMax}) of the gear unit. Therefore, it is necessary to properly protect the gear unit by limiting the motor power.

4.10.1 Limiting the motor power

To properly protect a compound gearmotor from overload, the motor amp draw must be limited so that it corresponds to the maximum allowable motor torque, which depends on the maximum output torque of the gear unit, T_{aMax}.

Use the following formula to calculate the maximum allowable motor torque, T_{Mot_Max}.

$$T_{Mot_Max} = \frac{T_{aMax}}{I_{tot} \times \eta_{tot}}$$

T_{Mot_Max} = Maximum allowable motor torque (lb-in)

T_{aMax} = Maximum allowable output torque (lb-in), shown in rating tables

i_{tot} = Total gear ratio

η_{tot} = Overall efficiency of gear unit

Use the maximum allowable motor torque, T_{Mot_Max}, and the load diagram of the motor to determine the corresponding value for the maximum motor current. Then, limit the amp draw of the motor so that it is less than this motor current, as follows:

For a motor without an inverter, set the tripping current of the motor protection switch to this maximum current value. During the startup phase of the motor when the motor draws full-load amps, a motor circuit breaker offers the option to compensate for this brief overload without tripping.

For inverter drives, limit the output current of the inverter to the maximum current value found above.

4.10.2 Reducing the braking torque

If you use a compound brakemotor, you also have to reduce the braking torque (T_B) according to the maximum allowable motor torque, T_{Mot_max}. The maximum allowable braking torque is 200% more than T_{Mot_Max}.

$$T_{B_Max} = T_{Mot_Max} \times 2$$

T_{B_Max} = Maximum braking torque (lb-in)

T_{Mot_Max} = Maximum allowable motor torque (lb-in)

For a list of braking torques available on SEW-EURODRIVE motors see (→ 🗎 942).

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4.10.3 Preventing blockage

Blockage that disables the output shaft of a compound gearmotor from rotating is not permitted. Depending on the size of the motor, the gear unit may experience a very large torque, overhung load, or axial load. Such large forces impart severe shock to the gear unit. Catastrophic or irreparable damage may result.

INFORMATION

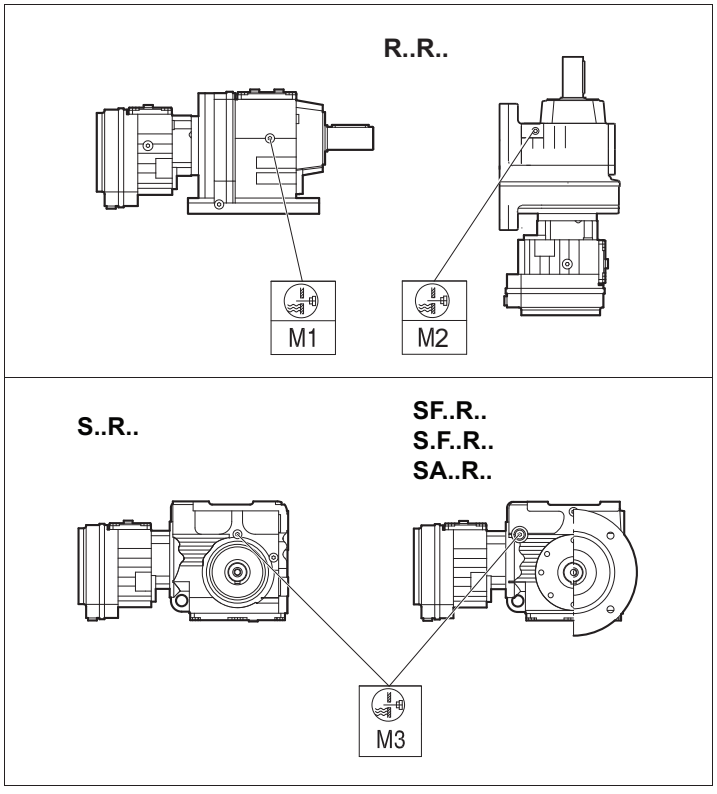
Contact SEW-EURODRIVE if blockage of a compound gearmotor cannot be avoided due to the application.

4.10.4 Position of the oil level plug of compound gear units

To ensure sufficient lubrication of the larger gear unit of a compound gearmotor, a higher oil level is required in some mounting positions, as specified below.

- Helical gear unit type R..R in mounting position M1 and M2
- Helical-worm gear unit type S..R in mounting position M3

The oil level plugs are located at the following positions, which are different from the positions shown on the mounting position pages.



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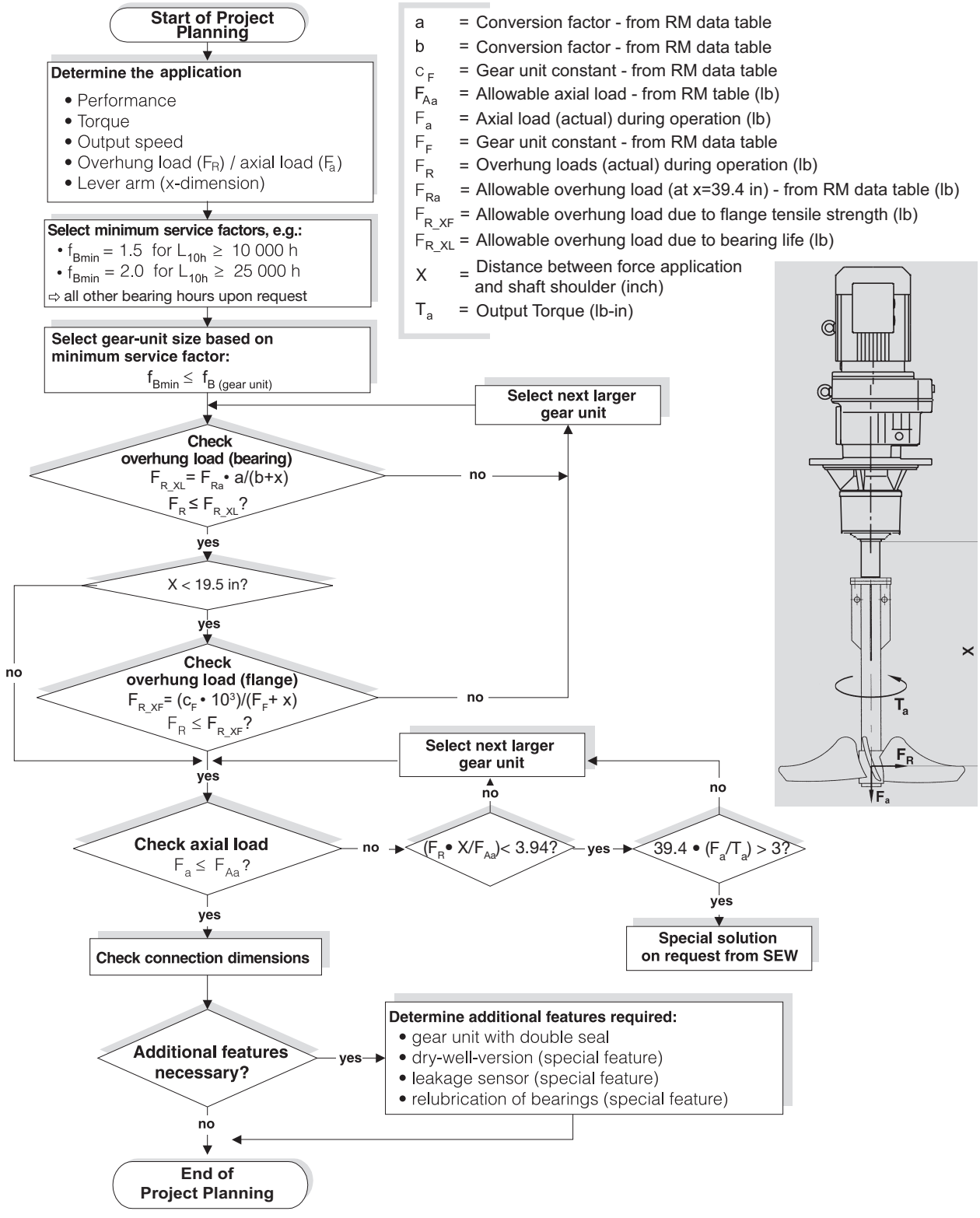
Icon	Designation
	Oil level plug

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4.11 RM gearmotors

4.11.1 Project planning procedure – Imperial units

RM gearmotors contain an extending bearing hub for higher overhung and axial load capacity. Use the following procedures. See (→ 🗎 60-61) for values.



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4.11.2 Overhung loads and axial forces, RM

The following table shows the allowable overhung load, F_{Ra}, and axial load, F_{Aa} at 39.4 inches (1m) for two common values of service factor, f_B, and bearing service life, L_{10h}.

f_B = 1.5; L_{10h} = 10,000 h

Gear	Load	n_a in rpm							
		< 16	16-25	26-40	41-60	61-100	101-160	161-250	251-400
RM57	F_{Ra} (lb)	90	90	90	90	90	90	90	95
	F_{Aa} (lb)	4225	3370	2585	2180	1595	1270	1000	855
RM67	F_{Ra} (lb)	130	130	130	130	130	130	135	135
	F_{Aa} (lb)	4270	4250	3440	2675	2070	1680	1320	1135
RM77	F_{Ra} (lb)	270	270	270	270	270	270	270	275
	F_{Aa} (lb)	4945	4945	4360	3395	2565	2075	1620	1510
RM87	F_{Ra} (lb)	445	445	445	445	445	445	450	450
	F_{Aa} (lb)	6745	6745	5305	4045	3215	2475	2010	1805
RM97	F_{Ra} (lb)	670	670	670	670	675	685	690	690
	F_{Aa} (lb)	8990	8115	6135	4565	3575	2830	2165	1755
RM107	F_{Ra} (lb)	950	950	950	950	950	950	805	860
	F_{Aa} (lb)	10790	9215	6810	5170	4045	2945	2145	2030
RM137	F_{Ra} (lb)	1960	1960	1960	1960	1625	1135	895	1515
	F_{Aa} (lb)	15735	15735	15735	12950	10545	9890	8005	7285
RM147	F_{Ra} (lb)	2495	2495	2495	2495	2495	2385	1940	2430
	F_{Aa} (lb)	15735	15735	15670	13130	10250	8540	7375	6925
RM167	F_{Ra} (lb)	3280	3280	3280	3280	3280	3305	–	–
	F_{Aa} (lb)	15735	15735	15735	13555	10185	8295	–	–

f_B = 2.0; L_{10h} = 25,000 h

Gear	Load	n_a in rpm							
		< 16	16-25	26-40	41-60	61-100	101-160	161-250	251-400
RM57	F_{Ra} (lb)	90	90	90	90	90	95	95	95
	F_{Aa} (lb)	2720	2160	1650	1360	965	755	585	495
RM67	F_{Ra} (lb)	135	135	135	135	135	135	135	135
	F_{Aa} (lb)	3550	2700	2155	1650	1255	1005	780	660
RM77	F_{Ra} (lb)	270	270	270	270	270	275	275	275
	F_{Aa} (lb)	4495	3460	2675	2040	1500	1185	900	830
RM87	F_{Ra} (lb)	450	450	450	450	450	385	380	385
	F_{Aa} (lb)	5530	4315	3215	2385	1840	1370	1235	1095
RM97	F_{Ra} (lb)	685	685	685	685	690	690	570	545
	F_{Aa} (lb)	6385	4945	3640	2610	1990	1540	1310	1070
RM107	F_{Ra} (lb)	975	975	975	975	975	755	630	670
	F_{Aa} (lb)	7260	5575	4000	2920	2200	1835	1340	1265
RM137	F_{Ra} (lb)	1990	1990	1990	1985	1270	905	720	1180
	F_{Aa} (lb)	15735	13465	10790	8520	7600	7125	5755	5240
RM147	F_{Ra} (lb)	2565	2565	2565	2565	2565	1870	1540	1895
	F_{Aa} (lb)	15735	13625	10320	8970	7530	6270	5420	5080
RM167	F_{Ra} (lb)	3395	3395	3395	3395	3395	2945	–	–
	F_{Aa} (lb)	15735	14275	11600	8495	6025	5305	–	–

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4.11.3 Conversion factors, RM

The following conversion factors and constants apply to RM gearmotors to calculate the allowable overhung loads, F_{R_XL}, and F_{R_XF} where **x ≠ 39.4 in** (1 meter).

Gear unit	a (in)	b (in)	c_F (lb-in)		F_F (in)
			(f_B = 1.5)	(f_B = 2.0)	
RM57	41.2	1.9	10805	11155	10.9
RM67	41.2	1.9	18125	18585	11.7
RM77	41.3	2	22240	22790	13.4
RM87	41.6	2.2	43525	44510	16.3
RM97	41.8	2.4	96575	98455	18.9
RM107	42.1	2.7	136010	138530	21.8
RM137	42.8	3.5	223850	230065	25.6
RM147	43	3.6	265865	275910	29.8
RM167	42.9	3.5	372580	386375	34.2

4.11.4 Additional weight, RM

Gear unit	Additional weight of RM flange compared to the smallest RF flange Δ lbs
RM57	+26
RM67	+35
RM77	+55
RM87	+65
RM97	+113
RM107	+194
RM137	+245
RM147	+369
RM167	+431

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5 Order information and mounting positions

5.1 Order information

INFORMATION

The following information, along with the mounting position, is required for R, F, K, S, and W gearmotors when placing an order.

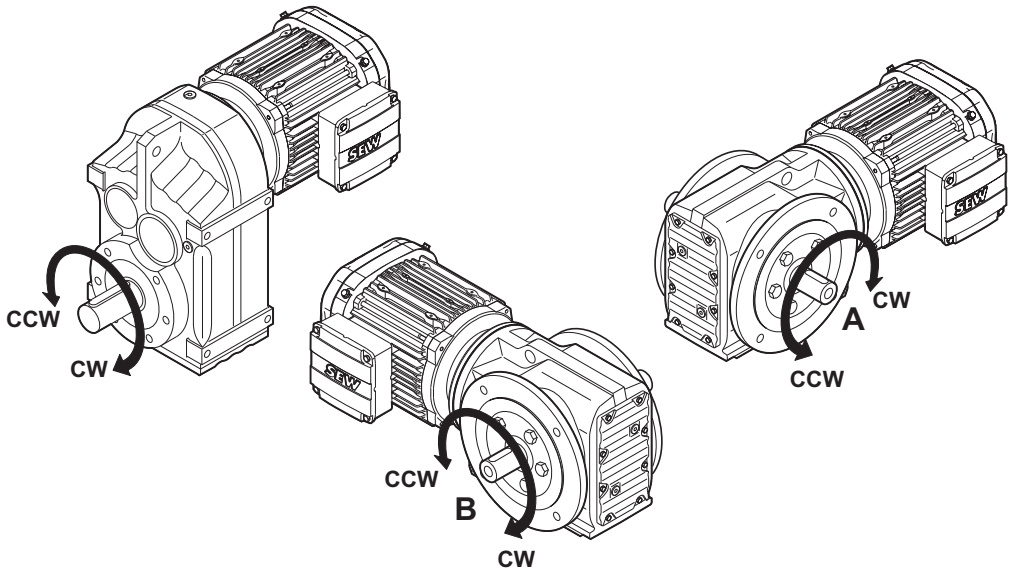
This information is also required for gearmotors that do not depend on a particular mounting position.

5.1.1 Direction of rotation

The purpose of a backstop is to prevent unwanted direction of rotation. During operation, the backstop allows rotation only in the specified direction.

The direction of rotation is specified when looking into the output shaft (also known as low speed shaft, LSS):

- CW rotation
- CCW rotation



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For right-angle gearmotors with a hollow shaft or with a double output shaft (with solid shaft ends at both A and B), the direction is specified as looking into side A.

For units without a backstop, the direction of rotation may be reversed simply by switching any two motor power wires.

The allowable direction of rotation is indicated by an arrow on the housing:



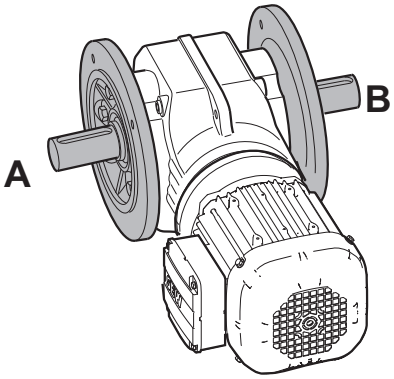
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5.1.2 Output shaft and output flange positions

In right-angle gear units, you also have to indicate the position of the output shaft and the output flange:

- A, B, or AB
- AB indicates both sides



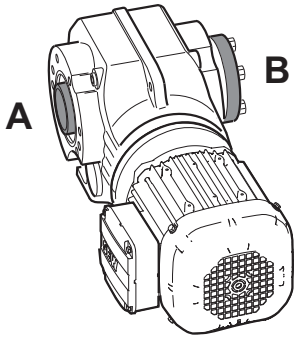
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5.1.3 Output shaft entry position

For shaft mounted right-angle gear units with either a shrink disk (ex. KH) or TorqLOC® (ex. KT). You must indicate whether A or B is the entry so that the clamping collar is placed on the correct side. The entry is the side that the customer's solid shaft first enters during installation. Therefore, it is the side closest to the customer's machine. The clamping collar is always located opposite the entry side. Thus, in the figure below, the entry side is A. So, the clamping collar is placed at B.

NOTE: On gear units with a TorqLOC® shaft (ex. KT, ST, FT), a symmetrical shaft is available so that the customer's shaft may enter on either side. Designation = **AB**.

For hollow shaft units with key (ex. KA, SA), stating the entry side allows SEW to correctly install the internal snapring on the opposite side of shaft entry.



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INFORMATION

For the permitted mounting surfaces (= hatched area), refer to the mounting position pages (→ 🗎 74).

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5.1.4 Motor terminal box and cable entry position

Footed motor (without gear unit):

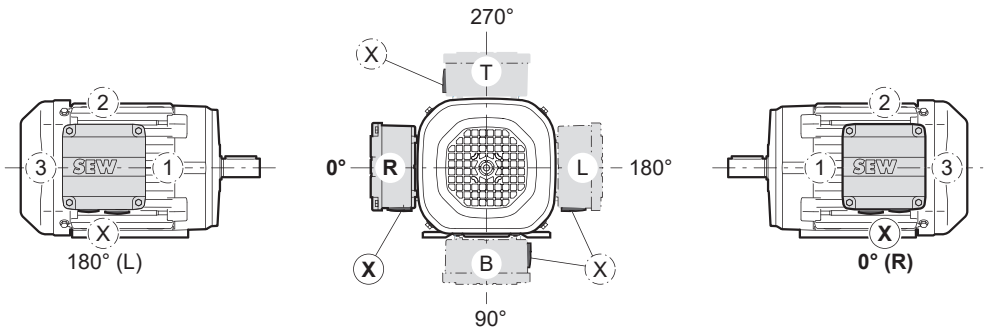
The position of the motor terminal box was previously specified as 0°, 90°, 180°, or 270° when looking into the fan guard. However, a change in the product standard DIN EN 60034 now specifies the following positions:

- Positions pertain to the view when looking **into the output shaft** of a foot-mounted motor (without a gear unit) in mounting position B3 (or M1)
- Positions are designated as R (right), B (bottom), L (left) and T (top).
- Cable entry position is specified with X, 1, 2, 3, as shown in the figure below.

At first glance, R and L may appear to be backwards in the figure below. However, the values are correct when looking into the output shaft.

Gearmotors:

- The position of motor terminal box is determined by looking **into the fan guard** when the gearmotor is in M1 mounting position.
- The position of the terminal box is specified with 0°, 90°, 180° or 270°, as shown in the figure below.
- For mounting positions other than M1, the terminal box positions rotate with the feet of gear unit.
- Cable entry position is specified with X, 1, 2, 3, as shown in the figure below.



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INFORMATION

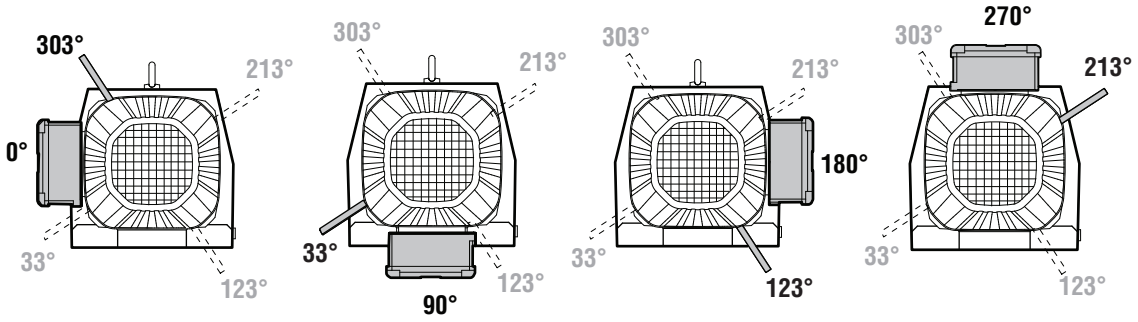
Unless indicated otherwise in your order, you will receive the terminal box type 0° with "X" cable entry for all gearmotors. When ordering a gearmotor in mounting position M3, SEW-EURODRIVE recommends selecting cable entry “2”.

Only cable entries “X” and “2” are possible for DRN63.. motors. Exception: This limitation does not apply with IS plug connectors.

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5.1.5 Brake hand release and conduit box positions

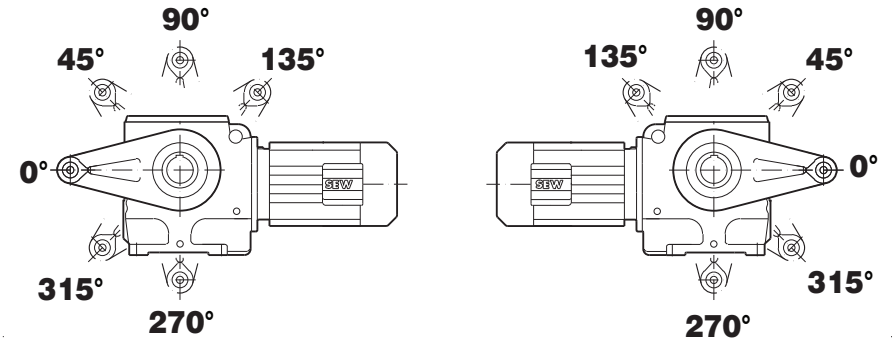
The conduit box and brake release use the same coordinate system, where 0° is the same as 9:00 (o-clock) when looking into the back of the gearmotor in an M1 mounting position (feet on bottom). Degrees increase in the CCW direction. You may place the hand release in any one of the four positions shown below, regardless of the conduit box location. However, if you do not specify otherwise, SEW assembles the hand release CW from the conduit box, as shown in bold.



CB_HR

5.1.6 Torque arm position

The following illustration shows the possible torque arm positions for helical-worm gear units, K..9 helical-bevel gear units, and SPIROPLAN® gear units (135° position not possible with SPIROPLAN® gear units). As a standard, SEW-EURODRIVE supplies the torque arm loosely. Therefore, the customer must specify the desired angle if factory mounting is required.



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5.1.7 Example orders

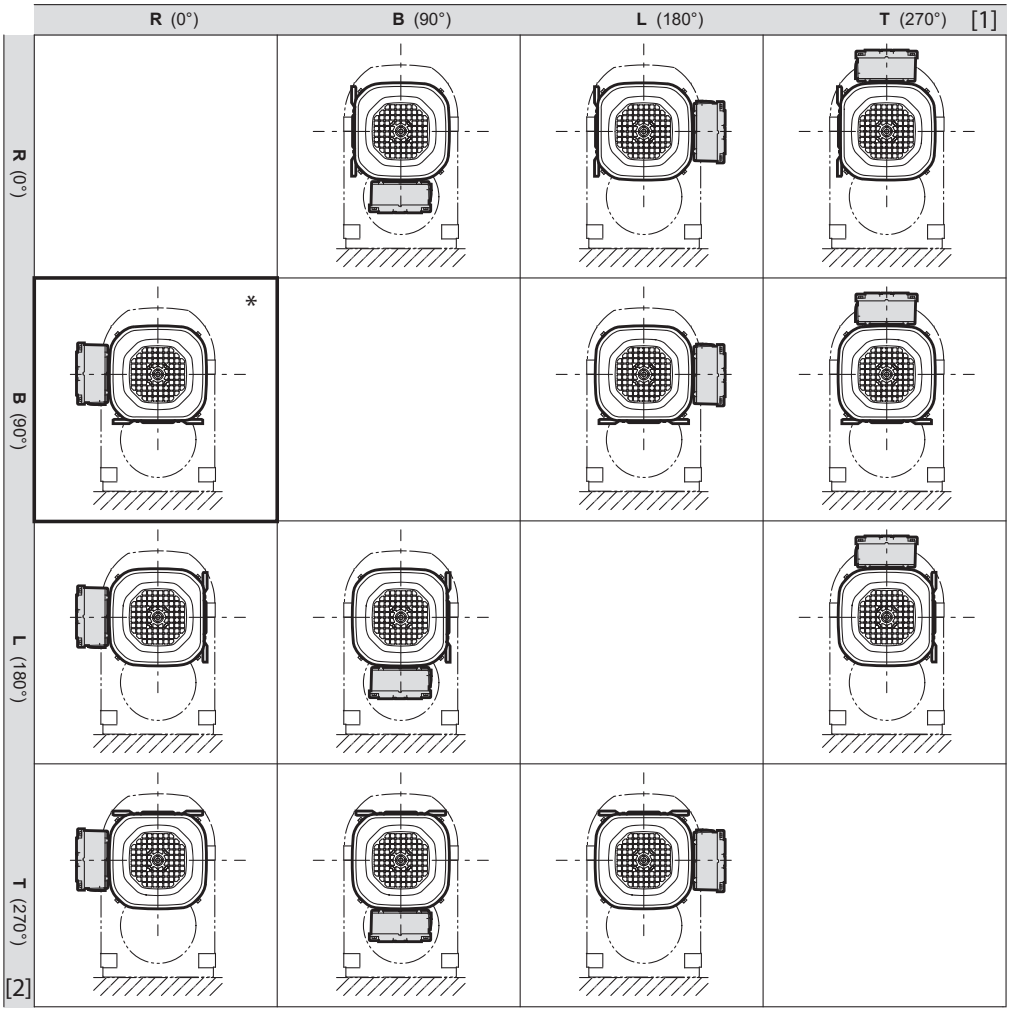
Model Type	Mounting position	Shaft position	Flange position	Terminal box position	Cable entry position	Output direction of rotation
K47DRN71M4/RS	M2	A	-	0°	"X"	Clockwise
SF77DRN90L4	M6	AB	AB	90 °	"3"	-
KA97DRN132M4	M4	B	-	270 °	"2"	-
KH107DRN160M4	M1	A	-	180 °	"3"	-
KT47DRN90M4	M2	AB	-	0°	"X"	-

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5.1.8 Option /FM - Motor terminal box and foot positions

With gearmotors, the motor is designed as flange-mounted motor for mounting to gear units. It is also possible to provide the motor with feet that can be used for customer components. The load values of the feet are available from SEW-EURODRIVE on request. The position of the foot must be specified in the order.

The following figure shows the possible positions of the terminal box and the feet for gearmotors with motor option /FM.



[1] Terminal box positions [2] Foot positions

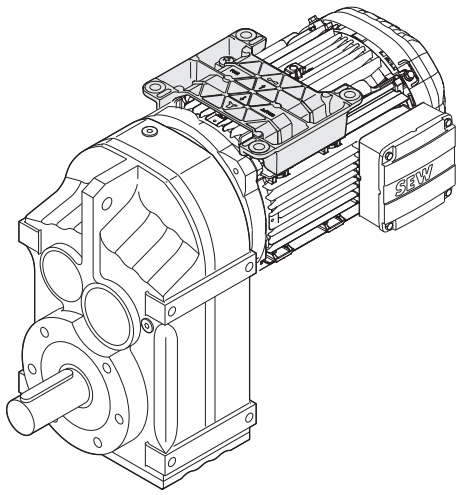
*) If not specified otherwise in the order, the gearmotor is delivered with foot position B (90°) and terminal box position R (0°).

INFORMATION

The foot on the motor is not suited to attach a complete gearmotor.

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Example: Gearmotor with motor option /FM:



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Order information on mounting position of the complete drive, foot positions, terminal box and cable entry:

Mounting position complete drive:	M1
Terminal box position:	R (0°)
Cable entry:	X
Foot position:	T (270°)

5.1.9 Changing mounting position

Please observe the following information when installing the gearmotor in a mounting position other than the one indicated on the order:

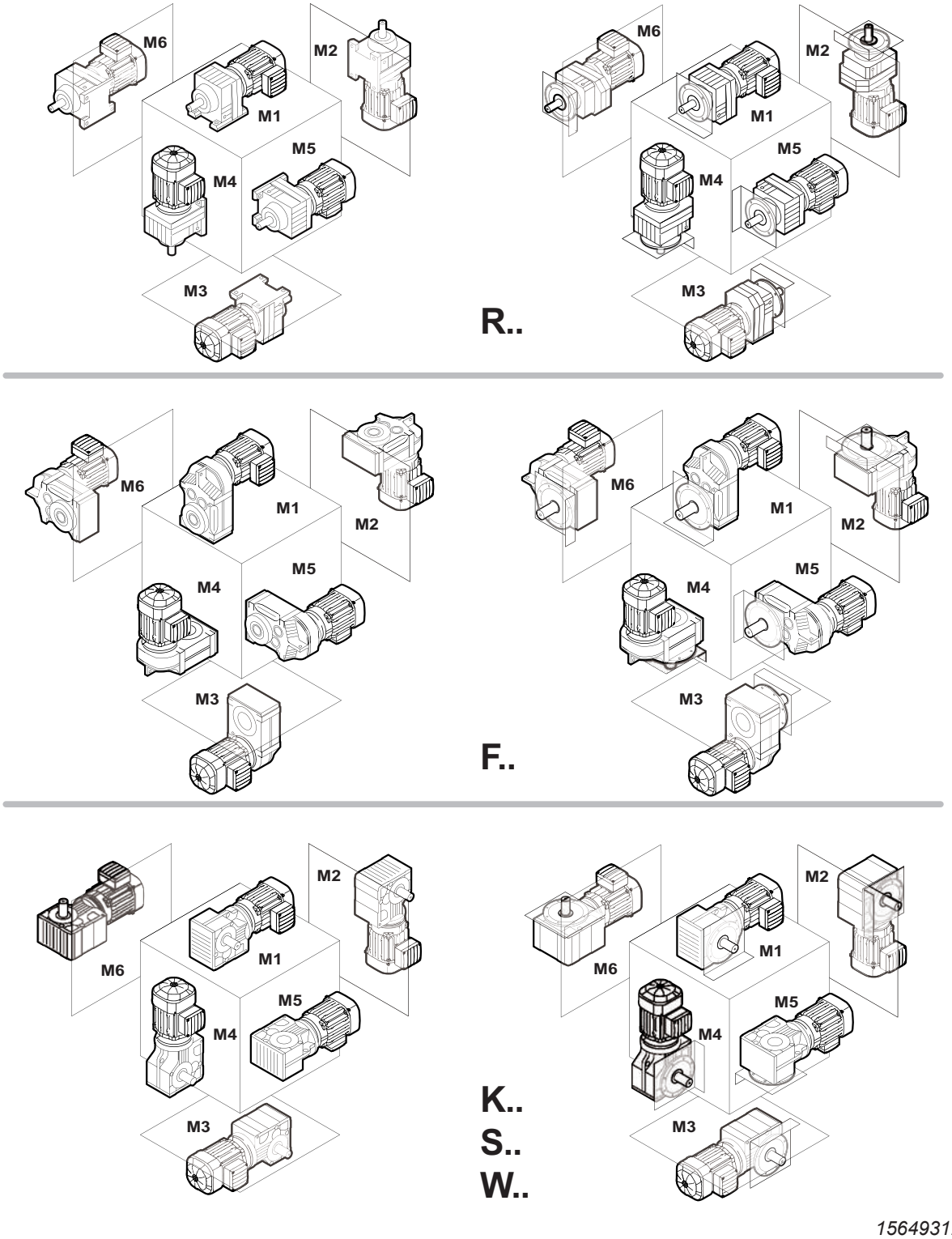
- Adjust the lubricant fill quantity to the changed mounting position.
- Adjust the position of the breather valve.
- When changing the mounting position to M4: Contact SEW-EURODRIVE. Depending on the drive's operating mode, an oil expansion tank might be necessary (see chapter "Oil expansion tank" (→ 🗎 19)).
- For helical-bevel gearmotors: Contact SEW-EURODRIVE if you want to change to mounting position M5 or M6, regardless of the initial mounting position.
- For helical-worm gearmotors: Contact the SEW-EURODRIVE when changing to mounting position M2 or M3.

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5.2 Mounting position information

5.2.1 Overview

The following illustration is an overview of mounting positions M1 – M6.



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INFORMATION

The positions of the breather valve, oil level plug, and oil drain plug specified in the mounting position sheets are binding and comply with the assembly specifications.

The motors are only depicted symbolically on the mounting position sheets.

INFORMATION

For gear units with solid shaft: The displayed shaft is always on the A-side.

For shaft-mounted gear units: The shaft with dashed lines represents the customer shaft. The output end (= shaft position) is always shown on the A-side.

INFORMATION

SPIROPLAN® gearmotors are not dependent on the mounting position, except for W..37 and W..47 gearmotors in mounting position M4. However, mounting positions M1 to M6 are also shown for SPIROPLAN® gearmotors to assist you in working with this documentation.

INFORMATION

SPIROPLAN® gearmotors W..10 to W..30 cannot be equipped with breather valves, oil level plugs or oil drain plugs.

SPIROPLAN® gear units W..37 and W..47 are equipped with breather valves in mounting position M4 and with oil drain plugs in mounting position M2.

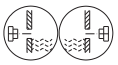
INFORMATION

Some gear units can be supplied in mounting position M0. In this case, the gear unit is delivered in a universal mounting position and can be adjusted to various mounting positions by the customer. It may be necessary to contact SEW-EURODRIVE.

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5.2.2 Symbols used

The following table shows the symbols used in the mounting position pages:

Icon	Designation
	Breather valve
	Oil level plug[1)]
	Oil drain plug

1) Does not apply to the 1st gear unit (large gear unit) of compound gear units.

5.2.3 Churning losses

* (→ 🗎 X)

Some gearmotors are marked with an asterisk (*) in the mounting position pages. Churning losses may occur for gearmotors in those mounting positions. Thus, additional measures may be needed to protect against heat. Please contact SEW-EURODRIVE.

Mounting position	Gear unit type	Gear unit size	Input speed [rpm]
M2, M4	R	97 – 107	> 3600
		> 107	>1800
M2, M3, M4, M5, M6	F	97 – 107	> 3600
		> 107	>1800
	K	77 – 107	> 3600
		> 107	>1800
	S	77 – 97	> 3600

INFORMATION

PT Pilot considers churning losses when providing selections for both gear units and gearmotors. It adds synthetic oil and FKM seals as necessary for proper heat protection. To obtain valid selections that include churning loss calculations and sump oil temperature, please visit PT Pilot.

→ **www.ptpilot.com**

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5.2.4 Breather valve/oil drain plug in motor flange

As shown in the mounting position pages, the placement of the breather valve and oil drain plug depend on the gearmotor mounting position.

The following table summarizes their location:

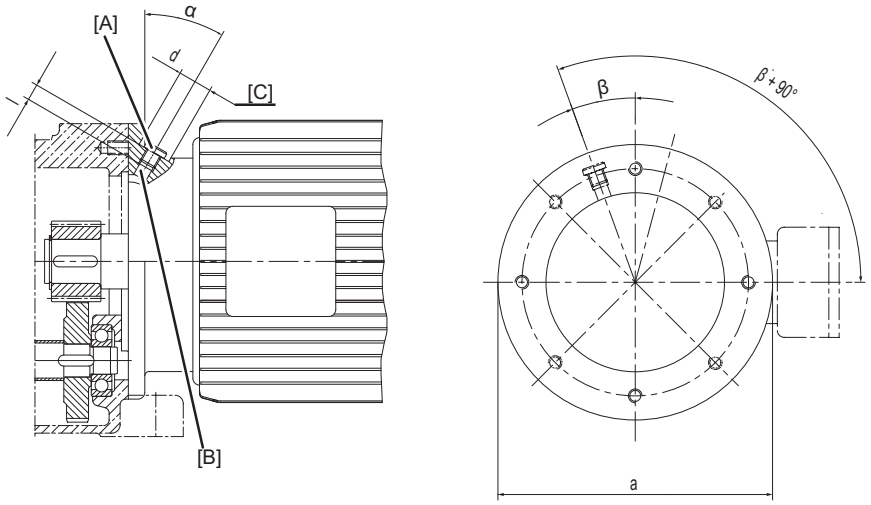
Mounting position	Breather valve position	Oil drain plug position
M1, M3, M5, M6	In the gear unit housing	In the gear unit housing
M4	**In the motor flange**	In the gear unit housing
M2	In the gear unit housing	**In the motor flange**

INFORMATION

The position of the oil drain plug in the mounting position pages always refers to the standard terminal box position 0° See (→ 🗎 64).

When the breather valve is placed in the motor flange, its position depends on the terminal box location (90°, 180°, 270°), as shown below.

The following illustration shows the exact position of the oil drain plug in the motor flange.



13066345867

[A] Position of breather valve/oil drain plug
[B] Continuous core drilling
[C] Counterbored bore
[α] Drill angle
[d] Diameter of the countersinking
[l] Thread length
[a] Flange diameter
[β] Position angle

5.2.5 Breather dimensions

The following table contains the dimensions and information for the breather valve and the oil drain plug, depending on the motor size.

Motor Size	a [mm]	α [°]	β [°]	Thread designation	Ø d [mm]	l [mm]
DRN63	105	0	45	M10x1	-	
	120				15	10
	160					
	200	30	22.5	M12x1.5	18	12
DRN71	105	0	45	M10x1	-	10
	120				15	
	160					
	200	30	22.5	M12x1.5	18	12
	250					
	300	90		M22x1.5	28	14
DRN80	105	0	45	M10x1	-	10
	120	15	22.5		15	
	160	30				
	200			M12x1.5	18	12
	250					
	300	90		M22x1.5	28	14
DRN90	120	30	22.5	M10x1	15	12
	160					
	200			M12x1.5	15	16
	250				18	12
	300			M22x1.5	28	
DRN100	120	30	22.5	M10x1	15	10
	160					12
	200			M12x1.5	18	
	250					
	300			M22x1.5	28	14
	350					
DRN112M DRN132S	160	30	22.5	M10x1	15	10
	200			M12x1.5	18	12
	250					
	300			M22x1.5	28	14
	350					
	400	45				10
	450			M33x2	40	16
DRN132M/L	160	30	22.5	M10x1	15	10
	200	15		M12x1.5	18	14
	250	30				
	300			M22x1.5	28	12
	350					14
	400					13
	450	75		M33x2	40	16
	550	90		M42x2	50	18
DRN160	200	30	22.5	M10x1	15	17
	250			M12x1.5	18	15
	300			M22x1.5	28	12
	350					
	400					16
	450			M33x2	40	
	550	90		M42x2	50	

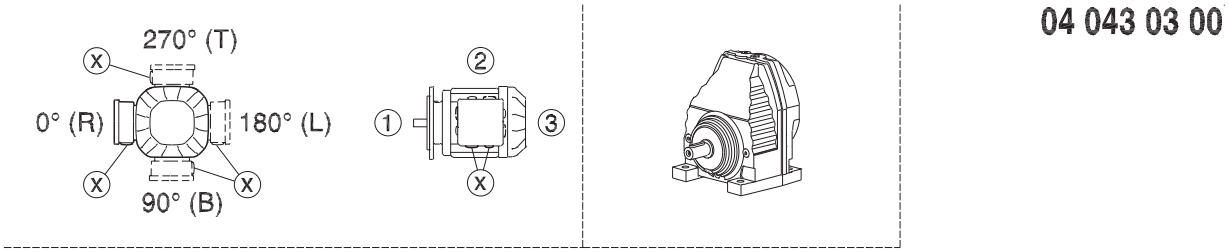
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Motor Size	a [mm]	α [°]	β [°]	Thread designation	Ø d [mm]	l [mm]
DRN180	250	30	22.5	M12x1.5	18	15
	300			M22x1.5	28	
	350					
	400					16
	450			M33x2	40	
	550	90		M42x2	50	17
DRN200	250	30	22.5	M12x1.5	18	15
	300			M22x1.5	28	
	350					14
	400					16
	450			M33x2	40	
	550			M42x2	50	19
DRN225	300	30	22.5	M22x1.5	28	15
	350					14
	400					16
	450			M33x2	40	17
	550			M42x2	50	29
DRN250 DRN280	350	15	22.5	M22x1.5	28	14
	400		21			
	450		22.5	M33x2	40	16
	550			M42x2	50	
DRN315	450	30	22.5	M33x2	40	30
	550		11.25	M42x2	50	20

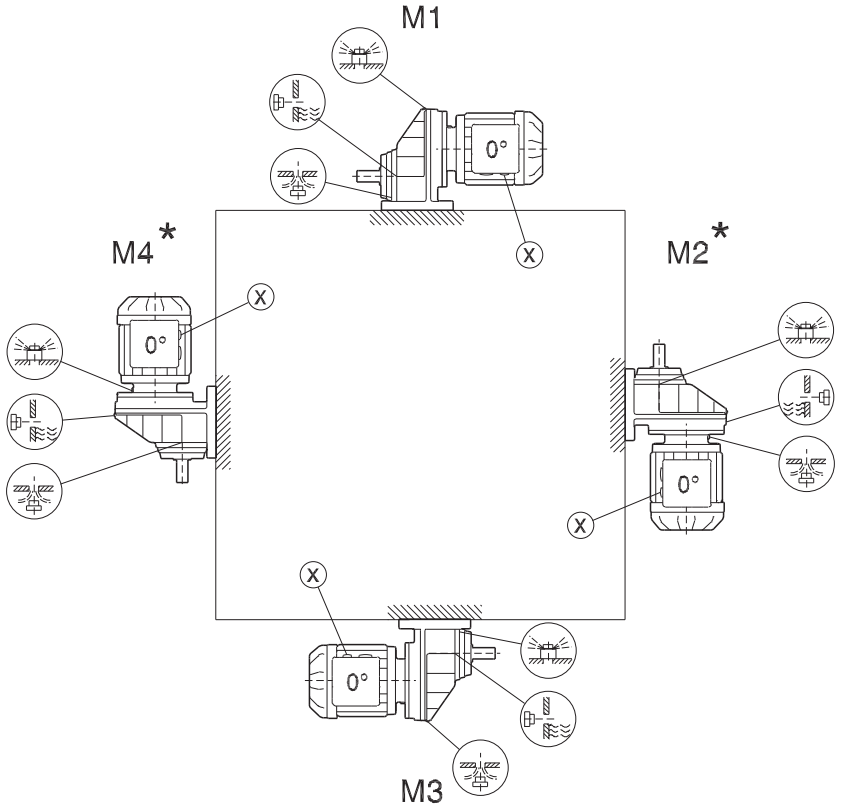
24833231/EN-US – 07/2021

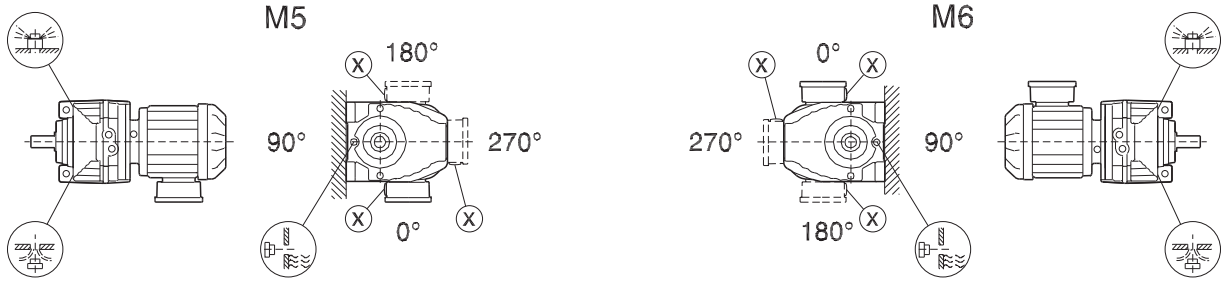
5.3 Mounting positions – Helical gearmotors

RX57-RX107



04 043 03 00

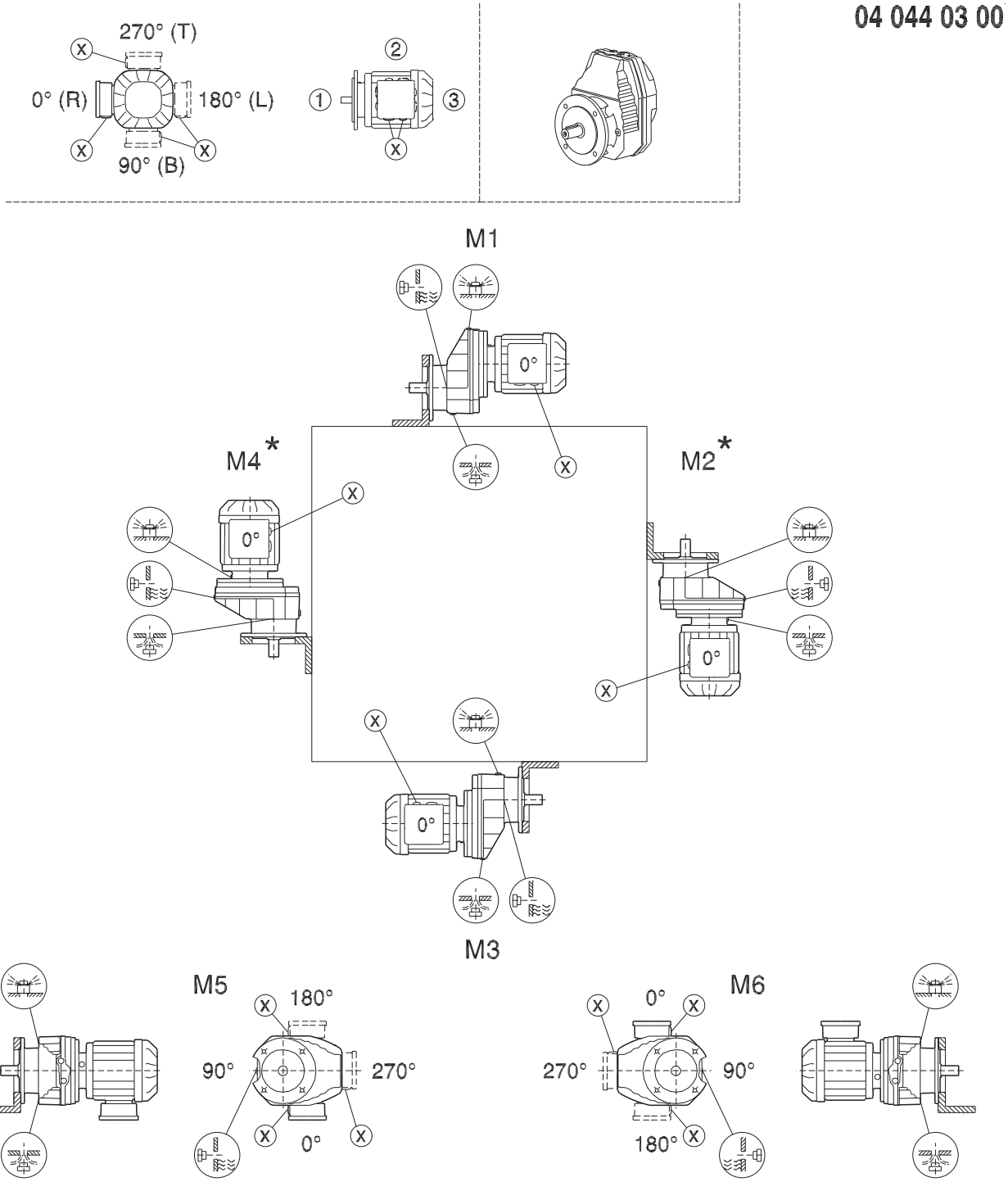




* (→ 🗎 70)

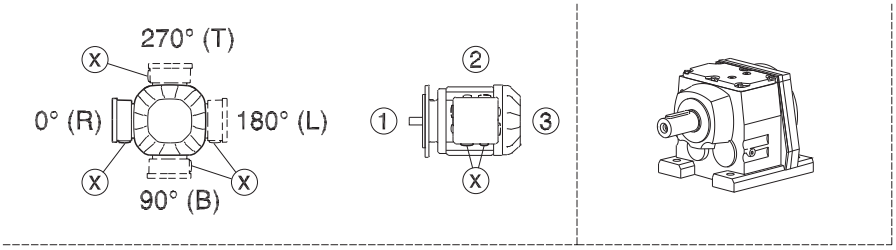
24833231/EN-US – 07/2021

RXF57-RXF107

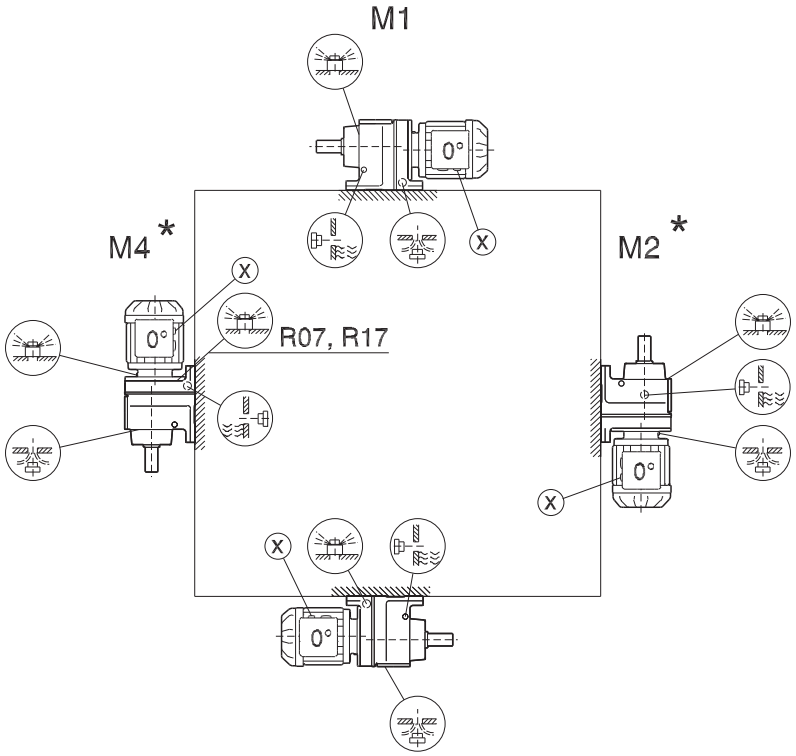


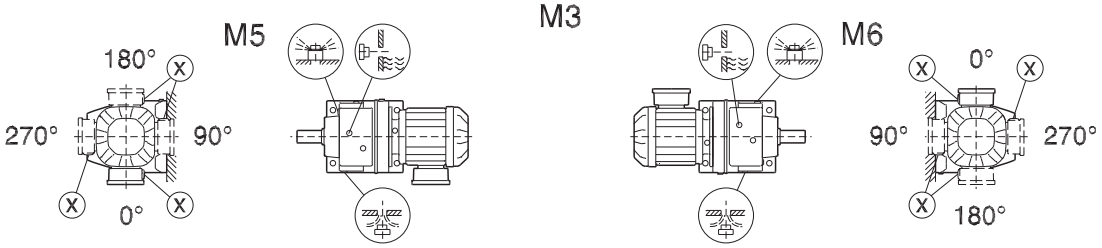
* (→ 🗎 70)

R07-R167



04 040 04 00



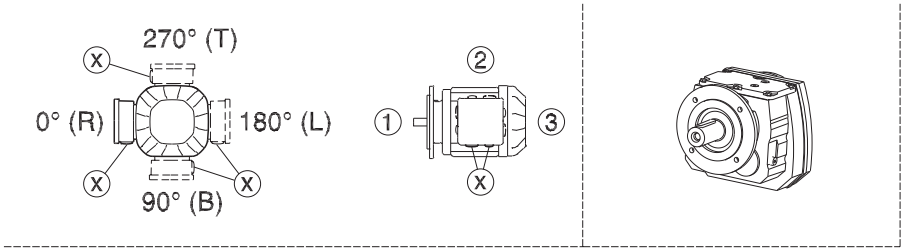


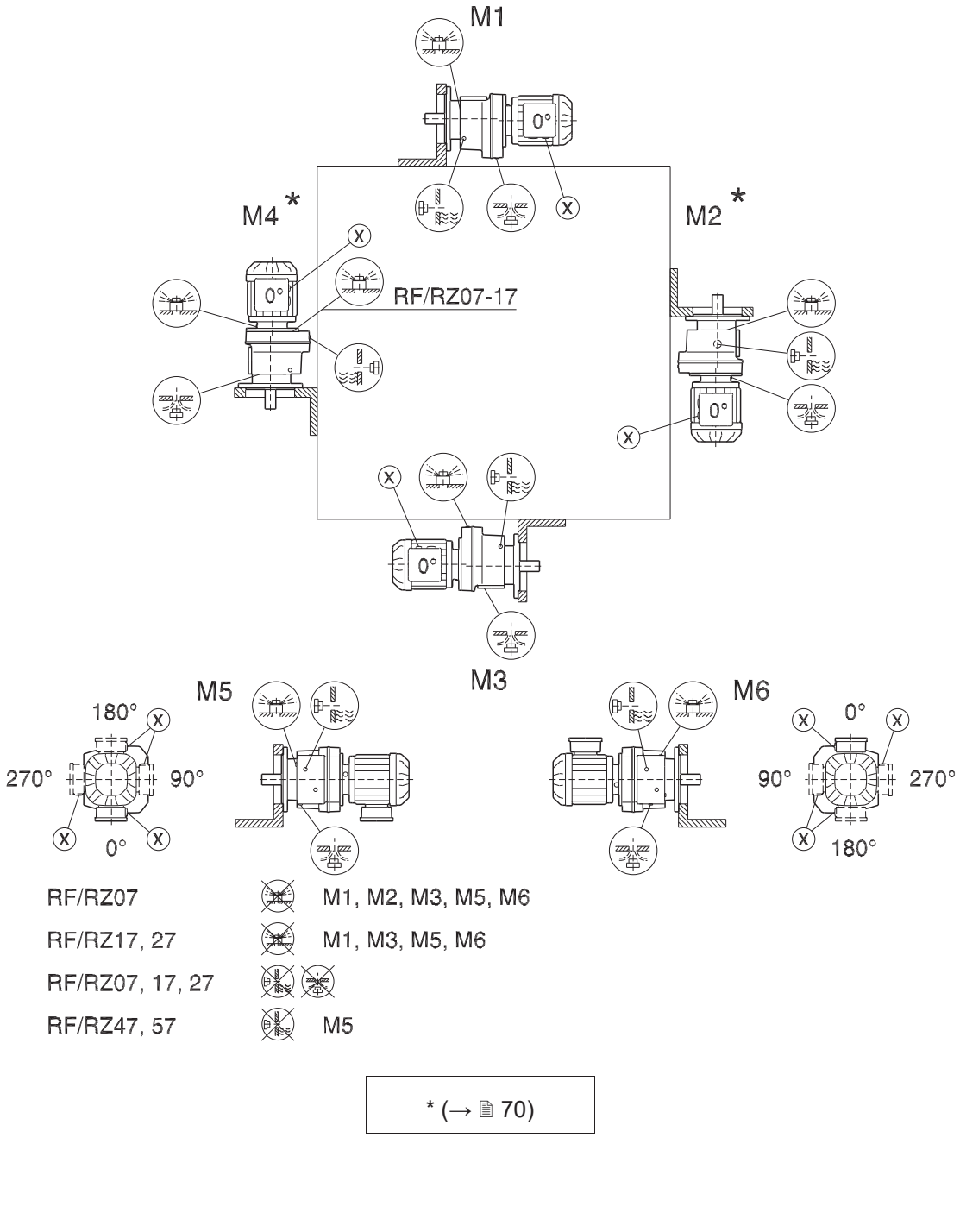
R07	⊗	M1, M2, M3, M5, M6
R17, R27	⊗	M1, M3, M5, M6
R07, R17, R27	⊗ ⊗	
R47, R57	⊗	M5

* (→ 🗎 70)

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RF07-RF167, RZ07-RZ87



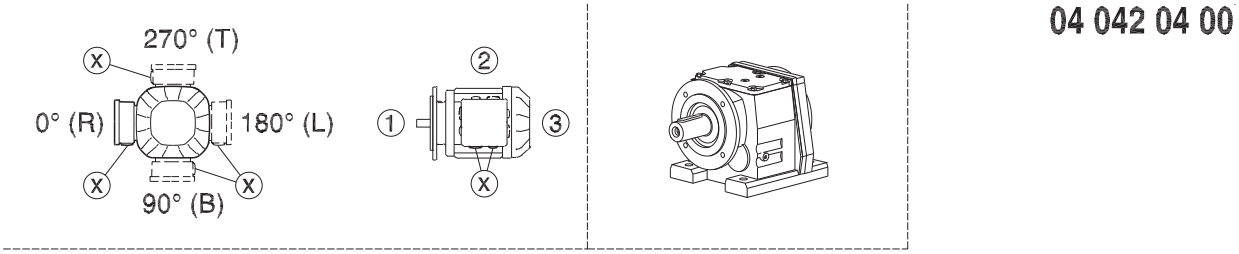


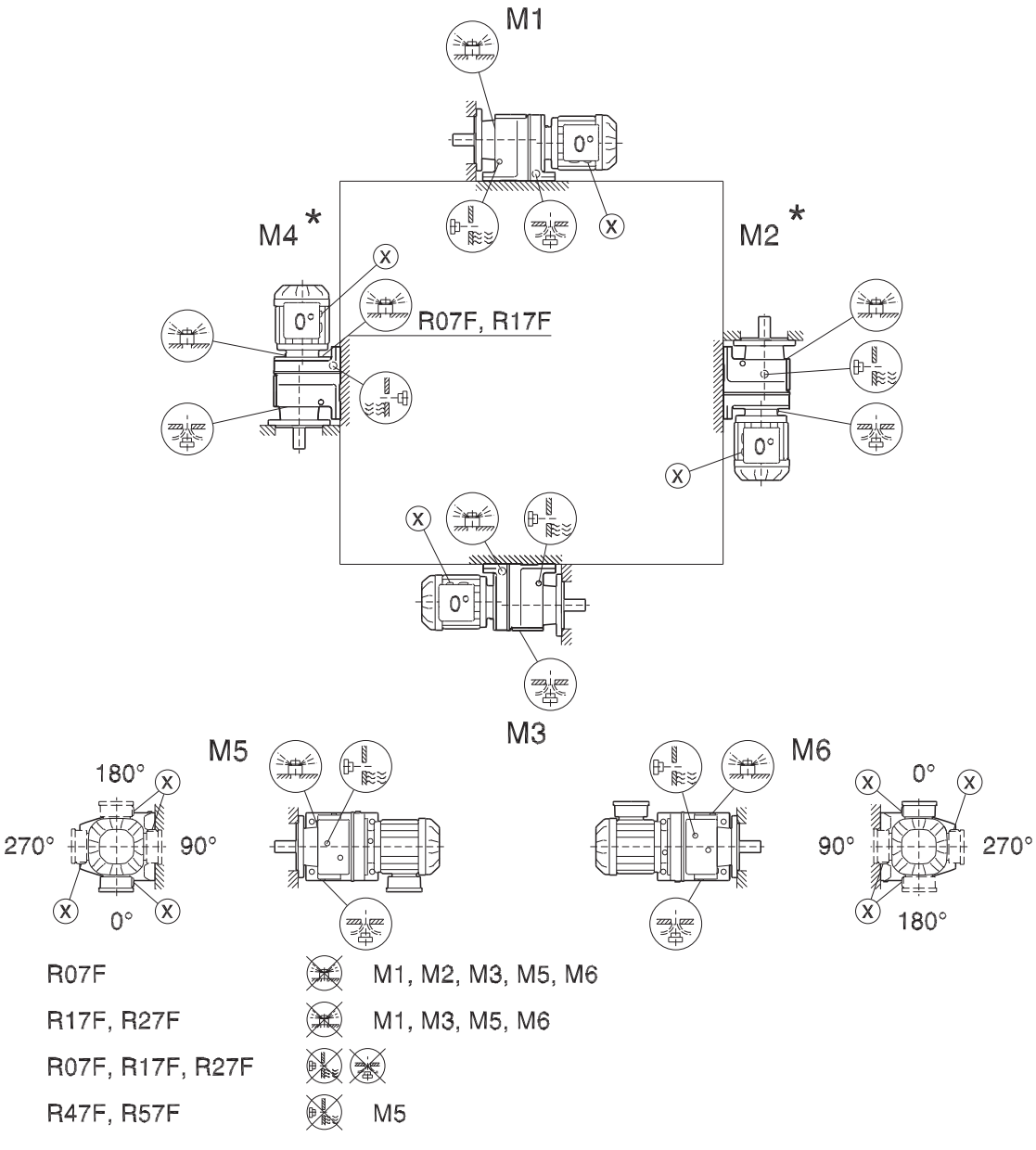
RF/RZ07	⊗	M1, M2, M3, M5, M6
RF/RZ17, 27	⊗	M1, M3, M5, M6
RF/RZ07, 17, 27	⊗ ⊗	
RF/RZ47, 57	⊗	M5

* (→ 🗎 70)

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R07F-R87F





R07F	M1, M2, M3, M5, M6
R17F, R27F	M1, M3, M5, M6
R07F, R17F, R27F	
R47F, R57F	M5

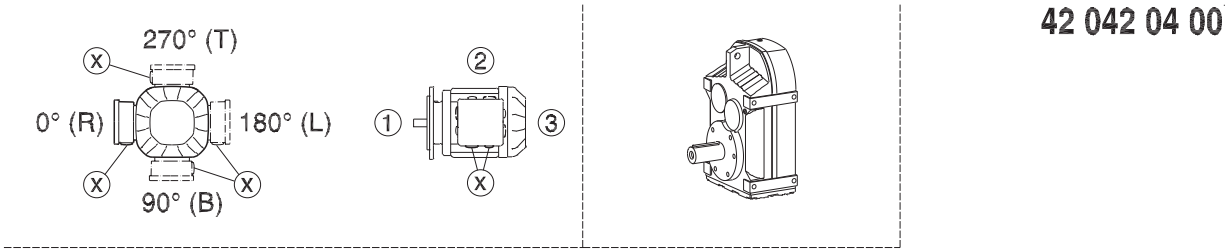
* (→ 🗎 70)

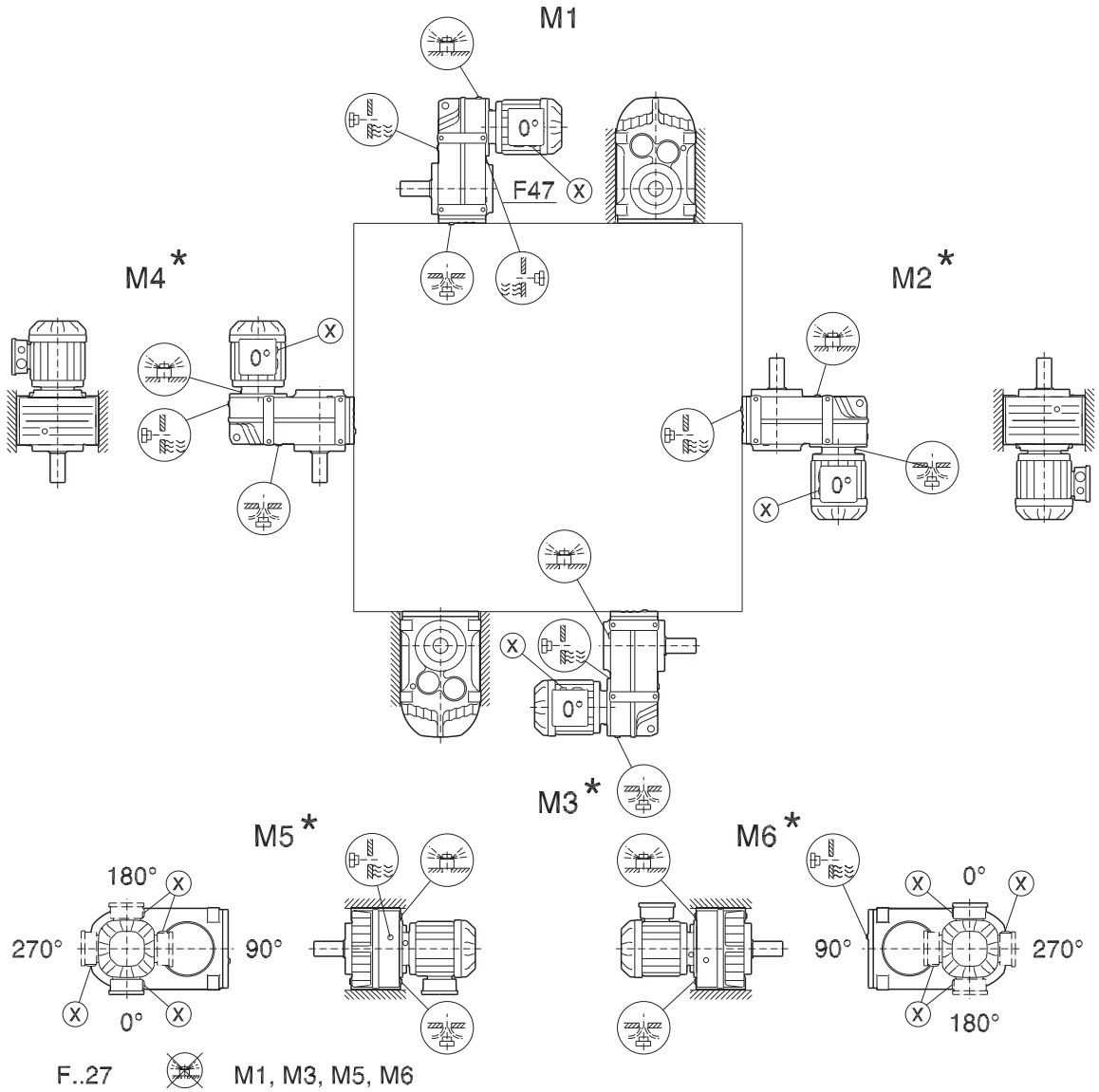
Proper alignment must be ensured when two mounting surfaces are used. Also, the OHL and F_{Ra} shown in the selection tables is reduced 50% if torque transmission occurs via the mounting flange. (→ 🗎 52)

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5.4 Mounting positions – theSnuggler®

F/FA..B/FH27B-157B, FV27B-107B

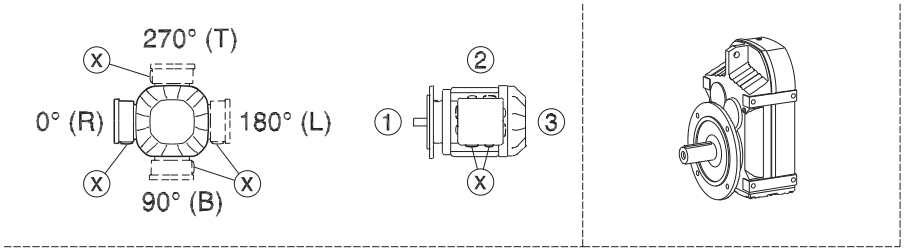


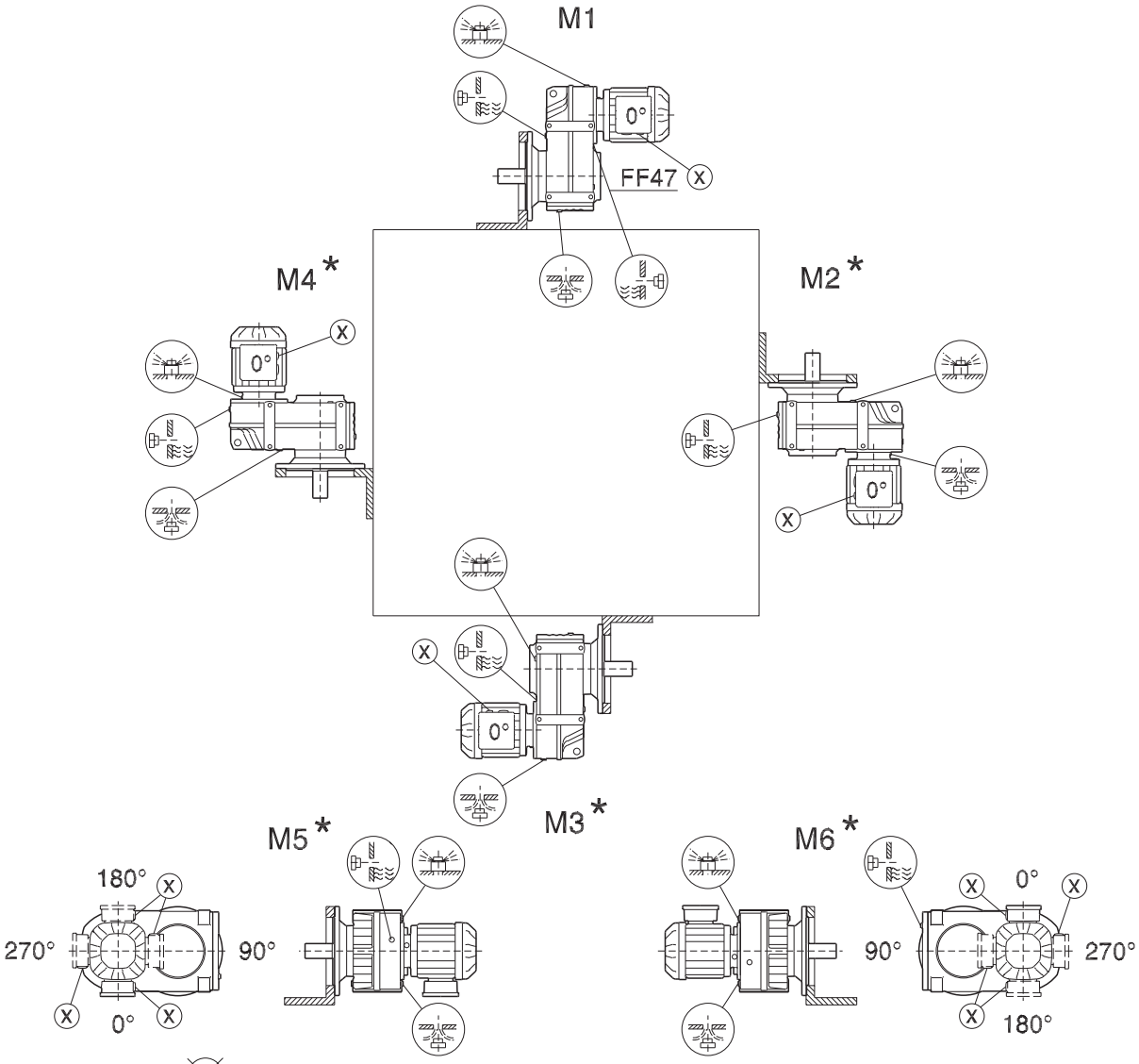


F..27		M1, M3, M5, M6
F..27		M1 - M6
F..27		M1, M3, M5, M6

* (→ 70)

FF/FAF/FHF/FZ/FAZ/FHZ27-157, FVF/FVZ27-107



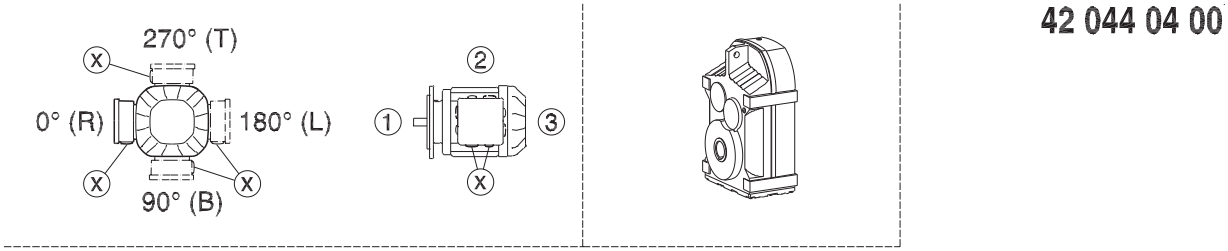


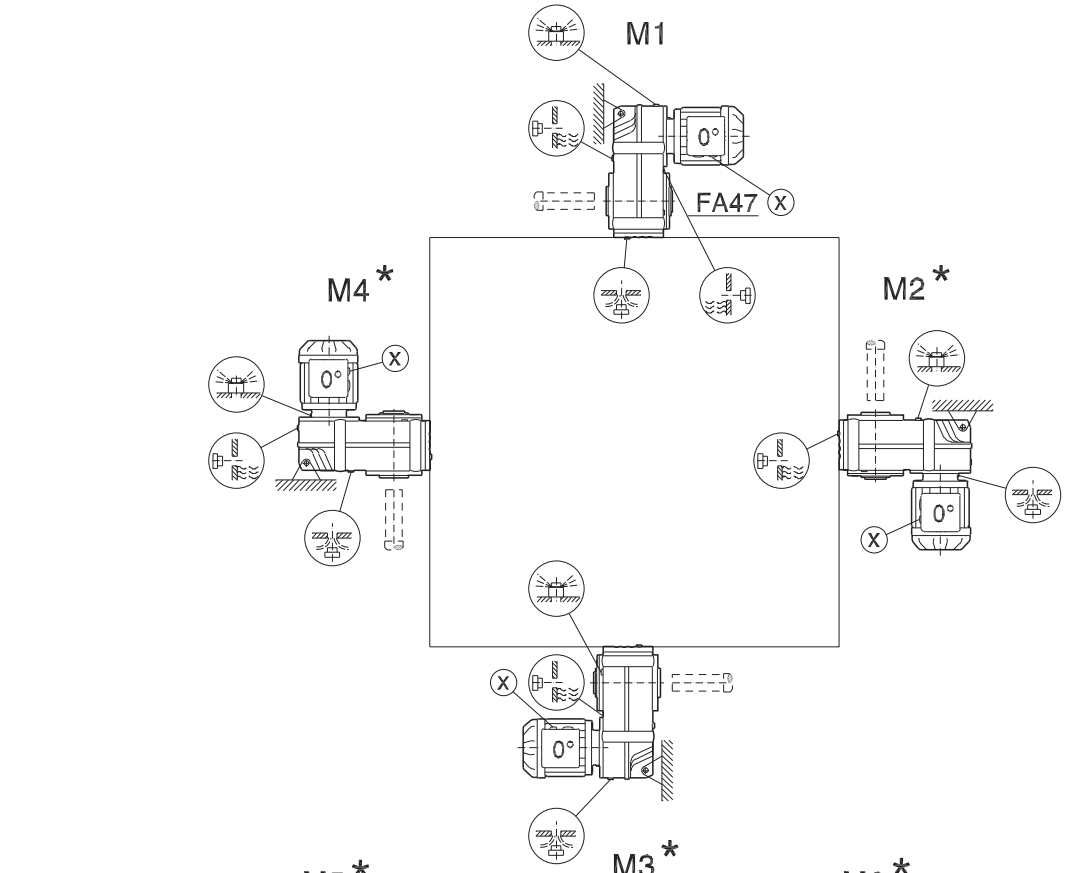
F..27		M1, M3, M5, M6
F..27		M1 - M6
F..27		M1, M3, M5, M6

* (→ 🗎 70)

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FA/FH27-157, FV27-107, FT37-97



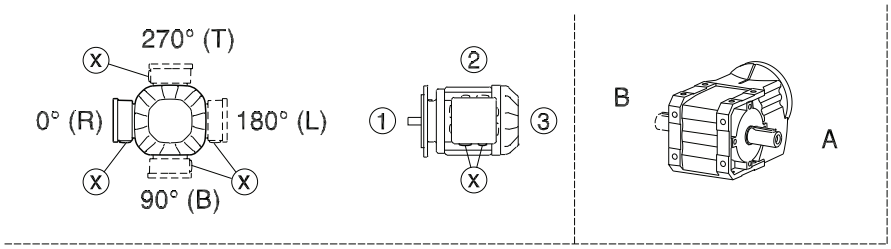


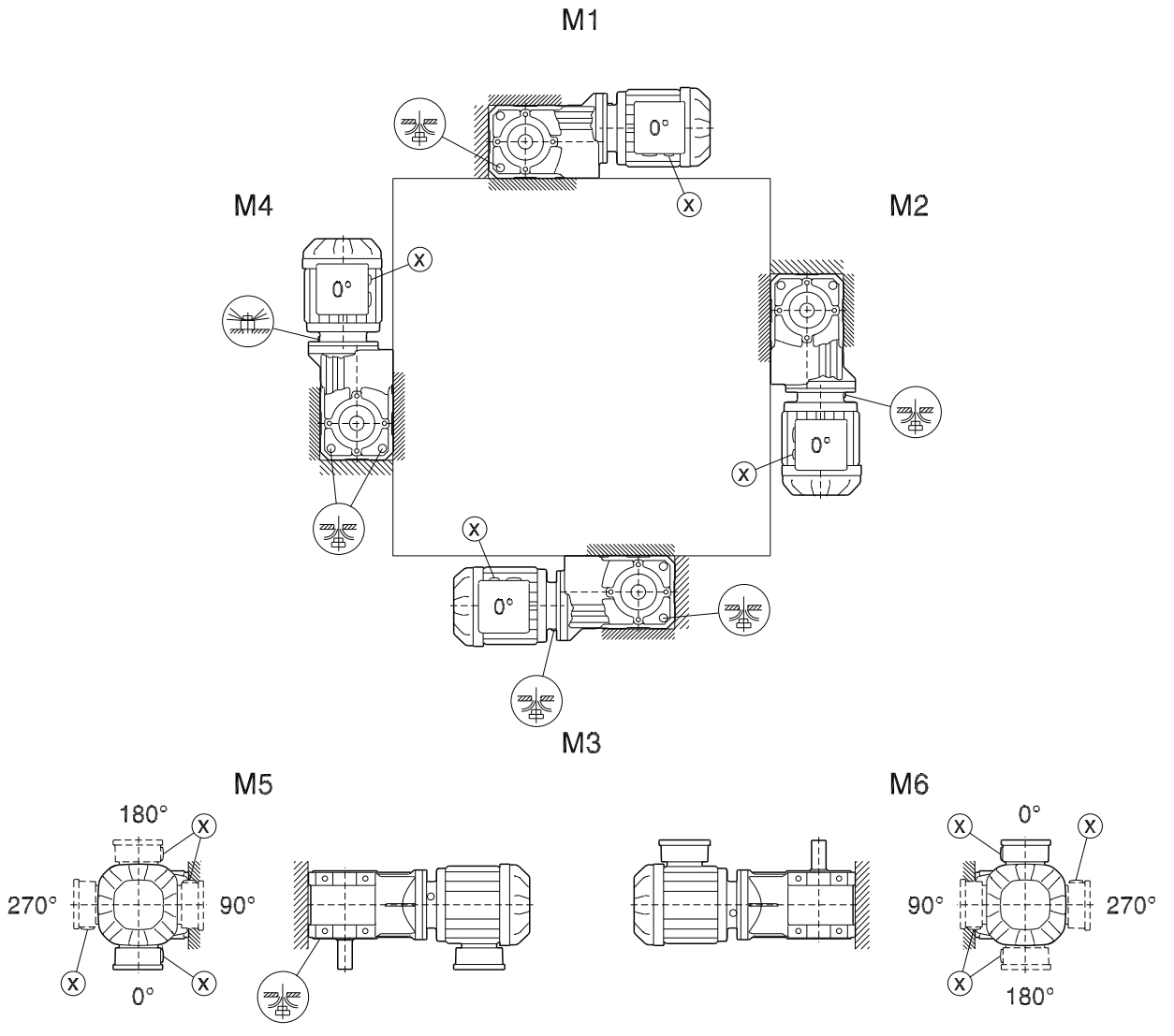
F..27		M1, M3, M5, M6
F..27		M1 - M6
F..27		M1, M3, M5, M6

* (→ 🗎 70)

5.5 Mounting positions – Helical-bevel

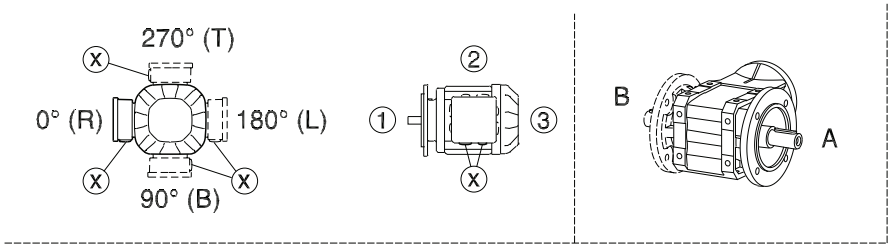
K/KA..B/KH19B-29B

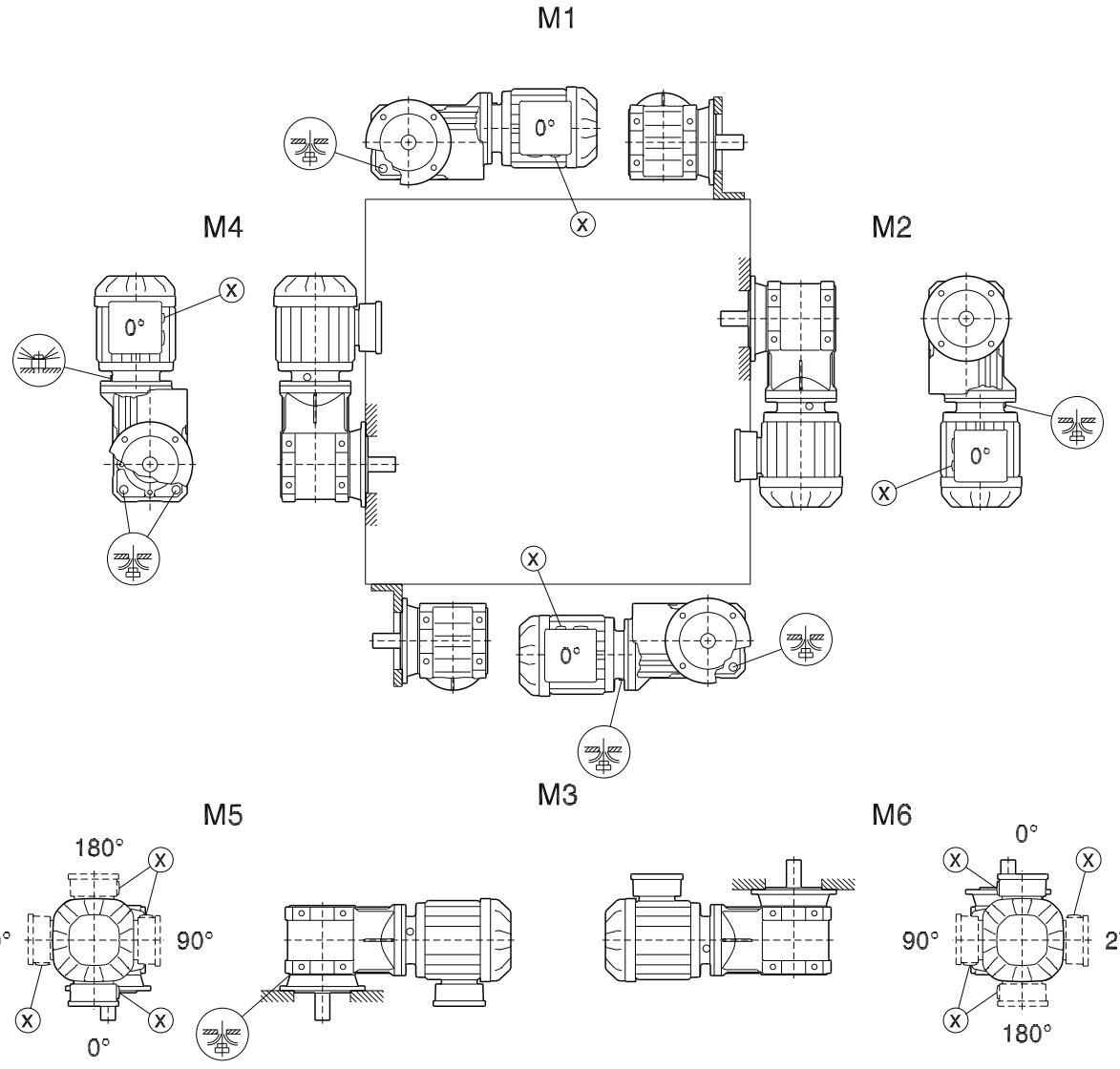




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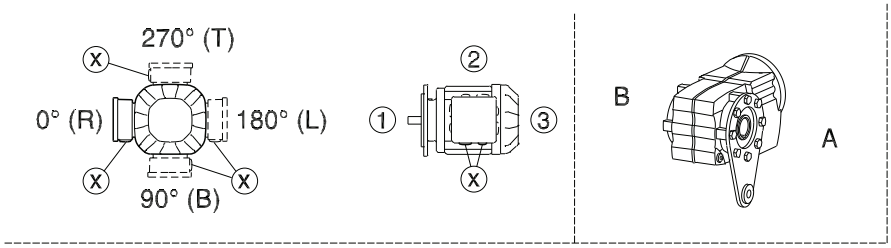
KF..B/KAF..B/KHF19B-29B

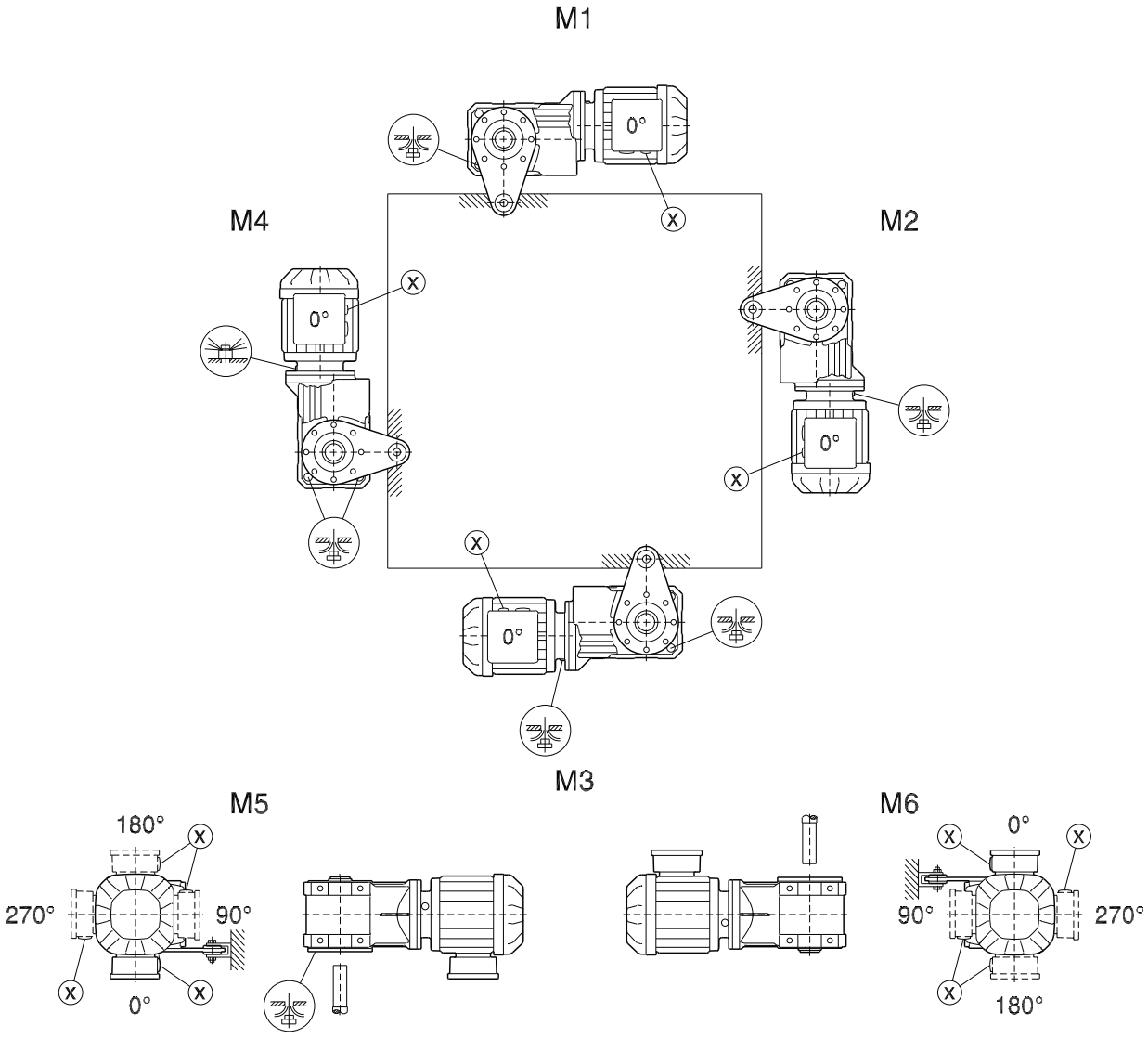




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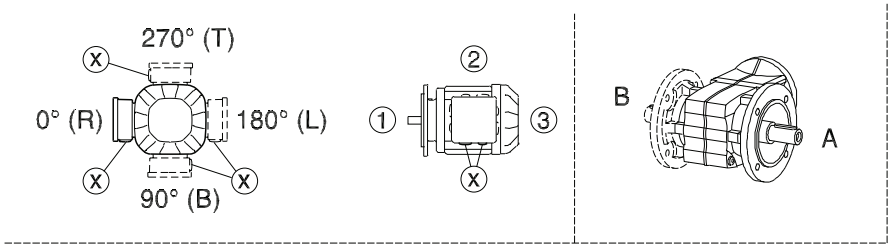
KA..B/KH19B-29B

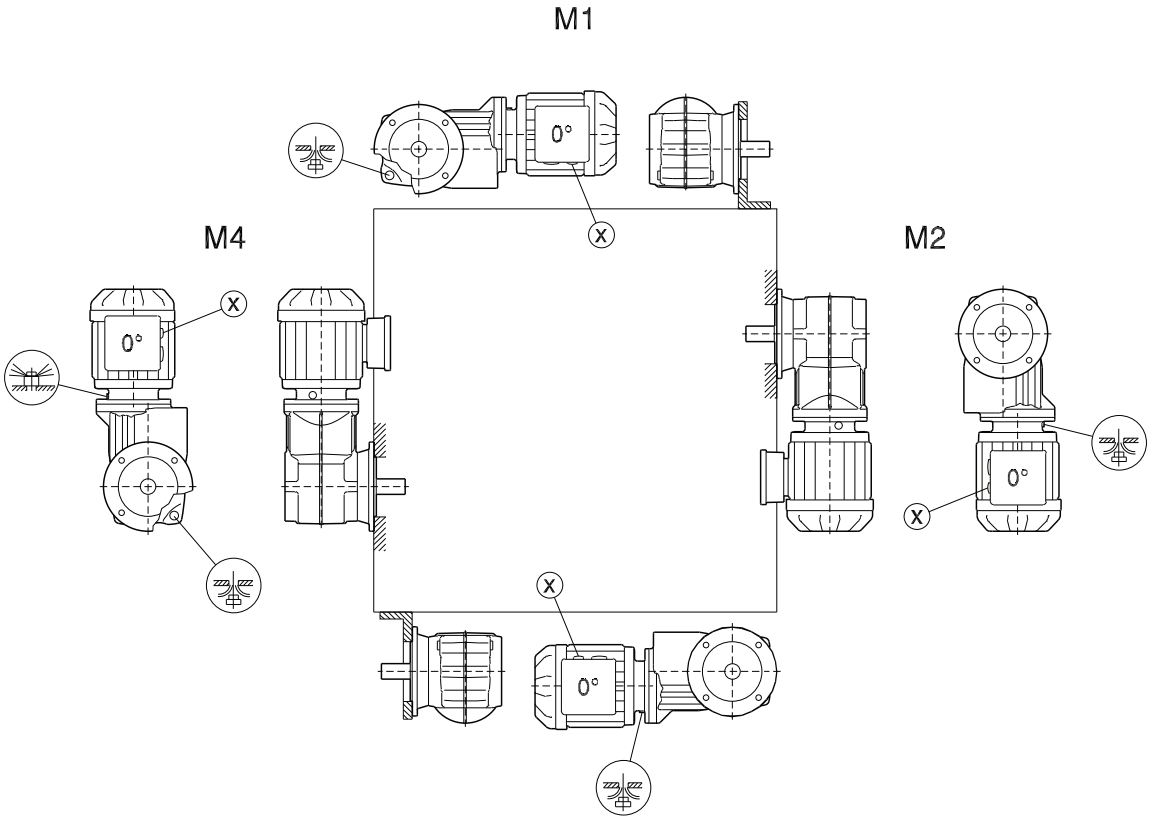


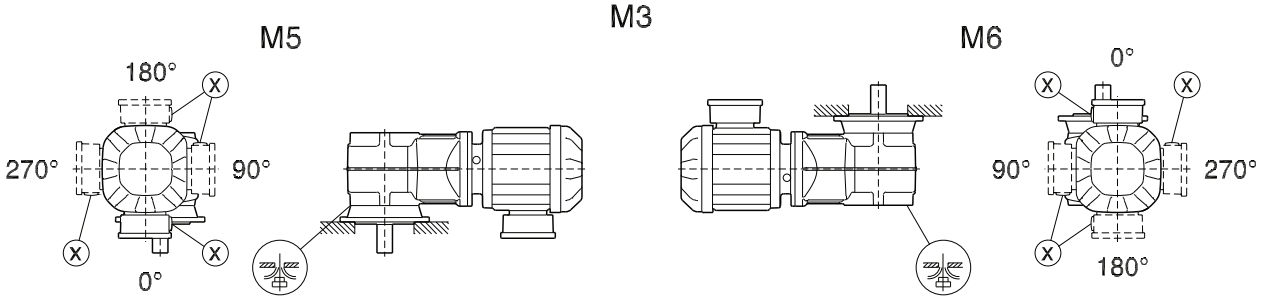


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KF/KAF/KHF19-29

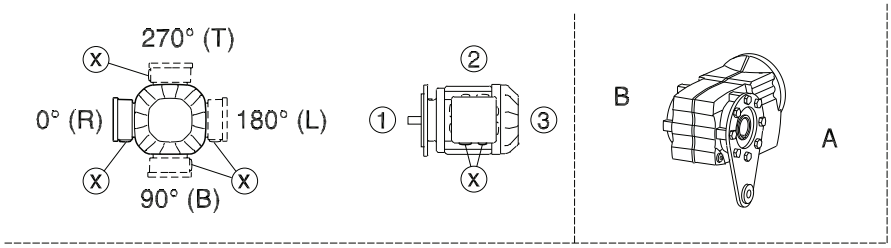


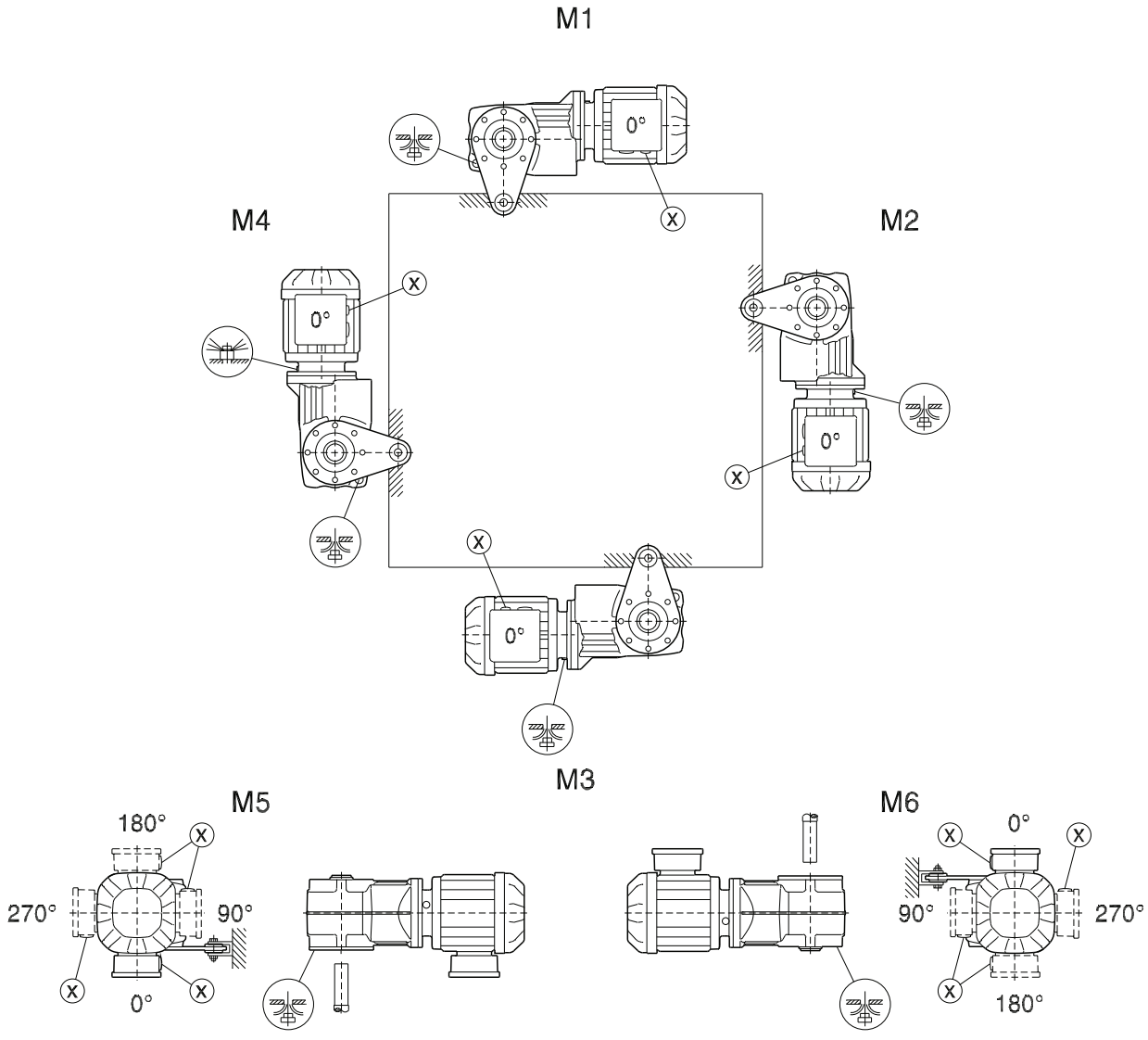




24833231/EN-US – 07/2021

KA/KH19-29

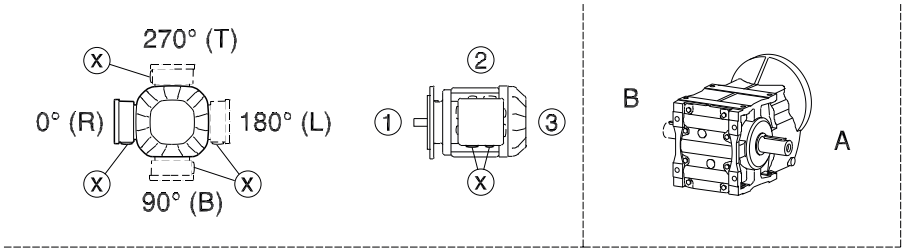


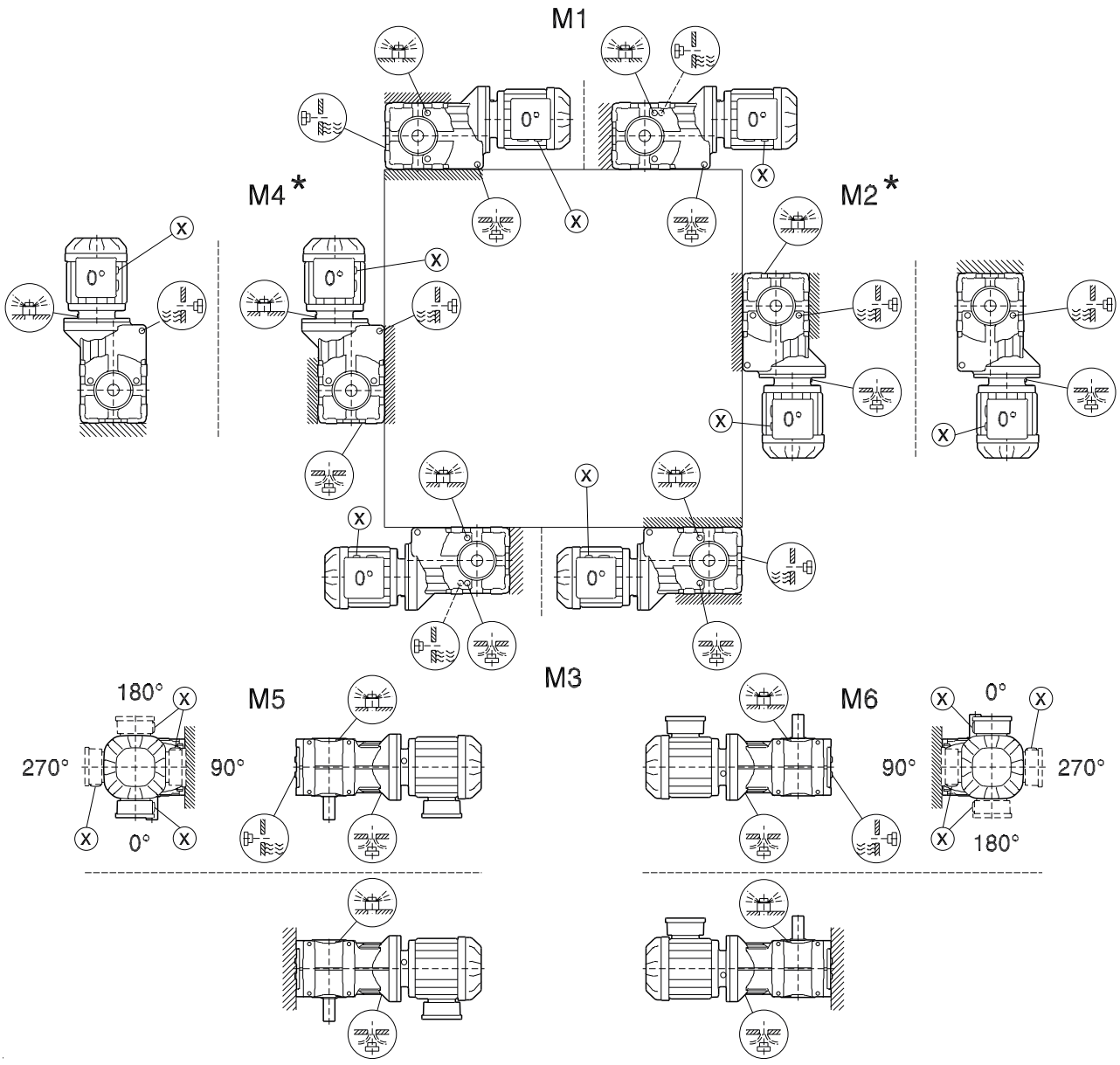


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K/KA..B39-49

33 092 02 14

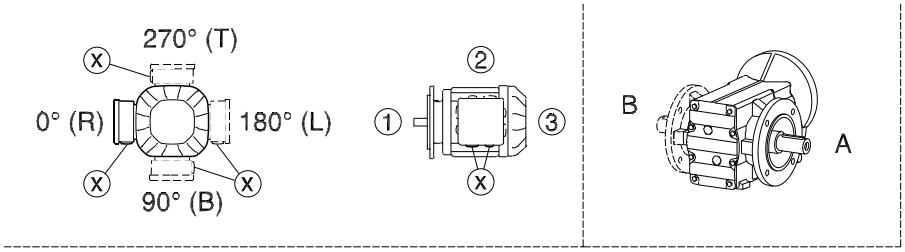


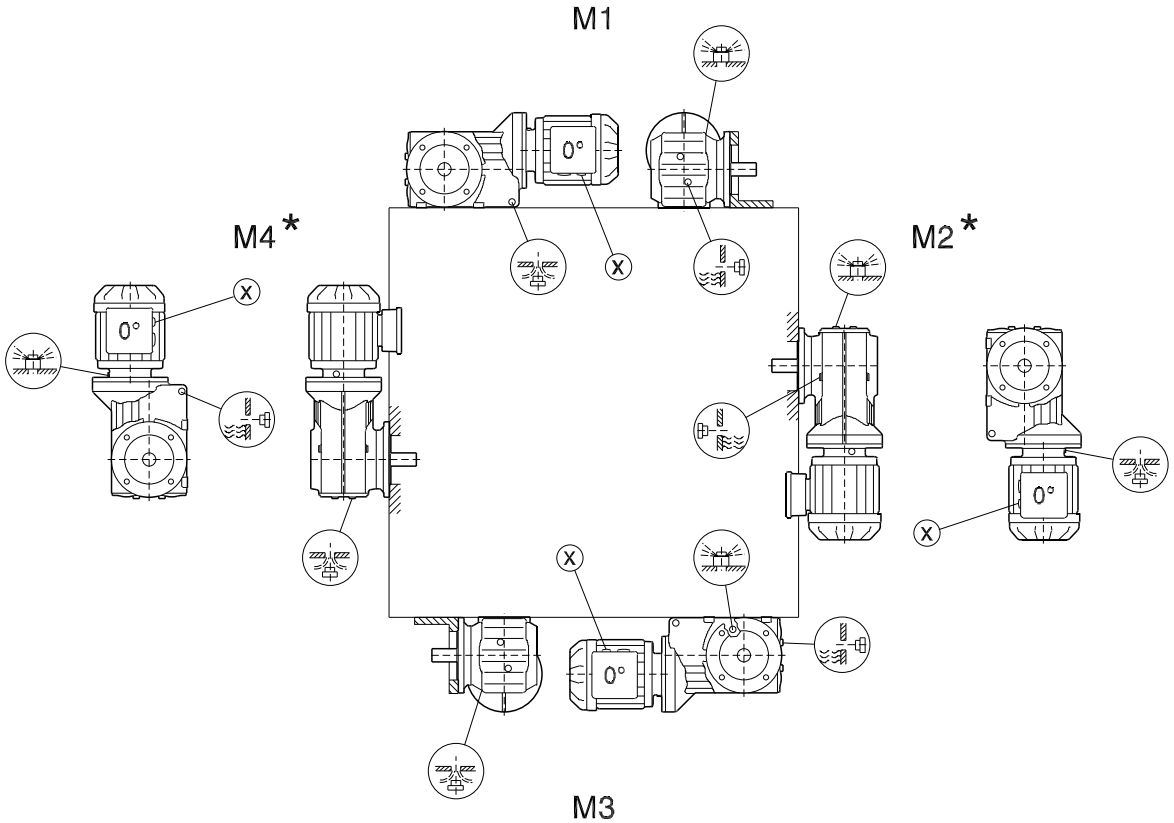


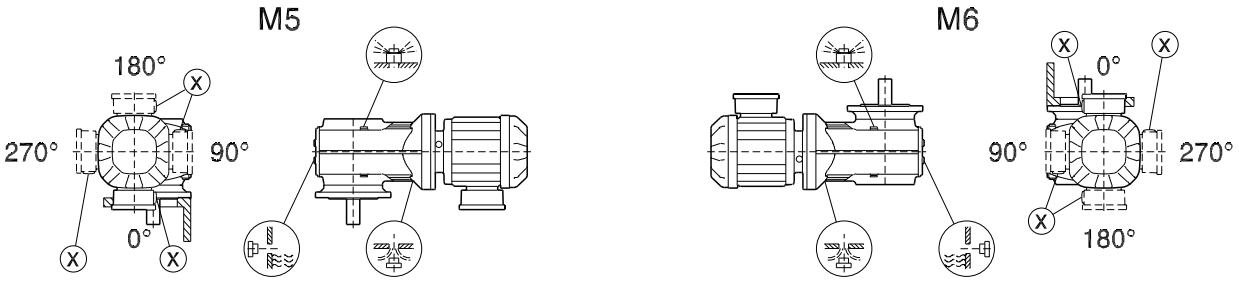
For M1, refer to the information in chapter "Allowable overhung load" (→ 🗎 52).

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KF/KAF/KHF/KTF39-49



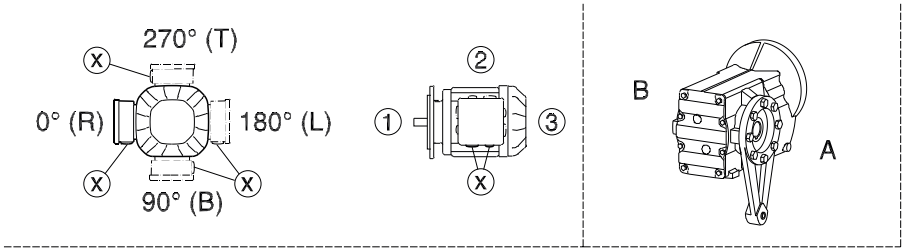


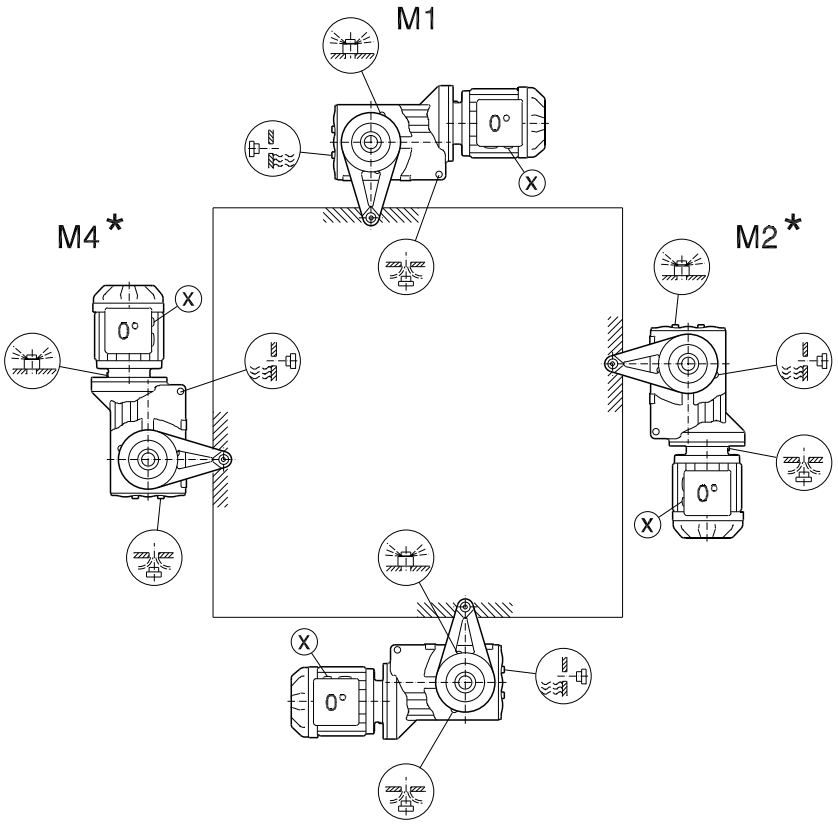


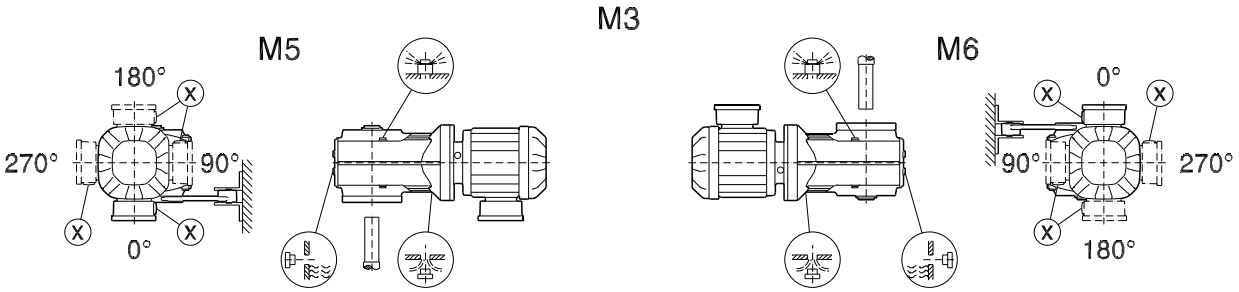
24833231/EN-US – 07/2021

KA/KH/KT39-49

33 094 01 14

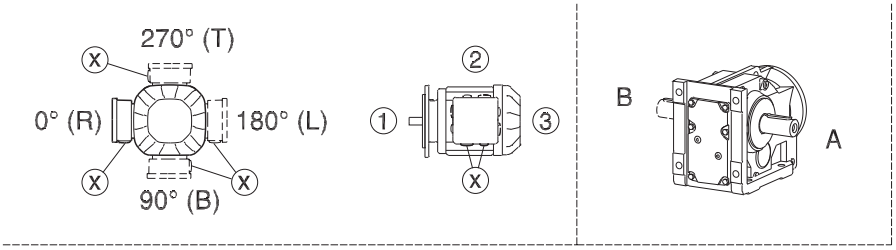


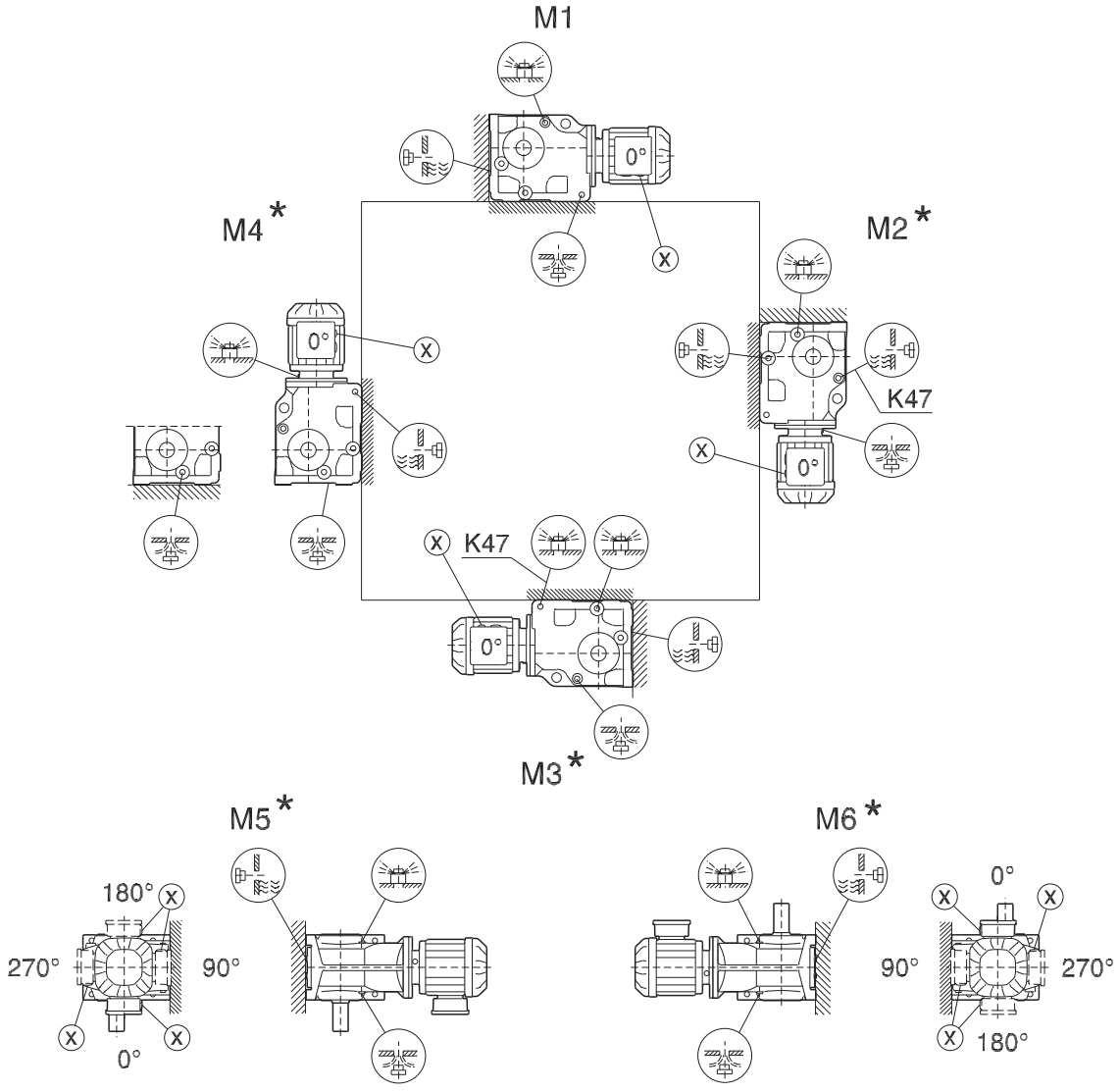




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K/KA..B/KH47B-157B, KV47B-107B



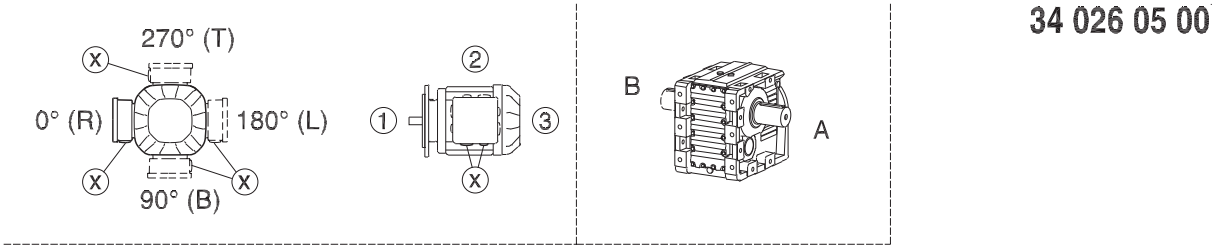


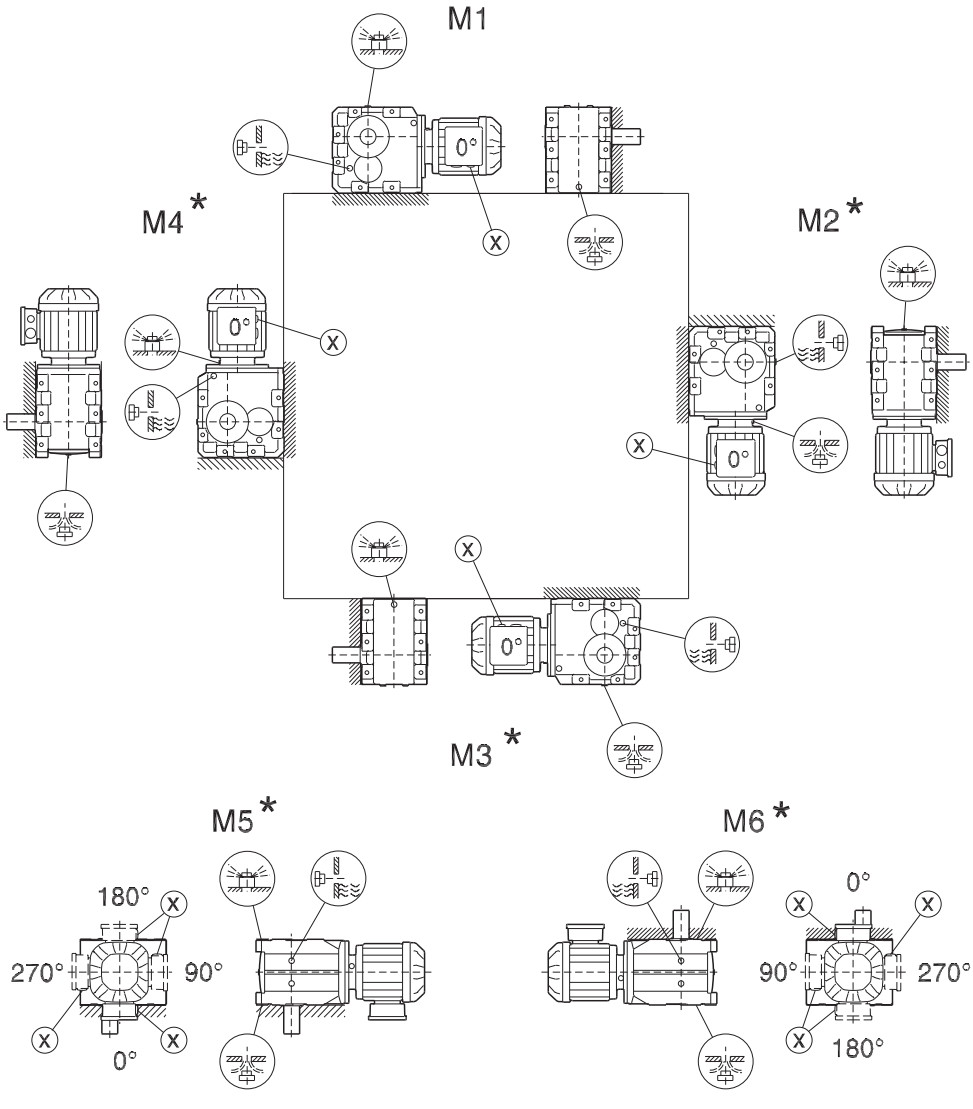
* (→ 🗎 70)

For M1, refer to the information in chapter "Allowable overhung load" (→ 🗎 52).

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K167-187, KH167B-187B



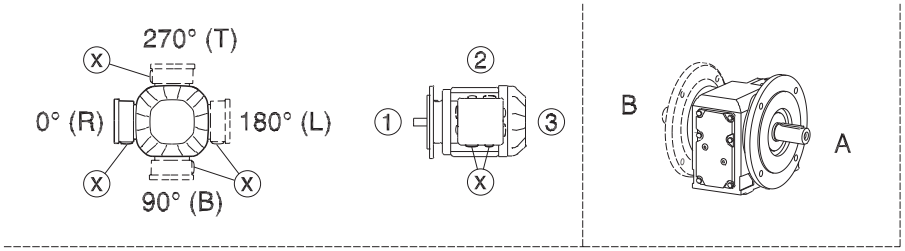


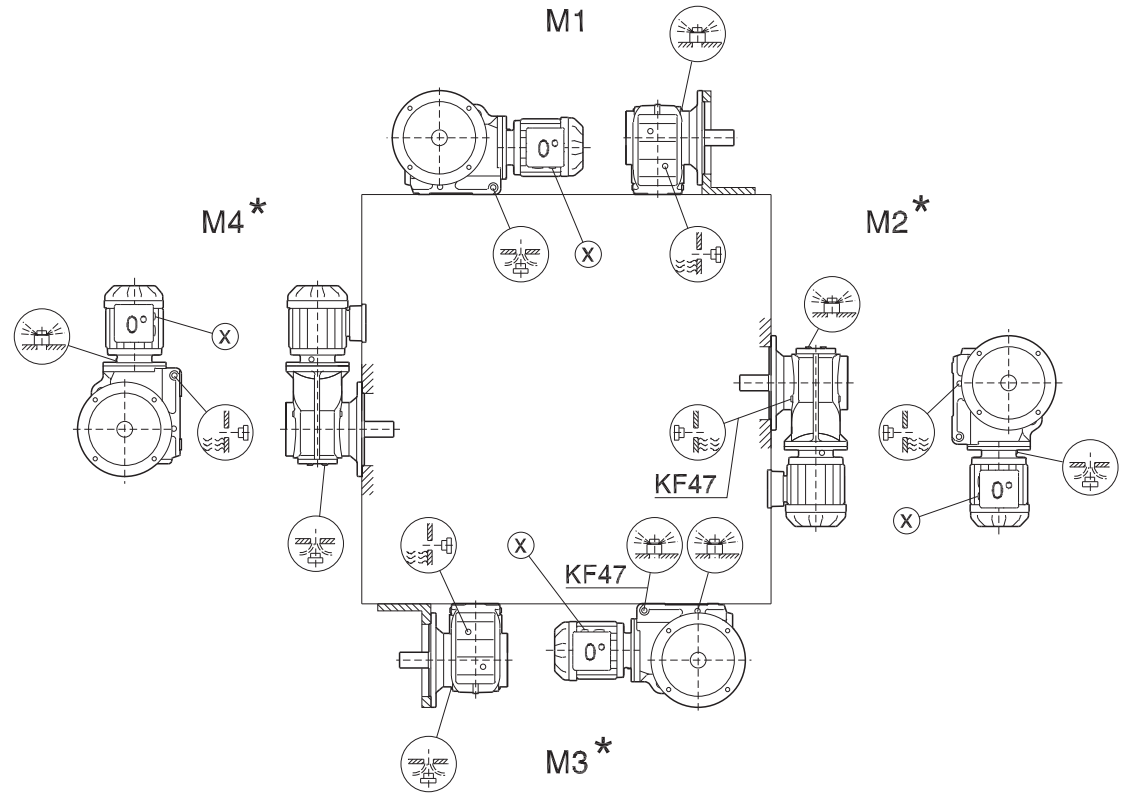
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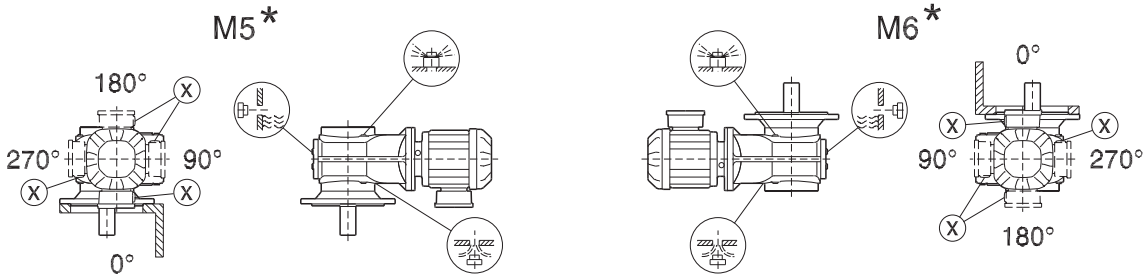
Also refer to the information in chapter "Allowable overhung load" (→ 🗎 52).

KF/KAF/KHF/KZ/KAZ/KHZ37-157, KVF/KVZ37-107

34 027 04 00





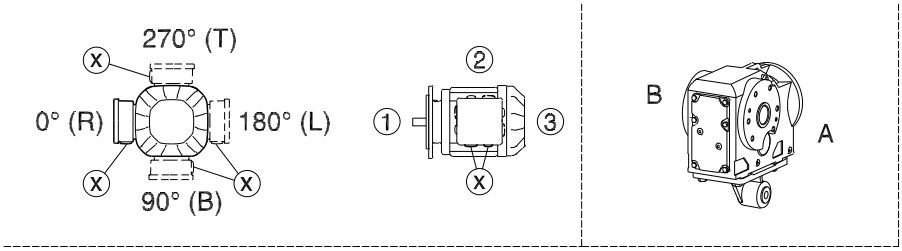


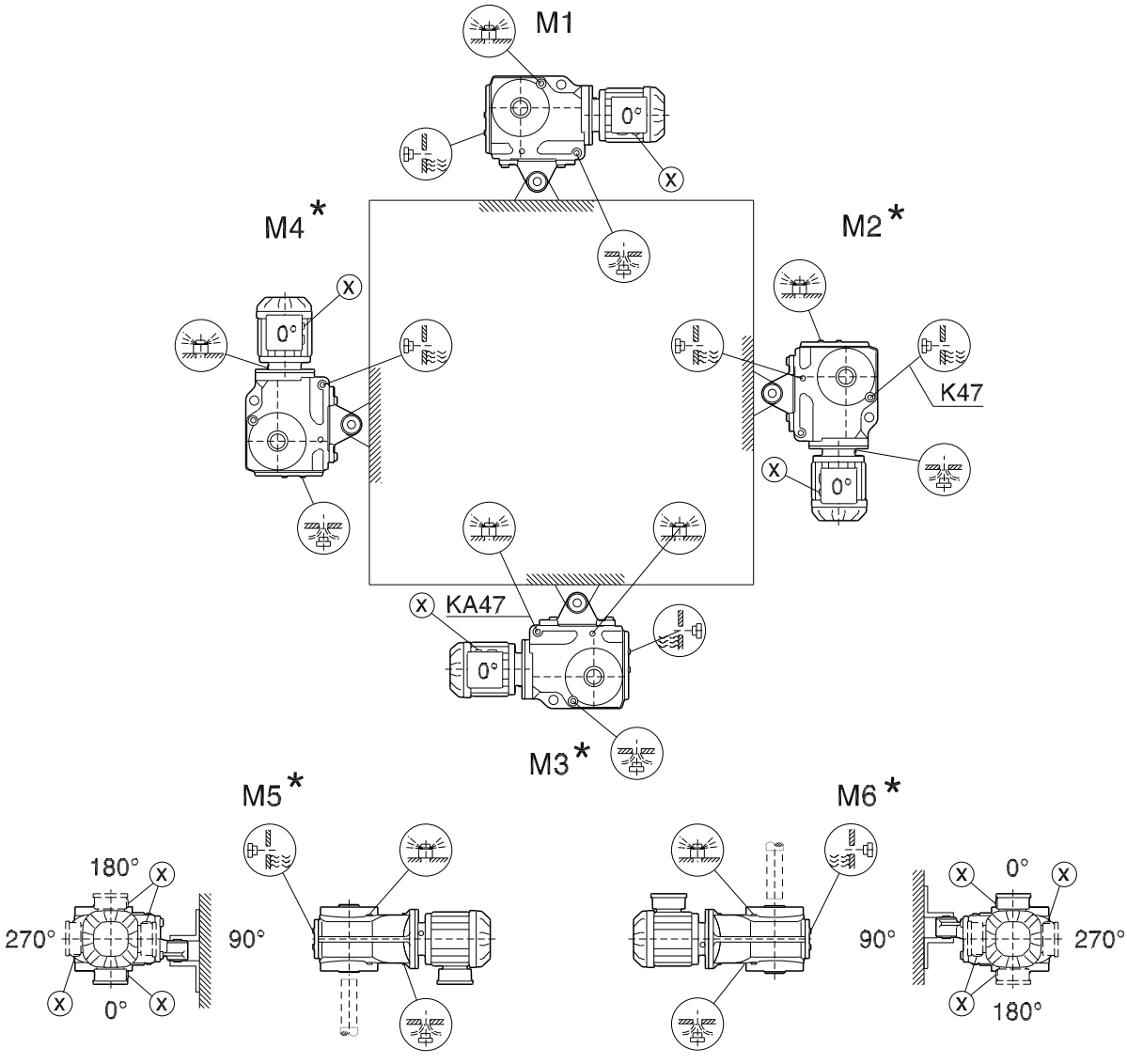
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KA/KH37-157, KV37-107, KT37-97

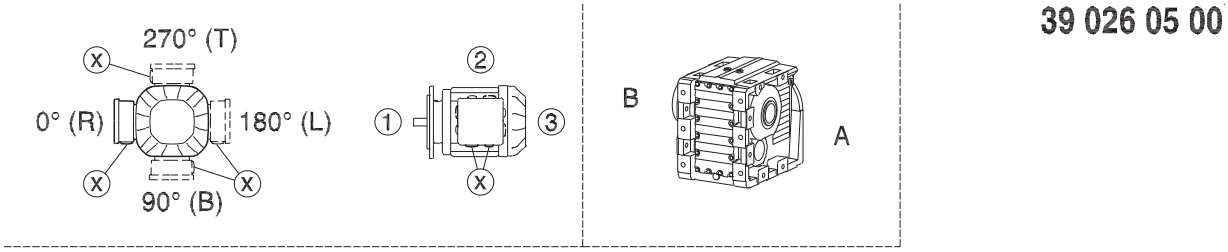
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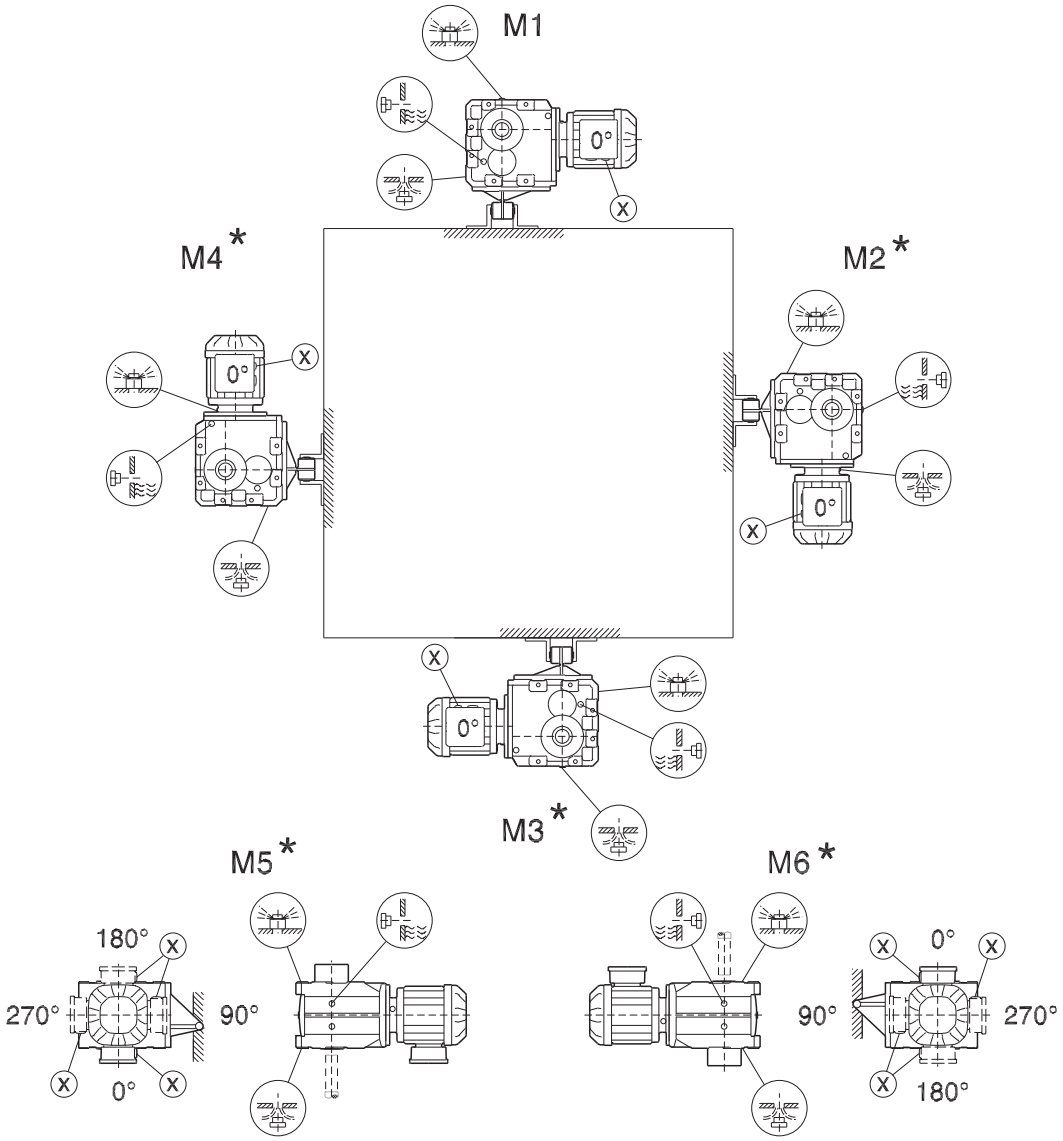




* (→ 🗎 70)

KH167-187



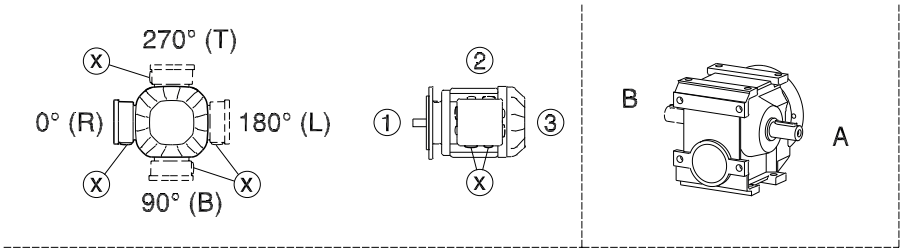


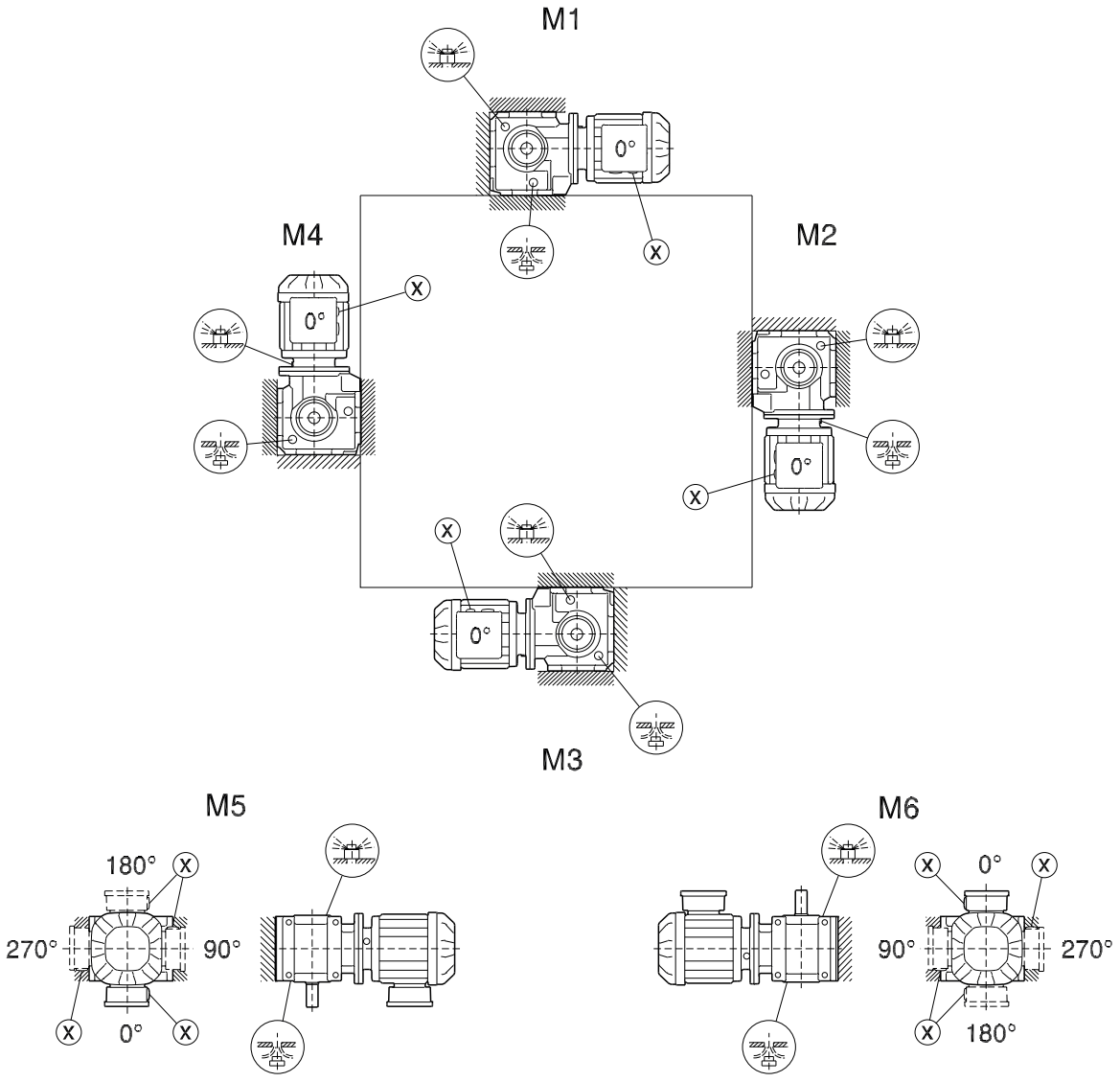
* (→ 🗎 70)

24833231/EN-US – 07/2021

5.6 Mounting positions – Helical-worm

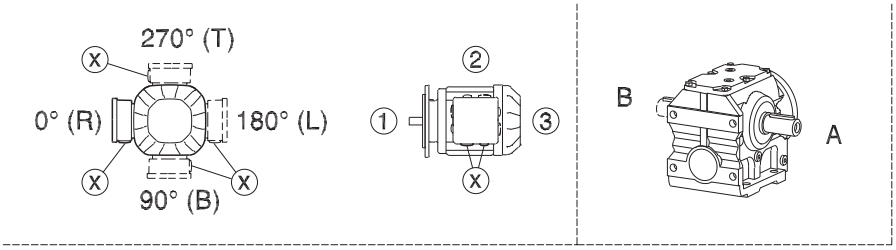
S37



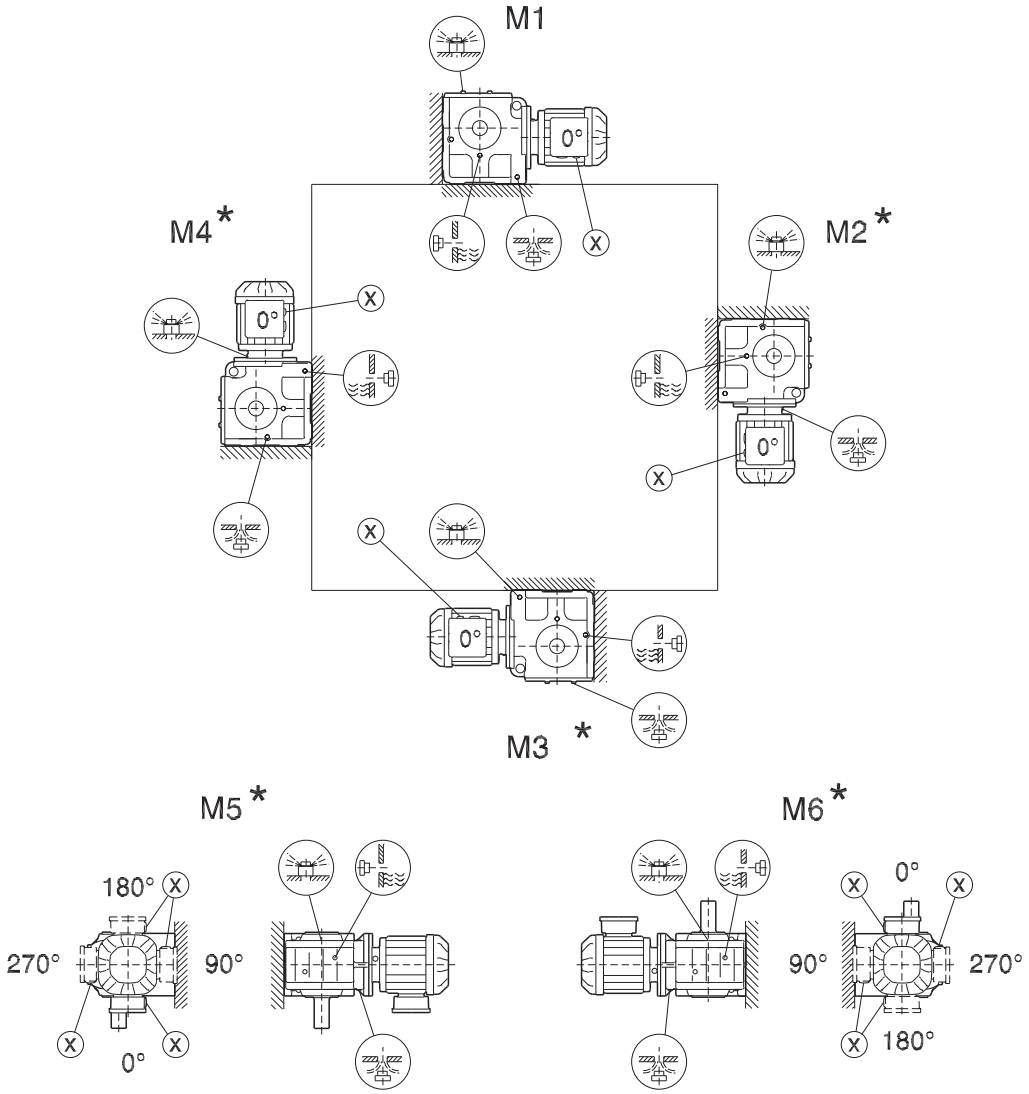


For M1, refer to the information in chapter "Allowable overhung load" (→ 🗎 52).

S47-S97



05 026 04 00

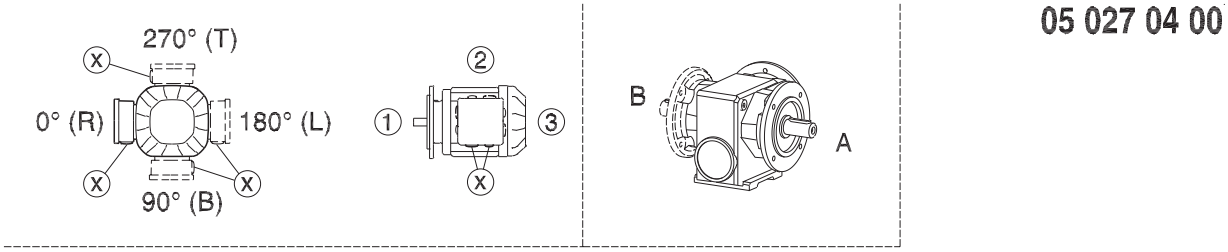


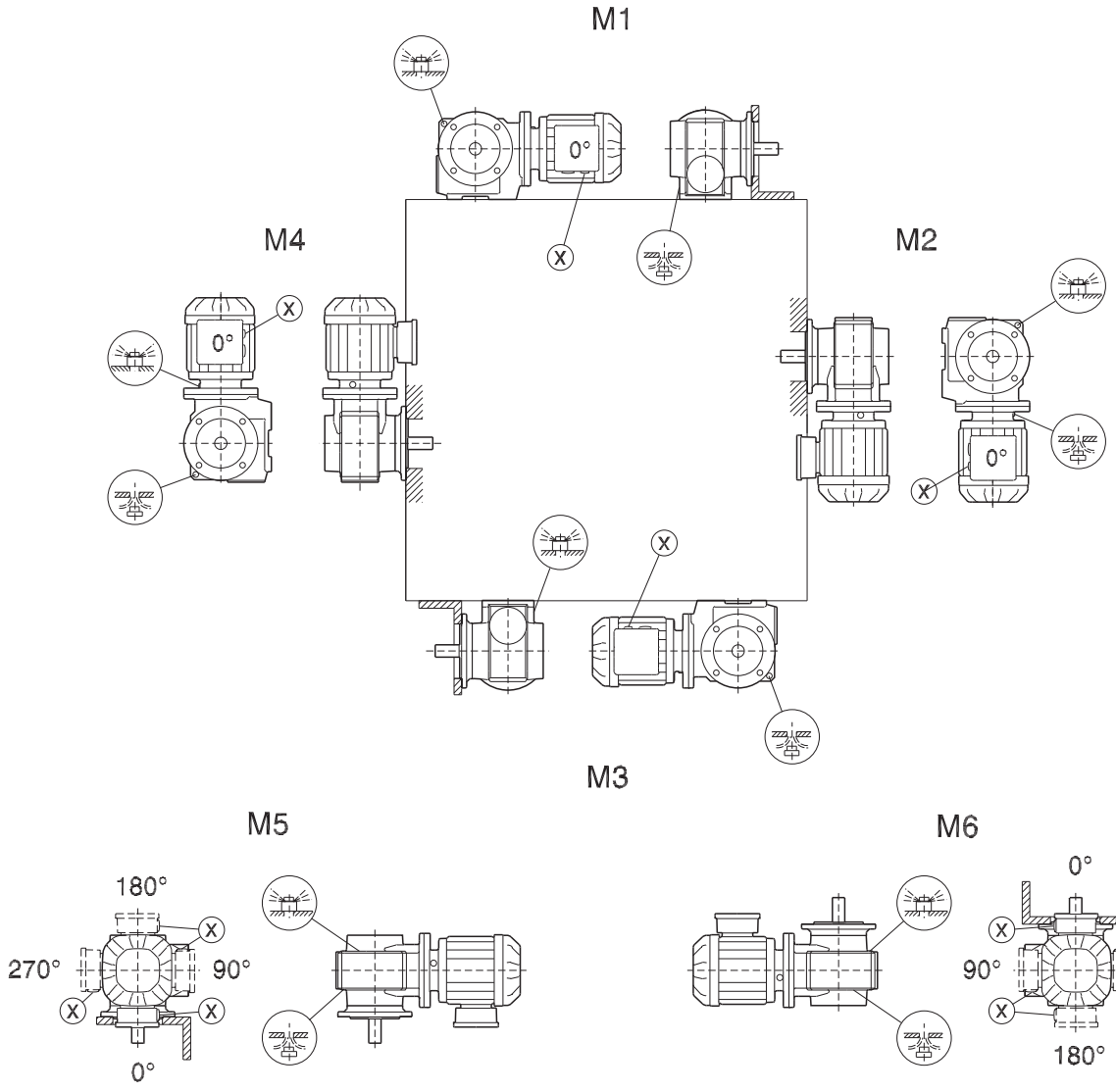
* (→ 🗎 70)

For M1, refer to the information in chapter "Allowable overhung load" (→ 🗎 52).

24833231/EN-US – 07/2021

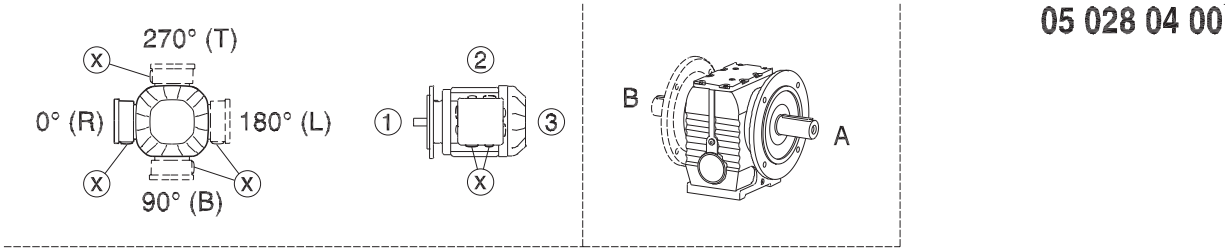
SF/SAF/SHF37

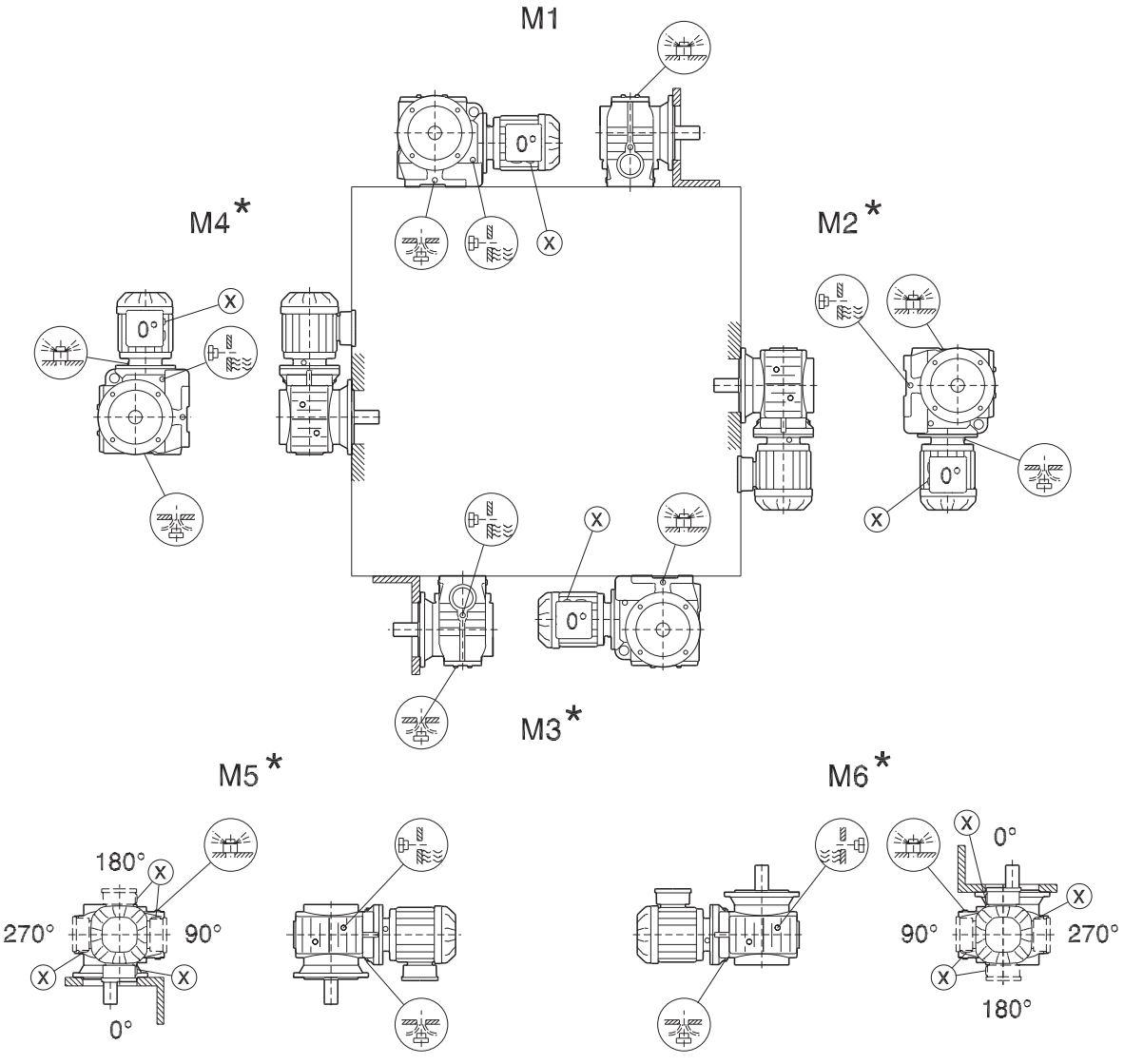




24833231/EN-US – 07/2021

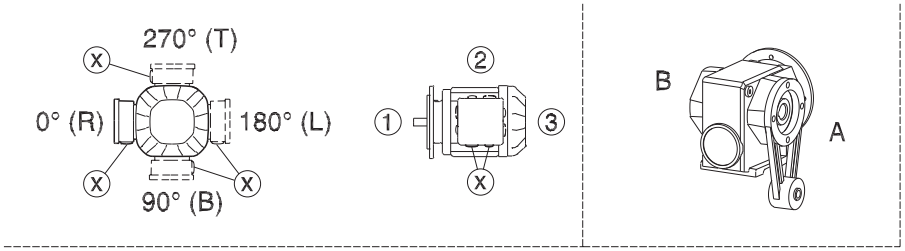
SF/SAF/SHF/SAZ/SHZ47-97

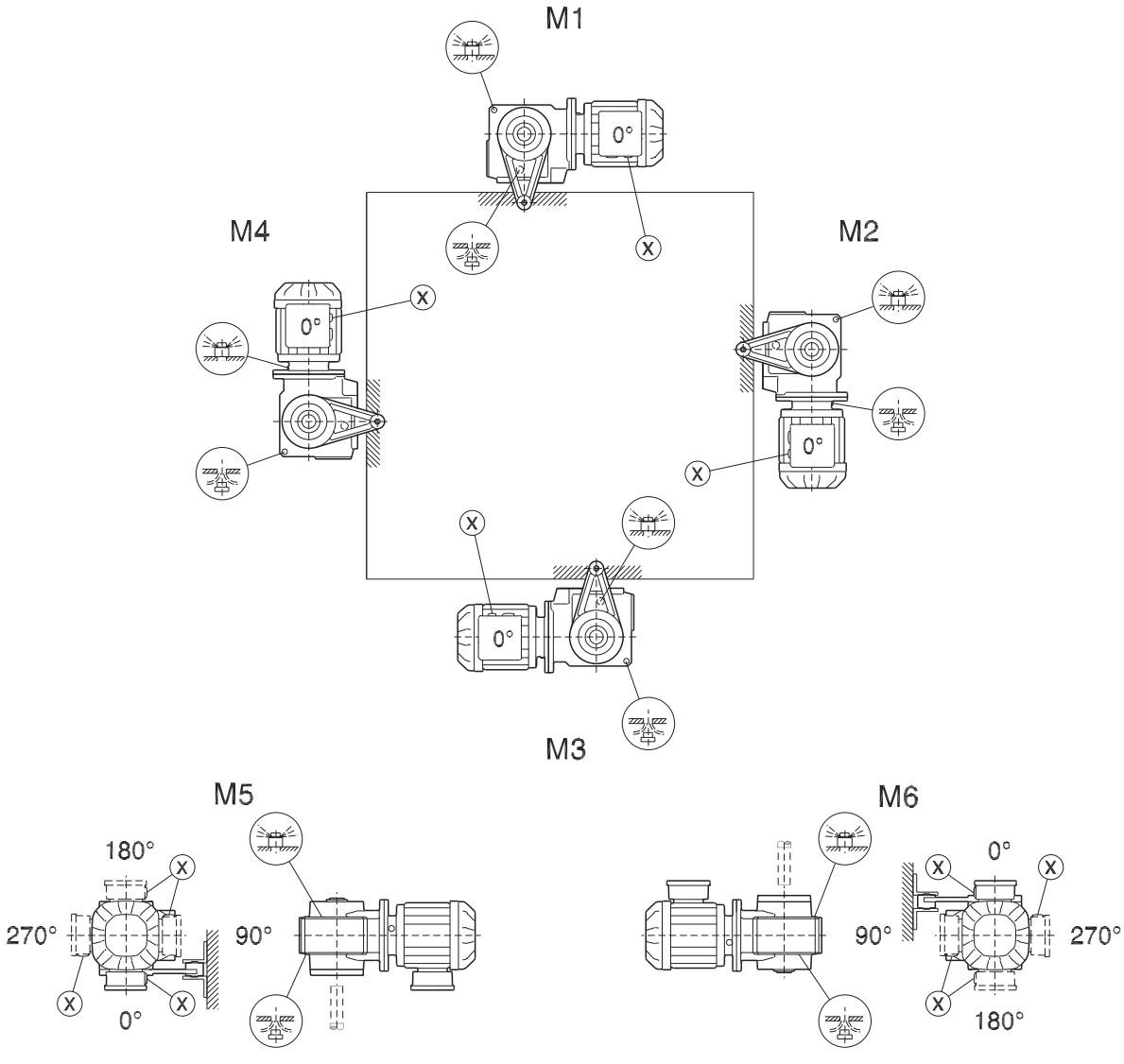




* (→ 🗎 70)

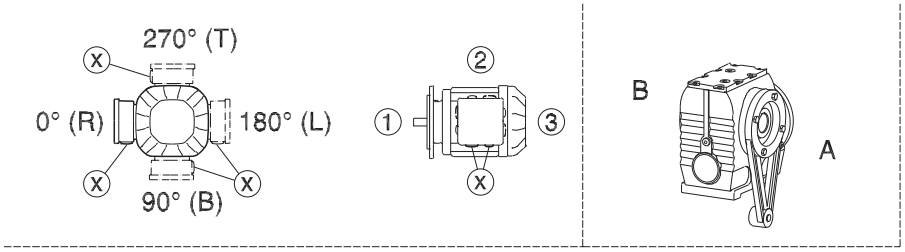
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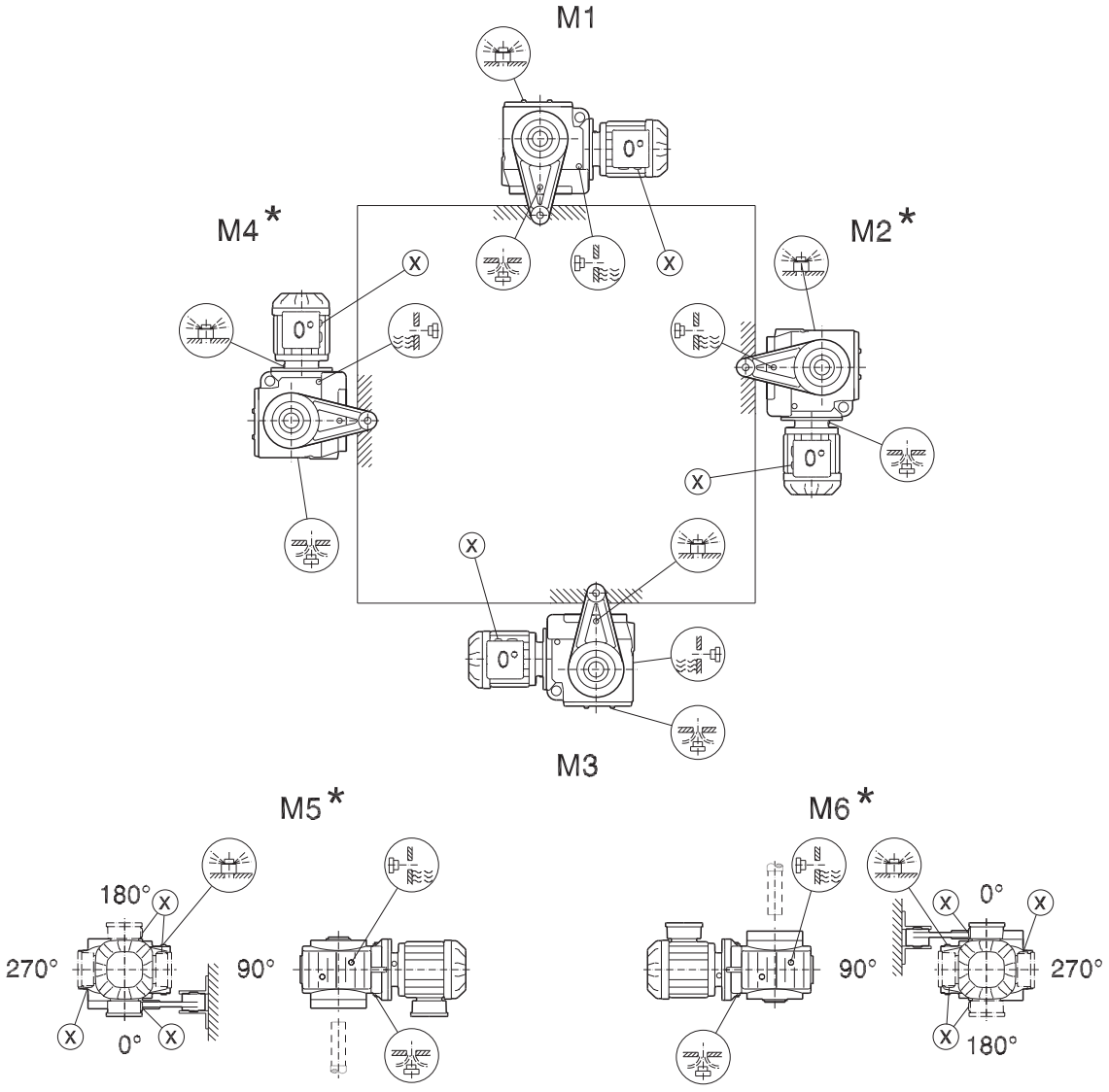




24833231/EN-US – 07/2021

SA/SH/ST47-97

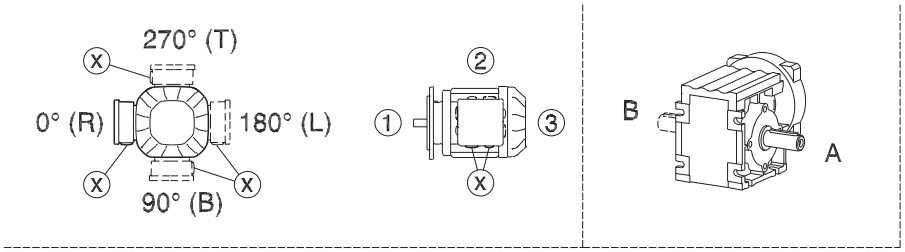




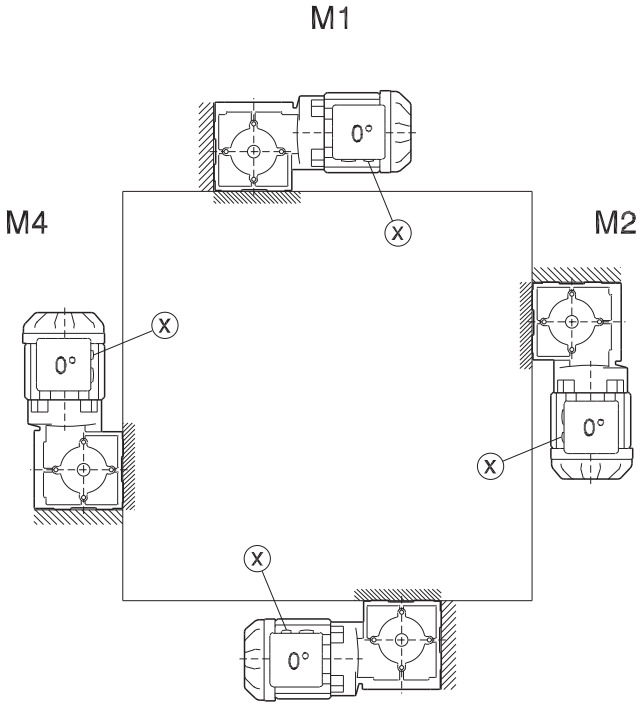
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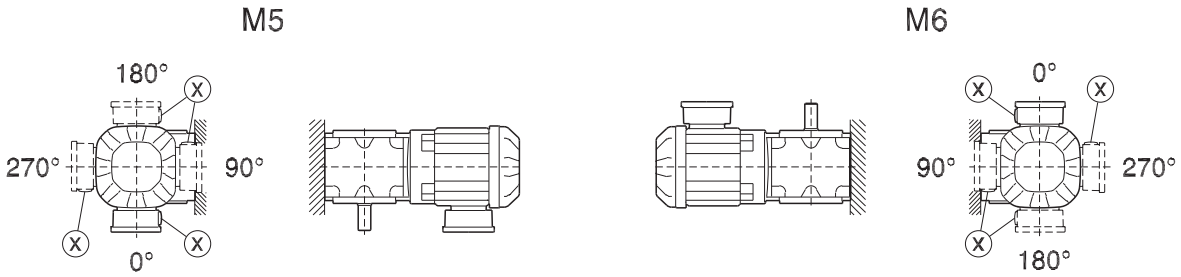
5.7 Mounting positions – SPIROPLAN®

W10-30



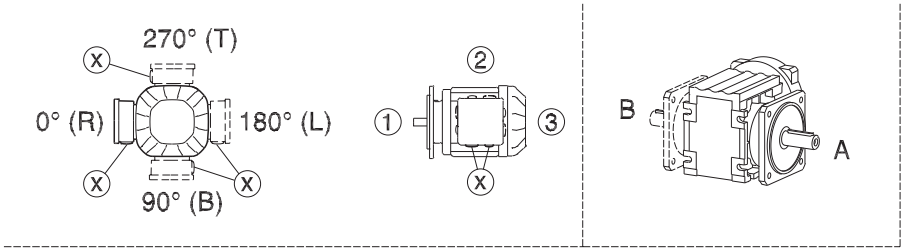
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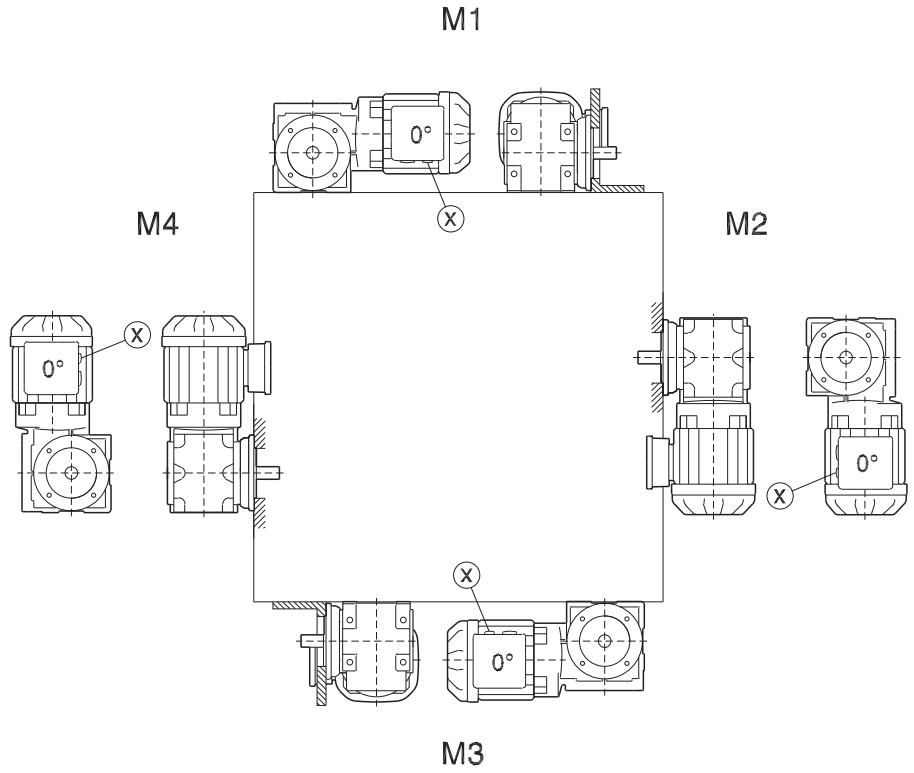


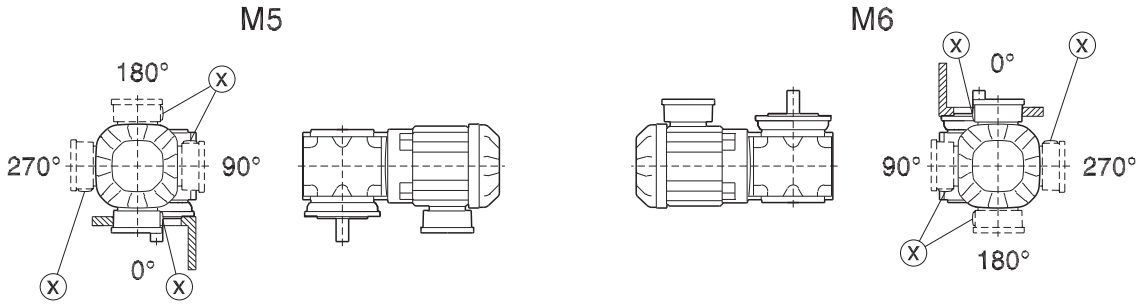
24833231/EN-US – 07/2021

WF10-30



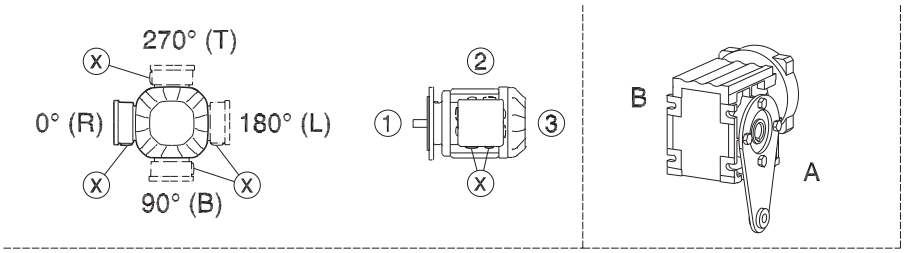
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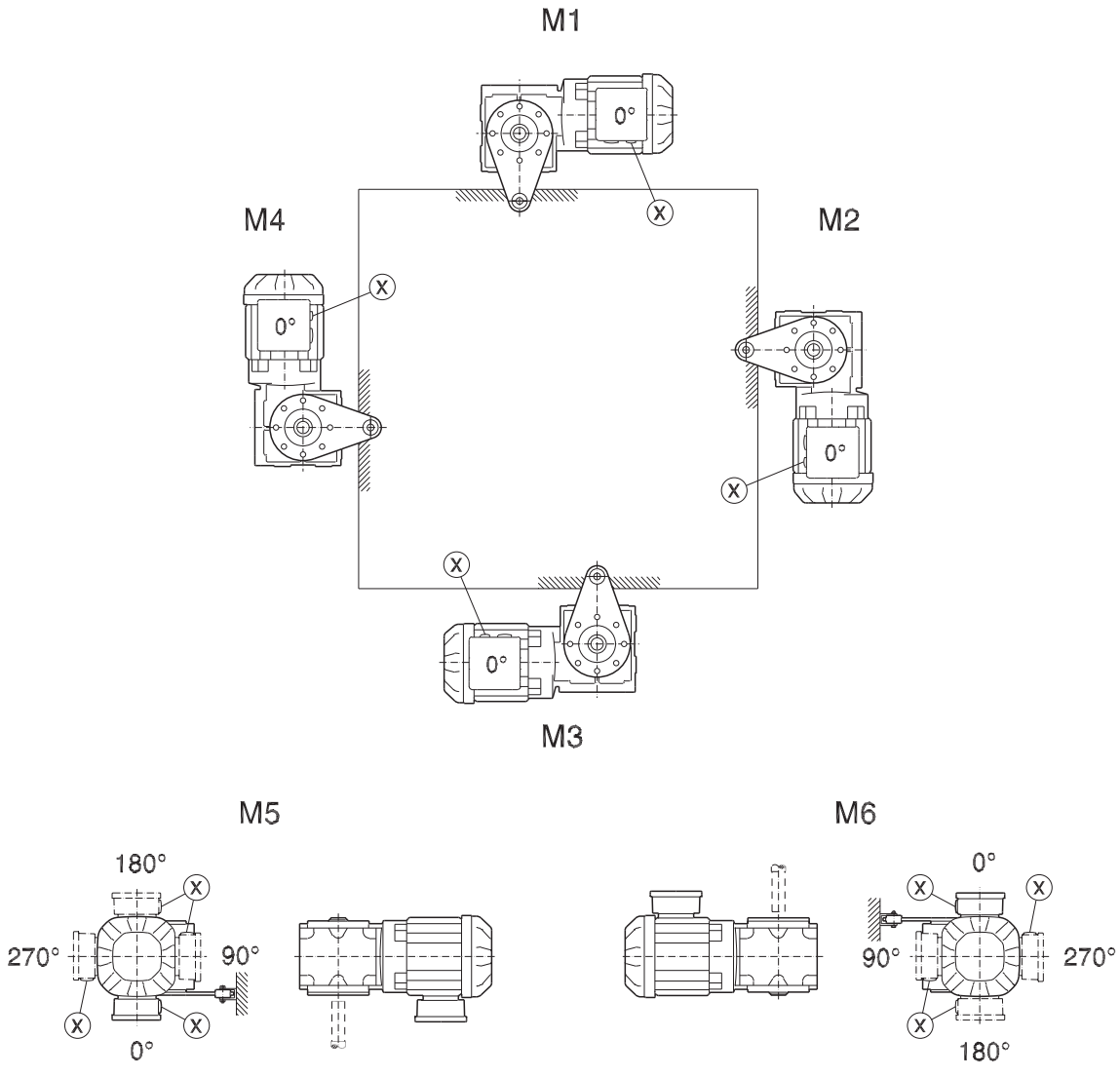




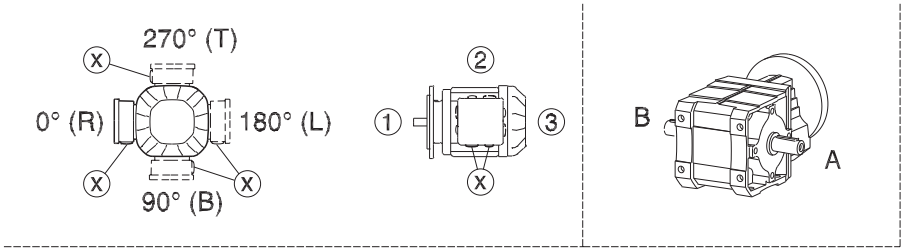
24833231/EN-US – 07/2021

WA10-30

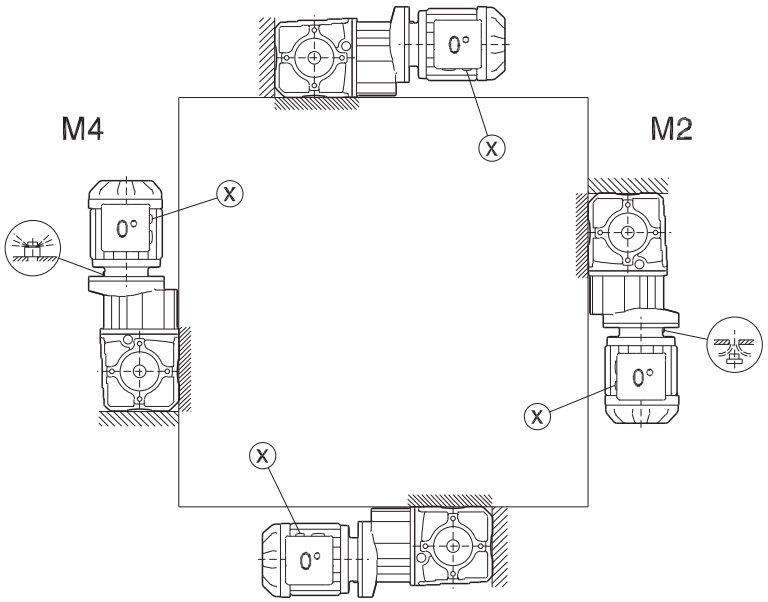

20 003 03 02
270° (T)
0° (R)
180° (L)
90° (B)
X
1
2
3
B
A


M1
0°
X
M4
M2
0°
X
0°
X
X
0°
M3
M5
180°
270°
90°
0°
X
M6
0°
90°
270°
180°
X

W/WA..B/WH37B-47B



M1

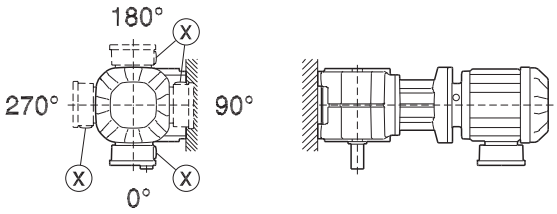


M4

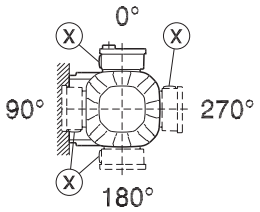
M2

M3

M5

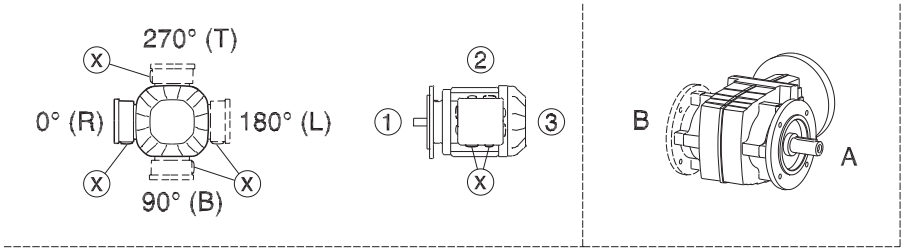


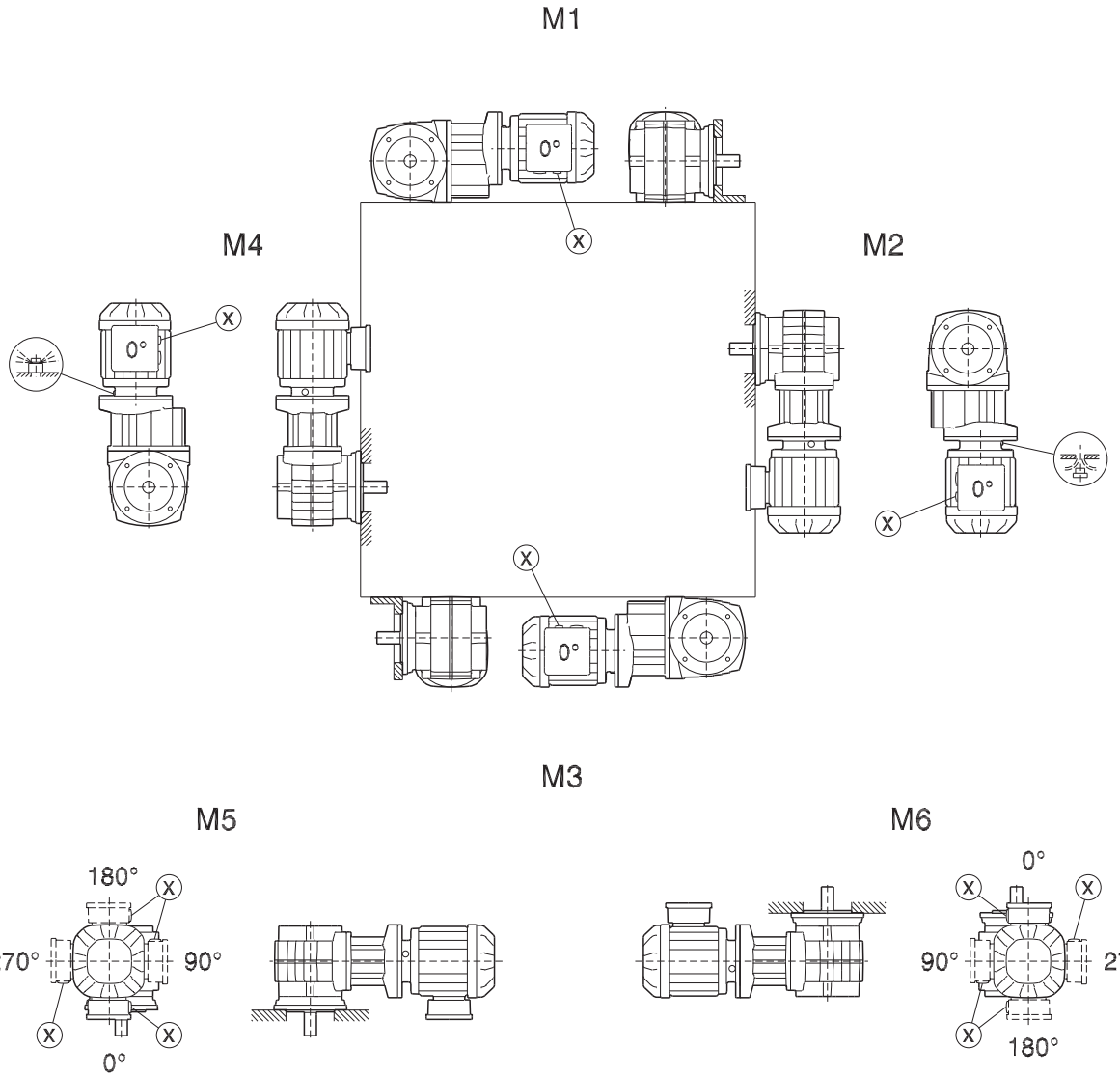
M6



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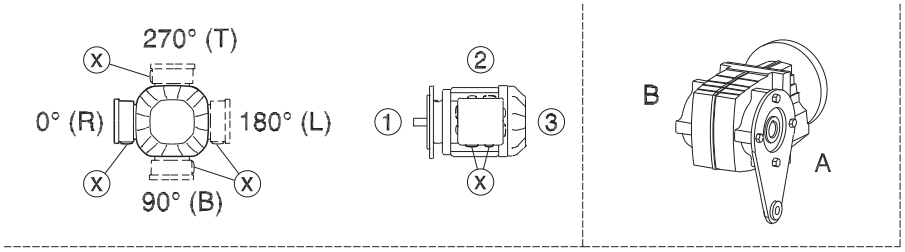
WF/WAF/WHF37-47





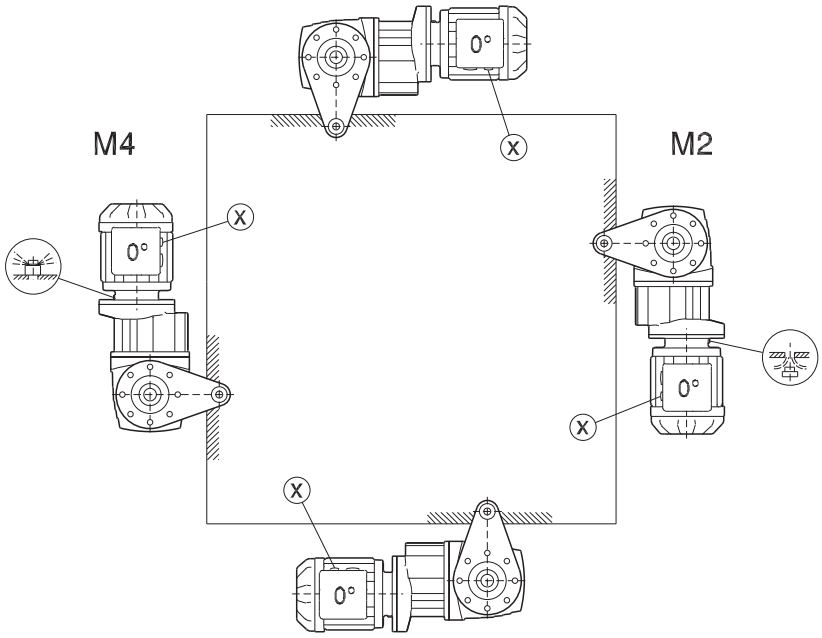
24833231/EN-US – 07/2021

WA/WH/WT37-47



20 014 02 07

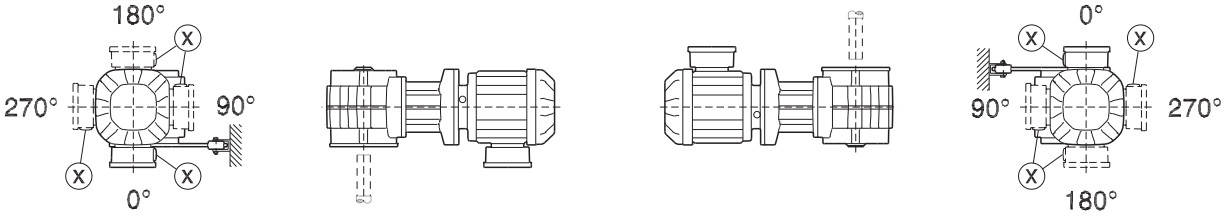
M1



M4 M2

M3

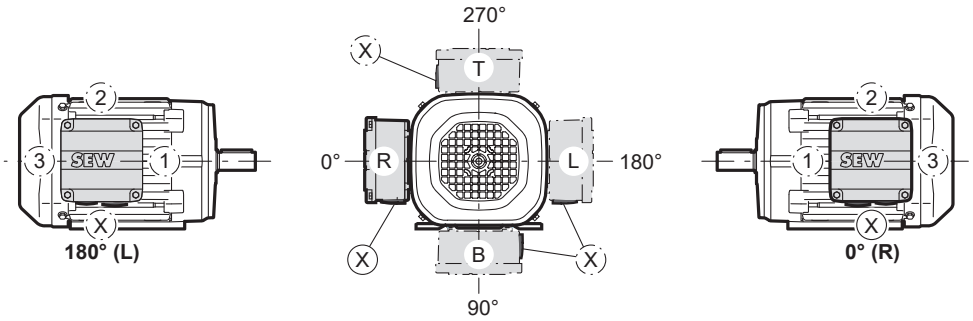
M5 M6



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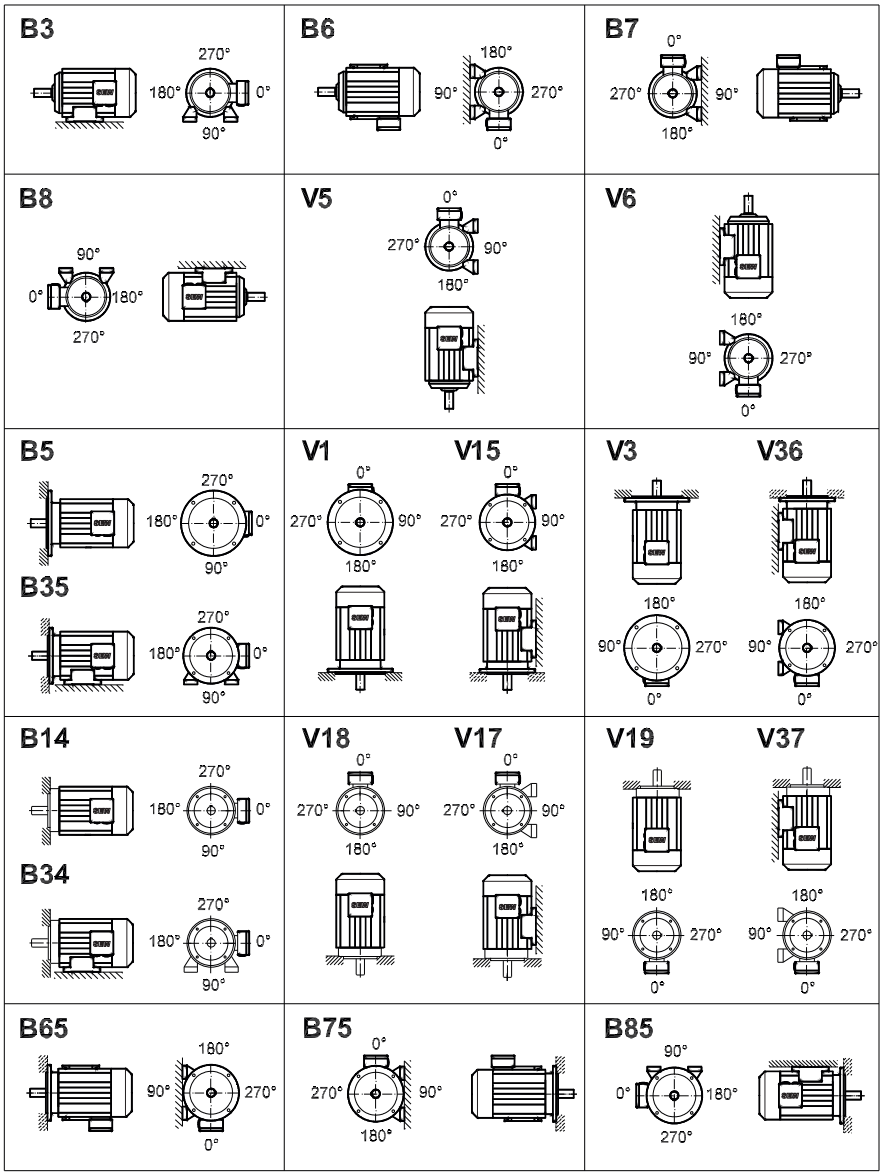
5.8 Mounting positions – AC motors without gear units

5.8.1 Terminal box position and cable entry



8670476811

5.8.2 Mounting positions



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6 Design and operating notes

6.1 Lubricants

6.1.1 General information

INFORMATION

Unless a special arrangement is made, SEW-EURODRIVE supplies the drives with a lubricant fill adapted for the specific gear unit and mounting position. The mounting position must be specified with the order (→ 🗎 68).

When the mounting position is changed, the lubricant fill quantity must be adjusted (see "Oil fill quantities" (→ 🗎 112)). Therefore, to maintain your warranty rights, please consult with SEW-EURODRIVE when changing a mounting position.

6.1.2 Bearing greases

The gear unit rolling bearings are factory-filled with the greases listed below. SEW-EURODRIVE recommends re-greasing the rolling bearings with a grease filling at the same time as changing the oil.

	Type	Ambient temperature	Manufacturer	Type
Gear unit bearings	mineral	-20 °C to +60 °C	Shell	Gadus S2 V220 2
	synthetic	-40 °C to +80 °C	Shell	Gadus S5 V100 2
		-20 °C to +40 °C	Klüber	Klübersynth UH1 14-151
		-20 °C to +40 °C	Klüber	Klüber M 72-82
Motor bearings	mineral	-20 °C to +80 °C	ExxonMobil	Polyrex EM
	Synthetic	-40 °C to +60 °C	Kyodo Yushi	Multemp SRL

INFORMATION

The following grease quantities are required:

- For **fast-running** bearings (gear unit input side): Fill the cavities between the rolling elements one-third full with grease.
- For **slow-running** bearings (gear unit output end): Fill the cavities between the rolling elements two-thirds full with grease.

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6.1.3 GearOil made by SEW-EURODRIVE – exclusive premium protection

With decades of experience in gear unit development as well as numerous customer applications, SEW-EURODRIVE has extensive knowledge in tribology. Therefore, SEW-EURODRIVE has developed a special formulation of premium gear unit oil. It provides the perfect protection for your valuable SEW-EURODRIVE gear units.

By using high-quality base materials and additives, along with appropriate logistics, SEW-EURODRIVE can ensure you always receive the highest level of quality.

GearOil made by SEW-EURODRIVE increases the performance of all gear units – standard, servo or industrial. This premium gear oil creates an outstanding lubrication film that reduces friction between gears, which increases the service life of the lubricant and wear parts, such as seals and bearings.

In addition, the high load stage (damage load stage 14) of the base mineral oil increases protection against gear fretting and micropitting. At the same time, the GearOil made by SEW-EURODRIVE increases the efficiency of the gear unit and protects it from corrosion and damage from oil foaming, while the "self-cleaning" properties of the lubricant prevents deposits as they bind water and dirt particles. Compared to conventional mineral oils, the GearOil made by SEW-EURODRIVE has up to 50% longer service life.

New gear units and gearmotors can be ordered with SEW GearOil. Furthermore, the premium gear oil can be ordered in cans or barrels for service and maintenance purposes. If unopened, SEW GearOil can be stored for up to 6 years.

The following table lists the GearOil made by SEW-EURODRIVE that are stocked and available in the USA.

GearOil made by SEW-EURODRIVE	CLP	Type	Size (liters)	Part number
Base 220 E1	CLP220	mineral	1	03044130
			5	03044084
			20	03287858
Base 680 E1	CLP 680	mineral	20	03287815
Poly 220 E1	CLP PG 220	synthetic	5	03099288
Poly 460 E1	CLP PG 460	synthetic	5	03099261
Poly 460 W E1	CLP PG 460 W E1	synthetic	5	03096599
			20	03287750
Synth 150 E1	CLP HC 150	synthetic	5	03042545
			20	03042413
Synth 220 E1	CLP HC 220	synthetic	1	03044270
			5	03042537
			20	03042405
Synth 460 E1	CLP HC 460	synthetic	5	03042510
			20	03042383

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6.1.4 Lubrication Table

INFORMATION

For additional information about GearOil made by SEW-EURODRIVE, or to download the most recent approved list of lubricants, please visit:
www.sew-eurodrive.de/lubricants.

INFORMATION

The information listed in the lubricant table in no way represents a guarantee as to the quality of the lubricant delivered by each respective supplier. Each lubricant manufacturer is responsible for the quality of their product.

Please observe these additional important measures:

- Damage to the gear unit and property may result if improper lubricant is used.
- The oil viscosity and type (mineral/synthetic) to be used are determined by SEW-EURODRIVE specifically for each order. This information is noted on the order confirmation and on the gear unit's nameplate. If you use other lubricants for the gear units or if you use the lubricants at temperatures outside of the recommended temperature range, SEW-EURODRIVE does not assume liability.
- Do not mix synthethic lubricants.
- Do not mix synthethic lubricants with mineral lubricants.
- Oils of the same viscosity class from different manufacturers do not have the same characteristics. In particular, the minimal and maximal permissible oil bath temperatures are manufacturer-specific. These temperatures are specified in the lubricant tables available on the SEW-EURODRIVE website.

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Key to lubricant table

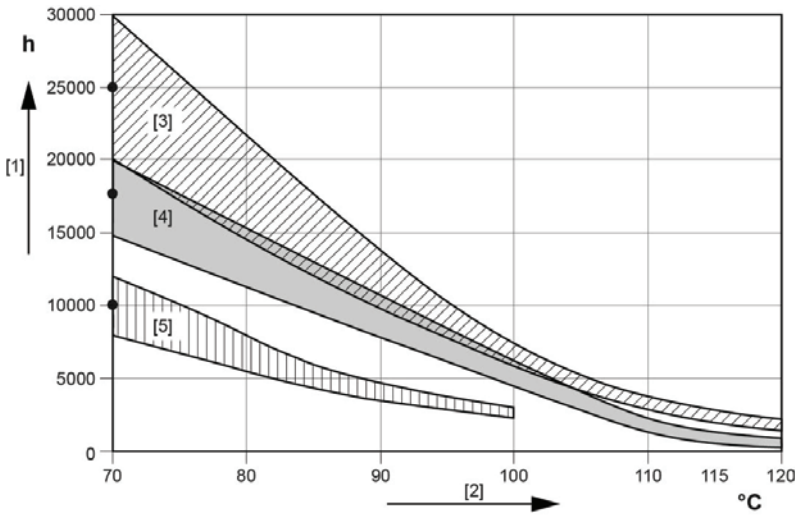
API GL-5	= American Petroleum Institute GL-5 type oil
CLP	= Mineral oil
CLP PG	= Synthetic polyglycol
CLP HC	= Synthetic hydrocarbons
E	= Ester-based oil (water hazard class 1 (German regulation – "WKG")
NSF-H1	= Synthetic, NSF H1 registered food grade
std	= Standard oil, standard viscosity

1)	Helical-worm gear units with CLP PG oil: please consult SEW-EURODRIVE
2)	Low-viscosity grease
3)	Ambient temperatures up to -40C can be implemented with appropriate measures. Please contact SEW-EURODRIVE.
	Lubricant for the food processing industry and feed industry (food grade oil). Oils are NSF-H1 registered and compliant according to FDA 21 CFR § 178.3570
	Biodegradable oil (lubricant for agriculture, forestry, fisheries, and water management)
RWDR	Radial oil seal
PSS	Radial oil seal type PSS (Premium Sine Seal) "PSS" at the lubricant type indicates compatibility with the sealing system. Lubricants with "PSS" in brackets are compatible with both conventional oil seals and PSS.

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6.1.5 Oil change frequency

The following diagram shows the oil change frequency in normal ambient conditions for gear units listed in this catalog. The lubricant should be changed more frequently in severe conditions. Notice how synthetic oil (CLP HC, CLP PG) extends the maintenance interval 2 to 2.5 times longer than mineral oil. Thus, synthetic oil is highly recommended for hard-to-reach locations or applications where downtime is critical.



[1] Operating hours
[2] Sustained oil bath temperature
[3] Synthetic: CLP PG, CLP PG-NSF H1
[4] Synthetic: CLP HC, CLP HC-NSF H1
[5] Mineral: CLP, E

6.2 Oil fill quantities

INFORMATION

The specified fill quantities are only given as a **guideline**. The precise values vary depending on the number of stages and gear ratio. When filling, it is essential to **check the oil level plug since it indicates the precise oil volume**.

The following tables show lubricant fill quantities depending on the mounting positions M1 – M6.

Helical (R) gear units

RX..

Gear unit	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
RX57	0.60	0.80	1.30		0.90	
RX67	0.80		1.70	1.90	1.10	
RX77	1.10	1.50	2.60	2.70	1.60	
RX87	1.70	2.50	4.80		2.90	
RX97	2.10	3.40	7.4	7.0	4.80	
RX107	3.90	5.6	11.6	11.9	7.7	

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RXF..

Gear unit	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
RXF57	0.50	0.80	1.10		0.70	
RXF67	0.70	0.80	1.50	1.40	1.00	
RXF77	0.90	1.30	2.40	2.00	1.60	
RXF87	1.60	1.95	4.90	3.95	2.90	
RXF97	2.10	3.70	7.1	6.3	4.80	
RXF107	3.10	5.7	11.2	9.3	7.2	

R.., R..F

Gear unit	Fill quantity in liters					
	M1[1)]	M2	M3	M4	M5	M6
R07	0.12			0.20		
R17	0.25	0.55	0.35	0.55	0.35	0.40
R27	0.25/0.40	0.70	0.50	0.70	0.50	
R37	0.30/0.95	0.85	0.95	1.05	0.75	0.95
R47	0.70/1.50	1.60	1.50	1.65	1.50	
R57	0.80/1.70	1.90	1.70	2.10	1.70	
R67	1.10/2.30	2.40	2.80	2.90	1.80	2.00
R77	1.20/3.00	3.30	3.60	3.80	2.50	3.40
R87	2.30/6.0	6.4	7.2		6.3	6.5
R97	4.60/9.8	11.7		13.4	11.3	11.7
R107	6.0/13.7	16.3	16.9	19.2	13.2	15.9
R127	6.4/17.0	18.3	18.2	22.0	16.8	17.9
R137	10.0/25.0	28.0	29.5	31.5	25.0	
R147	15.4/40.0	46.5	48.0	52.0	39.5	41.0
R167	27.0/70.0	82.0	78.0	88.0	66.0	69.0

1) The larger gear unit of multi-stage gear units must be filled with the larger oil quantity.

RF.., RZ..

Gear unit	Fill quantity in liters					
	M1[1)]	M2	M3	M4	M5	M6
RF07	0.12			0.20		
RF17	0.25	0.55	0.35	0.55	0.35	0.40
RF27	0.25/0.40	0.70	0.50	0.70	0.50	
RF37	0.35/0.95	0.90	0.95	1.05	0.75	0.95
RF47	0.65/1.50	1.60	1.50	1.65	1.50	
RF57	0.80/1.70	1.80	1.70	2.00	1.70	
RF67	1.20/2.50	2.50	2.70	2.80	1.90	2.10
RF77	1.20/2.60	3.10	3.30	3.60	2.40	3.00
RF87	2.40/6.0	6.4	7.1	7.2	6.3	6.4
RF97	5.1/10.2	11.9	11.2	14.0	11.2	11.8
RF107	6.3/14.9	15.9	17.0	19.2	13.1	15.9
RF127	6.6/16.0	18.3	18.2	21.4	15.9	17.0
RF137	9.5/25.0	27.0	29.0	32.5	25.0	
RF147	16.4/42.0	47.0	48.0	52.0	42.0	42.0
RF167	26.0/70.0	82.0	78.0	88.0	65.0	71.0

1) The larger gear unit of multi-stage gear units must be filled with the larger oil quantity (→ 🗎 58)

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theSnuggler® - Helical (F) gear units

F.., FA..B, FH..B, FV..B

Gear units	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
F..27	0.60	0.80	0.65	0.70	0.60	
F..37	0.95	1.25	0.70	1.25	1.00	1.10
F..47	1.50	1.80	1.10	1.90	1.50	1.70
F..57	2.60	3.50	2.10	3.50	2.80	2.90
F..67	2.70	3.80	1.90	3.80	2.90	3.20
F..77	5.9	7.3	4.30	8.0	6.0	6.3
F..87	10.8	13.0	7.7	13.8	10.8	11.0
F..97	18.5	22.5	12.6	25.2	18.5	20.0
F..107	24.5	32.0	19.5	37.5	27.0	
F..127	40.5	54.5	34.0	61.0	46.3	47.0
F..157	69.0	104.0	63.0	105.0	86.0	78.0

FF..

Gear units	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
FF27	0.60	0.80	0.65	0.70	0.60	
FF37	1.00	1.25	0.70	1.30	1.00	
FF47	1.60	1.85	1.10	1.90	1.50	1.70
FF57	2.80	3.50	2.10	3.70	2.90	3.00
FF67	2.70	3.80	1.90	3.80	2.90	3.20
FF77	5.9	7.3	4.30	8.1	6.0	6.3
FF87	10.8	13.2	7.8	14.1	11.0	11.2
FF97	19.0	22.5	12.6	25.6	18.9	20.5
FF107	25.5	32.0	19.5	38.5	27.5	28.0
FF127	41.5	55.5	34.0	63.0	46.3	49.0
FF157	72.0	105.0	64.0	106.0	87.0	79.0

FA.., FH.., FV.., FAF.., FAZ.., FHF.., FZ.., FHZ.., FVF.., FVZ.., FT..

Gear units	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
F..27	0.60	0.80	0.65	0.70	0.60	
F..37	0.95	1.25	0.70	1.25	1.00	1.10
F..47	1.50	1.80	1.10	1.90	1.50	1.70
F..57	2.70	3.50	2.10	3.40	2.90	3.00
F..67	2.70	3.80	1.90	3.80	2.90	3.20
F..77	5.9	7.3	4.30	8.0	6.0	6.3
F..87	10.8	13.0	7.7	13.8	10.8	11.0
F..97	18.5	22.5	12.6	25.2	18.5	20.0
F..107	24.5	32.0	19.5	37.5	27.0	
F..127	39.0	54.5	34.0	61.0	45.0	46.5
F..157	68.0	103.0	62.0	104.0	85.0	79.5

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Helical-bevel (K) gear units

INFORMATION

All K..19 and K..29 gear units are filled with the same oil quantity for all positions except M4. M4 requires a larger volume of oil.

K.., KA..B, KH..B, KV..B

Gear unit	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
K..19	0.40			0.45	0.40	
K..29	0.70			0.85	0.70	
K..39	0.90	1.70	1.55	1.9	1.55	1.30
K..49	1.70	3.40	2.80	4.20	3.15	2.80
K..37	0.50	1.00		1.25	0.95	
K..47	0.80	1.30	1.50	2.00	1.60	
K..57	1.10	2.20		2.80	2.30	2.10
K..67	1.10	2.40	2.60	3.45	2.60	
K..77	2.20	4.10	4.40	5.80	4.20	4.40
K..87	3.70	8.0	8.70	10.90	8.0	
K..97	7.0	14.0	15.70	20.0	15.70	15.50
K..107	10.0	21.0	25.50	33.50	24.0	
K..127	21.0	41.50	44.0	54.0	40.0	41.0
K..157	31.0	65.0	68.0	90.0	62.0	63.0
K..167	33.0	97.0	109.0	127.0	89.0	86.0
K..187	53.0	156.0	174.0	207.0	150.0	147.0

KF..

Gear unit	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
KF19	0.40			0.45	0.40	
KF29	0.70			0.85	0.70	
KF39	0.90	1.70	1.55	1.9	1.55	1.30
KF49	1.70	3.40	2.80	4.20	3.15	2.80
KF37	0.50	1.10		1.50	1.00	
KF47	0.80	1.30	1.70	2.20	1.60	
KF57	1.20	2.20	2.40	3.15	2.50	2.30
KF67	1.10	2.40	2.80	3.70	2.70	
KF77	2.10	4.10	4.40	5.90	4.50	
KF87	3.70	8.20	9.0	11.90	8.40	
KF97	7.0	14.70	17.30	21.50	15.70	16.50
KF107	10.0	21.80	25.80	35.10	25.20	
KF127	21.0	41.50	46.0	55.0	41.0	
KF157	31.0	66.0	69.0	92.0	62.0	63.0

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KA.., KH.., KV.., KAF.., KHF.., KVF.., KZ.., KAZ.., KHZ.., KVZ.., KT..

Gear unit	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
K..19	0.40			0.45	0.40	
K..29	0.70			0.85	0.70	
K..39	0.90	1.70	1.55	1.9	1.55	1.30
K..49	1.70	3.40	2.80	4.20	3.15	2.80
K..37	0.50	1.00		1.40	1.00	
K..47	0.80	1.30	1.60	2.15	1.60	
K..57	1.20	2.20	2.40	3.15	2.70	2.40
K..67	1.10	2.40	2.70	3.70	2.60	
K..77	2.10	4.10	4.60	5.90	4.40	
K..87	3.70	8.20	8.80	11.10	8.0	
K..97	7.0	14.70	15.70	20.0	15.70	
K..107	10.0	20.50	24.0	32.40	24.0	
K..127	21.0	41.50	43.0	52.0	40.0	
K..157	31.0	65.0	68.0	90.0	62.0	63.0
K..167	33.0	97.0	109.0	127.0	89.0	86.0
K..187	53.0	156.0	174.0	207.0	150.0	147.0

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Helical-worm (S) gear units

S..

Gear unit	Fill quantity in liters					
	M1	M2	M3[1)]	M4	M5	M6
S37	0.25	0.40	0.50	0.55	0.40	
S47	0.35	0.80	0.70/0.90	1.00	0.80	
S57	0.50	1.20	1.00/1.20	1.45	1.30	
S67	1.00	2.00	2.20/3.10	3.10	2.60	2.60
S77	1.90	4.20	3.70/5.4	5.9	4.40	
S87	3.30	8.1	6.9/10.4	11.3	8.4	
S97	6.8	15.0	13.4/18.0	21.8	17.0	

1) The larger gear unit of multi-stage gear units must be filled with the larger oil quantity.

SF..

Gear unit	Fill quantity in liters					
	M1	M2	M3[1)]	M4	M5	M6
SF37	0.25	0.40	0.50	0.55	0.40	
SF47	0.40	0.90	0.90/1.05	1.05	1.00	
SF57	0.50	1.20	1.00/1.50	1.55	1.40	
SF67	1.00	2.20	2.30/3.00	3.20	2.70	
SF77	1.90	4.10	3.90/5.8	6.5	4.90	
SF87	3.80	8.0	7.1/10.1	12.0	9.1	
SF97	7.4	15.0	13.8/18.8	22.6	18.0	

1) The larger gear unit of multi-stage gear units must be filled with the larger oil quantity.

SA.., SH.., SAF.., SHZ.., SAZ.., SHF.., ST..

Gear unit	Fill quantity in liters					
	M1	M2	M3[1)]	M4	M5	M6
S..37	0.25	0.40	0.50		0.40	
S..47	0.40	0.80	0.70/0.90	1.00	0.80	
S..57	0.50	1.10	1.00/1.50	1.50	1.20	
S..67	1.00	2.00	1.80/2.60	2.90	2.50	
S..77	1.80	3.90	3.60/5.0	5.8	4.50	
S..87	3.80	7.4	6.0/8.7	10.8	8.0	
S..97	7.0	14.0	11.4/16.0	20.5	15.7	

1) The larger gear unit of multi-stage gear units must be filled with the larger oil quantity.

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SPIROPLAN® (W) gear units

INFORMATION

SPIROPLAN® gear units W..10 to W..30 have a universal mounting position. Therefore, they are filled with the same oil quantity regardless of the mounting position.

The oil fill quantity of SPIROPLAN® gear units W..37 and W..47 in mounting position M4 is different than the amount needed for the other mounting positions.

W.., WA..B, WH..B

Gear unit	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
W..10	0.16					
W..20	0.24					
W..30	0.40					
W..37	0.50			0.70	0.50	
W..47	0.90			1.40	0.90	

WF..

Gear unit	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
WF10	0.16					
WF20	0.24					
WF30	0.40					
WF37	0.50			0.70	0.50	
WF47	0.90			1.55	0.90	

WA.., WAF..,WH.., WT.., WHF..

Gear unit	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
W..10	0.16					
W..20	0.24					
W..30	0.40					
W..37	0.50			0.70	0.50	
W..47	0.80			1.40	0.80	

6.3 Gear unit venting

INFORMATION

The function of breather valves can be impaired by dirt and dust in the environment.

If necessary, contact SEW-EURODRIVE to discuss alternative venting systems.

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6.4 Reduced backlash /R

The rotational clearance (backlash) of units with this option is considerably less than that of the standard designs; therefore, positioning tasks can be solved with great precision. The rotational clearance for the output shaft is specified without load (max. 1% of the rated output torque) with the gear unit input end blocked. The clearance is specified in angular minutes and is shown in the "Possible geometrical combinations" section within each gear unit chapter.

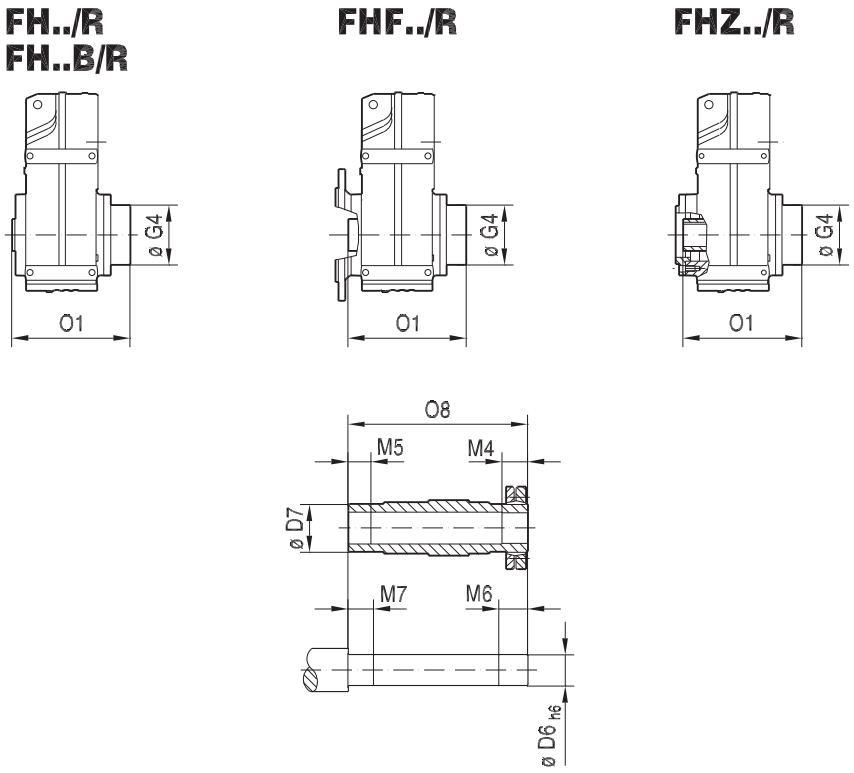
The reduced backlash design is available for the following gear units:

- Helical gear units (R), sizes 37 to 167
- theSnuggler® helical gear units (F), sizes 37 to 157
- Helical-bevel gear units (K..7), sizes 37 to 187.

Reduced backlash is not available on K..9 gear units or compound gear units.

The dimensions of the reduced backlash designs are the same as the dimensions of the standard designs, except for theSnuggler® helical gear units FH.87 and FH.97. The following figure shows the reduced backlash dimensions of FH.87 and FH.97.

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Type	Dimensions in mm								
	D6	D7	G4	M4	M5	M6	M7	O1	O8
FH.87/R	Ø 65 h6	Ø 85	Ø 163	41	40	46	45	312.5	299.5
FH.97/R	Ø 75 h6	Ø 95	Ø 184	55	50	60	55	382.5	367

6.5 Installation/removal of gear units with hollow shaft and key

INFORMATION

Use the supplied NOCO® fluid for assembly. The fluid minimizes contact corrosion and facilitates future disassembly (→ 🗎 17).

6.5.1 Design Methods

There are two ways to design the customer's solid shaft for use with a gear unit containing a keyed hollow shaft. While both designs are acceptable, the second is more advantageous to the end user because it allows for easier disassembly later, especially if corrosion exists between the two shafts.

1. Standard Design:

   Use the fastening parts supplied with the gear unit. This design requires a longer customer shaft that extends to the snapring. While this design is very common, it does not permit the use of a removal kit to aid with future removal of the customer's shaft.

2. Recommended Design:

   Use the optional installation/removal kit. This design requires a shorter customer shaft than the standard design. The shaft does not extend to the snapring. The area between the end of the shaft and the snapring contains a gap or a spacer tube, depending if the customer shaft contains a shoulder. During future disassembly, the gap or spacer tube is replaced with a locking nut that allows the user to push out the shaft by turning a wrench. This is especially beneficial in a humid or wet environment where corrosion between the shafts is probable.

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6.5.2 Standard Design

The standard design uses the parts that are normally supplied with every hollow shaft, as shown in Figure 1 below. Note the following points concerning the customer's solid shaft.

- See dimension sheets or next page for dimension, L8
- If there is a contact shoulder [A] on the customer shaft, the installation length should be (L8 - 1 mm) or (L8 - 0.04 in).
- If there is no contact shoulder [B] on the customer shaft, the installation length should equal L8.
- Observe the tolerances for dimension, D, along the shaft.
- Refer to the dimension pages (or next page) for the diameter and length of retaining screw [2].
- X must be > D. But the key does not have to extend the length of shaft.

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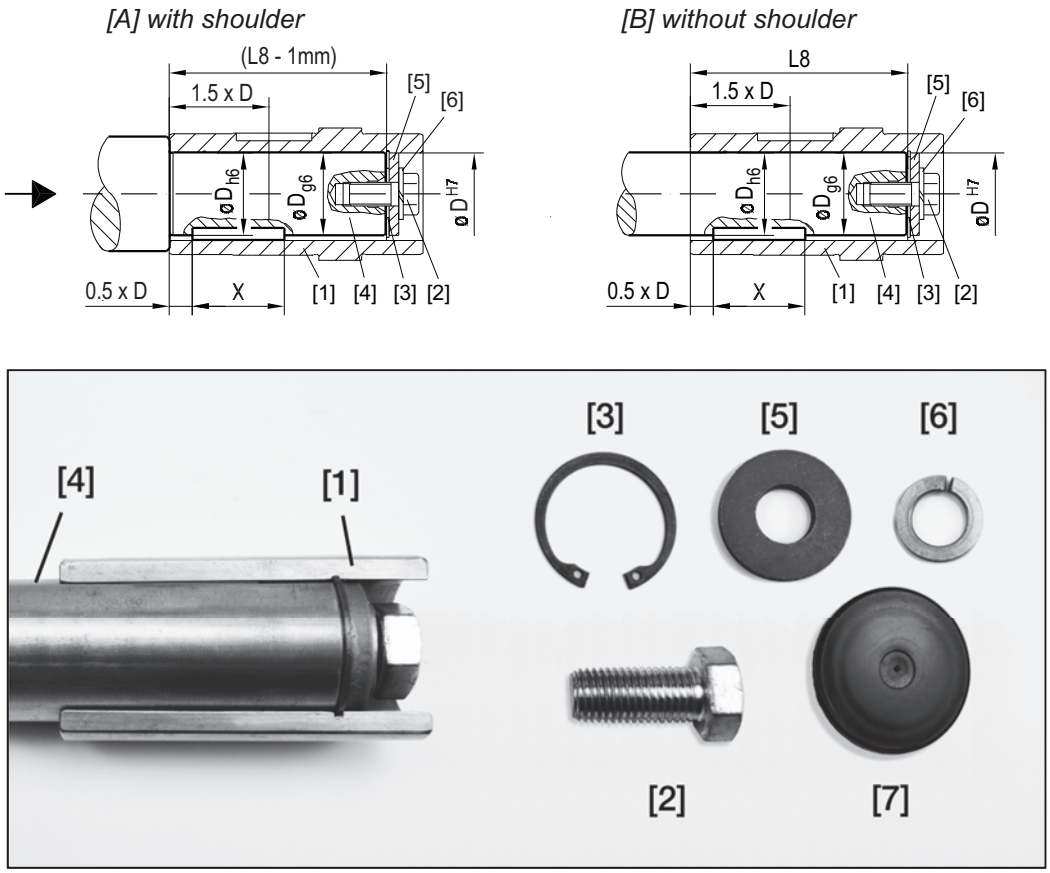


Figure 1: Customer shaft with contact shoulder [A] and without contact shoulder [B]

[1]	Hollow shaft	[5]	Flat washer
[2]	Retaining screw	[6]	Lock washer
[3]	Retaining snapring	[7]	Plastic protection cap
[4]	Customer solid shaft		

Customer shaft dimensions – Standard design

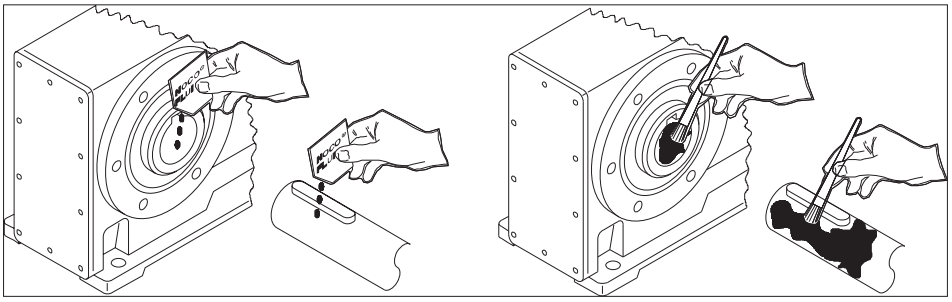
	[inch]			[mm]		
Gear Unit	D	STD Screw	L8[1]	D	STD Screw	L8[1)]
WA..10	0.625	1/4-20 x 5/8	2.72	14 or 16	M5 x 16	69
KA..19	0.750	1/4-20 x 5/8	3.62	20	M6 x 16	92
WA..20	0.750	1/4-20 x 5/8	3.31	18	M6 x 16	84
				20		
FA..27	1.000	3/8-16 x 1	3.47	25	M10 x 25	88
KA..29	1.000	3/8-16 x 1	4.21	25	M10 x 25	107
WA..30, WA..37	0.750	1/4-20 x 5/8	4.13	20	M6 x 16	105
SA..37	0.750	1/4-20 x 5/8	4.09	20	M6 x 16	104
FA..37, KA..37	1.250	7/16-14 x 1	4.13	30	M10 x 25	105
KA..39	1.250	7/16-14 x 1	5.39	30	M10 x 25	137
	1.375	1/2-13 x 1		35	M12 x 30	
WA..47	1.000	3/8-16 x 1	4.80	30	M10 x 25	122
	1.250	7/16-14 x 1				
SA..47	1.250	7/16-14 x 1	4.13	25	M10 x 25	105
				30		
FA..47, KA..47, SA..57	1.250	7/16-14 x 1	5.20	30	M10 x 25	132
	1.375	1/2-13 x 1		35	M12 x 30	
	1.4375	5/8-11 x 1-3/4				
KA..49	1.375	1/2-13 x 1	6.30	35	M12 x 30	160
	1.500	5/8-11 x 1-3/4		40	M16 x 40	
FA..57, KA..57	1.4375	5/8-11 x 1-3/4	5.59	40	M16 x 40	142
	1.500					
FA..67, KA..67	1.4375	5/8-11 x 1-3/4	6.14	40	M16 x 40	156
	1.500					
SA..67	1.250	7/16-14 x 1	5.67	40	M16 x 40	144
	1.500	5/8-11 x 1-3/4		45		
FA..77, KA..77	1.9375	5/8-11 x 1-3/4	7.21	50	M16 x 45	183
	2.000					
SA..77	2.000	5/8-11 x 1-3/4	7.21	50	M16 x 45	183
				60	M20 x 50	180
FA..87, KA..87	2.375	3/4-10 x 2	8.27	60	M20 x 50	210
	2.4375					
SA..87	2.375	3/4-10 x 2	8.66	60	M20 x 50	220
				70		
FA..97, KA..97	2.750	3/4-10 x 2	10.63	70	M20 x 50	270
	2.9375					
SA..97	2.750	3/4-10 x 2	10.24	70	M20 x 50	260
				90	M24 x 60	255
FA..107, KA..107	3.250	3/4-10 x 2	12.32	90	M24 x 60	313
	3.4375			80	M20 x 50	
	3.625					
FA..127, KA..127	4.000	1-8 x 2-1/4	14.69	100	M24 x 60	373
FA..157, KA..157	4.500		18.11	120		460

[1]If customer shaft does not contain a shoulder, then the installation length of customer shaft = L8. If customer shaft contains a shoulder, the installation length = (L8 - 1mm) or (L8 - 0.04")

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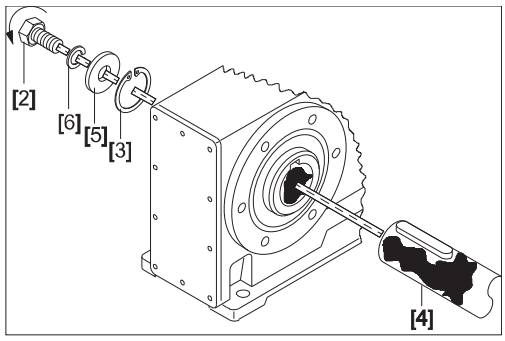
Installation procedure – standard design

1. Apply and thoroughly spread NOCO fluid (normally supplied with unit).



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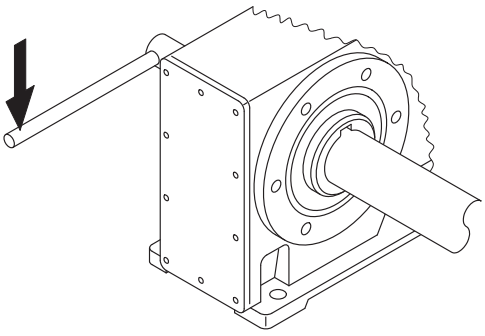
2. Install the shaft and secure it axially with the hardware supplied.



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[2]	Shorter retaining screw (normally supplied)	[5]	Flat washer
[3]	Retaining snapring	[6]	Lock washer
[4]	Customer shaft		

3. Tighten the retaining screw to the appropriate torque shown in the table below.



Screw		Tightening torque Nm / lb-in
Metric	SAE	
M5		5 / 44
M6	1/4-20	8 / 71
M10	7/16-14	20 / 177
M12	1/2-13	
M16	5/8-11	40 / 355
M20	3/4-10	80 / 710
M24	1-8	200 / 1770

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6.5.3 Recommended design

The recommended design uses the standard hardware along with a removal kit, as shown dotted in Figure 2 below. However, the normal retaining screw is too short; therefore, the removal kit includes a longer screw [2] that may also have a larger diameter. The customer may make his own kit or purchase it from SEW-EURODRIVE. Kit part numbers and dimensions are shown on page 126.

Please observe the following:

- Items 3, 5, 6, and 7 are normally supplied with the hollowshaft, so they are not included in the kit
- The longer retaining screw [2] can be used for both assembly and removal. Since the longer screw may have a larger diameter than the standard screw, ensure that the tap on the customer's solid shaft matches the diameter of the longer screw.
- The installation length of the customer shaft must be LK2, regardless if the shaft has a contact shoulder or not. See next page for LK2 dimension. Observe that the customer shaft does **not** extend to the snapring.
- The spacer tube [8] is not needed if the customer shaft has a shoulder.
- X must be > D. However, the key does not have to extend the length of shaft.

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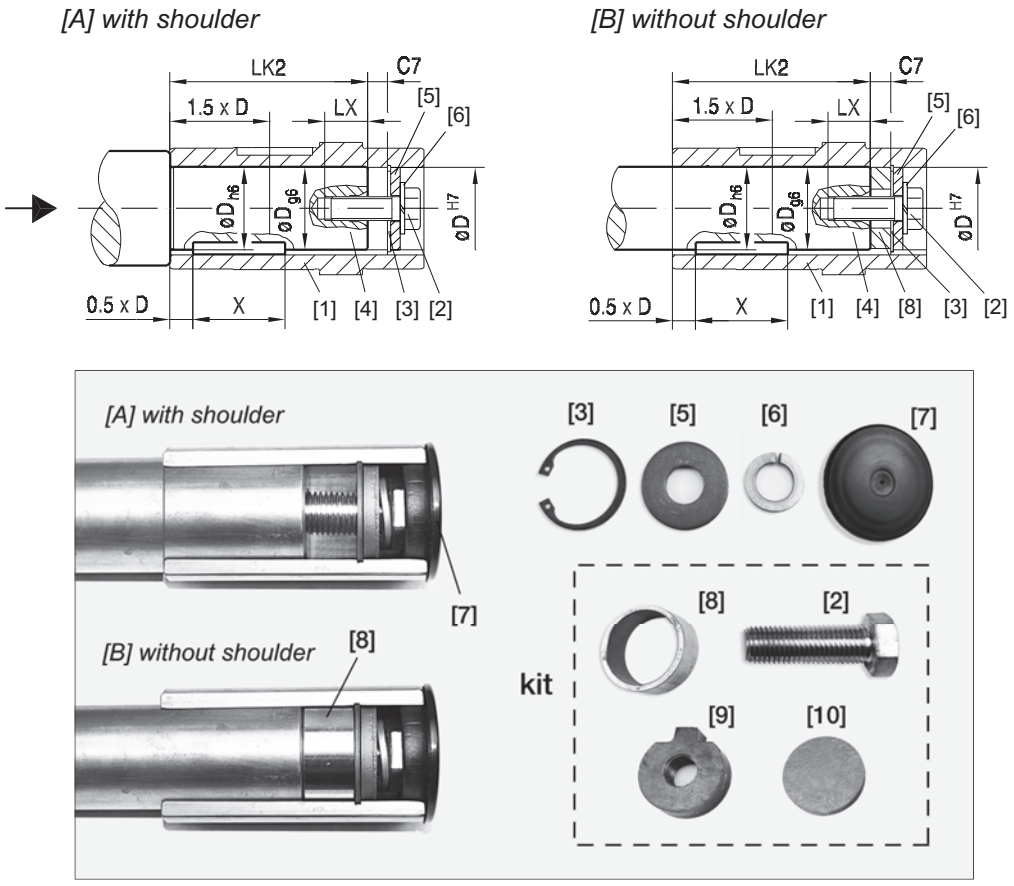


Figure 2: Customer shaft with contact shoulder [A] and without contact shoulder [B]

[1]	Hollow shaft	[6]	Lock washer
[2]	Retaining screw (for assembly & removal)	[7]	Plastic protection cap
[3]	Retaining snapring	[8]	Space tube (not needed w/shoulder)
[4]	Customer solid shaft	[9]	Locking nut (for removal only)
[5]	Flat washer	[10]	Forcing washer (for removal only)

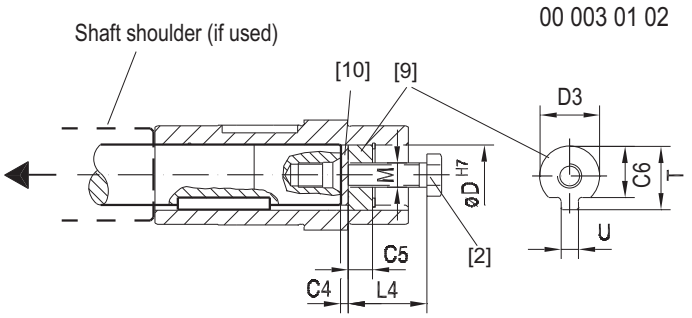
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Customer shaft dimensions – recommended design

Gear Unit	D		LK2 [mm]	LX[*2] [mm]	C7 [mm]
	[inch]	[mm]			
WA..10	0.625	14	58	12.5	11
		16			
KA..19	0.750	20	80	16	12
WA..20	0.750	18	72	16	12
		20			
FA..27	1.000	25	72	22	16
KA..29	1.000	25	91	22	16
WA..30, WA..37	0.750	20	93	16	12
SA..37	0.750	20	92	16	12
FA..37, KA..37	1.250	30	89	22	16
KA..39	1.250	30	121	22	16
	1.375	35			
WA..47	1.000	30	106	22	16
	1.250				
SA..47	1.250	25	89	22	16
		30			
FA..47, KA..47, SA..57	1.250	30	116	22	16
	1.375	35			
	1.4375				
KA..49	1.375	35	142	28	18
	1.500	40			
FA..57, KA..57	1.4375	40	124	26	18
	1.500				
FA..67, KA..67	1.4375	40	138	36	18
	1.500				
SA..67	1.250	40	126	36	18
	1.500	45			
FA..77, KA..77	1.9375	50	165	36	18
	2.000				
SA..77	2.000	50	165	36	18
		60	158	42	22
FA..87, KA..87	2.375	60	188	42	22
	2.4375				
SA..87	2.375	60	198	42	22
		70			
FA..97, KA..97	2.750	70	248	42	22
	2.9375				
SA..97	2.750	70	238	42	22
		90	229	52	26
FA..107, KA..107	3.250		289	52	24
	3.4375	80	287	52	26
	3.625	90			
FA..127, KA..127	4.000	100	347	62	26
FA..157, KA..157	4.500	120	434	62	26

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Kit dimensions and part numbers



[2] Longer retaining screw

[9] Locking nut

[10] Forcing washer

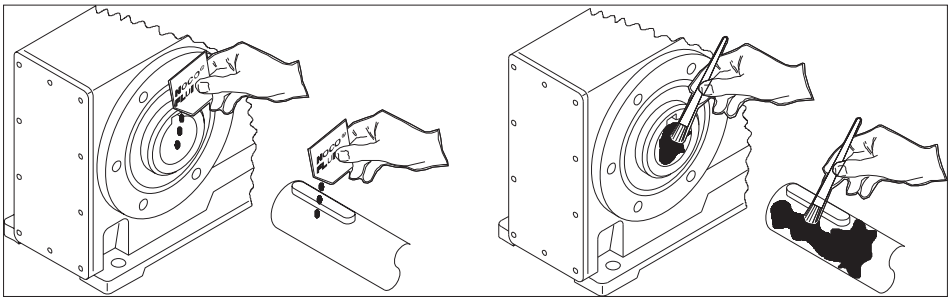
D [mm]	M	C4 [mm]	C5 [mm]	C6 [mm]	U$^{-0.5}$ [mm]	T$^{-0.5}$ [mm]	D3$^{-0.5}$ [mm]	L4 [mm]	Kit Part Number
16	M5	5	5	12	4.5	18	15.7	50	643 712 5
18	M6		6	13.5	5.5	20.5	17.7	25	643 682 X
20				15.5	5.5	22.5	19.7		643 683 8
25	M10		10	20	7.5	28	24.7	35	643 684 6
30				25	7.5	33	29.7		643 685 4
35	M12		12	29	9.5	38	34.7	45	643 686 2
40	M16			34	11.5	41.9	39.7	50	643 687 0
45				38.5	13.5	48.5	44.7		643 688 9
50				43.5	13.5	53.5	49.7		643 689 7
60	M20		16	56	17.5	64	59.7	60	643 690 0
70				65.5	19.5	74.5	69.7		643 691 9
90	M24		20	80	24.5	95	89.7	70	643 692 7
100				89	27.5	106	99.7		643 693 5
120				107	31	127	119.7		643 694 3

D [inch]	M	C4 [mm]	C5 [mm]	C6 [inch]	U$^{-0.02}$ [inch]	T$^{-0.02}$ [inch]	D3$^{-0.02}$ [inch]	L4 [inch]	Kit Part Number
0.625	1/4-20	5	5	0.500	0.168	0.701	0.6130	2.0	250 546 00
0.750	1/4-20		6	0.625		0.835	0.738	1.0	250 546 19
1.000	7/16-14		10	0.863	0.230	1.110	0.988	1.5	250 546 27
1.250	7/16-14			1.113		1.362	1.238		250 546 35
1.375	1/2-13		12	1.142	0.293	1.509	1.363	1.75	250 546 43
1.4375	5/8-11			1.205	0.356	1.602	1.4255	2.0	250 546 51
1.500	5/8-11			1.267		1.657	1.4880		250 546 78
1.9375	5/8-11			1.682	0.480	2.148	1.9255		250 546 86
2.00	5/8-11			1.744		2.224	1.9880		250 546 94
2.375	3/4-10		16	2.119	0.606	2.650	2.3630	2.5	250 247 08
2.4375	3/4-10			2.182		2.605	2.4255		250 547 16
2.750	3/4-10			2.488		3.031	2.7380		250 547 24
2.9375	3/4-10		18	2.676	0.730	3.128	2.9255	3.0	250 547 32
3.250	3/4-10			2.938		3.587	3.2380		250 547 40
3.4375	3/4-10		20	3.126	0.856	3.685	3.4255		250 547 59
3.6250	1-8			3.263	0.856	3.873	3.6130		250 547 67
4.000	1-8			3.588	0.980	4.441	3.9880	3.5	250 547 75
4.500	1-8			4.088		4.933	4.4880		250 547 83

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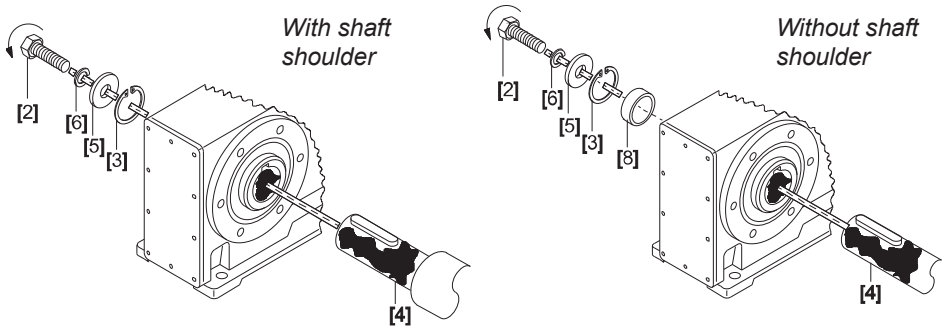
Installation procedure – recommended design

1. Apply and thoroughly spread NOCO fluid (normally supplied with unit).



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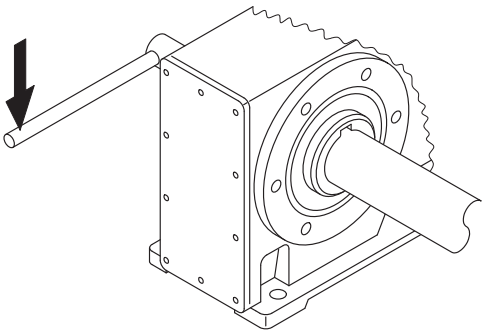
2. Install the shaft and secure it axially with the hardware supplied.



211520523US

[2]	Longer retaining screw	[5]	Flat washer
[3]	Retaining snapring	[6]	Lock washer
[4]	Customer shaft	[8]	Spacer tube

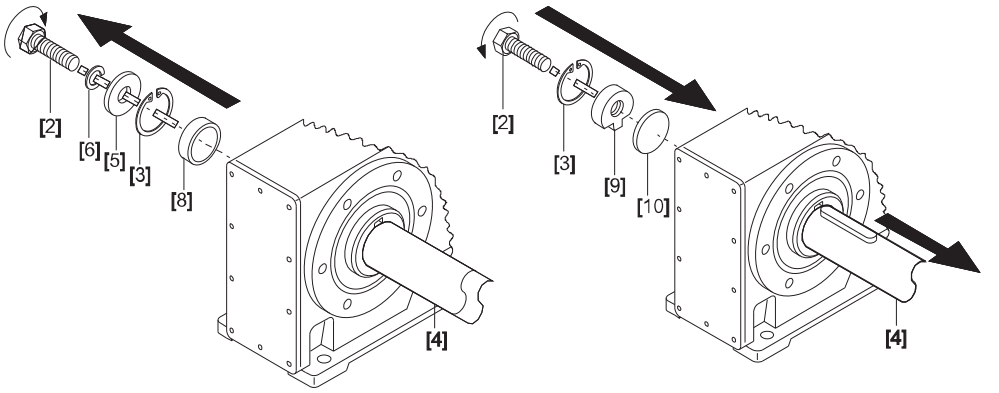
3. Tighten the retaining screw to the appropriate torque shown in the table below.



Screw		Tightening torque Nm / lb-in
Metric	SAE	
M5		5 / 44
M6	1/4-20	8 / 71
M10	7/16-14	20 / 177
M12	1/2-13	
M16	5/8-11	40 / 355
M20	3/4-10	80 / 710
M24	1-8	200 / 1770

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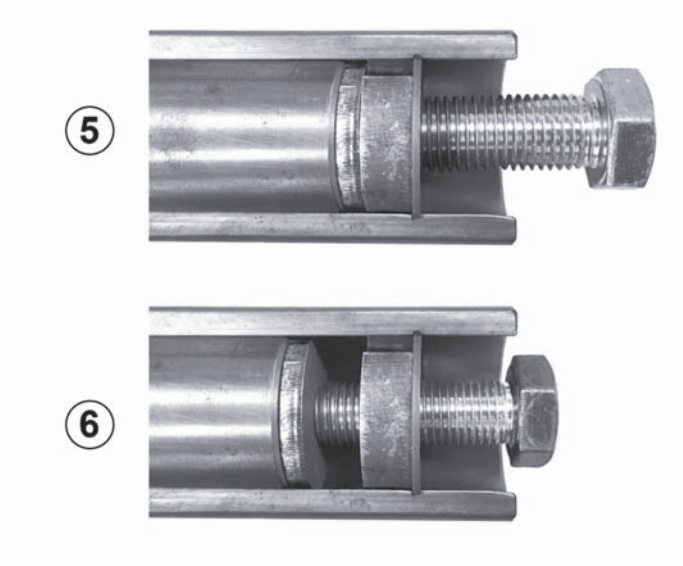
Removal procedure – recommended design



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[2]	Longer retaining screw	[6]	Lock washer
[3]	Snapring	[8]	Spacer tube
[4]	Customer shaft	[9]	Locking nut
[5]	Flat washer	[10]	Forcing washer

1. Loosen the retaining screw [2].
2. Remove parts [3], [5], and [6]. Also, remove the spacer tube, [8], if applicable.
3. Using the parts [9] and [10] from the removal kit, insert the forcing washer and the locking nut until they rest against the customer shaft [4].
4. Re-install the snapring [3].
5. Thread the retaining screw [2] into the locking nut as shown below.
6. Continue turning the screw with wrench to force the shaft out of the gear unit, as shown in the cross sectional view below.

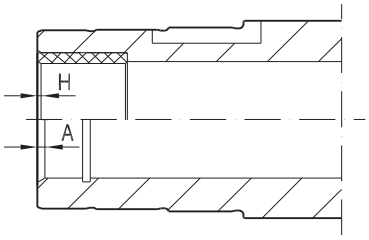


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6.6 Chamfers on hollow shafts

The following illustration shows the chamfers on gear units with hollow shaft:

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Gear unit	Design	
	Hollow shaft (A)	Hollow shaft and shrink disk (H)
W..10	1.5 × 30°	-
W..20	2 × 30°	-
W..30		-
F..27		0.5 × 45°
K..19		
K..29		
F../K../S../W..37		
K..39		-
F../K../S../ W..47		0.5 × 45°
K..49		-
S..57		0.5 × 45°
F../K..57		
F../K../S..67		
F../K../S..77		
F../K../S..87	3 × 30°	
F../K../S..97		
F../K..107		
F../K..127	5 × 30°	
F../K..157		
KH167	-	
KH187	-	

6.6.1 Special motor/gear unit combinations

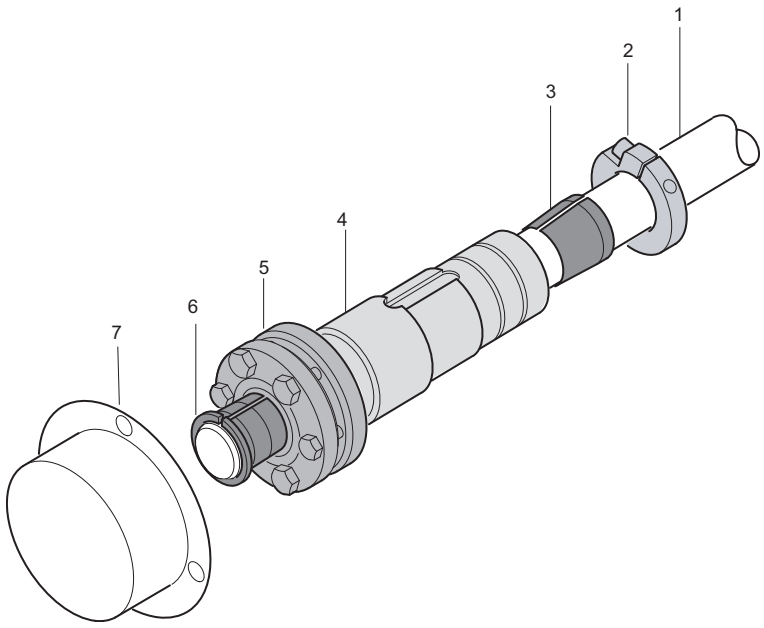
Please note for theSnuggler® (F-series) gearmotors with hollow shaft (FA..B, FV..B, FH..B, FAF, FVF, FHF, FA, FV, FH, FT, FAZ, FVZ, FHZ):

- If the machine shaft enters the gear unit from underneath the motor, there may be interference on some gear unit/motor combinations, especially with larger motors.
- Check the motor dimension AC to determine if there is interference when the customer shaft is pushed through.

6.7 TorqLOC® mounting system for hollow shaft gear units

The TorqLOC® hollow shaft mounting system is a premier design used for achieving a keyless connection between a customer solid shaft and the hollow shaft of the gear unit. TorqLOC® is the preferred alternative to a hollow shaft with shrink disk, a hollow shaft with key, or a hollow shaft with spline.

TorqLOC® consists of the following components:



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[1]	Customer shaft	[5]	Shrink disk
[2]	Clamping ring	[6]	Tapered bushing (steel or stainless steel)
[3]	Tapered bronze bushing	[7]	Fixed hood cover
[4]	Hollow shaft inside gear unit		

6.7.1 Benefits of TorqLOC®

The TorqLOC® hollow shaft mounting system provides the following benefits:

- Cost savings because the customer shaft can be made from turned shaft stock or cold rolled stock without additional machining (material up to quality h11).
- Cost savings because there is no keyway to machine.
- A variety of tapered bushings [item 6] are available for each hollow shaft, providing flexibility and various shaft diameter options within the same gear unit.
- Simple installation since there is no key.
- Simple removal even after many hours of operation. High clamping forces on one end and dissimilar metals on the other end deter corrosion.
- Ease of disassembly - the same screws that are used for tightening during installation can be used for future disassembly.

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6.7.2 Technical data of TorqLOC®

TorqLOC® is approved for output torques of 815 lb-in to 159,300 lb-in and is available on the following gear units:

- FT37 – FT157 theSnuggler® helical-parallel shaft
- KT37 – KT157 Helical-bevel
- KT39 – KT49 Hypoid
- ST37 – ST97 Helical-worm gear units
- WT37 – WT47 SPIROPLAN®

6.7.3 TorqLOC® options

The following options are available for gear units with a TorqLOC®:

- (/T) torque arm option is available on KT.., ST.., WT37, WT47 gear units
- (/G) rubber buffer option is available for the built-in torque arm of FT gear units

6.7.4 TorqLOC® bore sizes

The following chart shows the metric and inch bores available with TorqLOC®.

Model	inch					mm					
ST37	0.625	0.6875	0.75	-	-	16	19	20	-	-	-
WT37	0.625	0.6875	0.75	-	-	20	-	-	-	-	-
FT37, KT37, ST47, WT47	1.00	1.1875	1.25	-	-	25	30	-	-	-	-
FT47, KT39, KT47, ST57	1.1875	1.250	1.375	1.4375	-	30	35	-	-	-	-
FT57, KT57	1.375	1.4375	1.50	1.625	-	35	38	40	-	-	-
FT67, KT49, KT67, ST67	1.375	1.4375	1.50	1.625	1.6875	35	38	40	-	-	-
FT77, KT77, ST77	1.625	1.6875	1.75	1.9375	2.00	40	45	50	-	-	-
FT87, KT87, ST87	1.9375	2.00	2.375	2.4375	-	50	51	55	60	62	65
FT97, KT97, ST97	2.4375	2.750	2.9375	-	-	60	62	65	70	75	-
FT107, KT107	3.250	3.4375	3.625	3.750	-	80	85	90	95	-	-
FT127, KT127	3.4375	3.750	3.9375	4.00	4.1875	90	95	100	105	-	-
FT157, KT157	4.4375	4.50	4.9375	5.00	-	110	120	125	-	-	-

INFORMATION

For additional information on TorqLOC®, see Technical Notes **GM-033**, **GM-034**, and **GM-035** available on the SEW-EURODRIVE website:

→ **www.seweurodrive.com**

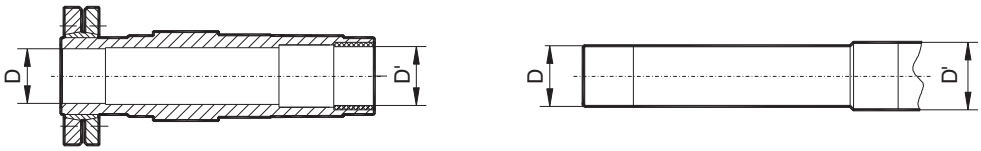
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6.8 Shouldered hollow shaft with shrink disk

The following gear units with a hollow shaft and shrink disk are also available with an optional larger bore diameter D' on the input side opposite the clamping collar:

- Parallel-shaft helical gear units FH/FHF/FHZ37 – 157
- Helical-bevel gear units KH/KHF/KHZ37 – 157
- Helical-worm gear units SH/SHF47 – 97

D' = D as standard.



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Gear units	Bore diameter D / optional D' (mm)
FH/FHF/FHZ37, KH/KHF/KHZ37, SH/SHF/SHZ47	30 / 32
FH/FHF/FHZ47, KH/KHF/KHZ47, SH/SHF/SHZ57	35 / 36
FH/FHF/FHZ57, KH/KHF/KHZ57	40 / 42
FH/FHF/FHZ67, KH/KHF/KHZ67, SH/SHF/SHZ67	40 / 42
FH/FHF/FHZ77, KH/KHF/KHZ77, SH/SHF/SHZ77	50 / 52
FH/FHF/FHZ87, KH/KHF/KHZ87, SH/SHF/SHZ87	65 / 66
FH/FHF/FHZ97, KH/KHF/KHZ97, SH/SHF/SHZ97	75 / 76
FH/FHF/FHZ107, KH/KHF/KHZ107	95 / 96
FH/FHF/FHZ127, KH/KHF/KHZ127	105 / 106
FH/FHF/FHZ157, KH/KHF/KHZ157	125 / 126

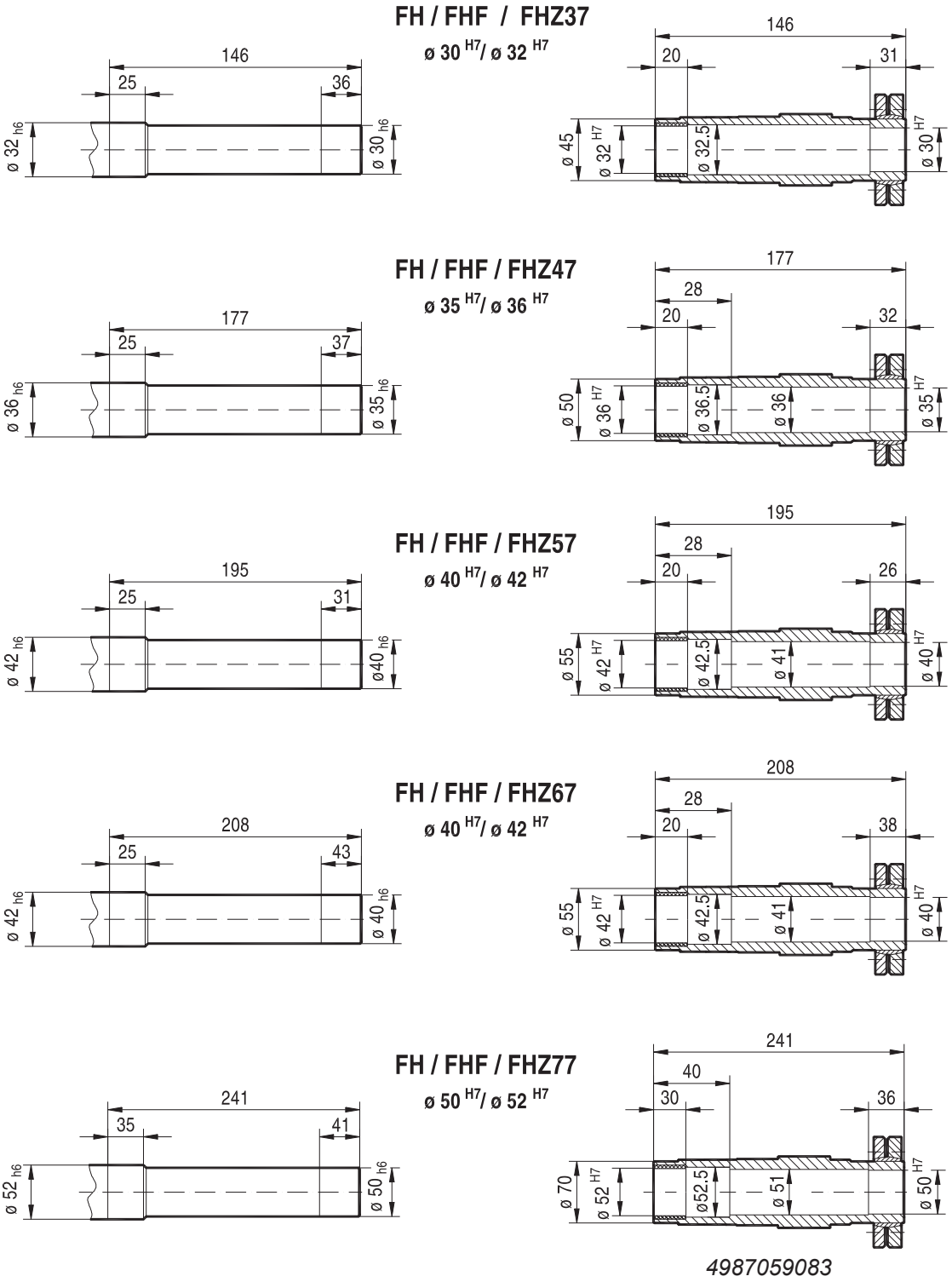
Diameter D / D' must be specified when ordering gear units with a shouldered hollow shaft (optional bore diameter D').

6.8.1 Sample order

FH37 DRN80M4 with hollow shaft 30/32 mm

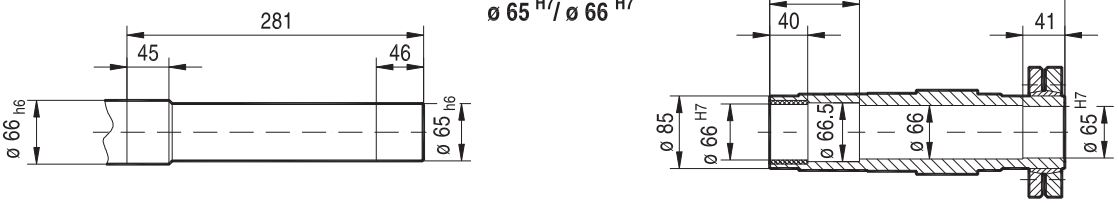
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6.8.2 Parallel-shaft helical gear units with shouldered hollow shaft (dimensions in mm):



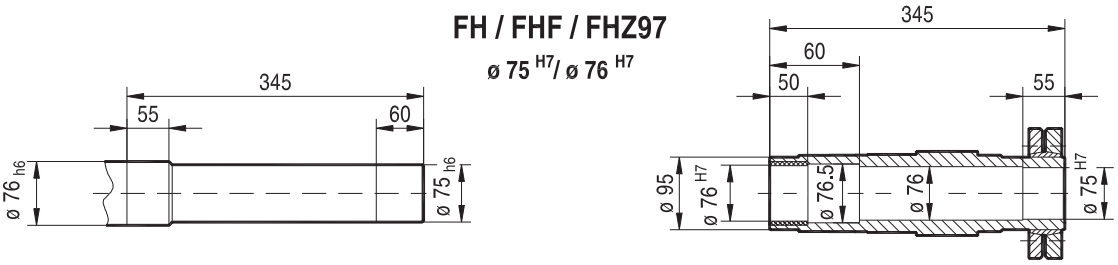
FH / FHF / FHZ87

ø 65 H7/ ø 66 H7



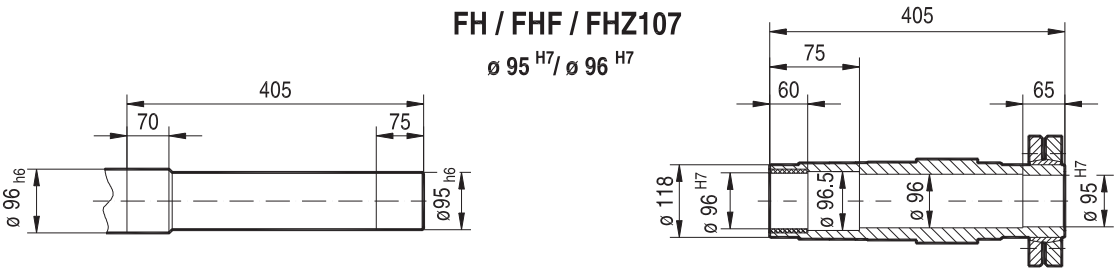
FH / FHF / FHZ97

ø 75 H7/ ø 76 H7



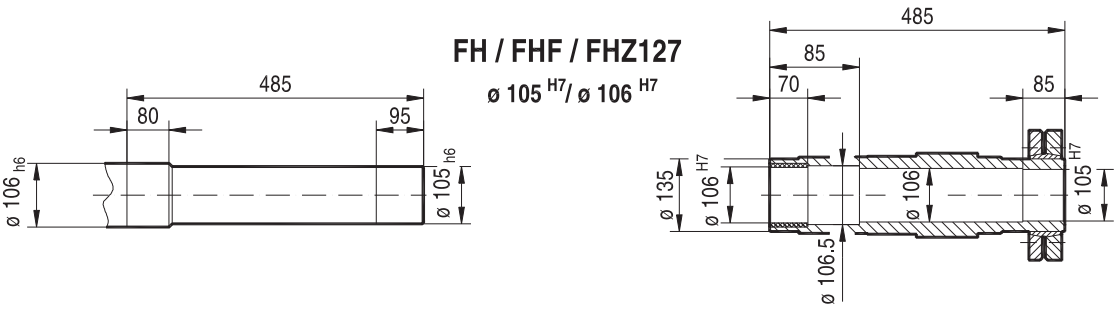
FH / FHF / FHZ107

ø 95 H7/ ø 96 H7



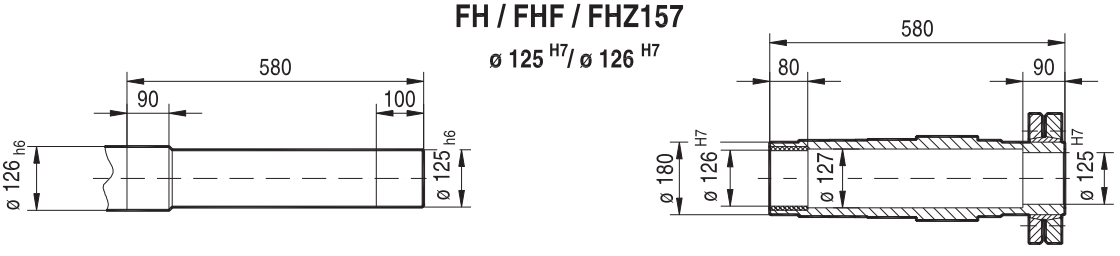
FH / FHF / FHZ127

ø 105 H7/ ø 106 H7



FH / FHF / FHZ157

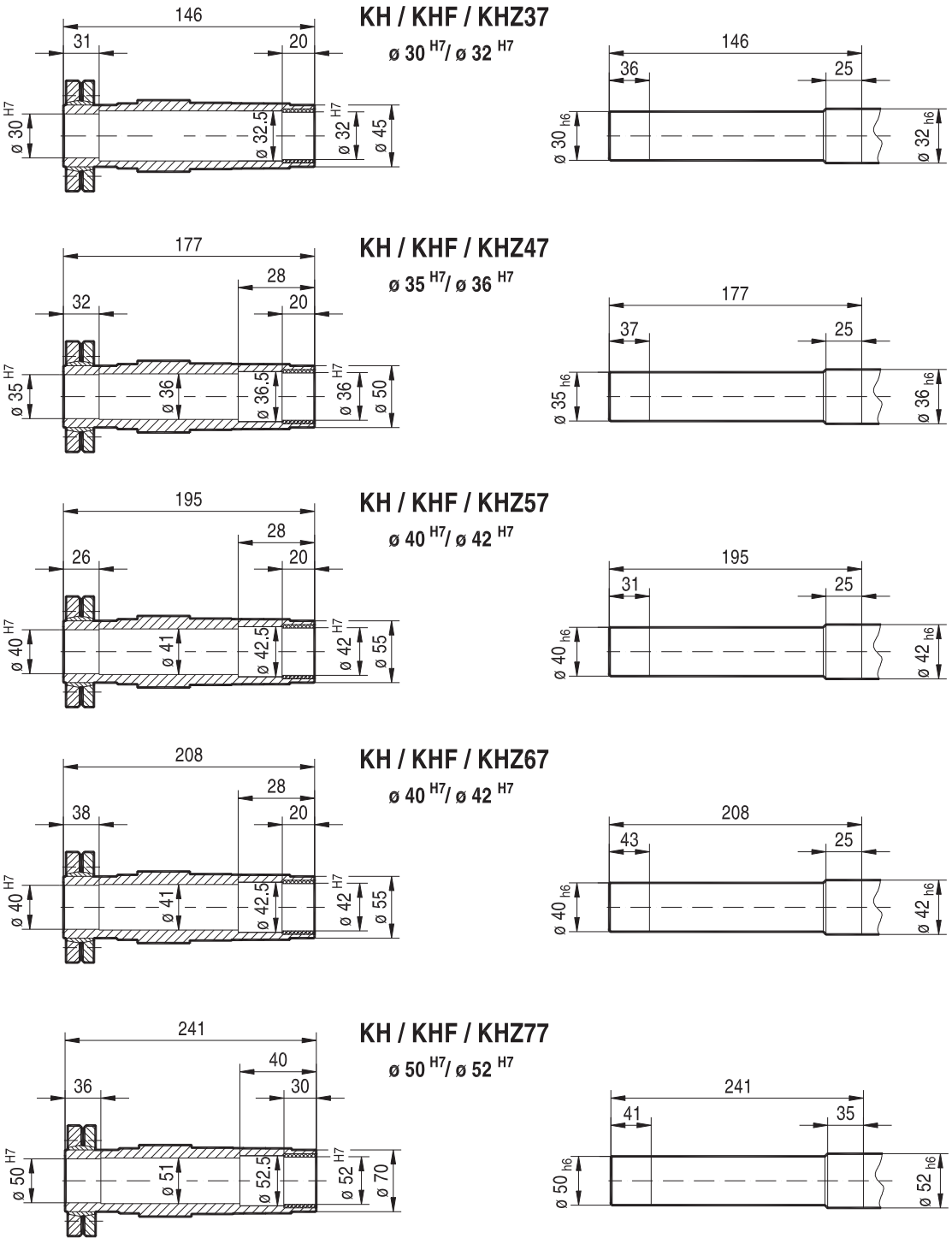
ø 125 H7/ ø 126 H7



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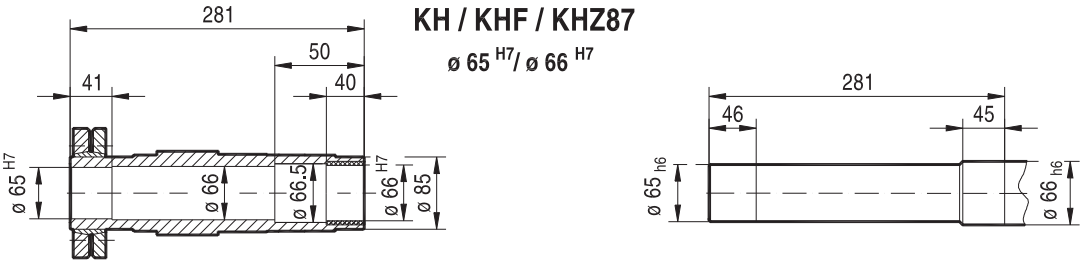
6.8.3 Helical-bevel gear units with shouldered hollow shaft (dimensions in mm):



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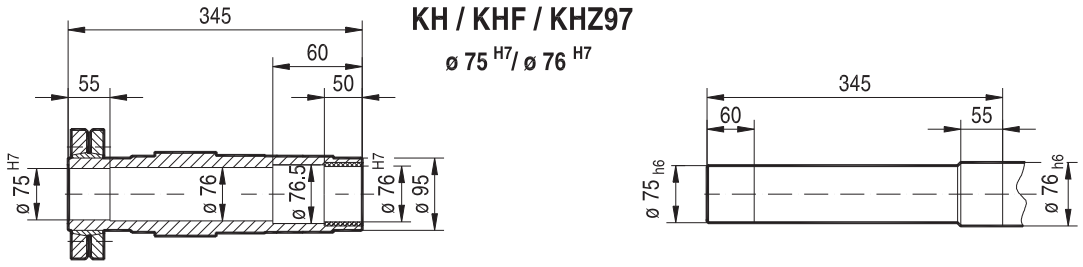
KH / KHF / KHZ87

ø 65 H7/ ø 66 H7



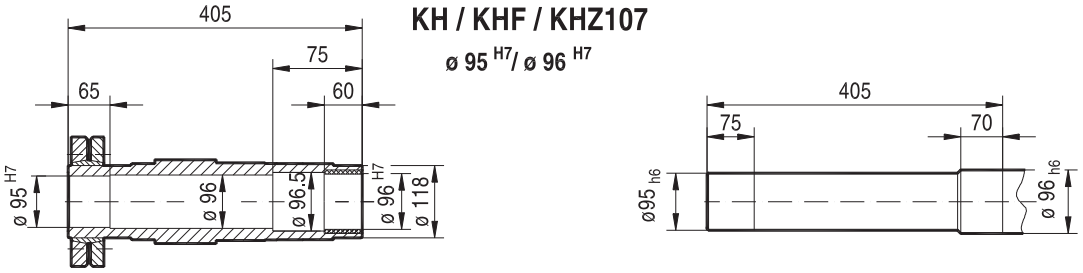
KH / KHF / KHZ97

ø 75 H7/ ø 76 H7



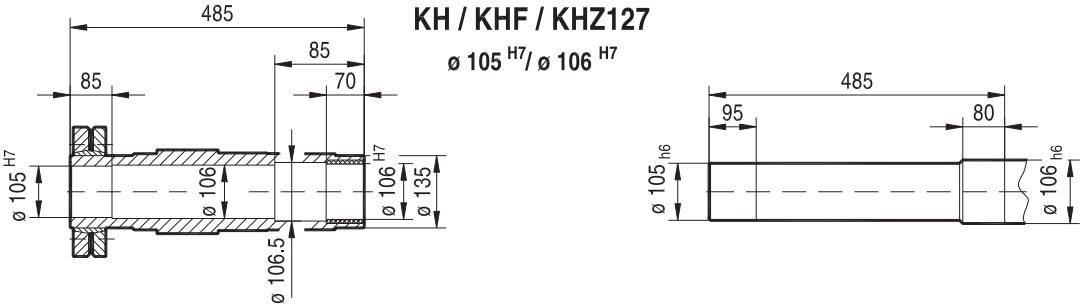
KH / KHF / KHZ107

ø 95 H7/ ø 96 H7



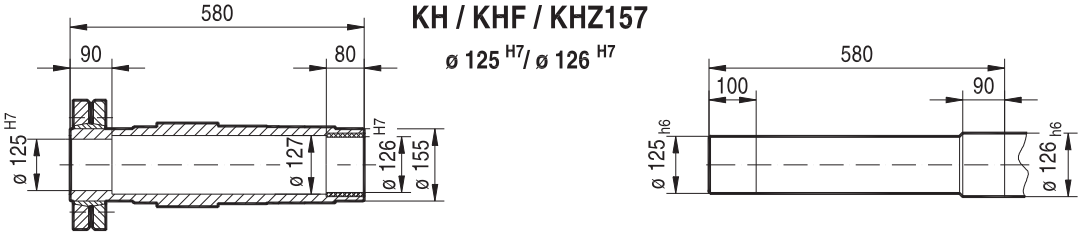
KH / KHF / KHZ127

ø 105 H7/ ø 106 H7



KH / KHF / KHZ157

ø 125 H7/ ø 126 H7



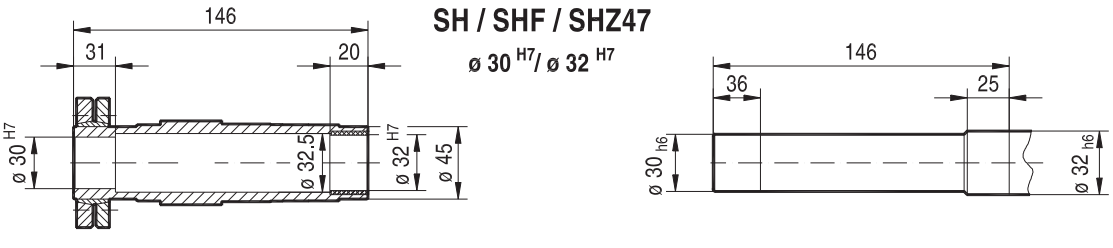
4987065099

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6.8.4 Helical-worm gear units with shouldered hollow shaft (dimensions in mm):

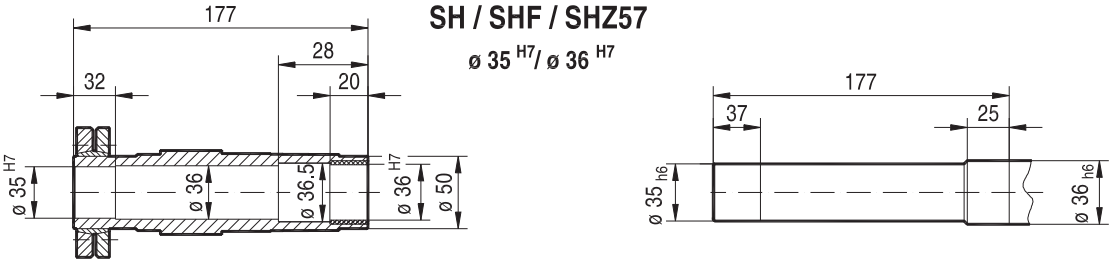
SH / SHF / SHZ47

ø 30 H7/ ø 32 H7



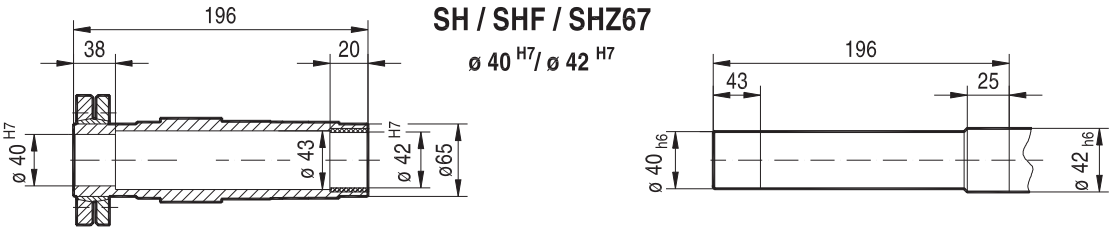
SH / SHF / SHZ57

ø 35 H7/ ø 36 H7



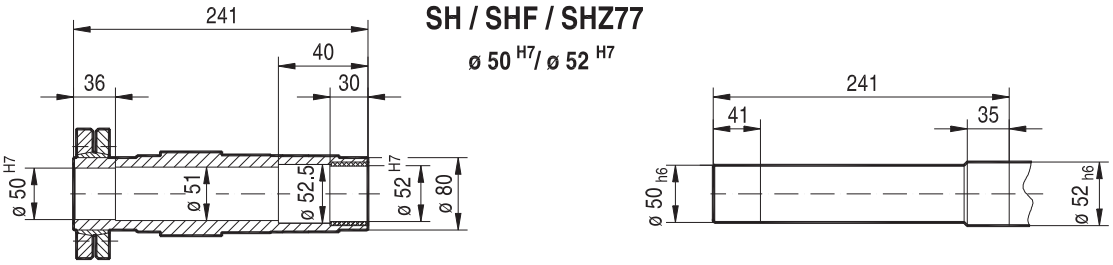
SH / SHF / SHZ67

ø 40 H7/ ø 42 H7

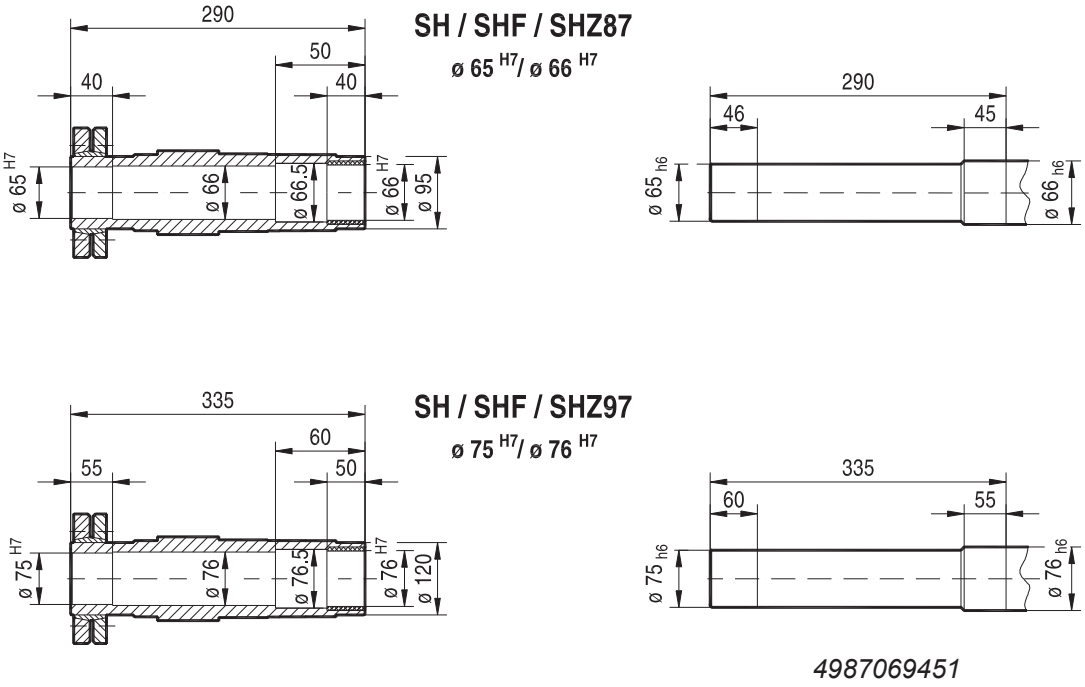


SH / SHF / SHZ77

ø 50 H7/ ø 52 H7



4987067787



SH / SHF / SHZ87

ø 65 H7/ ø 66 H7

SH / SHF / SHZ97

ø 75 H7/ ø 76 H7

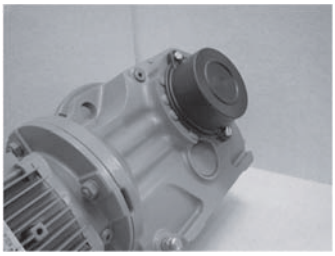
4987069451

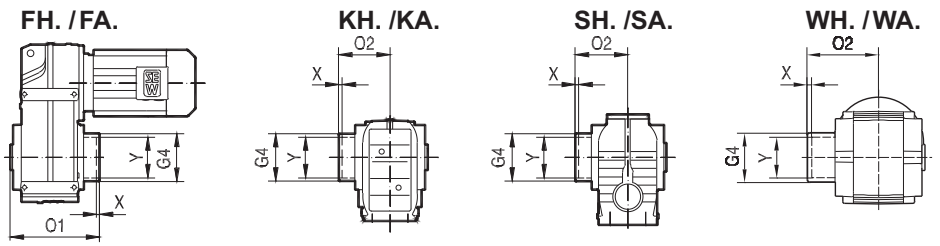
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6.9 Covers for hollow shafts

6.9.1 Non-rotating plastic covers

Gear units with shrink discs (FH, SH, KH, WH) are normally supplied with a stationary black plastic cover. The cover is **optional** for units with a hollow shaft and key (ie: FA, KA, SA, WA).





14436693643

FH / FA / FHF / FAF	37	47	57	67	77	87	97	107	127	157
Kit part number[1]	643 513 0	643 514 9	643 515 7	643 515 7	643 516 5	643 517 3	643 518 1	643 519 X	643 520 3	643 528 9
G4 [mm]	78	88	100	100	121	164	185	200	233	275
O1 [mm]	157	188.5	207.5	221.5	255	295	363.5	420	502	598
X [mm]	11	11.5	12.5	13.5	14	14	18.5	15	17	18
Y [mm]	71	79	79	89	110	155	170	185	212	263

KH[2] / KA[2] / KHF / KAF	37	47	57	67	77	87	97	107	127	157
Kit part number[1]	643 513 0	643 514 9	643 515 7	643 515 7	643 516 5	643 517 3	643 518 1	643 519 X	643 520 3	643 521 1
G4 [mm]	78	88	100	100	121	164	185	200	233	315
O2 [mm]	95	111.5	122.5	129	147	172	210.5	245	296	370
X [mm]	9	9.5	10.5	11	11	11	15.5	15	16	40
Y [mm]	71	79	79	89	110	155	170	185	212	263

KH / KA / KHF / KAF	19	29
Kit part number[1]	1068 415 8	1068 416 6
G4 [mm]	62	68
O2 [mm]	83	90
X [mm]	9	7
Y [mm]	50	60

WH / WA / WHF / WAF	37	47
Kit part number[1]	1061 136 3	1061 194 0
G4 [mm]	68	80.5
O2 [mm]	95.5	109.5
X [mm]	15	13.5
Y [mm]	50	72

SH / SA / SHF / SAF	37	47	57	67	77	87	97
Kit part number[1]	643 512 2	643 513 0	643 514 9	643 515 7	643 516 5	643 517 3	643 518 1
G4 [mm]	59	78	88	100	121	164	185
O2 [mm]	88	95	111.5	123	147	176	204.5
X [mm]	9	9	9.5	11	11	11	14.5
Y [mm]	49	71	79	89	110	155	174

[1]Kit contains cover and mounting bolts.

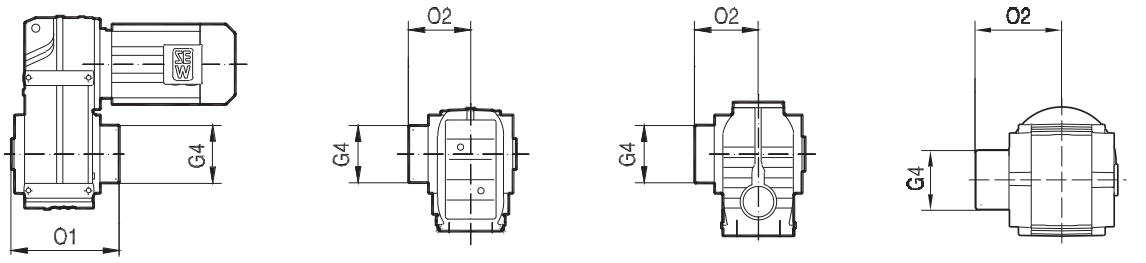
[2]Not possible on helical-bevel units with foot-mounting (KH..**B**, KA..**B**), since there are no mounting holes for the cover.

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6.9.2 Non-rotating metal covers

Gear units with TorqLOC® (FT, ST, KT, WT) are normally supplied with a stainless steel cover and seal. This cover is **optional** on units with a hollow shaft and key or units with shrink disc. Note that on some combinations of theSnuggler® (FT./FH./FA.), the metal cover interferes with the motor. However, in these cases, a split or split/notch cover may be available as shown on the next page.

FT. /FH. /FA. **KT. /KH. /KA.** **ST. /SH. /SA.** **WT. /WH. /WA.**



18014407696567179US

FH / FA / FT / FHF / FAF / FTF	37	47	57	67	77	87	97	107	127	157
Kit part number[1]	0643584X	06435858	06435866	06435866	06435874	06435882	06435890	06421814	06421822	06421830
G4 [mm]	81	90	101	101	124	165	200	196	229	275
O1[2] **[mm]**	166	199	222	236	285	322	382	421	502	605

KH[3] / KA[3] / KT / KHF / KAF / KTF	37	47	57	67	77	87	97	107	127	157
Kit part number[1]	0643584X	06435858	06435866	06435866	06435874	06435882	06435890	06421814	06421822	06421879
G4 [mm]	81	90	101	101	124	165	200	196	229	275
O2[2] **[mm]**	104	122	137	143	177	229	382	246	297	375

KH / KA / KT / KHF / KAF / KTF	19	29	39	49
Kit part number[1]	06442595	10631259	10682651	10682964
G4 [mm]	62	68	86	97
O2[2] **[mm]**	83	90	117.5	138

WH / WA / WT / WHF / WAF / WTF	37	47
Kit part number[1]	10611479	10611959
G4 [mm]	67	78
O2[2] **[mm]**	95.5	109

SH / SA / ST / SHF / SAF / STF	37	47	57	67	77	87	97
Kit part number[1]	10640290	0643584X	06435858	06435866	06435874	06435882	06435890
G4 [mm]	64	81	90	101	124	165	200
O2[2] **[mm]**	98	104	122	137	177	203	223

[1]Kit contains metal cover, mounting bolts, gasket, and thread reduction adapters (if applicable).

[2]O1 and O2 dimensions apply to units with shrink disc or keyed hollowshaft (ex: FH or FA).

[3]Not possible on helical-bevel units with foot-mounting (KH..**B**, KA..**B,** KT..**B**), since there are no mounting holes for the cover.

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6.9.3 Maximum motor size with non-rotating covers

On certain gear unit/motor combinations of theSnuggler®, the motor diameter interferes with either the shrink disc or the cover. The following tables show the maximum motor size where there is no interference.

Non-rotating black plastic cover

Gear unit	FH.37	FH.47	FH.57	FH.67	FH.77	FH.87	FH.97
Max DRN.. size	80	90	80	100	132	180	180

Non-rotating metal cover

Gear unit	FT.37	FT.47	FT.57	FT.67	FT.77	FT.87	FT.97
Max DRN.. size	71	71	80	100	132	160	180

6.9.4 Modified metal covers - Split or split/notch

Split or split/notched covers are available on some TorqLOC® combinations when the standard metal cover interferes with the motor.

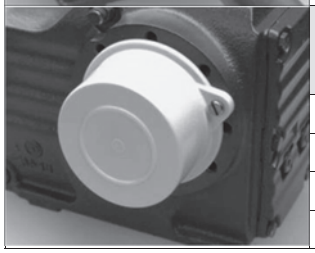
Gear unit	FT.37		FT.47	FT.57		FT.67		FT.77
DRN..	80	90 / 100	80/90/100	90	100	112 /132S	132M	160
Kit #	22584331	22584250	22584269	22584277	22584285	22584277	22584285	22584315
Cover Type	Split	Split/Notch	Split	Split	Split/Notch	Split	Split/Notch	Split/Notch
								

6.9.5 Optional safety covers for TorqLOC®

Instead of the standard stainless cover on the exit side, some gear units with TorqLOC® are available with two plastic covers at no extra charge. This option includes a safety-yellow cover on the exit side to protect the shrink disc plus a safety-yellow (or gray) split cover on the input side to protect the clamping ring. The following kit part numbers include the cover, bolts, and thread reduction adapters (if necessary).



Gear unit size[1]			Entry side – Split	
			Yellow kit	Gray kit
FT37B	KT37	ST47	25054864	25054805
FT47B	KT47	ST57	25054872	25054813
FT57B	KT57	ST67	25054880	25054821
FT67B	KT67			



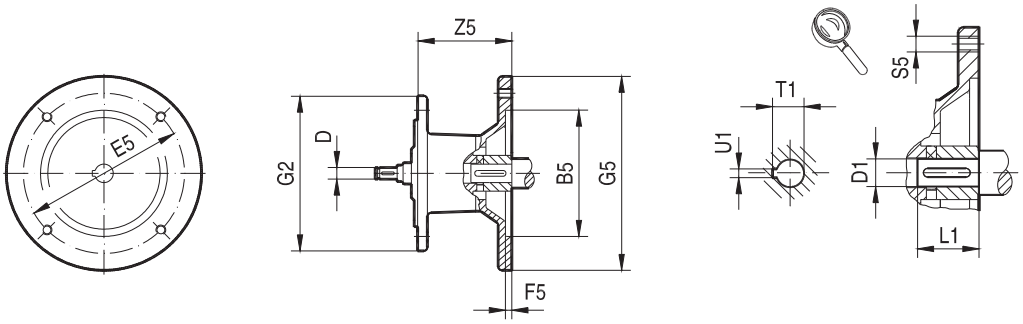
Gear unit size			Exit side – Solid	
			Yellow kit	
FT37B	FT37	KT37	ST47	25054945
FT47B	FT47	KT47	ST57	25054953
FT57B	FT57	KT57	ST67	25054961
FT67B	FT67	KT67		

1) theSnuggler® gear unit must have rail holes (FT..**B**) to provide mounting holes for the cover.

6.10 Motor adapters

6.10.1 IEC motors

23 002 100



Gear unit type	Adapter type	Dimensions in mm											
		B5	D	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1
R..27, R..37 F..27, F..37, F..47 K..19, K..29, K..37 S..37, S..47, S..57 W..37	AM63	95	10	115	3.5	120	140	M8	72	11	23	12.8	4
	AM71[1]	110		130	4		160			14	30	16.3	5
	AM80[1]	130	12	165	4.5		200	M10	106	19	40	21.8	6
	AM90[1]		14							24	50	27.3	8
R..47[2], R..57, R..67 F..57, F..67 K..39, K..47[2], K..57, K..67 S..67 W..47[3]	AM63	95	10	115	3.5	160	140	M8	66	11	23	12.8	4
	AM71	110		130	4		160			14	30	16.3	5
	AM80	130	12	165	4.5		200	M10	99	19	40	21.8	6
	AM90		14							24	50	27.3	8
	AM100[1]	180	16	215	5		250	M12	134	28	60	31.3	8
	AM112[1]		18										
	AM132S/M[1]	230	22	265			300		191	38	80	41.3	10
R..77 F..77 K..49, K..77 S..77	AM63	95	10	115	3.5	200	140	M8	60	11	23	12.8	4
	AM71	110		130	4		160			14	30	16.3	5
	AM80	130	12	165	4.5		200	M10	92	19	40	21.8	6
	AM90		14							24	50	27.3	8
	AM100[1]	180	16	215	5		250	M12	126	28	60	31.3	8
	AM112[1]		18										
	AM132S/M[1]	230	22	265			300		179	38	80	41.3	10
	AM132ML[1]		28										
R..87 F..87 K..87 S..87[4]	AM80	130	12	165	4.5	250	200	M10	87	19	40	21.8	6
	AM90		14							24	50	27.3	8
	AM100	180	16	215	5		250	M12	121	28	60	31.3	8
	AM112		18										
	AM132S/M	230	22	265			300		174	38	80	41.3	10
	AM132ML		28										
	AM160[1]	250	28	300	6		350	M16	232	42	110	45.3	12
	AM180[1]		32							48		51.8	14

1) Check dimension (G5)/2 because component may protrude past foot-mounting surface if installed on R, K, S or W foot-mounted gear unit.
2) Maximum AM100
3) Maximum AM90
4) Not with AM180

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23 003 100

Fig.1

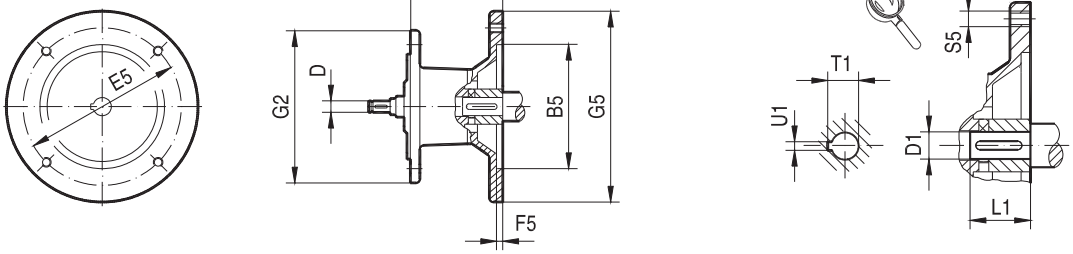
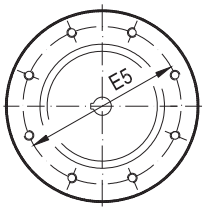


Fig.2



Gear unit type	Adapter type	Fig.	Dimensions in mm											
			B5	D	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1
R..97 F..97 K..97 S..97[1]	AM100	1	180	16	215	5	300	250	M12	116	28	60	31.3	8
	AM112			18										
	AM132S/M		230	22	265			300		169	38	80	41.3	10
	AM132ML			28										
	AM160		250		300	6		350	M16	227	42	110	45.3	12
	AM180			32							48		51.8	14
	AM200		300	38	350	7		400		268	55		59.3	16
R..107, R..127 F..107 K..107	AM100		180	16	215	5	350	250	M12	110	28	60	31.3	8
	AM112			18										
	AM132S/M		230	22	265			300		163	38	80	41.3	10
	AM132ML			28										
	AM160		250		300	6		350	M16	221	42	110	45.3	12
	AM180			32							48		51.8	14
	AM200		300	38	350	7		400		262	55		59.3	16
	AM225	2	350		400			450		277	60	140	64.4	18
R..137	AM132S/M	1	230	22	265	5	400	300	M12	156	38	80	41.3	10
	AM132ML			28										
	AM160		250		300	6		350	M16	214	42	110	45.3	12
	AM180			32							48		51.8	14
	AM200		300	38	350	7		400		255	55		59.3	16
	AM225	2	350		400			450		270	60	140	64.4	18

1) Not with AM200

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23 004 100

Fig.1

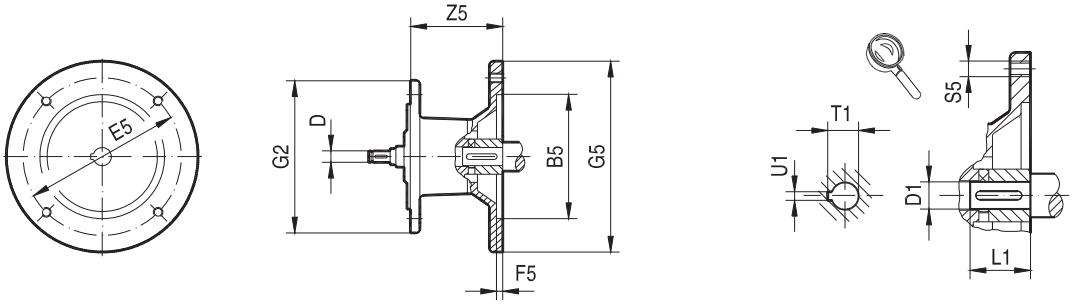
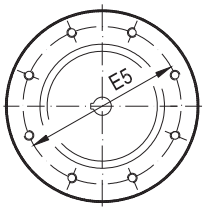


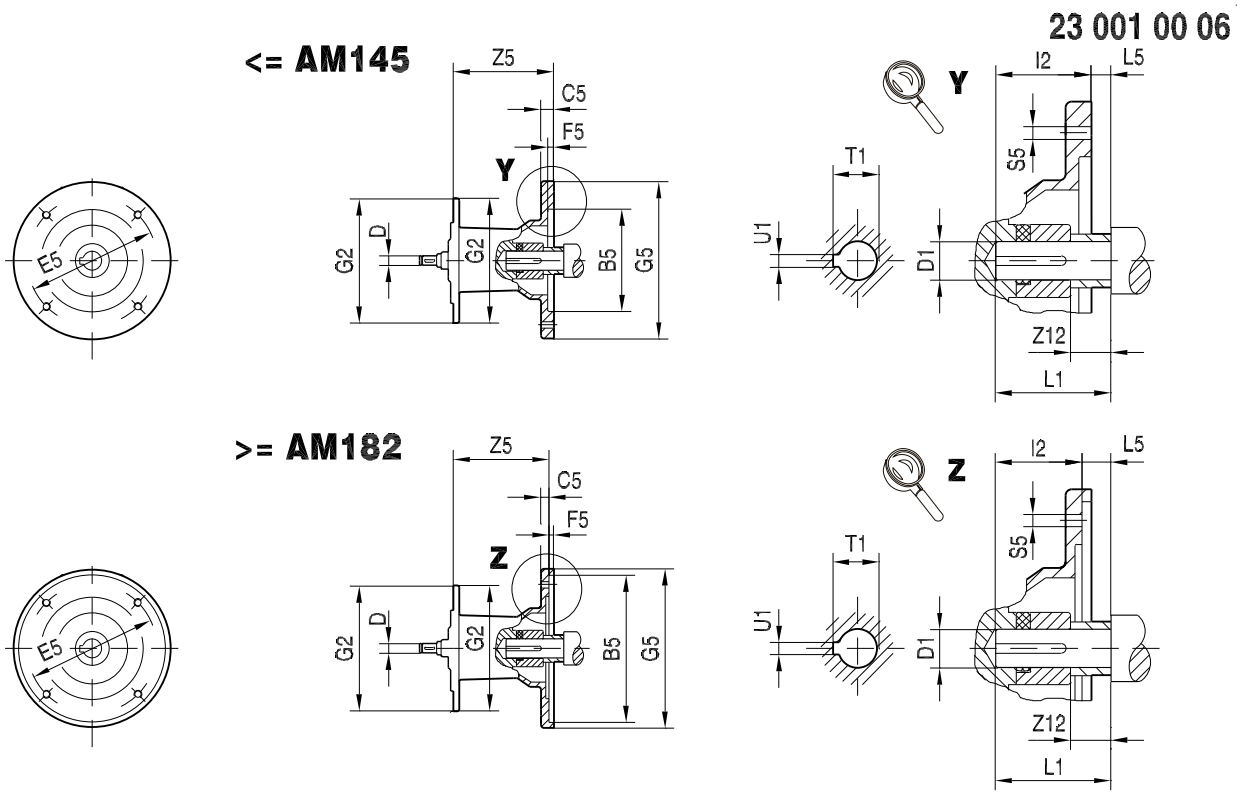
Fig.2



Gear unit type	Adapter type	Fig.	Dimensions in mm											
			B5	D	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1
R..147 F..127 K..127	AM132S/M	1	230	22	265	5	450	300	M12	148	38	80	41.3	10
	AM132ML			28										
	AM160		250	28	300	6		350	M16	206	42	110	45.3	12
	AM180			32							48		51.8	14
	AM200		300	38	350	7		400		247	55		59.3	16
	AM225	2	350		400			450		262	60	140	64.4	18
	AM250		450	48	500			550		336	65		69.4	
	AM280										75		79.9	20
R..167 F..157 K..157 K..167 K..187	AM160	1	250	28	300	6	550	350		198	42	110	45.3	12
	AM180			32							48		51.8	14
	AM200		300	38	350	7		400		239	55		59.3	16
	AM225	2	350		400			450		254	60	140	64.4	18
	AM250		450	48	500			550		328	65		69.4	
	AM280										75		79.9	20

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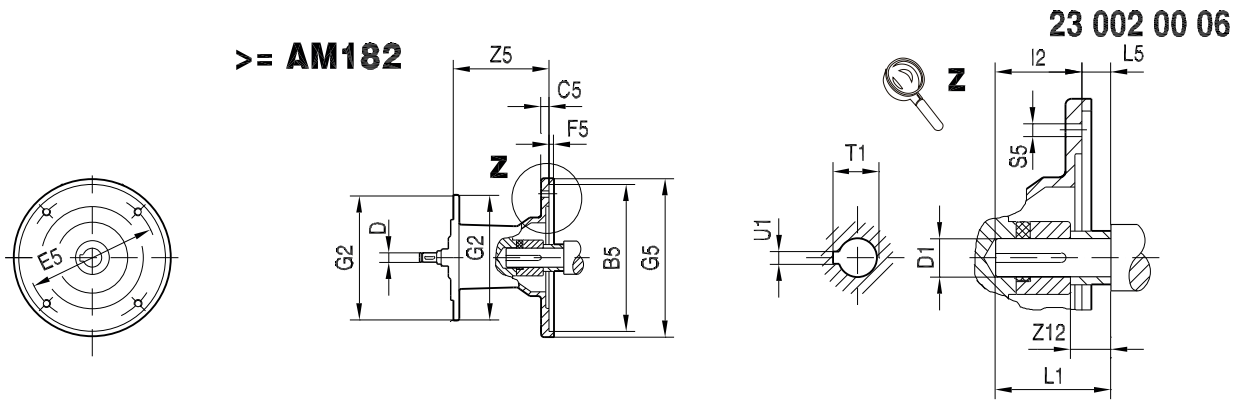
6.10.2 NEMA motors



Gear unit type	Adapter type	Dimensions in mm/inch															
		B5 inch	C5 mm	D mm	E5 inch	F5 mm	G2 mm	G5 mm	I2 mm	L5 inch	S5 mm	Z5 mm	Z12 mm	D1 inch	L1 inch	T1 inch	U1 inch
R..27, R..37 F..27, F..37, F..47 K..19, K..29, K..37 S..37, S..47, S..57 W..37	AM56	4.50	11	10	5.875	4.5	120	170	52.55	-0.18	10.5	93.5	16.5	0.625	1.88	0.71	0.188
	AM143		12	12					54.1	0.13		117	14.5	0.875	2.25	0.98	
	AM145			14													
R..47, R..57, R..67 F..57, F..67 K..39, K..47, K..57, K..67 S..67 W..47[1)]	AM56		11	10			160		52.55	-0.18		87	16.5	0.625	1.88	0.71	
	AM143		12	12					54.1	0.13		110.5	14.5	0.875	2.25	0.98	
	AM145			14													
	AM182	8.50	10	16	7.25	5		228	66.85	0.13	15	147.5	16.5	1.125	2.75	1.24	0.250
	AM184			18													
	AM213/215		11	22					79.55	0.25		200.5	15.8	1.375	3.38	1.52	0.312
R..77 F..77 K..49, K..77 S..77	AM56	4.50	11	10	5.875	4.5	200	170	52.55	-0.18	10.5	81	16.5	0.625	1.88	0.71	0.188
	AM143		12	12					54.1	0.13		103.5	14.5	0.875	2.25	0.98	
	AM145			14													
	AM182	8.50	10	16	7.25	5		228	66.85	0.13	15	139.5	16.5	1.125	2.75	1.24	0.250
	AM184			18													
	AM213/215		11	22					79.55	0.25		188.5	15.8	1.375	3.38	1.52	0.312
R..87 F..87 K..87 S..87	AM143	4.50	12	12	5.875	4.5	250	170	54.1	0.13	10.5	98.5	14.5	0.875	2.25	0.98	0.188
	AM145			14													
	AM182	8.50	10	16	7.25	5		228	66.85	0.13	15	134.5	16.5	1.125	2.75	1.24	0.250
	AM184			18													
	AM213/215		11	22					79.55	0.25		183.5	15.8	1.375	3.38	1.52	0.312
	AM254/256		12	28					95.3	0.25		234	8.8	1.625	4.00	1.80	0.375
	AM284/286	10.50	15	32	9.00			286	111.05	0.25	15	241	15.8	1.875	4.62	2.10	0.500

1) Maximum AM143/AM145

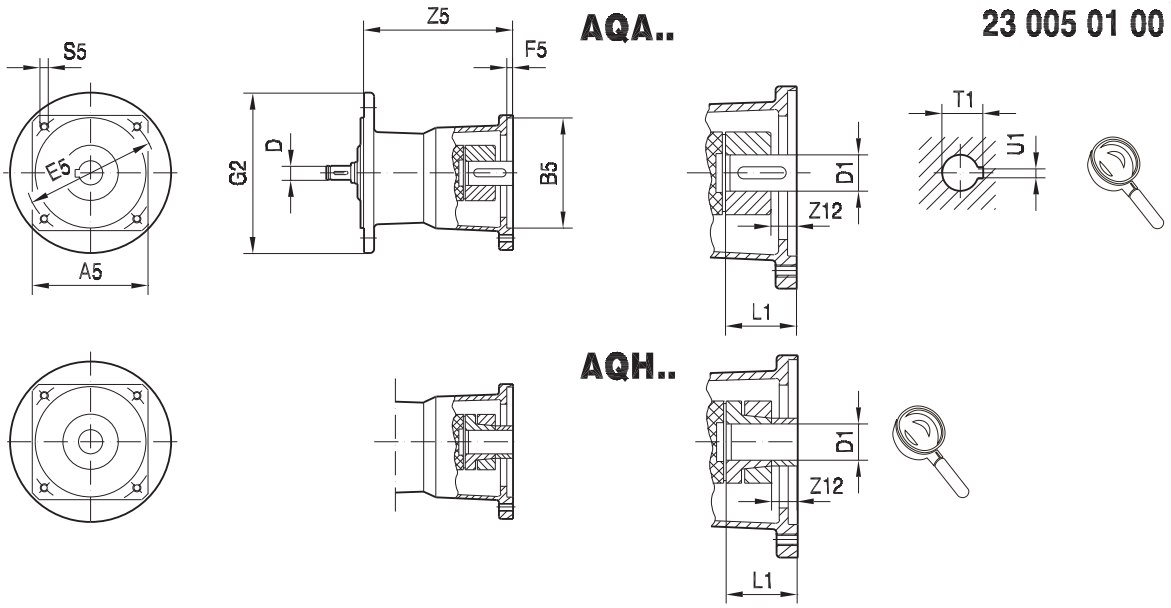
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Gear unit type	Adapter type	Dimensions in mm/inch															
		B5 inch	C5 mm	D mm	E5 inch	F5 mm	G2 mm	G5 mm	I2 mm	L5 inch	S5 mm	Z5 mm	Z12 mm	D1 inch	L1 inch	T1 inch	U1 inch
R..97 F..97 K..97 S..97	AM182	8.50	10	16	7.25	5	300	228	66.85	0.13	15	129.5	16.5	1.125	2.75	1.24	0.250
	AM184			18													
	AM213/215		11	22					79.55	0.25		178.5	15.8	1.375	3.38	1.52	0.312
	AM254/256		12	28					95.3			229	8.8	1.625	4.00	1.80	0.375
	AM284/286	10.50	20	32	9.00			286	111.05			236	15.8	1.875	4.62	2.10	0.500
	AM324/326	12.50	17	38	11.0			356	127.05		17.5	296	34.8	2.125	5.25	2.36	0.500
	AM364/365								143.05					2.375	5.88	2.66	0.625
R..107, R..127 F..107 K..107	AM182	8.50	10	16	7.25		350	228	66.85	0.13	15	123.5	16.5	1.125	2.75	1.24	0.250
	AM184			18													
	AM213/215		11	22					79.55	0.25		172.5	15.8	1.375	3.38	1.52	0.312
	AM254/256		12	28					95.3			223	8.8	1.625	4.00	1.80	0.375
	AM284/286	10.50	15	32	9.00			286	111.05			230	15.8	1.875	4.62	2.10	0.500
	AM324/326	12.50	17	38	11.0			356	127.05		17.5	290	34.8	2.125	5.25	2.36	0.500
	AM364/365								143.05					2.375	5.88	2.66	0.625
R..137	AM213/215	8.50	11	22	7.25		400	228	79.55		15	165.5	15.8	1.375	3.38	1.52	0.312
	AM254/256		12	28					95.3			216	8.8	1.625	4.00	1.80	0.375
	AM284/286	10.50	15	32	9.00			286	111.05			223	15.8	1.875	4.62	2.10	0.500
	AM324/326	12.50	17	38	11.0			356	127.05		17.5	283	34.8	2.125	5.25	2.36	0.500
	AM364/365								143.05					2.375	5.88	2.66	0.625
R..147 F..127 K..127	AM213/215	8.50	11	22	7.25		450	228	79.55	0.25	15	157.5	15.8	1.375	3.38	1.52	0.312
	AM254/256		12	28					95.3			208	8.8	1.625	4.00	1.80	0.375
	AM284/286	10.50	15	32	9.00			286	111.05			215	15.8	1.875	4.62	2.10	0.500
	AM324/326	12.50	17	38	11.0			356	127.05		17.5	275	34.8	2.125	5.25	2.36	0.500
	AM364/365								143.05					2.375	5.88	2.66	0.625
R..167 F..157 K..157 K..167 K..187	AM254/256	8.50	12	28	7.25		550	228	95.3		15	200	8.8	1.625	4.00	1.80	0.375
	AM284/286	10.50	15	32	9.00			286	111.05			207	15.8	1.875	4.62	2.10	0.500
	AM324/326	12.50	17	38	11.0			356	127.05		17.5	267	34.8	2.125	5.25	2.36	0.500
	AM364/365								143.05					2.375	5.88	2.66	0.625

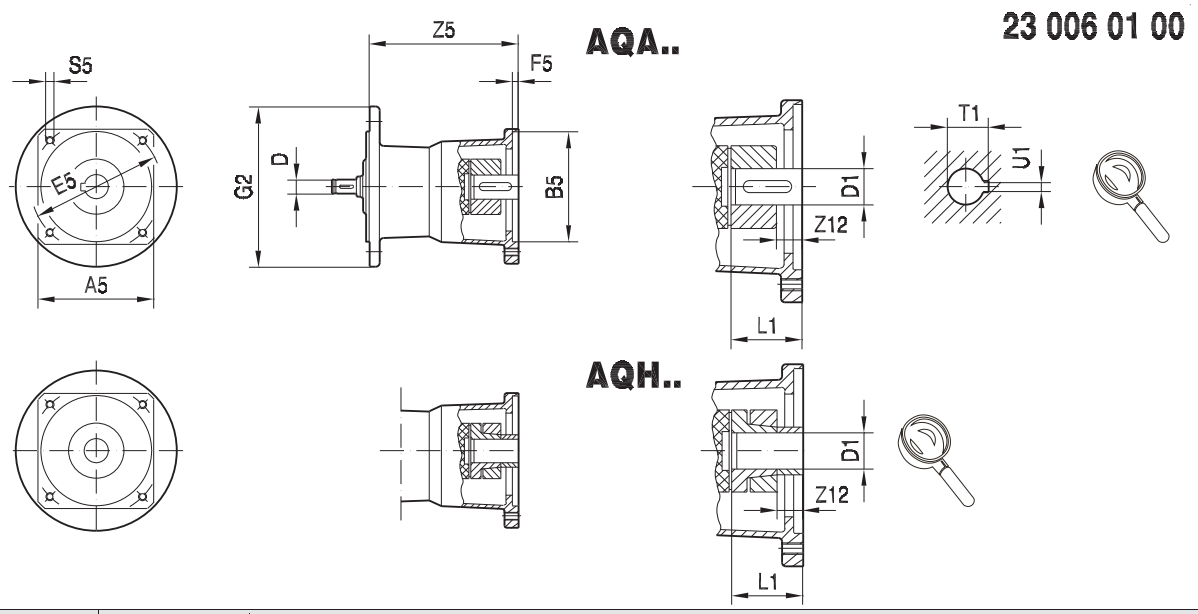
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6.10.3 Servomotors



Gear unit type	Adapter type	Dimensions in mm													
		A5	B5	D	E5	F5	G2	S5	Z5	Z12[1]	Z12[2]	D1	L1	T1[1]	U1[1]
R..27, R..37 F..27, F..37, F..47 K..19, K..29, K..37 S..37, S..47, S..57 W..37	AQ..80/1	82	60	10 12	75	3	120	M5	104.5	5.5	5.5	11	23	12.8	4
	AQ..80/2											14	30	16.3	5
	AQ..80/3		50		95			M6	129.5	-	-				
	AQ..100/1	100	80	10 12 14 16	100	4									5
	AQ..100/2		95		115			M8							
	AQ..100/3		80		100			M6	143.5	2	14	19	40	21.8	6
	AQ..100/4		95		115			M8	152.5	11	23				
	AQ..115/1	115	110		130										
	AQ..115/2														
	AQ..115/3									16	16	24	50	27.3	8
R..47, R..57, R..67 F..57, F..67 K..39, K..47[3], K..57, K..67 S..67 W..47	AQ..80/1	82	60	10 12	75	3	160	M5	98	5.5	5.5	11	23	12.8	4
	AQ..80/2											14	30	16.3	5
	AQ..80/3		50		95			M6	122.5	-	-				
	AQ..100/1	100	80	10 12 14 16	100	4									
	AQ..100/2		95		115			M8							
	AQ..100/3		80		100			M6	136.5	2	14	19	40	21.8	6
	AQ..100/4		95		115			M8	145.5	11	23				
	AQ..115/1	115	110		130										
	AQ..115/2														
	AQ..115/3									16	16	24	50	27.3	8
	AQ..140/1	140	130	16 18 22	165	5		M10	175						
	AQ..140/2														
	AQ..140/3								188	22	22	32	60	35.5	10
	AQ..140/4											28		31.3	8
	AQ..160/1	162	155		190							32		35.3	10
	AQ..190/1	190	130	22 28	215			M12	237.5	24	24				
	AQ..190/2		180												
	AQ..190/3								261.5	34	34	38	80	41.3	

1) For designs with keyway (AQA..)
2) For designs with clamping ring hub (AQH..)
3) Not with AQ190



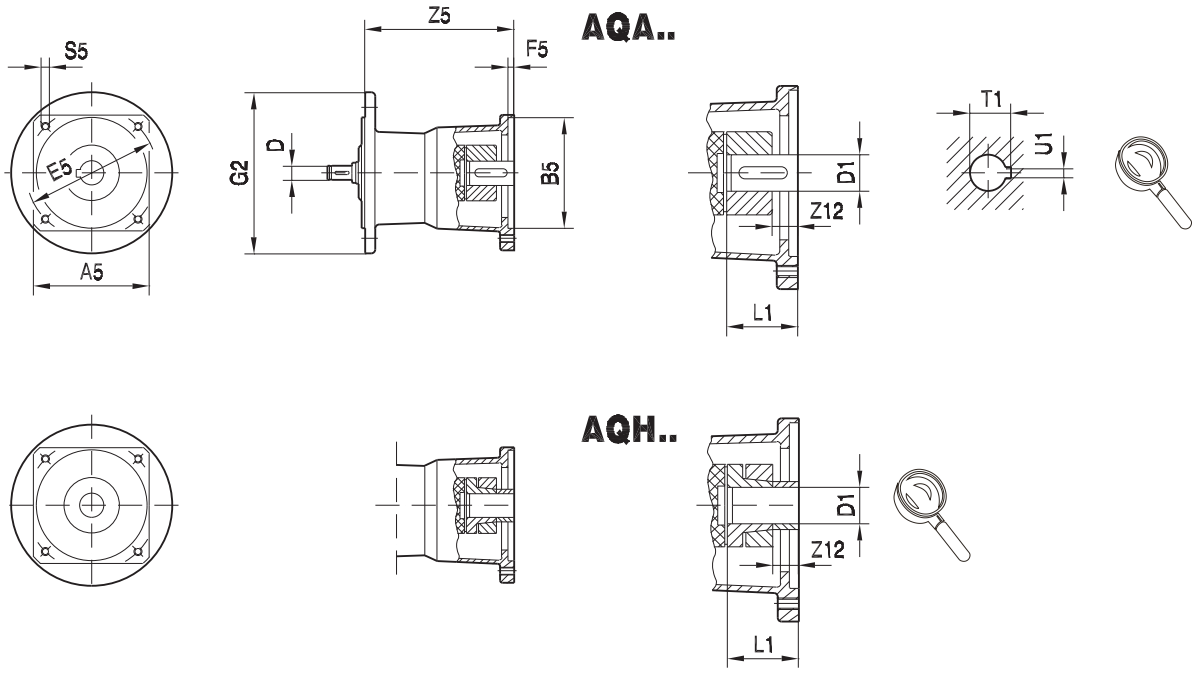
Gear unit type	Adapter type	Dimensions in mm													
		A5	B5	D	E5	F5	G2	S5	Z5	Z12[1]	Z12[2]	D1	L1	T1[1]	U1[1]
R..77 F..77 K..49, K..77 S..77	AQ..80/1	82	60	10 12	75	3	200	M5	92	5.5	5.5	11	23	12.8	4
	AQ..80/2											14	30	16.3	5
	AQ..80/3		50		95			M6							
	AQ..100/1	100	80	10 12 14 16	100	4			115.5	-	-				
	AQ..100/2		95		115			M8							
	AQ..100/3		80		100			M6	129.5	2	14	19	40	21.8	6
	AQ..100/4		95		115			M8	138.5	11	23				
	AQ..115/1	115	110		130										
	AQ..115/2														
	AQ..115/3									16	16	24	50	27.3	8
	AQ..140/1	140	130	16 18 22	165	5			167						
	AQ..140/2														
	AQ..140/3							M10	180	22	22	32	60	35.3	10
	AQ..140/4											28		31.3	8
	AQ..160/1	162	155		190							32		35.3	10
	AQ..190/1	190	130	22 28	215			M12	225.5	24	24			35.3	
	AQ..190/2		180												
	AQ..190/3								249.5	34	34	38	80	41.3	
R..87 F..87 K..87 S..87	AQ..100/1	100	80	12 14 16	100	4	250	M6	110.5	-	-	14	30	16.3	5
	AQ..100/2		95		115			M8							
	AQ..100/3		80		100			M6	124.5	2	14	19	40	21.8	6
	AQ..100/4		95		115			M8	133.5	11	23				
	AQ..115/1	115	110		130										
	AQ..115/2														
	AQ..115/3									16	16	24	50	27.3	8
	AQ..140/1	140	130	16 18 22	165	5			162						
	AQ..140/2														
	AQ..140/3							M10	175	22	22	32	60	35.3	10
	AQ..140/4											28		31.3	8
	AQ..160/1	162	155		190							32		35.3	10
	AQ..190/1	190	130	22 28	215			M12	220.5	24	24				
	AQ..190/2		180												
	AQ..190/3								244.5	34	34	38	80	41.3	

1) For designs with keyway (AQA..)

2) For designs with clamping ring hub (AQH..)

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Gear unit type	Adapter type	Dimensions in mm													
		A5	B5	D	E5	F5	G2	S5	Z5	Z12[1]	Z12[2]	D1	L1	T1[1]	U1[1]
R..97 F..97 K..97 S..97	AQ..140/1	140	110	16 18 22	165	5	300	M10	157	16	16	24	50	27.3	8
	AQ..140/2		130												
	AQ..140/3								170	22	22	32	60	35.3	10
	AQ..140/4											28		31.3	8
	AQ..160/1	162	155		190							32		35.3	10
	AQ..190/1	190	130	22 28	215			M12	215.5	24	24				
	AQ..190/2		180												
	AQ..190/3								239.5	34	34	38	80	41.3	
R..107 F..107 K..107	AQ..140/1	140	110	16 18 22	165		350	M10	151	16	16	24	50	27.3	8
	AQ..140/2		130												
	AQ..140/3								164	22	22	32	60	35.3	10
	AQ..140/4											28		31.3	8
	AQ..160/1	162	155		190							32		35.3	10
	AQ..190/1	190	130	22 28	215			M12	209.5	24	24				
	AQ..190/2		180												
	AQ..190/3								233.5	34	34	38	80	41.3	
R..137	AQ..190/1		130				400		202.5	24	24	32	60	35.3	
	AQ..190/2		180												
	AQ..190/3								226.5	34	34	38	80	41.3	
R..147 F..127 K..127	AQ..190/1		130				450		194.5	24	24	32	60	35.3	
	AQ..190/2		180												
	AQ..190/3								218.5	34	34	38	80	41.3	

1) For designs with keyway (AQA..)
2) For designs with clamping ring hub (AQH..)

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6.11 Gear unit mounting

6.11.1 Foot or flange mounting

INFORMATION

Alignment is critical when installing gear units with a flange or with feet. Installation recommendations are available online within the **Technical Notes** section at:

→ **www.seweurodrive.com**

For gear units with a flange, review Technical Note **GM-020**.

For gear units with hollow shaft and feet, review Technical Note **GM-019**.

Bolt strength:

Always install gearmotors using screws of strength **class 8.8**.

Gearmotors in flange-mounted design and in foot-/flange-mounted design listed in the following table are an exception. Always use screws of strength class 10.9 for these gearmotors. In addition, use suitable washers.

Gear unit	Flange Ø in mm	Strength class of the screws
RF37/R37F	120	10.9
RF47/R47F	140	
RF57/R57F	160	
FF/FAF77/KF/KAF77	250	
RF147	450	
RF167	550	
RZ37 – RZ87	60ZR – 130ZR	
All other units		8.8

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Lifting Eyebolts:

R07..R27 helical gear units, motors up to DRN..100 and the Spiroplan® gearmotors W..10 to W..30 are delivered without additional hardware for ease of handling. All other gear units and motors are equipped with cast-on suspension eye lugs, screw-on suspension eye lugs, or screw-on lifting eyebolts, as noted below.

.

Gear Unit	Screw-on		Cast-on eyebolts
	lifting eyebolts	eyebolts	
R..37 - R..57		X	
R..67 - R..107	X		
RX57 - RX67		X	
RX77 - RX107	X		
F..27 - F..157			X
K..37 - K..157			X
K..167 - K..187	X		
S..37 - S..47		X	
S..57 - S..97			X
W37 - W47		X	

X = Standard; blank = not available

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6.11.2 Torque arm mounting

DANGER NOTICE



If gear units with hollow shaft and feet (e.g. KA19/29B, KA127/157B or FA127/157B) are mounted via both a torque arm and feet, injury or damage could result due to binding forces!

- KA.9B/T design: Do NOT use the feet and torque arm at the same time. Mount via the torque arm only.
- K.9 or KA.9B: Mount via the feet only.
- If you have a special need for using both the feet and torque arm, contact SEW-EURODRIVE.

Part numbers

The following table lists the part numbers of available torque arms and rubber buffers.

Gear unit	Size			
	19	29	39	49
KA, KH, KT	10684115	10684107	10682163	06442439

Gear unit	Size					
	27	37	47	57	67	77
KA, KH, KV, KT	-	6434258	6434282	6434312	6434312	6434347
SA, SH, ST	-	1269941	6442374	6442404	6442439	6442463
FA, FH, FV, FT Rubber buffer (2 pieces)	0133485	0133485	0133485	0133485	0133485	0133493

Gear unit	Size					
	87	97	107	127	157	167/187
KA, KH, KV, KT	6434371	6434401	6434436	6432948	6432956-	N/A
SA, SH, ST	6442498	6442528	-	-	-	-
FA, FH, FV, FT Rubber buffer (2 pieces)	0133493	0133507	0133507	0133515	0133477	-

Gear unit	Size					
	10	20	30	37	47	
WA, WH, WT	10610219	1680730	1680110	10611290	10611851	

INFORMATION



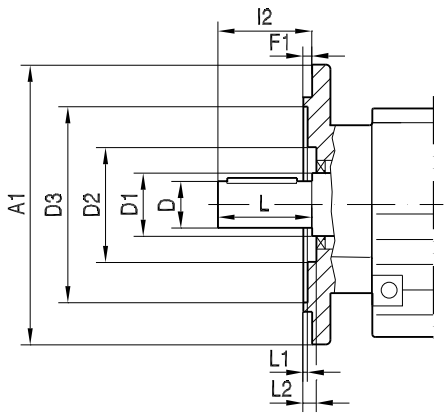
For proper design and mounting of torque arms and torque arm brackets, please see Technical Note **GM-021**, available at:

→ **www.seweurodrive.com**

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6.12 Flange contours

6.12.1 RF.. and R..F



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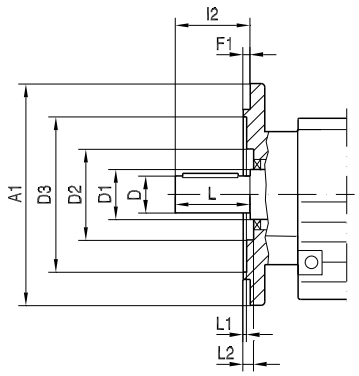
Check dimensions L1 and L2 for selection and installation of output elements.

Type	Dimensions in mm											
	A1	D	D1	D2		D3	F1	l2	L	L1		L2
				RF	R..F					RF	R..F	
RF07, R07F	120	20	22	38	38	72	3	40	40	2	2	6
	140[1)]				-	85					-	
	160[1)]					100	3.5			2.5	-	6.5
RF17, R17F	120		25	46	46	65	3			1	1	5
	140				-	78					-	
	160[1)]					95	3.5					6
RF27, R27F	120	25	30	54	54	66	3	50	50	1	1	6
	140				-	79				3	-	7
	160					92	3.5					
RF37, R37F	120		35	60	63	70	3			5	4	
	160				-	96	3.5			1	-	7.5
	200[1)]					119						
RF47, R47F	140	30		72	64	82	3	60	60	4	1	6
	160				-	96	3.5			0.5	-	6.5
	200					116						
RF57, R57F	160	35	40	76	75	96		70	70	4	2.5	5
	200				-	116				0	-	
	250[1)]					160	4			0.5		5.5
RF67, R67F	200		50	90	90	118	3.5			2	4	7
	250				-	160	4			1	-	7.5
RF77, R77F	250	40	52	112	100	160		80	80	0.5	2.5	7
	300[1)]				-	210					-	
RF87, R87F	300	50	62	123	122	210		100	100	0	1.5	8
	350				-	226	5			1	-	9
RF97	350	60	72	136	-	236		120	120	0	-	9
	450					320						
RF107	350	70	82	157		232		140	140			11
	450			186		316						
RF127	450	90	108	180		316		170	170			10
RF137	450	90	108	180		316		170	170			10
	550					416						
RF147	450	110	125	210		316		210	210			
	550					416						
RF167	550	120	145	290		416				1		
	660					517	6			2		11

1) The flange contour protrudes from under the base surface.

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6.12.2 FF.., KF.., SF.. and WF..



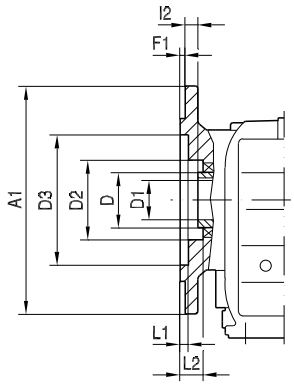
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Check dimensions L1 and L2 for selection and installation of output elements.

Type	Dimensions in mm									
	A1	D	D1	D2	D3	F1	I2	L	L1	L2
FF27	160	25	40	66	96	3.5	50	50	3	18.5
FF37			30	70	94				2	6
FF47	200	30	40	72	115		60	60	3.5	7.5
FF57	250	35		84	155	4	70	70	4	9
FF67	250	40	50				80	80		
FF77	250	50	55	82	155		100	100	5	
	300				205					
FF87	350	60	65	115	220	5	120	120		
FF97	450	70	75	112	320		140	140	8	10
FF107		90	100	159	318		170	170	16	9
FF127	550	110	118	-	420		210	210	10	-
FF157	660	120	135	190	520	6			8	14
KF19	120	20	25	-	70	2.5	40	40	-	11.5
	160				100					
KF29		25	30		109	3.5	50	50		6.5
	200				115					
KF37	160			70	94				2	6
KF39		30	39	68	96		60	60	13.5	23.5
KF47	200		40	72	115				3.5	7.5
KF49		35	49	76	115		70	70	24.5	28
KF57	250	35	40	84	155	4	70	70	4	9
KF67		40	50				80	80		
KF77	250	50	55	82	155		100	100	5	
	300				205					
KF87	350	60	65	115	220	5	120	120		
KF97	450	70	75	112	320		140	140	8	10
KF107		90	100	159	318		170	170	16	9
KF127	550	110	118	-	420		210	210	10	-
KF157	660	120	135	190	520	6			8	14
SF37	120	20	25	-	68	3	40	40	6	-
	160	20		-	96	3.5			5.5	
SF47		25	30	70	94		50	50	2	6
SF57	200	30	40	72	115		60	60	3.5	7.5
SF67		35	45	-			70	70	8.5	-
SF77	250	45	55	108	160	4	90	90	8	9
SF87	350	60	65	130	220	5	120	120	6	10
SF97	450	70	75	150	320		140	140	8.5	
WF10	80	16	25	-	39	2.5	40	40	30	-
	120		25	39	74	3			5	30
WF20	110	20	30	44	53	-4	40	40	27	35
	120			-	45	2.5			37.5	-
WF30				48	63				18	27
	160								33	42
WF37	120			-	70				-	10.5
	160									25.5
WF47		30	35		92	3.5	10	60	6	-

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6.12.3 FAF.., KAF.., SAF.. and WAF..



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Check dimensions L1 and L2 for selection and installation of output elements.

Type	Dimensions in mm								
	A1	D	D1	D2	D3	F1	I2	L1	L2
FAF27	160	40	25	66	96	3.5	20	3	18.5
FAF37		45	30	62	94		24	2	30
FAF47	200	50	35	70	115		25	3.5	31.5
FAF57	250	55	40	76	155	4	23.5	4	31
FAF67							23		
FAF77	250	70	50	95	155		37	5	45
	300				205				
FAF87	350	85	60	120	220	5	30		39
FAF97	450	95	70	135	320		41.5	5.5	51
FAF107		118	90	224			41	16	52
FAF127	550	135	100	185	420		51	6	63
FAF157	660	155	120	200	520	6	60	10	74
KAF19	120	30	20	60	70	2.5	25	9	25.5
	160				100				
KAF29	160	40	25 / 30	-	105	3.5	33.5	-	6.5
	200			-	118				
KAF39	160	50	30 / 35	68	96		24.5	10	27
KAF37	160	45	30	62	94		24	2	30
KAF47	200	50	35	70	115		25	3.5	8.5
KAF49	200	55	35 / 40	76	115		32.5	16	34.5
KAF57	250	55	40	76	155	4	23.5	4	31
KAF67							23		
KAF77	250	70	50	95	155		37	5	45
	300				205				
KAF87	350	85	60	120	220	5	30		39
KAF97	450	95	70	135	320		41.5	5.5	51
KAF107		118	90	224			41	16	52
KAF127	550	135	100	185	420		51	6	63
KAF157	660	155	120	200	520	6	60	10	74
SAF37	120	35	20	-	68	3	15	6	-
	160				96	3.5		5.5	
SAF47		45	30 / 25	62	94		24	2	30
SAF57	200	50	35 / 30	70	115		25	3.5	31.5
SAF67		65	45 / 40	91			42.5	4	48.5
SAF77	250	80	60 / 50	112	164	4	45.5	5	53.5
SAF87	350	95	70 / 60	131	220	5	52.5	6	62.5
SAF97	450	120	90 / 70	160	320	5	60	6.5	69
WAF10	80	25	16	-	39	2.5	23	30	-
	120			39	74	3		5	30
WAF20	110	30	18 / 20	44	53	-4	30	27	35
	120			-	45	2.5		37.5	-
WAF30			20	48	63		19.5	18	27
	160				63		34.5	33	42
WAF37	120	35	20 / 25	54	70		19.5	10.5	27
	160						34.5	25.5	42
WAF47		45	25 / 30	72	92	3.5	10	6	45

6.13 Oil aging sensor

6.13.1 DUO10A technical data

DUO10A	Technical data		
Preset oil grades	OIL1	CLP mineral oil.	T_{max} = 100 °C
		Bio oil	T_{max} = 100 °C
	OIL2	CLP HC synthetic oil:	T_{max} = 130 °C
		CLP PAO oil	T_{max} = 130 °C
	OIL3	Polyglycol CLP PG	T_{max} = 130 °C
	OIL4	Food grade oil	T_{max} = 100 °C
Switch outputs	1: Early warning (time to next oil change can be set to between 2 and 100 days) 2: Main alarm (time to oil change 0 days) 3: Maximum temperature exceeded T_{max} 4: DUO10A is ready for operation		
Permitted oil temperature	-40 °C – +130 °C		
Permitted temperature sensor	PT1000		
EMC	IEC1000-4-2/3/4/6		
Ambient temperature	-25 °C – +70 °C		
Operating voltage	DC 18 – 28 V		
Current consumption for DC 24 V	< 90 mA		
Protection class	III		
Degree of protection	IP67 (optionally IP69K)		
Housing materials	Evaluation unit: V2A, EPDM/X, PBT, FPM Temperature sensor: V4A		
Electrical connection	Evaluation unit: M12 plug connector PT1000 temperature sensor: M12 plug connector		

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6.13.2 Part numbers

Designation	Description	Part number
 DUO10A	Evaluation unit (basic unit)	13438751
DUO10A-PUR-M12-5m	5 m PUR cable with 1 connector	13438778
DUO10A-PVC-M12-5m	5 m PVC cable with 1 connector	13438786
DUO10A	Angle bracket	13438808
DUO10A D = 34	Mounting clamp	13438794
 W4843 PT1000	PT1000 temperature sensor	13438816
W4843_4x0,34-2m-PUR	2 m PUR cable for PT1000[1)]	13438824
W4843_4x0,34-2m-PVC	2 m PVC cable for PT1000[2)]	13438832
 DUO10A	Protection cap (for aseptic design, IP69K)	13439022

1) PUR cables are particularly suited for use in oil-contaminated environments.
2) PVC cables are particularly suited for use in moist environments.

6.13.3 Mounting to gear units (R, F, K,S)

Adapter for mounting the PT1000 temperature sensor in screw plug holes:

Complete adapter for PT1000 sensor	Part number
M10 × 1	13439030
M12 × 1.5	13439049
M22 × 1.5	13439057
M33 × 2	13439065
M42 × 2	13439073

Mounting base for installing the diagnostic unit at the gear unit with an angle bracket:

Mounting base with sealing ring	Part number
M10 × 1	13434411
M12 × 1.5	13438271
M22 × 1.5	13438298
M33 × 2	13438301
M42 × 2	13438328

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7 Selections and dimensions - Overview

7.1 Possible combinations table

These tables show the possible physical combinations of single-speed gear units and AC motors and brakemotors based upon pinion gear and flange diameter. Contact SEW-EURODRIVE for information on two-speed AC motors and brakemotors.

For each combination the following values are specified: the input speed n_e = 1700 rpm, the output speed n_a, the maximum output torque T_{aMax}, the allowable overhung load F_{RA} (at maximum output torque), the torsion angle φ (/R), and the ratio.

If no value is specified for the torsion angle $\varphi_{(/R)}$, the gear unit with this ratio is not available with "reduced backlash (/R)" option. If a numerical value is given, this gear unit is available with "reduced backlash (/R)" option. The numerical value specifies the rotational clearance of the reduced backlash version in angular minutes ['].

R77, n_e=1700 rpm — **7250 lb-in**

n_a rpm	T_{aMax} lb-in	F_{Ra} [1] lb	$\varphi_{(/R)}$ ´	i	DR63 DRS71	DRN80M DRN90S	DRN90L	DRN100L DRN100LM	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
				3							
7.2	820	9920	6.4	195.24*							
8.4	820	9920	6.5	166.59							

Gear ratio; * indicates a finite ratio.

Dash (-) means reduced backlash (/R) option is not possible.
A numeric value represents the rotational clearance (in angular minutes) for gear unit that contains reduced backlash option.

Maximum allowable overhung load at maximum output torque T_{aMax}

Maximum output torque of the gear unit

Output speed

[1] The value is based on **foot-mounted** gear units with solid shaft. Contact SEW for hollow shaft units.

Combination with the motor listed in the header **is possible**.

Combination with the motor listed in the header **is not possible**.

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2

Number of gear stages (1, 2 or 3 stages). theSnuggler® parallel-shaft gear units (F-series) and helical gear units (R-series) have 2 or 3 stages, depending on the ratio.

RX helical, helical-bevel (K-series), helical-worm (S-series) and SPIROPLAN® (W-series) gear units do not depend on the ratio and have the following stages:

- RX (helical) = 1-stage
- K..7 (helical bevel) = 3-stage; K..9 = 2-stage
- S..7 (Helical-worm) = 2-stage
- (SPIROPLAN®) W..10 to W..30 = 1-stage; W..37 and W..47 = 2-stage

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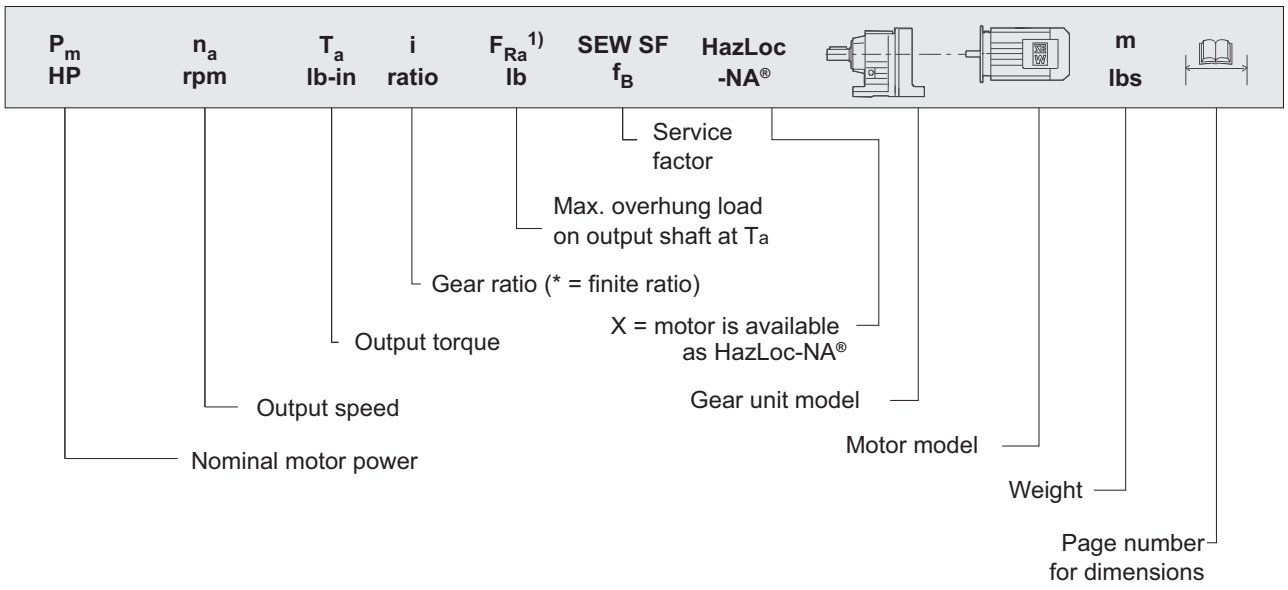
Stages of the compound gear unit ratios (2-2, 3-3, 2-3 or 3-2 stages). The number of stages of the smaller gear unit is shown on the right; the number of stages of the larger gear unit is shown on the left. The smaller gear unit of the compound is always a helical gear unit (RF-series).

7.2 Selections table

The two figures below illustrate the structure of the selection tables for gearmotors:

1. For standard output speeds, the tables are sorted by the rated input HP.
2. For extremely low output speeds, compound gearmotors are sorted by the maximum allowable output torque T_{aMax} (lb-in).

7.2.1 Standard output speeds:



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1) Overhung load value applies to **foot-mounted** gear units with **solid** shaft; overhung loads for hollow shaft and other design types are available upon request.

In addition, the F_{Ra} value shown assumes the motor is fully loaded so that the gearmotor is producing full output torque, T_a. However, if the motor is not fully loaded, the value for F_{Ra} may increase.

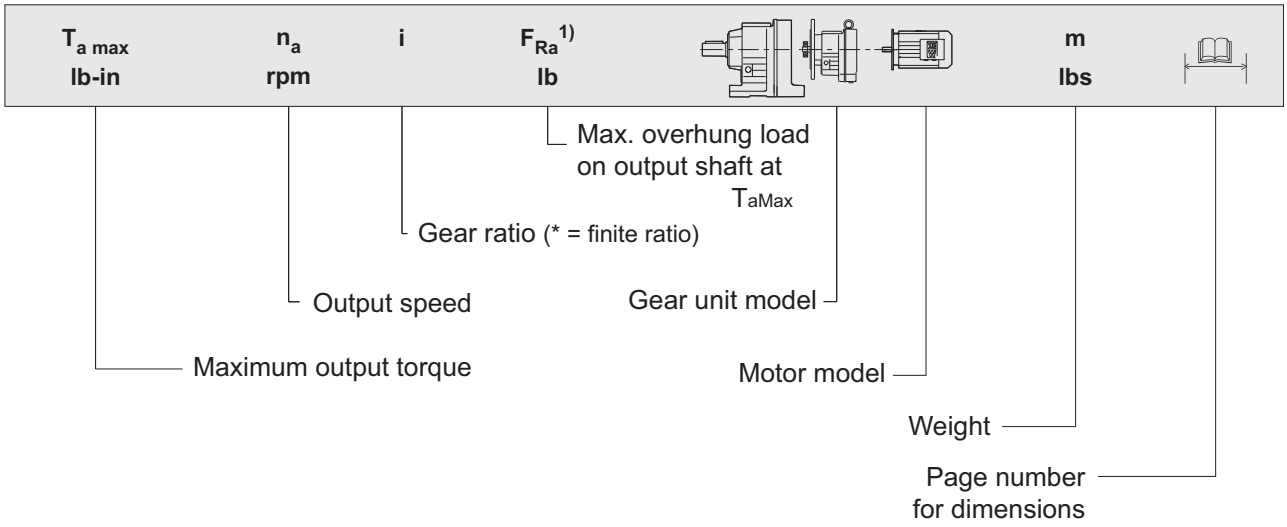
INFORMATION

Special note for SPIROPLAN® (W-series) gearmotors:

If a lubricant is used for the food industry (food grade), a service factor SEW $f_B \geq 1.2$ is required.

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7.2.2 Extremely low output speeds (compound gearmotors):



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1) Overhung load value applies to **foot-mounted** gear units with **solid** shaft; overhung loads for hollow shaft and other design types are available upon request.

   In addition, the F_{Ra} value shown assumes the gearmotor is producing full output torque, T_{aMax}. However, if the gearmotor is producing less than 100% of T_{aMax}, the value of F_{Ra} may increase.

INFORMATION

In drives for particularly low output speeds (compound gearmotors), the motor power must be limited based upon the maximum output torque of the gear unit. Torque limiting protection is recommended. See (→ 🗎 57)

7.3 Dimension sheet information

7.3.1 Tolerances

Shaft heights

The following tolerances apply to the shaft height, h, dimension:

h	≤ 250 mm	→ -0.5 mm
h	> 250 mm	→ -1 mm

Foot-mounted gear units: Check the mounted motor because it may project **below** the mounting feet and require shimming under the feet.

INCH	METRIC

Solid Shafts

Diameter tolerance:

INCH		METRIC	
Ø > 0.500 – 1.500	→ +0 / -0.0005	Ø ≤ 50 mm	→ ISO k6
Ø > 1.500 – 7.500	→ +0 / -0.0010	Ø > 50 mm	→ ISO m6

Keys: according to DIN 6885 (domed type); keyway width to ISO N9

Hollow Shafts

Diameter tolerance:

INCH		METRIC	
Ø	→ ANSI H7	Ø	→ ISO H7 measured with plug gauge
Ø 0.625	→ +0.0007 / -0		
Ø 0.750 – 1.000	→ +0.0008 / -0		
Ø 1.250 – 1.9375	→ +0.0010 / -0		
Ø 2.000 – 2.9375	→ +0.0012 / -0		
Ø 3.250 – 4.500	→ +0.0014 / -0		

Keys: according to DIN 6885 (domed type); keyway width to ISO JS9

Exception: Key for WA.37 with shaft Ø 25 mm and for KA.29 with shaft Ø 30 mm according to DIN 6885-3 (low form)

Flanges

Centering shoulder tolerance:

Ø	≤ 230 mm (flange sizes A120 – A300)	→ ISO j6
Ø	> 230 mm (flange sizes A350 – A660)	→ ISO h6

Up to 3 different flange dimensions are available for each size of helical gear unit, SPIROPLAN® gear unit, AC (brake) motor and explosion-proof AC (brake) motor. The mountable flange for each size can be found in the dimension sheets.

Multiple-spline shafts

D_m	Measuring roller diameter
M_e	Check size

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7.3.2 Centering Bores

INCH		METRIC	
Ø 0.625 – 0.750	→ 1/4 – 20 x 0.63	Ø = 7 – 10 mm	→ M3
Ø 1.000	→ 3/8 – 16 x 0.87	Ø > 10 – 13 mm	→ M4
Ø 1.250 – 1.375	→ 1/2 – 13 x 1.12	Ø > 13 – 16 mm	→ M5
Ø 1.625 – 1.750	→ 5/8 – 11 x 1.38	Ø > 16 – 21 mm	→ M6
Ø 2.000 – 2.875	→ 3/4 – 10 x 1.61	Ø > 21 – 24 mm	→ M8
Ø 3.625 – 4.750	→ 1 – 8 x 2.13	Ø > 24 – 30 mm	→ M10
Ø 6.250 – 7.500	→ 1-1/8 – 7 x 2.13	Ø > 30 – 38 mm	→ M12
		Ø > 38 – 50 mm	→ M16
		Ø > 50 – 85 mm	→ M20
		Ø > 85 – 130 mm	→ M24
		Ø > 130 mm	→ M30

Centering bores: according to DIN 332, shape D [in], shape DR [mm]

7.3.3 Symbols for scope of delivery



Standard parts supplied by SEW-EURODRIVE.



Standard parts not supplied by SEW-EURODRIVE.

7.3.4 Breather valves

Screw plugs are installed throughout the gear unit upon delivery. Depending on the mounting position required (M1 to M6), the appropriate screw plug should be replaced by the breather plug supplied by the factory. Proper breather plug position is shown in the Mounting Position pages

7.3.5 Shrink disk connection

In order to non-positively transfer the torques stated in the catalog for gear units with hollow shaft and shrink disk connection, observe the following conditions in addition to the information shown on the dimension pages when making the customer shaft:

- Surface roughness Rz ≤ 16 µm
- Elastic limit of the customer shaft material R_e and/or $Rp_{0.2}$ ≥ 305 N/mm²
- Customer shaft should be a solid shaft. Please contact SEW-EURODRIVE if you desire to use a hollow shaft for the customer shaft.

7.3.6 Splined hollow shaft

FV.. hollow shaft gear unit sizes 27 to 107, and KV.. sizes 37 to 107 are supplied with splining according to standard 5480.

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7.3.7 Rubber buffer for FA/FH/FV/FT

The values shown on the FA/FH/FV/FT dimension sheets for rubber buffers reflect the gear units in a loose state. During installation, it is necessary to preload the rubber buffer by the indicated value, ΔL. The characteristic curve of spring for the rubber buffer is available upon request from SEW-EURODRIVE.

7.3.8 Motor options

The motor dimensions may change when installing motor options. Refer to the dimension drawings of the motor options in the "AC Motors" catalog.

7.3.9 Special designs

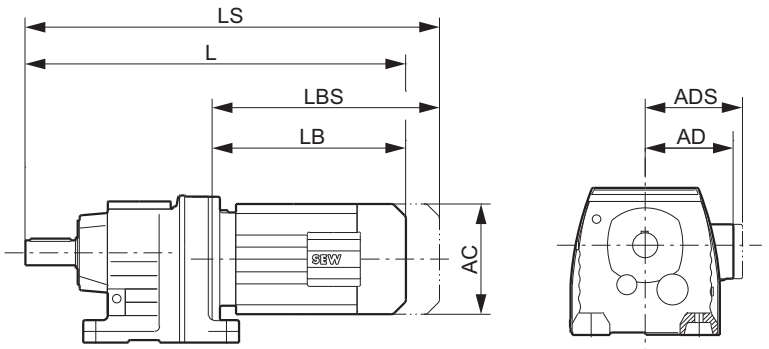
The terminal box dimensions in special or optional designs might vary from the standard

7.3.10 Torque Arms

For hollow shaft units of K, S, and W, the torque arm dimensions are shown. To specify the angle of degrees when mounted, see (→ 🗎 65)

7.3.11 Gearmotor dimension drawings

The dimension drawings of the gearmotors are described below:



8671113739

L Total length of gearmotor
LS Total length of gearmotor including brake
LB Length of motor
LBS Length of brakemotor
AC Diameter of motor
AD Center of motor shaft to top part of standard terminal box. Other available terminal boxes may have different dimensions.
ADS Center of brakemotor shaft to top part of standard terminal box. Other available terminal boxes may have different dimensions.

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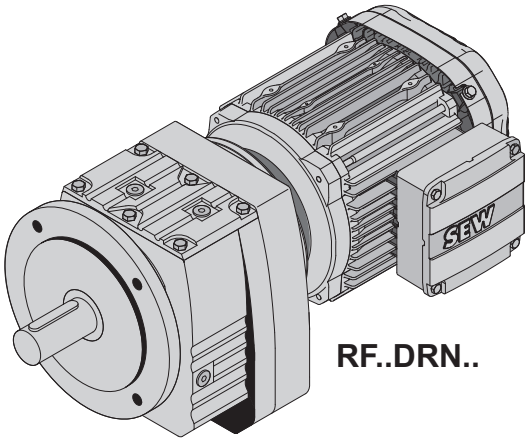
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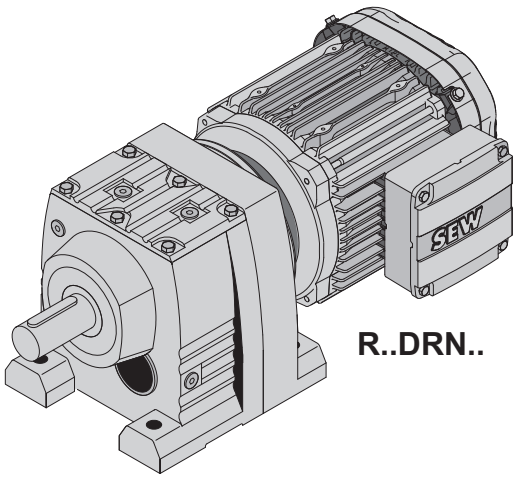
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8 Helical gearmotors

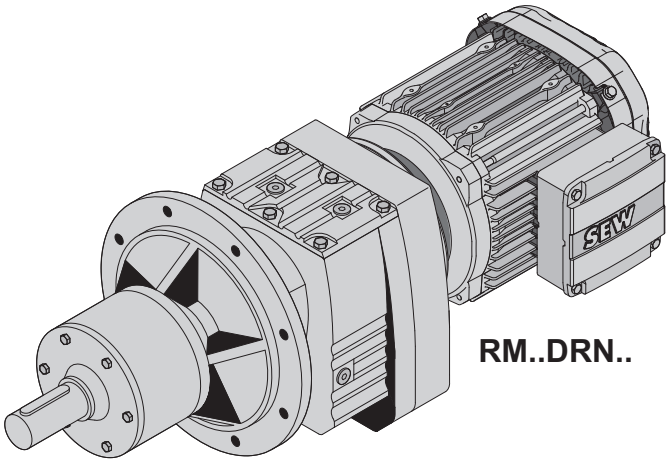
8.1 R.. DRN.. Designs



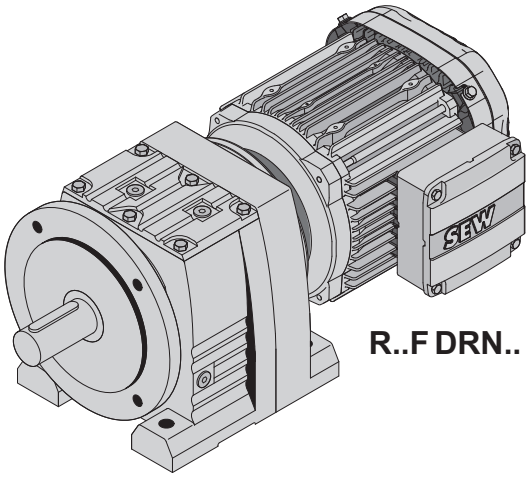
RF..DRN..



R..DRN..



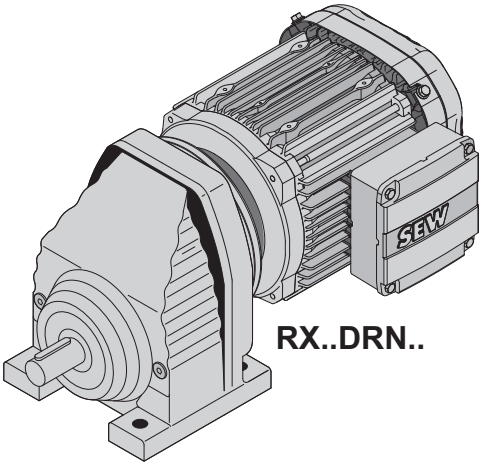
RM..DRN..



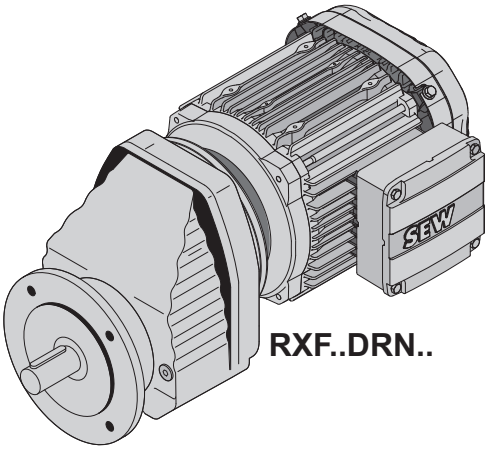
R..F DRN..

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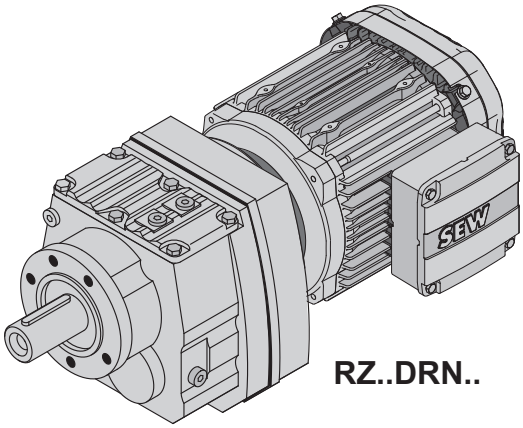
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RX..DRN..



RXF..DRN..



RZ..DRN..

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8.2 R.. DRN.. Possible combinations

RX57, n_e=1700 rpm					DRN …					610 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
						1				
309	345	650	-	5.50*						
335	315	635	-	5.07						
391	600	550	-	4.35						
449	610	515	-	3.79						
479	610	500	-	3.55*						
541	575	480	-	3.14						
584	590	405	-	2.91						
644	610	325	-	2.64*						
717	610	260	-	2.37						
833	610	166	-	2.04						
885	610	126	-	1.92*						
1030	610	27	-	1.65						
1150	600	-	-	1.48						
1310	555	-	-	1.30						

RX67, n_e=1700 rpm					DRN …					1180 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
						1				
280	380	840	-	6.07						
328	660	745	-	5.18						
375	725	700	-	4.53						
395	705	685	-	4.30*						
451	765	640	-	3.77						
531	880	580	-	3.20*						
588	930	545	-	2.89						
669	1040	340	-	2.54						
708	1080	235	-	2.40*						
833	1180	-	-	2.04						
914	1110	-	-	1.86						
1055	1000	-	-	1.61						
1215	920	-	-	1.40*						

RX77, n_e=1700 rpm					DRN …						1900 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
						1					
212	500	1330	-	8.00*							
228	465	1300	-	7.47							
265	910	1170	-	6.41							
302	970	1110	-	5.63							
318	910	1100	-	5.35*							
359	1080	1020	-	4.73							
421	1260	930	-	4.04*							
459	1350	890	-	3.70							
523	1610	570	-	3.25*							

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RX77, n_e=1700 rpm					DRN …						1900 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
552	1700	425	-	3.08*							
630	1900	103	-	2.70							
700	1900	-	-	2.43							
798	1760	-	-	2.13							
904	1650	-	-	1.88*							
1020	1530	-	-	1.67							
1195	1370	-	-	1.42							

RX87, n_e=1700 rpm					DRN …								3580 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L
							1						
197	1220	1650	-	8.65									
223	1310	1570	-	7.63									
236	1230	1550	-	7.20*									
264	1690	1430	-	6.45									
306	1990	1320	-	5.56*									
335	2210	1250	-	5.07									
378	2560	1140	-	4.50*									
450	2690	1040	-	3.78									
489	3580	440	-	3.48									
550	3580	270	-	3.09									
616	3580	91	-	2.76*									
685	3580	-	-	2.48									
791	3400	-	-	2.15									
881	3140	-	-	1.93									
1060	2780	-	-	1.60*									
1225	2560	-	-	1.39									

RX97, n_e=1700 rpm					DRN …								5260 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S
								1					
207	1990	2000	-	8.23									
237	2300	1870	-	7.16*									
259	2650	1780	-	6.56									
294	3710	1590	-	5.79									
346	3490	1500	-	4.91									
376	5260	1160	-	4.52									
421	5260	970	-	4.04									
467	5260	795	-	3.64*									
515	5260	620	-	3.30									
582	5260	425	-	2.92									
644	5260	235	-	2.64									
759	5260	-	-	2.24*									
867	5040	-	-	1.96									
1035	4460	-	-	1.64									
1195	4020	-	-	1.42									

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RX107, n_e=1700 rpm					DRN …					7340 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S 225M
					1					
256	4070	2010	-	6.63*						
303	4020	1880	-	5.61						
328	6140	1600	-	5.19						
366	6140	1510	-	4.65						
405	7340	1090	-	4.20*						
446	7340	900	-	3.81						
503	7340	670	-	3.38						
554	7340	480	-	3.07						
644	7340	167	-	2.64*						
739	7340	-	-	2.30						
872	6760	-	-	1.95						
994	6230	-	-	1.71						
1180	5700	-	-	1.44						

R07, n_e=1700 rpm					DRN …	440 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M
					3	
22	440	340	-	78.24		
24	440	340	-	71.47		
28	440	335	-	60.32		
33	440	315	-	51.52		
36	440	305	-	47.78		
38	440	295	-	44.16		
41	440	285	-	41.31		
42	440	285	-	40.34		
44	440	275	-	38.51		
50	440	265	-	34.05		
58	440	245	-	29.08		
63	440	235	-	26.97		
73	440	220	-	23.32		
78	440	215	-	21.73		
					2	
93	440	198	-	18.31		
102	440	190	-	16.73		
120	440	175	-	14.12		
141	440	161	-	12.06		
152	440	155	-	11.18		
176	440	144	-	9.67		
189	440	138	-	9.01		
217	430	130	-	7.85		
227	380	106	-	7.48		
249	380	93	-	6.83		
295	350	93	-	5.76		
346	325	95	-	4.92		
372	315	93	-	4.57		

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R07, n_e=1700 rpm					DRN …	440 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M
430	300	91	-	3.95		
462	290	91	-	3.68		
530	270	90	-	3.21		

R17, n_e=1700 rpm					DRN …	750 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M
					3	
21	750	395	-	81.64		
24	750	395	-	70.39		
26	750	395	-	65.61		
30	750	395	-	57.35		
32	750	395	-	53.76		
36	750	395	-	47.44		
38	750	395	-	44.18		
44	750	395	-	38.61		
47	750	395	-	36.20		
53	750	385	-	31.94		
60	750	365	-	28.32		
71	750	340	-	24.07		
					2	
67	750	345	-	25.23		
73	750	330	-	23.15		
86	750	310	-	19.71		
100	750	285	-	16.99		
107	750	275	-	15.84		
123	750	260	-	13.84		
131	750	250	-	12.98		
148	715	240	-	11.45		
167	680	230	-	10.15		
197	635	220	-	8.63		
225	495	210	-	7.55		
241	485	205	-	7.04		
276	475	194	-	6.15		
295	465	190	-	5.76		
334	450	182	-	5.09		
377	420	176	-	4.51		
444	395	168	-	3.83		

R27, n_e=1700 rpm					DRN …			1150 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L
					3			
13	1150	950	-	135.09				
14	1150	950	-	123.91				
16	1150	950	-	105.49				
19	1150	950	-	90.96				
20	1150	940	-	84.78				

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R27, n_e=1700 rpm					DRN …			1150 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L
23	1150	890	-	74.11				
24	1150	870	-	69.47				
28	1150	830	-	61.30				
30	1150	800	-	55.87				
35	1150	755	-	48.17				
38	1150	735	-	44.90				
43	1150	695	-	39.25				
46	1150	680	-	36.79				
52	1150	645	-	32.47				
59	1150	615	-	28.78				
69	1150	575	-	24.47				
						2		
60	1150	610	-	28.37				
65	1150	590	-	26.09				
76	1150	550	-	22.32				
88	1150	520	-	19.35				
94	1150	505	-	18.08				
109	1150	475	-	15.63				
128	1150	410	-	13.28*				
143	1140	370	-	11.86				
168	1070	355	-	10.13				
181	1070	133	-	9.41				
208	1020	129	-	8.16				
223	990	137	-	7.63*				
258	930	136	-	6.59				
304	870	139	-	5.60*				
340	840	136	-	5.00*				
398	765	153	-	4.27				
425	750	151	-	4.00*				
504	695	152	-	3.37				

R27R17, n_e=1700 rpm					DRN …	1150 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M
					3 3	
0.20	1150	950	-	8612		
0.23	1150	745	-	7425		
0.25	1150	950	-	6921		
0.28	1150	950	-	6050		
0.33	1150	745	-	5217		
0.36	1150	950	-	4661		
0.42	1150	745	-	4073		
0.48	1150	950	-	3516		
0.54	1150	950	-	3160		
0.62	1150	950	-	2763		
0.70	1150	950	-	2414		
0.81	1150	950	-	2110		
0.91	1150	950	-	1862		
1.0	1150	745	-	1625		
1.2	1150	950	-	1434		

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R27R17, n_e=1700 rpm					DRN …	1150 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M
1.4	1150	950	-	1254		
					2 3	
0.93	1150	950	-	1822		
1.1	1150	950	-	1580		
1.2	1150	950	-	1464		
1.3	1150	950	-	1270		
1.5	1150	950	-	1100		
1.7	1150	950	-	972		
2.0	1150	950	-	840		
2.3	1150	950	-	741		
2.6	1150	950	-	654		
3.0	1150	950	-	566		
3.4	1150	950	-	499		
					3 2	
1.5	1150	950	-	1101		
1.8	1150	950	-	962		
2.0	1150	745	-	848		
2.3	1150	745	-	743		
2.6	1150	950	-	649		
3.0	1150	950	-	567		
3.3	1150	950	-	509		
3.9	1150	950	-	432		
4.4	1150	950	-	387		
5.0	1150	745	-	339		
5.7	1150	745	-	296		
6.6	1150	950	-	259		
7.4	1150	950	-	229		
8.5	1150	950	-	200		
9.6	1150	745	-	177		
10	1150	950	-	166		
11	1150	950	-	150		
12	1150	950	-	141		
14	1150	745	-	124		
15	1150	950	-	110		
18	1150	950	-	94		
					2 2	
3.9	1150	950	-	440		
4.5	1150	950	-	381		
5.2	1150	950	-	329		
5.9	1150	950	-	290		
6.6	1150	950	-	256		
7.5	1150	950	-	227		
8.4	1150	950	-	203		
9.5	1150	950	-	179		
11	1150	950	-	156		
13	1150	950	-	135		
14	1150	950	-	118		
16	1150	950	-	104		
19	1150	950	-	90		

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R37, n_e=1700 rpm					DRN …			1760 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L
						3		
13	1760	1110	7.9	134.82				
14	1760	1110	8	123.66				
16	1760	1110	8	105.28				
19	1760	1110	8	90.77				
20	1760	1110	8	84.61				
23	1760	1110	8	73.96				
25	1760	1110	8	69.33				
28	1760	1110	8.1	61.18				
30	1760	1110	8.7	55.76				
35	1760	1080	8.7	48.08				
38	1760	1020	8.8	44.81				
43	1760	920	8.8	39.17				
46	1760	880	8.9	36.72				
52	1760	790	8.9	32.40				
59	1760	705	9	28.73				
70	1760	605	9	24.42				
						2		
60	1760	700	7.3	28.32				
65	1630	740	7.4	26.03				
76	1760	545	7.4	22.27				
88	1760	460	7.5	19.31				
94	1760	425	7.5	18.05				
109	1760	345	7.7	15.60				
128	1680	320	7.9	13.25				
144	1610	310	8	11.83				
168	1500	315	8.1	10.11				
180	1470	305	8.2	9.47				
213	1380	300	8.4	7.97				
255	1270	144	12.1	6.67				
300	1250	94	12.4	5.67				
336	1190	104	12.7	5.06				
394	1110	114	13	4.32				
420	1070	121	13.2	4.05				
499	990	138	13.7	3.41				

R37R17, n_e=1700 rpm					DRN …	1760 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M
					3 3	
0.20	1760	1110	-	8595		
0.23	1760	1110	-	7411		
0.25	1760	1110	-	6907		
0.28	1760	1110	-	6038		
0.33	1760	1110	-	5206		
0.37	1760	1110	-	4651		
0.42	1760	1110	-	4065		
0.46	1760	1110	-	3658		
0.54	1760	1110	-	3154		
0.62	1760	1110	-	2757		

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R37R17, n_e=1700 rpm					DRN …	1760 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M
0.71	1760	1110	-	2409		
0.81	1760	1110	-	2106		
0.92	1760	1110	-	1856		
1.0	1760	1110	-	1622		
1.2	1760	1110	-	1431		
1.4	1760	1110	-	1251		
					2 3	
0.94	1760	1110	-	1818		
1.1	1760	1110	-	1576		
1.3	1760	1110	-	1359		
1.3	1760	1110	-	1267		
1.5	1760	1110	-	1098		
1.8	1760	1110	-	970		
2.0	1760	1110	-	839		
2.3	1760	1110	-	740		
2.6	1760	1110	-	653		
2.9	1760	1110	-	577		
3.4	1760	1110	-	498		
					3 2	
1.5	1760	1110	-	1099		
1.8	1760	1110	-	960		
2.0	1760	1110	-	847		
2.3	1760	1110	-	741		
2.6	1760	1110	-	647		
3.0	1760	1110	-	566		
3.3	1760	1110	-	508		
3.9	1760	1110	-	431		
4.4	1760	1110	-	387		
5.0	1760	1110	-	338		
5.7	1760	1110	-	296		
6.6	1760	1110	-	259		
7.5	1760	1110	-	228		
8.5	1760	1110	-	199		
9.9	1760	1110	-	172		
11	1760	1110	-	150		
13	1760	1110	-	130		
14	1760	1110	-	124		
15	1760	1110	-	110		
18	1760	1110	-	94		
					2 2	
3.9	1760	1110	-	439		
4.5	1760	1110	-	378		
5.2	1760	1110	-	328		
5.9	1760	1110	-	289		
6.4	1760	1110	-	265		
7.5	1760	1110	-	226		
8.4	1760	1110	-	202		
9.5	1760	1110	-	179		
11	1760	1110	-	156		
13	1760	1110	-	135		

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R37R17, n_e=1700 rpm					DRN …	1760 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M
13	1760	1110	-	127		
16	1760	1110	-	104		
19	1760	1110	-	90		

R47, n_e=1700 rpm					DRN …					2650 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S
						3				
9.6	2650	1220	6.9	176.88						
10	2650	1220	6.9	162.94						
12	2650	1220	6.9	139.99						
14	2650	1220	6.9	121.87						
15	2650	1220	6.9	114.17						
17	2650	1220	7	100.86						
18	2650	1220	7	93.68						
20	2650	1220	7	84.90						
22	2650	1220	7	76.23						
25	2650	1220	7.6	68.54						
26	2650	1200	7.6	64.21						
30	2650	1150	7.6	56.73						
32	2650	1110	7.6	52.69						
36	2650	1070	7.7	47.75						
40	2650	1020	7.7	42.87						
46	2650	960	7.7	36.93						
49	2650	940	7.7	34.73						
57	2650	880	7.8	29.88						
64	2650	840	7.9	26.70						
72	2650	775	8	23.59						
						2				
50	2120	970	6.5	33.79						
55	1940	960	6.5	31.12						
64	2650	840	6.6	26.74						
73	2650	760	6.6	23.28						
78	2650	710	6.7	21.81						
88	2610	640	6.8	19.27						
95	2560	615	6.8	17.89						
105	2430	625	6.9	16.22						
117	2340	605	7	14.56						
136	2210	590	7.1	12.54						
144	2160	575	7.1	11.79						
167	2030	565	7.3	10.15						
187	1940	550	7.7	9.07						
212	1810	555	7.8	8.01						
219	1440	565	9.5	7.76*						
244	1400	540	9.7	6.96						
283	1380	510	9.9	6.00						
301	1370	500	10	5.64*						
351	1320	470	10.3	4.85						
392	1290	455	11.1	4.34						
444	1270	430	11.4	3.83						

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R47R37, n_e=1700 rpm					DRN …			2650 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L
					 3  3			
0.13	2650	1220	-	13598				
0.14	2650	1220	-	12472				
0.16	2650	1220	-	10619				
0.19	2650	1220	-	9155				
0.20	2650	1220	-	8534				
0.23	2650	1220	-	7460				
0.24	2650	1220	-	6993				
0.28	2650	1220	-	6171				
0.30	2650	1220	-	5624				
0.35	2650	1220	-	4849				
0.38	2650	1220	-	4520				
0.43	2650	1220	-	3951				
0.46	2650	1220	-	3704				
0.52	2650	1220	-	3268				
0.59	2650	1220	-	2898				
0.69	2650	1220	-	2463				
					 2  3			
0.65	2650	1220	-	2598				
0.71	2650	1220	-	2383				
0.84	2650	1220	-	2029				
0.97	2650	1220	-	1749				
1.0	2650	1220	-	1630				
1.2	2650	1220	-	1425				
1.3	2650	1220	-	1336*				
1.4	2650	1220	-	1179				
1.6	2650	1220	-	1074				
1.8	2650	1220	-	927				
2.0	2650	1220	-	863				
2.3	2650	1220	-	755				
2.4	2650	1220	-	708				
2.7	2650	1220	-	624				
3.1	2650	1220	-	554				
3.6	2650	1220	-	471				
					 3  2			
0.60	2650	1220	-	2856				
0.65	2650	1220	-	2625				
0.76	2650	1220	-	2246				
0.87	2650	1220	-	1948				
0.93	2650	1220	-	1821				
1.1	2650	1220	-	1573				
1.4	2650	1220	-	1193				
1.7	2650	1220	-	1020				
1.8	2650	1220	-	955				
2.1	2650	1220	-	804				
2.5	2650	1220	-	673				
3.0	2650	1220	-	572				
3.3	2650	1220	-	510				
3.9	2650	1220	-	436				
4.2	2650	1220	-	408				

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R47R37, n_e=1700 rpm					DRN …			2650 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L
4.9	2650	1220	-	344				
					2	2		
3.1	2650	1220	-	546				
3.4	2650	1220	-	502				
4.0	2650	1220	-	429				
4.6	2650	1220	-	372				
4.9	2650	1220	-	348				
5.6	2650	1220	-	301				
6.7	2650	1220	-	255				
7.5	2650	1220	-	228				
8.7	2650	1220	-	195				
9.3	2650	1220	-	182				
11	2650	1220	-	154				
13	2650	1220	-	129				
16	2650	1220	-	109				
17	2650	1220	-	98				

R57, n_e=1700 rpm					DRN …					3980 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
						3				
9.1	3980	1600	6.9	186.89						
9.9	3980	1600	6.9	172.17						
11	3980	1600	6.9	147.92						
13	3980	1600	6.9	128.77						
14	3980	1600	6.9	120.63						
16	3980	1600	7	106.58						
17	3980	1600	7	98.99						
19	3980	1600	7	89.71						
21	3980	1580	7	80.55						
25	3980	1490	7.5	69.23						
26	3980	1450	7.5	64.85						
30	3980	1370	7.6	57.29						
32	3980	1330	7.6	53.22						
35	3980	1280	7.6	48.23						
39	3980	1220	7.6	43.30						
46	3980	1140	7.6	37.30*						
48	3980	1110	7.7	35.07						
56	3980	1040	7.7	30.18						
63	3980	990	7.8	26.97						
						2				
65	3980	980	6.4	26.31						
68	3980	950	6.5	24.99*						
78	3980	900	6.6	21.93						
91	3980	830	6.7	18.60*						
101	3980	745	6.7	16.79						
115	3840	695	6.8	14.77*						
122	3800	670	6.8	13.95*						
143	3580	645	6.9	11.88						
158	3450	635	7.2	10.79						

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R57, n_e=1700 rpm					DRN …					3980 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
182	3270	615	7.4	9.35						
188	3310	305	8.7	9.06						
213	3140	315	8.8	7.97						
226	3090	300	8.8	7.53						
265	2960	270	9	6.41						
292	2830	285	9.6	5.82						
337	2690	270	9.9	5.05						
387	2470	315	10.1	4.39						

R57R37, n_e=1700 rpm					DRN …			3980 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L
					3 3			
0.12	3980	1600	-	14369				
0.14	3980	1600	-	12095				
0.16	3980	1600	-	10860				
0.18	3980	1600	-	9445				
0.20	3980	1600	-	8480				
0.23	3980	1600	-	7312				
0.26	3980	1600	-	6521				
0.30	3980	1600	-	5585				
0.34	3980	1600	-	4928				
0.39	3980	1600	-	4378				
0.44	3980	1600	-	3873				
0.51	3980	1600	-	3344				
0.58	3980	1600	-	2907				
0.66	3980	1600	-	2567				
0.76	3980	1600	-	2244				
0.86	3980	1600	-	1967				
					2 3			
0.57	3980	1600	-	2957				
0.68	3980	1600	-	2508				
0.74	3980	1600	-	2309				
0.85	3980	1600	-	1991				
0.96	3980	1600	-	1768				
1.1	3980	1600	-	1520				
1.3	3980	1600	-	1342*				
1.5	3980	1600	-	1164				
1.7	3980	1600	-	1027				
1.9	3980	1600	-	894				
2.1	3980	1600	-	805				
2.5	3980	1600	-	683				
2.8	3980	1600	-	603				
3.2	3980	1600	-	534				
3.7	3980	1600	-	454				
4.1	3980	1600	-	410				
					3 2			
0.98	3980	1600	-	1732				
1.1	3980	1600	-	1555				
1.2	3980	1600	-	1399				

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R57R37, n_e=1700 rpm					DRN …				3980 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	
1.4	3980	1600	-	1189					
1.6	3980	1600	-	1034					
2.2	3980	1600	-	782					
2.5	3980	1600	-	678					
2.8	3980	1600	-	604					
3.2	3980	1600	-	537					
3.6	3980	1600	-	471					
4.8	3980	1600	-	357					
5.3	3980	1600	-	319					
6.2	3980	1600	-	273					
7.1	3980	1600	-	241					
7.9	3980	1600	-	215					
9.1	3980	1600	-	187					
10	3980	1600	-	164					
12	3980	1600	-	142					
					 2	 2			
4.7	3980	1600	-	359					
5.2	3980	1600	-	324					
5.9	3980	1600	-	290					
6.5	3980	1600	-	262					
6.9	3980	1600	-	246*					
7.7	3980	1600	-	220*					
9.0	3980	1600	-	188					
11	3980	1600	-	159					
12	3980	1600	-	146					
13	3980	1600	-	134					

R67, n_e=1700 rpm					DRN …					5300 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
						 3				
8.5	5300	1700	6.4	199.81						
9.2	5300	1700	6.4	184.07						
11	5300	1700	6.4	158.14						
12	5300	1700	6.4	137.67						
13	5300	1700	6.4	128.97						
15	5300	1700	6.5	113.94						
16	5300	1700	6.5	105.83						
18	5300	1700	6.5	95.91						
20	5300	1700	6.5	86.11						
23	5300	1700	6.5	74.17						
24	5300	1700	6.5	69.75						
28	5300	1700	7	61.26						
30	5300	1700	7	56.89						
33	5300	1700	7.1	51.56						
37	5300	1700	7.1	46.29						
43	5130	1750	7.1	39.88*						
45	5040	1780	7.1	37.50						
53	4770	1850	7.2	32.27						
59	4600	1890	7.3	28.83						

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R67, n_e=1700 rpm					DRN …					5300 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
						2				
60	4770	1850	6	28.13						
64	4770	1850	6	26.72						
73	4950	1760	6.1	23.44						
85	5300	1470	6.2	19.89						
95	5220	1380	6.2	17.95						
108	4950	1350	6.3	15.79						
114	4860	1320	6.3	14.91						
134	4600	1260	6.4	12.70						
147	4420	1230	6.7	11.54						
170	4150	1200	6.8	10.00						
195	3890	1190	7	8.70*						
218	3360	1110	8.3	7.79						
231	3270	1100	8.3	7.36*						
271	2910	1150	8.5	6.27						
298	2740	1130	9.1	5.70						
345	2560	1080	9.4	4.93						
396	2380	1040	9.7	4.29						

R67R37, n_e=1700 rpm					DRN …			5300 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L
					3	3		
0.11	5300	1700	-	15361				
0.13	5300	1700	-	12931				
0.14	5300	1700	-	11996				
0.17	5300	1700	-	10097				
0.19	5300	1700	-	9066				
0.22	5300	1700	-	7816				
0.25	5300	1700	-	6732				
0.28	5300	1700	-	5970				
0.32	5300	1700	-	5268				
0.36	5300	1700	-	4680				
0.41	5300	1700	-	4136				
0.48	5300	1700	-	3566				
0.54	5300	1700	-	3125				
0.62	5300	1700	-	2745				
0.71	5300	1700	-	2403				
					2	3		
0.63	5300	1700	-	2682				
0.69	5300	1700	-	2460				
0.81	5300	1700	-	2094				
0.94	5300	1700	-	1805				
1.0	5300	1700	-	1629				
1.2	5300	1700	-	1471				
1.2	5300	1700	-	1379				
1.5	5300	1700	-	1109				
1.8	5300	1700	-	956				
1.9	5300	1700	-	891				
2.3	5300	1700	-	730				

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R67R37, n_e=1700 rpm					DRN …				5300 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	
2.6	5300	1700	-	644					
3.0	5300	1700	-	571					
3.5	5300	1700	-	486					
						3 2			
0.80	5300	1700	-	2136					
0.92	5300	1700	-	1852					
1.0	5300	1700	-	1652					
1.2	5300	1700	-	1432					
1.4	5300	1700	-	1259					
1.5	5300	1700	-	1106					
2.0	5300	1700	-	836					
2.3	5300	1700	-	750					
2.6	5300	1700	-	646					
3.0	5300	1700	-	574					
3.4	5300	1700	-	495					
3.9	5300	1700	-	438					
4.4	5300	1700	-	388					
4.9	5300	1700	-	344					
5.8	5300	1700	-	294					
6.5	5300	1700	-	261					
7.3	5300	1700	-	234					
8.5	5300	1700	-	200					
9.7	5300	1700	-	176					
11	5300	1700	-	158					
						2 2			
3.8	5300	1700	-	443					
4.4	5300	1700	-	384					
4.7	5300	1700	-	359					
5.5	5300	1700	-	310					
6.4	5300	1700	-	264*					
7.2	5300	1700	-	235					
8.5	5300	1700	-	201					
9.4	5300	1700	-	181					
11	5300	1700	-	159					

R77, n_e=1700 rpm					DRN …						7250 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
							3				
8.7	7250	2230	6.4	195.24*							
10	7250	2230	6.5	166.59							
12	7250	2230	6.4	145.67							
12	7250	2230	6.4	138.39							
14	7250	2230	6.5	121.42							
17	7250	2230	6.5	102.99							
18	7250	2230	6.5	92.97							
21	7250	2230	6.5	81.80							
22	7250	2230	6.5	77.24							
26	7250	2230	6.5	65.77							
29	7250	2230	7.1	57.68							

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R77, n_e=1700 rpm					DRN …						7250 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
33	7250	2230	7.1	52.07							
37	7250	2230	7.1	45.81							
39	7250	2230	7.1	43.26							
46	7250	2230	7.1	36.83							
51	7250	2230	7.2	33.47							
59	7250	2030	7.3	29.00							
67	6900	1950	7.3	25.23							
						2					
73	7250	1690	6.1	23.37							
79	7250	1560	6.1	21.43							
90	6900	1510	6.1	18.80							
95	6900	1430	6.2	17.82*							
109	6540	1390	6.2	15.60							
121	6370	1330	6.5	14.05							
138	6100	1270	6.4	12.33							
156	5830	1220	6.5	10.88							
176	5570	1190	6.7	9.64							
198	5570	705	7.5	8.59							
220	5390	675	7.9	7.74							
250	5130	660	7.8	6.79							
284	4770	700	8	5.99*							
320	4510	710	8.4	5.31*							

R77R37, n_e=1700 rpm					DRN …			
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L
					3	3		
0.10	7250	2230	-	16370				
0.11	7250	2230	-	15015				
0.12	7250	2230	-	13885				
0.13	7250	2230	-	12783				
0.15	7250	2230	-	11021				
0.17	7250	2230	-	9788				
0.20	7250	2230	-	8714				
0.22	7250	2230	-	7617				
0.25	7250	2230	-	6770				
0.29	7250	2230	-	5838				
0.33	7250	2230	-	5184				
0.38	7250	2230	-	4470				
0.43	7250	2230	-	3999				
0.49	7250	2230	-	3488				
0.56	7250	2230	-	3053				
0.64	7250	2230	-	2671				
					2	3		
0.54	7250	2230	-	3151				
0.59	7250	2230	-	2890				
0.69	7250	2230	-	2460				
0.80	7250	2230	-	2121				
0.86	7250	2230	-	1977				
0.98	7250	2230	-	1728				

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R77R37, n_e=1700 rpm					DRN …			7250 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L
1.0	7250	2230	-	1620				
1.2	7250	2230	-	1430				
1.3	7250	2230	-	1303				
1.5	7250	2230	-	1124				
1.6	7250	2230	-	1047				
1.9	7250	2230	-	915				
2.0	7250	2230	-	858				
2.2	7250	2230	-	757				
2.5	7250	2230	-	671				
3.0	7250	2230	-	571				
					3	2		
0.72	7250	2230	-	2345				
0.82	7250	2230	-	2070				
0.93	7250	2230	-	1822				
1.1	7250	2230	-	1580				
1.2	7250	2230	-	1394				
1.4	7250	2230	-	1218				
1.6	7250	2230	-	1084*				
1.8	7250	2230	-	940				
2.1	7250	2230	-	821				
2.3	7250	2230	-	731				
2.6	7250	2230	-	646				
3.0	7250	2230	-	560				
3.5	7250	2230	-	488				
3.9	7250	2230	-	436				
4.6	7250	2230	-	373				
5.2	7250	2230	-	327				
5.9	7250	2230	-	289				
6.5	7250	2230	-	260				
7.6	7250	2230	-	224				
8.6	7250	2230	-	197				
10	7250	2230	-	169				
11	7250	2230	-	149				
					2	2		
3.3	7250	2230	-	520				
3.8	7250	2230	-	451				
4.0	7250	2230	-	422				
4.7	7250	2230	-	365				
5.5	7250	2230	-	310*				
6.2	7250	2230	-	276				
7.2	7250	2230	-	236				
7.7	7250	2230	-	221				
9.1	7250	2230	-	186				

R87, n_e=1700 rpm					DRN …								13700 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L
							3						
6.9	13700	3800	6	246.54									
7.9	13700	3800	6	216.54									

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R87, n_e=1700 rpm					DRN …								13700 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L
8.3	13700	3800	6	205.71									
9.4	13700	3800	6	181.77									
11	13700	3800	6	155.34									
12	13700	3800	6	142.41									
14	13700	3800	6	124.97									
14	13700	3800	6	118.43*									
16	13700	3800	6	103.65									
18	13700	3800	6	93.38									
21	13700	3730	6	81.92									
23	13700	3380	6.4	72.57									
27	13700	3020	6.4	63.68*									
28	13700	2880	6.4	60.35*									
32	13700	2540	6.5	52.82									
36	13700	2280	6.5	47.58									
41	13700	1970	6.5	41.74									
46	13700	1680	6.5	36.84*									
52	13700	1420	6.6	32.66*									
61	13200	1250	6.6	27.88									
							2						
49	13200	1690	5.5	34.40*									
54	13700	1330	5.5	31.40									
61	13700	1080	5.5	27.84*									
73	13700	740	5.5	23.40									
79	13200	740	5.7	21.51									
89	12700	720	5.7	19.10									
100	12200	685	5.8	17.08*									
111	11800	665	5.9	15.35									
128	11300	630	6	13.33									
142	10800	615	6	11.93									
172	10400	500	6.1	9.90*									
186	10700	-	6.3	9.14*									
207	10200	-	6.6	8.22									
238	9460	-	6.7	7.13									
266	9020	-	6.8	6.39									
321	8050	149	7	5.30*									

R87R57, n_e=1700 rpm					DRN …					13700 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
						3 3				
0.10	13700	3800	-	17452						
0.11	13700	3800	-	15310						
0.12	13700	3800	-	13813						
0.14	13700	3800	-	12025						
0.16	13700	3800	-	10549						
0.18	13700	3800	-	9244						
0.21	13700	3800	-	8109						
0.24	13700	3800	-	7038						
0.28	13700	3800	-	6174						
0.31	13700	3800	-	5449						

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R87R57, n_e=1700 rpm					DRN …					13700 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
0.35	13700	3800	-	4831						
0.40	13700	3800	-	4206						
0.45	13700	3800	-	3744						
0.53	13700	3800	-	3233						
0.59	13700	3800	-	2873						
0.68	13700	3800	-	2518						
0.77	13700	3800	-	2209						
0.87	13700	3800	-	1961						
1.7	13700	3800	-	994						
1.9	13700	3800	-	881						
2 3										
0.42	13700	3800	-	4020						
0.46	13700	3800	-	3703						
0.53	13700	3800	-	3182						
0.61	13700	3800	-	2770						
0.66	13700	3800	-	2595						
0.80	13700	3800	-	2129						
0.88	13700	3800	-	1930						
0.98	13700	3800	-	1733						
1.1	13700	3800	-	1489						
1.2	13700	3800	-	1395						
1.4	13700	3800	-	1232						
1.5	13700	3800	-	1145						
1.6	13700	3800	-	1037						
1.8	13700	3800	-	931						
2.1	13700	3800	-	802*						
2.3	13700	3800	-	754						
2.6	13700	3800	-	649						
2.9	13700	3800	-	580						
3 2										
0.98	13700	3800	-	1737						
1.1	13700	3800	-	1524						
1.3	13700	3800	-	1303						
1.5	13700	3800	-	1143						
1.7	13700	3800	-	1008						
1.9	13700	3800	-	885						
2.2	13700	3800	-	776						
2.5	13700	3800	-	685*						
2.8	13700	3800	-	599						
3.2	13700	3800	-	525						
3.7	13700	3800	-	456*						
4.3	13700	3800	-	398						
4.8	13700	3800	-	352						
5.6	13700	3800	-	305						
6.3	13700	3800	-	268						
7.2	13700	3800	-	236*						
8.1	13700	3800	-	209*						
2 2										
3.2	13700	3800	-	538						
3.6	13700	3800	-	472						
4.2	13700	3800	-	400						

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R87R57, n_e=1700 rpm					DRN …					13700 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
4.7	13700	3800	-	361						
5.7	13700	3800	-	300						
6.6	13700	3800	-	256						
7.3	13700	3800	-	232						
8.7	13700	3800	-	195						

R97, n_e=1700 rpm					DRN …								26500 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S
								3					
5.9	26500	4450	5.7	289.74									
6.6	26500	4450	5.7	255.71									
7.0	26500	4450	5.7	241.25									
7.9	26500	4450	5.7	216.28									
9.1	26500	4450	5.7	186.30									
10.0	26500	4450	5.7	170.02									
11	26500	4450	5.7	150.78									
13	26500	4450	5.7	126.75									
15	26500	4450	5.7	116.48									
16	26500	4450	5.7	103.44									
18	26500	4270	5.7	92.48									
20	26500	3840	5.8	83.15									
24	26500	3300	5.8	72.17									
26	26500	2930	6.1	65.21									
28	26500	2620	6.2	59.92									
32	26500	2210	6.2	53.21									
36	26500	1840	6.2	47.58									
40	26500	1500	6.2	42.78									
46	26500	1060	6.3	37.13									
51	25500	1030	6.3	33.25									
62	23600	1090	6.3	27.58									
								2					
53	22600	1800	5.3	32.05									
63	22600	1340	5.3	27.19									
68	25000	400	5.4	25.03									
76	24000	400	5.5	22.37									
84	23000	430	5.5	20.14									
93	22100	485	5.6	18.24									
105	21200	470	5.6	16.17									
116	20300	510	5.6	14.62									
137	19300	445	5.7	12.39									
157	18400	435	5.8	10.83									
183	17900	-	5.6	9.29									
203	17900	-	5.7	8.39									
239	17600	-	5.8	7.12									
274	16700	-	5.9	6.21									
327	15700	-	6.1	5.20									
378	14400	-	6.2	4.50*									

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R97R57, n_e=1700 rpm					DRN …					26500 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
						3 3				
0.08	26500	4450	-	21769						
0.09	26500	4450	-	19332						
0.10	26500	4450	-	17230						
0.11	26500	4450	-	14999						
0.13	26500	4450	-	13320						
0.15	26500	4450	-	11156						
0.17	26500	4450	-	10030						
0.20	26500	4450	-	8706						
0.22	26500	4450	-	7692						
0.25	26500	4450	-	6708						
0.29	26500	4450	-	5931						
0.33	26500	4450	-	5161						
0.37	26500	4450	-	4559						
0.42	26500	4450	-	4004						
0.49	26500	4450	-	3481						
						2 3				
0.36	26500	4450	-	4678						
0.39	26500	4450	-	4309						
0.46	26500	4450	-	3702						
0.56	26500	4450	-	3019						
0.64	26500	4450	-	2668						
0.76	26500	4450	-	2245						
0.84	26500	4450	-	2016						
0.98	26500	4450	-	1733						
1.0	26500	4450	-	1623						
1.2	26500	4450	-	1434						
1.4	26500	4450	-	1207						
1.6	26500	4450	-	1084						
1.8	26500	4450	-	934						
1.9	26500	4450	-	878						
2.3	26500	4450	-	755						
						3 2				
0.55	26500	4450	-	3065						
0.62	26500	4450	-	2722						
0.74	26500	4450	-	2311						
0.82	26500	4450	-	2078						
0.93	26500	4450	-	1823						
1.1	26500	4450	-	1583						
1.2	26500	4450	-	1396						
1.4	26500	4450	-	1228						
1.6	26500	4450	-	1069						
1.8	26500	4450	-	938						
2.1	26500	4450	-	824						
2.3	26500	4450	-	737						
2.7	26500	4450	-	632						
3.0	26500	4450	-	560						
3.5	26500	4450	-	484						
3.9	26500	4450	-	431						
4.5	26500	4450	-	379						

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R97R57, n_e=1700 rpm					DRN …					26500 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
5.1	26500	4450	-	336						
5.7	26500	4450	-	296						
6.8	26500	4450	-	249						
7.3	26500	4450	-	234						
8.1	26500	4450	-	209						
						2	2			
2.7	26500	4450	-	625						
3.1	26500	4450	-	549						
3.6	26500	4450	-	466						
4.0	26500	4450	-	420						
4.6	26500	4450	-	370						
4.9	26500	4450	-	349						
5.7	26500	4450	-	297						
6.3	26500	4450	-	270						
7.5	26500	4450	-	227						

R107, n_e=1700 rpm					DRN …					38000 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S 225M
						3				
6.8	38000	6620	7	251.15						
7.4	38000	6620	7	229.95						
8.4	38000	6620	7	203.16						
9.9	38000	6620	7	172.34						
11	38000	6620	7	158.68						
12	38000	6620	7	141.83						
13	38000	6620	7	127.68						
15	38000	6620	7	115.63						
17	38000	6620	7	102.53						
18	38000	6620	7	92.70						
22	38000	6520	7.1	78.57						
23	38000	6320	7.3	72.88						
26	38000	6050	7.3	65.60*						
29	38000	5800	7.4	59.41						
32	38000	5510	7.4	52.68						
36	38000	5280	7.4	47.63						
42	38000	4910	7.4	40.37*						
48	38000	4620	7.4	35.26						
58	38000	4260	7.5	29.49						
						2				
55	38000	4340	6.7	30.77						
62	38000	4130	6.8	27.58						
68	38000	3940	6.8	24.90*						
75	38000	3760	6.9	22.62						
85	38000	3550	6.9	20.07						
93	38000	3390	6.8	18.21						
109	38000	3140	6.9	15.65						
124	38000	2930	6.9	13.66						
147	38000	2690	7	11.59						
168	38000	2500	7.1	10.13						

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R107, n_e=1700 rpm					DRN …					38000 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S 225M
199	38000	2280	7.2	8.56						
216	26200	2840	8.8	7.86						
255	26200	2640	8.9	6.66						
292	26200	2480	9	5.82						
346	25600	2320	9.3	4.92						

R107R77, n_e=1700 rpm					DRN …						38000 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
						3	3				
0.08	38000	6620	-	20018							
0.10	38000	6620	-	17080							
0.11	38000	6620	-	14936							
0.13	38000	6620	-	12829							
0.15	38000	6620	-	11256							
0.18	38000	6620	-	9547							
0.20	38000	6620	-	8618							
0.22	38000	6620	-	7583							
0.25	38000	6620	-	6743							
0.29	38000	6620	-	5914							
0.33	38000	6620	-	5168							
0.38	38000	6620	-	4435							
0.44	38000	6620	-	3896							
0.50	38000	6620	-	3432							
0.56	38000	6620	-	3039							
0.63	38000	6620	-	2688							
0.73	38000	6620	-	2339							
						2	3				
0.43	38000	6620	-	3918							
0.51	38000	6620	-	3343							
0.56	38000	6620	-	3034							
0.64	38000	6620	-	2653							
0.75	38000	6620	-	2280							
0.82	38000	6620	-	2067							
1.0	38000	6620	-	1693							
1.1	38000	6620	-	1550							
1.2	38000	6620	-	1407							
1.4	38000	6620	-	1209							
1.6	38000	6620	-	1055							
1.8	38000	6620	-	919							
2.1	38000	6620	-	815							
2.4	38000	6620	-	717							
2.7	38000	6620	-	626							
3.2	38000	6620	-	528							
						3	2				
0.86	38000	6620	-	1987							
0.93	38000	6620	-	1827							
1.1	38000	6620	-	1599							
1.2	38000	6620	-	1400*							
1.4	38000	6620	-	1226							

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R107R77, n_e=1700 rpm					DRN …						38000 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
1.5	38000	6620	-	1104							
1.8	38000	6620	-	939							
2.1	38000	6620	-	822							
2.8	38000	6620	-	614							
3.1	38000	6620	-	544							
3.5	38000	6620	-	492							
4.1	38000	6620	-	417							
4.6	38000	6620	-	369							
5.3	38000	6620	-	323							
6.0	38000	6620	-	285							
6.7	38000	6620	-	253							
7.9	38000	6620	-	214*							
9.1	38000	6620	-	187							
						2	2				
3.6	38000	6620	-	469							
4.0	38000	6620	-	426							
4.5	38000	6620	-	377							
5.2	38000	6620	-	325							
6.0	38000	6620	-	284							
6.6	38000	6620	-	256							
7.7	38000	6620	-	220							
8.8	38000	6620	-	193							
9.9	38000	6620	-	172							

R127, n_e=1700 rpm					DRN …						53000 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S 225M	250ME
						3					
6.5	53000	-	6	262.65							
7.1	53000	-	6	240.48							
8.0	53000	-	6	212.46							
9.4	53000	-	6	180.23							
10	53000	-	6	165.95							
11	53000	-	6	148.33							
13	53000	-	6	133.53							
14	53000	-	6	120.92							
16	53000	-	6	107.23							
18	53000	-	6	96.95							
20	53000	-	7	85.26							
21	53000	-	6	82.17							
22	53000	-	7	76.21							
25	53000	-	7	68.61							
27	53000	-	7	62.13							
31	53000	-	7	55.09							
34	53000	-	7	49.81							
40	53000	-	7	42.22							
46	50600	-	7	36.88							
55	47600	-	7	30.84							

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R127, n_e=1700 rpm					DRN …						53000 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S 225M	250ME
							2				
53	53000	-	6	32.18							
59	53000	-	6	28.84							
65	53000	-	6	26.04							
72	53000	-	6	23.65							
81	53000	-	6	20.98							
89	53000	-	6	19.04							
104	53000	-	6	16.37							
119	53000	-	6	14.29							
140	52500	-	6	12.12							
161	50400	-	6	10.59							
190	47900	-	7	8.96							
192	34700	-	8	8.85							
226	34700	-	8	7.51							
259	34700	-	8	6.56							
306	34700	-	8	5.55							

R127R77, n_e=1700 rpm					DRN …						53000 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
						3	3				
0.08	53000	-	-	20936							
0.10	53000	-	-	17863							
0.11	53000	-	-	15620							
0.12	53000	-	-	14123							
0.13	53000	-	-	13417							
0.14	53000	-	-	11772							
0.17	53000	-	-	9985							
0.19	53000	-	-	9013							
0.19	53000	-	-	8771							
0.21	53000	-	-	8282							
0.22	53000	-	-	7639							
0.24	53000	-	-	7053							
0.25	53000	-	-	6722							
0.27	53000	-	-	6347							
0.27	53000	-	-	6185							
0.30	53000	-	-	5592							
0.36	53000	-	-	4740							
0.38	53000	-	-	4441							
0.43	53000	-	-	3949							
0.45	53000	-	-	3764							
0.48	53000	-	-	3571							
0.55	53000	-	-	3110							
0.60	53000	-	-	2812							
0.71	53000	-	-	2383							
0.88	53000	-	-	1934							
0.93	53000	-	-	1835							
1.1	53000	-	-	1555							
1.2	53000	-	-	1444							
1.4	53000	-	-	1224							

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R127R77, n_e=1700 rpm					DRN …						53000 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
					2 3						
0.49	53000	-	-	3495							
0.56	53000	-	-	3056							
0.59	53000	-	-	2903							
0.67	53000	-	-	2547							
0.79	53000	-	-	2161							
0.87	53000	-	-	1951							
0.99	53000	-	-	1716							
1.0	53000	-	-	1620							
1.2	53000	-	-	1380							
1.4	53000	-	-	1210							
1.8	53000	-	-	961							
2.2	53000	-	-	773							
2.8	53000	-	-	608							
					3 2						
0.68	53000	-	-	2506							
0.75	53000	-	-	2266							
0.84	53000	-	-	2016							
0.89	53000	-	-	1920							
0.93	53000	-	-	1823							
1.0	53000	-	-	1673							
1.1	53000	-	-	1545							
1.1	53000	-	-	1512							
1.3	53000	-	-	1322							
1.3	53000	-	-	1282							
1.4	53000	-	-	1195							
1.5	53000	-	-	1164							
1.6	53000	-	-	1034							
1.7	53000	-	-	1013							
1.7	53000	-	-	987							
1.8	53000	-	-	936							
1.8	53000	-	-	935							
2.0	53000	-	-	830							
2.1	53000	-	-	794							
2.1	53000	-	-	792							
2.2	53000	-	-	777							
2.3	53000	-	-	750							
2.6	53000	-	-	659							
2.6	53000	-	-	642							
2.7	53000	-	-	636							
2.8	53000	-	-	614							
2.9	53000	-	-	581							
3.3	53000	-	-	521							
3.5	53000	-	-	492							
3.5	53000	-	-	480							
4.2	53000	-	-	407							
4.4	53000	-	-	386							
5.7	53000	-	-	298							
6.7	53000	-	-	253							

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R127R77, n_e=1700 rpm					DRN …						53000 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
						2	2				
3.5	53000	-	-	490							
4.3	53000	-	-	394							
5.2	53000	-	-	327							
6.6	53000	-	-	259							
8.4	53000	-	-	202							
10	53000	-	-	162							
13	53000	-	-	126							

R137, n_e=1700 rpm					DRN …				70700 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	132S 132M	132L 160M 160L	180M 180L	200L 225S 225M	250ME 280S 280M
						3			
7.6	70700	12000	6	222.60*					
9.0	70700	12000	6	188.45					
9.7	70700	12000	6.1	174.40*					
11	70700	12000	6.1	156.31					
12	70700	12000	6.1	141.12*					
13	70700	12000	6.1	128.18					
15	70700	12000	6.1	113.72					
16	70700	12000	6.1	103.20*					
19	70700	12000	6.1	88.70*					
21	70700	12000	6.4	80.91*					
23	70700	12000	6.4	73.49					
26	70700	12000	6.4	65.20					
29	70700	12000	6.4	59.17*					
33	70700	12000	6.4	50.86*					
38	70700	12000	6.4	44.39					
45	70700	12000	6.4	37.65					
52	70700	11800	6.5	32.91					
61	67900	11100	6.5	27.83					
						2			
57	68800	11400	5.7	29.57*					
70	70700	10000	5.8	24.12					
77	70700	9520	5.8	22.00*					
89	70700	8770	5.9	19.04*					
101	70700	8150	5.9	16.80*					
117	70700	7450	5.9	14.51					
133	70700	6890	6	12.83					
158	70700	6130	6.1	10.79					
195	69300	5410	6.1	8.71					
224	45200	8000	8	7.59					
266	45200	7340	8.2	6.38					
330	40700	7070	8.2	5.15					

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R137R77, n_e=1700 rpm					DRN …						70700 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
					3	3					
0.08	70700	12000	-	22203*							
0.09	70700	12000	-	18945							
0.10	70700	12000	-	16566							
0.12	70700	12000	-	14777							
0.13	70700	12000	-	12921							
0.15	70700	12000	-	11712							
0.16	70700	12000	-	10573*							
0.19	70700	12000	-	8784							
0.23	70700	12000	-	7479							
0.26	70700	12000	-	6559							
0.29	70700	12000	-	5834							
0.33	70700	12000	-	5116							
0.38	70700	12000	-	4464							
0.43	70700	12000	-	3928*							
0.49	70700	12000	-	3454							
0.57	70700	12000	-	2993							
					2	3					
0.36	70700	12000	-	4709*							
0.42	70700	12000	-	4018							
0.48	70700	12000	-	3514							
0.51	70700	12000	-	3338							
0.58	70700	12000	-	2929							
0.68	70700	12000	-	2484							
0.76	70700	12000	-	2242*							
0.91	70700	12000	-	1863							
1.1	70700	12000	-	1586							
1.2	70700	12000	-	1391							
1.4	70700	12000	-	1256							
1.5	70700	12000	-	1105							
1.6	70700	12000	-	1043							
1.9	70700	12000	-	888							
2.4	70700	12000	-	699							
2.8	70700	12000	-	609							
					3	2					
0.64	70700	12000	-	2658							
0.70	70700	12000	-	2412							
0.82	70700	12000	-	2073*							
0.92	70700	12000	-	1839*							
1.1	70700	12000	-	1598							
1.2	70700	12000	-	1397							
1.4	70700	12000	-	1226*							
1.6	70700	12000	-	1090*							
1.8	70700	12000	-	951							
2.0	70700	12000	-	831							
2.3	70700	12000	-	730							
2.7	70700	12000	-	629							
3.0	70700	12000	-	560							
3.5	70700	12000	-	490*							
4.0	70700	12000	-	428							

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R137R77, n_e=1700 rpm					DRN …						70700 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
4.5	70700	12000	-	381							
5.3	70700	12000	-	323							
5.8	70700	12000	-	291							
6.7	70700	12000	-	255*							
7.6	70700	12000	-	223							
8.6	70700	12000	-	197*							
9.7	70700	12000	-	175							
						2	2				
3.0	70700	12000	-	564							
3.3	70700	12000	-	517							
3.8	70700	12000	-	453*							
4.5	70700	12000	-	376							
5.0	70700	12000	-	339							
5.7	70700	12000	-	297							

R147, n_e=1700 rpm					DRN …			115000 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	132L 160M 160L	180M 180L	200L 225S 225M	250ME 280S 280M
						3		
10	115000	14100	5.5	163.31				
12	115000	14100	5.5	146.91				
14	115000	14100	5.5	119.86				
16	115000	14100	5.5	109.31				
18	115000	14100	5.5	94.60*				
20	115000	14100	5.5	83.47				
24	115000	14100	5.5	72.09				
25	115000	14100	5.8	66.99				
28	115000	14100	5.8	61.09				
32	115000	14100	5.8	52.87				
36	115000	14100	5.8	46.65				
42	115000	14100	5.8	40.29				
48	115000	14100	5.9	35.64				
57	115000	14100	5.9	29.95				
70	105200	14500	5.9	24.19				
						2		
83	106100	14500	5.2	20.44				
94	92900	15100	5.3	18.04				
109	115000	14100	5.3	15.64				
122	111400	13500	5.3	13.91				
142	115000	12300	5.4	11.99				
175	115000	11000	5.5	9.74				
206	115000	10100	5.6	8.26				
234	76700	12000	7.5	7.25				
289	76700	10900	7.6	5.89				
340	76700	10100	7.8	5.00				

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R147R77, n_e=1700 rpm					DRN …						115000 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
						3	3				
0.07	115000	14100	-	23401							
0.08	115000	14100	-	21342							
0.09	115000	14100	-	18210							
0.11	115000	14100	-	15923							
0.12	115000	14100	-	14075							
0.14	115000	14100	-	12344							
0.15	115000	14100	-	11143							
0.17	115000	14100	-	9743							
0.20	115000	14100	-	8443							
0.23	115000	14100	-	7307							
0.26	115000	14100	-	6447							
0.31	115000	14100	-	5568							
0.35	115000	14100	-	4926							
0.39	115000	14100	-	4325							
0.45	115000	14100	-	3754							
0.51	115000	14100	-	3302							
0.59	115000	14100	-	2898							
						3	2				
0.67	115000	14100	-	2555							
0.77	115000	14100	-	2211							
0.87	115000	14100	-	1951							
1.00	115000	14100	-	1705							
1.1	115000	14100	-	1536							
1.3	115000	14100	-	1329							
1.5	115000	14100	-	1166							
1.7	115000	14100	-	1029							
1.9	115000	14100	-	889							
2.2	115000	14100	-	784							
2.4	115000	14100	-	695							
2.7	115000	14100	-	619							
3.0	115000	14100	-	558							
3.5	115000	14100	-	489							
4.1	115000	14100	-	415							

R147R87, n_e=1700 rpm					DRN …								115000 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L	
							3	2					
3.2	115000	14100	-	533									
3.7	115000	14100	-	462									
4.0	115000	14100	-	426									
4.6	115000	14100	-	368									
5.2	115000	14100	-	326									
6.1	115000	14100	-	280									
6.9	115000	14100	-	247									
7.9	115000	14100	-	214									
9.0	115000	14100	-	189									
11	115000	14100	-	159									

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R167, n_e=1700 rpm					DRN …					177000 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	132L 160M 160L	180M 180L	200L 225S 225M	250ME 280S 280M	315S 315ME	315L 315H
						3				
7.4	177000	27000	5.2	229.71						
9.1	177000	27000	5.2	186.93*						
11	177000	27000	5.2	153.07						
12	177000	27000	5.2	139.98						
14	177000	27000	5.2	121.81*						
16	177000	27000	5.2	107.49						
18	177000	27000	5.2	93.19						
21	177000	27000	5.2	82.91*						
23	177000	27000	5.6	73.70*						
25	177000	27000	5.6	67.40						
29	177000	27000	5.6	58.65						
33	177000	27000	5.6	51.76						
38	177000	27000	5.6	44.87						
43	177000	27000	5.6	39.92						
49	177000	27000	5.6	34.41						
61	177000	25900	5.7	27.96						
72	177000	24100	5.7	23.71						
						2				
37	83700	27000	5	46.00						
45	90300	27000	5	37.74						
55	103500	27000	5	30.71						
69	145100	26900	5.1	24.57						
78	177000	26300	5.1	21.85						
89	177000	23100	5.1	19.03						
100	177000	22600	5.1	16.98						
117	174300	19300	5.2	14.48						
142	168200	18200	5.3	11.99						
166	163700	16900	5.3	10.24						

R167R97, n_e=1700 rpm					DRN …								177000 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S
							3 3						
0.06	177000	27000	-	27001									
0.08	177000	27000	-	22482									
0.08	177000	27000	-	20002*									
0.10	177000	27000	-	17361									
0.11	177000	27000	-	15446									
0.12	177000	27000	-	14051									
0.14	177000	27000	-	11812									
0.16	177000	27000	-	10509									
0.18	177000	27000	-	9631									
0.22	177000	27000	-	7749									
0.25	177000	27000	-	6894									
0.28	177000	27000	-	6077									
0.31	177000	27000	-	5407									
0.37	177000	27000	-	4650									
0.41	177000	27000	-	4129									
0.46	177000	27000	-	3692									

R167R97, n_e=1700 rpm					DRN …								177000 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S
0.55	177000	27000	-	3099									
						3	2						
0.64	177000	27000	-	2657*									
0.73	177000	27000	-	2333									
0.82	177000	27000	-	2085									
0.91	177000	27000	-	1877									
1.0	177000	27000	-	1670*									
1.2	177000	27000	-	1438									
1.3	177000	27000	-	1279									
1.5	177000	27000	-	1123									
1.7	177000	27000	-	999									
2.0	177000	27000	-	861									
2.2	177000	27000	-	760									
2.6	177000	27000	-	656									
2.9	177000	27000	-	579									
3.4	177000	27000	-	503									
3.9	177000	27000	-	432									
4.5	177000	27000	-	376									
5.1	177000	27000	-	335									
5.6	177000	27000	-	303									
6.1	177000	27000	-	279									

R167R107, n_e=1700 rpm					DRN …						177000 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S 225M	250ME
						2	3				
0.47	177000	27000	-	3637							
0.51	177000	27000	-	3330							
0.62	177000	27000	-	2757							
0.70	177000	27000	-	2436							
0.74	177000	27000	-	2298							
0.82	177000	27000	-	2066							
0.92	177000	27000	-	1849							
1.0	177000	27000	-	1674							
1.1	177000	27000	-	1485							
1.3	177000	27000	-	1342							
1.4	177000	27000	-	1229							
1.5	177000	27000	-	1111							
1.8	177000	27000	-	950							
2.0	177000	27000	-	860							
2.2	177000	27000	-	763							
2.5	177000	27000	-	690							
2.9	177000	27000	-	585							
3.3	177000	27000	-	511							

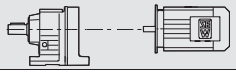
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R167R107, n_e=1700 rpm					DRN …						177000 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S 225M	250ME
						3	2				
4.9	177000	27000	-	349							
5.8	177000	27000	-	295							
6.3	177000	27000	-	270							
7.4	177000	27000	-	229							
8.5	177000	27000	-	200							
10	177000	27000	-	169							
						2	2				
3.8	177000	27000	-	446							
4.3	177000	27000	-	399							
4.7	177000	27000	-	361							
5.2	177000	27000	-	328							
5.8	177000	27000	-	291							
6.4	177000	27000	-	264							
7.5	177000	27000	-	227							
8.6	177000	27000	-	198							
10	177000	27000	-	168							

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8.3 R.. DRN.. Selections by HP

P_m = 0.16 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.08	90900	21342	15100	1.25	**X**						
0.09	77600	18210	15600	1.50	**X**						
0.11	67800	15923	15900	1.70	**X**						
0.12	60000	14075	16100	1.90	**X**						
0.14	51500	12344	16300	2.2	**X**	**R**	**147R77**	**(E)DRN**	**63MS4**	930	342/346
0.15	45000	11143	16400	2.6	**X**	**RF**	**147R77**	**(E)DRN**	**63MS4**	950	343/346
0.17	40600	9743	16400	2.8	**X**	**RM**	**147R77**	**(E)DRN**	**63MS4**	1310	343/346
0.20	31500	8443	16600	3.6	**X**						
0.23	27300	7307	16600	4.2	**X**						
0.26	24100	6447	16700	4.8	**X**						
0.30	20800	5568	16700	5.5	**X**						
0.13	55000	12921	12700	1.30	**X**						
0.14	48800	11712	13000	1.45	**X**						
0.16	42600	10573	13200	1.65	**X**						
0.19	32800	8784	13400	2.1	**X**	**R**	**137R77**	**(E)DRN**	**63MS4**	640	340/346
0.22	26200	7479	13600	2.7	**X**	**RF**	**137R77**	**(E)DRN**	**63MS4**	690	341/346
0.26	27300	6559	13500	2.6	**X**	**RM**	**137R77**	**(E)DRN**	**63MS4**	930	341/346
0.29	20400	5834	13700	3.5	**X**						
0.33	21300	5116	13600	3.3	**X**						
0.14	50100	11772	9660	1.05	**X**						
0.17	41600	9985	9660	1.25	**X**						
0.19	36400	9013	9660	1.45	**X**						
0.19	33500	8771	9660	1.60	**X**						
0.20	30900	8282	9660	1.70	**X**						
0.22	30800	7639	9660	1.70	**X**						
0.24	24700	7053	9660	2.1	**X**						
0.25	25700	6722	9660	2.1	**X**	**R**	**127R77**	**(E)DRN**	**63MS4**	570	338/346
0.26	23700	6347	9660	2.2	**X**	**RF**	**127R77**	**(E)DRN**	**63MS4**	590	339/346
0.27	25800	6185	9660	2.1	**X**	**RM**	**127R77**	**(E)DRN**	**63MS4**	810	339/346
0.30	23300	5592	9660	2.3	**X**						
0.35	19700	4740	9660	2.7	**X**						
0.38	17000	4441	9660	3.1	**X**						
0.43	13800	3949	9660	3.8	**X**						
0.45	14400	3764	9660	3.7	**X**						
0.47	12500	3571	9660	4.2	**X**						
0.54	9600	3110	9660	5.5	**X**						
0.48	15000	3495	9660	3.5	**X**						
0.55	13100	3056	9660	4.0	**X**	**R**	**127R77**	**(E)DRN**	**63MS4**	530	338/346
0.58	12500	2903	9660	4.2	**X**	**RF**	**127R77**	**(E)DRN**	**63MS4**	580	339/346
0.66	10900	2547	9660	4.8	**X**	**RM**	**127R77**	**(E)DRN**	**63MS4**	790	339/346
						R	**127R77**	**(E)DRN**	**63MS4**	570	338/346
0.67	10500	2506	9660	5.0	**X**	**RF**	**127R77**	**(E)DRN**	**63MS4**	590	339/346
						RM	**127R77**	**(E)DRN**	**63MS4**	800	339/346
0.22	29000	7583	7640	1.30	**X**						
0.25	23600	6743	8070	1.60	**X**						
0.28	24600	5914	8000	1.55	**X**	**R**	**107R77**	**(E)DRN**	**63MS4**	445	336/346
0.33	18100	5168	8250	2.1	**X**	**RF**	**107R77**	**(E)DRN**	**63MS4**	460	337/346
0.38	16600	4435	8290	2.3	**X**	**RM**	**107R77**	**(E)DRN**	**63MS4**	650	337/346
0.43	14900	3896	8330	2.5	**X**						
0.55	12600	3039	8380	3.0	**X**						
0.43	16900	3918	8280	2.2	**X**						
0.50	14400	3343	8340	2.6	**X**						
0.55	13000	3034	8370	2.9	**X**	**R**	**107R77**	**(E)DRN**	**63MS4**	430	336/346
0.63	11400	2653	8400	3.3	**X**	**RF**	**107R77**	**(E)DRN**	**63MS4**	445	337/346
0.74	9830	2280	8430	3.9	**X**	**RM**	**107R77**	**(E)DRN**	**63MS4**	640	337/346
0.81	8730	2067	8440	4.4	**X**						
0.37	21100	4559	5540	1.25	**X**	**R**	**97R57**	**(E)DRN**	**63MS4**	285	334/346
0.42	17400	4004	5650	1.50	**X**	**RF**	**97R57**	**(E)DRN**	**63MS4**	320	335/346
0.48	15500	3481	6120	1.70	**X**	**RM**	**97R57**	**(E)DRN**	**63MS4**	435	335/346

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P_m = 0.16 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.36	22700	4678	5330	1.15	**X**						
0.39	20900	4309	5570	1.25	**X**						
0.45	17900	3702	5900	1.50	**X**	**R**	**97R57**	**(E)DRN**	**63MS4**	275	334/346
0.56	14400	3019	6170	1.85	**X**	**RF**	**97R57**	**(E)DRN**	**63MS4**	315	335/346
0.63	12500	2668	6240	2.1	**X**	**RM**	**97R57**	**(E)DRN**	**63MS4**	430	335/346
0.75	10100	2245	6310	2.6	**X**						
0.83	8910	2016	6340	3.0	**X**						
0.97	8390	1733	6350	3.2	**X**						
0.55	14800	3065	6150	1.80	**X**						
0.62	13100	2722	6220	2.0	**X**						
0.73	11000	2311	6280	2.4	**X**	**R**	**97R57**	**(E)DRN**	**63MS4**	280	334/346
0.81	9960	2078	6310	2.7	**X**	**RF**	**97R57**	**(E)DRN**	**63MS4**	320	335/346
0.92	8550	1823	6350	3.1	**X**	**RM**	**97R57**	**(E)DRN**	**63MS4**	430	335/346
1.1	7420	1583	6370	3.6	**X**						
1.2	6170	1396	6390	4.3	**X**						
1.4	5230	1228	6410	5.1	**X**						
0.58	11800	2873	3490	1.15	**X**	**R**	**87R57**	**(E)DRN**	**63MS4**	190	331/346
0.86	8980	1961	4440	1.55	**X**	**RF**	**87R57**	**(E)DRN**	**63MS4**	205	332/346
						RM	**87R57**	**(E)DRN**	**63MS4**	270	332/346
0.65	12400	2595	4010	1.10	**X**						
0.79	9870	2129	4350	1.40	**X**	**R**	**87R57**	**(E)DRN**	**63MS4**	185	331/346
0.87	8740	1930	4470	1.55	**X**	**RF**	**87R57**	**(E)DRN**	**63MS4**	205	332/346
0.97	7660	1733	4490	1.80	**X**	**RM**	**87R57**	**(E)DRN**	**63MS4**	270	332/346
0.97	7870	1737	4490	1.75	**X**						
1.1	6900	1524	4490	2.0	**X**						
1.3	5450	1303	4490	2.5	**X**	**R**	**87R57**	**(E)DRN**	**63MS4**	190	331/346
1.5	4780	1143	4490	2.9	**X**	**RF**	**87R57**	**(E)DRN**	**63MS4**	205	332/346
1.9	4010	885	4490	3.4	**X**	**RM**	**87R57**	**(E)DRN**	**63MS4**	270	332/346
2.2	3510	776	4490	3.9	**X**						
2.5	3100	685	4490	4.4	**X**						
2.8	2390	599	4490	5.7	**X**						
1.3	6620	1303	2370	1.10	**X**						
1.5	5610	1124	2550	1.30	**X**	**R**	**77R37**	**(E)DRN**	**63MS4**	100	328/346
1.6	5190	1047	2610	1.40	**X**	**RF**	**77R37**	**(E)DRN**	**63MS4**	110	329/346
1.8	4460	915	2710	1.65	**X**	**RM**	**77R37**	**(E)DRN**	**63MS4**	165	329/346
1.4	5670	1218	2540	1.30	**X**						
1.6	5140	1084	2620	1.40	**X**						
1.8	4650	940	2690	1.55	**X**	**R**	**77R37**	**(E)DRN**	**63MS4**	100	328/346
2.0	3540	821	2810	2.0	**X**	**RF**	**77R37**	**(E)DRN**	**63MS4**	115	329/346
2.3	3260	731	2830	2.2	**X**	**RM**	**77R37**	**(E)DRN**	**63MS4**	170	329/346
2.6	3230	646	2830	2.2	**X**						
3.2	2670	520	2870	2.7	**X**						
3.7	2280	451	2900	3.2	**X**	**R**	**77R37**	**(E)DRN**	**63MS4**	99	328/346
4.0	2110	422	2910	3.4	**X**	**RF**	**77R37**	**(E)DRN**	**63MS4**	110	329/346
4.6	1790	365	2920	4.0	**X**	**RM**	**77R37**	**(E)DRN**	**63MS4**	165	329/346
1.9	4410	891	1930	1.20	**X**						
2.3	3520	730	2100	1.50	**X**	**R**	**67R37**	**(E)DRN**	**63MS4**	88	325/346
2.6	3050	644	2170	1.75	**X**	**RF**	**67R37**	**(E)DRN**	**63MS4**	95	326/346
2.9	2660	571	2220	2.0	**X**	**RM**	**67R37**	**(E)DRN**	**63MS4**	130	326/346
3.5	2190	486	2270	2.4	**X**						
2.0	4140	836	1990	1.30	**X**						
2.2	3390	750	2120	1.55	**X**						
2.6	3060	646	2170	1.75	**X**	**R**	**67R37**	**(E)DRN**	**63MS4**	90	325/346
2.9	2790	574	2200	1.90	**X**	**RF**	**67R37**	**(E)DRN**	**63MS4**	97	326/346
3.4	2410	495	2250	2.2	**X**	**RM**	**67R37**	**(E)DRN**	**63MS4**	130	326/346
3.8	1950	438	2290	2.7	**X**						
2.5	3150	678	1680	1.25	**X**						
2.8	2860	604	1700	1.40	**X**						
3.1	2610	537	1720	1.50	**X**	**R**	**57R37**	**(E)DRN**	**63MS4**	75	322/346
3.6	2290	471	1740	1.75	**X**	**RF**	**57R37**	**(E)DRN**	**63MS4**	83	323/346
4.7	1690	357	1770	2.4	**X**	**RM**	**57R37**	**(E)DRN**	**63MS4**	110	323/346
5.3	1480	319	1780	2.7	**X**						

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P_m = 0.16 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
4.7	1810	359	1760	2.2	**X**						
5.2	1640	324	1770	2.4	**X**						
5.8	1430	290	1780	2.8	**X**	**R**	**57R37**	**(E)DRN**	**63MS4**	73	322/346
6.4	1290	262	1780	3.1	**X**	**RF**	**57R37**	**(E)DRN**	**63MS4**	81	323/346
6.8	1180	246	1790	3.4	**X**	**RM**	**57R37**	**(E)DRN**	**63MS4**	105	323/346
7.6	1030	220	1790	3.8	**X**						
3.3	2370	510	1250	1.10	**X**						
3.9	1970	436	1300	1.35	**X**	**R**	**47R37**	**(E)DRN**	**63MS4**	63	319/346
4.1	1820	408	1310	1.45	**X**	**RF**	**47R37**	**(E)DRN**	**63MS4**	63	320/346
4.9	1480	344	1340	1.80	**X**						
3.9	2200	429	1270	1.20	**X**						
4.5	1880	372	1310	1.40	**X**						
4.8	1740	348	1320	1.50	**X**						
5.6	1480	301	1340	1.80	**X**	**R**	**47R37**	**(E)DRN**	**63MS4**	62	319/346
6.6	1220	255	1350	2.2	**X**	**RF**	**47R37**	**(E)DRN**	**63MS4**	63	320/346
7.4	1070	228	1360	2.5	**X**						
8.6	890	195	1370	3.0	**X**						
5.0	1560	338	1100	1.15	**X**						
5.7	1490	296	1150	1.20	**X**						
6.5	1290	259	1240	1.35	**X**	**R**	**37R17**	**(E)DRN**	**63MS4**	38	316/346
7.4	1140	228	1270	1.55	**X**	**RF**	**37R17**	**(E)DRN**	**63MS4**	41	317/346
8.4	980	199	1290	1.80	**X**						
9.8	860	172	1310	2.0	**X**						
5.1	1670	328	1020	1.05	**X**						
5.8	1430	289	1190	1.25	**X**						
6.3	1350	265	1220	1.30	**X**	**R**	**37R17**	**(E)DRN**	**63MS4**	37	316/346
7.4	1080	226	1280	1.65	**X**	**RF**	**37R17**	**(E)DRN**	**63MS4**	40	317/346
8.3	1000	202	1290	1.75	**X**						
9.4	870	179	1310	2.0	**X**						
8.4	960	200	900	1.20	**X**						
9.5	830	177	920	1.35	**X**	**R**	**27R17**	**(E)DRN**	**63MS4**	25	313/346
10	810	166	920	1.40	**X**	**RF**	**27R17**	**(E)DRN**	**63MS4**	25	314/346
7.4	1080	227	840	1.05	**X**						
8.3	1000	203	890	1.15	**X**	**R**	**27R17**	**(E)DRN**	**63MS4**	24	313/346
9.4	870	179	910	1.30	**X**	**RF**	**27R17**	**(E)DRN**	**63MS4**	24	314/346
11	725	156	930	1.60	**X**						
5.6	1780	195.24*	2920	4.1		**R**	**77**	**DRN**	**63M6**	81	328
6.6	1520	166.59	2920	4.8		**RF**	**77**	**DRN**	**63M6**	94	329
7.5	1330	145.67	2920	5.4		**RM**	**77**	**DRN**	**63M6**	150	329
5.5	1830	199.81	2300	2.9							
6.0	1680	184.07	2310	3.1							
7.0	1440	158.14	2330	3.7		**R**	**67**	**DRN**	**63M6**	66	325
8.0	1260	137.67	2340	4.2		**RF**	**67**	**DRN**	**63M6**	73	326
8.5	1180	128.97	2340	4.5		**RM**	**67**	**DRN**	**63M6**	110	326
9.7	1040	113.94	2350	5.1							
8.4	1190	199.81	2340	4.4	**X**	**R**	**67**	**(E)DRN**	**63MS4**	66	325
9.1	1100	184.07	2340	4.8	**X**	**RF**	**67**	**(E)DRN**	**63MS4**	73	326
						RM	**67**	**(E)DRN**	**63MS4**	110	326
5.9	1710	186.89	1770	2.3							
6.4	1570	172.17	1770	2.5							
7.4	1350	147.92	1780	2.9		**R**	**57**	**DRN**	**63M6**	51	322
8.5	1170	128.77	1790	3.4		**RF**	**57**	**DRN**	**63M6**	59	323
9.1	1100	120.63	1790	3.6		**RM**	**57**	**DRN**	**63M6**	85	323
10	970	106.58	1790	4.1							
11	900	98.99	1790	4.4							
9.0	1120	186.89	1790	3.5	**X**						
9.8	1030	172.17	1790	3.9	**X**	**R**	**57**	**(E)DRN**	**63MS4**	51	322
11	880	147.92	1790	4.5	**X**	**RF**	**57**	**(E)DRN**	**63MS4**	59	323
13	770	128.77	1800	5.2	**X**	**RM**	**57**	**(E)DRN**	**63MS4**	85	323
6.2	1620	176.88	1330	1.65							
6.8	1490	162.94	1340	1.80		**R**	**47**	**DRN**	**63M6**	40	319
7.9	1280	139.99	1350	2.1		**RF**	**47**	**DRN**	**63M6**	40	320
9.0	1110	121.87	1360	2.4							

