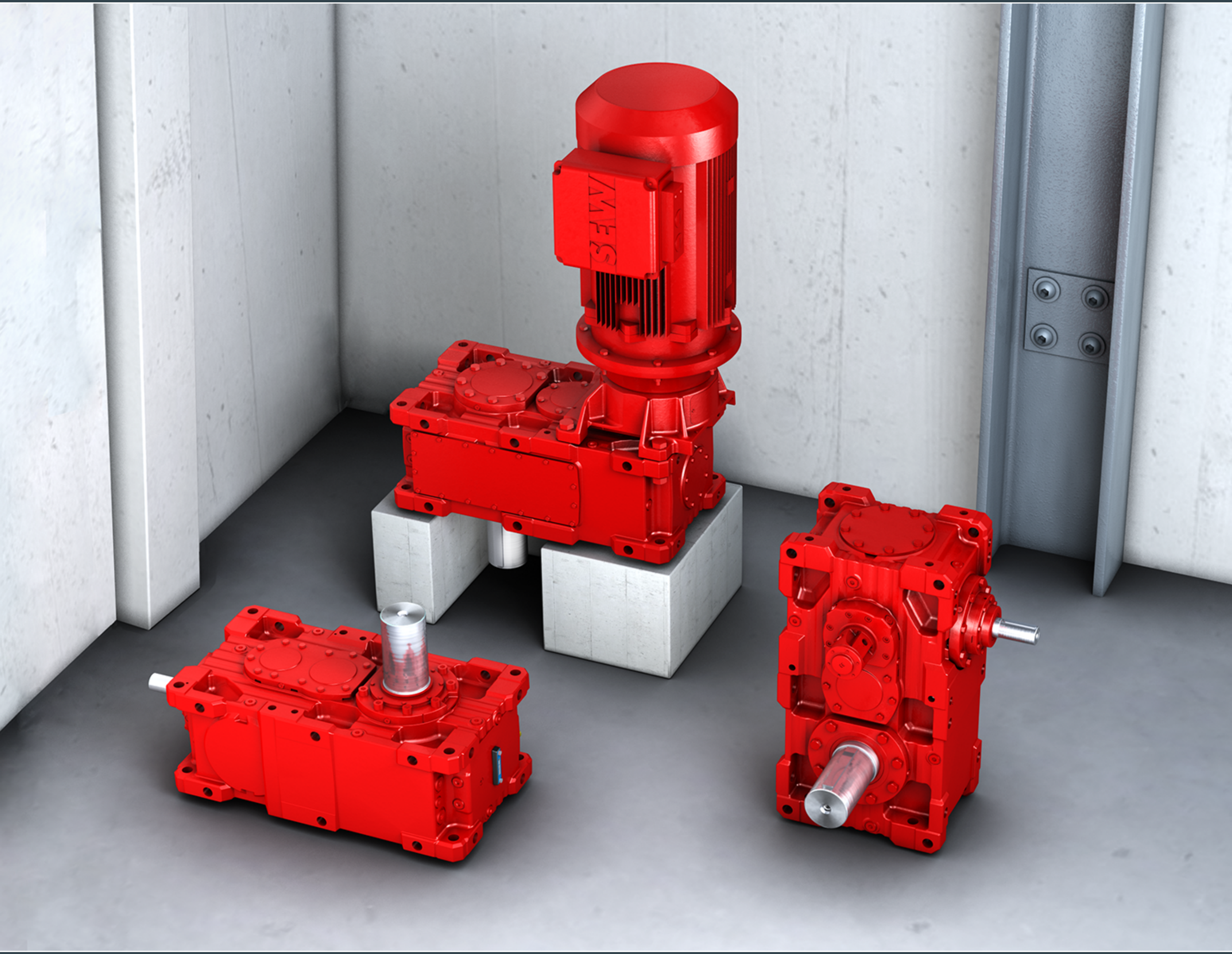
Catalog



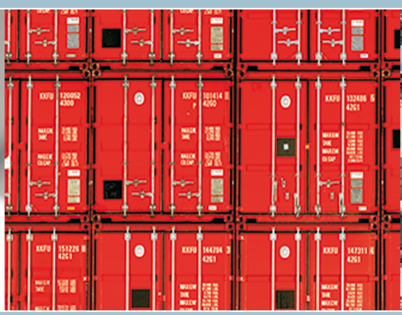
Industrial Gear Units

X.. Series Vertical and Upright Gear Units

Torque classes from 6.8 kNm – 475 kNm

Edition 03/2017

22781056/EN



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1 Introduction

1.1 The SEW-EURODRIVE group of companies

1.1.1 Global presence

Driving the world – with innovative drive solutions for all industries and for every application. Products and systems from SEW-EURODRIVE are used all over the world. Be it 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 for both functionality and investment.

We are represented in the most important branches of industry all over the world: with 15 manufacturing plants and 77 Drive Technology Centers worldwide as well as our customer support, which we consider an integrative service that continues our commitment to outstanding quality.

1.1.2 Always the right drive

The SEW-EURODRIVE modular concept offers millions of combinations. This wide selection enables you to choose the correct drive for all applications, each based on the required speed and torque range, available space, and ambient conditions. Gear units and gearmotors offering a unique and finely tuned performance range and the best economic prerequisites to meet your drive requirements.

The modular DR.. motor series includes the energy-efficient motor types IE1 to IE4 and was designed and constructed with all worldwide requirements for energy efficiency classes in mind. The DR.. motor easily meets the requirements for approval and certification in all relevant countries. The energy-efficient drives achieve the highest efficiency in combination with SEW-EURODRIVE gear units.

The gearmotors are electronically enhanced by MOVITRAC® frequency inverters, MOVIDRIVE® drive inverters, and MOVIAXIS® multi-axis servo inverters – a combination that blends perfectly with the existing SEW-EURODRIVE program. As is the case with the mechanical systems, all development, production, and assembly is carried out entirely by SEW-EURODRIVE. In combination with our drive electronics, these drives provide the utmost in flexibility.

Products of the servo drive system, such as low backlash servo gear units, compact servomotors, or MOVIAXIS® multi-axis servo inverters ensure precision and dynamics. From single-axis or multi-axis applications to synchronized process sequences, servo drive systems from SEW-EURODRIVE enable flexible and customized implementation of your applications.

For economical, decentralized installations, SEW-EURODRIVE offers components from its decentralized drive system, such as MOVIMOT®, the gearmotor with integrated frequency inverter, or MOVI-SWITCH®, the gearmotor with integrated switching and protection function. SEW-EURODRIVE has developed hybrid cables to provide cost-effective functional solutions, irrespective of the system philosophy or scope. The latest developments from SEW-EURODRIVE: 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.

Power, quality, and robustness combined in a single standard product: with SEW-EURODRIVE, powerful movements are delivered by industrial gear units with high torques. The modular concept once again ensures optimum adaptation of industrial gear units to meet a wide range of different applications.

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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 the machinery and plant construction industry when it comes to providing drive systems for demanding drive tasks in all industries and applications.