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P_m = 0.16 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
9.5	1060	176.88	1360	2.5	X						
10	970	162.94	1370	2.7	X						
12	830	139.99	1370	3.2	X	**R**	**47**	**(E)DRN**	**63MS4**	40	319
14	730	121.87	1380	3.6	X	**RF**	**47**	**(E)DRN**	**63MS4**	40	320
15	685	114.17	1380	3.9	X						
17	605	100.86	1380	4.4	X						
18	560	93.68	1380	4.7	X						
8.2	1230	134.82	1250	1.45							
8.9	1130	123.66	1270	1.55							
10	960	105.28	1300	1.85		**R**	**37**	**DRN**	**63M6**	31	316
12	830	90.77	1310	2.1		**RF**	**37**	**DRN**	**63M6**	34	317
13	775	84.61	1320	2.3							
15	675	73.96	1330	2.6							
12	800	134.82	1320	2.2	X						
14	740	123.66	1320	2.4	X						
16	630	105.28	1340	2.8	X	**R**	**37**	**(E)DRN**	**63MS4**	31	316
19	540	90.77	1340	3.2	X	**RF**	**37**	**(E)DRN**	**63MS4**	34	317
20	505	84.61	1350	3.5	X						
23	440	73.96	1350	4.0	X						
10	960	105.49	900	1.20							
12	830	90.96	920	1.40		**R**	**27**	**DRN**	**63M6**	18	313
13	775	84.78	920	1.50		**RF**	**27**	**DRN**	**63M6**	18	314
15	675	74.11	940	1.70							
12	810	135.09	920	1.40	X						
14	740	123.91	930	1.55	X						
16	630	105.49	940	1.80	X						
18	545	90.96	950	2.1	X						
20	505	84.78	960	2.3	X	**R**	**27**	**(E)DRN**	**63MS4**	18	313
23	440	74.11	960	2.6	X	**RF**	**27**	**(E)DRN**	**63MS4**	18	314
24	415	69.47	970	2.8	X						
27	365	61.30	930	3.1	X						
30	335	55.87	910	3.4	X						
35	285	48.17	870	4.0	X						
37	265	44.90	850	4.3	X						
16	645	70.39	535	1.15							
17	600	65.61	545	1.25		**R**	**17**	**DRN**	**63M6**	17	310
19	525	57.35	560	1.45		**RF**	**17**	**DRN**	**63M6**	17	311
20	490	53.76	560	1.55							
23	430	47.44	560	1.75							
21	484	81.64	560	1.55	X						
24	418	70.39	560	1.80	X						
26	389	65.61	560	1.90	X						
30	340	57.35	560	2.2	X						
32	319	53.76	560	2.3	X						
36	281	47.44	550	2.6	X	**R**	**17**	**(E)DRN**	**63MS4**	17	310
38	262	44.18	535	2.8	X	**RF**	**17**	**(E)DRN**	**63MS4**	17	311
44	229	38.61	520	3.2	X						
47	215	36.20	510	3.5	X						
53	189	31.94	490	3.9	X						
60	168	28.32	475	4.4	X						
71	143	24.07	450	5.2	X						
28	358	60.32	295	1.20	X						
33	306	51.52	305	1.45	X						
36	283	47.78	310	1.55	X						
38	262	44.16	315	1.65	X						
41	245	41.31	320	1.80	X						
42	239	40.34	320	1.85	X	**R**	**07**	**(E)DRN**	**63MS4**	14	307
44	228	38.51	320	1.90	X	**RF**	**07**	**(E)DRN**	**63MS4**	14	308
50	202	34.05	310	2.2	X						
58	172	29.08	300	2.5	X						
63	160	26.97	290	2.7	X						
73	138	23.32	280	3.2	X						
78	129	21.73	275	3.4	X						

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P_m = 0.16 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
93	109	18.31	265	4.0	X						
102	99	16.73	255	4.4	X						
120	84	14.12	245	5.2	X						
141	72	12.06	235	6.1	X						
152	66	11.18	230	6.6	X						
176	57	9.67	220	7.6	X						
189	53	9.01	215	8.2	X						
217	47	7.85	205	9.2	X	**R**	**07**	**(E)DRN**	**63MS4**	14	307
227	44	7.48	200	8.5	X	**RF**	**07**	**(E)DRN**	**63MS4**	14	308
249	41	6.83	197	9.3	X						
295	34	5.76	187	10	X						
346	29	4.92	178	11	X						
372	27	4.57	173	12	X						
430	23	3.95	166	13	X						
462	22	3.68	162	13	X						
530	19	3.21	155	14	X						
280	36	6.07	900	10	X						
328	31	5.18	850	21	X	**RX**	**67**	**(E)DRN**	**63MS4**	36	297
375	27	4.53	820	27	X	**RXF**	**67**	**(E)DRN**	**63MS4**	45	298
395	26	4.30*	800	27	X						
309	33	5.50*	710	10	X						
335	30	5.07	690	10	X						
391	26	4.35	655	23	X						
449	22	3.79	625	27	X						
479	21	3.55*	615	29	X						
541	19	3.14	590	31	X	**RX**	**57**	**(E)DRN**	**63MS4**	30	295
584	17	2.91	575	34	X	**RXF**	**57**	**(E)DRN**	**63MS4**	35	296
644	16	2.64*	555	39	X						
717	14	2.37	535	43	X						
833	12	2.04	510	50	X						
885	11	1.92*	500	53	X						
1030	10	1.65	475	62	X						

P_m = 0.25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.12	102800	14075	14700	1.10	X						
0.14	89000	12344	15200	1.30	X						
0.15	78800	11143	15600	1.45	X						
0.17	70200	9743	15800	1.65	X						
0.20	57200	8443	16100	2.0	X						
0.23	49500	7307	16300	2.3	X	**R**	**147R77**	**(E)DRN**	**63M4**	930	342/346
0.26	43700	6447	16400	2.6	X	**RF**	**147R77**	**(E)DRN**	**63M4**	950	343/346
0.31	37700	5568	16500	3.0	X	**RM**	**147R77**	**(E)DRN**	**63M4**	1320	343/346
0.35	34800	4926	16500	3.3	X						
0.39	29700	4325	16600	3.9	X						
0.45	26500	3754	16600	4.3	X						
0.51	22600	3302	16700	5.1	X						
0.19	59500	8784	12500	1.20	X						
0.23	48900	7479	13000	1.45	X						
0.26	47300	6559	13000	1.50	X	**R**	**137R77**	**(E)DRN**	**63M4**	640	340/346
0.29	38200	5834	13300	1.85	X	**RF**	**137R77**	**(E)DRN**	**63M4**	690	341/346
0.33	36900	5116	13300	1.90	X	**RM**	**137R77**	**(E)DRN**	**63M4**	940	341/346
0.38	30200	4464	13500	2.3	X						
0.43	26600	3928	13600	2.7	X						
0.36	34800	4709	13400	2.0	X						
0.42	29700	4018	13500	2.4	X	**R**	**137R77**	**(E)DRN**	**63M4**	620	340/346
0.48	25900	3514	13600	2.7	X	**RF**	**137R77**	**(E)DRN**	**63M4**	670	341/346
0.51	24600	3338	13600	2.9	X	**RM**	**137R77**	**(E)DRN**	**63M4**	920	341/346
0.58	21600	2929	13600	3.3	X						

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P_m = 0.25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.24	46100	7053	9660	1.15	X						
0.25	46100	6722	9660	1.15	X						
0.27	43000	6347	9660	1.25	X						
0.27	44600	6185	9660	1.20	X						
0.30	40300	5592	9660	1.30	X						
0.36	34100	4740	9660	1.55	X						
0.38	30500	4441	9660	1.75	X						
0.43	25800	3949	9660	2.0	X	**R**	**127R77**	**(E)DRN**	**63M4**	580	338/346
0.45	25800	3764	9660	2.0	X	**RF**	**127R77**	**(E)DRN**	**63M4**	600	339/346
0.48	23300	3571	9660	2.3	X	**RM**	**127R77**	**(E)DRN**	**63M4**	810	339/346
0.55	19000	3110	9660	2.8	X						
0.60	17200	2812	9660	3.1	X						
0.71	14600	2383	9660	3.6	X						
0.88	13200	1934	9660	4.0	X						
0.93	12000	1835	9660	4.4	X						
1.1	10100	1555	9660	5.2	X						
0.49	25800	3495	9660	2.0	X						
0.56	22600	3056	9660	2.4	X						
0.59	21400	2903	9660	2.5	X						
0.67	18800	2547	9660	2.8	X	**R**	**127R77**	**(E)DRN**	**63M4**	540	338/346
0.79	15700	2161	9660	3.4	X	**RF**	**127R77**	**(E)DRN**	**63M4**	590	339/346
0.87	13900	1951	9660	3.8	X	**RM**	**127R77**	**(E)DRN**	**63M4**	800	339/346
0.99	11900	1716	9660	4.5	X						
1.1	11100	1620	9660	4.8	X						
0.68	18300	2506	9660	2.9	X						
0.75	16500	2266	9660	3.2	X						
0.84	14000	2016	9660	3.8	X						
0.89	14000	1920	9660	3.8	X	**R**	**127R77**	**(E)DRN**	**63M4**	570	338/346
0.93	12600	1823	9660	4.2	X	**RF**	**127R77**	**(E)DRN**	**63M4**	600	339/346
1.0	11000	1673	9660	4.8	X	**RM**	**127R77**	**(E)DRN**	**63M4**	810	339/346
1.1	10700	1545	9660	4.9	X						
1.1	10000	1512	9660	5.3	X						
0.38	30000	4435	7540	1.25	X	**R**	**107R77**	**(E)DRN**	**63M4**	450	336/346
0.44	26700	3896	7830	1.40	X	**RF**	**107R77**	**(E)DRN**	**63M4**	465	337/346
0.56	21900	3039	8130	1.75	X	**RM**	**107R77**	**(E)DRN**	**63M4**	660	337/346
0.43	28900	3918	7640	1.30	X						
0.51	24700	3343	7990	1.55	X						
0.56	22400	3034	8120	1.70	X	**R**	**107R77**	**(E)DRN**	**63M4**	435	336/346
0.64	19600	2653	8210	1.95	X	**RF**	**107R77**	**(E)DRN**	**63M4**	450	337/346
0.75	16800	2280	8280	2.3	X	**RM**	**107R77**	**(E)DRN**	**63M4**	640	337/346
0.82	15000	2067	8330	2.5	X						
0.86	14200	1987	8350	2.7	X						
0.93	12500	1827	8380	3.0	X	**R**	**107R77**	**(E)DRN**	**63M4**	450	336/346
1.1	10600	1599	8420	3.6	X	**RF**	**107R77**	**(E)DRN**	**63M4**	460	337/346
1.2	9610	1400	8430	4.0	X	**RM**	**107R77**	**(E)DRN**	**63M4**	660	337/346
1.4	8120	1226	8450	4.7	X						
0.64	20700	2668	5590	1.30	X						
0.76	17000	2245	5990	1.55	X						
0.84	15100	2016	6140	1.75	X						
0.98	13700	1733	6200	1.95	X						
1.1	12700	1623	6230	2.1	X	**R**	**97R57**	**(E)DRN**	**63M4**	280	334/346
1.2	11100	1434	6280	2.4	X	**RF**	**97R57**	**(E)DRN**	**63M4**	320	335/346
1.4	9180	1207	6330	2.9	X	**RM**	**97R57**	**(E)DRN**	**63M4**	435	335/346
1.6	8130	1084	6360	3.3	X						
1.8	6840	934	6380	3.9	X						
1.9	6370	878	6390	4.2	X						
2.2	5340	755	6410	5.0	X						
0.62	21500	2722	4430	1.25	X	**R**	**97R57**	**(E)DRN**	**63M4**	285	334/346
0.74	18100	2311	5440	1.45	X	**RF**	**97R57**	**(E)DRN**	**63M4**	325	335/346
0.82	16300	2078	5990	1.60	X	**RM**	**97R57**	**(E)DRN**	**63M4**	435	335/346

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P_m = 0.25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.1	11700	1489	4110	1.15	X						
1.2	10900	1395	4220	1.25	X						
1.4	9570	1232	4380	1.45	X	**R**	**87R57**	**(E)DRN**	**63M4**	190	331/346
1.5	8830	1145	4460	1.55	X	**RF**	**87R57**	**(E)DRN**	**63M4**	210	332/346
1.6	7890	1037	4490	1.75	X	**RM**	**87R57**	**(E)DRN**	**63M4**	275	332/346
1.8	6980	931	4490	1.95	X						
2.1	5880	802	4490	2.3	X						
1.1	11500	1524	3590	1.20	X						
1.3	9460	1303	4380	1.45	X	**R**	**87R57**	**(E)DRN**	**63M4**	195	331/346
1.5	8300	1143	4490	1.65	X	**RF**	**87R57**	**(E)DRN**	**63M4**	210	332/346
1.9	6730	885	4490	2.0	X	**RM**	**87R57**	**(E)DRN**	**63M4**	275	332/346
2.2	5900	776	4490	2.3	X						
2.0	6780	858	2330	1.05	X						
2.2	5920	757	2500	1.20	X	**R**	**77R37**	**(E)DRN**	**63M4**	105	328/346
2.5	5190	671	2610	1.40	X	**RF**	**77R37**	**(E)DRN**	**63M4**	120	329/346
3.0	4330	571	2720	1.65	X	**RM**	**77R37**	**(E)DRN**	**63M4**	175	329/346
2.1	6070	821	2470	1.20	X						
2.3	5510	731	2560	1.30	X						
2.6	5220	646	2610	1.40	X						
3.0	4520	560	2700	1.60	X	**R**	**77R37**	**(E)DRN**	**63M4**	110	328/346
3.5	3810	488	2780	1.90	X	**RF**	**77R37**	**(E)DRN**	**63M4**	120	329/346
3.9	3370	436	2820	2.1	X	**RM**	**77R37**	**(E)DRN**	**63M4**	175	329/346
4.6	2910	373	2860	2.5	X						
5.2	2550	327	2880	2.8	X						
5.9	2290	289	2900	3.2	X						
3.0	4410	571	1930	1.20	X	**R**	**67R37**	**(E)DRN**	**63M4**	94	325/346
3.5	3690	486	2070	1.45	X	**RF**	**67R37**	**(E)DRN**	**63M4**	100	326/346
						RM	**67R37**	**(E)DRN**	**63M4**	135	326/346
3.0	4560	574	1900	1.15	X						
3.4	3930	495	2030	1.35	X						
3.9	3300	438	2130	1.60	X	**R**	**67R37**	**(E)DRN**	**63M4**	96	325/346
4.4	2920	388	2190	1.80	X	**RF**	**67R37**	**(E)DRN**	**63M4**	105	326/346
4.9	2730	344	2210	1.95	X	**RM**	**67R37**	**(E)DRN**	**63M4**	140	326/346
5.8	2170	294	2270	2.4	X						
6.5	2010	261	2280	2.6	X						
3.7	3450	454	1650	1.15	X	**R**	**57R37**	**(E)DRN**	**63M4**	80	322/346
4.2	3110	410	1680	1.30	X	**RF**	**57R37**	**(E)DRN**	**63M4**	87	323/346
						RM	**57R37**	**(E)DRN**	**63M4**	115	323/346
3.6	3740	471	1620	1.05	X						
4.8	2790	357	1700	1.40	X						
5.3	2460	319	1730	1.60	X	**R**	**57R37**	**(E)DRN**	**63M4**	81	322/346
6.2	2070	273	1750	1.90	X	**RF**	**57R37**	**(E)DRN**	**63M4**	89	323/346
7.1	1780	241	1760	2.2	X	**RM**	**57R37**	**(E)DRN**	**63M4**	115	323/346
7.9	1590	215	1770	2.5	X						
4.7	2930	359	1690	1.35	X						
5.2	2650	324	1710	1.50	X						
5.9	2330	290	1730	1.70	X						
6.5	2100	262	1750	1.90	X	**R**	**57R37**	**(E)DRN**	**63M4**	79	322/346
6.9	1950	246	1760	2.0	X	**RF**	**57R37**	**(E)DRN**	**63M4**	87	323/346
7.7	1720	220	1770	2.3	X	**RM**	**57R37**	**(E)DRN**	**63M4**	115	323/346
9.0	1440	188	1780	2.8	X						
11	1210	159	1780	3.3	X						
5.7	2410	301	1250	1.10	X						
6.7	2020	255	1290	1.30	X	**R**	**47R37**	**(E)DRN**	**63M4**	68	319/346
7.5	1780	228	1310	1.50	X	**RF**	**47R37**	**(E)DRN**	**63M4**	69	320/346
8.7	1490	195	1340	1.75	X						
8.5	1590	199	1080	1.10	X	**R**	**37R17**	**(E)DRN**	**63M4**	43	316/346
9.9	1390	172	1220	1.25	X	**RF**	**37R17**	**(E)DRN**	**63M4**	46	317/346
11	1200	150	1250	1.45	X						
8.4	1630	202	1050	1.10	X	**R**	**37R17**	**(E)DRN**	**63M4**	43	316/346
9.5	1420	179	1200	1.25	X	**RF**	**37R17**	**(E)DRN**	**63M4**	46	317/346
11	1210	156	1250	1.45	X						

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P_m = 0.25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
12	1080	141	840	1.05	X						
14	950	124	900	1.20	X	**R**	**27R17**	**(E)DRN**	**63M4**	30	313/346
15	860	110	910	1.35	X	**RF**	**27R17**	**(E)DRN**	**63M4**	30	314/346
18	720	94	930	1.60	X						
13	1050	135	860	1.10	X						
14	970	118	900	1.20	X	**R**	**27R17**	**(E)DRN**	**63M4**	30	313/346
16	840	104	920	1.35	X	**RF**	**27R17**	**(E)DRN**	**63M4**	30	314/346
19	725	90	930	1.60	X						
8.7	1810	195.24*	2920	4.0	X						
10	1540	166.59	2920	4.7	X	**R**	**77**	**(E)DRN**	**63M4**	87	328
12	1350	145.67	2920	5.4	X	**RF**	**77**	**(E)DRN**	**63M4**	99	329
12	1280	138.39	2920	5.7	X	**RM**	**77**	**(E)DRN**	**63M4**	155	329
5.5	2870	195.24*	2860	2.5							
6.4	2450	166.59	2890	3.0		**R**	**77**	**DRN**	**71MS6**	83	328
7.3	2140	145.67	2910	3.4		**RF**	**77**	**DRN**	**71MS6**	95	329
7.7	2030	138.39	2910	3.6		**RM**	**77**	**DRN**	**71MS6**	150	329
8.8	1780	121.42	2920	4.1							
8.5	1850	199.81	2300	2.9	X						
9.2	1700	184.07	2310	3.1	X						
11	1460	158.14	2330	3.6	X	**R**	**67**	**(E)DRN**	**63M4**	71	325
12	1270	137.67	2340	4.2	X	**RF**	**67**	**(E)DRN**	**63M4**	78	326
13	1190	128.97	2340	4.4	X	**RM**	**67**	**(E)DRN**	**63M4**	115	326
15	1050	113.94	2350	5.0	X						
16	980	105.83	2350	5.4	X						
5.4	2940	199.81	2190	1.80							
5.8	2710	184.07	2210	1.95							
6.8	2320	158.14	2260	2.3							
7.8	2020	137.67	2280	2.6							
8.3	1900	128.97	2290	2.8		**R**	**67**	**DRN**	**71MS6**	67	325
9.4	1670	113.94	2310	3.2		**RF**	**67**	**DRN**	**71MS6**	74	326
10	1550	105.83	2320	3.4		**RM**	**67**	**DRN**	**71MS6**	110	326
11	1410	95.91	2330	3.8							
12	1260	86.11	2340	4.2							
14	1090	74.17	2340	4.9							
15	1020	69.75	2350	5.2							
9.1	1730	186.89	1770	2.3	X						
9.9	1590	172.17	1770	2.5	X						
11	1370	147.92	1780	2.9	X						
13	1190	128.77	1790	3.3	X	**R**	**57**	**(E)DRN**	**63M4**	56	322
14	1110	120.63	1790	3.6	X	**RF**	**57**	**(E)DRN**	**63M4**	64	323
16	980	106.58	1790	4.0	X	**RM**	**57**	**(E)DRN**	**63M4**	90	323
17	910	98.99	1790	4.3	X						
19	830	89.71	1790	4.8	X						
5.7	2750	186.89	1710	1.45							
6.2	2530	172.17	1720	1.55		**R**	**57**	**DRN**	**71MS6**	53	322
7.2	2170	147.92	1740	1.85		**RF**	**57**	**DRN**	**71MS6**	60	323
8.3	1890	128.77	1760	2.1		**RM**	**57**	**DRN**	**71MS6**	87	323
8.9	1770	120.63	1760	2.2							
9.6	1640	176.88	1330	1.60	X						
10	1510	162.94	1340	1.75	X						
12	1290	139.99	1350	2.0	X						
14	1130	121.87	1360	2.4	X						
15	1050	114.17	1360	2.5	X	**R**	**47**	**(E)DRN**	**63M4**	45	319
17	930	100.86	1370	2.8	X	**RF**	**47**	**(E)DRN**	**63M4**	45	320
18	860	93.68	1370	3.1	X						
20	785	84.90	1370	3.4	X						
22	705	76.23	1380	3.8	X						

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P_m = 0.25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
13	1250	134.82	1250	1.40	X						
14	1140	123.66	1270	1.55	X						
16	970	105.28	1290	1.80	X						
19	840	90.77	1310	2.1	X						
20	780	84.61	1320	2.3	X	**R**	**37**	**(E)DRN**	**63M4**	37	316
23	685	73.96	1330	2.6	X	**RF**	**37**	**(E)DRN**	**63M4**	40	317
25	640	69.33	1340	2.8	X						
28	565	61.18	1330	3.1	X						
30	515	55.76	1300	3.4	X						
35	445	48.08	1240	4.0	X						
10	1550	105.28	1110	1.15							
12	1330	90.77	1230	1.30		**R**	**37**	**DRN**	**71MS6**	33	316
13	1240	84.61	1250	1.40		**RF**	**37**	**DRN**	**71MS6**	36	317
14	1152	123.91	795	1.00	X						
16	981	105.49	900	1.20	X						
19	846	90.96	920	1.35	X						
20	788	84.78	920	1.45	X						
23	689	74.11	930	1.65	X						
24	646	69.47	930	1.80	X						
28	570	61.30	900	2.0	X						
30	519	55.87	880	2.2	X	**R**	**27**	**(E)DRN**	**63M4**	24	313
35	448	48.17	840	2.6	X	**RF**	**27**	**(E)DRN**	**63M4**	24	314
38	417	44.90	830	2.8	X						
43	365	39.25	795	3.2	X						
46	342	36.79	780	3.4	X						
52	302	32.47	750	3.8	X						
59	268	28.78	725	4.3	X						
69	227	24.47	690	5.1	X						
60	264	28.37	720	4.4	X						
65	243	26.09	700	4.8	X						
76	207	22.32	670	5.6	X						
88	180	19.35	640	6.4	X	**R**	**27**	**(E)DRN**	**63M4**	24	313
94	168	18.08	625	6.9	X	**RF**	**27**	**(E)DRN**	**63M4**	23	314
108	145	15.63	600	7.9	X						
128	123	13.28*	570	9.3	X						
21	759	81.64	390	1.00	X						
24	654	70.39	535	1.15	X						
26	610	65.61	540	1.25	X						
30	533	57.35	540	1.40	X						
32	500	53.76	530	1.50	X						
36	441	47.44	515	1.70	X	**R**	**17**	**(E)DRN**	**63M4**	22	310
38	411	44.18	510	1.85	X	**RF**	**17**	**(E)DRN**	**63M4**	22	311
44	359	38.61	490	2.1	X						
47	337	36.20	485	2.2	X						
53	297	31.94	470	2.5	X						
60	263	28.32	455	2.9	X						
70	224	24.07	435	3.4	X						
67	235	25.23	440	3.2	X						
73	215	23.15	430	3.5	X	**R**	**17**	**(E)DRN**	**63M4**	22	310
86	183	19.71	410	4.1	X	**RF**	**17**	**(E)DRN**	**63M4**	21	311
100	158	16.99	395	4.8	X						
35	444	47.78	280	1.00	X						
38	410	44.16	285	1.10	X						
41	384	41.31	290	1.15	X						
42	375	40.34	295	1.20	X						
44	358	38.51	295	1.25	X	**R**	**07**	**(E)DRN**	**63M4**	20	307
50	317	34.05	285	1.40	X	**RF**	**07**	**(E)DRN**	**63M4**	20	308
58	270	29.08	280	1.65	X						
63	251	26.97	275	1.75	X						
73	217	23.32	265	2.0	X						
78	202	21.73	260	2.2	X						

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P_m = 0.25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
93	170	18.31	250	2.6	X						
101	156	16.73	245	2.9	X						
120	131	14.12	235	3.4	X						
141	112	12.06	225	4.0	X						
152	104	11.18	220	4.3	X						
175	90	9.67	210	4.9	X						
188	84	9.01	205	5.3	X						
216	73	7.85	199	6.0	X	**R**	**07**	**(E)DRN**	**63M4**	19	307
227	70	7.48	197	5.5	X	**RF**	**07**	**(E)DRN**	**63M4**	19	308
248	63	6.83	192	6.0	X						
294	54	5.76	182	6.6	X						
345	46	4.92	174	7.2	X						
371	42	4.57	170	7.5	X						
429	37	3.95	163	8.2	X						
461	34	3.68	159	8.6	X						
528	30	3.21	153	9.2	X						
279	56	6.07	890	6.8	X						
327	48	5.18	850	14	X						
374	42	4.53	810	17	X						
394	40	4.30*	795	18	X						
450	35	3.77	765	22	X	**RX**	**67**	**(E)DRN**	**63M4**	41	297
530	30	3.20*	725	30	X	**RXF**	**67**	**(E)DRN**	**63M4**	50	298
587	27	2.89	700	35	X						
667	24	2.54	670	44	X						
706	22	2.40*	655	49	X						
831	19	2.04	625	63	X						
308	51	5.50*	705	6.8	X						
334	47	5.07	685	6.8	X						
390	40	4.35	650	15	X						
447	35	3.79	620	17	X						
477	33	3.55*	610	19	X						
540	29	3.14	585	20	X	**RX**	**57**	**(E)DRN**	**63M4**	36	295
582	27	2.91	570	22	X	**RXF**	**57**	**(E)DRN**	**63M4**	40	296
642	25	2.64*	555	25	X						
715	22	2.37	535	28	X						
831	19	2.04	510	32	X						
883	18	1.92*	500	34	X						
1027	15	1.65	475	40	X						

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P_m = 0.33 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.11	169960	15446	27000	1.05	X						
0.12	154610	14051	27000	1.15	X						
0.15	129980	11812	27000	1.35	X	**R**	**167R97**	**(E)DRN**	**71MS4**	1655	344/347
0.16	115640	10509	27000	1.55	X	**RF**	**167R97**	**(E)DRN**	**71MS4**	1665	345/347
0.18	105980	9631	27000	1.65	X	**RM**	**167R97**	**(E)DRN**	**71MS4**	2100	345/347
0.28	66870	6077	27000	2.7	X						
0.17	97100	9743	14900	1.20	X						
0.20	80500	8443	15500	1.45	X						
0.23	69700	7307	15800	1.65	X						
0.26	61500	6447	16000	1.85	X						
0.31	53100	5568	16200	2.2	X	**R**	**147R77**	**(E)DRN**	**71MS4**	930	342/347
0.35	48400	4926	16300	2.4	X	**RF**	**147R77**	**(E)DRN**	**71MS4**	950	343/347
0.39	41600	4325	16400	2.8	X	**RM**	**147R77**	**(E)DRN**	**71MS4**	1320	343/347
0.45	36900	3754	16500	3.1	X						
0.51	31800	3302	16600	3.6	X						
0.59	27600	2898	16600	4.2	X						
0.29	54300	5834	12800	1.30	X						
0.33	51000	5116	12900	1.40	X	**R**	**137R77**	**(E)DRN**	**71MS4**	640	340/346
0.38	42600	4464	13200	1.65	X	**RF**	**137R77**	**(E)DRN**	**71MS4**	690	341/346
0.43	37400	3928	13300	1.90	X	**RM**	**137R77**	**(E)DRN**	**71MS4**	940	341/346
0.36	47900	4709	13000	1.45	X						
0.42	40900	4018	13200	1.75	X	**R**	**137R77**	**(E)DRN**	**71MS4**	620	340/346
0.48	35800	3514	13400	2.0	X	**RF**	**137R77**	**(E)DRN**	**71MS4**	670	341/346
0.51	34000	3338	13400	2.1	X	**RM**	**137R77**	**(E)DRN**	**71MS4**	920	341/346
0.58	29800	2929	13500	2.4	X						
0.64	26800	2658	13600	2.6	X						
0.70	24300	2412	13600	2.9	X						
0.82	20900	2073	13600	3.4	X	**R**	**137R77**	**(E)DRN**	**71MS4**	640	340/346
0.92	17700	1839	13700	4.0	X	**RF**	**137R77**	**(E)DRN**	**71MS4**	690	341/346
1.2	13900	1397	13700	5.1	X	**RM**	**137R77**	**(E)DRN**	**71MS4**	940	341/346
1.4	11900	1226	13800	5.9	X						
0.36	47200	4740	9660	1.10	X						
0.38	42700	4441	9660	1.25	X						
0.43	36700	3949	9660	1.45	X						
0.45	36200	3764	9660	1.45	X						
0.48	33200	3571	9660	1.60	X						
0.55	27600	3110	9660	1.90	X	**R**	**127R77**	**(E)DRN**	**71MS4**	580	338/346
0.60	24900	2812	9660	2.1	X	**RF**	**127R77**	**(E)DRN**	**71MS4**	600	339/346
0.71	21100	2383	9660	2.5	X	**RM**	**127R77**	**(E)DRN**	**71MS4**	810	339/346
0.88	18600	1934	9660	2.9	X						
0.93	17000	1835	9660	3.1	X						
1.1	14400	1555	9660	3.7	X						
1.2	12800	1444	9660	4.1	X						
1.4	10800	1224	9660	4.9	X						
0.49	35600	3495	9660	1.50	X						
0.56	31100	3056	9660	1.70	X						
0.59	29500	2903	9660	1.80	X						
0.67	25900	2547	9660	2.0	X						
0.79	21800	2161	9660	2.4	X	**R**	**127R77**	**(E)DRN**	**71MS4**	540	338/346
0.87	19400	1951	9660	2.7	X	**RF**	**127R77**	**(E)DRN**	**71MS4**	590	339/346
0.99	16700	1716	9660	3.2	X	**RM**	**127R77**	**(E)DRN**	**71MS4**	800	339/346
1.1	15600	1620	9660	3.4	X						
1.2	13000	1380	9660	4.1	X						
1.4	12200	1210	9660	4.3	X						
0.68	25300	2506	9660	2.1	X						
0.75	22800	2266	9660	2.3	X						
0.84	19600	2016	9660	2.7	X						
0.89	19300	1920	9660	2.7	X						
0.93	17700	1823	9660	3.0	X						
1.0	15700	1673	9660	3.4	X	**R**	**127R77**	**(E)DRN**	**71MS4**	570	338/346
1.1	15000	1545	9660	3.5	X	**RF**	**127R77**	**(E)DRN**	**71MS4**	600	339/346
1.1	14200	1512	9660	3.7	X	**RM**	**127R77**	**(E)DRN**	**71MS4**	810	339/346
1.3	11800	1322	9660	4.5	X						
1.3	12000	1282	9660	4.4	X						
1.4	10700	1195	9660	4.9	X						
1.5	11700	1164	9660	4.5	X						
1.7	9960	987	9660	5.3	X						

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P_m = 0.33 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.56	30300	3039	7520	1.25	X						
0.86	19700	1987	8200	1.90	X						
0.93	17600	1827	8260	2.2	X						
1.1	15000	1599	8330	2.5	X	**R**	**107R77**	**(E)DRN**	**71MS4**	450	336/346
1.2	13500	1400	8360	2.8	X	**RF**	**107R77**	**(E)DRN**	**71MS4**	465	337/346
1.4	11500	1226	8400	3.3	X	**RM**	**107R77**	**(E)DRN**	**71MS4**	660	337/346
1.8	9060	939	8440	4.2	X						
2.1	7740	822	8450	4.9	X						
0.98	18500	1733	5840	1.45	X	**R**	**97R57**	**(E)DRN**	**71MS4**	280	334/346
1.1	17300	1623	5970	1.55	X	**RF**	**97R57**	**(E)DRN**	**71MS4**	320	335/346
						RM	**97R57**	**(E)DRN**	**71MS4**	435	335/346
0.93	19200	1823	5120	1.40	X						
1.1	16700	1583	5880	1.60	X						
1.2	14300	1396	6170	1.85	X						
1.4	12400	1228	6240	2.1	X	**R**	**97R57**	**(E)DRN**	**71MS4**	285	334/346
1.6	11400	1069	6270	2.3	X	**RF**	**97R57**	**(E)DRN**	**71MS4**	325	335/346
1.8	9900	938	6320	2.7	X	**RM**	**97R57**	**(E)DRN**	**71MS4**	435	335/346
2.1	8350	824	6350	3.2	X						
2.3	7460	737	6370	3.5	X						
2.7	6400	632	6390	4.2	X						
1.5	12000	1145	4070	1.15	X						
1.6	10700	1037	4240	1.25	X	**R**	**87R57**	**(E)DRN**	**71MS4**	190	331/346
1.8	9580	931	4380	1.45	X	**RF**	**87R57**	**(E)DRN**	**71MS4**	210	332/346
2.1	8120	802	4490	1.70	X	**RM**	**87R57**	**(E)DRN**	**71MS4**	275	332/346
1.5	11400	1143	3630	1.20	X						
1.9	9200	885	4420	1.50	X						
2.2	8070	776	4490	1.70	X						
2.5	7120	685	4490	1.90	X	**R**	**87R57**	**(E)DRN**	**71MS4**	195	331/346
2.8	5900	599	4490	2.3	X	**RF**	**87R57**	**(E)DRN**	**71MS4**	210	332/346
3.2	5180	525	4490	2.6	X	**RM**	**87R57**	**(E)DRN**	**71MS4**	275	332/346
3.7	4580	456	4490	3.0	X						
6.3	2640	268	4490	5.2	X						
3.0	5930	571	2500	1.20	X	**R**	**77R37**	**(E)DRN**	**71MS4**	105	328/346
						RF	**77R37**	**(E)DRN**	**71MS4**	120	329/346
						RM	**77R37**	**(E)DRN**	**71MS4**	175	329/346
3.0	6080	560	2470	1.20	X						
3.5	5180	488	2610	1.40	X						
3.9	4580	436	2690	1.60	X						
4.6	3950	373	2770	1.85	X	**R**	**77R37**	**(E)DRN**	**71MS4**	110	328/346
5.2	3460	327	2810	2.1	X	**RF**	**77R37**	**(E)DRN**	**71MS4**	120	329/346
5.9	3090	289	2840	2.3	X	**RM**	**77R37**	**(E)DRN**	**71MS4**	175	329/346
6.5	2750	260	2870	2.6	X						
7.6	2280	224	2900	3.2	X						
4.4	4010	388	2010	1.30	X						
4.9	3690	344	2070	1.45	X						
5.8	2990	294	2180	1.75	X						
6.5	2740	261	2210	1.95	X	**R**	**67R37**	**(E)DRN**	**71MS4**	96	325/346
7.3	2460	234	2240	2.1	X	**RF**	**67R37**	**(E)DRN**	**71MS4**	105	326/346
8.5	2070	200	2280	2.5	X	**RM**	**67R37**	**(E)DRN**	**71MS4**	140	326/346
9.7	1790	176	2300	3.0	X						
11	1600	158	2320	3.3	X						
4.4	4220	384	1970	1.25	X						
4.7	3930	359	2030	1.35	X						
5.5	3370	310	2120	1.55	X	**R**	**67R37**	**(E)DRN**	**71MS4**	94	325/346
6.5	2830	264	2200	1.85	X	**RF**	**67R37**	**(E)DRN**	**71MS4**	100	326/346
7.2	2500	235	2240	2.1	X	**RM**	**67R37**	**(E)DRN**	**71MS4**	135	326/346
8.5	2110	201	2280	2.5	X						
9.4	1900	181	2290	2.8	X						
5.3	3360	319	1660	1.20	X						
6.2	2830	273	1700	1.40	X						
7.1	2450	241	1730	1.60	X	**R**	**57R37**	**(E)DRN**	**71MS4**	81	322/346
7.9	2190	215	1740	1.80	X	**RF**	**57R37**	**(E)DRN**	**71MS4**	89	323/346
9.1	1940	187	1760	2.0	X	**RM**	**57R37**	**(E)DRN**	**71MS4**	115	323/346
10	1670	164	1770	2.4	X						
12	1460	142	1780	2.7	X						

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P_m = 0.33 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
5.2	3560	324	1640	1.10	X						
5.9	3150	290	1680	1.25	X	**R**	**57R37**	**(E)DRN**	**71MS4**	79	322/346
6.5	2840	262	1700	1.40	X	**RF**	**57R37**	**(E)DRN**	**71MS4**	87	323/346
6.9	2640	246	1710	1.50	X	**RM**	**57R37**	**(E)DRN**	**71MS4**	115	323/346
7.7	2340	220	1730	1.70	X						
7.5	2420	228	1250	1.10	X						
8.7	2040	195	1290	1.30	X	**R**	**47R37**	**(E)DRN**	**71MS4**	68	319/346
9.3	1900	182	1300	1.40	X	**RF**	**47R37**	**(E)DRN**	**71MS4**	69	320/346
11	1580	154	1330	1.70	X						
11	1620	150	1060	1.10	X						
13	1370	130	1220	1.30	X						
14	1300	124	1230	1.35	X	**R**	**37R17**	**(E)DRN**	**71MS4**	43	316/346
15	1150	110	1260	1.55	X	**RF**	**37R17**	**(E)DRN**	**71MS4**	46	317/346
18	980	94	1290	1.80	X						
13	1420	135	1200	1.25	X						
13	1390	127	1210	1.25	X	**R**	**37R17**	**(E)DRN**	**71MS4**	43	316/346
16	1130	104	1270	1.55	X	**RF**	**37R17**	**(E)DRN**	**71MS4**	46	317/346
19	980	90	1290	1.80	X						
5.6	3690	195.24*	2790	1.95		**R**	**77**	**DRN**	**71M6**	88	328
6.6	3150	166.59	2840	2.3		**RF**	**77**	**DRN**	**71M6**	100	329
7.5	2750	145.67	2870	2.6		**RM**	**77**	**DRN**	**71M6**	156	329
8.7	2380	195.24*	2890	3.0	X						
10	2030	166.59	2910	3.6	X	**R**	**77**	**(E)DRN**	**71MS4**	87	328
12	1780	145.67	2920	4.1	X	**RF**	**77**	**(E)DRN**	**71MS4**	99	329
12	1690	138.39	2920	4.3	X	**RM**	**77**	**(E)DRN**	**71MS4**	155	329
14	1480	121.42	2920	4.9	X						
5.5	3770	199.81	2060	1.40							
6.0	3480	184.07	2110	1.50							
7.0	2990	158.14	2180	1.75		**R**	**67**	**DRN**	**71M6**	72	325
8.0	2600	137.67	2230	2.0		**RF**	**67**	**DRN**	**71M6**	79	326
8.5	2430	128.97	2240	2.2		**RM**	**67**	**DRN**	**71M6**	116	326
9.7	2150	113.94	2270	2.5							
10	2000	105.83	2290	2.6							
8.5	2440	199.81	2240	2.2	X						
9.2	2250	184.07	2260	2.4	X						
11	1930	158.14	2290	2.7	X						
12	1680	137.67	2310	3.1	X	**R**	**67**	**(E)DRN**	**71MS4**	71	325
13	1570	128.97	2320	3.4	X	**RF**	**67**	**(E)DRN**	**71MS4**	78	326
15	1390	113.94	2330	3.8	X	**RM**	**67**	**(E)DRN**	**71MS4**	115	326
16	1290	105.83	2330	4.1	X						
18	1170	95.91	2340	4.5	X						
20	1050	86.11	2350	5.0	X						
5.9	3530	186.89	1640	1.15							
6.4	3250	172.17	1670	1.20							
7.4	2790	147.92	1700	1.40		**R**	**57**	**DRN**	**71M6**	57	322
8.5	2430	128.77	1730	1.65		**RF**	**57**	**DRN**	**71M6**	65	323
9.1	2280	120.63	1740	1.75		**RM**	**57**	**DRN**	**71M6**	91	323
10	2010	106.58	1750	1.95							
11	1870	98.99	1760	2.1							
9.1	2280	186.89	1740	1.75	X						
9.9	2100	172.17	1750	1.90	X						
11	1810	147.92	1760	2.2	X						
13	1570	128.77	1770	2.5	X						
14	1470	120.63	1780	2.7	X	**R**	**57**	**(E)DRN**	**71MS4**	56	322
16	1300	106.58	1780	3.0	X	**RF**	**57**	**(E)DRN**	**71MS4**	64	323
17	1210	98.99	1790	3.3	X	**RM**	**57**	**(E)DRN**	**71MS4**	90	323
19	1090	89.71	1790	3.6	X						
21	980	80.55	1790	4.0	X						
25	840	69.23	1770	4.7	X						

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P_m = 0.33 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
9.6	2160	176.88	1280	1.25	X						
10	1990	162.94	1290	1.35	X						
12	1710	139.99	1320	1.55	X						
14	1490	121.87	1340	1.80	X						
15	1390	114.17	1340	1.90	X						
17	1230	100.86	1350	2.1	X						
18	1140	93.68	1360	2.3	X	**R**	**47**	**(E)DRN**	**71MS4**	45	319
20	1030	84.90	1360	2.5	X	**RF**	**47**	**(E)DRN**	**71MS4**	45	320
22	930	76.23	1370	2.8	X						
25	830	68.54	1370	3.2	X						
26	785	64.21	1370	3.4	X						
30	690	56.73	1330	3.8	X						
32	640	52.69	1300	4.1	X						
36	580	47.75	1260	4.5	X						
13	1650	134.82	1040	1.05	X						
14	1510	123.66	1140	1.15	X						
16	1280	105.28	1240	1.35	X						
19	1110	90.77	1270	1.60	X						
20	1030	84.61	1280	1.70	X						
23	900	73.96	1300	1.95	X						
25	840	69.33	1310	2.1	X	**R**	**37**	**(E)DRN**	**71MS4**	37	316
28	745	61.18	1310	2.4	X	**RF**	**37**	**(E)DRN**	**71MS4**	40	317
30	680	55.76	1280	2.6	X						
35	585	48.08	1220	3.0	X						
38	545	44.81	1200	3.2	X						
43	475	39.17	1150	3.7	X						
46	445	36.72	1130	3.9	X						
52	395	32.40	1090	4.5	X						
20	1025	84.78	870	1.10	X						
23	896	74.11	910	1.25	X						
25	840	69.47	910	1.35	X						
28	741	61.30	880	1.55	X						
31	676	55.87	860	1.70	X						
36	582	48.17	820	1.95	X	**R**	**27**	**(E)DRN**	**71MS4**	24	313
38	543	44.90	810	2.1	X	**RF**	**27**	**(E)DRN**	**71MS4**	24	314
44	475	39.25	780	2.4	X						
47	445	36.79	765	2.5	X						
53	393	32.47	740	2.9	X						
60	348	28.78	715	3.3	X						
70	296	24.47	680	3.8	X						
61	343	28.37	710	3.3	X						
66	315	26.09	695	3.6	X						
77	270	22.32	660	4.2	X						
89	234	19.35	635	4.9	X						
95	219	18.08	620	5.2	X						
110	189	15.63	595	6.0	X						
130	161	13.28*	565	7.1	X						
145	143	11.86	545	7.9	X						
170	122	10.13	520	8.7	X	**R**	**27**	**(E)DRN**	**71MS4**	24	313
183	114	9.41	505	9.4	X	**RF**	**27**	**(E)DRN**	**71MS4**	23	314
211	99	8.16	485	10	X						
225	92	7.63*	475	11	X						
261	80	6.59	450	12	X						
307	68	5.60*	430	13	X						
344	60	5.00*	415	14	X						
403	52	4.27	395	15	X						
430	48	4.00*	385	15	X						
510	41	3.37	365	17	X						
30	693	57.35	470	1.05	X						
32	650	53.76	500	1.15	X						
36	574	47.44	490	1.30	X						
39	534	44.18	485	1.40	X						
45	467	38.61	470	1.60	X	**R**	**17**	**(E)DRN**	**71MS4**	22	310
48	438	36.20	465	1.70	X	**RF**	**17**	**(E)DRN**	**71MS4**	22	311
54	386	31.94	450	1.90	X						
61	342	28.32	440	2.2	X						
71	291	24.07	420	2.5	X						

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P_m = 0.33 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
172	121	19.71	335	6.0							
200	104	16.99	320	7.0							
214	97	15.84	315	7.5							
245	85	13.84	300	8.6							
262	80	12.98	295	9.2							
297	70	11.45	285	9.9							
334	62	10.15	275	11							
393	53	8.63	260	12		**R**	**17**	**DRN**	**63M2**	22	310
450	46	7.55	250	10		**RF**	**17**	**DRN**	**63M2**	21	311
482	43	7.04	245	11							
552	38	6.15	235	12							
589	35	5.76	230	13							
667	31	5.09	220	14							
753	28	4.51	210	15							
886	23	3.83	200	16							
68	305	25.23	425	2.4	X						
74	280	23.15	420	2.6	X						
87	238	19.71	400	3.1	X						
101	205	16.99	385	3.6	X	**R**	**17**	**(E)DRN**	**71MS4**	22	310
109	192	15.84	380	3.9	X	**RF**	**17**	**(E)DRN**	**71MS4**	21	311
124	167	13.84	365	4.4	X						
133	157	12.98	360	4.7	X						
150	138	11.45	345	5.1	X						
51	412	34.05	270	1.05	X						
59	352	29.08	260	1.25	X						
64	326	26.97	260	1.35	X	**R**	**07**	**(E)DRN**	**71MS4**	20	307
74	282	23.32	250	1.55	X	**RF**	**07**	**(E)DRN**	**71MS4**	20	308
79	263	21.73	250	1.65	X						
94	221	18.31	240	1.95	X						
103	202	16.73	235	2.2	X						
122	171	14.12	225	2.6	X						
143	146	12.06	220	3.0	X						
154	135	11.18	215	3.2	X						
178	117	9.67	205	3.7	X						
191	109	9.01	200	4.0	X						
219	95	7.85	195	4.5	X	**R**	**07**	**(E)DRN**	**71MS4**	19	307
230	90	7.48	193	4.2	X	**RF**	**07**	**(EI)DRN**	**71MS4**	19	308
252	83	6.83	188	4.5	X						
299	70	5.76	179	5.0	X						
350	59	4.92	171	5.4	X						
376	55	4.57	167	5.7	X						
435	48	3.95	160	6.2	X						
467	44	3.68	157	6.5	X						
536	39	3.21	151	7.0	X						
283	73	6.07	890	5.1	X						
332	63	5.18	840	10	X						
380	55	4.53	810	13	X						
400	52	4.30*	795	13	X						
456	46	3.77	760	17	X	**RX**	**67**	**(E)DRN**	**71MS4**	41	297
538	39	3.20*	720	23	X	**RXF**	**67**	**(E)DRN**	**71MS4**	50	298
595	35	2.89	695	27	X						
677	31	2.54	670	34	X						
717	29	2.40*	655	37	X						
843	25	2.04	620	47	X						
313	67	5.50*	700	5.1	X						
339	61	5.07	680	5.1	X						
395	53	4.35	650	11	X						
454	46	3.79	620	13	X						
491	42	3.55*	605	14	X						
548	38	3.14	585	15	X	**RX**	**57**	**(E)DRN**	**71MS4**	36	295
591	35	2.91	570	17	X	**RXF**	**57**	**(E)DRN**	**71MS4**	40	296
652	32	2.64*	550	19	X						
726	29	2.37	530	21	X						
843	25	2.04	505	24	X						
896	23	1.92*	495	26	X						
1042	20	1.65	475	30	X						

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P_m = 0.50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.16	174200	10509	27000	1.00	X						
0.18	159640	9631	27000	1.10	X						
0.28	100730	6077	27000	1.8	X	**R**	**167R97**	**(E)DRN**	**71M4**	1655	344/347
0.32	89630	5407	27000	2.0	X	**RF**	**167R97**	**(E)DRN**	**71M4**	1665	345/347
0.37	77080	4650	27000	2.3	X	**RM**	**167R97**	**(E)DRN**	**71M4**	2100	345/347
0.42	68440	4129	27000	2.6	X						
0.23	112500	7307	14200	1.00	X						
0.26	99300	6447	14800	1.15	X						
0.31	85700	5568	15300	1.35	X						
0.35	77300	4926	15600	1.50	X	**R**	**147R77**	**(E)DRN**	**71M4**	930	342/347
0.39	67000	4325	15900	1.70	X	**RF**	**147R77**	**(E)DRN**	**71M4**	950	343/347
0.45	58900	3754	16100	1.95	X	**RM**	**147R77**	**(E)DRN**	**71M4**	1320	343/347
0.51	51100	3302	16300	2.2	X						
0.59	44600	2898	16400	2.6	X						
0.38	68700	4464	12100	1.05	X	**R**	**137R77**	**(E)DRN**	**71M4**	640	340/346
0.43	60500	3928	12500	1.15	X	**RF**	**137R77**	**(E)DRN**	**71M4**	690	341/346
						RM	**137R77**	**(E)DRN**	**71M4**	940	341/346
0.42	64800	4018	12300	1.10	X						
0.48	56600	3514	12700	1.25	X						
0.51	53800	3338	12800	1.30	X	**R**	**137R77**	**(E)DRN**	**71M4**	620	340/346
0.58	47200	2929	13000	1.50	X	**RF**	**137R77**	**(E)DRN**	**71M4**	670	341/346
0.68	39800	2484	13300	1.80	X	**RM**	**137R77**	**(E)DRN**	**71M4**	920	341/346
0.76	35600	2242	13400	2.0	X						
0.64	42600	2658	13200	1.65	X						
0.70	38600	2412	13300	1.85	X						
0.82	33200	2073	13400	2.1	X						
0.92	28600	1839	13500	2.5	X	**R**	**137R77**	**(E)DRN**	**71M4**	640	340/346
1.2	22200	1397	13600	3.2	X	**RF**	**137R77**	**(E)DRN**	**71M4**	690	341/346
1.4	19200	1226	13700	3.7	X	**RM**	**137R77**	**(E)DRN**	**71M4**	940	341/346
1.6	17300	1090	13700	4.1	X						
1.8	15100	951	13700	4.7	X						
0.55	45800	3110	9660	1.15	X						
0.60	41400	2812	9660	1.30	X						
0.71	35100	2383	9660	1.50	X						
0.88	29900	1934	9660	1.75	X	**R**	**127R77**	**(E)DRN**	**71M4**	580	338/346
0.93	27800	1835	9660	1.90	X	**RF**	**127R77**	**(E)DRN**	**71M4**	600	339/346
1.1	23500	1555	9660	2.2	X	**RM**	**127R77**	**(E)DRN**	**71M4**	810	339/346
1.2	21300	1444	9660	2.5	X						
1.4	18000	1224	9660	2.9	X						
0.56	49200	3056	9660	1.10	X						
0.59	46800	2903	9660	1.15	X						
0.67	41000	2547	9660	1.30	X						
0.79	34600	2161	9660	1.55	X						
0.87	31000	1951	9660	1.70	X	**R**	**127R77**	**(E)DRN**	**71M4**	540	338/346
0.99	26900	1716	9660	1.95	X	**RF**	**127R77**	**(E)DRN**	**71M4**	590	339/346
1.1	25200	1620	9660	2.1	X	**RM**	**127R77**	**(E)DRN**	**71M4**	800	339/346
1.2	21100	1380	9660	2.5	X						
1.4	19400	1210	9660	2.7	X						
1.8	15000	961	9660	3.5	X						
0.68	40100	2506	9660	1.30	X						
0.75	36300	2266	9660	1.45	X						
0.84	31600	2016	9660	1.70	X						
0.89	30700	1920	9660	1.70	X						
0.93	28500	1823	9660	1.85	X						
1.0	25600	1673	9660	2.1	X						
1.1	24200	1545	9660	2.2	X						
1.1	23200	1512	9660	2.3	X						
1.3	19700	1322	9660	2.7	X	**R**	**127R77**	**(E)DRN**	**71M4**	570	338/346
1.3	19600	1282	9660	2.7	X	**RF**	**127R77**	**(E)DRN**	**71M4**	600	339/346
1.4	17800	1195	9660	3.0	X	**RM**	**127R77**	**(E)DRN**	**71M4**	810	339/346
1.5	18600	1164	9660	2.8	X						
1.7	15100	1013	9660	3.5	X						
1.7	15800	987	9660	3.4	X						
1.8	14600	936	9660	3.6	X						
2.0	12600	830	9660	4.2	X						
2.1	12400	794	9660	4.3	X						
2.2	11900	777	9660	4.5	X						

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P_m = 0.50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.82	33100	2067	7230	1.15	X						
1.0	26900	1693	7820	1.40	X						
1.1	24100	1550	8030	1.55	X	**R**	**107R77**	**(E)DRN**	**71M4**	435	336/346
1.2	21900	1407	8130	1.75	X	**RF**	**107R77**	**(E)DRN**	**71M4**	450	337/346
1.4	18800	1209	8230	2.0	X	**RM**	**107R77**	**(E)DRN**	**71M4**	640	337/346
1.6	16400	1055	8300	2.3	X						
0.86	31500	1987	7390	1.20	X						
0.93	28400	1827	7690	1.35	X						
1.1	24500	1599	8010	1.55	X	**R**	**107R77**	**(E)DRN**	**71M4**	450	336/346
1.2	21800	1400	8140	1.75	X	**RF**	**107R77**	**(E)DRN**	**71M4**	460	337/346
1.4	18800	1226	8230	2.0	X	**RM**	**107R77**	**(E)DRN**	**71M4**	660	337/346
1.8	14600	939	8340	2.6	X						
2.1	12600	822	8380	3.0	X						
1.4	19700	1207	5710	1.35	X	**R**	**97R57**	**(E)DRN**	**71M4**	280	334/346
1.6	17500	1084	5940	1.50	X	**RF**	**97R57**	**(E)DRN**	**71M4**	320	335/346
						RM	**97R57**	**(E)DRN**	**71M4**	435	335/346
1.2	22600	1396	4100	1.15	X						
1.4	19700	1228	4980	1.35	X						
1.6	17700	1069	5920	1.50	X						
1.8	15400	938	6130	1.70	X						
2.1	13200	824	6210	2.0	X	**R**	**97R57**	**(E)DRN**	**71M4**	285	334/346
2.3	11800	737	6260	2.2	X	**RF**	**97R57**	**(E)DRN**	**71M4**	325	335/346
2.7	10100	632	6310	2.6	X	**RM**	**97R57**	**(E)DRN**	**71M4**	435	335/346
3.9	6990	431	6380	3.8	X						
4.5	6090	379	6400	4.4	X						
5.0	5460	336	6410	4.9	X						
2.1	12800	802	3940	1.05	X	**R**	**87R57**	**(E)DRN**	**71M4**	190	331/346
2.2	12000	754	4070	1.15	X	**RF**	**87R57**	**(E)DRN**	**71M4**	210	332/346
2.6	10200	649	4300	1.35	X	**RM**	**87R57**	**(E)DRN**	**71M4**	275	332/346
2.2	12600	776	3980	1.10	X						
2.5	11100	685	4190	1.25	X						
2.8	9460	599	4380	1.45	X	**R**	**87R57**	**(E)DRN**	**71M4**	195	331/346
3.2	8300	525	4490	1.65	X	**RF**	**87R57**	**(E)DRN**	**71M4**	210	332/346
3.7	7280	456	4490	1.90	X	**RM**	**87R57**	**(E)DRN**	**71M4**	275	332/346
6.3	4220	268	4490	3.2	X						
7.2	3730	236	4490	3.7	X						
3.2	9030	538	4440	1.50	X						
3.6	7870	472	4490	1.75	X	**R**	**87R57**	**(E)DRN**	**71M4**	190	331/346
4.2	6610	400	4490	2.1	X	**RF**	**87R57**	**(E)DRN**	**71M4**	205	332/346
4.7	5930	361	4490	2.3	X	**RM**	**87R57**	**(E)DRN**	**71M4**	270	332/346
4.6	6160	373	2460	1.20	X						
5.2	5400	327	2580	1.35	X						
5.9	4810	289	2670	1.50	X						
6.5	4290	260	2730	1.70	X	**R**	**77R37**	**(E)DRN**	**71M4**	110	328/346
7.6	3610	224	2800	2.0	X	**RF**	**77R37**	**(E)DRN**	**71M4**	120	329/346
8.7	3170	197	2840	2.3	X	**RM**	**77R37**	**(E)DRN**	**71M4**	175	329/346
10	2780	169	2870	2.6	X						
11	2420	149	2890	3.0	X						
5.8	4730	294	1860	1.10	X						
6.5	4290	261	1960	1.25	X	**R**	**67R37**	**(E)DRN**	**71M4**	96	325/346
7.3	3850	234	2040	1.40	X	**RF**	**67R37**	**(E)DRN**	**71M4**	105	326/346
8.5	3260	200	2140	1.65	X	**RM**	**67R37**	**(E)DRN**	**71M4**	140	326/346
3.8	8300	289.74	6350	3.2							
4.3	7320	255.71	6370	3.6		**R**	**97**	**DRN**	**80MK6**	245	334
4.6	6910	241.25	6380	3.8		**RF**	**97**	**DRN**	**80MK6**	285	335
5.1	6190	216.28	6390	4.3		**RM**	**97**	**DRN**	**80MK6**	395	335
4.5	7060	246.54	4490	1.95							
5.1	6200	216.54	4490	2.2							
5.3	5890	205.71	4490	2.3		**R**	**87**	**DRN**	**80MK6**	155	331
6.0	5200	181.77	4490	2.6		**RF**	**87**	**DRN**	**80MK6**	170	332
7.1	4450	155.34	4490	3.1		**RM**	**87**	**DRN**	**80MK6**	235	332
7.7	4080	142.41	4490	3.4							
6.6	4770	166.59	2670	1.50		**R**	**77**	**DRN**	**80MK6**	95	328
7.5	4170	145.67	2740	1.75		**RF**	**77**	**DRN**	**80MK6**	105	329
8.0	3960	138.39	2760	1.85		**RM**	**77**	**DRN**	**80MK6**	160	329

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P_m = 0.50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
8.7	3620	195.24*	2800	2.0	X						
10	3080	166.59	2840	2.4	X						
12	2700	145.67	2870	2.7	X	**R**	**77**	**(E)DRN**	**71M4**	87	328
12	2560	138.39	2880	2.8	X	**RF**	**77**	**(E)DRN**	**71M4**	99	329
14	2250	121.42	2900	3.2	X	**RM**	**77**	**(E)DRN**	**71M4**	155	329
17	1900	102.99	2920	3.8	X						
18	1720	92.97	2920	4.2	X						
7.0	4530	158.14	1900	1.15							
8.0	3940	137.67	2030	1.35		**R**	**67**	**DRN**	**80MK6**	79	325
8.5	3690	128.97	2070	1.45		**RF**	**67**	**DRN**	**80MK6**	86	326
9.7	3260	113.94	2140	1.65		**RM**	**67**	**DRN**	**80MK6**	120	326
8.5	3700	199.81	2070	1.45	X						
9.2	3410	184.07	2120	1.55	X						
11	2930	158.14	2190	1.80	X						
12	2550	137.67	2230	2.1	X						
13	2390	128.97	2250	2.2	X						
15	2110	113.94	2280	2.5	X	**R**	**67**	**(E)DRN**	**71M4**	71	325
16	1960	105.83	2290	2.7	X	**RF**	**67**	**(E)DRN**	**71M4**	78	326
18	1770	95.91	2300	3.0	X	**RM**	**67**	**(E)DRN**	**71M4**	115	326
20	1590	86.11	2320	3.3	X						
23	1370	74.17	2330	3.9	X						
24	1290	69.75	2340	4.1	X						
28	1130	61.26	2340	4.7	X						
30	1050	56.89	2350	5.0	X						
8.5	3690	128.77	1630	1.10							
9.1	3450	120.63	1650	1.15		**R**	**57**	**DRN**	**80MK6**	64	322
10	3050	106.58	1680	1.30		**RF**	**57**	**DRN**	**80MK6**	72	323
11	2830	98.99	1700	1.40		**RM**	**57**	**DRN**	**80MK6**	98	323
9.1	3460	186.89	1650	1.15	X						
9.9	3190	172.17	1670	1.25	X						
11	2740	147.92	1710	1.45	X						
13	2380	128.77	1730	1.65	X						
14	2230	120.63	1740	1.80	X						
16	1970	106.58	1750	2.0	X						
17	1830	98.99	1760	2.2	X	**R**	**57**	**(E)DRN**	**71M4**	56	322
19	1660	89.71	1770	2.4	X	**RF**	**57**	**(E)DRN**	**71M4**	64	323
21	1490	80.55	1780	2.7	X	**RM**	**57**	**(E)DRN**	**71M4**	90	323
25	1280	69.23	1730	3.1	X						
26	1200	64.85	1700	3.3	X						
30	1060	57.29	1640	3.8	X						
32	980	53.22	1600	4.0	X						
35	890	48.23	1560	4.5	X						
12	2550	139.99	1160	1.00	X						
14	2220	121.87	1270	1.15	X						
15	2080	114.17	1280	1.25	X						
17	1837	100.86	1310	1.40	X						
18	1706	93.68	1320	1.55	X						
20	1546	84.90	1330	1.70	X						
23	1389	76.23	1340	1.90	X						
25	1248	68.54	1350	2.1	X	**R**	**47**	**(E)DRN**	**71M4**	45	319
27	1170	64.21	1340	2.2	X	**RF**	**47**	**(E)DRN**	**71M4**	45	320
30	1033	56.73	1290	2.5	X						
33	960	52.69	1270	2.7	X						
36	870	47.75	1230	3.0	X						
40	781	42.87	1190	3.3	X						
47	673	36.93	1140	3.9	X						
50	633	34.73	1120	4.1	X						
51	615	33.79	1110	3.4	X						
56	567	31.12	1090	3.4	X						
65	487	26.74	1040	5.3	X	**R**	**47**	**(E)DRN**	**71M4**	44	319
74	424	23.28	990	6.2	X	**RF**	**47**	**(E)DRN**	**71M4**	44	320
79	397	21.81	970	6.6	X						

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P_m = 0.50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
19	1653	90.77	1010	1.05	X						
20	1541	84.61	1100	1.15	X						
23	1347	73.96	1220	1.30	X						
25	1263	69.33	1240	1.40	X						
28	1114	61.18	1260	1.55	X						
31	1016	55.76	1230	1.70	X						
36	876	48.08	1190	2.0	X	**R**	**37**	**(E)DRN**	**71M4**	37	316
39	816	44.81	1160	2.1	X	**RF**	**37**	**(E)DRN**	**71M4**	40	317
44	713	39.17	1120	2.4	X						
47	669	36.72	1100	2.6	X						
53	590	32.40	1060	2.9	X						
60	523	28.73	1020	3.3	X						
71	445	24.42	980	3.9	X						
61	516	28.32	1020	3.4	X						
66	474	26.03	1000	3.4	X						
78	406	22.27	950	4.3	X						
90	352	19.31	910	4.9	X	**R**	**37**	**(E)DRN**	**71M4**	37	316
96	329	18.05	890	5.3	X	**RF**	**37**	**(E)DRN**	**71M4**	40	317
111	284	15.60	850	6.1	X						
131	241	13.25	810	6.8	X						
146	215	11.83	785	7.4	X						
28	1117	61.30	800	1.00	X						
31	1018	55.87	810	1.10	X						
36	877	48.17	785	1.30	X						
39	818	44.90	775	1.40	X						
44	715	39.25	750	1.60	X	**R**	**27**	**(E)DRN**	**71M4**	24	313
47	670	36.79	735	1.70	X	**RF**	**27**	**(E)DRN**	**71M4**	24	314
53	591	32.47	715	1.90	X						
60	524	28.78	690	2.1	X						
71	446	24.47	660	2.5	X						
61	517	28.37	690	2.2	X						
66	475	26.09	670	2.4	X						
78	407	22.32	645	2.8	X						
89	352	19.35	620	3.2	X	**R**	**27**	**(E)DRN**	**71M4**	24	313
96	329	18.08	605	3.4	X	**RF**	**27**	**(E)DRN**	**71M4**	23	314
111	285	15.63	580	4.0	X						
130	242	13.28*	555	4.7	X						
45	703	38.61	425	1.05	X						
48	659	36.20	425	1.10	X						
54	582	31.94	415	1.25	X	**R**	**17**	**(E)DRN**	**71M4**	22	310
61	516	28.32	405	1.45	X	**RF**	**17**	**(E)DRN**	**71M4**	22	311
72	438	24.07	395	1.70	X						
217	145	15.84	305	5.0							
249	127	13.84	295	5.7							
265	119	12.98	290	6.1							
300	105	11.45	280	6.5							
339	93	10.15	270	7.0							
399	79	8.63	255	7.7							
456	69	7.55	245	6.9		**R**	**17**	**DRN**	**71MS2**	22	310
489	64	7.04	240	7.2		**RF**	**17**	**DRN**	**71MS2**	21	311
559	56	6.15	230	8.1							
597	53	5.76	225	8.5							
676	47	5.09	215	9.3							
763	41	4.51	210	9.9							
898	35	3.83	199	11							

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P_m = 0.50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
69	460	25.23	400	1.60	X						
75	422	23.15	390	1.75	X						
88	359	19.71	380	2.1	X						
102	309	16.99	365	2.4	X						
109	289	15.84	360	2.6	X						
125	252	13.84	350	2.9	X						
133	236	12.98	345	3.1	X						
151	209	11.45	335	3.4	X						
170	185	10.15	325	3.6	X	**R**	**17**	**(E)DRN**	**71M4**	22	310
200	157	8.63	310	4.0	X	**RF**	**17**	**(E)DRN**	**71M4**	21	311
229	138	7.55	290	3.5	X						
246	128	7.04	285	3.7	X						
281	112	6.15	275	4.2	X						
300	105	5.76	270	4.4	X						
340	93	5.09	260	4.8	X						
384	82	4.51	255	5.1	X						
452	70	3.83	240	5.6	X						
94	334	18.31	220	1.30	X						
103	305	16.73	215	1.45	X						
123	257	14.12	210	1.70	X						
143	220	12.06	205	2.0	X						
155	204	11.18	200	2.1	X						
179	176	9.67	194	2.5	X						
192	164	9.01	191	2.6	X						
220	143	7.85	185	3.0	X	**R**	**07**	**(E)DRN**	**71M4**	19	307
231	136	7.48	184	2.7	X	**RF**	**07**	**(E)DRN**	**71M4**	19	308
253	124	6.83	180	3.0	X						
300	105	5.76	172	3.3	X						
352	90	4.92	165	3.6	X						
379	83	4.57	162	3.8	X						
438	72	3.95	156	4.1	X						
470	67	3.68	153	4.3	X						
539	58	3.21	147	4.6	X						
285	111	6.07	880	3.4	X						
334	94	5.18	840	6.9	X						
382	83	4.53	800	8.6	X						
402	78	4.30*	790	8.9	X						
459	69	3.77	755	11	X	**RX**	**67**	**(E)DRN**	**71M4**	41	297
541	58	3.20*	720	15	X	**RXF**	**67**	**(E)DRN**	**71M4**	50	298
599	53	2.89	695	18	X						
681	46	2.54	665	22	X						
721	44	2.40*	655	24	X						
848	37	2.04	620	31	X						
315	100	5.50*	695	3.4	X						
341	92	5.07	675	3.4	X						
398	79	4.35	645	7.5	X						
456	69	3.79	615	8.7	X						
487	65	3.55*	605	9.3	X						
551	57	3.14	580	9.9	X	**RX**	**57**	**(E)DRN**	**71M4**	36	295
595	53	2.91	565	11	X	**RXF**	**57**	**(E)DRN**	**71M4**	40	296
655	48	2.64*	550	12	X						
730	43	2.37	530	14	X						
848	37	2.04	505	16	X						
901	35	1.92*	495	17	X						
1048	30	1.65	470	20	X						

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P_m = 0.75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.29	149800	6077	27000	1.20	X						
0.32	133280	5407	27000	1.35	X	**R**	**167R97**	**(E)DRN**	**80MK4**	1660	344/347
0.38	114620	4650	27000	1.6	X	**RF**	**167R97**	**(E)DRN**	**80MK4**	1680	345/347
0.42	101780	4129	27000	1.8	X	**RM**	**167R97**	**(E)DRN**	**80MK4**	2110	345/347
0.66	66580	2657	27000	2.7	X						
0.39	104900	4325	14600	1.10	X						
0.45	91900	3754	15100	1.25	X	**R**	**147R77**	**(E)DRN**	**80MK4**	940	342/347
0.51	80100	3302	15500	1.45	X	**RF**	**147R77**	**(E)DRN**	**80MK4**	950	343/347
0.58	70000	2898	15800	1.65	X	**RM**	**147R77**	**(E)DRN**	**80MK4**	1320	343/347
0.66	63600	2555	16000	1.80	X						
0.76	55000	2211	16200	2.1	X						
0.87	48600	1951	16300	2.4	X	**R**	**147R77**	**(E)DRN**	**80MK4**	930	342/346
0.99	41300	1705	16400	2.8	X	**RF**	**147R77**	**(E)DRN**	**80MK4**	950	343/346
1.1	36900	1536	16500	3.1	X	**RM**	**147R77**	**(E)DRN**	**80MK4**	1320	343/346
1.3	32000	1329	16600	3.6	X						
1.4	27700	1166	16600	4.1	X						
						R	**137R77**	**(E)DRN**	**80MK4**	620	340/346
0.68	61900	2484	12400	1.15	X	**RF**	**137R77**	**(E)DRN**	**80MK4**	670	341/346
						RM	**137R77**	**(E)DRN**	**80MK4**	920	341/346
0.64	66200	2658	12200	1.05	X						
0.70	60100	2412	12500	1.20	X						
0.82	51600	2073	12900	1.35	X						
0.92	45000	1839	13100	1.55	X	**R**	**137R77**	**(E)DRN**	**80MK4**	640	340/346
1.1	38400	1598	13300	1.85	X	**RF**	**137R77**	**(E)DRN**	**80MK4**	690	341/346
1.2	34600	1397	13400	2.0	X	**RM**	**137R77**	**(E)DRN**	**80MK4**	940	341/346
1.4	30100	1226	13500	2.4	X						
1.6	27000	1090	13600	2.6	X						
1.8	23500	951	13600	3.0	X						
2.0	20000	831	13700	3.5	X						
0.87	46900	1934	9660	1.15	X						
0.92	43900	1835	9660	1.20	X	**R**	**127R77**	**(E)DRN**	**80MK4**	580	338/346
1.1	37200	1555	9660	1.45	X	**RF**	**127R77**	**(E)DRN**	**80MK4**	600	339/346
1.2	33900	1444	9660	1.55	X	**RM**	**127R77**	**(E)DRN**	**80MK4**	810	339/346
1.4	28800	1224	9660	1.85	X						
0.78	53800	2161	9660	1.00	X						
0.87	48300	1951	9660	1.10	X						
0.98	42100	1716	9660	1.25	X						
1.0	39600	1620	9660	1.35	X						
1.2	33400	1380	9660	1.60	X	**R**	**127R77**	**(E)DRN**	**80MK4**	540	338/346
1.4	30100	1210	9660	1.75	X	**RF**	**127R77**	**(E)DRN**	**80MK4**	590	339/346
1.8	23600	961	9660	2.2	X	**RM**	**127R77**	**(E)DRN**	**80MK4**	800	339/346
2.2	18700	773	9660	2.8	X						
2.8	14400	608	9660	3.7	X						
3.5	12300	490	9660	4.3	X						
0.84	49500	2016	9660	1.05	X						
0.88	47800	1920	9660	1.10	X						
0.93	44700	1823	9660	1.20	X						
1.0	40500	1673	9660	1.30	X						
1.1	37900	1545	9660	1.40	X						
1.1	36600	1512	9660	1.45	X						
1.3	31400	1322	9660	1.70	X						
1.3	31000	1282	9660	1.70	X						
1.4	28400	1195	9660	1.85	X						
1.4	29000	1164	9660	1.85	X	**R**	**127R77**	**(E)DRN**	**80MK4**	580	338/346
1.7	24100	1013	9660	2.2	X	**RF**	**127R77**	**(E)DRN**	**80MK4**	600	339/346
1.7	24500	987	9660	2.2	X	**RM**	**127R77**	**(E)DRN**	**80MK4**	810	339/346
1.8	23000	936	9660	2.3	X						
2.0	19900	830	9660	2.7	X						
2.1	19500	794	9660	2.7	X						
2.2	18800	777	9660	2.8	X						
2.2	18000	750	9660	2.9	X						
2.6	15900	659	9660	3.3	X						
2.7	15300	636	9660	3.5	X						
2.8	14600	614	9660	3.6	X						
3.2	12300	521	9660	4.3	X						

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P_m = 0.75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.2	34400	1407	7080	1.10	X						
1.4	29500	1209	7590	1.30	X						
1.6	25800	1055	7910	1.45	X	**R**	**107R77**	**(E)DRN**	**80MK4**	440	336/346
1.8	22500	919	8110	1.70	X	**RF**	**107R77**	**(E)DRN**	**80MK4**	455	337/346
2.1	20100	815	8190	1.90	X	**RM**	**107R77**	**(E)DRN**	**80MK4**	650	337/346
2.4	17600	717	8260	2.2	X						
2.7	15300	626	8320	2.5	X						
1.2	34200	1400	7100	1.10	X						
1.4	29700	1226	7570	1.30	X	**R**	**107R77**	**(E)DRN**	**80MK4**	450	336/346
1.5	26500	1104	7850	1.45	X	**RF**	**107R77**	**(E)DRN**	**80MK4**	465	337/346
1.8	22900	939	8100	1.65	X	**RM**	**107R77**	**(E)DRN**	**80MK4**	660	337/346
2.1	19900	822	8200	1.90	X						
2.0	20500	824	4730	1.30	X						
2.3	18300	737	5380	1.45	X						
2.7	15700	632	6110	1.70	X						
3.0	13600	560	6200	1.95	X						
3.5	11800	484	6260	2.2	X	**R**	**97R57**	**(E)DRN**	**80MK4**	290	334/346
3.9	10800	431	6290	2.5	X	**RF**	**97R57**	**(E)DRN**	**80MK4**	325	335/346
4.5	9460	379	6330	2.8	X	**RM**	**97R57**	**(E)DRN**	**80MK4**	440	335/346
5.0	8440	336	6350	3.1	X						
5.7	7380	296	6370	3.6	X						
6.8	6120	249	6400	4.3	X						
3.2	12900	525	3090	1.05	X						
3.7	11300	456	4170	1.20	X	**R**	**87R57**	**(E)DRN**	**80MK4**	195	331/346
4.2	9760	398	4360	1.40	X	**RF**	**87R57**	**(E)DRN**	**80MK4**	210	332/346
4.8	8660	352	4470	1.60	X	**RM**	**87R57**	**(E)DRN**	**80MK4**	275	332/346
5.5	7430	305	4490	1.85	X						
3.6	12100	472	4060	1.15	X	**R**	**87R57**	**(E)DRN**	**80MK4**	195	331/346
4.2	10200	400	4310	1.35	X	**RF**	**87R57**	**(E)DRN**	**80MK4**	210	332/346
4.7	9180	361	4420	1.50	X	**RM**	**87R57**	**(E)DRN**	**80MK4**	275	332/346
6.1	7090	276	2270	1.00	X						
7.2	6030	236	2480	1.20	X	**R**	**77R37**	**(E)DRN**	**80MK4**	110	328/346
7.6	5630	221	2550	1.30	X	**RF**	**77R37**	**(E)DRN**	**80MK4**	120	329/346
9.1	4710	186	2680	1.55	X	**RM**	**77R37**	**(E)DRN**	**80MK4**	175	329/346
3.9	12200	289.74	6250	2.2							
4.4	10700	255.71	6290	2.5		**R**	**97**	**DRN**	**90SR6**	261	334
4.6	10100	241.25	6310	2.6		**RF**	**97**	**DRN**	**90SR6**	296	335
5.2	9130	216.28	6340	2.9		**RM**	**97**	**DRN**	**90SR6**	411	335
5.8	8100	289.74	6360	3.3	X						
6.6	7150	255.71	6380	3.7	X	**R**	**97**	**(E)DRN**	**80MK4**	240	334
7.0	6750	241.25	6380	3.9	X	**RF**	**97**	**(E)DRN**	**80MK4**	280	335
7.8	6050	216.28	6400	4.4	X	**RM**	**97**	**(E)DRN**	**80MK4**	390	335
4.5	10400	246.54	4030	1.30							
5.2	9140	216.54	4430	1.50		**R**	**87**	**DRN**	**90SR6**	171	331
5.4	8680	205.71	4470	1.60		**RF**	**87**	**DRN**	**90SR6**	186	332
6.2	7670	181.77	4490	1.80		**RM**	**87**	**DRN**	**90SR6**	251	332
7.2	6550	155.34	4490	2.1							
6.8	6890	246.54	4490	2.0	X						
7.8	6050	216.54	4490	2.3	X						
8.2	5750	205.71	4490	2.4	X						
9.3	5080	181.77	4490	2.7	X	**R**	**87**	**(E)DRN**	**80MK4**	150	331
11	4340	155.34	4490	3.2	X	**RF**	**87**	**(E)DRN**	**80MK4**	165	332
12	3980	142.41	4490	3.4	X	**RM**	**87**	**(E)DRN**	**80MK4**	230	332
14	3490	124.97	4490	3.9	X						
14	3310	118.43*	4490	4.1	X						
16	2900	103.65	4490	4.7	X						
10	4660	166.59	2680	1.55	X						
12	4070	145.67	2750	1.80	X						
12	3870	138.39	2770	1.85	X						
14	3390	121.42	2820	2.1	X	**R**	**77**	**(E)DRN**	**80MK4**	90	328
16	2880	102.99	2860	2.5	X	**RF**	**77**	**(E)DRN**	**80MK4**	100	329
18	2600	92.97	2880	2.8	X	**RM**	**77**	**(E)DRN**	**80MK4**	155	329
21	2280	81.80	2900	3.2	X						
22	2160	77.24	2910	3.4	X						
26	1840	65.77	2920	3.9	X						

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P_m = 0.75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
11	4420	158.14	1930	1.20	X						
12	3850	137.67	2040	1.40	X						
13	3600	128.97	2090	1.45	X						
15	3180	113.94	2150	1.65	X						
16	2960	105.83	2180	1.80	X	**R**	**67**	**(E)DRN**	**80MK4**	74	325
18	2680	95.91	2220	2.0	X	**RF**	**67**	**(E)DRN**	**80MK4**	81	326
20	2400	86.11	2250	2.2	X	**RM**	**67**	**(E)DRN**	**80MK4**	115	326
23	2070	74.17	2280	2.6	X						
24	1950	69.75	2290	2.7	X						
28	1710	61.26	2310	3.1	X						
30	1590	56.89	2320	3.3	X						
14	3370	120.63	1660	1.20	X						
16	2980	106.58	1690	1.35	X						
17	2760	98.99	1710	1.45	X						
19	2510	89.71	1720	1.60	X						
21	2250	80.55	1740	1.75	X						
24	1930	69.23	1680	2.1	X	**R**	**57**	**(E)DRN**	**80MK4**	59	322
26	1810	64.85	1650	2.2	X	**RF**	**57**	**(E)DRN**	**80MK4**	67	323
30	1600	57.29	1590	2.5	X	**RM**	**57**	**(E)DRN**	**80MK4**	93	323
32	1480	53.22	1560	2.7	X						
35	1340	48.23	1520	3.0	X						
39	1210	43.30	1470	3.3	X						
45	1040	37.30*	1410	3.8	X						
48	980	35.07	1390	4.1	X						
66	715	26.31	1280	5.4	X						
70	675	24.99*	1260	5.7	X	**R**	**57**	**(E)DRN**	**80MK4**	57	322
80	595	21.93	1210	6.5	X	**RF**	**57**	**(E)DRN**	**80MK4**	65	323
94	505	18.60*	1150	7.7	X	**RM**	**57**	**(E)DRN**	**80MK4**	91	323
19	2540	93.68	1140	1.00	X						
21	2300	84.90	1250	1.10	X						
23	2065	76.23	1280	1.25	X						
25	1855	68.54	1300	1.40	X						
27	1740	64.21	1290	1.50	X						
31	1535	56.73	1250	1.65	X	**R**	**47**	**(E)DRN**	**80MK4**	48	319
33	1425	52.69	1220	1.80	X	**RF**	**47**	**(E)DRN**	**80MK4**	48	320
37	1295	47.75	1190	2.0	X						
41	1160	42.87	1160	2.2	X						
47	1000	36.93	1110	2.6	X						
50	940	34.73	1090	2.7	X						
58	810	29.88	1050	3.2	X						
65	725	26.74	1020	3.5	X						
75	630	23.28	980	4.1	X	**R**	**47**	**(E)DRN**	**80MK4**	46	319
80	590	21.81	960	4.3	X	**RF**	**47**	**(E)DRN**	**80MK4**	47	320
29	1655	61.18	990	1.05	X						
31	1510	55.76	1100	1.15	X						
36	1300	48.08	1130	1.30	X						
39	1215	44.81	1110	1.40	X						
45	1060	39.17	1080	1.60	X	**R**	**37**	**(E)DRN**	**80MK4**	39	316
48	995	36.72	1060	1.70	X	**RF**	**37**	**(E)DRN**	**80MK4**	43	317
54	880	32.40	1030	1.95	X						
61	780	28.73	990	2.2	X						
71	660	24.42	950	2.6	X						
78	605	22.27	930	2.8	X						
90	525	19.31	890	3.3	X						
97	490	18.05	870	3.5	X	**R**	**37**	**(E)DRN**	**80MK4**	39	316
112	425	15.60	840	4.0	X	**RF**	**37**	**(E)DRN**	**80MK4**	42	317
132	360	13.25	800	4.5	X						
148	320	11.83	770	4.9	X						
44	1065	39.25	705	1.05	X						
47	995	36.79	695	1.10	X						
54	880	32.47	675	1.25	X	**R**	**27**	**(E)DRN**	**80MK4**	27	313
61	780	28.78	660	1.45	X	**RF**	**27**	**(E)DRN**	**80MK4**	26	314
71	665	24.47	635	1.70	X						

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P_m = 0.75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
78	605	22.32	620	1.85	X						
90	525	19.35	595	2.1	X						
97	490	18.08	585	2.3	X						
112	425	15.63	565	2.6	X						
131	360	13.28*	540	3.1	X						
147	320	11.86	525	3.4	X						
172	275	10.13	500	3.8	X						
185	255	9.41	485	4.1	X	**R**	**27**	**(E)DRN**	**80MK4**	26	313
214	220	8.16	465	4.5	X	**RF**	**27**	**(E)DRN**	**80MK4**	26	314
229	205	7.63*	455	4.6	X						
265	180	6.59	435	5.1	X						
312	150	5.60*	415	5.6	X						
349	135	5.00*	405	6.0	X						
409	115	4.27	385	6.4	X						
436	110	4.00*	375	6.7	X						
518	90	3.37	355	7.4	X						
89	535	19.71	345	1.35	X						
103	460	16.99	340	1.60	X						
110	430	15.84	335	1.70	X						
126	375	13.84	325	1.95	X						
134	350	12.98	320	2.1	X						
152	310	11.45	315	2.2	X						
172	275	10.15	305	2.4	X						
202	235	8.63	295	2.6	X	**R**	**17**	**(E)DRN**	**80MK4**	24	310
231	205	7.55	275	2.4	X	**RF**	**17**	**(E)DRN**	**80MK4**	24	311
248	190	7.04	270	2.5	X						
284	165	6.15	265	2.8	X						
303	155	5.76	260	2.9	X						
343	140	5.09	250	3.2	X						
387	120	4.51	245	3.4	X						
456	105	3.83	235	3.7	X						
400	120	8.63	245	5.3							
458	105	7.55	235	4.8							
491	95	7.04	230	5.0							
562	85	6.15	220	5.6		**R**	**17**	**DRN**	**71M2**	24	310
600	80	5.76	215	5.9		**RF**	**17**	**DRN**	**71M2**	24	311
679	70	5.09	210	6.4							
766	60	4.51	200	6.8							
902	50	3.83	193	7.5							
337	140	5.18	830	4.6	X						
385	123	4.53	800	5.7	X						
406	116	4.30*	785	5.9	X						
463	102	3.77	755	7.3	X						
545	87	3.20*	715	9.9	X						
604	78	2.89	690	12	X	**RX**	**67**	**(E)DRN**	**80MK4**	44	297
687	69	2.54	665	15	X	**RXF**	**67**	**(E)DRN**	**80MK4**	53	298
727	65	2.40*	650	16	X						
855	55	2.04	620	21	X						
938	50	1.86	600	21	X						
1084	44	1.61	570	22	X						
401	118	4.35	640	4.9	X						
460	103	3.79	610	5.8	X						
492	96	3.55*	600	6.2	X						
556	85	3.14	575	6.5	X						
600	79	2.91	560	7.3	X						
661	72	2.64*	545	8.3	X	**RX**	**57**	**(E)DRN**	**80MK4**	38	295
736	64	2.37	525	9.2	X	**RXF**	**57**	**(E)DRN**	**80MK4**	43	296
855	55	2.04	500	11	X						
909	52	1.92*	490	11	X						
1058	45	1.65	470	13	X						
1179	40	1.48	450	15	X						
1342	35	1.30	435	15	X						

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.32	177100	5407	27000	1.00	X						
0.38	152310	4650	27000	1.15	X						
0.42	135240	4129	27000	1.30	X						
0.47	120930	3692	27000	1.5	X	**R**	**167R97**	**(E)DRN**	**80M4**	1670	344/347
0.66	88460	2657	27000	2.0	X	**RF**	**167R97**	**(E)DRN**	**80M4**	1690	345/347
0.75	77680	2333	27000	2.3	X	**RM**	**167R97**	**(E)DRN**	**80M4**	2120	345/347
0.84	69420	2085	27000	2.6	X						
0.93	62490	1877	27000	2.8	X						
0.53	104700	3302	14600	1.10	X	**R**	**147R77**	**(E)DRN**	**80M4**	950	342/347
0.60	91600	2898	15100	1.25	X	**RF**	**147R77**	**(E)DRN**	**80M4**	960	343/347
						RM	**147R77**	**(E)DRN**	**80M4**	1330	343/347
0.69	82800	2555	15400	1.40	X						
0.79	71700	2211	15800	1.60	X						
0.90	63200	1951	16000	1.80	X	**R**	**147R77**	**(E)DRN**	**80M4**	940	342/346
1.0	54100	1705	16200	2.1	X	**RF**	**147R77**	**(E)DRN**	**80M4**	960	343/346
1.1	48500	1536	16300	2.4	X	**RM**	**147R77**	**(E)DRN**	**80M4**	1330	343/346
1.3	41900	1329	16400	2.7	X						
1.5	36500	1166	16500	3.1	X						
0.94	59600	1863	12500	1.20	X						
1.1	50300	1586	12900	1.40	X						
1.3	45100	1391	13100	1.55	X	**R**	**137R77**	**(E)DRN**	**80M4**	630	340/346
1.4	40500	1256	13200	1.75	X	**RF**	**137R77**	**(E)DRN**	**80M4**	680	341/346
1.6	35400	1105	13400	2.0	X	**RM**	**137R77**	**(E)DRN**	**80M4**	930	341/346
1.7	33300	1043	13400	2.1	X						
2.0	28200	888	13500	2.5	X						
0.84	67200	2073	12200	1.05	X						
0.95	58800	1839	12600	1.20	X						
1.1	50400	1598	12900	1.40	X						
1.2	45100	1397	13100	1.55	X	**R**	**137R77**	**(E)DRN**	**80M4**	650	340/346
1.4	39300	1226	13300	1.80	X	**RF**	**137R77**	**(E)DRN**	**80M4**	700	341/346
1.6	35200	1090	13400	2.0	X	**RM**	**137R77**	**(E)DRN**	**80M4**	950	341/346
1.8	30700	951	13500	2.3	X						
2.1	26200	831	13600	2.7	X						
2.4	22800	730	13600	3.1	X						
1.1	48800	1555	9660	1.10	X	**R**	**127R77**	**(E)DRN**	**80M4**	590	338/346
1.2	44700	1444	9660	1.20	X	**RF**	**127R77**	**(E)DRN**	**80M4**	610	339/346
1.4	37800	1224	9660	1.40	X	**RM**	**127R77**	**(E)DRN**	**80M4**	830	339/346
1.8	30800	961	9660	1.70	X	**R**	**127R77**	**(E)DRN**	**80M4**	550	338/346
2.3	24500	773	9660	2.2	X	**RF**	**127R77**	**(E)DRN**	**80M4**	600	339/346
2.9	19000	608	9660	2.8	X	**RM**	**127R77**	**(E)DRN**	**80M4**	810	339/346
1.1	53100	1673	9660	1.00	X						
1.1	49500	1545	9660	1.05	X						
1.2	48000	1512	9660	1.10	X						
1.3	41400	1322	9660	1.30	X						
1.4	40700	1282	9660	1.30	X						
1.5	37400	1195	9660	1.40	X						
1.5	37700	1164	9660	1.40	X						
1.7	31800	1034	9660	1.65	X						
1.7	31700	1013	9660	1.65	X						
1.8	32000	987	9660	1.65	X						
1.9	30000	936	9660	1.75	X	**R**	**127R77**	**(E)DRN**	**80M4**	590	338/346
1.9	28700	935	9660	1.85	X	**RF**	**127R77**	**(E)DRN**	**80M4**	610	339/346
2.1	26200	830	9660	2.0	X	**RM**	**127R77**	**(E)DRN**	**80M4**	820	339/346
2.2	25400	794	9660	2.1	X						
2.2	24400	792	9660	2.2	X						
2.2	24600	777	9660	2.1	X						
2.3	23700	750	9660	2.2	X						
2.7	20900	659	9660	2.5	X						
2.7	19900	642	9660	2.7	X						
2.8	20000	636	9660	2.6	X						
2.9	19200	614	9660	2.8	X						
3.0	18000	581	9660	2.9	X						
3.4	16300	521	9660	3.3	X						

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
3.6	15200	492	9660	3.5	X	**R**	**127R77**	**(E)DRN**	**80M4**	590	338/346
3.6	14700	480	9660	3.6	X	**RF**	**127R77**	**(E)DRN**	**80M4**	610	339/346
4.3	12500	407	9660	4.2	X	**RM**	**127R77**	**(E)DRN**	**80M4**	820	339/346
4.5	12100	386	9660	4.4	X						
3.6	16100	490	9660	3.3	X	**R**	**127R77**	**(E)DRN**	**80M4**	550	338/346
4.4	12800	394	9660	4.1	X	**RF**	**127R77**	**(E)DRN**	**80M4**	600	339/346
5.3	10500	327	9660	5.0	X	**RM**	**127R77**	**(E)DRN**	**80M4**	810	339/346
1.7	33700	1055	7160	1.15	X						
1.9	29400	919	7590	1.30	X						
2.1	26300	815	7870	1.45	X	**R**	**107R77**	**(E)DRN**	**80M4**	450	336/346
2.4	23000	717	8100	1.65	X	**RF**	**107R77**	**(E)DRN**	**80M4**	465	337/346
2.8	20000	626	8190	1.90	X	**RM**	**107R77**	**(E)DRN**	**80M4**	660	337/346
3.3	16500	528	8290	2.3	X						
1.6	34800	1104	7030	1.10	X						
1.9	30000	939	7540	1.25	X						
2.1	26000	822	7890	1.45	X						
2.9	19000	614	8220	2.0	X	**R**	**107R77**	**(E)DRN**	**80M4**	460	336/346
3.2	16700	544	8290	2.3	X	**RF**	**107R77**	**(E)DRN**	**80M4**	475	337/346
3.6	15100	492	8330	2.5	X	**RM**	**107R77**	**(E)DRN**	**80M4**	670	337/346
4.2	12800	417	8380	3.0	X						
4.8	11600	369	8400	3.3	X						
5.4	10100	323	8420	3.8	X						
3.7	15300	469	8320	2.5	X	**R**	**107R77**	**(E)DRN**	**80M4**	450	336/346
4.1	13900	426	8350	2.7	X	**RF**	**107R77**	**(E)DRN**	**80M4**	460	337/346
						RM	**107R77**	**(E)DRN**	**80M4**	660	337/346
2.3	24300	755	5080	1.10	X	**R**	**97R57**	**(E)DRN**	**80M4**	295	334/346
						RF	**97R57**	**(E)DRN**	**80M4**	335	335/346
						RM	**97R57**	**(E)DRN**	**80M4**	445	335/346
2.4	23900	737	3720	1.10	X						
2.8	20500	632	5620	1.30	X						
3.1	17800	560	5910	1.50	X						
3.6	15500	484	6120	1.70	X	**R**	**97R57**	**(E)DRN**	**80M4**	300	334/346
4.1	14000	431	6180	1.90	X	**RF**	**97R57**	**(E)DRN**	**80M4**	340	335/346
4.6	12300	379	6250	2.2	X	**RM**	**97R57**	**(E)DRN**	**80M4**	450	335/346
5.2	10900	336	6290	2.4	X						
5.9	9610	296	6320	2.8	X						
7.0	7990	249	6360	3.3	X						
2.8	20900	625	5570	1.25	X						
3.2	18200	549	5870	1.45	X						
3.8	15400	466	6130	1.70	X						
4.2	13800	420	6190	1.90	X	**R**	**97R57**	**(E)DRN**	**80M4**	295	334/346
4.7	12100	370	6250	2.2	X	**RF**	**97R57**	**(E)DRN**	**80M4**	330	335/346
5.0	11400	349	6270	2.3	X	**RM**	**97R57**	**(E)DRN**	**80M4**	445	335/346
5.9	9690	297	6320	2.7	X						
6.5	8770	270	6340	3.0	X						
4.4	12700	398	3960	1.05	X						
5.0	11300	352	4170	1.20	X						
5.7	9730	305	4360	1.40	X	**R**	**87R57**	**(E)DRN**	**80M4**	205	331/346
6.5	8610	268	4480	1.60	X	**RF**	**87R57**	**(E)DRN**	**80M4**	225	332/346
7.4	7600	236	4490	1.80	X	**RM**	**87R57**	**(E)DRN**	**80M4**	290	332/346
8.4	6610	209	4490	2.1	X						
4.4	13200	400	3880	1.05	X						
4.8	11900	361	4090	1.15	X						
5.8	9840	300	4350	1.40	X	**R**	**87R57**	**(E)DRN**	**80M4**	205	331/346
6.8	8330	256	4490	1.65	X	**RF**	**87R57**	**(E)DRN**	**80M4**	220	332/346
7.5	7540	232	4490	1.80	X	**RM**	**87R57**	**(E)DRN**	**80M4**	285	332/346
9.0	6430	195	4490	2.1	X						
8.9	6390	197	2410	1.15	X	**R**	**77R37**	**(E)DRN**	**80M4**	120	328/346
10	5560	169	2560	1.30	X	**RF**	**77R37**	**(E)DRN**	**80M4**	135	329/346
12	4870	149	2660	1.50	X	**RM**	**77R37**	**(E)DRN**	**80M4**	190	329/346
						R	**77R37**	**(E)DRN**	**80M4**	120	328/346
9.4	6130	186	2460	1.20	X	**RF**	**77R37**	**(E)DRN**	**80M4**	130	329/346
						RM	**77R37**	**(E)DRN**	**80M4**	185	329/346

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
11	5130	158	1750	1.05	X	**R** **RF** **RM**	**67R37** **67R37** **67R37**	**(E)DRN** **(E)DRN** **(E)DRN**	**80M4** **80M4** **80M4**	110 115 150	325/346 326/346 326/346
4.6	13800	255.71	6190	1.90							
4.8	13000	241.25	6220	2.0		**R** **RF** **RM**	**97** **97** **97**	**DRN** **DRN** **DRN**	**90S6** **90S6** **90S6**	260 300 410	334 335 335
5.4	11600	216.28	6260	2.3							
6.2	10000	186.30	6310	2.6							
6.8	9190	170.02	6330	2.9							
6.0	10400	289.74	6300	2.5	X						
6.8	9200	255.71	6330	2.9	X						
7.3	8680	241.25	6350	3.1	X	**R** **RF** **RM**	**97** **97** **97**	**(E)DRN** **(E)DRN** **(E)DRN**	**80M4** **80M4** **80M4**	250 285 400	334 335 335
8.1	7780	216.28	6370	3.4	X						
9.4	6700	186.30	6390	4.0	X						
10	6110	170.02	6400	4.3	X						
5.4	11700	216.54	3550	1.15							
5.7	11100	205.71	3770	1.25							
6.4	9830	181.77	4240	1.40							
7.5	8400	155.34	4490	1.65		**R** **RF** **RM**	**87** **87** **87**	**DRN** **DRN** **DRN**	**90S6** **90S6** **90S6**	170 185 250	331 332 332
8.2	7700	142.41	4490	1.80							
9.3	6750	124.97	4490	2.0							
9.8	6400	118.43*	4490	2.1							
11	5600	103.65	4490	2.5							
12	5050	93.38	4490	2.7							
7.1	8870	246.54	4450	1.55	X						
8.1	7790	216.54	4490	1.75	X						
8.5	7400	205.71	4490	1.85	X						
9.6	6540	181.77	4490	2.1	X						
11	5580	155.34	4490	2.5	X	**R** **RF** **RM**	**87** **87** **87**	**(E)DRN** **(E)DRN** **(E)DRN**	**80M4** **80M4** **80M4**	160 175 240	331 332 332
12	5120	142.41	4490	2.7	X						
14	4490	124.97	4490	3.0	X						
15	4260	118.43*	4490	3.2	X						
17	3720	103.65	4490	3.7	X						
19	3360	93.38	4490	4.1	X						
9.6	6560	121.42	2380	1.10							
11	5560	102.99	2560	1.30							
13	5020	92.97	2640	1.45							
14	4420	81.80	2710	1.65		**R** **RF** **RM**	**77** **77** **77**	**DRN** **DRN** **DRN**	**90S6** **90S6** **90S6**	110 125 180	328 329 329
15	4170	77.24	2740	1.75							
18	3550	65.77	2800	2.0							
20	3110	57.68	2840	2.3							
22	2810	52.07	2870	2.6							
25	2470	45.81	2890	2.9							
11	5990	166.59	2490	1.20	X						
12	5240	145.67	2610	1.40	X						
13	4970	138.39	2640	1.45	X						
14	4360	121.42	2720	1.65	X						
17	3700	102.99	2790	1.95	X						
19	3340	92.97	2820	2.2	X	**R** **RF** **RM**	**77** **77** **77**	**(E)DRN** **(E)DRN** **(E)DRN**	**80M4** **80M4** **80M4**	100 115 170	328 329 329
21	2940	81.80	2860	2.5	X						
23	2770	77.24	2870	2.6	X						
27	2360	65.77	2890	3.1	X						
30	2070	57.68	2910	3.5	X						
34	1870	52.07	2920	3.9	X						
38	1640	45.81	2920	4.4	X						
40	1550	43.26	2920	4.7	X						
12	5180	95.91	1730	1.00							
14	4650	86.11	1870	1.15							
16	4010	74.17	2010	1.30							
17	3770	69.75	2060	1.40							
19	3310	61.26	2130	1.60		**R** **RF** **RM**	**67** **67** **67**	**DRN** **DRN** **DRN**	**90S6** **90S6** **90S6**	98 105 140	325 326 326
20	3070	56.89	2170	1.75							
23	2780	51.56	2200	1.90							
25	2500	46.29	2240	2.1							
29	2150	39.88*	2270	2.4							
31	2020	37.50	2280	2.5							
36	1740	32.27	2310	2.7							
40	1550	28.83	2320	3.0							

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
13	4950	137.67	1800	1.05	X						
14	4640	128.97	1880	1.15	X						
15	4090	113.94	2000	1.30	X						
17	3800	105.83	2050	1.40	X						
18	3450	95.91	2110	1.55	X						
20	3090	86.11	2160	1.70	X	**R**	**67**	**(E)DRN**	**80M4**	84	325
24	2660	74.17	2220	2.0	X	**RF**	**67**	**(E)DRN**	**80M4**	91	326
25	2500	69.75	2240	2.1	X	**RM**	**67**	**(E)DRN**	**80M4**	125	326
29	2200	61.26	2270	2.4	X						
31	2040	56.89	2280	2.6	X						
34	1850	51.56	2300	2.9	X						
38	1660	46.29	2310	3.2	X						
17	3740	69.23	1620	1.05							
18	3500	64.85	1640	1.15							
20	3090	57.29	1680	1.30							
22	2870	53.22	1660	1.40							
24	2600	48.23	1620	1.55		**R**	**57**	**DRN**	**90S6**	84	322
27	2340	43.30	1580	1.70		**RF**	**57**	**DRN**	**90S6**	91	323
31	2010	37.30*	1520	1.95		**RM**	**57**	**DRN**	**90S6**	120	323
33	1890	35.07	1500	2.1							
39	1630	30.18	1440	2.4							
43	1450	26.97	1400	2.7							
16	3830	106.58	1610	1.05	X						
18	3560	98.99	1640	1.10	X						
20	3220	89.71	1670	1.25	X						
22	2890	80.55	1660	1.35	X						
25	2490	69.23	1600	1.60	X						
27	2330	64.85	1580	1.70	X						
31	2060	57.29	1530	1.95	X	**R**	**57**	**(E)DRN**	**80M4**	70	322
33	1910	53.22	1500	2.1	X	**RF**	**57**	**(E)DRN**	**80M4**	77	323
36	1730	48.23	1470	2.3	X	**RM**	**57**	**(E)DRN**	**80M4**	105	323
40	1550	43.30	1420	2.6	X						
47	1340	37.30*	1370	3.0	X						
50	1260	35.07	1350	3.1	X						
58	1080	30.18	1290	3.7	X						
65	970	26.97	1250	4.1	X						
67	940	26.31	1240	4.2	X						
70	890	24.99*	1220	4.4	X	**R**	**57**	**(E)DRN**	**80M4**	68	322
80	785	21.93	1180	5.0	X	**RF**	**57**	**(E)DRN**	**80M4**	75	323
94	665	18.60*	1120	6.0	X	**RM**	**57**	**(E)DRN**	**80M4**	100	323
24	2580	47.75	1170	1.05							
27	2310	42.87	1220	1.15							
32	1990	36.93	1180	1.35							
34	1870	34.73	1170	1.40		**R**	**47**	**DRN**	**90S6**	72	319
39	1610	29.88	1130	1.65		**RF**	**47**	**DRN**	**90S6**	73	320
44	1440	26.70	1090	1.85							
49	1270	23.59	1060	2.1							
26	2460	68.54	1240	1.10	X						
27	2310	64.21	1220	1.15	X						
31	2040	56.73	1190	1.30	X						
33	1890	52.69	1170	1.40	X						
37	1710	47.75	1140	1.55	X						
41	1540	42.87	1110	1.70	X	**R**	**47**	**(E)DRN**	**80M4**	58	319
47	1320	36.93	1070	2.0	X	**RF**	**47**	**(E)DRN**	**80M4**	59	320
50	1240	34.73	1050	2.1	X						
59	1070	29.88	1010	2.5	X						
66	960	26.70	980	2.8	X						
74	840	23.59	950	3.1	X						
65	960	26.74	980	2.8	X						
75	830	23.28	950	3.2	X						
80	780	21.81	930	3.4	X	**R**	**47**	**(E)DRN**	**80M4**	57	319
91	690	19.27	900	3.8	X	**RF**	**47**	**(E)DRN**	**80M4**	57	320
98	640	17.89	880	4.0	X						
108	580	16.22	850	4.2	X						
41	1550	28.73	1050	1.15		**R**	**37**	**DRN**	**90S6**	63	316
48	1320	24.42	1010	1.35		**RF**	**37**	**DRN**	**90S6**	66	317

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
36	1720	48.08	980	1.00	X						
39	1610	44.81	1060	1.10	X						
45	1400	39.17	1030	1.25	X						
48	1320	36.72	1010	1.35	X	**R**	**37**	**(E)DRN**	**80M4**	50	316
54	1160	32.40	980	1.50	X	**RF**	**37**	**(E)DRN**	**80M4**	53	317
61	1030	28.73	950	1.70	X						
72	870	24.42	920	2.0	X						
79	800	22.27	890	2.2	X						
91	690	19.31	860	2.5	X						
97	645	18.05	850	2.7	X						
112	560	15.60	810	3.1	X	**R**	**37**	**(E)DRN**	**80M4**	49	316
132	475	13.25	775	3.5	X	**RF**	**37**	**(E)DRN**	**80M4**	52	317
148	425	11.83	750	3.8	X						
173	360	10.11	715	4.1	X						
185	340	9.47	705	4.3	X						
61	1030	28.78	620	1.10	X	**R**	**27**	**(E)DRN**	**80M4**	37	313
72	880	24.47	600	1.30	X	**RF**	**27**	**(E)DRN**	**80M4**	37	314
78	800	22.32	590	1.45	X						
91	695	19.35	570	1.65	X						
97	650	18.08	560	1.75	X						
112	560	15.63	540	2.0	X						
132	475	13.28*	520	2.4	X						
148	425	11.86	505	2.7	X						
173	360	10.13	485	3.0	X	**R**	**27**	**(E)DRN**	**80M4**	36	313
186	335	9.41	465	3.2	X	**RF**	**27**	**(E)DRN**	**80M4**	36	314
215	290	8.16	450	3.5	X						
230	270	7.63*	440	3.6	X						
266	235	6.59	425	4.0	X						
313	200	5.60*	405	4.3	X						
350	180	5.00*	390	4.7	X						
89	705	19.71	310	1.05	X						
103	610	16.99	310	1.25	X						
111	565	15.84	305	1.30	X						
126	495	13.84	300	1.50	X						
135	465	12.98	300	1.60	X						
153	410	11.45	295	1.75	X						
172	365	10.15	285	1.85	X						
203	310	8.63	280	2.0	X	**R**	**17**	**(E)DRN**	**80M4**	34	310
232	270	7.55	260	1.80	X	**RF**	**17**	**(E)DRN**	**80M4**	34	311
249	250	7.04	255	1.90	X						
285	220	6.15	250	2.2	X						
304	205	5.76	245	2.3	X						
344	183	5.09	240	2.5	X						
388	162	4.51	235	2.6	X						
457	138	3.83	225	2.9	X						
176	355	19.71	285	2.1							
205	305	16.99	280	2.4							
219	285	15.84	275	2.6							
251	250	13.84	265	3.0							
268	235	12.98	260	3.2							
304	205	11.45	255	3.5							
342	184	10.15	250	3.7							
403	156	8.63	240	4.1		**R**	**17**	**DRN**	**80MS2**	34	310
461	137	7.55	225	3.6		**RF**	**17**	**DRN**	**80MS2**	34	311
494	127	7.04	220	3.8							
565	111	6.15	215	4.3							
603	104	5.76	210	4.5							
683	92	5.09	205	4.9							
771	82	4.51	196	5.2							
907	69	3.83	188	5.7							

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
338	186	5.18	820	3.6	X						
387	163	4.53	780	4.5	X						
407	155	4.30*	770	4.6	X						
464	136	3.77	740	5.7	X						
547	115	3.20*	700	7.7	X						
606	104	2.89	680	9.0	X	**RX**	**67**	**(E)DRN**	**80M4**	55	297
689	91	2.54	650	11	X	**RXF**	**67**	**(E)DRN**	**80M4**	64	298
730	86	2.40*	640	13	X						
857	74	2.04	605	16	X						
943	67	1.86	590	17	X						
1090	58	1.61	560	17	X						
402	157	4.35	625	3.8	X						
462	136	3.79	595	4.5	X						
493	128	3.55*	585	4.8	X						
558	113	3.14	565	5.1	X						
601	105	2.91	550	5.7	X						
663	95	2.64*	535	6.4	X	**RX**	**57**	**(E)DRN**	**80M4**	49	295
739	85	2.37	515	7.2	X	**RXF**	**57**	**(E)DRN**	**80M4**	53	296
858	73	2.04	490	8.3	X						
912	69	1.92*	480	8.8	X						
1060	59	1.65	460	10	X						
1185	53	1.48	445	11	X						
1340	47	1.30	425	12	X						

P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.66	131870	2657	27000	1.35	X						
0.76	115790	2333	27000	1.6	X						
0.85	103480	2085	27000	1.7	X						
0.94	93150	1877	27000	1.9	X						
1.1	82880	1670	27000	2.1	X	**R**	**167R97**	**(E)DRN**	**90S4**	1680	344/346
1.2	71370	1438	27000	2.5	X	**RF**	**167R97**	**(E)DRN**	**90S4**	1690	345/346
1.4	63480	1279	27000	2.8	X	**RM**	**167R97**	**(E)DRN**	**90S4**	2120	345/346
1.6	55730	1123	27000	3.2	X						
1.8	49580	999	27000	3.6	X						
2.1	42730	861	27000	4.1	X						
0.80	108400	2211	14400	1.05	X						
0.90	95700	1951	15000	1.20	X						
1.0	82400	1705	15400	1.40	X						
1.1	74000	1536	15700	1.55	X						
1.3	64000	1329	16000	1.80	X	**R**	**147R77**	**(E)DRN**	**90S4**	950	342/346
1.5	55900	1166	16200	2.1	X	**RF**	**147R77**	**(E)DRN**	**90S4**	970	343/346
1.7	49000	1029	16300	2.3	X	**RM**	**147R77**	**(E)DRN**	**90S4**	1340	343/346
2.0	42600	889	16400	2.7	X						
2.2	37300	784	16500	3.1	X						
2.5	32900	695	16600	3.5	X						
1.3	68200	1391	12100	1.05	X						
1.4	61400	1256	12500	1.15	X						
1.6	53800	1105	12800	1.30	X	**R**	**137R77**	**(E)DRN**	**90S4**	640	340/346
1.7	50700	1043	12900	1.40	X	**RF**	**137R77**	**(E)DRN**	**90S4**	700	341/346
2.0	42900	888	13200	1.65	X	**RM**	**137R77**	**(E)DRN**	**90S4**	940	341/346
2.5	33500	699	13400	2.1	X						
2.9	29000	609	13500	2.4	X						
1.3	68300	1397	12100	1.05	X						
1.4	59700	1226	12500	1.20	X						
1.6	53300	1090	12800	1.35	X						
1.9	46500	951	13000	1.50	X	**R**	**137R77**	**(E)DRN**	**90S4**	660	340/346
2.1	40000	831	13200	1.75	X	**RF**	**137R77**	**(E)DRN**	**90S4**	710	341/346
2.4	34900	730	13400	2.0	X	**RM**	**137R77**	**(E)DRN**	**90S4**	960	341/346
2.8	29800	629	13500	2.4	X						
3.1	27100	560	13500	2.6	X						
3.6	23200	490	13600	3.0	X						

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P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.8	46800	961	9660	1.15	X	**R**	**127R77**	**(E)DRN**	**90S4**	560	338/346
2.3	37300	773	9660	1.40	X	**RF**	**127R77**	**(E)DRN**	**90S4**	610	339/346
2.9	29100	608	9660	1.80	X	**RM**	**127R77**	**(E)DRN**	**90S4**	820	339/346
1.7	49000	1034	9660	1.10	X						
1.7	48500	1013	9660	1.10	X						
1.8	48400	987	9660	1.10	X						
1.9	45600	936	9660	1.15	X						
1.9	44300	935	9660	1.20	X						
2.1	40000	830	9660	1.35	X						
2.2	38600	794	9660	1.35	X						
2.2	37500	792	9660	1.40	X						
2.3	37500	777	9660	1.40	X						
2.4	36100	750	9660	1.45	X						
2.7	31800	659	9660	1.65	X	**R**	**127R77**	**(E)DRN**	**90S4**	600	338/346
2.7	30600	642	9660	1.75	X	**RF**	**127R77**	**(E)DRN**	**90S4**	620	339/346
2.8	30600	636	9660	1.75	X	**RM**	**127R77**	**(E)DRN**	**90S4**	830	339/346
2.9	29400	614	9660	1.80	X						
3.0	27700	581	9660	1.90	X						
3.4	24900	521	9660	2.1	X						
3.6	23400	492	9660	2.3	X						
3.7	22700	480	9660	2.3	X						
4.3	19300	407	9660	2.8	X						
4.6	18500	386	9660	2.9	X						
5.9	14200	298	9660	3.7	X						
7.0	12000	253	9660	4.4	X						
3.6	24300	490	9660	2.2	X						
4.5	19400	394	9660	2.7	X	**R**	**127R77**	**(E)DRN**	**90S4**	560	338/346
5.4	16000	327	9660	3.3	X	**RF**	**127R77**	**(E)DRN**	**90S4**	610	339/346
6.8	12500	259	9660	4.2	X	**RM**	**127R77**	**(E)DRN**	**90S4**	820	339/346
2.5	34900	717	7020	1.10	X	**R**	**107R77**	**(E)DRN**	**90S4**	460	336/346
2.8	30400	626	7500	1.25	X	**RF**	**107R77**	**(E)DRN**	**90S4**	475	337/346
3.3	25300	528	7950	1.50	X	**RM**	**107R77**	**(E)DRN**	**90S4**	670	337/346
2.9	29200	614	7610	1.30	X						
3.2	25800	544	7910	1.45	X						
3.6	23300	492	8080	1.65	X						
4.2	19700	417	8200	1.90	X	**R**	**107R77**	**(E)DRN**	**90S4**	475	336/346
4.8	17700	369	8260	2.1	X	**RF**	**107R77**	**(E)DRN**	**90S4**	485	337/346
5.5	15500	323	8320	2.5	X	**RM**	**107R77**	**(E)DRN**	**90S4**	680	337/346
6.2	13600	285	8360	2.8	X						
7.0	11900	253	8390	3.2	X						
3.8	23200	469	8090	1.65	X						
4.1	21100	426	8160	1.80	X	**R**	**107R77**	**(E)DRN**	**90S4**	460	336/346
4.7	18600	377	8240	2.0	X	**RF**	**107R77**	**(E)DRN**	**90S4**	470	337/346
5.4	15900	325	8310	2.4	X	**RM**	**107R77**	**(E)DRN**	**90S4**	670	337/346
6.2	13900	284	8350	2.7	X						
3.6	23500	484	3820	1.15	X						
4.1	21200	431	5530	1.25	X						
4.7	18600	379	5830	1.45	X						
5.2	16500	336	6040	1.60	X	**R**	**97R57**	**(E)DRN**	**90S4**	315	334/346
6.0	14500	296	6170	1.85	X	**RF**	**97R57**	**(E)DRN**	**90S4**	350	335/346
7.1	12100	249	6250	2.2	X	**RM**	**97R57**	**(E)DRN**	**90S4**	465	335/346
7.5	11200	234	6280	2.4	X						
8.4	10000	209	6310	2.6	X						
3.8	23200	466	5250	1.15	X						
4.2	20900	420	5560	1.25	X						
4.8	18300	370	5860	1.45	X	**R**	**97R57**	**(E)DRN**	**90S4**	305	334/346
5.0	17300	349	5970	1.55	X	**RF**	**97R57**	**(E)DRN**	**90S4**	345	335/346
5.9	14600	297	6160	1.80	X	**RM**	**97R57**	**(E)DRN**	**90S4**	460	335/346
6.5	13300	270	6210	2.0	X						
7.8	11300	227	6280	2.4	X						
6.6	13000	268	3910	1.05	X	**R**	**87R57**	**(E)DRN**	**90S4**	220	331/346
7.5	11500	236	4140	1.20	X	**RF**	**87R57**	**(E)DRN**	**90S4**	235	332/346
8.4	10000	209	4320	1.35	X	**RM**	**87R57**	**(E)DRN**	**90S4**	300	332/346
6.9	12600	256	3980	1.10	X	**R**	**87R57**	**(E)DRN**	**90S4**	220	331/346
7.6	11400	232	4160	1.20	X	**RF**	**87R57**	**(E)DRN**	**90S4**	235	332/346
9.0	9710	195	4370	1.40	X	**RM**	**87R57**	**(E)DRN**	**90S4**	300	332/346

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P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
6.3	14800	186.30	6150	1.80		**R**	**97**	**DRN**	**112M6**	310	334
						RF	**97**	**DRN**	**112M6**	350	335
						RM	**97**	**DRN**	**112M6**	465	335
6.1	15500	289.74	6120	1.70	X						
6.9	13700	255.71	6200	1.95	X						
7.3	12900	241.25	6220	2.0	X						
8.2	11600	216.28	6270	2.3	X	**R**	**97**	**(E)DRN**	**90S4**	260	334
9.5	9990	186.30	6310	2.7	X	**RF**	**97**	**(E)DRN**	**90S4**	300	335
10	9110	170.02	6340	2.9	X	**RM**	**97**	**(E)DRN**	**90S4**	410	335
12	8080	150.78	6360	3.3	X						
14	6790	126.75	6380	3.9	X						
15	6240	116.48	6390	4.2	X						
7.2	13200	246.54	3000	1.05	X						
8.1	11600	216.54	3590	1.20	X						
8.6	11000	205.71	3800	1.25	X						
9.7	9740	181.77	4270	1.40	X						
11	8330	155.34	4490	1.65	X						
12	7630	142.41	4490	1.80	X						
14	6700	124.97	4490	2.0	X	**R**	**87**	**(E)DRN**	**90S4**	170	331
15	6350	118.43*	4490	2.2	X	**RF**	**87**	**(E)DRN**	**90S4**	185	332
17	5550	103.65	4490	2.5	X	**RM**	**87**	**(E)DRN**	**90S4**	250	332
19	5000	93.38	4490	2.7	X						
22	4390	81.92	4490	3.1	X						
24	3890	72.57	4490	3.5	X						
28	3410	63.68*	4490	4.0	X						
29	3230	60.35*	4490	4.2	X						
33	2830	52.82	4490	4.8	X						
15	6510	121.42	2390	1.10	X						
17	5520	102.99	2560	1.30	X						
19	4980	92.97	2640	1.45	X						
22	4380	81.80	2720	1.65	X						
23	4140	77.24	2750	1.75	X						
27	3520	65.77	2810	2.1	X	**R**	**77**	**(E)DRN**	**90S4**	110	328
31	3090	57.68	2840	2.4	X	**RF**	**77**	**(E)DRN**	**90S4**	125	329
34	2790	52.07	2870	2.6	X	**RM**	**77**	**(E)DRN**	**90S4**	180	329
38	2450	45.81	2890	3.0	X						
41	2320	43.26	2900	3.1	X						
48	1970	36.83	2880	3.7	X						
53	1790	33.47	2800	4.0	X						
18	5140	95.91	1750	1.05	X						
20	4610	86.11	1880	1.15	X						
24	3970	74.17	2020	1.35	X						
25	3740	69.75	2060	1.40	X						
29	3280	61.26	2140	1.60	X						
31	3050	56.89	2170	1.75	X	**R**	**67**	**(E)DRN**	**90S4**	98	325
34	2760	51.56	2210	1.90	X	**RF**	**67**	**(E)DRN**	**90S4**	105	326
38	2480	46.29	2240	2.1	X	**RM**	**67**	**(E)DRN**	**90S4**	140	326
44	2130	39.88*	2270	2.4	X						
47	2010	37.50	2290	2.5	X						
55	1730	32.27	2240	2.8	X						
61	1540	28.83	2170	3.0	X						
63	1500	28.13	2150	3.2	X						
66	1430	26.72	2120	3.3	X	**R**	**67**	**(E)DRN**	**90S4**	96	325
75	1250	23.44	2040	3.9	X	**RF**	**67**	**(E)DRN**	**90S4**	105	326
89	1060	19.89	1940	5.0	X	**RM**	**67**	**(E)DRN**	**90S4**	140	326
25	3710	69.23	1490	1.05	X						
27	3470	64.85	1470	1.15	X						
31	3070	57.29	1440	1.30	X						
33	2850	53.22	1410	1.40	X						
37	2580	48.23	1380	1.55	X	**R**	**57**	**(E)DRN**	**90S4**	84	322
41	2320	43.30	1350	1.70	X	**RF**	**57**	**(E)DRN**	**90S4**	91	323
47	2000	37.30*	1300	2.0	X	**RM**	**57**	**(E)DRN**	**90S4**	120	323
50	1880	35.07	1290	2.1	X						
58	1610	30.18	1240	2.5	X						
65	1440	26.97	1200	2.8	X						

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P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
67	1410	26.31	1200	2.8	X						
70	1340	24.99*	1180	3.0	X	**R**	**57**	**(E)DRN**	**90S4**	82	322
80	1170	21.93	1140	3.4	X	**RF**	**57**	**(E)DRN**	**90S4**	89	323
95	990	18.60*	1090	4.0	X	**RM**	**57**	**(E)DRN**	**90S4**	115	323
105	900	16.79	1060	4.4	X						
37	2560	47.75	1060	1.05	X						
41	2290	42.87	1040	1.15	X						
48	1980	36.93	1010	1.35	X						
51	1860	34.73	1000	1.45	X	**R**	**47**	**(E)DRN**	**90S4**	72	319
59	1600	29.88	960	1.65	X	**RF**	**47**	**(E)DRN**	**90S4**	73	320
66	1430	26.70	940	1.85	X						
75	1260	23.59	910	2.1	X						
66	1430	26.74	940	1.85	X						
76	1240	23.28	910	2.1	X						
81	1160	21.81	890	2.3	X						
91	1030	19.27	860	2.5	X						
98	950	17.89	850	2.7	X						
109	860	16.22	830	2.8	X	**R**	**47**	**(E)DRN**	**90S4**	71	319
121	780	14.56	800	3.0	X	**RF**	**47**	**(E)DRN**	**90S4**	71	320
140	670	12.54	770	3.3	X						
149	630	11.79	755	3.4	X						
174	540	10.15	725	3.7	X						
194	485	9.07	700	4.0	X						
54	1730	32.40	785	1.00	X						
61	1540	28.73	850	1.15	X	**R**	**37**	**(E)DRN**	**90S4**	63	316
72	1300	24.42	860	1.35	X	**RF**	**37**	**(E)DRN**	**90S4**	66	317
79	1190	22.27	840	1.50	X						
91	1030	19.31	820	1.70	X						
98	960	18.05	810	1.85	X						
113	830	15.60	775	2.1	X						
133	710	13.25	745	2.4	X						
149	630	11.83	725	2.5	X	**R**	**37**	**(E)DRN**	**90S4**	62	316
174	540	10.11	695	2.8	X	**RF**	**37**	**(E)DRN**	**90S4**	65	317
186	505	9.47	680	2.9	X						
221	425	7.97	650	3.2	X						
264	355	6.67	615	3.6	X						
311	300	5.67	585	4.1	X						
348	270	5.06	570	4.4	X						
91	1030	19.35	525	1.10	X						
97	960	18.08	520	1.20	X						
113	830	15.63	505	1.35	X						
133	710	13.28*	490	1.60	X						
149	635	11.86	475	1.80	X						
174	540	10.13	460	2.0	X						
187	500	9.41	440	2.1	X						
216	435	8.16	430	2.4	X	**R**	**27**	**(E)DRN**	**90S4**	49	313
231	405	7.63*	420	2.4	X	**RF**	**27**	**(E)DRN**	**90S4**	49	314
267	350	6.59	405	2.6	X						
315	300	5.60*	390	2.9	X						
352	265	5.00*	380	3.1	X						
413	225	4.27	365	3.4	X						
440	210	4.00*	355	3.5	X						
523	181	3.37	340	3.9	X						
156	605	22.32	470	1.90							
180	520	19.35	455	2.2							
193	490	18.08	450	2.4							
223	420	15.63	435	2.7							
262	360	13.28*	415	3.2							
294	320	11.86	405	3.5							
344	270	10.13	385	3.9		**R**	**27**	**DRN**	**80M2**	36	313
370	255	9.41	375	4.2		**RF**	**27**	**DRN**	**80M2**	36	314
427	220	8.16	360	4.6							
457	205	7.63*	355	4.8							
529	179	6.59	340	5.2							
622	152	5.60*	325	5.8							
697	136	5.00*	315	6.2							
816	116	4.27	300	6.7							

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P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
871	108	4.00*	295	6.9							
1035	91	3.37	280	7.7							
177	530	19.71	255	1.40							
205	460	16.99	250	1.65							
220	425	15.84	245	1.75							
252	375	13.84	245	2.0							
269	350	12.98	240	2.1							
304	310	11.45	235	2.3							
343	275	10.15	230	2.5							
404	230	8.63	225	2.7		**R**	**17**	**DRN**	**80M2**	34	310
462	200	7.55	210	2.4		**RF**	**17**	**DRN**	**80M2**	34	311
495	191	7.04	205	2.5							
567	167	6.15	200	2.9							
605	156	5.76	198	3.0							
685	138	5.09	192	3.3							
773	122	4.51	187	3.5							
909	104	3.83	180	3.8							
204	460	8.65	1720	2.6	X	**RX**	**87**	**(E)DRN**	**90S4**	125	301
						RXF	**87**	**(E)DRN**	**90S4**	135	302
275	340	6.41	1240	2.6	X						
313	300	5.63	1190	3.2	X	**RX**	**77**	**(E)DRN**	**90S4**	90	299
329	285	5.35*	1170	3.2	X	**RXF**	**77**	**(E)DRN**	**90S4**	95	300
373	250	4.73	1120	4.3	X						
340	275	5.18	800	2.4	X						
389	240	4.53	765	3.0	X						
410	230	4.30*	755	3.1	X						
467	200	3.77	725	3.8	X						
551	172	3.20*	690	5.2	X						
610	155	2.89	670	6.0	X	**RX**	**67**	**(E)DRN**	**90S4**	69	297
693	136	2.54	645	7.7	X	**RXF**	**67**	**(E)DRN**	**90S4**	77	298
734	129	2.40*	630	8.4	X						
862	110	2.04	600	11	X						
949	100	1.86	580	11	X						
1095	86	1.61	555	12	X						
1260	75	1.40*	530	12	X						
405	230	4.35	610	2.6	X						
465	200	3.79	585	3.0	X						
496	190	3.55*	575	3.2	X						
562	168	3.14	550	3.4	X						
605	156	2.91	540	3.8	X						
667	142	2.64*	525	4.3	X	**RX**	**57**	**(E)DRN**	**90S4**	63	295
743	127	2.37	505	4.8	X	**RXF**	**57**	**(E)DRN**	**90S4**	67	296
863	110	2.04	485	5.6	X						
918	103	1.92*	475	5.9	X						
1065	89	1.65	455	6.9	X						
1195	79	1.48	435	7.6	X						
1350	70	1.30	420	8.0	X						

P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.67	175320	2657	27000	1.00	X						
0.76	153940	2333	27000	1.15	X						
0.85	137580	2085	27000	1.30	X						
0.94	123850	1877	27000	1.5	X						
1.1	110200	1670	27000	1.6	X	**R**	**167R97**	**(E)DRN**	**90L4**	1690	344/347
1.2	94890	1438	27000	1.9	X	**RF**	**167R97**	**(E)DRN**	**90L4**	1700	345/347
1.4	84400	1279	27000	2.1	X	**RM**	**167R97**	**(E)DRN**	**90L4**	2130	345/347
1.6	74100	1123	27000	2.4	X						
1.8	65920	999	27000	2.7	X						
2.1	56810	861	27000	3.1	X						

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P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.0	110800	1705	14300	1.05	X						
1.1	99600	1536	14800	1.15	X						
1.3	86200	1329	15300	1.35	X						
1.5	75300	1166	15700	1.55	X						
1.7	66100	1029	15900	1.75	X	**R**	**147R77**	**(E)DRN**	**90L4**	960	342/347
2.0	57300	889	16100	2.0	X	**RF**	**147R77**	**(E)DRN**	**90L4**	980	343/347
2.2	50400	784	16300	2.3	X	**RM**	**147R77**	**(E)DRN**	**90L4**	1350	343/347
2.5	44500	695	16400	2.6	X						
2.9	40200	619	16500	2.9	X						
3.2	36100	558	16500	3.2	X						
1.7	68000	1043	12100	1.05	X						
2.0	57700	888	12600	1.25	X	**R**	**137R77**	**(E)DRN**	**90L4**	650	342/346
2.5	45100	699	13100	1.55	X	**RF**	**137R77**	**(E)DRN**	**90L4**	700	343/346
2.9	39100	609	13300	1.80	X	**RM**	**137R77**	**(E)DRN**	**90L4**	950	343/346
1.6	71400	1090	12000	1.00							
1.9	62300	951	12400	1.15	X						
2.1	53900	831	12800	1.30	X						
2.4	47100	730	13000	1.50	X						
2.8	40200	629	13200	1.75	X	**R**	**137R77**	**(E)DRN**	**90L4**	670	342/346
3.1	36400	560	13300	1.95	X	**RF**	**137R77**	**(E)DRN**	**90L4**	720	343/346
3.6	31400	490	13500	2.2	X	**RM**	**137R77**	**(E)DRN**	**90L4**	970	343/346
4.1	27400	428	13500	2.6	X						
4.6	24800	381	13600	2.9	X						
5.5	21000	323	13600	3.4	X						
3.1	37400	564	13300	1.90	X						
3.4	34300	517	13400	2.1	X	**R**	**137R77**	**(E)DRN**	**90L4**	650	342/346
3.9	30000	453	13500	2.4	X	**RF**	**137R77**	**(E)DRN**	**90L4**	700	343/346
4.7	24700	376	13600	2.9	X	**RM**	**137R77**	**(E)DRN**	**90L4**	940	343/346
2.3	50200	773	9660	1.05	X	**R**	**127R77**	**(E)DRN**	**90L4**	570	338/346
2.9	39300	608	9660	1.35	X	**RF**	**127R77**	**(E)DRN**	**90L4**	620	339/346
						RM	**127R77**	**(E)DRN**	**90L4**	830	339/346
2.1	53800	830	9660	1.00							
2.2	51800	794	9660	1.00	X						
2.2	50700	792	9660	1.05	X						
2.3	50500	777	9660	1.05	X						
2.4	48600	750	9660	1.10	X						
2.7	42800	659	9660	1.25	X						
2.8	41300	642	9660	1.30	X						
2.8	41200	636	9660	1.30	X	**R**	**127R77**	**(E)DRN**	**90L4**	600	338/346
2.9	39600	614	9660	1.35	X	**RF**	**127R77**	**(E)DRN**	**90L4**	630	339/346
3.0	37300	581	9660	1.40	X	**RM**	**127R77**	**(E)DRN**	**90L4**	840	339/346
3.4	33600	521	9660	1.60	X						
3.6	31600	492	9660	1.70	X						
3.7	30700	480	9660	1.75	X						
4.3	26000	407	9660	2.0	X						
4.6	25000	386	9660	2.1	X						
5.9	19200	298	9660	2.8	X						
7.0	16200	253	9660	3.3	X						
3.6	32600	490	9660	1.65	X						
4.5	26000	394	9660	2.0	X						
5.4	21500	327	9660	2.5	X	**R**	**127R77**	**(E)DRN**	**90L4**	570	338/346
6.8	16900	259	9660	3.1	X	**RF**	**127R77**	**(E)DRN**	**90L4**	610	339/346
8.7	13100	202	9660	4.0	X	**RM**	**127R77**	**(E)DRN**	**90L4**	830	339/346
11	10600	162	9660	5.0	X						
						R	**107R77**	**(E)DRN**	**90L4**	470	336/346
3.4	34100	528	7120	1.10	X	**RF**	**107R77**	**(E)DRN**	**90L4**	480	337/346
						RM	**107R77**	**(E)DRN**	**90L4**	680	337/346
3.2	34800	544	7030	1.10	X						
3.6	31500	492	7400	1.20	X						
4.2	26700	417	7840	1.40	X						
4.8	23900	369	8050	1.60	X	**R**	**107R77**	**(E)DRN**	**90L4**	480	336/346
5.5	20800	323	8170	1.80	X	**RF**	**107R77**	**(E)DRN**	**90L4**	495	337/346
6.2	18300	285	8240	2.1	X	**RM**	**107R77**	**(E)DRN**	**90L4**	690	337/346
7.0	16200	253	8300	2.4	X						
8.2	13700	214	8360	2.8	X						

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P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
3.8	31100	469	7430	1.20	X						
4.2	28300	426	7700	1.35	X						
4.7	24900	377	7980	1.50	X						
5.5	21400	325	8150	1.80	X	**R**	**107R77**	**(E)DRN**	**90L4**	465	336/346
6.2	18600	284	8240	2.0	X	**RF**	**107R77**	**(E)DRN**	**90L4**	480	337/346
6.9	16700	256	8290	2.3	X	**RM**	**107R77**	**(E)DRN**	**90L4**	670	337/346
8.0	14400	220	8340	2.6	X						
9.1	12500	193	8380	3.0	X						
4.7	24900	379	4990	1.05	X						
5.2	22100	336	5400	1.20	X						
6.0	19400	296	5740	1.35	X	**R**	**97R57**	**(E)DRN**	**90L4**	320	334/346
7.1	16200	249	6060	1.65	X	**RF**	**97R57**	**(E)DRN**	**90L4**	360	335/346
7.6	15100	234	6140	1.75	X	**RM**	**97R57**	**(E)DRN**	**90L4**	470	335/346
8.5	13500	209	6200	1.95	X						
4.8	24600	370	5040	1.10	X						
5.1	23200	349	5260	1.15	X	**R**	**97R57**	**(E)DRN**	**90L4**	315	334/346
5.9	19700	297	5710	1.35	X	**RF**	**97R57**	**(E)DRN**	**90L4**	350	335/346
6.5	17800	270	5910	1.50	X	**RM**	**97R57**	**(E)DRN**	**90L4**	465	335/346
7.8	15100	227	6140	1.75	X						
						R	**87R57**	**(E)DRN**	**90L4**	225	331/346
9.1	12900	195	3930	1.05	X	**RF**	**87R57**	**(E)DRN**	**90L4**	240	332/346
						RM	**87R57**	**(E)DRN**	**90L4**	305	332/346
4.7	26700	251.15	7830	1.40							
5.1	24500	229.95	8010	1.55							
5.8	21600	203.16	8140	1.75		**R**	**107**	**DRN**	**112M6**	440	336
6.8	18300	172.34	8240	2.1		**RF**	**107**	**DRN**	**112M6**	450	337
7.4	16900	158.68	8280	2.2		**RM**	**107**	**DRN**	**112M6**	650	337
8.3	15100	141.83	8330	2.5							
6.9	18200	255.71	5430	1.45	X						
7.3	17200	241.25	5740	1.55	X						
8.2	15400	216.28	6130	1.70	X						
9.5	13200	186.30	6210	2.0	X						
10	12100	170.02	6250	2.2	X	**R**	**97**	**(E)DRN**	**90L4**	265	334
12	10700	150.78	6290	2.5	X	**RF**	**97**	**(E)DRN**	**90L4**	305	335
14	9030	126.75	6340	2.9	X	**RM**	**97**	**(E)DRN**	**90L4**	420	335
15	8300	116.48	6350	3.2	X						
17	7370	103.44	6370	3.6	X						
19	6590	92.48	6390	4.0	X						
9.7	12900	181.77	3090	1.05	X						
11	11000	155.34	3780	1.25	X						
12	10100	142.41	4120	1.35	X						
14	8910	124.97	4450	1.55	X						
15	8440	118.43*	4490	1.60	X						
17	7390	103.65	4490	1.85	X						
19	6650	93.38	4490	2.1	X	**R**	**87**	**(E)DRN**	**90L4**	175	331
22	5840	81.92	4490	2.4	X	**RF**	**87**	**(E)DRN**	**90L4**	190	332
24	5170	72.57	4490	2.6	X	**RM**	**87**	**(E)DRN**	**90L4**	260	332
28	4540	63.68*	4490	3.0	X						
29	4300	60.35*	4490	3.2	X						
33	3760	52.82	4490	3.6	X						
37	3390	47.58	4450	4.0	X						
42	2970	41.74	4270	4.6	X						
48	2620	36.84*	4110	5.2	X						
19	6630	92.97	2370	1.10	X						
22	5830	81.80	2510	1.25	X						
23	5500	77.24	2570	1.30	X						
27	4680	65.77	2680	1.55	X						
31	4110	57.68	2750	1.75	X						
34	3710	52.07	2790	1.95	X	**R**	**77**	**(E)DRN**	**90L4**	120	328
39	3260	45.81	2830	2.2	X	**RF**	**77**	**(E)DRN**	**90L4**	130	329
41	3080	43.26	2840	2.4	X	**RM**	**77**	**(E)DRN**	**90L4**	185	329
48	2620	36.83	2830	2.8	X						
53	2380	33.47	2750	3.0	X						
61	2060	29.00	2640	3.5	X						
70	1790	25.23	2530	3.8	X						

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P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
76	1660	23.37	2470	4.3	X	**R**	**77**	**(E)DRN**	**90L4**	115	328
82	1520	21.43	2410	4.8	X	**RF**	**77**	**(E)DRN**	**90L4**	130	329
94	1340	18.80	2320	5.2	X	**RM**	**77**	**(E)DRN**	**90L4**	185	329
25	4970	69.75	1790	1.05	X						
29	4360	61.26	1940	1.20	X						
31	4050	56.89	2010	1.30	X						
34	3670	51.56	2070	1.45	X	**R**	**67**	**(E)DRN**	**90L4**	105	325
38	3300	46.29	2140	1.60	X	**RF**	**67**	**(E)DRN**	**90L4**	110	326
44	2840	39.88*	2200	1.80	X	**RM**	**67**	**(E)DRN**	**90L4**	145	326
47	2670	37.50	2220	1.90	X						
55	2300	32.27	2190	2.1	X						
61	2050	28.83	2120	2.2	X						
63	2000	28.13	2110	2.4	X						
66	1900	26.72	2080	2.5	X	**R**	**67**	**(E)DRN**	**90L4**	105	325
75	1670	23.44	2000	3.0	X	**RF**	**67**	**(E)DRN**	**90L4**	110	326
89	1410	19.89	1910	3.7	X	**RM**	**67**	**(E)DRN**	**90L4**	145	326
98	1280	17.95	1850	4.1	X						
33	3790	53.22	1330	1.05	X						
37	3430	48.23	1310	1.15	X						
41	3080	43.30	1280	1.30	X	**R**	**57**	**(E)DRN**	**90L4**	91	322
47	2650	37.30*	1240	1.50	X	**RF**	**57**	**(E)DRN**	**90L4**	98	323
50	2500	35.07	1230	1.60	X	**RM**	**57**	**(E)DRN**	**90L4**	125	323
59	2150	30.18	1190	1.85	X						
66	1920	26.97	1160	2.1	X						
67	1870	26.31	1150	2.1	X						
71	1780	24.99*	1140	2.2	X						
81	1560	21.93	1100	2.5	X						
95	1320	18.60*	1060	3.0	X	**R**	**57**	**(E)DRN**	**90L4**	89	322
105	1190	16.79	1030	3.3	X	**RF**	**57**	**(E)DRN**	**90L4**	96	323
120	1050	14.77*	1000	3.6	X	**RM**	**57**	**(E)DRN**	**90L4**	125	323
127	990	13.95*	980	3.8	X						
149	840	11.88	940	4.2	X						
48	2630	36.93	950	1.00	X						
51	2470	34.73	940	1.05	X						
59	2130	29.88	910	1.25	X	**R**	**47**	**(E)DRN**	**90L4**	79	319
66	1900	26.70	890	1.40	X	**RF**	**47**	**(E)DRN**	**90L4**	79	320
75	1680	23.59	870	1.60	X						
76	1660	23.28	870	1.60	X						
81	1550	21.81	860	1.70	X						
92	1370	19.27	830	1.90	X						
99	1270	17.89	820	2.0	X						
109	1150	16.22	800	2.1	X						
121	1030	14.56	775	2.3	X						
141	890	12.54	750	2.5	X						
150	840	11.79	735	2.6	X						
174	720	10.15	705	2.8	X	**R**	**47**	**(E)DRN**	**90L4**	78	319
195	645	9.07	685	3.0	X	**RF**	**47**	**(E)DRN**	**90L4**	78	320
221	570	8.01	665	3.2	X						
228	550	7.76*	650	2.6	X						
254	495	6.96	630	2.8	X						
295	425	6.00	605	3.2	X						
313	400	5.64*	595	3.4	X						
364	345	4.85	570	3.8	X						
407	305	4.34	550	4.2	X						
461	270	3.83	530	4.7	X						
72	1740	24.42	600	1.00	X	**R**	**37**	**(E)DRN**	**90L4**	70	316
						RF	**37**	**(E)DRN**	**90L4**	73	317

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P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
92	1370	19.31	720	1.30	X						
98	1280	18.05	750	1.40	X						
113	1110	15.60	745	1.60	X						
133	940	13.25	715	1.80	X						
149	840	11.83	700	1.90	X						
175	720	10.11	670	2.1	X						
187	675	9.47	660	2.2	X	**R**	**37**	**(E)DRN**	**90L4**	69	316
222	565	7.97	635	2.4	X	**RF**	**37**	**(E)DRN**	**90L4**	72	317
265	475	6.67	600	2.7	X						
312	400	5.67	575	3.1	X						
349	360	5.06	555	3.3	X						
409	305	4.32	530	3.6	X						
437	285	4.05	520	3.7	X						
518	240	3.41	495	4.1	X						
526	235	6.67	495	5.3							
619	200	5.67	470	6.2							
693	182	5.06	455	6.6		**R**	**37**	**DRN**	**90S2**	62	316
811	155	4.32	435	7.2		**RF**	**37**	**DRN**	**90S2**	65	317
866	145	4.05	425	7.4							
1030	123	3.41	405	8.1							
113	1110	15.63	470	1.05	X						
133	940	13.28*	460	1.20	X						
149	840	11.86	450	1.35	X						
174	720	10.13	435	1.50	X						
217	580	8.16	405	1.75	X						
232	540	7.63*	400	1.80	X	**R**	**27**	**(E)DRN**	**90L4**	56	313
268	470	6.59	390	2.0	X	**RF**	**27**	**(E)DRN**	**90L4**	56	314
316	395	5.60*	375	2.2	X						
353	355	5.00*	365	2.4	X						
414	300	4.27	350	2.5	X						
442	285	4.00*	345	2.6	X						
524	240	3.37	330	2.9	X						
532	235	6.59	330	4.0							
626	200	5.60*	315	4.3							
701	180	5.00*	305	4.7		**R**	**27**	**DRN**	**90S2**	49	313
821	154	4.27	295	5.0		**RF**	**27**	**DRN**	**90S2**	49	314
876	144	4.00*	285	5.2							
1040	121	3.37	275	5.8							
232	540	7.63	1640	2.4	X	**RX**	**87**	**(E)DRN**	**90L4**	135	301
245	510	7.20*	1610	2.4	X	**RXF**	**87**	**(E)DRN**	**90L4**	145	302
314	400	5.63	1170	2.4	X						
330	380	5.35*	1150	2.4	X						
374	335	4.73	1110	3.2	X						
437	285	4.04*	1060	4.4	X						
477	260	3.70	1030	5.1	X	**RX**	**77**	**(E)DRN**	**90L4**	97	299
544	230	3.25*	990	7.0	X	**RXF**	**77**	**(E)DRN**	**90L4**	100	300
574	215	3.08*	970	7.8	X						
656	192	2.70	930	9.9	X						
728	173	2.43	900	11	X						
390	320	4.53	755	2.2	X						
411	305	4.30*	745	2.3	X						
468	265	3.77	715	2.9	X						
552	225	3.20*	680	3.9	X						
612	205	2.89	660	4.5	X						
695	181	2.54	635	5.8	X	**RX**	**67**	**(E)DRN**	**90L4**	76	297
736	171	2.40*	625	6.4	X	**RXF**	**67**	**(E)DRN**	**90L4**	84	298
865	146	2.04	595	8.1	X						
951	132	1.86	575	8.4	X						
1100	115	1.61	550	8.8	X						
1260	100	1.40*	525	9.2	X						

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P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
466	270	3.79	570	2.3	X						
498	250	3.55*	560	2.4	X						
563	220	3.14	540	2.6	X						
607	205	2.91	530	2.9	X						
669	188	2.64*	515	3.2	X						
745	169	2.37	500	3.6	X	**RX**	**57**	**(E)DRN**	**90L4**	70	295
865	146	2.04	475	4.2	X	**RXF**	**57**	**(E)DRN**	**90L4**	74	296
920	137	1.92*	470	4.5	X						
1070	118	1.65	445	5.2	X						
1195	105	1.48	430	5.7	X						
1355	93	1.30	415	6.0	X						

P_m = 3.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.0	167780	1674	27000	1.05	X						
1.2	148840	1485	27000	1.20	X						
1.3	134500	1342	27000	1.30	X	**R**	**167R107**	**(E)DRN**	**100LM4**	1820	344/347
1.4	123180	1229	27000	1.5	X	**RF**	**167R107**	**(E)DRN**	**100LM4**	1830	345/347
1.6	111350	1111	27000	1.6	X	**RM**	**167R107**	**(E)DRN**	**100LM4**	2260	345/347
1.8	95210	950	27000	1.9	X						
2.0	86190	860	27000	2.1	X						
1.0	167380	1670	27000	1.05	X						
1.2	144120	1438	27000	1.25	X						
1.4	128190	1279	27000	1.40	X						
1.6	112550	1123	27000	1.6	X	**R**	**167R97**	**(E)DRN**	**100LM4**	1710	344/347
1.8	100130	999	27000	1.8	X	**RF**	**167R97**	**(E)DRN**	**100LM4**	1720	345/347
2.0	86290	861	27000	2.1	X	**RM**	**167R97**	**(E)DRN**	**100LM4**	2160	345/347
2.3	76170	760	27000	2.3	X						
2.7	65750	656	27000	2.7	X						
3.5	50410	503	27000	3.5	X						
3.3	51100	533	16300	2.2	X						
3.8	43900	462	16400	2.6	X	**R**	**147R87**	**(E)DRN**	**100LM4**	1030	342/346
4.1	41500	426	16400	2.8	X	**RF**	**147R87**	**(E)DRN**	**100LM4**	1050	343/346
4.8	35800	368	16500	3.2	X	**RM**	**147R87**	**(E)DRN**	**100LM4**	1420	343/346
5.4	31700	326	16600	3.6	X						
1.5	114700	1166	14100	1.00	X						
1.7	101000	1029	14700	1.15	X						
2.0	87400	889	15300	1.30	X						
2.2	76900	784	15600	1.50	X	**R**	**147R77**	**(E)DRN**	**100LM4**	990	342/346
2.5	68000	695	15900	1.70	X	**RF**	**147R77**	**(E)DRN**	**100LM4**	1000	343/346
2.8	61200	619	16000	1.90	X	**RM**	**147R77**	**(E)DRN**	**100LM4**	1370	343/346
3.2	55000	558	16200	2.1	X						
3.6	48100	489	16300	2.4	X						
4.2	40800	415	16400	2.8	X						
2.5	68800	699	12100	1.05	X	**R**	**137R77**	**(E)DRN**	**100LM4**	680	340/346
2.9	59700	609	12500	1.20	X	**RF**	**137R77**	**(E)DRN**	**100LM4**	730	341/346
						RM	**137R77**	**(E)DRN**	**100LM4**	970	341/346
2.4	71700	730	11900	1.00							
2.8	61500	629	12500	1.15	X						
3.1	55300	560	12700	1.30	X						
3.6	48000	490	13000	1.45	X						
4.1	41900	428	13200	1.70	X	**R**	**137R77**	**(E)DRN**	**100LM4**	700	340/346
4.6	37700	381	13300	1.90	X	**RF**	**137R77**	**(E)DRN**	**100LM4**	750	341/346
5.5	31900	323	13400	2.2	X	**RM**	**137R77**	**(E)DRN**	**100LM4**	990	341/346
6.0	28700	291	13500	2.5	X						
6.9	25100	255	13600	2.8	X						
7.9	22000	223	13600	3.2	X						
3.1	56800	564	12700	1.25	X						
3.4	52000	517	12900	1.35	X						
3.9	45500	453	13100	1.55	X	**R**	**137R77**	**(E)DRN**	**100LM4**	670	340/346
4.7	37600	376	13300	1.90	X	**RF**	**137R77**	**(E)DRN**	**100LM4**	720	341/346
5.2	33800	339	13400	2.1	X	**RM**	**137R77**	**(E)DRN**	**100LM4**	970	341/346
5.9	29600	297	13500	2.4	X						

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P_m = 3.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
3.4	51200	521	9660	1.05	X						
3.6	48300	492	9660	1.10	X						
3.7	47000	480	9660	1.15	X	**R**	**127R77**	**(E)DRN**	**100LM4**	630	338/346
4.3	39800	407	9660	1.35	X	**RF**	**127R77**	**(E)DRN**	**100LM4**	650	339/346
4.6	38000	386	9660	1.40	X	**RM**	**127R77**	**(E)DRN**	**100LM4**	870	339/346
5.9	29300	298	9660	1.80	X						
7.0	24800	253	9660	2.1	X						
3.6	49400	490	9660	1.05	X						
4.5	39600	394	9660	1.35	X						
5.4	32700	327	9660	1.60	X	**R**	**127R77**	**(E)DRN**	**100LM4**	590	338/346
6.8	25700	259	9660	2.1	X	**RF**	**127R77**	**(E)DRN**	**100LM4**	640	339/346
8.7	20000	202	9660	2.6	X	**RM**	**127R77**	**(E)DRN**	**100LM4**	850	339/346
11	16200	162	9660	3.3	X						
14	12400	126	9660	4.2	X						
4.8	36300	369	6840	1.05	X						
5.5	31800	323	7360	1.20	X						
6.2	28000	285	7730	1.35	X	**R**	**107R77**	**(E)DRN**	**100LM4**	500	336/346
7.0	24700	253	7990	1.55	X	**RF**	**107R77**	**(E)DRN**	**100LM4**	520	337/346
8.2	20900	214	8160	1.80	X	**RM**	**107R77**	**(E)DRN**	**100LM4**	710	337/346
9.4	18300	187	8250	2.1	X						
4.7	37800	377	6640	1.00	X						
5.4	32500	325	7290	1.15	X						
6.2	28400	284	7690	1.35	X	**R**	**107R77**	**(E)DRN**	**100LM4**	490	336/346
6.9	25500	256	7930	1.50	X	**RF**	**107R77**	**(E)DRN**	**100LM4**	500	337/346
8.0	21900	220	8130	1.75	X	**RM**	**107R77**	**(E)DRN**	**100LM4**	700	337/346
9.1	19100	193	8220	2.0	X						
10	17200	172	8270	2.2	X						
7.1	24700	249	5020	1.05	X	**R**	**97R57**	**(E)DRN**	**100LM4**	345	334/346
7.5	23000	234	5280	1.15	X	**RF**	**97R57**	**(E)DRN**	**100LM4**	385	335/346
8.4	20600	209	5600	1.30	X	**RM**	**97R57**	**(E)DRN**	**100LM4**	495	335/346
						R	**97R57**	**(E)DRN**	**100LM4**	340	334/346
7.8	22800	227	5300	1.15	X	**RF**	**97R57**	**(E)DRN**	**100LM4**	375	335/346
						RM	**97R57**	**(E)DRN**	**100LM4**	490	335/346
6.7	28100	262.65	9660	1.90	X						
7.3	25700	240.48	9660	2.1	X						
8.3	22700	212.46	9660	2.3	X						
9.8	19300	180.23	9660	2.8	X	**R**	**127**	**(E)DRN**	**100LM4**	540	338
11	17800	165.95	9660	3.0	X	**RF**	**127**	**(E)DRN**	**100LM4**	570	339
12	15900	148.33	9660	3.3	X	**RM**	**127**	**(E)DRN**	**100LM4**	780	339
13	14300	133.53	9660	3.7	X						
15	12900	120.92	9660	4.1	X						
16	11500	107.23	9660	4.6	X						
5.8	32500	203.16	7290	1.15		**R**	**107**	**DRN**	**132S6**	465	336
6.8	27600	172.34	7760	1.40		**RF**	**107**	**DRN**	**132S6**	475	337
7.4	25400	158.68	7940	1.50		**RM**	**107**	**DRN**	**132S6**	670	337
8.3	22700	141.83	8110	1.65							
7.0	26900	251.15	7820	1.40	X						
7.7	24600	229.95	8000	1.55	X						
8.7	21700	203.16	8140	1.75	X						
10	18400	172.34	8240	2.1	X						
11	17000	158.68	8280	2.2	X	**R**	**107**	**(E)DRN**	**100LM4**	420	336
12	15200	141.83	8330	2.5	X	**RF**	**107**	**(E)DRN**	**100LM4**	435	337
14	13600	127.68	8360	2.8	X	**RM**	**107**	**(E)DRN**	**100LM4**	630	337
15	12400	115.63	8380	3.1	X						
17	10900	102.53	8310	3.5	X						
19	9940	92.70	8070	3.8	X						
8.2	23200	216.28	3940	1.15	X						
9.5	19900	186.30	4900	1.35	X						
10	18200	170.02	5430	1.45	X						
12	16100	150.78	6050	1.65	X						
14	13500	126.75	6200	1.95	X	**R**	**97**	**(E)DRN**	**100LM4**	295	334
15	12400	116.48	6240	2.1	X	**RF**	**97**	**(E)DRN**	**100LM4**	330	335
17	11000	103.44	6280	2.4	X	**RM**	**97**	**(E)DRN**	**100LM4**	445	335
19	9920	92.48	6320	2.7	X						
21	8910	83.15	6250	3.0	X						
24	7740	72.17	6000	3.4	X						

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P_m = 3.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
27	6990	65.21	5830	3.8	X						
29	6420	59.92	5680	4.1	X	**R**	**97**	**(E)DRN**	**100LM4**	295	334
33	5700	53.21	5490	4.7	X	**RF**	**97**	**(E)DRN**	**100LM4**	330	335
37	5100	47.58	5310	5.2	X	**RM**	**97**	**(E)DRN**	**100LM4**	445	335
14	13400	124.97	2930	1.00	X						
15	12700	118.43*	3190	1.10	X						
17	11100	103.65	3770	1.25	X						
19	10000	93.38	4170	1.35	X						
22	8780	81.92	4460	1.55	X						
24	7780	72.57	4490	1.75	X	**R**	**87**	**(E)DRN**	**100LM4**	200	331
28	6830	63.68*	4490	2.0	X	**RF**	**87**	**(E)DRN**	**100LM4**	220	332
29	6470	60.35*	4490	2.1	X	**RM**	**87**	**(E)DRN**	**100LM4**	285	332
33	5660	52.82	4480	2.4	X						
37	5100	47.58	4350	2.7	X						
42	4470	41.74	4190	3.1	X						
48	3950	36.84*	4040	3.5	X						
54	3500	32.66*	3900	3.9	X						
51	3690	34.40*	3960	3.6	X						
56	3360	31.40	3850	4.1	X	**R**	**87**	**(E)DRN**	**100LM4**	200	331
63	2980	27.84*	3720	4.6	X	**RF**	**87**	**(E)DRN**	**100LM4**	215	332
75	2510	23.40	3520	5.5	X	**RM**	**87**	**(E)DRN**	**100LM4**	280	332
82	2300	21.51	3440	5.8	X						
27	7050	65.77	2280	1.05	X						
31	6180	57.68	2450	1.15	X						
34	5580	52.07	2550	1.30	X						
38	4910	45.81	2650	1.50	X	**R**	**77**	**(E)DRN**	**100LM4**	145	328
41	4640	43.26	2690	1.55	X	**RF**	**77**	**(E)DRN**	**100LM4**	155	329
48	3950	36.83	2730	1.85	X	**RM**	**77**	**(E)DRN**	**100LM4**	210	329
53	3590	33.47	2660	2.0	X						
61	3110	29.00	2560	2.3	X						
70	2700	25.23	2470	2.5	X						
75	2500	23.37	2410	2.9	X						
82	2290	21.43	2360	3.2	X						
94	2010	18.80	2270	3.4	X	**R**	**77**	**(E)DRN**	**100LM4**	140	328
99	1910	17.82*	2230	3.6	X	**RF**	**77**	**(E)DRN**	**100LM4**	155	329
113	1670	15.60	2150	3.9	X	**RM**	**77**	**(E)DRN**	**100LM4**	210	329
125	1500	14.05	2080	4.2	X						
38	4960	46.29	1800	1.05	X						
44	4270	39.88*	1960	1.20	X	**R**	**67**	**(E)DRN**	**100LM4**	130	325
47	4020	37.50	2010	1.25	X	**RF**	**67**	**(E)DRN**	**100LM4**	135	326
55	3460	32.27	2100	1.40	X	**RM**	**67**	**(E)DRN**	**100LM4**	170	326
61	3090	28.83	2040	1.50	X						
75	2510	23.44	1940	1.95	X						
89	2130	19.89	1850	2.5	X						
98	1920	17.95	1800	2.7	X						
112	1690	15.79	1740	2.9	X						
118	1590	14.91	1710	3.0	X	**R**	**67**	**(E)DRN**	**100LM4**	125	325
139	1360	12.70	1640	3.4	X	**RF**	**67**	**(E)DRN**	**100LM4**	135	326
153	1230	11.54	1590	3.6	X	**RM**	**67**	**(E)DRN**	**100LM4**	170	326
176	1070	10.00	1530	3.9	X						
203	930	8.70*	1460	4.2	X						
226	830	7.79	1420	4.0	X						
47	4000	37.30*	1120	1.00	X						
50	3760	35.07	1110	1.05	X	**R**	**57**	**(E)DRN**	**100LM4**	115	322
58	3230	30.18	1090	1.25	X	**RF**	**57**	**(E)DRN**	**100LM4**	120	323
65	2890	26.97	1070	1.40	X	**RM**	**57**	**(E)DRN**	**100LM4**	150	323
80	2350	21.93	1030	1.70	X						
95	1990	18.60*	1000	2.0	X						
105	1800	16.79	980	2.2	X						
119	1580	14.77*	950	2.4	X						
126	1490	13.95*	940	2.5	X	**R**	**57**	**(E)DRN**	**100LM4**	115	322
148	1270	11.88	900	2.8	X	**RF**	**57**	**(E)DRN**	**100LM4**	120	323
163	1150	10.79	880	3.0	X	**RM**	**57**	**(E)DRN**	**100LM4**	145	323
188	1000	9.35	850	3.3	X						
194	970	9.06	840	3.4	X						
221	850	7.97	810	3.7	X						

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P_m = 3.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
75	2530	23.59	790	1.05	X	**R**	**47**	**(E)DRN**	**100LM4**	105	319
						RF	**47**	**(E)DRN**	**100LM4**	105	320
91	2060	19.27	770	1.25	X						
109	1730	16.22	745	1.40	X						
121	1560	14.56	730	1.50	X						
140	1340	12.54	705	1.65	X						
149	1260	11.79	700	1.70	X						
174	1080	10.15	675	1.85	X						
194	970	9.07	655	2.0	X						
220	850	8.01	635	2.1	X	**R**	**47**	**(E)DRN**	**100LM4**	100	319
227	830	7.76*	620	1.75	X	**RF**	**47**	**(E)DRN**	**100LM4**	100	320
253	745	6.96	605	1.90	X						
294	640	6.00	580	2.1	X						
312	605	5.64*	575	2.3	X						
363	520	4.85	550	2.5	X						
406	465	4.34	535	2.8	X						
460	410	3.83	515	3.1	X						
113	1670	15.60	395	1.05	X						
133	1420	13.25	490	1.20	X						
149	1260	11.83	545	1.30	X						
174	1080	10.11	600	1.40	X						
186	1010	9.47	620	1.45	X						
221	850	7.97	600	1.60	X	**R**	**37**	**(E)DRN**	**100LM4**	94	316
264	715	6.67	570	1.80	X	**RF**	**37**	**(E)DRN**	**100LM4**	97	317
311	605	5.67	545	2.1	X						
348	540	5.06	530	2.2	X						
408	460	4.32	510	2.4	X						
435	430	4.05	505	2.5	X						
517	365	3.41	480	2.7	X						
529	355	6.67	480	3.6							
622	300	5.67	455	4.1							
697	270	5.06	445	4.4		**R**	**37**	**DRN**	**90L2**	69	316
816	230	4.32	425	4.8		**RF**	**37**	**DRN**	**90L2**	72	317
871	215	4.05	415	5.0							
1035	183	3.41	395	5.4							
174	1080	10.13	335	1.00							
267	705	6.59	320	1.35	X						
315	600	5.60*	345	1.45	X						
352	535	5.00*	340	1.55	X	**R**	**27**	**(E)DRN**	**100LM4**	81	313
413	455	4.27	330	1.70	X	**RF**	**27**	**(E)DRN**	**100LM4**	81	314
440	425	4.00*	325	1.75	X						
523	360	3.37	315	1.95	X						
462	405	7.63*	320	2.4							
535	350	6.59	310	2.6							
629	300	5.60*	300	2.9							
705	265	5.00*	290	3.1		**R**	**27**	**DRN**	**90L2**	56	313
825	225	4.27	280	3.4		**RF**	**27**	**DRN**	**90L2**	56	314
881	210	4.00*	275	3.5							
1045	181	3.37	265	3.9							
373	505	4.73	1090	2.1	X						
436	430	4.04*	1040	2.9	X						
476	395	3.70	1010	3.4	X						
542	345	3.25*	970	4.6	X						
572	330	3.08*	960	5.2	X						
654	285	2.70	920	6.6	X	**RX**	**77**	**(E)DRN**	**100LM4**	120	299
726	260	2.43	890	7.3	X	**RXF**	**77**	**(E)DRN**	**100LM4**	125	300
827	225	2.13	860	7.7	X						
937	200	1.88*	820	8.2	X						
1055	179	1.67	790	8.6	X						
1240	153	1.42	755	9.0	X						

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P_m = 3.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
467	400	3.77	695	1.90	X						
551	340	3.20*	660	2.6	X						
610	305	2.89	645	3.0	X						
693	270	2.54	620	3.8	X						
734	255	2.40*	610	4.2	X	**RX**	**67**	**(E)DRN**	**100LM4**	100	297
862	215	2.04	580	5.4	X	**RXF**	**67**	**(E)DRN**	**100LM4**	110	298
949	199	1.86	565	5.6	X						
1095	173	1.61	540	5.8	X						
1260	150	1.40*	520	6.1	X						
562	335	3.14	520	1.70	X						
667	280	2.64*	495	2.2	X						
743	250	2.37	480	2.4	X						
863	215	2.04	460	2.8	X	**RX**	**57**	**(E)DRN**	**100LM4**	94	295
918	205	1.92*	455	3.0	X	**RXF**	**57**	**(E)DRN**	**100LM4**	98	296
1065	177	1.65	435	3.4	X						
1195	158	1.48	420	3.8	X						
1350	140	1.30	405	4.0	X						

P_m = 4.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.4	169170	1279	27000	1.05	X						
1.6	148540	1123	27000	1.20	X						
1.8	132140	999	27000	1.35	X	**R**	**167R97**	**(E)DRN**	**100L4**	1710	344/347
2.1	113880	861	27000	1.6	X	**RF**	**167R97**	**(E)DRN**	**100L4**	1720	345/347
2.3	100530	760	27000	1.8	X	**RM**	**167R97**	**(E)DRN**	**100L4**	2160	345/347
2.7	86770	656	27000	2.0	X						
3.5	66530	503	27000	2.7	X						
3.3	69000	533	15800	1.65	X						
3.8	59400	462	16100	1.95	X						
4.1	55800	426	16200	2.1	X	**R**	**147R87**	**(E)DRN**	**100L4**	1030	342/347
4.8	48200	368	16300	2.4	X	**RF**	**147R87**	**(E)DRN**	**100L4**	1050	343/347
5.4	42600	326	16400	2.7	X	**RM**	**147R87**	**(E)DRN**	**100L4**	1420	343/347
6.3	36000	280	16500	3.2	X						
2.0	117300	889	14000	1.00							
2.2	103300	784	14600	1.10	X	**R**	**147R77**	**(E)DRN**	**100L4**	990	342/346
2.5	91400	695	15100	1.25	X	**RF**	**147R77**	**(E)DRN**	**100L4**	1000	343/346
2.9	82000	619	15500	1.40	X	**RM**	**147R77**	**(E)DRN**	**100L4**	1370	343/346
3.2	73800	558	15700	1.55	X						
3.6	64400	490	12300	1.10	X						
4.1	56200	428	12700	1.25	X						
4.6	50500	381	12900	1.40	X	**R**	**137R77**	**(E)DRN**	**100L4**	700	340/346
5.5	42800	323	13200	1.65	X	**RF**	**137R77**	**(E)DRN**	**100L4**	750	341/346
6.0	38500	291	13300	1.85	X	**RM**	**137R77**	**(E)DRN**	**100L4**	990	341/346
6.9	33700	255	13400	2.1	X						
7.9	29500	223	13500	2.4	X						
3.4	69500	517	12100	1.00	X	**R**	**137R77**	**(E)DRN**	**100L4**	670	340/346
3.9	60900	453	12500	1.15	X	**RF**	**137R77**	**(E)DRN**	**100L4**	720	341/346
						RM	**137R77**	**(E)DRN**	**100L4**	970	341/346
4.3	53500	407	9660	1.00							
4.6	51000	386	9660	1.05	X	**R**	**127R77**	**(E)DRN**	**100L4**	630	338/346
5.9	39300	298	9660	1.35	X	**RF**	**127R77**	**(E)DRN**	**100L4**	650	339/346
7.0	33300	253	9660	1.60	X	**RM**	**127R77**	**(E)DRN**	**100L4**	870	339/346
4.5	53000	394	9660	1.00	X						
5.4	43800	327	9660	1.20	X						
6.8	34500	259	9660	1.55	X	**R**	**127R77**	**(E)DRN**	**100L4**	590	338/346
8.7	26900	202	9660	1.95	X	**RF**	**127R77**	**(E)DRN**	**100L4**	640	339/346
11	21700	162	9660	2.4	X	**RM**	**127R77**	**(E)DRN**	**100L4**	850	339/346
14	16700	126	9660	3.2	X						
7.0	33200	253	7210	1.15	X	**R**	**107R77**	**(E)DRN**	**100L4**	500	336/346
8.2	28200	214	7710	1.35	X	**RF**	**107R77**	**(E)DRN**	**100L4**	520	337/346
9.4	24600	187	8000	1.55	X	**RM**	**107R77**	**(E)DRN**	**100L4**	710	337/346

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P_m = 4.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
6.7	37500	262.65	9660	1.40	X						
7.3	34300	240.48	9660	1.55	X						
8.3	30300	212.46	9660	1.75	X						
9.8	25700	180.23	9660	2.1	X						
11	23700	165.95	9660	2.2	X						
12	21200	148.33	9660	2.5	X	**R**	**127**	**(E)DRN**	**100L4**	540	338
13	19000	133.53	9660	2.8	X	**RF**	**127**	**(E)DRN**	**100L4**	570	339
15	17200	120.92	9660	3.1	X	**RM**	**127**	**(E)DRN**	**100L4**	780	339
16	15300	107.23	9660	3.5	X						
18	13800	96.95	9660	3.8	X						
21	12100	85.26	9660	4.4	X						
21	11700	82.17	9660	4.5	X						
23	10800	76.21	9660	4.9	X						
7.4	33900	158.68	7140	1.10		**R**	**107**	**DRN**	**132S6**	465	336
8.3	30300	141.83	7510	1.25		**RF**	**107**	**DRN**	**132S6**	475	337
9.2	27300	127.68	7790	1.40		**RM**	**107**	**DRN**	**132S6**	670	337
7.7	32800	229.95	7260	1.15	X						
8.7	29000	203.16	7640	1.30	X						
10	24600	172.34	8000	1.55	X						
11	22600	158.68	8110	1.70	X						
12	20200	141.83	8190	1.90	X	**R**	**107**	**(E)DRN**	**100L4**	420	336
14	18200	127.68	8250	2.1	X	**RF**	**107**	**(E)DRN**	**100L4**	435	337
15	16500	115.63	8290	2.3	X	**RM**	**107**	**(E)DRN**	**100L4**	630	337
17	14600	102.53	8160	2.6	X						
19	13200	92.70	7930	2.9	X						
22	11200	78.57	7560	3.4	X						
24	10400	72.88	7390	3.6	X						
12	21500	150.78	4430	1.25	X						
14	18100	126.75	5460	1.45	X						
15	16600	116.48	5900	1.60	X						
17	14700	103.44	6160	1.80	X						
19	13200	92.48	6210	2.0	X						
21	11800	83.15	6100	2.2	X						
24	10300	72.17	5870	2.6	X	**R**	**97**	**(E)DRN**	**100L4**	295	334
27	9320	65.21	5700	2.9	X	**RF**	**97**	**(E)DRN**	**100L4**	330	335
29	8560	59.92	5570	3.1	X	**RM**	**97**	**(E)DRN**	**100L4**	445	335
33	7600	53.21	5390	3.5	X						
37	6800	47.58	5220	3.9	X						
41	6110	42.78	5060	4.3	X						
47	5300	37.13	4850	5.0	X						
53	4750	33.25	4700	5.4	X						
19	13300	93.38	2950	1.05	X						
22	11700	81.92	3550	1.15	X						
24	10300	72.57	4040	1.30	X						
28	9100	63.68*	4430	1.50	X						
29	8620	60.35*	4480	1.60	X	**R**	**87**	**(E)DRN**	**100L4**	200	331
33	7550	52.82	4360	1.80	X	**RF**	**87**	**(E)DRN**	**100L4**	220	332
37	6800	47.58	4240	2.0	X	**RM**	**87**	**(E)DRN**	**100L4**	285	332
42	5960	41.74	4090	2.3	X						
48	5260	36.84*	3960	2.6	X						
54	4660	32.66*	3820	2.9	X						
63	3980	27.88	3650	3.3	X						
51	4910	34.40*	3880	2.7	X						
56	4480	31.40	3780	3.1	X						
63	3980	27.84*	3650	3.5	X						
75	3340	23.40	3470	4.1	X	**R**	**87**	**(E)DRN**	**100L4**	200	331
82	3070	21.51	3390	4.3	X	**RF**	**87**	**(E)DRN**	**100L4**	215	332
92	2730	19.10	3270	4.7	X	**RM**	**87**	**(E)DRN**	**100L4**	280	332
103	2440	17.08*	3160	5.0	X						
115	2190	15.35	3060	5.4	X						
38	6540	45.81	2380	1.10	X						
41	6180	43.26	2450	1.15	X						
48	5260	36.83	2600	1.40	X	**R**	**77**	**(E)DRN**	**100L4**	145	328
53	4780	33.47	2570	1.50	X	**RF**	**77**	**(E)DRN**	**100L4**	155	329
61	4140	29.00	2480	1.75	X	**RM**	**77**	**(E)DRN**	**100L4**	210	329
70	3600	25.23	2400	1.90	X						

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P_m = 4.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
75	3340	23.37	2350	2.2	X						
82	3060	21.43	2300	2.4	X						
94	2680	18.80	2220	2.6	X						
99	2540	17.82*	2190	2.7	X						
113	2220	15.60	2110	2.9	X						
125	2000	14.05	2040	3.2	X	**R**	**77**	**(E)DRN**	**100L4**	140	328
143	1760	12.33	1970	3.5	X	**RF**	**77**	**(E)DRN**	**100L4**	155	329
162	1550	10.88	1900	3.8	X	**RM**	**77**	**(E)DRN**	**100L4**	210	329
183	1370	9.64	1830	4.0	X						
205	1220	8.59	1780	4.5	X						
228	1100	7.74	1730	4.9	X						
260	970	6.79	1660	5.3	X						
75	3350	23.44	1870	1.50	X						
89	2840	19.89	1790	1.85	X						
98	2560	17.95	1750	2.0	X						
112	2250	15.79	1690	2.2	X	**R**	**67**	**(E)DRN**	**100L4**	125	325
118	2130	14.91	1670	2.3	X	**RF**	**67**	**(E)DRN**	**100L4**	135	326
139	1810	12.70	1600	2.5	X	**RM**	**67**	**(E)DRN**	**100L4**	170	326
153	1640	11.54	1560	2.7	X						
176	1420	10.00	1500	2.9	X						
						R	**57**	**(E)DRN**	**100L4**	115	322
65	3850	26.97	980	1.05	X	**RF**	**57**	**(E)DRN**	**100L4**	120	323
						RM	**57**	**(E)DRN**	**100L4**	150	323
80	3130	21.93	960	1.25	X						
95	2650	18.60*	940	1.50	X						
105	2400	16.79	920	1.65	X						
119	2110	14.77*	900	1.80	X						
126	1990	13.95*	890	1.90	X						
148	1690	11.88	860	2.1	X						
163	1540	10.79	840	2.2	X	**R**	**57**	**(E)DRN**	**100L4**	115	322
189	1330	9.35	820	2.5	X	**RF**	**57**	**(E)DRN**	**100L4**	120	323
195	1290	9.06	810	2.6	X	**RM**	**57**	**(E)DRN**	**100L4**	145	323
221	1130	7.97	790	2.8	X						
234	1070	7.53	775	2.9	X						
275	910	6.41	745	3.2	X						
303	830	5.82	725	3.4	X						
349	720	5.05	700	3.7	X						
402	625	4.39	675	4.0	X						
109	2310	16.22	670	1.05	X						
121	2080	14.56	680	1.15	X						
141	1790	12.54	665	1.25	X						
149	1680	11.79	660	1.30	X						
174	1450	10.15	640	1.40	X						
194	1290	9.07	625	1.50	X						
220	1140	8.01	610	1.60	X	**R**	**47**	**(E)DRN**	**100L4**	100	319
227	1100	7.76*	590	1.30	X	**RF**	**47**	**(E)DRN**	**100L4**	100	320
253	990	6.96	575	1.40	X						
294	850	6.00	560	1.60	X						
313	800	5.64*	550	1.70	X						
363	690	4.85	530	1.90	X						
407	615	4.34	515	2.1	X						
460	545	3.83	500	2.3	X						
174	1440	10.11	340	1.05	X						
186	1350	9.47	380	1.10	X						
221	1130	7.97	455	1.20	X						
264	950	6.67	400	1.35	X						
311	800	5.67	455	1.55	X	**R**	**37**	**(E)DRN**	**100L4**	94	316
348	720	5.06	485	1.65	X	**RF**	**37**	**(E)DRN**	**100L4**	97	317
408	615	4.32	490	1.80	X						
436	575	4.05	485	1.85	X						
517	485	3.41	465	2.0	X						
527	475	6.67	465	2.7							
621	405	5.67	445	3.1							
695	360	5.06	430	3.3		**R**	**37**	**DRN**	**100LM2**	94	316
814	305	4.32	415	3.6		**RF**	**37**	**DRN**	**100LM2**	97	317
869	290	4.05	405	3.7							
1030	240	3.41	390	4.1							

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P_m = 4.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
315	800	5.60*	193	1.10	X						
353	710	5.00*	235	1.20	X						
413	610	4.27	280	1.25	X	**R**	**27**	**(E)DRN**	**100L4**	81	313
441	570	4.00*	295	1.30	X	**RF**	**27**	**(E)DRN**	**100L4**	81	314
523	480	3.37	295	1.45	X						
534	470	6.59	295	2.0							
628	400	5.60*	285	2.2							
703	355	5.00*	280	2.4		**R**	**27**	**DRN**	**100LM2**	81	313
823	305	4.27	270	2.5		**RF**	**27**	**DRN**	**100LM2**	81	314
879	285	4.00*	265	2.6							
1045	240	3.37	255	2.9							
373	675	4.73	1070	1.60	X						
436	575	4.04*	1020	2.2	X						
476	525	3.70	1000	2.6	X	**RX**	**77**	**(E)DRN**	**100L4**	120	299
542	460	3.25*	960	3.5	X	**RXF**	**77**	**(E)DRN**	**100L4**	125	300
572	440	3.08*	940	3.9	X						
467	535	3.77	670	1.45	X						
551	455	3.20*	645	1.95	X						
610	410	2.89	625	2.3	X						
694	360	2.54	605	2.9	X						
735	340	2.40*	595	3.2	X	**RX**	**67**	**(E)DRN**	**100L4**	100	297
863	290	2.04	570	4.1	X	**RXF**	**67**	**(E)DRN**	**100L4**	110	298
949	265	1.86	550	4.2	X						
1095	225	1.61	530	4.4	X						
1260	200	1.40*	510	4.6	X						
562	445	3.14	500	1.30	X						
668	375	2.64*	480	1.60	X						
744	335	2.37	465	1.80	X						
864	290	2.04	450	2.1	X	**RX**	**57**	**(E)DRN**	**100L4**	94	295
918	270	1.92*	440	2.2	X	**RXF**	**57**	**(E)DRN**	**100L4**	98	296
1065	235	1.65	425	2.6	X						
1195	210	1.48	410	2.9	X						
1350	186	1.30	395	3.0	X						

P_m = 5.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.9	157520	950	27000	1.10	X						
2.0	142590	860	27000	1.25	X						
2.3	126510	763	27000	1.40	X						
2.6	114410	690	27000	1.6	X	**R**	**167R107**	**(E)DRN**	**100L4**	1820	344/347
3.0	97000	585	27000	1.8	X	**RF**	**167R107**	**(E)DRN**	**100L4**	1830	345/347
4.0	75150	446	27000	2.4	X	**RM**	**167R107**	**(E)DRN**	**100L4**	2260	345/347
4.4	67230	399	27000	2.6	X						
4.9	60830	361	27000	2.9	X						
5.4	55270	328	27000	3.2	X						
1.8	165640	999	27000	1.05	X						
2.0	142760	861	27000	1.25	X						
2.3	126010	760	27000	1.40	X	**R**	**167R97**	**(E)DRN**	**100L4**	1710	344/347
2.7	108770	656	27000	1.7	X	**RF**	**167R97**	**(E)DRN**	**100L4**	1720	345/347
3.5	83400	503	27000	2.1	X	**RM**	**167R97**	**(E)DRN**	**100L4**	2160	345/347
4.7	62340	376	27000	2.8	X						
3.3	87200	533	15300	1.30	X						
3.8	75100	462	15700	1.55	X						
4.1	70400	426	15800	1.65	X	**R**	**147R87**	**(E)DRN**	**100L4**	1030	342/347
4.8	60800	368	16100	1.90	X	**RF**	**147R87**	**(E)DRN**	**100L4**	1050	343/347
5.4	53700	326	16200	2.1	X	**RM**	**147R87**	**(E)DRN**	**100L4**	1420	343/347
6.3	45600	280	16400	2.5	X						
7.1	40200	247	16500	2.9	X						
2.5	115100	695	14100	1.00	X						
2.8	103100	619	14600	1.10	X	**R**	**147R77**	**(E)DRN**	**100L4**	990	342/347
3.1	92800	558	15100	1.25	X	**RF**	**147R77**	**(E)DRN**	**100L4**	1000	343/347
3.6	81300	489	15500	1.40	X	**RM**	**147R77**	**(E)DRN**	**100L4**	1370	343/347
4.2	68900	415	15800	1.65	X						

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P_m = 5.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
4.1	70800	428	12000	1.00	X						
4.6	63500	381	12400	1.10	X						
5.4	53800	323	12800	1.30	X						
6.0	48500	291	13000	1.45	X	**R**	**137R77**	**(E)DRN**	**100L4**	700	340/346
6.9	42300	255	13200	1.65	X	**RF**	**137R77**	**(E)DRN**	**100L4**	750	341/346
7.9	37100	223	13300	1.90	X	**RM**	**137R77**	**(E)DRN**	**100L4**	990	341/346
8.9	32700	197	13400	2.2	X						
10	28900	175	13500	2.4	X						
4.7	63400	376	12400	1.10	X	**R**	**137R77**	**(E)DRN**	**100L4**	670	340/346
5.2	57000	339	12700	1.25	X	**RF**	**137R77**	**(E)DRN**	**100L4**	720	341/346
5.9	50000	297	12900	1.40	X	**RM**	**137R77**	**(E)DRN**	**100L4**	970	341/346
5.9	49500	298	9660	1.05	X	**R**	**127R77**	**(E)DRN**	**100L4**	630	338/346
7.0	41900	253	9660	1.25	X	**RF**	**127R77**	**(E)DRN**	**100L4**	650	339/346
						RM	**127R77**	**(E)DRN**	**100L4**	870	339/346
6.8	43400	259	9660	1.20	X	**R**	**127R77**	**(E)DRN**	**100L4**	590	338/346
8.7	33900	202	9660	1.55	X	**RF**	**127R77**	**(E)DRN**	**100L4**	640	339/346
11	27300	162	9660	1.95	X	**RM**	**127R77**	**(E)DRN**	**100L4**	850	339/346
14	21100	126	9660	2.5	X						
8.2	35500	214	6950	1.05	X	**R**	**107R77**	**(E)DRN**	**100L4**	500	336/346
9.4	31000	187	7450	1.25	X	**RF**	**107R77**	**(E)DRN**	**100L4**	520	337/346
						RM	**107R77**	**(E)DRN**	**100L4**	710	337/346
8.0	37000	220	6760	1.05	X	**R**	**107R77**	**(E)DRN**	**100L4**	490	336/346
9.1	32400	193	7300	1.15	X	**RF**	**107R77**	**(E)DRN**	**100L4**	500	337/346
10	29000	172	7630	1.30	X	**RM**	**107R77**	**(E)DRN**	**100L4**	700	337/346
6.7	47000	262.65	9660	1.15	X						
7.3	43000	240.48	9660	1.25	X						
8.3	38000	212.46	9660	1.40	X						
9.8	32200	180.23	9660	1.65	X						
11	29700	165.95	9660	1.80	X						
12	26500	148.33	9660	2.0	X	**R**	**127**	**(E)DRN**	**100L4**	540	338
13	23900	133.53	9660	2.2	X	**RF**	**127**	**(E)DRN**	**100L4**	570	339
15	21600	120.92	9660	2.5	X	**RM**	**127**	**(E)DRN**	**100L4**	780	339
16	19200	107.23	9660	2.8	X						
18	17300	96.95	9660	3.1	X						
21	15200	85.26	9660	3.5	X						
21	14700	82.17	9660	3.6	X						
23	13600	76.21	9660	3.9	X						
8.7	36400	203.16	6840	1.05	X						
10	30800	172.34	7460	1.25	X						
11	28400	158.68	7690	1.35	X						
12	25400	141.83	7940	1.50	X						
14	22800	127.68	8100	1.65	X	**R**	**107**	**(E)DRN**	**100L4**	420	336
15	20700	115.63	8170	1.85	X	**RF**	**107**	**(E)DRN**	**100L4**	435	337
17	18300	102.53	8010	2.1	X	**RM**	**107**	**(E)DRN**	**100L4**	630	337
19	16600	92.70	7790	2.3	X						
22	14000	78.57	7450	2.7	X						
24	13000	72.88	7290	2.9	X						
12	27000	150.78	2790	1.00							
14	22700	126.75	4080	1.15	X						
15	20800	116.48	4640	1.25	X						
17	18500	103.44	5340	1.45	X						
19	16500	92.48	5930	1.60	X						
21	14800	83.15	5950	1.80	X						
24	12900	72.17	5740	2.0	X	**R**	**97**	**(E)DRN**	**100L4**	295	334
27	11600	65.21	5590	2.3	X	**RF**	**97**	**(E)DRN**	**100L4**	330	335
29	10700	59.92	5470	2.5	X	**RM**	**97**	**(E)DRN**	**100L4**	445	335
33	9530	53.21	5290	2.8	X						
37	8520	47.58	5130	3.1	X						
41	7660	42.78	4980	3.5	X						
47	6650	37.13	4790	4.0	X						
53	5950	33.25	4640	4.3	X						

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P_m = 5.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
24	13000	72.57	3080	1.05	X						
28	11400	63.68*	3660	1.20	X						
29	10800	60.35*	3860	1.25	X						
33	9460	52.82	4010	1.45	X	**R**	**87**	**(E)DRN**	**100L4**	200	331
37	8520	47.58	4100	1.60	X	**RF**	**87**	**(E)DRN**	**100L4**	220	332
42	7480	41.74	4010	1.85	X	**RM**	**87**	**(E)DRN**	**100L4**	285	332
48	6600	36.84*	3880	2.1	X						
54	5850	32.66*	3760	2.3	X						
63	4990	27.88	3600	2.7	X						
51	6160	34.40*	3810	2.1	X						
56	5620	31.40	3720	2.4	X						
63	4980	27.84*	3600	2.8	X						
75	4190	23.40	3420	3.3	X	**R**	**87**	**(E)DRN**	**100L4**	200	331
82	3850	21.51	3340	3.4	X	**RF**	**87**	**(E)DRN**	**100L4**	215	332
92	3420	19.10	3230	3.7	X	**RM**	**87**	**(E)DRN**	**100L4**	280	332
103	3060	17.08*	3130	4.0	X						
114	2750	15.35	3030	4.3	X						
48	6600	36.83	2370	1.10	X						
53	5990	33.47	2480	1.20	X	**R**	**77**	**(E)DRN**	**100L4**	145	328
61	5190	29.00	2410	1.40	X	**RF**	**77**	**(E)DRN**	**100L4**	155	329
70	4520	25.23	2330	1.55	X	**RM**	**77**	**(E)DRN**	**100L4**	210	329
75	4180	23.37	2290	1.75	X						
82	3830	21.43	2240	1.90	X						
93	3360	18.80	2170	2.0	X						
99	3190	17.82*	2140	2.2	X						
113	2790	15.60	2070	2.3	X						
125	2510	14.05	2010	2.5	X	**R**	**77**	**(E)DRN**	**100L4**	140	328
143	2200	12.33	1940	2.8	X	**RF**	**77**	**(E)DRN**	**100L4**	155	329
162	1940	10.88	1870	3.0	X	**RM**	**77**	**(E)DRN**	**100L4**	210	329
182	1720	9.64	1810	3.2	X						
205	1530	8.59	1760	3.6	X						
227	1380	7.74	1710	3.9	X						
259	1210	6.79	1640	4.2	X						
75	4200	23.44	1800	1.20	X						
88	3560	19.89	1740	1.50	X						
98	3210	17.95	1700	1.60	X						
111	2830	15.79	1650	1.75	X						
118	2670	14.91	1620	1.80	X						
138	2270	12.70	1560	2.0	X						
152	2060	11.54	1520	2.1	X	**R**	**67**	**(E)DRN**	**100L4**	125	325
176	1790	10.00	1470	2.3	X	**RF**	**67**	**(E)DRN**	**100L4**	135	326
202	1550	8.70*	1410	2.5	X	**RM**	**67**	**(E)DRN**	**100L4**	170	326
226	1390	7.79	1370	2.4	X						
239	1310	7.36*	1350	2.5	X						
281	1120	6.27	1290	2.6	X						
309	1020	5.70	1260	2.7	X						
356	880	4.93	1210	2.9	X						
80	3920	21.93	890	1.00	X						
95	3330	18.60*	880	1.20	X						
105	3000	16.79	870	1.30	X						
119	2640	14.77*	850	1.45	X						
126	2490	13.95*	840	1.50	X						
148	2120	11.88	820	1.70	X						
163	1930	10.79	810	1.80	X	**R**	**57**	**(E)DRN**	**100L4**	115	322
188	1670	9.35	785	1.95	X	**RF**	**57**	**(E)DRN**	**100L4**	120	323
194	1620	9.06	785	2.0	X	**RM**	**57**	**(E)DRN**	**100L4**	145	323
221	1420	7.97	765	2.2	X						
234	1340	7.53	755	2.3	X						
274	1140	6.41	725	2.6	X						
302	1040	5.82	710	2.7	X						
348	900	5.05	685	3.0	X						
400	785	4.39	660	3.1	X						

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P_m = 5.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
140	2240	12.54	545	1.00							
149	2110	11.79	590	1.05	X						
173	1810	10.15	605	1.10	X						
194	1620	9.07	595	1.20	X						
219	1430	8.01	585	1.25	X						
227	1380	7.76*	560	1.05	X	**R**	**47**	**(E)DRN**	**100L4**	100	319
252	1240	6.96	550	1.15	X	**RF**	**47**	**(E)DRN**	**100L4**	100	320
293	1070	6.00	535	1.30	X						
312	1010	5.64*	530	1.35	X						
362	860	4.85	515	1.55	X						
405	775	4.34	500	1.65	X						
459	685	3.83	485	1.85	X						
438	715	8.01	505	2.5		**R**	**47**	**DRN**	**100L2**	100	319
452	695	7.76*	490	2.1		**RF**	**47**	**DRN**	**100L2**	100	320
504	625	6.96	475	2.2							
264	1190	6.67	197	1.05	X						
310	1010	5.67	285	1.25	X						
348	900	5.06	335	1.30	X	**R**	**37**	**(E)DRN**	**100L4**	94	316
407	770	4.32	390	1.45	X	**RF**	**37**	**(E)DRN**	**100L4**	97	317
434	725	4.05	410	1.50	X						
516	610	3.41	445	1.60	X						
371	850	9.47	465	1.75							
440	715	7.97	470	1.95							
526	595	6.67	445	2.1							
619	505	5.67	430	2.5		**R**	**37**	**DRN**	**100L2**	94	316
693	450	5.06	420	2.6		**RF**	**37**	**DRN**	**100L2**	97	317
812	385	4.32	405	2.9							
867	360	4.05	400	3.0							
1030	305	3.41	380	3.2							
412	765	4.27	148	1.00	X	**R**	**27**	**(E)DRN**	**100L4**	81	313
440	715	4.00*	172	1.05	X	**RF**	**27**	**(E)DRN**	**100L4**	81	314
522	600	3.37	225	1.15	X						
532	590	6.59	230	1.60							
626	500	5.60*	265	1.75							
702	445	5.00*	265	1.85		**R**	**27**	**DRN**	**100L2**	81	313
821	380	4.27	260	2.0		**RF**	**27**	**DRN**	**100L2**	81	314
877	355	4.00*	255	2.1							
1040	300	3.37	245	2.3							
372	840	4.73	1040	1.30	X						
435	720	4.04*	1000	1.75	X						
475	660	3.70	980	2.0	X	**RX**	**77**	**(E)DRN**	**100L4**	120	299
541	580	3.25*	940	2.8	X	**RXF**	**77**	**(E)DRN**	**100L4**	125	300
571	550	3.08*	930	3.1	X						
466	675	3.77	650	1.15	X						
549	570	3.20*	625	1.55	X						
609	515	2.89	610	1.80	X						
692	455	2.54	590	2.3	X						
732	430	2.40*	580	2.5	X	**RX**	**67**	**(E)DRN**	**100L4**	100	297
860	365	2.04	555	3.2	X	**RXF**	**67**	**(E)DRN**	**100L4**	110	298
947	330	1.86	540	3.4	X						
1095	285	1.61	520	3.5	X						
1255	250	1.40*	500	3.7	X						
561	560	3.14	480	1.00	X						
666	470	2.64*	460	1.30	X						
742	420	2.37	450	1.45	X						
861	365	2.04	435	1.65	X	**RX**	**57**	**(E)DRN**	**100L4**	94	295
916	340	1.92*	425	1.75	X	**RXF**	**57**	**(E)DRN**	**100L4**	98	296
1065	295	1.65	410	2.1	X						
1190	260	1.48	400	2.3	X						
1350	230	1.30	385	2.4	X						

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P_m = 5.4 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.9	169060	950	27000	1.05	X						
2.1	153040	860	27000	1.15	X	**R**	**167R107**	**(E)DRN**	**112M4**	1830	344/347
2.3	135780	763	27000	1.30	X	**RF**	**167R107**	**(E)DRN**	**112M4**	1850	345/347
2.6	122790	690	27000	1.5	X	**RM**	**167R107**	**(E)DRN**	**112M4**	2280	345/347
3.0	104110	585	27000	1.7	X						
4.0	80660	446	27000	2.2	X						
4.4	72160	399	27000	2.5	X	**R**	**167R107**	**(E)DRN**	**112M4**	1820	344/347
4.9	65290	361	27000	2.7	X	**RF**	**167R107**	**(E)DRN**	**112M4**	1830	345/347
5.4	59320	328	27000	3.0	X	**RM**	**167R107**	**(E)DRN**	**112M4**	2260	345/347
2.0	152700	861	27000	1.05	X						
2.3	135000	760	27000	1.20	X						
2.7	114000	656	27000	1.40	X	**R**	**167R97**	**(E)DRN**	**112M4**	1730	344/347
3.5	87400	503	27000	1.80	X	**RF**	**167R97**	**(E)DRN**	**112M4**	1740	345/347
4.7	65400	376	27000	2.4	X	**RM**	**167R97**	**(E)DRN**	**112M4**	2170	345/347
5.3	58200	335	27000	2.7	X						
3.3	93800	533	15000	1.25	X						
3.8	80800	462	15500	1.40	X						
4.2	75600	426	15700	1.50	X						
4.8	65300	368	15900	1.75	X						
5.4	57800	326	16100	2.0	X	**R**	**147R87**	**(E)DRN**	**112M4**	1050	342/347
6.3	49000	280	16300	2.3	X	**RF**	**147R87**	**(E)DRN**	**112M4**	1070	343/347
7.2	43200	247	16400	2.7	X	**RM**	**147R87**	**(E)DRN**	**112M4**	1440	343/347
8.3	37300	214	16500	3.1	X						
9.4	33000	189	16600	3.5	X						
11	27700	159	16600	4.1	X						
2.9	110800	619	14300	1.05	X						
3.2	99700	558	14800	1.15	X	**R**	**147R77**	**(E)DRN**	**112M4**	1010	342/347
3.6	87300	489	15300	1.30	X	**RF**	**147R77**	**(E)DRN**	**112M4**	1020	343/347
4.3	74000	415	15700	1.55	X	**RM**	**147R77**	**(E)DRN**	**112M4**	1390	343/347
4.6	68200	381	12100	1.05	X						
5.5	57800	323	12600	1.20	X						
6.1	52100	291	12900	1.35	X	**R**	**137R77**	**(E)DRN**	**112M4**	720	340/346
6.9	45500	255	13100	1.55	X	**RF**	**137R77**	**(E)DRN**	**112M4**	770	341/346
7.9	39800	223	13300	1.75	X	**RM**	**137R77**	**(E)DRN**	**112M4**	1010	341/346
9.0	35100	197	13400	2.0	X						
10	31100	175	13500	2.3	X						
4.7	68100	376	12100	1.05	X	**R**	**137R77**	**(E)DRN**	**112M4**	690	340/346
5.2	61300	339	12500	1.15	X	**RF**	**137R77**	**(E)DRN**	**112M4**	740	341/346
6.0	53700	297	12800	1.30	X	**RM**	**137R77**	**(E)DRN**	**112M4**	990	341/346
5.9	53200	298	9660	1.00	X	**R**	**127R77**	**(E)DRN**	**112M4**	650	338/346
7.0	45000	253	9660	1.20	X	**RF**	**127R77**	**(E)DRN**	**112M4**	670	339/346
						RM	**127R77**	**(E)DRN**	**112M4**	890	339/346
6.8	46700	259	9660	1.15	X						
8.7	36400	202	9660	1.45	X	**R**	**127R77**	**(E)DRN**	**112M4**	610	338/346
11	29300	162	9660	1.80	X	**RF**	**127R77**	**(E)DRN**	**112M4**	660	339/346
14	22600	126	9660	2.3	X	**RM**	**127R77**	**(E)DRN**	**112M4**	870	339/346
8.2	38100	214	6600	1.00	X	**R**	**107R77**	**(E)DRN**	**112M4**	530	336/346
9.4	33300	187	7200	1.15	X	**RF**	**107R77**	**(E)DRN**	**112M4**	540	337/346
						RM	**107R77**	**(E)DRN**	**112M4**	730	337/346
9.1	34800	193	7030	1.10	X	**R**	**107R77**	**(E)DRN**	**112M4**	510	336/346
10	31200	172	7430	1.20	X	**RF**	**107R77**	**(E)DRN**	**112M4**	520	337/346
						RM	**107R77**	**(E)DRN**	**112M4**	720	337/346
5.3	64100	222.60*	12300	1.10							
6.3	54200	188.45	12800	1.30							
6.8	50200	174.40*	12900	1.40							
7.6	45000	156.31	13100	1.55		**R**	**137**	**DRN**	**132M6**	690	340
8.4	40600	141.12*	13200	1.75		**RF**	**137**	**DRN**	**132M6**	740	341
9.2	36900	128.18	13300	1.90		**RM**	**137**	**DRN**	**132M6**	990	341
10	32700	113.72	13400	2.2							
11	29700	103.20*	13500	2.4							
13	25500	88.70*	13600	2.8							

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P_m = 5.4 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
6.7	50500	262.65	9660	1.05	X						
7.4	46200	240.48	9660	1.15	X						
8.3	40800	212.46	9660	1.30	X						
9.8	34600	180.23	9660	1.55	X						
11	31900	165.95	9660	1.65	X						
12	28500	148.33	9660	1.85	X						
13	25600	133.53	9660	2.1	X	**R**	**127**	**(E)DRN**	**112M4**	560	338
15	23200	120.92	9660	2.3	X	**RF**	**127**	**(E)DRN**	**112M4**	590	339
16	20600	107.23	9660	2.6	X	**RM**	**127**	**(E)DRN**	**112M4**	800	339
18	18600	96.95	9660	2.9	X						
21	16300	85.26	9660	3.2	X						
22	15800	82.17	9660	3.4	X						
23	14600	76.21	9660	3.6	X						
26	13100	68.61	9660	4.0	X						
28	11900	62.13	9660	4.4	X						
10	33100	172.34	7230	1.15	X						
11	30500	158.68	7500	1.25	X						
12	27200	141.83	7790	1.40	X						
14	24500	127.68	8010	1.55	X						
15	22200	115.63	8120	1.70	X						
17	19700	102.53	7940	1.95	X	**R**	**107**	**(E)DRN**	**112M4**	440	336
19	17800	92.70	7730	2.1	X	**RF**	**107**	**(E)DRN**	**112M4**	450	337
23	15100	78.57	7390	2.5	X	**RM**	**107**	**(E)DRN**	**112M4**	650	337
24	14000	72.88	7230	2.7	X						
27	12600	65.60*	7020	3.0	X						
30	11400	59.41	6830	3.3	X						
34	10100	52.68	6590	3.8	X						
14	24300	126.75	3580	1.10	X						
15	22400	116.48	4180	1.20	X						
17	19800	103.44	4930	1.35	X						
19	17700	92.48	5560	1.50	X						
21	15900	83.15	5880	1.65	X						
25	13800	72.17	5680	1.90	X	**R**	**97**	**(E)DRN**	**112M4**	310	334
27	12500	65.21	5530	2.1	X	**RF**	**97**	**(E)DRN**	**112M4**	350	335
30	11500	59.92	5410	2.3	X	**RM**	**97**	**(E)DRN**	**112M4**	465	335
33	10200	53.21	5250	2.6	X						
37	9150	47.58	5090	2.9	X						
41	8220	42.78	4940	3.2	X						
48	7140	37.13	4750	3.7	X						
53	6390	33.25	4610	4.0	X						
55	6160	32.05	4560	3.7	X						
65	5220	27.19	4350	4.3	X	**R**	**97**	**(E)DRN**	**112M4**	305	334
71	4810	25.03	4240	5.2	X	**RF**	**97**	**(E)DRN**	**112M4**	345	335
79	4300	22.37	4100	5.6	X	**RM**	**97**	**(E)DRN**	**112M4**	455	335
88	3870	20.14	3980	6.0	X						
28	12200	63.68*	3360	1.10	X						
29	11600	60.35*	3550	1.20	X						
33	10100	52.82	3740	1.35	X						
37	9150	47.58	3860	1.50	X	**R**	**87**	**(E)DRN**	**112M4**	220	331
42	8020	41.74	3960	1.70	X	**RF**	**87**	**(E)DRN**	**112M4**	240	332
48	7080	36.84*	3840	1.95	X	**RM**	**87**	**(E)DRN**	**112M4**	305	332
54	6280	32.66*	3720	2.2	X						
63	5360	27.88	3570	2.5	X						
51	6610	34.40*	3770	2.0	X						
56	6030	31.40	3680	2.3	X						
64	5350	27.84*	3560	2.6	X						
76	4500	23.40	3400	3.0	X						
82	4130	21.51	3320	3.2	X	**R**	**87**	**(E)DRN**	**112M4**	220	331
93	3670	19.10	3210	3.5	X	**RF**	**87**	**(E)DRN**	**112M4**	235	332
104	3280	17.08*	3110	3.7	X	**RM**	**87**	**(E)DRN**	**112M4**	300	332
115	2950	15.35	3010	4.0	X						
133	2560	13.33	2890	4.4	X						
148	2290	11.93	2790	4.7	X						
48	7080	36.83	2270	1.00	X						
53	6430	33.47	2400	1.15	X	**R**	**77**	**(E)DRN**	**112M4**	165	328
61	5570	29.00	2370	1.30	X	**RF**	**77**	**(E)DRN**	**112M4**	175	329
70	4850	25.23	2300	1.40	X	**RM**	**77**	**(E)DRN**	**112M4**	230	329

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P_m = 5.4 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
76	4490	23.37	2260	1.60	X						
83	4120	21.43	2210	1.75	X						
94	3610	18.80	2140	1.90	X						
99	3420	17.82*	2120	2.0	X						
113	2990	15.60	2050	2.2	X						
126	2700	14.05	1990	2.4	X						
144	2370	12.33	1920	2.6	X	**R**	**77**	**(E)DRN**	**112M4**	160	328
163	2090	10.88	1860	2.8	X	**RF**	**77**	**(E)DRN**	**112M4**	175	329
183	1850	9.64	1800	3.0	X	**RM**	**77**	**(E)DRN**	**112M4**	230	329
206	1650	8.59	1750	3.4	X						
229	1480	7.74	1700	3.6	X						
260	1300	6.79	1640	3.9	X						
295	1150	5.99*	1580	4.2	X						
333	1020	5.31*	1520	4.4	X						
89	3820	19.89	1710	1.40	X						
99	3450	17.95	1670	1.50	X						
112	3030	15.79	1630	1.65	X						
119	2860	14.91	1600	1.70	X						
139	2440	12.70	1540	1.90	X						
153	2210	11.54	1510	2.0	X						
177	1920	10.00	1450	2.2	X	**R**	**67**	**(E)DRN**	**112M4**	150	325
203	1670	8.70*	1400	2.3	X	**RF**	**67**	**(E)DRN**	**112M4**	155	326
227	1490	7.79	1360	2.2	X	**RM**	**67**	**(E)DRN**	**112M4**	190	326
240	1410	7.36*	1340	2.3	X						
282	1200	6.27	1280	2.4	X						
311	1090	5.70	1250	2.5	X						
359	940	4.93	1200	2.7	X						
412	820	4.29	1150	2.9	X						
95	3570	18.60*	850	1.10	X						
105	3220	16.79	840	1.25	X						
120	2840	14.77*	830	1.35	X						
127	2680	13.95*	830	1.40	X						
149	2280	11.88	810	1.55	X						
164	2070	10.79	795	1.65	X						
189	1790	9.35	775	1.80	X	**R**	**57**	**(E)DRN**	**112M4**	135	322
195	1740	9.06	770	1.90	X	**RF**	**57**	**(E)DRN**	**112M4**	140	323
222	1530	7.97	750	2.0	X	**RM**	**57**	**(E)DRN**	**112M4**	170	323
235	1440	7.53	745	2.1	X						
276	1230	6.41	715	2.4	X						
304	1120	5.82	700	2.5	X						
351	970	5.05	675	2.8	X						
403	840	4.39	655	2.9	X						
446	760	7.97	635	4.1							
472	720	7.53	625	4.3							
554	610	6.41	600	4.8		**R**	**57**	**DRN**	**112M2**	135	322
610	555	5.82	585	5.1		**RF**	**57**	**DRN**	**112M2**	140	323
704	480	5.05	560	5.6		**RM**	**57**	**DRN**	**112M2**	170	323
809	420	4.39	540	5.9							
174	1950	10.15	590	1.05	X						
195	1740	9.07	585	1.10	X						
221	1540	8.01	575	1.20	X						
254	1330	6.96	540	1.05	X						
295	1150	6.00	525	1.20	X	**R**	**47**	**(E)DRN**	**112M4**	125	319
314	1080	5.64*	520	1.25	X	**RF**	**47**	**(E)DRN**	**112M4**	125	320
364	930	4.85	505	1.40	X						
408	830	4.34	495	1.55	X						
462	735	3.83	480	1.75	X						
458	740	7.76*	480	1.95							
510	665	6.96	470	2.1							
592	570	6.00	455	2.4							
630	540	5.64*	445	2.5		**R**	**47**	**DRN**	**112M2**	125	319
732	460	4.85	430	2.9		**RF**	**47**	**DRN**	**112M2**	125	320
819	415	4.34	420	3.1							
927	365	3.83	405	3.5							

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P_m = 5.4 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
438	775	4.04*	990	1.65	X						
478	710	3.70	970	1.90	X						
544	625	3.25*	930	2.6	X						
574	590	3.08*	920	2.9	X						
656	515	2.70	890	3.7	X	**RX**	**77**	**(E)DRN**	**112M4**	140	299
728	465	2.43	860	4.1	X	**RXF**	**77**	**(E)DRN**	**112M4**	145	300
830	405	2.13	830	4.3	X						
941	360	1.88*	795	4.6	X						
1060	320	1.67	770	4.8	X						
1245	270	1.42	735	5.0	X						
553	615	3.20*	615	1.45	X						
612	555	2.89	600	1.70	X						
696	485	2.54	580	2.1	X						
737	460	2.40*	575	2.4	X	**RX**	**67**	**(E)DRN**	**112M4**	120	297
866	390	2.04	550	3.0	X	**RXF**	**67**	**(E)DRN**	**112M4**	130	298
953	355	1.86	535	3.1	X						
1100	305	1.61	515	3.3	X						
1265	265	1.40*	495	3.4	X						
670	505	2.64*	455	1.20	X						
746	455	2.37	440	1.35	X						
866	390	2.04	425	1.55	X						
921	365	1.92*	420	1.65	X	**RX**	**57**	**(E)DRN**	**112M4**	115	295
1070	315	1.65	405	1.90	X	**RXF**	**57**	**(E)DRN**	**112M4**	120	296
1200	280	1.48	395	2.1	X						
1355	250	1.30	380	2.2	X						

P_m = 7.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
2.6	170640	690	27000	1.05	**2.6**						
3.0	144670	585	27000	1.20	**3.0**						
3.5	126370	511	27000	1.40	**3.5**						
4.0	112090	446	27000	1.6	**4.0**						
4.4	100270	399	27000	1.8	**4.4**						
4.9	90720	361	27000	2.0	**4.9**						
5.1	86310	349	27000	2.1	**5.1**						
5.4	82430	328	27000	2.2	**5.4**	**R**	**167R107**	**(E)DRN**	**132S4**	1860	344/347
6.1	73130	291	27000	2.4	**6.1**	**RF**	**167R107**	**(E)DRN**	**132S4**	1870	345/347
6.5	66770	270	27000	2.7	**6.5**	**RM**	**167R107**	**(E)DRN**	**132S4**	2300	345/347
6.7	66350	264	27000	2.7	**6.7**						
7.7	56630	229	27000	3.1	**7.7**						
7.8	57050	227	27000	3.1	**7.8**						
8.8	49460	200	27000	3.6	**8.8**						
8.9	49760	198	27000	3.6	**8.9**						
11	42220	168	27000	4.2	**11**						
2.7	162230	656	27000	1.10	X						
3.1	143190	579	27000	1.25	X						
3.5	124390	503	27000	1.40	X						
4.1	106840	432	27000	1.7	X	**R**	**167R97**	**(E)DRN**	**132S4**	1750	344/347
4.7	92990	376	27000	1.9	X	**RF**	**167R97**	**(E)DRN**	**132S4**	1770	345/347
5.3	82850	335	27000	2.1	X	**RM**	**167R97**	**(E)DRN**	**132S4**	2200	345/347
5.8	74930	303	27000	2.4	X						
6.3	69000	279	27000	2.6	X						
3.8	113400	462	14200	1.00	X						
4.2	105700	426	14500	1.10	X						
4.8	91300	368	15100	1.25	X						
5.4	80700	326	15500	1.40	X	**R**	**147R87**	**(E)DRN**	**132S4**	1080	342/347
6.3	68800	280	15900	1.65	X	**RF**	**147R87**	**(E)DRN**	**132S4**	1100	343/347
7.2	60700	247	16100	1.90	X	**RM**	**147R87**	**(E)DRN**	**132S4**	1460	343/347
8.3	52400	214	16200	2.2	X						
9.4	46400	189	16400	2.5	X						
11	38900	159	16500	3.0	X						
						R	**147R77**	**(E)DRN**	**132S4**	1030	342/347
4.3	103300	415	14600	1.10	X	**RF**	**147R77**	**(E)DRN**	**132S4**	1050	343/347
						RM	**147R77**	**(E)DRN**	**132S4**	1420	343/347

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P_m = 7.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
6.9	63500	255	12400	1.10	X	**R**	**137R77**	**(E)DRN**	**132S4**	740	340/346
7.9	55600	223	12700	1.25	X	**RF**	**137R77**	**(E)DRN**	**132S4**	790	341/346
9.0	49000	197	13000	1.45	X	**RM**	**137R77**	**(E)DRN**	**132S4**	1040	341/346
10	43400	175	13100	1.65	X						
8.7	50900	202	9660	1.05	X	**R**	**127R77**	**(E)DRN**	**132S4**	640	338/346
11	40900	162	9660	1.30	X	**RF**	**127R77**	**(E)DRN**	**132S4**	690	339/346
14	31600	126	9660	1.70	X	**RM**	**127R77**	**(E)DRN**	**132S4**	900	339/346
7.3	65100	163.31	15900	1.75							
8.1	58500	146.91	16100	1.95							
9.9	47700	119.86	16300	2.4		**R**	**147**	**DRN**	**160M6**	1060	342
11	43500	109.31	16400	2.6		**RF**	**147**	**DRN**	**160M6**	1080	343
13	37700	94.60*	16500	3.0		**RM**	**147**	**DRN**	**160M6**	1450	343
14	33200	83.47	16600	3.5							
6.8	69500	174.40*	12100	1.00							
7.6	62300	156.31	12400	1.15							
8.4	56200	141.12*	12700	1.25		**R**	**137**	**DRN**	**160M6**	780	340
9.2	51100	128.18	12900	1.40		**RF**	**137**	**DRN**	**160M6**	830	341
10	45300	113.72	13100	1.55		**RM**	**137**	**DRN**	**160M6**	1070	341
11	41100	103.20*	13200	1.70							
7.9	59400	222.60*	12600	1.20	X						
9.4	50300	188.45	12900	1.40	X						
10	46600	174.40*	13000	1.50	X						
11	41700	156.31	13200	1.70	X						
13	37700	141.12*	13300	1.90	X						
14	34200	128.18	13400	2.1	X						
16	30300	113.72	13500	2.3	X	**R**	**137**	**(E)DRN**	**132S4**	650	340
17	27500	103.20*	13500	2.6	X	**RF**	**137**	**(E)DRN**	**132S4**	710	341
20	23700	88.70*	13600	3.0	X	**RM**	**137**	**(E)DRN**	**132S4**	950	341
22	21600	80.91*	13600	3.3	X						
24	19600	73.49	13700	3.6	X						
27	17400	65.20	13700	4.1	X						
30	15800	59.17*	13700	4.5	X						
35	13500	50.86*	13700	5.2	X						
9.8	48100	180.23	9660	1.10	X						
11	44300	165.95	9660	1.20	X						
12	39600	148.33	9660	1.35	X						
13	35600	133.53	9660	1.50	X						
15	32300	120.92	9660	1.65	X						
16	28600	107.23	9660	1.85	X						
18	25900	96.95	9660	2.0	X	**R**	**127**	**(E)DRN**	**132S4**	590	338
21	22700	85.26	9660	2.3	X	**RF**	**127**	**(E)DRN**	**132S4**	610	339
22	21900	82.17	9660	2.4	X	**RM**	**127**	**(E)DRN**	**132S4**	820	339
23	20300	76.21	9660	2.6	X						
26	18300	68.61	9660	2.9	X						
28	16600	62.13	9660	3.2	X						
32	14700	55.09	9660	3.6	X						
35	13300	49.81	9660	4.0	X						
42	11200	42.22	9660	4.7	X						
12	37900	141.83	6640	1.00	X						
14	34100	127.68	7110	1.10	X						
15	30900	115.63	7460	1.25	X						
17	27400	102.53	7610	1.40	X						
19	24700	92.70	7430	1.55	X						
22	21000	78.57	7140	1.80	X	**R**	**107**	**(E)DRN**	**132S4**	465	336
24	19400	72.88	7000	1.95	X	**RF**	**107**	**(E)DRN**	**132S4**	475	337
27	17500	65.60*	6820	2.2	X	**RM**	**107**	**(E)DRN**	**132S4**	670	337
30	15800	59.41	6640	2.4	X						
34	14000	52.68	6430	2.7	X						
37	12700	47.63	6250	3.0	X						
44	10700	40.37*	5970	3.5	X						

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P_m = 7.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
19	24700	92.48	3480	1.05	X						
21	22200	83.15	4230	1.20	X						
24	19200	72.17	5110	1.40	X						
27	17400	65.21	5280	1.50	X						
30	16000	59.92	5190	1.65	X	**R**	**97**	**(E)DRN**	**132S4**	335	334
33	14200	53.21	5040	1.85	X	**RF**	**97**	**(E)DRN**	**132S4**	375	335
37	12700	47.58	4910	2.1	X	**RM**	**97**	**(E)DRN**	**132S4**	490	335
41	11400	42.78	4780	2.3	X						
48	9920	37.13	4610	2.7	X						
53	8880	33.25	4480	2.9	X						
64	7370	27.58	4260	3.2	X						
55	8560	32.05	4440	2.6	X						
65	7260	27.19	4240	3.1	X						
71	6690	25.03	4150	3.7	X	**R**	**97**	**(E)DRN**	**132S4**	330	334
79	5980	22.37	4020	4.0	X	**RF**	**97**	**(E)DRN**	**132S4**	370	335
88	5380	20.14	3900	4.3	X	**RM**	**97**	**(E)DRN**	**132S4**	480	335
97	4870	18.24	3790	4.5	X						
109	4320	16.17	3660	4.9	X						
37	12700	47.58	3880	1.10	X						
42	11100	41.74	3770	1.25	X	**R**	**87**	**(E)DRN**	**132S4**	245	331
48	9840	36.84*	3670	1.40	X	**RF**	**87**	**(E)DRN**	**132S4**	265	332
54	8720	32.66*	3570	1.55	X	**RM**	**87**	**(E)DRN**	**132S4**	330	332
63	7450	27.88	3440	1.80	X						
64	7440	27.84*	3440	1.85	X						
76	6250	23.40	3290	2.2	X						
82	5740	21.51	3220	2.3	X						
93	5100	19.10	3120	2.5	X						
104	4560	17.08*	3030	2.7	X						
115	4100	15.35	2940	2.9	X	**R**	**87**	**(E)DRN**	**132S4**	245	331
133	3560	13.33	2830	3.2	X	**RF**	**87**	**(E)DRN**	**132S4**	260	332
148	3180	11.93	2740	3.4	X	**RM**	**87**	**(E)DRN**	**132S4**	325	332
179	2640	9.90*	2600	4.0	X						
193	2440	9.14*	2560	4.4	X						
215	2190	8.22	2480	4.7	X						
248	1900	7.13	2380	5.0	X						
						R	**77**	**(E)DRN**	**132S4**	190	328
70	6740	25.23	1950	1.00	X	**RF**	**77**	**(E)DRN**	**132S4**	200	329
						RM	**77**	**(E)DRN**	**132S4**	255	329
94	5020	18.80	2040	1.35	X						
99	4760	17.82*	2020	1.45	X						
113	4160	15.60	1960	1.55	X						
126	3750	14.05	1910	1.70	X						
143	3290	12.33	1850	1.85	X						
163	2900	10.88	1800	2.0	X	**R**	**77**	**(E)DRN**	**132S4**	185	328
183	2570	9.64	1740	2.2	X	**RF**	**77**	**(E)DRN**	**132S4**	200	329
206	2290	8.59	1710	2.4	X	**RM**	**77**	**(E)DRN**	**132S4**	255	329
228	2060	7.74	1660	2.6	X						
260	1810	6.79	1600	2.8	X						
295	1600	5.99*	1550	3.0	X						
333	1410	5.31*	1490	3.2	X						
112	4220	15.79	1530	1.15	X						
119	3980	14.91	1510	1.20	X						
139	3390	12.70	1460	1.35	X						
153	3080	11.54	1440	1.45	X						
177	2670	10.00	1390	1.55	X						
203	2320	8.70*	1350	1.65	X	**R**	**67**	**(E)DRN**	**132S4**	175	325
227	2080	7.79	1320	1.60	X	**RF**	**67**	**(E)DRN**	**132S4**	180	326
240	1960	7.36*	1300	1.65	X	**RM**	**67**	**(E)DRN**	**132S4**	215	326
282	1670	6.27	1250	1.75	X						
310	1520	5.70	1210	1.80	X						
358	1310	4.93	1170	1.95	X						
412	1140	4.29	1120	2.1	X						

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P_m = 7.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
127	3720	13.95*	675	1.00	X						
149	3170	11.88	725	1.15	X						
164	2880	10.79	720	1.20	X						
189	2490	9.35	710	1.30	X						
222	2130	7.97	700	1.45	X	**R**	**57**	**(E)DRN**	**132S4**	160	322
235	2010	7.53	695	1.55	X	**RF**	**57**	**(E)DRN**	**132S4**	165	323
276	1710	6.41	675	1.75	X	**RM**	**57**	**(E)DRN**	**132S4**	195	323
304	1550	5.82	660	1.80	X						
350	1340	5.05	645	2.0	X						
403	1170	4.39	625	2.1	X						
240	1960	14.77*	685	1.95							
254	1860	13.95*	680	2.0							
298	1580	11.88	660	2.3							
328	1430	10.79	650	2.4							
379	1240	9.35	630	2.6		**R**	**57**	**DRN**	**132S2**	160	322
445	1060	7.97	610	3.0		**RF**	**57**	**DRN**	**132S2**	165	323
471	1000	7.53	600	3.1		**RM**	**57**	**DRN**	**132S2**	195	323
553	850	6.41	580	3.5							
608	775	5.82	565	3.6							
702	670	5.05	545	4.0							
807	585	4.39	525	4.2							
364	1290	4.85	465	1.00	X						
408	1150	4.34	460	1.10	X	**R**	**47**	**(E)DRN**	**132S4**	150	319
461	1020	3.83	450	1.25	X	**RF**	**47**	**(E)DRN**	**132S4**	150	320
283	1670	12.54	495	1.30							
300	1570	11.79	500	1.40							
349	1350	10.15	490	1.50							
391	1200	9.07	480	1.60							
442	1060	8.01	470	1.70		**R**	**47**	**DRN**	**132S2**	150	319
591	795	6.00	430	1.75		**RF**	**47**	**DRN**	**132S2**	150	320
628	750	5.64*	425	1.80							
730	645	4.85	410	2.0							
817	575	4.34	400	2.2							
925	510	3.83	390	2.5							
267	1770	6.63*	2210	2.3	X						
315	1490	5.61	2110	2.7	X	**RX**	**107**	**(E)DRN**	**132S4**	325	305
341	1380	5.19	2060	4.4	X	**RXF**	**107**	**(E)DRN**	**132S4**	365	306
380	1240	4.65	2000	5.0	X						
305	1540	5.79	1770	2.4	X						
360	1310	4.91	1690	2.7	X						
391	1200	4.52	1650	4.3	X						
437	1080	4.04	1600	4.9	X						
486	970	3.64*	1550	5.4	X						
536	880	3.30	1510	6.0	X	**RX**	**97**	**(E)DRN**	**132S4**	255	303
605	780	2.92	1450	6.7	X	**RXF**	**97**	**(E)DRN**	**132S4**	275	304
669	705	2.64	1410	7.5	X						
789	595	2.24*	1340	8.8	X						
904	520	1.96	1290	9.6	X						
1080	435	1.64	1220	10	X						
1250	375	1.42	1160	11	X						
393	1200	4.50*	1280	2.1	X						
467	1010	3.78	1220	2.7	X						
509	920	3.48	1200	3.9	X						
573	820	3.09	1160	4.3	X	**RX**	**87**	**(E)DRN**	**132S4**	205	301
641	735	2.76*	1120	4.9	X	**RXF**	**87**	**(E)DRN**	**132S4**	215	302
712	660	2.48	1090	5.4	X						
821	575	2.15	1040	5.9	X						
544	860	3.25*	900	1.85	X						
574	820	3.08*	890	2.1	X						
656	720	2.70	860	2.6	X						
728	645	2.43	830	2.9	X	**RX**	**77**	**(E)DRN**	**132S4**	165	299
830	565	2.13	800	3.1	X	**RXF**	**77**	**(E)DRN**	**132S4**	170	300
940	500	1.88*	775	3.3	X						
1060	445	1.67	750	3.4	X						
1240	380	1.42	715	3.6	X						

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P_m = 7.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
696	675	2.54	550	1.55	X						
737	640	2.40*	545	1.70	X						
865	545	2.04	520	2.2	X	**RX**	**67**	**(E)DRN**	**132S4**	145	297
952	495	1.86	510	2.2	X	**RXF**	**67**	**(E)DRN**	**132S4**	155	298
1100	425	1.61	490	2.4	X						
1265	370	1.40*	475	2.5	X						
866	545	2.04	250	1.10	X						
921	510	1.92*	265	1.20	X						
1070	440	1.65	295	1.40	X	**RX**	**57**	**(E)DRN**	**132S4**	140	295
1200	390	1.48	305	1.50	X	**RXF**	**57**	**(E)DRN**	**132S4**	145	296
1355	345	1.30	325	1.60	X						

P_m = 10.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
3.5	167930	511	27000	1.05	X						
4.0	148940	446	27000	1.20	X						
4.4	133250	399	27000	1.35	X						
4.9	120560	361	27000	1.5	X						
5.1	114690	349	27000	1.6	X						
5.4	109540	328	27000	1.6	X						
6.1	97180	291	27000	1.8	X	**R**	**167R107**	**(E)DRN**	**132M4**	1900	344/347
6.6	88730	270	27000	2.0	X	**RF**	**167R107**	**(E)DRN**	**132M4**	1910	345/347
6.7	88160	264	27000	2.0	X	**RM**	**167R107**	**(E)DRN**	**132M4**	2340	345/347
7.7	75260	229	27000	2.4	X						
7.8	75810	227	27000	2.3	X						
8.9	65730	200	27000	2.7	X						
9.0	66120	198	27000	2.7	X						
11	56100	168	27000	3.2	X						
3.5	165300	503	27000	1.05	X						
4.1	141970	432	27000	1.25	X						
4.7	123560	376	27000	1.5	X	**R**	**167R97**	**(E)DRN**	**132M4**	1790	344/347
5.3	110090	335	27000	1.6	X	**RF**	**167R97**	**(E)DRN**	**132M4**	1810	345/347
5.9	99570	303	27000	1.8	X	**RM**	**167R97**	**(E)DRN**	**132M4**	2240	345/347
6.4	91690	279	27000	2.0	X						
5.4	107700	326	14400	1.05	X						
6.3	92000	280	15100	1.25	X						
7.2	81200	247	15500	1.40	X	**R**	**147R87**	**(E)DRN**	**132M4**	1120	342/347
8.3	70100	214	15800	1.65	X	**RF**	**147R87**	**(E)DRN**	**132M4**	1130	343/347
9.4	62000	189	16000	1.85	X	**RM**	**147R87**	**(E)DRN**	**132M4**	1500	343/347
11	52100	159	16200	2.2	X						
9.0	65300	197	12300	1.10	X	**R**	**137R77**	**(E)DRN**	**132M4**	780	340/346
10	57900	175	12600	1.20	X	**RF**	**137R77**	**(E)DRN**	**132M4**	830	341/346
						RM	**137R77**	**(E)DRN**	**132M4**	1080	341/346
						R	**127R77**	**(E)DRN**	**132M4**	680	338/346
14	42100	126	9660	1.25	X	**RF**	**127R77**	**(E)DRN**	**132M4**	720	339/346
						RM	**127R77**	**(E)DRN**	**132M4**	940	339/346
5.2	122400	229.71	27000	1.30							
6.3	99600	186.93*	27000	1.60							
7.7	81500	153.07	27000	1.95							
8.4	74600	139.98	27000	2.1							
9.7	64900	121.81*	27000	2.5		**R**	**167**	**DRN**	**160M6**	1600	344
11	57200	107.49	27000	2.8		**RF**	**167**	**DRN**	**160M6**	1620	345
13	49600	93.19	27000	3.2		**RM**	**167**	**DRN**	**160M6**	2050	345
14	44100	82.91*	27000	3.6							
16	39200	73.70*	27000	4.0							
18	35900	67.40	27000	4.4							
7.2	87000	163.31	15300	1.30							
8.1	78300	146.91	15600	1.45							
9.9	63800	119.86	16000	1.80		**R**	**147**	**DRN**	**160M6**	1060	342
11	58200	109.31	16100	1.95		**RF**	**147**	**DRN**	**160M6**	1080	343
12	50400	94.60*	16300	2.3		**RM**	**147**	**DRN**	**160M6**	1450	343
14	44400	83.47	16400	2.6							

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P_m = 10.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
9.4	66900	188.45	12200	1.05	X						
10	61900	174.40*	12400	1.15	X						
11	55500	156.31	12700	1.30	X						
13	50100	141.12*	12900	1.40	X						
14	45500	128.18	13100	1.55	X						
16	40300	113.72	13200	1.75	X	**R**	**137**	**(E)DRN**	**132M4**	690	340
17	36600	103.20*	13300	1.95	X	**RF**	**137**	**(E)DRN**	**132M4**	740	341
20	31500	88.70*	13500	2.2	X	**RM**	**137**	**(E)DRN**	**132M4**	990	341
22	28700	80.91*	13500	2.5	X						
24	26100	73.49	13600	2.7	X						
27	23100	65.20	13600	3.1	X						
30	21000	59.17*	13600	3.4	X						
35	18000	50.86*	13700	3.9	X						
12	52600	148.33	9660	1.00	X						
13	47400	133.53	9660	1.10	X						
15	42900	120.92	9660	1.25	X						
17	38000	107.23	9660	1.40	X						
18	34400	96.95	9660	1.55	X						
21	30200	85.26	9660	1.75	X						
22	29100	82.17	9660	1.80	X	**R**	**127**	**(E)DRN**	**132M4**	630	338
23	27000	76.21	9660	1.95	X	**RF**	**127**	**(E)DRN**	**132M4**	650	339
26	24300	68.61	9660	2.2	X	**RM**	**127**	**(E)DRN**	**132M4**	860	339
29	22000	62.13	9660	2.4	X						
32	19500	55.09	9660	2.7	X						
36	17600	49.81	9660	3.0	X						
42	14900	42.22	9660	3.5	X						
48	13000	36.88	9660	3.9	X						
58	10900	30.84	9660	4.3	X						
						R	**127**	**(E)DRN**	**132M4**	590	338
55	11400	32.18	9660	4.6	X	**RF**	**127**	**(E)DRN**	**132M4**	640	339
						RM	**127**	**(E)DRN**	**132M4**	850	339
17	36400	102.53	6840	1.05	X						
19	32900	92.70	7080	1.15	X						
23	27900	78.57	6840	1.35	X						
24	25800	72.88	6720	1.45	X						
27	23200	65.60*	6560	1.65	X	**R**	**107**	**(E)DRN**	**132M4**	500	336
30	21000	59.41	6410	1.80	X	**RF**	**107**	**(E)DRN**	**132M4**	520	337
34	18700	52.68	6230	2.0	X	**RM**	**107**	**(E)DRN**	**132M4**	710	337
37	16900	47.63	6070	2.2	X						
44	14300	40.37*	5810	2.6	X						
50	12500	35.26	5610	3.0	X						
60	10400	29.49	5340	3.6	X						
58	10900	30.77	5400	3.5	X						
64	9790	27.58	5240	3.9	X	**R**	**107**	**(E)DRN**	**132M4**	490	336
71	8840	24.90*	5090	4.3	X	**RF**	**107**	**(E)DRN**	**132M4**	500	337
78	8030	22.62	4950	4.7	X	**RM**	**107**	**(E)DRN**	**132M4**	700	337
25	25600	72.17	3210	1.05	X						
27	23100	65.21	4980	1.15	X						
30	21200	59.92	4910	1.25	X						
33	18800	53.21	4800	1.40	X	**R**	**97**	**(E)DRN**	**132M4**	375	334
37	16800	47.58	4690	1.55	X	**RF**	**97**	**(E)DRN**	**132M4**	415	335
41	15100	42.78	4580	1.75	X	**RM**	**97**	**(E)DRN**	**132M4**	530	335
48	13100	37.13	4440	2.0	X						
53	11800	33.25	4320	2.2	X						
64	9790	27.58	4130	2.4	X						
55	11300	32.05	4290	2.0	X						
65	9650	27.19	4110	2.4	X						
71	8890	25.03	4030	2.8	X	**R**	**97**	**(E)DRN**	**132M4**	370	334
79	7940	22.37	3910	3.0	X	**RF**	**97**	**(E)DRN**	**132M4**	410	335
88	7150	20.14	3800	3.2	X	**RM**	**97**	**(E)DRN**	**132M4**	520	335
97	6470	18.24	3700	3.4	X						
48	13000	36.84*	3470	1.05	X	**R**	**87**	**(E)DRN**	**132M4**	285	331
54	11500	32.66*	3390	1.20	X	**RF**	**87**	**(E)DRN**	**132M4**	300	332
64	9900	27.88	3280	1.35	X	**RM**	**87**	**(E)DRN**	**132M4**	365	332

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P_m = 10.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
64	9880	27.84*	3280	1.40	X						
76	8310	23.40	3160	1.65	X						
82	7630	21.51	3100	1.75	X						
93	6780	19.10	3010	1.90	X						
104	6060	17.08*	2930	2.0	X						
116	5450	15.35	2860	2.2	X						
133	4730	13.33	2750	2.4	X	**R**	**87**	**(E)DRN**	**132M4**	285	331
149	4230	11.93	2670	2.6	X	**RF**	**87**	**(E)DRN**	**132M4**	300	332
179	3510	9.90*	2540	3.0	X	**RM**	**87**	**(E)DRN**	**132M4**	365	332
194	3240	9.14*	2520	3.3	X						
216	2910	8.22	2440	3.5	X						
249	2530	7.13	2340	3.7	X						
278	2260	6.39	2270	4.0	X						
335	1880	5.30*	2140	4.3	X						
94	6670	18.80	1540	1.05	X						
100	6320	17.82*	1600	1.10	X						
114	5530	15.60	1740	1.20	X						
126	4990	14.05	1820	1.30	X						
144	4370	12.33	1770	1.40	X						
163	3860	10.88	1720	1.50	X	**R**	**77**	**(E)DRN**	**132M4**	225	328
184	3420	9.64	1680	1.65	X	**RF**	**77**	**(E)DRN**	**132M4**	240	329
206	3050	8.59	1660	1.85	X	**RM**	**77**	**(E)DRN**	**132M4**	295	329
229	2740	7.74	1620	1.95	X						
261	2410	6.79	1560	2.1	X						
296	2120	5.99*	1510	2.2	X						
334	1880	5.31*	1460	2.4	X						
140	4510	12.70	1250	1.00	X						
154	4090	11.54	1350	1.10	X						
177	3550	10.00	1320	1.15	X						
204	3080	8.70*	1280	1.25	X						
228	2760	7.79	1260	1.20	X	**R**	**67**	**(E)DRN**	**132M4**	215	325
241	2610	7.36*	1240	1.25	X	**RF**	**67**	**(E)DRN**	**132M4**	220	326
283	2220	6.27	1200	1.30	X	**RM**	**67**	**(E)DRN**	**132M4**	255	326
311	2020	5.70	1170	1.35	X						
360	1750	4.93	1130	1.45	X						
413	1520	4.29	1090	1.55	X						
223	2830	7.97	460	1.10	X						
236	2670	7.53	510	1.15	X						
277	2270	6.41	625	1.30	X	**R**	**57**	**(E)DRN**	**132M4**	200	322
305	2060	5.82	615	1.35	X	**RF**	**57**	**(E)DRN**	**132M4**	205	323
352	1790	5.05	605	1.50	X	**RM**	**57**	**(E)DRN**	**132M4**	235	323
404	1550	4.39	590	1.60	X						
240	2620	14.77*	625	1.45							
254	2470	13.95*	625	1.55							
298	2110	11.88	610	1.70							
328	1910	10.79	605	1.80							
379	1660	9.35	590	1.95		**R**	**57**	**DRN**	**132S2**	160	322
445	1410	7.97	580	2.2		**RF**	**57**	**DRN**	**132S2**	165	323
471	1330	7.53	575	2.3		**RM**	**57**	**DRN**	**132S2**	195	323
553	1130	6.41	555	2.6							
609	1030	5.82	545	2.7							
703	890	5.05	525	3.0							
807	780	4.39	510	3.2							
268	2350	6.63*	2150	1.75	X						
316	1990	5.61	2060	2.0	X						
342	1840	5.19	2010	3.3	X	**RX**	**107**	**(E)DRN**	**132M4**	370	305
381	1650	4.65	1950	3.7	X	**RXF**	**107**	**(E)DRN**	**132M4**	405	306
422	1490	4.20*	1900	4.9	X						
306	2050	5.79	1720	1.80	X						
361	1740	4.91	1650	2.0	X						
392	1600	4.52	1610	3.3	X						
439	1430	4.04	1560	3.7	X	**RX**	**97**	**(E)DRN**	**132M4**	295	303
487	1290	3.64*	1520	4.1	X	**RXF**	**97**	**(E)DRN**	**132M4**	315	304
538	1170	3.30	1480	4.5	X						
607	1030	2.92	1430	5.1	X						

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P_m = 10.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
394	1590	4.50*	1230	1.60	X						
469	1340	3.78	1180	2.0	X						
510	1230	3.48	1160	2.9	X						
575	1090	3.09	1120	3.3	X						
643	980	2.76*	1090	3.7	X	**RX**	**87**	**(E)DRN**	**132M4**	240	301
715	880	2.48	1060	4.1	X	**RXF**	**87**	**(E)DRN**	**132M4**	255	302
824	760	2.15	1020	4.5	X						
920	680	1.93	980	4.6	X						
1110	565	1.60*	930	4.9	X						
1275	490	1.39	900	5.2	X						
546	1150	3.25*	860	1.40	X						
576	1090	3.08*	850	1.55	X						
658	950	2.70	820	2.0	X						
730	860	2.43	800	2.2	X	**RX**	**77**	**(E)DRN**	**132M4**	205	299
833	755	2.13	775	2.3	X	**RXF**	**77**	**(E)DRN**	**132M4**	210	300
944	665	1.88*	750	2.5	X						
1065	590	1.67	725	2.6	X						
1245	505	1.42	695	2.7	X						
698	900	2.54	490	1.15	X						
739	850	2.40*	505	1.30	X						
868	725	2.04	490	1.65	X	**RX**	**67**	**(E)DRN**	**132M4**	185	297
955	655	1.86	480	1.70	X	**RXF**	**67**	**(E)DRN**	**132M4**	195	298
1105	570	1.61	465	1.75	X						
1265	495	1.40*	450	1.85	X						
1075	585	1.65	52	1.05	X						
1200	520	1.48	78	1.15	X	**RX**	**57**	**(E)DRN**	**132M4**	180	295
1360	460	1.30	120	1.20	X	**RXF**	**57**	**(E)DRN**	**132M4**	185	296

P_m = 12.3 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
4.5	163800	399	27000	1.10	X						
4.9	148200	361	27000	1.20	X						
5.1	140990	349	27000	1.25	X						
5.4	134650	328	27000	1.30	X						
6.0	119170	295	27000	1.5	X						
6.1	119460	291	27000	1.5	X						
6.6	109070	270	27000	1.6	X	**R**	**167R107**	**(E)DRN**	**132L4**	1920	344/347
6.7	108380	264	27000	1.7	X	**RF**	**167R107**	**(E)DRN**	**132L4**	1930	345/347
7.7	92510	229	27000	1.9	X	**RM**	**167R107**	**(E)DRN**	**132L4**	2360	345/347
7.8	93190	227	27000	1.9	X						
8.9	80800	200	27000	2.2	X						
9.0	81290	198	27000	2.2	X						
10	68270	169	27000	2.6	X						
11	68970	168	27000	2.6	X						
4.1	174520	432	27000	1.00	X						
4.7	151900	376	27000	1.15	X	**R**	**167R97**	**(E)DRN**	**132L4**	1810	344/347
5.3	135330	335	27000	1.30	X	**RF**	**167R97**	**(E)DRN**	**132L4**	1830	345/347
5.9	122410	303	27000	1.5	X	**RM**	**167R97**	**(E)DRN**	**132L4**	2260	345/347
6.4	112710	279	27000	1.6	X						
6.3	113500	280	14200	1.00	X						
7.2	100100	247	14800	1.15	X	**R**	**147R87**	**(E)DRN**	**132L4**	1130	342/347
8.3	86500	214	15300	1.35	X	**RF**	**147R87**	**(E)DRN**	**132L4**	1150	343/347
9.4	76500	189	15600	1.50	X	**RM**	**147R87**	**(E)DRN**	**132L4**	1520	343/347
11	64300	159	16000	1.80	X						
14	51900	126	9660	1.00	X	**R**	**127R77**	**(E)DRN**	**132L4**	700	338/346
						RF	**127R77**	**(E)DRN**	**132L4**	740	339/346
						RM	**127R77**	**(E)DRN**	**132L4**	950	339/346
7.7	100320	229.71	27000	1.8	X						
9.5	81640	186.93	27000	2.2	X	**R**	**167**	**(E)DRN**	**132L4**	1540	344
12	66850	153.07	27000	2.7	X	**RF**	**167**	**(E)DRN**	**132L4**	1550	345
13	61130	139.98	27000	2.9	X	**RM**	**167**	**(E)DRN**	**132L4**	1980	345
15	53200	121.81	27000	3.3	X						

P_m = 12.3 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
11	71300	163.31	15800	1.60	X						
12	64100	146.91	16000	1.80	X						
15	52300	119.86	16200	2.2	X						
16	47700	109.31	16300	2.4	X	**R**	**147**	**(E)DRN**	**132L4**	990	342
19	41300	94.60*	16400	2.8	X	**RF**	**147**	**(E)DRN**	**132L4**	1010	343
21	36400	83.47	16500	3.2	X	**RM**	**147**	**(E)DRN**	**132L4**	1380	343
25	31400	72.09	16600	3.6	X						
26	29200	66.99	16600	3.9	X						
11	68200	156.31	12100	1.05	X						
13	61600	141.12*	12500	1.15	X						
14	55900	128.18	12700	1.25	X						
16	49600	113.72	12900	1.45	X						
17	45000	103.20*	13100	1.55	X						
20	38700	88.70*	13300	1.85	X	**R**	**137**	**(E)DRN**	**132L4**	710	340
22	35300	80.91*	13400	2.0	X	**RF**	**137**	**(E)DRN**	**132L4**	760	341
24	32000	73.49	13400	2.2	X	**RM**	**137**	**(E)DRN**	**132L4**	1000	341
27	28400	65.20	13500	2.5	X						
30	25800	59.17*	13600	2.7	X						
35	22200	50.86*	13600	3.2	X						
40	19300	44.39	13700	3.6	X						
15	52700	120.92	9660	1.00	X						
17	46800	107.23	9660	1.15	X						
18	42300	96.95	9660	1.25	X						
21	37200	85.26	9660	1.45	X						
22	35800	82.17	9660	1.50	X						
23	33200	76.21	9660	1.60	X	**R**	**127**	**(E)DRN**	**132L4**	650	338
26	29900	68.61	9660	1.75	X	**RF**	**127**	**(E)DRN**	**132L4**	670	339
29	27100	62.13	9660	1.95	X	**RM**	**127**	**(E)DRN**	**132L4**	880	339
32	24000	55.09	9660	2.2	X						
36	21700	49.81	9660	2.4	X						
42	18400	42.22	9660	2.9	X						
48	16100	36.88	9660	3.1	X						
58	13400	30.84	9660	3.5	X						
55	14000	32.18	9660	3.8	X	**R**	**127**	**(E)DRN**	**132L4**	610	338
62	12500	28.84	9660	4.2	X	**RF**	**127**	**(E)DRN**	**132L4**	660	339
68	11300	26.04	9660	4.7	X	**RM**	**127**	**(E)DRN**	**132L4**	870	339
23	34300	78.57	6570	1.10	X						
24	31800	72.88	6470	1.20	X						
27	28600	65.60*	6340	1.35	X						
30	25900	59.41	6210	1.45	X	**R**	**107**	**(E)DRN**	**132L4**	520	336
34	23000	52.68	6040	1.65	X	**RF**	**107**	**(E)DRN**	**132L4**	540	337
37	20700	47.63	5900	1.85	X	**RM**	**107**	**(E)DRN**	**132L4**	730	337
44	17600	40.37*	5680	2.2	X						
50	15300	35.26	5490	2.5	X						
60	12800	29.49	5240	3.0	X						
58	13400	30.77	5300	2.8	X						
64	12000	27.58	5140	3.2	X	**R**	**107**	**(E)DRN**	**132L4**	510	336
71	10800	24.90*	5000	3.5	X	**RF**	**107**	**(E)DRN**	**132L4**	520	337
78	9870	22.62	4870	3.9	X	**RM**	**107**	**(E)DRN**	**132L4**	720	337
88	8760	20.07	4710	4.3	X						
30	26100	59.92	4660	1.00	X						
33	23200	53.21	4580	1.15	X						
37	20700	47.58	4490	1.30	X	**R**	**97**	**(E)DRN**	**132L4**	395	334
41	18600	42.78	4400	1.40	X	**RF**	**97**	**(E)DRN**	**132L4**	435	335
48	16200	37.13	4280	1.65	X	**RM**	**97**	**(E)DRN**	**132L4**	550	335
53	14500	33.25	4180	1.75	X						
64	12000	27.58	4010	1.95	X						
71	10900	25.03	3920	2.3	X						
79	9760	22.37	3820	2.5	X						
88	8790	20.14	3720	2.6	X	**R**	**97**	**(E)DRN**	**132L4**	390	334
97	7960	18.24	3630	2.8	X	**RF**	**97**	**(E)DRN**	**132L4**	425	335
110	7060	16.17	3510	3.0	X	**RM**	**97**	**(E)DRN**	**132L4**	540	335
121	6380	14.62	3420	3.2	X						
143	5410	12.39	3270	3.6	X						

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P_m = 12.3 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
64	12100	27.88	3140	1.10	X						
83	9390	21.51	2990	1.40	X						
93	8330	19.10	2920	1.55	X						
104	7450	17.08*	2850	1.65	X						
116	6700	15.35	2780	1.75	X						
133	5810	13.33	2690	1.95	X	**R**	**87**	**(E)DRN**	**132L4**	300	331
149	5200	11.93	2610	2.1	X	**RF**	**87**	**(E)DRN**	**132L4**	315	332
179	4320	9.90*	2490	2.4	X	**RM**	**87**	**(E)DRN**	**132L4**	385	332
194	3990	9.14*	2480	2.7	X						
216	3580	8.22	2410	2.9	X						
249	3110	7.13	2310	3.0	X						
278	2780	6.39	2240	3.2	X						
126	6130	14.05	1370	1.05	X						
144	5380	12.33	1500	1.15	X						
163	4740	10.88	1600	1.25	X						
184	4210	9.64	1620	1.30	X	**R**	**77**	**(E)DRN**	**132L4**	245	328
229	3370	7.74	1560	1.60	X	**RF**	**77**	**(E)DRN**	**132L4**	255	329
261	2960	6.79	1520	1.75	X	**RM**	**77**	**(E)DRN**	**132L4**	310	329
296	2610	5.99*	1480	1.85	X						
334	2310	5.31*	1430	1.95	X						
342	2260	5.19	1970	2.7	X						
382	2030	4.65	1920	3.0	X						
423	1830	4.20*	1860	4.0	X	**RX**	**107**	**(E)DRN**	**132L4**	385	305
465	1660	3.81	1810	4.4	X	**RXF**	**107**	**(E)DRN**	**132L4**	425	306
524	1470	3.38	1750	5.0	X						
392	1970	4.52	1570	2.7	X						
439	1760	4.04	1530	3.0	X						
488	1580	3.64*	1490	3.3	X						
538	1430	3.30	1450	3.7	X						
607	1270	2.92	1400	4.1	X	**RX**	**97**	**(E)DRN**	**132L4**	315	303
672	1150	2.64	1360	4.6	X	**RXF**	**97**	**(E)DRN**	**132L4**	330	304
792	970	2.24*	1300	5.4	X						
907	850	1.96	1250	5.9	X						
1085	710	1.64	1180	6.2	X						
1255	615	1.42	1130	6.5	X						
511	1510	3.48	1120	2.4	X						
575	1340	3.09	1090	2.7	X						
643	1200	2.76*	1060	3.0	X						
715	1080	2.48	1030	3.3	X	**RX**	**87**	**(E)DRN**	**132L4**	260	301
824	940	2.15	990	3.6	X	**RXF**	**87**	**(E)DRN**	**132L4**	270	302
920	840	1.93	960	3.7	X						
1110	695	1.60*	910	4.0	X						
1275	605	1.39	880	4.2	X						
731	1060	2.43	770	1.80	X						
833	930	2.13	750	1.90	X						
944	820	1.88*	725	2.0	X	**RX**	**77**	**(E)DRN**	**132L4**	225	299
1065	725	1.67	705	2.1	X	**RXF**	**77**	**(E)DRN**	**132L4**	230	300
1245	620	1.42	675	2.2	X						

P_m = 15.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
5.1	171840	349	27000	1.05	X						
5.4	164120	328	27000	1.10	X						
6.0	145250	295	27000	1.20	X						
6.1	145610	291	27000	1.20	X						
6.6	132940	270	27000	1.35	X						
6.7	132100	264	27000	1.35	X	**R**	**167R107**	**(E)DRN**	**160M4**	1990	344/347
7.8	113580	227	27000	1.6	X	**RF**	**167R107**	**(E)DRN**	**160M4**	2000	345/347
7.8	112760	229	27000	1.6	X	**RM**	**167R107**	**(E)DRN**	**160M4**	2430	345/347
8.9	98480	200	27000	1.8	X						
9.0	99070	198	27000	1.8	X						
10	83210	169	27000	2.1	X						
11	84060	168	27000	2.1	X						

P_m = 15.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
5.3	164950	335	27000	1.05	X	**R**	**167R97**	**(E)DRN**	**160M4**	1880	344/347
5.9	149190	303	27000	1.20	X	**RF**	**167R97**	**(E)DRN**	**160M4**	1900	345/347
6.4	137370	279	27000	1.30	X	**RM**	**167R97**	**(E)DRN**	**160M4**	2330	345/347
8.3	105700	214	14500	1.10	X	**R**	**147R87**	**(E)DRN**	**160M4**	1210	342/347
9.4	93400	189	15000	1.25	X	**RF**	**147R87**	**(E)DRN**	**160M4**	1220	343/347
11	78500	159	15600	1.45	X	**RM**	**147R87**	**(E)DRN**	**160M4**	1590	343/347
7.7	122200	229.71	27000	1.5	X						
9.5	99400	186.93*	27000	1.8	X						
12	81400	153.07	27000	2.2	X						
13	74400	139.98	27000	2.4	X	**R**	**167**	**(E)DRN**	**160M4**	1600	344
15	64800	121.81*	27000	2.7	X	**RF**	**167**	**(E)DRN**	**160M4**	1620	345
17	57200	107.49	27000	3.1	X	**RM**	**167**	**(E)DRN**	**160M4**	2050	345
19	49500	93.19	27000	3.6	X						
21	44100	82.91*	27000	4.0	X						
						R	**167**	**(E)DRN**	**160M4**	1590	344
39	24400	46.00	27000	3.4	X	**RF**	**167**	**(E)DRN**	**160M4**	1600	345
						RM	**167**	**(E)DRN**	**160M4**	2030	345
11	86900	163.31	15300	1.30	X						
12	78100	146.91	15600	1.45	X						
15	63700	119.86	16000	1.80	X						
16	58100	109.31	16100	2.0	X						
19	50300	94.60*	16300	2.3	X	**R**	**147**	**(E)DRN**	**160M4**	1060	342
21	44400	83.47	16400	2.6	X	**RF**	**147**	**(E)DRN**	**160M4**	1080	343
25	38300	72.09	16500	3.0	X	**RM**	**147**	**(E)DRN**	**160M4**	1450	343
27	35600	66.99	16500	3.2	X						
29	32500	61.09	16600	3.5	X						
34	28100	52.87	16600	4.1	X						
14	68200	128.18	12100	1.05	X						
16	60500	113.72	12500	1.15	X						
17	54900	103.20*	12700	1.30	X						
20	47200	88.70*	13000	1.50	X						
22	43000	80.91*	13200	1.65	X						
24	39100	73.49	13300	1.80	X	**R**	**137**	**(E)DRN**	**160M4**	780	340
27	34600	65.20	13400	2.0	X	**RF**	**137**	**(E)DRN**	**160M4**	830	341
30	31400	59.17*	13500	2.2	X	**RM**	**137**	**(E)DRN**	**160M4**	1070	341
35	27000	50.86*	13500	2.6	X						
40	23600	44.39	13600	3.0	X						
47	20000	37.65	13700	3.5	X						
54	17500	32.91	13700	4.0	X						
18	51500	96.95	9660	1.05	X						
21	45300	85.26	9660	1.15	X						
22	43700	82.17	9660	1.20	X						
23	40500	76.21	9660	1.30	X						
26	36500	68.61	9660	1.45	X	**R**	**127**	**(E)DRN**	**160M4**	720	338
29	33000	62.13	9660	1.60	X	**RF**	**127**	**(E)DRN**	**160M4**	740	339
32	29300	55.09	9660	1.80	X	**RM**	**127**	**(E)DRN**	**160M4**	950	339
36	26500	49.81	9660	2.0	X						
42	22400	42.22	9660	2.4	X						
48	19600	36.88	9660	2.6	X						
58	16400	30.84	9660	2.9	X						
55	17100	32.18	9660	3.1	X						
62	15300	28.84	9660	3.5	X	**R**	**127**	**(E)DRN**	**160M4**	680	338
68	13800	26.04	9660	3.8	X	**RF**	**127**	**(E)DRN**	**160M4**	730	339
75	12500	23.65	9660	4.2	X	**RM**	**127**	**(E)DRN**	**160M4**	940	339
85	11100	20.98	9660	4.8	X						
24	38700	72.88	6180	1.00							
27	34900	65.60*	6070	1.10	X						
30	31600	59.41	5970	1.20	X						
34	28000	52.68	5830	1.35	X	**R**	**107**	**(E)DRN**	**160M4**	590	336
37	25300	47.63	5710	1.50	X	**RF**	**107**	**(E)DRN**	**160M4**	610	337
44	21400	40.37*	5510	1.75	X	**RM**	**107**	**(E)DRN**	**160M4**	800	337
50	18700	35.26	5340	2.0	X						
60	15600	29.49	5120	2.4	X						

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P_m = 15.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
58	16300	30.77	5170	2.3	X						
64	14600	27.58	5030	2.6	X						
71	13200	24.90*	4900	2.9	X	**R**	**107**	**(E)DRN**	**160M4**	580	336
79	12000	22.62	4780	3.2	X	**RF**	**107**	**(E)DRN**	**160M4**	590	337
89	10600	20.07	4630	3.6	X	**RM**	**107**	**(E)DRN**	**160M4**	790	337
98	9680	18.21	4510	3.9	X						
37	25300	47.58	4260	1.05	X						
42	22700	42.78	4190	1.15	X	**R**	**97**	**(E)DRN**	**160M4**	465	334
48	19700	37.13	4100	1.35	X	**RF**	**97**	**(E)DRN**	**160M4**	500	335
53	17600	33.25	4020	1.45	X	**RM**	**97**	**(E)DRN**	**160M4**	620	335
64	14600	27.58	3880	1.60	X						
71	13300	25.03	3800	1.90	X						
79	11900	22.37	3710	2.0	X						
88	10700	20.14	3620	2.1	X						
97	9700	18.24	3540	2.3	X						
110	8600	16.17	3430	2.5	X	**R**	**97**	**(E)DRN**	**160M4**	460	334
121	7780	14.62	3350	2.6	X	**RF**	**97**	**(E)DRN**	**160M4**	500	335
143	6590	12.39	3210	2.9	X	**RM**	**97**	**(E)DRN**	**160M4**	610	335
164	5760	10.83	3090	3.2	X						
191	4940	9.29	3010	3.6	X						
212	4460	8.39	2930	4.0	X						
250	3780	7.12	2790	4.7	X						
286	3300	6.21	2680	5.1	X						
83	11400	21.51	2870	1.15	X						
93	10100	19.10	2810	1.25	X						
104	9080	17.08*	2750	1.35	X						
116	8170	15.35	2690	1.45	X						
133	7090	13.33	2610	1.60	X						
149	6350	11.93	2540	1.70	X	**R**	**87**	**(E)DRN**	**160M4**	375	331
179	5260	9.90*	2430	2.0	X	**RF**	**87**	**(E)DRN**	**160M4**	390	332
194	4860	9.14*	2440	2.2	X	**RM**	**87**	**(E)DRN**	**160M4**	455	332
216	4370	8.22	2370	2.4	X						
249	3790	7.13	2280	2.5	X						
278	3390	6.39	2210	2.6	X						
335	2820	5.30*	2100	2.9	X						
163	5780	10.88	1190	1.00	X						
184	5130	9.64	1310	1.10	X						
229	4110	7.74	1220	1.30	X	**R**	**77**	**(E)DRN**	**160M4**	315	328
262	3610	6.79	1320	1.40	X	**RF**	**77**	**(E)DRN**	**160M4**	325	329
296	3180	5.99*	1390	1.50	X	**RM**	**77**	**(E)DRN**	**160M4**	380	329
334	2820	5.31*	1400	1.60	X						
342	2760	5.19	1920	2.2	X						
382	2470	4.65	1870	2.5	X						
423	2230	4.20*	1820	3.3	X						
466	2020	3.81	1780	3.6	X	**RX**	**107**	**(E)DRN**	**160M4**	460	305
525	1800	3.38	1720	4.1	X	**RXF**	**107**	**(E)DRN**	**160M4**	495	306
578	1630	3.07	1680	4.5	X						
673	1400	2.64*	1610	5.2	X						
393	2400	4.52	1530	2.2	X						
439	2150	4.04	1490	2.5	X						
488	1930	3.64*	1450	2.7	X						
539	1750	3.30	1410	3.0	X						
608	1550	2.92	1370	3.4	X	**RX**	**97**	**(E)DRN**	**160M4**	385	303
672	1400	2.64	1330	3.7	X	**RXF**	**97**	**(E)DRN**	**160M4**	405	304
793	1190	2.24*	1270	4.4	X						
908	1040	1.96	1230	4.8	X						
1085	870	1.64	1170	5.1	X						
1255	750	1.42	1120	5.3	X						

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P_m = 15.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
511	1840	3.48	1080	1.95	X						
575	1640	3.09	1050	2.2	X						
643	1460	2.76*	1030	2.4	X						
716	1320	2.48	1000	2.7	X	**RX**	**87**	**(E)DRN**	**160M4**	330	301
825	1140	2.15	970	3.0	X	**RXF**	**87**	**(E)DRN**	**160M4**	345	302
921	1020	1.93	940	3.1	X						
1110	850	1.60*	890	3.3	X						
1275	740	1.39	860	3.5	X						
731	1290	2.43	560	1.45	X						
834	1130	2.13	600	1.55	X						
945	1000	1.88*	625	1.65	X	**RX**	**77**	**(E)DRN**	**160M4**	295	299
1065	880	1.67	645	1.75	X	**RXF**	**77**	**(E)DRN**	**160M4**	300	300
1250	755	1.42	655	1.80	X						

P_m = 20 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
6.6	177000	270	27000	1.00	X						
6.7	176030	264	27000	1.00	X						
7.8	151360	227	27000	1.15	X						
7.8	150260	229	27000	1.20	X	**R**	**167R107**	**(E)DRN**	**160L4**	2020	344/347
8.9	131230	200	27000	1.35	X	**RF**	**167R107**	**(E)DRN**	**160L4**	2040	345/347
9.0	132020	198	27000	1.35	X	**RM**	**167R107**	**(E)DRN**	**160L4**	2470	345/347
10	110890	169	27000	1.6	X						
11	112020	168	27000	1.6	X						
						R	**147R87**	**(E)DRN**	**160L4**	1240	342/347
11	105000	159	14600	1.10	X	**RF**	**147R87**	**(E)DRN**	**160L4**	1260	343/347
						RM	**147R87**	**(E)DRN**	**160L4**	1630	343/347
7.7	162800	229.71	27000	1.10	X						
9.5	132500	186.93*	27000	1.35	X						
12	108500	153.07	27000	1.7	X						
13	99200	139.98	27000	1.8	X						
15	86300	121.81*	27000	2.1	X	**R**	**167**	**(E)DRN**	**160L4**	1640	344
17	76200	107.49	27000	2.3	X	**RF**	**167**	**(E)DRN**	**160L4**	1650	345
19	66000	93.19	27000	2.7	X	**RM**	**167**	**(E)DRN**	**160L4**	2080	345
21	58700	82.91*	27000	3.0	X						
24	52200	73.70*	27000	3.4	X						
26	47700	67.40	27000	3.7	X						
11	115800	163.31	14000	1.00							
12	104100	146.91	14600	1.10	X						
15	84900	119.86	15400	1.35	X						
16	77500	109.31	15600	1.50	X						
19	67000	94.60*	15900	1.70	X	**R**	**147**	**(E)DRN**	**160L4**	1090	342
21	59100	83.47	16100	1.95	X	**RF**	**147**	**(E)DRN**	**160L4**	1110	343
25	51100	72.09	16300	2.2	X	**RM**	**147**	**(E)DRN**	**160L4**	1480	343
27	47500	66.99	16300	2.4	X						
29	43300	61.09	16400	2.7	X						
34	37400	52.87	16500	3.1	X						
38	33000	46.65	16600	3.5	X						
20	62900	88.70*	12400	1.15	X						
22	57300	80.91*	12600	1.25	X						
24	52100	73.49	12900	1.35	X						
27	46200	65.20	13100	1.55	X						
30	41900	59.17*	13200	1.70	X	**R**	**137**	**(E)DRN**	**160L4**	810	340
35	36000	50.86*	13400	1.95	X	**RF**	**137**	**(E)DRN**	**160L4**	860	341
40	31400	44.39	13500	2.2	X	**RM**	**137**	**(E)DRN**	**160L4**	1110	341
47	26700	37.65	13600	2.6	X						
54	23300	32.91	13600	3.0	X						
64	19700	27.83	13700	3.4	X						

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P_m = 20 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
23	54000	76.21	9660	1.00							
26	48600	68.61	9660	1.10	X						
29	44000	62.13	9660	1.20	X						
32	39000	55.09	9660	1.35	X	**R**	**127**	**(E)DRN**	**160L4**	750	338
36	35300	49.81	9660	1.50	X	**RF**	**127**	**(E)DRN**	**160L4**	780	339
42	29900	42.22	9660	1.75	X	**RM**	**127**	**(E)DRN**	**160L4**	990	339
48	26100	36.88	9660	1.95	X						
58	21800	30.84	9660	2.2	X						
55	22800	32.18	9660	2.3	X						
62	20400	28.84	9660	2.6	X						
68	18400	26.04	9660	2.9	X	**R**	**127**	**(E)DRN**	**160L4**	720	338
75	16700	23.65	9660	3.2	X	**RF**	**127**	**(E)DRN**	**160L4**	760	339
85	14800	20.98	9660	3.6	X	**RM**	**127**	**(E)DRN**	**160L4**	980	339
93	13500	19.04	9660	3.9	X						
109	11600	16.37	9660	4.6	X						
34	37300	52.68	5440	1.00	X						
37	33700	47.63	5360	1.15	X	**R**	**107**	**(E)DRN**	**160L4**	630	336
44	28600	40.37*	5210	1.35	X	**RF**	**107**	**(E)DRN**	**160L4**	640	337
50	25000	35.26	5080	1.50	X	**RM**	**107**	**(E)DRN**	**160L4**	840	337
60	20900	29.49	4900	1.80	X						
58	21800	30.77	4940	1.75	X						
64	19500	27.58	4830	1.95	X						
71	17600	24.90*	4720	2.1	X						
79	16000	22.62	4610	2.4	X	**R**	**107**	**(E)DRN**	**160L4**	610	336
89	14200	20.07	4480	2.7	X	**RF**	**107**	**(E)DRN**	**160L4**	630	337
98	12900	18.21	4380	3.0	X	**RM**	**107**	**(E)DRN**	**160L4**	820	337
114	11000	15.65	4210	3.4	X						
130	9680	13.66	4060	3.9	X						
48	26300	37.13	3760	1.00	X	**R**	**97**	**(E)DRN**	**160L4**	500	334
53	23500	33.25	3720	1.10	X	**RF**	**97**	**(E)DRN**	**160L4**	540	335
64	19500	27.58	3630	1.20	X	**RM**	**97**	**(E)DRN**	**160L4**	650	335
71	17700	25.03	3570	1.40	X						
79	15800	22.37	3500	1.50	X						
88	14200	20.14	3440	1.60	X						
97	12900	18.24	3370	1.70	X						
110	11400	16.17	3290	1.85	X						
122	10300	14.62	3220	1.95	X	**R**	**97**	**(E)DRN**	**160L4**	495	334
143	8780	12.39	3100	2.2	X	**RF**	**97**	**(E)DRN**	**160L4**	530	335
164	7670	10.83	3000	2.4	X	**RM**	**97**	**(E)DRN**	**160L4**	650	335
191	6580	9.29	2940	2.7	X						
212	5950	8.39	2860	3.0	X						
250	5040	7.12	2730	3.5	X						
286	4400	6.21	2630	3.8	X						
104	12100	17.08*	2560	1.00	X						
116	10800	15.35	2520	1.10	X						
133	9450	13.33	2460	1.20	X						
149	8460	11.93	2410	1.30	X						
179	7020	9.90*	2320	1.50	X	**R**	**87**	**(E)DRN**	**160L4**	410	331
194	6480	9.14*	2360	1.65	X	**RF**	**87**	**(E)DRN**	**160L4**	425	332
216	5820	8.22	2300	1.75	X	**RM**	**87**	**(E)DRN**	**160L4**	490	332
249	5050	7.13	2220	1.85	X						
278	4530	6.39	2150	2.0	X						
335	3750	5.30*	2050	2.1	X						
342	3680	5.19	1830	1.65	X						
382	3290	4.65	1790	1.85	X						
423	2970	4.20*	1750	2.5	X						
466	2700	3.81	1710	2.7	X						
525	2400	3.38	1660	3.1	X						
579	2170	3.07	1620	3.4	X	**RX**	**107**	**(E)DRN**	**160L4**	495	305
673	1870	2.64*	1560	3.9	X	**RXF**	**107**	**(E)DRN**	**160L4**	530	306
771	1630	2.30	1500	4.5	X						
909	1380	1.95	1430	4.9	X						
1040	1210	1.71	1380	5.2	X						
1230	1020	1.44	1320	5.6	X						

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P_m = 20 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
393	3200	4.52	1450	1.65	X						
439	2860	4.04	1420	1.85	X						
488	2580	3.64*	1380	2.0	X						
539	2330	3.30	1350	2.2	X						
608	2070	2.92	1320	2.5	X	**RX**	**97**	**(E)DRN**	**160L4**	420	303
672	1870	2.64	1280	2.8	X	**RXF**	**97**	**(E)DRN**	**160L4**	440	304
793	1580	2.24*	1230	3.3	X						
908	1380	1.96	1190	3.6	X						
1085	1160	1.64	1130	3.9	X						
1255	1000	1.42	1090	4.0	X						
511	2460	3.48	1010	1.45	X						
576	2180	3.09	990	1.65	X						
644	1950	2.76*	970	1.85	X						
716	1750	2.48	950	2.0	X	**RX**	**87**	**(E)DRN**	**160L4**	365	301
825	1520	2.15	920	2.2	X	**RXF**	**87**	**(E)DRN**	**160L4**	380	302
921	1360	1.93	900	2.3	X						
1110	1130	1.60*	860	2.5	X						
1275	980	1.39	830	2.6	X						

P_m = 25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
8.9	163670	200	27000	1.10	X	**R**	**167R107**	**(E)DRN**	**180M4**	2070	344/347
9.0	164660	198	27000	1.05	X	**RF**	**167R107**	**(E)DRN**	**180M4**	2080	345/347
11	138300	169	27000	1.30	X	**RM**	**167R107**	**(E)DRN**	**180M4**	2520	345/347
9.5	165370	186.93	27000	1.05	X						
12	135420	153.07	27000	1.30	X						
13	123840	139.98	27000	1.5	X						
15	107760	121.81	27000	1.7	X						
17	95090	107.49	27000	1.9	X	**R**	**167**	**(E)DRN**	**180M4**	1690	344
19	82440	93.19	27000	2.2	X	**RF**	**167**	**(E)DRN**	**180M4**	1700	345
21	73350	82.91	27000	2.4	X	**RM**	**167**	**(E)DRN**	**180M4**	2130	345
24	65200	73.70	27000	2.7	X						
26	59630	67.40	27000	3.0	X						
30	51890	58.65	27000	3.4	X						
15	106000	119.86	14500	1.10	X						
16	96600	109.31	14900	1.20	X						
19	83600	94.60*	15400	1.35	X						
21	73800	83.47	15700	1.55	X						
25	63700	72.09	16000	1.80	X	**R**	**147**	**(E)DRN**	**180M4**	1140	342
27	59200	66.99	16100	1.95	X	**RF**	**147**	**(E)DRN**	**180M4**	1160	343
29	54000	61.09	16200	2.1	X	**RM**	**147**	**(E)DRN**	**180M4**	1530	343
34	46700	52.87	16300	2.5	X						
38	41200	46.65	16400	2.8	X						
44	35600	40.29	16500	3.2	X						
22	71500	80.91*	12000	1.00							
24	64900	73.49	12300	1.10	X						
27	57600	65.20	12600	1.25	X						
30	52300	59.17*	12800	1.35	X	**R**	**137**	**(E)DRN**	**180M4**	860	340
35	44900	50.86*	13100	1.55	X	**RF**	**137**	**(E)DRN**	**180M4**	910	341
40	39200	44.39	13300	1.80	X	**RM**	**137**	**(E)DRN**	**180M4**	1160	341
47	33300	37.65	13400	2.1	X						
54	29100	32.91	13500	2.4	X						
64	24600	27.83	13600	2.8	X						
60	26100	29.57*	13600	2.6	X						
74	21300	24.12	13600	3.3	X	**R**	**137**	**(E)DRN**	**180M4**	840	340
81	19400	22.00*	13700	3.6	X	**RF**	**137**	**(E)DRN**	**180M4**	890	341
94	16800	19.04*	13700	4.2	X	**RM**	**137**	**(E)DRN**	**180M4**	1140	341
106	14800	16.80*	13700	4.8	X						
32	48700	55.09	9660	1.10	X						
36	44000	49.81	9660	1.20	X	**R**	**127**	**(E)DRN**	**180M4**	800	338
42	37300	42.22	9660	1.40	X	**RF**	**127**	**(E)DRN**	**180M4**	830	339
48	32600	36.88	9660	1.55	X	**RM**	**127**	**(E)DRN**	**180M4**	1040	339
58	27200	30.84	9660	1.75	X						

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P_m = 25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
68	23000	26.04	9660	2.3	X						
75	20900	23.65	9660	2.5	X						
85	18500	20.98	9660	2.9	X	**R**	**127**	**(E)DRN**	**180M4**	760	338
94	16800	19.04	9660	3.1	X	**RF**	**127**	**(E)DRN**	**180M4**	810	339
109	14400	16.37	9660	3.7	X	**RM**	**127**	**(E)DRN**	**180M4**	1020	339
125	12600	14.29	9660	4.2	X						
201	7830	8.85	9660	4.4	X						
44	35700	40.37*	4910	1.05	X	**R**	**107**	**(E)DRN**	**180M4**	680	336
51	31100	35.26	4810	1.20	X	**RF**	**107**	**(E)DRN**	**180M4**	690	337
60	26000	29.49	4670	1.45	X	**RM**	**107**	**(E)DRN**	**180M4**	880	337
72	22000	24.90*	4530	1.75	X						
79	20000	22.62	4440	1.90	X						
89	17700	20.07	4330	2.1	X						
98	16100	18.21	4240	2.4	X						
114	13800	15.65	4090	2.8	X	**R**	**107**	**(E)DRN**	**180M4**	660	336
130	12000	13.66	3960	3.1	X	**RF**	**107**	**(E)DRN**	**180M4**	670	337
154	10200	11.59	3800	3.7	X	**RM**	**107**	**(E)DRN**	**180M4**	870	337
176	8950	10.13	3670	4.2	X						
227	6940	7.86	3470	3.8	X						
267	5890	6.66	3310	4.5	X						
88	17800	20.14	3250	1.30	X						
98	16100	18.24	3200	1.35	X						
110	14300	16.17	3140	1.50	X						
122	12900	14.62	3080	1.55	X						
144	10900	12.39	2980	1.75	X						
165	9570	10.83	2900	1.95	X	**R**	**97**	**(E)DRN**	**180M4**	540	334
192	8210	9.29	2870	2.2	X	**RF**	**97**	**(E)DRN**	**180M4**	580	335
212	7420	8.39	2800	2.4	X	**RM**	**97**	**(E)DRN**	**180M4**	690	335
250	6290	7.12	2680	2.8	X						
287	5490	6.21	2580	3.0	X						
343	4590	5.20	2460	3.4	X						
396	3970	4.50*	2360	3.6	X						
149	10500	11.93	2280	1.05	X						
180	8750	9.90*	2210	1.20	X						
195	8080	9.14*	2270	1.30	X	**R**	**87**	**(E)DRN**	**180M4**	455	331
217	7260	8.22	2220	1.40	X	**RF**	**87**	**(E)DRN**	**180M4**	470	332
250	6300	7.13	2150	1.50	X	**RM**	**87**	**(E)DRN**	**180M4**	540	332
279	5640	6.39	2090	1.60	X						
336	4680	5.30*	2000	1.70	X						
424	3710	4.20*	1670	2.0	X						
467	3370	3.81	1640	2.2	X						
526	2990	3.38	1600	2.5	X						
580	2710	3.07	1560	2.7	X						
675	2330	2.64*	1510	3.1	X	**RX**	**107**	**(E)DRN**	**180M4**	540	305
773	2030	2.30	1460	3.6	X	**RXF**	**107**	**(E)DRN**	**180M4**	580	306
911	1720	1.95	1400	3.9	X						
1045	1510	1.71	1350	4.1	X						
1235	1270	1.44	1290	4.5	X						
489	3210	3.64*	1320	1.65	X						
540	2910	3.30	1290	1.80	X						
609	2580	2.92	1260	2.0	X						
674	2330	2.64	1240	2.2	X	**RX**	**97**	**(E)DRN**	**180M4**	470	303
795	1980	2.24*	1190	2.7	X	**RXF**	**97**	**(E)DRN**	**180M4**	490	304
910	1730	1.96	1150	2.9	X						
1090	1440	1.64	1100	3.1	X						
1255	1250	1.42	1060	3.2	X						
645	2440	2.76*	870	1.45	X						
718	2190	2.48	890	1.65	X						
827	1900	2.15	870	1.80	X	**RX**	**87**	**(E)DRN**	**180M4**	415	301
923	1700	1.93	850	1.85	X	**RXF**	**87**	**(E)DRN**	**180M4**	425	302
1115	1410	1.60*	820	1.95	X						
1280	1230	1.39	795	2.1	X						

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P_m = 30 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
11	167650	168	27000	1.05	X	**R**	**167R107**	**(E)DRN**	**180L4**	2100	344/347
						RF	**167R107**	**(E)DRN**	**180L4**	2120	345/347
						RM	**167R107**	**(E)DRN**	**180L4**	2550	345/347
12	162400	153.07	27000	1.10							
13	148500	139.98	27000	1.20	X						
15	129200	121.81*	27000	1.35	X						
17	114000	107.49	27000	1.6	X						
19	98900	93.19	27000	1.8	X	**R**	**167**	**(E)DRN**	**180L4**	1720	344
21	87900	82.91*	27000	2.0	X	**RF**	**167**	**(E)DRN**	**180L4**	1740	345
24	78200	73.70*	27000	2.3	X	**RM**	**167**	**(E)DRN**	**180L4**	2170	345
26	71500	67.40	27000	2.5	X						
30	62200	58.65	27000	2.8	X						
34	54900	51.76	27000	3.2	X						
40	47600	44.87	27000	3.7	X						
16	116000	109.31	14000	1.00							
19	100300	94.60*	14800	1.15	X						
21	88500	83.47	15200	1.30	X						
25	76500	72.09	15600	1.50	X						
27	71000	66.99	15800	1.60	X	**R**	**147**	**(E)DRN**	**180L4**	1180	342
29	64800	61.09	16000	1.75	X	**RF**	**147**	**(E)DRN**	**180L4**	1200	343
34	56100	52.87	16200	2.0	X	**RM**	**147**	**(E)DRN**	**180L4**	1570	343
38	49500	46.65	16300	2.3	X						
44	42700	40.29	16400	2.7	X						
50	37800	35.64	16500	3.0	X						
59	31700	29.95	16600	3.6	X						
27	69100	65.20	12100	1.00	X						
30	62700	59.17*	12400	1.15	X						
35	53900	50.86*	12800	1.30	X	**R**	**137**	**(E)DRN**	**180L4**	900	340
40	47100	44.39	13000	1.50	X	**RF**	**137**	**(E)DRN**	**180L4**	950	341
47	39900	37.65	13300	1.75	X	**RM**	**137**	**(E)DRN**	**180L4**	1190	341
54	34900	32.91	13400	2.0	X						
64	29500	27.83	13500	2.3	X						
60	31300	29.57*	13500	2.2	X						
74	25600	24.12	13600	2.8	X						
81	23300	22.00*	13600	3.0	X	**R**	**137**	**(E)DRN**	**180L4**	880	340
94	20200	19.04*	13700	3.5	X	**RF**	**137**	**(E)DRN**	**180L4**	930	341
106	17800	16.80*	13700	4.0	X	**RM**	**137**	**(E)DRN**	**180L4**	1170	341
123	15300	14.51	13600	4.6	X						
139	13600	12.83	13200	5.2	X						
36	52800	49.81	9660	1.00	X						
42	44800	42.22	9660	1.20	X	**R**	**127**	**(E)DRN**	**180L4**	840	338
48	39100	36.88	9660	1.30	X	**RF**	**127**	**(E)DRN**	**180L4**	860	339
58	32700	30.84	9660	1.45	X	**RM**	**127**	**(E)DRN**	**180L4**	1070	339
68	27600	26.04	9660	1.90	X						
75	25100	23.65	9660	2.1	X						
85	22200	20.98	9660	2.4	X						
94	20200	19.04	9660	2.6	X						
109	17300	16.37	9660	3.1	X	**R**	**127**	**(E)DRN**	**180L4**	800	338
125	15100	14.29	9660	3.5	X	**RF**	**127**	**(E)DRN**	**180L4**	850	339
147	12800	12.12	9660	4.1	X	**RM**	**127**	**(E)DRN**	**180L4**	1060	339
168	11200	10.59	9660	4.5	X						
201	9390	8.85	9660	3.7	X						
237	7960	7.51	9660	4.4	X						

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P_m = 30 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
51	37400	35.26	4550	1.00	X	**R**	**107**	**(E)DRN**	**180L4**	710	336
60	31200	29.49	4450	1.20	X	**RF**	**107**	**(E)DRN**	**180L4**	720	337
						RM	**107**	**(E)DRN**	**180L4**	920	337
72	26400	24.90*	4340	1.45	X						
79	24000	22.62	4270	1.60	X						
89	21200	20.07	4180	1.80	X						
98	19300	18.21	4100	1.95	X						
114	16600	15.65	3970	2.3	X						
130	14400	13.66	3860	2.6	X	**R**	**107**	**(E)DRN**	**180L4**	700	336
154	12200	11.59	3710	3.1	X	**RF**	**107**	**(E)DRN**	**180L4**	710	337
176	10700	10.13	3590	3.5	X	**RM**	**107**	**(E)DRN**	**180L4**	900	337
208	9080	8.56	3440	4.2	X						
227	8330	7.86	3420	3.1	X						
267	7070	6.66	3270	3.7	X						
306	6180	5.82	3140	4.2	X						
88	21300	20.14	3070	1.10	X						
98	19300	18.24	3040	1.15	X						
110	17100	16.17	2990	1.25	X						
122	15500	14.62	2950	1.30	X						
144	13100	12.39	2870	1.45	X						
165	11400	10.83	2800	1.60	X	**R**	**97**	**(E)DRN**	**180L4**	580	334
192	9850	9.29	2800	1.80	X	**RF**	**97**	**(E)DRN**	**180L4**	620	335
212	8900	8.39	2740	2.0	X	**RM**	**97**	**(E)DRN**	**180L4**	730	335
250	7550	7.12	2630	2.3	X						
287	6590	6.21	2540	2.5	X						
343	5510	5.20	2420	2.9	X						
396	4770	4.50*	2330	3.0	X						
180	10500	9.90*	2110	1.00							
195	9700	9.14*	2190	1.10	X						
217	8720	8.22	2150	1.20	X	**R**	**87**	**(E)DRN**	**180L4**	490	331
250	7570	7.13	2090	1.25	X	**RF**	**87**	**(E)DRN**	**180L4**	510	332
279	6770	6.39	2040	1.35	X	**RM**	**87**	**(E)DRN**	**180L4**	570	332
336	5620	5.30*	1950	1.45	X						
424	4450	4.20*	1600	1.65	X						
467	4040	3.81	1570	1.80	X						
526	3590	3.38	1540	2.0	X						
580	3250	3.07	1510	2.2	X						
675	2800	2.64*	1460	2.6	X	**RX**	**107**	**(E)DRN**	**180L4**	570	305
773	2440	2.30	1410	3.0	X	**RXF**	**107**	**(E)DRN**	**180L4**	610	306
911	2070	1.95	1360	3.3	X						
1045	1810	1.71	1310	3.4	X						
1235	1530	1.44	1260	3.7	X						
489	3860	3.64*	1250	1.35	X						
540	3490	3.30	1230	1.50	X						
609	3100	2.92	1210	1.70	X						
674	2800	2.64	1190	1.90	X	**RX**	**97**	**(E)DRN**	**180L4**	500	303
795	2370	2.24*	1150	2.2	X	**RXF**	**97**	**(E)DRN**	**180L4**	520	304
910	2070	1.96	1110	2.4	X						
1090	1730	1.64	1070	2.6	X						
1255	1500	1.42	1030	2.7	X						
645	2920	2.76*	520	1.20	X						
718	2630	2.48	590	1.35	X						
827	2280	2.15	665	1.50	X	**RX**	**87**	**(E)DRN**	**180L4**	450	301
923	2040	1.93	710	1.55	X	**RXF**	**87**	**(E)DRN**	**180L4**	460	302
1115	1690	1.60*	750	1.65	X						
1280	1470	1.39	760	1.75	X						

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P_m = 40 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
15	172230	121.81*	27000	1.05	X						
17	151980	107.49	27000	1.15	X						
19	131760	93.19	27000	1.35	X						
22	117230	82.91*	27000	1.5	X						
24	104210	73.70*	27000	1.7	X	**R**	**167**	**(E)DRN**	**200L4**	1960	344
26	95300	67.40	27000	1.9	X	**RF**	**167**	**(E)DRN**	**200L4**	1980	345
30	82930	58.65	27000	2.1	X	**RM**	**167**	**(E)DRN**	**200L4**	2410	345
34	73180	51.76	27000	2.4	X						
40	63440	44.87	27000	2.8	X						
45	56440	39.92	27000	3.1	X						
52	48650	34.41	27000	3.6	X						
25	101800	72.09	14700	1.15	X						
27	94600	66.99	15000	1.20	X						
29	86300	61.09	15300	1.35	X						
34	74700	52.87	15700	1.55	X	**R**	**147**	**(E)DRN**	**200L4**	1420	342
38	65900	46.65	15900	1.75	X	**RF**	**147**	**(E)DRN**	**200L4**	1440	343
44	56900	40.29	16100	2.0	X	**RM**	**147**	**(E)DRN**	**200L4**	1800	343
50	50300	35.64	16300	2.3	X						
60	42300	29.95	16400	2.7	X						
74	34100	24.19	16500	3.1	X						
87	28800	20.44	16600	3.7	X	**R**	**147**	**(E)DRN**	**200L4**	1390	342
99	25400	18.04	16600	3.6	X	**RF**	**147**	**(E)DRN**	**200L4**	1410	343
114	22100	15.64	16700	5.2	X	**RM**	**147**	**(E)DRN**	**200L4**	1770	343
35	71800	50.86*	11900	1.00							
40	62700	44.39	12400	1.15	X	**R**	**137**	**(E)DRN**	**200L4**	1130	340
47	53200	37.65	12800	1.35	X	**RF**	**137**	**(E)DRN**	**200L4**	1190	341
54	46500	32.91	13100	1.50	X	**RM**	**137**	**(E)DRN**	**200L4**	1430	341
64	39300	27.83	13300	1.75	X						
74	34000	24.12	13400	2.1	X						
81	31000	22.00*	13500	2.3	X						
94	26900	19.04*	13500	2.6	X						
106	23700	16.80*	13300	3.0	X	**R**	**137**	**(E)DRN**	**200L4**	1110	340
123	20500	14.51	13000	3.5	X	**RF**	**137**	**(E)DRN**	**200L4**	1160	341
139	18100	12.83	12700	3.9	X	**RM**	**137**	**(E)DRN**	**200L4**	1410	341
165	15200	10.79	12300	4.6	X						
235	10700	7.59	11500	4.2	X						
279	9010	6.38	11000	5.0	X						
						R	**127**	**(E)DRN**	**200L4**	1080	338
58	43500	30.84	9660	1.10	X	**RF**	**127**	**(E)DRN**	**200L4**	1100	339
						RM	**127**	**(E)DRN**	**200L4**	1310	339
85	29600	20.98	9660	1.80	X						
94	26900	19.04	9660	1.95	X						
109	23100	16.37	9660	2.3	X						
125	20100	14.29	9660	2.6	X						
147	17100	12.12	9660	3.1	X	**R**	**127**	**(E)DRN**	**200L4**	1040	338
168	14900	10.59	9660	3.4	X	**RF**	**127**	**(E)DRN**	**200L4**	1090	339
199	12600	8.96	9660	3.8	X	**RM**	**127**	**(E)DRN**	**200L4**	1300	339
201	12500	8.85	9660	2.8	X						
237	10600	7.51	9660	3.3	X						
272	9270	6.56	9660	3.8	X						
321	7840	5.55	9660	4.4	X						
89	28300	20.07	3880	1.35	X						
98	25700	18.21	3830	1.50	X						
114	22100	15.65	3740	1.70	X						
131	19300	13.66	3650	1.95	X						
154	16300	11.59	3540	2.3	X	**R**	**107**	**(E)DRN**	**200L4**	940	336
176	14300	10.13	3440	2.7	X	**RF**	**107**	**(E)DRN**	**200L4**	950	337
208	12100	8.56	3310	3.1	X	**RM**	**107**	**(E)DRN**	**200L4**	1140	337
227	11100	7.86	3320	2.4	X						
268	9410	6.66	3180	2.8	X						
306	8230	5.82	3070	3.2	X						
362	6960	4.92	2930	3.7	X						

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P_m = 40 HP

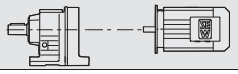
n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
122	20600	14.62	2680	1.00							
144	17500	12.39	2640	1.10	X						
165	15300	10.83	2600	1.20	X						
192	13100	9.29	2670	1.35	X	**R**	**97**	**(E)DRN**	**200L4**	820	334
212	11800	8.39	2610	1.50	X	**RF**	**97**	**(E)DRN**	**200L4**	860	335
251	10000	7.12	2520	1.75	X	**RM**	**97**	**(E)DRN**	**200L4**	970	335
287	8780	6.21	2450	1.90	X						
343	7340	5.20	2340	2.1	X						
396	6360	4.50*	2260	2.3	X						
527	4780	3.38	1410	1.55	X						
581	4340	3.07	1390	1.70	X						
675	3730	2.64*	1360	1.95	X						
774	3250	2.30	1330	2.2	X	**RX**	**107**	**(E)DRN**	**200L4**	820	305
912	2760	1.95	1280	2.5	X	**RXF**	**107**	**(E)DRN**	**200L4**	850	306
1045	2410	1.71	1240	2.6	X						
1235	2040	1.44	1200	2.8	X						
610	4130	2.92	990	1.25	X						
675	3730	2.64	1060	1.40	X						
796	3160	2.24*	1060	1.65	X	**RX**	**97**	**(E)DRN**	**200L4**	740	303
911	2760	1.96	1040	1.80	X	**RXF**	**97**	**(E)DRN**	**200L4**	760	304
1090	2310	1.64	1000	1.95	X						
1260	2000	1.42	970	2.0	X						

P_m = 50 HP

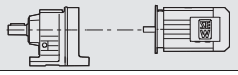
n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
19	164520	93.19	27000	1.10	X						
22	146370	82.91	27000	1.20	X						
24	130110	73.70	27000	1.35	X						
26	118990	67.40	27000	1.5	X						
30	103540	58.65	27000	1.7	X	**R**	**167**	**(E)DRN**	**225S4**	2030	344
34	91380	51.76	27000	2.0	X	**RF**	**167**	**(E)DRN**	**225S4**	2040	345
40	79210	44.87	27000	2.2	X	**RM**	**167**	**(E)DRN**	**225S4**	2470	345
45	70480	39.92	27000	2.5	X						
52	60750	34.41	27000	2.9	X						
58	54220	30.71	27000	1.9	X						
64	49360	27.96	27000	3.6	X						
29	107800	61.09	14400	1.05	X						
34	93300	52.87	15000	1.25	X						
38	82300	46.65	15400	1.40	X	**R**	**147**	**(E)DRN**	**225S4**	1490	342
44	71100	40.29	15800	1.60	X	**RF**	**147**	**(E)DRN**	**225S4**	1510	343
50	62800	35.64	16000	1.85	X	**RM**	**147**	**(E)DRN**	**225S4**	1880	343
60	52800	29.95	16200	2.2	X						
74	42600	24.19	16400	2.5	X						
87	36000	20.44	16500	2.9	X						
99	31800	18.04	16600	2.9	X	**R**	**147**	**(E)DRN**	**225S4**	1460	342
114	27500	15.64	16600	4.2	X	**RF**	**147**	**(E)DRN**	**225S4**	1480	343
128	24500	13.91	16600	4.5	X	**RM**	**147**	**(E)DRN**	**225S4**	1850	343
47	66400	37.65	12200	1.05	X	**R**	**137**	**(E)DRN**	**225S4**	1200	340
54	58000	32.91	12600	1.20	X	**RF**	**137**	**(E)DRN**	**225S4**	1250	341
64	49100	27.83	13000	1.40	X	**RM**	**137**	**(E)DRN**	**225S4**	1500	341
74	42500	24.12	13000	1.65	X						
81	38800	22.00*	12900	1.80	X						
94	33600	19.04*	12800	2.1	X						
106	29600	16.80*	12600	2.4	X						
123	25600	14.51	12400	2.8	X	**R**	**137**	**(E)DRN**	**225S4**	1180	340
139	22600	12.83	12200	3.1	X	**RF**	**137**	**(E)DRN**	**225S4**	1230	341
166	19000	10.79	11800	3.7	X	**RM**	**137**	**(E)DRN**	**225S4**	1480	341
205	15300	8.71	11400	4.5	X						
235	13300	7.59	11200	3.4	X						
280	11200	6.38	10800	4.0	X						
346	9090	5.15	10300	4.5	X						

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P_m = 50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
85	37000	20.98	9660	1.45	X						
94	33600	19.04	9660	1.60	X						
109	28800	16.37	9660	1.85	X						
125	25200	14.29	9660	2.1	X						
147	21300	12.12	9660	2.5	X	**R**	**127**	**(E)DRN**	**225S4**	1110	338
169	18600	10.59	9660	2.7	X	**RF**	**127**	**(E)DRN**	**225S4**	1150	339
199	15800	8.96	9660	3.0	X	**RM**	**127**	**(E)DRN**	**225S4**	1370	339
202	15600	8.85	9660	2.2	X						
238	13200	7.51	9660	2.6	X						
272	11500	6.56	9660	3.0	X						
322	9790	5.55	9660	3.5	X						
89	35400	20.07	3580	1.05	X						
98	32100	18.21	3560	1.20	X						
114	27600	15.65	3510	1.40	X						
131	24100	13.66	3450	1.60	X						
154	20400	11.59	3360	1.85	X	**R**	**107**	**(E)DRN**	**225S4**	1010	336
176	17800	10.13	3290	2.1	X	**RF**	**107**	**(E)DRN**	**225S4**	1020	337
208	15100	8.56	3180	2.5	X	**RM**	**107**	**(E)DRN**	**225S4**	1210	337
227	13800	7.86	3220	1.90	X						
268	11700	6.66	3100	2.2	X						
306	10200	5.82	2990	2.6	X						
362	8690	4.92	2870	3.0	X						
192	16300	9.29	2530	1.10	X						
213	14800	8.39	2490	1.20	X						
251	12500	7.12	2420	1.40	X	**R**	**97**	**(E)DRN**	**225S4**	890	334
287	10900	6.21	2350	1.50	X	**RF**	**97**	**(E)DRN**	**225S4**	920	335
343	9170	5.20	2270	1.70	X	**RM**	**97**	**(E)DRN**	**225S4**	1040	335
397	7940	4.50*	2190	1.80	X						
527	5970	3.38	1290	1.25	X						
581	5420	3.07	1280	1.35	X						
676	4650	2.64*	1260	1.60	X						
775	4060	2.30	1240	1.80	X	**RX**	**107**	**(E)DRN**	**225S4**	880	305
913	3440	1.95	1210	1.95	X	**RXF**	**107**	**(E)DRN**	**225S4**	920	306
1045	3010	1.71	1180	2.1	X						
1235	2540	1.44	1140	2.2	X						
611	5150	2.92	410	1.00	X						
675	4660	2.64	520	1.15	X						
797	3950	2.24*	650	1.35	X	**RX**	**97**	**(E)DRN**	**225S4**	810	303
912	3450	1.96	755	1.45	X	**RXF**	**97**	**(E)DRN**	**225S4**	830	304
1090	2880	1.64	830	1.55	X						
1260	2500	1.42	870	1.60	X						

P_m = 60 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
22	175640	82.91	27000	1.00	X						
24	156130	73.70	27000	1.15	X						
26	142790	67.40	27000	1.25	X						
30	124250	58.65	27000	1.40	X						
34	109650	51.76	27000	1.6	X	**R**	**167**	**(E)DRN**	**225M4**	2030	344
40	95060	44.87	27000	1.9	X	**RF**	**167**	**(E)DRN**	**225M4**	2040	345
45	84570	39.92	27000	2.1	X	**RM**	**167**	**(E)DRN**	**225M4**	2470	345
52	72900	34.41	27000	2.4	X						
58	65060	30.71	27000	1.6	X						
64	59230	27.96	27000	3.0	X						
34	111900	52.87	14200	1.05	X						
38	98800	46.65	14800	1.15	X						
44	85300	40.29	15300	1.35	X	**R**	**147**	**(E)DRN**	**225M4**	1490	342
50	75400	35.64	15700	1.50	X	**RF**	**147**	**(E)DRN**	**225M4**	1510	343
60	63400	29.95	16000	1.80	X	**RM**	**147**	**(E)DRN**	**225M4**	1880	343
74	51200	24.19	16300	2.1	X						

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P_m = 60 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
87	43200	20.44	16400	2.5	X						
99	38100	18.04	16500	2.4	X						
114	33100	15.64	16600	3.5	X	**R**	**147**	**(E)DRN**	**225M4**	1460	342
128	29400	13.91	16600	3.8	X	**RF**	**147**	**(E)DRN**	**225M4**	1480	343
149	25300	11.99	16600	4.5	X	**RM**	**147**	**(E)DRN**	**225M4**	1850	343
246	15300	7.25	16600	5.0	X						
54	69600	32.91	11600	1.00	X	**R**	**137**	**(E)DRN**	**225M4**	1200	340
64	58900	27.83	11900	1.15	X	**RF**	**137**	**(E)DRN**	**225M4**	1250	341
						RM	**137**	**(E)DRN**	**225M4**	1500	
74	51000	24.12	12000	1.40	X						
81	46500	22.00*	12000	1.50	X						
94	40300	19.04*	12000	1.75	X						
106	35500	16.80*	11900	2.0	X						
123	30700	14.51	11800	2.3	X	**R**	**137**	**(E)DRN**	**225M4**	1180	340
139	27100	12.83	11700	2.6	X	**RF**	**137**	**(E)DRN**	**225M4**	1230	341
166	22800	10.79	11400	3.1	X	**RM**	**137**	**(E)DRN**	**225M4**	1480	
205	18400	8.71	11000	3.8	X						
235	16000	7.59	10900	2.8	X						
280	13500	6.38	10500	3.4	X						
346	10900	5.15	10100	3.7	X						
85	44400	20.98	9660	1.20	X						
94	40300	19.04	9660	1.30	X						
109	34600	16.37	9660	1.55	X						
125	30200	14.29	9660	1.75	X						
147	25600	12.12	9660	2.0	X	**R**	**127**	**(E)DRN**	**225M4**	1110	338
169	22400	10.59	9660	2.2	X	**RF**	**127**	**(E)DRN**	**225M4**	1150	339
199	18900	8.96	9660	2.5	X	**RM**	**127**	**(E)DRN**	**225M4**	1370	339
202	18700	8.85	9660	1.85	X						
238	15900	7.51	9660	2.2	X						
272	13900	6.56	9660	2.5	X						
322	11700	5.55	9660	3.0	X						
114	33100	15.65	3270	1.15	X						
131	28900	13.66	3240	1.30	X						
154	24500	11.59	3190	1.55	X						
176	21400	10.13	3140	1.75	X	**R**	**107**	**(E)DRN**	**225M4**	1010	336
208	18100	8.56	3060	2.1	X	**RF**	**107**	**(E)DRN**	**225M4**	1020	337
227	16600	7.86	3120	1.60	X	**RM**	**107**	**(E)DRN**	**225M4**	1210	337
268	14100	6.66	3010	1.85	X						
306	12300	5.82	2920	2.1	X						
362	10400	4.92	2810	2.5	X						
527	7160	3.38	755	1.00	X						
581	6500	3.07	870	1.15	X						
676	5590	2.64*	1010	1.30	X						
775	4880	2.30	1110	1.50	X	**RX**	**107**	**(E)DRN**	**225M4**	880	305
913	4130	1.95	1130	1.65	X	**RXF**	**107**	**(E)DRN**	**225M4**	920	306
1045	3610	1.71	1110	1.70	X						
1235	3050	1.44	1080	1.85	X						

P_m = 75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
30	155310	58.65	27000	1.15	X						
34	137070	51.76	27000	1.30	X						
40	118820	44.87	27000	1.5	X						
45	105710	39.92	27000	1.7	X						
52	91120	34.41	27000	2.0	X	**R**	**167**	**(E)DRN**	**250ME4**	2470	344
64	74040	27.96	27000	2.4	X	**RF**	**167**	**(E)DRN**	**250ME4**	2480	345
73	65060	24.57	27000	2.2	X	**RM**	**167**	**(E)DRN**	**250ME4**	2910	345
75	62790	23.71	27000	2.7	X						
82	57860	21.85	27000	3.1	X						
94	50390	19.03	27000	3.5	X						
105	44960	16.98	27000	3.9	X						

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P_m = 75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
44	106600	40.29	14500	1.10	X						
50	94300	35.64	15000	1.20	X	**R**	**147**	**(E)DRN**	**250ME4**	1920	342
60	79200	29.95	15500	1.45	X	**RF**	**147**	**(E)DRN**	**250ME4**	1940	343
74	64000	24.19	16000	1.65	X	**RM**	**147**	**(E)DRN**	**250ME4**	2310	343
87	54100	20.44	16200	1.95	X						
99	47700	18.04	16300	1.95	X						
114	41300	15.64	16400	2.8	X						
128	36800	13.91	16500	3.0	X	**R**	**147**	**(E)DRN**	**250ME4**	1890	342
149	31700	11.99	16600	3.6	X	**RF**	**147**	**(E)DRN**	**250ME4**	1910	343
183	25700	9.74	16600	4.5	X	**RM**	**147**	**(E)DRN**	**250ME4**	2280	343
246	19100	7.25	16300	4.0	X						
303	15500	5.89	15500	4.9	X						
94	50400	19.04*	10900	1.40	X						
106	44400	16.80*	10900	1.60	X						
123	38400	14.51	10900	1.85	X						
139	33900	12.83	10900	2.1	X	**R**	**137**	**(E)DRN**	**250ME4**	1620	340
166	28500	10.79	10800	2.5	X	**RF**	**137**	**(E)DRN**	**250ME4**	1670	341
205	23000	8.71	10500	3.0	X	**RM**	**137**	**(E)DRN**	**250ME4**	1910	341
235	20000	7.59	10500	2.2	X						
280	16800	6.38	10200	2.7	X						
346	13600	5.15	9780	3.0	X						
109	43300	16.37	9660	1.25	X						
125	37800	14.29	9660	1.40	X						
147	32000	12.12	9660	1.65	X						
169	28000	10.59	9660	1.80	X	**R**	**127**	**(E)DRN**	**250ME4**	1540	338
199	23700	8.96	9660	2.0	X	**RF**	**127**	**(E)DRN**	**250ME4**	1590	339
202	23400	8.85	9660	1.50	X	**RM**	**127**	**(E)DRN**	**250ME4**	1800	339
238	19800	7.51	9660	1.75	X						
272	17300	6.56	9660	2.0	X						
322	14600	5.55	9460	2.4	X						

P_m = 100 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
40	158430	44.87	27000	1.10	X						
45	140950	39.92	27000	1.25	X						
52	121500	34.41	27000	1.5	X						
64	98720	27.96	27000	1.8	X						
73	86750	24.57	27000	1.7	X	**R**	**167**	**(E)DRN**	**280S4**	2470	344
75	83720	23.71	27000	2.0	X	**RF**	**167**	**(E)DRN**	**280S4**	2490	345
82	77150	21.85	27000	2.3	X	**RM**	**167**	**(E)DRN**	**280S4**	2920	345
94	67190	19.03	27000	2.6	X						
105	59950	16.98	27000	3.0	X						
123	51130	14.48	26220	3.4	X						
60	105700	29.95	14500	1.10	X	**R**	**147**	**(E)DRN**	**280S4**	1920	342
74	85300	24.19	15300	1.25	X	**RF**	**147**	**(E)DRN**	**280S4**	1940	343
						RM	**147**	**(E)DRN**	**280S4**	2310	343
87	72100	20.44	15800	1.45	X						
99	63600	18.04	16000	1.45	X						
114	55100	15.64	16200	2.1	X						
128	49100	13.91	16300	2.3	X						
149	42300	11.99	16400	2.7	X	**R**	**147**	**(E)DRN**	**280S4**	1900	342
183	34300	9.74	16500	3.3	X	**RF**	**147**	**(E)DRN**	**280S4**	1910	343
216	29100	8.26	16400	3.9	X	**RM**	**147**	**(E)DRN**	**280S4**	2280	343
246	25500	7.25	15800	3.0	X						
303	20700	5.89	15100	3.7	X						
357	17600	5.00	14600	4.3	X						

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P_m = 100 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
94	67200	19.04*	8930	1.05	X						
106	59200	16.80*	9230	1.20	X						
123	51200	14.51	9460	1.40	X						
139	45200	12.83	9590	1.55	X	**R**	**137**	**(E)DRN**	**280S4**	1620	340
166	38000	10.79	9660	1.85	X	**RF**	**137**	**(E)DRN**	**280S4**	1670	341
205	30700	8.71	9630	2.3	X	**RM**	**137**	**(E)DRN**	**280S4**	1920	341
235	26700	7.59	9770	1.70	X						
280	22500	6.38	9580	2.0	X						
346	18100	5.15	9300	2.2	X						

P_m = 125 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
52	151900	34.41	27000	1.05	X	**R**	**167**	**(E)DRN**	**280M4**	2720	344
64	123400	27.96	27000	1.30	X	**RF**	**167**	**(E)DRN**	**280M4**	2740	345
75	104600	23.71	27000	1.50	X	**RM**	**167**	**(E)DRN**	**280M4**	3170	345
						R	**167**	**(E)DRN**	**280M4/ERF/NS**	2710	344
73	108400	24.57	27000	1.15	X	**RF**	**167**	**(E)DRN**	**280M4/ERF/NS**	2720	345
						RM	**167**	**(E)DRN**	**280M4/ERF/NS**	3160	345
82	96400	21.85	27000	1.20	X						
94	84000	19.03	26500	1.70	X						
105	74900	16.98	26100	1.75	X	**R**	**167**	**(E)DRN**	**280M4**	2710	344
123	63900	14.48	25400	2.5	X	**RF**	**167**	**(E)DRN**	**280M4**	2720	345
149	52900	11.99	24500	2.8	X	**RM**	**167**	**(E)DRN**	**280M4**	3160	345
174	45100	10.24	23700	3.3	X						
						R	**147**	**(E)DRN**	**280M4**	2180	342
74	106700	24.19	14500	1.00		**RF**	**147**	**(E)DRN**	**280M4**	2200	343
						RM	**147**	**(E)DRN**	**280M4**	2560	343
						R	**147**	**(E)DRN**	**280M4/ERF/NS**	2150	342
87	90200	20.44	15200	1.20	X	**RF**	**147**	**(E)DRN**	**280M4/ERF/NS**	2170	343
						RM	**147**	**(E)DRN**	**280M4/ERF/NS**	2540	343
99	79600	18.04	15500	1.15	X						
114	69000	15.64	15800	1.65	X						
128	61400	13.91	16000	1.80	X						
149	52900	11.99	16200	2.2	X	**R**	**147**	**(E)DRN**	**280M4**	2150	342
183	43000	9.74	16200	2.7	X	**RF**	**147**	**(E)DRN**	**280M4**	2170	343
216	36400	8.26	15800	3.1	X	**RM**	**147**	**(E)DRN**	**280M4**	2540	343
246	32000	7.25	15300	2.4	X						
303	26000	5.89	14700	3.0	X						
357	22000	5.00	14200	3.5	X						
123	64000	14.51	8000	1.10	X						
139	56600	12.83	8290	1.25	X						
165	47600	10.79	8570	1.50	X	**R**	**137**	**(E)DRN**	**280M4**	1870	340
205	38400	8.71	8750	1.80	X	**RF**	**137**	**(E)DRN**	**280M4**	1930	341
235	33500	7.59	9060	1.35	X	**RM**	**137**	**(E)DRN**	**280M4**	2170	341
280	28100	6.38	8980	1.60	X						
346	22700	5.15	8810	1.80	X						

P_m = 150 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
64	147600	27.96	26100	1.10	X	**R**	**167**	**(E)DRN**	**315S4**	3260	344
75	125100	23.71	25900	1.25	X	**RF**	**167**	**(E)DRN**	**315S4**	3280	345
						RM	**167**	**(E)DRN**	**315S4**	3710	345
						R	**167**	**(E)DRN**	**315S4/ERF/NS**	3250	344
94	100400	19.03	25400	1.40	X	**RF**	**167**	**(E)DRN**	**315S4/ERF/NS**	3260	345
						RM	**167**	**(E)DRN**	**315S4/ERF/NS**	3690	345
105	89600	16.98	25000	1.50	X						
124	76400	14.48	24500	2.1	X	**R**	**167**	**(E)DRN**	**315S4**	3250	344
149	63300	11.99	23700	2.4	X	**RF**	**167**	**(E)DRN**	**315S4**	3260	345
175	54000	10.24	23100	2.8	X	**RM**	**167**	**(E)DRN**	**315S4**	3690	345

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P_m = 175 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
76	145900	23.71	24500	1.10	X	**R**	**167**	**(E)DRN**	**315ME4**	3540	344
						RF	**167**	**(E)DRN**	**315ME4**	3560	345
						RM	**167**	**(E)DRN**	**315ME4**	3990	345
94	117100	19.03	24200	1.20	X	**R**	**167**	**(E)DRN**	**315ME4/ERF/NS**	3530	344
105	104500	16.98	24000	1.25	X	**RF**	**167**	**(E)DRN**	**315ME4/ERF/NS**	3540	345
						RM	**167**	**(E)DRN**	**315ME4/ERF/NS**	3970	345
124	89100	14.48	23600	1.80	X	**R**	**167**	**(E)DRN**	**315ME4**	3530	344
149	73800	11.99	23000	2.0	X	**RF**	**167**	**(E)DRN**	**315ME4**	3540	345
175	63000	10.24	22500	2.4	X	**RM**	**167**	**(E)DRN**	**315ME4**	3970	345

P_m = 200 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
124	102000	14.48	22700	1.55	X	**R**	**167**	**(E)DRN**	**315L4**	3580	344
149	84500	11.99	22300	1.80	X	**RF**	**167**	**(E)DRN**	**315L4**	3600	345
175	72100	10.24	21800	2.1	X	**RM**	**167**	**(E)DRN**	**315L4**	4030	345

P_m = 225 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
124	114700	14.48	21900	1.40	X	**R**	**167**	**(E)DRN**	**315L4**	3580	344
149	95000	11.99	21600	1.60	X	**RF**	**167**	**(E)DRN**	**315L4**	3600	345
175	81100	10.24	21200	1.85	X	**RM**	**167**	**(E)DRN**	**315L4**	4030	345

P_m = 250 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
124	127200	14.48	21000	1.25	X	**R**	**167**	**(E)DRN**	**315H4**	3840	344
149	105400	11.99	20900	1.45	X	**RF**	**167**	**(E)DRN**	**315H4**	3860	345
175	89900	10.24	20600	1.65	X	**RM**	**167**	**(E)DRN**	**315H4**	4290	345

P_m = 300 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
124	152800	14.48	19300	1.05	X	**R**	**167**	**(E)DRN**	**315H4**	3840	344
149	126600	11.99	19400	1.20	X	**RF**	**167**	**(E)DRN**	**315H4**	3860	345
175	108000	10.24	19400	1.40	X	**RM**	**167**	**(E)DRN**	**315H4**	4290	345

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8.4 R.. R.. DRN.. Selections by torque / low output speed

$T_{a\ max}$ = 1150 lb-in

n_a rpm	i ratio	F_{Ra}[1] lb					m lbs	
0.20	8612	795						
0.23	7425	795						
0.25	6921	795						
0.28	6050	795						
0.33	5217	795						
0.36	4661	795						
0.42	4073	795						
0.48	3516	795						
0.54	3160	795						
0.62	2763	795						
0.70	2414	795						
0.81	2110	795						
0.91	1862	795						
0.93	1822	795						
1.0	1625	795						
1.1	1580	795						
1.1	1464	795						
1.2	1434	795						
1.3	1254	795						
1.3	1270	795						
1.5	1100	795						
1.5	1101	795						
1.7	972	795	**R**	**27R17**	**DRN**	**63MS4**	25	313/346
1.8	962	795	**RF**	**27R17**	**DRN**	**63MS4**	25	314/346
2.0	840	795						
2.0	848	795						
2.3	741	795						
2.3	743	795						
2.6	654	795						
2.6	649	795						
3.0	566	795						
3.0	567	795						
3.3	509	795						
3.4	499	795						
3.8	440	795						
3.9	432	795						
4.3	387	795						
4.4	381	795						
5.0	339	795						
5.1	329	795						
5.7	296	795						
5.8	290	795						
6.5	259	795						
6.6	256	795						
7.3	229	795						
7.4	227	795						
8.4	203	795						
8.5	200	795						
9.5	179	795	**R**	**27R17**	**DRN**	**63M4**	25	313/346
9.6	177	795	**RF**	**27R17**	**DRN**	**63M4**	25	314/346
10	166	795						
11	156	795						
11	150	795						
12	141	795						
13	135	795	**R**	**27R17**	**DRN**	**71MS4**	30	313/346
14	118	795	**RF**	**27R17**	**DRN**	**71MS4**	30	314/346
14	124	795						
15	110	795						
16	104	795	**R**	**27R17**	**DRN**	**71M4**	30	313/346
18	94	795	**RF**	**27R17**	**DRN**	**71M4**	30	314/346
19	90	795						

$T_{a\ max}$ = 1760 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.20	8595	950						
0.23	7411	950						
0.24	6907	950						
0.28	6038	950						
0.32	5206	950						
0.36	4651	950						
0.41	4065	950						
0.46	3658	950						
0.53	3154	950						
0.61	2757	950						
0.70	2409	950						
0.80	2106	950						
0.90	1856	950						
0.92	1818	950						
1.0	1622	950						
1.1	1576	950						
1.2	1431	950						
1.2	1359	950						
1.3	1251	950						
1.3	1267	950	**R**	**37R17**	**DRN**	**63MS4**	38	316/346
1.5	1098	950	**RF**	**37R17**	**DRN**	**63MS4**	41	317/346
1.5	1099	950						
1.7	970	950						
1.8	960	950						
2.0	839	950						
2.0	847	950						
2.3	740	950						
2.3	741	950						
2.6	653	950						
2.6	647	950						
2.9	577	950						
3.0	566	950						
3.3	508	950						
3.4	498	950						
3.8	439	950						
3.9	431	950						
4.3	387	950						
4.4	378	950						
5.1	328	950						
5.0	338	950						
5.8	296	950						
5.9	289	950						
6.4	265	950	**R**	**37R17**	**DRN**	**63M4**	38	316/346
6.6	259	950	**RF**	**37R17**	**DRN**	**63M4**	41	317/346
7.5	228	950						
7.5	226	950						
8.4	202	950						
8.5	199	950	**R**	**37R17**	**DRN**	**71MS4**	43	316/346
9.5	179	950	**RF**	**37R17**	**DRN**	**71MS4**	46	317/346
9.9	172	950						
11	150	950						
11	156	950						
13	130	950						
13	135	950	**R**	**37R17**	**DRN**	**71M4**	43	316/346
13	127	950	**RF**	**37R17**	**DRN**	**71M4**	46	317/346
14	124	950						
15	110	950						

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$T_{a\ max}$ = 2650 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.12	13598	1120						
0.13	12472	1120						
0.16	10619	1120						
0.18	9155	1120						
0.20	8534	1120						
0.23	7460	1120						
0.24	6993	1120						
0.27	6171	1120						
0.30	5624	1120						
0.35	4849	1120						
0.37	4520	1120						
0.43	3951	1120						
0.45	3704	1120						
0.51	3268	1120						
0.58	2898	1120						
0.59	2856	1120						
0.64	2625	1120						
0.65	2598	1120						
0.68	2463	1120						
0.71	2383	1120						
0.75	2246	1120						
0.83	2029	1120	**R**	**47R37**	**DRN**	**63MS4**	63	319/346
0.86	1948	1120	**RF**	**47R37**	**DRN**	**63MS4**	63	320/346
0.92	1821	1120						
0.96	1749	1120						
1.0	1630	1120						
1.1	1573	1120						
1.2	1425	1120						
1.3	1336	1120						
1.4	1179	1120						
1.4	1193	1120						
1.6	1074	1120						
1.6	1020	1120						
1.8	927	1120						
1.8	955	1120						
1.9	863	1120						
2.1	804	1120						
2.2	755	1120						
2.4	708	1120						
2.5	673	1120						
2.7	624	1120						
2.9	572	1120						
3.0	554	1120						
3.1	546	1120						
3.4	502	1120						
3.3	510	1120						
3.6	471	1120						
3.9	436	1120						
4.0	429	1120	**R**	**47R37**	**DRN**	**63M4**	64	319/346
4.2	408	1120	**RF**	**47R37**	**DRN**	**63M4**	64	320/346
4.6	372	1120						
4.9	344	1120						
4.9	348	1120						
5.7	301	1120	**R**	**47R37**	**DRN**	**71MS4**	66	319/346
6.7	255	1120	**RF**	**47R37**	**DRN**	**71MS4**	66	320/346
7.5	228	1120						
8.7	195	1120	**R**	**47R37**	**DRN**	**71M4**	68	319/346
9.3	182	1120	**RF**	**47R37**	**DRN**	**71M4**	69	320/346
11	154	1120						
13	129	1120	**R**	**47R37**	**DRN**	**80MK4**	73	319/346
15	109	1120	**RF**	**47R37**	**DRN**	**80MK4**	73	320/346
18	98	1120	**R**	**47R37**	**DRN**	**80M4**	82	319/346
			RF	**47R37**	**DRN**	**80M4**	82	320/346

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$T_{a\ max}$ = 3980 lb-in

n_a rpm	i ratio	F_{Ra}[1] lb					m lbs	
0.12	14369	1600						
0.14	12095	1600						
0.15	10860	1600						
0.18	9445	1600						
0.20	8480	1600						
0.23	7312	1600						
0.26	6521	1600						
0.30	5585	1600						
0.34	4928	1600						
0.38	4378	1600						
0.43	3873	1600						
0.50	3344	1600						
0.57	2957	1600						
0.58	2907	1600						
0.65	2567	1600						
0.67	2508	1600	**R**	**57R37**	**DRN**	**63MS4**	76	322/346
0.73	2309	1600	**RF**	**57R37**	**DRN**	**63MS4**	83	323/346
0.75	2244	1600	**RM**	**57R37**	**DRN**	**63MS4**	110	323/346
0.84	1991	1600						
0.85	1967	1600						
0.95	1768	1600						
0.97	1732	1600						
1.1	1520	1600						
1.1	1555	1600						
1.2	1342	1600						
1.2	1399	1600						
1.4	1164	1600						
1.4	1189	1600						
1.6	1027	1600						
1.6	1034	1600						
1.9	894	1600						
2.1	805	1600						
2.1	782	1600						
2.5	683	1600						
2.5	678	1600						
2.8	603	1600	**R**	**57R37**	**DRN**	**63M4**	75	322/346
2.8	604	1600	**RF**	**57R37**	**DRN**	**63M4**	84	323/346
3.2	534	1600	**RM**	**57R37**	**DRN**	**63M4**	110	323/346
3.2	537	1600						
3.6	471	1600	**R**	**57R37**	**DRN**	**71MS4**	79	322/346
3.7	454	1600	**RF**	**57R37**	**DRN**	**71MS4**	86	323/346
4.2	410	1600	**RM**	**57R37**	**DRN**	**71MS4**	112	323/346
4.7	359	1600						
4.8	357	1600						
5.2	324	1600						
5.3	319	1600	**R**	**57R37**	**DRN**	**71M4**	81	322/346
5.9	290	1600	**RF**	**57R37**	**DRN**	**71M4**	89	323/346
6.2	273	1600	**RM**	**57R37**	**DRN**	**71M4**	115	323/346
6.5	262	1600						
6.9	246	1600						
7	241	1600						
7.7	220	1600						
7.9	215	1600	**R**	**57R37**	**DRN**	**80MK4**	86	322/346
9	188	1600	**RF**	**57R37**	**DRN**	**80MK4**	95	323/346
9	187	1600	**RM**	**57R37**	**DRN**	**80MK4**	121	323/346
10	164	1600						
11	159	1600						
12	146	1600	**R**	**57R37**	**DRN**	**80M4**	94	322/346
12	142	1600	**RF**	**57R37**	**DRN**	**80M4**	100	323/346
13	134	1600	**RM**	**57R37**	**DRN**	**80M4**	130	323/346

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$T_{a\ max}$ = 5300 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.11	15361	1700						
0.13	12931	1700						
0.14	11996	1700						
0.17	10097	1700						
0.19	9066	1700						
0.21	7816	1700						
0.25	6732	1700						
0.28	5970	1700						
0.32	5268	1700						
0.36	4680	1700						
0.41	4136	1700						
0.47	3566	1700						
0.54	3125	1700						
0.61	2745	1700	**R**	**67R37**	**DRN**	**63MS4**	90	325/346
0.63	2682	1700	**RF**	**67R37**	**DRN**	**63MS4**	97	326/346
0.68	2460	1700	**RM**	**67R37**	**DRN**	**63MS4**	130	326/346
0.70	2403	1700						
0.79	2136	1700						
0.80	2094	1700						
0.91	1852	1700						
0.93	1805	1700						
1.0	1629	1700						
1.0	1652	1700						
1.1	1471	1700						
1.2	1379	1700						
1.2	1432	1700						
1.3	1259	1700						
1.5	1109	1700						
1.5	1106	1700						
1.8	956	1700						
1.9	891	1700						
2.0	836	1700	**R**	**67R37**	**DRN**	**63M4**	90	325/346
2.3	730	1700	**RF**	**67R37**	**DRN**	**63M4**	97	326/346
2.3	750	1700	**RM**	**67R37**	**DRN**	**63M4**	132	326/346
2.6	644	1700						
2.6	646	1700						
3.0	574	1700	**R**	**67R37**	**DRN**	**71MS4**	92	325/346
3.0	571	1700	**RF**	**67R37**	**DRN**	**71MS4**	100	326/346
3.4	495	1700	**RM**	**67R37**	**DRN**	**71MS4**	135	326/346
3.5	486	1700						
3.8	443	1700						
3.9	438	1700	**R**	**67R37**	**DRN**	**71M4**	97	325/346
4.4	388	1700	**RF**	**67R37**	**DRN**	**71M4**	105	326/346
4.4	384	1700	**RM**	**67R37**	**DRN**	**71M4**	135	326/346
4.7	359	1700						
4.9	344	1700						
5.5	310	1700						
5.8	294	1700						
6.4	264	1700	**R**	**67R37**	**DRN**	**80MK4**	105	325/346
6.5	261	1700	**RF**	**67R37**	**DRN**	**80MK4**	110	326/346
7.2	235	1700	**RM**	**67R37**	**DRN**	**80MK4**	145	326/346
7.2	234	1700						
8.7	201	1700						
8.8	200	1700	**R**	**67R37**	**DRN**	**80M4**	110	325/346
9.7	181	1700	**RF**	**67R37**	**DRN**	**80M4**	115	326/346
10	176	1700	**RM**	**67R37**	**DRN**	**80M4**	150	326/346
11	159	1700	**R**	**67R37**	**DRN**	**90S4**	120	325/346
11	158	1700	**RF**	**67R37**	**DRN**	**90S4**	130	326/346
			RM	**67R37**	**DRN**	**90S4**	165	326/346

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$T_{a\ max}$ = 7250 lb-in

n_a rpm	i ratio	F_{Ra}[1] lb					m lbs	
0.10	16370	2230						
0.11	15015	2230						
0.12	13885	2230						
0.13	12783	2230						
0.15	11021	2230						
0.17	9788	2230						
0.19	8714	2230						
0.22	7617	2230						
0.25	6770	2230						
0.29	5838	2230						
0.32	5184	2230						
0.38	4470	2230						
0.42	3999	2230						
0.48	3488	2230	**R**	**77R37**	**DRN**	**63MS4**	100	328/346
0.53	3151	2230	**RF**	**77R37**	**DRN**	**63MS4**	115	329/346
0.55	3053	2230	**RM**	**77R37**	**DRN**	**63MS4**	170	329/346
0.58	2890	2230						
0.63	2671	2230						
0.68	2460	2230						
0.72	2345	2230						
0.79	2121	2230						
0.81	2070	2230						
0.85	1977	2230						
0.92	1822	2230						
0.97	1728	2230						
1.0	1620	2230						
1.1	1580	2230						
1.2	1430	2230						
1.2	1394	2230						
1.3	1303	2230						
1.4	1218	2230						
1.5	1124	2230	**R**	**77R37**	**DRN**	**63M4**	100	328/346
1.6	1084	2230	**RF**	**77R37**	**DRN**	**63M4**	115	329/346
1.6	1047	2230	**RM**	**77R37**	**DRN**	**63M4**	170	329/346
1.8	940	2230						
1.9	915	2230						
2.0	858	2230						
2.1	821	2230	**R**	**77R37**	**DRN**	**71MS4**	105	328/346
2.2	757	2230	**RF**	**77R37**	**DRN**	**71MS4**	117	329/346
2.3	731	2230	**RM**	**77R37**	**DRN**	**71MS4**	172	329/346
2.5	671	2230						
2.6	646	2230						
3.0	571	2230						
3.0	560	2230	**R**	**77R37**	**DRN**	**71M4**	110	328/346
3.3	520	2230	**RF**	**77R37**	**DRN**	**71M4**	120	329/346
3.5	488	2230	**RM**	**77R37**	**DRN**	**71M4**	175	329/346
3.8	451	2230						
3.9	436	2230						
4.0	422	2230						
4.5	373	2230	**R**	**77R37**	**DRN**	**80MK4**	115	328/346
4.6	365	2230	**RF**	**77R37**	**DRN**	**80MK4**	130	329/346
5.2	327	2230	**RM**	**77R37**	**DRN**	**80MK4**	185	329/346
5.5	310	2230						
5.9	289	2230						
6.3	276	2230						
6.8	260	2230	**R**	**77R37**	**DRN**	**80M4**	120	328/346
7.4	236	2230	**RF**	**77R37**	**DRN**	**80M4**	135	329/346
7.8	224	2230	**RM**	**77R37**	**DRN**	**80M4**	190	329/346
7.9	221	2230						
9.0	197	2230						
9.4	186	2230	**R**	**77R37**	**DRN**	**90S4**	135	328/346
10	169	2230	**RF**	**77R37**	**DRN**	**90S4**	145	329/346
12	149	2230	**RM**	**77R37**	**DRN**	**90S4**	200	329/346

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$T_{a\ max}$ = 13700 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.10	17452	2820						
0.11	15310	2820						
0.12	13813	2820						
0.14	12025	2820						
0.16	10549	2820						
0.18	9244	2820						
0.21	8109	2820						
0.24	7038	3800						
0.27	6174	3800	**R**	**87R57**	**DRN**	**63MS4**	190	331/346
0.31	5449	3800	**RF**	**87R57**	**DRN**	**63MS4**	205	332/346
0.35	4831	3800	**RM**	**87R57**	**DRN**	**63MS4**	270	332/346
0.40	4206	3800						
0.42	4020	3800						
0.45	3744	3800						
0.45	3703	3800						
0.52	3233	3800						
0.53	3182	3800						
0.61	2770	3800						
0.59	2873	2820						
0.66	2595	3800						
0.68	2518	2820						
0.77	2209	2820	**R**	**87R57**	**DRN**	**63M4**	190	331/346
0.80	2129	3800	**RF**	**87R57**	**DRN**	**63M4**	205	332/346
0.87	1961	3800	**RM**	**87R57**	**DRN**	**63M4**	275	332/346
0.88	1930	3800						
0.98	1737	2820						
0.98	1733	3800						
1.1	1524	2820						
1.1	1489	3800	**R**	**87R57**	**DRN**	**71MS4**	190	331/346
1.2	1395	3800	**RF**	**87R57**	**DRN**	**71MS4**	205	332/346
1.3	1303	2820	**RM**	**87R57**	**DRN**	**71MS4**	275	332/346
1.4	1232	3800						
1.5	1143	2820						
1.5	1145	3800						
1.6	1037	3800	**R**	**87R57**	**DRN**	**71M4**	195	331/346
1.7	1008	2820	**RF**	**87R57**	**DRN**	**71M4**	210	332/346
1.7	994	3800	**RM**	**87R57**	**DRN**	**71M4**	275	332/346
1.8	931	3800						
1.9	885	3800						
1.9	881	3800						
2.1	802	3800						
2.2	754	3800						
2.2	776	3800						
2.5	685	3800	**R**	**87R57**	**DRN**	**80MK4**	200	331/346
2.6	649	3800	**RF**	**87R57**	**DRN**	**80MK4**	215	332/346
2.8	599	2820	**RM**	**87R57**	**DRN**	**80MK4**	280	332/346
2.9	580	3800						
3.1	538	3800						
3.3	525	2820	**R**	**87R57**	**DRN**	**80M4**	205	331/346
3.8	456	3800	**RF**	**87R57**	**DRN**	**80M4**	225	332/346
3.7	472	3800	**RM**	**87R57**	**DRN**	**80M4**	290	332/346
4.4	398	3800						
4.4	400	3800						
4.9	361	3800	**R**	**87R57**	**DRN**	**90S4**	220	331/346
5	352	3800	**RF**	**87R57**	**DRN**	**90S4**	235	332/346
5.8	305	3800	**RM**	**87R57**	**DRN**	**90S4**	300	332/346
5.9	300	3800						
6.6	268	3800						
6.9	256	3800	**R**	**87R57**	**DRN**	**90L4**	230	331/346
7.5	236	3800	**RF**	**87R57**	**DRN**	**90L4**	245	332/346
7.6	232	3800	**RM**	**87R57**	**DRN**	**90L4**	310	332/346
8.4	209	3800	**R**	**87R57**	**DRN**	**100LM4**	250	331/346
9.1	195	3800	**RF**	**87R57**	**DRN**	**100LM4**	270	332/346
			RM	**87R57**	**DRN**	**100LM4**	335	332/346

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$T_{a\ max}$ = 26500 lb-in

n_a rpm	i ratio	F_{Ra}[1] lb					m lbs	
0.08	21769	2930						
0.09	19332	2930						
0.10	17230	2930						
0.11	14999	2930						
0.13	13320	2930	**R**	**97R57**	**DRN**	**63MS4**	285	334/346
0.15	11156	2930	**RF**	**97R57**	**DRN**	**63MS4**	320	335/346
0.17	10030	2930	**RM**	**97R57**	**DRN**	**63MS4**	435	335/346
0.19	8706	2930						
0.22	7692	2930						
0.25	6708	2930						
0.28	5931	4450						
0.33	5161	4450						
0.36	4678	4450						
0.37	4559	4450	**R**	**97R57**	**DRN**	**63M4**	285	334/346
0.39	4309	4450	**RF**	**97R57**	**DRN**	**63M4**	320	335/346
0.42	4004	2930	**RM**	**97R57**	**DRN**	**63M4**	430	335/346
0.46	3702	4450						
0.49	3481	2930						
0.55	3065	2930						
0.56	3019	4450						
0.62	2722	2930	**R**	**97R57**	**DRN**	**71MS4**	290	334/346
0.64	2668	4450	**RF**	**97R57**	**DRN**	**71MS4**	325	335/346
0.74	2311	2930	**RM**	**97R57**	**DRN**	**71MS4**	435	335/346
0.76	2245	4450						
0.82	2078	2930						
0.84	2016	4450	**R**	**97R57**	**DRN**	**71M4**	290	334/346
0.93	1823	2930	**RF**	**97R57**	**DRN**	**71M4**	325	335/346
0.98	1733	4450	**RM**	**97R57**	**DRN**	**71M4**	435	335/346
1.1	1623	4450						
1.1	1583	2930						
1.2	1396	2930						
1.2	1434	4450	**R**	**97R57**	**DRN**	**80MK4**	290	334/346
1.4	1228	2930	**RF**	**97R57**	**DRN**	**80MK4**	330	335/346
1.4	1207	4450	**RM**	**97R57**	**DRN**	**80MK4**	440	335/346
1.6	1069	4450						
1.6	1084	4450						
1.9	934	4450	**R**	**97R57**	**DRN**	**80M4**	295	334/346
1.9	938	4450	**RF**	**97R57**	**DRN**	**80M4**	335	335/346
2	878	4450	**RM**	**97R57**	**DRN**	**80M4**	445	335/346
2.4	737	2930						
2.8	632	4450						
3.1	560	4450	**R**	**97R57**	**DRN**	**90S4**	310	334/346
2.8	625	4450	**RF**	**97R57**	**DRN**	**90S4**	345	335/346
3.2	549	4450	**RM**	**97R57**	**DRN**	**90S4**	460	335/346
2.3	755	4450						
3.6	484	2930						
3.8	466	4450	**R**	**97R57**	**DRN**	**90L4**	320	334/346
4.1	431	4450	**RF**	**97R57**	**DRN**	**90L4**	360	335/346
4.2	420	4450	**RM**	**97R57**	**DRN**	**90L4**	470	335/346
4.7	379	4450						
4.8	370	4450						
5.0	349	4450	**R**	**97R57**	**DRN**	**100LM4**	345	334/346
5.2	336	4450	**RF**	**97R57**	**DRN**	**100LM4**	385	335/346
5.9	297	4450	**RM**	**97R57**	**DRN**	**100LM4**	495	335/346
6.0	296	4450						
6.5	270	4450						
7.1	249	4450						
7.5	234	4450	**R**	**97R57**	**DRN**	**100L4**	345	334/346
7.8	227	4450	**RF**	**97R57**	**DRN**	**100L4**	385	335/346
8.4	209	4450	**RM**	**97R57**	**DRN**	**100L4**	495	335/346

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$T_{a\ max}$ = 38000 lb-in

n_a rpm	i ratio	F_{Ra}[1] lb					m lbs	
0.08	20018	6620						
0.10	17080	6620						
0.11	14936	6620	**R**	**107R77**	**DRN**	**63MS4**	445	336/346
0.13	12829	6620	**RF**	**107R77**	**DRN**	**63MS4**	460	337/346
0.15	11256	6620	**RM**	**107R77**	**DRN**	**63MS4**	650	337/346
0.18	9547	6620						
0.20	8618	6620						
0.22	7583	6620	**R**	**107R77**	**DRN**	**63M4**	445	336/346
0.25	6743	6620	**RF**	**107R77**	**DRN**	**63M4**	460	337/346
0.29	5914	6620	**RM**	**107R77**	**DRN**	**63M4**	650	337/346
0.33	5168	6620						
0.38	4435	6620	**R**	**107R77**	**DRN**	**71MS4**	450	336/346
0.43	3918	6620	**RF**	**107R77**	**DRN**	**71MS4**	465	337/346
0.44	3896	6620	**RM**	**107R77**	**DRN**	**71MS4**	655	337/346
0.50	3432	6620						
0.51	3343	6620						
0.56	3039	6620	**R**	**107R77**	**DRN**	**71M4**	450	336/346
0.56	3034	6620	**RF**	**107R77**	**DRN**	**71M4**	465	337/346
0.63	2688	6620	**RM**	**107R77**	**DRN**	**71M4**	660	337/346
0.64	2653	6620						
0.74	2280	6620						
0.82	2067	6620						
0.85	1987	6620	**R**	**107R77**	**DRN**	**80MK4**	450	336/346
0.92	1827	6620	**RF**	**107R77**	**DRN**	**80MK4**	465	337/346
1.0	1693	6620	**RM**	**107R77**	**DRN**	**80MK4**	660	337/346
1.1	1599	6620						
1.1	1550	6620						
1.2	1407	6620	**R**	**107R77**	**DRN**	**80M4**	450	336/346
1.2	1400	6620	**RF**	**107R77**	**DRN**	**80M4**	465	337/346
1.4	1209	6620	**RM**	**107R77**	**DRN**	**80M4**	660	337/346
1.4	1226	6620						
1.6	1104	6620						
1.7	1055	6620						
1.9	919	6620	**R**	**107R77**	**DRN**	**90S4**	460	336/346
1.9	939	6620	**RF**	**107R77**	**DRN**	**90S4**	475	337/346
2.1	822	6620	**RM**	**107R77**	**DRN**	**90S4**	670	337/346
2.2	815	6620						
2.5	717	6620	**R**	**107R77**	**DRN**	**90L4**	470	336/346
2.8	626	6620	**RF**	**107R77**	**DRN**	**90L4**	480	337/346
2.9	614	6620	**RM**	**107R77**	**DRN**	**90L4**	680	337/346
3.2	544	6620						
3.3	528	6620						
3.6	492	6620	**R**	**107R77**	**DRN**	**100LM4**	495	336/346
3.8	469	6620	**RF**	**107R77**	**DRN**	**100LM4**	510	337/346
4.2	417	6620	**RM**	**107R77**	**DRN**	**100LM4**	700	337/346
4.2	426	6620						
4.7	377	6620						
4.8	369	6620						
5.4	325	6620						
5.5	323	6620	**R**	**107R77**	**DRN**	**100L4**	490	336/346
6.2	284	6620	**RF**	**107R77**	**DRN**	**100L4**	500	337/346
6.2	285	6620	**RM**	**107R77**	**DRN**	**100L4**	700	337/346
6.9	256	6620						
7.0	253	6620						
8.0	220	6620	**R**	**107R77**	**DRN**	**112M4**	510	336/346
8.2	214	6620	**RF**	**107R77**	**DRN**	**112M4**	520	337/346
			RM	**107R77**	**DRN**	**112M4**	720	337/346
9.1	193	6620	**R**	**107R77**	**DRN**	**132S4**	540	336/346
9.4	187	6620	**RF**	**107R77**	**DRN**	**132S4**	550	337/346
10	172	6620	**RM**	**107R77**	**DRN**	**132S4**	740	337/346

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$T_{a\ max}$ = 53000 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.08	20936	9660						
0.09	17863	9660						
0.11	15620	9660	**R**	**127R77**	**DRN**	**63MS4**	570	338/346
0.12	14123	9660	**RF**	**127R77**	**DRN**	**63MS4**	590	339/346
0.13	13417	9660	**RM**	**127R77**	**DRN**	**63MS4**	810	339/346
0.14	11772	9660						
0.17	9985	9660						
0.19	9013	9660						
0.19	8771	9660	**R**	**127R77**	**DRN**	**63M4**	570	338/346
0.21	8282	9660	**RF**	**127R77**	**DRN**	**63M4**	595	339/346
0.22	7639	9660	**RM**	**127R77**	**DRN**	**63M4**	810	339/346
0.24	7053	9660						
0.25	6722	9660						
0.27	6347	9660	**R**	**127R77**	**DRN**	**71MS4**	575	338/346
0.27	6185	9660	**RF**	**127R77**	**DRN**	**71MS4**	600	339/346
0.30	5592	9660	**RM**	**127R77**	**DRN**	**71MS4**	815	339/346
0.36	4740	9660						
0.38	4441	9660						
0.43	3949	9660	**R**	**127R77**	**DRN**	**71M4**	580	338/346
0.45	3764	9660	**RF**	**127R77**	**DRN**	**71M4**	605	339/346
0.48	3571	9660	**RM**	**127R77**	**DRN**	**71M4**	815	339/346
0.49	3495	9660						
0.54	3110	9660						
0.55	3056	9660						
0.58	2903	9660						
0.60	2812	9660	**R**	**127R77**	**DRN**	**80MK4**	585	338/346
0.66	2547	9660	**RF**	**127R77**	**DRN**	**80MK4**	605	339/346
0.67	2506	9660	**RM**	**127R77**	**DRN**	**80MK4**	815	339/346
0.71	2383	9660						
0.75	2266	9660						
0.78	2161	9660						
0.87	2016	9660						
0.90	1951	9660						
0.91	1920	9660	**R**	**127R77**	**DRN**	**80M4**	590	338/346
0.91	1934	9660	**RF**	**127R77**	**DRN**	**80M4**	610	339/346
0.95	1835	9660	**RM**	**127R77**	**DRN**	**80M4**	830	339/346
0.96	1823	9660						
1.0	1716	9660						
1.1	1673	9660						
1.1	1620	9660						
1.1	1555	9660						
1.1	1545	9660						
1.2	1512	9660						
1.2	1444	9660						
1.3	1380	9660	**R**	**127R77**	**DRN**	**90S4**	600	338/346
1.3	1322	9660	**RF**	**127R77**	**DRN**	**90S4**	620	339/346
1.4	1282	9660	**RM**	**127R77**	**DRN**	**90S4**	840	339/346
1.4	1224	9660						
1.5	1210	9660						
1.5	1195	9660						
1.5	1164	9660						
1.7	1034	9660						
1.7	1013	9660						
1.8	987	9660	**R**	**127R77**	**DRN**	**90L4**	570	338/346
1.8	961	9660	**RF**	**127R77**	**DRN**	**90L4**	620	339/346
1.9	936	9660	**RM**	**127R77**	**DRN**	**90L4**	830	339/346
1.9	935	9660						
2.1	830	9660						

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$T_{a\ max}$ = 53000 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
2.2	794	9660						
2.2	792	9660						
2.3	777	9660						
2.3	773	9660						
2.4	750	9660	**R**	**127R77**	**DRN**	**100LM4**	600	338/346
2.7	659	9660	**RF**	**127R77**	**DRN**	**100LM4**	640	339/346
2.8	642	9660	**RM**	**127R77**	**DRN**	**100LM4**	850	339/346
2.8	636	9660						
2.9	614	9660						
2.9	608	9660						
3.0	581	9660						
3.4	521	9660						
3.6	492	9660						
3.6	490	9660						
3.7	480	9660	**R**	**127R77**	**DRN**	**100L4**	630	338/346
4.3	407	9660	**RF**	**127R77**	**DRN**	**100L4**	650	339/346
4.5	394	9660	**RM**	**127R77**	**DRN**	**100L4**	870	339/346
4.6	386	9660						
5.4	327	9660						
5.9	298	9660	**R**	**127R77**	**DRN**	**112M4**	650	338/346
			RF	**127R77**	**DRN**	**112M4**	670	339/346
			RM	**127R77**	**DRN**	**112M4**	890	339/346
6.8	259	9660	**R**	**127R77**	**DRN**	**132S4**	670	338/346
7.0	253	9660	**RF**	**127R77**	**DRN**	**132S4**	700	339/346
			RM	**127R77**	**DRN**	**132S4**	910	339/346
8.8	202	9660	**R**	**127R77**	**DRN**	**132M4**	680	338/346
11	162	9660	**RF**	**127R77**	**DRN**	**132M4**	720	339/346
			RM	**127R77**	**DRN**	**132M4**	940	339/346
14	126	9660	**R**	**127R77**	**DRN**	**160M4**	770	338/346
			RF	**127R77**	**DRN**	**160M4**	810	339/346
			RM	**127R77**	**DRN**	**160M4**	1020	339/346

$T_{a\ max}$ = 70700 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.08	22203	12000	**R**	**137R77**	**DRN**	**63MS4**	640	340/346
0.09	18945	12000	**RF**	**137R77**	**DRN**	**63MS4**	690	341/346
0.10	16566	12000	**RM**	**137R77**	**DRN**	**63MS4**	930	341/346
0.12	14777	12000						
0.13	12921	12000	**R**	**137R77**	**DRN**	**63M4**	640	340/346
0.15	11712	12000	**RF**	**137R77**	**DRN**	**63M4**	695	341/346
0.16	10573	12000	**RM**	**137R77**	**DRN**	**63M4**	935	341/346
0.19	8784	12000						
0.23	7479	12000	**R**	**137R77**	**DRN**	**71MS4**	640	340/346
0.26	6559	12000	**RF**	**137R77**	**DRN**	**71MS4**	695	341/346
			RM	**137R77**	**DRN**	**71MS4**	935	341/346
0.29	5834	12000	**R**	**137R77**	**DRN**	**71M4**	640	340/346
0.33	5116	12000	**RF**	**137R77**	**DRN**	**71M4**	695	341/346
0.33	4709	12000	**RM**	**137R77**	**DRN**	**71M4**	940	341/346
0.38	4464	12000						
0.42	4018	12000						
0.43	3928	12000	**R**	**137R77**	**DRN**	**80MK4**	645	340/346
0.48	3514	12000	**RF**	**137R77**	**DRN**	**80MK4**	700	341/346
0.49	3454	12000	**RM**	**137R77**	**DRN**	**80MK4**	945	341/346
0.51	3338	12000						
0.58	2929	12000						
0.59	2993	12000						
0.66	2658	12000	**R**	**137R77**	**DRN**	**80M4**	650	340/346
0.7	2484	12000	**RF**	**137R77**	**DRN**	**80M4**	710	341/346
0.73	2412	12000	**RM**	**137R77**	**DRN**	**80M4**	950	341/346
0.78	2242	12000						
0.85	2073	12000						
0.95	1863	12000	**R**	**137R77**	**DRN**	**90S4**	660	340/346
0.96	1839	12000	**RF**	**137R77**	**DRN**	**90S4**	715	341/346
1.1	1586	12000	**RM**	**137R77**	**DRN**	**90S4**	955	341/346
1.1	1598	12000						
1.3	1397	12000						
1.3	1391	12000	**R**	**137R77**	**DRN**	**90L4**	670	340/346
1.4	1226	12000	**RF**	**137R77**	**DRN**	**90L4**	720	341/346
1.4	1256	12000	**RM**	**137R77**	**DRN**	**90L4**	965	341/346
1.6	1090	12000						
1.6	1105	12000						
1.7	1043	12000						
1.9	951	12000	**R**	**137R77**	**DRN**	**100LM4**	680	340/346
2	888	12000	**RF**	**137R77**	**DRN**	**100LM4**	730	341/346
2.1	831	12000	**RM**	**137R77**	**DRN**	**100LM4**	970	341/346
2.4	730	12000						
2.5	699	12000						
2.8	629	12000						
2.9	609	12000						
3.1	564	12000	**R**	**137R77**	**DRN**	**100L4**	680	340/346
3.1	560	12000	**RF**	**137R77**	**DRN**	**100L4**	730	341/346
3.4	517	12000	**RM**	**137R77**	**DRN**	**100L4**	970	341/346
3.6	490	12000						
3.9	453	12000						
4.1	428	12000						
4.6	381	12000						
4.7	376	12000	**R**	**137R77**	**DRN**	**132S4**	740	340/346
5.2	339	12000	**RF**	**137R77**	**DRN**	**132S4**	790	341/346
5.5	323	12000	**RM**	**137R77**	**DRN**	**132S4**	1040	341/346
6	297	12000						
6.1	291	12000						
7.0	255	12000	**R**	**137R77**	**DRN**	**132M4**	780	340/346
7.9	223	12000	**RF**	**137R77**	**DRN**	**132M4**	830	341/346
			RM	**137R77**	**DRN**	**132M4**	1080	341/346
9.0	197	12000	**R**	**137R77**	**DRN**	**132L4**	800	340/346
10	175	12000	**RF**	**137R77**	**DRN**	**132L4**	850	341/346
			RM	**137R77**	**DRN**	**132L4**	1100	341/346

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$T_{a\ max}$ = 115000 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.07	23401	14100						
0.08	21342	14100						
0.09	18210	14100						
0.11	15923	14100	**R**	**147R77**	**DRN**	**71M4**	930	342/346
0.12	14075	14100	**RF**	**147R77**	**DRN**	**71M4**	950	343/346
0.14	12344	14100	**RM**	**147R77**	**DRN**	**71M4**	1320	343/346
0.15	11143	14100						
0.17	9743	14100						
0.20	8443	14100						
0.23	7307	14100						
0.26	6447	14100	**R**	**147R77**	**DRN**	**80MK4**	945	342/346
0.30	5568	14100	**RF**	**147R77**	**DRN**	**80MK4**	955	343/346
0.34	4926	14100	**RM**	**147R77**	**DRN**	**80MK4**	1325	343/346
0.40	4325	14100	**R**	**147R77**	**DRN**	**80M4**	950	342/346
0.47	3754	14100	**RF**	**147R77**	**DRN**	**80M4**	960	343/346
			RM	**147R77**	**DRN**	**80M4**	1330	343/346
0.53	3302	14100	**R**	**147R77**	**DRN**	**90S4**	960	342/346
0.61	2898	14100	**RF**	**147R77**	**DRN**	**90S4**	970	343/346
			RM	**147R77**	**DRN**	**90S4**	1340	343/346
0.69	2555	14100	**R**	**147R77**	**DRN**	**90S4**	950	342/346
			RF	**147R77**	**DRN**	**90S4**	970	343/346
			RM	**147R77**	**DRN**	**90S4**	1340	343/346
0.80	2211	14100	**R**	**147R77**	**DRN**	**90L4**	960	342/346
0.91	1951	14100	**RF**	**147R77**	**DRN**	**90L4**	980	343/346
			RM	**147R77**	**DRN**	**90L4**	1350	343/346
1.0	1705	14100	**R**	**147R77**	**DRN**	**100LM4**	990	342/346
1.1	1536	14100	**RF**	**147R77**	**DRN**	**100LM4**	1000	343/346
1.3	1329	14100	**RM**	**147R77**	**DRN**	**100LM4**	1370	343/346
1.5	1166	14100						
1.7	1029	14100	**R**	**147R77**	**DRN**	**100L4**	990	342/346
2.0	889	14100	**RF**	**147R77**	**DRN**	**100L4**	1000	343/346
2.2	784	14100	**RM**	**147R77**	**DRN**	**100L4**	1370	343/346
2.5	695	14100						
2.9	619	14100	**R**	**147R77**	**DRN**	**132S4**	1030	342/346
3.2	558	14100	**RF**	**147R77**	**DRN**	**132S4**	1050	343/346
3.6	489	14100	**RM**	**147R77**	**DRN**	**132S4**	1420	343/346
4.3	415	14100	**R**	**147R77**	**DRN**	**132M4**	1070	342/346
			RF	**147R77**	**DRN**	**132M4**	1090	343/346
			RM	**147R77**	**DRN**	**132M4**	1460	343/346
3.3	533	14100	**R**	**147R87**	**DRN**	**132S4**	1080	342/346
			RF	**147R87**	**DRN**	**132S4**	1100	343/346
			RM	**147R87**	**DRN**	**132S4**	1460	343/346
3.8	462	14100	**R**	**147R87**	**DRN**	**132M4**	1120	342/346
4.2	426	14100	**RF**	**147R87**	**DRN**	**132M4**	1130	343/346
4.8	368	14100	**RM**	**147R87**	**DRN**	**132M4**	1500	343/346
5.5	326	14100	**R**	**147R87**	**DRN**	**132L4**	1130	342/346
			RF	**147R87**	**DRN**	**132L4**	1150	343/346
			RM	**147R87**	**DRN**	**132L4**	1520	343/346
6.3	280	14100	**R**	**147R87**	**DRN**	**160M4**	1210	342/346
7.2	247	14100	**RF**	**147R87**	**DRN**	**160M4**	1220	343/346
			RM	**147R87**	**DRN**	**160M4**	1590	343/346
8.3	214	14100	**R**	**147R87**	**DRN**	**160L4**	1240	342/346
9.4	189	14100	**RF**	**147R87**	**DRN**	**160L4**	1260	343/346
			RM	**147R87**	**DRN**	**160L4**	1630	343/346
11	159	14100	**R**	**147R87**	**DRN**	**180M4**	1290	342/346
			RF	**147R87**	**DRN**	**180M4**	1310	343/346
			RM	**147R87**	**DRN**	**180M4**	1680	343/346

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$T_{a\ max}$ = 177000 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.06	27001	27000						
0.08	22482	27000						
0.08	20002	27000						
0.10	17361	27000	**R**	**167R97**	**DRN**	**80MK4**	1665	344/347
0.11	15446	27000	**RF**	**167R97**	**DRN**	**80MK4**	1685	345/347
0.12	14051	27000	**RM**	**167R97**	**DRN**	**80MK4**	2115	345/347
0.14	11812	27000						
0.16	10509	27000						
0.18	9631	27000						
0.23	7749	27000						
0.25	6894	27000	**R**	**167R97**	**DRN**	**80M4**	1670	344/347
0.29	6077	27000	**RF**	**167R97**	**DRN**	**80M4**	1690	345/347
0.32	5407	27000	**RM**	**167R97**	**DRN**	**80M4**	2120	345/347
0.38	4650	27000	**R**	**167R97**	**DRN**	**90S4**	1680	344/347
0.43	4129	27000	**RF**	**167R97**	**DRN**	**90S4**	1700	345/347
0.48	3692	27000	**RM**	**167R97**	**DRN**	**90S4**	2130	345/347
			R	**167R97**	**DRN**	**100LM4**	1720	344/347
0.57	3099	27000	**RF**	**167R97**	**DRN**	**100LM4**	1730	345/347
			RM	**167R97**	**DRN**	**100LM4**	2160	345/347
			R	**167R97**	**DRN**	**90L4**	1690	344/347
0.67	2657	27000	**RF**	**167R97**	**DRN**	**90L4**	1700	345/347
			RM	**167R97**	**DRN**	**90L4**	2130	345/347
0.76	2333	27000						
0.85	2085	27000	**R**	**167R97**	**DRN**	**100LM4**	1710	344/347
0.94	1877	27000	**RF**	**167R97**	**DRN**	**100LM4**	1720	345/347
1.1	1670	27000	**RM**	**167R97**	**DRN**	**100LM4**	2160	345/347
1.2	1438	27000						
1.4	1279	27000	**R**	**167R97**	**DRN**	**100L4**	1710	344/347
1.6	1123	27000	**RF**	**167R97**	**DRN**	**100L4**	1720	345/347
1.8	999	27000	**RM**	**167R97**	**DRN**	**100L4**	2160	345/347
2.0	861	27000	**R**	**167R97**	**DRN**	**132S4**	1750	344/347
2.3	760	27000	**RF**	**167R97**	**DRN**	**132S4**	1770	345/347
2.7	656	27000	**RM**	**167R97**	**DRN**	**132S4**	2200	345/347
			R	**167R97**	**DRN**	**132M4**	1790	344/347
3.1	579	27000	**RF**	**167R97**	**DRN**	**132M4**	1810	345/347
3.5	503	27000	**RM**	**167R97**	**DRN**	**132M4**	2240	345/347
			R	**167R97**	**DRN**	**132L4**	1810	344/347
4.1	432	27000	**RF**	**167R97**	**DRN**	**132L4**	1830	345/347
			RM	**167R97**	**DRN**	**132L4**	2260	345/347
			R	**167R97**	**DRN**	**160M4**	1880	344/347
4.7	376	27000	**RF**	**167R97**	**DRN**	**160M4**	1900	345/347
5.3	335	27000	**RM**	**167R97**	**DRN**	**160M4**	2330	345/347
			R	**167R97**	**DRN**	**160L4**	1920	344/347
5.9	303	27000	**RF**	**167R97**	**DRN**	**160L4**	1930	345/347
6.4	279	27000	**RM**	**167R97**	**DRN**	**160L4**	2360	345/347
0.49	3637	27000						
0.53	3330	27000						
0.64	2757	27000	**R**	**167R107**	**DRN**	**100LM4**	1820	344/347
0.72	2436	27000	**RF**	**167R107**	**DRN**	**100LM4**	1830	345/347
0.77	2298	27000	**RM**	**167R107**	**DRN**	**100LM4**	2260	345/347
0.85	2066	27000						
0.95	1849	27000						
1.1	1674	27000						
1.2	1485	27000	**R**	**167R107**	**DRN**	**100L4**	1820	344/347
1.3	1342	27000	**RF**	**167R107**	**DRN**	**100L4**	1830	345/347
1.4	1229	27000	**RM**	**167R107**	**DRN**	**100L4**	2260	345/347
1.6	1111	27000						
			R	**167R107**	**DRN**	**112M4**	1830	344/347
1.9	950	27000	**RF**	**167R107**	**DRN**	**112M4**	1850	345/347
			RM	**167R107**	**DRN**	**112M4**	2280	345/347
2.1	860	27000	**R**	**167R107**	**DRN**	**132S4**	1860	344/347
2.3	763	27000	**RF**	**167R107**	**DRN**	**132S4**	1870	345/347
2.6	690	27000	**RM**	**167R107**	**DRN**	**132S4**	2300	345/347

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$T_{a\ max}$ = 177000 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
3.0	585	27000	**R**	**167R107**	**DRN**	**132M4**	1900	344/347
3.5	511	27000	**RF**	**167R107**	**DRN**	**132M4**	1910	345/347
			RM	**167R107**	**DRN**	**132M4**	2340	345/347
4.0	446	27000	**R**	**167R107**	**DRN**	**132L4**	1900	344/347
4.5	399	27000	**RF**	**167R107**	**DRN**	**132L4**	1920	345/347
			RM	**167R107**	**DRN**	**132L4**	2350	345/347
5.1	349	27000	**R**	**167R107**	**DRN**	**160M4**	1990	344/347
			RF	**167R107**	**DRN**	**160M4**	2000	345/347
			RM	**167R107**	**DRN**	**160M4**	2430	345/347
4.9	361	27000	**R**	**167R107**	**DRN**	**160M4**	1980	344/347
5.4	328	27000	**RF**	**167R107**	**DRN**	**160M4**	1990	345/347
			RM	**167R107**	**DRN**	**160M4**	2420	345/347
6.0	295	27000	**R**	**167R107**	**DRN**	**160L4**	2020	344/347
6.6	270	27000	**RF**	**167R107**	**DRN**	**160L4**	2040	345/347
			RM	**167R107**	**DRN**	**160L4**	2470	345/347
6.1	291	27000	**R**	**167R107**	**DRN**	**160L4**	2010	344/347
6.7	264	27000	**RF**	**167R107**	**DRN**	**160L4**	2020	345/347
			RM	**167R107**	**DRN**	**160L4**	2460	345/347
7.8	229	27000	**R**	**167R107**	**DRN**	**180M4**	2070	344/347
8.9	200	27000	**RF**	**167R107**	**DRN**	**180M4**	2080	345/347
			RM	**167R107**	**DRN**	**180M4**	2520	345/347
7.9	227	27000	**R**	**167R107**	**DRN**	**180M4**	2060	344/347
9.0	198	27000	**RF**	**167R107**	**DRN**	**180M4**	2070	345/347
			RM	**167R107**	**DRN**	**180M4**	2500	345/347
11	169	27000	**R**	**167R107**	**DRN**	**180L4**	2110	344/347
			RF	**167R107**	**DRN**	**180L4**	2120	345/347
			RM	**167R107**	**DRN**	**180L4**	2550	345/347
11	168	27000	**R**	**167R107**	**DRN**	**180L4**	2090	344/347
			RF	**167R107**	**DRN**	**180L4**	2110	345/347
			RM	**167R107**	**DRN**	**180L4**	2540	345/347

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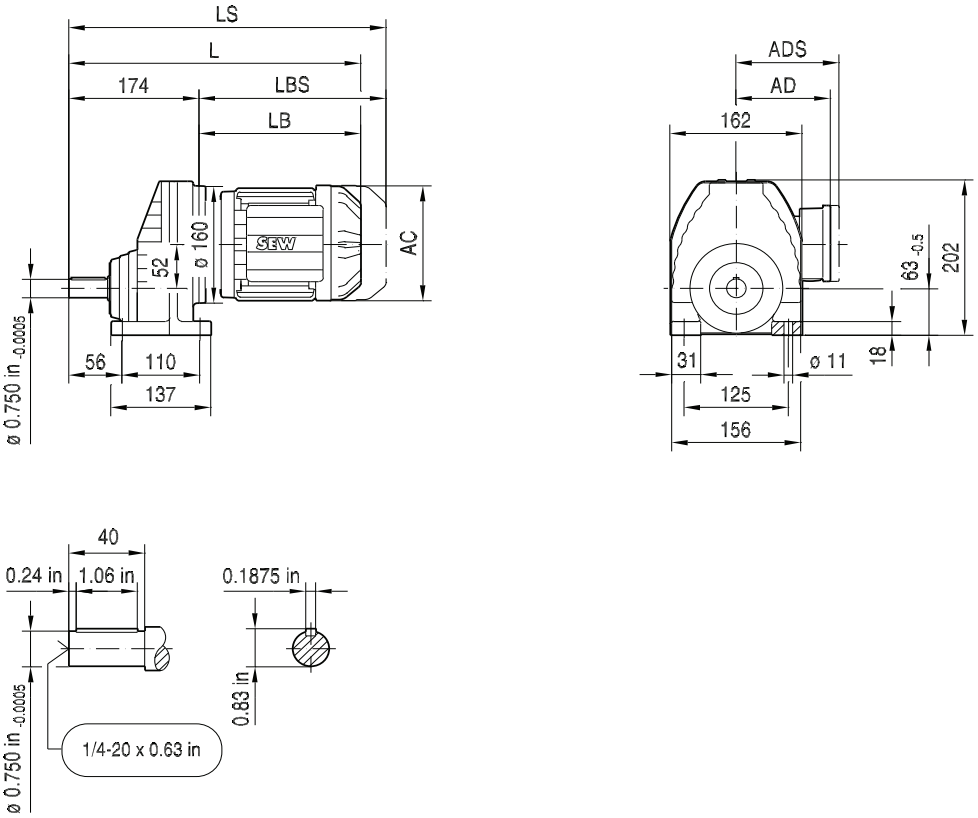


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8.5 R.. DRN.. Dimensions

77 386 00 21

RX57..



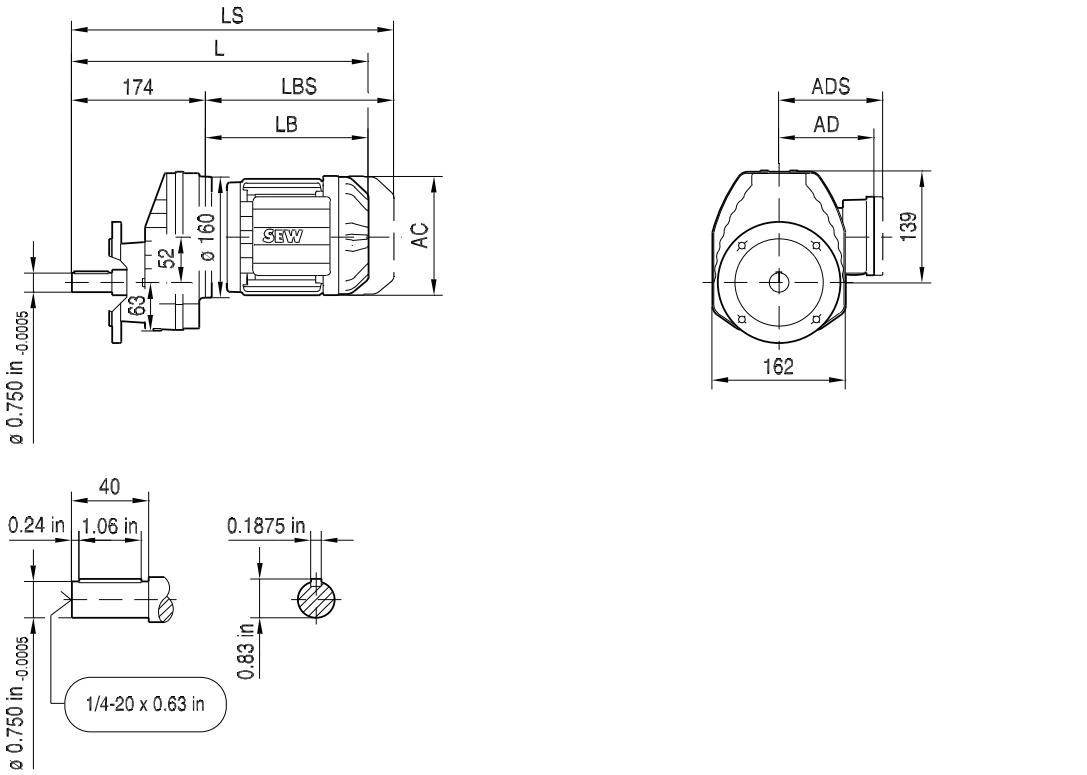
(→ 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	358	372	373	393	404	449	451	483	529	560	614	632
LS	414	428	441	461	485	530	544	576	623	672	726	770
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

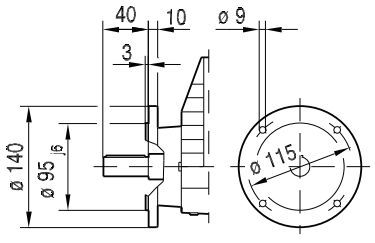
24833231/EN-US – 07/2021

77 387 00 21

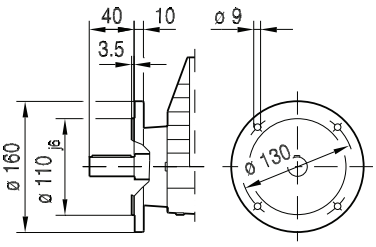
RXF57..



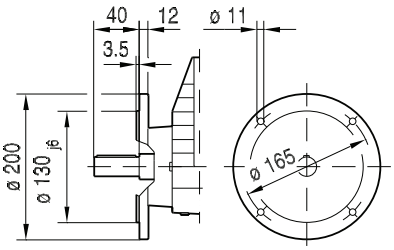
ø 140



ø 160



ø 200



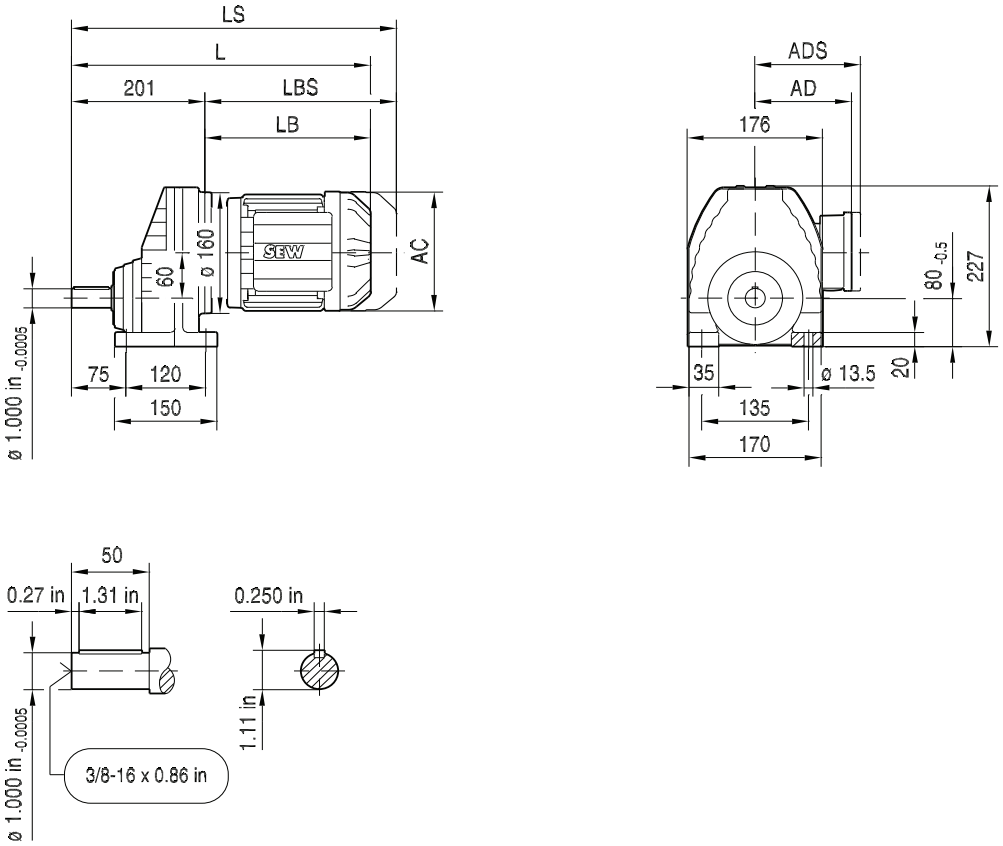
(→ 🗎 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	358	372	373	393	404	449	451	483	529	560	614	632
LS	414	428	441	461	485	530	544	576	623	672	726	770
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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77 388 00 21

RX67..



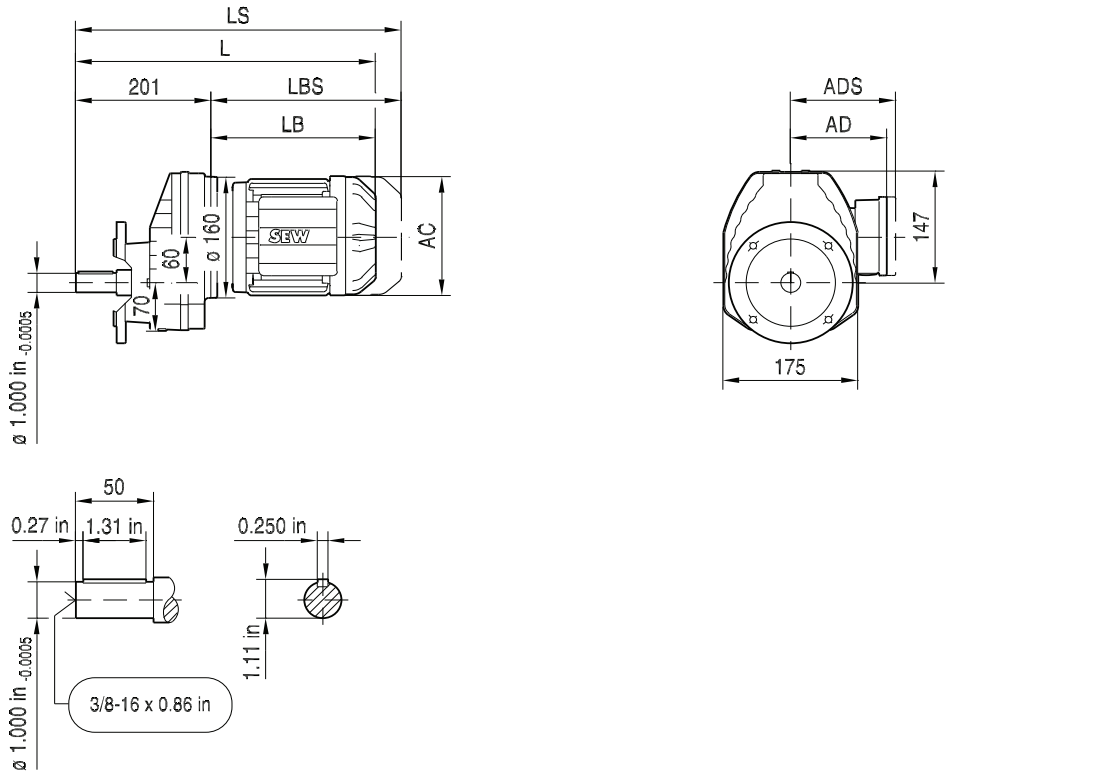
(→ 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	385	399	400	420	431	476	478	510	556	587	641	659
LS	441	455	468	488	512	557	571	603	650	699	753	797
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

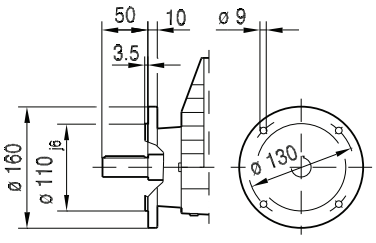
24833231/EN-US – 07/2021

77 389 00 21

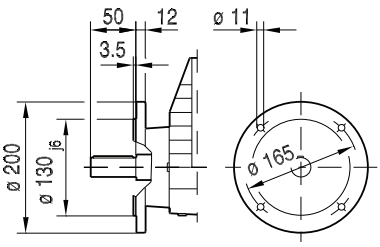
RXF67..



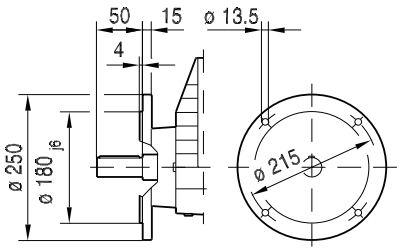
ø 160



ø 200



ø 250



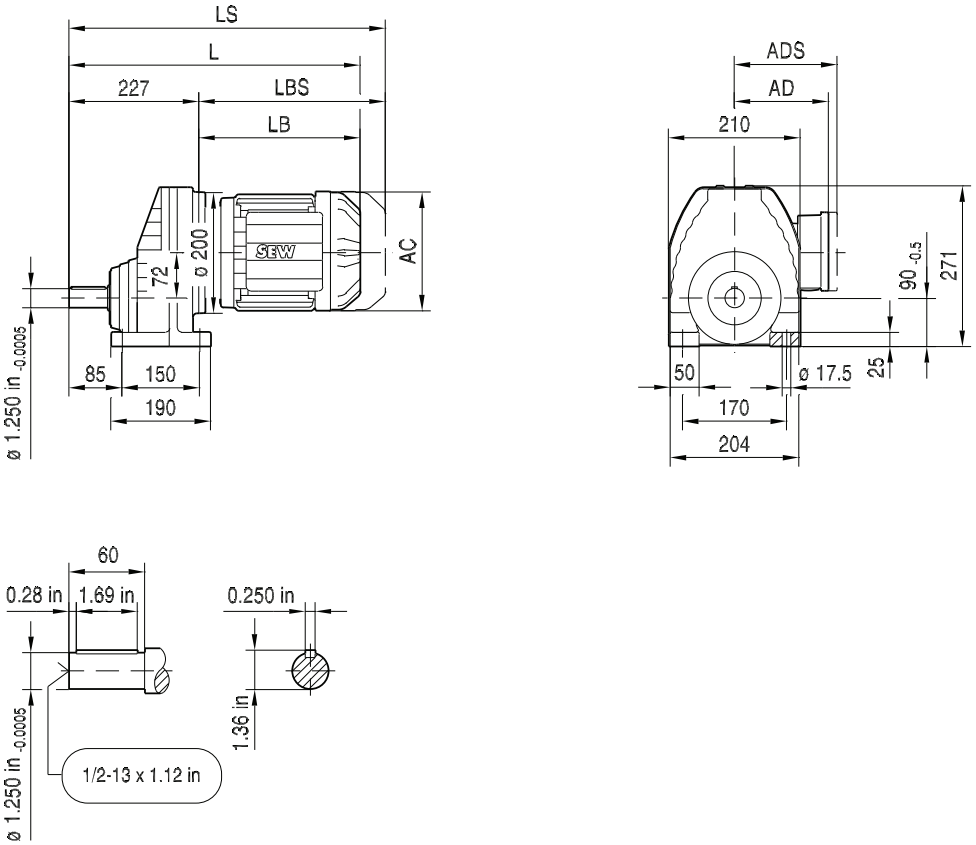
(→ 🗎 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	385	399	400	420	431	476	478	510	556	587	641	659
LS	441	455	468	488	512	557	571	603	650	699	753	797
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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77 390 00 21

RX77..



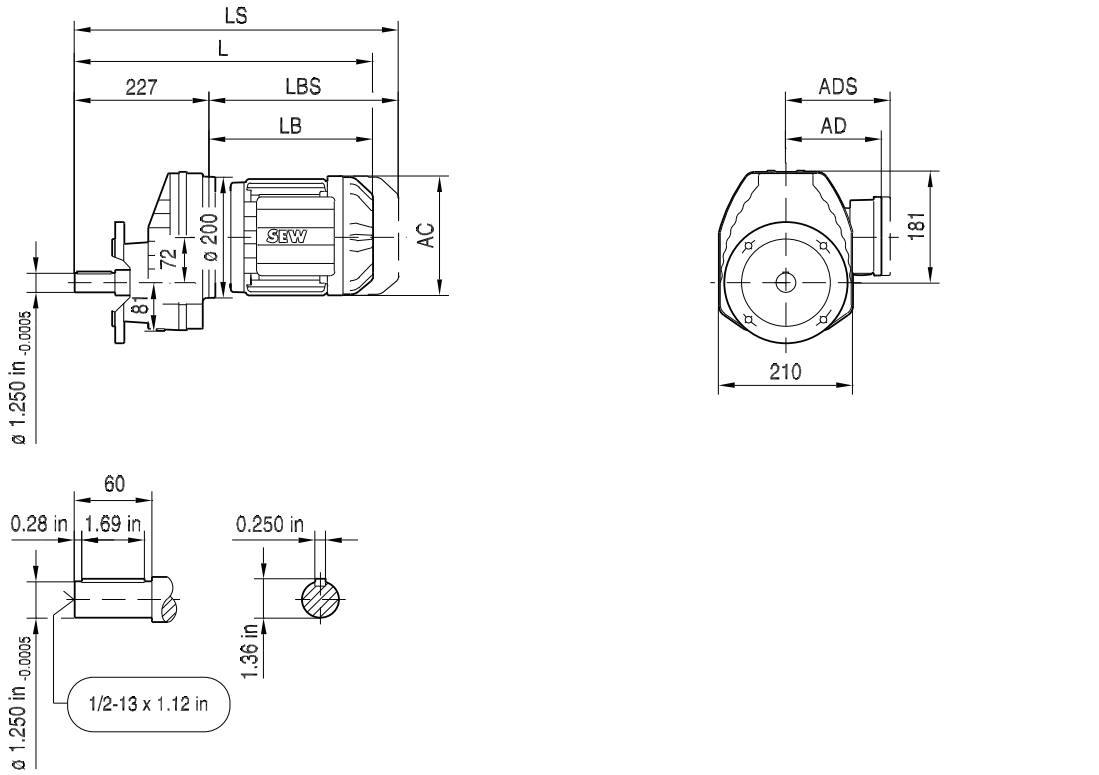
(→ 🗎 162)	DRN							
	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	179	179	197	221	221	261	261	314
AD	140	140	157	170	170	228	228	253
ADS	150	150	158	172	172	228	228	253
L	497	529	575	606	656	674	700	766
LS	590	622	669	718	768	812	837	955
LB	270	302	348	379	429	447	473	539
LBS	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

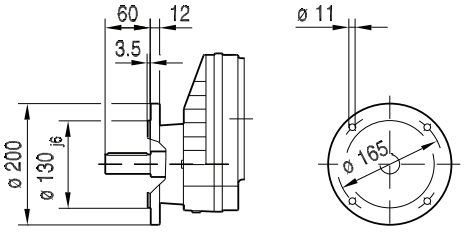
24833231/EN-US – 07/2021

77 391 00 21

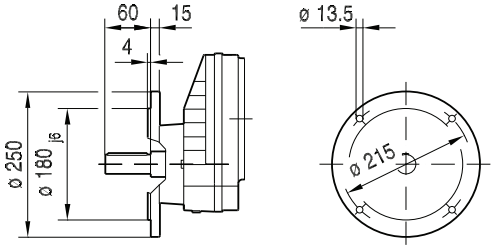
RXF77..



ø 200



ø 250



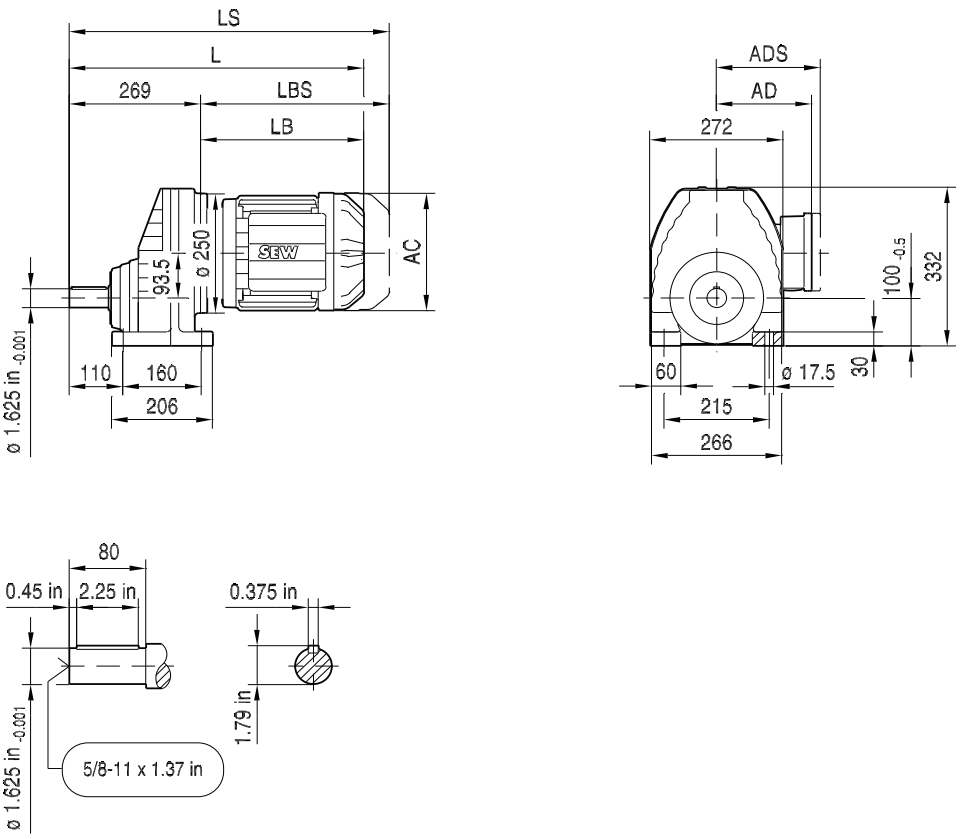
(→ 🗎 162)	DRN							
	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	179	179	197	221	221	261	261	314
AD	140	140	157	170	170	228	228	253
ADS	150	150	158	172	172	228	228	253
L	497	529	575	606	656	674	700	766
LS	590	622	669	718	768	812	837	955
LB	270	302	348	379	429	447	473	539
LBS	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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77 392 00 21

RX87..



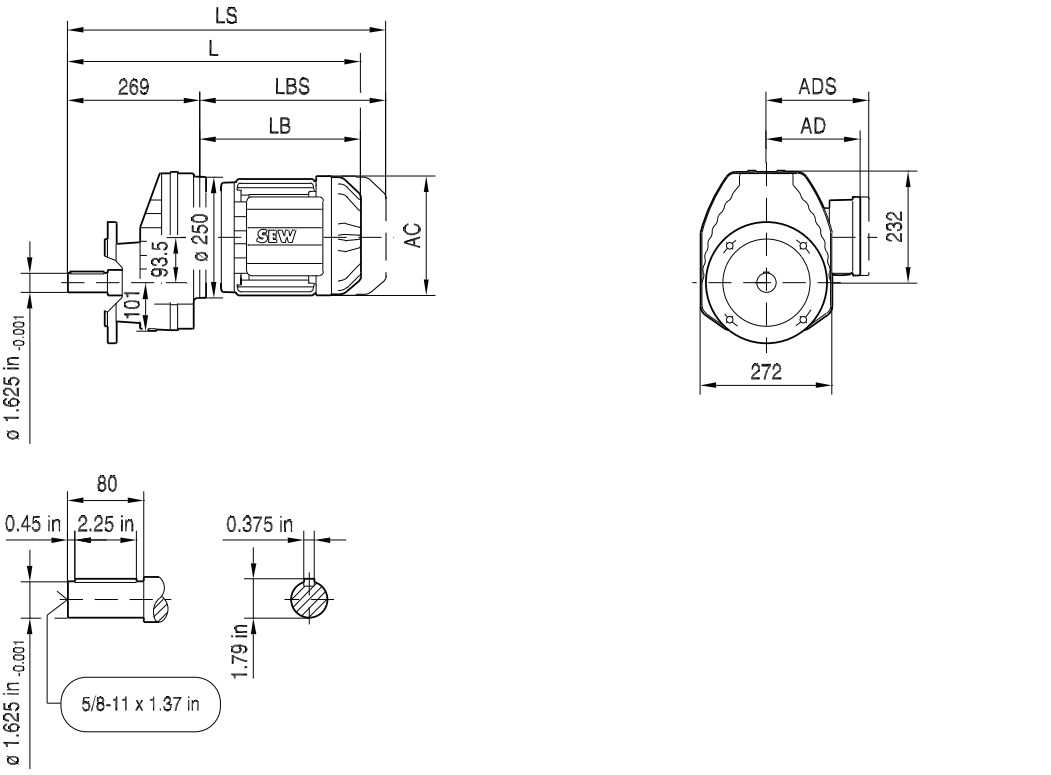
(→ 🗎 162)	DRN								
	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	534	566	612	643	693	711	737	803	826
LS	627	659	706	755	805	849	874	992	1015
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

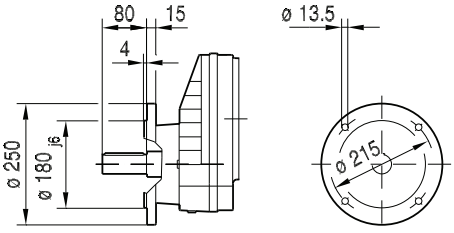
24833231/EN-US – 07/2021

77 393 00 21

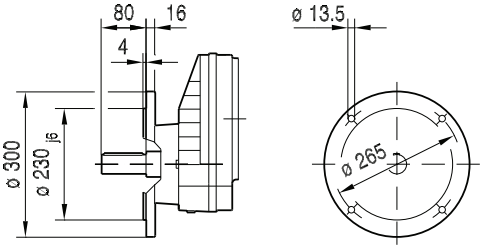
RXF87..



ø 250



ø 300



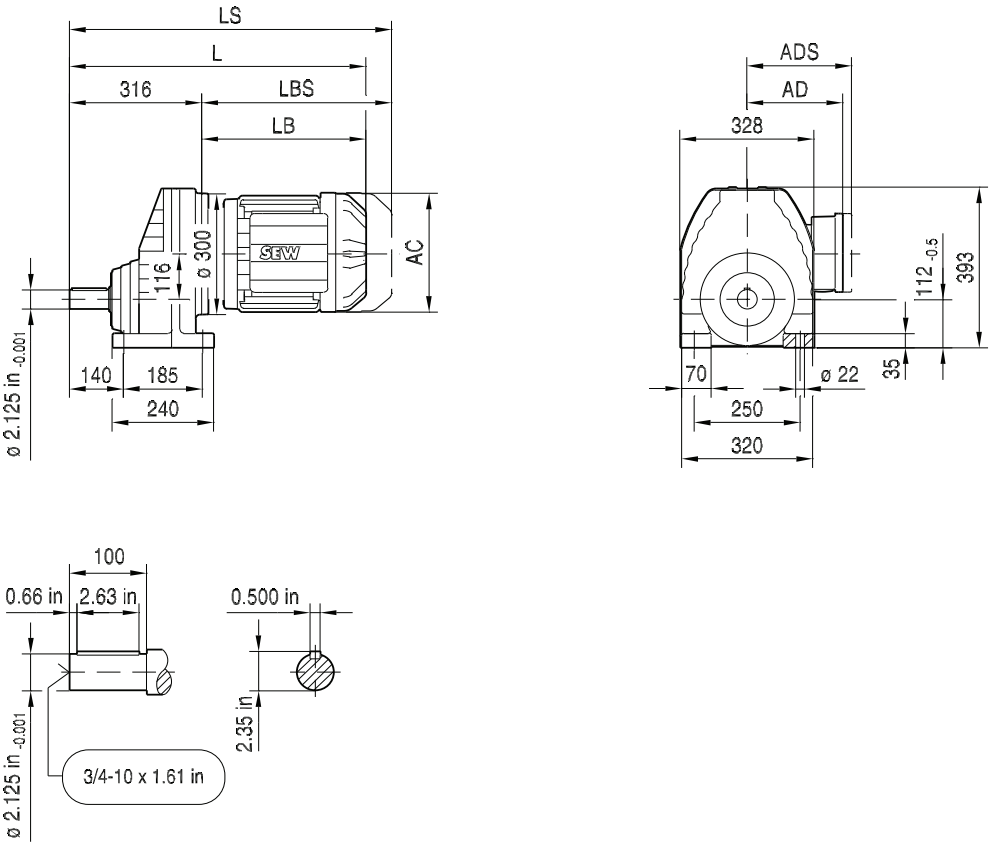
(→ 🗎 162)	DRN								
	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	534	566	612	643	693	711	737	803	826
LS	627	659	706	755	805	849	874	992	1015
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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77 394 00 21

RX97..

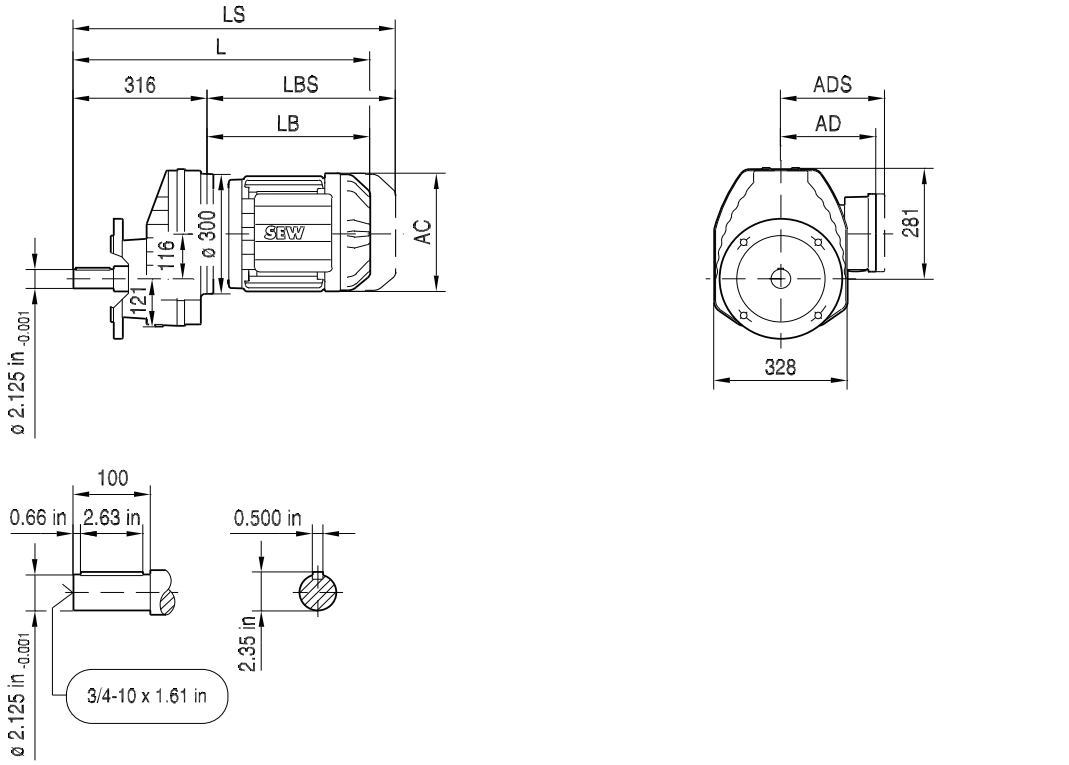


(→ 🗎 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	654	685	735	753	779	845	868	978	952
LS	748	797	847	891	916	1034	1057	1183	1157
LB	338	369	419	437	463	529	552	662	636
LBS	432	481	531	575	600	718	741	867	841

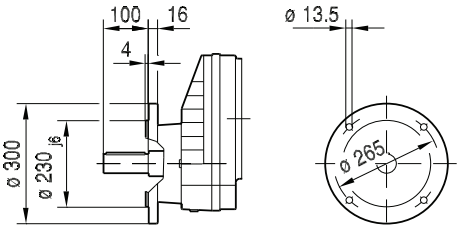
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

77 395 00 21

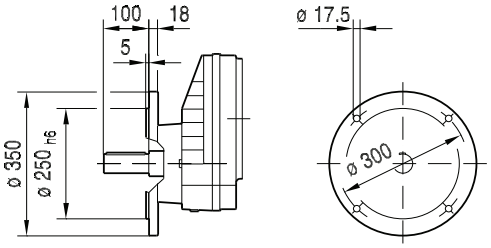
RXF97..



ø 300



ø 350



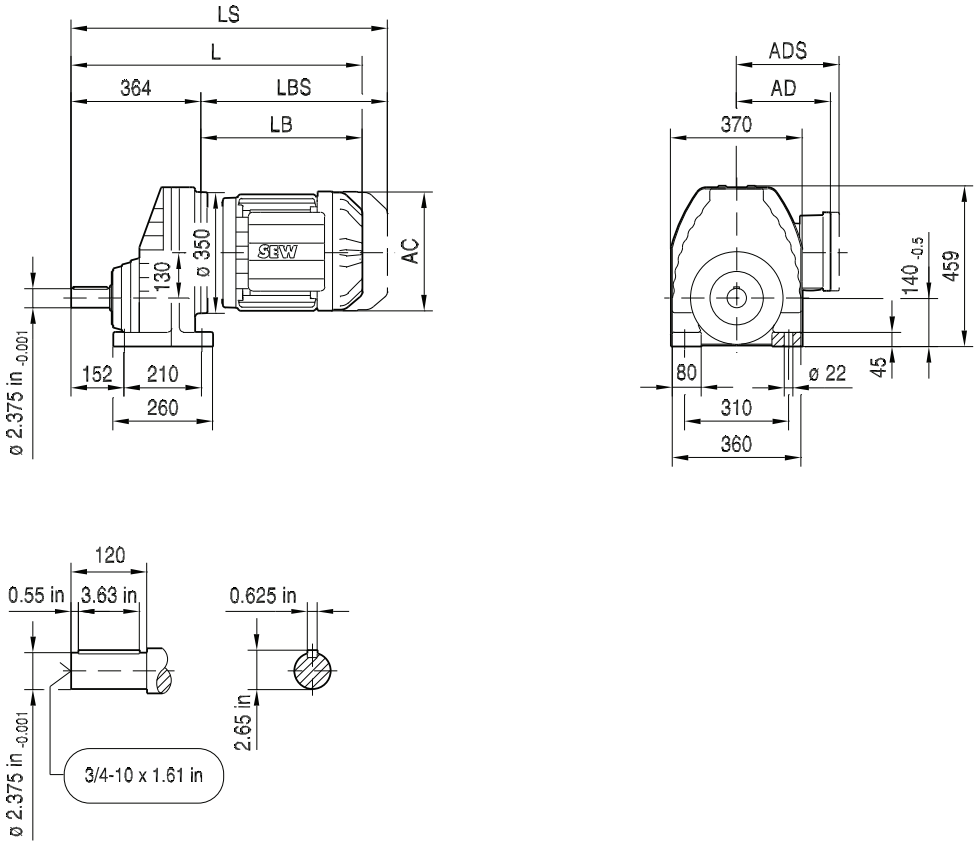
(→ 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	654	685	735	753	779	845	868	978	952
LS	748	797	847	891	916	1034	1057	1183	1157
LB	338	369	419	437	463	529	552	662	636
LBS	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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77 396 00 21

RX107..



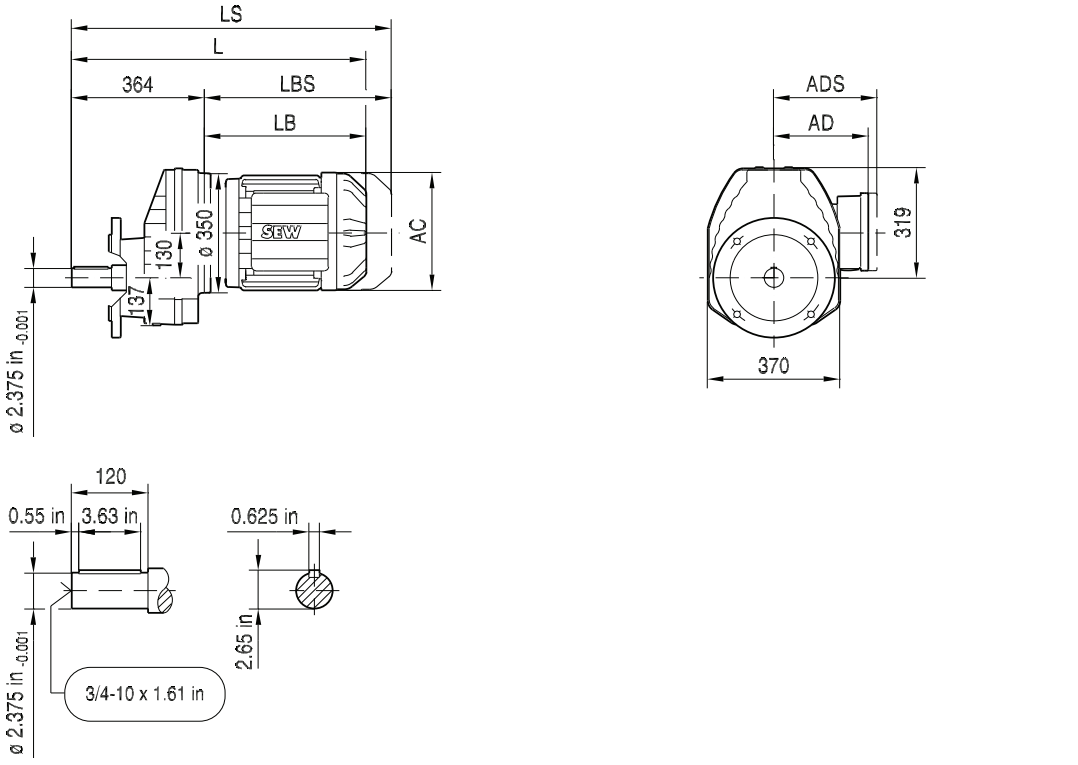
(→ 162)	DRN						
	132S	132M	132L	160	180	200L	225
AC	221	261	261	314	357	394	434
AD	170	228	228	253	268	283	305
ADS	172	228	228	253	268	283	305
L	777	795	821	887	910	1020	994
LS	889	933	958	1076	1099	1225	1199
LB	413	431	457	523	546	656	630
LBS	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

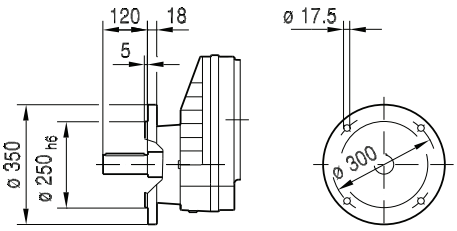
24833231/EN-US – 07/2021

77 397 00 21

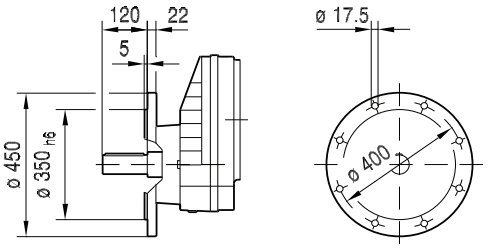
RXF107..



ø 350



ø 450



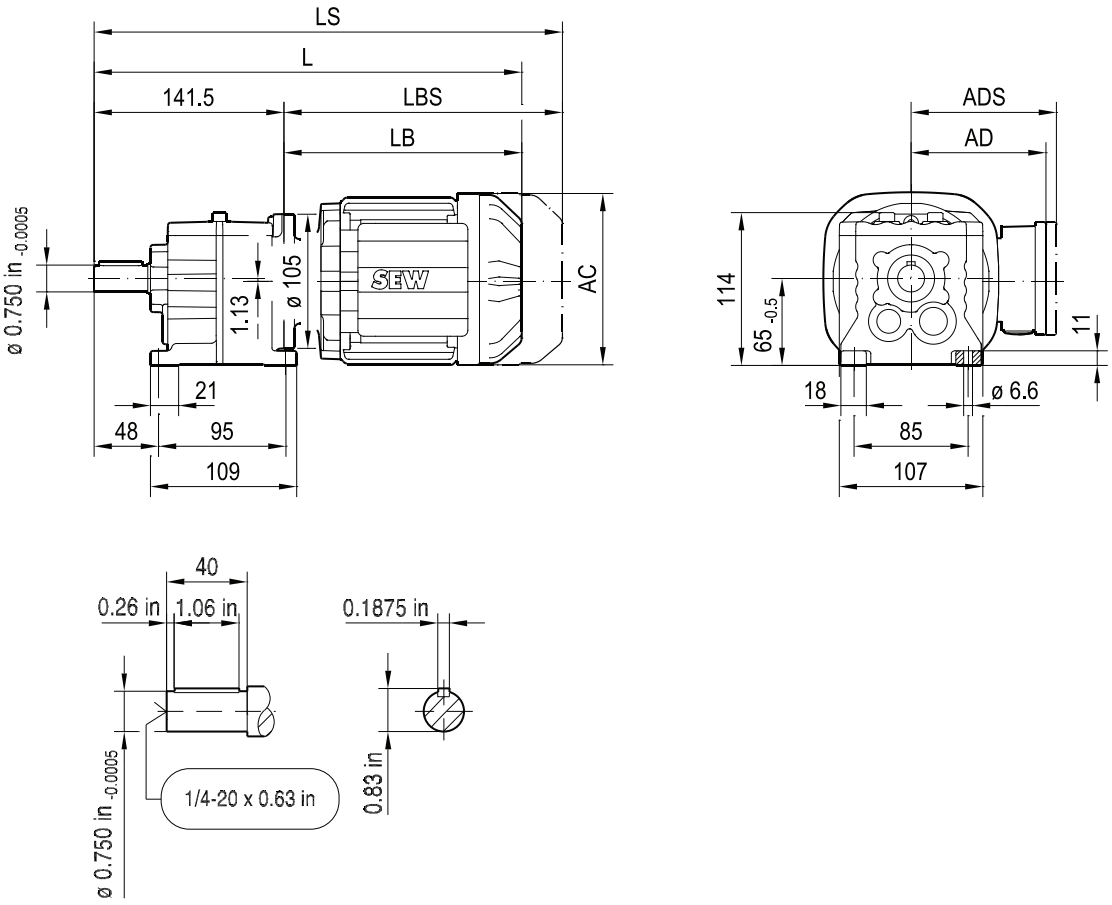
(→ 🗎 162)	DRN						
	132S	132M	132L	160	180	200L	225
AC	221	261	261	314	357	394	434
AD	170	228	228	253	268	283	305
ADS	172	228	228	253	268	283	305
L	777	795	821	887	910	1020	994
LS	889	933	958	1076	1099	1225	1199
LB	413	431	457	523	546	656	630
LBS	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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R07..

77 398 00 21



R07F..



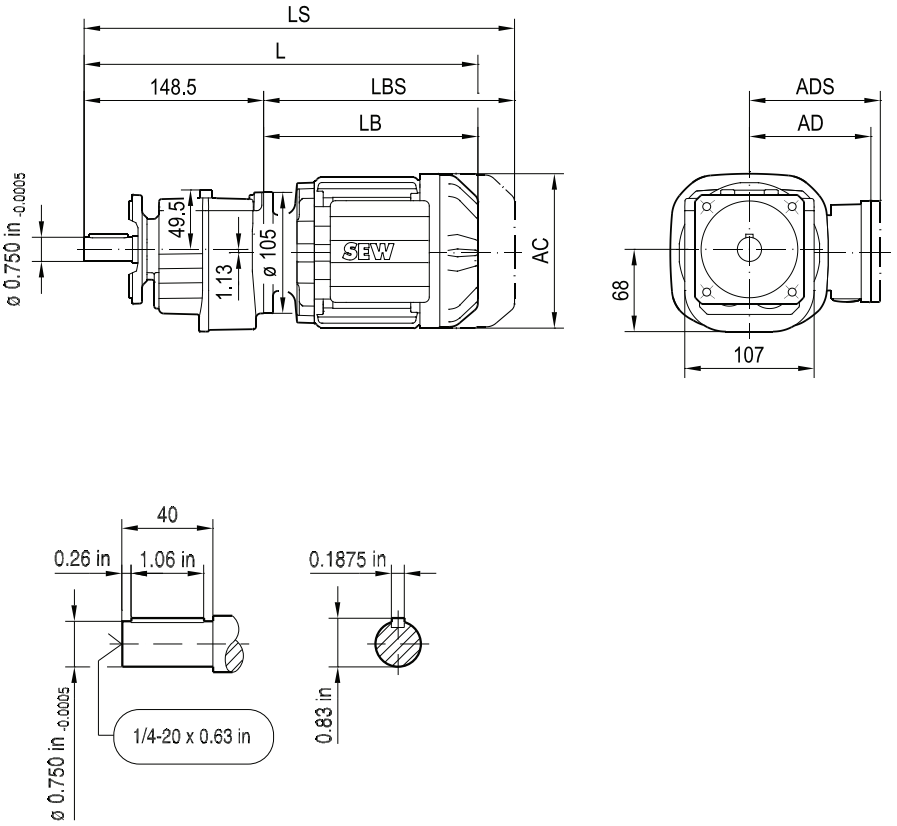
(→ 🗎 162)	DRN							
	63MS	63M	71MS	71M				
AC	115	115	139	139				
AD	98	98	118	118				
ADS	98	98	129	129				
L	332	346	347	367				
LS	388	402	415	435				
LB	190	204	206	226				
LBS	246	260	273	293				

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

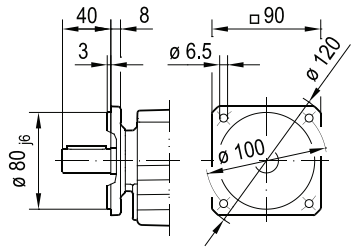
24833231/EN-US – 07/2021

77 399 00 21

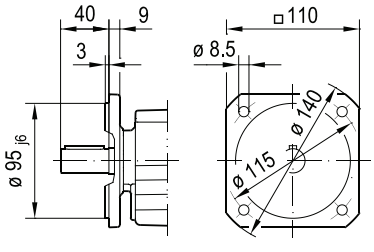
RF07..



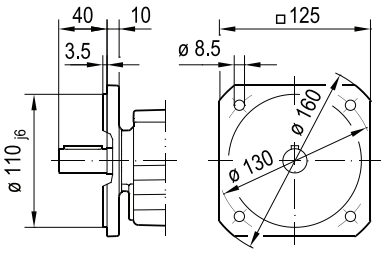
ø 120



ø 140



ø 160



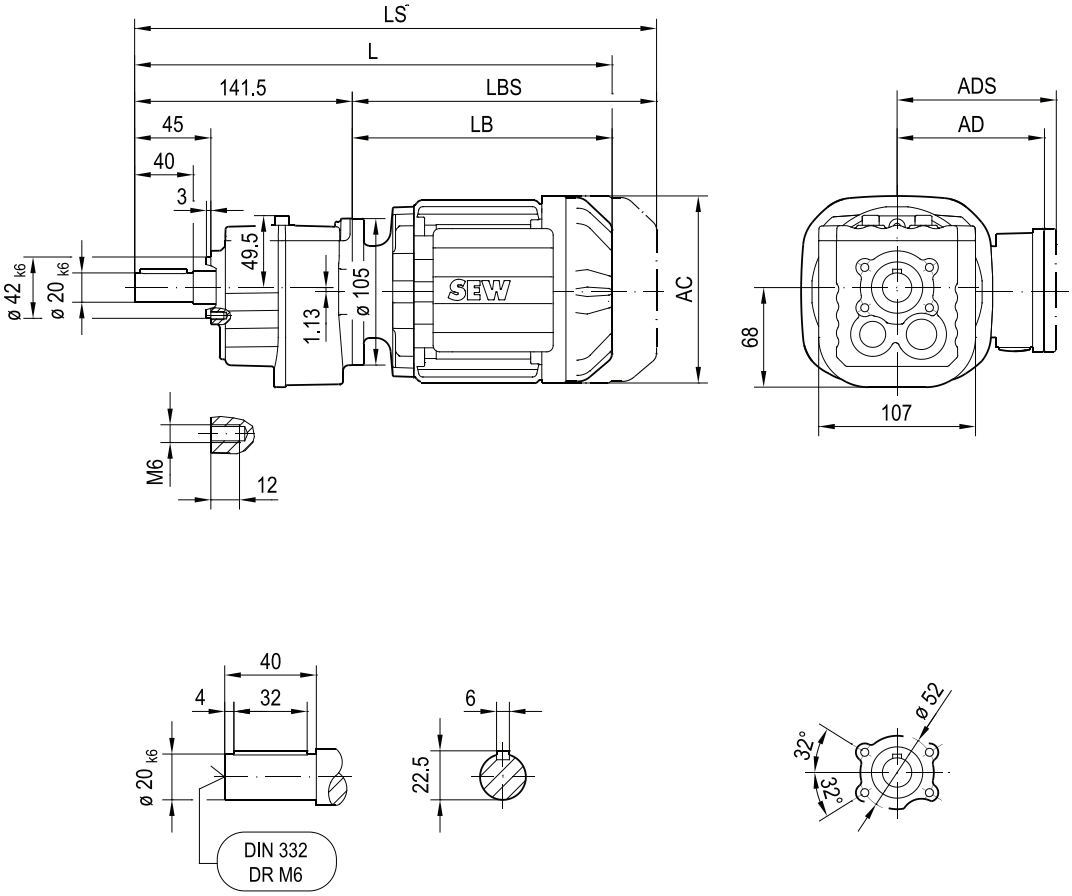
(→ 🗎 162)	DRN							
	63MS	63M	71MS	71M				
AC	115	115	139	139				
AD	98	98	118	118				
ADS	98	98	129	129				
L	339	353	354	374				
LS	395	409	422	422				
LB	190	204	206	226				
LBS	246	260	273	293				

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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RZ07..

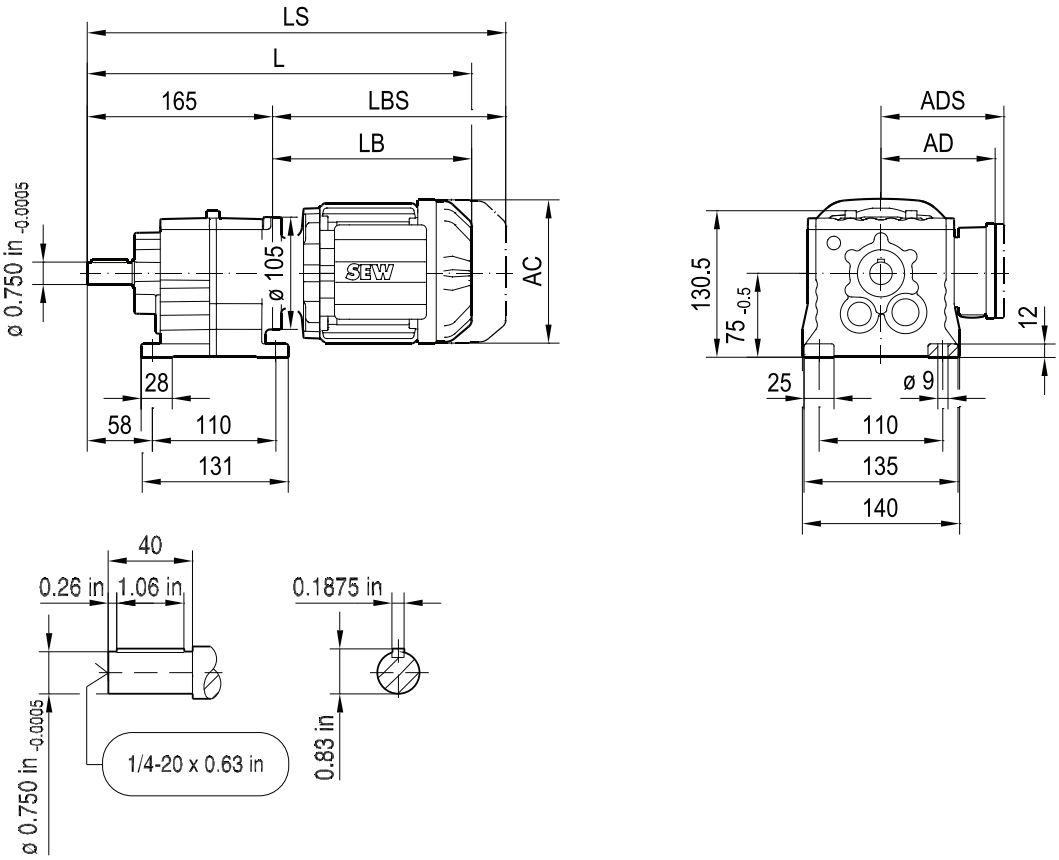


(→ 162)	DRN							
	63MS	63M	71MS	71M				
AC	115	115	139	139				
AD	98	98	118	118				
ADS	98	98	129	129				
L	332	346	347	367				
LS	388	402	415	435				
LB	190	204	206	226				
LBS	246	260	273	293				

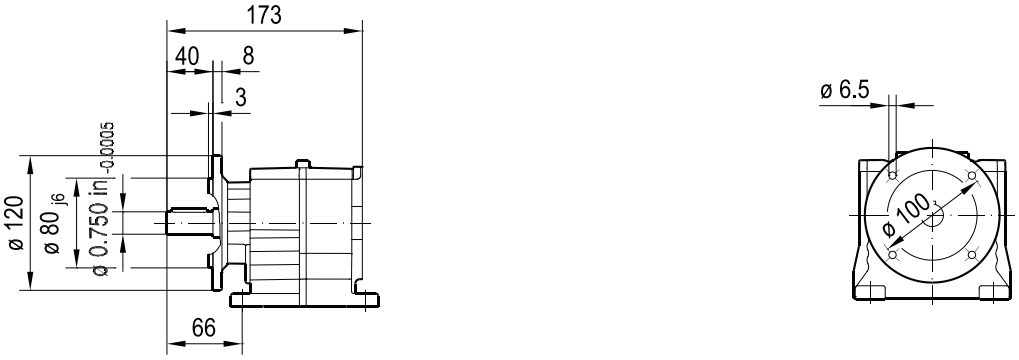
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

77 401 00 21

R17..



R17F..



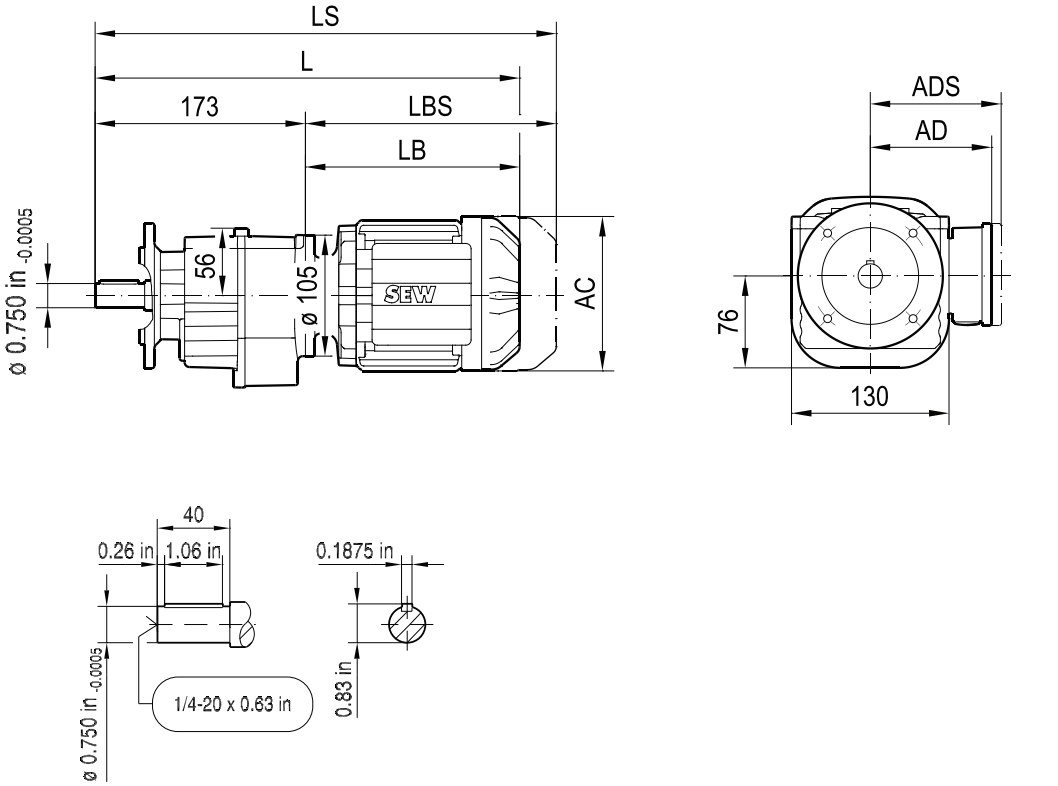
(→ 🗎 162)	DRN							
	63MS	63M	71MS	71M	80MS	80M		
AC	115	115	139	139	156	156		
AD	98	98	118	118	128	128		
ADS	98	98	129	129	139	139		
L	355	369	371	391	414	442		
LS	411	425	438	458	495	523		
LB	190	204	206	226	249	277		
LBS	246	260	273	293	330	358		

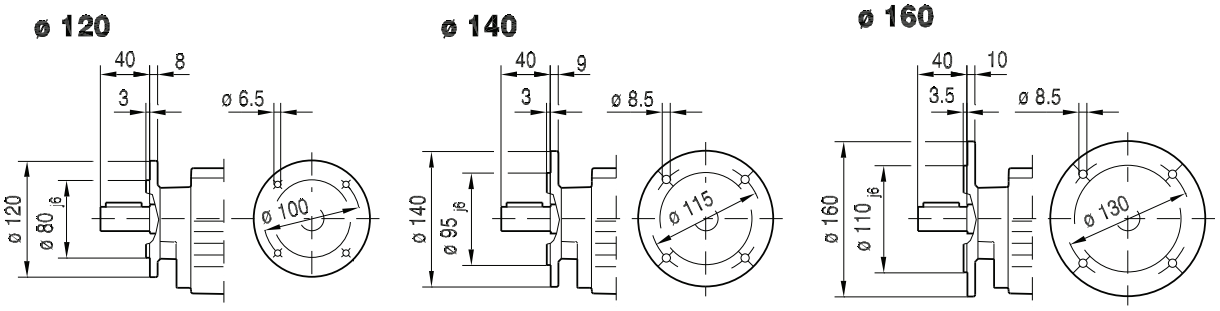
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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77 402 00 21

RF17..





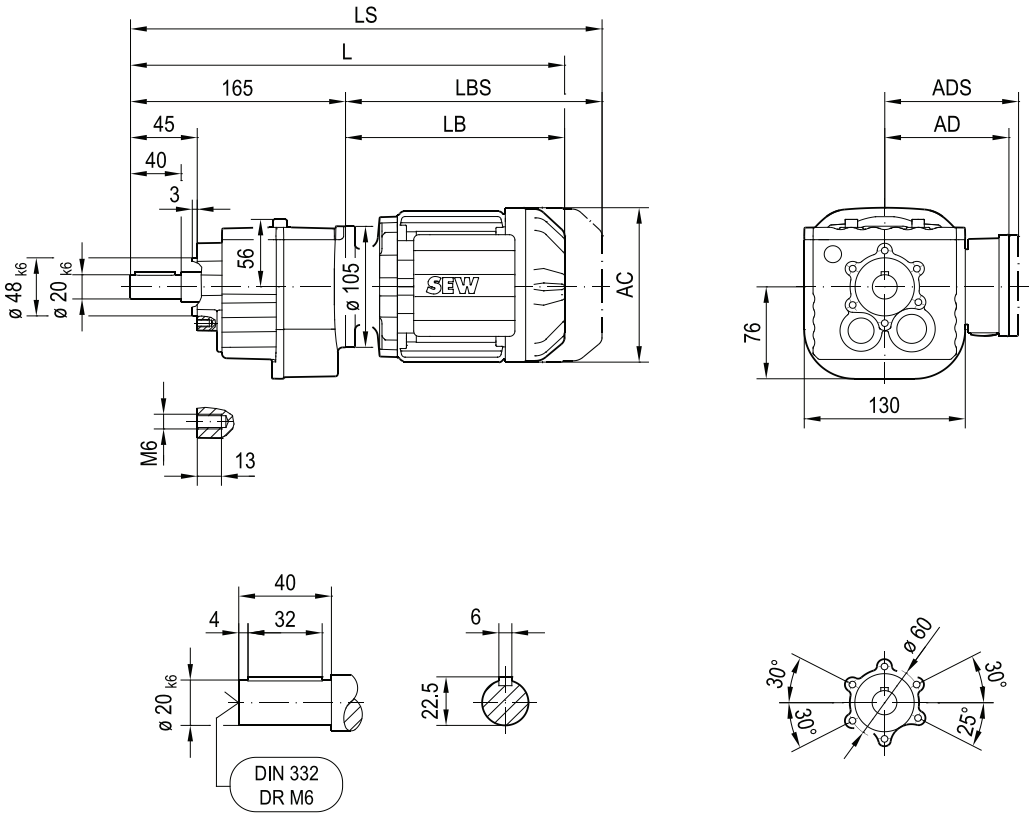
(→ 🗎 162)	DRN							
	63MS	63M	71MS	71M	80MS	80M		
AC	115	115	139	139	156	156		
AD	98	98	118	118	128	128		
ADS	98	98	129	129	139	139		
L	363	377	379	399	422	450		
LS	419	433	446	466	503	531		
LB	190	204	206	226	249	277		
LBS	246	260	273	293	330	358		

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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77 403 00 21

RZ17..



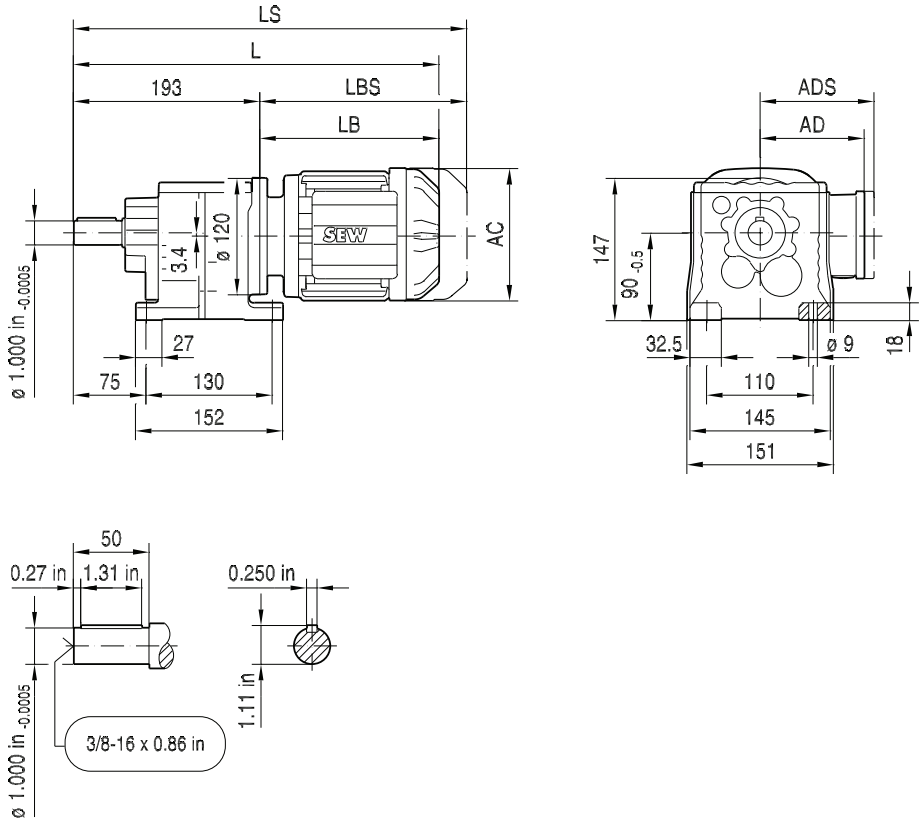
(→ 🗎 162)	DRN							
	63MS	63M	71MS	71M	80MS	80M		
AC	115	115	139	139	156	156		
AD	98	98	118	118	128	128		
ADS	98	98	129	129	139	139		
L	355	369	371	391	414	442		
LS	411	425	438	458	495	523		
LB	190	204	206	226	249	277		
LBS	246	260	273	293	330	358		

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

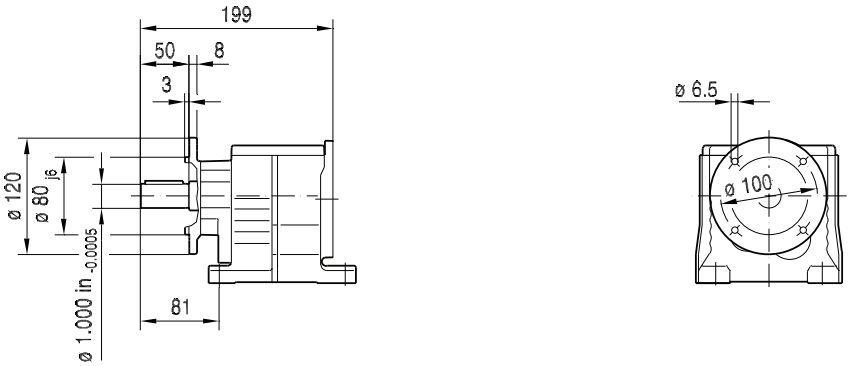
24833231/EN-US – 07/2021

77 404 00 21

R27..



R27F..



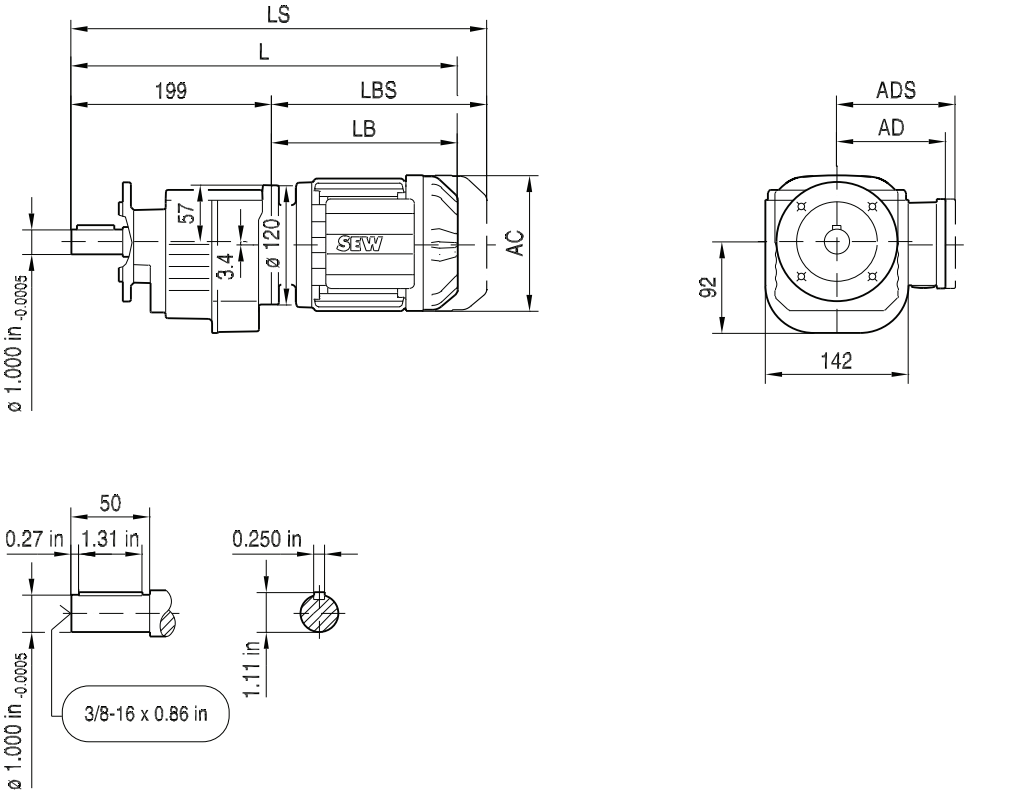
(→ 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	383	397	399	419	430	475	476	508	557
LS	439	453	466	486	511	556	570	602	651
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

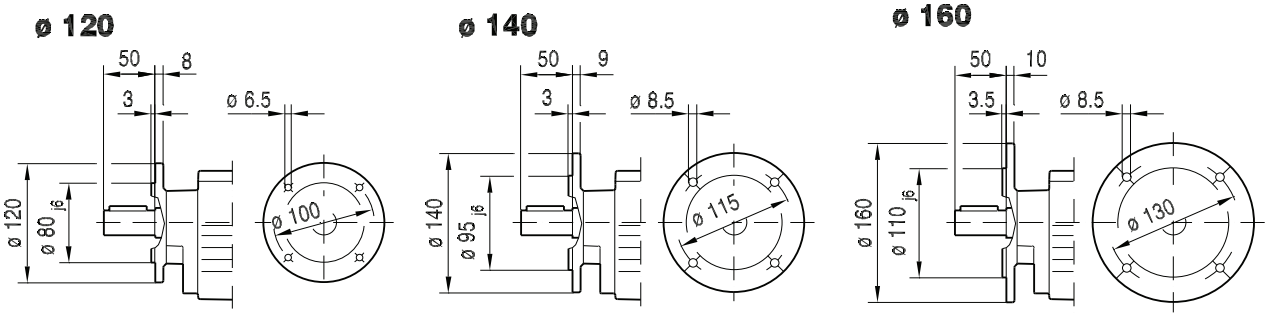
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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RF27..

77 405 00 21





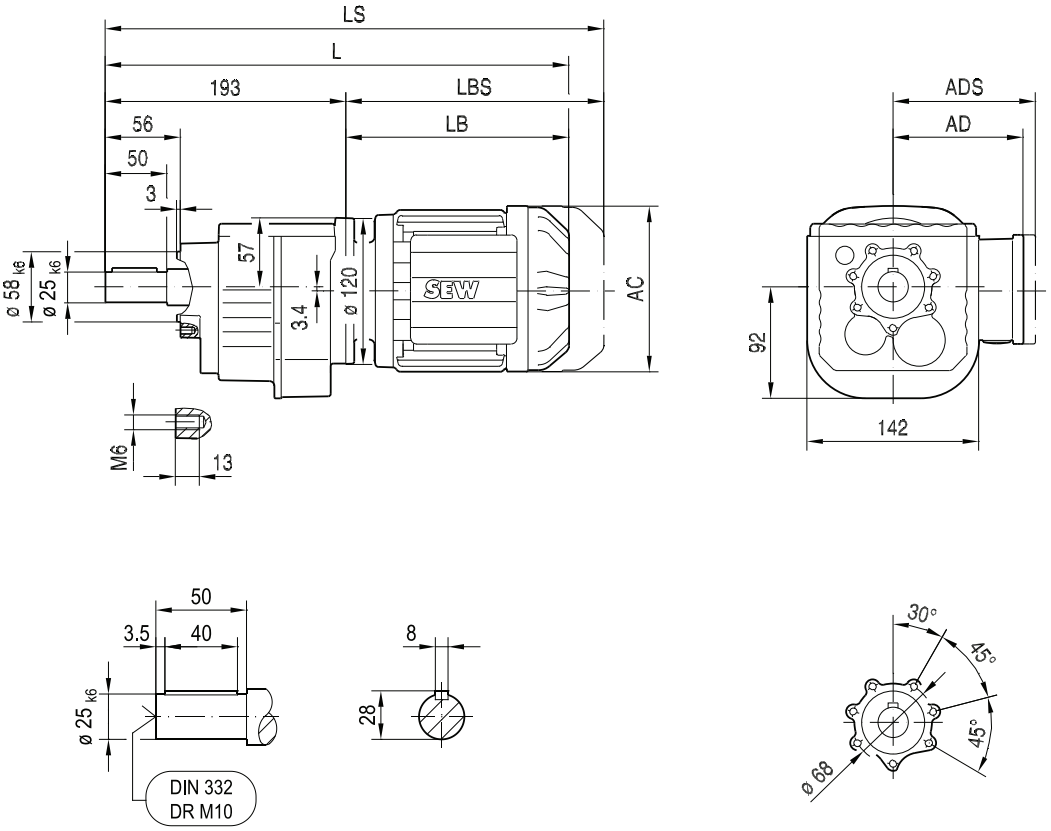
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	389	403	405	425	436	481	482	514	563
LS	445	459	472	492	517	562	576	608	657
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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77 406 00 21

RZ27..



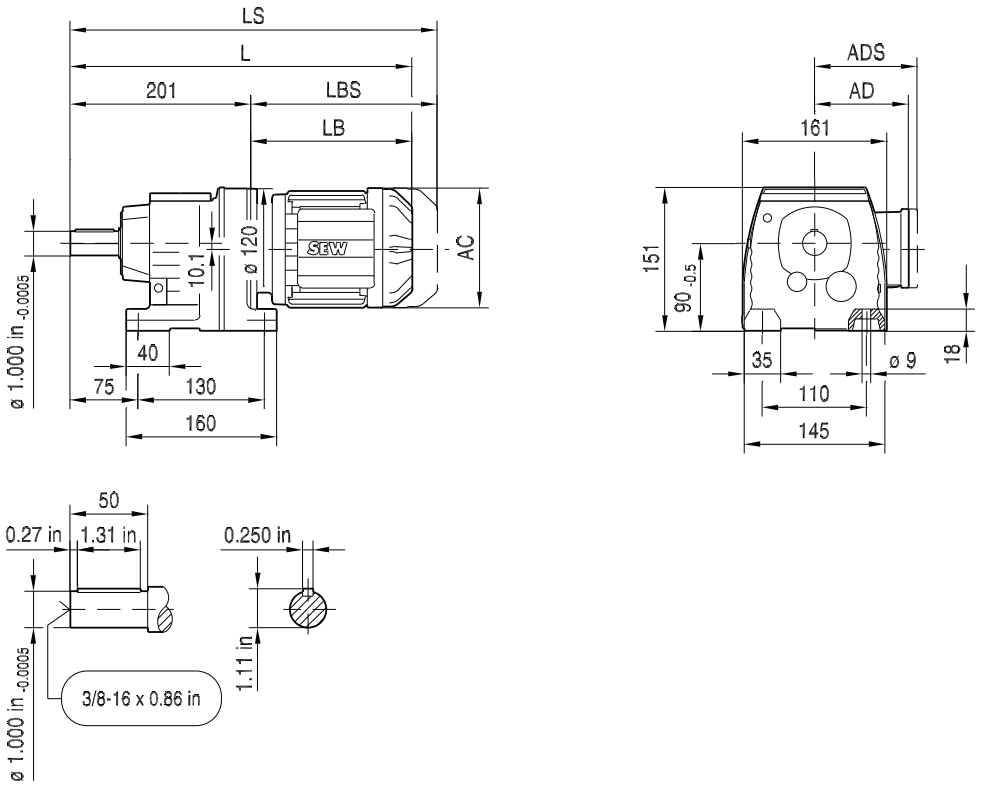
(→ 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	383	397	399	419	430	475	476	508	557
LS	439	453	466	486	511	556	570	602	651
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

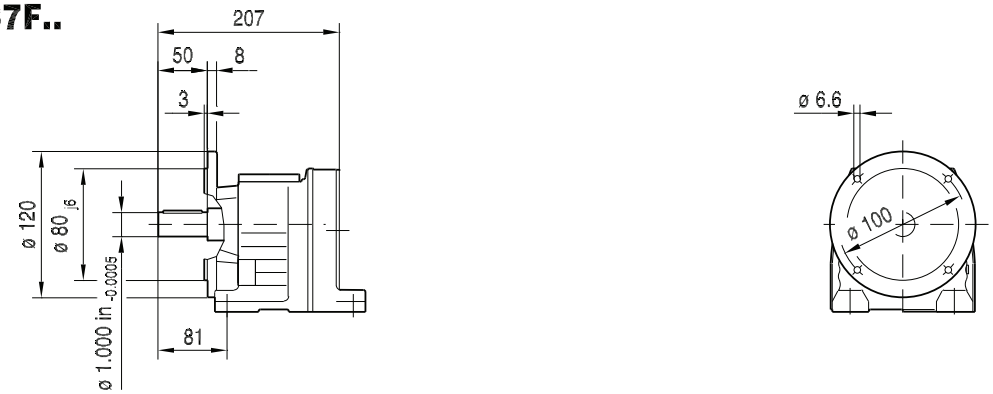
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77 408 00 21

R37..



R37F..



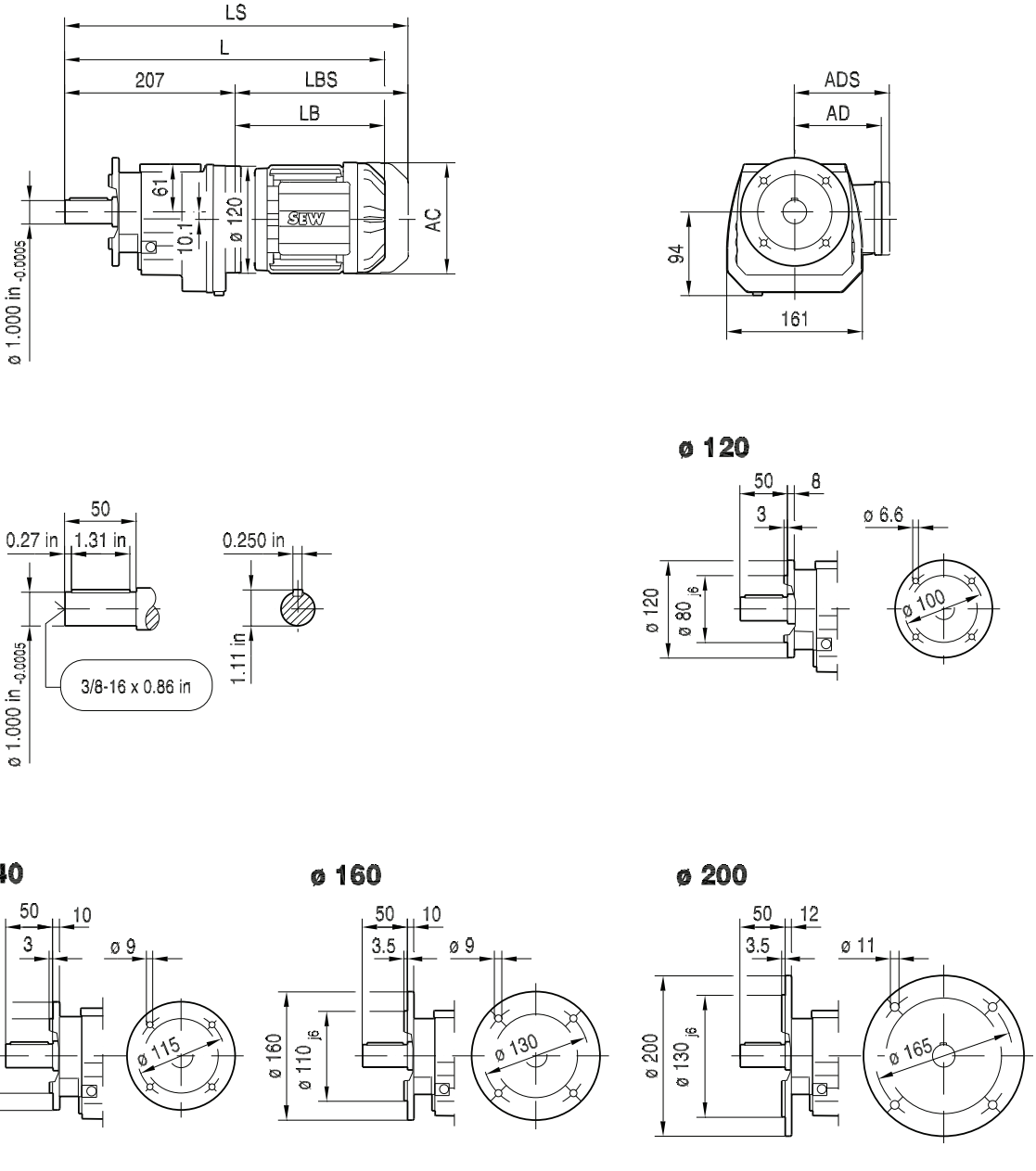
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	391	405	407	427	438	483	484	516	565
LS	447	461	474	494	519	564	578	610	659
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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77 409 00 21

RF37..



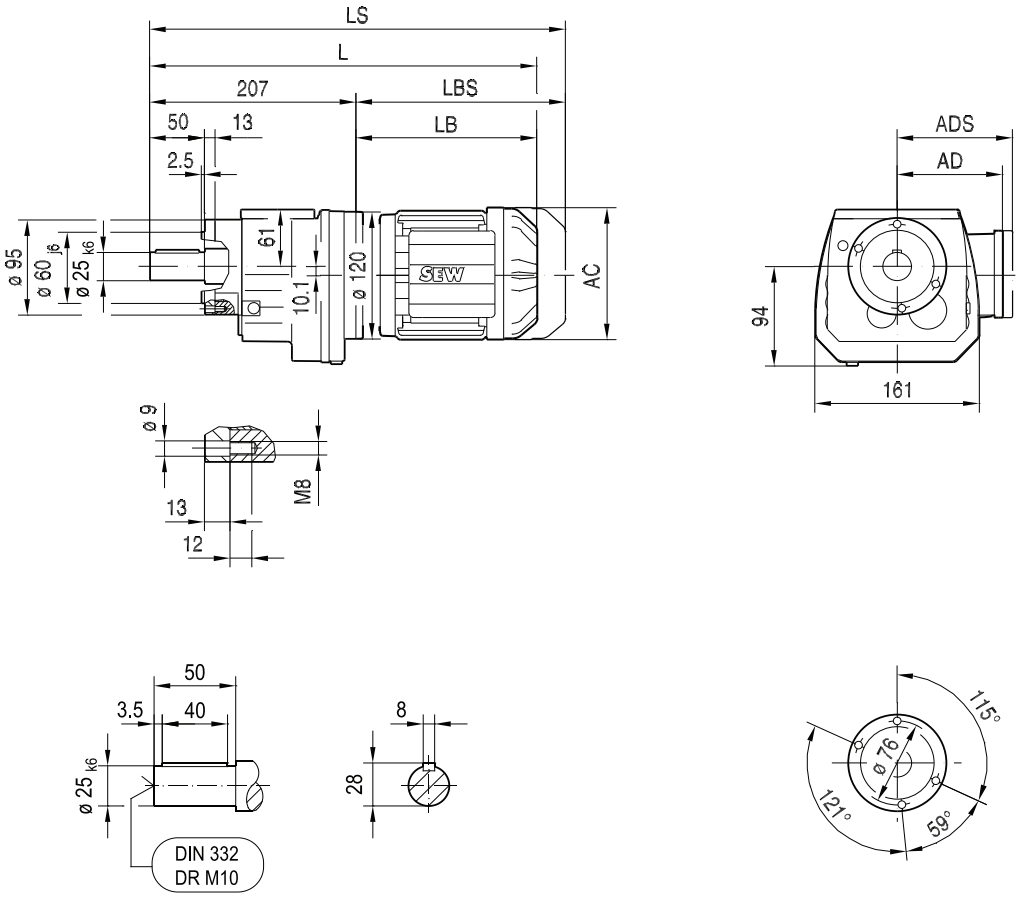
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	397	411	413	433	444	489	490	522	571
LS	453	467	480	500	525	570	584	616	665
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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RZ37..

77 410 00 21



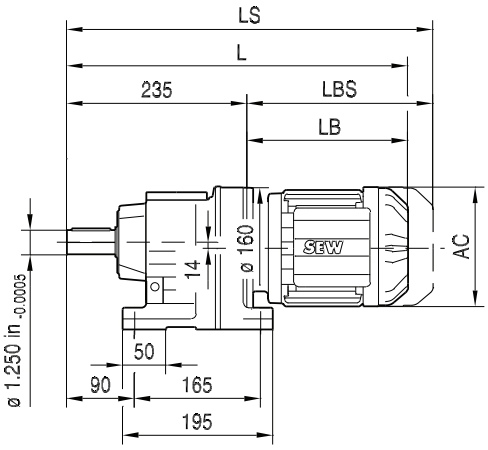
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	391	405	407	427	438	483	484	516	565
LS	447	461	474	494	519	564	578	610	659
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

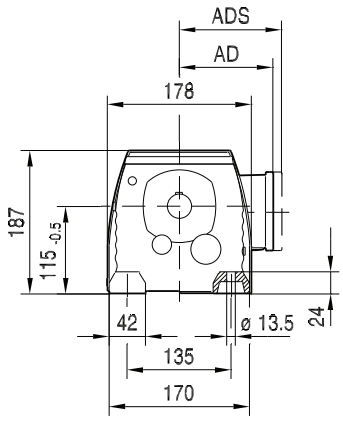
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

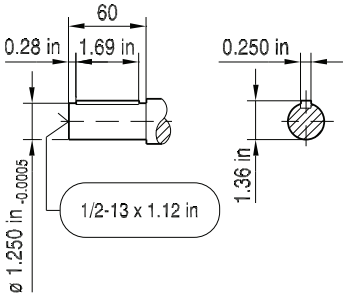
24833231/EN-US – 07/2021

77 411 00 21

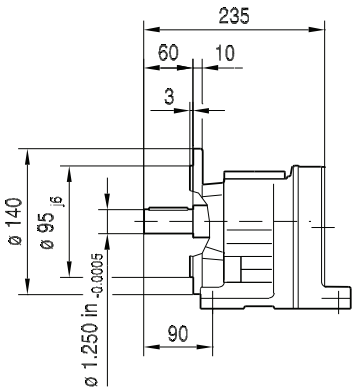
R47..

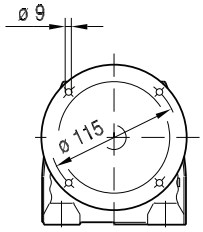






R47F..





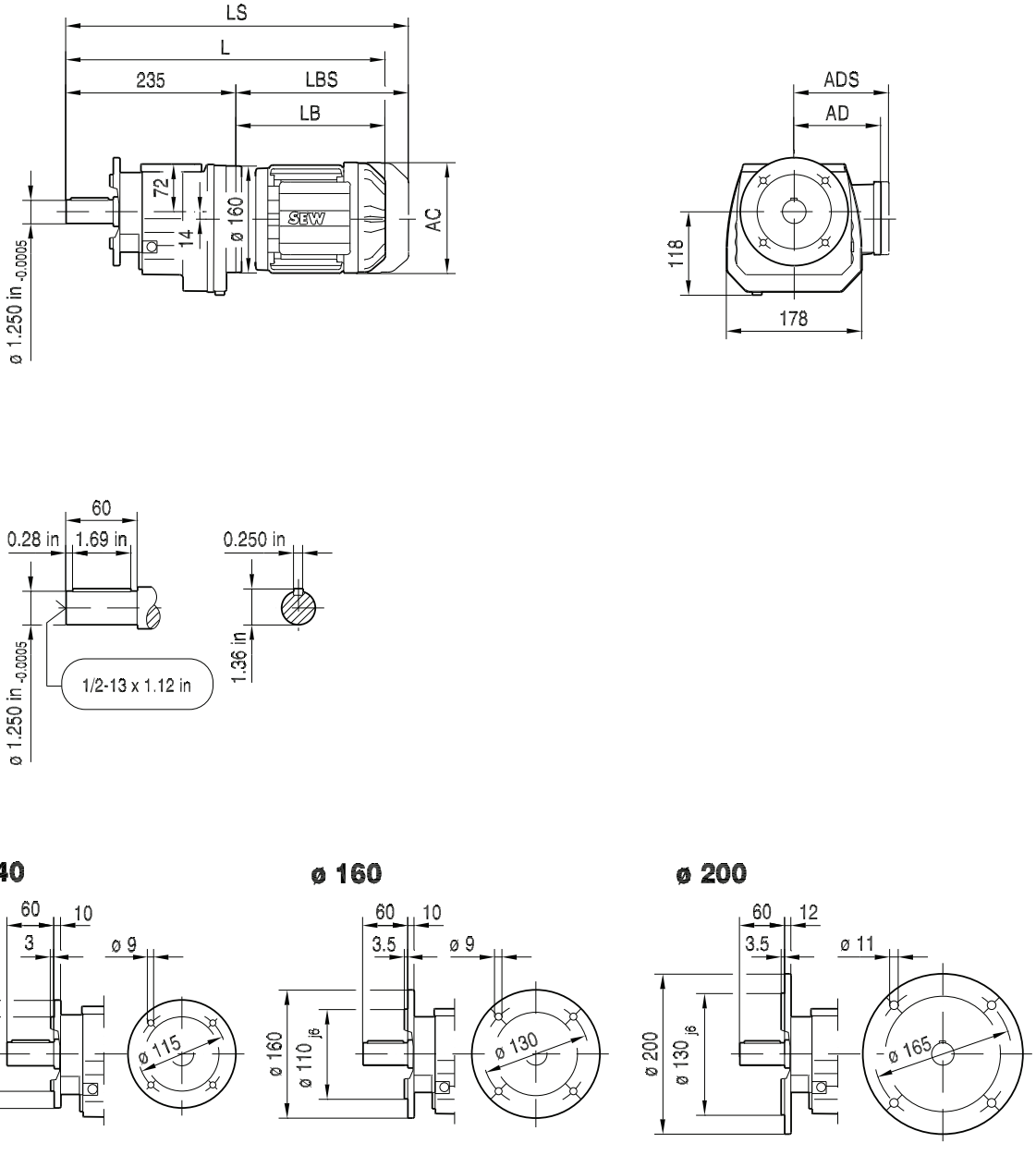
(→ 162)	DRN										
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S
AC	115	115	139	139	156	156	179	179	197	221	221
AD	98	98	118	118	128	128	140	140	157	170	170
ADS	98	98	129	129	139	139	150	150	158	172	172
L	419	433	434	454	465	510	512	544	590	621	675
LS	475	489	502	522	546	591	605	637	684	733	787
LB	184	198	199	219	230	275	277	309	355	386	440
LBS	240	254	267	287	311	356	370	402	449	498	552

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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RF47..

77 412 00 21



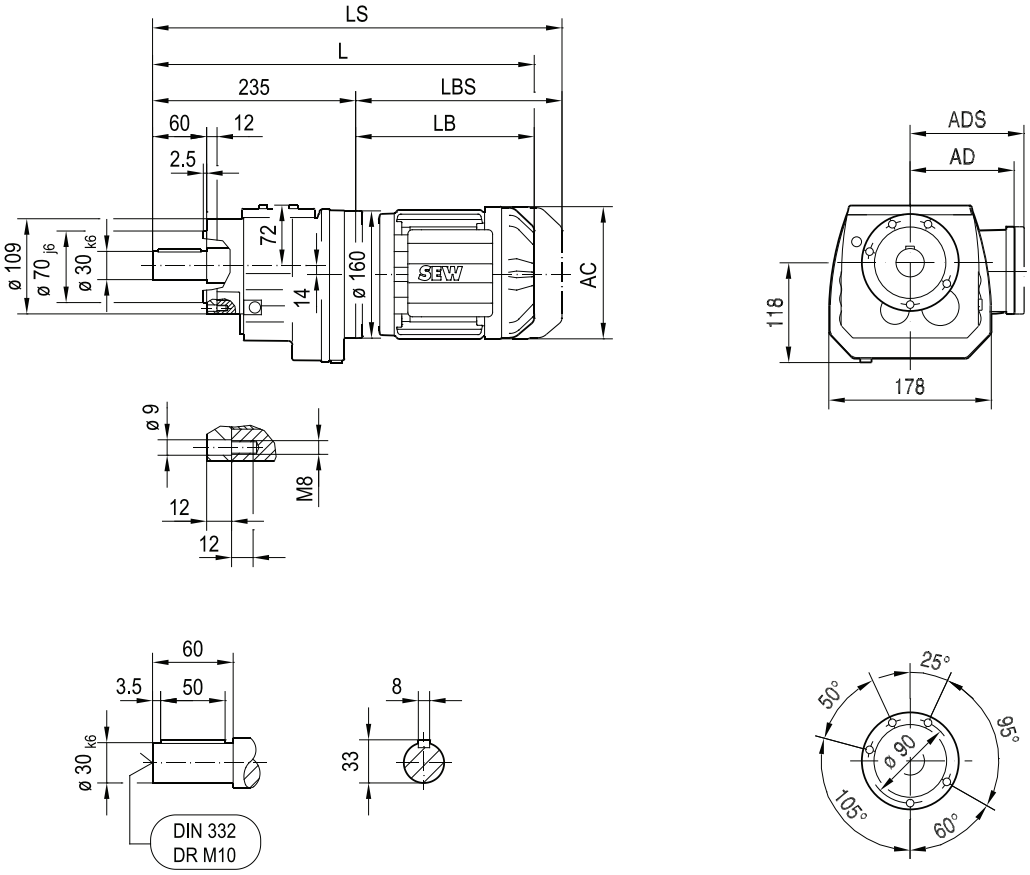
(→ 162)	DRN										
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S
AC	115	115	139	139	156	156	179	179	197	221	221
AD	98	98	118	118	128	128	140	140	157	170	170
ADS	98	98	129	129	139	139	150	150	158	172	172
L	419	433	434	454	465	510	512	544	590	621	675
LS	475	489	502	522	546	591	605	637	684	733	787
LB	184	198	199	219	230	275	277	309	355	386	440
LBS	240	254	267	287	311	356	370	402	449	498	552

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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RZ47..

77 413 00 21



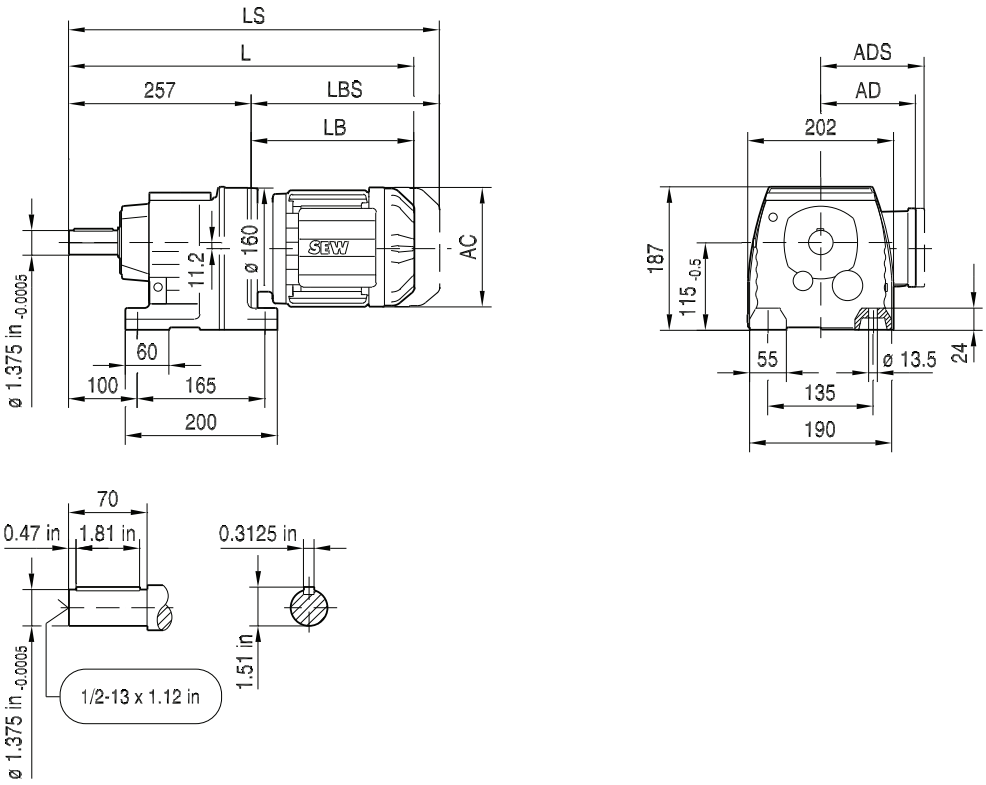
(→ 162)	DRN										
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S
AC	115	115	139	139	156	156	179	179	197	221	221
AD	98	98	118	118	128	128	140	140	157	170	170
ADS	98	98	129	129	139	139	150	150	158	172	172
L	419	433	434	454	465	510	512	544	590	621	675
LS	475	489	502	522	546	591	605	637	684	733	787
LB	184	198	199	219	230	275	277	309	355	386	440
LBS	240	254	267	287	311	356	370	402	449	498	552

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

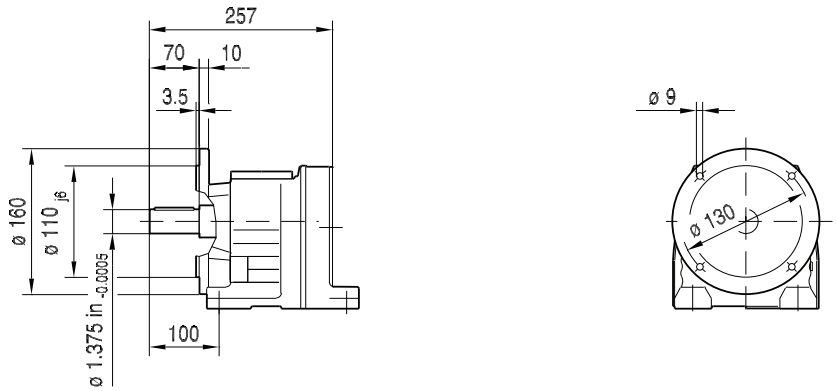
24833231/EN-US – 07/2021

77 414 00 21

R57..



R57F..



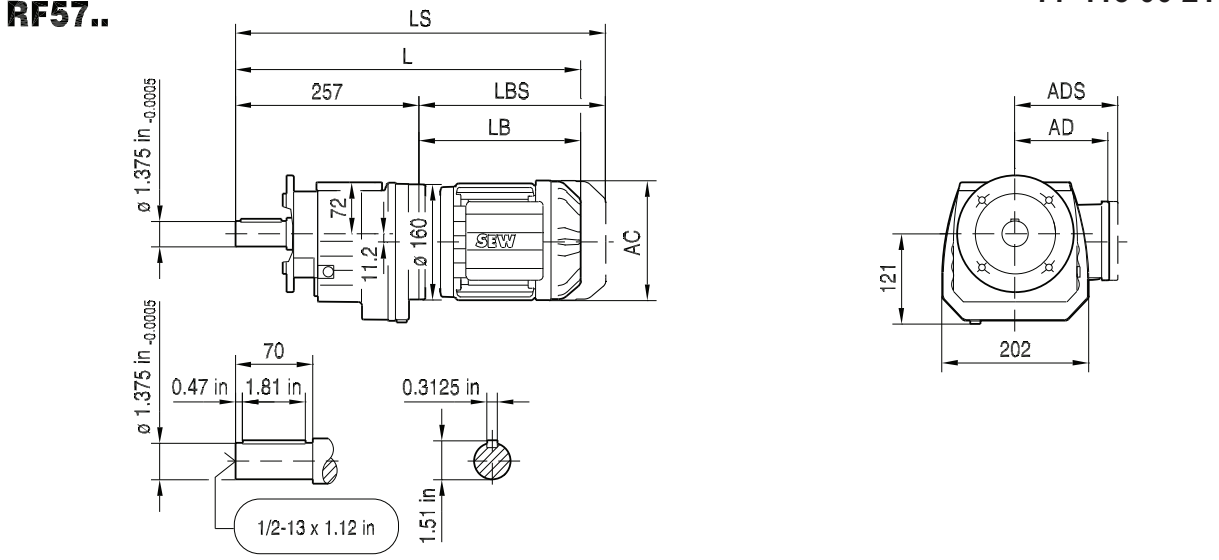
(→ 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	441	455	456	476	487	532	534	566	612	643	697	715
LS	497	511	524	544	568	613	627	659	706	755	809	853
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

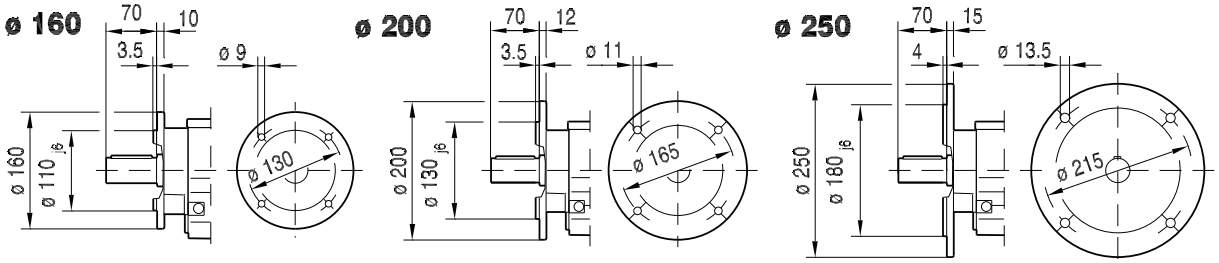
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

24833231/EN-US – 07/2021

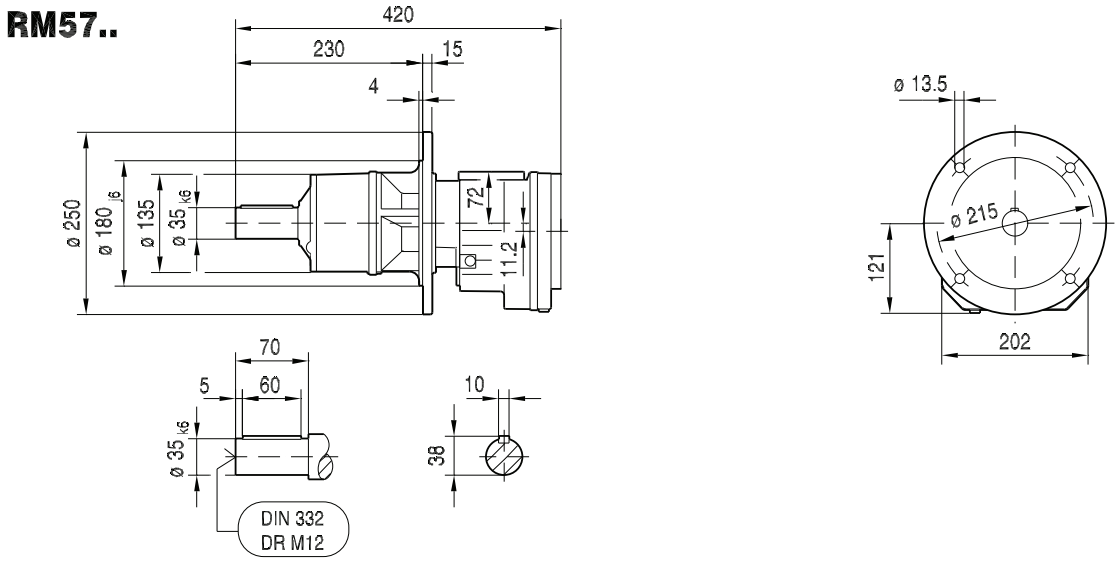
77 415 00 21

RF57..





RM57..



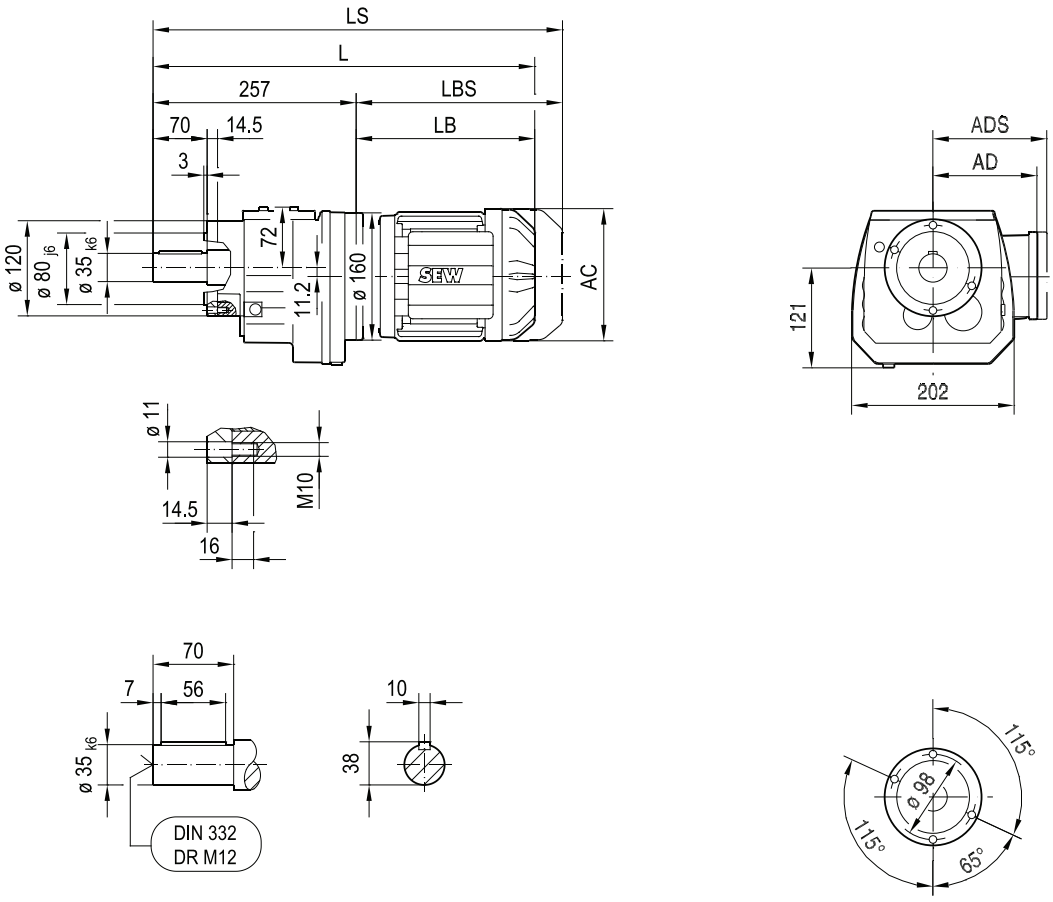
(→ 🗎 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	441	455	456	476	487	532	534	566	612	643	697	715
LS	497	511	524	544	568	613	627	659	706	755	809	853
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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RZ57..

77 416 00 21



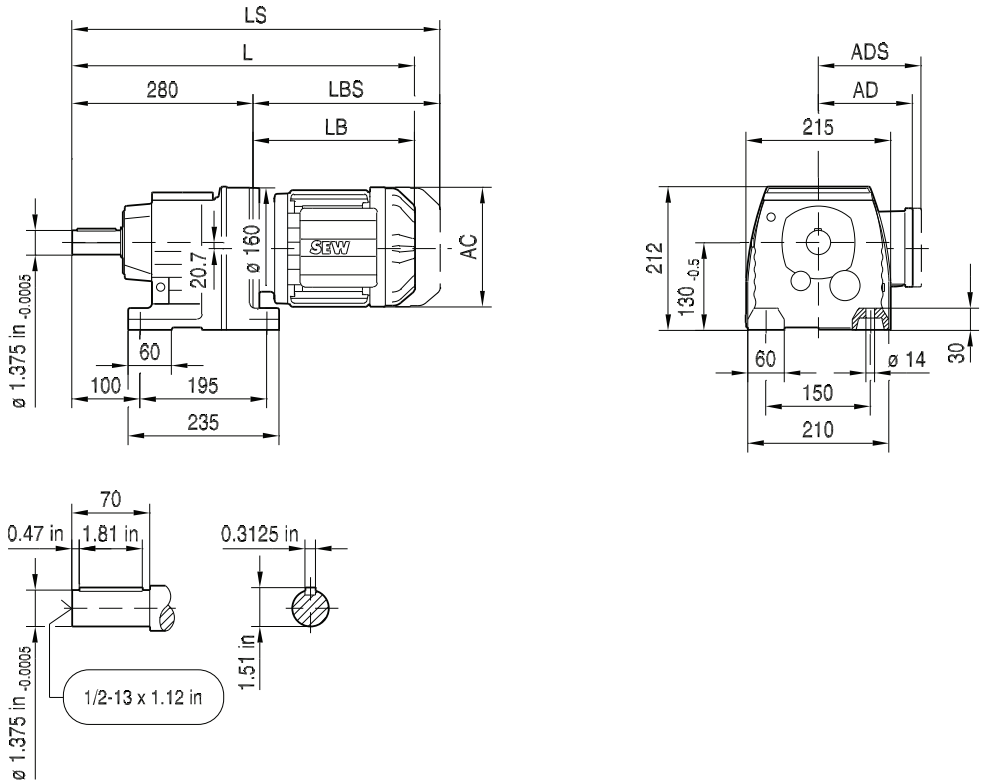
(→ 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	441	455	456	476	487	532	534	566	612	643	697	715
LS	497	511	524	544	568	613	627	659	706	755	809	853
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

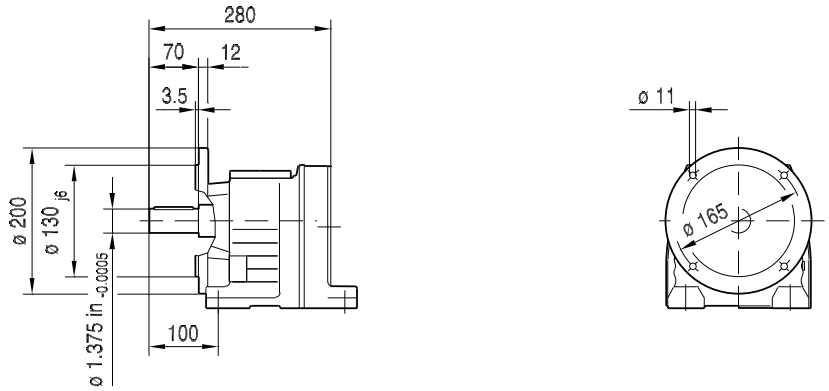
24833231/EN-US – 07/2021

77 417 00 21

R67..



R67F..



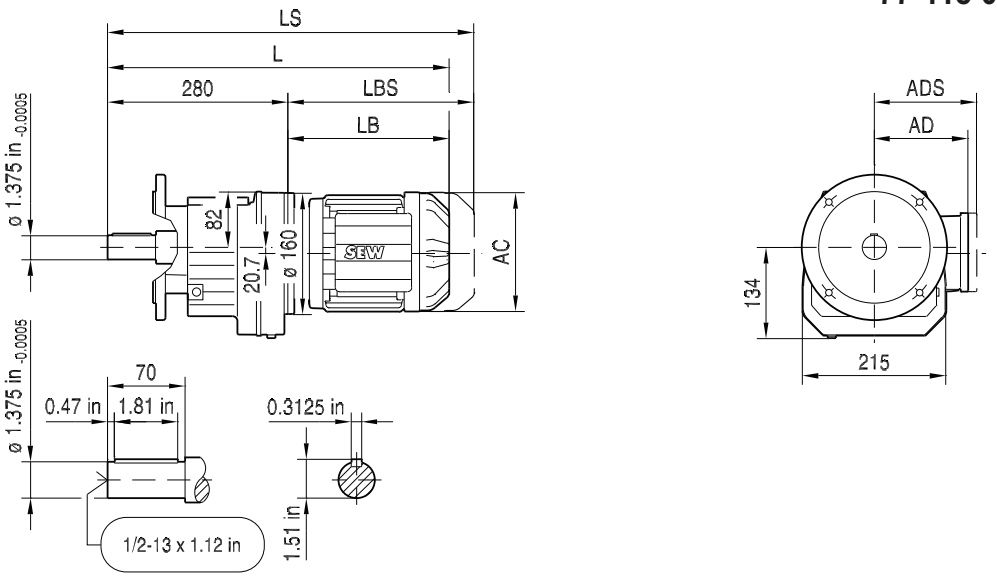
(→ 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	464	478	479	499	510	555	557	589	635	666	720	738
LS	520	534	547	567	591	636	650	682	729	778	832	876
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

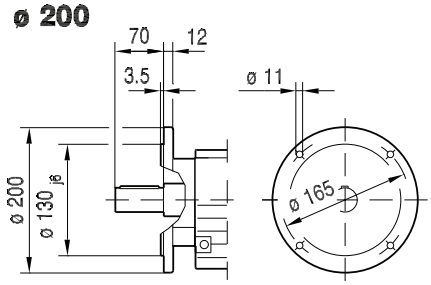
24833231/EN-US – 07/2021

77 418 00 21

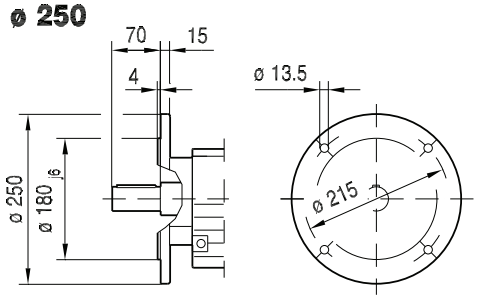
RF67..



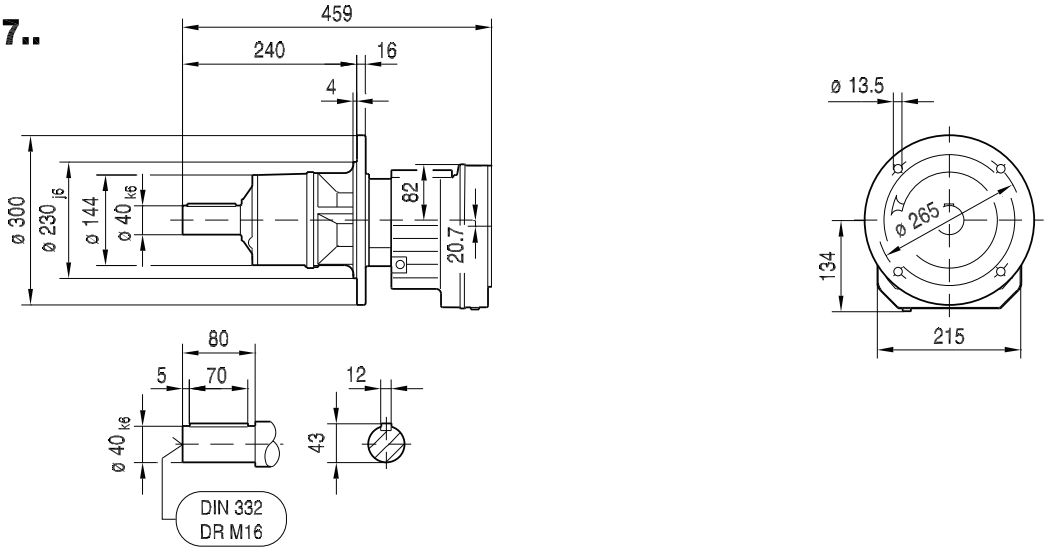
ø 200



ø 250



RM67..



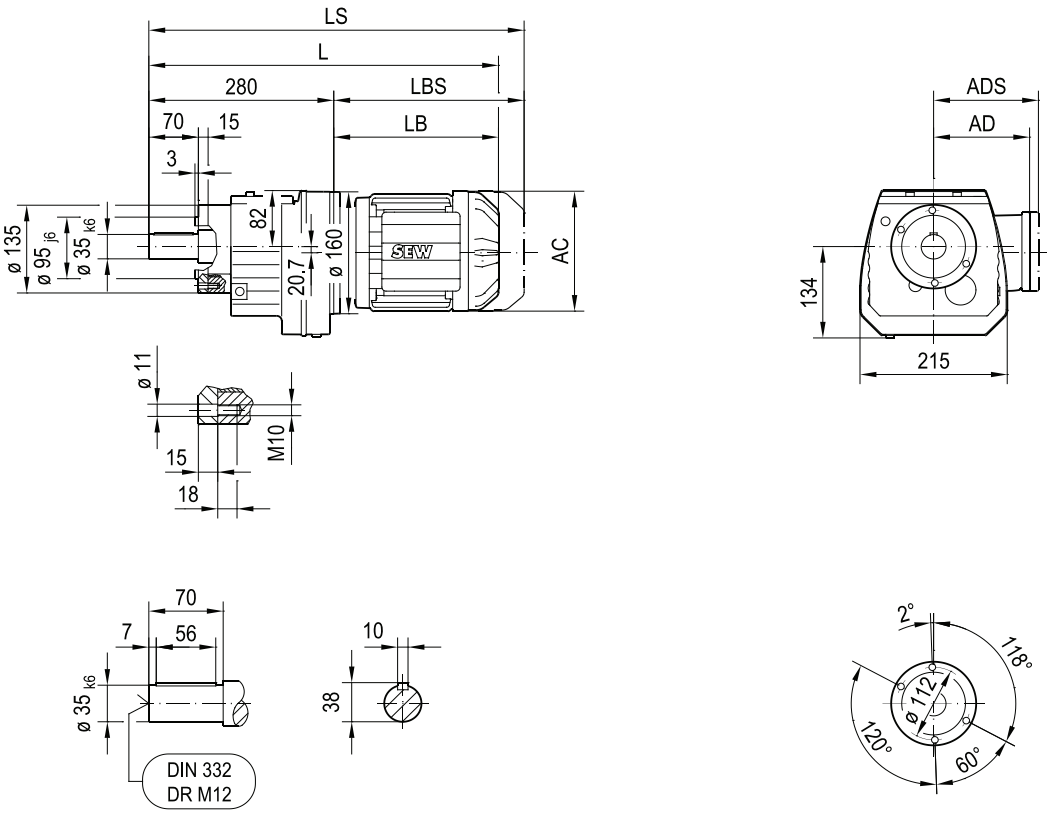
(→ 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	464	478	479	499	510	555	557	589	635	666	720	738
LS	520	534	547	567	591	636	650	682	729	778	832	876
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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77 419 00 21

RZ67..



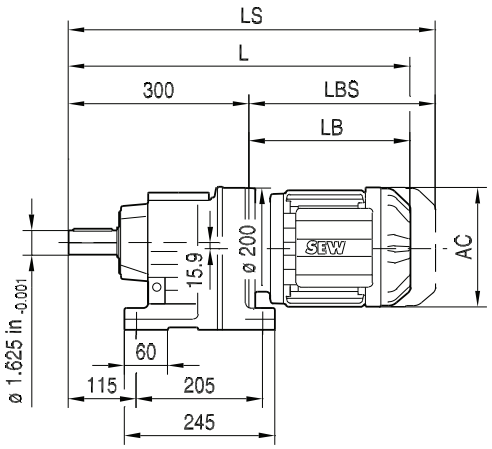
(→ 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	464	478	479	499	510	555	557	589	635	666	720	738
LS	520	534	547	567	591	636	650	682	729	778	832	876
LB	184	198	199	219	230	275	27I7	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

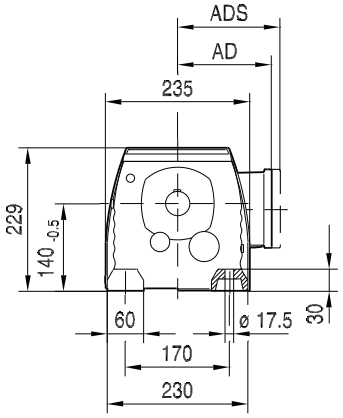
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

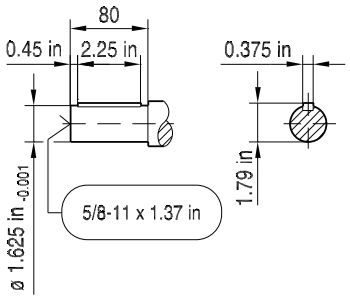
24833231/EN-US – 07/2021

77 420 00 21

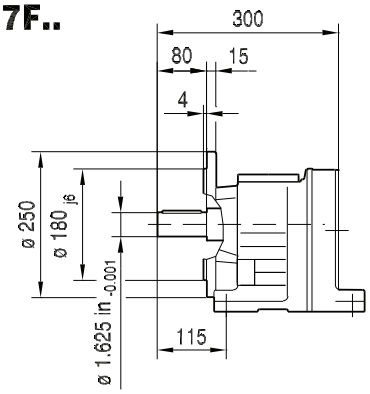
R77..

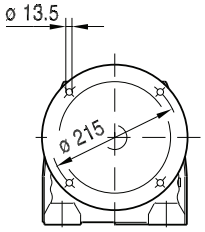






R77F..





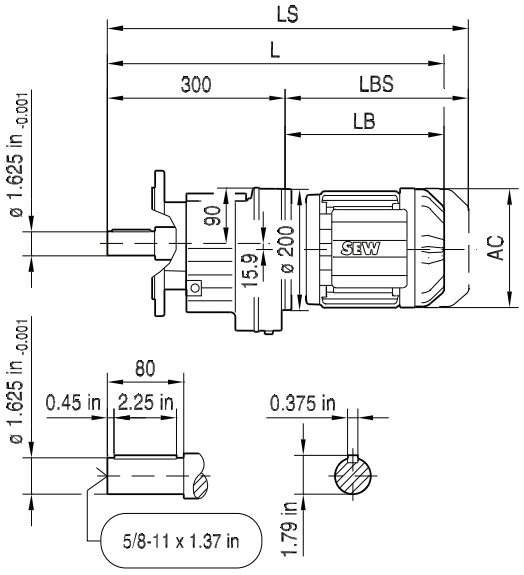
(→ 162)	DRN												
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	115	139	139	156	156	179	179	197	221	221	261	261	314
AD	98	118	118	128	128	140	140	157	170	170	228	228	253
ADS	98	129	129	139	139	150	150	158	172	172	228	228	253
L	491	492	512	523	568	570	602	648	679	729	747	773	839
LS	547	560	580	604	649	663	695	742	791	841	885	910	1028
LB	191	192	212	223	268	270	302	348	379	429	447	473	539
LBS	247	260	280	304	349	363	395	442	491	541	585	610	728

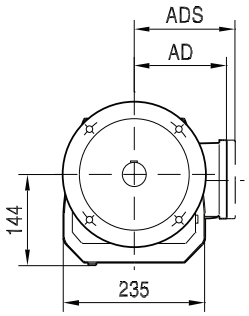
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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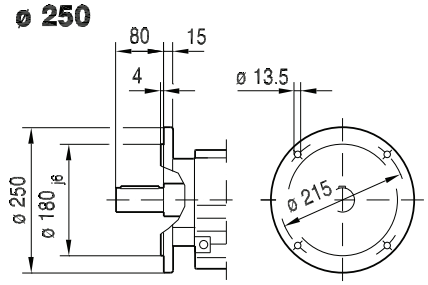
77 421 00 21

RF77..

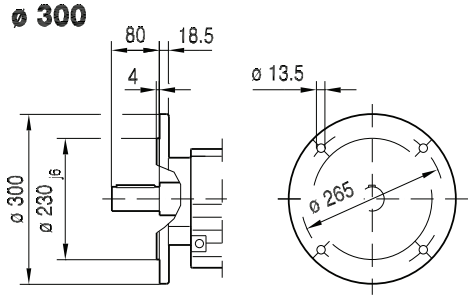




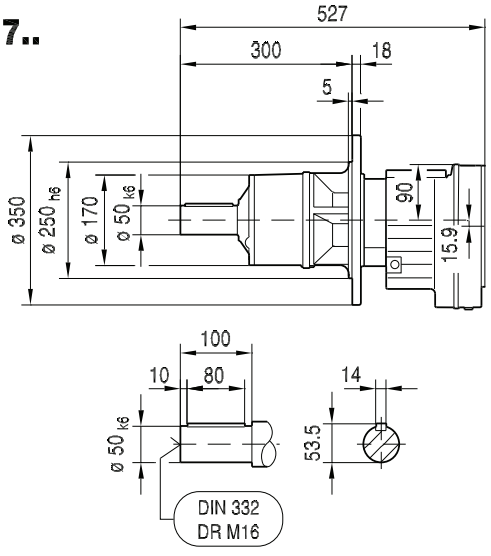
ø 250

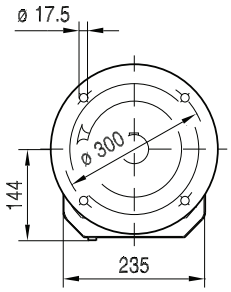


ø 300



RM77..





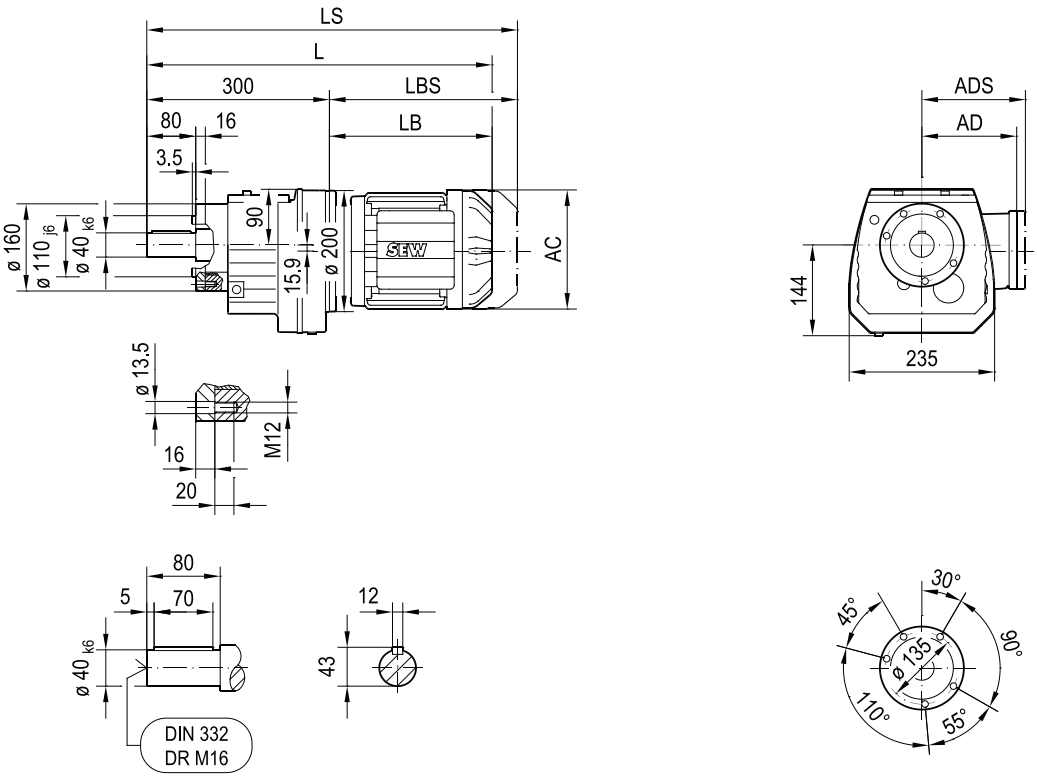
(→ 162)	DRN												
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	115	139	139	156	156	179	179	197	221	221	261	261	314
AD	98	118	118	128	128	140	140	157	170	170	228	228	253
ADS	98	129	129	139	139	150	150	158	172	172	228	228	253
L	491	492	512	523	568	570	602	648	679	729	747	773	839
LS	547	560	580	604	649	663	695	742	791	841	885	910	1028
LB	191	192	212	223	268	270	302	348	379	429	447	473	539
LBS	247	260	280	304	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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77 422 00 21

RZ77..



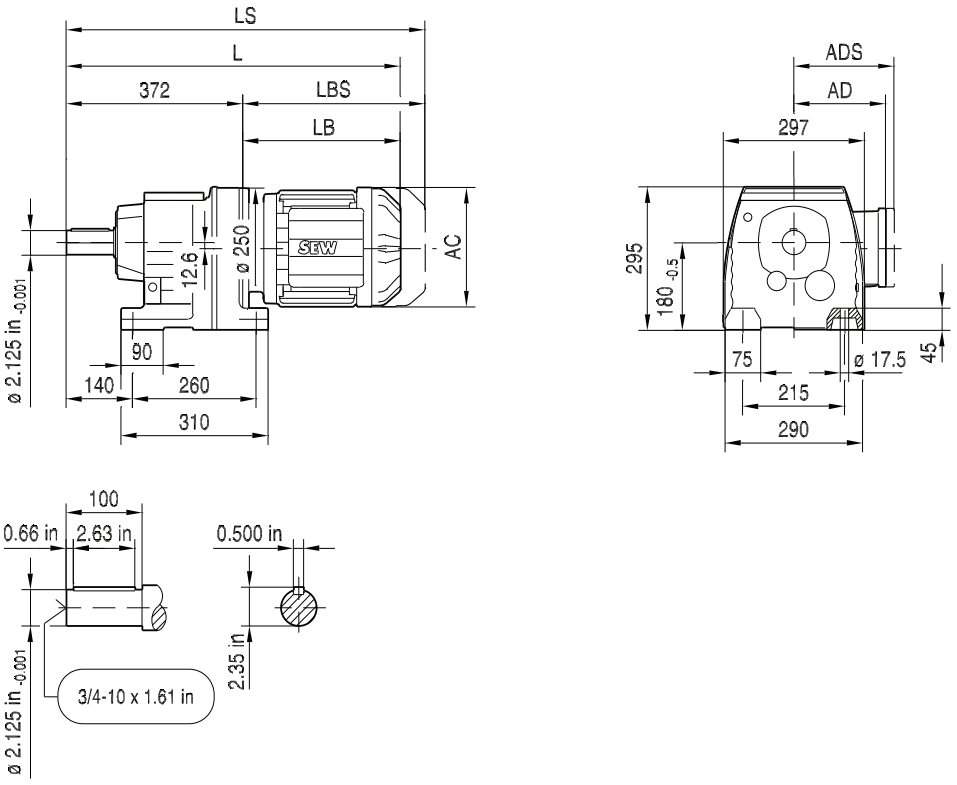
(→ 162)	DRN												
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	115	139	139	156	156	179	179	197	221	221	261	261	314
AD	98	118	118	128	128	140	140	157	170	170	228	228	253
ADS	98	129	129	139	139	150	150	158	172	172	228	228	253
L	491	492	512	523	568	570	602	648	679	729	747	773	839
LS	547	560	580	604	649	663	695	742	791	841	885	910	1028
LB	191	192	212	223	268	270	302	348	379	429	447	473	539
LBS	247	260	280	304	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

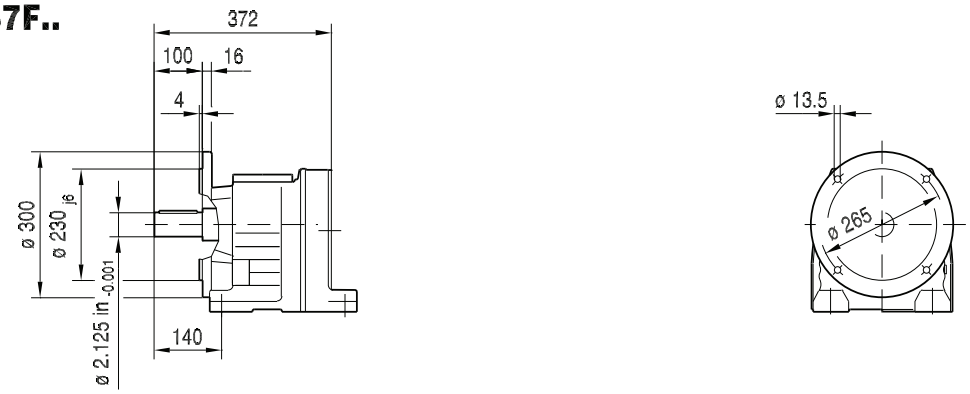
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77 423 00 21

R87..



R87F..



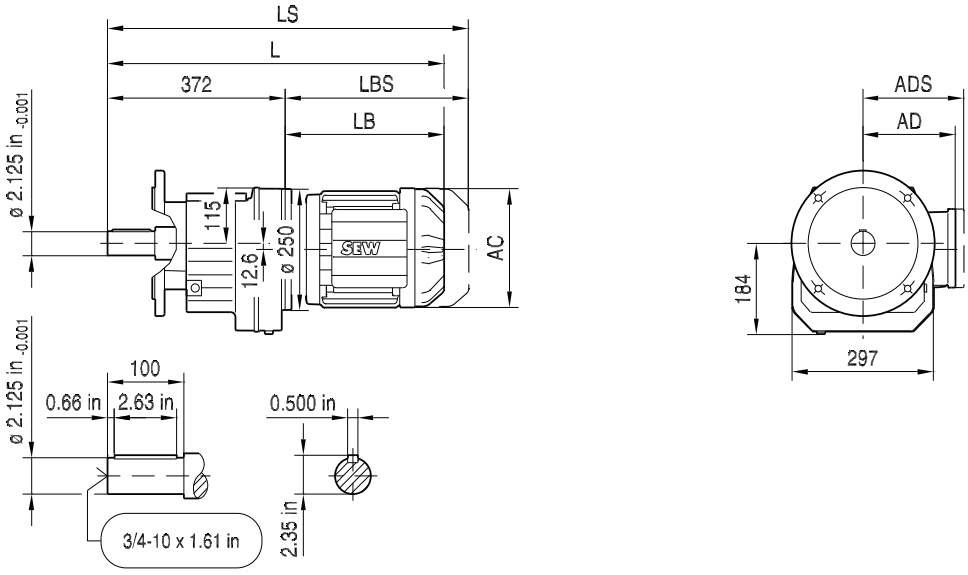
(→ 🗎 162)	DRN										
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	156	179	179	197	221	221	261	261	314	357
AD	128	128	140	140	157	170	170	228	228	253	268
ADS	139	139	150	150	158	172	172	228	228	253	268
L	590	635	637	669	715	746	796	814	840	906	929
LS	671	716	730	762	809	858	908	952	977	1095	1118
LB	218	263	265	297	343	374	424	442	468	534	557
LBS	299	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

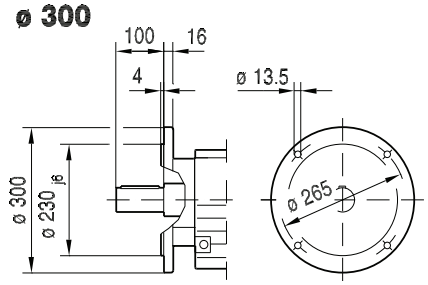
24833231/EN-US – 07/2021

77 424 00 21

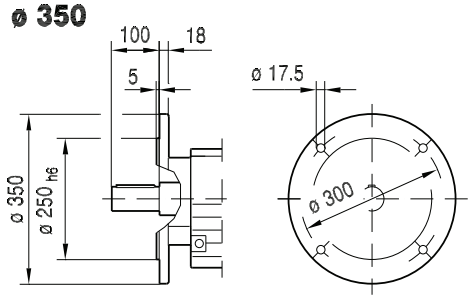
RF87..



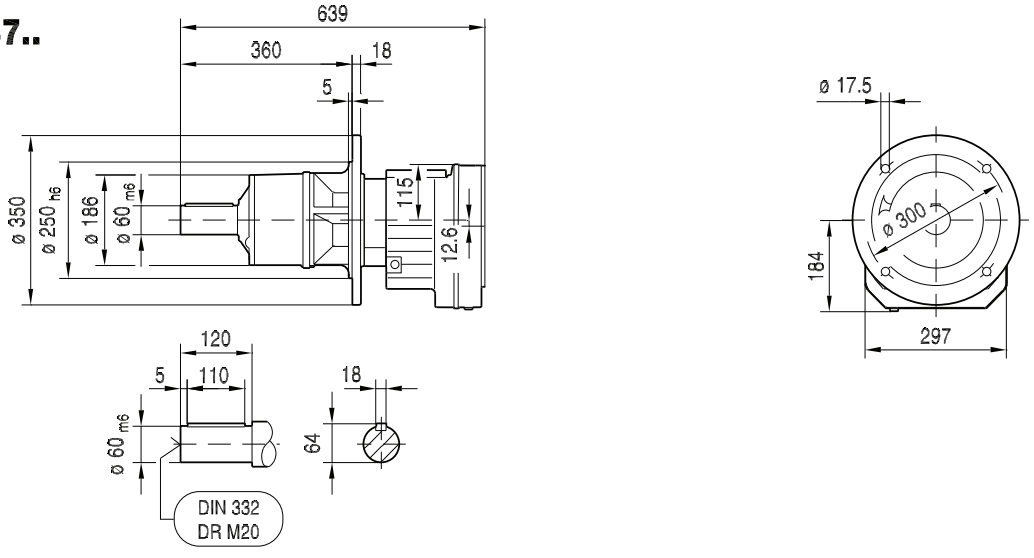
ø 300



ø 350



RM87..



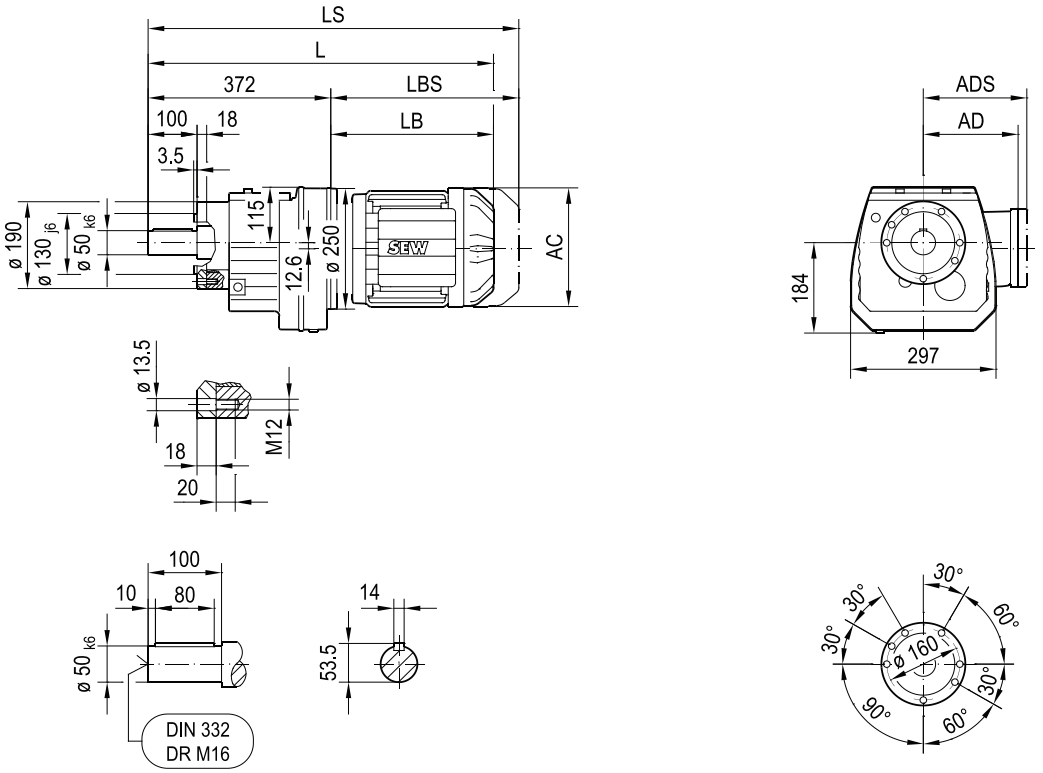
(→ 🗎 162)	DRN										
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	156	179	179	197	221	221	261	261	314	357
AD	128	128	140	140	157	170	170	228	228	253	268
ADS	139	139	150	150	158	172	172	228	228	253	268
L	590	635	637	669	715	746	796	814	840	906	929
LS	671	716	730	762	809	858	908	952	977	1095	1118
LB	218	263	265	297	343	374	424	442	468	534	557
LBS	299	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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RZ87..

77 425 00 21



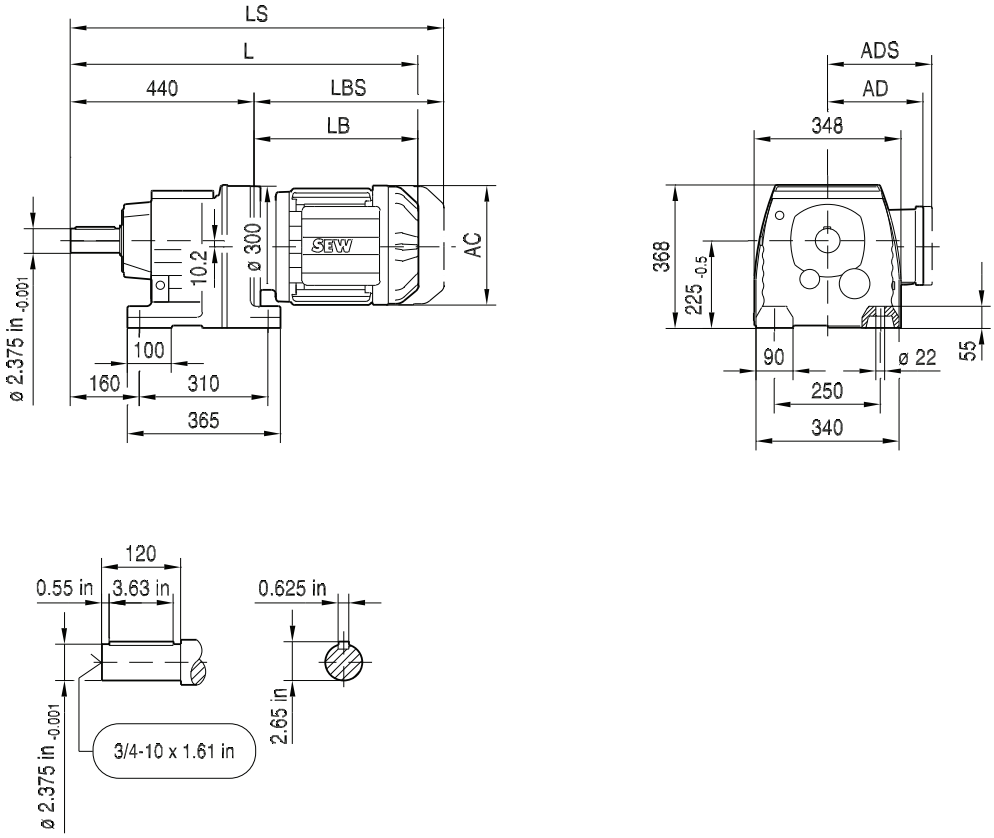
(→ 162)	DRN										
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	156	179	179	197	221	221	261	261	314	357
AD	128	128	140	140	157	170	170	228	228	253	268
ADS	139	139	150	150	158	172	172	228	228	253	268
L	590	635	637	669	715	746	796	814	840	906	929
LS	671	716	730	762	809	858	908	952	977	1095	1118
LB	218	263	265	297	343	374	424	442	468	534	557
LBS	299	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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77 426 00 21

R97..



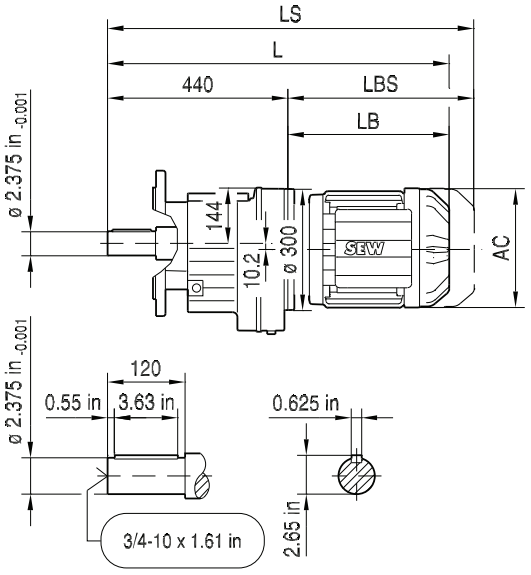
(→ 162)	DRN												
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180	200	225
AC	156	156	179	179	197	221	221	261	261	314	357	394	434
AD	128	128	140	140	157	170	170	228	228	253	268	283	305
ADS	139	139	150	150	158	172	172	228	228	253	268	283	305
L	653	698	700	732	778	809	859	877	903	969	992	1102	1076
LS	734	779	793	825	872	921	971	1015	1040	1158	1181	1307	1281
LB	213	258	260	292	338	369	419	437	463	529	552	662	636
LBS	294	339	353	385	432	481	531	575	600	718	741	867	841

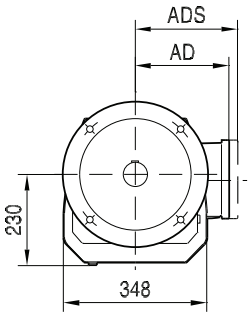
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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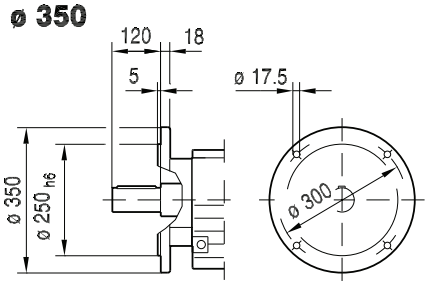
77 427 00 21

RF97..

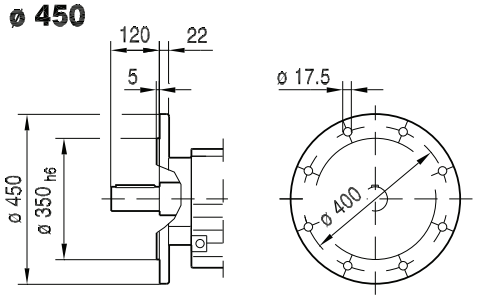




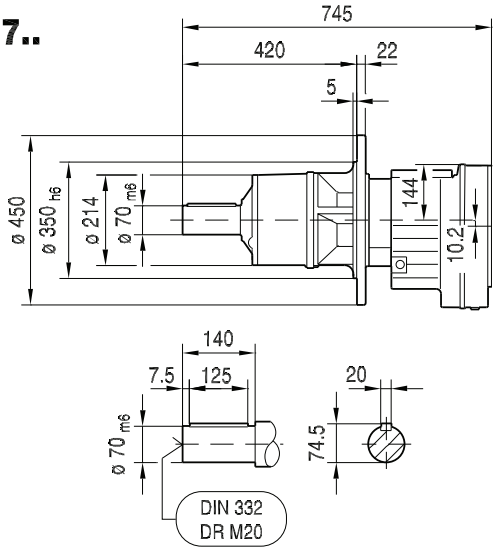
ø 350

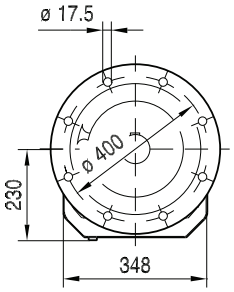


ø 450



RM97..





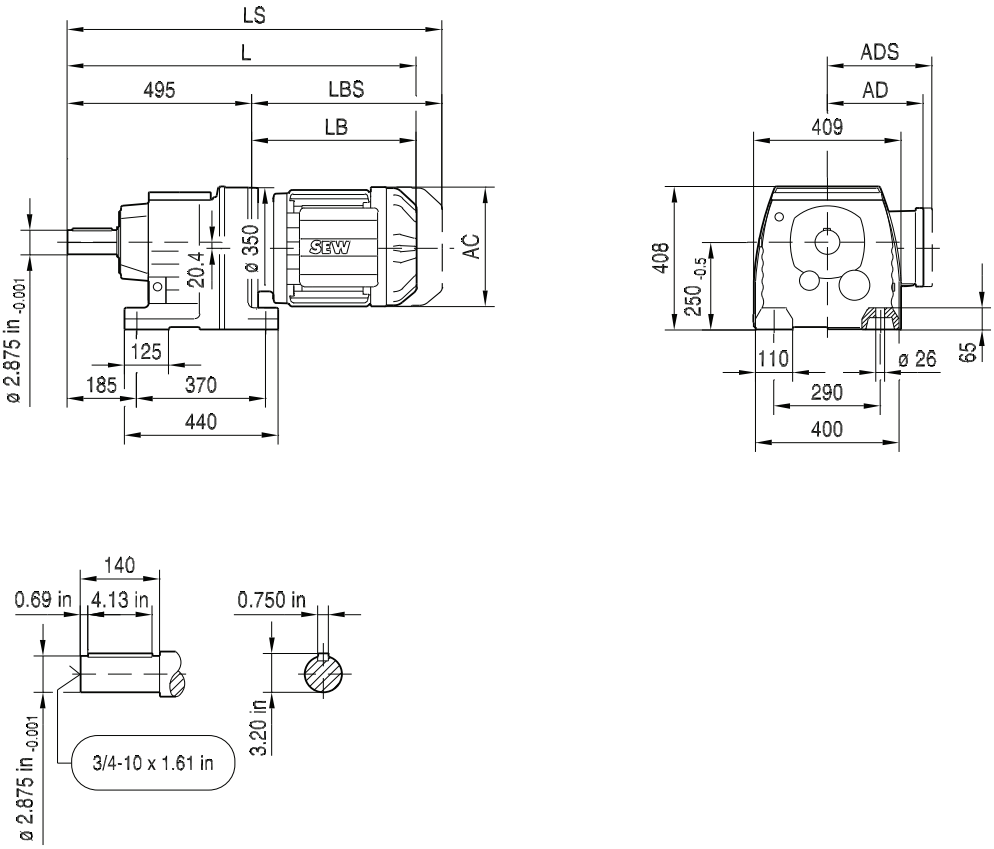
(→ 162)	DRN												
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180	200	225
AC	156	156	179	179	197	221	221	261	261	314	357	394	434
AD	128	128	140	140	157	170	170	228	228	253	268	283	305
ADS	139	139	150	150	158	172	172	228	228	253	268	283	305
L	653	698	700	732	778	809	859	877	903	969	992	1102	1076
LS	734	779	793	825	872	921	971	1015	1040	1158	1181	1307	1281
LB	213	258	260	292	338	369	419	437	463	529	552	662	636
LBS	294	339	353	385	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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77 428 00 21

R107..



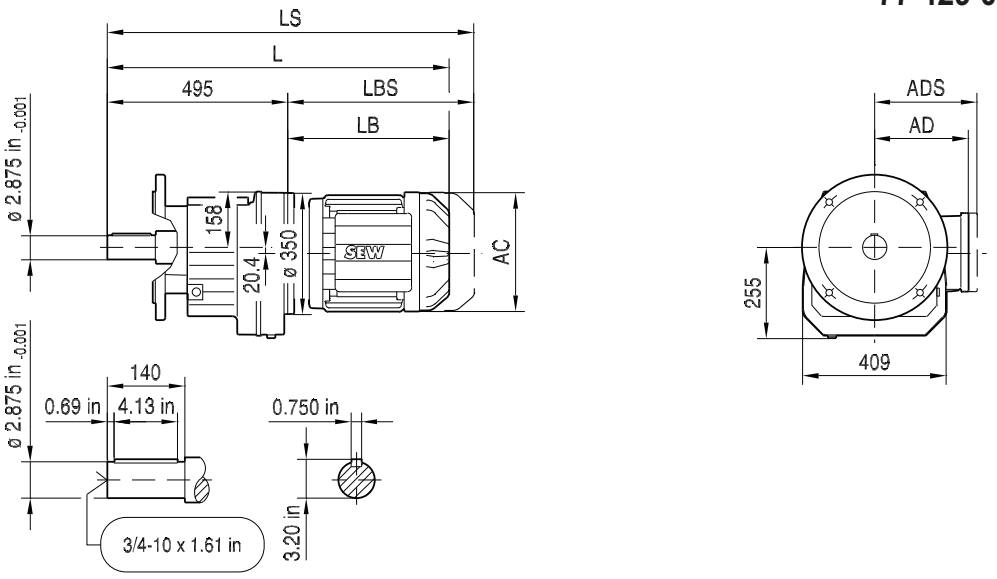
(→ 🗎 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	827	858	908	926	952	1018	1041	1151	1125
LS	921	970	1020	1064	1089	1207	1230	1356	1330
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

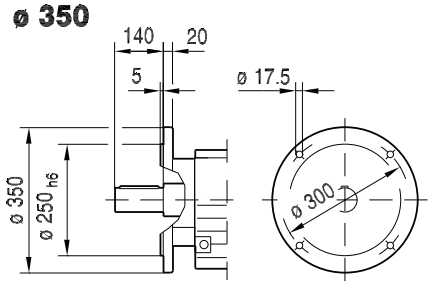
24833231/EN-US – 07/2021

77 429 00 21

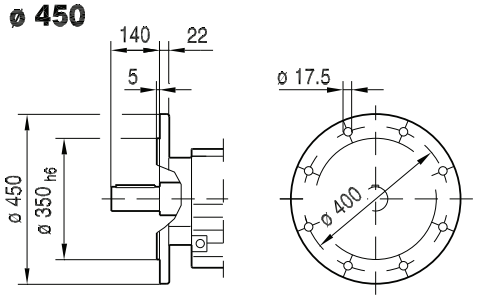
RF107..



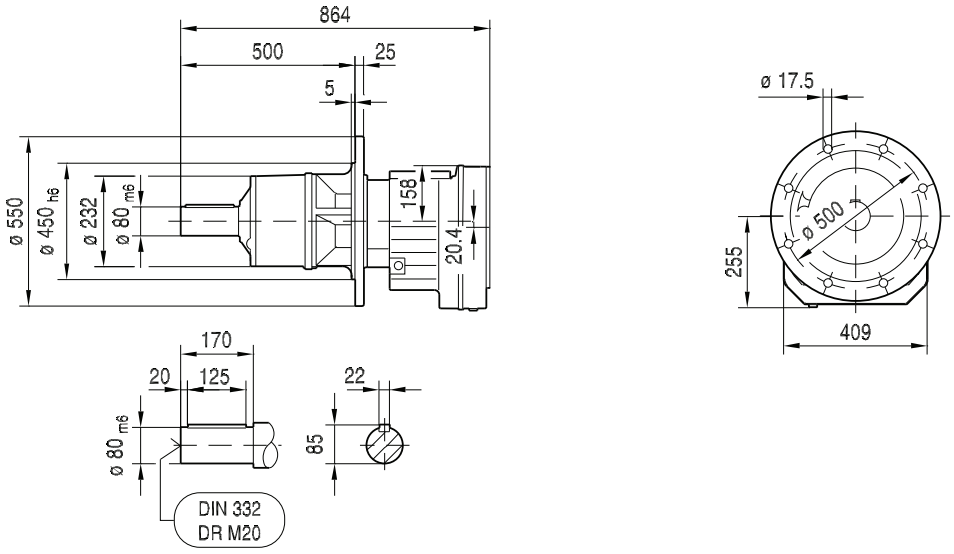
ø 350



ø 450



RM107..



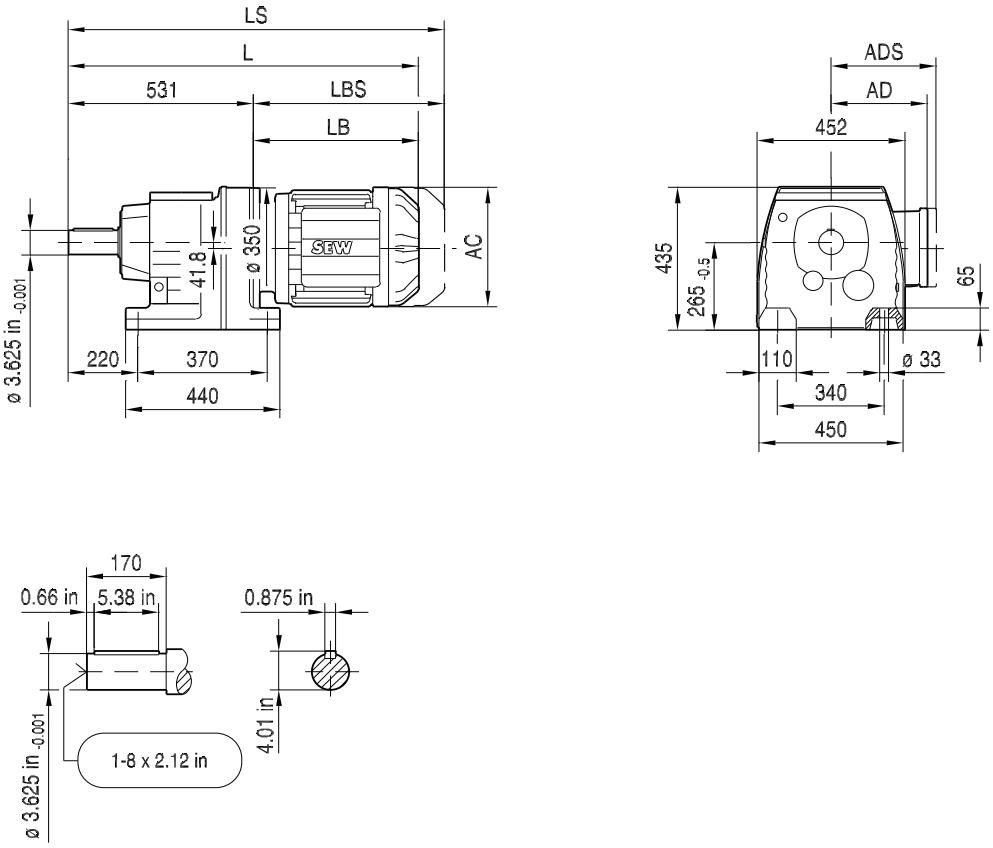
(→ 🗎 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	827	858	908	926	952	1018	1041	1151	1125
LS	921	970	1020	1064	1089	1207	1230	1356	1330
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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R127..

77 430 00 21



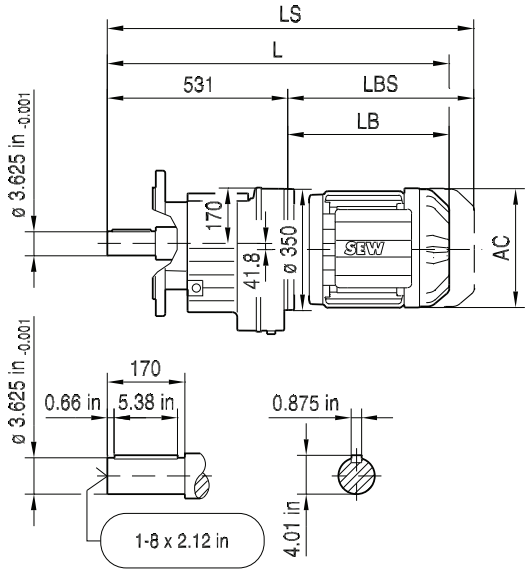
(→ 🗎 162)	DRN									
	100L/LM	112M	132S	132M	132L	160	180	200L	225	250M
AC	197	221	221	261	261	314	357	394	434	495
AD	157	170	170	228	228	253	268	283	305	394
ADS	158	172	172	228	228	253	268	283	305	394
L	863	894	944	962	988	1054	1077	1187	1161	1298
LS	957	1006	1056	1100	1125	1243	1266	1392	1366	1538
LB	332	363	413	431	457	523	546	656	630	767
LBS	426	475	525	569	594	712	735	861	835	1007

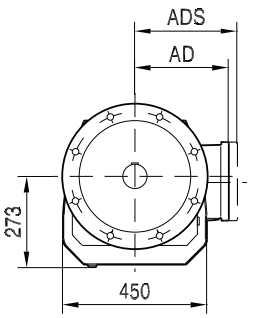
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

24833231/EN-US – 07/2021

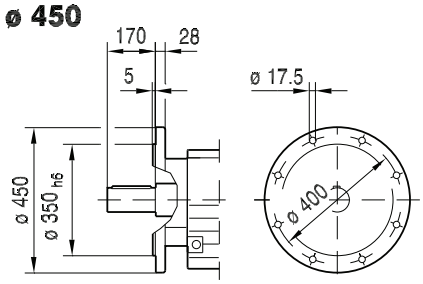
77 431 00 21

RF127..

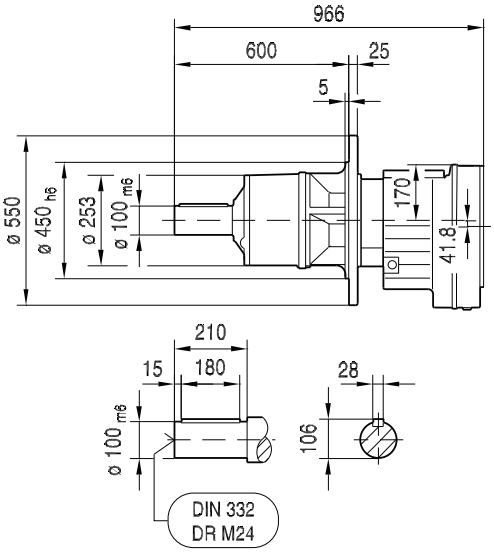


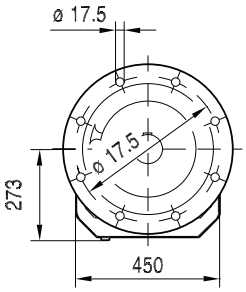


ø 450



RM127..



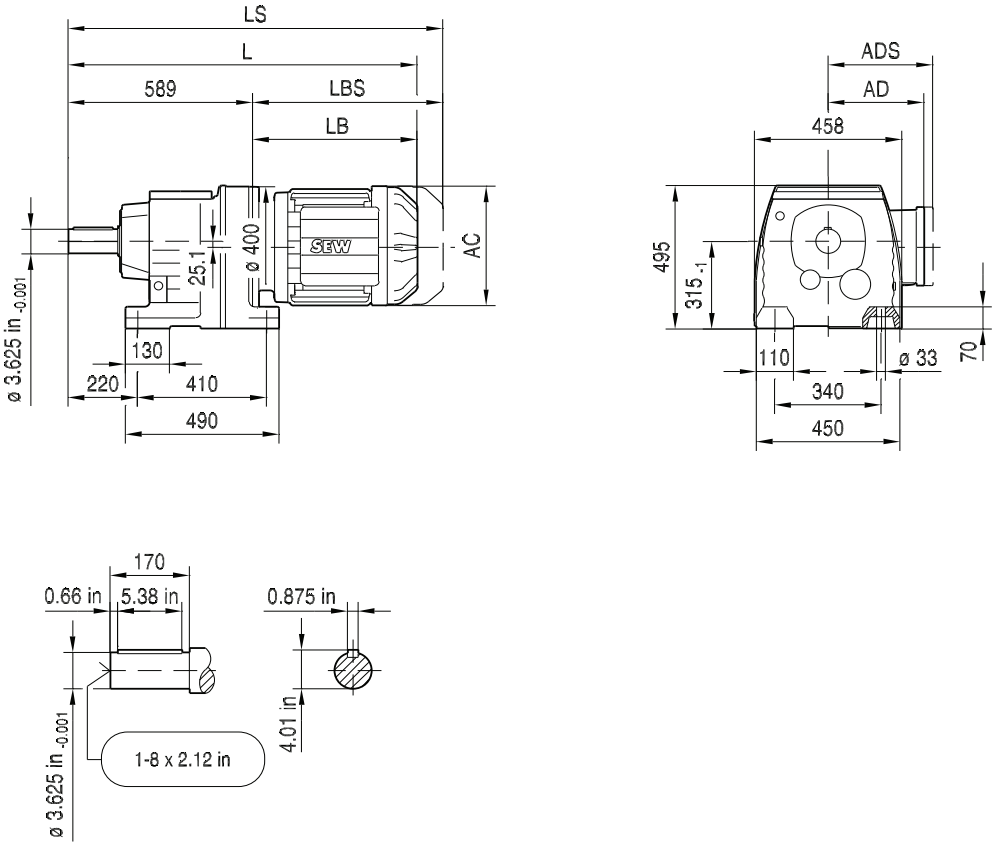


(→ 🗎 162)	DRN									
	100L/LM	112M	132S	132M	132L	160	180	200L	225	250M
AC	197	221	221	261	261	314	357	394	434	495
AD	157	170	170	228	228	253	268	283	305	394
ADS	158	172	172	228	228	253	268	283	305	394
L	863	894	944	962	988	1054	1077	1187	1161	1298
LS	957	1006	1056	1100	1125	1243	1266	1392	1366	1538
LB	332	363	413	431	457	523	546	656	630	767
LBS	426	475	525	569	594	712	735	861	835	1007

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

77 432 00 21

R137..



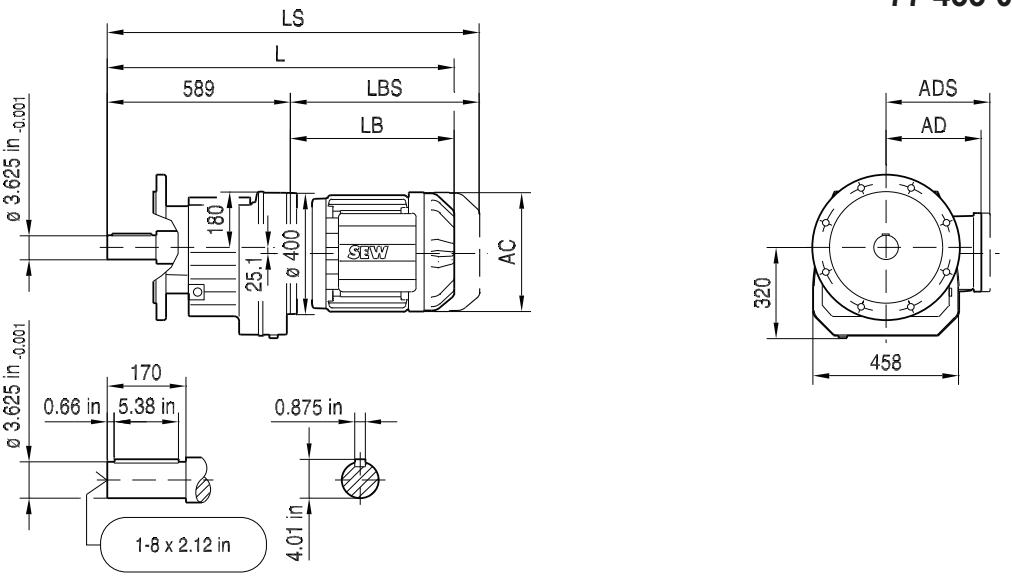
(→ 🗎 162)	DRN									
	132S	132M	132L	160	180	200L	225	250M	280S	280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	995	1013	1039	1105	1128	1238	1212	1349	1349	1444
LS	1107	1151	1176	1294	1317	1443	1417	1589	1589	1684
LB	406	424	450	516	539	649	623	760	760	855
LBS	518	562	587	705	728	854	828	1000	1000	1095

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

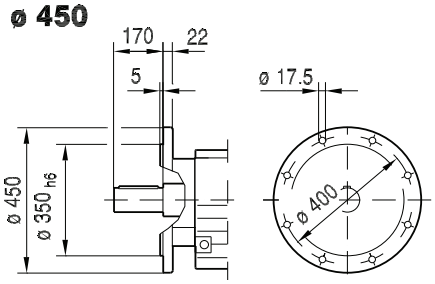
24833231/EN-US – 07/2021

77 433 00 21

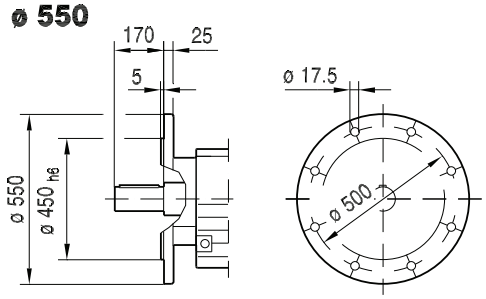
RF137..



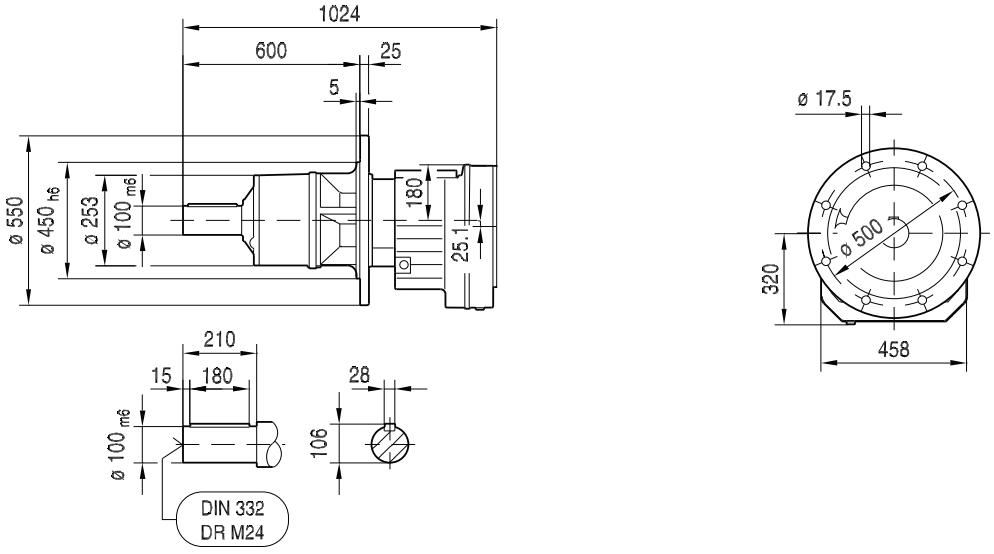
ø 450



ø 550



RM137..



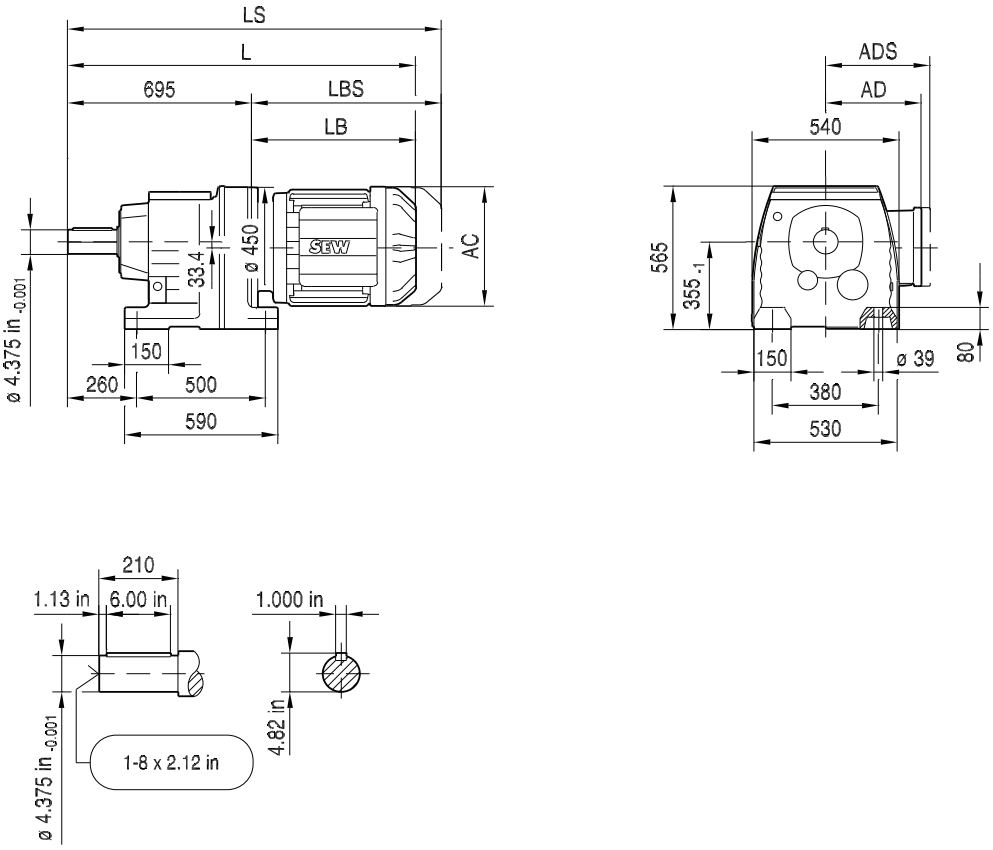
(→ 🗎 162)	DRN									
	132S	132M	132L	160	180	200L	225	250M	280S	280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	995	1013	1039	1105	1128	1238	1212	1349	1349	1444
LS	1107	1151	1176	1294	1317	1443	1417	1589	1589	1684
LB	406	424	450	516	539	649	623	760	760	855
LBS	518	562	587	705	728	854	828	1000	1000	1095

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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77 434 00 21

R147..



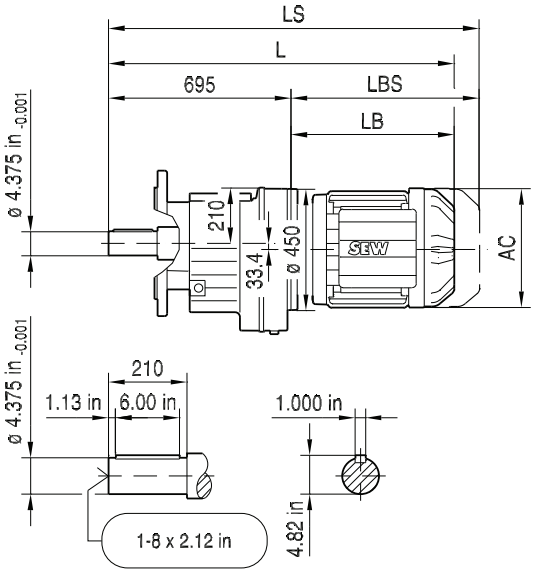
(→ 🗎 162)	DRN							
	132L	160	180	200L	225	250M	280S	280M
AC	261	314	357	394	434	495	495	495
AD	228	253	268	283	305	394	394	394
ADS	228	253	268	283	305	394	394	394
L	1137	1203	1226	1336	1310	1447	1447	1542
LS	1274	1392	1415	1541	1515	1687	1687	1782
LB	442	508	531	641	615	752	752	847
LBS	579	697	720	846	820	992	992	1087

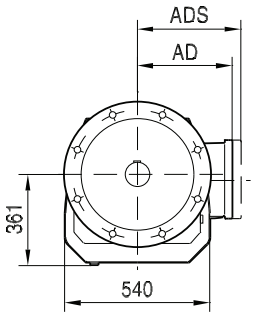
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

24833231/EN-US – 07/2021

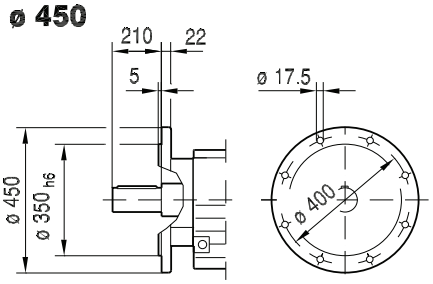
77 435 00 21

RF147..

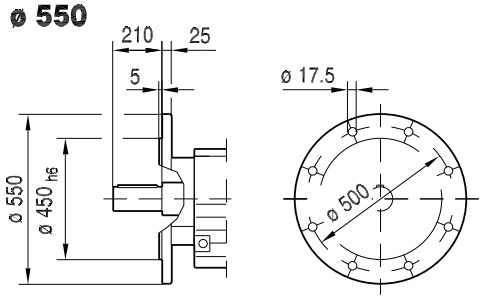




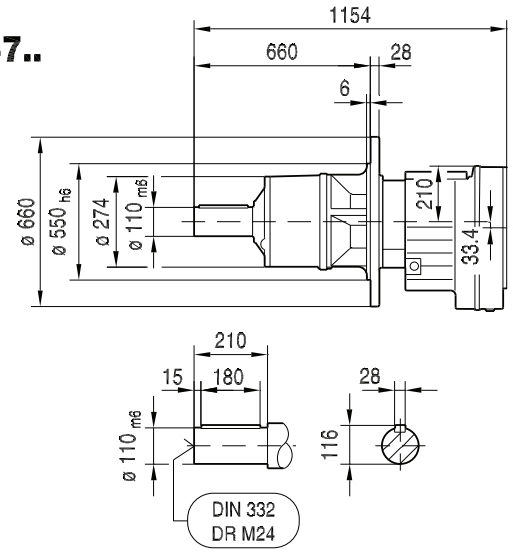
ø 450

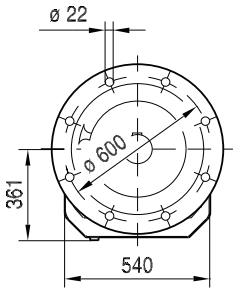


ø 550



RM147..





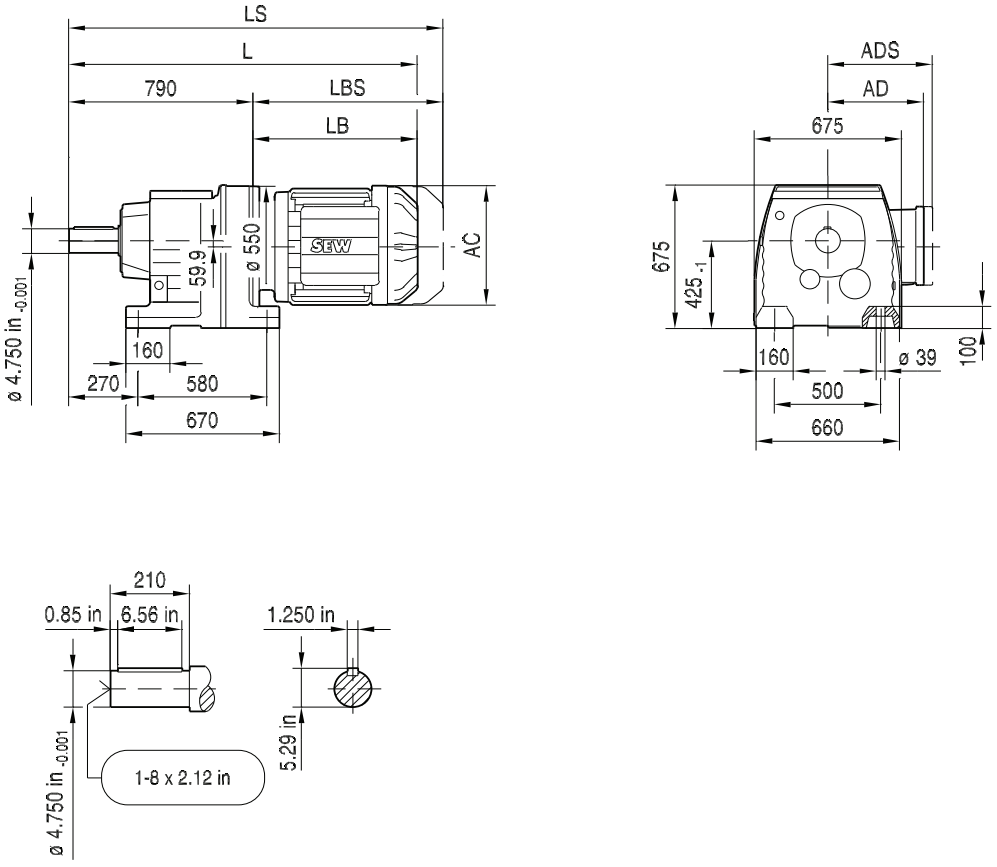
(→ 🗎 162)	DRN							
	132L	160	180	200L	225	250M	280S	280M
AC	261	314	357	394	434	495	495	495
AD	228	253	268	283	305	394	394	394
ADS	228	253	268	283	305	394	394	394
L	1137	1203	1226	1336	1310	1447	1447	1542
LS	1274	1392	1415	1541	1515	1687	1687	1782
LB	442	508	531	641	615	752	752	847
LBS	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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77 436 00 21

R167..



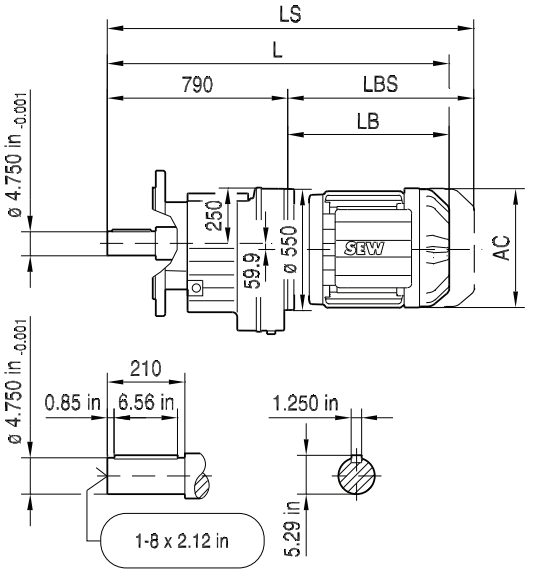
(→ 🗎 162)	DRN								
	160	180	200L	225	250M	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1290	1313	1423	1397	1534	1534	1629	1731	1861
LS	1479	1502	1628	1602	1774	1774	1869	1982	2112
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

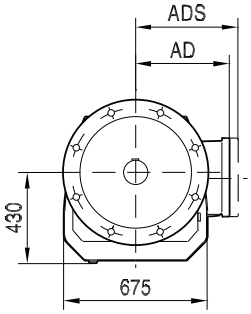
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

24833231/EN-US – 07/2021

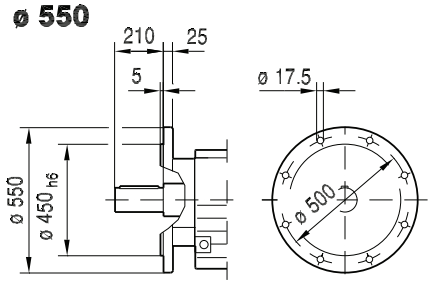
77 437 00 21

RF167..

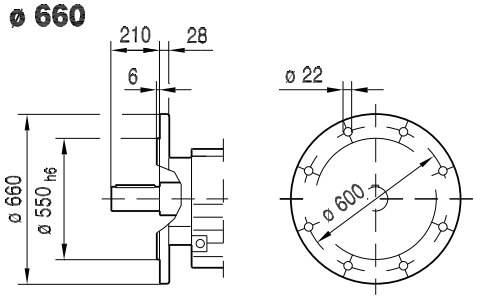




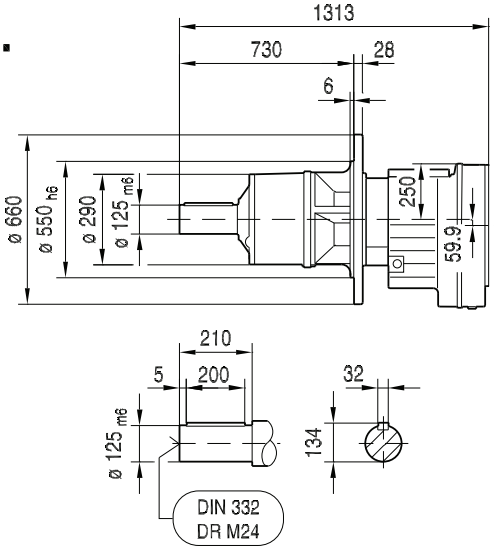
ø 550

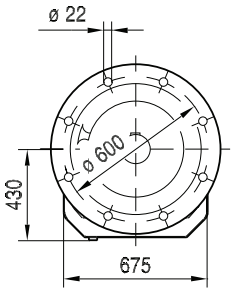


ø 660



RM167..





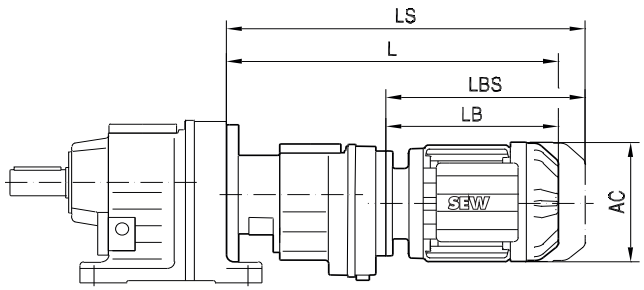
(→ 🗎 162)	DRN								
	160	180	200L	225	250M	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1290	1313	1423	1397	1534	1534	1629	1731	1861
LS	1479	1502	1628	1602	1774	1774	1869	1982	2112
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 162.

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8.6 R.. R.. DRN.. Compound dimensions

77 438 00 21



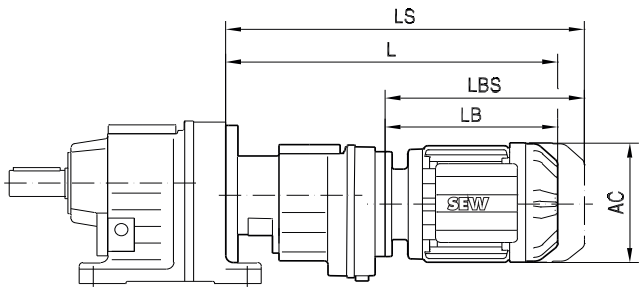
(All dimensions in mm)

Gear	DRN	AC	L	LS	LB	LBS
R..27R17	DRN63MS	115	365	421	190	246
	DRN63M	115	379	435	204	260
	DRN71MS	139	381	448	206	273
	DRN71M	139	401	468	226	293
R..37R17	DRN63MS	115	365	421	190	246
	DRN63M	115	379	435	204	260
	DRN71MS	139	381	448	206	273
	DRN71M	139	401	468	226	293
	DRN80MK	156	412	479	237	318
R..47R37	DRN63MS	115	355	411	190	246
	DRN63M	115	369	425	204	260
	DRN71MS	139	371	438	206	273
	DRN71M	139	391	458	226	293
	DRN80MK	156	402	483	237	318
R..57R37	DRN63MS	115	355	411	190	246
	DRN63M	115	369	425	204	260
	DRN71MS	139	371	438	206	273
	DRN71M	139	391	458	226	293
	DRN80MK	156	402	483	237	318
	DRN80M	156	447	528	282	363
R..67R37	DRN63MS	115	355	411	190	246
	DRN63M	115	369	425	204	260
	DRN71MS	139	371	438	206	273
	DRN71M	139	391	458	226	293
	DRN80MK	156	402	483	237	318
	DRN80M	156	447	528	282	363
R..77R37	DRN63MS	115	347	403	190	246
	DRN63M	115	361	417	204	260
	DRN71MS	139	371	438	206	273
	DRN71M	139	391	458	226	293
	DRN80MK	156	402	483	237	318
	DRN80M	156	447	528	282	363
	DRN90S	179	448	542	283	377
R..87R57	DRN63MS	115	411	467	184	240
	DRN63M	115	425	481	198	254
	DRN71MS	139	427	494	199	267
	DRN71M	139	447	514	219	287
	DRN80MK	156	458	539	230	311
	DRN80M	156	502	583	275	356
	DRN90S	179	504	597	277	370
	DRN90L	179	536	629	309	402
	DRN100L/LM	197	582	676	355	449

Gear	DRN	AC	L	LS	LB	LBS
R..97R57	DRN63MS	115	406	462	184	240
	DRN63M	115	420	476	198	254
	DRN71MS	139	422	489	199	267
	DRN71M	139	442	509	219	287
	DRN80MK	156	453	534	230	311
	DRN80M	156	497	578	275	356
	DRN90S	179	499	592	277	370
	DRN90L	179	531	624	309	402
	DRN100L/LM	197	578	671	355	448
R..107R77	DRN63MS	115	424	480	177	233
	DRN63M	115	438	494	191	247
	DRN71MS	139	439	507	192	260
	DRN71M	139	459	527	212	280
	DRN80MK	156	470	551	223	304
	DRN80M	156	515	596	268	349
	DRN90S	179	517	610	270	363
	DRN90L	179	549	642	302	395
	DRN100L/LM	197	595	688	348	441
	DRN112M	221	626	738	379	491
	DRN132S	221	676	788	429	541
R..127R77	DRN63MS	115	424	480	177	233
	DRN63M	115	438	494	191	247
	DRN71MS	139	439	507	192	260
	DRN71M	139	459	527	212	280
	DRN80MK	156	470	551	223	304
	DRN80M	156	515	596	268	349
	DRN90S	179	517	610	270	363
	DRN90L	179	549	642	302	395
	DRN100L/LM	197	595	688	348	441
	DRN112M	221	626	738	379	491
	DRN132S	221	676	788	429	541
	DRN132M	261	694	832	447	585
	DRN132L	261	720	857	473	610
	DRN160M	314	786	975	539	728
R..137R77	DRN63MS	115	417	473	177	233
	DRN63M	115	431	487	191	247
	DRN71MS	139	432	500	192	260
	DRN71M	139	452	520	212	280
	DRN80MK	156	463	544	223	304
	DRN80M	156	508	589	268	349
	DRN90S	179	510	603	270	363
	DRN90L	179	542	635	302	395

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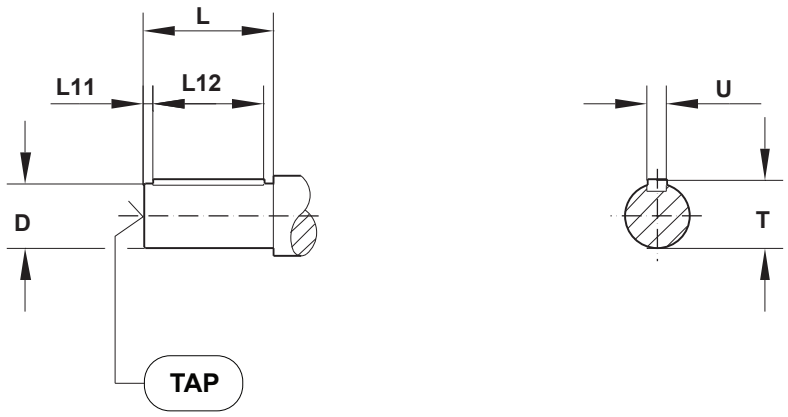


Gear	DRN	AC	L	LS	LB	LBS
R..137R77	DRN100L/LM	197	588	681	348	441
	DRN112M	221	619	731	379	491
	DRN132S	221	669	781	429	541
	DRN132M	261	685	824	445	584
	DRN132L	261	713	850	473	610
R..147R77	DRN63MS	115	409	465	177	233
	DRN63M	115	423	479	191	247
	DRN71MS	139	424	492	192	260
	DRN71M	139	444	512	212	280
	DRN80MK	156	455	536	223	304
	DRN80M	156	500	581	268	349
	DRN90S	179	502	595	270	363
	DRN90L	179	534	627	302	395
	DRN100L/LM	197	580	673	348	441
	DRN112M	221	611	723	379	491
	DRN132S	221	661	773	429	541
	DRN132M	261	679	817	447	585
R..147R87	DRN90L	179	577	670	297	390
	DRN100L/LM	197	623	716	343	436
	DRN112M	221	654	766	674	486
	DRN132S	221	704	816	424	536
	DRN132M	261	720	859	440	579
	DRN132L	261	745	884	465	604
	DRN160	314	814	1003	534	723
R..167R97	DRN71MS	139	507	575	182	250
	DRN71M	139	527	595	202	270
	DRN80MK	156	538	619	213	294
	DRN80M	156	583	664	258	339
	DRN90S	179	585	678	260	353
	DRN90L	179	617	710	292	385
	DRN100L/LM	197	663	756	338	431
	DRN112M	221	694	806	369	481
	DRN132S	221	744	856	419	531
	DRN132M	261	762	900	437	575
	DRN132L	261	788	925	463	600
	DRN160	314	854	1043	529	718
R..167R107	DRN100L/LM	197	714	807	332	425
	DRN112M	221	745	857	363	475
	DRN132S	221	795	907	413	525
	DRN132M	261	813	951	431	569
	DRN132L	261	839	976	457	594
	DRN160	314	905	1094	523	712
	DRN180	357	928	1117	546	735

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8.7 Output shaft sizes

8.7.1 Solid Shafts – Inch



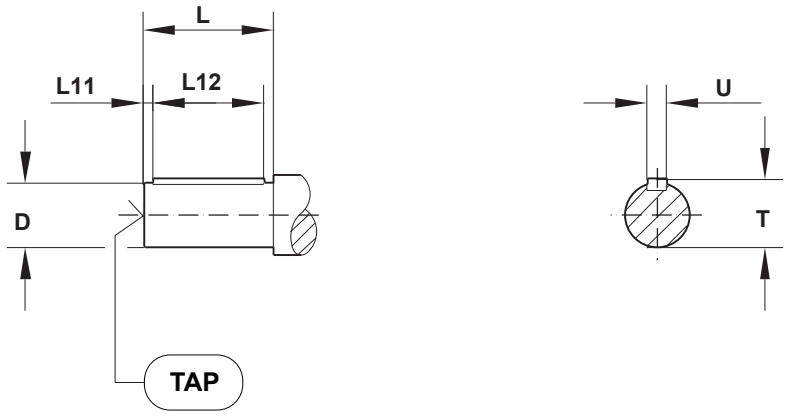
Model	All dimensions in inches							
	D	T	U	L[1]	L11	L12	TAP	Change[2]
R17 / RF17	0.75	0.83	3/16	1.57	0.25	1-1/16	1/4 - 20 x 0.63	0
R27 / RF27	1.00	1.11	1/4	1.97	0.26	1-5/16	3/8 - 16 x 0.87	0
R37 / RF37	1.00	1.11	1/4	1.97	0.26	1-5/16	3/8 - 16 x 0.87	0
R47 / RF47	1.25	1.36	1/4	2.36	0.26	1-11/16	1/2 - 13 x 1.12	0
R57 / RF57	1.25	1.36	1/4	2.36	0.28	1-11/16	1/2 - 13 x 1.12	-0.4
	1.375	1.51	5/16	2.76	0.43	1-13/16	1/2 - 13 x 1.12	0
R67 / RF67	1.375	1.51	5/16	2.76	0.43	1-13/16	1/2 - 13 x 1.12	0
R77 / RF77	1.625	1.79	3/8	3.15	0.38	2-1/4	5/8 - 11 x 1.38	0
R87 / RF87	2.125	2.35	1/2	3.94	0.64	2-5/8	3/4 - 10 x 1.61	0
R97 / RF97	2.375	2.65	5/8	4.72	0.51	3-5/8	3/4 - 10 x 1.61	0
R107 / RF107	2.875	3.2	3/4	5.51	0.67	4-1/8	3/4 - 10 x 1.61	0
R127 / RF127	3.625	4.01	7/8	6.69	0.63	5-3/8	1 - 8 x 2.13	0
R137 / RF137	3.625	4.01	7/8	6.69	0.63	5-3/8	1 - 8 x 2.13	0
R147 / RF147	4.375	4.82	1	8.27	1.09	6	1 - 8 x 2.13	0
R167 / RF167	4.75	5.29	1-1/4	8.27	0.82	6-9/16	1 - 8 x 2.13	0
RX / RXF57	0.75	0.83	3/16	1.57	0.23	1-1/16	1/4 - 20 x 0.63	0
RX / RXF67	1.00	1.11	1/4	1.97	0.26	1-5/16	3/8 - 16 x 0.87	0
RX / RXF77	1.25	1.36	1/4	2.36	0.26	1-11/16	1/2 - 13 x 1.12	0
	1.625	1.79	3/8	3.15	0.38	2-1/4	5/8 - 11 x 1.38	+0.79
RX / RXF87	1.625	1.79	3/8	3.15	0.38	2-1/4	5/8 - 11 x 1.38	0
	1.75	1.92	3/8	3.54	0.38	2-3/4	5/8 - 11 x 1.38	+0.39
RX / RXF97	2.125	2.35	1/2	3.94	0.64	2-5/8	3/4 - 10 x 1.61	0
RX / RXF107	2.375	2.65	5/8	4.72	0.51	3-5/8	3/4 - 10 x 1.61	0

[1]Longer shafts to match obsolete gear unit designs (ie: RF60/RF62/RF63) are available for flanged units.

[2]The change in length, L, when compared to the standard shaft that is shown in dimension pages.

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8.7.2 Solid Shafts – Metric



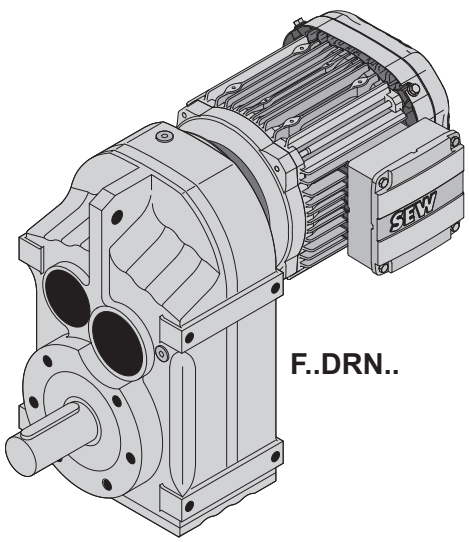
Model	All dimensions in mm						
	D	T	U	L[1]	L11	L12	TAP
R..17	20	22.5	6	40	4	32	M6 x 16
R..27	25	28	8	50	3.5	40	M10 x 22
R..37	25	28	8	50	3.5	50	M10 x 22
R..47	30	33	8	60	3.5	50	M10 x 22
R..57	30	33	8	60	7	50	M10 x 22
	35	38	10	70	7	56	M12 x 28
R..67	35	38	10	70	7	56	M12 x 28
R..77	40	43	12	80	5	70	M16 x 36
R..87	50	53.5	14	100	10	80	M16 x 36
R..97	60	64	18	120	5	110	M20 x 42
R..107	70	74.5	20	140	7.5	125	M20 x 42
R..127	90	95	25	170	5	160	M24 x 50
R..137	90	95	25	170	5	160	M24 x 50
R..147	110	116	28	210	15	180	M24 x 50
R..167	120	127	32	210	5	200	M24 x 50
RX..57	20	22.5	6	40	3.5	32	M6 x 16
RX..67	25	28	8	50	3.5	40	M10 x 22
RX..77	30	33	8	60	3.5	50	M10 x 22
	40	43	12	80	5	70	M16 x 36
RX..87	40	43	12	80	5	70	M16 x 36
	45	48.5	14	90	5	80	M16 x 36
RX..97	50	53.5	14	100	10	80	M16 x 36
RX..107	60	64	18	120	5	110	M20 x 42

[1] Longer shafts to match obsolete gear unit designs (ie: RF60/RF62/RF63) are available for flanged units.

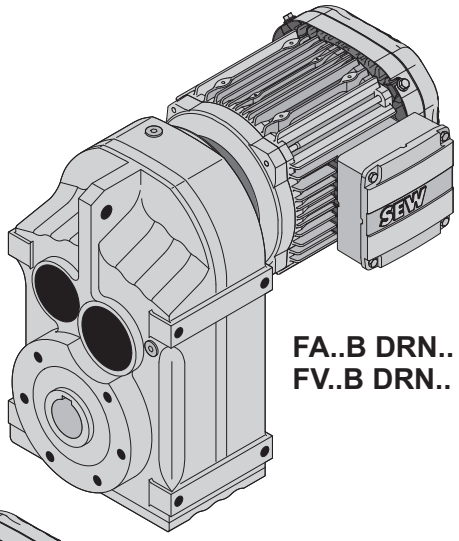
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9 theSnuggler® helical gearmotors

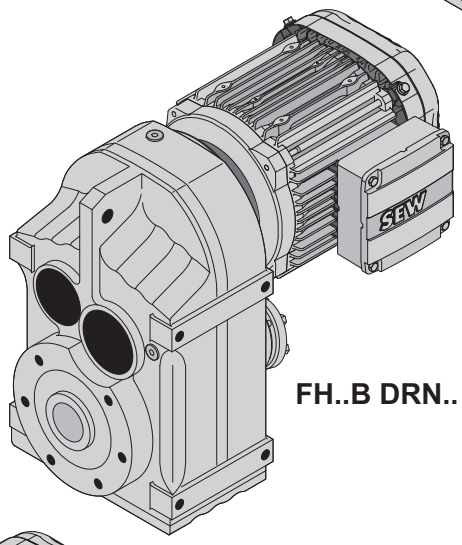
9.1 F.. DRN.. Designs



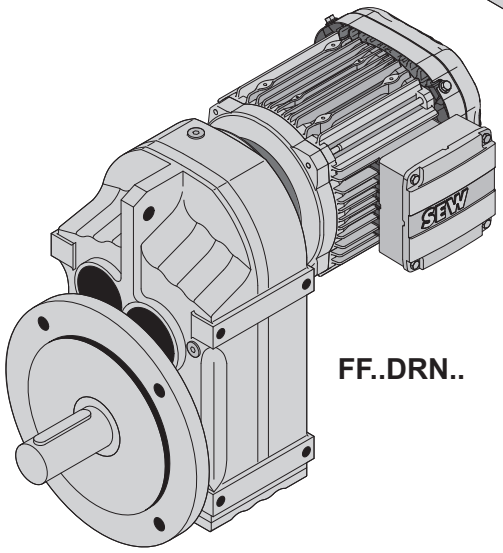
F..DRN..



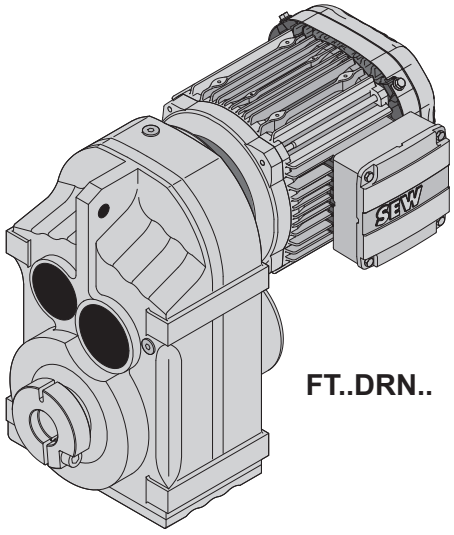
FA..B DRN..
FV..B DRN..



FH..B DRN..



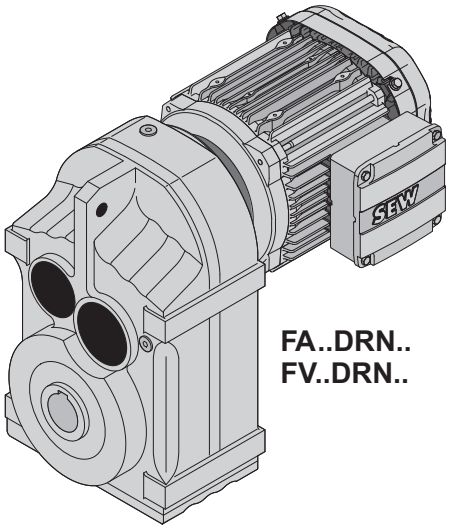
FF..DRN..



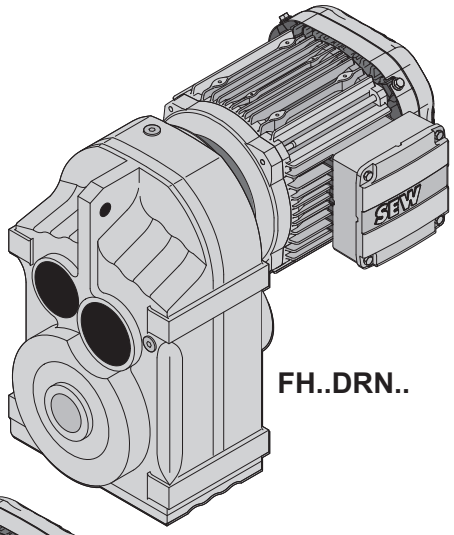
FT..DRN..

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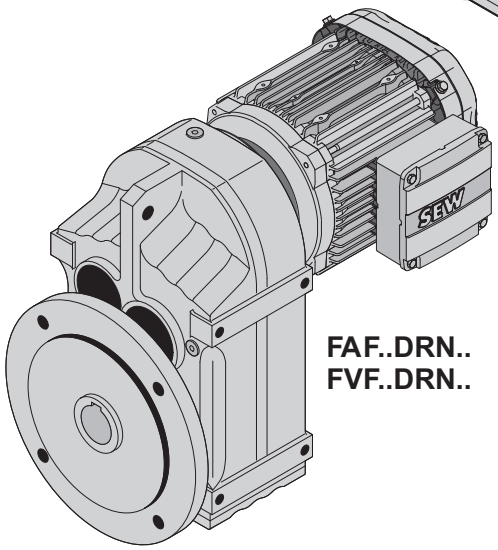
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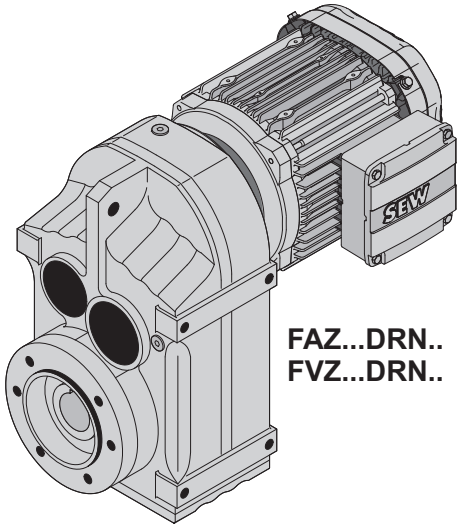
FA..DRN..
FV..DRN..



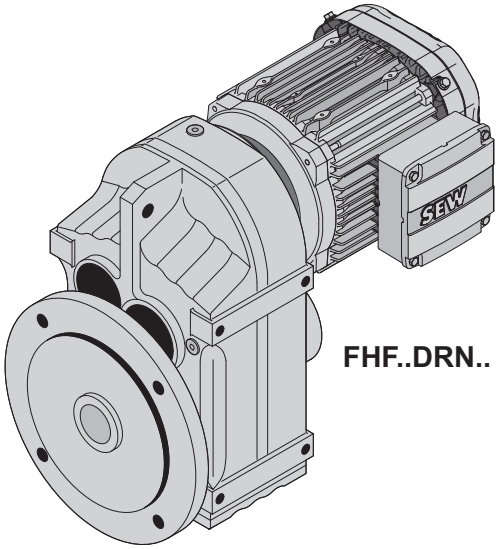
FH..DRN..



FAF..DRN..
FVF..DRN..



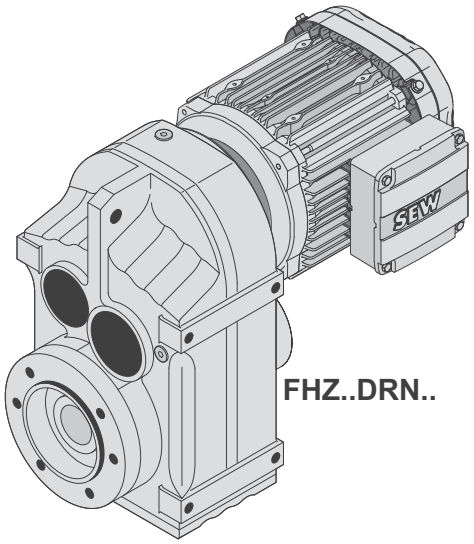
FAZ...DRN..
FVZ...DRN..



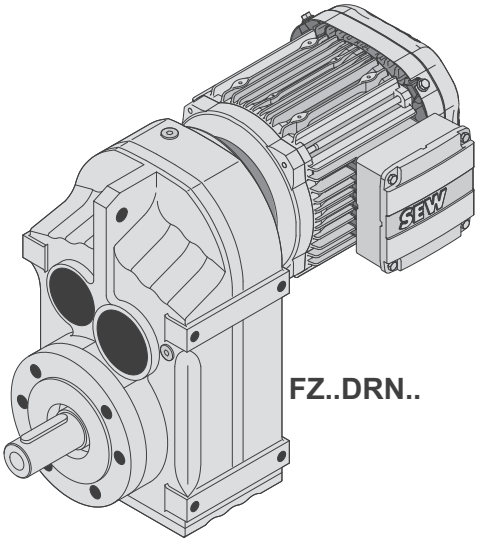
FHF..DRN..

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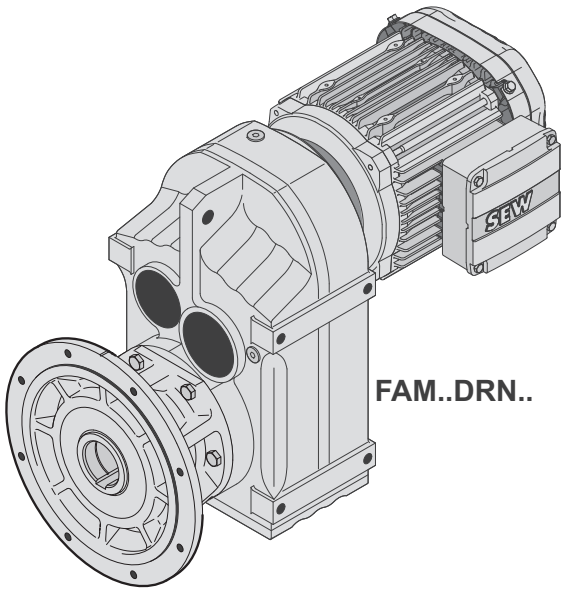
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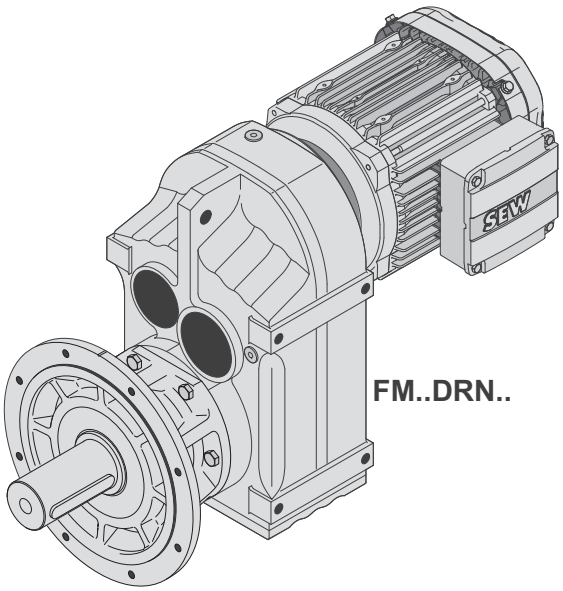
FHZ..DRN..



FZ..DRN..



FAM..DRN..



FM..DRN..

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9.2 F.. DRN.. Possible combinations

F27, n_e=1700 rpm					DRN …			1150 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L
					3			
12	1150	1010	-	140.74				
13	1150	1010	-	129.09				
15	1150	1010	-	109.90				
18	1150	1010	-	94.76				
19	1150	1010	-	88.32				
22	1150	990	-	77.21				
23	1150	960	-	72.37				
27	1150	910	-	63.86				
30	1150	870	-	56.62				
34	1150	820	-	50.19				
36	1150	795	-	46.78				
42	1150	750	-	40.89				
44	1150	730	-	38.33				
50	1150	690	-	33.83				
					2			
58	1150	645	-	29.56				
63	1150	620	-	27.18				
73	1150	575	-	23.25				
84	1150	540	-	20.15				
90	1150	520	-	18.84				
104	1150	485	-	16.28				
123	1150	445	-	13.84				
138	1150	420	-	12.35				
161	1150	385	-	10.55				
172	1150	370	-	9.88				
181	1150	330	-	9.40				
209	1080	315	-	8.13				
246	1000	305	-	6.91				
276	960	295	-	6.17				
323	880	290	-	5.27				
345	840	285	-	4.93				
409	765	280	-	4.16				

F27R17, n_e=1700 rpm					DRN …	1150 lb-in
n_a rpm	M_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M
					3 3	
0.19	1150	1010	-	8972		
0.22	1150	1010	-	7736		
0.24	1150	1010	-	7211		
0.27	1150	1010	-	6303		
0.31	1150	1010	-	5435		
0.35	1150	1010	-	4855		
0.40	1150	1010	-	4243		
0.46	1150	1010	-	3715		
0.52	1150	1010	-	3247		
0.59	1150	1010	-	2878		

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F27R17, n_e=1700 rpm					DRN …	1150 lb-in
n_a rpm	M_{amax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M
0.68	1150	1010	-	2515		
0.77	1150	1010	-	2217		
					2 3	
0.90	1150	1010	-	1898		
1.0	1150	1010	-	1645		
1.1	1150	1010	-	1525		
1.3	1150	1010	-	1322		
1.5	1150	1010	-	1146		
1.7	1150	1010	-	1013		
1.9	1150	1010	-	890		
2.2	1150	1010	-	778		
2.5	1150	1010	-	682		
2.8	1150	1010	-	602		
3.3	1150	1010	-	520		
					3 2	
0.87	1150	1010	-	1948		
0.93	1150	1010	-	1826		
1.1	1150	1010	-	1610		
1.2	1150	1010	-	1399		
1.4	1150	1010	-	1230		
1.8	1150	1010	-	948		
2.1	1150	1010	-	829		
2.3	1150	1010	-	731		
2.7	1150	1010	-	633		
3.1	1150	1010	-	551*		
3.5	1150	1010	-	489		
4.0	1150	1010	-	427		
4.5	1150	1010	-	379		
5.2	1150	1010	-	326		
5.9	1150	1010	-	288		
6.8	1150	1010	-	251		
7.7	1150	1010	-	221		
9.9	1150	1010	-	172		
11	1150	1010	-	153		
13	1150	1010	-	130		
					2 2	
3.7	1150	1010	-	458		
4.3	1150	1010	-	397		
5.0	1150	1010	-	342		
5.6	1150	1010	-	302		
6.4	1150	1010	-	266		
7.2	1150	1010	-	236		
8.1	1150	1010	-	211		
9.1	1150	1010	-	186		
12	1150	1010	-	142		
14	1150	1010	-	124		
16	1150	1010	-	109		
18	1150	1010	-	96		

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F37, n_e=1700 rpm					DRN …			1760 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L
						3		
13	1760	960	6.8	128.51				
14	1760	960	6.8	117.88				
17	1760	960	6.8	100.36				
20	1760	960	6.8	86.53				
21	1760	960	6.8	80.65				
24	1760	960	6.9	70.50				
26	1760	960	6.9	66.09				
29	1760	960	6.9	58.32				
31	1760	960	7.5	54.54				
33	1760	960	6.9	51.70				
36	1760	960	7.6	47.02				
39	1760	960	7.6	43.83				
44	1760	960	7.7	38.31				
47	1760	930	7.7	35.91				
54	1760	880	7.7	31.69				
61	1760	830	7.8	28.09				
71	1760	770	7.8	23.88				
						2		
72	1760	765	6.1	23.63				
83	1760	715	6.2	20.57				
88	1760	690	6.2	19.27				
100	1760	645	6.4	17.03				
108	1760	625	6.4	15.81				
119	1760	590	6.5	14.33				
132	1760	555	6.6	12.87				
153	1680	530	6.7	11.08				
163	1630	520	6.8	10.42				
190	1540	500	6.9	8.97				
212	1500	475	7.4	8.01				
228	1280	475	9.9	7.44				
252	1230	460	10	6.74				
281	1190	445	10.2	6.05				
326	1100	430	10.5	5.21				
347	1060	425	10.6	4.90				
403	970	415	10.9	4.22				
451	920	400	11.9	3.77				

F37R17, n_e=1700 rpm					DRN …	1760 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M
					3 3	
0.21	1760	960	-	8193		
0.24	1760	960	-	7064		
0.26	1760	960	-	6585		
0.30	1760	960	-	5756		
0.34	1760	960	-	4963		
0.38	1760	960	-	4434		
0.44	1760	960	-	3875		
0.50	1760	960	-	3392		

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F37R17, n_e=1700 rpm					DRN …	1760 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M
0.57	1760	960	-	2965		
0.66	1760	960	-	2587		
0.74	1760	960	-	2284		
0.85	1760	960	-	1997		
0.98	1760	960	-	1742		
1.1	1760	960	-	1545		
					2 3	
0.88	1760	960	-	1929		
1.0	1760	960	-	1679		
1.1	1760	960	-	1550		
1.3	1760	960	-	1356		
1.4	1760	960	-	1180		
1.6	1760	960	-	1044		
1.9	1760	960	-	914		
2.1	1760	960	-	808		
2.4	1760	960	-	698		
2.8	1760	960	-	616		
3.1	1760	960	-	544		
3.6	1760	960	-	466		
4.1	1760	960	-	411		
4.7	1760	960	-	364		
					3 2	
1.2	1760	960	-	1370		
1.4	1760	960	-	1198		
1.6	1760	960	-	1047		
1.9	1760	960	-	915		
2.1	1760	960	-	807		
2.4	1760	960	-	707		
2.8	1760	960	-	617		
3.2	1760	960	-	538		
3.6	1760	960	-	477		
4.1	1760	960	-	412		
4.7	1760	960	-	365		
5.3	1760	960	-	322		
6.1	1760	960	-	278		
7.0	1760	960	-	242		
7.7	1760	960	-	221		
8.7	1760	960	-	195		
10	1760	960	-	168		
12	1760	960	-	147		
13	1760	960	-	127		
14	1760	960	-	121		
16	1760	960	-	108		
19	1760	960	-	91		
					2 2	
5.2	1760	960	-	326		
6.0	1760	960	-	285		
6.8	1760	960	-	250		
7.8	1760	960	-	219		
9.1	1760	960	-	186		
10	1760	960	-	167		

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F37R17, n_e=1700 rpm					DRN …	1760 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M
12	1760	960	-	145		
13	1760	960	-	129		
14	1760	960	-	118		
17	1760	960	-	98		
20	1760	960	-	87		

F47, n_e=1700 rpm					DRN …			3530 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L
						3		
8.9	3530	1330	6.1	190.76				
9.7	3530	1330	6.2	175.38				
11	3530	1330	6.2	150.06				
13	3530	1330	6.2	130.07				
14	3530	1330	6.2	121.57				
16	3530	1330	6.2	105.09				
19	3530	1330	6.2	89.29				
21	3530	1330	6.2	79.72				
25	3530	1330	6.3	68.09				
26	3530	1330	6.7	65.36				
30	3530	1330	6.8	56.49				
35	3530	1330	6.8	48.00*				
40	3530	1330	6.8	42.86				
46	3530	1330	6.9	36.61				
50	3530	1290	6.9	34.29				
59	3530	1180	7	28.88				
						2		
55	3530	1220	5.7	30.86				
58	3530	1190	5.7	29.32				
66	3530	1110	5.8	25.72				
78	3530	1020	5.9	21.82				
86	3530	970	5.9	19.70				
98	3530	900	6	17.33				
104	3530	870	6	16.36				
122	3530	795	6.1	13.93				
134	3530	750	6.4	12.66				
155	3530	685	6.5	10.97				
190	2910	650	8	8.96				
216	3360	515	8.1	7.88				
228	3360	490	8.2	7.44*				
268	3090	485	8.4	6.34				
295	3000	465	9	5.76				
341	2830	450	9.2	4.99				

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F47R17, n_e=1700 rpm					DRN …	3530 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M
					3 3	
0.14	3530	1330	-	12251		
0.16	3530	1330	-	10619		
0.17	3530	1330	-	9846		
0.20	3530	1330	-	8534		
0.23	3530	1330	-	7460		
0.26	3530	1330	-	6536		
0.30	3530	1330	-	5746		
0.34	3530	1330	-	5022		
0.39	3530	1330	-	4401		
0.44	3530	1330	-	3883		
0.49	3530	1330	-	3443		
0.57	3530	1330	-	2976		
0.65	3530	1330	-	2629		
0.74	3530	1330	-	2304		
0.84	3530	1330	-	2033		
					2 3	
0.67	3530	1330	-	2519		
0.71	3530	1330	-	2394		
0.78	3530	1330	-	2172		
0.84	3530	1330	-	2025		
0.96	3530	1330	-	1770		
1.1	3530	1330	-	1576		
1.2	3530	1330	-	1363		
1.4	3530	1330	-	1192		
1.6	3530	1330	-	1061		
1.8	3530	1330	-	931		
2.1	3530	1330	-	822		
2.4	3530	1330	-	706		
2.7	3530	1330	-	619		
					3 2	
0.95	3530	1330	-	1785		
1.1	3530	1330	-	1578		
1.2	3530	1330	-	1364		
1.4	3530	1330	-	1203		
1.6	3530	1330	-	1049		
1.9	3530	1330	-	918		
2.1	3530	1330	-	809		
2.4	3530	1330	-	700		
2.7	3530	1330	-	622		
3.1	3530	1330	-	543		
3.6	3530	1330	-	475		
4.1	3530	1330	-	419		
4.6	3530	1330	-	370		
5.2	3530	1330	-	324		
5.9	3530	1330	-	288		
6.8	3530	1330	-	249		
7.8	3530	1330	-	218		
8.8	3530	1330	-	193		
9.7	3530	1330	-	175		

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F47R17, n_e=1700 rpm					DRN …	3530 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M
12	3530	1330	-	147		
13	3530	1330	-	130		
					2 2	
3.2	3530	1330	-	524		
3.5	3530	1330	-	489		
4.0	3530	1330	-	427		
4.5	3530	1330	-	381		
5.1	3530	1330	-	334		
5.8	3530	1330	-	295		
6.7	3530	1330	-	253		
7.8	3530	1330	-	217		
8.9	3530	1330	-	190		
9.6	3530	1330	-	178		
11	3530	1330	-	149		
13	3530	1330	-	131		

F57, n_e=1700 rpm					DRN …					5300 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
						3				
8.5	5300	2070	6	199.70						
9.3	5300	2070	6.1	183.60						
11	5300	2070	6.1	157.09						
12	5300	2070	6.1	136.16						
13	5300	2070	6.1	127.27						
15	5300	2070	6.1	110.01						
18	5300	2070	6.1	93.47						
20	5300	2070	6.1	83.46						
23	5300	2070	6.5	72.98						
25	5300	2070	6.5	68.22						
29	5300	2070	6.5	58.97						
34	5300	1980	6.6	50.10						
38	5300	1880	6.6	44.73						
44	5300	1740	6.6	38.21						
47	5300	1690	6.6	35.79						
56	5220	1560	6.7	30.15						
						2				
42	2560	2200	5.7	40.13						
50	4420	1780	5.7	34.24						
57	4820	1620	5.6	29.94						
60	4730	1590	5.7	28.45						
68	5080	1440	5.8	24.96						
80	5300	1290	5.8	21.17						
89	5300	1220	5.9	19.11						
101	5300	1130	5.9	16.81						
107	5300	1100	6	15.88						
126	5300	1000	6.1	13.52						
138	5300	940	6.3	12.29						
160	5300	860	6.4	10.64						
183	3710	960	7.6	9.31						

F57, n_e=1700 rpm					DRN …					5300 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
208	3710	900	7.8	8.19						
220	3710	870	7.8	7.73						
258	3710	790	8	6.58						
284	3710	745	8.6	5.98						
328	3670	690	8.8	5.18						

F57R37, n_e=1700 rpm					DRN …			5300 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L
					3	3		
0.11	5300	2070	-	14832				
0.12	5300	2070	-	13604				
0.13	5300	2070	-	12602				
0.15	5300	2070	-	11252				
0.17	5300	2070	-	9986				
0.19	5300	2070	-	8787				
0.21	5300	2070	-	7908				
0.25	5300	2070	-	6913				
0.28	5300	2070	-	6030				
0.32	5300	2070	-	5289				
0.37	5300	2070	-	4654				
0.42	5300	2070	-	4060				
0.48	5300	2070	-	3564				
0.54	5300	2070	-	3161				
0.62	5300	2070	-	2737				
0.71	5300	2070	-	2409				
0.80	5300	2070	-	2131				
0.92	5300	2070	-	1840				
1.0	5300	2070	-	1623				
1.2	5300	2070	-	1439				
1.4	5300	2070	-	1238				
					2	3		
0.60	5300	2070	-	2854				
0.66	5300	2070	-	2576				
0.75	5300	2070	-	2266				
0.84	5300	2070	-	2012				
0.95	5300	2070	-	1791				
1.1	5300	2070	-	1617				
1.2	5300	2070	-	1422				
1.4	5300	2070	-	1243				
1.6	5300	2070	-	1066				
1.8	5300	2070	-	949				
2.0	5300	2070	-	856				
2.3	5300	2070	-	749				
2.6	5300	2070	-	658				
3.1	5300	2070	-	549				
3.5	5300	2070	-	483				
					3	2		
1.5	5300	2070	-	1106				
1.8	5300	2070	-	967				

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F57R37, n_e=1700 rpm					DRN …				5300 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	
2.0	5300	2070	-	851					
2.3	5300	2070	-	738					
2.6	5300	2070	-	646					
3.0	5300	2070	-	558					
3.4	5300	2070	-	506					
3.8	5300	2070	-	452					
4.4	5300	2070	-	386					
5.0	5300	2070	-	338					
6.7	5300	2070	-	255					
8.5	5300	2070	-	201					
9.4	5300	2070	-	181					
11	5300	2070	-	155					
					2	2			
4.0	5300	2070	-	426					
4.5	5300	2070	-	382					
5.2	5300	2070	-	330					
5.7	5300	2070	-	298					
6.5	5300	2070	-	262					
7.5	5300	2070	-	226					
8.5	5300	2070	-	200					
10	5300	2070	-	170					
11	5300	2070	-	152					
13	5300	2070	-	134					

F67, n_e=1700 rpm					DRN …						7250 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	
						3					
7.4	7250	2320	5.7	228.99							
8.7	7250	2320	5.8	195.39							
10.0	7250	2320	5.7	170.85							
10	7250	2320	5.7	162.31							
12	7250	2320	5.8	142.40							
14	7250	2320	5.8	120.79							
16	7250	2320	5.8	109.04							
18	7250	2320	5.8	95.94							
19	7250	2320	5.8	90.59							
21	7250	2320	6.3	79.76							
25	7250	2320	6.3	67.65							
28	7250	2320	6.3	61.07							
32	7250	2320	6.3	53.73							
34	7250	2320	6.3	50.74							
39	7250	2320	6.3	43.20							
43	6900	2390	6.4	39.26							
50	6540	2470	6.5	34.01							
						2					
47	7250	2320	5.3	36.30							
53	7250	2320	5.4	32.08							
62	7250	2320	5.4	27.41							
68	7250	2320	5.4	25.13							

F67, n_e=1700 rpm					DRN …					7250 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
77	7250	2320	5.5	22.05						
81	7250	2320	5.5	20.90*						
93	7250	2320	5.6	18.29						
103	7250	2320	5.8	16.48						
118	7250	2320	5.7	14.46						
133	7250	2320	5.8	12.76						
150	7250	2320	6	11.31						
176	7250	2240	6.1	9.66						
187	4680	2370	8	9.08						
198	5040	2270	8.1	8.60						
226	5390	2100	8.2	7.53						
251	5480	2000	8.7	6.78						
286	5390	1910	8.6	5.95						
324	5220	1830	8.8	5.25						
365	4950	1780	9.3	4.66						
428	4420	1740	9.6	3.97						

F67R37, n_e=1700 rpm					DRN …			7250 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L
					3	3		
0.09	7250	2320	-	19199				
0.10	7250	2320	-	17610				
0.11	7250	2320	-	14992				
0.13	7250	2320	-	12926				
0.15	7250	2320	-	11480				
0.17	7250	2320	-	10220				
0.19	7250	2320	-	8933				
0.21	7250	2320	-	7940				
0.24	7250	2320	-	7096				
0.28	7250	2320	-	6080				
0.32	7250	2320	-	5341				
0.36	7250	2320	-	4690				
0.42	7250	2320	-	4091				
0.48	7250	2320	-	3574				
0.54	7250	2320	-	3133				
0.62	7250	2320	-	2756				
0.70	7250	2320	-	2439				
					2	3		
0.50	7250	2320	-	3377				
0.58	7250	2320	-	2912				
0.63	7250	2320	-	2714				
0.72	7250	2320	-	2372				
0.80	7250	2320	-	2126				
0.91	7250	2320	-	1859				
1.0	7250	2320	-	1631				
1.2	7250	2320	-	1437				
1.4	7250	2320	-	1256				
1.5	7250	2320	-	1126				
1.7	7250	2320	-	984				

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F67R37, n_e=1700 rpm					DRN …			7250 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L
2.0	7250	2320	-	864				
2.4	7250	2320	-	722				
2.7	7250	2320	-	634				
3.2	7250	2320	-	539				
						3 2		
0.81	7250	2320	-	2106				
0.90	7250	2320	-	1884				
1.0	7250	2320	-	1635				
1.2	7250	2320	-	1429				
1.3	7250	2320	-	1271				
1.5	7250	2320	-	1102				
1.8	7250	2320	-	970				
2.0	7250	2320	-	858				
2.3	7250	2320	-	755				
2.7	7250	2320	-	641				
3.0	7250	2320	-	572				
3.3	7250	2320	-	509				
3.9	7250	2320	-	437				
4.4	7250	2320	-	384				
5.0	7250	2320	-	338				
5.6	7250	2320	-	305				
6.6	7250	2320	-	257				
7.4	7250	2320	-	231				
8.3	7250	2320	-	205				
9.7	7250	2320	-	175				
						2 2		
3.4	7250	2320	-	500				
3.7	7250	2320	-	454				
4.3	7250	2320	-	392				
5.1	7250	2320	-	333				
5.7	7250	2320	-	297				
6.5	7250	2320	-	261				
7.1	7250	2320	-	238				
8.5	7250	2320	-	200				
9.7	7250	2320	-	176				

F77, n_e=1700 rpm					DRN …						13200 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
							3				
6.0	13200	3530	5.4	281.71							
6.5	13200	3530	5.4	262.93							
7.5	13200	3530	5.4	225.79							
8.6	13200	3530	5.4	198.31							
9.0	13200	3530	5.4	188.40							
10	13200	3530	5.5	166.47							
12	13200	3530	5.5	142.27							
13	13200	3530	5.5	130.42							
15	13200	3530	5.5	114.45							
16	13200	3530	5.5	108.46*							

F77, n_e=1700 rpm					DRN …						13200 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
18	13200	3530	5.5	94.93							
20	13200	3530	5.5	85.52							
23	13200	3530	5.5	75.02							
23	13200	3530	5.9	72.50							
26	13200	3530	5.9	66.46							
29	13200	3530	6	58.32							
31	13200	3530	6	55.27							
35	13200	3530	6	48.37							
39	13200	3530	6.1	43.58							
44	13200	3530	6	38.23							
50	13200	3530	6.1	33.74							
57	13200	3530	6.1	29.91							
67	12800	3610	6.2	25.54							
						2					
46	9820	4010	4.9	36.58							
54	12200	3700	4.9	31.51							
59	12600	3640	4.9	28.75							
67	13200	3530	4.9	25.50*							
79	13200	3530	5	21.43							
86	13200	3530	5.1	19.70							
97	13200	3530	5.2	17.49							
109	13200	3420	5.2	15.64*							
121	13200	3280	5.4	14.06							
139	13200	3090	5.4	12.20							
156	13200	2950	5.5	10.93							
183	9550	2860	7.1	9.30							
206	9550	2720	7.1	8.26							
230	9550	2590	7.2	7.39							
256	9550	2470	7.5	6.64							
295	9550	2320	7.7	5.76							
329	9550	2210	7.8	5.16							
397	8930	2100	8.1	4.28							

F77R37, n_e=1700 rpm					DRN …			13200 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L
					3	3		
0.09	13200	3530	-	19180				
0.10	13200	3530	-	17593				
0.11	13200	3530	-	16128				
0.11	13200	3530	-	14978				
0.12	13200	3530	-	13731				
0.14	13200	3530	-	12049				
0.15	13200	3530	-	11035				
0.18	13200	3530	-	9683				
0.20	13200	3530	-	8464				
0.23	13200	3530	-	7520				
0.26	13200	3530	-	6580				
0.29	13200	3530	-	5808				
0.34	13200	3530	-	5026				

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F77R37, n_e=1700 rpm					DRN …			13200 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L
0.38	13200	3530	-	4435				
0.44	13200	3530	-	3832				
0.50	13200	3530	-	3381				
0.57	13200	3530	-	2978				
0.65	13200	3530	-	2613				
0.74	13200	3530	-	2284				
0.84	13200	3530	-	2029				
					2 3			
0.34	9820	4010	-	4931				
0.38	9820	4010	-	4523				
0.44	9820	4010	-	3851				
0.51	9820	4010	-	3320				
0.55	9820	4010	-	3095				
0.63	9820	4010	-	2705				
0.67	9820	4010	-	2536				
0.76	9820	4010	-	2238				
0.83	9820	4010	-	2039				
0.97	9820	4010	-	1759				
1.0	9820	4010	-	1639				
1.2	9820	4010	-	1433				
1.3	9820	4010	-	1343				
1.4	9820	4010	-	1185				
1.6	9820	4010	-	1051				
1.9	9820	4010	-	893				
					3 2			
0.98	13200	3530	-	1728				
1.1	13200	3530	-	1544				
1.3	13200	3530	-	1354				
1.4	13200	3530	-	1200				
1.6	13200	3530	-	1053				
1.9	13200	3530	-	910				
2.1	13200	3530	-	810				
2.4	13200	3530	-	710				
2.8	13200	3530	-	615*				
3.2	13200	3530	-	538				
3.5	13200	3530	-	480				
4.1	13200	3530	-	413				
4.6	13200	3530	-	367				
5.3	13200	3530	-	323				
6.1	13200	3530	-	280				
6.9	13200	3530	-	247				
7.7	13200	3530	-	221				
8.5	13200	3530	-	199				
					2 2			
2.1	9820	4010	-	815				
2.4	9820	4010	-	706				
2.6	9820	4010	-	660				
3.0	9820	4010	-	571				
3.5	9820	4010	-	485				
3.9	9820	4010	-	433				

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F77R37, n_e=1700 rpm					DRN …			13200 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L
4.6	9820	4010	-	370				
4.9	9820	4010	-	346				
5.8	9820	4010	-	292				

F87, n_e=1700 rpm					DRN …								
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L
								3					
6.3	26500	4450	7	270.68									
6.7	26500	4450	7	255.37									
7.4	26500	4450	7	228.93									
8.6	26500	4450	7	197.20									
9.4	26500	4450	7	179.97									
11	26500	4450	7	159.61									
13	26500	4450	7	134.16									
14	26500	4450	7	123.29									
16	26500	4450	7.1	109.49									
17	26500	4450	7.1	97.89									
19	26500	4450	7.1	88.01									
22	26500	4200	7.1	76.39									
25	26500	3960	7.1	68.40									
30	26500	3560	7.1	56.75									
34	26000	3370	7.5	50.36									
38	24900	3270	7.5	45.28									
43	24000	3090	7.5	39.30									
48	23000	2990	7.6	35.19									
58	22200	2760	7.6	29.20									
								2					
50	23000	2930	6.6	33.92									
59	21600	2790	6.6	28.78									
64	26500	2180	6.8	26.50									
72	26500	2000	6.8	23.68									
80	26500	1840	6.8	21.32*									
88	26500	1700	6.9	19.31									
99	26500	1530	6.9	17.12									
110	26500	1390	7	15.48									
130	26500	1180	7	13.12*									
148	26500	1010	7.1	11.46									
177	25400	910	7.2	9.58									
205	13500	1780	6.7	8.29									
231	13500	1650	6.8	7.35									
256	13500	1550	6.8	6.65									
302	13500	1390	7	5.63									
346	13500	1260	7.1	4.92									
413	12900	1170	7.4	4.12									

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F87R57, n_e=1700 rpm					DRN …					26500 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
						3 3				
0.07	26500	4450	-	23042						
0.08	26500	4450	-	20462						
0.09	26500	4450	-	18238						
0.11	26500	4450	-	15877						
0.12	26500	4450	-	14099						
0.14	26500	4450	-	12205						
0.16	26500	4450	-	10433						
0.18	26500	4450	-	9381						
0.21	26500	4450	-	8142						
0.24	26500	4450	-	7100						
0.27	26500	4450	-	6273						
0.31	26500	4450	-	5510						
0.34	26500	4450	-	4954						
0.40	26500	4450	-	4245						
0.46	26500	4450	-	3721						
						2 3				
0.34	26500	4450	-	4952						
0.37	26500	4450	-	4562						
0.43	26500	4450	-	3919						
0.49	26500	4450	-	3503						
0.53	26500	4450	-	3196						
0.60	26500	4450	-	2857						
0.67	26500	4450	-	2524						
0.80	26500	4450	-	2134						
0.89	26500	4450	-	1913*						
0.99	26500	4450	-	1717						
1.2	26500	4450	-	1476						
1.3	26500	4450	-	1278						
1.5	26500	4450	-	1142						
1.7	26500	4450	-	988						
1.9	26500	4450	-	883						
2.3	26500	4450	-	748						
						3 2				
0.52	26500	4450	-	3244						
0.59	26500	4450	-	2881						
0.66	26500	4450	-	2576						
0.77	26500	4450	-	2199						
0.88	26500	4450	-	1930						
0.99	26500	4450	-	1709						
1.1	26500	4450	-	1493						
1.3	26500	4450	-	1300						
1.5	26500	4450	-	1148						
1.7	26500	4450	-	1010						
1.9	26500	4450	-	887						
2.2	26500	4450	-	780						
2.5	26500	4450	-	674						
2.8	26500	4450	-	609						
3.3	26500	4450	-	515						
3.8	26500	4450	-	452						

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F87R57, n_e=1700 rpm					DRN …					26500 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
4.9	26500	4450	-	345						
5.7	26500	4450	-	300						
6.8	26500	4450	-	249						
						2	2			
2.6	26500	4450	-	662						
2.9	26500	4450	-	592						
3.3	26500	4450	-	519						
3.6	26500	4450	-	468						
4.3	26500	4450	-	398						
4.9	26500	4450	-	350						
5.4	26500	4450	-	315*						
6.0	26500	4450	-	281						
7.1	26500	4450	-	240						
8.1	26500	4450	-	211						
8.8	26500	4450	-	193						

F97, n_e=1700 rpm					DRN …								38000 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S
							3					
6.1	38000	6720	6	276.77								
6.7	38000	6720	6	253.41								
7.6	38000	6720	6	223.88								
9.0	38000	6720	6	189.92								
9.7	38000	6720	6	174.87								
11	38000	6720	6	156.30								
12	38000	6720	6	140.71								
13	38000	6720	6	127.42								
15	38000	6720	6	112.99								
17	38000	6720	6	102.16								
17	38000	6720	6.2	97.58								
19	38000	6720	6.3	89.85								
20	38000	6720	6	86.59								
21	38000	6540	6.3	80.31								
22	38000	6350	6	75.63								
24	38000	6200	6.3	72.29								
26	38000	5890	6.3	65.47								
29	38000	5520	6.3	58.06								
32	38000	5230	6.3	52.49								
38	38000	4770	6.4	44.49								
44	38000	4410	6.4	38.86								
52	38000	3960	6.4	32.50								
							2					
39	27100	5660	5.6	43.28								
46	27100	5230	5.6	36.64								
50	38000	4060	5.7	33.91								
56	38000	3800	5.8	30.39								
62	38000	3550	5.8	27.44*								
68	38000	3340	5.8	24.92								
77	38000	3070	5.9	22.11								

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F97, n_e=1700 rpm					DRN …							38000 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S
85	38000	2870	5.8	20.07								
99	38000	2560	5.9	17.25*								
113	38000	2300	5.9	15.06								
133	38000	1990	6	12.77								
152	36200	1910	6	11.16								
188	20800	2680	8.6	9.06								
207	20800	2530	8.5	8.22								
240	20800	2300	8.6	7.07								
276	19900	2200	8.7	6.17								
325	19000	2070	8.8	5.23								
372	18100	1980	9	4.57								
439	15900	2000	9	3.87								

F97R57, n_e=1700 rpm					DRN …					38000 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
						3	3			
0.06	38000	6720	-	29211						
0.06	38000	6720	-	26911						
0.07	38000	6720	-	23814						
0.08	38000	6720	-	20813						
0.09	38000	6720	-	18119*						
0.11	38000	6720	-	15472						
0.12	38000	6720	-	14022						
0.14	38000	6720	-	12324						
0.16	38000	6720	-	10838						
0.18	38000	6720	-	9576						
0.20	38000	6720	-	8318						
0.23	38000	6720	-	7328						
0.26	38000	6720	-	6469						
0.30	38000	6720	-	5615						
0.34	38000	6720	-	4961*						
0.39	38000	6720	-	4333*						
						2	3			
0.27	38000	6720	-	6338						
0.30	38000	6720	-	5680						
0.34	38000	6720	-	5016						
0.39	38000	6720	-	4367						
0.43	38000	6720	-	3914						
0.51	38000	6720	-	3357						
0.56	38000	6720	-	3009						
0.69	38000	6720	-	2448						
0.77	38000	6720	-	2199						
0.86	38000	6720	-	1971						
0.98	38000	6720	-	1741*						
1.2	38000	6720	-	1468						
1.3	38000	6720	-	1316						
1.4	38000	6720	-	1189*						
1.7	38000	6720	-	1023						
						3	2			

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F97R57, n_e=1700 rpm					DRN …					38000 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
0.44	38000	6720	-	3906						
0.51	38000	6720	-	3352						
0.58	38000	6720	-	2907						
0.67	38000	6720	-	2553						
0.76	38000	6720	-	2245						
0.86	38000	6720	-	1970						
0.99	38000	6720	-	1722						
1.1	38000	6720	-	1527						
1.3	38000	6720	-	1327						
1.5	38000	6720	-	1171*						
1.7	38000	6720	-	1022						
1.9	38000	6720	-	898						
2.2	38000	6720	-	784						
2.5	38000	6720	-	690						
2.8	38000	6720	-	605						
3.2	38000	6720	-	529						
3.6	38000	6720	-	467						
4.2	38000	6720	-	406						
4.7	38000	6720	-	363						
6.0	38000	6720	-	285						
6.9	38000	6720	-	245						
8.2	38000	6720	-	208						
8.7	38000	6720	-	195						
						 2	 2			
1.9	38000	6720	-	892						
2.2	38000	6720	-	760						
2.5	38000	6720	-	667						
3.0	38000	6720	-	569						
3.3	38000	6720	-	510						
3.6	38000	6720	-	473*						
4.2	38000	6720	-	403						
4.7	38000	6720	-	361						
5.4	38000	6720	-	317						
6.2	38000	6720	-	275						
7.0	38000	6720	-	242						

F107, n_e=1700 rpm					DRN …						69300 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S 225M	250ME
						 3					
6.7	67900	11200	5.4	254.40*							
7.9	67900	11200	5.4	215.37							
8.5	67900	11200	5.4	199.31							
9.5	67900	11200	5.4	178.64							
11	67900	11200	5.4	161.28*							
12	67900	11200	5.4	146.49							
13	67900	11200	5.4	129.97							
14	67900	11200	5.4	117.94							
17	67900	11200	5.4	101.38*							
18	67900	11200	5.6	92.47*							

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F107, n_e=1700 rpm					DRN …						69300 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S 225M	250ME
19	67900	11200	5.4	88.49							
20	67900	11200	5.7	83.99							
23	67900	11000	5.7	74.52							
25	67900	10600	5.7	67.62							
29	67900	9880	5.7	58.12*							
34	67900	9300	5.7	50.73							
40	67900	8640	5.7	43.03							
45	67900	8110	5.7	37.61							
53	67900	7390	5.8	31.80							
							2				
50	65400	7880	5.1	33.79*							
62	69300	6640	5.2	27.57							
68	69300	6260	5.2	25.14							
78	69300	5670	5.2	21.76*							
89	69300	5170	5.2	19.20*							
103	69300	4600	5.3	16.58							
116	67900	4300	5.3	14.67							
138	61900	4390	5.4	12.33							
171	57500	4180	5.4	9.96							
175	43400	4660	6.7	9.69							
203	42400	4350	6.7	8.37							
230	40700	4220	6.8	7.40							
273	40700	3730	7	6.22							
338	40700	3140	7	5.03							

F107R77, n_e=1700 rpm					DRN …						69300 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
						3	3				
0.07	67900	11200	-	25375*							
0.08	67900	11200	-	21652							
0.09	67900	11200	-	18933							
0.10	67900	11200	-	16888							
0.12	67900	11200	-	14767							
0.15	67900	11200	-	11348*							
0.17	67900	11200	-	10039							
0.20	67900	11200	-	8548							
0.22	67900	11200	-	7674							
0.25	67900	11200	-	6767							
0.29	67900	11200	-	5954							
0.33	67900	11200	-	5223							
0.37	67900	11200	-	4567							
0.43	67900	11200	-	3948							
0.48	67900	11200	-	3521							
						2	3				
0.32	69300	11100	-	5383*							
0.37	69300	11100	-	4593							
0.42	69300	11100	-	4016							
0.45	69300	11100	-	3815							
0.51	69300	11100	-	3347							

F107R77, n_e=1700 rpm					DRN …						69300 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
0.60	69300	11100	-	2839							
0.66	69300	11100	-	2563*							
0.75	69300	11100	-	2255							
0.80	69300	11100	-	2129							
0.94	69300	11100	-	1813							
1.1	69300	11100	-	1590							
1.2	69300	11100	-	1436							
1.3	69300	11100	-	1263							
1.4	69300	11100	-	1193							
1.7	69300	11100	-	1015							
1.8	69300	11100	-	923							
2.1	69300	11100	-	800							
2.4	69300	11100	-	696							
					 3 2						
0.56	67900	11200	-	3037							
0.62	67900	11200	-	2756							
0.72	67900	11200	-	2369							
0.82	67900	11200	-	2068							
0.93	67900	11200	-	1826							
1.1	67900	11200	-	1597							
1.2	67900	11200	-	1401							
1.4	67900	11200	-	1243							
1.6	67900	11200	-	1087							
1.8	67900	11200	-	950							
2.0	67900	11200	-	834							
2.3	67900	11200	-	736							
2.7	67900	11200	-	640							
3.0	67900	11200	-	560							
3.5	67900	11200	-	489							
3.9	67900	11200	-	436							
4.6	67900	11200	-	370							
5.1	67900	11200	-	333							
5.8	67900	11200	-	291							
6.7	67900	11200	-	255							
7.6	67900	11200	-	225*							
8.9	67900	11200	-	190							
					 2 2						
2.6	69300	11100	-	644							
2.9	69300	11100	-	591							
3.3	69300	11100	-	518*							
3.5	69300	11100	-	491							
4.0	69300	11100	-	430							
4.4	69300	11100	-	387							
5.0	69300	11100	-	340							
5.7	69300	11100	-	300							
6.4	69300	11100	-	266							

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F127, n_e=1700 rpm					DRN …				106100 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	132S 132M	132L 160M 160L	180M 180L	200L 225S 225M	250ME 280S 280M
						3			
10.0	106100	20200	4.9	170.83					
11	106100	20200	4.9	153.67*					
14	106100	19000	4.9	125.37					
15	106100	18300	4.9	114.34					
17	106100	17200	4.9	98.95					
19	106100	16400	4.9	87.31*					
23	106100	15400	4.9	75.41*					
24	106100	14900	5.2	70.07					
27	106100	14300	5.2	63.91					
31	106100	13300	5.2	55.31					
35	106100	12500	5.2	48.80					
40	106100	11500	5.2	42.15					
46	106100	10700	5.2	37.28					
54	106100	9660	5.3	31.33					
67	106100	8400	5.3	25.30					
						2			
63	75200	11500	4.6	26.86					
69	75200	11000	4.6	24.57					
80	106100	7440	4.7	21.38					
90	97300	7680	4.7	18.87					
104	97300	6930	4.7	16.36					
117	97300	6340	4.7	14.55					
136	88400	6550	4.8	12.54					
167	84000	6060	4.9	10.19					
192	61900	7490	6.3	8.86					
216	53000	7650	6.4	7.88					
250	61900	6610	6.5	6.80					
308	53000	6540	6.7	5.52					
363	53000	6060	6.8	4.68					

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F127R77, n_e=1700 rpm					DRN …						106100 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
						3	3				
0.07	106100	20200	-	24478*							
0.08	106100	20200	-	22323							
0.09	106100	20200	-	19048							
0.10	106100	20200	-	16656							
0.12	106100	20200	-	14722*							
0.13	106100	20200	-	12912							
0.15	106100	20200	-	11656*							
0.17	106100	20200	-	10191							
0.19	106100	20200	-	8831							
0.22	106100	20200	-	7643							
0.25	106100	20200	-	6715							
0.29	106100	20200	-	5925							
0.33	106100	20200	-	5153							
0.38	106100	20200	-	4533							
0.43	106100	20200	-	3926							
0.49	106100	20200	-	3454							
0.56	106100	20200	-	3031							
						3	2				
0.64	106100	20200	-	2672							
0.72	106100	20200	-	2357*							
0.83	106100	20200	-	2038							
0.95	106100	20200	-	1784							
1.1	106100	20200	-	1606							
1.2	106100	20200	-	1390							
1.4	106100	20200	-	1220							
1.6	106100	20200	-	1077							
1.8	106100	20200	-	930							
2.1	106100	20200	-	820							
2.3	106100	20200	-	727							
2.6	106100	20200	-	648							
3.1	106100	20200	-	549							
3.4	106100	20200	-	495							
4.0	106100	20200	-	428							
4.5	106100	20200	-	376							

F127R87, n_e=1700 rpm					DRN …							106100 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L
							3	2				
3.5	106100	20200	-	483								
4.1	106100	20200	-	418								
4.5	106100	20200	-	374								
5.4	106100	20200	-	312								
5.8	106100	20200	-	293								
6.6	106100	20200	-	259								
7.6	106100	20200	-	223								
8.6	106100	20200	-	198								
10	106100	20200	-	166								

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F157, n_e=1700 rpm					DRN …					177000 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	132L 160M 160L	180M 180L	200L 225S 225M	250ME 280S 280M	315S 315ME	315L 315H
						3				
6.4	177000	22550	4.5	267.43						
7.8	177000	22550	4.5	217.62*						
9.5	177000	22550	4.5	178.20*						
10	177000	22550	4.5	162.96						
12	177000	22550	4.5	141.80*						
14	177000	22550	4.5	125.14						
16	177000	21900	4.5	108.49						
18	177000	20860	4.5	96.53*						
20	177000	19850	4.8	85.80*						
22	177000	19110	4.8	78.46						
25	177000	18010	4.8	68.28*						
28	177000	17040	4.8	60.25						
33	177000	15980	4.8	52.24						
37	177000	15150	4.8	46.48*						
42	177000	14140	4.9	40.06						
52	177000	12810	4.9	32.55						
62	177000	11800	4.9	27.60						
						2				
32	97400	20660	4.3	53.55						
39	105300	18370	4.3	43.94*						
48	120400	16550	4.4	35.75*						
59	169000	12450	4.4	28.60*						
67	177000	12660	4.4	25.43						
77	176100	10520	4.4	22.16						
86	171700	10360	4.4	19.77						
101	165500	9060	4.5	16.85						
122	158400	8560	4.6	13.96						
143	153100	8270	4.6	11.92						

F157R97, n_e=1700 rpm					DRN …								177000 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S
							3	3					
0.05	177000	22500	-	31434									
0.06	177000	22500	-	26173									
0.07	177000	22500	-	23464									
0.08	177000	22500	-	20212									
0.09	177000	22500	-	17984*									
0.10	177000	22500	-	16358									
0.12	177000	22500	-	13751									
0.14	177000	22500	-	12235									
0.17	177000	22500	-	10033									
0.19	177000	22500	-	9021									
0.21	177000	22500	-	8026									
0.24	177000	22500	-	7075									
0.27	177000	22500	-	6295									
0.31	177000	22500	-	5404									
0.35	177000	22500	-	4831									
0.41	177000	22500	-	4130*									

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F157R97, n_e=1700 rpm					DRN …								177000 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i	71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S
0.47	177000	22500	-	3607									
0.53	177000	22500	-	3210									
0.61	177000	22500	-	2780									
1.2	177000	22500	-	1441									
							3	2					
0.70	177000	22500	-	2427									
0.78	177000	22500	-	2185									
0.87	177000	22500	-	1944*									
1.0	177000	22500	-	1674									
1.3	177000	22500	-	1308									
1.5	177000	22500	-	1169									
1.8	177000	22500	-	953									
2.0	177000	22500	-	845									
2.2	177000	22500	-	764									
2.5	177000	22500	-	680									
3.0	177000	22500	-	576									
3.4	177000	22500	-	503									
3.8	177000	22500	-	446									
4.8	177000	22500	-	353									
5.6	177000	22500	-	302									
6.2	177000	22500	-	273									
7.3	177000	22500	-	232									
8.4	177000	22500	-	202									
8.6	177000	22500	-	197									

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9.3 F.. DRN.. Selections by HP

P_m = 0.16 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.08	95100	22323	20200	1.10	X						
0.09	81200	19048	20200	1.30	X						
0.10	71000	16656	20200	1.50	X	**FA**	**127R77**	**(E)DRN**	**63MS4**	940	508/521
0.11	62700	14722	20200	1.70	X	**FAF**	**127R77**	**(E)DRN**	**63MS4**	1020	506/521
0.13	53800	12912	20200	1.95	X	**F**	**127R77**	**(E)DRN**	**63MS4**	1020	505/521
0.14	47000	11656	20200	2.3	X	**FF**	**127R77**	**(E)DRN**	**63MS4**	1120	506/521
0.16	42500	10191	20200	2.5	X						
0.11	62900	14767	11500	1.10	X						
0.15	48300	11348	12400	1.40	X						
0.17	37500	10039	13000	1.80	X						
0.20	30000	8548	13400	2.3	X	**FA**	**107R77**	**(E)DRN**	**63MS4**	610	500/521
0.22	32000	7674	13300	2.1	X	**FAF**	**107R77**	**(E)DRN**	**63MS4**	650	498/521
0.25	27300	6767	13500	2.5	X	**F**	**107R77**	**(E)DRN**	**63MS4**	640	497/521
0.28	22800	5954	13700	3.0	X	**FF**	**107R77**	**(E)DRN**	**63MS4**	700	498/521
0.32	19500	5223	13900	3.5	X						
0.37	19400	4567	13900	3.5	X						
0.48	14200	3521	14100	4.8	X						
0.26	28200	6469	7380	1.35	X	**FA**	**97R57**	**(E)DRN**	**63MS4**	405	492/521
0.30	26500	5615	7480	1.45	X	**FAF**	**97R57**	**(E)DRN**	**63MS4**	455	490/521
0.34	22900	4961	7690	1.65	X	**F**	**97R57**	**(E)DRN**	**63MS4**	420	489/521
0.39	20000	4333	7840	1.90	X	**FF**	**97R57**	**(E)DRN**	**63MS4**	495	490/521
0.43	18700	3906	7900	2.0	X	**FA**	**97R57**	**(E)DRN**	**63MS4**	405	492/521
0.50	16200	3352	8020	2.3	X	**FAF**	**97R57**	**(E)DRN**	**63MS4**	450	490/521
0.58	13100	2907	8150	2.9	X	**F**	**97R57**	**(E)DRN**	**63MS4**	420	489/521
0.66	12200	2553	8190	3.1	X	**FF**	**97R57**	**(E)DRN**	**63MS4**	490	490/521
						FA	**87R57**	**(E)DRN**	**63MS4**	260	484/521
0.40	19000	4245	5840	1.40	X	**FAF**	**87R57**	**(E)DRN**	**63MS4**	290	482/521
0.45	14700	3721	6160	1.80	X	**F**	**87R57**	**(E)DRN**	**63MS4**	275	481/521
						FF	**87R57**	**(E)DRN**	**63MS4**	305	482/521
0.52	15700	3244	6090	1.70	X						
0.58	13900	2881	6210	1.90	X						
0.65	12400	2576	6300	2.1	X						
0.76	10500	2199	6420	2.5	X	**FA**	**87R57**	**(E)DRN**	**63MS4**	260	484/521
0.87	9050	1930	6500	2.9	X	**FAF**	**87R57**	**(E)DRN**	**63MS4**	285	482/521
0.98	8190	1709	6540	3.2	X	**F**	**87R57**	**(E)DRN**	**63MS4**	270	481/521
1.1	7230	1493	6590	3.7	X	**FF**	**87R57**	**(E)DRN**	**63MS4**	305	482/521
1.3	5530	1300	6670	4.8	X						
1.5	5080	1148	6690	5.2	X						
						FA	**77R37**	**(E)DRN**	**63MS4**	145	476/521
0.74	10900	2284	3870	1.20	X	**FAF**	**77R37**	**(E)DRN**	**63MS4**	160	474/521
0.83	9680	2029	4030	1.35	X	**F**	**77R37**	**(E)DRN**	**63MS4**	155	473/521
						FF	**77R37**	**(E)DRN**	**63MS4**	175	474/521
0.97	8200	1728	4170	1.60	X						
1.1	7650	1544	4220	1.75	X						
1.2	6710	1354	4290	2.0	X	**FA**	**77R37**	**(E)DRN**	**63MS4**	145	476/521
1.4	5940	1200	4340	2.2	X	**FAF**	**77R37**	**(E)DRN**	**63MS4**	160	474/521
1.6	5210	1053	4390	2.5	X	**F**	**77R37**	**(E)DRN**	**63MS4**	150	473/521
1.9	4430	910	4430	3.0	X	**FF**	**77R37**	**(E)DRN**	**63MS4**	175	474/521
2.1	3610	810	4460	3.7	X						
2.4	3170	710	4470	4.2	X						
1.2	6650	1429	2440	1.10	X						
1.3	6030	1271	2560	1.20	X						
1.5	4980	1102	2720	1.45	X						
1.7	4380	970	2790	1.65	X	**FA**	**67R37**	**(E)DRN**	**63MS4**	95	468/521
2.0	3830	858	2850	1.90	X	**FAF**	**67R37**	**(E)DRN**	**63MS4**	110	466/521
2.2	3370	755	2890	2.1	X	**F**	**67R37**	**(E)DRN**	**63MS4**	100	465/521
2.6	2860	641	2920	2.5	X	**FF**	**67R37**	**(E)DRN**	**63MS4**	115	466/521
2.9	2710	572	2920	2.7	X						
3.3	2270	509	2920	3.2	X						
3.9	1970	437	2920	3.7	X						

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P_m = 0.16 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
2.0	4320	851	2250	1.25	X						
2.3	3680	738	2350	1.45	X	**FA**	**57R37**	**(E)DRN**	**63MS4**	86	460/521
2.6	3200	646	2430	1.65	X	**FAF**	**57R37**	**(E)DRN**	**63MS4**	98	459/521
3.0	2720	558	2490	1.95	X	**F**	**57R37**	**(E)DRN**	**63MS4**	87	458/521
3.3	2400	506	2540	2.2	X	**FF**	**57R37**	**(E)DRN**	**63MS4**	100	459/521
3.7	2040	452	2580	2.6	X						
4.0	2180	426	2560	2.4	X						
4.4	1910	382	2580	2.8	X	**FA**	**57R37**	**(E)DRN**	**63MS4**	85	460/521
5.1	1620	330	2580	3.3	X	**FAF**	**57R37**	**(E)DRN**	**63MS4**	97	459/521
5.6	1470	298	2580	3.6	X	**F**	**57R37**	**(E)DRN**	**63MS4**	85	458/521
6.4	1290	262	2580	4.1	X	**FF**	**57R37**	**(E)DRN**	**63MS4**	99	459/521
3.1	2720	543	1570	1.30	X	**FA**	**47R17**	**(E)DRN**	**63MS4**	52	453/521
3.5	2320	475	1650	1.50	X	**FAF**	**47R17**	**(E)DRN**	**63MS4**	58	452/521
4.0	2020	419	1710	1.75	X	**F**	**47R17**	**(E)DRN**	**63MS4**	54	451/521
						FF	**47R17**	**(E)DRN**	**63MS4**	61	452/521
3.2	2680	524	1580	1.30	X						
3.4	2480	489	1620	1.45	X						
3.9	2130	427	1690	1.65	X	**FA**	**47R17**	**(E)DRN**	**63MS4**	51	453/521
4.4	1880	381	1730	1.90	X	**FAF**	**47R17**	**(E)DRN**	**63MS4**	57	452/521
5.0	1650	334	1760	2.1	X	**F**	**47R17**	**(E)DRN**	**63MS4**	53	451/521
5.7	1430	295	1790	2.5	X	**FF**	**47R17**	**(E)DRN**	**63MS4**	60	452/521
6.6	1180	253	1810	3.0	X						
5.2	1520	322	1040	1.15	X	**FA**	**37R17**	**(E)DRN**	**63MS4**	42	446/521
6.1	1330	278	1090	1.30	X	**FAF**	**37R17**	**(E)DRN**	**63MS4**	45	445/521
6.9	1120	242	1140	1.60	X	**F**	**37R17**	**(E)DRN**	**63MS4**	43	444/521
7.6	1090	221	1150	1.60	X	**FF**	**37R17**	**(E)DRN**	**63MS4**	47	445/521
5.2	1650	326	1000	1.05	X						
5.9	1420	285	1070	1.25	X	**FA**	**37R17**	**(E)DRN**	**63MS4**	41	446/521
6.7	1240	250	1120	1.45	X	**FAF**	**37R17**	**(E)DRN**	**63MS4**	45	445/521
7.7	1090	219	1150	1.60	X	**F**	**37R17**	**(E)DRN**	**63MS4**	42	444/521
9.0	920	186	1180	1.90	X	**FF**	**37R17**	**(E)DRN**	**63MS4**	47	445/521
10	820	167	1190	2.1	X						
7.6	1080	221	1010	1.05	X	**FA**	**27R17**	**(E)DRN**	**63MS4**	28	441/521
9.8	820	172	1010	1.40	X	**FAF**	**27R17**	**(E)DRN**	**63MS4**	30	442/521
11	720	153	1010	1.60	X	**F**	**27R17**	**(E)DRN**	**63MS4**	29	443/521
13	595	130	1010	1.90	X	**FF**	**27R17**	**(E)DRN**	**63MS4**	31	442/521
8.0	1040	211	1010	1.10	X						
9.0	910	186	1010	1.25	X	**FA**	**27R17**	**(E)DRN**	**63MS4**	28	441/521
12	720	142	1010	1.60	X	**FAF**	**27R17**	**(E)DRN**	**63MS4**	29	442/521
14	615	124	1010	1.85	X	**F**	**27R17**	**(E)DRN**	**63MS4**	29	443/521
15	535	109	1010	2.1	X	**FF**	**27R17**	**(E)DRN**	**63MS4**	31	442/521
18	465	96	1010	2.5	X						
4.8	2090	228.99	2920	3.5							
5.6	1790	195.39	2920	4.0		**FA**	**67**	**DRN**	**63M6**	71	468
6.4	1560	170.85	2920	4.6		**FAF**	**67**	**DRN**	**63M6**	85	466
6.8	1480	162.31	2920	4.9		**F**	**67**	**DRN**	**63M6**	77	465
7.7	1300	142.40	2920	5.6		**FF**	**67**	**DRN**	**63M6**	90	466
5.5	1820	199.70	2580	2.9							
6.0	1680	183.60	2580	3.2		**FA**	**57**	**DRN**	**63M6**	62	460
7.0	1430	157.09	2580	3.7		**FAF**	**57**	**DRN**	**63M6**	74	459
8.1	1240	136.16	2580	4.2		**F**	**57**	**DRN**	**63M6**	63	458
8.6	1160	127.27	2580	4.5		**FF**	**57**	**DRN**	**63M6**	77	459
8.4	1190	199.70	2580	4.4	X	**FA**	**57**	**(E)DRN**	**63MS4**	62	460
9.2	1100	183.60	2580	4.8	X	**FAF**	**57**	**(E)DRN**	**63MS4**	74	459
11	940	157.09	2580	5.6	X	**F**	**57**	**(E)DRN**	**63MS4**	63	458
12	810	136.16	2580	6.5	X	**FF**	**57**	**(E)DRN**	**63MS4**	77	459
5.8	1740	190.76	1750	2.0							
6.3	1600	175.38	1770	2.2							
7.3	1370	150.06	1790	2.6		**FA**	**47**	**DRN**	**63M6**	46	453
8.5	1190	130.07	1810	3.0		**FAF**	**47**	**DRN**	**63M6**	52	452
9.1	1110	121.57	1820	3.2		**F**	**47**	**DRN**	**63M6**	48	451
10	960	105.09	1830	3.7		**FF**	**47**	**DRN**	**63M6**	55	452
12	810	89.29	1840	4.3							
14	730	79.72	1840	4.8							

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P_m = 0.16 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
8.8	1140	190.76	1820	3.1	X	**FA**	**47**	**(E)DRN**	**63MS4**	46	453
9.6	1050	175.38	1820	3.4	X	**FAF**	**47**	**(E)DRN**	**63MS4**	52	452
11	900	150.06	1830	3.9	X	**F**	**47**	**(E)DRN**	**63MS4**	48	451
13	780	130.07	1840	4.5	X	**FF**	**47**	**(E)DRN**	**63MS4**	55	452
8.6	1170	128.51	1130	1.50		**FA**	**37**	**DRN**	**63M6**	35	446
9.3	1080	117.88	1150	1.65		**FAF**	**37**	**DRN**	**63M6**	39	445
11	910	100.36	1180	1.90		**F**	**37**	**DRN**	**63M6**	36	444
13	790	86.53	1190	2.2		**FF**	**37**	**DRN**	**63M6**	40	445
14	735	80.65	1200	2.4							
13	770	128.51	1200	2.3	X	**FA**	**37**	**(E)DRN**	**63MS4**	35	446
14	705	117.88	1200	2.5	X	**FAF**	**37**	**(E)DRN**	**63MS4**	39	445
17	600	100.36	1220	2.9	X	**F**	**37**	**(E)DRN**	**63MS4**	36	444
19	515	86.53	1220	3.4	X	**FF**	**37**	**(E)DRN**	**63MS4**	40	445
21	480	80.65	1230	3.7	X						
10	1000	109.90	1010	1.15		**FA**	**27**	**DRN**	**63M6**	22	441
12	860	94.76	1010	1.30		**FAF**	**27**	**DRN**	**63M6**	23	442
12	800	88.32	1010	1.40		**F**	**27**	**DRN**	**63M6**	23	443
14	705	77.21	1010	1.65		**FF**	**27**	**DRN**	**63M6**	25	442
12	840	140.74	1010	1.35	X						
13	770	129.09	1010	1.50	X						
15	655	109.90	1010	1.75	X						
18	565	94.76	1010	2.0	X						
19	525	88.32	1010	2.2	X						
22	460	77.21	1010	2.5	X	**FA**	**27**	**(E)DRN**	**63MS4**	22	441
23	430	72.37	1010	2.6	X	**FAF**	**27**	**(E)DRN**	**63MS4**	23	442
26	380	63.86	1010	3.0	X	**F**	**27**	**(E)DRN**	**63MS4**	23	443
30	335	56.62	1010	3.4	X	**FF**	**27**	**(E)DRN**	**63MS4**	25	442
33	300	50.19	1010	3.8	X						
36	280	46.78	1000	4.1	X						
41	245	40.89	960	4.7	X						
44	225	38.33	940	5.0	X						
50	200	33.83	910	5.7	X						
58	**175**	29.56	870	6.5	X						
63	**161**	27.18	850	7.0	X						
73	**138**	23.25	810	8.2	X						
84	**120**	20.15	775	9.5	X						
90	**112**	18.84	755	10	X						
104	**97**	16.28	725	12	X						
123	**82**	13.84	685	14	X	**FA**	**27**	**(E)DRN**	**63MS4**	21	441
138	**73**	12.35	665	16	X	**FAF**	**27**	**(E)DRN**	**63MS4**	23	442
161	**63**	10.55	630	18	X	**F**	**27**	**(E)DRN**	**63MS4**	22	443
172	**59**	9.88	620	19	X	**FF**	**27**	**(E)DRN**	**63MS4**	24	442
181	**56**	9.40	605	20	X						
209	**48**	8.13	580	22	X						
246	**41**	6.91	550	24	X						
276	**37**	6.17	530	26	X						
323	**31**	5.27	505	28	X						
345	**29**	4.93	495	29	X						
409	**25**	4.16	465	31	X						

P_m = 0.25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.13	93100	12912	20200	1.15	X						
0.15	82500	11656	20200	1.30	X	**FA**	**127R77**	**(E)DRN**	**63M4**	940	508/521
0.17	73500	10191	20200	1.45	X	**FAF**	**127R77**	**(E)DRN**	**63M4**	1030	506/521
0.19	59800	8831	20200	1.75	X	**F**	**127R77**	**(E)DRN**	**63M4**	1020	505/521
0.22	51800	7643	20200	2.0	X	**FF**	**127R77**	**(E)DRN**	**63M4**	1120	506/521
0.25	49000	6715	20200	2.2	X						

P_m = 0.25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.20	55900	8548	12000	1.20	X						
0.22	55300	7674	12000	1.25	X						
0.25	47900	6767	12400	1.40	X	**FA**	**107R77**	**(E)DRN**	**63M4**	610	500/521
0.29	40900	5954	12800	1.65	X	**FAF**	**107R77**	**(E)DRN**	**63M4**	660	498/521
0.33	35400	5223	13100	1.90	X	**F**	**107R77**	**(E)DRN**	**63M4**	650	497/521
0.37	33300	4567	13200	2.0	X	**FF**	**107R77**	**(E)DRN**	**63M4**	710	498/521
0.48	24900	3521	13600	2.7	X						
0.56	22100	3037	13800	3.1	X	**FA**	**107R77**	**(E)DRN**	**63M4**	610	500/521
0.62	20100	2756	13900	3.4	X	**FAF**	**107R77**	**(E)DRN**	**63M4**	650	498/521
0.72	17300	2369	14000	3.9	X	**F**	**107R77**	**(E)DRN**	**63M4**	640	497/521
0.82	15100	2068	14100	4.5	X	**FF**	**107R77**	**(E)DRN**	**63M4**	710	498/521
						FA	**97R57**	**(E)DRN**	**63M4**	410	492/521
0.39	33200	4333	7060	1.15	X	**FAF**	**97R57**	**(E)DRN**	**63M4**	460	490/521
						F	**97R57**	**(E)DRN**	**63M4**	425	489/521
						FF	**97R57**	**(E)DRN**	**63M4**	500	490/521
0.44	30700	3906	7230	1.25	X						
0.51	26500	3352	7480	1.45	X						
0.58	22100	2907	7730	1.70	X						
0.67	20100	2553	7840	1.90	X	**FA**	**97R57**	**(E)DRN**	**63M4**	410	492/521
0.76	17600	2245	7950	2.1	X	**FAF**	**97R57**	**(E)DRN**	**63M4**	455	490/521
0.86	15300	1970	8060	2.5	X	**F**	**97R57**	**(E)DRN**	**63M4**	425	489/521
0.99	13600	1722	8130	2.8	X	**FF**	**97R57**	**(E)DRN**	**63M4**	495	490/521
1.1	12100	1527	8200	3.1	X						
1.3	9730	1327	8290	3.9	X						
1.4	9270	1171	8310	4.1	X						
0.66	20400	2576	5720	1.30	X						
0.77	17300	2199	5970	1.55	X						
0.88	14900	1930	6140	1.75	X						
0.99	13400	1709	6240	1.95	X	**FA**	**87R57**	**(E)DRN**	**63M4**	265	484/521
1.1	11800	1493	6340	2.2	X	**FAF**	**87R57**	**(E)DRN**	**63M4**	290	482/521
1.3	9530	1300	6470	2.8	X	**F**	**87R57**	**(E)DRN**	**63M4**	275	481/521
1.5	8610	1148	6520	3.1	X	**FF**	**87R57**	**(E)DRN**	**63M4**	310	482/521
1.7	7410	1010	6580	3.6	X						
1.9	6650	887	6620	4.0	X						
2.2	5720	780	6660	4.6	X						
1.1	12400	1544	3670	1.05	X						
1.3	10800	1354	3890	1.20	X						
1.4	9630	1200	4030	1.40	X	**FA**	**77R37**	**(E)DRN**	**63M4**	150	476/521
1.6	8450	1053	4150	1.55	X	**FAF**	**77R37**	**(E)DRN**	**63M4**	165	474/521
1.9	7230	910	4250	1.85	X	**F**	**77R37**	**(E)DRN**	**63M4**	160	473/521
2.1	6100	810	4330	2.2	X	**FF**	**77R37**	**(E)DRN**	**63M4**	180	474/521
2.4	5350	710	4380	2.5	X						
2.8	4800	615	4410	2.8	X						
2.0	6470	858	2480	1.10	X						
2.2	5690	755	2610	1.25	X						
2.6	4830	641	2740	1.50	X	**FA**	**67R37**	**(E)DRN**	**63M4**	100	468/521
3.0	4470	572	2780	1.60	X	**FAF**	**67R37**	**(E)DRN**	**63M4**	115	466/521
3.3	3830	509	2850	1.90	X	**F**	**67R37**	**(E)DRN**	**63M4**	105	465/521
3.9	3310	437	2900	2.2	X	**FF**	**67R37**	**(E)DRN**	**63M4**	120	466/521
4.4	2990	384	2920	2.4	X						
3.4	4020	500	2830	1.80	X						
3.8	3680	454	2870	1.95	X						
4.3	3150	392	2910	2.3	X	**FA**	**67R37**	**(E)DRN**	**63M4**	98	468/521
5.1	2630	333	2920	2.8	X	**FAF**	**67R37**	**(E)DRN**	**63M4**	110	466/521
5.7	2320	297	2920	3.1	X	**F**	**67R37**	**(E)DRN**	**63M4**	105	465/521
6.5	2040	261	2920	3.5	X	**FF**	**67R37**	**(E)DRN**	**63M4**	120	466/521
7.2	1810	238	2920	4.0	X						
8.5	1500	200	2920	4.8	X						
3.0	4430	558	2230	1.20	X						
3.4	3960	506	2310	1.35	X	**FA**	**57R37**	**(E)DRN**	**63M4**	92	460/521
3.8	3430	452	2390	1.55	X	**FAF**	**57R37**	**(E)DRN**	**63M4**	105	459/521
4.4	2930	386	2460	1.80	X	**F**	**57R37**	**(E)DRN**	**63M4**	92	458/521
5.0	2540	338	2520	2.1	X	**FF**	**57R37**	**(E)DRN**	**63M4**	105	459/521

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P_m = 0.25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
4.0	3510	426	2380	1.50	X						
4.5	3100	382	2440	1.70	X						
5.2	2650	330	2500	2.0	X	**FA**	**57R37**	**(E)DRN**	**63M4**	91	460/521
5.7	2390	298	2540	2.2	X	**FAF**	**57R37**	**(E)DRN**	**63M4**	105	459/521
6.5	2110	262	2570	2.5	X	**F**	**57R37**	**(E)DRN**	**63M4**	91	458/521
7.5	1770	226	2580	3.0	X	**FF**	**57R37**	**(E)DRN**	**63M4**	105	459/521
8.5	1530	200	2580	3.5	X						
4.6	2840	370	1540	1.25	X	**FA**	**47R17**	**(E)DRN**	**63M4**	58	453/521
5.3	2630	324	1590	1.35	X	**FAF**	**47R17**	**(E)DRN**	**63M4**	64	452/521
5.9	2270	288	1670	1.55	X	**F**	**47R17**	**(E)DRN**	**63M4**	60	451/521
6.8	1910	249	1720	1.85	X	**FF**	**47R17**	**(E)DRN**	**63M4**	67	452/521
5.1	2690	334	1580	1.30	X						
5.8	2350	295	1650	1.50	X	**FA**	**47R17**	**(E)DRN**	**63M4**	56	453/521
6.7	1970	253	1720	1.80	X	**FAF**	**47R17**	**(E)DRN**	**63M4**	62	452/521
7.8	1770	217	1740	2.0	X	**F**	**47R17**	**(E)DRN**	**63M4**	58	451/521
9.0	1540	190	1780	2.3	X	**FF**	**47R17**	**(E)DRN**	**63M4**	65	452/521
9.6	1430	178	1790	2.5	X						
9.1	1500	186	1050	1.20	X	**FA**	**37R17**	**(E)DRN**	**63M4**	47	446/521
10	1340	167	1090	1.30	X	**FAF**	**37R17**	**(E)DRN**	**63M4**	50	445/521
12	1190	145	1130	1.50	X	**F**	**37R17**	**(E)DRN**	**63M4**	48	444/521
13	1050	129	1150	1.65	X	**FF**	**37R17**	**(E)DRN**	**63M4**	52	445/521
12	1160	142	1010	1.00		**FA**	**27R17**	**(E)DRN**	**63M4**	33	441/521
14	1000	124	1010	1.15	X	**FAF**	**27R17**	**(E)DRN**	**63M4**	35	442/521
16	870	109	1010	1.30	X	**F**	**27R17**	**(E)DRN**	**63M4**	34	443/521
18	765	96	1010	1.50	X	**FF**	**27R17**	**(E)DRN**	**63M4**	36	442/521
4	3930	281.71	4440	3.2		**FA**	**77**	**DRN**	**71MS6**	125	476
4.3	3665	262.93	4450	3.4		**FAF**	**77**	**DRN**	**71MS6**	140	474
5	3150	225.79	4470	4.0		**F**	**77**	**DRN**	**71MS6**	135	473
						FF	**77**	**DRN**	**71MS6**	155	474
7.4	2120	228.99	2920	3.4	X	**FA**	**67**	**(E)DRN**	**63M4**	76	468
8.7	1810	195.39	2920	4.0	X	**FAF**	**67**	**(E)DRN**	**63M4**	90	466
9.9	1580	170.85	2920	4.6	X	**F**	**67**	**(E)DRN**	**63M4**	82	465
						FF	**67**	**(E)DRN**	**63M4**	95	466
4.9	3195	228.99	2890	2.1		**FA**	**67**	**DRN**	**71MS6**	72	468
5.8	2725	195.39	2920	2.5		**FAF**	**67**	**DRN**	**71MS6**	86	466
6.6	2380	170.85	2920	2.9		**F**	**67**	**DRN**	**71MS6**	78	465
						FF	**67**	**DRN**	**71MS6**	92	466
8.5	1850	199.70	2580	2.9	X						
9.3	1700	183.60	2580	3.1	X	**FA**	**57**	**(E)DRN**	**63M4**	67	460
11	1450	157.09	2580	3.6	X	**FAF**	**57**	**(E)DRN**	**63M4**	79	459
12	1260	136.16	2580	4.2	X	**F**	**57**	**(E)DRN**	**63M4**	68	458
13	1180	127.27	2580	4.5	X	**FF**	**57**	**(E)DRN**	**63M4**	82	459
5.7	2785	199.70	2460	1.80							
6.2	2560	183.60	2500	1.95		**FA**	**57**	**DRN**	**71MS6**	64	460
7.2	2190	157.09	2550	2.3		**FAF**	**57**	**DRN**	**71MS6**	76	459
8.3	1900	136.16	2580	2.6		**F**	**57**	**DRN**	**71MS6**	64	458
8.9	1775	127.27	2580	2.8		**FF**	**57**	**DRN**	**71MS6**	78	459
10	1535	110.01	2580	3.3							
8.9	1760	190.76	1750	2.0	X						
9.7	1620	175.38	1760	2.2	X	**FA**	**47**	**(E)DRN**	**63M4**	52	453
11	1390	150.06	1790	2.5	X	**FAF**	**47**	**(E)DRN**	**63M4**	58	452
13	1200	130.07	1810	2.9	X	**F**	**47**	**(E)DRN**	**63M4**	54	451
14	1120	121.57	1820	3.1	X	**FF**	**47**	**(E)DRN**	**63M4**	61	452
5.9	2660	190.76	1550	1.25							
6.4	2445	175.38	1600	1.35		**FA**	**47**	**DRN**	**71MS6**	47	453
7.5	2090	150.06	1680	1.60		**FAF**	**47**	**DRN**	**71MS6**	53	452
8.7	1815	130.07	1720	1.85		**F**	**47**	**DRN**	**71MS6**	49	451
9.3	1695	121.57	1740	2.0		**FF**	**47**	**DRN**	**71MS6**	56	452

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P_m = 0.25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
13	1190	128.51	1130	1.50	X						
14	1090	117.88	1150	1.60	X						
17	930	100.36	1170	1.90	X	**FA**	**37**	**(E)DRN**	**63M4**	41	446
20	800	86.53	1190	2.2	X	**FAF**	**37**	**(E)DRN**	**63M4**	45	445
21	745	80.65	1200	2.4	X	**F**	**37**	**(E)DRN**	**63M4**	42	444
24	650	70.50	1210	2.7	X	**FF**	**37**	**(E)DRN**	**63M4**	46	445
26	610	66.09	1210	2.9	X						
29	540	58.32	1220	3.3	X						
9.6	1645	117.88	980	1.00		**FA**	**37**	**DRN**	**71MS6**	37	446
11	1400	100.36	1060	1.20		**FAF**	**37**	**DRN**	**71MS6**	40	445
13	1205	86.53	1110	1.40		**F**	**37**	**DRN**	**71MS6**	38	444
14	1125	80.65	1130	1.50		**FF**	**37**	**DRN**	**71MS6**	42	445
16	985	70.50	1160	1.70							
15	1010	109.90	1010	1.15	X						
18	870	94.76	1010	1.30	X						
19	810	88.32	1010	1.40	X						
22	715	77.21	1010	1.60	X						
23	670	72.37	1010	1.70	X	**FA**	**27**	**(E)DRN**	**63M4**	28	441
27	590	63.86	1010	1.95	X	**FAF**	**27**	**(E)DRN**	**63M4**	29	442
30	525	56.62	1010	2.2	X	**F**	**27**	**(E)DRN**	**63M4**	29	443
34	465	50.19	980	2.5	X	**FF**	**27**	**(E)DRN**	**63M4**	31	442
36	430	46.78	960	2.6	X						
42	375	40.89	920	3.0	X						
44	355	38.33	910	3.2	X						
50	310	33.83	880	3.7	X						
57	275	29.56	840	4.2	X						
62	253	27.18	820	4.6	X						
73	216	23.25	785	5.3	X						
84	187	20.15	755	6.2	X						
90	175	18.84	740	6.6	X						
104	151	16.28	710	7.6	X						
122	129	13.84	675	9.0	X	**FA**	**27**	**(E)DRN**	**63M4**	27	441
137	115	12.35	650	10	X	**FAF**	**27**	**(E)DRN**	**63M4**	29	442
161	98	10.55	620	12	X	**F**	**27**	**(E)DRN**	**63M4**	28	443
172	92	9.88	610	13	X	**FF**	**27**	**(E)DRN**	**63M4**	30	442
180	87	9.40	595	13	X						
208	76	8.13	570	14	X						
245	64	6.91	540	16	X						
275	57	6.17	525	17	X						
322	49	5.27	495	18	X						
344	46	4.93	485	19	X						
407	39	4.16	460	20	X						

P_m = 0.33 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.13	151310	13751	25410	1.15	X	**FA**	**157R97**	**(E)DRN**	**71MS4**	1690	516/522
0.14	134630	12235	25950	1.30	X	**FAF**	**157R97**	**(E)DRN**	**71MS4**	1820	514/522
0.24	77850	7075	27000	2.3	X	**F**	**157R97**	**(E)DRN**	**71MS4**	1740	513/522
0.27	69270	6295	27000	2.6	X	**FF**	**157R97**	**(E)DRN**	**71MS4**	1970	514/522
0.32	59460	5404	27000	3.0	X						
0.19	84200	8831	20200	1.25	X						
0.22	72900	7643	20200	1.45	X	**FA**	**127R77**	**(E)DRN**	**71MS4**	940	508/521
0.25	67600	6715	20200	1.55	X	**FAF**	**127R77**	**(E)DRN**	**71MS4**	1030	506/521
0.29	59600	5925	20200	1.80	X	**F**	**127R77**	**(E)DRN**	**71MS4**	1020	505/521
0.33	50600	5153	20200	2.1	X	**FF**	**127R77**	**(E)DRN**	**71MS4**	1120	506/521
0.37	43600	4533	20200	2.4	X						
0.29	57300	5954	11900	1.20	X	**FA**	**107R77**	**(E)DRN**	**71MS4**	610	500/521
0.33	49800	5223	12300	1.35	X	**FAF**	**107R77**	**(E)DRN**	**71MS4**	660	498/521
0.37	45900	4567	12600	1.50	X	**F**	**107R77**	**(E)DRN**	**71MS4**	650	497/521
0.48	34600	3521	13200	1.95	X	**FF**	**107R77**	**(E)DRN**	**71MS4**	710	498/521

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P_m = 0.33 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.56	30600	3037	13400	2.2	X						
0.62	27800	2756	13500	2.4	X	**FA**	**107R77**	**(E)DRN**	**71MS4**	610	500/521
0.72	23900	2369	13700	2.8	X	**FAF**	**107R77**	**(E)DRN**	**71MS4**	650	498/521
0.82	20800	2068	13800	3.2	X	**F**	**107R77**	**(E)DRN**	**71MS4**	640	497/521
1.1	15900	1597	14100	4.3	X	**FF**	**107R77**	**(E)DRN**	**71MS4**	710	498/521
1.2	13600	1401	14100	5.0	X						
0.58	30200	2907	7260	1.25	X						
0.67	27200	2553	7440	1.40	X						
0.76	23900	2245	7630	1.60	X						
0.86	20800	1970	7800	1.85	X	**FA**	**97R57**	**(E)DRN**	**71MS4**	410	492/521
0.99	18400	1722	7920	2.1	X	**FAF**	**97R57**	**(E)DRN**	**71MS4**	455	490/521
1.1	16300	1527	8010	2.3	X	**F**	**97R57**	**(E)DRN**	**71MS4**	425	489/521
1.3	13400	1327	8140	2.8	X	**FF**	**97R57**	**(E)DRN**	**71MS4**	495	490/521
1.4	12500	1171	8180	3.0	X						
1.7	10900	1022	8240	3.5	X						
0.88	20300	1930	5730	1.30	X						
0.99	18200	1709	5900	1.45	X						
1.1	16000	1493	6070	1.65	X						
1.3	13100	1300	6260	2.0	X	**FA**	**87R57**	**(E)DRN**	**71MS4**	265	484/521
1.5	11800	1148	6340	2.2	X	**FAF**	**87R57**	**(E)DRN**	**71MS4**	290	482/521
1.7	10200	1010	6430	2.6	X	**F**	**87R57**	**(E)DRN**	**71MS4**	275	481/521
1.9	9130	887	6500	2.9	X	**FF**	**87R57**	**(E)DRN**	**71MS4**	310	482/521
2.2	7900	780	6560	3.4	X						
2.5	6650	674	6620	4.0	X						
1.6	11300	1053	3820	1.15	X						
1.9	9770	910	4020	1.35	X						
2.1	8370	810	4160	1.60	X	**FA**	**77R37**	**(E)DRN**	**71MS4**	150	476/521
2.4	7340	710	4250	1.80	X	**FAF**	**77R37**	**(E)DRN**	**71MS4**	165	474/521
2.8	6520	615	4310	2.0	X	**F**	**77R37**	**(E)DRN**	**71MS4**	160	473/521
3.2	5710	538	4360	2.3	X	**FF**	**77R37**	**(E)DRN**	**71MS4**	180	474/521
3.5	5050	480	4390	2.6	X						
4.1	4260	413	4430	3.1	X						
3.0	6070	572	2550	1.20	X	**FA**	**67R37**	**(E)DRN**	**71MS4**	100	468/521
3.3	5250	509	2680	1.40	X	**FAF**	**67R37**	**(E)DRN**	**71MS4**	115	466/521
3.9	4530	437	2770	1.60	X	**F**	**67R37**	**(E)DRN**	**71MS4**	105	465/521
						FF	**67R37**	**(E)DRN**	**71MS4**	120	466/521
3.4	5440	500	2650	1.35	X						
3.8	4970	454	2720	1.45	X						
4.3	4260	392	2810	1.70	X	**FA**	**67R37**	**(E)DRN**	**71MS4**	98	468/521
5.1	3570	333	2880	2.0	X	**FAF**	**67R37**	**(E)DRN**	**71MS4**	110	466/521
5.7	3160	297	2910	2.3	X	**F**	**67R37**	**(E)DRN**	**71MS4**	105	465/521
6.5	2780	261	2920	2.6	X	**FF**	**67R37**	**(E)DRN**	**71MS4**	120	466/521
7.2	2480	238	2920	2.9	X						
4.4	4010	386	2300	1.30	X	**FA**	**57R37**	**(E)DRN**	**71MS4**	92	460/521
5.0	3490	338	2380	1.50	X	**FAF**	**57R37**	**(E)DRN**	**71MS4**	105	459/521
6.7	2640	255	2500	2.0	X	**F**	**57R37**	**(E)DRN**	**71MS4**	92	458/521
						FF	**57R37**	**(E)DRN**	**71MS4**	105	459/521
4.5	4180	382	2270	1.25	X						
5.2	3590	330	2370	1.50	X						
5.7	3240	298	2420	1.65	X	**FA**	**57R37**	**(E)DRN**	**71MS4**	91	460/521
6.5	2850	262	2480	1.85	X	**FAF**	**57R37**	**(E)DRN**	**71MS4**	105	459/521
7.5	2410	226	2540	2.2	X	**F**	**57R37**	**(E)DRN**	**71MS4**	91	458/521
8.5	2090	200	2580	2.5	X	**FF**	**57R37**	**(E)DRN**	**71MS4**	105	459/521
10	1780	170	2580	3.0	X						
6.7	2680	253	1580	1.30	X						
7.8	2390	217	1640	1.50	X	**FA**	**47R17**	**(E)DRN**	**71MS4**	56	453/521
9.0	2070	190	1700	1.70	X	**FAF**	**47R17**	**(E)DRN**	**71MS4**	62	452/521
9.6	1940	178	1720	1.80	X	**F**	**47R17**	**(E)DRN**	**71MS4**	58	451/521
11	1610	149	1770	2.2	X	**FF**	**47R17**	**(E)DRN**	**71MS4**	65	452/521
13	1410	131	1790	2.5	X						
12	1600	145	1020	1.10	X	**FA**	**37R17**	**(E)DRN**	**71MS4**	47	446/521
13	1420	129	1070	1.25	X	**FAF**	**37R17**	**(E)DRN**	**71MS4**	50	445/521
14	1290	118	1100	1.35	X	**F**	**37R17**	**(E)DRN**	**71MS4**	48	444/521
17	1070	98	1150	1.65	X	**FF**	**37R17**	**(E)DRN**	**71MS4**	52	445/521
20	930	87	1170	1.90	X						

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P_m = 0.33 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
3.9	5320	281.71	4380	2.5		**FA**	**77**	**DRN**	**71M6**	130	476
4.2	4970	262.93	4400	2.7		**FAF**	**77**	**DRN**	**71M6**	145	474
4.9	4270	225.79	4430	3.1		**F**	**77**	**DRN**	**71M6**	135	473
5.5	3750	198.31	4450	3.5		**FF**	**77**	**DRN**	**71M6**	160	474
5.8	3560	188.40	4460	3.7							
4.8	4330	228.99	2800	1.65							
5.6	3690	195.39	2860	1.95		**FA**	**67**	**DRN**	**71M6**	76	468
6.4	3230	170.85	2910	2.2		**FAF**	**67**	**DRN**	**71M6**	90	466
6.8	3070	162.31	2920	2.4		**F**	**67**	**DRN**	**71M6**	82	465
7.7	2690	142.40	2920	2.7		**FF**	**67**	**DRN**	**71M6**	95	466
7.4	2800	228.99	2920	2.6	X						
8.7	2390	195.39	2920	3.0	X	**FA**	**67**	**(E)DRN**	**71MS4**	76	468
9.9	2090	170.85	2920	3.5	X	**FAF**	**67**	**(E)DRN**	**71MS4**	90	466
10	1980	162.31	2920	3.6	X	**F**	**67**	**(E)DRN**	**71MS4**	82	465
12	1740	142.40	2920	4.2	X	**FF**	**67**	**(E)DRN**	**71MS4**	95	466
5.5	3770	199.70	2340	1.40							
6.0	3470	183.60	2380	1.55		**FA**	**57**	**DRN**	**71M6**	67	460
7.0	2970	157.09	2460	1.80		**FAF**	**57**	**DRN**	**71M6**	79	459
8.1	2570	136.16	2510	2.1		**F**	**57**	**DRN**	**71M6**	68	458
8.6	2400	127.27	2540	2.2		**FF**	**57**	**DRN**	**71M6**	82	459
10	2080	110.01	2580	2.5							
8.5	2440	199.70	2530	2.2	X						
9.3	2240	183.60	2560	2.4	X	**FA**	**57**	**(E)DRN**	**71MS4**	67	460
11	1920	157.09	2580	2.8	X	**FAF**	**57**	**(E)DRN**	**71MS4**	79	459
12	1660	136.16	2580	3.2	X	**F**	**57**	**(E)DRN**	**71MS4**	68	458
13	1550	127.27	2580	3.4	X	**FF**	**57**	**(E)DRN**	**71MS4**	82	459
15	1340	110.01	2580	3.9	X						
7.3	2830	150.06	1540	1.25		**FA**	**47**	**DRN**	**71M6**	52	453
8.5	2460	130.07	1630	1.45		**FAF**	**47**	**DRN**	**71M6**	58	452
9.1	2290	121.57	1660	1.55		**F**	**47**	**DRN**	**71M6**	54	451
10	1980	105.09	1710	1.80		**FF**	**47**	**DRN**	**71M6**	61	452
8.9	2330	190.76	1650	1.50	X						
9.7	2140	175.38	1690	1.65	X						
11	1830	150.06	1740	1.95	X	**FA**	**47**	**(E)DRN**	**71MS4**	52	453
13	1590	130.07	1770	2.2	X	**FAF**	**47**	**(E)DRN**	**71MS4**	58	452
14	1480	121.57	1780	2.4	X	**F**	**47**	**(E)DRN**	**71MS4**	54	451
16	1280	105.09	1800	2.8	X	**FF**	**47**	**(E)DRN**	**71MS4**	61	452
19	1090	89.29	1820	3.2	X						
13	1570	128.51	1030	1.10	X						
14	1440	117.88	1070	1.25	X						
17	1220	100.36	1120	1.45	X						
20	1050	86.53	1150	1.65	X						
21	980	80.65	1160	1.80	X						
24	860	70.50	1180	2.0	X						
26	800	66.09	1190	2.2	X	**FA**	**37**	**(E)DRN**	**71MS4**	41	446
29	710	58.32	1200	2.5	X	**FAF**	**37**	**(E)DRN**	**71MS4**	45	445
31	665	54.54	1210	2.6	X	**F**	**37**	**(E)DRN**	**71MS4**	42	444
33	630	51.70	1210	2.8	X	**FF**	**37**	**(E)DRN**	**71MS4**	46	445
36	575	47.02	1220	3.1	X						
39	535	43.83	1220	3.3	X						
44	465	38.31	1230	3.8	X						
47	435	35.91	1210	4.0	X						
54	385	31.69	1170	4.6	X						
22	940	77.21	1010	1.20	X						
23	880	72.37	1010	1.30	X						
27	780	63.86	990	1.45	X						
30	690	56.62	970	1.65	X	**FA**	**27**	**(E)DRN**	**71MS4**	28	441
34	610	50.19	940	1.85	X	**FAF**	**27**	**(E)DRN**	**71MS4**	29	442
36	570	46.78	930	2.0	X	**F**	**27**	**(E)DRN**	**71MS4**	29	443
42	500	40.89	900	2.3	X	**FF**	**27**	**(E)DRN**	**71MS4**	31	442
45	465	38.33	880	2.5	X						
51	410	33.83	850	2.8	X						

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P_m = 0.33 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
58	357	29.56	820	3.2	X						
63	329	27.18	810	3.5	X						
74	281	23.25	770	4.0	X						
85	244	20.15	740	4.7	X						
91	228	18.84	725	5.0	X						
106	197	16.28	695	5.8	X						
124	167	13.84	665	6.8	X						
139	149	12.35	645	7.6	X	**FA**	**27**	**(E)DRN**	**71MS4**	27	441
163	128	10.55	615	8.9	X	**FAF**	**27**	**(E)DRN**	**71MS4**	29	442
174	119	9.88	600	9.5	X	**F**	**27**	**(E)DRN**	**71MS4**	28	443
183	114	9.40	590	10.0	X	**FF**	**27**	**(E)DRN**	**71MS4**	30	442
212	98	8.13	565	11	X						
249	84	6.91	535	12	X						
279	75	6.17	520	13	X						
326	64	5.27	495	14	X						
349	60	4.93	485	14	X						
413	50	4.16	460	15	X						
418	50	8.13	460	21							
491	42	6.91	435	23		**FA**	**27**	**DRN**	**63M2**	27	441
550	38	6.17	420	25		**FAF**	**27**	**DRN**	**63M2**	29	442
644	32	5.27	400	27		**F**	**27**	**DRN**	**63M2**	28	443
689	30	4.93	390	27		**FF**	**27**	**DRN**	**63M2**	30	442
816	25	4.16	370	29							

P_m = 0.50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
						FA	**157R97**	**(E)DRN**	**71M4**	1690	516/522
0.24	117270	7075	26100	1.5	X	**FAF**	**157R97**	**(E)DRN**	**71M4**	1820	514/522
0.27	104350	6295	26480	1.7	X	**F**	**157R97**	**(E)DRN**	**71M4**	1740	513/522
0.32	89580	5404	27000	2.0	X	**FF**	**157R97**	**(E)DRN**	**71M4**	1970	514/522
0.25	106900	6715	20200	1.00							
0.29	94400	5925	20200	1.10	X						
0.33	80900	5153	20200	1.30	X	**FA**	**127R77**	**(E)DRN**	**71M4**	940	508/521
0.37	70200	4533	20200	1.50	X	**FAF**	**127R77**	**(E)DRN**	**71M4**	1030	506/521
0.43	61600	3926	20200	1.70	X	**F**	**127R77**	**(E)DRN**	**71M4**	1020	505/521
0.49	53500	3454	20200	2.0	X	**FF**	**127R77**	**(E)DRN**	**71M4**	1120	506/521
0.56	46700	3031	20200	2.3	X						
0.56	48700	3037	12400	1.40	X						
0.62	44100	2756	12700	1.55	X	**FA**	**107R77**	**(E)DRN**	**71M4**	610	500/521
0.72	37900	2369	13000	1.80	X	**FAF**	**107R77**	**(E)DRN**	**71M4**	650	498/521
0.82	33100	2068	13200	2.0	X	**F**	**107R77**	**(E)DRN**	**71M4**	640	497/521
1.1	25300	1597	13600	2.7	X	**FF**	**107R77**	**(E)DRN**	**71M4**	710	498/521
0.86	32500	1970	7110	1.15	X						
0.99	28600	1722	7360	1.35	X						
1.1	25400	1527	7550	1.50	X	**FA**	**97R57**	**(E)DRN**	**71M4**	410	492/521
1.3	21300	1327	7770	1.80	X	**FAF**	**97R57**	**(E)DRN**	**71M4**	455	490/521
1.4	19400	1171	7870	1.95	X	**F**	**97R57**	**(E)DRN**	**71M4**	425	489/521
1.7	17000	1022	7980	2.2	X	**FF**	**97R57**	**(E)DRN**	**71M4**	495	490/521
1.9	14200	898	8110	2.7	X						
1.3	20800	1300	5680	1.25	X						
1.5	18600	1148	5870	1.40	X						
1.7	16200	1010	6050	1.65	X						
1.9	14300	887	6180	1.85	X	**FA**	**87R57**	**(E)DRN**	**71M4**	265	484/521
2.2	12500	780	6300	2.1	X	**FAF**	**87R57**	**(E)DRN**	**71M4**	290	482/521
2.5	10600	674	6410	2.5	X	**F**	**87R57**	**(E)DRN**	**71M4**	275	481/521
2.8	9780	609	6460	2.7	X	**FF**	**87R57**	**(E)DRN**	**71M4**	310	482/521
3.3	8230	515	6540	3.2	X						
3.8	7260	452	6590	3.6	X						
2.1	13100	810	3550	1.00	X	**FA**	**77R37**	**(E)DRN**	**71M4**	150	476/521
2.4	11500	710	3800	1.15	X	**FAF**	**77R37**	**(E)DRN**	**71M4**	165	474/521
2.8	10100	615	3970	1.30	X	**F**	**77R37**	**(E)DRN**	**71M4**	160	473/521
3.2	8900	538	4110	1.5	X	**FF**	**77R37**	**(E)DRN**	**71M4**	180	474/521

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P_m = 0.50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
3.5	7900	480	4200	1.7	X	**FA**	**77R37**	**(E)DRN**	**71M4**	150	476/521
4.1	6710	413	4290	2.0	X	**FAF**	**77R37**	**(E)DRN**	**71M4**	165	474/521
4.6	6030	367	4340	2.2	X	**F**	**77R37**	**(E)DRN**	**71M4**	160	473/521
5.3	5380	323	4380	2.5	X	**FF**	**77R37**	**(E)DRN**	**71M4**	180	474/521
4.4	6340	384	2500	1.15	X						
5.0	5640	338	2620	1.30	X	**FA**	**67R37**	**(E)DRN**	**71M4**	100	468/521
5.6	5030	305	2710	1.45	X	**FAF**	**67R37**	**(E)DRN**	**71M4**	115	466/521
6.6	4220	257	2810	1.70	X	**F**	**67R37**	**(E)DRN**	**71M4**	105	465/521
7.4	3710	231	2860	1.95	X	**FF**	**67R37**	**(E)DRN**	**71M4**	120	466/521
6.5	4420	262	2230	1.20	X						
6.7	4160	255	2270	1.30	X						
7.5	3760	226	2340	1.40	X	**FA**	**57R37**	**(E)DRN**	**71M4**	92	460/521
8.5	3300	200	2410	1.60	X	**FAF**	**57R37**	**(E)DRN**	**71M4**	105	459/521
9.4	2940	181	2460	1.80	X	**F**	**57R37**	**(E)DRN**	**71M4**	92	458/521
10	2800	170	2480	1.90	X	**FF**	**57R37**	**(E)DRN**	**71M4**	105	459/521
11	2480	152	2530	2.1	X						
13	2180	134	2560	2.4	X						
9.8	2900	175	1530	1.20	X	**FA**	**47R17**	**(E)DRN**	**71M4**	58	453/521
12	2440	147	1630	1.45	X	**FAF**	**47R17**	**(E)DRN**	**71M4**	64	452/521
13	2150	130	1690	1.65	X	**F**	**47R17**	**(E)DRN**	**71M4**	60	451/521
						FF	**47R17**	**(E)DRN**	**71M4**	67	452/521
4.1	7750	270.68	6570	3.4		**FA**	**87**	**DRN**	**80MK6**	225	484
4.3	7310	255.37	6590	3.6		**FAF**	**87**	**DRN**	**80MK6**	250	482
4.8	6560	228.93	6630	4.0		**F**	**87**	**DRN**	**80MK6**	235	481
						FF	**87**	**DRN**	**80MK6**	270	482
4.9	6470	225.79	4310	2.0							
5.5	5680	198.31	4360	2.3		**FA**	**77**	**DRN**	**80MK6**	135	476
5.8	5390	188.40	4380	2.5		**FAF**	**77**	**DRN**	**80MK6**	150	474
6.6	4770	166.47	4410	2.8		**F**	**77**	**DRN**	**80MK6**	145	473
7.7	4070	142.27	4440	3.3		**FF**	**77**	**DRN**	**80MK6**	170	474
6.0	5220	281.71	4390	2.5	X	**FA**	**77**	**(E)DRN**	**71M4**	130	476
6.5	4870	262.93	4400	2.7	X	**FAF**	**77**	**(E)DRN**	**71M4**	145	474
7.5	4180	225.79	4440	3.2	X	**F**	**77**	**(E)DRN**	**71M4**	135	473
8.6	3670	198.31	4460	3.6	X	**FF**	**77**	**(E)DRN**	**71M4**	160	474
5.6	5590	195.39	2630	1.30							
6.4	4890	170.85	2730	1.50		**FA**	**67**	**DRN**	**80MK6**	84	468
6.8	4650	162.31	2760	1.55		**FAF**	**67**	**DRN**	**80MK6**	98	466
7.7	4080	142.40	2830	1.80		**F**	**67**	**DRN**	**80MK6**	90	465
9.1	3460	120.79	2890	2.1		**FF**	**67**	**DRN**	**80MK6**	103	466
7.4	4240	228.99	2810	1.70	X						
8.7	3620	195.39	2870	2.0	X	**FA**	**67**	**(E)DRN**	**71M4**	76	468
9.9	3160	170.85	2910	2.3	X	**FAF**	**67**	**(E)DRN**	**71M4**	90	466
10	3010	162.31	2920	2.4	X	**F**	**67**	**(E)DRN**	**71M4**	82	465
12	2640	142.40	2920	2.8	X	**FF**	**67**	**(E)DRN**	**71M4**	95	466
14	2230	120.79	2920	3.2	X						
7.0	4500	157.09	2220	1.20		**FA**	**57**	**DRN**	**80MK6**	75	460
8.1	3900	136.16	2320	1.35		**FAF**	**57**	**DRN**	**80MK6**	87	459
8.6	3640	127.27	2360	1.45		**F**	**57**	**DRN**	**80MK6**	76	458
10	3150	110.01	2430	1.70		**FF**	**57**	**DRN**	**80MK6**	90	459
8.5	3700	199.70	2350	1.45	X						
9.3	3400	183.60	2400	1.55	X						
11	2910	157.09	2470	1.80	X	**FA**	**57**	**(E)DRN**	**71M4**	67	460
12	2520	136.16	2520	2.1	X	**FAF**	**57**	**(E)DRN**	**71M4**	79	459
13	2360	127.27	2540	2.2	X	**F**	**57**	**(E)DRN**	**71M4**	68	458
15	2040	110.01	2580	2.6	X	**FF**	**57**	**(E)DRN**	**71M4**	82	459
18	1730	93.47	2580	3.1	X						
20	1540	83.46	2580	3.4	X						
11	2780	150.06	1560	1.25	X						
13	2410	130.07	1640	1.45	X						
16	1940	105.09	1720	1.80	X	**FA**	**47**	**(E)DRN**	**71M4**	52	453
19	1650	89.29	1760	2.1	X	**FAF**	**47**	**(E)DRN**	**71M4**	58	452
21	1470	79.72	1780	2.4	X	**F**	**47**	**(E)DRN**	**71M4**	54	451
25	1260	68.09	1800	2.8	X	**FF**	**47**	**(E)DRN**	**71M4**	61	452
26	1210	65.36	1810	2.9	X						

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P_m = 0.50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
20	1575	86.53	1020	1.10	X						
21	1470	80.65	1050	1.20	X						
25	1285	70.50	1100	1.35	X						
26	1205	66.09	1120	1.45	X						
30	1060	58.32	1150	1.65	X						
32	995	54.54	1160	1.75	X	**FA**	**37**	**(E)DRN**	**71M4**	41	446
33	940	51.70	1170	1.85	X	**FAF**	**37**	**(E)DRN**	**71M4**	45	445
37	855	47.02	1180	2.0	X	**F**	**37**	**(E)DRN**	**71M4**	42	444
39	800	43.83	1190	2.2	X	**FF**	**37**	**(E)DRN**	**71M4**	46	445
45	700	38.31	1180	2.5	X						
48	655	35.91	1170	2.7	X						
55	575	31.69	1130	3.0	X						
62	510	28.09	1090	3.4	X						
72	435	23.88	1050	4.0	X						
31	1030	56.62	890	1.10	X						
34	915	50.19	870	1.25	X	**FA**	**27**	**(E)DRN**	**71M4**	28	441
37	850	46.78	860	1.35	X	**FAF**	**27**	**(E)DRN**	**71M4**	29	442
42	745	40.89	840	1.50	X	**F**	**27**	**(E)DRN**	**71M4**	29	443
45	700	38.33	830	1.60	X	**FF**	**27**	**(E)DRN**	**71M4**	31	442
51	615	33.83	810	1.85	X						
59	540	29.56	780	2.1	X						
64	495	27.18	765	2.3	X						
74	425	23.25	740	2.7	X						
86	365	20.15	715	3.1	X						
92	345	18.84	700	3.3	X						
106	295	16.28	675	3.8	X						
125	250	13.84	645	4.5	X						
140	225	12.35	625	5.0	X	**FA**	**27**	**(E)DRN**	**71M4**	27	441
164	190	10.55	600	5.9	X	**FAF**	**27**	**(E)DRN**	**71M4**	29	442
175	180	9.88	585	6.3	X	**F**	**27**	**(E)DRN**	**71M4**	28	443
184	170	9.40	575	6.6	X	**FF**	**27**	**(E)DRN**	**71M4**	30	442
213	150	8.13	550	7.2	X						
250	125	6.91	525	7.9	X						
280	110	6.17	510	8.4	X						
328	96	5.27	485	9.1	X						
351	90	4.93	475	9.3	X						
416	76	4.16	450	10.0	X						
423	74	8.13	455	14							
498	63	6.91	430	15		**FA**	**27**	**DRN**	**71MS2**	27	441
558	57	6.17	415	16		**FAF**	**27**	**DRN**	**71MS2**	29	442
653	48	5.27	395	18		**F**	**27**	**DRN**	**71MS2**	28	443
698	45	4.93	390	18		**FF**	**27**	**DRN**	**71MS2**	30	442
827	38	4.16	365	19							

P_m = 0.75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.25	174400	7075	23100	1.00	X						
0.28	155170	6295	24170	1.15	X						
0.32	133210	5404	25440	1.35	X	**FA**	**157R97**	**(E)DRN**	**80MK4**	1690	516/522
0.63	68530	2780	27000	2.6	X	**FAF**	**157R97**	**(E)DRN**	**80MK4**	1820	514/522
0.72	60810	2427	27000	2.9	X	**F**	**157R97**	**(E)DRN**	**80MK4**	1740	513/522
1.0	41940	1674	27000	4.2	X	**FF**	**157R97**	**(E)DRN**	**80MK4**	1970	514/522
1.3	32770	1308	27000	5.4	X						
1.5	29290	1169	27000	6.0	X						
0.43	96100	3926	20200	1.10	X	**FA**	**127R77**	**(E)DRN**	**80MK4**	950	508/521
0.49	83800	3454	20200	1.25	X	**FAF**	**127R77**	**(E)DRN**	**80MK4**	1030	506/521
0.56	73300	3031	20200	1.45	X	**F**	**127R77**	**(E)DRN**	**80MK4**	1030	505/521
						FF	**127R77**	**(E)DRN**	**80MK4**	1130	506/521

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P_m = 0.75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.71	59000	2369	11800	1.15	X						
0.82	51500	2068	12200	1.30	X						
0.93	43900	1826	12700	1.55	X						
1.1	39500	1597	12900	1.70	X	**FA**	**107R77**	**(E)DRN**	**80MK4**	610	500/521
1.2	34400	1401	13200	1.95	X	**FAF**	**107R77**	**(E)DRN**	**80MK4**	660	498/521
1.4	29900	1243	13400	2.3	X	**F**	**107R77**	**(E)DRN**	**80MK4**	650	497/521
1.6	26900	1087	13500	2.5	X	**FF**	**107R77**	**(E)DRN**	**80MK4**	710	498/521
1.8	22800	950	13700	3.0	X						
2.0	19800	834	13900	3.4	X						
2.6	15500	640	14100	4.4	X						
1.3	33100	1327	7070	1.15	X						
1.4	29800	1171	7280	1.25	X						
1.6	26100	1022	7510	1.45	X						
1.9	22100	898	7730	1.70	X						
2.1	19700	784	7860	1.95	X	**FA**	**97R57**	**(E)DRN**	**80MK4**	410	492/521
2.5	17000	690	7980	2.2	X	**FAF**	**97R57**	**(E)DRN**	**80MK4**	460	490/521
2.8	15000	605	8070	2.5	X	**F**	**97R57**	**(E)DRN**	**80MK4**	425	489/521
3.2	13000	529	8160	2.9	X	**FF**	**97R57**	**(E)DRN**	**80MK4**	500	490/521
3.6	11400	467	8220	3.3	X						
4.2	9870	406	8280	3.9	X						
4.7	8850	363	8320	4.3	X						
1.9	22200	887	5560	1.20	X						
2.2	19400	780	5800	1.35	X						
2.5	16600	674	6020	1.60	X	**FA**	**87R57**	**(E)DRN**	**80MK4**	265	484/521
2.8	15100	609	6120	1.75	X	**FAF**	**87R57**	**(E)DRN**	**80MK4**	295	482/521
3.3	12800	515	6280	2.1	X	**F**	**87R57**	**(E)DRN**	**80MK4**	280	481/521
3.7	11200	452	6370	2.4	X	**FF**	**87R57**	**(E)DRN**	**80MK4**	315	481/521
4.9	8400	345	6530	3.2	X						
3.5	12100	480	3710	1.10	X	**FA**	**77R37**	**(E)DRN**	**80MK4**	150	476/521
4.1	10300	413	3950	1.30	X	**FAF**	**77R37**	**(E)DRN**	**80MK4**	165	474/521
4.6	9290	367	4070	1.45	X	**F**	**77R37**	**(E)DRN**	**80MK4**	160	473/521
5.2	8240	323	4170	1.60	X	**FF**	**77R37**	**(E)DRN**	**80MK4**	185	474/521
6.6	6500	257	2470	1.10	X	**FA**	**67R37**	**(E)DRN**	**80MK4**	105	468/521
7.3	5760	231	2600	1.25	X	**FAF**	**67R37**	**(E)DRN**	**80MK4**	115	466/521
8.2	5160	205	2690	1.40	X	**F**	**67R37**	**(E)DRN**	**80MK4**	110	465/521
9.7	4390	175	2790	1.65	X	**FF**	**67R37**	**(E)DRN**	**80MK4**	125	466/521
4.3	10915	270.68	6370	2.3							
4.6	10300	255.37	6400	2.5		**FA**	**87**	**DRN**	**90SR6**	240	484
5.1	9235	228.93	6470	2.8		**FAF**	**87**	**DRN**	**90SR6**	265	482
5.9	7955	197.20	6540	3.2		**F**	**87**	**DRN**	**90SR6**	250	481
6.5	7260	179.97	6580	3.5		**FF**	**87**	**DRN**	**90SR6**	285	482
5.2	9105	225.79	4040	1.40							
5.9	8000	198.31	4160	1.60		**FA**	**77**	**DRN**	**90SR6**	150	476
6.2	7600	188.40	4200	1.65		**FAF**	**77**	**DRN**	**90SR6**	165	474
7.0	6715	166.47	4270	1.90		**F**	**77**	**DRN**	**90SR6**	160	473
8.2	5740	142.27	4340	2.2		**FF**	**77**	**DRN**	**90SR6**	185	474
9.0	5260	130.42	4370	2.4							
7.5	6310	225.79	4320	2.1	X						
8.5	5540	198.31	4370	2.4	X						
9.0	5270	188.40	4380	2.5	X						
10	4650	166.47	4410	2.9	X	**FA**	**77**	**(E)DRN**	**80MK4**	130	476
12	3980	142.27	4440	3.3	X	**FAF**	**77**	**(E)DRN**	**80MK4**	145	474
13	3640	130.42	4460	3.6	X	**F**	**77**	**(E)DRN**	**80MK4**	140	473
15	3200	114.45	4470	4.1	X	**FF**	**77**	**(E)DRN**	**80MK4**	165	474
16	3030	108.46*	4480	4.4	X						
18	2650	94.93	4490	5.0	X						
8.7	5460	195.39	2650	1.35	X						
9.9	4780	170.85	2750	1.50	X						
10	4540	162.31	2770	1.60	X						
12	3980	142.40	2840	1.80	X	**FA**	**67**	**(E)DRN**	**80MK4**	79	468
14	3370	120.79	2890	2.1	X	**FAF**	**67**	**(E)DRN**	**80MK4**	93	466
16	3050	109.04	2920	2.4	X	**F**	**67**	**(E)DRN**	**80MK4**	85	465
18	2680	95.94	2920	2.7	X	**FF**	**67**	**(E)DRN**	**80MK4**	98	466
19	2530	90.59	2920	2.9	X						
21	2230	79.76	2920	3.2	X						

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P_m = 0.75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
11	4390	157.09	2230	1.20	X						
12	3810	136.16	2330	1.40	X						
13	3560	127.27	2370	1.50	X						
15	3070	110.01	2440	1.70	X	**FA**	**57**	**(E)DRN**	**80MK4**	70	460
18	2610	93.47	2510	2.0	X	**FAF**	**57**	**(E)DRN**	**80MK4**	82	459
20	2330	83.46	2550	2.3	X	**F**	**57**	**(E)DRN**	**80MK4**	71	458
23	2040	72.98	2580	2.6	X	**FF**	**57**	**(E)DRN**	**80MK4**	85	459
25	1900	68.22	2580	2.8	X						
29	1640	58.97	2580	3.2	X						
16	2940	105.09	1520	1.20	X						
19	2490	89.29	1620	1.40	X						
21	2230	79.72	1670	1.60	X	**FA**	**47**	**(E)DRN**	**80MK4**	54	453
25	1900	68.09	1730	1.85	X	**FAF**	**47**	**(E)DRN**	**80MK4**	60	452
26	1820	65.36	1740	1.95	X	**F**	**47**	**(E)DRN**	**80MK4**	56	451
30	1580	56.49	1770	2.2	X	**FF**	**47**	**(E)DRN**	**80MK4**	63	452
35	1340	48.00*	1800	2.6	X						
39	1190	42.86	1810	3.0	X						
30	1580	58.32	1010	1.10	X						
32	1475	54.54	1040	1.15	X						
34	1400	51.70	1070	1.20	X						
37	1275	47.02	1100	1.35	X	**FA**	**37**	**(E)DRN**	**80MK4**	44	446
40	1185	43.83	1120	1.45	X	**FAF**	**37**	**(E)DRN**	**80MK4**	47	445
46	1040	38.31	1110	1.65	X	**F**	**37**	**(E)DRN**	**80MK4**	45	444
49	975	35.91	1100	1.75	X	**FF**	**37**	**(E)DRN**	**80MK4**	49	445
55	860	31.69	1070	2.0	X						
62	760	28.09	1040	2.2	X						
73	645	23.88	1000	2.6	X						
74	640	23.63	1000	2.7	X						
85	555	20.57	970	3.1	X	**FA**	**37**	**(E)DRN**	**80MK4**	43	446
91	520	19.27	950	3.3	X	**FAF**	**37**	**(E)DRN**	**80MK4**	47	445
102	460	17.03	920	3.7	X	**F**	**37**	**(E)DRN**	**80MK4**	44	444
122	390	14.33	880	4.4	X	**FF**	**37**	**(E)DRN**	**80MK4**	48	445
75	630	23.25	690	1.75	X						
87	545	20.15	670	2.0	X						
93	510	18.84	660	2.2	X						
107	440	16.28	640	2.5	X						
126	375	13.84	615	3.0	X						
141	335	12.35	600	3.3	X						
165	285	10.55	575	3.9	X	**FA**	**27**	**(E)DRN**	**80MK4**	30	441
177	270	9.88	565	4.2	X	**FAF**	**27**	**(E)DRN**	**80MK4**	31	442
186	255	9.40	555	4.4	X	**F**	**27**	**(E)DRN**	**80MK4**	31	443
215	220	8.13	535	4.8	X	**FF**	**27**	**(E)DRN**	**80MK4**	33	442
253	185	6.91	510	5.2	X						
283	165	6.17	495	5.6	X						
331	145	5.27	475	6.0	X						
354	135	4.93	465	6.2	X						
419	115	4.16	445	6.6	X						
425	111	8.13	440	9.7							
500	95	6.91	420	11		**FA**	**27**	**DRN**	**71M2**	30	441
560	84	6.17	405	11		**FAF**	**27**	**DRN**	**71M2**	31	442
656	72	5.27	385	12		**F**	**27**	**DRN**	**71M2**	31	443
701	67	4.93	380	12		**FF**	**27**	**DRN**	**71M2**	33	442
831	57	4.16	360	13							

P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.32	177000	5404	22570	1.00	X						
0.36	158240	4831	23920	1.10	X	**FA**	**157R97**	**(E)DRN**	**80M4**	1700	516/522
0.42	135280	4130	25180	1.30	X	**FAF**	**157R97**	**(E)DRN**	**80M4**	1830	514/522
0.63	91060	2780	26590	2.0	X	**F**	**157R97**	**(E)DRN**	**80M4**	1750	513/522
0.72	80800	2427	26880	2.2	X	**FF**	**157R97**	**(E)DRN**	**80M4**	1980	514/522
0.80	72750	2185	27000	2.4	X						

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.90	64720	1944	27000	2.7	X	**FA**	**157R97**	**(E)DRN**	**80M4**	1700	516/522
1.1	55730	1674	27000	3.2	X	**FAF**	**157R97**	**(E)DRN**	**80M4**	1830	514/522
1.3	43550	1308	27000	4.1	X	**F**	**157R97**	**(E)DRN**	**80M4**	1750	513/522
1.5	38920	1169	27000	4.6	X	**FF**	**157R97**	**(E)DRN**	**80M4**	1980	514/522
0.58	95800	3031	20200	1.10	X	**FA**	**127R77**	**(E)DRN**	**80M4**	960	508/521
						FAF	**127R77**	**(E)DRN**	**80M4**	1040	506/521
						F	**127R77**	**(E)DRN**	**80M4**	1040	505/521
						FF	**127R77**	**(E)DRN**	**80M4**	1140	506/521
0.66	86600	2672	20200	1.20	X						
0.74	75600	2357	20200	1.40	X						
0.86	65100	2038	20200	1.65	X	**FA**	**127R77**	**(E)DRN**	**80M4**	950	508/521
0.98	56600	1784	20200	1.85	X	**FAF**	**127R77**	**(E)DRN**	**80M4**	1040	506/521
1.1	50700	1606	20200	2.1	X	**F**	**127R77**	**(E)DRN**	**80M4**	1040	505/521
1.3	43900	1390	20200	2.4	X	**FF**	**127R77**	**(E)DRN**	**80M4**	1130	506/521
1.4	38200	1220	20200	2.8	X						
0.82	68100	2129	11200	1.00	X						
0.97	57500	1813	11900	1.20	X						
1.1	51500	1590	12200	1.35	X						
1.2	46300	1436	12500	1.50	X	**FA**	**107R77**	**(E)DRN**	**80M4**	600	500/521
1.4	40500	1263	12900	1.70	X	**FAF**	**107R77**	**(E)DRN**	**80M4**	650	498/521
1.5	38100	1193	13000	1.80	X	**F**	**107R77**	**(E)DRN**	**80M4**	640	497/521
1.7	32200	1015	13300	2.1	X	**FF**	**107R77**	**(E)DRN**	**80M4**	700	498/521
1.9	29100	923	13400	2.4	X						
2.2	25000	800	13600	2.8	X						
0.85	67000	2068	11300	1.00	X						
0.96	57700	1826	11900	1.20	X						
1.1	51500	1597	12200	1.30	X						
1.2	44900	1401	12600	1.50	X						
1.4	39200	1243	12900	1.75	X	**FA**	**107R77**	**(E)DRN**	**80M4**	620	500/521
1.6	35100	1087	13100	1.95	X	**FAF**	**107R77**	**(E)DRN**	**80M4**	670	498/521
1.8	30000	950	13400	2.3	X	**F**	**107R77**	**(E)DRN**	**80M4**	660	497/521
2.1	26100	834	13600	2.6	X	**FF**	**107R77**	**(E)DRN**	**80M4**	720	498/521
2.4	22800	736	13700	3.0	X						
2.7	20300	640	13900	3.3	X						
4.0	13800	436	14100	4.9	X						
1.7	32900	1023	7080	1.15	X	**FA**	**97R57**	**(E)DRN**	**80M4**	410	492/521
						FAF	**97R57**	**(E)DRN**	**80M4**	460	490/521
						F	**97R57**	**(E)DRN**	**80M4**	425	489/521
						FF	**97R57**	**(E)DRN**	**80M4**	500	490/521
1.7	33800	1022	7020	1.15	X						
1.9	28900	898	7340	1.30	X						
2.2	25600	784	7540	1.50	X						
2.5	22200	690	7730	1.70	X	**FA**	**97R57**	**(E)DRN**	**80M4**	420	492/521
2.9	19500	605	7860	1.95	X	**FAF**	**97R57**	**(E)DRN**	**80M4**	470	490/521
3.3	17000	529	7980	2.2	X	**F**	**97R57**	**(E)DRN**	**80M4**	440	489/521
3.7	15000	467	8080	2.5	X	**FF**	**97R57**	**(E)DRN**	**80M4**	510	490/521
4.3	12900	406	8160	3.0	X						
4.8	11500	363	8220	3.3	X						
2.0	29800	892	7280	1.25	X						
2.3	25300	760	7550	1.50	X						
2.6	22200	667	7730	1.70	X	**FA**	**97R57**	**(E)DRN**	**80M4**	410	492/521
3.1	18800	569	7900	2.0	X	**FAF**	**97R57**	**(E)DRN**	**80M4**	455	490/521
3.4	16800	510	7990	2.3	X	**F**	**97R57**	**(E)DRN**	**80M4**	425	489/521
3.7	15500	473	8050	2.5	X	**FF**	**97R57**	**(E)DRN**	**80M4**	495	490/521
4.3	13100	403	8160	2.9	X						
2.3	24200	748	5380	1.10	X	**FA**	**87R57**	**(E)DRN**	**80M4**	275	484/521
						FAF	**87R57**	**(E)DRN**	**80M4**	300	482/521
						F	**87R57**	**(E)DRN**	**80M4**	285	481/521
						FF	**87R57**	**(E)DRN**	**80M4**	320	482/521

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
2.2	25300	780	5270	1.05	X						
2.6	21700	674	5610	1.20	X						
2.9	19700	609	5780	1.35	X	**FA**	**87R57**	**(E)DRN**	**80M4**	275	484/521
3.4	16600	515	6020	1.60	X	**FAF**	**87R57**	**(E)DRN**	**80M4**	305	482/521
3.9	14600	452	6160	1.80	X	**F**	**87R57**	**(E)DRN**	**80M4**	290	481/521
5.1	11000	345	6390	2.4	X	**FF**	**87R57**	**(E)DRN**	**80M4**	325	482/521
5.8	9510	300	6470	2.8	X						
2.6	22100	662	5570	1.20	X						
3.0	19700	592	5780	1.35	X						
3.4	17200	519	5970	1.55	X	**FA**	**87R57**	**(E)DRN**	**80M4**	270	484/521
3.8	15500	468	6100	1.70	X	**FAF**	**87R57**	**(E)DRN**	**80M4**	300	482/521
4.4	13100	398	6260	2.0	X	**F**	**87R57**	**(E)DRN**	**80M4**	285	481/521
5.0	11400	350	6360	2.3	X	**FF**	**87R57**	**(E)DRN**	**80M4**	315	482/521
5.6	10300	315	6430	2.6	X						
6.2	9170	281	6490	2.9	X						
4.8	12000	367	3730	1.10	X						
5.4	10600	323	3910	1.25	X	**FA**	**77R37**	**(E)DRN**	**80M4**	160	476/521
6.3	9190	280	4080	1.45	X	**FAF**	**77R37**	**(E)DRN**	**80M4**	175	474/521
7.1	8130	247	4180	1.65	X	**F**	**77R37**	**(E)DRN**	**80M4**	170	473/521
7.9	7240	221	4250	1.85	X	**FF**	**77R37**	**(E)DRN**	**80M4**	195	474/521
8.8	6460	199	4310	2.0	X						
6.0	9600	292	4040	1.00	X	**FA**	**77R37**	**(E)DRN**	**80M4**	160	476/521
						FAF	**77R37**	**(E)DRN**	**80M4**	175	474/521
						F	**77R37**	**(E)DRN**	**80M4**	170	473/521
						FF	**77R37**	**(E)DRN**	**80M4**	190	474/521
8.5	6710	205	2430	1.10	X	**FA**	**67R37**	**(E)DRN**	**80M4**	115	468/521
10	5710	175	2610	1.25	X	**FAF**	**67R37**	**(E)DRN**	**80M4**	125	466/521
						F	**67R37**	**(E)DRN**	**80M4**	120	465/521
						FF	**67R37**	**(E)DRN**	**80M4**	135	466/521
8.7	6590	200	2460	1.10	X	**FA**	**67R37**	**(E)DRN**	**80M4**	110	468/521
10.0	5790	176	2600	1.25	X	**FAF**	**67R37**	**(E)DRN**	**80M4**	125	466/521
						F	**67R37**	**(E)DRN**	**80M4**	115	465/521
						FF	**67R37**	**(E)DRN**	**80M4**	130	466/521
11	5050	155	2120	1.05	X	**FA**	**57R37**	**(E)DRN**	**80M4**	105	460/521
						FAF	**57R37**	**(E)DRN**	**80M4**	115	459/521
						F	**57R37**	**(E)DRN**	**80M4**	105	458/521
						FF	**57R37**	**(E)DRN**	**80M4**	120	459/521
11	5010	152	2120	1.05	X	**FA**	**57R37**	**(E)DRN**	**80M4**	105	460/521
13	4410	134	2230	1.20	X	**FAF**	**57R37**	**(E)DRN**	**80M4**	115	459/521
						F	**57R37**	**(E)DRN**	**80M4**	105	458/521
						FF	**57R37**	**(E)DRN**	**80M4**	120	459/521
4.2	14900	276.77	8080	2.5		**FA**	**97**	**DRN**	**90S6**	380	492
4.6	13700	253.41	8130	2.8		**FAF**	**97**	**DRN**	**90S6**	430	490
5.2	12100	223.88	8200	3.1		**F**	**97**	**DRN**	**90S6**	400	489
						FF	**97**	**DRN**	**90S6**	470	490
4.3	14600	270.68	6160	1.80							
4.6	13800	255.37	6220	1.90		**FA**	**87**	**DRN**	**90S6**	240	484
5.1	12300	228.93	6310	2.1		**FAF**	**87**	**DRN**	**90S6**	270	482
5.9	10600	197.20	6410	2.5		**F**	**87**	**DRN**	**90S6**	250	481
6.5	9730	179.97	6460	2.7		**FF**	**87**	**DRN**	**90S6**	285	482
7.3	8630	159.61	6520	3.1							
6.5	9730	270.68	6460	2.7	X	**FA**	**87**	**(E)DRN**	**80M4**	230	484
6.9	9180	255.37	6490	2.9	X	**FAF**	**87**	**(E)DRN**	**80M4**	255	482
7.7	8230	228.93	6540	3.2	X	**F**	**87**	**(E)DRN**	**80M4**	240	481
						FF	**87**	**(E)DRN**	**80M4**	275	482
5.9	10700	198.31	3910	1.25							
6.2	10100	188.40	3970	1.30							
7.0	9000	166.47	4100	1.45							
8.2	7690	142.27	4220	1.70		**FA**	**77**	**DRN**	**90S6**	155	476
8.9	7050	130.42	4270	1.90		**FAF**	**77**	**DRN**	**90S6**	170	474
10	6180	114.45	4330	2.1		**F**	**77**	**DRN**	**90S6**	160	473
11	5860	108.46*	4350	2.3		**FF**	**77**	**DRN**	**90S6**	185	474
12	5130	94.93	4390	2.6							
14	4620	85.52	4420	2.9							

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
7.8	8120	225.79	4180	1.65	X						
8.8	7130	198.31	4260	1.85	X						
9.3	6770	188.40	4290	1.95	X	**FA**	**77**	**(E)DRN**	**80M4**	140	476
11	5980	166.47	4340	2.2	X	**FAF**	**77**	**(E)DRN**	**80M4**	155	474
12	5110	142.27	4390	2.6	X	**F**	**77**	**(E)DRN**	**80M4**	150	473
13	4690	130.42	4410	2.8	X	**FF**	**77**	**(E)DRN**	**80M4**	175	474
15	4110	114.45	4440	3.2	X						
16	3900	108.46*	4450	3.4	X						
9.7	6530	120.79	2470	1.10							
11	5890	109.04	2580	1.25							
12	5180	95.94	2690	1.40							
13	4890	90.59	2730	1.50		**FA**	**67**	**DRN**	**90S6**	105	468
15	4310	79.76	2800	1.70		**FAF**	**67**	**DRN**	**90S6**	115	466
17	3650	67.65	2870	2.0		**F**	**67**	**DRN**	**90S6**	110	465
19	3300	61.07	2900	2.2		**FF**	**67**	**DRN**	**90S6**	125	466
22	2900	53.73	2920	2.5							
23	2740	50.74	2920	2.6							
9.0	7030	195.39	2370	1.05	X						
10	6140	170.85	2540	1.20	X						
11	5840	162.31	2590	1.25	X						
12	5120	142.40	2700	1.40	X						
14	4340	120.79	2800	1.65	X	**FA**	**67**	**(E)DRN**	**80M4**	89	468
16	3920	109.04	2840	1.85	X	**FAF**	**67**	**(E)DRN**	**80M4**	105	466
18	3450	95.94	2890	2.1	X	**F**	**67**	**(E)DRN**	**80M4**	96	465
19	3250	90.59	2900	2.2	X	**FF**	**67**	**(E)DRN**	**80M4**	110	466
22	2860	79.76	2920	2.5	X						
26	2430	67.65	2920	3.0	X						
29	2190	61.07	2920	3.3	X						
12	5050	93.47	2120	1.05							
14	4510	83.46	2210	1.20							
16	3940	72.98	2310	1.35							
17	3680	68.22	2350	1.45		**FA**	**57**	**DRN**	**90S6**	95	460
20	3180	58.97	2430	1.65		**FAF**	**57**	**DRN**	**90S6**	105	459
23	2700	50.10	2500	1.95		**F**	**57**	**DRN**	**90S6**	95	458
26	2410	44.73	2530	2.2		**FF**	**57**	**DRN**	**90S6**	110	459
30	2060	38.21	2570	2.6							
33	1930	35.79	2530	2.7							
13	4890	136.16	2140	1.10	X						
14	4570	127.27	2200	1.15	X						
16	3950	110.01	2310	1.35	X						
19	3360	93.47	2400	1.60	X	**FA**	**57**	**(E)DRN**	**80M4**	81	460
21	3000	83.46	2450	1.75	X	**FAF**	**57**	**(E)DRN**	**80M4**	93	459
24	2620	72.98	2510	2.0	X	**F**	**57**	**(E)DRN**	**80M4**	81	458
26	2450	68.22	2530	2.2	X	**FF**	**57**	**(E)DRN**	**80M4**	95	459
30	2120	58.97	2570	2.5	X						
35	1800	50.10	2480	2.9	X						
39	1600	44.73	2410	3.3	X						
21	3050	56.49	1490	1.15							
24	2590	48.00*	1600	1.35		**FA**	**47**	**DRN**	**90S6**	78	453
27	2310	42.86	1660	1.55		**FAF**	**47**	**DRN**	**90S6**	83	452
32	1970	36.61	1720	1.80		**F**	**47**	**DRN**	**90S6**	79	451
34	1850	34.29	1730	1.90		**FF**	**47**	**DRN**	**90S6**	86	452
40	1560	28.88	1760	2.3							
20	3210	89.29	1440	1.10	X						
22	2860	79.72	1540	1.25	X						
26	2450	68.09	1630	1.45	X						
27	2350	65.36	1650	1.50	X	**FA**	**47**	**(E)DRN**	**80M4**	65	453
31	2030	56.49	1710	1.75	X	**FAF**	**47**	**(E)DRN**	**80M4**	71	452
36	1720	48.00*	1750	2.0	X	**F**	**47**	**(E)DRN**	**80M4**	66	451
41	1540	42.86	1760	2.3	X	**FF**	**47**	**(E)DRN**	**80M4**	73	452
48	1310	36.61	1690	2.7	X						
51	1230	34.29	1670	2.9	X						
61	1030	28.88	1600	3.4	X						

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
37	1710	31.69	980	1.05		**FA**	**37**	**DRN**	**90S6**	67	446
41	1510	28.09	1050	1.15		**FAF**	**37**	**DRN**	**90S6**	70	445
49	1290	23.88	1020	1.35		**F**	**37**	**DRN**	**90S6**	68	444
						FF	**37**	**DRN**	**90S6**	72	445
37	1690	47.02	990	1.05	X						
40	1570	43.83	1030	1.10	X						
46	1370	38.31	1030	1.30	X	**FA**	**37**	**(E)DRN**	**80M4**	54	446
49	1290	35.91	1020	1.35	X	**FAF**	**37**	**(E)DRN**	**80M4**	57	445
55	1140	31.69	1000	1.55	X	**F**	**37**	**(E)DRN**	**80M4**	55	444
62	1010	28.09	980	1.75	X	**FF**	**37**	**(E)DRN**	**80M4**	59	445
73	850	23.88	950	2.1	X						
74	850	23.63	950	2.1	X						
85	740	20.57	920	2.4	X	**FA**	**37**	**(E)DRN**	**80M4**	54	446
91	690	19.27	900	2.5	X	**FAF**	**37**	**(E)DRN**	**80M4**	57	445
103	610	17.03	880	2.9	X	**F**	**37**	**(E)DRN**	**80M4**	55	444
122	515	14.33	840	3.4	X	**FF**	**37**	**(E)DRN**	**80M4**	59	445
136	460	12.87	820	3.8	X						
75	830	23.25	640	1.35	X						
87	725	20.15	625	1.60	X						
93	675	18.84	620	1.70	X						
108	585	16.28	605	1.95	X						
127	495	13.84	585	2.3	X						
142	440	12.35	570	2.6	X						
166	375	10.55	550	3.0	X	**FA**	**27**	**(E)DRN**	**80M4**	40	441
177	355	9.88	540	3.2	X	**FAF**	**27**	**(E)DRN**	**80M4**	41	442
186	335	9.40	525	3.4	X	**F**	**27**	**(E)DRN**	**80M4**	41	443
215	290	8.13	510	3.7	X	**FF**	**27**	**(E)DRN**	**80M4**	43	442
254	245	6.91	490	4.1	X						
284	220	6.17	475	4.3	X						
332	190	5.27	455	4.7	X						
355	177	4.93	450	4.8	X						
421	150	4.16	430	5.2	X						
370	171	9.40	445	6.8							
428	147	8.13	425	7.4							
503	125	6.91	410	8.1		**FA**	**27**	**DRN**	**80MS2**	40	441
564	112	6.17	395	8.6		**FAF**	**27**	**DRN**	**80MS2**	41	442
660	95	5.27	380	9.3		**F**	**27**	**DRN**	**80MS2**	41	443
705	89	4.93	370	9.5		**FF**	**27**	**DRN**	**80MS2**	43	442
836	75	4.16	350	10							

P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.63	135730	2780	24760	1.30	X						
0.73	120450	2427	25480	1.5	X						
0.81	108440	2185	26010	1.7	X						
0.91	96480	1944	26410	1.9	X						
1.1	83080	1674	26700	2.1	X	**FA**	**157R97**	**(E)DRN**	**90S4**	1710	516/522
1.4	64920	1308	27000	2.7	X	**FAF**	**157R97**	**(E)DRN**	**90S4**	1840	514/522
1.5	58020	1169	27000	3.1	X	**F**	**157R97**	**(E)DRN**	**90S4**	1750	513/522
1.9	47300	953	27000	3.7	X	**FF**	**157R97**	**(E)DRN**	**90S4**	1990	514/522
2.1	41940	845	27000	4.2	X						
4.0	22130	446	27000	8.0	X						
5.8	14990	302	27000	12	X						
0.86	99000	2038	20200	1.05	X						
0.99	86200	1784	20200	1.25	X						
1.1	77400	1606	20200	1.35	X	**FA**	**127R77**	**(E)DRN**	**90S4**	970	508/521
1.3	67000	1390	20200	1.60	X	**FAF**	**127R77**	**(E)DRN**	**90S4**	1050	506/521
1.4	58400	1220	20200	1.80	X	**F**	**127R77**	**(E)DRN**	**90S4**	1050	505/521
1.6	52100	1077	20200	2.0	X	**FF**	**127R77**	**(E)DRN**	**90S4**	1140	506/521
1.9	44500	930	20200	2.4	X						
2.1	39100	820	20200	2.7	X						

P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.4	61500	1263	11600	1.15	X						
1.5	57900	1193	11800	1.20	X	**FA**	**107R77**	**(E)DRN**	**90S4**	610	500/521
1.7	49100	1015	12400	1.40	X	**FAF**	**107R77**	**(E)DRN**	**90S4**	660	498/521
1.9	44400	923	12600	1.55	X	**F**	**107R77**	**(E)DRN**	**90S4**	650	497/521
2.2	38300	800	13000	1.80	X	**FF**	**107R77**	**(E)DRN**	**90S4**	710	498/521
2.5	33100	696	13200	2.1	X						
1.3	68200	1401	11200	1.00	X						
1.4	59900	1243	11700	1.15	X						
1.6	53100	1087	12100	1.30	X						
1.9	45800	950	12600	1.50	X	**FA**	**107R77**	**(E)DRN**	**90S4**	630	500/521
2.1	39900	834	12900	1.70	X	**FAF**	**107R77**	**(E)DRN**	**90S4**	680	498/521
2.4	35000	736	13100	1.95	X	**F**	**107R77**	**(E)DRN**	**90S4**	670	497/521
2.8	30900	640	13400	2.2	X	**FF**	**107R77**	**(E)DRN**	**90S4**	730	498/521
3.1	26500	560	13600	2.6	X						
3.6	23100	489	13700	2.9	X						
2.7	31900	644	13300	2.2	X	**FA**	**107R77**	**(E)DRN**	**90S4**	610	500/521
3.0	29200	591	13400	2.4	X	**FAF**	**107R77**	**(E)DRN**	**90S4**	660	498/521
3.4	25500	518	13600	2.7	X	**F**	**107R77**	**(E)DRN**	**90S4**	650	497/521
3.6	24100	491	13700	2.9	X	**FF**	**107R77**	**(E)DRN**	**90S4**	710	498/521
2.6	33600	690	7030	1.15	X						
2.9	29600	605	7300	1.30	X						
3.3	25800	529	7530	1.45	X	**FA**	**97R57**	**(E)DRN**	**90S4**	435	492/521
3.8	22700	467	7700	1.65	X	**FAF**	**97R57**	**(E)DRN**	**90S4**	485	490/521
4.3	19600	406	7860	1.95	X	**F**	**97R57**	**(E)DRN**	**90S4**	450	489/521
4.8	17600	363	7960	2.2	X	**FF**	**97R57**	**(E)DRN**	**90S4**	520	490/521
6.2	13900	285	8120	2.7	X						
2.3	38100	760	6710	1.00	X						
2.6	33400	667	7050	1.15	X						
3.1	28300	569	7380	1.35	X						
3.5	25400	510	7550	1.50	X	**FA**	**97R57**	**(E)DRN**	**90S4**	420	492/521
3.7	23400	473	7660	1.60	X	**FAF**	**97R57**	**(E)DRN**	**90S4**	470	490/521
4.4	19900	403	7850	1.90	X	**F**	**97R57**	**(E)DRN**	**90S4**	440	489/521
4.9	17800	361	7950	2.1	X	**FF**	**97R57**	**(E)DRN**	**90S4**	510	490/521
5.6	15500	317	8050	2.4	X						
6.4	13700	275	8130	2.8	X						
3.4	25200	515	5280	1.05	X						
3.9	22200	452	5570	1.20	X	**FA**	**87R57**	**(E)DRN**	**90S4**	290	484/521
5.1	16700	345	6010	1.60	X	**FAF**	**87R57**	**(E)DRN**	**90S4**	320	482/521
5.9	14500	300	6170	1.85	X	**F**	**87R57**	**(E)DRN**	**90S4**	305	481/521
7.1	12000	249	6330	2.2	X	**FF**	**87R57**	**(E)DRN**	**90S4**	340	482/521
3.4	26000	519	4900	1.00	X						
3.8	23400	468	5460	1.15	X						
4.4	19800	398	5770	1.35	X						
5.0	17300	350	5960	1.55	X	**FA**	**87R57**	**(E)DRN**	**90S4**	285	484/521
5.6	15600	315	6090	1.70	X	**FAF**	**87R57**	**(E)DRN**	**90S4**	310	482/521
6.3	13900	281	6210	1.90	X	**F**	**87R57**	**(E)DRN**	**90S4**	295	481/521
7.3	11900	240	6330	2.2	X	**FF**	**87R57**	**(E)DRN**	**90S4**	330	482/521
8.3	10400	211	6420	2.5	X						
9.1	9630	193	6470	2.8	X						
7.1	12200	247	3700	1.10	X	**FA**	**77R37**	**(E)DRN**	**90S4**	175	476/521
8.0	10900	221	3880	1.20	X	**FAF**	**77R37**	**(E)DRN**	**90S4**	190	474/521
8.9	9770	199	4020	1.35	X	**F**	**77R37**	**(E)DRN**	**90S4**	185	473/521
						FF	**77R37**	**(E)DRN**	**90S4**	205	474/521
4.3	22100	276.77	7730	1.70		**FA**	**97**	**DRN**	**112M6**	435	492
4.7	20200	253.41	7830	1.90		**FAF**	**97**	**DRN**	**112M6**	480	490
5.3	17800	223.88	7940	2.1		**F**	**97**	**DRN**	**112M6**	450	489
6.2	15100	189.92	8070	2.5		**FF**	**97**	**DRN**	**112M6**	520	490
6.8	13900	174.87	8120	2.7							
6.4	14800	276.77	8080	2.6	X	**FA**	**97**	**(E)DRN**	**90S4**	380	492
7.0	13500	253.41	8140	2.8	X	**FAF**	**97**	**(E)DRN**	**90S4**	430	490
7.9	12000	223.88	8200	3.2	X	**F**	**97**	**(E)DRN**	**90S4**	400	489
						FF	**97**	**(E)DRN**	**90S4**	470	490

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P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
6.0	15700	197.20	6080	1.70		**FA**	**87**	**DRN**	**112M6**	290	484
6.6	14300	179.97	6180	1.85		**FAF**	**87**	**DRN**	**112M6**	320	482
7.4	12700	159.61	6280	2.1		**F**	**87**	**DRN**	**112M6**	305	481
						FF	**87**	**DRN**	**112M6**	340	482
6.5	14500	270.68	6170	1.85	X						
6.9	13600	255.37	6220	1.95	X						
7.7	12200	228.93	6310	2.2	X	**FA**	**87**	**(E)DRN**	**90S4**	240	484
8.9	10500	197.20	6420	2.5	X	**FAF**	**87**	**(E)DRN**	**90S4**	270	482
9.8	9650	179.97	6470	2.8	X	**F**	**87**	**(E)DRN**	**90S4**	250	481
11	8560	159.61	6530	3.1	X	**FF**	**87**	**(E)DRN**	**90S4**	285	482
13	7190	134.16	6600	3.7	X						
14	6610	123.29	6620	4.0	X						
7.8	12100	225.79	3720	1.10	X						
8.9	10600	198.31	3920	1.25	X						
9.3	10100	188.40	3980	1.30	X						
11	8920	166.47	4110	1.50	X						
12	7630	142.27	4220	1.75	X	**FA**	**77**	**(E)DRN**	**90S4**	155	476
14	6990	130.42	4270	1.90	X	**FAF**	**77**	**(E)DRN**	**90S4**	170	474
15	6130	114.45	4330	2.2	X	**F**	**77**	**(E)DRN**	**90S4**	160	473
16	5810	108.46*	4350	2.3	X	**FF**	**77**	**(E)DRN**	**90S4**	185	474
19	5090	94.93	4390	2.6	X						
21	4580	85.52	4420	2.9	X						
23	4020	75.02	4440	3.3	X						
15	6470	120.79	2480	1.10	X						
16	5840	109.04	2590	1.25	X						
18	5140	95.94	2700	1.40	X						
19	4850	90.59	2740	1.50	X						
22	4270	79.76	2800	1.70	X	**FA**	**67**	**(E)DRN**	**90S4**	105	468
26	3620	67.65	2870	2.0	X	**FAF**	**67**	**(E)DRN**	**90S4**	115	466
29	3270	61.07	2900	2.2	X	**F**	**67**	**(E)DRN**	**90S4**	110	465
33	2880	53.73	2920	2.5	X	**FF**	**67**	**(E)DRN**	**90S4**	125	466
35	2720	50.74	2920	2.7	X						
41	2310	43.20	2920	3.1	X						
45	2100	39.26	2920	3.3	X						
52	1820	34.01	2920	3.6	X						
19	5010	93.47	2120	1.05	X						
21	4470	83.46	2220	1.20	X						
24	3910	72.98	2320	1.35	X						
26	3650	68.22	2360	1.45	X	**FA**	**57**	**(E)DRN**	**90S4**	95	460
30	3160	58.97	2430	1.70	X	**FAF**	**57**	**(E)DRN**	**90S4**	105	459
35	2680	50.10	2340	2.0	X	**F**	**57**	**(E)DRN**	**90S4**	95	458
39	2390	44.73	2290	2.2	X	**FF**	**57**	**(E)DRN**	**90S4**	110	459
46	2040	38.21	2200	2.6	X						
49	1910	35.79	2170	2.8	X						
58	1610	30.15	2080	3.2	X						
						FA	**57**	**(E)DRN**	**90S4**	93	460
51	1830	34.24	2140	2.4	X	**FAF**	**57**	**(E)DRN**	**90S4**	105	459
						F	**57**	**(E)DRN**	**90S4**	94	458
						FF	**57**	**(E)DRN**	**90S4**	110	459
27	3500	65.36	1340	1.00	X						
31	3030	56.49	1490	1.15	X						
37	2570	48.00*	1600	1.35	X	**FA**	**47**	**(E)DRN**	**90S4**	78	453
41	2290	42.86	1620	1.55	X	**FAF**	**47**	**(E)DRN**	**90S4**	83	452
48	1960	36.61	1580	1.80	X	**F**	**47**	**(E)DRN**	**90S4**	79	451
51	1830	34.29	1560	1.90	X	**FF**	**47**	**(E)DRN**	**90S4**	86	452
61	1540	28.88	1500	2.3	X						
57	1650	30.86	1530	2.1	X						
60	1570	29.32	1510	2.2	X	**FA**	**47**	**(E)DRN**	**90S4**	76	453
68	1370	25.72	1470	2.6	X	**FAF**	**47**	**(E)DRN**	**90S4**	82	452
81	1170	21.82	1410	3.0	X	**F**	**47**	**(E)DRN**	**90S4**	78	451
89	1050	19.70	1380	3.4	X	**FF**	**47**	**(E)DRN**	**90S4**	85	452
56	1690	31.69	880	1.05	X	**FA**	**37**	**(E)DRN**	**90S4**	67	446
63	1500	28.09	870	1.15	X	**FAF**	**37**	**(E)DRN**	**90S4**	70	445
74	1280	23.88	860	1.40	X	**F**	**37**	**(E)DRN**	**90S4**	68	444
						FF	**37**	**(E)DRN**	**90S4**	72	445

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P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
75	1260	23.63	860	1.40	X						
86	1100	20.57	840	1.60	X						
91	1030	19.27	830	1.70	X						
103	910	17.03	810	1.95	X	**FA**	**37**	**(E)DRN**	**90S4**	66	446
111	840	15.81	800	2.1	X	**FAF**	**37**	**(E)DRN**	**90S4**	70	445
123	765	14.33	790	2.3	X	**F**	**37**	**(E)DRN**	**90S4**	68	444
137	690	12.87	770	2.6	X	**FF**	**37**	**(E)DRN**	**90S4**	72	445
159	590	11.08	745	2.8	X						
169	555	10.42	735	2.9	X						
196	480	8.97	710	3.2	X						
435	215	8.01	580	6.9							
469	200	7.44	560	6.4							
517	183	6.74	545	6.8		**FA**	**37**	**DRN**	**80M2**	54	446
576	164	6.05	530	7.3		**FAF**	**37**	**DRN**	**80M2**	57	445
669	141	5.21	505	7.8		**F**	**37**	**DRN**	**80M2**	55	444
711	133	4.90	500	8.0		**FF**	**37**	**DRN**	**80M2**	59	445
826	114	4.22	475	8.5							
925	102	3.77	460	9.1							
87	1080	20.15	545	1.05	X						
94	1010	18.84	540	1.15	X						
108	870	16.28	535	1.30	X						
127	740	13.84	525	1.55	X						
143	660	12.35	520	1.75	X						
167	565	10.55	505	2.0	X	**FA**	**27**	**(E)DRN**	**90S4**	53	441
178	530	9.88	500	2.2	X	**FAF**	**27**	**(E)DRN**	**90S4**	54	442
187	500	9.40	485	2.3	X	**F**	**27**	**(E)DRN**	**90S4**	54	443
217	435	8.13	475	2.5	X	**FF**	**27**	**(E)DRN**	**90S4**	56	442
255	370	6.91	460	2.7	X						
286	330	6.17	450	2.9	X						
335	280	5.27	435	3.1	X						
357	260	4.93	425	3.2	X						
424	220	4.16	410	3.5	X						
429	220	8.13	410	4.9							
505	187	6.91	390	5.4		**FA**	**27**	**DRN**	**80M2**	40	441
565	167	6.17	380	5.8		**FAF**	**27**	**DRN**	**80M2**	41	442
662	143	5.27	365	6.2		**F**	**27**	**DRN**	**80M2**	41	443
706	134	4.93	360	6.3		**FF**	**27**	**DRN**	**80M2**	43	442
839	113	4.16	340	6.8							

P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.73	160150	2427	22970	1.10	X						
0.81	144180	2185	24060	1.25	X						
0.91	128280	1944	24910	1.40	X						
1.1	110460	1674	25560	1.6	X	**FA**	**157R97**	**(E)DRN**	**90L4**	1710	516/522
1.4	86310	1308	26530	2.1	X	**FAF**	**157R97**	**(E)DRN**	**90L4**	1840	514/522
1.5	77140	1169	26830	2.3	X	**F**	**157R97**	**(E)DRN**	**90L4**	1760	513/522
1.9	62880	953	27000	2.8	X	**FF**	**157R97**	**(E)DRN**	**90L4**	1990	514/522
2.1	55760	845	27000	3.2	X						
4.0	29430	446	27000	6.0	X						
5.9	19930	302	27000	8.9	X						
1.1	104100	1606	20200	1.00	X						
1.3	90100	1390	20200	1.20	X						
1.4	78700	1220	20200	1.35	X						
1.6	70000	1077	20200	1.50	X	**FA**	**127R77**	**(E)DRN**	**90L4**	970	508/521
1.9	60000	930	20200	1.75	X	**FAF**	**127R77**	**(E)DRN**	**90L4**	1060	506/521
2.1	52700	820	20200	2.0	X	**F**	**127R77**	**(E)DRN**	**90L4**	1050	505/521
2.4	46500	727	20200	2.3	X	**FF**	**127R77**	**(E)DRN**	**90L4**	1150	506/521
2.7	42100	648	20200	2.5	X						
3.2	35700	549	20200	3.0	X						

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P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.7	66000	1015	11300	1.05	X	**FA**	**107R77**	**(E)DRN**	**90L4**	620	500/521
1.9	59800	923	11700	1.15	X	**FAF**	**107R77**	**(E)DRN**	**90L4**	670	498/521
2.2	51600	800	12200	1.35	X	**F**	**107R77**	**(E)DRN**	**90L4**	660	497/521
2.5	44700	696	12600	1.55	X	**FF**	**107R77**	**(E)DRN**	**90L4**	720	498/521
1.9	61600	950	11600	1.10	X						
2.1	53800	834	12100	1.25	X						
2.4	47300	736	12500	1.45	X	**FA**	**107R77**	**(E)DRN**	**90L4**	640	500/521
2.8	41600	640	12800	1.65	X	**FAF**	**107R77**	**(E)DRN**	**90L4**	690	498/521
3.1	35800	560	13100	1.90	X	**F**	**107R77**	**(E)DRN**	**90L4**	680	497/521
3.6	31300	489	13300	2.2	X	**FF**	**107R77**	**(E)DRN**	**90L4**	740	498/521
4.0	28300	436	13500	2.4	X						
4.8	24000	370	13700	2.8	X						
2.7	42800	644	12700	1.60	X						
3.0	39200	591	12900	1.75	X	**FA**	**107R77**	**(E)DRN**	**90L4**	620	500/521
3.4	34200	518	13200	2.0	X	**FAF**	**107R77**	**(E)DRN**	**90L4**	660	498/521
3.6	32400	491	13300	2.1	X	**F**	**107R77**	**(E)DRN**	**90L4**	650	497/521
4.1	28200	430	13500	2.5	X	**FF**	**107R77**	**(E)DRN**	**90L4**	710	498/521
4.6	25400	387	13600	2.7	X						
3.3	34500	529	6970	1.10	X						
3.8	30500	467	7240	1.25	X						
4.4	26300	406	7490	1.45	X	**FA**	**97R57**	**(E)DRN**	**90L4**	440	492/521
4.9	23600	363	7650	1.60	X	**FAF**	**97R57**	**(E)DRN**	**90L4**	490	490/521
6.2	18600	285	7910	2.0	X	**F**	**97R57**	**(E)DRN**	**90L4**	460	489/521
7.2	16000	245	8030	2.4	X	**FF**	**97R57**	**(E)DRN**	**90L4**	530	490/521
8.5	13600	208	8130	2.8	X						
9.1	12600	195	8170	3.0	X						
3.5	34000	510	7010	1.10	X						
3.7	31400	473	7180	1.20	X						
4.4	26600	403	7480	1.45	X	**FA**	**97R57**	**(E)DRN**	**90L4**	430	492/521
4.9	23900	361	7630	1.60	X	**FAF**	**97R57**	**(E)DRN**	**90L4**	475	490/521
5.6	20900	317	7790	1.80	X	**F**	**97R57**	**(E)DRN**	**90L4**	445	489/521
6.4	18300	275	7920	2.1	X	**FF**	**97R57**	**(E)DRN**	**90L4**	520	490/521
7.3	16100	242	8030	2.4	X						
5.1	22400	345	5540	1.20	X	**FA**	**87R57**	**(E)DRN**	**90L4**	300	484/521
5.9	19500	300	5800	1.35	X	**FAF**	**87R57**	**(E)DRN**	**90L4**	325	482/521
7.1	16100	249	6050	1.65	X	**F**	**87R57**	**(E)DRN**	**90L4**	310	481/521
						FF	**87R57**	**(E)DRN**	**90L4**	345	482/521
5.0	23200	350	5470	1.15	X						
5.6	20900	315	5680	1.25	X	**FA**	**87R57**	**(E)DRN**	**90L4**	290	484/521
6.3	18600	281	5870	1.40	X	**FAF**	**87R57**	**(E)DRN**	**90L4**	320	482/521
7.4	16000	240	6060	1.65	X	**F**	**87R57**	**(E)DRN**	**90L4**	305	481/521
8.4	14000	211	6200	1.90	X	**FF**	**87R57**	**(E)DRN**	**90L4**	340	482/521
9.2	12800	193	6280	2.1	X						
4.6	27100	254.40*	13500	2.5		**FA**	**107**	**DRN**	**112M6**	600	500
5.5	22900	215.37	13700	3.0		**FAF**	**107**	**DRN**	**112M6**	640	498
5.9	21200	199.31	13800	3.2		**F**	**107**	**DRN**	**112M6**	630	497
6.6	19000	178.64	13900	3.6		**FF**	**107**	**DRN**	**112M6**	690	498
4.3	29500	276.77	7300	1.30							
4.7	27000	253.41	7460	1.40		**FA**	**97**	**DRN**	**112M6**	435	492
5.3	23800	223.88	7640	1.60		**FAF**	**97**	**DRN**	**112M6**	480	490
6.2	20200	189.92	7830	1.90		**F**	**97**	**DRN**	**112M6**	450	489
6.8	18600	174.87	7910	2.0		**FF**	**97**	**DRN**	**112M6**	520	490
6.4	19700	276.77	7850	1.95	X						
7.0	18000	253.41	7930	2.1	X	**FA**	**97**	**(E)DRN**	**90L4**	390	492
7.9	15900	223.88	8030	2.4	X	**FAF**	**97**	**(E)DRN**	**90L4**	435	490
9.3	13500	189.92	8140	2.8	X	**F**	**97**	**(E)DRN**	**90L4**	405	489
10	12400	174.87	8180	3.0	X	**FF**	**97**	**(E)DRN**	**90L4**	475	490

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P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
6.5	19300	270.68	5810	1.40	X						
6.9	18200	255.37	5900	1.45	X						
7.7	16300	228.93	6040	1.65	X						
9.0	14000	197.20	6200	1.90	X	**FA**	**87**	**(E)DRN**	**90L4**	245	484
9.8	12800	179.97	6280	2.1	X	**FAF**	**87**	**(E)DRN**	**90L4**	275	482
11	11300	159.61	6370	2.3	X	**F**	**87**	**(E)DRN**	**90L4**	260	481
13	9560	134.16	6470	2.8	X	**FF**	**87**	**(E)DRN**	**90L4**	295	482
14	8790	123.29	6510	3.0	X						
16	7800	109.49	6560	3.4	X						
18	6980	97.89	6610	3.8	X						
11	11800	166.47	3750	1.10	X						
12	10100	142.27	3980	1.30	X						
14	9300	130.42	4070	1.45	X						
15	8160	114.45	4180	1.65	X						
16	7730	108.46*	4210	1.70	X						
19	6760	94.93	4290	1.95	X						
21	6090	85.52	4330	2.2	X	**FA**	**77**	**(E)DRN**	**90L4**	160	476
24	5350	75.02	4380	2.5	X	**FAF**	**77**	**(E)DRN**	**90L4**	175	474
24	5160	72.50	4390	2.6	X	**F**	**77**	**(E)DRN**	**90L4**	170	473
27	4730	66.46	4410	2.8	X	**FF**	**77**	**(E)DRN**	**90L4**	190	474
30	4150	58.32	4440	3.2	X						
32	3940	55.27	4450	3.4	X						
37	3440	48.37	4460	3.9	X						
41	3100	43.58	4480	4.3	X						
46	2720	38.23	4490	4.9	X						
						FA	**77**	**(E)DRN**	**90L4**	155	476
48	2600	36.58	4490	3.8	X	**FAF**	**77**	**(E)DRN**	**90L4**	170	474
56	2240	31.51	4490	5.4	X	**F**	**77**	**(E)DRN**	**90L4**	165	473
						FF	**77**	**(E)DRN**	**90L4**	190	474
18	6840	95.94	2410	1.05	X						
20	6460	90.59	2480	1.10	X						
22	5680	79.76	2620	1.30	X						
26	4820	67.65	2740	1.50	X	**FA**	**67**	**(E)DRN**	**90L4**	110	468
29	4350	61.07	2800	1.65	X	**FAF**	**67**	**(E)DRN**	**90L4**	125	466
33	3830	53.73	2850	1.90	X	**F**	**67**	**(E)DRN**	**90L4**	115	465
35	3610	50.74	2870	2.0	X	**FF**	**67**	**(E)DRN**	**90L4**	130	466
41	3080	43.20	2920	2.4	X						
45	2790	39.26	2920	2.5	X						
52	2420	34.01	2920	2.7	X						
49	2580	36.30	2920	2.8	X	**FA**	**67**	**(E)DRN**	**90L4**	110	468
55	2280	32.08	2920	3.2	X	**FAF**	**67**	**(E)DRN**	**90L4**	120	466
64	1950	27.41	2920	3.7	X	**F**	**67**	**(E)DRN**	**90L4**	115	465
70	1790	25.13	2920	4.0	X	**FF**	**67**	**(E)DRN**	**90L4**	125	466
24	5200	72.98	2090	1.00	X						
26	4860	68.22	2150	1.10	X						
30	4200	58.97	2270	1.25	X	**FA**	**57**	**(E)DRN**	**90L4**	100	460
35	3570	50.10	2210	1.50	X	**FAF**	**57**	**(E)DRN**	**90L4**	115	459
40	3190	44.73	2160	1.65	X	**F**	**57**	**(E)DRN**	**90L4**	100	458
46	2720	38.21	2100	1.95	X	**FF**	**57**	**(E)DRN**	**90L4**	115	459
49	2550	35.79	2070	2.1	X						
59	2140	30.15	1990	2.4	X						
						FA	**57**	**(E)DRN**	**90L4**	100	460
59	2130	29.94	1990	2.3	X	**FAF**	**57**	**(E)DRN**	**90L4**	110	459
62	2020	28.45	1970	2.3	X	**F**	**57**	**(E)DRN**	**90L4**	100	458
71	1770	24.96	1910	2.9	X	**FF**	**57**	**(E)DRN**	**90L4**	115	459
37	3420	48.00*	1370	1.05	X						
41	3050	42.86	1480	1.15	X	**FA**	**47**	**(E)DRN**	**90L4**	84	453
48	2610	36.61	1460	1.35	X	**FAF**	**47**	**(E)DRN**	**90L4**	90	452
52	2440	34.29	1450	1.45	X	**F**	**47**	**(E)DRN**	**90L4**	86	451
61	2050	28.88	1410	1.70	X	**FF**	**47**	**(E)DRN**	**90L4**	93	452

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P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
57	2200	30.86	1430	1.60	X						
60	2090	29.32	1420	1.70	X						
69	1830	25.72	1390	1.95	X	**FA**	**47**	**(E)DRN**	**90L4**	83	453
81	1550	21.82	1340	2.3	X	**FAF**	**47**	**(E)DRN**	**90L4**	89	452
90	1400	19.70	1320	2.5	X	**F**	**47**	**(E)DRN**	**90L4**	85	451
102	1230	17.33	1280	2.9	X	**FF**	**47**	**(E)DRN**	**90L4**	92	452
108	1160	16.36	1260	3.0	X						
127	990	13.93	1220	3.6	X						
74	1700	23.88	770	1.05	X	**FA**	**37**	**(E)DRN**	**90L4**	74	446
						FAF	**37**	**(E)DRN**	**90L4**	77	445
						F	**37**	**(E)DRN**	**90L4**	75	444
						FF	**37**	**(E)DRN**	**90L4**	79	445
86	1460	20.57	765	1.20	X						
92	1370	19.27	760	1.30	X						
104	1210	17.03	750	1.45	X						
112	1120	15.81	745	1.55	X						
123	1020	14.33	735	1.75	X						
137	910	12.87	725	1.95	X						
159	790	11.08	705	2.1	X	**FA**	**37**	**(E)DRN**	**90L4**	73	446
170	740	10.42	700	2.2	X	**FAF**	**37**	**(E)DRN**	**90L4**	77	445
197	635	8.97	680	2.4	X	**F**	**37**	**(E)DRN**	**90L4**	74	444
220	570	8.01	660	2.6	X	**FF**	**37**	**(E)DRN**	**90L4**	79	445
238	530	7.44	640	2.4	X						
262	480	6.74	625	2.6	X						
292	430	6.05	610	2.8	X						
339	370	5.21	590	3.0	X						
361	345	4.90	580	3.0	X						
391	320	8.97	580	4.8							
437	285	8.01	560	5.2							
471	265	7.44	545	4.8							
520	240	6.74	530	5.1		**FA**	**37**	**DRN**	**90S2**	66	446
579	215	6.05	515	5.5		**FAF**	**37**	**DRN**	**90S2**	70	445
673	187	5.21	495	5.9		**F**	**37**	**DRN**	**90S2**	68	444
715	176	4.90	485	6.0		**FF**	**37**	**DRN**	**90S2**	72	445
831	152	4.22	465	6.4							
930	135	3.77	450	6.9							
128	980	13.84	470	1.15	X						
143	880	12.35	470	1.30	X						
167	750	10.55	465	1.55	X						
179	700	9.88	460	1.65	X						
188	670	9.40	440	1.70	X	**FA**	**27**	**(E)DRN**	**90L4**	60	441
217	575	8.13	435	1.90	X	**FAF**	**27**	**(E)DRN**	**90L4**	61	442
256	490	6.91	425	2.0	X	**F**	**27**	**(E)DRN**	**90L4**	61	443
287	435	6.17	420	2.2	X	**FF**	**27**	**(E)DRN**	**90L4**	63	442
335	375	5.27	410	2.4	X						
358	350	4.93	405	2.4	X						
425	295	4.16	390	2.6	X						
431	290	8.13	390	3.7							
507	245	6.91	375	4.1		**FA**	**27**	**DRN**	**90S2**	53	441
568	220	6.17	365	4.3		**FAF**	**27**	**DRN**	**90S2**	54	442
665	189	5.27	355	4.7		**F**	**27**	**DRN**	**90S2**	54	443
710	177	4.93	345	4.8		**FF**	**27**	**DRN**	**90S2**	56	442
843	149	4.16	335	5.2							

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P_m = 3.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.0	167780	1674	22250	1.05	X						
1.2	142080	1441	24430	1.25	X						
1.3	131100	1308	24660	1.35	X						
1.5	117160	1169	25380	1.5	X						
1.8	95520	953	26290	1.9	X						
2.1	84690	845	26670	2.1	X	**FA**	**157R97**	**(E)DRN**	**100LM4**	1740	516/522
2.3	76570	764	26910	2.3	X	**FAF**	**157R97**	**(E)DRN**	**100LM4**	1870	514/522
2.6	68150	680	27000	2.6	X	**F**	**157R97**	**(E)DRN**	**100LM4**	1780	513/522
3.0	57730	576	27000	3.1	X	**FF**	**157R97**	**(E)DRN**	**100LM4**	2020	514/522
3.9	44700	446	27000	4.0	X						
5.8	30270	302	27000	5.9	X						
6.4	27360	273	27000	6.5	X						
7.5	23250	232	27000	7.6	X						
8.9	19740	197	27000	9.0	X						
3.6	45900	483	20200	2.3	X	**FA**	**127R87**	**(E)DRN**	**100LM4**	1040	508/522
4.2	40200	418	20200	2.6	X	**FAF**	**127R87**	**(E)DRN**	**100LM4**	1130	506/522
4.7	35800	374	20200	3.0	X	**F**	**127R87**	**(E)DRN**	**100LM4**	1120	505/522
						FF	**127R87**	**(E)DRN**	**100LM4**	1220	506/522
1.6	106500	1077	20200	1.00	X						
1.9	91500	930	20200	1.15	X						
2.1	80500	820	20200	1.30	X						
2.4	71100	727	20200	1.50	X	**FA**	**127R77**	**(E)DRN**	**100LM4**	1000	508/521
2.7	64000	648	20200	1.65	X	**FAF**	**127R77**	**(E)DRN**	**100LM4**	1080	506/521
3.2	54200	549	20200	1.95	X	**F**	**127R77**	**(E)DRN**	**100LM4**	1080	505/521
3.6	48800	495	20200	2.2	X	**FF**	**127R77**	**(E)DRN**	**100LM4**	1180	506/521
4.1	42200	428	20200	2.5	X						
4.7	36900	376	20200	2.9	X						
2.5	68300	696	11200	1.00	X	**FA**	**107R77**	**(E)DRN**	**100LM4**	650	500/521
						FAF	**107R77**	**(E)DRN**	**100LM4**	690	498/521
						F	**107R77**	**(E)DRN**	**100LM4**	680	497/521
						FF	**107R77**	**(E)DRN**	**100LM4**	740	498/521
2.8	63300	640	11500	1.05	X						
3.1	54800	560	12000	1.25	X						
3.6	47800	489	12400	1.40	X	**FA**	**107R77**	**(E)DRN**	**100LM4**	660	500/521
4.0	43100	436	12700	1.60	X	**FAF**	**107R77**	**(E)DRN**	**100LM4**	710	498/521
4.8	36500	370	13100	1.85	X	**F**	**107R77**	**(E)DRN**	**100LM4**	700	497/521
5.3	32800	333	13300	2.1	X	**FF**	**107R77**	**(E)DRN**	**100LM4**	760	498/521
6.0	28700	291	13500	2.4	X						
6.9	25100	255	13600	2.7	X						
2.7	64900	644	11400	1.05	X						
3.0	59400	591	11700	1.15	X						
3.4	52000	518	12200	1.35	X						
3.6	49200	491	12400	1.40	X	**FA**	**107R77**	**(E)DRN**	**100LM4**	640	500/521
4.1	43000	430	12700	1.60	X	**FAF**	**107R77**	**(E)DRN**	**100LM4**	690	498/521
4.5	38700	387	13000	1.80	X	**F**	**107R77**	**(E)DRN**	**100LM4**	680	497/521
5.2	33800	340	13200	2.0	X	**FF**	**107R77**	**(E)DRN**	**100LM4**	740	498/521
5.9	29700	300	13400	2.3	X						
6.6	26300	266	13600	2.6	X						
4.8	35900	363	6870	1.05	X						
6.2	28300	285	7380	1.35	X	**FA**	**97R57**	**(E)DRN**	**100LM4**	465	492/521
7.2	24300	245	7610	1.55	X	**FAF**	**97R57**	**(E)DRN**	**100LM4**	510	490/521
8.5	20600	208	7810	1.85	X	**F**	**97R57**	**(E)DRN**	**100LM4**	485	489/521
9.0	19200	195	7880	1.95	X	**FF**	**97R57**	**(E)DRN**	**100LM4**	560	490/521
4.9	36200	361	6850	1.05	X	**FA**	**97R57**	**(E)DRN**	**100LM4**	455	492/521
5.6	31700	317	7160	1.20	X	**FAF**	**97R57**	**(E)DRN**	**100LM4**	500	490/521
6.4	27800	275	7410	1.35	X	**F**	**97R57**	**(E)DRN**	**100LM4**	470	489/521
7.3	24400	242	7610	1.55	X	**FF**	**97R57**	**(E)DRN**	**100LM4**	540	490/521
7.1	24600	249	5340	1.10	X	**FA**	**87R57**	**(E)DRN**	**100LM4**	320	484/521
						FAF	**87R57**	**(E)DRN**	**100LM4**	350	482/521
						F	**87R57**	**(E)DRN**	**100LM4**	335	481/521
						FF	**87R57**	**(E)DRN**	**100LM4**	370	482/521
7.3	24200	240	5380	1.10	X	**FA**	**87R57**	**(E)DRN**	**100LM4**	315	484/521
8.3	21200	211	5650	1.25	X	**FAF**	**87R57**	**(E)DRN**	**100LM4**	345	482/521
9.1	19500	193	5800	1.35	X	**F**	**87R57**	**(E)DRN**	**100LM4**	330	481/521
						FF	**87R57**	**(E)DRN**	**100LM4**	365	482/521

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P_m = 3.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
4.6	40700	254.40*	12800	1.65		**FA**	**107**	**DRN**	**132S6**	620	500
5.5	34500	215.37	13200	1.95		**FAF**	**107**	**DRN**	**132S6**	670	498
5.9	31900	199.31	13300	2.1		**F**	**107**	**DRN**	**132S6**	660	497
6.6	28600	178.64	13500	2.4		**FF**	**107**	**DRN**	**132S6**	720	498
6.9	27200	254.40*	13500	2.5	X	**FA**	**107**	**(E)DRN**	**100LM4**	580	500
8.2	23100	215.37	13700	2.9	X	**FAF**	**107**	**(E)DRN**	**100LM4**	630	498
8.8	21300	199.31	13800	3.2	X	**F**	**107**	**(E)DRN**	**100LM4**	620	497
9.9	19100	178.64	13900	3.5	X	**FF**	**107**	**(E)DRN**	**100LM4**	680	498
5.3	35800	223.88	6880	1.05		**FA**	**97**	**DRN**	**132S6**	460	492
6.2	30400	189.92	7250	1.25		**FAF**	**97**	**DRN**	**132S6**	510	490
6.7	28000	174.87	7400	1.35		**F**	**97**	**DRN**	**132S6**	475	489
7.5	25000	156.30	7570	1.50		**FF**	**97**	**DRN**	**132S6**	550	490
6.4	29600	276.77	7290	1.30	X						
7.0	27100	253.41	7450	1.40	X						
7.9	24000	223.88	7630	1.60	X	**FA**	**97**	**(E)DRN**	**100LM4**	415	492
9.3	20300	189.92	7820	1.85	X	**FAF**	**97**	**(E)DRN**	**100LM4**	460	490
10	18700	174.87	7900	2.0	X	**F**	**97**	**(E)DRN**	**100LM4**	430	489
11	16700	156.30	8000	2.3	X	**FF**	**97**	**(E)DRN**	**100LM4**	500	490
13	15000	140.71	8070	2.5	X						
14	13600	127.42	8130	2.8	X						
7.7	24500	228.93	5350	1.10	X						
8.9	21100	197.20	5660	1.25	X						
9.8	19300	179.97	5810	1.35	X						
11	17100	159.61	5980	1.55	X						
13	14300	134.16	6180	1.85	X						
14	13200	123.29	6250	2.0	X	**FA**	**87**	**(E)DRN**	**100LM4**	270	484
16	11700	109.49	6350	2.3	X	**FAF**	**87**	**(E)DRN**	**100LM4**	300	482
18	10500	97.89	6270	2.5	X	**F**	**87**	**(E)DRN**	**100LM4**	285	481
20	9440	88.01	6120	2.8	X	**FF**	**87**	**(E)DRN**	**100LM4**	320	482
23	8190	76.39	5920	3.2	X						
26	7330	68.40	5760	3.6	X						
31	6080	56.75	5490	4.4	X						
35	5400	50.36	5320	4.8	X						
39	4850	45.28	5170	5.1	X						
15	12200	114.45	3690	1.10	X						
16	11600	108.46*	3790	1.15	X						
19	10100	94.93	3970	1.30	X						
21	9170	85.52	4080	1.45	X						
23	8040	75.02	4190	1.65	X	**FA**	**77**	**(E)DRN**	**100LM4**	185	476
24	7770	72.50	4210	1.70	X	**FAF**	**77**	**(E)DRN**	**100LM4**	200	474
27	7120	66.46	4260	1.85	X	**F**	**77**	**(E)DRN**	**100LM4**	195	473
30	6250	58.32	4320	2.1	X	**FF**	**77**	**(E)DRN**	**100LM4**	215	474
32	5920	55.27	4350	2.2	X						
36	5180	48.37	4390	2.6	X						
40	4670	43.58	4410	2.8	X						
48	3920	36.58	4450	2.5	X	**FA**	**77**	**(E)DRN**	**100LM4**	180	476
56	3370	31.51	4470	3.6	X	**FAF**	**77**	**(E)DRN**	**100LM4**	195	474
61	3080	28.75	4480	4.1	X	**F**	**77**	**(E)DRN**	**100LM4**	190	473
69	2730	25.50*	4490	4.8	X	**FF**	**77**	**(E)DRN**	**100LM4**	215	474
26	7250	67.65	2320	1.00	X						
29	6550	61.07	2460	1.10	X						
33	5760	53.73	2600	1.25	X	**FA**	**67**	**(E)DRN**	**100LM4**	135	468
35	5440	50.74	2650	1.35	X	**FAF**	**67**	**(E)DRN**	**100LM4**	150	466
41	4630	43.20	2760	1.55	X	**F**	**67**	**(E)DRN**	**100LM4**	140	465
45	4210	39.26	2810	1.65	X	**FF**	**67**	**(E)DRN**	**100LM4**	155	466
52	3640	34.01	2870	1.80	X						
55	3440	32.08	2890	2.1	X						
64	2940	27.41	2920	2.5	X	**FA**	**67**	**(E)DRN**	**100LM4**	130	468
70	2690	25.13	2920	2.7	X	**FAF**	**67**	**(E)DRN**	**100LM4**	145	466
80	2360	22.05	2920	3.1	X	**F**	**67**	**(E)DRN**	**100LM4**	140	465
84	2240	20.90*	2920	3.2	X	**FF**	**67**	**(E)DRN**	**100LM4**	150	466
96	1960	18.29	2920	3.7	X						
39	4790	44.73	1920	1.10	X	**FA**	**57**	**(E)DRN**	**100LM4**	125	460
46	4090	38.21	1890	1.30	X	**FAF**	**57**	**(E)DRN**	**100LM4**	140	459
49	3830	35.79	1880	1.40	X	**F**	**57**	**(E)DRN**	**100LM4**	125	458
58	3230	30.15	1830	1.60	X	**FF**	**57**	**(E)DRN**	**100LM4**	140	459

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P_m = 3.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
71	2670	24.96	1780	1.90	X	**FA**	**57**	**(E)DRN**	**100LM4**	125	460
83	2270	21.17	1720	2.3	X	**FAF**	**57**	**(E)DRN**	**100LM4**	135	459
92	2050	19.11	1680	2.6	X	**F**	**57**	**(E)DRN**	**100LM4**	125	458
105	1800	16.81	1640	2.9	X	**FF**	**57**	**(E)DRN**	**100LM4**	140	459
111	1700	15.88	1620	3.1	X						
61	3090	28.88	1240	1.15	X	**FA**	**47**	**(E)DRN**	**100LM4**	110	453
						FAF	**47**	**(E)DRN**	**100LM4**	115	452
						F	**47**	**(E)DRN**	**100LM4**	110	451
						FF	**47**	**(E)DRN**	**100LM4**	120	452
68	2750	25.72	1230	1.30	X						
81	2340	21.82	1210	1.50	X						
89	2110	19.70	1190	1.65	X						
102	1850	17.33	1170	1.90	X	**FA**	**47**	**(E)DRN**	**100LM4**	105	453
108	1750	16.36	1160	2.0	X	**FAF**	**47**	**(E)DRN**	**100LM4**	115	452
126	1490	13.93	1130	2.4	X	**F**	**47**	**(E)DRN**	**100LM4**	110	451
139	1350	12.66	1110	2.6	X	**FF**	**47**	**(E)DRN**	**100LM4**	115	452
161	1170	10.97	1080	3.0	X						
197	960	8.96	1010	3.0	X						
123	1530	14.33	630	1.15	X						
137	1380	12.87	625	1.30	X						
159	1180	11.08	625	1.40	X						
169	1110	10.42	620	1.45	X						
196	960	8.97	610	1.60	X	**FA**	**37**	**(E)DRN**	**100LM4**	98	446
220	850	8.01	600	1.75	X	**FAF**	**37**	**(E)DRN**	**100LM4**	100	445
261	720	6.74	570	1.70	X	**F**	**37**	**(E)DRN**	**100LM4**	99	444
291	645	6.05	560	1.85	X	**FF**	**37**	**(E)DRN**	**100LM4**	105	445
338	555	5.21	550	2.0	X						
360	525	4.90	540	2.0	X						
418	450	4.22	525	2.1	X						
468	400	3.77	515	2.3	X						
474	395	7.44	515	3.2							
523	360	6.74	500	3.4							
583	320	6.05	490	3.7		**FA**	**37**	**DRN**	**90L2**	73	446
676	275	5.21	475	4.0		**FAF**	**37**	**DRN**	**90L2**	77	445
719	260	4.90	465	4.0		**F**	**37**	**DRN**	**90L2**	74	444
836	225	4.22	450	4.3		**FF**	**37**	**DRN**	**90L2**	79	445
935	200	3.77	435	4.6							
167	1130	10.55	380	1.00	X						
178	1060	9.88	380	1.10	X						
217	870	8.13	365	1.25	X	**FA**	**27**	**(E)DRN**	**100LM4**	84	441
255	740	6.91	365	1.35	X	**FAF**	**27**	**(E)DRN**	**100LM4**	86	442
286	660	6.17	365	1.45	X	**F**	**27**	**(E)DRN**	**100LM4**	85	443
335	565	5.27	360	1.55	X	**FF**	**27**	**(E)DRN**	**100LM4**	87	442
357	525	4.93	360	1.60	X						
424	445	4.16	355	1.75	X						
375	500	9.40	360	2.3							
434	435	8.13	355	2.5							
510	370	6.91	345	2.7		**FA**	**27**	**DRN**	**90L2**	60	441
572	330	6.17	340	2.9		**FAF**	**27**	**DRN**	**90L2**	61	442
669	280	5.27	330	3.1		**F**	**27**	**DRN**	**90L2**	61	443
715	260	4.93	325	3.2		**FF**	**27**	**DRN**	**90L2**	63	442
848	220	4.16	315	3.5							

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P_m = 4.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.4	173010	1308	21510	1.00	X						
1.5	154620	1169	22990	1.15	X						
1.9	126050	953	24800	1.40	X						
2.1	111770	845	25530	1.6	X						
2.3	101050	764	26000	1.8	X	**FA**	**157R97**	**(E)DRN**	**100L4**	1740	516/522
2.6	89940	680	26410	2.0	X	**FAF**	**157R97**	**(E)DRN**	**100L4**	1870	514/522
3.1	76190	576	26860	2.3	X	**F**	**157R97**	**(E)DRN**	**100L4**	1780	513/522
4.0	58990	446	27000	3.0	X	**FF**	**157R97**	**(E)DRN**	**100L4**	2020	514/522
5.8	39950	302	27000	4.4	X						
6.5	36110	273	27000	4.9	X						
7.6	30690	232	27000	5.8	X						
9.0	26060	197	27000	6.8	X						
2.4	95600	727	20200	1.10	X	**FA**	**127R77**	**(E)DRN**	**100L4**	1000	508/521
2.7	85800	648	20200	1.25	X	**FAF**	**127R77**	**(E)DRN**	**100L4**	1080	506/521
3.2	72700	549	20200	1.45	X	**F**	**127R77**	**(E)DRN**	**100L4**	1080	505/521
3.6	65400	495	20200	1.60	X	**FF**	**127R77**	**(E)DRN**	**100L4**	1180	506/521
4.0	57700	436	11900	1.20	X	**FA**	**107R77**	**(E)DRN**	**100L4**	660	500/521
4.8	48900	370	12400	1.40	X	**FAF**	**107R77**	**(E)DRN**	**100L4**	710	498/521
5.3	44000	333	12700	1.55	X	**F**	**107R77**	**(E)DRN**	**100L4**	700	497/521
6.1	38500	291	13000	1.75	X	**FF**	**107R77**	**(E)DRN**	**100L4**	760	498/521
4.6	54400	254.40*	12100	1.25		**FA**	**107**	**DRN**	**132S6**	620	500
5.5	46000	215.37	12500	1.45		**FAF**	**107**	**DRN**	**132S6**	670	498
5.9	42600	199.31	12700	1.60		**F**	**107**	**DRN**	**132S6**	660	497
6.6	38200	178.64	13000	1.80		**FF**	**107**	**DRN**	**132S6**	720	498
6.9	36300	254.40*	13100	1.85	X	**FA**	**107**	**(E)DRN**	**100L4**	580	500
8.2	30700	215.37	13400	2.2	X	**FAF**	**107**	**(E)DRN**	**100L4**	630	498
8.8	28400	199.31	13500	2.4	X	**F**	**107**	**(E)DRN**	**100L4**	620	497
9.9	25500	178.64	13600	2.7	X	**FF**	**107**	**(E)DRN**	**100L4**	680	498
11	23000	161.28*	13700	3.0	X						
7.9	32000	223.88	7150	1.20	X						
9.3	27100	189.92	7450	1.40	X						
10	24900	174.87	7570	1.50	X	**FA**	**97**	**(E)DRN**	**100L4**	415	492
11	22300	156.30	7720	1.70	X	**FAF**	**97**	**(E)DRN**	**100L4**	460	490
13	20100	140.71	7840	1.90	X	**F**	**97**	**(E)DRN**	**100L4**	430	489
14	18200	127.42	7930	2.1	X	**FF**	**97**	**(E)DRN**	**100L4**	500	490
16	16100	112.99	8020	2.4	X						
17	14600	102.16	8090	2.6	X						
20	12800	89.85	8170	3.0	X						
13	19100	134.16	5820	1.40	X						
14	17600	123.29	5950	1.50	X						
16	15600	109.49	6050	1.70	X	**FA**	**87**	**(E)DRN**	**100L4**	270	484
18	13900	97.89	5930	1.90	X	**FAF**	**87**	**(E)DRN**	**100L4**	300	482
20	12500	88.01	5810	2.1	X	**F**	**87**	**(E)DRN**	**100L4**	285	481
23	10900	76.39	5650	2.4	X	**FF**	**87**	**(E)DRN**	**100L4**	320	482
26	9770	68.40	5520	2.7	X						
31	8110	56.75	5290	3.3	X						
35	7190	50.36	5150	3.6	X						
21	12200	85.52	3700	1.10	X						
24	10700	75.02	3910	1.25	X						
27	9500	66.46	4050	1.40	X	**FA**	**77**	**(E)DRN**	**100L4**	185	476
30	8330	58.32	4160	1.60	X	**FAF**	**77**	**(E)DRN**	**100L4**	200	474
32	7900	55.27	4200	1.70	X	**F**	**77**	**(E)DRN**	**100L4**	195	473
36	6910	48.37	4280	1.90	X	**FF**	**77**	**(E)DRN**	**100L4**	215	474
40	6220	43.58	4330	2.1	X						
46	5460	38.23	4370	2.4	X						
48	5220	36.58	4390	1.90	X						
56	4500	31.51	4420	2.7	X	**FA**	**77**	**(E)DRN**	**100L4**	180	476
61	4110	28.75	4440	3.1	X	**FAF**	**77**	**(E)DRN**	**100L4**	195	474
69	3640	25.50*	4460	3.6	X	**F**	**77**	**(E)DRN**	**100L4**	190	473
82	3060	21.43	4480	4.3	X	**FF**	**77**	**(E)DRN**	**100L4**	215	474
41	6170	43.20	2530	1.15	X	**FA**	**67**	**(E)DRN**	**100L4**	135	468
45	5610	39.26	2630	1.25	X	**FAF**	**67**	**(E)DRN**	**100L4**	150	466
52	4860	34.01	2730	1.35	X	**F**	**67**	**(E)DRN**	**100L4**	140	465
						FF	**67**	**(E)DRN**	**100L4**	155	466

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P_m = 4.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
55	4580	32.08	2770	1.60	X						
64	3910	27.41	2840	1.85	X						
70	3590	25.13	2870	2.0	X	**FA**	**67**	**(E)DRN**	**100L4**	130	468
80	3150	22.05	2910	2.3	X	**FAF**	**67**	**(E)DRN**	**100L4**	145	466
84	2980	20.90*	2920	2.4	X	**F**	**67**	**(E)DRN**	**100L4**	140	465
96	2610	18.29	2920	2.8	X	**FF**	**67**	**(E)DRN**	**100L4**	150	466
107	2350	16.48	2920	3.1	X						
122	2060	14.46	2920	3.5	X						
71	3560	24.96	1640	1.45	X						
83	3020	21.17	1610	1.75	X						
92	2730	19.11	1580	1.95	X	**FA**	**57**	**(E)DRN**	**100L4**	125	460
105	2400	16.81	1550	2.2	X	**FAF**	**57**	**(E)DRN**	**100L4**	135	459
111	2260	15.88	1530	2.3	X	**F**	**57**	**(E)DRN**	**100L4**	125	458
130	1930	13.52	1480	2.8	X	**FF**	**57**	**(E)DRN**	**100L4**	140	459
144	1750	12.29	1460	3.0	X						
166	1520	10.64	1410	3.5	X						
90	2810	19.70	1070	1.25	X						
102	2470	17.33	1070	1.45	X						
108	2330	16.36	1060	1.50	X	**FA**	**47**	**(E)DRN**	**100L4**	105	453
127	1990	13.93	1040	1.80	X	**FAF**	**47**	**(E)DRN**	**100L4**	115	452
139	1810	12.66	1030	1.95	X	**F**	**47**	**(E)DRN**	**100L4**	110	451
161	1560	10.97	1010	2.3	X	**FF**	**47**	**(E)DRN**	**100L4**	115	452
197	1280	8.96	950	2.3	X						
159	1580	11.08	540	1.05	X						
169	1490	10.42	540	1.10	X						
197	1280	8.97	545	1.20	X						
220	1140	8.01	540	1.30	X	**FA**	**37**	**(E)DRN**	**100L4**	98	446
262	960	6.74	515	1.30	X	**FAF**	**37**	**(E)DRN**	**100L4**	100	445
291	860	6.05	510	1.40	X	**F**	**37**	**(E)DRN**	**100L4**	99	444
338	745	5.21	505	1.50	X	**FF**	**37**	**(E)DRN**	**100L4**	105	445
360	700	4.90	500	1.50	X						
418	600	4.22	490	1.60	X						
468	535	3.77	485	1.70	X						
317	790	11.08	525	2.1							
337	745	10.42	520	2.2							
392	640	8.97	510	2.4							
439	570	8.01	500	2.6		**FA**	**37**	**DRN**	**100LM2**	98	446
522	480	6.74	475	2.6		**FAF**	**37**	**DRN**	**100LM2**	100	445
581	430	6.05	465	2.8		**F**	**37**	**DRN**	**100LM2**	99	444
675	370	5.21	450	3.0		**FF**	**37**	**DRN**	**100LM2**	105	445
718	350	4.90	445	3.0							
834	300	4.22	430	3.2							
933	270	3.77	420	3.4							
433	580	8.13	315	1.85							
509	490	6.91	315	2.0		**FA**	**27**	**DRN**	**100LM2**	84	441
570	440	6.17	310	2.2		**FAF**	**27**	**DRN**	**100LM2**	86	442
668	375	5.27	305	2.3		**F**	**27**	**DRN**	**100LM2**	85	443
713	350	4.93	305	2.4		**FF**	**27**	**DRN**	**100LM2**	87	442
846	295	4.16	295	2.6							

P_m = 5.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.9	158020	953	22910	1.10	X						
2.1	140110	845	24110	1.25	X						
2.3	126680	764	24870	1.40	X						
2.6	112750	680	25530	1.6	X	**FA**	**157R97**	**(E)DRN**	**100L4**	1740	516/522
3.1	95510	576	26250	1.9	X	**FAF**	**157R97**	**(E)DRN**	**100L4**	1870	514/522
3.9	73950	446	26890	2.4	X	**F**	**157R97**	**(E)DRN**	**100L4**	1780	513/522
5.8	50070	302	27000	3.5	X	**FF**	**157R97**	**(E)DRN**	**100L4**	2020	514/522
6.4	45270	273	27000	3.9	X						
7.6	38470	232	27000	4.6	X						
9.0	32660	197	27000	5.4	X						

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P_m = 5.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
3.6	78600	483	20200	1.35	X						
4.2	68500	418	20200	1.55	X						
4.7	61100	374	20200	1.75	X	**FA**	**127R87**	**(E)DRN**	**100L4**	1040	508/522
5.6	51000	312	20200	2.1	X	**FAF**	**127R87**	**(E)DRN**	**100L4**	1130	506/522
6.0	47700	293	20200	2.2	X	**F**	**127R87**	**(E)DRN**	**100L4**	1120	505/522
6.8	42000	259	20200	2.5	X	**FF**	**127R87**	**(E)DRN**	**100L4**	1220	506/522
7.9	36300	223	20200	2.9	X						
2.7	107900	648	20200	1.00							
3.2	91400	549	20200	1.15	X	**FA**	**127R77**	**(E)DRN**	**100L4**	1000	508/521
3.5	82300	495	20200	1.30	X	**FAF**	**127R77**	**(E)DRN**	**100L4**	1080	506/521
4.1	71200	428	20200	1.50	X	**F**	**127R77**	**(E)DRN**	**100L4**	1080	505/521
4.7	62400	376	20200	1.70	X	**FF**	**127R77**	**(E)DRN**	**100L4**	1180	506/521
4.8	61500	370	11600	1.10	X						
5.3	55400	333	12000	1.25	X	**FA**	**107R77**	**(E)DRN**	**100L4**	660	500/521
6.0	48400	291	12400	1.40	X	**FAF**	**107R77**	**(E)DRN**	**100L4**	710	498/521
6.9	42400	255	12800	1.60	X	**F**	**107R77**	**(E)DRN**	**100L4**	700	497/521
7.8	37300	225	13000	1.80	X	**FF**	**107R77**	**(E)DRN**	**100L4**	760	498/521
9.2	31600	190	13300	2.1	X						
4.5	65200	387	11400	1.05	X	**FA**	**107R77**	**(E)DRN**	**100L4**	640	500/521
5.2	57100	340	11900	1.20	X	**FAF**	**107R77**	**(E)DRN**	**100L4**	690	498/521
5.9	50300	300	12300	1.40	X	**F**	**107R77**	**(E)DRN**	**100L4**	680	497/521
6.6	44500	266	12600	1.55	X	**FF**	**107R77**	**(E)DRN**	**100L4**	740	498/521
						FA	**97R57**	**(E)DRN**	**100L4**	465	492/521
8.4	34700	208	6960	1.10	X	**FAF**	**97R57**	**(E)DRN**	**100L4**	510	490/521
9.0	32500	195	7110	1.15	X	**F**	**97R57**	**(E)DRN**	**100L4**	485	489/521
						FF	**97R57**	**(E)DRN**	**100L4**	560	490/521
6.9	45500	254.40*	12600	1.50	X						
8.2	38500	215.37	13000	1.75	X						
8.8	35700	199.31	13100	1.90	X	**FA**	**107**	**(E)DRN**	**100L4**	580	500
9.8	32000	178.64	13300	2.1	X	**FAF**	**107**	**(E)DRN**	**100L4**	630	498
11	28900	161.28*	13500	2.4	X	**F**	**107**	**(E)DRN**	**100L4**	620	497
12	26200	146.49	13600	2.6	X	**FF**	**107**	**(E)DRN**	**100L4**	680	498
14	23200	129.97	13700	2.9	X						
9.3	34000	189.92	7010	1.10	X						
10	31300	174.87	7190	1.20	X						
11	28000	156.30	7400	1.35	X						
12	25200	140.71	7560	1.50	X						
14	22800	127.42	7690	1.65	X	**FA**	**97**	**(E)DRN**	**100L4**	415	492
16	20200	112.99	7830	1.90	X	**FAF**	**97**	**(E)DRN**	**100L4**	460	490
17	18300	102.16	7920	2.1	X	**F**	**97**	**(E)DRN**	**100L4**	430	489
18	17400	97.58	7960	2.2	X	**FF**	**97**	**(E)DRN**	**100L4**	500	490
20	16100	89.85	8030	2.4	X						
20	15500	86.59	8050	2.5	X						
22	14300	80.31	8100	2.6	X						
24	12900	72.29	8160	2.9	X						
13	24000	134.16	5400	1.10	X						
14	22000	123.29	5580	1.20	X						
16	19600	109.49	5660	1.35	X						
18	17500	97.89	5590	1.50	X	**FA**	**87**	**(E)DRN**	**100L4**	270	484
20	15700	88.01	5510	1.70	X	**FAF**	**87**	**(E)DRN**	**100L4**	300	482
23	13600	76.39	5390	1.95	X	**F**	**87**	**(E)DRN**	**100L4**	285	481
26	12200	68.40	5280	2.2	X	**FF**	**87**	**(E)DRN**	**100L4**	320	482
31	10100	56.75	5100	2.6	X						
35	9020	50.36	4970	2.9	X						
23	13400	75.02	3500	1.00							
24	12900	72.50	3580	1.00	X						
26	11900	66.46	3750	1.10	X						
30	10400	58.32	3940	1.25	X						
32	9900	55.27	4000	1.35	X	**FA**	**77**	**(E)DRN**	**100L4**	185	476
36	8660	48.37	4130	1.55	X	**FAF**	**77**	**(E)DRN**	**100L4**	200	474
40	7800	43.58	4210	1.70	X	**F**	**77**	**(E)DRN**	**100L4**	195	473
46	6850	38.23	4280	1.95	X	**FF**	**77**	**(E)DRN**	**100L4**	215	474
52	6040	33.74	4340	2.2	X						
59	5350	29.91	4380	2.5	X						
69	4570	25.54	4420	2.8	X						

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P_m = 5.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
48	6550	36.58	4300	1.50	X	**FA**	**77**	**(E)DRN**	**100L4**	180	476
56	5640	31.51	4360	2.2	X	**FAF**	**77**	**(E)DRN**	**100L4**	195	474
61	5150	28.75	4390	2.5	X	**F**	**77**	**(E)DRN**	**100L4**	190	473
69	4560	25.50*	4420	2.9	X	**FF**	**77**	**(E)DRN**	**100L4**	215	474
82	3840	21.43	4450	3.5	X						
45	7030	39.26	2370	1.00		**FA**	**67**	**(E)DRN**	**100L4**	135	468
52	6090	34.01	2550	1.05	X	**FAF**	**67**	**(E)DRN**	**100L4**	150	466
						F	**67**	**(E)DRN**	**100L4**	140	465
						FF	**67**	**(E)DRN**	**100L4**	155	466
55	5740	32.08	2610	1.25	X						
64	4910	27.41	2730	1.50	X						
70	4500	25.13	2780	1.60	X						
80	3950	22.05	2840	1.85	X	**FA**	**67**	**(E)DRN**	**100L4**	130	468
84	3740	20.90*	2860	1.95	X	**FAF**	**67**	**(E)DRN**	**100L4**	145	466
96	3270	18.29	2900	2.2	X	**F**	**67**	**(E)DRN**	**100L4**	140	465
107	2950	16.48	2920	2.5	X	**FF**	**67**	**(E)DRN**	**100L4**	150	466
122	2590	14.46	2920	2.8	X						
194	1620	9.08	2790	2.9	X						
70	4470	24.96	1510	1.15	X						
83	3790	21.17	1490	1.40	X						
92	3420	19.11	1480	1.55	X						
105	3010	16.81	1460	1.75	X						
111	2840	15.88	1450	1.85	X	**FA**	**57**	**(E)DRN**	**100L4**	125	460
130	2420	13.52	1410	2.2	X	**FAF**	**57**	**(E)DRN**	**100L4**	135	459
143	2200	12.29	1390	2.4	X	**F**	**57**	**(E)DRN**	**100L4**	125	458
165	1900	10.64	1350	2.8	X	**FF**	**57**	**(E)DRN**	**100L4**	140	459
189	1660	9.31	1290	2.2	X						
215	1460	8.19	1260	2.5	X						
227	1380	7.73	1240	2.7	X						
89	3520	19.70	950	1.00	X						
101	3100	17.33	960	1.15	X						
107	2930	16.36	960	1.20	X						
126	2490	13.93	960	1.40	X						
139	2260	12.66	950	1.55	X	**FA**	**47**	**(E)DRN**	**100L4**	105	453
160	1960	10.97	940	1.80	X	**FAF**	**47**	**(E)DRN**	**100L4**	115	452
196	1600	8.96	890	1.80	X	**F**	**47**	**(E)DRN**	**100L4**	110	451
223	1410	7.88	880	2.4	X	**FF**	**47**	**(E)DRN**	**100L4**	115	452
236	1330	7.44*	870	2.5	X						
278	1130	6.34	850	2.7	X						
305	1030	5.76	840	2.9	X						
219	1430	8.01	480	1.05	X						
261	1200	6.74	460	1.05	X						
291	1080	6.05	460	1.10	X	**FA**	**37**	**(E)DRN**	**100L4**	98	446
337	930	5.21	460	1.20	X	**FAF**	**37**	**(E)DRN**	**100L4**	100	445
359	870	4.90	460	1.20	X	**F**	**37**	**(E)DRN**	**100L4**	99	444
417	755	4.22	455	1.30	X	**FF**	**37**	**(E)DRN**	**100L4**	105	445
467	675	3.77	455	1.40	X						
438	715	8.01	470	2.1							
521	605	6.74	445	2.0							
580	540	6.05	440	2.2		**FA**	**37**	**DRN**	**100L2**	98	446
673	465	5.21	430	2.4		**FAF**	**37**	**DRN**	**100L2**	100	445
716	440	4.90	425	2.4		**F**	**37**	**DRN**	**100L2**	99	444
832	375	4.22	415	2.6		**FF**	**37**	**DRN**	**100L2**	105	445
931	335	3.77	405	2.8							
423	740	4.16	280	1.05	X	**FA**	**27**	**(E)DRN**	**100L4**	84	441
						FAF	**27**	**(E)DRN**	**100L4**	86	442
						F	**27**	**(E)DRN**	**100L4**	85	443
						FF	**27**	**(E)DRN**	**100L4**	87	442
432	725	8.13	280	1.50							
508	620	6.91	285	1.65		**FA**	**27**	**DRN**	**100L2**	84	441
569	550	6.17	285	1.75		**FAF**	**27**	**DRN**	**100L2**	86	442
666	470	5.27	280	1.85		**F**	**27**	**DRN**	**100L2**	85	443
711	440	4.93	280	1.90		**FF**	**27**	**DRN**	**100L2**	87	442
844	370	4.16	275	2.1							

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P_m = 5.4 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.9	169600	953	22010	1.05	X						
2.1	150380	845	23440	1.20	X						
2.3	135960	764	24350	1.30	X						
2.6	121010	680	25130	1.5	X	**FA**	**157R97**	**(E)DRN**	**112M4**	1760	516/522
3.1	102500	576	25970	1.8	X	**FAF**	**157R97**	**(E)DRN**	**112M4**	1890	514/522
4.0	79370	446	26730	2.2	X	**F**	**157R97**	**(E)DRN**	**112M4**	1800	513/522
5.9	53740	302	27000	3.3	X	**FF**	**157R97**	**(E)DRN**	**112M4**	2040	514/522
6.5	48580	273	27000	3.6	X						
7.6	41290	232	27000	4.3	X						
9.0	35060	197	27000	5.1	X						
3.7	84600	483	20200	1.25	X						
4.2	73600	418	20200	1.45	X						
4.7	65700	374	20200	1.60	X	**FA**	**127R87**	**(E)DRN**	**112M4**	1060	508/522
5.7	54800	312	20200	1.95	X	**FAF**	**127R87**	**(E)DRN**	**112M4**	1150	506/522
6.0	51300	293	20200	2.1	X	**F**	**127R87**	**(E)DRN**	**112M4**	1140	505/522
6.8	45200	259	20200	2.3	X	**FF**	**127R87**	**(E)DRN**	**112M4**	1240	506/522
7.9	39100	223	20200	2.7	X						
3.2	98200	549	20200	1.10	X	**FA**	**127R77**	**(E)DRN**	**112M4**	1020	508/521
3.6	88400	495	20200	1.20	X	**FAF**	**127R77**	**(E)DRN**	**112M4**	1100	506/521
4.1	76500	428	20200	1.40	X	**F**	**127R77**	**(E)DRN**	**112M4**	1100	505/521
4.7	67000	376	20200	1.60	X	**FF**	**127R77**	**(E)DRN**	**112M4**	1200	506/521
4.8	66100	370	11300	1.05	X						
5.3	59500	333	11700	1.15	X	**FA**	**107R77**	**(E)DRN**	**112M4**	680	500/521
6.1	52000	291	12200	1.30	X	**FAF**	**107R77**	**(E)DRN**	**112M4**	730	498/521
6.9	45500	255	12600	1.50	X	**F**	**107R77**	**(E)DRN**	**112M4**	720	497/521
7.8	40100	225	12900	1.70	X	**FF**	**107R77**	**(E)DRN**	**112M4**	780	498/521
9.3	33900	190	13200	2.0	X						
5.2	61400	340	11600	1.15	X	**FA**	**107R77**	**(E)DRN**	**112M4**	660	500/521
5.9	54100	300	12100	1.30	X	**FAF**	**107R77**	**(E)DRN**	**112M4**	710	498/521
6.7	47800	266	12400	1.45	X	**F**	**107R77**	**(E)DRN**	**112M4**	700	497/521
						FF	**107R77**	**(E)DRN**	**112M4**	760	498/521
						FA	**97R57**	**(E)DRN**	**112M4**	485	492/521
8.5	37300	208	6770	1.00	X	**FAF**	**97R57**	**(E)DRN**	**112M4**	540	490/521
9.1	34900	195	6940	1.10	X	**F**	**97R57**	**(E)DRN**	**112M4**	500	489/521
						FF	**97R57**	**(E)DRN**	**112M4**	580	490/521
7.0	48900	254.40*	12400	1.40	X						
8.2	41400	215.37	12800	1.65	X						
8.9	38300	199.31	13000	1.75	X						
9.9	34300	178.64	13200	2.0	X	**FA**	**107**	**(E)DRN**	**112M4**	600	500
11	31000	161.28*	13400	2.2	X	**FAF**	**107**	**(E)DRN**	**112M4**	640	498
12	28100	146.49	13500	2.4	X	**F**	**107**	**(E)DRN**	**112M4**	630	497
14	24900	129.97	13600	2.7	X	**FF**	**107**	**(E)DRN**	**112M4**	690	498
15	22600	117.94	13800	3.0	X						
17	19400	101.38*	13900	3.5	X						
9.3	36500	189.92	6830	1.05	X						
10	33600	174.87	7040	1.15	X						
11	30000	156.30	7270	1.25	X						
13	27000	140.71	7460	1.40	X						
14	24500	127.42	7600	1.55	X						
16	21700	112.99	7750	1.75	X	**FA**	**97**	**(E)DRN**	**112M4**	435	492
17	19600	102.16	7860	1.95	X	**FAF**	**97**	**(E)DRN**	**112M4**	480	490
18	18700	97.58	7900	2.0	X	**F**	**97**	**(E)DRN**	**112M4**	450	489
20	17200	89.85	7970	2.2	X	**FF**	**97**	**(E)DRN**	**112M4**	520	490
20	16600	86.59	8000	2.3	X						
22	15400	80.31	8060	2.5	X						
24	13900	72.29	8120	2.7	X						
27	12500	65.47	8030	3.0	X						

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P_m = 5.4 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
13	25800	134.16	5100	1.05	X						
14	23700	123.29	5430	1.10	X						
16	21000	109.49	5510	1.25	X						
18	18800	97.89	5450	1.40	X	**FA**	**87**	**(E)DRN**	**112M4**	290	484
20	16900	88.01	5380	1.55	X	**FAF**	**87**	**(E)DRN**	**112M4**	320	482
23	14600	76.39	5270	1.80	X	**F**	**87**	**(E)DRN**	**112M4**	305	481
26	13100	68.40	5180	2.0	X	**FF**	**87**	**(E)DRN**	**112M4**	340	482
31	10900	56.75	5010	2.4	X						
35	9680	50.36	4900	2.7	X						
39	8700	45.28	4790	2.9	X						
27	12700	66.46	3610	1.05	X						
30	11200	58.32	3840	1.20	X						
32	10600	55.27	3920	1.25	X						
37	9300	48.37	4070	1.45	X	**FA**	**77**	**(E)DRN**	**112M4**	205	476
41	8380	43.58	4160	1.60	X	**FAF**	**77**	**(E)DRN**	**112M4**	220	474
46	7350	38.23	4250	1.80	X	**F**	**77**	**(E)DRN**	**112M4**	215	473
52	6480	33.74	4310	2.0	X	**FF**	**77**	**(E)DRN**	**112M4**	235	474
59	5750	29.91	4360	2.3	X						
69	4910	25.54	4400	2.6	X						
56	6050	31.51	4340	2.0	X						
62	5530	28.75	4370	2.3	X	**FA**	**77**	**(E)DRN**	**112M4**	200	476
69	4900	25.50*	4400	2.7	X	**FAF**	**77**	**(E)DRN**	**112M4**	215	474
83	4120	21.43	4440	3.2	X	**F**	**77**	**(E)DRN**	**112M4**	210	473
90	3780	19.70	4450	3.5	X	**FF**	**77**	**(E)DRN**	**112M4**	235	474
						FA	**67**	**(E)DRN**	**112M4**	155	468
52	6540	34.01	2470	1.00	X	**FAF**	**67**	**(E)DRN**	**112M4**	170	466
						F	**67**	**(E)DRN**	**112M4**	160	465
						FF	**67**	**(E)DRN**	**112M4**	175	466
65	5270	27.41	2680	1.40	X						
70	4830	25.13	2740	1.50	X						
80	4240	22.05	2810	1.70	X						
85	4010	20.90*	2830	1.80	X						
97	3510	18.29	2880	2.1	X						
107	3160	16.48	2910	2.3	X						
122	2780	14.46	2920	2.6	X						
139	2450	12.76	2920	3.0	X	**FA**	**67**	**(E)DRN**	**112M4**	155	468
156	2170	11.31	2920	3.3	X	**FAF**	**67**	**(E)DRN**	**112M4**	165	466
183	1850	9.66	2850	3.9	X	**F**	**67**	**(E)DRN**	**112M4**	160	465
195	1740	9.08	2770	2.7	X	**FF**	**67**	**(E)DRN**	**112M4**	170	466
206	1650	8.60	2730	3.0	X						
235	1440	7.53	2640	3.7	X						
261	1300	6.78	2580	4.2	X						
297	1140	5.95	2490	4.7	X						
337	1000	5.25	2420	5.2	X						
380	890	4.66	2340	5.5	X						
445	760	3.97	2250	5.8	X						
84	4070	21.17	1450	1.30	X						
93	3670	19.11	1440	1.45	X						
105	3230	16.81	1420	1.65	X						
111	3050	15.88	1410	1.75	X						
131	2590	13.52	1380	2.0	X						
144	2360	12.29	1360	2.2	X	**FA**	**57**	**(E)DRN**	**112M4**	145	460
166	2040	10.64	1330	2.6	X	**FAF**	**57**	**(E)DRN**	**112M4**	160	459
190	1790	9.31	1270	2.1	X	**F**	**57**	**(E)DRN**	**112M4**	145	458
216	1570	8.19	1240	2.4	X	**FF**	**57**	**(E)DRN**	**112M4**	160	459
229	1480	7.73	1220	2.5	X						
269	1260	6.58	1180	2.9	X						
296	1150	5.98	1160	3.2	X						
341	990	5.18	1120	3.7	X						
382	890	9.31	1090	4.2							
434	780	8.19	1060	4.7		**FA**	**57**	**DRN**	**112M2**	145	460
459	740	7.73	1040	5.0		**FAF**	**57**	**DRN**	**112M2**	160	459
539	630	6.58	1000	5.9		**F**	**57**	**DRN**	**112M2**	145	458
594	570	5.98	980	6.5		**FF**	**57**	**DRN**	**112M2**	160	459
685	495	5.18	940	7.4							

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P_m = 7.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
2.6	168170	680	22230	1.05	X						
3.1	142450	576	24010	1.25	X						
3.5	124390	503	25020	1.40	X						
4.0	110300	446	25590	1.6	X	**FA**	**157R97**	**(E)DRN**	**132S4**	1780	516/522
5.0	87300	353	26530	2.0	X	**FAF**	**157R97**	**(E)DRN**	**132S4**	1910	514/522
5.9	74690	302	26860	2.4	X	**F**	**157R97**	**(E)DRN**	**132S4**	1830	513/522
6.5	67510	273	27000	2.6	X	**FF**	**157R97**	**(E)DRN**	**132S4**	2060	514/522
7.6	57370	232	27000	3.1	X						
8.7	49960	202	27000	3.5	X						
9.0	48720	197	27000	3.6	X						
4.2	103100	418	20200	1.05	X						
4.7	92100	374	20200	1.15	X						
5.7	76800	312	20200	1.40	X	**FA**	**127R87**	**(E)DRN**	**132S4**	1090	508/522
6.0	72000	293	20200	1.45	X	**FAF**	**127R87**	**(E)DRN**	**132S4**	1170	506/522
6.8	63500	259	20200	1.65	X	**F**	**127R87**	**(E)DRN**	**132S4**	1170	505/522
7.9	54800	223	20200	1.95	X	**FF**	**127R87**	**(E)DRN**	**132S4**	1270	506/522
8.9	48500	198	20200	2.2	X						
11	40700	166	20200	2.6	X						
						FA	**127R77**	**(E)DRN**	**132S4**	1040	508/521
4.1	106700	428	20200	1.00		**FAF**	**127R77**	**(E)DRN**	**132S4**	1130	506/521
4.7	93500	376	20200	1.15	X	**F**	**127R77**	**(E)DRN**	**132S4**	1120	505/521
						FF	**127R77**	**(E)DRN**	**132S4**	1220	506/521
						FA	**107R77**	**(E)DRN**	**132S4**	710	500/521
6.9	63600	255	11500	1.05	X	**FAF**	**107R77**	**(E)DRN**	**132S4**	760	498/521
7.8	56000	225	12000	1.20	X	**F**	**107R77**	**(E)DRN**	**132S4**	750	497/521
9.3	47400	190	12500	1.45	X	**FF**	**107R77**	**(E)DRN**	**132S4**	810	498/521
						FA	**107R77**	**(E)DRN**	**132S4**	690	500/521
6.7	66800	266	11300	1.05	X	**FAF**	**107R77**	**(E)DRN**	**132S4**	730	498/521
						F	**107R77**	**(E)DRN**	**132S4**	720	497/521
						FF	**107R77**	**(E)DRN**	**132S4**	790	498/521
						FA	**127**	**(E)DRN**	**132S4**	960	508
10	45600	170.83	20200	2.3	X	**FAF**	**127**	**(E)DRN**	**132S4**	1040	506
12	41000	153.67*	20200	2.6	X	**F**	**127**	**(E)DRN**	**132S4**	1040	505
						FF	**127**	**(E)DRN**	**132S4**	1140	506
7.0	67900	254.40*	11200	1.00	X						
8.2	57500	215.37	11900	1.20	X						
8.9	53200	199.31	12100	1.30	X						
9.9	47700	178.64	12500	1.40	X						
11	43100	161.28*	12700	1.60	X	**FA**	**107**	**(E)DRN**	**132S4**	620	500
12	39100	146.49	12900	1.75	X	**FAF**	**107**	**(E)DRN**	**132S4**	670	498
14	34700	129.97	13200	1.95	X	**F**	**107**	**(E)DRN**	**132S4**	660	497
15	31500	117.94	13300	2.2	X	**FF**	**107**	**(E)DRN**	**132S4**	720	498
17	27000	101.38*	13500	2.5	X						
19	24700	92.47*	13700	2.8	X						
20	23600	88.49	13700	2.9	X						
21	22400	83.99	13800	3.0	X						
13	37600	140.71	6750	1.00	X						
14	34000	127.42	7010	1.10	X						
16	30200	112.99	7260	1.25	X						
17	27300	102.16	7440	1.40	X						
18	26000	97.58	7510	1.45	X						
20	24000	89.85	7630	1.60	X	**FA**	**97**	**(E)DRN**	**132S4**	460	492
20	23100	86.59	7680	1.65	X	**FAF**	**97**	**(E)DRN**	**132S4**	510	490
22	21400	80.31	7770	1.75	X	**F**	**97**	**(E)DRN**	**132S4**	475	489
23	20200	75.63	7810	1.90	X	**FF**	**97**	**(E)DRN**	**132S4**	550	490
24	19300	72.29	7740	1.95	X						
27	17400	65.47	7600	2.2	X						
30	15500	58.06	7420	2.5	X						
34	14000	52.49	7260	2.7	X						
						FA	**97**	**(E)DRN**	**132S4**	445	492
41	11500	43.28	6950	2.4	X	**FAF**	**97**	**(E)DRN**	**132S4**	495	490
48	9790	36.64	6670	2.8	X	**F**	**97**	**(E)DRN**	**132S4**	460	489
						FF	**97**	**(E)DRN**	**132S4**	530	490

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P_m = 7.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
18	26100	97.89	4730	1.00	X						
20	23500	88.01	4730	1.15	X						
23	20400	76.39	4710	1.30	X						
26	18200	68.40	4680	1.45	X	**FA**	**87**	**(E)DRN**	**132S4**	320	484
31	15100	56.75	4600	1.75	X	**FAF**	**87**	**(E)DRN**	**132S4**	345	482
35	13400	50.36	4530	1.95	X	**F**	**87**	**(E)DRN**	**132S4**	330	481
39	12100	45.28	4460	2.1	X	**FF**	**87**	**(E)DRN**	**132S4**	365	482
45	10500	39.30	4350	2.3	X						
50	9400	35.19	4270	2.5	X						
61	7800	29.20	4110	2.9	X						
52	9060	33.92	4240	2.5	X	**FA**	**87**	**(E)DRN**	**132S4**	310	484
61	7690	28.78	4100	2.8	X	**FAF**	**87**	**(E)DRN**	**132S4**	340	482
67	7080	26.50	4020	3.8	X	**F**	**87**	**(E)DRN**	**132S4**	325	481
75	6320	23.68	3930	4.2	X	**FF**	**87**	**(E)DRN**	**132S4**	360	482
37	12900	48.37	3590	1.05	X						
41	11600	43.58	3780	1.15	X	**FA**	**77**	**(E)DRN**	**132S4**	230	476
46	10200	38.23	3970	1.30	X	**FAF**	**77**	**(E)DRN**	**132S4**	245	474
52	9010	33.74	4100	1.45	X	**F**	**77**	**(E)DRN**	**132S4**	240	473
59	7990	29.91	4190	1.65	X	**FF**	**77**	**(E)DRN**	**132S4**	260	474
69	6820	25.54	4280	1.90	X						
69	6810	25.50*	4290	1.95	X						
82	5720	21.43	4360	2.3	X						
90	5260	19.70	4380	2.5	X	**FA**	**77**	**(E)DRN**	**132S4**	230	476
101	4670	17.49	4330	2.8	X	**FAF**	**77**	**(E)DRN**	**132S4**	240	474
113	4180	15.64*	4220	3.2	X	**F**	**77**	**(E)DRN**	**132S4**	235	473
126	3750	14.06	4110	3.5	X	**FF**	**77**	**(E)DRN**	**132S4**	260	474
145	3260	12.20	3970	4.1	X						
80	5890	22.05	2580	1.25	X						
85	5580	20.90*	2630	1.30	X						
97	4880	18.29	2730	1.50	X						
107	4400	16.48	2790	1.65	X						
122	3860	14.46	2850	1.90	X						
139	3400	12.76	2890	2.1	X						
156	3020	11.31	2860	2.4	X	**FA**	**67**	**(E)DRN**	**132S4**	180	468
183	2580	9.66	2770	2.8	X	**FAF**	**67**	**(E)DRN**	**132S4**	190	466
195	2420	9.08	2670	1.95	X	**F**	**67**	**(E)DRN**	**132S4**	185	465
206	2290	8.60	2640	2.2	X	**FF**	**67**	**(E)DRN**	**132S4**	200	466
235	2010	7.53	2560	2.7	X						
261	1810	6.78	2500	3.0	X						
297	1590	5.95	2430	3.4	X						
337	1400	5.25	2360	3.7	X						
380	1240	4.66	2290	4.0	X						
445	1060	3.97	2200	4.2	X						
105	4490	16.81	1230	1.20	X						
111	4240	15.88	1230	1.25	X						
131	3610	13.52	1230	1.45	X						
144	3280	12.29	1220	1.60	X	**FA**	**57**	**(E)DRN**	**132S4**	170	460
166	2840	10.64	1210	1.85	X	**FAF**	**57**	**(E)DRN**	**132S4**	185	459
216	2180	8.19	1130	1.70	X	**F**	**57**	**(E)DRN**	**132S4**	170	458
229	2060	7.73	1130	1.80	X	**FF**	**57**	**(E)DRN**	**132S4**	185	459
269	1750	6.58	1100	2.1	X						
295	1590	5.98	1080	2.3	X						
341	1380	5.18	1060	2.6	X						
433	1090	8.19	1010	3.4							
458	1030	7.73	1000	3.6		**FA**	**57**	**DRN**	**132S2**	170	460
538	870	6.58	960	4.2		**FAF**	**57**	**DRN**	**132S2**	185	459
592	795	5.98	940	4.7		**F**	**57**	**DRN**	**132S2**	170	458
684	690	5.18	910	5.3		**FF**	**57**	**DRN**	**132S2**	185	459

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P_m = 10.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
3.5	165300	503	22170	1.05	X						
4.0	146570	446	23390	1.20	X						
5.0	116000	353	25250	1.6	X	**FA**	**157R97**	**(E)DRN**	**132M4**	1820	516/522
5.9	99240	302	25930	1.8	X	**FAF**	**157R97**	**(E)DRN**	**132M4**	1950	514/522
6.5	89710	273	26310	2.0	X	**F**	**157R97**	**(E)DRN**	**132M4**	1870	513/522
7.7	76240	232	26770	2.3	X	**FF**	**157R97**	**(E)DRN**	**132M4**	2100	514/522
8.8	66380	202	27000	2.7	X						
9.0	64740	197	27000	2.7	X						
5.7	102600	312	20200	1.05	X						
6.0	96200	293	20200	1.10	X	**FA**	**127R87**	**(E)DRN**	**132M4**	1130	508/522
6.9	84900	259	20200	1.25	X	**FAF**	**127R87**	**(E)DRN**	**132M4**	1210	506/522
7.9	73300	223	20200	1.45	X	**F**	**127R87**	**(E)DRN**	**132M4**	1210	505/522
9.0	64800	198	20200	1.65	X	**FF**	**127R87**	**(E)DRN**	**132M4**	1310	506/522
11	54500	166	20200	1.95	X						
9.3	63100	190	11500	1.10	X	**FA**	**107R77**	**(E)DRN**	**132M4**	750	500/521
						FAF	**107R77**	**(E)DRN**	**132M4**	800	498/521
						F	**107R77**	**(E)DRN**	**132M4**	790	497/521
						FF	**107R77**	**(E)DRN**	**132M4**	850	498/521
4.4	142500	267.43	23700	1.10							
5.4	116000	217.62*	25200	1.35							
6.6	94900	178.20*	26100	1.70							
7.2	86800	162.96	26400	1.85							
8.3	75500	141.80*	26800	2.1							
9.4	66700	125.14	27000	2.4		**FA**	**157**	**DRN**	**160M6**	1630	516
11	57800	108.49	27000	2.8		**FAF**	**157**	**DRN**	**160M6**	1760	514
12	51400	96.53*	27000	3.1		**F**	**157**	**DRN**	**160M6**	1680	513
14	45700	85.80*	27000	3.5		**FF**	**157**	**DRN**	**160M6**	1910	514
15	41800	78.46	27000	3.8							
17	36300	68.28*	27000	4.4							
20	32100	60.25	26400	5.0							
23	27800	52.24	25400	5.7							
6.9	91000	170.83	20200	1.15		**FA**	**127**	**DRN**	**160M6**	1070	508
7.7	81900	153.67*	20200	1.30		**FAF**	**127**	**DRN**	**160M6**	1150	506
9.4	66800	125.37	20200	1.60		**F**	**127**	**DRN**	**160M6**	1150	505
10	60900	114.34	20200	1.75		**FF**	**127**	**DRN**	**160M6**	1250	506
10	60600	170.83	20200	1.75	X	**FA**	**127**	**(E)DRN**	**132M4**	980	508
12	54500	153.67*	20200	1.95	X	**FAF**	**127**	**(E)DRN**	**132M4**	1070	506
14	44500	125.37	20200	2.4	X	**F**	**127**	**(E)DRN**	**132M4**	1060	505
16	40600	114.34	20200	2.6	X	**FF**	**127**	**(E)DRN**	**132M4**	1160	506
9.9	63400	178.64	11500	1.05	X						
11	57200	161.28*	11900	1.20	X						
12	52000	146.49	12200	1.30	X						
14	46100	129.97	12500	1.45	X						
15	41800	117.94	12800	1.60	X	**FA**	**107**	**(E)DRN**	**132M4**	660	500
18	36000	101.38*	13100	1.90	X	**FAF**	**107**	**(E)DRN**	**132M4**	710	498
19	32800	92.47*	13300	2.1	X	**F**	**107**	**(E)DRN**	**132M4**	700	497
20	31400	88.49	13300	2.2	X	**FF**	**107**	**(E)DRN**	**132M4**	760	498
21	29800	83.99	13400	2.3	X						
24	26400	74.52	13600	2.6	X						
26	24000	67.62	13300	2.8	X						
17	36200	102.16	6850	1.05	X						
18	34600	97.58	6960	1.10	X						
20	31900	89.85	7150	1.20	X						
20	30700	86.59	7230	1.25	X						
22	28500	80.31	7250	1.35	X						
23	26800	75.63	7200	1.40	X	**FA**	**97**	**(E)DRN**	**132M4**	500	492
25	25600	72.29	7170	1.50	X	**FAF**	**97**	**(E)DRN**	**132M4**	550	490
27	23200	65.47	7080	1.65	X	**F**	**97**	**(E)DRN**	**132M4**	510	489
31	20600	58.06	6950	1.85	X	**FF**	**97**	**(E)DRN**	**132M4**	590	490
34	18600	52.49	6840	2.0	X						
40	15800	44.49	6630	2.4	X						
46	13800	38.86	6460	2.8	X						
55	11500	32.50	6210	3.3	X						

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P_m = 10.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
41	15300	43.28	6600	1.75	X	**FA**	**97**	**(E)DRN**	**132M4**	485	492
48	13000	36.64	6380	2.1	X	**FAF**	**97**	**(E)DRN**	**132M4**	530	490
52	12000	33.91	6270	3.2	X	**F**	**97**	**(E)DRN**	**132M4**	500	489
58	10700	30.39	6120	3.5	X	**FF**	**97**	**(E)DRN**	**132M4**	570	490
26	24200	68.40	4080	1.10	X						
31	20100	56.75	4100	1.30	X						
35	17800	50.36	4080	1.45	X	**FA**	**87**	**(E)DRN**	**132M4**	355	484
39	16000	45.28	4060	1.55	X	**FAF**	**87**	**(E)DRN**	**132M4**	385	482
45	13900	39.30	4010	1.70	X	**F**	**87**	**(E)DRN**	**132M4**	370	481
50	12400	35.19	3960	1.85	X	**FF**	**87**	**(E)DRN**	**132M4**	405	482
61	10300	29.20	3850	2.1	X						
52	12000	33.92	3940	1.90	X						
62	10200	28.78	3840	2.1	X						
67	9410	26.50	3790	2.8	X	**FA**	**87**	**(E)DRN**	**132M4**	350	484
75	8410	23.68	3720	3.2	X	**FAF**	**87**	**(E)DRN**	**132M4**	380	482
83	7570	21.32*	3640	3.5	X	**F**	**87**	**(E)DRN**	**132M4**	365	481
92	6850	19.31	3570	3.9	X	**FF**	**87**	**(E)DRN**	**132M4**	395	482
104	6080	17.12	3480	4.4	X						
115	5490	15.48	3400	4.8	X						
53	11900	33.74	3740	1.10	X	**FA**	**77**	**(E)DRN**	**132M4**	270	476
59	10600	29.91	3920	1.25	X	**FAF**	**77**	**(E)DRN**	**132M4**	285	474
69	9060	25.54	4090	1.40	X	**F**	**77**	**(E)DRN**	**132M4**	280	473
						FF	**77**	**(E)DRN**	**132M4**	300	474
70	9050	25.50*	4090	1.45	X						
83	7610	21.43	4220	1.75	X						
90	6990	19.70	4270	1.90	X						
101	6210	17.49	4180	2.1	X						
113	5550	15.64*	4080	2.4	X						
126	4990	14.06	3990	2.7	X						
145	4330	12.20	3870	3.1	X	**FA**	**77**	**(E)DRN**	**132M4**	265	476
162	3880	10.93	3770	3.4	X	**FAF**	**77**	**(E)DRN**	**132M4**	280	474
191	3300	9.30	3550	2.9	X	**F**	**77**	**(E)DRN**	**132M4**	275	473
215	2930	8.26	3450	3.3	X	**FF**	**77**	**(E)DRN**	**132M4**	300	474
240	2620	7.39	3360	3.6	X						
267	2350	6.64	3280	4.0	X						
308	2040	5.76	3170	4.7	X						
344	1830	5.16	3080	5.2	X						
414	1520	4.28	2940	5.9	X						
97	6490	18.29	2480	1.10	X						
108	5850	16.48	2590	1.25	X						
123	5130	14.46	2700	1.40	X						
139	4530	12.76	2780	1.60	X						
157	4010	11.31	2740	1.80	X						
184	3420	9.66	2660	2.1	X	**FA**	**67**	**(E)DRN**	**132M4**	220	468
195	3220	9.08	2550	1.45	X	**FAF**	**67**	**(E)DRN**	**132M4**	230	466
206	3050	8.60	2520	1.65	X	**F**	**67**	**(E)DRN**	**132M4**	225	465
236	2670	7.53	2460	2.0	X	**FF**	**67**	**(E)DRN**	**132M4**	240	466
262	2400	6.78	2410	2.3	X						
298	2110	5.95	2350	2.5	X						
338	1860	5.25	2290	2.8	X						
381	1650	4.66	2230	3.0	X						
131	4800	13.52	1050	1.10	X						
144	4360	12.29	1060	1.20	X						
167	3770	10.64	1070	1.40	X	**FA**	**57**	**(E)DRN**	**132M4**	210	460
217	2900	8.19	1010	1.30	X	**FAF**	**57**	**(E)DRN**	**132M4**	225	459
229	2740	7.73	1010	1.35	X	**F**	**57**	**(E)DRN**	**132M4**	210	458
269	2330	6.58	1000	1.60	X	**FF**	**57**	**(E)DRN**	**132M4**	225	459
296	2120	5.98	990	1.75	X						
342	1840	5.18	980	2.0	X						
433	1450	8.19	950	2.5		**FA**	**57**	**DRN**	**132S2**	170	460
458	1370	7.73	940	2.7		**FAF**	**57**	**DRN**	**132S2**	185	459
538	1170	6.58	910	3.2		**F**	**57**	**DRN**	**132S2**	170	458
592	1060	5.98	890	3.5		**FF**	**57**	**DRN**	**132S2**	185	459
684	920	5.18	870	4.0							

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P_m = 12.3 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1)] lb	SEW SF f_B	HazLoc -NA®					m lbs	
5.0	142610	353	23750	1.25	X						
5.9	122000	302	24860	1.5	X	**FA**	**157R97**	**(E)DRN**	**132L4**	1840	516/522
6.5	110290	273	25450	1.6	X	**FAF**	**157R97**	**(E)DRN**	**132L4**	1970	514/522
7.7	93720	232	26170	1.9	X	**F**	**157R97**	**(E)DRN**	**132L4**	1890	513/522
8.8	81600	202	26600	2.2	X	**FF**	**157R97**	**(E)DRN**	**132L4**	2120	514/522
9.0	79580	197	26670	2.2	X						
6.9	104700	259	20200	1.00	X	**FA**	**127R87**	**(E)DRN**	**132L4**	1150	508/522
8.0	90400	223	20200	1.15	X	**FAF**	**127R87**	**(E)DRN**	**132L4**	1230	506/522
9.0	80000	198	20200	1.35	X	**F**	**127R87**	**(E)DRN**	**132L4**	1230	505/522
11	67200	166	20200	1.60	X	**FF**	**127R87**	**(E)DRN**	**132L4**	1330	506/522
6.6	116800	267.43	25140	1.5	X						
8.2	95040	217.62*	26100	1.9	X	**FA**	**157**	**(E)DRN**	**132L4**	1560	516
10	77830	178.20*	26710	2.3	X	**FAF**	**157**	**(E)DRN**	**132L4**	1690	514
11	71170	162.96	26900	2.5	X	**F**	**157**	**(E)DRN**	**132L4**	1610	513
13	61930	141.80*	27000	2.9	X	**FF**	**157**	**(E)DRN**	**132L4**	1840	514
14	54650	125.14	27000	3.2	X						
10	74500	170.83	20200	1.40	X						
12	67000	153.67*	20200	1.60	X	**FA**	**127**	**(E)DRN**	**132L4**	1000	508
14	54700	125.37	20200	1.95	X	**FAF**	**127**	**(E)DRN**	**132L4**	1080	506
16	49900	114.34	20200	2.1	X	**F**	**127**	**(E)DRN**	**132L4**	1080	505
18	43200	98.95	20200	2.5	X	**FF**	**127**	**(E)DRN**	**132L4**	1180	506
20	38100	87.31*	20100	2.8	X						
12	63900	146.49	11500	1.05	X						
14	56700	129.97	11900	1.20	X						
15	51400	117.94	12200	1.30	X						
18	44200	101.38*	12700	1.55	X						
19	40300	92.47*	12900	1.70	X	**FA**	**107**	**(E)DRN**	**132L4**	680	500
20	38600	88.49	13000	1.75	X	**FAF**	**107**	**(E)DRN**	**132L4**	730	498
21	36600	83.99	13100	1.85	X	**F**	**107**	**(E)DRN**	**132L4**	720	497
24	32500	74.52	13200	2.1	X	**FF**	**107**	**(E)DRN**	**132L4**	780	498
26	29500	67.62	13000	2.3	X						
31	25300	58.12*	12600	2.7	X						
35	22100	50.73	12200	3.1	X						
20	37800	86.59	6670	1.00	X						
22	35000	80.31	6670	1.10	X						
23	33000	75.63	6650	1.15	X						
25	31500	72.29	6640	1.20	X	**FA**	**97**	**(E)DRN**	**132L4**	520	492
27	28500	65.47	6600	1.35	X	**FAF**	**97**	**(E)DRN**	**132L4**	560	490
31	25300	58.06	6530	1.50	X	**F**	**97**	**(E)DRN**	**132L4**	530	489
34	22900	52.49	6450	1.65	X	**FF**	**97**	**(E)DRN**	**132L4**	600	490
40	19400	44.49	6310	1.95	X						
46	16900	38.86	6170	2.2	X						
55	14100	32.50	5980	2.7	X						
52	14800	33.91	6030	2.6	X	**FA**	**97**	**(E)DRN**	**132L4**	500	492
58	13200	30.39	5900	2.9	X	**FAF**	**97**	**(E)DRN**	**132L4**	550	490
65	11900	27.44*	5780	3.2	X	**F**	**97**	**(E)DRN**	**132L4**	520	489
71	10800	24.92	5660	3.5	X	**FF**	**97**	**(E)DRN**	**132L4**	590	490
31	24700	56.75	3640	1.05	X						
35	21900	50.36	3680	1.20	X	**FA**	**87**	**(E)DRN**	**132L4**	375	484
39	19700	45.28	3700	1.25	X	**FAF**	**87**	**(E)DRN**	**132L4**	405	482
45	17100	39.30	3690	1.40	X	**F**	**87**	**(E)DRN**	**132L4**	390	481
50	15300	35.19	3670	1.50	X	**FF**	**87**	**(E)DRN**	**132L4**	420	482
61	12700	29.20	3620	1.75	X						
67	11500	26.50	3580	2.3	X						
75	10300	23.68	3530	2.6	X						
83	9300	21.32*	3470	2.9	X	**FA**	**87**	**(E)DRN**	**132L4**	370	484
92	8420	19.31	3410	3.1	X	**FAF**	**87**	**(E)DRN**	**132L4**	395	482
104	7470	17.12	3340	3.5	X	**F**	**87**	**(E)DRN**	**132L4**	380	481
115	6750	15.48	3280	3.9	X	**FF**	**87**	**(E)DRN**	**132L4**	415	482
135	5720	13.12*	3170	4.6	X						

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P_m = 12.3 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
						FA	**77**	**(E)DRN**	**132L4**	290	476
59	13000	29.91	3570	1.00	X	**FAF**	**77**	**(E)DRN**	**132L4**	305	474
70	11100	25.54	3850	1.15	X	**F**	**77**	**(E)DRN**	**132L4**	295	473
						FF	**77**	**(E)DRN**	**132L4**	320	474
90	8600	19.70	4130	1.55	X						
101	7630	17.49	4050	1.75	X						
113	6820	15.64*	3960	1.95	X						
126	6130	14.06	3880	2.2	X						
145	5320	12.20	3770	2.5	X						
162	4770	10.93	3690	2.8	X	**FA**	**77**	**(E)DRN**	**132L4**	285	476
191	4060	9.30	3460	2.4	X	**FAF**	**77**	**(E)DRN**	**132L4**	300	474
215	3600	8.26	3370	2.6	X	**F**	**77**	**(E)DRN**	**132L4**	295	473
240	3220	7.39	3290	3.0	X	**FF**	**77**	**(E)DRN**	**132L4**	320	474
267	2890	6.64	3210	3.3	X						
308	2510	5.76	3110	3.8	X						
344	2250	5.16	3030	4.2	X						
415	1860	4.28	2900	4.8	X						

P_m = 15.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
5.0	173810	353	21680	1.00	X						
5.9	148700	302	23410	1.20	X	**FA**	**157R97**	**(E)DRN**	**160M4**	1910	516/522
6.5	134420	273	24310	1.30	X	**FAF**	**157R97**	**(E)DRN**	**160M4**	2040	514/522
7.7	114230	232	25380	1.6	X	**F**	**157R97**	**(E)DRN**	**160M4**	1960	513/522
8.8	99460	202	26010	1.8	X	**FF**	**157R97**	**(E)DRN**	**160M4**	2190	514/522
9.0	97000	197	26110	1.8	X						
						FA	**127R87**	**(E)DRN**	**160M4**	1220	508/522
9.0	97800	198	20200	1.10	X	**FAF**	**127R87**	**(E)DRN**	**160M4**	1300	506/522
11	82100	166	20200	1.30	X	**F**	**127R87**	**(E)DRN**	**160M4**	1300	505/522
						FF	**127R87**	**(E)DRN**	**160M4**	1400	506/522
6.6	142350	267.43	23860	1.25	X						
8.2	115840	217.62*	25300	1.6	X						
10	94860	178.20*	26180	1.9	X						
11	86740	162.96	26470	2.0	X	**FA**	**157**	**(E)DRN**	**160M4**	1630	516
13	75480	141.80*	26820	2.3	X	**FAF**	**157**	**(E)DRN**	**160M4**	1760	514
14	66610	125.14	27000	2.7	X	**F**	**157**	**(E)DRN**	**160M4**	1680	513
16	57750	108.49	26690	3.1	X	**FF**	**157**	**(E)DRN**	**160M4**	1910	514
18	51380	96.53*	25990	3.4	X						
21	45670	85.80*	25280	3.9	X						
10	90900	170.83	20200	1.15	X						
12	81700	153.67*	20200	1.30	X						
14	66700	125.37	20200	1.60	X	**FA**	**127**	**(E)DRN**	**160M4**	1070	508
16	60800	114.34	20200	1.75	X	**FAF**	**127**	**(E)DRN**	**160M4**	1150	506
18	52600	98.95	20100	2.0	X	**F**	**127**	**(E)DRN**	**160M4**	1150	505
20	46400	87.31*	19600	2.3	X	**FF**	**127**	**(E)DRN**	**160M4**	1250	506
24	40100	75.41*	19000	2.6	X						
25	37200	70.07	18700	2.9	X						
14	69100	129.97	11100	1.00							
15	62700	117.94	11500	1.10	X						
18	53900	101.38*	12100	1.25	X						
19	49200	92.47*	12400	1.40	X						
20	47000	88.49	12500	1.45	X	**FA**	**107**	**(E)DRN**	**160M4**	750	500
21	44600	83.99	12600	1.50	X	**FAF**	**107**	**(E)DRN**	**160M4**	800	498
24	39600	74.52	12700	1.70	X	**F**	**107**	**(E)DRN**	**160M4**	790	497
26	35900	67.62	12500	1.90	X	**FF**	**107**	**(E)DRN**	**160M4**	850	498
31	30900	58.12*	12200	2.2	X						
35	26900	50.73	11900	2.5	X						
41	22800	43.03	11500	3.0	X						
53	17900	33.79*	10900	3.6	X	**FA**	**107**	**(E)DRN**	**160M4**	730	500
64	14600	27.57	10400	4.7	X	**FAF**	**107**	**(E)DRN**	**160M4**	780	498
71	13300	25.14	10200	5.2	X	**F**	**107**	**(E)DRN**	**160M4**	770	497
						FF	**107**	**(E)DRN**	**160M4**	830	498

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P_m = 15.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1)] lb	SEW SF f_B	HazLoc -NA®					m lbs	
25	38400	72.29	6020	1.00							
27	34800	65.47	6040	1.10	X						
31	30800	58.06	6030	1.25	X	**FA**	**97**	**(E)DRN**	**160M4**	590	492
34	27900	52.49	6010	1.35	X	**FAF**	**97**	**(E)DRN**	**160M4**	640	490
40	23600	44.49	5930	1.60	X	**F**	**97**	**(E)DRN**	**160M4**	600	489
46	20600	38.86	5840	1.85	X	**FF**	**97**	**(E)DRN**	**160M4**	680	490
55	17200	32.50	5700	2.2	X						
52	18000	33.91	5740	2.1	X						
58	16100	30.39	5640	2.4	X	**FA**	**97**	**(E)DRN**	**160M4**	580	492
65	14600	27.44*	5540	2.6	X	**FAF**	**97**	**(E)DRN**	**160M4**	620	490
71	13200	24.92	5450	2.9	X	**F**	**97**	**(E)DRN**	**160M4**	590	489
80	11700	22.11	5320	3.2	X	**FF**	**97**	**(E)DRN**	**160M4**	660	490
39	24000	45.28	3270	1.05	X	**FA**	**87**	**(E)DRN**	**160M4**	445	484
45	20900	39.30	3320	1.15	X	**FAF**	**87**	**(E)DRN**	**160M4**	475	482
50	18700	35.19	3340	1.25	X	**F**	**87**	**(E)DRN**	**160M4**	460	481
61	15500	29.20	3340	1.45	X	**FF**	**87**	**(E)DRN**	**160M4**	495	482
67	14000	26.50	3330	1.90	X						
75	12600	23.68	3300	2.1	X						
83	11300	21.32*	3270	2.3	X	**FA**	**87**	**(E)DRN**	**160M4**	440	484
92	10200	19.31	3230	2.6	X	**FAF**	**87**	**(E)DRN**	**160M4**	470	482
104	9110	17.12	3180	2.9	X	**F**	**87**	**(E)DRN**	**160M4**	450	481
115	8230	15.48	3130	3.2	X	**FF**	**87**	**(E)DRN**	**160M4**	485	482
135	6980	13.12*	3040	3.8	X						
90	10400	19.70	3940	1.25	X						
102	9300	17.49	3890	1.45	X						
114	8320	15.64*	3820	1.60	X						
126	7480	14.06	3760	1.75	X						
146	6490	12.20	3670	2.0	X						
163	5810	10.93	3590	2.3	X	**FA**	**77**	**(E)DRN**	**160M4**	355	476
191	4940	9.30	3350	1.95	X	**FAF**	**77**	**(E)DRN**	**160M4**	370	474
215	4390	8.26	3280	2.2	X	**F**	**77**	**(E)DRN**	**160M4**	365	473
240	3920	7.39	3210	2.4	X	**FF**	**77**	**(E)DRN**	**160M4**	385	474
267	3530	6.64	3140	2.7	X						
308	3060	5.76	3050	3.1	X						
344	2740	5.16	2970	3.5	X						
415	2270	4.28	2850	3.9	X						

P_m = 20 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1)] lb	SEW SF f_B	HazLoc -NA®					m lbs	
6.5	177000	273	20670	1.00	X	**FA**	**157R97**	**(E)DRN**	**160L4**	1950	516/522
7.7	152220	232	22960	1.15	X	**FAF**	**157R97**	**(E)DRN**	**160L4**	2080	514/522
8.8	132540	202	24240	1.35	X	**F**	**157R97**	**(E)DRN**	**160L4**	1990	513/522
9.1	129260	197	24450	1.35	X	**FF**	**157R97**	**(E)DRN**	**160L4**	2230	514/522
8.2	154370	217.62*	22840	1.15	X						
10.0	126400	178.20*	24620	1.40	X						
11	115590	162.96	25180	1.6	X						
13	100580	141.80*	25870	1.8	X						
14	88770	125.14	26330	2.0	X	**FA**	**157**	**(E)DRN**	**160L4**	1670	516
16	76960	108.49	25640	2.3	X	**FAF**	**157**	**(E)DRN**	**160L4**	1790	514
18	68470	96.53*	25060	2.6	X	**F**	**157**	**(E)DRN**	**160L4**	1710	513
21	60860	85.80*	24450	2.9	X	**FF**	**157**	**(E)DRN**	**160L4**	1950	514
23	55650	78.46	23990	3.2	X						
26	48430	68.28*	23260	3.7	X						
29	42740	60.25	22600	4.1	X						

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P_m = 20 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1)] lb	SEW SF f_B	HazLoc -NA®					m lbs	
						FA	**157**	**(E)DRN**	**160L4**	1650	516
33	37900	53.55	22000	1.85	X	**FAF**	**157**	**(E)DRN**	**160L4**	1780	514
40	31100	43.94*	21000	2.8	X	**F**	**157**	**(E)DRN**	**160L4**	1700	513
						FF	**157**	**(E)DRN**	**160L4**	1930	514
14	88900	125.37	19700	1.20	X						
16	81000	114.34	19500	1.30	X						
18	70100	98.95	19100	1.50	X	**FA**	**127**	**(E)DRN**	**160L4**	1110	508
20	61900	87.31*	18700	1.70	X	**FAF**	**127**	**(E)DRN**	**160L4**	1190	506
24	53400	75.41*	18200	2.0	X	**F**	**127**	**(E)DRN**	**160L4**	1190	505
25	49600	70.07	18000	2.1	X	**FF**	**127**	**(E)DRN**	**160L4**	1290	506
28	45300	63.91	17700	2.3	X						
32	39200	55.31	17200	2.7	X						
19	65500	92.47*	11400	1.05	X						
20	62700	88.49	11500	1.10	X						
21	59500	83.99	11700	1.15	X						
24	52800	74.52	11800	1.30	X	**FA**	**107**	**(E)DRN**	**160L4**	790	500
26	47900	67.62	11700	1.40	X	**FAF**	**107**	**(E)DRN**	**160L4**	840	498
31	41200	58.12*	11500	1.65	X	**F**	**107**	**(E)DRN**	**160L4**	830	497
35	35900	50.73	11300	1.90	X	**FF**	**107**	**(E)DRN**	**160L4**	890	498
41	30500	43.03	11000	2.2	X						
47	26600	37.61	10700	2.5	X						
56	22500	31.80	10400	3.0	X						
53	23900	33.79*	10500	2.7	X	**FA**	**107**	**(E)DRN**	**160L4**	770	500
64	19500	27.57	10100	3.5	X	**FAF**	**107**	**(E)DRN**	**160L4**	810	498
71	17800	25.14	9900	3.9	X	**F**	**107**	**(E)DRN**	**160L4**	800	497
82	15400	21.76*	9590	4.5	X	**FF**	**107**	**(E)DRN**	**160L4**	860	498
34	37200	52.49	5180	1.00	X	**FA**	**97**	**(E)DRN**	**160L4**	620	492
40	31500	44.49	5230	1.20	X	**FAF**	**97**	**(E)DRN**	**160L4**	670	490
46	27500	38.86	5230	1.40	X	**F**	**97**	**(E)DRN**	**160L4**	640	489
55	23000	32.50	5190	1.65	X	**FF**	**97**	**(E)DRN**	**160L4**	710	490
52	24000	33.91	5200	1.60	X						
58	21500	30.39	5160	1.75	X						
65	19400	27.44*	5110	1.95	X						
71	17600	24.92	5050	2.1	X	**FA**	**97**	**(E)DRN**	**160L4**	610	492
80	15600	22.11	4970	2.4	X	**FAF**	**97**	**(E)DRN**	**160L4**	660	490
89	14200	20.07	4900	2.7	X	**F**	**97**	**(E)DRN**	**160L4**	630	489
103	12200	17.25*	4770	3.1	X	**FF**	**97**	**(E)DRN**	**160L4**	700	490
118	10600	15.06	4650	3.6	X						
139	9050	12.77	4500	4.2	X						
159	7910	11.16	4360	4.6	X						
						FA	**87**	**(E)DRN**	**160L4**	480	484
61	20700	29.20	2840	1.05	X	**FAF**	**87**	**(E)DRN**	**160L4**	510	482
						F	**87**	**(E)DRN**	**160L4**	495	481
						FF	**87**	**(E)DRN**	**160L4**	530	482
67	18700	26.50	2870	1.40	X						
75	16700	23.68	2890	1.60	X						
83	15100	21.32*	2900	1.75	X						
92	13600	19.31	2900	1.95	X						
104	12100	17.12	2880	2.2	X						
115	10900	15.48	2860	2.4	X						
135	9300	13.12*	2810	2.9	X	**FA**	**87**	**(E)DRN**	**160L4**	475	484
155	8120	11.46	2770	3.3	X	**FAF**	**87**	**(E)DRN**	**160L4**	500	482
185	6790	9.58	2690	3.8	X	**F**	**87**	**(E)DRN**	**160L4**	485	481
214	5870	8.29	2560	2.3	X	**FF**	**87**	**(E)DRN**	**160L4**	520	482
242	5210	7.35	2510	2.6	X						
267	4710	6.65	2460	2.9	X						
315	3990	5.63	2380	3.4	X						
361	3480	4.92	2310	3.9	X						
432	2910	4.12	2220	4.4	X						

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P_m = 25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
						FA	**157R97**	**(E)DRN**	**180M4**	2000	516/522
8.8	165300	202	22090	1.05	X	**FAF**	**157R97**	**(E)DRN**	**180M4**	2130	514/522
9.1	161210	197	22440	1.10	X	**F**	**157R97**	**(E)DRN**	**180M4**	2040	513/522
						FF	**157R97**	**(E)DRN**	**180M4**	2280	514/522
10.0	157650	178.20*	22750	1.10	X						
11	144170	162.96	23670	1.25	X						
13	125450	141.80*	24760	1.40	X						
14	110710	125.14	25270	1.6	X						
16	95980	108.49	24720	1.9	X	**FA**	**157**	**(E)DRN**	**180M4**	1720	516
18	85400	96.53*	24230	2.1	X	**FAF**	**157**	**(E)DRN**	**180M4**	1850	514
21	75910	85.80*	23720	2.3	X	**F**	**157**	**(E)DRN**	**180M4**	1760	513
23	69410	78.46	23320	2.6	X	**FF**	**157**	**(E)DRN**	**180M4**	2000	514
26	60410	68.28*	22680	2.9	X						
30	53300	60.25	22090	3.3	X						
34	46220	52.24	21400	3.8	X						
						FA	**157**	**(E)DRN**	**180M4**	1700	516
41	38800	43.94*	20600	2.7	X	**FAF**	**157**	**(E)DRN**	**180M4**	1830	514
						F	**157**	**(E)DRN**	**180M4**	1750	513
						FF	**157**	**(E)DRN**	**180M4**	1990	514
16	101100	114.34	18200	1.05	X						
18	87500	98.95	18000	1.20	X						
20	77200	87.31*	17800	1.35	X						
24	66600	75.41*	17400	1.60	X	**FA**	**127**	**(E)DRN**	**180M4**	1150	508
25	61900	70.07	17300	1.70	X	**FAF**	**127**	**(E)DRN**	**180M4**	1240	506
28	56500	63.91	17000	1.90	X	**F**	**127**	**(E)DRN**	**180M4**	1230	505
32	48900	55.31	16600	2.2	X	**FF**	**127**	**(E)DRN**	**180M4**	1330	506
36	43100	48.80	16200	2.5	X						
42	37200	42.15	15800	2.9	X						
24	65900	74.52	10900	1.05	X						
26	59800	67.62	10900	1.15	X						
31	51400	58.12*	10800	1.30	X	**FA**	**107**	**(E)DRN**	**180M4**	840	500
35	44800	50.73	10700	1.50	X	**FAF**	**107**	**(E)DRN**	**180M4**	880	498
41	38000	43.03	10500	1.80	X	**F**	**107**	**(E)DRN**	**180M4**	870	497
47	33200	37.61	10300	2.0	X	**FF**	**107**	**(E)DRN**	**180M4**	930	498
56	28100	31.80	10000	2.4	X						
53	29800	33.79*	10100	2.2	X	**FA**	**107**	**(E)DRN**	**180M4**	810	500
65	24300	27.57	9760	2.8	X	**FAF**	**107**	**(E)DRN**	**180M4**	860	498
71	22200	25.14	9600	3.1	X	**F**	**107**	**(E)DRN**	**180M4**	850	497
82	19200	21.76*	9330	3.6	X	**FF**	**107**	**(E)DRN**	**180M4**	910	498
						FA	**97**	**(E)DRN**	**180M4**	670	492
46	34300	38.86	4620	1.10	X	**FAF**	**97**	**(E)DRN**	**180M4**	720	490
55	28700	32.50	4670	1.30	X	**F**	**97**	**(E)DRN**	**180M4**	690	489
						FF	**97**	**(E)DRN**	**180M4**	760	490
65	24200	27.44*	4670	1.55	X						
71	22000	24.92	4660	1.75	X						
81	19500	22.11	4620	1.95	X						
89	17700	20.07	4580	2.1	X	**FA**	**97**	**(E)DRN**	**180M4**	660	492
103	15200	17.25*	4500	2.5	X	**FAF**	**97**	**(E)DRN**	**180M4**	710	490
118	13300	15.06	4410	2.9	X	**F**	**97**	**(E)DRN**	**180M4**	680	489
139	11200	12.77	4290	3.4	X	**FF**	**97**	**(E)DRN**	**180M4**	750	490
160	9870	11.16	4190	3.7	X						
197	8010	9.06	3910	2.6	X						
217	7270	8.22	3840	2.9	X						

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P_m = 25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
84	18800	21.32*	2530	1.40	X						
92	17000	19.31	2560	1.55	X						
104	15100	17.12	2580	1.75	X						
115	13600	15.48	2590	1.95	X						
136	11600	13.12*	2590	2.3	X						
155	10100	11.46	2570	2.6	X	**FA**	**87**	**(E)DRN**	**180M4**	520	484
186	8470	9.58	2520	3.0	X	**FAF**	**87**	**(E)DRN**	**180M4**	550	482
215	7330	8.29	2400	1.85	X	**F**	**87**	**(E)DRN**	**180M4**	530	481
242	6500	7.35	2370	2.1	X	**FF**	**87**	**(E)DRN**	**180M4**	570	482
268	5870	6.65	2330	2.3	X						
316	4980	5.63	2270	2.7	X						
362	4350	4.92	2210	3.1	X						
433	3630	4.12	2140	3.5	X						

P_m = 30 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
11	173000	162.96	21680	1.00	X						
13	150540	141.80*	23340	1.20	X						
14	132850	125.14	24220	1.35	X						
16	115180	108.49	23810	1.6	X						
18	102480	96.53*	23420	1.8	X						
21	91090	85.80*	23000	2.0	X						
23	83290	78.46	22660	2.1	X	**FA**	**157**	**(E)DRN**	**180L4**	1750	516
26	72490	68.28	22100	2.4	X	**FAF**	**157**	**(E)DRN**	**180L4**	1880	514
30	63960	60.25	21580	2.8	X	**F**	**157**	**(E)DRN**	**180L4**	1800	513
34	55460	52.24	20960	3.2	X	**FF**	**157**	**(E)DRN**	**180L4**	2030	514
38	49340	46.48*	20450	3.6	X						
41	46650	43.94	20200	2.3	X						
44	42530	40.06	19790	4.2	X						
50	37950	35.75*	19290	3.2	X						
55	34560	32.55	18870	5.1	X						
18	105000	98.95	17000	1.00	X						
20	92600	87.31*	16900	1.15	X						
24	80000	75.41*	16700	1.35	X						
25	74300	70.07	16500	1.45	X	**FA**	**127**	**(E)DRN**	**180L4**	1190	508
28	67800	63.91	16300	1.55	X	**FAF**	**127**	**(E)DRN**	**180L4**	1270	506
32	58600	55.31	16000	1.80	X	**F**	**127**	**(E)DRN**	**180L4**	1270	505
36	51700	48.80	15700	2.0	X	**FF**	**127**	**(E)DRN**	**180L4**	1370	506
42	44700	42.15	15300	2.4	X						
48	39500	37.28	15000	2.7	X						
						FA	**127**	**(E)DRN**	**180L4**	1160	508
66	28500	26.86	14000	2.6	X	**FAF**	**127**	**(E)DRN**	**180L4**	1250	506
72	26000	24.57	13700	2.9	X	**F**	**127**	**(E)DRN**	**180L4**	1240	505
						FF	**127**	**(E)DRN**	**180L4**	1340	506
31	61600	58.12*	10100	1.10	X						
35	53800	50.73	10100	1.25	X	**FA**	**107**	**(E)DRN**	**180L4**	870	500
41	45600	43.03	9960	1.50	X	**FAF**	**107**	**(E)DRN**	**180L4**	920	498
47	39900	37.61	9830	1.70	X	**F**	**107**	**(E)DRN**	**180L4**	910	497
56	33700	31.80	9630	2.0	X	**FF**	**107**	**(E)DRN**	**180L4**	970	498
53	35800	33.79*	9710	1.85	X						
65	29200	27.57	9430	2.4	X	**FA**	**107**	**(E)DRN**	**180L4**	850	500
71	26600	25.14	9300	2.6	X	**FAF**	**107**	**(E)DRN**	**180L4**	890	498
82	23000	21.76*	9070	3.0	X	**F**	**107**	**(E)DRN**	**180L4**	890	497
93	20300	19.20*	8860	3.4	X	**FF**	**107**	**(E)DRN**	**180L4**	950	498

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P_m = 30 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
55	34400	32.50	4160	1.10	X	**FA**	**97**	**(E)DRN**	**180L4**	710	492
						FAF	**97**	**(E)DRN**	**180L4**	750	490
						F	**97**	**(E)DRN**	**180L4**	720	489
						FF	**97**	**(E)DRN**	**180L4**	800	490
65	29100	27.44*	4240	1.30	X						
71	26400	24.92	4260	1.45	X						
81	23400	22.11	4270	1.60	X						
89	21200	20.07	4260	1.80	X						
103	18300	17.25*	4230	2.1	X	**FA**	**97**	**(E)DRN**	**180L4**	690	492
118	15900	15.06	4170	2.4	X	**FAF**	**97**	**(E)DRN**	**180L4**	740	490
139	13500	12.77	4090	2.8	X	**F**	**97**	**(E)DRN**	**180L4**	710	489
160	11800	11.16	4010	3.1	X	**FF**	**97**	**(E)DRN**	**180L4**	780	490
197	9610	9.06	3750	2.2	X						
217	8720	8.22	3690	2.4	X						
252	7500	7.07	3590	2.8	X						
84	22600	21.32*	2160	1.15	X						
92	20400	19.31	2230	1.30	X						
104	18100	17.12	2290	1.45	X						
115	16400	15.48	2320	1.60	X						
136	13900	13.12*	2360	1.90	X						
155	12100	11.46	2370	2.2	X	**FA**	**87**	**(E)DRN**	**180L4**	560	484
186	10100	9.58	2360	2.5	X	**FAF**	**87**	**(E)DRN**	**180L4**	580	482
215	8790	8.29	2240	1.55	X	**F**	**87**	**(E)DRN**	**180L4**	570	481
242	7800	7.35	2230	1.75	X	**FF**	**87**	**(E)DRN**	**180L4**	600	482
268	7050	6.65	2210	1.90	X						
316	5970	5.63	2160	2.3	X						
362	5220	4.92	2120	2.6	X						
433	4360	4.12	2060	3.0	X						

P_m = 40 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
14	176940	125.14	21000	1.00	X						
16	153400	108.49	21720	1.15	X						
18	136480	96.53*	21560	1.30	X						
21	121310	85.80*	21350	1.5	X						
23	110940	78.46	21150	1.6	X	**FA**	**157**	**(E)DRN**	**200L4**	1990	516
26	96540	68.28*	20780	1.9	X	**FAF**	**157**	**(E)DRN**	**200L4**	2120	514
30	85190	60.25	20420	2.1	X	**F**	**157**	**(E)DRN**	**200L4**	2030	513
34	73860	52.24	19960	2.4	X	**FF**	**157**	**(E)DRN**	**200L4**	2270	514
38	65720	46.48*	19550	2.7	X						
45	56640	40.06	19020	3.1	X						
50	50550	35.75*	18590	2.4	X						
24	106500	75.41*	15100	1.00	X						
25	99000	70.07	15100	1.05	X						
28	90300	63.91	15000	1.20	X						
32	78100	55.31	14900	1.35	X	**FA**	**127**	**(E)DRN**	**200L4**	1430	508
37	68900	48.80	14700	1.55	X	**FAF**	**127**	**(E)DRN**	**200L4**	1510	506
42	59500	42.15	14400	1.80	X	**F**	**127**	**(E)DRN**	**200L4**	1510	505
48	52600	37.28	14200	2.0	X	**FF**	**127**	**(E)DRN**	**200L4**	1610	506
57	44200	31.33	13800	2.4	X						
70	35700	25.30	13300	3.0	X						
66	37900	26.86	13400	2.0	X	**FA**	**127**	**(E)DRN**	**200L4**	1400	508
73	34700	24.57	13200	2.2	X	**FAF**	**127**	**(E)DRN**	**200L4**	1480	506
83	30200	21.38	12900	3.5	X	**F**	**127**	**(E)DRN**	**200L4**	1480	505
95	26600	18.87	12500	3.6	X	**FF**	**127**	**(E)DRN**	**200L4**	1580	506

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P_m = 40 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
41	60800	43.03	8930	1.10	X	**FA**	**107**	**(E)DRN**	**200L4**	1110	500
47	53100	37.61	8930	1.30	X	**FAF**	**107**	**(E)DRN**	**200L4**	1160	498
56	44900	31.80	8870	1.50	X	**F**	**107**	**(E)DRN**	**200L4**	1150	497
						FF	**107**	**(E)DRN**	**200L4**	1210	498
65	38900	27.57	8770	1.80	X						
71	35500	25.14	8700	1.95	X						
82	30700	21.76*	8550	2.3	X	**FA**	**107**	**(E)DRN**	**200L4**	1090	500
93	27100	19.20*	8400	2.6	X	**FAF**	**107**	**(E)DRN**	**200L4**	1140	498
108	23400	16.58	8210	3.0	X	**F**	**107**	**(E)DRN**	**200L4**	1130	497
122	20700	14.67	8040	3.3	X	**FF**	**107**	**(E)DRN**	**200L4**	1190	498
145	17400	12.33	7780	3.5	X						
179	14000	9.96	7450	4.1	X						
81	31200	22.11	3580	1.20	X						
89	28300	20.07	3630	1.35	X						
103	24300	17.25*	3680	1.55	X						
118	21200	15.06	3700	1.80	X						
140	18000	12.77	3690	2.1	X						
160	15700	11.16	3660	2.3	X	**FA**	**97**	**(E)DRN**	**200L4**	930	492
197	12800	9.06	3420	1.65	X	**FAF**	**97**	**(E)DRN**	**200L4**	980	490
217	11600	8.22	3390	1.80	X	**F**	**97**	**(E)DRN**	**200L4**	950	489
252	9990	7.07	3330	2.1	X	**FF**	**97**	**(E)DRN**	**200L4**	1020	490
289	8720	6.17	3270	2.3	X						
341	7390	5.23	3180	2.6	X						
390	6460	4.57	3100	2.8	X						
461	5460	3.87	3000	2.9	X						

P_m = 50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
18	170410	96.53	19940	1.05	X						
21	151470	85.80*	19900	1.15	X						
23	138510	78.46	19830	1.30	X						
26	120540	68.28*	19630	1.5	X						
30	106370	60.25	19400	1.7	X						
34	92220	52.24	19080	1.9	X	**FA**	**157**	**(E)DRN**	**225S4**	2060	516
38	82060	46.48*	18770	2.2	X	**FAF**	**157**	**(E)DRN**	**225S4**	2190	514
45	70720	40.06	18340	2.5	X	**F**	**157**	**(E)DRN**	**225S4**	2100	513
50	63110	35.75*	17990	1.9	X	**FF**	**157**	**(E)DRN**	**225S4**	2340	514
55	57460	32.55	17690	3.1	X						
62	50490	28.60*	17250	3.4	X						
65	48730	27.60	17130	3.6	X						
70	44890	25.43	16850	3.9	X						
32	97600	55.31	13700	1.10	X						
37	86100	48.80	13700	1.25	X	**FA**	**127**	**(E)DRN**	**225S4**	1500	508
42	74300	42.15	13500	1.45	X	**FAF**	**127**	**(E)DRN**	**225S4**	1580	506
48	65700	37.28	13400	1.60	X	**F**	**127**	**(E)DRN**	**225S4**	1580	505
57	55200	31.33	13200	1.90	X	**FF**	**127**	**(E)DRN**	**225S4**	1680	506
71	44600	25.30	12800	2.4	X						
66	47400	26.86	12900	1.60	X						
73	43300	24.57	12700	1.75	X						
84	37700	21.38	12400	2.8	X						
95	33200	18.87	12100	2.9	X	**FA**	**127**	**(E)DRN**	**225S4**	1470	508
109	28800	16.36	11800	3.4	X	**FAF**	**127**	**(E)DRN**	**225S4**	1560	506
123	25600	14.55	11500	3.8	X	**F**	**127**	**(E)DRN**	**225S4**	1550	505
142	22100	12.54	11200	4.0	X	**FF**	**127**	**(E)DRN**	**225S4**	1650	506
175	17900	10.19	10700	4.7	X						
201	15600	8.86	10300	4.0	X						
226	13900	7.88	9980	3.8	X						

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P_m = 50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
						FA	**107**	**(E)DRN**	**225S4**	1180	500
47	66300	37.61	8030	1.00	X	**FAF**	**107**	**(E)DRN**	**225S4**	1230	498
56	56100	31.80	8110	1.20	X	**F**	**107**	**(E)DRN**	**225S4**	1220	497
						FF	**107**	**(E)DRN**	**225S4**	1280	498
65	48600	27.57	8120	1.45	X						
71	44300	25.14	8100	1.55	X						
82	38400	21.76*	8030	1.80	X						
93	33800	19.20*	7940	2.0	X						
108	29200	16.58	7810	2.4	X	**FA**	**107**	**(E)DRN**	**225S4**	1160	500
122	25800	14.67	7690	2.6	X	**FAF**	**107**	**(E)DRN**	**225S4**	1200	498
145	21700	12.33	7490	2.9	X	**F**	**107**	**(E)DRN**	**225S4**	1190	497
179	17500	9.96	7210	3.3	X	**FF**	**107**	**(E)DRN**	**225S4**	1250	498
184	17100	9.69	7050	2.5	X						
213	14700	8.37	6870	2.9	X						
241	13000	7.40	6710	3.1	X						
287	10900	6.22	6470	3.7	X						
89	35400	20.07	3000	1.05	X						
103	30400	17.25*	3140	1.25	X						
119	26500	15.06	3230	1.45	X						
140	22500	12.77	3290	1.70	X						
160	19600	11.16	3310	1.85	X	**FA**	**97**	**(E)DRN**	**225S4**	1000	492
197	15900	9.06	3100	1.30	X	**FAF**	**97**	**(E)DRN**	**225S4**	1050	490
217	14500	8.22	3100	1.45	X	**F**	**97**	**(E)DRN**	**225S4**	1020	489
253	12400	7.07	3080	1.65	X	**FF**	**97**	**(E)DRN**	**225S4**	1090	490
289	10800	6.17	3050	1.85	X						
341	9230	5.23	3000	2.1	X						
390	8070	4.57	2940	2.2	X						
462	6820	3.87	2860	2.3	X						

P_m = 60 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
23	166220	78.46	18320	1.05	X						
26	144650	68.28*	18320	1.20	X						
30	127640	60.25	18240	1.40	X						
34	110670	52.24	18070	1.6	X						
38	98470	46.48*	17880	1.8	X	**FA**	**157**	**(E)DRN**	**225M4**	2060	516
45	84870	40.06	17570	2.1	X	**FAF**	**157**	**(E)DRN**	**225M4**	2190	514
50	75740	35.75*	17300	1.6	X	**F**	**157**	**(E)DRN**	**225M4**	2100	513
55	68960	32.55	17060	2.6	X	**FF**	**157**	**(E)DRN**	**225M4**	2340	514
62	60590	28.60*	16700	2.8	X						
65	58470	27.60	16600	3.0	X						
70	53870	25.43	16360	3.3	X						
37	103300	48.80	12400	1.05	X						
42	89200	42.15	12700	1.20	X	**FA**	**127**	**(E)DRN**	**225M4**	1500	508
48	78900	37.28	12600	1.35	X	**FAF**	**127**	**(E)DRN**	**225M4**	1580	506
57	66300	31.33	12500	1.60	X	**F**	**127**	**(E)DRN**	**225M4**	1580	505
71	53500	25.30	12200	2.0	X	**FF**	**127**	**(E)DRN**	**225M4**	1680	506
66	56800	26.86	12300	1.30	X						
73	52000	24.57	12200	1.45	X						
84	45200	21.38	12000	2.4	X						
95	39900	18.87	11700	2.4	X						
109	34600	16.36	11500	2.8	X	**FA**	**127**	**(E)DRN**	**225M4**	1470	508
123	30800	14.55	11200	3.2	X	**FAF**	**127**	**(E)DRN**	**225M4**	1560	506
142	26500	12.54	10900	3.3	X	**F**	**127**	**(E)DRN**	**225M4**	1550	505
175	21500	10.19	10500	3.9	X	**FF**	**127**	**(E)DRN**	**225M4**	1650	506
201	18700	8.86	10100	3.3	X						
226	16600	7.88	9800	3.2	X						
263	14300	6.80	9470	4.3	X						
323	11600	5.52	9020	4.5	X						

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P_m = 60 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
56	67300	31.80	7250	1.00	X	**FA**	**107**	**(E)DRN**	**225M4**	1180	500
						FAF	**107**	**(E)DRN**	**225M4**	1230	498
						F	**107**	**(E)DRN**	**225M4**	1220	497
						FF	**107**	**(E)DRN**	**225M4**	1280	498
65	58300	27.57	7460	1.20	X						
71	53200	25.14	7500	1.30	X						
82	46000	21.76*	7510	1.50	X						
93	40600	19.20*	7480	1.70	X						
108	35100	16.58	7420	2.0	X	**FA**	**107**	**(E)DRN**	**225M4**	1160	500
122	31000	14.67	7340	2.2	X	**FAF**	**107**	**(E)DRN**	**225M4**	1200	498
145	26100	12.33	7190	2.4	X	**F**	**107**	**(E)DRN**	**225M4**	1190	497
179	21000	9.96	6980	2.7	X	**FF**	**107**	**(E)DRN**	**225M4**	1250	498
184	20500	9.69	6800	2.1	X						
213	17700	8.37	6650	2.4	X						
241	15600	7.40	6510	2.6	X						
287	13100	6.22	6310	3.1	X						

P_m = 75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
30	159550	60.25	16800	1.10	X						
34	138340	52.24	16820	1.30	X						
38	123080	46.48*	16760	1.5	X						
45	106080	40.06	16610	1.7	X						
55	86200	32.55	16280	2.1	X	**FA**	**157**	**(E)DRN**	**250ME4**	2500	516
62	75740	28.60*	16020	2.2	X	**FAF**	**157**	**(E)DRN**	**250ME4**	2620	514
65	73090	27.60	15940	2.4	X	**F**	**157**	**(E)DRN**	**250ME4**	2540	513
70	67340	25.43	15750	2.6	X	**FF**	**157**	**(E)DRN**	**250ME4**	2780	514
81	58680	22.16	15410	3.0	X						
90	52350	19.77	15110	3.3	X						
106	44620	16.85	14660	3.7	X						
48	98600	37.28	11100	1.10	X	**FA**	**127**	**(E)DRN**	**250ME4**	1930	508
57	82900	31.33	11500	1.30	X	**FAF**	**127**	**(E)DRN**	**250ME4**	2010	506
71	66900	25.30	11400	1.60	X	**F**	**127**	**(E)DRN**	**250ME4**	2010	505
						FF	**127**	**(E)DRN**	**250ME4**	2110	506
84	56500	21.38	11300	1.90	X						
95	49900	18.87	11200	1.95	X						
109	43200	16.36	11000	2.2	X						
123	38500	14.55	10800	2.5	X						
142	33200	12.54	10500	2.7	X	**FA**	**127**	**(E)DRN**	**250ME4**	1910	508
175	26900	10.19	10100	3.1	X	**FAF**	**127**	**(E)DRN**	**250ME4**	1990	506
201	23400	8.86	9760	2.6	X	**F**	**127**	**(E)DRN**	**250ME4**	1990	505
226	20800	7.88	9540	2.5	X	**FF**	**127**	**(E)DRN**	**250ME4**	2080	506
263	17900	6.80	9250	3.4	X						
323	14600	5.52	8830	3.6	X						
381	12300	4.68	8500	4.3	X						

P_m = 100 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
38	164110	46.48	14530	1.10	**38**						
45	141440	40.06	14690	1.25	**45**						
55	114930	32.55	14720	1.6	**55**						
62	100980	28.60*	14650	1.7	**62**						
65	97450	27.60	14620	1.8	**65**	**FA**	**157**	**(E)DRN**	**280S4**	2500	516
70	89790	25.43	14530	2.0	**70**	**FAF**	**157**	**(E)DRN**	**280S4**	2630	514
81	78240	22.16	14350	2.3	**81**	**F**	**157**	**(E)DRN**	**280S4**	2550	513
90	69800	19.77	14160	2.5	**90**	**FF**	**157**	**(E)DRN**	**280S4**	2780	514
106	59490	16.85	13860	2.8	**106**						
128	49290	13.96	13450	3.2	**128**						
150	42090	11.92	13080	3.6	**150**						

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P_m = 100 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
71	89300	25.30	9770	1.20	X	**FA**	**127**	**(E)DRN**	**280S4**	1940	508
						FAF	**127**	**(E)DRN**	**280S4**	2020	506
						F	**127**	**(E)DRN**	**280S4**	2020	505
						FF	**127**	**(E)DRN**	**280S4**	2110	506
84	75400	21.38	10100	1.40	X						
95	66500	18.87	10200	1.45	X						
109	57700	16.36	10100	1.70	X						
123	51300	14.55	10000	1.90	X						
142	44200	12.54	9860	2.0	X	**FA**	**127**	**(E)DRN**	**280S4**	1910	508
175	35900	10.19	9600	2.3	X	**FAF**	**127**	**(E)DRN**	**280S4**	1990	506
201	31200	8.86	9260	2.0	X	**F**	**127**	**(E)DRN**	**280S4**	1990	505
226	27800	7.88	9100	1.90	X	**FF**	**127**	**(E)DRN**	**280S4**	2090	506
263	23900	6.80	8870	2.6	X						
323	19400	5.52	8520	2.7	X						
381	16500	4.68	8240	3.2	X						

P_m = 125 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
						FA	**157**	**(E)DRN**	**280M4**	2750	516
55	143600	32.55	13300	1.10	X	**FAF**	**157**	**(E)DRN**	**280M4**	2880	514
65	121800	27.60	13400	1.30	X	**F**	**157**	**(E)DRN**	**280M4**	2800	513
						FF	**157**	**(E)DRN**	**280M4**	3030	514
						FA	**157**	**(E)DRN**	**280M4/ERF/NS**	2740	516
62	126200	28.60*	13400	1.20	X	**FAF**	**157**	**(E)DRN**	**280M4/ERF/NS**	2870	514
						F	**157**	**(E)DRN**	**280M4/ERF/NS**	2780	513
						FF	**157**	**(E)DRN**	**280M4/ERF/NS**	3020	514
70	112200	25.43	13400	1.20	X						
81	97800	22.16	13400	1.65	X	**FA**	**157**	**(E)DRN**	**280M4**	2740	516
90	87200	19.77	13300	1.70	X	**FAF**	**157**	**(E)DRN**	**280M4**	2870	514
106	74300	16.85	13100	2.1	X	**F**	**157**	**(E)DRN**	**280M4**	2780	513
128	61600	13.96	12800	2.4	X	**FF**	**157**	**(E)DRN**	**280M4**	3020	514
150	52600	11.92	12600	2.7	X						
						FA	**127**	**(E)DRN**	**280M4/ERF/NS**	2160	508
83	94300	21.38	8380	1.15	X	**FAF**	**127**	**(E)DRN**	**280M4/ERF/NS**	2240	506
						F	**127**	**(E)DRN**	**280M4/ERF/NS**	2240	505
						FF	**127**	**(E)DRN**	**280M4/ERF/NS**	2340	506
95	83200	18.87	8800	1.15	X						
109	72200	16.36	9130	1.35	X						
123	64200	14.55	9250	1.50	X						
142	55300	12.54	9200	1.60	X	**FA**	**127**	**(E)DRN**	**280M4**	2160	508
175	44900	10.19	9070	1.85	X	**FAF**	**127**	**(E)DRN**	**280M4**	2240	506
201	39100	8.86	8770	1.60	X	**F**	**127**	**(E)DRN**	**280M4**	2240	505
226	34800	7.88	8660	1.55	X	**FF**	**127**	**(E)DRN**	**280M4**	2340	506
263	29900	6.80	8490	2.1	X						
323	24300	5.52	8220	2.2	X						
381	20600	4.68	7980	2.6	X						

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P_m = 150 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
65	145700	27.60	12200	1.10	X	FA	157	(E)DRN	315S4	3290	516
						FAF	157	(E)DRN	315S4	3420	514
						F	157	(E)DRN	315S4	3340	513
						FF	157	(E)DRN	315S4	3570	514
81	116900	22.16	12400	1.35	X	FA	157	(E)DRN	315S4/ERF/NS	3280	516
						FAF	157	(E)DRN	315S4/ERF/NS	3410	514
						F	157	(E)DRN	315S4/ERF/NS	3320	513
						FF	157	(E)DRN	315S4/ERF/NS	3560	514
91	104300	19.77	12400	1.45	X	FA	157	(E)DRN	315S4	3280	516
106	88900	16.85	12400	1.80	X	FAF	157	(E)DRN	315S4	3410	514
128	73700	13.96	12200	2.0	X	F	157	(E)DRN	315S4	3320	513
150	62900	11.92	12000	2.2	X	FF	157	(E)DRN	315S4	3560	514

P_m = 175 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
81	136400	22.16	11400	1.15	X	FA	157	(E)DRN	315ME4/ERF/NS	3560	516
91	121700	19.77	11500	1.25	X	FAF	157	(E)DRN	315ME4/ERF/NS	3680	514
						F	157	(E)DRN	315ME4/ERF/NS	3600	513
						FF	157	(E)DRN	315ME4/ERF/NS	3840	514
106	103700	16.85	11600	1.55	X	FA	157	(E)DRN	315ME4	3560	516
128	85900	13.96	11600	1.75	X	FAF	157	(E)DRN	315ME4	3680	514
150	73300	11.92	11500	1.95	X	F	157	(E)DRN	315ME4	3600	513
						FF	157	(E)DRN	315ME4	3840	514

P_m = 200 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
106	118700	16.85	10900	1.35	X	FA	157	(E)DRN	315L4	3610	516
128	98400	13.96	11000	1.55	X	FAF	157	(E)DRN	315L4	3740	514
150	83900	11.92	11000	1.70	X	F	157	(E)DRN	315L4	3660	513
						FF	157	(E)DRN	315L4	3890	514

P_m = 225 HP

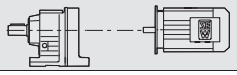
n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
106	133600	16.85	10100	1.20	X	FA	157	(E)DRN	315L4	3610	516
128	110700	13.96	10300	1.35	X	FAF	157	(E)DRN	315L4	3740	514
150	94400	11.92	10400	1.50	X	F	157	(E)DRN	315L4	3660	513
						FF	157	(E)DRN	315L4	3890	514

P_m = 250 HP

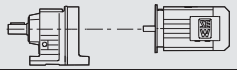
n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
106	148100	16.85	9360	1.10	X	FA	157	(E)DRN	315H4/ERF/NS	3870	516
						FAF	157	(E)DRN	315H4/ERF/NS	4000	514
						F	157	(E)DRN	315H4/ERF/NS	3920	513
						FF	157	(E)DRN	315H4/ERF/NS	4150	514
128	122700	13.96	9720	1.25	X	FA	157	(E)DRN	315H4	3870	516
150	104700	11.92	9890	1.35	X	FAF	157	(E)DRN	315H4	4000	514
						F	157	(E)DRN	315H4	3920	513
						FF	157	(E)DRN	315H4	4150	514

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P_m = 275 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
						FA	**157**	**(E)DRN**	**315H4/ERF/NS**	3870	516
						FAF	**157**	**(E)DRN**	**315H4/ERF/NS**	4000	514
106	163000	16.85	8600	1.00		**F**	**157**	**(E)DRN**	**315H4/ERF/NS**	3920	513
						FF	**157**	**(E)DRN**	**315H4/ERF/NS**	4150	514
						FA	**157**	**(E)DRN**	**315H4**	3870	516
128	135000	13.96	9100	1.10	X	**FAF**	**157**	**(E)DRN**	**315H4**	4000	514
150	115200	11.92	9360	1.25	X	**F**	**157**	**(E)DRN**	**315H4**	3920	513
						FF	**157**	**(E)DRN**	**315H4**	4150	514

P_m = 300 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
						FA	**157**	**(E)DRN**	**315H4**	3870	516
128	147400	13.96	8470	1.00	X	**FAF**	**157**	**(E)DRN**	**315H4**	4000	514
150	125800	11.92	8830	1.15	X	**F**	**157**	**(E)DRN**	**315H4**	3920	513
						FF	**157**	**(E)DRN**	**315H4**	4150	514

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9.4 F.. R.. DRN.. Selections by torque / low output speed

$T_{a\ max}$ = 1150 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.19	8972	1010						
0.22	7736	1010						
0.23	7211	1010						
0.27	6303	1010						
0.31	5435	1010						
0.35	4855	1010						
0.40	4243	1010						
0.45	3715	1010						
0.52	3247	1010						
0.58	2878	1010						
0.67	2515	1010						
0.76	2217	1010						
0.86	1948	1010						
0.88	1898	1010						
0.92	1826	1010						
1.0	1645	1010						
1.0	1610	1010						
1.1	1525	1010						
1.2	1399	1010						
1.3	1322	1010						
1.4	1230	1010						
1.5	1146	1010	**FA**	**27R17**	**DRN**	**63MS4**	29	441/521
1.7	1013	1010	**FAF**	**27R17**	**DRN**	**63MS4**	31	442/521
1.8	948	1010	**F**	**27R17**	**DRN**	**63MS4**	31	443/521
1.9	890	1010	**FF**	**27R17**	**DRN**	**63MS4**	33	442/521
2.0	829	1010						
2.2	778	1010						
2.3	731	1010						
2.5	682	1010						
2.6	633	1010						
2.8	602	1010						
3.0	551	1010						
3.2	520	1010						
3.4	489	1010						
3.7	458	1010						
3.9	427	1010						
4.2	397	1010						
4.4	379	1010						
4.9	342	1010						
5.2	326	1010						
5.6	302	1010						
5.8	288	1010						
6.3	266	1010						
6.7	251	1010						
7.1	236	1010						
7.6	221	1010						
8.1	211	1010	**FA**	**27R17**	**DRN**	**63M4**	31	441/521
9.1	186	1010	**FAF**	**27R17**	**DRN**	**63M4**	33	442/521
9.9	172	1010	**F**	**27R17**	**DRN**	**63M4**	33	443/521
11	153	1010	**FF**	**27R17**	**DRN**	**63M4**	33	442/521
12	142	1010						
13	130	1010	**FA**	**27R17**	**DRN**	**71MS4**	31	441/521
14	124	1010	**FAF**	**27R17**	**DRN**	**71MS4**	33	442/521
16	109	1010	**F**	**27R17**	**DRN**	**71MS4**	33	443/521
18	96	1010	**FF**	**27R17**	**DRN**	**71MS4**	33	442/521

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$T_{a\ max}$ = 1760 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.21	8193	960						
0.24	7064	960						
0.26	6585	960						
0.29	5756	960						
0.34	4963	960						
0.38	4434	960						
0.43	3875	960						
0.5	3392	960						
0.57	2965	960						
0.65	2587	960						
0.74	2284	960						
0.84	1997	960						
0.87	1929	960						
0.96	1742	960						
1.0	1679	960						
1.1	1545	960						
1.1	1550	960						
1.2	1356	960						
1.2	1370	960	**FA**	**37R17**	**DRN**	**63MS4**	42	446/521
1.4	1180	960	**FAF**	**37R17**	**DRN**	**63MS4**	46	445/521
1.4	1198	960	**F**	**37R17**	**DRN**	**63MS4**	44	444/521
1.6	1044	960	**FF**	**37R17**	**DRN**	**63MS4**	48	445/521
1.6	1047	960						
1.8	914	960						
1.8	915	960						
2.1	808	960						
2.1	807	960						
2.4	698	960						
2.4	707	960						
2.7	616	960						
2.7	617	960						
3.1	544	960						
3.1	538	960						
3.5	477	960						
3.6	466	960						
4.1	411	960						
4.1	412	960						
4.6	364	960						
4.6	365	960						
5.2	326	960						
5.3	322	960						
6.1	278	960						
6.0	285	960	**FA**	**37R17**	**DRN**	**63M4**	44	446/521
6.8	250	960	**FAF**	**37R17**	**DRN**	**63M4**	48	445/521
7.0	242	960	**F**	**37R17**	**DRN**	**63M4**	46	444/521
7.7	221	960	**FF**	**37R17**	**DRN**	**63M4**	51	445/521
7.8	219	960						
8.7	195	960	**FA**	**37R17**	**DRN**	**71MS4**	46	446/521
9.1	186	960	**FAF**	**37R17**	**DRN**	**71MS4**	48	445/521
10	168	960	**F**	**37R17**	**DRN**	**71MS4**	46	444/521
10	167	960	**FF**	**37R17**	**DRN**	**71MS4**	51	445/521
12	147	960						
12	145	960						
13	127	960	**FA**	**37R17**	**DRN**	**71M4**	48	446/521
13	129	960	**FAF**	**37R17**	**DRN**	**71M4**	50	445/521
14	121	960	**F**	**37R17**	**DRN**	**71M4**	48	444/521
14	118	960	**FF**	**37R17**	**DRN**	**71M4**	53	445/521
16	108	960						
18	91	960	**FA**	**37R17**	**DRN**	**80MK4**	59	446/521
			FAF	**37R17**	**DRN**	**80MK4**	64	445/521
			F	**37R17**	**DRN**	**80MK4**	61	444/521
			FF	**37R17**	**DRN**	**80MK4**	64	445/521

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$T_{a\ max}$ = 3530 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.14	12251	1330						
0.16	10619	1330						
0.17	9846	1330						
0.20	8534	1330						
0.23	7460	1330						
0.26	6536	1330						
0.29	5746	1330						
0.33	5022	1330						
0.38	4401	1330						
0.43	3883	1330						
0.49	3443	1330						
0.56	2976	1330						
0.64	2629	1330						
0.67	2519	1330						
0.70	2394	1330						
0.73	2304	1330	**FA**	**47R17**	**DRN**	**63MS4**	55	453/521
0.77	2172	1330	**FAF**	**47R17**	**DRN**	**63MS4**	59	452/521
0.83	2033	1330	**F**	**47R17**	**DRN**	**63MS4**	55	451/521
0.83	2025	1330	**FF**	**47R17**	**DRN**	**63MS4**	62	452/521
0.94	1785	1330						
0.95	1770	1330						
1.1	1576	1330						
1.1	1578	1330						
1.2	1363	1330						
1.2	1364	1330						
1.4	1192	1330						
1.4	1203	1330						
1.6	1061	1330						
1.6	1049	1330						
1.8	931	1330						
1.8	918	1330						
2.0	822	1330						
2.1	809	1330						
2.4	700	1330						
2.4	706	1330						
2.7	622	1330						
2.8	619	1330						
3.1	543	1330	**FA**	**47R17**	**DRN**	**63M4**	55	453/521
3.2	524	1330	**FAF**	**47R17**	**DRN**	**63M4**	62	452/521
3.5	489	1330	**F**	**47R17**	**DRN**	**63M4**	57	451/521
3.6	475	1330	**FF**	**47R17**	**DRN**	**63M4**	64	452/521
4.0	427	1330						
4.1	419	1330						
4.5	381	1330	**FA**	**47R17**	**DRN**	**71MS4**	57	453/521
4.6	370	1330	**FAF**	**47R17**	**DRN**	**71MS4**	62	452/521
5.1	334	1330	**F**	**47R17**	**DRN**	**71MS4**	57	451/521
5.3	324	1330	**FF**	**47R17**	**DRN**	**71MS4**	66	452/521
5.8	295	1330						
6.0	288	1330	**FA**	**47R17**	**DRN**	**71M4**	59	453/521
6.8	253	1330	**FAF**	**47R17**	**DRN**	**71M4**	66	452/521
6.9	249	1330	**F**	**47R17**	**DRN**	**71M4**	62	451/521
8.0	217	1330	**FF**	**47R17**	**DRN**	**71M4**	68	452/521
7.9	218	1330						
9.0	193	1330						
9.1	190	1330	**FA**	**47R17**	**DRN**	**80MK4**	64	453/521
9.7	178	1330	**FAF**	**47R17**	**DRN**	**80MK4**	70	452/521
10	175	1330	**F**	**47R17**	**DRN**	**80MK4**	66	451/521
12	149	1330	**FF**	**47R17**	**DRN**	**80MK4**	73	452/521
12	147	1330						
13	130	1330	**FA**	**47R17**	**DRN**	**80M4**	70	453/521
			FAF	**47R17**	**DRN**	**80M4**	76	452/521
			F	**47R17**	**DRN**	**80M4**	73	451/521
			FF	**47R17**	**DRN**	**80M4**	79	452/521

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$T_{a\ max}$ = 5300 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.11	14832	2070						
0.12	13604	2070						
0.13	12602	2070						
0.15	11252	2070						
0.17	9986	2070						
0.19	8787	2070						
0.21	7908	2070						
0.24	6913	2070						
0.28	6030	2070						
0.32	5289	2070						
0.36	4654	2070						
0.41	4060	2070						
0.47	3564	2070						
0.53	3161	2070						
0.59	2854	2070	**FA**	**57R37**	**DRN**	**63MS4**	86	460/521
0.61	2737	2070	**FAF**	**57R37**	**DRN**	**63MS4**	99	459/521
0.65	2576	2070	**F**	**57R37**	**DRN**	**63MS4**	88	458/521
0.70	2409	2070	**FF**	**57R37**	**DRN**	**63MS4**	101	459/521
0.74	2266	2070						
0.79	2131	2070						
0.83	2012	2070						
0.91	1840	2070						
0.94	1791	2070						
1.0	1623	2070						
1.0	1617	2070						
1.2	1439	2070						
1.2	1422	2070						
1.4	1238	2070						
1.4	1243	2070						
1.5	1106	2070						
1.6	1066	2070						
1.8	949	2070						
1.8	967	2070						
2.0	856	2070						
2.0	851	2070	**FA**	**57R37**	**DRN**	**63M4**	88	460/521
2.3	749	2070	**FAF**	**57R37**	**DRN**	**63M4**	99	459/521
2.3	738	2070	**F**	**57R37**	**DRN**	**63M4**	88	458/521
2.6	658	2070	**FF**	**57R37**	**DRN**	**63M4**	101	459/521
2.6	646	2070						
3.0	558	2070						
			FA	**57R37**	**DRN**	**71MS4**	88	460/521
3.1	549	2070	**FAF**	**57R37**	**DRN**	**71MS4**	101	459/521
3.4	506	2070	**F**	**57R37**	**DRN**	**71MS4**	88	458/521
			FF	**57R37**	**DRN**	**71MS4**	103	459/521
3.6	483	2070						
3.8	452	2070						
4.1	426	2070	**FA**	**57R37**	**DRN**	**71M4**	92	460/521
4.5	386	2070	**FAF**	**57R37**	**DRN**	**71M4**	103	459/521
4.5	382	2070	**F**	**57R37**	**DRN**	**71M4**	92	458/521
5.1	338	2070	**FF**	**57R37**	**DRN**	**71M4**	108	459/521
5.2	330	2070						
5.8	298	2070	**FA**	**57R37**	**DRN**	**80MK4**	97	460/521
6.6	262	2070	**FAF**	**57R37**	**DRN**	**80MK4**	110	459/521
6.8	255	2070	**F**	**57R37**	**DRN**	**80MK4**	97	458/521
7.7	226	2070	**FF**	**57R37**	**DRN**	**80MK4**	112	459/521
8.7	200	2070	**FA**	**57R37**	**DRN**	**80M4**	106	460/521
8.7	201	2070	**FAF**	**57R37**	**DRN**	**80M4**	117	459/521
9.6	181	2070	**F**	**57R37**	**DRN**	**80M4**	106	458/521
10	170	2070	**FF**	**57R37**	**DRN**	**80M4**	119	459/521
11	155	2070	**FA**	**57R37**	**DRN**	**90S4**	115	460/521
12	152	2070	**FAF**	**57R37**	**DRN**	**90S4**	130	459/521
13	134	2070	**F**	**57R37**	**DRN**	**90S4**	115	458/521
			FF	**57R37**	**DRN**	**90S4**	130	459/521

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$T_{a\ max}$ = 7250 lb-in

n_a rpm	i ratio	F_{Ra}[1] lb					m lbs	
0.09	19199	2320						
0.10	17610	2320						
0.11	14992	2320						
0.13	12926	2320						
0.15	11480	2320						
0.16	10220	2320						
0.19	8933	2320						
0.21	7940	2320						
0.24	7096	2320						
0.28	6080	2320						
0.31	5341	2320						
0.36	4690	2320						
0.41	4091	2320	**FA**	**67R37**	**DRN**	**63MS4**	95	468/521
0.47	3574	2320	**FAF**	**67R37**	**DRN**	**63MS4**	108	466/521
0.50	3377	2320	**F**	**67R37**	**DRN**	**63MS4**	101	465/521
0.54	3133	2320	**FF**	**67R37**	**DRN**	**63MS4**	114	466/521
0.58	2912	2320						
0.61	2756	2320						
0.62	2714	2320						
0.69	2439	2320						
0.71	2372	2320						
0.79	2126	2320						
0.80	2106	2320						
0.89	1884	2320						
0.90	1859	2320						
1.0	1631	2320						
1.0	1635	2320						
1.2	1437	2320						
1.2	1429	2320						
1.3	1271	2320						
1.4	1256	2320	**FA**	**67R37**	**DRN**	**63M4**	95	468/521
1.5	1126	2320	**FAF**	**67R37**	**DRN**	**63M4**	108	466/521
1.5	1102	2320	**F**	**67R37**	**DRN**	**63M4**	101	465/521
1.7	984	2320	**FF**	**67R37**	**DRN**	**63M4**	114	466/521
1.8	970	2320						
2.0	864	2320						
2.0	858	2320						
2.2	755	2320	**FA**	**67R37**	**DRN**	**71MS4**	99	468/521
2.4	722	2320	**FAF**	**67R37**	**DRN**	**71MS4**	112	466/521
2.6	641	2320	**F**	**67R37**	**DRN**	**71MS4**	103	465/521
			FF	**67R37**	**DRN**	**71MS4**	117	466/521
2.7	634	2320						
3.0	572	2320	**FA**	**67R37**	**DRN**	**71M4**	99	468/521
3.2	539	2320	**FAF**	**67R37**	**DRN**	**71M4**	112	466/521
3.4	509	2320	**F**	**67R37**	**DRN**	**71M4**	103	465/521
3.5	500	2320	**FF**	**67R37**	**DRN**	**71M4**	117	466/521
3.8	454	2320						
4.0	437	2320						
4.5	384	2320						
5.2	338	2320	**FA**	**67R37**	**DRN**	**80MK4**	103	468/521
5.7	305	2320	**FAF**	**67R37**	**DRN**	**80MK4**	117	466/521
4.5	392	2320	**F**	**67R37**	**DRN**	**80MK4**	110	465/521
5.2	333	2320	**FF**	**67R37**	**DRN**	**80MK4**	123	466/521
5.9	297	2320						
6.7	261	2320	**FA**	**67R37**	**DRN**	**80M4**	110	468/521
6.8	257	2320	**FAF**	**67R37**	**DRN**	**80M4**	125	466/521
7.4	238	2320	**F**	**67R37**	**DRN**	**80M4**	117	465/521
7.6	231	2320	**FF**	**67R37**	**DRN**	**80M4**	130	466/521
8.6	205	2320	**FA**	**67R37**	**DRN**	**90S4**	125	468/521
8.8	200	2320	**FAF**	**67R37**	**DRN**	**90S4**	140	466/521
10	175	2320	**F**	**67R37**	**DRN**	**90S4**	130	465/521
10	176	2320	**FF**	**67R37**	**DRN**	**90S4**	145	466/521

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$T_{a\ max}$ = 9820 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.34	4931	4010						
0.37	4523	4010						
0.44	3851	4010						
0.51	3320	4010	**FA**	**77R37**	**DRN**	**63MS4**	140	476/521
0.54	3095	4010	**FAF**	**77R37**	**DRN**	**63MS4**	155	474/521
0.62	2705	4010	**F**	**77R37**	**DRN**	**63MS4**	150	473/521
0.66	2536	4010	**FF**	**77R37**	**DRN**	**63MS4**	175	474/521
0.75	2238	4010						
0.82	2039	4010						
0.97	1759	4010	**FA**	**77R37**	**DRN**	**63M4**	145	476/521
1.0	1639	4010	**FAF**	**77R37**	**DRN**	**63M4**	161	474/521
1.2	1433	4010	**F**	**77R37**	**DRN**	**63M4**	154	473/521
1.3	1343	4010	**FF**	**77R37**	**DRN**	**63M4**	178	474/521
			FA	**77R37**	**DRN**	**71MS4**	147	476/521
1.5	1185	4010	**FAF**	**77R37**	**DRN**	**71MS4**	161	474/521
1.6	1051	4010	**F**	**77R37**	**DRN**	**71MS4**	155	473/521
1.9	893	4010	**FF**	**77R37**	**DRN**	**71MS4**	180	474/521
			FA	**77R37**	**DRN**	**71M4**	150	476/521
2.1	815	4010	**FAF**	**77R37**	**DRN**	**71M4**	165	474/521
2.5	706	4010	**F**	**77R37**	**DRN**	**71M4**	158	473/521
2.6	660	4010	**FF**	**77R37**	**DRN**	**71M4**	180	474/521
			FA	**77R37**	**DRN**	**80MK4**	150	476/521
3.1	571	4010	**FAF**	**77R37**	**DRN**	**80MK4**	165	474/521
3.6	485	4010	**F**	**77R37**	**DRN**	**80MK4**	160	473/521
4.0	433	4010	**FF**	**77R37**	**DRN**	**80MK4**	183	474/521
			FA	**77R37**	**DRN**	**80M4**	160	476/521
4.7	370	4010	**FAF**	**77R37**	**DRN**	**80M4**	175	474/521
5.1	346	4010	**F**	**77R37**	**DRN**	**80M4**	170	473/521
			FF	**77R37**	**DRN**	**80M4**	190	474/521
			FA	**77R37**	**DRN**	**90S4**	170	476/521
6.0	292	4010	**FAF**	**77R37**	**DRN**	**90S4**	185	474/521
			F	**77R37**	**DRN**	**90S4**	180	473/521
			FF	**77R37**	**DRN**	**90S4**	205	474/521

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$T_{a\ max}$ = 13200 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.09	19180	3530						
0.10	17593	3530						
0.10	16128	3530						
0.11	14978	3530						
0.12	13731	3530						
0.14	12049	3530						
0.15	11035	3530						
0.17	9683	3530	**FA**	**77R37**	**DRN**	**63MS4**	145	476/521
0.20	8464	3530	**FAF**	**77R37**	**DRN**	**63MS4**	160	474/521
0.22	7520	3530	**F**	**77R37**	**DRN**	**63MS4**	155	473/521
0.26	6580	3530	**FF**	**77R37**	**DRN**	**63MS4**	175	474/521
0.29	5808	3530						
0.33	5026	3530						
0.38	4435	3530						
0.44	3832	3530						
0.50	3381	3530						
0.56	2978	3530						
0.64	2613	3530						
			FA	**77R37**	**DRN**	**63M4**	145	476/521
0.74	2284	3530	**FAF**	**77R37**	**DRN**	**63M4**	161	474/521
0.84	2029	3530	**F**	**77R37**	**DRN**	**63M4**	154	473/521
			FF	**77R37**	**DRN**	**63M4**	178	474/521
			FA	**77R37**	**DRN**	**71MS4**	147	476/521
1.0	1728	3530	**FAF**	**77R37**	**DRN**	**71MS4**	161	474/521
1.1	1544	3530	**F**	**77R37**	**DRN**	**71MS4**	155	473/521
1.3	1354	3530	**FF**	**77R37**	**DRN**	**71MS4**	180	474/521
			FA	**77R37**	**DRN**	**71M4**	150	476/521
1.4	1200	3530	**FAF**	**77R37**	**DRN**	**71M4**	165	474/521
1.6	1053	3530	**F**	**77R37**	**DRN**	**71M4**	158	473/521
1.9	910	3530	**FF**	**77R37**	**DRN**	**71M4**	180	474/521
2.2	810	3530	**FA**	**77R37**	**DRN**	**80MK4**	150	476/521
2.5	710	3530	**FAF**	**77R37**	**DRN**	**80MK4**	165	474/521
2.8	615	3530	**F**	**77R37**	**DRN**	**80MK4**	160	473/521
3.2	538	3530	**FF**	**77R37**	**DRN**	**80MK4**	183	474/521
			FA	**77R37**	**DRN**	**80M4**	160	476/521
3.6	480	3530	**FAF**	**77R37**	**DRN**	**80M4**	175	474/521
4.2	413	3530	**F**	**77R37**	**DRN**	**80M4**	170	473/521
			FF	**77R37**	**DRN**	**80M4**	195	474/521
			FA	**77R37**	**DRN**	**90S4**	175	476/521
4.8	367	3530	**FAF**	**77R37**	**DRN**	**90S4**	190	474/521
5.5	323	3530	**F**	**77R37**	**DRN**	**90S4**	185	473/521
6.3	280	3530	**FF**	**77R37**	**DRN**	**90S4**	205	474/521
			FA	**77R37**	**DRN**	**90L4**	180	476/521
7.2	247	3530	**FAF**	**77R37**	**DRN**	**90L4**	195	474/521
8.0	221	3530	**F**	**77R37**	**DRN**	**90L4**	190	473/521
			FF	**77R37**	**DRN**	**90L4**	215	474/521
			FA	**77R37**	**DRN**	**100LM4**	205	476/521
8.9	199	3530	**FAF**	**77R37**	**DRN**	**100LM4**	220	474/521
			F	**77R37**	**DRN**	**100LM4**	215	473/521
			FF	**77R37**	**DRN**	**100LM4**	240	474/521

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$T_{a\ max}$ = 26500 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.07	23042	4450						
0.08	20462	4450						
0.09	18238	4450						
0.11	15877	4450						
0.12	14099	4450	**FA**	**87R57**	**DRN**	**63MS4**	260	484/521
0.14	12205	4450	**FAF**	**87R57**	**DRN**	**63MS4**	290	482/521
0.16	10433	4450	**F**	**87R57**	**DRN**	**63MS4**	275	481/521
0.18	9381	4450	**FF**	**87R57**	**DRN**	**63MS4**	305	482/521
0.21	8142	4450						
0.24	7100	4450						
0.27	6273	4450						
0.31	5510	4450						
0.34	4954	4450	**FA**	**87R57**	**DRN**	**63M4**	265	484/521
0.34	4952	4450	**FAF**	**87R57**	**DRN**	**63M4**	285	482/521
0.37	4562	4450	**F**	**87R57**	**DRN**	**63M4**	275	481/521
0.40	4245	4450	**FF**	**87R57**	**DRN**	**63M4**	310	482/521
0.43	3919	4450						
0.46	3721	4450						
0.49	3503	4450	**FA**	**87R57**	**DRN**	**71MS4**	255	484/521
0.53	3244	4450	**FAF**	**87R57**	**DRN**	**71MS4**	285	482/521
0.54	3196	4450	**F**	**87R57**	**DRN**	**71MS4**	265	481/521
0.60	2881	4450	**FF**	**87R57**	**DRN**	**71MS4**	310	482/521
0.60	2857	4450						
0.67	2576	4450						
0.69	2524	4450						
0.79	2199	4450	**FA**	**87R57**	**DRN**	**71M4**	265	484/521
0.81	2134	4450	**FAF**	**87R57**	**DRN**	**71M4**	285	482/521
0.90	1930	4450	**F**	**87R57**	**DRN**	**71M4**	275	481/521
0.90	1913	4450	**FF**	**87R57**	**DRN**	**71M4**	310	482/521
1.0	1709	4450						
1.0	1717	4450						
1.2	1476	4450						
1.2	1493	4450	**FA**	**87R57**	**DRN**	**80MK4**	265	484/521
1.4	1278	4450	**FAF**	**87R57**	**DRN**	**80MK4**	295	482/521
1.3	1300	4450	**F**	**87R57**	**DRN**	**80MK4**	275	481/521
1.5	1142	4450	**FF**	**87R57**	**DRN**	**80MK4**	310	482/521
1.5	1148	4450						
1.7	1010	4450	**FA**	**87R57**	**DRN**	**80M4**	275	484/521
1.8	988	4450	**FAF**	**87R57**	**DRN**	**80M4**	300	482/521
2.0	887	4450	**F**	**87R57**	**DRN**	**80M4**	285	481/521
2.0	883	4450	**FF**	**87R57**	**DRN**	**80M4**	320	482/521
2.3	780	4450						
2.4	748	4450	**FA**	**87R57**	**DRN**	**90S4**	285	484/521
2.6	674	4450	**FAF**	**87R57**	**DRN**	**90S4**	315	482/521
2.7	662	4450	**F**	**87R57**	**DRN**	**90S4**	300	481/521
2.9	609	4450	**FF**	**87R57**	**DRN**	**90S4**	335	482/521
3.0	592	4450						
3.4	519	4450	**FA**	**87R57**	**DRN**	**90L4**	300	484/521
3.4	515	4450	**FAF**	**87R57**	**DRN**	**90L4**	325	482/521
3.8	468	4450	**F**	**87R57**	**DRN**	**90L4**	310	481/521
3.9	452	4450	**FF**	**87R57**	**DRN**	**90L4**	345	482/521
4.4	398	4450						
5.0	350	4450	**FA**	**87R57**	**DRN**	**100LM4**	320	484/521
5.1	345	4450	**FAF**	**87R57**	**DRN**	**100LM4**	350	482/521
5.6	315	4450	**F**	**87R57**	**DRN**	**100LM4**	335	481/521
5.9	300	4450	**FF**	**87R57**	**DRN**	**100LM4**	370	482/521
6.3	281	4450						
7.3	240	4450	**FA**	**87R57**	**DRN**	**100L4**	320	484/521
8.3	211	4450	**FAF**	**87R57**	**DRN**	**100L4**	350	482/521
9.1	193	4450	**F**	**87R57**	**DRN**	**100L4**	335	481/521
7.1	249	4450	**FF**	**87R57**	**DRN**	**100L4**	370	482/521

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$T_{a\ max}$ = 38000 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.06	29211	6720						
0.06	26911	6720						
0.07	23814	6720						
0.08	20813	6720						
0.09	18119	6720	**FA**	**97R57**	**DRN**	**63MS4**	405	492/521
0.11	15472	6720	**FAF**	**97R57**	**DRN**	**63MS4**	455	490/521
0.12	14022	6720	**F**	**97R57**	**DRN**	**63MS4**	420	489/521
0.14	12324	6720	**FF**	**97R57**	**DRN**	**63MS4**	495	490/521
0.16	10838	6720						
0.18	9576	6720						
0.20	8318	6720						
0.23	7328	6720						
0.26	6469	6720	**FA**	**97R57**	**DRN**	**63M4**	395	492/521
0.27	6338	6720	**FAF**	**97R57**	**DRN**	**63M4**	440	490/521
0.30	5615	6720	**F**	**97R57**	**DRN**	**63M4**	405	489/521
0.30	5680	6720	**FF**	**97R57**	**DRN**	**63M4**	485	490/521
0.35	4961	6720						
0.34	5016	6720	**FA**	**97R57**	**DRN**	**71MS4**	405	492/521
0.40	4333	6720	**FAF**	**97R57**	**DRN**	**71MS4**	450	490/521
0.39	4367	6720	**F**	**97R57**	**DRN**	**71MS4**	420	489/521
0.44	3914	6720	**FF**	**97R57**	**DRN**	**71MS4**	495	490/521
0.44	3906	6720						
0.52	3357	6720						
0.52	3352	6720	**FA**	**97R57**	**DRN**	**71M4**	405	492/521
0.57	3009	6720	**FAF**	**97R57**	**DRN**	**71M4**	450	490/521
0.60	2907	6720	**F**	**97R57**	**DRN**	**71M4**	430	489/521
0.68	2553	6720	**FF**	**97R57**	**DRN**	**71M4**	495	490/521
0.71	2448	6720						
0.79	2199	6720						
0.78	2245	6720						
0.89	1971	6720	**FA**	**97R57**	**DRN**	**80MK4**	410	492/521
0.89	1970	6720	**FAF**	**97R57**	**DRN**	**80MK4**	460	490/521
1.0	1741	6720	**F**	**97R57**	**DRN**	**80MK4**	425	489/521
1.0	1722	6720	**FF**	**97R57**	**DRN**	**80MK4**	500	490/521
1.1	1527	6720						
1.2	1468	6720						
1.3	1327	6720	**FA**	**97R57**	**DRN**	**80M4**	410	492/521
1.3	1316	6720	**FAF**	**97R57**	**DRN**	**80M4**	460	490/521
1.5	1171	6720	**F**	**97R57**	**DRN**	**80M4**	425	489/521
1.5	1189	6720	**FF**	**97R57**	**DRN**	**80M4**	500	490/521
1.7	1023	6720						
1.7	1022	6720	**FA**	**97R57**	**DRN**	**90S4**	435	492/521
2.0	892	6720	**FAF**	**97R57**	**DRN**	**90S4**	485	490/521
2.0	898	6720	**F**	**97R57**	**DRN**	**90S4**	450	489/521
2.2	784	6720	**FF**	**97R57**	**DRN**	**90S4**	520	490/521
2.3	760	6720						
			FA	**97R57**	**DRN**	**90L4**	440	492/521
2.6	690	6720	**FAF**	**97R57**	**DRN**	**90L4**	490	490/521
2.6	667	6720	**F**	**97R57**	**DRN**	**90L4**	460	489/521
2.9	605	6720	**FF**	**97R57**	**DRN**	**90L4**	530	490/521
3.1	569	6720						
3.3	529	6720						
3.5	510	6720	**FA**	**97R57**	**DRN**	**100LM4**	465	492/521
3.7	473	6720	**FAF**	**97R57**	**DRN**	**100LM4**	510	490/521
3.8	467	6720	**F**	**97R57**	**DRN**	**100LM4**	485	489/521
4.4	403	6720	**FF**	**97R57**	**DRN**	**100LM4**	560	490/521
4.4	406	6720						
4.8	363	6720						
4.9	361	6720						
5.6	317	6720	**FA**	**97R57**	**DRN**	**100L4**	465	492/521
6.2	285	6720	**FAF**	**97R57**	**DRN**	**100L4**	510	490/521
6.4	275	6720	**F**	**97R57**	**DRN**	**100L4**	485	489/521
7.2	245	6720	**FF**	**97R57**	**DRN**	**100L4**	560	490/521
7.3	242	6720						

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$T_{a\ max}$ = 38000 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb						m lbs	
			FA	**97R57**	**DRN**	**132S4**		510	492/521
8.5	208	6720	**FAF**	**97R57**	**DRN**	**132S4**		560	490/521
9.1	195	6720	**F**	**97R57**	**DRN**	**132S4**		530	489/521
			FF	**97R57**	**DRN**	**132S4**		600	490/521

$T_{a\ max}$ = 67900 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb						m lbs	
0.07	25375	11200							
0.08	21652	11200	**FA**	**107R77**	**DRN**	**63MS4**		610	500/521
0.09	18933	11200	**FAF**	**107R77**	**DRN**	**63MS4**		650	498/521
0.10	16888	11200	**F**	**107R77**	**DRN**	**63MS4**		640	497/521
0.11	14767	11200	**FF**	**107R77**	**DRN**	**63MS4**		700	498/521
			FA	**107R77**	**DRN**	**63M4**		610	500/521
0.15	11348	11200	**FAF**	**107R77**	**DRN**	**63M4**		660	498/521
0.17	10039	11200	**F**	**107R77**	**DRN**	**63M4**		650	497/521
			FF	**107R77**	**DRN**	**63M4**		710	498/521
0.20	8548	11200	**FA**	**107R77**	**DRN**	**71MS4**		610	500/521
0.22	7674	11200	**FAF**	**107R77**	**DRN**	**71MS4**		660	498/521
0.25	6767	11200	**F**	**107R77**	**DRN**	**71MS4**		650	497/521
			FF	**107R77**	**DRN**	**71MS4**		710	498/521
0.29	5954	11200	**FA**	**107R77**	**DRN**	**71M4**		610	500/521
0.33	5223	11200	**FAF**	**107R77**	**DRN**	**71M4**		660	498/521
0.38	4567	11200	**F**	**107R77**	**DRN**	**71M4**		650	497/521
			FF	**107R77**	**DRN**	**71M4**		710	498/521
0.44	3948	11200	**FA**	**107R77**	**DRN**	**80MK4**		610	500/521
0.50	3521	11200	**FAF**	**107R77**	**DRN**	**80MK4**		660	498/521
0.57	3037	11200	**F**	**107R77**	**DRN**	**80MK4**		650	497/521
0.63	2756	11200	**FF**	**107R77**	**DRN**	**80MK4**		710	498/521
			FA	**107R77**	**DRN**	**80M4**		620	500/521
0.74	2369	11200	**FAF**	**107R77**	**DRN**	**80M4**		670	498/521
			F	**107R77**	**DRN**	**80M4**		660	497/521
			FF	**107R77**	**DRN**	**80M4**		720	498/521
0.85	2068	11200	**FA**	**107R77**	**DRN**	**90S4**		630	500/521
0.96	1826	11200	**FAF**	**107R77**	**DRN**	**90S4**		680	498/521
1.1	1597	11200	**F**	**107R77**	**DRN**	**90S4**		670	497/521
1.3	1401	11200	**FF**	**107R77**	**DRN**	**90S4**		730	498/521
			FA	**107R77**	**DRN**	**90L4**		640	500/521
1.4	1243	11200	**FAF**	**107R77**	**DRN**	**90L4**		690	498/521
1.6	1087	11200	**F**	**107R77**	**DRN**	**90L4**		680	497/521
			FF	**107R77**	**DRN**	**90L4**		740	498/521
1.9	950	11200	**FA**	**107R77**	**DRN**	**100LM4**		660	500/521
2.1	834	11200	**FAF**	**107R77**	**DRN**	**100LM4**		710	498/521
2.4	736	11200	**F**	**107R77**	**DRN**	**100LM4**		700	497/521
			FF	**107R77**	**DRN**	**100LM4**		760	498/521
2.8	640	11200	**FA**	**107R77**	**DRN**	**100L4**		660	500/521
3.1	560	11200	**FAF**	**107R77**	**DRN**	**100L4**		710	498/521
3.6	489	11200	**F**	**107R77**	**DRN**	**100L4**		700	497/521
4.0	436	11200	**FF**	**107R77**	**DRN**	**100L4**		760	498/521
			FA	**107R77**	**DRN**	**132S4**		710	500/521
4.8	370	11200	**FAF**	**107R77**	**DRN**	**132S4**		760	498/521
5.3	333	11200	**F**	**107R77**	**DRN**	**132S4**		750	497/521
6.1	291	11200	**FF**	**107R77**	**DRN**	**132S4**		810	498/521
			FA	**107R77**	**DRN**	**132M4**		750	500/521
7.0	255	11200	**FAF**	**107R77**	**DRN**	**132M4**		800	498/521
7.9	225	11200	**F**	**107R77**	**DRN**	**132M4**		790	497/521
			FF	**107R77**	**DRN**	**132M4**		850	498/521
			FA	**107R77**	**DRN**	**132L4**		770	500/521
9.3	190	11200	**FAF**	**107R77**	**DRN**	**132L4**		810	498/521
			F	**107R77**	**DRN**	**132L4**		800	497/521
			FF	**107R77**	**DRN**	**132L4**		870	498/521

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$T_{a\ max}$ = 69300 lb-in

n_a rpm	i ratio	F_{Ra}[1] lb					m lbs	
			FA	107R77	DRN	71M4	590	500/521
0.32	5383	11100	FAF	107R77	DRN	71M4	640	498/521
0.37	4593	11100	F	107R77	DRN	71M4	630	497/521
			FF	107R77	DRN	71M4	690	498/521
0.42	4016	11100	FA	107R77	DRN	80MK4	595	500/521
0.44	3815	11100	FAF	107R77	DRN	80MK4	645	498/521
0.50	3347	11100	F	107R77	DRN	80MK4	635	497/521
0.60	2839	11100	FF	107R77	DRN	80MK4	695	498/521
			FA	107R77	DRN	80M4	600	500/521
0.68	2563	11100	FAF	107R77	DRN	80M4	650	498/521
0.78	2255	11100	F	107R77	DRN	80M4	640	497/521
			FF	107R77	DRN	80M4	700	498/521
0.83	2129	11100	FA	107R77	DRN	90S4	610	500/521
0.97	1813	11100	FAF	107R77	DRN	90S4	660	498/521
1.1	1590	11100	F	107R77	DRN	90S4	650	497/521
1.2	1436	11100	FF	107R77	DRN	90S4	710	498/521
			FA	107R77	DRN	90L4	620	500/521
1.4	1263	11100	FAF	107R77	DRN	90L4	670	498/521
1.5	1193	11100	F	107R77	DRN	90L4	660	497/521
			FF	107R77	DRN	90L4	720	498/521
1.7	1015	11100	FA	107R77	DRN	100LM4	650	500/521
1.9	923	11100	FAF	107R77	DRN	100LM4	690	498/521
2.2	800	11100	F	107R77	DRN	100LM4	680	497/521
			FF	107R77	DRN	100LM4	740	498/521
2.5	696	11100						
2.7	644	11100	FA	107R77	DRN	100L4	640	500/521
3.0	591	11100	FAF	107R77	DRN	100L4	690	498/521
3.4	518	11100	F	107R77	DRN	100L4	680	497/521
3.6	491	11100	FF	107R77	DRN	100L4	740	498/521
4.1	430	11100						
			FA	107R77	DRN	112M4	660	500/521
4.6	387	11100	FAF	107R77	DRN	112M4	710	498/521
			F	107R77	DRN	112M4	700	497/521
			FF	107R77	DRN	112M4	760	498/521
			FA	107R77	DRN	132S4	690	500/521
5.2	340	11100	FAF	107R77	DRN	132S4	730	498/521
5.9	300	11100	F	107R77	DRN	132S4	720	497/521
			FF	107R77	DRN	132S4	790	498/521
			FA	107R77	DRN	132M4	730	500/521
6.7	266	11100	FAF	107R77	DRN	132M4	770	498/521
			F	107R77	DRN	132M4	760	497/521
			FF	107R77	DRN	132M4	820	498/521

$T_{a\ max}$ = 106100 lb-in

n_a rpm	i ratio	F_{Ra}[1] lb					m lbs	
			FA	127R77	DRN	63MS4	940	508/521
0.07	24478	20200	FAF	127R77	DRN	63MS4	1020	506/521
			F	127R77	DRN	63MS4	1020	505/521
			FF	127R77	DRN	63MS4	1120	506/521
0.08	22323	20200	FA	127R77	DRN	63M4	940	508/521
0.09	19048	20200	FAF	127R77	DRN	63M4	1020	506/521
0.10	16656	20200	F	127R77	DRN	63M4	1020	505/521
0.12	14722	20200	FF	127R77	DRN	63M4	1120	506/521
			FA	127R77	DRN	71MS4	940	508/521
0.13	12912	20200	FAF	127R77	DRN	71MS4	1030	506/521
0.15	11656	20200	F	127R77	DRN	71MS4	1020	505/521
			FF	127R77	DRN	71MS4	1120	506/521
0.17	10191	20200	FA	127R77	DRN	71M4	940	508/521
0.19	8831	20200	FAF	127R77	DRN	71M4	1030	506/521
0.22	7643	20200	F	127R77	DRN	71M4	1020	505/521
0.25	6715	20200	FF	127R77	DRN	71M4	1120	506/521

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$T_{a\ max}$ = 106100 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.29	5925	20200	**FA**	**127R77**	**DRN**	**80MK4**	950	508/521
0.33	5153	20200	**FAF**	**127R77**	**DRN**	**80MK4**	1030	506/521
0.37	4533	20200	**F**	**127R77**	**DRN**	**80MK4**	1030	505/521
			FF	**127R77**	**DRN**	**80MK4**	1130	506/521
			FA	**127R77**	**DRN**	**80M4**	960	508/521
0.45	3926	20200	**FAF**	**127R77**	**DRN**	**80M4**	1040	506/521
0.51	3454	20200	**F**	**127R77**	**DRN**	**80M4**	1040	505/521
			FF	**127R77**	**DRN**	**80M4**	1140	506/521
			FA	**127R77**	**DRN**	**90S4**	970	508/521
0.58	3031	20200	**FAF**	**127R77**	**DRN**	**90S4**	1050	506/521
			F	**127R77**	**DRN**	**90S4**	1050	505/521
			FF	**127R77**	**DRN**	**90S4**	1150	506/521
			FA	**127R77**	**DRN**	**90S4**	970	508/521
0.66	2672	20200	**FAF**	**127R77**	**DRN**	**90S4**	1050	506/521
0.75	2357	20200	**F**	**127R77**	**DRN**	**90S4**	1050	505/521
			FF	**127R77**	**DRN**	**90S4**	1140	506/521
			FA	**127R77**	**DRN**	**90L4**	970	508/521
0.87	2038	20200	**FAF**	**127R77**	**DRN**	**90L4**	1060	506/521
0.99	1784	20200	**F**	**127R77**	**DRN**	**90L4**	1050	505/521
			FF	**127R77**	**DRN**	**90L4**	1150	506/521
1.1	1606	20200	**FA**	**127R77**	**DRN**	**100LM4**	1000	508/521
1.3	1390	20200	**FAF**	**127R77**	**DRN**	**100LM4**	1080	506/521
1.4	1220	20200	**F**	**127R77**	**DRN**	**100LM4**	1080	505/521
1.6	1077	20200	**FF**	**127R77**	**DRN**	**100LM4**	1180	506/521
1.9	930	20200	**FA**	**127R77**	**DRN**	**100L4**	1000	508/521
2.1	820	20200	**FAF**	**127R77**	**DRN**	**100L4**	1080	506/521
2.4	727	20200	**F**	**127R77**	**DRN**	**100L4**	1080	505/521
2.7	648	20200	**FF**	**127R77**	**DRN**	**100L4**	1180	506/521
			FA	**127R77**	**DRN**	**132S4**	1040	508/521
3.2	549	20200	**FAF**	**127R77**	**DRN**	**132S4**	1130	506/521
3.6	495	20200	**F**	**127R77**	**DRN**	**132S4**	1120	505/521
4.1	428	20200	**FF**	**127R77**	**DRN**	**132S4**	1220	506/521
			FA	**127R77**	**DRN**	**132M4**	1080	508/521
4.7	376	20200	**FAF**	**127R77**	**DRN**	**132M4**	1170	506/521
			F	**127R77**	**DRN**	**132M4**	1160	505/521
			FF	**127R77**	**DRN**	**132M4**	1260	506/521
			FA	**127R87**	**DRN**	**132S4**	1090	508/522
3.7	483	20200	**FAF**	**127R87**	**DRN**	**132S4**	1170	506/522
			F	**127R87**	**DRN**	**132S4**	1170	505/522
			FF	**127R87**	**DRN**	**132S4**	1270	506/522
			FA	**127R87**	**DRN**	**132M4**	1130	508/522
4.2	418	20200	**FAF**	**127R87**	**DRN**	**132M4**	1210	506/522
4.8	374	20200	**F**	**127R87**	**DRN**	**132M4**	1210	505/522
			FF	**127R87**	**DRN**	**132M4**	1310	506/522
			FA	**127R87**	**DRN**	**132L4**	1150	508/522
5.7	312	20200	**FAF**	**127R87**	**DRN**	**132L4**	1230	506/522
6.1	293	20200	**F**	**127R87**	**DRN**	**132L4**	1230	505/522
			FF	**127R87**	**DRN**	**132L4**	1330	506/522
			FA	**127R87**	**DRN**	**160M4**	1220	508/522
6.9	259	20200	**FAF**	**127R87**	**DRN**	**160M4**	1300	506/522
8.0	223	20200	**F**	**127R87**	**DRN**	**160M4**	1300	505/522
			FF	**127R87**	**DRN**	**160M4**	1400	506/522
			FA	**127R87**	**DRN**	**160L4**	1250	508/522
9.0	198	20200	**FAF**	**127R87**	**DRN**	**160L4**	1330	506/522
11	166	20200	**F**	**127R87**	**DRN**	**160L4**	1330	505/522
			FF	**127R87**	**DRN**	**160L4**	1430	506/522

$T_{a\ max}$ = 177000 lb-in

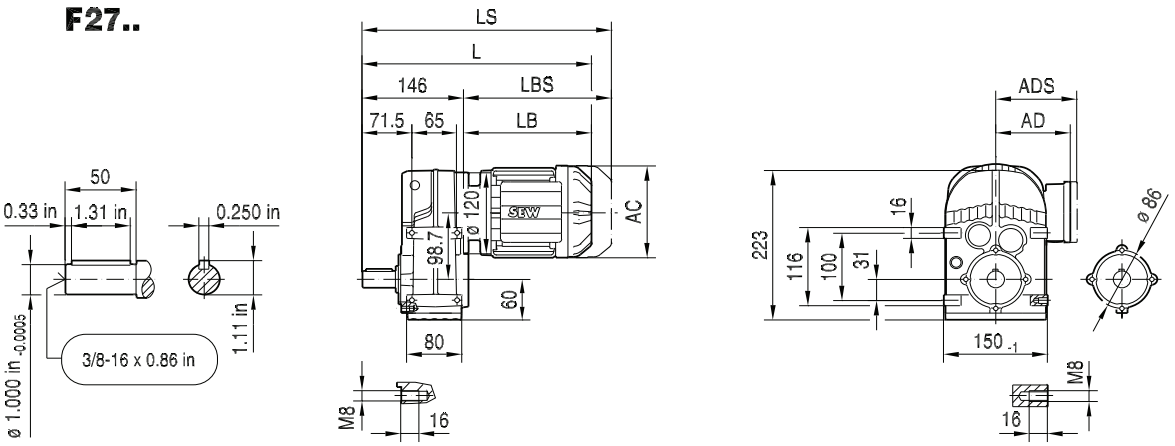
n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.05	31434	22500						
0.06	26173	22500						
0.07	23464	22500						
0.08	20212	22500	**FA**	**157R97**	**DRN**	**80MK4**	1690	516/522
0.09	17984	22500	**FAF**	**157R97**	**DRN**	**80MK4**	1820	514/522
0.10	16358	22500	**F**	**157R97**	**DRN**	**80MK4**	1740	513/522
0.12	13751	22500	**FF**	**157R97**	**DRN**	**80MK4**	1970	514/522
0.10	12235	22500						
0.24	7075	22500						
0.17	10033	22500	**FA**	**157R97**	**DRN**	**80M4**	1700	516/522
0.19	9021	22500	**FAF**	**157R97**	**DRN**	**80M4**	1830	514/522
0.22	8026	22500	**F**	**157R97**	**DRN**	**80M4**	1750	513/522
0.28	6295	22500	**FF**	**157R97**	**DRN**	**80M4**	1980	514/522
			FA	**157R97**	**DRN**	**90S4**	1710	516/522
0.33	5404	22500	**FAF**	**157R97**	**DRN**	**90S4**	1840	514/522
0.36	4831	22500	**F**	**157R97**	**DRN**	**90S4**	1760	513/522
0.43	4130	22500	**FF**	**157R97**	**DRN**	**90S4**	1990	514/522
			FA	**157R97**	**DRN**	**90L4**	1720	516/522
0.64	2780	22500	**FAF**	**157R97**	**DRN**	**90L4**	1850	514/522
			F	**157R97**	**DRN**	**90L4**	1770	513/522
			FF	**157R97**	**DRN**	**90L4**	2000	514/522
0.49	3607	22500						
0.55	3210	22500	**FA**	**157R97**	**DRN**	**100LM4**	1740	516/522
0.73	2427	22500	**FAF**	**157R97**	**DRN**	**100LM4**	1870	514/522
0.81	2185	22500	**F**	**157R97**	**DRN**	**100LM4**	1780	513/522
0.91	1944	22500	**FF**	**157R97**	**DRN**	**100LM4**	2020	514/522
1.1	1674	22500						
			FA	**157R97**	**DRN**	**100L4**	1740	516/522
1.2	1441	22500	**FAF**	**157R97**	**DRN**	**100L4**	1870	514/522
1.4	1308	22500	**F**	**157R97**	**DRN**	**100L4**	1780	513/522
1.5	1169	22500	**FF**	**157R97**	**DRN**	**100L4**	2020	514/522
			FA	**157R97**	**DRN**	**112M4**	1760	516/522
1.9	953	22500	**FAF**	**157R97**	**DRN**	**112M4**	1890	514/522
			F	**157R97**	**DRN**	**112M4**	1800	513/522
			FF	**157R97**	**DRN**	**112M4**	2040	514/522
			FA	**157R97**	**DRN**	**132S4**	1780	516/522
2.1	845	22500	**FAF**	**157R97**	**DRN**	**132S4**	1910	514/522
2.3	764	22500	**F**	**157R97**	**DRN**	**132S4**	1830	513/522
2.6	680	22500	**FF**	**157R97**	**DRN**	**132S4**	2060	514/522
			FA	**157R97**	**DRN**	**132M4**	1820	516/522
3.1	576	22500	**FAF**	**157R97**	**DRN**	**132M4**	1950	514/522
3.5	503	22500	**F**	**157R97**	**DRN**	**132M4**	1870	513/522
			FF	**157R97**	**DRN**	**132M4**	2100	514/522
			FA	**157R97**	**DRN**	**132L4**	1840	516/522
4.0	446	22500	**FAF**	**157R97**	**DRN**	**132L4**	1970	514/522
			F	**157R97**	**DRN**	**132L4**	1890	513/522
			FF	**157R97**	**DRN**	**132L4**	2120	514/522
			FA	**157R97**	**DRN**	**160M4**	1910	516/522
5.0	353	22500	**FAF**	**157R97**	**DRN**	**160M4**	2040	514/522
			F	**157R97**	**DRN**	**160M4**	1960	513/522
			FF	**157R97**	**DRN**	**160M4**	2190	514/522
			FA	**157R97**	**DRN**	**160L4**	1950	516/522
5.9	302	22500	**FAF**	**157R97**	**DRN**	**160L4**	2080	514/522
6.5	273	22500	**F**	**157R97**	**DRN**	**160L4**	1990	513/522
			FF	**157R97**	**DRN**	**160L4**	2230	514/522
			FA	**157R97**	**DRN**	**180M4**	2000	516/522
7.7	232	22500	**FAF**	**157R97**	**DRN**	**180M4**	2130	514/522
8.8	202	22500	**F**	**157R97**	**DRN**	**180M4**	2040	513/522
9.1	197	22500	**FF**	**157R97**	**DRN**	**180M4**	2280	514/522

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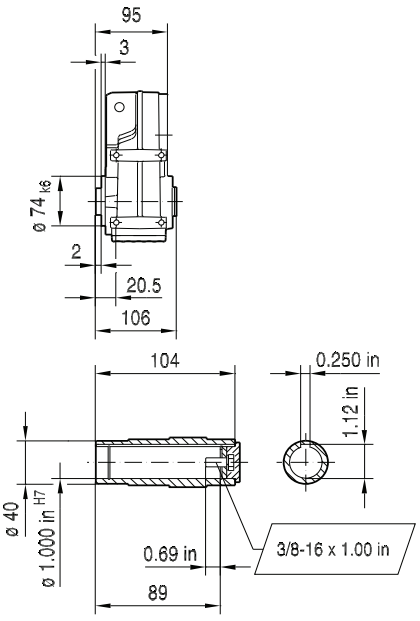
9.5 F.. DRN.. Dimensions

77 439 00 21

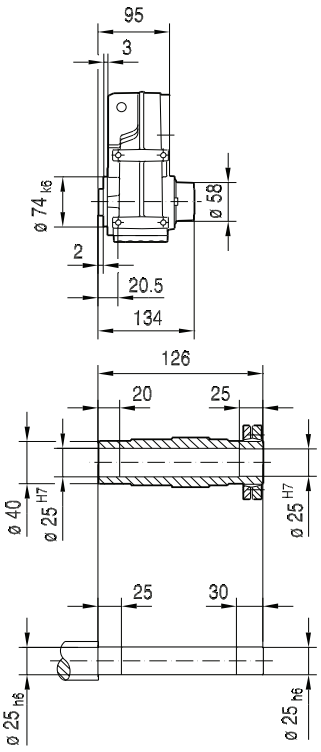
F27..