1.2 Products and systems from SEW-EURODRIVE

The products and systems by SEW-EURODRIVE are divided into the following product groups:

- Industrial gear units
- Gearmotors and frequency inverters
- Servo drive systems
- Decentralized drive systems
- MAXOLUTION®

Products and systems used in applications of several groups are listed in a separate group entitled "products and systems covering several product groups". The following tables indicate the products and systems included in the respective product group:

Industrial gear units
• X, MC, ML series helical and bevel-helical gear units
• P002 – 102 series planetary gear units
• XP130 – 250 series planetary gear units
• P-X series planetary bevel-helical gear units
• Application solutions with connections – Girth gears – Swing base – Gearmotor – Motor – Coupling – Brake – Lubrication system For conveyor drives, bucket conveyors, agitators, cooling towers, crane systems, and much more

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Gearmotors and frequency inverters		
Gear units/gearmotors	**Motors**	**Frequency inverters**
• Helical gear units / helical gearmotors • Parallel-shaft helical gear units / parallel-shaft helical gearmotors • Helical-bevel gear units / helical-bevel gearmotors • Helical-worm gear units / helical-worm gearmotors • SPIROPLAN® right-angle gearmotors • EMS drives • Geared torque motors • Pole-changing gearmotors • Variable speed gear units/variable speed gearmotors • Aseptic gearmotors • Explosion-proof gear units / gearmotors • Explosion-proof variable-speed gear units / variable-speed gearmotors	• Asynchronous AC motors / AC brakemotors • Pole-changing AC motors / AC brakemotors • Energy-efficient motors • Explosion-proof AC motors / AC brakemotors • Torque motors • Single-phase motors / single-phase brakemotors • Asynchronous linear motors	• MOVITRAC® frequency inverters • MOVI4R-U® frequency inverters • MOVIDRIVE® drive inverters • Control, technology and communication options for inverters

Servo drive systems		
Servo gear units / servo gearmotors	**Servomotors**	**Servo drive inverters / servo inverters**
• Low backlash planetary servo gear units / planetary servo gearmotors • Low backlash helical-bevel servo gear units / helical-bevel servo gearmotors • R, F, K, S, W gear units / R, F, K, S, W gearmotors • Explosion-proof servo gear units / servo gearmotors	• Asynchronous servomotors / servo brakemotors • Synchronous servomotors / servo brakemotors • Explosion-proof servomotors / servo brakemotors • Synchronous linear motors	• MOVIDRIVE® servo drive inverters • MOVIAXIS® multi-axis servo inverters • Control, technology and communication options for servo drive inverters and servo inverters

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Decentralized drive systems		
Decentralized drives	**Communication and installation**	**Contactless energy transfer system**
• DRC.. electronic motor / MOVIGEAR® mechatronic drive system – DBC – Direct Binary Communication – DAC – Direct AS-Interface Communication – DSC – Direct SBus Communication – SNI – Single Line Network Installation • MOVIMOT® gearmotors with integrated frequency inverter • MOVIMOT® motors / brakemotors with integrated frequency inverter • MOVI-SWITCH® gearmotors with integrated switching and protection functions • MOVI-SWITCH® motors and brakemotors with integrated switching and protection functions • Explosion-proof MOVIMOT® and MOVI-SWITCH® gearmotors	• Fieldbus interfaces • Field distributors for decentralized installation • MOVIFIT® product range – MOVIFIT® FDC for controlling MOVIGEAR® and DRC.. drive units – MOVIFIT® MC for controlling MOVIMOT® drives – MOVIFIT® SC with integrated electronic motor switch – MOVIFIT® FC with integrated frequency inverter • MOVIPRO® product range – MOVIPRO® SDC decentralized drive and positioning control	• MOVITRANS® system – Stationary components for energy supply – Mobile components for energy consumption – Line cables and installation material

MAXOLUTION®
• MAXOLUTION® packages for predefined application solutions
• MAXOLUTION® systems for customer-specific system solutions and plants

Products and systems covering several product groups
• Operator panels
• MOVI-PLC® drive-based control system
• Components of the type "functional safety"
• Diagnostic units

In addition to its products and systems, SEW-EURODRIVE offers a comprehensive range of services. These include:

- Technical consulting
- User software
- Seminars and training
- Extensive technical documentation
- Worldwide customer service

Visit our website at **www.sew-eurodrive.com**

The website provides comprehensive information and services.

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

1.5 Important information

Note the following points.

INFORMATION

- The illustrations in the catalog are examples. Final dimensions are available from SEW-EURODRIVE on request.
- Oil fill quantities are recommended values. Use the marks on the oil dipstick or oil level glass to determine the oil level.
- The gear units are ready for operation when delivered, but are not filled with oil.
- Oil viscosity and oil grade must comply with those specified on the nameplate.
- The specified weights are guide values. The exact gear unit weight is given on the order-specific dimension sheet. The weight of your basic gear unit including the options mounted to the gear unit is indicated on the nameplate.
- The buyer must provide protection against unintentional contact with moving parts. Observe the applicable safety regulations of the country in which the device will be used.

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2 Product description

This catalog describes gear units for vertical and upright applications.

2.1 Housing designs

The gear unit comes equipped with the following housing type:

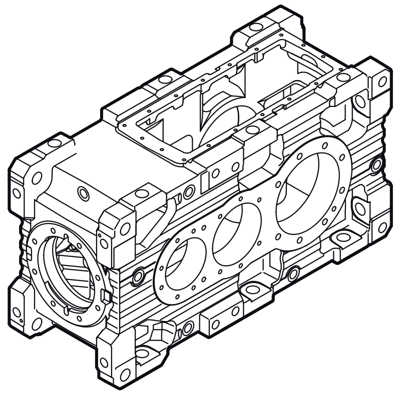
2.1.1 Universal housing /HU

The universal housing is available for sizes X100 to 320.

Single-piece housing

The single-piece housing is available for sizes X100 to 210.

The following figure shows a single-piece housing as an example.



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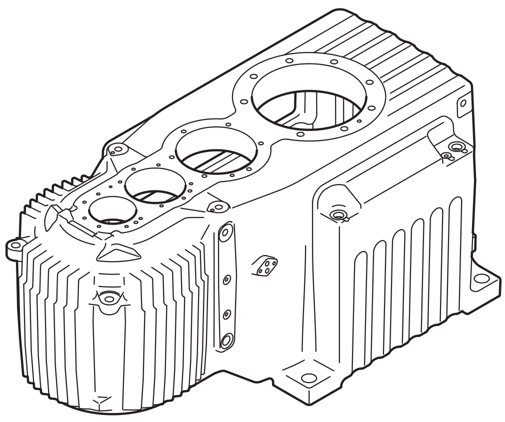
Two-piece housing

The two-piece housing is available for sizes X220 to 320.

2.1.2 Agitator housing/HA

The agitator housing is designed as single-piece housing only for mounting position M5 and sizes X3F140 – 210.



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2.2 Combination overview for options of vertical and upright applications

Abbrevi-ation	Options	X100-X130	X140-210		X210-250	X260-320
		2F, 2K, 3F, 3K, 4F, 4K, 3F, 3T, 4T	2F, 2K, 3K, 4F, 4K, 3T, 4T	3F	2F, 2K, 3F, 3K, 4F, 4K, 3T, 4T	2F, 2K, 3F, 3K, 4F, 4K
BF	**Mounting frame**				HU	HU
	Monoblock	HU	HU	HA/HU	-	-
	Split	-	-	-	HU	HU
BS	**Backstop**	HU	HU	HA/HU	HU	HU
CCV	**Water cooling cover**	HU	HU	HU	-	-
CCT	**Water cooling cartridge**	HU(**)	HU(**)	HA/HU(**)	HU	HU
F	**Mounting flange B5**	HU	HU	HA/HU	HU	HU
F	**Mounting flange B14**	HU	HU	HA/HU	HU	HU
F	**Mounting flange (special design)**	HU(*)	HU(*)	HA(*)/HU(*)	HU	HU
	Flange coupling with/without key	HU	HU	HA/HU	HU	HU
FAN	**Standard radial fan**	HU	HU	HU	HU	HU
FAN	**Standard radial fan in MA**	HU	HU	HU	HU	HU
FAN	**Axial fan in MA**	HU(*)	HU(*)	HA	-	-
	Through-going HSS	HU	HU	-	HU	HU
	Through-going LSS	HU	HU	HU	HU	HU
MA	**IEC/NEMA motor adapter**	HU	HU	HA/HU	HU	HU
SEP	**Shaft end pump**	HU	HU	HA/HU	HU	HU
	Bath lubrication with oil expansion tank	HU	HU	HA/HU	HU	HU
	Torque arm	HU	HU	HU	HU	HU
OAC	**Oil-air cooler**	HU	HU	HA/HU	HU	HU
OWC	**Oil-water cooler**	HU	HU	HA/HU	HU	HU
OD	**Oil dipstick**	HU	HU	HA/HU	HU	HU
	Oil drain valve	HU	HU	HA/HU	HU	HU
OH	**Oil heater**	HU(**)	HU(**)	HA/HU(**)	HU	HU
	Oil sight glass	HU	HU	HA/HU	HU	HU
VBD	**V-belt drive**	HU(*)	HU(*)	HA(*)/HU(*)	HU(*)	HU(*)
PT100	**Temperature sensor**	HU	HU	HA/HU	HU	HU
NTB	**Temperature switch**	HU	HU	HA/HU	HU	HU
TSK	**Temperature switch**	HU	HU	HA/HU	HU	HU
DUO10A	**Diagnostic unit for oil aging**	HU	HU	HA/HU	HU	HU
	Pressure switch	HU	HU	HA/HU		
	Oil filter (single filter)	HU	HU	HA/HU		
	Oil filter (duplex filter)	HU	HU	HA/HU		
	Standard bearing for solid and hollow low-speed shaft (LSS)	HU	HU	HU	HU	HU
	Reinforced bearing for solid low-speed shaft (LSS)	-	-	-	HU	HU
	Reinforced bearing for hollow low-speed shaft (LSS)	HU	HU	HU	-	-
	EBD bearing for medium loads at solid low-speed shaft (LSS)	HU(*)	HU	HA/HU	HU(*)	HU(*)
	EBD bearing for heavy loads at solid low-speed shaft (LSS)	HU(*)	HU	HA/HU	HU(*)	HU(*)
	Drywell seal for M5 WL23	-	HU	HA/HU	HU(*)	HU(*)
	Central monitoring interface	-	-	HA	-	-
	Central relubrication point	-	-	HA	-	-

* Available on request.
** In combination with Drywell seal only available on request.

HU Universal housing
HA Agitator housing

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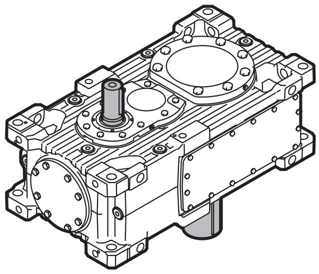
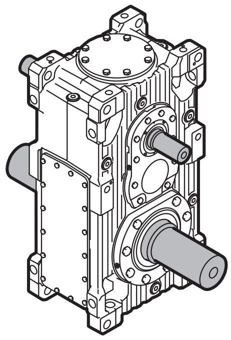
2.3 Gear unit types

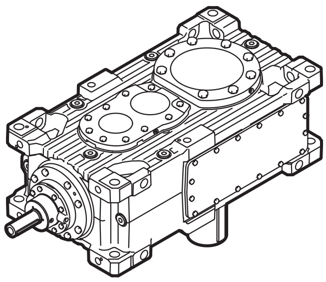
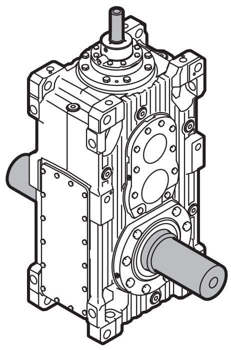
SEW-EURODRIVE distinguishes the following 3 gear unit types:

2.3.1 X.F.. helical gear units

Vertical	Upright
	

- Helical gear unit with parallel shafts
- 23 sizes from X100 to 320
- Number of stages 2, 3 and 4
- Mounting position: vertical and upright
- Input and output shaft design, see chapter "Input and output shaft" (→ 🗎 23)
- Gear ratios from 6.3 to 450, see chapter "Torques and input speeds" (→ 🗎 19)
- Torque classes from 6.8 to 475 kNm, see chapter "Torques and input speeds" (→ 🗎 19)

2.3.2 X.K.. bevel-helical gear units

Vertical	Upright
	

- Helical gear units with right-angle shaft arrangement
- 23 sizes from X100 to 320
- Number of stages 2, 3 and 4
- Mounting position: vertical and upright
- Input and output shaft design, see chapter "Input and output shaft" (→ 🗎 23)
- Gear ratios from 6.3 to 450, see chapter "Torques and input speeds" (→ 🗎 19)
- Torque classes from 6.8 to 475 kNm, see chapter "Torques and input speeds" (→ 🗎 19)

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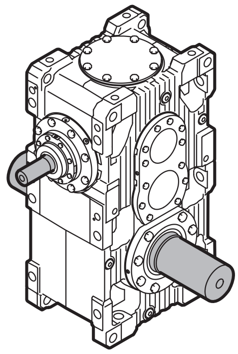
2.3.3 X.T.. bevel-helical gear units

Upright


- Helical and bevel-helical gear units with right-angle shaft arrangement
- 16 sizes from X100 to 250
- 3 and 4 stages
- Mounting position: all mounting positions
- Input and output shaft design, see chapter "Input and output shaft" (→ 🗎 23)
- Gear ratios from 14 to 400, see chapter "Torques and input speeds" (→ 🗎 19)
- Torque classes from 6.8 to 175 kNm, see chapter "Torques and input speeds" (→ 🗎 19)

2.4 Design features

The X series provides the following design features:

- Independent industrial gear unit platform
- Helical and bevel-helical gear units
- Single-piece and split gear unit housing
- Distinctive modular technology
- Customer-specific adaptations
- Large number of variants due to predefined accessory equipment and options

2.5 Overview of advantages

The X series was designed completely new. Advantages are:

- Extremely robust gear unit housing.
- Reduced costs and weight due to high power density and finely stepped sizes.
- Effective cooling systems.
- Efficient project planning tools including generation of 2D and 3D dimension drawings.
- Short delivery times for standard designs.
- Worldwide service.

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2.6 Application areas

The X series may be used in the following application areas:

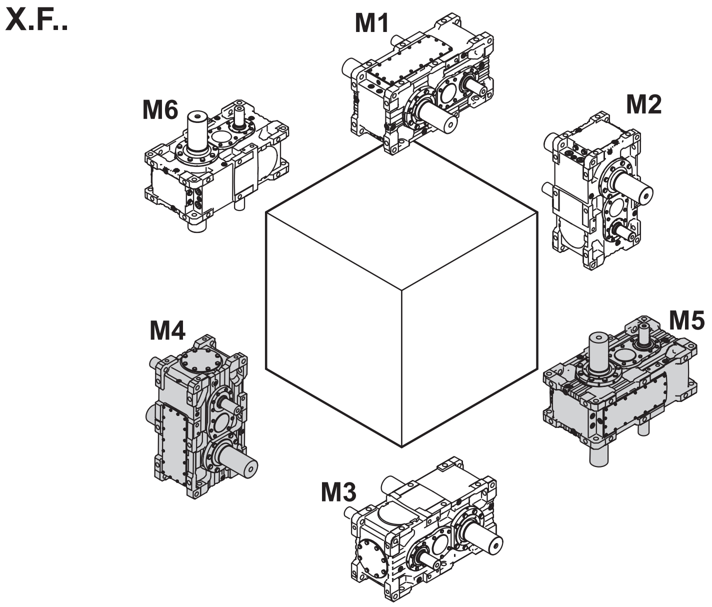
- In conveyor systems, as used in the building material, extractive, chemical, food, and feed industries, for example
- In the timber and paper industry
- In the environmental industry
- In agitators and mixers
- As travel drives, e.g. for port logistics (gear unit type X.T..)

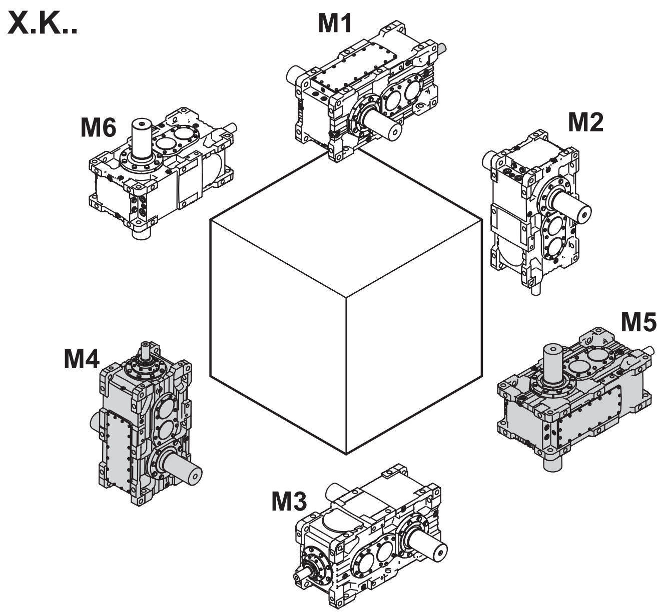
2.7 Mounting positions

The mounting position defines the spatial orientation of the gear unit housing and is designated **M1 – M6**. The table below shows the mounting positions.