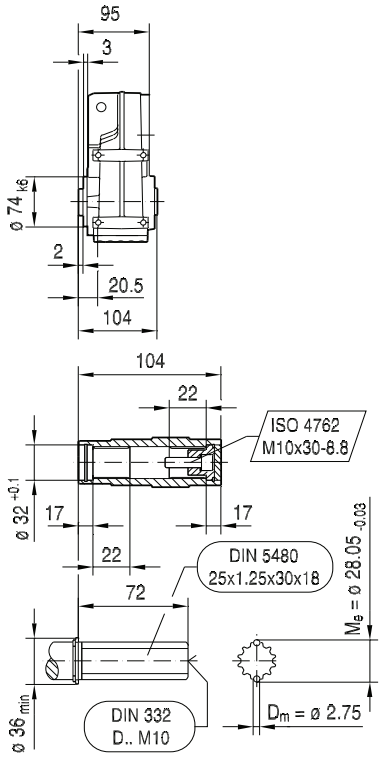
FA27B..



FH27B..
max. DRN71..



FV27B..



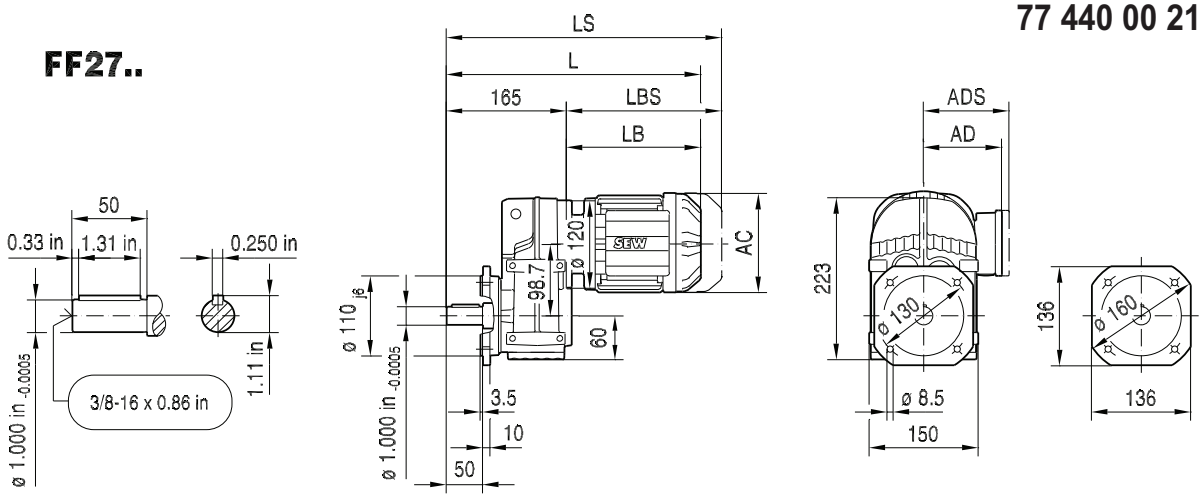
(→ 162)	DRN									
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	156	179	179	197
AD	98	98	118	118	128	128	128	140	140	157
ADS	98	98	129	129	139	139	139	150	150	158
L	336	350	352	372	383	400	428	429	461	510
LS	392	406	419	439	464	481	509	523	555	604
LB	190	204	206	226	237	254	282	283	315	364
LBS	246	260	273	293	318	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

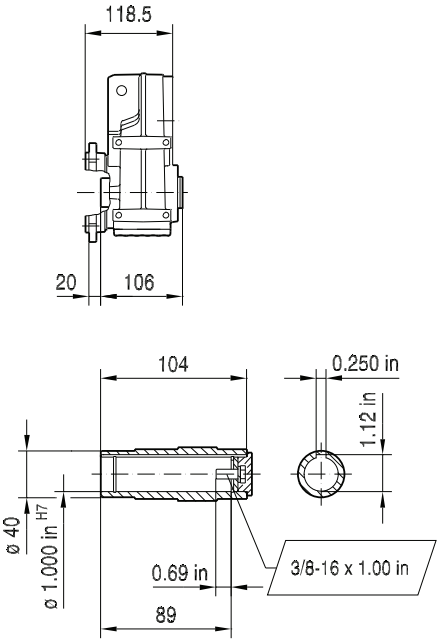
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77 440 00 21

FF27..

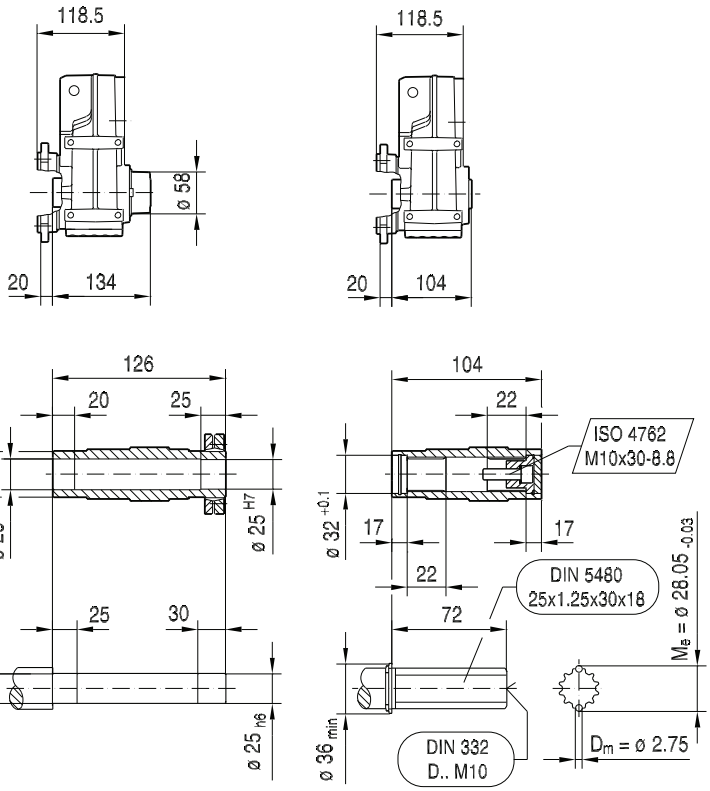


FAF27..



FHF27..

max. DRN71..



FVF27..

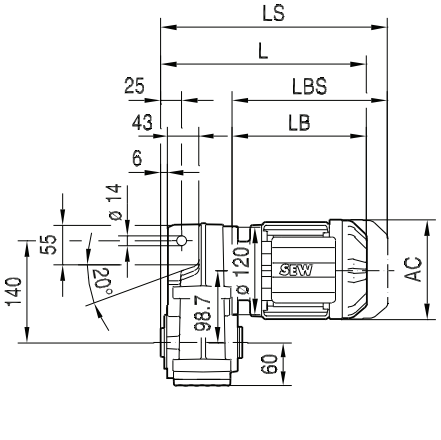
(→ 🗎 162)	DRN									
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	156	179	179	197
AD	98	98	118	118	128	128	128	140	140	157
ADS	98	98	129	129	139	139	139	150	150	158
L	355	369	371	391	402	419	447	448	480	529
LS	411	425	438	458	483	500	528	542	574	623
LB	190	204	206	226	237	254	282	283	315	364
LBS	246	260	273	293	318	335	363	377	409	458

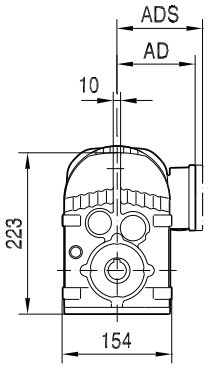
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

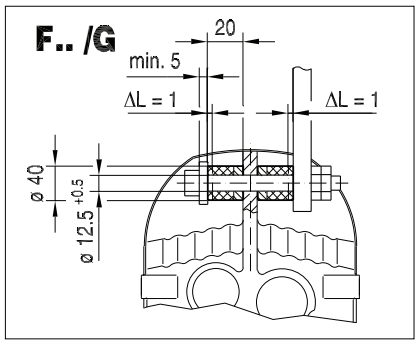
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FA27..

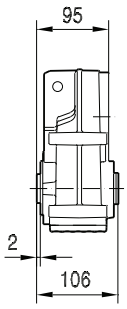
77 441 00 21

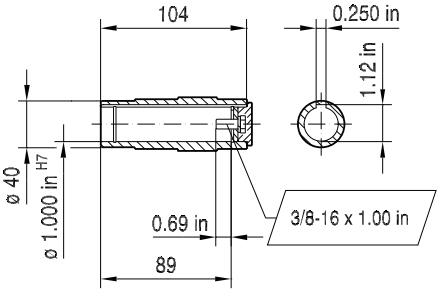






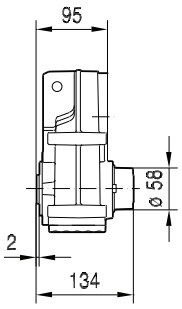
FA27..

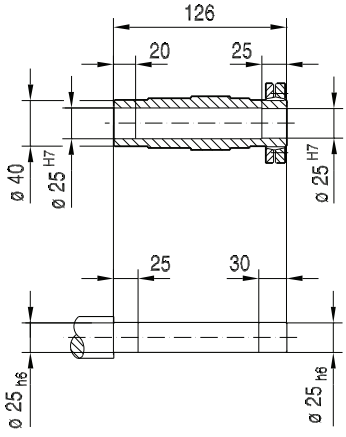




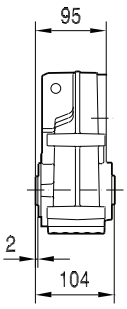
FH27..

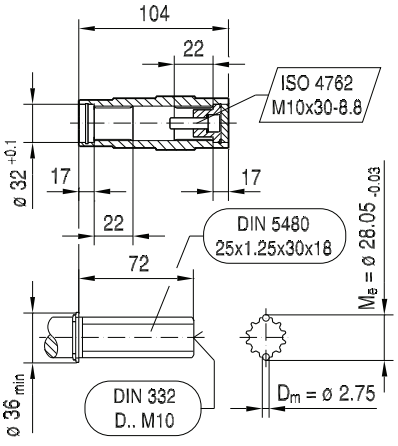
max. DRN71..





FV27..



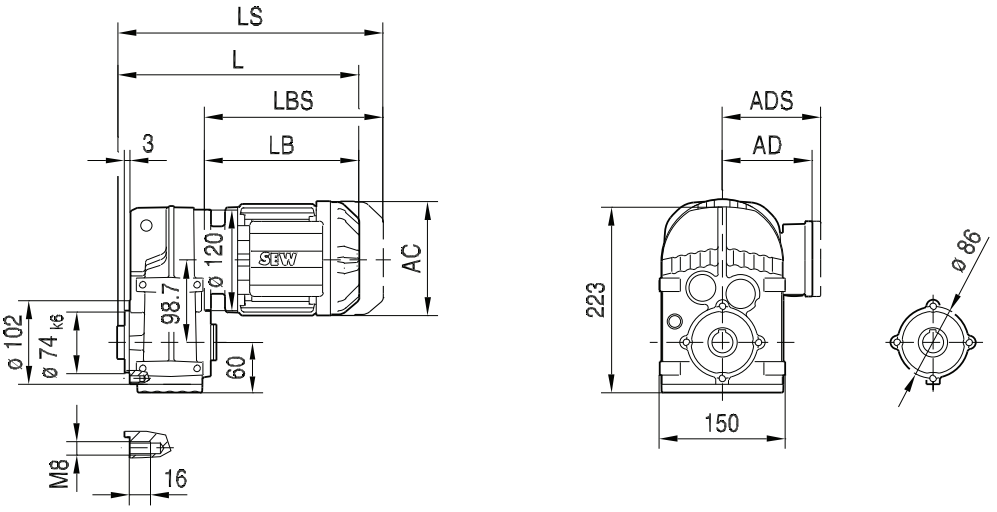


(→ 162)	DRN									
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	156	179	179	197
AD	98	98	118	118	128	128	128	140	140	157
ADS	98	98	129	129	139	139	139	150	150	158
L	285	299	301	321	332	349	377	378	410	459
LS	341	355	368	388	413	430	458	472	504	553
LB	190	204	206	226	237	254	282	283	315	364
LBS	246	260	273	293	318	335	363	377	409	458

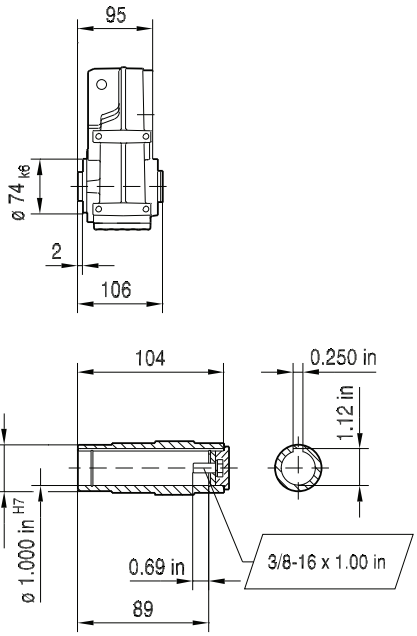
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

FAZ27..

77 442 00 21

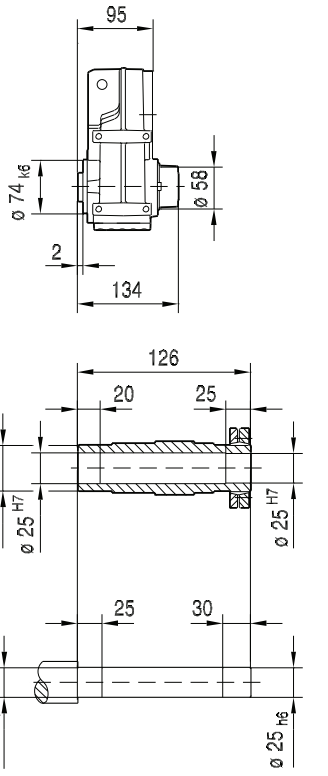


FAZ27..

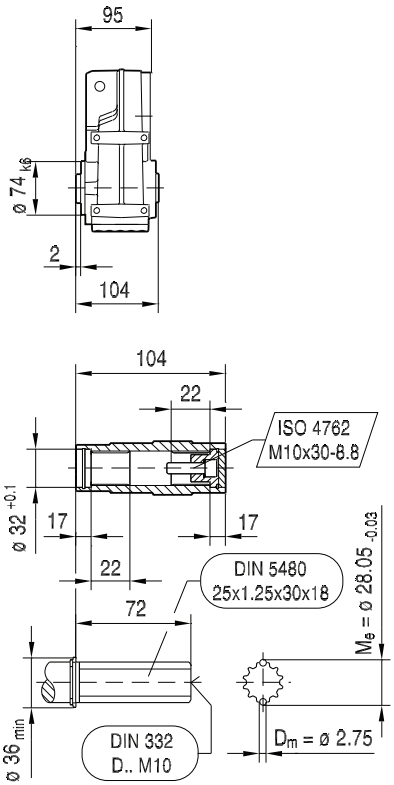


FHZ27..

max. DRN71..



FVZ27..



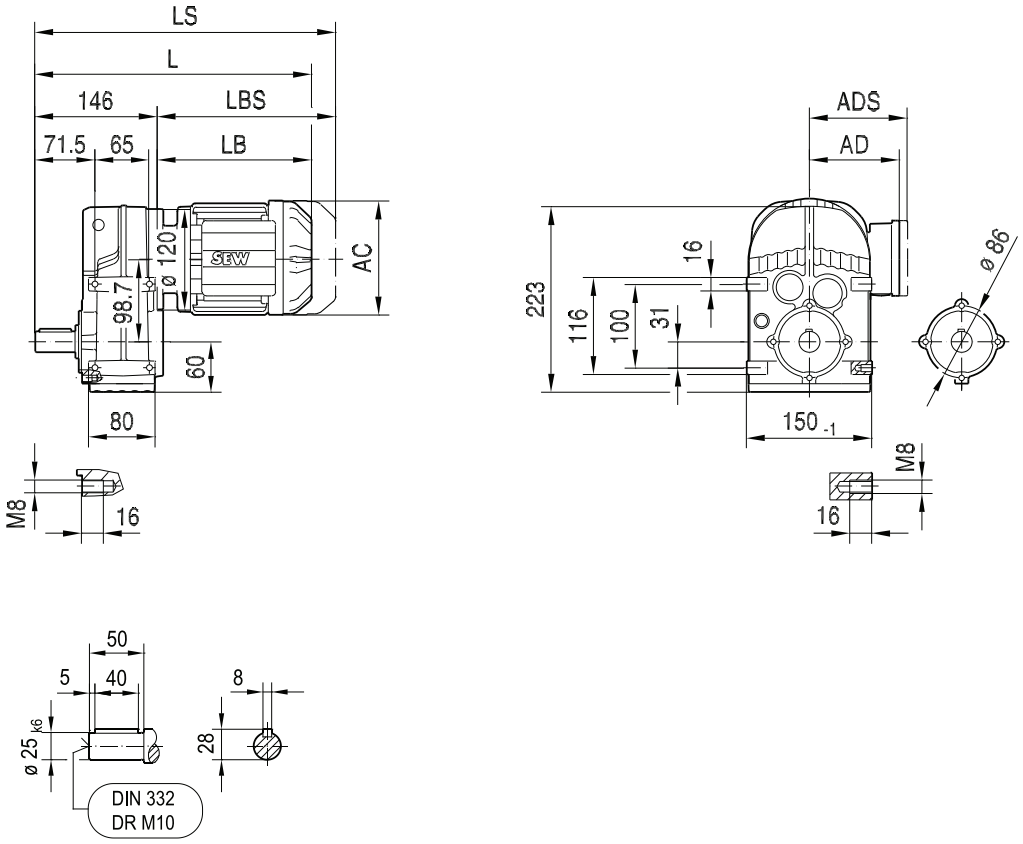
(→ 🗎 162)	DRN									
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	156	179	179	197
AD	98	98	118	118	128	128	128	140	140	157
ADS	98	98	129	129	139	139	139	150	150	158
L	285	299	301	321	332	349	377	378	410	459
LS	341	355	368	388	413	430	458	472	504	553
LB	190	204	206	226	237	254	282	283	315	364
LBS	246	260	273	293	318	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

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77 443 00 21

FZ27..



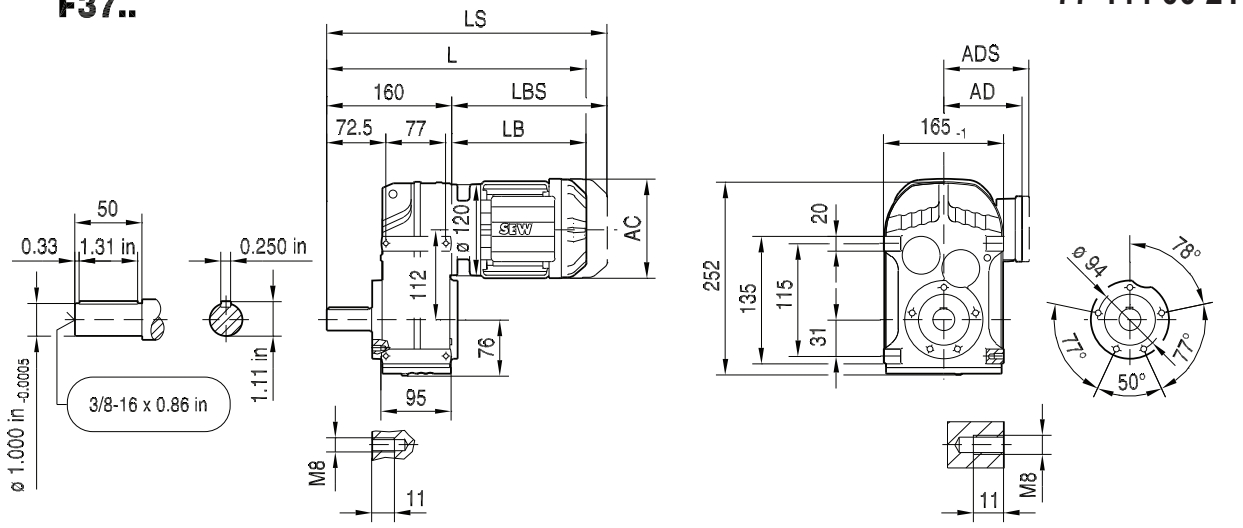
(→ 162)	DRN									
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	156	179	179	197
AD	98	98	118	118	128	128	128	140	140	157
ADS	98	98	129	129	139	139	139	150	150	158
L	336	350	352	372	383	400	428	429	461	510
LS	392	406	419	439	464	481	509	523	555	604
LB	190	204	206	226	237	254	282	283	315	364
LBS	246	260	273	293	318	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

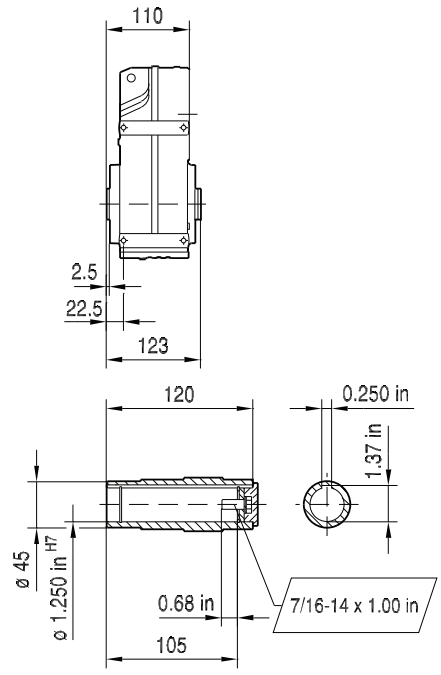
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77 444 00 21

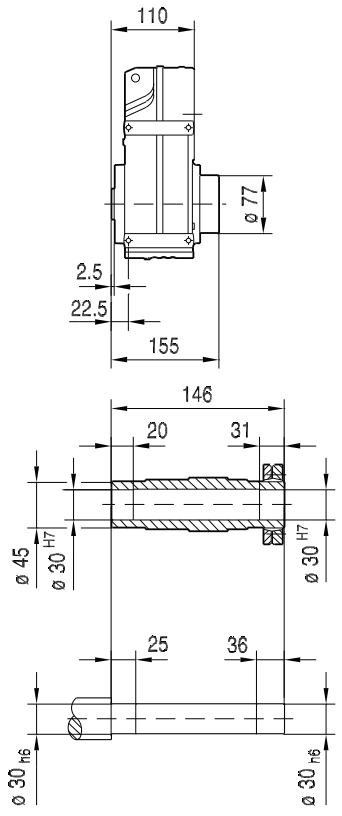
F37..



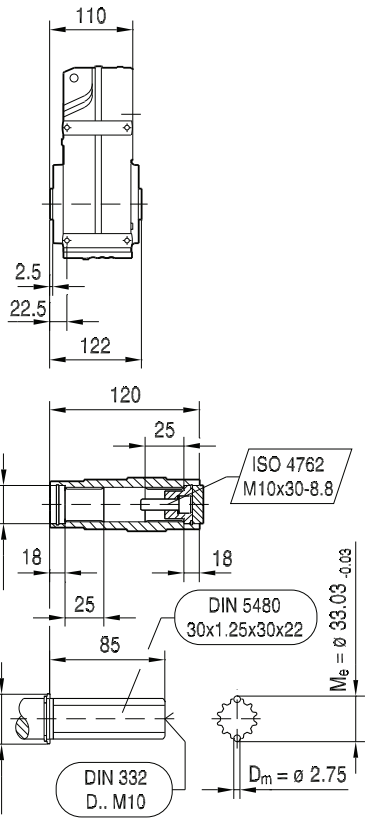
FA37B..



FH37B..



FV37B..



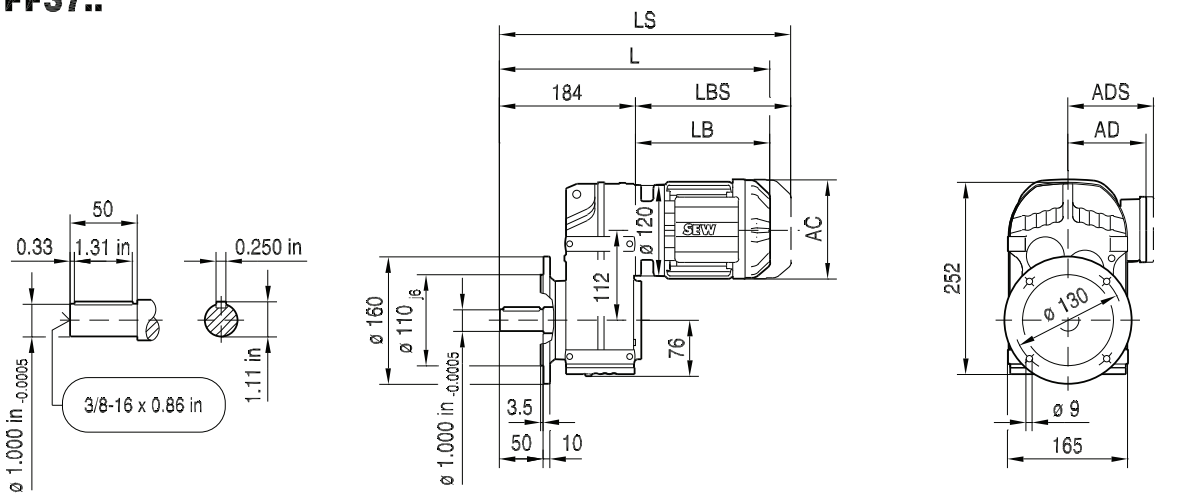
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	350	364	366	386	397	442	443	475	524
LS	406	420	433	453	478	523	537	569	618
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

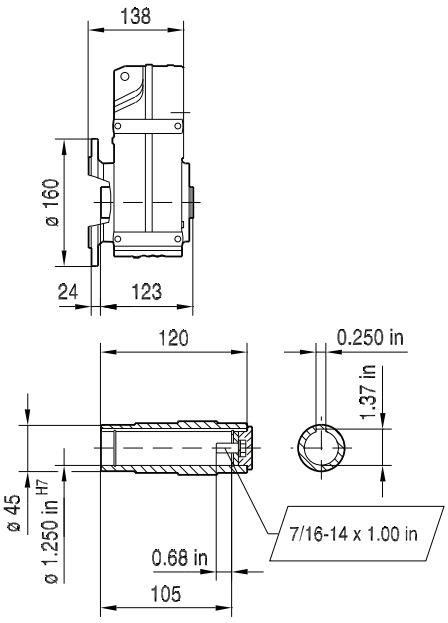
24833231/EN-US – 07/2021

FF37..

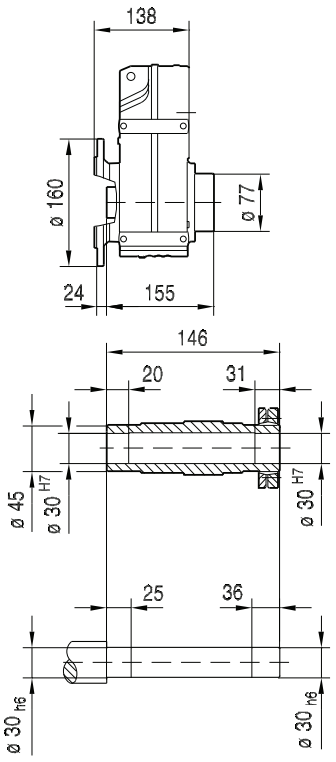
77 445 00 21



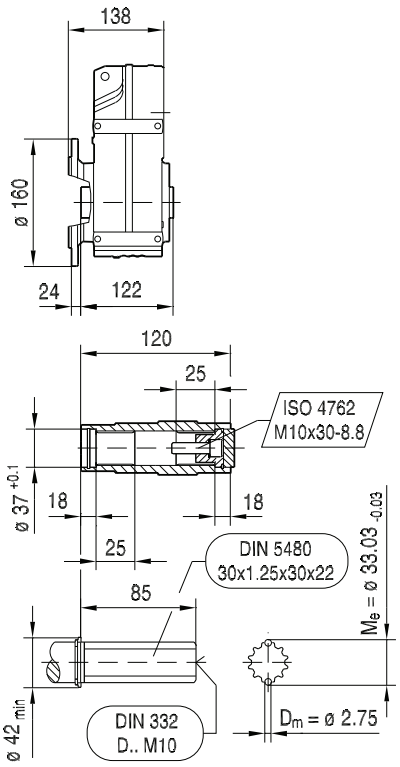
FAF37..



FHF37..



FVF37..



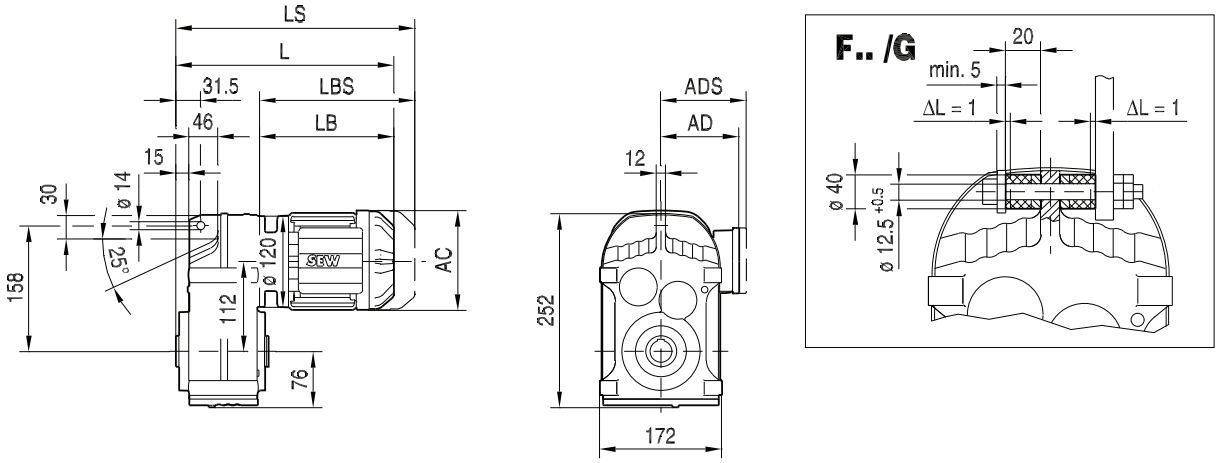
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	374	388	390	410	421	466	467	499	548
LS	430	444	457	477	502	547	561	593	642
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

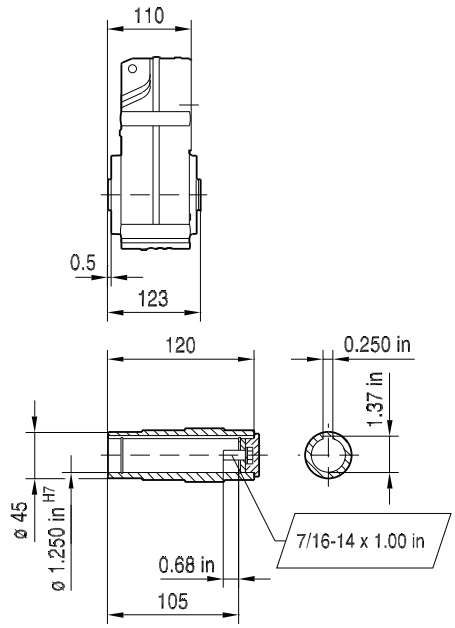
24833231/EN-US – 07/2021

FA37..

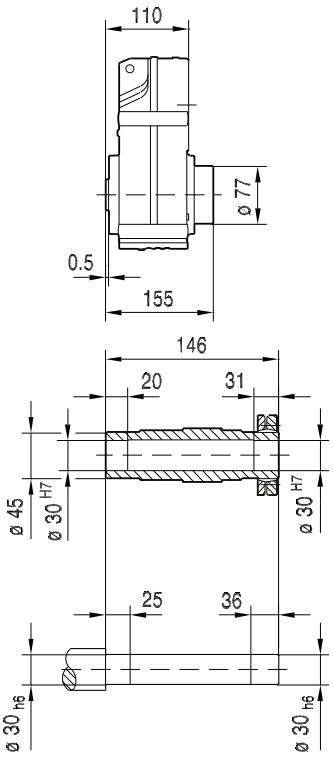
77 446 00 21



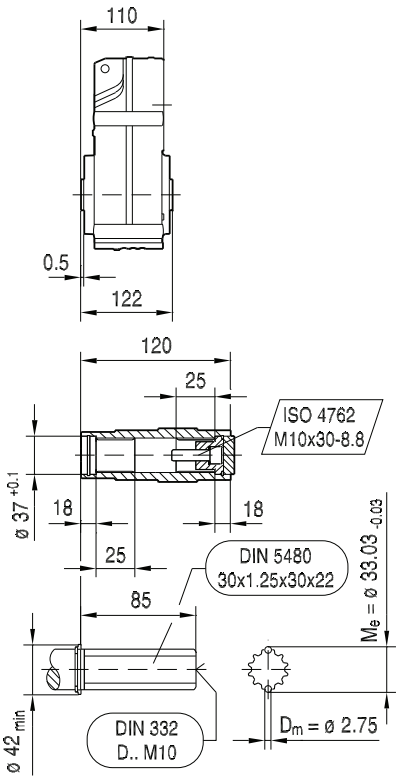
FA37..



FH37..



FV37..



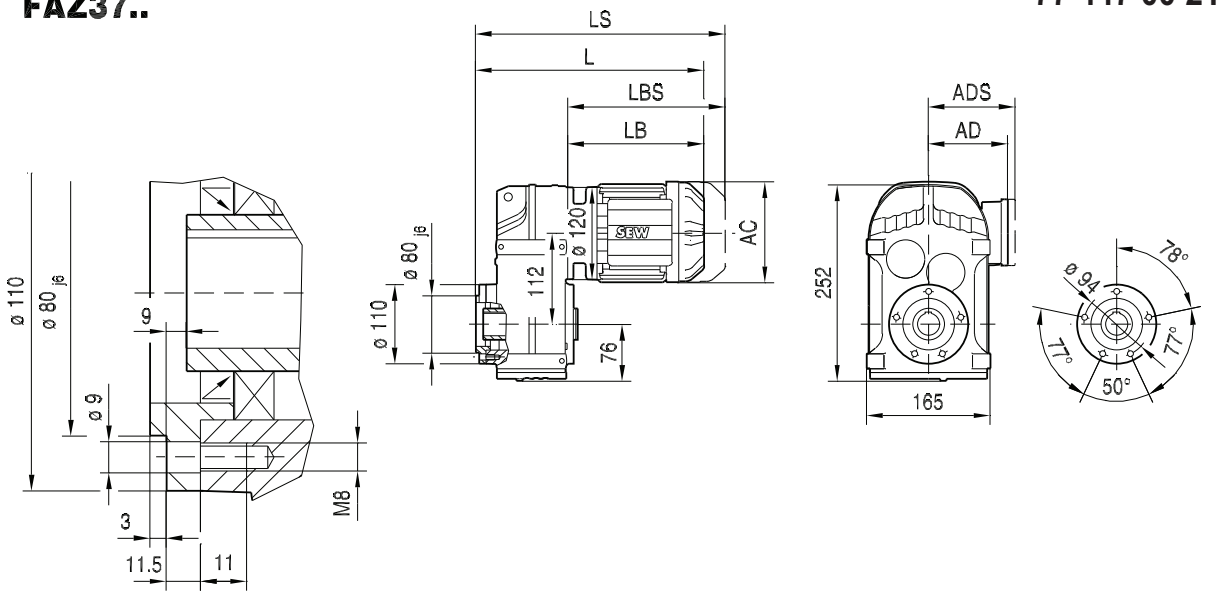
(→ 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	300	314	316	336	347	392	393	425	474
LS	356	370	383	403	428	473	487	519	568
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

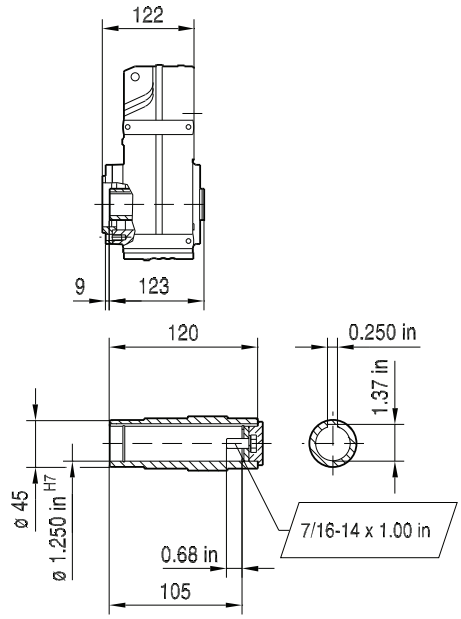
24833231/EN-US – 07/2021

FAZ37..

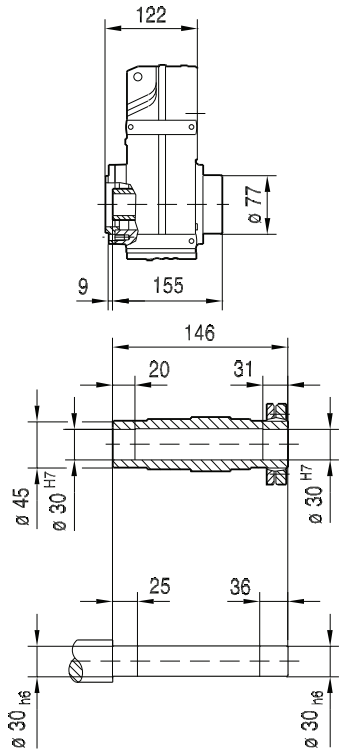
77 447 00 21



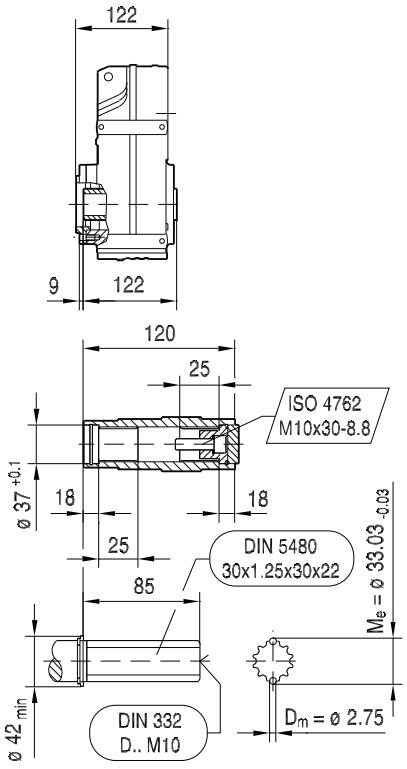
FAZ37..



FHZ37..



FVZ37..



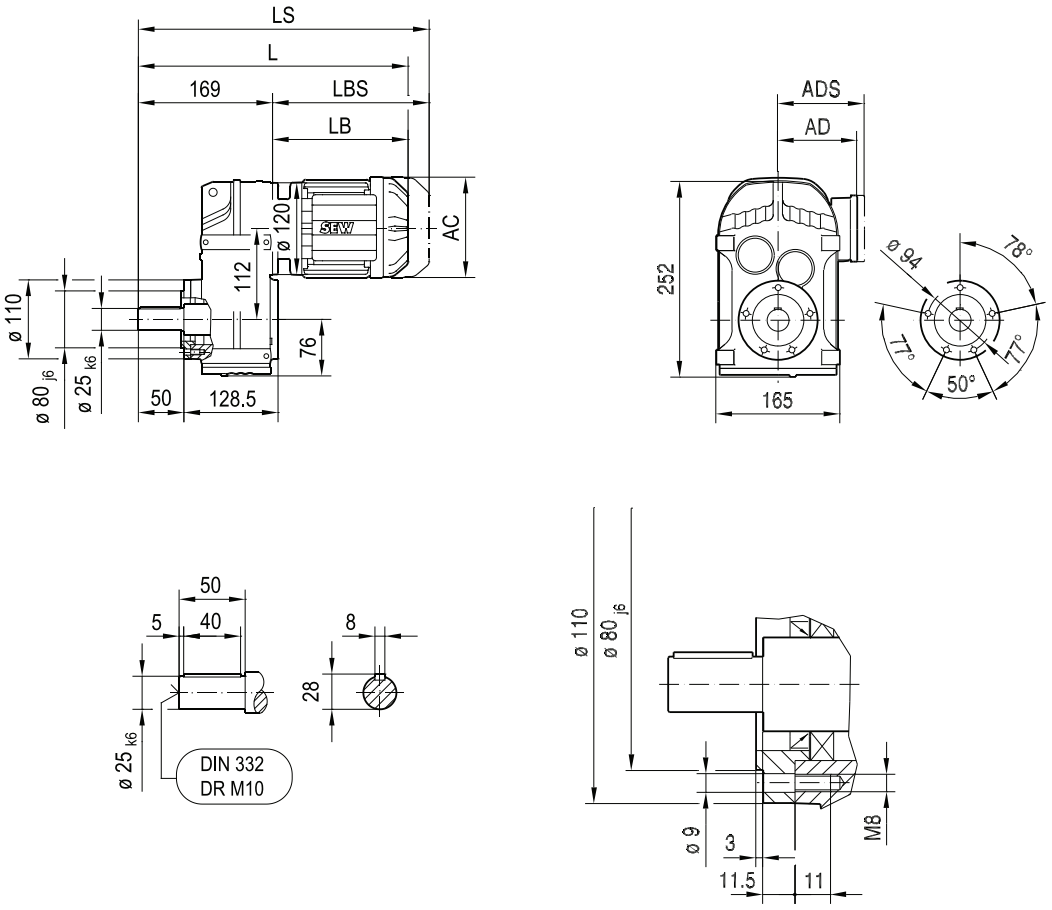
(→ 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	312	326	328	348	359	404	405	437	486
LS	368	382	395	415	440	485	499	531	580
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

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FZ37..

77 448 00 21



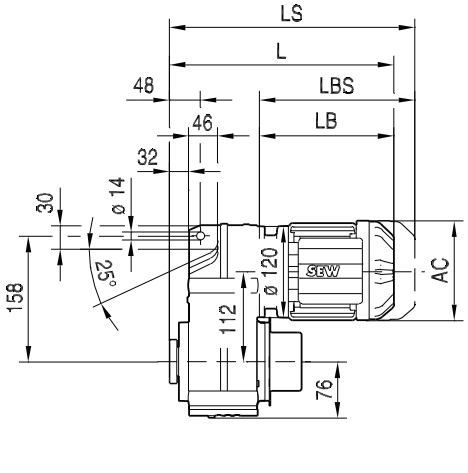
(→ 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	359	373	375	395	406	451	452	484	533
LS	415	429	442	462	487	532	546	578	627
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

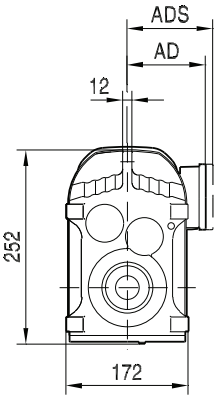
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

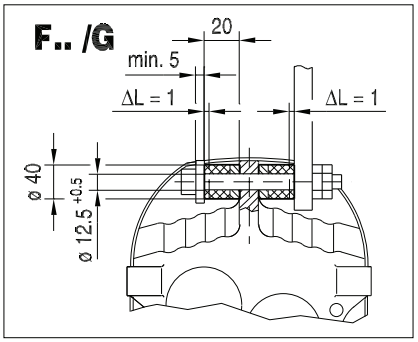
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77 450 00 21

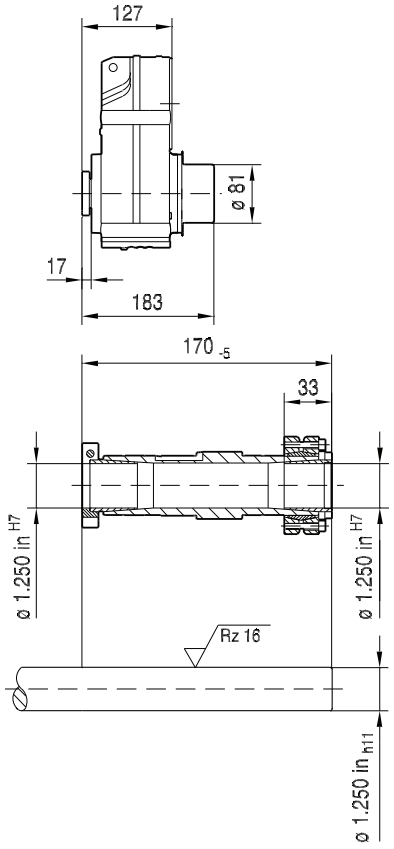
FT37..



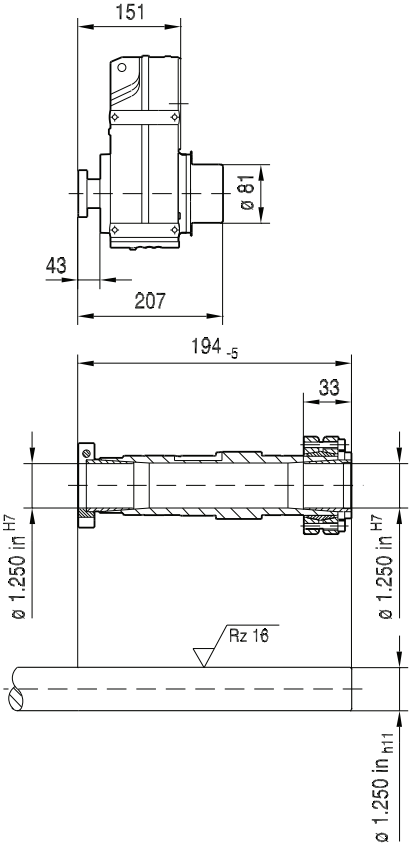




FT37..
NON-Symmetrical



FT37B..
Symmetrical



(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK[1)]	80M[1)]	90S[1)]	90L[1)]	100L/LM[1)]
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	317	331	333	353	364	409	410	442	491
LS	373	387	400	420	445	490	504	536	585
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

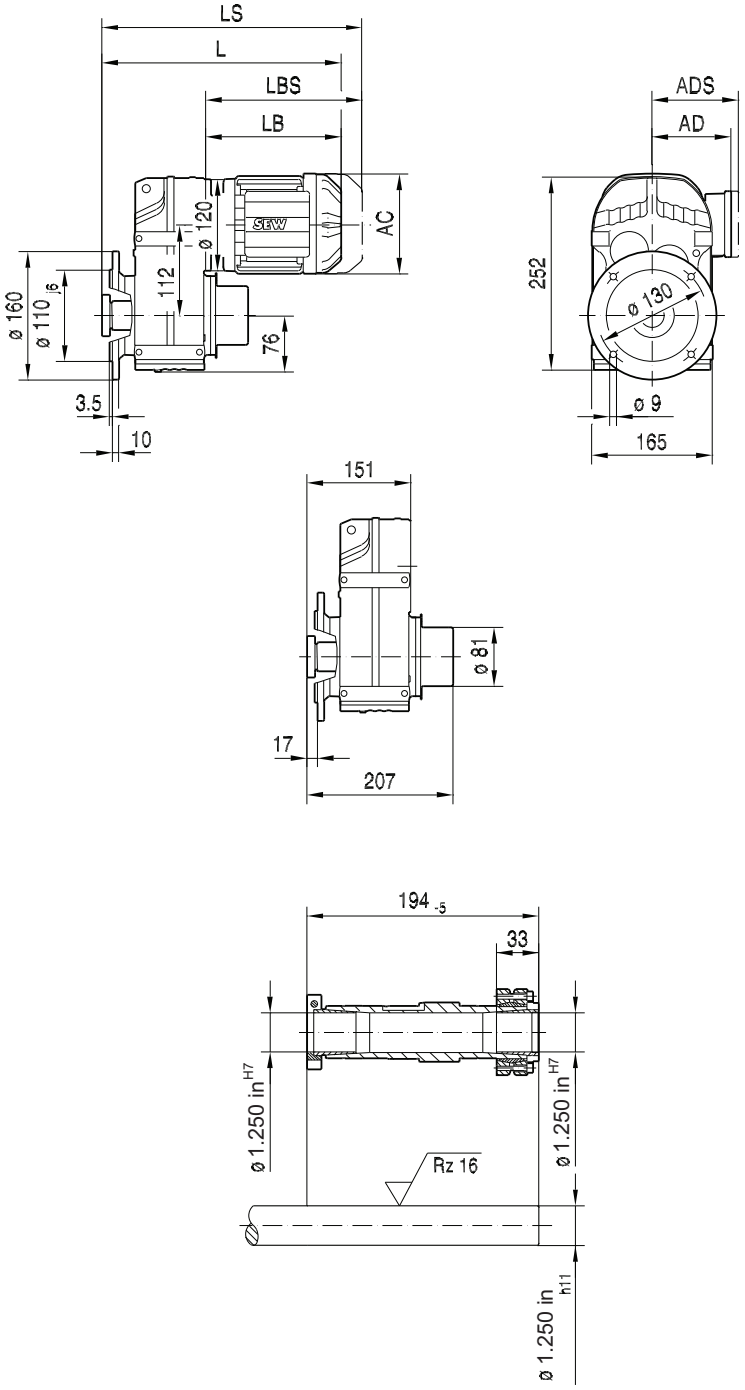
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

[1)] Combination requires a modified shaft cover. See page 141 .

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FTF37..

77 451 00 21



(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK[1)]	80M[1)]	90S[1)]	90L[1)]	100L/LM[1)]
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	341	355	357	377	388	433	434	466	515
LS	397	411	424	444	469	514	528	560	609
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

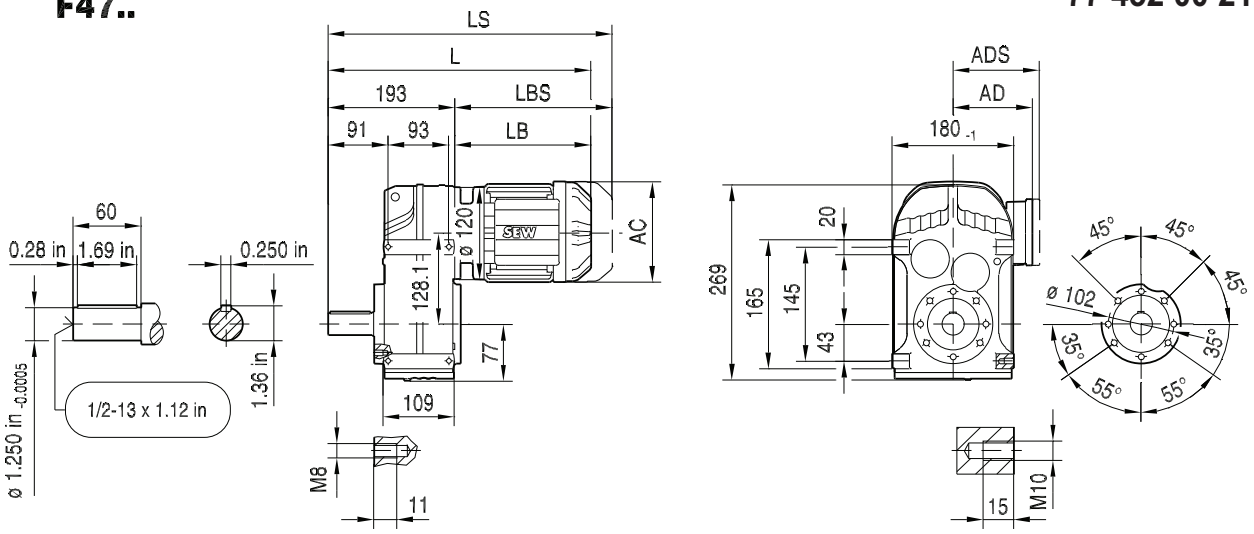
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

[1)] Combination requires a modified shaft cover. See page 141 .

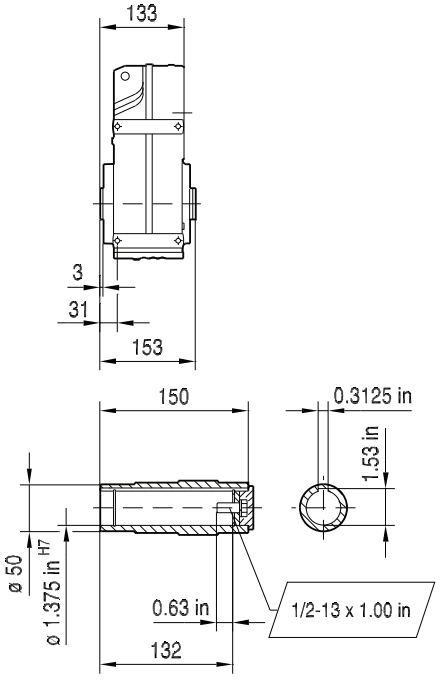
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F47..

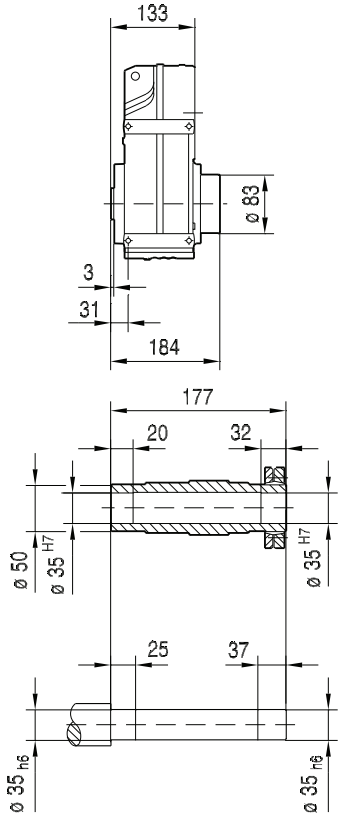
77 452 00 21



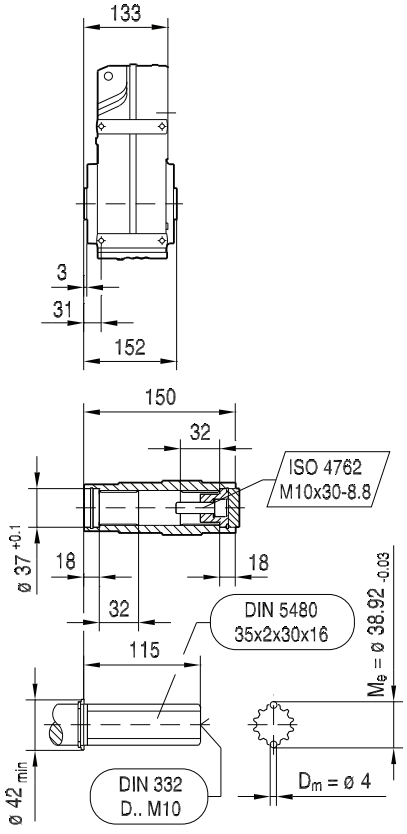
FA47B..



FH47B..



FV47B..



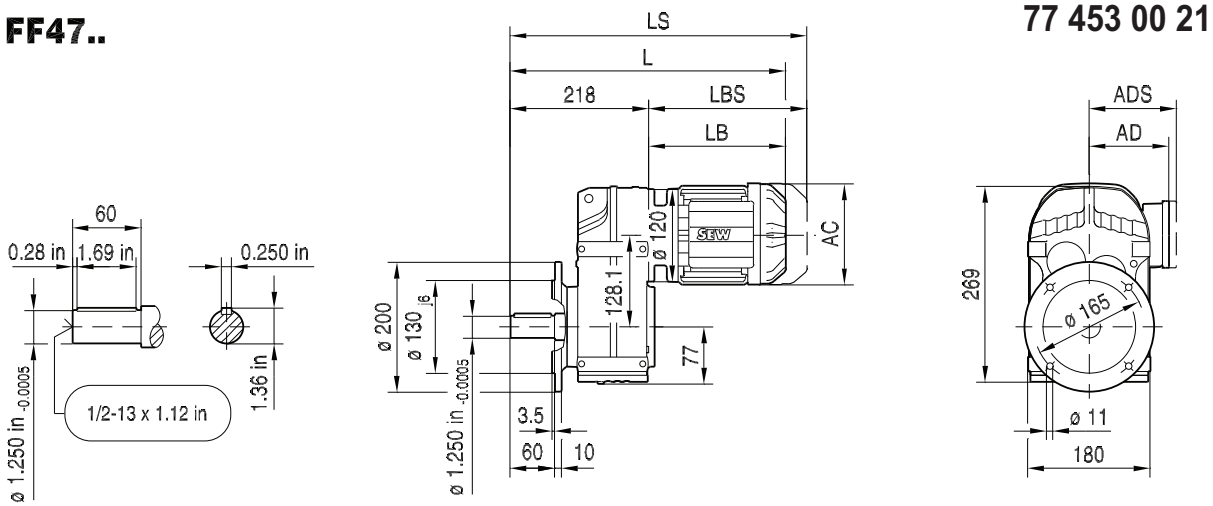
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	383	397	399	419	430	475	476	508	557
LS	439	453	466	486	511	556	570	602	651
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

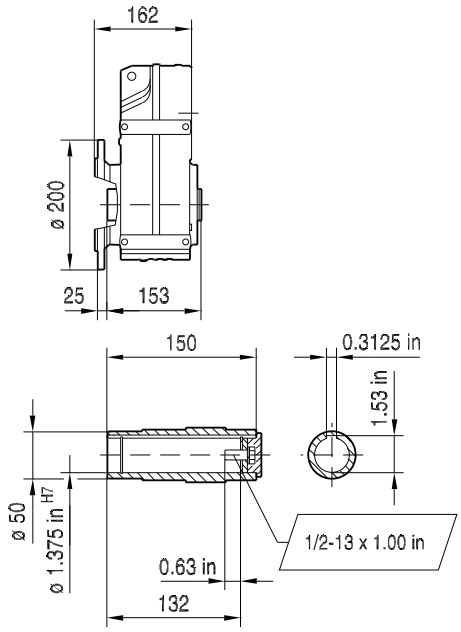
24833231/EN-US – 07/2021

FF47..

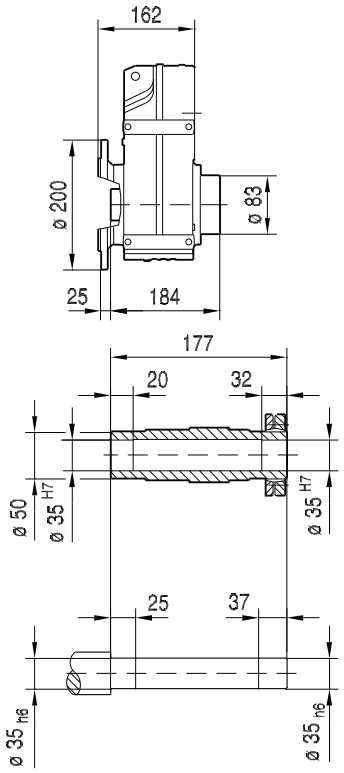
77 453 00 21



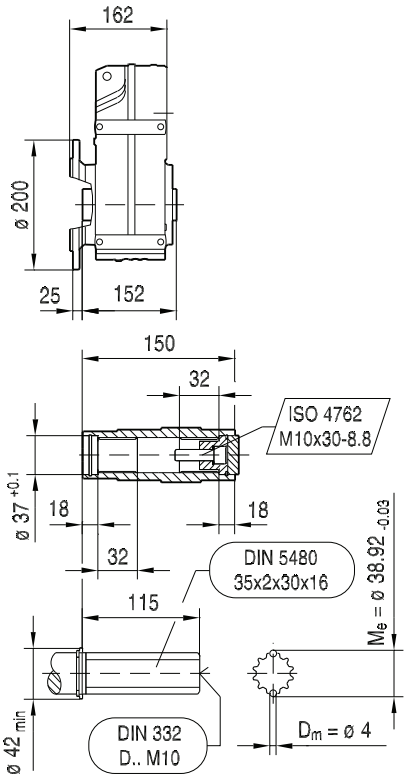
FAF47..



FHF47..



FVF47..



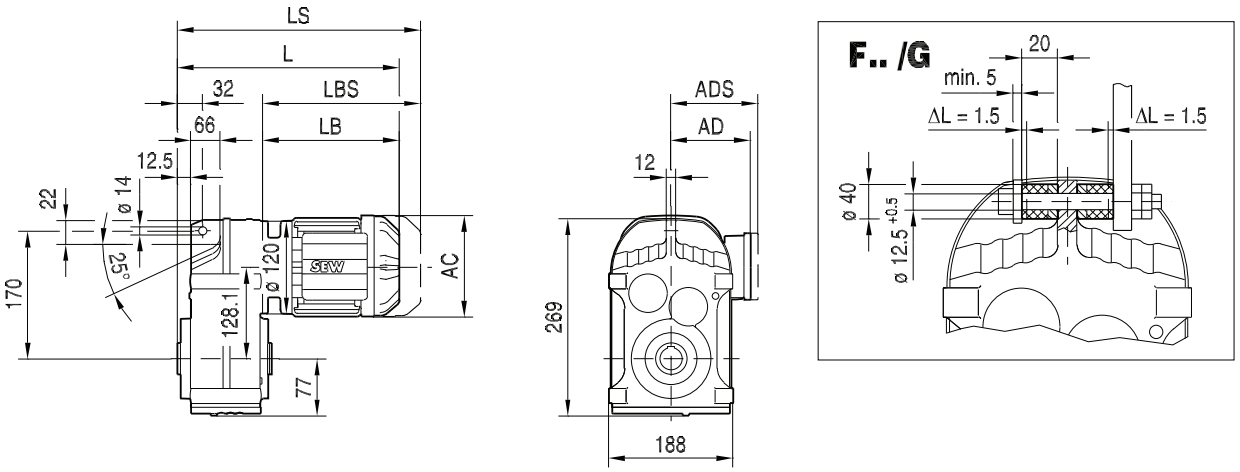
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	408	422	424	444	455	500	501	533	582
LS	464	478	497	511	536	581	595	627	676
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

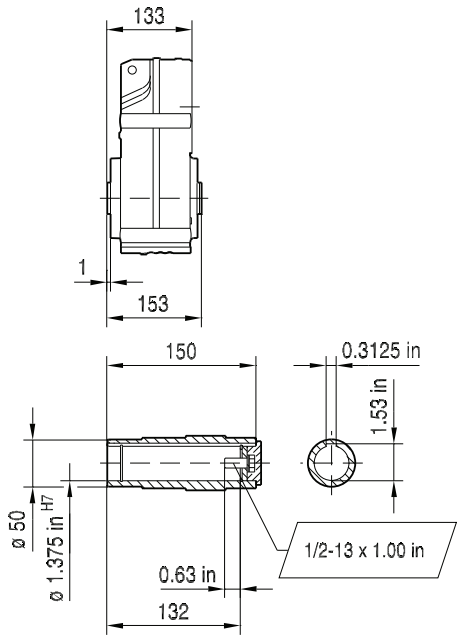
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FA47..

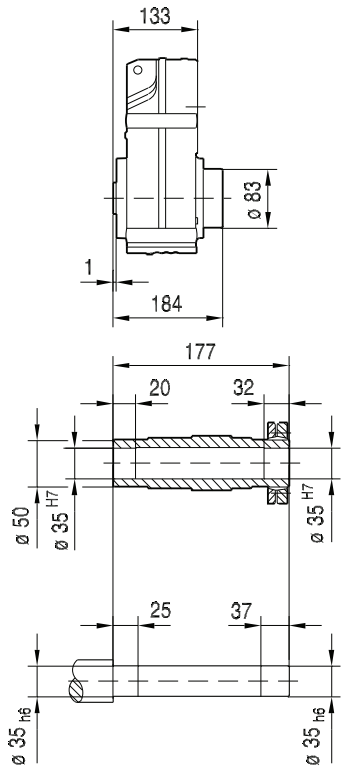
77 454 00 21



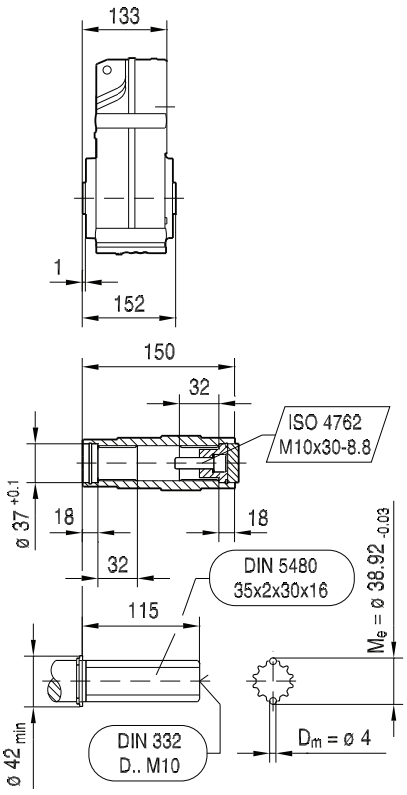
FA47..



FH47..



FV47..



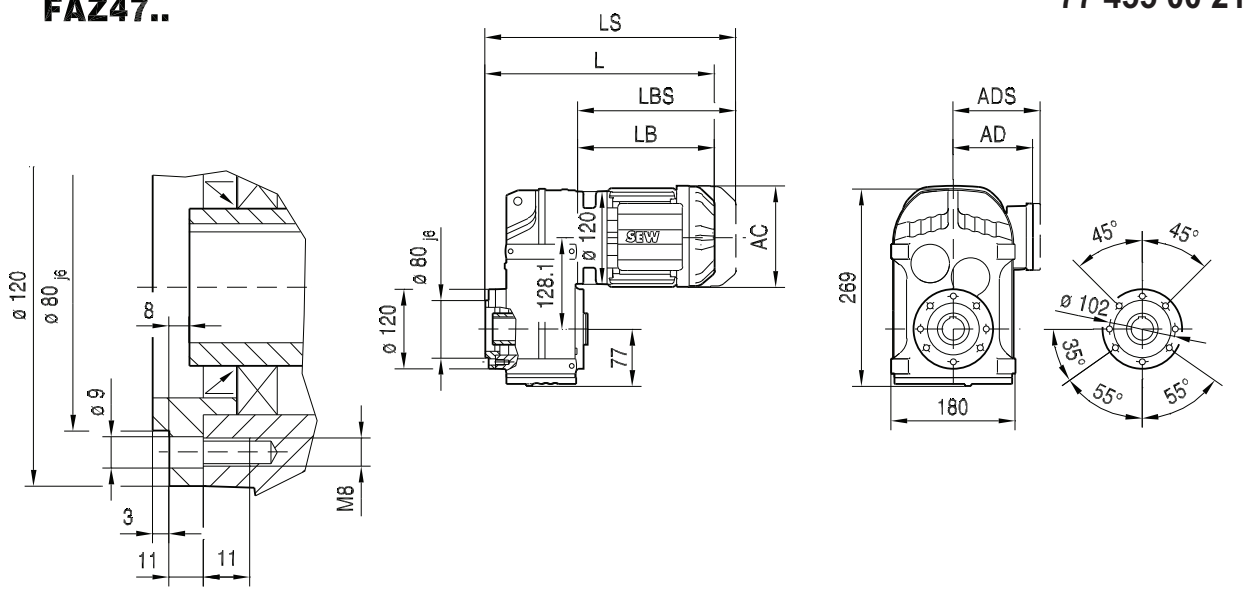
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	323	337	339	359	370	415	416	448	497
LS	379	393	406	426	451	496	510	542	591
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

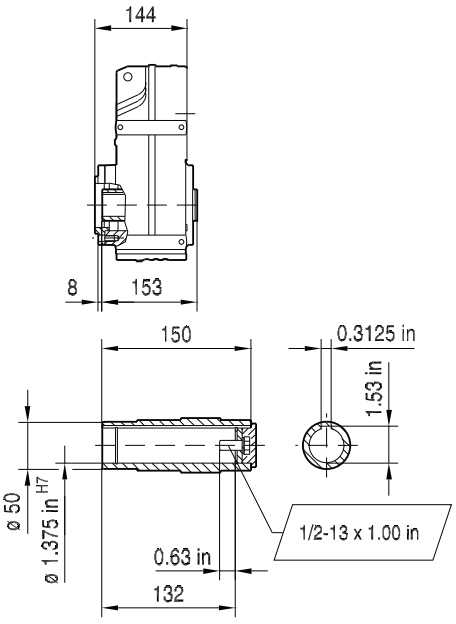
24833231/EN-US – 07/2021

FAZ47..

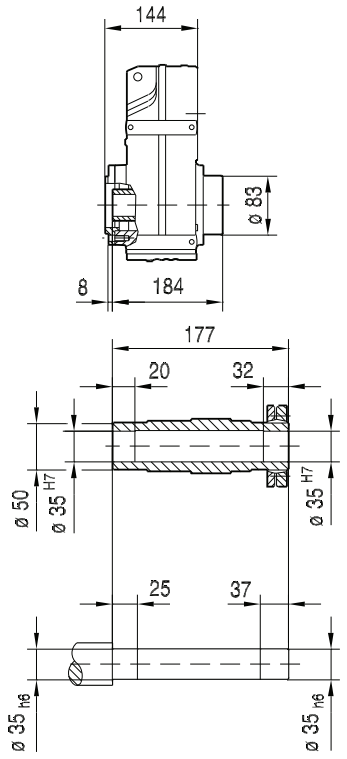
77 455 00 21



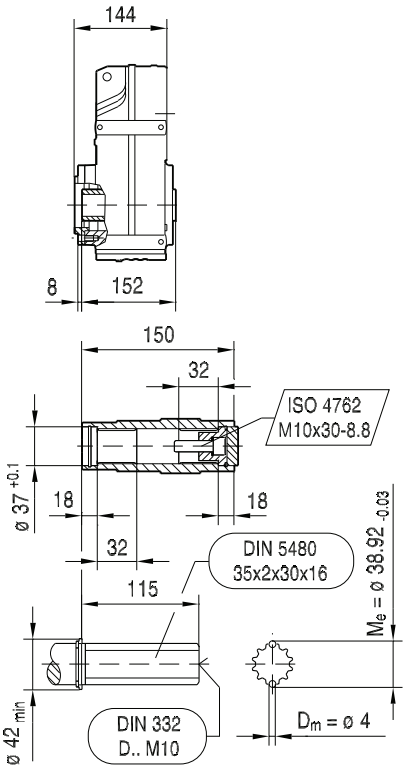
FAZ47..



FHZ47..



FVZ47..



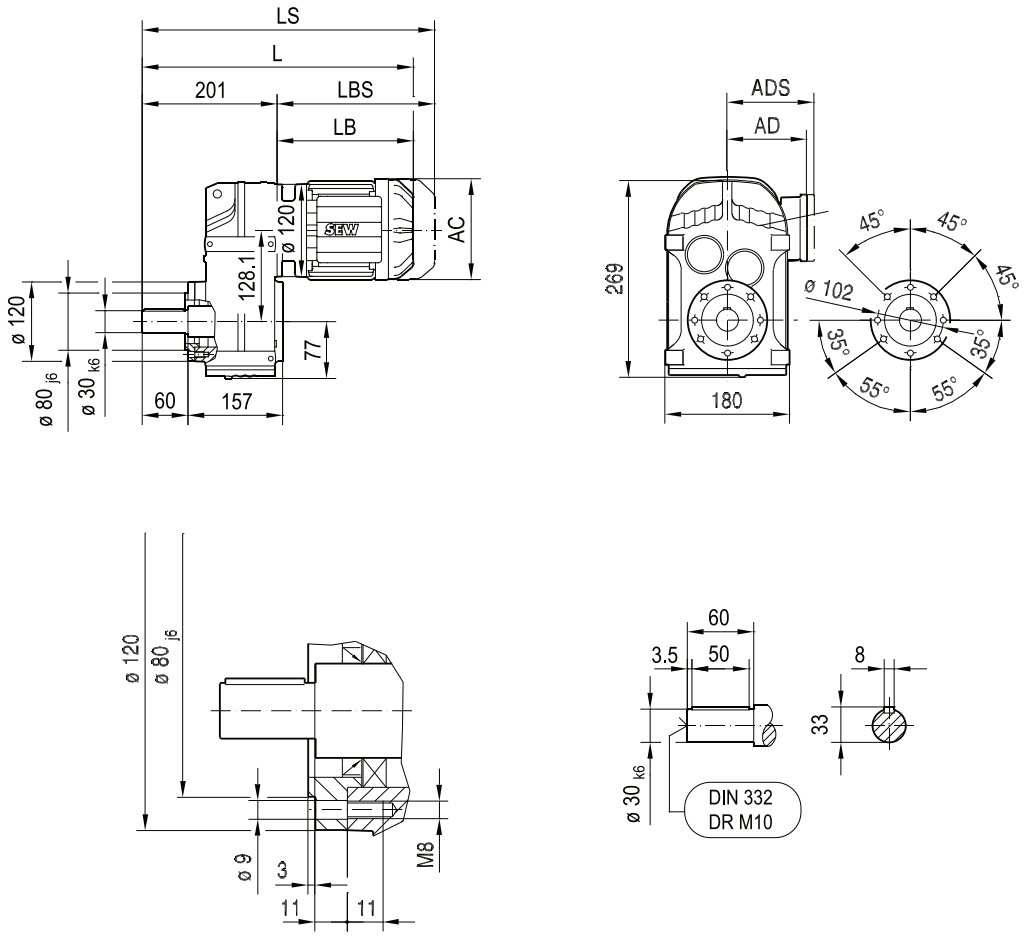
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	334	348	350	370	381	426	427	459	508
LS	390	404	417	437	462	507	521	553	602
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

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FZ47..

77 456 00 21



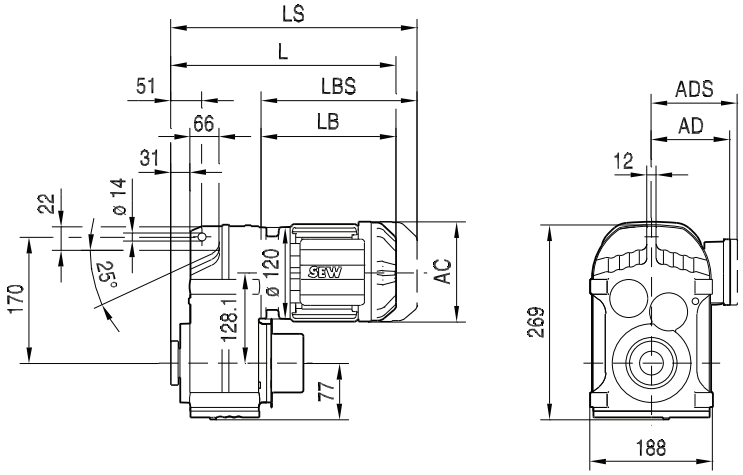
(→ 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	391	405	407	427	438	483	484	516	565
LS	447	461	474	494	519	564	578	610	659
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

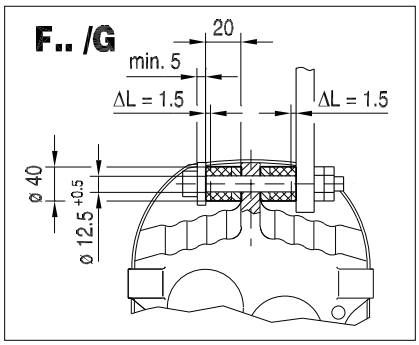
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

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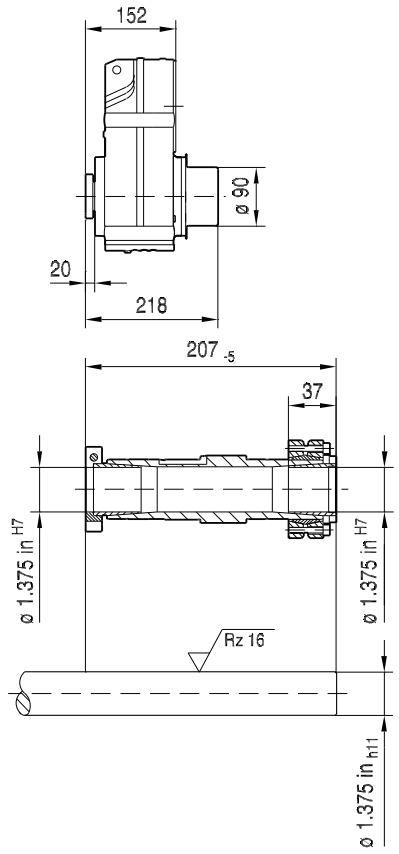
77 457 00 21

FT47..

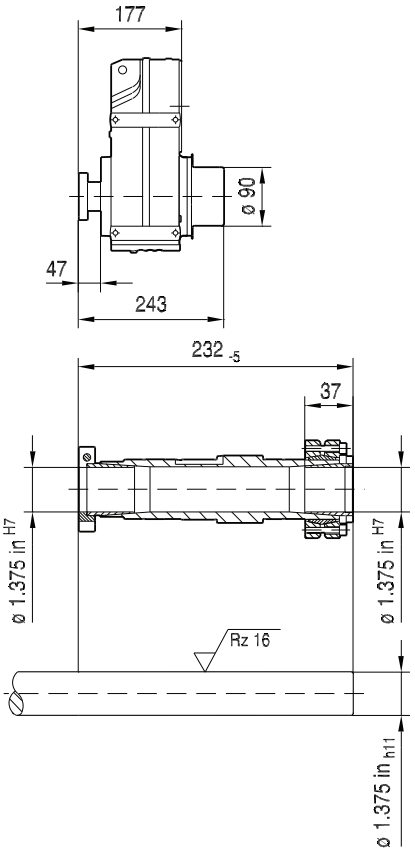




FT47..
NON-Symmetrical



FT47B..
Symmetrical



(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK[1)]	80M[1)]	90S[1)]	90L[1)]	100L/LM[1)]
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	342	356	358	378	389	434	435	467	516
LS	398	412	425	445	470	515	529	561	610
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

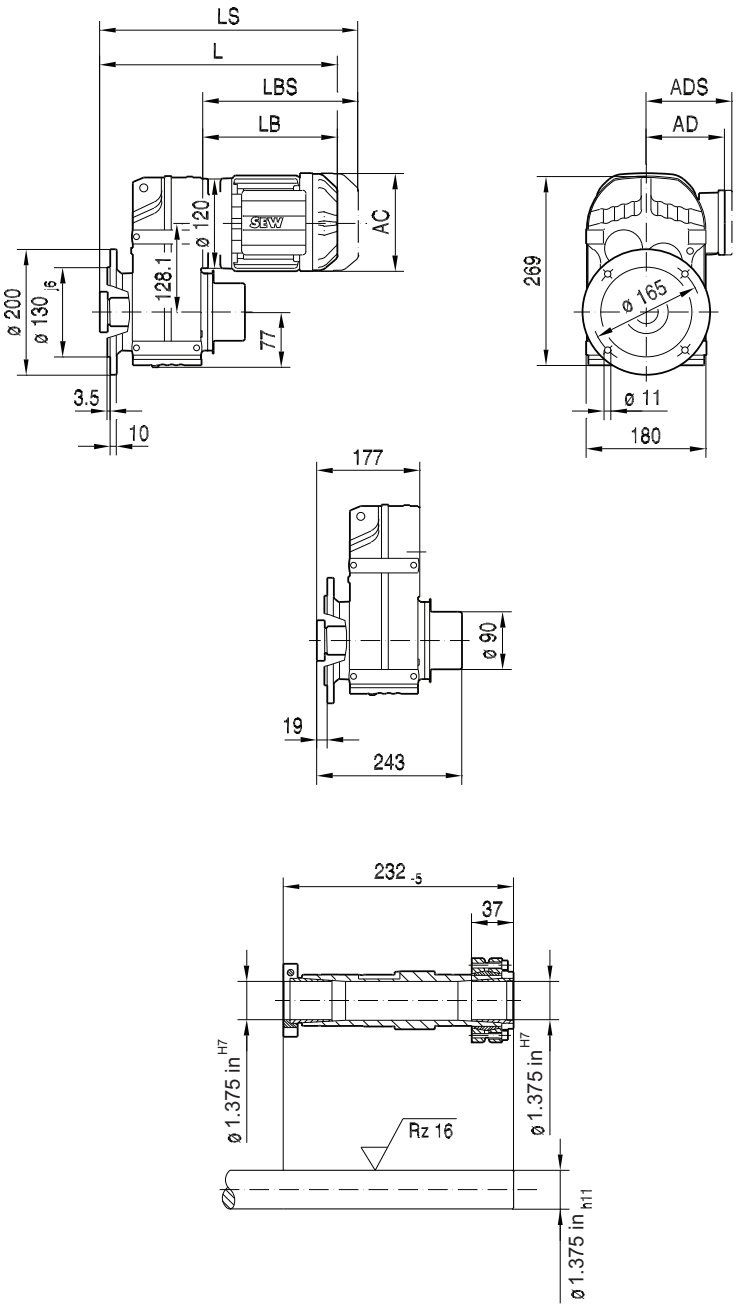
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

[1)] Combination requires a modified shaft cover. See page 141.

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FTF47..

77 458 00 21



(→ 162)	DRN								
	63MS	63M	71MS	71M	80MK[1)]	80M[1)]	90S[1)]	90L[1)]	100L/LM[1)]
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	367	381	383	403	414	459	460	492	541
LS	423	437	450	470	495	540	554	586	635
LB	190	204	206	226	237	282	283	315	364
LBS	246	260	273	293	318	363	377	409	458

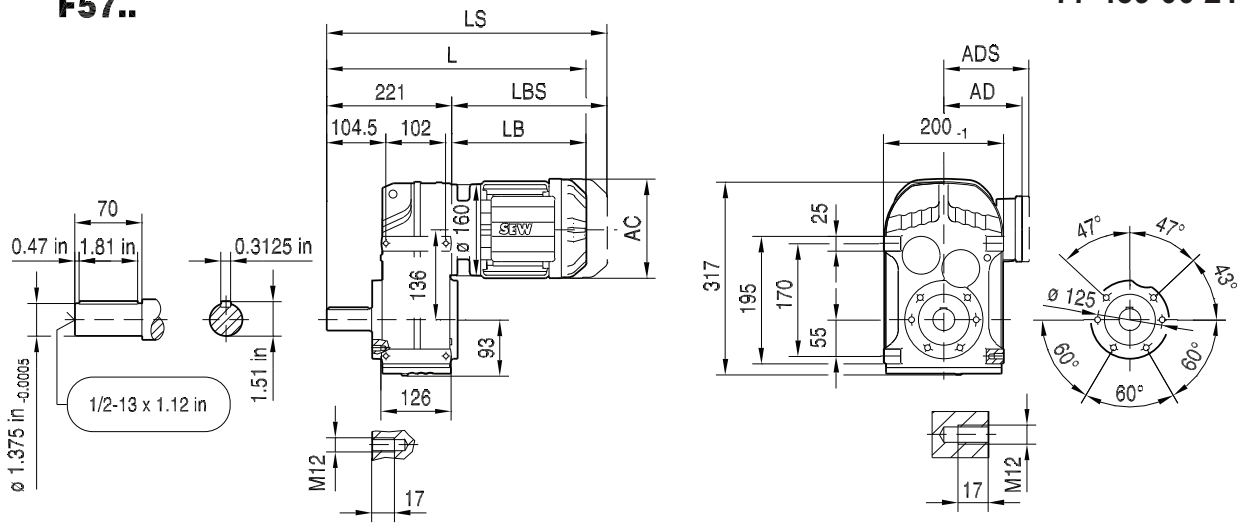
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

[1)] Combination requires a modified shaft cover. See page 141.

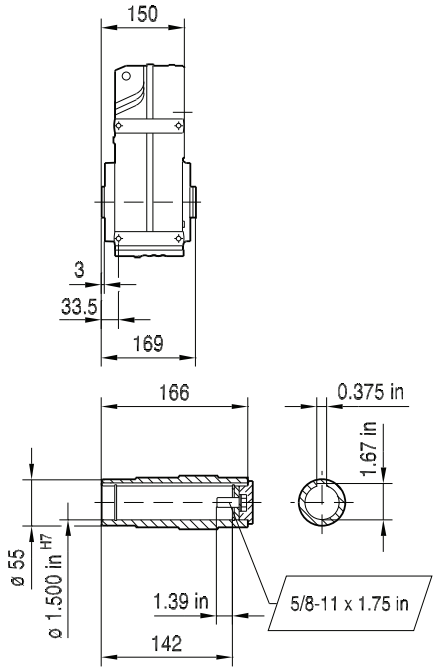
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77 459 00 21

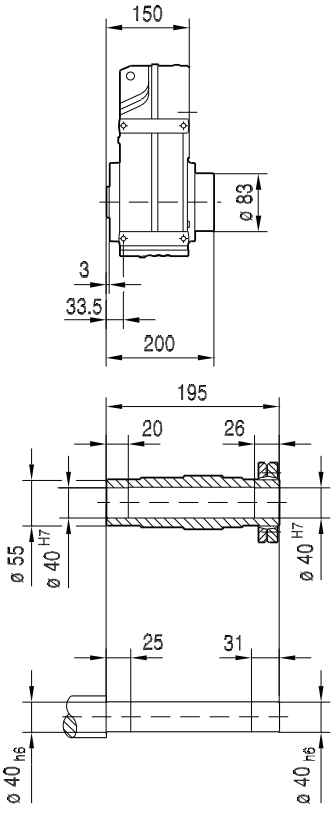
F57..



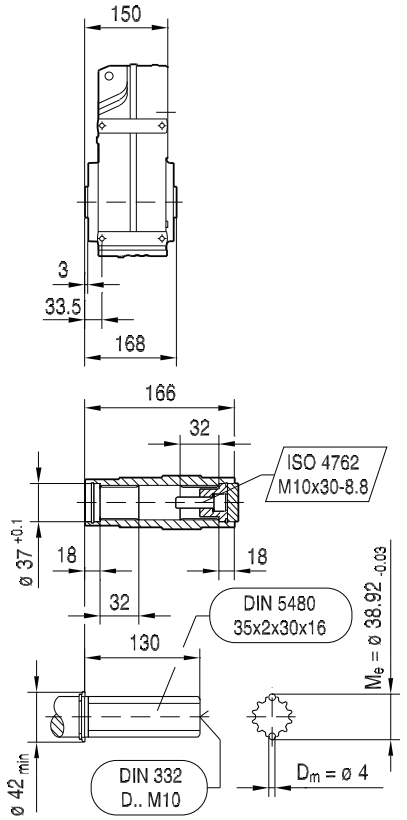
FA57B..



FH57B..
max. DRN100L..



FV57B..



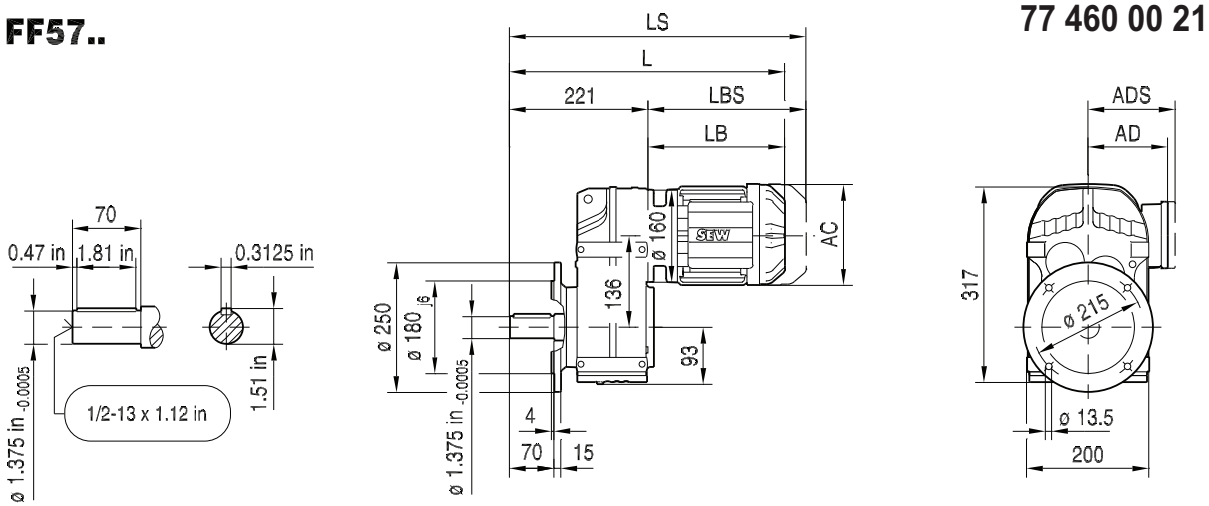
(→ 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	405	419	420	440	451	496	498	530	576	607	661	679
LS	461	475	488	508	532	577	591	623	670	719	773	817
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

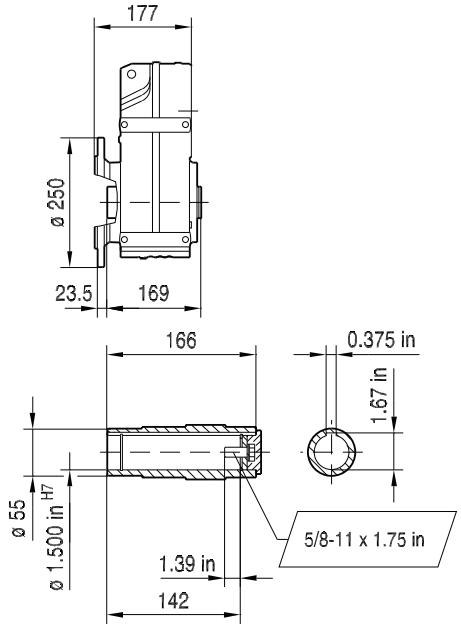
24833231/EN-US – 07/2021

FF57..

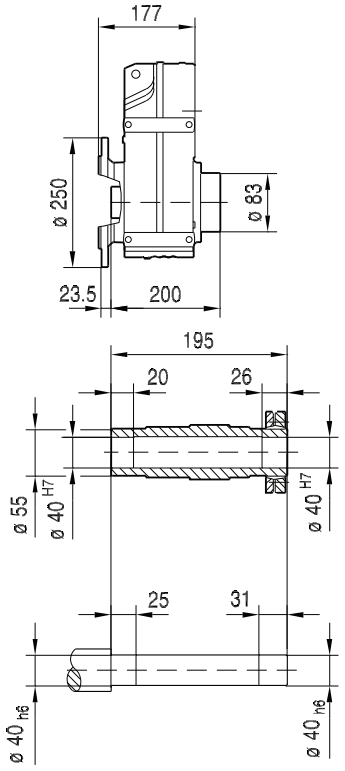
77 460 00 21



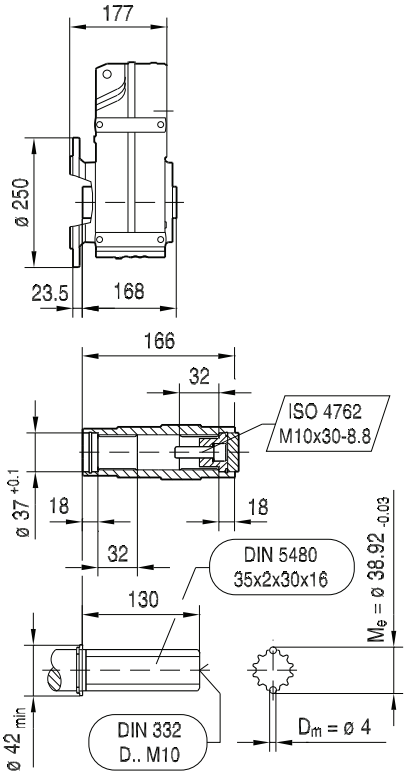
FAF57..



FHF57..
max. DRN100L..



FVF57..



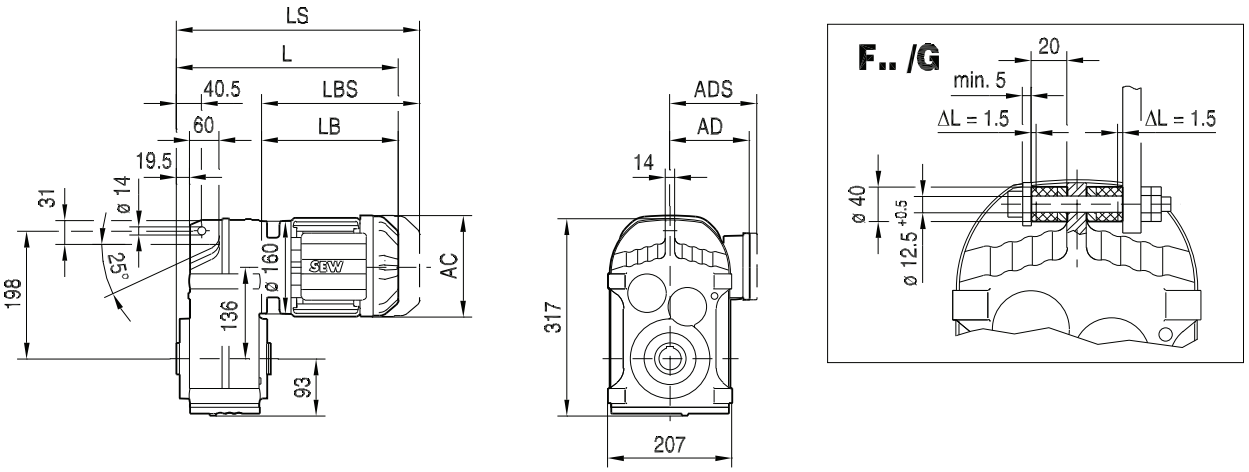
(→ 📄 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	427	441	442	462	473	518	520	552	598	629	683	701
LS	483	497	510	530	554	599	613	645	692	741	795	839
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

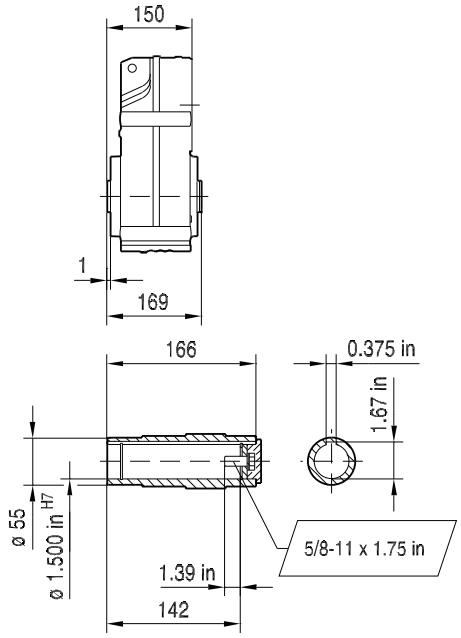
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77 461 00 21

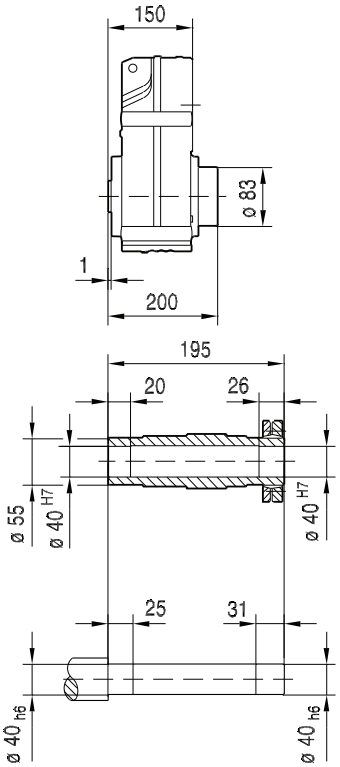
FA57..



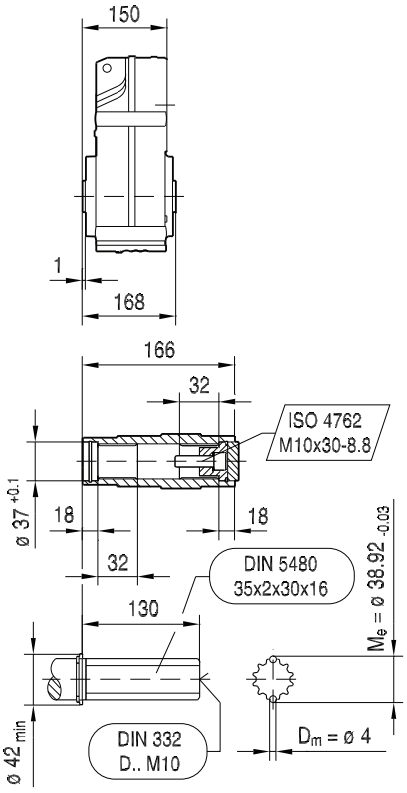
FA57..



FH57..
max. DRN100L..



FV57..



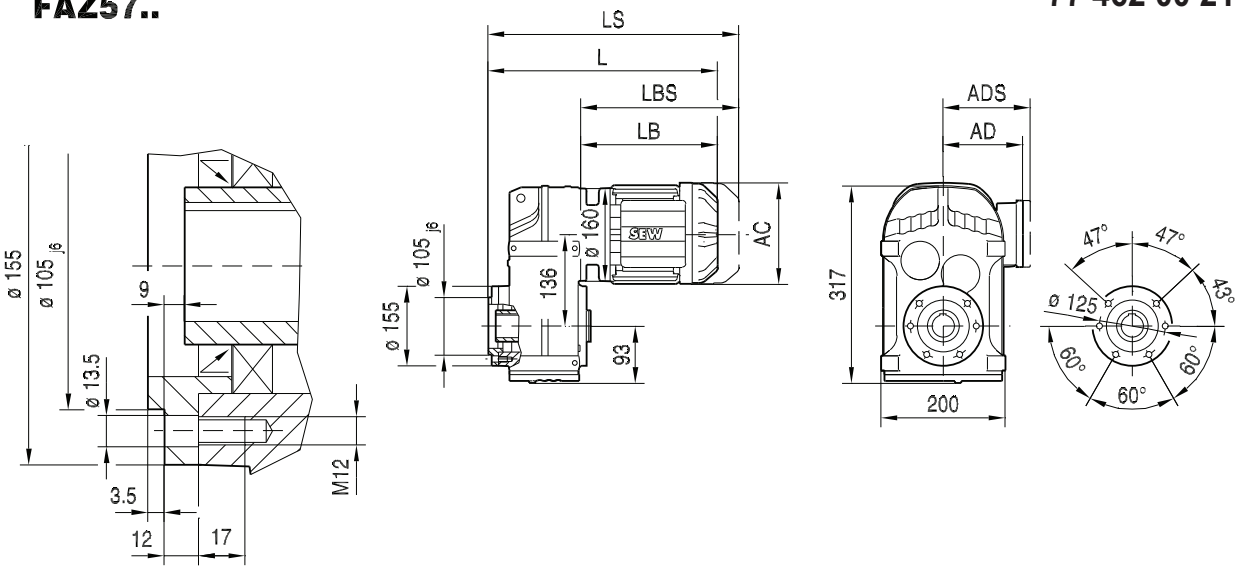
(→ 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	334	348	349	369	380	425	427	459	505	536	590	608
LS	390	404	417	437	461	506	520	552	599	648	702	746
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

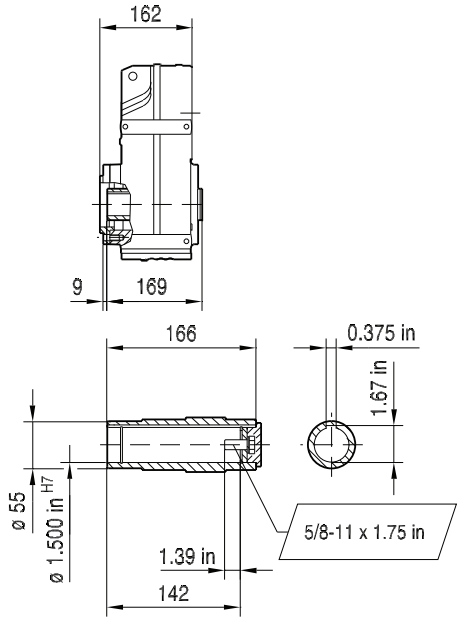
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FAZ57..

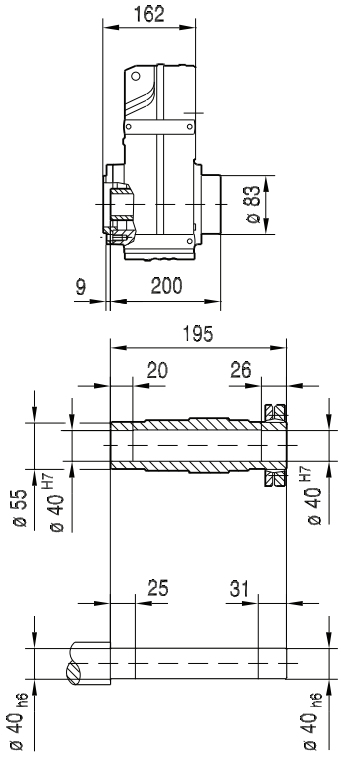
77 462 00 21



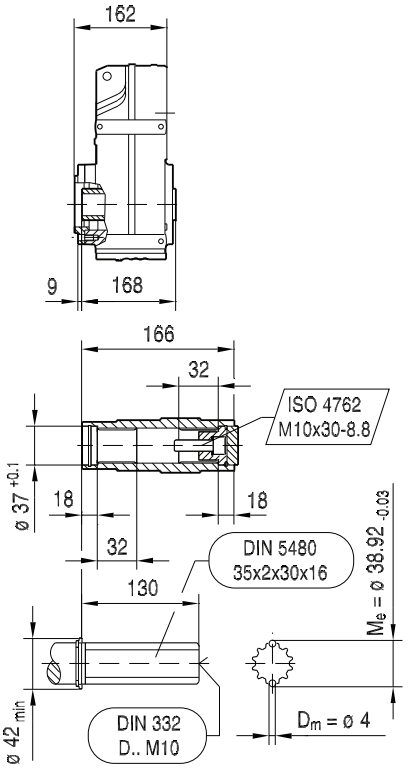
FAZ57..



FHZ57..
max. DRN100L..



FVZ57..



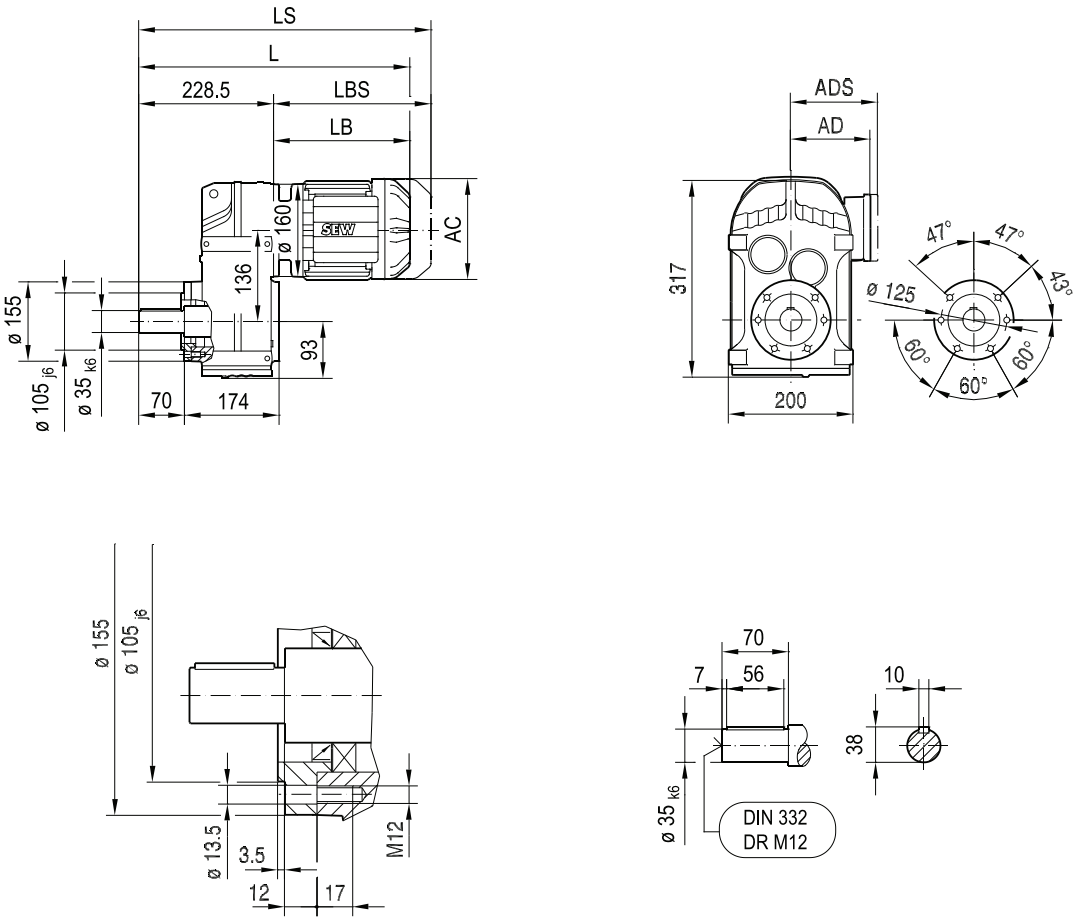
(→ 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	346	360	361	381	392	437	439	471	517	548	602	620
LS	402	416	429	449	473	518	532	564	611	660	714	758
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

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FZ57..

77 463 00 21



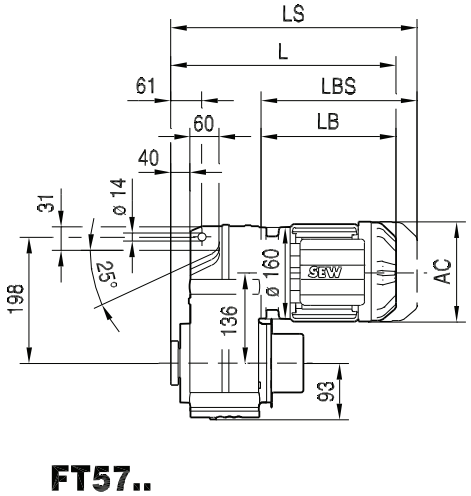
(→ 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	412	426	428	448	459	504	505	537	584	615	669	687
LS	468	482	495	515	540	585	599	631	677	727	781	824
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

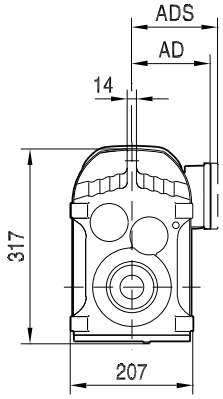
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

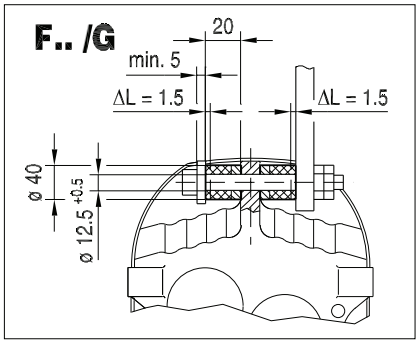
24833231/EN-US – 07/2021

77 464 00 21

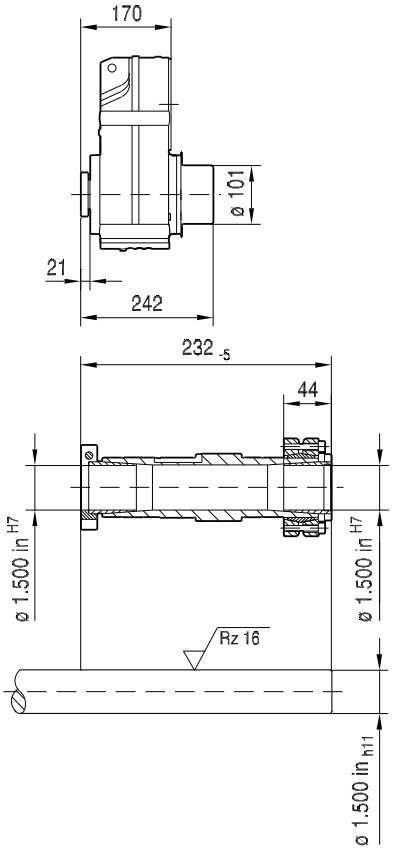
FT57..



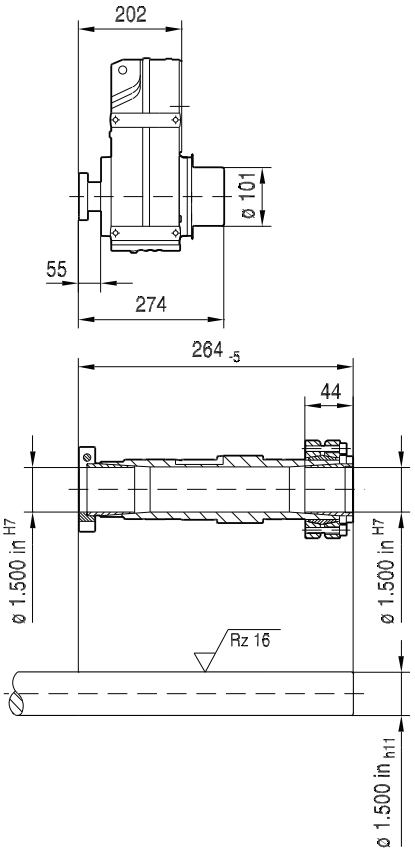




FT57..
NON-Symmetrical



FT57B..
Symmetrical



(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S[1)]	90L[1)]	100L/LM[1)]
AC	115	115	139	139	156	156	179	197	156
AD	98	98	118	118	128	128	140	157	128
ADS	98	98	129	129	139	139	150	158	139
L	354	368	369	389	400	445	447	525	445
LS	410	424	437	457	481	526	540	619	526
LB	184	198	199	219	230	275	277	355	275
LBS	240	254	267	287	311	356	370	449	356

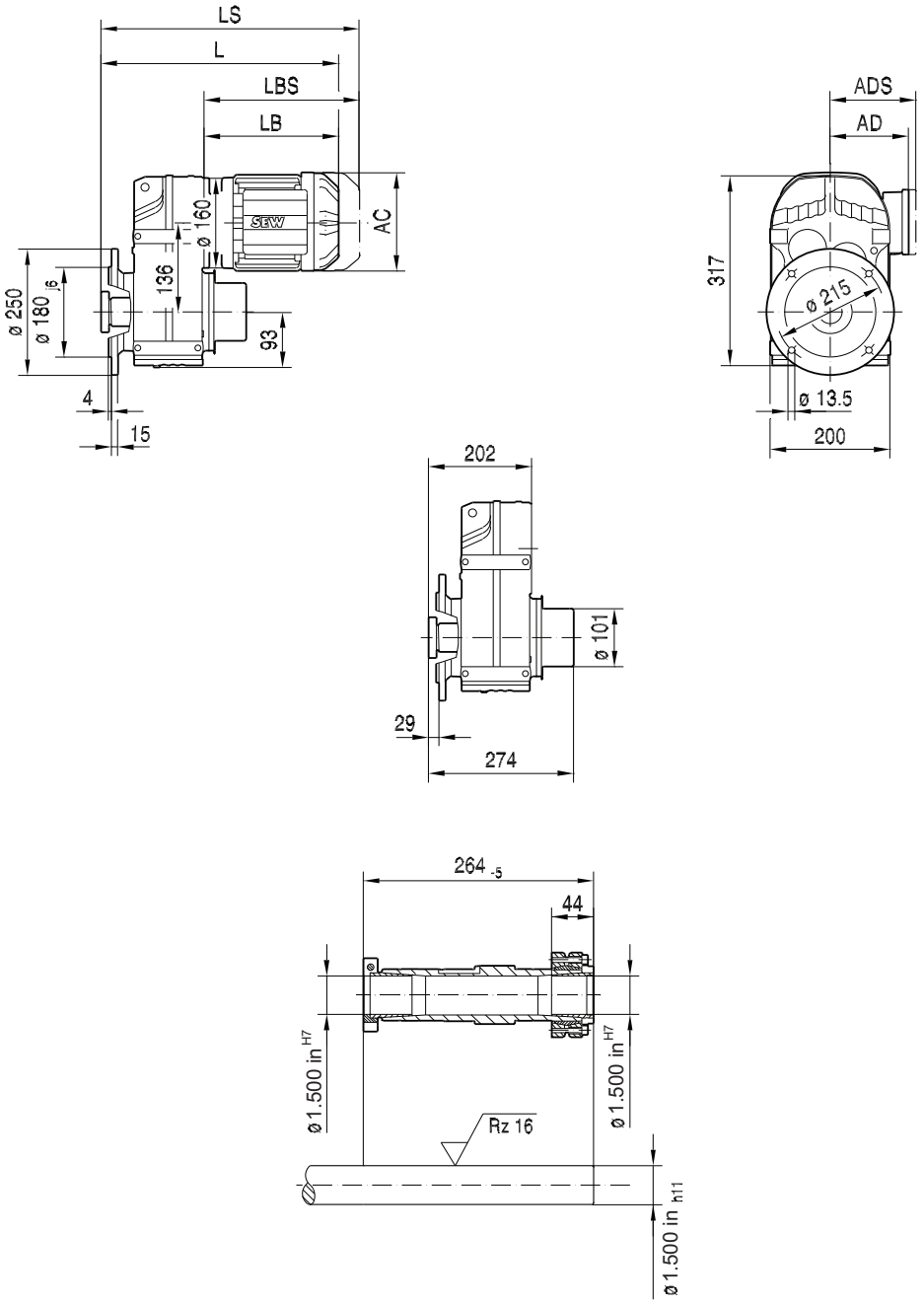
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

[1)] Combination requires a modified shaft cover. See page 141.

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FTF57..

77 465 00 21



(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S[1)]	90L[1)]	100L/LM[1)]
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	386	400	401	421	432	477	479	511	557
LS	442	456	469	489	513	558	572	604	651
LB	184	198	199	219	230	275	277	309	355
LBS	240	254	267	287	311	356	370	402	449

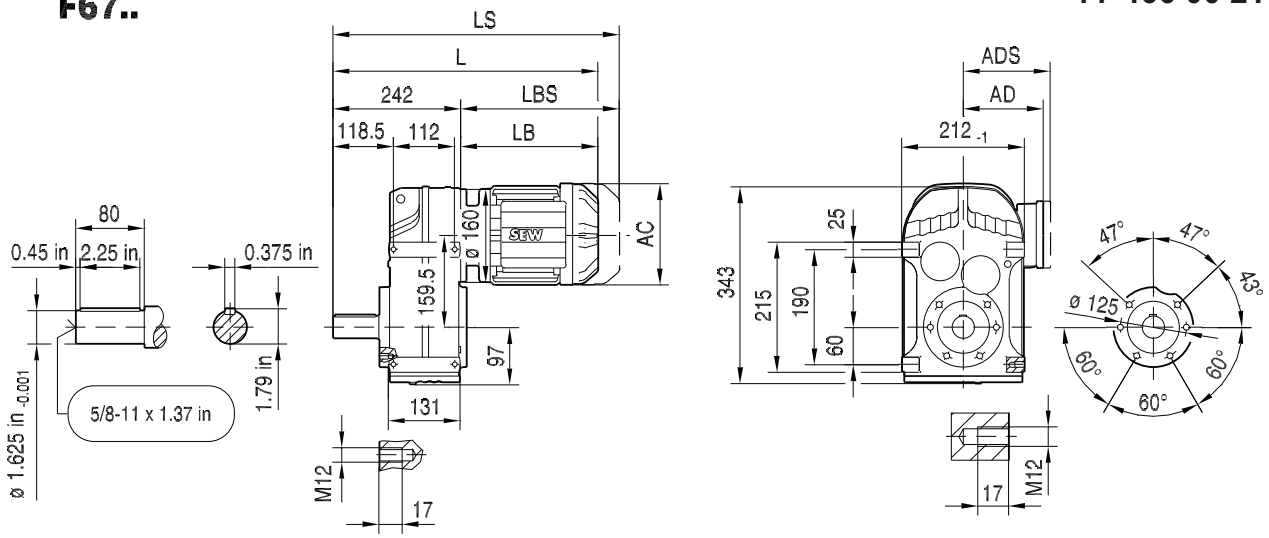
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

[1)] Combination requires a modified shaft cover. See page 141.

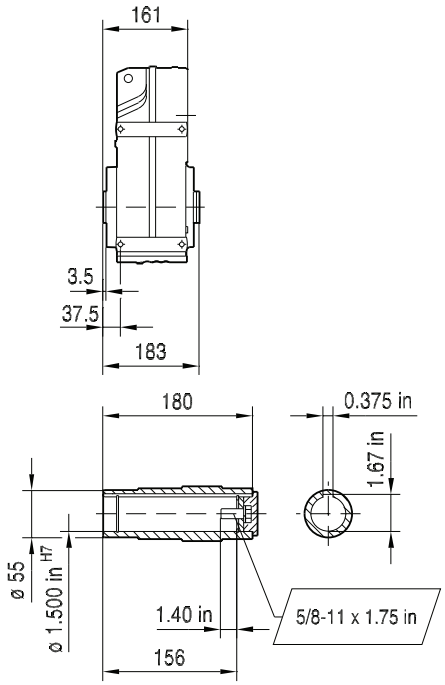
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77 466 00 21

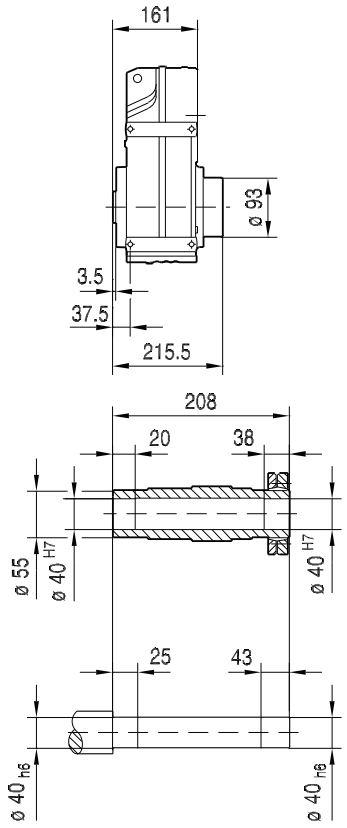
F67..



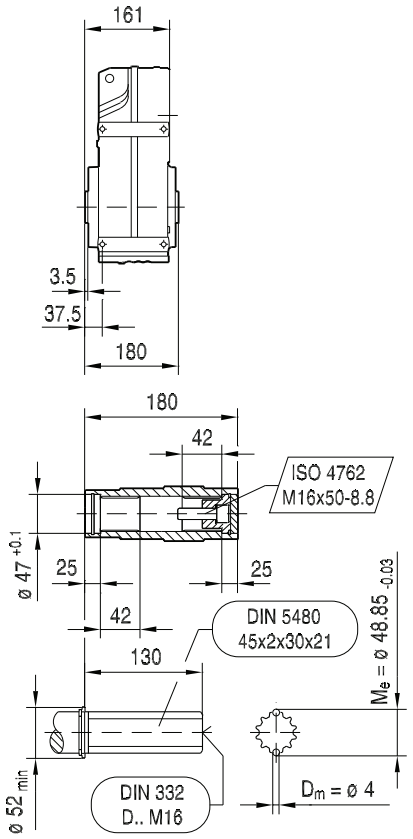
FA67B..



FH67B..
max. DRN132S..



FV67B..



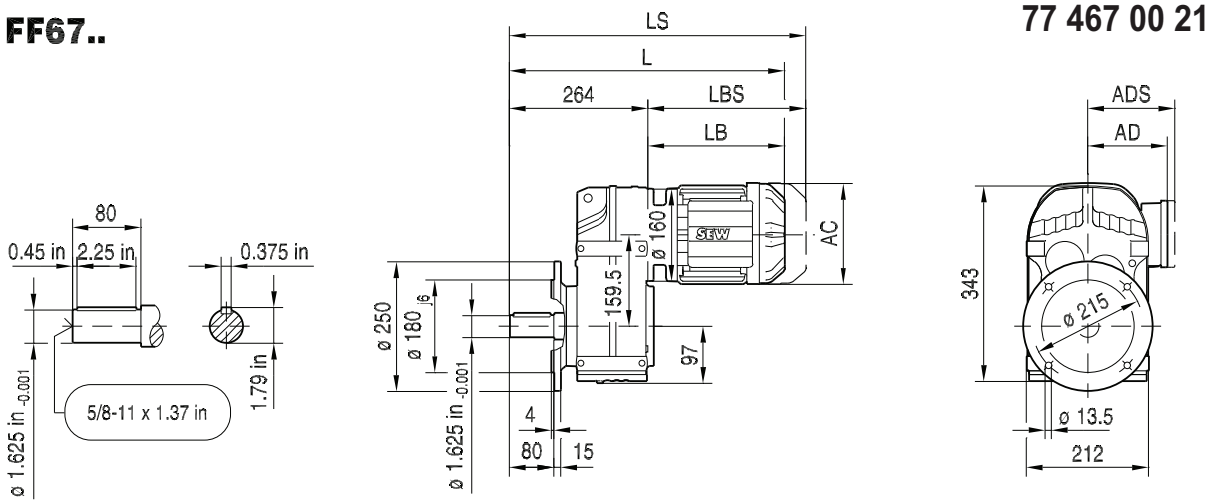
(→ 162)	DRN										
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	139	139	156	156	179	179	197	221	221	261
AD	98	118	118	128	128	140	140	157	170	170	228
ADS	98	129	129	139	139	150	150	158	172	172	228
L	440	441	461	472	517	519	551	597	628	682	700
LS	496	509	529	553	598	612	644	691	740	794	838
LB	198	199	219	230	275	277	309	355	386	440	458
LBS	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

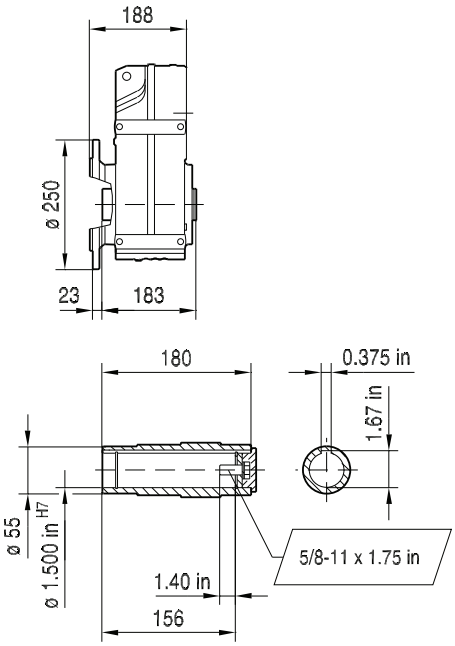
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FF67..

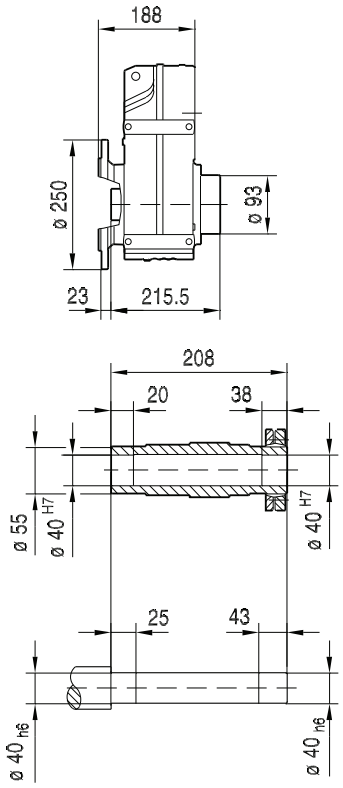
77 467 00 21



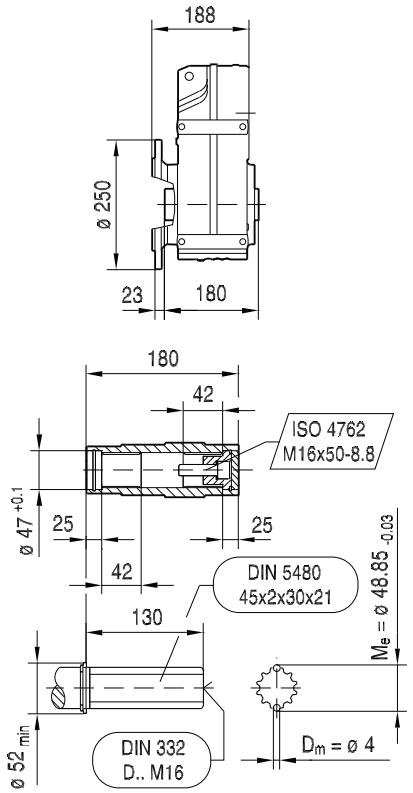
FAF67..



FHF67..
max. DRN132S..



FVF67..



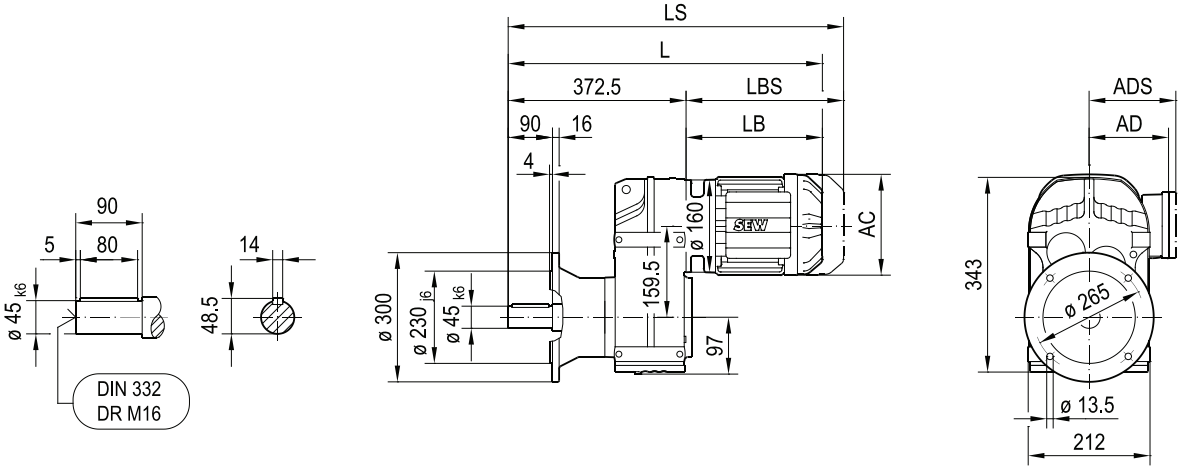
(→ 162)	DRN										
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	139	139	156	156	179	179	197	221	221	261
AD	98	118	118	128	128	140	140	157	170	170	228
ADS	98	129	129	139	139	150	150	158	172	172	228
L	462	463	483	494	539	541	573	619	650	704	722
LS	518	531	551	575	620	634	666	713	762	816	860
LB	198	199	219	230	275	277	309	355	386	440	458
LBS	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

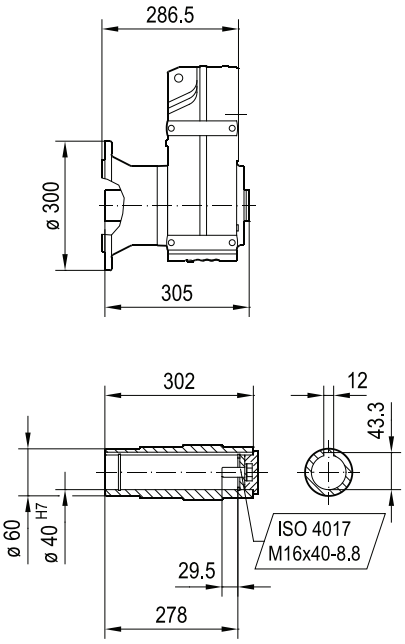
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77 468 00 21

FM67..



FAM67..



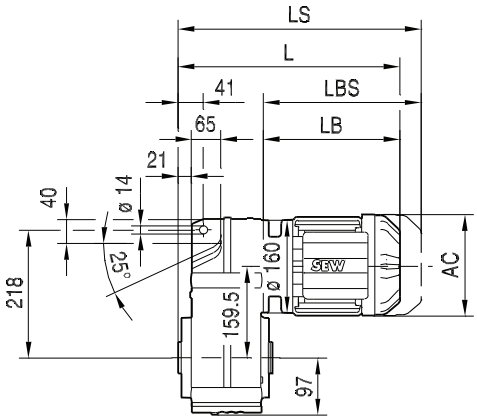
(→ 162)	DRN										
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	139	139	156	156	179	179	197	221	221	261
AD	98	118	118	128	128	140	140	157	170	170	228
ADS	98	129	129	139	139	150	150	158	172	172	228
L	570	572	592	603	648	649	681	728	759	813	831
LS	626	639	659	684	729	743	775	821	871	925	969
LB	198	199	219	230	275	277	309	355	386	440	458
LBS	254	267	287	311	356	370	402	449	498	552	596

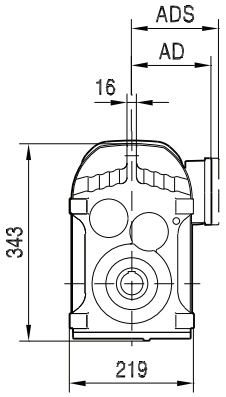
Dimensions in mm unless noted as inch. For tolerances, see page 162.

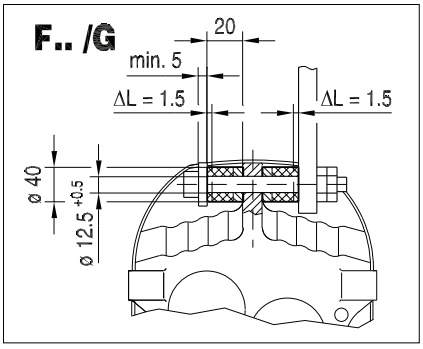
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77 469 00 21

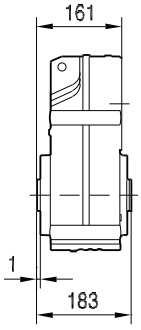
FA67..

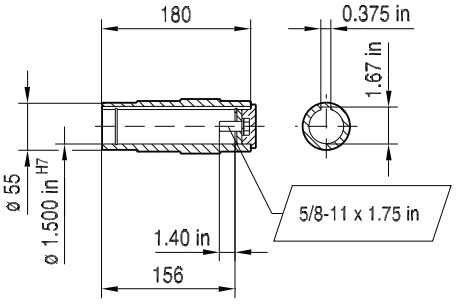




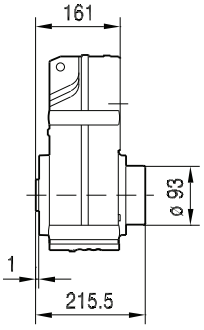


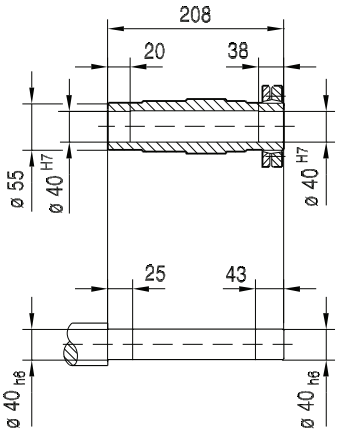
FA67..



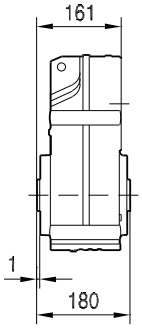


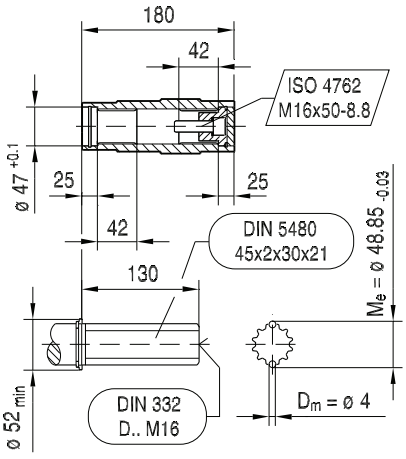
FH67..
max. DRN132S..





FV67..





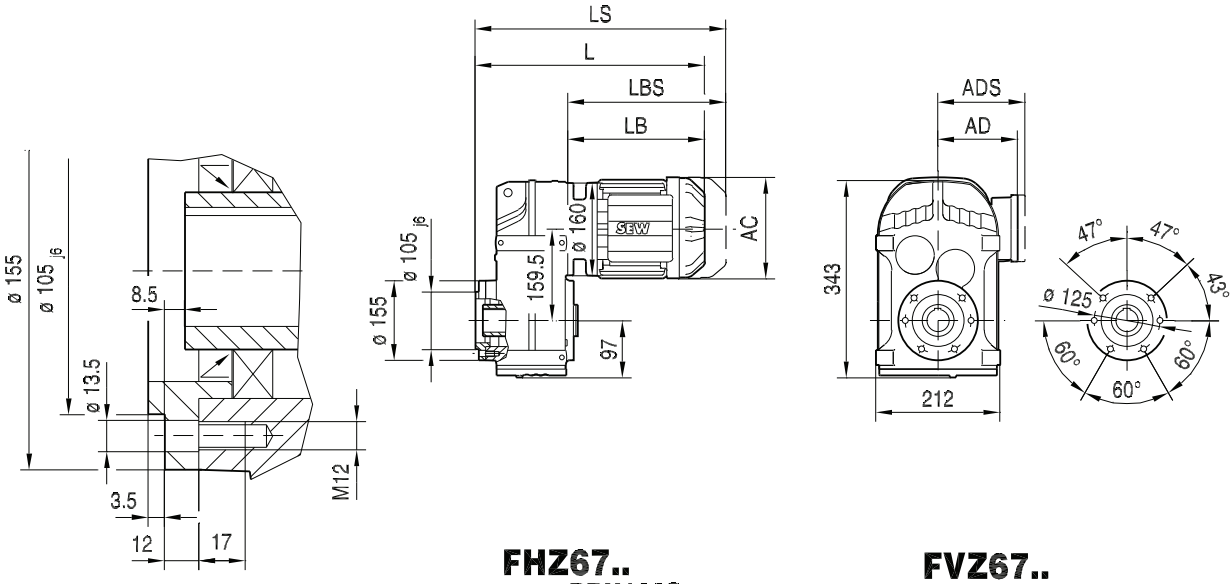
(→ 162)	DRN										
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	139	139	156	156	179	179	197	221	221	261
AD	98	118	118	128	128	140	140	157	170	170	228
ADS	98	129	129	139	139	150	150	158	172	172	228
L	359	360	380	391	436	438	470	516	547	601	619
LS	415	428	448	472	517	531	563	610	659	713	757
LB	198	199	219	230	275	277	309	355	386	440	458
LBS	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

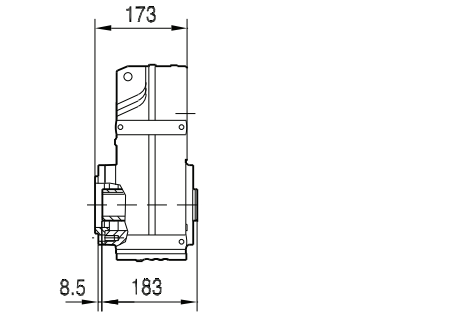
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FAZ67..

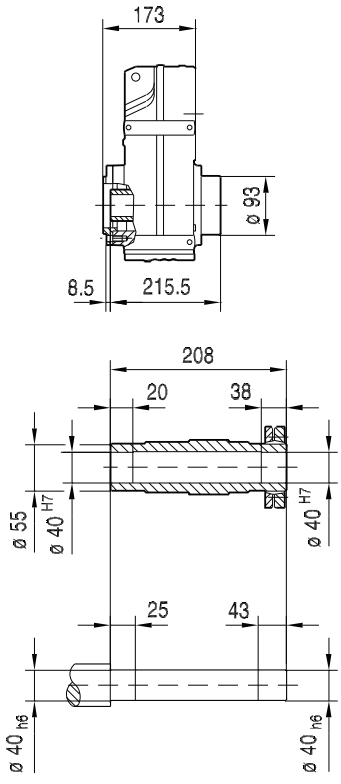
77 470 00 21



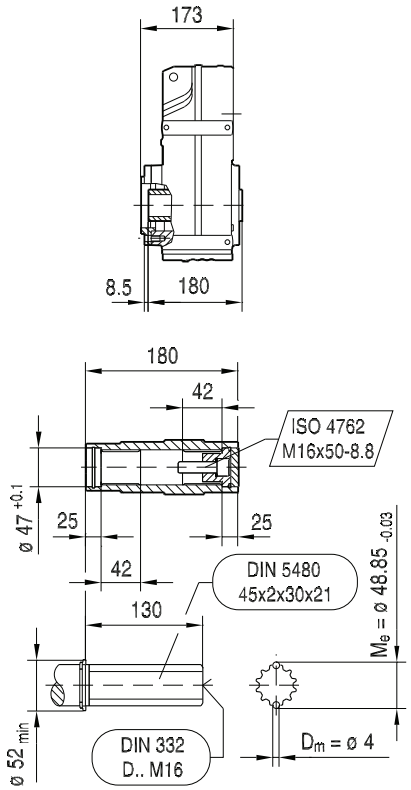
FAZ67..



FHZ67..
max. DRN132S..



FVZ67..



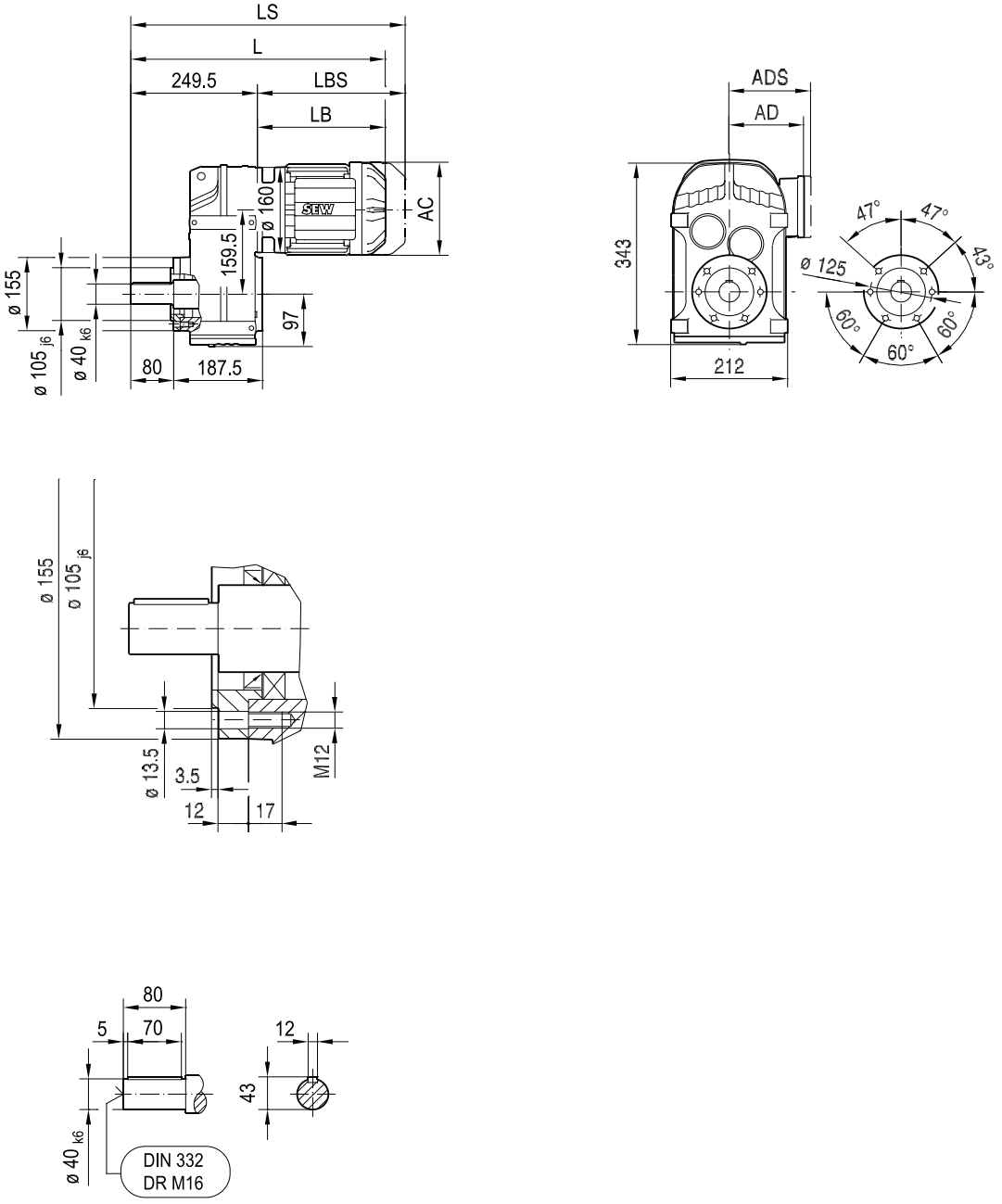
(→ 162)	DRN										
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	139	139	156	156	179	179	197	221	221	261
AD	98	118	118	128	128	140	140	157	170	170	228
ADS	98	129	129	139	139	150	150	158	172	172	228
L	371	372	392	403	448	450	482	528	559	613	631
LS	427	440	460	484	529	543	575	622	671	725	769
LB	198	199	219	230	275	277	309	355	386	440	458
LBS	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

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FZ67..

77 471 00 21



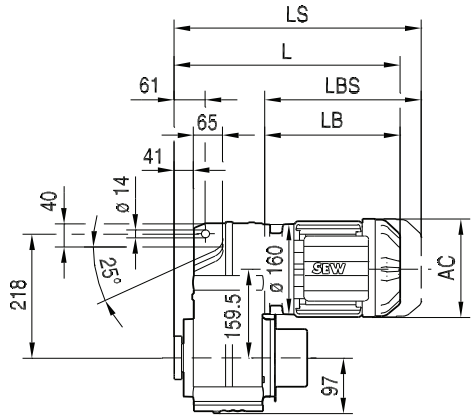
(→ 162)	DRN										
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	139	139	156	156	179	179	197	221	221	261
AD	98	118	118	128	128	140	140	157	170	170	228
ADS	98	129	129	139	139	150	150	158	172	172	228
L	447	449	469	480	525	526	558	605	636	690	708
LS	503	516	536	561	606	620	652	698	748	802	845
LB	198	199	219	230	275	277	309	355	386	440	458
LBS	254	267	287	311	356	370	402	449	498	552	596

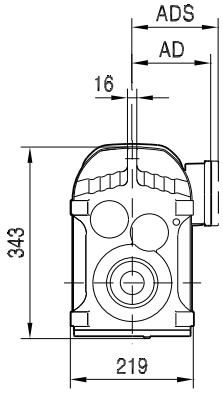
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

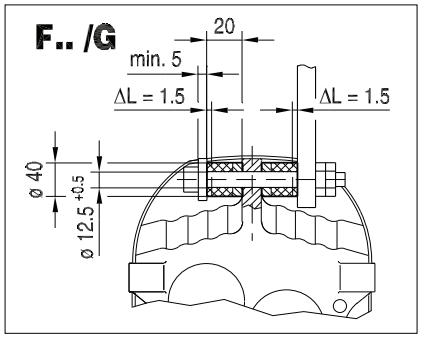
24833231/EN-US – 07/2021

77 472 00 21

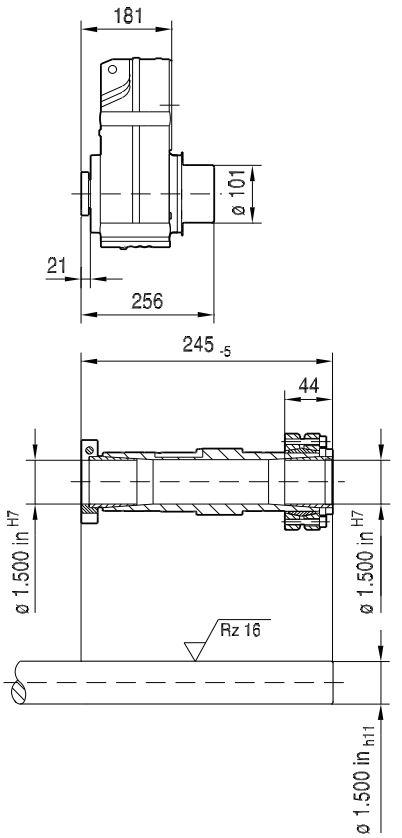
FT67..



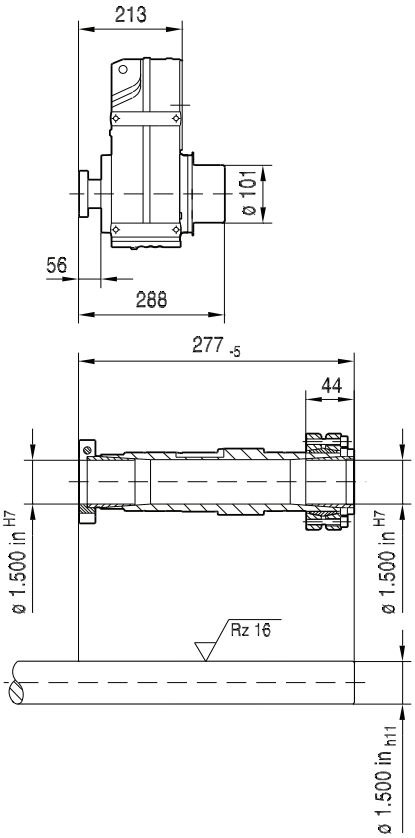




FT67..
NON-Symmetrical



FT67B..
Symmetrical



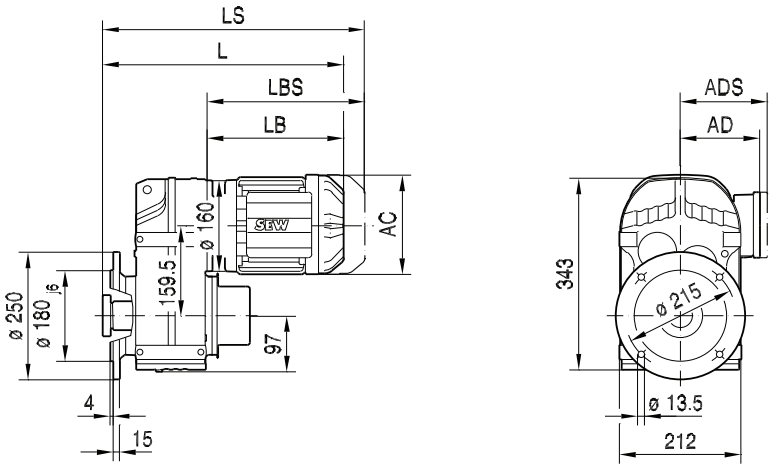
(→ 162)	DRN									
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M[1)]	132S[1)]
AC	115	139	139	156	156	179	179	197	221	221
AD	98	118	118	128	128	140	140	157	170	170
ADS	98	129	129	139	139	150	150	158	172	172
L	379	380	400	411	456	458	490	536	567	621
LS	435	448	468	492	537	551	583	630	679	733
LB	198	199	219	230	275	277	309	355	386	440
LBS	254	267	287	311	356	370	402	449	498	552

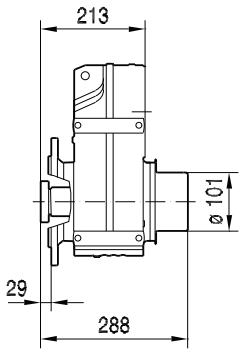
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

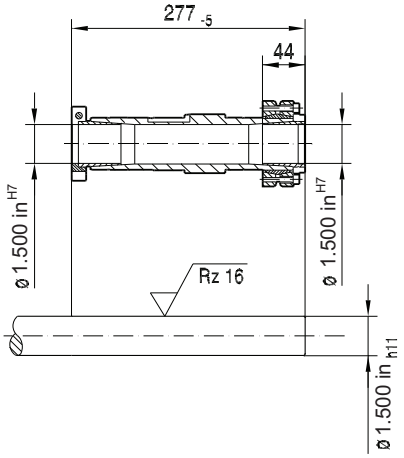
[1)] Combination requires a modified shaft cover. See page 141.

FTF67..

77 473 00 21







(→ 🗎 162)	DRN									
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M[1)]	132S[1)]
AC	115	139	139	156	156	179	179	197	221	221
AD	98	118	118	128	128	140	140	157	170	170
ADS	98	129	129	139	139	150	150	158	172	172
L	411	412	432	443	488	490	522	568	599	653
LS	467	480	500	524	569	583	615	662	711	765
LB	198	199	219	230	275	277	309	355	386	440
LBS	254	267	287	311	356	370	402	449	498	552

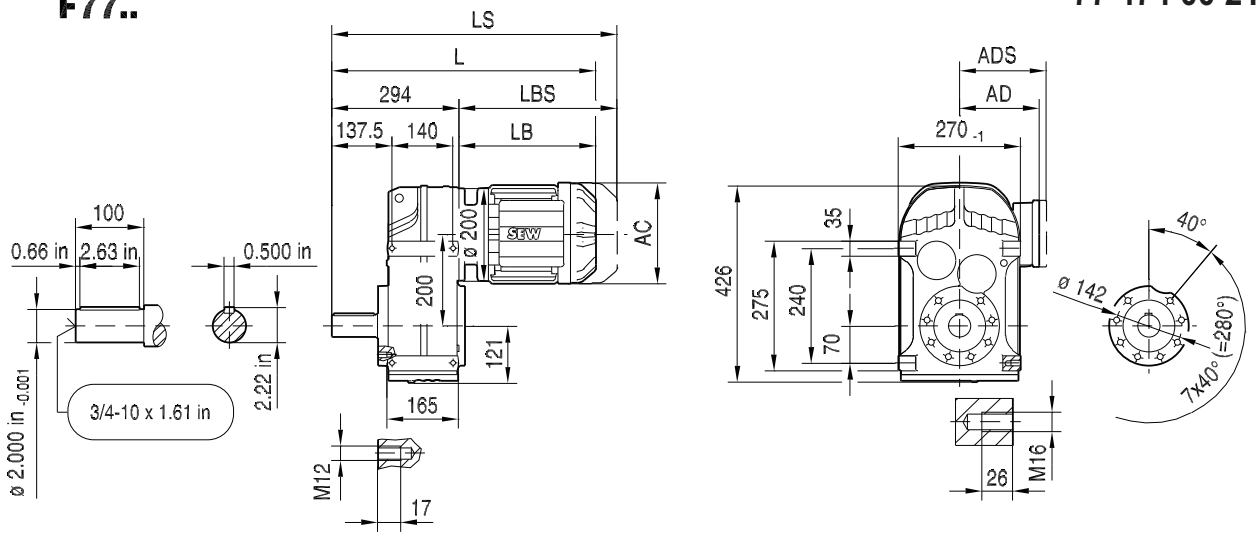
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

[1)] Combination requires a modified shaft cover. See page 141.

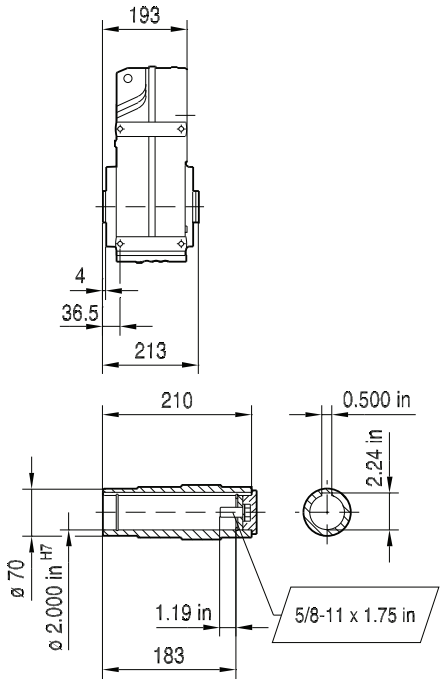
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77 474 00 21

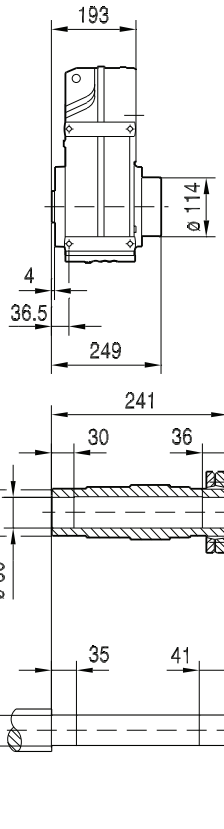
F77..



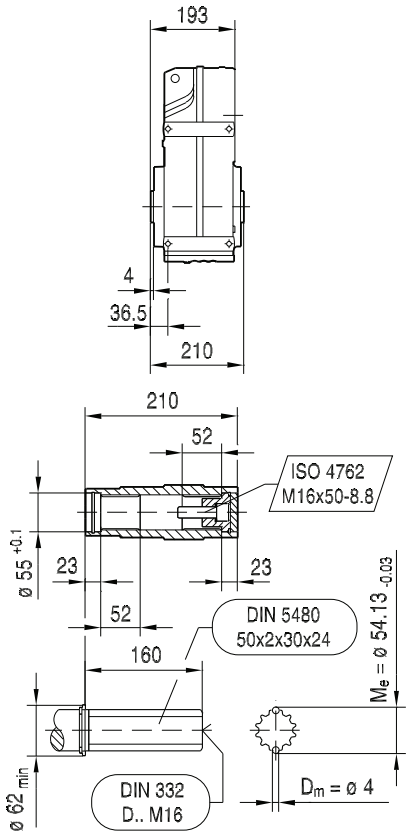
FA77B..



FH77B..
max. DRN132L..



FV77B..



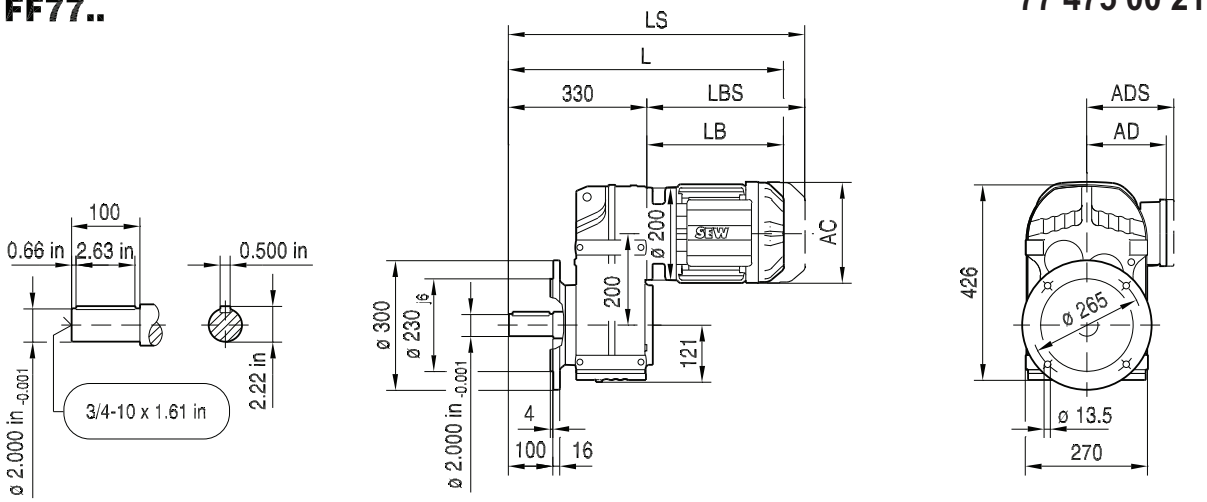
(→ 162)	DRN											
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	139	139	156	156	179	179	197	221	221	261	261	314
AD	118	118	128	128	140	140	157	170	170	228	228	253
ADS	129	129	139	139	150	150	158	172	172	228	228	253
L	486	506	517	562	564	596	642	673	723	741	767	833
LS	554	574	598	643	657	689	736	785	835	879	904	1022
LB	192	212	223	268	270	302	348	379	429	447	473	539
LBS	260	280	304	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

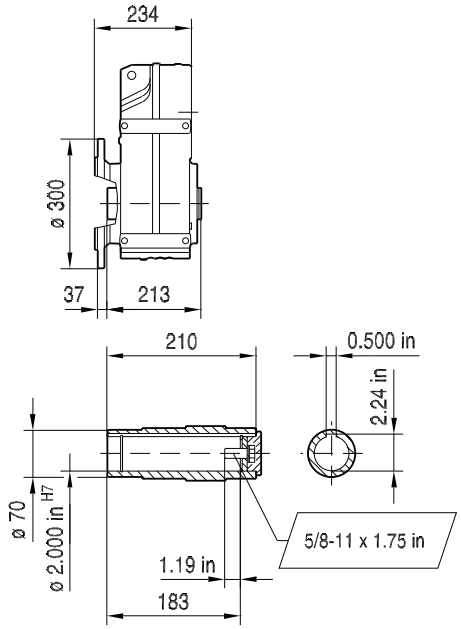
24833231/EN-US – 07/2021

FF77..

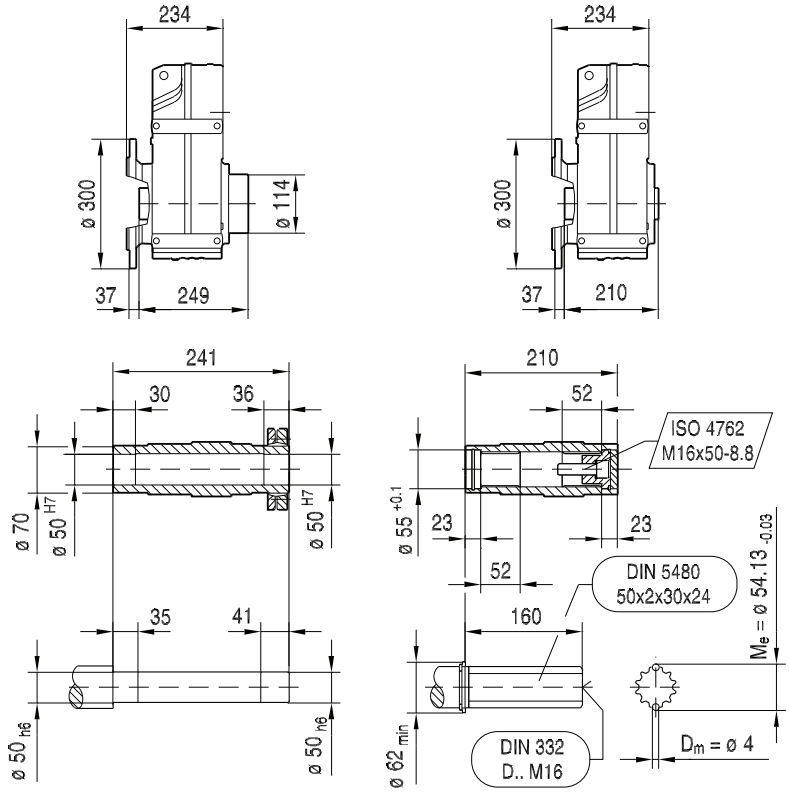
77 475 00 21



FAF77..



FHF77..
max. DRN132L..



FVF77..

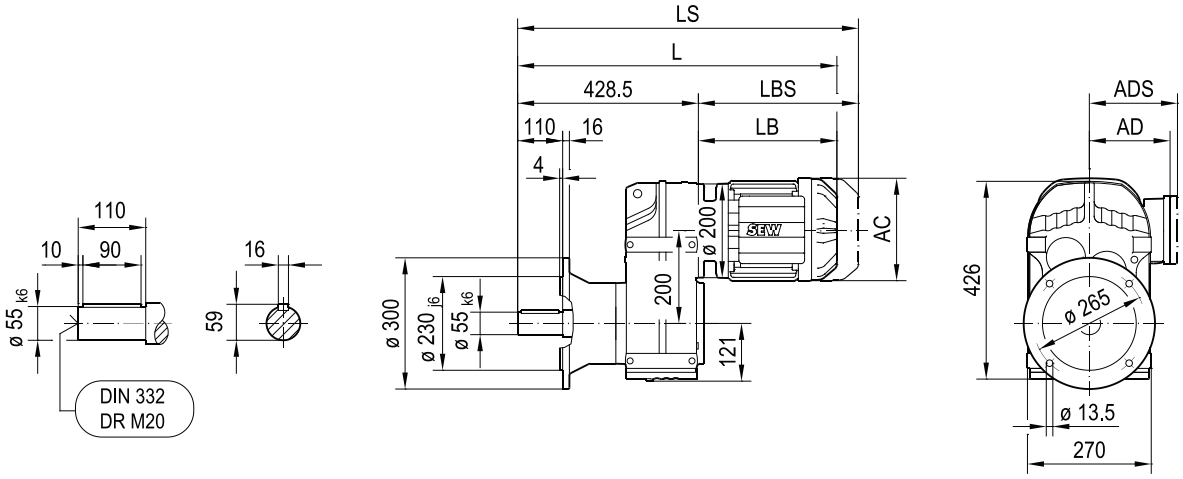
(→ 162)	DRN											
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	139	139	156	156	179	179	197	221	221	261	261	314
AD	118	118	128	128	140	140	157	170	170	228	228	253
ADS	129	129	139	139	150	150	158	172	172	228	228	253
L	522	542	553	598	600	632	678	709	759	777	803	869
LS	590	610	634	679	693	725	772	821	871	915	940	1058
LB	192	212	223	268	270	302	348	379	429	447	473	539
LBS	260	280	304	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

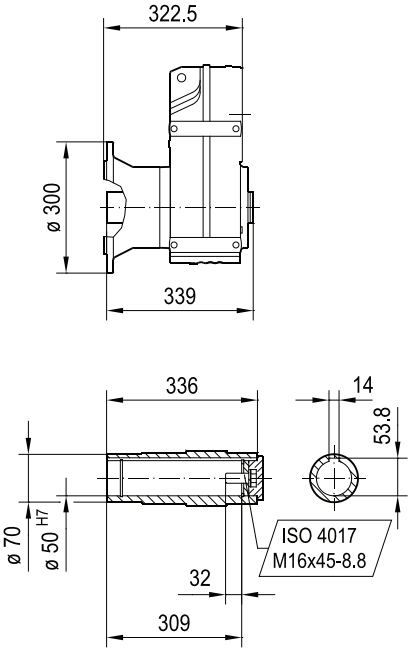
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77 476 00 21

FM77..



FAM77..



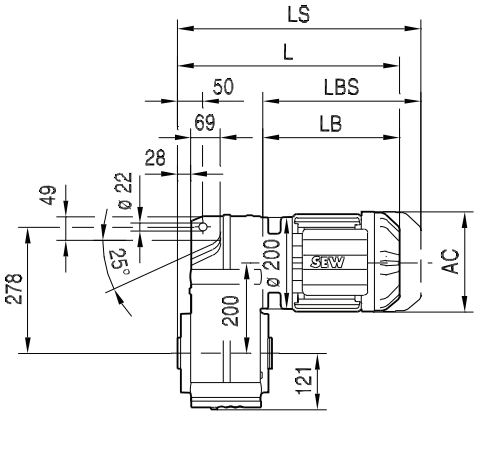
(→ 162)	DRN											
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	139	139	156	156	179	179	197	221	221	261	261	314
AD	118	118	128	128	140	140	157	170	170	228	228	253
ADS	129	129	139	139	150	150	158	172	172	228	228	253
L	621	641	652	697	698	730	777	808	858	876	901	968
LS	688	708	733	778	792	824	870	920	970	1013	1038	1157
LB	192	212	223	268	270	302	348	379	429	447	473	539
LBS	260	280	304	349	363	395	442	491	541	585	610	728

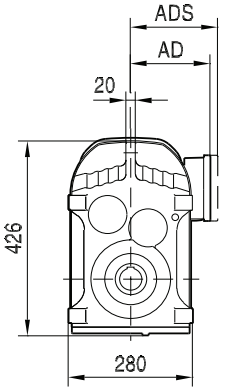
Dimensions in mm unless noted as inch. For tolerances, see page 162.

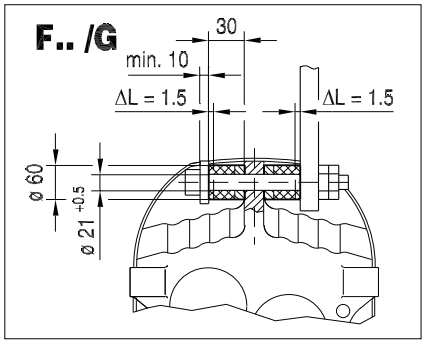
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77 477 00 21

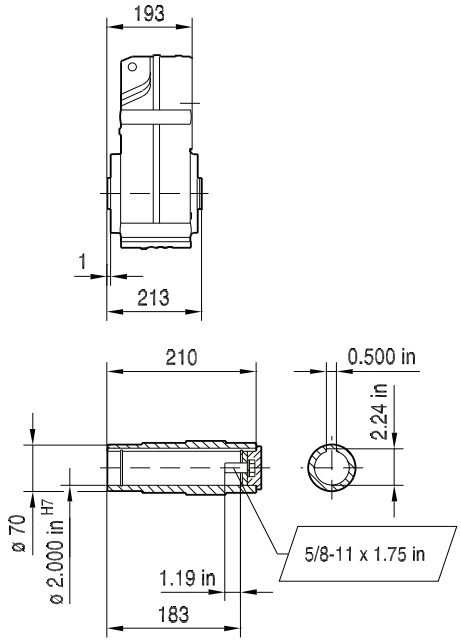
FA77..



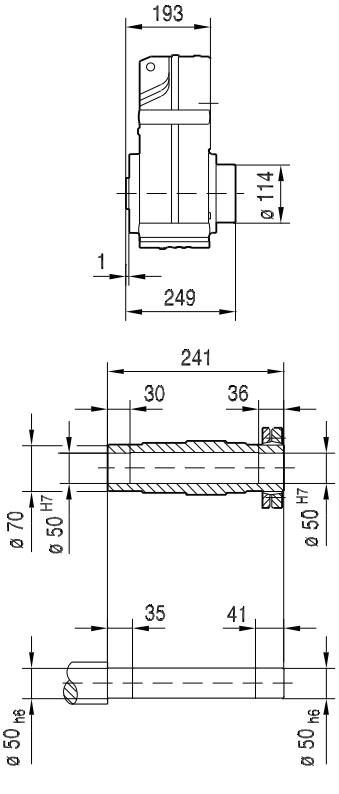




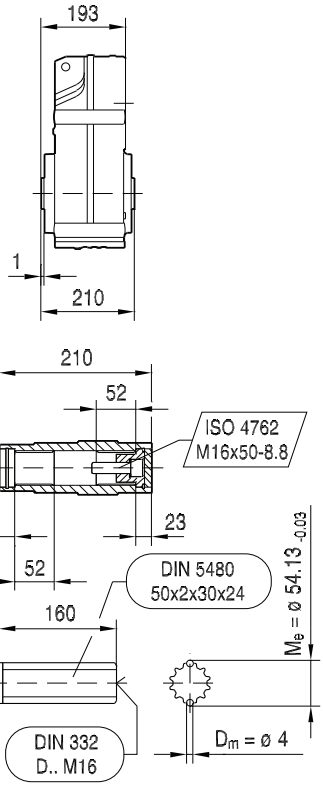
FA77..



FH77..
max. DRN132L..



FV77..



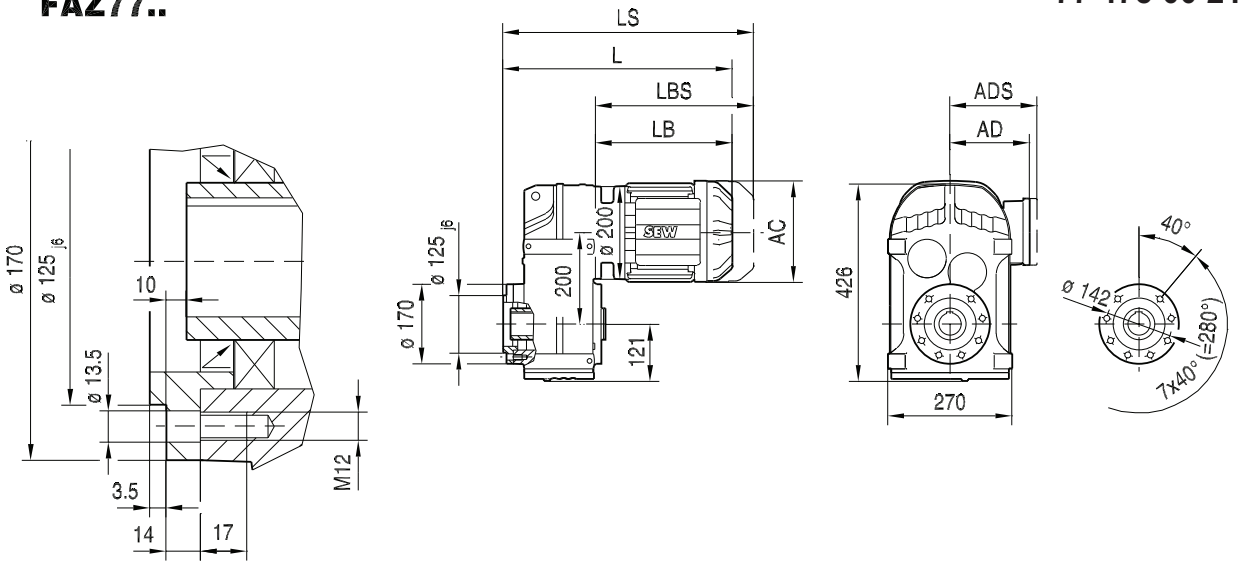
(→ 162)	DRN											
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	139	139	156	156	179	179	197	221	221	261	261	314
AD	118	118	128	128	140	140	157	170	170	228	228	253
ADS	129	129	139	139	150	150	158	172	172	228	228	253
L	385	405	416	461	463	495	541	572	622	640	666	732
LS	453	473	497	542	556	588	635	684	734	778	803	921
LB	192	212	223	268	270	302	348	379	429	447	473	539
LBS	260	280	304	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

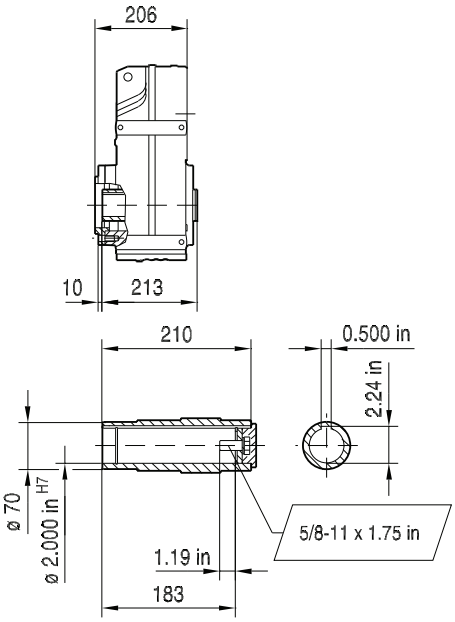
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FAZ77..

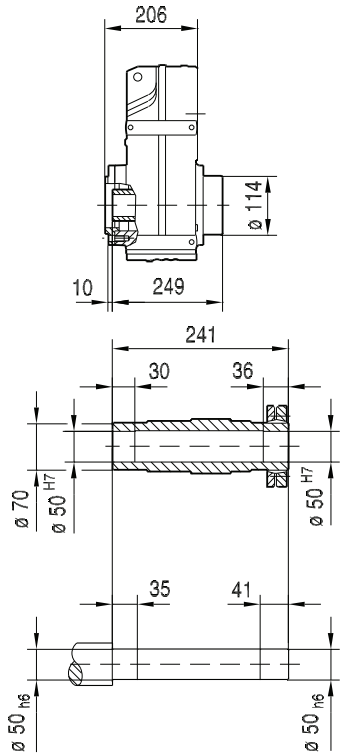
77 478 00 21



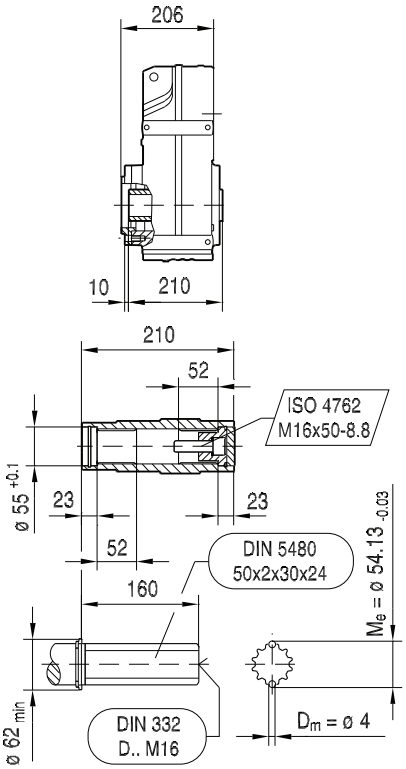
FAZ77..



FHZ77..
max. DRN132L..



FVZ77..



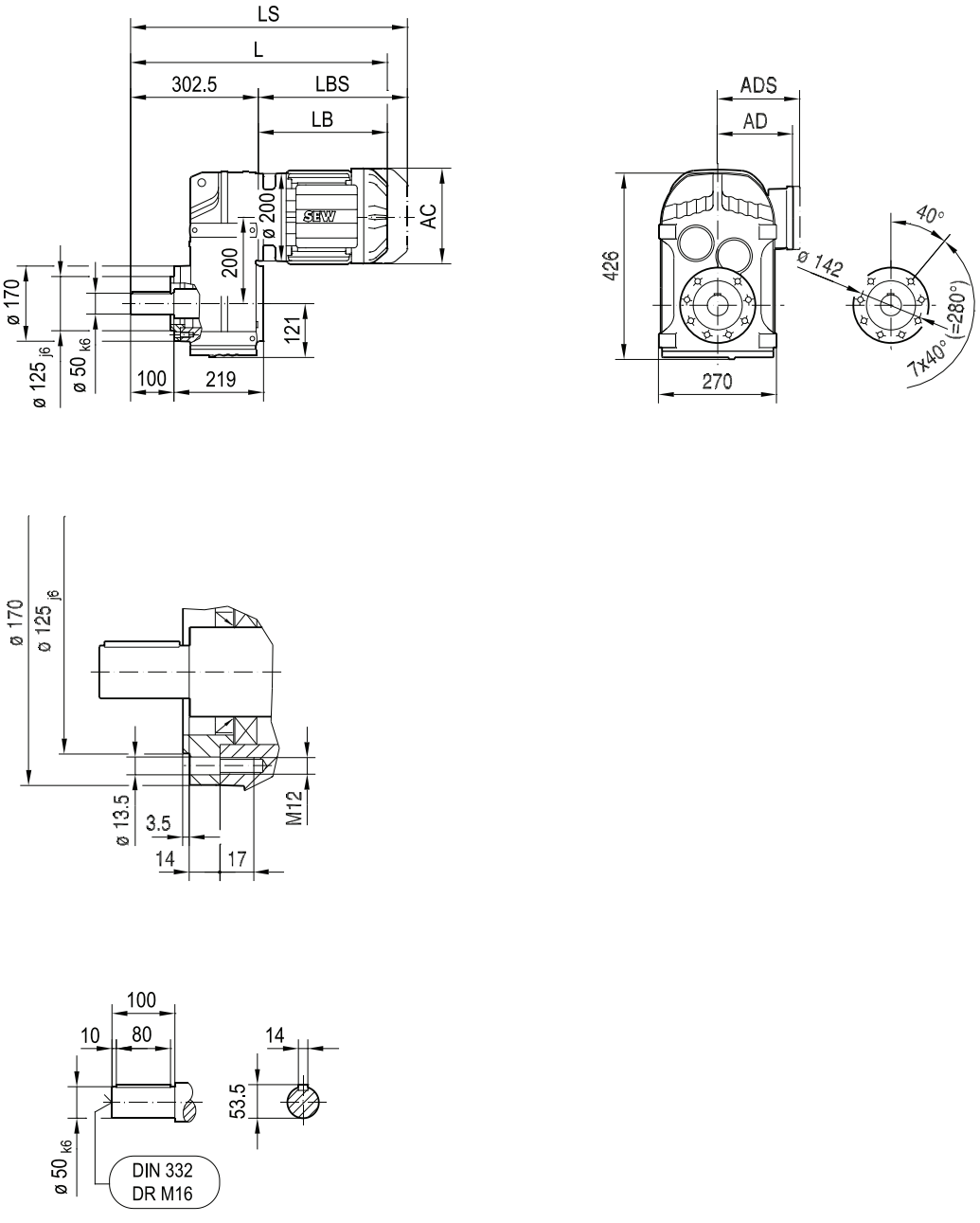
(→ 162)	DRN											
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	139	139	156	156	179	179	197	221	221	261	261	314
AD	118	118	128	128	140	140	157	170	170	228	228	253
ADS	129	129	139	139	150	150	158	172	172	228	228	253
L	398	418	429	474	476	508	554	585	635	653	679	745
LS	466	486	510	555	569	601	648	697	747	791	816	934
LB	192	212	223	268	270	302	348	379	429	447	473	539
LBS	260	280	304	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

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FZ77..

77 479 00 21



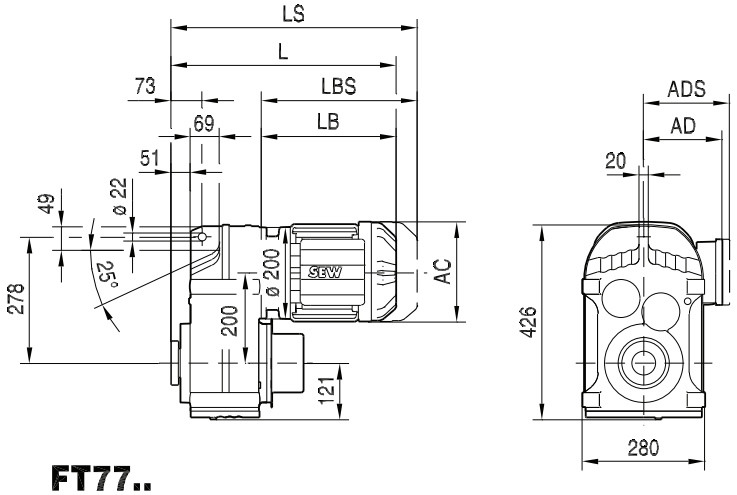
(→ 162)	DRN											
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	139	139	156	156	179	179	197	221	221	261	261	314
AD	118	118	128	128	140	140	157	170	170	228	228	253
ADS	129	129	139	139	150	150	158	172	172	228	228	253
L	495	515	526	571	572	604	651	682	732	750	775	842
LS	562	582	607	652	666	698	744	794	844	887	912	1031
LB	192	212	223	268	270	302	348	379	429	447	473	539
LBS	260	280	304	349	363	395	442	491	541	585	610	728

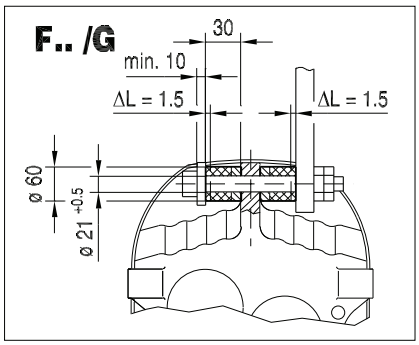
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

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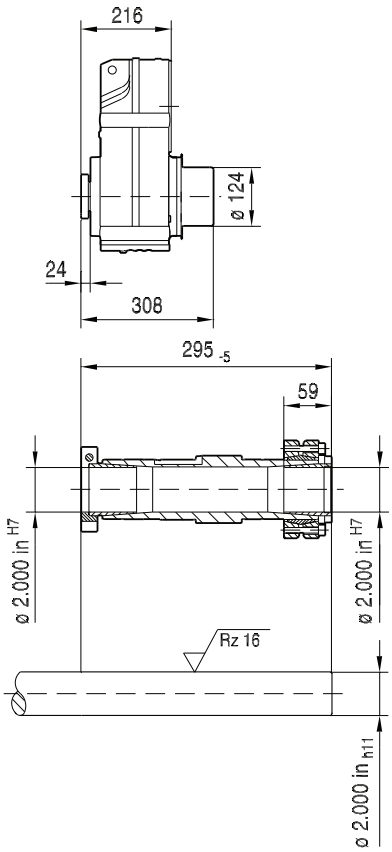
77 480 00 21

FT77..

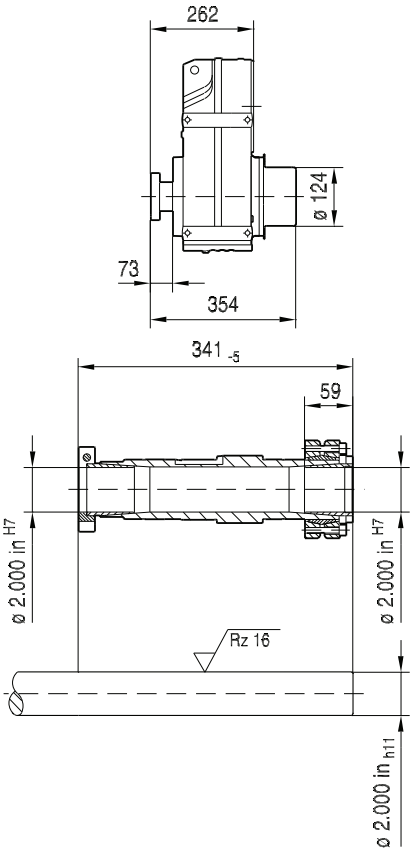




FT77..
NON-Symmetrical



FT77B..
Symmetrical



(→ 🗎 162)	DRN											
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160[1]
AC	139	139	156	156	179	179	197	221	221	261	261	314
AD	118	118	128	128	140	140	157	170	170	228	228	253
ADS	129	129	139	139	150	150	158	172	172	228	228	253
L	408	428	439	484	486	518	564	595	645	663	689	755
LS	476	496	520	565	579	611	658	707	757	801	826	944
LB	192	212	223	268	270	302	348	379	429	447	473	539
LBS	260	280	304	349	363	395	442	491	541	585	610	728

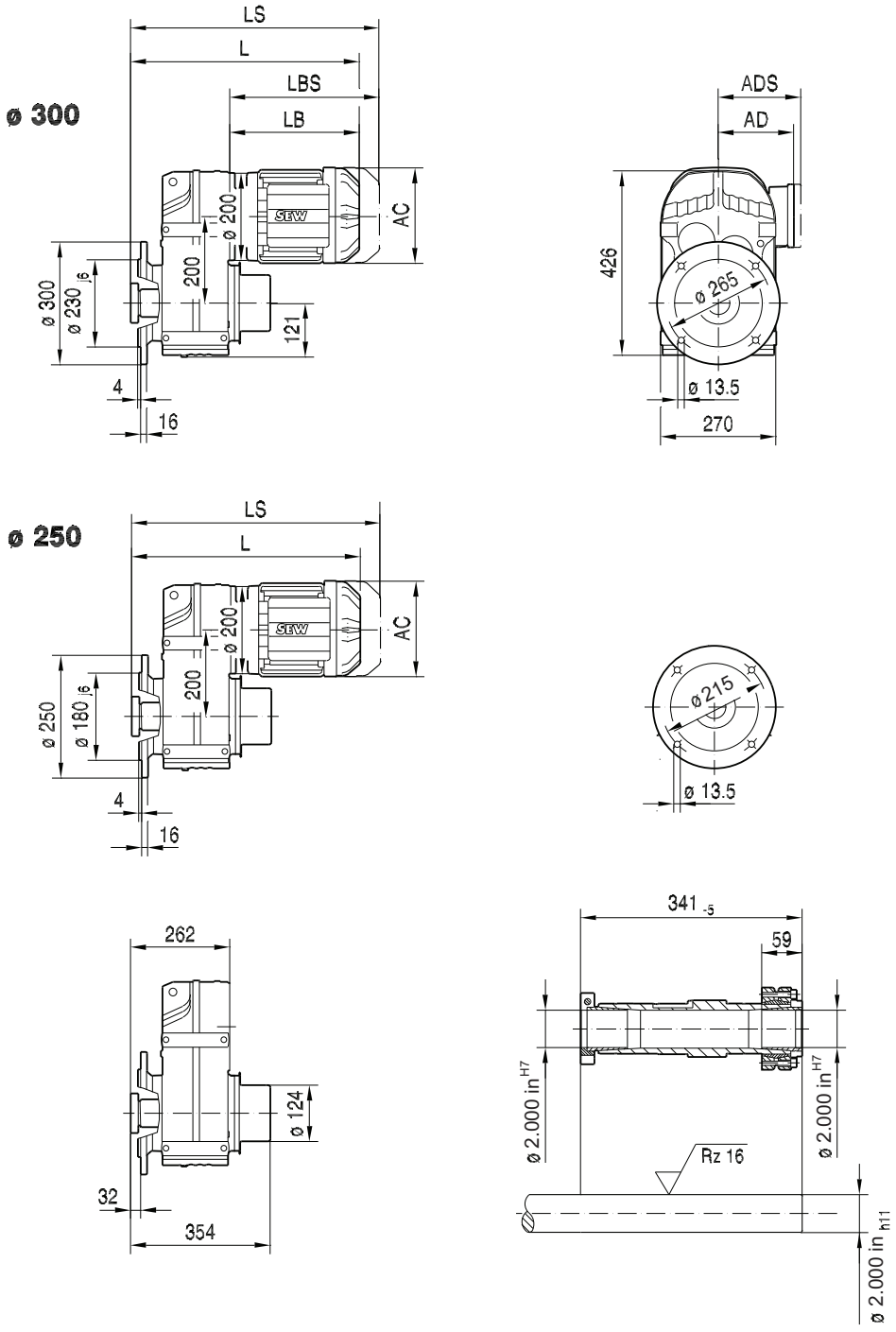
[1] Combination requires a modified shaft cover. See page 141.

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

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FTF77..

77 481 00 21



(→ 🗎 162)	DRN											
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160[1)]
AC	139	139	156	156	179	179	197	221	221	261	261	314
AD	118	118	128	128	140	140	157	170	170	228	228	253
ADS	129	129	139	139	150	150	158	172	172	228	228	253
L	454	474	485	530	532	564	610	641	691	709	735	801
LS	522	542	566	I611	625	657	704	753	803	847	872	990
LB	192	212	223	268	270	302	348	379	429	447	473	539
LBS	260	280	304	349	363	395	442	491	541	585	610	728

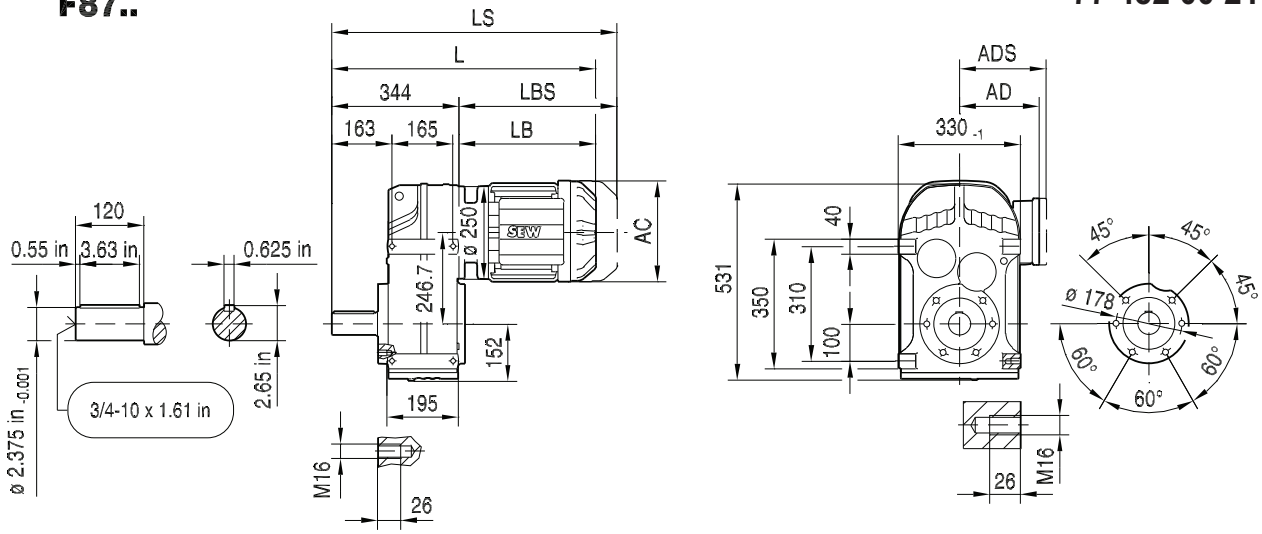
[1)] Combination requires a modified shaft cover. See page 141.

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

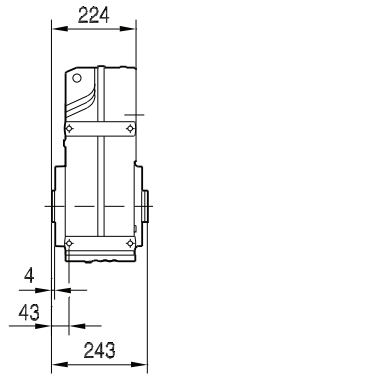
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F87..

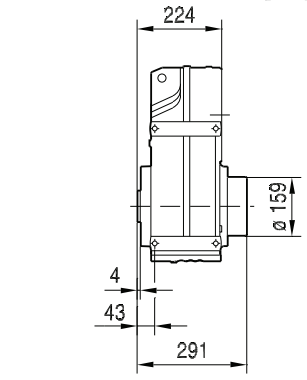


FA87B..

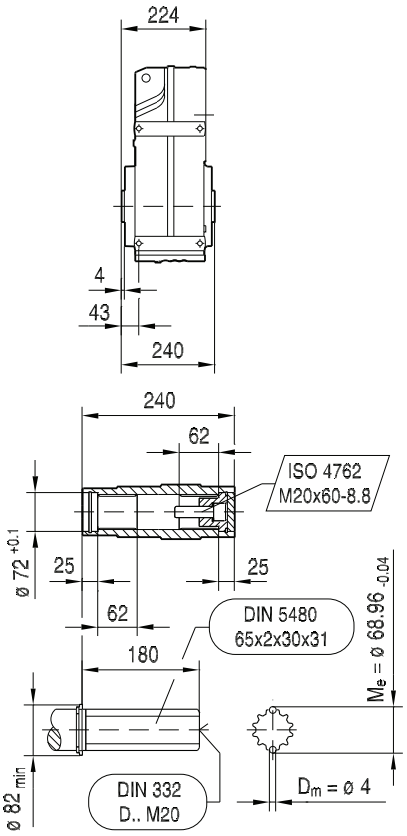


FH87B..

FH87B/R.. → pg. 120



FV87B..



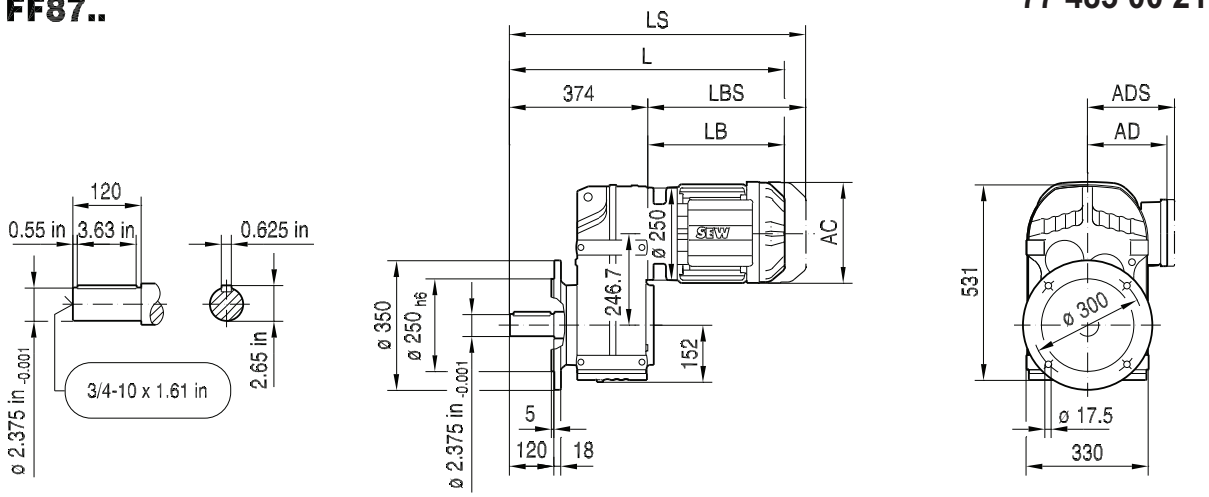
(→ 162)	DRN										
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	156	179	179	197	221	221	261	261	314	357
AD	128	128	140	140	157	170	170	228	228	253	268
ADS	139	139	150	150	158	172	172	228	228	253	268
L	562	607	609	641	687	718	768	786	812	878	901
LS	643	688	702	734	781	830	880	924	949	1067	1090
LB	218	263	265	297	343	374	424	442	468	534	557
LBS	299	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

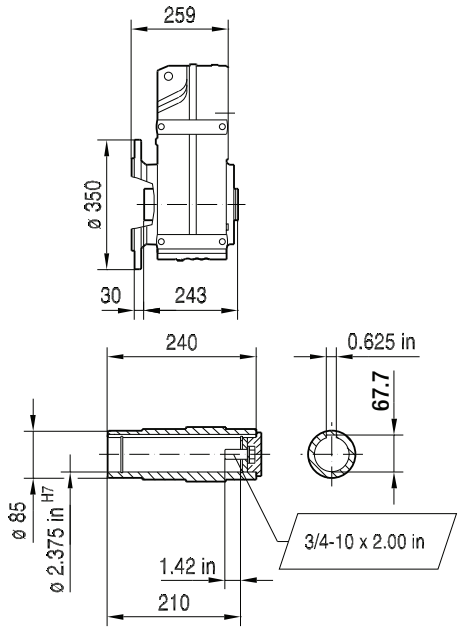
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FF87..

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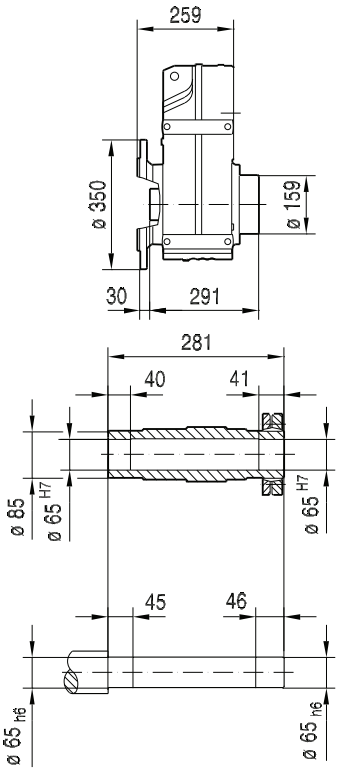


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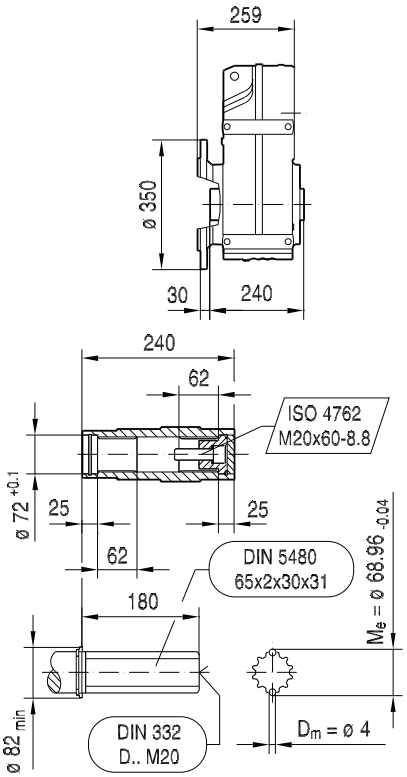


FHF87..

FHF87/R.. → pg. 120



FVF87..



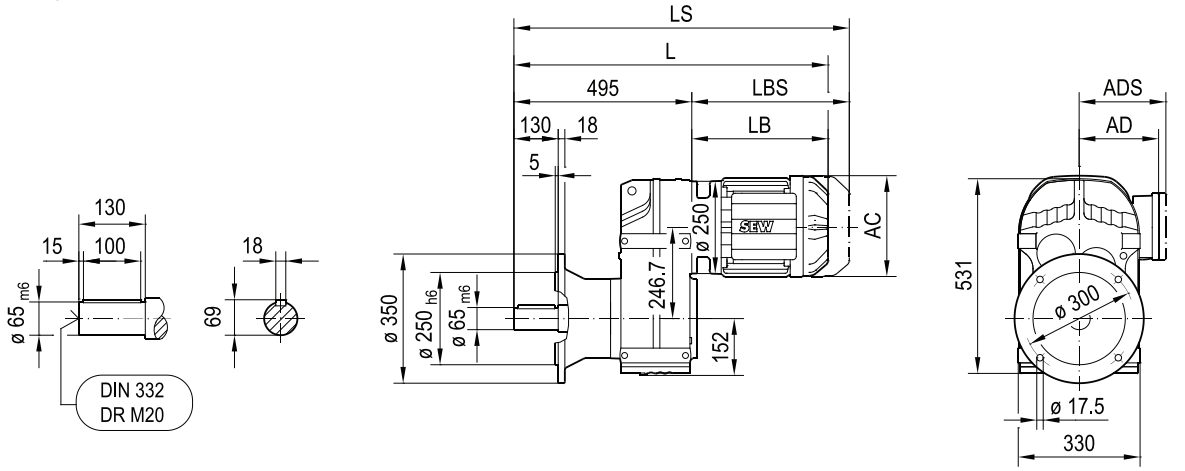
(→ 162)	DRN										
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	156	179	179	197	221	221	261	261	314	357
AD	128	128	140	140	157	170	170	228	228	253	268
ADS	139	139	150	150	158	172	172	228	228	253	268
L	592	637	639	671	717	748	798	816	842	908	931
LS	673	718	732	764	811	860	910	954	979	1097	1120
LB	218	263	265	297	343	374	424	442	468	534	557
LBS	299	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

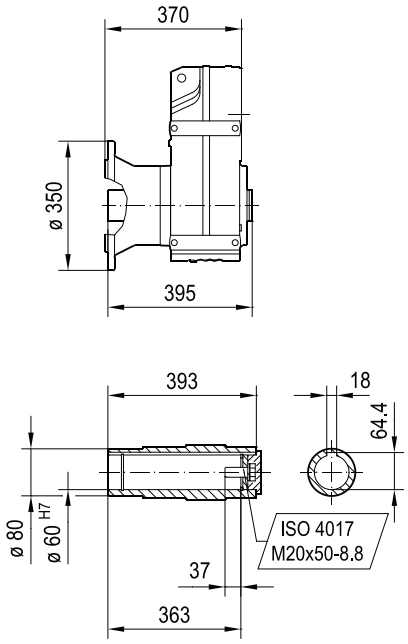
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FM87..



FAM87..



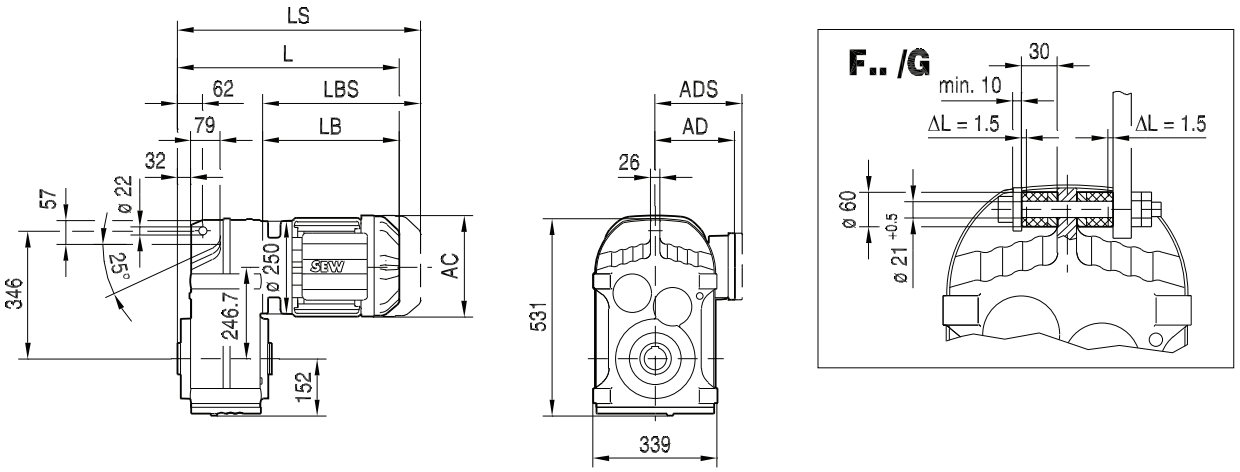
(→ 162)	DRN										
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	156	179	179	197	221	221	261	261	314	357
AD	128	128	140	140	157	170	170	228	228	253	268
ADS	139	139	150	150	158	172	172	228	228	253	268
L	713	758	760	792	788	869	919	937	963	1029	1052
LS	794	839	853	885	882	981	1031	1075	1100	1218	1241
LB	218	263	265	297	343	374	424	442	468	534	557
LBS	299	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For tolerances, see page 162.

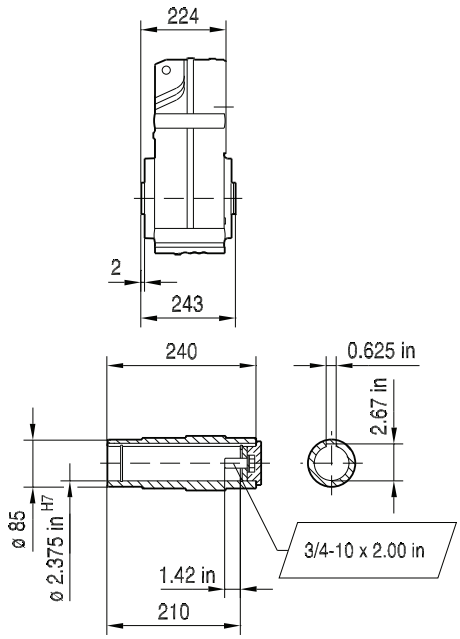
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FA87..

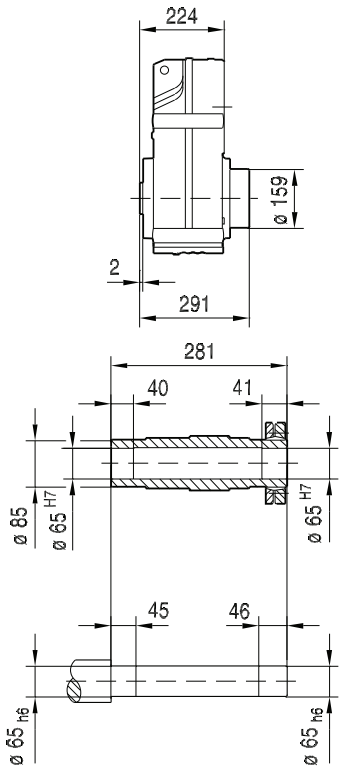


FA87..

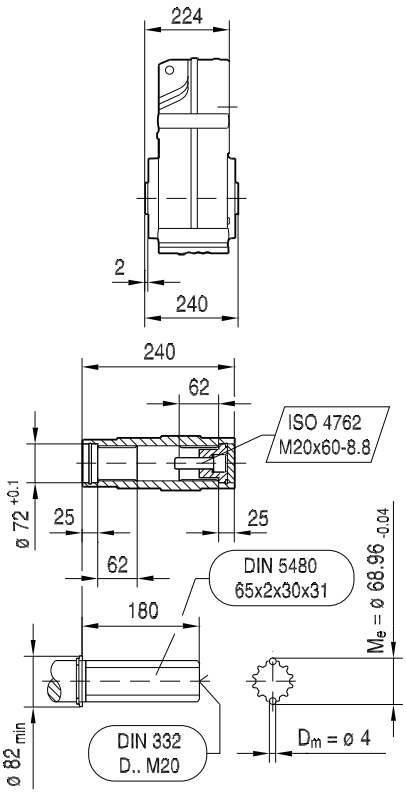


FH87..

FH87/R.. → pg. 120



FV87..



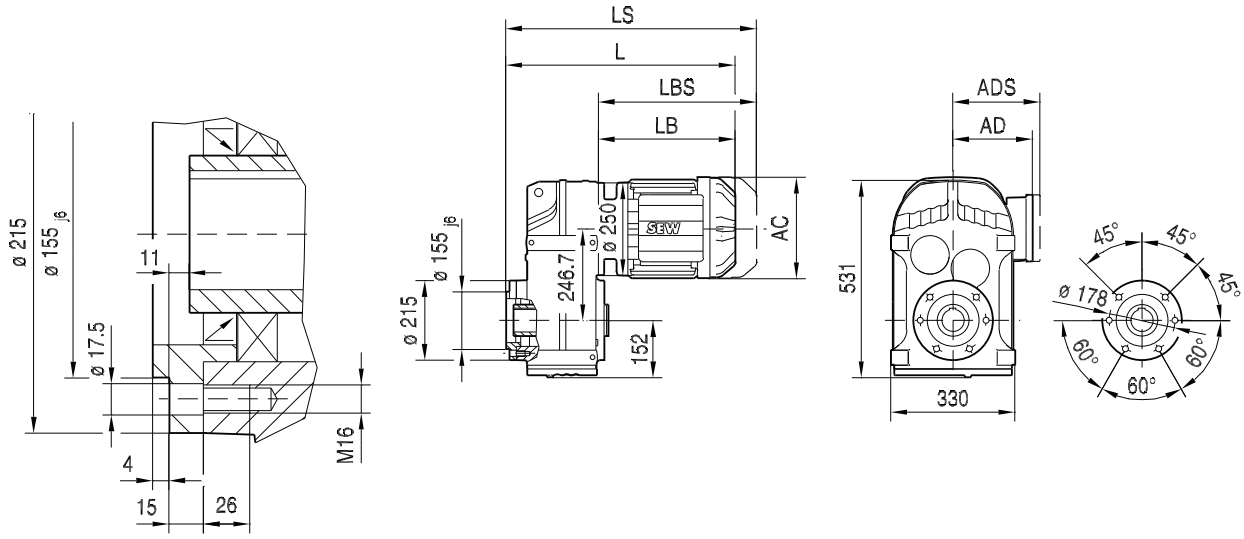
(→ 162)	DRN										
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	156	179	179	197	221	221	261	261	314	357
AD	128	128	140	140	157	170	170	228	228	253	268
ADS	139	139	150	150	158	172	172	228	228	253	268
L	442	487	489	521	567	598	648	666	692	758	781
LS	523	568	582	614	661	710	760	804	829	947	970
LB	218	263	265	297	343	374	424	442	468	534	557
LBS	299	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

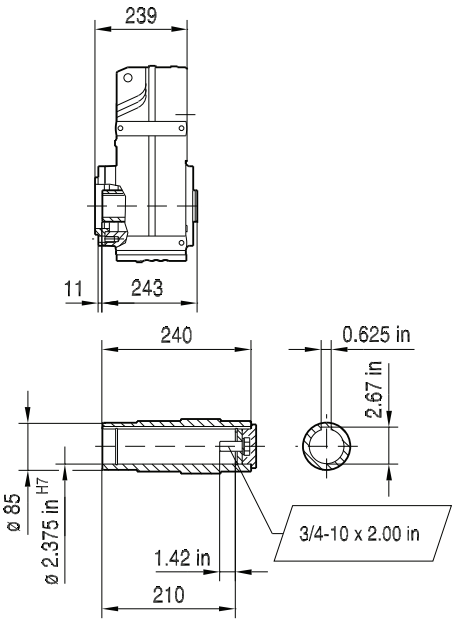
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FAZ87..

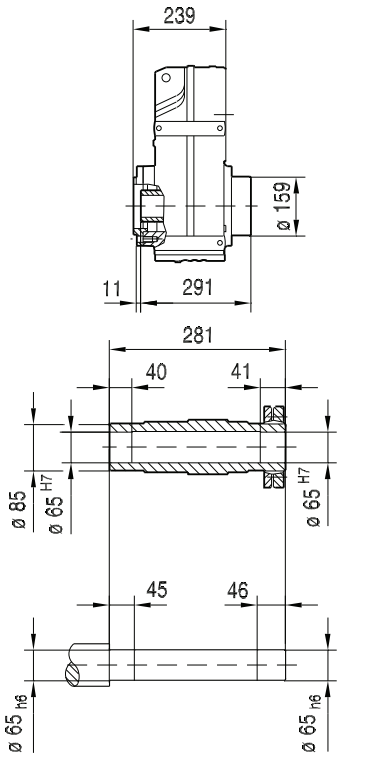


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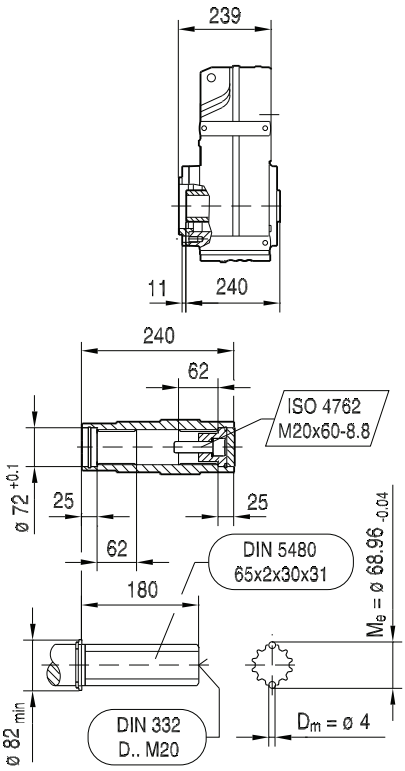


FHZ87..

FHZ87/R.. → pg. 120



FVZ87..



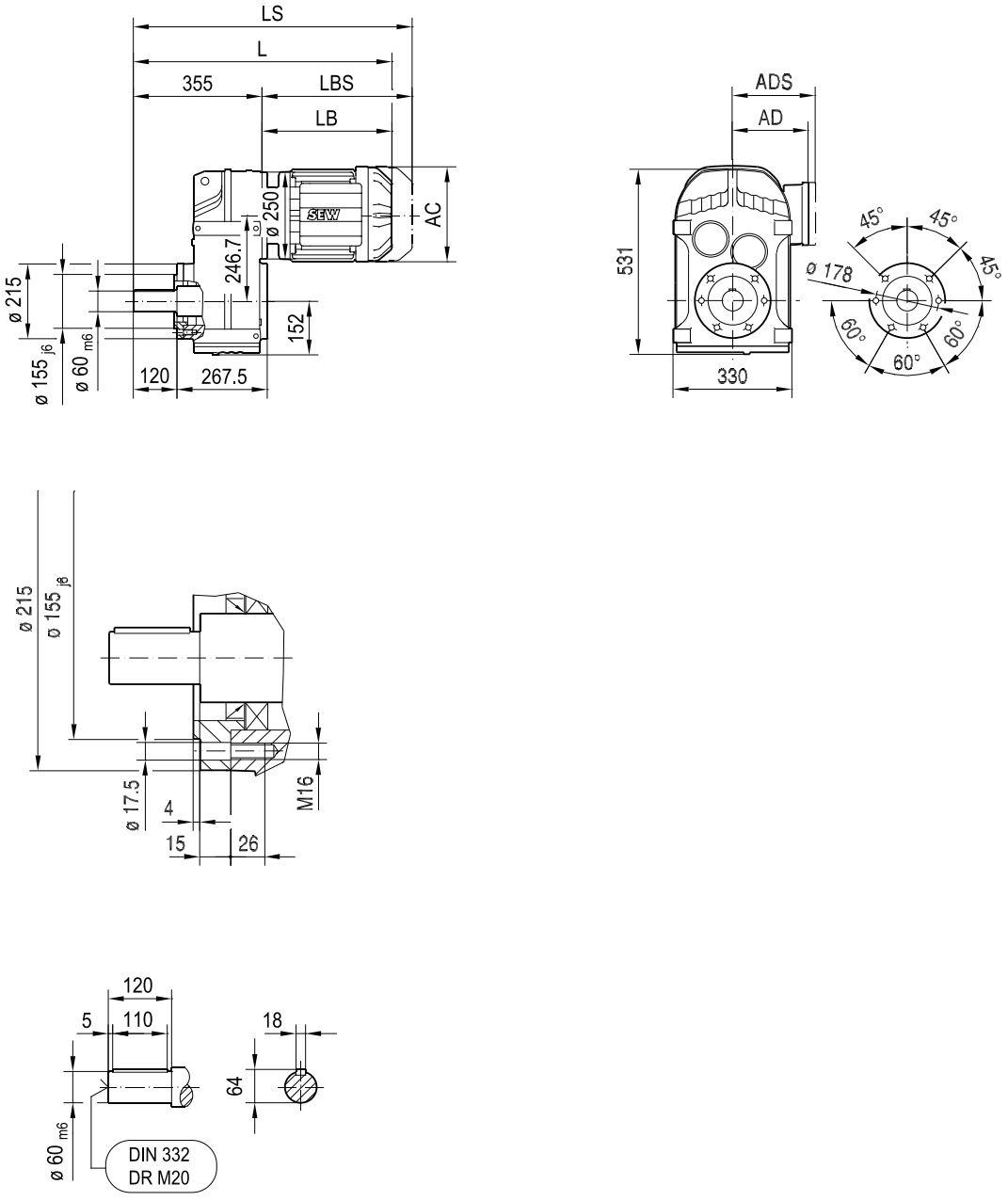
(→ 162)	DRN										
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	156	179	179	197	221	221	261	261	314	357
AD	128	128	140	140	157	170	170	228	228	253	268
ADS	139	139	150	150	158	172	172	228	228	253	268
L	457	502	504	536	582	613	663	681	707	773	796
LS	538	583	597	629	676	725	775	819	844	962	985
LB	218	263	265	297	343	374	424	442	468	534	557
LBS	299	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

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FZ87..

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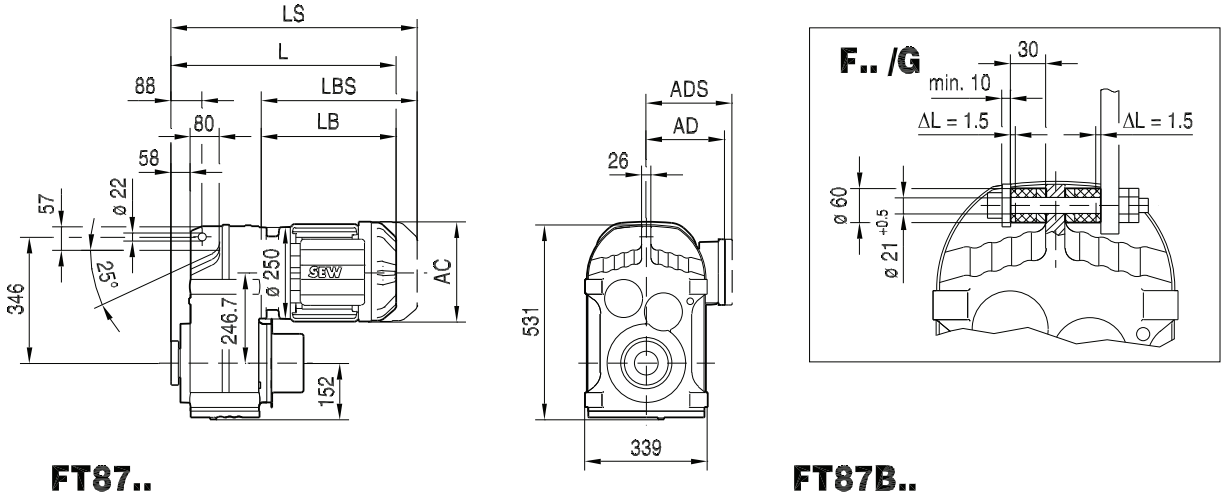
(→ 162)	DRN										
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	156	179	179	197	221	221	261	261	314	357
AD	128	128	140	140	157	170	170	228	228	253	268
ADS	139	139	150	150	158	172	172	228	228	253	268
L	573	618	620	652	698	729	779	797	823	889	912
LS	654	699	713	745	792	841	891	935	960	1078	1101
LB	218	263	265	297	343	374	424	442	468	534	557
LBS	299	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

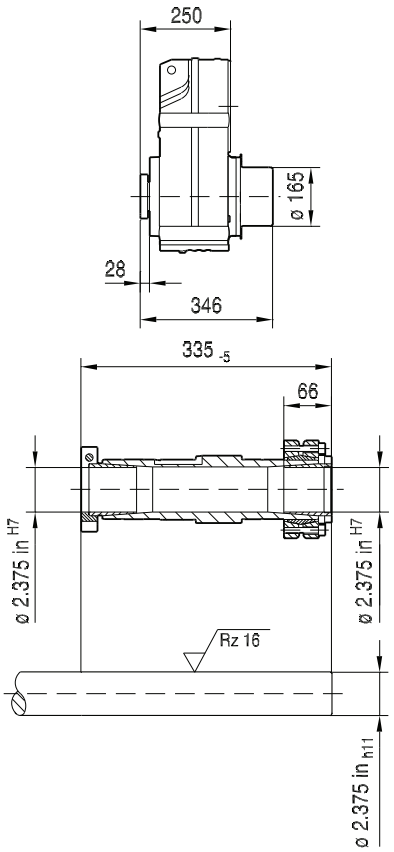
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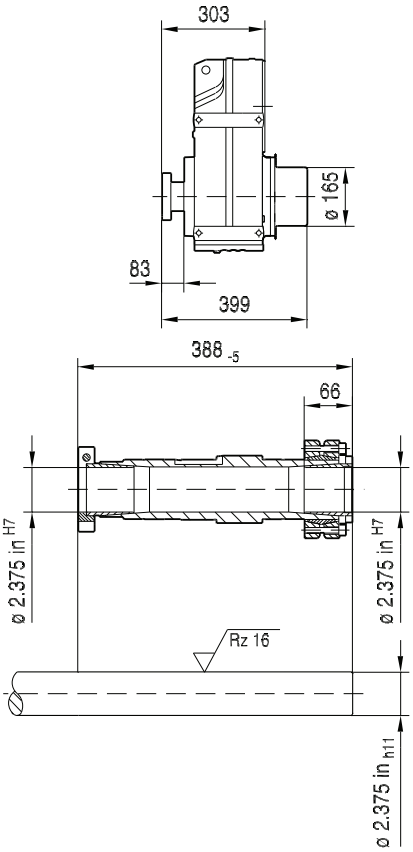
FT87..



FT87..
NON-Symmetrical



FT87B..
Symmetrical



(→ 162)	DRN										
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180[1)]
AC	156	156	179	179	197	221	221	261	261	314	357
AD	128	128	140	140	157	170	170	228	228	253	268
ADS	139	139	150	150	158	172	172	228	228	253	268
L	468	513	515	547	593	624	674	692	718	784	807
LS	549	594	608	640	687	736	786	830	855	973	996
LB	218	263	265	297	343	374	424	442	468	534	557
LBS	299	344	358	390	437	486	536	580	605	723	746

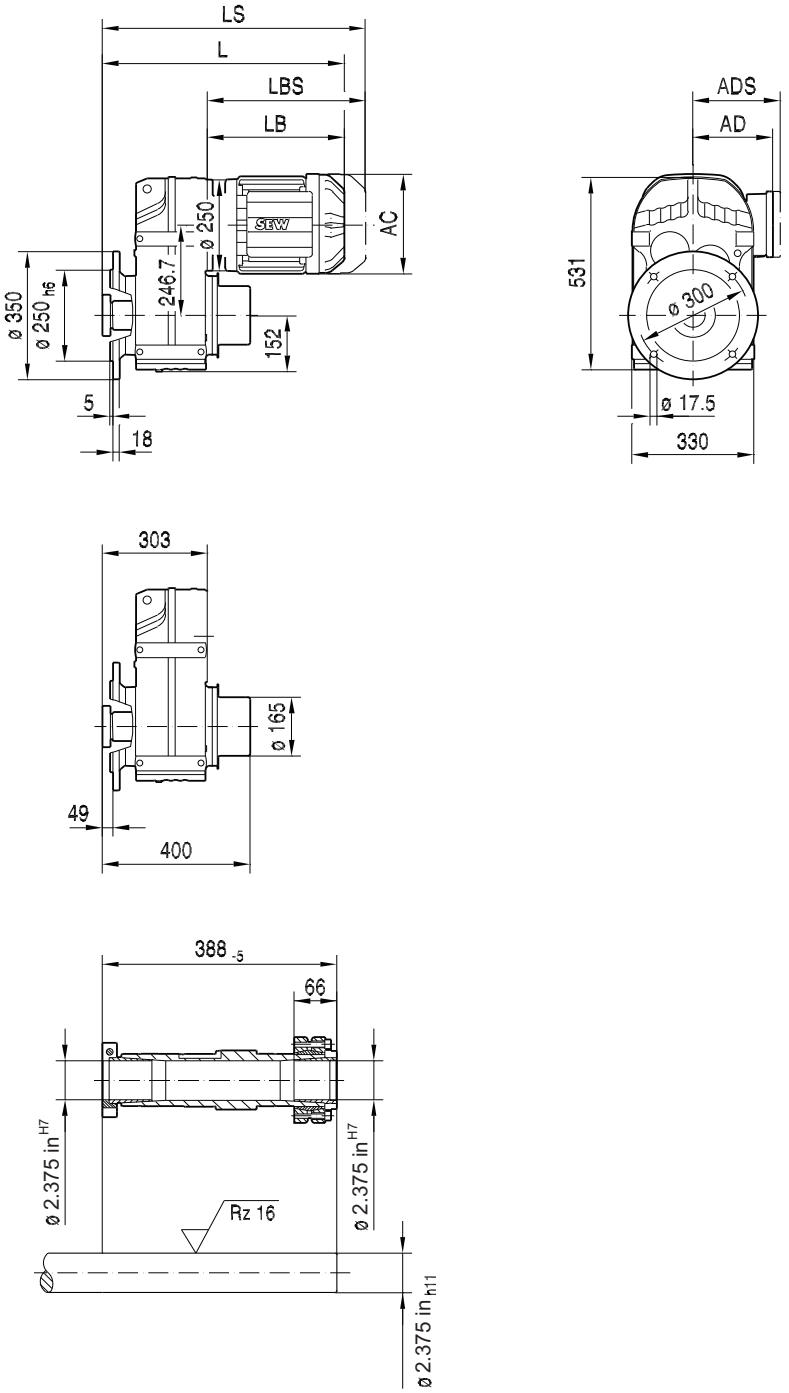
[1)] Standard shaft cover not available for this combination.

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

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FTF87..

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(→ 🗎 162)	DRN										
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180[1)]
AC	156	156	179	179	197	221	221	261	261	314	357
AD	128	128	140	140	157	170	170	228	228	253	268
ADS	139	139	150	150	158	172	172	228	228	253	268
L	521	566	568	600	646	677	727	745	771	837	860
LS	602	647	661	693	740	789	839	883	908	1026	1049
LB	218	263	265	297	343	374	424	442	468	534	557
LBS	299	344	358	390	437	486	536	580	605	723	746

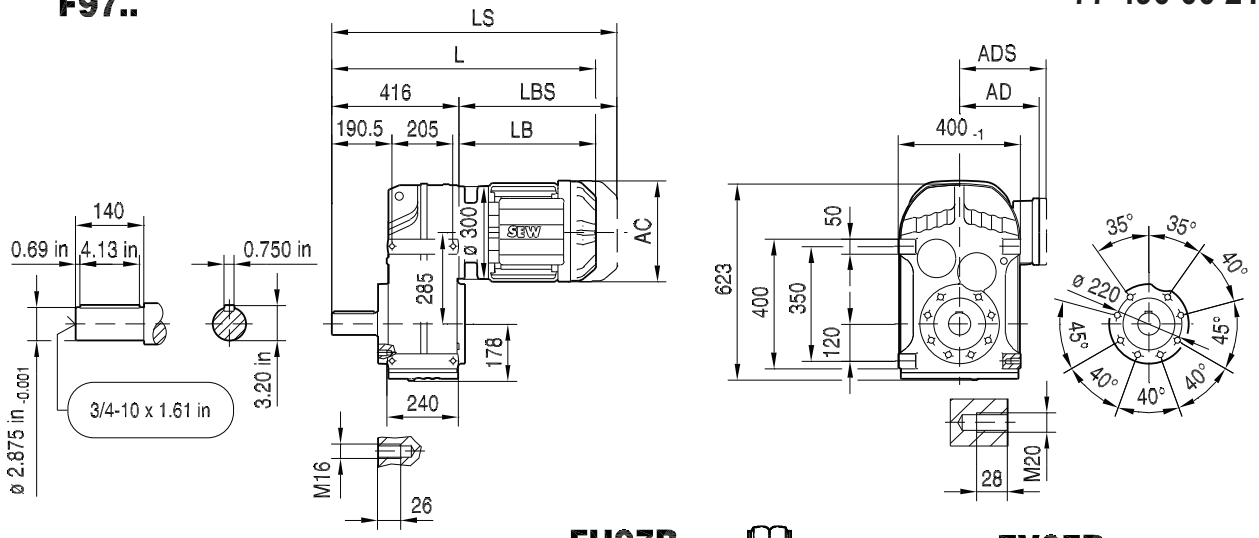
[1)] Standard shaft cover not available for this combination.

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

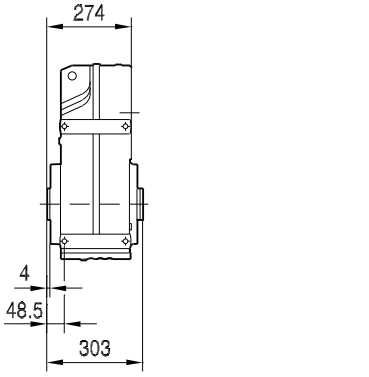
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77 490 00 21

F97..

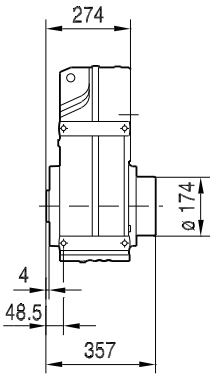


FA97B..

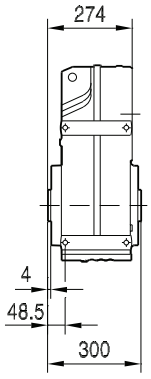


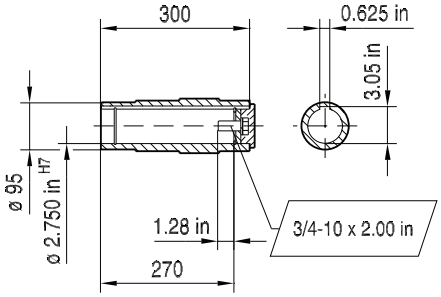
FH97B..

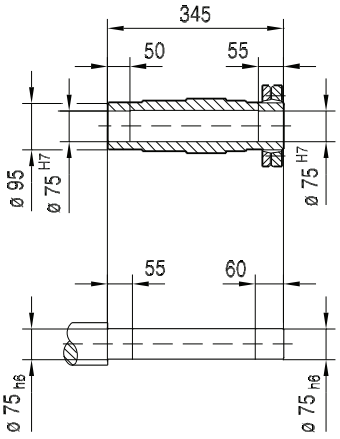
FH97B/R.. → pg. 120

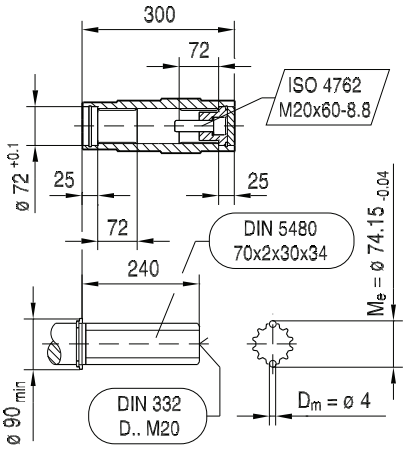


FV97B..









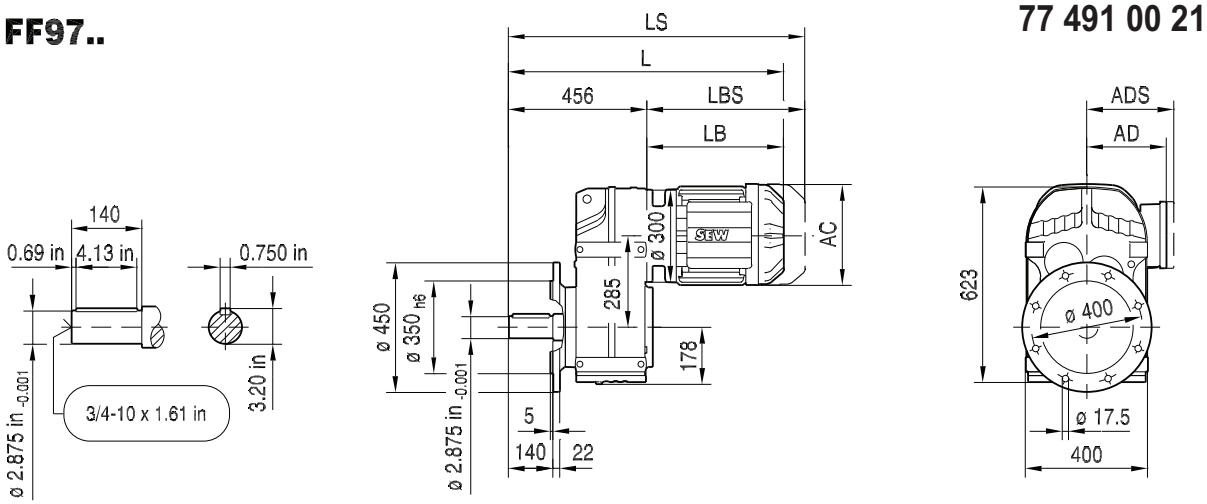
(→ 162)	DRN										
	90S	90L	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	179	179	197	221	221	261	261	314	357	394	434
AD	140	140	157	170	170	228	228	253	268	283	305
ADS	150	150	158	172	172	228	228	253	268	283	305
L	676	708	754	785	835	853	879	945	968	1078	1052
LS	769	801	848	897	947	991	1016	1134	1157	1283	1257
LB	260	292	338	369	419	437	463	529	552	662	636
LBS	353	385	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

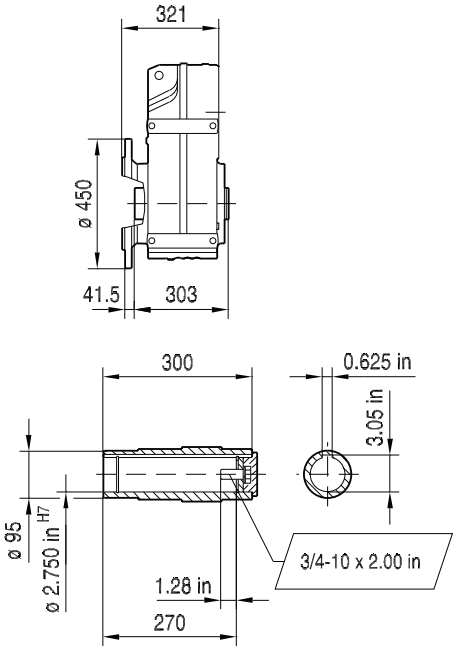
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FF97..

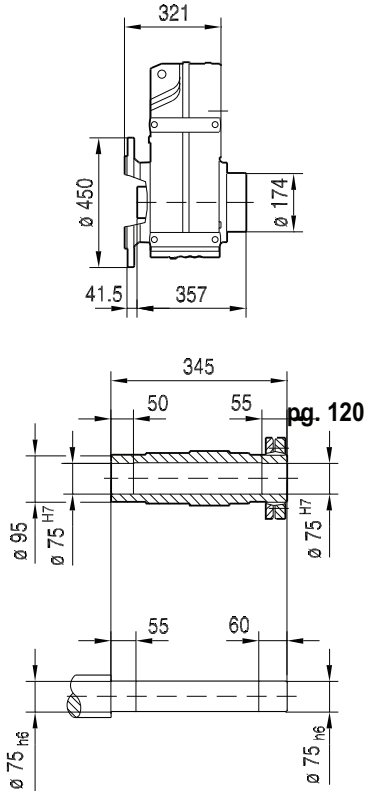
77 491 00 21



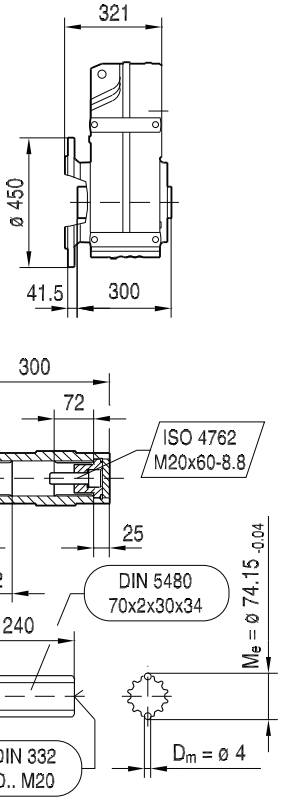
FAF97..



FHF97..
FHF97/R.. → 📖 pg. 120



FVF97..



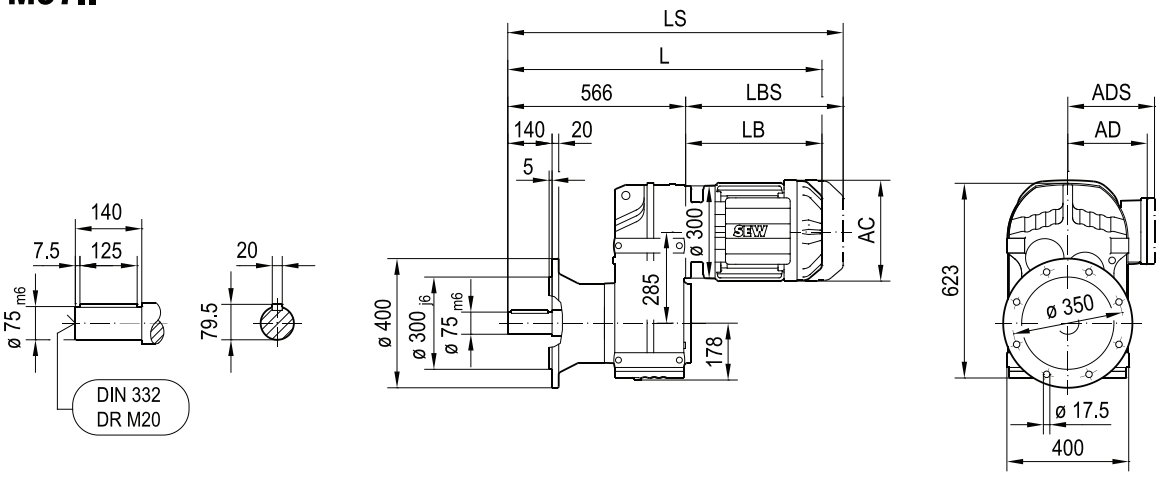
(→ 🗎 162)	DRN										
	90S	90L	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	179	179	197	221	221	261	261	314	357	394	434
AD	140	140	157	170	170	228	228	253	268	283	305
ADS	150	150	158	172	172	228	228	253	268	283	305
L	716	748	794	825	875	893	919	985	1008	1118	1092
LS	809	841	888	937	987	1031	1056	1174	1197	1323	1297
LB	260	292	338	369	419	437	463	529	552	662	636
LBS	353	385	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

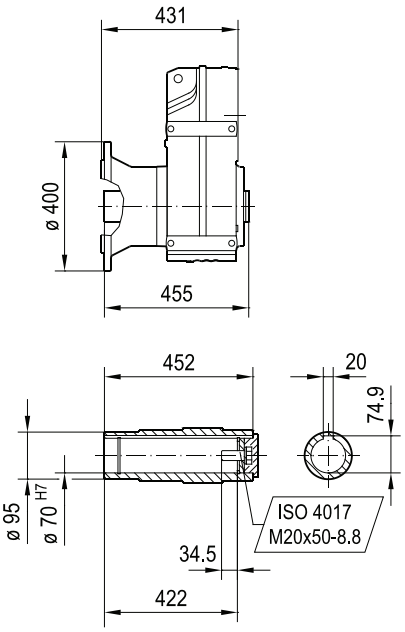
24833231/EN-US – 07/2021

77 492 00 21

FM97..



FAM97..

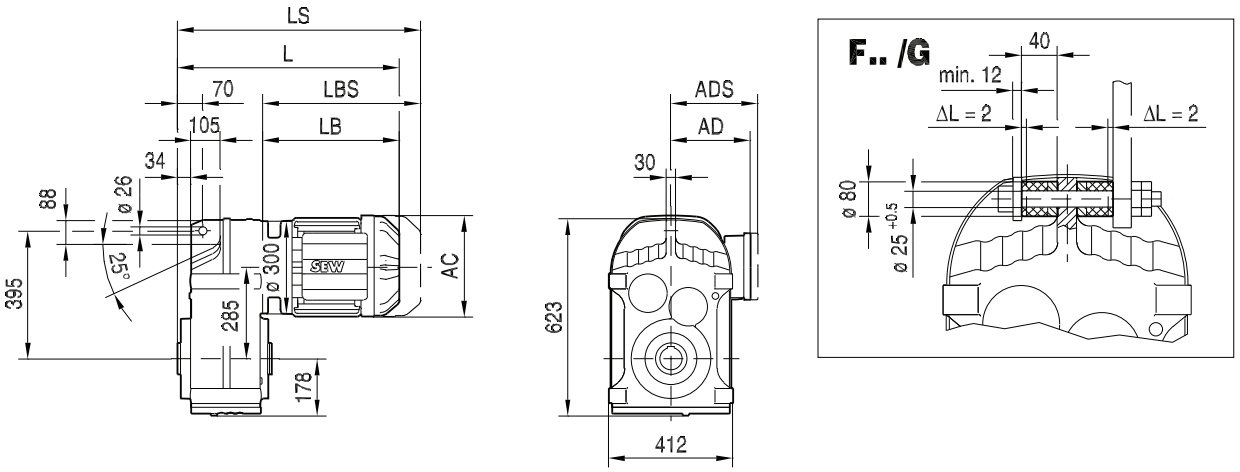


(→ 🗎 162)	DRN										
	90S	90L	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	179	179	197	221	221	261	261	314	357	394	434
AD	140	140	157	170	170	228	228	253	268	283	305
ADS	150	150	158	172	172	228	228	253	268	283	305
L	919	951	998	1047	1097	1141	1166	1284	1307	1433	1407
LS	260	292	338	369	419	437	463	529	552	662	636
LB	260	292	338	369	419	437	463	529	552	662	636
LBS	353	385	432	481	531	575	600	718	741	867	841

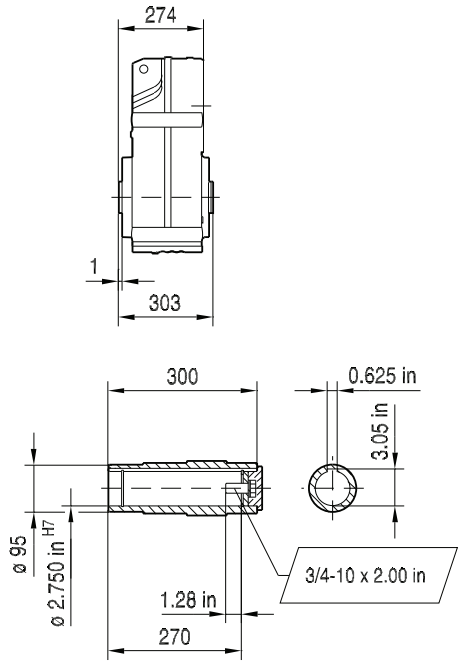
Dimensions in mm unless noted as inch. For tolerances, see page 162.

77 493 00 21

FA97..

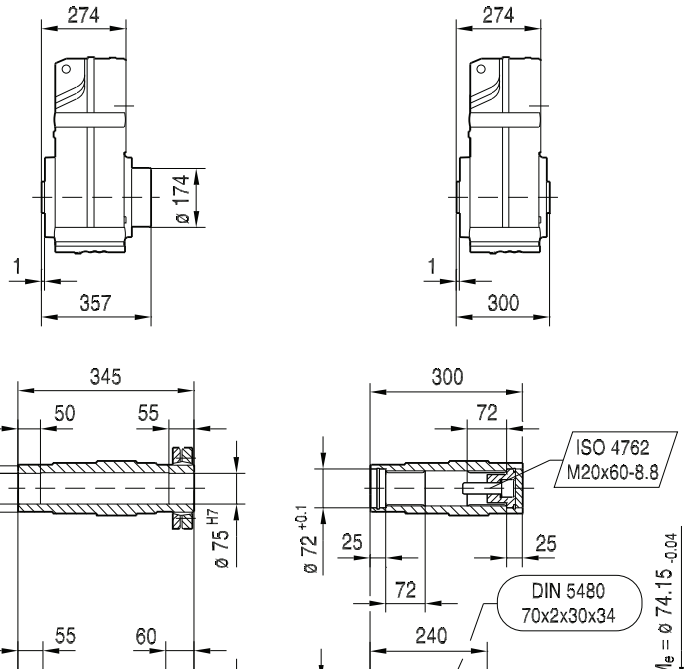


FA97..

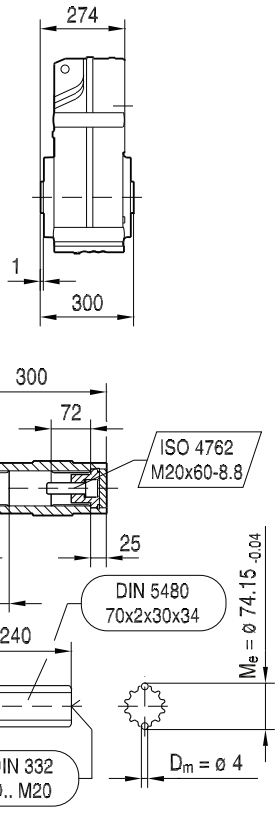


FH97..

FH97/R.. → pg. 120



FV97..



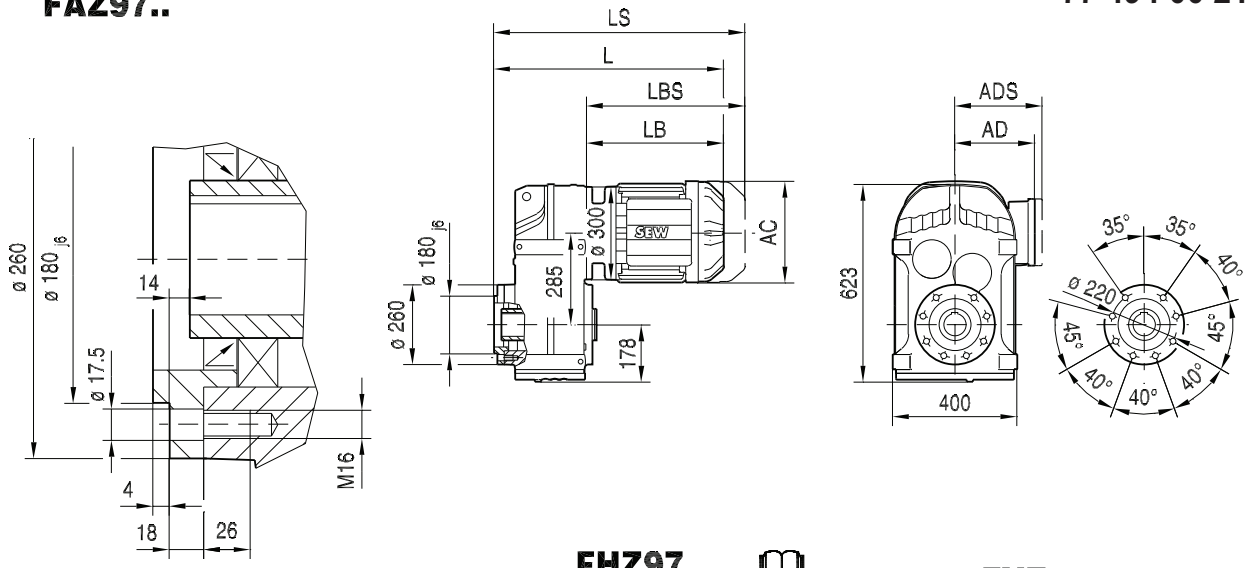
(→ 162)	DRN										
	90S	90L	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	179	179	197	221	221	261	261	314	357	394	434
AD	140	140	157	170	170	228	228	253	268	283	305
ADS	150	150	158	172	172	228	228	253	268	283	305
L	534	566	612	643	693	711	737	803	826	936	910
LS	627	659	706	755	805	849	874	992	1015	1141	1115
LB	260	292	338	369	419	437	463	529	552	662	636
LBS	353	385	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

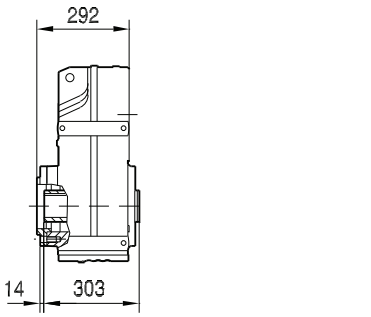
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FAZ97..

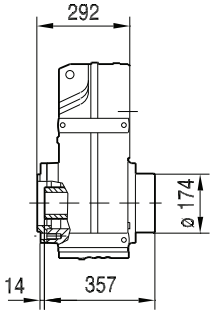
77 494 00 21



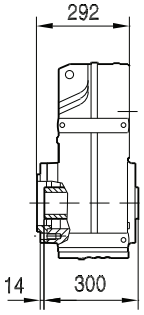
FAZ97..

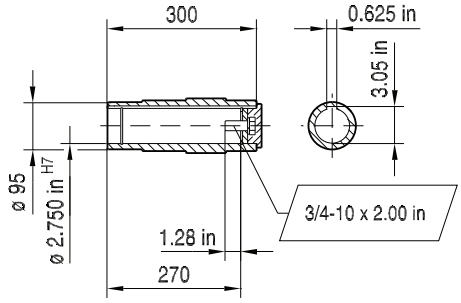


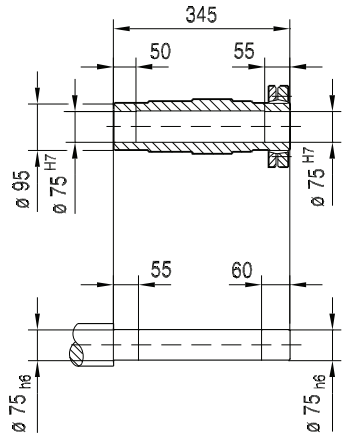
FHZ97..
FHZ97/R.. → pg. 120

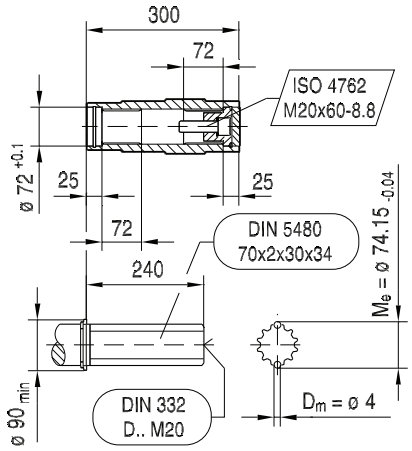


FVZ97..









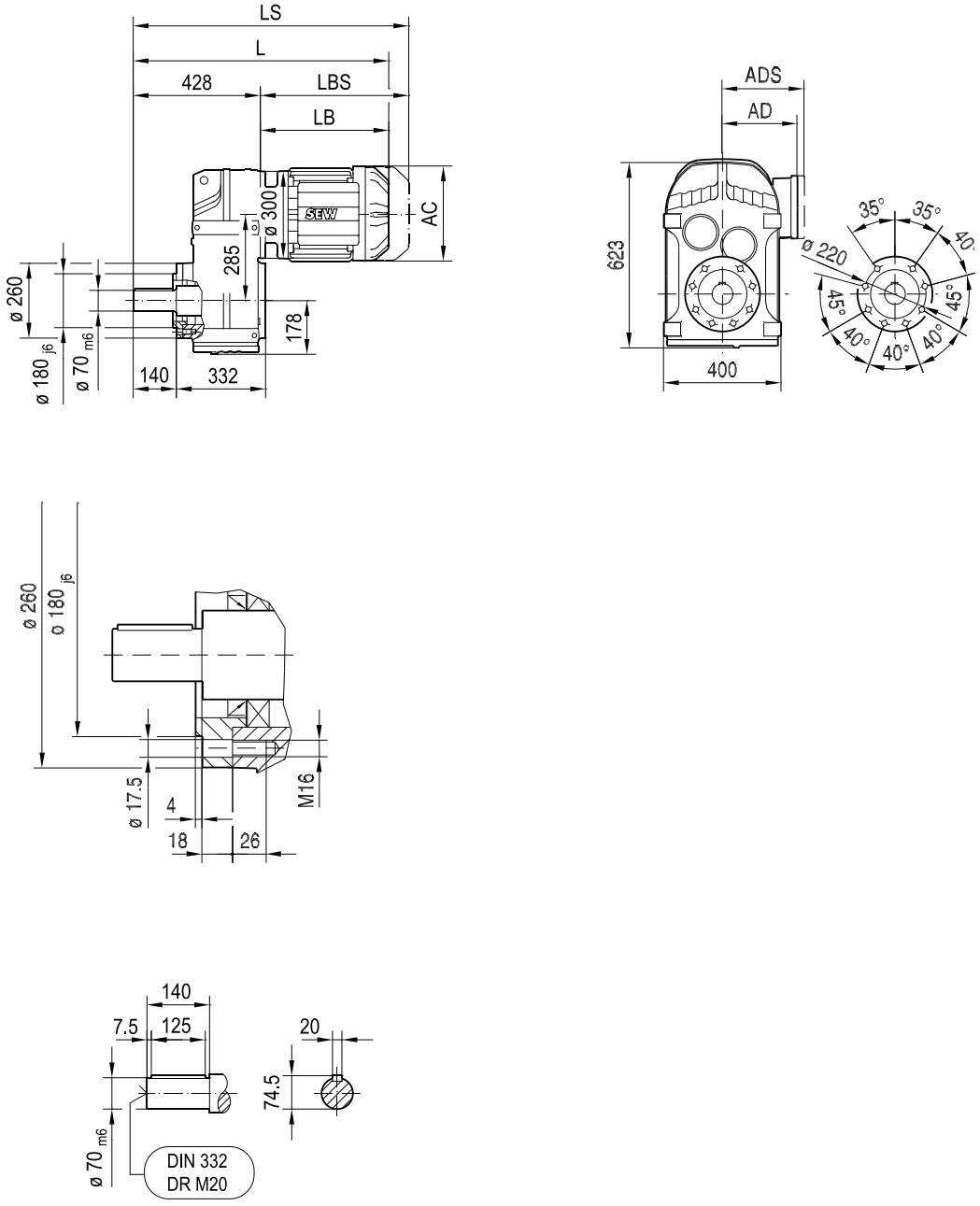
(→ 🗎 162)	DRN										
	90S	90L	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	179	179	197	221	221	261	261	314	357	394	434
AD	140	140	157	170	170	228	228	253	268	283	305
ADS	150	150	158	172	172	228	228	253	268	283	305
L	552	584	630	661	711	729	755	821	844	954	928
LS	645	677	724	773	823	867	892	1010	1033	1159	1133
LB	260	292	338	369	419	437	463	529	552	662	636
LBS	353	385	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

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FZ97..

77 495 00 21



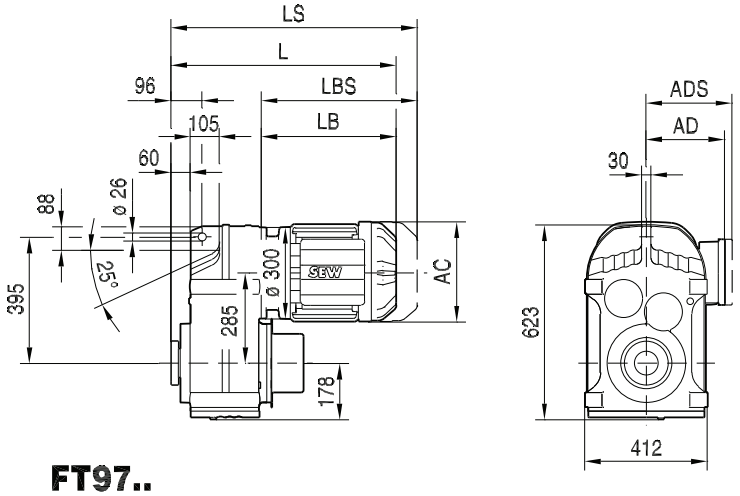
(→ 🗎 162)	DRN										
	90S	90L	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	179	179	197	221	221	261	261	314	357	394	434
AD	140	140	157	170	170	228	228	253	268	283	305
ADS	150	150	158	172	172	228	228	253	268	283	305
L	688	720	766	797	847	865	891	957	980	1090	1064
LS	781	813	860	909	959	1003	1028	1146	1169	1295	1269
LB	260	292	338	369	419	437	463	529	552	662	636
LBS	353	385	432	481	531	575	600	718	741	867	841

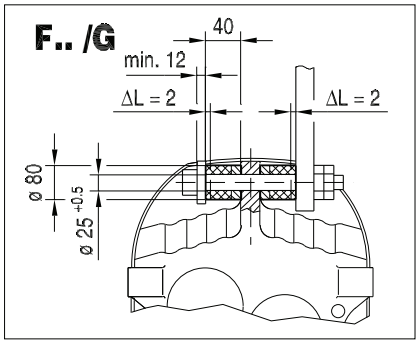
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

24833231/EN-US – 07/2021

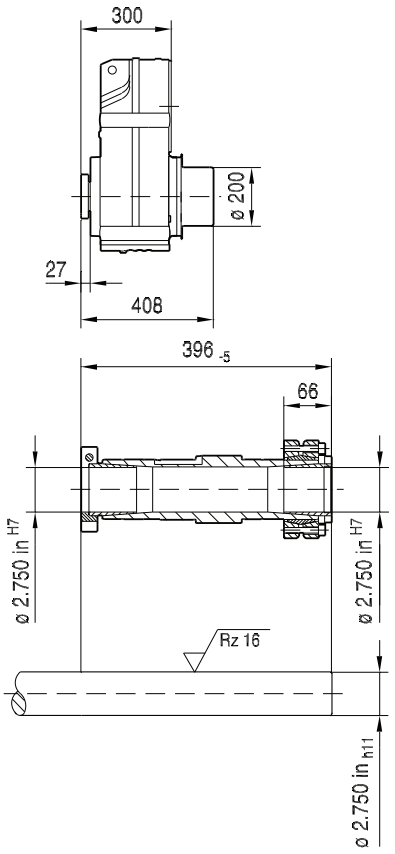
77 496 00 21

FT97..

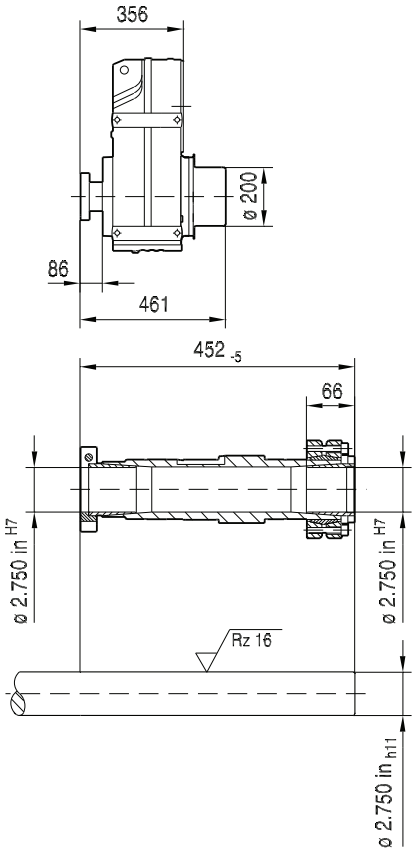




FT97..
NON-Symmetrical



FT97B..
Symmetrical



(→ 🗎 162)	DRN									
	90S	90L	100L/LM	112M	132S	132M	132L	160	180	200L[1)]
AC	179	179	197	221	221	261	261	314	357	394
AD	140	140	157	170	170	228	228	253	268	283
ADS	150	150	158	172	172	228	228	253	268	283
L	560	592	638	669	719	737	763	829	852	962
LS	653	685	732	781	831	875	900	1018	1041	1167
LB	260	292	338	369	419	437	463	529	552	662
LBS	353	385	432	481	531	575	600	718	741	867

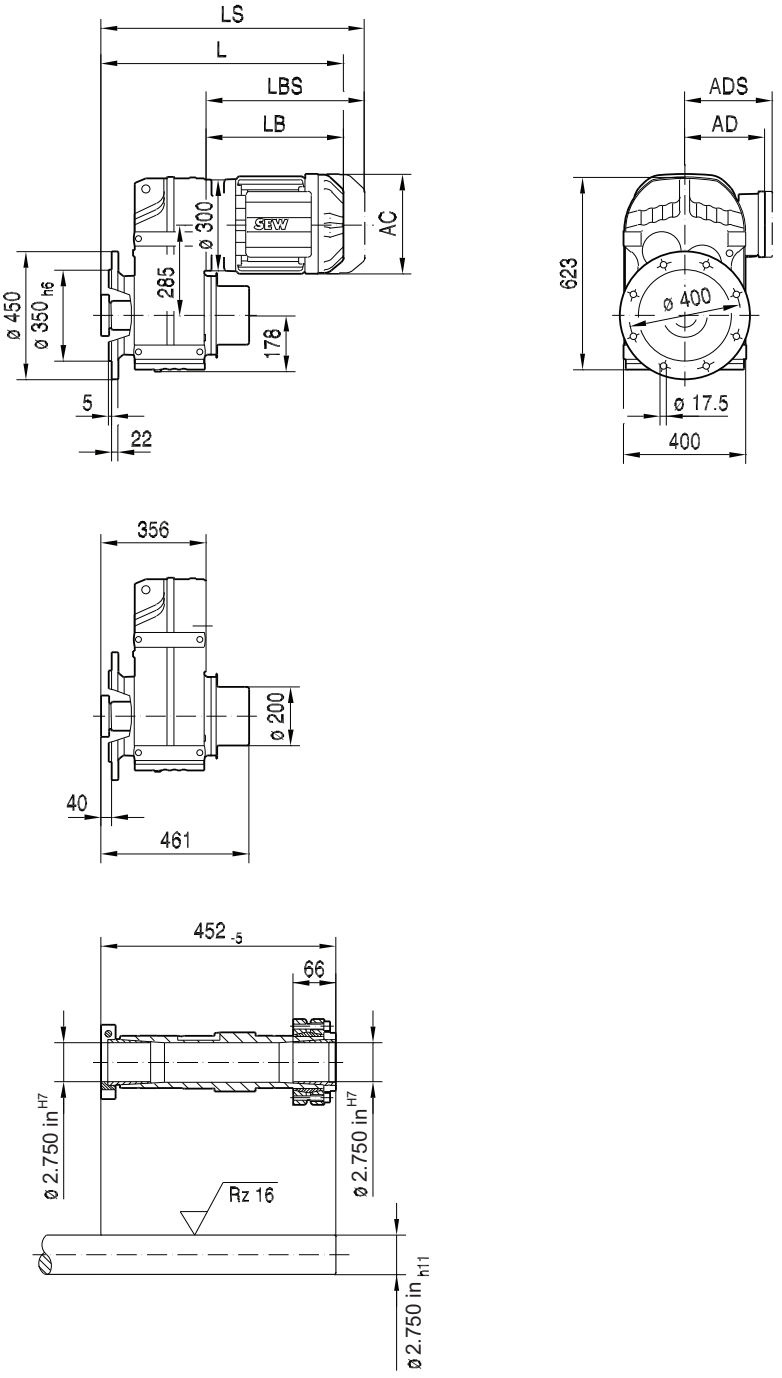
[1)] Combination requires a modified shaft cover. See page 141.

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

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FTF97..

77 497 00 21



(→ 🗎 162)	DRN									
	90S	90L	100L/LM	112M	132S	132M	132L	160	180	200L[1)]
AC	179	179	197	221	221	261	261	314	357	394
AD	140	140	157	170	170	228	228	253	268	283
ADS	150	150	158	172	172	228	228	253	268	283
L	616	648	694	725	775	793	819	885	908	1018
LS	709	741	788	837	887	931	956	1074	1097	1223
LB	260	292	338	369	419	437	463	529	552	662
LBS	353	385	432	481	531	575	600	718	741	867

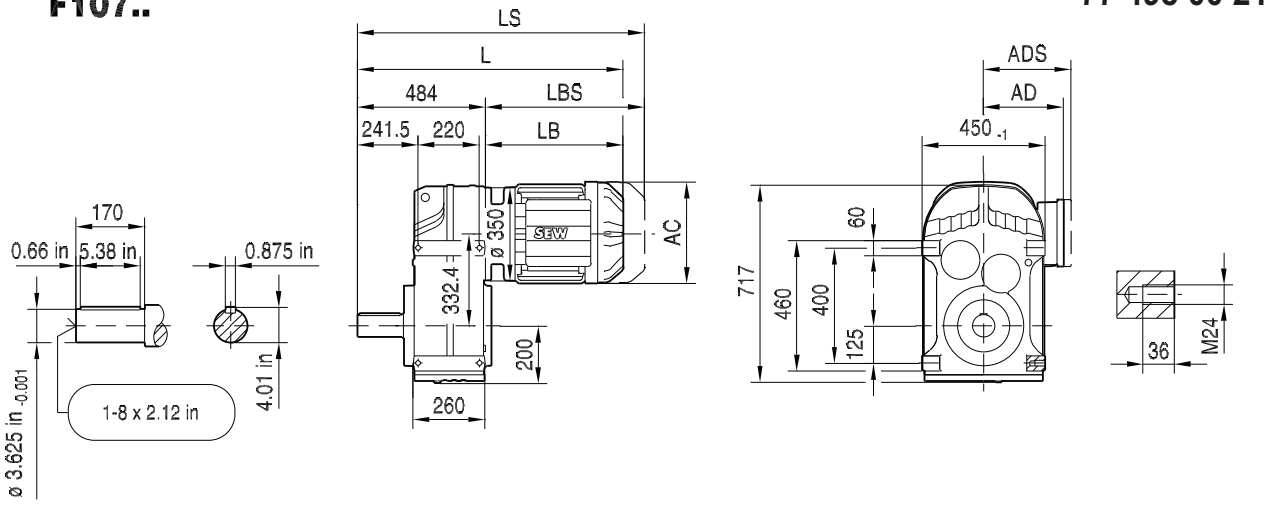
[1)] Combination requires a modified shaft cover. See page 141.

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

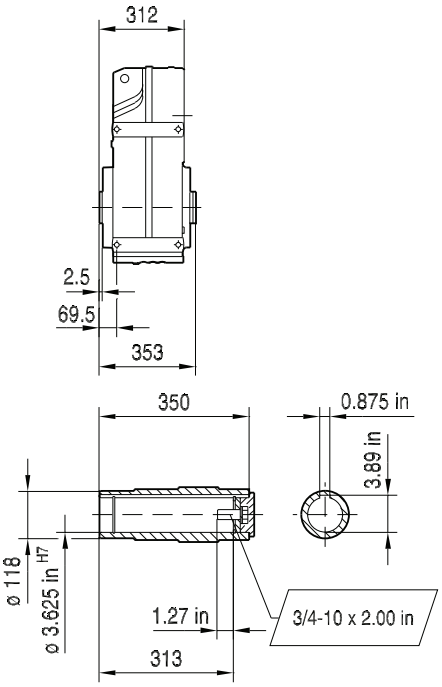
24833231/EN-US – 07/2021

F107..

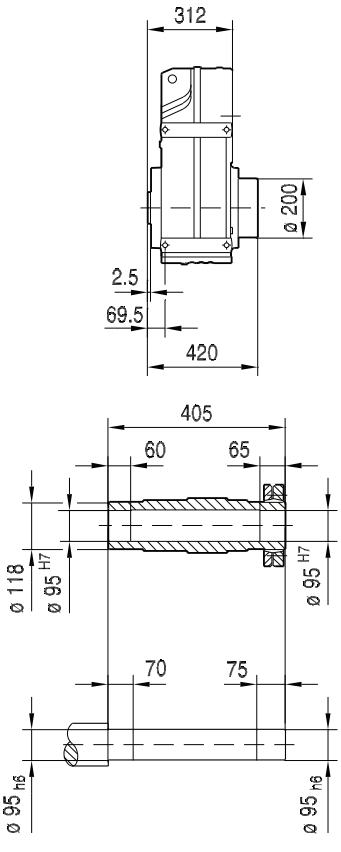
77 498 00 21



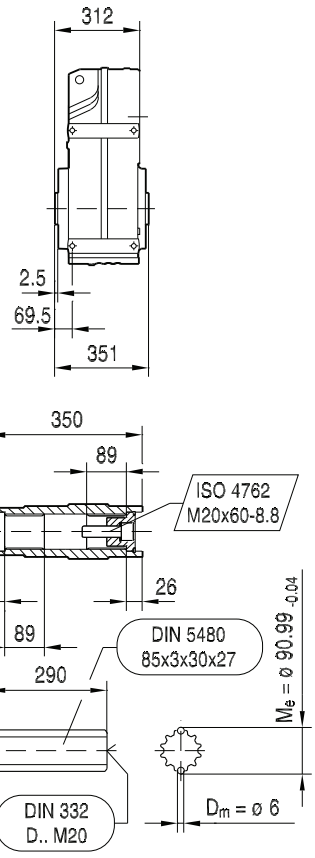
FA107B..



FH107B..



FV107B..



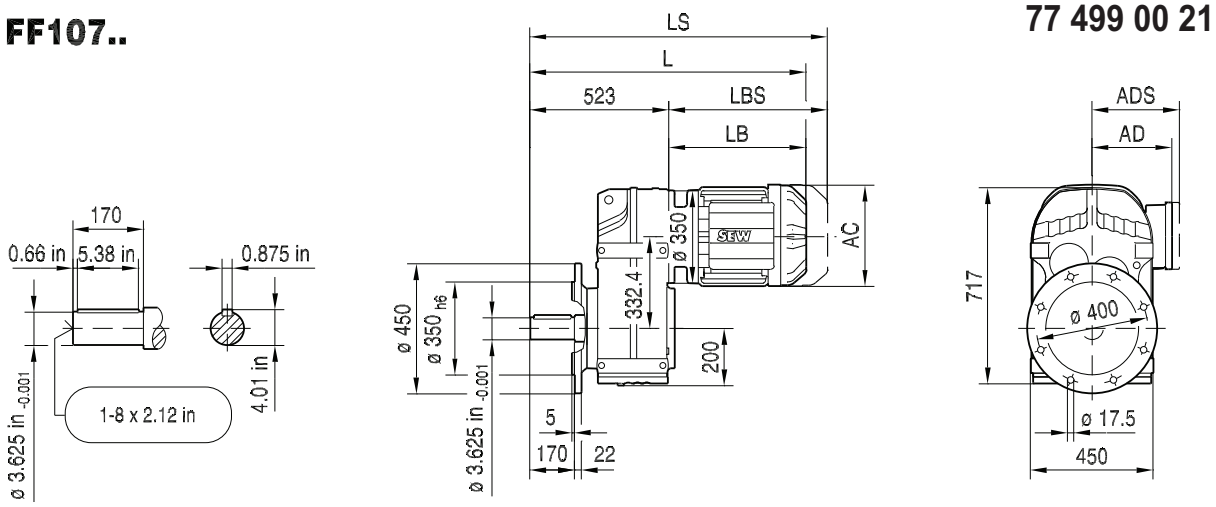
(→ 🗎 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	816	847	897	915	941	1007	1030	1140	1114
LS	910	959	1009	1053	1078	1196	1219	1345	1319
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

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FF107..

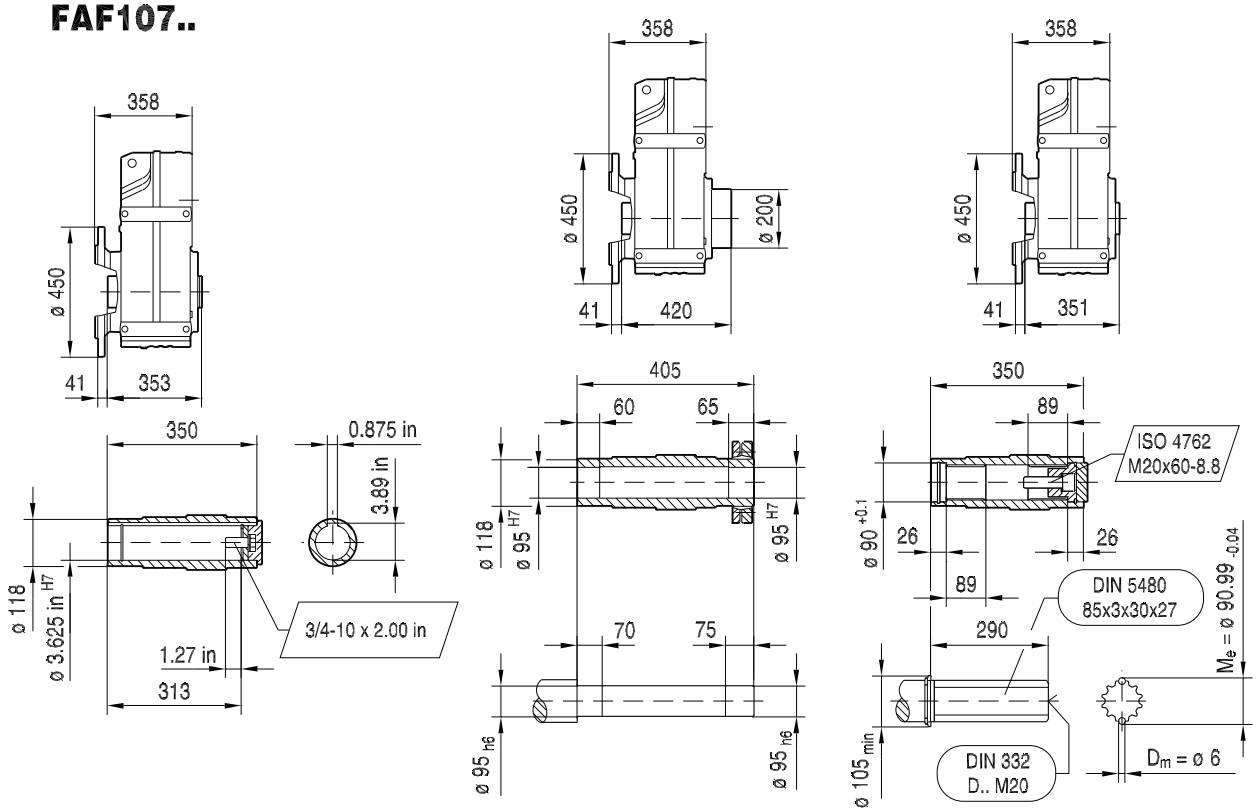
77 499 00 21



FHF107..

FVF107..

FAF107..



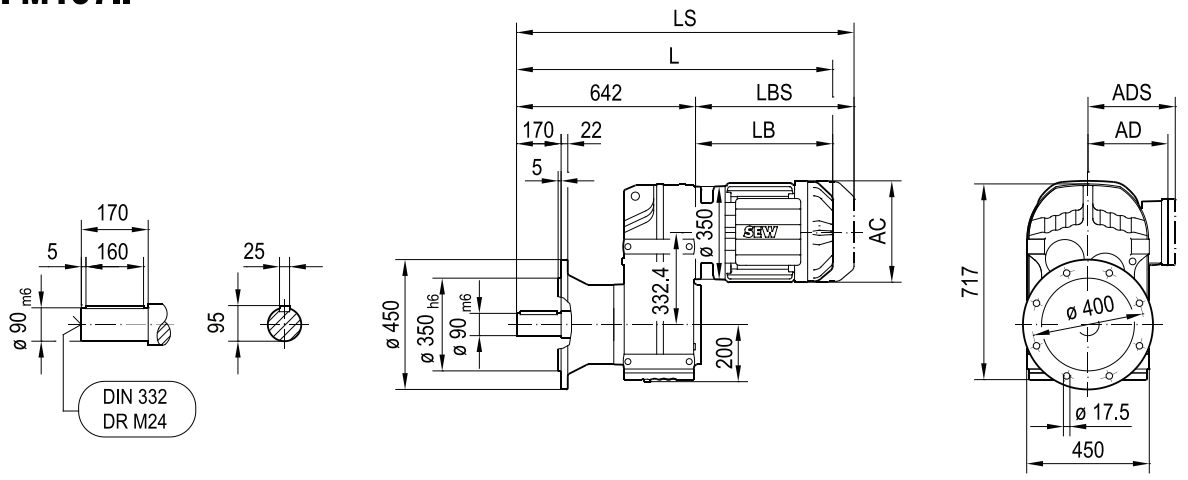
(→ 🗎 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	855	886	936	954	980	1046	1069	1179	1153
LS	949	998	1048	1092	1117	1235	1258	1384	1358
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

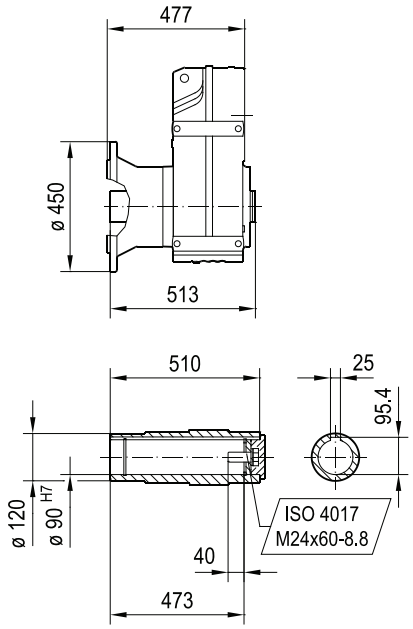
24833231/EN-US – 07/2021

77 500 00 21

FM107..



FAM107..



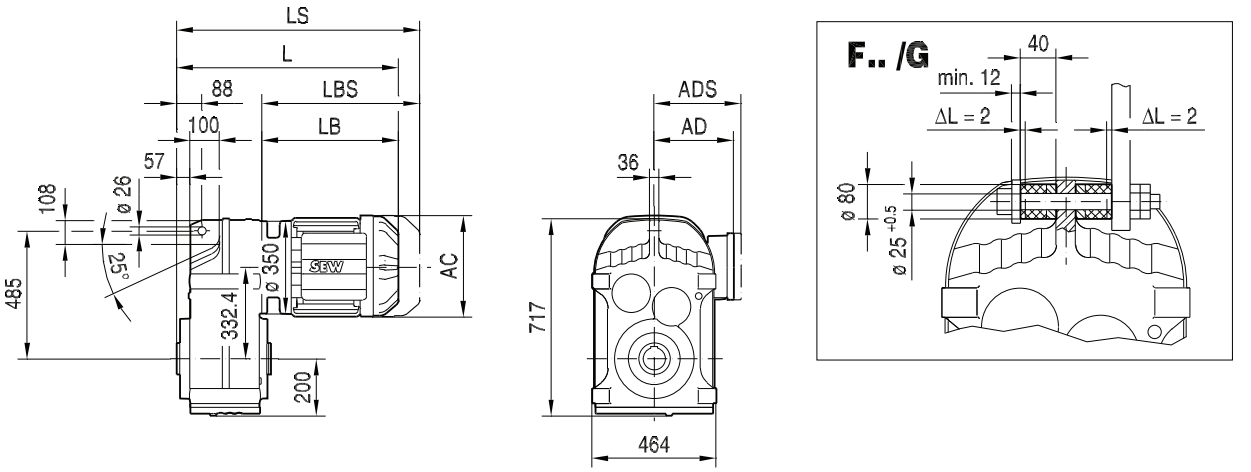
(→ 🗎 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	974	1005	1055	1073	1099	1165	1188	1298	1272
LS	1068	1117	1167	1211	1236	1354	1377	1503	1477
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For tolerances, see page 162.

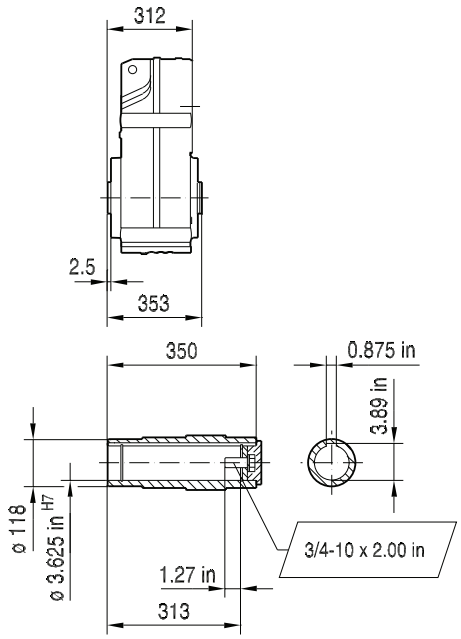
24833231/EN-US – 07/2021

FA107..

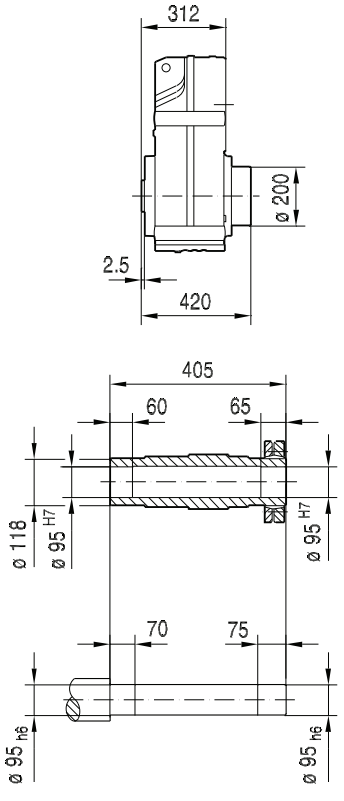
77 501 00 21



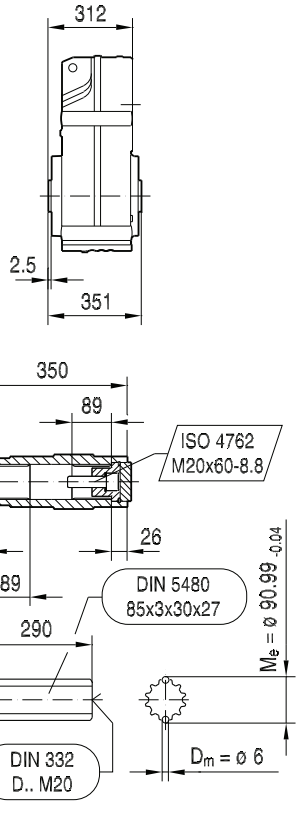
FA107..



FH107..



FV107..



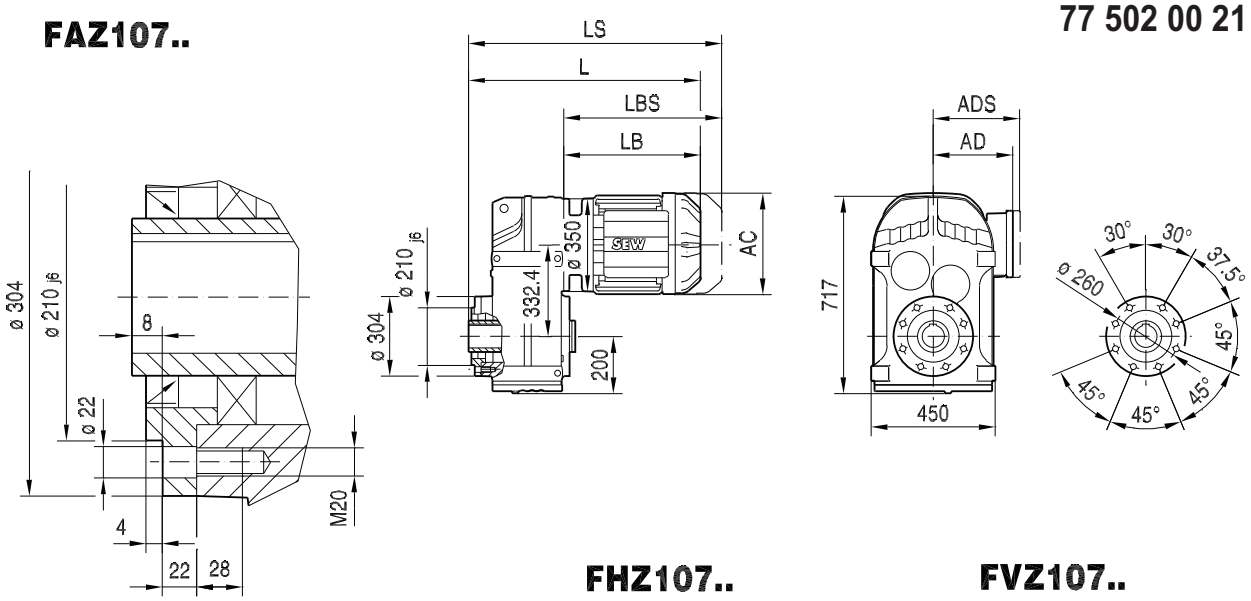
(→ 🗎 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	644	675	725	743	769	835	858	968	942
LS	738	787	837	881	906	1024	1047	1173	1147
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

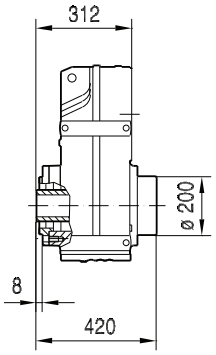
24833231/EN-US – 07/2021

77 502 00 21

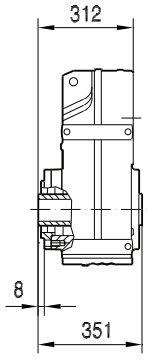
FAZ107..



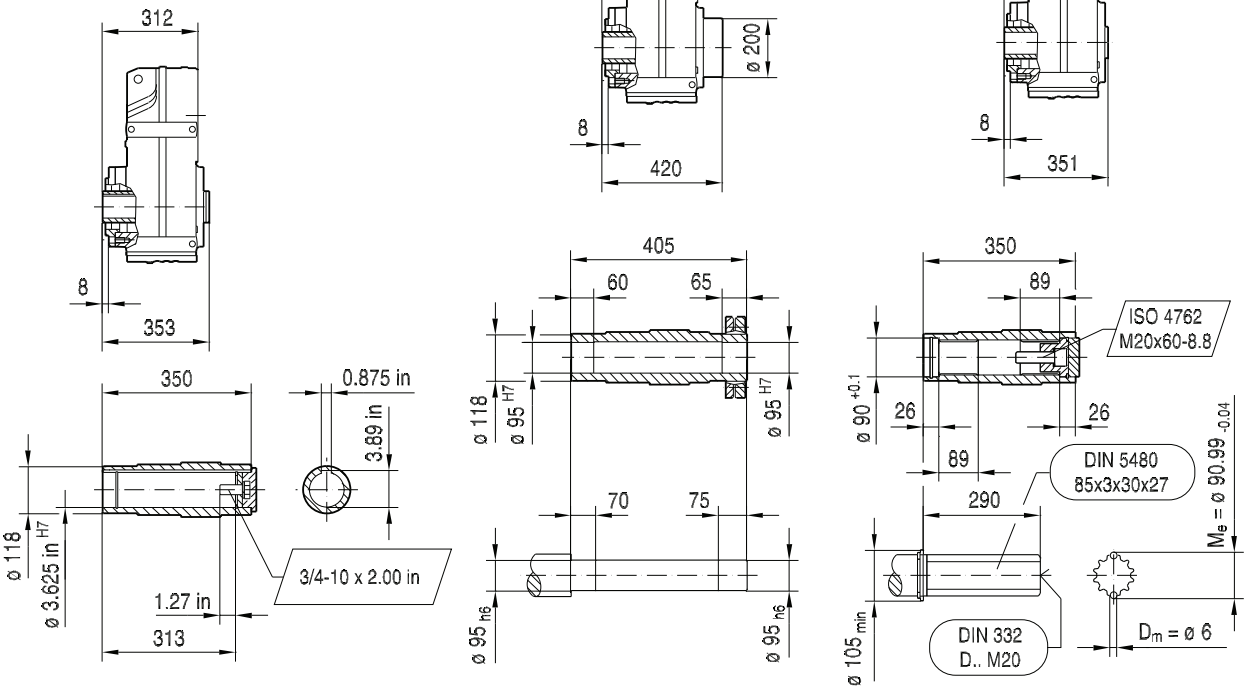
FHZ107..



FVZ107..



FAZ107..



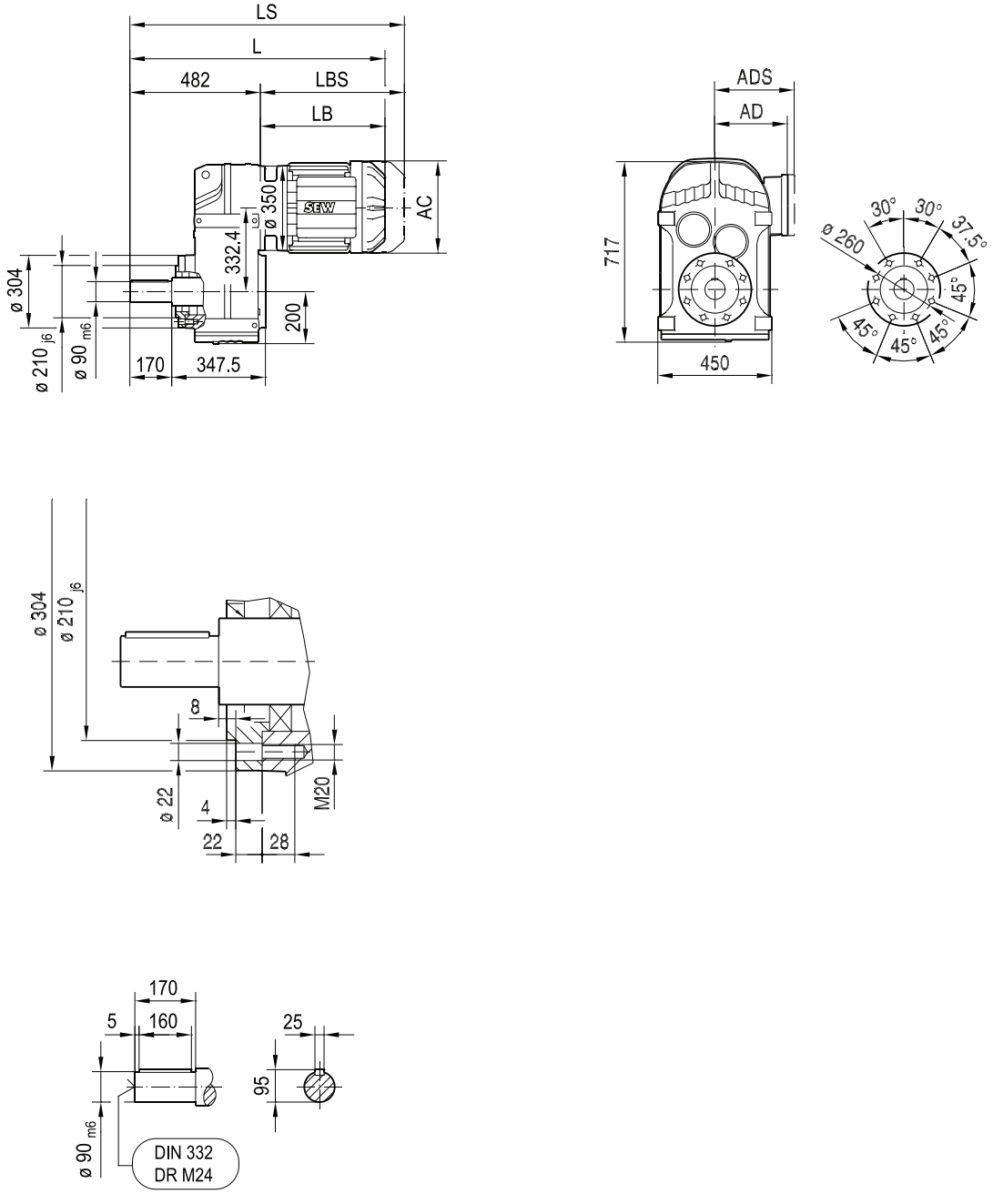
(→ 🗎 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	644	675	725	743	769	835	858	968	942
LS	738	787	837	881	906	1024	1047	1173	1147
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

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FZ107..

77 503 00 21



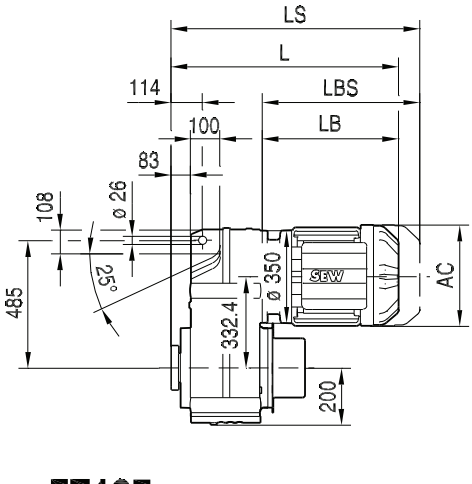
(→ 🗎 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	814	845	895	913	939	1005	1028	1138	1112
LS	908	957	1007	1051	1076	1194	1217	1343	1317
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

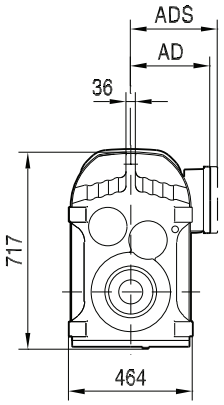
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

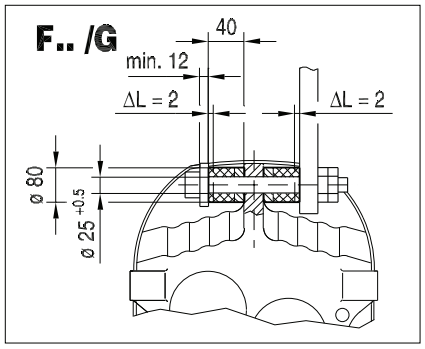
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77 504 00 21

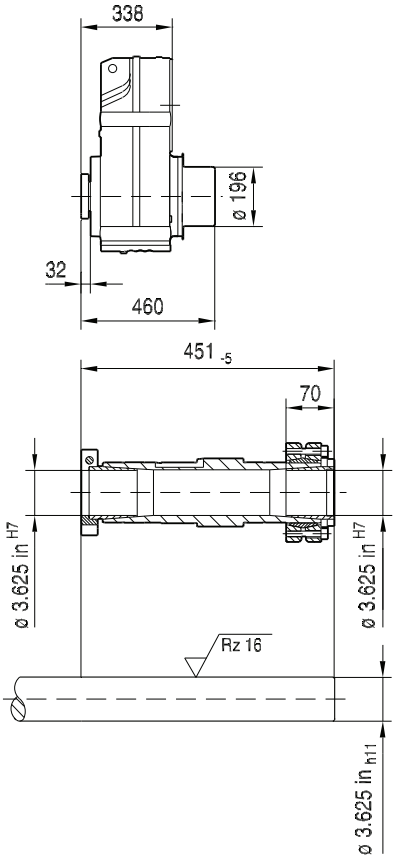
FT107..



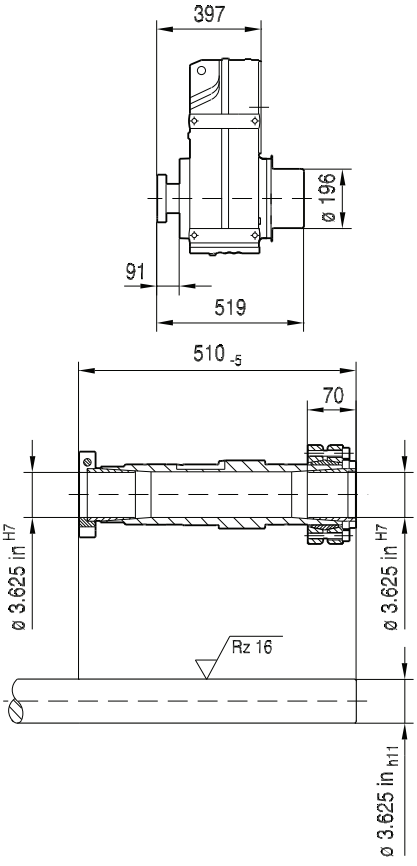




FT107..
NON-Symmetrical



FT107B..
Symmetrical

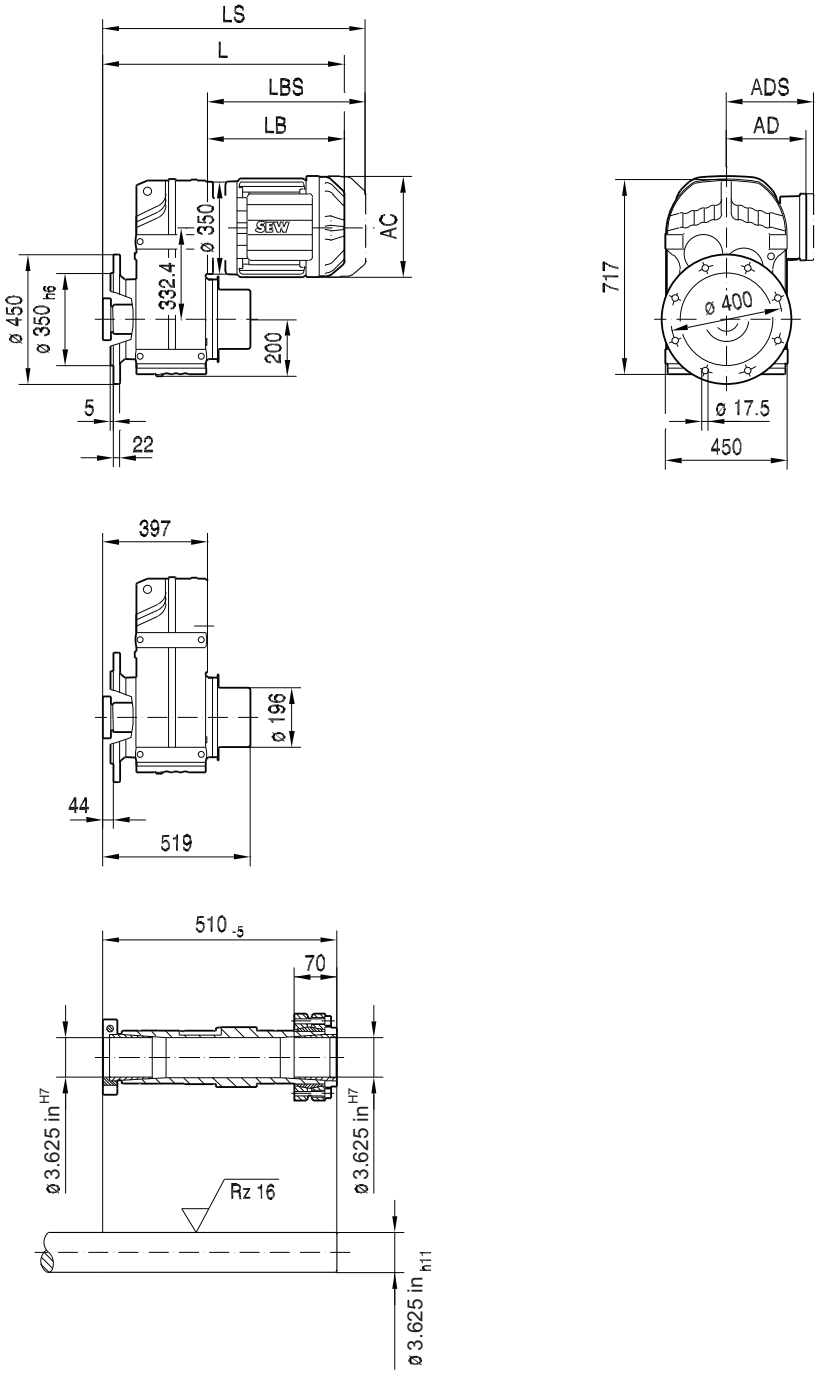


(→ 🗎 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	670	701	751	769	795	861	884	994	968
LS	764	813	863	907	932	1050	1073	1199	1173
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

FTF107..

77 505 00 21



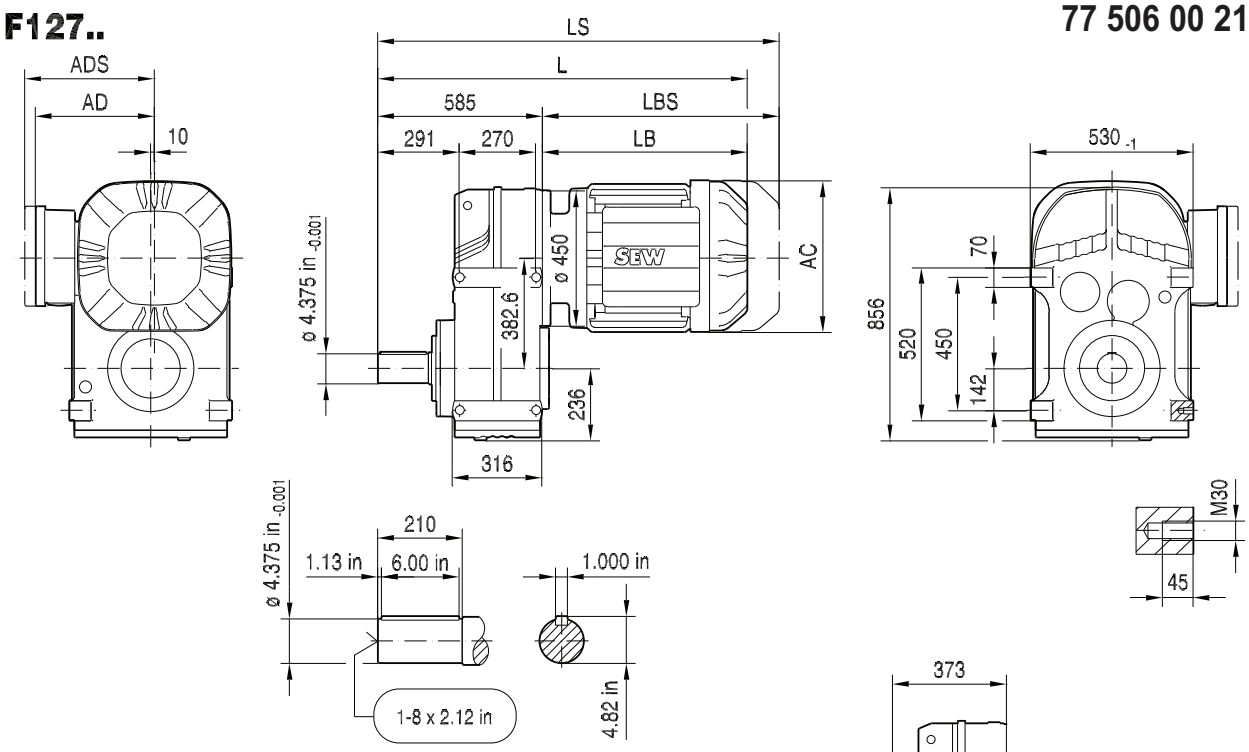
(→ 🗎 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	729	760	810	828	854	920	943	1053	1027
LS	823	872	922	966	991	1109	1132	1258	1232
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

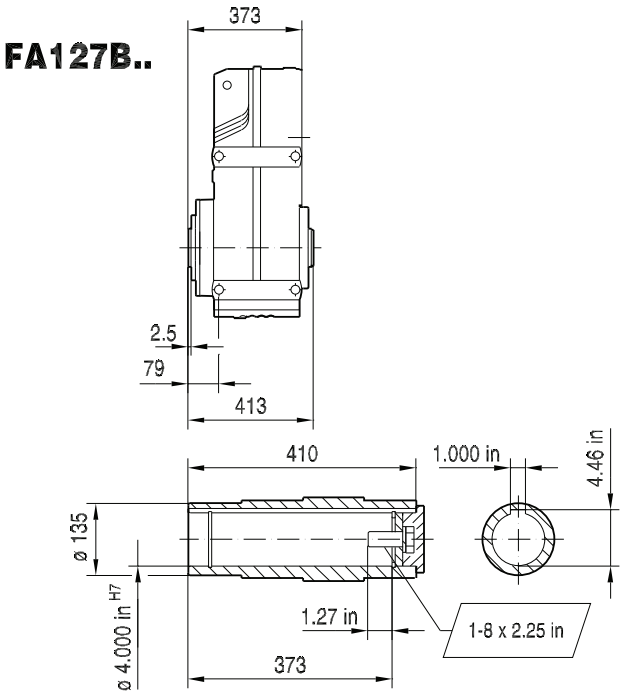
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F127..

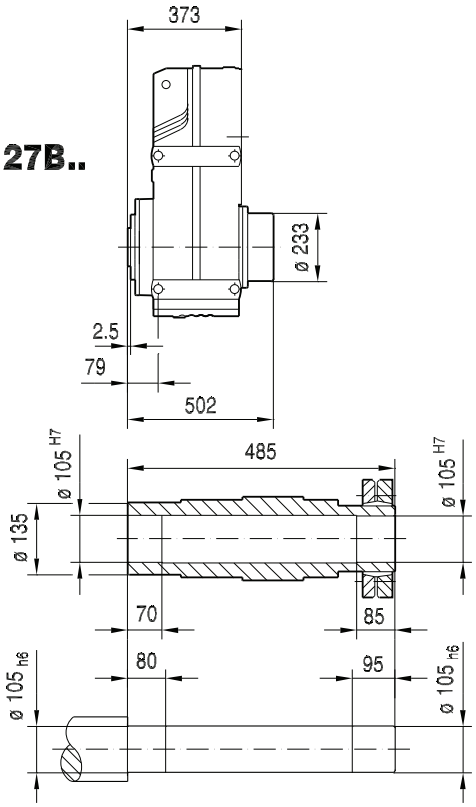
77 506 00 21



FA127B..



FH127B..



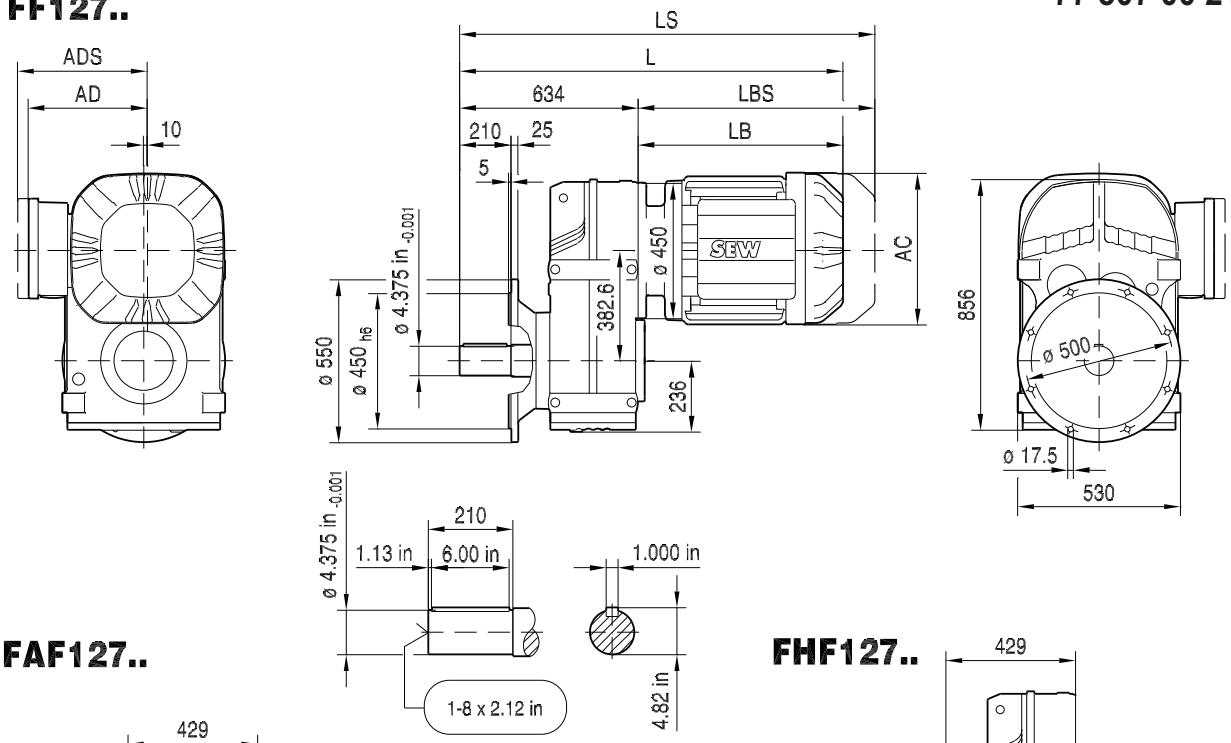
(→ 162)	DRN									
	132S	132M	132L	160	180	200L	225	250M	280S	280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	983	1001	1027	1093	1116	1226	1200	1337	1337	1432
LS	1095	1139	1164	1282	1305	1431	1405	1577	1577	1672
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

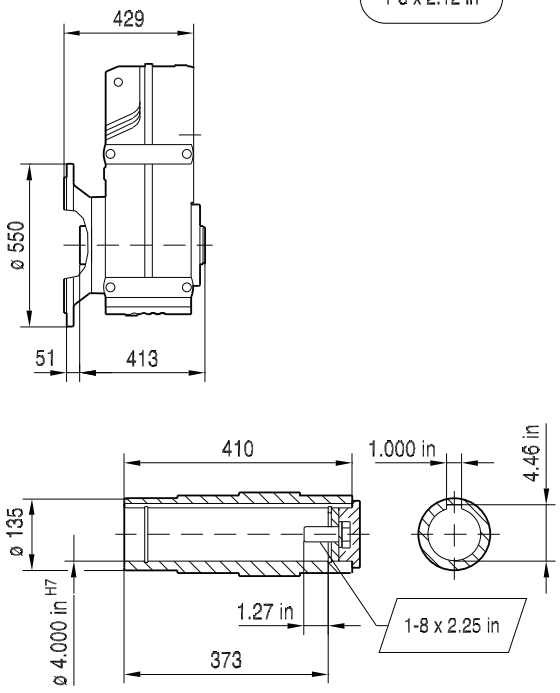
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77 507 00 21

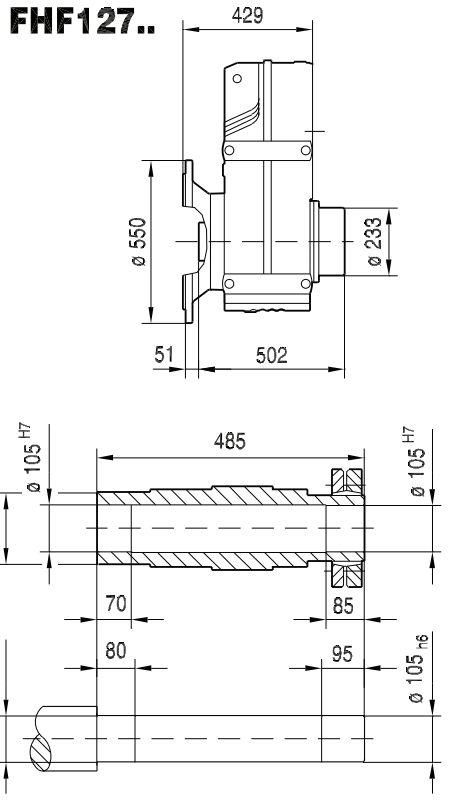
FF127..



FAF127..



FHF127..



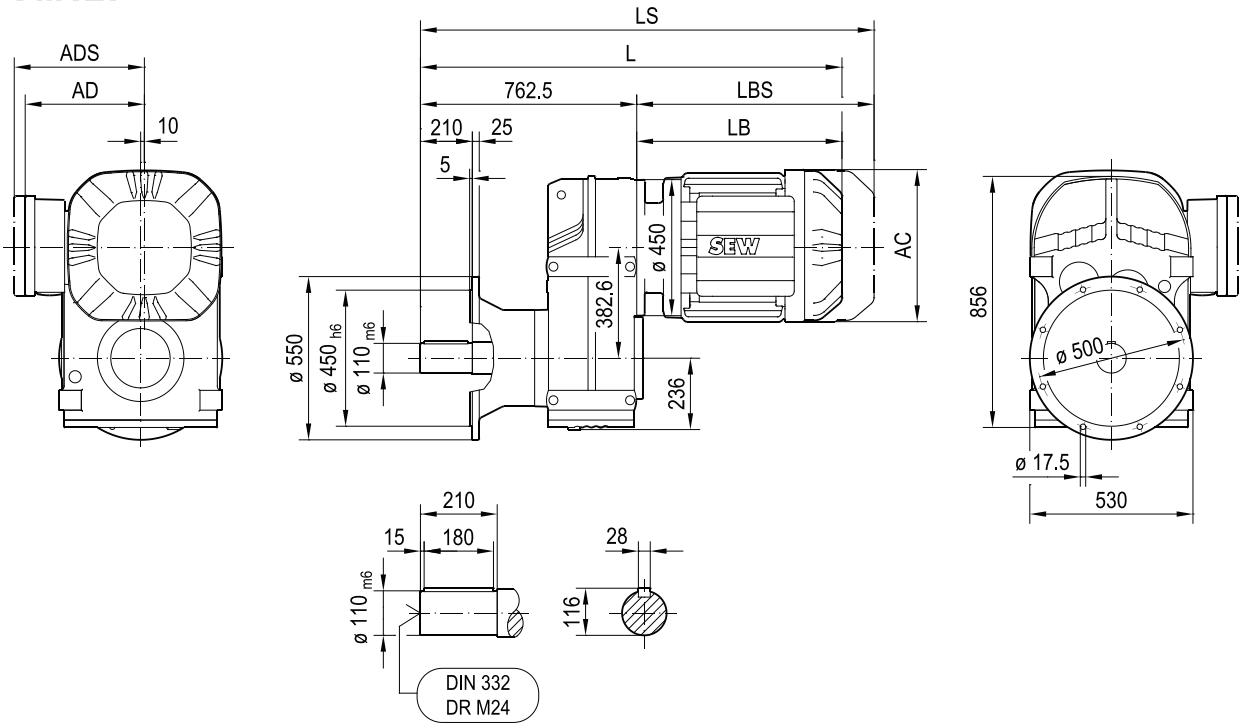
(→ 🗎 162)	DRN									
	132S	132M	132L	160	180	200L	225	250M	280S	280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	1032	1050	1076	1142	1165	1275	1249	1386	1386	1481
LS	1144	1188	1213	1331	1354	1480	1454	1626	1626	1721
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

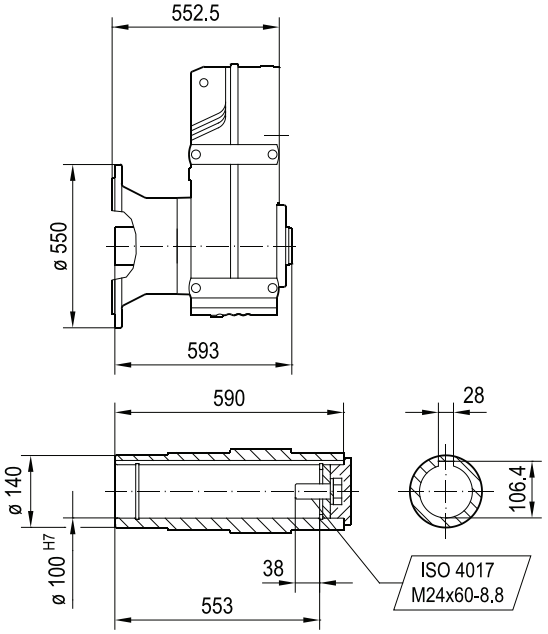
24833231/EN-US – 07/2021

FM127..

77 508 00 21



FAM127..

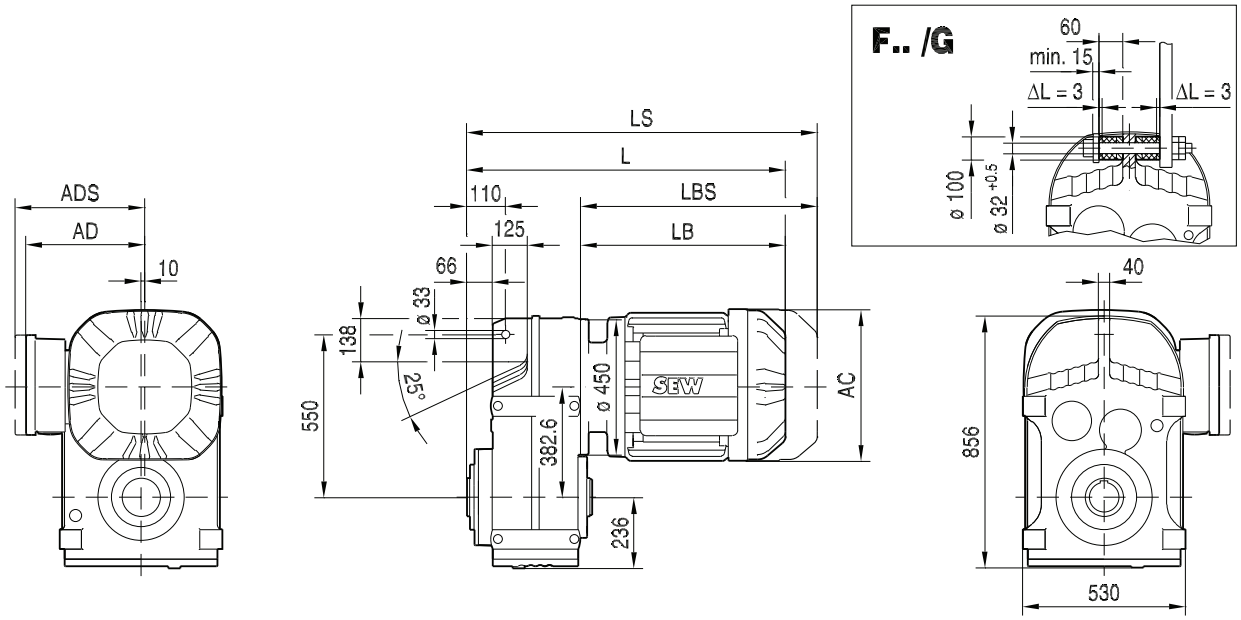


(→ 162)	DRN									
	132S	132M	132L	160	180	200L	225	250M	280S	280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	1161	1179	1204	1271	1294	1403	1378	1515	1515	1610
LS	1272	1316	1341	1460	1483	1608	1583	1755	1755	1850
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

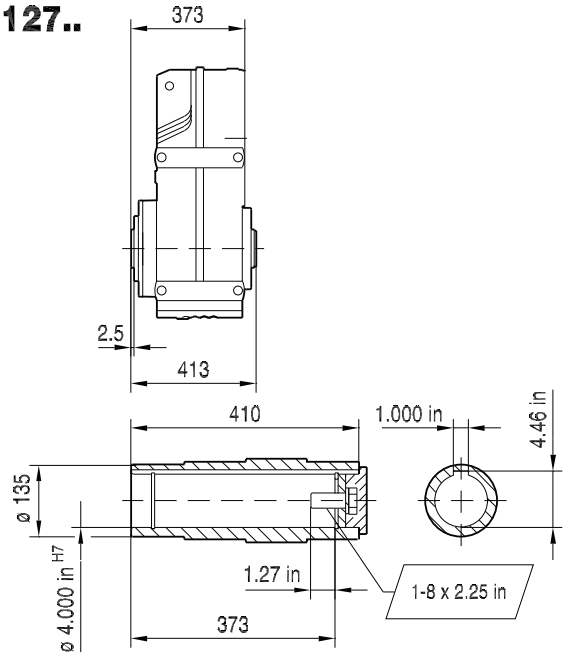
Dimensions in mm unless noted as inch. For tolerances, see page 162.

FA127..

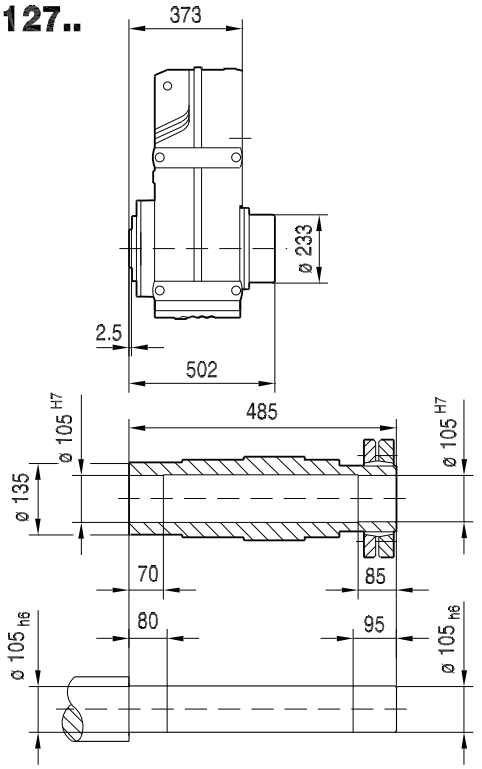
77 509 00 21



FA127..



FH127..



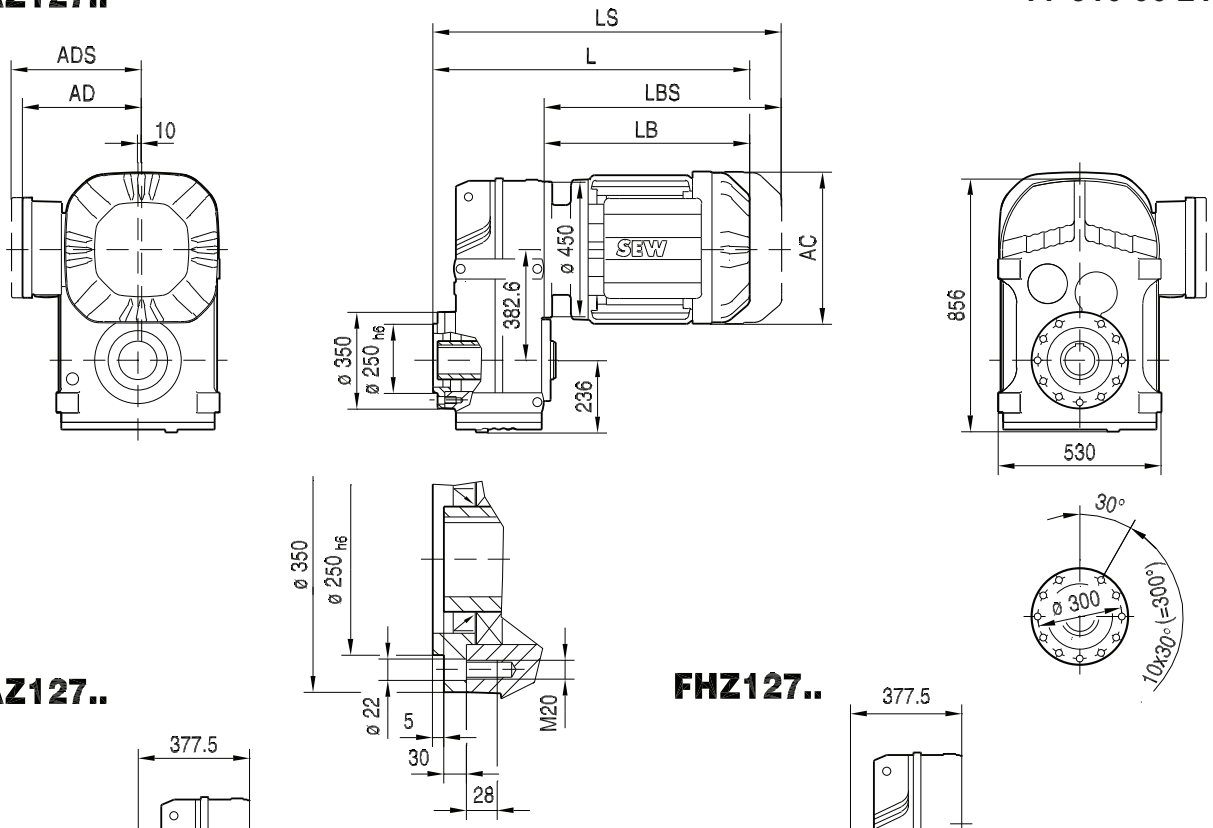
(→ 🗎 162)	DRN									
	132S	132M	132L	160	180	200L	225	250M	280S	280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	771	789	815	881	904	1014	988	1125	1125	1220
LS	883	927	952	1070	1093	1219	1193	1365	1365	1460
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

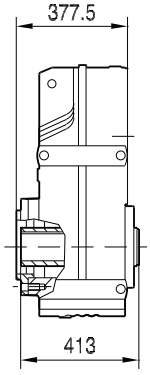
24833231/EN-US – 07/2021

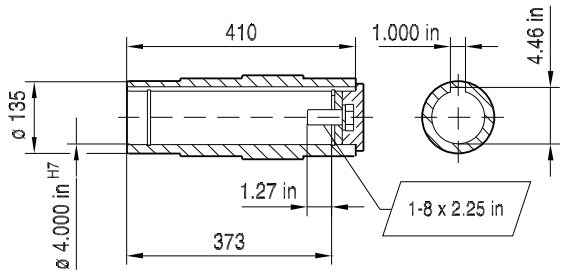
FAZ127..

77 510 00 21

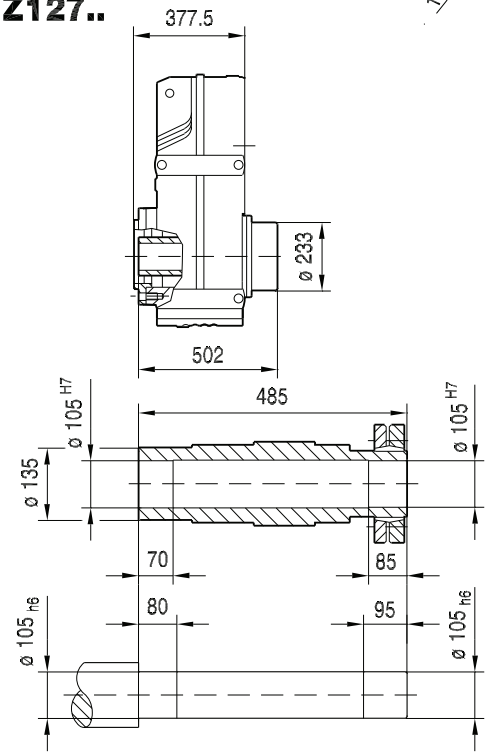


FAZ127..





FHZ127..



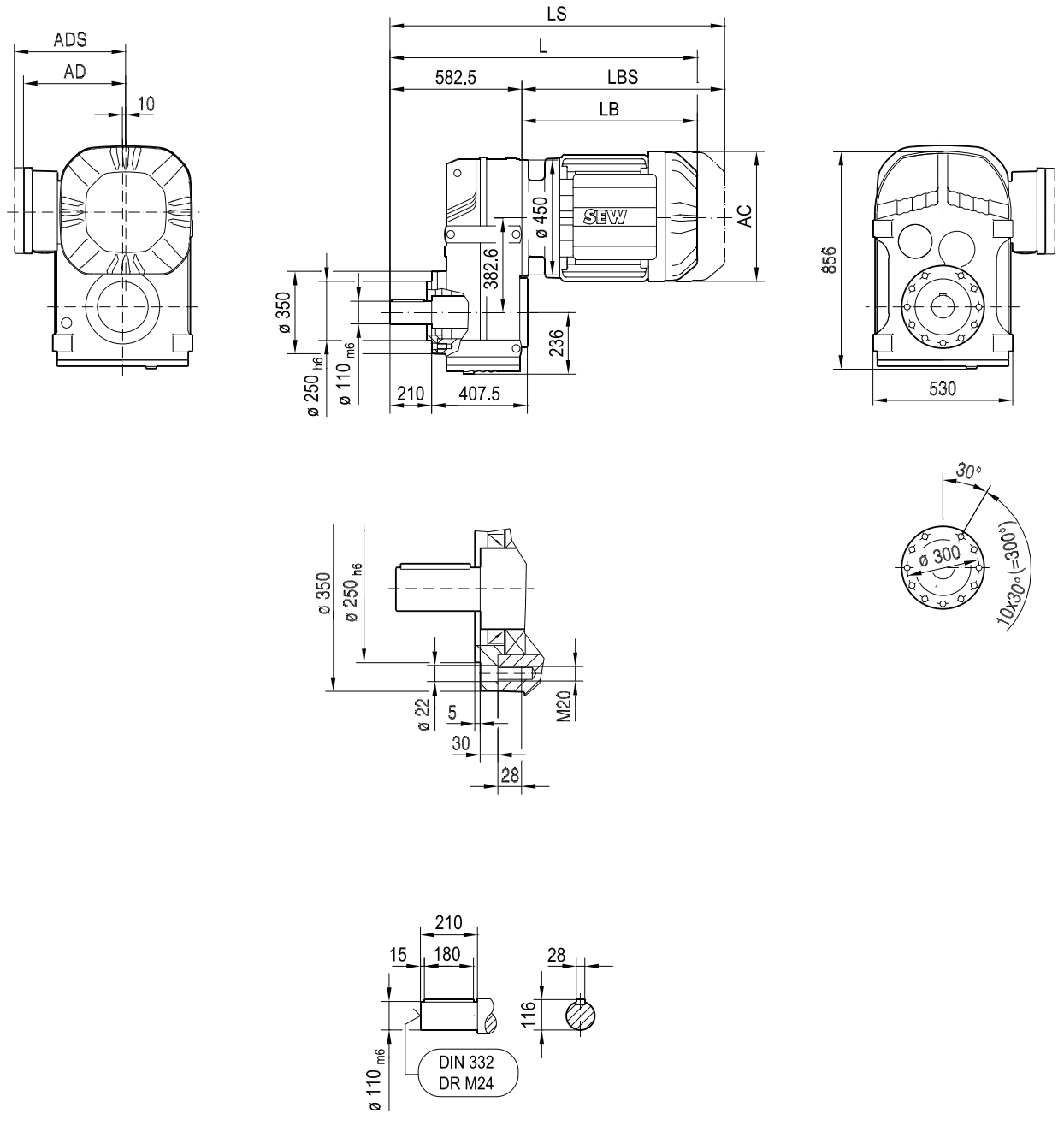
(→ 🗎 162)	DRN									
	132S	132M	132L	160	180	200L	225	250M	280S	280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	776	794	819	886	909	1018	993	1130	1130	1225
LS	888	931	956	1075	1098	1223	1198	1370	1370	1465
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

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FZ127..

77 511 00 21



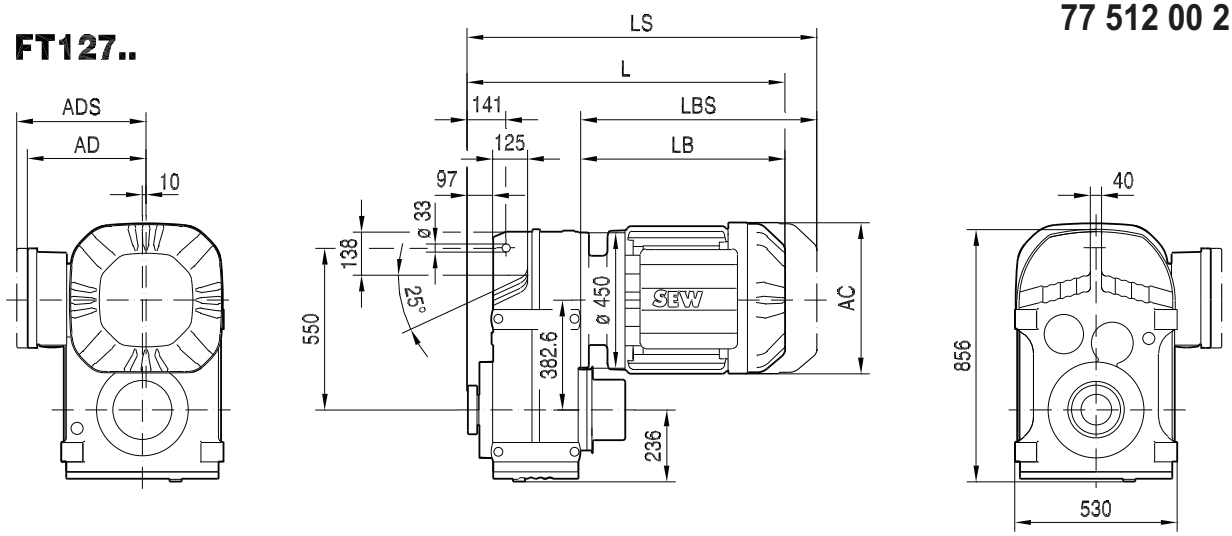
(→ 🗎 162)	DRN									
	132S	132M	132L	160	180	200L	225	250M	280S	280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	981	999	1024	1091	1114	1223	1198	1335	1335	1430
LS	1093	1136	1161	1280	1303	1428	1403	1575	1575	1670
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

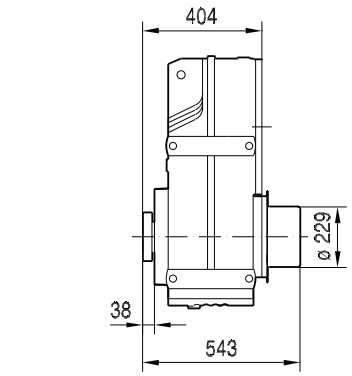
24833231/EN-US – 07/2021

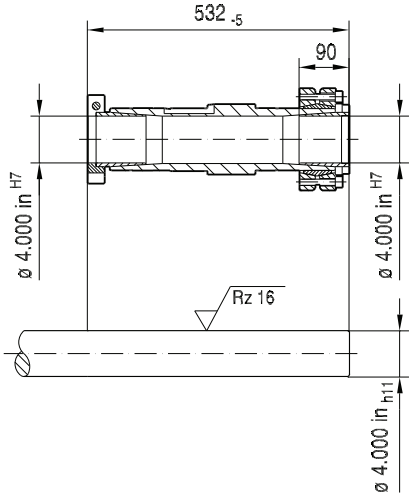
77 512 00 21

FT127..

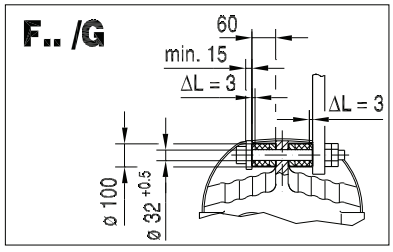


NON-Symmetrical

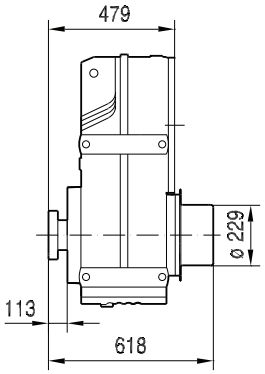


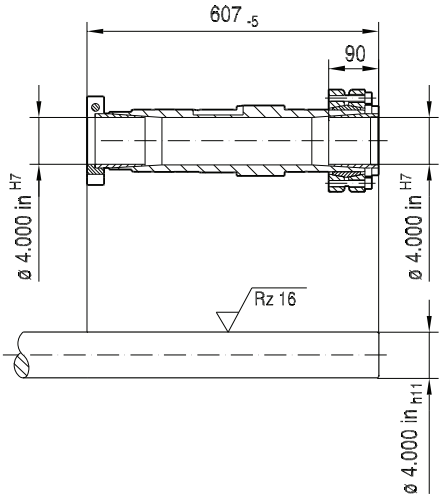


F.. /G



Symmetrical



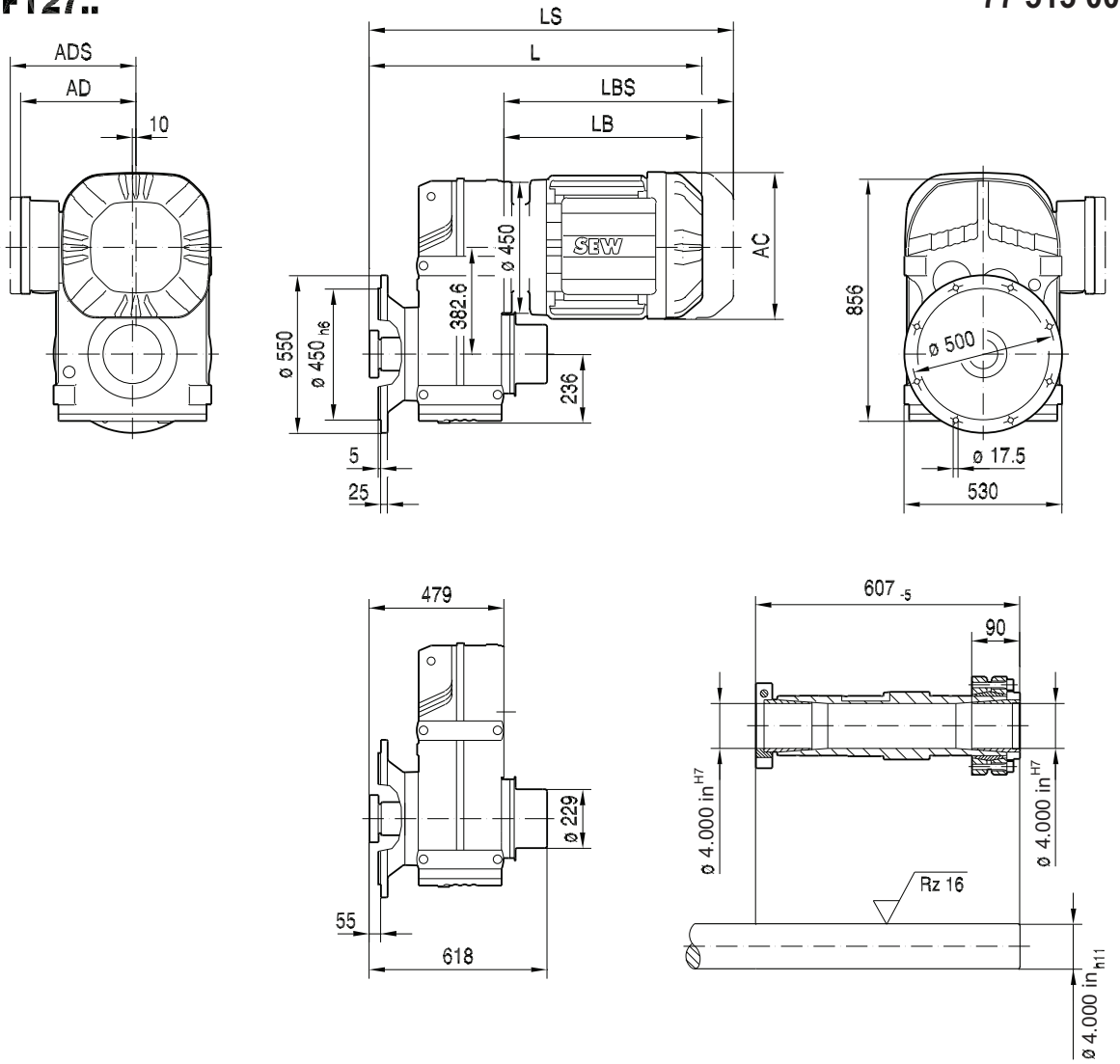


(→ 🗎 162)	DRN									
	132S	132M	132L	160	180	200L	225	250M	280S	280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	802	820	846	912	935	1045	1019	1156	1156	1251
LS	914	958	983	1101	1124	1250	1224	1396	1396	1491
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

FTF127..

77 513 00 21



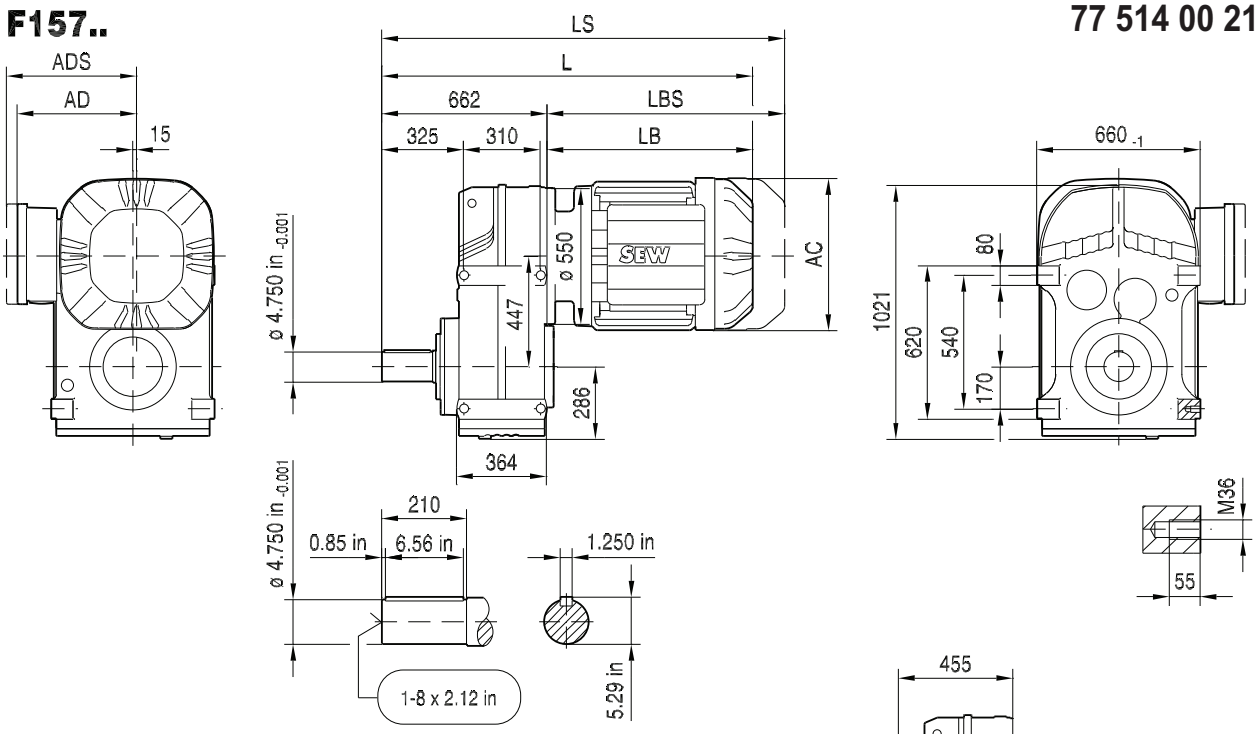
(→ 🗎 162)	DRN									
	132S	132M	132L	160	180	200L	225	250M	280S	280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	877	895	921	987	1010	1120	1094	1231	1231	1326
LS	989	1033	1058	1176	1199	1325	1299	1471	1471	1566
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

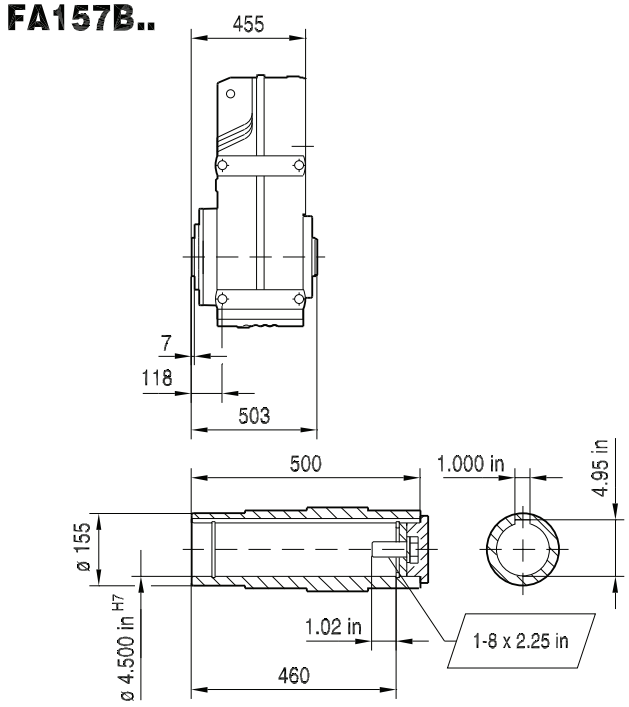
24833231/EN-US – 07/2021

F157..

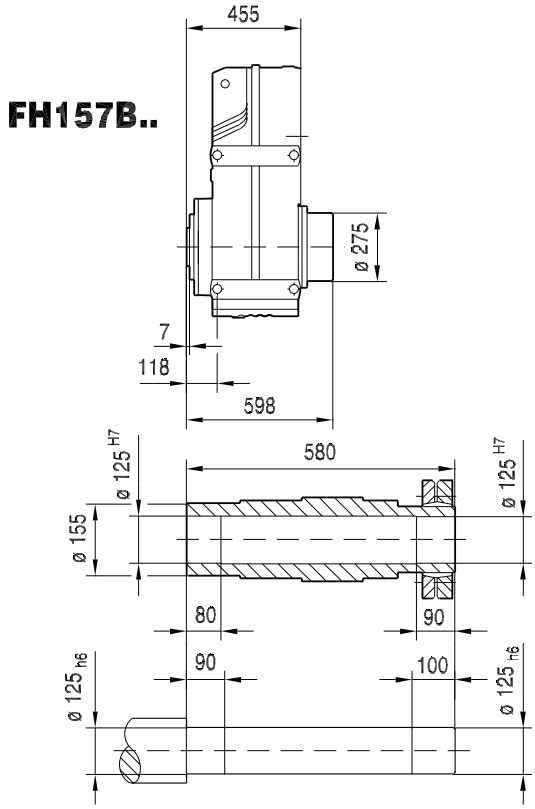
77 514 00 21



FA157B..



FH157B..



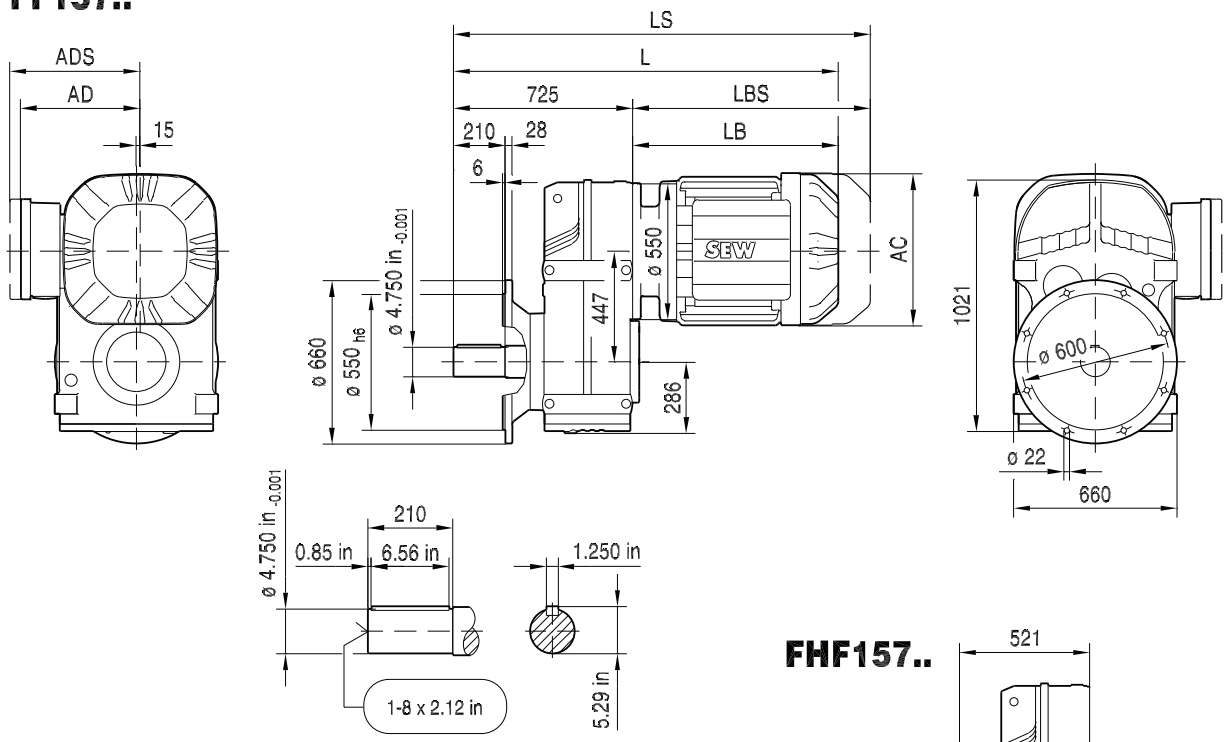
(→ 🗎 162)	DRN								
	160	180	200L	225	250M	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1162	1185	1295	1269	1406	1406	1501	1603	1733
LS	1351	1374	1500	1474	1646	1646	1741	1854	1984
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

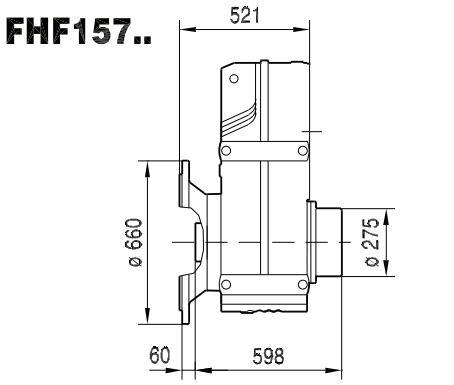
24833231/EN-US – 07/2021

77 515 00 21

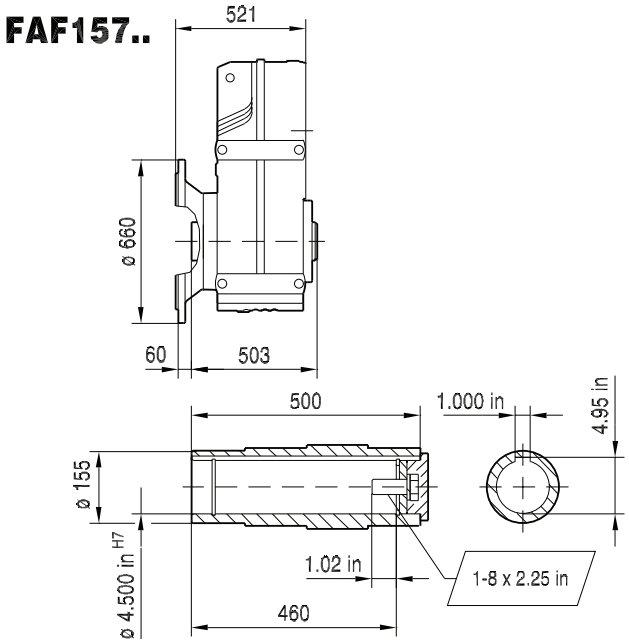
FF157..

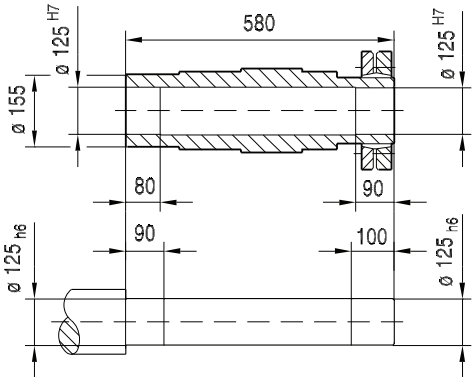


FHF157..



FAF157..





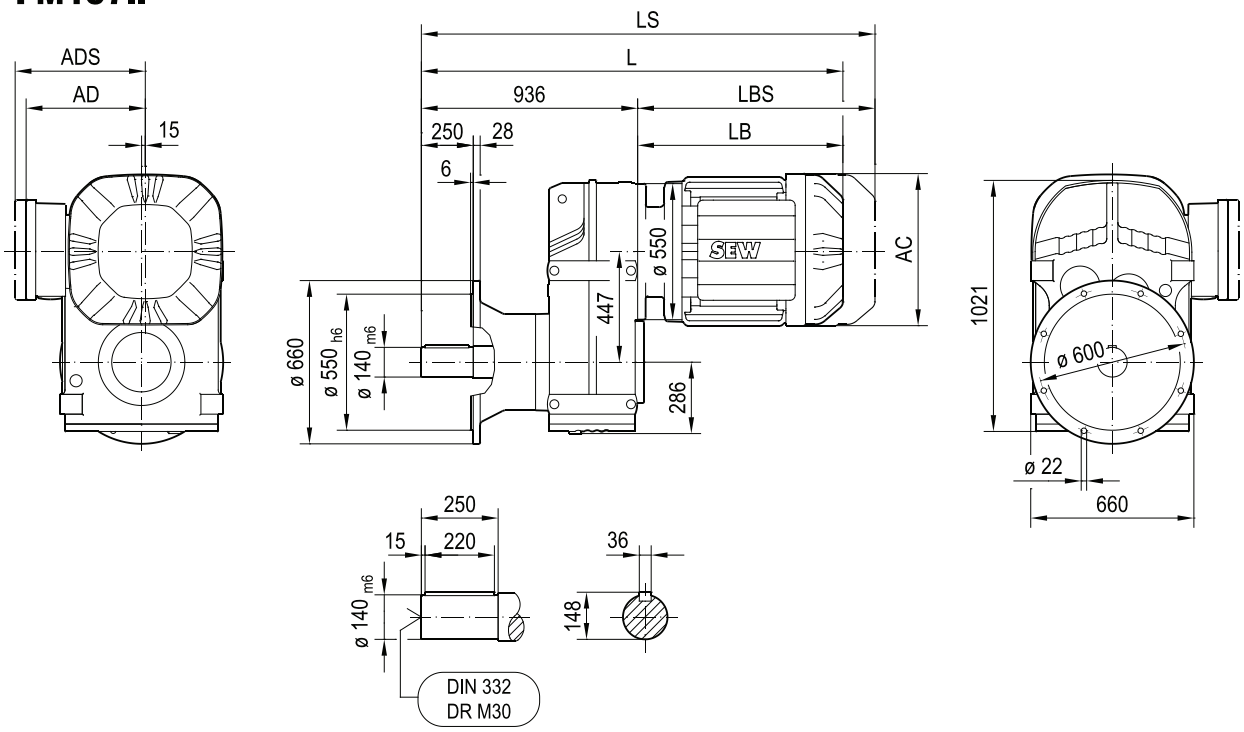
(→ 🗎 162)	DRN								
	160	180	200L	225	250M	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1225	1248	1358	1332	1469	1469	1564	1666	1796
LS	1414	1437	1563	1537	1709	1709	1804	1917	2047
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

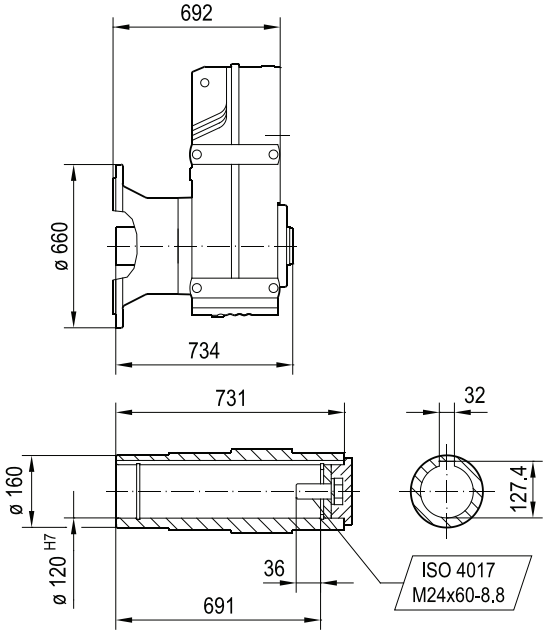
24833231/EN-US – 07/2021

FM157..

77 516 00 21



FAM157..



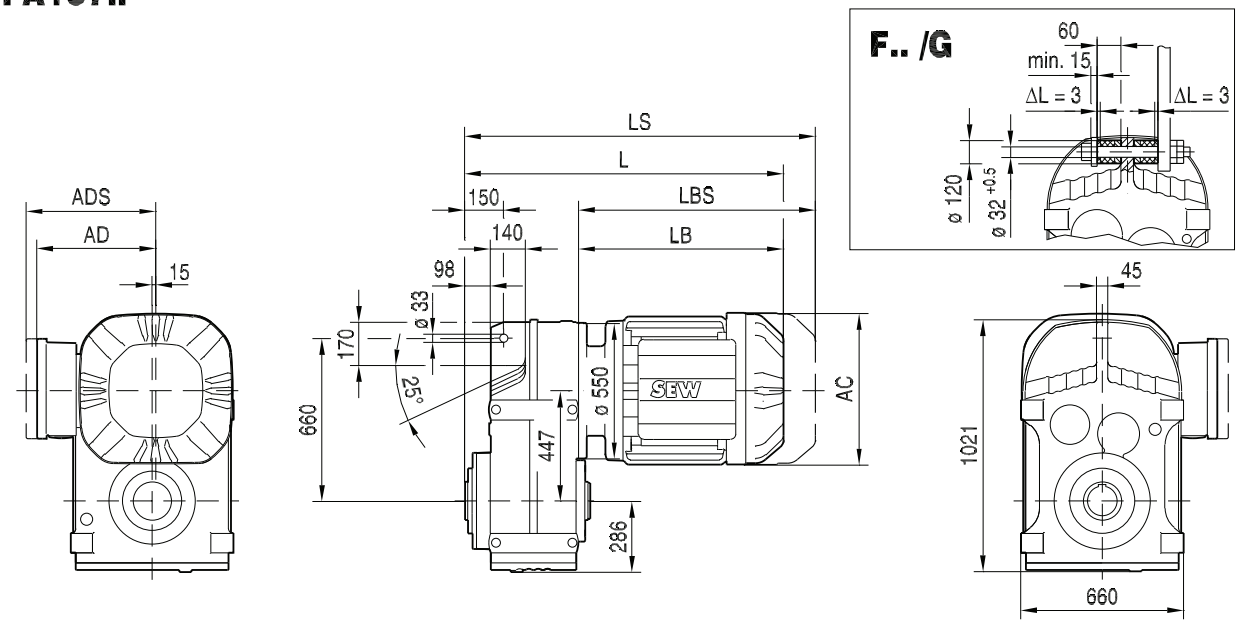
(→ 162)	DRN								
	160	180	200L	225	250M	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1436	1459	1569	1543	1680	1680	1775	1877	2007
LS	1625	1648	1774	1748	1920	1920	2015	2128	2258
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For tolerances, see page 162.

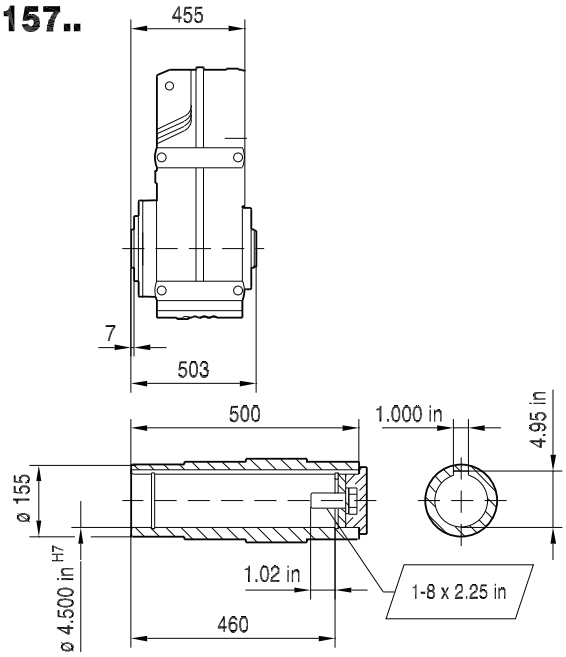
24833231/EN-US – 07/2021

FA157..

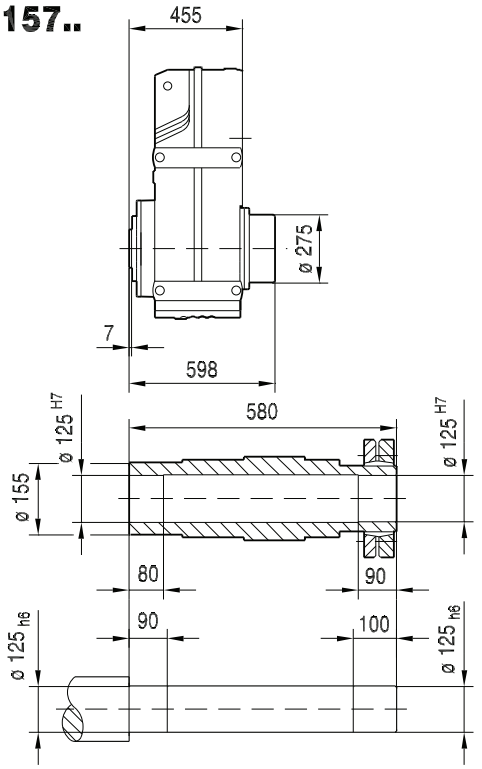
77 517 00 21



FA157..



FH157..



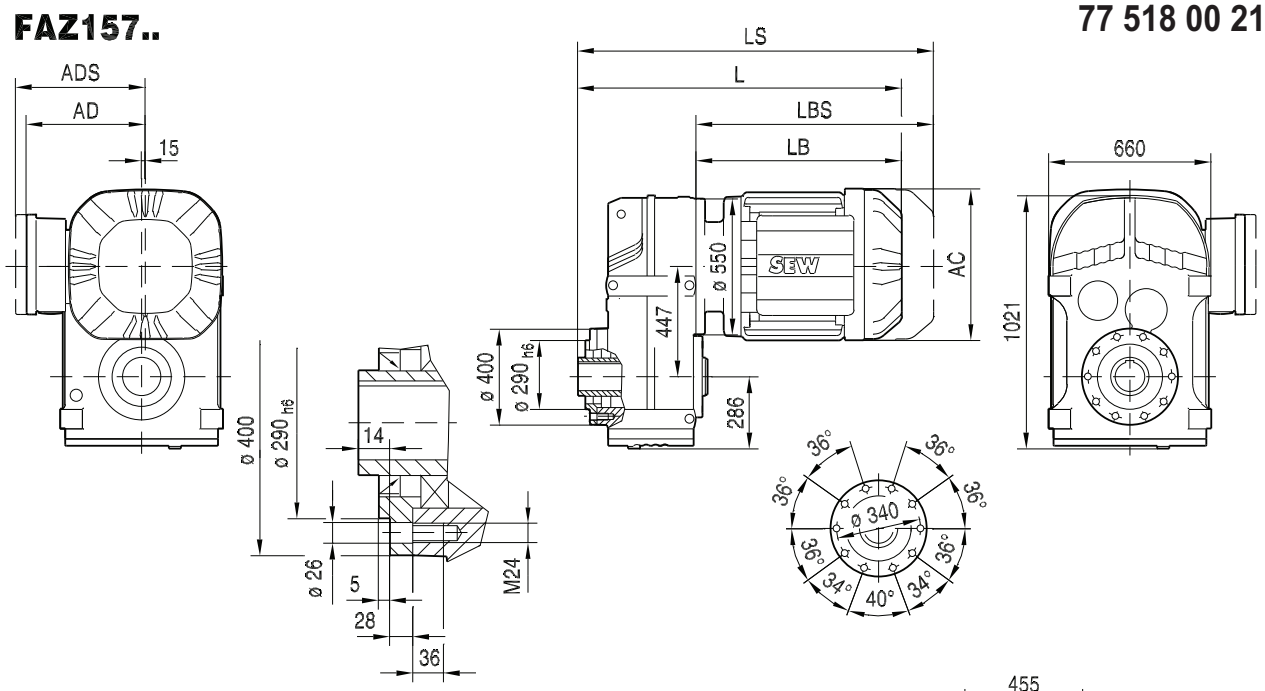
(→ 🗎 162)	DRN								
	160	180	200L	225	250M	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	955	978	1088	1062	1199	1199	1294	1396	1526
LS	1144	1167	1293	1267	1439	1439	1534	1647	1777
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

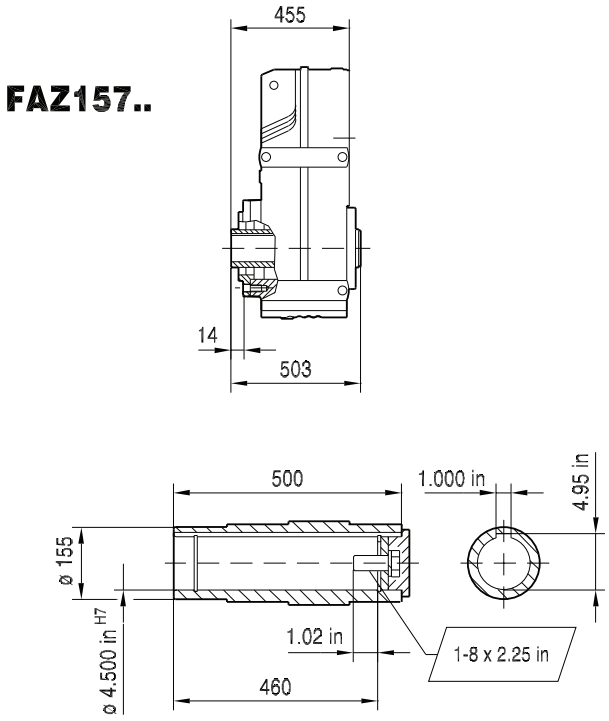
24833231/EN-US – 07/2021

FAZ157..

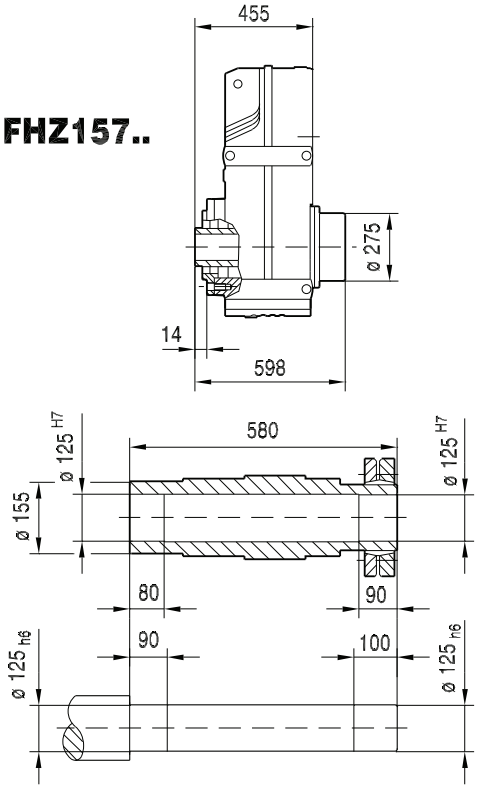
77 518 00 21



FAZ157..



FHZ157..



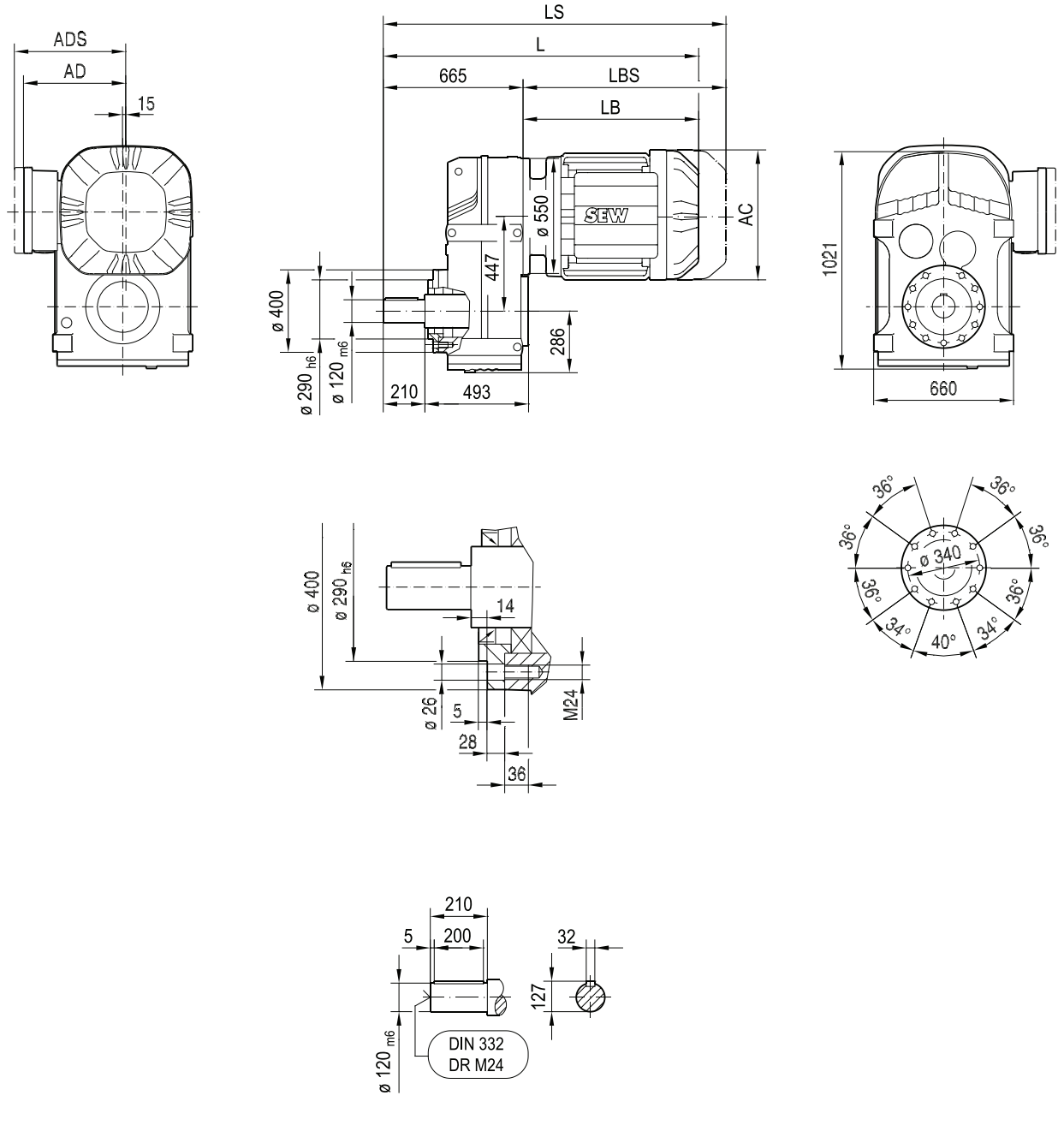
(→ 🗎 162)	DRN								
	160	180	200L	225	250M	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	955	978	1088	1062	1199	1199	1294	1396	1526
LS	1144	1167	1293	1267	1439	1439	1534	1647	1777
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 525. For tolerances, see page 162.

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FZ157..

77 519 00 21



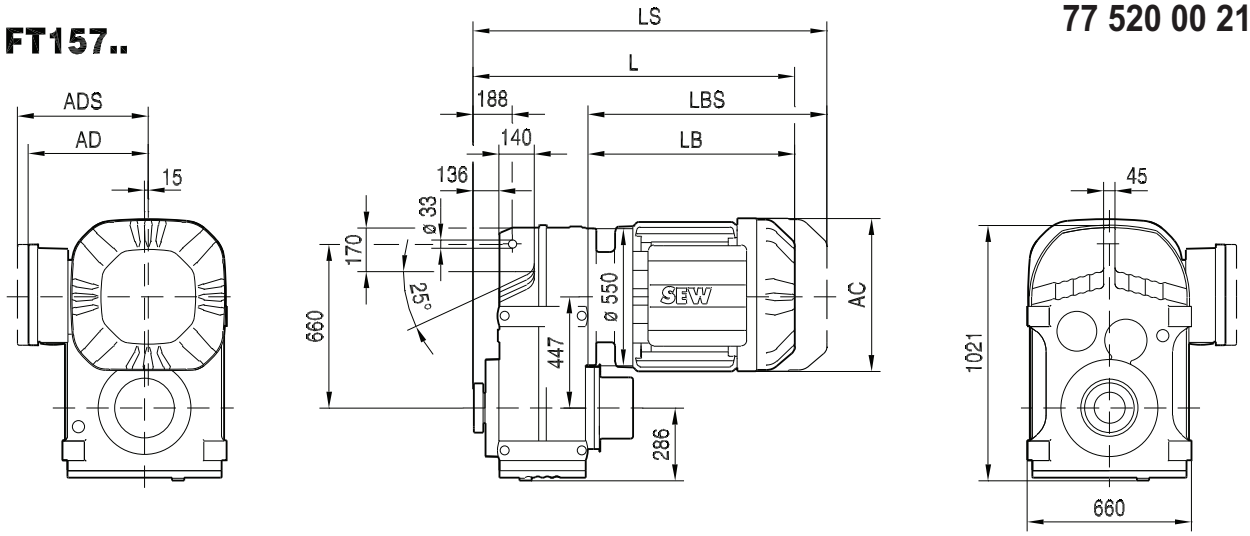
(→ 🗎 162)	DRN								
	160	180	200L	225	250M	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1165	1188	1298	1272	1409	1409	1504	1606	1736
LS	1354	1377	1503	1477	1649	1649	1744	1857	1987
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 523. For tolerances, see page 162.

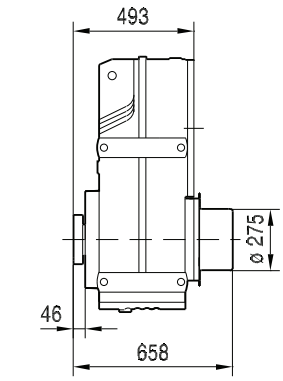
24833231/EN-US – 07/2021

77 520 00 21

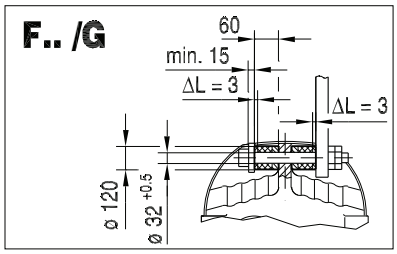
FT157..



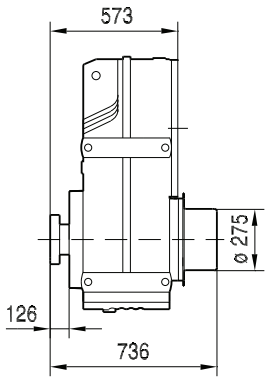
NON-Symmetrical

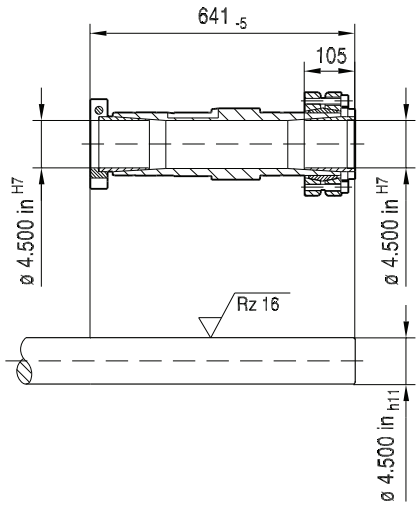


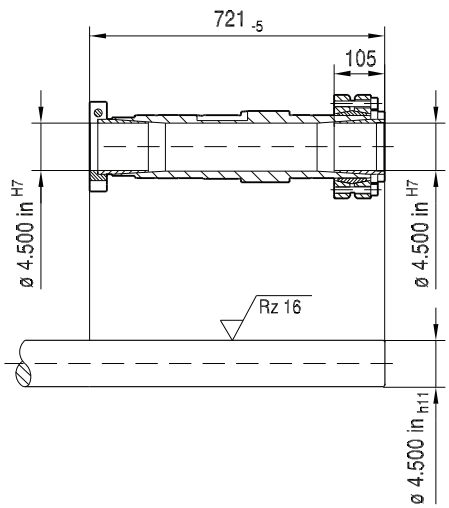
F.. /G



Symmetrical







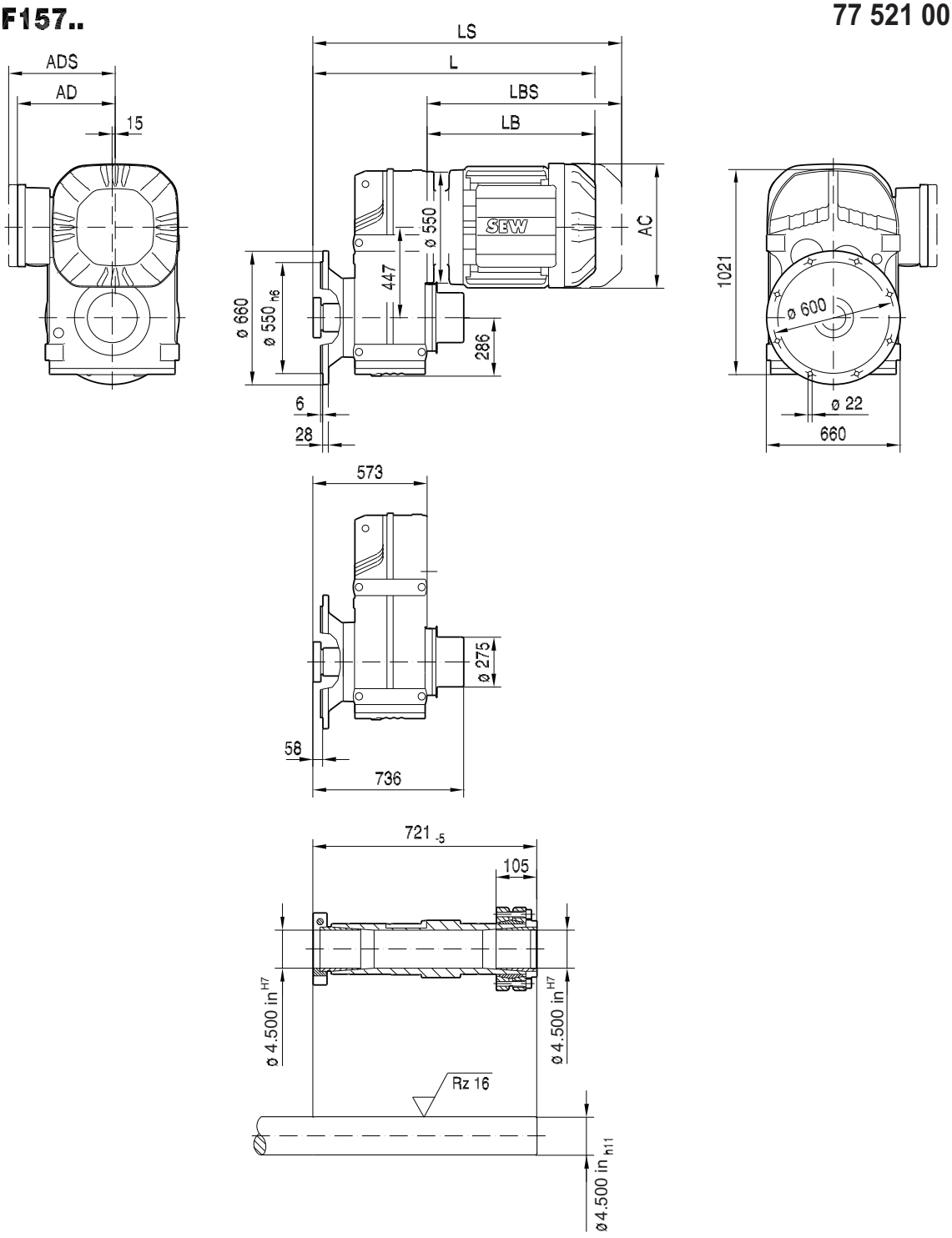
(→ 🗎 162)	DRN								
	160	180	200L	225	250M	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	993	1016	1126	1100	1237	1237	1332	1434	1564
LS	1182	1205	1331	1305	1477	1477	1572	1685	1815
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

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FTF157..

77 521 00 21

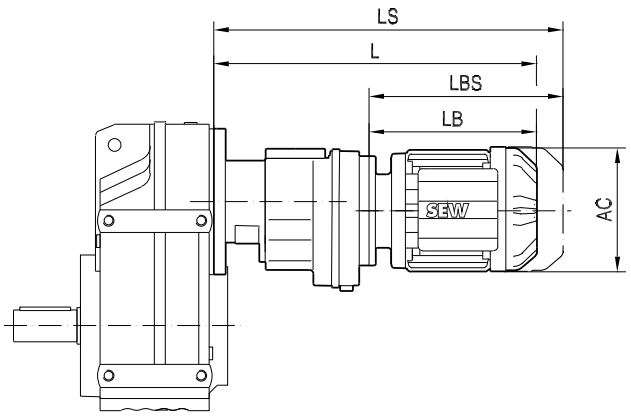


(→ 🗎 162)	DRN								
	160	180	200L	225	250M	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1073	1096	1206	1180	1317	1317	1412	1514	1644
LS	1262	1285	1411	1385	1557	1557	1652	1765	1895
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 527. For tolerances, see page 162.

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9.6 F.. R.. DRN.. compound dimensions

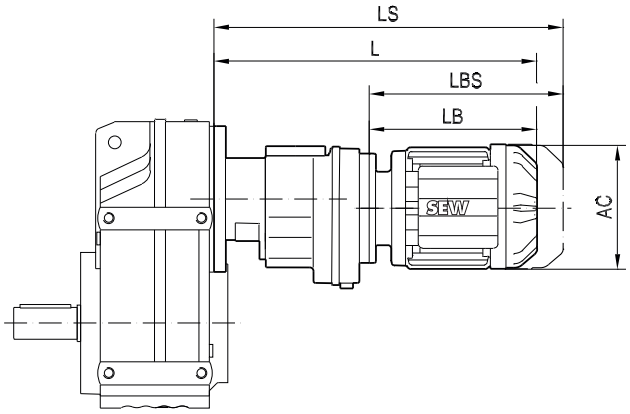


77 522 00 21

Gear	Motor	AC	L	LS	LB	LBS
F..27R17	DRN63MS	115	365	421	190	246
	DRN63M	115	379	435	204	260
	DRN71MS	139	381	448	206	273
	DRN80M	156	452	533	277	358
F..37R17	DRN63MS	115	365	421	190	246
	DRN63M	115	379	435	204	260
	DRN71MS	139	381	448	206	273
	DRN71M	139	401	468	226	293
	DRN80M	156	452	533	277	358
F..47R17	DRN63MS	115	365	421	190	246
	DRN63M	115	379	435	204	260
	DRN71MS	139	381	448	206	273
	DRN71M	139	401	468	226	293
	DRN80M	156	452	533	277	358
F..57R37	DRN63MS	115	355	411	190	246
	DRN63M	115	369	425	204	260
	DRN71MS	139	371	438	206	273
	DRN71M	139	391	458	226	293
	DRN80MK	156	402	483	237	318
	DRN80M	156	446	527	281	362
	DRN90S	179	447	541	282	376
F..67R37	DRN63MS	115	355	411	190	246
	DRN63M	115	369	425	204	260
	DRN71MS	139	371	438	206	273
	DRN71M	139	391	458	226	293
	DRN80MK	156	402	483	237	318
	DRN80M	156	446	527	281	362
	DRN90S	179	448	541	283	376
F..77R37	DRN63MS	115	347	403	190	246
	DRN63M	115	361	417	204	260
	DRN71MS	139	363	430	206	273
	DRN71M	139	383	450	226	293
	DRN80MK	156	394	475	237	318
	DRN80M	156	438	519	281	362
	DRN90S	179	440	533	283	376
	DRN90L	179	472	565	315	408
	DRN100L/LM	197	522	615	365	458
F..87R57	DRN63MS	115	411	467	184	240
	DRN63M	115	425	481	198	254
	DRN71MS	139	427	494	199	267
	DRN71M	139	447	514	219	287
	DRN80MK	156	458	539	230	311

Gear	Motor	AC	L	LS	LB	LBS
F..87R57	DRN80M	156	502	583	275	356
	DRN90S	179	504	597	277	370
	DRN90L	179	536	629	309	402
	DRN100L/LM	197	583	676	355	448
F..97R57	DRN63MS	115	406	462	184	240
	DRN63M	115	420	476	198	254
	DRN71MS	139	422	489	199	267
	DRN71M	139	442	509	219	287
	DRN80MK	156	453	534	230	311
	DRN80M	156	497	578	275	356
	DRN90S	179	499	592	277	370
	DRN90L	179	531	624	309	402
	DRN100L/LM	197	578	671	355	448
	DRN112M	221	608	720	386	498
	DRN132S	221	662	774	440	552
F..107R77	DRN63MS	115	424	480	177	233
	DRN63M	115	438	494	191	247
	DRN71MS	139	439	507	192	260
	DRN71M	139	459	527	212	280
	DRN80MK	156	470	551	223	304
	DRN80M	156	515	596	268	349
	DRN90S	179	517	610	270	363
	DRN90L	179	549	642	302	395
	DRN100L/LM	197	595	688	348	441
	DRN112M	221	626	738	379	491
	DRN132S	221	676	788	429	541
	DRN132M	261	694	832	447	585
	DRN132L	261	720	857	473	610
F..127R77	DRN63MS	115	409	465	177	233
	DRN63M	115	423	479	191	247
	DRN71MS	139	424	492	192	260
	DRN71M	139	444	512	212	280
	DRN80MK	156	455	536	223	304
	DRN80M	156	500	581	268	349
	DRN90S	179	502	595	270	363
	DRN90L	179	534	627	302	395
	DRN100L/LM	197	580	673	348	441
	DRN112M	221	611	723	379	491
	DRN132S	221	661	773	429	541
	DRN132M	261	679	817	447	585

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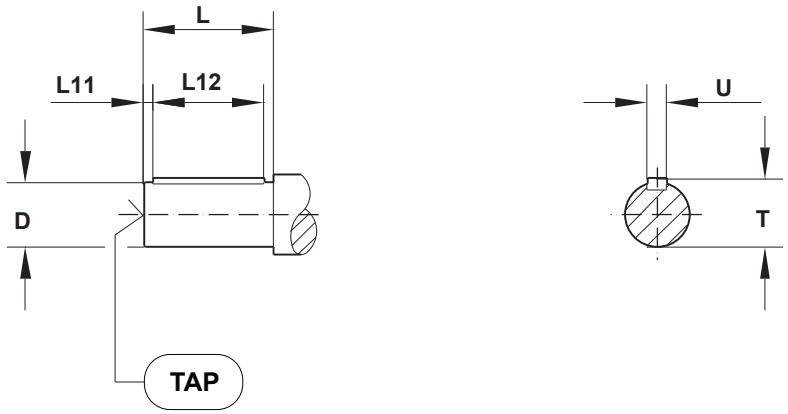
77 522 00 21

Gear	Motor	AC	L	LS	LB	LBS
F..127R87	**DRN100L/LM**	197	580	674	348	442
	DRN112M	221	611	723	379	491
	DRN132S	221	704	816	424	536
	DRN132M	261	720	859	440	579
	DRN132L	261	745	884	465	604
	DRN160M	314	814	1003	534	723
	DRN160L	314	814	1003	534	723
F..157R97	**DRN71MS**	139	507	575	182	250
	DRN71M	139	527	595	202	270
	DRN80MK	156	538	619	213	294
	DRN80M	156	583	664	258	339
	DRN90S	179	585	678	260	353
	DRN90L	179	617	710	292	385
	DRN100L/LM	197	663	756	338	431
	DRN112M	221	694	806	369	481
	DRN132S	221	744	856	419	531
	DRN132M	261	760	899	435	574
	DRN132L	261	785	924	460	599
	DRN160M	314	854	1043	529	718
	DRN160L	314	854	1043	529	718
	DRN180M	357	879	1068	554	743

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9.7 Output shaft sizes

9.7.1 Solid Shaft – Inch



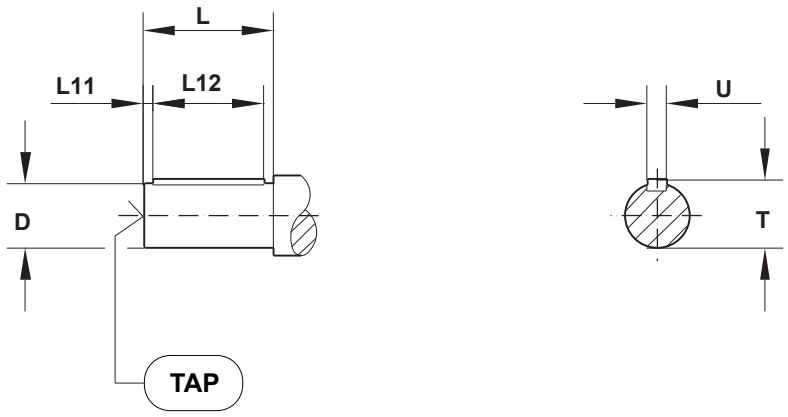
Model	All dimensions in inches							
	D	T	U	L[1]	L11	L12	TAP	Change[2]
F27 / FF27	1.00	1.11	1/4	1.97	0.20	1-5/16	3/8 - 16 x 0.87	0
F37 / FF37	1.00	1.11	1/4	1.97	0.20	1-5/16	3/8 - 16 x 0.87	0
F47 / FF47	1.25	1.36	1/4	2.36	0.26	1-11/16	1/2 - 13 x 1.12	0
F57 / FF57	1.375	1.51	5/16	2.76	0.43	1-13/16	1/2 - 13 x 1.12	0
F67 / FF67	1.375	1.51	5/16	2.76	0.47	1-13/16	1/2 - 13 x 1.12	-0.39
	1.625	1.79	3/8	3.15	0.38	2-1/4	5/8 - 11 x 1.38	0
F77 / FF77	1.75	1.92	3/8	3.54	0.4	2-3/4	5/8 - 11 x 1.38	-0.39
	2.00	2.22	1/2	3.94	0.64	2-5/8	3/4 - 10 x 1.61	0
F87 / FF87	2.375	2.65	5/8	4.72	0.51	3-5/8	3/4 - 10 x 1.61	0
F97 / FF97	2.875	3.2	3/4	5.51	0.67	4-1/8	3/4 - 10 x 1.61	0
F107 / FF107	3.625	4.01	7/8	6.69	0.63	5-3/8	1 - 8 x 2.13	0
F127 / FF127	4.375	4.82	1	8.27	1.09	6	1 - 8 x 2.13	0
F157 / FF157	4.75	5.29	1-1/4	8.27	0.82	6-9/16	1 - 8 x 2.13	0

[1]Longer shafts to match obsolete gear unit designs are available for flanged units.

[2]The change in length, L, when compared to the standard shaft that is shown in dimension pages.

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9.7.2 Solid Shaft – Metric

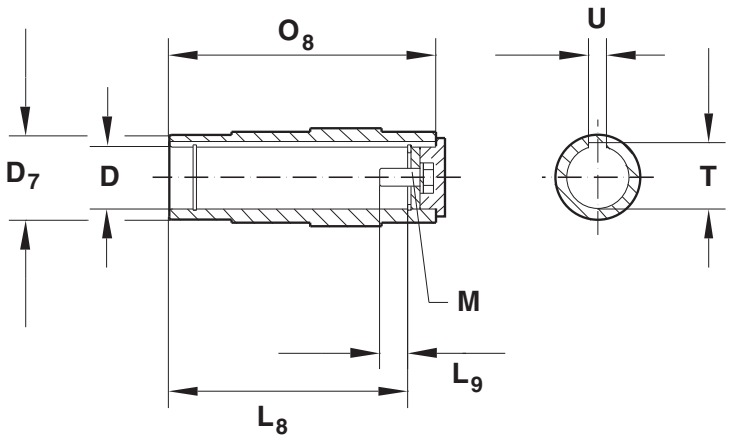


Model	All dimensions in mm						
	D	T	U	L[1]	L11	L12	TAP
F..27	25	28	8	50	5	40	M10 x 22
F..37	25	28	8	50	5	40	M10 x 22
F..47	30	33	8	60	3.5	50	M10 x 22
F..57	35	38	10	70	7	56	M12 x 28
F..67	40	43	12	80	5	70	M16 x 36
	35	38	10	70	7	56	M12 x 28
F..77	50	53.5	14	100	10	80	M16 x 36
	45	48.5	14	90	5	80	M16 x 36
F..87	60	64	18	120	5	110	M20 x 42
F..97	70	74.5	20	140	7.5	125	M20 x 42
F..107	90	95	25	170	5	160	M24 x 50
F..127	110	116	28	210	15	180	M24 x 50
F..157	120	127	32	210	5	200	M24 x 50

[1] Longer shafts to match obsolete gear unit designs are available for flanged units.

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9.7.3 Hollow Shaft – Inch



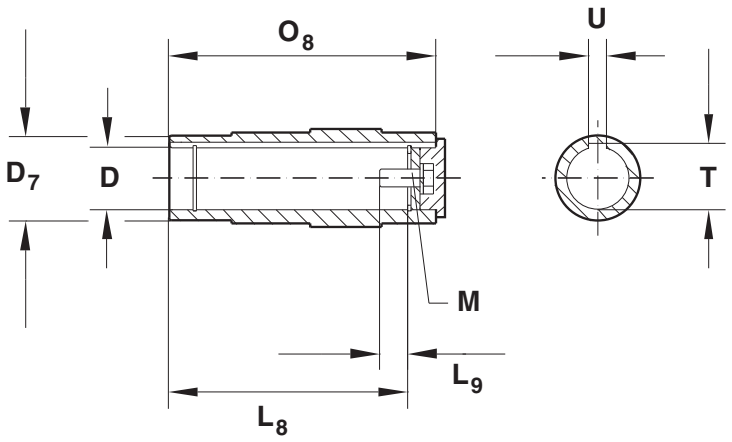
Notes:
To aid in the future removal of your machine's solid shaft, please see SEW-EURODRIVE design recommendations on page 120. The 'M' dimension pertains to the standard bolt that ships with the unit, which is shorter than the bolt supplied with the optional shaft removal kit on page 126.

Mounting hardware (bolt, washer, and snapring) are not supplied with stainless steel shafts.

Model	In stock (USA)		All dimensions in inch							
	Carbon Steel	S/S	D	D7	O8	T	U	L8	L9	M (std bolt)[1]
FA..27	X	X	1.00	1.57	4.09	1.12	1/4	3.50	0.69	3/8 - 16 x 1
FA..37		X	1.00	1.77	4.72	1.12	1/4	4.13	-	Not supplied
	X	X	1.25	1.77	4.72	1.37	1/4	4.13	0.67	7/16 - 14 x 1
FA..47	X		1.1875	1.97	5.91	1.30	1/4	5.2	0.67	3/8 - 16 x 1
	X		1.25	1.97	5.91	1.37	1/4	5.2	0.67	7/16 - 14 x 1
	X	X	1.375	1.97	5.91	1.52	5/16	5.2	0.65	1/2 - 13 x 1
	X		1.4375	1.97	5.91	1.61	3/8	5.2	0.65	5/8 - 11 x 1-3/4
FA..57	X		1.4375	2.17	6.54	1.61	3/8	5.59	1.36	5/8 - 11 x 1-3/4
	X	X	1.50	2.17	6.54	1.67	3/8	5.59	1.36	5/8 - 11 x 1-3/4
FA..67	X		1.4375	2.17	7.09	1.61	3/8	6.14	1.36	5/8 - 11 x 1-3/4
	X	X	1.50	2.17	7.09	1.67	3/8	6.14	1.36	5/8 - 11 x 1-3/4
FA..77	X		1.9375	2.76	8.27	2.16	1/2	7.2	1.16	5/8 - 11 x 1-3/4
	X	X	2.00	2.76	8.27	2.22	1/2	7.2	1.16	5/8 - 11 x 1-3/4
FA..87	X	X	2.375	3.35	9.45	2.65	5/8	8.27	1.39	3/4 - 10 x 2
	X		2.4375	3.35	9.45	2.62	5/8	8.27	1.39	3/4 - 10 x 2
FA..97	X	X	2.75	3.74	11.81	3.03	5/8	10.63	1.24	3/4 - 10 x 2
	X		2.9375	3.74	11.81	3.14	3/4	10.63	1.24	3/4 - 10 x 2
FA..107	X	X	3.25	4.65	13.78	3.59	3/4	12.32	1.24	3/4 - 10 x 2
	X		3.4375	4.65	13.78	3.7	7/8	12.32	1.24	3/4 - 10 x 2
	X	X	3.625	4.65	13.78	3.89	7/8	12.32	1.24	3/4 - 10 x 2
FA..127	X		4.00	5.31	16.14	4.44	1	14.69	1.26	1 - 8 x 2-1/4
FA..157	X		4.50	6.1	19.69	4.95	1	18.11	1.26	1 - 8 x 2-1/4

[1] Mounting hardware (bolt, washer, and snapring) are not supplied for stainless steel shafts.

9.7.4 Hollow Shaft – Metric



Notes:
To aid in the future removal of your machine's solid shaft, please see SEW-EURODRIVE design recommendations on page 120.

The 'M' dimension pertains to the standard screw that ships with the unit, which is shorter than the screw supplied in the optional shaft removal kit on page 126.

Mounting hardware (bolt, washer, and snapring) are not supplied with stainless steel shafts.

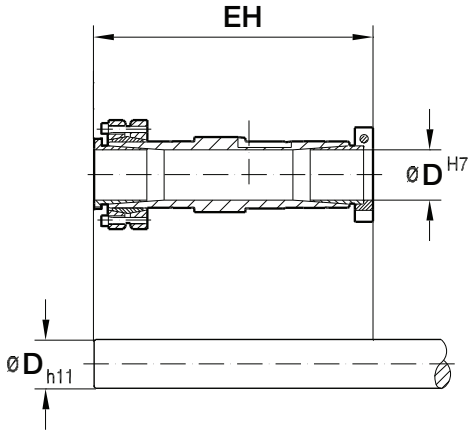
Model	In stock (USA)		All dimensions in inch							
	Carbon Steel	S/S	D	D7	O8	T	U	L8	L9	M (std bolt)[1]
FA..27	X		25	40	104	28.3	8	89	17	M10 x 25
FA..37	X	X	30	45	120	33.3	8	105	17	M10 x 25
FA..47	X	X	35	50	150	38.3	10	132	22	M12 x 30
	X	X	30	50	150	33.3	8	132	16	M10 x 25
FA..57	X	X	40	55	166	43.3	12	142	29	M16 x 40
FA..67	X	X	40	55	180	43.3	12	156	29	M16 x 40
FA..77	X	X	50	70	210	53.8	14	183	32	M16 x 45
FA..87	X	X	60	85	240	64.4	18	210	36	M20 x 50
FA..97	X	X	70	95	300	74.9	20	270	34	M20 x 50
FA..107	X		90	118	350	95.4	25	313	40	M24 x 60
	X		80	118	350	85.4	22	313	30	M20 x 50
FA..127	X		100	135	410	106.4	28	373	38	M24 x 60
FA..157	X		120	135	500	127.4	32	460	36	M24 x 60

[1] Mounting hardware (bolt, washer, and snapring) are not supplied for stainless steel shafts.

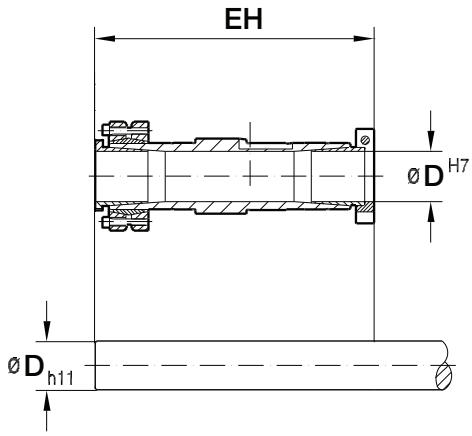
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9.7.5 TorqLOC® keyless hollow shaft

NON-Symmetrical



Symmetrical

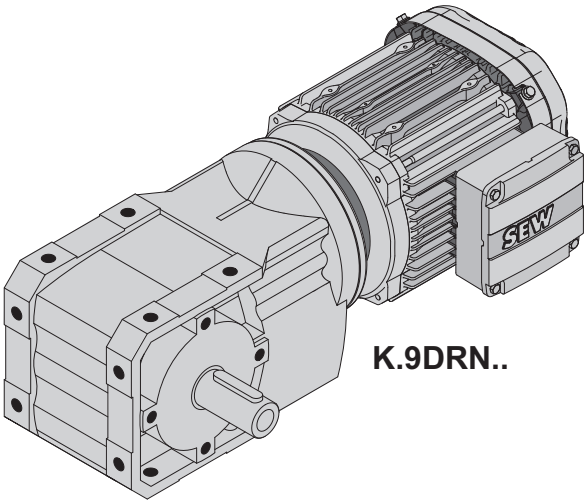


Model	D (in) Inch Bores					D (mm) Metric Bores						EH (in)	
												NON Symmetrical	Symmetrical
FT37	1.00	1.1875	1.25	-	-	25	30	-	-	-	-	6.69	7.60
FT47	1.1875	1.25	1.375	1.4375	-	30	35	-	-	-	-	8.15	9.09
FT57	1.375	1.4375	1.50	1.625	-	35	38	40	-	-	-	9.13	10.33
FT67	1.375	1.4375	1.50	1.625	1.688	35	38	40	-	-	-	9.65	10.85
FT77	1.625	1.6875	1.75	1.9375	2.00	40	45	50	51	-	-	11.57	13.21
FT87	1.9375	2.00	2.375	2.4375	-	50	51	55	60	62	65	13.19	15.24
FT97	2.4375	2.75	2.9375	-	-	60	62	65	70	75	-	15.59	17.76
FT107	3.250	3.4375	3.625	3.750	-	80	85	90	95	-	-	17.76	20.09
FT127	3.4375	3.750	3.9375	4.00	4.1875	90	95	100	105	-	-	20.94	23.89
FT157	4.4375	4.50	4.9375	5.00	-	110	120	125	-	-	-	25.24	28.39

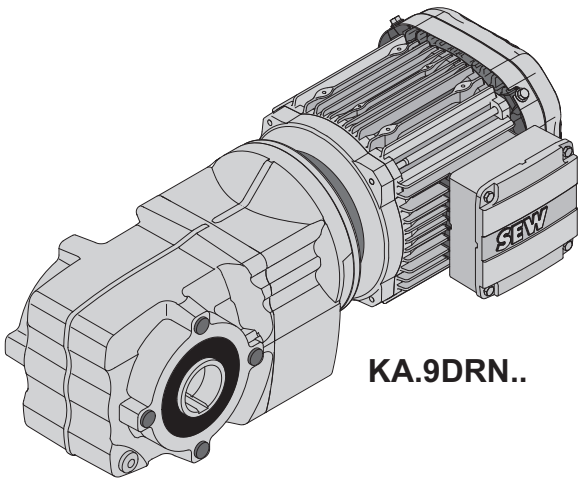
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10 Helical-bevel gearmotors

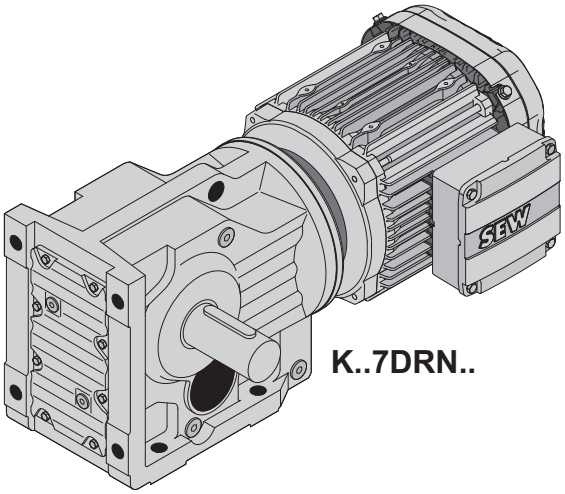
10.1 K.. DRN.. Designs



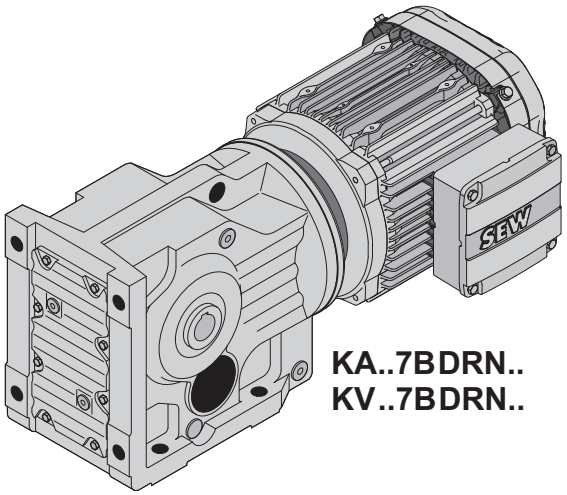
K.9DRN..



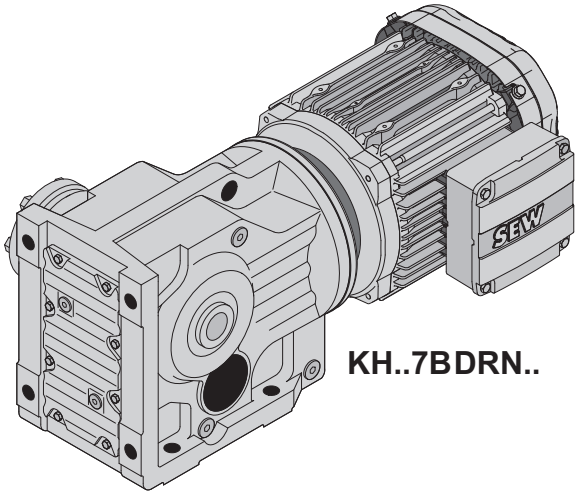
KA.9DRN..



K..7DRN..



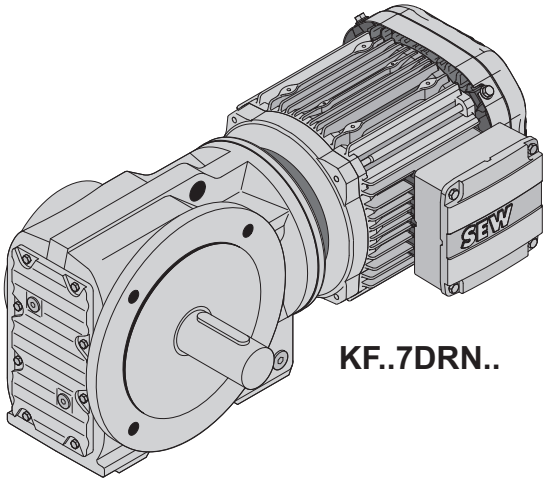
KA..7BDRN..
KV..7BDRN..



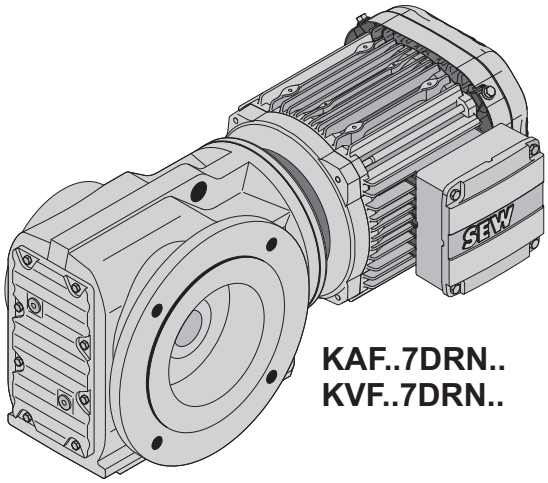
KH..7BDRN..

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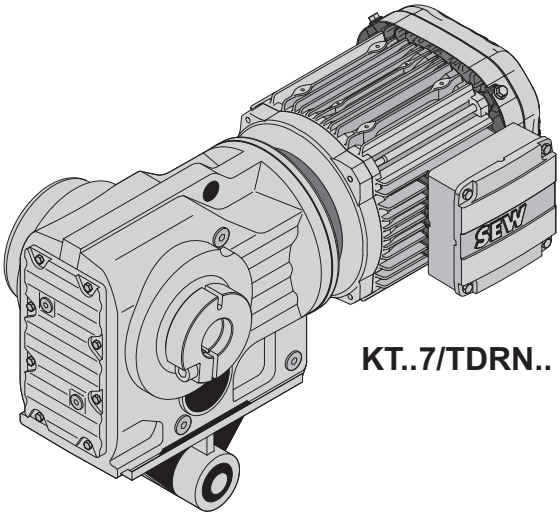
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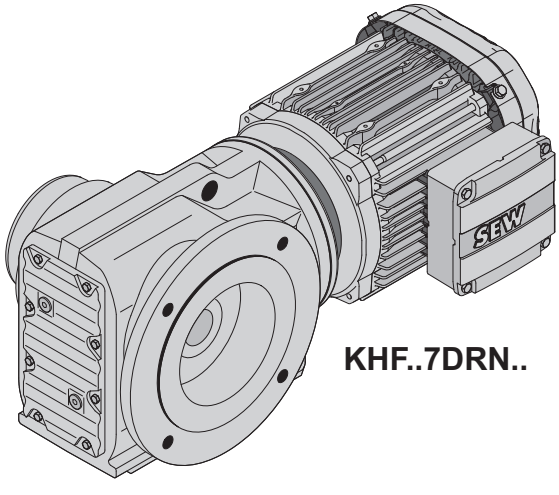
KF..7DRN..



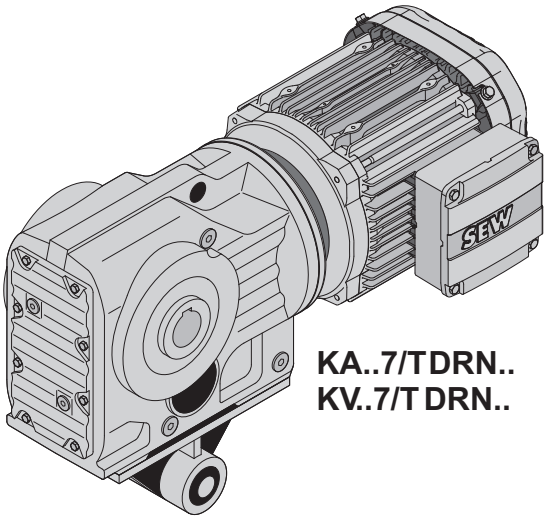
KAF..7DRN..
KVF..7DRN..



KT..7/TDRN..



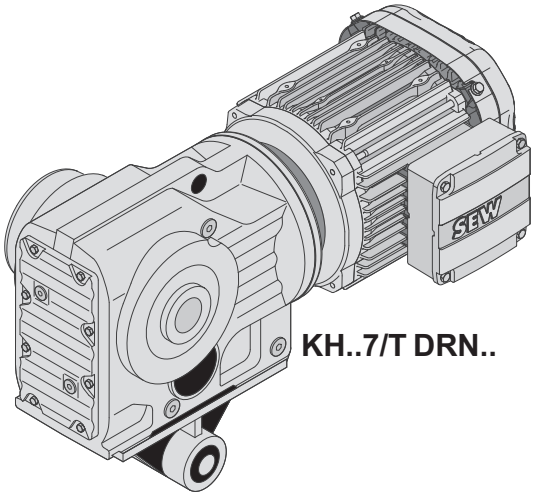
KHF..7DRN..



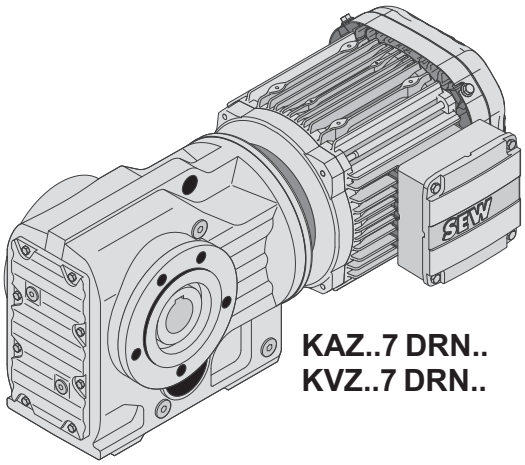
KA..7/TDRN..
KV..7/TDRN..

9007207919497227

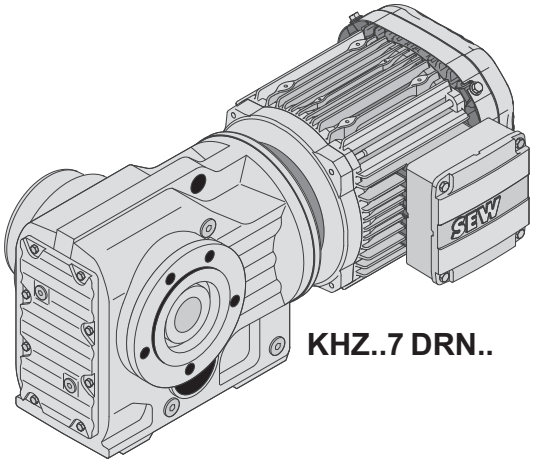
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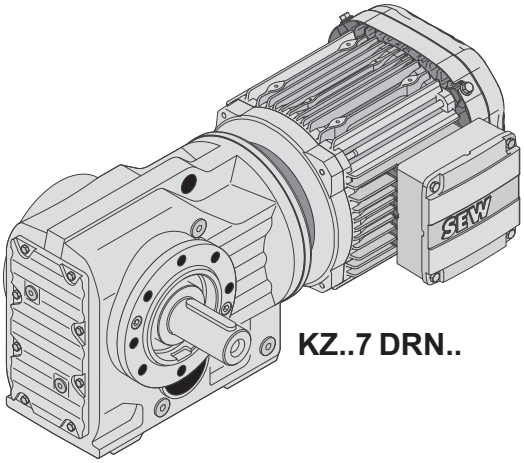
KH..7/T DRN..



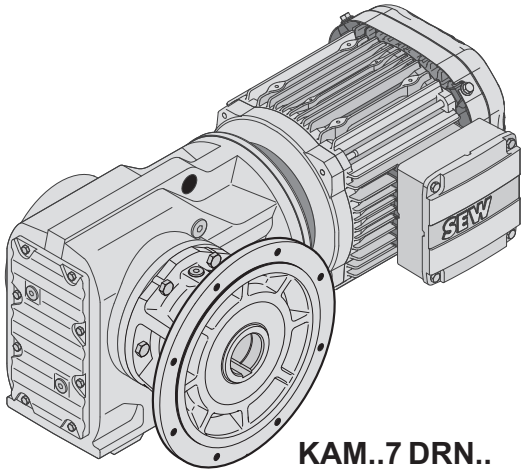
KAZ..7 DRN..
KVZ..7 DRN..



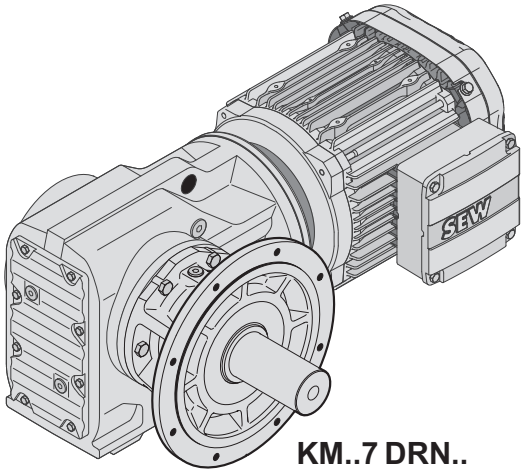
KHZ..7 DRN..



KZ..7 DRN..



KAM..7 DRN..



KM..7 DRN..

36028806136919947

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10.2 K.. DRN.. Possible combinations

K19, n_e=1700 rpm					DRN …			705 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63	71 80MK	80M 90S	
					2			
29	615	970	-	58.68				
32	615	970	-	53.88				
34	615	970	-	49.69				
38	610	970	-	44.48				
42	590	980	-	40.63				
50	565	920	-	34.29				
54	705	890	-	31.74				
58	535	870	-	29.29				
58	705	860	-	29.14				
63	530	850	-	27.16				
63	705	830	-	26.88				
71	705	790	-	24.06				
77	705	765	-	21.98				
92	705	710	-	18.55				
107	705	665	-	15.84				
116	705	645	-	14.69				
134	705	605	-	12.70				
144	695	590	-	11.84				
165	670	560	-	10.32				
177	555	605	-	9.58				
210	705	535	-	8.09				
246	705	500	-	6.91				
265	705	485	-	6.41				
307	705	455	-	5.54				
329	705	440	-	5.16				
378	705	415	-	4.50				

K29, n_e=1700 rpm					DRN …				1150 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63	71 80MK	80M 90S	90L	100LM
					2				
24	1150	1120	-	71.93					
26	1150	1120	-	66.25					
28	1150	1120	-	61.28					
31	1150	1100	-	54.89					
34	1150	1060	-	50.35					
40	1130	990	-	42.87					
44	1150	980	-	38.90					
46	1070	940	-	36.96					
47	1150	940	-	35.83					
51	1150	910	-	33.15					
56	1010	880	-	30.11					
57	1150	870	-	29.69					
62	1150	840	-	27.23					
68	960	820	-	24.91					
73	1150	780	-	23.19					
77	920	790	-	22.08					
85	1150	730	-	19.99					
104	1150	665	-	16.29					

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K29, n_e=1700 rpm					DRN …				1150 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK		80M 90S	90L	100LM
126	1150	610	-	13.47					
142	1150	575	-	11.94					
172	970	620	-	9.90					
185	1150	505	-	9.17					
199	1070	565	-	8.53					
227	1080	470	-	7.48					
245	990	530	-	6.95					
296	990	490	-	5.75					
333	970	465	-	5.10					
434	1110	390	-	3.92					
533	970	375	-	3.19					

K37, n_e=1700 rpm					DRN …			1760 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L
						3		
16	1760	1270	6.8	106.38				
17	1760	1270	6.8	97.81				
20	1760	1210	6.9	83.69				
23	1760	1140	6.9	72.54				
25	1760	1100	6.9	67.80				
29	1760	1030	6.9	58.60				
34	1760	960	7	49.79				
38	1760	900	7	44.46				
45	1760	840	7	37.97				
48	1760	810	7.1	35.57				
57	1760	745	7.1	29.96				
59	1760	730	8.1	28.83				
68	1760	675	8.1	24.99				
73	1720	660	8.2	23.36				
84	1630	630	8.3	20.19				
99	1590	590	8.4	17.15				
111	1540	565	8.5	15.31				
130	1450	535	8.6	13.08				
140	1410	525	11.9	12.14				
162	1410	485	12.2	10.49				
191	1410	445	12.4	8.91				
214	1370	425	12.5	7.96				
250	1320	395	12.8	6.80				
267	1280	390	12.9	6.37				
317	1230	365	13.2	5.36				
427	1100	335	13	3.98				

K37R17, n_e=1700 rpm					DRN …	1760 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M
					3 3	
0.25	1760	1270	-	6832		
0.29	1760	1270	-	5922		
0.31	1760	1270	-	5491		

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K37R17, n_e=1700 rpm					DRN …	1760 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M
0.36	1760	1270	-	4759		
0.41	1760	1270	-	4160		
0.47	1760	1270	-	3645		
0.53	1760	1270	-	3205		
0.61	1760	1270	-	2801		
0.69	1760	1270	-	2454		
0.78	1760	1270	-	2166		
0.90	1760	1270	-	1891		
1.0	1760	1270	-	1660		
1.2	1760	1270	-	1466		
1.3	1760	1270	-	1288		
1.5	1760	1270	-	1136		
					3 2	
1.7	1760	1270	-	996		
1.9	1760	1270	-	876		
2.2	1760	1270	-	761		
2.5	1760	1270	-	671		
2.9	1760	1270	-	585		
3.3	1760	1270	-	512		
3.8	1760	1270	-	451		
4.3	1760	1270	-	396		
4.9	1760	1270	-	346		
5.6	1760	1270	-	304		
6.4	1760	1270	-	267		
7.3	1760	1270	-	234		
8.3	1760	1270	-	205		
9.4	1760	1270	-	181		
11	1760	1270	-	160		
12	1760	1270	-	136		
13	1760	1270	-	127		
15	1760	1270	-	110		
18	1760	1270	-	96		

K39, n_e=1700 rpm					DRN …				2650 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M
					2				
29	2650	1650	-	58.24					
34	2650	1530	-	49.69					
39	2650	1440	-	43.45					
41	2650	1400	-	41.28					
47	2650	1320	-	36.22					
55	2650	1220	-	30.72					
61	2650	1160	-	27.73					
70	2650	1090	-	24.40					
74	2650	1050	-	23.04					
87	2610	980	-	19.62					
95	2560	940	-	17.83					
110	2470	890	-	15.44					
126	2380	840	-	13.44					

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K39, n_e=1700 rpm					DRN …				2650 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M
134	2210	1020	-	12.73					
141	2250	990	-	12.09					
160	2520	890	-	10.61					
189	2650	810	-	9.00					
209	2650	770	-	8.12					
238	2650	720	-	7.15					
252	2650	700	-	6.75					
296	2430	675	-	5.75					
326	2300	660	-	5.22					
376	2120	640	-	4.52					
431	1900	630	-	3.94					
605	1500	590	-	2.81					

K39R17, n_e=1700 rpm					DRN …	2650 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M
					2 3	
0.42	2650	1690	-	4057		
0.50	2650	1690	-	3370		
0.58	2650	1690	-	2906		
0.68	2650	1690	-	2508		
0.72	2650	1690	-	2367		
0.79	2650	1690	-	2162		
0.90	2650	1690	-	1881		
0.96	2650	1690	-	1762		
1.0	2650	1690	-	1622		
1.1	2650	1690	-	1494		
1.3	2650	1690	-	1321		
1.5	2650	1690	-	1169		
1.6	2650	1690	-	1093		
					2 2	
1.8	2650	1690	-	956		
2.1	2650	1690	-	814		
2.4	2650	1690	-	711		
2.8	2650	1690	-	605		
3.4	2650	1690	-	504		
3.7	2650	1690	-	454		
4.3	2650	1690	-	399		
4.7	2650	1690	-	365		
5.4	2650	1690	-	312		
5.7	2650	1690	-	299		
6.7	2650	1690	-	254		
7.3	2650	1690	-	234		
8.1	2650	1690	-	210		
9.0	2650	1690	-	189		
9.8	2650	1690	-	174		
11	2650	1690	-	156		
12	2650	1690	-	142		
15	2650	1690	-	117		
23	2610	1690	-	75		

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K47, n_e=1700 rpm					DRN …			3530 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L
						3		
13	3530	1330	6.4	131.87*				
14	3530	1330	6.4	121.48*				
16	3530	1330	6.4	104.37				
19	3530	1330	6.4	90.86				
20	3530	1330	6.4	85.12*				
23	3530	1330	6.5	75.20*				
24	3530	1330	6.5	69.84				
27	3530	1330	6.5	63.30*				
30	3530	1330	6.5	56.83				
35	3530	1330	6.6	48.95*				
37	3530	1330	6.6	46.03*				
43	3530	1310	6.6	39.61				
48	3530	1240	6.7	35.39				
54	3530	1160	7.5	31.30				
58	3530	1120	7.5	29.32				
66	3530	1050	7.6	25.91				
71	3530	1000	7.7	24.06				
78	3530	950	7.7	21.81				
87	3530	890	7.7	19.58				
101	3360	850	7.8	16.86				
107	3360	820	7.9	15.86				
125	3180	780	8	13.65				
139	3090	745	8.3	12.19				
144	2470	820	10.5	11.77				
161	2470	775	10.6	10.56				
187	2470	715	10.7	9.10				
199	2380	705	10.8	8.56				
231	2210	685	11	7.36				
258	2120	660	11.5	6.58				
293	2030	635	11.8	5.81				
366	1810	605	12	4.64				

K47R37, n_e=1700 rpm					DRN …			3530 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L
						3 3		
0.17	3530	1330	-	10138				
0.20	3530	1330	-	8534				
0.22	3530	1330	-	7662				
0.25	3530	1330	-	6826				
0.28	3530	1330	-	5983				
0.33	3530	1330	-	5159				
0.37	3530	1330	-	4601*				
0.43	3530	1330	-	3940				
0.49	3530	1330	-	3477				
0.56	3530	1330	-	3043				
0.62	3530	1330	-	2733				
0.72	3530	1330	-	2354				
0.82	3530	1330	-	2063				

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K47R37, n_e=1700 rpm					DRN …				3530 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	
0.93	3530	1330	-	1819					
1.1	3530	1330	-	1586					
1.2	3530	1330	-	1388					
					3	2			
1.4	3530	1330	-	1222					
1.5	3530	1330	-	1097					
1.8	3530	1330	-	945					
2.0	3530	1330	-	831*					
2.4	3530	1330	-	718*					
2.7	3530	1330	-	639					
3.1	3530	1330	-	552					
3.4	3530	1330	-	495					
4.0	3530	1330	-	426					
4.5	3530	1330	-	375					
5.2	3530	1330	-	327					
5.9	3530	1330	-	289					
6.6	3530	1330	-	256					
7.6	3530	1330	-	225					
8.6	3530	1330	-	198					
9.9	3530	1330	-	171					
11	3530	1330	-	153					
13	3530	1330	-	131					
15	3530	1330	-	112					
17	3530	1330	-	99					
18	3530	1330	-	94					

K49, n_e=1700 rpm					DRN …					4420 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
						2				
23	4200	2020	-	75.20						
24	3930	2020	-	70.19						
28	4420	1870	-	60.27						
32	4420	1760	-	52.94						
34	4420	1710	-	50.29						
38	4420	1610	-	44.44						
45	4420	1490	-	37.98						
49	4420	1420	-	34.81						
56	4420	1330	-	30.55						
59	4420	1290	-	28.95						
67	4420	1200	-	25.34						
74	4420	1130	-	22.83						
85	4420	1050	-	20.03						
96	4420	970	-	17.67						
108	4330	920	-	15.67						
127	4150	860	-	13.38						
150	4370	1020	-	11.37						
163	4240	990	-	10.42						
186	4420	910	-	9.14						
196	4420	880	-	8.66						

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K49, n_e=1700 rpm					DRN …					4420 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
224	4420	820	-	7.58						
249	4420	775	-	6.83						
284	4420	580	-	5.99						
321	4290	455	-	5.29						
362	4110	420	-	4.69						
425	3890	370	-	4.00						

K49R37, n_e=1700 rpm					DRN …			4420 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L
					2 3			
0.24	4420	2020	-	7137				
0.28	4420	2020	-	5991				
0.33	4420	2020	-	5120				
0.42	4420	2020	-	4034				
0.47	4420	2020	-	3580				
0.55	4420	2020	-	3081				
0.61	4420	2020	-	2773				
0.67	4420	2020	-	2545				
0.72	4420	2020	-	2372				
0.80	4420	2020	-	2118				
0.88	4420	2020	-	1941				
0.98	4420	2020	-	1741				
1.0	4420	2020	-	1632				
1.1	4420	2020	-	1521				
1.4	4420	2020	-	1228				
1.7	4420	2020	-	1000				
					2 2			
1.2	4420	2020	-	1424				
1.3	4420	2020	-	1309				
1.5	4420	2020	-	1120				
1.9	4420	2020	-	908				
2.1	4420	2020	-	802				
2.4	4420	2020	-	701				
2.6	4420	2020	-	645				
2.9	4420	2020	-	595				
3.1	4420	2020	-	543				
3.4	4420	2020	-	501				
3.8	4420	2020	-	449				
4.2	4420	2020	-	401				
4.7	4420	2020	-	360				
5.2	4420	2020	-	330				
5.7	4420	2020	-	300				
6.2	4420	2020	-	274				
7.0	4420	2020	-	243				
7.8	4420	2020	-	217				
8.8	4420	2020	-	193				
9.7	4420	2020	-	176				

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K49R37, n_e=1700 rpm					DRN …			4420 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L
11	4420	2020	-	152				
14	4420	2020	-	125				
17	4420	2020	-	99				

K57, n_e=1700 rpm					DRN …				5300 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M
						3			
12	5300	1720	5.9	145.14*					
14	5300	1720	5.9	123.85					
16	5300	1720	5.9	108.29					
17	5300	1720	5.9	102.88*					
19	5300	1720	5.9	90.26*					
22	5300	1720	5.9	76.56*					
25	5300	1720	6	69.12					
28	5300	1720	6	60.81*					
30	5300	1720	6	57.42*					
35	5300	1720	6	48.89					
38	5300	1720	6.1	44.43					
44	5300	1680	6.1	38.49					
48	5300	1620	6.8	35.70					
56	5300	1480	6.9	30.28					
62	5300	1400	6.9	27.34					
71	5300	1310	6.9	24.05					
75	5300	1270	6.9	22.71					
88	5080	1190	7	19.34					
97	4910	1160	7.2	17.57					
112	4730	1090	7.3	15.22					
128	4510	1050	7.4	13.25					
143	3670	1040	9.4	11.92					
151	3670	1010	9.5	11.26					
177	3580	940	9.6	9.59					
195	3450	910	10	8.71					
225	3220	880	10.2	7.55					
259	3050	850	10.4	6.57					
362	2650	770	11	4.69					

K57R37, n_e=1700 rpm					DRN …			5300 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L
					3	3		
0.14	5300	1720	-	12169				
0.15	5300	1720	-	11162*				
0.18	5300	1720	-	9503				
0.20	5300	1720	-	8547				
0.23	5300	1720	-	7277				
0.26	5300	1720	-	6478*				
0.30	5300	1720	-	5662*				
0.34	5300	1720	-	5033				

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K57R37, n_e=1700 rpm					DRN …				5300 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	
0.39	5300	1720	-	4340					
0.44	5300	1720	-	3854					
0.50	5300	1720	-	3390					
0.58	5300	1720	-	2924					
0.66	5300	1720	-	2593					
0.76	5300	1720	-	2249					
0.86	5300	1720	-	1986					
					 3 2				
0.98	5300	1720	-	1743					
1.1	5300	1720	-	1539					
1.3	5300	1720	-	1354					
1.4	5300	1720	-	1174					
1.6	5300	1720	-	1036*					
1.9	5300	1720	-	906*					
2.1	5300	1720	-	806					
2.4	5300	1720	-	699					
2.8	5300	1720	-	615					
3.1	5300	1720	-	544*					
3.6	5300	1720	-	473					
4.0	5300	1720	-	421					
4.7	5300	1720	-	362					
5.3	5300	1720	-	319					
6.1	5300	1720	-	280					
6.9	5300	1720	-	246					
7.9	5300	1720	-	215					
8.9	5300	1720	-	192					
10	5300	1720	-	166					
12	5300	1720	-	145					
13	5300	1720	-	129					
15	5300	1720	-	111					
18	5300	1720	-	97					

K67, n_e=1700 rpm					DRN …					7250 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
						 3				
12	7250	2320	6.2	144.79*						
14	7250	2320	6.2	123.54						
16	7250	2320	6.1	108.03						
17	7250	2320	6.1	102.62						
19	7250	2320	6.2	90.04						
22	7250	2320	6.2	76.37						
25	7250	2320	6.2	68.95						
28	7250	2320	6.2	60.66						
30	7250	2320	6.2	57.28						
35	7250	2320	6.3	48.77						
38	7250	2320	6.3	44.32						
44	7070	2360	6.4	38.39						
48	7250	2320	7.1	35.62						
56	7250	2320	7.1	30.22						

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K67, n_e=1700 rpm					DRN …					7250 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
62	7250	2320	7.1	27.28						
71	7070	2360	7.2	24.00						
75	6900	2390	7.2	22.66						
88	6720	2430	7.3	19.30						
97	6540	2470	7.5	17.54						
112	6190	2530	7.5	15.19						
129	5920	2560	7.6	13.22						
136	4680	2570	8.6	12.48						
160	4420	2460	8.8	10.63						
176	4240	2390	9.1	9.66						
203	3890	2320	9.3	8.37						
234	3710	2230	9.4	7.28						
327	3090	2060	10	5.20						

K67R37, n_e=1700 rpm					DRN …			7250 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L
					3	3		
0.14	7250	2320	-	12139				
0.15	7250	2320	-	11134				
0.18	7250	2320	-	9479				
0.21	7250	2320	-	8173				
0.23	7250	2320	-	7259				
0.26	7250	2320	-	6462				
0.30	7250	2320	-	5648				
0.35	7250	2320	-	4846				
0.39	7250	2320	-	4329				
0.45	7250	2320	-	3750				
0.51	7250	2320	-	3315				
0.58	7250	2320	-	2917				
0.67	7250	2320	-	2532				
0.76	7250	2320	-	2244				
0.86	7250	2320	-	1981				
					3	2		
0.98	7250	2320	-	1739				
1.1	7250	2320	-	1535				
1.3	7250	2320	-	1351				
1.5	7250	2320	-	1171				
1.6	7250	2320	-	1034				
1.9	7250	2320	-	903				
2.1	7250	2320	-	793				
2.4	7250	2320	-	697				
2.8	7250	2320	-	613				
3.1	7250	2320	-	542				
3.6	7250	2320	-	471				
4.0	7250	2320	-	420				
4.7	7250	2320	-	361				
5.3	7250	2320	-	323				
6.1	7250	2320	-	279				
6.9	7250	2320	-	246				

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K67R37, n_e=1700 rpm					DRN …			7250 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L
7.8	7250	2320	-	217				
8.9	7250	2320	-	191				
10	7250	2320	-	166				
12	7250	2320	-	144				
14	7250	2320	-	122				

K77, n_e=1700 rpm					DRN …						13700 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
						3					
8.8	12800	3610	5.4	192.18							
9.5	12800	3610	5.4	179.37							
11	13700	3460	5.4	154.02							
13	13700	3460	5.4	135.28							
13	13700	3460	5.4	128.52							
15	13700	3460	5.4	113.56							
18	13700	3460	5.4	97.05							
19	13700	3460	5.4	88.97							
22	13700	3460	5.4	78.07							
23	13700	3460	5.4	73.99							
26	13700	3460	5.5	64.75							
29	13700	3460	5.5	58.34							
33	13700	3460	5.5	51.18							
38	13700	3460	5.5	45.16							
42	13700	3460	5.6	40.04							
44	13200	3530	6	38.39							
48	13700	3460	6	35.20							
55	13700	3460	6.1	30.89							
58	13700	3460	6.1	29.27							
66	13700	3460	6.1	25.62							
74	13700	3460	6.3	23.08							
84	13200	3460	6.3	20.25							
95	12800	3330	6.3	17.87							
107	12300	3210	6.4	15.84							
126	11800	3060	6.5	13.52							
138	8840	3140	7.9	12.36							
157	8750	2990	7.8	10.84							
178	8310	2890	7.9	9.56							
200	7870	2810	8.2	8.48							
235	7250	2710	8.3	7.24							

K77R37, n_e=1700 rpm					DRN …			13700 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L
					3	3		
0.11	13700	3460	-	15310				
0.12	13700	3460	-	14043				
0.14	13700	3460	-	11955				
0.17	13700	3460	-	10217				

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K77R37, n_e=1700 rpm					DRN …			13700 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L
0.19	13700	3460	-	8809				
0.23	13700	3460	-	7528				
0.26	13700	3460	-	6606				
0.29	13700	3460	-	5774				
0.33	13700	3460	-	5089				
0.38	13700	3460	-	4489				
0.43	13700	3460	-	3961				
0.49	13700	3460	-	3485				
0.59	13700	3460	-	2901				
0.63	13700	3460	-	2717				
0.72	13700	3460	-	2370				
					3 2			
0.83	13700	3460	-	2050				
0.96	13700	3460	-	1772				
1.1	13700	3460	-	1514				
1.2	13700	3460	-	1388				
1.4	13700	3460	-	1218				
1.6	13700	3460	-	1053				
1.8	13700	3460	-	924				
2.1	13700	3460	-	815				
2.4	13700	3460	-	709				
2.7	13700	3460	-	622				
3.1	13700	3460	-	552				
3.5	13700	3460	-	485				
4.0	13700	3460	-	428				
4.6	13700	3460	-	367				
5.2	13700	3460	-	328				
5.9	13700	3460	-	290				
6.7	13700	3460	-	252				
7.7	13700	3460	-	221				
8.7	13700	3460	-	195				
9.7	13700	3460	-	175				
11	13700	3460	-	154				

K87, n_e=1700 rpm					DRN …								23800 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L
							3						
8.6	23800	6130	5.3	197.37									
9.8	23800	6130	5.3	174.19									
10	23800	6130	5.3	164.34*									
12	23800	6130	5.4	147.32*									
13	23800	6130	5.4	126.91*									
15	23800	6130	5.4	115.82									
17	23800	6130	5.4	102.71*									
20	23800	6130	5.4	86.34									
21	23800	5970	5.4	79.34									
24	23800	5670	5.4	70.46									
27	23800	5410	5.4	63.00*									
30	23800	5160	5.5	56.64									

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K87, n_e=1700 rpm					DRN …								23800 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L
35	23800	4840	5.5	49.16									
39	23000	4700	5.5	44.02									
47	22100	4400	5.5	36.52*									
54	23800	3930	6.1	31.39									
61	23000	3790	6.1	27.88									
68	22100	3680	6.1	24.92									
76	20300	3680	6.2	22.41									
87	20300	3440	6.3	19.45									
98	19400	3350	6.3	17.42									
106	15900	3290	6.5	16.00									
118	18500	3150	6.4	14.45									
135	17600	3030	6.5	12.56									
152	13200	3080	6.7	11.17									
170	13200	2920	6.8	10.00									
205	12300	2780	7	8.29									
236	11500	2720	7.1	7.21									

K87R57, n_e=1700 rpm					DRN …					
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
						3 3				
0.11	23800	6130	-	14829						
0.13	23800	6130	-	13168						
0.14	23800	6130	-	11737						
0.17	23800	6130	-	10217						
0.19	23800	6130	-	9073						
0.22	23800	6130	-	7854						
0.25	23800	6130	-	6832						
0.29	23800	6130	-	5930						
0.32	23800	6130	-	5240						
0.37	23800	6130	-	4562						
0.42	23800	6130	-	4037						
0.47	23800	6130	-	3609						
0.55	23800	6130	-	3107						
0.62	23800	6130	-	2728						
0.72	23800	6130	-	2371						
						3 2				
0.81	23800	6130	-	2088						
0.92	23800	6130	-	1854						
1.0	23800	6130	-	1657						
1.2	23800	6130	-	1415						
1.4	23800	6130	-	1229						
1.6	23800	6130	-	1078						
1.8	23800	6130	-	951						
2.0	23800	6130	-	837						
2.3	23800	6130	-	726						
2.7	23800	6130	-	638						
3.0	23800	6130	-	562*						
3.6	23800	6130	-	474*						
4.0	23800	6130	-	426						

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K87R57, n_e=1700 rpm					DRN …					23800 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
4.6	23800	6130	-	373						
5.2	23800	6130	-	330						
5.8	23800	6130	-	294						
6.8	23800	6130	-	250						
7.2	23800	6130	-	236						
8.5	23800	6130	-	201						
9.3	23800	6130	-	183						
11	23800	6130	-	159						
12	23000	6160	-	141						

K97, n_e=1700 rpm					DRN …								38000 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S
							3					
9.7	38000	8990	6.8	176.05*								
11	38000	8990	6.8	153.21*								
12	38000	8990	6.8	140.28								
14	38000	8990	6.8	123.93*								
16	38000	8710	6.8	105.13								
18	38000	8420	6.8	96.80								
20	38000	8030	6.8	86.52								
22	38000	7670	6.8	77.89*								
24	38000	7350	6.9	70.54								
27	38000	6970	6.9	62.55								
30	38000	6660	6.9	56.55								
35	38000	6180	6.9	47.93*								
41	38000	5800	6.9	41.87								
44	38000	5560	7.4	38.30								
50	38000	5260	7.5	34.23								
55	38000	5000	7.5	30.82								
61	38000	4750	7.5	27.91								
69	38000	4460	7.6	24.75								
76	38000	4230	7.6	22.37								
90	38000	3860	7.6	18.96								
103	38000	3580	7.7	16.56								
123	38000	3220	7.7	13.85								
142	34400	3260	7.8	11.99								
163	25300	3320	9.7	10.41								
195	23500	3200	9.8	8.71								
225	21200	3210	10	7.54								

K97R57, n_e=1700 rpm					DRN …					38000 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
						3	3			
0.09	38000	8990	-	18091						
0.10	38000	8990	-	16666						
0.11	38000	8990	-	14897						
0.13	38000	8990	-	13182						

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K97R57, n_e=1700 rpm					DRN …					38000 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
0.15	38000	8990	-	11677						
0.16	38000	8990	-	10317						
0.19	38000	8990	-	9083						
0.21	38000	8990	-	8054						
0.24	38000	8990	-	6970						
0.28	38000	8990	-	6027						
0.32	38000	8990	-	5391						
0.36	38000	8990	-	4669						
0.42	38000	8990	-	4082						
0.47	38000	8990	-	3583						
0.55	38000	8990	-	3108*						
0.62	38000	8990	-	2757						
						3 2				
0.70	38000	8990	-	2419						
0.80	38000	8990	-	2123						
0.92	38000	8990	-	1856						
1.0	38000	8990	-	1625						
1.2	38000	8990	-	1430						
1.3	38000	8990	-	1261						
1.5	38000	8990	-	1102						
1.8	38000	8990	-	957						
2.0	38000	8990	-	855						
2.3	38000	8990	-	743						
2.6	38000	8990	-	652*						
3.0	38000	8990	-	573						
3.4	38000	8990	-	504						
3.9	38000	8990	-	437						
4.5	38000	8990	-	382*						
5.0	38000	8990	-	342*						
5.6	38000	8990	-	305						
6.6	38000	8990	-	258						
7.3	38000	8990	-	232						
8.5	38000	8990	-	199						

K107, n_e=1700 rpm					DRN …						70700 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S 225M	250ME
						3					
12	70700	13600	5.7	143.47*							
14	70700	12600	5.7	121.46							
15	70700	12100	5.8	112.41*							
17	70700	11500	5.8	100.75							
19	70700	10900	5.8	90.96*							
21	70700	10300	5.8	82.61							
23	70700	9680	5.8	73.30							
26	70700	9150	5.8	66.52*							
30	70700	8360	5.8	57.17*							
34	69300	7840	5.8	49.90							
40	65100	7580	5.8	42.33*							
46	63700	7130	5.8	37.00*							

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K107, n_e=1700 rpm					DRN …						70700 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S 225M	250ME
52	63700	6570	6.4	32.69							
54	60100	6840	5.9	31.28*							
59	63700	6040	6.5	29.00							
65	63700	5620	6.4	26.32							
75	63700	4970	6.5	22.62							
86	63700	4400	6.5	19.74							
101	62300	3920	6.5	16.75							
116	60900	3600	6.6	14.64							
127	38000	6010	8.8	13.43							
145	38000	5640	8.8	11.73							
171	37000	5290	8.9	9.94							
196	36000	5050	9	8.69							
231	31800	5010	9	7.35							

K107R77, n_e=1700 rpm					DRN …						70700 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
						3	3				
0.12	70700	14600	-	14311*							
0.14	70700	14600	-	12211							
0.16	70700	14600	-	10677							
0.18	70700	14600	-	9524							
0.20	70700	14600	-	8328							
0.23	70700	14600	-	7270							
0.27	70700	14600	-	6184							
0.30	70700	14600	-	5662							
0.33	70700	14600	-	5138							
0.39	70700	14600	-	4359*							
0.45	70700	14600	-	3810*							
0.51	70700	14600	-	3358							
0.57	70700	14600	-	2977*							
0.65	70700	14600	-	2599							
0.74	70700	14600	-	2286							
0.88	70700	14600	-	1939							
						3	2				
0.99	70700	14600	-	1713							
1.1	70700	14600	-	1554							
1.3	70700	14600	-	1336*							
1.5	70700	14600	-	1166							
1.7	70700	14600	-	1030							
1.9	70700	14600	-	904							
2.1	70700	14600	-	793*							
2.4	70700	14600	-	696*							
2.8	70700	14600	-	615							
3.3	70700	14600	-	522							
3.7	70700	14600	-	461*							
4.2	70700	14600	-	408*							
4.7	70700	14600	-	364							
5.3	70700	14600	-	318							
5.9	70700	14600	-	286*							

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K107R77, n_e=1700 rpm — DRN … — 70700 lb-in

n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
6.8	70700	14600	-	251							
7.7	70700	14600	-	222*							
8.7	70700	14600	-	196*							
9.8	63700	14600	-	174							
11	63700	14600	-	154							
12	63700	14100	-	140							

K127, n_e=1700 rpm — DRN … — 115000 lb-in

n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	132S 132M	132L 160M 160L	180M 180L	200L 225S 225M	250ME 280S 280M
						3			
12	115000	17800	5.2	146.07					
12	115000	17800	5.2	136.14					
14	115000	17700	5.2	122.48					
15	115000	16900	5.2	110.18					
19	115000	15500	5.2	89.89					
21	115000	14900	5.3	81.98					
24	115000	13900	5.3	70.95*					
27	115000	13200	5.3	62.60					
31	115000	12300	5.3	54.07					
36	115000	11600	5.3	47.82					
42	115000	10600	5.3	40.19					
47	115000	10100	5.6	36.25					
54	115000	9320	5.6	31.37					
61	115000	8710	5.7	27.68					
71	115000	7940	5.7	23.91					
80	115000	7200	5.7	21.15					
96	115000	6160	5.8	17.77					
118	107000	5880	5.8	14.35					
133	75400	7190	8	12.79					
158	70700	6880	8.1	10.74					
196	63900	6630	8.1	8.68					

K127R77, n_e=1700 rpm — DRN … — 115000 lb-in

n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
						3	3				
0.10	115000	17800	-	17550							
0.11	115000	17800	-	16006							
0.11	115000	17800	-	14975							
0.14	115000	17800	-	12440							
0.16	115000	17800	-	10915							
0.17	115000	17800	-	9819							
0.20	115000	17800	-	8443							
0.23	115000	17800	-	7482							
0.26	115000	17800	-	6565							
0.29	115000	17800	-	5804							
0.34	115000	17800	-	5027							
0.38	115000	17800	-	4423							

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K127R77, n_e=1700 rpm					DRN …						115000 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
0.44	115000	17800	-	3889							
0.51	115000	17800	-	3311							
0.56	115000	17800	-	3009							
0.65	115000	17800	-	2607							
0.75	115000	17800	-	2268							
					3 2						
0.88	115000	17800	-	1926							
0.97	115000	17800	-	1757							
1.1	115000	17800	-	1541							
1.3	115000	17800	-	1342							
1.4	115000	17800	-	1177							
1.7	115000	17800	-	1025							
1.9	115000	17800	-	899							
2.2	115000	17800	-	790							
2.4	115000	17800	-	704							
2.8	115000	17800	-	610							
3.1	115000	17800	-	549							
3.6	115000	17800	-	477							
4.1	115000	17800	-	418							

K127R87, n_e=1700 rpm					DRN …								115000 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L
					3 2							
3.2	115000	17800	-	536								
3.6	115000	17800	-	473								
4.1	115000	17800	-	418								
4.6	115000	17800	-	367								
5.2	115000	17800	-	330								
5.9	115000	17800	-	287								
6.7	115000	17800	-	253								
8.0	115000	17800	-	213								
8.5	106100	17900	-	200								
10	106100	17900	-	166								
12	106100	17900	-	147								

K157, n_e=1700 rpm					DRN …					177000 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	132L 160M 160L	180M 180L	200L 225S 225M	250ME 280S 280M	315S 315ME	315L 315H
					3					
11	177000	24080	5.2	150.41						
14	177000	22100	5.2	122.39						
17	177000	20300	5.2	100.22						
19	177000	19510	5.2	91.65						
21	177000	18370	5.2	79.75						
24	177000	17350	5.2	70.38						
28	177000	16250	5.2	61.02						
31	177000	15400	5.2	54.29						
36	177000	14340	5.2	46.79						

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K157, n_e=1700 rpm					DRN …					177000 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	132L 160M 160L	180M 180L	200L 225S 225M	250ME 280S 280M	315S 315ME	315L 315H
45	177000	12930	5.3	38.02						
54	177000	11690	5.6	31.30						
62	177000	10950	5.6	27.62						
71	177000	10120	5.6	23.95						
80	177000	9460	5.6	21.31						
93	177000	8650	5.7	18.37						
114	177000	7600	5.8	14.92						
134	165500	7310	5.8	12.65						

K157R97, n_e=1700 rpm					DRN …									177000 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S	
							3	3						
0.10	177000	25200	-	17679										
0.11	177000	25200	-	15729										
0.12	177000	25200	-	14721										
0.13	177000	25200	-	13097										
0.15	177000	25200	-	11368										
0.17	177000	25200	-	10114										
0.19	177000	25200	-	8718										
0.22	177000	25200	-	7734										
0.25	177000	25200	-	6881										
0.29	177000	25200	-	5931										
0.34	177000	25200	-	5074										
0.38	177000	25200	-	4514										
0.43	177000	25200	-	3979										
0.48	177000	25200	-	3516										
0.56	177000	25200	-	3051										
0.65	177000	25200	-	2610										
0.73	177000	25200	-	2322										
0.84	177000	25200	-	2029										
0.94	177000	25200	-	1805										
							3	2						
1.0	177000	25200	-	1659										
1.2	177000	25200	-	1365										
1.4	177000	25200	-	1229*										
1.6	177000	25200	-	1093*										
1.8	177000	25200	-	942										
2.0	177000	25200	-	854										
2.2	177000	25200	-	756*										
2.6	177000	25200	-	661										
3.0	177000	25200	-	567										
3.4	177000	25200	-	504										
3.9	177000	25200	-	434*										
4.5	177000	25200	-	379										
5.1	177000	25200	-	333										
5.8	177000	25200	-	291										

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K157R107, n_e=1700 rpm — DRN … — 177000 lb-in

n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S 225M	250ME
						3	2				
4.4	177000	25200	-	385							
5.2	177000	25200	-	325							
5.7	177000	25200	-	299							
6.7	177000	25200	-	253							
7.4	177000	25200	-	230							
8.0	177000	25200	-	213							
9.1	177000	25200	-	187							
11	177000	24500	-	157							
14	177000	22100	-	122							
16	177000	20900	-	107							

K167, n_e=1700 rpm — DRN … — 309800 lb-in

n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	132L 160M 160L	180M 180L	200L 225S 225M	250ME 280S 280M	315S 315ME	315L 315H
						3				
10	299100	33720	4.5	164.50						
13	309800	33720	4.5	134.99						
15	309800	33500	4.5	109.83						
19	309800	30460	4.5	87.86						
22	309800	28950	4.5	78.14						
25	309800	27250	4.5	68.07						
28	309800	25900	4.5	60.74						
33	309800	24080	4.6	51.77						
40	309800	22030	4.6	42.89						
46	309800	20390	4.6	36.61						
53	309800	19130	4.8	32.25						
59	309800	18050	4.8	28.77						
69	309800	16590	4.9	24.52						
84	309800	14950	4.9	20.32						
98	309800	13650	5	17.34						

K167R97, n_e=1700 rpm — DRN … — 309800 lb-in

n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S
							3	3					
0.09	309800	33700	-	19723									
0.10	309800	33700	-	17406									
0.11	309800	33700	-	15000									
0.13	309800	33700	-	13238									
0.15	309800	33700	-	11573									
0.17	309800	33700	-	10264									
0.20	309800	33700	-	8628									
0.26	309800	33700	-	6562									
0.32	309800	33700	-	5355									
0.36	309800	33700	-	4788									
0.42	309800	33700	-	4079									
0.50	309800	33700	-	3376									
0.62	309800	33700	-	2755									

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K167R97, n_e=1700 rpm — DRN … — 309800 lb-in

n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S
0.75	309800	33700	-	2263									
							3	2					
0.78	309800	33700	-	2182									
1.00	309800	33700	-	1704									
1.2	309800	33700	-	1408									
1.3	309800	33700	-	1296									
1.5	309800	33700	-	1101									
1.8	309800	33700	-	944									
2.0	309800	33700	-	843									
2.2	309800	33700	-	757									
2.7	309800	33700	-	632									
3.0	309800	33700	-	561									
3.5	309800	33700	-	481									
4.0	309800	33700	-	423									
4.6	309800	33700	-	369									

K167R107, n_e=1700 rpm — DRN … — 309800 lb-in

n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S 225M	250ME
							3	2			
5.3	309800	33700	-	318							
6.1	309800	33700	-	278							
7.0	309800	33700	-	244							
8.0	309800	33700	-	213							
8.3	309800	33700	-	206							
9.4	309800	33700	-	180							
11	309800	33700	-	160							
13	309800	33700	-	135							
14	309800	33700	-	118							

K187, n_e=1700 rpm — DRN … — 469100 lb-in

n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	132L 160M 160L	180M 180L	200L 225S 225M	250ME 280S 280M	315S 315ME	315L 315H
						3				
9.5	469100	42700	3.8	179.86						
10	469100	42700	3.8	165.21						
12	469100	40800	3.8	144.59						
13	469100	38900	3.8	129.69						
15	469100	36600	3.8	112.60						
17	469100	35000	3.8	102.16						
19	469100	32700	3.8	88.00						
23	469100	30200	3.8	73.96						
27	469100	28200	3.8	64.04						
32	469100	25800	3.9	53.36						
37	469100	23700	3.9	45.50*						
40	469100	22900	4.1	42.51						
44	469100	21800	4.1	38.57						
51	469100	20000	4.2	33.23						
61	469100	18100	4.2	27.92						

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K187, n_e=1700 rpm					DRN …					469100 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	132L 160M 160L	180M 180L	200L 225S 225M	250ME 280S 280M	315S 315ME	315L 315H
70	469100	17500	4.2	24.18						
84	439800	16900	4.3	20.15						
99	410600	16300	4.3	17.18						

K187R97, n_e=1700 rpm					DRN …								469100 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S
						3	3						
0.05	469100	42700	-	32625									
0.06	469100	42700	-	27165									
0.07	469100	42700	-	24353									
0.09	469100	42700	-	19144									
0.10	469100	42700	-	16978									
0.12	469100	42700	-	14272									
0.13	469100	42700	-	13116									
0.15	469100	42700	-	11647									
0.16	469100	42700	-	10413									
0.18	469100	42700	-	9363									
0.21	469100	42700	-	8126									
0.23	469100	42700	-	7343									
0.25	469100	42700	-	6747									
0.28	469100	42700	-	5991									
0.32	469100	42700	-	5358									
0.35	469100	42700	-	4817									
0.39	469100	42700	-	4370									
0.60	469100	42700	-	2818*									
						3	2						
0.47	469100	42700	-	3609									
0.56	469100	42700	-	3062									
0.67	469100	42700	-	2519									
0.75	469100	42700	-	2268									
0.83	469100	42700	-	2054									
0.93	469100	42700	-	1821									
1.1	469100	42700	-	1605									
1.2	469100	42700	-	1395									
1.4	469100	42700	-	1196									
1.6	469100	42700	-	1046									
1.8	469100	42700	-	945									
2.3	469100	42700	-	738									
2.7	469100	42700	-	621									
3.2	469100	42700	-	527									

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K187R107, n_e=1700 rpm					DRN …						469100 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S 225M	250ME
						3	2				
2.0	469100	42700	-	835							
2.3	469100	42700	-	729							
2.7	469100	42700	-	622							
3.3	469100	42700	-	520							
3.7	469100	42700	-	454							
4.8	469100	42700	-	355							
6.5	469100	42700	-	261							
7.7	469100	42700	-	221							
8.8	469100	42700	-	193							
10	469100	42700	-	163							

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10.3 K.. DRN.. Selections by HP

P_m = 0.16 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.10	74200	17550	18300	1.55	X						
0.10	67600	16006	18300	1.70	X						
0.11	63300	14975	18400	1.80	X	**K**	**127R77**	**(E)DRN**	**63MS4**	1040	707/728
0.14	52600	12440	18400	2.2	X	**KF**	**127R77**	**(E)DRN**	**63MS4**	1130	708/728
0.15	46100	10915	18500	2.5	X	**KA**	**127R77**	**(E)DRN**	**63MS4**	970	710/728
0.17	41500	9819	18500	2.8	X	**KAF**	**127R77**	**(E)DRN**	**63MS4**	1060	708/728
0.20	34900	8443	18500	3.3	X						
0.22	31600	7482	18600	3.6	X						
0.12	60500	14311	14600	1.15	X						
0.14	51600	12211	14600	1.35	X						
0.16	45100	10677	14600	1.55	X						
0.18	40200	9524	14600	1.75	X	**K**	**107R77**	**(E)DRN**	**63MS4**	680	699/727
0.20	35200	8328	14600	2.0	X	**KF**	**107R77**	**(E)DRN**	**63MS4**	710	700/727
0.23	30700	7270	14600	2.3	X	**KA**	**107R77**	**(E)DRN**	**63MS4**	620	702/727
0.27	24700	6184	14600	2.9	X	**KAF**	**107R77**	**(E)DRN**	**63MS4**	670	700/727
0.30	21000	5662	14600	3.4	X						
0.33	19000	5138	14600	3.7	X						
0.39	18000	4359	14600	3.9	X						
0.24	30200	6970	8990	1.25	X						
0.28	27700	6027	8990	1.35	X						
0.31	25500	5391	8990	1.50	X	**K**	**97R57**	**(E)DRN**	**63MS4**	395	691/727
0.36	20700	4669	8990	1.85	X	**KF**	**97R57**	**(E)DRN**	**63MS4**	440	692/727
0.41	18900	4082	8990	2.0	X	**KA**	**97R57**	**(E)DRN**	**63MS4**	355	694/727
0.47	16400	3583	8990	2.3	X	**KAF**	**97R57**	**(E)DRN**	**63MS4**	410	692/727
0.54	14600	3108	8990	2.6	X						
0.61	12000	2757	8990	3.1	X						
0.69	11500	2419	8990	3.3	X						
0.79	9870	2123	8990	3.9	X						
0.91	8910	1856	8990	4.3	X	**K**	**97R57**	**(E)DRN**	**63MS4**	395	691/727
1.0	7130	1625	8990	5.3	X	**KF**	**97R57**	**(E)DRN**	**63MS4**	440	692/727
1.2	6030	1430	8990	6.3	X	**KA**	**97R57**	**(E)DRN**	**63MS4**	355	694/727
1.3	6050	1261	8990	6.3	X	**KAF**	**97R57**	**(E)DRN**	**63MS4**	410	692/727
1.5	5290	1102	8990	7.2	X						
0.37	19700	4562	6250	1.20	X						
0.42	18500	4037	6280	1.30	X	**K**	**87R57**	**(E)DRN**	**63MS4**	260	683/727
0.47	16500	3609	6330	1.45	X	**KF**	**87R57**	**(E)DRN**	**63MS4**	280	684/727
0.54	14200	3107	6380	1.65	X	**KA**	**87R57**	**(E)DRN**	**63MS4**	235	686/727
0.62	11800	2728	6420	2.0	X	**KAF**	**87R57**	**(E)DRN**	**63MS4**	265	684/727
0.71	10500	2371	6440	2.3	X						
0.80	10000	2088	6450	2.4	X						
0.91	8900	1854	6470	2.7	X						
1.0	7960	1657	6480	3.0	X	**K**	**87R57**	**(E)DRN**	**63MS4**	260	683/727
1.2	6730	1415	6490	3.5	X	**KF**	**87R57**	**(E)DRN**	**63MS4**	280	684/727
1.4	5840	1229	6500	4.1	X	**KA**	**87R57**	**(E)DRN**	**63MS4**	235	686/727
1.6	5010	1078	6510	4.8	X	**KAF**	**87R57**	**(E)DRN**	**63MS4**	260	684/727
1.8	4170	951	6520	5.7	X						
2.0	3530	837	6520	6.8	X						
2.3	3060	726	6520	7.8	X						
						K	**77R37**	**(E)DRN**	**63MS4**	155	675/727
0.62	12800	2717	3600	1.05	X	**KF**	**77R37**	**(E)DRN**	**63MS4**	170	676/727
0.71	10500	2370	3930	1.30	X	**KA**	**77R37**	**(E)DRN**	**63MS4**	135	678/727
						KAF	**77R37**	**(E)DRN**	**63MS4**	155	676/727
0.82	10000	2050	3980	1.35	X						
0.95	8560	1772	4140	1.60	X						
1.1	7310	1514	4250	1.85	X						
1.2	6700	1388	4290	2.0	X	**K**	**77R37**	**(E)DRN**	**63MS4**	150	675/727
1.4	5880	1218	4350	2.3	X	**KF**	**77R37**	**(E)DRN**	**63MS4**	170	676/727
1.6	5170	1053	4390	2.6	X	**KA**	**77R37**	**(E)DRN**	**63MS4**	135	678/727
1.8	4540	924	4420	3.0	X	**KAF**	**77R37**	**(E)DRN**	**63MS4**	155	676/727
2.1	4000	815	4440	3.4	X						
2.4	3030	709	4480	4.5	X						
2.7	2660	622	4490	5.1	X						

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P_m = 0.16 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.2	6800	1351	2410	1.05	X						
1.4	5800	1171	2600	1.25	X						
1.6	5080	1034	2710	1.45	X						
1.9	4170	903	2820	1.75	X						
2.1	4030	793	2830	1.80	X						
2.4	3120	697	2910	2.3	X						
2.7	2750	613	2920	2.6	X	**K**	**67R37**	**(E)DRN**	**63MS4**	99	667/727
3.1	2400	542	2920	3.0	X	**KF**	**67R37**	**(E)DRN**	**63MS4**	110	668/727
3.6	2300	471	2920	3.1	X	**KA**	**67R37**	**(E)DRN**	**63MS4**	93	670/727
4.0	1850	420	2920	3.9	X	**KAF**	**67R37**	**(E)DRN**	**63MS4**	105	668/727
4.7	1710	361	2920	4.2	X						
5.2	1500	323	2920	4.8	X						
6.0	1230	279	2920	5.9	X						
6.8	1080	246	2920	6.7	X						
7.7	940	217	2920	7.7	X						
1.9	4180	906	1920	1.25	X						
2.1	3790	806	1970	1.40	X						
2.4	3130	699	2040	1.70	X						
2.7	2750	615	2080	1.90	X						
3.1	2400	544	2110	2.2	X						
3.5	2240	473	2120	2.4	X	**K**	**57R37**	**(E)DRN**	**63MS4**	86	660/727
4.0	1860	421	2160	2.9	X	**KF**	**57R37**	**(E)DRN**	**63MS4**	97	661/727
4.6	1720	362	2170	3.1	X	**KA**	**57R37**	**(E)DRN**	**63MS4**	82	662/727
5.3	1510	319	2180	3.5	X	**KAF**	**57R37**	**(E)DRN**	**63MS4**	94	661/727
6.0	1230	280	2200	4.3	X						
6.8	1090	246	2220	4.9	X						
7.8	960	215	2220	5.5	X						
8.8	860	192	2230	6.2	X						
2.1	3820	802	2020	1.15	X						
2.4	3200	701	2020	1.40	X						
2.6	3150	645	2020	1.40	X						
2.8	2660	595	2020	1.65	X						
3.1	2540	543	2020	1.75	X						
3.4	2150	501	2020	2.0	X						
3.7	1950	449	2020	2.3	X	**K**	**49R37**	**(E)DRN**	**63MS4**	94	656/727
4.2	1660	401	2020	2.6	X	**KF**	**49R37**	**(E)DRN**	**63MS4**	98	657/727
4.7	1540	360	2020	2.9	X	**KA**	**49R37**	**(E)DRN**	**63MS4**	88	658/727
5.1	1410	330	2020	3.1	X	**KAF**	**49R37**	**(E)DRN**	**63MS4**	99	657/727
5.6	1370	300	2020	3.2	X						
6.1	1170	274	2020	3.8	X						
6.9	1010	243	2020	4.4	X						
7.7	940	217	2020	4.7	X						
8.7	900	193	2020	4.9	X						
3.0	2660	552	1580	1.35	X						
3.4	2220	495	1670	1.60	X	**K**	**47R37**	**(E)DRN**	**63MS4**	73	649/727
3.9	2000	426	1710	1.75	X	**KF**	**47R37**	**(E)DRN**	**63MS4**	80	650/727
4.5	1660	375	1760	2.1	X	**KA**	**47R37**	**(E)DRN**	**63MS4**	71	651/727
5.2	1570	327	1770	2.2	X	**KAF**	**47R37**	**(E)DRN**	**63MS4**	78	650/727
5.8	1370	289	1790	2.6	X						
3.3	2300	504	1690	1.15	X						
3.7	2240	454	1690	1.20	X						
4.2	1880	399	1690	1.40	X						
4.6	1760	365	1690	1.50	X						
5.4	1420	312	1690	1.85	X						
5.6	1410	299	1690	1.90	X	**K**	**39R17**	**(E)DRN**	**63MS4**	53	645/727
6.6	1200	254	1690	2.2	X	**KF**	**39R17**	**(E)DRN**	**63MS4**	56	646/727
7.2	1060	234	1690	2.5	X	**KA**	**39R17**	**(E)DRN**	**63MS4**	51	647/727
8.0	970	210	1690	2.7	X	**KAF**	**39R17**	**(E)DRN**	**63MS4**	54	646/727
8.9	890	189	1690	3.0	X						
9.7	840	174	1690	3.1	X						
11	725	156	1690	3.7	X						
12	670	142	1690	3.9	X						
14	540	117	1690	4.9	X						

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P_m = 0.16 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
5.5	1430	304	1250	1.25	X						
6.3	1320	267	1270	1.35	X						
7.2	1140	234	1320	1.55	X	**K**	**37R17**	**(E)DRN**	**63MS4**	42	638/727
8.2	990	205	1350	1.80	X	**KF**	**37R17**	**(E)DRN**	**63MS4**	47	639/727
9.3	860	181	1380	2.0	X	**KA**	**37R17**	**(E)DRN**	**63MS4**	41	640/727
10	750	160	1410	2.4	X	**KAF**	**37R17**	**(E)DRN**	**63MS4**	45	639/727
12	620	136	1440	2.8	X						
7.6	1320	144.79*	2920	5.5		**K**	**67**	**DRN**	**63M6**	75	667
						KF	**67**	**DRN**	**63M6**	88	668
						KA	**67**	**DRN**	**63M6**	69	670
						KAF	**67**	**DRN**	**63M6**	82	668
7.6	1330	145.14*	2200	4.0							
8.9	1130	123.85	2210	4.7		**K**	**57**	**DRN**	**63M6**	62	660
10	990	108.29	2220	5.3		**KF**	**57**	**DRN**	**63M6**	73	661
11	940	102.88*	2230	5.6		**KA**	**57**	**DRN**	**63M6**	58	662
12	820	90.26*	2230	6.4		**KAF**	**57**	**DRN**	**63M6**	70	661
14	700	76.56*	2240	7.6							
12	870	145.14*	2230	6.1	X						
14	740	123.85	2240	7.1	X	**K**	**57**	**(E)DRN**	**63MS4**	62	660
16	645	108.29	2240	8.2	X	**KF**	**57**	**(E)DRN**	**63MS4**	73	661
16	615	102.88*	2250	8.6	X	**KA**	**57**	**(E)DRN**	**63MS4**	58	662
19	540	90.26*	2250	9.8	X	**KAF**	**57**	**(E)DRN**	**63MS4**	70	661
8.3	1200	131.87*	1810	2.9		**K**	**47**	**DRN**	**63M6**	49	649
9.1	1110	121.48*	1820	3.2		**KF**	**47**	**DRN**	**63M6**	57	650
11	950	104.37	1830	3.7		**KA**	**47**	**DRN**	**63M6**	48	651
						KAF	**47**	**DRN**	**63M6**	54	650
						K	**47**	**(E)DRN**	**63MS4**	49	649
13	790	131.87*	1840	4.5	X	**KF**	**47**	**(E)DRN**	**63MS4**	57	650
14	725	121.48*	1840	4.9	X	**KA**	**47**	**(E)DRN**	**63MS4**	48	651
						KAF	**47**	**(E)DRN**	**63MS4**	54	650
10	970	106.38	1350	1.80		**K**	**37**	**DRN**	**63M6**	35	638
11	890	97.81	1370	1.95		**KF**	**37**	**DRN**	**63M6**	40	639
13	765	83.69	1400	2.3		**KA**	**37**	**DRN**	**63M6**	35	640
15	660	72.54	1430	2.7		**KAF**	**37**	**DRN**	**63M6**	38	639
16	635	106.38	1430	2.8	X						
17	585	97.81	1440	3.0	X	**K**	**37**	**(E)DRN**	**63MS4**	35	638
20	500	83.69	1460	3.5	X	**KF**	**37**	**(E)DRN**	**63MS4**	40	639
23	435	72.54	1450	4.1	X	**KA**	**37**	**(E)DRN**	**63MS4**	35	640
25	405	67.80	1420	4.3	X	**KAF**	**37**	**(E)DRN**	**63MS4**	38	639
23	430	71.93	1170	2.7	X						
25	395	66.25	1180	2.9	X	**K**	**29**	**(E)DRN**	**63MS4**	23	631
27	365	61.28	1180	3.1	X	**KF**	**29**	**(E)DRN**	**63MS4**	25	635
31	325	54.89	1180	3.5	X	**KA**	**29**	**(E)DRN**	**63MS4**	22	637
33	300	50.35	1180	3.8	X	**KAF**	**29**	**(E)DRN**	**63MS4**	23	635
39	255	42.87	1180	4.4	X						
29	348	58.68	1010	1.75	X						
32	320	53.88	1010	1.90	X						
34	295	49.69	1010	2.1	X						
38	264	44.48	1010	2.3	X						
42	241	40.63	1010	2.4	X						
50	203	34.29	1010	2.8	X						
54	188	31.74	1010	3.7	X						
58	174	29.29	990	3.1	X						
58	173	29.14	1000	4.0	X	**K**	**19**	**(E)DRN**	**63MS4**	19	625
63	161	27.16	970	3.3	X	**KF**	**19**	**(E)DRN**	**63MS4**	19	628
63	159	26.88	980	4.4	X	**KA**	**19**	**(E)DRN**	**63MS4**	18	630
71	143	24.06	940	4.9	X	**KAF**	**19**	**(E)DRN**	**63MS4**	19	628
77	130	21.98	920	5.4	X						
92	110	18.55	870	6.4	X						
107	94	15.84	830	7.5	X						
116	87	14.69	810	8.0	X						
134	75	12.70	775	9.3	X						
144	70	11.84	755	9.8	X						
165	61	10.32	725	11	X						
177	57	9.58	710	9.7	X						

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P_m = 0.25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.11	108500	14975	17900	1.05	X						
0.14	90100	12440	18100	1.30	X						
0.16	79100	10915	18200	1.45	X						
0.17	71100	9819	18300	1.60	X						
0.20	60400	8443	18400	1.90	X	**K**	**127R77**	**(E)DRN**	**63M4**	1040	707/728
0.23	54200	7482	18400	2.1	X	**KF**	**127R77**	**(E)DRN**	**63M4**	1130	708/728
0.26	47500	6565	18500	2.4	X	**KA**	**127R77**	**(E)DRN**	**63M4**	980	710/728
0.29	39500	5804	18500	2.9	X	**KAF**	**127R77**	**(E)DRN**	**63M4**	1060	708/728
0.34	35200	5027	18500	3.3	X						
0.38	30100	4423	18600	3.8	X						
0.44	26100	3889	18600	4.4	X						
0.51	21500	3311	18600	5.3	X						
0.20	60300	8328	14600	1.15	X						
0.23	52600	7270	14600	1.35	X						
0.27	43400	6184	14600	1.65	X						
0.30	38000	5662	14600	1.85	X						
0.33	34500	5138	14600	2.0	X	**K**	**107R77**	**(E)DRN**	**63M4**	690	699/727
0.39	31100	4359	14600	2.3	X	**KF**	**107R77**	**(E)DRN**	**63M4**	710	700/727
0.45	27200	3810	14600	2.6	X	**KA**	**107R77**	**(E)DRN**	**63M4**	630	702/727
0.51	22800	3358	14600	3.1	X	**KAF**	**107R77**	**(E)DRN**	**63M4**	680	700/727
0.57	20900	2977	14600	3.4	X						
0.65	18200	2599	14600	3.9	X						
0.74	15500	2286	14600	4.5	X						
0.36	34800	4669	8990	1.10	X						
0.42	31300	4082	8990	1.20	X	**K**	**97R57**	**(E)DRN**	**63M4**	400	691/727
0.47	27200	3583	8990	1.40	X	**KF**	**97R57**	**(E)DRN**	**63M4**	445	692/727
0.55	23900	3108	8990	1.60	X	**KA**	**97R57**	**(E)DRN**	**63M4**	360	694/727
0.62	20400	2757	8990	1.85	X	**KAF**	**97R57**	**(E)DRN**	**63M4**	415	692/727
0.70	18800	2419	8990	2.0	X						
0.80	16300	2123	8990	2.3	X						
0.92	14500	1856	8990	2.6	X						
1.1	12000	1625	8990	3.1	X						
1.2	10400	1430	8990	3.7	X	**K**	**97R57**	**(E)DRN**	**63M4**	400	691/727
1.4	9910	1261	8990	3.8	X	**KF**	**97R57**	**(E)DRN**	**63M4**	445	692/727
1.5	8650	1102	8990	4.4	X	**KA**	**97R57**	**(E)DRN**	**63M4**	360	694/727
1.8	7540	957	8990	5.0	X	**KAF**	**97R57**	**(E)DRN**	**63M4**	415	692/727
2.0	6740	855	8990	5.6	X						
2.3	5210	743	8990	7.3	X						
2.6	4690	652	8990	8.1	X						
0.55	23700	3107	6140	1.00	X	**K**	**87R57**	**(E)DRN**	**63M4**	265	683/727
0.62	20000	2728	6240	1.20	X	**KF**	**87R57**	**(E)DRN**	**63M4**	285	684/727
0.72	17600	2371	6300	1.35	X	**KA**	**87R57**	**(E)DRN**	**63M4**	240	686/727
						KAF	**87R57**	**(E)DRN**	**63M4**	270	684/727
0.81	16400	2088	6330	1.45	X						
0.92	14500	1854	6370	1.65	X						
1.0	13000	1657	6400	1.85	X						
1.2	11000	1415	6440	2.2	X	**K**	**87R57**	**(E)DRN**	**63M4**	265	683/727
1.4	9590	1229	6460	2.5	X	**KF**	**87R57**	**(E)DRN**	**63M4**	285	684/727
1.6	8300	1078	6470	2.9	X	**KA**	**87R57**	**(E)DRN**	**63M4**	240	686/727
1.8	7070	951	6490	3.4	X	**KAF**	**87R57**	**(E)DRN**	**63M4**	265	684/727
2.0	6080	837	6500	3.9	X						
2.3	5280	726	6510	4.5	X						
1.1	11900	1514	3740	1.15	X						
1.2	10900	1388	3880	1.25	X						
1.4	9600	1218	4040	1.45	X						
1.6	8390	1053	4160	1.65	X						
1.8	7360	924	4240	1.85	X	**K**	**77R37**	**(E)DRN**	**63M4**	160	675/727
2.1	6490	815	4310	2.1	X	**KF**	**77R37**	**(E)DRN**	**63M4**	175	676/727
2.4	5200	709	4390	2.6	X	**KA**	**77R37**	**(E)DRN**	**63M4**	140	678/727
2.7	4560	622	4420	3.0	X	**KAF**	**77R37**	**(E)DRN**	**63M4**	160	676/727
3.1	4130	552	4440	3.3	X						
3.5	3620	485	4460	3.8	X						
4.0	3190	428	4470	4.3	X						
4.6	2840	367	4480	4.8	X						

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P_m = 0.25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
2.1	6480	793	2480	1.10	X						
2.4	5250	697	2680	1.40	X						
2.8	4620	613	2760	1.55	X						
3.1	4050	542	2830	1.80	X	**K**	**67R37**	**(E)DRN**	**63M4**	105	667/727
3.6	3750	471	2860	1.95	X	**KF**	**67R37**	**(E)DRN**	**63M4**	115	668/727
4.0	3140	420	2910	2.3	X	**KA**	**67R37**	**(E)DRN**	**63M4**	99	670/727
4.7	2830	361	2920	2.6	X	**KAF**	**67R37**	**(E)DRN**	**63M4**	110	668/727
5.3	2500	323	2920	2.9	X						
6.1	2080	279	2920	3.5	X						
3.1	4060	544	1940	1.30	X						
3.6	3700	473	1980	1.45	X						
4.0	3140	421	2040	1.70	X						
4.7	2840	362	2070	1.85	X	**K**	**57R37**	**(E)DRN**	**63M4**	92	660/727
5.3	2490	319	2100	2.1	X	**KF**	**57R37**	**(E)DRN**	**63M4**	105	661/727
6.1	2090	280	2140	2.5	X	**KA**	**57R37**	**(E)DRN**	**63M4**	88	662/727
6.9	1840	246	2160	2.9	X	**KAF**	**57R37**	**(E)DRN**	**63M4**	100	661/727
7.9	1620	215	2180	3.3	X						
8.8	1440	192	2190	3.7	X						
10	1250	166	2200	4.2	X						
3.1	4150	543	2020	1.05	X						
3.4	3640	501	2020	1.20	X						
3.8	3280	449	2020	1.35	X						
4.2	2850	401	2020	1.55	X						
4.7	2610	360	2020	1.70	X						
5.2	2390	330	2020	1.85	X	**K**	**49R37**	**(E)DRN**	**63M4**	100	656/727
5.7	2250	300	2020	1.95	X	**KF**	**49R37**	**(E)DRN**	**63M4**	105	657/727
6.2	1990	274	2020	2.2	X	**KA**	**49R37**	**(E)DRN**	**63M4**	94	658/727
7.0	1730	243	2020	2.5	X	**KAF**	**49R37**	**(E)DRN**	**63M4**	105	657/727
7.8	1590	217	2020	2.8	X						
8.8	1470	193	2020	3.0	X						
9.7	1310	176	2020	3.4	X						
11	1070	152	2020	4.1	X						
14	910	125	2020	4.8	X						
4.5	2800	375	1550	1.25	X						
5.2	2570	327	1600	1.35	X						
5.9	2260	289	1670	1.55	X						
6.6	1910	256	1720	1.85	X	**K**	**47R37**	**(E)DRN**	**63M4**	79	649/727
7.6	1740	225	1750	2.0	X	**KF**	**47R37**	**(E)DRN**	**63M4**	86	650/727
8.6	1480	198	1780	2.4	X	**KA**	**47R37**	**(E)DRN**	**63M4**	77	651/727
9.9	1290	171	1800	2.7	X	**KAF**	**47R37**	**(E)DRN**	**63M4**	84	650/727
11	1150	153	1820	3.1	X						
13	1010	131	1830	3.5	X						
5.5	2340	312	1690	1.15	X						
5.7	2290	299	1690	1.15	X						
6.7	1960	254	1690	1.35	X						
7.3	1760	234	1690	1.50	X						
8.1	1590	210	1690	1.65	X	**K**	**39R17**	**(E)DRN**	**63M4**	58	645/727
9.0	1450	189	1690	1.80	X	**KF**	**39R17**	**(E)DRN**	**63M4**	62	646/727
9.8	1360	174	1690	1.95	X	**KA**	**39R17**	**(E)DRN**	**63M4**	56	647/727
11	1180	156	1690	2.2	X	**KAF**	**39R17**	**(E)DRN**	**63M4**	60	646/727
12	1090	142	1690	2.4	X						
14	890	117	1690	3.0	X						
23	555	75	1690	4.7	X						
8.3	1620	205	1200	1.10	X						
9.4	1410	181	1250	1.25	X	**K**	**37R17**	**(E)DRN**	**63M4**	47	638/727
11	1240	160	1290	1.40	X	**KF**	**37R17**	**(E)DRN**	**63M4**	52	639/727
12	1040	136	1340	1.70	X	**KA**	**37R17**	**(E)DRN**	**63M4**	47	640/727
13	1000	127	1350	1.75	X	**KAF**	**37R17**	**(E)DRN**	**63M4**	51	639/727
12	1340	144.79*	2920	5.4	X	**K**	**67**	**(E)DRN**	**63M4**	80	667
14	1140	123.54	2920	6.3	X	**KF**	**67**	**(E)DRN**	**63M4**	93	668
16	1000	108.03	2920	7.2	X	**KA**	**67**	**(E)DRN**	**63M4**	74	670
						KAF	**67**	**(E)DRN**	**63M4**	87	668
7.4	2130	144.79*	2920	3.4		**K**	**67**	**DRN**	**71MS6**	77	667
8.7	1820	123.54	2920	4.0		**KF**	**67**	**DRN**	**71MS6**	89	668
9.9	1590	108.03	2920	4.6		**KA**	**67**	**DRN**	**71MS6**	71	670
10	1510	102.62	2920	4.8		**KAF**	**67**	**DRN**	**71MS6**	83	668

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P_m = 0.25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
12	1340	145.14*	2200	3.9	X						
14	1140	123.85	2210	4.6	X	**K**	**57**	**(E)DRN**	**63M4**	67	660
16	1000	108.29	2220	5.3	X	**KF**	**57**	**(E)DRN**	**63M4**	78	661
17	950	102.88*	2220	5.6	X	**KA**	**57**	**(E)DRN**	**63M4**	63	662
19	830	90.26*	2230	6.3	X	**KAF**	**57**	**(E)DRN**	**63M4**	75	661
22	705	76.56*	2240	7.5	X						
7.4	2130	145.14*	2130	2.5							
8.6	1820	123.85	2160	2.9		**K**	**57**	**DRN**	**71MS6**	64	660
9.9	1590	108.29	2180	3.3		**KF**	**57**	**DRN**	**71MS6**	74	661
10	1510	102.88*	2180	3.5		**KA**	**57**	**DRN**	**71MS6**	59	662
12	1320	90.26*	2200	4.0		**KAF**	**57**	**DRN**	**71MS6**	72	661
13	1220	131.87*	1810	2.9	X						
14	1120	121.48*	1820	3.1	X	**K**	**47**	**(E)DRN**	**63M4**	55	649
16	960	104.37	1830	3.7	X	**KF**	**47**	**(E)DRN**	**63M4**	62	650
19	840	90.86	1840	4.2	X	**KA**	**47**	**(E)DRN**	**63M4**	53	651
20	785	85.12*	1840	4.5	X	**KAF**	**47**	**(E)DRN**	**63M4**	59	650
8.1	1940	131.87*	1720	1.80							
8.8	1780	121.48*	1740	2.0		**K**	**47**	**DRN**	**71MS6**	51	649
10	1530	104.37	1780	2.3		**KF**	**47**	**DRN**	**71MS6**	58	650
12	1330	90.86	1800	2.6		**KA**	**47**	**DRN**	**71MS6**	49	651
13	1250	85.12*	1810	2.8		**KAF**	**47**	**DRN**	**71MS6**	55	650
16	980	106.38	1350	1.80	X						
17	900	97.81	1370	1.95	X						
20	775	83.69	1400	2.3	X						
23	670	72.54	1390	2.6	X	**K**	**37**	**(E)DRN**	**63M4**	41	638
25	625	67.80	1370	2.8	X	**KF**	**37**	**(E)DRN**	**63M4**	46	639
29	540	58.60	1310	3.3	X	**KA**	**37**	**(E)DRN**	**63M4**	41	640
34	460	49.79	1260	3.8	X	**KAF**	**37**	**(E)DRN**	**63M4**	44	639
38	410	44.46	1220	4.3	X						
45	350	37.97	1160	5.0	X						
10	1560	106.38	1220	1.15		**K**	**37**	**DRN**	**71MS6**	37	638
11	1440	97.81	1250	1.25		**KF**	**37**	**DRN**	**71MS6**	42	639
13	1230	83.69	1290	1.45		**KA**	**37**	**DRN**	**71MS6**	36	640
15	1060	72.54	1330	1.65		**KAF**	**37**	**DRN**	**71MS6**	40	639
31	505	54.89	1170	2.3	X						
34	465	50.35	1170	2.5	X						
40	395	42.87	1180	2.9	X	**K**	**29**	**(E)DRN**	**63M4**	29	631
46	340	36.96	1130	3.1	X	**KF**	**29**	**(E)DRN**	**63M4**	31	635
56	275	30.11	1070	3.6	X	**KA**	**29**	**(E)DRN**	**63M4**	28	637
57	275	29.69	1070	4.2	X	**KAF**	**29**	**(E)DRN**	**63M4**	29	635
62	250	27.23	1040	4.5	X						
68	230	24.91	1010	4.2	X						
38	410	44.48	1010	1.50	X						
42	375	40.63	1010	1.55	X						
50	315	34.29	1000	1.80	X						
58	270	29.29	960	2.0	X						
63	250	27.16	940	2.1	X						
71	220	24.06	920	3.2	X						
77	200	21.98	890	3.5	X	**K**	**19**	**(E)DRN**	**63M4**	25	625
92	172	18.55	850	4.1	X	**KF**	**19**	**(E)DRN**	**63M4**	25	628
107	147	15.84	810	4.8	X	**KA**	**19**	**(E)DRN**	**63M4**	24	630
116	136	14.69	795	5.2	X	**KAF**	**19**	**(E)DRN**	**63M4**	25	628
134	118	12.70	760	6.0	X						
144	110	11.84	745	6.4	X						
165	96	10.32	710	7.0	X						
177	89	9.58	700	6.3	X						
210	75	8.09	665	9.4	X						
246	64	6.91	630	11	X						

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P_m = 0.33 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.11	173080	15729	25520	1.00	X						
0.12	161990	14721	25610	1.10	X						
0.13	144120	13097	25740	1.25	X	**K**	**157R97**	**(E)DRN**	**71MS4**	1740	715/728
0.15	125090	11368	25860	1.40	X	**KF**	**157R97**	**(E)DRN**	**71MS4**	1920	716/728
0.17	111290	10114	25930	1.6	X	**KA**	**157R97**	**(E)DRN**	**71MS4**	1660	718/728
0.20	95930	8718	26010	1.9	X	**KAF**	**157R97**	**(E)DRN**	**71MS4**	1790	716/728
0.22	85100	7734	26070	2.1	X						
0.25	75720	6881	26100	2.3	X						
0.17	98000	9819	18000	1.15	X						
0.20	83500	8443	18200	1.40	X						
0.23	74700	7482	18300	1.55	X						
0.26	65500	6565	18300	1.75	X	**K**	**127R77**	**(E)DRN**	**71MS4**	1040	707/728
0.29	55400	5804	18400	2.1	X	**KF**	**127R77**	**(E)DRN**	**71MS4**	1130	708/728
0.34	49000	5027	18500	2.3	X	**KA**	**127R77**	**(E)DRN**	**71MS4**	980	710/728
0.38	42200	4423	18500	2.7	X	**KAF**	**127R77**	**(E)DRN**	**71MS4**	1060	708/728
0.44	36800	3889	18500	3.1	X						
0.51	30500	3311	18600	3.8	X						
0.27	60300	6184	14600	1.15	X						
0.30	53500	5662	14600	1.30	X						
0.33	48600	5138	14600	1.45	X						
0.39	43100	4359	14600	1.65	X	**K**	**107R77**	**(E)DRN**	**71MS4**	690	699/727
0.45	37600	3810	14600	1.90	X	**KF**	**107R77**	**(E)DRN**	**71MS4**	710	700/727
0.51	32000	3358	14600	2.2	X	**KA**	**107R77**	**(E)DRN**	**71MS4**	630	702/727
0.57	29000	2977	14600	2.4	X	**KAF**	**107R77**	**(E)DRN**	**71MS4**	680	700/727
0.65	25300	2599	14600	2.8	X						
0.74	21800	2286	14600	3.2	X						
0.88	18500	1939	14600	3.8	X						
						K	**107R77**	**(E)DRN**	**71MS4**	680	699/727
0.99	17100	1713	14600	4.1	X	**KF**	**107R77**	**(E)DRN**	**71MS4**	710	700/727
1.1	15500	1554	14600	4.5	X	**KA**	**107R77**	**(E)DRN**	**71MS4**	620	702/727
1.3	13300	1336	14600	5.3	X	**KAF**	**107R77**	**(E)DRN**	**71MS4**	680	700/727
						K	**97R57**	**(E)DRN**	**71MS4**	400	691/727
0.55	32400	3108	8990	1.15	X	**KF**	**97R57**	**(E)DRN**	**71MS4**	445	692/727
0.62	28000	2757	8990	1.35	X	**KA**	**97R57**	**(E)DRN**	**71MS4**	360	694/727
						KAF	**97R57**	**(E)DRN**	**71MS4**	415	692/727
0.70	25500	2419	8990	1.50	X						
0.80	22200	2123	8990	1.70	X						
0.92	19700	1856	8990	1.95	X						
1.1	16500	1625	8990	2.3	X	**K**	**97R57**	**(E)DRN**	**71MS4**	400	691/727
1.2	14300	1430	8990	2.6	X	**KF**	**97R57**	**(E)DRN**	**71MS4**	445	692/727
1.4	13400	1261	8990	2.8	X	**KA**	**97R57**	**(E)DRN**	**71MS4**	360	694/727
1.5	11700	1102	8990	3.2	X	**KAF**	**97R57**	**(E)DRN**	**71MS4**	415	692/727
1.8	10200	957	8990	3.7	X						
2.0	9140	855	8990	4.2	X						
0.81	22100	2088	6180	1.10	X						
0.92	19700	1854	6250	1.20	X						
1.0	17600	1657	6310	1.35	X						
1.2	14900	1415	6360	1.60	X	**K**	**87R57**	**(E)DRN**	**71MS4**	265	683/727
1.4	12900	1229	6400	1.85	X	**KF**	**87R57**	**(E)DRN**	**71MS4**	285	684/727
1.6	11200	1078	6430	2.1	X	**KA**	**87R57**	**(E)DRN**	**71MS4**	240	686/727
1.8	9710	951	6460	2.5	X	**KAF**	**87R57**	**(E)DRN**	**71MS4**	265	684/727
2.0	8400	837	6470	2.8	X						
2.3	7290	726	6490	3.3	X						
2.7	6510	638	6500	3.7	X						
1.6	11300	1053	3830	1.20	X						
1.8	9920	924	4000	1.40	X						
2.1	8750	815	4120	1.55	X						
2.4	7170	709	4260	1.90	X						
2.7	6290	622	4320	2.2	X						
3.1	5660	552	4360	2.4	X	**K**	**77R37**	**(E)DRN**	**71MS4**	160	675/727
3.5	4960	485	4400	2.8	X	**KF**	**77R37**	**(E)DRN**	**71MS4**	175	676/727
4.0	4380	428	4430	3.1	X	**KA**	**77R37**	**(E)DRN**	**71MS4**	140	678/727
4.6	3860	367	4450	3.5	X	**KAF**	**77R37**	**(E)DRN**	**71MS4**	160	676/727
5.2	3420	328	4470	4.0	X						
5.9	3050	290	4480	4.5	X						
6.7	2590	252	4490	5.3	X						
7.7	2280	221	4490	6.0	X						

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P_m = 0.33 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
2.8	6320	613	2510	1.15	X						
3.1	5560	542	2640	1.30	X						
3.6	5070	471	2710	1.45	X						
4.0	4300	420	2800	1.70	X	**K**	**67R37**	**(E)DRN**	**71MS4**	105	667/727
4.7	3840	361	2850	1.90	X	**KF**	**67R37**	**(E)DRN**	**71MS4**	115	668/727
5.3	3400	323	2890	2.1	X	**KA**	**67R37**	**(E)DRN**	**71MS4**	99	670/727
6.1	2860	279	2920	2.5	X	**KAF**	**67R37**	**(E)DRN**	**71MS4**	110	668/727
6.9	2510	246	2920	2.9	X						
7.8	2220	217	2920	3.3	X						
4.0	4310	421	1910	1.25	X						
4.7	3850	362	1960	1.40	X						
5.3	3390	319	2010	1.55	X						
6.1	2860	280	2070	1.85	X						
6.9	2520	246	2100	2.1	X	**K**	**57R37**	**(E)DRN**	**71MS4**	92	660/727
7.9	2220	215	2130	2.4	X	**KF**	**57R37**	**(E)DRN**	**71MS4**	105	661/727
8.8	1970	192	2150	2.7	X	**KA**	**57R37**	**(E)DRN**	**71MS4**	88	662/727
10	1710	166	2170	3.1	X	**KAF**	**57R37**	**(E)DRN**	**71MS4**	100	661/727
12	1490	145	2190	3.5	X						
13	1360	129	2200	3.9	X						
15	1140	111	2210	4.6	X						
17	1000	97	2220	5.3	X						
5.7	3630	192.18	4460	3.5		**K**	**77**	**DRN**	**71M6**	140	675
6.1	3390	179.37	4470	3.8		**KF**	**77**	**DRN**	**71M6**	155	676
7.1	2910	154.02	4480	4.7		**KA**	**77**	**DRN**	**71M6**	120	678
8.1	2550	135.28	4490	5.4		**KAF**	**77**	**DRN**	**71M6**	140	676
7.6	2730	144.79*	2920	2.6		**K**	**67**	**DRN**	**71M6**	80	667
8.9	2330	123.54	2920	3.1		**KF**	**67**	**DRN**	**71M6**	93	668
10	2040	108.03	2920	3.5		**KA**	**67**	**DRN**	**71M6**	74	670
11	1940	102.62	2920	3.7		**KAF**	**67**	**DRN**	**71M6**	87	668
12	1770	144.79*	2920	4.1	X	**K**	**67**	**(E)DRN**	**71MS4**	80	667
14	1510	123.54	2920	4.8	X	**KF**	**67**	**(E)DRN**	**71MS4**	93	668
16	1320	108.03	2920	5.5	X	**KA**	**67**	**(E)DRN**	**71MS4**	74	670
17	1250	102.62	2920	5.8	X	**KAF**	**67**	**(E)DRN**	**71MS4**	87	668
7.6	2740	145.14*	2080	1.95							
8.9	2340	123.85	2120	2.3		**K**	**57**	**DRN**	**71M6**	67	660
10	2040	108.29	2140	2.6		**KF**	**57**	**DRN**	**71M6**	78	661
11	1940	102.88*	2150	2.7		**KA**	**57**	**DRN**	**71M6**	63	662
12	1700	90.26*	2170	3.1		**KAF**	**57**	**DRN**	**71M6**	75	661
14	1440	76.56*	2190	3.7							
12	1770	145.14*	2160	3.0	X						
14	1510	123.85	2180	3.5	X	**K**	**57**	**(E)DRN**	**71MS4**	67	660
16	1320	108.29	2200	4.0	X	**KF**	**57**	**(E)DRN**	**71MS4**	78	661
17	1250	102.88*	2200	4.2	X	**KA**	**57**	**(E)DRN**	**71MS4**	63	662
19	1100	90.26*	2210	4.8	X	**KAF**	**57**	**(E)DRN**	**71MS4**	75	661
22	930	76.56*	2230	5.7	X						
						K	**49**	**(E)DRN**	**71MS4**	82	656
23	920	75.20	2020	4.6	X	**KF**	**49**	**(E)DRN**	**71MS4**	85	657
24	850	70.19	2020	4.6	X	**KA**	**49**	**(E)DRN**	**71MS4**	75	658
						KAF	**49**	**(E)DRN**	**71MS4**	86	657
8.3	2490	131.87*	1620	1.40		**K**	**47**	**DRN**	**71M6**	55	649
9.1	2290	121.48*	1660	1.55		**KF**	**47**	**DRN**	**71M6**	62	650
11	1970	104.37	1720	1.80		**KA**	**47**	**DRN**	**71M6**	53	651
12	1710	90.86	1750	2.1		**KAF**	**47**	**DRN**	**71M6**	59	650
13	1610	85.12*	1770	2.2							
13	1610	131.87*	1770	2.2	X	**K**	**47**	**(E)DRN**	**71MS4**	55	649
14	1480	121.48*	1780	2.4	X	**KF**	**47**	**(E)DRN**	**71MS4**	62	650
16	1270	104.37	1800	2.8	X	**KA**	**47**	**(E)DRN**	**71MS4**	53	651
19	1110	90.86	1820	3.2	X	**KAF**	**47**	**(E)DRN**	**71MS4**	59	650
20	1040	85.12*	1820	3.4	X						
						K	**39**	**(E)DRN**	**71MS4**	52	645
29	710	58.24	1690	3.7	X	**KF**	**39**	**(E)DRN**	**71MS4**	55	646
34	605	49.69	1690	4.4	X	**KA**	**39**	**(E)DRN**	**71MS4**	50	647
						KAF	**39**	**(E)DRN**	**71MS4**	53	646

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P_m = 0.33 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
13	1580	83.69	1210	1.10		**K**	**37**	**DRN**	**71M6**	41	638
15	1370	72.54	1260	1.30		**KF**	**37**	**DRN**	**71M6**	46	639
16	1280	67.80	1280	1.40		**KA**	**37**	**DRN**	**71M6**	41	640
19	1100	58.60	1320	1.60		**KAF**	**37**	**DRN**	**71M6**	44	639
22	940	49.79	1360	1.90							
16	1300	106.38	1280	1.35	X						
17	1190	97.81	1300	1.50	X						
20	1020	83.69	1340	1.75	X						
23	880	72.54	1340	2.0	X						
25	820	67.80	1320	2.1	X	**K**	**37**	**(E)DRN**	**71MS4**	41	638
29	715	58.60	1270	2.5	X	**KF**	**37**	**(E)DRN**	**71MS4**	46	639
34	605	49.79	1220	2.9	X	**KA**	**37**	**(E)DRN**	**71MS4**	41	640
38	540	44.46	1190	3.2	X	**KAF**	**37**	**(E)DRN**	**71MS4**	44	639
45	460	37.97	1140	3.8	X						
48	435	35.57	1120	4.1	X						
57	365	29.96	1070	4.8	X						
59	350	28.83	1060	5.0	X						
31	670	54.89	1160	1.70	X						
34	615	50.35	1160	1.85	X						
40	520	42.87	1150	2.2	X						
46	450	36.96	1100	2.4	X						
56	365	30.11	1040	2.8	X	**K**	**29**	**(E)DRN**	**71MS4**	29	631
57	360	29.69	1050	3.2	X	**KF**	**29**	**(E)DRN**	**71MS4**	31	635
62	330	27.23	1020	3.5	X	**KA**	**29**	**(E)DRN**	**71MS4**	28	637
68	300	24.91	990	3.2	X	**KAF**	**29**	**(E)DRN**	**71MS4**	29	635
73	280	23.19	980	4.0	X						
77	270	22.08	960	3.4	X						
85	240	19.99	940	4.7	X						
38	540	44.48	990	1.10	X						
42	495	40.63	990	1.20	X						
50	415	34.29	970	1.35	X						
58	355	29.29	930	1.50	X						
63	330	27.16	910	1.60	X						
71	290	24.06	900	2.4	X						
77	265	21.98	880	2.6	X						
92	225	18.55	840	3.1	X						
107	194	15.84	800	3.6	X	**K**	**19**	**(E)DRN**	**71MS4**	25	625
116	180	14.69	780	3.9	X	**KF**	**19**	**(E)DRN**	**71MS4**	25	628
134	155	12.70	750	4.5	X	**KA**	**19**	**(E)DRN**	**71MS4**	24	630
144	145	11.84	735	4.8	X	**KAF**	**19**	**(E)DRN**	**71MS4**	25	628
165	126	10.32	705	5.3	X						
177	117	9.58	695	4.8	X						
210	99	8.09	660	7.2	X						
246	85	6.91	625	8.4	X						
265	78	6.41	615	9.0	X						
307	68	5.54	585	10	X						
329	63	5.16	570	11	X						

P_m = 0.50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.17	167650	10114	25450	1.05	X						
0.20	144510	8718	25650	1.20	X	**K**	**157R97**	**(E)DRN**	**71M4**	1740	715/728
0.22	128200	7734	25800	1.40	X	**KF**	**157R97**	**(E)DRN**	**71M4**	1920	716/728
0.25	114060	6881	25890	1.6	X	**KA**	**157R97**	**(E)DRN**	**71M4**	1660	718/728
0.29	98310	5931	25980	1.8	X	**KAF**	**157R97**	**(E)DRN**	**71M4**	1790	716/728
0.43	65960	3979	26110	2.7	X						
0.26	103700	6565	17900	1.10	X						
0.29	89100	5804	18100	1.30	X	**K**	**127R77**	**(E)DRN**	**71M4**	1040	707/728
0.34	78200	5027	18200	1.45	X	**KF**	**127R77**	**(E)DRN**	**71M4**	1130	708/728
0.38	67900	4423	18300	1.70	X	**KA**	**127R77**	**(E)DRN**	**71M4**	980	710/728
0.44	59400	3889	18400	1.95	X	**KAF**	**127R77**	**(E)DRN**	**71M4**	1060	708/728
0.51	49800	3311	18500	2.3	X						

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P_m = 0.50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.88	30300	1926	18600	3.8	X	**K**	**127R77**	**(E)DRN**	**71M4**	1040	707/728
0.97	27600	1757	18600	4.2	X	**KF**	**127R77**	**(E)DRN**	**71M4**	1130	708/728
1.1	23900	1541	18600	4.8	X	**KA**	**127R77**	**(E)DRN**	**71M4**	980	710/728
						KAF	**127R77**	**(E)DRN**	**71M4**	1060	708/728
0.45	59800	3810	14600	1.20	X						
0.51	51600	3358	14600	1.35	X	**K**	**107R77**	**(E)DRN**	**71M4**	690	699/727
0.57	46300	2977	14600	1.55	X	**KF**	**107R77**	**(E)DRN**	**71M4**	710	700/727
0.65	40400	2599	14600	1.75	X	**KA**	**107R77**	**(E)DRN**	**71M4**	630	702/727
0.74	35100	2286	14600	2.0	X	**KAF**	**107R77**	**(E)DRN**	**71M4**	680	700/727
0.88	29800	1939	14600	2.4	X						
0.99	27200	1713	14600	2.6	X	**K**	**107R77**	**(E)DRN**	**71M4**	680	699/727
1.1	24700	1554	14600	2.9	X	**KF**	**107R77**	**(E)DRN**	**71M4**	710	700/727
1.3	21200	1336	14600	3.3	X	**KA**	**107R77**	**(E)DRN**	**71M4**	620	702/727
1.5	18500	1166	14600	3.8	X	**KAF**	**107R77**	**(E)DRN**	**71M4**	680	700/727
0.80	34700	2123	8990	1.10	X						
0.92	30600	1856	8990	1.25	X						
1.1	26100	1625	8990	1.45	X						
1.2	22700	1430	8990	1.65	X						
1.4	20800	1261	8990	1.85	X	**K**	**97R57**	**(E)DRN**	**71M4**	400	691/727
1.5	18100	1102	8990	2.1	X	**KF**	**97R57**	**(E)DRN**	**71M4**	445	692/727
1.8	15900	957	8990	2.4	X	**KA**	**97R57**	**(E)DRN**	**71M4**	360	694/727
2.0	14200	855	8990	2.7	X	**KAF**	**97R57**	**(E)DRN**	**71M4**	415	692/727
2.3	11600	743	8990	3.3	X						
2.6	10300	652	8990	3.7	X						
3.0	9380	573	8990	4.1	X						
1.2	23300	1415	6150	1.00	X						
1.4	20200	1229	6240	1.20	X						
1.6	17600	1078	6310	1.35	X						
1.8	15300	951	6360	1.55	X						
2.0	13300	837	6400	1.80	X	**K**	**87R57**	**(E)DRN**	**71M4**	265	683/727
2.3	11500	726	6430	2.1	X	**KF**	**87R57**	**(E)DRN**	**71M4**	285	684/727
2.7	10200	638	6450	2.3	X	**KA**	**87R57**	**(E)DRN**	**71M4**	240	686/727
3.0	8950	562	6470	2.7	X	**KAF**	**87R57**	**(E)DRN**	**71M4**	265	684/727
3.6	7520	474	6480	3.2	X						
4.0	6760	426	6490	3.5	X						
4.6	5900	373	6500	4.0	X						
2.1	13500	815	3480	1.00	X						
2.4	11300	709	3830	1.20	X						
2.7	9950	622	4000	1.40	X						
3.1	8910	552	4110	1.55	X						
3.5	7820	485	4210	1.75	X						
4.0	6900	428	4280	2.0	X	**K**	**77R37**	**(E)DRN**	**71M4**	160	675/727
4.6	6020	367	4340	2.3	X	**KF**	**77R37**	**(E)DRN**	**71M4**	175	676/727
5.2	5350	328	4380	2.6	X	**KA**	**77R37**	**(E)DRN**	**71M4**	140	678/727
5.9	4760	290	4410	2.9	X	**KAF**	**77R37**	**(E)DRN**	**71M4**	160	676/727
6.7	4080	252	4440	3.4	X						
7.7	3580	221	4460	3.8	X						
8.7	3160	195	4470	4.3	X						
9.7	2790	175	4490	4.9	X						
11	2460	154	4490	5.6	X						
4.0	6770	420	2420	1.05	X						
4.7	5990	361	2570	1.20	X						
5.3	5320	323	2670	1.35	X						
6.1	4500	279	2780	1.60	X	**K**	**67R37**	**(E)DRN**	**71M4**	105	667/727
6.9	3960	246	2840	1.85	X	**KF**	**67R37**	**(E)DRN**	**71M4**	115	668/727
7.8	3510	217	2880	2.1	X	**KA**	**67R37**	**(E)DRN**	**71M4**	99	670/727
8.9	3100	191	2920	2.3	X	**KAF**	**67R37**	**(E)DRN**	**71M4**	110	668/727
10	2650	166	2920	2.7	X						
12	2350	144	2920	3.1	X						
14	1990	122	2920	3.6	X						

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P_m = 0.50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
6.1	4510	280	1870	1.20	X						
6.9	3970	246	1950	1.35	X						
7.9	3500	215	2000	1.50	X						
8.8	3110	192	2040	1.70	X	**K**	**57R37**	**(E)DRN**	**71M4**	92	660/727
10	2690	166	2080	1.95	X	**KF**	**57R37**	**(E)DRN**	**71M4**	105	661/727
12	2350	145	2110	2.2	X	**KA**	**57R37**	**(E)DRN**	**71M4**	88	662/727
13	2130	129	2130	2.5	X	**KAF**	**57R37**	**(E)DRN**	**71M4**	100	661/727
15	1800	111	2160	2.9	X						
17	1580	97	2180	3.3	X						
						K	**87**	**DRN**	**80MK6**	220	683
5.6	5650	197.37	6500	4.2		**KF**	**87**	**DRN**	**80MK6**	240	684
6.3	4990	174.19	6510	4.8		**KA**	**87**	**DRN**	**80MK6**	190	686
						KAF	**87**	**DRN**	**80MK6**	220	684
7.1	4410	154.02	4430	3.1		**K**	**77**	**DRN**	**80MK6**	140	675
8.1	3870	135.28	4450	3.5		**KF**	**77**	**DRN**	**80MK6**	160	676
8.6	3680	128.52	4460	3.7		**KA**	**77**	**DRN**	**80MK6**	125	678
9.7	3250	113.56	4470	4.2		**KAF**	**77**	**DRN**	**80MK6**	140	676
						K	**77**	**(E)DRN**	**71M4**	140	675
8.8	3560	192.18	4460	3.6	X	**KF**	**77**	**(E)DRN**	**71M4**	155	676
9.5	3320	179.37	4470	3.9	X	**KA**	**77**	**(E)DRN**	**71M4**	120	678
11	2850	154.02	4480	4.8	X	**KAF**	**77**	**(E)DRN**	**71M4**	140	676
8.9	3540	123.54	2880	2.0		**K**	**67**	**DRN**	**80MK6**	83	667
10	3090	108.03	2920	2.3		**KF**	**67**	**DRN**	**80MK6**	96	668
11	2940	102.62	2920	2.5		**KA**	**67**	**DRN**	**80MK6**	77	670
12	2580	90.04	2920	2.8		**KAF**	**67**	**DRN**	**80MK6**	90	668
12	2680	144.79*	2920	2.7	X						
14	2290	123.54	2920	3.2	X	**K**	**67**	**(E)DRN**	**71M4**	80	667
16	2000	108.03	2920	3.6	X	**KF**	**67**	**(E)DRN**	**71M4**	93	668
19	1660	90.04	2920	4.3	X	**KA**	**67**	**(E)DRN**	**71M4**	74	670
22	1410	76.37	2920	5.1	X	**KAF**	**67**	**(E)DRN**	**71M4**	87	668
8.9	3540	123.85	1990	1.50							
10	3100	108.29	2040	1.70		**K**	**57**	**DRN**	**80MK6**	70	660
11	2940	102.88*	2060	1.80		**KF**	**57**	**DRN**	**80MK6**	81	661
12	2580	90.26*	2090	2.0		**KA**	**57**	**DRN**	**80MK6**	66	662
14	2190	76.56*	2130	2.4		**KAF**	**57**	**DRN**	**80MK6**	78	661
16	1980	69.12	2150	2.7							
12	2690	145.14*	2080	1.95	X						
14	2290	123.85	2120	2.3	X						
16	2000	108.29	2140	2.6	X	**K**	**57**	**(E)DRN**	**71M4**	67	660
17	1900	102.88*	2150	2.8	X	**KF**	**57**	**(E)DRN**	**71M4**	78	661
19	1670	90.26*	2170	3.2	X	**KA**	**57**	**(E)DRN**	**71M4**	63	662
22	1410	76.56*	2190	3.7	X	**KAF**	**57**	**(E)DRN**	**71M4**	75	661
25	1280	69.12	2200	4.1	X						
23	1390	75.20	2020	3.0	X	**K**	**49**	**(E)DRN**	**71M4**	82	656
24	1300	70.19	2020	3.0	X	**KF**	**49**	**(E)DRN**	**71M4**	85	657
28	1110	60.27	2020	4.0	X	**KA**	**49**	**(E)DRN**	**71M4**	75	658
						KAF	**49**	**(E)DRN**	**71M4**	86	657
11	2990	104.37	1500	1.20		**K**	**47**	**DRN**	**80MK6**	57	649
12	2600	90.86	1600	1.35		**KF**	**47**	**DRN**	**80MK6**	65	650
13	2430	85.12*	1630	1.45		**KA**	**47**	**DRN**	**80MK6**	55	651
15	2150	75.20*	1690	1.65		**KAF**	**47**	**DRN**	**80MK6**	62	650
13	2440	131.87*	1630	1.45	X						
14	2250	121.48*	1670	1.55	X						
16	1930	104.37	1720	1.85	X	**K**	**47**	**(E)DRN**	**71M4**	55	649
19	1680	90.86	1760	2.1	X	**KF**	**47**	**(E)DRN**	**71M4**	62	650
20	1570	85.12*	1770	2.2	X	**KA**	**47**	**(E)DRN**	**71M4**	53	651
23	1390	75.20*	1790	2.5	X	**KAF**	**47**	**(E)DRN**	**71M4**	59	650
24	1290	69.84	1800	2.7	X						
27	1170	63.30*	1810	3.0	X						
29	1080	58.24	1690	2.5	X						
34	920	49.69	1690	2.9	X	**K**	**39**	**(E)DRN**	**71M4**	52	645
39	800	43.45	1690	3.3	X	**KF**	**39**	**(E)DRN**	**71M4**	55	646
41	765	41.28	1690	3.5	X	**KA**	**39**	**(E)DRN**	**71M4**	50	647
47	670	36.22	1690	4.0	X	**KAF**	**39**	**(E)DRN**	**71M4**	53	646

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P_m = 0.50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
17	1810	97.81	1160	1.00							
20	1550	83.69	1220	1.15	X						
23	1340	72.54	1240	1.30	X						
25	1250	67.80	1220	1.40	X						
29	1080	58.60	1190	1.65	X						
34	920	49.79	1150	1.90	X						
38	820	44.46	1120	2.1	X	**K**	**37**	**(E)DRN**	**71M4**	41	638
45	700	37.97	1080	2.5	X	**KF**	**37**	**(E)DRN**	**71M4**	46	639
48	655	35.57	1070	2.7	X	**KA**	**37**	**(E)DRN**	**71M4**	41	640
57	555	29.96	1020	3.2	X	**KAF**	**37**	**(E)DRN**	**71M4**	44	639
59	530	28.83	1010	3.3	X						
68	460	24.99	980	3.8	X						
73	430	23.36	960	4.0	X						
84	370	20.19	920	4.4	X						
99	315	17.15	880	5.0	X						
31	1010	54.89	1130	1.15	X						
34	930	50.35	1110	1.25	X						
40	790	42.87	1080	1.40	X						
46	685	36.96	1040	1.55	X						
56	555	30.11	1000	1.80	X	**K**	**29**	**(E)DRN**	**71M4**	29	631
57	550	29.69	1010	2.1	X	**KF**	**29**	**(E)DRN**	**71M4**	31	635
62	505	27.23	980	2.3	X	**KA**	**29**	**(E)DRN**	**71M4**	28	637
68	460	24.91	950	2.1	X	**KAF**	**29**	**(E)DRN**	**71M4**	29	635
73	430	23.19	940	2.7	X						
77	405	22.08	920	2.3	X						
85	370	19.99	910	3.1	X						
104	300	16.29	860	3.8	X						
58	540	29.29	870	1.00							
63	500	27.16	860	1.05	X						
71	445	24.06	860	1.60	X						
77	405	21.98	840	1.75	X						
92	340	18.55	810	2.1	X						
107	290	15.84	775	2.4	X						
116	270	14.69	760	2.6	X						
134	235	12.70	730	3.0	X	**K**	**19**	**(E)DRN**	**71M4**	25	625
144	215	11.84	715	3.2	X	**KF**	**19**	**(E)DRN**	**71M4**	25	628
165	191	10.32	685	3.5	X	**KA**	**19**	**(E)DRN**	**71M4**	24	630
177	178	9.58	685	3.1	X	**KAF**	**19**	**(E)DRN**	**71M4**	25	628
210	150	8.09	650	4.7	X						
246	128	6.91	620	5.5	X						
265	119	6.41	605	6.0	X						
307	103	5.54	580	6.9	X						
329	96	5.16	565	7.4	X						
378	83	4.50	540	8.5	X						

P_m = 0.75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.09	469050	19144	42710	1.00	X						
0.10	418510	16978	42710	1.10	X						
0.12	351810	14272	42710	1.35	X	**K**	**187R97**	**(E)DRN**	**80MK4**	3900	725/728
0.13	323310	13116	42710	1.5	X	**KH**	**187R97**	**(E)DRN**	**80MK4**	3750	726/728
0.15	287100	11647	42710	1.7	X						
0.24	181010	7343	42710	2.6	X						
0.15	285280	11573	33720	1.10	X						
0.17	253010	10264	33720	1.20	X						
0.20	212680	8628	33720	1.5	X	**K**	**167R97**	**(E)DRN**	**80MK4**	2610	710/728
0.27	161750	6562	33720	1.9	X	**KH**	**167R97**	**(E)DRN**	**80MK4**	2530	724/728
0.33	132000	5355	33720	2.4	X						
0.43	100550	4079	33720	3.1	X						
0.25	169620	6881	25380	1.05	X	**K**	**157R97**	**(E)DRN**	**80MK4**	1740	715/728
0.29	146200	5931	25600	1.20	X	**KF**	**157R97**	**(E)DRN**	**80MK4**	1920	716/728
0.44	98080	3979	25940	1.8	X	**KA**	**157R97**	**(E)DRN**	**80MK4**	1660	718/728
0.57	75210	3051	26060	2.4	X	**KAF**	**157R97**	**(E)DRN**	**80MK4**	1790	716/728

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P_m = 0.75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.38	106400	4423	17900	1.10	X						
0.43	93200	3889	18100	1.25	X	**K**	**127R77**	**(E)DRN**	**80MK4**	1040	707/728
0.51	78600	3311	18200	1.45	X	**KF**	**127R77**	**(E)DRN**	**80MK4**	1140	708/728
0.56	71000	3009	18300	1.60	X	**KA**	**127R77**	**(E)DRN**	**80MK4**	980	710/728
0.65	60800	2607	18400	1.90	X	**KAF**	**127R77**	**(E)DRN**	**80MK4**	1060	708/728
0.88	47300	1926	18500	2.4	X						
0.96	43100	1757	18500	2.7	X	**K**	**127R77**	**(E)DRN**	**80MK4**	1040	707/728
1.1	37500	1541	18500	3.1	X	**KF**	**127R77**	**(E)DRN**	**80MK4**	1140	708/728
1.3	32900	1342	18500	3.5	X	**KA**	**127R77**	**(E)DRN**	**80MK4**	980	710/728
1.4	28600	1177	18600	4.0	X	**KAF**	**127R77**	**(E)DRN**	**80MK4**	1060	708/728
1.6	25100	1025	18600	4.6	X						
0.57	72200	2977	14600	1.00		**K**	**107R77**	**(E)DRN**	**80MK4**	690	699/727
0.65	63100	2599	14600	1.10	X	**KF**	**107R77**	**(E)DRN**	**80MK4**	720	700/727
0.74	55000	2286	14600	1.30	X	**KA**	**107R77**	**(E)DRN**	**80MK4**	630	702/727
0.87	46600	1939	14600	1.50	X	**KAF**	**107R77**	**(E)DRN**	**80MK4**	680	700/727
0.99	42300	1713	14600	1.65	X						
1.1	38400	1554	14600	1.85	X						
1.3	33000	1336	14600	2.1	X						
1.4	28800	1166	14600	2.5	X	**K**	**107R77**	**(E)DRN**	**80MK4**	690	699/727
1.6	24600	1030	14600	2.9	X	**KF**	**107R77**	**(E)DRN**	**80MK4**	710	700/727
1.9	21300	904	14600	3.3	X	**KA**	**107R77**	**(E)DRN**	**80MK4**	630	702/727
2.1	19400	793	14600	3.6	X	**KAF**	**107R77**	**(E)DRN**	**80MK4**	680	700/727
2.4	16900	696	14600	4.2	X						
2.8	14500	615	14600	4.9	X						
1.2	35300	1430	8990	1.05	X						
1.3	31900	1261	8990	1.20	X						
1.5	27900	1102	8990	1.35	X						
1.8	24400	957	8990	1.55	X						
2.0	21800	855	8990	1.75	X	**K**	**97R57**	**(E)DRN**	**80MK4**	400	691/727
2.3	18100	743	8990	2.1	X	**KF**	**97R57**	**(E)DRN**	**80MK4**	445	692/727
2.6	16000	652	8990	2.4	X	**KA**	**97R57**	**(E)DRN**	**80MK4**	360	694/727
3.0	14400	573	8990	2.6	X	**KAF**	**97R57**	**(E)DRN**	**80MK4**	415	692/727
3.4	12200	504	8990	3.1	X						
3.9	10500	437	8990	3.6	X						
4.4	9450	382	8990	4.0	X						
5.5	7630	305	8990	5.0	X						
1.8	23600	951	6140	1.00	X						
2.0	20700	837	6230	1.15	X						
2.3	17900	726	6300	1.35	X						
2.6	15900	638	6340	1.50	X						
3.0	13900	562	6390	1.70	X						
3.6	11700	474	6430	2.0	X	**K**	**87R57**	**(E)DRN**	**80MK4**	265	683/727
4.0	10500	426	6440	2.3	X	**KF**	**87R57**	**(E)DRN**	**80MK4**	290	684/727
4.5	9220	373	6460	2.6	X	**KA**	**87R57**	**(E)DRN**	**80MK4**	240	686/727
5.1	8030	330	6480	3.0	X	**KAF**	**87R57**	**(E)DRN**	**80MK4**	270	684/727
5.8	7160	294	6490	3.3	X						
6.8	6250	250	6500	3.8	X						
7.2	5880	236	6500	4.1	X						
8.4	4970	201	6510	4.8	X						
3.5	12000	485	3720	1.15	X						
4.0	10600	428	3910	1.30	X						
4.6	9250	367	4070	1.50	X						
5.2	8230	328	4170	1.65	X	**K**	**77R37**	**(E)DRN**	**80MK4**	160	675/727
5.8	7310	290	4250	1.85	X	**KF**	**77R37**	**(E)DRN**	**80MK4**	180	676/727
6.7	6300	252	4320	2.2	X	**KA**	**77R37**	**(E)DRN**	**80MK4**	145	678/727
7.6	5530	221	4370	2.5	X	**KAF**	**77R37**	**(E)DRN**	**80MK4**	160	676/727
8.7	4880	195	4400	2.8	X						
9.7	4320	175	4430	3.2	X						
11	3810	154	4450	3.6	X						
6.1	6960	279	2380	1.05	X						
6.9	6120	246	2540	1.20	X						
7.8	5450	217	2650	1.35	X	**K**	**67R37**	**(E)DRN**	**80MK4**	110	667/727
8.8	4790	191	2740	1.50	X	**KF**	**67R37**	**(E)DRN**	**80MK4**	120	668/727
10	4120	166	2820	1.75	X	**KA**	**67R37**	**(E)DRN**	**80MK4**	100	670/727
12	3630	144	2870	2.0	X	**KAF**	**67R37**	**(E)DRN**	**80MK4**	115	668/727
14	3080	122	2920	2.4	X						

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P_m = 0.75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
8.8	4800	192	1820	1.10	X						
10	4150	166	1920	1.30	X	**K**	**57R37**	**(E)DRN**	**80MK4**	95	660/727
12	3640	145	1980	1.45	X	**KF**	**57R37**	**(E)DRN**	**80MK4**	105	661/727
13	3280	129	2020	1.60	X	**KA**	**57R37**	**(E)DRN**	**80MK4**	90	662/727
15	2780	111	2070	1.90	X	**KAF**	**57R37**	**(E)DRN**	**80MK4**	105	661/727
17	2450	97	2110	2.2	X						
5.7	8330	197.37	6470	2.9		**K**	**87**	**DRN**	**90SR6**	225	683
6.4	7350	174.19	6490	3.2		**KF**	**87**	**DRN**	**90SR6**	245	684
6.8	6930	164.34*	6490	3.4		**KA**	**87**	**DRN**	**90SR6**	195	686
7.6	6220	147.32*	6500	3.8		**KAF**	**87**	**DRN**	**90SR6**	225	684
7.3	6500	154.02	4310	2.1		**K**	**77**	**DRN**	**90SR6**	145	675
8.3	5710	135.28	4360	2.4		**KF**	**77**	**DRN**	**90SR6**	165	676
8.7	5420	128.52	4370	2.5		**KA**	**77**	**DRN**	**90SR6**	130	678
9.9	4790	113.56	4410	2.9		**KAF**	**77**	**DRN**	**90SR6**	145	676
11	4300	154.02	4430	3.2	X	**K**	**77**	**(E)DRN**	**80MK4**	140	675
12	3780	135.28	4450	3.6	X	**KF**	**77**	**(E)DRN**	**80MK4**	160	676
13	3590	128.52	4460	3.8	X	**KA**	**77**	**(E)DRN**	**80MK4**	125	678
15	3170	113.56	4470	4.3	X	**KAF**	**77**	**(E)DRN**	**80MK4**	140	676
17	2710	97.05	4490	5.0	X						
9.1	5210	123.54	2690	1.40		**K**	**67**	**DRN**	**90SR6**	88	667
10	4560	108.03	2770	1.60		**KF**	**67**	**DRN**	**90SR6**	100	668
11	4330	102.62	2800	1.65		**KA**	**67**	**DRN**	**90SR6**	82	670
12	3800	90.04	2850	1.90		**KAF**	**67**	**DRN**	**90SR6**	95	668
15	3220	76.37	2910	2.2							
14	3450	123.54	2890	2.1	X	**K**	**67**	**(E)DRN**	**80MK4**	83	667
16	3020	108.03	2920	2.4	X	**KF**	**67**	**(E)DRN**	**80MK4**	96	668
19	2510	90.04	2920	2.9	X	**KA**	**67**	**(E)DRN**	**80MK4**	77	670
22	2130	76.37	2920	3.4	X	**KAF**	**67**	**(E)DRN**	**80MK4**	90	668
10	4570	108.29	1860	1.15							
11	4340	102.88*	1900	1.20		**K**	**57**	**DRN**	**90SR6**	75	660
12	3810	90.26*	1970	1.40		**KF**	**57**	**DRN**	**90SR6**	86	661
15	3230	76.56*	2030	1.65		**KA**	**57**	**DRN**	**90SR6**	71	662
16	2910	69.12	2060	1.80		**KAF**	**57**	**DRN**	**90SR6**	83	661
18	2560	60.81*	2090	2.1							
20	2420	57.42*	2110	2.2							
14	3460	123.85	2000	1.55	X						
16	3030	108.29	2050	1.75	X						
16	2870	102.88*	2060	1.85	X	**K**	**57**	**(E)DRN**	**80MK4**	70	660
19	2520	90.26*	2100	2.1	X	**KF**	**57**	**(E)DRN**	**80MK4**	81	661
22	2140	76.56*	2130	2.5	X	**KA**	**57**	**(E)DRN**	**80MK4**	66	662
24	1930	69.12	2150	2.7	X	**KAF**	**57**	**(E)DRN**	**80MK4**	78	661
28	1700	60.81*	2170	3.1	X						
29	1600	57.42*	2180	3.3	X						
22	2100	75.20	2020	2.0	X						
24	1960	70.19	2020	2.0	X						
28	1680	60.27	2020	2.6	X	**K**	**49**	**(E)DRN**	**80MK4**	84	656
32	1480	52.94	2020	3.0	X	**KF**	**49**	**(E)DRN**	**80MK4**	88	657
34	1400	50.29	2020	3.1	X	**KA**	**49**	**(E)DRN**	**80MK4**	78	658
38	1240	44.44	2020	3.6	X	**KAF**	**49**	**(E)DRN**	**80MK4**	89	657
44	1060	37.98	2020	4.2	X						
16	2920	104.37	1520	1.20	X						
19	2540	90.86	1610	1.40	X						
20	2380	85.12*	1640	1.50	X						
22	2100	75.20*	1700	1.70	X	**K**	**47**	**(E)DRN**	**80MK4**	57	649
24	1950	69.84	1720	1.80	X	**KF**	**47**	**(E)DRN**	**80MK4**	65	650
27	1770	63.30*	1750	2.0	X	**KA**	**47**	**(E)DRN**	**80MK4**	55	651
30	1590	56.83	1770	2.2	X	**KAF**	**47**	**(E)DRN**	**80MK4**	62	650
35	1360	48.95*	1790	2.6	X						
37	1280	46.03*	1800	2.8	X						

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P_m = 0.75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
29	1620	58.24	1690	1.65	X						
34	1390	49.69	1690	1.90	X						
39	1210	43.45	1690	2.2	X	**K**	**39**	**(E)DRN**	**80MK4**	55	645
41	1150	41.28	1690	2.3	X	**KF**	**39**	**(E)DRN**	**80MK4**	58	646
47	1010	36.22	1680	2.6	X	**KA**	**39**	**(E)DRN**	**80MK4**	53	647
55	850	30.72	1610	3.1	X	**KAF**	**39**	**(E)DRN**	**80MK4**	56	646
61	775	27.73	1570	3.4	X						
69	680	24.40	1520	3.9	X						
73	640	23.04	1500	4.1	X						
29	1630	58.60	1060	1.10	X						
34	1390	49.79	1040	1.25	X						
38	1240	44.46	1030	1.40	X						
44	1060	37.97	1000	1.65	X						
48	990	35.57	990	1.80	X						
56	830	29.96	960	2.1	X						
59	800	28.83	950	2.2	X	**K**	**37**	**(E)DRN**	**80MK4**	44	638
68	695	24.99	920	2.5	X	**KF**	**37**	**(E)DRN**	**80MK4**	49	639
72	650	23.36	910	2.6	X	**KA**	**37**	**(E)DRN**	**80MK4**	43	640
84	560	20.19	880	2.9	X	**KAF**	**37**	**(E)DRN**	**80MK4**	47	639
99	480	17.15	850	3.3	X						
110	425	15.31	820	3.6	X						
129	365	13.08	790	4.0	X						
139	335	12.14	775	4.2	X						
161	290	10.49	745	4.8	X						
46	1030	36.96	960	1.05	X						
56	840	30.11	930	1.20	X						
57	830	29.69	950	1.40	X						
62	760	27.23	930	1.50	X						
68	695	24.91	890	1.40	X						
73	645	23.19	900	1.75	X	**K**	**29**	**(E)DRN**	**80MK4**	31	631
77	615	22.08	870	1.50	X	**KF**	**29**	**(E)DRN**	**80MK4**	33	635
85	555	19.99	870	2.1	X	**KA**	**29**	**(E)DRN**	**80MK4**	30	637
104	455	16.29	820	2.5	X	**KAF**	**29**	**(E)DRN**	**80MK4**	32	635
125	375	13.47	785	3.0	X						
141	330	11.94	760	3.4	X						
171	275	9.90	740	3.5	X						
198	235	8.53	710	4.5	X						
70	670	24.06	800	1.05	X						
77	615	21.98	790	1.15	X						
91	515	18.55	760	1.35	X						
107	440	15.84	735	1.60	X						
115	410	14.69	725	1.70	X						
133	355	12.70	700	2.0	X						
143	330	11.84	685	2.1	X	**K**	**19**	**(E)DRN**	**80MK4**	27	625
164	285	10.32	665	2.3	X	**KF**	**19**	**(E)DRN**	**80MK4**	28	628
176	265	9.58	665	2.1	X	**KA**	**19**	**(E)DRN**	**80MK4**	26	630
209	225	8.09	635	3.1	X	**KAF**	**19**	**(E)DRN**	**80MK4**	27	628
245	193	6.91	605	3.7	X						
264	179	6.41	595	4.0	X						
305	155	5.54	570	4.6	X						
327	144	5.16	555	4.9	X						
376	126	4.50	535	5.6	X						

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.12	467470	14272	42710	1.00	X						
0.13	429610	13116	42710	1.10	X						
0.15	381490	11647	42710	1.25	X						
0.17	341070	10413	42710	1.40	X						
0.19	306680	9363	42710	1.6	X	**K**	**187R97**	**(E)DRN**	**80M4**	3900	725/728
0.22	266160	8126	42710	1.8	X	**KH**	**187R97**	**(E)DRN**	**80M4**	3760	726/728
0.24	240510	7343	42710	2.0	X						
0.26	220990	6747	42710	2.1	X						
0.29	196230	5991	42710	2.4	X						
0.33	175500	5358	42710	2.7	X						
0.20	282600	8628	33720	1.10	X						
0.27	214930	6562	33720	1.5	X						
0.33	175400	5355	33720	1.8	X	**K**	**167R97**	**(E)DRN**	**80M4**	2620	710/728
0.37	156830	4788	33720	2.0	X	**KH**	**167R97**	**(E)DRN**	**80M4**	2540	724/728
0.43	133600	4079	33720	2.3	X						
0.52	110580	3376	33720	2.8	X						
0.35	166200	5074	25430	1.05	X						
0.39	147850	4514	25600	1.20	X						
0.44	130330	3979	25660	1.35	X	**K**	**157R97**	**(E)DRN**	**80M4**	1750	715/728
0.50	115160	3516	25830	1.6	X	**KF**	**157R97**	**(E)DRN**	**80M4**	1930	716/728
0.57	99930	3051	25890	1.8	X	**KA**	**157R97**	**(E)DRN**	**80M4**	1670	718/728
0.67	85490	2610	26010	2.1	X	**KAF**	**157R97**	**(E)DRN**	**80M4**	1800	716/728
0.75	76060	2322	26060	2.3	X						
0.53	103000	3311	18000	1.10	X	**K**	**127R77**	**(E)DRN**	**80M4**	1050	707/728
0.58	93100	3009	18100	1.25	X	**KF**	**127R77**	**(E)DRN**	**80M4**	1150	708/728
0.67	80000	2607	18200	1.45	X	**KA**	**127R77**	**(E)DRN**	**80M4**	990	710/728
0.77	69000	2268	18300	1.65	X	**KAF**	**127R77**	**(E)DRN**	**80M4**	1080	708/728
0.91	61700	1926	18400	1.85	X						
1.0	56200	1757	18400	2.0	X						
1.1	49000	1541	18500	2.3	X	**K**	**127R77**	**(E)DRN**	**80M4**	1050	707/728
1.3	42900	1342	18500	2.7	X	**KF**	**127R77**	**(E)DRN**	**80M4**	1150	708/728
1.5	37400	1177	18500	3.1	X	**KA**	**127R77**	**(E)DRN**	**80M4**	990	710/728
1.7	32800	1025	18500	3.5	X	**KAF**	**127R77**	**(E)DRN**	**80M4**	1070	708/728
1.9	28600	899	18600	4.0	X						
0.90	60900	1939	14600	1.15	X						
1.0	55100	1713	14600	1.30	X						
1.1	50000	1554	14600	1.40	X						
1.3	43000	1336	14600	1.65	X	**K**	**107R77**	**(E)DRN**	**80M4**	700	699/727
1.5	37500	1166	14600	1.90	X	**KF**	**107R77**	**(E)DRN**	**80M4**	730	700/727
1.7	32200	1030	14600	2.2	X	**KA**	**107R77**	**(E)DRN**	**80M4**	640	702/727
1.9	28000	904	14600	2.5	X	**KAF**	**107R77**	**(E)DRN**	**80M4**	690	700/727
2.2	25300	793	14600	2.8	X						
2.5	22100	696	14600	3.2	X						
2.9	19100	615	14600	3.7	X						
1.6	36100	1102	8990	1.05	X						
1.8	31600	957	8990	1.20	X						
2.0	28200	855	8990	1.35	X						
2.4	23700	743	8990	1.60	X						
2.7	20900	652	8990	1.80	X						
3.1	18800	573	8990	2.0	X	**K**	**97R57**	**(E)DRN**	**80M4**	410	691/727
3.5	16000	504	8990	2.4	X	**KF**	**97R57**	**(E)DRN**	**80M4**	455	692/727
4.0	13800	437	8990	2.8	X	**KA**	**97R57**	**(E)DRN**	**80M4**	370	694/727
4.6	12300	382	8990	3.1	X	**KAF**	**97R57**	**(E)DRN**	**80M4**	425	692/727
5.7	9930	305	8990	3.8	X						
6.8	8360	258	8990	4.5	X						
7.5	7520	232	8990	5.0	X						
8.8	6400	199	8990	5.9	X						

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
2.4	23300	726	6150	1.00	X						
2.7	20600	638	6230	1.15	X						
3.1	18000	562	6290	1.30	X						
3.7	15200	474	6360	1.55	X						
4.1	13700	426	6390	1.75	X	**K**	**87R57**	**(E)DRN**	**80M4**	280	683/727
4.7	12000	373	6420	2.0	X	**KF**	**87R57**	**(E)DRN**	**80M4**	300	684/727
5.3	10400	330	6440	2.3	X	**KA**	**87R57**	**(E)DRN**	**80M4**	250	686/727
6.0	9370	294	6460	2.5	X	**KAF**	**87R57**	**(E)DRN**	**80M4**	280	684/727
7.0	8140	250	6480	2.9	X						
7.4	7660	236	6480	3.1	X						
8.7	6490	201	6500	3.7	X						
4.8	11900	367	3730	1.15	X						
5.3	10600	328	3910	1.30	X						
6.0	9480	290	4050	1.45	X	**K**	**77R37**	**(E)DRN**	**80M4**	170	675/727
7.0	8180	252	4180	1.70	X	**KF**	**77R37**	**(E)DRN**	**80M4**	190	676/727
7.9	7180	221	4260	1.90	X	**KA**	**77R37**	**(E)DRN**	**80M4**	155	678/727
9.0	6330	195	4320	2.2	X	**KAF**	**77R37**	**(E)DRN**	**80M4**	170	676/727
10	5630	175	4360	2.4	X						
11	4960	154	4400	2.8	X						
8.1	7080	217	2350	1.00	X						
9.1	6210	191	2530	1.15	X	**K**	**67R37**	**(E)DRN**	**80M4**	120	667/727
11	5360	166	2670	1.35	X	**KF**	**67R37**	**(E)DRN**	**80M4**	130	668/727
12	4720	144	2750	1.55	X	**KA**	**67R37**	**(E)DRN**	**80M4**	110	670/727
14	4000	122	2830	1.80	X	**KAF**	**67R37**	**(E)DRN**	**80M4**	125	668/727
12	4730	145	1830	1.10	X	**K**	**57R37**	**(E)DRN**	**80M4**	105	660/727
14	4250	129	1910	1.25	X	**KF**	**57R37**	**(E)DRN**	**80M4**	115	661/727
16	3620	111	1990	1.45	X	**KA**	**57R37**	**(E)DRN**	**80M4**	100	662/727
18	3180	97	2030	1.65	X	**KAF**	**57R37**	**(E)DRN**	**80M4**	115	661/727
						K	**47R37**	**(E)DRN**	**80M4**	92	649/727
18	3260	99	1420	1.10	X	**KF**	**47R37**	**(E)DRN**	**80M4**	99	650/727
19	3090	94	1480	1.15	X	**KA**	**47R37**	**(E)DRN**	**80M4**	90	651/727
						KAF	**47R37**	**(E)DRN**	**80M4**	96	650/727
6.7	9420	174.19	6460	2.5		**K**	**87**	**DRN**	**90S6**	240	683
7.1	8880	164.34*	6470	2.7		**KF**	**87**	**DRN**	**90S6**	260	684
7.9	7960	147.32*	6480	3.0		**KA**	**87**	**DRN**	**90S6**	215	686
9.2	6860	126.91*	6490	3.5		**KAF**	**87**	**DRN**	**90S6**	245	684
8.9	7100	197.37	6490	3.4	X	**K**	**87**	**(E)DRN**	**80M4**	230	683
10	6260	174.19	6500	3.8	X	**KF**	**87**	**(E)DRN**	**80M4**	250	684
11	5910	164.34*	6500	4.0	X	**KA**	**87**	**(E)DRN**	**80M4**	205	686
12	5300	147.32*	6510	4.5	X	**KAF**	**87**	**(E)DRN**	**80M4**	230	684
8.6	7310	135.28	4250	1.85							
9.1	6950	128.52	4280	1.95		**K**	**77**	**DRN**	**90S6**	160	675
10	6140	113.56	4330	2.2		**KF**	**77**	**DRN**	**90S6**	180	676
12	5240	97.05	4380	2.6		**KA**	**77**	**DRN**	**90S6**	145	678
13	4810	88.97	4410	2.9		**KAF**	**77**	**DRN**	**90S6**	165	676
11	5540	154.02	4370	2.5	X						
13	4860	135.28	4400	2.8	X	**K**	**77**	**(E)DRN**	**80M4**	150	675
14	4620	128.52	4420	3.0	X	**KF**	**77**	**(E)DRN**	**80M4**	170	676
15	4080	113.56	4440	3.4	X	**KA**	**77**	**(E)DRN**	**80M4**	135	678
18	3490	97.05	4460	3.9	X	**KAF**	**77**	**(E)DRN**	**80M4**	150	676
11	5840	108.03	2590	1.25							
11	5550	102.62	2640	1.30							
13	4860	90.04	2730	1.50							
15	4130	76.37	2820	1.75		**K**	**67**	**DRN**	**90S6**	110	667
17	3720	68.95	2860	1.95		**KF**	**67**	**DRN**	**90S6**	120	668
19	3280	60.66	2900	2.2		**KA**	**67**	**DRN**	**90S6**	100	670
20	3090	57.28	2920	2.3		**KAF**	**67**	**DRN**	**90S6**	115	668
24	2630	48.77	2920	2.8							
26	2390	44.32	2920	3.0							

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
14	4440	123.54	2790	1.65	X						
16	3880	108.03	2850	1.85	X						
17	3690	102.62	2860	1.95	X	**K**	**67**	**(E)DRN**	**80M4**	94	667
19	3230	90.04	2900	2.2	X	**KF**	**67**	**(E)DRN**	**80M4**	105	668
23	2740	76.37	2920	2.6	X	**KA**	**67**	**(E)DRN**	**80M4**	88	670
25	2480	68.95	2920	2.9	X	**KAF**	**67**	**(E)DRN**	**80M4**	100	668
29	2180	60.66	2920	3.3	X						
31	2060	57.28	2920	3.5	X						
13	4880	90.26*	1800	1.10							
15	4140	76.56*	1930	1.30							
17	3730	69.12	1970	1.40							
19	3280	60.81*	2020	1.60		**K**	**57**	**DRN**	**90S6**	95	660
20	3100	57.42*	2040	1.70		**KF**	**57**	**DRN**	**90S6**	105	661
24	2640	48.89	2090	2.0		**KA**	**57**	**DRN**	**90S6**	90	662
26	2400	44.43	2110	2.2		**KAF**	**57**	**DRN**	**90S6**	105	661
30	2080	38.49	2140	2.5							
33	1930	35.70	2150	2.8							
14	4450	123.85	1890	1.20	X						
16	3890	108.29	1960	1.35	X						
17	3700	102.88*	1980	1.45	X						
19	3240	90.26*	2030	1.65	X	**K**	**57**	**(E)DRN**	**80M4**	81	660
23	2750	76.56*	2080	1.95	X	**KF**	**57**	**(E)DRN**	**80M4**	91	661
25	2480	69.12	2100	2.1	X	**KA**	**57**	**(E)DRN**	**80M4**	76	662
29	2180	60.81*	2130	2.4	X	**KAF**	**57**	**(E)DRN**	**80M4**	89	661
30	2060	57.42*	2140	2.6	X						
36	1750	48.89	2170	3.0	X						
39	1590	44.43	2180	3.3	X						
29	2160	60.27	2020	2.0	X						
33	1900	52.94	2020	2.3	X						
35	1800	50.29	2020	2.4	X	**K**	**49**	**(E)DRN**	**80M4**	95	656
39	1590	44.44	2020	2.8	X	**KF**	**49**	**(E)DRN**	**80M4**	99	657
46	1360	37.98	2020	3.2	X	**KA**	**49**	**(E)DRN**	**80M4**	89	658
50	1250	34.81	1980	3.5	X	**KAF**	**49**	**(E)DRN**	**80M4**	100	657
57	1090	30.55	1920	4.0	X						
60	1040	28.95	1890	4.2	X						
18	3420	63.30*	1370	1.05							
20	3070	56.83	1480	1.15							
24	2640	48.95*	1590	1.35							
25	2480	46.03*	1620	1.40							
29	2140	39.61	1690	1.65		**K**	**47**	**DRN**	**90S6**	82	649
33	1910	35.39	1730	1.85		**KF**	**47**	**DRN**	**90S6**	89	650
37	1690	31.30	1760	2.1		**KA**	**47**	**DRN**	**90S6**	80	651
40	1580	29.32	1740	2.2		**KAF**	**47**	**DRN**	**90S6**	86	650
45	1400	25.91	1690	2.5							
48	1300	24.06	1660	2.7							
53	1170	21.81	1620	3.0							
19	3260	90.86	1420	1.10	X						
21	3060	85.12*	1480	1.15	X						
23	2700	75.20*	1570	1.30	X						
25	2510	69.84	1620	1.40	X						
28	2270	63.30*	1660	1.55	X	**K**	**47**	**(E)DRN**	**80M4**	68	649
31	2040	56.83	1700	1.75	X	**KF**	**47**	**(E)DRN**	**80M4**	75	650
36	1760	48.95*	1750	2.0	X	**KA**	**47**	**(E)DRN**	**80M4**	66	651
38	1650	46.03*	1750	2.1	X	**KAF**	**47**	**(E)DRN**	**80M4**	72	650
44	1420	39.61	1700	2.5	X						
49	1270	35.39	1650	2.8	X						
56	1120	31.30	1610	3.1	X						

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
35	1780	49.69	1690	1.50	X						
40	1560	43.45	1660	1.70	X						
42	1480	41.28	1640	1.80	X						
48	1300	36.22	1600	2.0	X						
57	1100	30.72	1540	2.4	X	**K**	**39**	**(E)DRN**	**80M4**	65	645
63	990	27.73	1500	2.7	X	**KF**	**39**	**(E)DRN**	**80M4**	69	646
72	870	24.40	1460	3.0	X	**KA**	**39**	**(E)DRN**	**80M4**	63	647
76	820	23.04	1440	3.2	X	**KAF**	**39**	**(E)DRN**	**80M4**	67	646
89	705	19.62	1380	3.7	X						
98	640	17.83	1350	4.0	X						
113	555	15.44	1290	4.5	X						
39	1620	29.96	930	1.10							
47	1350	24.99	920	1.30							
50	1260	23.36	910	1.35							
58	1090	20.19	890	1.50		**K**	**37**	**DRN**	**90S6**	67	638
68	920	17.15	870	1.70		**KF**	**37**	**DRN**	**90S6**	72	639
76	820	15.31	850	1.85		**KA**	**37**	**DRN**	**90S6**	66	640
89	705	13.08	830	2.1		**KAF**	**37**	**DRN**	**90S6**	70	639
96	655	12.14	820	2.2							
111	565	10.49	790	2.5							
131	480	8.91	760	2.9							
39	1590	44.46	930	1.10	X						
46	1360	37.97	920	1.30	X						
49	1270	35.57	910	1.40	X						
58	1070	29.96	890	1.65	X						
61	1030	28.83	890	1.70	X						
70	890	24.99	870	1.95	X						
75	840	23.36	860	2.0	X	**K**	**37**	**(E)DRN**	**80M4**	54	638
87	725	20.19	830	2.2	X	**KF**	**37**	**(E)DRN**	**80M4**	59	639
102	615	17.15	800	2.6	X	**KA**	**37**	**(E)DRN**	**80M4**	53	640
114	550	15.31	785	2.8	X	**KAF**	**37**	**(E)DRN**	**80M4**	57	639
134	470	13.08	755	3.1	X						
144	435	12.14	745	3.2	X						
167	375	10.49	715	3.8	X						
196	320	8.91	685	4.4	X						
220	285	7.96	665	4.8	X						
70	890	24.91	830	1.10	X						
76	830	23.19	840	1.40	X						
79	790	22.08	810	1.15	X						
88	715	19.99	820	1.60	X						
108	585	16.29	785	1.95	X	**K**	**29**	**(E)DRN**	**80M4**	41	631
130	480	13.47	750	2.4	X	**KF**	**29**	**(E)DRN**	**80M4**	44	635
147	425	11.94	730	2.7	X	**KA**	**29**	**(E)DRN**	**80M4**	40	637
177	355	9.90	720	2.7	X	**KAF**	**29**	**(E)DRN**	**80M4**	42	635
191	330	9.17	685	3.5	X						
205	305	8.53	690	3.5	X						
234	265	7.48	645	4.0	X						
252	250	6.95	650	4.0	X						
258	240	13.47	630	4.7							
291	215	11.94	610	5.3							
351	179	9.90	590	5.4		**K**	**29**	**DRN**	**80MS2**	41	631
379	166	9.17	565	6.9		**KF**	**29**	**DRN**	**80MS2**	44	635
407	155	8.53	560	7.0		**KA**	**29**	**DRN**	**80MS2**	40	637
465	136	7.48	530	8.0		**KAF**	**29**	**DRN**	**80MS2**	42	635
500	126	6.95	530	7.9							
604	104	5.75	500	9.5							

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
94	665	18.55	715	1.05	X						
111	570	15.84	695	1.25	X						
119	525	14.69	685	1.35	X						
138	455	12.70	665	1.55	X						
148	425	11.84	655	1.65	X	**K**	**19**	**(E)DRN**	**80M4**	37	625
170	370	10.32	635	1.80	X	**KF**	**19**	**(E)DRN**	**80M4**	38	628
216	290	8.09	615	2.4	X	**KA**	**19**	**(E)DRN**	**80M4**	36	630
253	245	6.91	590	2.9	X	**KAF**	**19**	**(E)DRN**	**80M4**	37	628
273	230	6.41	575	3.1	X						
316	199	5.54	555	3.5	X						
339	186	5.16	540	3.8	X						
389	162	4.50	520	4.4	X						
363	174	9.58	530	3.2							
430	147	8.09	505	4.8							
503	125	6.91	480	5.7		**K**	**19**	**DRN**	**80MS2**	37	625
543	116	6.41	470	6.1		**KF**	**19**	**DRN**	**80MS2**	38	628
627	100	5.54	450	7.0		**KA**	**19**	**DRN**	**80MS2**	36	630
673	94	5.16	440	7.6		**KAF**	**19**	**DRN**	**80MS2**	37	628
772	82	4.50	425	8.7							

P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.19	457150	9363	42710	1.05	X						
0.22	396750	8126	42710	1.20	X						
0.24	358520	7343	42710	1.30	X						
0.26	329420	6747	42710	1.40	X	**K**	**187R97**	**(E)DRN**	**90S4**	3920	725/728
0.29	292510	5991	42710	1.6	X	**KH**	**187R97**	**(E)DRN**	**90S4**	3770	726/728
0.33	261600	5358	42710	1.8	X						
0.37	235190	4817	42710	2.0	X						
0.40	213360	4370	42710	2.2	X						
0.49	179110	3609	42710	2.6	X	**K**	**187R97**	**(E)DRN**	**90S4**	3910	725/728
						KH	**187R97**	**(E)DRN**	**90S4**	3760	726/728
0.33	261460	5355	33720	1.20	X						
0.37	233770	4788	33720	1.35	X						
0.43	199160	4079	33720	1.6	X						
0.52	164830	3376	33720	1.9	X						
0.64	134510	2755	33720	2.3	X	**K**	**167R97**	**(E)DRN**	**90S4**	2630	710/728
0.81	108290	2182	33720	2.9	X	**KH**	**167R97**	**(E)DRN**	**90S4**	2550	724/728
1.0	84570	1704	33720	3.7	X						
1.3	69880	1408	33720	4.4	X						
1.4	64320	1296	33720	4.8	X						
0.50	171670	3516	25280	1.05	X						
0.58	148960	3051	25470	1.20	X						
0.68	127430	2610	25720	1.40	X						
0.76	113370	2322	25830	1.6	X	**K**	**157R97**	**(E)DRN**	**90S4**	1760	715/728
1.1	82340	1659	25990	2.2	X	**KF**	**157R97**	**(E)DRN**	**90S4**	1940	716/728
1.3	67740	1365	26070	2.6	X	**KA**	**157R97**	**(E)DRN**	**90S4**	1680	718/728
1.4	60990	1229	26100	2.9	X	**KAF**	**157R97**	**(E)DRN**	**90S4**	1810	716/728
1.6	54250	1093	26130	3.3	X						
1.9	46750	942	26150	3.8	X						
2.1	42380	854	26170	4.2	X						

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P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.78	105900	2268	17900	1.10	X						
0.91	93400	1926	18100	1.25	X						
1.0	85200	1757	18200	1.35	X						
1.1	74400	1541	18300	1.55	X						
1.3	65000	1342	18400	1.75	X						
1.5	56800	1177	18400	2.0	X	**K**	**127R77**	**(E)DRN**	**90S4**	1060	707/728
1.7	49700	1025	18500	2.3	X	**KF**	**127R77**	**(E)DRN**	**90S4**	1160	708/728
2.0	43400	899	18500	2.6	X	**KA**	**127R77**	**(E)DRN**	**90S4**	1000	710/728
2.2	37100	790	18500	3.1	X	**KAF**	**127R77**	**(E)DRN**	**90S4**	1080	708/728
2.5	33800	704	18500	3.4	X						
2.9	29000	610	18600	4.0	X						
3.2	26200	549	18600	4.4	X						
3.7	22400	477	18600	5.1	X						
1.3	65000	1336	14600	1.10	X						
1.5	56700	1166	14600	1.25	X						
1.7	49200	1030	14600	1.45	X						
1.9	42900	904	14600	1.65	X						
2.2	38400	793	14600	1.85	X	**K**	**107R77**	**(E)DRN**	**90S4**	710	699/727
2.5	33600	696	14600	2.1	X	**KF**	**107R77**	**(E)DRN**	**90S4**	740	700/727
2.9	29200	615	14600	2.4	X	**KA**	**107R77**	**(E)DRN**	**90S4**	650	702/727
3.4	24800	522	14600	2.9	X	**KAF**	**107R77**	**(E)DRN**	**90S4**	700	700/727
3.8	21700	461	14600	3.2	X						
4.3	19100	408	14600	3.7	X						
4.8	17400	364	14600	4.1	X						
5.5	15200	318	14600	4.6	X						
2.4	35900	743	8990	1.05	X						
2.7	31600	652	8990	1.20	X						
3.1	28300	573	8990	1.35	X	**K**	**97R57**	**(E)DRN**	**90S4**	425	691/727
3.5	24300	504	8990	1.55	X	**KF**	**97R57**	**(E)DRN**	**90S4**	470	692/727
4.0	21000	437	8990	1.80	X	**KA**	**97R57**	**(E)DRN**	**90S4**	385	694/727
4.6	18600	382	8990	2.0	X	**KAF**	**97R57**	**(E)DRN**	**90S4**	440	692/727
5.2	16300	342	8990	2.3	X						
5.8	15000	305	8990	2.5	X						
3.7	23000	474	6160	1.05	X						
4.1	20700	426	6230	1.15	X						
4.7	18200	373	6290	1.30	X						
5.3	15900	330	6340	1.50	X	**K**	**87R57**	**(E)DRN**	**90S4**	290	683/727
6.0	14200	294	6380	1.70	X	**KF**	**87R57**	**(E)DRN**	**90S4**	310	684/727
7.0	12300	250	6420	1.95	X	**KA**	**87R57**	**(E)DRN**	**90S4**	265	686/727
7.5	11600	236	6430	2.1	X	**KAF**	**87R57**	**(E)DRN**	**90S4**	295	684/727
8.8	9840	201	6450	2.4	X						
9.6	8920	183	6470	2.7	X						
7.0	12300	252	3680	1.10	X						
8.0	10800	221	3890	1.25	X	**K**	**77R37**	**(E)DRN**	**90S4**	185	675/727
9.0	9550	195	4040	1.45	X	**KF**	**77R37**	**(E)DRN**	**90S4**	200	676/727
10	8500	175	4150	1.60	X	**KA**	**77R37**	**(E)DRN**	**90S4**	170	678/727
11	7500	154	4230	1.85	X	**KAF**	**77R37**	**(E)DRN**	**90S4**	185	676/727
						K	**67R37**	**(E)DRN**	**90S4**	130	667/727
12	7120	144	2350	1.00	X	**KF**	**67R37**	**(E)DRN**	**90S4**	145	668/727
14	6030	122	2560	1.20	X	**KA**	**67R37**	**(E)DRN**	**90S4**	125	670/727
						KAF	**67R37**	**(E)DRN**	**90S4**	135	668/727
7.7	12200	153.21*	8990	3.1		**K**	**97**	**DRN**	**112M6**	425	691
8.4	11200	140.28	8990	3.4		**KF**	**97**	**DRN**	**112M6**	470	692
9.6	9900	123.93*	8990	3.8		**KA**	**97**	**DRN**	**112M6**	385	694
						KAF	**97**	**DRN**	**112M6**	440	692
10	9440	176.05*	8990	4.0	X	**K**	**97**	**(E)DRN**	**90S4**	370	691
12	8210	153.21*	8990	4.6	X	**KF**	**97**	**(E)DRN**	**90S4**	415	692
13	7520	140.28	8990	5.1	X	**KA**	**97**	**(E)DRN**	**90S4**	330	694
						KAF	**97**	**(E)DRN**	**90S4**	385	692
						K	**87**	**DRN**	**112M6**	295	683
9.3	10100	126.91*	6450	2.4		**KF**	**87**	**DRN**	**112M6**	315	684
						KA	**87**	**DRN**	**112M6**	265	686
						KAF	**87**	**DRN**	**112M6**	295	684

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P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
8.9	10500	197.37	6440	2.3	X						
10	9340	174.19	6460	2.6	X	**K**	**87**	**(E)DRN**	**90S4**	240	683
11	8810	164.34*	6470	2.7	X	**KF**	**87**	**(E)DRN**	**90S4**	260	684
12	7900	147.32*	6480	3.0	X	**KA**	**87**	**(E)DRN**	**90S4**	215	686
14	6800	126.91*	6490	3.5	X	**KAF**	**87**	**(E)DRN**	**90S4**	245	684
15	6210	115.82	6500	3.9	X						
12	7750	97.05	4210	1.75		**K**	**77**	**DRN**	**112M6**	215	675
						KF	**77**	**DRN**	**112M6**	230	676
						KA	**77**	**DRN**	**112M6**	200	678
						KAF	**77**	**DRN**	**112M6**	215	676
11	8260	154.02	4170	1.65	X						
13	7250	135.28	4250	1.90	X						
14	6890	128.52	4280	2.0	X	**K**	**77**	**(E)DRN**	**90S4**	160	675
16	6090	113.56	4340	2.2	X	**KF**	**77**	**(E)DRN**	**90S4**	180	676
18	5200	97.05	4390	2.6	X	**KA**	**77**	**(E)DRN**	**90S4**	145	678
20	4770	88.97	4410	2.9	X	**KAF**	**77**	**(E)DRN**	**90S4**	165	676
23	4180	78.07	4440	3.3	X						
24	3960	73.99	4450	3.5	X						
14	6620	123.54	2450	1.10	X						
16	5790	108.03	2600	1.25	X						
17	5500	102.62	2640	1.30	X						
20	4820	90.04	2740	1.50	X						
23	4090	76.37	2820	1.75	X	**K**	**67**	**(E)DRN**	**90S4**	110	667
26	3690	68.95	2860	1.95	X	**KF**	**67**	**(E)DRN**	**90S4**	120	668
29	3250	60.66	2900	2.2	X	**KA**	**67**	**(E)DRN**	**90S4**	100	670
31	3070	57.28	2920	2.4	X	**KAF**	**67**	**(E)DRN**	**90S4**	115	668
36	2610	48.77	2920	2.8	X						
40	2370	44.32	2920	3.0	X						
46	2050	38.39	2920	3.4	X						
20	4840	90.26*	1810	1.10	X						
23	4100	76.56*	1930	1.30	X						
25	3700	69.12	1980	1.45	X						
29	3260	60.81*	2030	1.65	X						
31	3070	57.42*	2040	1.70	X						
36	2620	48.89	2090	2.0	X						
40	2380	44.43	2110	2.2	X						
46	2060	38.49	2140	2.6	X						
49	1910	35.70	2150	2.8	X						
58	1620	30.28	2070	3.3	X						
64	1460	27.34	2020	3.6	X	**K**	**57**	**(E)DRN**	**90S4**	95	660
73	1290	24.05	1950	4.1	X	**KF**	**57**	**(E)DRN**	**90S4**	105	661
78	1210	22.71	1920	4.4	X	**KA**	**57**	**(E)DRN**	**90S4**	90	662
91	1030	19.34	1840	4.9	X	**KAF**	**57**	**(E)DRN**	**90S4**	105	661
100	940	17.57	1790	5.2	X						
116	810	15.22	1720	5.8	X						
133	710	13.25	1660	6.3	X						
148	635	11.92	1590	5.7	X						
157	600	11.26	1570	6.1	X						
184	510	9.59	1500	7.0	X						
202	465	8.71	1460	7.4	X						
234	400	7.55	1390	8.0	X						
268	350	6.57	1340	8.7	X						
376	250	4.69	1210	11	X						
29	3230	60.27	2020	1.35	X						
33	2830	52.94	2020	1.55	X						
35	2690	50.29	2000	1.65	X						
40	2380	44.44	1960	1.85	X						
46	2030	37.98	1900	2.2	X	**K**	**49**	**(E)DRN**	**90S4**	105	656
51	1860	34.81	1860	2.4	X	**KF**	**49**	**(E)DRN**	**90S4**	110	657
58	1630	30.55	1810	2.7	X	**KA**	**49**	**(E)DRN**	**90S4**	100	658
61	1550	28.95	1790	2.9	X	**KAF**	**49**	**(E)DRN**	**90S4**	110	657
70	1350	25.34	1740	3.3	X						
77	1220	22.83	1690	3.6	X						
88	1070	20.03	1640	4.1	X						

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P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
28	3390	63.30*	1380	1.05	X						
31	3040	56.83	1490	1.15	X						
36	2620	48.95*	1590	1.35	X						
38	2460	46.03*	1590	1.45	X						
44	2120	39.61	1560	1.65	X	**K**	**47**	**(E)DRN**	**90S4**	82	649
50	1890	35.39	1530	1.85	X	**KF**	**47**	**(E)DRN**	**90S4**	89	650
56	1670	31.30	1500	2.1	X	**KA**	**47**	**(E)DRN**	**90S4**	80	651
60	1570	29.32	1480	2.2	X	**KAF**	**47**	**(E)DRN**	**90S4**	86	650
68	1380	25.91	1440	2.5	X						
73	1290	24.06	1420	2.7	X						
81	1160	21.81	1390	3.0	X						
90	1050	19.58	1350	3.4	X						
35	2660	49.69	1500	1.00	X						
41	2330	43.45	1490	1.15	X						
43	2210	41.28	1480	1.20	X						
49	1940	36.22	1450	1.35	X						
57	1640	30.72	1420	1.60	X						
64	1480	27.73	1390	1.80	X						
72	1300	24.40	1360	2.0	X	**K**	**39**	**(E)DRN**	**90S4**	79	645
76	1230	23.04	1340	2.1	X	**KF**	**39**	**(E)DRN**	**90S4**	83	646
90	1050	19.62	1300	2.5	X	**KA**	**39**	**(E)DRN**	**90S4**	77	647
99	950	17.83	1270	2.7	X	**KAF**	**39**	**(E)DRN**	**90S4**	81	646
114	820	15.44	1230	3.0	X						
131	720	13.44	1190	3.3	X						
138	680	12.73	1230	3.2	X						
146	645	12.09	1210	3.5	X						
166	565	10.61	1160	4.4	X						
59	1600	29.96	765	1.10	X						
61	1540	28.83	765	1.15	X						
71	1340	24.99	760	1.30	X						
75	1250	23.36	760	1.40	X						
87	1080	20.19	745	1.50	X						
103	920	17.15	730	1.75	X						
115	820	15.31	720	1.90	X	**K**	**37**	**(E)DRN**	**90S4**	67	638
135	700	13.08	700	2.1	X	**KF**	**37**	**(E)DRN**	**90S4**	72	639
145	650	12.14	690	2.2	X	**KA**	**37**	**(E)DRN**	**90S4**	66	640
168	560	10.49	675	2.5	X	**KAF**	**37**	**(E)DRN**	**90S4**	70	639
198	475	8.91	650	3.0	X						
221	425	7.96	635	3.2	X						
259	360	6.80	610	3.6	X						
277	340	6.37	600	3.8	X						
329	285	5.36	575	4.3	X						
443	210	3.98	530	5.2	X						
88	1070	19.99	735	1.05	X						
108	870	16.29	715	1.30	X						
131	720	13.47	695	1.60	X						
148	640	11.94	680	1.80	X						
178	530	9.90	685	1.85	X	**K**	**29**	**(E)DRN**	**90S4**	54	631
192	490	9.17	645	2.3	X	**KF**	**29**	**(E)DRN**	**90S4**	57	635
206	455	8.53	660	2.4	X	**KA**	**29**	**(E)DRN**	**90S4**	53	637
236	400	7.48	615	2.7	X	**KAF**	**29**	**(E)DRN**	**90S4**	55	635
253	370	6.95	625	2.7	X						
306	305	5.75	595	3.2	X						
346	270	5.10	575	3.6	X						

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P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
352	265	9.90	575	3.6							
380	245	9.17	545	4.6							
408	230	8.53	550	4.7		**K**	**29**	**DRN**	**80M2**	41	631
466	200	7.48	515	5.4		**KF**	**29**	**DRN**	**80M2**	44	635
501	189	6.95	520	5.3		**KA**	**29**	**DRN**	**80M2**	40	637
606	156	5.75	490	6.3		**KAF**	**29**	**DRN**	**80M2**	42	635
684	138	5.10	470	7.0							
139	680	12.70	600	1.05	X						
149	635	11.84	595	1.10	X						
171	550	10.32	585	1.20	X						
218	430	8.09	585	1.65	X	**K**	**19**	**(E)DRN**	**90S4**	50	625
255	370	6.91	560	1.90	X	**KF**	**19**	**(E)DRN**	**90S4**	51	628
275	340	6.41	550	2.1	X	**KA**	**19**	**(E)DRN**	**90S4**	49	630
318	295	5.54	530	2.4	X	**KAF**	**19**	**(E)DRN**	**90S4**	50	628
341	275	5.16	520	2.6	X						
392	240	4.50	505	2.9	X						
431	215	8.09	490	3.2							
504	187	6.91	470	3.8		**K**	**19**	**DRN**	**80M2**	37	625
544	174	6.41	460	4.1		**KF**	**19**	**DRN**	**80M2**	38	628
629	150	5.54	440	4.7		**KA**	**19**	**DRN**	**80M2**	36	630
675	140	5.16	430	5.1		**KAF**	**19**	**DRN**	**80M2**	37	628
774	122	4.50	415	5.8							

P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.26	437980	6747	42710	1.05	X						
0.29	388910	5991	42710	1.20	X						
0.33	347820	5358	42710	1.35	X						
0.37	312700	4817	42710	1.5	X	**K**	**187R97**	**(E)DRN**	**90L4**	3920	725/728
0.40	283680	4370	42710	1.7	X	**KH**	**187R97**	**(E)DRN**	**90L4**	3780	726/728
0.49	238140	3609	42710	2.0	X						
0.58	202050	3062	42710	2.3	X						
0.70	166220	2519	42710	2.8	X						
0.78	149650	2268	42710	3.1	X						
0.37	309750	4788	33720	1.00	X						
0.43	264790	4079	33720	1.15	X						
0.52	219150	3376	33720	1.40	X						
0.64	178840	2755	33720	1.8	X	**K**	**167R97**	**(E)DRN**	**90L4**	2640	710/728
0.81	143980	2182	33720	2.2	X	**KH**	**167R97**	**(E)DRN**	**90L4**	2560	724/728
1.0	112440	1704	33720	2.8	X						
1.3	92910	1408	33720	3.3	X						
1.4	85520	1296	33720	3.6	X						
0.68	169430	2610	25230	1.05	X						
0.76	150730	2322	25440	1.15	X						
1.1	109470	1659	25790	1.6	X						
1.3	90070	1365	25930	2.0	X	**K**	**157R97**	**(E)DRN**	**90L4**	1760	715/728
1.4	81100	1229	25990	2.2	X	**KF**	**157R97**	**(E)DRN**	**90L4**	1940	716/728
1.6	72120	1093	26040	2.5	X	**KA**	**157R97**	**(E)DRN**	**90L4**	1680	718/728
1.9	62160	942	26090	2.9	X	**KAF**	**157R97**	**(E)DRN**	**90L4**	1810	716/728
2.1	56350	854	26110	3.1	X						
3.1	37410	567	26170	4.7	X						
3.5	33260	504	26180	5.3	X						
3.3	33200	536	18500	3.5	X	**K**	**127R87**	**(E)DRN**	**90L4**	1120	707/728
4.2	26100	418	18600	4.4	X	**KF**	**127R87**	**(E)DRN**	**90L4**	1210	708/728
4.8	23100	367	18600	5.0	X	**KA**	**127R87**	**(E)DRN**	**90L4**	1050	710/728
						KAF	**127R87**	**(E)DRN**	**90L4**	1140	708/728

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P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.0	114200	1757	17800	1.00	X						
1.1	99900	1541	18000	1.15	X						
1.3	87200	1342	18100	1.30	X						
1.5	76300	1177	18300	1.50	X						
1.7	66600	1025	18300	1.75	X	**K**	**127R77**	**(E)DRN**	**90L4**	1070	707/728
2.0	58200	899	18400	1.95	X	**KF**	**127R77**	**(E)DRN**	**90L4**	1160	708/728
2.2	50200	790	18500	2.3	X	**KA**	**127R77**	**(E)DRN**	**90L4**	1010	710/728
2.5	45400	704	18500	2.5	X	**KAF**	**127R77**	**(E)DRN**	**90L4**	1090	708/728
2.9	39100	610	18500	2.9	X						
3.2	35300	549	18500	3.3	X						
3.7	30300	477	18600	3.8	X						
4.2	26900	418	18600	4.3	X						
1.7	66200	1030	14600	1.05	X						
2.0	57800	904	14600	1.20	X						
2.2	51500	793	14600	1.35	X						
2.5	45000	696	14600	1.55	X	**K**	**107R77**	**(E)DRN**	**90L4**	720	699/727
2.9	39400	615	14600	1.80	X	**KF**	**107R77**	**(E)DRN**	**90L4**	740	700/727
3.4	33400	522	14600	2.1	X	**KA**	**107R77**	**(E)DRN**	**90L4**	660	702/727
3.8	29300	461	14600	2.4	X	**KAF**	**107R77**	**(E)DRN**	**90L4**	710	700/727
4.3	25900	408	14600	2.7	X						
4.9	23400	364	14600	3.0	X						
5.6	20500	318	14600	3.5	X						
3.1	37900	573	8990	1.00	X						
3.5	32600	504	8990	1.15	X						
4.0	28200	437	8990	1.35	X						
4.6	24900	382	8990	1.55	X	**K**	**97R57**	**(E)DRN**	**90L4**	435	691/727
5.2	22000	342	8990	1.75	X	**KF**	**97R57**	**(E)DRN**	**90L4**	475	692/727
5.8	20100	305	8990	1.90	X	**KA**	**97R57**	**(E)DRN**	**90L4**	395	694/727
6.9	16900	258	8990	2.2	X	**KAF**	**97R57**	**(E)DRN**	**90L4**	445	692/727
7.6	15200	232	8990	2.5	X						
8.9	13000	199	8990	2.9	X						
5.4	21300	330	6210	1.10	X						
6.0	19100	294	6270	1.25	X						
7.1	16400	250	6330	1.45	X	**K**	**87R57**	**(E)DRN**	**90L4**	300	683/727
7.5	15500	236	6350	1.55	X	**KF**	**87R57**	**(E)DRN**	**90L4**	320	684/727
8.8	13100	201	6400	1.80	X	**KA**	**87R57**	**(E)DRN**	**90L4**	270	686/727
9.7	11900	183	6420	2.0	X	**KAF**	**87R57**	**(E)DRN**	**90L4**	300	684/727
11	10300	159	6450	2.3	X						
13	9170	141	6460	2.5	X						
						K	**77R37**	**(E)DRN**	**90L4**	190	675/727
9.1	12700	195	3620	1.05	X	**KF**	**77R37**	**(E)DRN**	**90L4**	210	676/727
10	11300	175	3820	1.20	X	**KA**	**77R37**	**(E)DRN**	**90L4**	175	678/727
11	10000	154	3990	1.35	X	**KAF**	**77R37**	**(E)DRN**	**90L4**	190	676/727
						K	**97**	**DRN**	**112M6**	425	691
7.7	16300	153.21*	8990	2.3		**KF**	**97**	**DRN**	**112M6**	470	692
8.4	14900	140.28	8990	2.5		**KA**	**97**	**DRN**	**112M6**	385	694
9.5	13200	123.93*	8990	2.9		**KAF**	**97**	**DRN**	**112M6**	440	692
10	12500	176.05*	8990	3.0	X	**K**	**97**	**(E)DRN**	**90L4**	380	691
12	10900	153.21*	8990	3.5	X	**KF**	**97**	**(E)DRN**	**90L4**	425	692
13	10000	140.28	8990	3.8	X	**KA**	**97**	**(E)DRN**	**90L4**	340	694
14	8830	123.93*	8990	4.3	X	**KAF**	**97**	**(E)DRN**	**90L4**	395	692
						K	**87**	**DRN**	**112M6**	295	683
9.3	13500	126.91*	6390	1.75		**KF**	**87**	**DRN**	**112M6**	315	684
10	12300	115.82	6410	1.95		**KA**	**87**	**DRN**	**112M6**	265	686
12	10900	102.71*	6440	2.2		**KAF**	**87**	**DRN**	**112M6**	295	684
10	12400	174.19	6410	1.90	X						
11	11700	164.34*	6420	2.0	X						
12	10500	147.32*	6440	2.3	X	**K**	**87**	**(E)DRN**	**90L4**	250	683
14	9050	126.91*	6460	2.6	X	**KF**	**87**	**(E)DRN**	**90L4**	270	684
15	8250	115.82	6480	2.9	X	**KA**	**87**	**(E)DRN**	**90L4**	220	686
17	7320	102.71*	6490	3.3	X	**KAF**	**87**	**(E)DRN**	**90L4**	250	684
20	6150	86.34	6500	3.9	X						
						K	**77**	**DRN**	**112M6**	215	675
12	10300	97.05	3950	1.30		**KF**	**77**	**DRN**	**112M6**	230	676
13	9490	88.97	4050	1.45		**KA**	**77**	**DRN**	**112M6**	200	678
15	8330	78.07	4160	1.65		**KAF**	**77**	**DRN**	**112M6**	215	676

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P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
13	9640	135.28	4030	1.40	X						
14	9160	128.52	4080	1.50	X						
16	8090	113.56	4180	1.70	X						
18	6920	97.05	4280	2.0	X						
20	6340	88.97	4320	2.2	X	**K**	**77**	**(E)DRN**	**90L4**	170	675
23	5560	78.07	4370	2.5	X	**KF**	**77**	**(E)DRN**	**90L4**	185	676
24	5270	73.99	4380	2.6	X	**KA**	**77**	**(E)DRN**	**90L4**	150	678
27	4610	64.75	4420	3.0	X	**KAF**	**77**	**(E)DRN**	**90L4**	170	676
30	4160	58.34	4440	3.3	X						
35	3640	51.18	4460	3.8	X						
39	3220	45.16	4470	4.3	X						
44	2850	40.04	4480	4.8	X						
20	6420	90.04	2490	1.15	X						
23	5440	76.37	2650	1.35	X						
26	4910	68.95	2730	1.50	X						
29	4320	60.66	2800	1.70	X						
31	4080	57.28	2830	1.80	X	**K**	**67**	**(E)DRN**	**90L4**	115	667
36	3470	48.77	2880	2.1	X	**KF**	**67**	**(E)DRN**	**90L4**	125	668
40	3160	44.32	2910	2.3	X	**KA**	**67**	**(E)DRN**	**90L4**	110	670
46	2730	38.39	2920	2.6	X	**KAF**	**67**	**(E)DRN**	**90L4**	120	668
50	2530	35.62	2920	2.9	X						
58	2150	30.22	2920	3.4	X						
65	1940	27.28	2920	3.7	X						
74	1710	24.00	2920	4.1	X						
26	4920	69.12	1790	1.10	X						
29	4330	60.81*	1900	1.20	X						
31	4090	57.42*	1930	1.30	X						
36	3480	48.89	2000	1.50	X						
40	3160	44.43	2040	1.70	X	**K**	**57**	**(E)DRN**	**90L4**	100	660
46	2740	38.49	2070	1.95	X	**KF**	**57**	**(E)DRN**	**90L4**	110	661
49	2540	35.70	2040	2.1	X	**KA**	**57**	**(E)DRN**	**90L4**	97	662
58	2150	30.28	1980	2.5	X	**KAF**	**57**	**(E)DRN**	**90L4**	110	661
65	1940	27.34	1930	2.7	X						
73	1710	24.05	1880	3.1	X						
78	1610	22.71	1850	3.3	X						
91	1370	19.34	1780	3.7	X						
33	3770	52.94	1840	1.15	X						
35	3580	50.29	1840	1.25	X						
40	3160	44.44	1810	1.40	X						
47	2700	37.98	1770	1.65	X						
51	2480	34.81	1750	1.80	X						
58	2170	30.55	1710	2.0	X	**K**	**49**	**(E)DRN**	**90L4**	115	656
61	2060	28.95	1700	2.1	X	**KF**	**49**	**(E)DRN**	**90L4**	115	657
70	1800	25.34	1650	2.5	X	**KA**	**49**	**(E)DRN**	**90L4**	105	658
77	1620	22.83	1620	2.7	X	**KAF**	**49**	**(E)DRN**	**90L4**	120	657
88	1420	20.03	1570	3.1	X						
100	1260	17.67	1530	3.5	X						
113	1110	15.67	1480	3.9	X						
132	950	13.38	1430	4.4	X						
38	3280	46.03*	1420	1.10	X						
45	2820	39.61	1420	1.25	X						
50	2520	35.39	1410	1.40	X						
56	2230	31.30	1390	1.60	X						
60	2090	29.32	1380	1.70	X						
68	1840	25.91	1350	1.90	X	**K**	**47**	**(E)DRN**	**90L4**	89	649
73	1710	24.06	1330	2.1	X	**KF**	**47**	**(E)DRN**	**90L4**	96	650
81	1550	21.81	1310	2.3	X	**KA**	**47**	**(E)DRN**	**90L4**	87	651
90	1390	19.58	1290	2.5	X	**KAF**	**47**	**(E)DRN**	**90L4**	93	650
105	1200	16.86	1250	2.8	X						
111	1130	15.86	1230	3.0	X						
129	970	13.65	1190	3.3	X						
145	860	12.19	1160	3.6	X						
150	830	11.77	1140	3.0	X						

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P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
49	2580	36.22	1310	1.05	X						
58	2190	30.72	1300	1.20	X						
64	1970	27.73	1280	1.35	X						
72	1740	24.40	1260	1.55	X						
77	1640	23.04	1250	1.60	X						
90	1390	19.62	1220	1.85	X	**K**	**39**	**(E)DRN**	**90L4**	86	645
99	1270	17.83	1200	2.0	X	**KF**	**39**	**(E)DRN**	**90L4**	90	646
114	1100	15.44	1170	2.2	X	**KA**	**39**	**(E)DRN**	**90L4**	84	647
131	950	13.44	1140	2.5	X	**KAF**	**39**	**(E)DRN**	**90L4**	87	646
139	900	12.73	1190	2.4	X						
146	860	12.09	1180	2.6	X						
167	755	10.61	1140	3.3	X						
196	640	9.00	1090	4.1	X						
217	575	8.12	1060	4.6	X						
76	1660	23.36	660	1.05	X						
88	1430	20.19	665	1.15	X						
103	1220	17.15	660	1.30	X						
115	1090	15.31	655	1.40	X						
135	930	13.08	645	1.55	X						
146	860	12.14	640	1.65	X	**K**	**37**	**(E)DRN**	**90L4**	74	638
168	745	10.49	630	1.90	X	**KF**	**37**	**(E)DRN**	**90L4**	79	639
198	635	8.91	615	2.2	X	**KA**	**37**	**(E)DRN**	**90L4**	73	640
222	565	7.96	600	2.4	X	**KAF**	**37**	**(E)DRN**	**90L4**	77	639
260	480	6.80	580	2.7	X						
278	450	6.37	575	2.8	X						
329	380	5.36	555	3.2	X						
444	280	3.98	515	3.9	X						
108	1160	16.29	650	1.00							
131	960	13.47	640	1.20	X						
148	850	11.94	630	1.35	X						
193	650	9.17	605	1.75	X						
207	605	8.53	635	1.75	X	**K**	**29**	**(E)DRN**	**90L4**	61	631
236	530	7.48	585	2.0	X	**KF**	**29**	**(E)DRN**	**90L4**	63	635
254	495	6.95	605	2.0	X	**KA**	**29**	**(E)DRN**	**90L4**	60	637
307	410	5.75	580	2.4	X	**KAF**	**29**	**(E)DRN**	**90L4**	62	635
347	360	5.10	560	2.7	X						
451	275	3.92	520	4.0	X						
554	225	3.19	495	4.3	X						
382	325	9.17	525	3.5							
411	305	8.53	535	3.5							
469	265	7.48	500	4.0		**K**	**29**	**DRN**	**90S2**	54	631
504	245	6.95	505	4.0		**KF**	**29**	**DRN**	**90S2**	57	635
610	205	5.75	480	4.8		**KA**	**29**	**DRN**	**90S2**	53	637
688	183	5.10	465	5.3		**KAF**	**29**	**DRN**	**90S2**	55	635
895	141	3.92	430	7.9							
1100	115	3.19	405	8.5							
189	665	18.55	530	1.05							
221	565	15.84	520	1.25							
239	525	14.69	515	1.35							
276	455	12.70	500	1.55							
296	425	11.84	495	1.65		**K**	**19**	**DRN**	**90S2**	50	625
340	370	10.32	480	1.80		**KF**	**19**	**DRN**	**90S2**	51	628
433	290	8.09	475	2.4		**KA**	**19**	**DRN**	**90S2**	49	630
507	245	6.91	455	2.9		**KAF**	**19**	**DRN**	**90S2**	50	628
547	230	6.41	445	3.1							
633	199	5.54	430	3.5							
679	186	5.16	420	3.8							
779	162	4.50	405	4.4							

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P_m = 3.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.40	430890	4370	42710	1.10	X						
0.48	361720	3609	42710	1.30	X						
0.57	306890	3062	42710	1.6	X						
0.62	277860	2818	42710	1.7	X						
0.69	252470	2519	42710	1.9	X	**K**	**187R97**	**(E)DRN**	**100LM4**	3940	725/728
0.77	227310	2268	42710	2.1	X	**KH**	**187R97**	**(E)DRN**	**100LM4**	3790	726/728
0.85	205860	2054	42710	2.3	X						
0.96	182510	1821	42710	2.6	X						
1.1	160860	1605	42710	2.9	X						
0.63	271640	2755	33720	1.15	X	**K**	**167R97**	**(E)DRN**	**100LM4**	2670	710/728
0.77	223130	2263	33720	1.40	X	**KH**	**167R97**	**(E)DRN**	**100LM4**	2580	724/728
0.80	218690	2182	33720	1.40	X						
1.0	170790	1704	33720	1.8	X						
1.2	141120	1408	33720	2.2	X	**K**	**167R97**	**(E)DRN**	**100LM4**	2660	710/728
1.4	129890	1296	33720	2.4	X	**KH**	**167R97**	**(E)DRN**	**100LM4**	2570	724/728
1.6	110350	1101	33720	2.8	X						
1.9	94610	944	33720	3.3	X						
0.97	177000	1805	25150	1.00	X						
1.1	166270	1659	25220	1.05	X						
1.3	136810	1365	25560	1.30	X						
1.4	123180	1229	25690	1.5	X	**K**	**157R97**	**(E)DRN**	**100LM4**	1790	715/728
1.6	109550	1093	25800	1.6	X	**KF**	**157R97**	**(E)DRN**	**100LM4**	1960	716/728
1.9	94410	942	25910	1.9	X	**KA**	**157R97**	**(E)DRN**	**100LM4**	1710	718/728
2.0	85590	854	25970	2.1	X	**KAF**	**157R97**	**(E)DRN**	**100LM4**	1840	716/728
2.3	75770	756	26040	2.3	X						
3.1	56830	567	26110	3.1	X						
3.3	51100	536	18500	2.2	X						
3.7	44600	473	18500	2.6	X	**K**	**127R87**	**(E)DRN**	**100LM4**	1140	707/728
4.2	40300	418	18500	2.9	X	**KF**	**127R87**	**(E)DRN**	**100LM4**	1230	708/728
4.8	35400	367	18500	3.2	X	**KA**	**127R87**	**(E)DRN**	**100LM4**	1080	710/728
5.3	31700	330	18600	3.6	X	**KAF**	**127R87**	**(E)DRN**	**100LM4**	1160	708/728
1.7	101000	1025	18000	1.15	X						
2.0	88400	899	18100	1.30	X						
2.2	76700	790	18200	1.50	X	**K**	**127R77**	**(E)DRN**	**100LM4**	1100	707/728
2.5	69000	704	18300	1.65	X	**KF**	**127R77**	**(E)DRN**	**100LM4**	1190	708/728
2.9	59600	610	18400	1.95	X	**KA**	**127R77**	**(E)DRN**	**100LM4**	1030	710/728
3.2	53700	549	18400	2.1	X	**KAF**	**127R77**	**(E)DRN**	**100LM4**	1120	708/728
3.7	46300	477	18500	2.5	X						
4.2	40900	418	18500	2.8	X						
2.5	68400	696	14600	1.05	X						
2.9	60000	615	14600	1.20	X						
3.4	50900	522	14600	1.40	X						
3.8	44800	461	14600	1.60	X	**K**	**107R77**	**(E)DRN**	**100LM4**	740	699/727
4.3	39600	408	14600	1.80	X	**KF**	**107R77**	**(E)DRN**	**100LM4**	770	700/727
4.8	35600	364	14600	2.0	X	**KA**	**107R77**	**(E)DRN**	**100LM4**	680	702/727
5.5	31100	318	14600	2.3	X	**KAF**	**107R77**	**(E)DRN**	**100LM4**	730	700/727
6.2	28000	286	14600	2.5	X						
7.0	24500	251	14600	2.9	X						
4.6	37700	382	8990	1.00	X						
5.2	33500	342	8990	1.15	X	**K**	**97R57**	**(E)DRN**	**100LM4**	455	691/727
5.8	30400	305	8990	1.25	X	**KF**	**97R57**	**(E)DRN**	**100LM4**	500	692/727
6.8	25600	258	8990	1.50	X	**KA**	**97R57**	**(E)DRN**	**100LM4**	415	694/727
7.6	23100	232	8990	1.65	X	**KAF**	**97R57**	**(E)DRN**	**100LM4**	470	692/727
8.8	19800	199	8990	1.90	X						
7.5	23500	236	6140	1.00	X						
8.8	20000	201	6250	1.20	X	**K**	**87R57**	**(E)DRN**	**100LM4**	325	683/727
9.6	18100	183	6290	1.30	X	**KF**	**87R57**	**(E)DRN**	**100LM4**	345	684/727
11	15700	159	6350	1.50	X	**KA**	**87R57**	**(E)DRN**	**100LM4**	295	686/727
13	13900	141	6380	1.65	X	**KAF**	**87R57**	**(E)DRN**	**100LM4**	325	684/727
						K	**97**	**DRN**	**132S6**	450	691
9.5	19800	123.93*	8990	1.90		**KF**	**97**	**DRN**	**132S6**	495	692
11	16800	105.13	8990	2.3		**KA**	**97**	**DRN**	**132S6**	410	694
						KAF	**97**	**DRN**	**132S6**	465	692

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P_m = 3.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
10	18800	176.05*	8990	2.0	X						
12	16400	153.21*	8990	2.3	X	**K**	**97**	**(E)DRN**	**100LM4**	405	691
13	15000	140.28	8990	2.5	X	**KF**	**97**	**(E)DRN**	**100LM4**	450	692
14	13200	123.93*	8990	2.9	X	**KA**	**97**	**(E)DRN**	**100LM4**	365	694
17	11200	105.13	8990	3.4	X	**KAF**	**97**	**(E)DRN**	**100LM4**	420	692
18	10300	96.80	8990	3.7	X						
12	15800	147.32*	6350	1.50	X						
14	13600	126.91*	6390	1.75	X						
15	12400	115.82	6410	1.90	X	**K**	**87**	**(E)DRN**	**100LM4**	275	683
17	11000	102.71*	6440	2.2	X	**KF**	**87**	**(E)DRN**	**100LM4**	295	684
20	9260	86.34	6460	2.6	X	**KA**	**87**	**(E)DRN**	**100LM4**	245	686
22	8510	79.34	6470	2.8	X	**KAF**	**87**	**(E)DRN**	**100LM4**	275	684
25	7550	70.46	6480	3.2	X						
28	6750	63.00*	6490	3.5	X						
16	12100	113.56	3710	1.15	X						
18	10400	97.05	3940	1.30	X						
20	9540	88.97	4040	1.45	X						
23	8370	78.07	4160	1.65	X						
24	7930	73.99	4200	1.75	X						
27	6940	64.75	4280	1.95	X	**K**	**77**	**(E)DRN**	**100LM4**	195	675
30	6250	58.34	4320	2.2	X	**KF**	**77**	**(E)DRN**	**100LM4**	210	676
34	5490	51.18	4370	2.5	X	**KA**	**77**	**(E)DRN**	**100LM4**	175	678
39	4840	45.16	4410	2.8	X	**KAF**	**77**	**(E)DRN**	**100LM4**	195	676
44	4290	40.04	4430	3.2	X						
50	3770	35.20	4450	3.6	X						
57	3310	30.89	4470	4.1	X						
60	3130	29.27	4480	4.4	X						
69	2740	25.62	4490	5.0	X						
29	6500	60.66	2470	1.10	X						
31	6140	57.28	2540	1.20	X						
36	5230	48.77	2680	1.40	X						
40	4750	44.32	2750	1.55	X						
46	4110	38.39	2820	1.70	X						
49	3820	35.62	2850	1.90	X						
58	3240	30.22	2900	2.2	X						
65	2920	27.28	2920	2.5	X						
73	2570	24.00	2920	2.8	X	**K**	**67**	**(E)DRN**	**100LM4**	140	667
78	2430	22.66	2920	2.8	X	**KF**	**67**	**(E)DRN**	**100LM4**	150	668
91	2060	19.30	2920	3.2	X	**KA**	**67**	**(E)DRN**	**100LM4**	135	670
101	1880	17.54	2920	3.5	X	**KAF**	**67**	**(E)DRN**	**100LM4**	145	668
116	1620	15.19	2920	3.8	X						
133	1410	13.22	2920	4.2	X						
141	1330	12.48	2920	3.5	X						
166	1140	10.63	2920	3.9	X						
182	1030	9.66	2910	4.1	X						
211	890	8.37	2800	4.3	X						
242	780	7.28	2700	4.8	X						
339	555	5.20	2460	5.5	X						
36	5240	48.89	1730	1.00	X						
40	4760	44.43	1830	1.10	X						
46	4120	38.49	1850	1.30	X						
49	3820	35.70	1830	1.40	X						
58	3240	30.28	1800	1.65	X						
64	2930	27.34	1770	1.80	X	**K**	**57**	**(E)DRN**	**100LM4**	125	660
73	2580	24.05	1740	2.1	X	**KF**	**57**	**(E)DRN**	**100LM4**	135	661
78	2430	22.71	1720	2.2	X	**KA**	**57**	**(E)DRN**	**100LM4**	120	662
91	2070	19.34	1670	2.5	X	**KAF**	**57**	**(E)DRN**	**100LM4**	135	661
100	1880	17.57	1640	2.6	X						
116	1630	15.22	1590	2.9	X						
133	1420	13.25	1540	3.2	X						
148	1270	11.92	1470	2.9	X						
157	1200	11.26	1450	3.0	X						

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P_m = 3.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
46	4070	37.98	1530	1.10	X						
51	3730	34.81	1520	1.20	X						
58	3270	30.55	1510	1.35	X						
61	3100	28.95	1510	1.40	X						
70	2710	25.34	1490	1.65	X						
77	2440	22.83	1470	1.80	X	**K**	**49**	**(E)DRN**	**100LM4**	140	656
88	2140	20.03	1440	2.1	X	**KF**	**49**	**(E)DRN**	**100LM4**	140	657
100	1890	17.67	1410	2.3	X	**KA**	**49**	**(E)DRN**	**100LM4**	130	658
112	1680	15.67	1380	2.6	X	**KAF**	**49**	**(E)DRN**	**100LM4**	145	657
132	1430	13.38	1340	2.9	X						
155	1210	11.37	1380	3.6	X						
169	1110	10.42	1340	3.8	X						
193	980	9.14	1300	4.5	X						
68	2770	25.91	1170	1.25	X						
81	2330	21.81	1160	1.50	X						
90	2100	19.58	1150	1.70	X						
104	1800	16.86	1130	1.85	X						
111	1700	15.86	1120	2.0	X	**K**	**47**	**(E)DRN**	**100LM4**	115	649
129	1460	13.65	1100	2.2	X	**KF**	**47**	**(E)DRN**	**100LM4**	120	650
145	1300	12.19	1080	2.4	X	**KA**	**47**	**(E)DRN**	**100LM4**	110	651
150	1260	11.77	1060	1.95	X	**KAF**	**47**	**(E)DRN**	**100LM4**	120	650
167	1130	10.56	1040	2.2	X						
194	970	9.10	1010	2.5	X						
206	910	8.56	990	2.6	X						
239	785	7.36	960	2.8	X						
72	2610	24.40	1070	1.00	X						
76	2470	23.04	1070	1.05	X						
90	2100	19.62	1070	1.25	X						
99	1910	17.83	1060	1.35	X						
114	1650	15.44	1050	1.50	X						
131	1440	13.44	1030	1.65	X						
166	1130	10.61	1080	2.2	X	**K**	**39**	**(E)DRN**	**100LM4**	110	645
196	960	9.00	1040	2.8	X	**KF**	**39**	**(E)DRN**	**100LM4**	115	646
217	870	8.12	1010	3.0	X	**KA**	**39**	**(E)DRN**	**100LM4**	110	647
246	765	7.15	980	3.5	X	**KAF**	**39**	**(E)DRN**	**100LM4**	110	646
261	720	6.75	970	3.7	X						
307	615	5.75	930	4.0	X						
337	560	5.22	900	4.1	X						
389	485	4.52	870	4.4	X						
447	420	3.94	830	4.5	X						
493	380	7.15	810	6.9							
522	360	6.75	800	7.3							
613	305	5.75	760	7.9		**K**	**39**	**DRN**	**90L2**	86	645
675	280	5.22	740	8.2		**KF**	**39**	**DRN**	**90L2**	90	646
779	240	4.52	710	8.8		**KA**	**39**	**DRN**	**90L2**	84	647
895	210	3.94	680	9.0		**KAF**	**39**	**DRN**	**90L2**	87	646
1255	151	2.81	615	10.0							
135	1400	13.08	540	1.05	X						
168	1120	10.49	545	1.25	X						
198	950	8.91	540	1.50	X	**K**	**37**	**(E)DRN**	**100LM4**	98	638
221	850	7.96	535	1.60	X	**KF**	**37**	**(E)DRN**	**100LM4**	105	639
259	725	6.80	525	1.80	X	**KA**	**37**	**(E)DRN**	**100LM4**	98	640
277	680	6.37	520	1.90	X	**KAF**	**37**	**(E)DRN**	**100LM4**	100	639
329	575	5.36	510	2.1	X						
443	425	3.98	480	2.6	X						
176	1070	19.99	535	1.05							
216	870	16.29	530	1.30							
262	720	13.47	520	1.60							
295	640	11.94	510	1.80							
384	490	9.17	490	2.3		**K**	**29**	**DRN**	**90L2**	61	631
413	455	8.53	510	2.4		**KF**	**29**	**DRN**	**90L2**	63	635
471	400	7.48	470	2.7		**KA**	**29**	**DRN**	**90L2**	60	637
507	370	6.95	485	2.7		**KAF**	**29**	**DRN**	**90L2**	62	635
613	305	5.75	460	3.2							
691	270	5.10	450	3.6							
900	205	3.92	415	5.3							
1105	171	3.19	395	5.7							

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P_m = 4.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.58	405010	3062	42710	1.15	X						
0.63	366690	2818	42710	1.30	X						
0.70	333190	2519	42710	1.40	X						
0.78	299990	2268	42710	1.6	X	**K**	**187R97**	**(E)DRN**	**100L4**	3940	725/728
0.86	271680	2054	42710	1.8	X	**KH**	**187R97**	**(E)DRN**	**100L4**	3790	726/728
0.97	240860	1821	42710	2.0	X						
1.1	212290	1605	42710	2.2	X						
1.3	184520	1395	42710	2.5	X						
1.5	158200	1196	42710	3.0	X						
0.78	294470	2263	33720	1.05	X						
0.81	288610	2182	33720	1.05	X						
1.0	225390	1704	33720	1.35	X						
1.3	186240	1408	33720	1.7	X	**K**	**167R97**	**(E)DRN**	**100L4**	2660	710/728
1.4	171420	1296	33720	1.8	X	**KH**	**167R97**	**(E)DRN**	**100L4**	2570	724/728
1.6	145630	1101	33720	2.1	X						
1.9	124860	944	33720	2.5	X						
2.1	111500	843	33720	2.8	X						
2.3	100130	757	33720	3.1	X						
1.4	162560	1229	25220	1.10	X						
1.6	144570	1093	25430	1.20	X						
1.9	124600	942	25640	1.40	X	**K**	**157R97**	**(E)DRN**	**100L4**	1790	715/728
2.1	112960	854	25750	1.6	X	**KF**	**157R97**	**(E)DRN**	**100L4**	1960	716/728
2.3	100000	756	25870	1.8	X	**KA**	**157R97**	**(E)DRN**	**100L4**	1710	718/728
3.1	75000	567	26020	2.4	X	**KAF**	**157R97**	**(E)DRN**	**100L4**	1840	716/728
3.5	66660	504	26060	2.7	X						
3.3	69000	536	18300	1.65	X						
3.7	60400	473	18400	1.90	X	**K**	**127R87**	**(E)DRN**	**100L4**	1140	707/728
4.2	54400	418	18400	2.1	X	**KF**	**127R87**	**(E)DRN**	**100L4**	1230	708/728
4.8	47700	367	18500	2.4	X	**KA**	**127R87**	**(E)DRN**	**100L4**	1080	710/728
5.3	42700	330	18500	2.7	X	**KAF**	**127R87**	**(E)DRN**	**100L4**	1160	708/728
6.2	36500	287	18500	3.1	X						
2.2	103100	790	18000	1.10	X						
2.5	92500	704	18100	1.25	X	**K**	**127R77**	**(E)DRN**	**100L4**	1100	707/728
2.9	79900	610	18200	1.45	X	**KF**	**127R77**	**(E)DRN**	**100L4**	1190	708/728
3.2	72000	549	18300	1.60	X	**KA**	**127R77**	**(E)DRN**	**100L4**	1030	710/728
3.7	62200	477	18400	1.85	X	**KAF**	**127R77**	**(E)DRN**	**100L4**	1120	708/728
4.2	54900	418	18400	2.1	X						
3.8	60100	461	14600	1.20	X						
4.3	53200	408	14600	1.35	X						
4.8	47700	364	14600	1.50	X						
5.5	41700	318	14600	1.70	X	**K**	**107R77**	**(E)DRN**	**100L4**	740	699/727
6.2	37500	286	14600	1.90	X	**KF**	**107R77**	**(E)DRN**	**100L4**	770	700/727
7.0	32900	251	14600	2.1	X	**KA**	**107R77**	**(E)DRN**	**100L4**	680	702/727
8.0	28900	222	14600	2.4	X	**KAF**	**107R77**	**(E)DRN**	**100L4**	730	700/727
9.0	25600	196	14600	2.8	X						
10	22900	174	14600	2.8	X						
11	20200	154	14600	3.1	X						
13	18400	140	14600	3.5	X						
6.8	34300	258	8990	1.10	X	**K**	**97R57**	**(E)DRN**	**100L4**	455	691/727
7.6	30900	232	8990	1.25	X	**KF**	**97R57**	**(E)DRN**	**100L4**	500	692/727
8.8	26500	199	8990	1.45	X	**KA**	**97R57**	**(E)DRN**	**100L4**	415	694/727
						KAF	**97R57**	**(E)DRN**	**100L4**	470	692/727
8.2	30600	143.47*	14600	2.3		**K**	**107**	**DRN**	**132S6**	700	699
9.7	25900	121.46	14600	2.7		**KF**	**107**	**DRN**	**132S6**	730	700
10	24000	112.41*	14600	2.9		**KA**	**107**	**DRN**	**132S6**	640	702
12	21500	100.75	14600	3.3		**KAF**	**107**	**DRN**	**132S6**	690	700
						K	**107**	**(E)DRN**	**100L4**	660	699
12	20500	143.47*	14600	3.5	X	**KF**	**107**	**(E)DRN**	**100L4**	680	700
15	17300	121.46	14600	4.1	X	**KA**	**107**	**(E)DRN**	**100L4**	600	702
						KAF	**107**	**(E)DRN**	**100L4**	650	700
9.5	26500	123.93*	8990	1.45		**K**	**97**	**DRN**	**132S6**	450	691
11	22400	105.13	8990	1.70		**KF**	**97**	**DRN**	**132S6**	495	692
12	20700	96.80	8990	1.85		**KA**	**97**	**DRN**	**132S6**	410	694
14	18500	86.52	8990	2.1		**KAF**	**97**	**DRN**	**132S6**	465	692

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P_m = 4.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
10	25100	176.05*	8990	1.50	X						
12	21900	153.21*	8990	1.75	X						
13	20000	140.28	8990	1.90	X						
14	17700	123.93*	8990	2.1	X						
17	15000	105.13	8990	2.5	X	**K**	**97**	**(E)DRN**	**100L4**	405	691
18	13800	96.80	8990	2.8	X	**KF**	**97**	**(E)DRN**	**100L4**	450	692
20	12300	86.52	8990	3.1	X	**KA**	**97**	**(E)DRN**	**100L4**	365	694
23	11100	77.89*	8990	3.4	X	**KAF**	**97**	**(E)DRN**	**100L4**	420	692
25	10000	70.54	8990	3.8	X						
28	8940	62.55	8990	4.3	X						
31	8080	56.55	8990	4.7	X						
12	21000	147.32*	6220	1.15	X						
14	18100	126.91*	6290	1.30	X						
15	16500	115.82	6330	1.45	X						
17	14600	102.71*	6370	1.65	X						
20	12300	86.34	6410	1.95	X	**K**	**87**	**(E)DRN**	**100L4**	275	683
22	11300	79.34	6430	2.1	X	**KF**	**87**	**(E)DRN**	**100L4**	295	684
25	10000	70.46	6450	2.4	X	**KA**	**87**	**(E)DRN**	**100L4**	245	686
28	9000	63.00*	6470	2.6	X	**KAF**	**87**	**(E)DRN**	**100L4**	275	684
31	8090	56.64	6480	3.0	X						
36	7020	49.16	6490	3.4	X						
40	6290	44.02	6330	3.7	X						
48	5220	36.52*	6060	4.2	X						
20	12700	88.97	3620	1.10	X						
23	11100	78.07	3850	1.25	X						
24	10500	73.99	3920	1.30	X						
27	9250	64.75	4070	1.50	X	**K**	**77**	**(E)DRN**	**100L4**	195	675
30	8330	58.34	4160	1.65	X	**KF**	**77**	**(E)DRN**	**100L4**	210	676
34	7310	51.18	4250	1.85	X	**KA**	**77**	**(E)DRN**	**100L4**	175	678
39	6450	45.16	4310	2.1	X	**KAF**	**77**	**(E)DRN**	**100L4**	195	676
44	5720	40.04	4360	2.4	X						
50	5030	35.20	4400	2.7	X						
57	4410	30.89	4430	3.1	X						
40	6330	44.32	2510	1.15	X						
46	5480	38.39	2650	1.30	X						
50	5090	35.62	2700	1.45	X						
58	4310	30.22	2800	1.70	X						
65	3890	27.28	2840	1.85	X						
73	3420	24.00	2890	2.1	X	**K**	**67**	**(E)DRN**	**100L4**	140	667
78	3230	22.66	2900	2.1	X	**KF**	**67**	**(E)DRN**	**100L4**	150	668
91	2750	19.30	2920	2.4	X	**KA**	**67**	**(E)DRN**	**100L4**	135	670
101	2500	17.54	2920	2.6	X	**KAF**	**67**	**(E)DRN**	**100L4**	145	668
116	2170	15.19	2920	2.9	X						
133	1880	13.22	2920	3.1	X						
141	1780	12.48	2920	2.6	X						
166	1510	10.63	2910	2.9	X						
183	1380	9.66	2850	3.1	X						
58	4320	30.28	1620	1.25	X						
64	3900	27.34	1610	1.35	X						
73	3430	24.05	1590	1.55	X						
78	3240	22.71	1580	1.65	X						
91	2760	19.34	1550	1.85	X						
100	2510	17.57	1530	1.95	X						
116	2170	15.22	1500	2.2	X	**K**	**57**	**(E)DRN**	**100L4**	125	660
133	1890	13.25	1460	2.4	X	**KF**	**57**	**(E)DRN**	**100L4**	135	661
148	1700	11.92	1390	2.1	X	**KA**	**57**	**(E)DRN**	**100L4**	120	662
157	1600	11.26	1380	2.3	X	**KAF**	**57**	**(E)DRN**	**100L4**	135	661
184	1370	9.59	1330	2.6	X						
202	1240	8.71	1310	2.8	X						
234	1070	7.55	1270	3.0	X						
268	930	6.57	1230	3.2	X						
376	670	4.69	1130	4.0	X						

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P_m = 4.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
58	4360	30.55	1310	1.00	X						
61	4130	28.95	1320	1.05	X						
70	3620	25.34	1320	1.20	X						
77	3260	22.83	1320	1.35	X						
88	2860	20.03	1310	1.55	X						
100	2520	17.67	1300	1.75	X	**K**	**49**	**(E)DRN**	**100L4**	140	656
113	2230	15.67	1280	1.95	X	**KF**	**49**	**(E)DRN**	**100L4**	140	657
132	1910	13.38	1250	2.2	X	**KA**	**49**	**(E)DRN**	**100L4**	130	658
155	1620	11.37	1330	2.7	X	**KAF**	**49**	**(E)DRN**	**100L4**	145	657
169	1480	10.42	1300	2.9	X						
193	1300	9.14	1260	3.4	X						
204	1230	8.66	1240	3.6	X						
233	1080	7.58	1200	4.1	X						
258	970	6.83	1170	4.5	X						
90	2790	19.58	1020	1.25	X						
105	2410	16.86	1020	1.40	X						
111	2260	15.86	1010	1.50	X						
129	1950	13.65	1000	1.65	X						
145	1740	12.19	990	1.80	X						
150	1680	11.77	970	1.45	X	**K**	**47**	**(E)DRN**	**100L4**	115	649
167	1510	10.56	960	1.65	X	**KF**	**47**	**(E)DRN**	**100L4**	120	650
194	1300	9.10	940	1.90	X	**KA**	**47**	**(E)DRN**	**100L4**	110	651
206	1220	8.56	930	1.95	X	**KAF**	**47**	**(E)DRN**	**100L4**	120	650
239	1050	7.36	910	2.1	X						
268	940	6.58	890	2.3	X						
303	830	5.81	870	2.5	X						
380	660	4.64	830	2.7	X						
99	2540	17.83	930	1.00	X						
114	2200	15.44	930	1.10	X						
131	1920	13.44	930	1.25	X						
166	1510	10.61	1030	1.65	X						
196	1280	9.00	990	2.1	X						
217	1160	8.12	970	2.3	X	**K**	**39**	**(E)DRN**	**100L4**	110	645
247	1020	7.15	940	2.6	X	**KF**	**39**	**(E)DRN**	**100L4**	115	646
261	960	6.75	930	2.8	X	**KA**	**39**	**(E)DRN**	**100L4**	110	647
307	820	5.75	900	3.0	X	**KAF**	**39**	**(E)DRN**	**100L4**	110	646
338	745	5.22	880	3.1	X						
390	645	4.52	840	3.3	X						
448	560	3.94	810	3.4	X						
627	400	2.81	740	3.7	X						
492	510	7.15	795	5.2							
521	480	6.75	780	5.5		**K**	**39**	**DRN**	**100LM2**	110	645
612	410	5.75	745	5.9		**KF**	**39**	**DRN**	**100LM2**	115	646
673	370	5.22	725	6.2		**KA**	**39**	**DRN**	**100LM2**	110	647
777	320	4.52	700	6.5		**KAF**	**39**	**DRN**	**100LM2**	110	646
893	280	3.94	670	6.7							
1250	200	2.81	605	7.5							
198	1270	8.91	465	1.10	X						
222	1130	7.96	470	1.20	X	**K**	**37**	**(E)DRN**	**100L4**	98	638
259	970	6.80	470	1.35	X	**KF**	**37**	**(E)DRN**	**100L4**	105	639
277	910	6.37	470	1.40	X	**KA**	**37**	**(E)DRN**	**100L4**	98	640
329	765	5.36	465	1.60	X	**KAF**	**37**	**(E)DRN**	**100L4**	100	639
443	565	3.98	450	1.95	X						
216	1160	16.29	460	1.00							
261	960	13.47	465	1.20							
294	850	11.94	460	1.35							
383	655	9.17	450	1.75		**K**	**29**	**DRN**	**100LM2**	86	631
470	535	7.48	440	2.0		**KF**	**29**	**DRN**	**100LM2**	88	635
506	495	6.95	465	2.0		**KA**	**29**	**DRN**	**100LM2**	85	637
612	410	5.75	445	2.4		**KAF**	**29**	**DRN**	**100LM2**	86	635
690	365	5.10	435	2.7							
898	280	3.92	405	4.0							
1100	225	3.19	385	4.3							

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P_m = 5.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1)] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.62	459670	2818	42710	1.00	X						
0.70	417670	2519	42710	1.10	X						
0.78	376050	2268	42710	1.25	X						
0.86	340570	2054	42710	1.40	X						
0.97	301940	1821	42710	1.6	X	**K**	**187R97**	**(E)DRN**	**100L4**	3940	725/728
1.1	266120	1605	42710	1.8	X	**KH**	**187R97**	**(E)DRN**	**100L4**	3790	726/728
1.3	231300	1395	42710	2.0	X						
1.5	198310	1196	42710	2.4	X						
1.7	173440	1046	42710	2.7	X						
1.9	156690	945	42710	3.0	X						
1.0	282540	1704	33720	1.10	X						
1.3	233460	1408	33720	1.35	X						
1.4	214890	1296	33720	1.5	X						
1.6	182550	1101	33720	1.7	X						
1.9	156520	944	33720	2.0	X	**K**	**167R97**	**(E)DRN**	**100L4**	2660	710/728
2.1	139780	843	33720	2.2	X	**KH**	**167R97**	**(E)DRN**	**100L4**	2570	724/728
2.3	125520	757	33720	2.5	X						
2.8	104790	632	33720	3.0	X						
3.7	79750	481	33720	3.9	X						
1.9	156190	942	25310	1.15	X						
2.1	141600	854	25480	1.25	X	**K**	**157R97**	**(E)DRN**	**100L4**	1790	715/728
2.3	125350	756	25660	1.40	X	**KF**	**157R97**	**(E)DRN**	**100L4**	1960	716/728
3.1	94010	567	25900	1.9	X	**KA**	**157R97**	**(E)DRN**	**100L4**	1710	718/728
3.5	83570	504	25970	2.1	X	**KAF**	**157R97**	**(E)DRN**	**100L4**	1840	716/728
4.1	71960	434	26040	2.5	X						
3.3	87100	536	18100	1.30	X						
3.7	76400	473	18300	1.50	X						
4.2	68700	418	18300	1.65	X	**K**	**127R87**	**(E)DRN**	**100L4**	1140	707/728
4.8	60100	367	18400	1.90	X	**KF**	**127R87**	**(E)DRN**	**100L4**	1230	708/728
5.3	53900	330	18400	2.1	X	**KA**	**127R87**	**(E)DRN**	**100L4**	1080	710/728
6.1	46200	287	18500	2.5	X	**KAF**	**127R87**	**(E)DRN**	**100L4**	1160	708/728
6.9	40900	253	18500	2.8	X						
2.5	116300	704	17800	1.00							
2.9	100600	610	18000	1.15	X	**K**	**127R77**	**(E)DRN**	**100L4**	1100	707/728
3.2	90600	549	18100	1.25	X	**KF**	**127R77**	**(E)DRN**	**100L4**	1190	708/728
3.7	78400	477	18200	1.45	X	**KA**	**127R77**	**(E)DRN**	**100L4**	1030	710/728
4.2	69000	418	18300	1.65	X	**KAF**	**127R77**	**(E)DRN**	**100L4**	1120	708/728
4.3	67000	408	14600	1.05	X						
4.8	60000	364	14600	1.20	X						
5.5	52500	318	14600	1.35	X						
6.1	47200	286	14600	1.50	X	**K**	**107R77**	**(E)DRN**	**100L4**	740	699/727
7.0	41400	251	14600	1.70	X	**KF**	**107R77**	**(E)DRN**	**100L4**	770	700/727
7.9	36400	222	14600	1.95	X	**KA**	**107R77**	**(E)DRN**	**100L4**	680	702/727
8.9	32200	196	14600	2.2	X	**KAF**	**107R77**	**(E)DRN**	**100L4**	730	700/727
10	28800	174	14600	2.2	X						
11	25500	154	14600	2.5	X						
13	23100	140	14600	2.8	X						
						K	**97R57**	**(E)DRN**	**100L4**	455	691/727
7.6	38800	232	8990	1.00		**KF**	**97R57**	**(E)DRN**	**100L4**	500	692/727
8.8	33300	199	8990	1.15	X	**KA**	**97R57**	**(E)DRN**	**100L4**	415	694/727
						KAF	**97R57**	**(E)DRN**	**100L4**	470	692/727
						K	**107**	**(E)DRN**	**100L4**	660	699
12	25700	143.47*	14600	2.8	X	**KF**	**107**	**(E)DRN**	**100L4**	680	700
14	21700	121.46	14600	3.2	X	**KA**	**107**	**(E)DRN**	**100L4**	600	702
						KAF	**107**	**(E)DRN**	**100L4**	650	700
10.0	31500	176.05*	8990	1.20	X						
11	27400	153.21*	8990	1.40	X						
13	25100	140.28	8990	1.50	X						
14	22200	123.93*	8990	1.70	X	**K**	**97**	**(E)DRN**	**100L4**	405	691
17	18800	105.13	8990	2.0	X	**KF**	**97**	**(E)DRN**	**100L4**	450	692
18	17300	96.80	8990	2.2	X	**KA**	**97**	**(E)DRN**	**100L4**	365	694
20	15500	86.52	8990	2.5	X	**KAF**	**97**	**(E)DRN**	**100L4**	420	692
23	13900	77.89*	8990	2.7	X						
25	12600	70.54	8990	3.0	X						
28	11200	62.55	8990	3.4	X						
14	22700	126.91*	6170	1.05	X	**K**	**87**	**(E)DRN**	**100L4**	275	683

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P_m = 5.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
15	20700	115.82	6230	1.15	X	**KF**	**87**	**(E)DRN**	**100L4**	295	684
17	18400	102.71*	6290	1.30	X	**KA**	**87**	**(E)DRN**	**100L4**	245	686
20	15400	86.34	6350	1.55	X	**KAF**	**87**	**(E)DRN**	**100L4**	275	684
22	14200	79.34	6380	1.70	X						
25	12600	70.46	6410	1.90	X						
28	11200	63.00*	6430	2.1	X						
31	10100	56.64	6450	2.4	X						
36	8800	49.16	6310	2.7	X						
40	7880	44.02	6170	2.9	X						
48	6540	36.52*	5930	3.4	X						
23	13900	78.07	3410	1.00							
24	13200	73.99	3540	1.05	X						
27	11600	64.75	3790	1.20	X						
30	10400	58.34	3940	1.30	X						
34	9170	51.18	4080	1.50	X	**K**	**77**	**(E)DRN**	**100L4**	195	675
39	8090	45.16	4180	1.70	X	**KF**	**77**	**(E)DRN**	**100L4**	210	676
44	7170	40.04	4260	1.90	X	**KA**	**77**	**(E)DRN**	**100L4**	175	678
46	6870	38.39	4280	1.95	X	**KAF**	**77**	**(E)DRN**	**100L4**	195	676
50	6300	35.20	4320	2.2	X						
57	5530	30.89	4370	2.5	X						
60	5240	29.27	4380	2.6	X						
69	4580	25.62	4420	3.0	X						
46	6870	38.39	2400	1.05	X						
49	6380	35.62	2500	1.15	X						
58	5410	30.22	2660	1.35	X						
64	4880	27.28	2730	1.50	X						
73	4290	24.00	2800	1.65	X						
78	4050	22.66	2830	1.70	X						
91	3450	19.30	2890	1.95	X	**K**	**67**	**(E)DRN**	**100L4**	140	667
100	3140	17.54	2910	2.1	X	**KF**	**67**	**(E)DRN**	**100L4**	150	668
116	2720	15.19	2920	2.3	X	**KA**	**67**	**(E)DRN**	**100L4**	135	670
133	2360	13.22	2920	2.5	X	**KAF**	**67**	**(E)DRN**	**100L4**	145	668
141	2230	12.48	2920	2.1	X						
165	1900	10.63	2850	2.3	X						
182	1730	9.66	2790	2.5	X						
210	1490	8.37	2700	2.6	X						
241	1300	7.28	2610	2.9	X						
58	5420	30.28	1440	1.00							
64	4890	27.34	1450	1.10	X						
73	4310	24.05	1450	1.25	X						
77	4060	22.71	1450	1.30	X						
91	3460	19.34	1440	1.45	X						
100	3140	17.57	1430	1.55	X						
115	2720	15.22	1410	1.75	X	**K**	**57**	**(E)DRN**	**100L4**	125	660
133	2370	13.25	1380	1.90	X	**KF**	**57**	**(E)DRN**	**100L4**	135	661
147	2130	11.92	1310	1.70	X	**KA**	**57**	**(E)DRN**	**100L4**	120	662
156	2010	11.26	1300	1.80	X	**KAF**	**57**	**(E)DRN**	**100L4**	135	661
183	1710	9.59	1270	2.1	X						
202	1560	8.71	1250	2.2	X						
233	1350	7.55	1220	2.4	X						
268	1170	6.57	1180	2.6	X						
375	840	4.69	1100	3.2	X						
77	4090	22.83	1170	1.10	X						
88	3580	20.03	1180	1.25	X						
99	3160	17.67	1180	1.40	X						
112	2800	15.67	1180	1.55	X						
131	2390	13.38	1170	1.75	X	**K**	**49**	**(E)DRN**	**100L4**	140	656
155	2030	11.37	1280	2.1	X	**KF**	**49**	**(E)DRN**	**100L4**	140	657
169	1860	10.42	1260	2.3	X	**KA**	**49**	**(E)DRN**	**100L4**	130	658
192	1630	9.14	1220	2.7	X	**KAF**	**49**	**(E)DRN**	**100L4**	145	657
203	1550	8.66	1210	2.9	X						
232	1350	7.58	1170	3.3	X						
257	1220	6.83	1140	3.6	X						

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P_m = 5.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
90	3500	19.58	880	1.00	X						
104	3020	16.86	900	1.10	X						
111	2840	15.86	900	1.20	X						
129	2440	13.65	910	1.30	X						
144	2180	12.19	910	1.40	X						
149	2100	11.77	880	1.15	X	**K**	**47**	**(E)DRN**	**100L4**	115	649
166	1890	10.56	880	1.30	X	**KF**	**47**	**(E)DRN**	**100L4**	120	650
193	1630	9.10	870	1.50	X	**KA**	**47**	**(E)DRN**	**100L4**	110	651
205	1530	8.56	870	1.55	X	**KAF**	**47**	**(E)DRN**	**100L4**	120	650
239	1310	7.36	850	1.70	X						
267	1170	6.58	840	1.80	X						
302	1040	5.81	830	1.95	X						
379	830	4.64	795	2.2	X						
131	2400	13.44	820	1.00							
166	1900	10.61	970	1.35	X						
195	1610	9.00	950	1.65	X						
216	1450	8.12	930	1.80	X						
246	1280	7.15	910	2.1	X	**K**	**39**	**(E)DRN**	**100L4**	110	645
260	1200	6.75	900	2.2	X	**KF**	**39**	**(E)DRN**	**100L4**	115	646
306	1020	5.75	870	2.4	X	**KA**	**39**	**(E)DRN**	**100L4**	110	647
337	930	5.22	850	2.5	X	**KAF**	**39**	**(E)DRN**	**100L4**	110	646
389	810	4.52	820	2.6	X						
446	705	3.94	795	2.7	X						
625	500	2.81	730	3.0	X						
491	640	7.15	775	4.1							
520	605	6.75	765	4.4							
610	515	5.75	735	4.7		**K**	**39**	**DRN**	**100L2**	110	645
672	465	5.22	715	4.9		**KF**	**39**	**DRN**	**100L2**	115	646
775	405	4.52	685	5.2		**KA**	**39**	**DRN**	**100L2**	110	647
891	350	3.94	660	5.4		**KAF**	**39**	**DRN**	**100L2**	110	646
1245	250	2.81	600	6.0							
259	1210	6.80	415	1.10	X	**K**	**37**	**(E)DRN**	**100L4**	98	638
276	1140	6.37	415	1.10	X	**KF**	**37**	**(E)DRN**	**100L4**	105	639
328	960	5.36	420	1.30	X	**KA**	**37**	**(E)DRN**	**100L4**	98	640
442	710	3.98	415	1.55	X	**KAF**	**37**	**(E)DRN**	**100L4**	100	639
394	800	8.91	420	1.75							
441	710	7.96	415	1.90		**K**	**37**	**DRN**	**100L2**	98	638
516	610	6.80	410	2.2		**KF**	**37**	**DRN**	**100L2**	105	639
551	570	6.37	410	2.2		**KA**	**37**	**DRN**	**100L2**	98	640
654	480	5.36	400	2.6		**KAF**	**37**	**DRN**	**100L2**	100	639
882	355	3.98	380	3.1							

P_m = 5.4 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
2.1	148600	835	42710	3.2	X	**K**	**187R107**	**(E)DRN**	**112M4**	4060	725/728
3.4	92540	520	42710	5.1	X	**KH**	**187R107**	**(E)DRN**	**112M4**	3920	726/728
0.70	448280	2519	42710	1.05	X						
0.78	403610	2268	42710	1.15	X						
0.86	365530	2054	42710	1.30	X						
0.97	324060	1821	42710	1.5	X						
1.1	285620	1605	42710	1.7	X	**K**	**187R97**	**(E)DRN**	**112M4**	3960	725/728
1.3	248250	1395	42710	1.9	X	**KH**	**187R97**	**(E)DRN**	**112M4**	3810	726/728
1.5	212840	1196	42710	2.2	X						
1.7	186150	1046	42710	2.5	X						
1.9	168170	945	42710	2.8	X						
1.0	303240	1704	33720	1.00	X						
1.3	250570	1408	33720	1.25	X						
1.4	230640	1296	33720	1.35	X						
1.6	195930	1101	33720	1.6	X	**K**	**167R97**	**(E)DRN**	**112M4**	2680	710/728
1.9	167990	944	33720	1.9	X	**KH**	**167R97**	**(E)DRN**	**112M4**	2590	724/728
2.1	150020	843	33720	2.1	X						
2.3	134720	757	33720	2.3	X						
2.8	112470	632	33720	2.8	X						

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P_m = 5.4 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.9	167640	942	25160	1.05	X						
2.1	151980	854	25360	1.15	X						
2.3	134540	756	25570	1.30	X	**K**	**157R97**	**(E)DRN**	**112M4**	1810	715/728
3.1	100900	567	25850	1.8	X	**KF**	**157R97**	**(E)DRN**	**112M4**	1980	716/728
3.5	89690	504	25930	2.0	X	**KA**	**157R97**	**(E)DRN**	**112M4**	1730	718/728
4.1	77230	434	26010	2.3	X	**KAF**	**157R97**	**(E)DRN**	**112M4**	1860	716/728
5.3	59260	333	26100	3.0	X						
3.3	93700	536	18100	1.25	X						
3.7	82200	473	18200	1.40	X						
4.2	73800	418	18300	1.55	X	**K**	**127R87**	**(E)DRN**	**112M4**	1160	707/728
4.8	64600	367	18400	1.80	X	**KF**	**127R87**	**(E)DRN**	**112M4**	1250	708/728
5.3	58000	330	18400	2.0	X	**KA**	**127R87**	**(E)DRN**	**112M4**	1100	710/728
6.2	49700	287	18500	2.3	X	**KAF**	**127R87**	**(E)DRN**	**112M4**	1180	708/728
7.0	44000	253	18500	2.6	X						
2.9	108000	610	17900	1.05	X	**K**	**127R77**	**(E)DRN**	**112M4**	1120	707/728
3.2	97300	549	18000	1.20	X	**KF**	**127R77**	**(E)DRN**	**112M4**	1210	708/728
3.7	84300	477	18200	1.35	X	**KA**	**127R77**	**(E)DRN**	**112M4**	1050	710/728
4.2	74200	418	18300	1.55	X	**KAF**	**127R77**	**(E)DRN**	**112M4**	1140	708/728
4.9	64500	364	14600	1.10	X						
5.6	56400	318	14600	1.25	X						
6.2	50700	286	14600	1.40	X						
7.0	44400	251	14600	1.60	X	**K**	**107R77**	**(E)DRN**	**112M4**	760	699/727
8.0	39100	222	14600	1.80	X	**KF**	**107R77**	**(E)DRN**	**112M4**	790	700/727
9.0	34600	196	14600	2.0	X	**KA**	**107R77**	**(E)DRN**	**112M4**	700	702/727
10	31000	174	14600	2.0	X	**KAF**	**107R77**	**(E)DRN**	**112M4**	750	700/727
11	27400	154	14600	2.3	X						
13	24900	140	14600	2.6	X						
						K	**97R57**	**(E)DRN**	**112M4**	480	691/727
8.9	35800	199	8990	1.05	X	**KF**	**97R57**	**(E)DRN**	**112M4**	520	692/727
						KA	**97R57**	**(E)DRN**	**112M4**	440	694/727
						KAF	**97R57**	**(E)DRN**	**112M4**	495	692/727
8.1	42000	146.07	18500	2.7		**K**	**127**	**DRN**	**132M6**	1080	707
8.7	39200	136.14	18500	2.9		**KF**	**127**	**DRN**	**132M6**	1170	708
9.6	35200	122.48	18500	3.3		**KA**	**127**	**DRN**	**132M6**	1020	710
11	31700	110.18	18600	3.6		**KAF**	**127**	**DRN**	**132M6**	1100	708
8.2	41300	143.47*	14600	1.70							
9.7	34900	121.46	14600	2.0		**K**	**107**	**DRN**	**132M6**	740	699
11	32300	112.41*	14600	2.2		**KF**	**107**	**DRN**	**132M6**	770	700
12	29000	100.75	14600	2.4		**KA**	**107**	**DRN**	**132M6**	680	702
13	26200	90.96*	14600	2.7		**KAF**	**107**	**DRN**	**132M6**	730	700
12	27500	143.47*	14600	2.6	X						
15	23300	121.46	14600	3.0	X						
16	21600	112.41*	14600	3.3	X	**K**	**107**	**(E)DRN**	**112M4**	670	699
18	19300	100.75	14600	3.6	X	**KF**	**107**	**(E)DRN**	**112M4**	700	700
19	17400	90.96*	14600	4.0	X	**KA**	**107**	**(E)DRN**	**112M4**	610	702
21	15800	82.61	14600	4.5	X	**KAF**	**107**	**(E)DRN**	**112M4**	670	700
24	14000	73.30	14300	5.0	X						
12	29400	153.21*	8990	1.30	X						
13	26900	140.28	8990	1.40	X						
14	23800	123.93*	8990	1.60	X	**K**	**97**	**(E)DRN**	**112M4**	425	691
17	20200	105.13	8990	1.90	X	**KF**	**97**	**(E)DRN**	**112M4**	470	692
18	18600	96.80	8990	2.0	X	**KA**	**97**	**(E)DRN**	**112M4**	385	694
20	16600	86.52	8990	2.3	X	**KAF**	**97**	**(E)DRN**	**112M4**	440	692
23	14900	77.89*	8990	2.5	X						
25	13500	70.54	8990	2.8	X						
15	22200	115.82	6180	1.05	X						
17	19700	102.71*	6250	1.20	X						
20	16600	86.34	6330	1.45	X						
22	15200	79.34	6360	1.55	X	**K**	**87**	**(E)DRN**	**112M4**	295	683
25	13500	70.46	6390	1.75	X	**KF**	**87**	**(E)DRN**	**112M4**	315	684
28	12100	63.00*	6420	1.95	X	**KA**	**87**	**(E)DRN**	**112M4**	265	686
31	10800	56.64	6400	2.2	X	**KAF**	**87**	**(E)DRN**	**112M4**	295	684
36	9450	49.16	6230	2.5	X						
40	8460	44.02	6100	2.7	X						
48	7020	36.52*	5860	3.1	X						

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P_m = 5.4 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
27	12400	64.75	3670	1.10	X						
30	11200	58.34	3840	1.20	X						
35	9840	51.18	4010	1.40	X						
39	8680	45.16	4130	1.60	X						
44	7700	40.04	4220	1.80	X	**K**	**77**	**(E)DRN**	**112M4**	215	675
46	7380	38.39	4240	1.80	X	**KF**	**77**	**(E)DRN**	**112M4**	230	676
50	6760	35.20	4290	2.0	X	**KA**	**77**	**(E)DRN**	**112M4**	200	678
57	5930	30.89	4340	2.3	X	**KAF**	**77**	**(E)DRN**	**112M4**	215	676
60	5620	29.27	4360	2.4	X						
69	4920	25.62	4400	2.8	X						
77	4430	23.08	4420	3.1	X						
87	3890	20.25	4450	3.4	X						
59	5800	30.22	2600	1.25	X						
65	5240	27.28	2680	1.40	X						
74	4610	24.00	2770	1.55	X						
78	4350	22.66	2800	1.60	X						
92	3710	19.30	2860	1.80	X						
101	3370	17.54	2890	1.95	X	**K**	**67**	**(E)DRN**	**112M4**	160	667
116	2920	15.19	2920	2.1	X	**KF**	**67**	**(E)DRN**	**112M4**	170	668
134	2540	13.22	2920	2.3	X	**KA**	**67**	**(E)DRN**	**112M4**	155	670
142	2400	12.48	2920	1.95	X	**KAF**	**67**	**(E)DRN**	**112M4**	165	668
166	2040	10.63	2820	2.2	X						
183	1850	9.66	2760	2.3	X						
211	1600	8.37	2680	2.4	X						
243	1400	7.28	2590	2.6	X						
340	1000	5.20	2390	3.1	X						
65	5250	27.34	1380	1.00	X						
74	4620	24.05	1390	1.15	X						
78	4360	22.71	1400	1.20	X						
91	3710	19.34	1390	1.35	X						
101	3380	17.57	1390	1.45	X						
116	2920	15.22	1370	1.60	X	**K**	**57**	**(E)DRN**	**112M4**	145	660
134	2540	13.25	1350	1.75	X	**KF**	**57**	**(E)DRN**	**112M4**	155	661
148	2290	11.92	1280	1.60	X	**KA**	**57**	**(E)DRN**	**112M4**	140	662
157	2160	11.26	1270	1.70	X	**KAF**	**57**	**(E)DRN**	**112M4**	155	661
185	1840	9.59	1240	1.95	X						
203	1670	8.71	1230	2.1	X						
234	1450	7.55	1200	2.2	X						
269	1260	6.57	1160	2.4	X						
377	900	4.69	1080	2.9	X						
77	4390	22.83	1110	1.00	X						
88	3850	20.03	1130	1.15	X						
100	3390	17.67	1140	1.30	X						
113	3010	15.67	1140	1.45	X						
132	2570	13.38	1130	1.60	X						
156	2180	11.37	1260	2.0	X	**K**	**49**	**(E)DRN**	**112M4**	160	656
170	2000	10.42	1240	2.1	X	**KF**	**49**	**(E)DRN**	**112M4**	160	657
194	1750	9.14	1200	2.5	X	**KA**	**49**	**(E)DRN**	**112M4**	150	658
204	1660	8.66	1190	2.7	X	**KAF**	**49**	**(E)DRN**	**112M4**	165	657
233	1450	7.58	1150	3.0	X						
259	1310	6.83	1130	3.4	X						
295	1150	5.99	1090	3.8	X						
335	1010	5.29	1060	4.2	X						
377	900	4.69	1020	4.6	X						
389	870	9.14	1020	5.0							
410	820	8.66	1000	5.3							
469	725	7.58	970	6.1		**K**	**49**	**DRN**	**112M2**	160	656
520	650	6.83	940	6.8		**KF**	**49**	**DRN**	**112M2**	160	657
593	570	5.99	900	7.7		**KA**	**49**	**DRN**	**112M2**	150	658
672	505	5.29	870	8.5		**KAF**	**49**	**DRN**	**112M2**	165	657
758	445	4.69	840	9.2							
887	380	4.00	800	10							

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P_m = 5.4 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
197	1730	9.00	930	1.55	X						
218	1560	8.12	910	1.70	X						
247	1370	7.15	890	1.95	X						
262	1290	6.75	880	2.0	X	**K**	**39**	**(E)DRN**	**112M4**	130	645
308	1100	5.75	850	2.2	X	**KF**	**39**	**(E)DRN**	**112M4**	135	646
339	1000	5.22	840	2.3	X	**KA**	**39**	**(E)DRN**	**112M4**	130	647
391	870	4.52	810	2.4	X	**KAF**	**39**	**(E)DRN**	**112M4**	135	646
449	755	3.94	785	2.5	X						
629	540	2.81	720	2.8	X						

P_m = 7.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
2.1	206500	835	42710	2.3	X	**K**	**187R107**	**(E)DRN**	**132S4**	4090	725/728
2.4	180290	729	42710	2.6	X	**KH**	**187R107**	**(E)DRN**	**132S4**	3940	726/728
0.97	450340	1821	42710	1.05	X						
1.1	396930	1605	42710	1.20	X						
1.3	344990	1395	42710	1.35	X						
1.5	295780	1196	42710	1.6	X	**K**	**187R97**	**(E)DRN**	**132S4**	3990	725/728
1.7	258680	1046	42710	1.8	X	**KH**	**187R97**	**(E)DRN**	**132S4**	3840	726/728
1.9	233700	945	42710	2.0	X						
2.4	182510	738	42710	2.6	X						
2.9	153580	621	42710	3.1	X						
1.6	272280	1101	33720	1.15	X						
1.9	233460	944	33720	1.35	X						
2.1	208480	843	33720	1.5	X						
2.3	187210	757	33720	1.7	X						
2.8	156300	632	33720	2.0	X	**K**	**167R97**	**(E)DRN**	**132S4**	2700	710/728
3.2	138740	561	33720	2.2	X	**KH**	**167R97**	**(E)DRN**	**132S4**	2620	724/728
3.7	118950	481	33720	2.6	X						
4.2	104610	423	33720	3.0	X						
4.8	91260	369	33720	3.4	X						
4.6	95210	385	25920	1.9	X	**K**	**157R107**	**(E)DRN**	**132S4**	1940	715/728
5.9	73940	299	26030	2.4	X	**KF**	**157R107**	**(E)DRN**	**132S4**	2110	716/728
7.0	62570	253	26090	2.8	X	**KA**	**157R107**	**(E)DRN**	**132S4**	1860	718/728
						KAF	**157R107**	**(E)DRN**	**132S4**	1990	716/728
2.7	163470	661	25270	1.10	X						
3.1	140220	567	25500	1.25	X						
3.5	124640	504	25650	1.40	X	**K**	**157R97**	**(E)DRN**	**132S4**	1830	715/728
4.1	107330	434	25810	1.7	X	**KF**	**157R97**	**(E)DRN**	**132S4**	2010	716/728
4.7	93730	379	25910	1.9	X	**KA**	**157R97**	**(E)DRN**	**132S4**	1750	718/728
5.3	82350	333	25980	2.2	X	**KAF**	**157R97**	**(E)DRN**	**132S4**	1880	716/728
6.1	71970	291	26040	2.5	X						
3.7	115300	473	17800	1.00	X						
4.2	103400	418	17900	1.10	X						
4.8	90300	367	18100	1.25	X						
5.3	81100	330	18200	1.40	X	**K**	**127R87**	**(E)DRN**	**132S4**	1190	707/728
6.2	69800	287	18300	1.65	X	**KF**	**127R87**	**(E)DRN**	**132S4**	1280	708/728
7.0	61700	253	18400	1.85	X	**KA**	**127R87**	**(E)DRN**	**132S4**	1120	710/728
8.3	51900	213	18400	2.2	X	**KAF**	**127R87**	**(E)DRN**	**132S4**	1210	708/728
8.8	49400	200	18500	2.1	X						
11	40900	166	18500	2.6	X						
12	36100	147	18500	2.9	X						
4.2	103500	418	17900	1.10	X	**K**	**127R77**	**(E)DRN**	**132S4**	1140	707/728
						KF	**127R77**	**(E)DRN**	**132S4**	1230	708/728
						KA	**127R77**	**(E)DRN**	**132S4**	1080	710/728
						KAF	**127R77**	**(E)DRN**	**132S4**	1160	708/728

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P_m = 7.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
6.2	70800	286	14600	1.00	X						
7.0	62000	251	14600	1.15	X						
8.0	54700	222	14600	1.30	X	**K**	**107R77**	**(E)DRN**	**132S4**	790	699/727
9.0	48400	196	14600	1.45	X	**KF**	**107R77**	**(E)DRN**	**132S4**	810	700/727
10	43300	174	14600	1.45	X	**KA**	**107R77**	**(E)DRN**	**132S4**	730	702/727
11	38300	154	14600	1.65	X	**KAF**	**107R77**	**(E)DRN**	**132S4**	780	700/727
13	34800	140	14600	1.85	X						
8.7	54200	136.14	18400	2.1		**K**	**127**	**DRN**	**160M6**	1170	707
9.7	48800	122.48	18500	2.4		**KF**	**127**	**DRN**	**160M6**	1260	708
11	43900	110.18	18500	2.6		**KA**	**127**	**DRN**	**160M6**	1110	710
13	35800	89.89	18500	3.2		**KAF**	**127**	**DRN**	**160M6**	1190	708
						K	**127**	**(E)DRN**	**132S4**	1050	707
12	39000	146.07	18500	3.0	X	**KF**	**127**	**(E)DRN**	**132S4**	1150	708
						KA	**127**	**(E)DRN**	**132S4**	990	710
						KAF	**127**	**(E)DRN**	**132S4**	1070	708
11	44800	112.41*	14600	1.60		**K**	**107**	**DRN**	**160M6**	830	699
12	40100	100.75	14600	1.75		**KF**	**107**	**DRN**	**160M6**	860	700
13	36200	90.96*	14600	1.95		**KA**	**107**	**DRN**	**160M6**	770	702
14	32900	82.61	14600	2.1		**KAF**	**107**	**DRN**	**160M6**	820	700
12	38300	143.47*	14600	1.85	X						
15	32400	121.46	14600	2.2	X	**K**	**107**	**(E)DRN**	**132S4**	700	699
16	30000	112.41*	14600	2.4	X	**KF**	**107**	**(E)DRN**	**132S4**	730	700
18	26900	100.75	14600	2.6	X	**KA**	**107**	**(E)DRN**	**132S4**	640	702
19	24300	90.96*	14500	2.9	X	**KAF**	**107**	**(E)DRN**	**132S4**	690	700
21	22000	82.61	14200	3.2	X						
14	33100	123.93*	8990	1.15	X						
17	28000	105.13	8990	1.35	X						
18	25800	96.80	8990	1.45	X						
20	23100	86.52	8990	1.65	X	**K**	**97**	**(E)DRN**	**132S4**	450	691
23	20800	77.89*	8990	1.85	X	**KF**	**97**	**(E)DRN**	**132S4**	495	692
25	18800	70.54	8920	2.0	X	**KA**	**97**	**(E)DRN**	**132S4**	410	694
28	16700	62.55	8730	2.3	X	**KAF**	**97**	**(E)DRN**	**132S4**	465	692
31	15100	56.55	8570	2.5	X						
37	12800	47.93*	8290	3.0	X						
20	23000	86.34	6160	1.05	X						
22	21200	79.34	6140	1.15	X						
25	18800	70.46	6100	1.25	X						
28	16800	63.00*	6030	1.40	X	**K**	**87**	**(E)DRN**	**132S4**	320	683
31	15100	56.64	5960	1.60	X	**KF**	**87**	**(E)DRN**	**132S4**	340	684
36	13100	49.16	5860	1.80	X	**KA**	**87**	**(E)DRN**	**132S4**	290	686
40	11700	44.02	5760	1.95	X	**KAF**	**87**	**(E)DRN**	**132S4**	320	684
48	9760	36.52*	5590	2.3	X						
56	8380	31.39	5430	2.9	X						
63	7440	27.88	5310	3.1	X						
35	13600	51.18	3460	1.00	X						
39	12000	45.16	3720	1.15	X						
44	10700	40.04	3910	1.30	X						
57	8250	30.89	4170	1.65	X						
60	7820	29.27	4210	1.75	X						
69	6840	25.62	4280	2.0	X	**K**	**77**	**(E)DRN**	**132S4**	240	675
77	6160	23.08	4330	2.2	X	**KF**	**77**	**(E)DRN**	**132S4**	255	676
87	5410	20.25	4340	2.5	X	**KA**	**77**	**(E)DRN**	**132S4**	225	678
99	4770	17.87	4230	2.7	X	**KAF**	**77**	**(E)DRN**	**132S4**	240	676
112	4230	15.84	4120	2.9	X						
131	3610	13.52	3980	3.3	X						
143	3300	12.36	3840	2.7	X						
163	2890	10.84	3730	3.0	X						

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P_m = 7.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
74	6410	24.00	2490	1.10	X						
78	6050	22.66	2560	1.15	X						
92	5150	19.30	2700	1.30	X						
101	4680	17.54	2760	1.40	X						
116	4050	15.19	2830	1.55	X	**K**	**67**	**(E)DRN**	**132S4**	185	667
134	3530	13.22	2870	1.70	X	**KF**	**67**	**(E)DRN**	**132S4**	195	668
142	3330	12.48	2760	1.40	X	**KA**	**67**	**(E)DRN**	**132S4**	180	670
166	2840	10.63	2690	1.55	X	**KAF**	**67**	**(E)DRN**	**132S4**	190	668
183	2580	9.66	2640	1.65	X						
211	2230	8.37	2570	1.75	X						
243	1940	7.28	2500	1.90	X						
340	1390	5.20	2320	2.2	X						
91	5160	19.34	1150	1.00							
101	4690	17.57	1170	1.05	X						
116	4060	15.22	1180	1.15	X						
133	3540	13.25	1180	1.25	X						
148	3180	11.92	1110	1.15	X	**K**	**57**	**(E)DRN**	**132S4**	170	660
157	3000	11.26	1110	1.20	X	**KF**	**57**	**(E)DRN**	**132S4**	185	661
184	2560	9.59	1110	1.40	X	**KA**	**57**	**(E)DRN**	**132S4**	170	662
203	2320	8.71	1100	1.50	X	**KAF**	**57**	**(E)DRN**	**132S4**	180	661
234	2010	7.55	1090	1.60	X						
269	1750	6.57	1070	1.75	X						
377	1250	4.69	1020	2.1	X						
370	1270	9.59	1020	2.8							
407	1160	8.71	1000	3.0		**K**	**57**	**DRN**	**132S2**	170	660
470	1000	7.55	980	3.2		**KF**	**57**	**DRN**	**132S2**	185	661
540	870	6.57	950	3.5		**KA**	**57**	**DRN**	**132S2**	170	662
756	625	4.69	880	4.2		**KAF**	**57**	**DRN**	**132S2**	180	661
113	4180	15.67	920	1.05	X						
132	3570	13.38	950	1.15	X						
193	2440	9.14	1120	1.80	X						
204	2310	8.66	1110	1.90	X	**K**	**49**	**(E)DRN**	**132S4**	185	656
233	2020	7.58	1090	2.2	X	**KF**	**49**	**(E)DRN**	**132S4**	185	657
259	1820	6.83	1070	2.4	X	**KA**	**49**	**(E)DRN**	**132S4**	175	658
295	1600	5.99	1040	2.8	X	**KAF**	**49**	**(E)DRN**	**132S4**	190	657
334	1410	5.29	1010	3.0	X						
377	1250	4.69	980	3.3	X						
442	1060	4.00	950	3.6	X						
409	1150	8.66	960	3.8							
467	1010	7.58	930	4.4							
519	910	6.83	910	4.9		**K**	**49**	**DRN**	**132S2**	185	656
591	795	5.99	880	5.5		**KF**	**49**	**DRN**	**132S2**	185	657
670	705	5.29	850	6.1		**KA**	**49**	**DRN**	**132S2**	175	658
756	625	4.69	820	6.6		**KAF**	**49**	**DRN**	**132S2**	190	657
885	530	4.00	785	7.3							

P_m = 10.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
2.1	274400	835	42700	1.7	X						
2.4	239570	729	42700	2.0	X	**K**	**187R107**	**(E)DRN**	**132M4**	4130	725/728
2.9	204400	622	42700	2.3	X	**KH**	**187R107**	**(E)DRN**	**132M4**	3980	726/728
3.4	170890	520	42700	2.7	X						
1.3	458430	1395	42700	1.00	X						
1.5	393040	1196	42700	1.20	X						
1.7	343740	1046	42700	1.35	X						
1.9	310550	945	42700	1.5	X	**K**	**187R97**	**(E)DRN**	**132M4**	4030	725/728
2.4	242530	738	42700	2.0	X	**KH**	**187R97**	**(E)DRN**	**132M4**	3880	726/728
2.9	204080	621	42700	2.3	X						
3.4	173190	527	42700	2.7	X						
5.6	104500	318	33720	3.0	X	**K**	**167R107**	**(E)DRN**	**132M4**	2850	710/728
						KH	**167R107**	**(E)DRN**	**132M4**	2760	724/728

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P_m = 10.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.9	309750	944	33720	1.00	X						
2.1	277030	843	33720	1.10	X						
2.3	248770	757	33720	1.25	X						
2.8	207690	632	33720	1.5	X	**K**	**167R97**	**(E)DRN**	**132M4**	2740	710/728
3.2	184360	561	33720	1.7	X	**KH**	**167R97**	**(E)DRN**	**132M4**	2660	724/728
3.7	158070	481	33720	2.0	X						
4.2	139010	423	33720	2.2	X						
4.8	121260	369	33720	2.6	X						
4.6	126520	385	25640	1.40	X	**K**	**157R107**	**(E)DRN**	**132M4**	1980	715/728
5.9	98260	299	25860	1.8	X	**KF**	**157R107**	**(E)DRN**	**132M4**	2150	716/728
7.0	83140	253	25970	2.1	X	**KA**	**157R107**	**(E)DRN**	**132M4**	1900	718/728
8.3	70000	213	26040	2.5	X	**KAF**	**157R107**	**(E)DRN**	**132M4**	2030	716/728
3.5	165630	504	25140	1.05	X						
4.1	142620	434	25440	1.25	X	**K**	**157R97**	**(E)DRN**	**132M4**	1870	715/728
4.7	124550	379	25630	1.40	X	**KF**	**157R97**	**(E)DRN**	**132M4**	2050	716/728
5.3	109430	333	25760	1.6	X	**KA**	**157R97**	**(E)DRN**	**132M4**	1790	718/728
6.1	95630	291	25870	1.9	X	**KAF**	**157R97**	**(E)DRN**	**132M4**	1920	716/728
5.4	108200	330	17900	1.05	X						
6.2	93300	287	18100	1.25	X						
7.0	82500	253	18200	1.40	X	**K**	**127R87**	**(E)DRN**	**132M4**	1230	707/728
8.3	69300	213	18300	1.65	X	**KF**	**127R87**	**(E)DRN**	**132M4**	1320	708/728
8.8	66100	200	18300	1.60	X	**KA**	**127R87**	**(E)DRN**	**132M4**	1160	710/728
11	54700	166	18400	1.95	X	**KAF**	**127R87**	**(E)DRN**	**132M4**	1250	708/728
12	48200	147	18500	2.2	X						
9.0	64500	196	14600	1.10	X	**K**	**107R77**	**(E)DRN**	**132M4**	830	699/727
10	57700	174	14600	1.10	X	**KF**	**107R77**	**(E)DRN**	**132M4**	850	700/727
12	51100	154	14600	1.25	X	**KA**	**107R77**	**(E)DRN**	**132M4**	770	702/727
13	46300	140	14600	1.35	X	**KAF**	**107R77**	**(E)DRN**	**132M4**	820	702/727
7.2	87600	164.50	33700	3.2		**K**	**167**	**DRN**	**160M6**	2550	723
8.8	71900	134.99	33700	3.9		**KH**	**167**	**DRN**	**160M6**	2470	724
7.9	80100	150.41	26000	2.0							
9.7	65200	122.39	26000	2.4		**K**	**157**	**DRN**	**160M6**	1680	715
12	53400	100.22	26100	3.0		**KF**	**157**	**DRN**	**160M6**	1850	716
13	48800	91.65	26100	3.3		**KA**	**157**	**DRN**	**160M6**	1600	718
15	42500	79.75	26100	3.8		**KAF**	**157**	**DRN**	**160M6**	1730	716
8.7	72500	136.14	18300	1.60		**K**	**127**	**DRN**	**160M6**	1170	707
9.7	65200	122.48	18300	1.75		**KF**	**127**	**DRN**	**160M6**	1260	708
11	58700	110.18	18400	1.95		**KA**	**127**	**DRN**	**160M6**	1110	710
13	47900	89.89	18500	2.4		**KAF**	**127**	**DRN**	**160M6**	1190	708
12	51800	146.07	18400	2.2	X						
13	48300	136.14	18500	2.4	X						
14	43500	122.48	18500	2.6	X	**K**	**127**	**(E)DRN**	**132M4**	1080	707
16	39100	110.18	18500	2.9	X	**KF**	**127**	**(E)DRN**	**132M4**	1170	708
20	31900	89.89	18600	3.6	X	**KA**	**127**	**(E)DRN**	**132M4**	1020	710
22	29100	81.98	18600	4.0	X	**KAF**	**127**	**(E)DRN**	**132M4**	1100	708
25	25100	70.95*	18600	4.6	X						
12	50900	143.47*	14600	1.40	X						
15	43100	121.46	14600	1.65	X						
16	39900	112.41*	14400	1.75	X						
18	35700	100.75	14200	2.0	X						
20	32300	90.96*	13900	2.2	X	**K**	**107**	**(E)DRN**	**132M4**	740	699
21	29300	82.61	13700	2.4	X	**KF**	**107**	**(E)DRN**	**132M4**	770	700
24	26000	73.30	13400	2.7	X	**KA**	**107**	**(E)DRN**	**132M4**	680	702
27	23600	66.52*	13100	3.0	X	**KAF**	**107**	**(E)DRN**	**132M4**	730	700
31	20300	57.17*	12700	3.5	X						
36	17700	49.90	12300	3.9	X						
42	15000	42.33*	11900	4.3	X						
48	13100	37.00*	11500	4.8	X						

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P_m = 10.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
17	37300	105.13	8620	1.00	X						
18	34300	96.80	8590	1.10	X						
20	30700	86.52	8530	1.25	X						
23	27600	77.89*	8450	1.40	X						
25	25000	70.54	8360	1.50	X	**K**	**97**	**(E)DRN**	**132M4**	490	691
28	22200	62.55	8240	1.70	X	**KF**	**97**	**(E)DRN**	**132M4**	530	692
31	20000	56.55	8120	1.90	X	**KA**	**97**	**(E)DRN**	**132M4**	450	694
37	17000	47.93*	7910	2.2	X	**KAF**	**97**	**(E)DRN**	**132M4**	500	692
42	14800	41.87	7730	2.6	X						
46	13500	38.30	7600	2.8	X						
52	12100	34.23	7440	3.1	X						
28	22300	63.00*	5460	1.05	X						
31	20100	56.64	5450	1.20	X						
36	17400	49.16	5410	1.35	X						
40	15600	44.02	5360	1.45	X						
49	12900	36.52*	5250	1.70	X						
57	11100	31.39	5150	2.1	X	**K**	**87**	**(E)DRN**	**132M4**	360	683
64	9890	27.88	5050	2.3	X	**KF**	**87**	**(E)DRN**	**132M4**	380	684
71	8840	24.92	4960	2.5	X	**KA**	**87**	**(E)DRN**	**132M4**	330	686
79	7950	22.41	4870	2.6	X	**KAF**	**87**	**(E)DRN**	**132M4**	360	684
91	6900	19.45	4740	3.0	X						
102	6180	17.42	4630	3.1	X						
111	5680	16.00	4450	2.8	X						
123	5130	14.45	4460	3.6	X						
57	10900	30.89	3880	1.25	X						
61	10300	29.27	3950	1.30	X						
69	9090	25.62	4090	1.50	X						
77	8190	23.08	4170	1.65	X						
88	7180	20.25	4120	1.85	X						
99	6340	17.87	4040	2.0	X	**K**	**77**	**(E)DRN**	**132M4**	280	675
112	5620	15.84	3950	2.2	X	**KF**	**77**	**(E)DRN**	**132M4**	295	676
131	4800	13.52	3840	2.5	X	**KA**	**77**	**(E)DRN**	**132M4**	260	678
144	4380	12.36	3690	2.0	X	**KAF**	**77**	**(E)DRN**	**132M4**	280	676
164	3840	10.84	3600	2.3	X						
186	3390	9.56	3510	2.5	X						
209	3010	8.48	3420	2.6	X						
245	2570	7.24	3300	2.8	X						
101	6220	17.54	2530	1.05	X						
117	5390	15.19	2660	1.15	X						
134	4690	13.22	2690	1.25	X						
142	4430	12.48	2570	1.05	X	**K**	**67**	**(E)DRN**	**132M4**	225	667
167	3770	10.63	2520	1.15	X	**KF**	**67**	**(E)DRN**	**132M4**	240	668
184	3430	9.66	2490	1.25	X	**KA**	**67**	**(E)DRN**	**132M4**	220	670
212	2970	8.37	2440	1.30	X	**KAF**	**67**	**(E)DRN**	**132M4**	230	668
244	2580	7.28	2390	1.45	X						
341	1840	5.20	2240	1.70	X						
185	3400	9.59	950	1.05	X						
204	3090	8.71	960	1.10	X	**K**	**57**	**(E)DRN**	**132M4**	215	660
235	2680	7.55	960	1.20	X	**KF**	**57**	**(E)DRN**	**132M4**	225	661
270	2330	6.57	960	1.30	X	**KA**	**57**	**(E)DRN**	**132M4**	210	662
378	1660	4.69	940	1.60	X	**KAF**	**57**	**(E)DRN**	**132M4**	220	661
370	1700	9.59	940	2.1							
407	1540	8.71	930	2.2		**K**	**57**	**DRN**	**132S2**	170	660
470	1340	7.55	910	2.4		**KF**	**57**	**DRN**	**132S2**	185	661
540	1160	6.57	890	2.6		**KA**	**57**	**DRN**	**132S2**	170	662
756	830	4.69	840	3.2		**KAF**	**57**	**DRN**	**132S2**	180	661
194	3240	9.14	1030	1.35	X						
205	3070	8.66	1020	1.45	X						
234	2690	7.58	1010	1.65	X	**K**	**49**	**(E)DRN**	**132M4**	225	656
260	2420	6.83	990	1.80	X	**KF**	**49**	**(E)DRN**	**132M4**	225	657
296	2120	5.99	970	2.1	X	**KA**	**49**	**(E)DRN**	**132M4**	215	658
336	1870	5.29	950	2.3	X	**KAF**	**49**	**(E)DRN**	**132M4**	230	657
378	1660	4.69	930	2.5	X						
443	1420	4.00	900	2.7	X						

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P_m = 12.3 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
2.1	337320	835	42700	1.40	X						
2.4	294500	729	42700	1.6	X						
2.9	251280	622	42700	1.9	X	**K**	**187R107**	**(E)DRN**	**132L4**	4150	725/728
3.4	210070	520	42700	2.2	X	**KH**	**187R107**	**(E)DRN**	**132L4**	4000	726/728
3.9	183410	454	42700	2.6	X						
1.7	422560	1046	42700	1.10	X						
1.9	381760	945	42700	1.25	X						
2.4	298140	738	42700	1.6	X	**K**	**187R97**	**(E)DRN**	**132L4**	4040	725/728
2.9	250870	621	42700	1.9	X	**KH**	**187R97**	**(E)DRN**	**132L4**	3900	726/728
3.4	212900	527	42700	2.2	X						
5.6	128470	318	33720	2.4	X						
6.4	112310	278	33720	2.8	X						
7.3	98570	244	33720	3.1	X	**K**	**167R107**	**(E)DRN**	**132L4**	2860	710/728
8.3	86050	213	33720	3.6	X	**KH**	**167R107**	**(E)DRN**	**132L4**	2780	724/728
8.6	83220	206	33720	3.7	X						
2.3	305810	757	33720	1.00	X						
2.8	255320	632	33720	1.20	X						
3.2	226630	561	33720	1.35	X	**K**	**167R97**	**(E)DRN**	**132L4**	2760	710/728
3.7	194320	481	33720	1.6	X	**KH**	**167R97**	**(E)DRN**	**132L4**	2680	724/728
4.2	170880	423	33720	1.8	X						
4.8	149070	369	33720	2.1	X						
4.6	155530	385	25330	1.15	X						
5.5	131290	325	25600	1.35	X						
5.9	120790	299	25670	1.5	X	**K**	**157R107**	**(E)DRN**	**132L4**	2000	715/728
7.0	102210	253	25830	1.8	X	**KF**	**157R107**	**(E)DRN**	**132L4**	2170	716/728
7.7	92920	230	25910	1.9	X	**KA**	**157R107**	**(E)DRN**	**132L4**	1910	718/728
8.3	86050	213	25940	2.1	X	**KAF**	**157R107**	**(E)DRN**	**132L4**	2040	716/728
9.5	75540	187	26020	2.3	X						
11	63430	157	26070	2.8	X						
4.1	175330	434	25020	1.00	X	**K**	**157R97**	**(E)DRN**	**132L4**	1890	715/728
4.7	153110	379	25320	1.15	X	**KF**	**157R97**	**(E)DRN**	**132L4**	2060	716/728
5.3	134530	333	25520	1.30	X	**KA**	**157R97**	**(E)DRN**	**132L4**	1810	718/728
6.1	117560	291	25690	1.5	X	**KAF**	**157R97**	**(E)DRN**	**132L4**	1940	716/728
7.0	101800	253	18000	1.15	X						
8.3	85500	213	18200	1.35	X	**K**	**127R87**	**(E)DRN**	**132L4**	1240	707/728
8.9	81400	200	18200	1.30	X	**KF**	**127R87**	**(E)DRN**	**132L4**	1340	708/728
11	67400	166	18300	1.55	X	**KA**	**127R87**	**(E)DRN**	**132L4**	1180	710/728
12	59500	147	18400	1.80	X	**KAF**	**127R87**	**(E)DRN**	**132L4**	1260	708/728
						K	**107R77**	**(E)DRN**	**132L4**	840	699/727
12	62900	154	14400	1.00	X	**KF**	**107R77**	**(E)DRN**	**132L4**	870	700/727
13	57100	140	14300	1.10	X	**KA**	**107R77**	**(E)DRN**	**132L4**	780	702/727
						KAF	**107R77**	**(E)DRN**	**132L4**	840	700/727
						K	**157**	**(E)DRN**	**132L4**	1610	715
12	65600	150.41	26000	2.4	X	**KF**	**157**	**(E)DRN**	**132L4**	1790	716
14	53400	122.39	26100	3.0	X	**KA**	**157**	**(E)DRN**	**132L4**	1530	718
						KAF	**157**	**(E)DRN**	**132L4**	1660	716
13	59400	136.14	18400	1.95	X						
14	53400	122.48	18400	2.1	X	**K**	**127**	**(E)DRN**	**132L4**	1100	707
16	48100	110.18	18500	2.4	X	**KF**	**127**	**(E)DRN**	**132L4**	1190	708
20	39200	89.89	18500	2.9	X	**KA**	**127**	**(E)DRN**	**132L4**	1040	710
22	35700	81.98	18500	3.2	X	**KAF**	**127**	**(E)DRN**	**132L4**	1120	708
16	49000	112.41*	13800	1.45	X						
18	43900	100.75	13600	1.60	X						
20	39700	90.96*	13400	1.80	X						
21	36000	82.61	13200	1.95	X	**K**	**107**	**(E)DRN**	**132L4**	760	699
24	32000	73.30	12900	2.2	X	**KF**	**107**	**(E)DRN**	**132L4**	790	700
27	29000	66.52*	12700	2.4	X	**KA**	**107**	**(E)DRN**	**132L4**	700	702
31	24900	57.17*	12400	2.8	X	**KAF**	**107**	**(E)DRN**	**132L4**	750	700
36	21700	49.90	12000	3.2	X						
42	18400	42.33*	11600	3.5	X						

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P_m = 12.3 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
21	37700	86.52	7910	1.00	X						
23	34000	77.89*	7890	1.10	X						
25	30700	70.54	7850	1.25	X						
28	27300	62.55	7790	1.40	X						
31	24600	56.55	7710	1.55	X	**K**	**97**	**(E)DRN**	**132L4**	510	691
37	20900	47.93*	7570	1.80	X	**KF**	**97**	**(E)DRN**	**132L4**	550	692
42	18200	41.87	7430	2.1	X	**KA**	**97**	**(E)DRN**	**132L4**	465	694
46	16700	38.30	7320	2.3	X	**KAF**	**97**	**(E)DRN**	**132L4**	520	692
52	14900	34.23	7190	2.5	X						
58	13400	30.82	7060	2.8	X						
64	12100	27.91	6930	3.1	X						
72	10800	24.75	6770	3.5	X						
36	21400	49.16	5000	1.10	X						
40	19200	44.02	4990	1.20	X						
49	15900	36.52*	4950	1.40	X						
57	13700	31.39	4880	1.75	X						
64	12100	27.88	4820	1.90	X						
71	10800	24.92	4750	2.0	X	**K**	**87**	**(E)DRN**	**132L4**	375	683
79	9780	22.41	4680	2.1	X	**KF**	**87**	**(E)DRN**	**132L4**	395	684
91	8480	19.45	4580	2.4	X	**KA**	**87**	**(E)DRN**	**132L4**	350	686
102	7600	17.42	4490	2.6	X	**KAF**	**87**	**(E)DRN**	**132L4**	380	684
111	6980	16.00	4300	2.3	X						
123	6300	14.45	4330	3.0	X						
141	5480	12.56	4210	3.2	X						
159	4870	11.17	4020	2.7	X						
178	4360	10.00	3930	3.0	X						
77	10000	23.08	3980	1.35	X						
88	8830	20.25	3920	1.50	X						
99	7790	17.87	3860	1.65	X						
112	6910	15.84	3800	1.80	X	**K**	**77**	**(E)DRN**	**132L4**	295	675
131	5900	13.52	3700	2.0	X	**KF**	**77**	**(E)DRN**	**132L4**	315	676
144	5390	12.36	3550	1.65	X	**KA**	**77**	**(E)DRN**	**132L4**	280	678
164	4730	10.84	3480	1.85	X	**KAF**	**77**	**(E)DRN**	**132L4**	300	676
186	4170	9.56	3400	2.0	X						
209	3700	8.48	3330	2.1	X						
245	3160	7.24	3220	2.3	X						

P_m = 15.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
2.1	411140	835	42700	1.15	X						
2.4	358950	729	42700	1.30	X						
2.9	306260	622	42700	1.6	X	**K**	**187R107**	**(E)DRN**	**160M4**	4220	725/728
3.4	256040	520	42700	1.9	X	**KH**	**187R107**	**(E)DRN**	**160M4**	4070	726/728
3.9	223540	454	42700	2.1	X						
5.0	174800	355	42700	2.7	X						
1.9	465300	945	42700	1.00	X						
2.4	363380	738	42700	1.30	X	**K**	**187R97**	**(E)DRN**	**160M4**	4120	725/728
2.9	305770	621	42700	1.6	X	**KH**	**187R97**	**(E)DRN**	**160M4**	3970	726/728
3.4	259490	527	42700	1.8	X						
5.6	156580	318	33700	2.0	X						
6.4	136880	278	33700	2.3	X						
7.3	120140	244	33700	2.6	X	**K**	**167R107**	**(E)DRN**	**160M4**	2940	710/728
8.3	104880	213	33700	3.0	X	**KH**	**167R107**	**(E)DRN**	**160M4**	2850	724/728
8.6	101430	206	33700	3.1	X						
2.8	309750	632	33700	1.00	X						
3.2	276230	561	33700	1.10	X						
3.7	236840	481	33700	1.30	X	**K**	**167R97**	**(E)DRN**	**160M4**	2830	710/728
4.2	208280	423	33700	1.5	X	**KH**	**167R97**	**(E)DRN**	**160M4**	2750	724/728
4.8	181690	369	33700	1.7	X						

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P_m = 15.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
5.5	160020	325	25310	1.10	X						
6.0	147220	299	25420	1.20	X						
7.0	124570	253	25660	1.40	X	**K**	**157R107**	**(E)DRN**	**160M4**	2070	715/728
7.7	113250	230	25770	1.6	X	**KF**	**157R107**	**(E)DRN**	**160M4**	2240	716/728
8.3	104880	213	25820	1.7	X	**KA**	**157R107**	**(E)DRN**	**160M4**	1990	718/728
9.5	92080	187	25920	1.9	X	**KAF**	**157R107**	**(E)DRN**	**160M4**	2120	716/728
11	77300	157	26010	2.3	X						
15	60070	122	26090	3.0	X						
						K	**157R97**	**(E)DRN**	**160M4**	1960	715/728
5.3	163960	333	25210	1.10	X	**KF**	**157R97**	**(E)DRN**	**160M4**	2140	716/728
6.1	143280	291	25460	1.25	X	**KA**	**157R97**	**(E)DRN**	**160M4**	1880	718/728
						KAF	**157R97**	**(E)DRN**	**160M4**	2010	716/728
8.3	104500	213	17900	1.10	X	**K**	**127R87**	**(E)DRN**	**160M4**	1310	707/728
8.9	99500	200	18000	1.05	X	**KF**	**127R87**	**(E)DRN**	**160M4**	1410	708/728
11	82400	166	18200	1.30	X	**KA**	**127R87**	**(E)DRN**	**160M4**	1250	710/728
12	72700	147	18300	1.45	X	**KAF**	**127R87**	**(E)DRN**	**160M4**	1340	708/728
11	87560	164.50	33700	3.4	X	**K**	**167**	**(E)DRN**	**160M4**	2550	723
13	71860	134.99	33700	4.3	X	**KH**	**167**	**(E)DRN**	**160M4**	2470	724
12	80060	150.41	25980	2.2	X	**K**	**157**	**(E)DRN**	**160M4**	1680	715
15	65150	122.39	26060	2.7	X	**KF**	**157**	**(E)DRN**	**160M4**	1850	716
18	53350	100.22	25850	3.3	X	**KA**	**157**	**(E)DRN**	**160M4**	1600	718
19	48790	91.65	25340	3.6	X	**KAF**	**157**	**(E)DRN**	**160M4**	1730	716
13	72400	136.14	18300	1.60	X						
14	65100	122.48	18400	1.75	X	**K**	**127**	**(E)DRN**	**160M4**	1170	707
16	58600	110.18	18400	1.95	X	**KF**	**127**	**(E)DRN**	**160M4**	1260	708
20	47800	89.89	18500	2.4	X	**KA**	**127**	**(E)DRN**	**160M4**	1110	710
22	43600	81.98	18500	2.6	X	**KAF**	**127**	**(E)DRN**	**160M4**	1190	708
25	37700	70.95*	18500	3.0	X						
16	59800	112.41*	13000	1.20	X						
18	53600	100.75	12900	1.30	X						
20	48400	90.96*	12700	1.45	X						
22	43900	82.61	12600	1.60	X	**K**	**107**	**(E)DRN**	**160M4**	830	699
24	39000	73.30	12400	1.80	X	**KF**	**107**	**(E)DRN**	**160M4**	860	700
27	35300	66.52*	12200	2.0	X	**KA**	**107**	**(E)DRN**	**160M4**	770	702
31	30400	57.17*	11900	2.3	X	**KAF**	**107**	**(E)DRN**	**160M4**	820	700
36	26500	49.90	11700	2.6	X						
42	22500	42.33*	11300	2.9	X						
48	19600	37.00*	11000	3.2	X						
25	37500	70.54	7260	1.00	X						
28	33200	62.55	7260	1.15	X						
31	30000	56.55	7240	1.25	X						
37	25500	47.93*	7160	1.50	X						
42	22200	41.87	7070	1.70	X	**K**	**97**	**(E)DRN**	**160M4**	580	691
46	20300	38.30	7000	1.85	X	**KF**	**97**	**(E)DRN**	**160M4**	620	692
52	18200	34.23	6900	2.1	X	**KA**	**97**	**(E)DRN**	**160M4**	540	694
58	16300	30.82	6800	2.3	X	**KAF**	**97**	**(E)DRN**	**160M4**	590	692
64	14800	27.91	6690	2.6	X						
72	13100	24.75	6560	2.9	X						
79	11900	22.37	6440	3.2	X						
40	23400	44.02	4560	1.00							
49	19400	36.52*	4590	1.15	X						
57	16700	31.39	4580	1.45	X						
64	14800	27.88	4550	1.55	X						
71	13200	24.92	4510	1.65	X						
79	11900	22.41	4460	1.70	X						
91	10300	19.45	4390	1.95	X	**K**	**87**	**(E)DRN**	**160M4**	445	683
102	9260	17.42	4320	2.1	X	**KF**	**87**	**(E)DRN**	**160M4**	465	684
111	8510	16.00	4110	1.85	X	**KA**	**87**	**(E)DRN**	**160M4**	420	686
123	7680	14.45	4190	2.4	X	**KAF**	**87**	**(E)DRN**	**160M4**	450	684
141	6680	12.56	4090	2.6	X						
159	5940	11.17	3890	2.2	X						
178	5310	10.00	3820	2.5	X						
214	4410	8.29	3680	2.8	X						
246	3830	7.21	3580	3.0	X						

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P_m = 15.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
77	12200	23.08	3690	1.10	X						
88	10700	20.25	3690	1.25	X						
99	9500	17.87	3660	1.35	X						
112	8420	15.84	3620	1.45	X	**K**	**77**	**(E)DRN**	**160M4**	365	675
131	7190	13.52	3550	1.65	X	**KF**	**77**	**(E)DRN**	**160M4**	385	676
144	6570	12.36	3390	1.35	X	**KA**	**77**	**(E)DRN**	**160M4**	350	678
164	5760	10.84	3340	1.50	X	**KAF**	**77**	**(E)DRN**	**160M4**	370	676
186	5080	9.56	3280	1.65	X						
209	4510	8.48	3220	1.75	X						
245	3850	7.24	3130	1.90	X						

P_m = 20 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
2.9	407460	621	42700	1.15	X	**K**	**187R97**	**(E)DRN**	**160L4**	4150	725/728
3.4	345790	527	42700	1.35	X	**KH**	**187R97**	**(E)DRN**	**160L4**	4000	726/728
3.9	297890	454	42700	1.6	X						
5.0	232930	355	42700	2.0	X	**K**	**187R107**	**(E)DRN**	**160L4**	4250	725/728
6.8	171250	261	42700	2.7	X	**KH**	**187R107**	**(E)DRN**	**160L4**	4110	726/728
5.6	208650	318	33700	1.5	X						
6.4	182410	278	33700	1.7	X						
7.3	160100	244	33700	2.0	X	**K**	**167R107**	**(E)DRN**	**160L4**	2970	710/728
8.3	139760	213	33700	2.2	X	**KH**	**167R107**	**(E)DRN**	**160L4**	2890	724/728
8.6	135170	206	33700	2.3	X						
9.9	118110	180	33700	2.6	X						
4.2	277550	423	33700	1.10	X	**K**	**167R97**	**(E)DRN**	**160L4**	2870	710/728
4.8	242120	369	33700	1.30	X	**KH**	**167R97**	**(E)DRN**	**160L4**	2780	724/728
11	116690	164.50	33700	2.6	X	**K**	**167**	**(E)DRN**	**160L4**	2580	723
13	95750	134.99	33700	3.2	X	**KH**	**167**	**(E)DRN**	**160L4**	2500	724
7.0	166000	253	25140	1.05	X						
7.7	150910	230	25350	1.15	X	**K**	**157R107**	**(E)DRN**	**160L4**	2100	715/728
8.4	139760	213	25450	1.25	X	**KF**	**157R107**	**(E)DRN**	**160L4**	2280	716/728
9.5	122700	187	25650	1.5	X	**KA**	**157R107**	**(E)DRN**	**160L4**	2020	718/728
11	103010	157	25810	1.7	X	**KAF**	**157R107**	**(E)DRN**	**160L4**	2150	716/728
12	106690	150.41	25770	1.7	X	**K**	**157**	**(E)DRN**	**160L4**	1720	715
15	86820	122.39	25690	2.0	X	**KF**	**157**	**(E)DRN**	**160L4**	1890	716
18	71090	100.22	24790	2.5	X	**KA**	**157**	**(E)DRN**	**160L4**	1630	718
19	65010	91.65	24370	2.7	X	**KAF**	**157**	**(E)DRN**	**160L4**	1760	716
13	96500	136.14	18000	1.20	X						
15	86800	122.48	18100	1.30	X						
16	78100	110.18	18200	1.45	X						
20	63700	89.89	18400	1.80	X	**K**	**127**	**(E)DRN**	**160L4**	1200	707
22	58100	81.98	18200	2.0	X	**KF**	**127**	**(E)DRN**	**160L4**	1300	708
25	50300	70.95*	17800	2.3	X	**KA**	**127**	**(E)DRN**	**160L4**	1140	710
28	44300	62.60	17400	2.6	X	**KAF**	**127**	**(E)DRN**	**160L4**	1220	708
33	38300	54.07	16900	3.0	X						
37	33900	47.82	16500	3.4	X						
20	64400	90.96*	11300	1.10	X						
22	58500	82.61	11500	1.20	X						
24	51900	73.30	11400	1.35	X						
27	47100	66.52*	11400	1.50	X						
31	40500	57.17*	11200	1.75	X	**K**	**107**	**(E)DRN**	**160L4**	870	699
36	35300	49.90	11000	1.95	X	**KF**	**107**	**(E)DRN**	**160L4**	890	700
42	30000	42.33*	10700	2.2	X	**KA**	**107**	**(E)DRN**	**160L4**	810	702
48	26200	37.00*	10500	2.4	X	**KAF**	**107**	**(E)DRN**	**160L4**	860	700
54	23100	32.69	10300	2.8	X						
57	22100	31.28*	10200	2.7	X						
61	20500	29.00	10100	3.1	X						

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P_m = 20 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
37	33900	47.93*	6410	1.10	X						
42	29600	41.87	6420	1.30	X						
46	27100	38.30	6400	1.40	X						
52	24200	34.23	6360	1.55	X	**K**	**97**	**(E)DRN**	**160L4**	610	691
58	21800	30.82	6310	1.75	X	**KF**	**97**	**(E)DRN**	**160L4**	660	692
64	19700	27.91	6250	1.90	X	**KA**	**97**	**(E)DRN**	**160L4**	570	694
72	17500	24.75	6170	2.2	X	**KAF**	**97**	**(E)DRN**	**160L4**	630	692
79	15800	22.37	6090	2.4	X						
94	13400	18.96	5940	2.8	X						
107	11700	16.56	5800	3.2	X						
57	22200	31.39	4010	1.05	X						
64	19700	27.88	4040	1.15	X						
71	17600	24.92	4060	1.25	X						
79	15800	22.41	4060	1.30	X						
91	13700	19.45	4030	1.50	X						
102	12300	17.42	4000	1.60	X	**K**	**87**	**(E)DRN**	**160L4**	480	683
111	11300	16.00	3770	1.40	X	**KF**	**87**	**(E)DRN**	**160L4**	500	684
123	10200	14.45	3930	1.80	X	**KA**	**87**	**(E)DRN**	**160L4**	455	686
141	8900	12.56	3860	2.0	X	**KAF**	**87**	**(E)DRN**	**160L4**	485	684
159	7910	11.17	3660	1.70	X						
178	7080	10.00	3610	1.85	X						
214	5880	8.29	3510	2.1	X						
246	5110	7.21	3430	2.2	X						

P_m = 25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
3.4	431260	527	42700	1.10	X	**K**	**187R97**	**(E)DRN**	**180M4**	4200	725/728
						KH	**187R97**	**(E)DRN**	**180M4**	4050	726/728
3.4	425530	520	42700	1.10	X						
3.9	371520	454	42700	1.25	X						
5.0	290510	355	42700	1.6	X	**K**	**187R107**	**(E)DRN**	**180M4**	4300	725/728
6.8	213590	261	42700	2.2	X	**KH**	**187R107**	**(E)DRN**	**180M4**	4150	726/728
8.0	180850	221	42700	2.6	X						
9.2	157940	193	42700	3.0	X						
5.6	260230	318	33700	1.20	X						
6.4	227500	278	33700	1.35	X						
7.3	199670	244	33700	1.6	X						
8.4	174310	213	33700	1.8	X						
8.7	168580	206	33700	1.9	X	**K**	**167R107**	**(E)DRN**	**180M4**	3020	710/728
9.9	147300	180	33700	2.1	X	**KH**	**167R107**	**(E)DRN**	**180M4**	2930	724/728
11	130930	160	33700	2.4	X						
13	110480	135	33700	2.8	X						
15	96560	118	33700	3.2	X						
8.4	174310	213	25030	1.00	X						
9.5	153030	187	25340	1.15	X	**K**	**157R107**	**(E)DRN**	**180M4**	2150	715/728
11	128480	157	25590	1.40	X	**KF**	**157R107**	**(E)DRN**	**180M4**	2320	716/728
15	99840	122	24990	1.8	X	**KA**	**157R107**	**(E)DRN**	**180M4**	2070	718/728
17	87560	107	24490	2.0	X	**KAF**	**157R107**	**(E)DRN**	**180M4**	2200	716/728
9.9	159120	179.86	42700	3.0	X						
11	146160	165.21	42700	3.2	X	**K**	**187**	**(E)DRN**	**180M4**	3920	725
12	127920	144.59	42700	3.7	X	**KH**	**187**	**(E)DRN**	**180M4**	3770	726
14	114730	129.69	42700	4.1	X						
13	119420	134.99	33700	2.6	X						
16	97170	109.83	33700	3.2	X	**K**	**167**	**(E)DRN**	**180M4**	2640	723
20	77730	87.86	33700	4.0	X	**KH**	**167**	**(E)DRN**	**180M4**	2550	724
15	108280	122.39	24550	1.7	X						
18	88660	100.22	23850	2.0	X	**K**	**157**	**(E)DRN**	**180M4**	1770	715
19	81080	91.65	23510	2.2	X	**KF**	**157**	**(E)DRN**	**180M4**	1940	716
22	70550	79.75	22950	2.5	X	**KA**	**157**	**(E)DRN**	**180M4**	1690	718
25	62260	70.38	22420	2.8	X	**KAF**	**157**	**(E)DRN**	**180M4**	1820	716
29	53980	61.02	21790	3.3	X						

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P_m = 25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
16	97400	110.18	17700	1.20	X						
20	79500	89.89	17400	1.45	X						
22	72500	81.98	17300	1.60	X						
25	62700	70.95*	17000	1.85	X	**K**	**127**	**(E)DRN**	**180M4**	1250	707
28	55300	62.60	16700	2.1	X	**KF**	**127**	**(E)DRN**	**180M4**	1350	708
33	47800	54.07	16300	2.4	X	**KA**	**127**	**(E)DRN**	**180M4**	1190	710
37	42200	47.82	15900	2.7	X	**KAF**	**127**	**(E)DRN**	**180M4**	1270	708
44	35500	40.19	15400	3.2	X						
49	32000	36.25	15100	3.6	X						
57	27700	31.37	14600	4.2	X						
24	64800	73.30	10100	1.10	X						
27	58800	66.52*	10300	1.20	X						
31	50500	57.17*	10400	1.40	X						
36	44100	49.90	10300	1.55	X						
42	37400	42.33*	10200	1.75	X	**K**	**107**	**(E)DRN**	**180M4**	910	699
48	32700	37.00*	10000	1.95	X	**KF**	**107**	**(E)DRN**	**180M4**	940	700
54	28800	32.69	9850	2.2	X	**KA**	**107**	**(E)DRN**	**180M4**	850	702
57	27600	31.28*	9790	2.2	X	**KAF**	**107**	**(E)DRN**	**180M4**	900	700
61	25600	29.00	9670	2.5	X						
68	23200	26.32	9520	2.7	X						
79	19900	22.62	9260	3.2	X						
90	17400	19.74	9020	3.6	X						
43	37000	41.87	5760	1.05	X						
58	27200	30.82	5830	1.40	X						
64	24600	27.91	5820	1.55	X						
72	21800	24.75	5780	1.75	X	**K**	**97**	**(E)DRN**	**180M4**	660	691
80	19700	22.37	5740	1.90	X	**KF**	**97**	**(E)DRN**	**180M4**	710	692
94	16700	18.96	5640	2.3	X	**KA**	**97**	**(E)DRN**	**180M4**	620	694
108	14600	16.56	5540	2.6	X	**KAF**	**97**	**(E)DRN**	**180M4**	680	692
129	12200	13.85	5400	3.1	X						
149	10600	11.99	5270	3.2	X						
171	9200	10.41	4960	2.8	X						
71	22000	24.92	3610	1.00	X						
80	19800	22.41	3650	1.05	X						
92	17100	19.45	3680	1.20	X						
102	15300	17.42	3690	1.25	X	**K**	**87**	**(E)DRN**	**180M4**	530	683
123	12700	14.45	3670	1.45	X	**KF**	**87**	**(E)DRN**	**180M4**	550	684
142	11100	12.56	3630	1.60	X	**KA**	**87**	**(E)DRN**	**180M4**	500	686
160	9870	11.17	3420	1.35	X	**KAF**	**87**	**(E)DRN**	**180M4**	530	684
178	8830	10.00	3390	1.50	X						
215	7330	8.29	3330	1.70	X						
247	6370	7.21	3270	1.80	X						

P_m = 30 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
3.9	445830	454	42700	1.05	X						
5.0	348610	355	42700	1.35	X						
6.8	256300	261	42700	1.9	X	**K**	**187R107**	**(E)DRN**	**180L4**	4340	725/728
8.0	217020	221	42700	2.2	X	**KH**	**187R107**	**(E)DRN**	**180L4**	4190	726/728
9.2	189530	193	42700	2.5	X						
11	160070	163	42700	2.9	X						
5.6	312300	318	33720	1.00	X						
6.4	273000	278	33720	1.15	X						
7.3	239600	244	33720	1.30	X						
8.4	209200	213	33720	1.50	X						
8.7	202300	206	33720	1.60	X	**K**	**167R107**	**(E)DRN**	**180L4**	3050	710/728
9.9	176800	180	33720	1.80	X	**KH**	**167R107**	**(E)DRN**	**180L4**	2970	724/728
11	157100	160	33720	2.0	X						
13	132600	135	33720	2.3	X						
15	115900	118	33720	2.7	X						
11	154200	157	24480	1.15	X	**K**	**157R107**	**(E)DRN**	**180L4**	2180	715/728
15	119800	122	23920	1.5	X	**KF**	**157R107**	**(E)DRN**	**180L4**	2360	716/728
17	105100	107	23560	1.7	X	**KA**	**157R107**	**(E)DRN**	**180L4**	2100	718/728
						KAF	**157R107**	**(E)DRN**	**180L4**	2230	716/728

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P_m = 30 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1)] lb	SEW SF f_B	HazLoc -NA®					m lbs	
9.9	190900	179.86	42700	2.5	X						
11	175400	165.21	42700	2.7	X	**K**	**187**	**(E)DRN**	**180L4**	3960	725
12	153500	144.59	42700	3.1	X	**KH**	**187**	**(E)DRN**	**180L4**	3810	726
13	143300	134.99	33700	2.2	X						
16	116600	109.83	33700	2.7	X	**K**	**167**	**(E)DRN**	**180L4**	2670	723
20	93300	87.86	33700	3.3	X	**KH**	**167**	**(E)DRN**	**180L4**	2590	724
23	83000	78.14	33700	3.7	X						
15	129900	122.39	23420	1.35	X						
18	106400	100.22	22930	1.70	X	**K**	**157**	**(E)DRN**	**180L4**	1800	715
19	97300	91.65	22660	1.80	X	**KF**	**157**	**(E)DRN**	**180L4**	1980	716
22	84700	79.75	22210	2.1	X	**KA**	**157**	**(E)DRN**	**180L4**	1720	718
25	74700	70.38	21770	2.4	X	**KAF**	**157**	**(E)DRN**	**180L4**	1850	716
29	64800	61.02	21230	2.7	X						
16	116900	110.18	16500	1.00							
20	95400	89.89	16400	1.20	X						
22	87000	81.98	16400	1.30	X						
25	75200	70.95*	16200	1.55	X						
28	66400	62.60	16000	1.75	X						
33	57300	54.07	15700	2.0	X	**K**	**127**	**(E)DRN**	**180L4**	1290	707
37	50700	47.82	15400	2.3	X	**KF**	**127**	**(E)DRN**	**180L4**	1380	708
44	42600	40.19	15000	2.7	X	**KA**	**127**	**(E)DRN**	**180L4**	1220	710
49	38400	36.25	14700	3.0	X	**KAF**	**127**	**(E)DRN**	**180L4**	1310	708
57	33200	31.37	14300	3.5	X						
64	29300	27.68	13900	3.9	X						
75	25300	23.91	13500	4.5	X						
84	22400	21.15	13200	5.1	X						
27	70500	66.52*	8930	1.00	X						
31	60600	57.17*	9340	1.15	X						
36	52900	49.90	9570	1.30	X						
42	44900	42.33*	9630	1.45	X						
48	39200	37.00*	9540	1.60	X						
54	34600	32.69	9420	1.85	X						
57	33100	31.28*	9380	1.80	X	**K**	**107**	**(E)DRN**	**180L4**	950	699
61	30700	29.00	9290	2.1	X	**KF**	**107**	**(E)DRN**	**180L4**	970	700
68	27900	26.32	9170	2.3	X	**KA**	**107**	**(E)DRN**	**180L4**	890	702
79	23900	22.62	8960	2.6	X	**KAF**	**107**	**(E)DRN**	**180L4**	940	700
90	20900	19.74	8760	3.0	X						
106	17700	16.75	8500	3.5	X						
122	15500	14.64	8280	3.9	X						
133	14200	13.43	7950	2.7	X						
152	12400	11.73	7740	3.1	X						
179	10500	9.94	7480	3.5	X						
58	32600	30.82	5350	1.15	X						
64	29600	27.91	5380	1.30	X						
72	26200	24.75	5400	1.45	X						
80	23700	22.37	5390	1.60	X						
94	20100	18.96	5340	1.90	X	**K**	**97**	**(E)DRN**	**180L4**	700	691
108	17500	16.56	5290	2.2	X	**KF**	**97**	**(E)DRN**	**180L4**	740	692
129	14600	13.85	5180	2.6	X	**KA**	**97**	**(E)DRN**	**180L4**	660	694
149	12700	11.99	5080	2.7	X	**KAF**	**97**	**(E)DRN**	**180L4**	710	692
171	11000	10.41	4770	2.3	X						
205	9230	8.71	4650	2.5	X						
236	7990	7.54	4540	2.6	X						
92	20600	19.45	3330	1.00							
102	18400	17.42	3370	1.05	X						
123	15300	14.45	3410	1.20	X	**K**	**87**	**(E)DRN**	**180L4**	560	683
142	13300	12.56	3410	1.35	X	**KF**	**87**	**(E)DRN**	**180L4**	580	684
160	11800	11.17	3180	1.10	X	**KA**	**87**	**(E)DRN**	**180L4**	540	686
178	10600	10.00	3180	1.25	X	**KAF**	**87**	**(E)DRN**	**180L4**	570	684
215	8800	8.29	3160	1.40	X						
247	7650	7.21	3120	1.50	X						

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P_m = 40 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
5.0	464300	355	42700	1.00	X						
6.8	341400	261	42700	1.35	X						
8.1	289000	221	42700	1.60	X	**K**	**187R107**	**(E)DRN**	**200L4**	4580	725/728
9.2	252400	193	42700	1.85	X	**KH**	**187R107**	**(E)DRN**	**200L4**	4430	726/728
11	213200	163	42700	2.2	X						
8.4	278600	213	33700	1.10	X						
8.7	269400	206	33700	1.15	X						
9.9	235400	180	33700	1.30	X	**K**	**167R107**	**(E)DRN**	**200L4**	3290	710/728
11	209300	160	33700	1.50	X	**KH**	**167R107**	**(E)DRN**	**200L4**	3210	724/728
13	176600	135	33700	1.75	X						
15	154300	118	33700	2.0	X						
9.9	254300	179.86	42700	1.9	X						
11	233600	165.21	42700	2.0	X						
12	204400	144.59	42700	2.3	X						
14	183400	129.69	42700	2.6	X	**K**	**187**	**(E)DRN**	**200L4**	4190	725
16	159200	112.60	42700	3.0	X	**KH**	**187**	**(E)DRN**	**200L4**	4040	726
17	144400	102.16	42700	3.3	X						
20	124400	88.00	42550	3.8	X						
16	155300	109.83	33700	2.0	X						
20	124200	87.86	33700	2.5	X						
23	110500	78.14	33700	2.8	X	**K**	**167**	**(E)DRN**	**200L4**	2910	723
26	96200	68.07	33700	3.2	X	**KH**	**167**	**(E)DRN**	**200L4**	2830	724
29	85900	60.74	33700	3.6	X						
18	141700	100.22	20810	1.25	X						
19	129600	91.65	20730	1.35	X						
22	112800	79.75	20530	1.55	X	**K**	**157**	**(E)DRN**	**200L4**	2040	715
25	99500	70.38	20280	1.80	X	**KF**	**157**	**(E)DRN**	**200L4**	2210	716
29	86300	61.02	19940	2.1	X	**KA**	**157**	**(E)DRN**	**200L4**	1960	718
33	76800	54.29	19620	2.3	X	**KAF**	**157**	**(E)DRN**	**200L4**	2090	716
38	66200	46.79	19170	2.7	X						
47	53800	38.02	18480	3.3	X						
25	100200	70.95*	14600	1.15	X						
28	88400	62.60	14600	1.30	X						
33	76400	54.07	14500	1.50	X						
37	67500	47.82	14300	1.70	X	**K**	**127**	**(E)DRN**	**200L4**	1530	707
44	56800	40.19	14100	2.0	X	**KF**	**127**	**(E)DRN**	**200L4**	1620	708
49	51200	36.25	13900	2.2	X	**KA**	**127**	**(E)DRN**	**200L4**	1460	710
57	44300	31.37	13600	2.6	X	**KAF**	**127**	**(E)DRN**	**200L4**	1550	708
64	39100	27.68	13300	2.9	X						
75	33700	23.91	13000	3.4	X						
42	59800	42.33*	8010	1.10	X						
48	52200	37.00*	8300	1.20	X						
57	44200	31.28*	8510	1.35	X						
62	40900	29.00	8530	1.55	X						
68	37100	26.32	8480	1.70	X						
79	31900	22.62	8370	2.0	X	**K**	**107**	**(E)DRN**	**200L4**	1190	699
90	27900	19.74	8240	2.3	X	**KF**	**107**	**(E)DRN**	**200L4**	1210	700
106	23600	16.75	8060	2.6	X	**KA**	**107**	**(E)DRN**	**200L4**	1130	702
122	20600	14.64	7890	3.0	X	**KAF**	**107**	**(E)DRN**	**200L4**	1180	700
133	18900	13.43	7540	2.0	X						
152	16500	11.73	7380	2.3	X						
179	14000	9.94	7180	2.6	X						
205	12200	8.69	7000	2.9	X						
72	34900	24.75	4620	1.10	X						
80	31600	22.37	4690	1.20	X						
94	26700	18.96	4750	1.40	X						
108	23400	16.56	4770	1.65	X	**K**	**97**	**(E)DRN**	**200L4**	940	691
129	19500	13.85	4750	1.95	X	**KF**	**97**	**(E)DRN**	**200L4**	980	692
149	16900	11.99	4710	2.0	X	**KA**	**97**	**(E)DRN**	**200L4**	900	694
171	14700	10.41	4370	1.75	X	**KAF**	**97**	**(E)DRN**	**200L4**	950	692
205	12300	8.71	4320	1.90	X						
237	10600	7.54	4260	2.0	X						

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P_m = 50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
6.8	426200	261	42700	1.10	X						
8.1	360900	221	42700	1.30	X	**K**	**187R107**	**(E)DRN**	**225S4**	4650	725/728
9.2	315200	193	42700	1.50	X	**KH**	**187R107**	**(E)DRN**	**225S4**	4500	726/728
11	266200	163	42700	1.75	X						
9.9	293900	180	33700	1.05	X						
11	261300	160	33700	1.20	X	**K**	**167R107**	**(E)DRN**	**225S4**	3360	710/728
13	220500	135	33700	1.40	X	**KH**	**167R107**	**(E)DRN**	**225S4**	3280	724/728
15	192700	118	33700	1.60	X						
9.9	317500	179.86	42700	1.50	X						
11	291700	165.21	42700	1.60	X						
12	255300	144.59	42700	1.85	X						
14	229000	129.69	42700	2.1	X	**K**	**187**	**(E)DRN**	**225S4**	4260	725
16	198800	112.60	42700	2.4	X	**KH**	**187**	**(E)DRN**	**225S4**	4110	726
17	180400	102.16	42590	2.6	X						
20	155400	88.00	41390	3.0	X						
16	193900	109.83	33700	1.60	X						
20	155100	87.86	33700	2.0	X						
23	138000	78.14	33700	2.3	X						
26	120200	68.07	33700	2.6	X	**K**	**167**	**(E)DRN**	**225S4**	2980	723
29	107200	60.74	33550	2.9	X	**KH**	**167**	**(E)DRN**	**225S4**	2890	724
34	91400	51.77	32480	3.4	X						
42	75700	42.89	31190	4.1	X						
18	176900	100.22	18960	1.00	X						
19	161800	91.65	19040	1.10	X						
22	140800	79.75	19050	1.25	X	**K**	**157**	**(E)DRN**	**225S4**	2110	715
25	124300	70.38	18980	1.40	X	**KF**	**157**	**(E)DRN**	**225S4**	2280	716
29	107700	61.02	18810	1.65	X	**KA**	**157**	**(E)DRN**	**225S4**	2030	718
33	95800	54.29	18610	1.85	X	**KAF**	**157**	**(E)DRN**	**225S4**	2160	716
38	82600	46.79	18300	2.1	X						
47	67100	38.02	17770	2.6	X						
29	110400	62.60	13100	1.05	X						
33	95400	54.07	13200	1.20	X						
37	84300	47.82	13200	1.35	X						
44	70900	40.19	13200	1.60	X						
49	63900	36.25	13100	1.80	X						
57	55300	31.37	12900	2.1	X	**K**	**127**	**(E)DRN**	**225S4**	1600	707
64	48800	27.68	12700	2.4	X	**KF**	**127**	**(E)DRN**	**225S4**	1690	708
75	42100	23.91	12400	2.7	X	**KA**	**127**	**(E)DRN**	**225S4**	1530	710
84	37300	21.15	12200	3.1	X	**KAF**	**127**	**(E)DRN**	**225S4**	1620	708
100	31300	17.77	11800	3.7	X						
124	25300	14.35	11400	4.2	X						
140	22500	12.79	10900	3.4	X						
166	18900	10.74	10500	3.7	X						
206	15300	8.68	10000	4.2	X						
48	65200	37.00*	6710	1.00	X						
57	55200	31.28*	7240	1.10	X						
62	51100	29.00	7420	1.25	X						
68	46400	26.32	7580	1.35	X						
79	39900	22.62	7740	1.60	X						
90	34800	19.74	7720	1.85	X	**K**	**107**	**(E)DRN**	**225S4**	1260	699
107	29500	16.75	7620	2.1	X	**KF**	**107**	**(E)DRN**	**225S4**	1280	700
122	25800	14.64	7500	2.4	X	**KA**	**107**	**(E)DRN**	**225S4**	1200	702
133	23700	13.43	7130	1.60	X	**KAF**	**107**	**(E)DRN**	**225S4**	1250	700
152	20600	11.73	7020	1.85	X						
180	17500	9.94	6870	2.1	X						
205	15300	8.69	6730	2.4	X						
243	12900	7.35	6540	2.5	X						
94	33400	18.96	4160	1.15	X						
108	29200	16.56	4250	1.30	X						
129	24400	13.85	4320	1.55	X	**K**	**97**	**(E)DRN**	**225S4**	1010	691
149	21100	11.99	4330	1.65	X	**KF**	**97**	**(E)DRN**	**225S4**	1050	692
171	18300	10.41	3980	1.40	X	**KA**	**97**	**(E)DRN**	**225S4**	970	694
205	15300	8.71	3990	1.55	X	**KAF**	**97**	**(E)DRN**	**225S4**	1020	692
237	13300	7.54	3970	1.60	X						

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P_m = 60 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
8.1	438800	221	42700	1.10	X						
9.2	383000	193	42700	1.25	X	**K**	**187R107**	**(E)DRN**	**225M4**	4650	725/728
11	323200	163	42700	1.45	X	**KH**	**187R107**	**(E)DRN**	**225M4**	4500	726/728
13	264600	135	33700	1.15	X	**K**	**167R107**	**(E)DRN**	**225M4**	3360	710/728
15	231200	118	33700	1.35	X	**KH**	**167R107**	**(E)DRN**	**225M4**	3280	724/728
9.9	381000	179.86	42700	1.25	X						
11	350000	165.21	42700	1.35	X						
12	306300	144.59	42700	1.55	X						
14	274800	129.69	42450	1.70	X						
16	238500	112.60	41660	1.95	X	**K**	**187**	**(E)DRN**	**225M4**	4260	725
17	216400	102.16	41070	2.2	X	**KH**	**187**	**(E)DRN**	**225M4**	4110	726
20	186400	88.00	40080	2.5	X						
24	156700	73.96	38850	3.0	X						
28	135700	64.04	37770	3.5	X						
16	232700	109.83	33700	1.35	X						
20	186100	87.86	33700	1.65	X						
23	165500	78.14	33700	1.85	X						
26	144200	68.07	33100	2.2	X	**K**	**167**	**(E)DRN**	**225M4**	2980	723
29	128700	60.74	32480	2.4	X	**KH**	**167**	**(E)DRN**	**225M4**	2890	724
34	109700	51.77	31570	2.8	X						
42	90900	42.89	30440	3.4	X						
22	169000	79.75	17370	1.05	X						
25	149100	70.38	17500	1.20	X						
29	129300	61.02	17520	1.35	X						
33	115000	54.29	17470	1.55	X	**K**	**157**	**(E)DRN**	**225M4**	2110	715
38	99100	46.79	17310	1.80	X	**KF**	**157**	**(E)DRN**	**225M4**	2280	716
47	80500	38.02	16970	2.2	X	**KA**	**157**	**(E)DRN**	**225M4**	2030	718
57	66300	31.30	16550	2.5	X	**KAF**	**157**	**(E)DRN**	**225M4**	2160	716
65	58500	27.62	16240	3.0	X						
75	50700	23.95	15860	3.5	X						
84	45100	21.31	15530	3.9	X						
33	114500	54.07	12000	1.00	X						
37	101200	47.82	12200	1.15	X						
44	85100	40.19	12200	1.35	X						
49	76700	36.25	12200	1.50	X						
57	66400	31.37	12200	1.75	X						
64	58600	27.68	12100	1.95	X	**K**	**127**	**(E)DRN**	**225M4**	1600	707
75	50600	23.91	11900	2.3	X	**KF**	**127**	**(E)DRN**	**225M4**	1690	708
84	44700	21.15	11700	2.6	X	**KA**	**127**	**(E)DRN**	**225M4**	1530	710
100	37600	17.77	11400	3.1	X	**KAF**	**127**	**(E)DRN**	**225M4**	1620	708
124	30300	14.35	11000	3.5	X						
140	27000	12.79	10500	2.8	X						
166	22700	10.74	10200	3.1	X						
206	18300	8.68	9810	3.5	X						
62	61400	29.00	6140	1.05	X						
68	55700	26.32	6470	1.15	X						
79	47800	22.62	6840	1.35	X						
90	41800	19.74	7050	1.50	X						
107	35400	16.75	7180	1.75	X	**K**	**107**	**(E)DRN**	**225M4**	1260	699
122	30900	14.64	7120	1.95	X	**KF**	**107**	**(E)DRN**	**225M4**	1280	700
133	28400	13.43	6710	1.35	X	**KA**	**107**	**(E)DRN**	**225M4**	1200	702
152	24800	11.73	6660	1.55	X	**KAF**	**107**	**(E)DRN**	**225M4**	1250	700
180	21000	9.94	6560	1.75	X						
205	18400	8.69	6460	1.95	X						
243	15500	7.35	6310	2.0	X						

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P_m = 75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
9.2	472800	193	41560	1.00	X	**K**	**187R107**	**(E)DRN**	**250ME4**	5090	725/728
11	399300	163	41500	1.15	X	**KH**	**187R107**	**(E)DRN**	**250ME4**	4940	726/728
12	382900	144.59	40280	1.25	X						
14	343400	129.69	40030	1.35	X						
16	298200	112.60	39570	1.55	X						
17	270500	102.16	39170	1.75	X	**K**	**187**	**(E)DRN**	**250ME4**	4700	725
20	233000	88.00	38440	2.0	X	**KH**	**187**	**(E)DRN**	**250ME4**	4550	726
24	195900	73.96	37470	2.4	X						
28	169600	64.04	36580	2.8	X						
20	232700	87.86	32370	1.35	X						
23	206900	78.14	32060	1.50	X						
26	180300	68.07	31600	1.70	X						
29	160900	60.74	31150	1.95	X	**K**	**167**	**(E)DRN**	**250ME4**	3410	723
34	137100	51.77	30430	2.3	X	**KH**	**167**	**(E)DRN**	**250ME4**	3330	724
42	113600	42.89	29490	2.7	X						
49	97000	36.61	28640	3.2	X						
29	161600	61.02	15910	1.10	X						
33	143800	54.29	16040	1.25	X						
38	123900	46.79	16080	1.45	X						
47	100700	38.02	15970	1.75	X	**K**	**157**	**(E)DRN**	**250ME4**	2550	715
57	82900	31.30	15730	2.0	X	**KF**	**157**	**(E)DRN**	**250ME4**	2720	716
65	73100	27.62	15520	2.4	X	**KA**	**157**	**(E)DRN**	**250ME4**	2460	718
75	63400	23.95	15230	2.8	X	**KAF**	**157**	**(E)DRN**	**250ME4**	2590	716
84	56400	21.31	14970	3.1	X						
97	48700	18.37	14610	3.6	X						
44	106300	40.19	10900	1.10	X						
57	83000	31.37	11100	1.40	X						
64	73200	27.68	11100	1.55	X						
75	63200	23.91	11100	1.80	X	**K**	**127**	**(E)DRN**	**250ME4**	2030	707
84	55900	21.15	11000	2.1	X	**KF**	**127**	**(E)DRN**	**250ME4**	2120	708
100	47000	17.77	10800	2.5	X	**KA**	**127**	**(E)DRN**	**250ME4**	1970	710
124	37900	14.35	10600	2.8	X	**KAF**	**127**	**(E)DRN**	**250ME4**	2050	708
140	33800	12.79	10000	2.2	X						
166	28400	10.74	9810	2.5	X						
206	22900	8.68	9470	2.8	X						

P_m = 100 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
14	457900	129.69	35210	1.00	X						
16	397600	112.60	35380	1.20	X						
17	360700	102.16	35370	1.30	X						
20	310700	88.00	35170	1.50	X						
24	261100	73.96	34720	1.80	X	**K**	**187**	**(E)DRN**	**280S4**	4700	725
28	226100	64.04	34200	2.1	X	**KH**	**187**	**(E)DRN**	**280S4**	4550	726
33	188400	53.36	33390	2.5	X						
39	160700	45.50*	32580	2.9	X						
42	150100	42.51	32210	3.1	X						
46	136200	38.57	31670	3.4	X						
20	310200	87.86	28500	1.00	X						
23	275900	78.14	28620	1.10	X						
26	240300	68.07	28600	1.30	X						
29	214500	60.74	28470	1.45	X						
34	182800	51.77	28150	1.70	X	**K**	**167**	**(E)DRN**	**280S4**	3420	723
42	151400	42.89	27600	2.1	X	**KH**	**167**	**(E)DRN**	**280S4**	3340	724
49	129300	36.61	27030	2.4	X						
55	113900	32.25	26520	2.7	X						
62	101600	28.77	26020	3.1	X						
73	86600	24.52	25280	3.6	X						

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P_m = 100 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
38	165200	46.79	13620	1.05	X						
47	134200	38.02	13970	1.30	X						
57	110500	31.30	14080	1.50	X						
65	97500	27.62	14060	1.80	X	**K**	**157**	**(E)DRN**	**280S4**	2550	715
75	84600	23.95	13970	2.1	X	**KF**	**157**	**(E)DRN**	**280S4**	2720	716
84	75200	21.31	13840	2.4	X	**KA**	**157**	**(E)DRN**	**280S4**	2470	718
97	64900	18.37	13640	2.7	X	**KAF**	**157**	**(E)DRN**	**280S4**	2600	716
120	52700	14.92	13280	3.4	X						
141	44700	12.65	12940	3.7	X						
57	110700	31.37	9350	1.05	X						
64	97600	27.68	9580	1.20	X						
75	84300	23.91	9750	1.35	X						
84	74600	21.15	9820	1.55	X	**K**	**127**	**(E)DRN**	**280S4**	2030	707
100	62700	17.77	9840	1.85	X	**KF**	**127**	**(E)DRN**	**280S4**	2130	708
124	50600	14.35	9750	2.1	X	**KA**	**127**	**(E)DRN**	**280S4**	1970	710
140	45100	12.79	9220	1.65	X	**KAF**	**127**	**(E)DRN**	**280S4**	2050	708
166	37900	10.74	9110	1.85	X						
206	30600	8.68	8910	2.1	X						

P_m = 125 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
17	451100	102.16	32520	1.05	X						
20	388600	88.00	32710	1.20	X						
24	326600	73.96	32660	1.45	X						
28	282800	64.04	32410	1.65	X						
33	235600	53.36	31900	2.0	X	**K**	**187**	**(E)DRN**	**280M4**	4960	725
39	200900	45.50	31310	2.3	X	**KH**	**187**	**(E)DRN**	**280M4**	4810	726
42	187700	42.51	31030	2.5	X						
46	170300	38.57	30590	2.8	X						
54	146700	33.23	29870	3.2	X						
26	300600	68.07	26350	1.05	X						
29	268200	60.74	26460	1.15	X						
34	228600	51.77	26440	1.35	X						
42	189400	42.89	26190	1.65	X						
49	161700	36.61	25820	1.90	X	**K**	**167**	**(E)DRN**	**280M4**	3670	723
55	142400	32.25	25450	2.2	X	**KH**	**167**	**(E)DRN**	**280M4**	3590	724
62	127100	28.77	25070	2.4	X						
73	108300	24.52	24470	2.9	X						
88	89700	20.32	23700	3.5	X						
103	76600	17.34	23000	4.1	X						
						K	**157**	**(E)DRN**	**280M4/ERF/NS**	2800	715
57	138100	31.30	12600	1.20	X	**KF**	**157**	**(E)DRN**	**280M4/ERF/NS**	2980	716
						KA	**157**	**(E)DRN**	**280M4/ERF/NS**	2720	718
						KAF	**157**	**(E)DRN**	**280M4/ERF/NS**	2850	716
65	122000	27.62	12970	1.45	X						
74	105800	23.95	13020	1.65	X	**K**	**157**	**(E)DRN**	**280M4**	2800	715
84	94100	21.31	13000	1.90	X	**KF**	**157**	**(E)DRN**	**280M4**	2980	716
97	81100	18.37	12910	2.2	X	**KA**	**157**	**(E)DRN**	**280M4**	2720	718
120	65900	14.92	12690	2.7	X	**KAF**	**157**	**(E)DRN**	**280M4**	2850	716
141	55900	12.65	12440	3.0	X						
75	105500	23.91	8400	1.10	X						
84	93300	21.15	8630	1.25	X						
100	78400	17.77	8840	1.45	X	**K**	**127**	**(E)DRN**	**280M4**	2290	707
124	63300	14.35	8940	1.70	X	**KF**	**127**	**(E)DRN**	**280M4**	2380	708
140	56400	12.79	8400	1.35	X	**KA**	**127**	**(E)DRN**	**280M4**	2220	710
166	47400	10.74	8420	1.50	X	**KAF**	**127**	**(E)DRN**	**280M4**	2310	708
206	38300	8.68	8350	1.65	X						

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P_m = 150 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
20	464800	88.00	29450	1.00	X						
24	390600	73.96	29910	1.20	X						
28	338200	64.04	30030	1.40	X	**K**	**187**	**(E)DRN**	**315S4**	5490	725
34	281800	53.36	29910	1.65	X	**KH**	**187**	**(E)DRN**	**315S4**	5350	726
39	240300	45.50	29610	1.95	X						
42	224400	42.51	29300	2.1	X	**K**	**187**	**(E)DRN**	**315S4/ERF/NS**	5490	725
						KH	**187**	**(E)DRN**	**315S4/ERF/NS**	5350	726
46	203700	38.57	29150	2.3	X						
54	175500	33.23	28620	2.7	X	**K**	**187**	**(E)DRN**	**315S4**	5490	725
64	147500	27.92	27900	3.2	X	**KH**	**187**	**(E)DRN**	**315S4**	5350	726
35	273400	51.77	24160	1.15	X						
42	226500	42.89	24290	1.35	X	**K**	**167**	**(E)DRN**	**315S4**	4210	723
49	193400	36.61	24200	1.60	X	**KH**	**167**	**(E)DRN**	**315S4**	4130	724
56	170200	32.25	23900	1.80	X	**K**	**167**	**(E)DRN**	**315S4/ERF/NS**	4210	723
						KH	**167**	**(E)DRN**	**315S4/ERF/NS**	4130	724
62	152000	28.77	23790	2.0	X						
73	129500	24.52	23380	2.4	X	**K**	**167**	**(E)DRN**	**315S4**	4210	723
88	107300	20.32	22790	2.9	X	**KH**	**167**	**(E)DRN**	**315S4**	4130	724
103	91600	17.34	22220	3.4	X						
75	126400	23.95	11600	1.40	X	**K**	**157**	**(E)DRN**	**315S4/ERF/NS**	3340	715
						KF	**157**	**(E)DRN**	**315S4/ERF/NS**	3510	716
						KA	**157**	**(E)DRN**	**315S4/ERF/NS**	3260	718
						KAF	**157**	**(E)DRN**	**315S4/ERF/NS**	3390	716
84	112600	21.31	11880	1.55	X	**K**	**157**	**(E)DRN**	**315S4**	3340	715
97	97000	18.37	11950	1.80	X	**KF**	**157**	**(E)DRN**	**315S4**	3510	716
120	78800	14.92	11900	2.3	X	**KA**	**157**	**(E)DRN**	**315S4**	3260	718
141	66800	12.65	11770	2.5	X	**KAF**	**157**	**(E)DRN**	**315S4**	3390	716

P_m = 175 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
24	455500	73.96	26890	1.05	X						
28	394400	64.04	27420	1.20	X	**K**	**187**	**(E)DRN**	**315ME4**	5770	725
34	328600	53.36	27740	1.45	X	**KH**	**187**	**(E)DRN**	**315ME4**	5620	726
39	280200	45.50	27760	1.65	X						
42	261700	42.51	27800	1.80	X	**K**	**187**	**(E)DRN**	**315ME4/ERF/NS**	5770	725
46	237400	38.57	27700	1.95	X	**KH**	**187**	**(E)DRN**	**315ME4/ERF/NS**	5620	726
54	204600	33.23	27260	2.3	X						
64	171900	27.92	26760	2.7	X						
74	148900	24.18	26250	3.2	X	**K**	**187**	**(E)DRN**	**315ME4**	5770	725
89	124100	20.15	25530	3.5	X	**KH**	**187**	**(E)DRN**	**315ME4**	5620	726
104	105800	17.18	24830	3.9	X						
42	264000	42.89	22400	1.15	X	**K**	**167**	**(E)DRN**	**315ME4**	4490	723
49	225300	36.61	22500	1.35	X	**KH**	**167**	**(E)DRN**	**315ME4**	4410	724
56	198500	32.25	22600	1.55	X	**K**	**167**	**(E)DRN**	**315ME4/ERF/NS**	4490	723
62	177100	28.77	22500	1.75	X	**KH**	**167**	**(E)DRN**	**315ME4/ERF/NS**	4410	724
73	151000	24.52	22200	2.1	X						
88	125100	20.32	21810	2.5	X	**K**	**167**	**(E)DRN**	**315ME4**	4490	723
103	106800	17.34	21380	2.9	X	**KH**	**167**	**(E)DRN**	**315ME4**	4410	724
75	147400	23.95	10500	1.20	X	**K**	**157**	**(E)DRN**	**315ME4/ERF/NS**	3620	715
84	131100	21.31	10700	1.35	X	**KF**	**157**	**(E)DRN**	**315ME4/ERF/NS**	3790	716
						KA	**157**	**(E)DRN**	**315ME4/ERF/NS**	3540	718
						KAF	**157**	**(E)DRN**	**315ME4/ERF/NS**	3670	716
98	113000	18.37	11000	1.55	X	**K**	**157**	**(E)DRN**	**315ME4**	3620	715
120	91800	14.92	11100	1.95	X	**KF**	**157**	**(E)DRN**	**315ME4**	3790	716
142	77900	12.65	11100	2.1	X	**KA**	**157**	**(E)DRN**	**315ME4**	3540	718
						KAF	**157**	**(E)DRN**	**315ME4**	3670	716

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P_m = 200 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
28	451500	64.04	25270	1.05	X						
34	376200	53.36	25950	1.25	X						
39	320800	45.50*	26240	1.45	X						
54	234300	33.23	26150	2.0	X	**K**	**187**	**(E)DRN**	**315L4**	5830	725
64	196800	27.92	25830	2.4	X	**KH**	**187**	**(E)DRN**	**315L4**	5680	726
74	170500	24.18	25450	2.8	X						
89	142100	20.15	24860	3.1	X						
104	121100	17.18	24260	3.4	X						
42	302400	42.89	20520	1.00	X						
49	258100	36.61	20990	1.20	X						
73	172900	24.52	21230	1.80	X	**K**	**167**	**(E)DRN**	**315L4**	4550	723
88	143300	20.32	21010	2.2	X	**KH**	**167**	**(E)DRN**	**315L4**	4460	724
103	122200	17.34	20700	2.5	X						
						K	**157**	**(E)DRN**	**315L4**	3680	715
97	129500	18.37	10010	1.35	X	**KF**	**157**	**(E)DRN**	**315L4**	3850	716
120	105200	14.92	10330	1.70	X	**KA**	**157**	**(E)DRN**	**315L4**	3600	718
141	89200	12.65	10440	1.85	X	**KAF**	**157**	**(E)DRN**	**315L4**	3720	716

P_m = 225 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
34	423200	53.36	24960	1.10	X						
39	360900	45.50*	25390	1.30	X						
54	263600	33.23	25540	1.80	X	**K**	**187**	**(E)DRN**	**315L4**	5830	725
64	221400	27.92	25310	2.1	X	**KH**	**187**	**(E)DRN**	**315L4**	5680	726
74	191800	24.18	25000	2.5	X						
89	159800	20.15	24490	2.8	X						
104	136300	17.18	23950	3.0	X						
49	290400	36.61	20180	1.05	X						
73	194500	24.52	20690	1.60	X	**K**	**167**	**(E)DRN**	**315L4**	4550	723
88	161200	20.32	20560	1.90	X	**KH**	**167**	**(E)DRN**	**315L4**	4460	724
103	137500	17.34	20320	2.3	X						
						K	**157**	**(E)DRN**	**315L4**	3680	715
97	145700	18.37	9530	1.20	X	**KF**	**157**	**(E)DRN**	**315L4**	3850	716
120	118300	14.92	9940	1.50	X	**KA**	**157**	**(E)DRN**	**315L4**	3600	718
141	100300	12.65	10110	1.65	X	**KAF**	**157**	**(E)DRN**	**315L4**	3720	716

P_m = 250 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
34	469200	53.36	22500	1.00	X	**K**	**187**	**(E)DRN**	**315H4**	6090	725
39	400100	45.50	23290	1.15	X	**KH**	**187**	**(E)DRN**	**315H4**	5940	726
54	292000	33.23	23900	1.60	X	**K**	**187**	**(E)DRN**	**315H4/ERF/NS**	6090	725
						KH	**187**	**(E)DRN**	**315H4/ERF/NS**	5940	726
64	245500	27.92	24010	1.90	X						
74	212600	24.18	23880	2.2	X	**K**	**187**	**(E)DRN**	**315H4**	6090	725
89	177200	20.15	23550	2.5	X	**KH**	**187**	**(E)DRN**	**315H4**	5940	726
104	151100	17.18	23140	2.7	X						
73	215500	24.52	19300	1.45	X	**K**	**167**	**(E)DRN**	**315H4/ERF/NS**	4810	723
						KH	**167**	**(E)DRN**	**315H4/ERF/NS**	4720	724
88	178500	20.32	19400	1.75	X	**K**	**167**	**(E)DRN**	**315H4**	4810	723
103	152400	17.34	19300	2.0	X	**KH**	**167**	**(E)DRN**	**315H4**	4720	724
						K	**157**	**(E)DRN**	**315H4**	3940	715
120	131100	14.92	8900	1.35	X	**KF**	**157**	**(E)DRN**	**315H4**	4110	716
142	111200	12.65	9230	1.50	X	**KA**	**157**	**(E)DRN**	**315H4**	3860	718
						KAF	**157**	**(E)DRN**	**315H4**	3990	716

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P_m = 275 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
39	440100	45.50*	21600	1.05	X	**K** **KH**	**187** **187**	**(E)DRN** **(E)DRN**	**315H4** **315H4**	6090 5940	725 726
54	321400	33.23	22700	1.45	X	**K** **KH**	**187** **187**	**(E)DRN** **(E)DRN**	**315H4/ERF/NS** **315H4/ERF/NS**	6090 5940	725 726
64	270100	27.92	23000	1.75	X						
74	233800	24.18	23000	2.0	X	**K**	**187**	**(E)DRN**	**315H4**	6090	725
89	194900	20.15	22800	2.3	X	**KH**	**187**	**(E)DRN**	**315H4**	5940	726
104	166100	17.18	22500	2.5	X						
73	237200	24.52	18300	1.30	X	**K** **KH**	**167** **167**	**(E)DRN** **(E)DRN**	**315H4/ERF/NS** **315H4/ERF/NS**	4810 4720	723 724
88	196500	20.32	18500	1.60	X	**K**	**167**	**(E)DRN**	**315H4**	4810	723
103	167700	17.34	18600	1.85	X	**KH**	**167**	**(E)DRN**	**315H4**	4720	724
						K	**157**	**(E)DRN**	**315H4**	3940	715
120	144300	14.92	8170	1.25	X	**KF**	**157**	**(E)DRN**	**315H4**	4110	716
142	122400	12.65	8610	1.35	X	**KA**	**157**	**(E)DRN**	**315H4**	3860	718
						KAF	**157**	**(E)DRN**	**315H4**	3990	716

P_m = 300 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
54	350800	33.23	21600	1.35	X	**K** **KH**	**187** **187**	**(E)DRN** **(E)DRN**	**315H4/ERF/NS** **315H4/ERF/NS**	6090 5940	725 726
64	294800	27.92	22000	1.60	X						
74	255300	24.18	22100	1.85	X	**K**	**187**	**(E)DRN**	**315H4**	6090	725
89	212700	20.15	22100	2.1	X	**KH**	**187**	**(E)DRN**	**315H4**	5940	726
104	181300	17.18	21900	2.3	X						
73	258900	24.52	17200	1.20	X	**K** **KH**	**167** **167**	**(E)DRN** **(E)DRN**	**315H4/ERF/NS** **315H4/ERF/NS**	4810 4720	723 724
88	214500	20.32	17700	1.45	X	**K**	**167**	**(E)DRN**	**315H4**	4810	723
103	183100	17.34	17900	1.70	X	**KH**	**167**	**(E)DRN**	**315H4**	4720	724
						K	**157**	**(E)DRN**	**315H4**	3940	715
120	157500	14.92	7440	1.10	X	**KF**	**157**	**(E)DRN**	**315H4**	4110	716
141	133600	12.65	7990	1.25	X	**KA**	**157**	**(E)DRN**	**315H4**	3860	718
						KAF	**157**	**(E)DRN**	**315H4**	3990	716

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10.4 K.. R.. DRN.. Selections by torque / low output speed

$T_{a\,max}$ = 1760 lb-in

n_a rpm	i ratio	F_{Ra}[1] lb					m lbs	
0.25	6832	1170						
0.28	5922	1170						
0.31	5491	1170						
0.35	4759	1170						
0.40	4160	1170						
0.46	3645	1170						
0.52	3205	1170	**K**	**37R17**	**DRN**	**63MS4**	42	638/727
0.60	2801	1170	**KF**	**37R17**	**DRN**	**63MS4**	47	639/727
0.68	2454	1170	**KA**	**37R17**	**DRN**	**63MS4**	42	640/727
0.78	2166	1170	**KAF**	**37R17**	**DRN**	**63MS4**	46	639/727
0.89	1891	1170						
1.0	1660	1170						
1.1	1466	1170						
1.3	1288	1170						
1.5	1136	1170						
1.7	996	1170						
1.9	876	1170						
2.2	761	1170						
2.5	671	1170	**K**	**37R17**	**DRN**	**63MS4**	42	638/727
2.9	585	1170	**KF**	**37R17**	**DRN**	**63MS4**	47	639/727
3.3	512	1170	**KA**	**37R17**	**DRN**	**63MS4**	41	640/727
3.7	451	1170	**KAF**	**37R17**	**DRN**	**63MS4**	45	639/727
4.2	396	1170						
4.9	346	1170						
5.6	304	1170	**K**	**37R17**	**DRN**	**63M4**	42	638/727
6.4	267	1170	**KF**	**37R17**	**DRN**	**63M4**	47	639/727
7.3	234	1170	**KA**	**37R17**	**DRN**	**63M4**	41	640/727
			KAF	**37R17**	**DRN**	**63M4**	45	639/727
			K	**37R17**	**DRN**	**71MS4**	47	638/727
8.3	205	1170	**KF**	**37R17**	**DRN**	**71MS4**	52	639/727
9.4	181	1170	**KA**	**37R17**	**DRN**	**71MS4**	47	640/727
			KAF	**37R17**	**DRN**	**71MS4**	51	639/727
11	160	1170	**K**	**37R17**	**DRN**	**71M4**	47	638/727
12	136	1170	**KF**	**37R17**	**DRN**	**71M4**	52	639/727
13	127	1170	**KA**	**37R17**	**DRN**	**71M4**	47	640/727
15	110	1170	**KAF**	**37R17**	**DRN**	**71M4**	51	639/727
			K	**37R17**	**DRN**	**80MK4**	50	638/727
18	96	1170	**KF**	**37R17**	**DRN**	**80MK4**	55	639/727
			KA	**37R17**	**DRN**	**80MK4**	50	640/727
			KAF	**37R17**	**DRN**	**80MK4**	53	639/727

$T_{a\,max}$ = 2650 lb-in

n_a rpm	i ratio	F_{Ra}[1] lb					m lbs	
0.41	4057	1690						
0.50	3370	1690						
0.58	2906	1690						
0.67	2508	1690						
0.71	2367	1690						
0.78	2162	1690	**K**	**39R17**	**DRN**	**63MS4**	53	645/727
0.89	1881	1690	**KF**	**39R17**	**DRN**	**63MS4**	57	646/727
0.95	1762	1690	**KA**	**39R17**	**DRN**	**63MS4**	51	647/727
1.0	1622	1690	**KAF**	**39R17**	**DRN**	**63MS4**	55	646/727
1.1	1494	1690						
1.3	1321	1690						
1.4	1169	1690						
1.5	1093	1690						
1.8	956	1690	**K**	**39R17**	**DRN**	**63MS4**	53	645/727
2.1	814	1690	**KF**	**39R17**	**DRN**	**63MS4**	56	646/727
2.4	711	1690	**KA**	**39R17**	**DRN**	**63MS4**	51	647/727
2.8	605	1690	**KAF**	**39R17**	**DRN**	**63MS4**	54	646/727

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$T_{a\ max}$ = 2650 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
3.4	504	1690	**K**	**39R17**	**DRN**	**63M4**	53	645/727
3.7	454	1690	**KF**	**39R17**	**DRN**	**63M4**	56	646/727
4.3	399	1690	**KA**	**39R17**	**DRN**	**63M4**	51	647/727
4.7	365	1690	**KAF**	**39R17**	**DRN**	**63M4**	54	646/727
5.5	312	1690	**K**	**39R17**	**DRN**	**71MS4**	58	645/727
5.7	299	1690	**KF**	**39R17**	**DRN**	**71MS4**	62	646/727
6.7	254	1690	**KA**	**39R17**	**DRN**	**71MS4**	56	647/727
			KAF	**39R17**	**DRN**	**71MS4**	60	646/727
7.3	234	1690	**K**	**39R17**	**DRN**	**71M4**	58	645/727
8.1	210	1690	**KF**	**39R17**	**DRN**	**71M4**	62	646/727
9.0	189	1690	**KA**	**39R17**	**DRN**	**71M4**	56	647/727
9.8	174	1690	**KAF**	**39R17**	**DRN**	**71M4**	60	646/727
11	156	1690	**K**	**39R17**	**DRN**	**80MK4**	61	645/727
12	142	1690	**KF**	**39R17**	**DRN**	**80MK4**	65	646/727
14	117	1690	**KA**	**39R17**	**DRN**	**80MK4**	59	647/727
			KAF	**39R17**	**DRN**	**80MK4**	62	646/727

$T_{a\ max}$ = 3530 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.17	10138	1330						
0.20	8534	1330						
0.22	7662	1330						
0.25	6826	1330						
0.28	5983	1330						
0.33	5159	1330						
0.37	4601	1330	**K**	**47R37**	**DRN**	**63MS4**	74	649/727
0.43	3940	1330	**KF**	**47R37**	**DRN**	**63MS4**	81	650/727
0.48	3477	1330	**KA**	**47R37**	**DRN**	**63MS4**	72	651/727
0.55	3043	1330	**KAF**	**47R37**	**DRN**	**63MS4**	78	650/727
0.61	2733	1330						
0.71	2354	1330						
0.81	2063	1330						
0.92	1819	1330						
1.1	1586	1330						
1.2	1388	1330						
1.4	1222	1330	**K**	**47R37**	**DRN**	**63MS4**	73	649/727
1.5	1097	1330	**KF**	**47R37**	**DRN**	**63MS4**	80	650/727
1.8	945	1330	**KA**	**47R37**	**DRN**	**63MS4**	71	651/727
2.0	831	1330	**KAF**	**47R37**	**DRN**	**63MS4**	78	650/727
2.3	718	1330						
2.7	639	1330	**K**	**47R37**	**DRN**	**63M4**	73	649/727
3.1	552	1330	**KF**	**47R37**	**DRN**	**63M4**	80	650/727
3.4	495	1330	**KA**	**47R37**	**DRN**	**63M4**	71	651/727
			KAF	**47R37**	**DRN**	**63M4**	78	650/727
4.0	426	1330	**K**	**47R37**	**DRN**	**71MS4**	79	649/727
4.5	375	1330	**KF**	**47R37**	**DRN**	**71MS4**	86	650/727
5.2	327	1330	**KA**	**47R37**	**DRN**	**71MS4**	77	651/727
			KAF	**47R37**	**DRN**	**71MS4**	84	650/727
5.9	289	1330	**K**	**47R37**	**DRN**	**71M4**	79	649/727
6.6	256	1330	**KF**	**47R37**	**DRN**	**71M4**	86	650/727
7.6	225	1330	**KA**	**47R37**	**DRN**	**71M4**	77	651/727
			KAF	**47R37**	**DRN**	**71M4**	84	650/727
8.5	198	1330	**K**	**47R37**	**DRN**	**80MK4**	82	649/727
9.9	171	1330	**KF**	**47R37**	**DRN**	**80MK4**	89	650/727
11	153	1330	**KA**	**47R37**	**DRN**	**80MK4**	80	651/727
			KAF	**47R37**	**DRN**	**80MK4**	86	650/727
13	131	1330	**K**	**47R37**	**DRN**	**80M4**	92	649/727
16	112	1330	**KF**	**47R37**	**DRN**	**80M4**	99	650/727
			KA	**47R37**	**DRN**	**80M4**	90	651/727
			KAF	**47R37**	**DRN**	**80M4**	96	650/727

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$T_{a\ max}$ = 3530 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
			K	**47R37**	**DRN**	**90S4**	105	649/727
18	99	1330	**KF**	**47R37**	**DRN**	**90S4**	110	650/727
19	94	1330	**KA**	**47R37**	**DRN**	**90S4**	105	651/727
			KAF	**47R37**	**DRN**	**90S4**	110	650/727

$T_{a\ max}$ = 4420 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.24	7137	2020						
0.28	5991	2020						
0.33	5120	2020						
0.42	4034	2020						
0.47	3580	2020						
0.55	3081	2020						
0.61	2773	2020						
0.66	2545	2020						
0.71	2372	2020	**K**	**49R37**	**DRN**	**63MS4**	95	656/727
0.79	2118	2020	**KF**	**49R37**	**DRN**	**63MS4**	99	657/727
0.87	1941	2020	**KA**	**49R37**	**DRN**	**63MS4**	89	658/727
0.97	1741	2020	**KAF**	**49R37**	**DRN**	**63MS4**	100	657/727
1.0	1632	2020						
1.1	1521	2020						
1.2	1424	2020						
1.3	1309	2020						
1.4	1228	2020						
1.5	1120	2020						
1.7	1000	2020						
1.9	908	2020						
2.1	802	2020	**K**	**49R37**	**DRN**	**63M4**	95	656/727
2.4	701	2020	**KF**	**49R37**	**DRN**	**63M4**	99	657/727
2.6	645	2020	**KA**	**49R37**	**DRN**	**63M4**	89	658/727
2.9	595	2020	**KAF**	**49R37**	**DRN**	**63M4**	100	657/727
3.1	543	2020	**K**	**49R37**	**DRN**	**71MS4**	100	656/727
3.4	501	2020	**KF**	**49R37**	**DRN**	**71MS4**	105	657/727
3.8	449	2020	**KA**	**49R37**	**DRN**	**71MS4**	94	658/727
4.2	401	2020	**KAF**	**49R37**	**DRN**	**71MS4**	105	657/727
			K	**49R37**	**DRN**	**71M4**	100	656/727
4.7	360	2020	**KF**	**49R37**	**DRN**	**71M4**	105	657/727
5.2	330	2020	**KA**	**49R37**	**DRN**	**71M4**	94	658/727
5.7	300	2020	**KAF**	**49R37**	**DRN**	**71M4**	105	657/727
6.2	274	2020	**K**	**49R37**	**DRN**	**80MK4**	105	656/727
6.9	243	2020	**KF**	**49R37**	**DRN**	**80MK4**	105	657/727
7.8	217	2020	**KA**	**49R37**	**DRN**	**80MK4**	97	658/727
8.8	193	2020	**KAF**	**49R37**	**DRN**	**80MK4**	105	657/727
			K	**49R37**	**DRN**	**80M4**	115	656/727
9.9	176	2020	**KF**	**49R37**	**DRN**	**80M4**	115	657/727
12	152	2020	**KA**	**49R37**	**DRN**	**80M4**	105	658/727
			KAF	**49R37**	**DRN**	**80M4**	120	657/727
			K	**49R37**	**DRN**	**90S4**	125	656/727
14	125	2020	**KF**	**49R37**	**DRN**	**90S4**	130	657/727
18	99	2020	**KA**	**49R37**	**DRN**	**90S4**	120	658/727
			KAF	**49R37**	**DRN**	**90S4**	130	657/727

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$T_{a\ max}$ = 5300 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.14	12169	1710						
0.15	11162	1710						
0.18	9503	1710						
0.20	8547	1710						
0.23	7277	1710						
0.26	6478	1710						
0.30	5662	1710	**K**	**57R37**	**DRN**	**63MS4**	87	660/727
0.33	5033	1710	**KF**	**57R37**	**DRN**	**63MS4**	97	661/727
0.39	4340	1710	**KA**	**57R37**	**DRN**	**63MS4**	82	662/727
0.44	3854	1710	**KAF**	**57R37**	**DRN**	**63MS4**	95	661/727
0.50	3390	1710						
0.57	2924	1710						
0.65	2593	1710						
0.75	2249	1710						
0.85	1986	1710						
0.96	1743	1710						
1.1	1539	1710	**K**	**57R37**	**DRN**	**63MS4**	86	660/727
1.2	1354	1710	**KF**	**57R37**	**DRN**	**63MS4**	97	661/727
1.4	1174	1710	**KA**	**57R37**	**DRN**	**63MS4**	82	662/727
1.6	1036	1710	**KAF**	**57R37**	**DRN**	**63MS4**	94	661/727
1.9	906	1710	**K**	**57R37**	**DRN**	**63M4**	86	660/727
2.1	806	1710	**KF**	**57R37**	**DRN**	**63M4**	97	661/727
2.4	699	1710	**KA**	**57R37**	**DRN**	**63M4**	82	662/727
			KAF	**57R37**	**DRN**	**63M4**	94	661/727
2.8	615	1710	**K**	**57R37**	**DRN**	**71MS4**	92	660/727
3.1	544	1710	**KF**	**57R37**	**DRN**	**71MS4**	105	661/727
3.6	473	1710	**KA**	**57R37**	**DRN**	**71MS4**	88	662/727
			KAF	**57R37**	**DRN**	**71MS4**	100	661/727
			K	**57R37**	**DRN**	**71M4**	92	660/727
4.0	421	1710	**KF**	**57R37**	**DRN**	**71M4**	105	661/727
4.7	362	1710	**KA**	**57R37**	**DRN**	**71M4**	88	662/727
			KAF	**57R37**	**DRN**	**71M4**	100	661/727
5.3	319	1710	**K**	**57R37**	**DRN**	**80MK4**	95	660/727
6.0	280	1710	**KF**	**57R37**	**DRN**	**80MK4**	105	661/727
6.9	246	1710	**KA**	**57R37**	**DRN**	**80MK4**	90	662/727
7.9	215	1710	**KAF**	**57R37**	**DRN**	**80MK4**	105	661/727
			K	**57R37**	**DRN**	**80M4**	105	660/727
9.1	192	1710	**KF**	**57R37**	**DRN**	**80M4**	115	661/727
11	166	1710	**KA**	**57R37**	**DRN**	**80M4**	100	662/727
			KAF	**57R37**	**DRN**	**80M4**	115	661/727
12	145	1710	**K**	**57R37**	**DRN**	**90S4**	120	660/727
14	129	1710	**KF**	**57R37**	**DRN**	**90S4**	130	661/727
16	111	1710	**KA**	**57R37**	**DRN**	**90S4**	115	662/727
			KAF	**57R37**	**DRN**	**90S4**	125	661/727
			K	**57R37**	**DRN**	**90L4**	125	660/727
18	97	1710	**KF**	**57R37**	**DRN**	**90L4**	135	661/727
			KA	**57R37**	**DRN**	**90L4**	120	662/727
			KAF	**57R37**	**DRN**	**90L4**	135	661/727

$T_{a\ max}$ = 7250 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.14	12139	2320						
0.15	11134	2320						
0.18	9479	2320						
0.21	8173	2320						
0.23	7259	2320	**K**	**67R37**	**DRN**	**63MS4**	100	667/727
0.26	6462	2320	**KF**	**67R37**	**DRN**	**63MS4**	110	668/727
0.30	5648	2320	**KA**	**67R37**	**DRN**	**63MS4**	94	670/727
0.35	4846	2320	**KAF**	**67R37**	**DRN**	**63MS4**	105	668/727
0.39	4329	2320						
0.45	3750	2320						
0.51	3315	2320						
0.58	2917	2320						

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$T_{a\,max}$ = 7250 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.66	2532	2320						
0.75	2244	2320	**K**	**67R37**	**DRN**	**63MS4**	100	667/727
0.85	1981	2320	**KF**	**67R37**	**DRN**	**63MS4**	110	668/727
0.97	1739	2320	**KA**	**67R37**	**DRN**	**63MS4**	94	670/727
1.1	1535	2320	**KAF**	**67R37**	**DRN**	**63MS4**	105	668/727
1.2	1351	2320						
1.4	1171	2320	**K**	**67R37**	**DRN**	**63M4**	100	667/727
1.6	1034	2320	**KF**	**67R37**	**DRN**	**63M4**	110	668/727
1.9	903	2320	**KA**	**67R37**	**DRN**	**63M4**	94	670/727
			KAF	**67R37**	**DRN**	**63M4**	105	668/727
2.1	793	2320	**K**	**67R37**	**DRN**	**71MS4**	105	667/727
2.4	697	2320	**KF**	**67R37**	**DRN**	**71MS4**	115	668/727
			KA	**67R37**	**DRN**	**71MS4**	99	670/727
			KAF	**67R37**	**DRN**	**71MS4**	110	668/727
2.8	613	2320	**K**	**67R37**	**DRN**	**71M4**	105	667/727
3.1	542	2320	**KF**	**67R37**	**DRN**	**71M4**	115	668/727
3.6	471	2320	**KA**	**67R37**	**DRN**	**71M4**	99	670/727
			KAF	**67R37**	**DRN**	**71M4**	110	668/727
4.0	420	2320	**K**	**67R37**	**DRN**	**80MK4**	110	667/727
4.7	361	2320	**KF**	**67R37**	**DRN**	**80MK4**	120	668/727
5.2	323	2320	**KA**	**67R37**	**DRN**	**80MK4**	100	670/727
			KAF	**67R37**	**DRN**	**80MK4**	115	668/727
6.3	279	2320	**K**	**67R37**	**DRN**	**80M4**	120	667/727
7.1	246	2320	**KF**	**67R37**	**DRN**	**80M4**	130	668/727
			KA	**67R37**	**DRN**	**80M4**	110	670/727
			KAF	**67R37**	**DRN**	**80M4**	125	668/727
8.1	217	2320	**K**	**67R37**	**DRN**	**90S4**	130	667/727
9.2	191	2320	**KF**	**67R37**	**DRN**	**90S4**	145	668/727
11	166	2320	**KA**	**67R37**	**DRN**	**90S4**	125	670/727
			KAF	**67R37**	**DRN**	**90S4**	135	668/727
12	144	2320	**K**	**67R37**	**DRN**	**90L4**	140	667/727
14	122	2320	**KF**	**67R37**	**DRN**	**90L4**	150	668/727
			KA	**67R37**	**DRN**	**90L4**	130	670/727
			KAF	**67R37**	**DRN**	**90L4**	145	668/727

$T_{a\,max}$ = 13700 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.11	15310	3460						
0.12	14043	3460						
0.14	11955	3460						
0.16	10217	3460						
0.19	8809	3460						
0.22	7528	3460	**K**	**77R37**	**DRN**	**63MS4**	155	675/727
0.25	6606	3460	**KF**	**77R37**	**DRN**	**63MS4**	170	676/727
0.29	5774	3460	**KA**	**77R37**	**DRN**	**63MS4**	135	678/727
0.33	5089	3460	**KAF**	**77R37**	**DRN**	**63MS4**	155	676/727
0.37	4489	3460						
0.42	3961	3460						
0.48	3485	3460						
0.58	2901	3460						
0.62	2717	3460						
0.72	2370	3460	**K**	**77R37**	**DRN**	**63M4**	155	675/727
0.83	2050	3460	**KF**	**77R37**	**DRN**	**63M4**	170	676/727
0.96	1772	3460	**KA**	**77R37**	**DRN**	**63M4**	135	678/727
			KAF	**77R37**	**DRN**	**63M4**	155	676/727
1.1	1514	3460	**K**	**77R37**	**DRN**	**71MS4**	160	675/727
1.2	1388	3460	**KF**	**77R37**	**DRN**	**71MS4**	175	676/727
1.4	1218	3460	**KA**	**77R37**	**DRN**	**71MS4**	140	678/727
			KAF	**77R37**	**DRN**	**71MS4**	160	676/727
1.6	1053	3460	**K**	**77R37**	**DRN**	**71M4**	160	675/727
1.8	924	3460	**KF**	**77R37**	**DRN**	**71M4**	175	676/727
			KA	**77R37**	**DRN**	**71M4**	140	678/727
			KAF	**77R37**	**DRN**	**71M4**	160	676/727

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$T_{a\ max}$ = 13700 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
2.1	815	3460	**K**	**77R37**	**DRN**	**80MK4**	160	675/727
2.4	709	3460	**KF**	**77R37**	**DRN**	**80MK4**	180	676/727
2.7	622	3460	**KA**	**77R37**	**DRN**	**80MK4**	145	678/727
3.1	552	3460	**KAF**	**77R37**	**DRN**	**80MK4**	160	676/727
			K	**77R37**	**DRN**	**80M4**	170	675/727
3.6	485	3460	**KF**	**77R37**	**DRN**	**80M4**	190	676/727
4.1	428	3460	**KA**	**77R37**	**DRN**	**80M4**	155	678/727
			KAF	**77R37**	**DRN**	**80M4**	170	676/727
			K	**77R37**	**DRN**	**90S4**	185	675/727
4.8	367	3460	**KF**	**77R37**	**DRN**	**90S4**	200	676/727
5.4	328	3460	**KA**	**77R37**	**DRN**	**90S4**	170	678/727
6.1	290	3460	**KAF**	**77R37**	**DRN**	**90S4**	185	676/727
			K	**77R37**	**DRN**	**90L4**	190	675/727
7.0	252	3460	**KF**	**77R37**	**DRN**	**90L4**	210	676/727
8.0	221	3460	**KA**	**77R37**	**DRN**	**90L4**	175	678/727
			KAF	**77R37**	**DRN**	**90L4**	190	676/727
			K	**77R37**	**DRN**	**100LM4**	215	675/727
9.0	195	3460	**KF**	**77R37**	**DRN**	**100LM4**	235	676/727
10	175	3460	**KA**	**77R37**	**DRN**	**100LM4**	200	678/727
11	154	3460	**KAF**	**77R37**	**DRN**	**100LM4**	215	676/727

$T_{a\ max}$ = 23800 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.11	14829	6130						
0.13	13168	6130						
0.14	11737	6130						
0.16	10217	6130	**K**	**87R57**	**DRN**	**63MS4**	260	683/727
0.19	9073	6130	**KF**	**87R57**	**DRN**	**63MS4**	280	684/727
0.21	7854	6130	**KA**	**87R57**	**DRN**	**63MS4**	235	686/727
0.25	6832	6130	**KAF**	**87R57**	**DRN**	**63MS4**	265	684/727
0.28	5930	6130						
0.32	5240	6130						
0.37	4562	6130						
0.42	4037	6130	**K**	**87R57**	**DRN**	**63M4**	260	683/727
0.47	3609	6130	**KF**	**87R57**	**DRN**	**63M4**	280	684/727
0.55	3107	6130	**KA**	**87R57**	**DRN**	**63M4**	235	686/727
0.62	2728	6130	**KAF**	**87R57**	**DRN**	**63M4**	265	684/727
0.72	2371	6130						
			K	**87R57**	**DRN**	**71MS4**	265	683/727
0.62	2728	6130	**KF**	**87R57**	**DRN**	**71MS4**	285	684/727
0.72	2371	6130	**KA**	**87R57**	**DRN**	**71MS4**	240	686/727
			KAF	**87R57**	**DRN**	**71MS4**	265	684/727
			K	**87R57**	**DRN**	**71M4**	265	683/727
0.81	2088	6130	**KF**	**87R57**	**DRN**	**71M4**	285	684/727
0.92	1854	6130	**KA**	**87R57**	**DRN**	**71M4**	240	686/727
1.0	1657	6130	**KAF**	**87R57**	**DRN**	**71M4**	265	684/727
			K	**87R57**	**DRN**	**80MK4**	265	683/727
1.2	1415	6130	**KF**	**87R57**	**DRN**	**80MK4**	290	684/727
1.4	1229	6130	**KA**	**87R57**	**DRN**	**80MK4**	240	686/727
1.6	1078	6130	**KAF**	**87R57**	**DRN**	**80MK4**	270	684/727
			K	**87R57**	**DRN**	**80M4**	280	683/727
1.8	951	6130	**KF**	**87R57**	**DRN**	**80M4**	300	684/727
2.1	837	6130	**KA**	**87R57**	**DRN**	**80M4**	250	686/727
			KAF	**87R57**	**DRN**	**80M4**	280	684/727
			K	**87R57**	**DRN**	**90S4**	290	683/727
2.4	726	6130	**KF**	**87R57**	**DRN**	**90S4**	310	684/727
2.8	638	6130	**KA**	**87R57**	**DRN**	**90S4**	265	686/727
3.1	562	6130	**KAF**	**87R57**	**DRN**	**90S4**	295	684/727

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$T_{a\,max}$ = 23800 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
3.7	474	6130	K	87R57	DRN	90L4	300	683/727
4.1	426	6130	KF	87R57	DRN	90L4	320	684/727
4.7	373	6130	KA	87R57	DRN	90L4	270	686/727
			KAF	87R57	DRN	90L4	300	684/727
5.3	330	6130	K	87R57	DRN	100LM4	325	683/727
6.0	294	6130	KF	87R57	DRN	100LM4	345	684/727
7.1	250	6130	KA	87R57	DRN	100LM4	295	686/727
			KAF	87R57	DRN	100LM4	325	684/727
7.5	236	6130	K	87R57	DRN	100L4	325	683/727
8.8	201	6130	KF	87R57	DRN	100L4	345	684/727
9.6	183	6130	KA	87R57	DRN	100L4	295	686/727
11	159	6130	KAF	87R57	DRN	100L4	325	684/727

$T_{a\,max}$ = 38000 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.09	18091	8990						
0.10	16666	8990						
0.11	14897	8990	K	97R57	DRN	63MS4	395	691/727
0.13	13182	8990	KF	97R57	DRN	63MS4	440	692/727
0.14	11677	8990	KA	97R57	DRN	63MS4	355	694/727
0.16	10317	8990	KAF	97R57	DRN	63MS4	410	692/727
0.18	9083	8990						
0.21	8054	8990						
0.24	6970	8990	K	97R57	DRN	63M4	395	691/727
0.28	6027	8990	KF	97R57	DRN	63M4	440	692/727
0.32	5391	8990	KA	97R57	DRN	63M4	355	694/727
0.36	4669	8990	KAF	97R57	DRN	63M4	410	692/727
			K	97R57	DRN	71MS4	400	691/727
0.42	4082	8990	KF	97R57	DRN	71MS4	445	692/727
0.47	3583	8990	KA	97R57	DRN	71MS4	360	694/727
			KAF	97R57	DRN	71MS4	415	692/727
			K	97R57	DRN	71M4	400	691/727
0.55	3108	8990	KF	97R57	DRN	71M4	445	692/727
0.62	2757	8990	KA	97R57	DRN	71M4	360	694/727
0.70	2419	8990	KAF	97R57	DRN	71M4	415	692/727
			K	97R57	DRN	80MK4	400	691/727
0.80	2123	8990	KF	97R57	DRN	80MK4	445	692/727
0.91	1856	8990	KA	97R57	DRN	80MK4	360	694/727
1.0	1625	8990	KAF	97R57	DRN	80MK4	415	692/727
			K	97R57	DRN	80M4	410	691/727
1.2	1430	8990	KF	97R57	DRN	80M4	455	692/727
1.4	1261	8990	KA	97R57	DRN	80M4	370	694/727
			KAF	97R57	DRN	80M4	425	692/727
			K	97R57	DRN	90S4	425	691/727
1.6	1102	8990	KF	97R57	DRN	90S4	470	692/727
1.8	957	8990	KA	97R57	DRN	90S4	385	694/727
2.1	855	8990	KAF	97R57	DRN	90S4	440	692/727
			K	97R57	DRN	90L4	435	691/727
2.4	743	8990	KF	97R57	DRN	90L4	475	692/727
2.7	652	8990	KA	97R57	DRN	90L4	395	694/727
			KAF	97R57	DRN	90L4	445	692/727
			K	97R57	DRN	100LM4	455	691/727
3.1	573	8990	KF	97R57	DRN	100LM4	500	692/727
3.5	504	8990	KA	97R57	DRN	100LM4	415	694/727
4.0	437	8990	KAF	97R57	DRN	100LM4	470	692/727
			K	97R57	DRN	100L4	455	691/727
4.6	382	8990	KF	97R57	DRN	100L4	500	692/727
5.2	342	8990	KA	97R57	DRN	100L4	415	694/727
5.8	305	8990	KAF	97R57	DRN	100L4	470	692/727
6.8	258	8990						
7.6	232	8990						

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$T_{a\ max}$ = 38000 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
8.9	199	8990	K	97R57	DRN	132S4	500	691/727
			KF	97R57	DRN	132S4	550	692/727
			KA	97R57	DRN	132S4	465	694/727
			KAF	97R57	DRN	132S4	520	692/727

$T_{a\ max}$ = 63700 lb-in

n_a rpm	i	F_{Ra} [1] lb					m lbs	
10	174	14600	K	107R77	DRN	132L4	840	699/727
			KF	107R77	DRN	132L4	870	700/727
			KA	107R77	DRN	132L4	780	702/727
			KAF	107R77	DRN	132L4	840	700/727
12	154	14400	K	107R77	DRN	160M4	910	699/727
			KF	107R77	DRN	160M4	940	700/727
13	140	13800	KA	107R77	DRN	160M4	850	702/727
			KAF	107R77	DRN	160M4	910	700/727

$T_{a\ max}$ = 70700 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.12	14311	14600	K	107R77	DRN	63M4	685	699/727
0.14	12211	14600	KF	107R77	DRN	63M4	705	700/727
0.16	10677	14600	KA	107R77	DRN	63M4	625	702/727
0.18	9524	14600	KAF	107R77	DRN	63M4	675	700/727
0.20	8328	14600	K	107R77	DRN	71MS4	690	699/727
0.23	7270	14600	KF	107R77	DRN	71MS4	710	700/727
0.27	6184	14600	KA	107R77	DRN	71MS4	630	702/727
			KAF	107R77	DRN	71MS4	680	700/727
0.30	5662	14600	K	107R77	DRN	71M4	690	699/727
0.33	5138	14600	KF	107R77	DRN	71M4	710	700/727
			KA	107R77	DRN	71M4	630	702/727
			KAF	107R77	DRN	71M4	680	700/727
0.39	4359	14600	K	107R77	DRN	80MK4	690	699/727
0.44	3810	14600	KF	107R77	DRN	80MK4	720	700/727
0.50	3358	14600	KA	107R77	DRN	80MK4	630	702/727
0.57	2977	14600	KAF	107R77	DRN	80MK4	680	700/727
0.67	2599	14600	K	107R77	DRN	80M4	700	699/727
0.77	2286	14600	KF	107R77	DRN	80M4	730	700/727
			KA	107R77	DRN	80M4	640	702/727
			KAF	107R77	DRN	80M4	690	700/727
0.91	1939	14600	K	107R77	DRN	90S4	710	699/727
			KF	107R77	DRN	90S4	740	700/727
			KA	107R77	DRN	90S4	650	702/727
			KAF	107R77	DRN	90S4	700	700/727
1.0	1713	14600	K	107R77	DRN	90S4	710	699/727
1.1	1554	14600	KF	107R77	DRN	90S4	740	700/727
			KA	107R77	DRN	90S4	650	702/727
			KAF	107R77	DRN	90S4	700	700/727
1.3	1336	14600	K	107R77	DRN	90L4	720	699/727
1.5	1166	14600	KF	107R77	DRN	90L4	740	700/727
			KA	107R77	DRN	90L4	660	702/727
			KAF	107R77	DRN	90L4	710	700/727
1.7	1030	14600	K	107R77	DRN	100LM4	740	699/727
1.9	904	14600	KF	107R77	DRN	100LM4	770	700/727
2.2	793	14600	KA	107R77	DRN	100LM4	680	702/727
			KAF	107R77	DRN	100LM4	730	700/727
2.5	696	14600	K	107R77	DRN	100L4	740	699/727
2.9	615	14600	KF	107R77	DRN	100L4	770	700/727
3.4	522	14600	KA	107R77	DRN	100L4	680	702/727
3.8	461	14600	KAF	107R77	DRN	100L4	730	700/727

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$T_{a\,max}$ = 70700 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
4.3	408	14600	**K**	**107R77**	**DRN**	**112M4**	760	699/727
			KF	**107R77**	**DRN**	**112M4**	790	700/727
			KA	**107R77**	**DRN**	**112M4**	700	702/727
			KAF	**107R77**	**DRN**	**112M4**	750	700/727
4.9	364	14600	**K**	**107R77**	**DRN**	**132S4**	790	699/727
5.6	318	14600	**KF**	**107R77**	**DRN**	**132S4**	810	700/727
6.2	286	14600	**KA**	**107R77**	**DRN**	**132S4**	730	702/727
			KAF	**107R77**	**DRN**	**132S4**	780	700/727
7.1	251	14600	**K**	**107R77**	**DRN**	**132M4**	830	699/727
8.0	222	14600	**KF**	**107R77**	**DRN**	**132M4**	850	700/727
			KA	**107R77**	**DRN**	**132M4**	770	702/727
			KAF	**107R77**	**DRN**	**132M4**	820	700/727
9.0	196	14600	**K**	**107R77**	**DRN**	**132L4**	840	699/727
			KF	**107R77**	**DRN**	**132L4**	870	700/727
			KA	**107R77**	**DRN**	**132L4**	780	702/727
			KAF	**107R77**	**DRN**	**132L4**	840	700/727

$T_{a\,max}$ = 106100 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
8.9	200	17900	**K**	**127R87**	**DRN**	**160L4**	1350	707/728
11	166	17900	**KF**	**127R87**	**DRN**	**160L4**	1440	708/728
			KA	**127R87**	**DRN**	**160L4**	1290	710/728
			KAF	**127R87**	**DRN**	**160L4**	1370	708/728
12	147	17900	**K**	**127R87**	**DRN**	**180M4**	1400	707/728
			KF	**127R87**	**DRN**	**180M4**	1490	708/728
			KA	**127R87**	**DRN**	**180M4**	1340	710/728
			KAF	**127R87**	**DRN**	**180M4**	1420	708/728

$T_{a\,max}$ = 115000 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.10	17550	17800	**K**	**127R77**	**DRN**	**63M4**	1035	707/728
0.11	16006	17800	**KF**	**127R77**	**DRN**	**63M4**	1125	708/728
0.11	14975	17800	**KA**	**127R77**	**DRN**	**63M4**	975	710/728
			KAF	**127R77**	**DRN**	**63M4**	1055	708/728
0.14	12440	17800	**K**	**127R77**	**DRN**	**71MS4**	1040	707/728
0.16	10915	17800	**KF**	**127R77**	**DRN**	**71MS4**	1130	708/728
			KA	**127R77**	**DRN**	**71MS4**	980	710/728
			KAF	**127R77**	**DRN**	**71MS4**	1060	708/728
0.17	9819	17800	**K**	**127R77**	**DRN**	**71M4**	1040	707/728
0.20	8443	17800	**KF**	**127R77**	**DRN**	**71M4**	1130	708/728
0.23	7482	17800	**KA**	**127R77**	**DRN**	**71M4**	980	710/728
			KAF	**127R77**	**DRN**	**71M4**	1060	708/728
0.26	6565	17800	**K**	**127R77**	**DRN**	**80MK4**	1040	707/728
0.29	5804	17800	**KF**	**127R77**	**DRN**	**80MK4**	1140	708/728
0.34	5027	17800	**KA**	**127R77**	**DRN**	**80MK4**	980	710/728
			KAF	**127R77**	**DRN**	**80MK4**	1060	708/728
0.40	4423	17800	**K**	**127R77**	**DRN**	**80M4**	1050	707/728
0.45	3889	17800	**KF**	**127R77**	**DRN**	**80M4**	1150	708/728
			KA	**127R77**	**DRN**	**80M4**	990	710/728
			KAF	**127R77**	**DRN**	**80M4**	1080	708/728
0.53	3311	17800	**K**	**127R77**	**DRN**	**90S4**	1070	707/728
0.59	3009	17800	**KF**	**127R77**	**DRN**	**90S4**	1160	708/728
0.68	2607	17800	**KA**	**127R77**	**DRN**	**90S4**	1000	710/728
			KAF	**127R77**	**DRN**	**90S4**	1090	708/728
0.78	2268	17800	**K**	**127R77**	**DRN**	**90L4**	1070	707/728
0.92	1926	17800	**KF**	**127R77**	**DRN**	**90L4**	1170	708/728
			KA	**127R77**	**DRN**	**90L4**	1010	710/728
			KAF	**127R77**	**DRN**	**90L4**	1090	708/728

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T_{amax} = 115000 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
1.0	1757	17800	**K**	**127R77**	**DRN**	**100LM4**	1100	707/728
1.1	1541	17800	**KF**	**127R77**	**DRN**	**100LM4**	1190	708/728
1.3	1342	17800	**KA**	**127R77**	**DRN**	**100LM4**	1030	710/728
1.5	1177	17800	**KAF**	**127R77**	**DRN**	**100LM4**	1120	708/728
1.7	1025	17800	**K**	**127R77**	**DRN**	**100L4**	1100	707/728
2.0	899	17800	**KF**	**127R77**	**DRN**	**100L4**	1190	708/728
2.2	790	17800	**KA**	**127R77**	**DRN**	**100L4**	1030	710/728
2.5	704	17800	**KAF**	**127R77**	**DRN**	**100L4**	1120	708/728
2.9	610	17800	**K**	**127R77**	**DRN**	**132S4**	1140	707/728
3.2	549	17800	**KF**	**127R77**	**DRN**	**132S4**	1230	708/728
3.7	477	17800	**KA**	**127R77**	**DRN**	**132S4**	1080	710/728
			KAF	**127R77**	**DRN**	**132S4**	1160	708/728
4.2	418	17800	**K**	**127R77**	**DRN**	**132M4**	1180	707/728
			KF	**127R77**	**DRN**	**132M4**	1270	708/728
			KA	**127R77**	**DRN**	**132M4**	1120	710/728
			KAF	**127R77**	**DRN**	**132M4**	1200	708/728
3.3	536	17800	**K**	**127R87**	**DRN**	**132S4**	1190	707/728
3.7	473	17800	**KF**	**127R87**	**DRN**	**132S4**	1280	708/728
			KA	**127R87**	**DRN**	**132S4**	1120	710/728
			KAF	**127R87**	**DRN**	**132S4**	1210	708/728
4.2	418	17800	**K**	**127R87**	**DRN**	**132M4**	1230	707/728
4.8	367	17800	**KF**	**127R87**	**DRN**	**132M4**	1320	708/728
			KA	**127R87**	**DRN**	**132M4**	1160	710/728
			KAF	**127R87**	**DRN**	**132M4**	1250	708/728
5.4	330	17800	**K**	**127R87**	**DRN**	**132L4**	1240	707/728
6.2	287	17800	**KF**	**127R87**	**DRN**	**132L4**	1340	708/728
			KA	**127R87**	**DRN**	**132L4**	1180	710/728
			KAF	**127R87**	**DRN**	**132L4**	1260	708/728
7.0	253	17800	**K**	**127R87**	**DRN**	**160M4**	1310	707/728
			KF	**127R87**	**DRN**	**160M4**	1410	708/728
			KA	**127R87**	**DRN**	**160M4**	1250	710/728
			KAF	**127R87**	**DRN**	**160M4**	1340	708/728
8.3	213	17800	**K**	**127R87**	**DRN**	**160L4**	1350	707/728
			KF	**127R87**	**DRN**	**160L4**	1440	708/728
			KA	**127R87**	**DRN**	**160L4**	1290	710/728
			KAF	**127R87**	**DRN**	**160L4**	1370	708/728

T_{amax} = 177000 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.10	17679	25200						
0.11	15729	25200						
0.11	14721	25200	**K**	**157R97**	**DRN**	**80MK4**	1740	715/728
0.13	13097	25200	**KF**	**157R97**	**DRN**	**80MK4**	1920	716/728
0.15	11368	25200	**KA**	**157R97**	**DRN**	**80MK4**	1660	718/728
0.17	10114	25200	**KAF**	**157R97**	**DRN**	**80MK4**	1790	716/728
0.19	8718	25200						
0.22	7734	25200						
0.25	6881	25200	**K**	**157R97**	**DRN**	**80M4**	1750	715/728
0.30	5931	25200	**KF**	**157R97**	**DRN**	**80M4**	1930	716/728
			KA	**157R97**	**DRN**	**80M4**	1670	718/728
			KAF	**157R97**	**DRN**	**80M4**	1800	716/728
0.35	5074	25200	**K**	**157R97**	**DRN**	**90S4**	1760	715/728
0.39	4514	25200	**KF**	**157R97**	**DRN**	**90S4**	1940	716/728
0.44	3979	25200	**KA**	**157R97**	**DRN**	**90S4**	1680	718/728
			KAF	**157R97**	**DRN**	**90S4**	1810	716/728
0.50	3516	25200	**K**	**157R97**	**DRN**	**90L4**	1770	715/728
0.58	3051	25200	**KF**	**157R97**	**DRN**	**90L4**	1940	716/728
			KA	**157R97**	**DRN**	**90L4**	1690	718/728
			KAF	**157R97**	**DRN**	**90L4**	1820	716/728

T_{amax} = 177000 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.68	2610	25200	**K**	**157R97**	**DRN**	**100LM4**	1800	715/728
0.76	2322	25200	**KF**	**157R97**	**DRN**	**100LM4**	1970	716/728
0.87	2029	25200	**KA**	**157R97**	**DRN**	**100LM4**	1720	718/728
0.98	1805	25200	**KAF**	**157R97**	**DRN**	**100LM4**	1840	716/728
1.1	1659	25200	**K**	**157R97**	**DRN**	**100LM4**	1790	715/728
			KF	**157R97**	**DRN**	**100LM4**	1960	716/728
			KA	**157R97**	**DRN**	**100LM4**	1710	718/728
			KAF	**157R97**	**DRN**	**100LM4**	1840	716/728
1.3	1365	25200	**K**	**157R97**	**DRN**	**100L4**	1790	715/728
1.4	1229	25200	**KF**	**157R97**	**DRN**	**100L4**	1960	716/728
1.6	1093	25200	**KA**	**157R97**	**DRN**	**100L4**	1710	718/728
			KAF	**157R97**	**DRN**	**100L4**	1840	716/728
1.9	942	25200	**K**	**157R97**	**DRN**	**112M4**	1810	715/728
			KF	**157R97**	**DRN**	**112M4**	1980	716/728
			KA	**157R97**	**DRN**	**112M4**	1730	718/728
			KAF	**157R97**	**DRN**	**112M4**	1860	716/728
2.1	854	25200	**K**	**157R97**	**DRN**	**132S4**	1830	715/728
2.3	756	25200	**KF**	**157R97**	**DRN**	**132S4**	2010	716/728
			KA	**157R97**	**DRN**	**132S4**	1750	718/728
			KAF	**157R97**	**DRN**	**132S4**	1880	716/728
2.7	661	25200	**K**	**157R97**	**DRN**	**132M4**	1870	715/728
3.1	567	25200	**KF**	**157R97**	**DRN**	**132M4**	2050	716/728
3.5	504	25200	**KA**	**157R97**	**DRN**	**132M4**	1790	718/728
			KAF	**157R97**	**DRN**	**132M4**	1920	716/728
4.1	434	25200	**K**	**157R97**	**DRN**	**132L4**	1890	715/728
			KF	**157R97**	**DRN**	**132L4**	2060	716/728
			KA	**157R97**	**DRN**	**132L4**	1810	718/728
			KAF	**157R97**	**DRN**	**132L4**	1940	716/728
4.7	379	25200	**K**	**157R97**	**DRN**	**160M4**	1960	715/728
5.3	333	25200	**KF**	**157R97**	**DRN**	**160M4**	2140	716/728
			KA	**157R97**	**DRN**	**160M4**	1880	718/728
			KAF	**157R97**	**DRN**	**160M4**	2010	716/728
6.1	291	25200	**K**	**157R97**	**DRN**	**160L4**	2000	715/728
			KF	**157R97**	**DRN**	**160L4**	2170	716/728
			KA	**157R97**	**DRN**	**160L4**	1920	718/728
			KAF	**157R97**	**DRN**	**160L4**	2050	716/728
4.6	385	25200	**K**	**157R107**	**DRN**	**160M4**	2070	715/728
			KF	**157R107**	**DRN**	**160M4**	2240	716/728
			KA	**157R107**	**DRN**	**160M4**	1990	718/728
			KAF	**157R107**	**DRN**	**160M4**	2120	716/728
5.5	325	25200	**K**	**157R107**	**DRN**	**160L4**	2100	715/728
6.0	299	25200	**KF**	**157R107**	**DRN**	**160L4**	2280	716/728
7.0	253	25200	**KA**	**157R107**	**DRN**	**160L4**	2020	718/728
			KAF	**157R107**	**DRN**	**160L4**	2150	716/728
7.7	230	25200	**K**	**157R107**	**DRN**	**180M4**	2150	715/728
8.4	213	25200	**KF**	**157R107**	**DRN**	**180M4**	2320	716/728
			KA	**157R107**	**DRN**	**180M4**	2070	718/728
			KAF	**157R107**	**DRN**	**180M4**	2200	716/728
9.5	187	25200	**K**	**157R107**	**DRN**	**180L4**	2180	715/728
			KF	**157R107**	**DRN**	**180L4**	2360	716/728
			KA	**157R107**	**DRN**	**180L4**	2100	718/728
			KAF	**157R107**	**DRN**	**180L4**	2230	716/728
11	157	24000	**K**	**157R107**	**DRN**	**200L4**	2430	715/728
15	122	21600	**KF**	**157R107**	**DRN**	**200L4**	2600	716/728
			KA	**157R107**	**DRN**	**200L4**	2340	718/728
			KAF	**157R107**	**DRN**	**200L4**	2470	716/728
17	107	20400	**K**	**157R107**	**DRN**	**225S4**	2490	715/728
			KF	**157R107**	**DRN**	**225S4**	2670	716/728
			KA	**157R107**	**DRN**	**225S4**	2410	718/728
			KAF	**157R107**	**DRN**	**225S4**	2540	716/728

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T_{amax} = 310000 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.09	19723	33700						
0.10	17406	33700	**K**	**167R97**	**DRN**	**80MK4**	2610	710/728
0.11	15000	33700	**KH**	**167R97**	**DRN**	**80MK4**	2530	724/728
0.13	13238	33700						
0.15	11573	33700	**K**	**167R97**	**DRN**	**80M4**	2620	710/728
0.17	10264	33700	**KH**	**167R97**	**DRN**	**80M4**	2540	724/728
0.20	8628	33700	**K**	**167R97**	**DRN**	**90S4**	2630	710/728
0.27	6562	33700	**KH**	**167R97**	**DRN**	**90S4**	2550	724/728
0.33	5355	33700	**K**	**167R97**	**DRN**	**90L4**	2640	710/728
0.37	4788	33700	**KH**	**167R97**	**DRN**	**90L4**	2560	724/728
0.43	4079	33700	**K**	**167R97**	**DRN**	**100LM4**	2670	710/728
0.52	3376	33700	**KH**	**167R97**	**DRN**	**100LM4**	2580	724/728
0.64	2755	33700	**K**	**167R97**	**DRN**	**100L4**	2670	710/728
0.78	2263	33700	**KH**	**167R97**	**DRN**	**100L4**	2580	724/728
0.81	2182	33700	**K**	**167R97**	**DRN**	**100L4**	2660	710/728
			KH	**167R97**	**DRN**	**100L4**	2570	724/728
1.0	1704	33700	**K**	**167R97**	**DRN**	**112M4**	2680	710/728
			KH	**167R97**	**DRN**	**112M4**	2590	724/728
1.3	1408	33700	**K**	**167R97**	**DRN**	**132S4**	2700	710/728
1.4	1296	33700	**KH**	**167R97**	**DRN**	**132S4**	2620	724/728
1.6	1101	33700	**K**	**167R97**	**DRN**	**132M4**	2740	710/728
1.9	944	33700	**KH**	**167R97**	**DRN**	**132M4**	2660	724/728
2.1	843	33700	**K**	**167R97**	**DRN**	**132L4**	2760	710/728
2.3	757	33700	**KH**	**167R97**	**DRN**	**132L4**	2680	724/728
2.8	632	33700	**K**	**167R97**	**DRN**	**160M4**	2830	710/728
			KH	**167R97**	**DRN**	**160M4**	2750	724/728
3.2	561	33700	**K**	**167R97**	**DRN**	**160L4**	2870	710/728
3.7	481	33700	**KH**	**167R97**	**DRN**	**160L4**	2780	724/728
4.2	423	33700	**K**	**167R97**	**DRN**	**180M4**	2920	710/728
4.8	369	33700	**KH**	**167R97**	**DRN**	**180M4**	2830	724/728
5.6	318	33700	**K**	**167R107**	**DRN**	**180L4**	3050	710/728
			KH	**167R107**	**DRN**	**180L4**	2970	724/728
6.4	278	33700	**K**	**167R107**	**DRN**	**200L4**	3290	710/728
7.3	244	33700	**KH**	**167R107**	**DRN**	**200L4**	3210	724/728
8.4	213	33700						
8.7	206	33700	**K**	**167R107**	**DRN**	**225S4**	3360	710/728
9.9	180	33700	**KH**	**167R107**	**DRN**	**225S4**	3280	724/728
11	160	33700	**K**	**167R107**	**DRN**	**225M4**	3360	710/728
			KH	**167R107**	**DRN**	**225M4**	3280	724/728
13	135	33700	**K**	**167R107**	**DRN**	**250ME4**	3790	710/728
15	118	33700	**KH**	**167R107**	**DRN**	**250ME4**	3710	724/728

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T_{amax} = 469000 lb-in

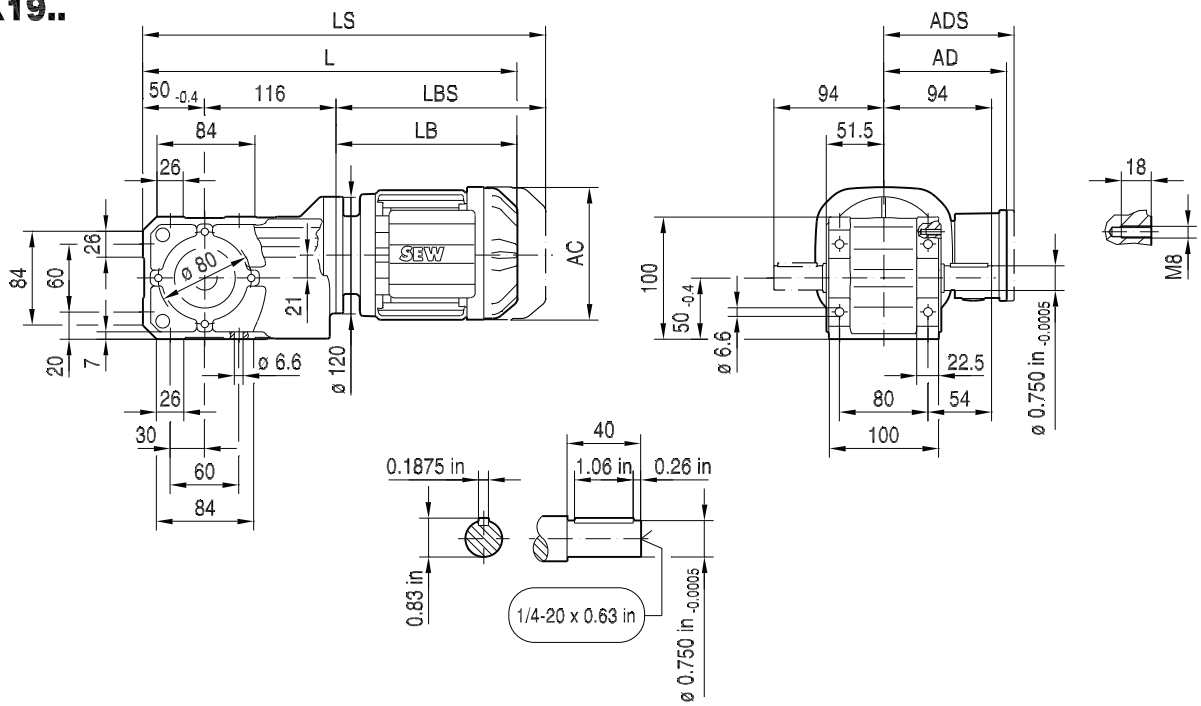
n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.05	32625	42700						
0.06	27165	42700	**K**	**187R97**	**DRN**	**80MK4**	3900	725/728
0.07	24353	42700	**KH**	**187R97**	**DRN**	**80MK4**	3750	726/728
0.09	19144	42700	**K**	**187R97**	**DRN**	**80M4**	3900	725/728
0.10	16978	42700	**KH**	**187R97**	**DRN**	**80M4**	3760	726/728
0.12	14272	42700						
0.13	13116	42700	**K**	**187R97**	**DRN**	**90S4**	3920	725/728
0.15	11647	42700	**KH**	**187R97**	**DRN**	**90S4**	3770	726/728
0.17	10413	42700						
0.19	9363	42700						
0.22	8126	42700	**K**	**187R97**	**DRN**	**90L4**	3920	725/728
0.24	7343	42700	**KH**	**187R97**	**DRN**	**90L4**	3780	726/728
0.26	6747	42700						
0.29	5991	42700	**K**	**187R97**	**DRN**	**100LM4**	3950	725/728
0.33	5358	42700	**KH**	**187R97**	**DRN**	**100LM4**	3800	726/728
0.37	4817	42700						
0.40	4370	42700	**K**	**187R97**	**DRN**	**100L4**	3950	725/728
			KH	**187R97**	**DRN**	**100L4**	3800	726/728
0.63	2818	42700	**K**	**187R97**	**DRN**	**112M4**	3970	725/728
			KH	**187R97**	**DRN**	**112M4**	3820	726/728
0.49	3609	42700	**K**	**187R97**	**DRN**	**100L4**	3940	725/728
0.57	3062	42700	**KH**	**187R97**	**DRN**	**100L4**	3790	726/728
0.70	2519	42700						
0.78	2268	42700	**K**	**187R97**	**DRN**	**132S4**	3990	725/728
0.86	2054	42700	**KH**	**187R97**	**DRN**	**132S4**	3840	726/728
0.97	1821	42700						
1.1	1605	42700	**K**	**187R97**	**DRN**	**132M4**	4030	725/728
1.3	1395	42700	**KH**	**187R97**	**DRN**	**132M4**	3880	726/728
1.5	1196	42700	**K**	**187R97**	**DRN**	**132L4**	4040	725/728
			KH	**187R97**	**DRN**	**132L4**	3900	726/728
1.7	1046	42700	**K**	**187R97**	**DRN**	**160M4**	4120	725/728
1.9	945	42700	**KH**	**187R97**	**DRN**	**160M4**	3970	726/728
2.4	738	42700	**K**	**187R97**	**DRN**	**160L4**	4150	725/728
			KH	**187R97**	**DRN**	**160L4**	4000	726/728
2.9	621	42700	**K**	**187R97**	**DRN**	**180M4**	4200	725/728
			KH	**187R97**	**DRN**	**180M4**	4050	726/728
3.4	527	42700	**K**	**187R97**	**DRN**	**180L4**	4230	725/728
			KH	**187R97**	**DRN**	**180L4**	4090	726/728
2.1	835	42700	**K**	**187R107**	**DRN**	**160L4**	4250	725/728
2.4	729	42700	**KH**	**187R107**	**DRN**	**160L4**	4110	726/728
2.9	622	42700	**K**	**187R107**	**DRN**	**180M4**	4300	725/728
			KH	**187R107**	**DRN**	**180M4**	4150	726/728
3.4	520	42700	**K**	**187R107**	**DRN**	**180L4**	4340	725/728
3.9	454	42700	**KH**	**187R107**	**DRN**	**180L4**	4190	726/728
5.0	355	42700	**K**	**187R107**	**DRN**	**200L4**	4580	725/728
			KH	**187R107**	**DRN**	**200L4**	4430	726/728
6.8	261	42700	**K**	**187R107**	**DRN**	**225M4**	4650	725/728
			KH	**187R107**	**DRN**	**225M4**	4500	726/728
8.1	221	42700	**K**	**187R107**	**DRN**	**250ME4**	5080	725/728
9.2	193	42700	**KH**	**187R107**	**DRN**	**250ME4**	4930	726/728

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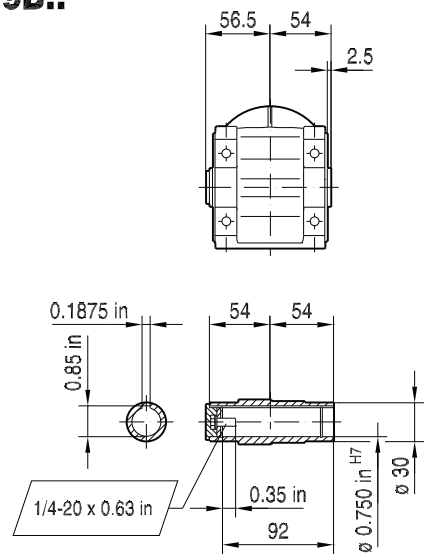
10.5 K.. DRN... Dimensions

77 523 00 21

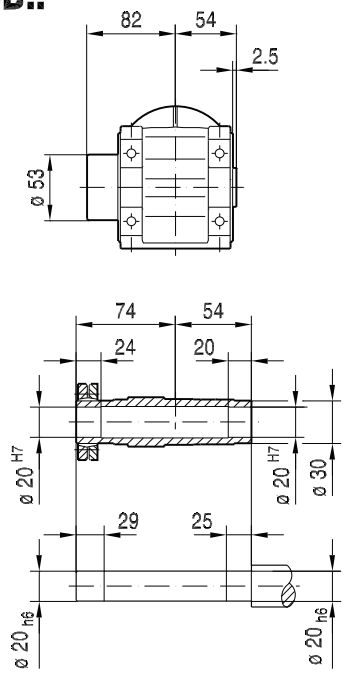
K19..



KA19B..



KH19B..

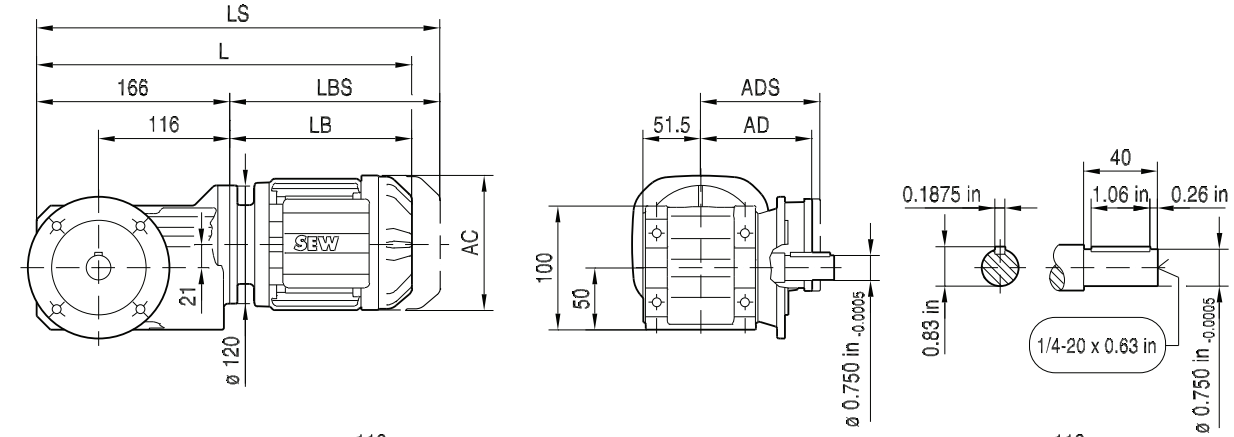


(→ 162)	DRN							
	63MS	63M	71MS	71M	80MK	80MS	80M	90S
AC	115	115	139	139	156	156	156	179
AD	98	98	118	118	128	128	128	140
ADS	98	98	129	129	139	139	139	150
L	356	370	372	392	403	420	448	449
LS	412	426	439	459	484	501	529	543
LB	190	204	206	226	237	254	282	283
LBS	246	260	273	293	318	335	363	377

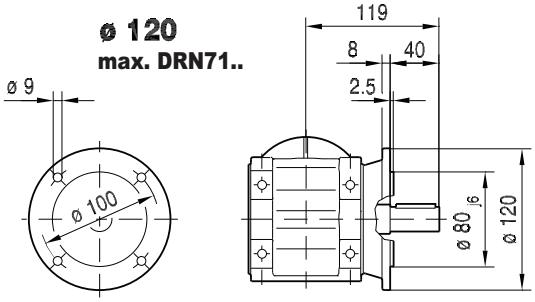
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

77 524 00 21

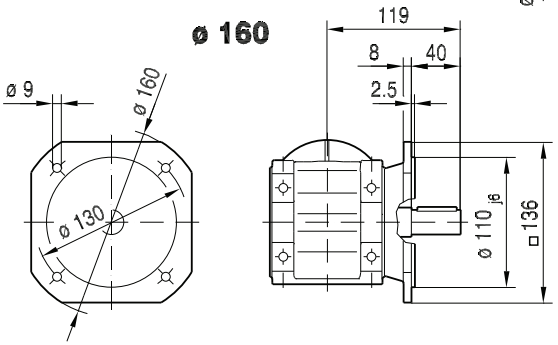
KF19B..



ø 120
max. DRN71..

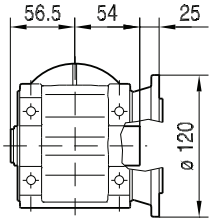


ø 160

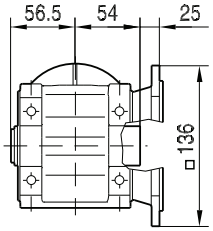


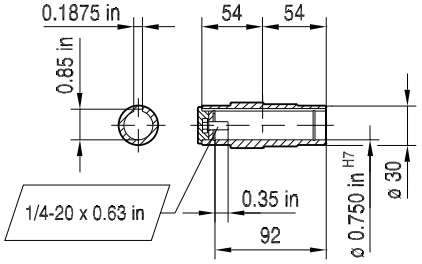
KAF19B..

ø 120
max. DRN71..



ø 160





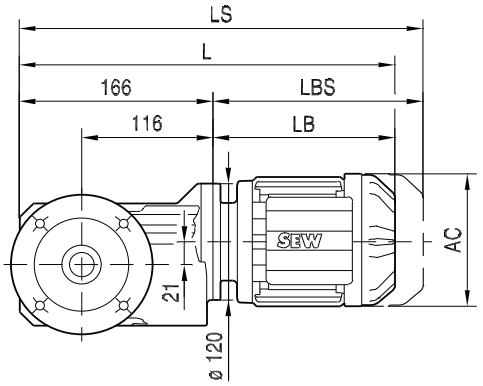
(→ 🗎 162)	DRN							
	63MS	63M	71MS	71M	80MK	80MS	80M	90S
AC	115	115	139	139	156	156	156	179
AD	98	98	118	118	128	128	128	140
ADS	98	98	129	129	139	139	139	150
L	356	370	372	392	403	420	448	449
LS	412	426	439	459	484	501	529	543
LB	190	204	206	226	237	254	282	283
LBS	246	260	273	293	318	335	363	377

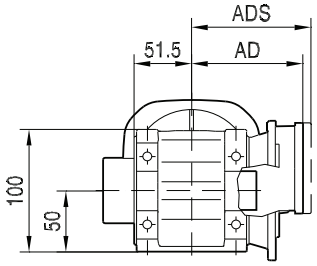
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

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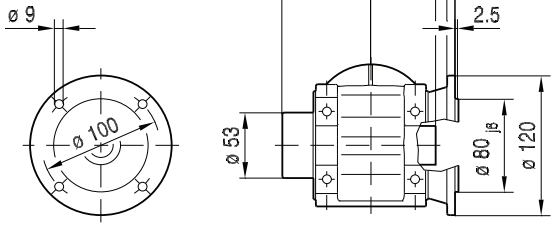
77 525 00 21

KHF19B..

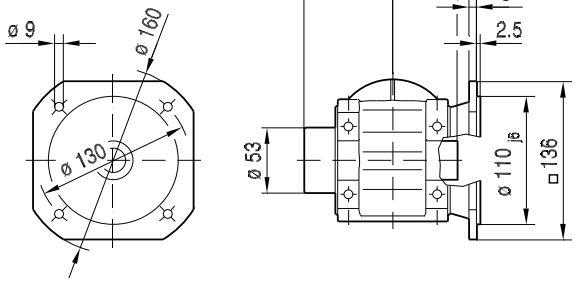


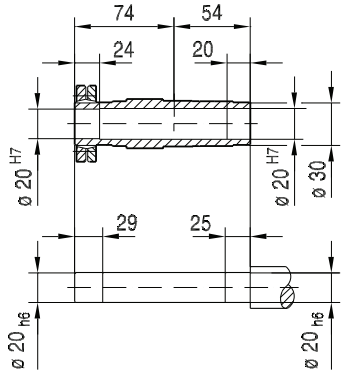


ø 120
max. DRN71..



ø 160





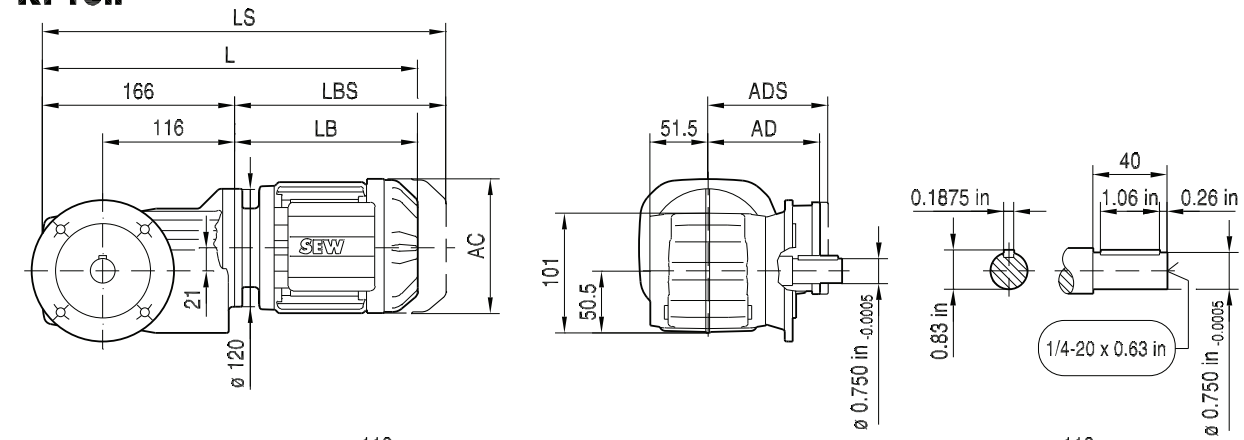
(→ 🗎 162)	DRN							
	63MS	63M	71MS	71M	80MK	80MS	80M	90S
AC	115	115	139	139	156	156	156	179
AD	98	98	118	118	128	128	128	140
ADS	98	98	129	129	139	139	139	150
L	356	370	372	392	403	420	448	449
LS	412	426	439	459	484	501	529	543
LB	190	204	206	226	237	254	282	283
LBS	246	260	273	293	318	335	363	377

Dimensions in mm unless noted as inch. For tolerances, see page 162.

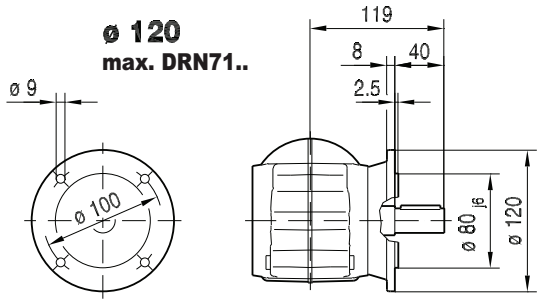
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77 526 00 21

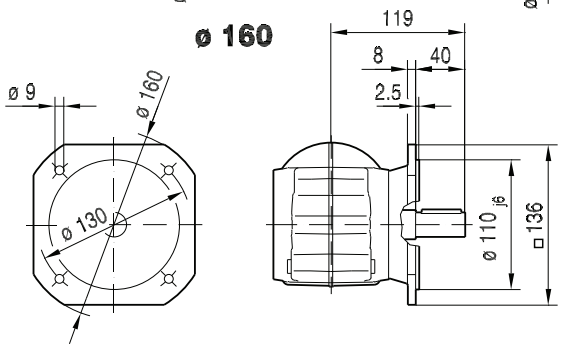
KF19..



ø 120
max. DRN71..

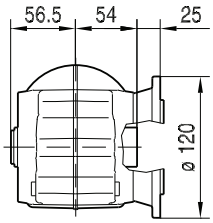


ø 160

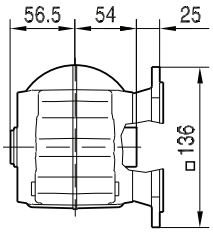


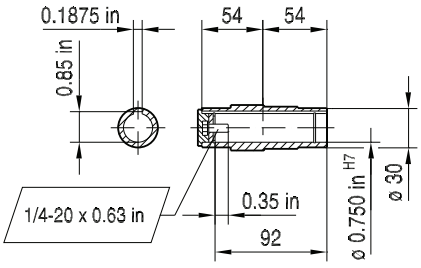
KAF19..

ø 120
max. DRN71..



ø 160





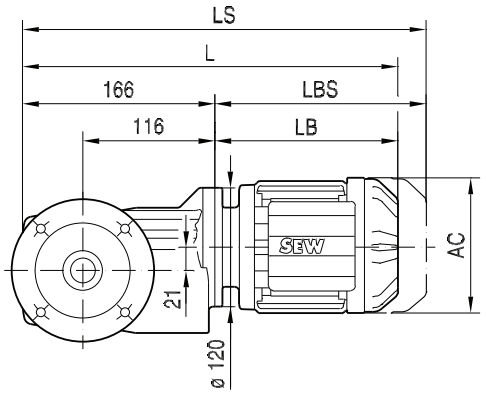
(→ 🗎 162)	DRN							
	63MS	63M	71MS	71M	80MK	80MS	80M	90S
AC	115	115	139	139	156	156	156	179
AD	98	98	118	118	128	128	128	140
ADS	98	98	129	129	139	139	139	150
L	356	370	372	392	403	420	448	449
LS	412	426	439	459	484	501	529	543
LB	190	204	206	226	237	254	282	283
LBS	246	260	273	293	318	335	363	377

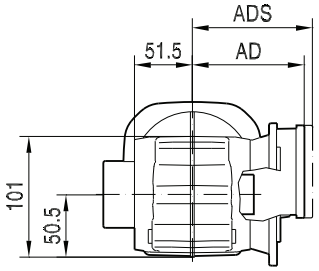
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

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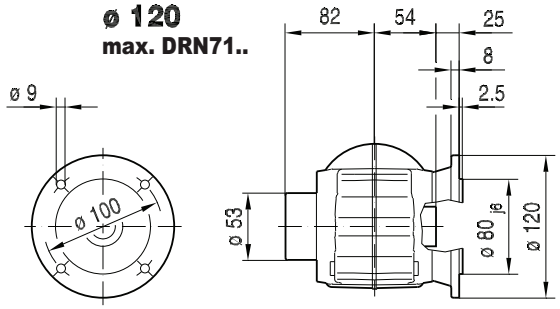
KHF19..