	Standard mounting position (marked in gray in the figure)	Alternative mounting position
Vertical gear units	M5	M6
Upright gear unit	M4	M2

With the alternative mounting positions, there might be limitations regarding certain options. In this case contact SEW-EURODRIVE.





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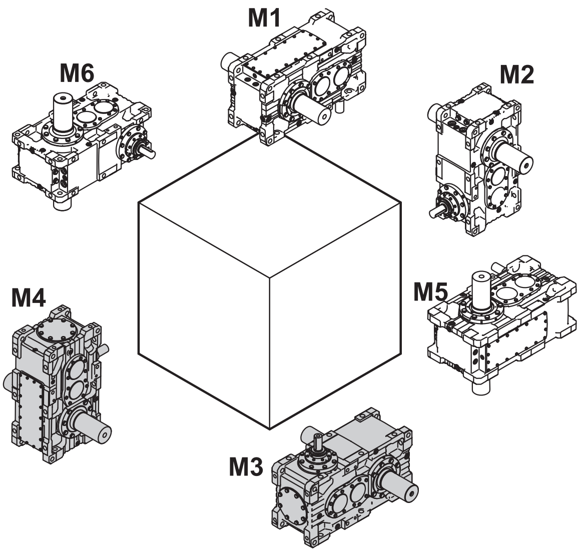
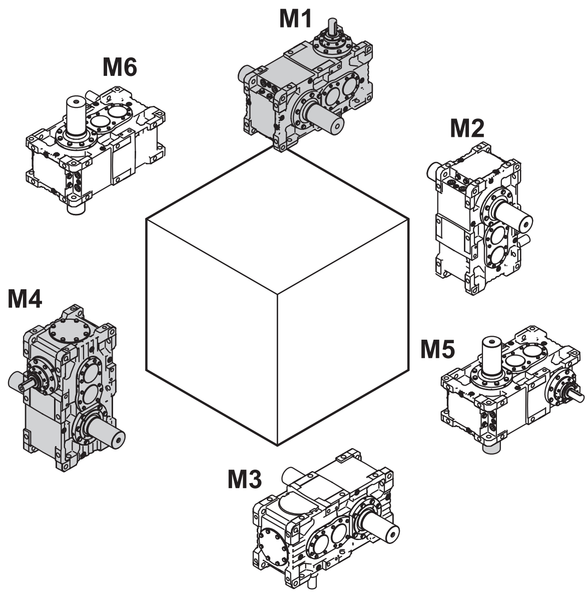
X.T..

Valid for size X100 – X210



Valid for size X220 – X250



INFORMATION

If you install the gear unit in mounting position M2, make sure that the user's mounting structure leaves enough room for the breather and the oil dipstick.

2.7.1 Deviating mounting positions

INFORMATION

Deviations in mounting position of **±1°** are permitted for the following gear units:

- X.F.. and X.K.. in mounting positions M2, M4, M5, M6.
- X.T.. in mounting position M2, M4, M5, M6.

2.8 Mounting surfaces

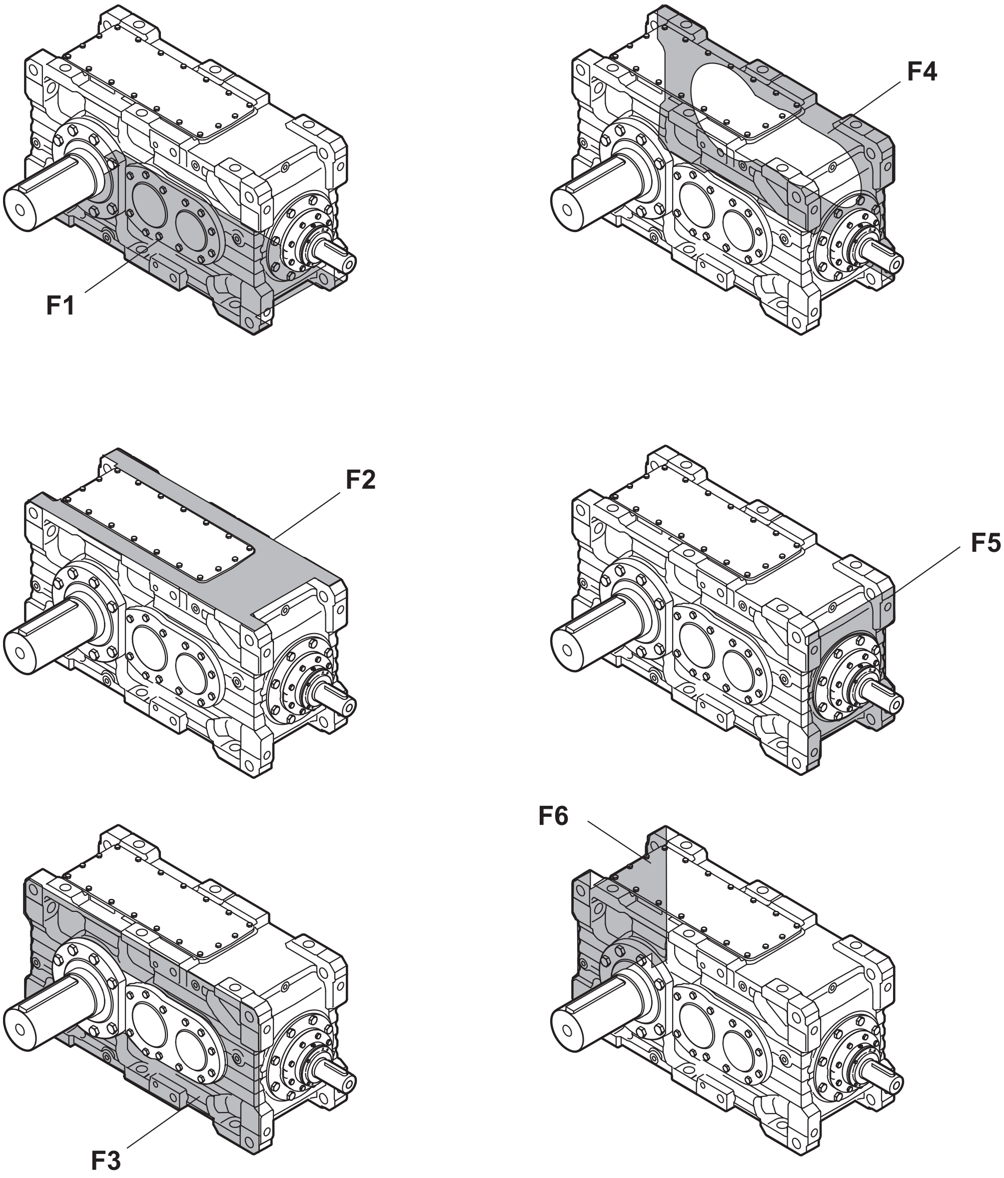
2.8.1 Definition

The mounting surface is defined as the surface(s) of a gear unit with

- Foot mounting (X.... /B) or
- Flange mounting (X.... /F),

on which the gear unit is mounted.

SEW-EURODRIVE defines **6** different mounting surfaces (designation **F1...F6**)



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2.9 Torques and input speeds

The nominal power and torque values mentioned in the catalog depend on the input speed and are valid for a service factor of F_S = 1.0 and constant, unidirectional load. Only 70% of these values apply in the case of changing load directions.

The overview shows nominal torques for input speeds of 1000 min^{-1} to 1800 min^{-1}. The nominal torque classes also apply to drive speeds 3% less than the synchronous speed. For speeds >1800 min^{-1}, contact SEW-EURODRIVE.