77 527 00 21

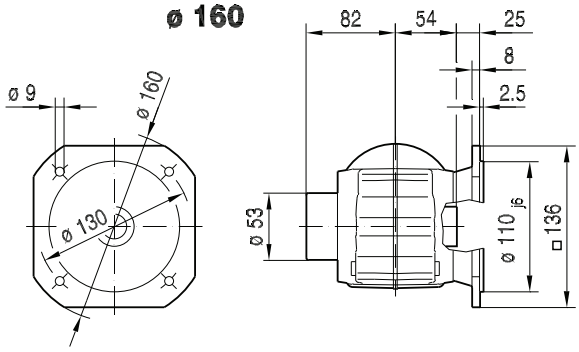


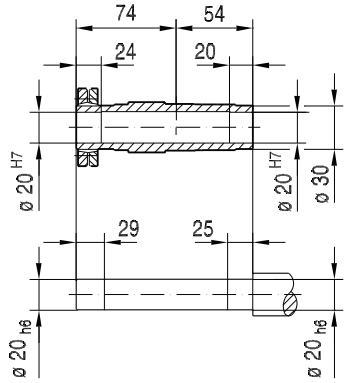


ø 120
max. DRN71..



ø 160





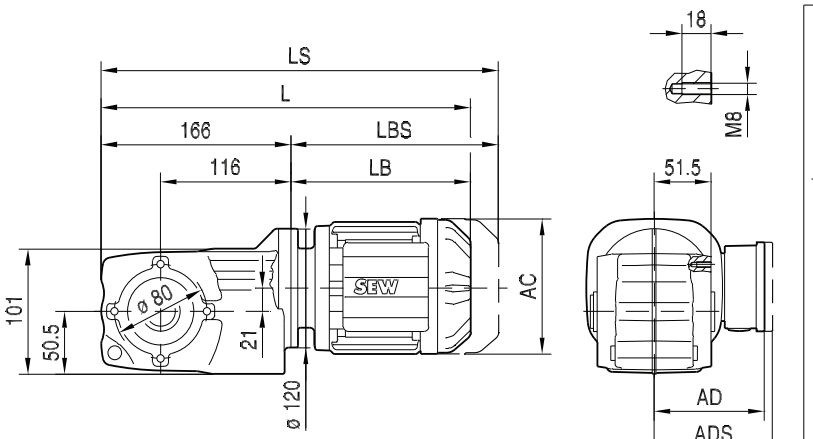
(→ 🗎 162)	DRN							
	63MS	63M	71MS	71M	80MK	80MS	80M	90S
AC	115	115	139	139	156	156	156	179
AD	98	98	118	118	128	128	128	140
ADS	98	98	129	129	139	139	139	150
L	356	370	372	392	403	420	448	449
LS	412	426	439	459	484	501	529	543
LB	190	204	206	226	237	254	282	283
LBS	246	260	273	293	318	335	363	377

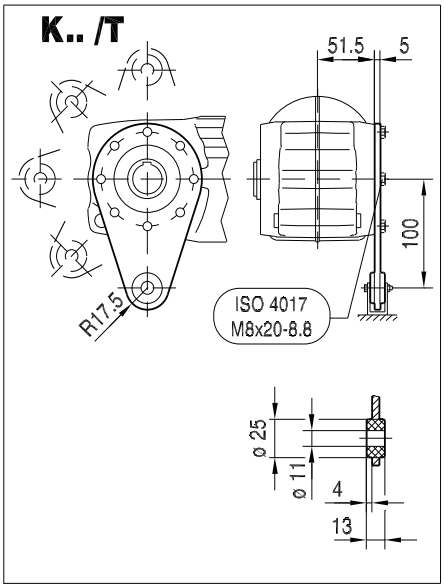
Dimensions in mm unless noted as inch. For tolerances, see page 162.

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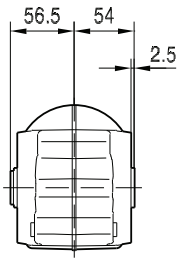
77 528 00 21

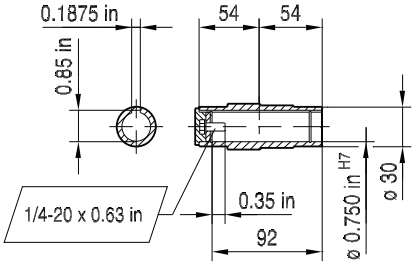
KA19..



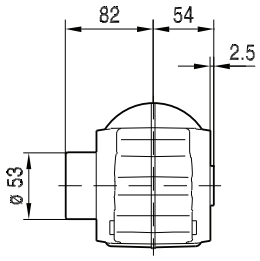


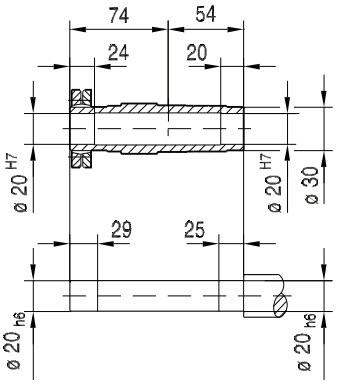
KA19..





KH19..





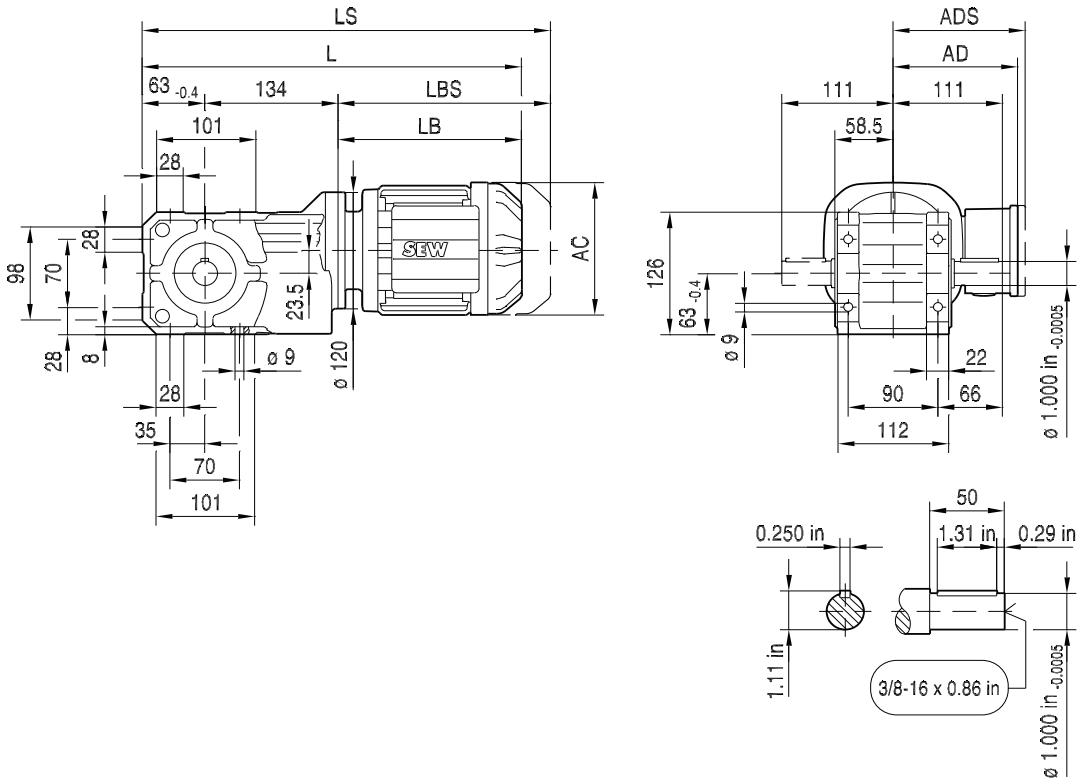
(→ 🗎 162)	DRN							
	63MS	63M	71MS	71M	80MK	80MS	80M	90S
AC	115	115	139	139	156	156	156	179
AD	98	98	118	118	128	128	128	140
ADS	98	98	129	129	139	139	139	150
L	356	370	372	392	403	420	448	449
LS	412	426	439	459	484	501	529	543
LB	190	204	206	226	237	254	282	283
LBS	246	260	273	293	318	335	363	377

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

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77 529 00 21

K29..



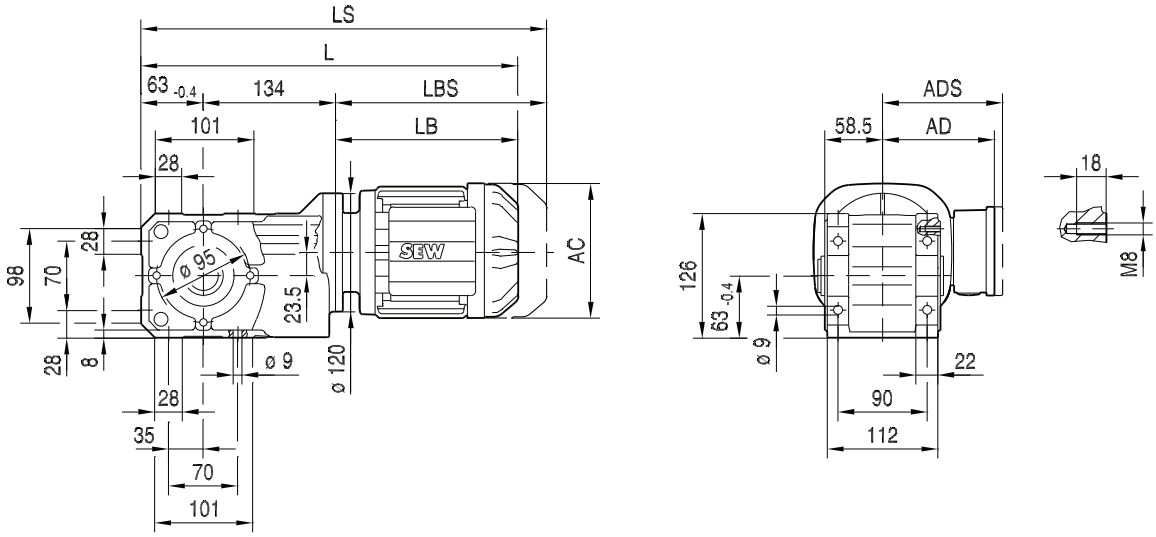
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L
AC	115	115	139	139	156	156	156	179	179
AD	98	98	118	118	128	128	128	140	140
ADS	98	98	129	129	139	139	139	150	150
L	387	401	403	423	434	451	479	480	512
LS	443	457	470	490	515	532	560	574	606
LB	190	204	206	226	237	254	282	283	315
LBS	246	260	273	293	318	335	363	377	409

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

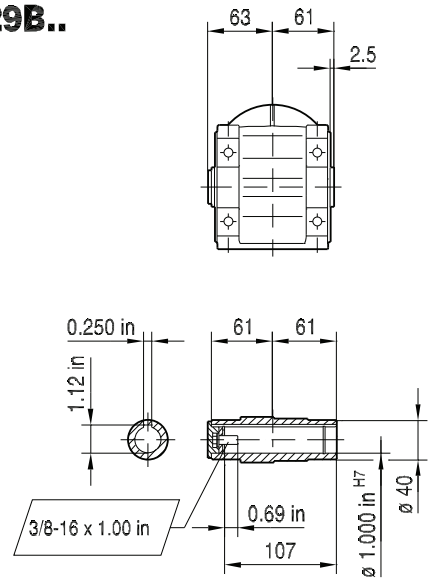
24833231/EN-US – 07/2021

77 530 00 21

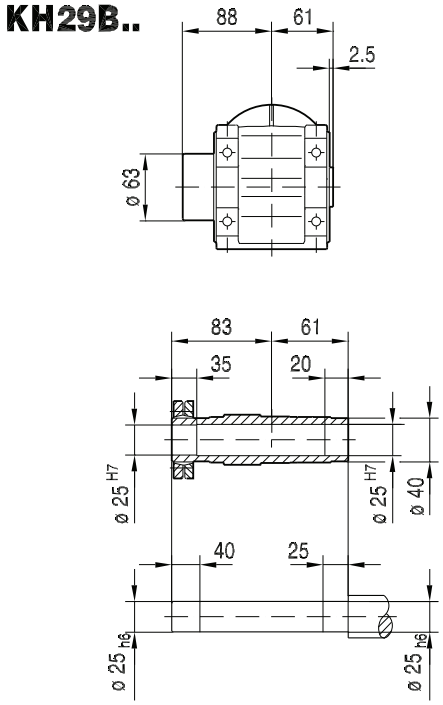
KA29B..



KA29B..



KH29B..



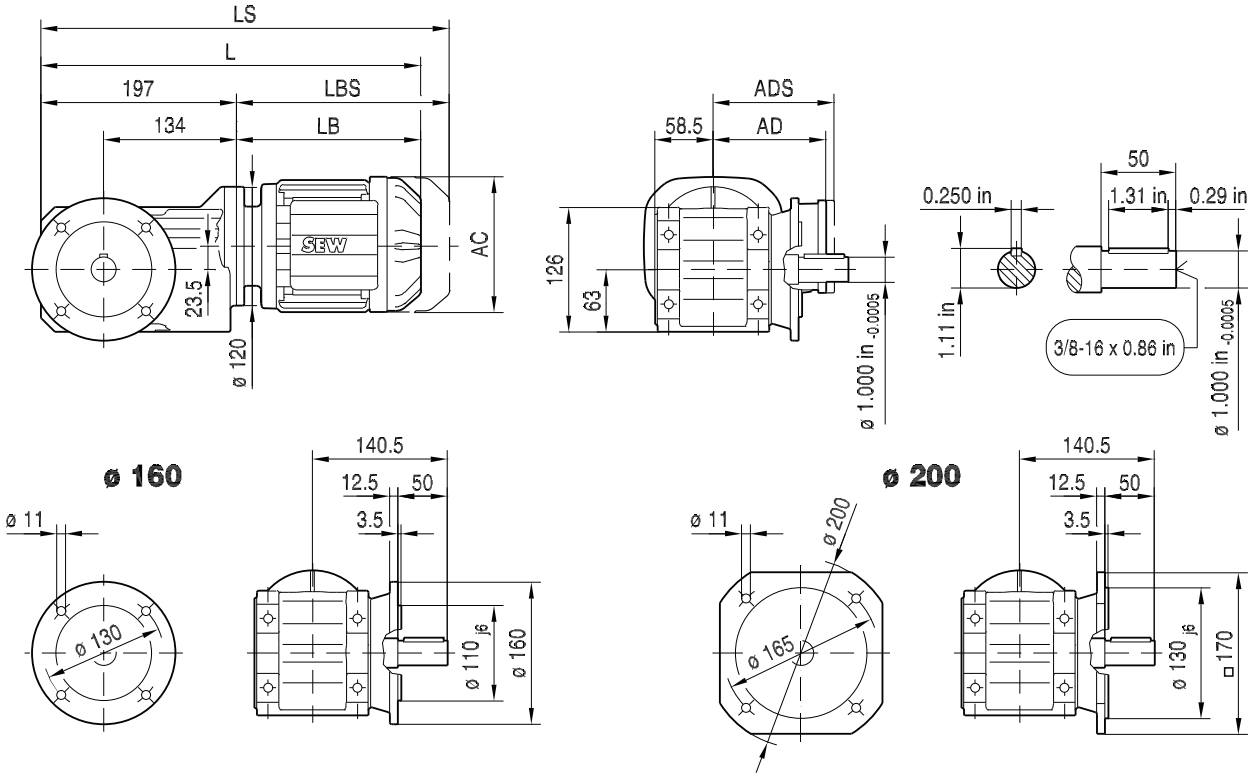
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L
AC	115	115	139	139	156	156	156	179	179
AD	98	98	118	118	128	128	128	140	140
ADS	98	98	129	129	139	139	139	150	150
L	387	401	403	423	434	451	479	480	512
LS	443	457	470	490	515	532	560	574	606
LB	190	204	206	226	237	254	282	283	315
LBS	246	260	273	293	318	335	363	377	409

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

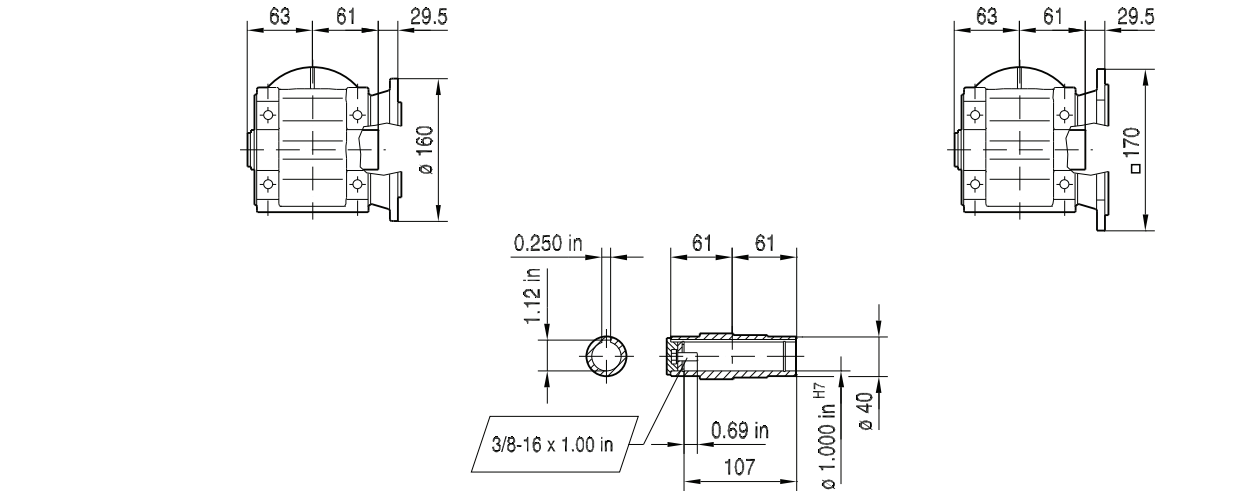
24833231/EN-US – 07/2021

77 531 00 21

KF29B..



KAF29B..



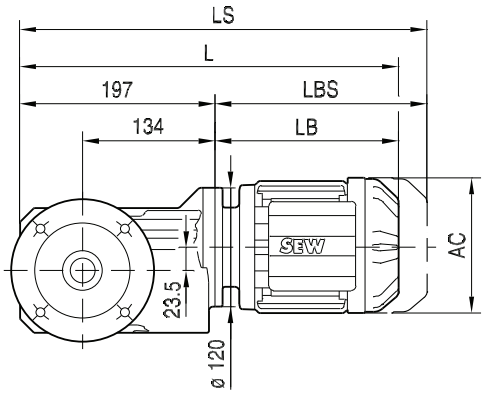
(→ 162)	DRN								
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L
AC	115	115	139	139	156	156	156	179	179
AD	98	98	118	118	128	128	128	140	140
ADS	98	98	129	129	139	139	139	150	150
L	387	401	403	423	434	451	479	480	512
LS	443	457	470	490	515	532	560	574	606
LB	190	204	206	226	237	254	282	283	315
LBS	246	260	273	293	318	335	363	377	409

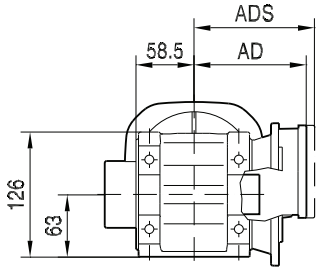
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

24833231/EN-US – 07/2021

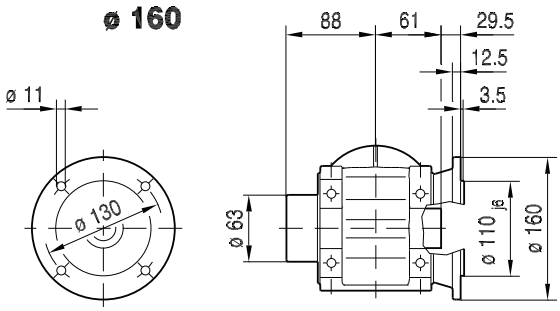
KHF29B..

77 532 00 21

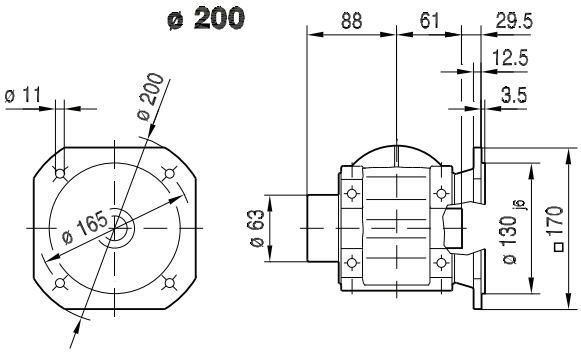


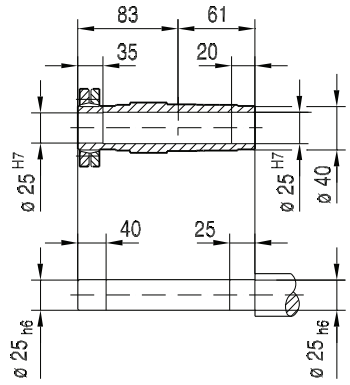


ø 160



ø 200





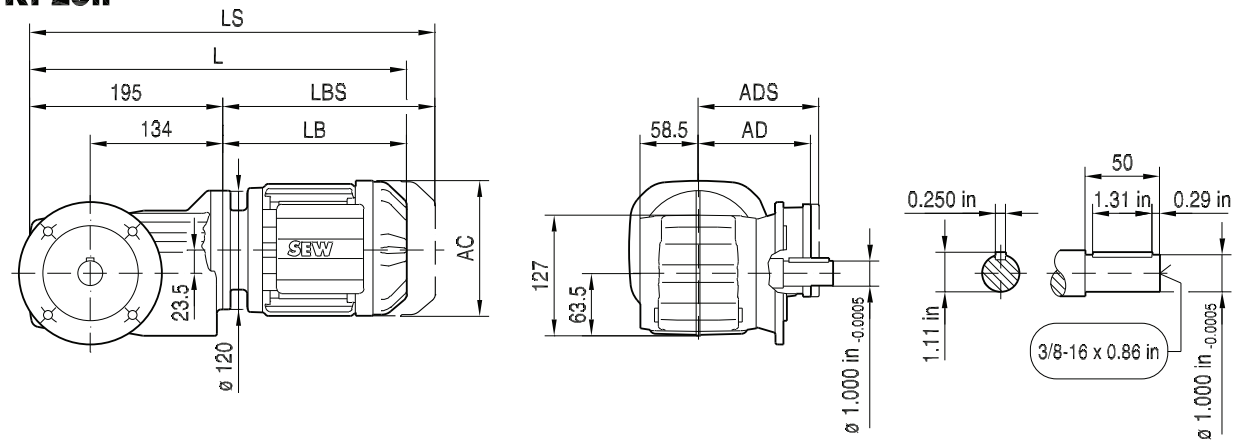
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L
AC	115	115	139	139	156	156	156	179	179
AD	98	98	118	118	128	128	128	140	140
ADS	98	98	129	129	139	139	139	150	150
L	387	401	403	423	434	451	479	480	512
LS	443	457	470	490	515	532	560	574	606
LB	190	204	206	226	237	254	282	283	315
LBS	246	260	273	293	318	335	363	377	409

Dimensions in mm unless noted as inch. For tolerances, see page 162.

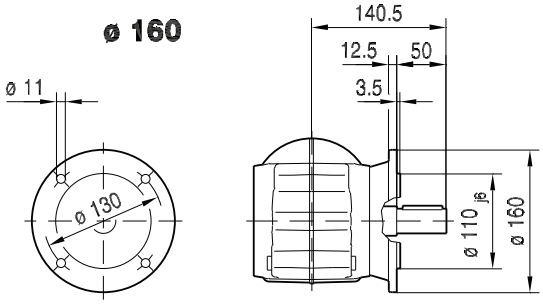
24833231/EN-US – 07/2021

77 533 00 21

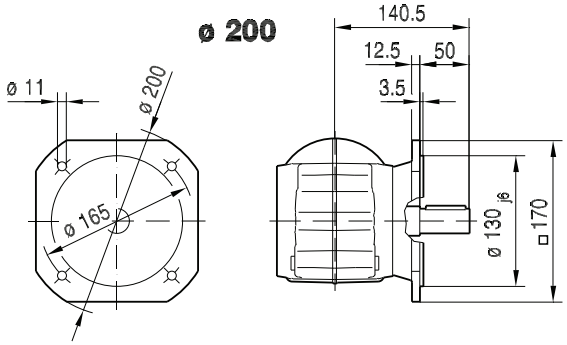
KF29..



ø 160

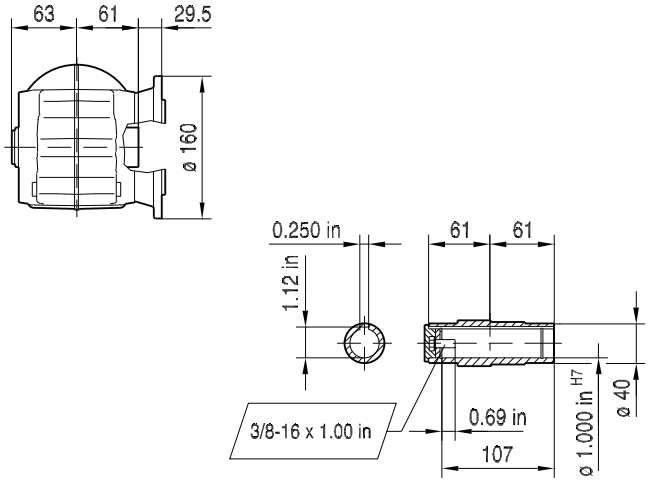


ø 200

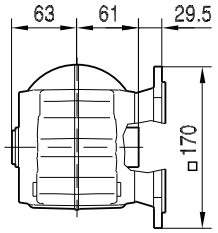


KAF29..

ø 160



ø 200



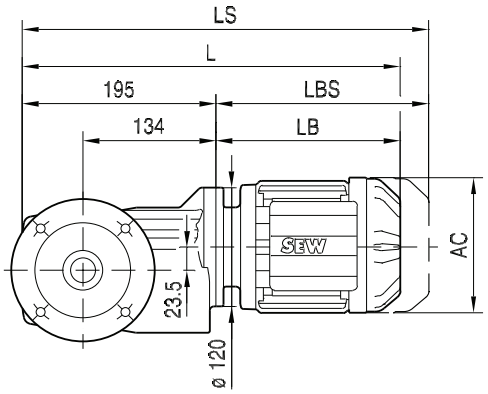
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L
AC	115	115	139	139	156	156	156	179	179
AD	98	98	118	118	128	128	128	140	140
ADS	98	98	129	129	139	139	139	150	150
L	385	399	401	421	432	449	477	478	510
LS	441	455	468	488	513	531	558	572	604
LB	190	204	206	226	237	254	282	283	315
LBS	246	260	273	293	318	335	363	377	409

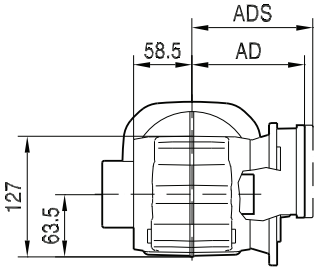
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

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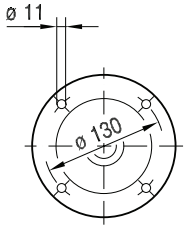
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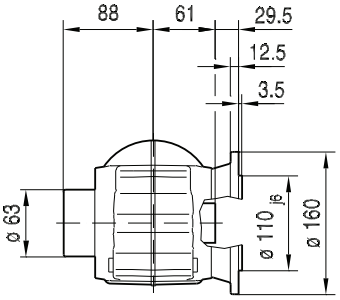
KHF29..



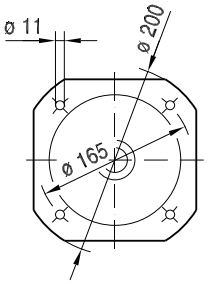


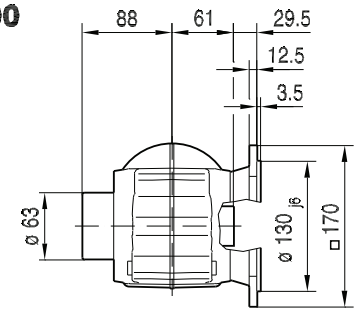
ø 160

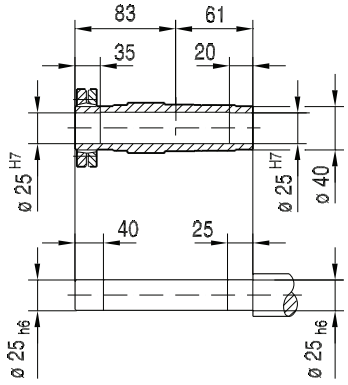




ø 200







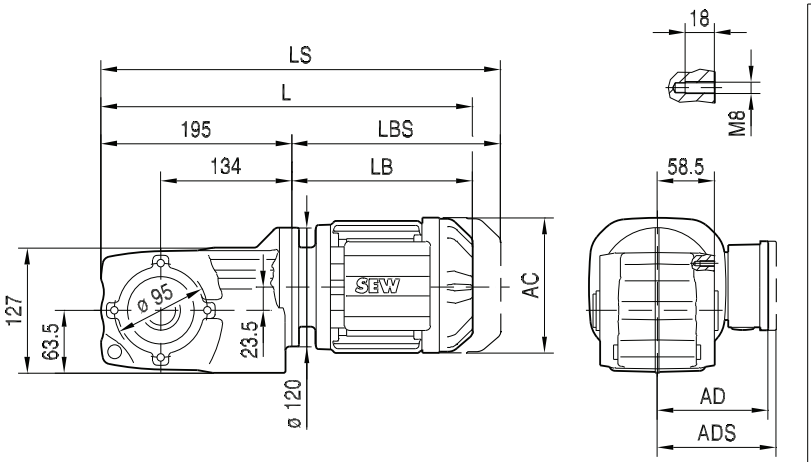
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L
AC	115	115	139	139	156	156	156	179	179
AD	98	98	118	118	128	128	128	140	140
ADS	98	98	129	129	139	139	139	150	150
L	385	399	401	421	432	449	477	478	510
LS	441	455	468	488	513	531	558	572	604
LB	190	204	206	226	237	254	282	283	315
LBS	246	260	273	293	318	335	363	377	409

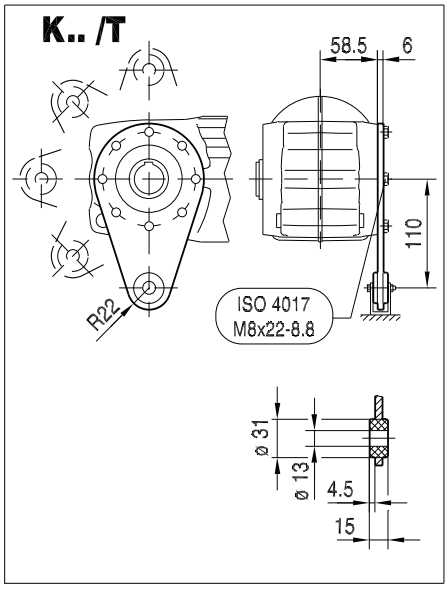
Dimensions in mm unless noted as inch. For tolerances, see page 162.

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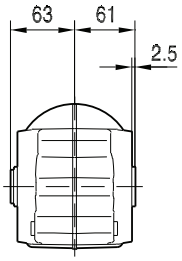
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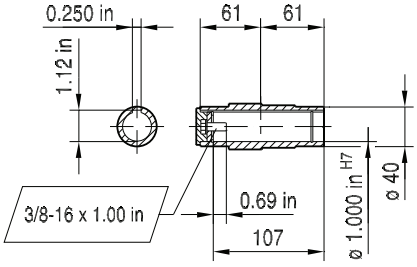
KA29..



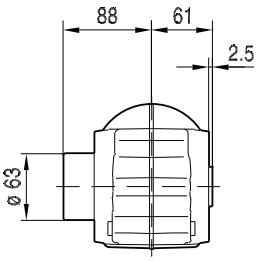


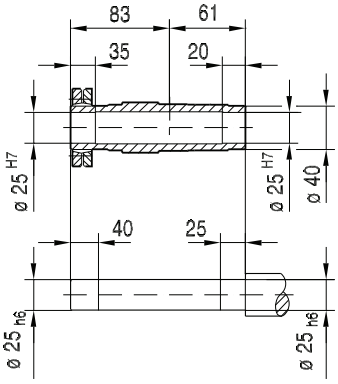
KA29..





KH29..





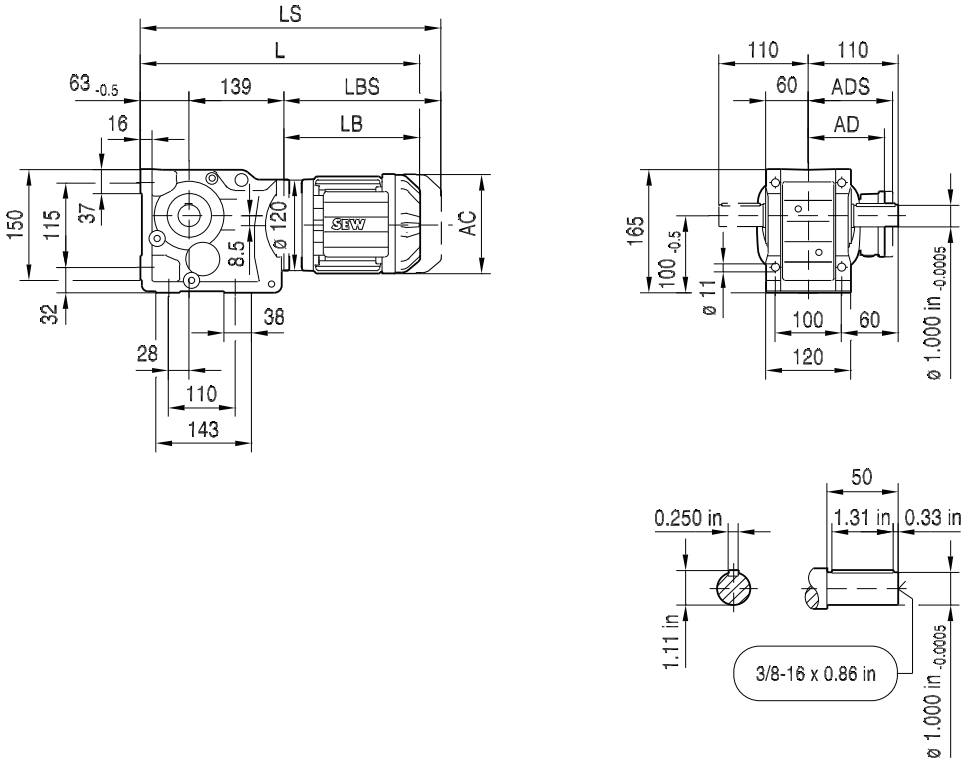
(→ 162)	DRN								
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L
AC	115	115	139	139	156	156	156	179	179
AD	98	98	118	118	128	128	128	140	140
ADS	98	98	129	129	139	139	139	150	150
L	385	399	401	421	432	449	477	478	510
LS	441	455	468	488	513	531	558	572	604
LB	190	204	206	226	237	254	282	283	315
LBS	246	260	273	293	318	335	363	377	409

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

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77 536 00 21

K37..



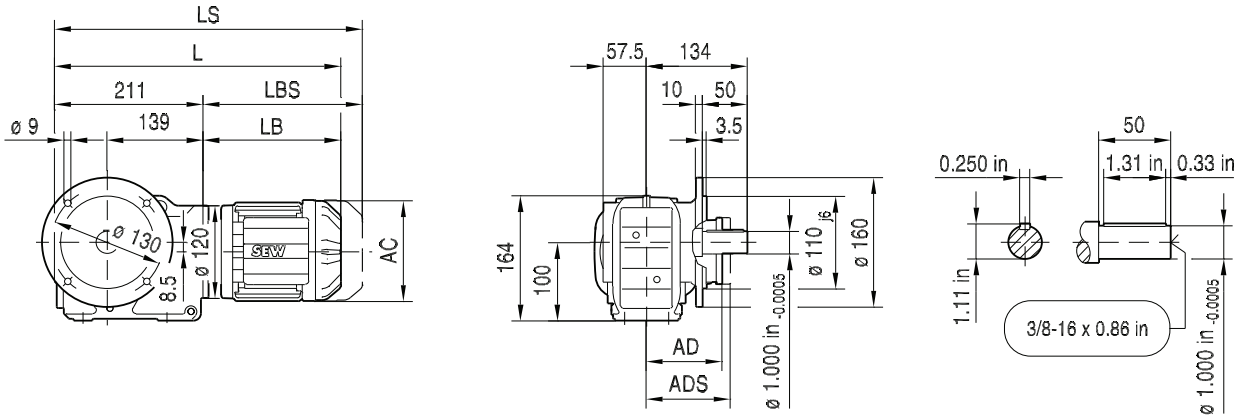
(→ 🗎 162)	DRN									
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	156	179	179	197
AD	98	98	118	118	128	128	128	140	140	157
ADS	98	98	129	129	139	139	139	150	150	158
L	392	406	408	428	439	456	484	485	517	566
LS	448	462	475	495	520	537	565	579	611	660
LB	190	204	206	226	237	254	282	283	315	364
LBS	246	260	273	293	318	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

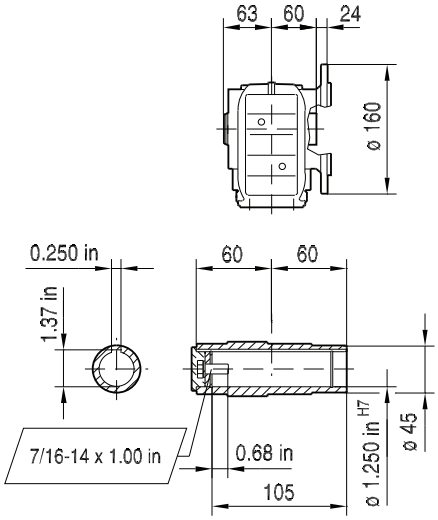
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77 537 00 21

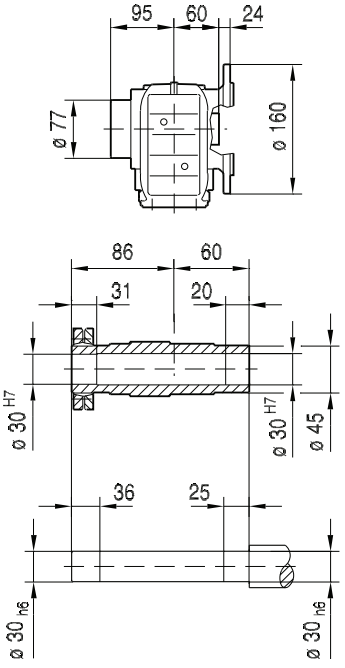
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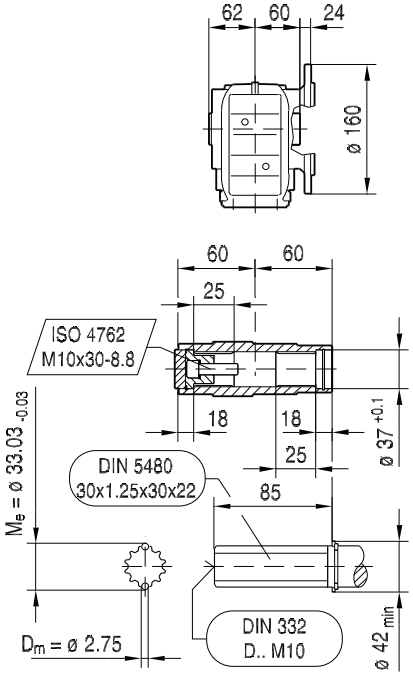
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KHF37..



KVF37..



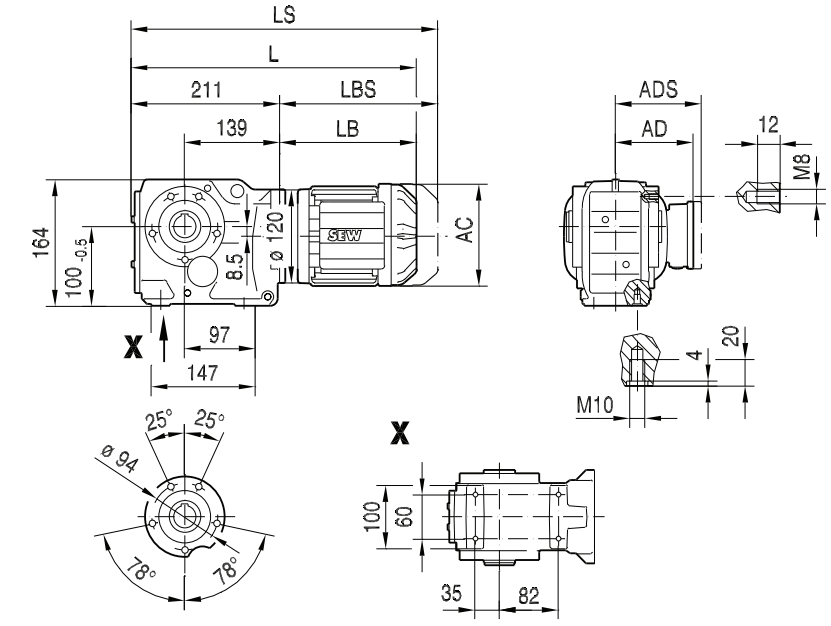
(→ 🗎 162)	DRN									
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	156	179	179	197
AD	98	98	118	118	128	128	128	140	140	157
ADS	98	98	129	129	139	139	139	150	150	158
L	401	415	417	437	448	465	493	494	526	575
LS	457	471	484	504	529	546	574	588	620	669
LB	190	204	206	226	237	254	282	283	315	364
LBS	246	260	273	293	318	335	363	377	409	458

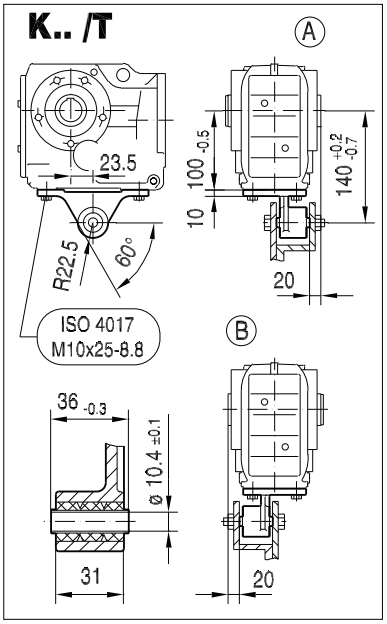
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

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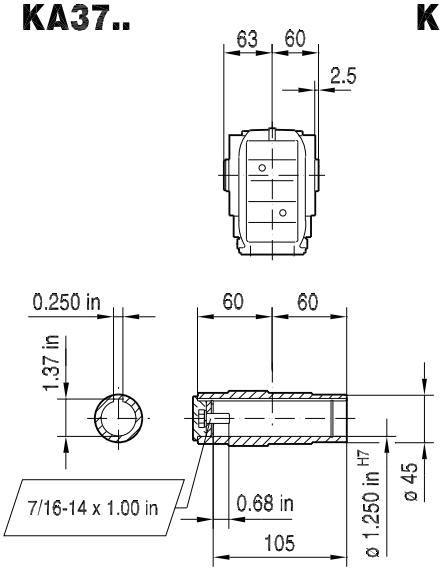
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KA37..

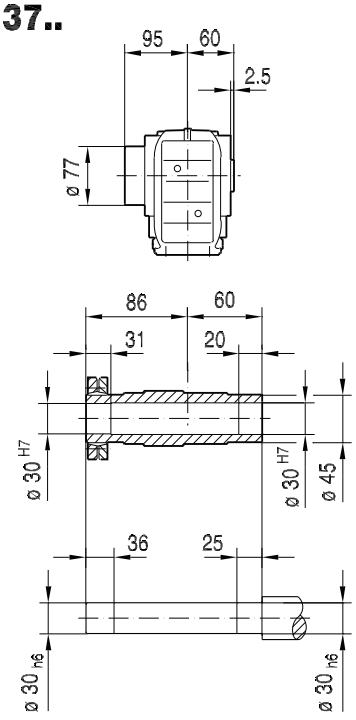




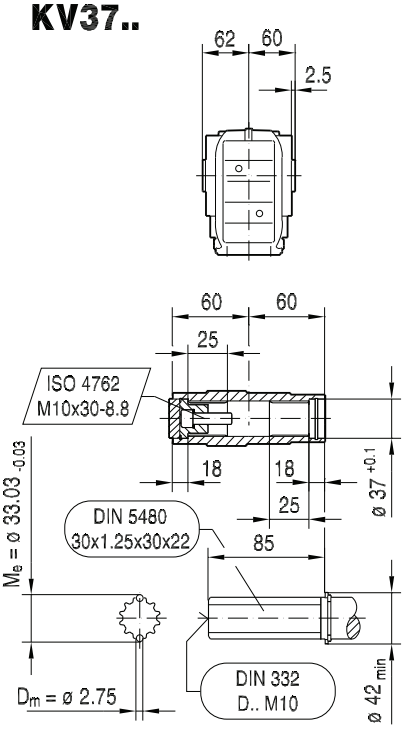
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KH37..



KV37..



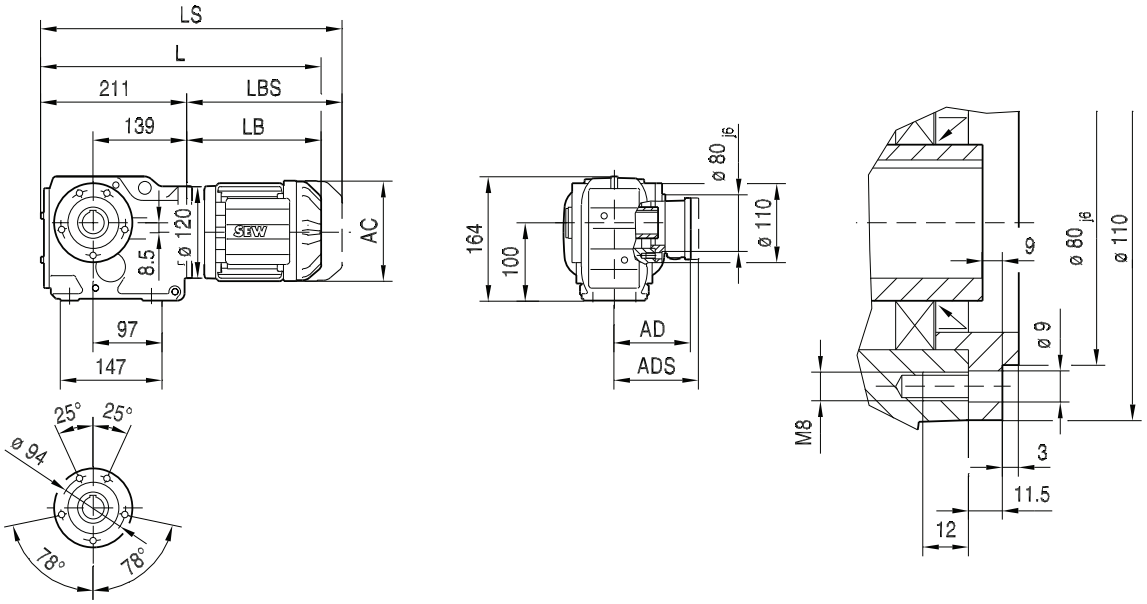
(→ 🗎 162)	DRN									
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	156	179	179	197
AD	98	98	118	118	128	128	128	140	140	157
ADS	98	98	129	129	139	139	139	150	150	158
L	401	415	417	437	448	465	493	494	526	575
LS	457	471	484	504	529	546	574	588	620	669
LB	190	204	206	226	237	254	282	283	315	364
LBS	246	260	273	293	318	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

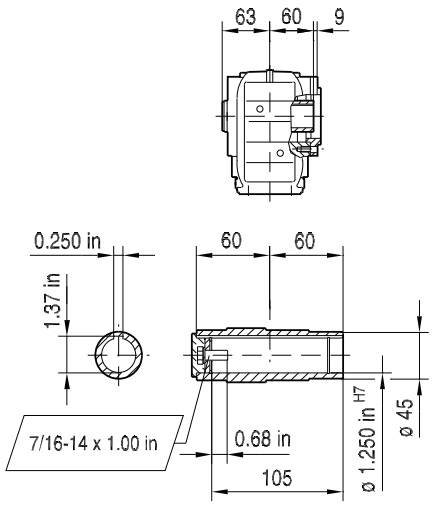
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77 539 00 21

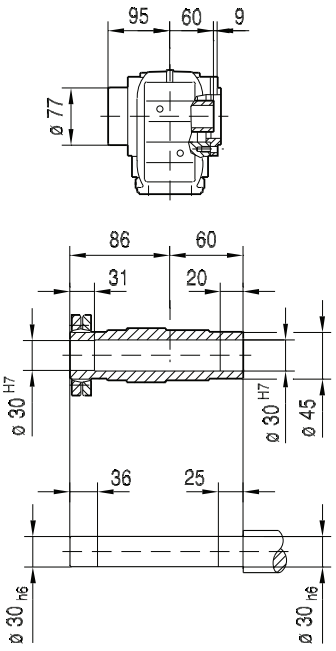
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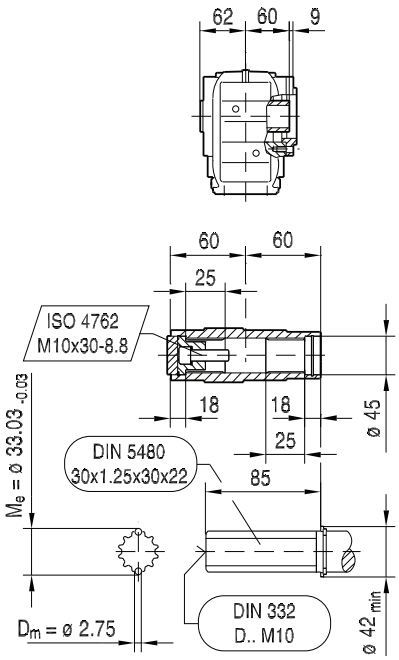
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KHZ37..



KVZ37..



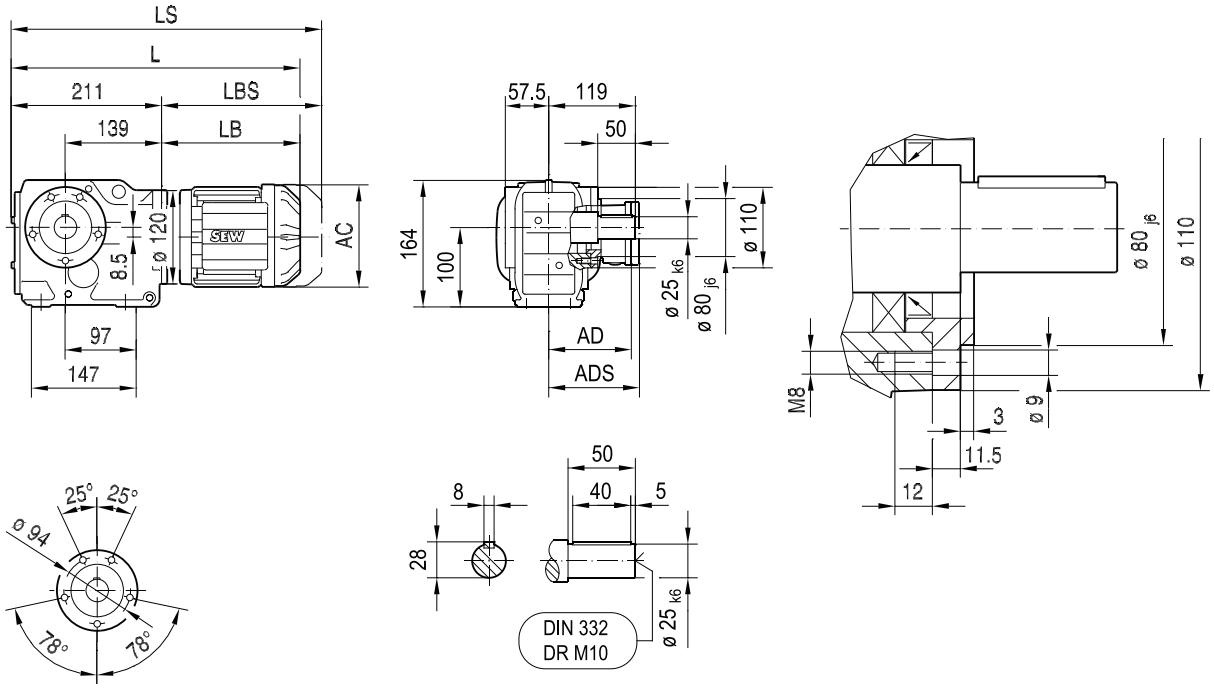
(→ 🗎 162)	DRN									
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	156	179	179	197
AD	98	98	118	118	128	128	128	140	140	157
ADS	98	98	129	129	139	139	139	150	150	158
L	401	415	417	437	448	465	493	494	526	575
LS	457	471	484	504	529	546	574	588	620	669
LB	190	204	206	226	237	254	282	283	315	364
LBS	246	260	273	293	318	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

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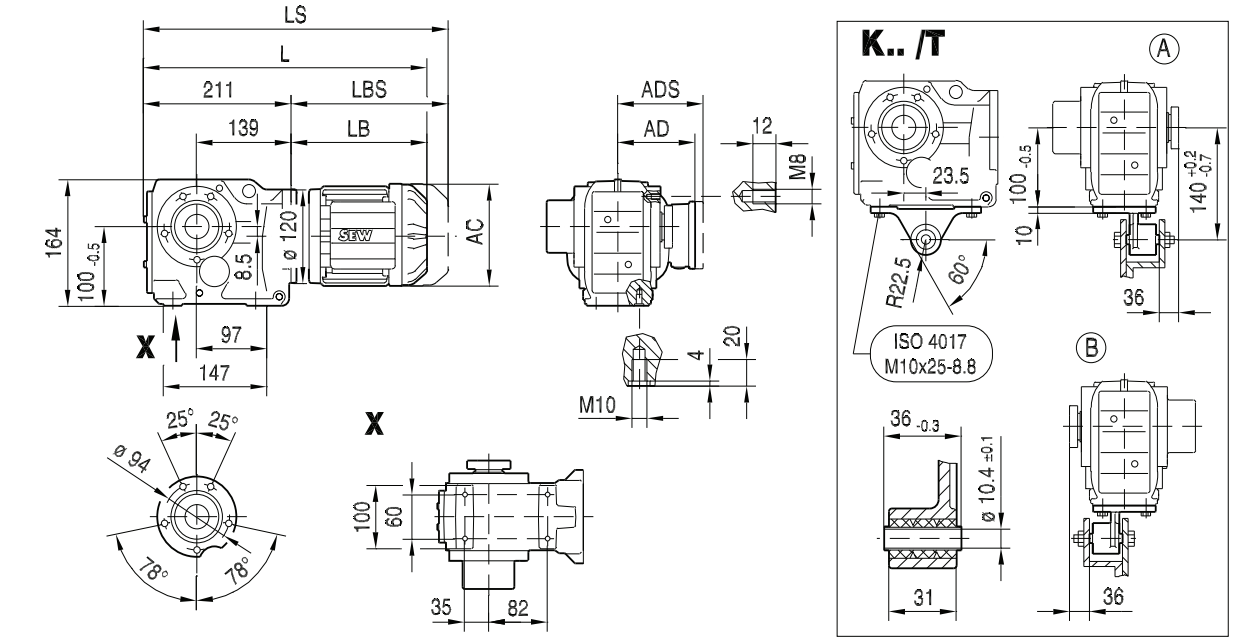
(→ 🗎 162)	DRN									
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	156	179	179	197
AD	98	98	118	118	128	128	128	140	140	157
ADS	98	98	129	129	139	139	139	150	150	158
L	401	415	417	437	448	465	493	494	526	575
LS	457	471	484	504	529	546	574	588	620	669
LB	190	204	206	226	237	254	282	283	315	364
LBS	246	260	273	293	318	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

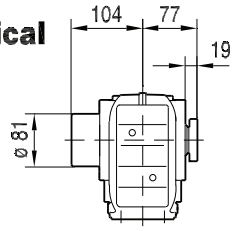
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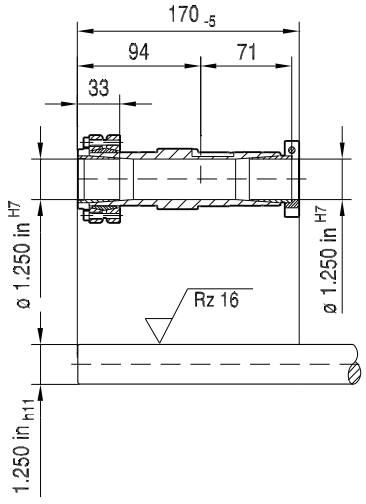
KT37..

77 541 00 21

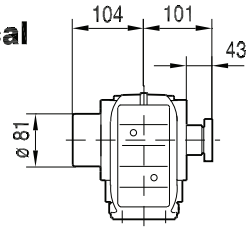


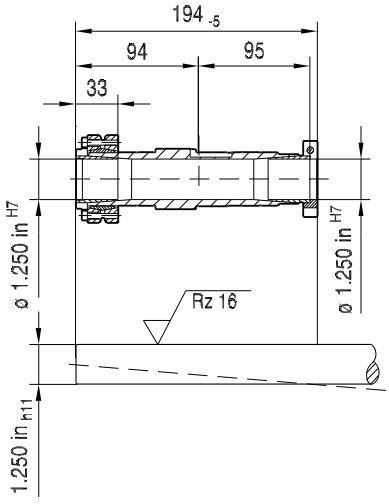
NON-Symmetrical





Symmetrical





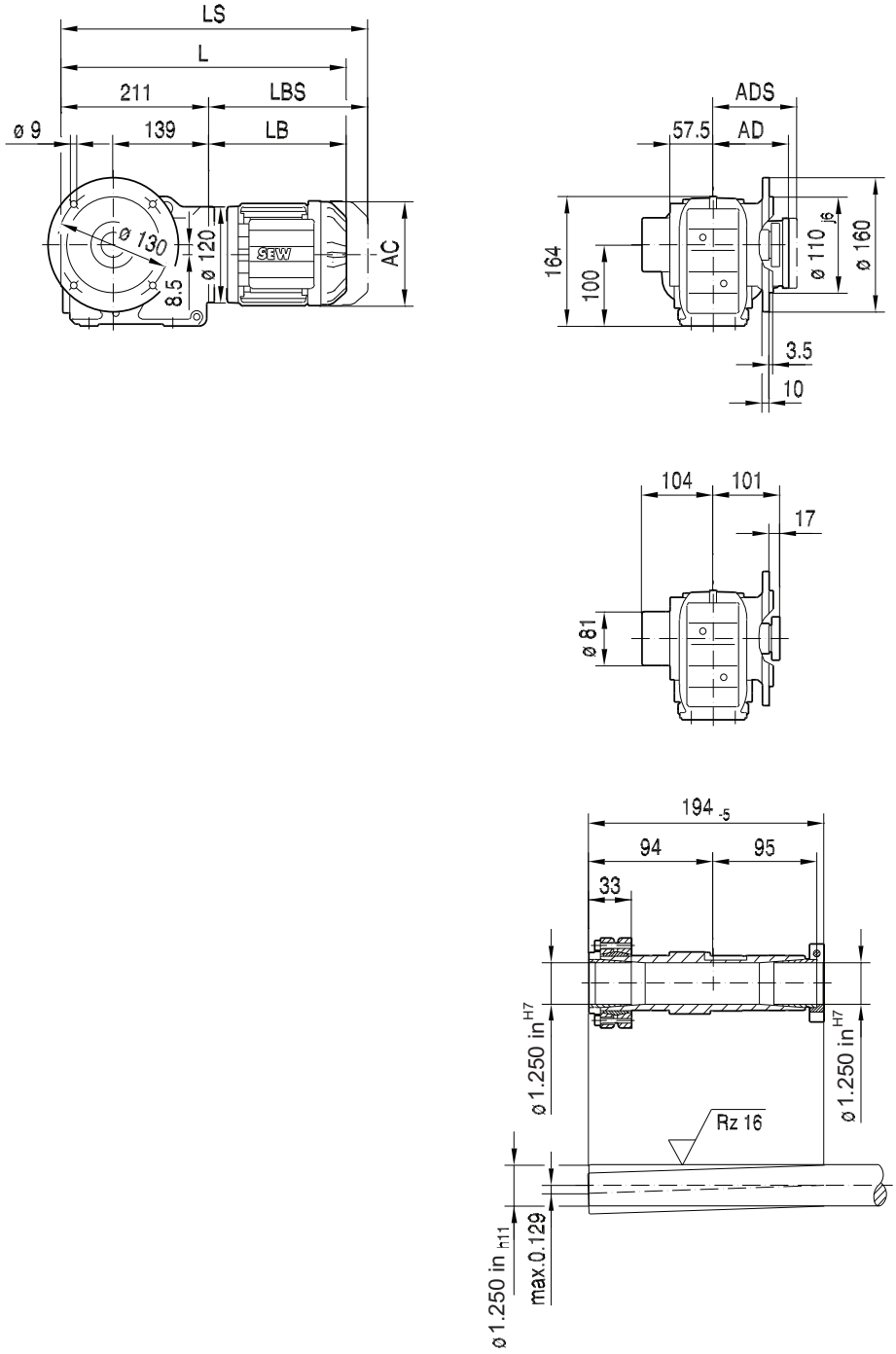
(→ 🗎 162)	DRN									
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	156	179	179	197
AD	98	98	118	118	128	128	128	140	140	157
ADS	98	98	129	129	139	139	139	150	150	158
L	401	415	417	437	448	465	493	494	526	575
LS	457	471	484	504	529	546	574	588	620	669
LB	190	204	206	226	237	254	282	283	315	364
LBS	246	260	273	293	318	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

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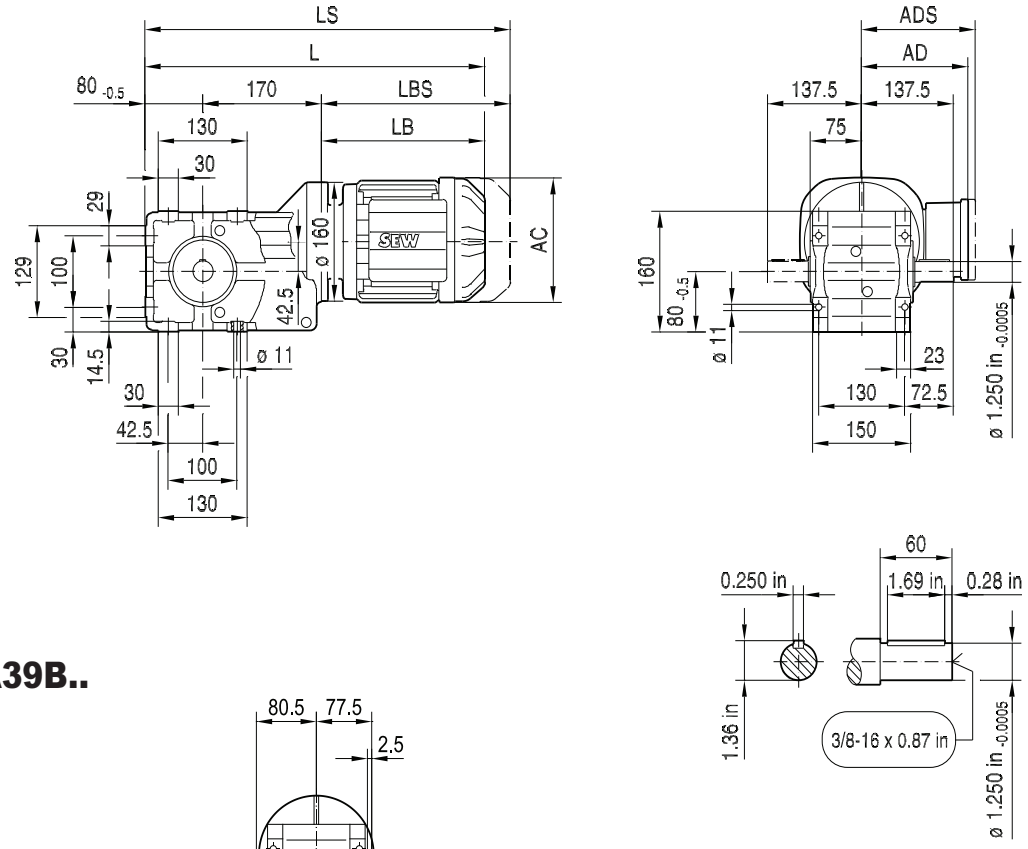
(→ 🗎 162)	DRN									
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	156	179	179	197
AD	98	98	118	118	128	128	128	140	140	157
ADS	98	98	129	129	139	139	139	150	150	158
L	401	415	417	437	448	465	493	494	526	575
LS	457	471	484	504	529	546	574	588	620	669
LB	190	204	206	226	237	254	282	283	315	364
LBS	246	260	273	293	318	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

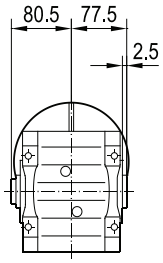
22483323 1/EN-US – 07/2021

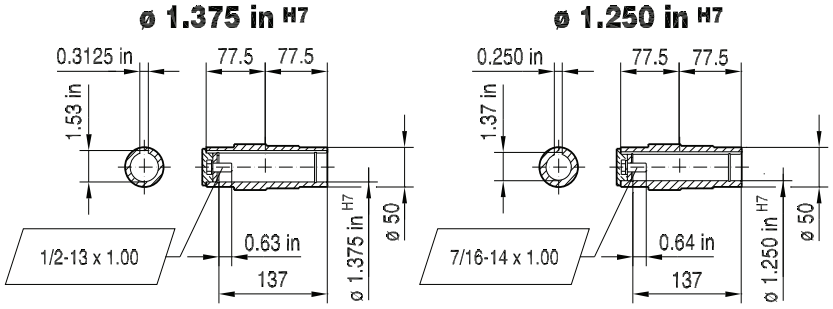
77 543 00 21

K39..



KA39B..



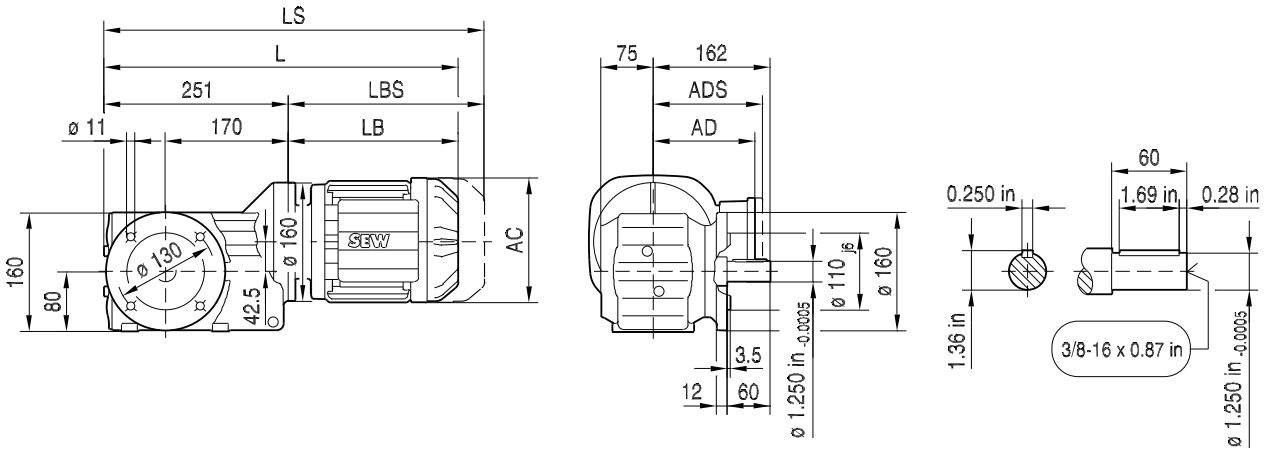


(→ 🗎 162)	DRN							
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M
AC	139	139	156	156	179	179	197	221
AD	118	118	128	128	140	140	157	170
ADS	129	129	139	139	150	150	158	172
L	449	469	480	525	527	559	605	636
LS	517	537	561	606	620	652	699	748
LB	199	219	230	275	277	309	355	386
LBS	267	287	311	356	370	402	449	498

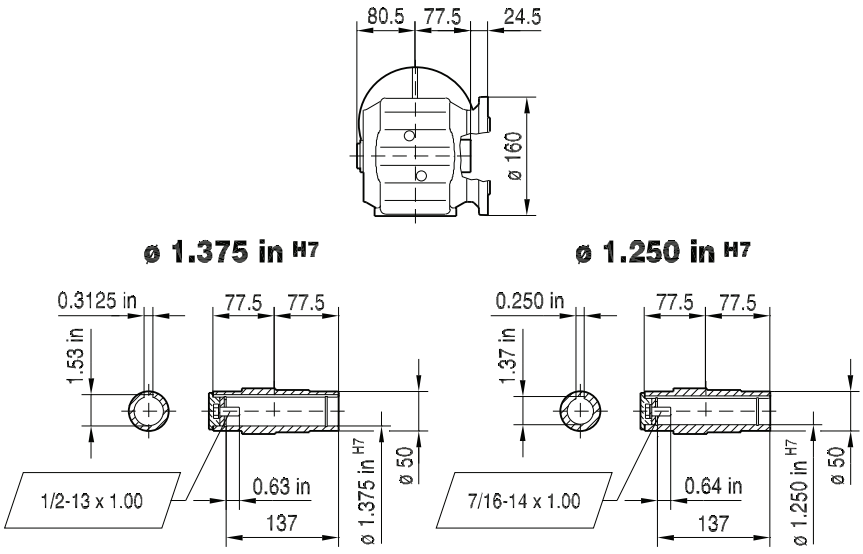
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

77 544 00 21

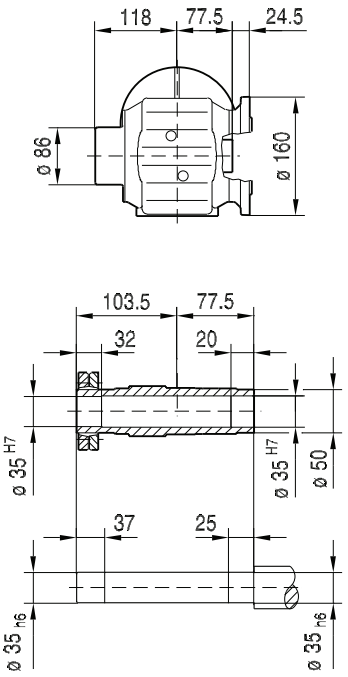
KF39..



KAF39..



KHF39..



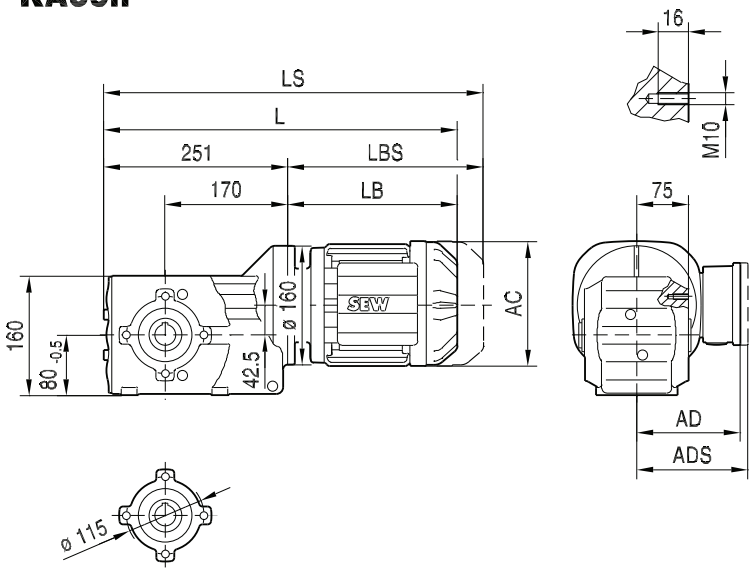
(→ 🗎 162)	DRN							
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M
AC	139	139	156	156	179	179	197	221
AD	118	118	128	128	140	140	157	170
ADS	129	129	139	139	150	150	158	172
L	450	470	481	526	528	560	606	637
LS	518	538	562	607	621	653	700	749
LB	199	219	230	275	277	309	355	386
LBS	267	287	311	356	370	402	449	498

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

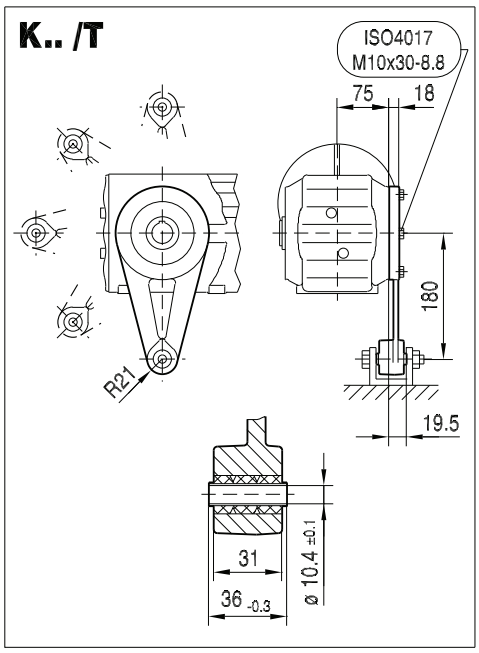
24833231/EN-US – 07/2021

77 545 00 21

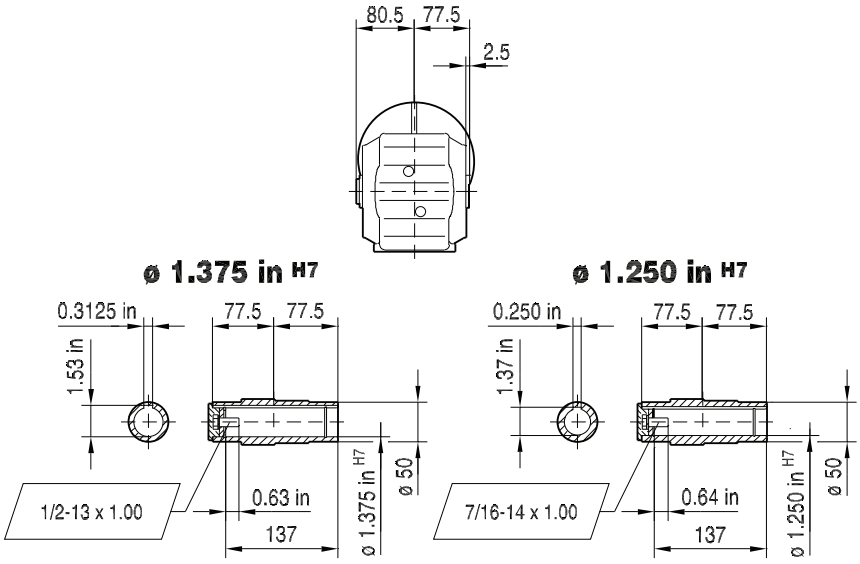
KA39..



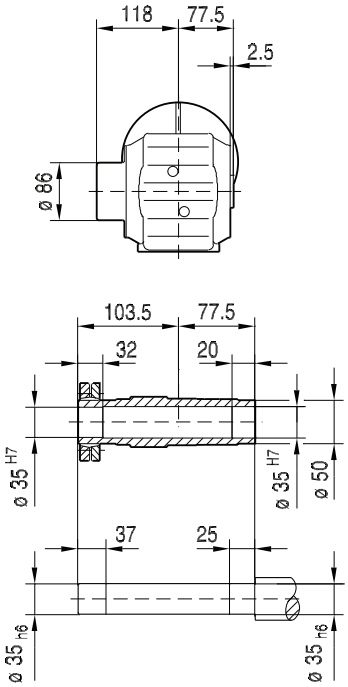
K.. /T



KA39..



KH39..

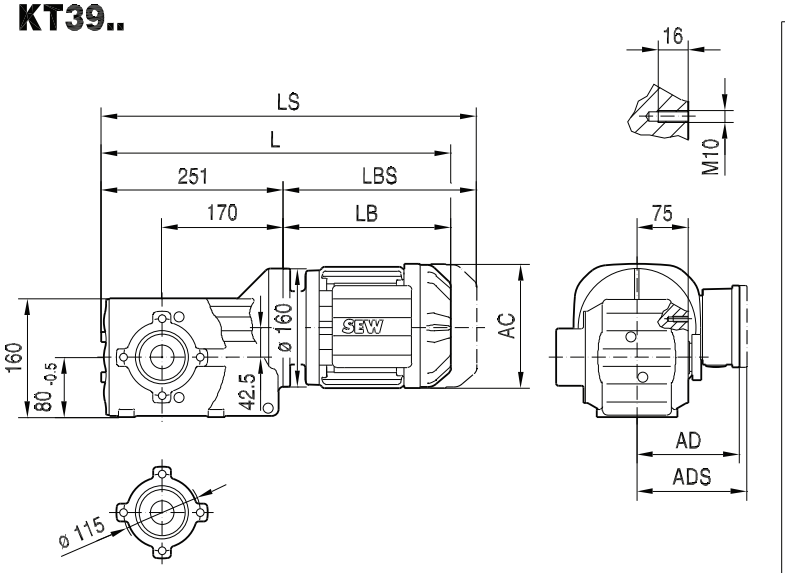


(→ 🗎 162)	DRN							
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M
AC	139	139	156	156	179	179	197	221
AD	118	118	128	128	140	140	157	170
ADS	129	129	139	139	150	150	158	172
L	450	470	481	526	528	560	606	637
LS	518	538	562	607	621	653	700	749
LB	199	219	230	275	277	309	355	386
LBS	267	287	311	356	370	402	449	498

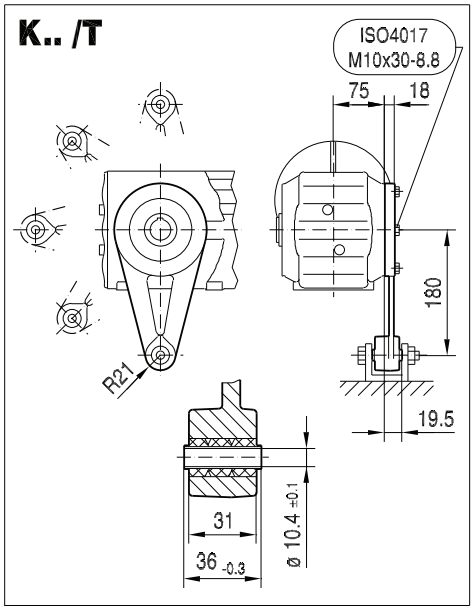
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

77 546 00 21

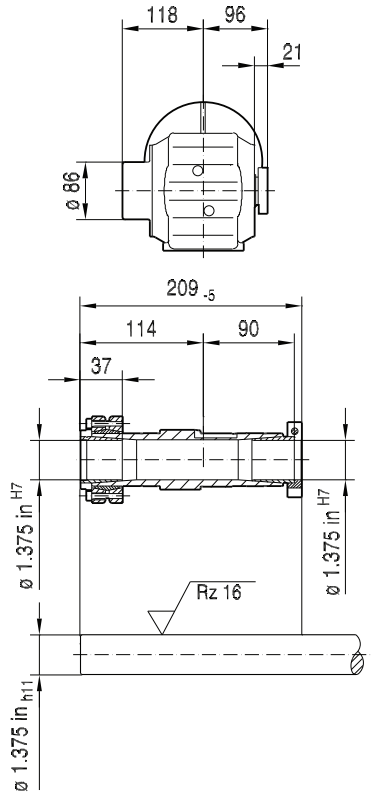
KT39..



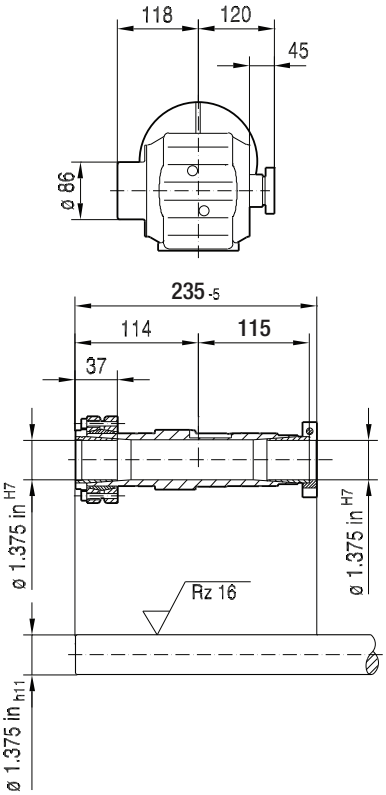
K.. /T



NON-Symmetrical



Symmetrical



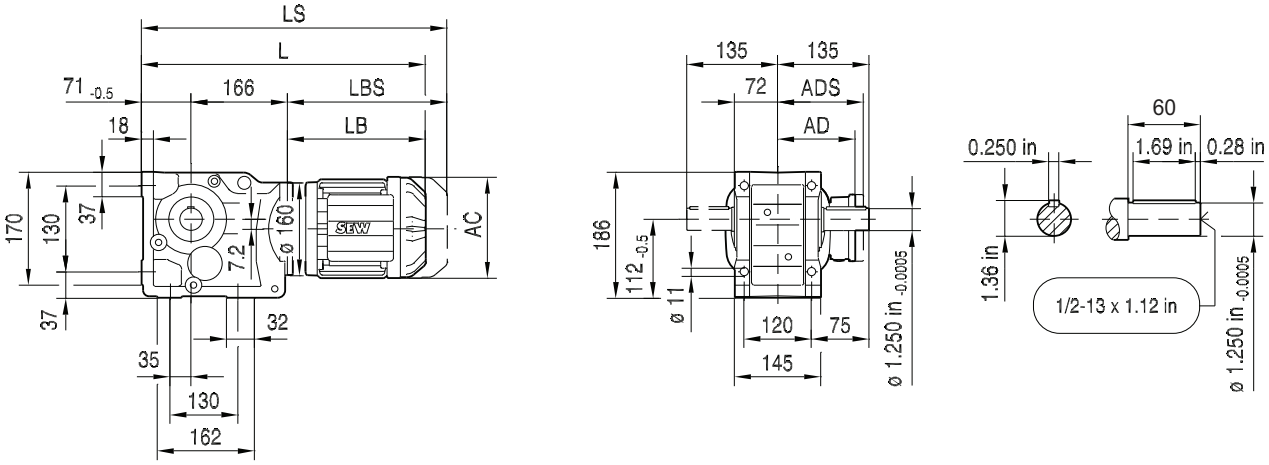
(→ 🗎 162)	DRN							
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M
AC	139	139	156	156	179	179	197	221
AD	118	118	128	128	140	140	157	170
ADS	129	129	139	139	150	150	158	172
L	450	470	481	526	528	560	606	637
LS	518	538	562	607	621	653	700	749
LB	199	219	230	275	277	309	355	386
LBS	267	287	311	356	370	402	449	498

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

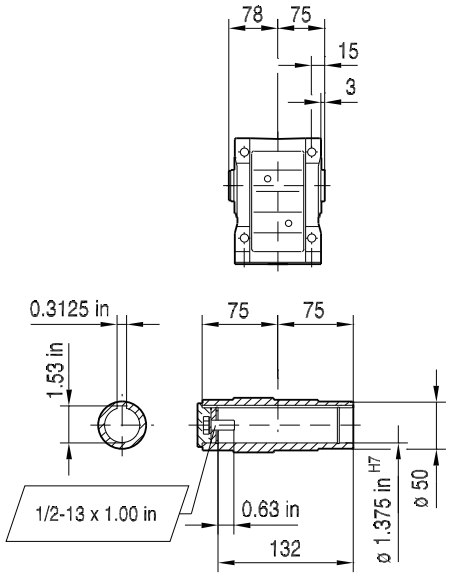
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77 547 00 21

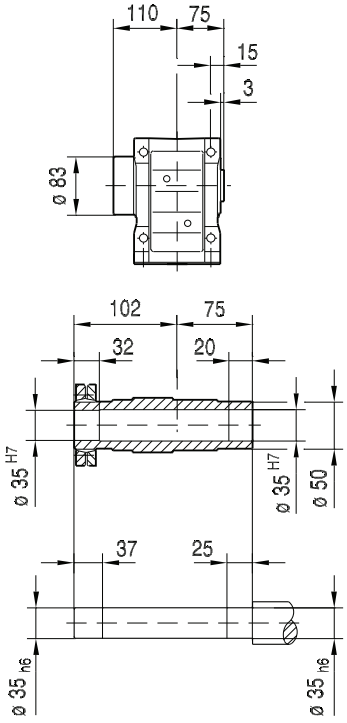
K47..



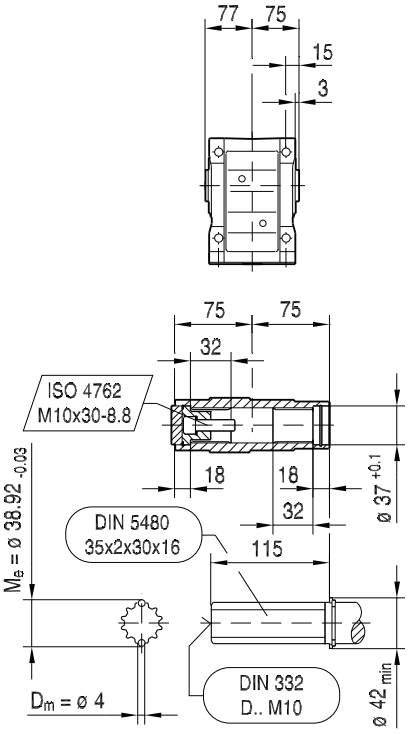
KA47B..



KH47B..



KV47B..



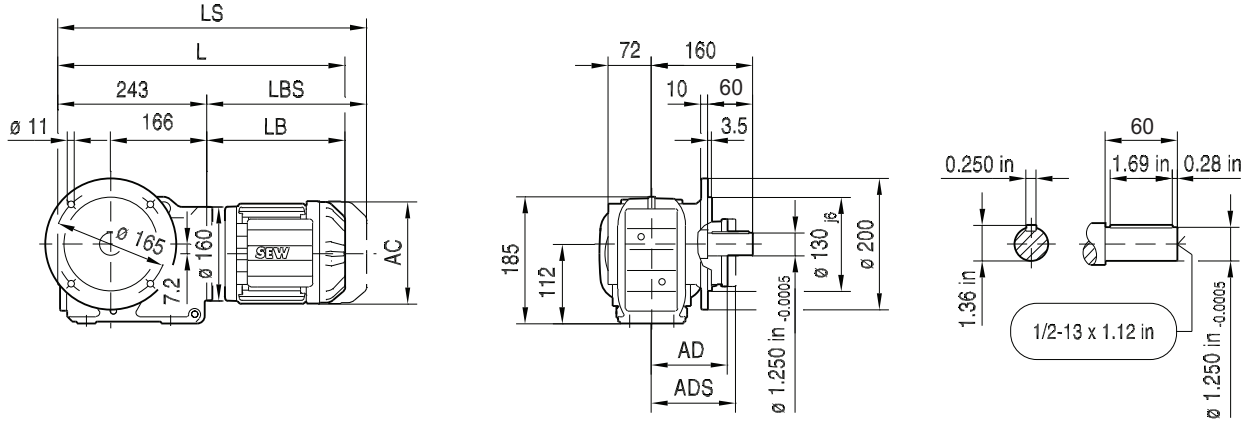
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	421	435	436	456	467	512	514	546	592
LS	477	491	504	524	548	593	607	639	686
LB	184	198	199	219	230	275	277	309	355
LBS	240	254	267	287	311	356	370	402	449

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

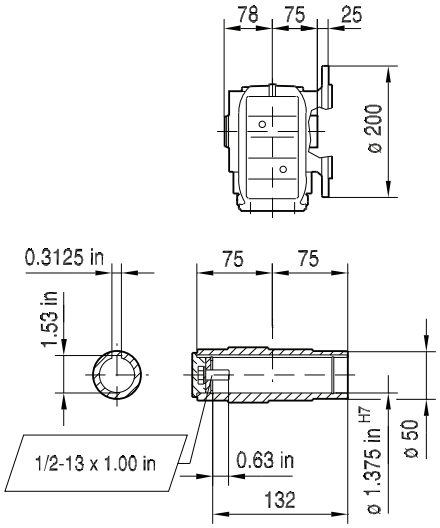
24833231/EN-US – 07/2021

KF47..

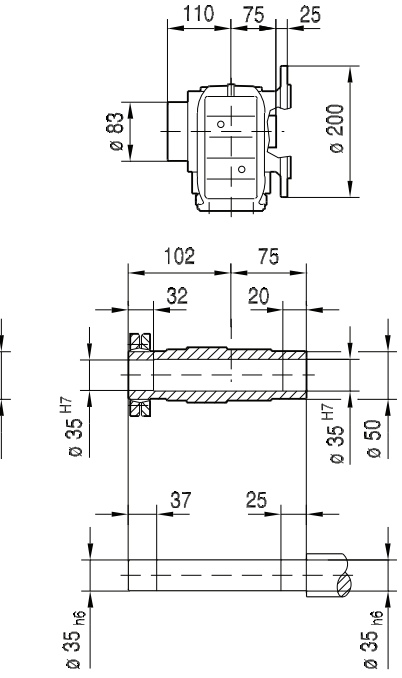
77 548 00 21



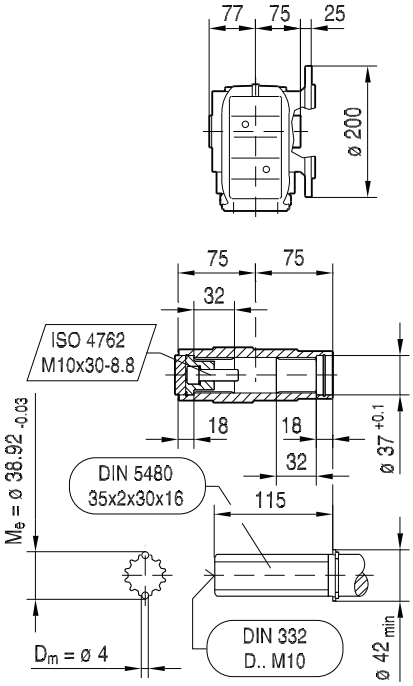
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KHF47..



KVF47..



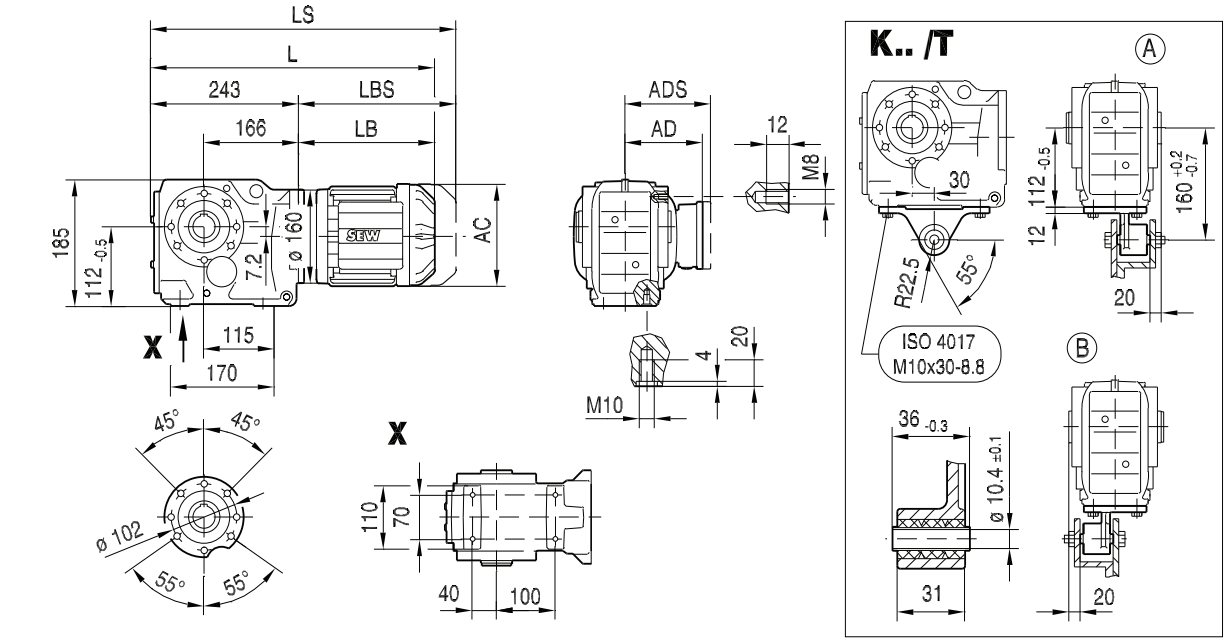
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	427	441	442	462	473	518	520	552	598
LS	483	497	510	530	554	599	613	645	692
LB	184	198	199	219	230	275	277	309	355
LBS	240	254	267	287	311	356	370	402	449

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

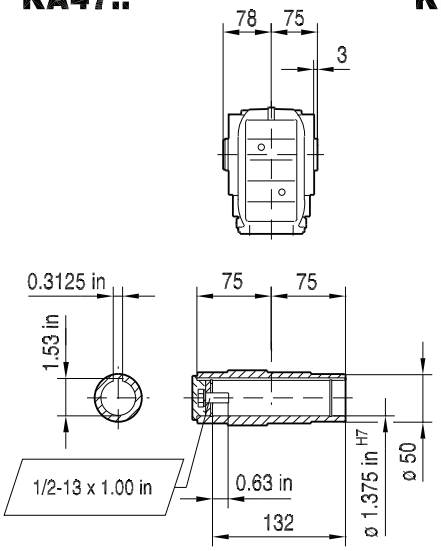
24833231/EN-US – 07/2021

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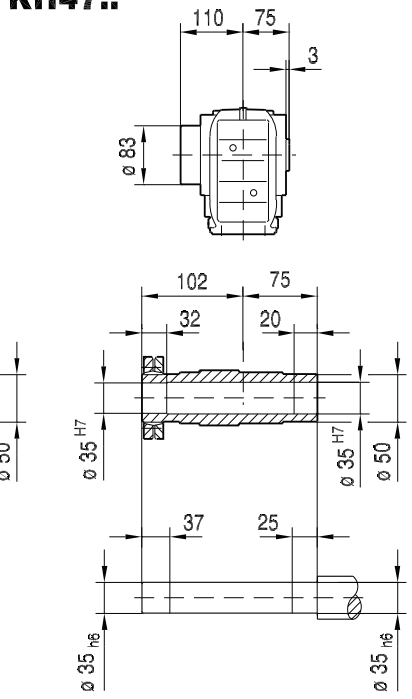
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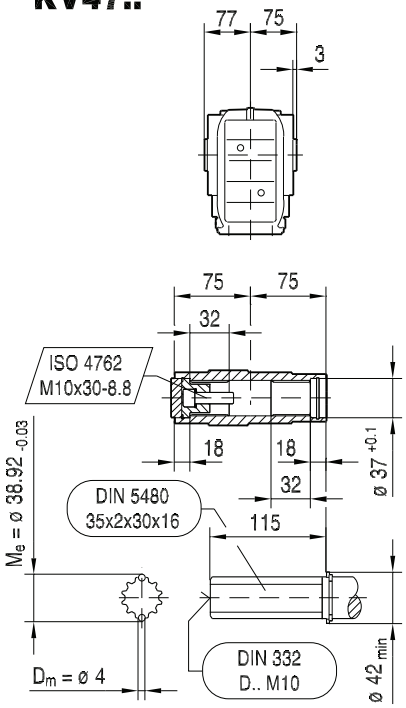
KA47..



KH47..



KV47..



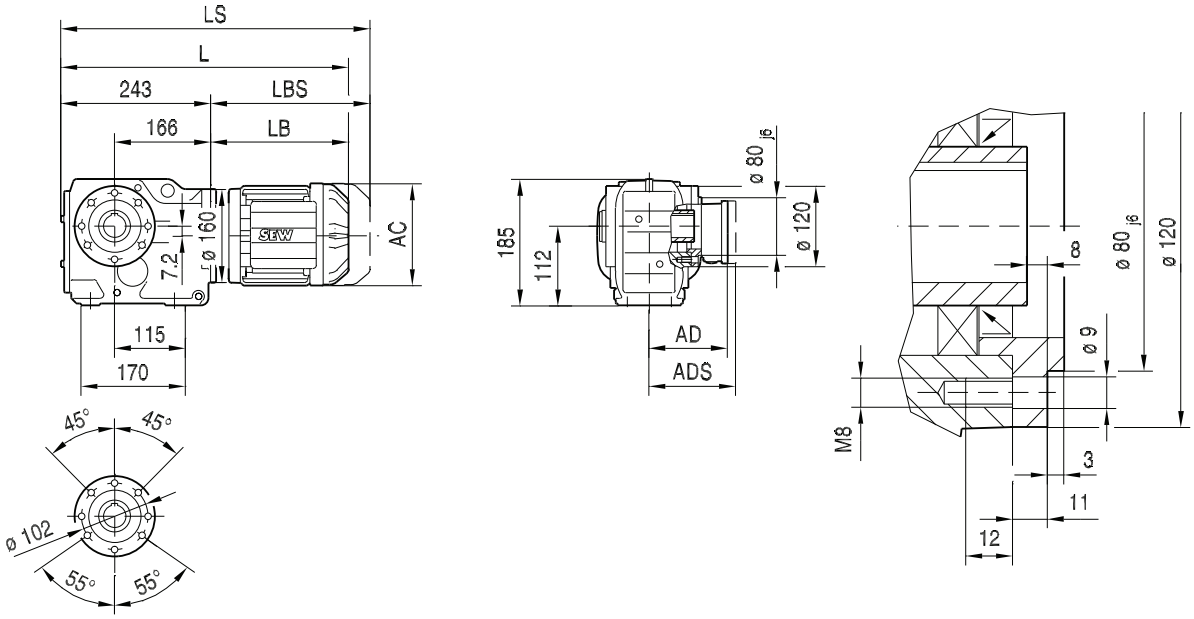
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	427	441	442	462	473	518	520	552	598
LS	483	497	510	530	554	599	613	645	692
LB	184	198	199	219	230	275	277	309	355
LBS	240	254	267	287	311	356	370	402	449

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

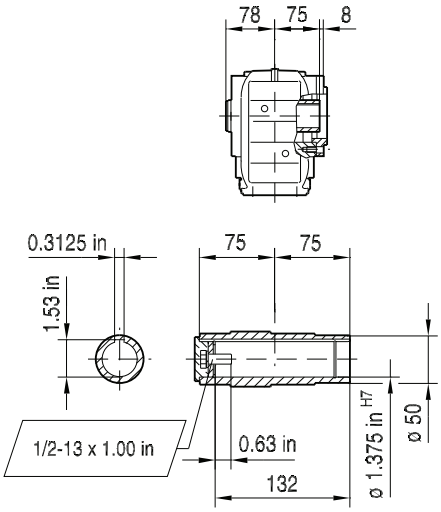
24833231/EN-US – 07/2021

77 550 00 21

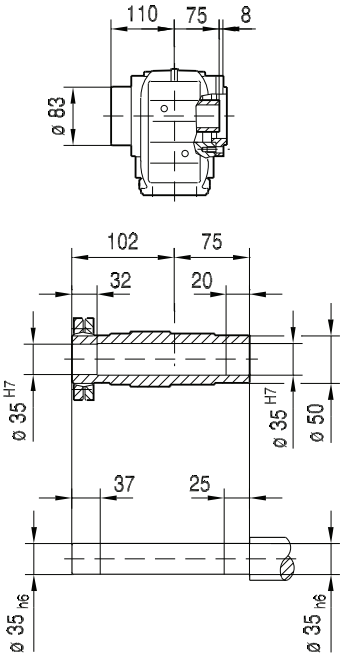
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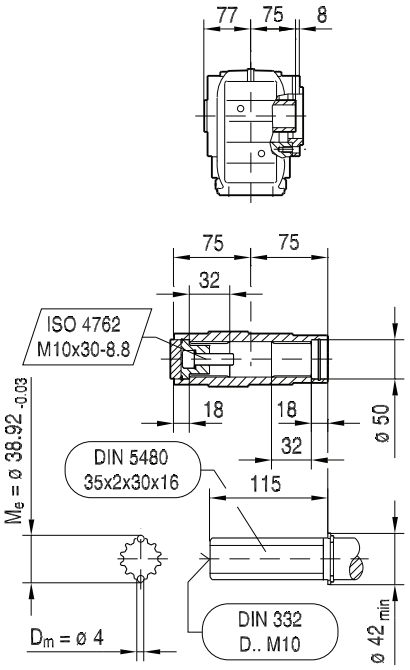
KAZ47..



KHZ47..



KVZ47..



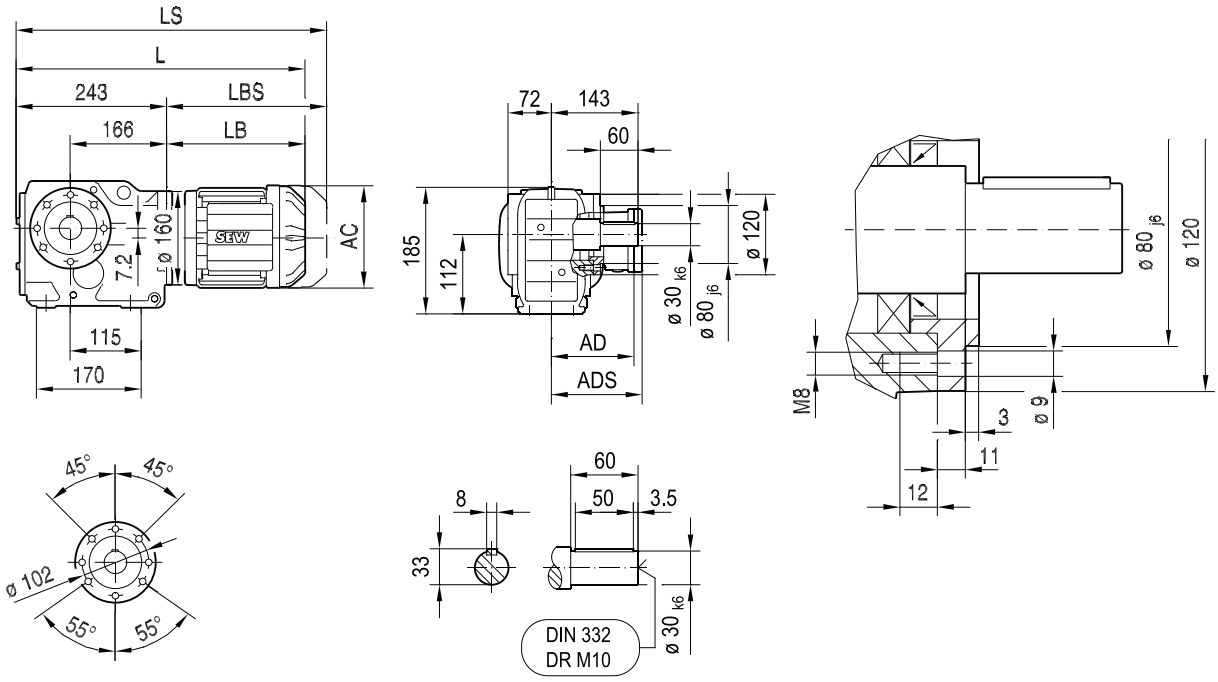
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	427	441	442	462	473	518	520	552	598
LS	483	497	510	530	554	599	613	645	692
LB	184	198	199	219	230	275	277	309	355
LBS	240	254	267	287	311	356	370	402	449

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

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KZ47..

77 551 00 21



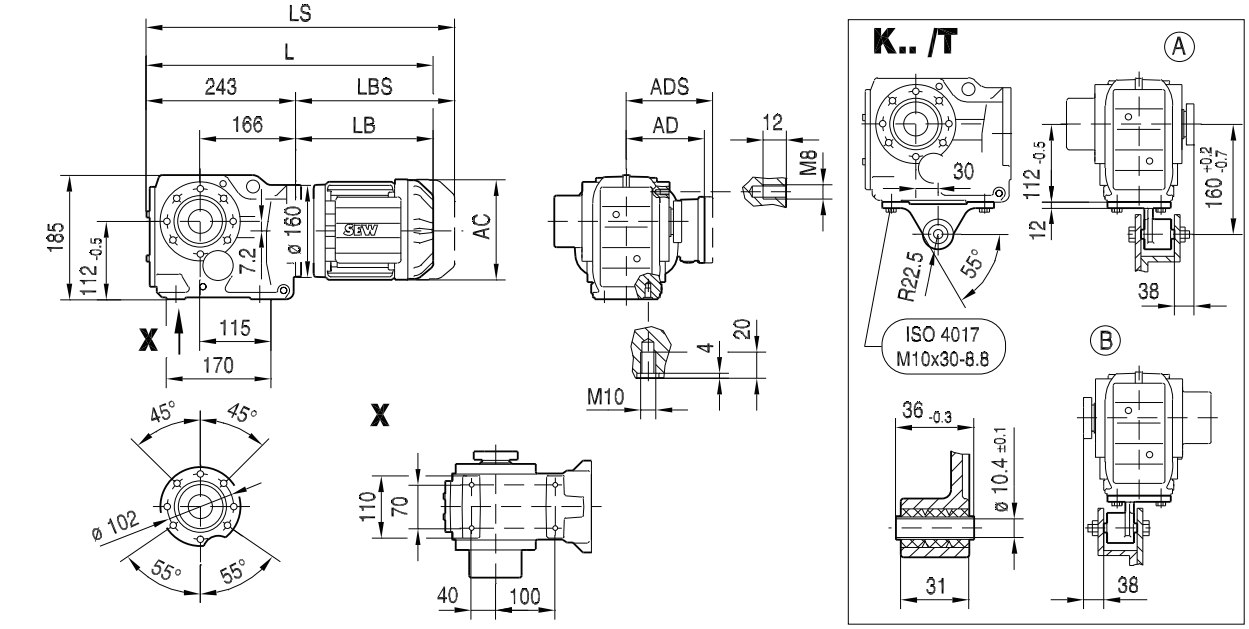
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	427	441	442	462	473	518	520	552	598
LS	483	497	510	530	554	599	613	645	692
LB	184	198	199	219	230	275	277	309	355
LBS	240	254	267	287	311	356	370	402	449

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

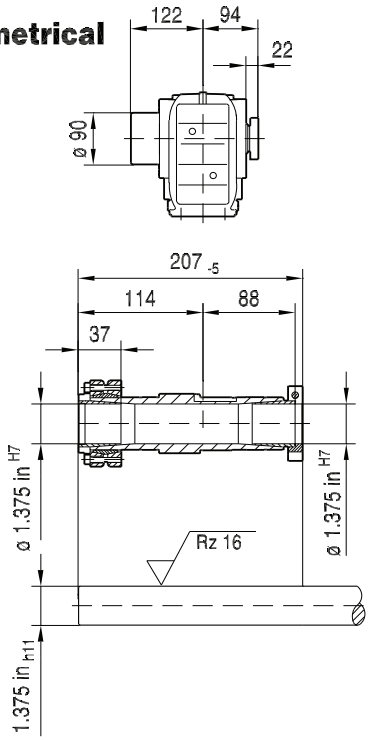
24833231/EN-US – 07/2021

KT47..

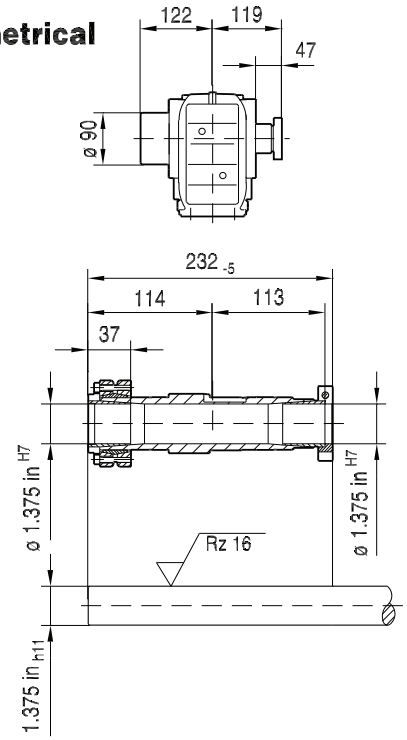
77 552 00 21



NON-Symmetrical



Symmetrical



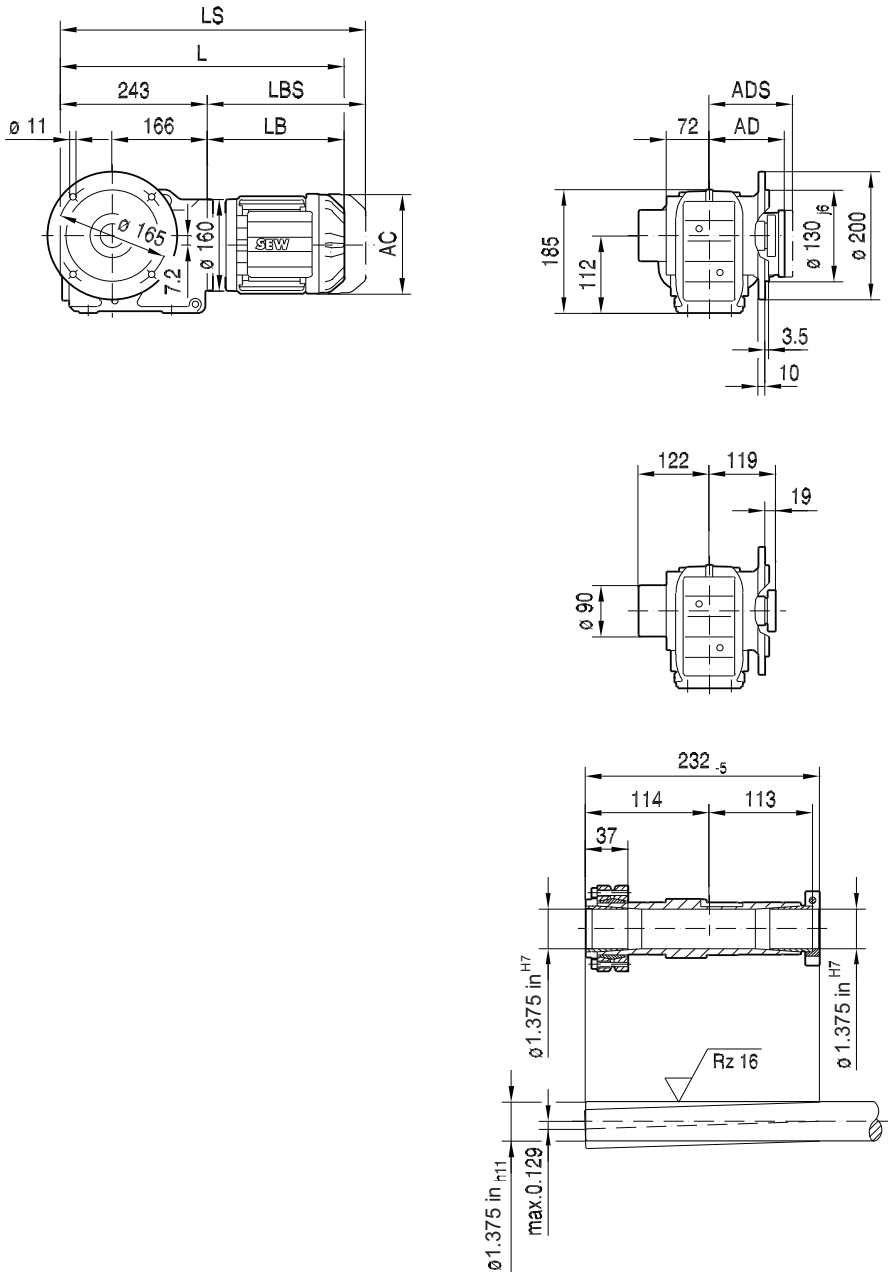
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	427	441	442	462	473	518	520	552	598
LS	483	497	510	530	554	599	613	645	692
LB	184	198	199	219	230	275	277	309	355
LBS	240	254	267	287	311	356	370	402	449

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

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KTF47..

77 553 00 21



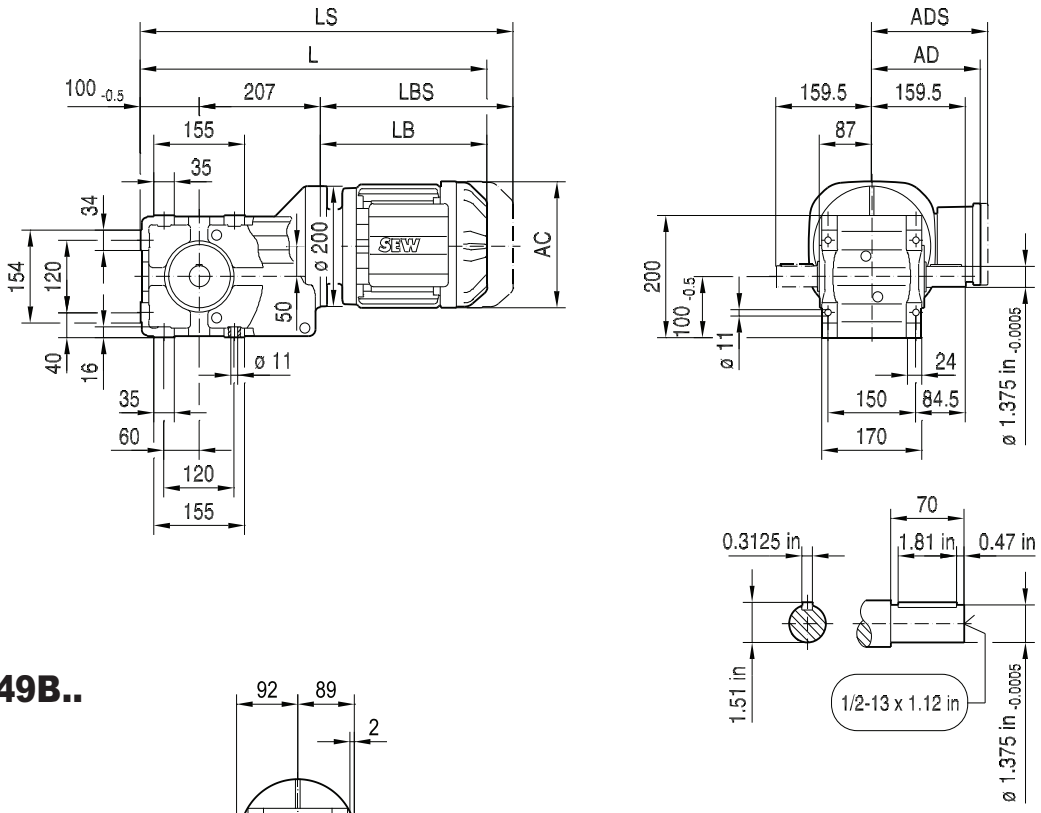
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	179	179	197
AD	98	98	118	118	128	128	140	140	157
ADS	98	98	129	129	139	139	150	150	158
L	427	441	442	462	473	518	520	552	598
LS	483	497	510	530	554	599	613	645	692
LB	184	198	199	219	230	275	277	309	355
LBS	240	254	267	287	311	356	370	402	449

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

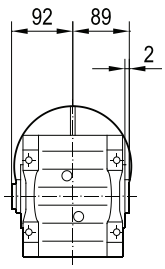
24833231/EN-US – 07/2021

77 554 00 21

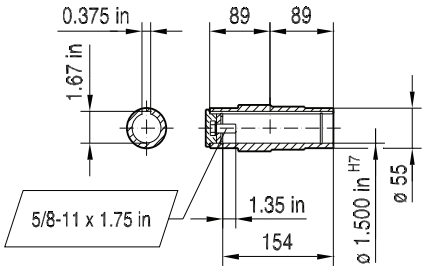
K49..



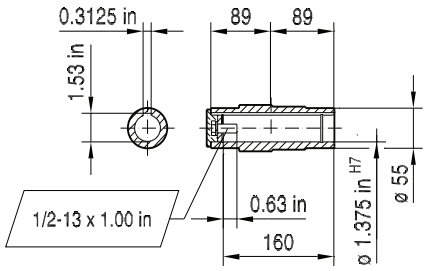
KA49B..



ø 1.500 in H7



ø 1.375 in H7



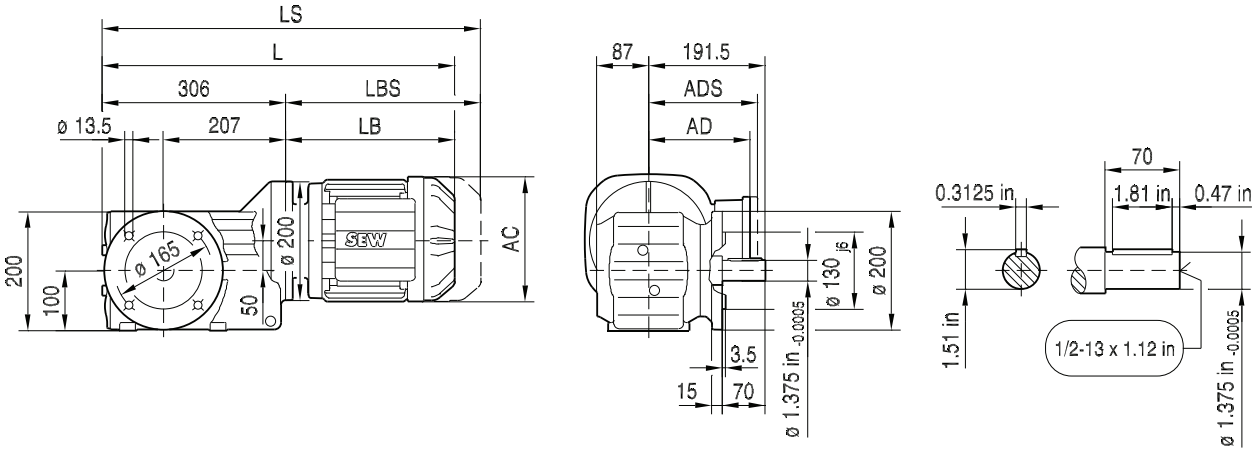
(→ 162)	DRN									
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	139	139	156	156	179	179	197	221	221	261
AD	118	118	128	128	140	140	157	170	170	228
ADS	129	129	139	139	150	150	158	172	172	228
L	499	519	530	575	577	609	655	686	736	754
LS	567	87	611	656	670	702	749	798	848	892
LB	192	212	223	268	270	302	348	379	429	447
LBS	260	280	304	349	363	395	442	491	541	585

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

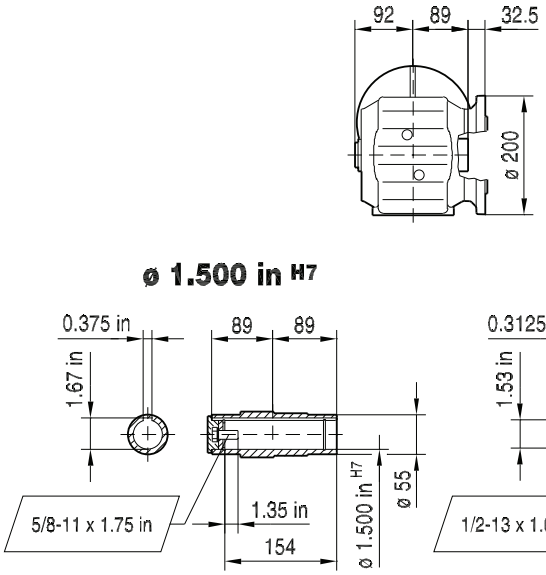
24833231/EN-US – 07/2021

77 555 00 21

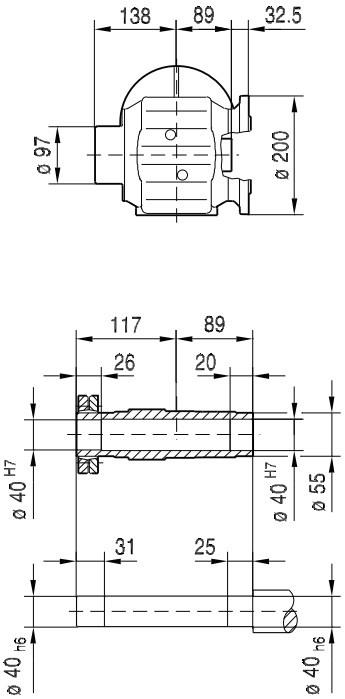
KF49..



KAF49..



KHF49..



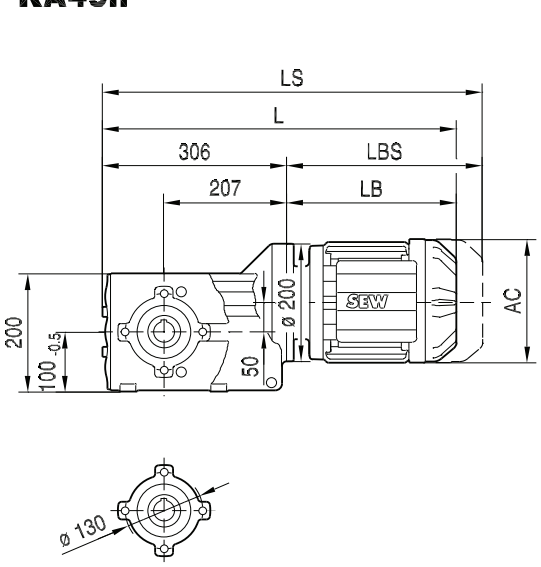
(→ 🗎 162)	DRN									
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	139	139	156	156	179	179	197	221	221	261
AD	118	118	128	128	140	140	157	170	170	228
ADS	129	129	139	139	150	150	158	172	172	228
L	498	518	529	574	576	608	654	685	735	753
LS	566	586	610	655	669	701	748	797	847	891
LB	192	212	223	268	270	302	348	379	429	447
LBS	260	280	304	349	363	395	442	491	541	585

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

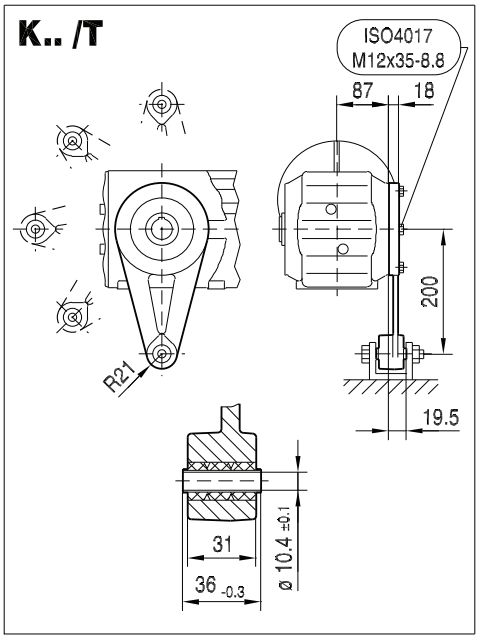
24833231/EN-US – 07/2021

77 556 00 21

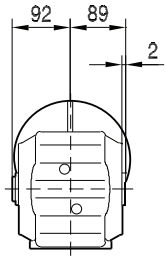
KA49..



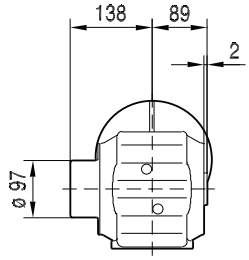
K.. /T



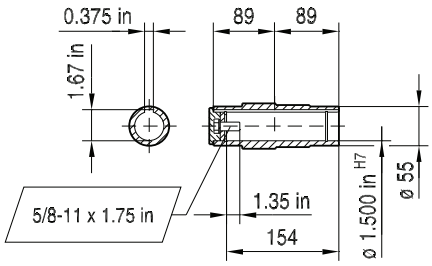
KA49..



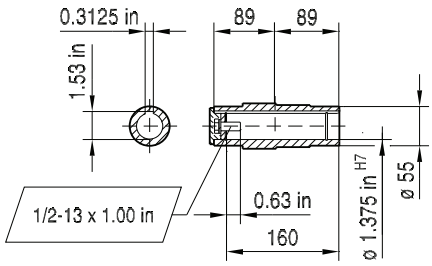
KH49..

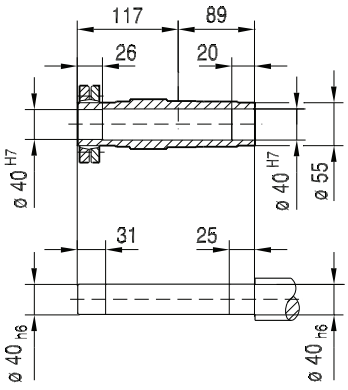


ø 1.500 in H7



ø 1.375 in H7





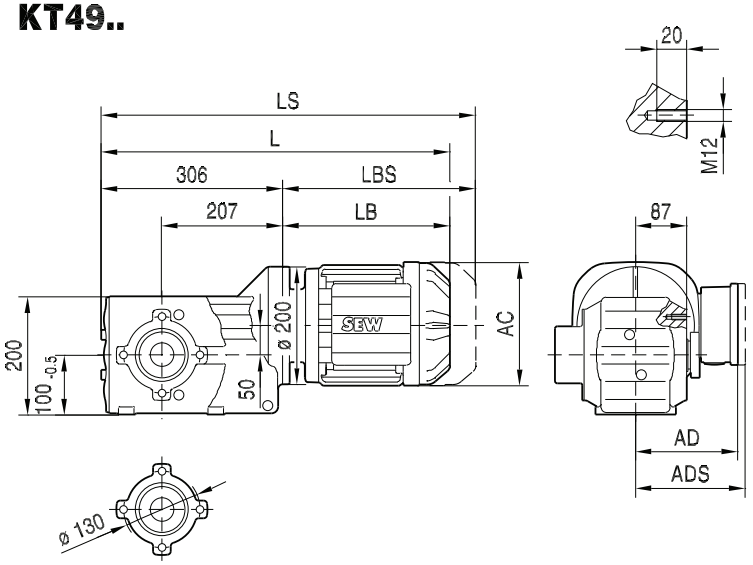
(→ 🗎 162)	DRN									
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	139	139	156	156	179	179	197	221	221	261
AD	118	118	128	128	140	140	157	170	170	228
ADS	129	129	139	139	150	150	158	172	172	228
L	498	518	529	574	576	608	654	685	735	753
LS	566	586	610	655	669	701	748	797	847	891
LB	192	212	223	268	270	302	348	379	429	447
LBS	260	280	304	349	363	395	442	491	541	585

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

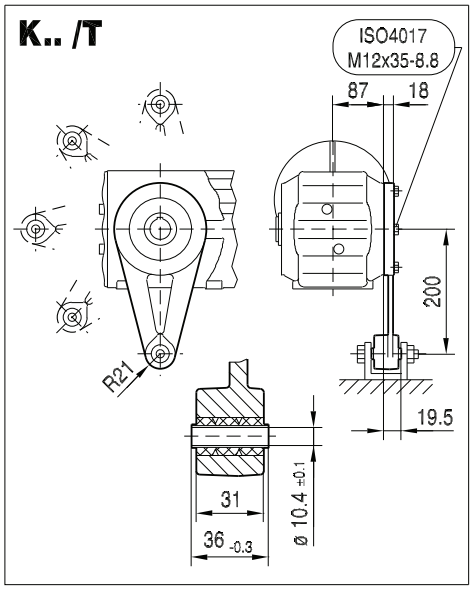
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77 557 00 21

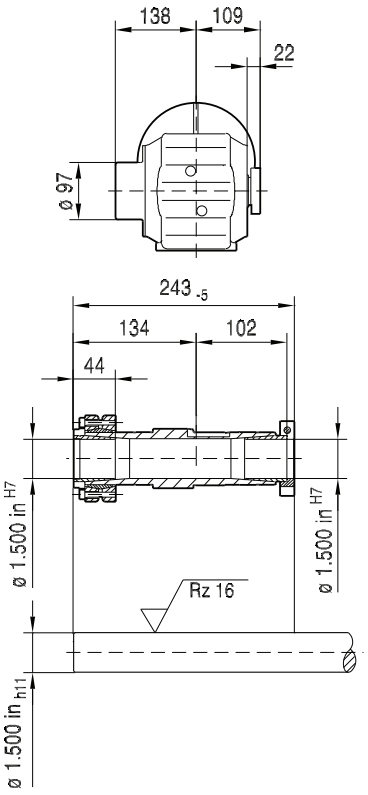
KT49..



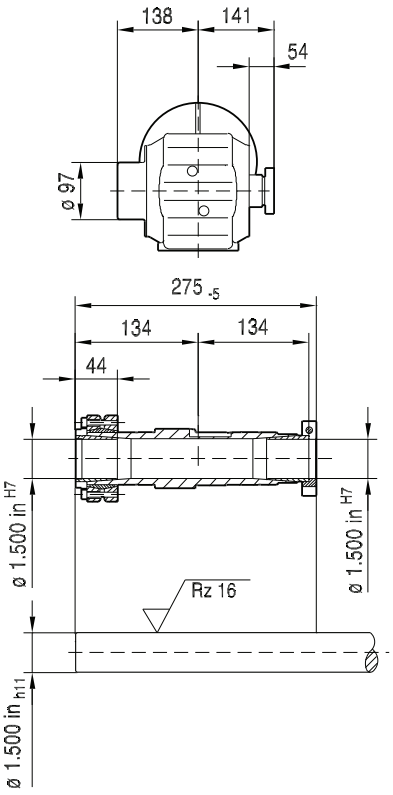
K.. /T



NON-Symmetrical



Symmetrical



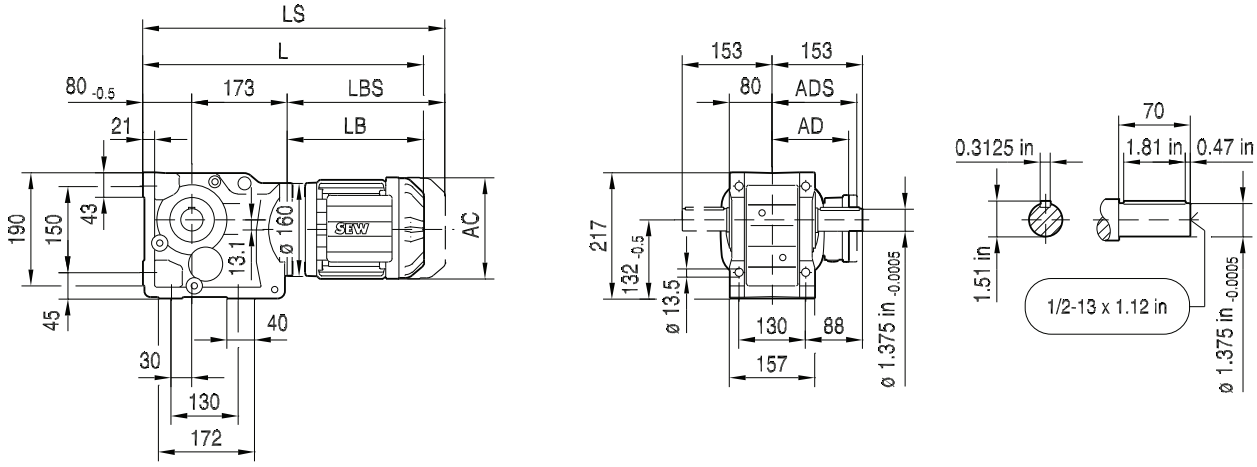
(→ 🗎 162)	DRN									
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	139	139	156	156	179	179	197	221	221	261
AD	118	118	128	128	140	140	157	170	170	228
ADS	129	129	139	139	150	150	158	172	172	228
L	498	518	529	574	576	608	654	685	735	753
LS	566	586	610	655	669	701	748	797	847	891
LB	192	212	223	268	270	302	348	379	429	447
LBS	260	280	304	349	363	395	442	491	541	585

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

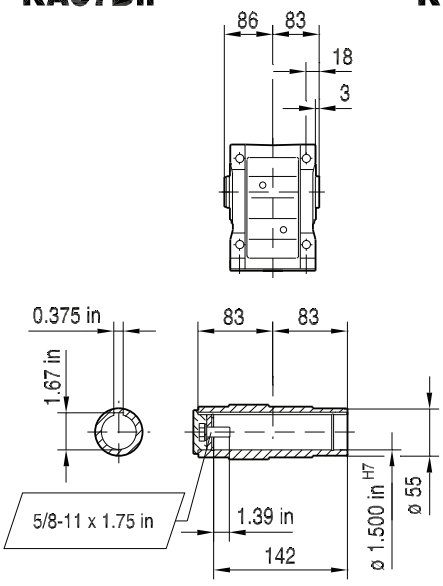
24833231/EN-US – 07/2021

77 558 00 21

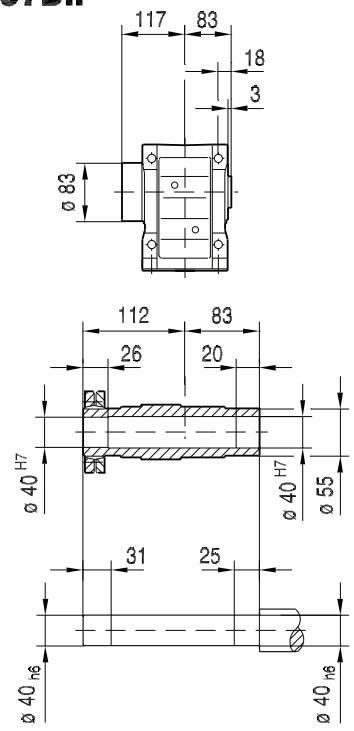
K57..



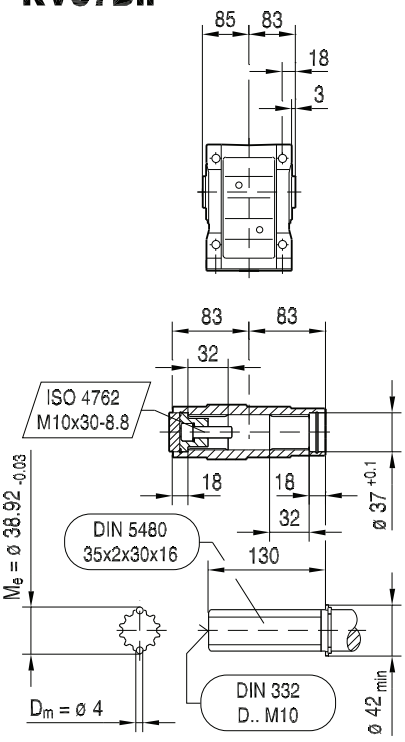
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KH57B..



KV57B..



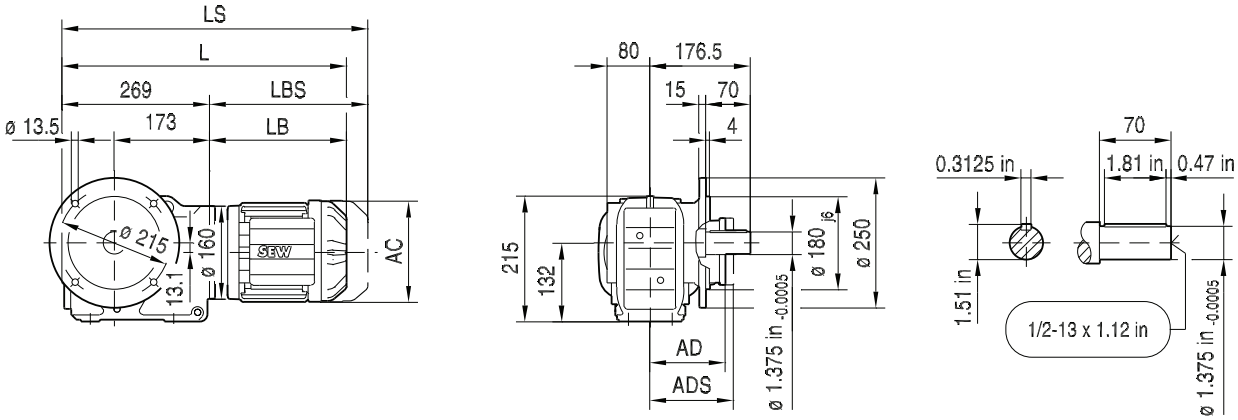
(→ 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	437	451	452	472	483	528	530	562	608	639	693	711
LS	493	507	520	540	564	609	623	655	702	751	805	849
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

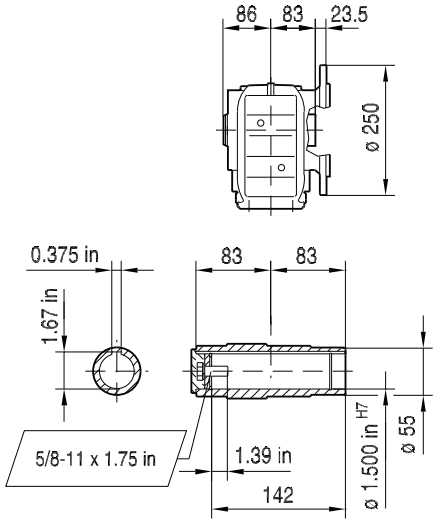
24833231/EN-US – 07/2021

77 559 00 21

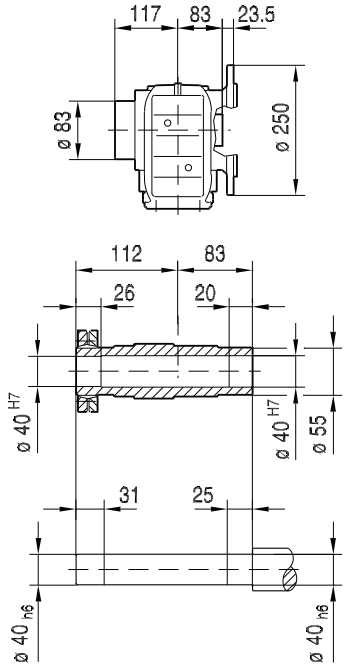
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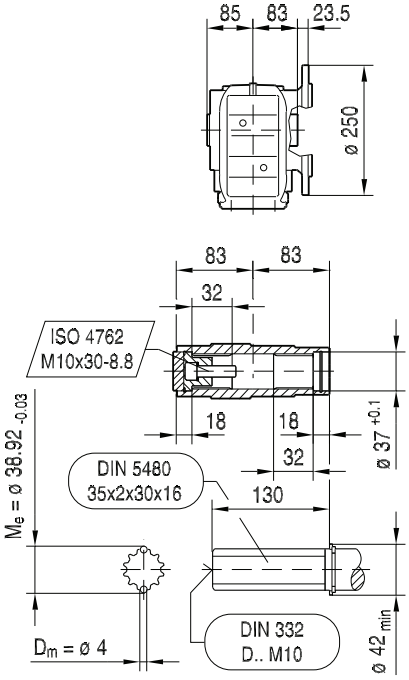
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KHF57..



KVF57..



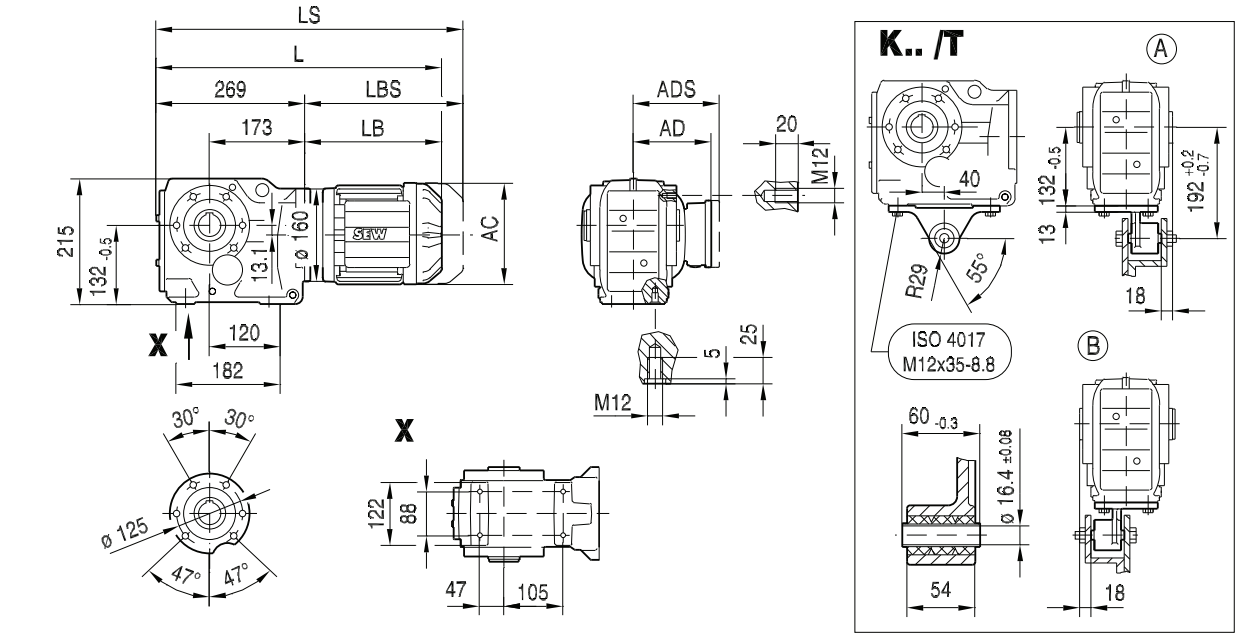
(→ 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	453	467	468	488	499	544	546	578	624	655	709	727
LS	509	523	536	556	580	625	639	671	718	767	821	865
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

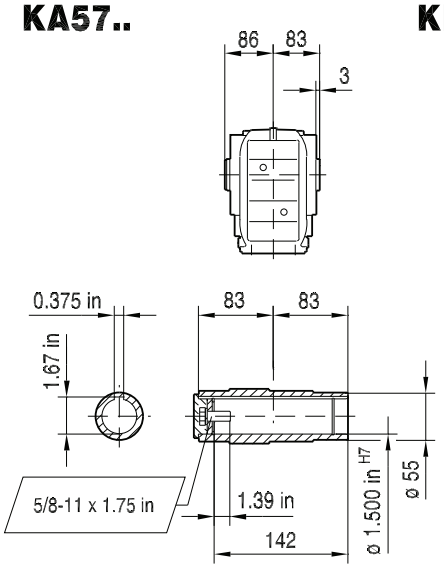
24833231/EN-US – 07/2021

77 560 00 21

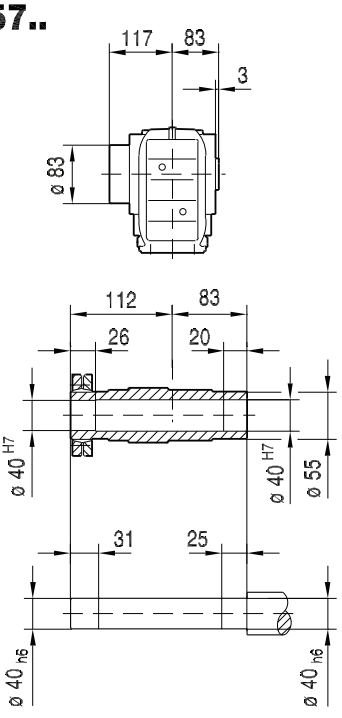
KA57..



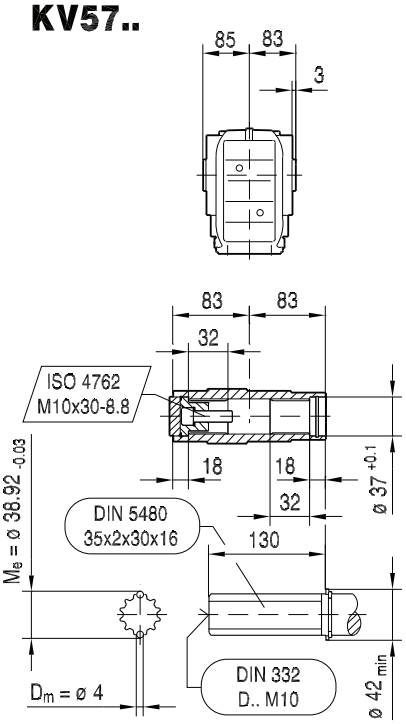
KA57..



KH57..



KV57..



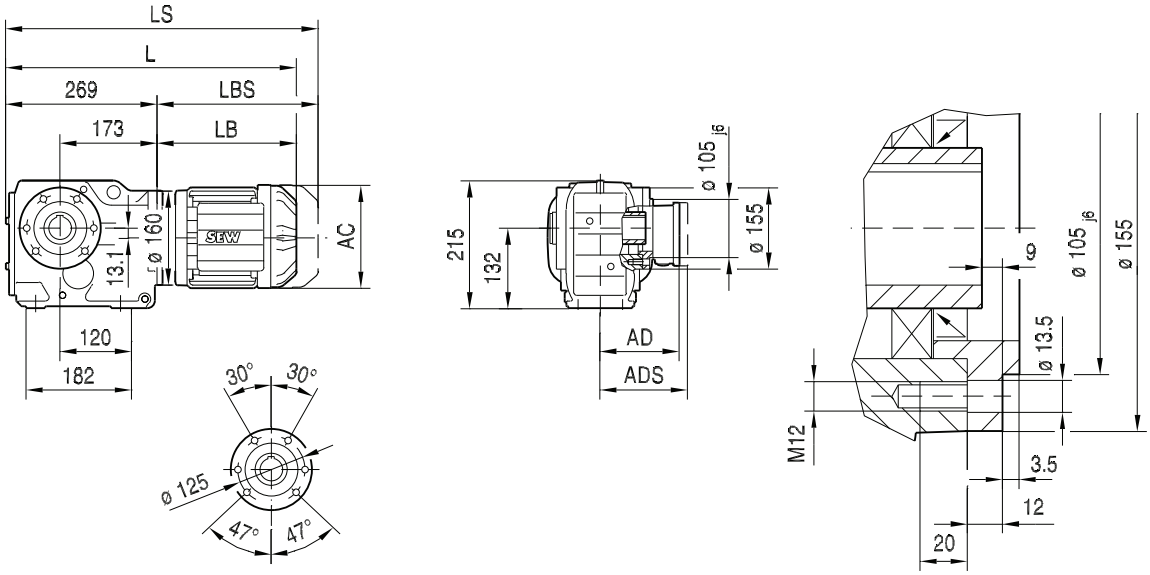
(→ 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	453	467	468	488	499	544	546	578	624	655	709	727
LS	509	523	536	556	580	625	639	671	718	767	821	865
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

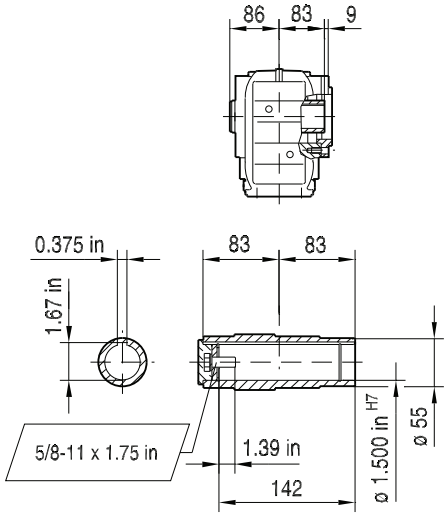
22483323 1/EN-US – 07/2021

77 561 00 21

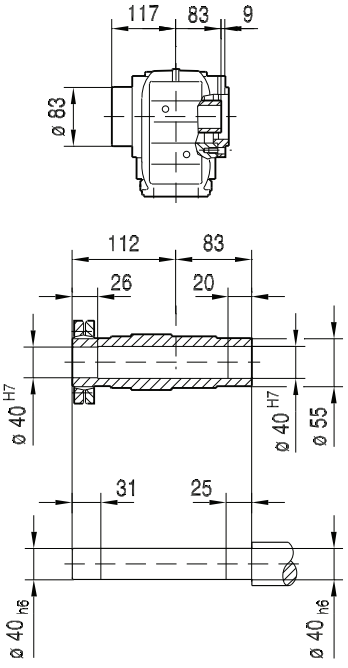
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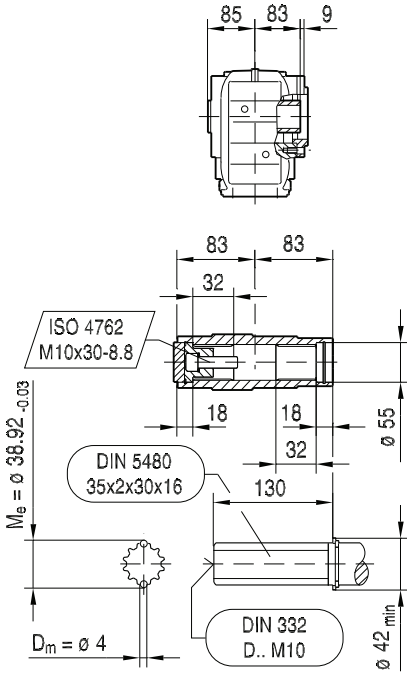
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KHZ57..



KVZ57..



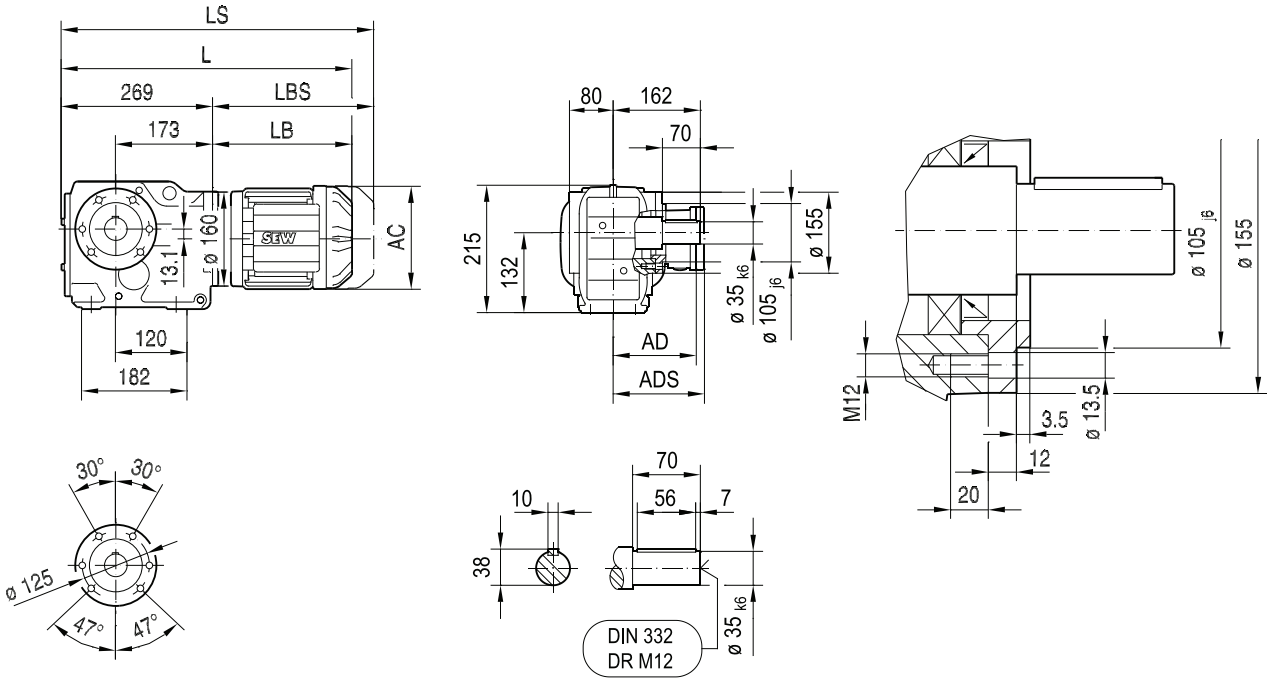
(→ 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	453	467	468	488	499	544	546	578	624	655	709	727
LS	509	523	536	556	580	625	639	671	718	767	821	865
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

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KZ57..

77 562 00 21



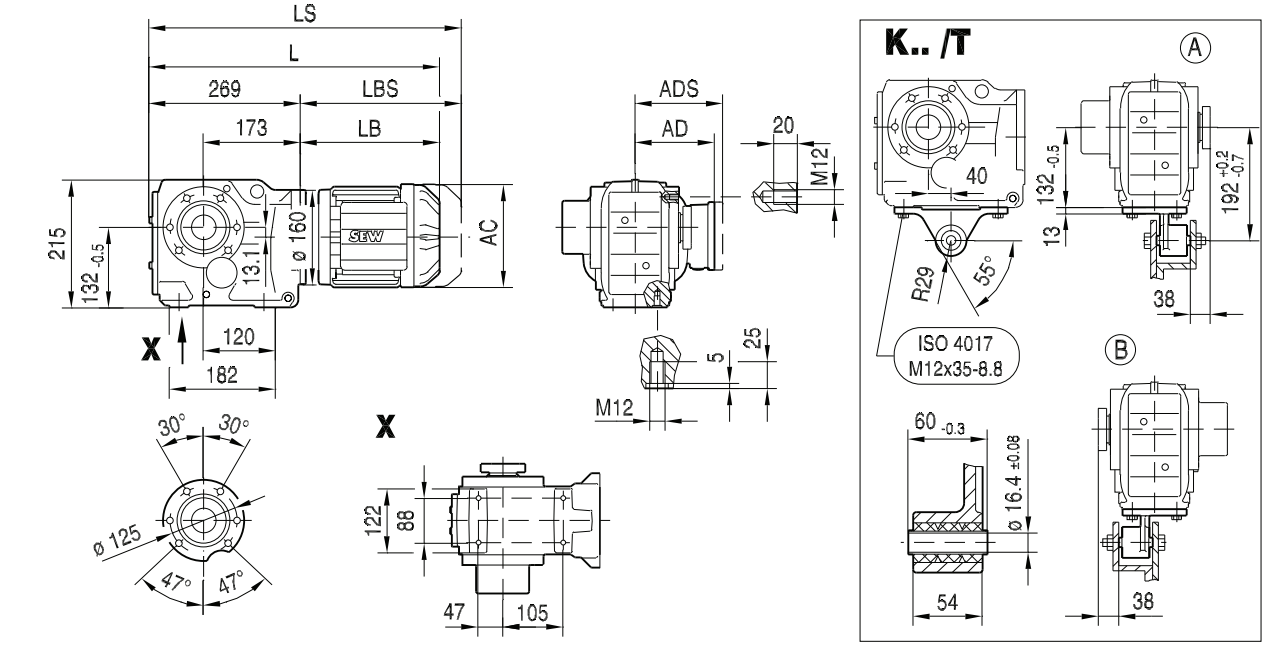
(→ 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	453	467	468	488	499	544	546	578	624	655	709	727
LS	509	523	536	556	580	625	639	671	718	767	821	865
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

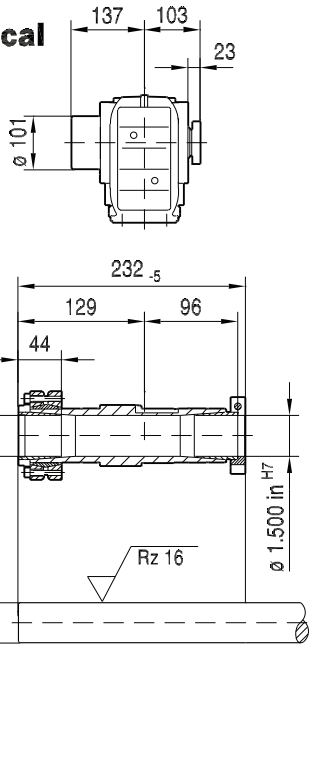
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77 563 00 21

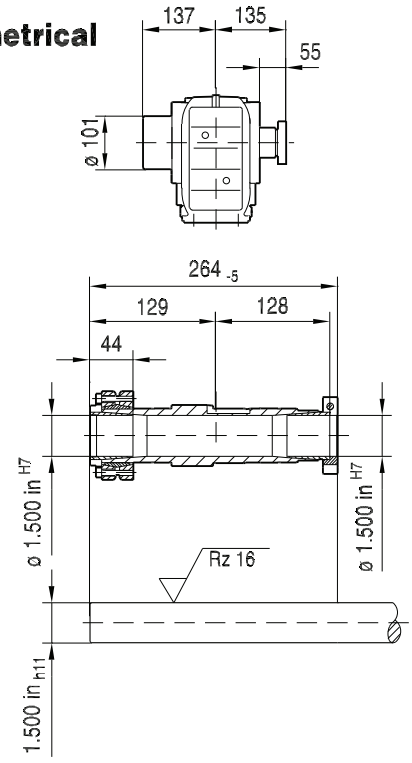
KT57..



NON-Symmetrical



Symmetrical



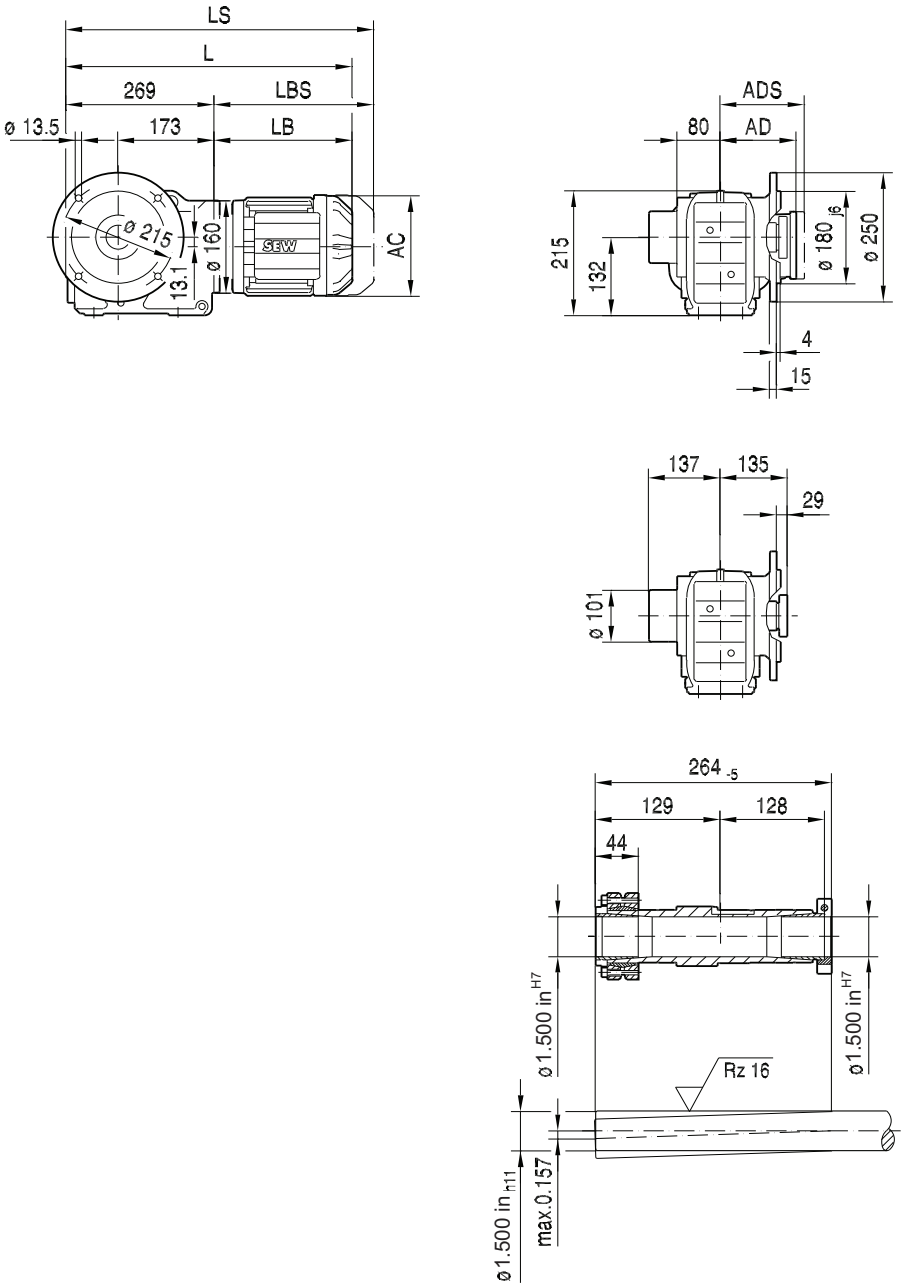
(→ 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	453	467	468	488	499	544	546	578	624	655	709	727
LS	509	523	536	556	580	625	639	671	718	767	821	865
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

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KTF57..

77 564 00 21



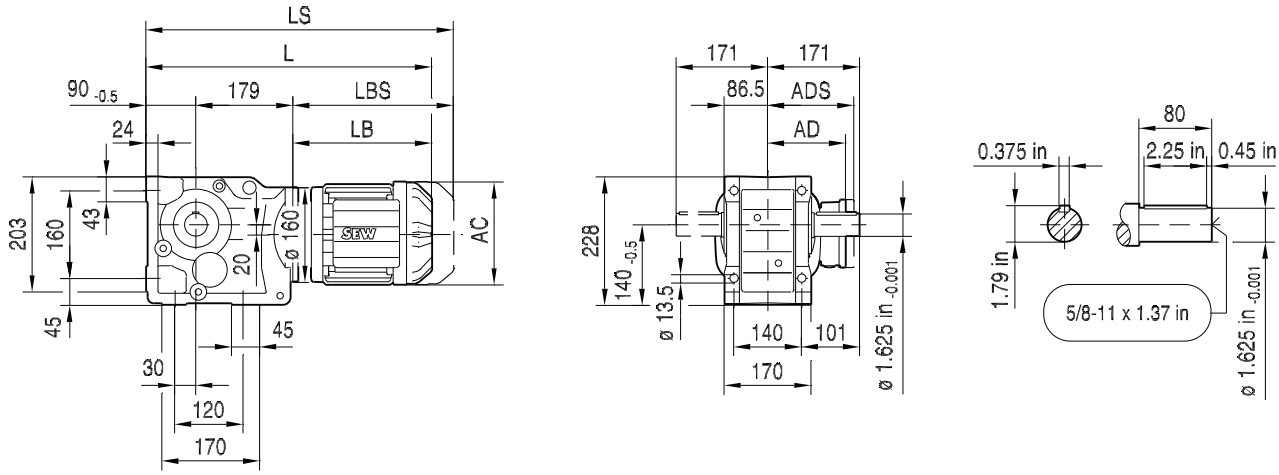
(→ 162)	DRN											
	63MS	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	115	139	139	156	156	179	179	197	221	221	261
AD	98	98	118	118	128	128	140	140	157	170	170	228
ADS	98	98	129	129	139	139	150	150	158	172	172	228
L	453	467	468	488	499	544	546	578	624	655	709	727
LS	509	523	536	556	580	625	639	671	718	767	821	865
LB	184	198	199	219	230	275	277	309	355	386	440	458
LBS	240	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

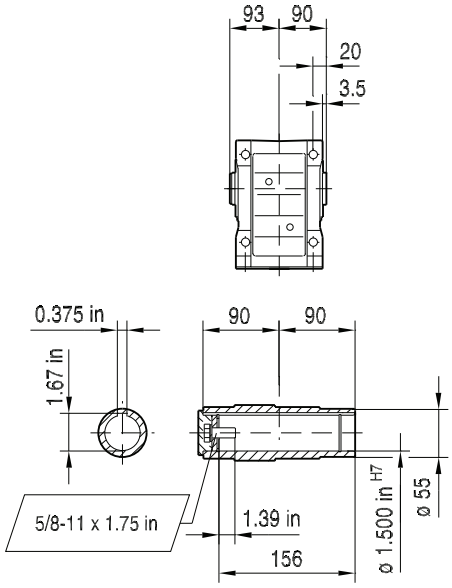
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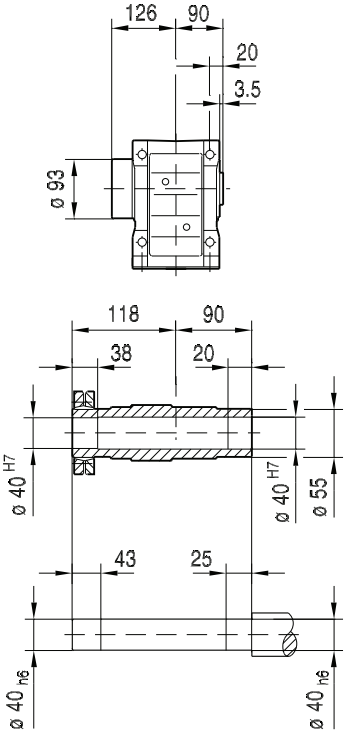
K67..



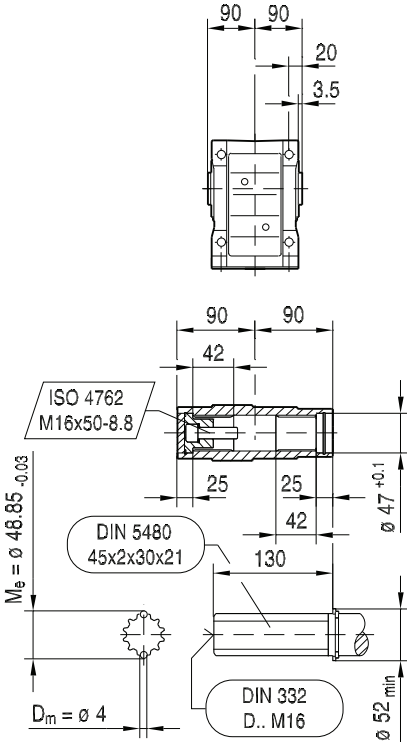
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KH67B..



KV67B..



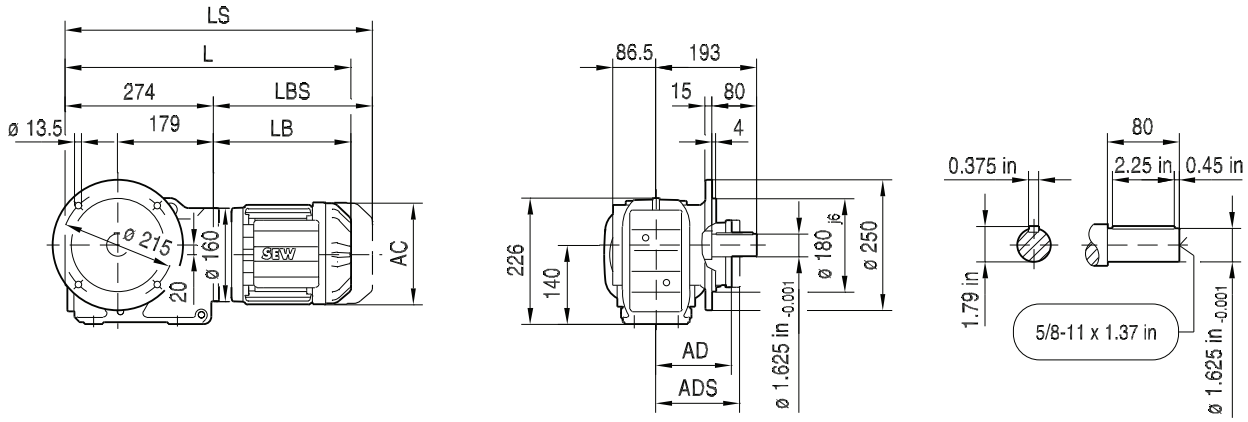
(→ 162)	DRN										
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	139	139	156	156	179	179	197	221	221	261
AD	98	118	118	128	128	140	140	157	170	170	228
ADS	98	129	129	139	139	150	150	158	172	172	228
L	467	468	488	499	544	546	578	624	655	709	727
LS	523	536	556	580	625	639	671	718	767	821	865
LB	198	199	219	230	275	277	309	355	386	440	458
LBS	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

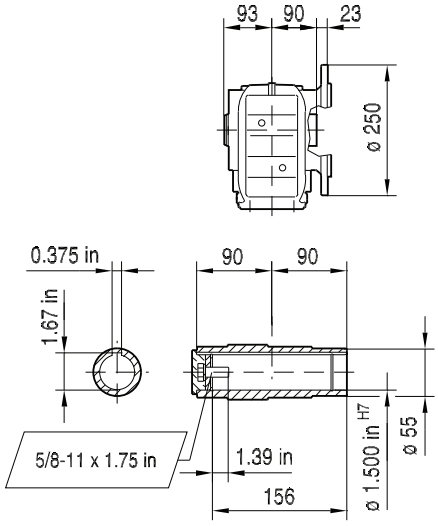
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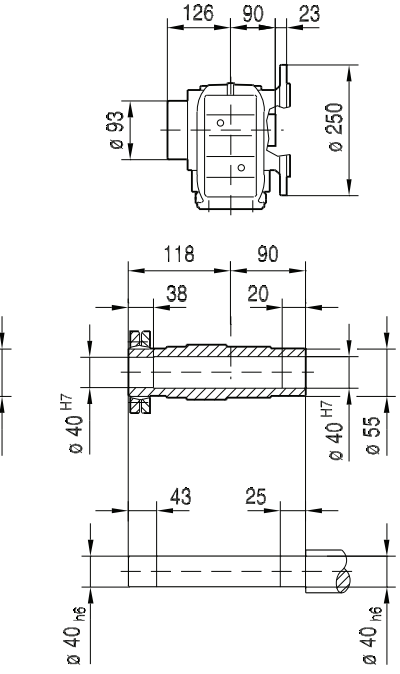
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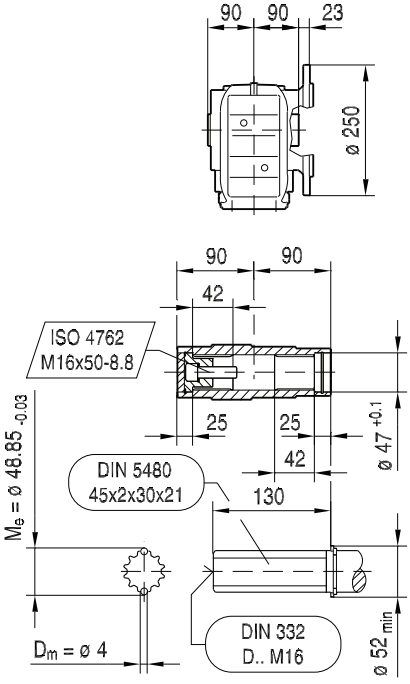
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KHF67..



KVF67..



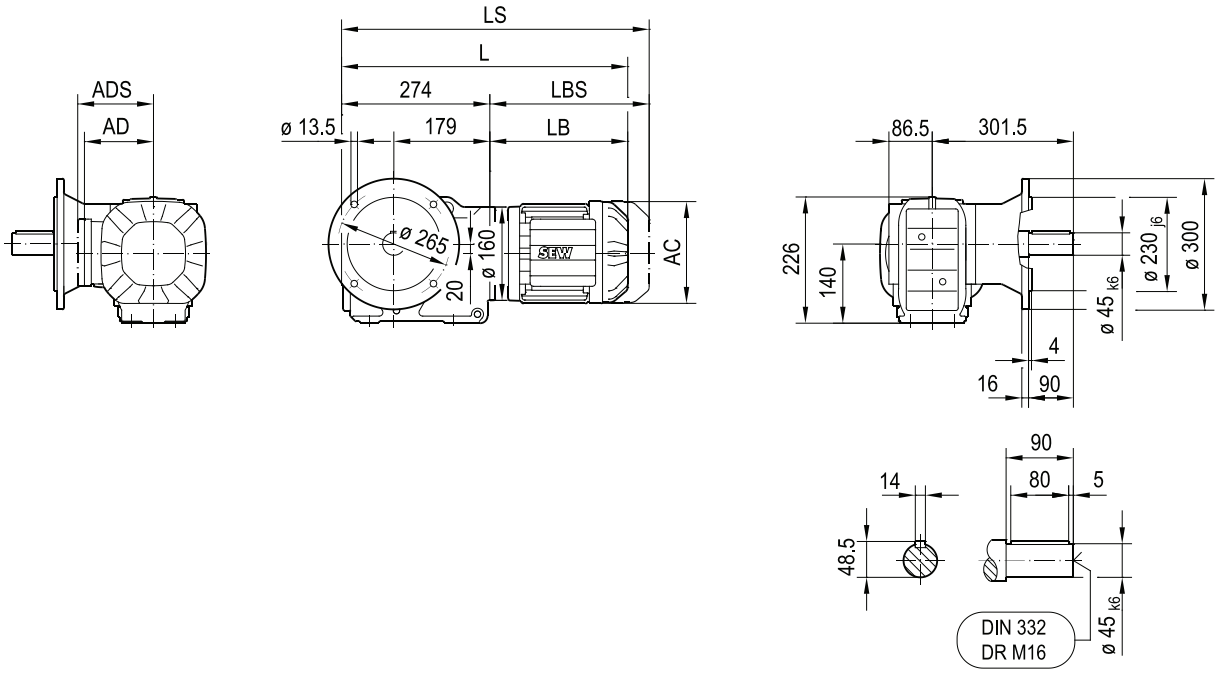
(→ 🗎 162)	DRN										
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	139	139	156	156	179	179	197	221	221	261
AD	98	118	118	128	128	140	140	157	170	170	228
ADS	98	129	129	139	139	150	150	158	172	172	228
L	472	47	493	504	549	551	583	629	660	714	732
LS	528	541	561	585	630	644	676	723	772	826	870
LB	198	199	219	230	275	277	309	355	386	440	458
LBS	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

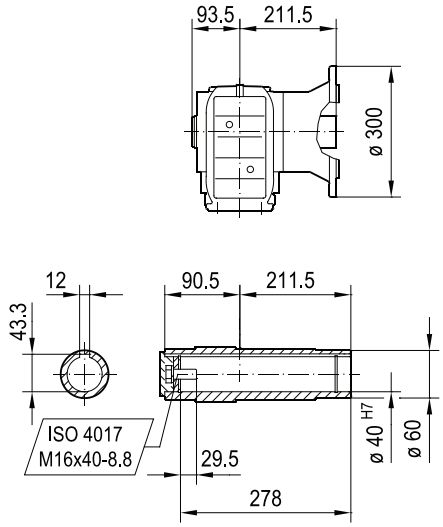
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KM67..



KAM67..



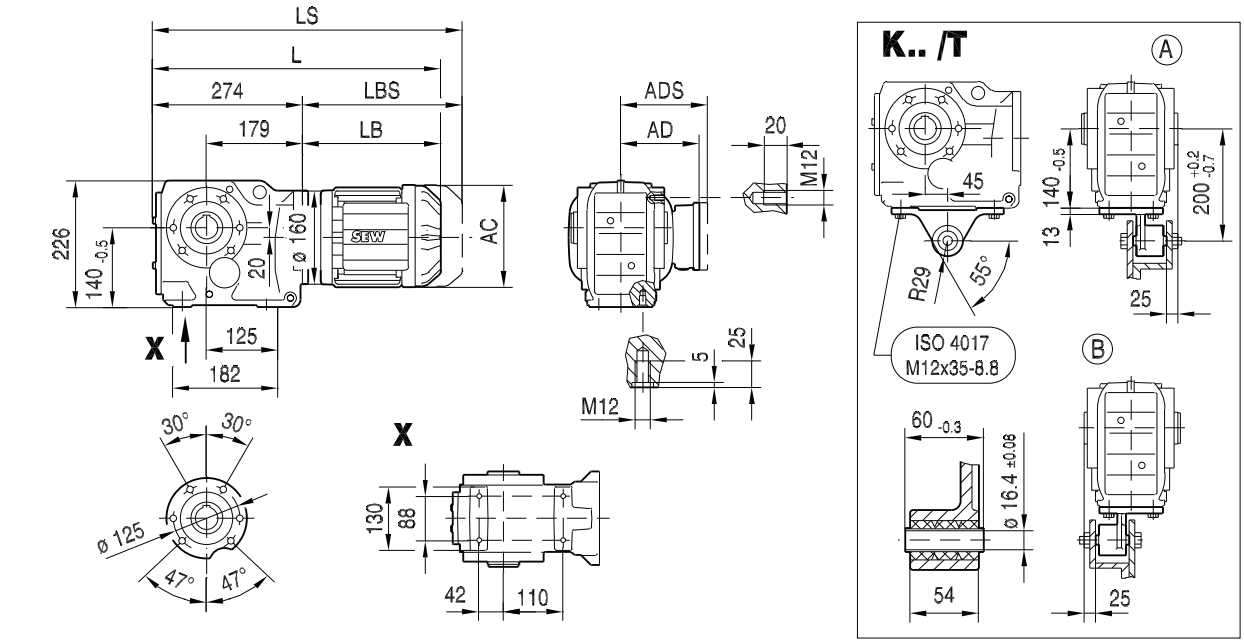
(→ 🗎 162)	DRN										
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	139	139	156	156	179	179	197	221	221	261
AD	98	118	118	128	128	140	140	157	170	170	228
ADS	98	129	129	139	139	150	150	158	172	172	228
L	472	47	493	504	549	551	583	629	660	714	732
LS	528	541	561	585	630	644	676	723	772	826	870
LB	198	199	219	230	275	277	309	355	386	440	458
LBS	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For tolerances, see page 162.

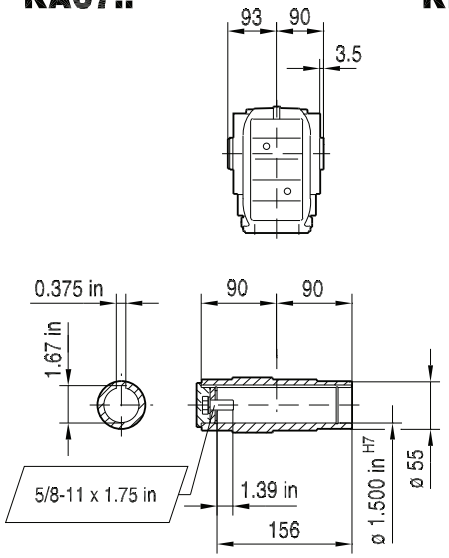
24833231/EN-US – 07/2021

77 567 00 21

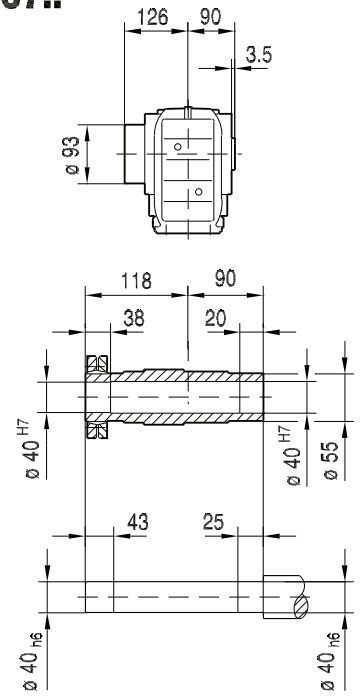
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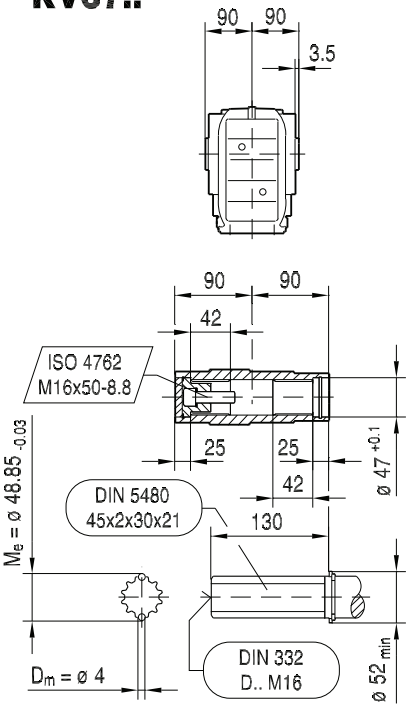
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KH67..



KV67..



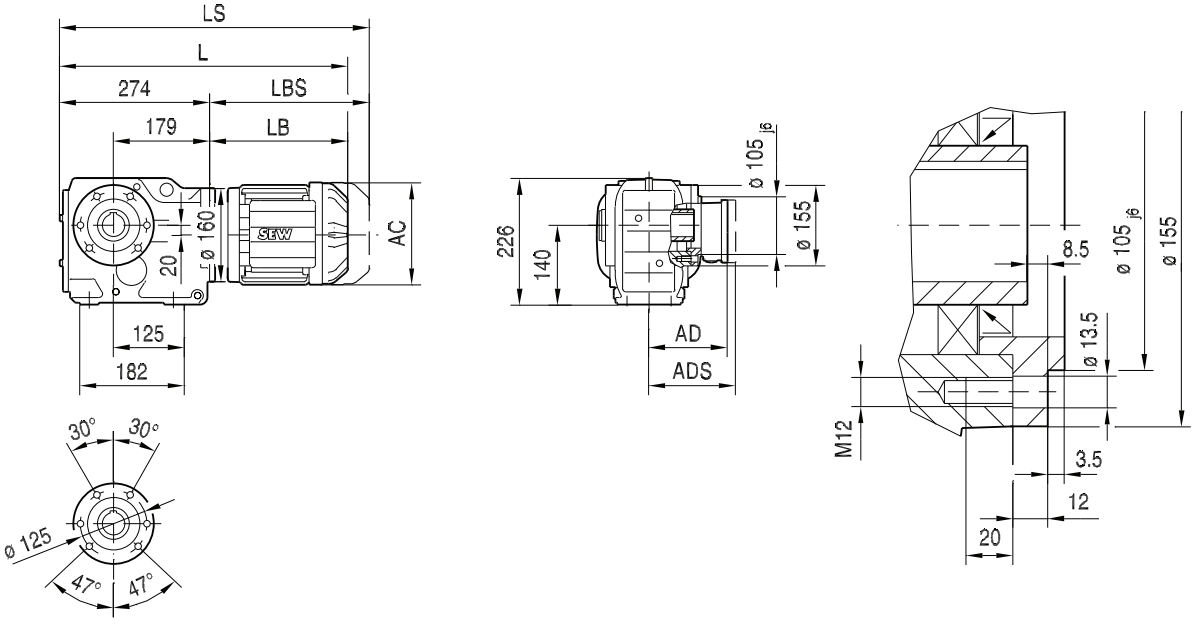
(→ 🗎 162)	DRN										
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	139	139	156	156	179	179	197	221	221	261
AD	98	118	118	128	128	140	140	157	170	170	228
ADS	98	129	129	139	139	150	150	158	172	172	228
L	472	47	493	504	549	551	583	629	660	714	732
LS	528	541	561	585	630	644	676	723	772	826	870
LB	198	199	219	230	275	277	309	355	386	440	458
LBS	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

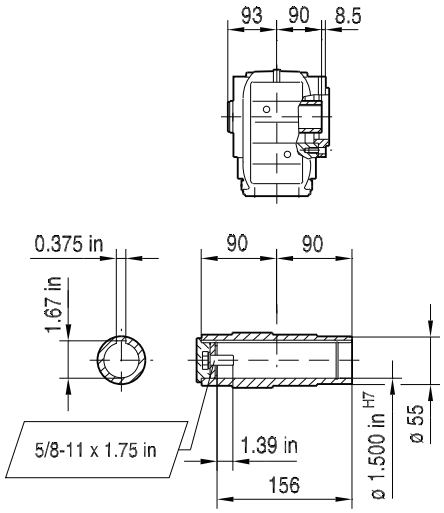
24833231/EN-US – 07/2021

77 568 00 21

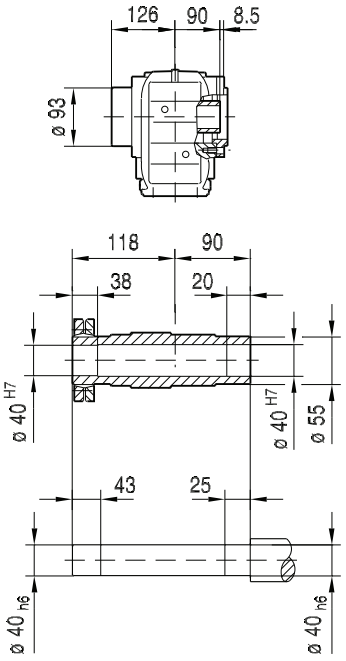
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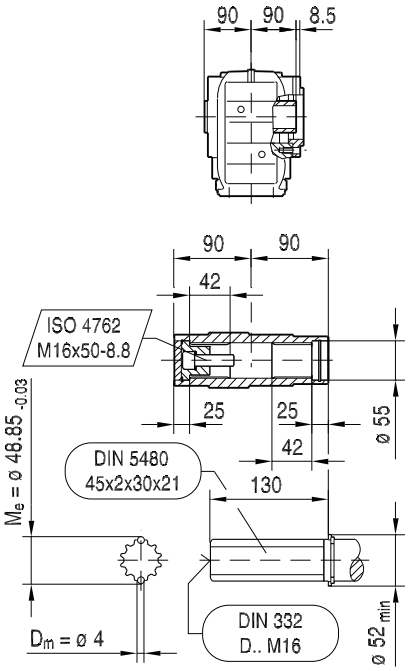
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KHZ67..



KVZ67..



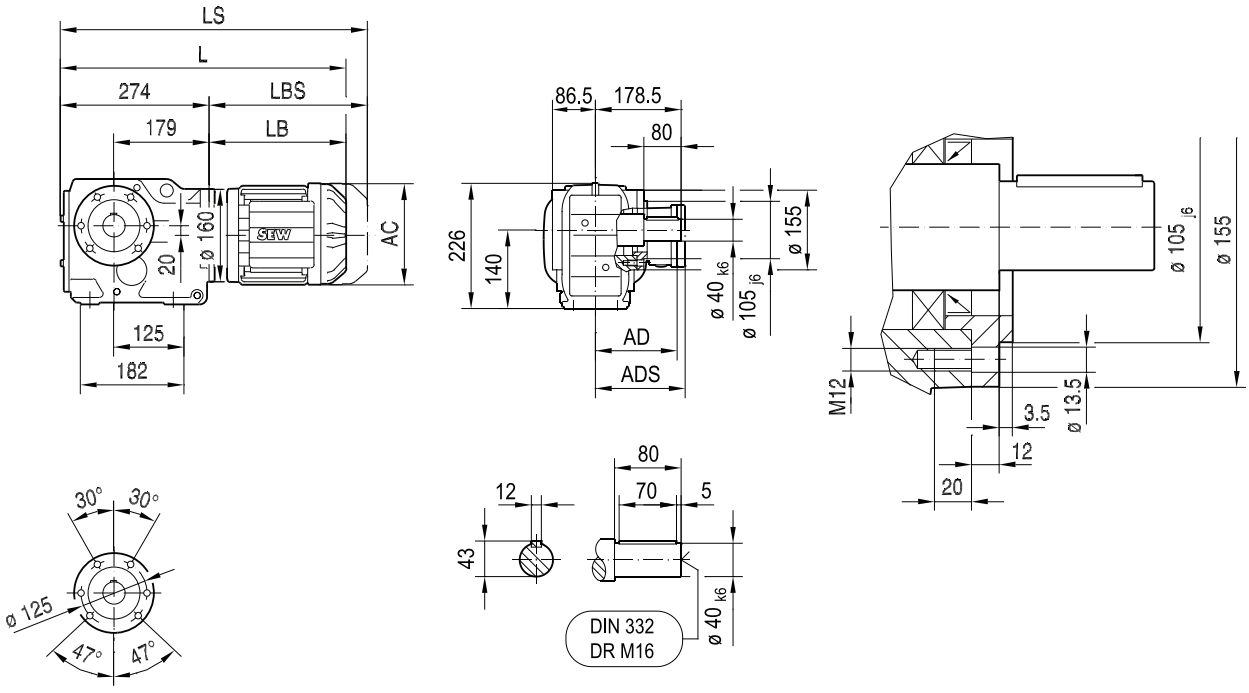
(→ 162)	DRN										
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	139	139	156	156	179	179	197	221	221	261
AD	98	118	118	128	128	140	140	157	170	170	228
ADS	98	129	129	139	139	150	150	158	172	172	228
L	472	47	493	504	549	551	583	629	660	714	732
LS	528	541	561	585	630	644	676	723	772	826	870
LB	198	199	219	230	275	277	309	355	386	440	458
LBS	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

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KZ67..

77 569 00 21



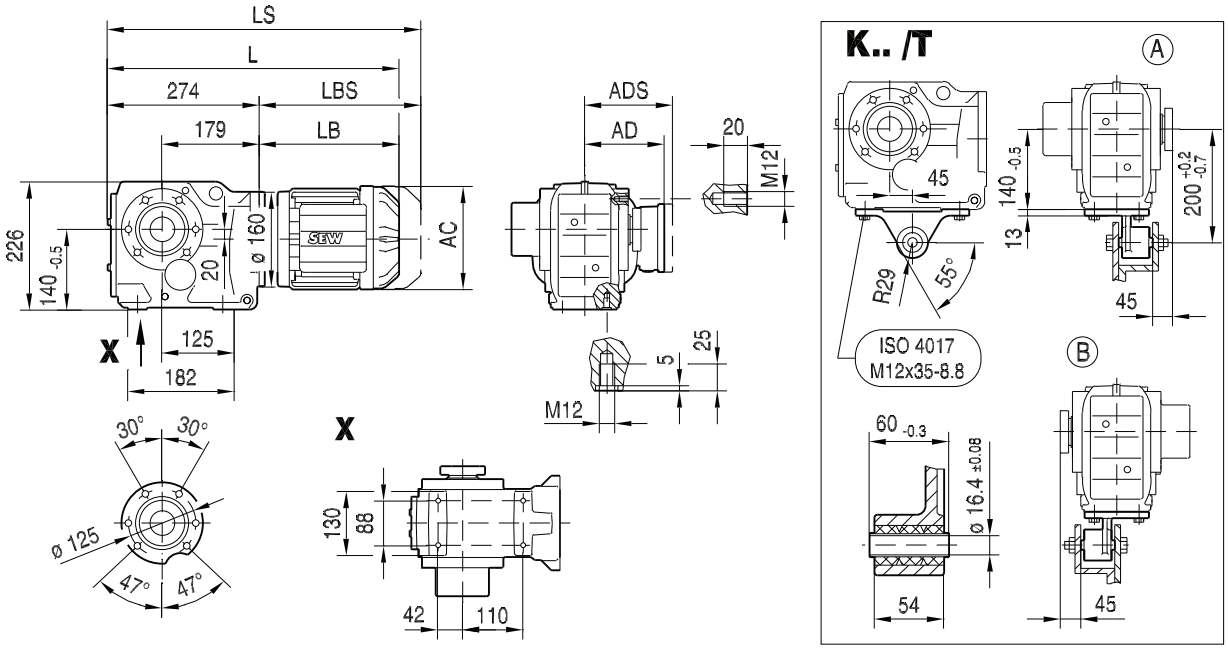
(→ 🗎 162)	DRN										
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	139	139	156	156	179	179	197	221	221	261
AD	98	118	118	128	128	140	140	157	170	170	228
ADS	98	129	129	139	139	150	150	158	172	172	228
L	472	47	493	504	549	551	583	629	660	714	732
LS	528	541	561	585	630	644	676	723	772	826	870
LB	198	199	219	230	275	277	309	355	386	440	458
LBS	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

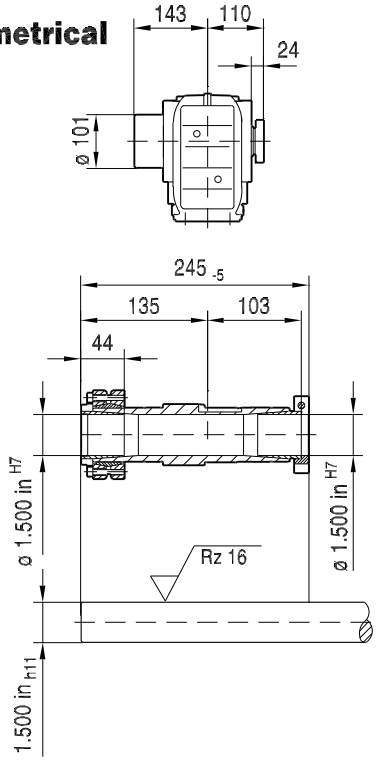
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77 570 00 21

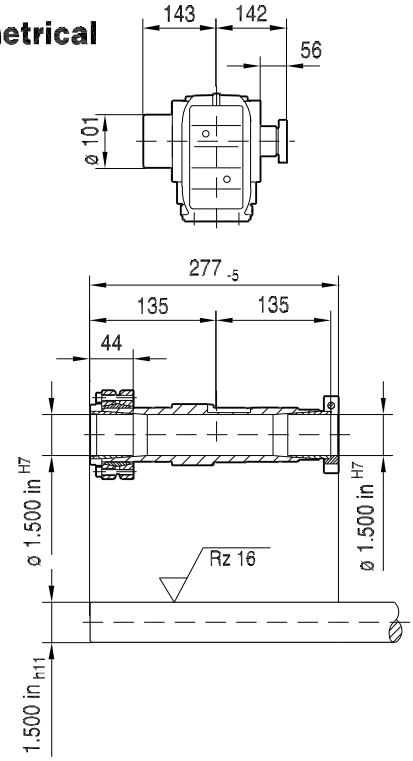
KT67..



NON-Symmetrical



Symmetrical



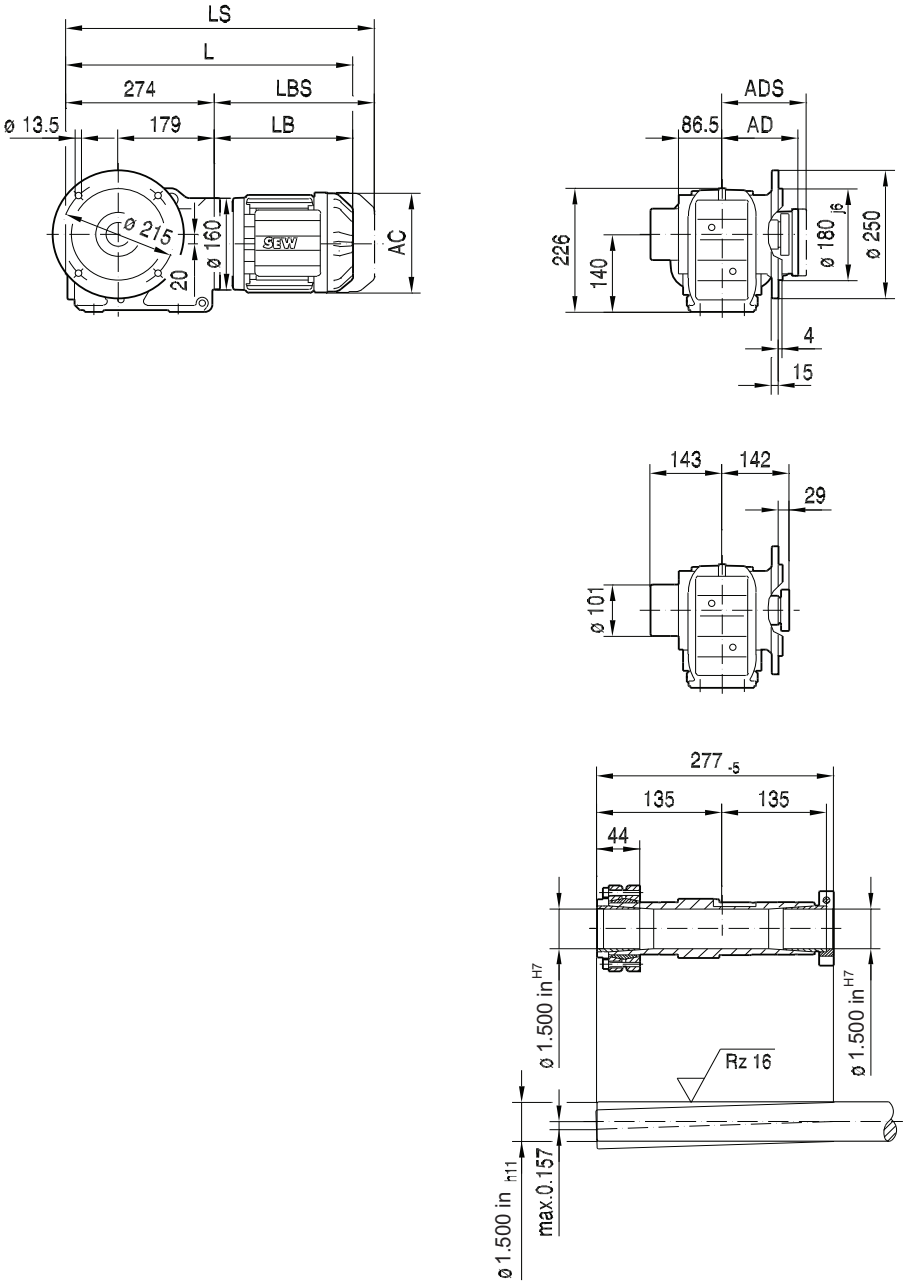
(→ 🗎 162)	DRN										
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	139	139	156	156	179	179	197	221	221	261
AD	98	118	118	128	128	140	140	157	170	170	228
ADS	98	129	129	139	139	150	150	158	172	172	228
L	472	47	493	504	549	551	583	629	660	714	732
LS	528	541	561	585	630	644	676	723	772	826	870
LB	198	199	219	230	275	277	309	355	386	440	458
LBS	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

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KTF67..

77 571 00 21



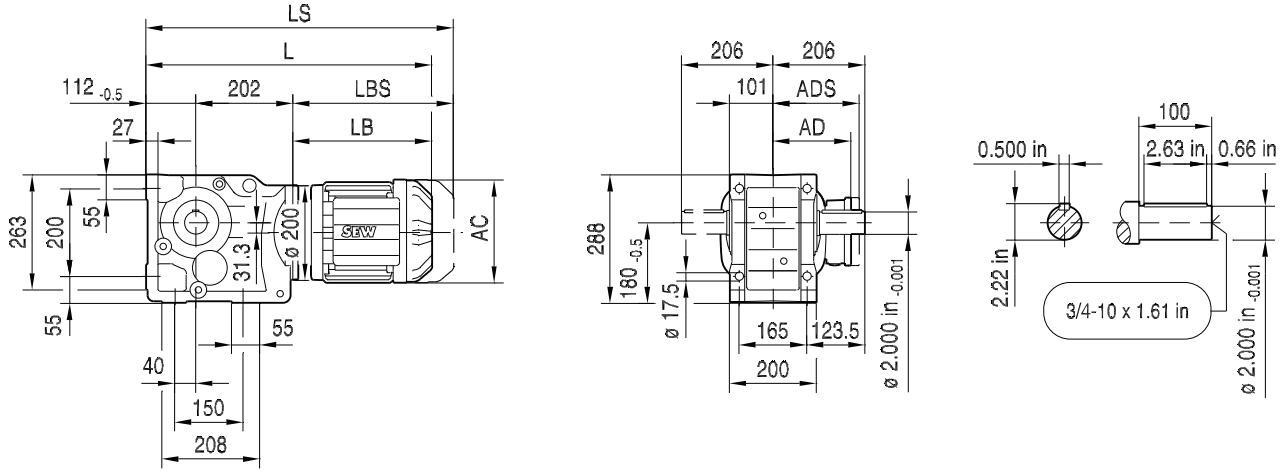
(→ 162)	DRN										
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M
AC	115	139	139	156	156	179	179	197	221	221	261
AD	98	118	118	128	128	140	140	157	170	170	228
ADS	98	129	129	139	139	150	150	158	172	172	228
L	472	47	493	504	549	551	583	629	660	714	732
LS	528	541	561	585	630	644	676	723	772	826	870
LB	198	199	219	230	275	277	309	355	386	440	458
LBS	254	267	287	311	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

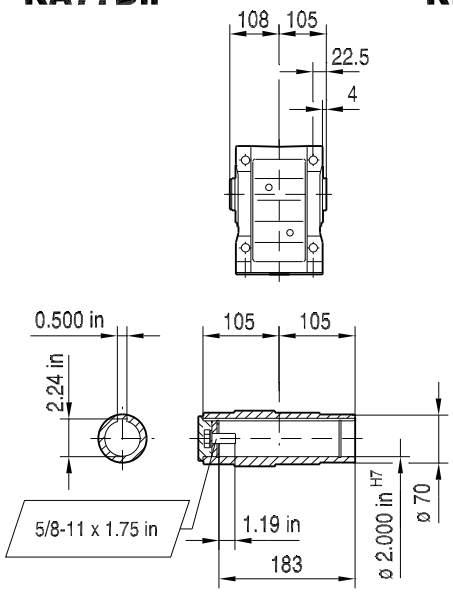
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77 572 00 21

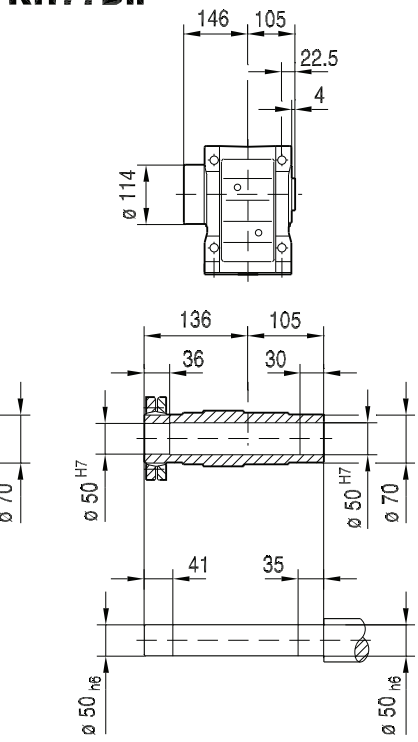
K77..



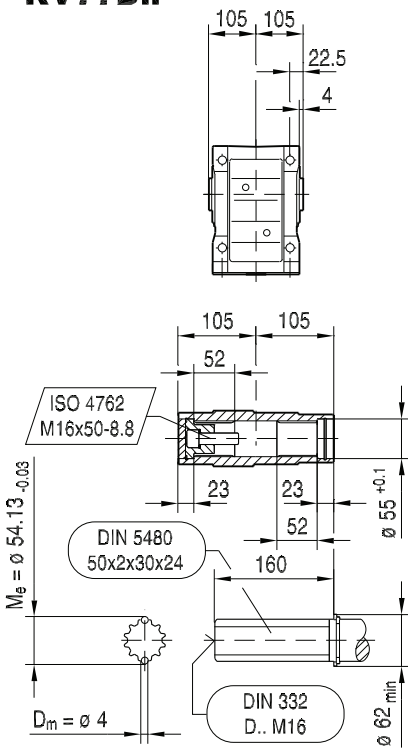
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KH77B..



KV77B..



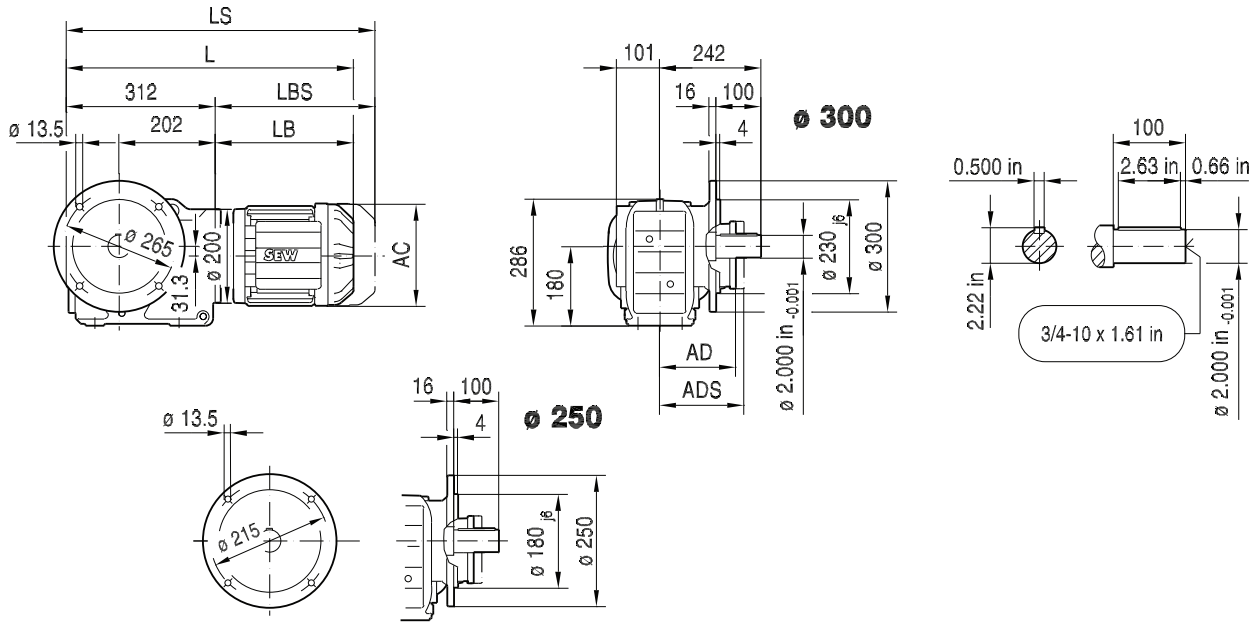
(→ 162)	DRN										
	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	139	156	156	179	179	197	221	221	261	261	314
AD	118	128	128	140	140	157	170	170	228	228	253
ADS	129	139	139	150	150	158	172	172	228	228	253
L	526	537	582	584	616	662	693	743	761	787	853
LS	594	618	663	677	709	756	805	855	899	924	1042
LB	212	223	268	270	302	348	379	429	447	473	539
LBS	280	304	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

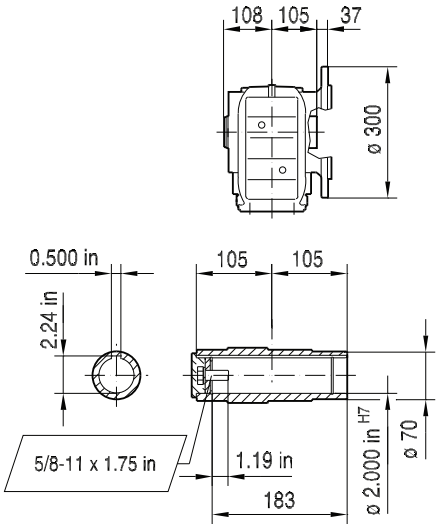
24833231/EN-US – 07/2021

77 573 00 21

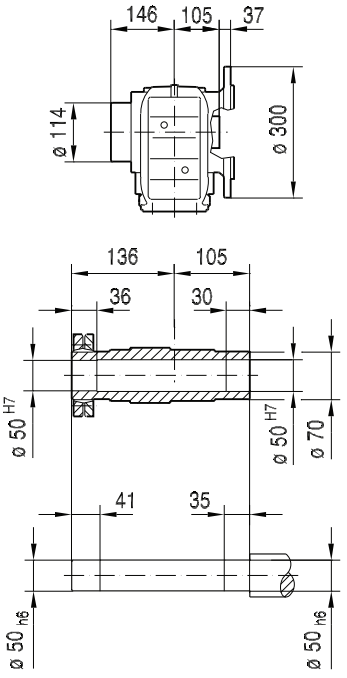
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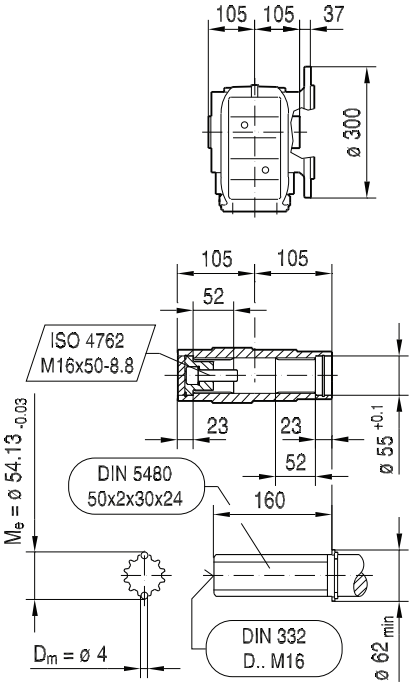
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KHF77..



KVF77..



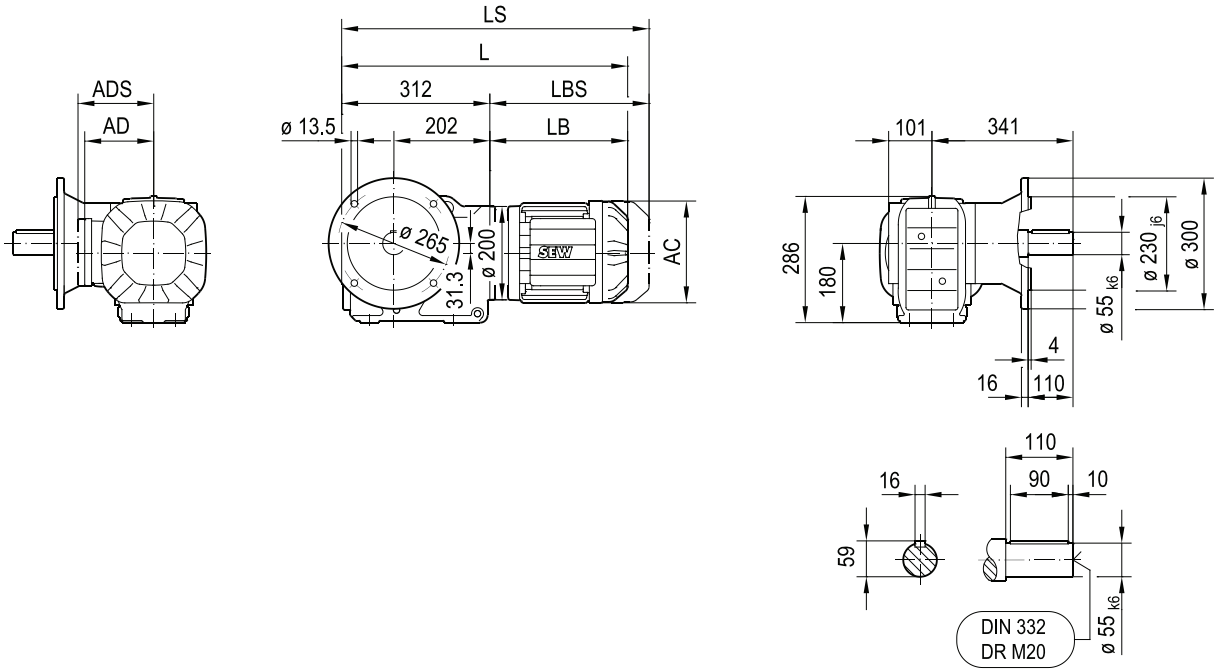
(→ 🗎 162)	DRN										
	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	139	156	156	179	179	197	221	221	261	261	314
AD	118	128	128	140	140	157	170	170	228	228	253
ADS	129	139	139	150	150	158	172	172	228	228	253
L	524	535	580	582	614	660	691	741	759	785	851
LS	592	616	661	675	707	754	803	853	897	922	1040
LB	212	223	268	270	302	348	379	429	447	473	539
LBS	280	304	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

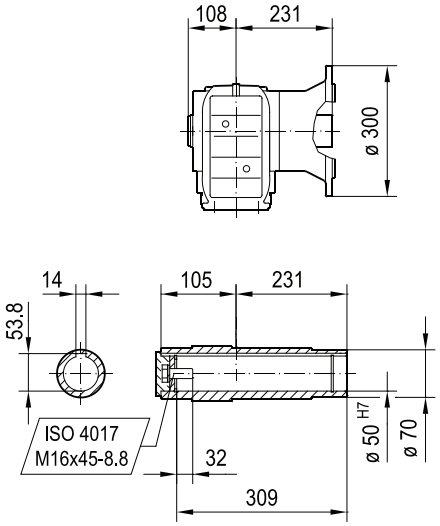
24833231/EN-US – 07/2021

KM77..

77 580 00 21



KAM77..



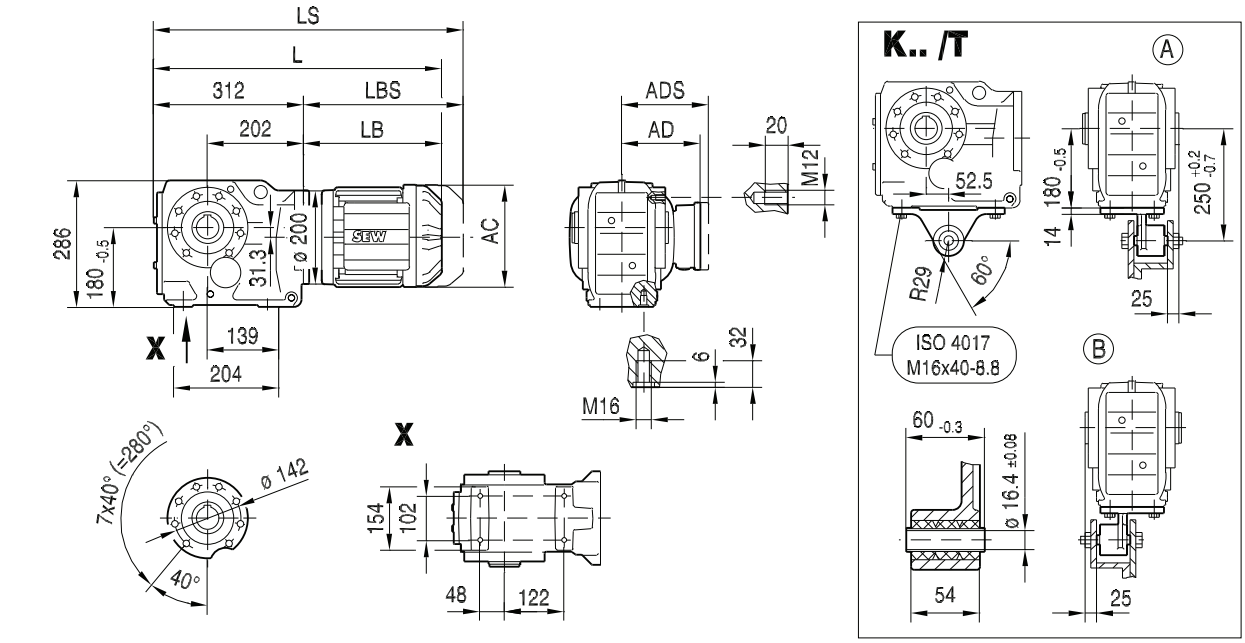
(→ 🗎 162)	DRN										
	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	139	156	156	179	179	197	221	221	261	261	314
AD	118	128	128	140	140	157	170	170	228	228	253
ADS	129	139	139	150	150	158	172	172	228	228	253
L	524	535	580	582	614	660	691	741	759	785	851
LS	592	616	661	675	707	754	803	853	897	922	1040
LB	212	223	268	270	302	348	379	429	447	473	539
LBS	280	304	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For tolerances, see page 162.

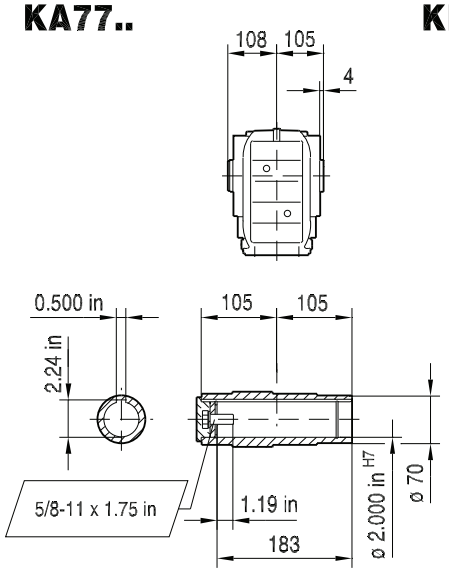
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77 574 00 21

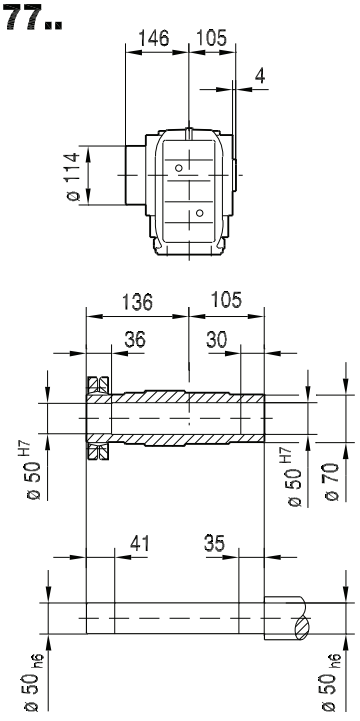
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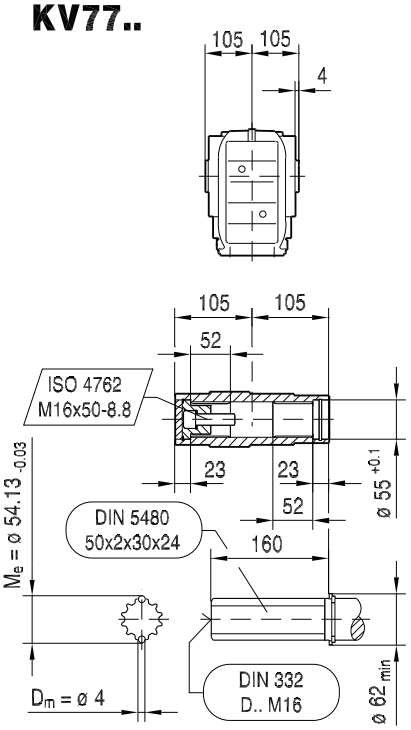
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KH77..



KV77..



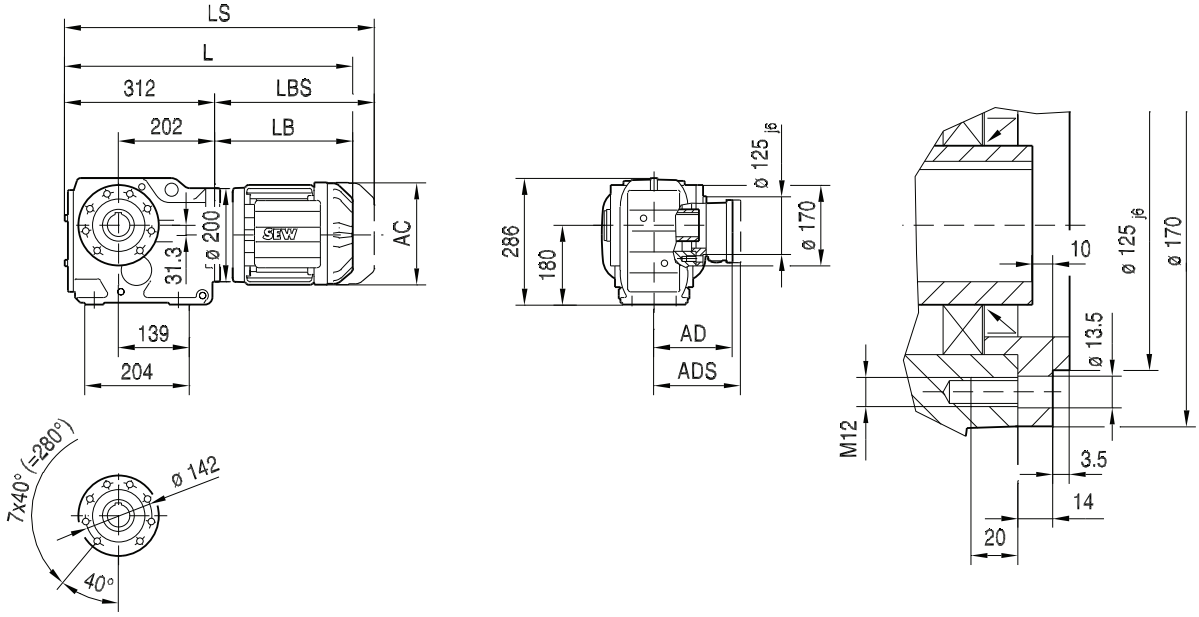
(→ 162)	DRN										
	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	139	156	156	179	179	197	221	221	261	261	314
AD	118	128	128	140	140	157	170	170	228	228	253
ADS	129	139	139	150	150	158	172	172	228	228	253
L	524	535	580	582	614	660	691	741	759	785	851
LS	592	616	661	675	707	754	803	853	897	922	1040
LB	212	223	268	270	302	348	379	429	447	473	539
LBS	280	304	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

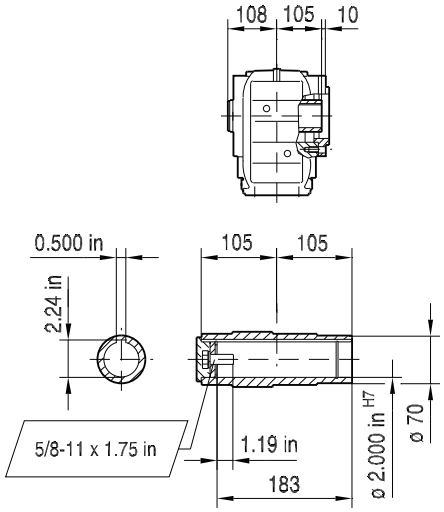
24833231/EN-US – 07/2021

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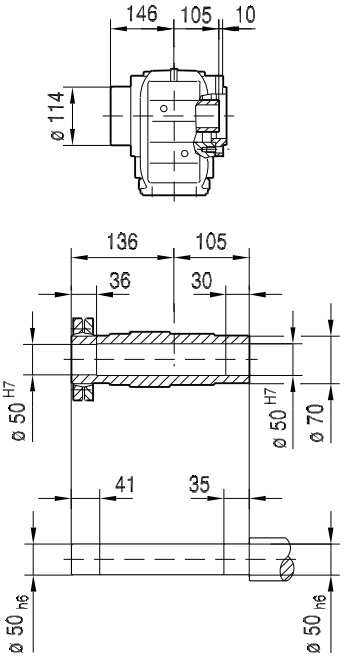
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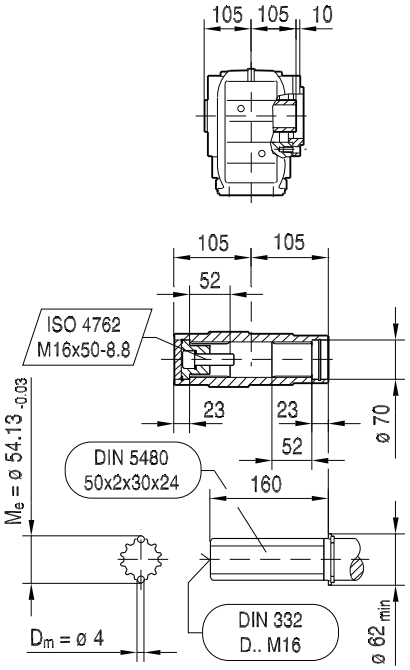
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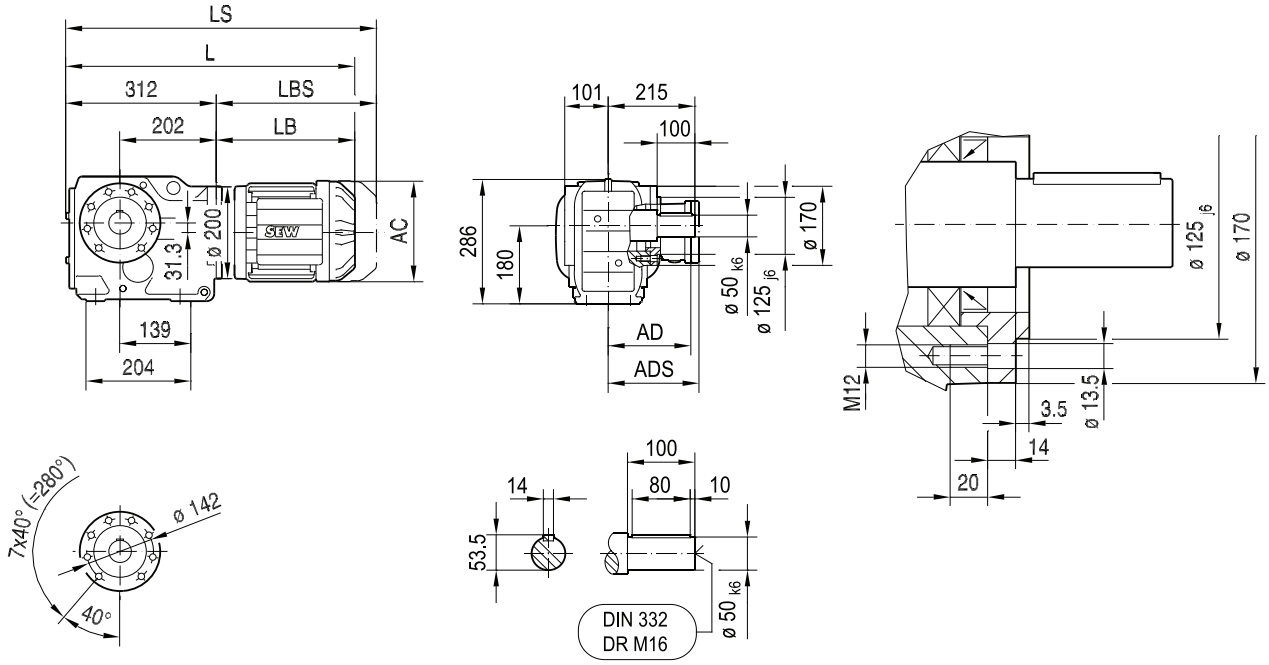
(→ 162)	DRN										
	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	139	156	156	179	179	197	221	221	261	261	314
AD	118	128	128	140	140	157	170	170	228	228	253
ADS	129	139	139	150	150	158	172	172	228	228	253
L	524	535	580	582	614	660	691	741	759	785	851
LS	592	616	661	675	707	754	803	853	897	922	1040
LB	212	223	268	270	302	348	379	429	447	473	539
LBS	280	304	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

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77 576 00 21



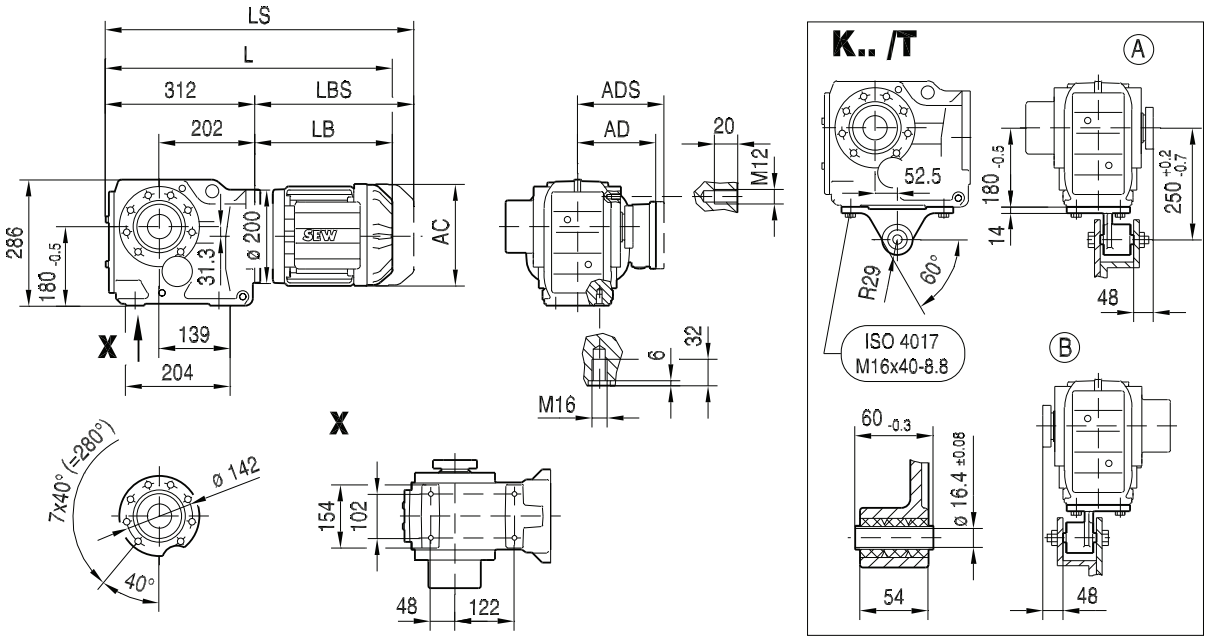
(→ 162)	DRN										
	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	139	156	156	179	179	197	221	221	261	261	314
AD	118	128	128	140	140	157	170	170	228	228	253
ADS	129	139	139	150	150	158	172	172	228	228	253
L	524	535	580	582	614	660	691	741	759	785	851
LS	592	616	661	675	707	754	803	853	897	922	1040
LB	212	223	268	270	302	348	379	429	447	473	539
LBS	280	304	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

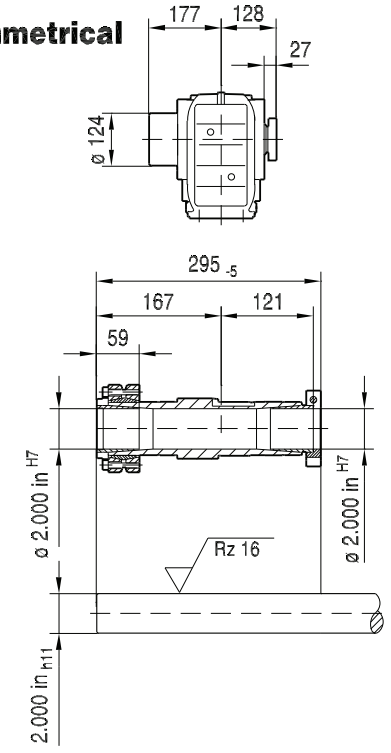
24833231/EN-US – 07/2021

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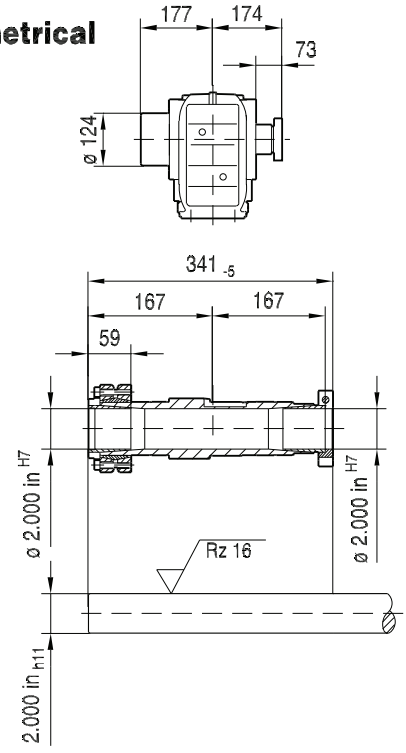
77 577 00 21



NON-Symmetrical



Symmetrical



(→ 🗎 162)	DRN										
	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	139	156	156	179	179	197	221	221	261	261	314
AD	118	128	128	140	140	157	170	170	228	228	253
ADS	129	139	139	150	150	158	172	172	228	228	253
L	524	535	580	582	614	660	691	741	759	785	851
LS	592	616	661	675	707	754	803	853	897	922	1040
LB	212	223	268	270	302	348	379	429	447	473	539
LBS	280	304	349	363	395	442	491	541	585	610	728

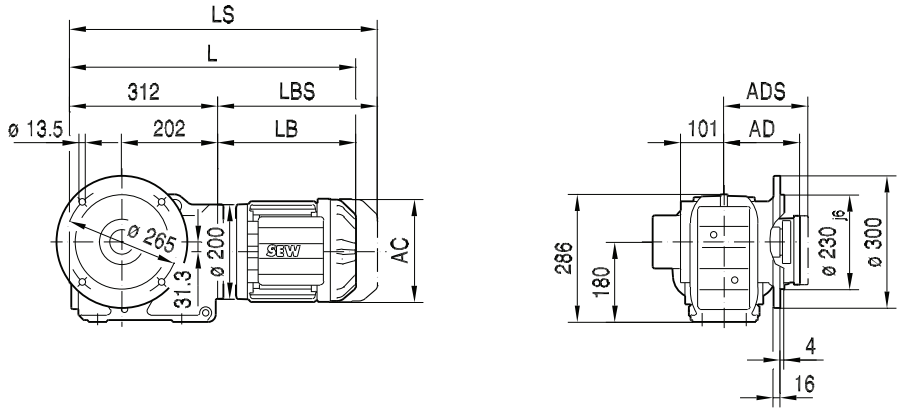
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

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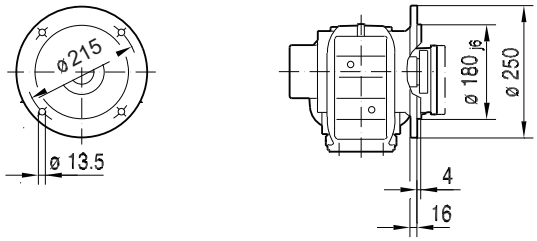
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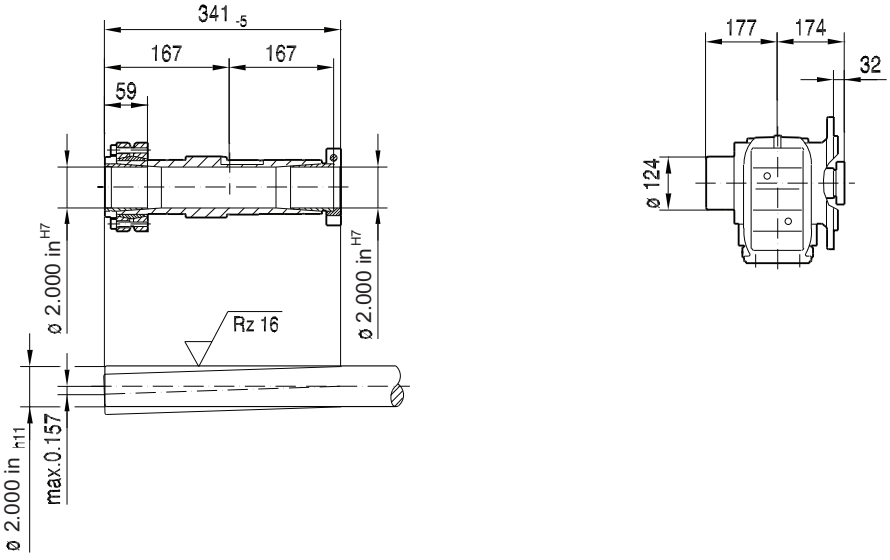
77 578 00 21

ø 300



ø 250





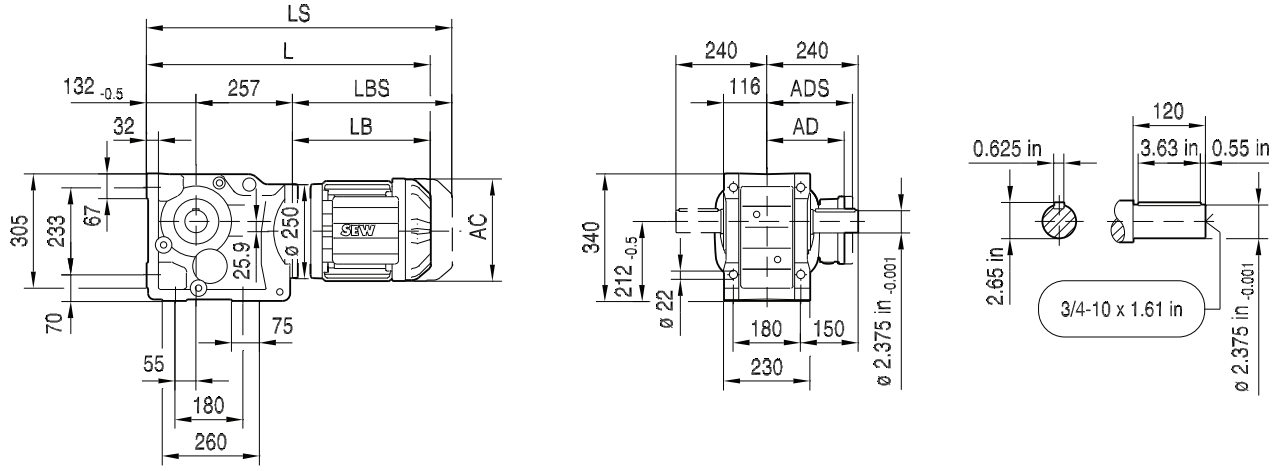
(→ 162)	DRN										
	71M	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	139	156	156	179	179	197	221	221	261	261	314
AD	118	128	128	140	140	157	170	170	228	228	253
ADS	129	139	139	150	150	158	172	172	228	228	253
L	524	535	580	582	614	660	691	741	759	785	851
LS	592	616	661	675	707	754	803	853	897	922	1040
LB	212	223	268	270	302	348	379	429	447	473	539
LBS	280	304	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

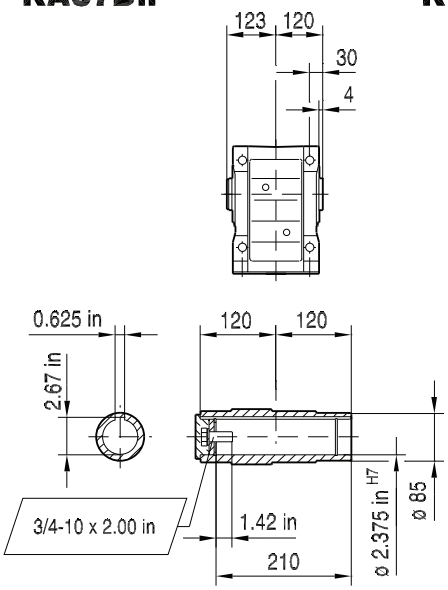
24833231/EN-US – 07/2021

77 581 00 21

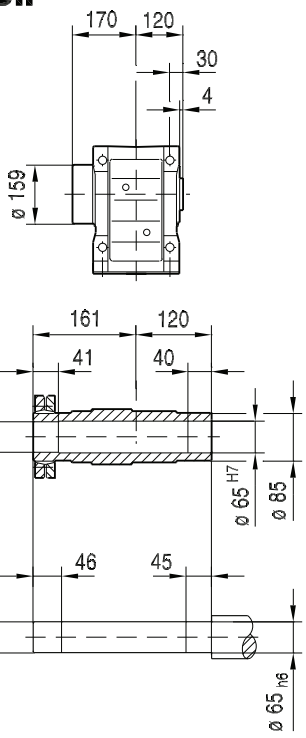
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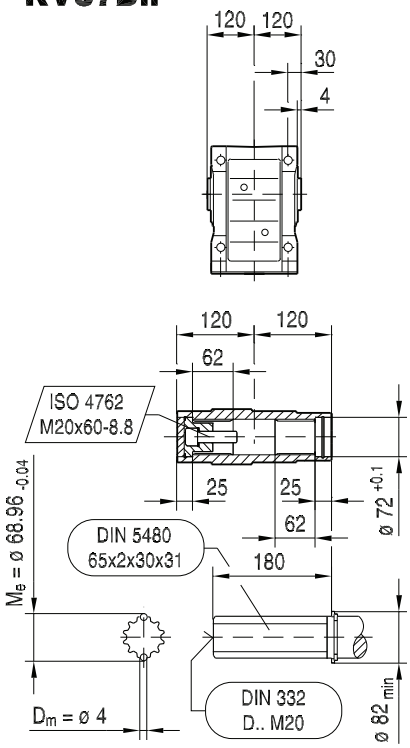
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KH87B..



KV87B..



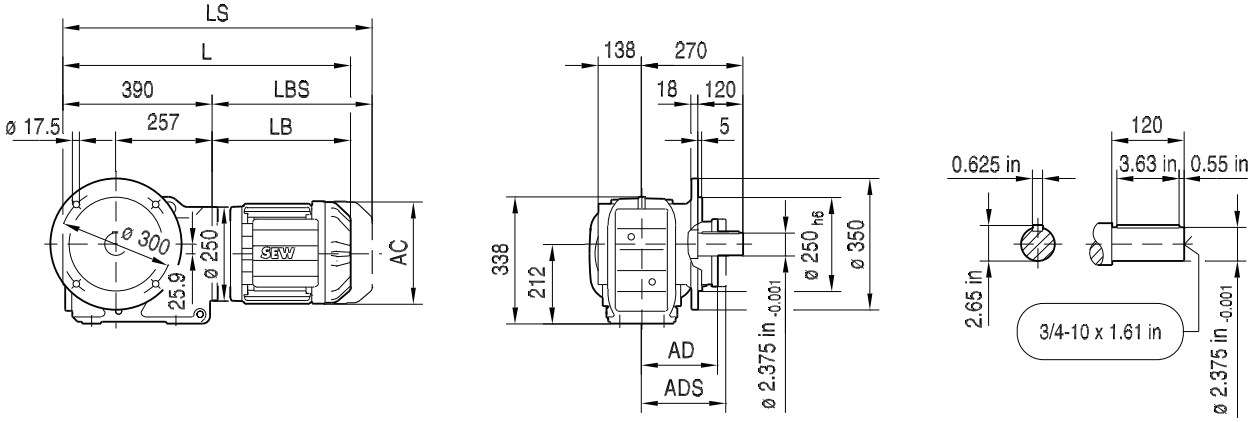
(→ 162)	DRN										
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	156	179	179	197	221	221	261	261	314	357
AD	128	128	140	140	157	170	170	228	228	253	268
ADS	139	139	150	150	158	172	172	228	228	253	268
L	607	652	654	686	732	763	813	831	857	923	946
LS	688	733	747	779	826	875	925	969	994	1112	1135
LB	218	263	265	297	343	374	424	442	468	534	557
LBS	299	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

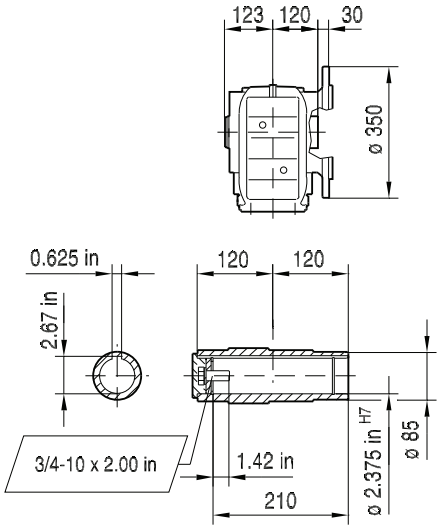
24833231/EN-US – 07/2021

77 582 00 21

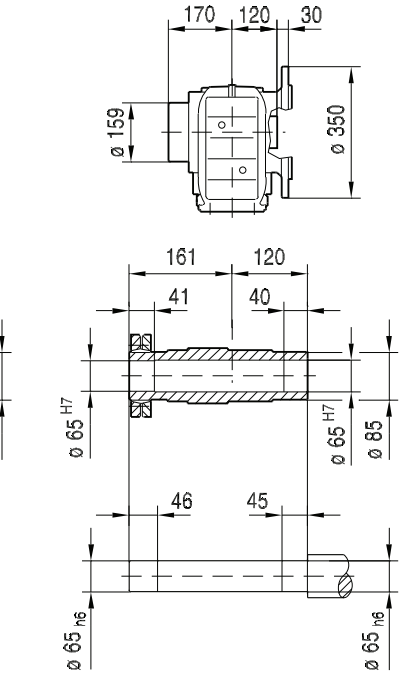
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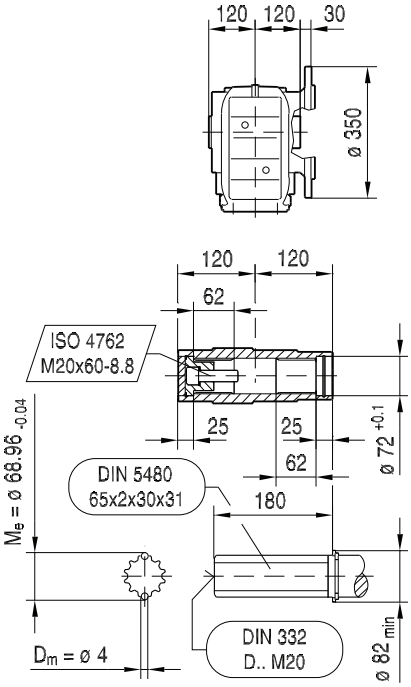
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KHF87..



KVF87..



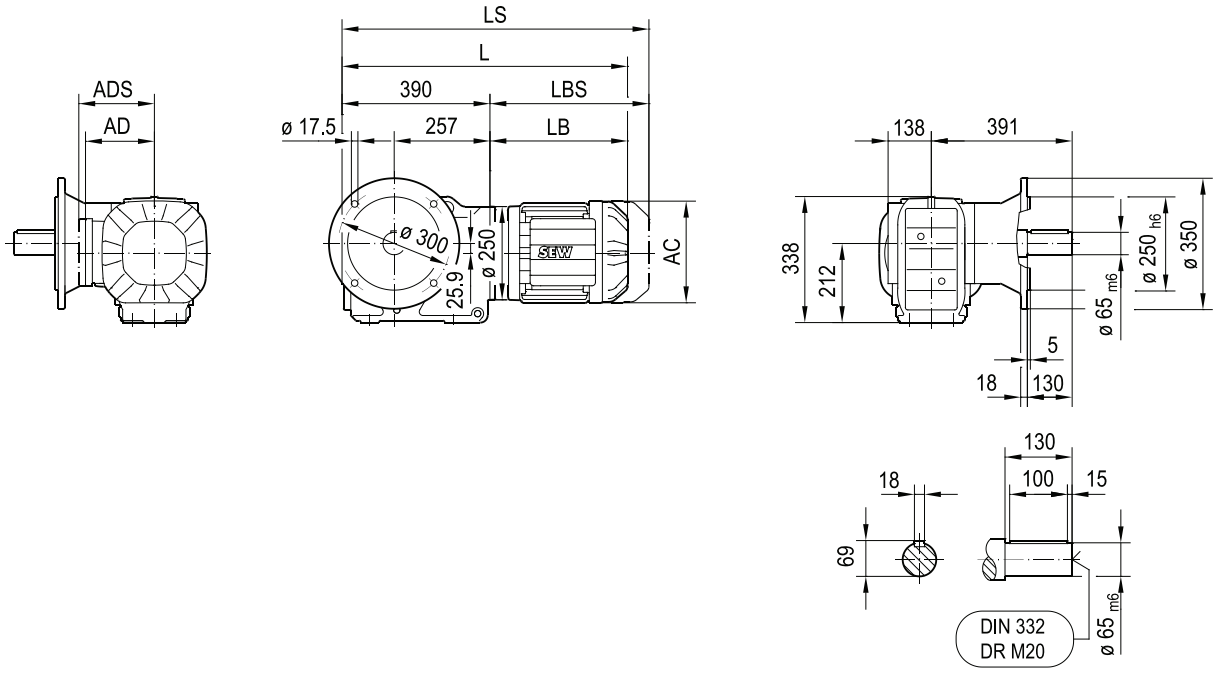
(→ 🗎 162)	DRN										
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	156	179	179	197	221	221	261	261	314	357
AD	128	128	140	140	157	170	170	228	228	253	268
ADS	139	139	150	150	158	172	172	228	228	253	268
L	608	653	655	687	733	764	814	832	858	924	947
LS	689	734	748	780	827	876	926	970	995	1113	1136
LB	218	263	265	297	343	374	424	442	468	534	557
LBS	299	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

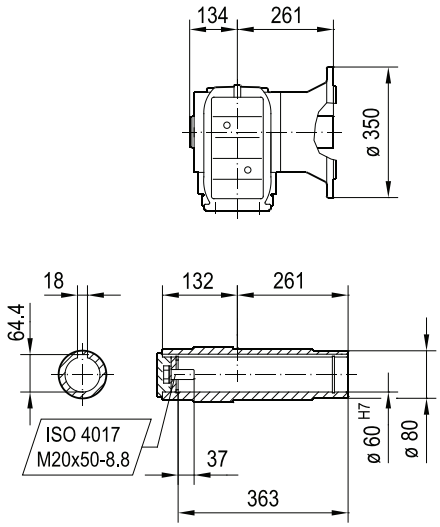
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77 583 00 21

KM87..



KAM87..



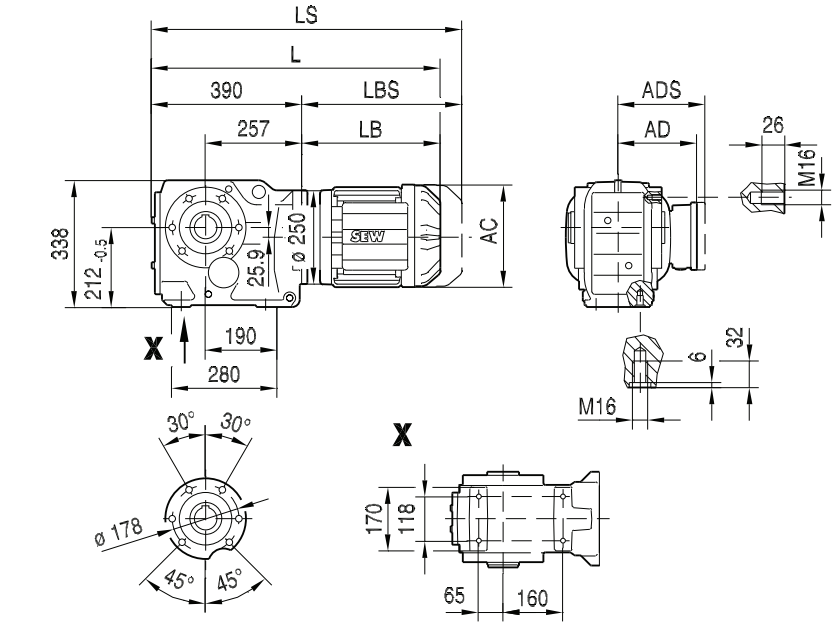
(→ 162)	DRN										
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	156	179	179	197	221	221	261	261	314	357
AD	128	128	140	140	157	170	170	228	228	253	268
ADS	139	139	150	150	158	172	172	228	228	253	268
L	608	653	655	687	733	764	814	832	858	924	947
LS	689	734	748	780	827	876	926	970	995	1113	1136
LB	218	263	265	297	343	374	424	442	468	534	557
LBS	299	344	358	390	437	486	536	580	605	723	746

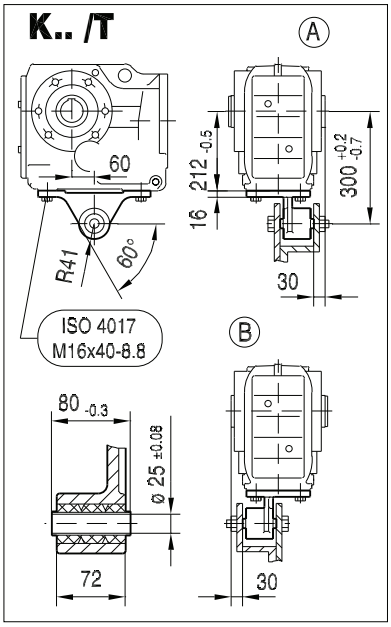
Dimensions in mm unless noted as inch. For tolerances, see page 162.

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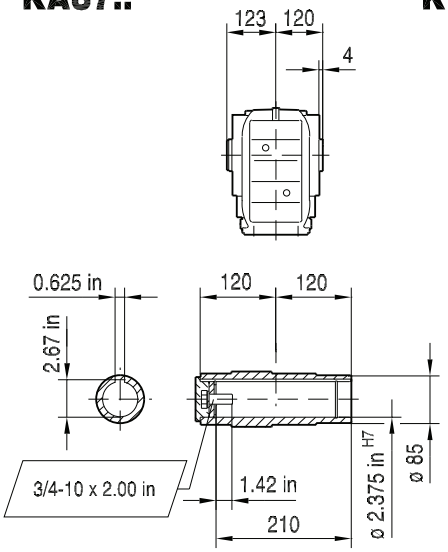
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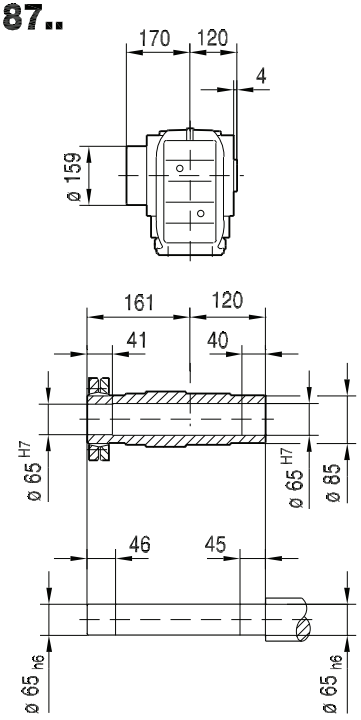




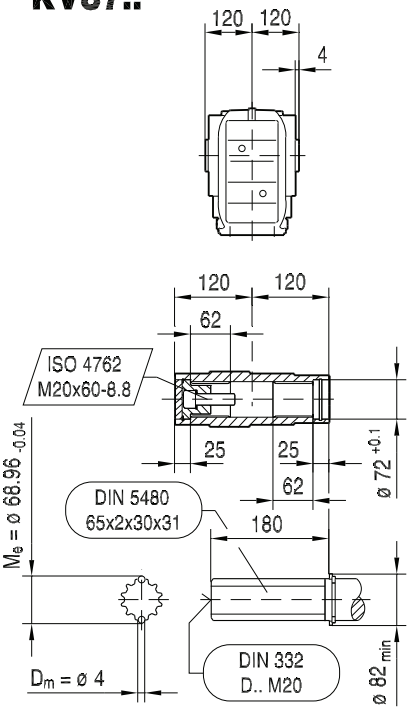
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KH87..



KV87..



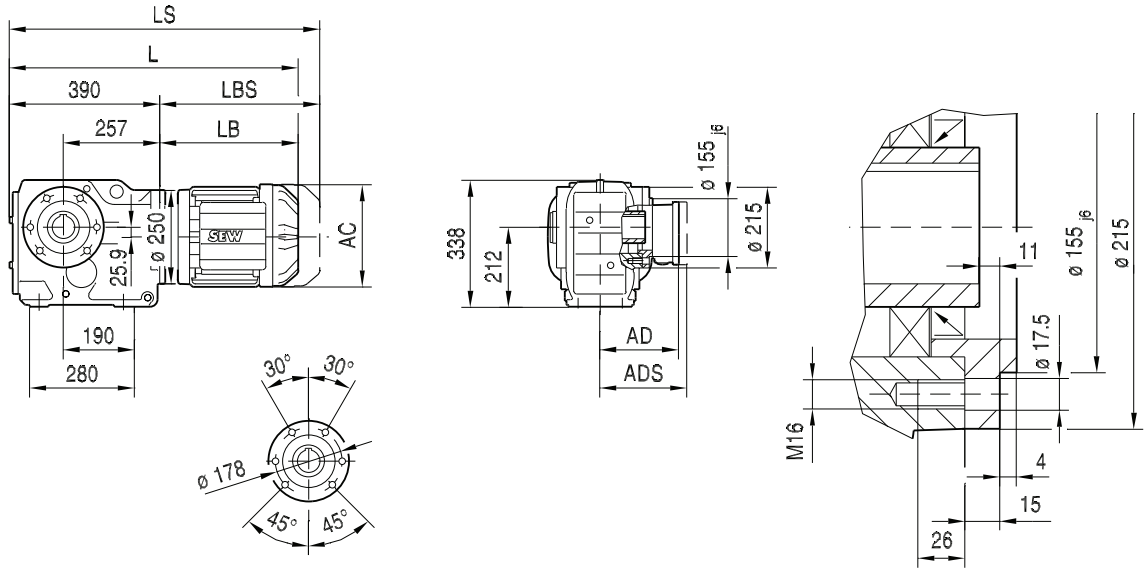
(→ 162)	DRN										
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	156	179	179	197	221	221	261	261	314	357
AD	128	128	140	140	157	170	170	228	228	253	268
ADS	139	139	150	150	158	172	172	228	228	253	268
L	608	653	655	687	733	764	814	832	858	924	947
LS	689	734	748	780	827	876	926	970	995	1113	1136
LB	218	263	265	297	343	374	424	442	468	534	557
LBS	299	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

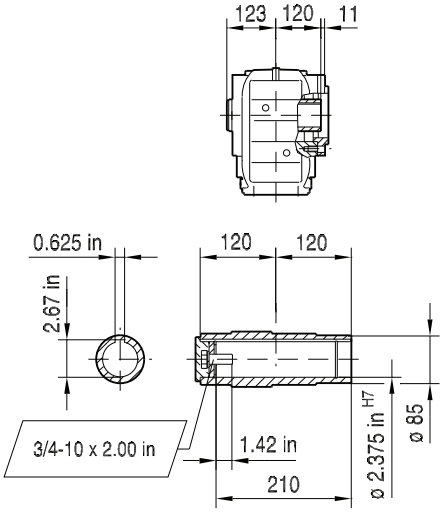
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77 585 00 21

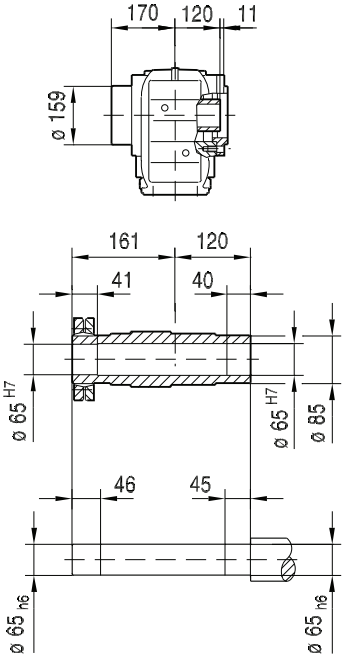
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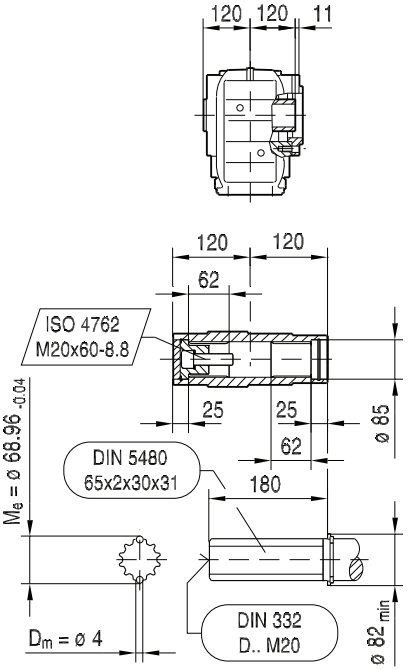
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KHZ87..



KVZ87..



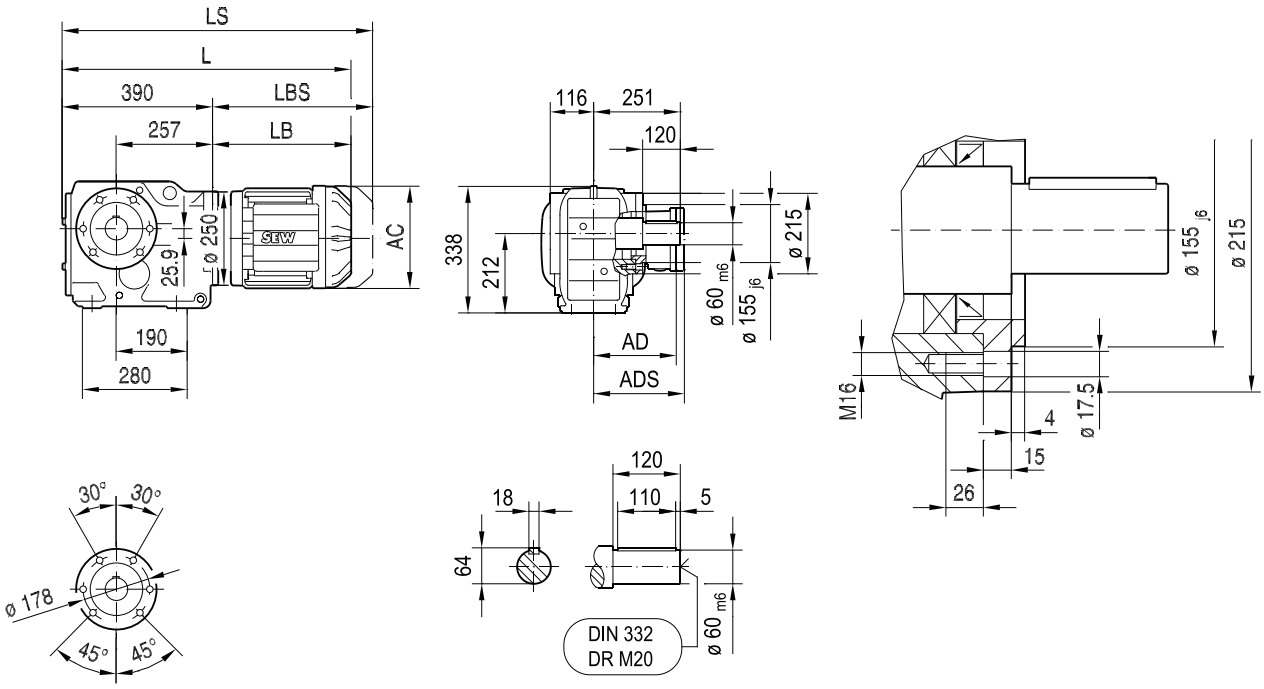
(→ 162)	DRN										
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	156	179	179	197	221	221	261	261	314	357
AD	128	128	140	140	157	170	170	228	228	253	268
ADS	139	139	150	150	158	172	172	228	228	253	268
L	608	653	655	687	733	764	814	832	858	924	947
LS	689	734	748	780	827	876	926	970	995	1113	1136
LB	218	263	265	297	343	374	424	442	468	534	557
LBS	299	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

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KZ87..

77 586 00 21



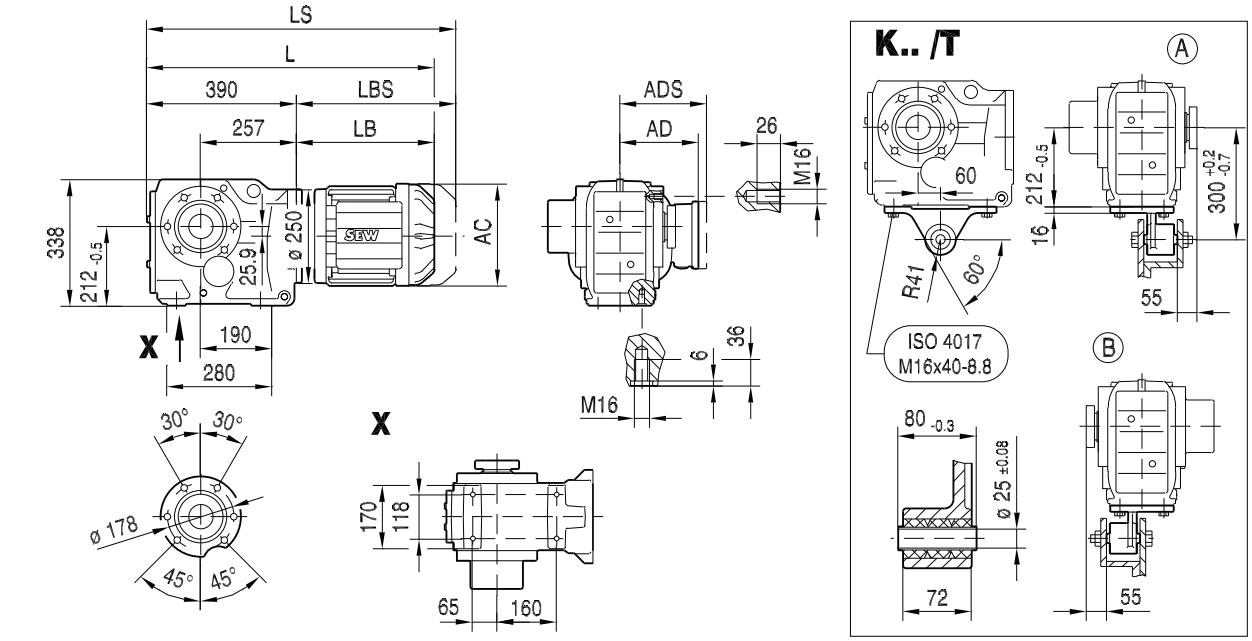
(→ 162)	DRN										
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	156	179	179	197	221	221	261	261	314	357
AD	128	128	140	140	157	170	170	228	228	253	268
ADS	139	139	150	150	158	172	172	228	228	253	268
L	608	653	655	687	733	764	814	832	858	924	947
LS	689	734	748	780	827	876	926	970	995	1113	1136
LB	218	263	265	297	343	374	424	442	468	534	557
LBS	299	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

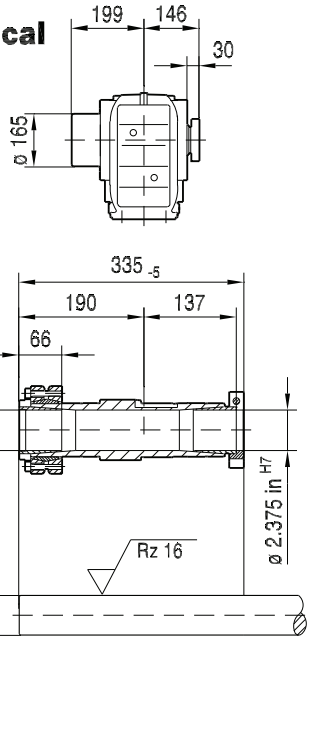
22483323 1/EN-US – 07/2021

KT87..

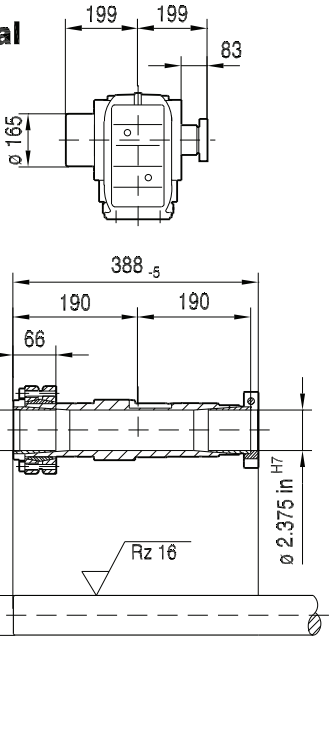
77 587 00 21



NON-Symmetrical



Symmetrical



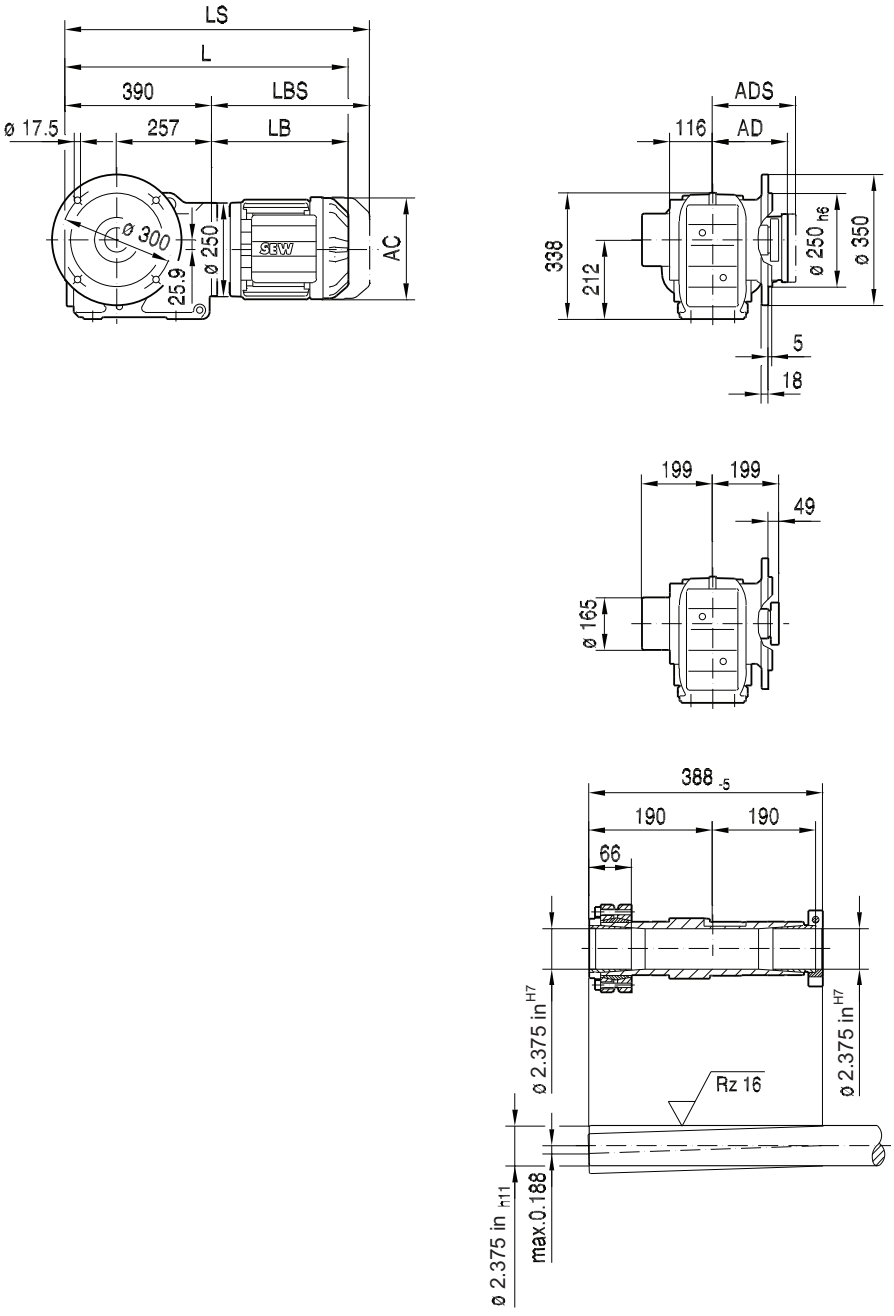
(→ 🗎 162)	DRN										
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	156	179	179	197	221	221	261	261	314	357
AD	128	128	140	140	157	170	170	228	228	253	268
ADS	139	139	150	150	158	172	172	228	228	253	268
L	608	653	655	687	733	764	814	832	858	924	947
LS	689	734	748	780	827	876	926	970	995	1113	1136
LB	218	263	265	297	343	374	424	442	468	534	557
LBS	299	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

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KTF87..

77 588 00 21



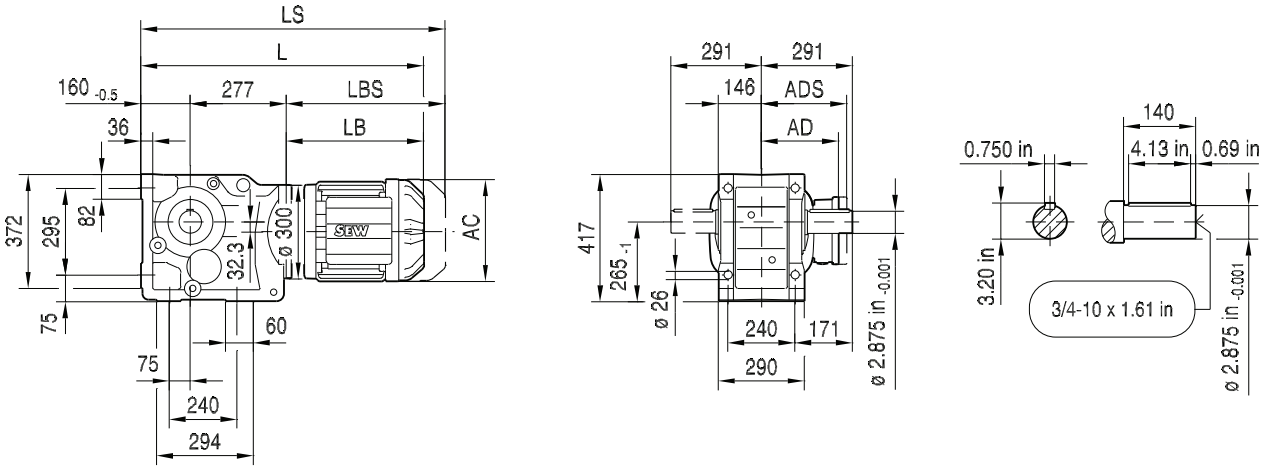
(→ 162)	DRN										
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	156	179	179	197	221	221	261	261	314	357
AD	128	128	140	140	157	170	170	228	228	253	268
ADS	139	139	150	150	158	172	172	228	228	253	268
L	608	653	655	687	733	764	814	832	858	924	947
LS	689	734	748	780	827	876	926	970	995	1113	1136
LB	218	263	265	297	343	374	424	442	468	534	557
LBS	299	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

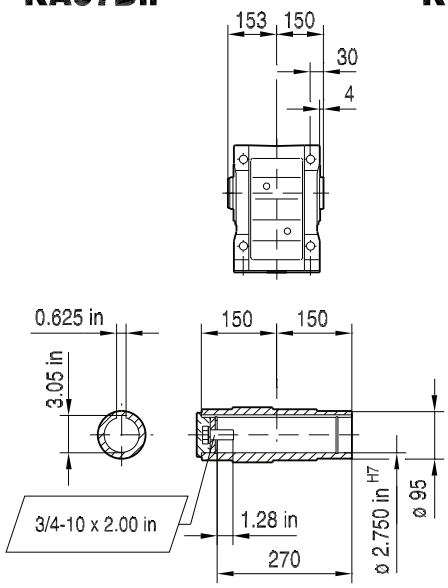
24833231/EN-US – 07/2021

77 589 00 21

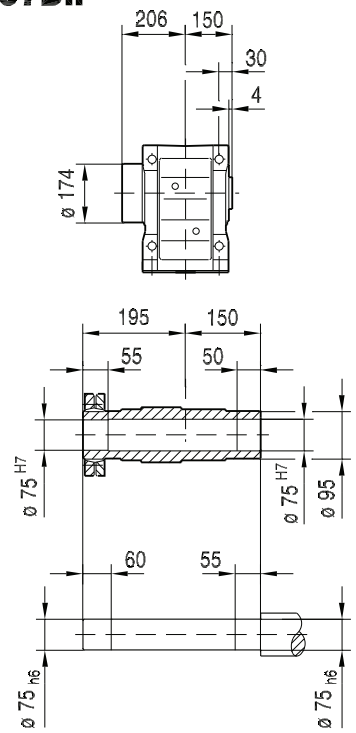
K97..



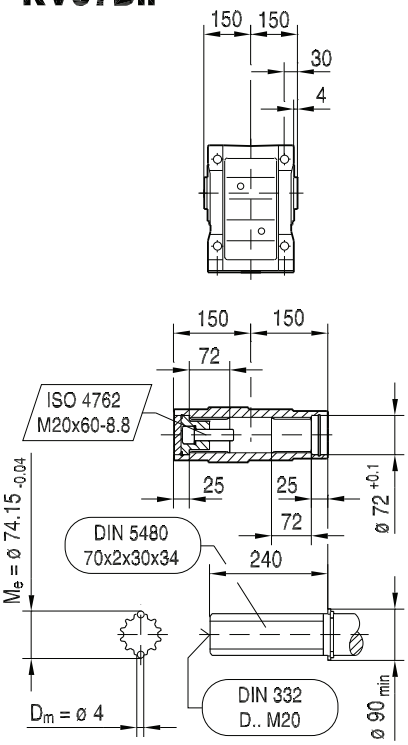
KA97B..



KH97B..



KV97B..

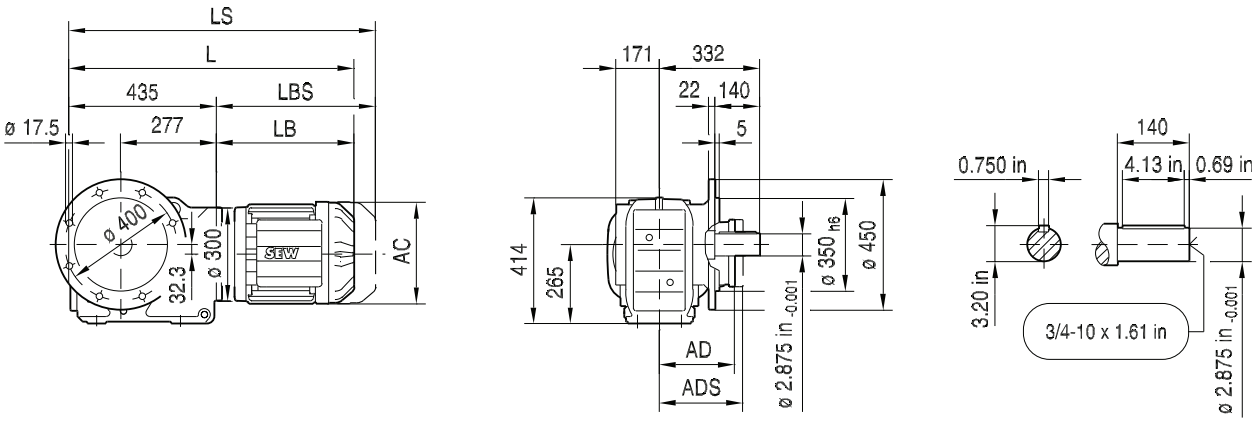


(→ 162)	DRN										
	90S	90L	100L/LM	112M	132S	132M	132L	160	180	200	225
AC	179	179	197	221	221	261	261	314	357	394	434
AD	140	140	157	170	170	228	228	253	268	283	305
ADS	150	150	158	172	172	228	228	253	268	283	305
L	697	729	775	806	856	874	900	966	989	1099	1073
LS	790	822	869	918	968	1012	1037	1155	1178	1304	1278
LB	260	292	338	369	419	437	463	529	552	662	636
LBS	353	385	432	481	531	575	600	718	741	867	841

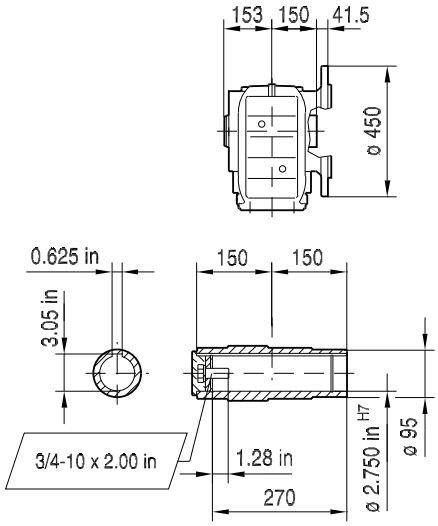
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

KF97..

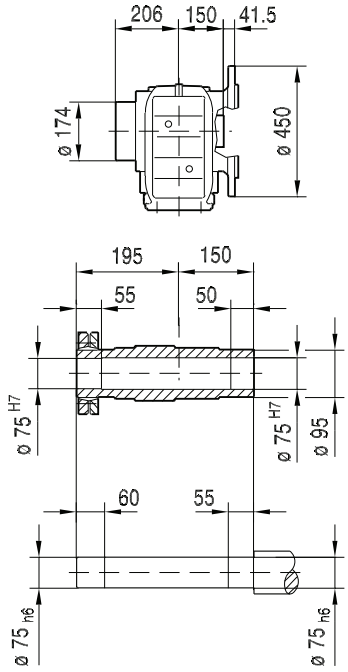
77 590 00 21



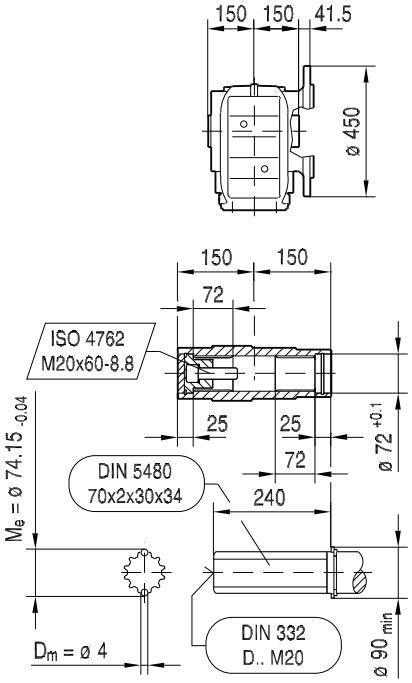
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KHF97..



KVF97..



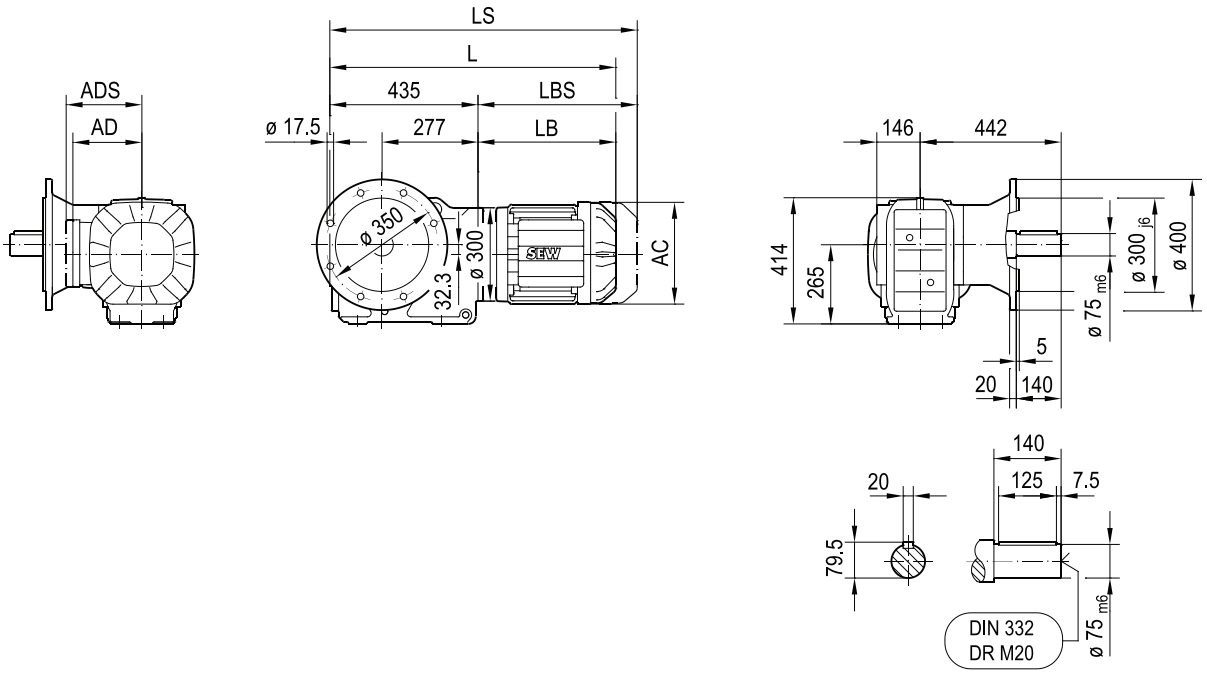
(→ 162)	DRN										
	90S	90L	100L/LM	112M	132S	132M	132L	160	180	200	225
AC	179	179	197	221	221	261	261	314	357	394	434
AD	140	140	157	170	170	228	228	253	268	283	305
ADS	150	150	158	172	172	228	228	253	268	283	305
L	695	727	773	804	854	872	898	964	987	1097	1071
LS	788	820	867	916	966	1010	1035	1153	1176	1302	1276
LB	260	292	338	369	419	437	463	529	552	662	636
LBS	353	385	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

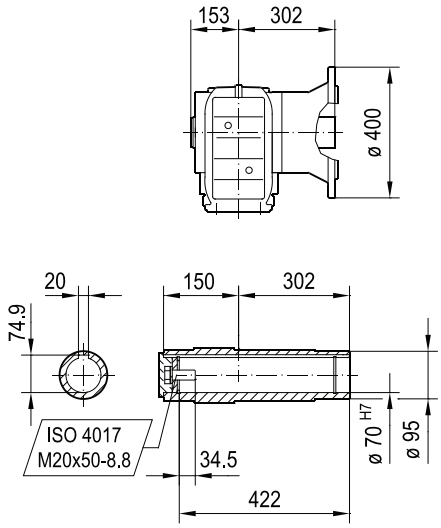
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77 609 00 21

KM97..



KAM97..



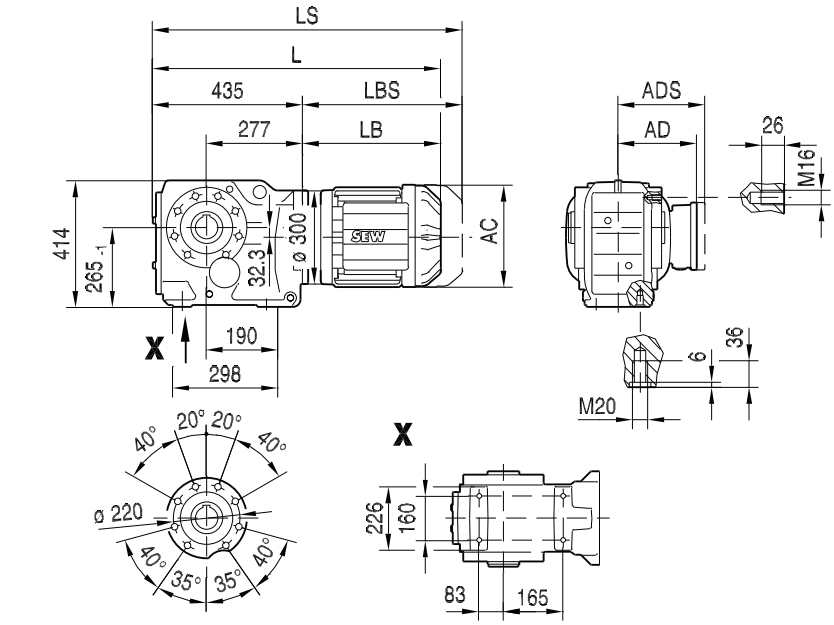
(→ 🗎 162)	DRN										
	90S	90L	100L/LM	112M	132S	132M	132L	160	180	200	225
AC	179	179	197	221	221	261	261	314	357	394	434
AD	140	140	157	170	170	228	228	253	268	283	305
ADS	150	150	158	172	172	228	228	253	268	283	305
L	695	727	773	804	854	872	898	964	987	1097	1071
LS	788	820	867	916	966	1010	1035	1153	1176	1302	1276
LB	260	292	338	369	419	437	463	529	552	662	636
LBS	353	385	432	481	531	575	600	718	741	867	841

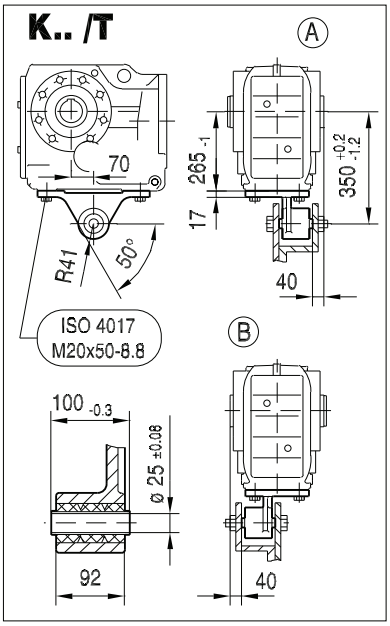
Dimensions in mm unless noted as inch. For tolerances, see page 162.

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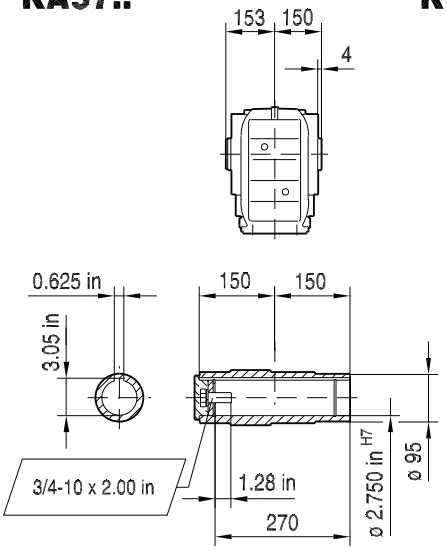
77 591 00 21

KA97..

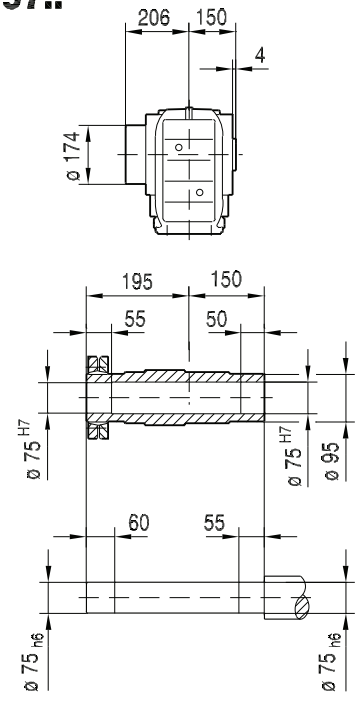




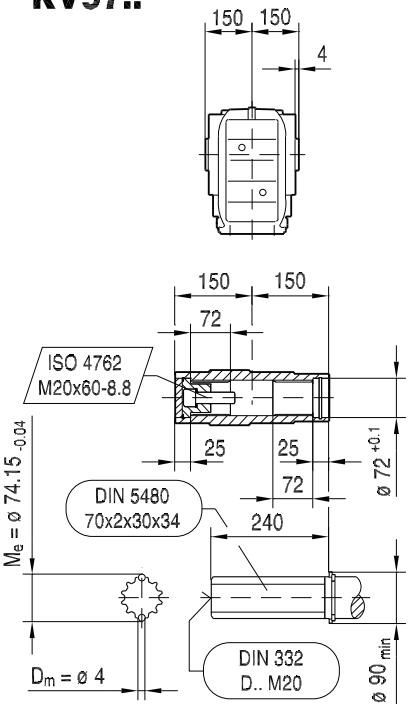
KA97..



KH97..



KV97..



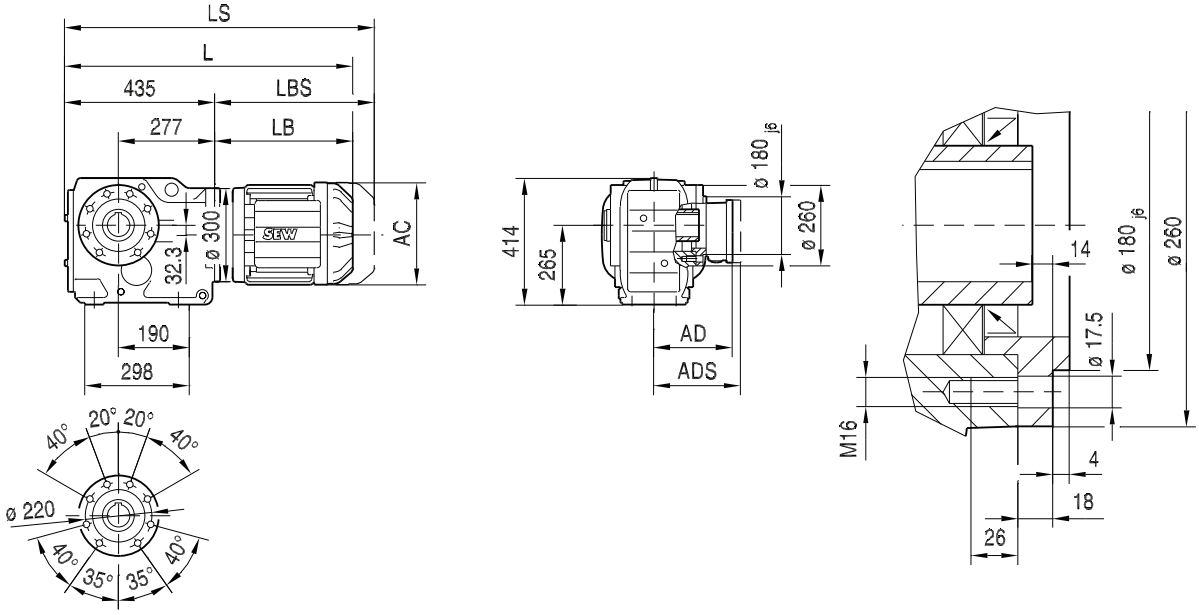
(→ 🗎 162)	DRN										
	90S	90L	100L/LM	112M	132S	132M	132L	160	180	200	225
AC	179	179	197	221	221	261	261	314	357	394	434
AD	140	140	157	170	170	228	228	253	268	283	305
ADS	150	150	158	172	172	228	228	253	268	283	305
L	695	727	773	804	854	872	898	964	987	1097	1071
LS	788	820	867	916	966	1010	1035	1153	1176	1302	1276
LB	260	292	338	369	419	437	463	529	552	662	636
LBS	353	385	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

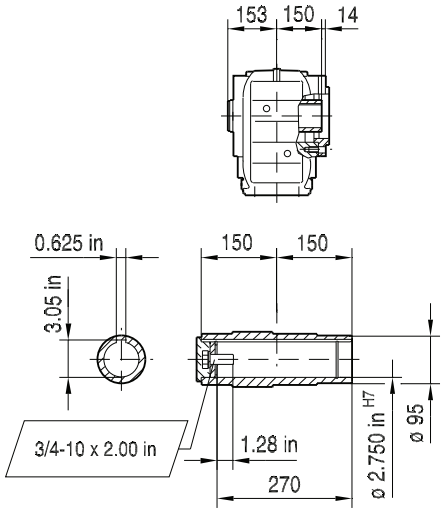
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77 592 00 21

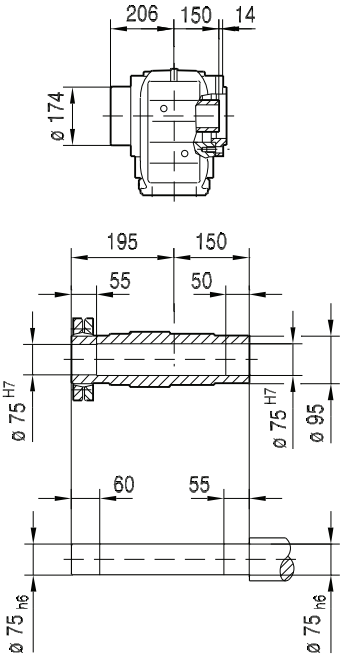
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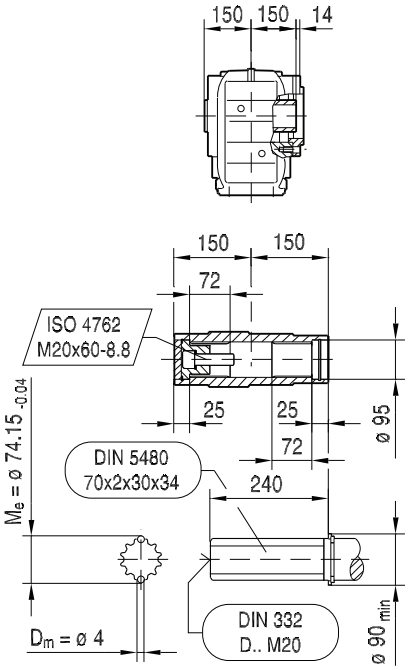
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KHZ97..



KVZ97..



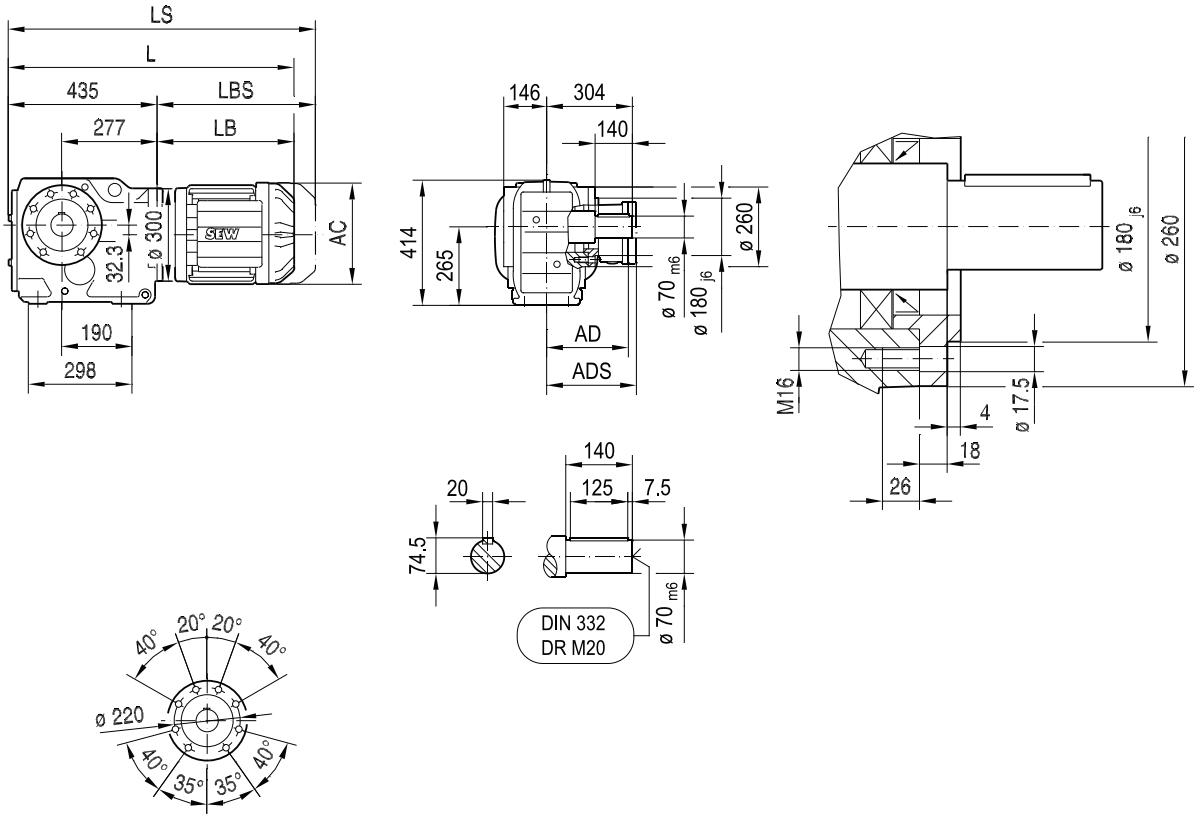
(→ 162)	DRN										
	90S	90L	100L/LM	112M	132S	132M	132L	160	180	200	225
AC	179	179	197	221	221	261	261	314	357	394	434
AD	140	140	157	170	170	228	228	253	268	283	305
ADS	150	150	158	172	172	228	228	253	268	283	305
L	695	727	773	804	854	872	898	964	987	1097	1071
LS	788	820	867	916	966	1010	1035	1153	1176	1302	1276
LB	260	292	338	369	419	437	463	529	552	662	636
LBS	353	385	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

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KZ97..

77 593 00 21



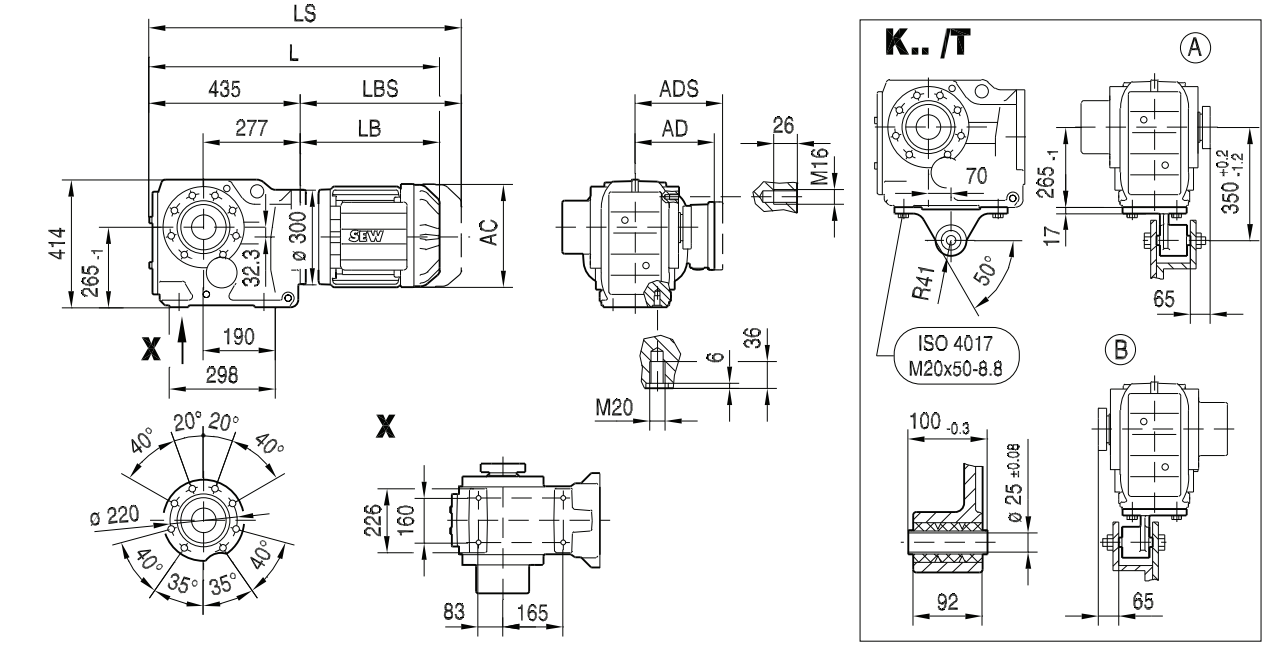
(→ 🗎 162)	DRN										
	90S	90L	100L/LM	112M	132S	132M	132L	160	180	200	225
AC	179	179	197	221	221	261	261	314	357	394	434
AD	140	140	157	170	170	228	228	253	268	283	305
ADS	150	150	158	172	172	228	228	253	268	283	305
L	695	727	773	804	854	872	898	964	987	1097	1071
LS	788	820	867	916	966	1010	1035	1153	1176	1302	1276
LB	260	292	338	369	419	437	463	529	552	662	636
LBS	353	385	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

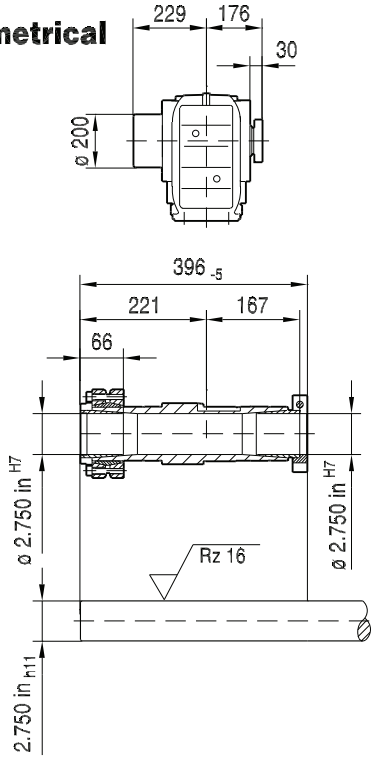
24833231/EN-US – 07/2021

77 594 00 21

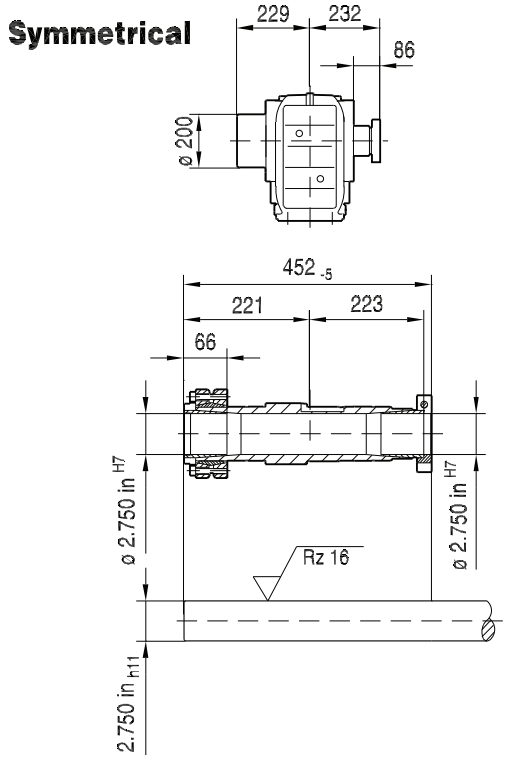
KT97..



NON-Symmetrical



Symmetrical



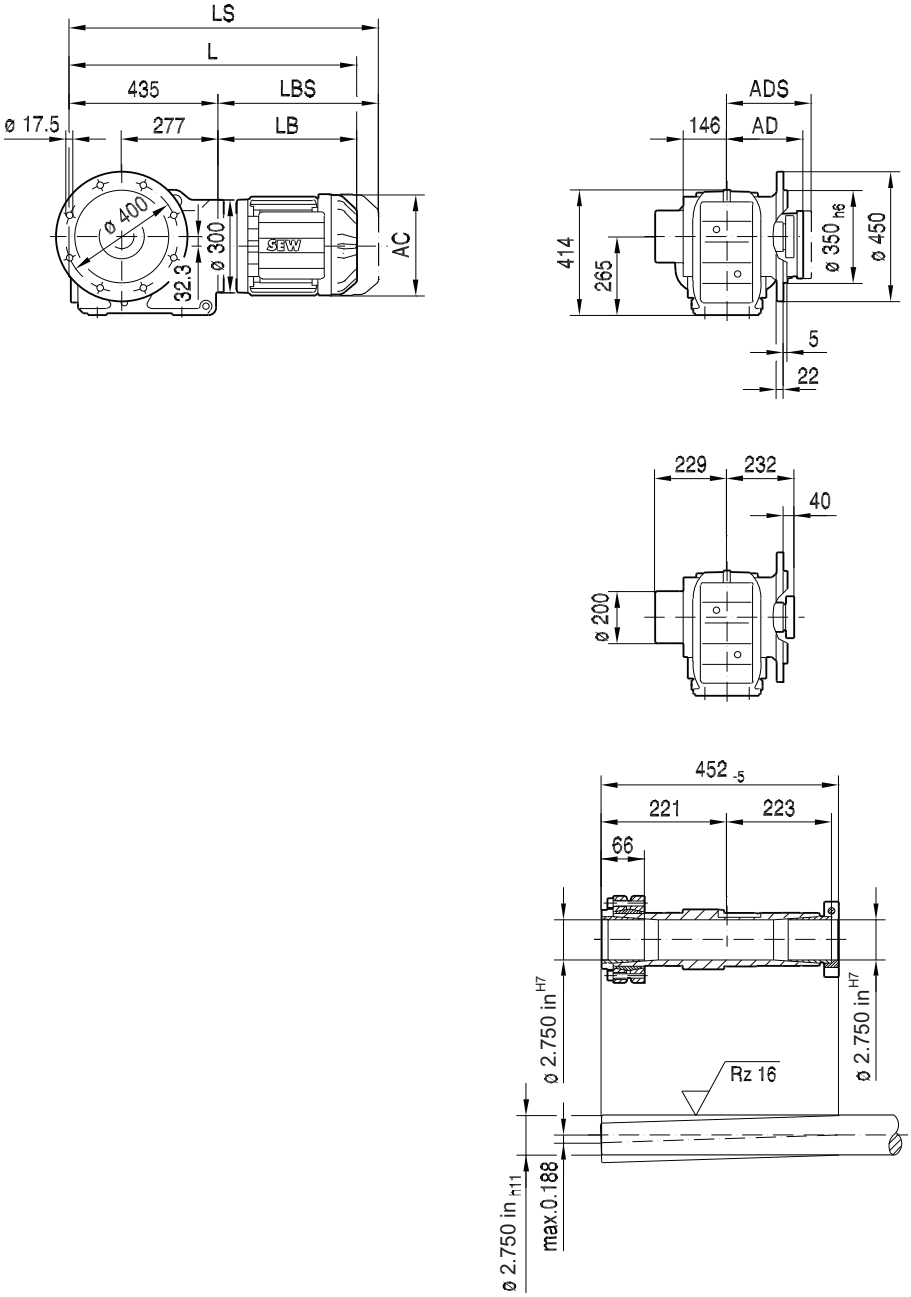
(→ 🗎 162)	DRN										
	90S	90L	100L/LM	112M	132S	132M	132L	160	180	200	225
AC	179	179	197	221	221	261	261	314	357	394	434
AD	140	140	157	170	170	228	228	253	268	283	305
ADS	150	150	158	172	172	228	228	253	268	283	305
L	695	727	773	804	854	872	898	964	987	1097	1071
LS	788	820	867	916	966	1010	1035	1153	1176	1302	1276
LB	260	292	338	369	419	437	463	529	552	662	636
LBS	353	385	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

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KTF97..

77 595 00 21



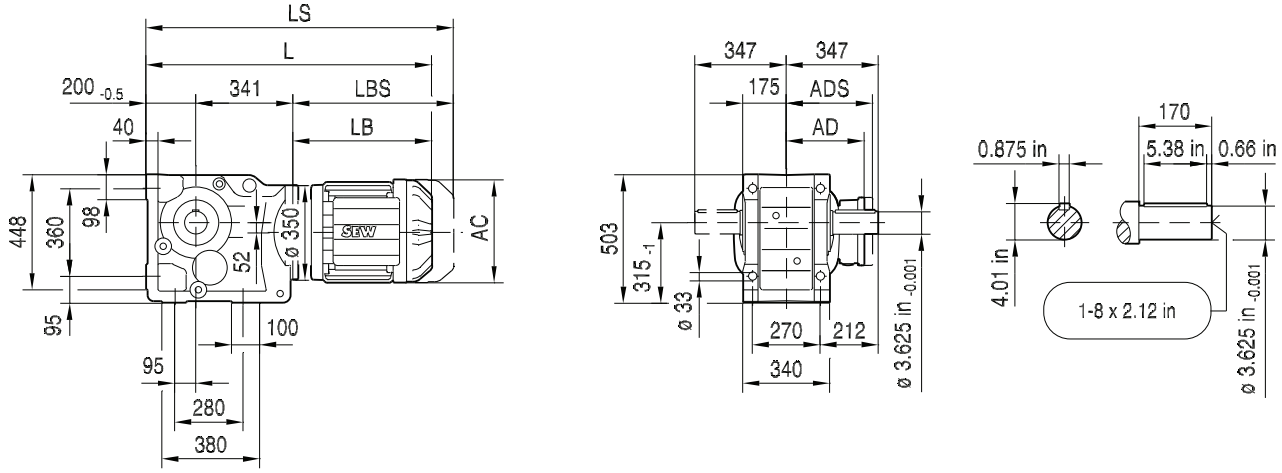
(→ 162)	DRN										
	90S	90L	100L/LM	112M	132S	132M	132L	160	180	200	225
AC	179	179	197	221	221	261	261	314	357	394	434
AD	140	140	157	170	170	228	228	253	268	283	305
ADS	150	150	158	172	172	228	228	253	268	283	305
L	695	727	773	804	854	872	898	964	987	1097	1071
LS	788	820	867	916	966	1010	1035	1153	1176	1302	1276
LB	260	292	338	369	419	437	463	529	552	662	636
LBS	353	385	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

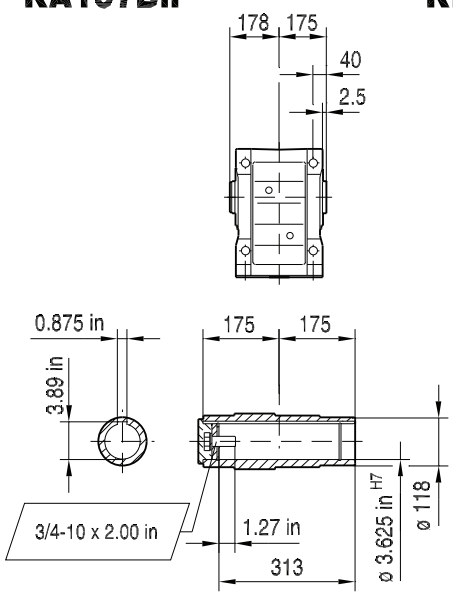
24833231/EN-US – 07/2021

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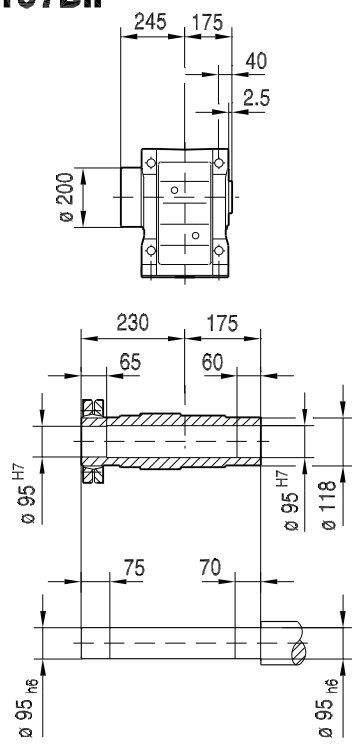
K107..



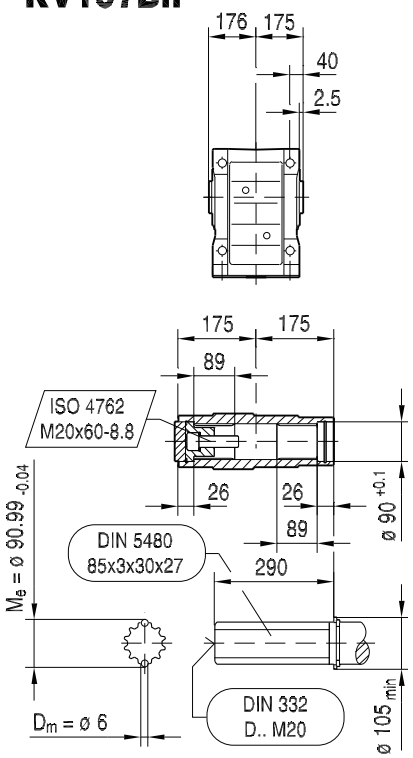
KA107B..



KH107B..



KV107B..



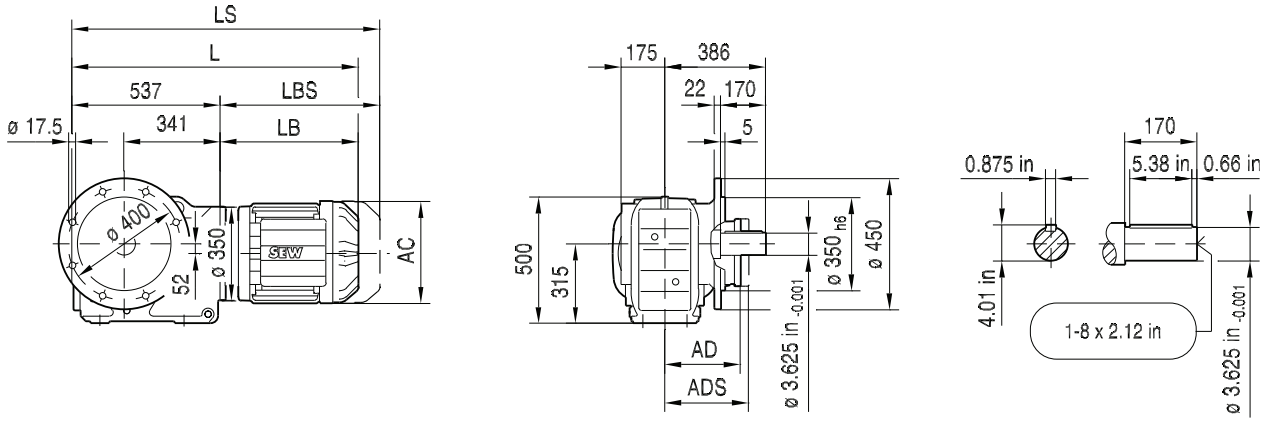
(→ 🗎 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	873	904	954	972	998	1064	1087	1197	1171
LS	967	1016	1066	1110	1135	1253	1276	1402	1376
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

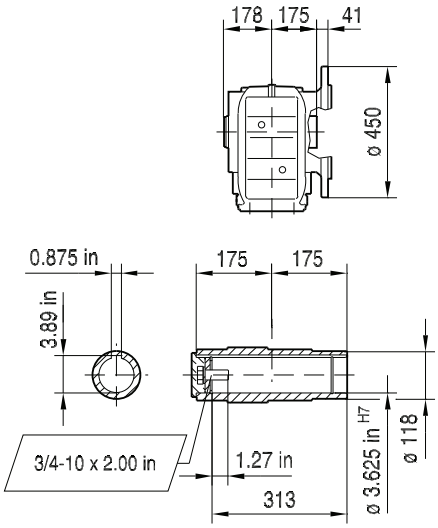
24833231/EN-US – 07/2021

77 597 00 21

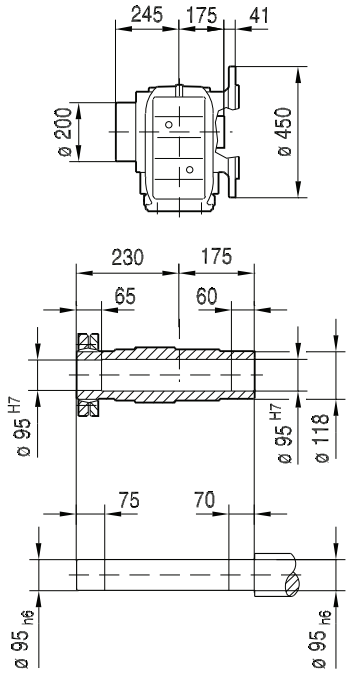
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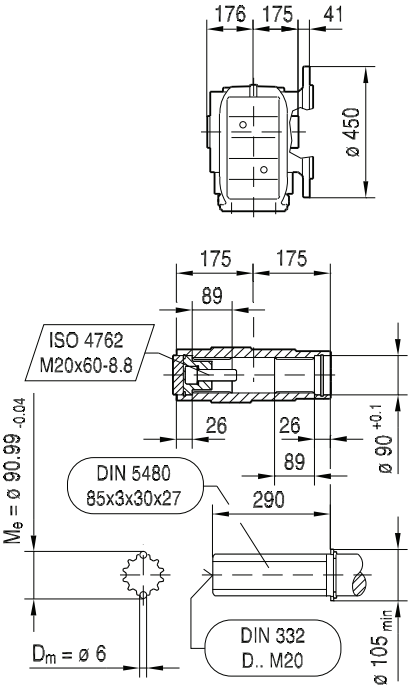
KAF107..



KHF107..



KVF107..



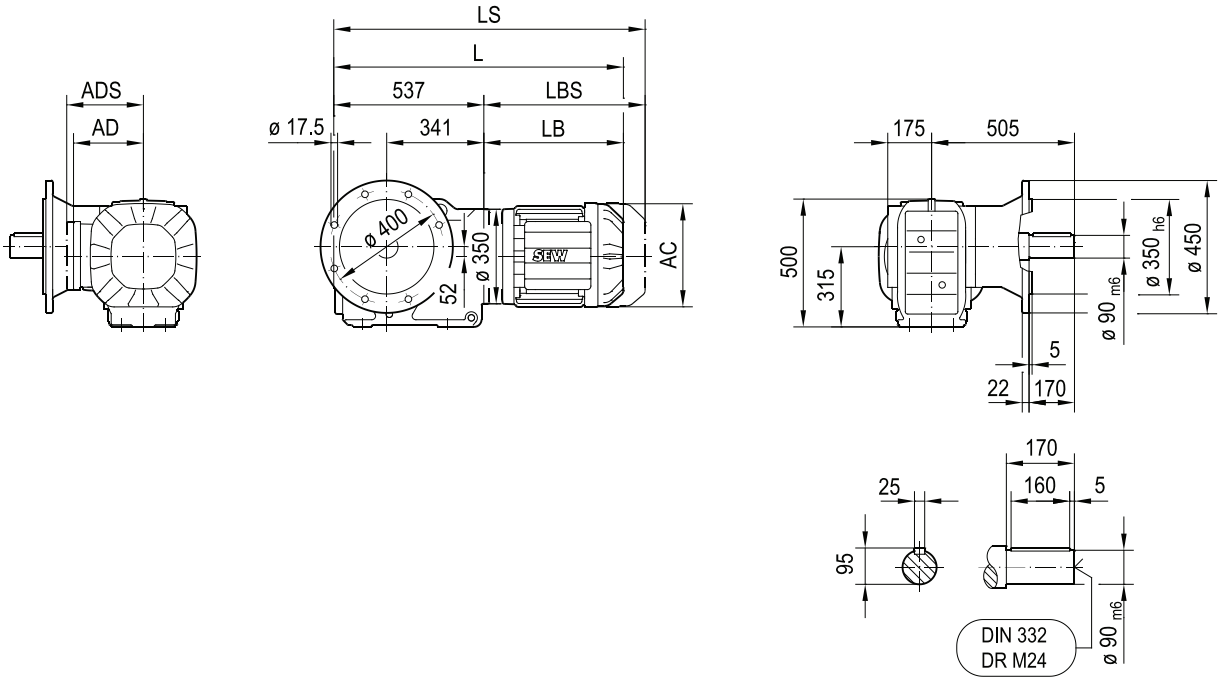
(→ 🗎 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	869	900	950	968	994	1060	1083	1193	1167
LS	963	1012	1062	1106	1131	1249	1272	1398	1372
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

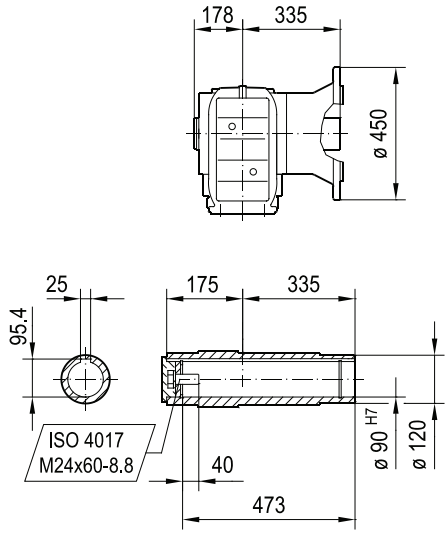
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77 610 00 21

KM107..



KAM107..



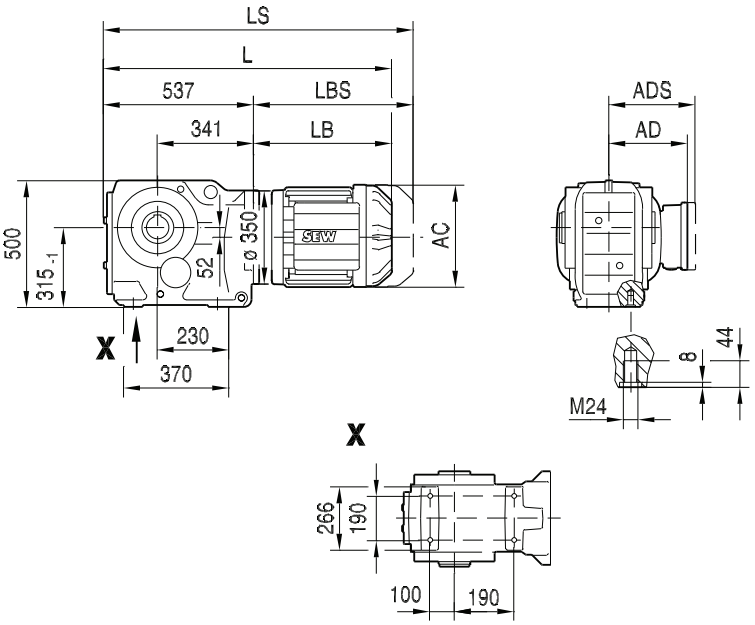
(→ 🗎 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	869	900	950	968	994	1060	1083	1193	1167
LS	963	1012	1062	1106	1131	1249	1272	1398	1372
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

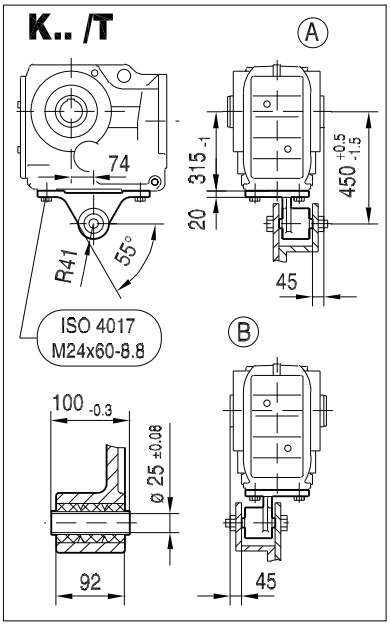
Dimensions in mm unless noted as inch. For tolerances, see page 162.

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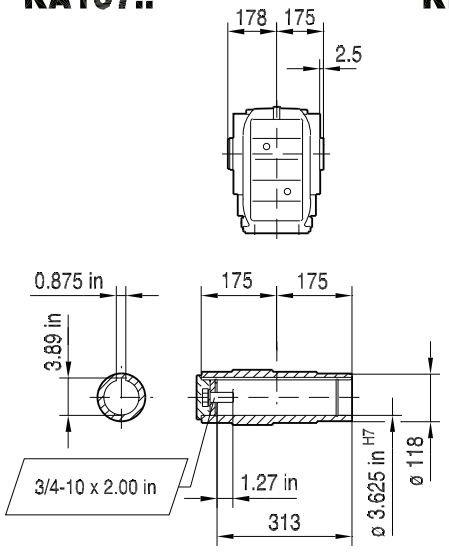
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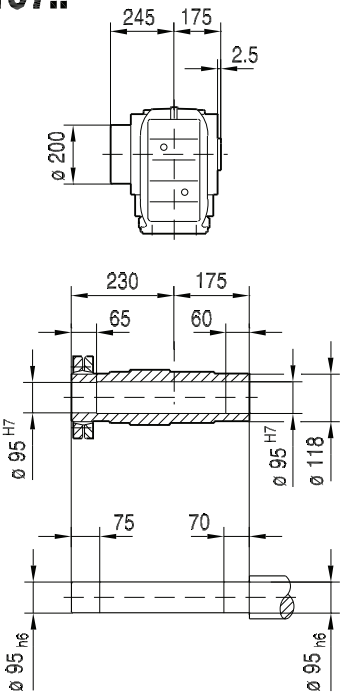




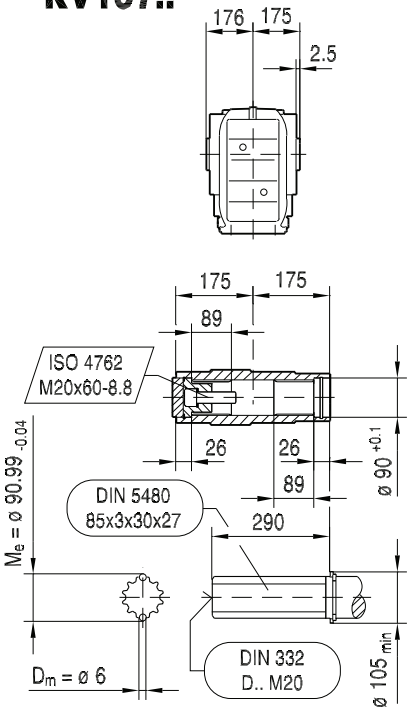
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KH107..



KV107..



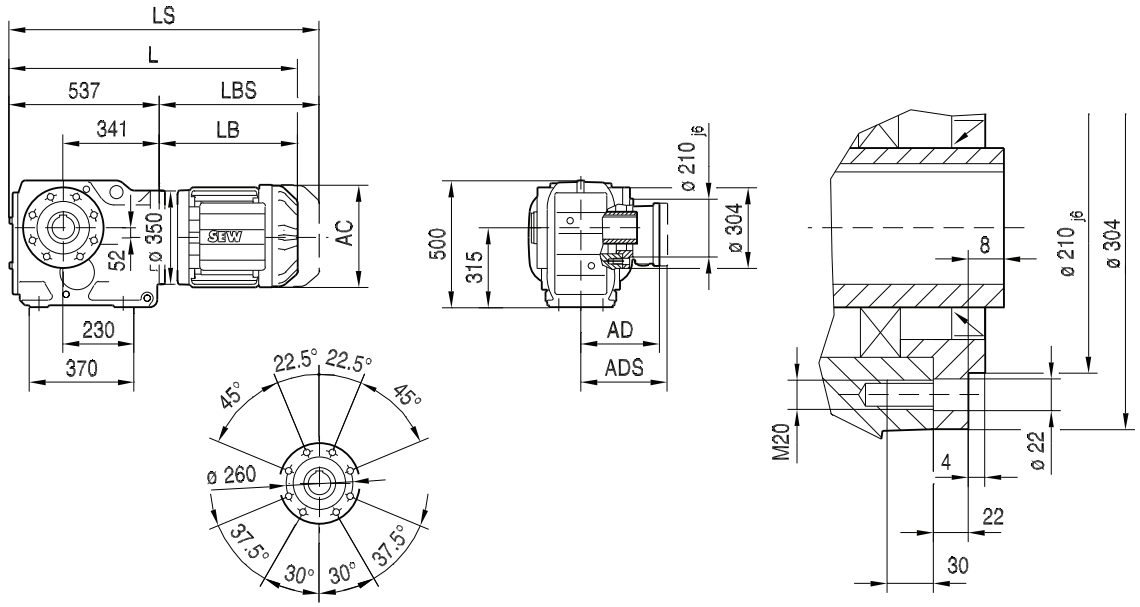
(→ 🗎 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	869	900	950	968	994	1060	1083	1193	1167
LS	963	1012	1062	1106	1131	1249	1272	1398	1372
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

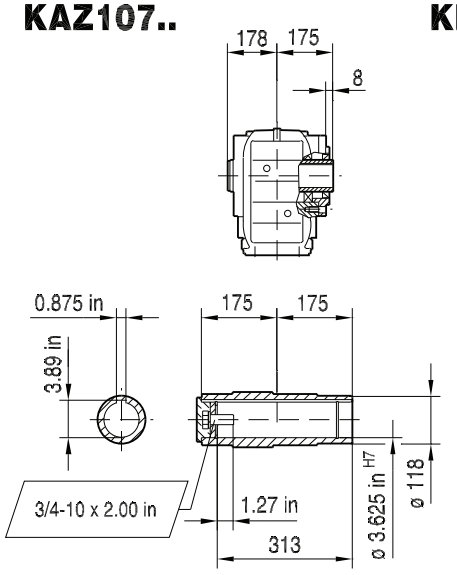
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77 599 00 21

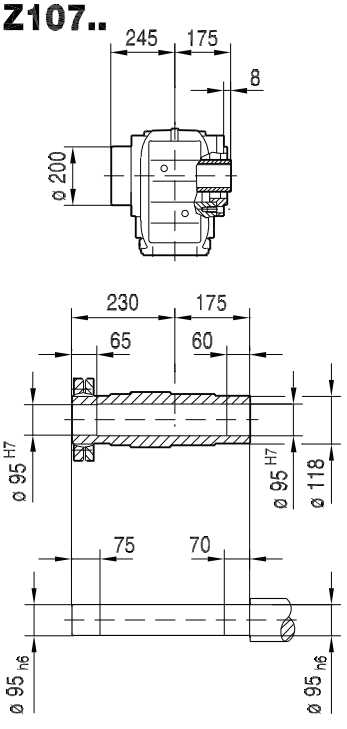
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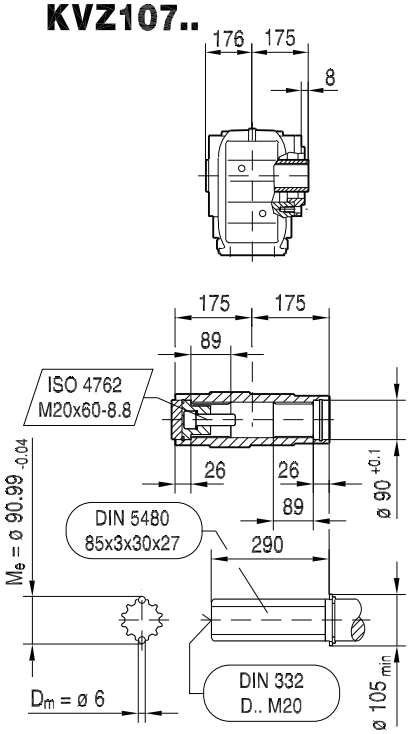
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KHZ107..



KVZ107..



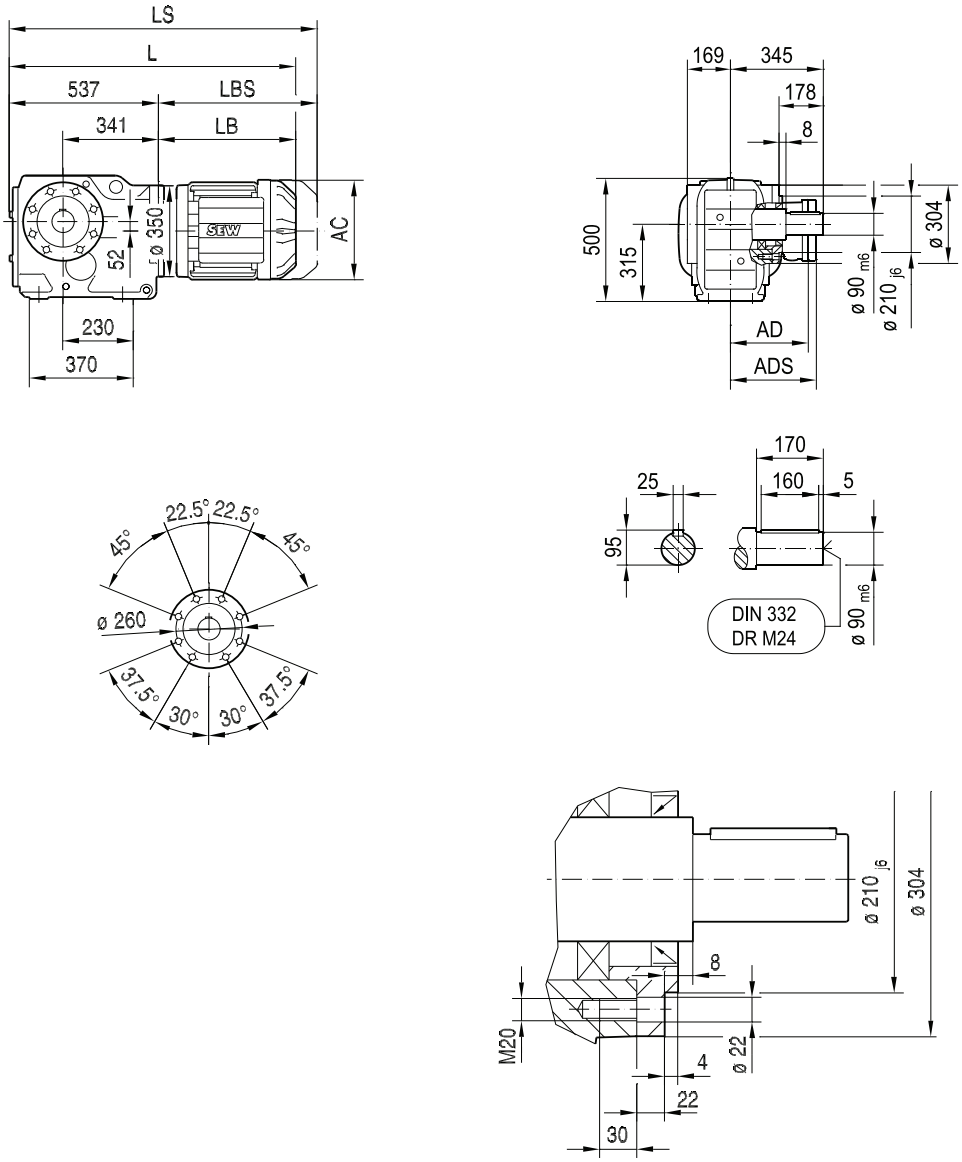
(→ 🗎 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	869	900	950	968	994	1060	1083	1193	1167
LS	963	1012	1062	1106	1131	1249	1272	1398	1372
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

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KZ107..

77 624 00 21



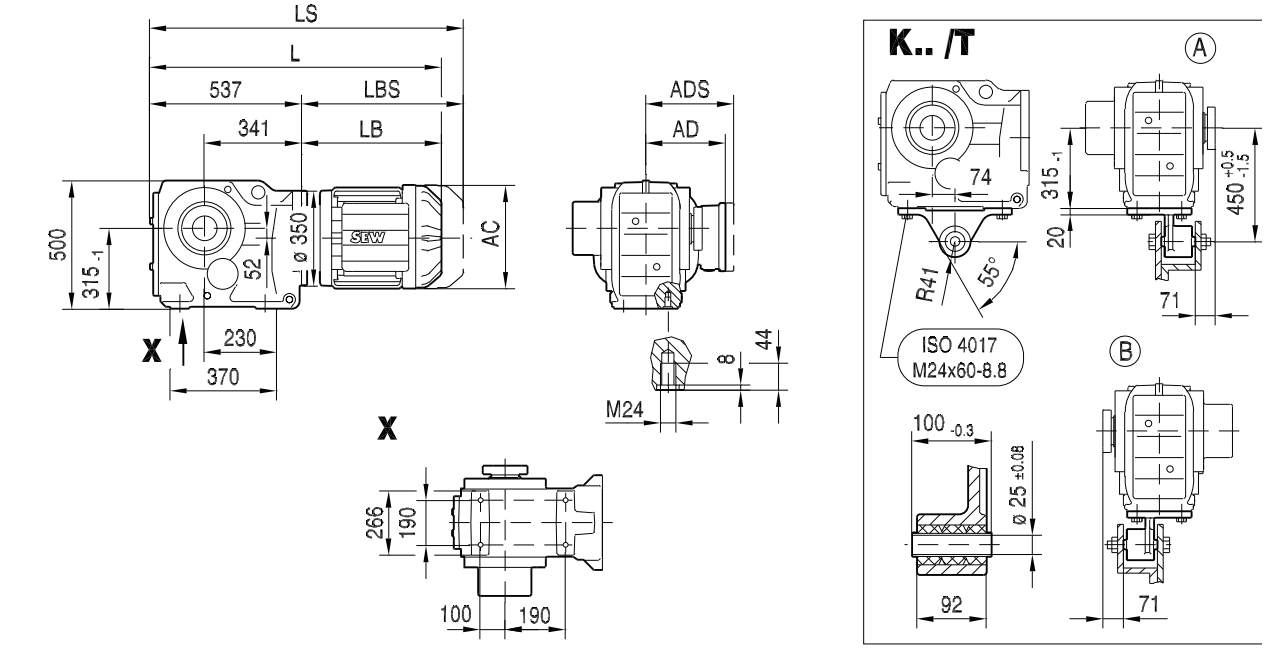
(→ 🗎 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	869	900	950	968	994	1060	1083	1193	1167
LS	963	1012	1062	1106	1131	1249	1272	1398	1372
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

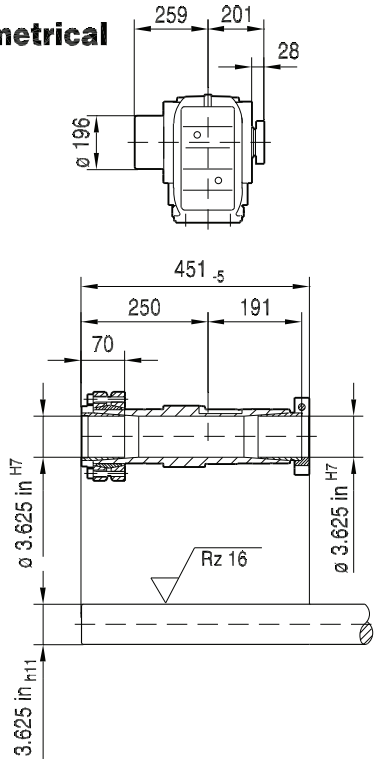
24833231/EN-US – 07/2021

77 600 00 21

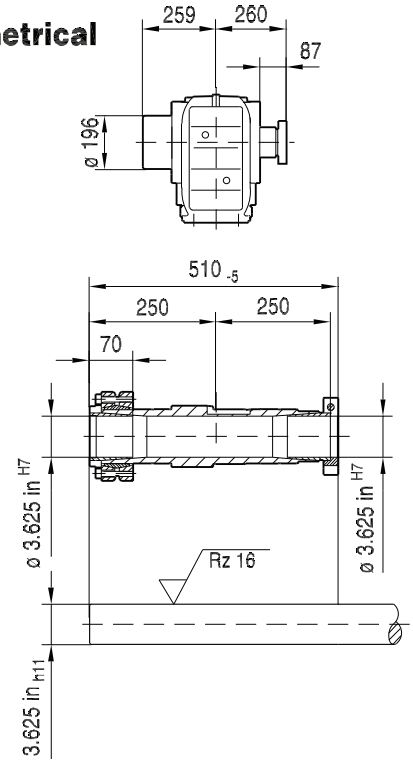
KT107..



NON-Symmetrical



Symmetrical



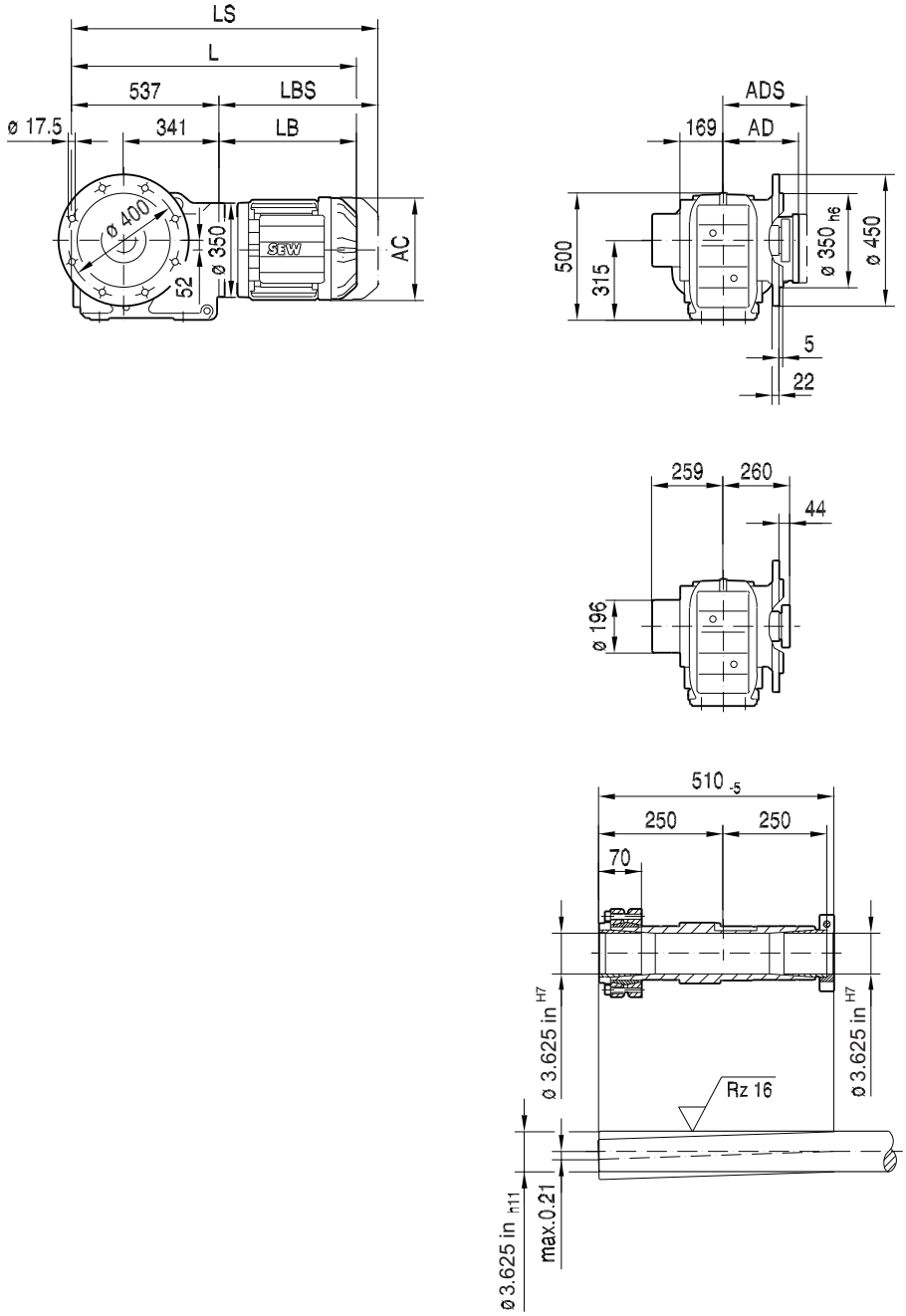
(→ 🗎 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	869	900	950	968	994	1060	1083	1193	1167
LS	963	1012	1062	1106	1131	1249	1272	1398	1372
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

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KTF107..

77 601 00 21



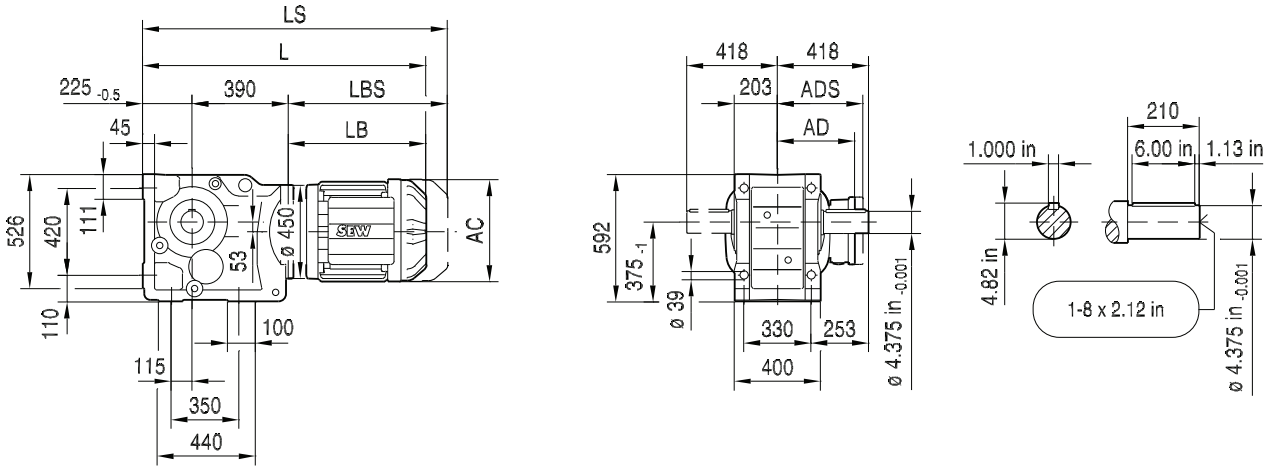
(→ 🗎 162)	DRN								
	100L/LM	112M	132S	132M	132L	160	180	200L	225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	869	900	950	968	994	1060	1083	1193	1167
LS	963	1012	1062	1106	1131	1249	1272	1398	1372
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

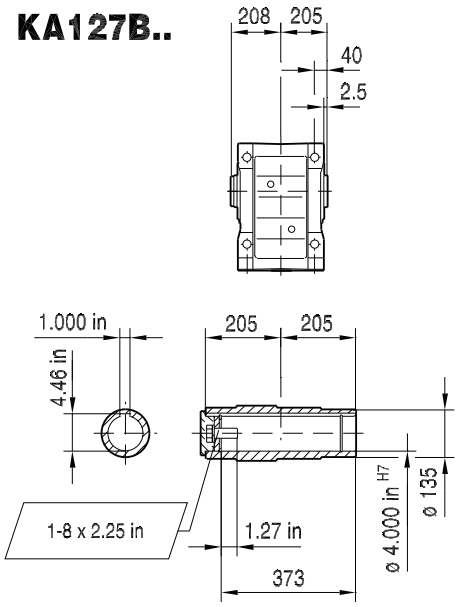
24833231/EN-US – 07/2021

77 602 00 21

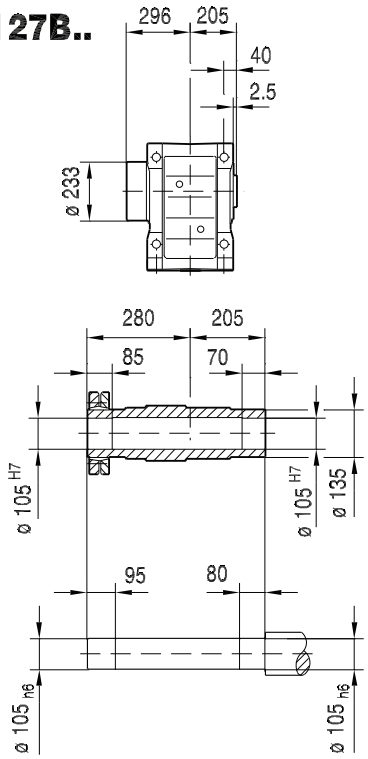
K127..



KA127B..



KH127B..



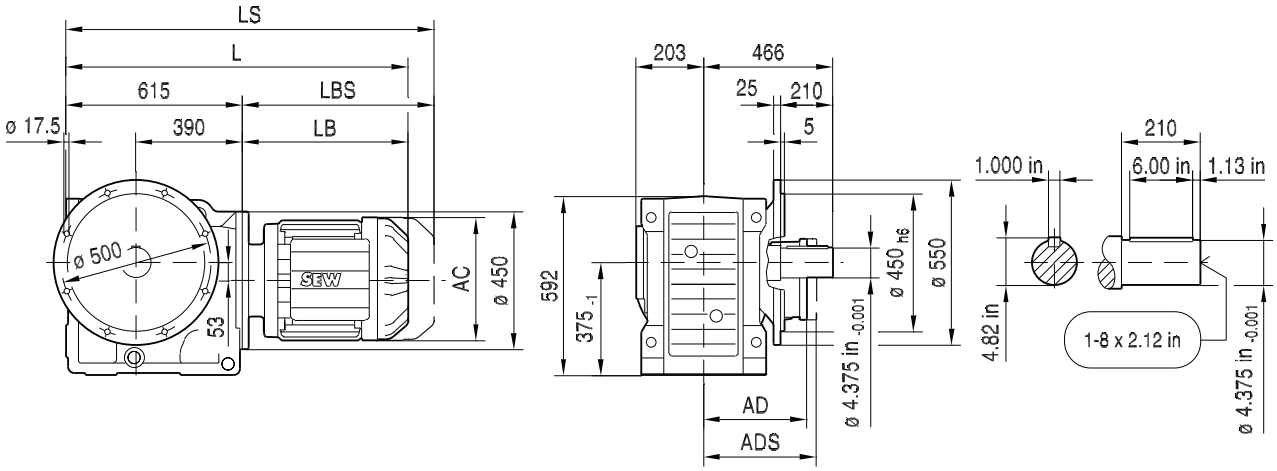
(→ 162)	DRN									
	132S	132M	132L	160	180	200	225	250	280S	280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	1013	1031	1057	1123	1146	1256	1230	1367	1367	1462
LS	1125	1169	1194	1312	1335	1461	1435	1607	1607	1702
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

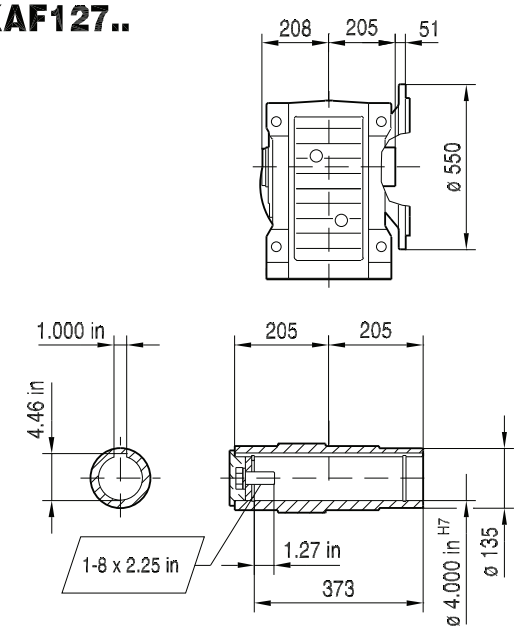
24833231/EN-US – 07/2021

77 603 00 21

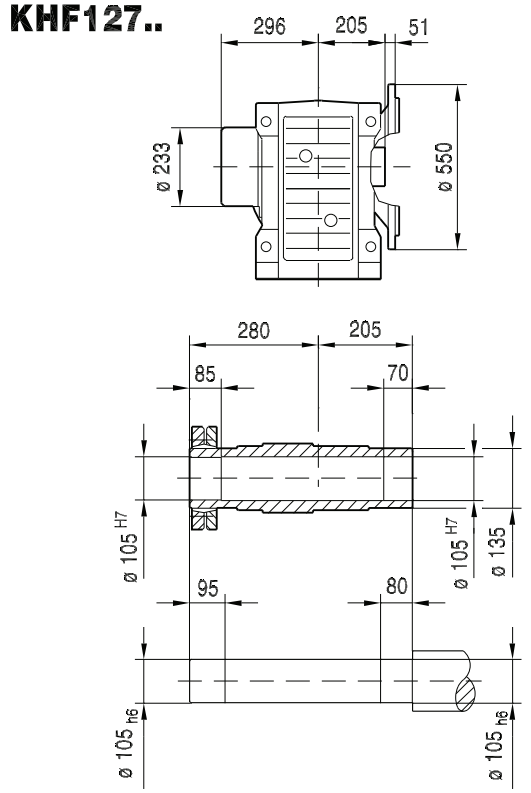
KF127..



KAF127..



KHF127..



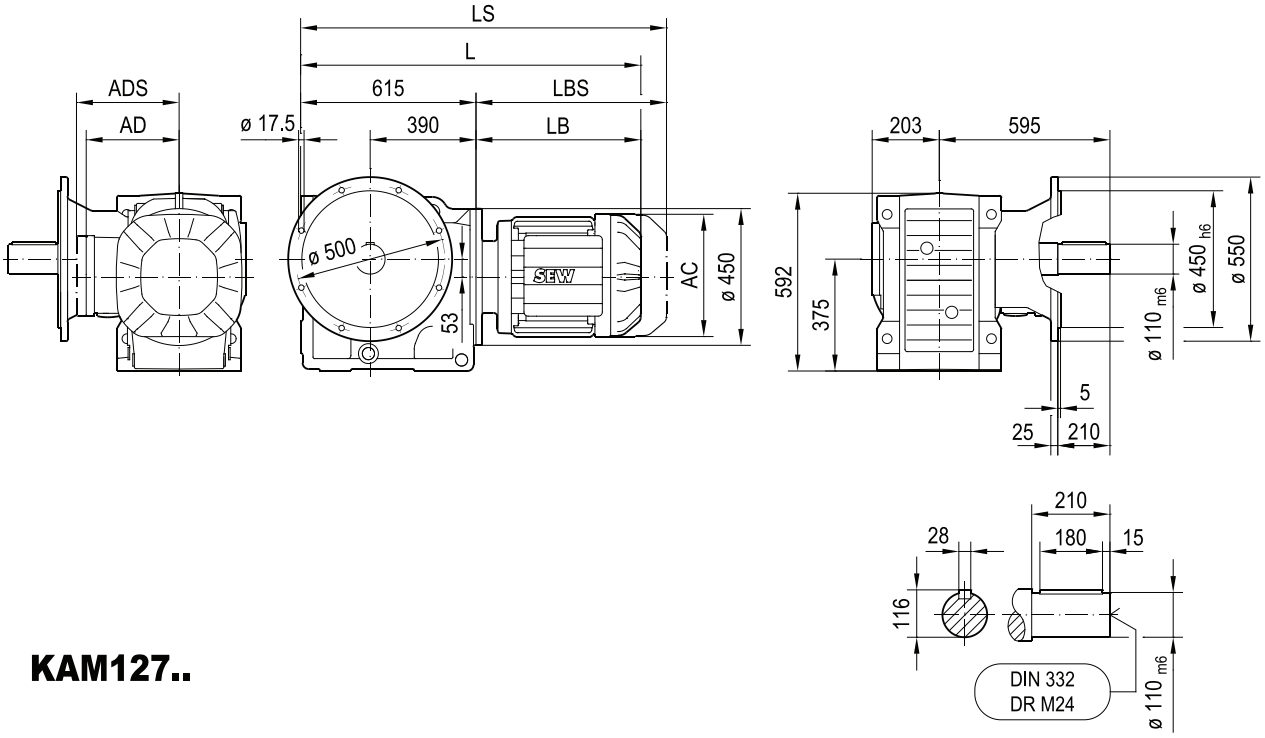
(→ 🗎 162)	DRN									
	132S	132M	132L	160	180	200	225	250	280S	280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	1013	1031	1057	1123	1146	1256	1230	1367	1367	1462
LS	1125	1169	1194	1312	1335	1461	1435	1607	1607	1702
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

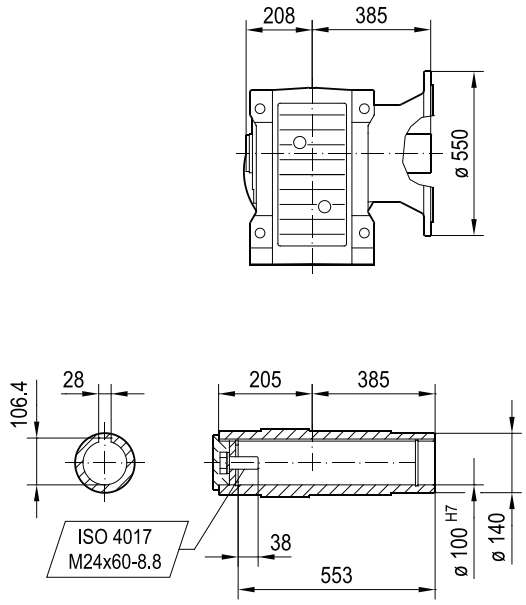
24833231/EN-US – 07/2021

77 611 00 21

KM127..



KAM127..

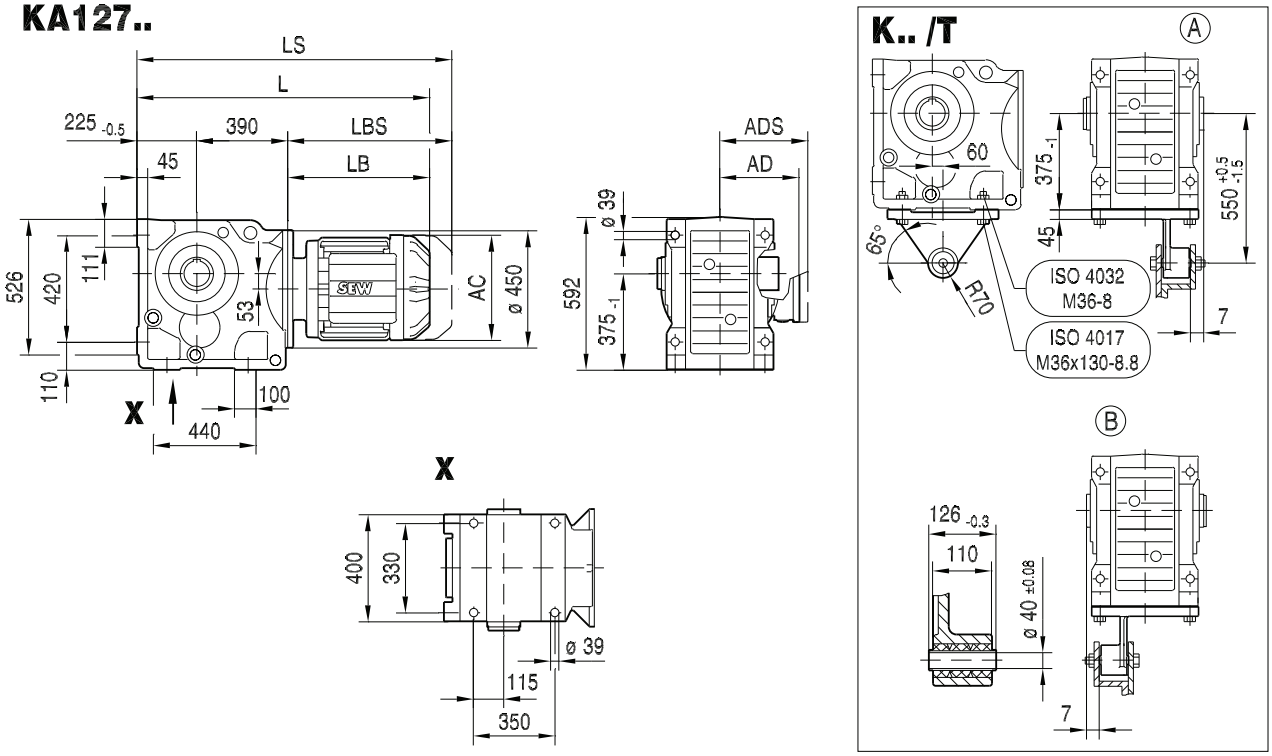


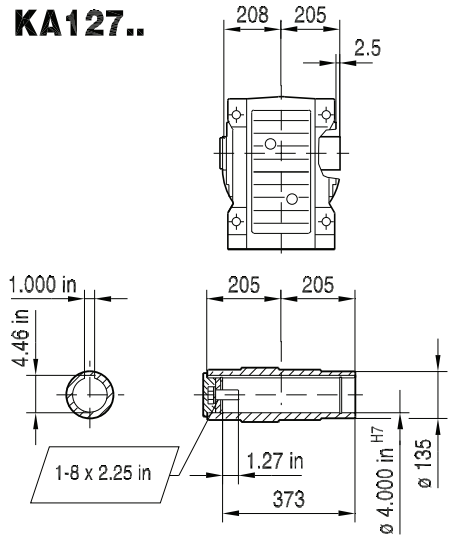
(→ 🗎 162)	DRN									
	132S	132M	132L	160	180	200	225	250	280S	280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	1013	1031	1057	1123	1146	1256	1230	1367	1367	1462
LS	1125	1169	1194	1312	1335	1461	1435	1607	1607	1702
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

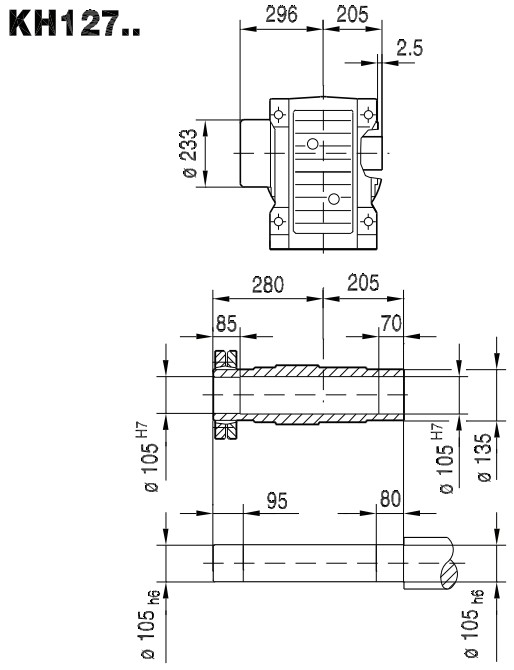
Dimensions in mm unless noted as inch. For tolerances, see page 162.

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77 604 00 21







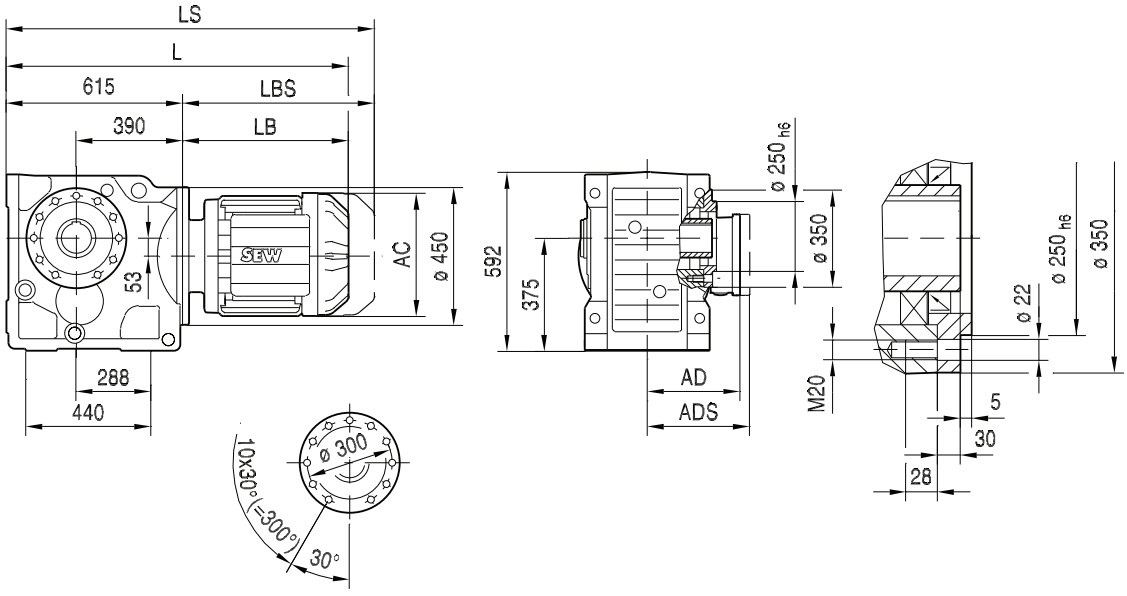
(→ 🗎 162)	DRN									
	132S	132M	132L	160	180	200	225	250	280S	280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	1013	1031	1057	1123	1146	1256	1230	1367	1367	1462
LS	1125	1169	1194	1312	1335	1461	1435	1607	1607	1702
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

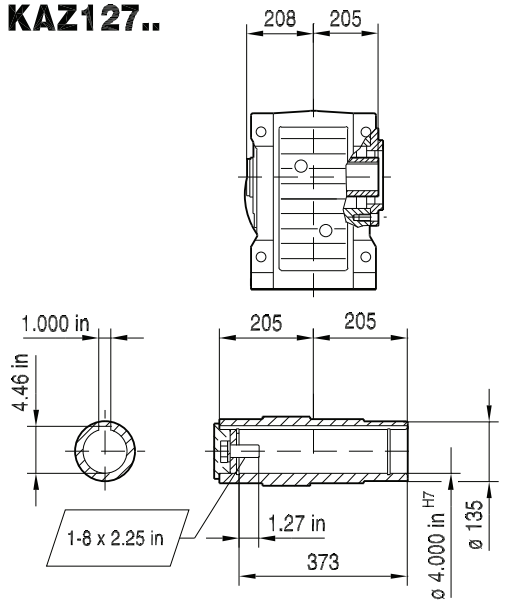
24833231/EN-US – 07/2021

77 605 00 21

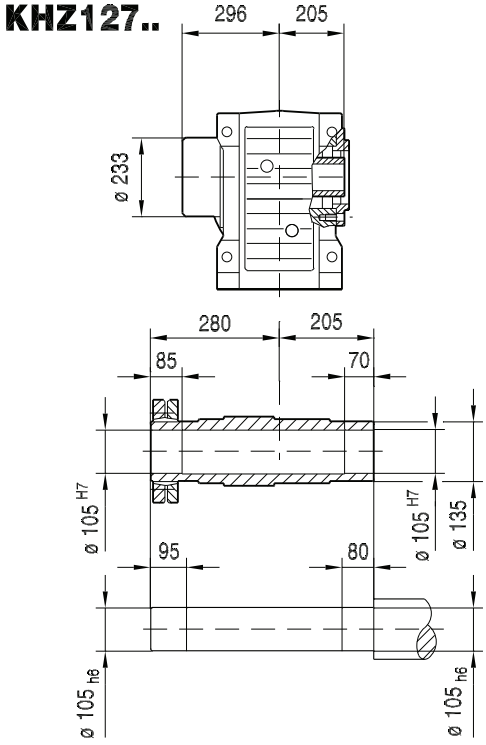
KAZ127..



KAZ127..



KHZ127..



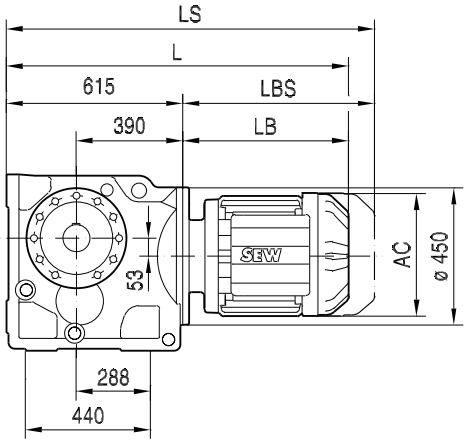
(→ 🗎 162)	DRN									
	132S	132M	132L	160	180	200	225	250	280S	280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	1013	1031	1057	1123	1146	1256	1230	1367	1367	1462
LS	1125	1169	1194	1312	1335	1461	1435	1607	1607	1702
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

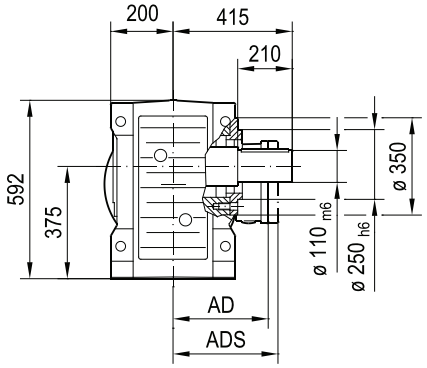
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

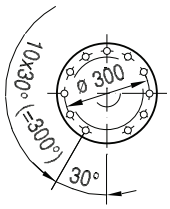
24833231/EN-US – 07/2021

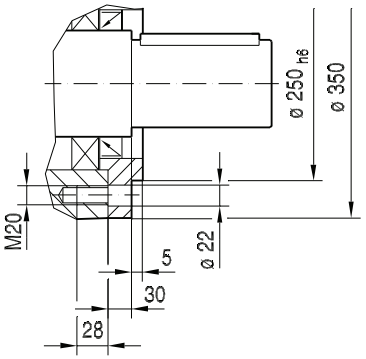
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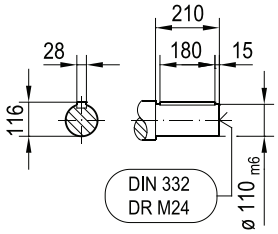
KZ127..









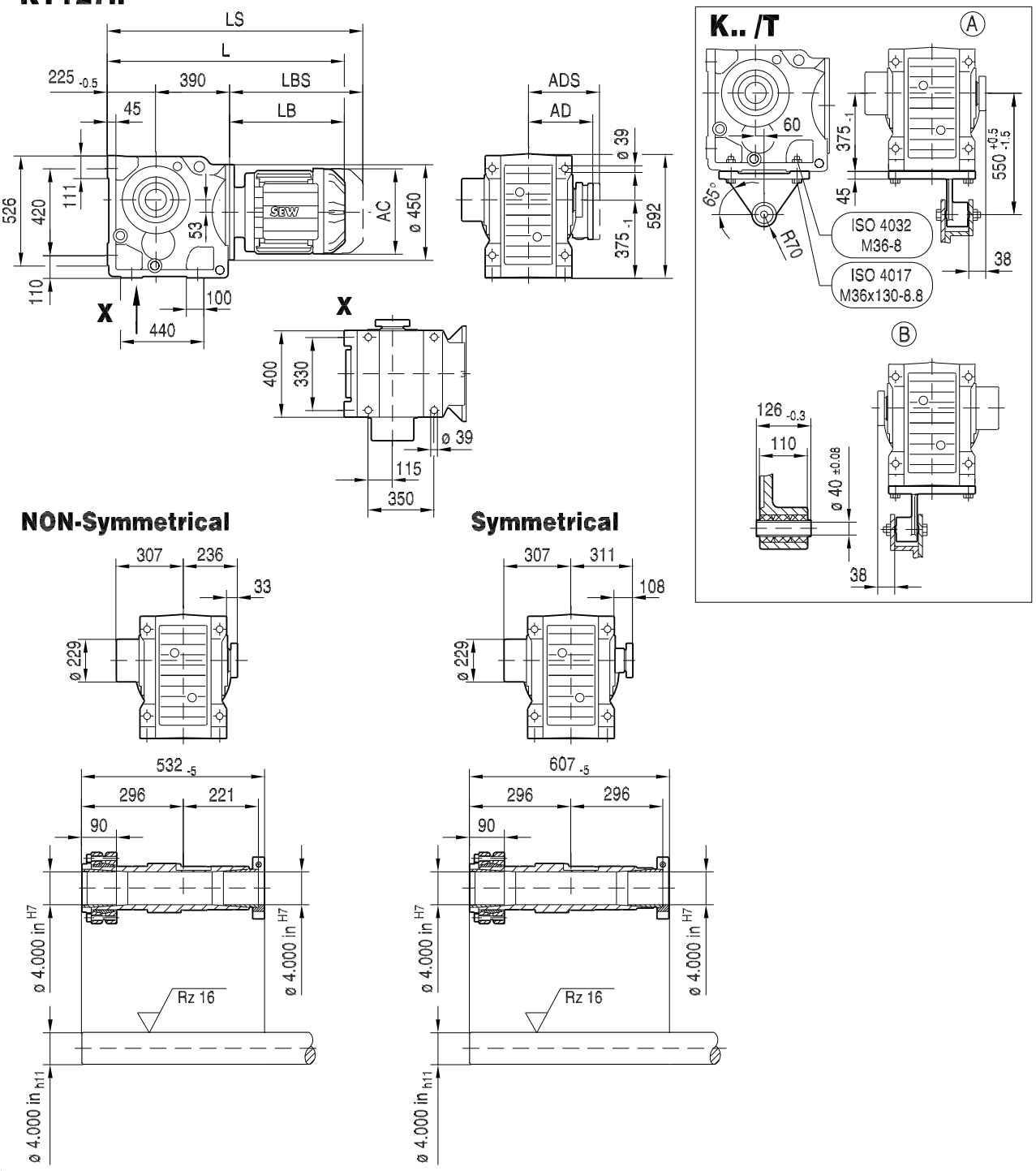


(→ 🗎 162)	DRN									
	132S	132M	132L	160	180	200	225	250	280S	280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	1013	1031	1057	1123	1146	1256	1230	1367	1367	1462
LS	1125	1169	1194	1312	1335	1461	1435	1607	1607	1702
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

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77 607 00 21



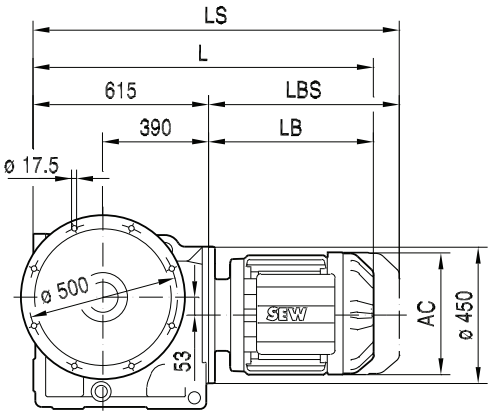
(→ 🗎 162)	DRN									
	132S	132M	132L	160	180	200	225	250	280S	280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	1013	1031	1057	1123	1146	1256	1230	1367	1367	1462
LS	1125	1169	1194	1312	1335	1461	1435	1607	1607	1702
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

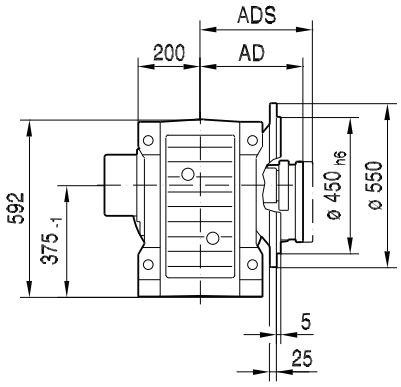
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

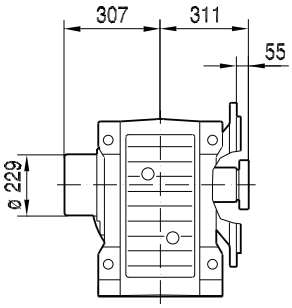
24833231/EN-US – 07/2021

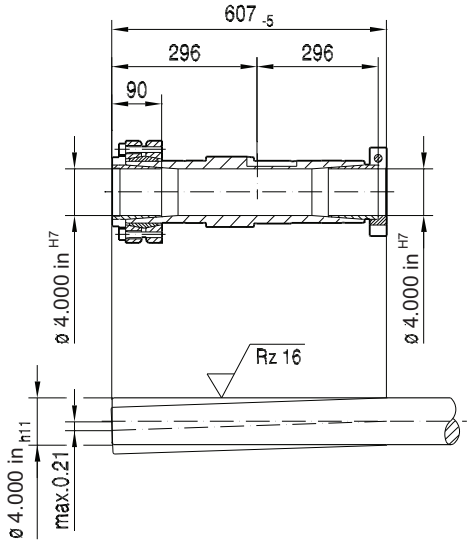
77 608 00 21

KTF127..









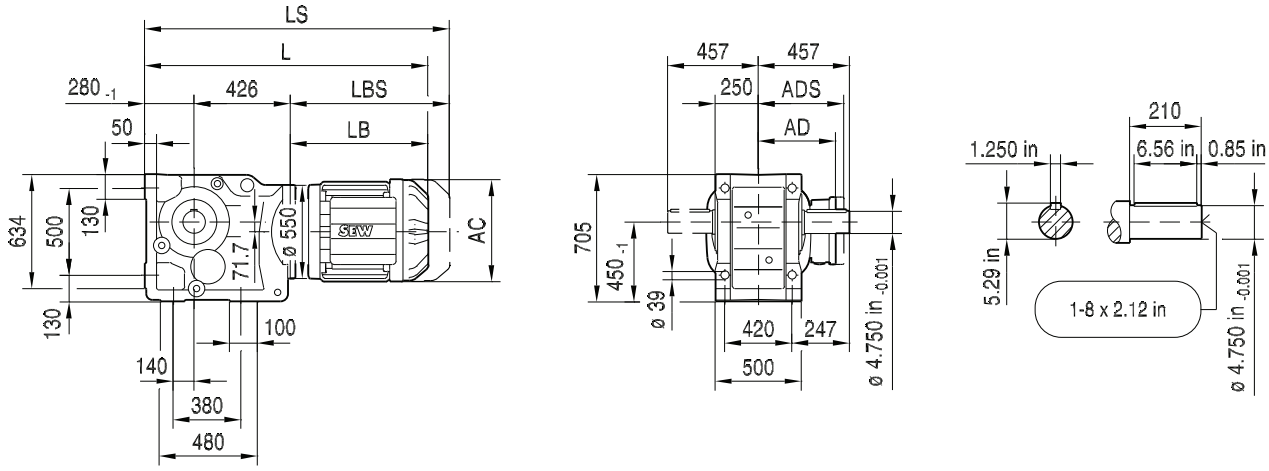
(→ 🗎 162)	DRN									
	132S	132M	132L	160	180	200	225	250	280S	280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	1013	1031	1057	1123	1146	1256	1230	1367	1367	1462
LS	1125	1169	1194	1312	1335	1461	1435	1607	1607	1702
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

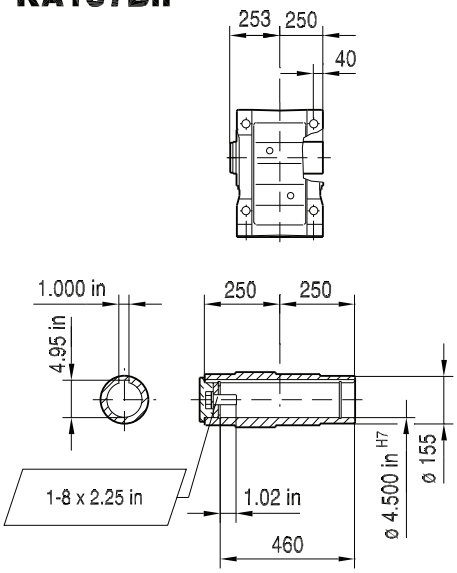
24833231/EN-US – 07/2021

77 612 00 21

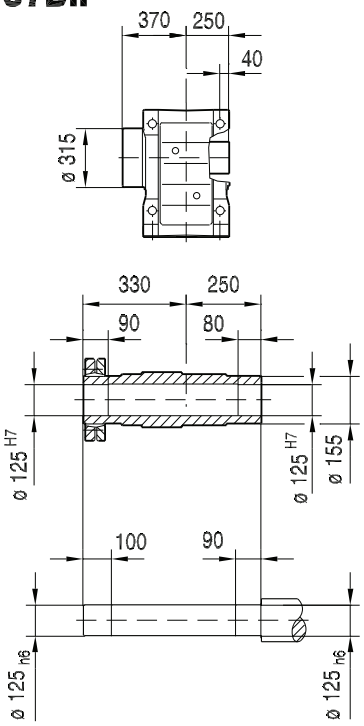
K157..



KA157B..



KH157B..



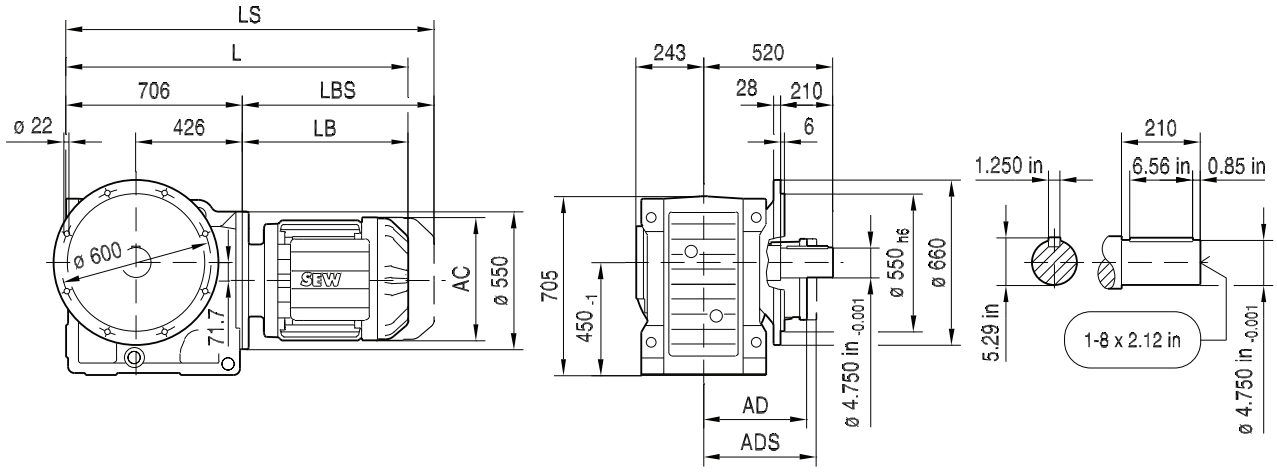
(→ 🗎 162)	DRN								
	160	180	200	225	250	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1206	1229	1339	1313	1450	1450	1545	1647	1777
LS	1395	1418	1544	1518	1690	1690	1785	1898	2028
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

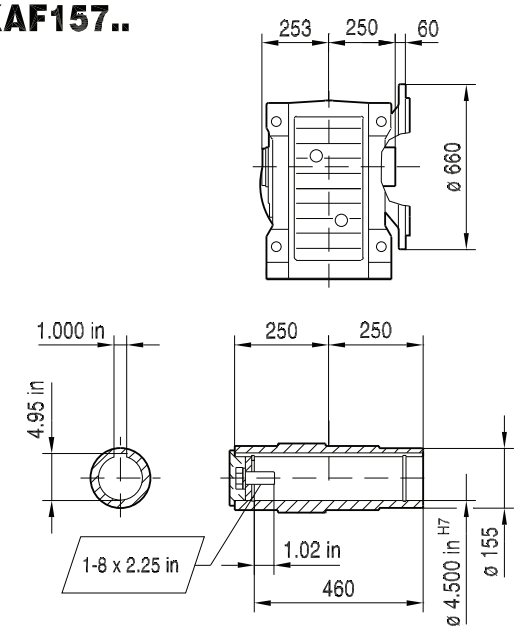
24833231/EN-US – 07/2021

77 613 00 21

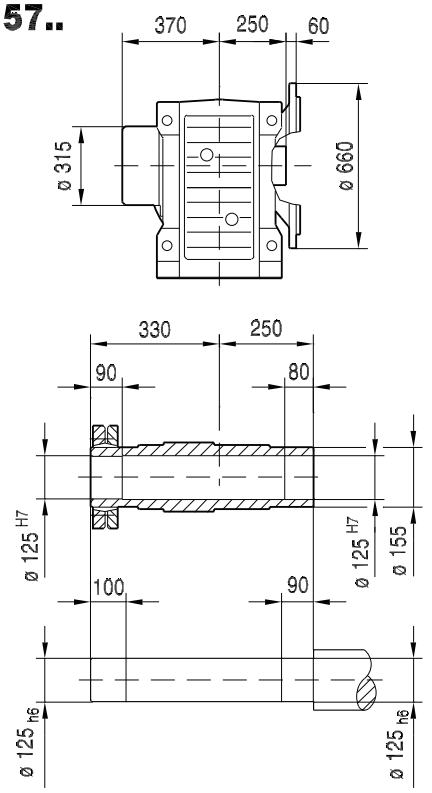
KF157..



KAF157..



KHF157..



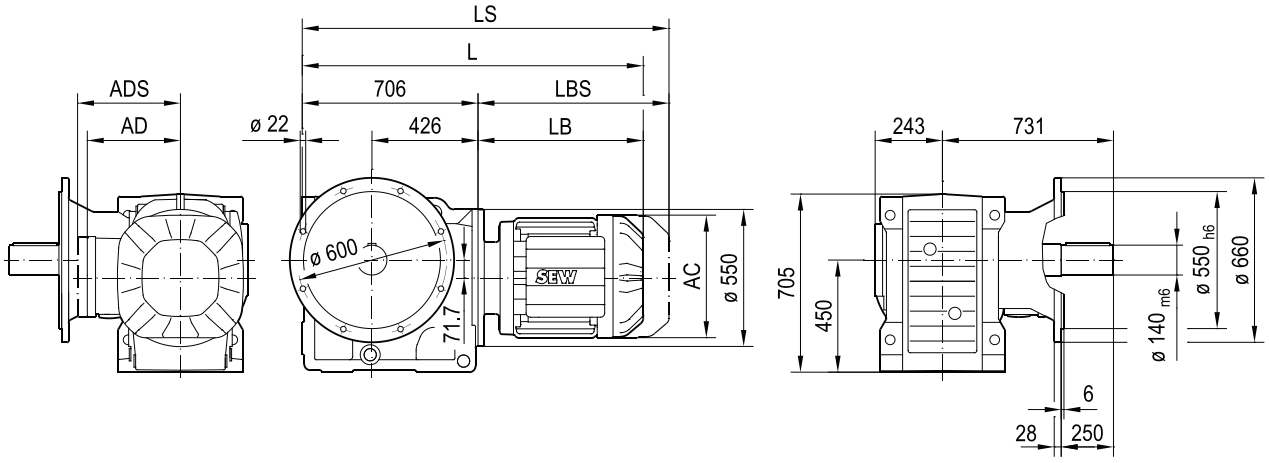
(→ 162)	DRN								
	160	180	200	225	250	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1206	1229	1339	1313	1450	1450	1545	1647	1777
LS	1395	1418	1544	1518	1690	1690	1785	1898	2028
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

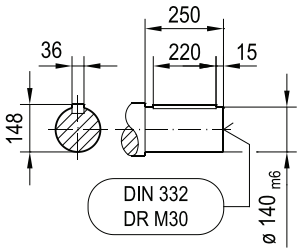
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

24833231/EN-US – 07/2021

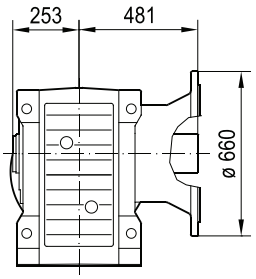
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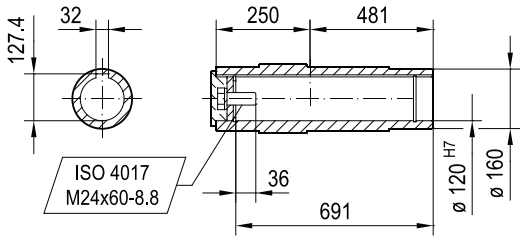
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KAM157..



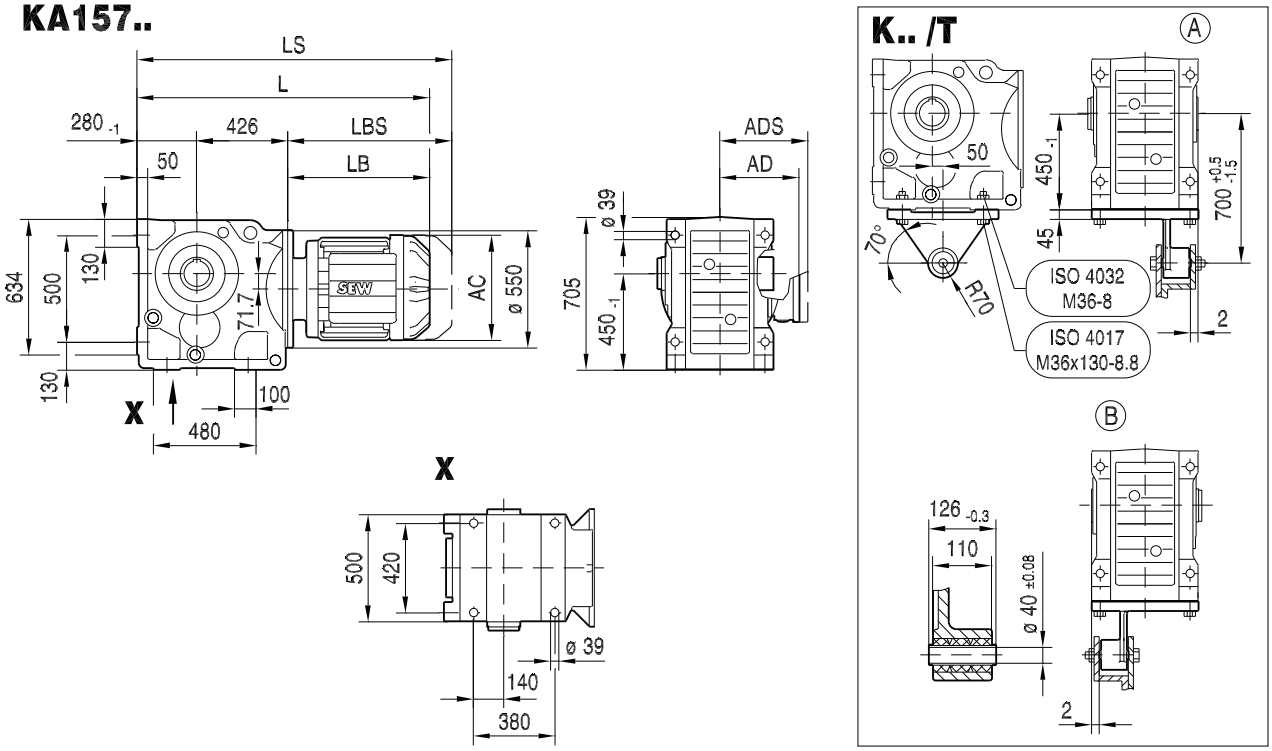


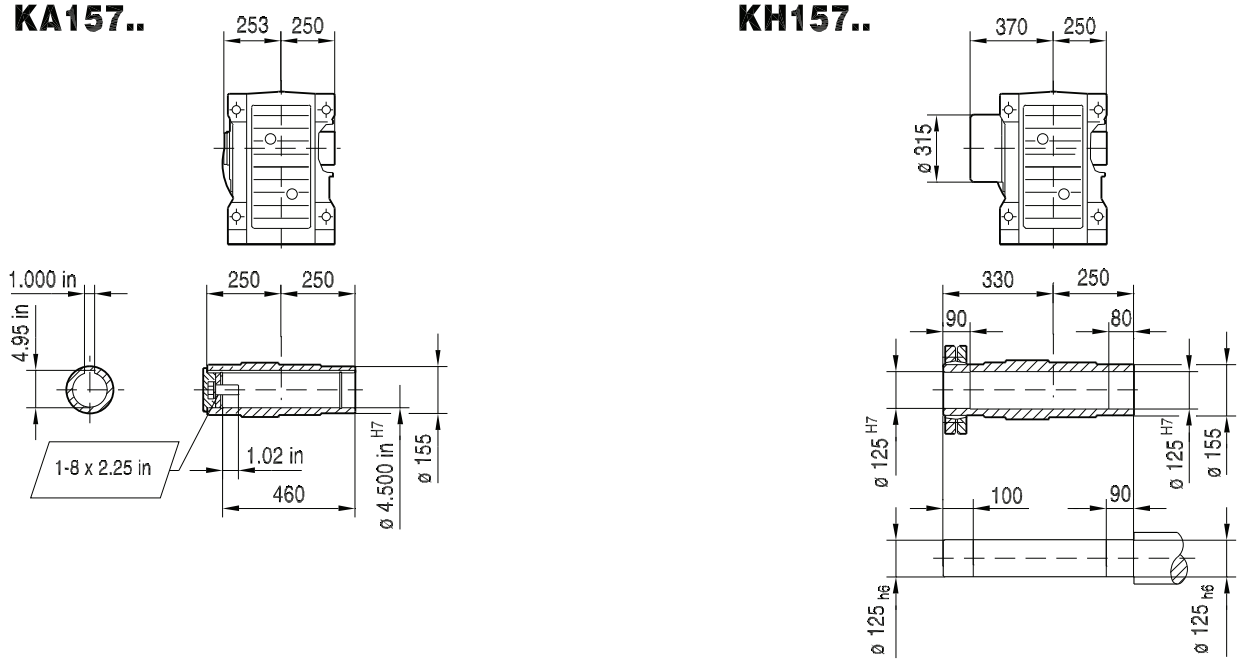
(→ 🗎 162)	DRN								
	160	180	200	225	250	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1206	1229	1339	1313	1450	1450	1545	1647	1777
LS	1395	1418	1544	1518	1690	1690	1785	1898	2028
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For tolerances, see page 162.

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77 614 00 21





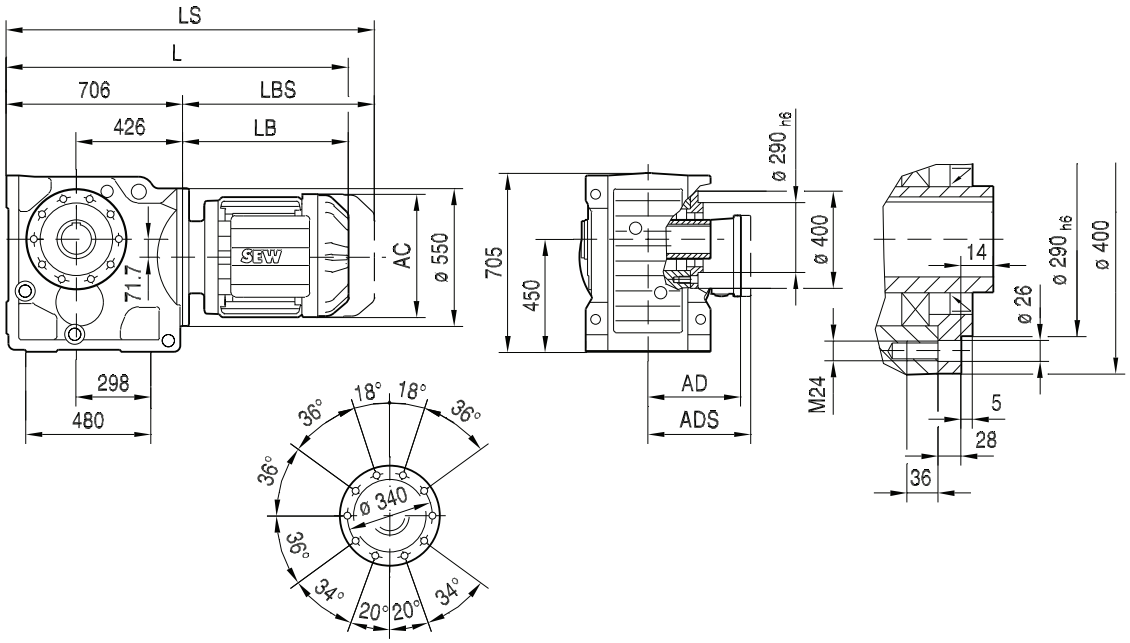
(→ 🗎 162)	DRN								
	160	180	200	225	250	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1206	1229	1339	1313	1450	1450	1545	1647	1777
LS	1395	1418	1544	1518	1690	1690	1785	1898	2028
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

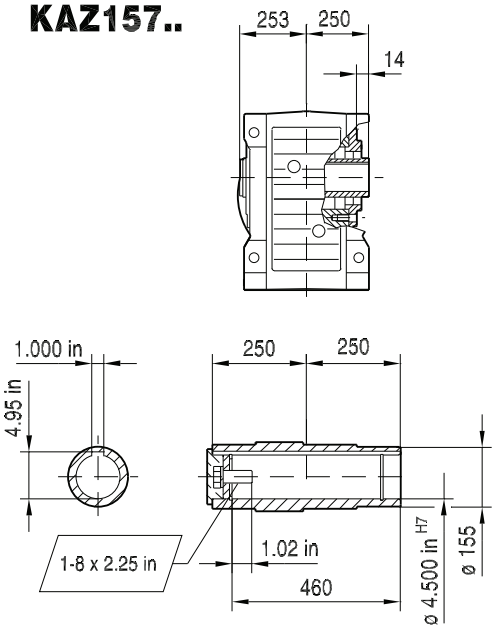
24833231/EN-US – 07/2021

77 615 00 21

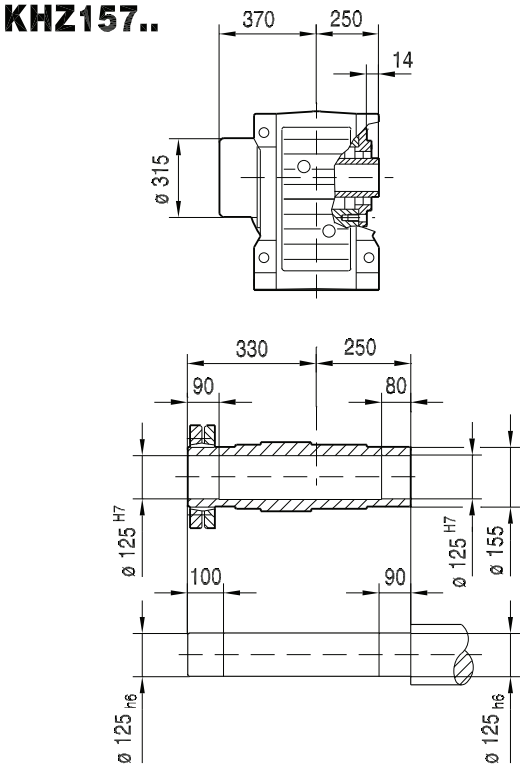
KAZ157..



KAZ157..



KHZ157..



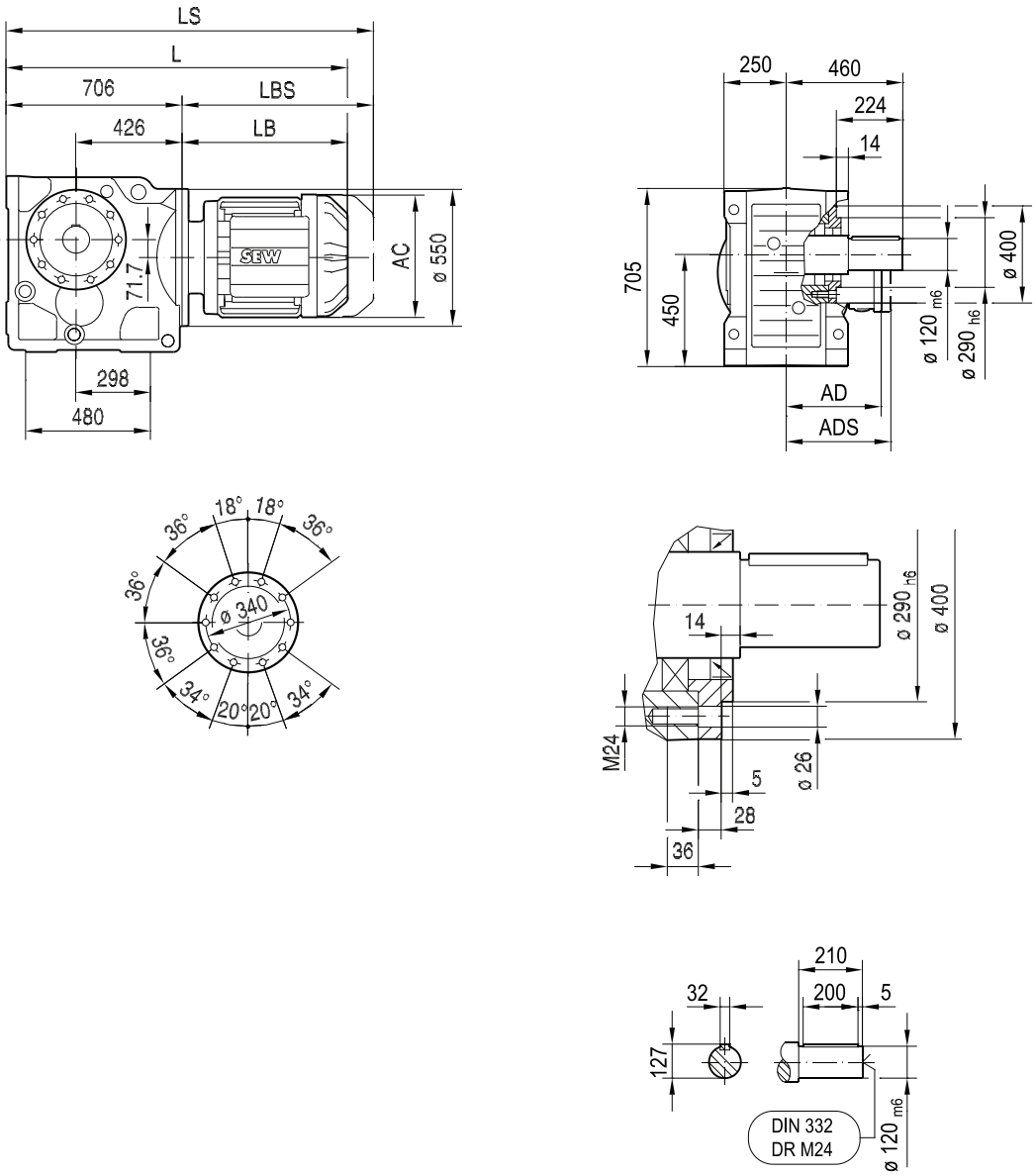
(→ 🗎 162)	DRN								
	160	180	200	225	250	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1206	1229	1339	1313	1450	1450	1545	1647	1777
LS	1395	1418	1544	1518	1690	1690	1785	1898	2028
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 731. For tolerances, see page 162.

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77 616 00 21

KZ157..



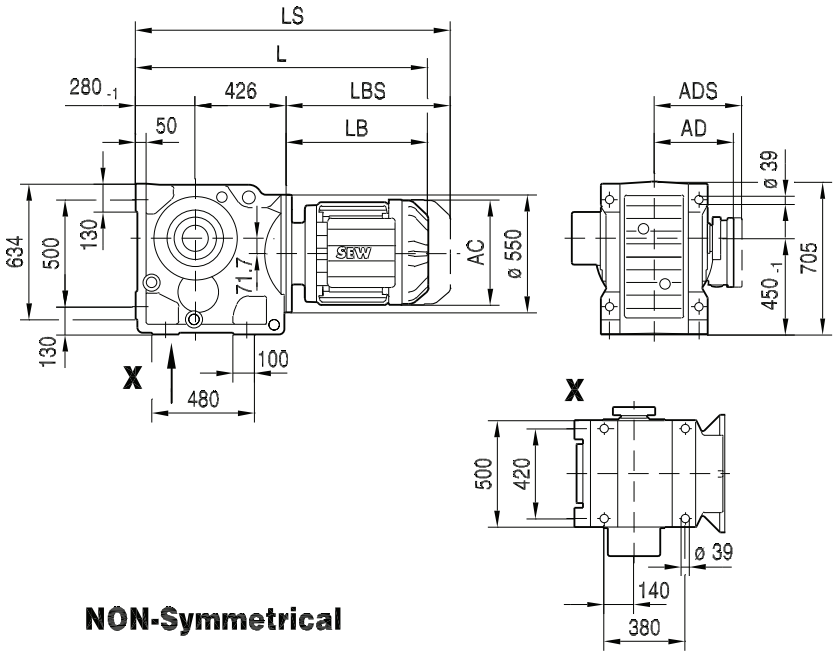
(→ 🗎 162)	DRN								
	160	180	200	225	250	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1206	1229	1339	1313	1450	1450	1545	1647	1777
LS	1395	1418	1544	1518	1690	1690	1785	1898	2028
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

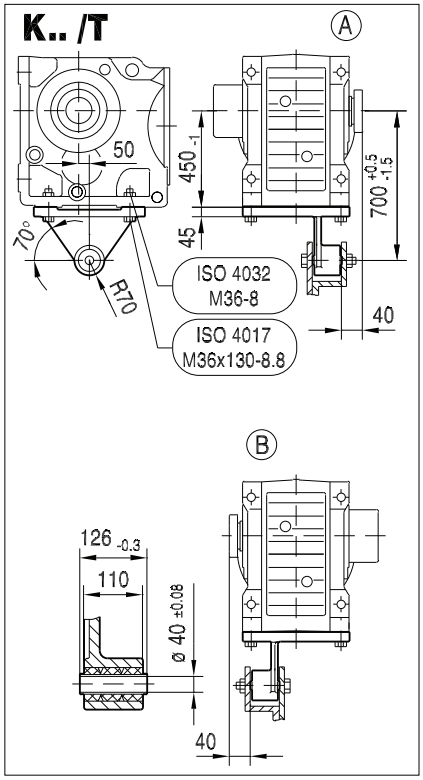
24833231/EN-US – 07/2021

77 617 00 21

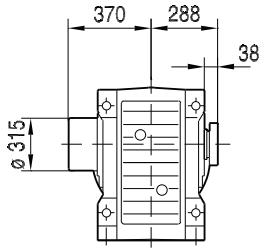
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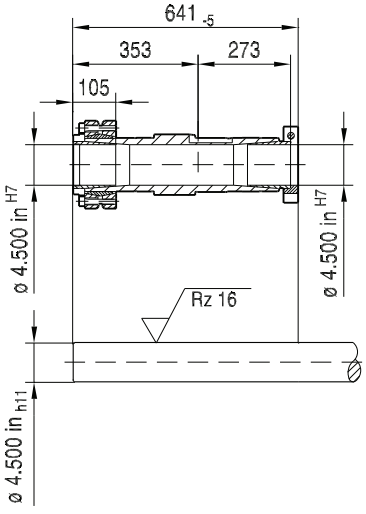


K.. /T

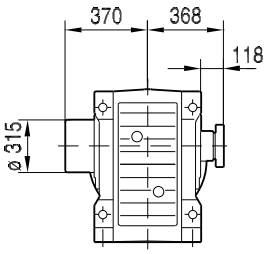


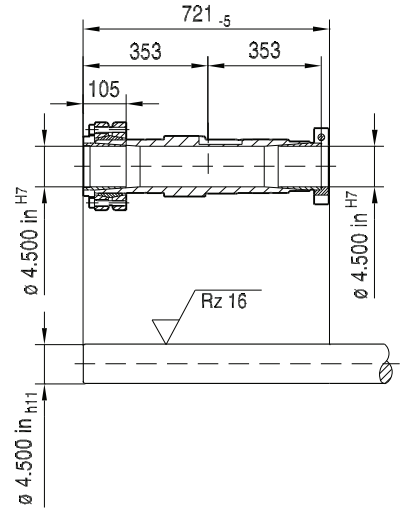
NON-Symmetrical





Symmetrical





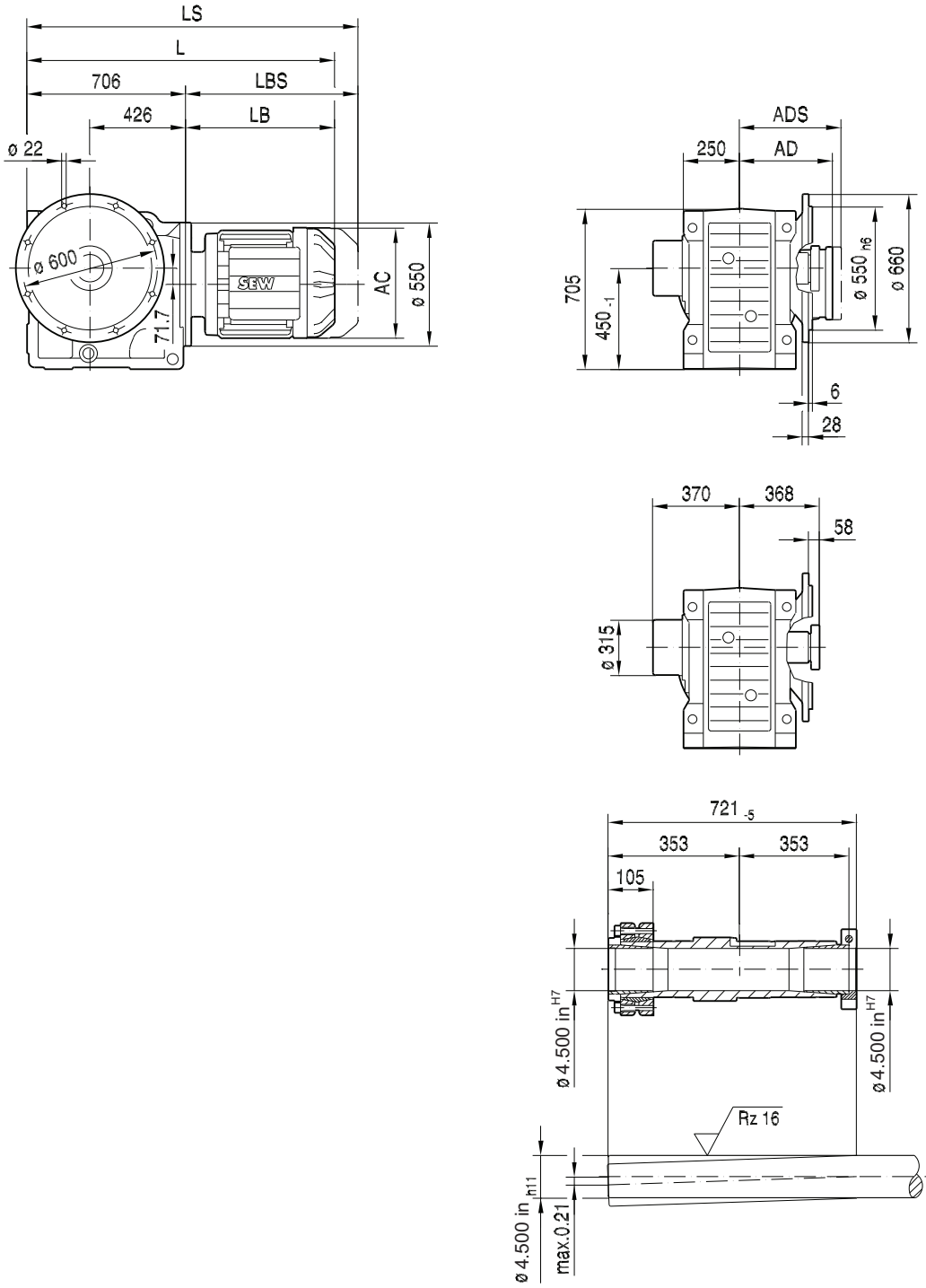
(→ 🗎 162)	DRN								
	160	180	200	225	250	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1206	1229	1339	1313	1450	1450	1545	1647	1777
LS	1395	1418	1544	1518	1690	1690	1785	1898	2028
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

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KTF157..

77 618 00 21



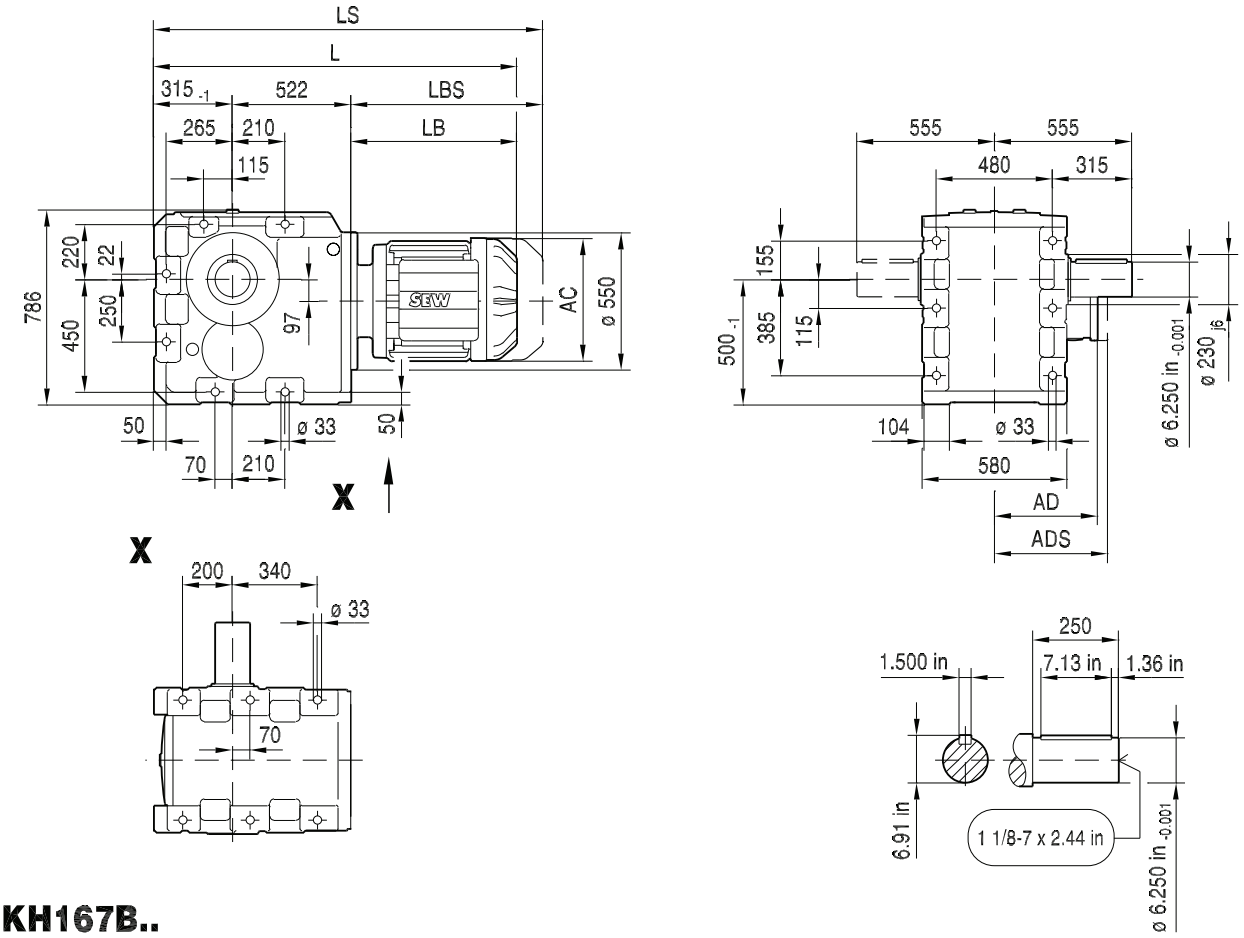
(→ 🗎 162)	DRN								
	160	180	200	225	250	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1206	1229	1339	1313	1450	1450	1545	1647	1777
LS	1395	1418	1544	1518	1690	1690	1785	1898	2028
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 733. For tolerances, see page 162.

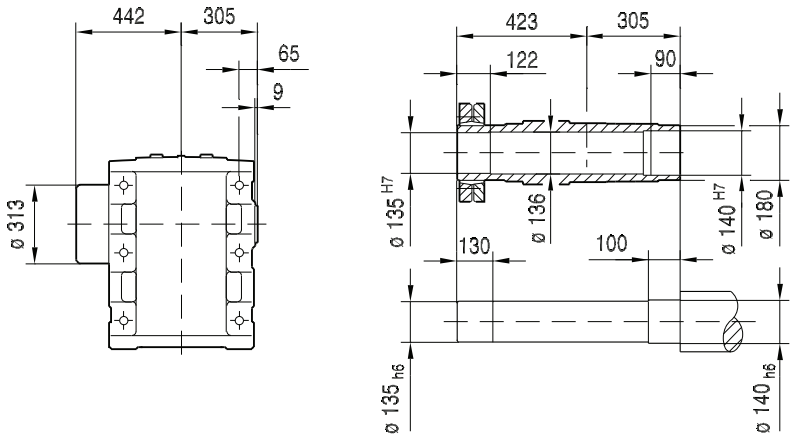
24833231/EN-US – 07/2021

77 619 00 21

K167..



KH167B..



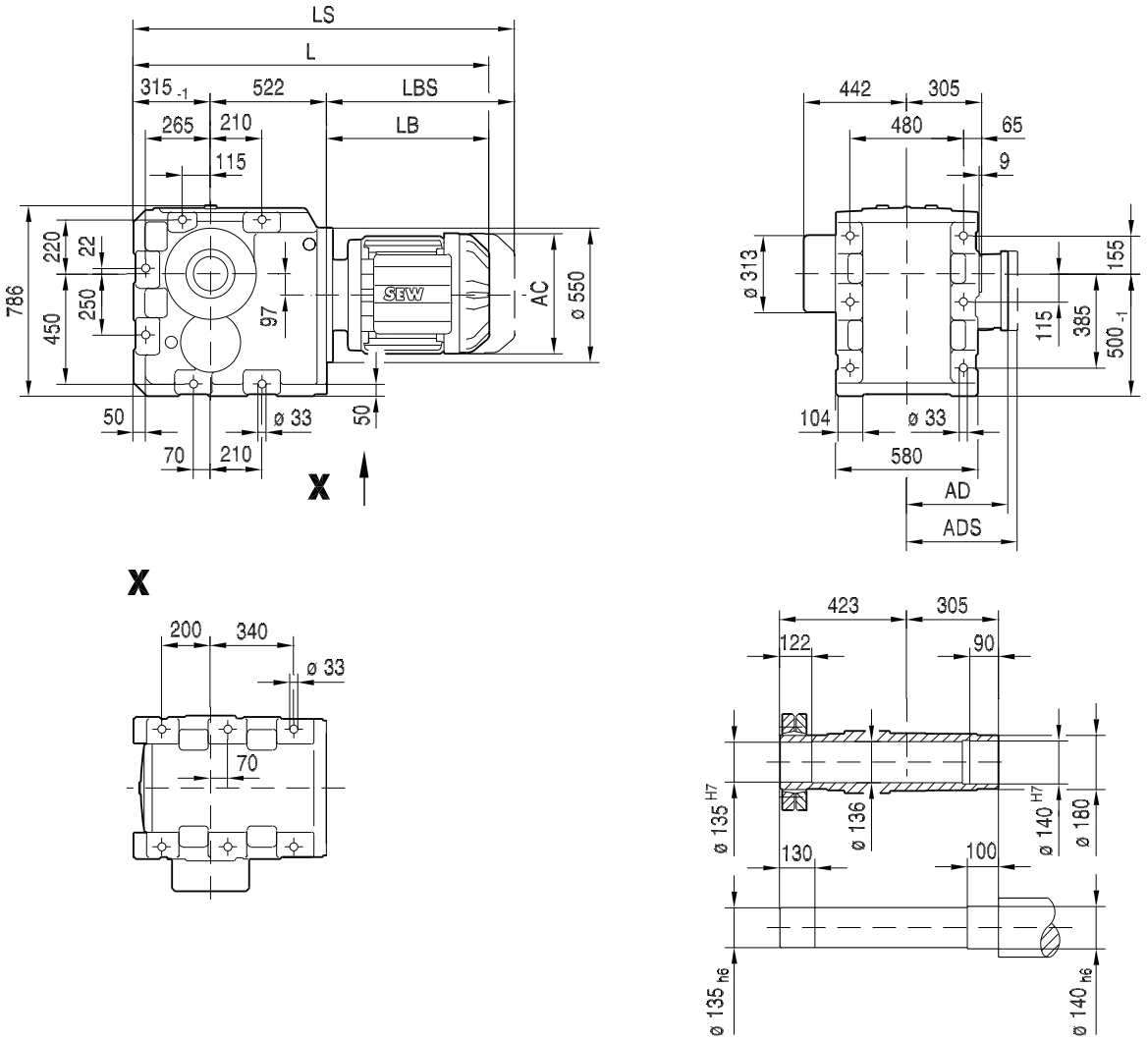
(→ 🗎 162)	DRN								
	160	180	200	225	250	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1337	1360	1470	1444	1581	1581	1676	1778	1908
LS	1526	1549	1675	1649	1821	1821	1916	2029	2159
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

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77 620 00 21

KH167..



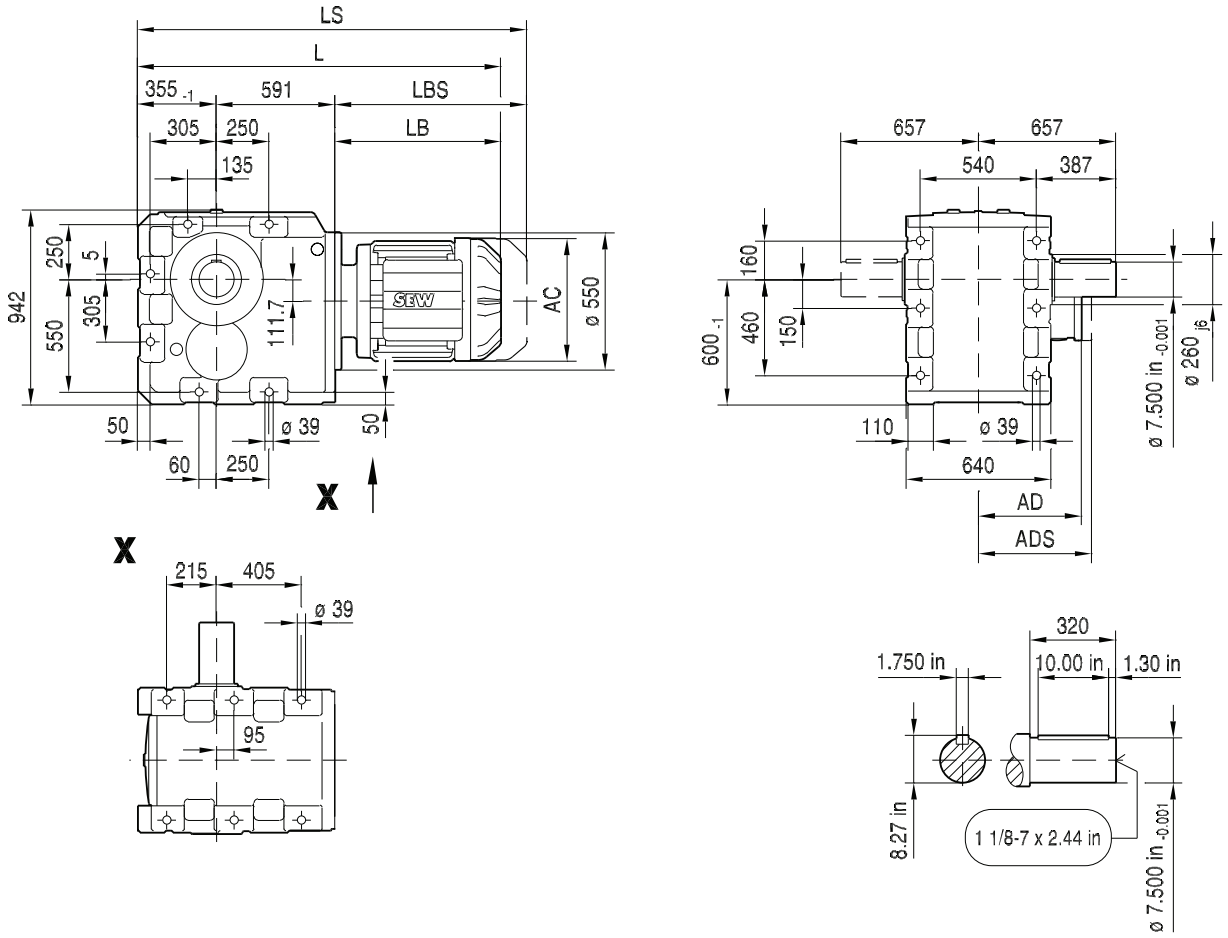
(→ 🗎 162)	DRN								
	160	180	200	225	250	280S	280M	315S/M	315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1337	1360	1470	1444	1581	1581	1676	1778	1908
LS	1526	1549	1675	1649	1821	1821	1916	2029	2159
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For tolerances, see page 162.

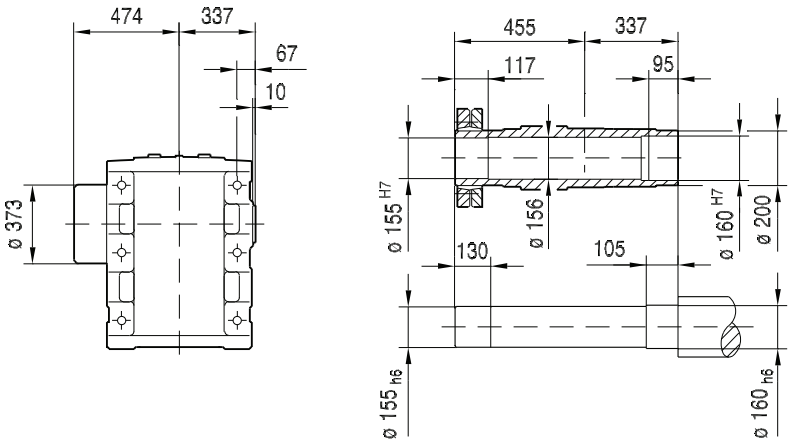
24833231/EN-US – 07/2021

77 621 00 21

K187..



KH187B..



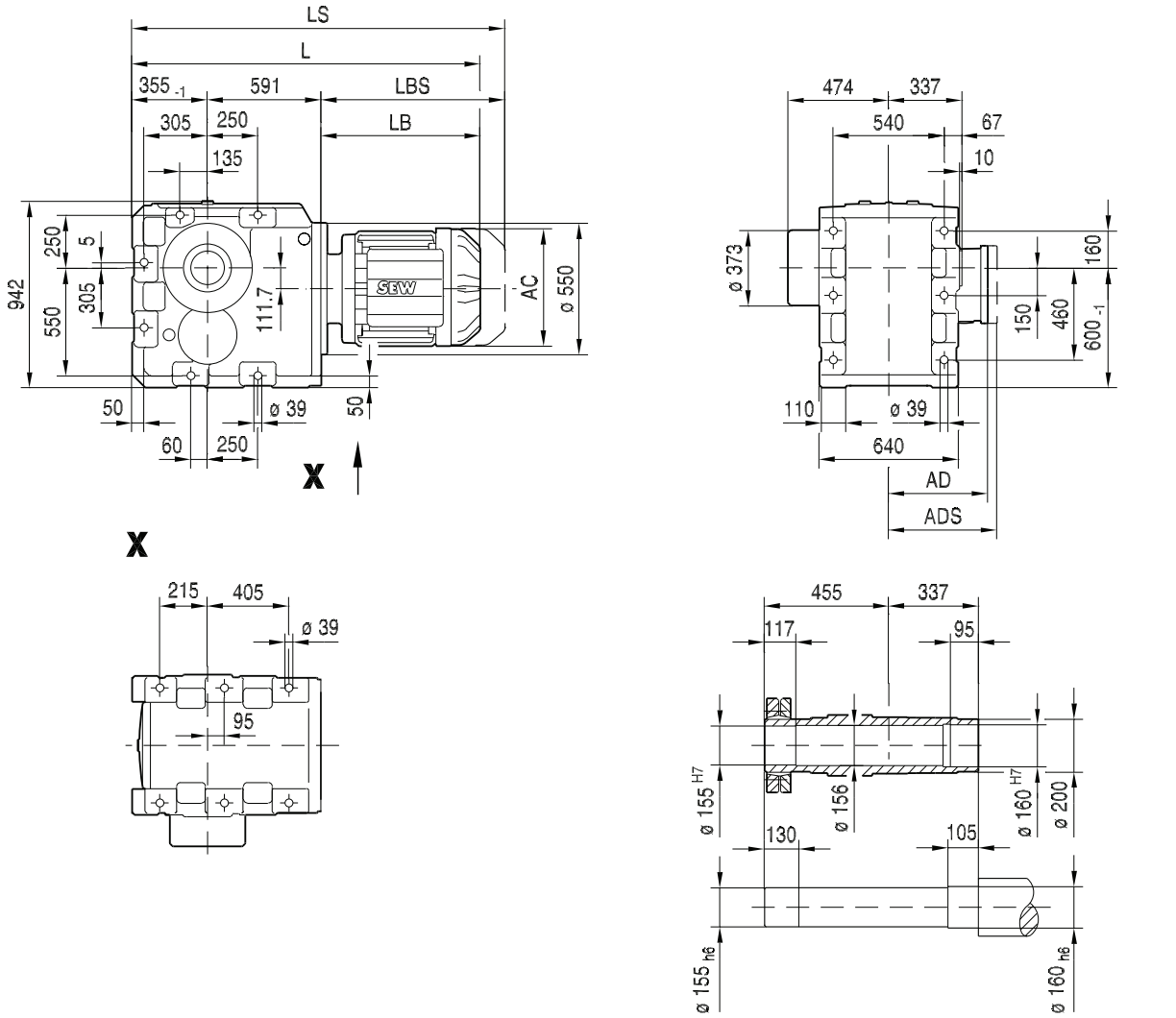
(→ 162)	DRN							
	180	200	225	250	280S	280M	315S/M	315ME/H
AC	357	394	434	495	495	495	624	624
AD	268	283	305	394	394	394	506	506
ADS	268	283	305	394	394	394	506	506
L	1469	1579	1553	1690	1690	1785	1887	2017
LS	1658	1784	1758	1930	1930	2025	2138	2268
LB	523	633	607	744	744	839	941	1071
LBS	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 729. For tolerances, see page 162.

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KH187..

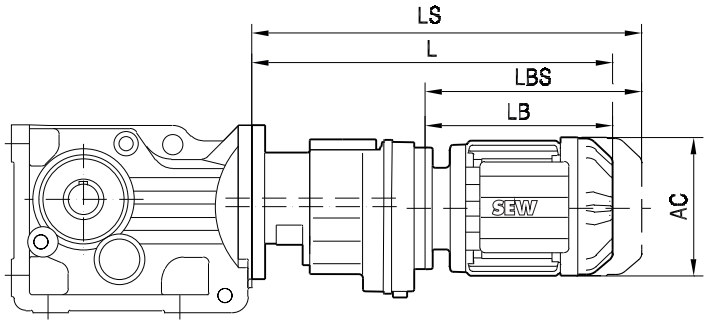


(→ 🗎 162)	DRN							
	180	200	225	250	280S	280M	315S/M	315ME/H
AC	357	394	434	495	495	495	624	624
AD	268	283	305	394	394	394	506	506
ADS	268	283	305	394	394	394	506	506
L	1469	1579	1553	1690	1690	1785	1887	2017
LS	1658	1784	1758	1930	1930	2025	2138	2268
LB	523	633	607	744	744	839	941	1071
LBS	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For tolerances, see page 162.

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10.6 K.. R.. DRN.. compound dimensions



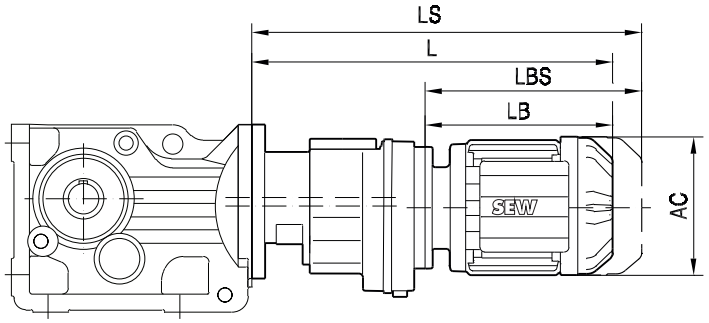
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All dimensions shown in mm.

Gear	Motor	AC	L	LS	LB	LBS
K.37R17	DRN63MS	115	365	421	190	246
	DRN63M	115	379	435	204	260
	DRN71MS	139	381	448	206	273
	DRN71M	139	401	468	226	293
	DRN80M	156	452	533	277	358
K.39R17	DRN63MS	115	365	421	190	246
	DRN63M	115	379	435	204	260
	DRN71MS	139	381	448	206	273
	DRN71M	139	401	468	226	293
	DRN80M	156	452	533	277	358
K.47R37	DRN63MS	115	355	411	190	246
	DRN63M	115	369	425	204	260
	DRN71MS	139	371	438	206	273
	DRN71M	139	391	458	226	293
	DRN80MK	156	402	483	237	318
	DRN80M	156	447	528	282	363
	DRN90S	179	448	542	283	377
K.49R37	DRN63MS	115	347	403	190	246
	DRN63M	115	361	417	204	260
	DRN71MS	139	363	430	206	273
	DRN71M	139	383	450	226	293
	DRN80MK	156	394	475	237	318
	DRN80M	156	439	520	282	363
	DRN90S	179	440	534	283	377
K.57R37	DRN63MS	115	355	411	190	246
	DRN63M	115	369	425	204	260
	DRN71MS	139	371	438	206	273
	DRN71M	139	391	458	226	293
	DRN80MK	156	402	483	237	318
	DRN80M	156	447	528	282	363
	DRN90S	179	448	542	283	377
	DRN90L	179	480	574	315	409
K.67R37	DRN63MS	115	355	411	190	246
	DRN63M	115	369	425	204	260
	DRN71MS	139	371	438	206	273
	DRN71M	139	391	458	226	293
	DRN80MK	156	402	483	237	318
	DRN80M	156	447	528	282	363
	DRN90S	179	448	542	283	377
	DRN90L	179	480	574	315	409
K.77R37	DRN63MS	115	347	403	190	246
	DRN63M	115	361	417	204	260

Gear	Motor	AC	L	LS	LB	LBS
K.77R37	DRN71MS	139	363	430	206	273
	DRN71M	139	383	450	226	293
	DRN80MK	156	394	475	237	318
	DRN80M	156	439	520	282	363
	DRN90S	179	440	534	283	377
	DRN90L	179	472	566	315	409
	DRN100L/LM	197	521	615	364	458
K.87R57	DRN63MS	115	411	467	184	240
	DRN63M	115	425	481	198	254
	DRN71MS	139	427	494	199	267
	DRN71M	139	447	514	219	287
	DRN80MK..	156	458	539	230	311
	DRN80M	156	503	584	275	356
	DRN90S	179	504	598	277	370
	DRN90L	179	536	630	309	402
	DRN100L/LM	197	583	676	355	449
	DRN112M	221	614	726	386	498
K.97R57	DRN63MS	115	406	462	184	240
	DRN63M	115	420	476	198	254
	DRN71MS	139	422	489	199	267
	DRN71M	139	442	509	219	287
	DRN80MK..	156	453	534	230	311
	DRN80M	156	498	579	275	356
	DRN90S	179	499	593	277	370
	DRN90L	179	531	625	309	402
	DRN100L/LM	197	578	671	355	449
	DRN112M	221	609	721	386	498
	DRN132S	221	663	775	440	552
K.107R77	DRN63MS	115	424	480	177	233
	DRN63M	115	438	494	191	247
	DRN71MS	139	439	507	192	260
	DRN71M	139	459	527	212	280
	DRN80MK..	156	470	551	223	304
	DRN80M	156	515	596	268	349
	DRN90S	179	517	610	270	363
	DRN90L	179	549	642	302	395
	DRN100L/LM	197	595	689	348	442
	DRN112M	221	626	738	379	491
	DRN132S	221	676	788	429	541
	DRN132M	261	694	832	447	585
	DRN132L	261	720	857	473	610
	DRN160..	314	786	975	539	728

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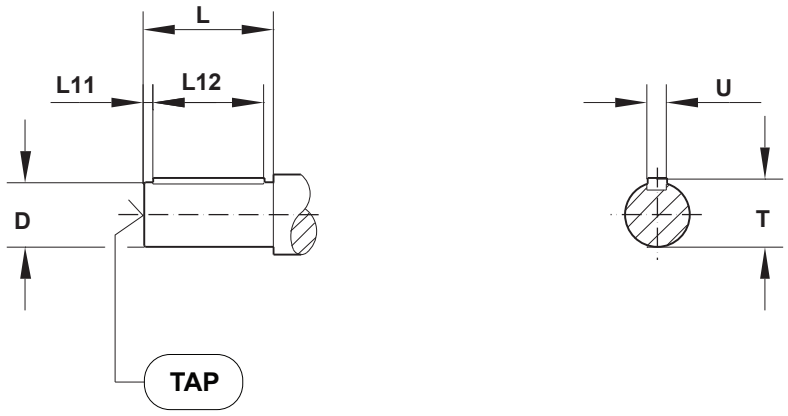
Gear	Motor	AC	L	LS	LB	LBS
K.127R77	DRN63MS	115	409	465	177	233
	DRN63M	115	423	479	191	247
	DRN71MS	139	424	492	192	260
	DRN71M	139	444	512	212	280
	DRN80MK	156	455	536	223	304
	DRN80M	156	500	581	268	349
	DRN90S	179	502	595	270	363
	DRN90L	179	534	627	302	395
	DRN100L/LM	197	580	674	348	442
	DRN112M	221	611	723	379	491
	DRN132S	221	661	773	429	541
	DRN132M	261	679	817	447	585
K.127R87	DRN90L	179	577	670	297	390
	DRN100L/LM	197	623	717	343	437
	DRN112M	221	654	766	374	486
	DRN132S	221	704	816	424	536
	DRN132M	261	722	860	442	580
	DRN132L	261	748	885	468	605
	DRN160..	314	814	1003	534	723
	DRN180..	357	837	1026	557	746
K.157R97	DRN71MS	139	507	575	182	250
	DRN71M	139	527	595	202	270
	DRN80MK	156	538	619	213	294
	DRN80M	156	583	664	258	339
	DRN90S	179	585	678	260	353
	DRN90L	179	617	710	292	385
	DRN100L/LM	197	663	757	338	432
	DRN112M	221	694	806	369	481
	DRN132S	221	744	856	419	531
	DRN132M	261	762	900	437	575
	DRN132L	261	788	925	463	600
	DRN160..	314	854	1043	529	718
K.157R107	DRN132S	221	795	907	413	525
	DRN132M	261	813	951	431	569
	DRN132L	261	839	976	457	594
	DRN160..	314	905	1094	523	712
	DRN180..	357	928	1117	546	735
	DRN200L	394	1038	1243	656	861
	DRN225..	434	1012	1217	630	835

Gear	Motor	AC	L	LS	LB	LBS
K.167R97	DRN71M	139	527	595	202	270
	DRN80MK	156	538	619	213	294
	DRN80M	156	583	664	258	339
	DRN90S	179	585	678	260	353
	DRN90L	179	617	710	292	385
	DRN100L/LM	197	663	757	338	432
	DRN112M	221	694	806	369	481
	DRN132S	221	744	856	419	531
	DRN132M	261	762	900	437	575
	DRN132L	261	788	925	463	600
	DRN160..	314	854	1043	529	718
	DRN180..	357	877	1066	552	741
K.167R107	DRN132M	261	813	951	431	569
	DRN132L	261	839	976	457	594
	DRN160..	314	905	1094	523	712
	DRN180..	357	928	1117	546	735
	DRN200L	394	1038	1243	656	861
	DRN225..	434	1012	1217	630	835
	DRN250M	495	1149	1389	767	1007
K.187R97	DRN71M	139	527	595	202	270
	DRN80MK	156	538	619	213	294
	DRN80M	156	583	664	258	339
	DRN90S	179	585	678	260	353
	DRN90L	179	617	710	292	385
	DRN100L/LM	197	663	757	338	432
	DRN112M	221	694	806	369	481
	DRN132S	221	744	856	419	531
	DRN132M	261	762	900	437	575
	DRN132L	261	788	925	463	600
	DRN160..	314	854	1043	529	718
	DRN180..	357	877	1066	552	741
K.187R107	DRN100L/LM	197	714	808	332	426
	DRN112M	221	745	857	363	475
	DRN132S	221	795	907	413	525
	DRN132M	261	813	951	431	569
	DRN132L	261	839	976	457	594
	DRN160..	314	905	1094	523	712
	DRN180..	357	928	1117	546	735
	DRN200L	394	1038	1243	656	861
	DRN225..	434	1012	1217	630	835
	DRN250M	495	1149	1389	767	1007

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10.7 Output shaft sizes

10.7.1 Solid Shaft – Inch



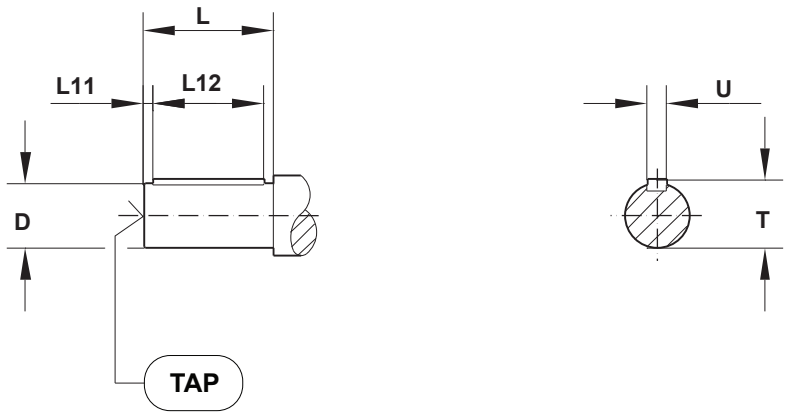
Model	All dimensions in inches							
	D	T	U	L[1]	L11	L12	TAP	Change[2]
K19 / KF19	0.75	0.83	3/16	1.57	0.25	1-1/16	1/4 - 20 x 0.63	0
K29 / KF29	1.00	1.11	1/4	1.97	0.32	1-5/16	3/8 - 16 x 0.87	0
K37 / KF37	1.00	1.11	1/4	1.97	0.32	1-5/16	3/8 - 16 x 0.87	0
K39 / KF39	1.00	1.11	1/4	1.97	0.32	1-5/16	3/8 - 16 x 0.87	-0.39
	1.25	1.36	1/4	2.36	0.26	1-11/16	1/2 - 13 x 1.12	0
K47 / KF47	1.25	1.36	1/4	2.36	0.26	1-11/16	1/2 - 13 x 1.12	0
K49 / KF49	1.375	1.51	5/16	2.76	0.43	1-13/16	1/2 - 13 x 1.12	0
K57 / KF57	1.375	1.51	5/16	2.76	0.43	1-13/16	1/2 - 13 x 1.12	0
K67 / KF67	1.375	1.51	5/16	2.76	0.47	1-13/16	1/2 - 13 x 1.12	-0.39
	1.625	1.79	3/8	3.15	0.38	2-3/8	5/8 - 11 x 1.38	0
K77 / KF77	1.75	1.92	3/8	3.54	0.4	2-3/4	5/8 - 11 x 1.38	-0.40
	2.00	2.22	1/2	3.94	0.64	2-5/8	3/4 - 10 x 1.61	0
K87 / KF87	2.375	2.65	5/8	4.72	0.51	3-5/8	3/4 - 10 x 1.61	0
K97 / KF97	2.875	3.2	3/4	5.51	0.67	4-1/8	3/4 - 10 x 1.61	0
K107 / KF107	3.625	4.01	7/8	6.69	0.63	5-3/8	1 - 8 x 2.13	0
K127 / KF127	4.375	4.82	1	8.27	1.09	6	1 - 8 x 2.13	0
K157 / KF157	4.75	5.29	1-1/4	8.27	0.82	6-9/16	1 - 8 x 2.13	0
K167	6.25	6.65	1-1/2	9.84	0.59	7-1/8	1-1/8 - 7 x 2.13	0
K187	7.5	8.27	1-3/4	12.6	0.39	10	1-1/8 - 7 x 2.13	0

[1]Longer shafts to match obsolete gear unit designs are available for flanged units.

[2]The change in length, L, when compared to the standard shaft that is shown in dimension pages.

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10.7.2 Solid Shaft – Metric

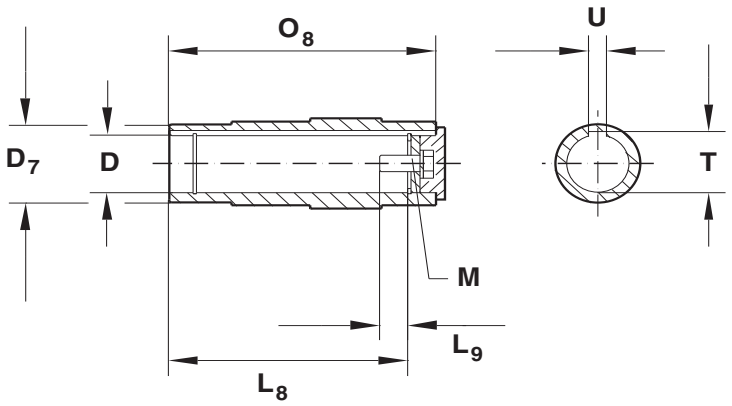


Model	All dimensions in mm						
	D	T	U	L[1]	L11	L12	TAP
K..19	20	22.5	6	40	4	32	M6 x 16
K..29	25	28	8	50	5	40	M10 x 22
K..37	25	28	8	50	5	40	M10 x 22
K..39	30	33	8	60	3.5	50	M10 x 22
K..47	30	33	8	60	3.5	50	M10 x 22
K..49	35	38	10	70	7	56	M12 x 28
K..57	35	38	10	70	7	56	M12 x 28
K..67	35	38	10	70	7	56	M12 x 28
	40	43	12	80	5	70	M16 x 36
K..77	45	48.5	14	90	5	80	M16 x 36
	50	53.5	14	100	10	80	M16 x 36
K..87	60	64	18	120	5	110	M20 x 42
K..97	70	74.5	20	140	7.5	125	M20 x 42
K..107	90	95	25	170	5	160	M24 x 50
K..127	110	116	28	210	15	180	M24 x 50
K..157	120	127	32	210	5	200	M24 x 50
K167	160	169	40	250	15	220	M30 x 63
K187	190	200	45	320	10	300	M30 x 63

[1] Longer shafts to match obsolete gear unit designs are available for flanged units.

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10.7.3 Hollow Shaft – Inch

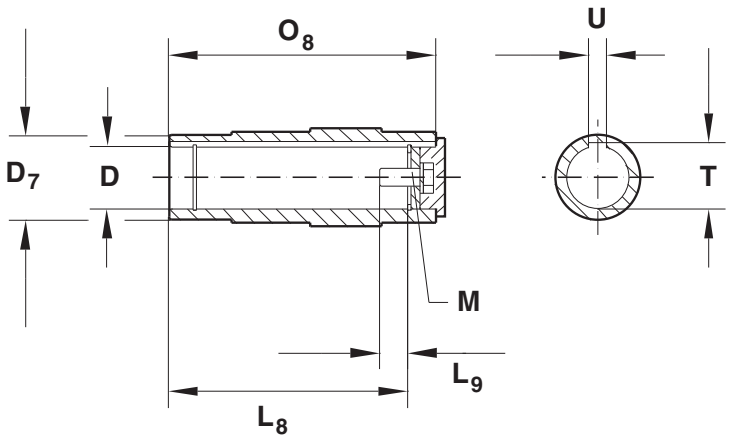


Note:
To aid in the future removal of your machine's solid shaft, please see SEW-EURODRIVE design recommendations on page 120. The 'M' dimension below pertains to the standard bolt that ships with the unit, which is shorter than the bolt supplied with the optional shaft removal kit on page 126. Mounting hardware (bolt, washer, and snapring) are not supplied in stainless steel.

Model	In stock (USA)		All dimensions in inch							
	Carbon Steel	S/S	D	D7	O8	T	U	L8	L9	M (std bolt)
KA..19	X		0.75	1.18	4.25	0.85	3/16	3.62	0.39	1/4 - 20 x 5/8
KA..29	X		1.00	1.57	4.80	1.12	1/4	4.21	0.69	3/8 - 16 x 1
KA..37		X	1.00	1.77	4.72	1.12	1/4	4.13	-	Not supplied
	X	X	1.25	1.77	4.72	1.37	1/4	4.13	0.67	7/16 - 14 x 1
KA..39	X		1.25	1.97	6.10	1.37	1/4	5.39	0.67	7/16 - 14 x 1
	X		1.375	1.97	6.10	1.52	5/16	5.39	0.65	1/2 - 13 x 1
KA..47	X		1.1875	1.97	5.91	1.30	1/4	5.2	0.67	3/8 - 16 x 1
	X		1.25	1.97	5.91	1.37	1/4	5.2	0.67	7/16 - 14 x 1
	X	X	1.375	1.97	5.91	1.52	5/16	5.2	0.65	1/2 - 13 x 1
	X		1.4375	1.97	5.91	1.61	3/8	5.2	1.36	5/8 - 11 x 1-3/4
KA..49	X		1.375	2.17	7.01	1.52	5/16	6.3	0.65	1/2 - 13 x 1
	X		1.50	2.17	7.01	1.67	3/8	6.3	1.36	5/8 - 11 x 1-3/4
KA..57	X		1.4375	2.17	6.54	1.61	3/8	5.59	1.36	5/8 - 11 x 1-3/4
	X	X	1.50	2.17	6.54	1.67	3/8	5.59	1.36	5/8 - 11 x 1-3/4
KA..67	X		1.4375	2.17	7.09	1.61	3/8	6.14	1.36	5/8 - 11 x 1-3/4
	X	X	1.50	2.17	7.09	1.67	3/8	6.14	1.36	5/8 - 11 x 1-3/4
KA..77	X		1.9375	2.76	8.27	2.16	1/2	7.2	1.16	5/8 - 11 x 1-3/4
	X	X	2.00	2.76	8.27	2.22	1/2	7.2	1.16	5/8 - 11 x 1-3/4
KA..87	X	X	2.375	3.35	9.45	2.65	5/8	8.27	1.39	3/4 - 10 x 2
	X		2.4375	3.35	9.45	2.62	5/8	8.27	1.39	3/4 - 10 x 2
KA..97	X	X	2.75	3.74	11.81	3.03	5/8	10.63	1.24	3/4 - 10 x 2
	X		2.9375	3.74	11.81	3.14	3/4	10.63	1.24	3/4 - 10 x 2
KA..107	X	X	3.25	4.65	13.78	3.59	3/4	12.32	1.24	3/4 - 10 x 2
	X		3.4375	4.65	13.78	3.7	7/8	12.32	1.24	3/4 - 10 x 2
	X	X	3.625	4.65	13.78	3.89	7/8	12.32	1.24	3/4 - 10 x 2
KA..127	X		4.00	5.31	16.14	4.44	1	14.69	1.26	1 - 8 x 2-1/4
KA..157	X		4.50	6.1	19.69	4.95	1	18.11	1.26	1 - 8 x 2-1/4

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10.7.4 Hollow Shaft – Metric



Note:
To aid in the future removal of your machine's solid shaft, please see SEW-EURODRIVE design recommendations on page 120.

The 'M' dimension below pertains to the standard bolt that ships with the unit, which is shorter than the bolt supplied in the optional shaft removal kit on page 126.

Mounting hardware (bolt, washer, and snapring) are not supplied in stainless steel.

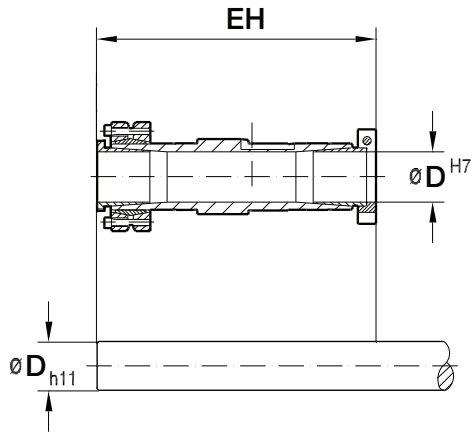
Model	In stock (USA)		All dimensions in mm							
	Carbon Steel	S/S	D	D7	O8	T	U	L8	L9	M (std bolt)[1]
KA..19	X		20	30	108	22.8	6	92	8	M6 x 16
KA..29	X		25	40	122	27	8	107	17	M10 x 25
KA..37	X	X	30	45	120	33.3	8	105	17	M10 x 25
KA..39	X		30	50	155	33.3	8	137	17	M10 x 25
	X		35	50	155	38.3	10	137	17	M12 x 30
KA..47	X	X	30	50	150	33.3	8	132	16	M10 x 25
	X	X	35	50	150	38.3	10	132	22	M12 x 30
KA..49	X		35	55	178	38.3	10	160	22	M12 x 30
	X		40	55	178	43.3	12	160	22	M12 x 30
KA..57	X	X	40	55	166	43.3	12	142	29	M16 x 40
KA..67	X	X	40	55	180	43.3	12	156	29	M16 x 40
KA..77	X	X	50	70	210	53.8	14	183	32	M16 x 45
KA..87	X	X	60	85	240	64.4	18	210	36	M20 x 50
KA..97	X	X	70	95	300	74.9	20	270	34	M20 x 50
KA..107	X		80	118	350	85.4	22	313	30	M20 x 50
	X		90	118	350	95.4	25	313	40	M24 x 60
KA..127	X		100	135	410	106.4	28	373	38	M24 x 60
KA..157	X		120	155	500	127.4	32	460	36	M24 x 60

[1] Mounting hardware (bolt, washer, and snapring) are not supplied for stainless steel shafts.

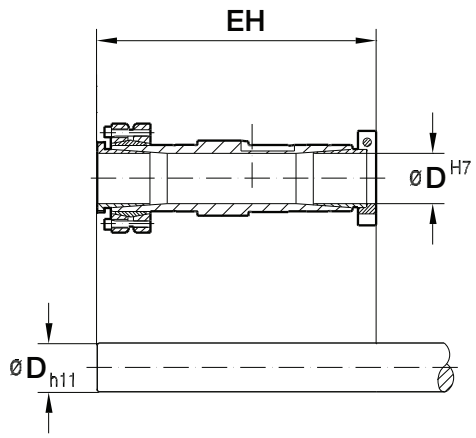
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10.7.5 TorqLOC® keyless hollow shaft

NON-Symmetrical



Symmetrical



Model	D (in)					D (mm)						EH (in)	
	Inch Bores					Metric Bores						NON Symmetrical	Symmetrical
KT37	1.00	1.1875	1.25	-	-	25	30	-	-	-	-	6.69	7.63
KT39	1.1875	1.25	1.375	1.4375	-	30	35	-	-	-	-	8.23	-
KT47	1.1875	1.25	1.375	1.4375	-	30	35	-	-	-	-	8.15	9.13
KT49	1.375	1.4375	1.50	1.625	1.6875	35	40	-	-	-	-	9.57	-
KT57	1.375	1.4375	1.50	1.625	-	35	38	40	-	-	-	9.13	10.39
KT67	1.375	1.4375	1.50	1.625	1.6875	35	38	40	-	-	-	9.65	10.91
KT77	1.625	1.6875	1.75	1.9375	2.00	40	45	50	51	-	-	11.61	13.34
KT87	1.9375	2.00	2.375	2.4375	-	50	51	55	60	62	65	13.19	15.28
KT97	2.4375	2.75	2.9375	-	-	60	62	65	70	75	-	15.59	17.79
KT107	3.250	3.4375	3.625	3.750	-	80	85	90	95	-	-	17.76	20.08
KT127	3.4375	3.750	3.9375	4.00	4.1875	90	95	100	105	-	-	20.94	23.89
KT157	4.4375	4.50	4.9375	5.00	-	110	120	125	-	-	-	25.24	28.39

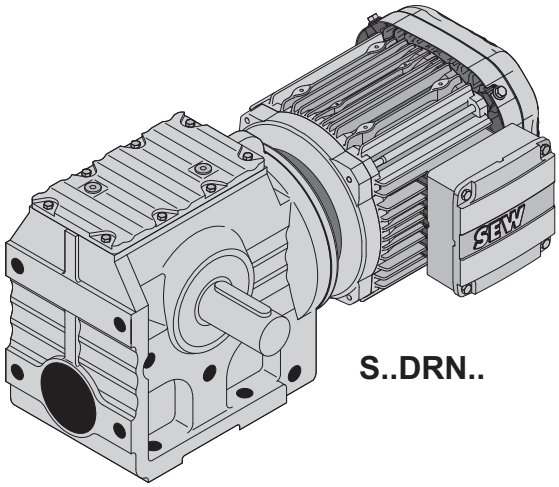
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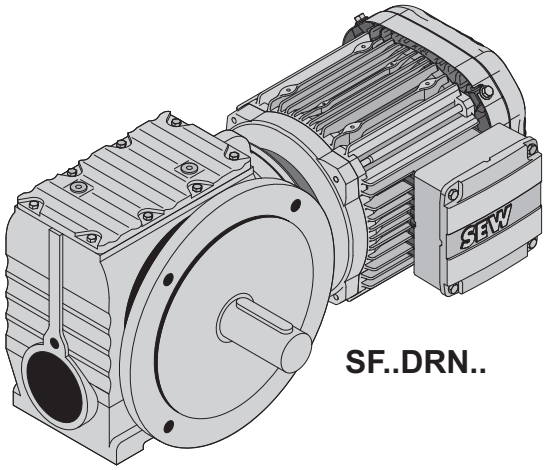
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11 Helical-worm gearmotors

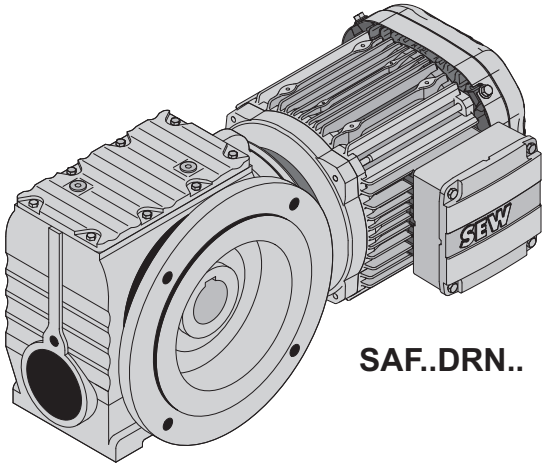
11.1 S / S..7p.. DRN.. Designs



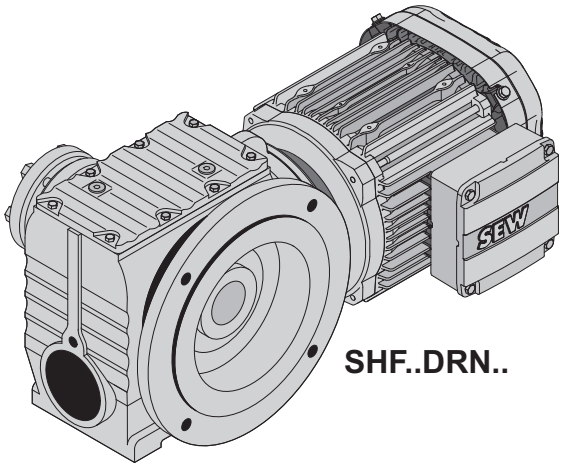
S..DRN..



SF..DRN..



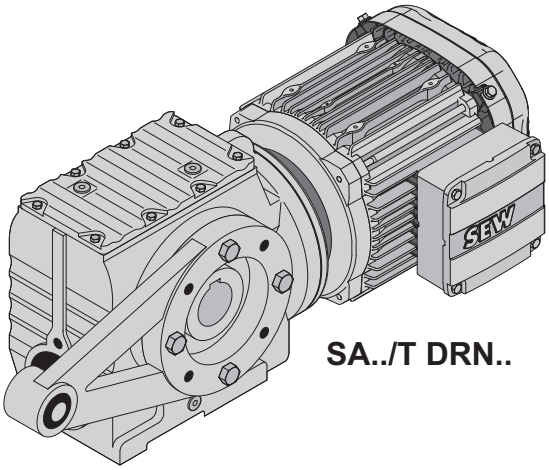
SAF..DRN..



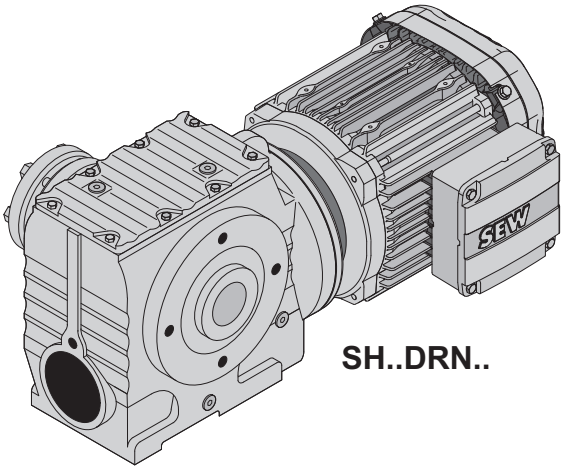
SHF..DRN..

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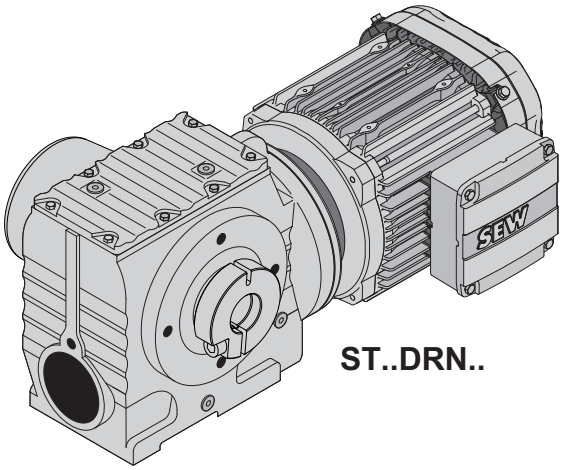
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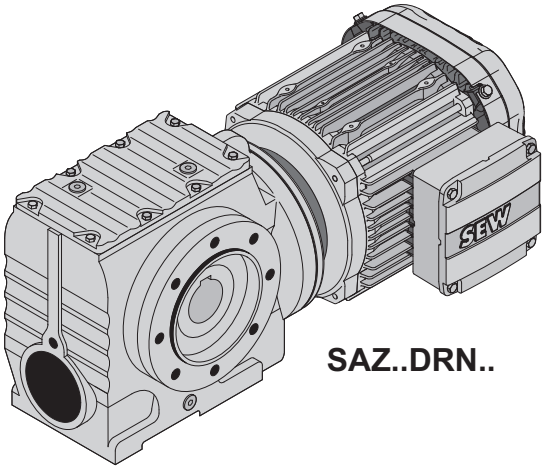
SA../T DRN..



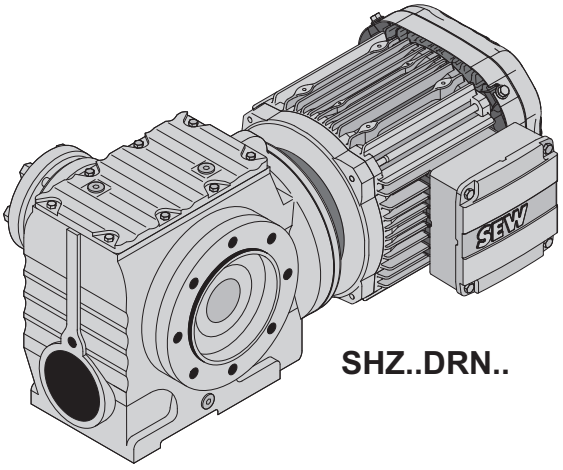
SH..DRN..



ST..DRN..



SAZ..DRN..



SHZ..DRN..

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11.2 S / S..7p.. DRN.. Possible combinations

S37 / S37p, n_e=1700 rpm									930 lb-in
	S37		S37p				DRN …		
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L
							2		
11	800	675	830	675	-	157.43			
12	795	675	840	675	-	144.40*			
14	765	675	850	675	-	122.94			
16	760	675	860	675	-	106.00*			
17	750	675	860	675	-	98.80*			
20	725	675	865	675	-	86.36			
21	725	675	875	675	-	80.96			
24	705	675	840	675	-	71.44*			
27	695	675	805	675	-	63.33			
30	715	675	920	675	-	55.93			
32	670	675	750	675	-	53.83			
33	705	675	920	670	-	51.30*			
39	690	675	930	615	-	43.68			
45	670	645	930	570	-	37.66			
48	660	630	930	550	-	35.10*			
55	645	600	875	530	-	30.68			
59	645	580	860	520	-	28.76			
67	625	555	815	500	-	25.38*			
76	615	530	770	485	-	22.50*			
85	440	515	680	430	-	19.89			
89	600	495	725	460	-	19.13*			
93	430	500	675	405	-	18.24*			
109	420	470	655	360	-	15.53			
127	415	440	655	305	-	13.39			
136	405	430	635	300	-	12.48*			
156	395	410	620	270	-	10.91			
166	395	395	595	275	-	10.23			
188	380	380	565	265	-	9.02*			
212	380	360	495	300	-	8.00*			
250	360	340	460	290	-	6.80*			
269	305	345	435	265	-	6.33			
316	300	325	415	240	-	5.38			
350	290	310	380	255	-	4.86*			
428	280	285	355	235	-	3.97			

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S37R17 / S37pR17, n_e=1700 rpm — 930 lb-in

	S37R17		S37pR17				DRN …	
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M
							2 3	
0.17	810	675	875	675	-	10037		
0.20	810	675	885	675	-	8654		
0.21	810	675	875	675	-	8066		
0.24	810	675	875	675	-	7051		
0.28	810	675	895	675	-	6079		
0.31	810	675	875	675	-	5431		
0.36	810	675	875	675	-	4747		
0.41	810	675	905	675	-	4155		
0.47	810	675	905	675	-	3632		
0.59	810	675	930	675	-	2866		
0.69	810	675	930	675	-	2471		
0.79	810	675	930	675	-	2160		
0.90	810	675	930	675	-	1887		
1.0	810	675	930	675	-	1665		
1.2	810	675	930	675	-	1456		
1.3	810	675	930	675	-	1271		
1.5	810	675	930	675	-	1121		
1.7	810	675	930	675	-	994		
2.0	810	675	930	675	-	869		
							2 2	
2.2	810	675	930	675	-	774		
2.6	810	675	930	675	-	666		
2.9	810	675	930	675	-	596		
3.3	810	675	930	675	-	521		
3.7	810	675	930	675	-	456		
4.3	810	675	930	675	-	398		
4.8	810	675	930	675	-	351		
5.6	810	675	930	675	-	303		
6.4	810	675	930	675	-	265		
7.3	810	675	930	675	-	232		
8.4	810	675	930	675	-	202		
9.5	810	675	930	675	-	179		
11	810	675	930	675	-	158		
12	810	675	930	675	-	144		
14	810	675	930	675	-	118		
15	810	675	930	675	-	110*		

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S47 / S47p, n_e=1700 rpm — 1770 lb-in

	S47		S47p				DRN …			
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L
							2			
8.5	1500	1200	1700	1175	-	201.00*				
9.2	1480	1200	1710	1175	-	184.80*				
11	1480	1200	1715	1175	-	158.12				
12	1470	1200	1725	1170	-	137.05				
13	1470	1200	1735	1170	-	128.10*				
15	1470	1200	1745	1170	-	110.73				
18	1470	1200	1750	1170	-	94.08*				
20	1470	1200	1690	1180	-	84.00*				
24	1470	1200	1600	1190	-	71.75*				
24	1370	1180	1770	1100	-	69.39				
25	1450	1190	1575	1165	-	67.20*				
27	1370	1140	1770	1060	-	63.80*				
30	1340	1120	1485	1100	-	56.61				
31	1370	1070	1770	985	-	54.59				
36	1370	1000	1750	925	-	47.32				
38	1370	970	1710	905	-	44.22*				
44	1370	910	1630	865	-	38.23				
52	1370	850	1540	820	-	32.48*				
59	1360	810	1480	790	-	29.00*				
69	1280	770	1405	745	-	24.77				
73	1250	755	1370	735	-	23.20*				
84	970	690	1370	600	-	20.33				
87	1080	735	1290	690	-	19.54				
96	960	650	1345	540	-	17.62				
103	960	630	1320	520	-	16.47*				
119	960	585	1290	465	-	14.24				
140	960	540	1220	430	-	12.10*				
157	950	510	1175	410	-	10.80*				
184	920	480	990	475	-	9.23*				
197	880	475	920	480	-	8.64*				
234	760	475	760	485	-	7.28				
249	690	470	945	345	-	6.83				
266	670	465	875	375	-	6.40*				
315	575	455	725	425	-	5.39				
357	510	450	630	425	-	4.76				
425	420	445	505	425	-	4.00*				

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S47R17 / S47pR17, n_e=1700 rpm — 1770 lb-in

	S47R17		S47pR17				DRN …	
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M
							2 3	
0.13	1630	1180	1715	1170	-	12909		
0.15	1630	1180	1725	1170	-	11189		
0.16	1630	1180	1715	1170	-	10374		
0.19	1630	1180	1725	1170	-	8992		
0.22	1630	1180	1725	1170	-	7860		
0.25	1630	1180	1735	1165	-	6887		
0.28	1630	1180	1725	1170	-	6055		
0.32	1630	1180	1725	1170	-	5292		
0.37	1630	1180	1735	1165	-	4637		
0.42	1630	1180	1735	1165	-	4092		
0.47	1630	1170	1770	1140	-	3582		
0.54	1630	1170	1770	1140	-	3131		
0.63	1630	1170	1770	1140	-	2714		
0.70	1630	1170	1770	1140	-	2412		
0.80	1630	1170	1770	1140	-	2131		
0.91	1630	1170	1770	1140	-	1863		
1.0	1630	1170	1770	1140	-	1663		
1.2	1630	1170	1770	1140	-	1435		
1.4	1630	1170	1770	1140	-	1254		
1.5	1630	1170	1770	1140	-	1120		
1.6	1630	1170	1770	1140	-	1083		
1.8	1610	1170	1770	1140	-	956		
							2 2	
1.8	1630	1170	1770	1140	-	965		
2.0	1630	1170	1770	1140	-	865		
2.3	1630	1170	1770	1140	-	750		
2.6	1630	1170	1770	1140	-	655		
3.0	1630	1170	1770	1140	-	574		
3.4	1630	1170	1770	1140	-	506		
3.9	1630	1170	1770	1140	-	438		
4.4	1630	1170	1770	1140	-	388		
5.1	1630	1170	1770	1145	-	336		
5.8	1630	1170	1770	1145	-	294		
6.6	1630	1180	1770	1165	-	257*		
7.4	1630	1170	1770	1145	-	229		
8.5	1630	1170	1770	1150	-	200		
9.1	1630	1170	1770	1150	-	187		
10	1630	1170	1770	1150	-	165		
11	1630	1170	1770	1150	-	148		
13	1630	1170	1770	1150	-	131		

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S57 / S57p, n_e=1700 rpm — 3230 lb-in

	S57		S57p				DRN …			
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L
							2			
8.5	2610	1600	3140	1470	-	201.00*				
9.2	2610	1600	3140	1470	-	184.80*				
11	2610	1600	3185	1455	-	158.12				
12	2610	1600	3185	1455	-	137.05				
13	2610	1600	3230	1440	-	128.10*				
15	2610	1600	3055	1495	-	110.73				
18	2650	1590	2920	1530	-	94.08*				
20	2520	1620	2790	1560	-	84.00*				
24	2430	1640	2655	1590	-	71.75*				
24	2160	1690	3230	1440	-	69.39				
25	2300	1670	2565	1610	-	67.20*				
27	2160	1690	3140	1470	-	63.80*				
30	1990	1720	2435	1640	-	56.61				
31	2160	1690	3010	1505	-	54.59				
36	2160	1660	2875	1540	-	47.32				
38	2160	1610	2790	1510	-	44.22*				
44	2160	1520	2655	1435	-	38.23				
52	2160	1420	2520	1360	-	32.48*				
59	2160	1350	2390	1315	-	29.00*				
69	1940	1300	2255	1250	-	24.77				
73	1850	1280	2215	1225	-	23.20*				
84	1480	1180	1990	1080	-	20.33				
87	1610	1240	1945	1180	-	19.54				
96	1480	1100	1990	1005	-	17.62				
103	1480	1070	1990	975	-	16.47*				
119	1490	1000	1990	905	-	14.24				
140	1490	930	1945	845	-	12.10*				
157	1490	880	1690	855	-	10.80*				
184	1310	860	1405	860	-	9.23*				
197	1240	850	1310	860	-	8.64*				
234	1070	830	1090	845	-	7.28				
249	880	850	1345	745	-	6.83				
266	860	830	1250	750	-	6.40*				
315	840	780	1045	740	-	5.39				
357	740	765	910	735	-	4.76				
425	625	740	745	720	-	4.00*				

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S57R17 / S57pR17, n_e=1700 rpm — 3275 lb-in

	S57R17		S57pR17				DRN …	
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M
							2 3	
0.13	2910	1530	3185	1455	-	12909		
0.15	2910	1530	3230	1440	-	11189		
0.16	2910	1530	3185	1455	-	10374		
0.19	2910	1530	3230	1440	-	8992		
0.22	2910	1530	3230	1440	-	7860		
0.25	2910	1530	3230	1440	-	6887		
0.28	2910	1530	3230	1440	-	6055		
0.32	2910	1530	3230	1440	-	5292		
0.37	2910	1530	3230	1440	-	4637		
0.42	2910	1530	3230	1440	-	4092		
0.47	2910	1530	3230	1440	-	3628		
0.54	2650	1590	3275	1425	-	3131		
0.63	2650	1590	3275	1425	-	2714		
0.70	2650	1590	3275	1425	-	2412		
0.80	2650	1590	3275	1425	-	2131		
0.91	2650	1590	3275	1425	-	1863		
1.0	2650	1590	3275	1425	-	1663		
1.2	2650	1590	3275	1425	-	1435		
1.4	2650	1590	3275	1425	-	1254		
1.6	2650	1590	3275	1425	-	1083		
							2 2	
1.8	2650	1590	3275	1425	-	965		
2.0	2650	1590	3275	1425	-	865		
2.3	2650	1590	3275	1425	-	750		
2.6	2650	1590	3275	1425	-	655		
3.0	2650	1590	3275	1425	-	574		
3.4	2650	1590	3275	1425	-	506		
3.9	2650	1590	3275	1425	-	438		
4.4	2650	1590	3275	1425	-	388		
5.1	2650	1590	3275	1425	-	336		
5.8	2650	1590	3275	1425	-	294		
6.3	2650	1590	3275	1425	-	269		
7.4	2650	1590	3275	1425	-	229		
8.3	2650	1590	3275	1425	-	204		
9.1	2650	1590	3275	1425	-	187		
10	2650	1590	3275	1425	-	165		
13	2650	1590	3275	1425	-	131		

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S67 / S67p, n_e=1700 rpm — 6370 lb-in

	S67		S67p				DRN …					
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
							2					
7.8	4600	1950	5665	2270	-	217.41						
8.9	4600	1950	5665	2270	-	190.11						
9.4	4600	1950	5710	2270	-	180.60*						
11	4600	1950	5710	2270	-	158.45						
13	4600	1950	5710	2270	-	134.40*						
14	4600	1950	5710	2270	-	121.33						
16	4600	1950	5710	2220	-	106.75*						
17	4600	1950	5710	2165	-	100.80*						
20	4600	1950	5840	1995	-	85.83						
22	4510	1970	5710	1925	-	78.00*						
23	4240	2030	6370	1695	-	75.06						
25	4370	2000	5135	1875	-	67.57						
26	4240	1940	6195	1610	-	65.63						
27	4240	1890	6195	1565	-	62.35*						
29	4070	1950	4380	1860	-	58.80*						
31	4240	1790	6020	1485	-	54.70						
37	4240	1660	5840	1385	-	46.40*						
41	4240	1580	5710	1330	-	41.89						
46	4240	1490	5530	1265	-	36.85						
49	4240	1450	5400	1245	-	34.80*						
57	4240	1340	4825	1225	-	29.63						
63	4020	1310	4290	1245	-	26.93						
70	3000	1230	3675	1110	-	24.44						
73	3580	1290	4025	1195	-	23.33						
73	3000	1200	3715	1055	-	23.22*						
83	3000	1120	3675	940	-	20.37						
84	3180	1270	3450	1200	-	20.30*						
98	3000	1030	3540	845	-	17.28*						
109	3000	960	3450	790	-	15.60*						
124	3000	840	3365	715	-	13.73*						
131	3000	795	3320	690	-	12.96*						
154	3000	655	3140	640	-	11.03						
169	2780	700	3010	625	-	10.03						
196	2470	755	2655	695	-	8.69						
225	2210	795	2300	775	-	7.56*						

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S67R37 / S67pR37, n_e=1700 rpm — 6370 lb-in

	S67R37		S67pR37				DRN …			
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L
							2 3			
0.08	5040	1840	5710	2250	-	21362*				
0.09	5040	1840	5710	2250	-	19594*				
0.09	5040	1840	5710	2250	-	18120*				
0.10	5040	1840	5710	2250	-	16682				
0.12	5040	1840	5710	2250	-	14383				
0.13	5040	1840	5710	2250	-	12774				
0.15	5040	1840	5710	2250	-	11013				
0.18	5040	1840	5710	2250	-	9694*				
0.20	5040	1840	5710	2250	-	8529*				
0.23	5040	1840	5710	2250	-	7455*				
0.26	5040	1840	5710	2250	-	6531				
0.30	5040	1840	6370	2045	-	5759				
0.34	5040	1840	6370	2045	-	4965				
0.39	5040	1840	6370	2045	-	4410				
0.44	5040	1840	6370	2045	-	3880				
0.50	5040	1840	6370	2045	-	3432				
0.58	5040	1840	6195	2075	-	2944*				
0.65	5040	1840	6370	2045	-	2630				
0.75	5040	1840	5840	2125	-	2279				
0.84	5040	1840	6370	2045	-	2014				
0.96	5040	1840	6370	2045	-	1772				
1.1	5040	1840	6195	2075	-	1559				
1.2	5040	1840	6195	2075	-	1363				
1.4	5040	1840	6370	2045	-	1194				
1.6	5040	1840	5665	2155	-	1045				
1.9	5040	1840	5665	2155	-	914				
							2 2			
2.1	5040	1840	6370	2045	-	809				
2.4	5040	1840	6370	2045	-	712				
2.8	5040	1840	6370	2050	-	615				
3.1	5040	1840	6195	2080	-	543				
3.6	5040	1840	6370	2055	-	469				
4.0	5040	1840	6370	2060	-	424				
4.7	5040	1840	6370	2060	-	365				
5.3	5040	1840	5840	2145	-	319				
6.0	5040	1840	6020	2120	-	281				
6.9	5040	1840	6370	2070	-	246				
7.7	5040	1840	5665	2175	-	221				
8.6	5040	1840	6020	2125	-	198				
10	5040	1840	6020	2125	-	168				
11	5040	1840	5665	2180	-	156				

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S77 / S77p, n_e=1700 rpm — 13275 lb-in

	S77		S77p				DRN …						
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L
							2						
6.6	11200	2630	13275	2790	-	256.47							
7.5	11200	2630	13275	2790	-	225.26							
7.9	11200	2630	13275	2790	-	214.00*							
9.0	10900	2690	13275	2790	-	189.09							
11	10700	2730	13275	2790	-	161.60*							
11	10600	2770	13275	2790	-	148.15							
13	10300	2830	13010	2810	-	130.00*							
14	10100	2860	12920	2830	-	123.20*							
16	9820	2930	12480	2720	-	107.83							
18	9640	2950	12125	2630	-	97.14							
20	9290	2820	11680	2520	-	85.22							
23	8930	2700	11240	2405	-	75.20*							
23	9730	2430	11680	2175	-	75.09							
24	9730	2370	11680	2115	-	71.33							
25	8580	2590	10795	2315	-	66.67							
27	9730	2220	11415	2005	-	63.03							
30	8140	2460	10090	2210	-	56.92							
32	9730	2050	11065	1875	-	53.87							
34	9730	1960	10885	1805	-	49.38							
39	9730	1820	10710	1695	-	43.33							
41	9730	1770	10530	1660	-	41.07							
47	9370	1680	10180	1575	-	35.94							
53	9200	1610	9910	1515	-	32.38							
60	8750	1550	9560	1440	-	28.41							
68	8490	1470	9205	1375	-	25.07							
74	6230	1050	7170	780	-	22.89							
77	8140	1420	8585	1355	-	22.22							
81	6230	930	6990	735	-	20.99							
90	7600	1360	7610	1350	-	18.97							
92	6280	735	6770	645	-	18.42							
97	6280	665	6725	595	-	17.45							
111	6370	455	6460	535	-	15.28							
124	6370	325	6370	445	-	13.76							
141	6410	152	6415	270	-	12.07							
160	6410	11	6415	130	-	10.65							
180	5790	161	5795	260	-	9.44							
211	5080	325	5090	405	-	8.06							

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S77R37 / S77pR37, n_e=1700 rpm — 13275 lb-in

	S77R37		S77pR37				DRN …			
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L
							2 3			
0.07	11200	2630	13275	2745	-	25493				
0.08	11200	2630	13275	2745	-	21787				
0.09	11200	2630	13275	2745	-	19907				
0.10	11200	2630	13275	2745	-	17013				
0.12	11200	2630	13275	2745	-	14668				
0.13	11200	2630	13275	2745	-	13110				
0.15	11200	2630	13275	2745	-	11569				
0.17	11200	2630	13275	2745	-	9887				
0.19	11200	2630	13275	2745	-	8817				
0.22	11200	2630	13275	2745	-	7735				
0.25	11200	2630	13275	2745	-	6735				
0.29	11200	2630	13275	2745	-	5943				
0.33	11200	2630	13275	2745	-	5214				
0.37	11200	2630	13275	2745	-	4618				
0.43	11200	2630	13275	2745	-	3992				
0.48	11200	2630	13275	2745	-	3540				
0.55	11200	2630	13275	2745	-	3098				
0.62	10900	2690	12745	2585	-	2753				
0.72	10900	2690	12745	2585	-	2374				
0.82	10900	2690	12745	2585	-	2083				
0.94	10900	2690	12745	2585	-	1813				
0.97	10900	2690	12835	2585	-	1745				
1.1	10900	2690	12745	2585	-	1600				
1.2	10900	2690	12745	2585	-	1404				
1.4	10900	2690	12745	2585	-	1245				
							2 2			
1.5	10900	2690	12745	2585	-	1100				
1.8	10900	2690	12745	2585	-	954				
2.0	10900	2690	12745	2585	-	837				
2.4	10900	2690	12835	2585	-	714				
2.7	10900	2690	12835	2585	-	637				
3.0	10900	2690	12745	2610	-	574				
3.4	10900	2690	12745	2610	-	499				
3.9	10900	2690	12745	2610	-	438				
4.4	10900	2690	12390	2655	-	389				
5.2	10900	2690	12390	2675	-	327				
5.9	10900	2690	12745	2630	-	289				
6.8	10900	2690	12745	2630	-	250				
7.8	10900	2690	12745	2630	-	219				

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S87 / S87p, n_e=1700 rpm — 25670 lb-in

	S87		S87p				DRN …							
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	71M 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L
							2							
5.9	20100	6280	25670	5220	-	288.00*								
6.6	19900	6290	25140	5620	-	258.18								
7.6	19500	6310	24520	5940	-	222.40*								
8.4	19300	6320	24160	6070	-	202.96								
9.4	18800	6340	23720	6090	-	180.00*								
11	18200	6370	22840	6140	-	151.30								
12	17800	6380	22480	6160	-	139.05								
14	17300	6410	21770	6210	-	123.48								
15	16800	6430	21150	6230	-	110.40*								
17	16200	6450	20710	6250	-	99.26								
19	13400	6540	21420	6210	-	91.20*								
20	15600	6470	19650	6320	-	86.15								
21	14100	6520	21240	6230	-	81.76								
22	15000	6500	18850	6340	-	77.14								
24	14100	6520	20620	6250	-	70.43								
26	14100	6520	20360	6270	-	64.27								
27	13900	6530	16460	6450	-	64.00*								
30	14100	6520	19740	6270	-	57.00*								
35	14100	6360	19030	5940	-	47.91								
39	14100	6160	18680	5780	-	44.03								
43	14100	5900	18150	5560	-	39.10								
49	14100	5660	17610	5380	-	34.96*								
54	14100	5440	17080	5200	-	31.43								
62	14100	5160	16290	4990	-	27.28								
67	10900	4870	12480	4770	-	25.50*								
70	14100	4950	15580	4840	-	24.43								
79	10900	4550	11680	4570	-	21.43								
84	12500	4760	12840	4770	-	20.27								
86	10900	4400	11240	4450	-	19.70								
97	10900	4190	10980	4300	-	17.49								
109	10900	4000	10980	4090	-	15.64*								
121	10900	3830	10980	3940	-	14.06								
139	10900	3480	10980	3580	-	12.21								
156	9990	3580	10000	3670	-	10.93								
187	8400	3530	8410	3600	-	9.07								
216	7340	3490	7350	3550	-	7.88								

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S87R57 / S87pR57, n_e=1700 rpm — 26550 lb-in

	S87R57		S87pR57				DRN …					
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
							2	3				
0.07	22100	6180	26550	4450	-	25987						
0.07	22100	6180	26550	4450	-	23940						
0.08	22100	6180	26550	4450	-	20568						
0.09	22100	6180	26550	4450	-	18265						
0.10	22100	6180	26550	4450	-	16774						
0.11	22100	6180	26550	4450	-	14820						
0.13	22100	6180	26550	4450	-	13160						
0.15	22100	6180	26550	4450	-	11200						
0.17	22100	6180	25670	5220	-	9904						
0.20	22100	6180	26550	4450	-	8549						
0.22	22100	6180	26110	4860	-	7643						
0.25	22100	6180	26550	4450	-	6706						
0.29	22100	6180	26110	4860	-	5875						
0.33	22100	6180	26550	4450	-	5187						
0.37	22100	6180	26550	4450	-	4606						
0.44	22100	6180	26110	4860	-	3872						
							2	2				
0.49	22100	6180	26550	4450	-	3475						
0.59	22100	6180	26110	4860	-	2905						
0.66	22100	6180	26550	4450	-	2586						
0.73	22100	6180	26550	4450	-	2335						
0.83	22100	6180	26550	4450	-	2054						
0.93	22100	6180	26550	4450	-	1824						
1.0	22100	6180	26110	4860	-	1631*						
1.3	22100	6180	26550	4450	-	1332						
1.4	22100	6180	26110	4860	-	1191						
1.6	22100	6180	26110	4860	-	1032*						
1.8	22100	6180	26550	4450	-	930						
2.0	22100	6180	26110	4860	-	831						
2.4	22100	6180	26550	4450	-	719						
2.7	22100	6180	26550	4450	-	624						
3.0	22100	6180	26110	4860	-	558						
3.5	22100	6180	26110	4860	-	485						
3.9	21600	6200	25670	5220	-	435						
4.5	21600	6200	25670	5220	-	378						
5.3	21200	6230	25670	5220	-	323						
6.0	21200	6230	25670	5220	-	281						
6.7	17500	6390	22920	6090	-	255						
7.7	17500	6390	23540	5850	-	222						
8.3	17500	6390	22920	6090	-	205						

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S97 / S97p, n_e=1700 rpm — 38060 lb-in

	S97		S97p				DRN …								
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(i/R)}$ '	i ratio	71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M	132L 160M 160L	180M 180L	200L 225S
							2								
5.9	35300	7460	38060	7310	-	286.40*									
6.5	35300	7460	38060	7310	-	262.22									
7.3	35000	7480	38060	7310	-	231.67									
8.7	33900	7530	38060	7310	-	196.52									
9.4	33300	7560	38060	7310	-	180.95									
11	32200	7610	38060	7310	-	161.74									
12	31400	7650	38060	7310	-	145.60*									
13	30400	7700	38060	7310	-	131.85									
15	29500	7740	36910	7380	-	116.92									
16	28400	7780	35670	7440	-	105.71									
19	26700	7850	33630	7560	-	89.60*									
21	28900	7760	32840	7600	-	80.85									
22	25300	7900	29740	7740	-	78.26									
24	29100	7750	34870	7490	-	71.43									
26	23400	7960	23810	7960	-	65.45									
28	29100	7750	33720	7560	-	60.59									
30	29100	7740	33010	7510	-	55.79									
34	29100	7410	32220	7240	-	49.87									
38	29100	7110	31330	6990	-	44.89									
42	28500	6880	30270	6810	-	40.65									
47	27500	6650	29210	6570	-	36.05									
52	26300	6480	28320	6360	-	32.60									
62	24800	6180	25230	6210	-	27.63									
64	23000	5210	23010	5380	-	26.39									
70	23600	5960	23630	6000	-	24.13									
72	23000	4790	23010	4970	-	23.59									
80	22700	4510	22750	4660	-	21.23									
88	22100	4370	22130	4520	-	19.23									
100	21200	4260	21240	4390	-	17.05									
110	20300	4220	20360	4340	-	15.42									
130	19200	4080	19210	4180	-	13.07									
149	17600	4170	17700	4250	-	11.41									
178	14700	4230	14780	4340	-	9.55									
206	12700	4220	12750	4300	-	8.26									

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S97R57, n_e=1700 rpm — 38060 lb-in

	S97R57		S97pR57				DRN …					
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100LM 100L	112M	132S 132M
							2	3				
0.05	37100	7360	38060	7310	-	33818						
0.05	37100	7360	38060	7310	-	31154						
0.06	37100	7360	38060	7310	-	27847						
0.07	37100	7360	38060	7310	-	24641						
0.08	37100	7360	38060	7310	-	21537						
0.09	37100	7360	38060	7310	-	18749*						
0.10	37100	7360	38060	7310	-	16233						
0.12	37100	7360	38060	7310	-	14576						
0.13	37100	7360	38060	7310	-	12752						
0.15	37100	7360	38060	7310	-	11267						
0.17	37100	7360	38060	7310	-	10078						
0.20	37100	7360	38060	7310	-	8608						
0.23	37100	7360	38060	7310	-	7554						
0.26	37100	7030	38060	6790	-	6640						
0.29	37100	7030	38060	6790	-	5780*						
0.34	37100	7030	38060	6790	-	4937						
0.38	37100	7030	38060	6790	-	4444						
0.42	37100	7030	38060	6790	-	4017						
0.49	37100	7030	38060	6790	-	3453						
0.55	37100	7030	38060	6790	-	3108						
0.64	37100	7030	38060	6790	-	2654						
0.73	37100	7030	38060	6790	-	2329						
0.82	37100	7030	38060	6790	-	2081						
0.91	37100	7030	38060	6790	-	1860						
1.1	37100	7030	38060	6790	-	1574*						
							2	2				
1.2	37100	7030	38060	6790	-	1394						
1.4	37100	7030	38060	6790	-	1223						
1.6	37100	7030	38060	6790	-	1070						
1.8	37100	7030	38060	6790	-	928						
2.1	37100	7030	38060	6810	-	824						
2.4	37100	7360	38060	7310	-	714						
2.7	37100	7050	38060	6840	-	626*						
3.2	37100	7050	38060	6860	-	538						
3.5	37100	7060	38060	6860	-	484*						
4.0	37100	7070	38060	6880	-	420						
4.5	37100	7070	38060	6880	-	376						
5.2	37100	7080	38060	6900	-	327						
5.9	37100	7090	38060	6900	-	287						
6.7	37100	7100	38060	6900	-	252						
7.8	37100	7100	38060	6930	-	219						
8.3	37100	7110	38060	6930	-	205						

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11.3 S.. DRN.. Selections by HP

P_m = 0.16 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.15	32800	11267	7590	1.15	X	**S**	**97R57**	**(E)DRN**	**63MS4**	370	870/876
0.17	30300	10078	7700	1.20	X	**SF**	**97R57**	**(E)DRN**	**63MS4**	440	871/876
0.20	24800	8608	7920	1.50	X	**SA**	**97R57**	**(E)DRN**	**63MS4**	360	872/876
0.22	22000	7554	8010	1.70	X	**SAF**	**97R57**	**(E)DRN**	**63MS4**	415	871/876
0.25	18400	6706	6360	1.20	X						
0.29	16500	5875	6440	1.35	X	**S**	**87R57**	**(E)DRN**	**63MS4**	240	864/876
0.32	13400	5187	6550	1.65	X	**SF**	**87R57**	**(E)DRN**	**63MS4**	285	865/876
0.36	11900	4606	6590	1.85	X	**SA**	**87R57**	**(E)DRN**	**63MS4**	235	866/876
0.43	9860	3872	6650	2.2	X	**SAF**	**87R57**	**(E)DRN**	**63MS4**	270	865/876
0.47	9490	3540	2990	1.20	X						
0.54	8300	3098	3190	1.35	X						
0.71	9330	2374	3020	1.20	X						
0.81	8190	2083	3200	1.35	X	**S**	**77R37**	**(E)DRN**	**63MS4**	130	858/876
0.93	6890	1813	3370	1.60	X	**SF**	**77R37**	**(E)DRN**	**63MS4**	150	859/876
0.96	6510	1745	3410	1.70	X	**SA**	**77R37**	**(E)DRN**	**63MS4**	130	860/876
1.1	5970	1600	3470	1.85	X	**SAF**	**77R37**	**(E)DRN**	**63MS4**	145	859/876
1.2	5240	1404	3540	2.1	X						
1.4	4560	1245	3590	2.4	X						
1.4	4080	1194	2060	1.25	X	**S**	**67R37**	**(E)DRN**	**63MS4**	87	852/876
1.6	3730	1045	2120	1.35	X	**SF**	**67R37**	**(E)DRN**	**63MS4**	100	853/876
1.8	3200	914	2200	1.55	X	**SA**	**67R37**	**(E)DRN**	**63MS4**	89	854/876
						SAF	**67R37**	**(E)DRN**	**63MS4**	99	853/876
2.1	2940	809	2240	1.70	X						
2.4	2590	712	2280	1.95	X						
2.7	2120	615	2330	2.4	X	**S**	**67R37**	**(E)DRN**	**63MS4**	86	852/876
3.1	1920	543	2350	2.6	X	**SF**	**67R37**	**(E)DRN**	**63MS4**	100	853/876
3.6	1550	469	2370	3.2	X	**SA**	**67R37**	**(E)DRN**	**63MS4**	89	854/876
4.0	1410	424	2380	3.6	X	**SAF**	**67R37**	**(E)DRN**	**63MS4**	98	853/876
4.6	1320	365	2390	3.8	X						
2.6	2300	655	1660	1.15	X						
2.9	2000	574	1720	1.30	X						
3.3	1740	506	1750	1.50	X	**S**	**57R17**	**(E)DRN**	**63MS4**	45	846/876
3.8	1500	438	1780	1.75	X	**SF**	**57R17**	**(E)DRN**	**63MS4**	53	847/876
4.3	1310	388	1800	2.0	X	**SA**	**57R17**	**(E)DRN**	**63MS4**	44	848/876
5.0	1190	336	1820	2.2	X	**SAF**	**57R17**	**(E)DRN**	**63MS4**	51	847/876
5.7	1010	294	1830	2.6	X						
6.2	990	269	1830	2.7	X						
3.8	1500	438	1190	1.10	X						
4.3	1310	388	1210	1.25	X						
5.0	1180	336	1230	1.40	X	**S**	**47R17**	**(E)DRN**	**63MS4**	36	840/876
5.7	1000	294	1250	1.65	X	**SF**	**47R17**	**(E)DRN**	**63MS4**	44	841/876
6.5	690	257	1290	2.4	X	**SA**	**47R17**	**(E)DRN**	**63MS4**	39	842/876
7.3	830	229	1270	1.95	X	**SAF**	**47R17**	**(E)DRN**	**63MS4**	43	841/876
8.4	725	200	1280	2.2	X						
9.0	680	187	1290	2.4	X						
8.3	730	202	675	1.10	X						
9.4	650	179	675	1.25	X	**S**	**37R17**	**(E)DRN**	**63MS4**	30	835/876
11	580	158	675	1.40	X	**SF**	**37R17**	**(E)DRN**	**63MS4**	33	836/876
12	535	144	675	1.50	X	**SA**	**37R17**	**(E)DRN**	**63MS4**	29	837/876
14	435	118	675	1.85	X	**SAF**	**37R17**	**(E)DRN**	**63MS4**	33	836/876
15	405	110	675	2.0	X						
5.5	1050	201.00*	1830	2.5		**S**	**57**	**DRN**	**63M6**	38	846
6.0	980	184.80*	1830	2.6		**SF**	**57**	**DRN**	**63M6**	47	847
7.0	850	158.12	1840	3.0		**SA**	**57**	**DRN**	**63M6**	38	848
8.0	755	137.05	1850	3.5		**SAF**	**57**	**DRN**	**63M6**	44	847
5.5	1020	201.00*	1260	1.50							
6.0	940	184.80*	1260	1.60		**S**	**47**	**DRN**	**63M6**	30	840
7.0	820	158.12	1280	1.85		**SF**	**47**	**DRN**	**63M6**	38	841
8.0	730	137.05	1290	2.1		**SA**	**47**	**DRN**	**63M6**	32	842
8.6	690	128.10*	1290	2.2		**SAF**	**47**	**DRN**	**63M6**	36	841

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P_m = 0.16 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
8.4	705	201.00*	1290	2.1	X						
9.1	655	184.80*	1290	2.3	X	**S**	**47**	**(E)DRN**	**63MS4**	30	840
11	570	158.12	1300	2.6	X	**SF**	**47**	**(E)DRN**	**63MS4**	38	841
12	505	137.05	1310	2.9	X	**SA**	**47**	**(E)DRN**	**63MS4**	32	842
13	475	128.10*	1310	3.1	X	**SAF**	**47**	**(E)DRN**	**63MS4**	36	841
15	415	110.73	1310	3.5	X						
7.6	730	144.40*	675	1.10							
8.9	635	122.94	675	1.30		**S**	**37**	**DRN**	**63M6**	23	835
10	560	106.00*	675	1.45		**SF**	**37**	**DRN**	**63M6**	26	836
11	525	98.80*	675	1.55		**SA**	**37**	**DRN**	**63M6**	23	837
13	465	86.36	675	1.70		**SAF**	**37**	**DRN**	**63M6**	26	836
11	545	157.43	675	1.45	X						
12	505	144.40*	675	1.55	X						
14	440	122.94	675	1.75	X						
16	385	106.00*	675	1.95	X						
17	360	98.80*	675	2.1	X						
19	320	86.36	675	2.2	X						
21	305	80.96	675	2.4	X						
24	270	71.44*	675	2.6	X						
27	245	63.33	675	2.8	X						
30	255	55.93	675	2.8	X	**S**	**37**	**(E)DRN**	**63MS4**	23	835
33	235	51.30*	675	3.0	X	**SF**	**37**	**(E)DRN**	**63MS4**	26	836
38	205	43.68	675	3.4	X	**SA**	**37**	**(E)DRN**	**63MS4**	23	837
45	180	37.66	675	3.8	X	**SAF**	**37**	**(E)DRN**	**63MS4**	26	836
48	168	35.10*	675	4.0	X						
55	148	30.68	675	4.4	X						
59	139	28.76	675	4.6	X						
67	124	25.38*	675	5.1	X						
76	111	22.50*	675	5.6	X						
85	104	19.89	655	4.2	X						
93	96	18.24*	640	4.5	X						
109	82	15.53	610	5.2	X						

P_m = 0.25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
						S	**87R57**	**(E)DRN**	**63M4**	239	864/876
0.37	20500	4606	6260	1.10	X	**SF**	**87R57**	**(E)DRN**	**63M4**	284	865/876
0.44	17100	3872	6420	1.30	X	**SA**	**87R57**	**(E)DRN**	**63M4**	234	866/876
						SAF	**87R57**	**(E)DRN**	**63M4**	269	865/876
0.49	16800	3475	6430	1.30	X						
0.59	14100	2905	6520	1.55	X						
0.66	12100	2586	6590	1.85	X	**S**	**87R57**	**(E)DRN**	**63M4**	234	864/876
0.73	10700	2335	6630	2.0	X	**SF**	**87R57**	**(E)DRN**	**63M4**	284	865/876
0.83	9270	2054	6660	2.4	X	**SA**	**87R57**	**(E)DRN**	**63M4**	229	866/876
0.93	8240	1824	6680	2.7	X	**SAF**	**87R57**	**(E)DRN**	**63M4**	264	865/876
1.0	7430	1631	6700	3.0	X						
						S	**77R37**	**(E)DRN**	**63M4**	129	858/876
1.2	8640	1404	3140	1.25	X	**SF**	**77R37**	**(E)DRN**	**63M4**	149	859/876
1.4	7570	1245	3290	1.45	X	**SA**	**77R37**	**(E)DRN**	**63M4**	129	860/876
						SAF	**77R37**	**(E)DRN**	**63M4**	144	859/876
1.6	7140	1100	3340	1.55	X						
1.8	6130	954	3450	1.80	X	**S**	**77R37**	**(E)DRN**	**63M4**	129	858/876
2.0	5380	837	3520	2.0	X	**SF**	**77R37**	**(E)DRN**	**63M4**	149	859/876
2.4	4440	714	3600	2.5	X	**SA**	**77R37**	**(E)DRN**	**63M4**	129	860/876
2.7	3920	637	3600	2.8	X	**SAF**	**77R37**	**(E)DRN**	**63M4**	144	859/876
3.0	3570	574	3600	3.1	X						
2.4	4190	712	2040	1.20	X						
2.8	3510	615	2160	1.45	X	**S**	**67R37**	**(E)DRN**	**63M4**	86	852/876
3.1	3140	543	2210	1.60	X	**SF**	**67R37**	**(E)DRN**	**63M4**	99	853/876
3.6	2610	469	2280	1.95	X	**SA**	**67R37**	**(E)DRN**	**63M4**	88	854/876
4.0	2370	424	2300	2.1	X	**SAF**	**67R37**	**(E)DRN**	**63M4**	99	853/876
4.7	2160	365	2330	2.3	X						

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P_m = 0.25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
3.9	2460	438	1630	1.05	X						
4.4	2170	388	1690	1.20	X						
5.1	1940	336	1730	1.35	X	**S**	**57R17**	**(E)DRN**	**63M4**	44	846/876
5.8	1680	294	1760	1.60	X	**SF**	**57R17**	**(E)DRN**	**63M4**	53	847/876
6.3	1590	269	1770	1.65	X	**SA**	**57R17**	**(E)DRN**	**63M4**	44	848/876
7.4	1370	229	1800	1.95	X	**SAF**	**57R17**	**(E)DRN**	**63M4**	50	847/876
8.3	1230	204	1810	2.1	X						
9.1	1120	187	1820	2.4	X						
5.8	1650	294	1160	1.00							
6.6	1150	257	1240	1.40	X						
7.4	1350	229	1210	1.20	X	**S**	**47R17**	**(E)DRN**	**63M4**	36	840/876
8.5	1180	200	1230	1.40	X	**SF**	**47R17**	**(E)DRN**	**63M4**	44	841/876
9.1	1100	187	1240	1.50	X	**SA**	**47R17**	**(E)DRN**	**63M4**	38	842/876
10	970	165	1250	1.65	X	**SAF**	**47R17**	**(E)DRN**	**63M4**	42	841/876
12	880	148	1270	1.85	X						
13	775	131	1280	2.1	X						
4.9	1930	217.41	2340	2.5		**S**	**67**	**DRN**	**71MS6**	69	852
5.6	1710	190.11	2360	2.9		**SF**	**67**	**DRN**	**71MS6**	83	853
5.9	1640	180.60*	2370	3.0		**SA**	**67**	**DRN**	**71MS6**	71	854
						SAF	**67**	**DRN**	**71MS6**	81	853
8.5	1130	201.00*	1820	2.3	X	**S**	**57**	**(E)DRN**	**63M4**	38	846
9.2	1050	184.80*	1830	2.5	X	**SF**	**57**	**(E)DRN**	**63M4**	47	847
11	910	158.12	1840	2.9	X	**SA**	**57**	**(E)DRN**	**63M4**	38	848
12	800	137.05	1850	3.2	X	**SAF**	**57**	**(E)DRN**	**63M4**	44	847
5.3	1690	201.00*	1760	1.55		**S**	**57**	**DRN**	**71MS6**	45	846
5.8	1570	184.80*	1780	1.65		**SF**	**57**	**DRN**	**71MS6**	53	847
6.8	1370	158.12	1800	1.90		**SA**	**57**	**DRN**	**71MS6**	44	848
7.8	1210	137.05	1810	2.1		**SAF**	**57**	**DRN**	**71MS6**	51	847
8.5	1090	201.00*	1250	1.40	X						
9.2	1010	184.80*	1260	1.45	X						
11	880	158.12	1270	1.70	X						
12	780	137.05	1280	1.90	X	**S**	**47**	**(E)DRN**	**63M4**	30	840
13	735	128.10*	1290	2.0	X	**SF**	**47**	**(E)DRN**	**63M4**	38	841
15	645	110.73	1290	2.3	X	**SA**	**47**	**(E)DRN**	**63M4**	32	842
18	560	94.08*	1300	2.6	X	**SAF**	**47**	**(E)DRN**	**63M4**	36	841
20	505	84.00*	1310	2.9	X						
24	440	71.75*	1310	3.4	X						
24	500	69.39	1300	2.7	X						
5.8	1520	184.80*	1200	1.00		**S**	**47**	**DRN**	**71MS6**	36	840
6.8	1320	158.12	1220	1.15		**SF**	**47**	**DRN**	**71MS6**	44	841
7.8	1170	137.05	1240	1.30		**SA**	**47**	**DRN**	**71MS6**	39	842
8.3	1100	128.10*	1250	1.35		**SAF**	**47**	**DRN**	**71MS6**	43	841
12	785	144.40*	675	1.00	X						
14	680	122.94	675	1.15	X						
16	595	106.00*	675	1.25	X						
17	560	98.80*	675	1.35	X						
20	500	86.36	675	1.45	X						
21	470	80.96	675	1.55	X						
24	420	71.44*	675	1.65	X						
27	380	63.33	675	1.85	X						
30	400	55.93	675	1.80	X						
33	370	51.30*	675	1.90	X						
39	315	43.68	675	2.2	X	**S**	**37**	**(E)DRN**	**63M4**	23	835
45	275	37.66	675	2.4	X	**SF**	**37**	**(E)DRN**	**63M4**	26	836
48	260	35.10*	675	2.5	X	**SA**	**37**	**(E)DRN**	**63M4**	23	837
55	225	30.68	675	2.8	X	**SAF**	**37**	**(E)DRN**	**63M4**	26	836
59	215	28.76	675	3.0	X						
67	192	25.38*	675	3.3	X						
75	171	22.50*	670	3.6	X						
85	161	19.89	630	2.7	X						
93	148	18.24*	615	2.9	X						
109	127	15.53	590	3.3	X						
127	110	13.39	565	3.8	X						
136	103	12.48*	555	4.0	X						
155	90	10.91	535	4.4	X						
166	85	10.23	525	4.7	X						

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P_m = 0.33 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.59	19100	2905	6330	1.15	X						
0.66	16500	2586	6440	1.35	X						
0.73	14700	2335	6500	1.50	X	**S**	**87R57**	**(E)DRN**	**71MS4**	240	864/876
0.83	12800	2054	6570	1.75	X	**SF**	**87R57**	**(E)DRN**	**71MS4**	290	865/876
0.93	11300	1824	6610	1.95	X	**SA**	**87R57**	**(E)DRN**	**71MS4**	235	866/876
1.0	10200	1631	6640	2.1	X	**SAF**	**87R57**	**(E)DRN**	**71MS4**	270	865/876
1.8	6100	930	6720	3.6	X						
1.8	8250	954	3190	1.35	X						
2.0	7240	837	3330	1.50	X	**S**	**77R37**	**(E)DRN**	**71MS4**	135	858/876
2.4	6030	714	3460	1.80	X	**SF**	**77R37**	**(E)DRN**	**71MS4**	155	859/876
2.7	5340	637	3530	2.0	X	**SA**	**77R37**	**(E)DRN**	**71MS4**	135	860/876
3.0	4850	574	3570	2.3	X	**SAF**	**77R37**	**(E)DRN**	**71MS4**	150	859/876
3.4	4130	499	3600	2.6	X						
3.1	4250	543	2020	1.20	X						
3.6	3580	469	2150	1.40	X	**S**	**67R37**	**(E)DRN**	**71MS4**	92	852/876
4.0	3250	424	2200	1.55	X	**SF**	**67R37**	**(E)DRN**	**71MS4**	105	853/876
4.7	2920	365	2240	1.70	X	**SA**	**67R37**	**(E)DRN**	**71MS4**	94	854/876
5.3	2520	319	2290	2.0	X	**SAF**	**67R37**	**(E)DRN**	**71MS4**	105	853/876
6.1	2200	281	2320	2.3	X						
5.8	2280	294	1670	1.15	X						
6.3	2150	269	1690	1.25	X						
7.4	1840	229	1740	1.45	X	**S**	**57R17**	**(E)DRN**	**71MS4**	50	846/876
8.3	1660	204	1770	1.60	X	**SF**	**57R17**	**(E)DRN**	**71MS4**	59	847/876
9.1	1520	187	1780	1.75	X	**SA**	**57R17**	**(E)DRN**	**71MS4**	50	848/876
10	1340	165	1800	1.95	X	**SAF**	**57R17**	**(E)DRN**	**71MS4**	56	847/876
13	1070	131	1830	2.5	X						
5.1	2490	217.41	2290	1.95		**S**	**67**	**DRN**	**71M6**	67	852
5.8	2210	190.11	2320	2.2		**SF**	**67**	**DRN**	**71M6**	82	853
6.1	2110	180.60*	2330	2.3		**SA**	**67**	**DRN**	**71M6**	70	854
6.9	1880	158.45	2350	2.6		**SAF**	**67**	**DRN**	**71M6**	80	853
7.8	1690	217.41	2360	2.7	X						
8.9	1500	190.11	2380	3.0	X						
9.4	1440	180.60*	2380	3.2	X	**S**	**67**	**(E)DRN**	**71MS4**	67	852
11	1280	158.45	2390	3.6	X	**SF**	**67**	**(E)DRN**	**71MS4**	82	853
13	1100	134.40*	2400	4.2	X	**SA**	**67**	**(E)DRN**	**71MS4**	70	854
14	1000	121.33	2400	4.6	X	**SAF**	**67**	**(E)DRN**	**71MS4**	80	853
16	890	106.75*	2400	5.1	X						
5.5	2180	201.00*	1690	1.20							
6.0	2020	184.80*	1710	1.30		**S**	**57**	**DRN**	**71M6**	44	846
7.0	1770	158.12	1750	1.45		**SF**	**57**	**DRN**	**71M6**	53	847
8.0	1560	137.05	1780	1.65		**SA**	**57**	**DRN**	**71M6**	44	848
8.6	1470	128.10*	1790	1.75		**SAF**	**57**	**DRN**	**71M6**	50	847
8.5	1490	201.00*	1790	1.75	X						
9.2	1380	184.80*	1800	1.90	X						
11	1210	158.12	1810	2.2	X	**S**	**57**	**(E)DRN**	**71MS4**	44	846
12	1060	137.05	1830	2.5	X	**SF**	**57**	**(E)DRN**	**71MS4**	53	847
13	1000	128.10*	1830	2.6	X	**SA**	**57**	**(E)DRN**	**71MS4**	44	848
15	880	110.73	1840	3.0	X	**SAF**	**57**	**(E)DRN**	**71MS4**	50	847
18	760	94.08*	1850	3.5	X						
20	685	84.00*	1850	3.7	X						
8.5	1440	201.00*	1210	1.05	X						
9.2	1340	184.80*	1220	1.10	X						
11	1170	158.12	1240	1.25	X						
12	1030	137.05	1260	1.45	X						
13	970	128.10*	1260	1.50	X						
15	850	110.73	1270	1.75	X	**S**	**47**	**(E)DRN**	**71MS4**	36	840
18	740	94.08*	1290	2.0	X	**SF**	**47**	**(E)DRN**	**71MS4**	44	841
20	665	84.00*	1290	2.2	X	**SA**	**47**	**(E)DRN**	**71MS4**	38	842
24	580	71.75*	1300	2.5	X	**SAF**	**47**	**(E)DRN**	**71MS4**	42	841
24	660	69.39	1290	2.1	X						
25	545	67.20*	1300	2.6	X						
27	610	63.80*	1290	2.2	X						
31	525	54.59	1260	2.6	X						
36	460	47.32	1210	3.0	X						

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P_m = 0.33 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
499	39	6.80*	375	3.6		**S**	**37**	**DRN**	**63M2**	25	835
536	37	6.33	365	5.8		**SF**	**37**	**DRN**	**63M2**	28	836
631	31	5.38	345	5.6		**SA**	**37**	**DRN**	**63M2**	25	837
699	28	4.86*	335	5.6		**SAF**	**37**	**DRN**	**63M2**	28	836
855	23	3.97	315	5.3							
17	740	98.80*	675	1.00	X						
20	660	86.36	675	1.10	X						
21	620	80.96	675	1.15	X						
24	555	71.44*	675	1.25	X						
27	500	63.33	675	1.40	X						
31	525	55.93	675	1.35	X						
34	485	51.30*	675	1.45	X						
39	420	43.68	675	1.65	X						
46	365	37.66	675	1.85	X						
49	340	35.10*	675	1.95	X						
56	300	30.68	675	2.1	X						
60	280	28.76	675	2.3	X						
68	250	25.38*	675	2.5	X	**S**	**37**	**(E)DRN**	**71MS4**	29	835
76	225	22.50*	650	2.7	X	**SF**	**37**	**(E)DRN**	**71MS4**	32	836
86	210	19.89	610	2.1	X	**SA**	**37**	**(E)DRN**	**71MS4**	29	837
94	196	18.24*	600	2.2	X	**SAF**	**37**	**(E)DRN**	**71MS4**	32	836
111	168	15.53	575	2.5	X						
128	145	13.39	550	2.9	X						
138	136	12.48*	540	3.0	X						
158	119	10.91	520	3.3	X						
168	112	10.23	510	3.5	X						
191	99	9.02*	495	3.8	X						
215	88	8.00*	480	4.3	X						
253	75	6.80*	455	4.8	X						
272	71	6.33	445	4.4	X						
320	60	5.38	425	5.0	X						
354	55	4.86*	410	5.3	X						
433	45	3.97	385	6.3	X						

P_m = 0.50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.83	20300	2054	6270	1.10	X	**S**	**87R57**	**(E)DRN**	**71M4**	240	864/876
0.93	18000	1824	6380	1.25	X	**SF**	**87R57**	**(E)DRN**	**71M4**	290	865/876
1.0	16200	1631	6450	1.35	X	**SA**	**87R57**	**(E)DRN**	**71M4**	235	866/876
1.8	9710	930	6650	2.3	X	**SAF**	**87R57**	**(E)DRN**	**71M4**	270	865/876
2.0	8780	831	6670	2.5	X						
2.4	9400	714	3010	1.15	X						
2.7	8350	637	3180	1.30	X	**S**	**77R37**	**(E)DRN**	**71M4**	135	858/876
3.0	7560	574	3290	1.45	X	**SF**	**77R37**	**(E)DRN**	**71M4**	155	859/876
3.4	6500	499	3420	1.70	X	**SA**	**77R37**	**(E)DRN**	**71M4**	135	860/876
3.9	5740	438	3490	1.90	X	**SAF**	**77R37**	**(E)DRN**	**71M4**	150	859/876
4.4	5100	389	3550	2.1	X						
4.7	4530	365	1960	1.10	X	**S**	**67R37**	**(E)DRN**	**71M4**	92	852/876
5.3	3940	319	2080	1.30	X	**SF**	**67R37**	**(E)DRN**	**71M4**	105	853/876
6.1	3460	281	2170	1.45	X	**SA**	**67R37**	**(E)DRN**	**71M4**	94	854/876
6.9	3140	246	2210	1.60	X	**SAF**	**67R37**	**(E)DRN**	**71M4**	105	853/876
4.3	4790	256.47	3570	2.3		**S**	**77**	**DRN**	**80MK6**	119	858
4.9	4270	225.26	3600	2.6		**SF**	**77**	**DRN**	**80MK6**	144	859
5.1	4070	214.00*	3600	2.8		**SA**	**77**	**DRN**	**80MK6**	119	860
						SAF	**77**	**DRN**	**80MK6**	134	859
5.1	3770	217.41	2120	1.30		**S**	**67**	**DRN**	**80MK6**	74	852
5.8	3350	190.11	2180	1.45		**SF**	**67**	**DRN**	**80MK6**	89	853
6.1	3200	180.60*	2200	1.55		**SA**	**67**	**DRN**	**80MK6**	77	854
6.9	2850	158.45	2250	1.70		**SAF**	**67**	**DRN**	**80MK6**	86	853
7.8	2570	217.41	2280	1.80	X	**S**	**67**	**(E)DRN**	**71M4**	67	852
8.9	2280	190.11	2310	2.0	X	**SF**	**67**	**(E)DRN**	**71M4**	82	853
9.4	2180	180.60*	2320	2.1	X	**SA**	**67**	**(E)DRN**	**71M4**	70	854
11	1940	158.45	2340	2.4	X	**SAF**	**67**	**(E)DRN**	**71M4**	80	853
13	1670	134.40*	2360	2.8	X						

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P_m = 0.50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
14	1520	121.33	2370	3.0	X						
8.0	2360	137.05	1650	1.10							
8.6	2230	128.10*	1680	1.15		**S**	**57**	**DRN**	**80MK6**	51	846
9.9	1960	110.73	1720	1.35		**SF**	**57**	**DRN**	**80MK6**	59	847
12	1700	94.08*	1760	1.55		**SA**	**57**	**DRN**	**80MK6**	50	848
13	1540	84.00*	1780	1.70		**SAF**	**57**	**DRN**	**80MK6**	56	847
8.5	2260	201.00*	1670	1.15	X						
9.2	2100	184.80*	1700	1.25	X						
11	1830	158.12	1740	1.40	X						
12	1610	137.05	1770	1.60	X						
13	1520	128.10*	1780	1.70	X	**S**	**57**	**(E)DRN**	**71M4**	44	846
15	1330	110.73	1800	1.95	X	**SF**	**57**	**(E)DRN**	**71M4**	53	847
18	1150	94.08*	1820	2.3	X	**SA**	**57**	**(E)DRN**	**71M4**	44	848
20	1040	84.00*	1830	2.4	X	**SAF**	**57**	**(E)DRN**	**71M4**	50	847
24	900	71.75*	1840	2.7	X						
24	1010	69.39	1830	2.1	X						
25	850	67.20*	1840	2.7	X						
27	940	63.80*	1840	2.3	X						
14	1470	128.10*	1200	1.00	X						
16	1290	110.73	1230	1.15	X						
18	1120	94.08*	1250	1.30	X						
21	1010	84.00*	1260	1.45	X						
24	880	71.75*	1270	1.70	X						
25	1000	69.39	1250	1.35	X						
26	830	67.20*	1280	1.75	X						
27	920	63.80*	1240	1.50	X						
32	800	54.59	1200	1.70	X	**S**	**47**	**(E)DRN**	**71M4**	36	840
37	700	47.32	1160	1.95	X	**SF**	**47**	**(E)DRN**	**71M4**	44	841
39	655	44.22*	1140	2.1	X	**SA**	**47**	**(E)DRN**	**71M4**	38	842
45	570	38.23	1090	2.4	X	**SAF**	**47**	**(E)DRN**	**71M4**	42	841
53	490	32.48*	1050	2.8	X						
60	440	29.00*	1020	3.1	X						
70	380	24.77	970	3.4	X						
75	355	23.20*	960	3.5	X						
85	330	20.33	890	2.9	X						
98	290	17.62	860	3.3	X						
105	270	16.47*	840	3.5	X						
430	70	8.00*	385	2.5							
506	60	6.80*	365	2.4		**S**	**37**	**DRN**	**71MS2**	29	835
543	56	6.33	355	3.8		**SF**	**37**	**DRN**	**71MS2**	32	836
639	48	5.38	340	3.7		**SA**	**37**	**DRN**	**71MS2**	29	837
708	43	4.86*	330	3.7		**SAF**	**37**	**DRN**	**71MS2**	32	836
866	35	3.97	310	3.5							
40	635	43.68	675	1.10	X						
46	555	37.66	675	1.20	X						
49	515	35.10*	675	1.30	X						
56	455	30.68	660	1.40	X						
60	430	28.76	650	1.50	X						
68	380	25.38*	635	1.65	X						
77	340	22.50*	615	1.80	X						
87	320	19.89	570	1.35	X						
95	295	18.24*	560	1.45	X						
111	250	15.53	540	1.65	X	**S**	**37**	**(E)DRN**	**71M4**	29	835
129	220	13.39	525	1.90	X	**SF**	**37**	**(E)DRN**	**71M4**	32	836
139	205	12.48*	515	2.0	X	**SA**	**37**	**(E)DRN**	**71M4**	29	837
159	181	10.91	500	2.2	X	**SAF**	**37**	**(E)DRN**	**71M4**	32	836
169	170	10.23	490	2.3	X						
192	151	9.02*	475	2.5	X						
216	134	8.00*	460	2.8	X						
254	114	6.80*	440	3.2	X						
273	107	6.33	430	2.9	X						
322	91	5.38	410	3.3	X						
356	83	4.86*	400	3.5	X						
436	68	3.97	380	4.2	X						

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P_m = 0.75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.3	20600	1332	6250	1.05	X						
1.4	18600	1191	6350	1.20	X						
1.6	16200	1032	6450	1.35	X						
1.8	15100	930	6490	1.45	X	**S**	**87R57**	**(E)DRN**	**80MK4**	249	864/876
2.0	13600	831	6540	1.60	X	**SF**	**87R57**	**(E)DRN**	**80MK4**	294	865/876
2.4	11800	719	6600	1.85	X	**SA**	**87R57**	**(E)DRN**	**80MK4**	244	866/876
2.7	10300	624	6640	2.1	X	**SAF**	**87R57**	**(E)DRN**	**80MK4**	279	865/876
3.0	9320	558	6660	2.4	X						
3.9	7450	435	6700	2.9	X						
3.9	8860	438	3100	1.25	X						
4.3	7890	389	3250	1.40	X	**S**	**77R37**	**(E)DRN**	**80MK4**	139	858/876
5.2	6660	327	3400	1.65	X	**SF**	**77R37**	**(E)DRN**	**80MK4**	164	859/876
5.8	6050	289	3460	1.80	X	**SA**	**77R37**	**(E)DRN**	**80MK4**	139	860/876
6.8	5220	250	3540	2.1	X	**SAF**	**77R37**	**(E)DRN**	**80MK4**	154	859/876
6.9	4810	246	1900	1.05	X	**S**	**67R37**	**(E)DRN**	**80MK4**	99	852/876
7.7	4280	221	2020	1.20	X	**SF**	**67R37**	**(E)DRN**	**80MK4**	114	853/876
8.6	3920	198	2090	1.30	X	**SA**	**67R37**	**(E)DRN**	**80MK4**	101	854/876
10	3350	168	2180	1.50	X	**SAF**	**67R37**	**(E)DRN**	**80MK4**	109	853/876
3.9	8350	288.00*	6680	2.5		**S**	**87**	**DRN**	**90SR6**	217	864
4.3	7570	258.18	6700	2.8		**SF**	**87**	**DRN**	**90SR6**	267	865
5.0	6610	222.40*	6710	3.1		**SA**	**87**	**DRN**	**90SR6**	212	866
5.5	6090	202.96	6720	3.4		**SAF**	**87**	**DRN**	**90SR6**	247	865
4.4	7070	256.47	3350	1.60							
5.0	6300	225.26	3440	1.80		**S**	**77**	**DRN**	**90SR6**	137	858
5.2	6020	214.00*	3470	1.85		**SF**	**77**	**DRN**	**90SR6**	162	859
5.9	5380	189.09	3520	2.1		**SA**	**77**	**DRN**	**90SR6**	137	860
6.9	4680	161.60*	3580	2.4		**SAF**	**77**	**DRN**	**90SR6**	152	859
6.6	4890	256.47	3560	2.3	X	**S**	**77**	**(E)DRN**	**80MK4**	119	858
7.5	4350	225.26	3600	2.6	X	**SF**	**77**	**(E)DRN**	**80MK4**	144	859
7.9	4160	214.00*	3600	2.7	X	**SA**	**77**	**(E)DRN**	**80MK4**	119	860
8.9	3710	189.09	3600	3.0	X	**SAF**	**77**	**(E)DRN**	**80MK4**	134	859
7.8	3880	217.41	2100	1.20	X						
8.9	3440	190.11	2170	1.35	X						
9.4	3290	180.60*	2190	1.40	X						
11	2920	158.45	2240	1.55	X						
13	2520	134.40*	2290	1.80	X	**S**	**67**	**(E)DRN**	**80MK4**	74	852
14	2300	121.33	2310	2.0	X	**SF**	**67**	**(E)DRN**	**80MK4**	89	853
16	2050	106.75*	2340	2.2	X	**SA**	**67**	**(E)DRN**	**80MK4**	77	854
17	1940	100.80*	2340	2.4	X	**SAF**	**67**	**(E)DRN**	**80MK4**	86	853
20	1680	85.83	2360	2.7	X						
23	1700	75.06	2360	2.5	X						
26	1490	65.63	2370	2.8	X						
12	2510	94.08*	1620	1.05							
13	2270	84.00*	1670	1.15							
16	1970	71.75*	1720	1.30		**S**	**57**	**DRN**	**90SR6**	69	846
17	1860	67.20*	1740	1.40		**SF**	**57**	**DRN**	**90SR6**	77	847
21	1800	54.59	1750	1.35		**SA**	**57**	**DRN**	**90SR6**	68	848
24	1570	47.32	1780	1.50		**SAF**	**57**	**DRN**	**90SR6**	74	847
25	1480	44.22*	1790	1.60							
29	1290	38.23	1810	1.85							
13	2430	137.05	1640	1.05	X						
14	2290	128.10*	1670	1.15	X						
16	2010	110.73	1710	1.30	X						
18	1740	94.08*	1760	1.50	X						
21	1570	84.00*	1780	1.60	X						
24	1360	71.75*	1800	1.80	X						
26	1280	67.20*	1810	1.80	X	**S**	**57**	**(E)DRN**	**80MK4**	51	846
32	1220	54.59	1810	1.75	X	**SF**	**57**	**(E)DRN**	**80MK4**	59	847
37	1070	47.32	1830	2.0	X	**SA**	**57**	**(E)DRN**	**80MK4**	50	848
39	1000	44.22*	1830	2.1	X	**SAF**	**57**	**(E)DRN**	**80MK4**	56	847
45	870	38.23	1760	2.5	X						
53	750	32.48*	1680	2.9	X						
60	670	29.00*	1630	3.2	X						
70	580	24.77	1560	3.4	X						
75	545	23.20*	1530	3.4	X						
85	505	20.33	1440	2.9	X						

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P_m = 0.75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
24	1320	71.75*	1220	1.10	X						
26	1250	67.20*	1230	1.15	X						
32	1200	54.59	1110	1.15	X						
37	1050	47.32	1080	1.30	X						
39	990	44.22*	1060	1.40	X						
45	860	38.23	1030	1.60	X						
53	740	32.48*	990	1.85	X						
60	665	29.00*	970	2.0	X	**S**	**47**	**(E)DRN**	**80MK4**	42	840
70	570	24.77	930	2.2	X	**SF**	**47**	**(E)DRN**	**80MK4**	50	841
75	535	23.20*	920	2.3	X	**SA**	**47**	**(E)DRN**	**80MK4**	45	842
85	500	20.33	850	1.95	X	**SAF**	**47**	**(E)DRN**	**80MK4**	48	841
98	435	17.62	820	2.2	X						
105	410	16.47*	810	2.4	X						
121	355	14.24	780	2.7	X						
143	300	12.10*	745	3.2	X						
160	270	10.80*	725	3.5	X						
187	230	9.23*	695	4.0	X						
60	650	28.76	585	1.00							
68	575	25.38*	575	1.10	X						
77	515	22.50*	565	1.20	X						
90	440	19.13*	550	1.35	X						
111	380	15.53	490	1.10	X						
129	330	13.39	480	1.25	X						
139	310	12.48*	475	1.30	X	**S**	**37**	**(E)DRN**	**80MK4**	36	835
159	270	10.91	465	1.45	X	**SF**	**37**	**(E)DRN**	**80MK4**	39	836
169	255	10.23	460	1.55	X	**SA**	**37**	**(E)DRN**	**80MK4**	35	837
192	225	9.02*	445	1.70	X	**SAF**	**37**	**(E)DRN**	**80MK4**	38	836
216	200	8.00*	435	1.90	X						
254	172	6.80*	420	2.1	X						
273	161	6.33	410	1.90	X						
322	138	5.38	395	2.2	X						
356	125	4.86*	385	2.3	X						
436	102	3.97	365	2.8	X						
432	101	8.00*	365	1.75							
508	86	6.80*	350	1.65		**S**	**37**	**DRN**	**71M2**	32	835
546	81	6.33	345	2.6		**SF**	**37**	**DRN**	**71M2**	35	836
642	69	5.38	330	2.6		**SA**	**37**	**DRN**	**71M2**	31	837
711	62	4.86*	320	2.5		**SAF**	**37**	**DRN**	**71M2**	34	836
870	51	3.97	300	2.4							

P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.4	33700	1223	7540	1.10	X						
1.6	29600	1070	7730	1.25	X						
1.9	25400	928	7890	1.45	X	**S**	**97R57**	**(E)DRN**	**80M4**	385	870/876
2.1	22400	824	7990	1.65	X	**SF**	**97R57**	**(E)DRN**	**80M4**	460	871/876
2.5	16300	714	8160	2.3	X	**SA**	**97R57**	**(E)DRN**	**80M4**	375	872/876
2.8	17100	626	8140	2.2	X	**SAF**	**97R57**	**(E)DRN**	**80M4**	430	871/876
3.2	14700	538	8190	2.5	X						
3.6	13300	484	8220	2.8	X						
1.7	21300	1032	6220	1.05	X						
1.9	19700	930	6300	1.10	X						
2.1	17800	831	6380	1.25	X						
2.4	15500	719	6480	1.45	X						
2.8	13500	624	6550	1.65	X	**S**	**87R57**	**(E)DRN**	**80M4**	255	864/876
3.1	12200	558	6590	1.80	X	**SF**	**87R57**	**(E)DRN**	**80M4**	305	865/876
3.6	10700	485	6630	2.1	X	**SA**	**87R57**	**(E)DRN**	**80M4**	250	866/876
4.0	9790	435	6650	2.2	X	**SAF**	**87R57**	**(E)DRN**	**80M4**	285	865/876
4.6	8580	378	6680	2.5	X						
5.4	7480	323	6700	2.8	X						
6.9	6950	255	6710	2.5	X						
7.9	6090	222	6720	2.9	X						

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
4.5	10200	389	2840	1.05	X	**S**	**77R37**	**(E)DRN**	**80M4**	145	858/876
5.3	8680	327	3130	1.25	X	**SF**	**77R37**	**(E)DRN**	**80M4**	170	859/876
6.1	7840	289	3250	1.40	X	**SA**	**77R37**	**(E)DRN**	**80M4**	145	860/876
7.0	6790	250	3380	1.60	X	**SAF**	**77R37**	**(E)DRN**	**80M4**	160	859/876
8.0	6000	219	3470	1.85	X						
						S	**67R37**	**(E)DRN**	**80M4**	105	852/876
10	4360	168	2000	1.15	X	**SF**	**67R37**	**(E)DRN**	**80M4**	120	853/876
11	4080	156	2060	1.25	X	**SA**	**67R37**	**(E)DRN**	**80M4**	105	854/876
						SAF	**67R37**	**(E)DRN**	**80M4**	115	853/876
4.0	10700	288.00*	6630	2.0							
4.5	9730	258.18	6650	2.2		**S**	**87**	**DRN**	**90S6**	220	864
5.2	8500	222.40*	6680	2.4		**SF**	**87**	**DRN**	**90S6**	265	865
5.7	7820	202.96	6690	2.6		**SA**	**87**	**DRN**	**90S6**	210	866
6.5	7010	180.00*	6710	2.9		**SAF**	**87**	**DRN**	**90S6**	250	865
6.1	7430	288.00*	6700	2.7	X						
6.8	6720	258.18	6710	3.0	X	**S**	**87**	**(E)DRN**	**80M4**	205	864
7.9	5860	222.40*	6730	3.3	X	**SF**	**87**	**(E)DRN**	**80M4**	255	865
8.6	5390	202.96	6730	3.6	X	**SA**	**87**	**(E)DRN**	**80M4**	200	866
						SAF	**87**	**(E)DRN**	**80M4**	235	865
5.2	8100	225.26	3220	1.40							
5.4	7740	214.00*	3270	1.45							
6.2	6930	189.09	3370	1.60							
7.2	6010	161.60*	3470	1.85							
7.9	5560	148.15	3510	2.0		**S**	**77**	**DRN**	**90S6**	140	858
9.0	4940	130.00*	3560	2.3		**SF**	**77**	**DRN**	**90S6**	160	859
9.5	4700	123.20*	3580	2.4		**SA**	**77**	**DRN**	**90S6**	135	860
11	4160	107.83	3600	2.6		**SAF**	**77**	**DRN**	**90S6**	150	859
12	3780	97.14	3600	2.8							
16	3410	75.09	3600	2.9							
16	3250	71.33	3600	3.0							
6.8	6320	256.47	3440	1.80	X						
7.8	5620	225.26	3500	2.0	X						
8.2	5360	214.00*	3530	2.1	X						
9.3	4790	189.09	3570	2.3	X	**S**	**77**	**(E)DRN**	**80M4**	125	858
11	4150	161.60*	3600	2.6	X	**SF**	**77**	**(E)DRN**	**80M4**	150	859
12	3830	148.15	3600	2.8	X	**SA**	**77**	**(E)DRN**	**80M4**	125	860
13	3400	130.00*	3600	3.0	X	**SAF**	**77**	**(E)DRN**	**80M4**	140	859
14	3240	123.20*	3600	3.1	X						
16	2860	107.83	3600	3.4	X						
8.7	4690	134.40*	1930	1.05							
9.6	4280	121.33	2020	1.15							
11	3820	106.75*	2110	1.25							
12	3630	100.80*	2140	1.35							
14	3140	85.83	2210	1.55							
15	2880	78.00*	2250	1.70							
18	2830	65.63	2250	1.65		**S**	**67**	**DRN**	**90S6**	95	852
19	2700	62.35*	2270	1.70		**SF**	**67**	**DRN**	**90S6**	110	853
21	2380	54.70	2300	1.95		**SA**	**67**	**DRN**	**90S6**	97	854
25	2040	46.40*	2310	2.3		**SAF**	**67**	**DRN**	**90S6**	105	853
28	1850	41.89	2250	2.5							
32	1640	36.85	2180	2.8							
33	1550	34.80*	2150	3.0							
48	1170	24.44	1880	2.7							
50	1110	23.22*	1860	2.8							
9.2	4440	190.11	1980	1.05	X						
9.7	4240	180.60*	2030	1.10	X						
11	3780	158.45	2110	1.20	X						
13	3260	134.40*	2200	1.40	X						
14	2970	121.33	2240	1.55	X						
16	2640	106.75*	2280	1.75	X	**S**	**67**	**(E)DRN**	**80M4**	81	852
17	2510	100.80*	2290	1.85	X	**SF**	**67**	**(E)DRN**	**80M4**	95	853
20	2160	85.83	2320	2.1	X	**SA**	**67**	**(E)DRN**	**80M4**	83	854
22	1980	78.00*	2340	2.3	X	**SAF**	**67**	**(E)DRN**	**80M4**	93	853
23	2190	75.06	2320	1.95	X						
27	1930	65.63	2280	2.2	X						
28	1840	62.35*	2250	2.3	X						
32	1620	54.70	2170	2.6	X						
38	1390	46.40*	2080	3.0	X						

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
16	2540	71.75*	1620	1.05							
17	2390	67.20*	1650	1.10							
21	2050	56.61	1710	1.25							
25	2020	47.32	1710	1.20							
26	1900	44.22*	1730	1.25							
30	1650	38.23	1770	1.45							
36	1420	32.48*	1790	1.70		**S**	**57**	**DRN**	**90S6**	70	846
40	1270	29.00*	1750	1.85		**SF**	**57**	**DRN**	**90S6**	78	847
47	1100	24.77	1680	2.2		**SA**	**57**	**DRN**	**90S6**	69	848
50	1030	23.20*	1650	2.3		**SAF**	**57**	**DRN**	**90S6**	76	847
60	870	19.54	1580	2.5							
66	830	17.62	1480	1.80							
71	785	16.47*	1450	1.90							
82	680	14.24	1400	2.2							
96	580	12.10*	1340	2.6							
108	520	10.80*	1300	2.9							
16	2600	110.73	1600	1.00	X						
19	2240	94.08*	1670	1.20	X						
21	2020	84.00*	1710	1.25	X						
24	1750	71.75*	1750	1.40	X						
26	1650	67.20*	1770	1.40	X						
31	1410	56.61	1790	1.40	X						
32	1580	54.59	1780	1.35	X						
37	1380	47.32	1790	1.55	X						
40	1290	44.22*	1760	1.65	X	**S**	**57**	**(E)DRN**	**80M4**	57	846
46	1130	38.23	1690	1.90	X	**SF**	**57**	**(E)DRN**	**80M4**	65	847
54	960	32.48*	1620	2.2	X	**SA**	**57**	**(E)DRN**	**80M4**	56	848
60	860	29.00*	1570	2.5	X	**SAF**	**57**	**(E)DRN**	**80M4**	63	847
71	745	24.77	1510	2.6	X						
75	700	23.20*	1480	2.6	X						
86	650	20.33	1380	2.3	X						
90	595	19.54	1410	2.7	X						
99	565	17.62	1330	2.6	X						
106	530	16.47*	1310	2.8	X						
123	460	14.24	1260	3.2	X						
36	1400	32.48*	1000	1.05							
40	1260	29.00*	980	1.20							
47	1080	24.77	960	1.35							
50	1020	23.20*	940	1.40							
60	870	19.54	910	1.55							
66	830	17.62	820	1.20							
71	780	16.47*	820	1.25		**S**	**47**	**DRN**	**90S6**	61	840
82	680	14.24	800	1.45		**SF**	**47**	**DRN**	**90S6**	69	841
96	580	12.10*	775	1.70		**SA**	**47**	**DRN**	**90S6**	64	842
108	520	10.80*	760	1.90		**SAF**	**47**	**DRN**	**90S6**	68	841
126	445	9.23*	735	2.2							
135	420	8.64*	725	2.3							
160	355	7.28	695	2.7							
170	335	6.83	680	2.5							
182	315	6.40*	670	2.6							
216	265	5.39	640	2.9							
37	1360	47.32	990	1.00	X						
40	1280	44.22*	980	1.05	X						
46	1110	38.23	960	1.25	X						
54	950	32.48*	930	1.45	X						
60	850	29.00*	910	1.60	X						
71	740	24.77	880	1.75	X						
75	695	23.20*	870	1.80	X						
86	645	20.33	790	1.50	X	**S**	**47**	**(E)DRN**	**80M4**	49	840
90	585	19.54	840	1.85	X	**SF**	**47**	**(E)DRN**	**80M4**	57	841
99	560	17.62	770	1.70	X	**SA**	**47**	**(E)DRN**	**80M4**	51	842
106	525	16.47*	760	1.80	X	**SAF**	**47**	**(E)DRN**	**80M4**	55	841
123	455	14.24	740	2.1	X						
145	390	12.10*	710	2.5	X						
162	350	10.80*	695	2.7	X						
190	300	9.23*	665	3.1	X						
203	280	8.64*	655	3.1	X						
241	235	7.28	630	3.2	X						

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
274	210	6.40*	605	3.2	X	**S**	**47**	**(E)DRN**	**80M4**	49	840
325	179	5.39	575	3.2	X	**SF**	**47**	**(E)DRN**	**80M4**	57	841
368	159	4.76	560	3.2	X	**SA**	**47**	**(E)DRN**	**80M4**	51	842
438	134	4.00*	530	3.2	X	**SAF**	**47**	**(E)DRN**	**80M4**	55	841
478	122	7.28	520	1.60							
509	115	6.83	510	2.6		**S**	**47**	**DRN**	**80MS2**	49	840
543	108	6.40*	500	2.5		**SF**	**47**	**DRN**	**80MS2**	57	841
645	91	5.39	475	2.3		**SA**	**47**	**DRN**	**80MS2**	51	842
730	81	4.76	460	2.2		**SAF**	**47**	**DRN**	**80MS2**	55	841
869	68	4.00*	435	2.1							
146	385	8.00*	435	1.10							
171	325	6.80*	425	1.25		**S**	**37**	**DRN**	**90S6**	55	835
184	305	6.33	415	1.30		**SF**	**37**	**DRN**	**90S6**	58	836
216	260	5.38	405	1.45		**SA**	**37**	**DRN**	**90S6**	54	837
240	235	4.86*	395	1.55		**SAF**	**37**	**DRN**	**90S6**	58	836
294	196	3.97	380	1.80							
92	565	19.13*	500	1.05	X						
140	400	12.48*	435	1.00	X						
161	350	10.91	425	1.15	X						
171	325	10.23	425	1.20	X						
194	290	9.02*	415	1.30	X	**S**	**37**	**(E)DRN**	**80M4**	42	835
219	255	8.00*	405	1.45	X	**SF**	**37**	**(E)DRN**	**80M4**	45	836
258	220	6.80*	395	1.65	X	**SA**	**37**	**(E)DRN**	**80M4**	41	837
276	205	6.33	385	1.50	X	**SAF**	**37**	**(E)DRN**	**80M4**	45	836
325	177	5.38	375	1.70	X						
360	161	4.86*	365	1.80	X						
442	131	3.97	350	2.2	X						
511	113	6.80*	340	1.25		**S**	**37**	**DRN**	**80MS2**	42	835
549	106	6.33	330	2.0		**SF**	**37**	**DRN**	**80MS2**	45	836
646	90	5.38	320	1.95		**SA**	**37**	**DRN**	**80MS2**	41	837
715	82	4.86*	310	1.95		**SAF**	**37**	**DRN**	**80MS2**	45	836
877	67	3.97	295	1.85							

P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
2.1	33900	824	7530	1.10	X						
2.5	24700	714	7920	1.50	X						
2.8	26000	626	7870	1.45	X	**S**	**97R57**	**(E)DRN**	**90S4**	400	870/876
3.3	22300	538	8000	1.65	X	**SF**	**97R57**	**(E)DRN**	**90S4**	475	871/876
3.6	20100	484	8060	1.85	X	**SA**	**97R57**	**(E)DRN**	**90S4**	390	872/876
4.2	17500	420	8130	2.1	X	**SAF**	**97R57**	**(E)DRN**	**90S4**	445	871/876
4.7	15900	376	8170	2.3	X						
5.4	14000	327	8210	2.6	X						
2.8	20600	624	6260	1.05	X						
3.2	18600	558	6350	1.20	X						
3.6	16300	485	6440	1.35	X						
4.0	14900	435	6500	1.45	X	**S**	**87R57**	**(E)DRN**	**90S4**	270	864/876
4.7	13000	378	6560	1.65	X	**SF**	**87R57**	**(E)DRN**	**90S4**	315	865/876
5.5	11300	323	6610	1.85	X	**SA**	**87R57**	**(E)DRN**	**90S4**	265	866/876
6.3	9990	281	6650	2.1	X	**SAF**	**87R57**	**(E)DRN**	**90S4**	300	865/876
6.9	10500	255	6630	1.65	X						
7.9	9270	222	6660	1.90	X						
8.6	8700	205	6670	2.0	X						
4.1	16500	286.40*	8150	2.2		**S**	**97**	**DRN**	**112M6**	400	870
4.5	15200	262.22	8180	2.4		**SF**	**97**	**DRN**	**112M6**	470	871
5.1	13600	231.67	8210	2.7		**SA**	**97**	**DRN**	**112M6**	385	872
						SAF	**97**	**DRN**	**112M6**	445	871
						S	**87**	**DRN**	**112M6**	270	864
5.3	12500	222.40*	6580	1.65		**SF**	**87**	**DRN**	**112M6**	320	865
5.8	11500	202.96	6600	1.80		**SA**	**87**	**DRN**	**112M6**	265	866
						SAF	**87**	**DRN**	**112M6**	300	865

P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
6.1	11000	288.00*	6620	1.80	X						
6.8	10000	258.18	6640	2.0	X	**S**	**87**	**(E)DRN**	**90S4**	220	864
7.9	8740	222.40*	6670	2.2	X	**SF**	**87**	**(E)DRN**	**90S4**	265	865
8.7	8040	202.96	6690	2.4	X	**SA**	**87**	**(E)DRN**	**90S4**	210	866
9.8	7200	180.00*	6700	2.6	X	**SAF**	**87**	**(E)DRN**	**90S4**	250	865
12	6120	151.30	6720	3.0	X						
6.9	9420	256.47	3000	1.20	X						
7.8	8380	225.26	3170	1.35	X						
8.2	8000	214.00*	3230	1.40	X						
9.3	7150	189.09	3340	1.55	X						
11	6200	161.60*	3450	1.75	X						
12	5720	148.15	3490	1.85	X	**S**	**77**	**(E)DRN**	**90S4**	140	858
14	5070	130.00*	3550	2.0	X	**SF**	**77**	**(E)DRN**	**90S4**	160	859
14	4830	123.20*	3570	2.1	X	**SA**	**77**	**(E)DRN**	**90S4**	135	860
16	4270	107.83	3600	2.3	X	**SAF**	**77**	**(E)DRN**	**90S4**	150	859
18	3870	97.14	3540	2.5	X						
21	3420	85.22	3420	2.7	X						
23	3450	75.09	3200	2.8	X						
25	3290	71.33	3160	3.0	X						
15	4430	121.33	1990	1.05	X						
17	3940	106.75*	2080	1.15	X						
17	3740	100.80*	2120	1.25	X						
21	3230	85.83	2200	1.40	X						
23	2960	78.00*	2240	1.50	X						
23	3260	75.06	2180	1.30	X						
27	2880	65.63	2120	1.45	X	**S**	**67**	**(E)DRN**	**90S4**	95	852
28	2740	62.35*	2100	1.55	X	**SF**	**67**	**(E)DRN**	**90S4**	110	853
32	2420	54.70	2040	1.75	X	**SA**	**67**	**(E)DRN**	**90S4**	97	854
38	2070	46.40*	1970	2.0	X	**SAF**	**67**	**(E)DRN**	**90S4**	105	853
42	1880	41.89	1920	2.3	X						
48	1660	36.85	1860	2.5	X						
51	1570	34.80*	1840	2.7	X						
59	1350	29.63	1760	3.1	X						
72	1180	24.44	1610	2.5	X						
76	1120	23.22*	1590	2.7	X						
37	2060	47.32	1660	1.05	X						
40	1930	44.22*	1630	1.10	X						
46	1680	38.23	1590	1.30	X						
54	1440	32.48*	1530	1.50	X						
61	1290	29.00*	1490	1.65	X						
71	1110	24.77	1440	1.75	X						
76	1040	23.20*	1410	1.80	X						
87	960	20.33	1300	1.55	X	**S**	**57**	**(E)DRN**	**90S4**	70	846
90	880	19.54	1350	1.80	X	**SF**	**57**	**(E)DRN**	**90S4**	78	847
100	840	17.62	1260	1.75	X	**SA**	**57**	**(E)DRN**	**90S4**	69	848
107	790	16.47*	1240	1.90	X	**SAF**	**57**	**(E)DRN**	**90S4**	76	847
124	685	14.24	1200	2.2	X						
146	585	12.10*	1150	2.5	X						
163	525	10.80*	1120	2.9	X						
191	450	9.23*	1070	2.9	X						
204	420	8.64*	1050	3.0	X						
258	335	6.83	980	2.6	X						
275	315	6.40*	970	2.7	X						
479	182	7.28	830	2.6							
510	173	6.83	810	2.8		**S**	**57**	**DRN**	**80M2**	57	846
545	162	6.40*	795	2.7		**SF**	**57**	**DRN**	**80M2**	65	847
646	137	5.39	755	2.7		**SA**	**57**	**DRN**	**80M2**	56	848
732	121	4.76	725	2.6		**SAF**	**57**	**DRN**	**80M2**	63	847
871	102	4.00*	685	2.4							

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P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
61	1280	29.00*	810	1.05	X						
71	1100	24.77	800	1.15	X						
76	1030	23.20*	790	1.20	X						
87	960	20.33	695	1.00	X						
90	870	19.54	770	1.25	X						
100	840	17.62	685	1.15	X						
107	785	16.47*	680	1.20	X						
124	680	14.24	670	1.40	X	**S**	**47**	**(E)DRN**	**90S4**	61	840
146	580	12.10*	655	1.65	X	**SF**	**47**	**(E)DRN**	**90S4**	69	841
163	520	10.80*	640	1.80	X	**SA**	**47**	**(E)DRN**	**90S4**	64	842
191	445	9.23*	620	2.1	X	**SAF**	**47**	**(E)DRN**	**90S4**	68	841
204	420	8.64*	615	2.1	X						
242	355	7.28	590	2.1	X						
258	335	6.83	580	2.0	X						
275	315	6.40*	570	2.1	X						
327	265	5.39	550	2.1	X						
370	235	4.76	535	2.2	X						
440	199	4.00*	510	2.1	X						
479	182	7.28	500	1.05							
510	173	6.83	490	1.75		**S**	**47**	**DRN**	**80M2**	49	840
545	162	6.40*	485	1.70		**SF**	**47**	**DRN**	**80M2**	57	841
646	137	5.39	460	1.55		**SA**	**47**	**DRN**	**80M2**	51	842
732	121	4.76	445	1.45		**SAF**	**47**	**DRN**	**80M2**	55	841
871	102	4.00*	425	1.40							
220	385	8.00*	360	1.00							
259	330	6.80*	355	1.10	X	**S**	**37**	**(E)DRN**	**90S4**	55	835
278	305	6.33	345	1.00	X	**SF**	**37**	**(E)DRN**	**90S4**	58	836
327	260	5.38	340	1.15	X	**SA**	**37**	**(E)DRN**	**90S4**	54	837
362	235	4.86*	335	1.20	X	**SAF**	**37**	**(E)DRN**	**90S4**	58	836
444	196	3.97	320	1.45	X						
550	159	6.33	310	1.35		**S**	**37**	**DRN**	**80M2**	42	835
647	135	5.38	300	1.30		**SF**	**37**	**DRN**	**80M2**	45	836
716	122	4.86*	295	1.30		**SA**	**37**	**DRN**	**80M2**	41	837
879	100	3.97	280	1.25		**SAF**	**37**	**DRN**	**80M2**	45	836

P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
2.5	33100	714	7570	1.10	X						
2.8	34800	626	7490	1.05	X						
3.3	29900	538	7720	1.25	X						
3.6	27100	484	7830	1.35	X	**S**	**97R57**	**(E)DRN**	**90L4**	410	870/876
4.2	23500	420	7960	1.60	X	**SF**	**97R57**	**(E)DRN**	**90L4**	480	871/876
4.7	21300	376	8030	1.75	X	**SA**	**97R57**	**(E)DRN**	**90L4**	395	872/876
5.4	18700	327	8100	2.0	X	**SAF**	**97R57**	**(E)DRN**	**90L4**	455	871/876
6.2	16500	287	8150	2.2	X						
7.0	14400	252	8200	2.6	X						
8.1	12500	219	8230	3.0	X						
3.6	22000	485	6180	1.00	X						
4.1	20000	435	6290	1.10	X						
4.7	17600	378	6400	1.25	X	**S**	**87R57**	**(E)DRN**	**90L4**	275	864/876
5.5	15300	323	6490	1.40	X	**SF**	**87R57**	**(E)DRN**	**90L4**	325	865/876
6.3	13400	281	6550	1.60	X	**SA**	**87R57**	**(E)DRN**	**90L4**	270	866/876
6.9	14200	255	6520	1.25	X	**SAF**	**87R57**	**(E)DRN**	**90L4**	305	865/876
8.0	12400	222	6570	1.40	X						
8.6	11600	205	6600	1.50	X						
4.1	22000	286.40*	8010	1.70		**S**	**97**	**DRN**	**112M6**	400	870
4.5	20300	262.22	8060	1.85		**SF**	**97**	**DRN**	**112M6**	470	871
5.1	18100	231.67	8120	2.0		**SA**	**97**	**DRN**	**112M6**	385	872
6.0	15600	196.52	8170	2.4		**SAF**	**97**	**DRN**	**112M6**	445	871
6.2	15200	286.40*	8180	2.3	X	**S**	**97**	**(E)DRN**	**90L4**	355	870
6.7	14000	262.22	8210	2.5	X	**SF**	**97**	**(E)DRN**	**90L4**	425	871
7.6	12500	231.67	8230	2.8	X	**SA**	**97**	**(E)DRN**	**90L4**	340	872
9.0	10700	196.52	8260	3.2	X	**SAF**	**97**	**(E)DRN**	**90L4**	400	871

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P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
5.3	16800	222.40*	6430	1.25		**S**	**87**	**DRN**	**112M6**	270	864
5.8	15400	202.96	6480	1.35		**SF**	**87**	**DRN**	**112M6**	320	865
6.6	13800	180.00*	6540	1.45		**SA**	**87**	**DRN**	**112M6**	265	866
						SAF	**87**	**DRN**	**112M6**	300	865
6.1	14700	288.00*	6510	1.35	X						
6.8	13300	258.18	6550	1.50	X						
8.0	11600	222.40*	6600	1.70	X						
8.7	10600	202.96	6630	1.80	X						
9.8	9570	180.00*	6660	1.95	X	**S**	**87**	**(E)DRN**	**90L4**	225	864
12	8150	151.30	6690	2.2	X	**SF**	**87**	**(E)DRN**	**90L4**	270	865
13	7530	139.05	6700	2.4	X	**SA**	**87**	**(E)DRN**	**90L4**	220	866
14	6740	123.48	6710	2.6	X	**SAF**	**87**	**(E)DRN**	**90L4**	255	865
16	6060	110.40*	6720	2.8	X						
18	5490	99.26	6730	3.0	X						
19	5690	91.20*	6730	2.4	X						
22	5120	81.76	6730	2.8	X						
8.3	10600	214.00*	2760	1.05	X						
9.3	9510	189.09	2990	1.15	X						
11	8240	161.60*	3200	1.30	X						
12	7610	148.15	3280	1.40	X						
14	6750	130.00*	3390	1.55	X						
14	6420	123.20*	3420	1.60	X						
16	5680	107.83	3470	1.75	X						
18	5150	97.14	3390	1.85	X	**S**	**77**	**(E)DRN**	**90L4**	145	858
21	4560	85.22	3290	2.0	X	**SF**	**77**	**(E)DRN**	**90L4**	165	859
24	4600	75.09	3050	2.1	X	**SA**	**77**	**(E)DRN**	**90L4**	145	860
25	4380	71.33	3020	2.2	X	**SAF**	**77**	**(E)DRN**	**90L4**	160	859
27	3620	66.67	3100	2.4	X						
28	3890	63.03	2930	2.5	X						
31	3110	56.92	2970	2.6	X						
33	3340	53.87	2830	2.9	X						
36	3070	49.38	2770	3.2	X						
41	2710	43.33	2680	3.6	X						
21	4300	85.83	2020	1.05	X						
23	3930	78.00*	2090	1.15	X						
27	3830	65.63	1970	1.10	X						
28	3650	62.35*	1960	1.15	X						
32	3220	54.70	1920	1.30	X						
38	2750	46.40*	1860	1.55	X						
42	2500	41.89	1820	1.70	X						
48	2210	36.85	1780	1.90	X	**S**	**67**	**(E)DRN**	**90L4**	100	852
51	2090	34.80*	1750	2.0	X	**SF**	**67**	**(E)DRN**	**90L4**	115	853
60	1790	29.63	1690	2.4	X	**SA**	**67**	**(E)DRN**	**90L4**	105	854
66	1630	26.93	1660	2.5	X	**SAF**	**67**	**(E)DRN**	**90L4**	115	853
72	1570	24.44	1530	1.90	X						
76	1490	23.22*	1510	2.0	X						
87	1310	20.37	1470	2.3	X						
102	1120	17.28*	1420	2.7	X						
113	1010	15.60*	1390	3.0	X						
129	890	13.73*	1340	3.4	X						
54	1910	32.48*	1440	1.15	X						
61	1720	29.00*	1410	1.25	X						
71	1480	24.77	1370	1.30	X						
76	1390	23.20*	1350	1.35	X						
90	1180	19.54	1300	1.35	X						
100	1120	17.62	1190	1.30	X						
107	1050	16.47*	1170	1.40	X						
124	910	14.24	1140	1.65	X	**S**	**57**	**(E)DRN**	**90L4**	77	846
146	775	12.10*	1100	1.90	X	**SF**	**57**	**(E)DRN**	**90L4**	85	847
164	695	10.80*	1070	2.1	X	**SA**	**57**	**(E)DRN**	**90L4**	76	848
192	595	9.23*	1040	2.2	X	**SAF**	**57**	**(E)DRN**	**90L4**	83	847
205	560	8.64*	1020	2.2	X						
243	470	7.28	980	2.3	X						
259	445	6.83	950	1.95	X						
276	420	6.40*	940	2.1	X						
328	355	5.39	900	2.4	X						
371	310	4.76	870	2.4	X						
442	265	4.00*	830	2.4	X						

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P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
482	240	7.28	810	2.0							
513	225	6.83	795	2.1		**S**	**57**	**DRN**	**90S2**	70	846
548	210	6.40*	780	2.1		**SF**	**57**	**DRN**	**90S2**	78	847
650	181	5.39	740	2.0		**SA**	**57**	**DRN**	**90S2**	69	848
736	160	4.76	715	1.95		**SAF**	**57**	**DRN**	**90S2**	76	847
876	135	4.00*	680	1.85							
124	910	14.24	600	1.05	X						
146	775	12.10*	595	1.25	X						
164	695	10.80*	590	1.35	X						
192	595	9.23*	580	1.55	X						
205	560	8.64*	575	1.60	X	**S**	**47**	**(E)DRN**	**90L4**	68	840
243	470	7.28	555	1.60	X	**SF**	**47**	**(E)DRN**	**90L4**	76	841
259	445	6.83	545	1.55	X	**SA**	**47**	**(E)DRN**	**90L4**	71	842
276	420	6.40*	540	1.60	X	**SAF**	**47**	**(E)DRN**	**90L4**	75	841
328	355	5.39	520	1.60	X						
371	310	4.76	510	1.65	X						
442	265	4.00*	490	1.60	X						
513	225	6.83	475	1.30							
548	210	6.40*	465	1.30		**S**	**47**	**DRN**	**90S2**	61	840
650	181	5.39	445	1.15		**SF**	**47**	**DRN**	**90S2**	69	841
736	160	4.76	435	1.10		**SA**	**47**	**DRN**	**90S2**	64	842
876	135	4.00*	415	1.05		**SAF**	**47**	**DRN**	**90S2**	68	841
						S	**37**	**(E)DRN**	**90L4**	62	835
446	260	3.97	295	1.10	X	**SF**	**37**	**(E)DRN**	**90L4**	65	836
						SA	**37**	**(E)DRN**	**90L4**	61	837
						SAF	**37**	**(E)DRN**	**90L4**	65	836
553	210	6.33	290	1.00		**S**	**37**	**DRN**	**90S2**	55	835
651	179	5.38	280	1.00		**SF**	**37**	**DRN**	**90S2**	58	836
721	162	4.86*	275	1.00		**SA**	**37**	**DRN**	**90S2**	54	837
						SAF	**37**	**DRN**	**90S2**	58	836

P_m = 3.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
4.2	35700	420	7440	1.05	X						
4.7	32300	376	7610	1.15	X						
5.4	28300	327	7780	1.30	X	**S**	**97R57**	**(E)DRN**	**100LM4**	430	870/876
6.1	25000	287	7910	1.50	X	**SF**	**97R57**	**(E)DRN**	**100LM4**	500	871/876
7.0	21900	252	8010	1.70	X	**SA**	**97R57**	**(E)DRN**	**100LM4**	420	872/876
8.1	19100	219	8090	1.95	X	**SAF**	**97R57**	**(E)DRN**	**100LM4**	480	871/876
8.6	18000	205	8120	2.1	X						
						S	**97**	**DRN**	**132S6**	425	870
5.1	27300	231.67	7830	1.35		**SF**	**97**	**DRN**	**132S6**	495	871
6.0	23400	196.52	7960	1.55		**SA**	**97**	**DRN**	**132S6**	410	872
						SAF	**97**	**DRN**	**132S6**	470	871
6.2	22900	286.40*	7980	1.55	X						
6.7	21100	262.22	8040	1.65	X						
7.6	18800	231.67	8100	1.85	X						
9.0	16100	196.52	8160	2.1	X						
9.7	14900	180.95	8190	2.2	X	**S**	**97**	**(E)DRN**	**100LM4**	380	870
11	13400	161.74	8220	2.4	X	**SF**	**97**	**(E)DRN**	**100LM4**	450	871
12	12100	145.60*	8240	2.6	X	**SA**	**97**	**(E)DRN**	**100LM4**	370	872
13	11100	131.85	8260	2.7	X	**SAF**	**97**	**(E)DRN**	**100LM4**	425	871
15	9910	116.92	8270	3.0	X						
17	9000	105.71	8280	3.1	X						
20	7690	89.60*	8300	3.5	X						

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P_m = 3.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
6.8	20000	258.18	6280	1.00	X						
7.9	17400	222.40*	6400	1.10	X						
8.7	16000	202.96	6460	1.20	X						
9.8	14400	180.00*	6520	1.30	X						
12	12200	151.30	6590	1.50	X						
13	11300	139.05	6610	1.60	X						
14	10100	123.48	6640	1.70	X	**S**	**87**	**(E)DRN**	**100LM4**	250	864
16	9120	110.40*	6670	1.85	X	**SF**	**87**	**(E)DRN**	**100LM4**	300	865
18	8250	99.26	6680	1.95	X	**SA**	**87**	**(E)DRN**	**100LM4**	245	866
20	7220	86.15	6700	2.2	X	**SAF**	**87**	**(E)DRN**	**100LM4**	280	865
22	7700	81.76	6690	1.85	X						
23	6500	77.14	6720	2.3	X						
25	6670	70.43	6710	2.1	X						
27	6110	64.27	6720	2.3	X						
31	5440	57.00*	6730	2.6	X						
14	10100	130.00*	2870	1.00	X						
14	9660	123.20*	2960	1.05	X						
16	8540	107.83	3150	1.15	X						
18	7750	97.14	3110	1.25	X						
21	6850	85.22	3040	1.35	X						
23	6090	75.20*	2970	1.45	X						
26	5440	66.67	2900	1.60	X						
28	5850	63.03	2690	1.65	X						
31	4680	56.92	2800	1.75	X	**S**	**77**	**(E)DRN**	**100LM4**	170	858
33	5030	53.87	2620	1.95	X	**SF**	**77**	**(E)DRN**	**100LM4**	190	859
36	4620	49.38	2580	2.1	X	**SA**	**77**	**(E)DRN**	**100LM4**	170	860
41	4080	43.33	2510	2.4	X	**SAF**	**77**	**(E)DRN**	**100LM4**	185	859
43	3870	41.07	2490	2.5	X						
49	3400	35.94	2420	2.8	X						
54	3070	32.38	2360	3.0	X						
62	2710	28.41	2290	3.2	X						
70	2400	25.07	2220	3.5	X						
77	2250	22.89	2060	2.8	X						
84	2070	20.99	2020	3.0	X						
38	4140	46.40*	1650	1.00	X						
42	3760	41.89	1630	1.15	X						
48	3330	36.85	1610	1.30	X						
51	3150	34.80*	1590	1.35	X						
59	2700	29.63	1550	1.55	X						
65	2460	26.93	1530	1.65	X						
76	2140	23.33	1490	1.65	X	**S**	**67**	**(E)DRN**	**100LM4**	125	852
86	1980	20.37	1340	1.50	X	**SF**	**67**	**(E)DRN**	**100LM4**	140	853
102	1680	17.28*	1310	1.80	X	**SA**	**67**	**(E)DRN**	**100LM4**	130	854
113	1520	15.60*	1280	1.95	X	**SAF**	**67**	**(E)DRN**	**100LM4**	140	853
128	1340	13.73*	1250	2.2	X						
136	1270	12.96*	1240	2.4	X						
160	1080	11.03	1200	2.8	X						
176	990	10.03	1170	2.8	X						
203	860	8.69	1140	2.9	X						
233	750	7.56*	1100	3.0	X						
257	680	13.73*	1070	2.8							
272	640	12.96*	1060	2.7		**S**	**67**	**DRN**	**90L2**	100	852
319	550	11.03	1020	2.7		**SF**	**67**	**DRN**	**90L2**	115	853
352	500	10.03	990	2.7		**SA**	**67**	**DRN**	**90L2**	105	854
406	430	8.69	950	2.5		**SAF**	**67**	**DRN**	**90L2**	115	853
466	375	7.56*	920	2.2							
124	1370	14.24	1030	1.10	X						
146	1170	12.10*	1010	1.30	X						
163	1040	10.80*	990	1.40	X						
191	900	9.23*	960	1.45	X						
204	840	8.64*	950	1.50	X	**S**	**57**	**(E)DRN**	**100LM4**	100	846
242	710	7.28	920	1.50	X	**SF**	**57**	**(E)DRN**	**100LM4**	110	847
258	675	6.83	900	1.30	X	**SA**	**57**	**(E)DRN**	**100LM4**	100	848
275	630	6.40*	890	1.35	X	**SAF**	**57**	**(E)DRN**	**100LM4**	105	847
327	535	5.39	850	1.55	X						
370	470	4.76	830	1.55	X						
440	395	4.00*	795	1.55	X						

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P_m = 3.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
484	360	7.28	780	1.30							
516	340	6.83	765	1.40		**S**	**57**	**DRN**	**90L2**	77	846
551	315	6.40*	750	1.40		**SF**	**57**	**DRN**	**90L2**	85	847
654	265	5.39	715	1.35		**SA**	**57**	**DRN**	**90L2**	76	848
740	235	4.76	695	1.30		**SAF**	**57**	**DRN**	**90L2**	83	847
881	200	4.00*	660	1.25							
191	890	9.23*	490	1.05	X						
204	840	8.64*	490	1.05	X						
242	710	7.28	490	1.05	X	**S**	**47**	**(E)DRN**	**100LM4**	93	840
258	675	6.83	480	1.00	X	**SF**	**47**	**(E)DRN**	**100LM4**	100	841
275	630	6.40*	475	1.05	X	**SA**	**47**	**(E)DRN**	**100LM4**	95	842
327	530	5.39	470	1.10	X	**SAF**	**47**	**(E)DRN**	**100LM4**	99	841
370	470	4.76	460	1.10	X						
440	395	4.00*	450	1.05	X						

P_m = 4.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
6.1	33400	287	7550	1.10	X	**S**	**97R57**	**(E)DRN**	**100L4**	430	870/876
7.0	29300	252	7740	1.25	X	**SF**	**97R57**	**(E)DRN**	**100L4**	500	871/876
8.1	25600	219	7890	1.45	X	**SA**	**97R57**	**(E)DRN**	**100L4**	420	872/876
8.6	24100	205	7940	1.55	X	**SAF**	**97R57**	**(E)DRN**	**100L4**	480	871/876
6.2	30500	286.40*	7690	1.15	X						
6.7	28100	262.22	7790	1.25	X						
7.6	25100	231.67	7910	1.40	X						
9.0	21500	196.52	8020	1.60	X						
9.7	19900	180.95	8070	1.65	X	**S**	**97**	**(E)DRN**	**100L4**	380	870
11	17900	161.74	8120	1.80	X	**SF**	**97**	**(E)DRN**	**100L4**	450	871
12	16200	145.60*	8160	1.95	X	**SA**	**97**	**(E)DRN**	**100L4**	370	872
13	14800	131.85	8190	2.1	X	**SAF**	**97**	**(E)DRN**	**100L4**	425	871
15	13200	116.92	8220	2.2	X						
17	12000	105.71	8240	2.4	X						
20	10200	89.60*	8270	2.6	X						
22	10300	80.85	8270	2.8	X						
9.8	19100	180.00*	6330	1.00							
12	16300	151.30	6450	1.10	X						
13	15000	139.05	6490	1.20	X						
14	13500	123.48	6550	1.30	X						
16	12100	110.40*	6590	1.40	X						
18	11000	99.26	6620	1.50	X						
20	9620	86.15	6650	1.65	X	**S**	**87**	**(E)DRN**	**100L4**	250	864
22	10200	81.76	6640	1.40	X	**SF**	**87**	**(E)DRN**	**100L4**	300	865
23	8660	77.14	6680	1.75	X	**SA**	**87**	**(E)DRN**	**100L4**	245	866
25	8890	70.43	6670	1.60	X	**SAF**	**87**	**(E)DRN**	**100L4**	280	865
27	8140	64.27	6680	1.75	X						
31	7250	57.00*	6700	1.95	X						
37	6120	47.91	6720	2.3	X						
40	5640	44.03	6730	2.5	X						
45	5020	39.10	6720	2.8	X						
50	4510	34.96*	6530	3.1	X						
21	9140	85.22	2790	1.00	X						
23	8120	75.20*	2740	1.10	X						
26	7250	66.67	2700	1.20	X						
28	7790	63.03	2440	1.25	X						
31	6240	56.92	2630	1.30	X						
33	6700	53.87	2410	1.45	X	**S**	**77**	**(E)DRN**	**100L4**	170	858
36	6160	49.38	2380	1.60	X	**SF**	**77**	**(E)DRN**	**100L4**	190	859
41	5430	43.33	2340	1.80	X	**SA**	**77**	**(E)DRN**	**100L4**	170	860
43	5160	41.07	2320	1.90	X	**SAF**	**77**	**(E)DRN**	**100L4**	185	859
49	4540	35.94	2270	2.1	X						
54	4100	32.38	2230	2.2	X						
62	3610	28.41	2180	2.4	X						
70	3190	25.07	2120	2.6	X						
77	3010	22.89	1930	2.1	X						

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P_m = 4.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
84	2760	20.99	1900	2.2	X						
96	2430	18.42	1860	2.6	X						
101	2300	17.45	1840	2.7	X	**S**	**77**	**(E)DRN**	**100L4**	170	858
115	2020	15.28	1790	3.1	X	**SF**	**77**	**(E)DRN**	**100L4**	190	859
128	1820	13.76	1750	3.5	X	**SA**	**77**	**(E)DRN**	**100L4**	170	860
146	1600	12.07	1700	4.0	X	**SAF**	**77**	**(E)DRN**	**100L4**	185	859
165	1420	10.65	1650	4.5	X						
51	4200	34.80*	1430	1.00	X						
60	3600	29.63	1410	1.20	X						
65	3280	26.93	1400	1.25	X						
76	2850	23.33	1380	1.25	X						
87	2630	20.37	1200	1.15	X						
102	2240	17.28*	1190	1.35	X	**S**	**67**	**(E)DRN**	**100L4**	125	852
113	2030	15.60*	1180	1.50	X	**SF**	**67**	**(E)DRN**	**100L4**	140	853
128	1790	13.73*	1160	1.70	X	**SA**	**67**	**(E)DRN**	**100L4**	130	854
136	1690	12.96*	1150	1.75	X	**SAF**	**67**	**(E)DRN**	**100L4**	140	853
160	1450	11.03	1130	2.1	X						
176	1320	10.03	1110	2.1	X						
203	1140	8.69	1080	2.2	X						
233	1000	7.56*	1050	2.2	X						
256	910	13.73*	1030	2.1							
271	860	12.96*	1020	2.0		**S**	**67**	**DRN**	**100LM2**	125	852
319	735	11.03	980	2.0		**SF**	**67**	**DRN**	**100LM2**	140	853
351	665	10.03	960	2.0		**SA**	**67**	**DRN**	**100LM2**	130	854
405	580	8.69	920	1.90		**SAF**	**67**	**DRN**	**100LM2**	140	853
465	505	7.56*	890	1.65							
163	1390	10.80*	900	1.05	X						
191	1190	9.23*	890	1.10	X						
204	1120	8.64*	880	1.10	X	**S**	**57**	**(E)DRN**	**100L4**	100	846
242	950	7.28	860	1.15	X	**SF**	**57**	**(E)DRN**	**100L4**	110	847
275	840	6.40*	830	1.05	X	**SA**	**57**	**(E)DRN**	**100L4**	100	848
327	710	5.39	810	1.20	X	**SAF**	**57**	**(E)DRN**	**100L4**	105	847
370	630	4.76	790	1.20	X						
441	530	4.00*	760	1.20	X						
407	570	8.64*	780	1.05							
483	480	7.28	750	1.00		**S**	**57**	**DRN**	**100LM2**	100	846
515	455	6.83	735	1.05		**SF**	**57**	**DRN**	**100LM2**	110	847
550	425	6.40*	725	1.05		**SA**	**57**	**DRN**	**100LM2**	100	848
652	360	5.39	695	1.00		**SAF**	**57**	**DRN**	**100LM2**	105	847
739	315	4.76	675	0.95							

P_m = 5.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
7.0	36900	252	7230	1.00	X	**S**	**97R57**	**(E)DRN**	**100L4**	430	870/876
8.0	32200	219	7610	1.15	X	**SF**	**97R57**	**(E)DRN**	**100L4**	500	871/876
8.6	30300	205	7700	1.20	X	**SA**	**97R57**	**(E)DRN**	**100L4**	420	872/876
						SAF	**97R57**	**(E)DRN**	**100L4**	480	871/876
6.7	35300	262.22	7460	1.00	X						
7.6	31400	231.67	7650	1.10	X						
8.9	27000	196.52	7840	1.25	X						
9.7	24900	180.95	7910	1.35	X						
11	22400	161.74	7990	1.45	X						
12	20300	145.60*	8060	1.55	X	**S**	**97**	**(E)DRN**	**100L4**	380	870
13	18500	131.85	8110	1.65	X	**SF**	**97**	**(E)DRN**	**100L4**	450	871
15	16500	116.92	8150	1.80	X	**SA**	**97**	**(E)DRN**	**100L4**	370	872
17	15000	105.71	8190	1.90	X	**SAF**	**97**	**(E)DRN**	**100L4**	425	871
20	12800	89.60*	8230	2.1	X						
22	12900	80.85	8220	2.2	X						
25	11500	71.43	8250	2.5	X						
29	9820	60.59	8270	3.0	X						

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P_m = 5.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
14	16900	123.48	6420	1.00	X						
16	15200	110.40*	6490	1.10	X						
18	13700	99.26	6540	1.20	X						
20	12000	86.15	6590	1.30	X						
22	12800	81.76	6560	1.10	X						
23	10800	77.14	6620	1.40	X						
25	11100	70.43	6610	1.25	X	**S**	**87**	**(E)DRN**	**100L4**	250	864
27	10200	64.27	6640	1.40	X	**SF**	**87**	**(E)DRN**	**100L4**	300	865
31	9080	57.00*	6660	1.55	X	**SA**	**87**	**(E)DRN**	**100L4**	245	866
37	7680	47.91	6690	1.85	X	**SAF**	**87**	**(E)DRN**	**100L4**	280	865
40	7070	44.03	6700	2.0	X						
45	6300	39.10	6600	2.2	X						
50	5650	34.96*	6430	2.5	X						
56	5090	31.43	6260	2.8	X						
69	4240	25.50*	5780	2.6	X						
28	9770	63.03	2190	1.00	X						
31	7830	56.92	2460	1.05	X						
33	8400	53.87	2190	1.15	X						
36	7730	49.38	2190	1.25	X						
41	6810	43.33	2170	1.45	X						
43	6470	41.07	2160	1.50	X						
49	5690	35.94	2130	1.65	X						
54	5140	32.38	2100	1.80	X	**S**	**77**	**(E)DRN**	**100L4**	170	858
62	4520	28.41	2060	1.95	X	**SF**	**77**	**(E)DRN**	**100L4**	190	859
70	4010	25.07	2020	2.1	X	**SA**	**77**	**(E)DRN**	**100L4**	170	860
77	3770	22.89	1800	1.65	X	**SAF**	**77**	**(E)DRN**	**100L4**	185	859
84	3460	20.99	1780	1.80	X						
95	3050	18.42	1750	2.1	X						
101	2890	17.45	1740	2.2	X						
115	2540	15.28	1700	2.5	X						
128	2290	13.76	1670	2.8	X						
146	2010	12.07	1630	3.2	X						
165	1780	10.65	1590	3.6	X						
230	1280	15.28	1480	3.6							
255	1160	13.76	1440	3.7		**S**	**77**	**DRN**	**100L2**	170	858
291	1010	12.07	1400	3.6		**SF**	**77**	**DRN**	**100L2**	190	859
329	900	10.65	1350	3.6		**SA**	**77**	**DRN**	**100L2**	170	860
371	795	9.44	1310	3.5		**SAF**	**77**	**DRN**	**100L2**	185	859
435	680	8.06	1260	3.4							
65	4110	26.93	1280	1.00							
75	3580	23.33	1270	1.00	X						
102	2810	17.28*	1080	1.05	X						
113	2550	15.60*	1080	1.20	X	**S**	**67**	**(E)DRN**	**100L4**	125	852
128	2250	13.73*	1070	1.35	X	**SF**	**67**	**(E)DRN**	**100L4**	140	853
136	2120	12.96*	1070	1.40	X	**SA**	**67**	**(E)DRN**	**100L4**	130	854
159	1810	11.03	1050	1.65	X	**SAF**	**67**	**(E)DRN**	**100L4**	140	853
175	1650	10.03	1040	1.70	X						
202	1430	8.69	1020	1.70	X						
233	1250	7.56*	1000	1.75	X						
256	1140	13.73*	980	1.65							
271	1070	12.96*	970	1.65		**S**	**67**	**DRN**	**100L2**	125	852
318	920	11.03	940	1.60		**SF**	**67**	**DRN**	**100L2**	140	853
350	830	10.03	920	1.60		**SA**	**67**	**DRN**	**100L2**	130	854
404	725	8.69	900	1.50		**SAF**	**67**	**DRN**	**100L2**	140	853
464	630	7.56*	870	1.35							

P_m = 5.4 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
						S	**97R57**	**(E)DRN**	**112M4**	455	870/876
8.1	34600	219	7490	1.05	X	**SF**	**97R57**	**(E)DRN**	**112M4**	520	871/876
8.6	32600	205	7600	1.15	X	**SA**	**97R57**	**(E)DRN**	**112M4**	440	872/876
						SAF	**97R57**	**(E)DRN**	**112M4**	500	871/876

P_m = 5.4 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
7.6	33700	231.67	7540	1.05	X						
9.0	28900	196.52	7760	1.15	X						
9.8	26800	180.95	7840	1.25	X						
11	24100	161.74	7940	1.35	X						
12	21800	145.60*	8010	1.45	X						
13	19900	131.85	8070	1.55	X	**S**	**97**	**(E)DRN**	**112M4**	400	870
15	17700	116.92	8120	1.65	X	**SF**	**97**	**(E)DRN**	**112M4**	470	871
17	16100	105.71	8160	1.75	X	**SA**	**97**	**(E)DRN**	**112M4**	385	872
20	13700	89.60*	8210	1.95	X	**SAF**	**97**	**(E)DRN**	**112M4**	445	871
22	13900	80.85	8210	2.1	X						
25	12300	71.43	8240	2.4	X						
29	10500	60.59	8260	2.8	X						
32	9730	55.79	8280	3.0	X						
16	16300	110.40*	6450	1.05	X						
18	14800	99.26	6500	1.10	X						
21	12900	86.15	6560	1.20	X						
23	11600	77.14	6600	1.30	X						
25	11900	70.43	6590	1.20	X						
28	10900	64.27	6620	1.30	X						
31	9750	57.00*	6650	1.45	X	**S**	**87**	**(E)DRN**	**112M4**	270	864
37	8240	47.91	6680	1.70	X	**SF**	**87**	**(E)DRN**	**112M4**	320	865
40	7590	44.03	6690	1.85	X	**SA**	**87**	**(E)DRN**	**112M4**	265	866
45	6760	39.10	6540	2.1	X	**SAF**	**87**	**(E)DRN**	**112M4**	300	865
51	6060	34.96*	6380	2.3	X						
56	5470	31.43	6210	2.6	X						
65	4760	27.28	6000	3.0	X						
69	4560	25.50*	5720	2.4	X						
83	3840	21.43	5500	2.9	X						
33	9020	53.87	2110	1.10	X						
36	8300	49.38	2110	1.15	X						
41	7310	43.33	2100	1.35	X						
43	6940	41.07	2090	1.40	X						
49	6100	35.94	2070	1.55	X						
55	5520	32.38	2050	1.65	X						
62	4860	28.41	2010	1.80	X						
71	4300	25.07	1980	1.95	X	**S**	**77**	**(E)DRN**	**112M4**	190	858
77	4050	22.89	1740	1.55	X	**SF**	**77**	**(E)DRN**	**112M4**	210	859
84	3720	20.99	1730	1.70	X	**SA**	**77**	**(E)DRN**	**112M4**	190	860
96	3270	18.42	1710	1.90	X	**SAF**	**77**	**(E)DRN**	**112M4**	205	859
101	3100	17.45	1700	2.0	X						
116	2720	15.28	1670	2.3	X						
129	2460	13.76	1640	2.6	X						
147	2160	12.07	1600	3.0	X						
166	1910	10.65	1570	3.4	X						
187	1690	9.44	1530	3.4	X						
219	1450	8.06	1480	3.5	X						
233	1370	15.28	1460	3.4							
258	1230	13.76	1420	3.4		**S**	**77**	**DRN**	**112M2**	190	858
294	1080	12.07	1380	3.4		**SF**	**77**	**DRN**	**112M2**	210	859
333	960	10.65	1340	3.4		**SA**	**77**	**DRN**	**112M2**	190	860
376	850	9.44	1300	3.3		**SAF**	**77**	**DRN**	**112M2**	205	859
440	725	8.06	1240	3.2							
102	3020	17.28*	1030	1.00							
113	2730	15.60*	1040	1.10	X						
129	2410	13.73*	1040	1.25	X	**S**	**67**	**(E)DRN**	**112M4**	145	852
136	2280	12.96*	1030	1.30	X	**SF**	**67**	**(E)DRN**	**112M4**	160	853
160	1950	11.03	1020	1.55	X	**SA**	**67**	**(E)DRN**	**112M4**	150	854
176	1770	10.03	1010	1.55	X	**SAF**	**67**	**(E)DRN**	**112M4**	160	853
204	1540	8.69	1000	1.60	X						
234	1340	7.56*	980	1.65	X						
259	1210	13.73*	960	1.55							
274	1150	12.96*	950	1.55		**S**	**67**	**DRN**	**112M2**	145	852
322	980	11.03	930	1.50		**SF**	**67**	**DRN**	**112M2**	160	853
354	890	10.03	910	1.50		**SA**	**67**	**DRN**	**112M2**	150	854
409	775	8.69	880	1.40		**SAF**	**67**	**DRN**	**112M2**	160	853
470	675	7.56*	850	1.25							

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P_m = 7.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1)] lb	SEW SF f_B	HazLoc -NA®					m lbs	
12	30400	145.60*	7700	1.05	X						
13	27600	131.85	7810	1.10	X						
15	24700	116.92	7920	1.20	X						
17	22400	105.71	8000	1.25	X						
20	19100	89.60*	8090	1.40	X						
23	16800	78.26	8150	1.50	X	**S**	**97**	**(E)DRN**	**132S4**	425	870
25	17100	71.43	8140	1.70	X	**SF**	**97**	**(E)DRN**	**132S4**	495	871
27	14100	65.45	8200	1.65	X	**SA**	**97**	**(E)DRN**	**132S4**	410	872
29	14600	60.59	8190	2.0	X	**SAF**	**97**	**(E)DRN**	**132S4**	470	871
32	13500	55.79	8220	2.2	X						
35	12100	49.87	8240	2.4	X						
39	10900	44.89	8260	2.7	X						
43	9920	40.65	8260	2.9	X						
28	13500	64.00*	6550	1.05	X						
31	13500	57.00*	6540	1.05	X						
37	11400	47.91	6540	1.25	X						
40	10500	44.03	6440	1.35	X						
45	9400	39.10	6290	1.50	X						
51	8430	34.96*	6150	1.70	X						
56	7600	31.43	6010	1.85	X	**S**	**87**	**(E)DRN**	**132S4**	295	864
65	6610	27.28	5830	2.1	X	**SF**	**87**	**(E)DRN**	**132S4**	345	865
69	6330	25.50*	5490	1.75	X	**SA**	**87**	**(E)DRN**	**132S4**	290	866
82	5340	21.43	5300	2.0	X	**SAF**	**87**	**(E)DRN**	**132S4**	325	865
90	4910	19.70	5210	2.2	X						
101	4370	17.49	5070	2.5	X						
113	3920	15.64*	4950	2.8	X						
126	3530	14.06	4830	3.1	X						
145	3070	12.21	4670	3.6	X						
162	2750	10.93	4550	3.6	X						
43	9650	41.07	1750	1.00	X						
49	8480	35.94	1770	1.10	X						
55	7670	32.38	1780	1.20	X						
62	6750	28.41	1780	1.30	X						
71	5980	25.07	1770	1.40	X						
80	5310	22.22	1750	1.55	X						
93	4550	18.97	1720	1.65	X	**S**	**77**	**(E)DRN**	**132S4**	215	858
96	4550	18.42	1490	1.40	X	**SF**	**77**	**(E)DRN**	**132S4**	235	859
101	4310	17.45	1490	1.45	X	**SA**	**77**	**(E)DRN**	**132S4**	215	860
116	3780	15.28	1480	1.70	X	**SAF**	**77**	**(E)DRN**	**132S4**	230	859
128	3420	13.76	1470	1.85	X						
146	3000	12.07	1460	2.1	X						
166	2650	10.65	1440	2.4	X						
187	2360	9.44	1410	2.5	X						
219	2020	8.06	1380	2.5	X						
258	1720	13.76	1340	2.5							
294	1510	12.07	1310	2.4		**S**	**77**	**DRN**	**132S2**	215	858
333	1330	10.65	1270	2.4		**SF**	**77**	**DRN**	**132S2**	235	859
375	1180	9.44	1240	2.4		**SA**	**77**	**DRN**	**132S2**	215	860
439	1010	8.06	1200	2.3		**SAF**	**77**	**DRN**	**132S2**	230	859
160	2710	11.03	810	1.10	X	**S**	**67**	**(E)DRN**	**132S4**	170	852
176	2460	10.03	860	1.15	X	**SF**	**67**	**(E)DRN**	**132S4**	185	853
204	2140	8.69	880	1.15	X	**SA**	**67**	**(E)DRN**	**132S4**	175	854
234	1870	7.56*	870	1.20	X	**SAF**	**67**	**(E)DRN**	**132S4**	185	853
258	1690	13.73*	870	1.10							
273	1600	12.96*	860	1.10		**S**	**67**	**DRN**	**132S2**	170	852
321	1360	11.03	850	1.10		**SF**	**67**	**DRN**	**132S2**	185	853
353	1240	10.03	840	1.05		**SA**	**67**	**DRN**	**132S2**	175	854
408	1080	8.69	820	1.00		**SAF**	**67**	**DRN**	**132S2**	185	853

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P_m = 10.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
20	25400	89.60*	7890	1.05	X						
23	22300	78.26	8000	1.15	X						
25	22800	71.43	7980	1.30	X						
27	18800	65.45	8100	1.25	X						
29	19400	60.59	8080	1.50	X						
32	17900	55.79	8120	1.60	X						
36	16100	49.87	8160	1.80	X	**S**	**97**	**(E)DRN**	**132M4**	465	870
40	14500	44.89	8160	2.0	X	**SF**	**97**	**(E)DRN**	**132M4**	540	871
44	13100	40.65	8000	2.2	X	**SA**	**97**	**(E)DRN**	**132M4**	450	872
49	11700	36.05	7790	2.4	X	**SAF**	**97**	**(E)DRN**	**132M4**	510	871
54	10600	32.60	7620	2.5	X						
67	8830	26.39	6960	2.6	X						
75	7910	23.59	6800	2.9	X						
84	7130	21.23	6650	3.2	X						
92	6460	19.23	6500	3.4	X						
40	14000	44.03	6100	1.00	X						
45	12400	39.10	5980	1.15	X						
51	11200	34.96*	5870	1.25	X						
56	10100	31.43	5760	1.40	X						
65	8790	27.28	5610	1.60	X						
70	8420	25.50*	5200	1.30	X						
83	7100	21.43	5060	1.55	X	**S**	**87**	**(E)DRN**	**132M4**	335	864
90	6530	19.70	4990	1.70	X	**SF**	**87**	**(E)DRN**	**132M4**	380	865
101	5810	17.49	4880	1.90	X	**SA**	**87**	**(E)DRN**	**132M4**	330	866
113	5210	15.64*	4770	2.1	X	**SAF**	**87**	**(E)DRN**	**132M4**	365	865
126	4690	14.06	4670	2.3	X						
145	4080	12.21	4530	2.7	X						
162	3650	10.93	4420	2.7	X						
196	3040	9.07	4240	2.8	X						
225	2640	7.88	4100	2.8	X						
227	2620	15.64*	4090	2.6							
252	2360	14.06	3990	2.5		**S**	**87**	**DRN**	**132S2**	295	864
290	2050	12.21	3850	2.3		**SF**	**87**	**DRN**	**132S2**	345	865
324	1840	10.93	3740	2.1		**SA**	**87**	**DRN**	**132S2**	290	866
391	1530	9.07	3570	1.45		**SAF**	**87**	**DRN**	**132S2**	325	865
450	1330	7.88	3440	1.35							
62	8970	28.41	1490	1.00							
71	7950	25.07	1520	1.05	X						
80	7060	22.22	1530	1.15	X						
93	6050	18.97	1530	1.25	X						
96	6040	18.42	840	1.05	X	**S**	**77**	**(E)DRN**	**132M4**	255	858
102	5730	17.45	910	1.10	X	**SF**	**77**	**(E)DRN**	**132M4**	275	859
116	5030	15.28	1060	1.25	X	**SA**	**77**	**(E)DRN**	**132M4**	255	860
129	4540	13.76	1160	1.40	X	**SAF**	**77**	**(E)DRN**	**132M4**	270	859
147	3990	12.07	1270	1.60	X						
167	3530	10.65	1280	1.80	X						
188	3130	9.44	1280	1.85	X						
220	2680	8.06	1260	1.90	X						
232	2540	15.28	1260	1.85							
258	2290	13.76	1240	1.85		**S**	**77**	**DRN**	**132S2**	215	858
294	2010	12.07	1220	1.80		**SF**	**77**	**DRN**	**132S2**	235	859
333	1780	10.65	1200	1.80		**SA**	**77**	**DRN**	**132S2**	215	860
375	1580	9.44	1170	1.75		**SAF**	**77**	**DRN**	**132S2**	230	859
440	1350	8.06	1140	1.70							

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P_m = 12.3 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
27	23100	65.45	7970	1.00	X						
32	22000	55.79	8010	1.30	X						
36	19800	49.87	8050	1.45	X						
40	17800	44.89	7900	1.65	X						
44	16200	40.65	7760	1.75	X						
49	14400	36.05	7580	1.90	X						
54	13000	32.60	7430	2.0	X	**S**	**97**	**(E)DRN**	**132L4**	480	870
67	10800	26.39	6740	2.1	X	**SF**	**97**	**(E)DRN**	**132L4**	550	871
75	9720	23.59	6600	2.4	X	**SA**	**97**	**(E)DRN**	**132L4**	470	872
84	8760	21.23	6470	2.6	X	**SAF**	**97**	**(E)DRN**	**132L4**	530	871
92	7950	19.23	6340	2.8	X						
104	7060	17.05	6180	3.0	X						
115	6390	15.42	6050	3.2	X						
136	5420	13.07	5830	3.5	X						
156	4740	11.41	5650	3.7	X						
51	13700	34.96*	5620	1.05	X						
56	12400	31.43	5540	1.15	X						
65	10800	27.28	5410	1.30	X						
73	9700	24.43	5310	1.45	X						
88	8070	20.27	5130	1.55	X						
90	8030	19.70	4780	1.35	X	**S**	**87**	**(E)DRN**	**132L4**	355	864
101	7150	17.49	4700	1.55	X	**SF**	**87**	**(E)DRN**	**132L4**	400	865
113	6400	15.64*	4610	1.70	X	**SA**	**87**	**(E)DRN**	**132L4**	345	866
126	5760	14.06	4530	1.90	X	**SAF**	**87**	**(E)DRN**	**132L4**	385	865
145	5010	12.21	4410	2.2	X						
162	4490	10.93	4310	2.2	X						
196	3730	9.07	4140	2.2	X						
225	3250	7.88	4020	2.3	X						
94	7440	18.97	1360	1.00	X						
129	5580	13.76	685	1.15	X	**S**	**77**	**(E)DRN**	**132L4**	275	858
147	4910	12.07	840	1.30	X	**SF**	**77**	**(E)DRN**	**132L4**	295	859
167	4340	10.65	960	1.50	X	**SA**	**77**	**(E)DRN**	**132L4**	270	860
188	3850	9.44	1060	1.50	X	**SAF**	**77**	**(E)DRN**	**132L4**	285	859
220	3300	8.06	1160	1.55	X						

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P_m = 15.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
32	26900	55.79	7810	1.10	X						
36	24100	49.87	7700	1.20	X						
40	21700	44.89	7590	1.35	X						
44	19700	40.65	7480	1.45	X						
49	17500	36.05	7330	1.55	X						
54	15900	32.60	7200	1.65	X	**S**	**97**	**(E)DRN**	**160M4**	550	870
67	13200	26.39	6480	1.75	X	**SF**	**97**	**(E)DRN**	**160M4**	630	871
75	11800	23.59	6370	1.95	X	**SA**	**97**	**(E)DRN**	**160M4**	540	872
84	10600	21.23	6260	2.1	X	**SAF**	**97**	**(E)DRN**	**160M4**	600	871
92	9690	19.23	6150	2.3	X						
104	8600	17.05	6010	2.5	X						
115	7790	15.42	5900	2.6	X						
136	6610	13.07	5700	2.9	X						
156	5780	11.41	5530	3.1	X						
65	13100	27.28	5180	1.05	X						
73	11800	24.43	5100	1.20	X						
88	9840	20.27	4960	1.30	X						
90	9790	19.70	4550	1.10	X						
102	8710	17.49	4490	1.25	X	**S**	**87**	**(E)DRN**	**160M4**	425	864
114	7800	15.64*	4420	1.40	X	**SF**	**87**	**(E)DRN**	**160M4**	470	865
126	7030	14.06	4360	1.55	X	**SA**	**87**	**(E)DRN**	**160M4**	420	866
146	6110	12.21	4260	1.80	X	**SAF**	**87**	**(E)DRN**	**160M4**	455	865
163	5480	10.93	4180	1.80	X						
196	4550	9.07	4040	1.85	X						
225	3960	7.88	3920	1.85	X						
147	5980	12.07	350	1.05	X	**S**	**77**	**(E)DRN**	**160M4**	345	858
167	5290	10.65	525	1.20	X	**SF**	**77**	**(E)DRN**	**160M4**	365	859
188	4700	9.44	665	1.25	X	**SA**	**77**	**(E)DRN**	**160M4**	340	860
220	4020	8.06	820	1.25	X	**SAF**	**77**	**(E)DRN**	**160M4**	355	859

P_m = 20 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
40	29000	44.89	7020	1.00	X						
44	26300	40.65	6960	1.10	X						
49	23400	36.05	6870	1.20	X						
55	21200	32.60	6790	1.25	X						
67	17600	26.39	5990	1.30	X						
75	15700	23.59	5930	1.45	X	**S**	**97**	**(E)DRN**	**160L4**	590	870
84	14200	21.23	5870	1.60	X	**SF**	**97**	**(E)DRN**	**160L4**	660	871
92	12900	19.23	5800	1.70	X	**SA**	**97**	**(E)DRN**	**160L4**	580	872
104	11400	17.05	5700	1.85	X	**SAF**	**97**	**(E)DRN**	**160L4**	630	871
115	10300	15.42	5610	1.95	X						
136	8810	13.07	5460	2.2	X						
156	7700	11.41	5320	2.3	X						
186	6450	9.55	5140	2.3	X						
215	5590	8.26	4990	2.3	X						
114	10400	15.64*	4080	1.05	X						
126	9360	14.06	4050	1.15	X	**S**	**87**	**(E)DRN**	**160L4**	460	864
146	8140	12.21	3990	1.35	X	**SF**	**87**	**(E)DRN**	**160L4**	510	865
163	7300	10.93	3940	1.35	X	**SA**	**87**	**(E)DRN**	**160L4**	455	866
196	6070	9.07	3830	1.40	X	**SAF**	**87**	**(E)DRN**	**160L4**	490	865
225	5280	7.88	3750	1.40	X						

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P_m = 25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
55	26400	32.60	6370	1.00	X						
64	22400	27.63	6270	1.10	X						
74	19600	24.13	6170	1.20	X						
84	17700	21.23	5480	1.30	X						
93	16100	19.23	5440	1.35	X	**S**	**97**	**(E)DRN**	**180M4**	640	870
104	14300	17.05	5390	1.50	X	**SF**	**97**	**(E)DRN**	**180M4**	710	871
116	12900	15.42	5330	1.55	X	**SA**	**97**	**(E)DRN**	**180M4**	630	872
136	10900	13.07	5220	1.75	X	**SAF**	**97**	**(E)DRN**	**180M4**	680	871
156	9610	11.41	5110	1.85	X						
187	8050	9.55	4960	1.85	X						
216	6970	8.26	4830	1.85	X						
146	10100	12.21	3710	1.10	X	**S**	**87**	**(E)DRN**	**180M4**	510	864
163	9110	10.93	3690	1.10	X	**SF**	**87**	**(E)DRN**	**180M4**	550	865
196	7570	9.07	3630	1.10	X	**SA**	**87**	**(E)DRN**	**180M4**	500	866
226	6590	7.88	3570	1.10	X	**SAF**	**87**	**(E)DRN**	**180M4**	540	865

P_m = 30 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
74	23600	24.13	5870	1.00	X						
84	21300	21.23	4800	1.05	X						
93	19300	19.23	5090	1.15	X						
104	17100	17.05	5070	1.25	X	**S**	**97**	**(E)DRN**	**180L4**	670	870
116	15500	15.42	5050	1.30	X	**SF**	**97**	**(E)DRN**	**180L4**	740	871
136	13100	13.07	4980	1.45	X	**SA**	**97**	**(E)DRN**	**180L4**	660	872
156	11500	11.41	4900	1.55	X	**SAF**	**97**	**(E)DRN**	**180L4**	720	871
187	9660	9.55	4790	1.55	X						
216	8370	8.26	4680	1.50	X						

P_m = 40 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
136	17500	13.07	4460	1.10	X	**S**	**97**	**(E)DRN**	**200L4**	910	870
156	15300	11.41	4480	1.15	X	**SF**	**97**	**(E)DRN**	**200L4**	980	871
187	12800	9.55	4440	1.15	X	**SA**	**97**	**(E)DRN**	**200L4**	900	872
216	11100	8.26	4380	1.15	X	**SAF**	**97**	**(E)DRN**	**200L4**	960	871

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11.4 S..7p.. DRN.. Selections by HP

P_m = 0.16 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.13	38360	12752	5185	1.00	X						
0.15	33150	11267	7170	1.15	X						
0.17	30640	10078	7690	1.25	X	**S**	**97pR57**	**(E)DRN**	**63MS4**	370	870/876
0.20	25040	8608	7915	1.50	X	**SF**	**97pR57**	**(E)DRN**	**63MS4**	440	871/876
0.23	22230	7554	8005	1.70	X	**SA**	**97pR57**	**(E)DRN**	**63MS4**	360	872/876
0.26	26660	6640	7855	1.45	X	**SAF**	**97pR57**	**(E)DRN**	**63MS4**	415	871/876
0.29	23140	5780	7975	1.65	X						
0.34	18900	4937	8100	2.0	X						
0.20	25450	8549	5375	1.05	X						
0.22	22760	7643	6145	1.15	X						
0.25	18650	6706	6350	1.40	X						
0.29	16730	5875	6435	1.55	X						
0.33	13540	5187	6550	1.95	X						
0.37	12020	4606	6595	2.2	X	**S**	**87pR57**	**(E)DRN**	**63MS4**	240	864/876
0.44	9940	3872	6650	2.6	X	**SF**	**87pR57**	**(E)DRN**	**63MS4**	285	865/876
0.49	10360	3475	6640	2.6	X	**SA**	**87pR57**	**(E)DRN**	**63MS4**	235	866/876
0.59	8750	2905	6675	3.0	X	**SAF**	**87pR57**	**(E)DRN**	**63MS4**	270	865/876
0.66	7290	2586	6705	3.6	X						
0.73	6550	2335	6715	4.1	X						
0.83	5690	2054	6730	4.7	X						
0.93	5170	1824	6740	5.1	X						
0.37	12170	4618	2875	1.10	X						
0.43	11040	3992	2995	1.20	X						
0.48	9610	3540	3155	1.40	X						
0.55	8410	3098	3285	1.60	X						
0.62	11010	2753	2810	1.15	X						
0.72	9340	2374	3025	1.35	X	**S**	**77pR37**	**(E)DRN**	**63MS4**	130	858/876
0.82	8200	2083	3170	1.55	X	**SF**	**77pR37**	**(E)DRN**	**63MS4**	150	859/876
0.94	6890	1813	3335	1.85	X	**SA**	**77pR37**	**(E)DRN**	**63MS4**	130	860/876
0.97	6510	1745	3385	1.95	X	**SAF**	**77pR37**	**(E)DRN**	**63MS4**	145	859/876
1.1	5970	1600	3450	2.1	X						
1.2	5240	1404	3520	2.4	X						
1.4	4560	1245	3520	2.8	X						
1.6	4450	1100	3520	2.9	X						
1.8	3800	954	3520	3.4	X						
0.96	6410	1772	2040	1.00	X						
1.1	5600	1559	2165	1.10	X						
1.3	4810	1363	2285	1.30	X						
1.4	4100	1194	2395	1.55	X						
1.6	3750	1045	2450	1.50	X	**S**	**67pR37**	**(E)DRN**	**63MS4**	87	852/876
1.9	3220	914	2525	1.75	X	**SF**	**67pR37**	**(E)DRN**	**63MS4**	100	853/876
2.1	2960	809	2545	2.2	X	**SA**	**67pR37**	**(E)DRN**	**63MS4**	89	854/876
2.4	2620	712	2565	2.4	X	**SAF**	**67pR37**	**(E)DRN**	**63MS4**	99	853/876
2.8	2200	615	2595	2.9	X						
3.1	2030	543	2605	3.1	X						
3.6	1660	469	2625	3.9	X						
2.0	3110	865	1475	1.05	X						
2.3	2700	750	1585	1.20	X						
2.6	2320	655	1660	1.40	X						
3.0	2030	574	1715	1.60	X	**S**	**57pR17**	**(E)DRN**	**63MS4**	45	846/876
3.4	1790	506	1750	1.80	X	**SF**	**57pR17**	**(E)DRN**	**63MS4**	53	847/876
3.9	1590	438	1775	2.1	X	**SA**	**57pR17**	**(E)DRN**	**63MS4**	44	848/876
4.4	1410	388	1795	2.3	X	**SAF**	**57pR17**	**(E)DRN**	**63MS4**	51	847/876
5.1	1290	336	1810	2.5	X						
5.8	1110	294	1825	3.0	X						
6.3	1080	269	1825	3.0	X						
3.4	1750	506	1145	1.00	X						
3.9	1540	438	1185	1.15	X						
4.4	1360	388	1210	1.30	X						
5.1	1260	336	1220	1.40	X	**S**	**47pR17**	**(E)DRN**	**63MS4**	36	840/876
5.8	1080	294	1245	1.65	X	**SF**	**47pR17**	**(E)DRN**	**63MS4**	44	841/876
6.6	855	257	1275	2.1	X	**SA**	**47pR17**	**(E)DRN**	**63MS4**	39	842/876
7.4	915	229	1260	1.95	X	**SAF**	**47pR17**	**(E)DRN**	**63MS4**	43	841/876
8.5	800	200	1275	2.2	X						
9.1	750	187	1280	2.4	X						

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P_m = 0.16 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
10	660	165	1290	2.7	X						
12	595	148	1295	3.0	X						
13	525	131	1300	3.4	X						
6.4	920	265	675	1.00	X	**S**	**37pR17**	**(E)DRN**	**63MS4**	30	835/876
7.3	900	232	675	1.05	X	**SF**	**37pR17**	**(E)DRN**	**63MS4**	33	836/876
8.4	795	202	675	1.15	X	**SA**	**37pR17**	**(E)DRN**	**63MS4**	29	837/876
9.5	710	179	675	1.30	X	**SAF**	**37pR17**	**(E)DRN**	**63MS4**	33	836/876
5.5	1320	201.00*	1805	2.4							
6.0	1220	184.80*	1815	2.6		**S**	**57p**	**DRN**	**63M6**	38	846
7.0	1070	158.12	1830	3.0		**SF**	**57p**	**DRN**	**63M6**	47	847
8.1	940	137.05	1835	3.4		**SA**	**57p**	**DRN**	**63M6**	38	848
8.6	885	128.10*	1840	3.7		**SAF**	**57p**	**DRN**	**63M6**	44	847
5.5	1270	201.00*	1230	1.35							
6.0	1180	184.80*	1240	1.45							
7.0	1040	158.12	1255	1.65							
8.1	915	137.05	1270	1.90		**S**	**47p**	**DRN**	**63M6**	30	840
8.6	860	128.10*	1275	2.0		**SF**	**47p**	**DRN**	**63M6**	38	841
10	755	110.73	1285	2.3		**SA**	**47p**	**DRN**	**63M6**	32	842
12	650	94.08*	1295	2.7		**SAF**	**47p**	**DRN**	**63M6**	36	841
13	585	84.00*	1300	3.0							
15	505	71.75*	1305	3.5							
8.5	875	201.00*	1275	1.95	X						
9.2	815	184.80*	1280	2.1	X						
11	705	158.12	1290	2.4	X	**S**	**47p**	**(E)DRN**	**63MS4**	30	840
12	620	137.05	1295	2.8	X	**SF**	**47p**	**(E)DRN**	**63MS4**	38	841
13	585	128.10*	1300	3.0	X	**SA**	**47p**	**(E)DRN**	**63MS4**	32	842
15	510	110.73	1305	3.4	X	**SAF**	**47p**	**(E)DRN**	**63MS4**	36	841
18	435	94.08*	1315	4.0	X						
20	390	84.00*	1315	4.3	X						
9.0	800	122.94	675	1.05		**S**	**37p**	**DRN**	**63M6**	23	835
10	705	106.00*	675	1.20		**SF**	**37p**	**DRN**	**63M6**	26	836
11	660	98.80*	675	1.30		**SA**	**37p**	**DRN**	**63M6**	23	837
						SAF	**37p**	**DRN**	**63M6**	26	836
11	680	157.43	675	1.20	X						
12	630	144.40*	675	1.35	X						
14	545	122.94	675	1.55	X						
16	475	106.00*	675	1.80	X						
17	445	98.80*	675	1.90	X						
20	395	86.36	675	2.2	X						
21	370	80.96	675	2.4	X						
24	330	71.44*	675	2.6	X						
27	295	63.33	675	2.8	X						
30	290	55.93	675	3.2	X						
32	250	53.83	675	3.0	X						
33	265	51.30*	675	3.5	X						
39	230	43.68	675	4.1	X						
45	198	37.66	675	4.7	X						
48	185	35.10*	675	5.0	X						
55	162	30.68	675	5.4	X	**S**	**37p**	**(E)DRN**	**63MS4**	23	835
59	152	28.76	675	5.6	X	**SF**	**37p**	**(E)DRN**	**63MS4**	26	836
67	135	25.38*	675	6.1	X	**SA**	**37p**	**(E)DRN**	**63MS4**	23	837
76	120	22.50*	675	6.4	X	**SAF**	**37p**	**(E)DRN**	**63MS4**	26	836
85	110	19.89	650	6.2	X						
89	102	19.13*	655	7.1	X						
93	101	18.24*	635	6.6	X						
109	86	15.53	605	7.6	X						
127	75	13.39	580	8.8	X						
136	70	12.48*	565	9.1	X						
156	61	10.91	545	10.0	X						
166	57	10.23	535	10.5	X						
188	51	9.02*	515	11.0	X						
213	45	8.00*	495	11.0	X						
250	38	6.80*	470	12.0	X						
268	36	6.33	460	12.0	X						
316	30	5.38	435	13.5	X						
350	27	4.86*	425	14.0	X						
429	22	3.97	395	16.0	X						

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P_m = 0.25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.22	37490	7554	5540	1.00	X						
0.29	38510	5780	4000	1.00	X						
0.34	32030	4937	6620	1.20	X	**S**	**97pR57**	**(E)DRN**	**63M4**	370	870/876
0.38	28830	4444	7760	1.30	X	**SF**	**97pR57**	**(E)DRN**	**63M4**	440	871/876
0.42	25340	4017	7900	1.50	X	**SA**	**97pR57**	**(E)DRN**	**63M4**	360	872/876
0.49	23000	3453	7980	1.65	X	**SAF**	**97pR57**	**(E)DRN**	**63M4**	415	871/876
0.55	20700	3108	8050	1.85	X						
0.33	23800	5187	6085	1.10	X						
0.37	21140	4606	6235	1.25	X						
0.44	17600	3872	6395	1.50	X						
0.49	17320	3475	6410	1.55	X						
0.58	14570	2905	6515	1.80	X						
0.66	12470	2586	6580	2.1	X	**S**	**87pR57**	**(E)DRN**	**63M4**	239	864/876
0.73	11320	2335	6615	2.3	X	**SF**	**87pR57**	**(E)DRN**	**63M4**	284	865/876
0.83	9990	2054	6650	2.7	X	**SA**	**87pR57**	**(E)DRN**	**63M4**	234	866/876
0.93	9080	1824	6670	2.9	X	**SAF**	**87pR57**	**(E)DRN**	**63M4**	269	865/876
1.0	8300	1631	6685	3.2	X						
1.3	6670	1332	6715	4.0	X						
1.4	6080	1191	6725	4.3	X						
1.6	5240	1032	6735	5.0	X						
1.8	5170	930	6740	5.1	X						
0.93	11480	1813	2750	1.10	X						
0.97	10930	1745	2820	1.15	X						
1.1	10020	1600	2935	1.25	X						
1.2	8790	1404	3095	1.45	X						
1.4	7710	1245	3230	1.65	X	**S**	**77pR37**	**(E)DRN**	**63M4**	129	858/876
1.5	7270	1100	3285	1.75	X	**SF**	**77pR37**	**(E)DRN**	**63M4**	149	859/876
1.8	6240	954	3420	2.0	X	**SA**	**77pR37**	**(E)DRN**	**63M4**	129	860/876
2.0	5480	837	3515	2.3	X	**SAF**	**77pR37**	**(E)DRN**	**63M4**	144	859/876
2.4	4540	714	3520	2.8	X						
2.7	4060	637	3520	3.2	X						
3.0	3740	574	3520	3.4	X						
3.4	3210	499	3520	4.0	X						
1.9	5350	914	2205	1.05	X						
2.1	4870	809	2280	1.30	X						
2.4	4310	712	2365	1.50	X						
2.8	3680	615	2465	1.75	X	**S**	**67pR37**	**(E)DRN**	**63M4**	86	852/876
3.1	3360	543	2515	1.85	X	**SF**	**67pR37**	**(E)DRN**	**63M4**	99	853/876
3.6	2830	469	2555	2.3	X	**SA**	**67pR37**	**(E)DRN**	**63M4**	88	854/876
4.0	2590	424	2570	2.5	X	**SAF**	**67pR37**	**(E)DRN**	**63M4**	99	853/876
4.7	2380	365	2585	2.7	X						
5.3	2060	319	2600	2.8	X						
6.0	1790	281	2615	3.4	X						
3.4	2990	506	1510	1.10	X						
3.9	2640	438	1595	1.25	X						
4.4	2360	388	1655	1.40	X	**S**	**57pR17**	**(E)DRN**	**63M4**	44	846/876
5.1	2140	336	1695	1.55	X	**SF**	**57pR17**	**(E)DRN**	**63M4**	53	847/876
5.8	1860	294	1740	1.75	X	**SA**	**57pR17**	**(E)DRN**	**63M4**	44	848/876
6.3	1780	269	1750	1.85	X	**SAF**	**57pR17**	**(E)DRN**	**63M4**	50	847/876
7.4	1540	229	1780	2.1	X						
6.6	1450	257	1210	1.20	X	**S**	**47pR17**	**(E)DRN**	**63M4**	36	840/876
7.4	1500	229	1190	1.20	X	**SF**	**47pR17**	**(E)DRN**	**63M4**	44	841/876
8.5	1320	200	1215	1.35	X	**SA**	**47pR17**	**(E)DRN**	**63M4**	38	842/876
						SAF	**47pR17**	**(E)DRN**	**63M4**	42	841/876
8.4	1410	201.00*	1795	2.2	X						
9.2	1310	184.80*	1805	2.4	X	**S**	**57p**	**(E)DRN**	**63M4**	38	846
11	1130	158.12	1820	2.8	X	**SF**	**57p**	**(E)DRN**	**63M4**	47	847
12	990	137.05	1835	3.2	X	**SA**	**57p**	**(E)DRN**	**63M4**	38	848
13	930	128.10*	1840	3.5	X	**SAF**	**57p**	**(E)DRN**	**63M4**	44	847

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P_m = 0.25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
8.4	1380	201.00*	1220	1.25	X						
9.2	1280	184.80*	1230	1.35	X						
11	1110	158.12	1250	1.55	X						
12	975	137.05	1265	1.75	X						
13	915	128.10*	1270	1.90	X						
15	795	110.73	1280	2.2	X	**S**	**47p**	**(E)DRN**	**63M4**	30	840
18	685	94.08*	1290	2.6	X	**SF**	**47p**	**(E)DRN**	**63M4**	38	841
20	615	84.00*	1300	2.8	X	**SA**	**47p**	**(E)DRN**	**63M4**	32	842
24	525	71.75*	1305	3.0	X	**SAF**	**47p**	**(E)DRN**	**63M4**	36	841
24	565	69.39	1300	3.1	X						
25	495	67.20*	1310	3.2	X						
27	520	63.80*	1300	3.4	X						
31	450	54.59	1280	3.9	X						
14	855	122.94	675	1.00	X						
16	750	106.00*	675	1.15	X						
17	700	98.80*	675	1.25	X						
20	620	86.36	675	1.40	X						
21	580	80.96	675	1.50	X						
24	515	71.44*	675	1.65	X						
27	460	63.33	675	1.75	X						
30	455	55.93	675	2.0	X						
31	395	53.83	675	1.90	X						
33	420	51.30*	675	2.2	X						
39	360	43.68	675	2.6	X						
45	310	37.66	675	3.0	X						
48	290	35.10*	675	3.2	X						
55	255	30.68	675	3.5	X						
59	240	28.76	675	3.6	X	**S**	**37p**	**(E)DRN**	**63M4**	23	835
67	210	25.38*	675	3.9	X	**SF**	**37p**	**(E)DRN**	**63M4**	26	836
75	188	22.50*	665	4.1	X	**SA**	**37p**	**(E)DRN**	**63M4**	23	837
85	173	19.89	630	3.9	X	**SAF**	**37p**	**(E)DRN**	**63M4**	26	836
89	160	19.13*	635	4.5	X						
93	159	18.24*	615	4.2	X						
109	136	15.53	590	4.8	X						
127	117	13.39	565	5.6	X						
136	109	12.48*	555	5.8	X						
155	96	10.91	530	6.5	X						
166	90	10.23	520	6.6	X						
188	79	9.02*	505	7.1	X						
212	70	8.00*	485	7.0	X						
249	60	6.80*	465	7.7	X						
268	56	6.33	450	7.8	X						
315	48	5.38	430	8.8	X						
348	43	4.86*	415	8.9	X						
427	35	3.97	390	10.0	X						
496	30	6.80*	375	5.9		**S**	**37p**	**DRN**	**63MS2**	23	835
532	28	6.33	365	8.8		**SF**	**37p**	**DRN**	**63MS2**	26	836
626	24	5.38	350	8.1		**SA**	**37p**	**DRN**	**63MS2**	23	837
693	22	4.86*	335	7.8		**SAF**	**37p**	**DRN**	**63MS2**	26	836
850	18	3.97	315	7.0							

P_m = 0.33 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.39	38630	4444	3950	1.00	X						
0.43	34190	4017	5795	1.10	X						
0.50	30610	3453	7140	1.25	X	**S**	**97pR57**	**(E)DRN**	**71MS4**	371	870/876
0.55	27560	3108	7820	1.40	X	**SF**	**97pR57**	**(E)DRN**	**71MS4**	441	871/876
0.65	23070	2654	7980	1.65	X	**SA**	**97pR57**	**(E)DRN**	**71MS4**	361	872/876
0.74	20350	2329	8060	1.85	X	**SAF**	**97pR57**	**(E)DRN**	**71MS4**	416	871/876
0.83	17420	2081	8135	2.2	X						
0.92	15570	1860	8175	2.4	X						

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P_m = 0.33 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.44	23950	3872	6075	1.10	X						
0.49	23090	3475	6125	1.15	X						
0.59	19390	2905	6320	1.35	X						
0.67	16820	2586	6430	1.60	X						
0.74	15320	2335	6485	1.75	X						
0.84	13600	2054	6545	1.95	X	**S**	**87pR57**	**(E)DRN**	**71MS4**	240	864/876
0.94	12360	1824	6585	2.2	X	**SF**	**87pR57**	**(E)DRN**	**71MS4**	290	865/876
1.1	11290	1631	6615	2.3	X	**SA**	**87pR57**	**(E)DRN**	**71MS4**	235	866/876
1.3	9210	1332	6665	2.9	X	**SAF**	**87pR57**	**(E)DRN**	**71MS4**	270	865/876
1.4	8400	1191	6685	3.1	X						
1.7	7290	1032	6705	3.6	X						
1.9	7040	930	6710	3.8	X						
2.1	6400	831	6720	4.1	X						
1.2	11740	1404	2715	1.10	X						
1.4	10320	1245	2900	1.25	X						
1.6	9610	1100	2990	1.35	X						
1.8	8270	954	3160	1.55	X						
2.1	7250	837	3290	1.75	X	**S**	**77pR37**	**(E)DRN**	**71MS4**	135	858/876
2.4	6070	714	3440	2.1	X	**SF**	**77pR37**	**(E)DRN**	**71MS4**	155	859/876
2.7	5440	637	3520	2.4	X	**SA**	**77pR37**	**(E)DRN**	**71MS4**	135	860/876
3.0	5000	574	3520	2.6	X	**SAF**	**77pR37**	**(E)DRN**	**71MS4**	150	859/876
3.5	4320	499	3520	3.0	X						
3.9	3840	438	3520	3.3	X						
4.4	3430	389	3520	3.6	X						
2.1	6450	809	2035	1.00	X						
2.4	5720	712	2145	1.10	X						
2.8	4930	615	2275	1.30	X						
3.2	4480	543	2345	1.40	X						
3.7	3820	469	2445	1.65	X	**S**	**67pR37**	**(E)DRN**	**71MS4**	92	852/876
4.1	3490	424	2500	1.80	X	**SF**	**67pR37**	**(E)DRN**	**71MS4**	105	853/876
4.7	3170	365	2535	2.0	X	**SA**	**67pR37**	**(E)DRN**	**71MS4**	94	854/876
5.4	2760	319	2560	2.1	X	**SAF**	**67pR37**	**(E)DRN**	**71MS4**	105	853/876
6.1	2420	281	2580	2.5	X						
7.0	2230	246	2595	2.9	X						
7.8	1950	221	2610	2.9	X						
8.7	1830	198	2615	3.3	X						
4.4	3160	388	1465	1.05	X						
5.1	2840	336	1550	1.15	X	**S**	**57pR17**	**(E)DRN**	**71MS4**	50	846/876
5.8	2490	294	1630	1.30	X	**SF**	**57pR17**	**(E)DRN**	**71MS4**	59	847/876
6.4	2360	269	1655	1.40	X	**SA**	**57pR17**	**(E)DRN**	**71MS4**	50	848/876
7.5	2040	229	1710	1.60	X	**SAF**	**57pR17**	**(E)DRN**	**71MS4**	56	847/876
8.4	1850	204	1740	1.75	X						
5.2	2990	217.41	2560	1.90							
6.0	2650	190.11	2580	2.2		**S**	**67p**	**DRN**	**71M6**	67	852
6.3	2530	180.60*	2585	2.3		**SF**	**67p**	**DRN**	**71M6**	82	853
7.2	2250	158.45	2600	2.5		**SA**	**67p**	**DRN**	**71M6**	70	854
8.4	1930	134.40*	2620	3.0		**SAF**	**67p**	**DRN**	**71M6**	80	853
7.9	2050	217.41	2610	2.8	X	**S**	**67p**	**(E)DRN**	**71MS4**	67	852
9.1	1810	190.11	2625	3.1	X	**SF**	**67p**	**(E)DRN**	**71MS4**	82	853
9.5	1730	180.60*	2625	3.3	X	**SA**	**67p**	**(E)DRN**	**71MS4**	70	854
11	1530	158.45	2625	3.7	X	**SAF**	**67p**	**(E)DRN**	**71MS4**	80	853
5.7	2650	201.00*	1595	1.20							
6.1	2470	184.80*	1635	1.30		**S**	**57p**	**DRN**	**71M6**	44	846
7.2	2150	158.12	1695	1.50		**SF**	**57p**	**DRN**	**71M6**	53	847
8.3	1890	137.05	1735	1.70		**SA**	**57p**	**DRN**	**71M6**	44	848
8.9	1780	128.10*	1750	1.80		**SAF**	**57p**	**DRN**	**71M6**	50	847
8.6	1840	201.00*	1740	1.70	X						
9.3	1700	184.80*	1760	1.85	X						
11	1470	158.12	1790	2.2	X	**S**	**57p**	**(E)DRN**	**71MS4**	44	846
13	1210	128.10*	1815	2.7	X	**SF**	**57p**	**(E)DRN**	**71MS4**	53	847
13	1290	137.05	1810	2.5	X	**SA**	**57p**	**(E)DRN**	**71MS4**	44	848
16	1050	110.73	1830	2.9	X	**SAF**	**57p**	**(E)DRN**	**71MS4**	50	847
18	900	94.08*	1840	3.2	X						
20	805	84.00*	1845	3.5	X						

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P_m = 0.33 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
9.3	1660	184.80*	1180	1.05	X						
11	1440	158.12	1210	1.20	X						
13	1190	128.10*	1240	1.45	X						
13	1270	137.05	1230	1.35	X						
16	1040	110.73	1255	1.70	X						
18	890	94.08*	1270	1.95	X	**S**	**47p**	**(E)DRN**	**71MS4**	36	840
20	800	84.00*	1280	2.1	X	**SF**	**47p**	**(E)DRN**	**71MS4**	44	841
24	685	71.75*	1290	2.3	X	**SA**	**47p**	**(E)DRN**	**71MS4**	38	842
25	735	69.39	1280	2.4	X	**SAF**	**47p**	**(E)DRN**	**71MS4**	42	841
26	645	67.20*	1295	2.5	X						
27	680	63.80*	1285	2.6	X						
32	585	54.59	1245	3.0	X						
36	510	47.32	1195	3.4	X						
39	475	44.22*	1175	3.6	X						
20	805	86.36	675	1.10	X						
21	755	80.96	675	1.15	X						
24	670	71.44*	675	1.25	X						
27	600	63.33	675	1.35	X						
31	590	55.93	675	1.55	X						
32	510	53.83	675	1.45	X						
34	545	51.30*	675	1.70	X						
39	465	43.68	675	2.0	X						
46	405	37.66	675	2.3	X						
49	375	35.10*	675	2.5	X						
56	330	30.68	675	2.7	X						
60	310	28.76	675	2.8	X						
68	275	25.38*	665	3.0	X	**S**	**37p**	**(E)DRN**	**71MS4**	29	835
76	245	22.50*	645	3.2	X	**SF**	**37p**	**(E)DRN**	**71MS4**	32	836
86	225	19.89	605	3.0	X	**SA**	**37p**	**(E)DRN**	**71MS4**	29	837
90	210	19.13*	620	3.5	X	**SAF**	**37p**	**(E)DRN**	**71MS4**	32	836
94	205	18.24*	595	3.3	X						
111	176	15.53	570	3.7	X						
128	152	13.39	550	4.3	X						
138	142	12.48*	540	4.5	X						
158	125	10.91	520	5.0	X						
168	117	10.23	510	5.1	X						
191	103	9.02*	490	5.5	X						
215	92	8.00*	475	5.4	X						
253	78	6.80*	455	5.9	X						
272	73	6.33	445	6.0	X						
320	62	5.38	420	6.7	X						
354	56	4.86*	410	6.8	X						
434	46	3.97	385	7.8	X						
499	40	6.80*	370	4.5		**S**	**37p**	**DRN**	**63M2**	25	835
536	37	6.33	360	6.7		**SF**	**37p**	**DRN**	**63M2**	28	836
631	31	5.38	345	6.2		**SA**	**37p**	**DRN**	**63M2**	25	837
698	28	4.86*	335	5.9		**SAF**	**37p**	**DRN**	**63M2**	28	836
856	23	3.97	315	5.4							

P_m = 0.50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.65	35890	2654	5115	1.05	X						
0.74	31610	2329	6775	1.20	X						
0.83	27480	2081	7820	1.40	X	**S**	**97pR57**	**(E)DRN**	**71M4**	371	870/876
0.93	24560	1860	7930	1.55	X	**SF**	**97pR57**	**(E)DRN**	**71M4**	441	871/876
1.1	20700	1574	8050	1.85	X	**SA**	**97pR57**	**(E)DRN**	**71M4**	361	872/876
1.2	19270	1394	8090	1.95	X	**SAF**	**97pR57**	**(E)DRN**	**71M4**	416	871/876
1.4	16800	1223	8150	2.3	X						
1.6	14910	1070	8190	2.6	X						

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P_m = 0.50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.67	26290	2586	4685	1.00	X						
0.74	24050	2335	6045	1.10	X						
0.84	21470	2054	6215	1.25	X						
0.95	19510	1824	6315	1.35	X						
1.1	17820	1631	6390	1.45	X						
1.3	14750	1332	6510	1.80	X	**S**	**87pR57**	**(E)DRN**	**71M4**	240	864/876
1.5	13450	1191	6550	1.95	X	**SF**	**87pR57**	**(E)DRN**	**71M4**	290	865/876
1.7	11770	1032	6600	2.2	X	**SA**	**87pR57**	**(E)DRN**	**71M4**	235	866/876
1.9	11150	930	6620	2.4	X	**SAF**	**87pR57**	**(E)DRN**	**71M4**	270	865/876
2.1	10130	831	6645	2.6	X						
2.4	8760	719	6675	3.0	X						
2.8	7610	624	6700	3.5	X						
3.1	6890	558	6710	3.8	X						
1.8	12710	954	2595	1.00	X						
2.1	11150	837	2790	1.15	X						
2.4	9420	714	3015	1.35	X						
2.7	8470	637	3140	1.50	X						
3.0	7760	574	3235	1.65	X	**S**	**77pR37**	**(E)DRN**	**71M4**	135	858/876
3.5	6750	499	3365	1.90	X	**SF**	**77pR37**	**(E)DRN**	**71M4**	155	859/876
4.0	6000	438	3460	2.1	X	**SA**	**77pR37**	**(E)DRN**	**71M4**	135	860/876
4.5	5370	389	3520	2.3	X	**SAF**	**77pR37**	**(E)DRN**	**71M4**	150	859/876
5.3	4550	327	3520	2.7	X						
6.0	4200	289	3520	3.0	X						
6.9	3630	250	3520	3.5	X						
7.9	3210	219	3520	4.0	X						
3.7	5970	469	2120	1.05	X						
4.1	5460	424	2200	1.15	X						
4.7	4900	365	2285	1.30	X	**S**	**67pR37**	**(E)DRN**	**71M4**	92	852/876
5.4	4290	319	2380	1.35	X	**SF**	**67pR37**	**(E)DRN**	**71M4**	105	853/876
6.2	3790	281	2460	1.60	X	**SA**	**67pR37**	**(E)DRN**	**71M4**	94	854/876
7.0	3450	246	2510	1.85	X	**SAF**	**67pR37**	**(E)DRN**	**71M4**	105	853/876
7.8	3050	221	2540	1.85	X						
4.5	5540	256.47	3520	2.4		**S**	**77p**	**DRN**	**80MK6**	119	858
5.1	4920	225.26	3520	2.7		**SF**	**77p**	**DRN**	**80MK6**	144	859
5.4	4700	214.00*	3520	2.8		**SA**	**77p**	**DRN**	**80MK6**	119	860
6.1	4190	189.09	3520	3.2		**SAF**	**77p**	**DRN**	**80MK6**	134	859
						S	**77p**	**(E)DRN**	**71M4**	112	858
6.8	3800	256.47	3520	3.5	X	**SF**	**77p**	**(E)DRN**	**71M4**	137	859
7.7	3360	225.26	3520	4.0	X	**SA**	**77p**	**(E)DRN**	**71M4**	112	860
						SAF	**77p**	**(E)DRN**	**71M4**	127	859
5.3	4480	217.41	2435	1.25							
6.1	3970	190.11	2490	1.45		**S**	**67p**	**DRN**	**80MK6**	74	852
6.4	3790	180.60*	2505	1.50		**SF**	**67p**	**DRN**	**80MK6**	89	853
7.3	3370	158.45	2535	1.70		**SA**	**67p**	**DRN**	**80MK6**	77	854
8.6	2890	134.40*	2565	1.95		**SAF**	**67p**	**DRN**	**80MK6**	86	853
9.5	2630	121.33	2580	2.2							
8.0	3090	217.41	2550	1.85	X						
9.1	2730	190.11	2575	2.1	X						
9.6	2600	180.60*	2580	2.2	X	**S**	**67p**	**(E)DRN**	**71M4**	67	852
11	2300	158.45	2600	2.5	X	**SF**	**67p**	**(E)DRN**	**71M4**	82	853
13	1960	134.40*	2615	2.9	X	**SA**	**67p**	**(E)DRN**	**71M4**	70	854
14	1780	121.33	2625	3.2	X	**SAF**	**67p**	**(E)DRN**	**71M4**	80	853
16	1570	106.75*	2625	3.6	X						
7.3	3220	158.12	1445	1.00							
8.4	2830	137.05	1550	1.15		**S**	**57p**	**DRN**	**80MK6**	51	846
9.0	2670	128.10*	1590	1.20		**SF**	**57p**	**DRN**	**80MK6**	59	847
10	2330	110.73	1660	1.40		**SA**	**57p**	**DRN**	**80MK6**	50	848
12	2000	94.08*	1715	1.65		**SAF**	**57p**	**DRN**	**80MK6**	56	847
14	1800	84.00*	1750	1.80							

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P_m = 0.50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
8.6	2770	201.00*	1565	1.15	X						
9.4	2570	184.80*	1610	1.20	X						
11	2220	158.12	1680	1.45	X						
13	1940	137.05	1725	1.65	X						
14	1820	128.10*	1745	1.75	X						
16	1590	110.73	1775	1.90	X	**S**	**57p**	**(E)DRN**	**71M4**	44	846
18	1360	94.08*	1800	2.2	X	**SF**	**57p**	**(E)DRN**	**71M4**	53	847
21	1220	84.00*	1815	2.3	X	**SA**	**57p**	**(E)DRN**	**71M4**	44	848
24	1040	71.75*	1830	2.5	X	**SAF**	**57p**	**(E)DRN**	**71M4**	50	847
25	1120	69.39	1825	2.9	X						
26	980	67.20*	1835	2.6	X						
27	1030	63.80*	1830	3.0	X						
32	885	54.59	1840	3.4	X						
16	1560	110.73	1195	1.10	X						
18	1340	94.08*	1225	1.30	X						
21	1200	84.00*	1240	1.40	X						
24	1030	71.75*	1260	1.55	X						
25	1110	69.39	1240	1.60	X						
26	970	67.20*	1265	1.65	X	**S**	**47p**	**(E)DRN**	**71M4**	36	840
27	1020	63.80*	1215	1.75	X	**SF**	**47p**	**(E)DRN**	**71M4**	44	841
32	880	54.59	1175	2.0	X	**SA**	**47p**	**(E)DRN**	**71M4**	38	842
37	765	47.32	1135	2.3	X	**SAF**	**47p**	**(E)DRN**	**71M4**	42	841
39	720	44.22*	1120	2.4	X						
45	625	38.23	1080	2.6	X						
53	530	32.48*	1035	2.9	X						
60	475	29.00*	1005	3.1	X						
70	405	24.77	965	3.5	X						
506	132	6.80*	350	3.0							
543	123	6.33	340	4.5		**S**	**37p**	**DRN**	**71MS2**	29	835
639	105	5.38	325	4.2		**SF**	**37p**	**DRN**	**71MS2**	32	836
708	95	4.86*	315	4.1		**SA**	**37p**	**DRN**	**71MS2**	29	837
866	78	3.97	300	3.6		**SAF**	**37p**	**DRN**	**71MS2**	32	836
31	890	55.93	675	1.05	X						
34	820	51.30*	675	1.10	X						
40	700	43.68	675	1.30	X						
46	610	37.66	665	1.55	X						
49	570	35.10*	660	1.65	X						
56	500	30.68	645	1.75	X						
60	470	28.76	635	1.85	X						
68	415	25.38*	620	1.95	X						
77	370	22.50*	605	2.1	X						
87	340	19.89	560	2.0	X						
90	315	19.13*	585	2.3	X	**S**	**37p**	**(E)DRN**	**71M4**	29	835
95	310	18.24*	555	2.2	X	**SF**	**37p**	**(E)DRN**	**71M4**	32	836
111	265	15.53	535	2.5	X	**SA**	**37p**	**(E)DRN**	**71M4**	29	837
129	230	13.39	520	2.9	X	**SAF**	**37p**	**(E)DRN**	**71M4**	32	836
139	215	12.48*	510	3.0	X						
159	188	10.91	495	3.3	X						
169	176	10.23	485	3.4	X						
192	155	9.02*	470	3.7	X						
216	138	8.00*	455	3.6	X						
254	117	6.80*	440	3.9	X						
273	110	6.33	430	4.0	X						
321	93	5.38	410	4.5	X						
356	84	4.86*	400	4.5	X						
436	69	3.97	375	5.2	X						

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P_m = 0.75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.94	37580	1860	4405	1.00	X						
1.1	31720	1574	6735	1.20	X						
1.3	29160	1394	7650	1.30	X	**S**	**97pR57**	**(E)DRN**	**80MK4**	378	870/876
1.4	25470	1223	7895	1.50	X	**SF**	**97pR57**	**(E)DRN**	**80MK4**	448	871/876
1.6	22550	1070	7995	1.70	X	**SA**	**97pR57**	**(E)DRN**	**80MK4**	368	872/876
1.9	19550	928	8080	1.95	X	**SAF**	**97pR57**	**(E)DRN**	**80MK4**	423	871/876
2.1	17350	824	8135	2.2	X						
2.4	14270	714	8205	2.7	X						
1.3	22800	1332	6145	1.15	X						
1.5	20790	1191	6250	1.25	X						
1.7	18280	1032	6370	1.45	X						
1.9	17100	930	6420	1.55	X	**S**	**87pR57**	**(E)DRN**	**80MK4**	249	864/876
2.1	15540	831	6480	1.70	X	**SF**	**87pR57**	**(E)DRN**	**80MK4**	294	865/876
2.4	13530	719	6550	1.95	X	**SA**	**87pR57**	**(E)DRN**	**80MK4**	244	866/876
2.8	11820	624	6600	2.3	X	**SAF**	**87pR57**	**(E)DRN**	**80MK4**	279	865/876
3.1	10690	558	6630	2.4	X						
4.0	8530	435	6680	3.0	X						
5.4	6460	323	6720	4.0	X						
2.7	12860	637	2585	1.00	X						
3.0	11760	574	2725	1.10	X						
3.5	10280	499	2920	1.25	X	**S**	**77pR37**	**(E)DRN**	**80MK4**	139	858/876
4.0	9140	438	3065	1.40	X	**SF**	**77pR37**	**(E)DRN**	**80MK4**	164	859/876
4.5	8190	389	3190	1.50	X	**SA**	**77pR37**	**(E)DRN**	**80MK4**	139	860/876
5.3	6960	327	3345	1.80	X	**SAF**	**77pR37**	**(E)DRN**	**80MK4**	154	859/876
6.0	6350	289	3425	2.0	X						
						S	**67pR37**	**(E)DRN**	**80MK4**	99	852/876
6.2	5770	281	2160	1.05	X	**SF**	**67pR37**	**(E)DRN**	**80MK4**	114	853/876
						SA	**67pR37**	**(E)DRN**	**80MK4**	101	854/876
						SAF	**67pR37**	**(E)DRN**	**80MK4**	109	853/876
4.1	9470	288.00*	6660	2.8		**S**	**87p**	**DRN**	**90SR6**	217	864
4.5	8560	258.18	6680	3.1		**SF**	**87p**	**DRN**	**90SR6**	267	865
5.3	7440	222.40*	6700	3.5		**SA**	**87p**	**DRN**	**90SR6**	212	866
						SAF	**87p**	**DRN**	**90SR6**	247	865
4.6	8170	256.47	3335	1.60		**S**	**77p**	**DRN**	**90SR6**	137	858
5.2	7260	225.26	3435	1.85		**SF**	**77p**	**DRN**	**90SR6**	162	859
5.5	6920	214.00*	3470	1.90		**SA**	**77p**	**DRN**	**90SR6**	137	860
6.2	6170	189.09	3520	2.2		**SAF**	**77p**	**DRN**	**90SR6**	152	859
6.8	5650	256.47	3520	2.4	X						
7.8	5000	225.26	3520	2.7	X						
8.2	4760	214.00*	3520	2.8	X	**S**	**77p**	**(E)DRN**	**80MK4**	119	858
9.2	4230	189.09	3520	3.1	X	**SF**	**77p**	**(E)DRN**	**80MK4**	144	859
11	3630	161.60*	3520	3.7	X	**SA**	**77p**	**(E)DRN**	**80MK4**	119	860
12	3340	148.15	3520	4.0	X	**SAF**	**77p**	**(E)DRN**	**80MK4**	134	859
13	2940	130.00*	3520	4.4	X						
						S	**67p**	**DRN**	**90SR6**	92	852
6.5	5590	180.60*	2285	1.00		**SF**	**67p**	**DRN**	**90SR6**	107	853
7.4	4960	158.45	2370	1.15		**SA**	**67p**	**DRN**	**90SR6**	95	854
						SAF	**67p**	**DRN**	**90SR6**	104	853
8.0	4600	217.41	2420	1.25	X						
9.2	4060	190.11	2485	1.40	X						
9.7	3870	180.60*	2500	1.45	X						
11	3420	158.45	2530	1.65	X						
13	2920	134.40*	2560	1.95	X	**S**	**67p**	**(E)DRN**	**80MK4**	74	852
14	2650	121.33	2580	2.2	X	**SF**	**67p**	**(E)DRN**	**80MK4**	89	853
16	2340	106.75*	2595	2.4	X	**SA**	**67p**	**(E)DRN**	**80MK4**	77	854
17	2210	100.80*	2605	2.6	X	**SAF**	**67p**	**(E)DRN**	**80MK4**	86	853
20	1890	85.83	2495	3.1	X						
23	1820	75.06	2355	3.5	X						
27	1600	65.63	2275	3.9	X						

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P_m = 0.75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
13	2890	137.05	1535	1.10	X						
14	2710	128.10*	1580	1.20	X						
16	2360	110.73	1655	1.30	X						
19	2020	94.08*	1715	1.45	X						
21	1810	84.00*	1745	1.55	X						
24	1550	71.75*	1780	1.70	X	**S**	**57p**	**(E)DRN**	**80MK4**	51	846
25	1660	69.39	1765	1.95	X	**SF**	**57p**	**(E)DRN**	**80MK4**	59	847
26	1460	67.20*	1790	1.75	X	**SA**	**57p**	**(E)DRN**	**80MK4**	50	848
27	1540	63.80*	1780	2.1	X	**SAF**	**57p**	**(E)DRN**	**80MK4**	56	847
32	1320	54.59	1805	2.3	X						
37	1150	47.32	1820	2.5	X						
39	1070	44.22*	1805	2.6	X						
46	930	38.23	1735	2.9	X						
54	790	32.48*	1660	3.2	X						
24	1540	71.75*	1190	1.05	X						
25	1650	69.39	1115	1.05	X						
26	1440	67.20*	1180	1.10	X						
27	1520	63.80*	1100	1.15	X						
32	1310	54.59	1075	1.35	X						
37	1140	47.32	1050	1.55	X						
39	1070	44.22*	1035	1.60	X						
46	925	38.23	1010	1.75	X	**S**	**47p**	**(E)DRN**	**80MK4**	42	840
54	790	32.48*	975	1.95	X	**SF**	**47p**	**(E)DRN**	**80MK4**	50	841
60	705	29.00*	950	2.1	X	**SA**	**47p**	**(E)DRN**	**80MK4**	45	842
70	605	24.77	915	2.3	X	**SAF**	**47p**	**(E)DRN**	**80MK4**	48	841
75	565	23.20*	900	2.4	X						
86	520	20.33	835	2.7	X						
99	450	17.62	810	3.0	X						
106	420	16.47*	795	3.1	X						
123	365	14.24	770	3.6	X						
144	310	12.10*	740	3.9	X						
46	905	37.66	570	1.05	X						
50	845	35.10*	570	1.10	X						
57	740	30.68	565	1.20	X						
61	695	28.76	565	1.25	X						
69	615	25.38*	555	1.30	X						
78	545	22.50*	550	1.40	X						
88	505	19.89	495	1.35	X						
91	465	19.13*	535	1.55	X						
96	465	18.24*	495	1.45	X						
112	395	15.53	485	1.65	X	**S**	**37p**	**(E)DRN**	**80MK4**	36	835
130	340	13.39	475	1.90	X	**SF**	**37p**	**(E)DRN**	**80MK4**	39	836
140	320	12.48*	470	2.0	X	**SA**	**37p**	**(E)DRN**	**80MK4**	35	837
160	280	10.91	460	2.2	X	**SAF**	**37p**	**(E)DRN**	**80MK4**	38	836
171	260	10.23	455	2.3	X						
193	230	9.02*	440	2.5	X						
218	205	8.00*	430	2.4	X						
257	174	6.80*	415	2.6	X						
276	163	6.33	405	2.7	X						
324	139	5.38	390	3.0	X						
359	125	4.86*	380	3.0	X						
440	102	3.97	360	3.5	X						
338	133	10.23	390	2.7							
383	117	9.02*	375	2.6							
432	104	8.00*	365	2.2		**S**	**37p**	**DRN**	**71M2**	32	835
508	88	6.80*	350	2.0		**SF**	**37p**	**DRN**	**71M2**	35	836
546	82	6.33	340	3.0		**SA**	**37p**	**DRN**	**71M2**	31	837
642	70	5.38	325	2.8		**SAF**	**37p**	**DRN**	**71M2**	34	836
710	63	4.86*	315	2.7							
871	52	3.97	300	2.4							

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
1.4	34150	1223	5810	1.10	X						
1.6	30190	1070	7300	1.25	X						
1.9	26260	928	7870	1.45	X	**S**	**97pR57**	**(E)DRN**	**80M4**	385	870/876
2.1	23380	824	7970	1.65	X	**SF**	**97pR57**	**(E)DRN**	**80M4**	460	871/876
2.5	19220	714	8090	2.0	X	**SA**	**97pR57**	**(E)DRN**	**80M4**	375	872/876
2.8	18120	626	8120	2.1	X	**SAF**	**97pR57**	**(E)DRN**	**80M4**	430	871/876
3.3	15600	538	8175	2.4	X						
1.7	24800	1032	5785	1.05	X						
1.9	23060	930	6130	1.15	X						
2.1	20960	831	6245	1.25	X						
2.4	18310	719	6370	1.45	X	**S**	**87pR57**	**(E)DRN**	**80M4**	255	864/876
2.8	16020	624	6460	1.65	X	**SF**	**87pR57**	**(E)DRN**	**80M4**	305	865/876
3.1	14500	558	6515	1.80	X	**SA**	**87pR57**	**(E)DRN**	**80M4**	250	866/876
3.6	12700	485	6575	2.1	X	**SAF**	**87pR57**	**(E)DRN**	**80M4**	285	865/876
4.0	11560	435	6610	2.2	X						
4.6	10100	378	6645	2.5	X						
5.4	8760	323	6675	2.9	X						
4.0	12280	438	2675	1.05	X	**S**	**77pR37**	**(E)DRN**	**80M4**	145	858/876
4.5	11000	389	2835	1.15	X	**SF**	**77pR37**	**(E)DRN**	**80M4**	170	859/876
5.4	9370	327	3045	1.30	X	**SA**	**77pR37**	**(E)DRN**	**80M4**	145	860/876
6.1	8500	289	3155	1.50	X	**SAF**	**77pR37**	**(E)DRN**	**80M4**	160	859/876
6.1	8660	288.00*	6680	3.0	X	**S**	**87p**	**(E)DRN**	**80M4**	205	864
6.8	7800	258.18	6695	3.2	X	**SF**	**87p**	**(E)DRN**	**80M4**	255	865
7.9	6760	222.40*	6715	3.6	X	**SA**	**87p**	**(E)DRN**	**80M4**	200	866
						SAF	**87p**	**(E)DRN**	**80M4**	235	865
6.8	7510	256.47	3410	1.75	X						
7.8	6640	225.26	3500	2.0	X						
8.2	6320	214.00*	3520	2.1	X						
9.3	5620	189.09	3520	2.4	X						
11	4830	161.60*	3520	2.8	X	**S**	**77p**	**(E)DRN**	**80M4**	125	858
12	4440	148.15	3520	3.0	X	**SF**	**77p**	**(E)DRN**	**80M4**	150	859
13	3910	130.00*	3520	3.3	X	**SA**	**77p**	**(E)DRN**	**80M4**	125	860
14	3710	123.20*	3520	3.5	X	**SAF**	**77p**	**(E)DRN**	**80M4**	140	859
16	3250	107.83	3520	3.8	X						
18	2930	97.14	3520	4.1	X						
21	2580	85.22	3445	4.5	X						
9.2	5390	190.11	2315	1.05	X						
9.7	5140	180.60*	2345	1.10	X						
11	4540	158.45	2425	1.25	X						
13	3880	134.40*	2500	1.45	X						
14	3510	121.33	2525	1.60	X						
16	3100	106.75*	2540	1.85	X						
17	2940	100.80*	2505	1.95	X	**S**	**67p**	**(E)DRN**	**80M4**	81	852
20	2510	85.83	2410	2.3	X	**SF**	**67p**	**(E)DRN**	**80M4**	95	853
22	2280	78.00*	2355	2.5	X	**SA**	**67p**	**(E)DRN**	**80M4**	83	854
23	2420	75.06	2260	2.6	X	**SAF**	**67p**	**(E)DRN**	**80M4**	93	853
27	2120	65.63	2190	2.9	X						
28	2020	62.35*	2165	3.1	X						
32	1780	54.70	2095	3.4	X						
38	1510	46.40*	2010	3.9	X						
42	1370	41.89	1955	4.2	X						
19	2680	94.08*	1585	1.10	X						
21	2400	84.00*	1645	1.15	X						
24	2060	71.75*	1710	1.30	X						
26	1930	67.20*	1730	1.35	X						
31	1630	56.61	1770	1.50	X						
32	1750	54.59	1755	1.70	X	**S**	**57p**	**(E)DRN**	**80M4**	57	846
37	1520	47.32	1765	1.90	X	**SF**	**57p**	**(E)DRN**	**80M4**	65	847
40	1430	44.22*	1735	1.95	X	**SA**	**57p**	**(E)DRN**	**80M4**	56	848
46	1240	38.23	1675	2.2	X	**SAF**	**57p**	**(E)DRN**	**80M4**	63	847
54	1050	32.48*	1610	2.4	X						
60	940	29.00*	1565	2.5	X						
71	805	24.77	1500	2.8	X						
75	755	23.20*	1475	2.9	X						
86	690	20.33	1375	2.9	X						

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
32	1740	54.59	980	1.00	X						
37	1510	47.32	965	1.15	X						
40	1420	44.22*	955	1.20	X						
46	1230	38.23	940	1.30	X						
54	1050	32.48*	915	1.45	X						
60	940	29.00*	900	1.60	X						
71	805	24.77	870	1.75	X						
75	750	23.20*	860	1.80	X						
86	690	20.33	785	2.0	X	**S**	**47p**	**(E)DRN**	**80M4**	49	840
90	635	19.54	830	2.0	X	**SF**	**47p**	**(E)DRN**	**80M4**	57	841
99	595	17.62	765	2.3	X	**SA**	**47p**	**(E)DRN**	**80M4**	51	842
106	560	16.47*	755	2.4	X	**SAF**	**47p**	**(E)DRN**	**80M4**	55	841
123	485	14.24	735	2.7	X						
145	410	12.10*	710	3.0	X						
162	370	10.80*	690	3.2	X						
190	315	9.23*	665	3.2	X						
203	295	8.64*	655	3.1	X						
241	250	7.28	625	3.1	X						
256	235	6.83	615	4.0	X						
274	220	6.40*	605	4.0	X						
69	815	25.38*	495	1.00	X						
78	725	22.50*	490	1.05	X						
92	620	19.13*	485	1.15	X						
113	525	15.53	435	1.25	X						
131	455	13.39	430	1.45	X						
140	425	12.48*	430	1.50	X						
161	370	10.91	425	1.65	X	**S**	**37p**	**(E)DRN**	**80M4**	42	835
171	345	10.23	420	1.70	X	**SF**	**37p**	**(E)DRN**	**80M4**	45	836
194	305	9.02*	415	1.85	X	**SA**	**37p**	**(E)DRN**	**80M4**	41	837
219	270	8.00*	405	1.80	X	**SAF**	**37p**	**(E)DRN**	**80M4**	45	836
258	230	6.80*	395	2.0	X						
276	215	6.33	385	2.0	X						
325	184	5.38	370	2.3	X						
360	166	4.86*	365	2.3	X						
442	136	3.97	350	2.6	X						

P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
2.1	35360	824	5390	1.10	X						
2.5	29080	714	7760	1.30	X						
2.8	27430	626	7825	1.40	X	**S**	**97pR57**	**(E)DRN**	**90S4**	400	870/876
3.3	23700	538	7955	1.60	X	**SF**	**97pR57**	**(E)DRN**	**90S4**	475	871/876
3.6	21490	484	8025	1.75	X	**SA**	**97pR57**	**(E)DRN**	**90S4**	390	872/876
4.2	18710	420	8105	2.0	X	**SAF**	**97pR57**	**(E)DRN**	**90S4**	445	871/876
4.7	17020	376	8145	2.2	X						
5.4	15000	327	8190	2.5	X						
2.8	24390	624	5965	1.10	X						
3.2	22070	558	6185	1.20	X	**S**	**87pR57**	**(E)DRN**	**90S4**	270	864/876
3.6	19370	485	6320	1.35	X	**SF**	**87pR57**	**(E)DRN**	**90S4**	315	865/876
4.1	17600	435	6400	1.45	X	**SA**	**87pR57**	**(E)DRN**	**90S4**	265	866/876
4.7	15400	378	6485	1.65	X	**SAF**	**87pR57**	**(E)DRN**	**90S4**	300	865/876
5.5	13330	323	6555	1.95	X						
6.1	12780	289	2625	1.00	X	**S**	**77pR57**	**(E)DRN**	**90S4**	190	858
						SF	**77pR57**	**(E)DRN**	**90S4**	235	859
						SA	**77pR57**	**(E)DRN**	**90S4**	185	860
						SAF	**77pR57**	**(E)DRN**	**90S4**	220	859
6.1	12910	288.00*	6570	2.0	X						
6.8	11630	258.18	6605	2.2	X	**S**	**87p**	**(E)DRN**	**90S4**	220	864
7.9	10070	222.40*	6645	2.4	X	**SF**	**87p**	**(E)DRN**	**90S4**	265	865
8.7	9220	202.96	6665	2.6	X	**SA**	**87p**	**(E)DRN**	**90S4**	210	866
9.8	8200	180.00*	6690	2.9	X	**SAF**	**87p**	**(E)DRN**	**90S4**	250	865
12	6920	151.30	6710	3.3	X						

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P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
6.9	11200	256.47	3015	1.20	X						
7.8	9900	225.26	3150	1.35	X						
8.2	9430	214.00*	3205	1.40	X						
9.3	8370	189.09	3315	1.60	X						
11	7200	161.60*	3445	1.85	X						
12	6610	148.15	3505	2.0	X						
14	5820	130.00*	3520	2.2	X	**S**	**77p**	**(E)DRN**	**90S4**	140	858
14	5520	123.20*	3520	2.3	X	**SF**	**77p**	**(E)DRN**	**90S4**	160	859
16	4850	107.83	3500	2.6	X	**SA**	**77p**	**(E)DRN**	**90S4**	135	860
18	4370	97.14	3410	2.8	X	**SAF**	**77p**	**(E)DRN**	**90S4**	150	859
21	3840	85.22	3305	3.0	X						
23	3720	75.09	3105	3.1	X						
25	3540	71.33	3065	3.3	X						
26	3010	66.67	3100	3.6	X						
28	3140	63.03	2975	3.6	X						
13	5780	134.40*	2260	1.00	X						
15	5240	121.33	2335	1.10	X						
17	4630	106.75*	2330	1.25	X						
17	4380	100.80*	2305	1.30	X						
21	3740	85.83	2240	1.55	X						
23	3400	78.00*	2200	1.70	X						
23	3610	75.06	2080	1.75	X						
27	3170	65.63	2030	1.95	X						
28	3010	62.35*	2010	2.1	X	**S**	**67p**	**(E)DRN**	**90S4**	95	852
32	2650	54.70	1960	2.3	X	**SF**	**67p**	**(E)DRN**	**90S4**	110	853
38	2250	46.40*	1895	2.6	X	**SA**	**67p**	**(E)DRN**	**90S4**	97	854
42	2040	41.89	1850	2.8	X	**SAF**	**67p**	**(E)DRN**	**90S4**	105	853
48	1790	36.85	1800	3.1	X						
51	1690	34.80*	1775	3.2	X						
59	1450	29.63	1705	3.3	X						
65	1310	26.93	1665	3.3	X						
72	1240	24.44	1560	3.0	X						
76	1180	23.22*	1540	3.2	X						
86	1040	20.37	1495	3.5	X						
31	2430	56.61	1640	1.00	X						
32	2610	54.59	1600	1.15	X						
37	2270	47.32	1625	1.25	X						
40	2130	44.22*	1605	1.30	X						
46	1840	38.23	1560	1.45	X						
54	1570	32.48*	1510	1.60	X						
61	1400	29.00*	1475	1.70	X	**S**	**57p**	**(E)DRN**	**90S4**	70	846
71	1200	24.77	1425	1.90	X	**SF**	**57p**	**(E)DRN**	**90S4**	78	847
76	1120	23.20*	1405	1.95	X	**SA**	**57p**	**(E)DRN**	**90S4**	69	848
87	1030	20.33	1295	1.95	X	**SAF**	**57p**	**(E)DRN**	**90S4**	76	847
90	950	19.54	1345	2.1	X						
100	890	17.62	1255	2.2	X						
107	835	16.47*	1235	2.4	X						
124	720	14.24	1195	2.8	X						
146	615	12.10*	1150	3.2	X						
54	1560	32.48*	800	1.00	X						
61	1400	29.00*	795	1.05	X						
71	1200	24.77	780	1.20	X						
76	1120	23.20*	775	1.20	X						
87	1030	20.33	685	1.35	X						
90	945	19.54	760	1.35	X						
100	890	17.62	680	1.50	X						
107	835	16.47*	675	1.60	X						
124	720	14.24	665	1.80	X	**S**	**47p**	**(E)DRN**	**90S4**	61	840
146	615	12.10*	650	2.0	X	**SF**	**47p**	**(E)DRN**	**90S4**	69	841
163	550	10.80*	635	2.2	X	**SA**	**47p**	**(E)DRN**	**90S4**	64	842
191	470	9.23*	620	2.1	X	**SAF**	**47p**	**(E)DRN**	**90S4**	68	841
204	440	8.64*	610	2.1	X						
242	370	7.28	590	2.1	X						
258	350	6.83	580	2.7	X						
275	325	6.40*	570	2.7	X						
327	275	5.39	550	2.6	X						
370	245	4.76	530	2.6	X						
441	205	4.00*	510	2.5	X						

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P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
141	630	12.48*	295	1.00	X						
162	550	10.91	330	1.10	X						
172	520	10.23	340	1.15	X						
195	455	9.02*	355	1.25	X	**S**	**37p**	**(E)DRN**	**90S4**	55	835
220	405	8.00*	355	1.20	X	**SF**	**37p**	**(E)DRN**	**90S4**	58	836
259	345	6.80*	350	1.35	X	**SA**	**37p**	**(E)DRN**	**90S4**	54	837
278	325	6.33	340	1.35	X	**SAF**	**37p**	**(E)DRN**	**90S4**	58	836
327	275	5.38	335	1.50	X						
362	250	4.86*	330	1.55	X						
444	200	3.97	320	1.75	X						

P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
2.8	36750	626	4865	1.05	X						
3.3	31800	538	6815	1.20	X						
3.7	28840	484	7765	1.30	X						
4.2	25130	420	7910	1.50	X	**S**	**97pR57**	**(E)DRN**	**90L4**	410	870/876
4.7	22810	376	7985	1.65	X	**SF**	**97pR57**	**(E)DRN**	**90L4**	480	871/876
5.4	20070	327	8070	1.90	X	**SA**	**97pR57**	**(E)DRN**	**90L4**	395	872/876
6.2	17720	287	8130	2.2	X	**SAF**	**97pR57**	**(E)DRN**	**90L4**	455	871/876
7.0	15460	252	8180	2.5	X						
8.1	13480	219	8220	2.8	X						
8.6	12700	205	8235	3.0	X						
3.7	26050	485	4895	1.00	X						
4.1	23640	435	6095	1.10	X						
4.7	20710	378	6255	1.25	X	**S**	**87pR57**	**(E)DRN**	**90L4**	275	864/876
5.5	17910	323	6385	1.45	X	**SF**	**87pR57**	**(E)DRN**	**90L4**	325	865/876
6.3	15640	281	6475	1.65	X	**SA**	**87pR57**	**(E)DRN**	**90L4**	270	866/876
6.9	15340	255	6480	1.50	X	**SAF**	**87pR57**	**(E)DRN**	**90L4**	305	865/876
8.0	13460	222	6545	1.75	X						
8.6	12590	205	6575	1.80	X						
6.2	17420	286.40*	8135	2.2	X	**S**	**97p**	**(E)DRN**	**90L4**	355	870
6.7	15980	262.22	8170	2.4	X	**SF**	**97p**	**(E)DRN**	**90L4**	425	871
7.6	14160	231.67	8205	2.7	X	**SA**	**97p**	**(E)DRN**	**90L4**	340	872
9.0	12060	196.52	8245	3.2	X	**SAF**	**97p**	**(E)DRN**	**90L4**	400	871
6.1	17170	288.00*	6415	1.50	X						
6.8	15460	258.18	6485	1.65	X						
8.0	13390	222.40*	6555	1.85	X						
8.7	12260	202.96	6590	1.95	X	**S**	**87p**	**(E)DRN**	**90L4**	225	864
9.8	10910	180.00*	6625	2.2	X	**SF**	**87p**	**(E)DRN**	**90L4**	270	865
12	9200	151.30	6665	2.5	X	**SA**	**87p**	**(E)DRN**	**90L4**	220	866
13	8470	139.05	6680	2.7	X	**SAF**	**87p**	**(E)DRN**	**90L4**	255	865
14	7540	123.48	6700	2.9	X						
16	6750	110.40	6715	3.1	X						
7.8	13170	225.26	2805	1.00	X						
8.3	12540	214.00*	2870	1.05	X						
9.3	11140	189.09	3020	1.20	X						
11	9570	161.60*	3190	1.40	X						
12	8790	148.15	3270	1.50	X						
14	7740	130.00*	3385	1.70	X						
14	7350	123.20*	3410	1.75	X						
16	6450	107.83	3325	1.95	X	**S**	**77p**	**(E)DRN**	**90L4**	145	858
18	5820	97.14	3255	2.1	X	**SF**	**77p**	**(E)DRN**	**90L4**	165	859
21	5110	85.22	3165	2.3	X	**SA**	**77p**	**(E)DRN**	**90L4**	145	860
24	4950	75.09	2950	2.4	X	**SAF**	**77p**	**(E)DRN**	**90L4**	160	859
25	4710	71.33	2920	2.5	X						
27	4010	66.67	2990	2.7	X						
28	4170	63.03	2845	2.7	X						
31	3430	56.92	2875	2.9	X						
33	3570	53.87	2750	3.1	X						
36	3280	49.38	2695	3.3	X						

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P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
21	4970	85.83	2075	1.15	X						
23	4530	78.00*	2050	1.25	X						
27	4210	65.63	1875	1.45	X						
28	4000	62.35*	1860	1.55	X						
32	3520	54.70	1830	1.70	X						
38	3000	46.40*	1780	1.95	X						
42	2710	41.89	1750	2.1	X						
48	2390	36.85	1710	2.3	X	**S**	**67p**	**(E)DRN**	**90L4**	100	852
51	2250	34.80*	1690	2.4	X	**SF**	**67p**	**(E)DRN**	**90L4**	115	853
60	1920	29.63	1630	2.5	X	**SA**	**67p**	**(E)DRN**	**90L4**	105	854
66	1750	26.93	1600	2.5	X	**SAF**	**67p**	**(E)DRN**	**90L4**	115	853
72	1650	24.44	1480	2.2	X						
76	1570	23.22*	1465	2.4	X						
87	1380	20.37	1425	2.7	X						
102	1170	17.28*	1375	3.0	X						
113	1060	15.60*	1345	3.3	X						
129	930	13.73*	1305	3.6	X						
40	2830	44.22*	1475	1.00	X						
46	2450	38.23	1450	1.10	X						
54	2090	32.48*	1415	1.20	X						
61	1860	29.00*	1390	1.30	X						
71	1590	24.77	1350	1.40	X						
76	1490	23.20*	1335	1.50	X						
90	1260	19.54	1285	1.55	X						
100	1180	17.62	1180	1.70	X						
107	1110	16.47*	1170	1.80	X	**S**	**57p**	**(E)DRN**	**90L4**	77	846
124	960	14.24	1135	2.1	X	**SF**	**57p**	**(E)DRN**	**90L4**	85	847
146	815	12.10*	1100	2.4	X	**SA**	**57p**	**(E)DRN**	**90L4**	76	848
164	730	10.80*	1070	2.3	X	**SAF**	**57p**	**(E)DRN**	**90L4**	83	847
192	625	9.23*	1035	2.3	X						
205	585	8.64*	1015	2.3	X						
243	490	7.28	975	2.2	X						
259	465	6.83	955	2.9	X						
276	435	6.40*	935	2.9	X						
328	365	5.39	895	2.9	X						
371	325	4.76	865	2.8	X						
442	270	4.00*	825	2.7	X						
90	1260	19.54	685	1.05	X						
100	1180	17.62	595	1.15	X						
107	1110	16.47*	595	1.20	X						
124	960	14.24	595	1.35	X						
146	815	12.10*	590	1.50	X						
164	730	10.80*	585	1.60	X	**S**	**47p**	**(E)DRN**	**90L4**	68	840
192	625	9.23*	575	1.60	X	**SF**	**47p**	**(E)DRN**	**90L4**	76	841
205	585	8.64*	570	1.60	X	**SA**	**47p**	**(E)DRN**	**90L4**	71	842
243	490	7.28	555	1.55	X	**SAF**	**47p**	**(E)DRN**	**90L4**	75	841
259	465	6.83	545	2.0	X						
276	435	6.40*	535	2.0	X						
328	365	5.39	520	2.0	X						
371	325	4.76	510	1.95	X						
442	270	4.00*	490	1.85	X						
260	460	6.80*	280	1.00	X						
279	430	6.33	260	1.00	X	**S**	**37p**	**(E)DRN**	**90L4**	62	835
328	365	5.38	290	1.15	X	**SF**	**37p**	**(E)DRN**	**90L4**	65	836
363	330	4.86*	300	1.15	X	**SA**	**37p**	**(E)DRN**	**90L4**	61	837
446	270	3.97	295	1.30	X	**SAF**	**37p**	**(E)DRN**	**90L4**	65	836

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P_m = 3.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
4.2	38190	420	4305	1.00	X						
4.7	34560	376	5810	1.10	X						
5.4	30370	327	7375	1.25	X	**S**	**97pR57**	**(E)DRN**	**100LM4**	430	870/876
6.1	26840	287	7845	1.40	X	**SF**	**97pR57**	**(E)DRN**	**100LM4**	500	871/876
7.0	23500	252	7965	1.60	X	**SA**	**97pR57**	**(E)DRN**	**100LM4**	420	872/876
8.1	20510	219	8055	1.85	X	**SAF**	**97pR57**	**(E)DRN**	**100LM4**	480	871/876
8.6	19300	205	8090	1.95	X						
6.2	26190	286.40*	7870	1.45	X						
6.7	24040	262.22	7945	1.60	X						
7.6	21310	231.67	8035	1.80	X						
9.0	18130	196.52	8120	2.1	X	**S**	**97p**	**(E)DRN**	**100LM4**	380	870
9.7	16720	180.95	8155	2.3	X	**SF**	**97p**	**(E)DRN**	**100LM4**	450	871
11	14970	161.74	8190	2.5	X	**SA**	**97p**	**(E)DRN**	**100LM4**	370	872
12	13490	145.60*	8220	2.8	X	**SAF**	**97p**	**(E)DRN**	**100LM4**	425	871
13	12230	131.85	8240	3.1	X						
15	10860	116.92	8265	3.4	X						
6.8	23260	258.18	6120	1.10	X						
7.9	20150	222.40*	6285	1.20	X						
8.7	18440	202.96	6360	1.30	X						
9.8	16410	180.00*	6445	1.45	X						
12	13840	151.30	6540	1.65	X						
13	12740	139.05	6575	1.75	X						
14	11340	123.48	6615	1.90	X	**S**	**87p**	**(E)DRN**	**100LM4**	250	864
16	10150	110.40	6645	2.1	X	**SF**	**87p**	**(E)DRN**	**100LM4**	300	865
18	9140	99.26	6670	2.3	X	**SA**	**87p**	**(E)DRN**	**100LM4**	245	866
20	7940	86.15	6695	2.5	X	**SAF**	**87p**	**(E)DRN**	**100LM4**	280	865
22	8200	81.76	6685	2.6	X						
23	7120	77.14	6710	2.7	X						
25	7080	70.43	6705	2.9	X						
27	6470	64.27	6715	3.2	X						
31	5740	57.00*	6730	3.4	X						
12	13230	148.15	2795	1.00	X						
14	11650	130.00*	2965	1.10	X						
14	11050	123.20*	3015	1.15	X						
16	9700	107.83	2980	1.30	X						
18	8750	97.14	2945	1.40	X						
21	7690	85.22	2890	1.50	X						
23	6790	75.20*	2835	1.65	X						
26	6030	66.67	2775	1.80	X						
28	6270	63.03	2590	1.80	X						
31	5150	56.92	2695	1.95	X	**S**	**77p**	**(E)DRN**	**100LM4**	170	858
33	5370	53.87	2530	2.1	X	**SF**	**77p**	**(E)DRN**	**100LM4**	190	859
36	4930	49.38	2495	2.2	X	**SA**	**77p**	**(E)DRN**	**100LM4**	170	860
41	4330	43.33	2435	2.5	X	**SAF**	**77p**	**(E)DRN**	**100LM4**	185	859
43	4110	41.07	2410	2.6	X						
49	3600	35.94	2345	2.8	X						
54	3240	32.38	2295	3.1	X						
62	2850	28.41	2230	3.4	X						
70	2510	25.07	2165	3.7	X						
77	2350	22.89	2005	3.1	X						
84	2160	20.99	1970	3.2	X						
96	1890	18.42	1915	3.6	X						
101	1790	17.45	1890	3.8	X						

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P_m = 3.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
32	5300	54.70	1565	1.15	X						
38	4510	46.40*	1560	1.30	X						
42	4070	41.89	1550	1.40	X						
48	3590	36.85	1530	1.55	X						
51	3390	34.80*	1520	1.60	X						
59	2890	29.63	1490	1.65	X						
65	2630	26.93	1470	1.65	X						
76	2280	23.33	1435	1.75	X	**S**	**67p**	**(E)DRN**	**100LM4**	125	852
86	2070	20.37	1295	1.75	X	**SF**	**67p**	**(E)DRN**	**100LM4**	140	853
102	1760	17.28*	1265	2.0	X	**SA**	**67p**	**(E)DRN**	**100LM4**	130	854
113	1590	15.60*	1245	2.2	X	**SAF**	**67p**	**(E)DRN**	**100LM4**	140	853
128	1400	13.73*	1215	2.4	X						
136	1320	12.96*	1200	2.5	X						
160	1130	11.03	1165	2.8	X						
176	1020	10.03	1140	2.9	X						
203	890	8.69	1105	3.0	X						
233	775	7.56*	1070	3.0	X						
90	1900	19.54	1170	1.05	X						
124	1440	14.24	1020	1.40	X						
146	1230	12.10*	1000	1.60	X						
163	1100	10.80*	985	1.55	X						
191	935	9.23*	960	1.50	X	**S**	**57p**	**(E)DRN**	**100LM4**	100	846
204	875	8.64*	945	1.50	X	**SF**	**57p**	**(E)DRN**	**100LM4**	110	847
242	740	7.28	915	1.45	X	**SA**	**57p**	**(E)DRN**	**100LM4**	100	848
258	700	6.83	895	1.95	X	**SAF**	**57p**	**(E)DRN**	**100LM4**	105	847
275	655	6.40*	885	1.90	X						
327	550	5.39	850	1.90	X						
370	485	4.76	825	1.85	X						
441	410	4.00*	795	1.80	X						
146	1230	12.10*	410	1.00	X						
163	1100	10.80*	450	1.05	X						
191	935	9.23*	485	1.05	X						
204	880	8.64*	485	1.05	X	**S**	**47p**	**(E)DRN**	**100LM4**	93	840
242	740	7.28	485	1.05	X	**SF**	**47p**	**(E)DRN**	**100LM4**	100	841
258	700	6.83	475	1.35	X	**SA**	**47p**	**(E)DRN**	**100LM4**	95	842
275	655	6.40*	470	1.35	X	**SAF**	**47p**	**(E)DRN**	**100LM4**	99	841
327	550	5.39	465	1.30	X						
370	485	4.76	460	1.30	X						
441	410	4.00*	450	1.25	X						

P_m = 4.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
6.1	35900	287	5305	1.05	X	**S**	**97pR57**	**(E)DRN**	**100L4**	430	870/876
						SF	**97pR57**	**(E)DRN**	**100L4**	500	871/876
						SA	**97pR57**	**(E)DRN**	**100L4**	420	872/876
						SAF	**97pR57**	**(E)DRN**	**100L4**	480	871/876
6.2	34910	286.40*	6670	1.10	X						
6.7	32040	262.22	7630	1.20	X						
7.6	28390	231.67	7785	1.35	X						
9.0	24160	196.52	7945	1.55	X						
9.7	22280	180.95	8005	1.70	X	**S**	**97p**	**(E)DRN**	**100L4**	380	870
11	19950	161.74	8070	1.90	X	**SF**	**97p**	**(E)DRN**	**100L4**	450	871
12	17980	145.60*	8125	2.1	X	**SA**	**97p**	**(E)DRN**	**100L4**	370	872
13	16300	131.85	8160	2.3	X	**SAF**	**97p**	**(E)DRN**	**100L4**	425	871
15	14470	116.92	8200	2.6	X						
17	13090	105.71	8225	2.7	X						
20	11110	89.60*	8260	3.0	X						
22	10920	80.85	8260	3.0	X						

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P_m = 4.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
9.8	21860	180.00*	6195	1.10	X						
12	18450	151.30	6360	1.25	X						
13	16980	139.05	6425	1.30	X						
14	15110	123.48	6495	1.45	X						
16	13530	110.40	6550	1.55	X						
18	12180	99.26	6590	1.70	X						
20	10580	86.15	6635	1.85	X	**S**	**87p**	**(E)DRN**	**100L4**	250	864
22	10930	81.76	6620	1.95	X	**SF**	**87p**	**(E)DRN**	**100L4**	300	865
23	9480	77.14	6660	2.0	X	**SA**	**87p**	**(E)DRN**	**100L4**	245	866
25	9440	70.43	6660	2.2	X	**SAF**	**87p**	**(E)DRN**	**100L4**	280	865
27	8620	64.27	6675	2.4	X						
31	7650	57.00*	6695	2.6	X						
37	6440	47.91	6715	3.0	X						
40	5920	44.03	6725	3.2	X						
45	5270	39.10	6705	3.5	X						
18	11660	97.14	2630	1.05	X						
21	10250	85.22	2615	1.15	X						
23	9050	75.20*	2595	1.25	X						
26	8030	66.67	2560	1.35	X						
28	8360	63.03	2335	1.35	X						
31	6870	56.92	2510	1.45	X						
33	7160	53.87	2310	1.55	X						
36	6570	49.38	2295	1.65	X						
41	5770	43.33	2260	1.85	X						
43	5470	41.07	2245	1.90	X	**S**	**77p**	**(E)DRN**	**100L4**	170	858
49	4790	35.94	2200	2.1	X	**SF**	**77p**	**(E)DRN**	**100L4**	190	859
54	4320	32.38	2160	2.3	X	**SA**	**77p**	**(E)DRN**	**100L4**	170	860
62	3790	28.41	2110	2.5	X	**SAF**	**77p**	**(E)DRN**	**100L4**	185	859
70	3350	25.07	2060	2.8	X						
77	3130	22.89	1875	2.3	X						
84	2870	20.99	1850	2.4	X						
96	2520	18.42	1810	2.7	X						
101	2390	17.45	1790	2.8	X						
115	2090	15.28	1745	3.1	X						
128	1890	13.76	1710	3.4	X						
146	1660	12.07	1660	3.9	X						
165	1460	10.65	1615	4.4	X						
42	5430	41.89	1345	1.05	X						
48	4780	36.85	1350	1.15	X						
51	4520	34.80*	1350	1.20	X						
60	3850	29.63	1345	1.25	X						
65	3500	26.93	1340	1.25	X						
76	3040	23.33	1320	1.35	X						
87	2760	20.37	1160	1.35	X	**S**	**67p**	**(E)DRN**	**100L4**	125	852
102	2350	17.28*	1150	1.50	X	**SF**	**67p**	**(E)DRN**	**100L4**	140	853
113	2120	15.60*	1140	1.65	X	**SA**	**67p**	**(E)DRN**	**100L4**	130	854
128	1870	13.73*	1125	1.80	X	**SAF**	**67p**	**(E)DRN**	**100L4**	140	853
136	1760	12.96*	1115	1.90	X						
160	1500	11.03	1090	2.1	X						
176	1370	10.03	1075	2.2	X						
203	1180	8.69	1045	2.2	X						
233	1030	7.56*	1020	2.2	X						
124	1920	14.24	905	1.05	X						
146	1630	12.10*	905	1.20	X						
163	1460	10.80*	895	1.15	X						
191	1250	9.23*	885	1.15	X						
204	1170	8.64*	875	1.10	X	**S**	**57p**	**(E)DRN**	**100L4**	100	846
242	985	7.28	855	1.10	X	**SF**	**57p**	**(E)DRN**	**100L4**	110	847
258	930	6.83	840	1.45	X	**SA**	**57p**	**(E)DRN**	**100L4**	100	848
275	870	6.40*	830	1.45	X	**SAF**	**57p**	**(E)DRN**	**100L4**	105	847
327	735	5.39	805	1.40	X						
370	650	4.76	785	1.40	X						
441	545	4.00*	760	1.35	X						
258	930	6.83	340	1.00	X	**S**	**47p**	**(E)DRN**	**100L4**	93	840
275	870	6.40*	360	1.00	X	**SF**	**47p**	**(E)DRN**	**100L4**	100	841
327	735	5.39	405	1.00	X	**SA**	**47p**	**(E)DRN**	**100L4**	95	842
						SAF	**47p**	**(E)DRN**	**100L4**	99	841

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P_m = 5.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
						S	**97pR57**	**(E)DRN**	**100L4**	430	870/876
8.0	34570	219	5850	1.10	X	**SF**	**97pR57**	**(E)DRN**	**100L4**	500	871/876
8.6	32490	205	6640	1.15	X	**SA**	**97pR57**	**(E)DRN**	**100L4**	420	872/876
						SAF	**97pR57**	**(E)DRN**	**100L4**	480	871/876
7.6	35590	231.67	6420	1.05	X						
9.0	30290	196.52	7705	1.25	X						
9.7	27930	180.95	7805	1.35	X						
11	25000	161.74	7915	1.50	X						
12	22540	145.60*	7995	1.70	X	**S**	**97p**	**(E)DRN**	**100L4**	380	870
13	20430	131.85	8060	1.85	X	**SF**	**97p**	**(E)DRN**	**100L4**	450	871
15	18140	116.92	8120	2.0	X	**SA**	**97p**	**(E)DRN**	**100L4**	370	872
17	16410	105.71	8160	2.2	X	**SAF**	**97p**	**(E)DRN**	**100L4**	425	871
20	13920	89.60*	8210	2.4	X						
22	13690	80.85	8215	2.4	X						
25	12100	71.43	8245	2.9	X						
29	10280	60.59	8270	3.3	X						
12	23120	151.30	6125	1.00	X						
13	21280	139.05	6225	1.05	X						
14	18940	123.48	6340	1.15	X						
16	16950	110.40	6425	1.25	X						
18	15260	99.26	6490	1.35	X						
20	13260	86.15	6560	1.50	X						
22	13700	81.76	6540	1.55	X						
23	11890	77.14	6600	1.60	X						
25	11830	70.43	6595	1.75	X	**S**	**87p**	**(E)DRN**	**100L4**	250	864
27	10810	64.27	6625	1.90	X	**SF**	**87p**	**(E)DRN**	**100L4**	300	865
31	9600	57.00*	6655	2.1	X	**SA**	**87p**	**(E)DRN**	**100L4**	245	866
37	8080	47.91	6685	2.4	X	**SAF**	**87p**	**(E)DRN**	**100L4**	280	865
40	7430	44.03	6700	2.5	X						
45	6600	39.10	6585	2.8	X						
50	5900	34.96*	6415	3.0	X						
56	5310	31.43	6250	3.2	X						
64	4610	27.28	6035	3.5	X						
69	4390	25.50*	5770	2.8	X						
82	3700	21.43	5540	3.2	X						
23	11350	75.20*	2350	1.00	X						
26	10070	66.67	2345	1.05	X						
28	10480	63.03	2080	1.10	X						
31	8610	56.92	2330	1.15	X						
33	8970	53.87	2095	1.25	X						
36	8230	49.38	2095	1.30	X						
41	7240	43.33	2085	1.50	X						
43	6860	41.07	2075	1.55	X						
49	6010	35.94	2055	1.70	X						
54	5420	32.38	2030	1.85	X	**S**	**77p**	**(E)DRN**	**100L4**	170	858
62	4760	28.41	1995	2.0	X	**SF**	**77p**	**(E)DRN**	**100L4**	190	859
70	4200	25.07	1960	2.2	X	**SA**	**77p**	**(E)DRN**	**100L4**	170	860
77	3920	22.89	1745	1.85	X	**SAF**	**77p**	**(E)DRN**	**100L4**	185	859
84	3600	20.99	1730	1.95	X						
95	3160	18.42	1705	2.1	X						
101	3000	17.45	1695	2.2	X						
115	2620	15.28	1660	2.5	X						
128	2360	13.76	1630	2.7	X						
146	2070	12.07	1595	3.1	X						
165	1830	10.65	1555	3.5	X						
186	1620	9.44	1515	3.6	X						
218	1390	8.06	1465	3.7	X						
59	4830	29.63	1200	1.00	X						
75	3810	23.33	1205	1.05	X						
86	3470	20.37	1010	1.05	X						
102	2940	17.28*	1035	1.20	X						
113	2660	15.60*	1035	1.30	X	**S**	**67p**	**(E)DRN**	**100L4**	125	852
128	2340	13.73*	1035	1.45	X	**SF**	**67p**	**(E)DRN**	**100L4**	140	853
136	2210	12.96*	1030	1.50	X	**SA**	**67p**	**(E)DRN**	**100L4**	130	854
159	1880	11.03	1020	1.65	X	**SAF**	**67p**	**(E)DRN**	**100L4**	140	853
175	1710	10.03	1010	1.75	X						
202	1480	8.69	990	1.80	X						
233	1290	7.56*	970	1.80	X						

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P_m = 5.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
257	1170	6.83	780	1.15	X	**S**	**57p**	**(E)DRN**	**100L4**	100	846
275	1090	6.40*	775	1.15	X	**SF**	**57p**	**(E)DRN**	**100L4**	110	847
326	920	5.39	760	1.15	X	**SA**	**57p**	**(E)DRN**	**100L4**	100	848
369	815	4.76	745	1.10	X	**SAF**	**57p**	**(E)DRN**	**100L4**	105	847
440	685	4.00*	725	1.10	X						

P_m = 5.4 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
						S	**97pR57**	**(E)DRN**	**112M4**	455	870/876
8.1	37140	219	4810	1.00	X	**SF**	**97pR57**	**(E)DRN**	**112M4**	520	871/876
8.6	34910	205	5720	1.10	X	**SA**	**97pR57**	**(E)DRN**	**112M4**	440	872/876
						SAF	**97pR57**	**(E)DRN**	**112M4**	500	871/876
7.6	38200	231.67	5405	1.00	X						
9.0	32510	196.52	7520	1.15	X						
9.8	29980	180.95	7720	1.25	X						
11	26840	161.74	7845	1.40	X						
12	24190	145.60*	7940	1.55	X	**S**	**97p**	**(E)DRN**	**112M4**	400	870
13	21930	131.85	8015	1.75	X	**SF**	**97p**	**(E)DRN**	**112M4**	470	871
15	19470	116.92	8085	1.90	X	**SA**	**97p**	**(E)DRN**	**112M4**	385	872
17	17610	105.71	8130	2.0	X	**SAF**	**97p**	**(E)DRN**	**112M4**	445	871
20	14940	89.60*	8190	2.3	X						
22	14690	80.85	8195	2.2	X						
25	12990	71.43	8230	2.7	X						
29	11030	60.59	8260	3.1	X						
32	10160	55.79	8270	3.3	X						
14	20320	123.48	6275	1.05	X						
16	18200	110.40	6375	1.15	X						
18	16380	99.26	6450	1.25	X						
21	14240	86.15	6525	1.40	X						
23	12760	77.14	6575	1.50	X						
25	12700	70.43	6570	1.60	X						
28	11600	64.27	6605	1.75	X						
31	10300	57.00*	6635	1.90	X	**S**	**87p**	**(E)DRN**	**112M4**	270	864
37	8670	47.91	6675	2.2	X	**SF**	**87p**	**(E)DRN**	**112M4**	320	865
40	7970	44.03	6690	2.3	X	**SA**	**87p**	**(E)DRN**	**112M4**	265	866
45	7080	39.10	6525	2.6	X	**SAF**	**87p**	**(E)DRN**	**112M4**	300	865
51	6340	34.96*	6360	2.8	X						
56	5700	31.43	6200	3.0	X						
65	4950	27.28	5990	3.3	X						
69	4720	25.50*	5715	2.7	X						
83	3970	21.43	5495	2.9	X						
90	3650	19.70	5385	3.1	X						
27	10810	66.67	2260	1.00	X						
31	9240	56.92	2255	1.10	X						
33	9630	53.87	2005	1.15	X						
36	8840	49.38	2015	1.25	X						
41	7770	43.33	2010	1.40	X						
43	7360	41.07	2010	1.45	X						
49	6450	35.94	1995	1.60	X						
55	5820	32.38	1975	1.70	X						
62	5110	28.41	1950	1.85	X	**S**	**77p**	**(E)DRN**	**112M4**	190	858
71	4510	25.07	1915	2.0	X	**SF**	**77p**	**(E)DRN**	**112M4**	210	859
77	4210	22.89	1695	1.70	X	**SA**	**77p**	**(E)DRN**	**112M4**	190	860
84	3860	20.99	1685	1.80	X	**SAF**	**77p**	**(E)DRN**	**112M4**	205	859
96	3390	18.42	1660	2.0	X						
101	3220	17.45	1650	2.1	X						
116	2820	15.28	1625	2.3	X						
129	2540	13.76	1600	2.5	X						
147	2230	12.07	1565	2.9	X						
166	1970	10.65	1530	3.3	X						
187	1740	9.44	1490	3.3	X						
219	1490	8.06	1445	3.4	X						

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P_m = 5.4 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
76	4080	23.33	1160	1.00	X						
102	3160	17.28*	990	1.10	X						
113	2850	15.60*	995	1.20	X						
129	2510	13.73*	1000	1.35	X	**S**	**67p**	**(E)DRN**	**112M4**	145	852
137	2370	12.96*	995	1.40	X	**SF**	**67p**	**(E)DRN**	**112M4**	160	853
160	2020	11.03	990	1.55	X	**SA**	**67p**	**(E)DRN**	**112M4**	150	854
176	1840	10.03	980	1.65	X	**SAF**	**67p**	**(E)DRN**	**112M4**	160	853
204	1590	8.69	965	1.65	X						
234	1390	7.56*	950	1.65	X						

P_m = 7.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
11	37300	161.74	5770	1.00	X						
12	33620	145.60*	7140	1.15	X						
13	30470	131.85	7700	1.25	X						
15	27050	116.92	7840	1.35	X						
17	24480	105.71	7930	1.45	X						
20	20770	89.60*	8050	1.60	X						
23	18150	78.26	8120	1.65	X	**S**	**97p**	**(E)DRN**	**132S4**	425	870
25	18050	71.43	8120	1.95	X	**SF**	**97p**	**(E)DRN**	**132S4**	495	871
27	15190	65.45	8185	1.55	X	**SA**	**97p**	**(E)DRN**	**132S4**	410	872
29	15330	60.59	8180	2.2	X	**SAF**	**97p**	**(E)DRN**	**132S4**	470	871
32	14130	55.79	8205	2.3	X						
35	12630	49.87	8235	2.6	X						
39	11380	44.89	8255	2.8	X						
43	10310	40.65	8240	2.9	X						
49	9140	36.05	8010	3.2	X						
21	19780	86.15	6300	1.00	X						
23	17730	77.14	6395	1.05	X						
28	14720	64.00	6510	1.10	X						
31	14310	57.00*	6520	1.40	X						
37	12050	47.91	6505	1.60	X						
40	11080	44.03	6405	1.70	X						
45	9840	39.10	6260	1.85	X	**S**	**87p**	**(E)DRN**	**132S4**	295	864
51	8810	34.96*	6125	2.0	X	**SF**	**87p**	**(E)DRN**	**132S4**	345	865
56	7920	31.43	5990	2.2	X	**SA**	**87p**	**(E)DRN**	**132S4**	290	866
65	6880	27.28	5810	2.4	X	**SAF**	**87p**	**(E)DRN**	**132S4**	325	865
69	6550	25.50*	5475	1.90	X						
82	5510	21.43	5290	2.1	X						
90	5070	19.70	5200	2.2	X						
101	4500	17.49	5070	2.4	X						
113	4030	15.64*	4945	2.7	X						
126	3620	14.06	4825	3.0	X						
41	10790	43.33	1645	1.00	X						
43	10230	41.07	1660	1.05	X						
49	8960	35.94	1690	1.15	X						
55	8080	32.38	1700	1.25	X						
62	7090	28.41	1705	1.35	X						
71	6260	25.07	1705	1.45	X						
80	5560	22.22	1690	1.55	X	**S**	**77p**	**(E)DRN**	**132S4**	215	858
93	4750	18.97	1670	1.60	X	**SF**	**77p**	**(E)DRN**	**132S4**	235	859
96	4710	18.42	1445	1.45	X	**SA**	**77p**	**(E)DRN**	**132S4**	215	860
101	4470	17.45	1445	1.50	X	**SAF**	**77p**	**(E)DRN**	**132S4**	230	859
116	3910	15.28	1440	1.65	X						
128	3530	13.76	1435	1.80	X						
146	3090	12.07	1420	2.1	X						
166	2730	10.65	1400	2.4	X						
187	2420	9.44	1380	2.4	X						
219	2070	8.06	1345	2.5	X						
136	3300	12.96*	665	1.00	X						
160	2810	11.03	775	1.10	X	**S**	**67p**	**(E)DRN**	**132S4**	170	852
176	2550	10.03	830	1.20	X	**SF**	**67p**	**(E)DRN**	**132S4**	185	853
204	2210	8.69	845	1.20	X	**SA**	**67p**	**(E)DRN**	**132S4**	175	854
234	1930	7.56*	845	1.20	X	**SAF**	**67p**	**(E)DRN**	**132S4**	185	853

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P_m = 10.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
15	35950	116.92	6290	1.05	X						
17	32520	105.71	7520	1.10	X						
20	27590	89.60*	7820	1.20	X						
23	24120	78.26	7945	1.25	X						
25	23990	71.43	7950	1.45	X						
27	20180	65.45	8065	1.20	X						
29	20380	60.59	8060	1.65	X						
32	18770	55.79	8100	1.75	X	**S**	**97p**	**(E)DRN**	**132M4**	465	870
36	16790	49.87	8150	1.90	X	**SF**	**97p**	**(E)DRN**	**132M4**	540	871
40	15120	44.89	8135	2.1	X	**SA**	**97p**	**(E)DRN**	**132M4**	450	872
44	13700	40.65	7970	2.2	X	**SAF**	**97p**	**(E)DRN**	**132M4**	510	871
49	12150	36.05	7770	2.4	X						
54	10990	32.60	7600	2.6	X						
67	9070	26.39	6955	2.5	X						
75	8110	23.59	6795	2.8	X						
84	7300	21.23	6645	3.1	X						
92	6610	19.23	6500	3.4	X						
104	5870	17.05	6325	3.6	X						
31	19020	57.00*	6240	1.05	X						
37	16010	47.91	6115	1.20	X						
40	14720	44.03	6050	1.25	X						
45	13080	39.10	5945	1.40	X						
51	11700	34.96*	5840	1.50	X						
56	10530	31.43	5735	1.60	X						
65	9140	27.28	5585	1.80	X						
70	8710	25.50*	5190	1.45	X	**S**	**87p**	**(E)DRN**	**132M4**	335	864
83	7330	21.43	5050	1.60	X	**SF**	**87p**	**(E)DRN**	**132M4**	380	865
90	6730	19.70	4975	1.65	X	**SA**	**87p**	**(E)DRN**	**132M4**	330	866
101	5980	17.49	4870	1.85	X	**SAF**	**87p**	**(E)DRN**	**132M4**	365	865
113	5350	15.64*	4765	2.1	X						
126	4810	14.06	4665	2.3	X						
145	4180	12.21	4530	2.6	X						
162	3740	10.93	4420	2.7	X						
196	3100	9.07	4235	2.7	X						
225	2700	7.88	4100	2.7	X						
62	9430	28.41	1420	1.00	X						
71	8320	25.07	1450	1.10	X						
80	7380	22.22	1465	1.15	X						
93	6310	18.97	1475	1.20	X						
96	6270	18.42	805	1.10	X	**S**	**77p**	**(E)DRN**	**132M4**	255	858
102	5940	17.45	875	1.15	X	**SF**	**77p**	**(E)DRN**	**132M4**	275	859
116	5200	15.28	1030	1.25	X	**SA**	**77p**	**(E)DRN**	**132M4**	255	860
129	4690	13.76	1130	1.35	X	**SAF**	**77p**	**(E)DRN**	**132M4**	270	859
147	4110	12.07	1230	1.55	X						
167	3630	10.65	1250	1.75	X						
188	3220	9.44	1245	1.80	X						
220	2750	8.06	1230	1.85	X						

P_m = 12.3 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
20	33920	89.60*	7035	1.00	X						
23	29650	78.26	7735	1.00	X						
32	23080	55.79	7980	1.45	X						
36	20640	49.87	8000	1.55	X						
40	18590	44.89	7865	1.70	X						
44	16840	40.65	7725	1.80	X	**S**	**97p**	**(E)DRN**	**132L4**	480	870
49	14940	36.05	7555	1.95	X	**SF**	**97p**	**(E)DRN**	**132L4**	550	871
54	13510	32.60	7405	2.1	X	**SA**	**97p**	**(E)DRN**	**132L4**	470	872
67	11150	26.39	6730	2.1	X	**SAF**	**97p**	**(E)DRN**	**132L4**	530	871
75	9970	23.59	6595	2.3	X						
84	8980	21.23	6460	2.5	X						
92	8130	19.23	6335	2.7	X						
104	7210	17.05	6180	3.0	X						
115	6520	15.42	6045	3.1	X						

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P_m = 12.3 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
40	18100	44.03	5725	1.05	X						
45	16080	39.10	5655	1.15	X						
51	14390	34.96*	5580	1.20	X						
56	12940	31.43	5500	1.30	X						
65	11240	27.28	5385	1.45	X						
73	10060	24.43	5285	1.55	X						
88	8350	20.27	5110	1.55	X	**S**	**87p**	**(E)DRN**	**132L4**	355	864
90	8280	19.70	4775	1.35	X	**SF**	**87p**	**(E)DRN**	**132L4**	400	865
101	7350	17.49	4690	1.50	X	**SA**	**87p**	**(E)DRN**	**132L4**	345	866
113	6580	15.64*	4605	1.65	X	**SAF**	**87p**	**(E)DRN**	**132L4**	385	865
126	5910	14.06	4520	1.85	X						
145	5130	12.21	4400	2.1	X						
162	4600	10.93	4305	2.2	X						
196	3820	9.07	4140	2.2	X						
225	3320	7.88	4015	2.2	X						
129	5760	13.76	655	1.10	X						
147	5060	12.07	810	1.25	X	**S**	**77p**	**(E)DRN**	**132L4**	275	858
167	4460	10.65	935	1.45	X	**SF**	**77p**	**(E)DRN**	**132L4**	295	859
188	3960	9.44	1030	1.45	X	**SA**	**77p**	**(E)DRN**	**132L4**	270	860
220	3380	8.06	1125	1.50	X	**SAF**	**77p**	**(E)DRN**	**132L4**	285	859

P_m = 15.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
32	28120	55.79	7750	1.15	X						
36	25150	49.87	7650	1.30	X						
40	22650	44.89	7545	1.40	X						
44	20520	40.65	7440	1.45	X						
49	18210	36.05	7300	1.60	X						
54	16460	32.60	7175	1.70	X						
67	13590	26.39	6465	1.70	X	**S**	**97p**	**(E)DRN**	**160M4**	550	870
75	12150	23.59	6355	1.90	X	**SF**	**97p**	**(E)DRN**	**160M4**	630	871
84	10940	21.23	6250	2.1	X	**SA**	**97p**	**(E)DRN**	**160M4**	540	872
92	9910	19.23	6140	2.2	X	**SAF**	**97p**	**(E)DRN**	**160M4**	600	871
104	8790	17.05	6010	2.4	X						
115	7950	15.42	5890	2.6	X						
136	6740	13.07	5695	2.9	X						
156	5890	11.41	5530	3.0	X						
186	4920	9.55	5315	3.0	X						
215	4260	8.26	5140	3.0	X						
51	17530	34.96*	5280	1.00	X						
57	15770	31.43	5230	1.10	X						
65	13700	27.28	5150	1.20	X						
73	12270	24.43	5075	1.25	X						
88	10180	20.27	4935	1.25	X						
90	10090	19.70	4535	1.10	X	**S**	**87p**	**(E)DRN**	**160M4**	425	864
102	8960	17.49	4475	1.20	X	**SF**	**87p**	**(E)DRN**	**160M4**	470	865
114	8020	15.64*	4415	1.35	X	**SA**	**87p**	**(E)DRN**	**160M4**	420	866
126	7210	14.06	4350	1.50	X	**SAF**	**87p**	**(E)DRN**	**160M4**	455	865
146	6260	12.21	4255	1.75	X						
163	5600	10.93	4175	1.80	X						
196	4650	9.07	4030	1.80	X						
225	4040	7.88	3920	1.80	X						
147	6160	12.07	330	1.05	X	**S**	**77p**	**(E)DRN**	**160M4**	345	858
167	5440	10.65	500	1.20	X	**SF**	**77p**	**(E)DRN**	**160M4**	365	859
188	4820	9.44	640	1.20	X	**SA**	**77p**	**(E)DRN**	**160M4**	340	860
220	4120	8.06	795	1.25	X	**SAF**	**77p**	**(E)DRN**	**160M4**	355	859

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P_m = 20 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
40	30190	44.89	6960	1.05	X						
44	27350	40.65	6910	1.10	X						
49	24260	36.05	6830	1.20	X						
55	21940	32.60	6750	1.30	X						
67	18110	26.39	5975	1.25	X						
75	16190	23.59	5920	1.40	X	**S**	**97p**	**(E)DRN**	**160L4**	590	870
84	14580	21.23	5855	1.55	X	**SF**	**97p**	**(E)DRN**	**160L4**	660	871
92	13210	19.23	5785	1.70	X	**SA**	**97p**	**(E)DRN**	**160L4**	580	872
104	11710	17.05	5690	1.80	X	**SAF**	**97p**	**(E)DRN**	**160L4**	630	871
115	10590	15.42	5605	1.90	X						
136	8980	13.07	5455	2.1	X						
156	7840	11.41	5320	2.3	X						
186	6560	9.55	5135	2.3	X						
215	5680	8.26	4985	2.2	X						
114	10680	15.64*	4065	1.05	X						
126	9610	14.06	4035	1.15	X	**S**	**87p**	**(E)DRN**	**160L4**	460	864
146	8340	12.21	3980	1.30	X	**SF**	**87p**	**(E)DRN**	**160L4**	510	865
163	7470	10.93	3930	1.35	X	**SA**	**87p**	**(E)DRN**	**160L4**	455	866
196	6200	9.07	3830	1.35	X	**SAF**	**87p**	**(E)DRN**	**160L4**	490	865
225	5390	7.88	3745	1.35	X						

P_m = 25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
55	27360	32.60	6325	1.05	X						
64	23200	27.63	6235	1.10	X						
74	20270	24.13	6145	1.15	X						
84	18180	21.23	5460	1.25	X						
93	16470	19.23	5430	1.35	X	**S**	**97p**	**(E)DRN**	**180M4**	640	870
104	14610	17.05	5375	1.45	X	**SF**	**97p**	**(E)DRN**	**180M4**	710	871
116	13210	15.42	5320	1.55	X	**SA**	**97p**	**(E)DRN**	**180M4**	630	872
136	11200	13.07	5210	1.70	X	**SAF**	**97p**	**(E)DRN**	**180M4**	680	871
156	9780	11.41	5105	1.80	X						
187	8180	9.55	4960	1.80	X						
216	7080	8.26	4830	1.80	X						
146	10400	12.21	3705	1.05	X	**S**	**87p**	**(E)DRN**	**180M4**	510	864
163	9310	10.93	3685	1.05	X	**SF**	**87p**	**(E)DRN**	**180M4**	550	865
196	7730	9.07	3625	1.10	X	**SA**	**87p**	**(E)DRN**	**180M4**	500	866
226	6720	7.88	3565	1.10	X	**SAF**	**87p**	**(E)DRN**	**180M4**	540	865

P_m = 30 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
84	21820	21.23	4795	1.05	X						
93	19760	19.23	5075	1.10	X						
104	17530	17.05	5060	1.20	X	**S**	**97p**	**(E)DRN**	**180L4**	670	870
116	15850	15.42	5035	1.30	X	**SF**	**97p**	**(E)DRN**	**180L4**	740	871
136	13440	13.07	4970	1.45	X	**SA**	**97p**	**(E)DRN**	**180L4**	660	872
156	11740	11.41	4895	1.50	X	**SAF**	**97p**	**(E)DRN**	**180L4**	720	871
187	9820	9.55	4780	1.50	X						
216	8500	8.26	4675	1.50	X						

P_m = 40 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
136	17900	13.07	4455	1.05	X	**S**	**97p**	**(E)DRN**	**200L4**	910	870
156	15630	11.41	4475	1.15	X	**SF**	**97p**	**(E)DRN**	**200L4**	980	871
187	13080	9.55	4430	1.15	X	**SA**	**97p**	**(E)DRN**	**200L4**	900	872
216	11320	8.26	4370	1.15	X	**SAF**	**97p**	**(E)DRN**	**200L4**	960	871

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11.5 S.. R.. DRN.. Selections by torque / low output speed

$T_{a\,max}$ = 810 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.17	10037	675						
0.19	8654	675						
0.21	8066	675						
0.24	7051	675						
0.28	6079	675						
0.31	5431	675						
0.35	4747	675						
0.40	4155	675						
0.46	3632	675	**S**	**37R17**	**DRN**	**63MS4**	30	835/876
0.59	2866	675	**SF**	**37R17**	**DRN**	**63MS4**	33	836/876
0.68	2471	675	**SA**	**37R17**	**DRN**	**63MS4**	30	837/876
0.78	2160	675	**SAF**	**37R17**	**DRN**	**63MS4**	33	836/876
0.89	1887	675						
1.0	1665	675						
1.1	1456	675						
1.3	1271	675						
1.5	1121	675						
1.7	994	675						
1.9	869	675						
2.2	774	675						
2.5	666	675						
2.8	596	675						
3.2	521	675	**S**	**37R17**	**DRN**	**63MS4**	30	835/876
3.7	456	675	**SF**	**37R17**	**DRN**	**63MS4**	33	836/876
4.2	398	675	**SA**	**37R17**	**DRN**	**63MS4**	29	837/876
4.8	351	675	**SAF**	**37R17**	**DRN**	**63MS4**	33	836/876
5.5	303	675						
6.3	265	675						
7.2	232	675						
8.4	202	675	**S**	**37R17**	**DRN**	**63M4**	31	835/876
9.5	179	675	**SF**	**37R17**	**DRN**	**63M4**	34	836/876
11	158	675	**SA**	**37R17**	**DRN**	**63M4**	31	837/876
12	144	675	**SAF**	**37R17**	**DRN**	**63M4**	34	836/876
			S	**37R17**	**DRN**	**71MS4**	35	835/876
14	118	675	**SF**	**37R17**	**DRN**	**71MS4**	38	836/876
15	110	675	**SA**	**37R17**	**DRN**	**71MS4**	35	837/876
			SAF	**37R17**	**DRN**	**71MS4**	38	836/876

$T_{a\,max}$ = 1610 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
			S	**47R17**	**DRN**	**63MS4**	37	840/876
			SF	**47R17**	**DRN**	**63MS4**	45	841/876
1.8	956	1170	**SA**	**47R17**	**DRN**	**63MS4**	39	842/876
			SAF	**47R17**	**DRN**	**63MS4**	43	841/876

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$T_{a\,max}$ = 1630 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.13	12909	1180						
0.15	11189	1180						
0.16	10374	1180						
0.19	8992	1180						
0.21	7860	1180						
0.24	6887	1180						
0.28	6055	1180						
0.32	5292	1180						
0.36	4637	1180						
0.41	4092	1180	**S**	**47R17**	**DRN**	**63MS4**	37	840/876
0.47	3582	1170	**SF**	**47R17**	**DRN**	**63MS4**	45	841/876
0.54	3131	1170	**SA**	**47R17**	**DRN**	**63MS4**	39	842/876
0.62	2714	1170	**SAF**	**47R17**	**DRN**	**63MS4**	43	841/876
0.70	2412	1170						
0.79	2131	1170						
0.90	1863	1170						
1.0	1663	1170						
1.2	1435	1170						
1.3	1254	1170						
1.5	1120	1170						
1.6	1083	1170						
1.7	965	1170						
1.9	865	1170	**S**	**47R17**	**DRN**	**63MS4**	36	840/876
2.2	750	1170	**SF**	**47R17**	**DRN**	**63MS4**	44	841/876
2.6	655	1170	**SA**	**47R17**	**DRN**	**63MS4**	39	842/876
2.9	574	1170	**SAF**	**47R17**	**DRN**	**63MS4**	43	841/876
3.3	506	1170						
3.9	438	1170	**S**	**47R17**	**DRN**	**63M4**	38	840/876
4.4	388	1170	**SF**	**47R17**	**DRN**	**63M4**	46	841/876
5.1	336	1170	**SA**	**47R17**	**DRN**	**63M4**	40	842/876
			SAF	**47R17**	**DRN**	**63M4**	44	841/876
5.8	294	1170	**S**	**47R17**	**DRN**	**71MS4**	42	840/876
6.6	257	1180	**SF**	**47R17**	**DRN**	**71MS4**	50	841/876
7.4	229	1170	**SA**	**47R17**	**DRN**	**71MS4**	44	842/876
			SAF	**47R17**	**DRN**	**71MS4**	48	841/876
8.5	200	1170	**S**	**47R17**	**DRN**	**71M4**	42	840/876
9.1	187	1170	**SF**	**47R17**	**DRN**	**71M4**	50	841/876
10	165	1170	**SA**	**47R17**	**DRN**	**71M4**	44	842/876
12	148	1170	**SAF**	**47R17**	**DRN**	**71M4**	48	841/876
13	131	1170						

$T_{a\,max}$ = 2650 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.54	3131	1590						
0.62	2714	1590						
0.70	2412	1590						
0.79	2131	1590	**S**	**57R17**	**DRN**	**63MS4**	45	846/876
0.90	1863	1590	**SF**	**57R17**	**DRN**	**63MS4**	54	847/876
1.0	1663	1590	**SA**	**57R17**	**DRN**	**63MS4**	45	848/876
1.2	1435	1590	**SAF**	**57R17**	**DRN**	**63MS4**	51	847/876
1.3	1254	1590						
1.6	1083	1590						
1.7	965	1590	**S**	**57R17**	**DRN**	**63MS4**	45	846/876
1.9	865	1590	**SF**	**57R17**	**DRN**	**63MS4**	53	847/876
2.2	750	1590	**SA**	**57R17**	**DRN**	**63MS4**	44	848/876
			SAF	**57R17**	**DRN**	**63MS4**	51	847/876
2.6	655	1590	**S**	**57R17**	**DRN**	**63M4**	46	846/876
3.0	574	1590	**SF**	**57R17**	**DRN**	**63M4**	55	847/876
3.4	506	1590	**SA**	**57R17**	**DRN**	**63M4**	46	848/876
			SAF	**57R17**	**DRN**	**63M4**	52	847/876

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$T_{a\ max}$ = 2650 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
3.9	438	1590	**S**	**57R17**	**DRN**	**71MS4**	50	846/876
4.4	388	1590	**SF**	**57R17**	**DRN**	**71MS4**	59	847/876
5.1	336	1590	**SA**	**57R17**	**DRN**	**71MS4**	50	848/876
			SAF	**57R17**	**DRN**	**71MS4**	56	847/876
5.8	294	1590	**S**	**57R17**	**DRN**	**71M4**	50	846/876
6.3	269	1590	**SF**	**57R17**	**DRN**	**71M4**	59	847/876
7.4	229	1590	**SA**	**57R17**	**DRN**	**71M4**	50	848/876
			SAF	**57R17**	**DRN**	**71M4**	56	847/876
8.3	204	1590	**S**	**57R17**	**DRN**	**80MK4**	59	846/876
9.0	187	1590	**SF**	**57R17**	**DRN**	**80MK4**	67	847/876
10	165	1590	**SA**	**57R17**	**DRN**	**80MK4**	59	848/876
			SAF	**57R17**	**DRN**	**80MK4**	65	847/876
13	131	1590	**S**	**57R17**	**DRN**	**80M4**	63	846/876
			SF	**57R17**	**DRN**	**80M4**	71	847/876
			SA	**57R17**	**DRN**	**80M4**	62	848/876
			SAF	**57R17**	**DRN**	**80M4**	69	847/876

$T_{a\ max}$ = 2910 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.13	12909	1530						
0.15	11189	1530						
0.16	10374	1530						
0.19	8992	1530						
0.21	7860	1530	**S**	**57R17**	**DRN**	**63MS4**	45	846/876
0.24	6887	1530	**SF**	**57R17**	**DRN**	**63MS4**	54	847/876
0.28	6055	1530	**SA**	**57R17**	**DRN**	**63MS4**	45	848/876
0.32	5292	1530	**SAF**	**57R17**	**DRN**	**63MS4**	51	847/876
0.36	4637	1530						
0.41	4092	1530						
0.46	3628	1530						

$T_{a\ max}$ = 5040 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.08	21362	1840						
0.09	19594	1840						
0.09	18120	1840						
0.10	16682	1840						
0.12	14383	1840						
0.13	12774	1840						
0.15	11013	1840						
0.17	9694	1840						
0.20	8529	1840						
0.23	7455	1840						
0.26	6531	1840	**S**	**67R37**	**DRN**	**63MS4**	87	852/876
0.29	5759	1840	**SF**	**67R37**	**DRN**	**63MS4**	100	853/876
0.34	4965	1840	**SA**	**67R37**	**DRN**	**63MS4**	89	854/876
0.38	4410	1840	**SAF**	**67R37**	**DRN**	**63MS4**	99	853/876
0.43	3880	1840						
0.49	3432	1840						
0.57	2944	1840						
0.64	2630	1840						
0.74	2279	1840						
0.83	2014	1840						
0.95	1772	1840						
1.1	1559	1840						
1.2	1363	1840						
1.4	1194	1840	**S**	**67R37**	**DRN**	**63M4**	89	852/876
1.6	1045	1840	**SF**	**67R37**	**DRN**	**63M4**	101	853/876
1.9	914	1840	**SA**	**67R37**	**DRN**	**63M4**	91	854/876
			SAF	**67R37**	**DRN**	**63M4**	101	853/876

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$T_{a\ max}$ = 5040 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
			S	67R37	DRN	71MS4	93	852/876
2.1	809	1840	SF	67R37	DRN	71MS4	105	853/876
2.4	712	1840	SA	67R37	DRN	71MS4	95	854/876
			SAF	67R37	DRN	71MS4	105	853/876
2.8	615	1840	S	67R37	DRN	71M4	93	852/876
3.1	543	1840	SF	67R37	DRN	71M4	105	853/876
3.6	469	1840	SA	67R37	DRN	71M4	95	854/876
4.0	424	1840	SAF	67R37	DRN	71M4	105	853/876
			S	67R37	DRN	80MK4	100	852/876
4.6	365	1840	SF	67R37	DRN	80MK4	115	853/876
5.3	319	1840	SA	67R37	DRN	80MK4	102	854/876
6.0	281	1840	SAF	67R37	DRN	80MK4	110	853/876
			S	67R37	DRN	80M4	105	852/876
7.1	246	1840	SF	67R37	DRN	80M4	120	853/876
7.9	221	1840	SA	67R37	DRN	80M4	105	854/876
8.9	198	1840	SAF	67R37	DRN	80M4	115	853/876
			S	67R37	DRN	90S4	120	852/876
10	168	1840	SF	67R37	DRN	90S4	130	853/876
11	156	1840	SA	67R37	DRN	90S4	120	854/876
			SAF	67R37	DRN	90S4	130	853/876

$T_{a\ max}$ = 10900 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
			S	77R37	DRN	63MS4	130	858/876
0.61	2753	2690	SF	77R37	DRN	63MS4	150	859/876
			SA	77R37	DRN	63MS4	130	860/876
			SAF	77R37	DRN	63MS4	145	859/876
			S	77R37	DRN	63M4	131	858/876
0.72	2374	2690	SF	77R37	DRN	63M4	151	859/876
0.82	2083	2690	SA	77R37	DRN	63M4	131	860/876
0.94	1813	2690	SAF	77R37	DRN	63M4	146	859/876
			S	77R37	DRN	71MS4	135	858/876
0.97	1745	2690	SF	77R37	DRN	71MS4	155	859/876
1.1	1600	2690	SA	77R37	DRN	71MS4	135	860/876
1.2	1404	2690	SAF	77R37	DRN	71MS4	150	859/876
			S	77R37	DRN	71M4	135	858/876
1.4	1245	2690	SF	77R37	DRN	71M4	155	859/876
1.6	1100	2690	SA	77R37	DRN	71M4	135	860/876
1.8	954	2690	SAF	77R37	DRN	71M4	150	859/876
2.0	837	2690						
			S	77R37	DRN	80MK4	140	858/876
2.4	714	2690	SF	77R37	DRN	80MK4	165	859/876
2.6	637	2690	SA	77R37	DRN	80MK4	140	860/876
2.9	574	2690	SAF	77R37	DRN	80MK4	155	859/876
			S	77R37	DRN	80M4	145	858/876
3.5	499	2690	SF	77R37	DRN	80M4	170	859/876
4.0	438	2690	SA	77R37	DRN	80M4	145	860/876
			SAF	77R37	DRN	80M4	160	859/876
			S	77R37	DRN	90S4	160	858/876
4.5	389	2690	SF	77R37	DRN	90S4	180	859/876
5.4	327	2690	SA	77R37	DRN	90S4	160	860/876
6.1	289	2690	SAF	77R37	DRN	90S4	175	859/876
			S	77R37	DRN	90L4	165	858/876
7.1	250	2690	SF	77R37	DRN	90L4	190	859/876
8.1	219	2690	SA	77R37	DRN	90L4	165	860/876
			SAF	77R37	DRN	90L4	180	859/876

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$T_{a\,max}$ = 11200 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.07	25493	2630						
0.08	21787	2630						
0.08	19907	2630						
0.10	17013	2630						
0.11	14668	2630						
0.13	13110	2630						
0.15	11569	2630	**S**	**77R37**	**DRN**	**63MS4**	130	858/876
0.17	9887	2630	**SF**	**77R37**	**DRN**	**63MS4**	150	859/876
0.19	8817	2630	**SA**	**77R37**	**DRN**	**63MS4**	130	860/876
0.22	7735	2630	**SAF**	**77R37**	**DRN**	**63MS4**	145	859/876
0.25	6735	2630						
0.28	5943	2630						
0.32	5214	2630						
0.36	4618	2630						
0.42	3992	2630						
			S	**77R37**	**DRN**	**63M4**	131	858/876
0.48	3540	2630	**SF**	**77R37**	**DRN**	**63M4**	151	859/876
0.55	3098	2630	**SA**	**77R37**	**DRN**	**63M4**	131	860/876
			SAF	**77R37**	**DRN**	**63M4**	146	859/876

$T_{a\,max}$ = 17500 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
			S	**87R57**	**DRN**	**100LM4**	300	864/876
6.9	255	6390	**SF**	**87R57**	**DRN**	**100LM4**	350	865/876
7.9	222	6390	**SA**	**87R57**	**DRN**	**100LM4**	295	866/876
8.6	205	6390	**SAF**	**87R57**	**DRN**	**100LM4**	330	865/876

$T_{a\,max}$ = 21200 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
			S	**87R57**	**DRN**	**100LM4**	300	864/876
5.5	323	6230	**SF**	**87R57**	**DRN**	**100LM4**	350	865/876
			SA	**87R57**	**DRN**	**100LM4**	295	866/876
			SAF	**87R57**	**DRN**	**100LM4**	330	865/876
			S	**87R57**	**DRN**	**100L4**	300	864/876
6.3	281	6230	**SF**	**87R57**	**DRN**	**100L4**	350	865/876
			SA	**87R57**	**DRN**	**100L4**	295	866/876
			SAF	**87R57**	**DRN**	**100L4**	330	865/876

$T_{a\,max}$ = 21600 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
			S	**87R57**	**DRN**	**100LM4**	300	864/876
4.1	435	6200	**SF**	**87R57**	**DRN**	**100LM4**	350	865/876
4.7	378	6200	**SA**	**87R57**	**DRN**	**100LM4**	295	866/876
			SAF	**87R57**	**DRN**	**100LM4**	330	865/876

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$T_{a\,max}$ = 22100 lb-in

n_a rpm	i ratio	F_{Ra}[1] lb					m lbs	
0.06	25987	6180						
0.07	23940	6180						
0.08	20568	6180						
0.09	18265	6180						
0.10	16774	6180	**S**	**87R57**	**DRN**	**63MS4**	240	864/876
0.11	14820	6180	**SF**	**87R57**	**DRN**	**63MS4**	285	865/876
0.13	13160	6180	**SA**	**87R57**	**DRN**	**63MS4**	235	866/876
0.15	11200	6180	**SAF**	**87R57**	**DRN**	**63MS4**	270	865/876
0.17	9904	6180						
0.20	8549	6180						
0.22	7643	6180						
0.25	6706	6180	**S**	**87R57**	**DRN**	**63M4**	242	864/876
0.29	5875	6180	**SF**	**87R57**	**DRN**	**63M4**	287	865/876
0.33	5187	6180	**SA**	**87R57**	**DRN**	**63M4**	237	866/876
			SAF	**87R57**	**DRN**	**63M4**	272	865/876
			S	**87R57**	**DRN**	**71MS4**	245	864/876
0.37	4606	6180	**SF**	**87R57**	**DRN**	**71MS4**	290	865/876
0.44	3872	6180	**SA**	**87R57**	**DRN**	**71MS4**	240	866/876
			SAF	**87R57**	**DRN**	**71MS4**	275	865/876
0.49	3475	6180	**S**	**87R57**	**DRN**	**71M4**	240	864/876
0.59	2905	6180	**SF**	**87R57**	**DRN**	**71M4**	290	865/876
0.66	2586	6180	**SA**	**87R57**	**DRN**	**71M4**	235	866/876
0.73	2335	6180	**SAF**	**87R57**	**DRN**	**71M4**	270	865/876
0.82	2054	6180	**S**	**87R57**	**DRN**	**80MK4**	250	864/876
0.93	1824	6180	**SF**	**87R57**	**DRN**	**80MK4**	295	865/876
1.0	1631	6180	**SA**	**87R57**	**DRN**	**80MK4**	245	866/876
			SAF	**87R57**	**DRN**	**80MK4**	280	865/876
			S	**87R57**	**DRN**	**80M4**	255	864/876
1.3	1332	6180	**SF**	**87R57**	**DRN**	**80M4**	305	865/876
1.5	1191	6180	**SA**	**87R57**	**DRN**	**80M4**	250	866/876
			SAF	**87R57**	**DRN**	**80M4**	285	865/876
1.7	1032	6180	**S**	**87R57**	**DRN**	**90S4**	270	864/876
1.9	930	6180	**SF**	**87R57**	**DRN**	**90S4**	315	865/876
2.1	831	6180	**SA**	**87R57**	**DRN**	**90S4**	265	866/876
2.5	719	6180	**SAF**	**87R57**	**DRN**	**90S4**	300	865/876
			S	**87R57**	**DRN**	**90L4**	275	864/876
2.8	624	6180	**SF**	**87R57**	**DRN**	**90L4**	325	865/876
3.2	558	6180	**SA**	**87R57**	**DRN**	**90L4**	270	866/876
			SAF	**87R57**	**DRN**	**90L4**	305	865/876
			S	**87R57**	**DRN**	**100LM4**	300	864/876
3.6	485	6180	**SF**	**87R57**	**DRN**	**100LM4**	350	865/876
			SA	**87R57**	**DRN**	**100LM4**	295	866/876
			SAF	**87R57**	**DRN**	**100LM4**	330	865/876

$T_{a\,max}$ = 37100 lb-in

n_a rpm	i ratio	F_{Ra}[1] lb					m lbs	
0.05	33818	7360						
0.05	31154	7360						
0.06	27847	7360						
0.07	24641	7360	**S**	**97R57**	**DRN**	**63MS4**	370	870/876
0.08	21537	7360	**SF**	**97R57**	**DRN**	**63MS4**	440	871/876
0.09	18749	7360	**SA**	**97R57**	**DRN**	**63MS4**	360	872/876
0.10	16233	7360	**SAF**	**97R57**	**DRN**	**63MS4**	415	871/876
0.12	14576	7360						
0.13	12752	7360						
0.15	11267	7360	**S**	**97R57**	**DRN**	**63M4**	372	870/876
0.17	10078	7360	**SF**	**97R57**	**DRN**	**63M4**	442	871/876
0.2	8608	7360	**SA**	**97R57**	**DRN**	**63M4**	362	872/876
0.23	7554	7360	**SAF**	**97R57**	**DRN**	**63M4**	418	871/876
0.26	6640	7080						

$T_{a\,max}$ = 37100 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.29	5780	7080	**S**	**97R57**	**DRN**	**71MS4**	375	870/876
0.34	4937	7080	**SF**	**97R57**	**DRN**	**71MS4**	445	871/876
0.38	4444	7080	**SA**	**97R57**	**DRN**	**71MS4**	365	872/876
			SAF	**97R57**	**DRN**	**71MS4**	420	871/876
0.42	4017	7080	**S**	**97R57**	**DRN**	**71S4**	375	870/876
0.49	3453	7080	**SF**	**97R57**	**DRN**	**71S4**	445	871/876
0.55	3108	7080	**SA**	**97R57**	**DRN**	**71S4**	365	872/876
			SAF	**97R57**	**DRN**	**71S4**	420	871/876
0.64	2654	7080	**S**	**97R57**	**DRN**	**80MK4**	385	870/876
0.73	2329	7080	**SF**	**97R57**	**DRN**	**80MK4**	455	871/876
0.81	2081	7080	**SA**	**97R57**	**DRN**	**80MK4**	370	872/876
0.91	1860	7080	**SAF**	**97R57**	**DRN**	**80MK4**	430	871/876
1.1	1574	7080	**S**	**97R57**	**DRN**	**80M4**	390	870/876
			SF	**97R57**	**DRN**	**80M4**	460	871/876
			SA	**97R57**	**DRN**	**80M4**	375	872/876
			SAF	**97R57**	**DRN**	**80M4**	435	871/876
1.3	1394	7080	**S**	**97R57**	**DRN**	**80M4**	385	870/876
			SF	**97R57**	**DRN**	**80M4**	460	871/876
			SA	**97R57**	**DRN**	**80M4**	375	872/876
			SAF	**97R57**	**DRN**	**80M4**	430	871/876
1.4	1223	7080	**S**	**97R57**	**DRN**	**90S4**	400	870/876
1.6	1070	7080	**SF**	**97R57**	**DRN**	**90S4**	475	871/876
1.9	928	7080	**SA**	**97R57**	**DRN**	**90S4**	390	872/876
			SAF	**97R57**	**DRN**	**90S4**	445	871/876
2.1	824	7080	**S**	**97R57**	**DRN**	**90L4**	410	870/876
			SF	**97R57**	**DRN**	**90L4**	480	871/876
			SA	**97R57**	**DRN**	**90L4**	395	872/876
			SAF	**97R57**	**DRN**	**90L4**	455	871/876
2.5	714	7360	**S**	**97R57**	**DRN**	**100LM4**	430	870/876
2.8	626	7100	**SF**	**97R57**	**DRN**	**100LM4**	500	871/876
3.3	538	7110	**SA**	**97R57**	**DRN**	**100LM4**	420	872/876
3.6	484	7110	**SAF**	**97R57**	**DRN**	**100LM4**	480	871/876
4.2	420	7120	**S**	**97R57**	**DRN**	**100L4**	430	870/876
4.7	376	7130	**SF**	**97R57**	**DRN**	**100L4**	500	871/876
5.4	327	7130	**SA**	**97R57**	**DRN**	**100L4**	420	872/876
6.1	287	7140	**SAF**	**97R57**	**DRN**	**100L4**	480	871/876
7.0	252	7150	**S**	**97R57**	**DRN**	**112M4**	455	870/876
			SF	**97R57**	**DRN**	**112M4**	520	871/876
			SA	**97R57**	**DRN**	**112M4**	440	872/876
			SAF	**97R57**	**DRN**	**112M4**	500	871/876
8.1	219	7150	**S**	**97R57**	**DRN**	**132S4**	480	870/876
8.6	205	7160	**SF**	**97R57**	**DRN**	**132S4**	550	871/876
			SA	**97R57**	**DRN**	**132S4**	465	872/876
			SAF	**97R57**	**DRN**	**132S4**	520	871/876

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11.6 Mechanical ratings S. SF. SA. SAF37

3400 – 2800 rpm

S37

i ratio	Worm ratio/ # starts	n_e = 3400 rpm				n_e = 3200 rpm				n_e = 2800 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
157.43	38/1	**22**	690	0.42	57	**20**	710	0.40	57	**18**	725	0.36	57
144.40		**24**	675	0.44	58	**22**	690	0.42	58	**19**	710	0.38	57
122.94		**28**	655	0.50	58	**26**	665	0.47	58	**23**	690	0.43	58
106.00		**32**	630	0.55	59	**30**	635	0.52	59	**26**	675	0.48	59
98.80		**34**	620	0.58	59	**32**	635	0.55	59	**28**	665	0.51	59
86.36		**39**	600	0.63	60	**37**	610	0.60	60	**32**	635	0.55	60
80.96		**42**	585	0.66	60	**40**	600	0.63	60	**35**	635	0.58	60
71.44		**48**	485	0.63	58	**45**	565	0.67	60	**39**	620	0.63	61
63.33		**54**	325	0.55	51	**51**	450	0.63	57	**44**	595	0.68	61
53.83		**63**	255	0.52	49	**59**	285	0.54	50	**52**	470	0.66	59
55.93	27/2	**61**	620	0.78	77	**57**	630	0.75	76	**50**	635	0.67	76
51.30		**66**	600	0.82	77	**62**	620	0.80	77	**55**	635	0.72	76
43.68		**78**	585	0.94	77	**73**	595	0.90	77	**64**	620	0.82	77
37.66		**90**	565	1.0	78	**85**	575	0.99	78	**74**	600	0.91	78
35.10		**97**	550	1.1	78	**91**	565	1.0	78	**80**	585	0.95	78
30.68		**111**	540	1.2	78	**104**	550	1.2	78	**91**	565	1.0	78
28.76		**118**	515	1.2	78	**111**	540	1.2	78	**97**	565	1.1	78
25.38		**134**	415	1.2	77	**126**	470	1.2	78	**110**	550	1.2	79
22.50		**151**	275	0.93	71	**142**	380	1.1	76	**124**	505	1.3	79
19.13		**178**	210	0.87	69	**167**	240	0.90	70	**146**	390	1.2	77
19.89	24/5	**171**	370	1.2	86	**161**	380	1.1	86	**141**	390	1.0	86
18.24		**186**	365	1.2	86	**175**	370	1.2	86	**154**	390	1.1	86
15.53		**219**	345	1.3	86	**206**	355	1.3	86	**180**	370	1.2	86
13.39		**254**	325	1.5	86	**239**	345	1.5	86	**209**	365	1.3	86
12.48		**272**	325	1.6	86	**256**	335	1.6	86	**224**	355	2.0	86
10.91		**312**	310	1.7	86	**293**	320	1.7	86	**257**	345	1.6	87
10.23		**332**	310	1.9	87	**313**	320	1.9	87	**274**	335	1.7	87
9.02		**377**	275	1.9	86	**355**	300	2.0	87	**310**	320	1.7	87
8.00		**425**	175	1.5	82	**400**	255	1.9	86	**350**	310	2.0	87
6.80		**500**	140	1.3	81	**471**	160	1.5	82	**412**	255	1.9	86
6.33		**537**	210	2.1	87	**506**	240	2.1	88	**442**	285	2.3	88
5.38		**632**	175	2.0	87	**595**	195	2.1	87	**520**	230	2.1	88
4.86		**700**	160	2.0	87	**658**	170	2.0	87	**576**	210	2.3	88
3.97		**856**	125	2.0	86	**806**	135	2.0	87	**705**	170	2.1	88

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 1.5 HP for continuous use.

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2200 – 1400 rpm

S37

i ratio	Worm ratio/ # starts	n_e = 2200 rpm				n_e = 1700 rpm				n_e = 1400 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
157.43	38/1	**14**	770	0.31	56	**11**	805	0.25	54	**8.9**	815	0.21	53
144.40		**15**	760	0.32	56	**12**	795	0.27	55	**9.7**	815	0.23	54
122.94		**18**	735	0.36	57	**14**	770	0.30	56	**11**	805	0.27	55
106.00		**21**	715	0.40	58	**16**	760	0.34	57	**13**	780	0.30	56
98.80		**22**	710	0.43	58	**17**	750	0.36	57	**14**	770	0.31	56
86.36		**25**	690	0.47	59	**20**	725	0.39	58	**16**	760	0.34	57
80.96		**27**	680	0.50	60	**21**	725	0.42	59	**17**	750	0.36	58
71.44		**31**	665	0.54	60	**24**	710	0.44	60	**20**	745	0.39	59
63.33		**35**	645	0.59	61	**27**	700	0.50	60	**22**	725	0.43	60
53.83		**41**	610	0.64	62	**32**	675	0.55	61	**26**	710	0.48	61
55.93	27/2	**39**	680	0.56	75	**30**	715	0.47	74	**25**	715	0.39	73
51.30		**43**	675	0.60	76	**33**	710	0.50	75	**27**	715	0.42	74
43.68		**50**	655	0.68	76	**39**	690	0.56	76	**32**	715	0.48	75
37.66		**58**	635	0.76	77	**45**	675	0.63	76	**37**	700	0.55	76
35.10		**63**	630	0.80	77	**48**	665	0.67	77	**40**	690	0.58	76
30.68		**72**	620	0.90	78	**55**	645	0.74	77	**46**	675	0.63	76
28.76		**76**	600	0.94	78	**59**	645	0.78	77	**49**	665	0.67	77
25.38		**87**	595	1.0	79	**67**	630	0.86	78	**55**	655	0.74	77
22.50		**98**	585	1.1	79	**76**	620	0.94	79	**62**	645	0.82	78
19.13		**115**	560	1.3	80	**89**	600	1.1	79	**73**	630	0.93	79
19.89	24/5	**111**	425	0.87	85	**85**	445	0.71	85	**70**	460	0.62	84
18.24		**121**	415	0.94	85	**93**	435	0.75	85	**77**	460	0.67	84
15.53		**142**	400	1.0	86	**109**	425	0.86	85	**90**	445	0.75	85
13.39		**164**	390	1.2	86	**127**	415	0.98	86	**105**	435	0.84	85
12.48		**176**	380	1.2	86	**136**	405	1.0	86	**112**	425	0.89	86
10.91		**202**	370	1.3	87	**156**	400	1.1	86	**128**	425	1.0	86
10.23		**215**	365	1.5	87	**166**	400	1.2	87	**137**	415	0.78	86
9.02		**244**	355	1.6	87	**188**	380	1.3	87	**155**	405	1.2	87
8.00		**275**	345	1.7	87	**213**	380	1.5	87	**175**	400	1.3	87
6.80		**324**	325	1.9	88	**250**	365	1.6	88	**206**	380	1.5	87
6.33		**348**	310	2.0	88	**269**	310	1.5	88	**221**	310	1.2	87
5.38		**409**	300	2.3	88	**316**	300	1.7	88	**260**	300	1.5	88
4.86		**453**	285	2.3	89	**350**	290	1.7	88	**288**	290	1.5	88
3.97		**554**	230	2.3	88	**428**	285	2.1	89	**353**	285	1.7	88

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 1.5 HP for continuous use.

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1100 – 700 rpm

S37

i ratio	Worm ratio/ # starts	n_e = 1100 rpm				n_e = 900 rpm				n_e = 700 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
157.43	38/1	**7.0**	815	0.17	52	**5.7**	815	0.15	50	**4.4**	815	0.12	49
144.40		**7.6**	815	0.19	52	**6.2**	815	0.16	51	**4.8**	815	0.12	50
122.94		**8.9**	815	0.21	54	**7.3**	815	0.19	52	**5.7**	815	0.15	51
106.00		**10**	815	0.24	55	**8.5**	815	0.20	53	**6.6**	815	0.16	52
98.80		**11**	815	0.25	55	**9.1**	815	0.21	54	**7.1**	815	0.17	52
86.36		**13**	795	0.28	56	**10**	815	0.24	55	**8.1**	815	0.20	53
80.96		**14**	790	0.30	57	**11**	815	0.25	55	**8.6**	815	0.21	54
71.44		**15**	770	0.32	57	**13**	805	0.28	56	**9.8**	815	0.23	55
63.33		**17**	760	0.36	58	**14**	790	0.31	57	**11**	815	0.25	56
53.83		**20**	745	0.40	60	**17**	770	0.35	58	**13**	805	0.30	57
55.93	27/2	**20**	770	0.34	72	**16**	805	0.28	71	**13**	815	0.23	70
51.30		**21**	770	0.36	73	**18**	795	0.31	72	**14**	815	0.25	71
43.68		**25**	745	0.40	74	**21**	770	0.35	73	**16**	815	0.30	71
37.66		**29**	725	0.46	75	**24**	760	0.39	74	**19**	790	0.32	72
35.10		**31**	725	0.48	75	**26**	745	0.42	74	**20**	780	0.34	73
30.68		**36**	710	0.54	76	**29**	725	0.46	75	**23**	770	0.38	74
28.76		**38**	700	0.56	76	**31**	725	0.48	75	**24**	760	0.40	74
25.38		**43**	690	0.62	77	**35**	715	0.54	76	**28**	745	0.44	75
22.50		**49**	680	0.68	77	**40**	700	0.58	76	**31**	725	0.48	75
19.13		**58**	665	0.78	78	**47**	690	0.67	77	**37**	715	0.55	76
19.89	24/5	**55**	485	0.51	83	**45**	515	0.44	83	**35**	530	0.36	82
18.24		**60**	480	0.55	84	**49**	495	0.47	83	**38**	530	0.39	82
15.53		**71**	470	0.63	84	**58**	485	0.54	84	**45**	515	0.44	83
13.39		**82**	460	0.71	85	**67**	480	0.60	84	**52**	495	0.50	83
12.48		**88**	450	0.74	85	**72**	470	0.63	84	**56**	485	0.52	84
10.91		**101**	445	0.83	86	**82**	460	0.71	85	**64**	480	0.58	84
10.23		**108**	435	0.86	86	**88**	450	0.74	85	**68**	480	0.62	84
9.02		**122**	425	0.95	86	**100**	445	0.82	86	**78**	470	0.68	85
8.00		**138**	415	1.0	87	**113**	435	0.90	86	**88**	460	0.75	85
6.80		**162**	405	1.2	87	**132**	425	1.0	87	**103**	450	0.86	86
6.33		**174**	400	1.3	87	**142**	400	1.0	87	**111**	400	0.82	86
5.38		**204**	380	1.4	88	**167**	380	1.2	87	**130**	380	0.91	87
4.86		**226**	370	1.5	88	**185**	370	1.2	88	**144**	370	0.98	87
3.97		**277**	355	1.8	88	**227**	355	1.4	88	**176**	355	1.1	88

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500 - 10 rpm

S37

i ratio	Worm ratio/ # starts	n_e = 500 rpm				n_e = 250 rpm				n_e = 10 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
157.43	38/1	**3.2**	815	0.08	47	**1.6**	815	0.04	46	**0.06**	815	0.00	26
144.40		**3.5**	815	0.09	48	**1.7**	815	0.05	46	**0.07**	815	0.00	27
122.94		**4.1**	815	0.11	49	**2.0**	815	0.06	46	**0.08**	815	0.00	29
106.00		**4.7**	815	0.12	50	**2.4**	815	0.07	47	**0.09**	815	0.00	30
98.80		**5.1**	815	0.13	50	**2.5**	815	0.07	47	**0.10**	815	0.00	31
86.36		**5.8**	815	0.15	51	**2.9**	815	0.08	47	**0.12**	815	0.00	32
80.96		**6.2**	815	0.16	51	**3.1**	815	0.08	47	**0.12**	815	0.00	33
71.44		**7.0**	815	0.17	52	**3.5**	815	0.09	48	**0.14**	815	0.00	35
63.33		**7.9**	815	0.19	53	**3.9**	815	0.11	49	**0.16**	815	0.00	37
53.83		**9.3**	815	0.21	55	**4.6**	815	0.12	50	**0.19**	815	0.00	39
55.93	27/2	**8.9**	815	0.17	69	**4.5**	815	0.08	67	**0.18**	815	0.00	48
51.30		**9.7**	815	0.19	69	**4.9**	815	0.09	67	**0.19**	815	0.00	49
43.68		**11**	815	0.21	70	**5.7**	815	0.11	67	**0.23**	815	0.00	51
37.66		**13**	815	0.24	71	**6.6**	815	0.13	67	**0.27**	815	0.00	53
35.10		**14**	815	0.25	71	**7.1**	815	0.13	68	**0.28**	815	0.00	54
30.68		**16**	815	0.30	72	**8.1**	815	0.15	68	**0.33**	815	0.00	56
28.76		**17**	805	0.31	72	**8.7**	815	0.16	69	**0.35**	815	0.00	57
25.38		**20**	790	0.34	73	**9.9**	815	0.19	69	**0.39**	815	0.00	59
22.50		**22**	770	0.38	74	**11**	815	0.20	70	**0.44**	815	0.00	61
19.13		**26**	750	0.42	75	**13**	815	0.24	71	**0.52**	815	0.00	62
19.89	24/5	**25**	600	0.30	81	**13**	635	0.16	79	**0.50**	635	0.00	65
18.24		**27**	585	0.31	81	**14**	635	0.17	79	**0.55**	635	0.00	66
15.53		**32**	560	0.35	82	**16**	635	0.20	79	**0.64**	635	0.00	68
13.39		**37**	540	0.39	82	**19**	635	0.24	80	**0.75**	635	0.00	71
12.48		**40**	520	0.40	82	**20**	635	0.25	80	**0.80**	635	0.00	72
10.91		**46**	515	0.46	83	**23**	630	0.28	81	**0.92**	630	0.00	73
10.23		**49**	505	0.47	83	**24**	620	0.30	81	**0.98**	620	0.00	73
9.02		**55**	495	0.52	84	**28**	585	0.32	81	**1.1**	585	0.00	74
8.00		**63**	485	0.58	84	**31**	560	0.34	82	**1.2**	560	0.00	74
6.80		**74**	480	0.66	85	**37**	540	0.39	82	**1.5**	540	0.00	75
6.33		**79**	400	0.59	85	**39**	400	0.31	83	**1.6**	400	0.00	80
5.38		**93**	380	0.66	86	**46**	380	0.34	83	**1.9**	380	0.00	80
4.86		**103**	370	0.71	86	**51**	370	0.36	84	**2.1**	370	0.00	80
3.97		**126**	355	0.82	87	**63**	355	0.42	84	**2.5**	355	0.00	80

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11.7 Mechanical ratings S. SF. SA. SAF47

3400 – 2800 rpm

S47

i ratio	Worm ratio/ # starts	n_e = 3400 rpm				n_e = 3200 rpm				n_e = 2800 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
201.00		**17**	1330	0.59	60	**16**	1330	0.56	60	**14**	1330	0.50	59
184.80		**18**	1330	0.64	60	**17**	1330	0.60	60	**15**	1330	0.54	59
158.12		**22**	1330	0.74	61	**20**	1330	0.70	61	**18**	1330	0.62	60
137.05		**25**	1330	0.84	62	**23**	1330	0.79	62	**20**	1330	0.70	61
128.10		**27**	1330	0.90	63	**25**	1330	0.84	62	**22**	1330	0.75	62
110.73	42/1	**31**	1220	0.94	63	**29**	1310	0.95	63	**25**	1330	0.84	63
94.08		**36**	1000	0.93	62	**34**	1090	0.94	63	**30**	1290	0.97	63
84.00		**40**	840	0.89	61	**38**	945	0.93	62	**33**	1150	0.95	63
71.75		**47**	515	0.74	53	**45**	725	0.86	60	**39**	945	0.94	63
67.20		**51**	470	0.72	52	**48**	600	0.80	57	**42**	875	0.93	62
56.61		**60**	355	0.68	49	**57**	405	0.71	51	**49**	665	0.87	60
69.39		**49**	1240	1.2	79	**46**	1240	1.2	78	**40**	1240	1.0	78
63.80		**53**	1240	1.3	79	**50**	1240	1.2	79	**44**	1240	1.1	78
54.59		**62**	1240	1.5	80	**59**	1240	1.5	79	**51**	1240	1.3	79
47.32		**72**	1230	1.7	80	**68**	1240	1.6	80	**59**	1240	1.5	80
44.22		**77**	1140	1.7	80	**72**	1230	1.7	80	**63**	1240	1.6	80
38.23	29/2	**89**	990	1.7	80	**84**	1060	1.7	80	**73**	1230	1.7	80
32.48		**105**	805	1.7	79	**99**	885	1.7	80	**86**	1035	1.7	80
29.00		**117**	675	1.6	78	**110**	760	1.7	79	**97**	920	1.7	80
24.77		**137**	415	1.3	72	**129**	585	1.6	77	**113**	770	1.7	80
23.20		**147**	370	1.2	71	**138**	480	1.3	75	**121**	700	1.7	79
19.54		**174**	285	1.1	69	**164**	325	1.2	71	**143**	520	1.5	77
20.33		**167**	885	2.7	88	**157**	885	2.5	88	**138**	885	2.1	88
17.62		**193**	860	3.0	88	**182**	885	3.0	88	**159**	885	2.5	88
16.47		**206**	795	3.0	88	**194**	860	3.0	88	**170**	885	2.7	88
14.24		**239**	690	3.0	88	**225**	735	3.0	88	**197**	860	3.1	88
12.10		**281**	560	2.8	88	**264**	610	3.0	88	**231**	725	3.0	88
10.80		**315**	470	2.7	87	**296**	530	2.8	88	**259**	635	3.0	88
9.23	27/5	**368**	285	2.0	83	**347**	400	2.5	86	**303**	530	3.0	88
8.64		**394**	255	2.0	82	**370**	325	2.3	85	**324**	485	2.8	88
7.28		**467**	195	1.7	81	**440**	220	1.9	82	**385**	365	2.5	86
6.83		**498**	300	2.7	87	**469**	325	2.7	88	**410**	400	3.0	88
6.40		**531**	275	2.7	87	**500**	300	2.7	87	**438**	370	3.0	88
5.39		**631**	210	2.4	86	**594**	240	2.5	87	**519**	300	2.8	88
4.76		**714**	175	2.4	85	**672**	205	2.5	86	**588**	255	2.7	87
4.00		**850**	140	2.3	85	**800**	160	2.4	85	**700**	205	2.5	87

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 2.0 HP for continuous use.

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2200 – 1400 rpm

S47

i ratio	Worm ratio/ # starts	n_e = 2200 rpm				n_e = 1700 rpm				n_e = 1400 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
201.00		**11**	1480	0.44	58	**8.5**	1505	0.36	56	**7.0**	1505	0.31	55
184.80		**12**	1480	0.48	58	**9.2**	1485	0.39	57	**7.6**	1505	0.32	56
158.12		**14**	1480	0.55	60	**11**	1485	0.44	58	**8.9**	1505	0.38	57
137.05		**16**	1460	0.62	60	**12**	1480	0.50	59	**10**	1485	0.42	58
128.10		**17**	1460	0.66	61	**13**	1480	0.52	59	**11**	1485	0.44	58
110.73	42/1	**20**	1460	0.74	62	**15**	1480	0.59	61	**13**	1485	0.51	59
94.08		**23**	1460	0.86	63	**18**	1480	0.68	62	**15**	1485	0.58	60
84.00		**26**	1435	0.94	64	**20**	1480	0.76	62	**17**	1480	0.64	61
71.75		**31**	1285	0.98	64	**24**	1480	0.87	63	**20**	1480	0.74	62
67.20		**33**	1210	0.98	64	**25**	1450	0.91	64	**21**	1480	0.78	63
56.61		**39**	1020	0.98	64	**30**	1345	0.99	65	**25**	1460	0.90	64
69.39		**32**	1370	0.90	77	**24**	1370	0.70	76	**20**	1370	0.59	75
63.80		**34**	1370	0.97	77	**27**	1370	0.76	76	**22**	1370	0.63	75
54.59		**40**	1370	1.1	78	**31**	1370	0.89	77	**26**	1370	0.74	76
47.32		**46**	1370	1.3	79	**36**	1370	1.0	78	**30**	1370	0.84	77
44.22		**50**	1370	1.3	79	**38**	1370	1.1	78	**32**	1370	0.90	77
38.23	29/2	**58**	1370	1.6	80	**44**	1370	1.2	79	**37**	1370	1.0	78
32.48		**68**	1290	1.7	80	**52**	1370	1.5	80	**43**	1370	1.2	79
29.00		**76**	1210	1.7	81	**59**	1365	1.6	80	**48**	1370	1.3	79
24.77		**89**	1035	1.7	81	**69**	1285	1.7	81	**57**	1370	1.5	80
23.20		**95**	980	1.9	81	**73**	1255	1.7	81	**60**	1345	1.6	80
19.54		**113**	815	1.7	81	**87**	1090	1.9	81	**72**	1275	1.7	81
20.33		**108**	965	1.9	87	**84**	975	1.5	87	**69**	975	1.2	86
17.62		**125**	955	2.1	88	**96**	965	1.7	87	**79**	975	1.5	86
16.47		**134**	955	2.3	88	**103**	965	1.9	87	**85**	975	1.5	87
14.24		**154**	955	2.7	88	**119**	965	2.1	88	**98**	975	1.7	87
12.10		**182**	930	3.1	89	**140**	965	2.4	88	**116**	965	2.0	88
10.80		**204**	840	3.1	89	**157**	955	2.7	88	**130**	965	2.3	88
9.23	27/5	**238**	725	3.1	89	**184**	930	3.1	89	**152**	965	2.7	88
8.64		**255**	680	3.1	89	**197**	885	3.1	89	**162**	965	2.8	88
7.28		**302**	565	3.1	89	**234**	760	3.2	89	**192**	910	3.1	89
6.83		**322**	550	3.2	89	**249**	690	3.1	89	**205**	690	2.5	89
6.40		**344**	515	3.2	89	**266**	675	3.2	89	**219**	675	2.7	89
5.39		**408**	425	3.1	89	**315**	575	3.2	89	**260**	655	3.1	89
4.76		**462**	370	3.1	89	**357**	515	3.2	89	**294**	635	3.4	90
4.00		**550**	300	3.0	88	**425**	425	3.2	89	**350**	540	3.4	90

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 2.0 HP for continuous use.

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1100 – 700 rpm

S47

i ratio	Worm ratio/ # starts	n_e = 1100 rpm				n_e = 900 rpm				n_e = 700 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
201.00		**5.5**	1560	0.25	53	**4.5**	1595	0.21	52	**3.5**	1635	0.17	51
184.80		**6.0**	1540	0.27	54	**4.9**	1575	0.23	53	**3.8**	1620	0.19	51
158.12		**7.0**	1520	0.31	55	**5.7**	1560	0.27	54	**4.4**	1595	0.21	52
137.05		**8.0**	1515	0.35	56	**6.6**	1520	0.30	55	**5.1**	1575	0.24	53
128.10		**8.6**	1515	0.36	57	**7.0**	1520	0.31	55	**5.5**	1560	0.25	54
110.73	42/1	**9.9**	1495	0.40	58	**8.1**	1515	0.35	56	**6.3**	1540	0.28	55
94.08		**12**	1495	0.47	59	**9.6**	1515	0.40	57	**7.4**	1520	0.32	56
84.00		**13**	1495	0.52	60	**11**	1495	0.43	58	**8.3**	1515	0.35	57
71.75		**15**	1495	0.60	61	**13**	1495	0.50	60	**9.8**	1515	0.40	58
67.20		**16**	1495	0.63	61	**13**	1495	0.54	60	**10**	1515	0.43	58
56.61		**19**	1495	0.74	63	**16**	1495	0.62	61	**12**	1515	0.50	60
69.39		**16**	1530	0.52	74	**13**	1560	0.44	73	**10**	1595	0.36	71
63.80		**17**	1530	0.56	74	**14**	1550	0.47	73	**11**	1595	0.39	72
54.59		**20**	1515	0.64	75	**16**	1530	0.54	74	**13**	1560	0.44	73
47.32		**23**	1515	0.74	76	**19**	1530	0.62	75	**15**	1550	0.50	73
44.22		**25**	1515	0.78	76	**20**	1515	0.66	75	**16**	1550	0.52	74
38.23	29/2	**29**	1495	0.89	77	**24**	1515	0.75	76	**18**	1530	0.59	75
32.48		**34**	1495	1.0	78	**28**	1515	0.87	77	**22**	1515	0.68	75
29.00		**38**	1505	1.2	78	**31**	1515	0.97	77	**24**	1515	0.76	76
24.77		**44**	1495	1.3	79	**36**	1505	1.1	78	**28**	1515	0.89	77
23.20		**47**	1450	1.3	79	**39**	1505	1.2	79	**30**	1515	0.94	77
19.54		**56**	1365	1.5	80	**46**	1460	1.3	79	**36**	1505	1.1	78
20.33		**54**	990	1.0	85	**44**	1010	0.84	84	**34**	1025	0.67	83
17.62		**62**	990	1.2	86	**51**	1000	0.95	85	**40**	1020	0.76	84
16.47		**67**	990	1.2	86	**55**	1000	1.0	85	**43**	1010	0.80	84
14.24		**77**	980	1.3	86	**63**	990	1.2	86	**49**	1000	0.93	85
12.10		**91**	980	1.6	87	**74**	980	1.3	86	**58**	1000	1.1	85
10.80		**102**	980	1.9	87	**83**	980	1.5	87	**65**	990	1.2	86
9.23	27/5	**119**	975	2.1	88	**98**	980	1.7	87	**76**	990	1.3	86
8.64		**127**	965	2.3	88	**104**	980	1.9	87	**81**	990	1.5	87
7.28		**151**	965	2.7	88	**124**	980	2.1	88	**96**	980	1.7	87
6.83		**161**	840	2.4	89	**132**	840	2.0	88	**102**	840	1.6	88
6.40		**172**	825	2.5	89	**141**	825	2.1	88	**109**	825	1.6	88
5.39		**204**	790	2.8	89	**167**	790	2.4	89	**130**	790	1.9	88
4.76		**231**	770	3.2	89	**189**	770	2.5	89	**147**	770	2.0	89
4.00		**275**	690	3.4	90	**225**	745	3.0	89	**175**	745	2.3	89

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 2.0 HP for continuous use.

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500 – 10 rpm

S47

i ratio	Worm ratio/ # starts	n_e = 500 rpm				n_e = 250 rpm				n_e = 10 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
201.00		**2.5**	1635	0.13	49	**1.2**	1635	0.07	48	**0.05**	1635	0.00	32
184.80		**2.7**	1635	0.15	49	**1.4**	1635	0.07	48	**0.05**	1635	0.00	32
158.12		**3.2**	1635	0.16	50	**1.6**	1635	0.08	48	**0.06**	1635	0.00	35
137.05		**3.6**	1635	0.19	51	**1.8**	1635	0.09	48	**0.07**	1635	0.00	37
128.10		**3.9**	1620	0.20	51	**2.0**	1635	0.11	48	**0.08**	1635	0.00	38
110.73	42/1	**4.5**	1600	0.21	52	**2.3**	1635	0.12	49	**0.09**	1635	0.00	40
94.08		**5.3**	1575	0.25	54	**2.7**	1635	0.13	49	**0.11**	1635	0.00	42
84.00		**6.0**	1560	0.27	54	**3.0**	1635	0.16	50	**0.12**	1635	0.00	43
71.75		**7.0**	1540	0.31	56	**3.5**	1635	0.17	51	**0.14**	1635	0.00	44
67.20		**7.4**	1520	0.32	56	**3.7**	1635	0.19	51	**0.15**	1635	0.00	44
56.61		**8.8**	1520	0.38	57	**4.4**	1600	0.21	53	**0.18**	1600	0.00	45
69.39		**7.2**	1635	0.27	70	**3.6**	1635	0.13	68	**0.14**	1635	0.00	56
63.80		**7.8**	1635	0.30	70	**3.9**	1635	0.15	68	**0.16**	1635	0.00	57
54.59		**9.2**	1635	0.34	71	**4.6**	1635	0.17	68	**0.18**	1635	0.00	60
47.32		**11**	1600	0.38	72	**5.3**	1635	0.20	68	**0.21**	1635	0.00	61
44.22		**11**	1595	0.40	72	**5.7**	1635	0.21	69	**0.23**	1635	0.00	62
38.23	29/2	**13**	1575	0.44	73	**6.5**	1635	0.24	69	**0.26**	1635	0.00	63
32.48		**15**	1540	0.51	74	**7.7**	1635	0.28	70	**0.31**	1635	0.00	64
29.00		**17**	1540	0.56	74	**8.6**	1635	0.32	71	**0.34**	1635	0.00	65
24.77		**20**	1520	0.64	75	**10**	1620	0.36	71	**0.40**	1620	0.00	66
23.20		**22**	1520	0.68	76	**11**	1600	0.38	72	**0.43**	1600	0.00	66
19.54		**26**	1520	0.80	77	**13**	1575	0.44	73	**0.51**	1575	0.00	67
20.33		**25**	1095	0.52	82	**12**	1390	0.34	80	**0.49**	1390	0.00	75
17.62		**28**	1060	0.58	83	**14**	1320	0.38	80	**0.57**	1320	0.00	76
16.47		**30**	1045	0.60	83	**15**	1285	0.39	81	**0.61**	1285	0.00	76
14.24		**35**	1025	0.68	84	**18**	1220	0.42	81	**0.70**	1220	0.00	77
12.10		**41**	1020	0.79	84	**21**	1160	0.47	82	**0.83**	1160	0.00	77
10.80		**46**	1010	0.87	85	**23**	1125	0.50	82	**0.93**	1125	0.00	77
9.23	27/5	**54**	1000	1.0	85	**27**	1070	0.55	83	**1.1**	1070	0.00	78
8.64		**58**	1000	1.1	86	**29**	1060	0.59	83	**1.2**	1060	0.00	78
7.28		**69**	990	1.2	86	**34**	1035	0.67	84	**1.4**	1035	0.00	78
6.83		**73**	840	1.1	87	**37**	840	0.58	84	**1.5**	840	0.00	81
6.40		**78**	825	1.2	87	**39**	825	0.60	85	**1.6**	825	0.00	81
5.39		**93**	790	1.3	87	**46**	790	0.68	85	**1.9**	790	0.00	81
4.76		**105**	770	1.5	88	**53**	770	0.75	86	**2.1**	770	0.00	81
4.00		**125**	745	1.7	88	**63**	745	0.86	86	**2.5**	745	0.00	81

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11.8 Mechanical ratings S. SF. SA. SAF57

3400 – 2800 rpm

S57

i ratio	Worm ratio/ # starts	n_e = 3400 rpm				n_e = 3200 rpm				n_e = 2800 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
201.00		**17**	2390	1.0	64	**16**	2390	0.95	63	**14**	2390	0.84	62
184.80		**18**	2390	1.1	64	**17**	2390	1.0	64	**15**	2390	0.91	63
158.12		**22**	2390	1.2	65	**20**	2390	1.2	65	**18**	2390	1.0	64
137.05		**25**	2255	1.3	66	**23**	2390	1.3	66	**20**	2390	1.2	65
128.10		**27**	2170	1.3	66	**25**	2255	1.3	66	**22**	2390	1.3	65
110.73	42/1	**31**	1905	1.3	67	**29**	2035	1.3	67	**25**	2255	1.3	66
94.08		**36**	1630	1.3	67	**34**	1735	1.3	67	**30**	1990	1.5	67
84.00		**40**	1460	1.3	67	**38**	1550	1.3	67	**33**	1770	1.3	67
71.75		**47**	1230	1.3	67	**45**	1320	1.3	67	**39**	1540	1.5	67
67.20		**51**	1135	1.3	66	**48**	1230	1.3	67	**42**	1450	1.5	67
56.61		**60**	910	1.3	65	**57**	1010	1.3	66	**49**	1220	1.5	67
69.39		**49**	1945	1.9	81	**46**	1945	1.7	80	**40**	1945	1.6	80
63.80		**53**	1945	2.0	81	**50**	1945	1.9	81	**44**	1945	1.7	80
54.59		**62**	1945	2.4	81	**59**	1945	2.3	81	**51**	1945	2.0	81
47.32		**72**	1860	2.5	82	**68**	1945	2.5	82	**59**	1945	2.3	81
44.22		**77**	1745	2.5	82	**72**	1815	2.5	82	**63**	1945	2.4	81
38.23	29/2	**89**	1540	2.7	82	**84**	1630	2.7	82	**73**	1815	2.5	82
32.48		**105**	1310	2.7	82	**99**	1390	2.7	82	**86**	1595	2.7	82
29.00		**117**	1160	2.7	82	**110**	1250	2.7	82	**97**	1435	2.7	82
24.77		**137**	980	2.5	82	**129**	1060	2.7	82	**113**	1230	2.7	82
23.20		**147**	905	2.5	82	**138**	980	2.7	82	**121**	1160	2.7	82
19.54		**174**	715	2.4	81	**164**	795	2.5	82	**143**	965	2.7	82
20.33		**167**	1415	4.3	89	**157**	1415	4.0	89	**138**	1415	3.5	88
17.62		**193**	1240	4.3	89	**182**	1320	4.3	89	**159**	1415	4.0	89
16.47		**206**	1170	4.3	89	**194**	1240	4.3	89	**170**	1400	4.3	89
14.24		**239**	1025	4.3	89	**225**	1090	4.3	89	**197**	1230	4.3	89
12.10		**281**	875	4.4	89	**264**	930	4.4	89	**231**	1070	4.4	89
10.80		**315**	780	4.4	89	**296**	830	4.4	89	**259**	955	4.4	89
9.23	27/5	**368**	645	4.3	89	**347**	700	4.3	89	**303**	825	4.4	89
8.64		**394**	600	4.3	89	**370**	655	4.3	89	**324**	770	4.4	89
7.28		**467**	480	4.0	88	**440**	530	4.2	89	**385**	635	4.3	89
6.83		**498**	480	4.3	89	**469**	515	4.3	89	**410**	610	4.4	90
6.40		**531**	445	4.2	89	**500**	480	4.3	89	**438**	565	4.4	89
5.39		**631**	365	4.2	89	**594**	390	4.2	89	**519**	470	4.3	89
4.76		**714**	310	4.0	88	**672**	335	4.0	89	**588**	405	4.3	89
4.00		**850**	250	3.8	88	**800**	275	3.9	88	**700**	335	4.2	89

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 4.0 HP for continuous use.

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2200 – 1400 rpm

S57

i ratio	Worm ratio/ # starts	n_e = 2200 rpm				n_e = 1700 rpm				n_e = 1400 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
201.00		**11**	2610	0.74	61	**8.5**	2610	0.59	59	**7.0**	2610	0.50	58
184.80		**12**	2610	0.80	62	**9.2**	2610	0.64	60	**7.6**	2610	0.54	58
158.12		**14**	2610	0.93	63	**11**	2610	0.74	61	**8.9**	2610	0.62	60
137.05		**16**	2610	1.0	64	**12**	2610	0.83	62	**10**	2610	0.70	61
128.10		**17**	2610	1.1	64	**13**	2610	0.89	62	**11**	2610	0.74	61
110.73	42/1	**20**	2565	1.2	65	**15**	2610	1.0	63	**13**	2610	0.84	62
94.08		**23**	2435	1.3	66	**18**	2655	1.2	65	**15**	2610	0.98	63
84.00		**26**	2215	1.3	67	**20**	2520	1.2	65	**17**	2610	1.1	64
71.75		**31**	1945	1.5	67	**24**	2435	1.3	66	**20**	2565	1.2	65
67.20		**33**	1860	1.5	67	**25**	2300	1.3	67	**21**	2520	1.3	65
56.61		**39**	1585	1.5	68	**30**	1990	1.5	67	**25**	2345	1.3	67
69.39		**32**	2170	1.3	79	**24**	2170	1.1	77	**20**	2170	0.91	76
63.80		**34**	2170	1.5	79	**27**	2170	1.2	78	**22**	2170	0.98	77
54.59		**40**	2170	1.7	80	**31**	2170	1.3	79	**26**	2170	1.1	78
47.32		**46**	2170	2.0	81	**36**	2170	1.6	79	**30**	2170	1.3	79
44.22		**50**	2170	2.1	81	**38**	2170	1.6	80	**32**	2170	1.3	79
38.23	29/2	**58**	2170	2.4	81	**44**	2170	1.9	80	**37**	2170	1.6	80
32.48		**68**	1990	2.5	82	**52**	2170	2.3	81	**43**	2170	1.9	80
29.00		**76**	1770	2.5	82	**59**	2170	2.4	81	**48**	2170	2.0	81
24.77		**89**	1565	2.7	82	**69**	1945	2.5	82	**57**	2170	2.4	81
23.20		**95**	1480	2.7	83	**73**	1860	2.7	82	**60**	2170	2.5	82
19.54		**113**	1265	2.7	83	**87**	1620	2.7	83	**72**	1905	2.7	82
20.33		**108**	1485	3.0	88	**84**	1485	2.3	87	**69**	1485	1.9	87
17.62		**125**	1485	3.4	88	**96**	1485	2.5	88	**79**	1485	2.1	87
16.47		**134**	1495	3.6	88	**103**	1485	2.8	88	**85**	1485	2.3	87
14.24		**154**	1495	4.2	89	**119**	1495	3.2	88	**98**	1495	2.7	88
12.10		**182**	1330	4.3	89	**140**	1495	3.8	89	**116**	1495	3.1	88
10.80		**204**	1205	4.3	89	**157**	1495	4.2	89	**130**	1495	3.5	88
9.23	27/5	**238**	1055	4.4	89	**184**	1320	4.3	89	**152**	1495	4.0	89
8.64		**255**	990	4.4	89	**197**	1250	4.4	89	**162**	1470	4.3	89
7.28		**302**	850	4.6	90	**234**	1080	4.4	90	**192**	1290	4.4	89
6.83		**322**	805	4.6	90	**249**	885	3.9	90	**205**	885	3.2	89
6.40		**344**	750	4.6	90	**266**	865	4.0	90	**219**	865	3.4	89
5.39		**408**	635	4.6	90	**315**	840	4.7	90	**260**	840	3.9	90
4.76		**462**	560	4.6	90	**357**	745	4.7	90	**294**	825	4.3	90
4.00		**550**	470	4.6	90	**425**	630	4.7	90	**350**	780	4.8	90

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 4.0 HP for continuous use.

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1100 – 700 rpm

S57

i ratio	Worm ratio/ # starts	n_e = 1100 rpm				n_e = 900 rpm				n_e = 700 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
201.00		**5.5**	2610	0.40	56	**4.5**	2660	0.35	55	**3.5**	2740	0.28	53
184.80		**6.0**	2610	0.43	57	**4.9**	2660	0.38	55	**3.8**	2700	0.31	54
158.12		**7.0**	2610	0.50	58	**5.7**	2610	0.42	56	**4.4**	2660	0.34	55
137.05		**8.0**	2610	0.56	59	**6.6**	2610	0.47	57	**5.1**	2660	0.39	56
128.10		**8.6**	2610	0.60	59	**7.0**	2610	0.50	58	**5.5**	2610	0.40	56
110.73	42/1	**9.9**	2610	0.68	61	**8.1**	2610	0.58	59	**6.3**	2610	0.46	57
94.08		**12**	2610	0.79	62	**9.6**	2610	0.66	60	**7.4**	2610	0.52	58
84.00		**13**	2610	0.87	63	**11**	2610	0.72	61	**8.3**	2610	0.58	59
71.75		**15**	2610	0.99	64	**13**	2610	0.83	62	**9.8**	2610	0.67	61
67.20		**16**	2660	1.1	64	**13**	2610	0.89	63	**10**	2610	0.71	61
56.61		**19**	2570	1.2	65	**16**	2660	1.0	64	**12**	2610	0.82	62
69.39		**16**	2390	0.80	75	**13**	2390	0.66	74	**10**	2390	0.52	73
63.80		**17**	2390	0.86	76	**14**	2390	0.71	75	**11**	2390	0.56	73
54.59		**20**	2390	0.99	77	**16**	2390	0.83	75	**13**	2390	0.66	74
47.32		**23**	2390	1.1	77	**19**	2390	0.94	76	**15**	2390	0.75	75
44.22		**25**	2390	1.2	78	**20**	2390	1.0	77	**16**	2390	0.79	75
38.23	29/2	**29**	2390	1.3	79	**24**	2390	1.2	77	**18**	2390	0.91	76
32.48		**34**	2390	1.6	79	**28**	2390	1.3	78	**22**	2390	1.1	77
29.00		**38**	2390	1.7	80	**31**	2390	1.5	79	**24**	2390	1.2	78
24.77		**44**	2390	2.1	81	**36**	2390	1.7	80	**28**	2390	1.3	78
23.20		**47**	2390	2.3	81	**39**	2390	1.9	80	**30**	2390	1.5	79
19.54		**56**	2210	2.4	81	**46**	2390	2.1	81	**36**	2390	1.7	80
20.33		**54**	1490	1.5	86	**44**	1500	1.2	85	**34**	1520	0.99	84
17.62		**62**	1500	1.7	86	**51**	1500	1.5	86	**40**	1500	1.1	85
16.47		**67**	1490	1.9	87	**55**	1490	1.5	86	**43**	1500	1.2	85
14.24		**77**	1490	2.1	87	**63**	1490	1.7	86	**49**	1500	1.3	86
12.10		**91**	1500	2.4	88	**74**	1500	2.0	87	**58**	1500	1.6	86
10.80		**102**	1500	2.8	88	**83**	1500	2.3	87	**65**	1500	1.7	87
9.23	27/5	**119**	1500	3.2	88	**98**	1490	2.7	88	**76**	1490	2.0	87
8.64		**127**	1500	3.5	88	**104**	1500	2.8	88	**81**	1490	2.1	87
7.28		**151**	1500	4.0	89	**124**	1500	3.4	88	**96**	1500	2.5	88
6.83		**161**	1060	3.1	89	**132**	1060	2.5	89	**102**	1060	2.0	88
6.4		**172**	1040	3.2	89	**141**	1040	2.5	89	**109**	1040	2.0	88
5.39		**204**	980	3.6	90	**167**	980	3.0	89	**130**	980	2.3	89
4.76		**231**	955	3.9	90	**189**	955	3.2	90	**147**	955	2.5	89
4.00		**275**	910	4.4	90	**225**	910	3.6	90	**175**	910	2.8	89

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500 – 10 rpm

S57

i ratio	Worm ratio/ # starts	n_e = 500 rpm				n_e = 250 rpm				n_e = 10 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
201.00		**2.5**	2920	0.23	51	**1.2**	2920	0.12	49	**0.05**	2920	0.00	42
184.80		**2.7**	2920	0.24	51	**1.4**	2920	0.13	49	**0.05**	2920	0.00	43
158.12		**3.2**	2790	0.27	52	**1.6**	2920	0.15	49	**0.06**	2920	0.00	44
137.05		**3.6**	2740	0.30	53	**1.8**	2920	0.17	50	**0.07**	2920	0.00	45
128.10		**3.9**	2700	0.31	54	**2.0**	2920	0.19	50	**0.08**	2920	0.00	46
110.73	42/1	**4.5**	2660	0.35	55	**2.3**	2920	0.20	51	**0.09**	2920	0.00	46
94.08		**5.3**	2660	0.40	56	**2.7**	2920	0.24	51	**0.11**	2920	0.00	47
84.00		**6.0**	2610	0.43	57	**3.0**	2880	0.25	52	**0.12**	2880	0.00	47
71.75		**7.0**	2610	0.50	58	**3.5**	2740	0.28	53	**0.14**	2740	0.00	48
67.20		**7.4**	2610	0.52	58	**3.7**	2740	0.31	54	**0.15**	2740	0.00	48
56.61		**8.8**	2610	0.62	60	**4.4**	2660	0.34	55	**0.18**	2660	0.00	48
69.39		**7.2**	2660	0.43	71	**3.6**	2660	0.23	68	**0.14**	2660	0.00	63
63.80		**7.8**	2660	0.46	71	**3.9**	2660	0.24	68	**0.16**	2660	0.00	64
54.59		**9.2**	2660	0.54	72	**4.6**	2660	0.28	69	**0.18**	2660	0.00	65
47.32		**11**	2660	0.60	73	**5.3**	2660	0.32	70	**0.21**	2660	0.00	66
44.22		**11**	2660	0.64	74	**5.7**	2660	0.34	70	**0.23**	2660	0.00	66
38.23	29/2	**13**	2610	0.72	74	**6.5**	2660	0.39	71	**0.26**	2660	0.00	67
32.48		**15**	2610	0.84	75	**7.7**	2660	0.46	71	**0.31**	2660	0.00	67
29.00		**17**	2610	0.94	76	**8.6**	2660	0.51	72	**0.34**	2660	0.00	67
24.77		**20**	2610	1.1	77	**10**	2660	0.58	73	**0.40**	2660	0.00	68
23.20		**22**	2610	1.2	77	**11**	2660	0.62	73	**0.43**	2660	0.00	68
19.54		**26**	2610	1.3	78	**13**	2610	0.71	74	**0.51**	2610	0.00	68
20.33		**25**	1600	0.75	83	**12**	1900	0.47	80	**0.49**	1900	0.00	77
17.62		**28**	1550	0.83	83	**14**	1860	0.52	81	**0.57**	1860	0.00	77
16.47		**30**	1540	0.89	84	**15**	1810	0.54	81	**0.61**	1810	0.00	78
14.24		**35**	1520	1.0	84	**18**	1750	0.60	81	**0.70**	1750	0.00	78
12.10		**41**	1500	1.2	85	**21**	1660	0.66	82	**0.83**	1660	0.00	78
10.80		**46**	1500	1.3	85	**23**	1630	0.72	83	**0.93**	1630	0.00	78
9.23	27/5	**54**	1500	1.5	86	**27**	1570	0.80	83	**1.1**	1570	0.00	79
8.64		**58**	1500	1.6	86	**29**	1550	0.86	83	**1.2**	1550	0.00	79
7.28		**69**	1500	1.9	87	**34**	1520	0.98	84	**1.4**	1520	0.00	79
6.83		**73**	1060	1.5	87	**37**	1060	0.72	85	**1.5**	1060	0.00	81
6.40		**78**	1040	1.5	87	**39**	1040	0.75	85	**1.6**	1040	0.00	81
5.39		**93**	980	1.6	88	**46**	980	0.84	86	**1.9**	980	0.00	81
4.76		**105**	955	1.9	88	**53**	955	0.93	86	**2.1**	955	0.00	81
4.00		**125**	910	2.0	89	**63**	910	1.0	87	**2.5**	910	0.00	81

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11.9 Mechanical ratings S. SF. SA. SAF67

3400 – 2800 rpm

S67

i ratio	Worm ratio/ # starts	n_e = 3400 rpm				n_e = 3200 rpm				n_e = 2800 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
217.41		**16**	4120	1.6	66	**15**	4120	1.5	66	**13**	4120	1.3	65
190.11		**18**	4120	1.7	67	**17**	4120	1.6	67	**15**	4120	1.5	66
180.60		**19**	4120	1.9	67	**18**	4120	1.7	67	**16**	4120	1.5	66
158.45		**21**	4120	2.0	68	**20**	4120	2.0	68	**18**	4120	1.7	67
134.40		**25**	4120	2.4	69	**24**	4120	2.3	68	**21**	4120	2.0	68
121.33		**28**	4030	2.5	69	**26**	4120	2.5	69	**23**	4120	2.1	68
106.75	42/1	**32**	3580	2.7	69	**30**	3810	2.7	69	**26**	4120	2.5	69
100.80		**34**	3360	2.5	69	**32**	3630	2.7	69	**28**	4120	2.7	69
85.83		**40**	2830	2.5	69	**37**	3050	2.5	69	**33**	3540	2.7	70
78.00		**44**	2520	2.5	69	**41**	2740	2.5	69	**36**	3230	2.7	70
67.57		**50**	2080	2.4	67	**47**	2300	2.5	68	**41**	2790	2.7	69
58.80		**58**	1630	2.3	65	**54**	1900	2.4	67	**48**	2390	2.5	69
75.06		**45**	3850	3.4	82	**43**	3850	3.2	82	**37**	3850	2.8	81
65.63		**52**	3850	3.9	82	**49**	3850	3.6	82	**43**	3850	3.2	82
62.35		**55**	3850	4.0	83	**51**	3850	3.8	82	**45**	3850	3.4	82
54.70		**62**	3850	4.6	83	**59**	3850	4.3	83	**51**	3850	3.8	83
46.40		**73**	3500	4.8	83	**69**	3670	4.8	83	**60**	3850	4.4	83
41.89		**81**	3140	4.8	83	**76**	3360	4.8	83	**67**	3810	4.8	83
36.85	29/2	**92**	2740	4.8	83	**87**	2960	4.8	84	**76**	3360	4.8	84
34.80		**98**	2610	4.8	83	**92**	2790	4.8	84	**80**	3230	5.0	84
29.63		**115**	2210	4.8	83	**108**	2390	5.0	83	**94**	2740	5.0	84
26.93		**126**	1950	4.7	83	**119**	2120	4.8	83	**104**	2480	4.8	84
23.33		**146**	1610	4.6	82	**137**	1770	4.7	83	**120**	2170	5.0	84
20.30		**167**	1250	4.2	81	**158**	1450	4.4	82	**138**	1810	4.8	83
24.44		**139**	2790	6.8	90	**131**	2790	6.4	90	**115**	2790	5.6	89
23.22		**146**	2790	7.2	90	**138**	2790	6.8	90	**121**	2790	5.9	90
20.37		**167**	2790	8.2	90	**157**	2790	7.8	90	**137**	2790	6.7	90
17.28		**197**	2390	8.3	90	**185**	2570	8.3	90	**162**	2790	7.9	90
15.60		**218**	2170	8.3	90	**205**	2300	8.3	90	**179**	2610	8.2	90
13.73	27/5	**248**	1900	8.3	90	**233**	2040	8.3	90	**204**	2350	8.4	90
12.96		**262**	1770	8.2	90	**247**	1900	8.2	90	**216**	2210	8.4	90
11.03		**308**	1500	8.2	90	**290**	1620	8.3	90	**254**	1900	8.4	90
10.03		**339**	1340	8.0	90	**319**	1450	8.2	90	**279**	1720	8.4	90
8.69		**391**	1100	7.6	89	**368**	1210	7.9	90	**322**	1470	8.3	90
7.56		**450**	840	6.8	88	**423**	990	7.5	89	**370**	1250	8.2	90

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} =7.5 HP for continuous use.

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2200 – 1400 rpm

S67

i ratio	Worm ratio/ # starts	n_e = 2200 rpm				n_e = 1700 rpm				n_e = 1400 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
217.41	42/1	**10**	4600	1.2	64	**7.8**	4600	0.93	62	**6.4**	4600	0.78	61
190.11		**12**	4600	1.3	65	**8.9**	4600	1.0	63	**7.4**	4600	0.87	62
180.60		**12**	4600	1.3	65	**9.4**	4600	1.1	63	**7.8**	4600	0.91	62
158.45		**14**	4600	1.5	66	**11**	4600	1.2	64	**8.8**	4600	1.0	63
134.40		**16**	4600	1.7	67	**13**	4600	1.5	65	**10**	4600	1.2	64
121.33		**18**	4600	2.0	68	**14**	4600	1.6	66	**12**	4600	1.3	65
106.75		**21**	4600	2.1	68	**16**	4600	1.7	67	**13**	4600	1.5	66
100.80		**22**	4510	2.3	69	**17**	4600	1.9	67	**14**	4600	1.5	66
85.83		**26**	4340	2.5	69	**20**	4600	2.1	68	**16**	4600	1.7	67
78.00		**28**	4120	2.7	70	**22**	4510	2.3	69	**18**	4600	1.9	68
67.57		**33**	3630	2.7	70	**25**	4380	2.5	69	**21**	4600	2.1	69
58.80		**37**	3190	2.7	70	**29**	4070	2.7	70	**24**	4430	2.4	69
75.06	29/2	**29**	4250	2.4	81	**23**	4250	1.9	79	**19**	4250	1.6	79
65.63		**34**	4250	2.8	81	**26**	4250	2.1	80	**21**	4250	1.9	79
62.35		**35**	4250	3.0	81	**27**	4250	2.3	80	**22**	4250	1.9	79
54.70		**40**	4250	3.4	82	**31**	4250	2.5	81	**26**	4250	2.1	80
46.40		**47**	4250	3.9	82	**37**	4250	3.1	82	**30**	4250	2.5	81
41.89		**53**	4250	4.3	83	**41**	4250	3.4	82	**33**	4250	2.8	81
36.85		**60**	4200	4.8	83	**46**	4250	3.8	82	**38**	4250	3.1	82
34.80		**63**	3980	4.8	83	**49**	4250	4.0	83	**40**	4250	3.4	82
29.63		**74**	3500	5.0	84	**57**	4250	4.7	83	**47**	4250	3.9	83
26.93		**82**	3190	5.0	84	**63**	4030	4.8	83	**52**	4250	4.3	83
23.33		**94**	2830	5.1	84	**73**	3580	5.0	84	**60**	4250	4.8	83
20.30		**108**	2480	5.1	84	**84**	3190	5.1	84	**69**	3760	5.0	84
24.44	27/5	**90**	3010	4.8	89	**70**	3010	3.8	88	**57**	3010	3.1	88
23.22		**95**	3010	5.1	89	**73**	3010	3.9	89	**60**	3010	3.2	88
20.37		**108**	3010	5.8	89	**83**	3010	4.4	89	**69**	3010	3.8	88
17.28		**127**	3010	6.7	90	**98**	3010	5.2	89	**81**	3010	4.3	89
15.60		**141**	3010	7.5	90	**109**	3010	5.8	89	**90**	3010	4.8	89
13.73		**160**	2920	8.2	90	**124**	3010	6.6	90	**102**	3010	5.5	89
12.96		**170**	2790	8.3	90	**131**	3010	7.0	90	**108**	3010	5.8	89
11.03		**199**	2430	8.4	90	**154**	3010	8.2	90	**127**	3010	6.7	90
10.03		**219**	2210	8.4	91	**169**	2790	8.3	90	**140**	3010	7.4	90
8.69		**253**	1950	8.6	91	**196**	2480	8.4	91	**161**	2960	8.4	90
7.56		**291**	1700	8.7	91	**225**	2210	8.7	91	**185**	2610	8.4	91

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} =7.5 HP for continuous use.

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1100 – 700 rpm

S67

i ratio	Worm ratio/ # starts	n_e = 1100 rpm				n_e = 900 rpm				n_e = 700 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
217.41	42/1	**5.1**	4910	0.67	59	**4.1**	4960	0.56	58	**3.2**	5040	0.46	56
190.11		**5.8**	4910	0.75	60	**4.7**	4960	0.63	59	**3.7**	5000	0.51	57
180.60		**6.1**	4910	0.79	61	**5.0**	4910	0.66	59	**3.9**	5000	0.54	57
158.45		**6.9**	4870	0.87	62	**5.7**	4910	0.74	60	**4.4**	4960	0.59	58
134.40		**8.2**	4870	1.0	63	**6.7**	4870	0.84	61	**5.2**	4910	0.68	60
121.33		**9.1**	4870	1.1	63	**7.4**	4870	0.93	62	**5.8**	4910	0.75	60
106.75		**10**	4870	1.2	64	**8.4**	4870	1.0	63	**6.6**	4910	0.83	61
100.80		**11**	4870	1.3	65	**8.9**	4870	1.1	63	**6.9**	4910	0.89	62
85.83		**13**	4870	1.5	66	**10**	4870	1.3	64	**8.2**	4870	1.0	63
78.00		**14**	4870	1.6	66	**12**	4870	1.3	65	**9.0**	4870	1.1	63
67.57		**16**	4870	1.9	67	**13**	4870	1.6	66	**10**	4870	1.2	64
58.80		**19**	4690	2.0	68	**15**	4870	1.7	67	**12**	4870	1.3	65
75.06	29/2	**15**	4650	1.3	77	**12**	4650	1.2	76	**9.3**	4650	0.91	75
65.63		**17**	4650	1.6	78	**14**	4650	1.3	77	**11**	4650	1.0	76
62.35		**18**	4650	1.6	78	**14**	4650	1.3	77	**11**	4650	1.1	76
54.70		**20**	4650	1.9	79	**16**	4650	1.6	78	**13**	4650	1.2	77
46.40		**24**	4650	2.1	80	**19**	4650	1.9	79	**15**	4650	1.5	78
41.89		**26**	4650	2.4	80	**21**	4650	2.0	79	**17**	4650	1.6	78
36.85		**30**	4650	2.7	81	**24**	4650	2.3	80	**19**	4650	1.7	79
34.80		**32**	4650	2.8	81	**26**	4650	2.4	80	**20**	4650	1.9	79
29.63		**37**	4650	3.4	82	**30**	4650	2.8	81	**24**	4650	2.1	80
26.93		**41**	4650	3.6	82	**33**	4650	3.1	81	**26**	4650	2.4	80
23.33		**47**	4650	4.2	83	**39**	4650	3.5	82	**30**	4650	2.7	81
20.30		**54**	4600	4.7	83	**44**	4650	4.0	82	**34**	4650	3.1	81
24.44	27/5	**45**	3140	2.5	87	**37**	3190	2.1	87	**29**	3230	1.7	86
23.22		**47**	3140	2.7	87	**39**	3190	2.3	87	**30**	3230	1.7	86
20.37		**54**	3140	3.1	88	**44**	3140	2.5	87	**34**	3230	2.0	86
17.28		**64**	3140	3.6	88	**52**	3140	3.0	88	**41**	3190	2.4	87
15.60		**71**	3100	3.9	88	**58**	3140	3.2	88	**45**	3140	2.5	87
13.73		**80**	3100	4.4	89	**66**	3140	3.8	88	**51**	3140	3.0	88
12.96		**85**	3100	4.7	89	**69**	3100	3.9	88	**54**	3140	3.1	88
11.03		**100**	3100	5.5	89	**82**	3100	4.6	89	**63**	3140	3.6	88
10.03		**110**	3050	5.9	90	**90**	3100	5.0	89	**70**	3140	3.9	88
8.69		**127**	3050	6.8	90	**104**	3100	5.6	89	**81**	3100	4.4	89
7.56		**146**	3050	7.8	90	**119**	3050	6.4	90	**93**	3100	5.1	89

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} =7.5 HP for continuous use.

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500 – 10 rpm

S67

i ratio	Worm ratio/ # starts	n_e = 500 rpm				n_e = 250 rpm				n_e = 10 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
217.41	42/1	**2.3**	5040	0.34	54	**1.1**	5040	0.17	51	**0.05**	5040	0.00	47
190.11		**2.6**	5040	0.39	55	**1.3**	5040	0.20	51	**0.05**	5040	0.00	48
180.60		**2.8**	5040	0.40	55	**1.4**	5040	0.21	51	**0.06**	5040	0.00	48
158.45		**3.2**	5040	0.46	56	**1.6**	5040	0.24	52	**0.06**	5040	0.00	49
134.40		**3.7**	5000	0.51	57	**1.9**	5040	0.28	53	**0.07**	5040	0.00	50
121.33		**4.1**	4960	0.56	58	**2.1**	5040	0.31	53	**0.08**	5040	0.00	50
106.75		**4.7**	4960	0.63	59	**2.3**	5040	0.35	54	**0.09**	5040	0.00	50
100.80		**5.0**	4960	0.66	59	**2.5**	5040	0.36	55	**0.10**	5040	0.00	50
85.83		**5.8**	4910	0.75	60	**2.9**	5040	0.42	56	**0.12**	5040	0.00	51
78.00		**6.4**	4910	0.82	61	**3.2**	5040	0.46	56	**0.13**	5040	0.00	51
67.57		**7.4**	4910	0.93	62	**3.7**	5000	0.51	57	**0.15**	5000	0.00	51
58.80		**8.5**	4870	1.0	63	**4.3**	4960	0.58	58	**0.17**	4960	0.00	51
75.06	29/2	**6.7**	5040	0.72	73	**3.3**	5040	0.38	70	**0.13**	5040	0.00	68
65.63		**7.6**	5040	0.82	74	**3.8**	5040	0.43	71	**0.15**	5040	0.00	68
62.35		**8.0**	5040	0.86	74	**4.0**	5040	0.46	71	**0.16**	5040	0.00	69
54.70		**9.1**	5040	0.98	75	**4.6**	5040	0.51	71	**0.18**	5040	0.00	69
46.40		**11**	5040	1.1	76	**5.4**	5040	0.59	72	**0.22**	5040	0.00	69
41.89		**12**	5040	1.2	76	**6.0**	5040	0.66	73	**0.24**	5040	0.00	69
36.85		**14**	5040	1.5	77	**6.8**	5040	0.74	73	**0.27**	5040	0.00	69
34.80		**14**	5040	1.5	77	**7.2**	5040	0.78	74	**0.29**	5040	0.00	69
29.63		**17**	5000	1.7	78	**8.4**	5040	0.91	75	**0.34**	5040	0.00	70
26.93		**19**	5000	1.9	79	**9.3**	5040	0.99	75	**0.37**	5040	0.00	70
23.33		**21**	5000	2.1	79	**11**	5040	1.1	76	**0.43**	5040	0.00	70
20.30		**25**	5000	2.4	80	**12**	5040	1.3	77	**0.49**	5040	0.00	70
24.44	27/5	**20**	3230	1.2	85	**10**	3140	0.62	82	**0.41**	3140	0.03	80
23.22		**22**	3230	1.3	85	**11**	3140	0.66	82	**0.43**	3140	0.00	80
20.37		**25**	3360	1.5	85	**12**	3230	0.76	83	**0.49**	3230	0.00	80
17.28		**29**	3230	1.7	86	**14**	3850	1.1	83	**0.58**	3850	0.00	81
15.60		**32**	3230	1.9	86	**16**	3810	1.2	84	**0.64**	3810	0.00	81
13.73		**36**	3230	2.1	87	**18**	3670	1.3	84	**0.73**	3670	0.00	81
12.96		**39**	3190	2.3	87	**19**	3630	1.3	84	**0.77**	3630	0.00	81
11.03		**45**	3140	2.5	87	**23**	3450	1.5	85	**0.91**	3450	0.00	81
10.03		**50**	3140	2.8	88	**25**	3360	1.6	85	**1.0**	3360	0.00	81
8.69		**58**	3140	3.2	88	**29**	3270	1.7	86	**1.2**	3270	0.08	81
7.56		**66**	3140	3.8	88	**33**	3230	2.0	86	**1.3**	3230	0.08	81

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11.10 Mechanical ratings S. SF. SA. SAF77

3400 – 2800 rpm

S77

i ratio	Worm ratio/ # starts	n_e = 3400 rpm				n_e = 3200 rpm				n_e = 2800 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
256.47	40/1	**13**	10270	3.1	71	**12**	10270	2.8	71	**11**	10270	2.5	70
225.26		**15**	10000	3.4	72	**14**	10180	3.2	71	**12**	10270	2.8	71
214.00		**16**	9820	3.5	72	**15**	10090	3.4	71	**13**	10270	3.0	71
189.09		**18**	9560	3.8	72	**17**	9740	3.6	72	**15**	10090	3.4	71
161.60		**21**	9200	4.2	73	**20**	9290	4.0	73	**17**	9650	3.6	72
148.15		**23**	8940	4.4	73	**22**	9120	4.3	73	**19**	9470	3.9	73
130.00		**26**	8580	4.8	74	**25**	8760	4.7	74	**22**	9120	4.3	73
123.20		**28**	8410	5.0	74	**26**	8580	4.8	74	**23**	8940	4.4	73
107.83		**32**	7970	5.4	74	**30**	8140	5.2	74	**26**	8580	4.8	74
97.14		**35**	7610	5.6	75	**33**	7790	5.5	74	**29**	8230	5.1	74
85.22		**40**	6810	5.8	75	**38**	7260	5.8	75	**33**	7790	5.5	75
75.20		**45**	5970	5.8	74	**43**	6420	5.8	75	**37**	7350	5.8	75
66.67		**51**	5180	5.6	74	**48**	5620	5.8	75	**42**	6590	5.9	75
56.92		**60**	4290	5.5	73	**56**	4690	5.6	74	**49**	5620	5.9	75
75.09	40/3	**45**	9030	7.5	86	**43**	9030	7.1	86	**37**	9030	6.2	86
71.33		**48**	9030	7.9	87	**45**	9030	7.4	86	**39**	9030	6.6	86
63.03		**54**	9030	8.9	87	**51**	9030	8.3	87	**44**	9030	7.4	86
53.87		**63**	8670	9.9	87	**59**	8850	9.5	87	**52**	9030	8.6	87
49.38		**69**	8410	10.5	87	**65**	8580	10.1	87	**57**	8940	9.3	87
43.33		**78**	8050	11.4	88	**74**	8230	11.0	88	**65**	8580	10.1	87
41.07		**83**	7970	11.9	88	**78**	8050	11.4	88	**68**	8410	10.5	87
35.94		**95**	7080	12.1	88	**89**	7520	12.1	88	**78**	8050	11.4	88
32.38		**105**	6420	12.2	88	**99**	6810	12.2	88	**86**	7790	12.2	88
28.41		**120**	5620	12.2	88	**113**	6020	12.2	88	**99**	6900	12.2	88
25.07		**136**	4960	12.2	88	**128**	5310	12.2	88	**112**	6150	12.3	88
22.22		**153**	4290	11.9	88	**144**	4650	12.1	88	**126**	5440	12.3	88
18.97		**179**	3500	11.4	87	**169**	3890	11.9	88	**148**	4600	12.2	88
22.89	34/6	**149**	5220	13.4	91	**140**	5220	12.7	91	**122**	5220	11.1	91
20.99		**162**	5220	14.6	92	**152**	5220	13.8	92	**133**	5220	12.1	91
18.42		**185**	5220	16.6	92	**174**	5220	15.7	92	**152**	5220	13.8	92
17.45		**195**	5220	17.6	92	**183**	5220	16.6	92	**160**	5220	14.5	92
15.28		**223**	4690	18.1	92	**209**	4960	18.0	92	**183**	5220	16.5	92
13.76		**247**	4250	18.1	92	**233**	4470	18.0	92	**203**	5180	18.2	92
12.07		**282**	3670	17.8	92	**265**	3940	18.0	92	**232**	4560	18.2	92
10.65		**319**	3230	17.8	92	**300**	3450	18.0	92	**263**	4030	18.2	92
9.44		**360**	2790	17.4	92	**339**	3050	17.8	92	**297**	3580	18.4	92
8.06		**422**	2300	16.9	91	**397**	2520	17.3	92	**347**	3010	18.1	92

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} =12.3 HP for continuous use.

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2200 – 1400 rpm

S77

i ratio	Worm ratio/ # starts	n_e = 2200 rpm				n_e = 1700 rpm				n_e = 1400 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
256.47		**8.6**	11150	2.1	69	**6.6**	11240	1.7	67	**5.5**	11240	1.5	66
225.26		**9.8**	10890	2.4	69	**7.5**	11240	2.0	68	**6.2**	11240	1.6	67
214.00		**10**	10800	2.5	70	**7.9**	11240	2.1	68	**6.5**	11240	1.7	67
189.09		**12**	10620	2.8	70	**9.0**	10970	2.3	69	**7.4**	11240	2.0	68
161.60		**14**	10270	3.1	71	**11**	10800	2.5	70	**8.7**	11150	2.3	69
148.15		**15**	10090	3.4	72	**11**	10620	2.8	70	**9.4**	10970	2.4	69
130.00	40/1	**17**	9740	3.6	72	**13**	10350	3.1	71	**11**	10710	2.5	70
123.20		**18**	9560	3.8	73	**14**	10180	3.1	71	**11**	10620	2.7	70
107.83		**20**	9200	4.0	73	**16**	9820	3.4	72	**13**	10350	3.0	71
97.14		**23**	8940	4.4	74	**18**	9650	3.8	73	**14**	10090	3.2	72
85.22		**26**	8580	4.7	74	**20**	9290	4.0	73	**16**	9740	3.5	72
75.20		**29**	8140	5.1	74	**23**	8940	4.3	74	**19**	9470	3.9	73
66.67		**33**	7790	5.5	75	**25**	8580	4.7	74	**21**	9200	4.2	73
56.92		**39**	7350	6.0	75	**30**	8140	5.2	75	**25**	8760	4.6	74
75.09		**29**	9740	5.4	85	**23**	9740	4.2	84	**19**	9740	3.5	83
71.33		**31**	9740	5.6	85	**24**	9740	4.3	85	**20**	9740	3.6	84
63.03		**35**	9740	6.3	86	**27**	9740	5.0	85	**22**	9740	4.0	84
53.87		**41**	9740	7.4	86	**32**	9740	5.8	86	**26**	9740	4.7	85
49.38		**45**	9560	7.8	87	**34**	9740	6.2	86	**28**	9740	5.1	85
43.33		**51**	9290	8.6	87	**39**	9740	7.0	86	**32**	9740	5.8	86
41.07	40/3	**54**	9120	8.9	87	**41**	9740	7.4	86	**34**	9740	6.2	86
35.94		**61**	8670	9.7	87	**47**	9380	8.2	87	**39**	9740	7.0	86
32.38		**68**	8500	10.5	88	**53**	9200	8.9	87	**43**	9650	7.6	87
28.41		**77**	8140	11.4	88	**60**	8760	9.5	87	**49**	9290	8.3	87
25.07		**88**	7700	12.2	88	**68**	8500	10.5	88	**56**	9030	9.1	87
22.22		**99**	6990	12.5	88	**77**	8140	11.3	88	**63**	8670	9.9	87
18.97		**116**	6020	12.6	88	**90**	7610	12.3	88	**74**	8230	11.0	88
22.89		**96**	6280	10.6	91	**74**	6240	8.2	90	**61**	6240	6.7	90
20.99		**105**	6280	11.5	91	**81**	6240	8.9	91	**67**	6240	7.4	90
18.42		**119**	6370	13.3	91	**92**	6280	10.2	91	**76**	6240	8.3	90
17.45		**126**	6370	13.9	91	**97**	6280	10.7	91	**80**	6280	8.9	91
15.28		**144**	6370	16.0	92	**111**	6370	12.3	91	**92**	6280	10.1	91
13.76	34/6	**160**	6420	17.7	92	**124**	6370	13.7	91	**102**	6280	11.1	91
12.07		**182**	5750	18.1	92	**141**	6420	15.7	92	**116**	6370	12.9	91
10.65		**207**	5130	18.2	92	**160**	6420	17.7	92	**131**	6370	14.5	92
9.44		**233**	4600	18.5	92	**180**	5800	18.0	92	**148**	6420	16.5	92
8.06		**273**	3940	18.5	92	**211**	5090	18.5	92	**174**	6020	18.1	92

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} =12.3 HP for continuous use.

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1100 – 700 rpm

S77

i ratio	Worm ratio/ # starts	n_e = 1100 rpm				n_e = 900 rpm				n_e = 700 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
256.47	40/1	**4.3**	11240	1.2	64	**3.5**	11240	1.0	63	**2.7**	11240	0.80	61
225.26		**4.9**	11240	1.3	65	**4.0**	11240	1.1	63	**3.1**	11240	0.90	62
214.00		**5.1**	11240	1.3	65	**4.2**	11240	1.2	64	**3.3**	11240	0.94	62
189.09		**5.8**	11240	1.6	66	**4.8**	11240	1.3	65	**3.7**	11240	1.0	63
161.60		**6.8**	11240	1.7	67	**5.6**	11240	1.5	66	**4.3**	11240	1.2	64
148.15		**7.4**	11240	2.0	68	**6.1**	11240	1.6	66	**4.7**	11240	1.3	65
130.00		**8.5**	11150	2.1	69	**6.9**	11240	1.9	67	**5.4**	11240	1.5	66
123.20		**8.9**	11060	2.3	69	**7.3**	11240	1.9	68	**5.7**	11240	1.5	66
107.83		**10**	10800	2.5	70	**8.3**	11150	2.1	69	**6.5**	11240	1.7	67
97.14		**11**	10620	2.7	70	**9.3**	11060	2.4	69	**7.2**	11240	1.9	68
85.22		**13**	10350	3.0	71	**11**	10800	2.5	70	**8.2**	11240	2.1	69
75.20		**15**	10090	3.2	72	**12**	10530	2.8	71	**9.3**	11060	2.4	69
66.67		**16**	9820	3.5	72	**13**	10270	3.1	71	**10**	10800	2.5	70
56.92		**19**	9380	3.9	73	**16**	9910	3.5	72	**12**	10530	3.0	71
75.09	40/3	**15**	9910	2.8	83	**12**	10000	2.3	82	**9.3**	10350	1.9	81
71.33		**15**	9910	3.0	83	**13**	10000	2.4	82	**9.8**	9910	1.9	81
63.03		**17**	9910	3.4	83	**14**	9910	2.7	82	**11**	10000	2.1	81
53.87		**20**	9910	3.9	84	**17**	9910	3.2	83	**13**	9910	2.5	82
49.38		**22**	9910	4.2	84	**18**	9910	3.5	83	**14**	9910	2.7	82
43.33		**25**	10000	4.7	85	**21**	9910	3.9	84	**16**	9910	3.1	83
41.07		**27**	10000	5.0	85	**22**	9910	4.2	84	**17**	9910	3.2	83
35.94		**31**	10180	5.8	85	**25**	10000	4.7	85	**19**	9910	3.6	84
32.38		**34**	10000	6.3	86	**28**	10000	5.2	85	**22**	9910	4.0	84
28.41		**39**	9820	7.0	86	**32**	10180	6.0	86	**25**	10000	4.6	85
25.07		**44**	9560	7.6	87	**36**	9910	6.6	86	**28**	10000	5.2	85
22.22		**50**	9290	8.4	87	**41**	9740	7.2	86	**32**	10180	5.9	86
18.97		**58**	8940	9.4	87	**47**	9380	8.2	87	**37**	9910	6.7	86
22.89	34/6	**48**	6150	5.2	89	**39**	6150	4.3	89	**31**	6240	3.5	88
20.99		**52**	6240	5.8	90	**43**	6150	4.7	89	**33**	6240	3.8	88
18.42		**60**	6200	6.6	90	**49**	6200	5.4	89	**38**	6200	4.2	89
17.45		**63**	6200	6.8	90	**52**	6200	5.6	90	**40**	6200	4.4	89
15.28		**72**	6280	7.9	90	**59**	6200	6.4	90	**46**	6200	5.1	89
13.76		**80**	6280	8.9	91	**65**	6200	7.1	90	**51**	6200	5.6	90
12.07		**91**	6280	10.1	91	**75**	6280	8.2	90	**58**	6200	6.3	90
10.65		**103**	6330	11.4	91	**85**	6280	9.3	91	**66**	6280	7.2	90
9.44		**117**	6370	12.9	91	**95**	6330	10.5	91	**74**	6280	8.2	90
8.06		**136**	6420	15.2	92	**112**	6370	12.3	91	**87**	6280	9.5	91

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} =12.3 HP for continuous use.

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500 – 10 rpm

S77

i ratio	Worm ratio/ # starts	n_e = 500 rpm				n_e = 250 rpm				n_e = 10 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
256.47	40/1	**1.9**	11240	0.59	59	**0.97**	11240	0.31	56	**0.04**	11240	0.00	54
225.26		**2.2**	11240	0.66	60	**1.1**	11240	0.35	56	**0.04**	11240	0.00	55
214.00		**2.3**	11240	0.70	60	**1.2**	11240	0.38	56	**0.05**	11240	0.00	55
189.09		**2.6**	11240	0.78	61	**1.3**	11240	0.42	57	**0.05**	11240	0.00	55
161.60		**3.1**	11240	0.90	62	**1.5**	11240	0.48	58	**0.06**	11240	0.00	55
148.15		**3.4**	11240	0.97	62	**1.7**	11240	0.52	58	**0.07**	11240	0.00	55
130.00		**3.8**	11240	1.1	63	**1.9**	11240	0.58	59	**0.08**	11240	0.00	55
123.20		**4.1**	11240	1.1	64	**2.0**	11240	0.62	59	**0.08**	11240	0.00	55
107.83		**4.6**	11240	1.3	65	**2.3**	11240	0.68	60	**0.09**	11240	0.00	56
97.14		**5.1**	11240	1.3	65	**2.6**	11240	0.75	61	**0.10**	11240	0.00	56
85.22		**5.9**	11240	1.6	66	**2.9**	11240	0.84	62	**0.12**	11240	0.00	56
75.20		**6.6**	11240	1.7	67	**3.3**	11240	0.95	62	**0.13**	11240	0.00	56
66.67		**7.5**	11240	2.0	68	**3.7**	11240	1.1	63	**0.15**	11240	0.00	56
56.92		**8.8**	11150	2.3	69	**4.4**	11240	1.2	64	**0.18**	11240	0.00	56
75.09	40/3	**6.7**	10270	1.3	79	**3.3**	9910	0.68	76	**0.13**	9910	0.00	75
71.33		**7.0**	9820	1.3	79	**3.5**	9380	0.68	77	**0.14**	9380	0.00	75
63.03		**7.9**	10890	1.7	80	**4.0**	10620	0.87	77	**0.16**	10620	0.00	76
53.87		**9.3**	10440	1.9	81	**4.6**	10970	1.0	78	**0.19**	10970	0.00	76
49.38		**10**	10270	2.0	81	**5.1**	10970	1.1	78	**0.20**	10970	0.00	76
43.33		**12**	9910	2.3	82	**5.8**	10970	1.3	79	**0.23**	10970	0.00	76
41.07		**12**	9910	2.3	82	**6.1**	10970	1.3	79	**0.24**	10970	0.00	76
35.94		**14**	9910	2.7	82	**7.0**	10970	1.5	79	**0.28**	10970	0.00	76
32.38		**15**	9910	3.0	83	**7.7**	10970	1.7	80	**0.31**	10970	0.07	76
28.41		**18**	9910	3.4	83	**8.8**	10530	1.9	80	**0.35**	10530	0.08	76
25.07		**20**	9910	3.8	84	**10**	10350	2.0	81	**0.40**	10350	0.08	76
22.22		**23**	10000	4.3	84	**11**	10000	2.1	81	**0.45**	10000	0.09	76
18.97		**26**	10000	5.0	85	**13**	9910	2.5	82	**0.53**	9910	0.11	76
22.89	34/6	**22**	6110	2.4	87	**11**	5970	1.2	85	**0.44**	5970	0.00	83
20.99		**24**	6420	2.8	87	**12**	6550	1.5	85	**0.48**	6550	0.00	83
18.42		**27**	6240	3.1	88	**14**	7350	1.9	86	**0.54**	7350	0.08	83
17.45		**29**	6240	3.2	88	**14**	7170	1.9	86	**0.57**	7170	0.08	83
15.28		**33**	6240	3.6	88	**16**	6950	2.1	86	**0.65**	6950	0.08	83
13.76		**36**	6150	4.0	89	**18**	6810	2.3	87	**0.73**	6810	0.09	83
12.07		**41**	6150	4.6	89	**21**	6640	2.5	87	**0.83**	6640	0.11	83
10.65		**47**	6150	5.1	89	**23**	6420	2.7	87	**0.94**	6420	0.12	83
9.44		**53**	6240	5.9	90	**26**	6240	3.0	88	**1.1**	6240	0.12	83
8.06		**62**	6240	6.8	90	**31**	6240	3.5	88	**1.2**	6240	0.15	83

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11.11 Mechanical ratings S. SF. SA. SAF87

3400 – 2800 rpm

S87

i ratio	Worm ratio/ # starts	n_e = 3400 rpm				n_e = 3200 rpm				n_e = 2800 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
288.00		**12**	17970	4.6	74	**11**	18320	4.4	73	**9.7**	18320	3.9	73
258.18		**13**	17610	5.0	74	**12**	17790	4.7	74	**11**	18320	4.3	73
222.40		**15**	16900	5.5	75	**14**	17260	5.4	74	**13**	17790	4.8	74
202.96		**17**	16370	5.8	75	**16**	16730	5.6	75	**14**	17430	5.1	74
180.00		**19**	15930	6.3	75	**18**	16200	6.0	75	**16**	16900	5.6	75
151.30		**22**	14960	7.1	75	**21**	15310	6.8	75	**19**	15930	6.2	75
139.05	40/1	**24**	14430	7.4	76	**23**	14870	7.2	76	**20**	15580	6.6	75
123.48		**28**	13890	8.0	76	**26**	14160	7.6	76	**23**	14960	7.1	76
110.40		**31**	12660	8.2	76	**29**	13630	8.3	76	**25**	14340	7.6	76
99.26		**34**	11150	8.0	75	**32**	12210	8.3	76	**28**	13720	8.0	76
86.15		**39**	9120	7.8	74	**37**	10180	8.0	75	**33**	12300	8.3	76
77.14		**44**	7350	7.1	72	**41**	8580	7.6	74	**36**	10800	8.2	76
64.00		**53**	4430	5.8	65	**50**	5490	6.3	68	**44**	8500	7.9	75
91.20		**37**	13010	8.9	88	**35**	13010	8.3	87	**31**	13010	7.2	87
81.76		**42**	13010	9.8	88	**39**	13010	9.3	88	**34**	13010	8.0	87
70.43		**48**	13010	11.3	88	**45**	13010	10.6	88	**40**	13010	9.4	88
64.27		**53**	13010	12.3	88	**50**	13010	11.7	88	**44**	13010	10.2	88
57.00		**60**	13010	13.9	88	**56**	13010	13.1	88	**49**	13010	11.5	88
47.91		**71**	13010	16.5	89	**67**	13010	15.6	89	**58**	13010	13.7	88
44.03	38/3	**77**	13010	18.0	89	**73**	13010	16.9	89	**64**	13010	14.8	89
39.10		**87**	11510	17.8	89	**82**	12390	18.1	89	**72**	13010	16.6	89
34.96		**97**	10090	17.6	89	**92**	10970	18.0	89	**80**	12740	18.2	89
31.43		**108**	8850	17.2	88	**102**	9650	17.6	89	**89**	11420	18.1	89
27.28		**125**	7170	16.2	88	**117**	8050	17.0	88	**103**	9820	18.0	89
24.43		**139**	5840	14.9	87	**131**	6860	16.2	88	**115**	8500	17.4	89
20.27		**168**	3500	11.3	82	**158**	4340	12.9	84	**138**	6680	16.6	88
25.50		**133**	8760	20	92	**125**	8760	18.9	92	**110**	8760	16.6	92
21.43		**159**	8760	24	92	**149**	8760	23	92	**131**	8760	19.7	92
19.70		**173**	8760	25	92	**162**	8760	25	92	**142**	8760	21	92
17.49		**194**	7700	25	92	**183**	8230	25	92	**160**	8760	24	92
15.64	34/6	**217**	6730	25	92	**205**	7350	25	92	**179**	8500	25	92
14.06		**242**	5840	24	92	**228**	6420	25	92	**199**	7610	25	92
12.21		**278**	4780	23	91	**262**	5350	24	92	**229**	6460	25	92
10.93		**311**	3890	21	90	**293**	4510	23	91	**256**	5710	25	92
9.07		**375**	2260	15.4	87	**353**	2880	18.1	89	**309**	4430	24	92
7.88		**431**	1770	14.1	86	**406**	2040	15.2	87	**355**	3320	21	90

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} =20 HP for continuous use.

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2200 – 1400 rpm

S87

i ratio	Worm ratio/ # starts	n_e = 2200 rpm				n_e = 1700 rpm				n_e = 1400 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
288.00		**7.6**	19560	3.4	71	**5.9**	20180	2.7	70	**4.9**	20180	2.3	69
258.18		**8.5**	19200	3.6	72	**6.6**	20000	3.0	71	**5.4**	20180	2.5	69
222.40		**9.9**	18850	4.0	73	**7.6**	19560	3.4	71	**6.3**	20180	2.8	70
202.96		**11**	18410	4.3	73	**8.4**	19380	3.6	72	**6.9**	20000	3.1	71
180.00		**12**	17880	4.7	74	**9.4**	18850	3.9	73	**7.8**	19560	3.4	72
151.30		**15**	17170	5.4	75	**11**	18230	4.4	74	**9.3**	19030	3.9	73
139.05	40/1	**16**	16640	5.6	75	**12**	17880	4.7	74	**10**	18590	4.0	73
123.48		**18**	16110	6.0	75	**14**	17350	5.1	74	**11**	18230	4.4	74
110.40		**20**	15660	6.6	76	**15**	16820	5.5	75	**13**	17700	4.8	74
99.26		**22**	15050	7.0	76	**17**	16280	5.9	75	**14**	17350	5.2	75
86.15		**26**	14340	7.6	76	**20**	15660	6.4	76	**16**	16640	5.8	75
77.14		**29**	13630	8.0	76	**22**	15050	7.0	76	**18**	16110	6.2	76
64.00		**34**	12040	8.6	77	**27**	13980	7.6	77	**22**	15050	6.8	76
91.20		**24**	13630	6.0	87	**19**	13450	4.7	86	**15**	13360	3.9	85
81.76		**27**	14160	7.0	87	**21**	14160	5.4	86	**17**	14160	4.6	86
70.43		**31**	14160	8.0	87	**24**	14160	6.3	87	**20**	14160	5.2	86
64.27		**34**	14160	8.9	88	**26**	14160	6.8	87	**22**	14160	5.6	86
57.00		**39**	14160	9.9	88	**30**	14160	7.6	87	**25**	14160	6.4	87
47.91		**46**	14160	11.7	88	**35**	14160	9.1	88	**29**	14160	7.5	87
44.03	38/3	**50**	14160	12.7	88	**39**	14160	9.9	88	**32**	14160	8.2	87
39.10		**56**	14160	14.2	89	**43**	14160	11.1	88	**36**	14160	9.1	88
34.96		**63**	14160	16.0	89	**49**	14160	12.3	88	**40**	14160	10.2	88
31.43		**70**	14160	17.7	89	**54**	14160	13.7	89	**45**	14160	11.4	88
27.28		**81**	12830	18.4	89	**62**	14160	15.7	89	**51**	14160	13.0	89
24.43		**90**	11590	18.5	89	**70**	14160	17.6	89	**57**	14160	14.5	89
20.27		**109**	9560	18.5	89	**84**	12570	18.8	89	**69**	14160	17.4	89
25.50		**86**	10970	16.4	92	**67**	10970	12.7	91	**55**	10970	10.5	91
21.43		**103**	10970	19.4	92	**79**	10970	15.0	92	**65**	10970	12.5	91
19.70		**112**	10970	21	92	**86**	10970	16.4	92	**71**	10970	13.5	91
17.49		**126**	10970	24	92	**97**	10970	18.4	92	**80**	10970	15.2	92
15.64	34/6	**141**	10890	27	92	**109**	10970	21	92	**90**	10970	17.0	92
14.06		**156**	9820	27	92	**121**	10970	23	92	**100**	10970	18.9	92
12.21		**180**	8580	27	93	**139**	10970	27	92	**115**	10970	22	92
10.93		**201**	7700	27	93	**156**	10000	27	93	**128**	10970	24	92
9.07		**243**	6370	27	92	**187**	8410	27	93	**154**	10090	27	93
7.88		**279**	5350	25	92	**216**	7350	27	93	**178**	8940	27	93

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} =20 HP for continuous use.

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1100 – 700 rpm

S87

i ratio	Worm ratio/ # starts	n_e = 1100 rpm				n_e = 900 rpm				n_e = 700 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
288.00		**3.8**	21240	1.9	67	**3.1**	21680	1.6	66	**2.4**	21950	1.3	64
258.18		**4.3**	21060	2.1	68	**3.5**	21510	1.7	67	**2.7**	21860	1.5	65
222.40		**4.9**	20800	2.4	69	**4.0**	21240	2.0	68	**3.1**	21680	1.6	66
202.96		**5.4**	20620	2.5	70	**4.4**	21060	2.1	68	**3.4**	21510	1.7	67
180.00		**6.1**	20180	2.8	70	**5.0**	20800	2.4	69	**3.9**	21240	1.9	68
151.30		**7.3**	19820	3.2	71	**5.9**	20440	2.7	70	**4.6**	20800	2.3	69
139.05	40/1	**7.9**	19380	3.4	72	**6.5**	20000	3.0	71	**5.0**	20620	2.4	69
123.48		**8.9**	19030	3.8	73	**7.3**	19820	3.2	71	**5.7**	20440	2.7	70
110.40		**10**	18670	4.0	73	**8.2**	19380	3.5	72	**6.3**	20180	2.8	71
99.26		**11**	18320	4.4	74	**9.1**	19030	3.8	73	**7.1**	19820	3.1	71
86.15		**13**	17700	4.8	74	**10**	18500	4.2	73	**8.1**	19380	3.5	72
77.14		**14**	17170	5.2	75	**12**	18050	4.6	74	**9.1**	19030	3.8	73
64.00		**17**	16280	5.9	76	**14**	17350	5.2	75	**11**	18320	4.3	74
91.20		**12**	13190	3.0	84	**9.9**	13100	2.4	83	**7.7**	12920	1.9	82
81.76		**13**	15580	3.9	85	**11**	15580	3.2	84	**8.6**	15580	2.5	83
70.43		**16**	15580	4.6	85	**13**	15580	3.8	85	**9.9**	15580	3.0	83
64.27		**17**	15580	5.0	86	**14**	15580	4.0	85	**11**	15580	3.2	84
57.00		**19**	15580	5.5	86	**16**	15580	4.6	85	**12**	15580	3.6	84
47.91		**23**	15580	6.6	87	**19**	15580	5.4	86	**15**	15580	4.3	85
44.03	38/3	**25**	15580	7.1	87	**20**	15580	5.9	86	**16**	15580	4.6	85
39.10		**28**	15580	8.0	87	**23**	15580	6.6	87	**18**	15580	5.2	86
34.96		**31**	15580	8.9	88	**26**	15580	7.4	87	**20**	15580	5.8	86
31.43		**35**	15580	9.9	88	**29**	15580	8.2	87	**22**	15580	6.3	87
27.28		**40**	15580	11.3	88	**33**	15580	9.3	88	**26**	15580	7.2	87
24.43		**45**	15580	12.6	88	**37**	15580	10.3	88	**29**	15580	8.0	87
20.27		**54**	15580	15.2	89	**44**	15580	12.5	88	**35**	15580	9.7	88
25.50		**43**	11860	9.0	90	**35**	11860	7.4	90	**27**	11860	5.8	89
21.43		**51**	11860	10.6	91	**42**	11860	8.7	90	**33**	11860	6.8	90
19.70		**56**	11860	11.5	91	**46**	11860	9.5	91	**36**	11860	7.4	90
17.49		**63**	11860	13.0	91	**51**	11860	10.6	91	**40**	11860	8.3	90
15.64	34/6	**70**	11860	14.5	92	**58**	11860	11.9	91	**45**	11860	9.3	91
14.06		**78**	11860	16.1	92	**64**	11860	13.1	91	**50**	11860	10.3	91
12.21		**90**	11860	18.5	92	**74**	11860	15.2	92	**57**	11860	11.8	91
10.93		**101**	11860	21	92	**82**	11860	16.9	92	**64**	11860	13.1	91
9.07		**121**	11860	25	92	**99**	11860	20	92	**77**	11860	15.8	92
7.88		**140**	11150	27	93	**114**	11860	23	92	**89**	11860	18.2	92

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} =20 HP for continuous use.

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500 – 10 rpm

S87

i ratio	Worm ratio/ # starts	n_e = 500 rpm				n_e = 250 rpm				n_e = 10 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
288.00		**1.7**	22130	0.98	62	**0.87**	22130	0.51	59	**0.03**	22130	0.00	58
258.18		**1.9**	22130	1.1	63	**0.97**	22130	0.58	59	**0.04**	22130	0.00	58
222.40		**2.2**	22130	1.2	64	**1.1**	22130	0.66	60	**0.04**	22130	0.00	59
202.96		**2.5**	21950	1.3	64	**1.2**	22130	0.71	61	**0.05**	22130	0.00	59
180.00		**2.8**	21950	1.5	65	**1.4**	22130	0.80	61	**0.06**	22130	0.00	59
151.30		**3.3**	21510	1.7	67	**1.7**	22130	0.94	62	**0.07**	22130	0.00	59
139.05	40/1	**3.6**	21510	1.9	67	**1.8**	22130	1.0	63	**0.07**	22130	0.00	59
123.48		**4.0**	21240	2.0	68	**2.0**	22130	1.1	63	**0.08**	22130	0.00	59
110.40		**4.5**	21060	2.1	69	**2.3**	22130	1.2	64	**0.09**	22130	0.00	59
99.26		**5.0**	20620	2.4	69	**2.5**	21860	1.3	65	**0.10**	21860	0.00	59
86.15		**5.8**	20440	2.7	70	**2.9**	21680	1.5	66	**0.12**	21680	0.07	59
77.14		**6.5**	20000	3.0	71	**3.2**	21510	1.6	66	**0.13**	21510	0.08	59
64.00		**7.8**	19650	3.4	72	**3.9**	21240	2.0	68	**0.16**	21240	0.09	59
91.20		**5.5**	12830	1.3	81	**2.7**	12300	0.68	79	**0.11**	12300	0.00	78
81.76		**6.1**	17350	2.0	82	**3.1**	16640	1.0	79	**0.12**	16640	0.00	78
70.43		**7.1**	17520	2.4	82	**3.5**	17520	1.2	80	**0.14**	17520	0.00	79
64.27		**7.8**	17520	2.7	83	**3.9**	17520	1.3	80	**0.16**	17520	0.00	79
57.00		**8.8**	17520	3.0	83	**4.4**	17520	1.5	80	**0.18**	17520	0.00	79
47.91		**10**	17520	3.5	84	**5.2**	17520	1.7	81	**0.21**	17520	0.08	79
44.03	38/3	**11**	17520	3.8	84	**5.7**	17520	1.9	81	**0.23**	17520	0.08	79
39.10		**13**	17520	4.2	85	**6.4**	17520	2.1	82	**0.26**	17520	0.09	79
34.96		**14**	17520	4.7	85	**7.2**	17520	2.4	82	**0.29**	17520	0.11	79
31.43		**16**	17520	5.2	85	**8.0**	17520	2.7	83	**0.32**	17520	0.11	79
27.28		**18**	17520	5.9	86	**9.2**	17520	3.1	83	**0.37**	17520	0.13	79
24.43		**20**	17520	6.6	86	**10**	17520	3.4	84	**0.41**	17520	0.15	79
20.27		**25**	17520	7.9	87	**12**	17520	4.0	85	**0.49**	17520	0.17	79
25.50		**20**	12660	4.4	88	**9.8**	12300	2.1	87	**0.39**	12300	0.09	85
21.43		**23**	12570	5.2	89	**12**	13360	2.8	87	**0.47**	13360	0.12	85
19.70		**25**	12480	5.6	89	**13**	13890	3.2	87	**0.51**	13890	0.13	85
17.49		**29**	12300	6.2	89	**14**	13890	3.6	88	**0.57**	13890	0.15	85
15.64	34/6	**32**	12300	7.0	90	**16**	13630	3.9	88	**0.64**	13630	0.16	85
14.06		**36**	12300	7.6	90	**18**	13360	4.3	88	**0.71**	13360	0.17	85
12.21		**41**	12300	8.9	90	**20**	12920	4.7	89	**0.82**	12920	0.20	85
10.93		**46**	12300	9.8	91	**23**	12660	5.2	89	**0.91**	12660	0.21	85
9.07		**55**	12480	11.9	91	**28**	12300	6.0	89	**1.1**	12300	0.25	85
7.88		**63**	12480	13.8	91	**32**	12300	6.8	90	**1.3**	12300	0.30	85

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11.12 Mechanical ratings S. SF. SA. SAF97

3400 – 2800 rpm

S97

i ratio	Worm ratio/ # starts	n_e = 3400 rpm				n_e = 3200 rpm				n_e = 2800 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
286.40		**12**	31150	7.8	76	**11**	31770	7.5	76	**9.8**	32750	6.7	75
262.22		**13**	30530	8.3	76	**12**	31150	7.9	76	**11**	32130	7.2	75
231.67		**15**	29290	9.0	76	**14**	29910	8.6	76	**12**	31150	7.9	76
196.52		**17**	27610	9.9	77	**16**	28410	9.7	76	**14**	29650	8.9	76
180.95		**19**	26820	10.5	77	**18**	27610	10.1	77	**15**	28760	9.3	76
161.74		**21**	25750	11.1	77	**20**	26280	10.7	77	**17**	27610	9.9	77
145.60	40/1	**23**	24430	11.8	77	**22**	25220	11.4	77	**19**	26550	10.6	77
131.85		**26**	23540	12.6	77	**24**	24250	12.2	77	**21**	25490	11.1	77
116.92		**29**	20530	12.5	76	**27**	22570	12.7	77	**24**	24250	11.9	77
105.71		**32**	17520	11.9	75	**30**	19560	12.3	76	**26**	23280	12.7	77
89.60		**38**	11330	9.8	70	**36**	14780	11.4	74	**31**	19560	12.6	77
78.26		**43**	8140	8.6	65	**41**	9200	9.0	67	**36**	15660	11.8	75
65.45		**52**	5970	7.9	63	**49**	6860	8.3	64	**43**	9120	9.1	68
80.85		**42**	27880	21	89	**40**	27880	19.6	89	**35**	27880	17.2	89
71.43		**48**	27350	23	90	**45**	27880	22	89	**39**	27880	19.4	89
60.59		**56**	25750	25	90	**53**	26280	25	90	**46**	27610	23	90
55.79		**61**	24960	27	90	**57**	25490	25	90	**50**	26820	24	90
49.87		**68**	23980	30	90	**64**	24430	28	90	**56**	25750	25	90
44.89	37/3	**76**	21510	28	90	**71**	23280	30	90	**62**	24690	27	90
40.65		**84**	19200	28	90	**79**	20800	30	90	**69**	23720	28	90
36.05		**94**	16200	27	89	**89**	17880	28	89	**78**	21240	30	90
32.60		**104**	13810	25	89	**98**	15580	27	89	**86**	19030	30	90
27.63		**123**	8940	20	86	**116**	11680	24	88	**101**	15400	28	89
24.13		**141**	6420	17.3	83	**133**	7260	18.2	84	**116**	12300	25	88
26.39		**129**	15490	34	93	**121**	15490	32	93	**106**	15490	28	93
23.59		**144**	15490	38	93	**136**	15490	36	93	**119**	15490	31	93
21.23		**160**	15490	43	93	**151**	15490	40	93	**132**	15490	35	93
19.23		**177**	13720	42	93	**166**	14870	42	93	**146**	15490	39	93
17.05	35/6	**199**	11680	40	93	**188**	12830	42	93	**164**	15310	43	93
15.42		**220**	9820	38	92	**208**	11150	40	93	**182**	13630	42	93
13.07		**260**	6420	30	90	**245**	8320	35	92	**214**	10970	40	93
11.41		**298**	4560	25	88	**280**	5180	25	89	**245**	8850	38	92
9.55		**356**	3320	22	87	**335**	3850	23	87	**293**	5130	27	89
8.26		**412**	2570	19.7	85	**387**	2960	21	86	**339**	4030	25	88

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} =30 HP for continuous use.

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2200 – 1400 rpm

S97

i ratio	Worm ratio/ # starts	n_e = 2200 rpm				n_e = 1700 rpm				n_e = 1400 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
286.40		**7.7**	34690	5.6	74	**5.9**	35400	4.6	73	**4.9**	35400	3.9	72
262.22		**8.4**	33980	6.0	75	**6.5**	35400	5.0	73	**5.3**	35400	4.2	72
231.67		**9.5**	33360	6.7	75	**7.3**	35050	5.5	74	**6.0**	35400	4.7	73
196.52		**11**	31680	7.4	76	**8.7**	33980	6.3	75	**7.1**	35400	5.4	74
180.95		**12**	31060	7.9	76	**9.4**	33360	6.6	75	**7.7**	34690	5.8	74
161.74		**14**	30180	8.6	76	**11**	32300	7.1	76	**8.7**	33980	6.3	75
145.60	40/1	**15**	28940	9.1	77	**12**	31420	7.6	76	**9.6**	33010	6.7	75
131.85		**17**	28050	9.7	77	**13**	30440	8.2	76	**11**	32300	7.2	76
116.92		**19**	26730	10.3	77	**15**	29560	8.9	77	**12**	31060	7.8	76
105.71		**21**	25930	11.1	77	**16**	28410	9.4	77	**13**	30440	8.3	76
89.60		**25**	24160	12.2	77	**19**	26730	10.5	77	**16**	28670	9.3	77
78.26		**28**	22480	12.9	78	**22**	25400	11.3	78	**18**	27260	10.1	77
65.45		**34**	18760	13.0	77	**26**	23450	12.3	78	**21**	25670	11.1	78
80.85		**27**	29210	14.2	89	**21**	28940	11.0	88	**17**	28590	9.0	88
71.43		**31**	29210	16.1	89	**24**	29210	12.5	88	**20**	29210	10.3	88
60.59		**36**	29210	18.9	89	**28**	29210	14.6	89	**23**	29210	12.1	88
55.79		**39**	28940	20	89	**30**	29210	15.8	89	**25**	29210	13.1	88
49.87		**44**	28050	22	90	**34**	29210	17.7	89	**28**	29210	14.6	89
44.89	37/3	**49**	26990	23	90	**38**	29210	19.6	89	**31**	29210	16.2	89
40.65		**54**	26110	25	90	**42**	28590	21	90	**34**	29210	17.8	89
36.05		**61**	24870	27	90	**47**	27520	23	90	**39**	29210	20	89
32.60		**67**	23900	28	90	**52**	26370	24	90	**43**	28320	21	90
27.63		**80**	21150	30	90	**62**	24870	27	90	**51**	26640	24	90
24.13		**91**	18230	30	90	**70**	23630	30	90	**58**	25400	25	90
26.39		**83**	22570	32	93	**64**	23010	25	93	**53**	23010	21	92
23.59		**93**	21680	35	93	**72**	23010	28	93	**59**	23010	23	93
21.23		**104**	21060	38	93	**80**	22740	31	93	**66**	23010	25	93
19.23		**114**	20180	39	93	**88**	22130	34	93	**73**	23010	28	93
17.05	35/6	**129**	19200	42	93	**100**	21240	36	93	**82**	22740	32	93
15.42		**143**	18050	44	93	**110**	20360	38	93	**91**	21860	34	93
13.07		**168**	15220	43	93	**130**	19200	43	93	**107**	20620	38	93
11.41		**193**	13100	43	93	**149**	17700	44	93	**123**	19560	40	93
9.55		**230**	10620	42	93	**178**	14780	44	93	**147**	18050	44	94
8.26		**266**	8670	40	93	**206**	12740	44	93	**169**	15660	46	94

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} =30 HP for continuous use.

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1100 – 700 rpm

S97

i ratio	Worm ratio/ # starts	n_e = 1100 rpm				n_e = 900 rpm				n_e = 700 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
286.40		**3.8**	37170	3.2	70	**3.1**	37170	2.7	69	**2.4**	37170	2.1	68
262.22		**4.2**	37170	3.5	71	**3.4**	37170	3.0	70	**2.7**	37170	2.3	68
231.67		**4.7**	37170	3.9	72	**3.9**	37170	3.2	70	**3.0**	37170	2.5	69
196.52		**5.6**	36820	4.6	73	**4.6**	37170	3.8	71	**3.6**	37170	3.0	70
180.95		**6.1**	36460	4.8	73	**5.0**	37170	4.0	72	**3.9**	37170	3.2	70
161.74		**6.8**	35670	5.2	74	**5.6**	36820	4.4	73	**4.3**	37170	3.6	71
145.60	40/1	**7.6**	34960	5.6	74	**6.2**	36110	4.8	73	**4.8**	37170	3.9	72
131.85		**8.3**	34340	6.0	75	**6.8**	35670	5.2	74	**5.3**	37170	4.3	72
116.92		**9.4**	33280	6.6	75	**7.7**	34600	5.6	74	**6.0**	36460	4.7	73
105.71		**10**	32300	7.1	76	**8.5**	33980	6.2	75	**6.6**	35670	5.1	74
89.60		**12**	30980	7.9	76	**10**	32660	6.8	76	**7.8**	34600	5.8	75
78.26		**14**	29820	8.7	77	**12**	31680	7.6	76	**8.9**	33630	6.3	75
65.45		**17**	28050	9.7	77	**14**	30090	8.6	77	**11**	32300	7.2	76
80.85		**14**	28590	7.1	87	**11**	28320	5.8	86	**8.7**	28050	4.6	85
71.43		**15**	31860	9.0	87	**13**	31860	7.4	87	**9.8**	31860	5.8	86
60.59		**18**	31860	10.5	88	**15**	31860	8.6	87	**12**	31860	6.7	86
55.79		**20**	31860	11.4	88	**16**	31860	9.4	87	**13**	31860	7.4	87
49.87		**22**	31860	12.6	88	**18**	31860	10.5	88	**14**	31860	8.2	87
44.89	37/3	**25**	31860	13.9	88	**20**	31860	11.5	88	**16**	31860	9.0	87
40.65		**27**	31860	15.4	89	**22**	31860	12.7	88	**17**	31860	9.9	88
36.05		**31**	31240	17.0	89	**25**	31860	14.2	89	**19**	31860	11.1	88
32.60		**34**	30270	18.1	89	**28**	31860	15.7	89	**21**	31860	12.3	88
27.63		**40**	28850	20	90	**33**	30620	17.7	89	**25**	31860	14.5	89
24.13		**46**	27700	22	90	**37**	29380	19.4	89	**29**	31510	16.4	89
26.39		**42**	23450	16.9	92	**34**	23190	13.7	92	**27**	23190	10.7	91
23.59		**47**	23450	18.8	92	**38**	23450	15.4	92	**30**	23190	11.9	91
21.23		**52**	23450	21	92	**42**	23450	17.2	92	**33**	23190	13.3	92
19.23		**57**	23450	23	93	**47**	23450	18.9	92	**36**	23190	14.6	92
17.05	35/6	**65**	23630	25	93	**53**	23450	21	92	**41**	23450	16.6	92
15.42		**71**	23630	28	93	**58**	23450	23	93	**45**	23450	18.4	92
13.07		**84**	22480	32	93	**69**	23630	28	93	**54**	23450	22	92
11.41		**96**	21420	35	93	**79**	22920	31	93	**61**	23450	25	93
9.55		**115**	20180	39	93	**94**	21590	35	93	**73**	23450	30	93
8.26		**133**	18940	43	94	**109**	20530	38	93	**85**	22480	32	93

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} =30 HP for continuous use.

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500 – 10 rpm

S97

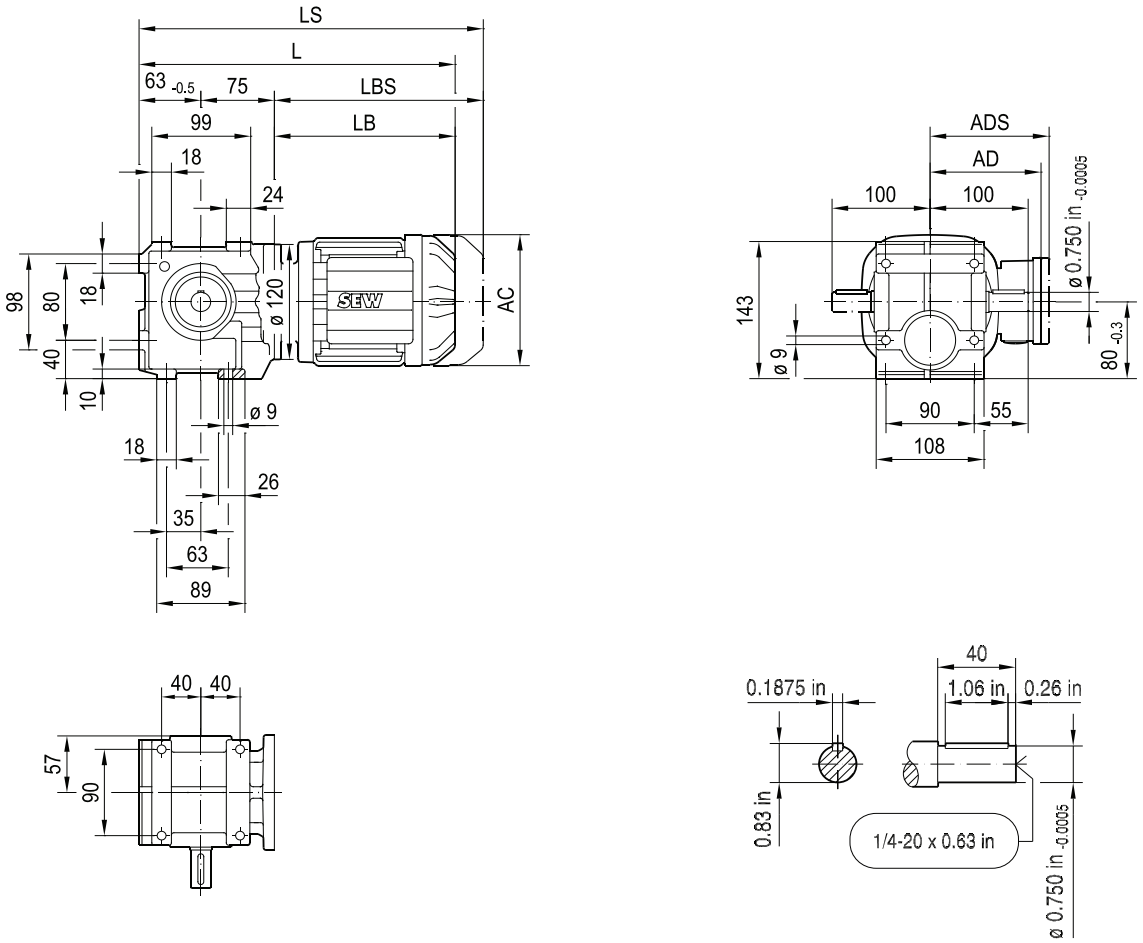
i ratio	Worm ratio/ # starts	n_e = 500 rpm				n_e = 250 rpm				n_e = 10 rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
286.40		**1.7**	37170	1.6	65	**0.87**	37170	0.83	62	**0.03**	37170	0.00	60
262.22		**1.9**	37170	1.7	66	**0.95**	37170	0.91	62	**0.04**	37170	0.00	60
231.67		**2.2**	37170	1.9	67	**1.1**	37170	1.0	63	**0.04**	37170	0.00	60
196.52		**2.5**	37170	2.1	68	**1.3**	37170	1.2	64	**0.05**	37170	0.00	60
180.95		**2.8**	37170	2.4	68	**1.4**	37170	1.3	64	**0.06**	37170	0.00	60
161.74		**3.1**	37170	2.7	69	**1.5**	37170	1.5	65	**0.06**	37170	0.00	60
145.60	40/1	**3.4**	37170	3.0	70	**1.7**	37170	1.6	65	**0.07**	37170	0.07	60
131.85		**3.8**	37170	3.2	70	**1.9**	37170	1.7	66	**0.08**	37170	0.08	60
116.92		**4.3**	37170	3.5	71	**2.1**	37170	1.9	67	**0.09**	37170	0.08	60
105.71		**4.7**	37170	3.9	72	**2.4**	37170	2.0	67	**0.09**	37170	0.09	60
89.60		**5.6**	36820	4.4	73	**2.8**	37170	2.4	69	**0.11**	37170	0.11	60
78.26		**6.4**	36110	5.0	74	**3.2**	37170	2.7	69	**0.13**	37170	0.12	60
65.45		**7.6**	34600	5.6	75	**3.8**	37170	3.2	70	**0.15**	37170	0.15	60
80.85		**6.2**	27520	3.2	84	**3.1**	26640	1.6	82	**0.12**	26640	0.00	80
71.43		**7.0**	37170	4.8	85	**3.5**	36820	2.5	82	**0.14**	36820	0.11	81
60.59		**8.3**	37170	5.8	85	**4.1**	36110	2.8	83	**0.17**	36110	0.12	81
55.79		**9.0**	37170	6.2	86	**4.5**	37170	3.2	83	**0.18**	37170	0.13	81
49.87		**10**	37170	6.8	86	**5.0**	37170	3.5	83	**0.20**	37170	0.15	81
44.89	37/3	**11**	36820	7.5	86	**5.6**	37170	3.9	84	**0.22**	37170	0.16	81
40.65		**12**	36460	8.2	87	**6.2**	37170	4.3	84	**0.25**	37170	0.17	81
36.05		**14**	36110	9.1	87	**6.9**	37170	4.8	85	**0.28**	37170	0.20	81
32.60		**15**	35310	9.8	87	**7.7**	37170	5.4	85	**0.31**	37170	0.23	81
27.63		**18**	34600	11.3	88	**9.0**	37170	6.3	86	**0.36**	37170	0.27	81
24.13		**21**	33630	12.5	88	**10**	37170	7.1	86	**0.41**	37170	0.31	81
26.39		**19**	22920	7.6	90	**9.5**	22480	3.8	89	**0.38**	22480	0.16	87
23.59		**21**	22920	8.4	91	**11**	22480	4.3	89	**0.42**	22480	0.17	87
21.23		**24**	22920	9.4	91	**12**	22740	4.8	89	**0.47**	22740	0.20	87
19.23		**26**	23190	10.5	91	**13**	22740	5.2	89	**0.52**	22740	0.21	87
17.05	35/6	**29**	23190	11.8	91	**15**	22740	5.9	90	**0.59**	22740	0.24	87
15.42		**32**	23190	13.0	92	**16**	22740	6.4	90	**0.65**	22740	0.27	87
13.07		**38**	23450	15.6	92	**19**	22920	7.6	90	**0.77**	22920	0.32	87
11.41		**44**	23450	17.7	92	**22**	22920	8.9	91	**0.88**	22920	0.36	87
9.55		**52**	23450	21	92	**26**	23190	10.6	91	**1.0**	23190	0.44	87
8.26		**61**	23450	24	93	**30**	23190	12.2	91	**1.2**	23190	0.51	87

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11.13 S / S..7p.. DRN.. Dimensions

77 625 00 21

S37/S37p..