The following table provides an overview of the technical data.

Sizes	Nominal torque classes kNm	Nominal gear ratio ranges		
		X.F..	X.K..	X.T.
X100	6.8	7.1 – 100	7.1 – 80	14 – 80
X110	8.5	8 – 112	8 – 90	16 – 90
X120	12.8	6.3 – 355		12.5 – 355
X130	16	8 – 450		16 – 450
X140	22	6.3 – 355		12.5 – 355
X150	27.5	8 – 450		16 – 450
X160	36	6.3 – 355		12.5 – 355
X170	45	8 – 450		16 – 450
X180	58	6.3 – 355		12.5 – 355
X190	65	7.1 – 400		14 – 400
X200	79	6.3 – 355		12.5 – 355
X210	90	7.1 – 400		14 – 400
X220	112	6.3 – 355		12.5 – 355
X230	131	7.1 – 400		14 – 400
X240	156	6.3 – 355		12.5 – 355
X250	175	7.1 – 400		14 – 400
X260	205	6.3 – 355	12.5 – 355	-
X270	240	7.1 – 400	14 – 400	-
X280	270	8 – 450	16 – 450	-
X290	308	6.3 – 355	12.5 – 355	-
X300	350	7.1 – 400	14 – 400	-
X310	425	6.3 – 355	12.5 – 355	-
X320	475	7.1 – 400	14 – 400	-

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2.10 Type designations

2.10.1 Gear unit

The following example shows the structure of the type designation:

X3KS250 /HU /B	
X	Industrial gear unit series
3	Number of gear unit stages • 2 = 2 stages • 3 = 3 stages • 4 = 4 stages
K	Gear unit variant • F = Helical gear unit • K = Bevel-helical gear unit • T = Bevel-helical gear unit
S	Type of output shaft • S = Solid shaft with key • R = Smooth solid shaft • L = Splined solid shaft • A = Hollow shaft with keyway • H = Hollow shaft with shrink disk • V = Splined hollow shaft
250	Gear unit sizes • 100 – 320
HU	Housing design • /HU = Universal housing • /HA = Agitator housing
B	Gear unit mounting • /B = Foot • /T = Torque arm • /F = Flange

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2.10.2 Oil supply system

The following example describes the type designation of the oil supply systems.

OWC020-00/M	
O	Oil supply system
W	Cooling medium • W = Water • A = Air • N = Motor pump
C	Type • C = Circulation cooling • P = Pressure lubrication
020	Size • 005 – 070
	Application: • = General design
-0	Mounting position • 0 = M1/M2/M3/M4 • 1 = M5/M6
0	Option • 0 = 50 Hz • 1 = 60 Hz • 2 = 50 Hz / 60 Hz • 9 = Special design
M	Mounting type • M = Mounted to the gear unit • S = For separate installation

2.10.3 Flange coupling

The following example describes the type designation of the flange coupling:

FC 530 / 175 S M	
FC	Flange coupling
530	Outer diameter of the flange
175	Bore diameter
S	Shaft/hub connection type • S = Cylindrical interference fit • K = Keyed connection
M	Type of centering: • M = External centering • F = Internal centering

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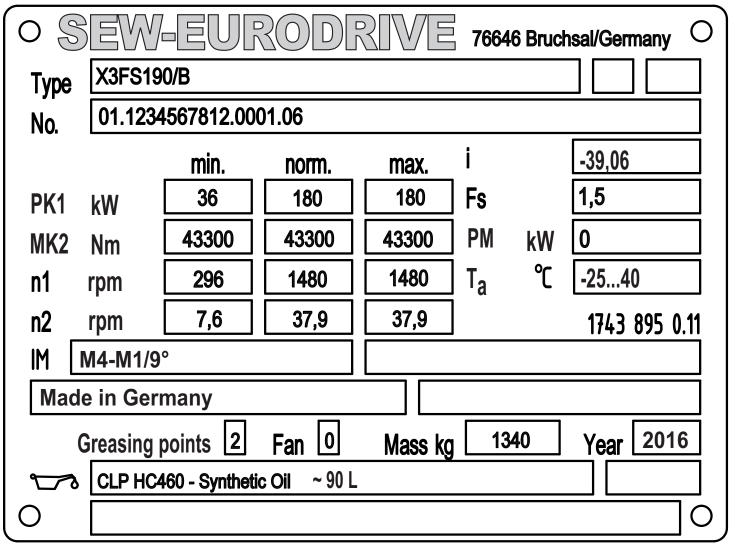
2.11 X.. series nameplate

The following example shows the structure of the nameplate. The oil quantity specified on the nameplate refers only to the basic gear unit.



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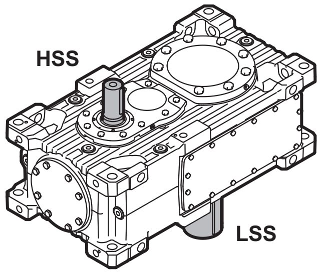
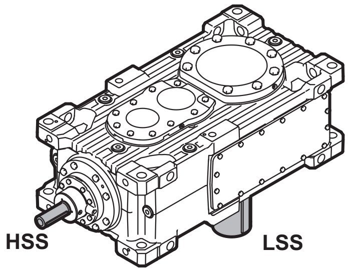
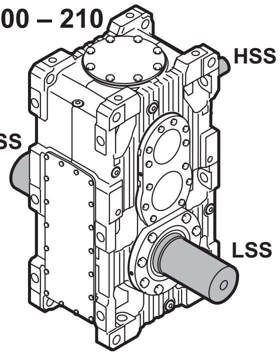
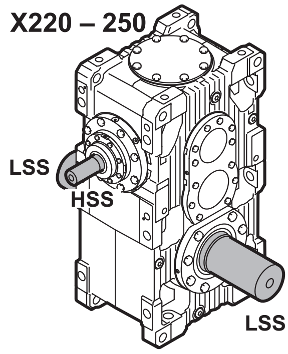
Type		Type designation
No. 1		Serial number
P_{K1}	kW	Operating power on the input shaft (HSS)
M_{K2}	Nm	Gear unit output torque
n_1	min^{-1}	Input speed (HSS)
n_2	min^{-1}	Output speed (LSS)
Norm.		Normal operating point
Min.		Minimum operating point
Max.		Maximum operating point
i		Exact gear unit ratio
F_S		Service factor
P_{Mot}	kW	Nominal motor power
T_a°C		Deviation from standard temperature range (−20 °C to +40 °C)
Mass	kg	Weight of the gear unit
Qty of greasing points		Number of regreasing points
Fans		Number of installed fans
		Oil grade and viscosity class/oil quantity
Year		Year of manufacture
IM		Mounting position and mounting surface

2.12 Input and output shaft

There are **2** types of shafts:

- High-speed shaft (**HSS**), usually an input shaft
- Low-speed shaft (**LSS**), usually an output shaft

<table>
<tr><th>X.F..</th><th>X.K..</th><th>X.T..</th></tr>
<tr>
<td></td>
<td></td>
<td rowspan="2">X100 – 210

X220 – 250
</td>
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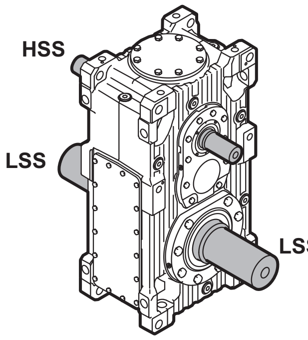
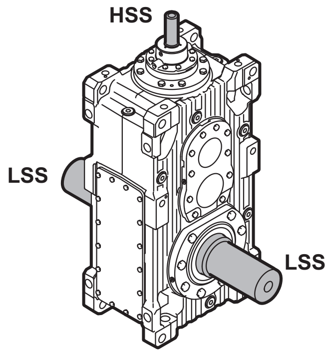
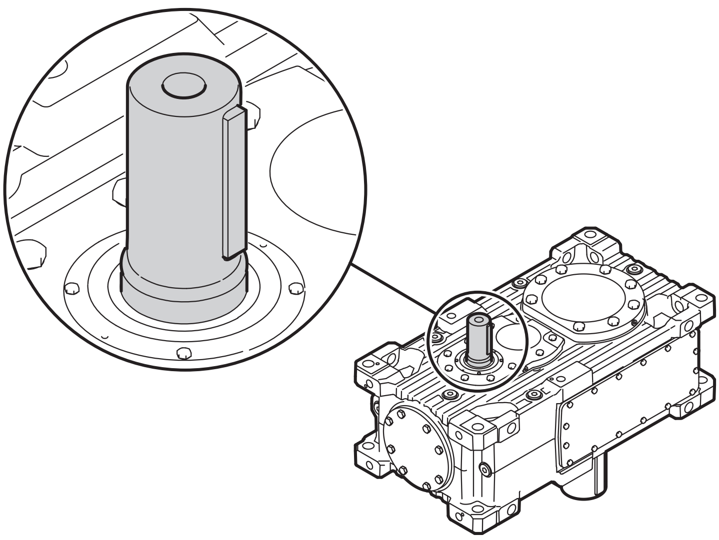
<tr>
<td></td>
<td></td>
</tr>
</table>

2.12.1 Input shaft

The input shaft features a closed keyway according to DIN 6885/T1 and a center hole according to DIN 332. The matching key according to DIN 6885/T1 - form A is included in the scope of delivery.



12007931531

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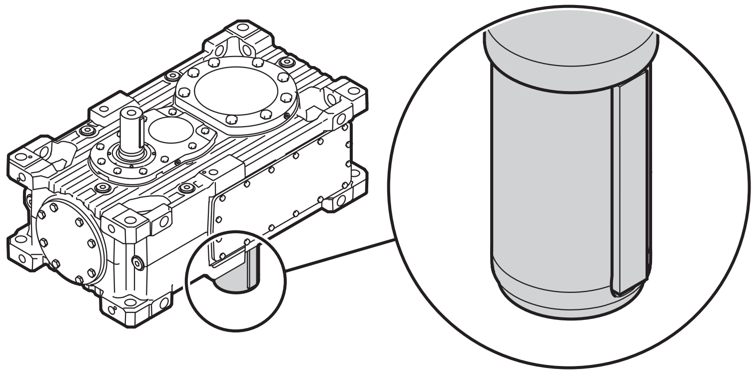
2.12.2 Output shaft as a solid shaft with key /..S

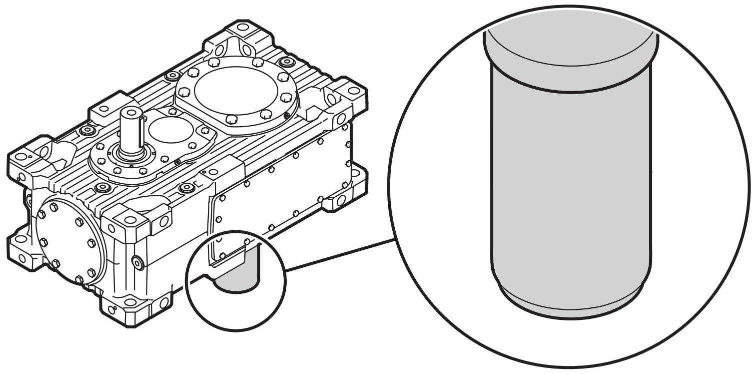
The output shaft is provided with a closed keyway according to DIN 6885/T1 and a center bore (according to DIN 332). The scope of delivery includes a key according to DIN 6885/T1 - form B. The shaft has an insertion area with a reduced diameter to simplify the mounting of output elements, such as a coupling hub.



12008062347

2.12.3 Smooth output shaft /..R

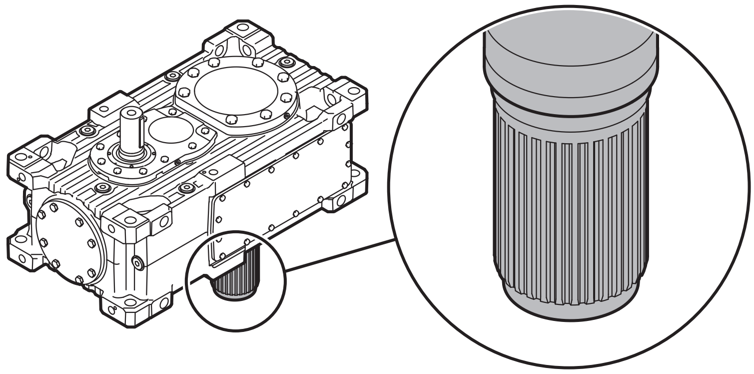
The gear units are available with a smooth output shaft to install non-positive output elements, such as flange couplings with a cylindrical interference fit. The shaft's face has a center bore according to DIN 332. The insertion area with reduced diameter facilitates the mounting of output elements.



12008065163

2.12.4 Output shaft as a splined solid shaft /..L

The output shaft is splined according to DIN 5480. To improve the guidance of the output element, there is a centering in front of and behind the splined hollow shaft. Two threads are available on the face of the shaft for the mounting of an end plate.



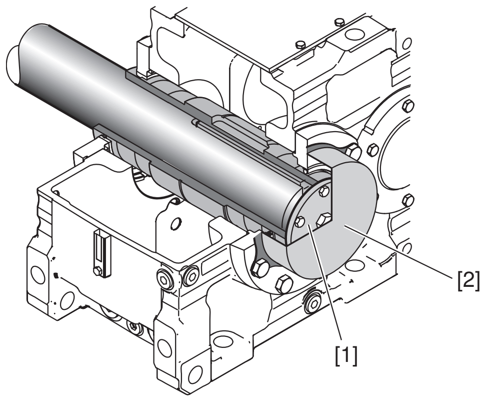
12008067979

2.12.5 Output shaft as a hollow shaft with keyway /..A

The hollow shaft is equipped with a keyway according to DIN 6885/T1.

Included in the delivery:

- Protection cover [2]
- Retaining screws [1] or
- 2 retaining rings



9007207847889035

The protection cover is dust-tight. The standard sealing system is therefore normally used on the side of the safety cover.

INFORMATION

For detailed specifications on the geometry of the machine shaft, refer to chapter "Hollow shaft with keyway X...A [mm]" (→ 🗎 343). Dimension L14 refers to the length of the load bearing key.

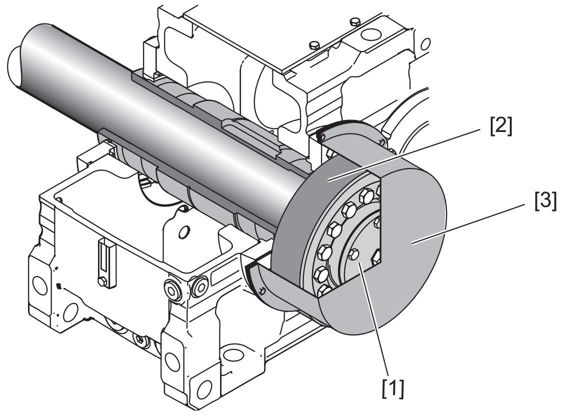
In case of a through-going machine shaft, the gear unit is delivered without endplate and protection cover. In this case, both gear unit sides are equipped with the same sealing system.

2.12.6 Output shaft as a hollow shaft with shrink disk /..H

The shrink disk is positioned on the side opposite to the machine shaft.

Included in the delivery:

- Shrink disk [2] and protection cover [3]
- Endplate with retaining screws [1] or
- 2 retaining rings



9007207847897483

The protection cover is dust-tight. The standard sealing system is therefore normally used on the side of the safety cover.

INFORMATION

For detailed specifications on the geometry of the machine shaft, refer to chapter "Hollow shaft with shrink disk X..H [mm]" (→ 🗎 344).

In case of a through-going machine shaft, the gear unit is delivered without endplate and protection cover. In this case, both gear unit sides are equipped with the same sealing system.