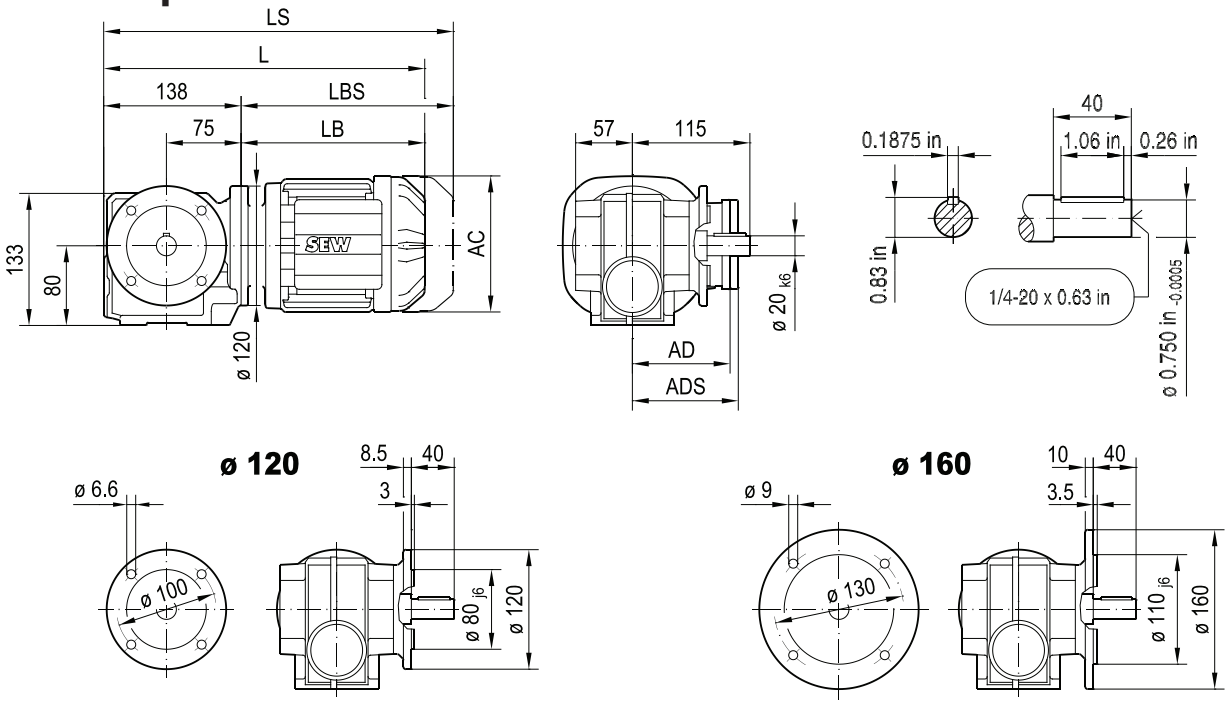
(→ 162)	DRN								
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L
AC	115	115	139	139	156	156	156	179	179
AD	98	98	118	118	128	128	128	140	140
ADS	98	98	129	129	139	139	139	150	150
L	328	342	344	364	375	392	420	421	453
LS	384	398	411	431	456	473	501	515	547
LB	190	204	206	226	237	254	282	283	315
LBS	246	260	273	293	318	335	363	377	409

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 877. For tolerances, see page 162.

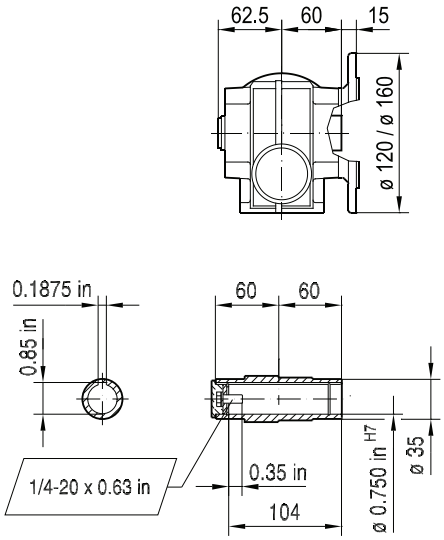
24833231/EN-US – 07/2021

SF37/SF37p..

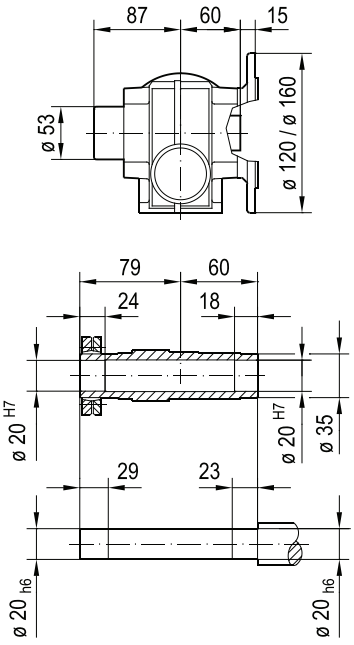
77 627 00 21



SAF37/SAF37p..



SHF37/SHF37p..



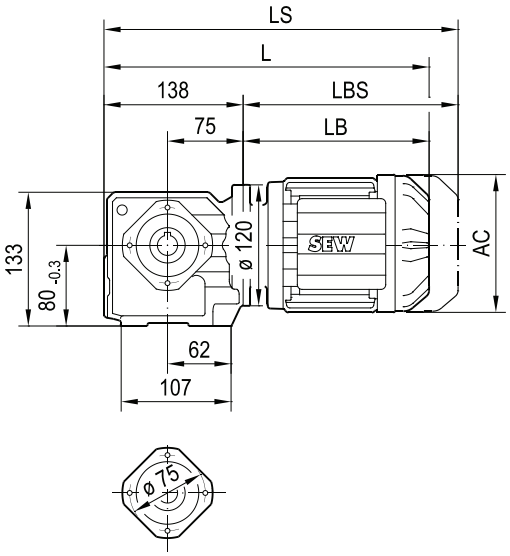
(→ 162)	DRN								
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L
AC	115	115	139	139	156	156	156	179	179
AD	98	98	118	118	128	128	128	140	140
ADS	98	98	129	129	139	139	139	150	150
L	328	342	344	364	375	392	420	421	453
LS	384	398	411	431	456	473	501	515	547
LB	190	204	206	226	237	254	282	283	315
LBS	246	260	273	293	318	335	363	377	409

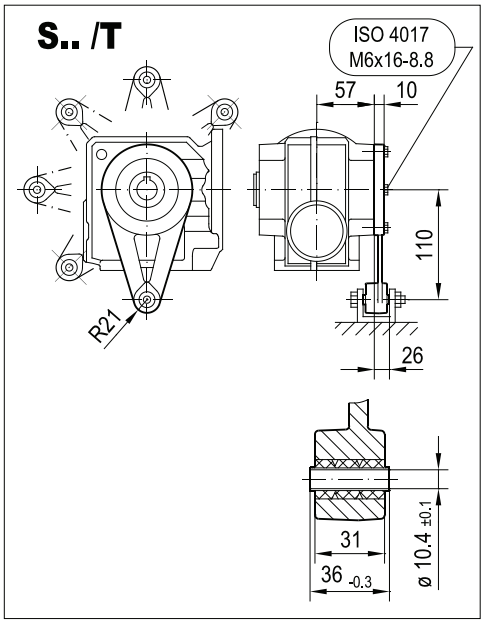
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 877. For tolerances, see page 162.

24833231/EN-US – 07/2021

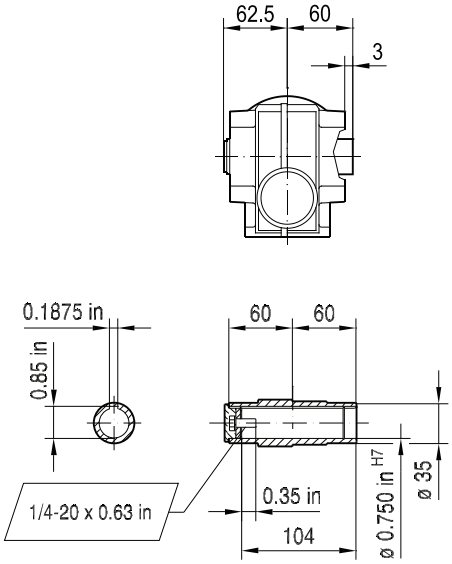
SA37/SA37p..

77 628 00 21

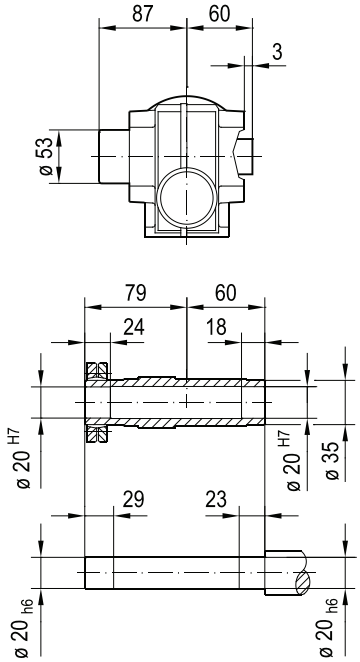




SA37/SA37p..



SH37/SH37p..

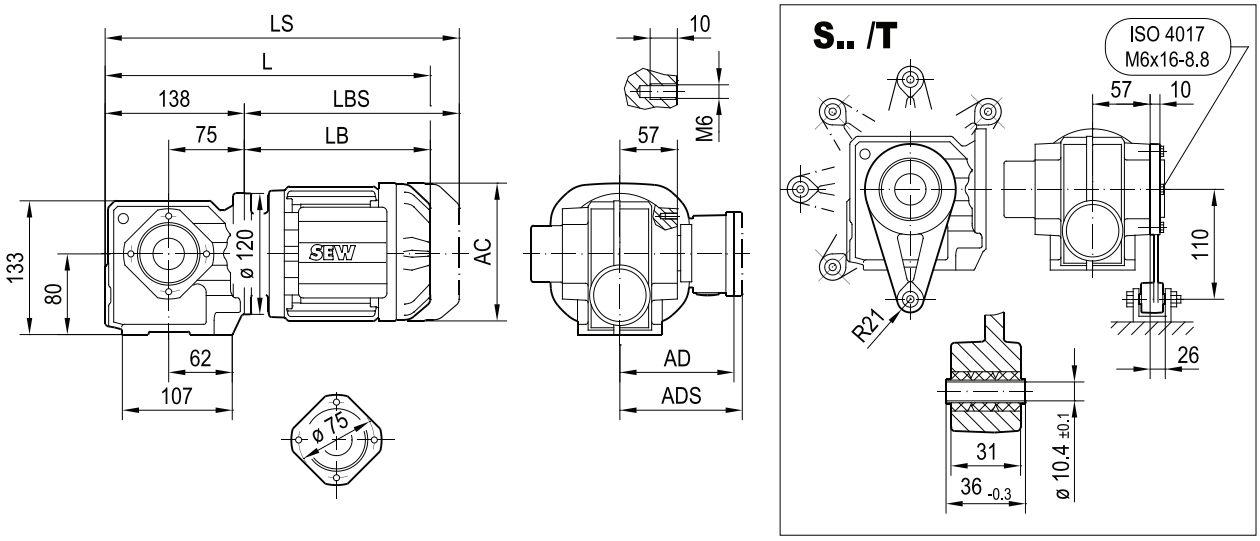


(→ 162)	DRN								
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L
AC	115	115	139	139	156	156	156	179	179
AD	98	98	118	118	128	128	128	140	140
ADS	98	98	129	129	139	139	139	150	150
L	328	342	344	364	375	392	420	421	453
LS	384	398	411	431	456	473	501	515	547
LB	190	204	206	226	237	254	282	283	315
LBS	246	260	273	293	318	335	363	377	409

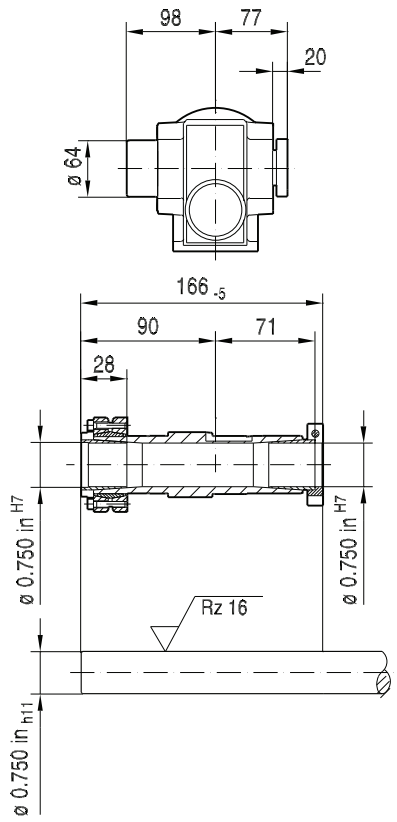
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 879. For tolerances, see page 162.

77 629 00 21

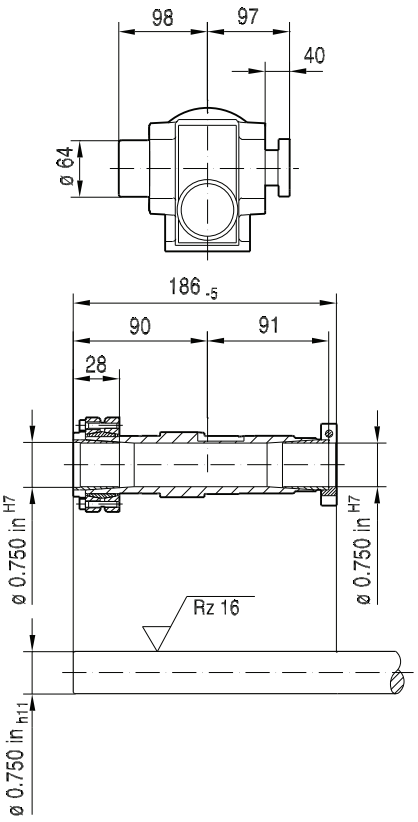
ST37/ST37p..



NON-Symmetrical



Symmetrical



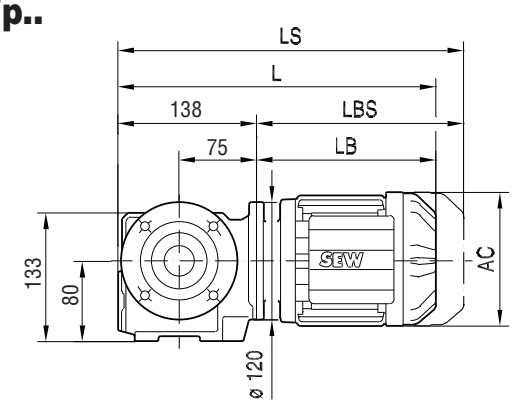
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L
AC	115	115	139	139	156	156	156	179	179
AD	98	98	118	118	128	128	128	140	140
ADS	98	98	129	129	139	139	139	150	150
L	328	342	344	364	375	392	420	421	453
LS	384	398	411	431	456	473	501	515	547
LB	190	204	206	226	237	254	282	283	315
LBS	246	260	273	293	318	335	363	377	409

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 881. For tolerances, see page 162.

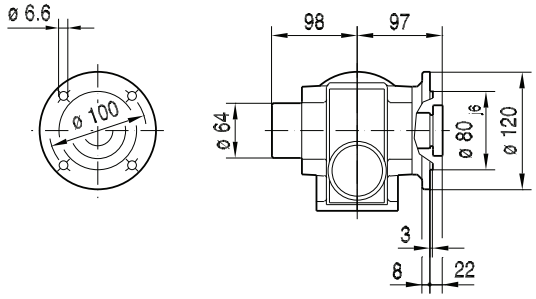
24833231/EN-US – 07/2021

77 630 00 21

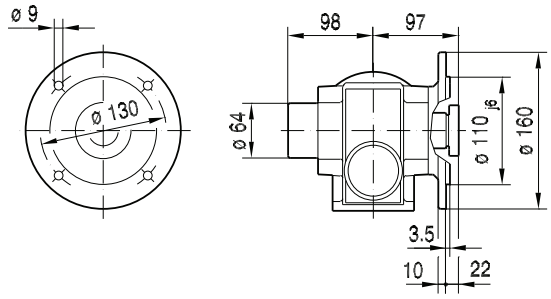
STF37/STF37p..

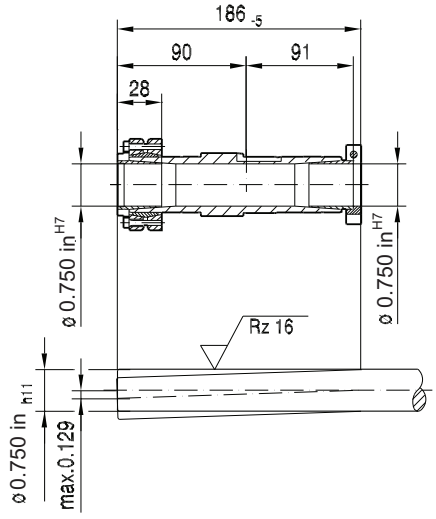


ø 120



ø 160





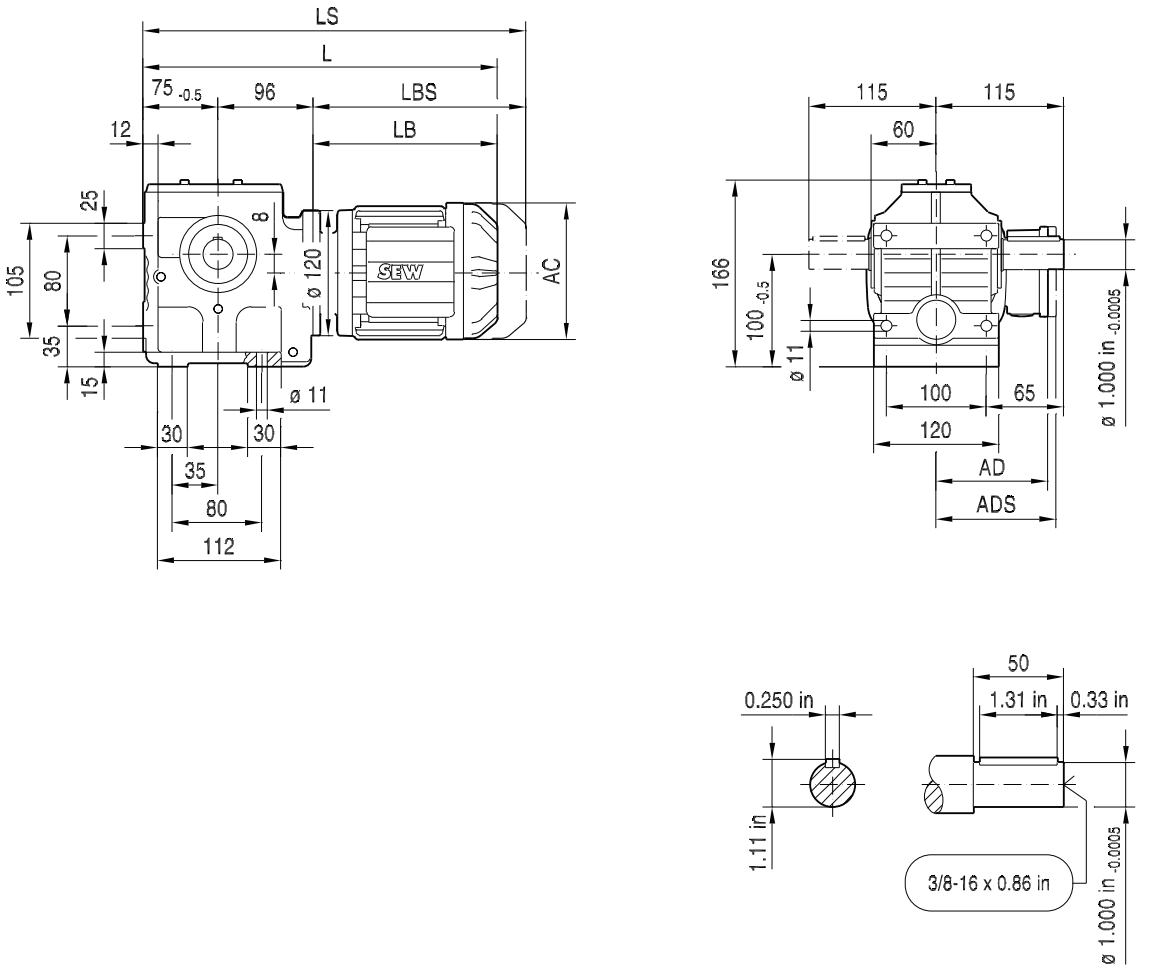
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L
AC	115	115	139	139	156	156	156	179	179
AD	98	98	118	118	128	128	128	140	140
ADS	98	98	129	129	139	139	139	150	150
L	328	342	344	364	375	392	420	421	453
LS	384	398	411	431	456	473	501	515	547
LB	190	204	206	226	237	254	282	283	315
LBS	246	260	273	293	318	335	363	377	409

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 881. For tolerances, see page 162.

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77 631 00 21

S47/S47p..



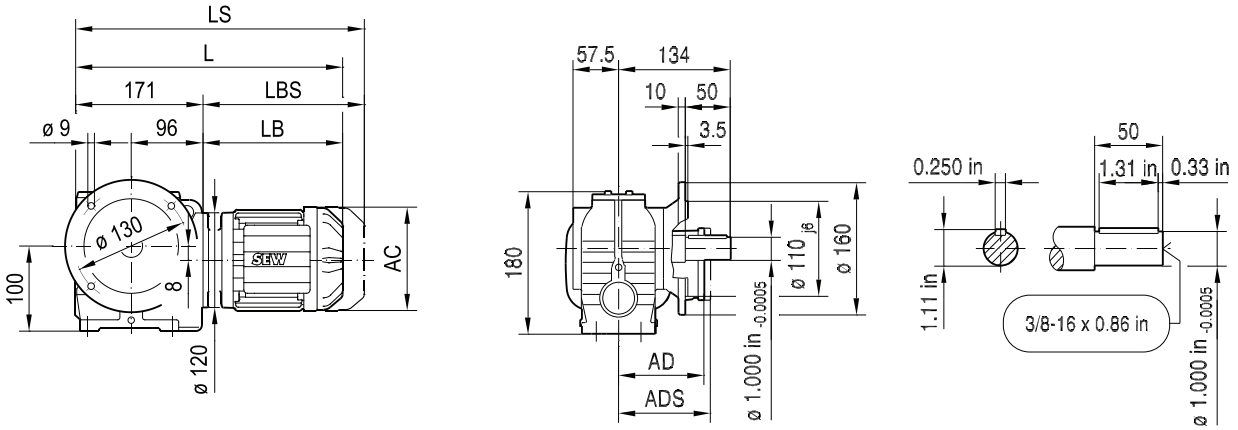
(→ 🗎 162)	DRN									
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	156	179	179	197
AD	98	98	118	118	128	128	128	140	140	157
ADS	98	98	129	129	139	139	139	150	150	158
L	361	375	377	397	408	425	453	454	486	535
LS	417	431	444	464	489	506	534	548	580	629
LB	190	204	206	226	237	254	282	283	315	364
LBS	246	260	273	293	318	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 877. For tolerances, see page 162.

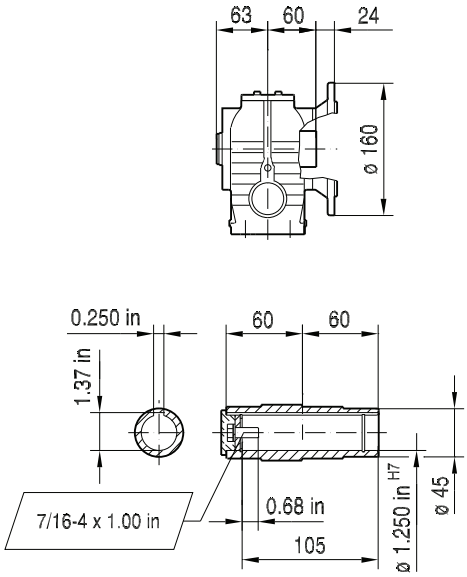
24833231/EN-US – 07/2021

77 632 00 21

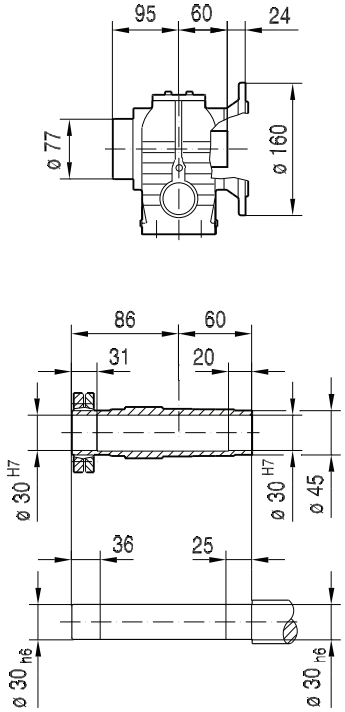
SF47/SF47p..



SAF47/SAF47p..



SHF47/SHF47p..



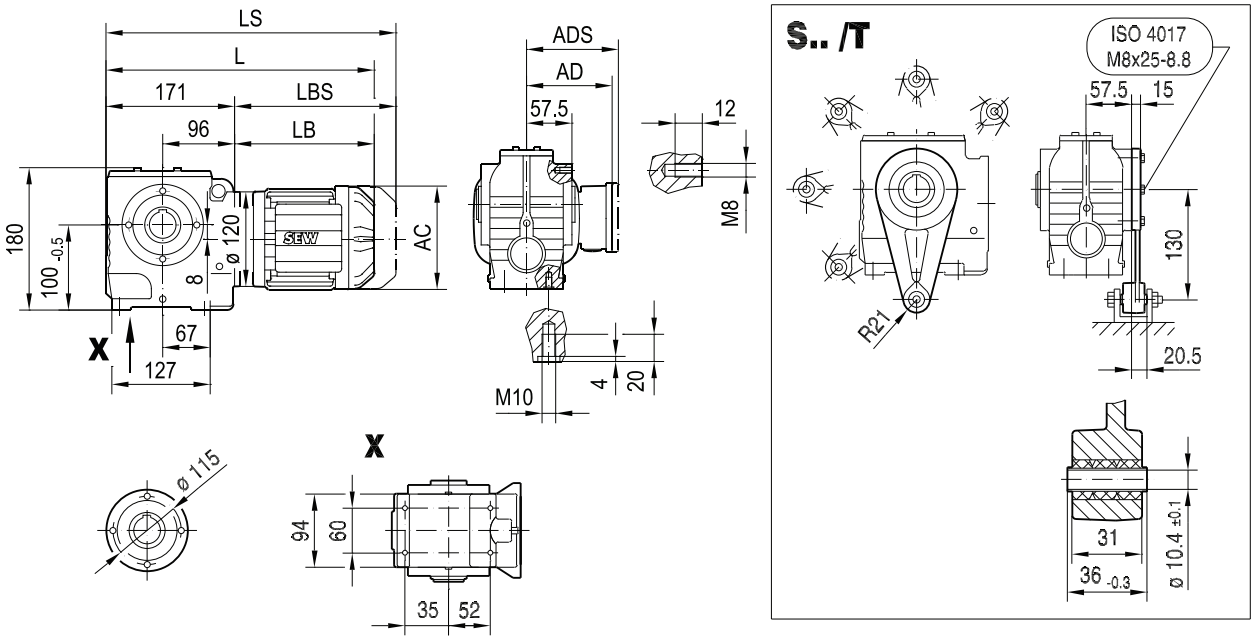
(→ 162)	DRN									
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	156	179	179	197
AD	98	98	118	118	128	128	128	140	140	157
ADS	98	98	129	129	139	139	139	150	150	158
L	361	375	377	397	408	425	453	454	486	535
LS	417	431	444	464	489	506	534	548	580	629
LB	190	204	206	226	237	254	282	283	315	364
LBS	246	260	273	293	318	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 877. For tolerances, see page 162.

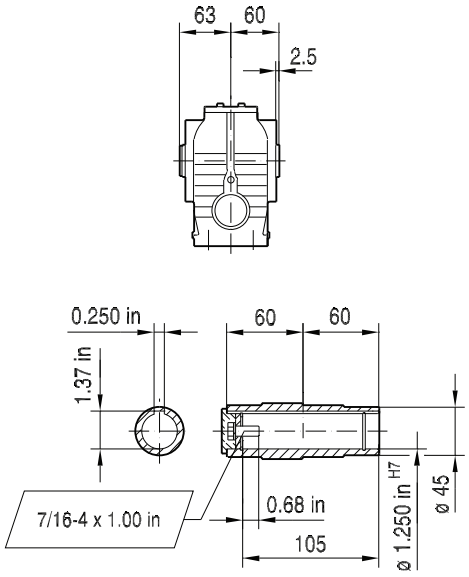
24833231/EN-US – 07/2021

SA47/SA47p..

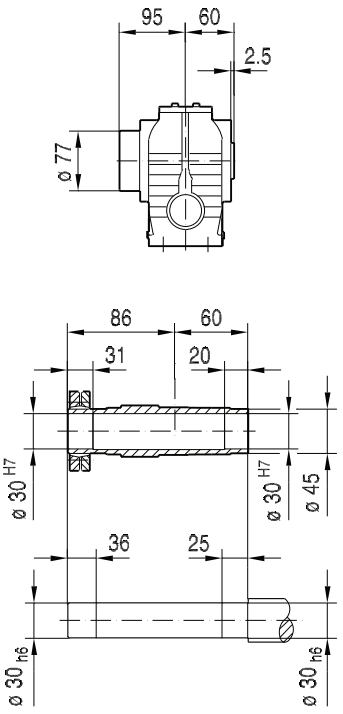
77 634 00 21



SA47/SA47p..



SH47/SH47p..



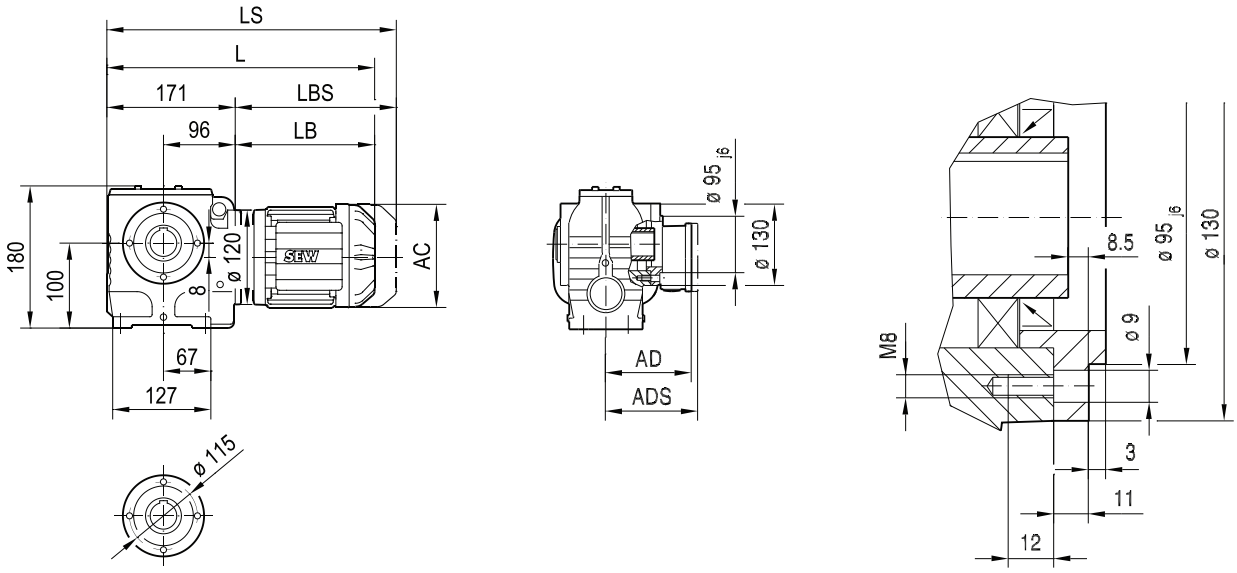
(→ 162)	DRN									
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	156	179	179	197
AD	98	98	118	118	128	128	128	140	140	157
ADS	98	98	129	129	139	139	139	150	150	158
L	361	375	377	397	408	425	453	454	486	535
LS	417	431	444	464	489	506	534	548	580	629
LB	190	204	206	226	237	254	282	283	315	364
LBS	246	260	273	293	318	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 879. For tolerances, see page 162.

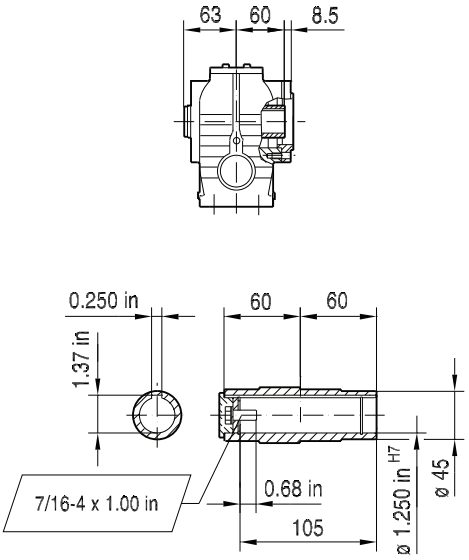
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SAZ47/SAZ47p..

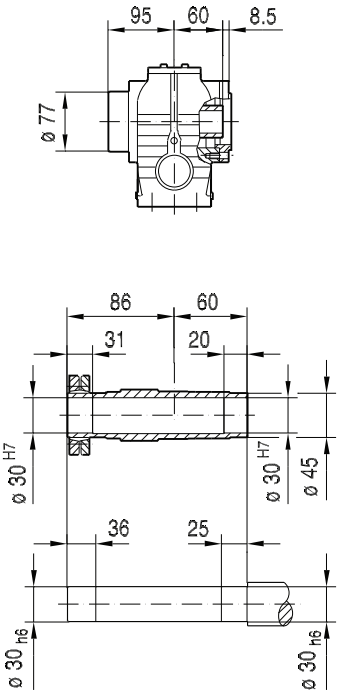
77 635 00 21



SAZ47/SAZ47p..



SHZ47/SHZ47p..



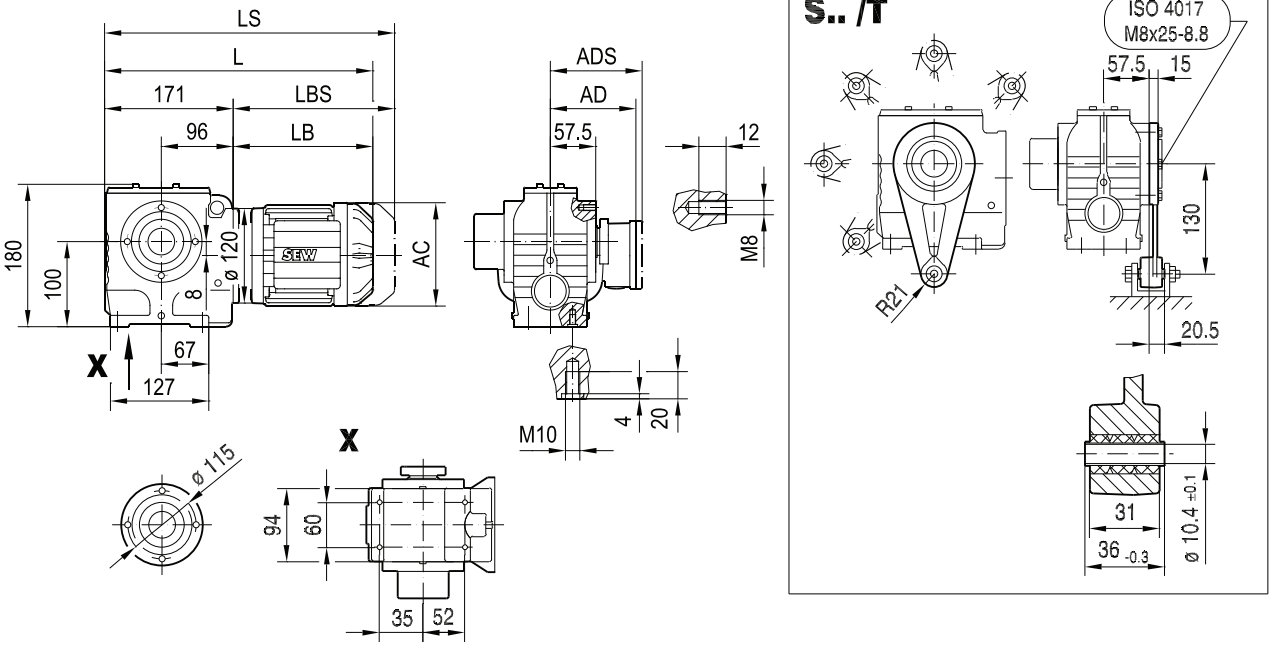
(→ 162)	DRN									
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	156	179	179	197
AD	98	98	118	118	128	128	128	140	140	157
ADS	98	98	129	129	139	139	139	150	150	158
L	361	375	377	397	408	425	453	454	486	535
LS	417	431	444	464	489	506	534	548	580	629
LB	190	204	206	226	237	254	282	283	315	364
LBS	246	260	273	293	318	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 879. For tolerances, see page 162.

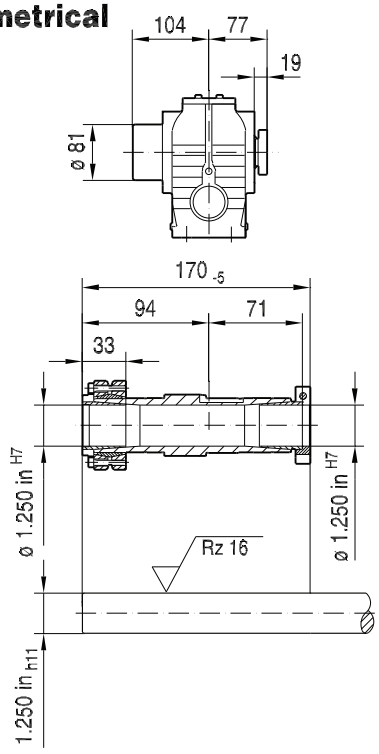
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ST47/ST47p..

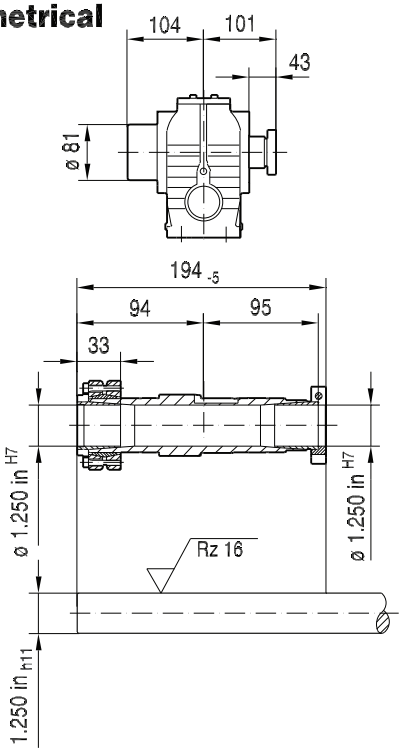
77 633 00 21



NON-Symmetrical



Symmetrical



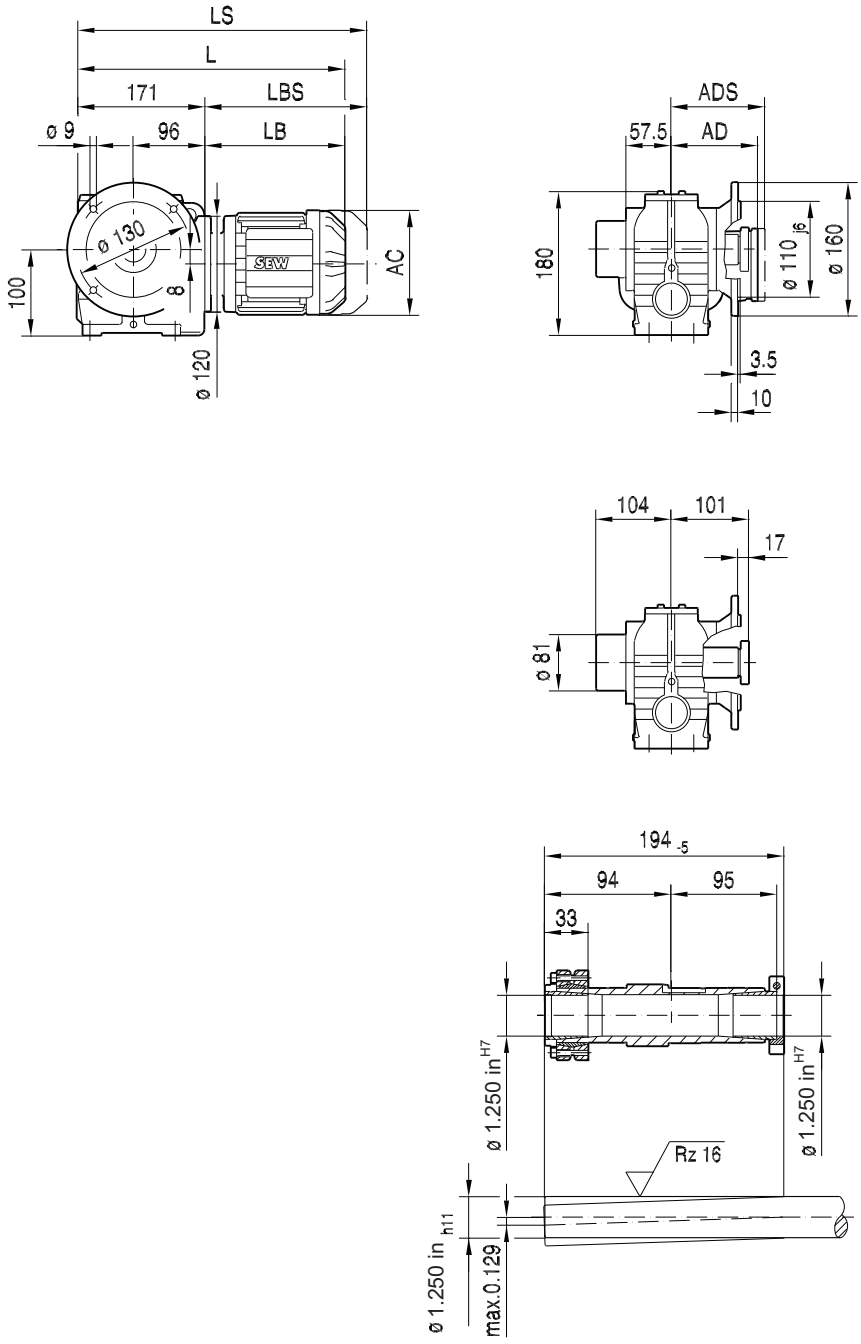
(→ 🗎 162)	DRN									
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	156	179	179	197
AD	98	98	118	118	128	128	128	140	140	157
ADS	98	98	129	129	139	139	139	150	150	158
L	361	375	377	397	408	425	453	454	486	535
LS	417	431	444	464	489	506	534	548	580	629
LB	190	204	206	226	237	254	282	283	315	364
LBS	246	260	273	293	318	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 881. For tolerances, see page 162.

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STF47/STF47p..

77 636 00 21



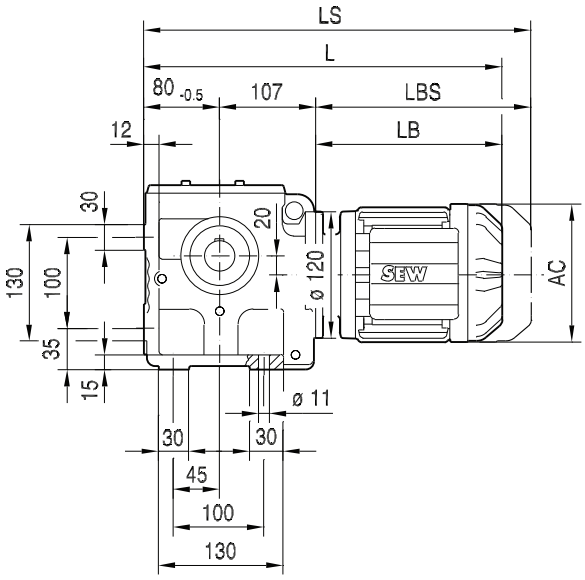
(→ 162)	DRN									
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L	100L/LM
AC	115	115	139	139	156	156	156	179	179	197
AD	98	98	118	118	128	128	128	140	140	157
ADS	98	98	129	129	139	139	139	150	150	158
L	361	375	377	397	408	425	453	454	486	535
LS	417	431	444	464	489	506	534	548	580	629
LB	190	204	206	226	237	254	282	283	315	364
LBS	246	260	273	293	318	335	363	377	409	458

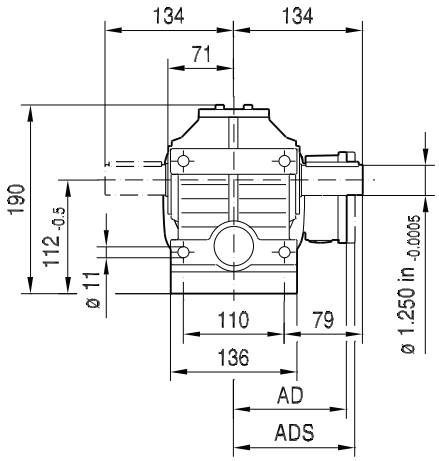
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 881. For tolerances, see page 162.

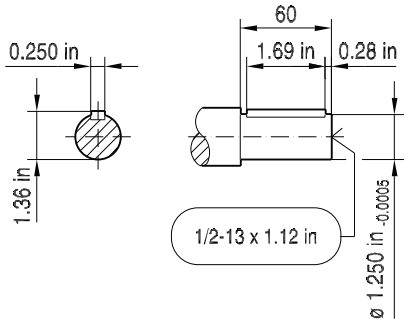
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77 637 00 21

S57/S57p..







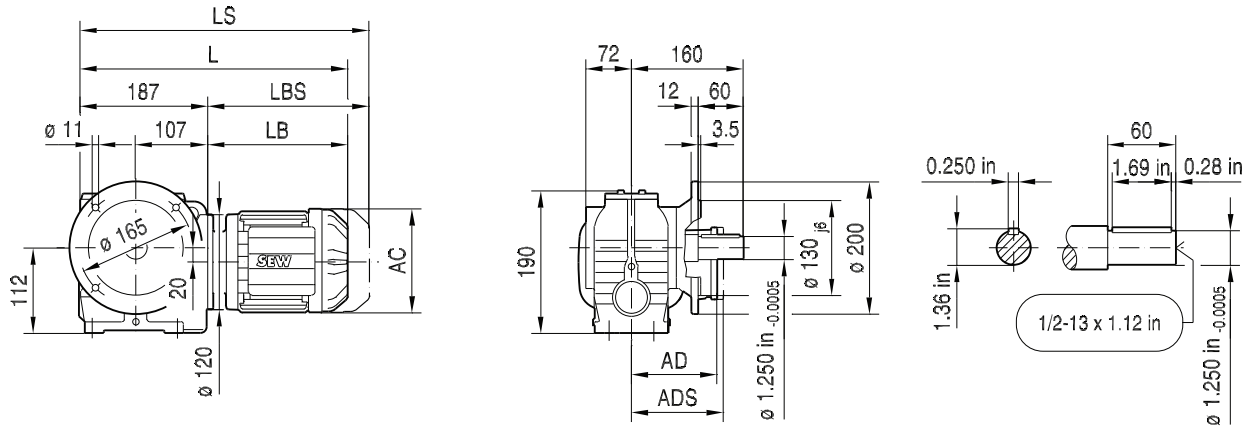
(→ 🗎 162)	DRN							
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	139	139	156	156	179	179	197
AD	98	118	118	128	128	140	140	157
ADS	98	129	129	139	139	150	150	158
L	391	393	413	424	469	470	502	551
LS	447	460	480	505	550	564	596	645
LB	204	206	226	237	282	283	315	364
LBS	260	273	293	318	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 877. For tolerances, see page 162.

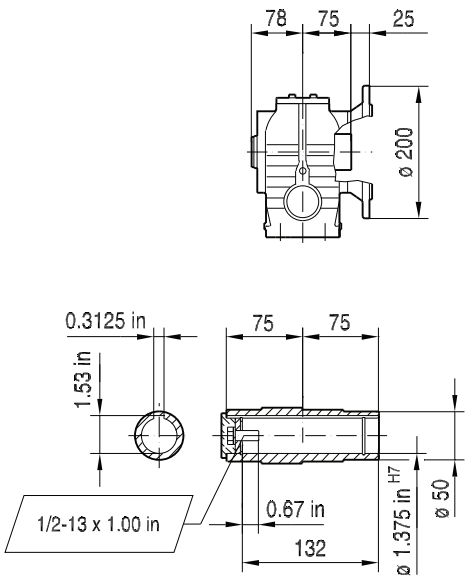
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SF57/SF57p..

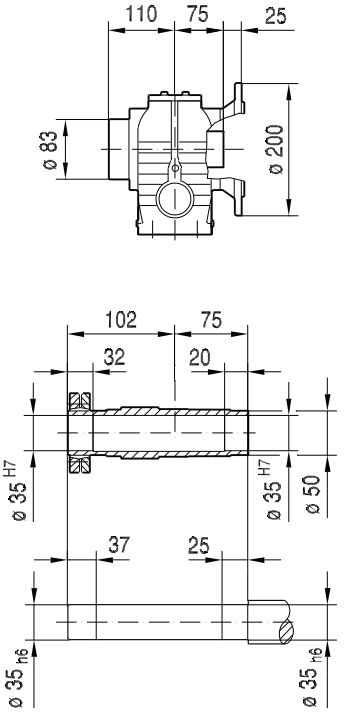
77 638 00 21



SAF57/SAF57p..



SHF57/SHF57p..



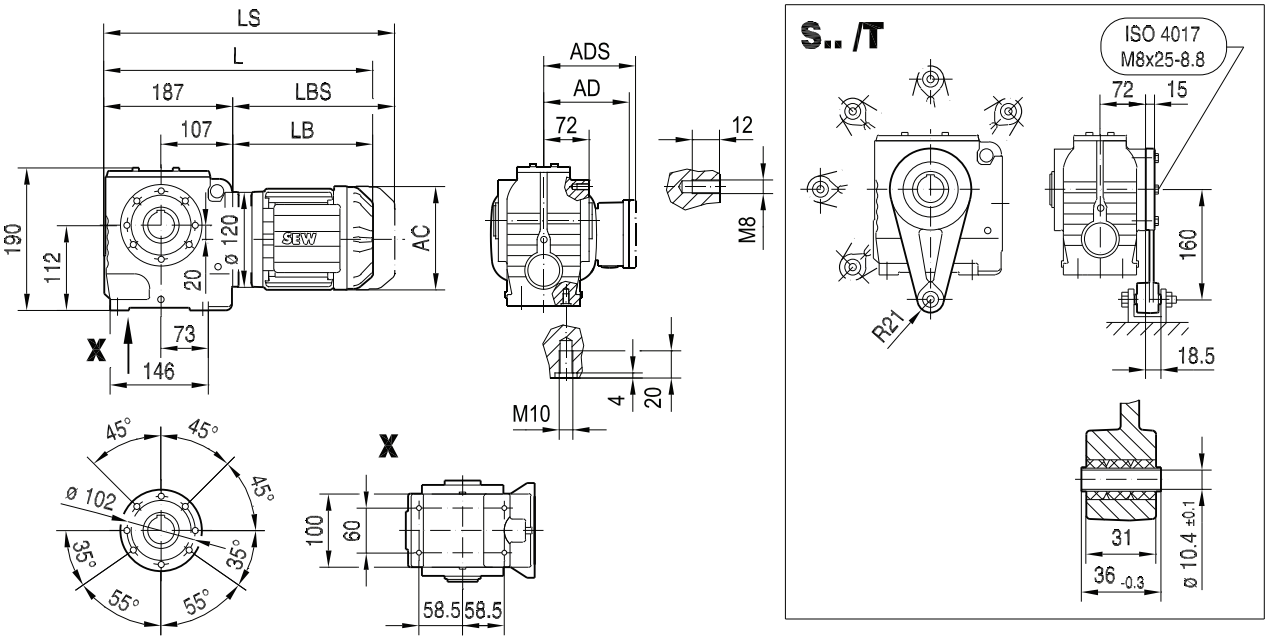
(→ 162)	DRN							
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	139	139	156	156	179	179	197
AD	98	118	118	128	128	140	140	157
ADS	98	129	129	139	139	150	150	158
L	391	393	413	424	469	470	502	551
LS	447	460	480	505	550	564	596	645
LB	204	206	226	237	282	283	315	364
LBS	260	273	293	318	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 877. For tolerances, see page 162.

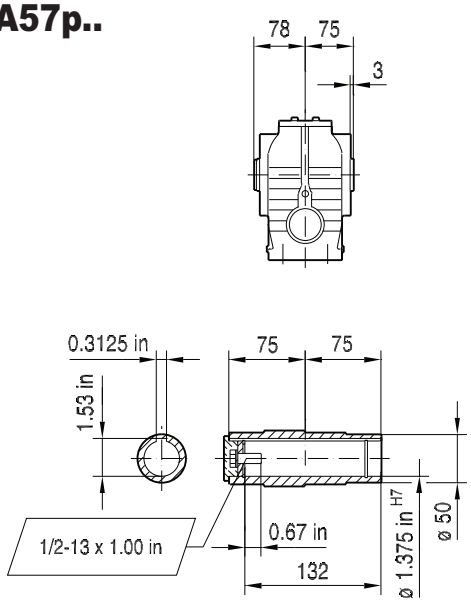
24833231/EN-US – 07/2021

SA57/SA57p..

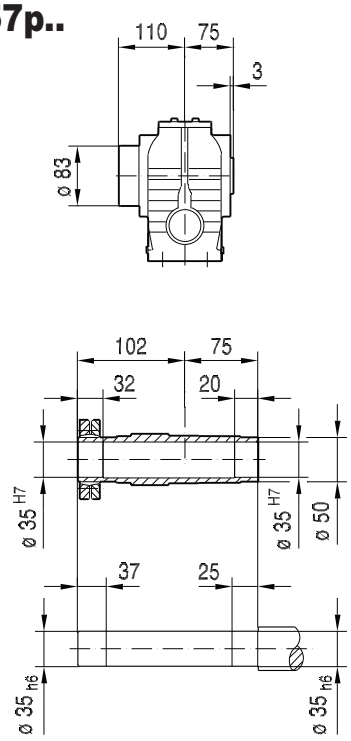
77 639 00 21



SA57/SA57p..



SH57/SH57p..



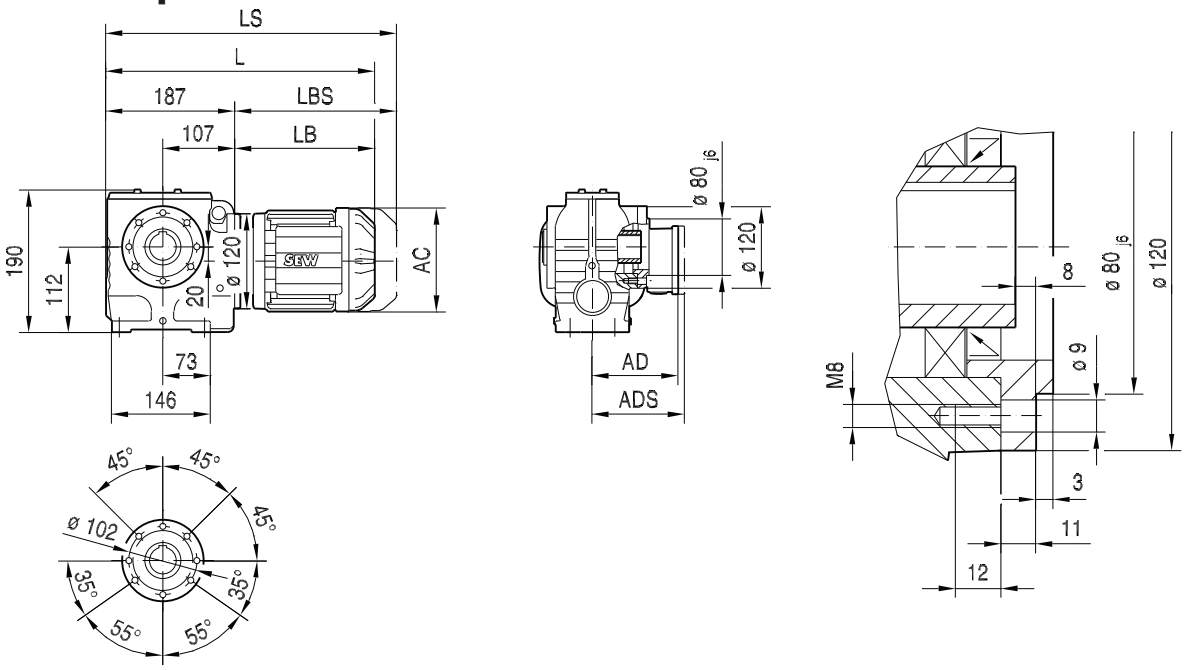
(→ 162)	DRN							
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	139	139	156	156	179	179	197
AD	98	118	118	128	128	140	140	157
ADS	98	129	129	139	139	150	150	158
L	391	393	413	424	469	470	502	551
LS	447	460	480	505	550	564	596	645
LB	204	206	226	237	282	283	315	364
LBS	260	273	293	318	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 879. For tolerances, see page 162.

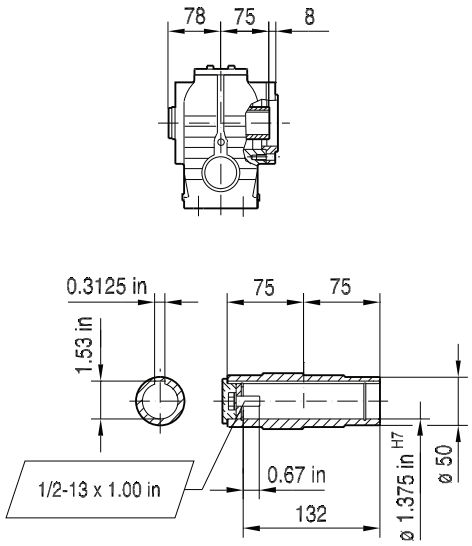
24833231/EN-US – 07/2021

SAZ57/SAZ57p..

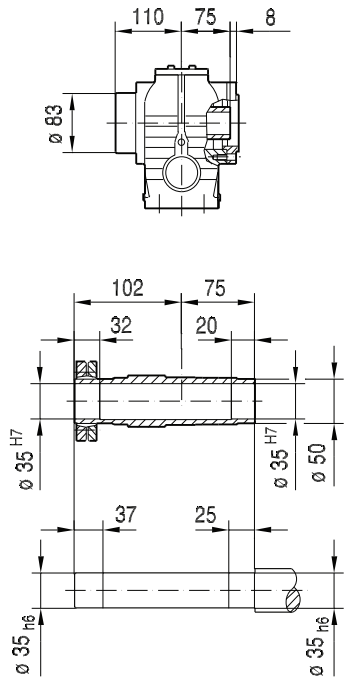
77 640 00 21



SAZ57/SAZ57p..



SHZ57/SHZ57p..



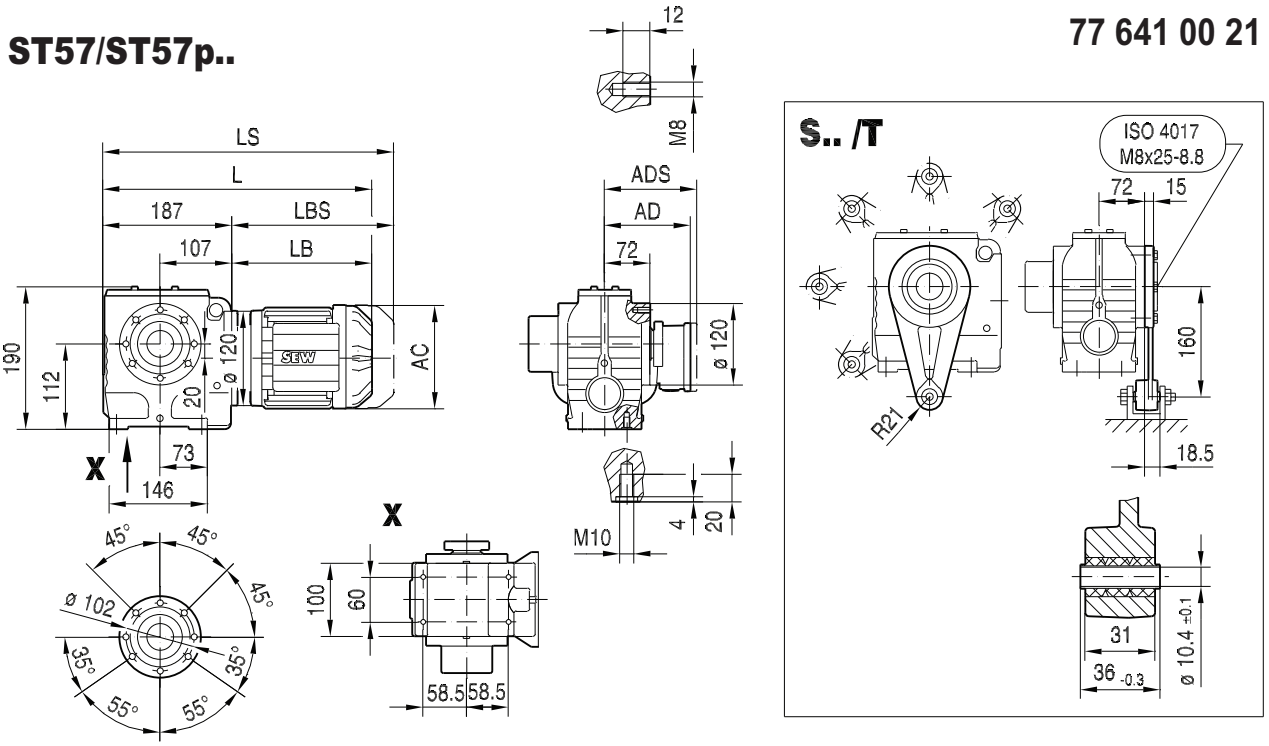
(→ 162)	DRN							
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	139	139	156	156	179	179	197
AD	98	118	118	128	128	140	140	157
ADS	98	129	129	139	139	150	150	158
L	391	393	413	424	469	470	502	551
LS	447	460	480	505	550	564	596	645
LB	204	206	226	237	282	283	315	364
LBS	260	273	293	318	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 879. For tolerances, see page 162.

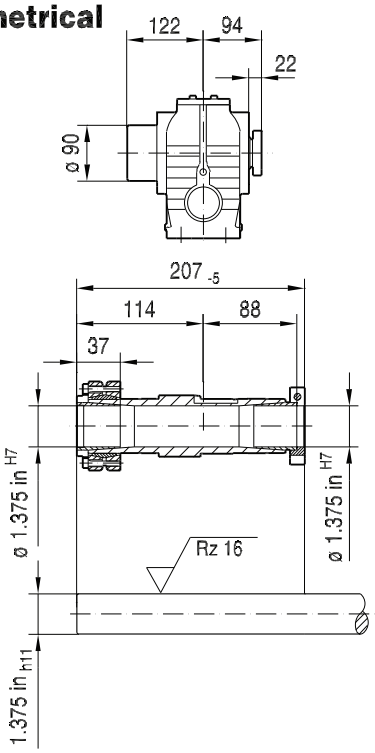
24833231/EN-US – 07/2021

ST57/ST57p..

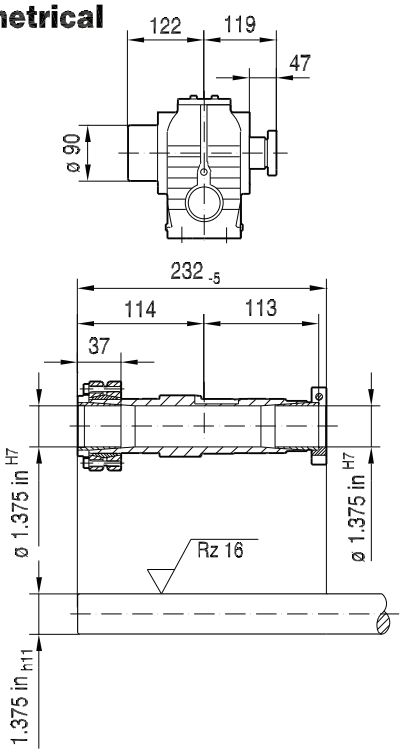
77 641 00 21



NON-Symmetrical



Symmetrical



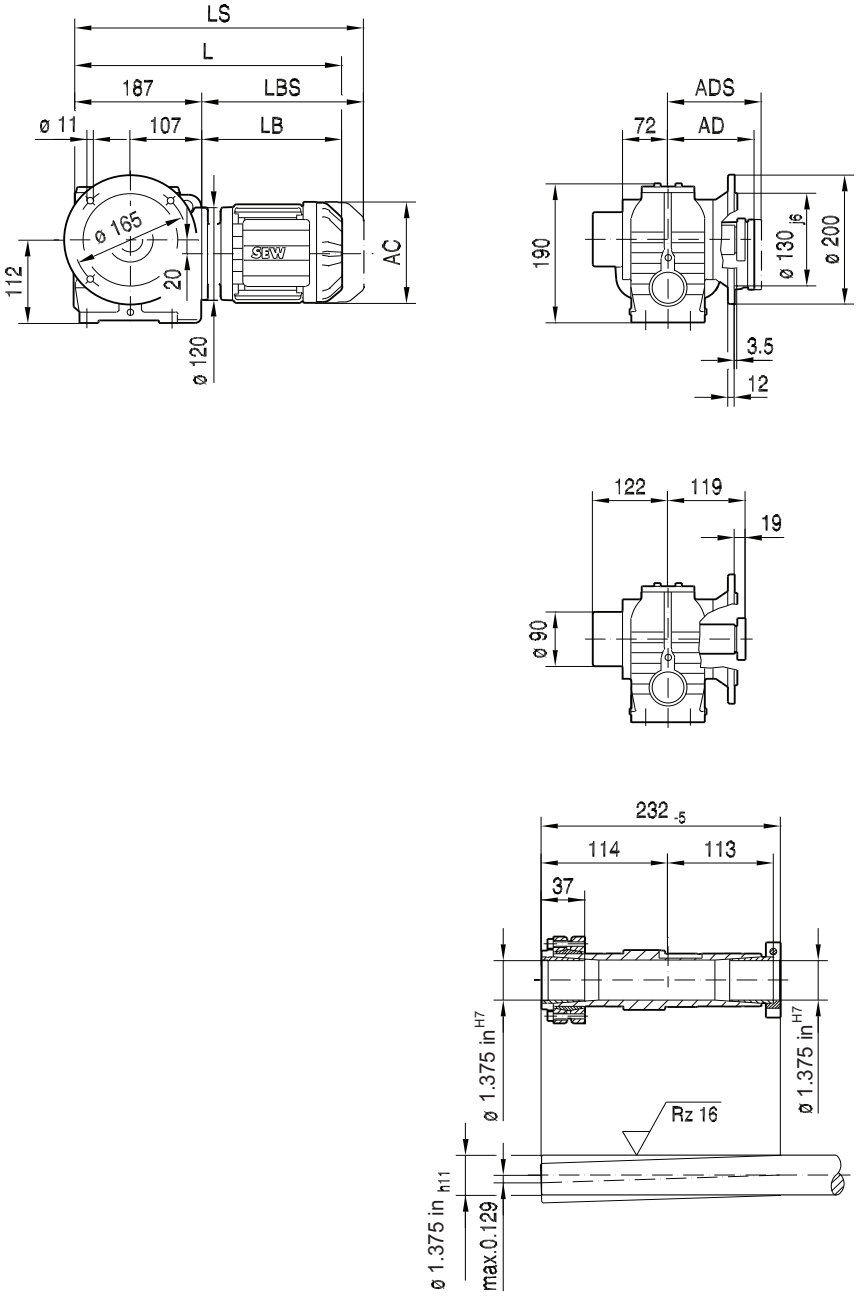
(→ 🗎 162)	DRN							
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	139	139	156	156	179	179	197
AD	98	118	118	128	128	140	140	157
ADS	98	129	129	139	139	150	150	158
L	391	393	413	424	469	470	502	551
LS	447	460	480	505	550	564	596	645
LB	204	206	226	237	282	283	315	364
LBS	260	273	293	318	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 881. For tolerances, see page 162.

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77 642 00 21

STF57/STF57p..



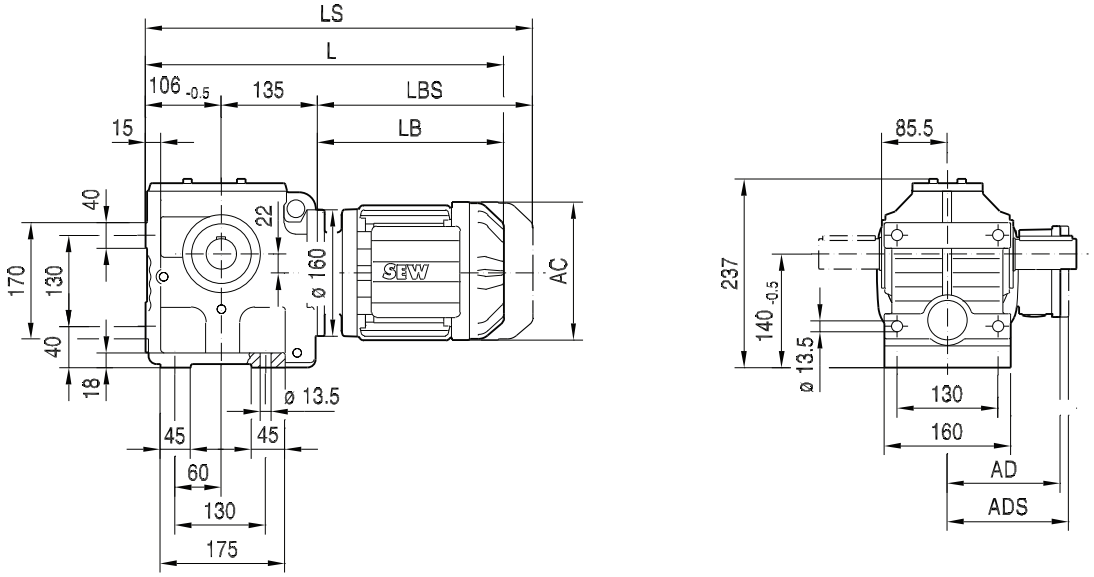
(→ 🗎 162)	DRN							
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM
AC	115	139	139	156	156	179	179	197
AD	98	118	118	128	128	140	140	157
ADS	98	129	129	139	139	150	150	158
L	391	393	413	424	469	470	502	551
LS	447	460	480	505	550	564	596	645
LB	204	206	226	237	282	283	315	364
LBS	260	273	293	318	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 881. For tolerances, see page 162.

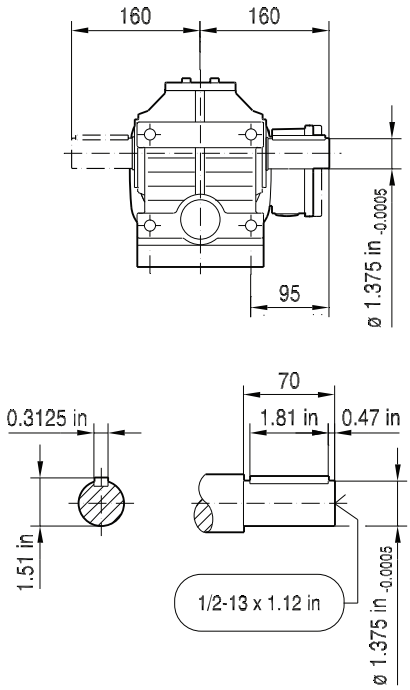
24833231/EN-US – 07/2021

77 643 00 21

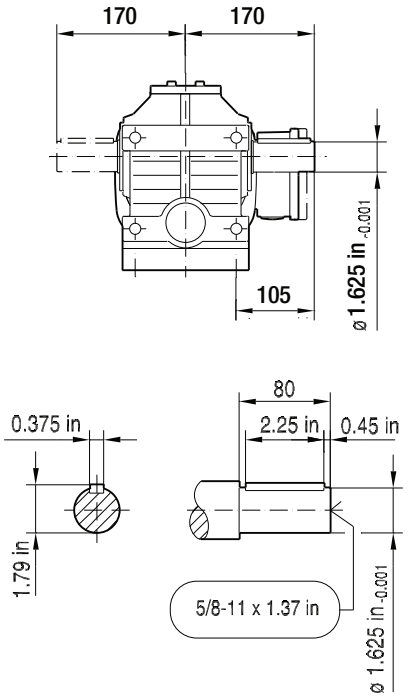
S67/S67p..



S67..



S67/S67p..



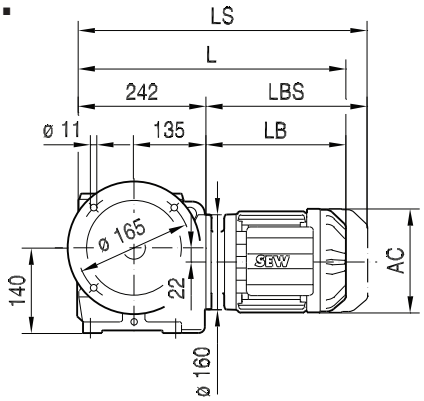
(→ 🗎 162)	DRN								
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S
AC	139	139	156	156	179	179	197	221	221
AD	118	118	128	128	140	140	157	170	170
ADS	129	129	139	139	150	150	158	172	172
L	440	460	471	516	518	550	596	627	681
LS	508	528	552	597	611	643	690	739	793
LB	199	219	230	275	277	309	355	386	440
LBS	267	287	311	356	370	402	449	498	552

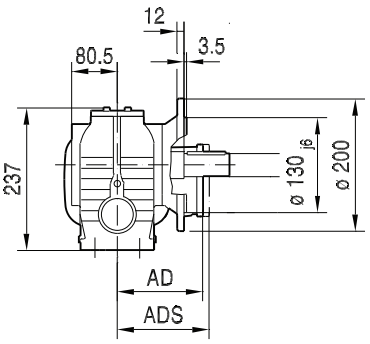
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 877. For tolerances, see page 162.

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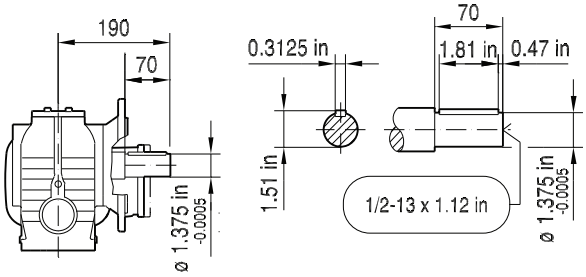
SF67/SF67p..

77 644 00 21

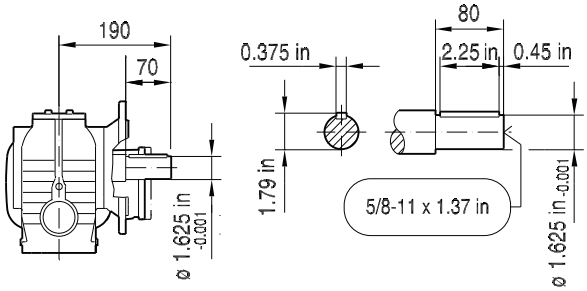




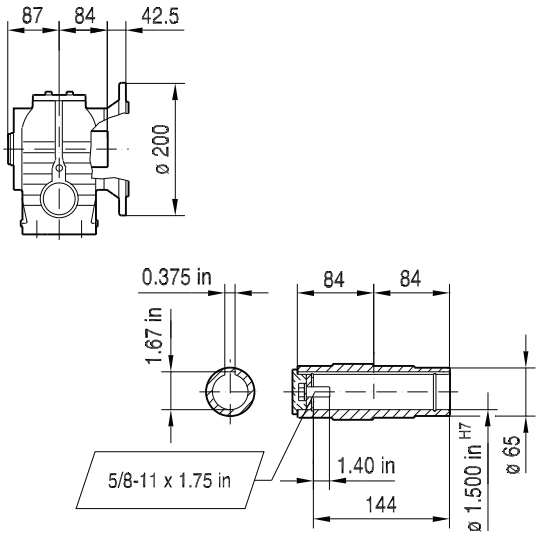
SF67..



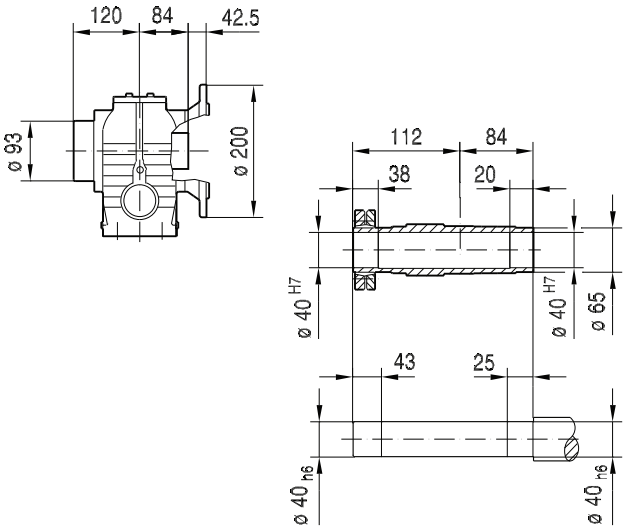
SF67/SF67p..



SAF67/SAF67p..



SHF67/SHF67p..



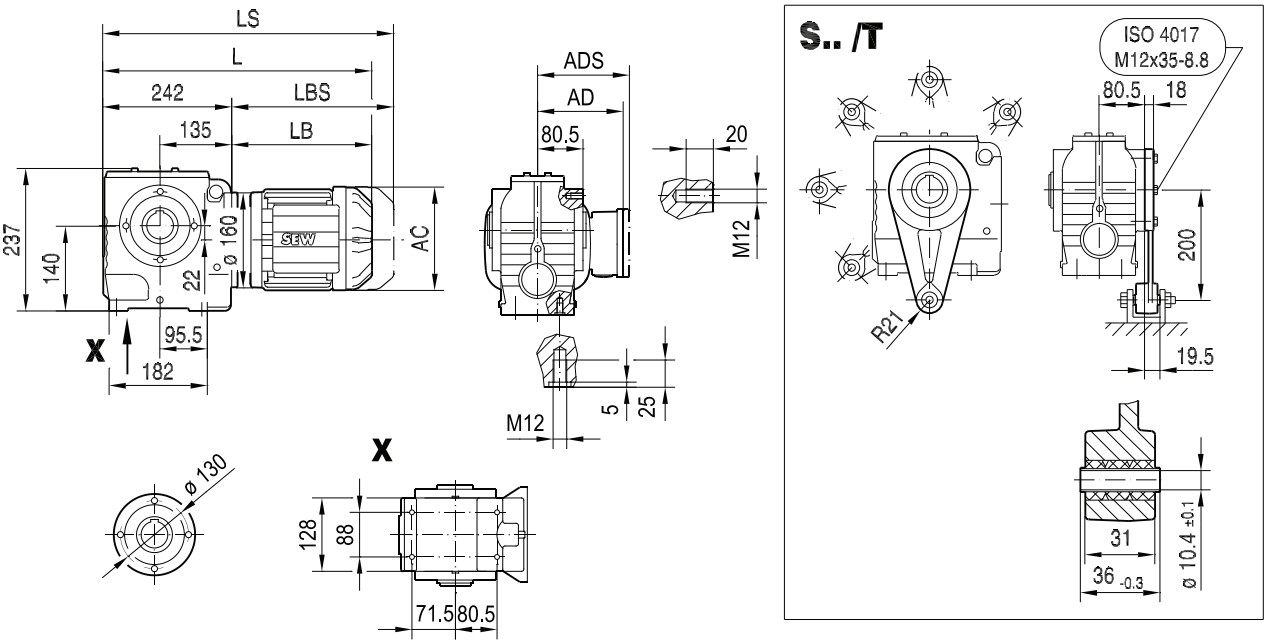
(→ 162)	DRN								
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S
AC	139	139	156	156	179	179	197	221	221
AD	118	118	128	128	140	140	157	170	170
ADS	129	129	139	139	150	150	158	172	172
L	441	461	472	517	519	551	597	628	682
LS	509	529	553	598	612	644	691	740	794
LB	199	219	230	275	277	309	355	386	440
LBS	267	287	311	356	370	402	449	498	552

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 877. For tolerances, see page 162.

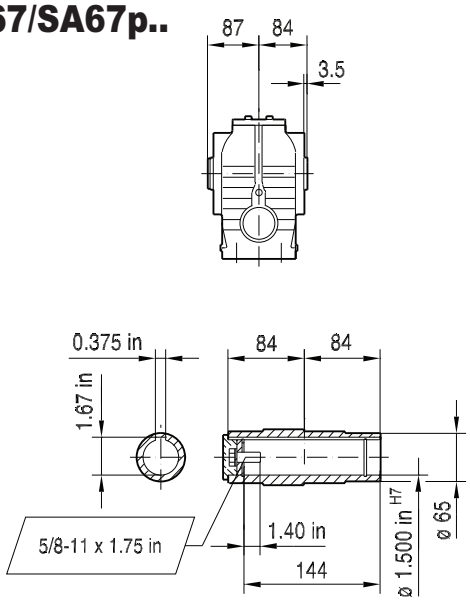
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SA67/SA67p..

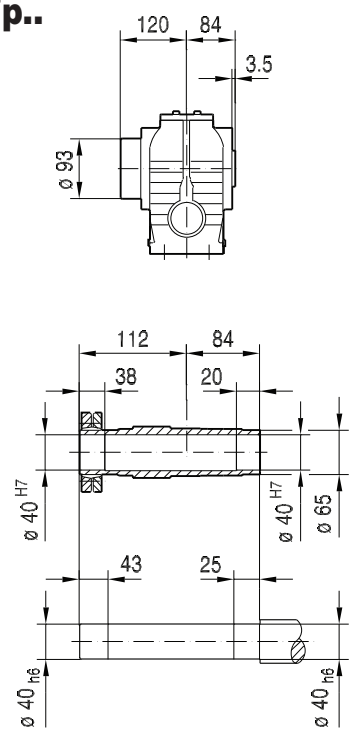
77 645 00 21



SA67/SA67p..



SH67/SH67p..



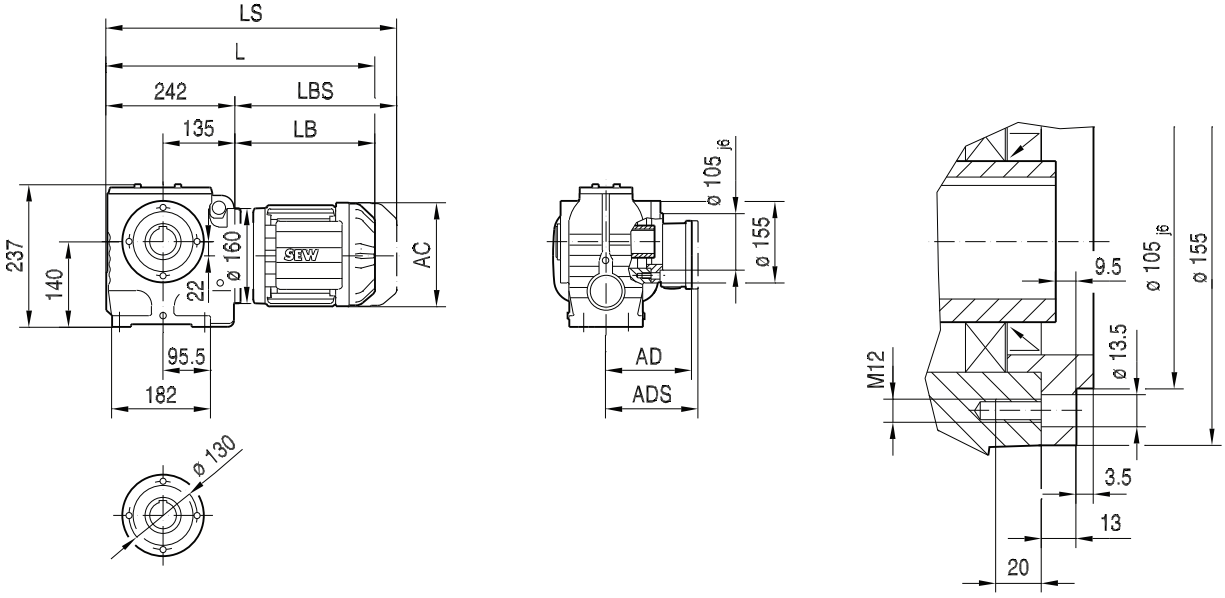
(→ 162)	DRN								
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S
AC	139	139	156	156	179	179	197	221	221
AD	118	118	128	128	140	140	157	170	170
ADS	129	129	139	139	150	150	158	172	172
L	441	461	472	517	519	551	597	628	682
LS	509	529	553	598	612	644	691	740	794
LB	199	219	230	275	277	309	355	386	440
LBS	267	287	311	356	370	402	449	498	552

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 879. For tolerances, see page 162.

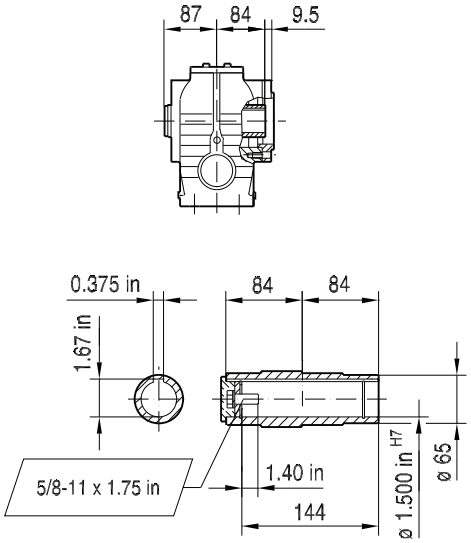
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77 646 00 21

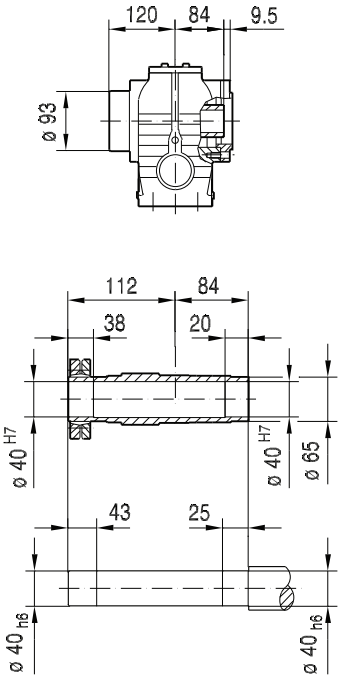
SAZ67/SAZ67p..



SAZ67/SAZ67p..



SHZ67/SHZ67p..



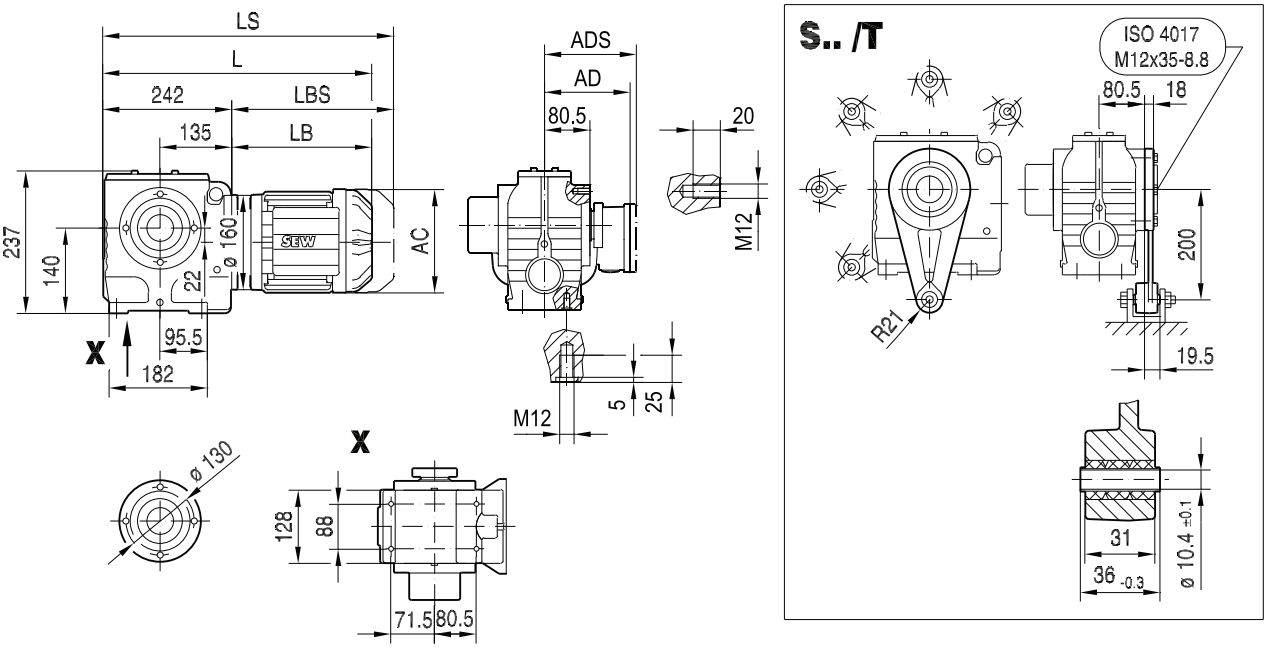
(→ 162)	DRN								
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S
AC	139	139	156	156	179	179	197	221	221
AD	118	118	128	128	140	140	157	170	170
ADS	129	129	139	139	150	150	158	172	172
L	441	461	472	517	519	551	597	628	682
LS	509	529	553	598	612	644	691	740	794
LB	199	219	230	275	277	309	355	386	440
LBS	267	287	311	356	370	402	449	498	552

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 879. For tolerances, see page 162.

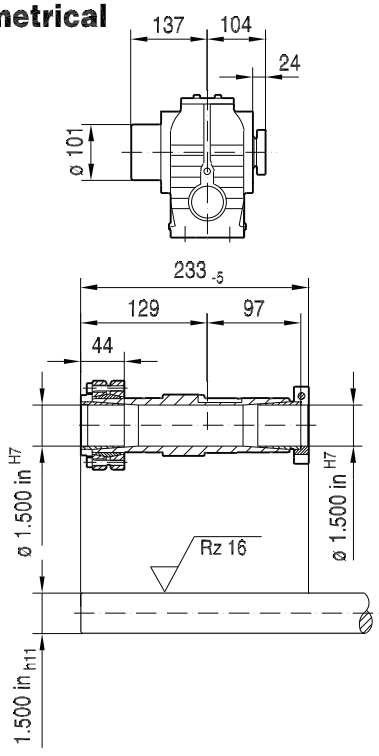
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ST67/ST67p..

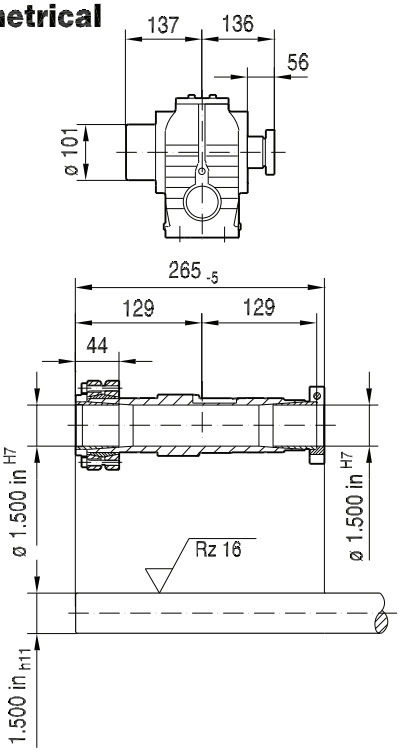
77 647 00 21



NON-Symmetrical



Symmetrical



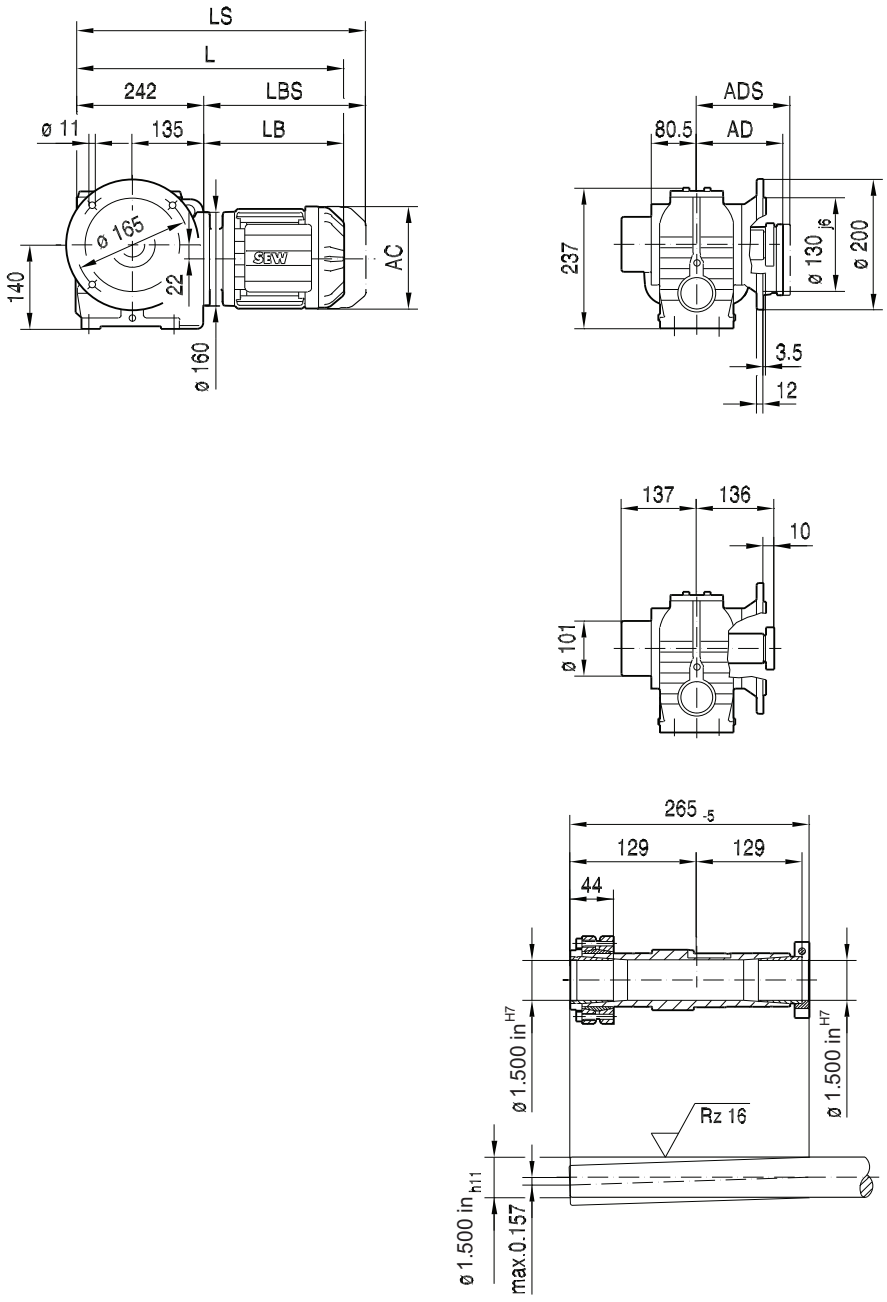
(→ 🗎 162)	DRN								
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S
AC	139	139	156	156	179	179	197	221	221
AD	118	118	128	128	140	140	157	170	170
ADS	129	129	139	139	150	150	158	172	172
L	441	461	472	517	519	551	597	628	682
LS	509	529	553	598	612	644	691	740	794
LB	199	219	230	275	277	309	355	386	440
LBS	267	287	311	356	370	402	449	498	552

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 881. For tolerances, see page 162.

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STF67/STF67p..

77 648 00 21



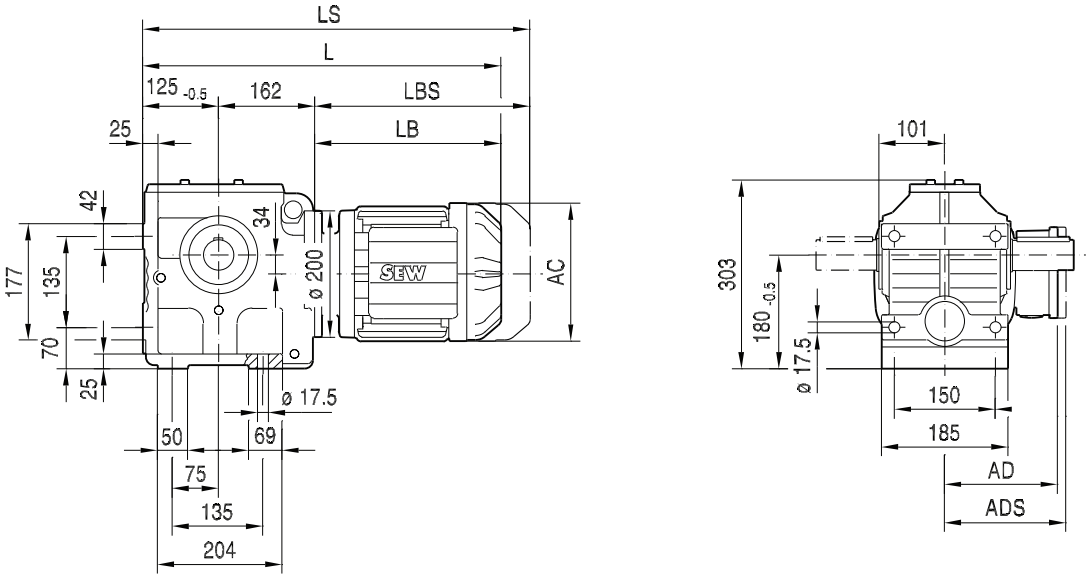
(→ 162)	DRN								
	71MS	71M	80MK	80M	90S	90L	100L/LM	112M	132S
AC	139	139	156	156	179	179	197	221	221
AD	118	118	128	128	140	140	157	170	170
ADS	129	129	139	139	150	150	158	172	172
L	441	461	472	517	519	551	597	628	682
LS	509	529	553	598	612	644	691	740	794
LB	199	219	230	275	277	309	355	386	440
LBS	267	287	311	356	370	402	449	498	552

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 881. For tolerances, see page 162.

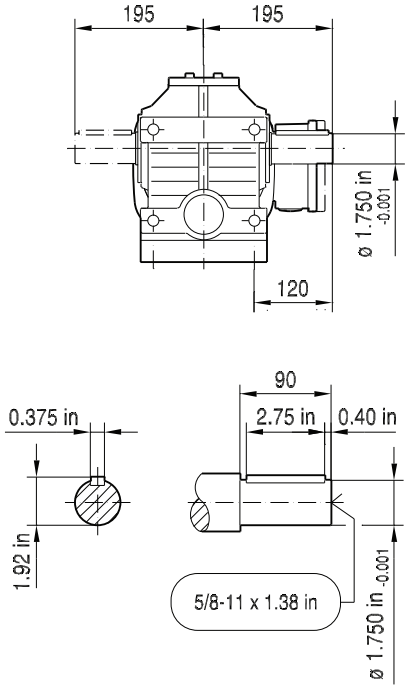
24833231/EN-US – 07/2021

77 649 00 21

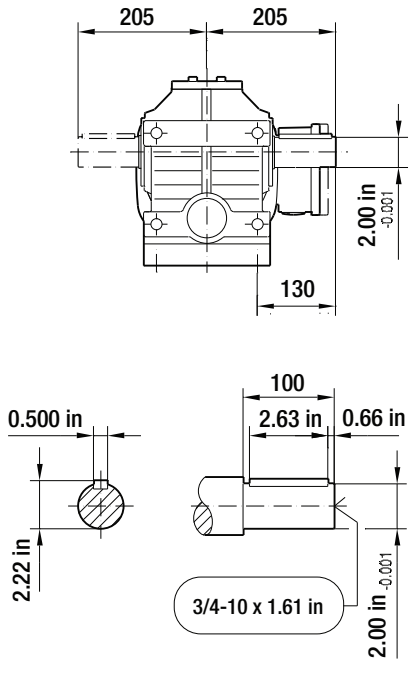
S77/S77p..



S77..



S77/S77p..



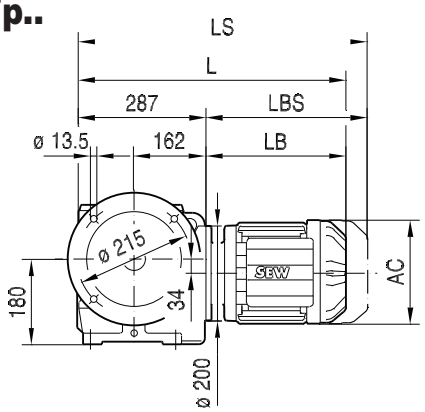
(→ 162)	DRN									
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	156	156	179	179	197	221	221	261	261	314
AD	128	128	140	140	157	170	170	228	228	253
ADS	139	139	150	150	158	172	172	228	228	253
L	510	555	557	589	635	666	716	734	760	826
LS	591	636	650	682	729	778	828	872	897	1015
LB	223	268	270	302	348	379	429	447	473	539
LBS	304	349	363	395	442	491	541	585	610	728

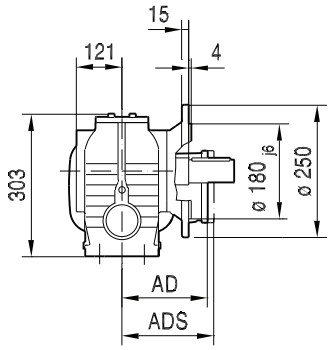
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 877. For tolerances, see page 162.

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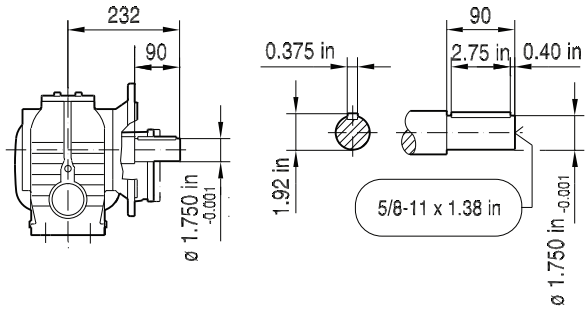
77 650 00 21

SF77/SF77p..

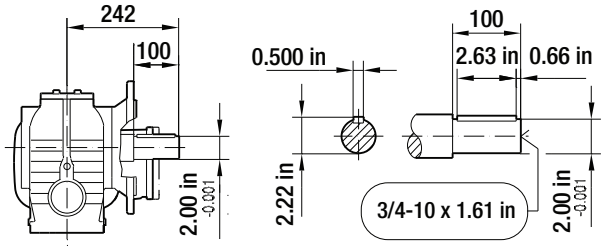




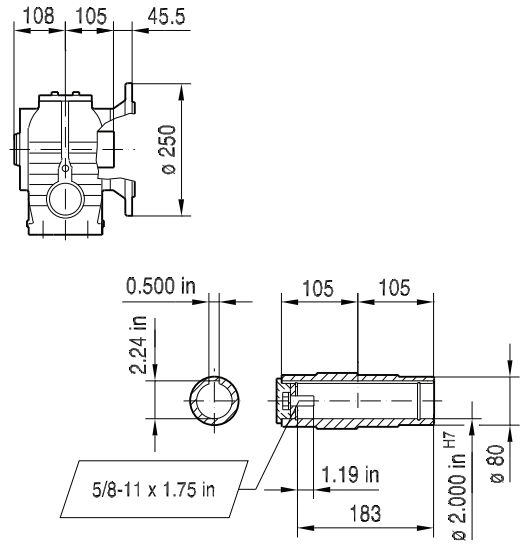
SF77..



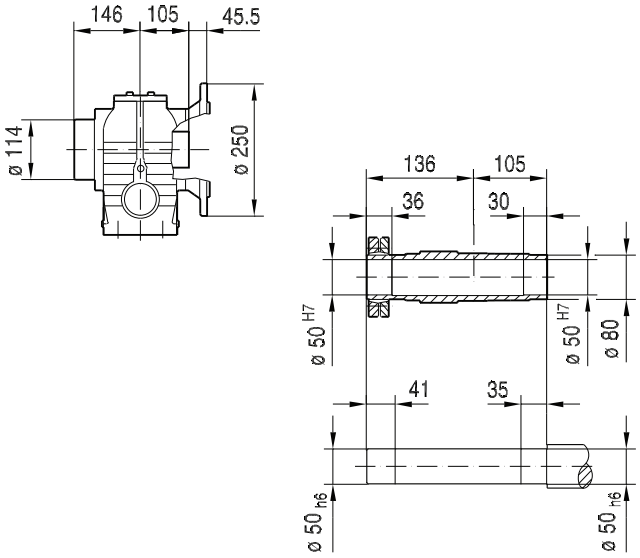
SF77/SF77p..



SAF77/SAF77p..



SHF77/SHF77p..



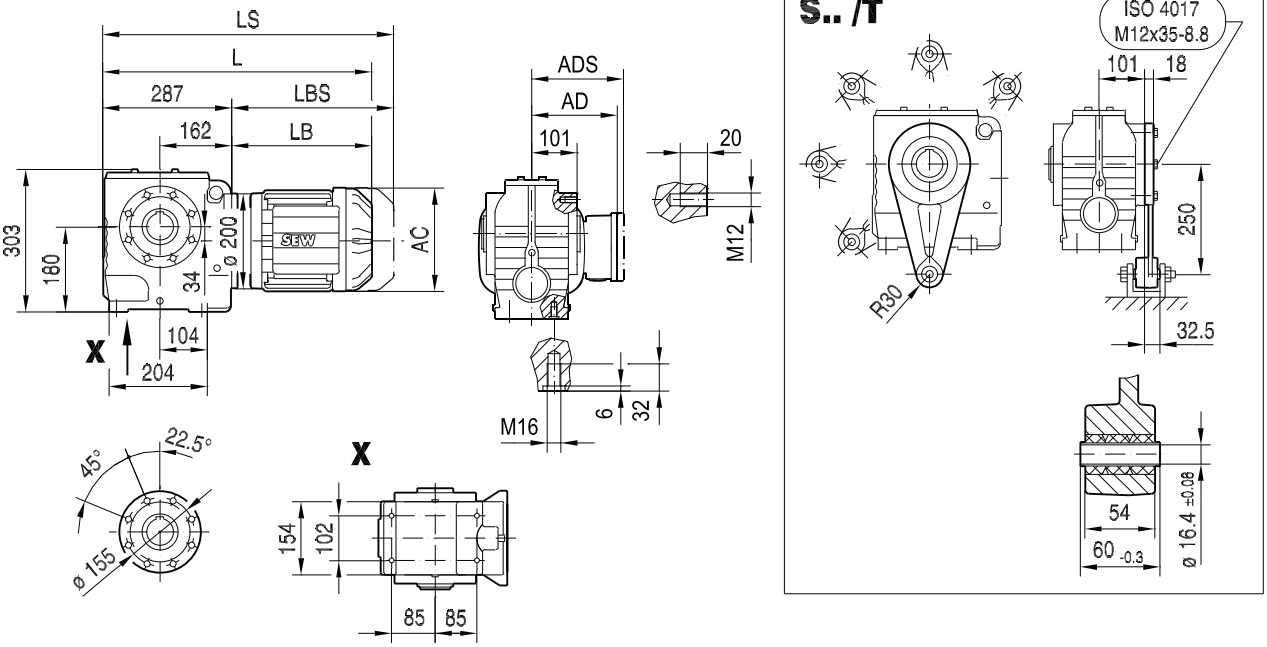
(→ 162)	DRN									
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	156	156	179	179	197	221	221	261	261	314
AD	128	128	140	140	157	170	170	228	228	253
ADS	139	139	150	150	158	172	172	228	228	253
L	510	555	557	589	635	666	716	734	760	826
LS	591	636	650	682	729	778	828	872	897	1015
LB	223	268	270	302	348	379	429	447	473	539
LBS	304	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 877. For tolerances, see page 162.

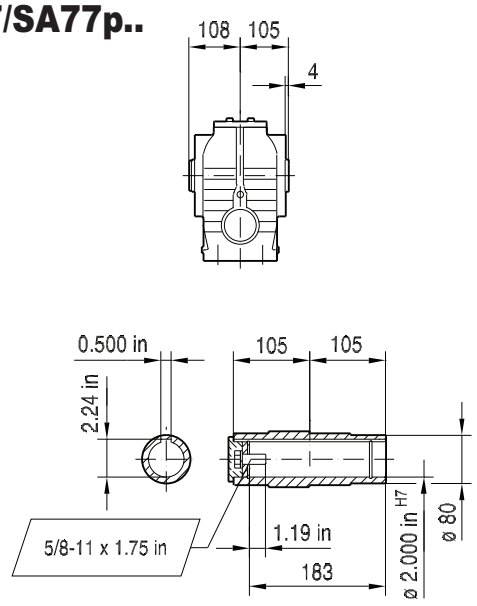
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SA77/SA77p..

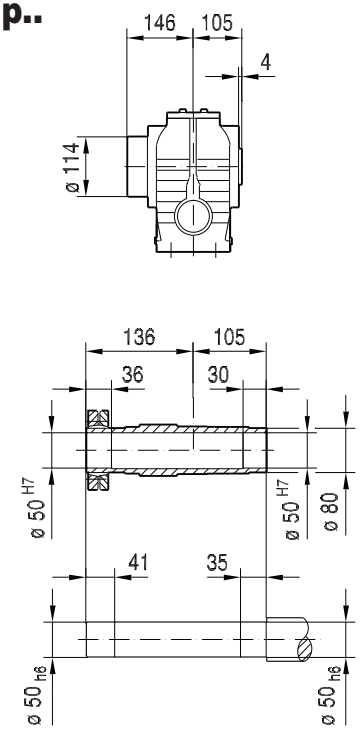
77 651 00 21



SA77/SA77p..



SH77/SH77p..



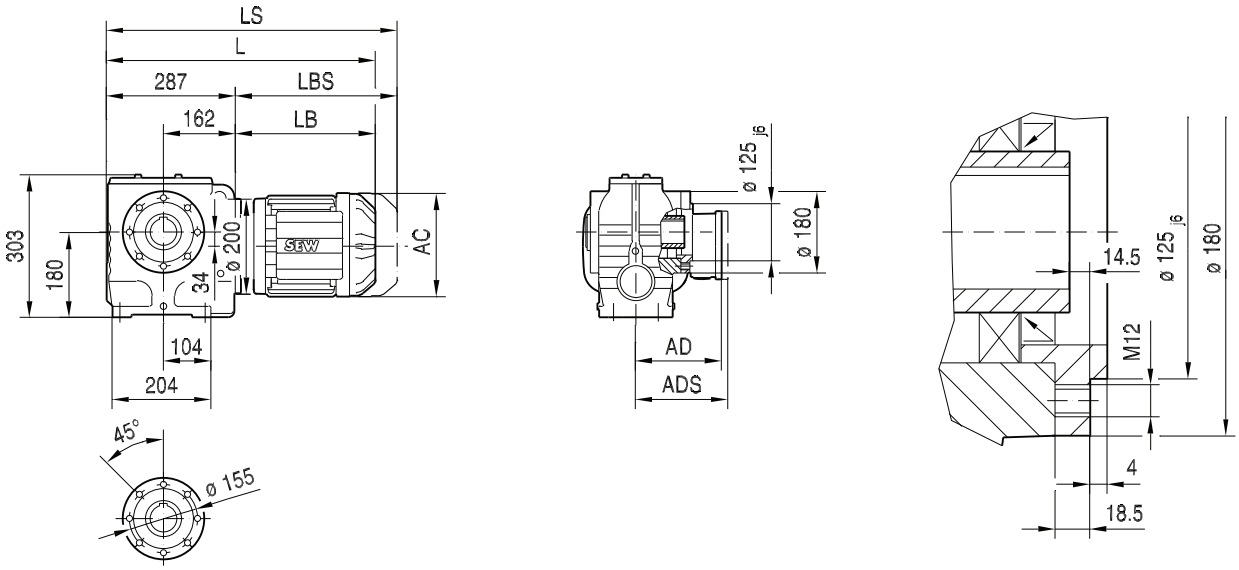
(→ 162)	DRN									
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	156	156	179	179	197	221	221	261	261	314
AD	128	128	140	140	157	170	170	228	228	253
ADS	139	139	150	150	158	172	172	228	228	253
L	510	555	557	589	635	666	716	734	760	826
LS	591	636	650	682	729	778	828	872	897	1015
LB	223	268	270	302	348	379	429	447	473	539
LBS	304	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 879. For tolerances, see page 162.

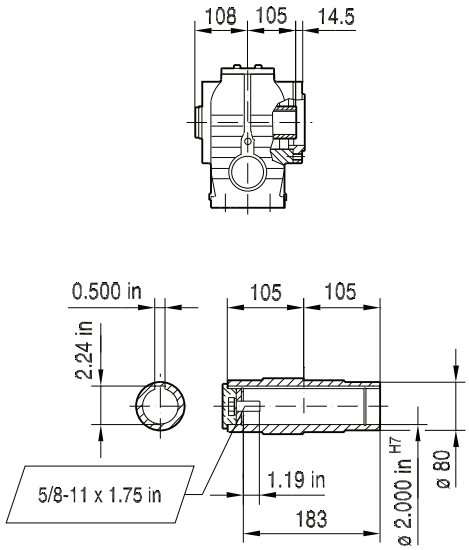
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SAZ77/SAZ77p..

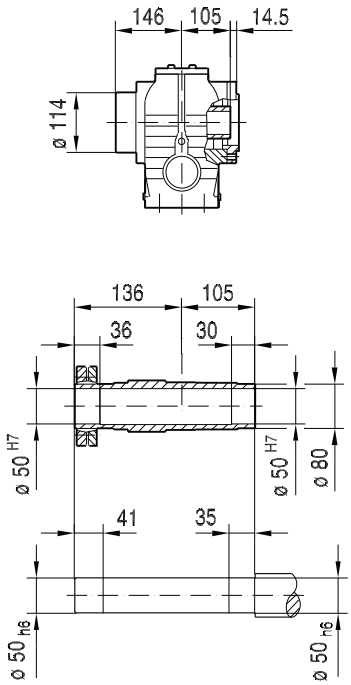
77 652 00 21



SA77/SA77p..



SH77/SH77p..



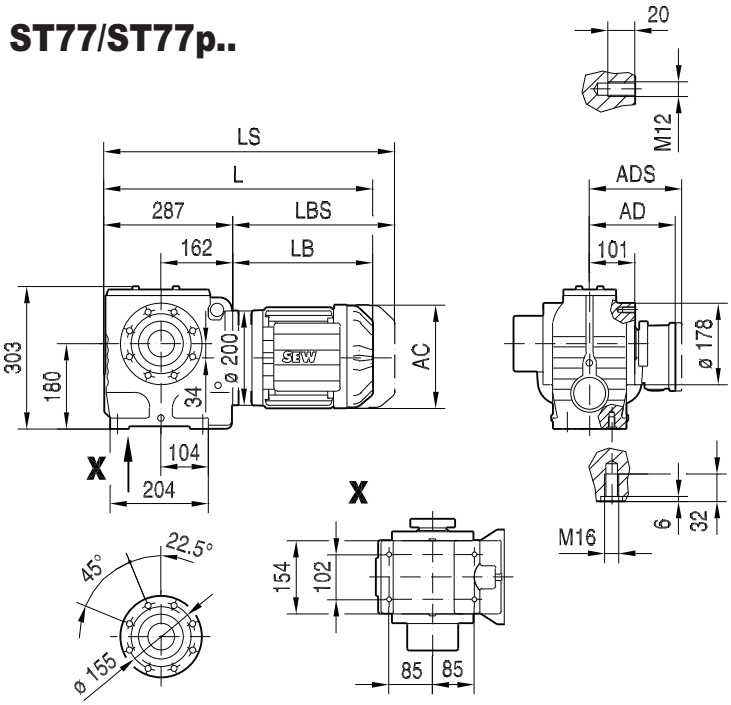
(→ 162)	DRN									
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	156	156	179	179	197	221	221	261	261	314
AD	128	128	140	140	157	170	170	228	228	253
ADS	139	139	150	150	158	172	172	228	228	253
L	510	555	557	589	635	666	716	734	760	826
LS	591	636	650	682	729	778	828	872	897	1015
LB	223	268	270	302	348	379	429	447	473	539
LBS	304	349	363	395	442	491	541	585	610	728

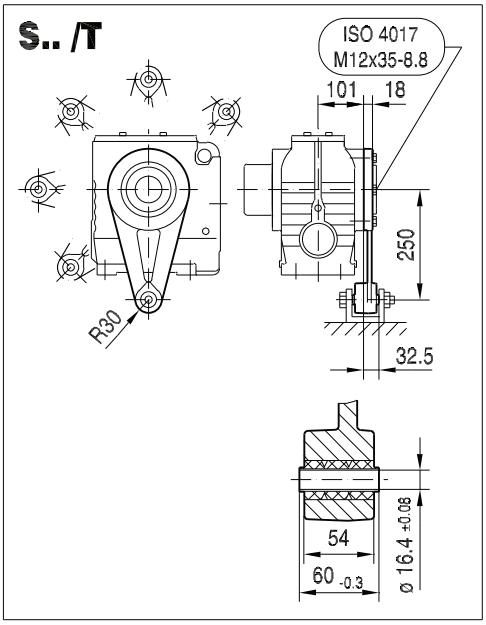
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 879. For tolerances, see page 162.

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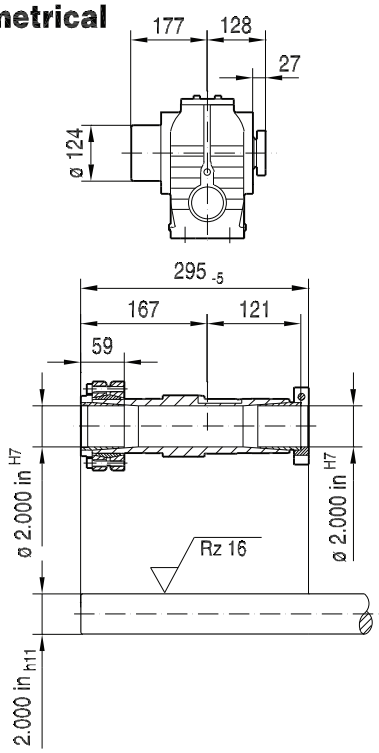
ST77/ST77p..

77 653 00 21

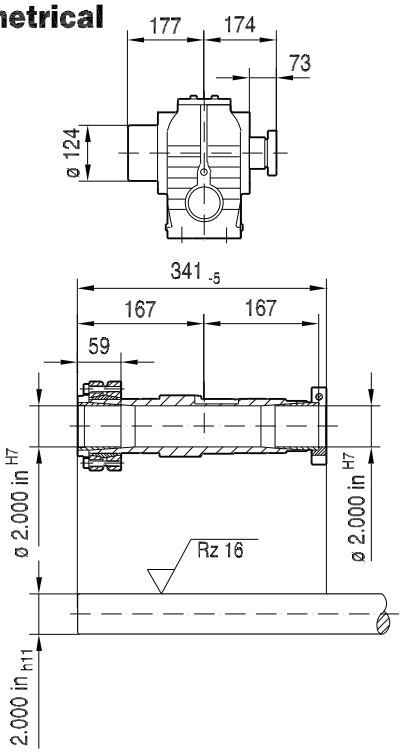




NON-Symmetrical



Symmetrical



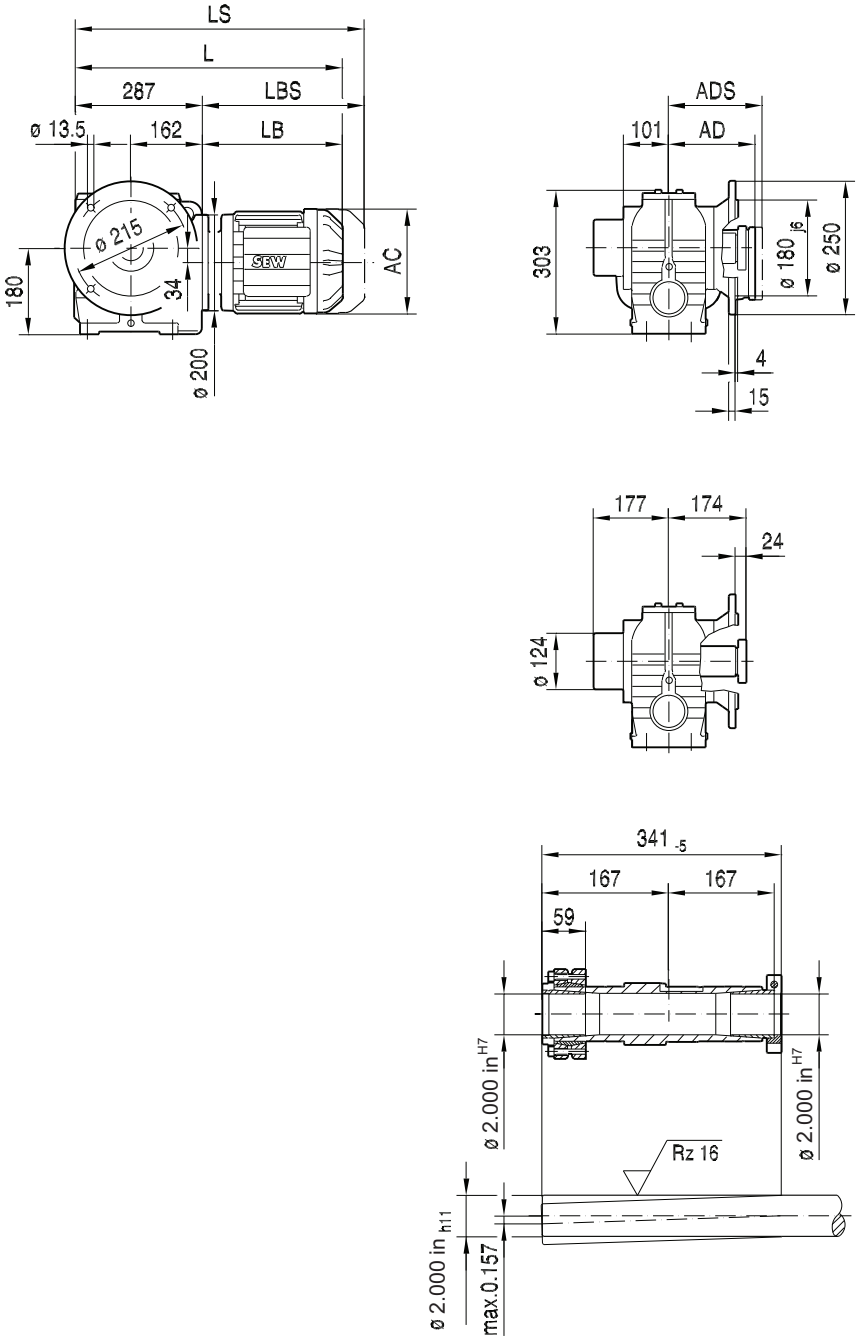
(→ 162)	DRN									
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	156	156	179	179	197	221	221	261	261	314
AD	128	128	140	140	157	170	170	228	228	253
ADS	139	139	150	150	158	172	172	228	228	253
L	510	555	557	589	635	666	716	734	760	826
LS	591	636	650	682	729	778	828	872	897	1015
LB	223	268	270	302	348	379	429	447	473	539
LBS	304	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 881. For tolerances, see page 162.

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77 654 00 21

STF77/STF77p..



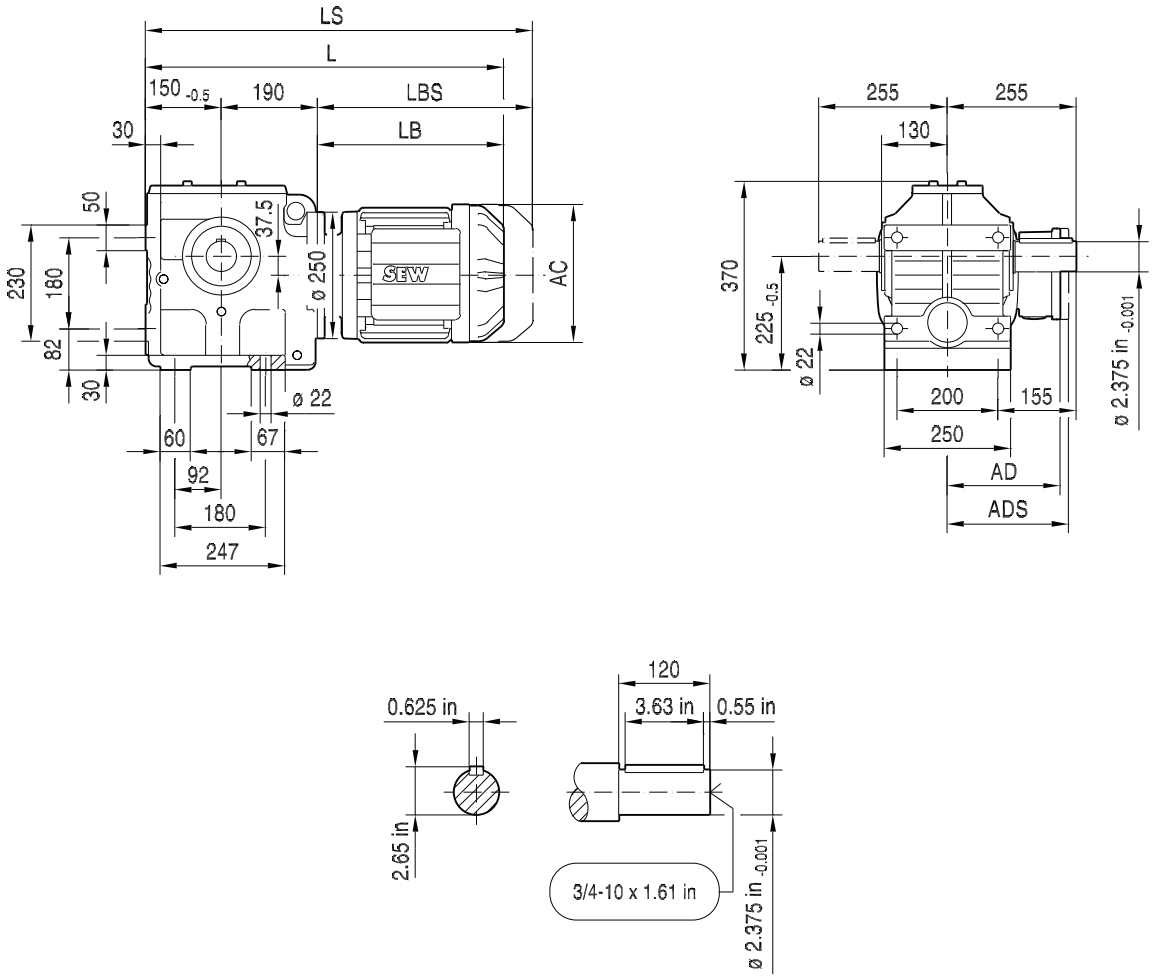
(→ 162)	DRN									
	80MK	80M	90S	90L	100L/LM	112M	132S	132M	132L	160
AC	156	156	179	179	197	221	221	261	261	314
AD	128	128	140	140	157	170	170	228	228	253
ADS	139	139	150	150	158	172	172	228	228	253
L	510	555	557	589	635	666	716	734	760	826
LS	591	636	650	682	729	778	828	872	897	1015
LB	223	268	270	302	348	379	429	447	473	539
LBS	304	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 881. For tolerances, see page 162.

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S87/S87p..

77 655 00 21



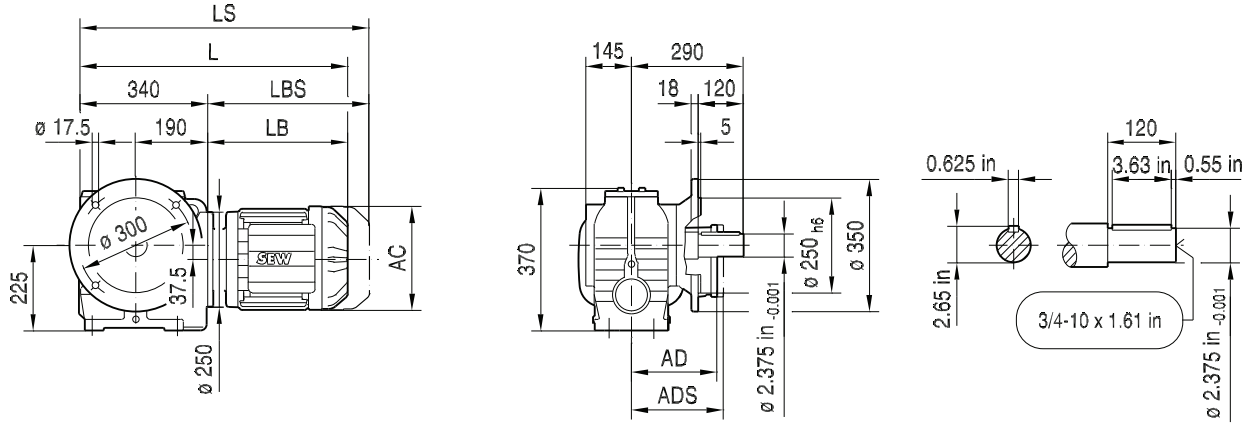
(→ 🗎 162)	DRN									
	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	179	179	197	221	221	261	261	314	357
AD	128	140	140	157	170	170	228	228	253	268
ADS	139	150	150	158	172	172	228	228	253	268
L	603	605	637	683	714	764	782	808	874	897
LS	684	698	730	777	826	876	920	945	1063	1086
LB	263	265	297	343	374	424	442	468	534	557
LBS	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 877. For tolerances, see page 162.

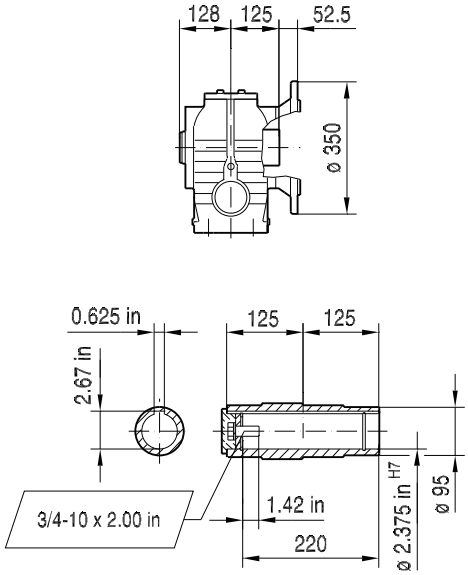
24833231/EN-US – 07/2021

77 656 00 21

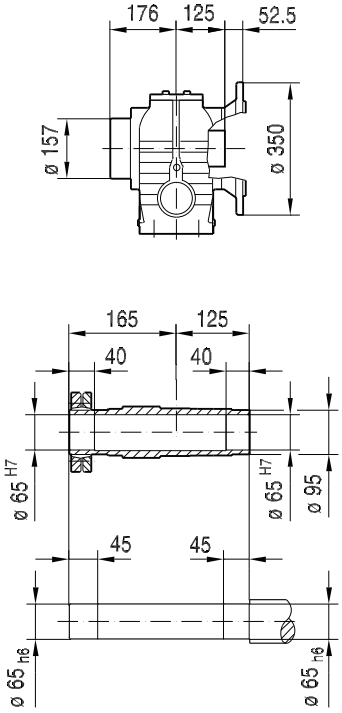
SF87/SF87p..



SAF87/SAF87p..



SHF87/SHF87p..



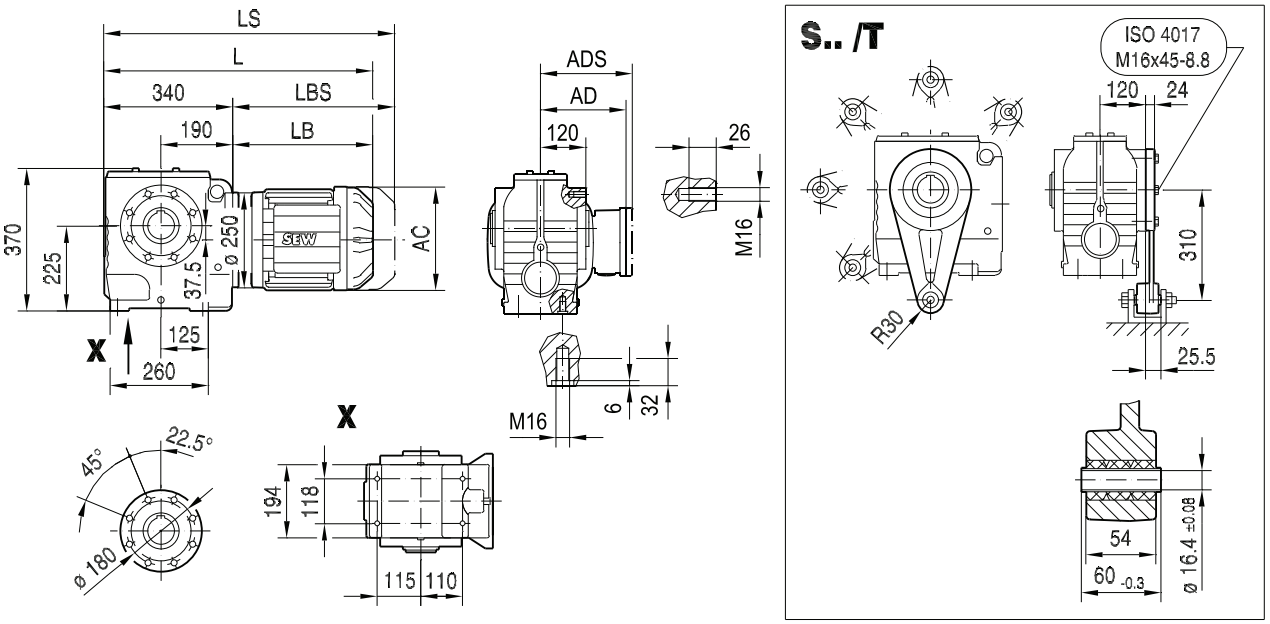
(→ 🗎 162)	DRN									
	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	179	179	197	221	221	261	261	314	357
AD	128	140	140	157	170	170	228	228	253	268
ADS	139	150	150	158	172	172	228	228	253	268
L	603	605	637	683	714	764	782	808	874	897
LS	684	698	730	777	826	876	920	945	1063	1086
LB	263	265	297	343	374	424	442	468	534	557
LBS	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 877. For tolerances, see page 162.

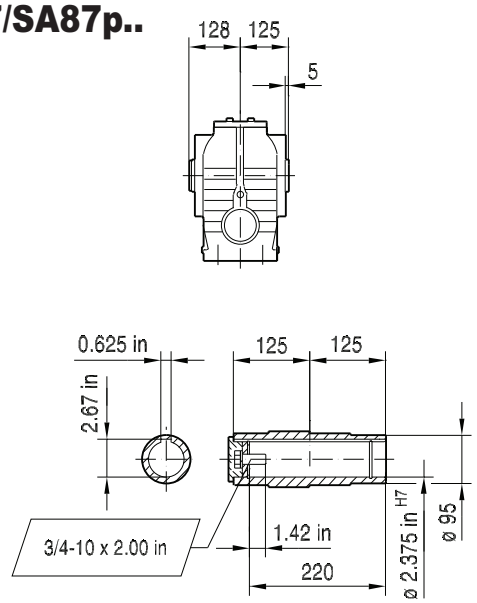
24833231/EN-US – 07/2021

SA87/SA87p..

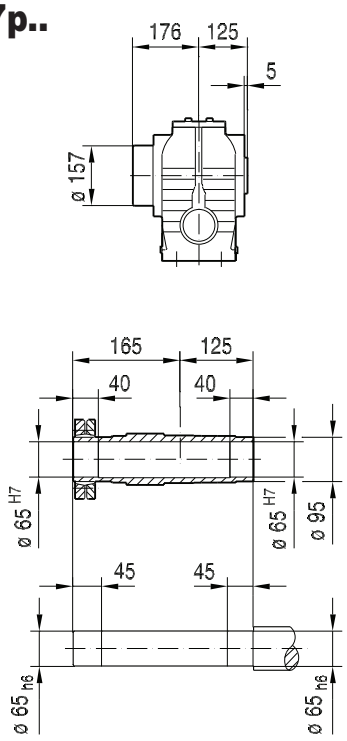
77 657 00 21



SA87/SA87p..



SH87/SH87p..



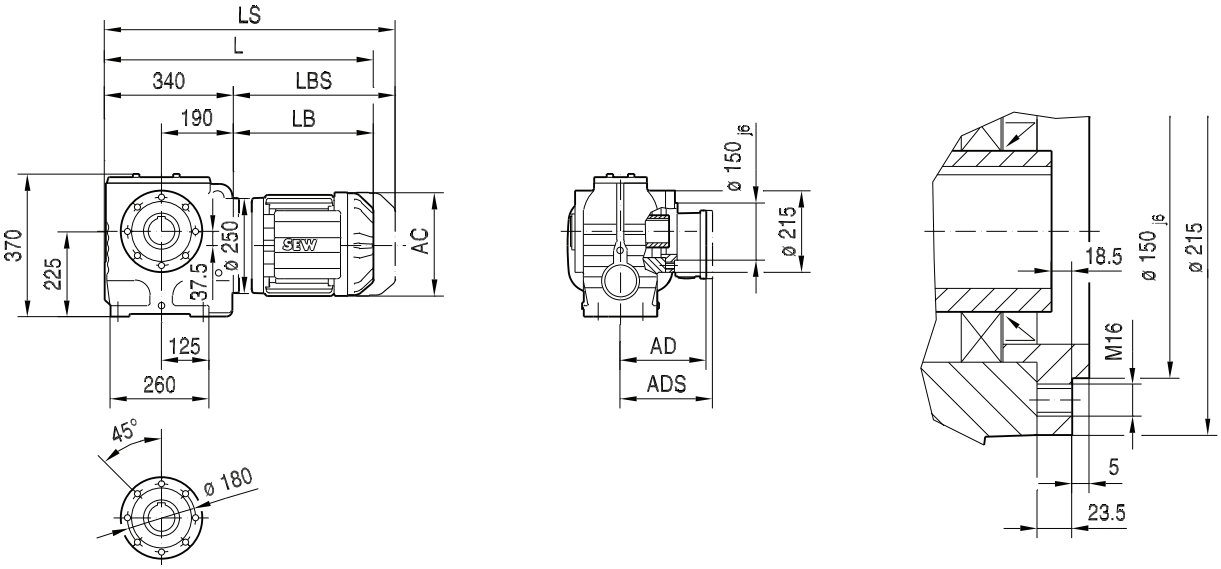
(→ 162)	DRN									
	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	179	179	197	221	221	261	261	314	357
AD	128	140	140	157	170	170	228	228	253	268
ADS	139	150	150	158	172	172	228	228	253	268
L	603	605	637	683	714	764	782	808	874	897
LS	684	698	730	777	826	876	920	945	1063	1086
LB	263	265	297	343	374	424	442	468	534	557
LBS	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 879. For tolerances, see page 162.

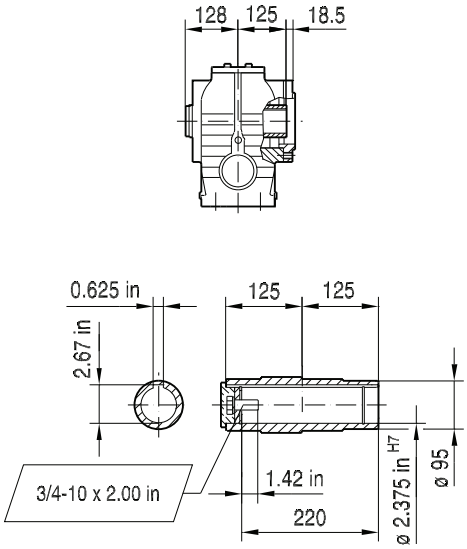
24833231/EN-US – 07/2021

77 658 00 21

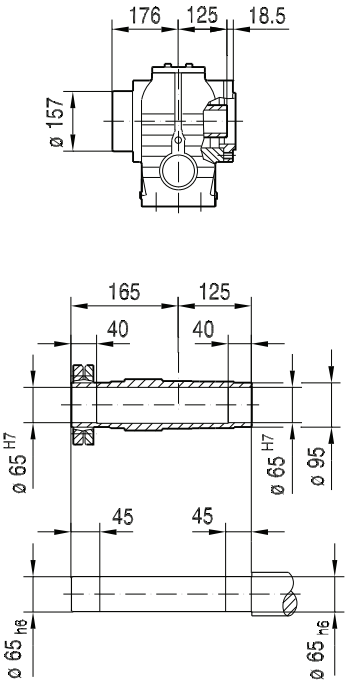
SAZ87/SAZ87p..



SAZ87/SAZ87p..



SHZ87/SHZ87p..



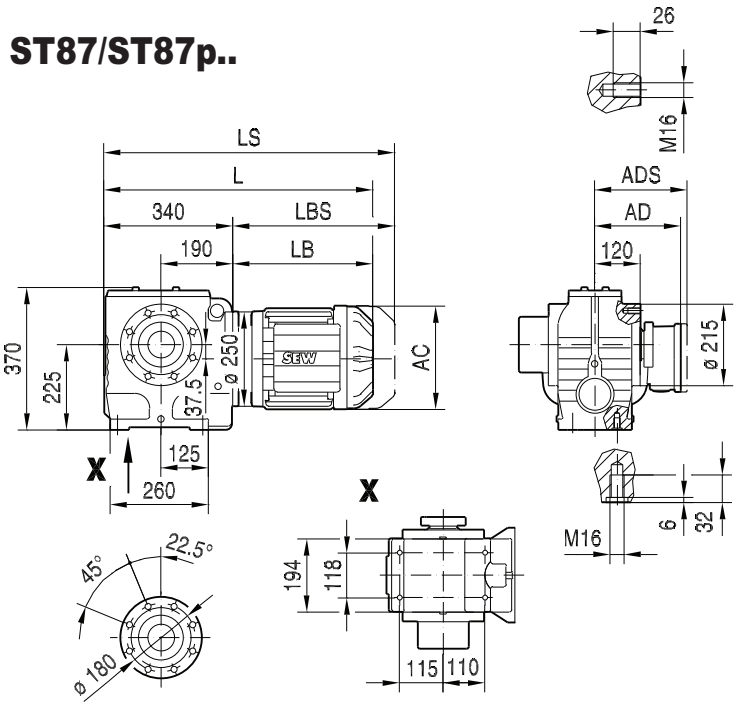
(→ 162)	DRN									
	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	179	179	197	221	221	261	261	314	357
AD	128	140	140	157	170	170	228	228	253	268
ADS	139	150	150	158	172	172	228	228	253	268
L	603	605	637	683	714	764	782	808	874	897
LS	684	698	730	777	826	876	920	945	1063	1086
LB	263	265	297	343	374	424	442	468	534	557
LBS	344	358	390	437	486	536	580	605	723	746

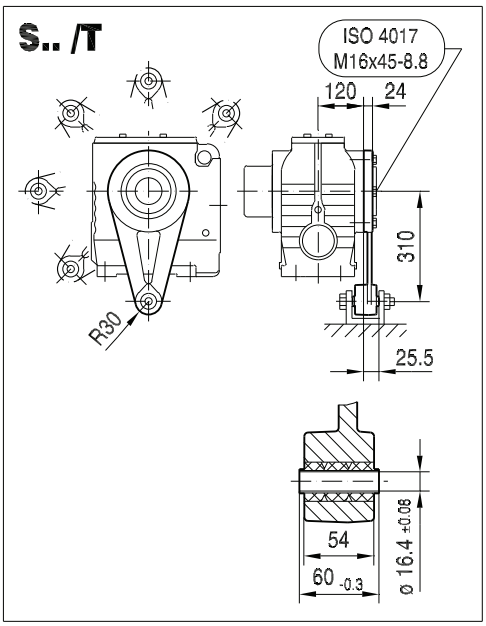
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 879. For tolerances, see page 162.

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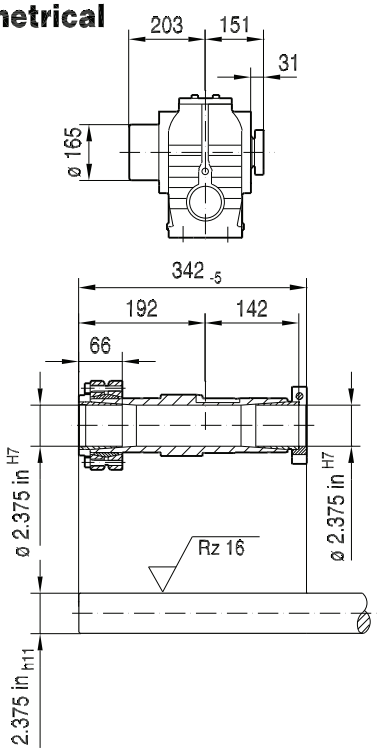
ST87/ST87p..

77 659 00 21

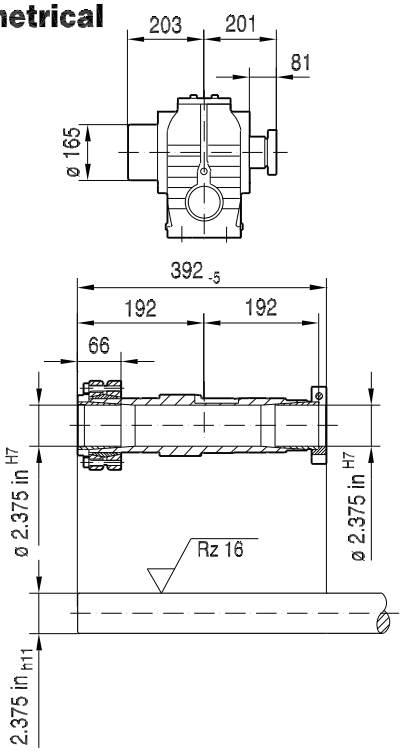




NON-Symmetrical



Symmetrical



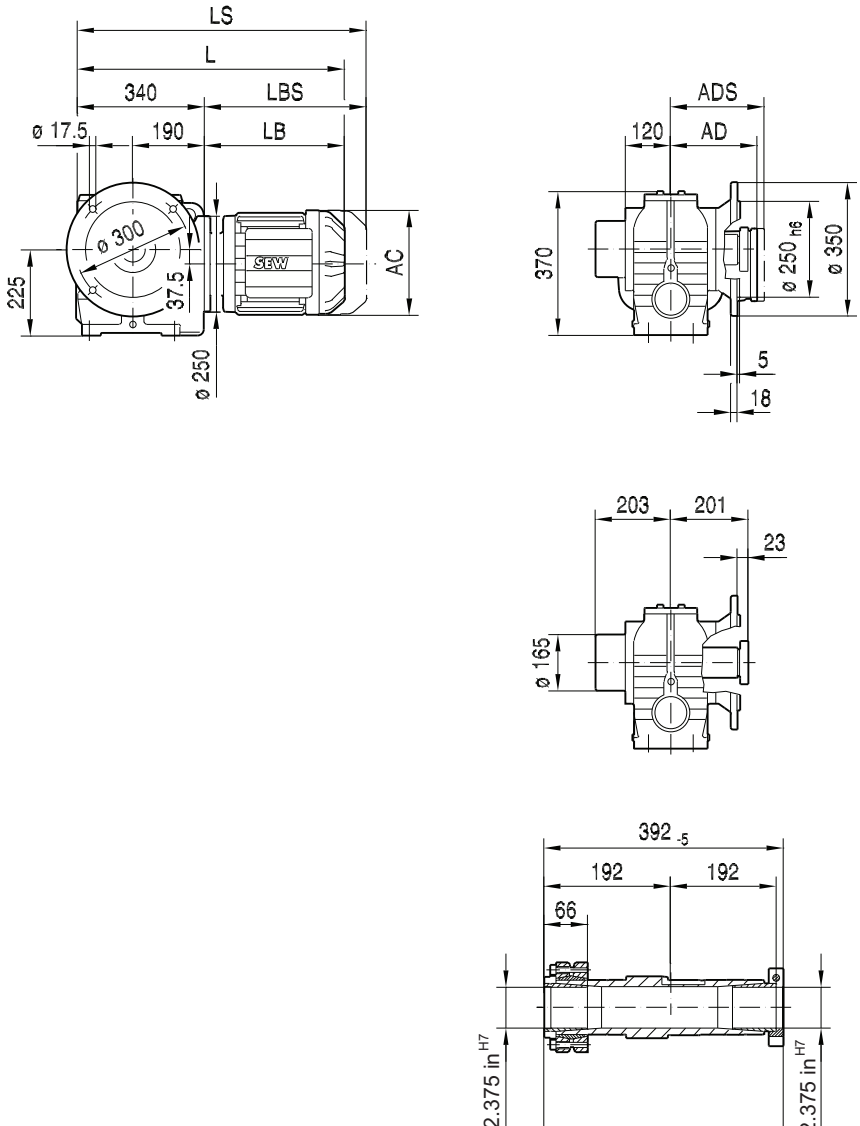
(→ 🗎 162)	DRN									
	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	179	179	197	221	221	261	261	314	357
AD	128	140	140	157	170	170	228	228	253	268
ADS	139	150	150	158	172	172	228	228	253	268
L	603	605	637	683	714	764	782	808	874	897
LS	684	698	730	777	826	876	920	945	1063	1086
LB	263	265	297	343	374	424	442	468	534	557
LBS	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 881. For tolerances, see page 162.

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STF87/STF87p..

77 660 00 21



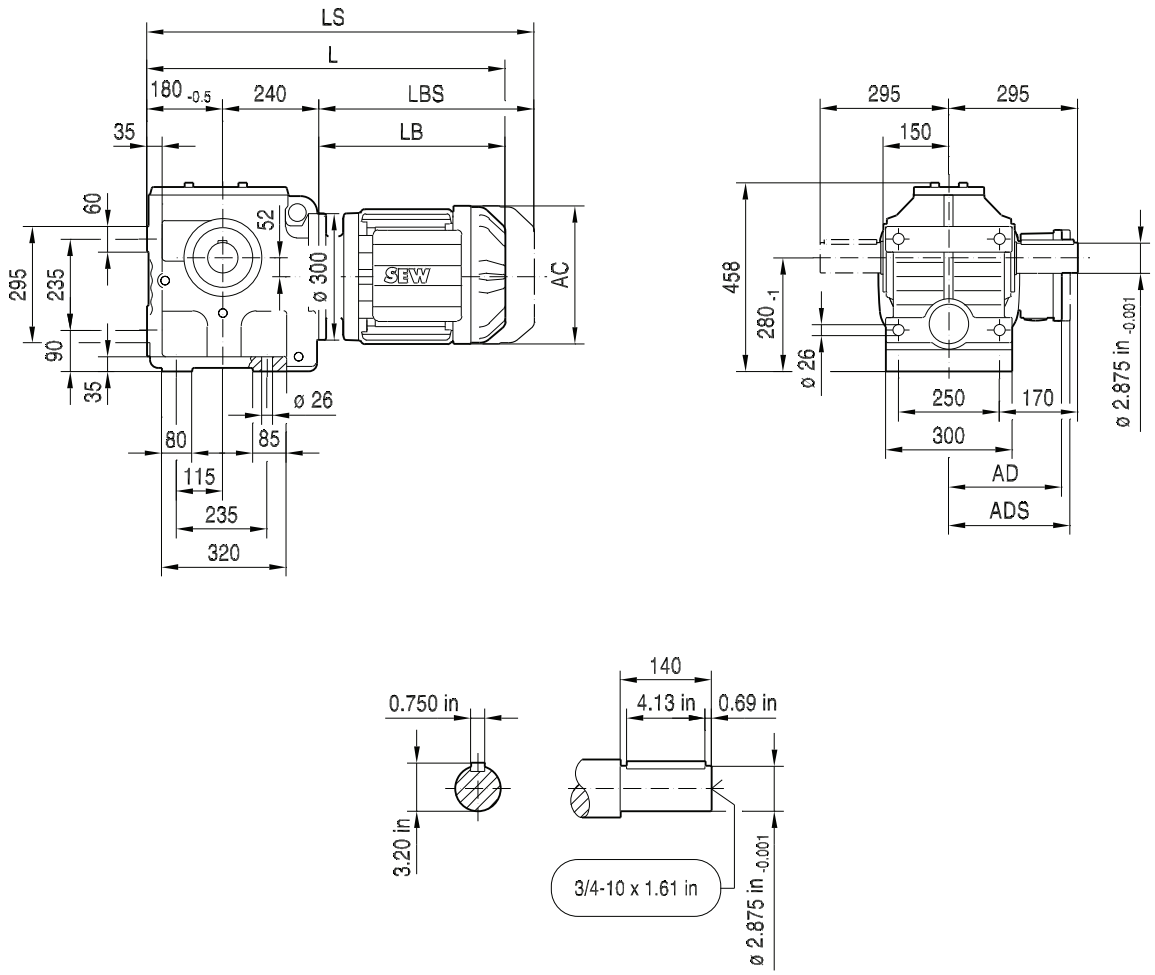
(→ 162)	DRN									
	80M	90S	90L	100L/LM	112M	132S	132M	132L	160	180
AC	156	179	179	197	221	221	261	261	314	357
AD	128	140	140	157	170	170	228	228	253	268
ADS	139	150	150	158	172	172	228	228	253	268
L	603	605	637	683	714	764	782	808	874	897
LS	684	698	730	777	826	876	920	945	1063	1086
LB	263	265	297	343	374	424	442	468	534	557
LBS	344	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 881. For tolerances, see page 162.

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S97/S97p..

77 661 00 21



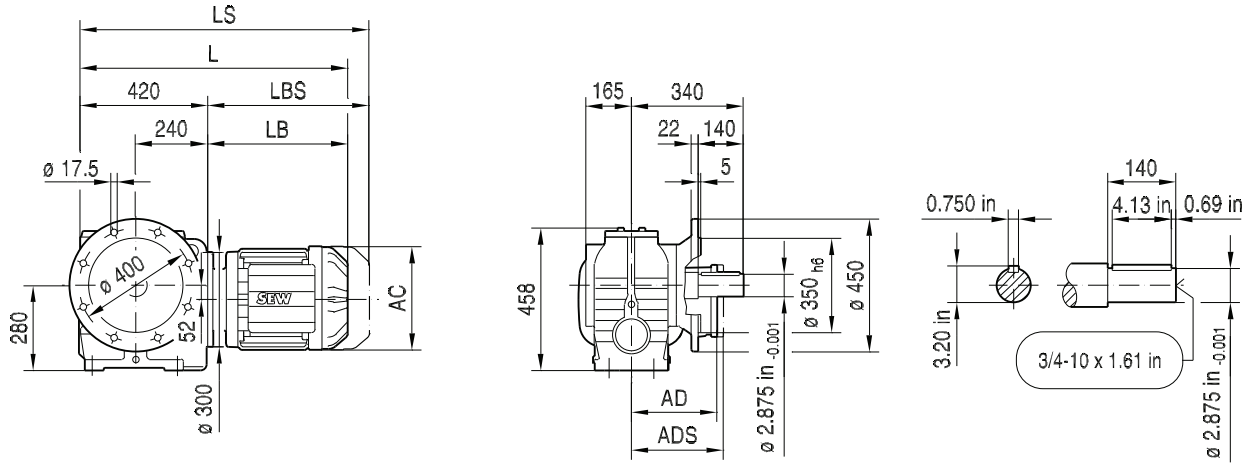
(→ 162)	DRN								
	90L	100L/LM	112M	132S	132M	132L	160	180	200L
AC	179	197	221	221	261	261	314	357	394
AD	140	157	170	170	228	228	253	268	283
ADS	150	158	172	172	228	228	253	268	283
L	712	758	789	839	857	883	949	972	1082
LS	805	852	901	951	995	1020	1138	1161	1287
LB	292	338	369	419	437	463	529	552	662
LBS	385	432	481	531	575	600	718	741	867

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 877. For tolerances, see page 162.

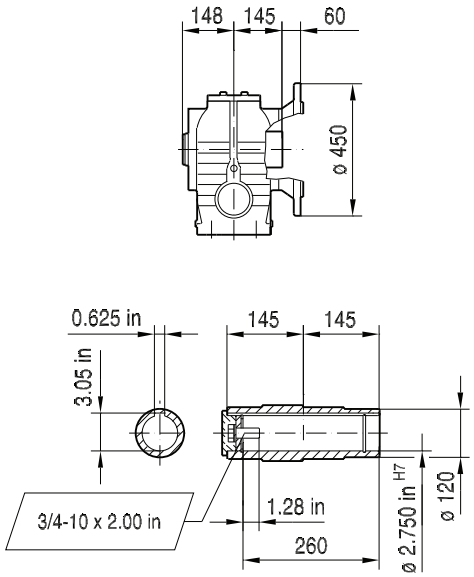
24833231/EN-US – 07/2021

SF97/SF97p..

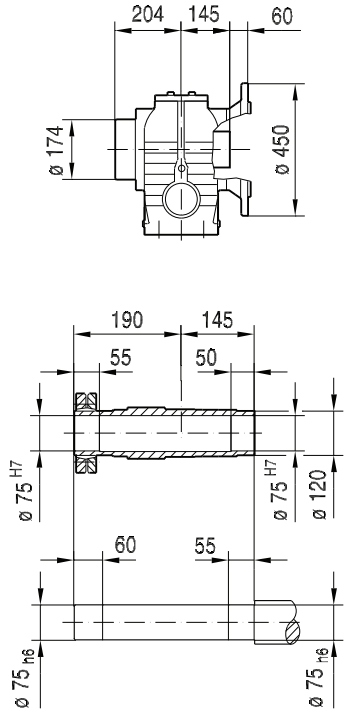
77 662 00 21



SAF97/SAF97p..



SHF97/SHF97p..



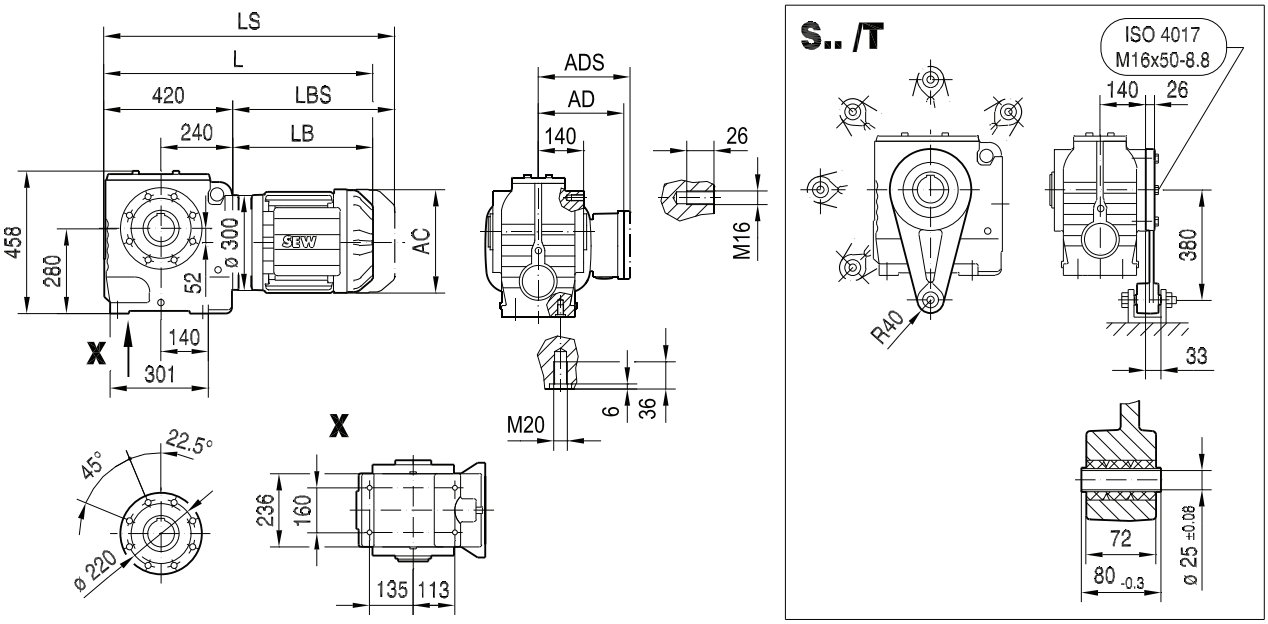
(→ 🗎 162)	DRN								
	90L	100L/LM	112M	132S	132M	132L	160	180	200L
AC	179	197	221	221	261	261	314	357	394
AD	140	157	170	170	228	228	253	268	283
ADS	150	158	172	172	228	228	253	268	283
L	712	758	789	839	857	883	949	972	1082
LS	805	852	901	951	995	1020	1138	1161	1287
LB	292	338	369	419	437	463	529	552	662
LBS	385	432	481	531	575	600	718	741	867

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 877. For tolerances, see page 162.

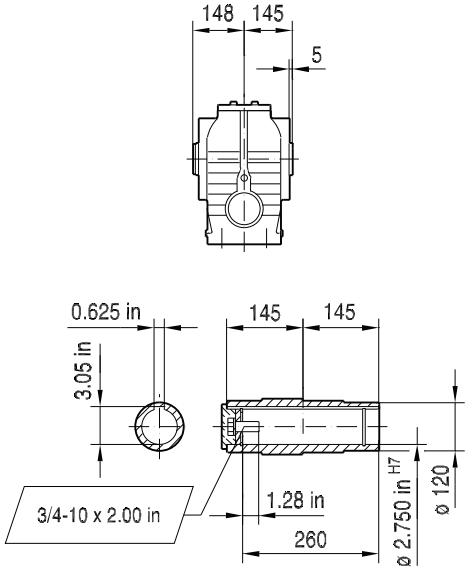
24833231/EN-US – 07/2021

SA97/SA97p..

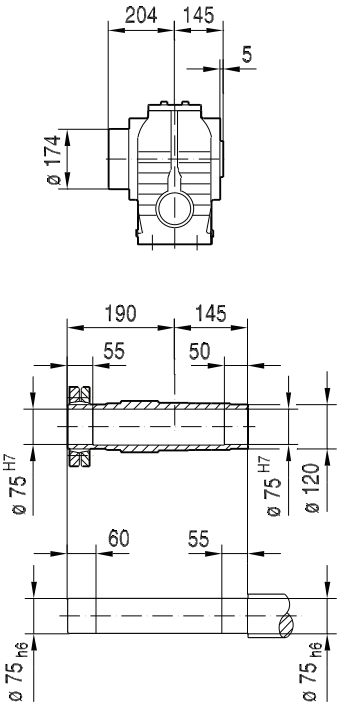
77 663 00 21



SA97/SA97p..



SH97/SH97p..



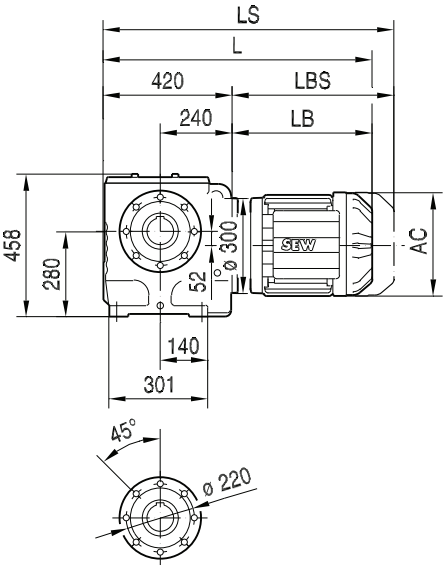
(→ 162)	DRN								
	90L	100L/LM	112M	132S	132M	132L	160	180	200L
AC	179	197	221	221	261	261	314	357	394
AD	140	157	170	170	228	228	253	268	283
ADS	150	158	172	172	228	228	253	268	283
L	712	758	789	839	857	883	949	972	1082
LS	805	852	901	951	995	1020	1138	1161	1287
LB	292	338	369	419	437	463	529	552	662
LBS	385	432	481	531	575	600	718	741	867

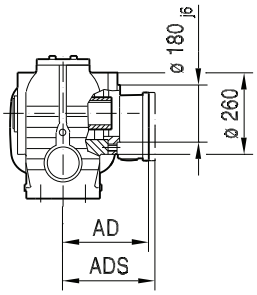
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 879. For tolerances, see page 162.

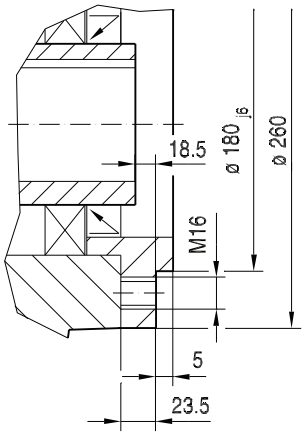
24833231/EN-US – 07/2021

77 664 00 21

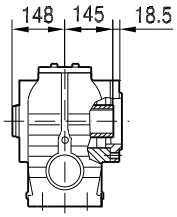
SAZ97/SAZ97p..

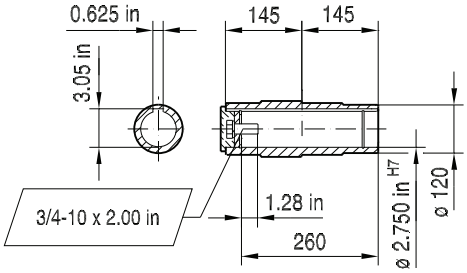




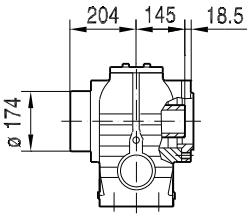


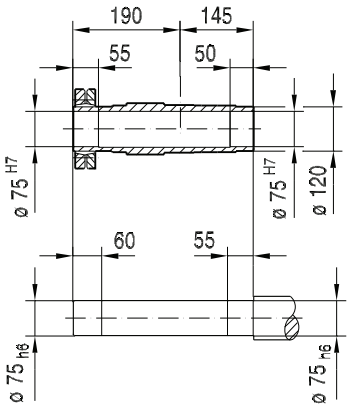
SAZ97/SAZ97p..





SHZ97/SHZ97p..





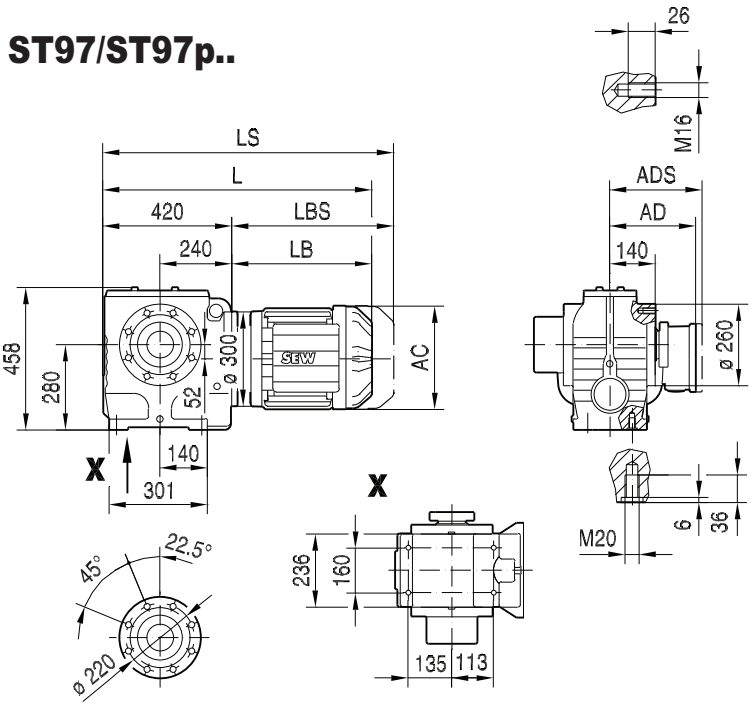
(→ 🗎 162)	DRN								
	90L	100L/LM	112M	132S	132M	132L	160	180	200L
AC	179	197	221	221	261	261	314	357	394
AD	140	157	170	170	228	228	253	268	283
ADS	150	158	172	172	228	228	253	268	283
L	712	758	789	839	857	883	949	972	1082
LS	805	852	901	951	995	1020	1138	1161	1287
LB	292	338	369	419	437	463	529	552	662
LBS	385	432	481	531	575	600	718	741	867

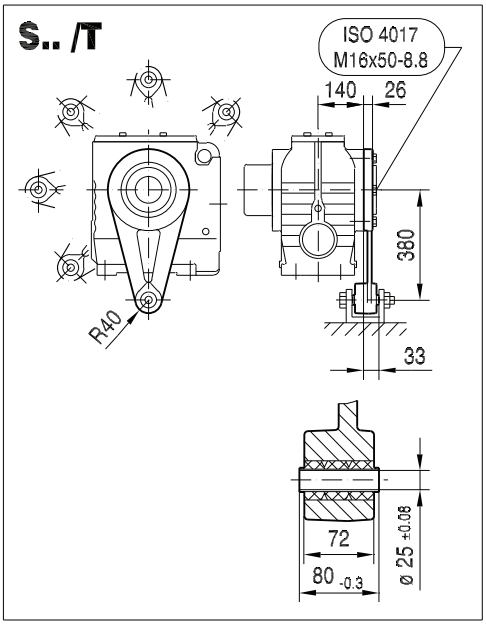
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 879. For tolerances, see page 162.

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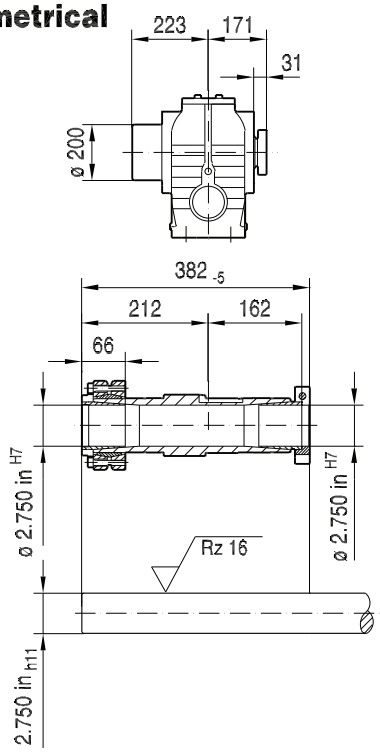
ST97/ST97p..

77 665 00 21

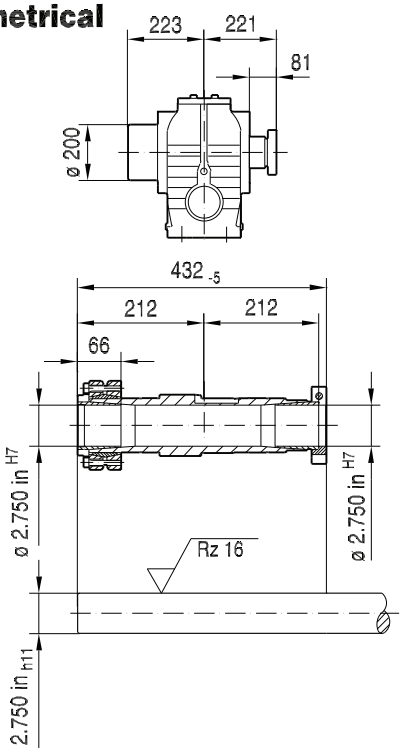




NON-Symmetrical



Symmetrical



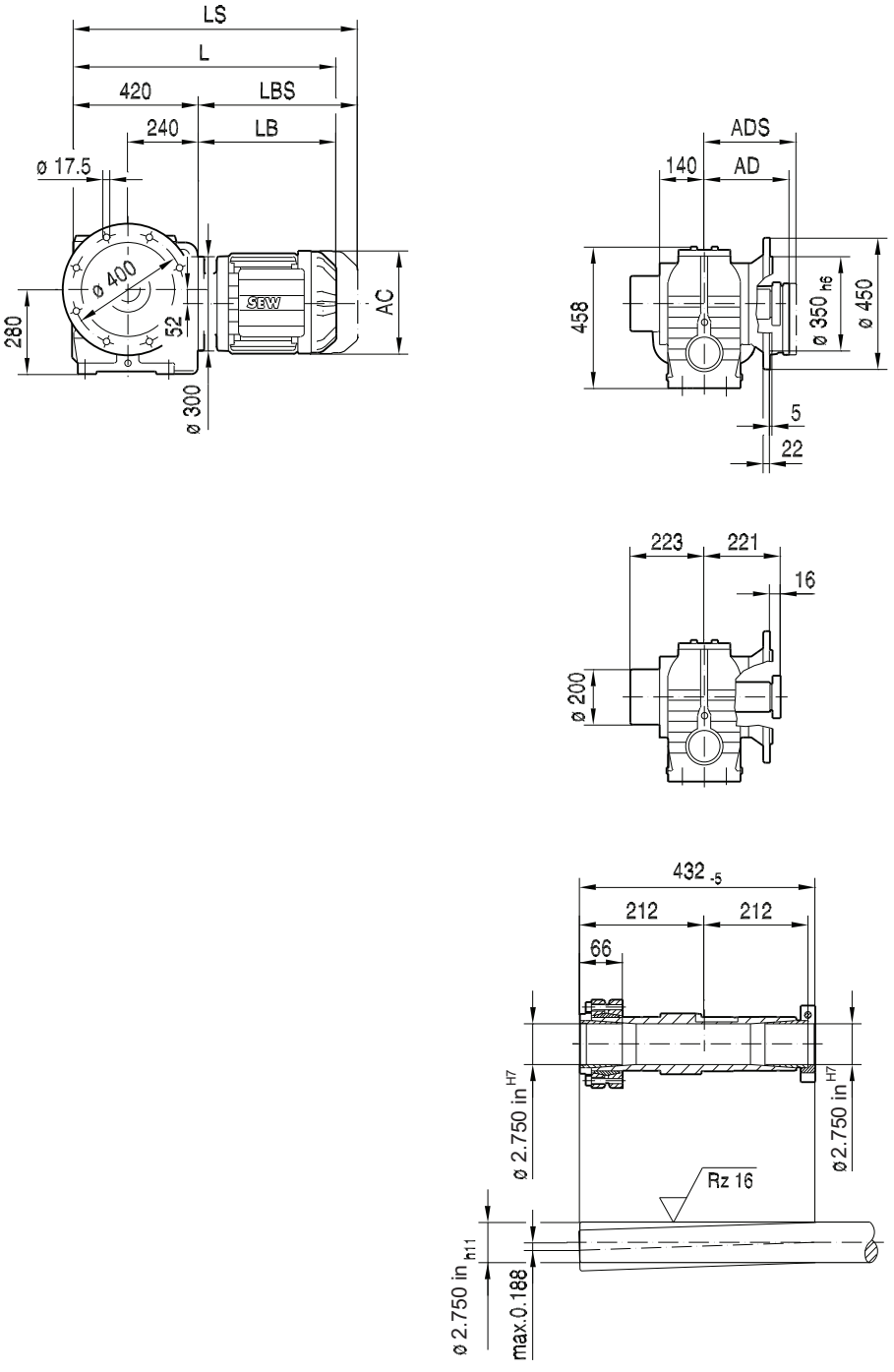
(→ 🗎 162)	DRN								
	90L	100L/LM	112M	132S	132M	132L	160	180	200L
AC	179	197	221	221	261	261	314	357	394
AD	140	157	170	170	228	228	253	268	283
ADS	150	158	172	172	228	228	253	268	283
L	712	758	789	839	857	883	949	972	1082
LS	805	852	901	951	995	1020	1138	1161	1287
LB	292	338	369	419	437	463	529	552	662
LBS	385	432	481	531	575	600	718	741	867

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 881. For tolerances, see page 162.

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STF97/STF97p..

77 666 00 21



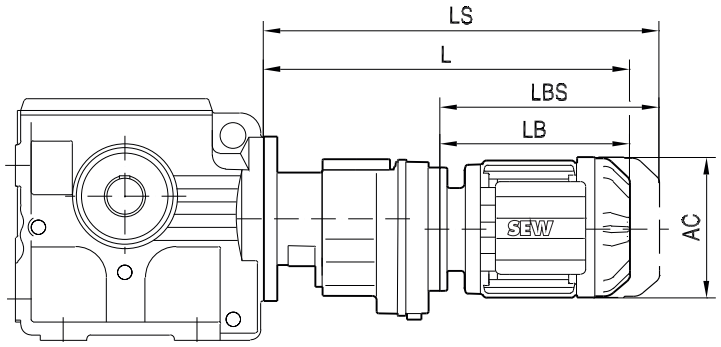
(→ 🗎 162)	DRN								
	90L	100L/LM	112M	132S	132M	132L	160	180	200L
AC	179	197	221	221	261	261	314	357	394
AD	140	157	170	170	228	228	253	268	283
ADS	150	158	172	172	228	228	253	268	283
L	712	758	789	839	857	883	949	972	1082
LS	805	852	901	951	995	1020	1138	1161	1287
LB	292	338	369	419	437	463	529	552	662
LBS	385	432	481	531	575	600	718	741	867

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 881. For tolerances, see page 162.

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11.14 S.. R.. DRN.. Compound dimensions

77 667 00 21



All dimensions shown in mm.

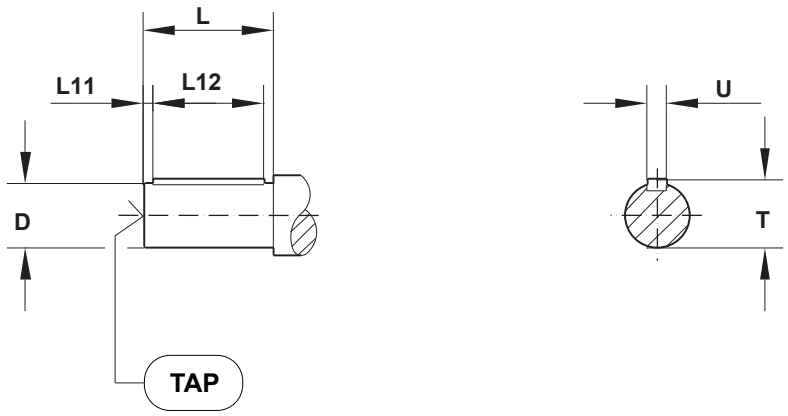
Gear	Motor	AC	L	LS	LB	LBS
S..37R17 S..37pR17	DRN63MS	115	365	421	190	246
	DRN63M	115	379	435	204	260
	DRN71MS	139	381	448	206	273
	DRN80M	156	452	533	277	358
S..47R17 S..47pR17	DRN63MS	115	365	421	190	246
	DRN63M	115	379	435	204	260
	DRN71MS	139	381	448	206	273
	DRN71M	139	401	468	226	293
	DRN80M	156	452	533	277	358
S..57R17 S..57pR17	DRN63MS	115	365	421	190	246
	DRN63M	115	379	435	204	260
	DRN71MS	139	381	448	206	273
	DRN71M	139	401	468	226	293
	DRN80M	156	452	533	277	358
S..67R37 S..67pR37	DRN63MS	115	355	411	190	246
	DRN63M	115	369	425	204	260
	DRN71MS	139	371	438	206	273
	DRN71M	139	391	458	226	293
	DRN80MK	156	402	483	237	318
	DRN80M	156	447	528	282	363
	DRN90S	179	448	542	283	377
S..77R37 S..77pR37	DRN63MS	115	347	403	190	246
	DRN63M	115	361	417	204	260
	DRN71MS	139	363	430	206	273

Gear	Motor	AC	L	LS	LB	LBS
S..77R37 S..77pR37	DRN71M	139	383	450	226	293
	DRN80MK	156	394	475	237	318
	DRN80M	156	439	520	282	363
	DRN90S	179	440	534	283	377
	DRN90L	179	472	566	315	409
S..87R57 S..87pR57	DRN63MS	115	411	467	184	240
	DRN63M	115	425	481	198	254
	DRN71MS	139	427	494	199	267
	DRN71M	139	447	514	219	287
	DRN80MK	156	458	539	230	311
	DRN80M	156	503	584	275	356
	DRN90S	179	504	598	277	370
	DRN90L	179	536	630	309	402
	DRN100L/LM	197	583	676	355	449
S..97R57 S..97pR57	DRN63MS	115	406	462	184	240
	DRN63M	115	420	476	198	254
	DRN71MS	139	422	489	199	267
	DRN71M	139	442	509	219	287
	DRN80MK	156	453	534	230	311
	DRN80M	156	498	579	275	356
	DRN90S	179	499	593	277	370
	DRN90L	179	531	625	309	402
	DRN100L/LM	197	578	671	355	449

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11.15 Output shaft sizes

11.15.1 Solid Shafts – Inch

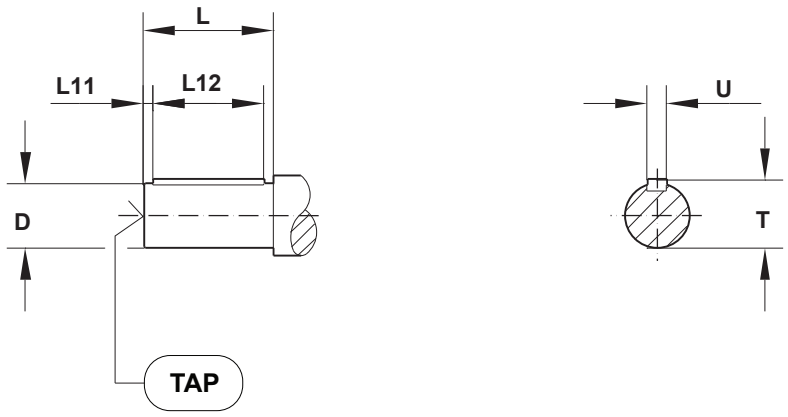


Model	All dimensions in inches						
	D	T	U	L[1]	L11	L12	TAP
S..37 / S..37p	0.75	0.83	3/16	1.57	0.25	1-1/16	1/4 - 20 x 0.63
S..47 / S..47p	1.00	1.11	1/4	1.97	0.32	1-5/16	3/8 - 16 x 0.87
S..57 / S..57p	1.25	1.36	1/4	2.36	0.26	1-11/16	1/2 - 13 x 1.12
S..67	1.375	1.51	5/16	2.76	0.43	1-13/16	1/2 - 13 x 1.12
S..67 / S..67p	1.625	1.79	3/8	3.15	0.45	2-1/4	5/8 – 11 x 1.38
S..77	1.75	1.92	3/8	3.54	0.38	2-3/4	5/8 – 11 x 1.38
S..77 / S..77p	2.00	2.22	1/2	3.94	0.66	2-5/8	3/4 - 10 x 1.61
S..87 / S..87p	2.375	2.65	5/8	4.72	0.51	3-5/8	3/4 - 10 x 1.61
S..97 / S..97p	2.875	3.2	3/4	5.51	0.67	4-1/8	3/4 - 10 x 1.61

[1]Longer shafts to match obsolete gear unit designs (ie: SF60, SF62) are available for flanged units.

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11.15.2 Solid Shafts – Metric

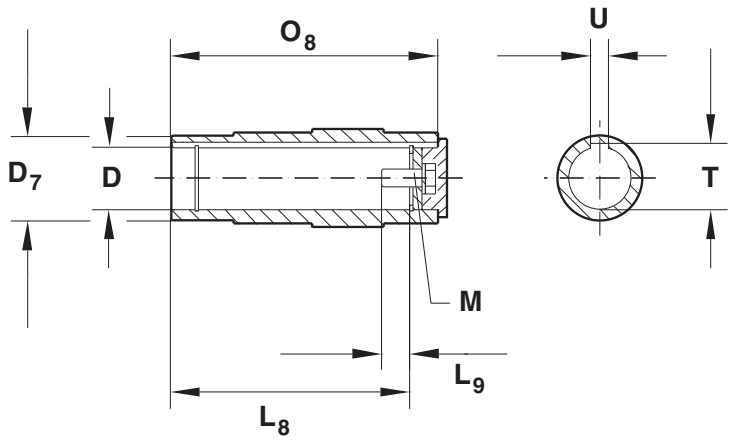


Model	All dimensions in mm						
	D	T	U	L[1]	L11	L12	TAP
S..37 / S..37p	20	22.5	6	40	4	32	M6 x 16
S..47 / S..47p	25	28	8	50	5	40	M10 x 22
S..57 / S..57p	30	33	8	60	3.5	50	M10 x 22
S..67	35	38	10	70	7	56	M12 x 28
S..67 / S..67p	40	43	12	80	5	70	M16 x 36
S..77	45	48.5	14	90	5	80	M16 x 36
S..77 / S..77p	50	53.5	14	100	10	80	M16 x 36
S..87 / S..87p	60	64	18	120	5	110	M20 x 42
S..97 / S..97p	70	74.5	20	140	7.5	125	M20 x 42

[1]Longer shafts to match obsolete gear unit designs (ie: SF60, SF62) are available for flanged units.

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11.15.3 Hollow Shaft – Inch



Note:
To aid in the future removal of your machine's solid shaft, please see SEW-EURODRIVE design recommendations on page 120. The 'M' dimension below pertains to the standard bolt that ships with the unit, which is shorter than the bolt that is supplied with the optional shaft removal kit on page 126.

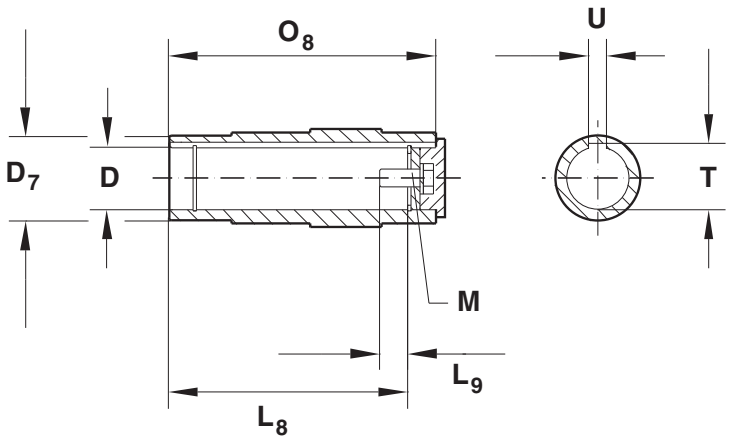
Mounting hardware (bolt, washer, and snapring) are not supplied for stainless steel shafts.

Model	In stock (USA)		All dimensions in inches							
	Carbon Steel	S/S	D	D7	O8	T	U	L8	L9	M (std bolt)[1]
SA..37	X		0.75	1.38	4.72	0.84	3/16	4.09	0.37	1/4 - 20 x 5/8
SA..47		X	1.00	1.77	4.72	1.12	1/4	4.13	-	-
	X	X	1.25	1.77	4.72	1.37	1/4	4.13	0.67	7/16 - 14 x 1
SA..57	X		1.1875	1.97	5.91	1.30	1/4	5.20	0.67	3/8 - 16 x 1
	X		1.25	1.97	5.91	1.37	1/4	5.20	0.67	7/16 - 14 x 1
	X	X	1.375	1.97	5.91	1.52	5/16	5.20	0.65	1/2 - 13 x 1
	X		1.4375	1.97	5.91	1.61	3/8	5.20	0.65	5/8 - 11 x 1-3/4
SA..67	X		1.25	2.56	6.61	1.37	1/4	5.67	0.67	7/16 - 14 x 1
	X		1.50	2.56	6.61	1.67	3/8	5.67	1.36	5/8 - 11 x 1-3/4
SA..77	X		2.00	3.15	8.27	2.22	1/2	7.20	1.16	5/8 - 11 x 1-3/4
SA..87	X		2.375	3.74	9.84	2.65	5/8	8.66	1.37	3/4 - 10 x 2
SA..97	X		2.75	4.72	11.42	3.03	5/8	10.23	1.24	3/4 - 10 x 2

[1] Mounting hardware (bolt, washer, and snapring) are not supplied for stainless steel shafts.

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11.15.4 Hollow Shaft – Metric



Note:
To aid in the future removal of your machine's solid shaft, please see SEW-EURODRIVE design recommendations on page 120. The 'M' dimension below pertains to the standard bolt that ships with the unit, which is shorter than the bolt that is supplied with the optional shaft removal kit on page 126.

Mounting hardware (bolt, washer, and snapring) are not supplied for stainless steel shafts.

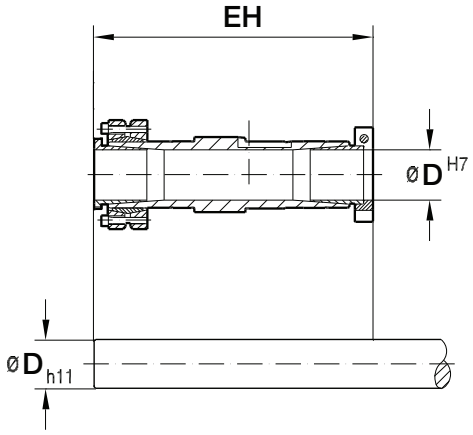
Model	In stock (USA)		All dimensions in mm							
	Carbon Steel	S/S	D	D7	O8	T	U	L8	L9	M (std bolt)[1]
SA..37	X		20	35	120	22.8	6	104	8	M6 x 16
SA..47	X		25	45	120	28.3	8	105	17	M10 x 25
	X	X	30	45	120	33.3	8	105	17	M10 x 25
SA..57	X	X	30	50	150	33.3	8	132	17	M10 x 25
	X	X	35	50	150	38.3	10	132	22	M12 x 30
SA..67	X		40	65	168	43.3	12	144	29	M16 x 40
	X		45	65	168	48.3	14	144	29	M16 x 40
SA..77	X		50	80	210	53.8	14	183	32	M16 x 45
	X		60	80	210	64.4	18	180	37	M20 x 50
SA..87	X		60	95	250	64.4	18	220	36	M20 x 50
	X		70	95	250	74.9	20	220	34	M20 x 50
SA..97	X		70	120	290	74.9	20	260	34	M20 x 50
	X		90	120	290	95.4	25	255	41	M24 x 60

[1] Mounting hardware (bolt, washer, and snapring) are not supplied for stainless steel shafts.

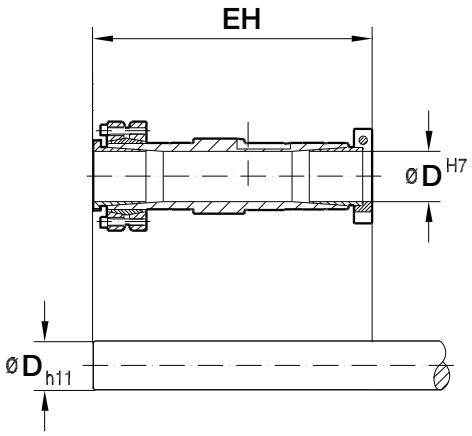
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11.15.5 TorqLOC® keyless hollow shaft

NON-Symmetrical



Symmetrical

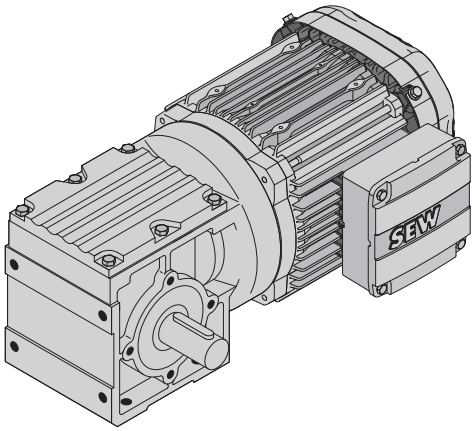


Model	D (in) Inch Bores					D (mm) Metric Bores						EH (in)	
												NON Symmetrical	Symmetrical
ST..37	0.625	0.6875	0.75	-	-	16	19	20	-	-	-	6.54	7.33
ST..47	1.00	1.1875	1.25	-	-	25	30	-	-	-	-	6.69	7.63
ST..57	1.1875	1.25	1.375	1.4375	-	30	35	-	-	-	-	8.15	9.13
ST..67	1.375	1.4375	1.50	1.625	1.6875	35	38	40	-	-	-	9.17	10.43
ST..77	1.625	1.6875	1.75	1.9375	2.00	40	45	50	51	-	-	11.61	13.34
ST..87	1.9375	2.00	2.375	2.4375	-	50	51	55	60	62	65	13.50	15.47
ST..97	2.4375	2.75	2.9375	-	-	60	62	65	70	75	-	15.00	16.97

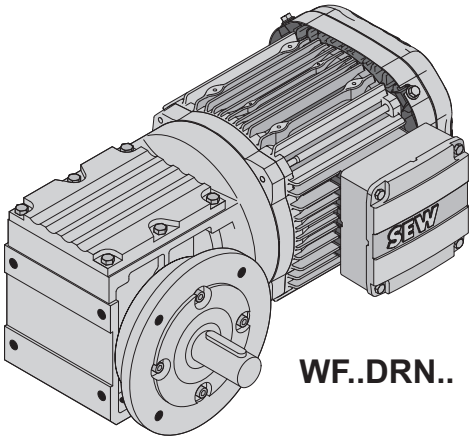
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12 SPIROPLAN® gearmotors

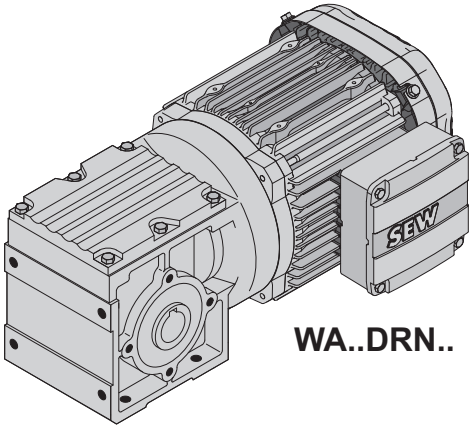
12.1 W.. DRN.. Designs



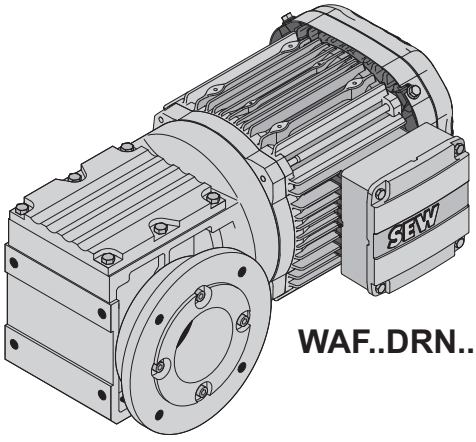
W..DRN..



WF..DRN..



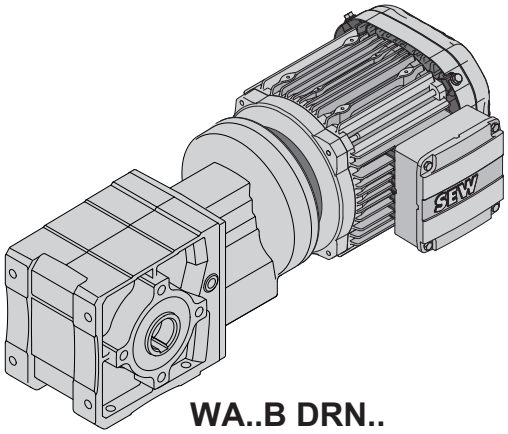
WA..DRN..



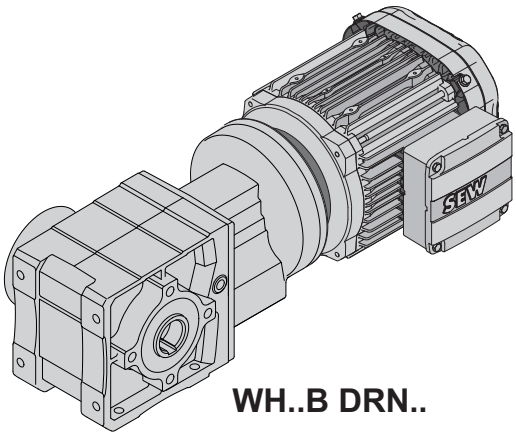
WAF..DRN..

8665099019

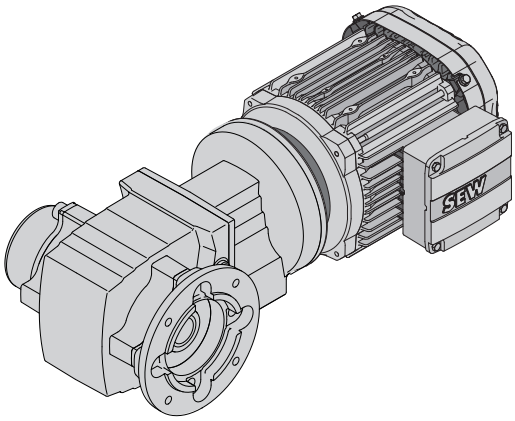
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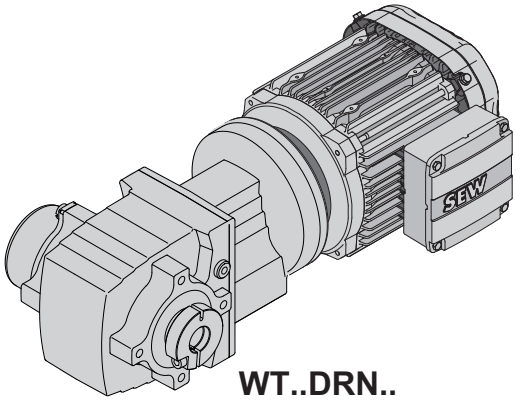
WA..B DRN..



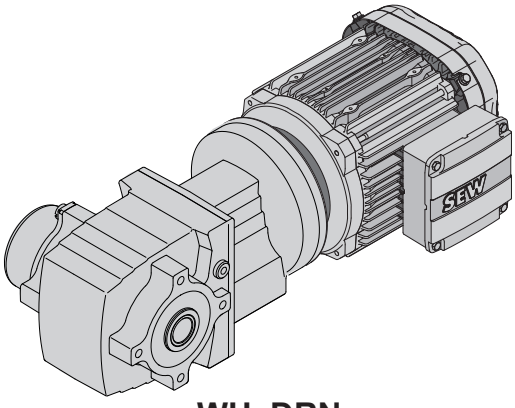
WH..B DRN..



WHF..DRN..



WT..DRN..



WH..DRN..

8665100939

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12.2 W.. DRN.. Possible combinations

W10, n_e=1700 rpm					DRN …	220 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71	
					1	
23	220	405	-	75.00*		
28	220	405	-	60.00*		
35	220	405	-	48.00*		
44	220	405	-	39.00*		
52	220	405	-	32.50*		
62	210	405	-	27.50*		
69	220	405	-	24.50*		
87	220	405	-	19.50*		
103	177	405	-	16.50*		
119	195	405	-	14.33		
166	115	405	-	10.25*		
207	106	390	-	8.20*		
259	106	365	-	6.57		

W20, n_e=1700 rpm					DRN …	350 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71	80MK
					1	
23	350	495	-	75.00*		
28	350	495	-	60.00*		
35	350	495	-	48.00*		
44	350	495	-	39.00*		
52	350	495	-	32.50*		
62	350	495	-	27.50*		
69	350	495	-	24.50*		
87	305	475	-	19.50*		
103	265	455	-	16.50*		
119	265	440	-	14.33		
166	220	400	-	10.25*		
207	177	380	-	8.20*		
259	177	360	-	6.57		

W30, n_e=1700 rpm					DRN …	615 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71	80M 80MK
					1	
23	615	675	-	75.00*		
28	615	675	-	60.00*		
35	615	675	-	48.00*		
44	615	675	-	39.00*		
52	615	675	-	32.50*		
62	615	675	-	27.50*		
69	615	675	-	24.50*		
87	615	675	-	19.50*		
104	530	675	-	16.33		
119	530	675	-	14.33		

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W30, n_e=1700 rpm					DRN …	615 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71	80M 80MK
166	440	620	-	10.25*		
207	350	585	-	8.20*		
259	350	545	-	6.57		

W37, n_e=1700 rpm					DRN …		970 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L
					2		
25	970	745	-	69.05			
27	970	745	-	63.33			
32	970	745	-	53.92			
37	970	745	-	46.49			
45	970	745	-	37.88			
49	795	810	-	34.52			
54	795	810	-	31.67			
54	970	745	-	31.33			
61	970	745	-	27.78			
63	795	810	-	26.96			
73	795	810	-	23.25			
80	970	695	-	21.33			
90	795	770	-	18.94			
108	795	705	-	15.67			
122	795	670	-	13.89			
134	615	795	-	12.70			
146	615	770	-	11.65			
159	795	590	-	10.67			
171	615	720	-	9.92			
199	615	680	-	8.55			
244	615	630	-	6.97			
295	615	585	-	5.77			
333	615	560	-	5.11			
433	615	500	-	3.93			
531	615	460	-	3.20*			

W37R17, n_e=1700 rpm					DRN …	970 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	
					2 3	
0.39	970	745	-	4402		
0.45	970	745	-	3795		
0.52	970	745	-	3272		
0.59	970	745	-	2899		
0.66	970	745	-	2558		
0.71	970	745	-	2382		
0.78	970	745	-	2172		
0.87	970	745	-	1952		
0.95	970	745	-	1795		
1.1	970	745	-	1593		
1.2	970	745	-	1463		
1.3	970	745	-	1298		

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W37R17, n_e=1700 rpm					DRN …	970 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	
2.3	970	745	-	754		
2.5	970	745	-	669		
					2 2	
1.4	970	745	-	1173		
1.6	970	745	-	1063		
1.8	970	745	-	956		
2.0	970	745	-	854		
2.8	970	745	-	600		
3.2	970	745	-	532		
3.6	970	745	-	472		
3.9	970	745	-	434		
4.4	970	745	-	384		
4.7	970	745	-	359		
5.2	970	745	-	327		
5.9	970	745	-	286		
6.4	970	745	-	267		
7.3	970	745	-	233		
8.2	970	745	-	207		
9.2	970	745	-	184		
11	970	745	-	160		
12	970	745	-	141		
14	970	745	-	125		
16	970	745	-	109		
18	970	745	-	96		
21	970	745	-	82		
23	795	810	-	73		
27	795	810	-	63		
32	795	810	-	53		
35	795	810	-	48		

W47, n_e=1700 rpm					DRN …				1590 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100L 100LM	112M
						2			
23	1590	1440	-	74.98					
25	1590	1440	-	68.93					
29	1590	1370	-	58.98					
33	1590	1280	-	51.12					
36	1590	1240	-	47.78					
41	1590	1160	-	41.30					
48	1590	1070	-	35.09					
54	1410	1150	-	31.62					
54	1590	1010	-	31.33					
62	1410	1080	-	27.41					
64	1590	930	-	26.76					
66	1410	1040	-	25.62					
68	1590	900	-	25.07					
77	1410	980	-	22.15					
90	1410	900	-	18.82					
101	1410	860	-	16.80					

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W47, n_e=1700 rpm					DRN …				1590 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M 90S	90L	100L 100LM	112M
118	1410	795	-	14.35					
126	1410	770	-	13.44					
138	970	950	-	12.30					
150	1410	705	-	11.32					
159	970	900	-	10.66					
171	970	870	-	9.96					
197	970	820	-	8.61					
232	970	770	-	7.32					
260	970	735	-	6.53					
305	970	690	-	5.58					
325	970	670	-	5.23					
386	970	625	-	4.40					
437	970	595	-	3.89					
520	970	550	-	3.27					

W47R17, n_e=1700 rpm					DRN …	1590 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M
					2 3	
0.35	1590	1440	-	4815		
0.41	1590	1440	-	4173		
0.44	1590	1440	-	3870		
0.47	1590	1440	-	3598		
0.51	1590	1440	-	3354		
0.54	1590	1440	-	3171		
0.62	1590	1440	-	2748		
0.70	1590	1440	-	2425		
0.75	1590	1440	-	2258		
0.81	1590	1440	-	2111		
0.87	1590	1440	-	1959		
0.95	1590	1440	-	1797		
1.1	1590	1440	-	1595		
1.1	1590	1440	-	1486		
1.2	1590	1440	-	1448		
1.5	1590	1440	-	1170		
2.3	1590	1440	-	754		
					2 2	
1.3	1590	1440	-	1290		
1.4	1590	1440	-	1183		
1.6	1590	1440	-	1042		
1.8	1590	1440	-	956		
2.0	1590	1440	-	869		
2.6	1590	1440	-	661		
2.9	1590	1440	-	596		
3.2	1590	1440	-	536		
3.6	1590	1440	-	473		
3.9	1590	1440	-	434		
4.4	1590	1440	-	386		
4.7	1590	1440	-	359		
5.3	1590	1440	-	318		

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W47R17, n_e=1700 rpm					DRN …	1590 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(/R)}$ '	i ratio	63 71 80MK	80M
5.8	1590	1440	-	291		
6.3	1590	1440	-	270		
6.4	1590	1440	-	265		
7.2	1590	1440	-	237		
8.1	1590	1440	-	210		
9.3	1590	1440	-	183		
11	1590	1440	-	159		
12	1590	1440	-	141		
14	1410	1500	-	124		
14	1590	1440	-	120		
16	1410	1500	-	105		
18	1410	1500	-	95		
20	1410	1500	-	85		
22	1410	1500	-	77		
24	1410	1500	-	72		

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12.3 W.. DRN.. Selections by HP

P_m = 0.16 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
5.1	920	327	765	1.05	X						
5.9	800	286	810	1.20	X						
6.3	770	267	820	1.25	X						
7.2	675	233	850	1.45	X						
8.1	570	207	870	1.70	X						
9.1	515	184	880	1.85	X						
10	490	160	890	2.0	X	**W**	**37R17**	**(E)DRN**	**63MS4**	29	911/922
12	430	141	900	2.2	X	**WF**	**37R17**	**(E)DRN**	**63MS4**	29	912/922
13	385	125	900	2.5	X	**WA**	**37R17**	**(E)DRN**	**63MS4**	29	914/922
15	345	109	910	2.8	X	**WAF**	**37R17**	**(E)DRN**	**63MS4**	29	912/922
17	305	96	910	3.2	X						
21	260	82	920	3.7	X						
23	270	73	920	3.0	X						
27	240	63	920	3.3	X						
32	200	53	920	3.9	X						
35	190	48	920	4.2	X						
24	285	69.05	920	3.4	X						
27	265	63.33	920	3.7	X						
31	230	53.92	920	4.2	X	**W**	**37**	**(E)DRN**	**63MS4**	22	911
36	200	46.49	920	4.8	X	**WF**	**37**	**(E)DRN**	**63MS4**	22	912
44	168	37.88	930	5.8	X	**WA**	**37**	**(E)DRN**	**63MS4**	22	914
49	173	34.52	930	4.6	X	**WAF**	**37**	**(E)DRN**	**63MS4**	22	912
53	160	31.67	930	5.0	X						
15	295	75.00*	675	2.1		**W**	**30**	**DRN**	**63M6**	20	907
18	275	60.00*	675	2.2		**WF**	**30**	**DRN**	**63M6**	21	908
34	185	32.50*	675	3.4		**WA**	**30**	**DRN**	**63M6**	19	910
40	173	27.50*	675	3.6		**WAF**	**30**	**DRN**	**63M6**	20	909
22	205	75.00*	675	3.0	X						
28	191	60.00*	675	3.2	X	**W**	**30**	**(E)DRN**	**63MS4**	20	907
35	166	48.00*	675	3.7	X	**WF**	**30**	**(E)DRN**	**63MS4**	21	908
43	150	39.00*	675	4.1	X	**WA**	**30**	**(E)DRN**	**63MS4**	19	910
52	126	32.50*	675	4.9	X	**WAF**	**30**	**(E)DRN**	**63MS4**	20	909
15	265	75.00*	495	1.30		**W**	**20**	**DRN**	**63M6**	15	904
18	235	60.00*	495	1.50		**WF**	**20**	**DRN**	**63M6**	15	905
34	196	32.50*	495	1.80		**WA**	**20**	**DRN**	**63M6**	14	906
40	165	27.50*	495	2.1		**WAF**	**20**	**DRN**	**63M6**	14	905
22	187	75.00*	495	1.90	X						
28	164	60.00*	495	2.2	X						
35	150	48.00*	495	2.4	X						
43	137	39.00*	495	2.6	X						
52	133	32.50*	495	2.7	X						
61	112	27.50*	495	3.1	X	**W**	**20**	**(E)DRN**	**63MS4**	15	904
69	101	24.50*	495	3.5	X	**WF**	**20**	**(E)DRN**	**63MS4**	15	905
86	87	19.50*	495	3.6	X	**WA**	**20**	**(E)DRN**	**63MS4**	14	906
102	76	16.50*	495	3.5	X	**WAF**	**20**	**(E)DRN**	**63MS4**	14	905
117	70	14.33	495	3.8	X						
164	52	10.25*	455	4.2	X						
205	43	8.20*	425	4.1	X						
256	36	6.57	400	4.9	X						

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P_m = 0.25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
5.3	1600	318	1440	1.00	X						
6.3	1350	270	1480	1.15	X						
7.2	1270	237	1490	1.25	X						
8.1	1110	210	1510	1.45	X						
9.3	950	183	1540	1.65	X						
11	860	159	1550	1.85	X	**W**	**47R17**	**(E)DRN**	**63M4**	42	917/922
12	770	141	1560	2.1	X	**WF**	**47R17**	**(E)DRN**	**63M4**	43	918/922
14	795	124	1580	1.80	X	**WA**	**47R17**	**(E)DRN**	**63M4**	39	919/922
14	655	120	1580	2.4	X	**WAF**	**47R17**	**(E)DRN**	**63M4**	41	918/922
16	670	105	1590	2.1	X						
18	635	95	1600	2.2	X						
20	555	85	1600	2.5	X						
22	515	77	1610	2.7	X						
24	465	72	1610	3.0	X						
8.2	950	207	755	1.00	X						
9.2	860	184	790	1.10	X						
11	800	160	810	1.20	X						
12	710	141	840	1.35	X						
14	635	125	860	1.55	X	**W**	**37R17**	**(E)DRN**	**63M4**	30	911/922
16	570	109	870	1.70	X	**WF**	**37R17**	**(E)DRN**	**63M4**	30	912/922
18	505	96	880	1.90	X	**WA**	**37R17**	**(E)DRN**	**63M4**	30	914/922
21	435	82	900	2.2	X	**WAF**	**37R17**	**(E)DRN**	**63M4**	30	912/922
23	450	73	890	1.75	X						
27	400	63	900	2.0	X						
32	335	53	910	2.4	X						
35	310	48	910	2.5	X						
23	510	74.98	1600	3.1	X						
25	470	68.93	1600	3.4	X						
29	410	58.98	1610	3.9	X	**W**	**47**	**(E)DRN**	**63M4**	36	917
33	360	51.12	1620	4.4	X	**WF**	**47**	**(E)DRN**	**63M4**	37	918
36	340	47.78	1620	4.7	X	**WA**	**47**	**(E)DRN**	**63M4**	33	919
41	295	41.30	1570	5.3	X	**WAF**	**47**	**(E)DRN**	**63M4**	34	918
54	250	31.62	1460	5.6	X						
25	440	69.05	900	2.2	X						
27	410	63.33	900	2.4	X						
31	355	53.92	910	2.7	X						
36	310	46.49	910	3.1	X						
45	260	37.88	920	3.7	X	**W**	**37**	**(E)DRN**	**63M4**	24	911
49	265	34.52	920	3.0	X	**WF**	**37**	**(E)DRN**	**63M4**	24	912
54	245	31.67	920	3.2	X	**WA**	**37**	**(E)DRN**	**63M4**	24	914
61	197	27.78	920	4.9	X	**WAF**	**37**	**(E)DRN**	**63M4**	24	912
63	210	26.96	920	3.8	X						
73	185	23.25	930	4.3	X						
79	155	21.33	930	6.3	X						
89	152	18.94	930	5.2	X						
23	320	75.00*	675	1.95	X						
28	295	60.00*	675	2.1	X						
35	255	48.00*	675	2.4	X						
43	230	39.00*	675	2.7	X						
52	196	32.50*	675	3.2	X						
62	181	27.50*	675	3.4	X	**W**	**30**	**(E)DRN**	**63M4**	21	907
69	168	24.50*	675	3.7	X	**WF**	**30**	**(E)DRN**	**63M4**	22	908
87	142	19.50*	675	4.4	X	**WA**	**30**	**(E)DRN**	**63M4**	21	910
104	122	16.33	675	4.3	X	**WAF**	**30**	**(E)DRN**	**63M4**	22	909
118	111	14.33	675	4.8	X						
165	83	10.25*	675	5.3	X						
207	68	8.20*	660	5.2	X						
258	57	6.57	615	6.2	X						
15	480	75.00*	675	1.30		**W**	**30**	**DRN**	**63M6**	21	907
18	440	60.00*	675	1.40		**WF**	**30**	**DRN**	**63M6**	22	908
34	295	32.50*	675	2.1		**WA**	**30**	**DRN**	**63M6**	21	910
40	275	27.50*	675	2.2		**WAF**	**30**	**DRN**	**63M6**	22	909

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P_m = 0.25 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
23	290	75.00*	495	1.20	X						
28	250	60.00*	495	1.40	X						
35	230	48.00*	495	1.50	X						
43	210	39.00*	495	1.65	X						
52	205	32.50*	495	1.70	X						
62	174	27.50*	495	2.0	X	**W**	**20**	**(E)DRN**	**63M4**	16	904
69	157	24.50*	495	2.2	X	**WF**	**20**	**(E)DRN**	**63M4**	16	905
87	134	19.50*	495	2.3	X	**WA**	**20**	**(E)DRN**	**63M4**	15	906
103	117	16.50*	495	2.3	X	**WAF**	**20**	**(E)DRN**	**63M4**	15	905
118	108	14.33	490	2.5	X						
165	81	10.25*	445	2.7	X						
207	66	8.20*	415	2.7	X						
258	56	6.57	395	3.2	X						

P_m = 0.33 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
9.3	1300	183	1480	1.20	X						
11	1170	159	1500	1.35	X						
12	1040	141	1520	1.50	X						
14	1080	124	1540	1.30	X	**W**	**47R17**	**(E)DRN**	**71MS4**	46	917/922
14	890	120	1550	1.75	X	**WF**	**47R17**	**(E)DRN**	**71MS4**	47	918/922
16	910	105	1560	1.55	X	**WA**	**47R17**	**(E)DRN**	**71MS4**	43	919/922
18	850	95	1570	1.65	X	**WAF**	**47R17**	**(E)DRN**	**71MS4**	45	918/922
20	750	85	1580	1.90	X						
22	700	77	1590	2.0	X						
24	635	72	1600	2.2	X						
14	860	125	790	1.10	X						
16	770	109	820	1.25	X						
18	690	96	840	1.40	X	**W**	**37R17**	**(E)DRN**	**71MS4**	34	911/922
21	590	82	870	1.65	X	**WF**	**37R17**	**(E)DRN**	**71MS4**	34	912/922
23	610	73	860	1.30	X	**WA**	**37R17**	**(E)DRN**	**71MS4**	34	914/922
27	540	63	880	1.45	X	**WAF**	**37R17**	**(E)DRN**	**71MS4**	34	912/922
32	460	53	890	1.70	X						
35	425	48	900	1.85	X						
						W	**47**	**DRN**	**71M6**	40	917
15	990	74.98	1530	1.60		**WF**	**47**	**DRN**	**71M6**	41	918
16	920	68.93	1540	1.75		**WA**	**47**	**DRN**	**71M6**	37	919
						WAF	**47**	**DRN**	**71M6**	38	918
23	670	74.98	1580	2.4	X						
25	625	68.93	1580	2.5	X	**W**	**47**	**(E)DRN**	**71MS4**	40	917
29	540	58.98	1600	2.9	X	**WF**	**47**	**(E)DRN**	**71MS4**	41	918
33	475	51.12	1600	3.3	X	**WA**	**47**	**(E)DRN**	**71MS4**	37	919
36	445	47.78	1610	3.5	X	**WAF**	**47**	**(E)DRN**	**71MS4**	38	918
25	580	69.05	870	1.65	X						
27	540	63.33	880	1.80	X						
32	470	53.92	890	2.1	X						
37	410	46.49	900	2.4	X						
45	340	37.88	910	2.8	X						
50	350	34.52	910	2.3	X						
54	325	31.67	910	2.4	X						
62	260	27.78	920	3.7	X	**W**	**37**	**(E)DRN**	**71MS4**	28	911
64	280	26.96	920	2.8	X	**WF**	**37**	**(E)DRN**	**71MS4**	28	912
74	240	23.25	920	3.3	X	**WA**	**37**	**(E)DRN**	**71MS4**	28	914
81	200	21.33	920	4.8	X	**WAF**	**37**	**(E)DRN**	**71MS4**	28	912
91	200	18.94	920	4.0	X						
110	168	15.67	910	4.7	X						
124	150	13.89	880	5.3	X						
135	144	12.70	870	4.3	X						
148	132	11.65	850	4.7	X						
161	116	10.67	810	6.8	X						
173	113	9.92	800	5.5	X						

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P_m = 0.33 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
15	615	75.00*	675	1.00		**W**	**30**	**DRN**	**71M6**	25	907
19	570	60.00*	675	1.10		**WF**	**30**	**DRN**	**71M6**	26	908
35	380	32.50*	675	1.60		**WA**	**30**	**DRN**	**71M6**	25	910
46	330	24.50*	675	1.85		**WAF**	**30**	**DRN**	**71M6**	26	909
58	280	19.50*	675	2.2							
23	420	75.00*	675	1.45	X						
29	390	60.00*	675	1.60	X						
36	335	48.00*	675	1.85	X						
44	305	39.00*	675	2.0	X						
53	255	32.50*	675	2.4	X						
63	235	27.50*	675	2.6	X	**W**	**30**	**(E)DRN**	**71MS4**	25	907
70	220	24.50*	675	2.8	X	**WF**	**30**	**(E)DRN**	**71MS4**	26	908
88	188	19.50*	675	3.3	X	**WA**	**30**	**(E)DRN**	**71MS4**	25	910
105	161	16.33	675	3.3	X	**WAF**	**30**	**(E)DRN**	**71MS4**	26	909
120	146	14.33	675	3.6	X						
168	110	10.25*	675	4.0	X						
210	90	8.20*	655	3.9	X						
262	75	6.57	615	4.7	X						
331	56	10.25*	360	4.0		**W**	**20**	**DRN**	**63M2**	20	904
414	46	8.20*	335	3.9		**WF**	**20**	**DRN**	**63M2**	20	905
517	38	6.57	315	4.6		**WA**	**20**	**DRN**	**63M2**	19	906
						WAF	**20**	**DRN**	**63M2**	19	905
41	340	27.50*	495	1.05							
46	305	24.50*	495	1.15							
58	265	19.50*	495	1.15		**W**	**20**	**DRN**	**71M6**	20	904
79	210	14.33	495	1.25		**WF**	**20**	**DRN**	**71M6**	20	905
111	161	10.25*	495	1.35		**WA**	**20**	**DRN**	**71M6**	19	906
138	133	8.20*	465	1.35		**WAF**	**20**	**DRN**	**71M6**	19	905
173	112	6.57	445	1.60							
29	330	60.00*	495	1.05	X						
36	305	48.00*	495	1.15	X						
44	275	39.00*	495	1.25	X						
53	270	32.50*	495	1.30	X						
63	225	27.50*	495	1.55	X	**W**	**20**	**(E)DRN**	**71MS4**	20	904
70	205	24.50*	495	1.70	X	**WF**	**20**	**(E)DRN**	**71MS4**	20	905
88	177	19.50*	495	1.75	X	**WA**	**20**	**(E)DRN**	**71MS4**	19	906
104	155	16.50*	495	1.70	X	**WAF**	**20**	**(E)DRN**	**71MS4**	19	905
120	142	14.33	480	1.85	X						
168	106	10.25*	435	2.1	X						
210	87	8.20*	410	2.0	X						
262	73	6.57	390	2.4	X						

P_m = 0.50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
14	1400	120	1470	1.15	X						
16	1430	105	1490	1.00		**W**	**47R17**	**(E)DRN**	**71M4**	46	917/922
18	1320	95	1510	1.05	X	**WF**	**47R17**	**(E)DRN**	**71M4**	47	918/922
20	1170	85	1530	1.20	X	**WA**	**47R17**	**(E)DRN**	**71M4**	43	919/922
22	1080	77	1540	1.30	X	**WAF**	**47R17**	**(E)DRN**	**71M4**	45	918/922
24	990	72	1550	1.40	X						
21	930	82	765	1.05	X	**W**	**37R17**	**(E)DRN**	**71M4**	34	911/922
32	720	53	830	1.10	X	**WF**	**37R17**	**(E)DRN**	**71M4**	34	912/922
35	660	48	850	1.20	X	**WA**	**37R17**	**(E)DRN**	**71M4**	34	914/922
						WAF	**37R17**	**(E)DRN**	**71M4**	34	912/922
15	1500	74.98	1450	1.05							
16	1390	68.93	1470	1.15		**W**	**47**	**DRN**	**80MK6**	53	917
19	1210	58.98	1500	1.30		**WF**	**47**	**DRN**	**80MK6**	54	918
22	1060	51.12	1520	1.50		**WA**	**47**	**DRN**	**80MK6**	49	919
23	1000	47.78	1530	1.60		**WAF**	**47**	**DRN**	**80MK6**	51	918

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P_m = 0.50 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
23	1020	74.98	1530	1.55	X						
25	940	68.93	1540	1.70	X						
29	820	58.98	1560	1.95	X						
34	720	51.12	1560	2.2	X						
36	680	47.78	1530	2.3	X						
42	595	41.30	1480	2.7	X						
49	515	35.09	1420	3.1	X						
55	500	31.62	1390	2.8	X						
55	460	31.33	1370	3.4	X	**W**	**47**	**(E)DRN**	**71M4**	40	917
63	435	27.41	1340	3.2	X	**WF**	**47**	**(E)DRN**	**71M4**	41	918
65	400	26.76	1310	4.0	X	**WA**	**47**	**(E)DRN**	**71M4**	37	919
68	410	25.62	1310	3.4	X	**WAF**	**47**	**(E)DRN**	**71M4**	38	918
69	375	25.07	1290	4.2	X						
78	355	22.15	1260	3.9	X						
92	305	18.82	1200	4.6	X						
103	275	16.80	1160	5.1	X						
121	235	14.35	1110	6.0	X						
141	215	12.30	1080	4.5	X						
162	188	10.66	1030	5.2	X						
174	176	9.96	1010	5.5	X						
27	820	63.33	800	1.20	X						
32	710	53.92	840	1.35	X						
37	625	46.49	860	1.55	X						
46	520	37.88	880	1.85	X						
50	530	34.52	880	1.50	X						
55	490	31.67	890	1.60	X						
62	390	27.78	900	2.5	X						
64	420	26.96	900	1.90	X	**W**	**37**	**(E)DRN**	**71M4**	28	911
74	365	23.25	910	2.2	X	**WF**	**37**	**(E)DRN**	**71M4**	28	912
81	310	21.33	910	3.1	X	**WA**	**37**	**(E)DRN**	**71M4**	28	914
91	300	18.94	910	2.6	X	**WAF**	**37**	**(E)DRN**	**71M4**	28	912
110	250	15.67	880	3.1	X						
125	225	13.89	850	3.5	X						
136	215	12.70	850	2.8	X						
148	200	11.65	830	3.1	X						
162	176	10.67	790	4.5	X						
174	171	9.92	790	3.6	X						
202	148	8.55	755	4.2	X						
29	590	60.00*	675	1.05	X						
36	510	48.00*	675	1.20	X						
44	465	39.00*	675	1.35	X						
53	390	32.50*	675	1.60	X						
63	360	27.50*	675	1.70	X	**W**	**30**	**(E)DRN**	**71M4**	25	907
71	335	24.50*	675	1.85	X	**WF**	**30**	**(E)DRN**	**71M4**	26	908
89	280	19.50*	675	2.2	X	**WA**	**30**	**(E)DRN**	**71M4**	25	910
106	240	16.33	675	2.2	X	**WAF**	**30**	**(E)DRN**	**71M4**	26	909
121	220	14.33	675	2.4	X						
169	166	10.25*	675	2.7	X						
211	136	8.20*	645	2.6	X						
263	114	6.57	605	3.1	X						
140	169	24.50*	445	2.1							
176	144	19.50*	415	2.2							
208	125	16.50*	400	2.1		**W**	**20**	**DRN**	**71MS2**	20	904
240	114	14.33	385	2.3		**WF**	**20**	**DRN**	**71MS2**	20	905
336	85	10.25*	350	2.6		**WA**	**20**	**DRN**	**71MS2**	19	906
420	69	8.20*	330	2.5		**WAF**	**20**	**DRN**	**71MS2**	19	905
524	58	6.57	310	3.0							
63	345	27.50*	495	1.00	X						
71	310	24.50*	495	1.15	X						
89	265	19.50*	490	1.15	X	**W**	**20**	**(E)DRN**	**71M4**	20	904
105	230	16.50*	470	1.15	X	**WF**	**20**	**(E)DRN**	**71M4**	20	905
121	215	14.33	455	1.25	X	**WA**	**20**	**(E)DRN**	**71M4**	19	906
169	161	10.25*	420	1.35	X	**WAF**	**20**	**(E)DRN**	**71M4**	19	905
211	132	8.20*	395	1.35	X						
263	111	6.57	380	1.60	X						

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P_m = 0.75 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
22	1570	51.12	1440	1.00							
23	1480	47.78	1460	1.05							
27	1300	41.30	1480	1.20		**W**	**47**	**DRN**	**90SR6**	64	917
32	1120	35.09	1450	1.40		**WF**	**47**	**DRN**	**90SR6**	64	918
35	1120	31.62	1450	1.25		**WA**	**47**	**DRN**	**90SR6**	59	919
36	1010	31.33	1420	1.55		**WAF**	**47**	**DRN**	**90SR6**	62	918
41	970	27.41	1410	1.45							
44	910	25.62	1390	1.55							
23	1530	74.98	1450	1.05	X						
25	1420	68.93	1470	1.10	X						
30	1240	58.98	1480	1.30	X						
34	1090	51.12	1440	1.45	X						
37	1020	47.78	1430	1.55	X	**W**	**47**	**(E)DRN**	**80MK4**	46	917
42	900	41.30	1380	1.75	X	**WF**	**47**	**(E)DRN**	**80MK4**	46	918
50	775	35.09	1330	2.0	X	**WA**	**47**	**(E)DRN**	**80MK4**	42	919
55	755	31.62	1330	1.85	X	**WAF**	**47**	**(E)DRN**	**80MK4**	44	918
56	700	31.33	1300	2.3	X						
64	660	27.41	1280	2.1	X						
68	620	25.62	1260	2.3	X						
46	785	37.88	820	1.25	X						
56	740	31.67	830	1.05	X						
63	590	27.78	870	1.65	X						
65	640	26.96	860	1.25	X						
75	555	23.25	870	1.45	X						
82	465	21.33	890	2.1	X						
92	455	18.94	880	1.75	X						
111	380	15.67	840	2.1	X	**W**	**37**	**(E)DRN**	**80MK4**	33	911
126	340	13.89	820	2.3	X	**WF**	**37**	**(E)DRN**	**80MK4**	33	912
137	325	12.70	830	1.90	X	**WA**	**37**	**(E)DRN**	**80MK4**	33	914
150	300	11.65	810	2.0	X	**WAF**	**37**	**(E)DRN**	**80MK4**	33	912
164	265	10.67	765	3.0	X						
176	255	9.92	775	2.4	X						
204	220	8.55	740	2.8	X						
250	183	6.97	700	3.4	X						
303	152	5.77	660	4.1	X						
341	135	5.11	635	4.6	X						
445	104	3.93	585	5.9	X						
54	585	32.50*	675	1.05	X						
63	545	27.50*	675	1.15	X						
71	505	24.50*	675	1.20	X						
89	420	19.50*	675	1.50	X	**W**	**30**	**(E)DRN**	**80MK4**	31	907
107	365	16.33	675	1.45	X	**WF**	**30**	**(E)DRN**	**80MK4**	31	908
122	330	14.33	675	1.60	X	**WA**	**30**	**(E)DRN**	**80MK4**	31	910
170	250	10.25*	670	1.75	X	**WAF**	**30**	**(E)DRN**	**80MK4**	31	909
213	205	8.20*	630	1.70	X						
266	173	6.57	595	2.0	X						
106	305	32.50*	675	2.0							
126	275	27.50*	675	2.2							
141	255	24.50*	675	2.4							
177	215	19.50*	655	2.8		**W**	**30**	**DRN**	**71M2**	26	907
212	187	16.33	625	2.8		**WF**	**30**	**DRN**	**71M2**	26	908
241	169	14.33	600	3.1		**WA**	**30**	**DRN**	**71M2**	24	910
337	126	10.25*	550	3.5		**WAF**	**30**	**DRN**	**71M2**	26	909
421	103	8.20*	515	3.4							
526	87	6.57	480	4.1							
89	330	39.00*	440	1.05							
106	320	32.50*	420	1.10							
126	270	27.50*	410	1.30							
141	240	24.50*	400	1.45		**W**	**20**	**DRN**	**71M2**	20	904
177	210	19.50*	380	1.50		**WF**	**20**	**DRN**	**71M2**	21	905
209	180	16.50*	360	1.50		**WA**	**20**	**DRN**	**71M2**	20	906
241	160	14.33	350	1.70		**WAF**	**20**	**DRN**	**71M2**	20	905
337	120	10.25*	330	1.85							
421	100	8.20*	310	1.80							

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
33	1440	35.09	1330	1.10							
37	1300	31.33	1310	1.20							
42	1250	27.41	1310	1.15							
44	1130	26.76	1270	1.40							
45	1170	25.62	1300	1.20							
46	1060	25.07	1260	1.50							
53	1020	22.15	1260	1.40							
62	870	18.82	1220	1.60		**W**	**47**	**DRN**	**90S6**	67	917
69	785	16.80	1190	1.80		**WF**	**47**	**DRN**	**90S6**	68	918
81	680	14.35	1150	2.1		**WA**	**47**	**DRN**	**90S6**	64	919
87	635	13.44	1130	2.2		**WAF**	**47**	**DRN**	**90S6**	66	918
103	540	11.32	1080	2.6							
109	540	10.66	1110	1.80							
117	505	9.96	1090	1.90							
135	440	8.61	1050	2.2							
159	375	7.32	1000	2.6							
178	335	6.53	970	2.9							
30	1600	58.98	1350	1.00							
34	1400	51.12	1320	1.15	X						
37	1320	47.78	1310	1.20	X						
42	1160	41.30	1280	1.35	X						
50	1000	35.09	1240	1.60	X						
55	970	31.62	1250	1.45	X						
56	900	31.33	1220	1.75	X						
64	850	27.41	1210	1.65	X	**W**	**47**	**(E)DRN**	**80M4**	53	917
65	780	26.76	1180	2.0	X	**WF**	**47**	**(E)DRN**	**80M4**	54	918
68	800	25.62	1190	1.75	X	**WA**	**47**	**(E)DRN**	**80M4**	50	919
70	735	25.07	1160	2.2	X	**WAF**	**47**	**(E)DRN**	**80M4**	52	918
79	695	22.15	1160	2.0	X						
93	595	18.82	1110	2.4	X						
104	535	16.80	1080	2.6	X						
142	415	12.30	1030	2.3	X						
164	360	10.66	990	2.7	X						
176	340	9.96	970	2.9	X						
55	870	21.33	785	1.10							
74	725	15.67	830	1.10							
84	645	13.89	840	1.25		**W**	**37**	**DRN**	**90S6**	54	911
109	505	10.67	800	1.60		**WF**	**37**	**DRN**	**90S6**	54	912
136	425	8.55	800	1.45		**WA**	**37**	**DRN**	**90S6**	54	914
167	350	6.97	760	1.75		**WAF**	**37**	**DRN**	**90S6**	54	912
202	290	5.77	720	2.1							
228	255	5.11	700	2.4							
56	850	31.33	790	1.15	X						
63	765	27.78	820	1.25	X						
75	715	23.25	840	1.10	X						
82	600	21.33	830	1.60	X						
92	590	18.94	830	1.35	X						
112	490	15.67	795	1.60	X						
126	440	13.89	775	1.80	X	**W**	**37**	**(E)DRN**	**80M4**	41	911
164	340	10.67	730	2.3	X	**WF**	**37**	**(E)DRN**	**80M4**	41	912
176	330	9.92	750	1.85	X	**WA**	**37**	**(E)DRN**	**80M4**	41	914
205	285	8.55	720	2.1	X	**WAF**	**37**	**(E)DRN**	**80M4**	41	912
251	235	6.97	680	2.6	X						
304	196	5.77	645	3.2	X						
343	174	5.11	620	3.6	X						
446	134	3.93	575	4.6	X						
547	110	3.20*	540	5.7	X						
406	147	8.55	590	4.2							
499	120	6.97	555	5.2		**W**	**37**	**DRN**	**80MS2**	41	911
603	100	5.77	525	6.2		**WF**	**37**	**DRN**	**80MS2**	41	912
680	89	5.11	505	7.0		**WA**	**37**	**DRN**	**80MS2**	41	914
886	68	3.93	465	9.1		**WAF**	**37**	**DRN**	**80MS2**	41	912
1085	56	3.20*	435	11							

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P_m = 1.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
107	470	16.33	675	1.10	X	**W**	**30**	**(E)DRN**	**80M4**	38	907
122	430	14.33	675	1.25	X	**WF**	**30**	**(E)DRN**	**80M4**	39	908
171	320	10.25*	645	1.35	X	**WA**	**30**	**(E)DRN**	**80M4**	38	910
214	260	8.20*	610	1.35	X	**WAF**	**30**	**(E)DRN**	**80M4**	38	909
266	220	6.57	575	1.60	X						

P_m = 1.5 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
50	1490	35.09	1080	1.05	X						
56	1340	31.33	1070	1.20	X						
64	1270	27.41	1100	1.10	X						
66	1160	26.76	1050	1.35	X						
69	1190	25.62	1090	1.20	X						
70	1090	25.07	1040	1.45	X						
80	1030	22.15	1060	1.35	X						
94	890	18.82	1030	1.60	X	**W**	**47**	**(E)DRN**	**90S4**	67	917
105	795	16.80	1010	1.75	X	**WF**	**47**	**(E)DRN**	**90S4**	68	918
123	685	14.35	970	2.1	X	**WA**	**47**	**(E)DRN**	**90S4**	64	919
131	645	13.44	960	2.2	X	**WAF**	**47**	**(E)DRN**	**90S4**	66	918
143	625	12.30	990	1.55	X						
156	545	11.32	920	2.6	X						
165	540	10.66	960	1.80	X						
177	505	9.96	940	1.90	X						
205	440	8.61	900	2.2	X						
241	375	7.32	860	2.6	X						
270	335	6.53	830	2.9	X						
83	890	21.33	710	1.10	X						
112	735	15.67	715	1.10	X						
127	655	13.89	700	1.20	X						
165	510	10.67	675	1.55	X						
178	495	9.92	710	1.25	X	**W**	**37**	**(E)DRN**	**90S4**	54	911
206	425	8.55	685	1.45	X	**WF**	**37**	**(E)DRN**	**90S4**	54	912
253	350	6.97	655	1.75	X	**WA**	**37**	**(E)DRN**	**90S4**	54	914
306	290	5.77	620	2.1	X	**WAF**	**37**	**(E)DRN**	**90S4**	54	912
345	255	5.11	600	2.4	X						
449	200	3.93	560	3.1	X						
551	164	3.20*	525	3.8	X						
407	215	8.55	575	2.8							
500	180	6.97	540	3.4		**W**	**37**	**DRN**	**80M2**	41	911
604	149	5.77	515	4.2		**WF**	**37**	**DRN**	**80M2**	41	912
682	133	5.11	495	4.7		**WA**	**37**	**DRN**	**80M2**	41	914
888	102	3.93	455	6.1		**WAF**	**37**	**DRN**	**80M2**	41	912
1090	84	3.20*	430	7.4							
107	605	32.50*	665	1.00							
127	545	27.50*	630	1.15							
142	505	24.50*	615	1.20		**W**	**30**	**DRN**	**80M2**	38	907
213	365	16.33	570	1.45		**WF**	**30**	**DRN**	**80M2**	39	908
243	330	14.33	555	1.60		**WA**	**30**	**DRN**	**80M2**	38	910
340	245	10.25*	515	1.80		**WAF**	**30**	**DRN**	**80M2**	38	909
425	200	8.20*	485	1.75							
530	171	6.57	460	2.1							

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P_m = 2.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
66	1540	26.76	930	1.05	X						
70	1450	25.07	930	1.10	X						
80	1380	22.15	970	1.00	X						
94	1180	18.82	950	1.20	X						
105	1060	16.80	940	1.35	X						
123	910	14.35	910	1.55	X						
131	850	13.44	900	1.65	X	**W**	**47**	**(E)DRN**	**90L4**	74	917
156	725	11.32	870	1.95	X	**WF**	**47**	**(E)DRN**	**90L4**	75	918
166	720	10.66	930	1.35	X	**WA**	**47**	**(E)DRN**	**90L4**	71	919
177	675	9.96	910	1.45	X	**WAF**	**47**	**(E)DRN**	**90L4**	73	918
205	585	8.61	880	1.65	X						
241	495	7.32	840	1.95	X						
270	445	6.53	810	2.2	X						
317	380	5.58	780	2.5	X						
338	355	5.23	765	2.7	X						
166	675	10.67	615	1.15	X						
207	570	8.55	655	1.10	X						
254	465	6.97	625	1.35	X	**W**	**37**	**(E)DRN**	**90L4**	61	911
306	385	5.77	600	1.60	X	**WF**	**37**	**(E)DRN**	**90L4**	61	912
346	340	5.11	580	1.80	X	**WA**	**37**	**(E)DRN**	**90L4**	61	914
450	265	3.93	545	2.3	X	**WAF**	**37**	**(E)DRN**	**90L4**	61	912
552	215	3.20*	515	2.9	X						
410	290	8.55	555	2.1							
503	235	6.97	530	2.6		**W**	**37**	**DRN**	**90S2**	54	911
608	198	5.77	500	3.1		**WF**	**37**	**DRN**	**90S2**	54	912
686	176	5.11	485	3.5		**WA**	**37**	**DRN**	**90S2**	54	914
893	135	3.93	450	4.6		**WAF**	**37**	**DRN**	**90S2**	54	912
1095	111	3.20*	425	5.6							

P_m = 3.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra} [1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
123	1370	14.35	790	1.05	X						
131	1290	13.44	790	1.10	X						
156	1090	11.32	780	1.30	X						
205	880	8.61	830	1.10	X						
241	750	7.32	800	1.30	X	**W**	**47**	**(E)DRN**	**100LM4**	98	917
270	670	6.53	775	1.45	X	**WF**	**47**	**(E)DRN**	**100LM4**	100	918
316	575	5.58	750	1.70	X	**WA**	**47**	**(E)DRN**	**100LM4**	95	919
337	535	5.23	735	1.80	X	**WAF**	**47**	**(E)DRN**	**100LM4**	97	918
400	455	4.40	705	2.1	X						
453	400	3.89	680	2.4	X						
539	335	3.27	650	2.9	X						
412	430	8.55	525	1.40							
506	355	6.97	500	1.75		**W**	**37**	**DRN**	**90L2**	61	911
611	295	5.77	480	2.1		**WF**	**37**	**DRN**	**90L2**	61	912
690	260	5.11	465	2.4		**WA**	**37**	**DRN**	**90L2**	61	914
898	200	3.93	435	3.1		**WAF**	**37**	**DRN**	**90L2**	61	912
1100	165	3.20*	410	3.8							

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P_m = 4.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
270	890	6.53	740	1.10	X						
316	765	5.58	715	1.25	X	**W**	**47**	**(E)DRN**	**100L4**	98	917
337	715	5.23	705	1.35	X	**WF**	**47**	**(E)DRN**	**100L4**	100	918
400	605	4.40	680	1.60	X	**WA**	**47**	**(E)DRN**	**100L4**	95	919
453	535	3.89	660	1.80	X	**WAF**	**47**	**(E)DRN**	**100L4**	97	918
540	450	3.27	630	2.1	X						
505	475	6.97	475	1.30							
610	390	5.77	460	1.55		**W**	**37**	**DRN**	**100LM2**	85	911
688	350	5.11	445	1.75		**WF**	**37**	**DRN**	**100LM2**	85	912
896	270	3.93	420	2.3		**WA**	**37**	**DRN**	**100LM2**	85	914
1100	220	3.20*	400	2.8		**WAF**	**37**	**DRN**	**100LM2**	85	912

P_m = 5.0 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
315	960	5.58	680	1.00	X	**W**	**47**	**(E)DRN**	**100L4**	98	917
336	900	5.23	675	1.10	X	**WF**	**47**	**(E)DRN**	**100L4**	100	918
399	760	4.40	650	1.30	X	**WA**	**47**	**(E)DRN**	**100L4**	95	919
452	670	3.89	635	1.45	X	**WAF**	**47**	**(E)DRN**	**100L4**	97	918
538	565	3.27	610	1.70	X						
629	485	5.58	590	2.0							
671	455	5.23	580	2.1		**W**	**47**	**DRN**	**100L2**	98	917
797	380	4.40	555	2.5		**WF**	**47**	**DRN**	**100L2**	100	918
902	335	3.89	540	2.9		**WA**	**47**	**DRN**	**100L2**	95	919
1075	285	3.27	515	3.4		**WAF**	**47**	**DRN**	**100L2**	97	918

P_m = 5.4 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}[1] lb	SEW SF f_B	HazLoc -NA®					m lbs	
338	960	5.23	660	1.00	X	**W**	**47**	**(E)DRN**	**112M4**	120	917
402	810	4.40	640	1.20	X	**WF**	**47**	**(E)DRN**	**112M4**	120	918
455	720	3.89	625	1.35	X	**WA**	**47**	**(E)DRN**	**112M4**	115	919
542	605	3.27	605	1.60	X	**WAF**	**47**	**(E)DRN**	**112M4**	120	918
636	515	5.58	580	1.90							
680	485	5.23	570	2.0		**W**	**47**	**DRN**	**112M2**	120	917
807	410	4.40	550	2.4		**WF**	**47**	**DRN**	**112M2**	120	918
913	360	3.89	530	2.7		**WA**	**47**	**DRN**	**112M2**	115	919
1085	300	3.27	510	3.2		**WAF**	**47**	**DRN**	**112M2**	120	918

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12.4 W.. R.. DRN.. Selections by torque / low output speed

$T_{a\,max}$ = 795 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
			W	**37R17**	**DRN**	**71M4**	35	911/922
23	73	810	**WF**	**37R17**	**DRN**	**71M4**	35	912/922
27	63	810	**WA**	**37R17**	**DRN**	**71M4**	35	914/922
			WAF	**37R17**	**DRN**	**71M4**	35	912/922
			W	**37R17**	**DRN**	**80MK4**	47	911/922
32	53	810	**WF**	**37R17**	**DRN**	**80MK4**	47	912/922
35	48	810	**WA**	**37R17**	**DRN**	**80MK4**	47	914/922
			WAF	**37R17**	**DRN**	**80MK4**	47	912/922

$T_{a\,max}$ = 970 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.38	4402	745						
0.44	3795	745						
0.51	3272	745						
0.58	2899	745						
0.66	2558	745						
0.71	2382	745						
0.77	2172	745						
0.86	1952	745						
0.94	1795	745						
1.1	1593	745						
1.1	1463	745						
1.3	1298	745	**W**	**37R17**	**DRN**	**63MS4**	29	911/922
1.4	1173	745	**WF**	**37R17**	**DRN**	**63MS4**	29	912/922
1.6	1063	745	**WA**	**37R17**	**DRN**	**63MS4**	29	914/922
1.8	956	745	**WAF**	**37R17**	**DRN**	**63MS4**	29	912/922
2.0	854	745						
2.2	754	745						
2.5	669	745						
2.8	600	745						
3.2	532	745						
3.6	472	745						
3.9	434	745						
4.4	384	745						
4.7	359	745						
5.1	327	745						
			W	**37R17**	**DRN**	**63M4**	31	911/922
6.0	286	745	**WF**	**37R17**	**DRN**	**63M4**	31	912/922
6.4	267	745	**WA**	**37R17**	**DRN**	**63M4**	31	914/922
7.3	233	745	**WAF**	**37R17**	**DRN**	**63M4**	31	912/922
			W	**37R17**	**DRN**	**71MS4**	33	911/922
8.2	207	745	**WF**	**37R17**	**DRN**	**71MS4**	33	912/922
9.2	184	745	**WA**	**37R17**	**DRN**	**71MS4**	33	914/922
11	160	745	**WAF**	**37R17**	**DRN**	**71MS4**	33	912/922
			W	**37R17**	**DRN**	**71M4**	35	911/922
12	141	745	**WF**	**37R17**	**DRN**	**71M4**	35	912/922
14	125	745	**WA**	**37R17**	**DRN**	**71M4**	35	914/922
16	109	745	**WAF**	**37R17**	**DRN**	**71M4**	35	912/922
18	96	745						
			W	**37R17**	**DRN**	**80MK4**	47	911/922
21	82	745	**WF**	**37R17**	**DRN**	**80MK4**	47	912/922
			WA	**37R17**	**DRN**	**80MK4**	47	914/922
			WAF	**37R17**	**DRN**	**80MK4**	47	912/922

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$T_{a\ max}$ = 1410 lb-in

n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
			W	**47R17**	**DRN**	**71M4**	48	917/922
14	124	1490	**WF**	**47R17**	**DRN**	**71M4**	48	918/922
16	105	1490	**WA**	**47R17**	**DRN**	**71M4**	44	919/922
			WAF	**47R17**	**DRN**	**71M4**	46	918/922
18	95	1490	**W**	**47R17**	**DRN**	**80MK4**	59	917/922
20	85	1490	**WF**	**47R17**	**DRN**	**80MK4**	60	918/922
22	77	1490	**WA**	**47R17**	**DRN**	**80MK4**	56	919/922
23	72	1490	**WAF**	**47R17**	**DRN**	**80MK4**	58	918/922

$T_{a\ max}$ = 1590 lb-in

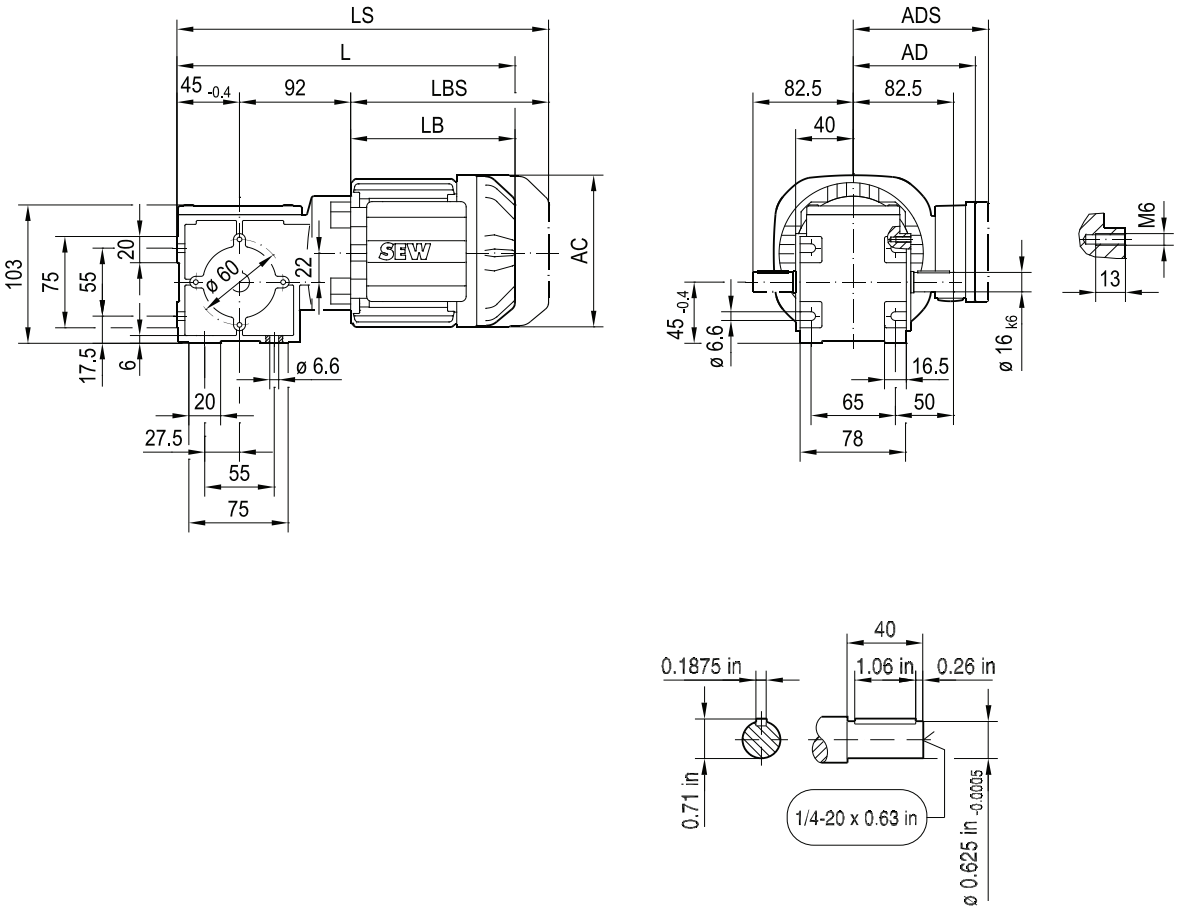
n_a rpm	i ratio	F_{Ra} [1] lb					m lbs	
0.35	4815	1440						
0.40	4173	1440						
0.43	3870	1440						
0.47	3598	1440						
0.50	3354	1440						
0.53	3171	1440						
0.61	2748	1440						
0.69	2425	1440						
0.74	2258	1440						
0.80	2111	1440						
0.86	1959	1440						
0.93	1797	1440	**W**	**47R17**	**DRN**	**63MS4**	41	917/922
1.1	1595	1440	**WF**	**47R17**	**DRN**	**63MS4**	42	918/922
1.1	1486	1440	**WA**	**47R17**	**DRN**	**63MS4**	38	919/922
1.2	1448	1440	**WAF**	**47R17**	**DRN**	**63MS4**	40	918/922
1.3	1290	1440						
1.4	1170	1440						
1.4	1183	1440						
1.6	1042	1440						
1.8	956	1440						
1.9	869	1440						
2.2	754	1440						
2.5	661	1440						
2.8	596	1440						
3.1	536	1440						
3.6	473	1440	**W**	**47R17**	**DRN**	**63M4**	44	917/922
3.9	434	1440	**WF**	**47R17**	**DRN**	**63M4**	44	918/922
4.4	386	1440	**WA**	**47R17**	**DRN**	**63M4**	40	919/922
4.7	359	1440	**WAF**	**47R17**	**DRN**	**63M4**	42	918/922
5.3	318	1440						
5.8	291	1440	**W**	**47R17**	**DRN**	**71MS4**	44	917/922
6.3	270	1440	**WF**	**47R17**	**DRN**	**71MS4**	46	918/922
6.4	265	1440	**WA**	**47R17**	**DRN**	**71MS4**	42	919/922
7.2	237	1440	**WAF**	**47R17**	**DRN**	**71MS4**	44	918/922
8.1	210	1440	**W**	**47R17**	**DRN**	**71M4**	46	917/922
9.3	183	1440	**WF**	**47R17**	**DRN**	**71M4**	47	918/922
11	159	1440	**WA**	**47R17**	**DRN**	**71M4**	43	919/922
12	141	1440	**WAF**	**47R17**	**DRN**	**71M4**	45	918/922
			W	**47R17**	**DRN**	**80MK4**	49	917/922
14	120	1440	**WF**	**47R17**	**DRN**	**80MK4**	50	918/922
			WA	**47R17**	**DRN**	**80MK4**	46	919/922
			WAF	**47R17**	**DRN**	**80MK4**	48	918/922

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12.5 W.. DRN.. Dimensions

W10..

77 668 00 21

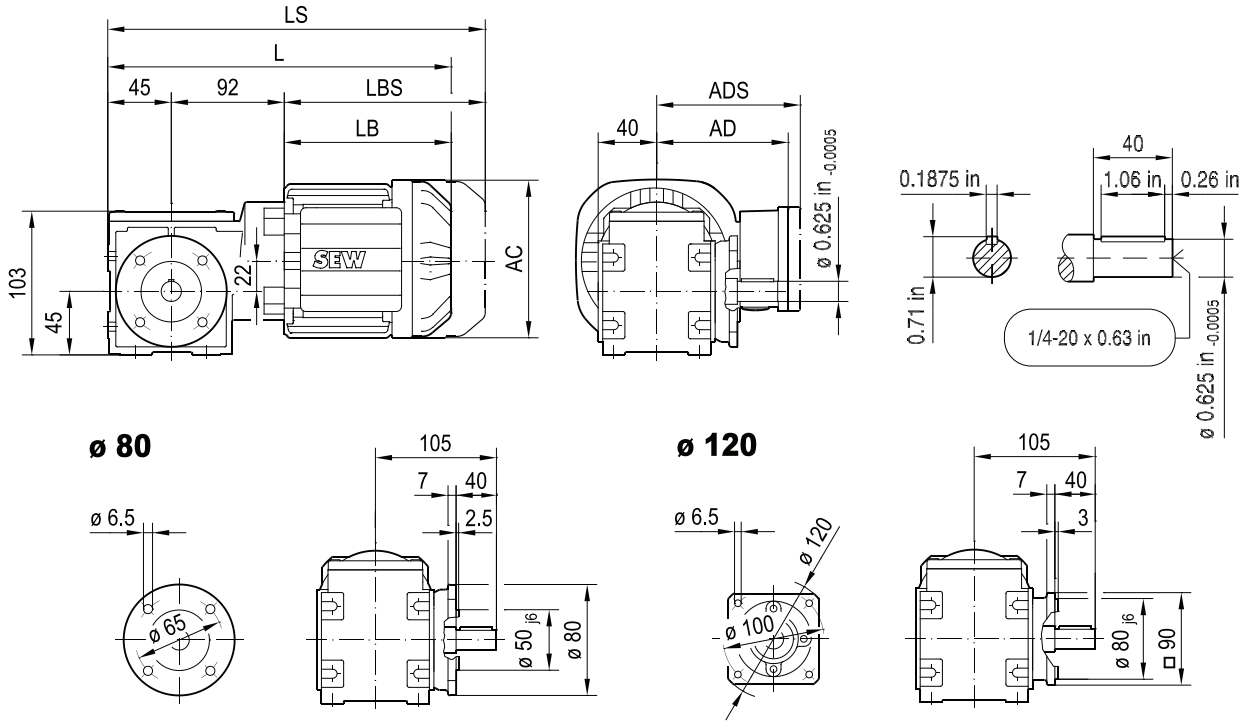


(→ 🗎 162)	DRN							
	63MS	63M	71MS					
AC	115	115	139					
AD	98	98	118					
ADS	98	98	129					
L	285	299	301					
LS	341	355	368					
LB	148	162	164					
LBS	204	218	231					

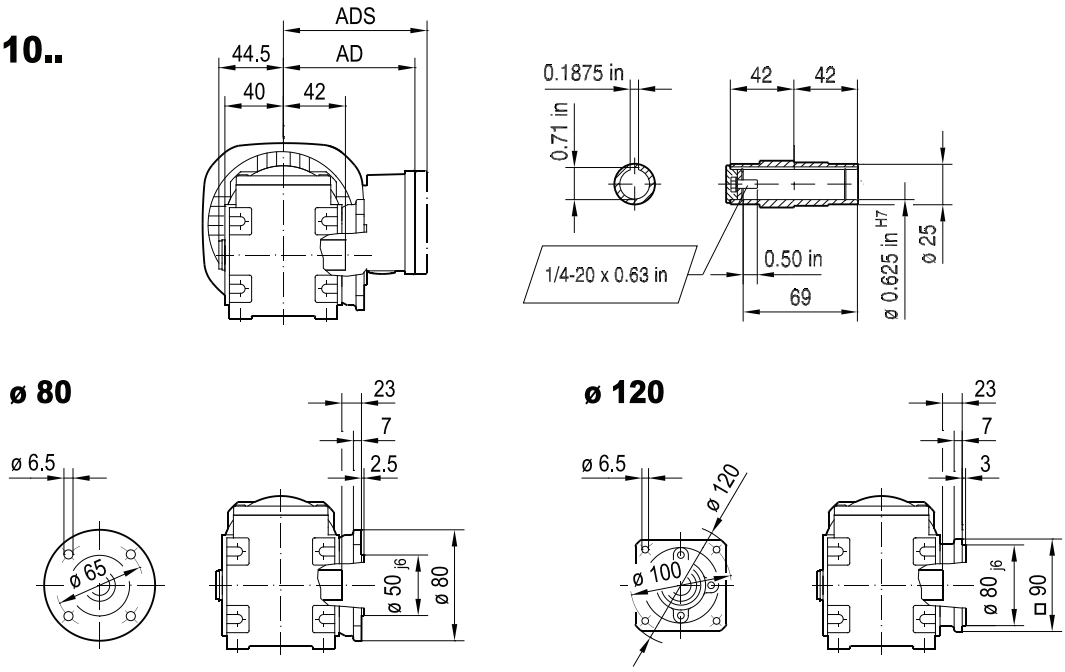
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 923. For tolerances, see page 162.

WF10..

77 669 00 21



WAF10..



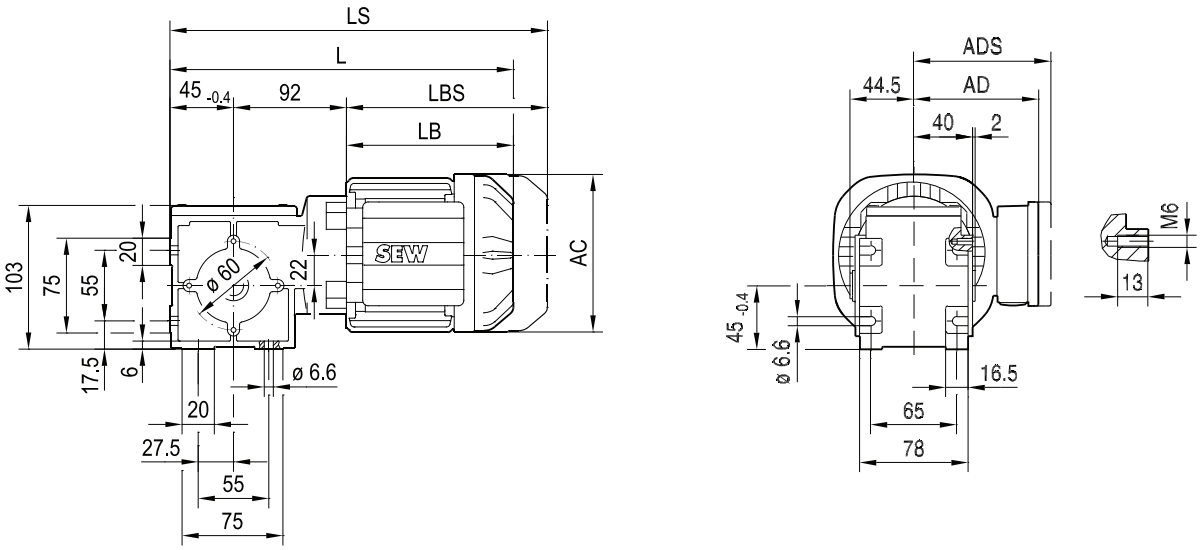
(→ 🗎 162)	DRN							
	63MS	63M	71MS					
AC	115	115	139					
AD	98	98	118					
ADS	98	98	129					
L	285	299	301					
LS	341	355	368					
LB	148	162	164					
LBS	204	218	231					

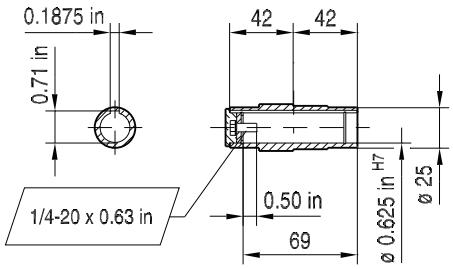
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 923. For tolerances, see page 162.

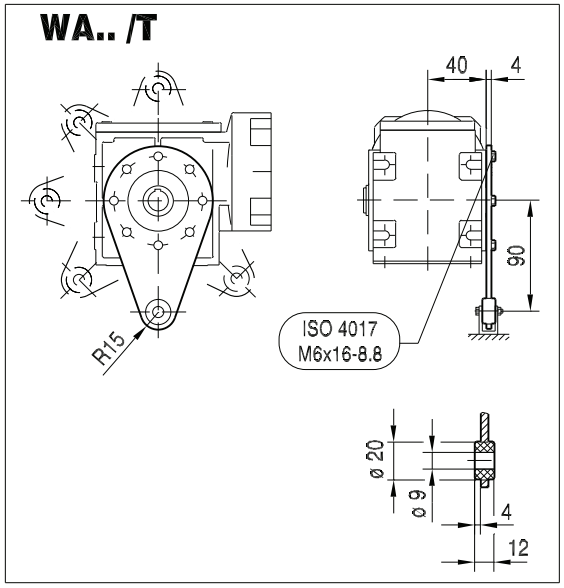
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77 670 00 21

WA10..







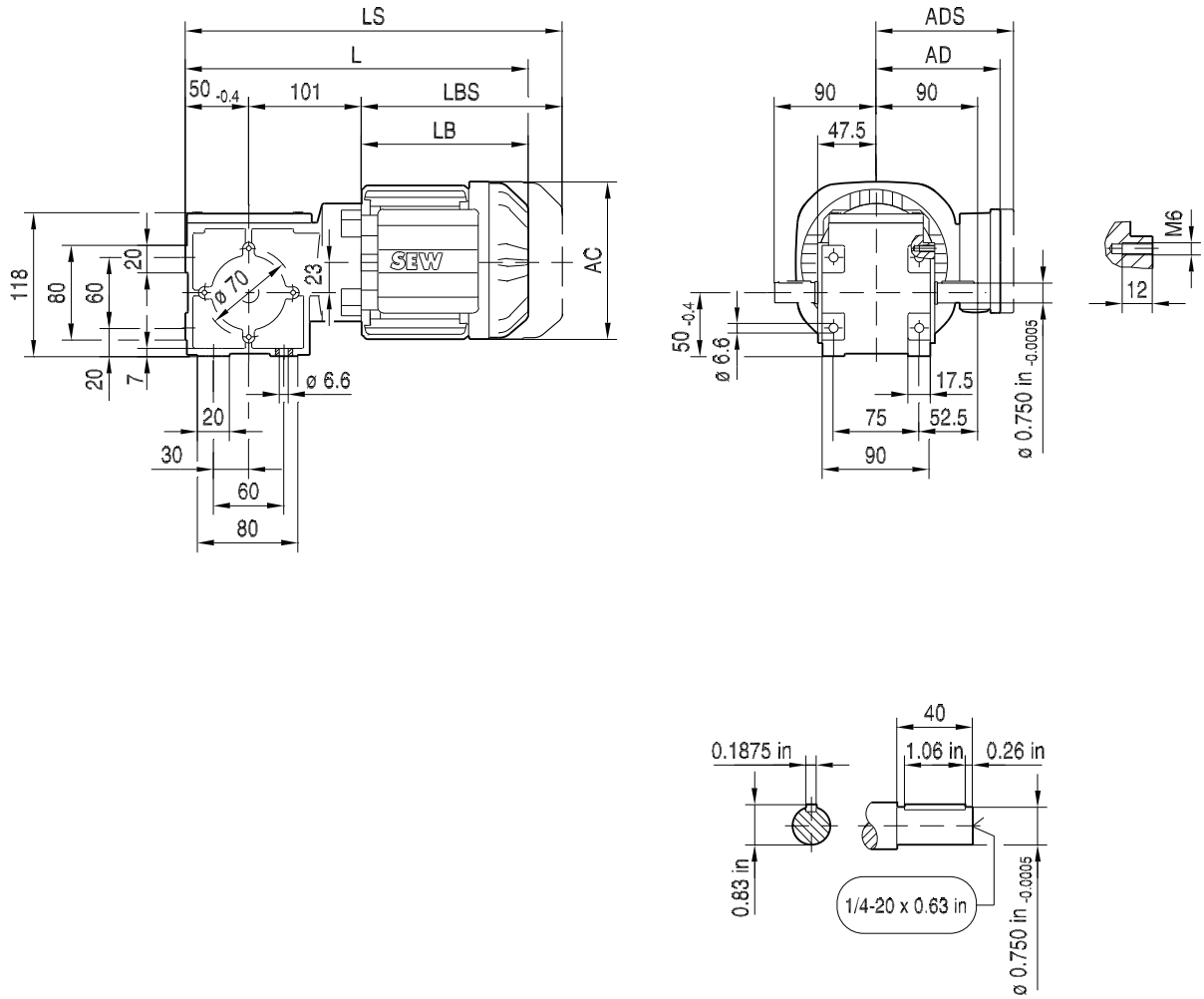
(→ 🗎 162)	DRN							
	63MS	63M	71MS					
AC	115	115	139					
AD	98	98	118					
ADS	98	98	129					
L	285	299	301					
LS	341	355	368					
LB	148	162	164					
LBS	204	218	231					

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 925. For tolerances, see page 162.

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77 671 00 21

W20..



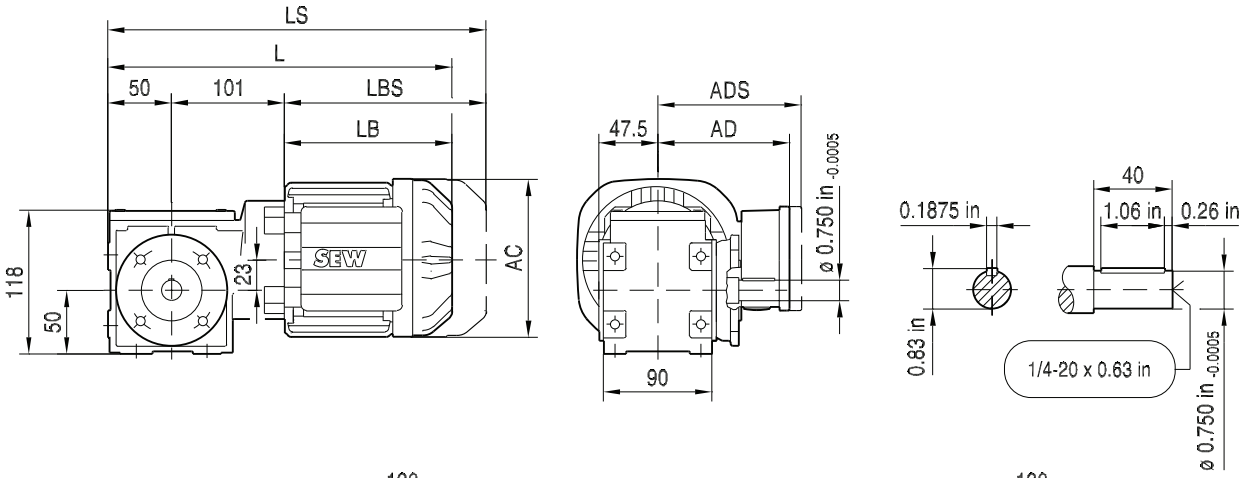
(→ 🗎 162)	DRN							
	63MS	63M	71MS	71M				
AC	115	115	139	139				
AD	98	98	118	118				
ADS	98	98	129	129				
L	299	313	315	335				
LS	355	369	382	402				
LB	148	162	164	184				
LBS	204	218	231	251				

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 923. For tolerances, see page 162.

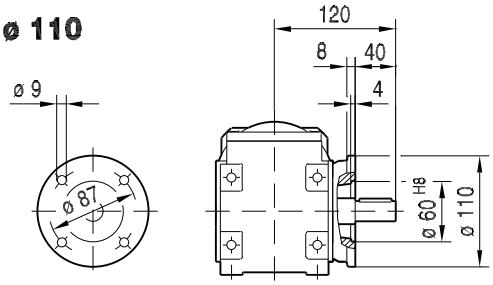
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WF20..

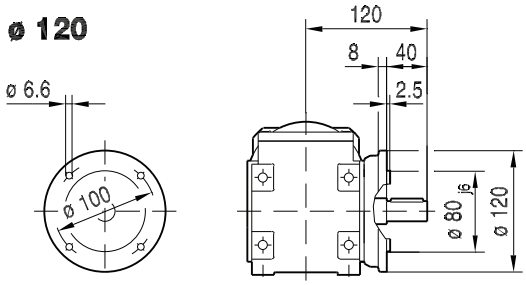
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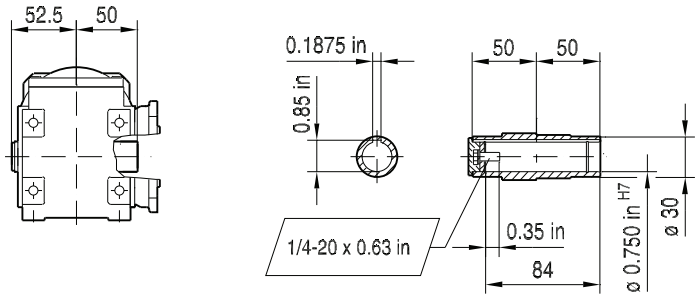
ø 110



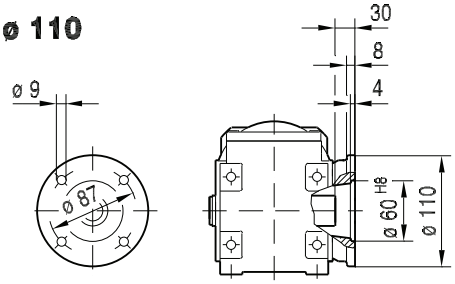
ø 120



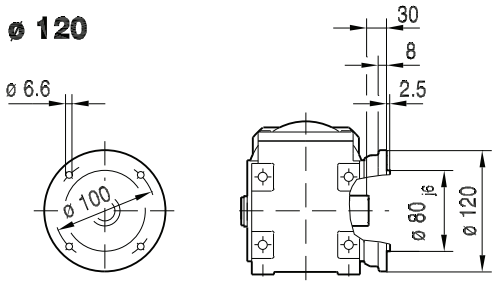
WAF20..



ø 110



ø 120

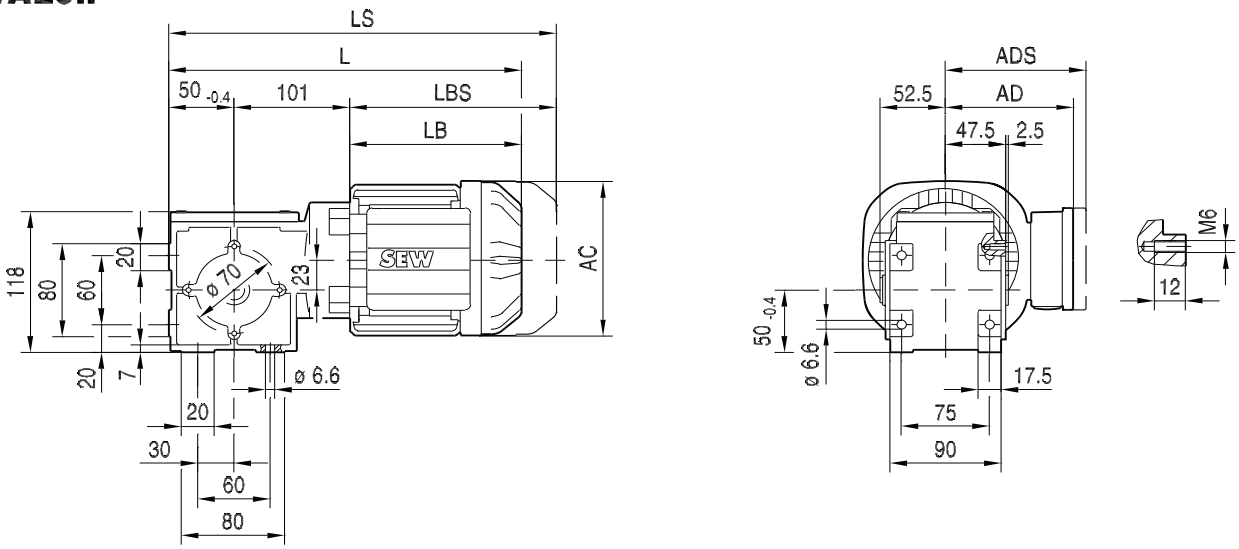


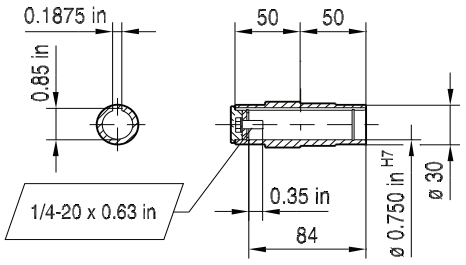
(→ 🗎 162)	DRN							
	63MS	63M	71MS	71M				
AC	115	115	139	139				
AD	98	98	118	118				
ADS	98	98	129	129				
L	299	313	315	335				
LS	355	369	382	402				
LB	148	162	164	184				
LBS	204	218	231	251				

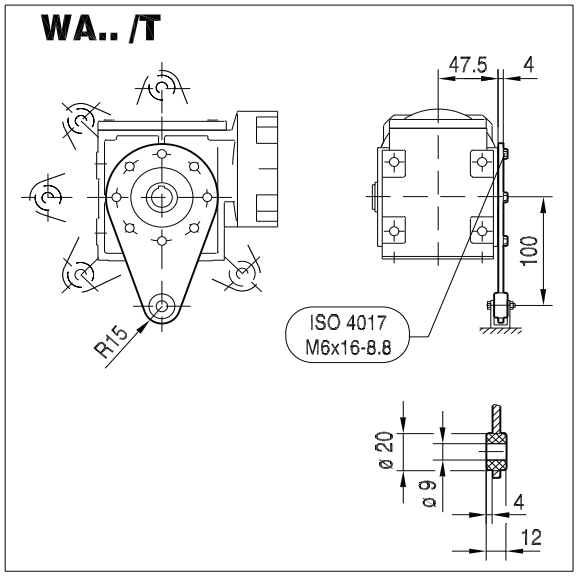
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 923. For tolerances, see page 162.

77 675 00 21

WA20..







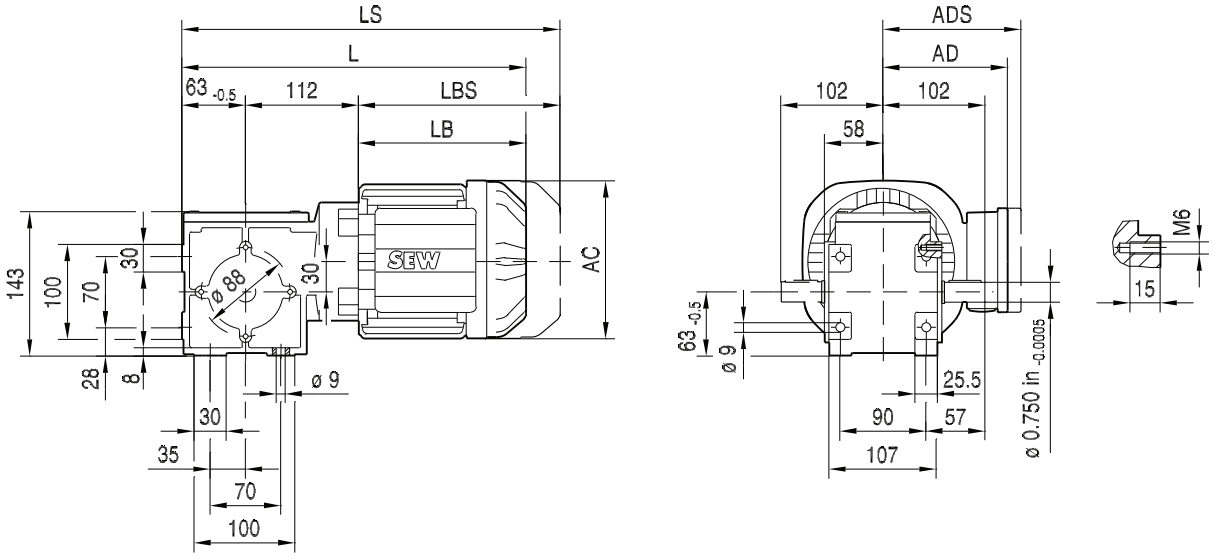
(→ 🗎 162)	DRN							
	63MS	63M	71MS	71M				
AC	115	115	139	139				
AD	98	98	118	118				
ADS	98	98	129	129				
L	299	313	315	335				
LS	355	369	382	402				
LB	148	162	164	184				
LBS	204	218	231	251				

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 925. For tolerances, see page 162.

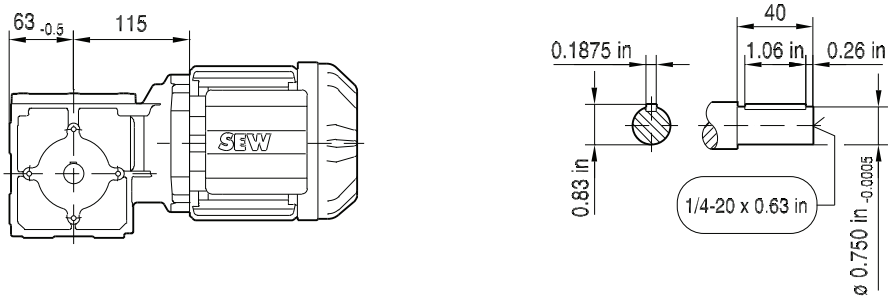
24833231/EN-US – 07/2021

77 676 00 21

W30..



DRN80..



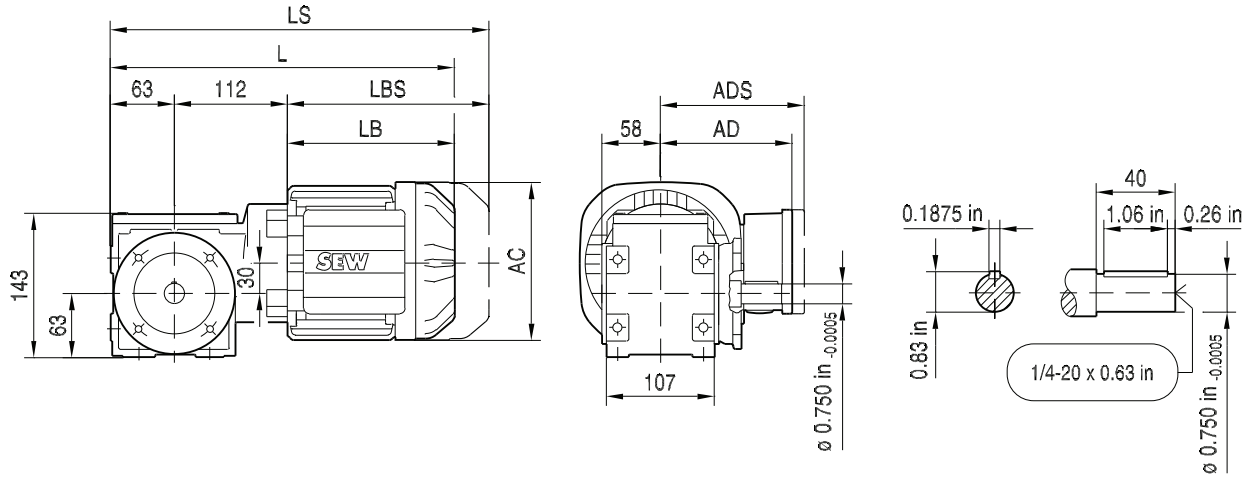
(→ 🗎 162)	DRN							
	63MS	63M	71MS	71M	80MK	80MS	80M	
AC	115	115	139	139	156	156	156	
AD	98	98	118	118	128	128	128	
ADS	98	98	129	129	139	139	139	
L	323	337	339	359	364	382	410	
LS	379	393	406	426	445	463	491	
LB	148	162	164	184	189	207	235	
LBS	204	218	231	251	270	288	316	

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 923. For tolerances, see page 162.

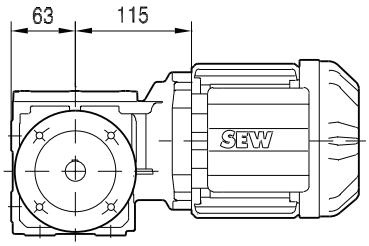
24833231/EN-US – 07/2021

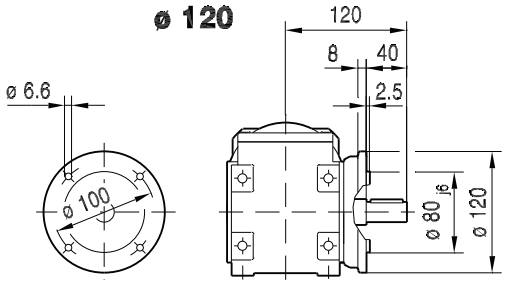
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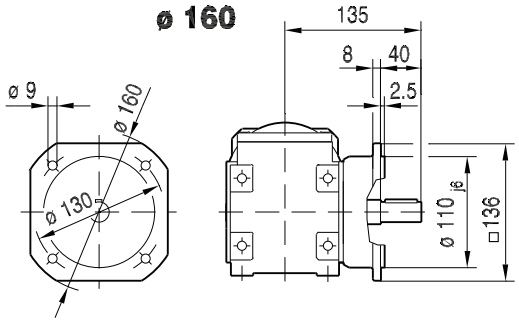
WF30..



DRN80..







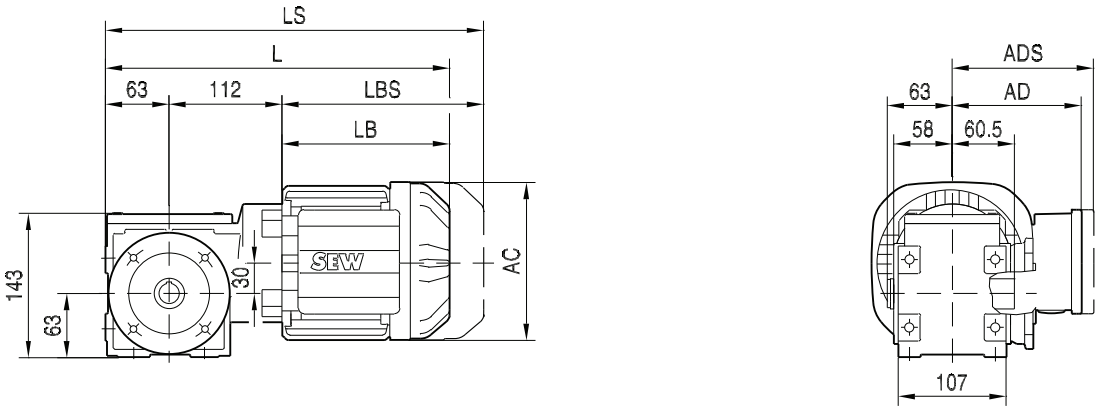
(→ 🗎 162)	DRN							
	63MS	63M	71MS	71M	80MK	80MS	80M	
AC	115	115	139	139	156	156	156	
AD	98	98	118	118	128	128	128	
ADS	98	98	129	129	139	139	139	
L	323	337	339	359	364	382	410	
LS	379	393	406	426	445	463	491	
LB	148	162	164	184	189	207	235	
LBS	204	218	231	251	270	288	316	

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 923. For tolerances, see page 162.

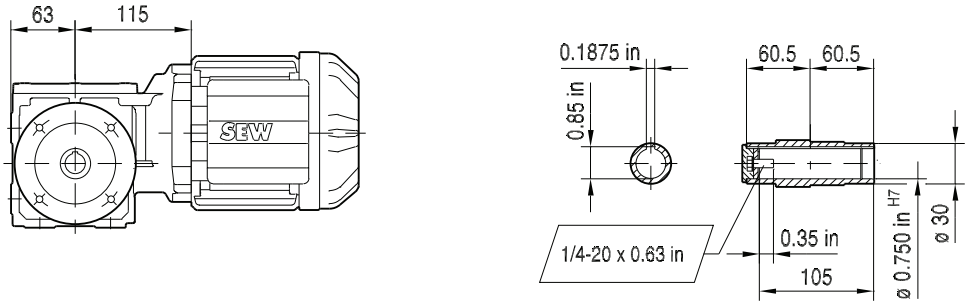
24833231/EN-US – 07/2021

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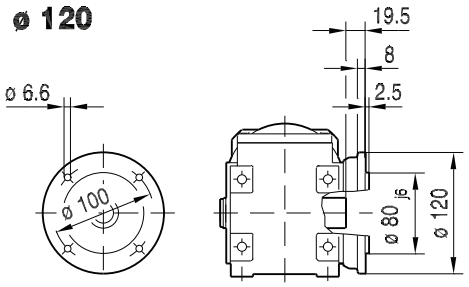
WAF30..



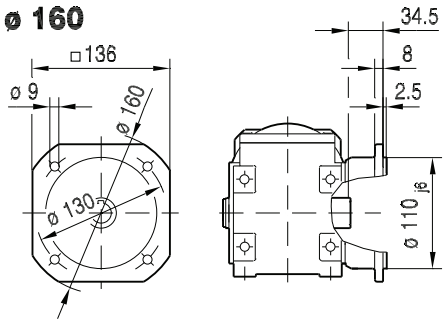
DRN80..



ø 120



ø 160



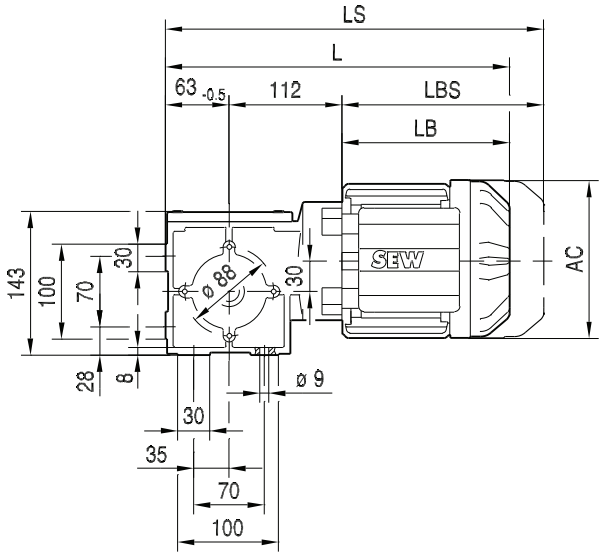
(→ 🗎 162)	DRN							
	63MS	63M	71MS	71M	80MK	80MS	80M	
AC	115	115	139	139	156	156	156	
AD	98	98	118	118	128	128	128	
ADS	98	98	129	129	139	139	139	
L	323	337	339	359	364	382	410	
LS	379	393	406	426	445	463	491	
LB	148	162	164	184	189	207	235	
LBS	204	218	231	251	270	288	316	

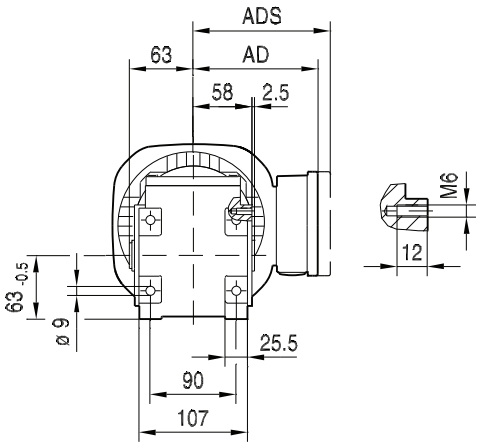
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 925. For tolerances, see page 162.

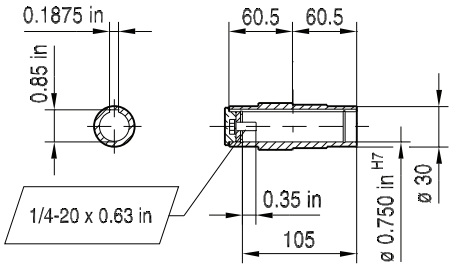
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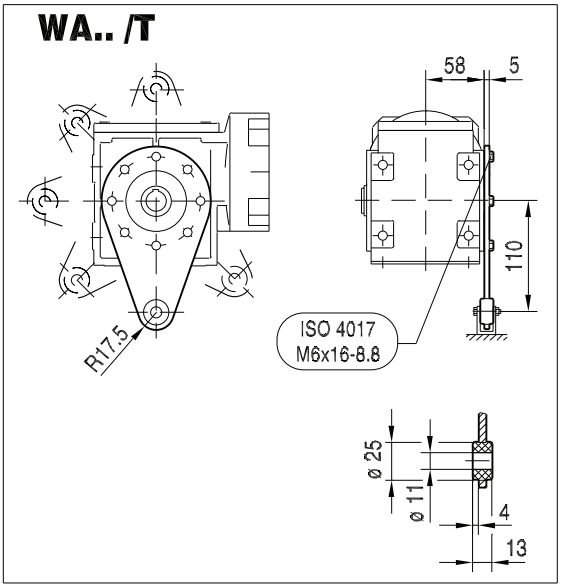
WA30..



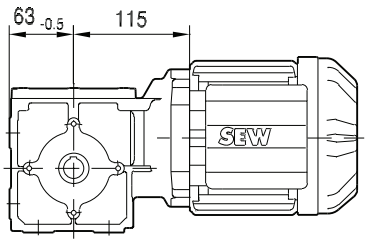




WA.. /T



DRN80..



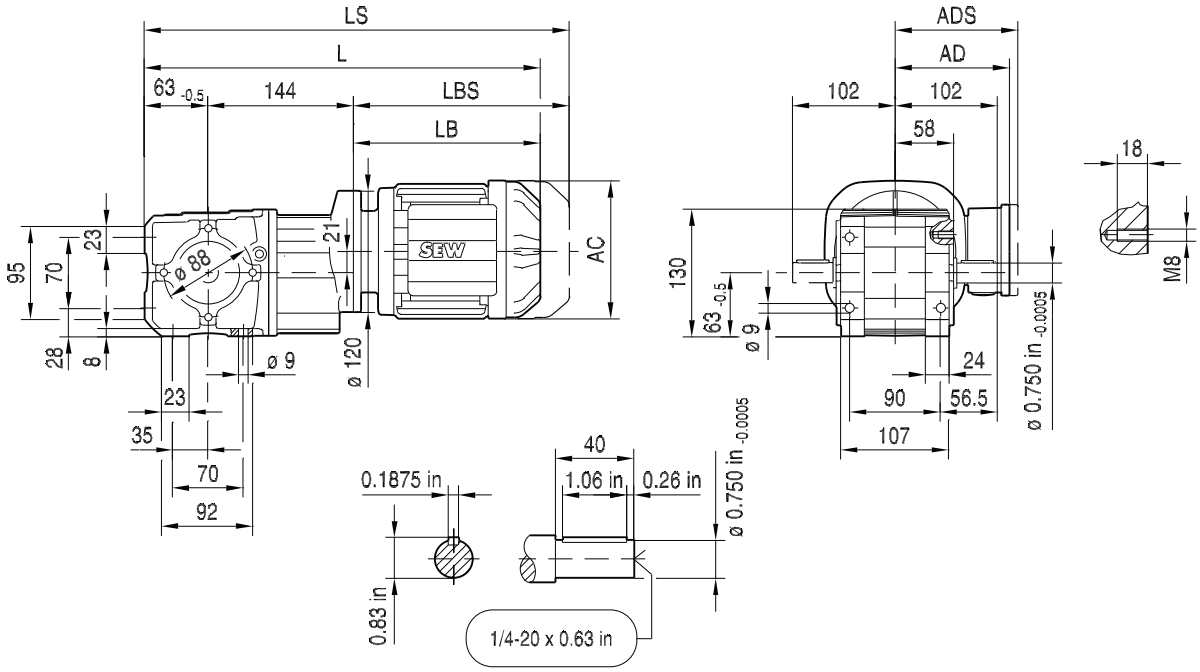
(→ 🗎 162)	DRN							
	63MS	63M	71MS	71M	80MK	80MS	80M	
AC	115	115	139	139	156	156	156	
AD	98	98	118	118	128	128	128	
ADS	98	98	129	129	139	139	139	
L	323	337	339	359	364	382	410	
LS	379	393	406	426	445	463	491	
LB	148	162	164	184	189	207	235	
LBS	204	218	231	251	270	288	316	

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 925. For tolerances, see page 162.

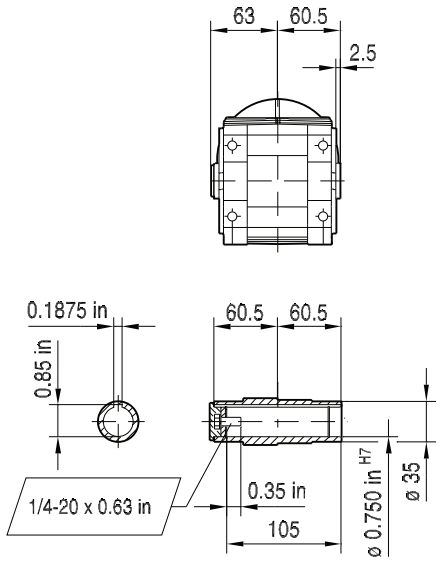
24833231/EN-US – 07/2021

77 680 00 21

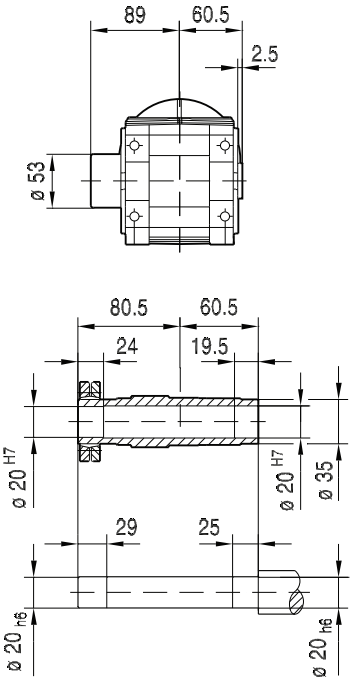
W37..



WA37B..



WH37B..



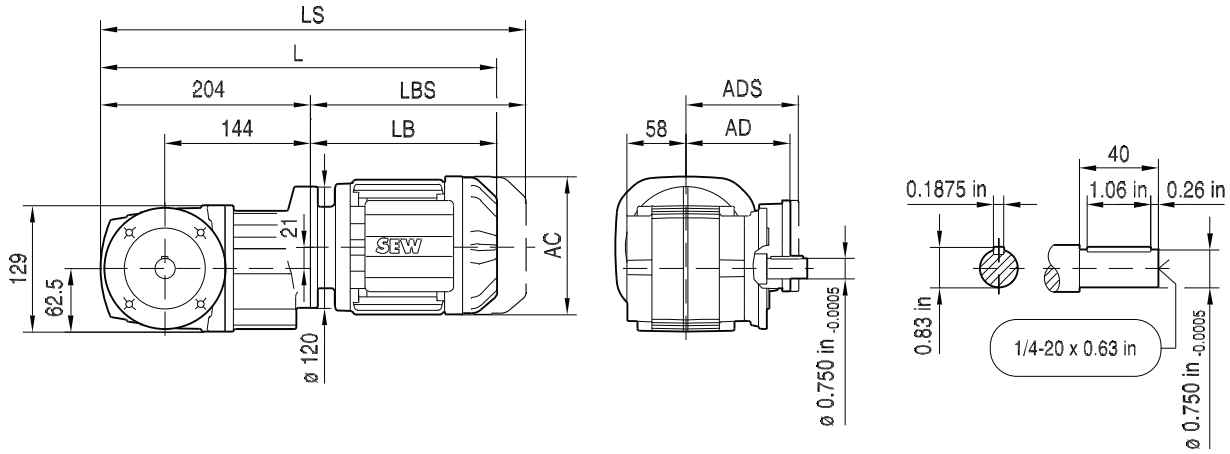
(→ 162)	DRN								
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L
AC	115	115	139	139	156	156	156	179	179
AD	98	98	118	118	128	128	128	140	140
ADS	98	98	129	129	139	139	139	150	150
L	397	411	413	433	444	461	489	490	522
LS	453	46	480	500	525	542	570	584	616
LB	190	204	206	226	237	254	282	283	315
LBS	246	260	273	293	318	335	363	377	409

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 923. For tolerances, see page 162.

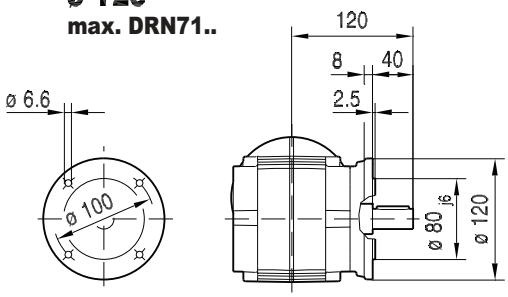
24833231/EN-US – 07/2021

WF37..

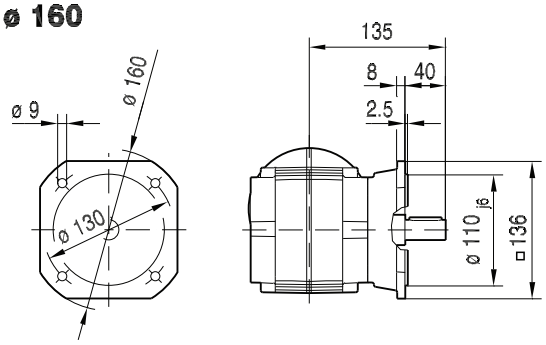
77 681 00 21



ø 120
max. DRN71..

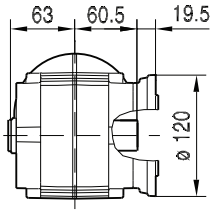


ø 160

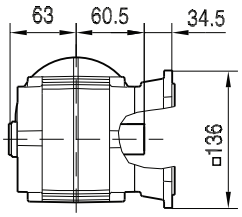


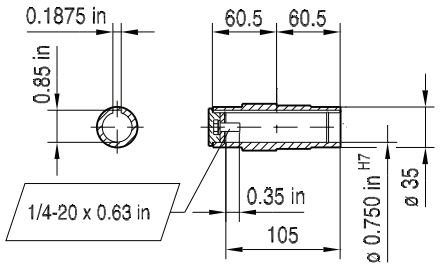
WAF37..

ø 120
max. DRN71..



ø 160





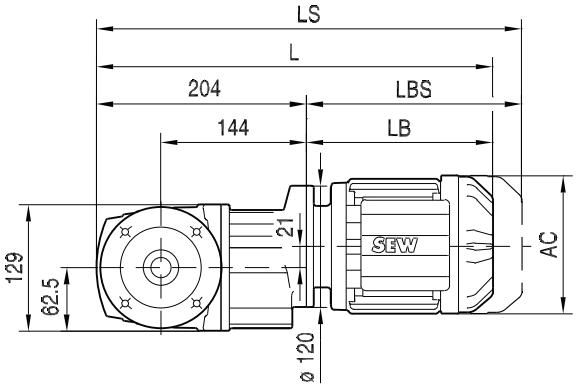
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L
AC	115	115	139	139	156	156	156	179	179
AD	98	98	118	118	128	128	128	140	140
ADS	98	98	129	129	139	139	139	150	150
L	394	408	410	430	441	458	486	487	519
LS	450	464	477	497	522	539	567	581	613
LB	190	204	206	226	237	254	282	283	315
LBS	246	260	273	293	318	335	363	377	409

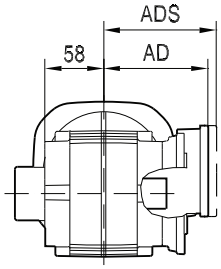
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 923. For tolerances, see page 162.

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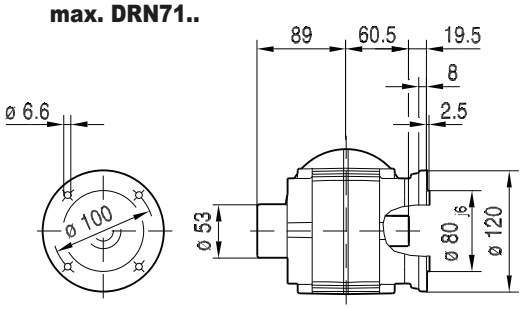
WHF37..

77 682 00 21

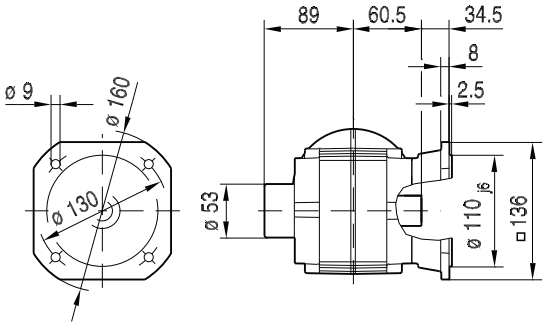


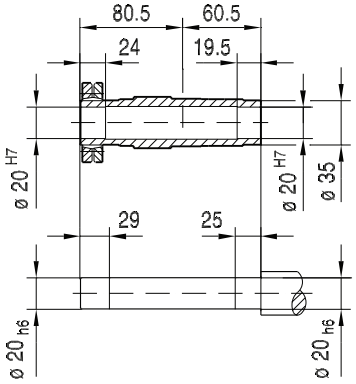


ø 120
max. DRN71..



ø 160





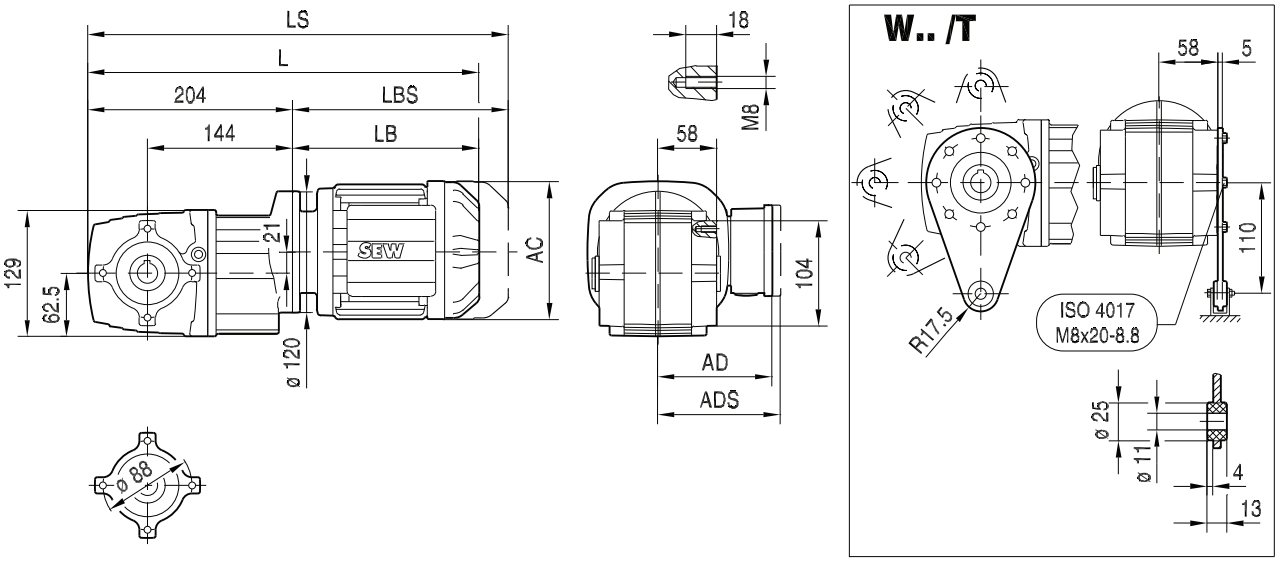
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L
AC	115	115	139	139	156	156	156	179	179
AD	98	98	118	118	128	128	128	140	140
ADS	98	98	129	129	139	139	139	150	150
L	394	408	410	430	441	458	486	487	519
LS	450	464	477	497	522	539	567	581	613
LB	190	204	206	226	237	254	282	283	315
LBS	246	260	273	293	318	335	363	377	409

Dimensions in mm unless noted as inch. For tolerances, see page 162.

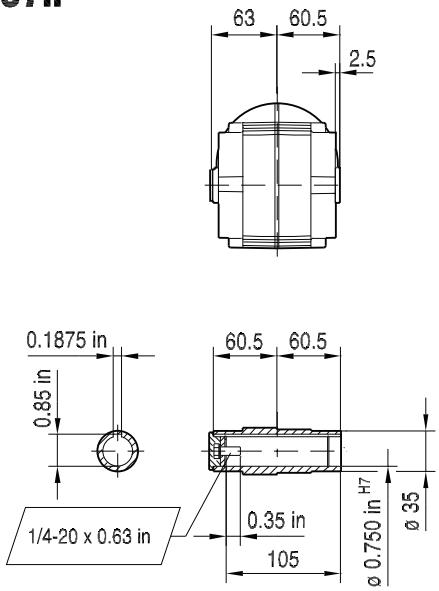
24833231/EN-US – 07/2021

WA37..

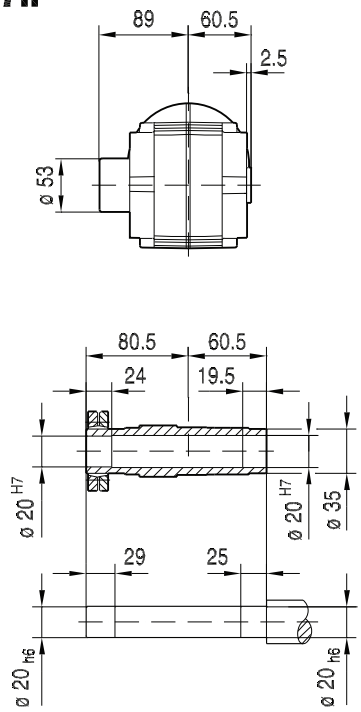
77 683 00 21



WA37..



WH37..



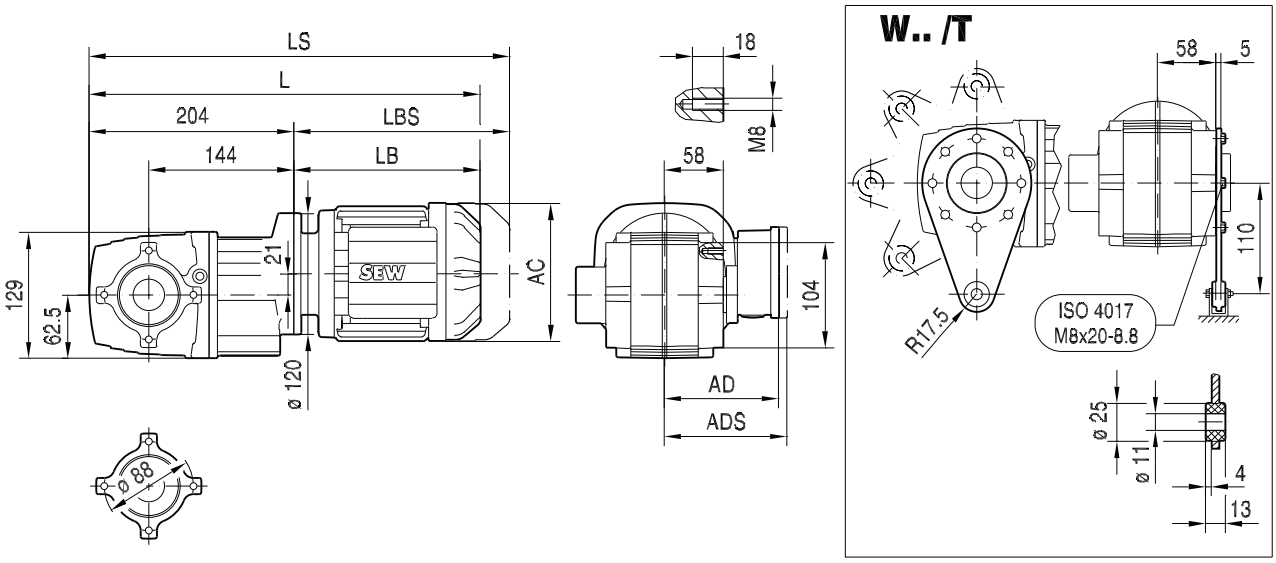
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L
AC	115	115	139	139	156	156	156	179	179
AD	98	98	118	118	128	128	128	140	140
ADS	98	98	129	129	139	139	139	150	150
L	394	408	410	430	441	458	486	487	519
LS	450	464	477	497	522	539	567	581	613
LB	190	204	206	226	237	254	282	283	315
LBS	246	260	273	293	318	335	363	377	409

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 925. For tolerances, see page 162.

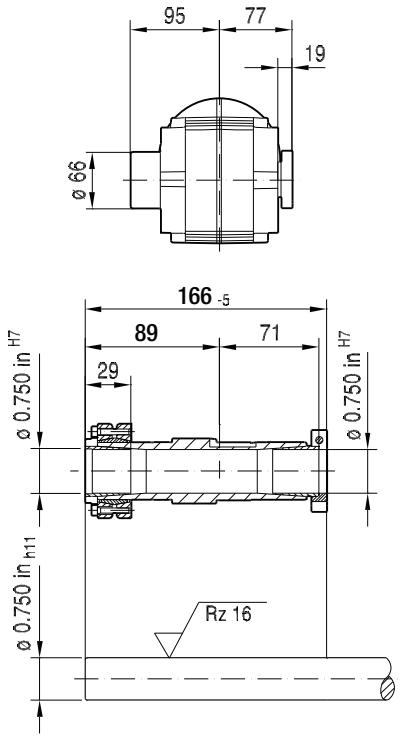
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77 684 00 21

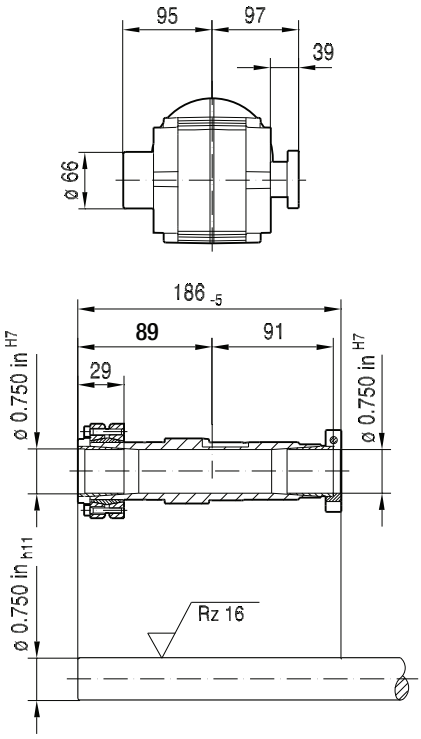
WT37..



NON-Symmetrical



Symmetrical



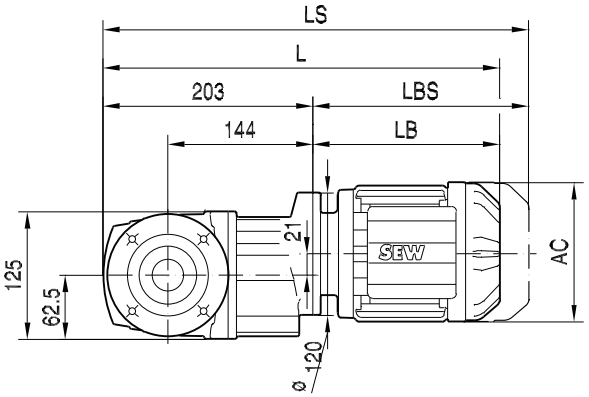
(→ 🗎 162)	DRN								
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L
AC	115	115	139	139	156	156	156	179	179
AD	98	98	118	118	128	128	128	140	140
ADS	98	98	129	129	139	139	139	150	150
L	394	408	410	430	441	458	486	487	519
LS	450	464	477	497	522	539	567	581	613
LB	190	204	206	226	237	254	282	283	315
LBS	246	260	273	293	318	335	363	377	409

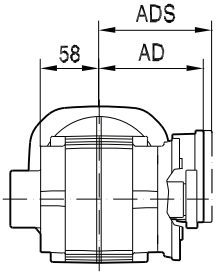
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 927. For tolerances, see page 162.

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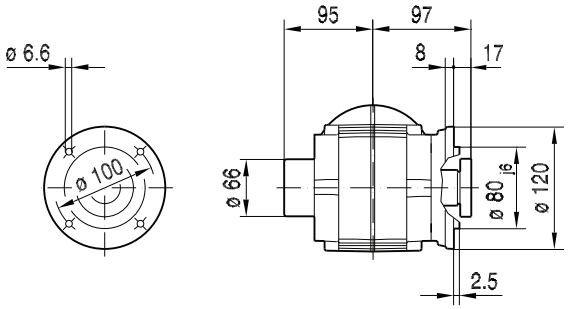
WTF37..

77 685 00 21

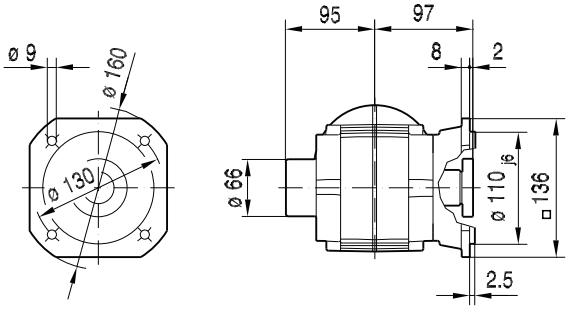


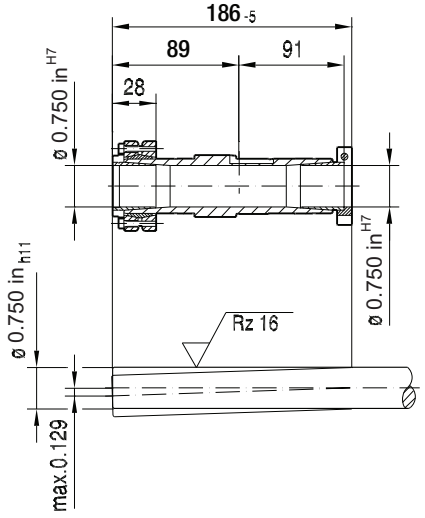


ø 120
max. DRN71..



ø 160





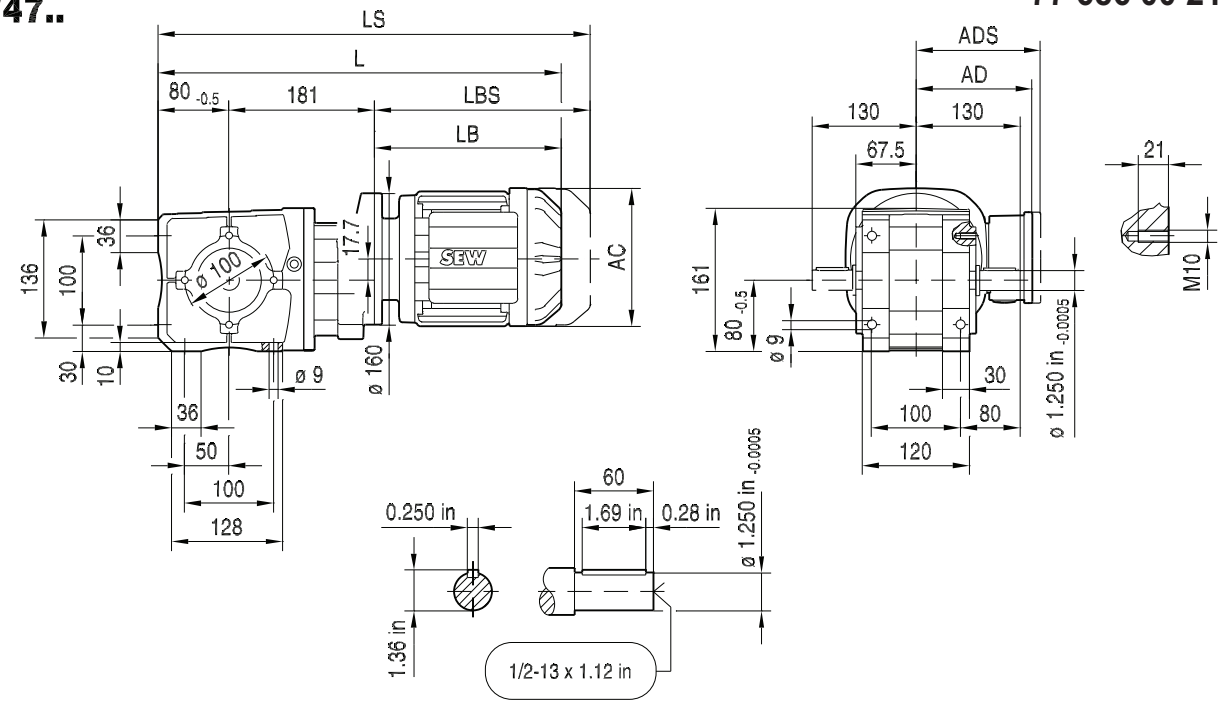
(→ 162)	DRN								
	63MS	63M	71MS	71M	80MK	80MS	80M	90S	90L
AC	115	115	139	139	156	156	156	179	179
AD	98	98	118	118	128	128	128	140	140
ADS	98	98	129	129	139	139	139	150	150
L	394	408	410	430	441	458	486	487	519
LS	450	464	477	497	522	539	567	581	613
LB	190	204	206	226	237	254	282	283	315
LBS	246	260	273	293	318	335	363	377	409

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 927. For tolerances, see page 162.

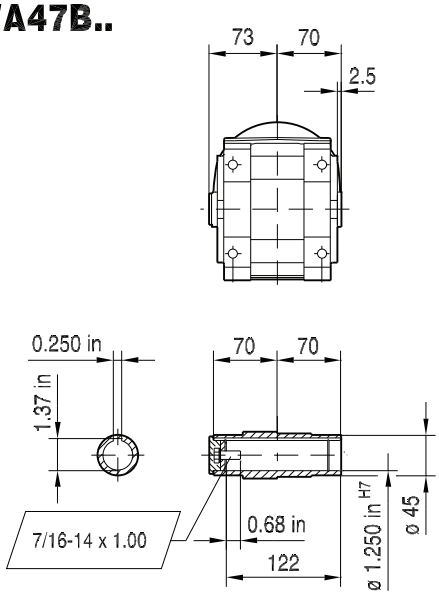
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W47..

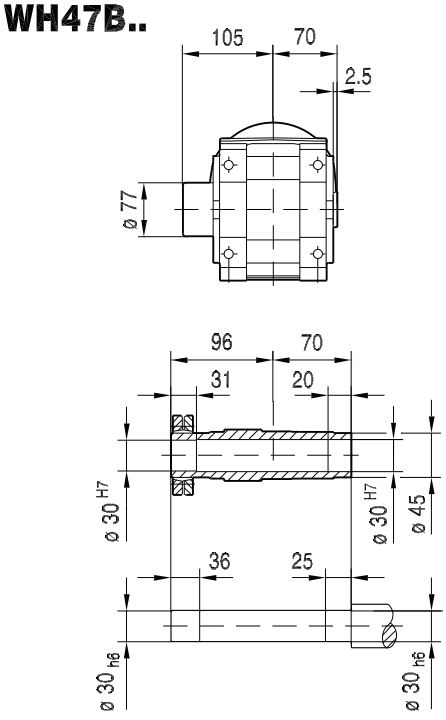
77 686 00 21



WA47B..



WH47B..



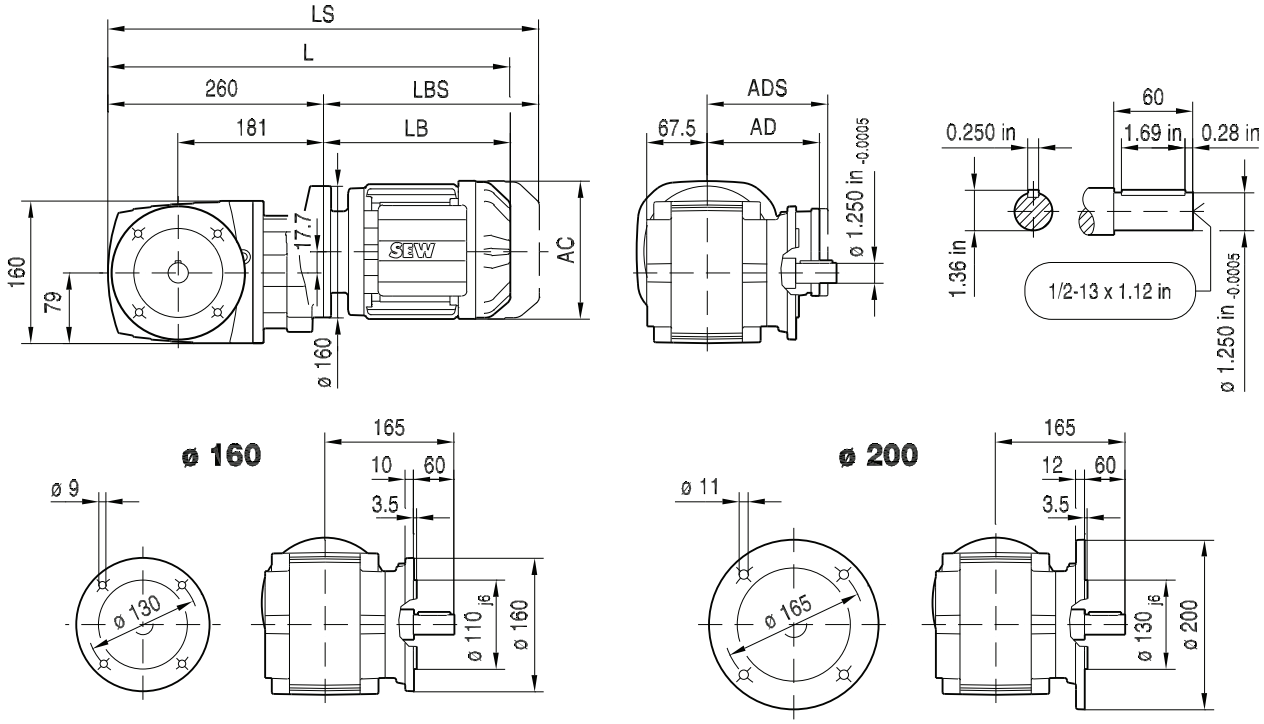
(→ 162)	DRN								
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M
AC	115	139	139	156	156	179	179	197	221
AD	98	118	118	128	128	140	140	157	170
ADS	98	129	129	139	139	150	150	158	172
L	459	460	480	491	536	538	570	616	647
LS	515	528	548	572	617	631	663	710	759
LB	198	199	219	230	275	277	309	355	386
LBS	254	267	287	311	356	370	402	449	498

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 923. For tolerances, see page 162.

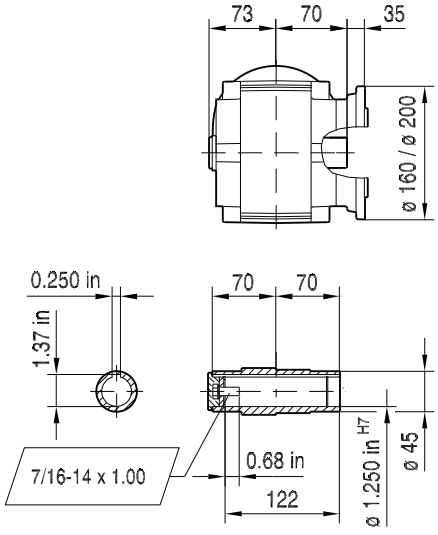
24833231/EN-US – 07/2021

WF47..

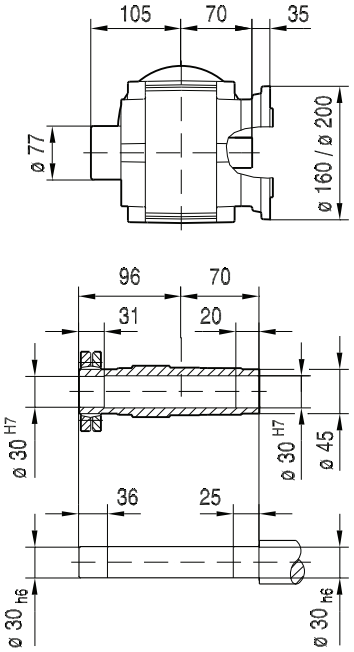
77 687 00 21



WAF47..



WHF47..



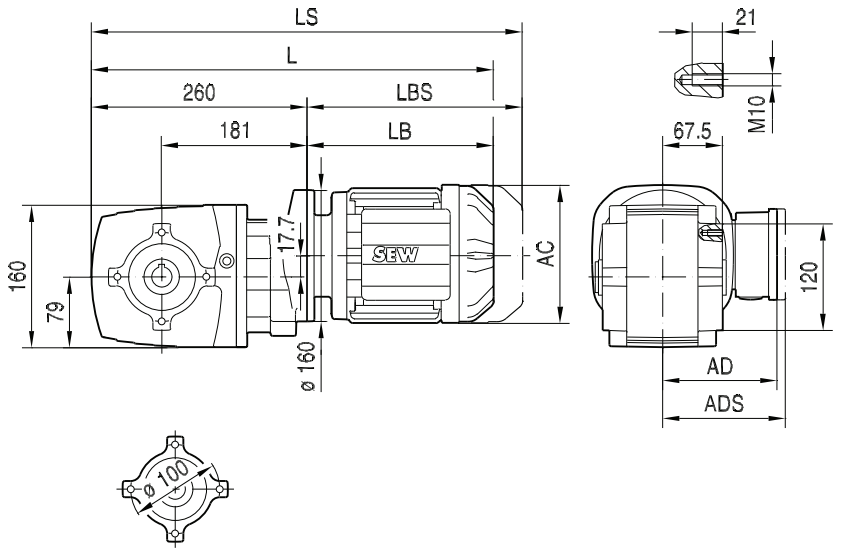
(→ 162)	DRN								
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M
AC	115	139	139	156	156	179	179	197	221
AD	98	118	118	128	128	140	140	157	170
ADS	98	129	129	139	139	150	150	158	172
L	458	459	479	490	535	537	569	615	646
LS	514	527	547	571	616	630	662	709	758
LB	198	199	219	230	275	277	309	355	386
LBS	254	267	287	311	356	370	402	449	498

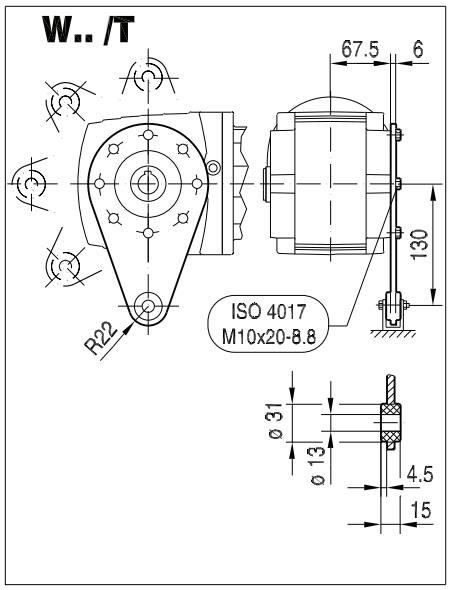
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 923. For tolerances, see page 162.

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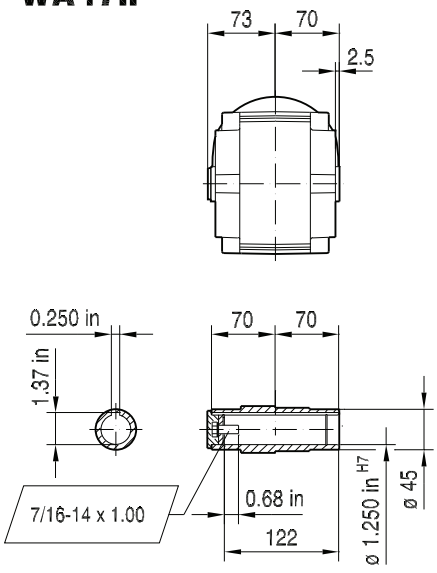
77 688 00 21

WA47..

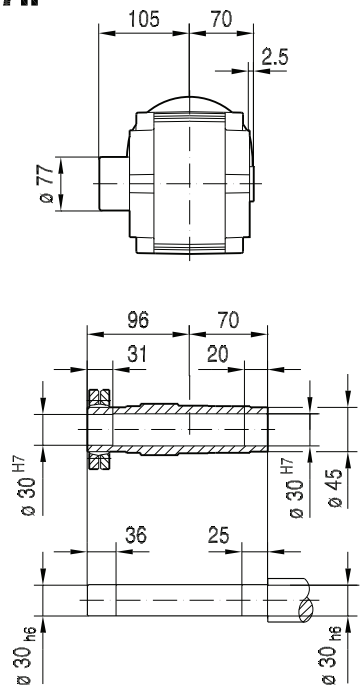




WA47..



WH47..



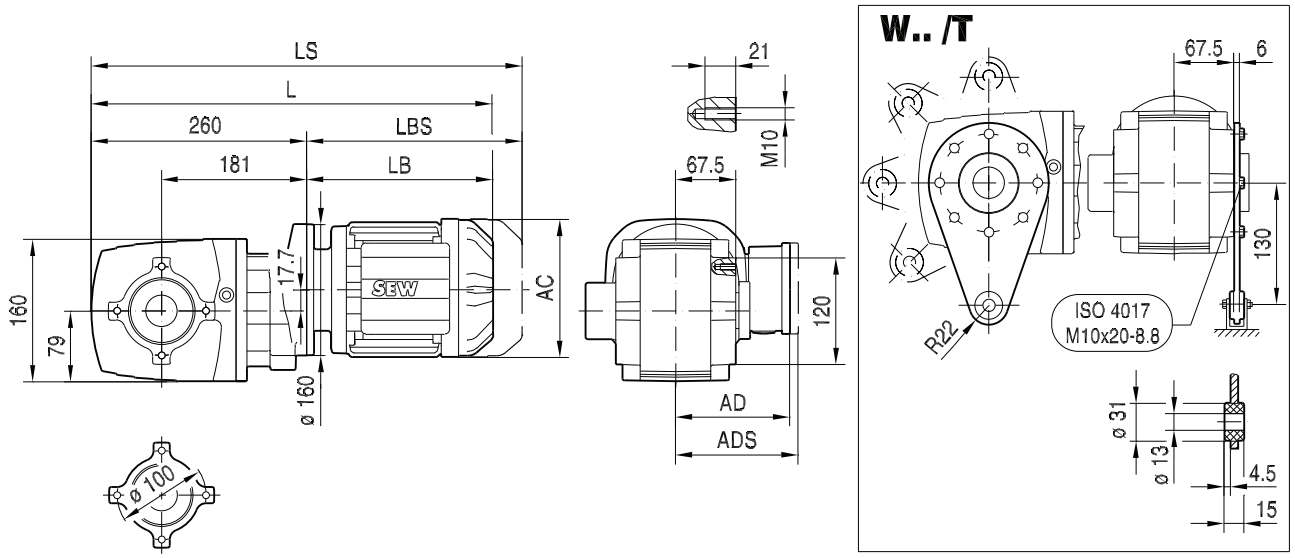
(→ 162)	DRN								
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M
AC	115	139	139	156	156	179	179	197	221
AD	98	118	118	128	128	140	140	157	170
ADS	98	129	129	139	139	150	150	158	172
L	458	459	479	490	535	537	569	615	646
LS	514	527	547	571	616	630	662	709	758
LB	198	199	219	230	275	277	309	355	386
LBS	254	267	287	311	356	370	402	449	498

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 925. For tolerances, see page 162.

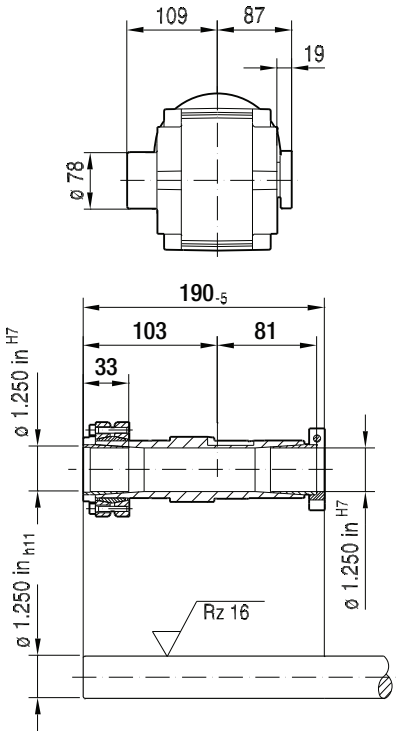
24833231/EN-US – 07/2021

77 689 00 21

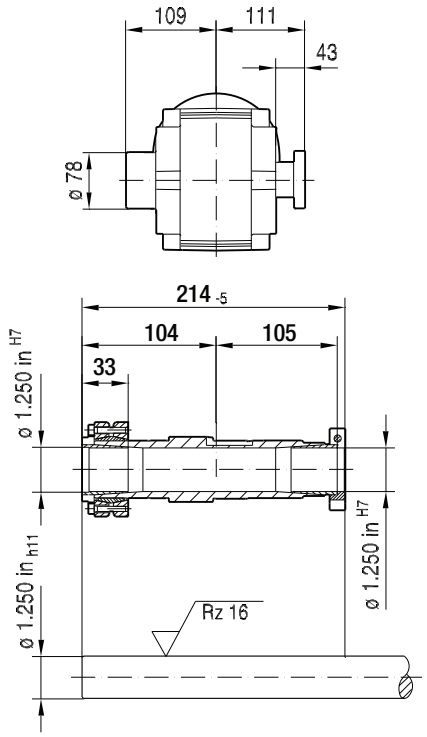
WT47..



NON-Symmetrical



Symmetrical



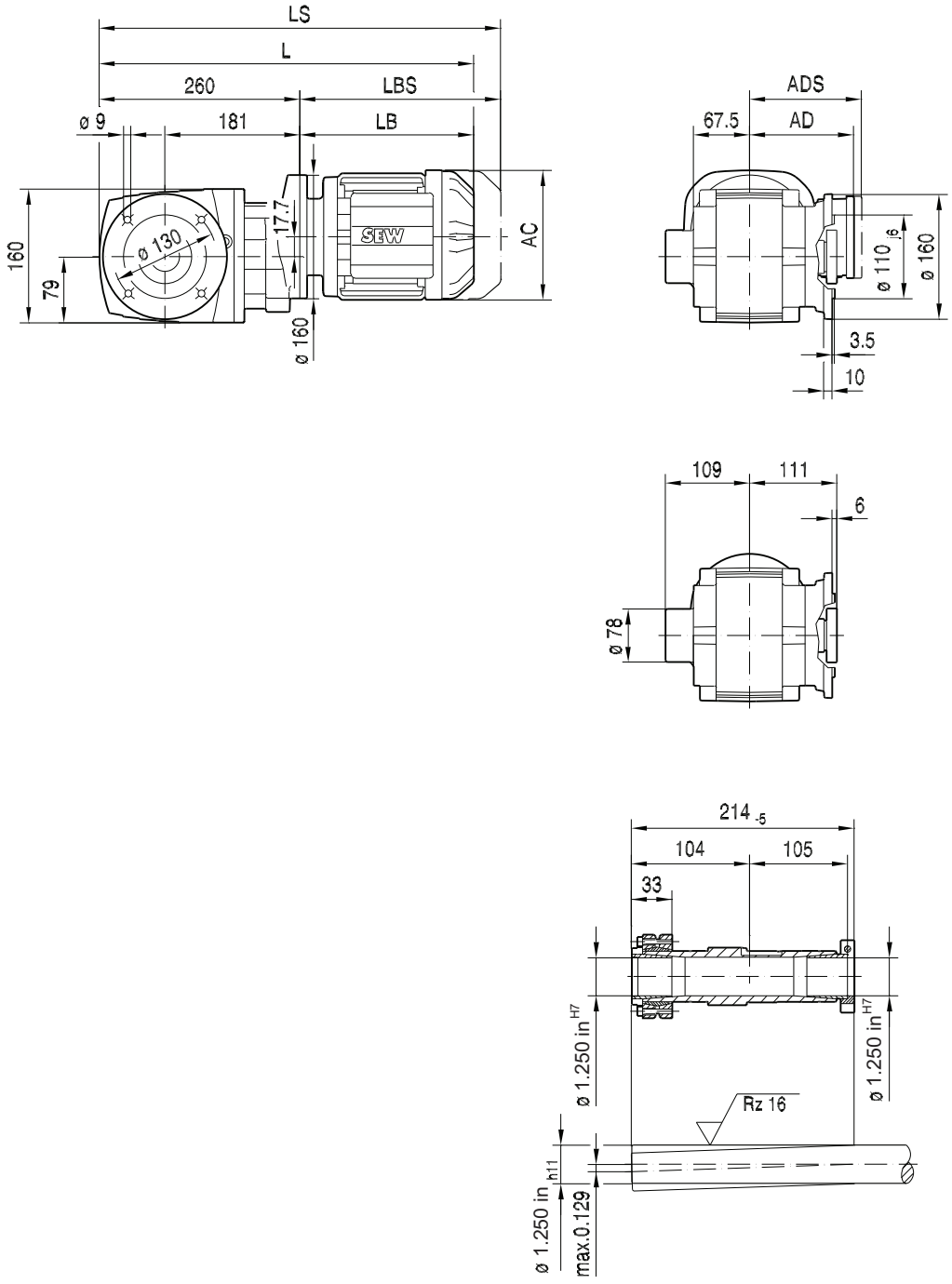
(→ 🗎 162)	DRN								
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M
AC	115	139	139	156	156	179	179	197	221
AD	98	118	118	128	128	140	140	157	170
ADS	98	129	129	139	139	150	150	158	172
L	458	459	479	490	535	537	569	615	646
LS	514	527	547	571	616	630	662	709	758
LB	198	199	219	230	275	277	309	355	386
LBS	254	267	287	311	356	370	402	449	498

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 927. For tolerances, see page 162.

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WTF47..

77 690 00 21

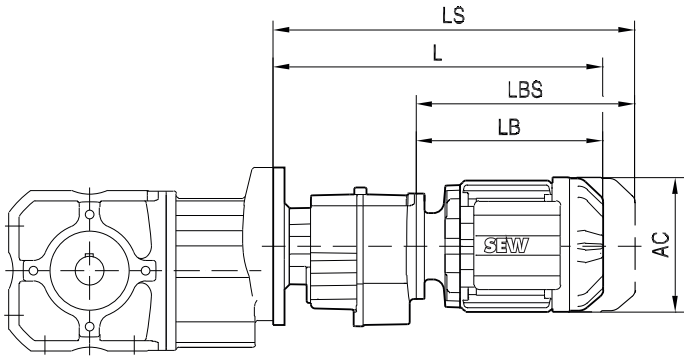


(→ 162)	DRN								
	63M	71MS	71M	80MK	80M	90S	90L	100L/LM	112M
AC	115	139	139	156	156	179	179	197	221
AD	98	118	118	128	128	140	140	157	170
ADS	98	129	129	139	139	150	150	158	172
L	458	459	479	490	535	537	569	615	646
LS	514	527	547	571	616	630	662	709	758
LB	198	199	219	230	275	277	309	355	386
LBS	254	267	287	311	356	370	402	449	498

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 927. For tolerances, see page 162.

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12.6 W.. R.. DRN.. Compound dimensions



77 691 00 21

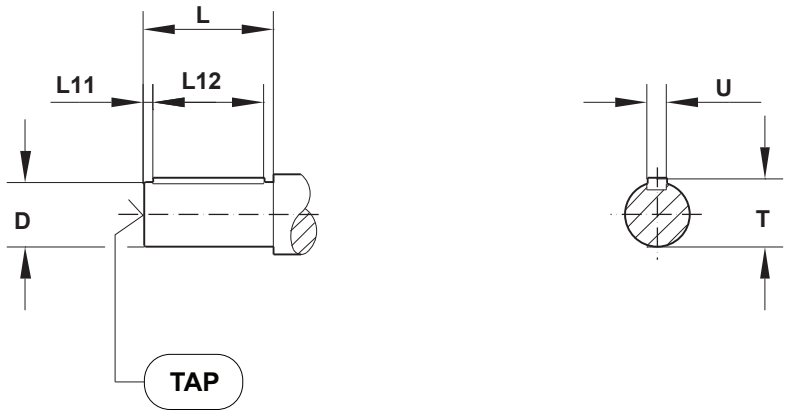
All dimensions shown in mm.

Gear	Motor	AC	L	LS	LB	LBS
W..37R17	DRN63MS	115	365	421	190	246
	DRN63M	115	379	435	204	260
	DRN71MS	139	381	448	206	273
	DRN71M	139	401	468	226	293
W..47R17	DRN63MS	115	365	421	190	246
	DRN63M	115	379	435	204	260
	DRN71MS	139	381	448	206	273
	DRN71M	139	401	468	226	293
	DRN80M	156	452	533	277	358

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12.7 Output shaft sizes

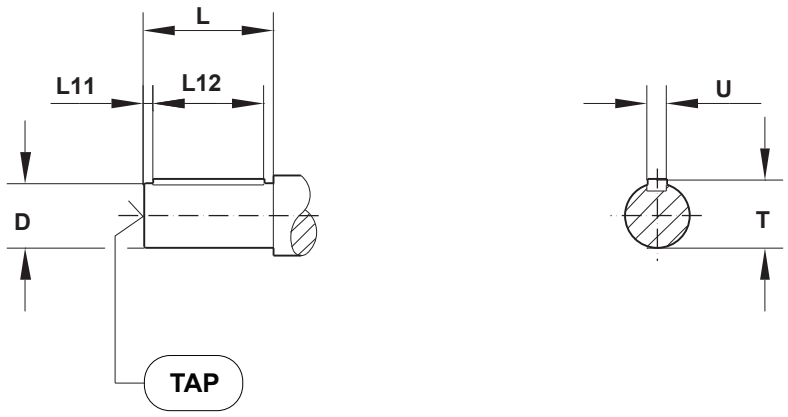
12.7.1 Solid Shafts – Inch



Model	All dimensions in inches						
	D	T	U	L[1]	L11	L12	TAP
W10	0.625	0.71	3/16	1.57	0.25	1-1/16	1/4 - 20 x 0.63
W20	0.750	0.83	3/16	1.57	0.25	1-1/16	1/4 - 20 x 0.63
W30	0.750	0.83	3/16	1.57	0.25	1-1/16	1/4 - 20 x 0.63
W37	0.750	0.83	3/16	1.57	0.25	1-1/16	1/4 - 20 x 0.63
W47	1.250	1.36	1/4	2.36	0.26	1-11/16	1/2 - 13 x 1.12

[1]Longer shafts to match obsolete gear unit designs (ie: SF60, SF62) are available for flanged units.

12.7.2 Solid Shafts – Metric

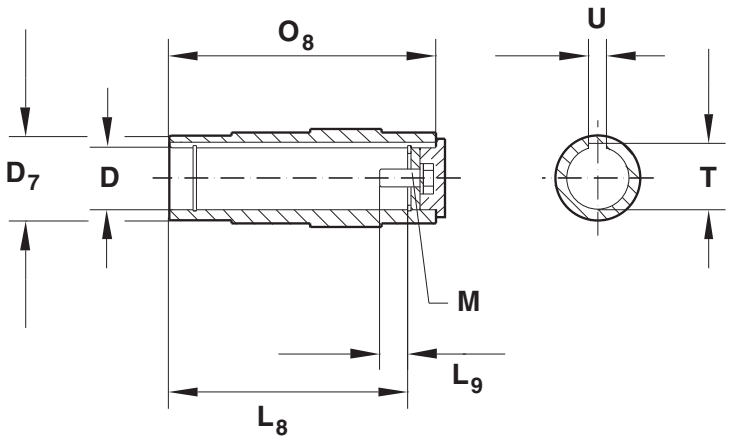


Model	All dimensions in mm						
	D	T	U	L[1]	L11	L12	TAP
W10	16	18	5	40	4	32	M5 x 12.5
W20	20	22.5	6	40	4	32	M6 x 16
W30	20	22.5	6	40	4	32	M6 x 16
W37	20	22.5	6	40	4	32	M6 x 16
W47	30	33	8	60	3.5	50	M10 x 22

[1]Longer shafts to match obsolete gear unit designs (ie: SF60, SF62) are available for flanged units.

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12.7.3 Hollow Shaft – Inch

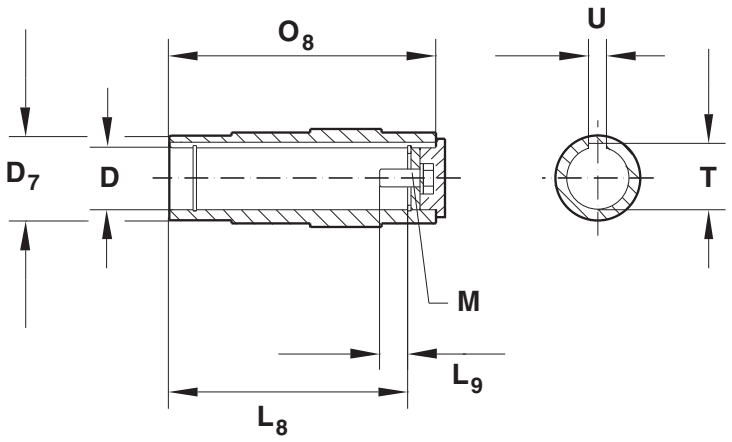


Note:
To aid in the future removal of your machine's solid shaft from a hollow shaft gear unit, please see SEW-EURODRIVE design recommendations on page 120.

Model	All dimensions in inch							
	D	D7	O8	T	U	L8	L9	M
WA10	0.625	0.98	3.31	0.71	3/16	3.11	0.50	1/4 - 20 x 5/8
WA20	0.75	1.18	3.94	0.85	3/16	3.31	0.35	1/4 - 20 x 5/8
WA30	0.75	1.18	4.76	0.85	3/16	4.13	0.35	1/4 - 20 x 5/8
WA37	0.75	1.38	4.76	0.85	3/16	4.13	0.35	1/4 - 20 x 5/8
WA47	1.00	1.77	5.51	1.12	1/4	4.80	0.68	3/8 - 16 x 1
	1.25	1.77	5.51	1.37	1/4	4.80	0.68	7/16 - 14 x 1

24833231/EN-US – 04/2021

12.7.4 Hollow Shaft – Metric



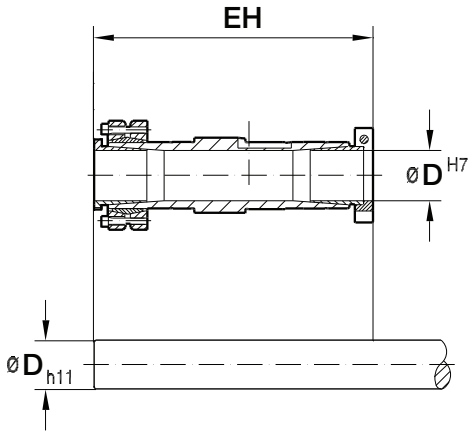
Note:
To aid in the future removal of your machine's solid shaft from a hollow shaft gear unit, please see SEW-EURODRIVE design recommendations on page 120.

Model	All dimensions in mm							
	D	D7	O8	T	U	L8	L9	M
WA10	14	25	84	16.3	5	69	10	M5 x 16
	16	25	84	18.3	5	69	8	M5 x 12
WA20	18	30	100	20.8	6	84	9	M6 x 16
	20	30	100	22.8	6	84	8	M6 x 16
WA30	20	30	121	22.8	6	105	8	M6 x 16
WA37	20	35	121	22.8	6	105	8	M6 x 16
	25	35	121	27	8	105	17	M10 x 25
WA47	30	45	140	33.3	8	122	17	M10 x 25

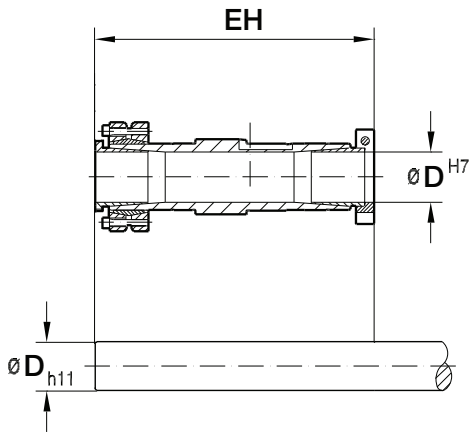
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12.7.5 TorqLOC® keyless hollow shaft

NON-Symmetrical



Symmetrical



Model	D (in) Inch Bores					D (mm) Metric Bores			EH (in)	
									NON-Symmetrical	Symmetrical
WT37	0.625	0.6875	0.750	-	-	20	-	-	6.54	7.33
WT47	1.00	1.1875	1.25	-	-	25	30	-	7.48	8.43

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13 Motor and brake data – 60Hz

13.1 Symbols used in motor data tables

The following table lists the symbols used in the motor tables.

BE..	Brake size used
cosφ	Power factor
NEMA Code Letter	NEMA designation of locked rotor amps per HP, which is necessary when sizing a motor starter.
#/hr	Number per hour
J_{Mot}	Mass moment of inertia of the motor without brake
J_{BMot}	Mass moment of inertia of the brakemotor
J_Z	Mass moment of inertia for cast iron fan (flywheel)
m_{Mot}	Mass of the motor without brake
m_{BMot}	Mass of the brakemotor
n_N	Rated speed
$\eta_{50\%}$	Efficiency at 50% of the rated power
$\eta_{75\%}$	Efficiency at 75% of the rated power
$\eta_{100\%}$	Efficiency at 100% of the rated power
I_N	Rated current
I_A/I_N	Starting current ratio
P_N	Rated power
T_B	Braking torque
T_N	Rated torque of motor
T_A/T_N	Starting torque ratio
T_H/T_N	Ramp-up torque ratio
T_K/T_N	Breakdown torque ratio
Z_0 BG	Switching frequency (per hour) for operation with BG brake control
Z_0 BGE	Switching frequency (per hour) for operation with BGE brake control

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13.2 3600 rpm

13.2.1 Technical data – 2 pole

Motor	P_N		T_N	n_N	I_N 230V	I_N 460V	I_N 575V	cosφ	$ή_{50\%}$	$ή_{75\%}$	$ή_{100\%}$	I_A/I_N
	kW	HP	lb-in	rpm	A	A	A		%	%	%	
DRN63MS2	0.18	0.25	4.68	3370	0.82	0.41	0.33	0.74	60.9	65.1	66.0	5.3
DRN63M2	0.25	0.33	6.13	3395	1.00	0.50	0.40	0.79	67.0	69.8	70.0	6.2
DRN71MS2	0.37	0.50	9.16	3440	1.52	0.76	0.61	0.76	69.4	73.1	74.0	6.8
DRN71M2	0.55	0.75	13.7	3455	2.14	1.07	0.86	0.78	73.3	76.4	77.0	7.4
DRN80MS2	0.75	1	18.2	3476	2.8	1.39	1.11	0.82	79.7	84.8	82.5	7.4
DRN80M2	1.1	1.5	26.5	3485	3.85	1.94	1.55	0.83	82.3	84.1	84.0	8.2
DRN90S2	1.5	2	36	3505	5.3	2.65	2.15	0.81	83.7	85.6	85.5	8.3
DRN90L2	2.2	3	53	3525	7.4	3.7	2.95	0.85	84.7	86.4	86.5	9.8
DRN100LM2	3	4	72	3517	10.2	5.1	4.05	0.83	88.0	89.1	88.5	10.2
DRN100L2	3.7	5	89	3508	11.6	5.8	4.65	0.88	88.6	89.1	88.5	11.0
DRN112M2	4	5.4	95	3552	13	6.5	5.2	0.86	87.4	88.6	88.5	10.1
DRN132S2	5.5	7.5	131	3544	16.4	8.2	6.6	0.92	89.0	89.7	89.5	11.0
DRN132S2	7.5	10	179	3545	24.5	12.2	9.7	0.85	89.6	90.4	90.2	9.3

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13.2.2 Additional data – 2 pole

Motor	P_N		T_A/T_N T_H/T_N	T_K/T_N	NEMA Code Letter	m_{Mot}	J_{Mot}	J_Z	BE..	Z_0 BG BGE	T_B	m_{BMot}	J_{BMot}
	kW	HP				lb	lb-ft²	lb-ft²		#/hr	lb-in	lb	lb-ft²
DRN63MS2	0.18	0.25	3.3 3.1	3.3	H	11	0.0070	-	BE03	4000 4800	11.5	15	0.0086
DRN63M2	0.25	0.33	3.4 3.1	3.4	J	13	0.0089	-	BE03	4800 3600	15	16	0.0105
DRN71MS2	0.37	0.50	3.8 3.2	3.8	K	15	0.0069	-	BE03	2900 4800	18.5	19	0.0086
DRN71M2	0.55	0.75	3.9 3.5	3.9	K	18	0.0088	-	BE03	2100 4400	30	22	0.0104
DRN80MS2	0.75	1	3.2 2.9	3.4	K	25	0.044	0.090	BE05	960 2720	44.5	33	0.0476
DRN80M2	1.1	1.5	3.7 3.0	3.6	K	31	0.0573	0.090	BE1	800 2080	62	39	0.0608
DRN90S2	1.5	2	3.3 2.7	3.5	K	43	0.126	0.237	BE1	480 1040	89	50	0.13
DRN90L2	2.2	3	3.1 2.1	3.5	L	50	0.157	0.237	BE2	- 800	124	60	0.169
DRN100LM2	3	4	3.8 2.8	4.2	M	72	0.213	0.347	BE2	- 600	177	82	0.224
DRN100L2	3.7	5	4.2 3.4	4.1	M	75	0.263	0.347	BE2	- 600	177	85	0.274
DRN112M2	4	5.4	3.1 1.4	4.1	L	98	0.422	0.467	BE5	- 320	250	115	0.433
DRN132S2	5.5	7.5	3.3 2.1	4.2	L	125	0.571	0.467	BE5	- 240	355	140	0.583
DRN132S2	7.5	10	3.6 2.4	4.6	L	125	0.571	0.467	BE5	- 240	485	140	0.583

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13.3 1800 rpm

13.3.1 0.25 to 125 HP Technical data – 4 pole

Motor	P_N		T_N	n_N	TEFC Speed Range[1]	I_N 230V	I_N 460V	I_N 575V	cosφ	$\eta_{50\%}$	$\eta_{75\%}$	$\eta_{100\%}$	I_A/I_N
	kW	HP	lb-in	rpm	rpm	A	A	A		%	%	%	
DRN63MS4	0.12	0.16	5.9	1700	300-1800	0.74	0.37	0.30	0.58	57.7	63.7	66.0	4.3
DRN63M4	0.18	0.25	9.3	1695	300-1800	1.04	0.52	0.42	0.59	63.5	68.5	70.0	4.5
DRN71MS4	0.25	0.33	12.1	1720	300-1800	1.30	0.65	0.52	0.62	69.2	73.1	74.0	5.1
DRN71M4	0.37	0.50	18.2	1730	300-1800	1.84	0.92	0.74	0.62	74.3	77.7	78.5	5.7
DRN80MK4	0.55	0.75	27	1745	300-1800	2.32	1.16	0.93	0.71	78.1	81.0	81.5	7.4
DRN80M4	0.75	1	36	1751	300-1800	3.1	1.56	1.25	0.70	82.0	84.9	85.5	8.1
DRN90S4	1.1	1.5	53	1762	300-1800	4.65	2.3	1.85	0.69	83.5	86.1	86.5	8.2
DRN90L4	1.5	2	72	1767	300-1800	6	3	2.4	0.70	83.8	86.1	86.5	9.1
DRN100LM4	2.2	3	106	1762	300-1800	8.4	4.2	3.4	0.73	88.1	89.5	89.5	9.1
DRN100L4	3	4	144	1763	550-1800	11.6	5.8	4.65	0.73	87.6	89.3	89.5	9.2
DRN100L4	3.7	5	178	1758	550-1800	14.3	7.2	5.7	0.72	87.8	89.4	89.5	9.1
DRN112M4	4	5.4	191	1769	300-1800	14.1	7.1	5.6	0.79	88.5	89.6	89.5	9.8
DRN132S4	5.5	7.5	265	1768	300-1800	18.4	9.2	7.4	0.82	90.9	91.8	91.7	9.8
DRN132M4	7.5	10	355	1774	300-1800	26.5	13.3	10.6	0.77	91.1	91.9	91.7	8.5
DRN132L4	9.2	12.3	440	1775	300-1800	33	16.5	13.2	0.76	91.0	91.9	91.7	8.4
DRN160M4	11	15	520	1776	300-1800	37	18.5	14.8	0.80	91.2	92.3	92.4	7.0
DRN160L4	15	20	710	1777	300-1800	50	25	20	0.80	92.3	93.3	93.0	9.0
DRN180M4	18.5	25	880	1781	300-1800	59	29.5	23.5	0.84	92.7	93.6	93.6	9.5
DRN180L4	22	30	1040	1781	300-1800	68	34	27.5	0.86	93.2	93.8	93.6	9.8
DRN200L4	30	40	1420	1783	300-1800	97	48.5	39	0.82	93.0	94.0	94.1	8.5
DRN225S4	37	50	1750	1785	300-1800	111	56	44.5	0.88	94.2	94.7	94.5	9.2
DRN225M4	45	60	2150	1785	300-1800	140	70	56	0.85	94.5	95.1	95.0	8.9
DRN250ME4	55	75	2600	1785	300-1800	176	88	70	0.82	94.3	95.2	95.4	8.6
DRN280S4	75	100	3550	1785	300-1800	250	125	100	0.79	94.6	95.3	95.4	9.1
DRN280M4	90	125	4250	1784	300-1800	280	141	113	0.83	94.8	95.4	95.4	8.0

1) T_N = constant, using standard fan
2) Replaced by DRN100LM4

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13.3.2 0.25 to 125 HP Additional data – 4 pole

Motor	P_N		T_A/T_N T_H/T_N	T_K/T_N	NEMA Code Letter	m_{Mot}	J_{Mot}	J_Z	BE..	Z_0 BG BGE	T_B	m_{BMot}	J_{BMot}
	kW	HP				lb	lb-ft²	lb-ft²		#/hr	lb-in	lb	lb-ft²
DRN63MS4	0.12	0.16	3.3 3.2	3.4	J	11	0.0070	-	BE03	8000 8000	11.5	15	0.0086
DRN63M4	0.18	0.25	3.3 3.2	3.3	J	13	0.0089	-	BE03	8000 8000	18.5	17	0.0105
DRN71MS4	0.25	0.33	3.0 2.6	3.0	K	15	0.0129	-	BE03	4950 7800	24	19	0.0145
DRN71M4	0.37	0.50	3.4 2.8	3.4	K	18	0.0169	-	BE05	4000 7200	44	22	0.0200
DRN80MK4	0.55	0.75	3.2 2.5	3.6	L	24	0.0406	0.090	BE1	2800 6800	62	31	0.0441
DRN80M4	0.75	1.0	3.7 3.0	4.2	M	31	0.0587	0.090	BE1	2600 6600	89	39	0.0622
DRN90S4	1.1	1.5	3.3 2.3	4.0	M	43	0.128	0.237	BE2	1800 4800	124	53	0.139
DRN90L4	1.5	2	3.3 1.9	4.0	M	50	0.160	0.237	BE2	1800 4700	177	60	0.171
DRN100LM4	2.2	3	3.4 2.4	4.2	M	72	0.215	0.347	BE5	- 3700	250	85	0.229
DRN100L4	3	4	3.9 2.3	4.4	M	75	0.265	0.347	BE5	- 2900	355	88	0.279
DRN100L4	3.7	5	4.1 2.0	4.4	M	75	0.265	0.347	BE5	- 2900	355	88	0.279
DRN112M4	4	5.4	2.8 1.4	4.0	M	98	0.422	0.467	BE5	- 2300	485	115	0.433
DRN132S4	5.5	7.5	3.5 2.8	4.3	L	125	0.571	0.467	BE11	- 1700	710	155	0.596
DRN132M4	7.5	10	3.7 2.6	3.7	K	160	0.904	1.115	BE11	- 900	970	200	0.956
DRN132L4	9.2	12.3	4.3 1.7	4.1	K	180	1.04	1.115	BE11	- 780	970	220	1.09
DRN160M4	11	15	2.6 2.1	3.1	H	255	1.94	-	BE20	- 720	1330	325	2.08
DRN160L4	15	20	3.4 2.1	3.8	L	290	2.47	-	BE20	- 640	1770	360	2.61
DRN180M4	18.5	25	4.1 3.4	4.0	K	345	3.88	-	BE20	- 400	1770	415	4.02
DRN180L4	22	30	4.2 2.7	3.9	K	380	4.63	-	BE30	- 380	2650	470	4.95
DRN200L4	30	40	3.5 2.5	3.3	K	620	6.32	-	BE32	- 400	3550	740	6.86
DRN225S4	37	50	3.4 2.6	3.0	K	680	10.3	-	BE32	- 180	3550	800	10.9
DRN225M4	45	60	3.6 2.2	2.7	K	680	10.3	-	BE32	- 160	4450	800	10.9
DRN250ME4	55	75	4.6 2.4	2.7	K	1120	21.2	-	BE60	- 120	5300	1300	22
DRN280S4	75	100	4.8 2.7	3.1	L	1140	21.2	-	BE62	- 120	8900	1330	22.6
DRN280M4	90	125	4.8 2.5	2.9	J	1390	28.4	-	BE62	- 63	8900	1580	29.9

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13.3.3 150 to 300 HP Technical data – 4 pole

460V:

Motor	P_N		Voltage	T_N	n_N	TEFC Speed Range[1]	I_N	cosφ	$\eta_{50\%}$	$\eta_{75\%}$	$\eta_{100\%}$	I_A/I_N
	kW	HP		lb-in	rpm	rpm	A		%	%	%	
DRN315S4	110	150	460V	5200	1790	350-1800	165	0.87	95.0	95.7	95.8	7.6
DRN315ME4	132	175	460V	6200	1791	350-1800	205	0.86	95.4	96.0	96.2	8.3
DRN315L4	150	200	460V	7100	1788	350-1800	225	0.87	95.5	96.1	96.2	7.8
DRN315L4	-	225	460V	7900	1788	350-1800	240	0.88	95.6	96.2	96.2	7.4
DRN315H4	185	250	460V	8800	1792	350-1800	290	0.83	94.8	95.9	96.2	8.6
DRN315H4	200	275	460V	9500	1791	350-1800	310	0.84	95.0	96.0	96.2	8.1
DRN315H4	225	300	460V	10600	1790	350-1800	345	0.85	95.4	96.1	96.2	7.3

1) T_N = constant, using standard fan

575V:

Motor	P_N		Voltage	T_N	n_N	TEFC Speed Range[1]	I_N	cosφ	$\eta_{50\%}$	$\eta_{75\%}$	$\eta_{100\%}$	I_A/I_N
	kW	HP		lb-in	rpm	rpm	A		%	%	%	
DRN315L4	150	200	575V	7100	1788	350-1800	180	0.88	95.4	96.1	96.2	7.3
DRN315H4	200	275	575V	9500	1788	350-1800	240	0.87	95.9	96.3	96.2	6.7

1) T_N = constant, using standard fan

13.3.4 150 to 300 HP Additional data – 4 pole

460V:

Motor	P_N		Voltage	T_A/T_N T_H/T_N	T_K/T_N	NEMA Code Letter	m_{Mot}	J_{Mot}	BE..	Z_0 BGE	T_B	m_{BMot}	J_{BMot}
	kW	HP					lb	lb-ft²		#/hr	lb-in	lb	lb-ft²
DRN315S4	110	150	460V	3.3 2.5	3.5	H	1910	55.6	BE122	42	10600	2210	58
DRN315ME4	132	175	460V	3.8 3.1	4.3	J	2190	67.3	BE122	33	14200	2480	69.7
DRN315L4	150	200	460V	3.4 2.7	3.8	H	2240	67.9	BE122	27	17700	2530	70.3
DRN315L4	-	225	460V	3.2 2.6	3.6	G	2240	67.9	BE122	27	17700	2530	70.3
DRN315H4	185	250	460V	4.6 3.4	4.6	J	2510	83.5	BE122	18	17700	2800	85.9
DRN315H4	200	275	460V	4.2 3.1	4.3	J	2510	83.5	BE122	18	17700	2800	85.9
DRN315H4	225	300	460V	3.7 2.8	3.8	H	2510	83.5	BE122	18	17700	2800	85.9

575V:

Motor	P_N		Voltage	T_A/T_N T_H/T_N	T_K/T_N	NEMA Code Letter	m_{Mot}	J_{Mot}	BE..	Z_0 BGE	T_B	m_{BMot}	J_{BMot}
	kW	HP					lb	lb-ft²		#/hr	lb-in	lb	lb-ft²
DRN315L4	150	200	575V	3.1 2.5	3.5	H	2240	67.9	BE122	27	17700	2530	70.3
DRN315H4	200	275	575V	3.3 2.5	3.3	J	2510	83.5	BE122	18	17700	2800	85.9

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13.4 1800 rpm – HazLoc-NA®

13.4.1 0.25 to 125 HP Technical data – 4 pole

HazLoc-NA® Motor	P_N		T_N	n_N	TEFC Speed Range[1]	I_N 230V	I_N 460V	I_N 575V	cosφ	$\eta_{50\%}$	$\eta_{75\%}$	$\eta_{100\%}$	I_A/I_N
	kW	HP	lb-in	rpm	rpm	A	A	A		%	%	%	
EDRN63M4	0.18	0.25	9.3	1695	300-1800	1.04	0.52	0.42	0.59	63.5	68.5	70.0	4.5
EDRN71MS4	0.25	0.33	12.1	1720	300-1800	1.30	0.65	0.52	0.62	69.2	73.1	74.0	5.1
EDRN71M4	0.37	0.50	18.2	1730	300-1800	1.84	0.92	0.74	0.62	74.3	77.7	78.5	5.7
EDRN80MK4	0.55	0.75	27	1745	300-1800	2.32	1.16	0.93	0.71	78.1	81.0	81.5	7.4
EDRN80M4	0.75	1	36	1751	300-1800	3.1	1.56	1.25	0.70	82.0	84.9	85.5	8.1
EDRN90S4	1.1	1.5	53	1762	300-1800	4.65	2.3	1.85	0.69	83.5	86.1	86.5	8.2
EDRN90L4	1.5	2	72	1767	300-1800	6	3	2.4	0.70	83.8	86.1	86.5	9.1
EDRN100LM4	2.2	3	106	1762	300-1800	8.4	4.2	3.4	0.73	88.1	89.5	89.5	9.1
EDRN100L4	3	4	144	1763	550-1800	11.6	5.8	4.65	0.73	87.6	89.3	89.5	9.2
EDRN100L4	3.7	5	178	1758	550-1800	14.3	7.2	5.7	0.72	87.8	89.4	89.5	9.1
EDRN112M4	4	5.4	191	1769	300-1800	14.1	7.1	5.6	0.79	88.5	89.6	89.5	9.8
EDRN132S4	5.5	7.5	265	1768	300-1800	18.4	9.2	7.4	0.82	90.9	91.8	91.7	9.8
EDRN132M4	7.5	10	355	1774	300-1800	26.5	13.3	10.6	0.77	91.1	91.9	91.7	8.5
EDRN132L4	9.2	12.3	440	1775	300-1800	33	16.5	13.2	0.76	91.0	91.9	91.7	8.4
EDRN160M4	11	15	520	1776	300-1800	37	18.5	14.8	0.80	91.2	92.3	92.4	7.0
EDRN160L4	15	20	710	1777	300-1800	50	25	20	0.80	92.3	93.3	93.0	9.0
EDRN180M4	18.5	25	880	1781	300-1800	59	29.5	23.5	0.84	92.7	93.6	93.6	9.5
EDRN180L4	22	30	1040	1781	300-1800	68	34	27.5	0.86	93.2	93.8	93.6	9.8
EDRN200L4	30	40	1420	1783	300-1800	97	48.5	39	0.82	93.0	94.0	94.1	8.5
EDRN225S4	37	50	1750	1785	300-1800	111	56	44.5	0.88	94.2	94.7	94.5	9.2
EDRN225M4	45	60	2150	1785	300-1800	140	70	56	0.85	94.5	95.1	95.0	8.9
EDRN250ME4	55	75	2600	1785	300-1800	176	88	70	0.82	94.3	95.2	95.4	8.6
EDRN280S4	75	100	3550	1785	300-1800	250	125	100	0.79	94.6	95.3	95.4	9.1
EDRN280M4	90	125	4250	1784	300-1800	280	141	113	0.83	94.8	95.4	95.4	8.0

1) T_N = constant, using standard fan

2) Replaced by EDRN100LM4

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13.4.2 0.25 to 125 HP Additional data – HazLoc-NA® 4 pole

HazLoc-NA® Motor	P_N		T_A/T_N T_H/T_N	T_K/T_N	NEMA Code Letter	m_{Mot}	J_{Mot}	BE..	Z_0 BGE	T_B	m_{BMot}	J_{BMot}
	kW	HP				lb	lb-ft²		#/hr	lb-in	lb	lb-ft²
EDRN63M4	0.18	0.25	3.3 3.2	3.3	J	13	0.0089	BE03	1500	18.5	17	0.0105
EDRN71MS4	0.25	0.33	3.0 2.6	3.0	K	15	0.0129	BE03	1500	24	19	0.0145
EDRN71M4	0.37	0.50	3.4 2.8	3.4	K	18	0.0169	BE05	1500	44	22	0.0200
EDRN80MK4	0.55	0.75	3.2 2.5	3.6	L	24	0.0406	BE1	1500	62	31	0.0441
EDRN80M4	0.75	1	3.7 3.0	4.2	M	31	0.0587	BE1	1060	89	39	0.0622
EDRN90S4	1.1	1.5	3.3 2.3	4.0	M	43	0.128	BE2	770	124	53	0.139
EDRN90L4	1.5	2	3.3 1.9	4.0	M	50	0.160	BE2	750	177	60	0.171
EDRN100LM4	2.2	3	3.4 2.4	4.2	M	72	0.215	BE5	590	250	85	0.229
EDRN100L4	3	4	3.9 2.3	4.4	M	75	0.265	BE5	460	355	88	0.279
EDRN100L4	3.7	5	4.1 2.0	4.4	M	75	0.265	BE5	460	355	88	0.279
EDRN112M4	4	5.4	2.8 1.4	4.0	M	98	0.422	BE5	370	485	115	0.433
EDRN132S4	5.5	7.5	3.5 2.8	4.3	L	125	0.571	BE11	270	710	155	0.596
EDRN132M4	7.5	10	3.7 2.6	3.7	K	160	0.904	BE11	140	970	200	0.956
EDRN132L4	9.2	12.3	4.3 1.7	4.1	K	180	1.04	BE11	120	970	220	1.09
EDRN160M4	11	15	2.6 2.1	3.1	H	255	1.94	BE20	120	1330	325	2.08
EDRN160L4	15	20	3.4 2.1	3.8	L	290	2.47	BE20	100	1770	360	2.61
EDRN180M4	18.5	25	4.1 3.4	4.0	K	345	3.88	BE20	60	1770	415	4.02
EDRN180L4	22	30	4.2 2.7	3.9	K	380	4.63	BE30	60	2650	470	4.95
EDRN200L4	30	40	3.5 2.5	3.3	K	620	6.32	BE32	60	3550	740	6.86
EDRN225S4	37	50	3.4 2.6	3.0	K	680	10.3	BE32	30	3550	800	10.9
EDRN225M4	45	60	3.6 2.2	2.7	K	680	10.3	BE32	25	4450	800	10.9
EDRN250ME4	55	75	4.6 2.4	2.7	K	1120	21.2	BE60	20	5300	1300	22
EDRN280S4	75	100	4.8 2.7	3.1	L	1140	21.2	BE120	20	7100	1330	22.6
EDRN280M4	90	125	4.8 2.5	2.9	J	1390	28.4	BE120	10	8900	1580	29.9

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13.4.3 150 to 275 HP Technical data – HazLoc-NA® 4 pole

460V:

HazLoc-NA® Motor	P_N		Voltage	T_N	n_N	TEFC Speed Range[1]	I_N	cosφ	$\eta_{50\%}$	$\eta_{75\%}$	$\eta_{100\%}$	I_A/I_N
	kW	HP		lb-in	rpm	rpm	A		%	%	%	
EDRN315S4	110	150	460V	5200	1790	350-1800	165	0.87	95.0	95.7	95.8	7.6
EDRN315ME4	132	175	460V	6200	1791	350-1800	200	0.86	95.4	96.0	96.2	8.3
EDRN315L4	150	200	460V	7100	1788	350-1800	225	0.87	95.5	96.1	96.2	7.8
EDRN315L4	-	225	460V	7900	1788	350-1800	240	0.88	95.6	96.2	96.2	7.4
EDRN315H4	185	250	460V	8800	1792	350-1800	290	0.83	94.8	95.9	96.2	8.6
EDRN315H4	200	275	460V	9500	1791	350-1800	310	0.84	95.0	96.0	96.2	9.4

1) T_N = constant, using standard fan

575V:

HazLoc-NA® Motor	P_N		Voltage	T_N	n_N	TEFC Speed Range[1]	I_N	cosφ	$\eta_{50\%}$	$\eta_{75\%}$	$\eta_{100\%}$	I_A/I_N
	kW	HP		lb-in	rpm	rpm	A		%	%	%	
EDRN315S4	110	150	575V	5200	1788	350-1800	130	0.88	95.3	95.8	95.8	6.6
EDRN315ME4	132	175	575V	6200	1791	350-1800	159	0.86	95.1	96.0	96.2	8.3
EDRN315L4	150	200	575V	7100	1789	350-1800	179	0.87	95.4	96.1	96.2	7.9
EDRN315L4	-	225	575V	7900	1789	350-1800	189	0.87	95.6	96.2	96.2	7.5
EDRN315H4	185	250	575V	8800	1790	350-1800	220	0.87	95.7	96.2	96.2	7.3
EDRN315H4	200	275	575V	9500	1788	350-1800	240	0.87	95.9	96.3	96.2	7.5

1) T_N = constant, using standard fan

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13.4.4 150 to 275 HP Additional data – HazLoc-NA® 4 pole

460V:

HazLoc-NA® Motor	P_N		Voltage	T_A/T_N T_H/T_N	T_K/T_N	NEMA Code Letter	m_{Mot}	J_{Mot}	BE..	Z_0 BGE	T_B	m_{BMot}	J_{BMot}
	kW	HP					lb	lb-ft²		#/hr	lb-in	lb	lb-ft²
EDRN315S4	110	150	460V	3.3 2.5	3.5	H	1920	55.6	BE120	10	8900	2140	57.1
EDRN315ME4	132	175	460V	3.8 3.1	4.3	J	2190	67.3	BE120	5	8900	2420	68.7
EDRN315L4	150	200	460V	3.4 2.7	3.8	H	2250	67.9	BE120	5	8900	2470	69.3
EDRN315L4	-	225	460V	3.2 2.6	3.6	H	2250	67.9	BE120	5	8900	2470	69.3
EDRN315H4	185	250	460V	4.6 3.4	4.6	J	2510	83.5	BE120	5	8900	2730	84.9
EDRN315H4	200	275	460V	4.2 3.1	4.3	J	2510	83.5	BE120	5	8900	2730	84.9

575V:

HazLoc-NA® Motor	P_N		Voltage	T_A/T_N T_H/T_N	T_K/T_N	NEMA Code Letter	m_{Mot}	J_{Mot}	BE..	Z_0 BGE	T_B	m_{BMot}	J_{BMot}
	kW	HP					lb	lb-ft²		#/hr	lb-in	lb	lb-ft²
EDRN315S4	110	150	575V	2.8 2.1	3.0	H	1910	55.6	BE120	10	8900	2140	57.1
EDRN315ME4	132	175	575V	3.9 2.9	4.1	J	2190	67.3	BE120	5	8900	2420	68.7
EDRN315L4	150	200	575V	3.4 2.6	3.6	H	2240	67.9	BE120	5	8900	2470	69.3
EDRN315L4	-	225	575V	3.2 2.4	3.4	H	2240	67.9	BE120	5	8900	2470	69.3
EDRN315H4	185	250	575V	3.6 2.8	3.7	J	2510	83.5	BE120	5	8900	2730	84.9
EDRN315H4	200	275	575V	3.4 2.6	3.4	H	2510	83.5	BE120	5	8900	2730	84.9

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13.5 1200 rpm

13.5.1 Technical data – 6 pole

Motor	P_N		T_N	n_N	I_N 230V	I_N 460V	I_N 575V	cosφ	$ή_{50\%}$	$ή_{75\%}$	$ή_{100\%}$	I_A/I_N
	kW	HP	lb-in	rpm	A	A	A		%	%	%	
DRN63MR6	0.09	0.12	6.7	1135	0.68	0.34	0.27	0.52	49.2	57.3	59.5	3.5
DRN63M6	0.12	0.16	9.1	1105	0.74	0.37	0.30	0.63	54.9	61.6	64	3.3
DRN71MS6	0.18	0.25	13.9	1130	1.0	0.50	0.40	0.63	61.7	66.6	68	3.9
DRN71M6	0.25	0.33	18.3	1135	1.4	0.69	0.55	0.62	64.8	70.3	72	4.2
DRN80MK6	0.37	0.50	27.4	1150	1.9	0.94	0.75	0.63	71.2	74.8	75.5	4.9
DRN90SR6	0.55	0.75	40.3	1172	2.8	1.38	1.1	0.60	76.6	80.5	81.5	6.0
DRN90S6	0.75	1	54	1165	3.6	1.8	1.44	0.63	79.1	82.6	82.5	5.6
DRN112M6	1.1	1.5	79	1183	5.1	2.55	2.05	0.61	84.6	86.9	87.5	7.9
DRN112M6	1.5	2	107	1181	6.7	3.35	2.7	0.63	86.1	88.2	88.5	7.7
DRN132S6	2.2	3	158	1179	9.8	4.9	3.95	0.63	87.2	89.2	89.5	6.7
DRN132S6	3	4	215	1178	13.3	6.7	5.3	0.63	87.6	89.4	89.5	6.9
DRN132M6	3.7	5	265	1182	17.7	8.8	7.1	0.59	86.8	89.0	89.5	6.7
DRN132M6	4	5.4	285	1181	18.4	9.2	7.4	0.61	87.4	89.2	89.5	6.4
DRN160M6	5.5	7.5	390	1185	21	10.4	8.3	0.72	88.4	90.4	91.0	8.6
DRN160M6	7.5	10	540	1182	28.5	14.2	11.3	0.73	89.2	90.8	91.0	8.0

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13.5.2 Additional data – 6 pole

Motor	P_N		T_A/T_N T_H/T_N	T_K/T_N	NEMA Code Letter	m_{Mot}	J_{Mot}	J_z	BE..	Z_0 BG BGE	T_B	m_{BMot}	J_{BMot}
	kW	HP				lb	lb-ft²	lb-ft²		#/hr	lb-in	lb	lb-ft²
DRN63MR6	0.09	0.12	3.4 3.4	3.6	J	13	0.015	-	BE03	9600 9600	15	17	0.017
DRN63M6	0.12	0.16	2.5 2.5	2.5	G	13	0.015	-	BE03	9600 9600	18.5	17	0.017
DRN71MS6	0.18	0.25	2.3 2.1	2.6	G	15	0.020	-	BE03	5600 9600	30	19	0.021
DRN71M6	0.25	0.33	2.5 2.3	2.8	H	17.5	0.025	-	BE05	4150 9600	44.5	22	0.028
DRN80MK6	0.37	0.50	2.5 2.4	3.0	J	24	0.041	0.090	BE1	2400 7200	62	31	0.044
DRN90SR6	0.55	0.75	2.7 2.4	3.4	K	44	0.128	0.237	BE1	1920 4000	89	51	0.132
DRN90S6	0.75	1	2.4 2.3	3.0	J	44	0.128	0.237	BE2	1920 4000	124	53	0.139
DRN112M6	1.1	1.5	2.5 1.8	3.9	M	98	0.422	0.467	BE5	- 2080	177	115	0.433
DRN112M6	1.5	2	2.5 1.9	3.8	M	98	0.422	0.467	BE5	- 2080	250	115	0.433
DRN132S6	2.2	3	2.7 2.4	3.9	K	125	0.582	0.467	BE5	- 1840	355	140	0.593
DRN132S6	3	4	2.7 2.5	4.0	L	125	0.582	0.467	BE5	- 1840	485	140	0.593
DRN132M6	3.7	5	3.4 2.8	3.3	L	160	0.904	1.115	BE11	- 1440	710	200	0.956
DRN132M6	4	5.4	3.2 2.6	3.1	K	160	0.904	1.115	BE11	- 1440	710	200	0.956
DRN160M6	5.5	7.5	2.9 1.3	4.4	L	255	3.05	-	BE20	- 960	970	325	3.2
DRN160M6	7.5	10	2.9 1.3	4.2	L	255	3.05	-	BE20	- 960	1330	325	3.2

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13.6 Brakes

13.6.1 Working and holding brake

The BE.. brakes are suitable for both line-operated motors (non-controlled applications) and inverter-operated motors (controlled applications).

Working brake:

With line-operated motors, the brake is used for stopping the motor during full load motor speed. A working brake is normally larger than a holding brake, since it requires more work to stop the motor.

Holding brake:

With inverter-operated motors, the brake is primarily used to hold the load and to prevent the motor from rotating. The motor is stopped electronically by an inverter. Thus, the brake activates when the motor speed is typically < 20 rpm. Braking at full load motor speed could take place, but only during emergency stopping. Holding brakes are normally smaller in size, since they don't require as much torque.

13.6.2 Brake sizes

Depending on the application and how the brake is being used (working or holding brake), several brake sizes are available for each motor.

The following table shows the possible combinations of motor and brake.

	DRN Motor Size										
Brake	**63**	**71**	**80**	**90**	**100**	**112 132S**	**132M 132L**	**160 180**	**200 225**	**250 280**	**315**
BE03											
BE05											
BE1											
BE2											
BE5											
BE11											
BE20											
BE30											
BE32											
BE60[1)]											
BE62[1)]											
BE120[1)]											
BE122[1)]											

1) Not available as BE.. safety brake

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13.6.3 Brake torques

Depending on the application and how the brake is being used (working or holding brake), several braking torques are available for each motor.

The following tables show the available braking torques, depending on the brake size.

Braking Torque, T_B		BE03	BE05	BE1	BE2	BE5	BE11	BE20
lb-in	Nm							
8	0.9							
11.5	1.3							
15	1.7							
16[1)]	1.8[1)]							
18.5	2.1							
22[1)]	2.5[1)]							
24	2.7							
30	3.4							
31	3.5							
44	5							
62	7							
88	10							
124	14							
177	20							
248	28							
354	40							
487	55							
708	80							
974	110							
1326	150							
1770	200							

Braking Torque, T_B		BE30	BE32	BE60	BE62	BE120	BE122
lb-in	Nm						
664	75						
885	100						
1328	150						
1770	200						
2655	300						
3540	400						
4425	500						
5310	600						
7080[1)]	800[1)]						
8850[1)]	1000[1)]						
10620[1)]	1200[1)]						
14160[1)]	1600[1)]						
17700[1)]	2000[1)]						

1) Not available for BE.. safety brakes

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13.6.4 Brake coil data

The following tables list the operating currents of the brakes at various voltages.

Legend

- P_B Electric power consumption in the brake coil in W.
- V_N Nominal voltage (nominal voltage range) of the brake in V (AC or DC).
- I_H Holding current of the brake current in the supply cable to the SEW brake control, in ampere r.m.s.
- I_{DC} Direct current in ampere in the brake cable with direct DC voltage supply. Or, direct current in ampere in the brake cable with DC 24 V supply via BS24, BSG, or BMV.
- I_B Acceleration current in ampere (AC or DC) when operated with SEW brake control for high-speed excitation.
- I_B/I_H Inrush current ratio ESV.
- I_B/I_{DC} Inrush current ratio ESV for DC 24 V supply with BSG or BMV.

BE03, BE05, BE1, BE2

	BE03	BE05, BE1	BE2
Rated brake coil power, P_B	25 W	30 W	41 W
Inrush current ratio, ESV	4	4	4

Nominal Voltage, V_N		BE03		BE05, BE1		BE2	
AC V	DC V	I_H	I_{DC}	I_H	I_{DC}	I_H	I_{DC}
		A ac	A dc	A ac	A dc	A ac	A dc
24 (23–26)	10	2.20	2.55	2.25	2.90	2.95	3.80
60 (57-63)	24	0.87	1.02	0.90	1.17	1.18	1.53
120 (111-123)	48	0.44	0.51	0.45	0.59	0.59	0.77
184 (174-193)	80	0.28	0.32	0.29	0.37	0.38	0.49
208 (194-217)	90	0.25	0.29	0.26	0.33	0.34	0.43
230 (218-243)	96	0.22	0.26	0.23	0.30	0.30	0.39
254 (244-273)	110	0.19	0.23	0.20	0.27	0.27	0.35
290 (274-306)	125	0.17	0.21	0.18	0.24	0.24	0.31
330 (307-343)	140	0.15	0.18	0.16	0.21	0.21	0.28
360 (344-379)	160	0.14	0.16	0.14	0.19	0.19	0.25
400 (380-431)	180	0.12	0.14	0.13	0.17	0.17	0.22
460 (432-484)	200	0.11	0.13	0.11	0.15	0.15	0.19
500 (485-542)	220	0.10	0.11	0.10	0.13	0.14	0.18
575 (543-600)	250	0.09	0.10	0.09	0.12	0.12	0.16

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BE5, BE11, BE20, BE30, BE60, BE62

	BE5	BE11	BE20	BE30 BE32	BE60 BE62
Rated brake coil power, P_B	50 W	70 W	95 W	120 W	195 W
Inrush current ratio, ESV	5.9	6.6	7.5	8.5	9.2

Nominal Voltage, V_N		BE5	BE11	BE20	BE30 BE32	BE60 BE62
AC V	DC V	I_H	I_H	I_H	I_H	I_H
		A ac	A ac	A ac	A ac	A ac
60 (57-63)	24	1.28	2.05	2.55	–	–
120 (111-123)	–	0.64	1.04	1.28	1.66	–
184 (174-193)	–	0.41	0.66	0.81	1.05	–
208 (194-217)	–	0.37	0.59	0.72	0.94	1.50
230 (218-243)	–	0.33	0.52	0.65	0.84	1.35
254 (244-273)	–	0.29	0.47	0.58	0.75	1.20
290 (274-306)	–	0.26	0.42	0.51	0.67	1.12
330 (307-343)	–	0.23	0.37	0.46	0.59	0.97
360 (344-379)	–	0.21	0.33	0.41	0.53	0.86
400 (380-431)	–	0.18	0.30	0.37	0.47	0.77
460 (432-484)	–	0.16	0.27	0.33	0.42	0.68
500 (485-542)	–	0.15	0.24	0.29	0.38	0.60
575 (543-600)	–	0.13	0.22	0.26	0.34	0.54

BE120, BE122

	BE120, BE122
Rated brake coil power, P_B	220 W
Inrush current ratio, ESV	6

Nominal Voltage, V_N	BE120, BE122
AC V	I_H
	A ac
230 (218-243)	1.45
254 (244-273)	1.30
290 (274-306)	1.16
360 (344-379)	0.92
400 (380-431)	0.82
460 (432-484)	0.73
500 (485-542)	0.65
575 (543-600)	0.58

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13.7 Rectifiers and brake control

13.7.1 Cabinet installation

The following tables list the technical data of brake control systems for installation in the control cabinet.

Series	Function	Voltage	Nominal output current I_L [DC Amps]	Type
BMS..	Half-wave rectifier without electronic switching.	AC 230 – 575 V	1.0	BMS1.4
		AC 150 – 500 V	1.5	BMS1.5
		AC 24 – 150 V	3.0	BMS3.0
BME..	Half-wave rectifier with electronic switching	AC 230 – 575 V	1.0	BME1.4
		AC 150 – 500 V	1.5	BME1.5
		AC 42 – 150 V	3.0	BME3.0
BMH..	Half-wave rectifier with electronic switching and heating function	AC 230 – 575 V	1.0	BMH1.4
		AC 150 – 500 V	1.5	BMH1.5
		AC 42 – 150 V	3.0	BMH3.0
BMP..	Half-wave rectifier with electronic switching, integrated voltage relay for cut-off in the DC circuit	AC 230 – 575 V	1.0	BMP1.4
		AC 150 – 500 V	1.5	BMP1.5
		AC 230 – 575 V	2.8	BMP3.1
		AC 42 – 150 V	3.0	BMP3.0
BMK..	Half-wave rectifier with electronic switching, control input (DC 24V) and cut-off in the DC circuit	AC 230 – 575 V	1.0	BMK1.4
		AC 150 – 500 V	1.5	BMK1.5
		AC 42 – 150 V	3.0	BMK3.0
BMKB..	Half-wave rectifier with electronic switching, control input (DC 24V), rapid stop, and LED status display	AC 150 – 500 V	1.5	BMKB1.5
BMV..	Brake control unit with electronic switching, control input (DC 24V), and rapid stop	DC 24 V	5.0	BMV5
BST..	Safe brake control with electronic switching, control input (DC 24V), and safe control input (DC 24V). Supply via inverter DC link.	AC 460 V	0.6	BST0.6S
		AC 400 V	0.7	BST0.7S
		AC 230 V	1.2	BST1.2S

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13.7.2 Terminal box installation

The following tables list the technical data of brake control systems for installation in the terminal box of the motor.

Series	Function	Voltage	Nominal output current I_L [DC Amps]	Type
BG..	Half-wave rectifier without electronic switching	AC 90 – 500V	1.2	BG1.2
		AC 230 – 575 V	1.0	BG1.4
		AC 150 – 500 V	1.5	BG1.5
		AC 24 – 90 V	2.4	BG2.4
		AC 24 – 500V	2.8	BG3
BGE..	Half-wave rectifier with electronic switching	AC 230 – 575 V	1.0	BGE1.4
		AC 150 – 500 V	1.5	BGE1.5
		AC 42 – 150 V	2.8	BGE3
BS..	Terminal block with varistor protection circuit	DC 24 V	5.0	BS24
BSG..	Brake control unit with electronic switching and rapid stop	DC 24 V	5.0	BSG
BMP..	Half-wave rectifier with electronic switching, integrated voltage relay for cut-off in the DC circuit.	AC 230 – 575 V	2.8	BMP3.1

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13.7.3 Rectifier/brake compatibility

		BE03	BE05 BE1 BE2	BE5 BE11 BE20	BE30 BE32	BE60 BE62	BE120 BE122
Control Cabinet	BMS..			–	–	–	–
	BME..						–
	BMH..						–
	BMP..						–
	BMP 3.1	–	–	–	–		
	BMK..						–
	BMV..				–	–	–
	BST..					–	–
Terminal Box	BG..			–	–	–	–
	BGE..	2)					–
	BS..	2)		–	–	–	–
	BGS..	2)			–	–	–
	BMP3.1	–	–	–	–	1)	

	Available
1)	Possible only with DRN250 – DRN280
2)	Possible only with DRN71
–	Not available

As a standard, BG.. and BGE.. are supplied preconnected in the terminal box for cut-off in the AC circuit.

INFORMATION

Brake control systems for installation in the control cabinet are available with all standard motor plug connectors and cage clamp options.

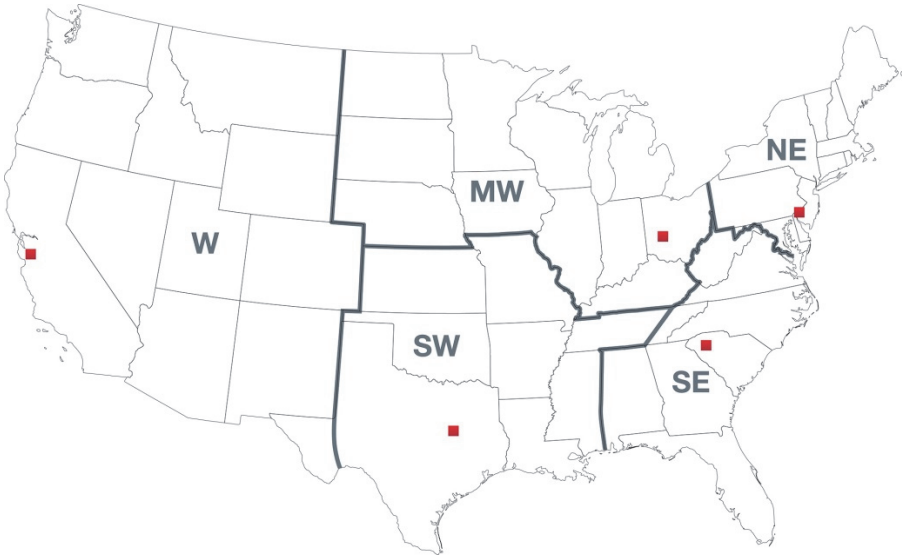
Brake control systems for installation in the motor terminal box can be combined with most plug connectors and cage clamps /KCC. However, there may be space restrictions when using the /KC1 option or with customer-specific plug connectors.

There may also be restrictions in combinations with additional electrical options (such as motor protection, strip heater, built-in encoder). In some cases, a larger terminal box may be necessary.

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14 Address Directory SEW-EURODRIVE

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www.seweurodrive.com

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Czech Republic			
Assembly Sales Service	Hostivice	SEW-EURODRIVE CZ s.r.o. Floriánova 2459 253 01 Hostivice	Tel. +420 255 709 601 Fax +420 235 350 613 http://www.sew-eurodrive.cz sew@sew-eurodrive.cz
	Drive Service Hotline / 24 Hour Service	+420 800 739 739 (800 SEW SEW)	Service Tel. +420 255 709 632 Fax +420 235 358 218 servis@sew-eurodrive.cz
Assembly Service	Plzeň	SEW-EURODRIVE CZ s.r.o. Areal KRPA a.s. Zahradni 173/2 326 00 Plzeň	Tel. +420 378 775 320 Fax +420 377 970 710 sew@sew-eurodrive.cz
Denmark			
Assembly Sales Service	Copenhagen	SEW-EURODRIVEA/S Geminivej 28-30 2670 Greve	Tel. +45 43 95 8500 Fax +45 43 9585-09 http://www.sew-eurodrive.dk sew@sew-eurodrive.dk
Egypt			
Sales Service	Cairo	Copam Egypt for Engineering & Agencies Building 10, Block 13005, First Ind Zone, Obour City Cairo	Tel. +202 44812673 / 79 (7 lines) Fax +202 44812685 http://www.copam-egypt.com copam@copam-egypt.com
Estonia			
Sales	Tallin	ALAS-KUUL AS Reti tee 4 75301 Peetri küla, Rae vald, Harjumaa	Tel. +372 6593230 Fax +372 6593231 http://www.alas-kuul.ee veiko.soots@alas-kuul.ee
Finland			
Assembly Sales Service	Hollola	SEW-EURODRIVE OY Vesimäentie 4 15860 Hollola	Tel. +358 201 589-300 Fax +358 3 780-6211 http://www.sew-eurodrive.fi sew@sew.fi
Service	Hollola	SEW-EURODRIVE OY Keskikankaantie 21 15860 Hollola	Tel. +358 201 589-300 Fax +358 3 780-6211 http://www.sew-eurodrive.fi sew@sew.fi
Production Assembly	Karkkila	SEW Industrial Gears Oy Santasalonkatu 6, PL 8 03620 Karkkila, 03601 Karkkila	Tel. +358 201 589-300 Fax +358 201 589-310 http://www.sew-eurodrive.fi sew@sew.fi
France			
Production Sales Service	Hagenau	SEW-USOCOME 48-54 route de Soufflenheim B. P. 20185 67506 Haguenau Cedex	Tel. +33 3 88 73 67 00 Fax +33 3 88 73 66 00 http://www.usocome.com sew@usocome.com
Production	Forbach	SEW-USOCOME Zone industrielle Technopôle Forbach Sud B. P. 30269 57604 Forbach Cedex	Tel. +33 3 87 29 38 00

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France			
	Brumath	SEW-USOCOME 1 Rue de Bruxelles 67670 Mommenheim Cedex	Tel. +33 3 88 37 48 00
Assembly Sales Service	Bordeaux	SEW-USOCOME Parc d'activités de Magellan 62 avenue de Magellan – B. P. 182 33607 Pessac Cedex	Tel. +33 5 57 26 39 00 Fax +33 5 57 26 39 09
	Lyon	SEW-USOCOME 75 rue Antoine Condorcet 38090 Vaulx-Milieu	Tel. +33 4 74 99 60 00 Fax +33 4 74 99 60 15
	Nantes	SEW-USOCOME Parc d'activités de la forêt 4 rue des Fontenelles 44140 Le Bignon	Tel. +33 2 40 78 42 00 Fax +33 2 40 78 42 20
	Paris	SEW-USOCOME Zone industrielle 2 rue Denis Papin 77390 Verneuil l'Étang	Tel. +33 1 64 42 40 80 Fax +33 1 64 42 40 88
Gabon			
Sales	Libreville	SEW-EURODRIVE SARL 183, Rue 5.033.C, Lalala à droite P.O. Box 15682 Libreville	Tel. +241 03 28 81 55 +241 06 54 81 33 http://www.sew-eurodrive.cm sew@sew-eurodrive.cm
Germany			
Headquarters Production Sales	Bruchsal	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 76646 Bruchsal P.O. Box Postfach 3023 – D-76642 Bruchsal	Tel. +49 7251 75-0 Fax +49 7251 75-1970 http://www.sew-eurodrive.de sew@sew-eurodrive.de
Production / Industrial Gears	Bruchsal	SEW-EURODRIVE GmbH & Co KG Christian-Pähr-Str. 10 76646 Bruchsal	Tel. +49 7251 75-0 Fax +49 7251 75-2970
Production	Graben	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 1 76676 Graben-Neudorf P.O. Box Postfach 1220 – D-76671 Graben-Neudorf	Tel. +49 7251 75-0 Fax +49 7251-2970
	Östringen	SEW-EURODRIVE GmbH & Co KG, Werk Östringen Franz-Gurk-Straße 2 76684 Östringen	Tel. +49 7253 9254-0 Fax +49 7253 9254-90 oestringen@sew-eurodrive.de
Service Competence Center	Mechanics / Mechatronics	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 1 76676 Graben-Neudorf	Tel. +49 7251 75-1710 Fax +49 7251 75-1711 scc-mechanik@sew-eurodrive.de
	Electronics	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 76646 Bruchsal	Tel. +49 7251 75-1780 Fax +49 7251 75-1769 scc-elektronik@sew-eurodrive.de
Drive Technology Center	North	SEW-EURODRIVE GmbH & Co KG Alte Ricklinger Straße 40-42 30823 Garbsen (Hannover)	Tel. +49 5137 8798-30 Fax +49 5137 8798-55 dtc-nord@sew-eurodrive.de
	East	SEW-EURODRIVE GmbH & Co KG Dänkritzer Weg 1 08393 Meerane (Zwickau)	Tel. +49 3764 7606-0 Fax +49 3764 7606-30 dtc-ost@sew-eurodrive.de
	South	SEW-EURODRIVE GmbH & Co KG Domagkstraße 5 85551 Kirchheim (München)	Tel. +49 89 909552-10 Fax +49 89 909552-50 dtc-sued@sew-eurodrive.de
	West	SEW-EURODRIVE GmbH & Co KG Siemensstraße 1 40764 Langenfeld (Düsseldorf)	Tel. +49 2173 8507-30 Fax +49 2173 8507-55 dtc-west@sew-eurodrive.de
Drive Center	Berlin	SEW-EURODRIVE GmbH & Co KG Alexander-Meißner-Straße 44 12526 Berlin	Tel. +49 306331131-30 Fax +49 306331131-36 dc-berlin@sew-eurodrive.de
	Ludwigshafen	SEW-EURODRIVE GmbH & Co KG c/o BASF SE Gebäude W130 Raum 101 67056 Ludwigshafen	Tel. +49 7251 75 3759 Fax +49 7251 75 503759 dc-ludwigshafen@sew-eurodrive.de
	Saarland	SEW-EURODRIVE GmbH & Co KG Gottlieb-Daimler-Straße 4 66773 Schwalbach Saar – Hülzweiler	Tel. +49 6831 48946 10 Fax +49 6831 48946 13 dc-saarland@sew-eurodrive.de

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Germany			
	Ulm	SEW-EURODRIVE GmbH & Co KG Dieselstraße 18 89160 Dornstadt	Tel. +49 7348 9885-0 Fax +49 7348 9885-90 dc-ulm@sew-eurodrive.de
	Würzburg	SEW-EURODRIVE GmbH & Co KG Nürnbergerstraße 118 97076 Würzburg-Lengfeld	Tel. +49 931 27886-60 Fax +49 931 27886-66 dc-wuerzburg@sew-eurodrive.de
Great Britain			
Assembly Sales Service	Normanton	SEW-EURODRIVE Ltd. DeVilliers Way Trident Park Normanton West Yorkshire WF6 1GX	Tel. +44 1924 893-855 Fax +44 1924 893-702 http://www.sew-eurodrive.co.uk info@sew-eurodrive.co.uk
Service Competence Center	Southern England	SEW-EURODRIVE Ltd. Unit 41 Easter Park Benyon Road Silchester Reading Berkshire RG7 2PQ	Tel. +44 1189 701-699 Fax +44 1189 701-021
Greece			
Sales	Athens	Christ. Boznos & Son S.A. 12, K. Mavromichali Street P.O. Box 80136 18545 Piraeus	Tel. +30 2 1042 251-34 Fax +30 2 1042 251-59 http://www.boznos.gr info@boznos.gr
Hungary			
Sales Service	Budapest	SEW-EURODRIVE Kft. Csillaghegyí út 13. 1037 Budapest	Tel. +36 1 437 06-58 Fax +36 1 437 06-50 http://www.sew-eurodrive.hu office@sew-eurodrive.hu
Iceland			
Sales	Reykjavik	Varma & Vélaverk ehf. Knarrarvogi 4 104 Reykjavík	Tel. +354 585 1070 Fax +354 585)1071 http://www.varmaverk.is vov@vov.is
India			
Registered Office Assembly Sales Service	Vadodara	SEW-EURODRIVE India Private Limited Plot No. 4, GIDC POR Ramangamdi • Vadodara - 391 243 Gujarat	Tel. +91 265 3045200 Fax +91 265 3045300 http://www.seweurodriveindia.com salesvadodara@seweurodriveindia.com
Assembly Sales Service	Chennai	SEW-EURODRIVE India Private Limited Plot No. K3/1, Sipcot Industrial Park Phase II Mambakkam Village Sriperumbudur - 602105 Kancheepuram Dist, Tamil Nadu	Tel. +91 44 37188888 Fax +91 44 37188811 saleschennai@seweurodriveindia.com
	Pune	SEW-EURODRIVE India Private Limited Plant: Plot No. D236/1, Chakan Industrial Area Phase- II, Warale, Tal- Khed, Pune-410501, Maharashtra	Tel. +91 21 35 628700 Fax +91 21 35 628715 salespune@seweurodriveindia.com
Sales	Reykjavik	Varma & Vélaverk ehf. Knarrarvogi 4 104 Reykjavík	Tel. +354 585 1070 Fax +354 585)1071 http://www.varmaverk.is vov@vov.is
Indonesia			
Sales	Medan	PT. Serumpun Indah Lestari Jl.Pulau Solor no. 8, Kawasan Industri Medan II Medan 20252	Tel. +62 61 687 1221 Fax +62 61 6871429 / +62 61 6871458 / +62 61 30008041 sil@serumpunindah.com serumpunindah@yahoo.com http://www.serumpunindah.com

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Indonesia			
	Jakarta	PT. Cahaya Sukses Abadi Komplek Rukan Puri Mutiara Blok A no 99, Sunter Jakarta 14350	Tel. +62 21 65310599 Fax +62 21 65310600 csajkt@cbn.net.id
	Jakarta	PT. Agrindo Putra Lestari JL.Pantai Indah Selatan, Komplek Sentra Industri Terpadu, Pantai indah Kapuk Tahap III, Blok E No. 27 Jakarta 14470	Tel. +62 21 2921-8899 Fax +62 21 2921-8988 aplindo@indosat.net.id http://www.aplindo.com
	Surabaya	PT. TRIAGRI JAYA ABADI Jl. Sukosemolo No. 63, Galaxi Bumi Permai G6 No. 11 Surabaya 60111	Tel. +62 31 5990128 Fax +62 31 5962666 sales@triagri.co.id http://www.triagri.co.id
	Surabaya	CV. Multi Mas Jl. Raden Saleh 43A Kav. 18 Surabaya 60174	Tel. +62 31 5458589 Fax +62 31 5317220 sianhwa@sby.centrin.net.id http://www.cvmultimas.com
Iceland			
Sales	Reykjavik	Varma & Vélaverk ehf. Knarrarvogi 4 104 Reykjavík	Tel. +354 585 1070 Fax +354 585)1071 http://www.varmaverk.is vov@vov.is
Ireland			
Sales Service	Dublin	Alperton Engineering Ltd. 48 Moyle Road Dublin Industrial Estate Glasnevin, Dublin 11	Tel. +353 1 830-6277 Fax +353 1 830-6458 http://www.alperton.ie info@alperton.ie
Israel			
Sales	Tel Aviv	Liraz Handasa Ltd. Ahofer Str 34B / 228 58858 Holon	Tel. +972 3 5599511 Fax +972 3 5599512 http://www.liraz-handasa.co.il office@liraz-handasa.co.il
Italy			
Assembly Sales Service	Milan	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via Bernini,14 20020 Solaro (Milano)	Tel. +39 02 96 980229 Fax +39 02 96 980 999 http://www.sew-eurodrive.it milano@sew-eurodrive.it
Ivory Coast			
Sales	Abidjan	SEW-EURODRIVE SARL Ivory Coast Rue des Pêcheurs, Zone 3 26 BP 916 Abidjan 26	Tel. +225 21 21 81 05 Fax +225 21 25 30 47 info@sew-eurodrive.ci http://www.sew-eurodrive.ci
Japan			
Assembly Sales Service	Iwata	SEW-EURODRIVE JAPAN CO., LTD 250-1, Shimoman-no, Iwata Shizuoka 438-0818	Tel. +81 538 373811 Fax +81 538 373814 http://www.sew-eurodrive.co.jp sewjapan@sew-eurodrive.co.jp hamamatsu@sew-eurodrive.co.jp
Kazakhstan			
Sales	Almaty	SEW-EURODRIVE LLP 291-291A, Tole bi street 050031, Almaty	Tel. +7 (727) 350 5156 Fax +7 (727) 350 5156 http://www.sew-eurodrive.kz sew@sew-eurodrive.kz
	Tashkent	SEW-EURODRIVE LLP Representative office in Uzbekistan 96A, Sharaf Rashidov street, Tashkent, 100084	Tel. +998 71 2359411 Fax +998 71 2359412 http://www.sew-eurodrive.uz sew@sew-eurodrive.uz
	Ulaanbaatar	IM Trading LLC Narny zam street 62 Sukhbaatar district, Ulaanbaatar 14230	Tel. +976-77109997 Fax +976-77109997 imt@imt.mn

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Kenya			
Sales	Nairobi	SEW-EURODRIVE Pty Ltd Transnational Plaza, 5th Floor Mama Ngina Street P.O. Box 8998-00100 Nairobi	Tel. +254 791 398840 http://www.sew-eurodrive.co.tz info@sew.co.tz
Latvia			
Sales	Riga	SIA Alas-Kuul Katlakalna 11C 1073 Riga	Tel. +371 6 7139253 Fax +371 6 7139386 http://www.alas-kuul.lv info@alas-kuul.com
Lebanon			
Sales (Lebanon)	Beirut	Gabriel Acar & Fils sarl B. P. 80484 Bourj Hammoud, Beirut	Tel. +961 1 510 532 Fax +961 1 494 971 ssacar@inco.com.lb
Sales (Jordan, Kuwait , Saudi Arabia, Syria)	Beirut	Middle East Drives S.A.L. (offshore) Sin El Fil. B. P. 55-378 Beirut	Tel. +961 1 494 786 Fax +961 1 494 971 http://www.medrives.com info@medrives.com
Lithuania			
Sales	Alytus	UAB Irseva Statybininku 106C 63431 Alytus	Tel. +370 315 79204 Fax +370 315 56175 http://www.irseva.lt irmantas@irseva.lt
Macedonia			
Sales	Skopje	Boznos DOOEL Dime Anicin 2A/7A 1000 Skopje	Tel. +389 23256553 Fax +389 23256554 http://www.boznos.mk
Malaysia			
Assembly Sales Service	Johor	SEW-EURODRIVE SDN BHD No. 95, Jalan Seroja 39, Taman Johor Jaya 81000 Johor Bahru, Johor West Malaysia	Tel. +60 7 3549409 Fax +60 7 3541404 sales@sew-eurodrive.com.my
Mongolia			
Technical Office	Ulaanbaatar	IM Trading LLC Narny zam street 62 Union building, Suite A-403-1 Sukhbaatar district, Ulaanbaatar 14230	Tel. +976-77109997 Tel. +976-99070395 Fax +976-77109997 http://imt.mn/ imt@imt.mn
Morocco			
Sales Service	Mohammedia	SEW-EURODRIVE Morocco Parc Industriel CFCIM, Lot 55 and 59 Bouskoura	Tel. +212 522 88 85 00 Fax +212 522 88 84 50 http://www.sew-eurodrive.ma sew@sew-eurodrive.ma
Namibia			
Sales	Swakopmund	DB Mining & Industrial Services Einstein Street Strauss Industrial Park Unit1 Swakopmund	Tel. +264 64 462 738 Fax +264 64 462 734 anton@dbminingnam.com
Netherlands			
Assembly Sales Service	Rotterdam	SEW-EURODRIVE B.V. Industrieweg 175 3044 AS Rotterdam Postbus 10085 3004 AB Rotterdam	Tel. +31 10 4463-700 Fax +31 10 4155-552 Service: 0800-SEWHELP http://www.sew-eurodrive.nl info@sew-eurodrive.nl
	Auckland	SEW-EURODRIVE NEW ZEALAND LTD. P.O. Box 58-428 82 Greenmount drive East Tamaki Auckland	Tel. +64 9 2745627 Fax +64 9 2740165 http://www.sew-eurodrive.co.nz sales@sew-eurodrive.co.nz

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New Zealand			
	Christchurch	SEW-EURODRIVE NEW ZEALAND LTD. 30 Lodestar Avenue, Wigram Christchurch	Tel. +64 3 384-6251 Fax +64 3 384-6455 sales@sew-eurodrive.co.nz
Nigeria			
Sales	Lagos	Greenpeg Nig. Ltd Plot 296A, Adeyemo Akapo Str. Omole GRA Ikeja Lagos-Nigeria	Tel. +234-701-821-9200-1 http://www.greenpegltd.com bolaji.adekunle@greenpegltd.com
Norway			
Assembly Sales Service	Moss	SEW-EURODRIVE A/S Solgaard skog 71 1599 Moss	Tel. +47 69 24 10 20 Fax +47 69 24 10 40 http://www.sew-eurodrive.no sew@sew-eurodrive.no
Pakistan			
Sales	Karachi	Industrial Power Drives Al-Fatah Chamber A/3, 1st Floor Central Commercial Area, Sultan Ahmed Shah Road, Block 7/8, Karachi	Tel. +92 21 452 9369 Fax +92-21-454 7365 seweurodrive@cyber.net.pk
Paraguay			
Sales	Fernando de la Mora	SEW-EURODRIVE PARAGUAY S.R.L De la Victoria 112, Esquina nueva Asunción Departamento Central Fernando de la Mora, Barrio Bernardino	Tel. +595 991 519695 Fax +595 21 3285539 sewpy@sew-eurodrive.com.py
Peru			
Assembly Sales Service	Lima	SEW EURODRIVE DEL PERU S.A.C. Los Calderos, 120-124 Urbanizacion Industrial Vulcano, ATE, Lima	Tel. +51 1 3495280 Fax +51 1 3493002 http://www.sew-eurodrive.com.pe sewperu@sew-eurodrive.com.pe
Philippines			
Sales	Makati	P.T. Cerna Corporation 4137 Ponte St., Brgy. Sta. Cruz Makati City 1205	Tel. +63 2 519 6214 Fax +63 2 890 2802 mech_drive_sys@ptcerna.com http://www.ptcerna.com
Poland			
Assembly Sales Service	Łódź	SEW-EURODRIVE Polska Sp.z.o.o. ul. Techniczna 5 92-518 Łódź	Tel. +48 42 293 00 00 Fax +48 42 293 00 49 http://www.sew-eurodrive.pl sew@sew-eurodrive.pl
	Service	Tel. +48 42 293 0030 Fax +48 42 293 0043	24 Hour Service Tel. +48 602 739 739 (+48 602 SEW SEW) serwis@sew-eurodrive.pl
Portugal			
Assembly Sales Service	Coimbra	SEW-EURODRIVE, LDA. Av. da Fonte Nova, n.º 86 3050-379 Mealhada	Tel. +351 231 20 9670 Fax +351 231 20 3685 http://www.sew-eurodrive.pt infosew@sew-eurodrive.pt
Service Competence Center	Lisbon	SEW-EURODRIVE, LDA. Núcleo Empresarial I de São Julião do Tojal Rua de Entremuros, 54 Fracção I 2660-533 São Julião do Tojal	Tel. +351 21 958-0198 / +351 939 598 717 Fax +351 21 958-0245 esc.lisboa@sew-eurodrive.pt
Romania			
Sales Service	Bucharest	Sialco Trading SRL str. Brazilia nr. 36 011783 Bucuresti	Tel. +40 21 230-1328 Fax +40 21 230-7170 sialco@sialco.ro

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Russia			
Assembly Sales Service	St. Petersburg	ЗАО «СЕВ-ЕВРОДРАЙФ» а. я. 36 195220 Санкт-Петербург	Tel. +7 812 3332522 / +7 812 5357142 Fax +7 812 3332523 http://www.sew-eurodrive.ru sew@sew-eurodrive.ru
Senegal			
Sales	Dakar	SENEMECA Mécanique Générale Km 8, Route de Rufisque B.P. 3251, Dakar	Tel. +221 338 494 770 Fax +221 338 494 771 http://www.senemeca.com senemeca@senemeca.sn
Serbia			
Sales	Belgrade	DIPAR d.o.o. Ustanicka 128a PC Košum, IV floor 11000 Beograd	Tel. +381 11 347 3244 / +381 11 288 0393 Fax +381 11 347 1337 office@dipar.rs
Singapore			
Assembly Sales Service	Singapore	SEW-EURODRIVE PTE. LTD. No 9, Tuas Drive 2 Jurong Industrial Estate Singapore 638644	Tel. +65 68621701 Fax +65 68612827 http://www.sew-eurodrive.com.sg sewsingapore@sew-eurodrive.com
Slovakia			
Sales	Bratislava	SEW-Eurodrive SK s.r.o. Rybničná 40 831 06 Bratislava	Tel.+421 2 33595 202, 217, 201 Fax +421 2 33595 200 http://www.sew-eurodrive.sk sew@sew-eurodrive.sk
	Košice	SEW-Eurodrive SK s.r.o. Slovenská ulica 26 040 01 Košice	Tel. +421 55 671 2245 Fax +421 55 671 2254 Mobile +421 907 671 976 sew@sew-eurodrive.sk
Slovenia			
Sales Service	Celje	Pakman - Pogonska Tehnika d.o.o. Ul. XIV. divizije 14 3000 Celje	Tel. +386 3 490 83-20 Fax +386 3 490 83-21 pakman@siol.net
South Africa			
Assembly Sales Service	Johannesburg	SEW-EURODRIVE (PROPRIETARY) LIMITED Eurodrive House Cnr. Adcock Ingram and Aerodrome Roads Aeroton Ext. 2 Johannesburg 2013 P.O.Box 90004 Bertsham 2013	Tel. +27 11 248-7000 Fax +27 11 248-7289 http://www.sew.co.za info@sew.co.za
	Cape Town	SEW-EURODRIVE (PROPRIETARY) LIMITED Rainbow Park Cnr. Racecourse & Omuramba Road Montague Gardens Cape Town P.O.Box 36556 Chempet 7442	Tel. +27 21 552-9820 Fax +27 21 552-9830 Telex 576 062 bgriffiths@sew.co.za
	Durban	SEW-EURODRIVE (PROPRIETARY) LIMITED 48 Prospecton Road Isipingo Durban P.O. Box 10433, Ashwood 3605	Tel. +27 31 902 3815 Fax +27 31 902 3826 cdejager@sew.co.za
	Nelspruit	SEW-EURODRIVE (PROPRIETARY) LIMITED 7 Christie Crescent Vintonia P.O.Box 1942 Nelspruit 1200	Tel. +27 13 752-8007 Fax +27 13 752-8008 robermeyer@sew.co.za

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South Korea			
Assembly Sales Service	Ansan	SEW-EURODRIVE KOREA CO., LTD. 7, Dangjaengi-ro, Danwon-gu, Ansan-si, Gyeonggi-do, Zip 425-839	Tel. +82 31 492-8051 Fax +82 31 492-8056 http://www.sew-eurodrive.kr master.korea@sew-eurodrive.com
	Busan	SEW-EURODRIVE KOREA CO., LTD. 28, Noksansandan 262-ro 50beon-gil, Gangseo-gu, Busan, Zip 618-820	Tel. +82 51 832-0204 Fax +82 51 832-0230
Spain			
Assembly Sales Service	Bilbao	SEW-EURODRIVE ESPAÑA, S.L. Parque Tecnológico, Edificio, 302 48170 Zamudio (Vizcaya)	Tel. +34 94 43184-70 Fax +34 94 43184-71 http://www.sew-eurodrive.es sew.spain@sew-eurodrive.es
Sri Lanka			
Sales	Colombo	SM International (Pte) Ltd 254, Galle Raod Colombo 4, Sri Lanka	Tel. +94 1 2584887 Fax +94 1 2582981
Swaziland			
Sales	Manzini	C G Trading Co. (Pty) Ltd PO Box 2960 Manzini M200	Tel. +268 2 518 6343 Fax +268 2 518 5033 engineering@cgtrading.co.sz
Sweden			
Assembly Sales Service	Jönköping	SEW-EURODRIVE AB Gnejsvägen 6-8 553 03 Jönköping Box 3100 S-550 03 Jönköping	Tel. +46 36 34 42 00 Fax +46 36 34 42 80 http://www.sew-eurodrive.se jonkoping@sew.se
Switzerland			
Assembly Sales Service	Basel	Alfred Imhof A.G. Jurastrasse 10 4142 Münchenstein bei Basel	Tel. +41 61 417 1717 Fax +41 61 417 1700 http://www.imhof-sew.ch info@imhof-sew.ch
Taiwan			
Sales	Taipei	Ting Shou Trading Co., Ltd. 6F-3, No. 267, Sec. 2 Tung Huw S. Road Taipei	Tel. +886 2 27383535 Fax +886 2 27368268 Telex 27 245 sewtwn@ms63.hinet.net http://www.tingshou.com.tw
	Nan Tou	Ting Shou Trading Co., Ltd. No. 55 Kung Yeh N. Road Industrial District Nan Tou 540	Tel. +886 49 255353 Fax +886 49 257878 sewtwn@ms63.hinet.net http://www.tingshou.com.tw
Tanzania			
Sales	Daressalam	SEW-EURODRIVE PTY LIMITED TANZANIA Plot 52, Regent Estate PO Box 106274 Dar Es Salaam	Tel. +255 0 22 277 5780 Fax +255 0 22 277 5788 http://www.sew-eurodrive.co.tz info@sew.co.tz
Thailand			
Assembly Sales Service	Chonburi	SEW-EURODRIVE (Thailand) Ltd. 700/456, Moo.7, Donhuaroh Muang Chonburi 20000	Tel. +66 38 454281 Fax +66 38 454288 sewthailand@sew-eurodrive.com
Tunisia			
Sales	Tunis	T. M.S. Technic Marketing Service Zone Industrielle Mghira 2 Lot No. 39 2082 Fouchana	Tel. +216 79 40 88 77 Fax +216 79 40 88 66 http://www.tms.com.tn tms@tms.com.tn

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Turkey			
Assembly Sales Service	Kocaeli-Gebze	SEW-EURODRİVE Hareket Sistemleri San. Ve TIC. Ltd. Sti Gebze Organize Sanayi Böl. 400 Sok No. 401 41480 Gebze Kocaeli	Tel. +90 262 9991000 04 Fax +90 262 9991009 http://www.sew-eurodrive.com.tr sew@sew-eurodrive.com.tr
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