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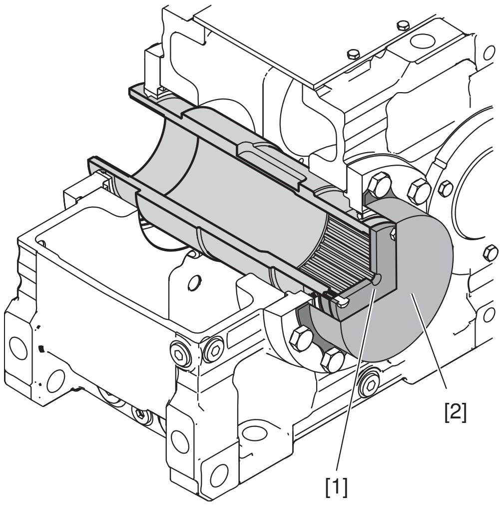
2.12.7 Output shaft as a splined hollow shaft /..V

The output shaft is splined according to DIN 5480.

Included in the delivery:

- Protection cover [2]
- Endplate with screws [1] or
- 2 retaining rings



9007207847901835

INFORMATION

For detailed specifications on the geometry of the machine shaft, refer to chapter "Splined hollow shaft X..V [mm]" (→ 🗎 348).

In case of a through-going machine shaft, the gear unit is delivered without endplate and protection cover. In this case, both gear unit sides are equipped with the same sealing system.

The protection cover is dust-tight, see previous page.

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2.12.8 Gear unit mounting with hollow shaft gear units

Due to the rigid connection between the machine shaft and hollow shaft of the gear unit, constraining forces can occur on the output shaft bearing.

This is why you have to observe the following points when mounting hollow shaft gear units:

- The gear unit is usually foot or flange-mounted and used as bearing point when the machine shaft has no individual bearing or merely provides one bearing point. You have to provide for an accurate coaxial alignment with the bearing point.
- If the machine shaft has at least two bearing points, the gear unit should be connected only to the machine shaft and supported with a torque arm. In order to prevent excess stress on the bearing, gear units with foot or flange mounting are to be avoided.

INFORMATION

Non-observance may result in damages to the output shaft bearing and increased fretting corrosion in the connection between the machine and the hollow shaft of the gear unit.

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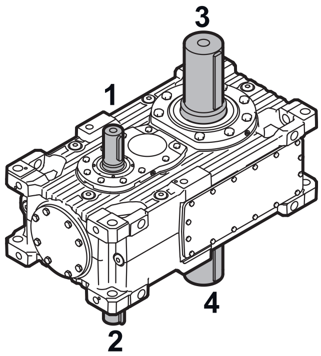
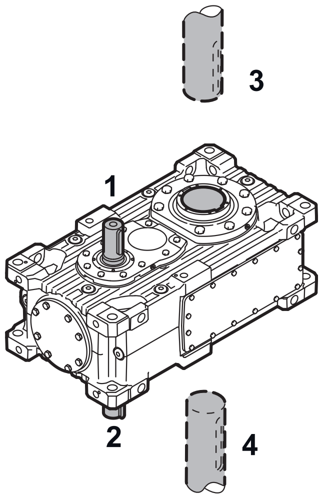
2.13 Shaft positions

The shaft positions and corresponding directions of rotation shown in the following figures apply to solid shafts (LSS) with solid and hollow shaft. The shaft positions in gear units with backstops and shaft end pumps may be limited.

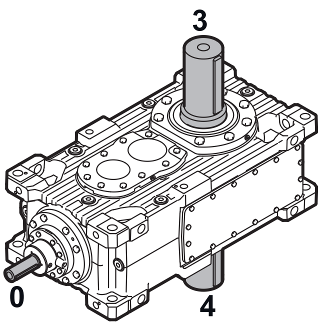
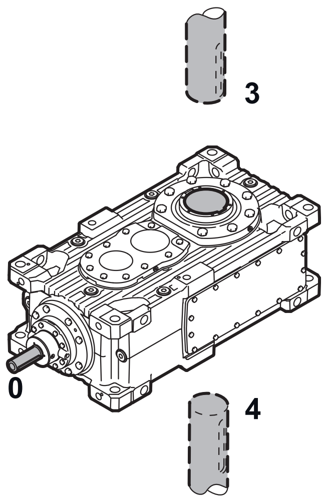
2.13.1 X.F..

The following shaft positions are possible for gear unit type X.F...

Shaft position X.FS..	Shaft position X.FH.. / X.FA..
	

2.13.2 X.K..

The following shaft positions are possible for gear unit type X.K...

Shaft position X.KS..	Shaft position X.KH.. / X.KA..
	

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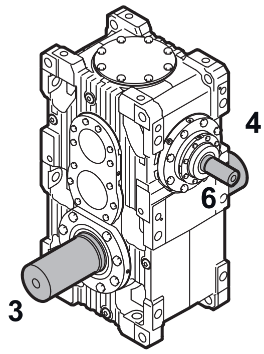
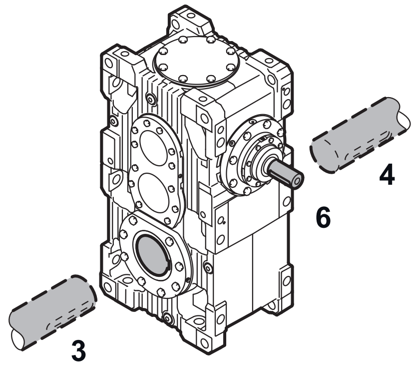
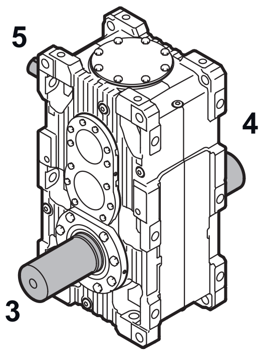
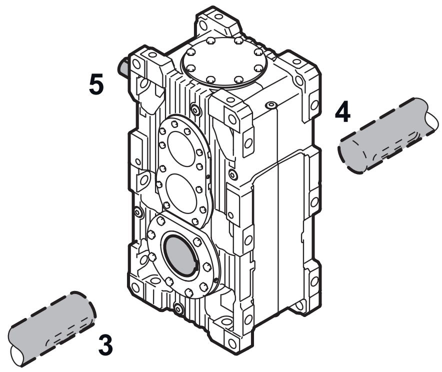
2.13.3 X.T..

The following shaft positions are possible for gear unit type X.T..

Sizes X100 – 210

Shaft position X.TS..	Shaft position X.TH../X.TA..
	

Sizes X220 – 250

Shaft position X.TS..	Shaft position X.TH../X.TA..
	

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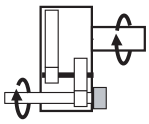
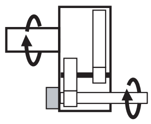
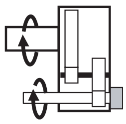
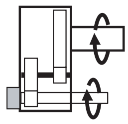
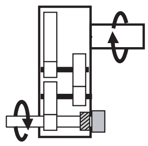
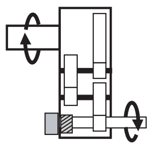
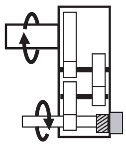
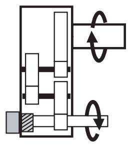
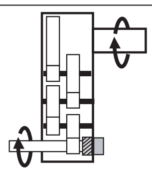
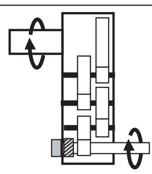
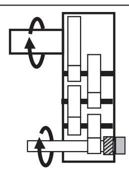
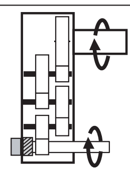
2.14 Corresponding directions of rotation

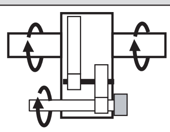
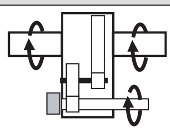
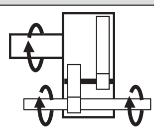
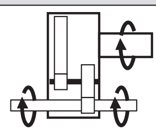
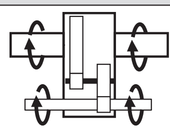
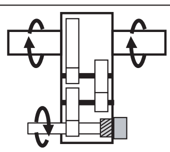
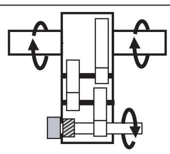
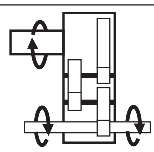
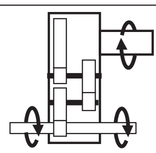
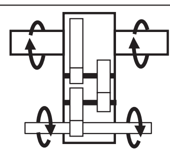
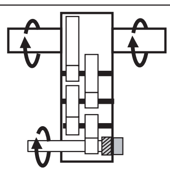
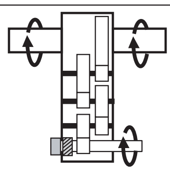
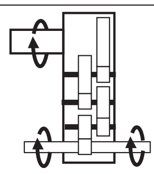
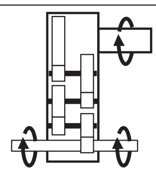
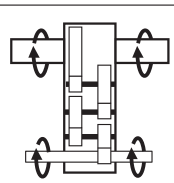
The gear unit can be operated in both directions of rotation. An exception are gear units with backstop.

The following tables show the direction of rotation dependencies between input and output shafts. The gear units as well as the position of the backstop are schematically shown as the solid shaft version.

For the position and blocking direction of the backstop, refer to the order-specific documentation.

2.14.1 X.F..

Shaft position	14	23	13[1)]	24[1)]
Position of final gear	3	4	3	4
X2F..				
X3F..				
X4F..				

Shaft position	134[1)]	243[1)]	213	124	1234[1)*]
Position of final gear	3	4	4	3	3
X2F..					
X3F..					
X4F..					

▯ = Position of the backstop

▨ = Alternative backstop position (depending on size and gear ratio)

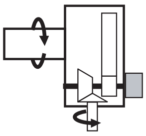
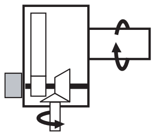
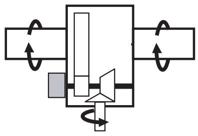
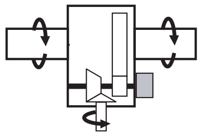
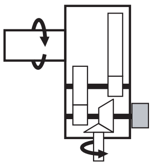
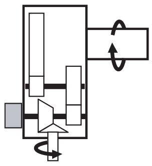
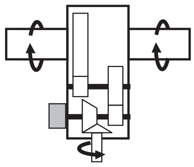
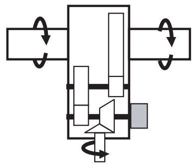
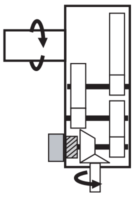
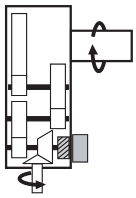
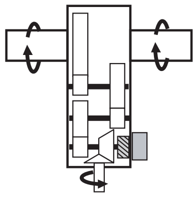
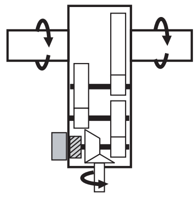
* = Contact SEW-EURODRIVE when using a backstop

1) Note the restrictions regarding external forces on the LSS

INFORMATION: For more information and a 3D view of the gear unit, refer to chapter Shaft positions.

2.14.2 X.K..

Standard

Shaft position	03	04	034[1)]	043[1)]
Position of final gear	4	3	3	4
X2K..				
X3K..				
X4K..				

= Position of the backstop

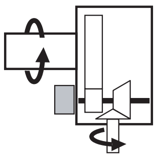
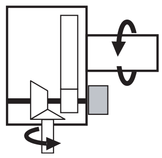
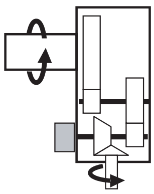
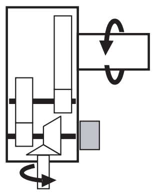
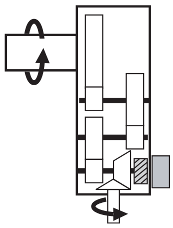
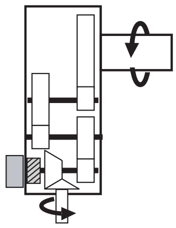
= Alternative backstop position (depending on size and gear ratio)

* = Contact SEW-EURODRIVE when using a backstop

1) Note the restrictions regarding external forces on the LSS

INFORMATION: For more information and a 3D view of the gear unit, refer to chapter Shaft positions.

Direction of rotation reversal

Shaft position	03[1)]	04[1)]
Position of final gear	3	4
X2K..		
X3K..		
X4K..		

= Position of the backstop

= Alternative backstop position (depending on size and gear ratio)

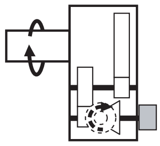
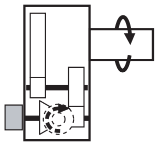
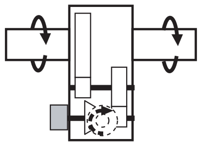
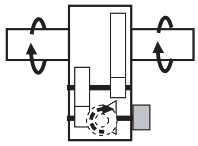
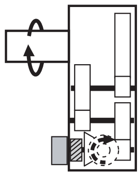
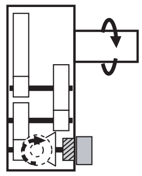
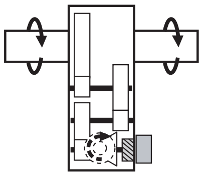
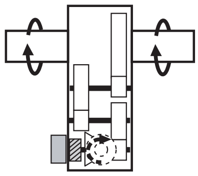
* = Contact SEW-EURODRIVE when using a backstop

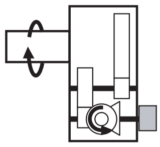
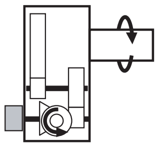
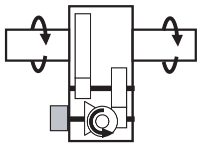
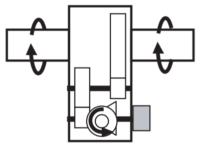
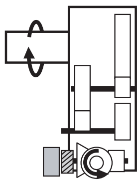
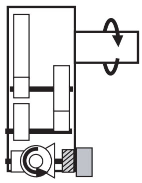
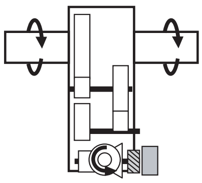
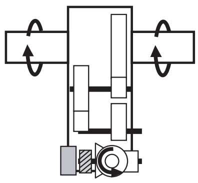
1) Note the restrictions regarding external forces on the LSS

INFORMATION: For more information and a 3D view of the gear unit, refer to chapter Shaft positions.

2.14.3 X.T..

Standard

Shaft position	63	64	634[1)]	643[1)]
Position of final gear	4	3	3	4
X3T100 – 210				
X4T100 – 210				

Shaft position	53	54	534[1)]	543[1)]
Position of final gear	4	3	3	4
X3T220 – 250				
X4T220 – 250				

= Position of the backstop

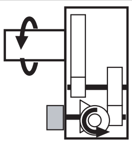
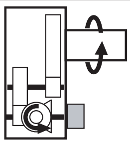
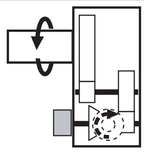
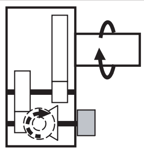
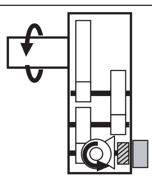
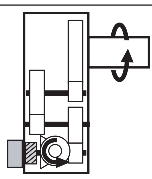
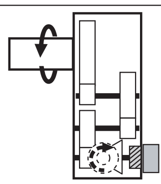
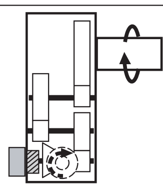
= Alternative backstop position (depending on size and gear ratio)

* = Contact SEW-EURODRIVE when using a backstop

1) Note the restrictions regarding external forces on the LSS

INFORMATION: For more information and a 3D view of the gear unit, refer to chapter Shaft positions.

Direction of rotation reversal

Shaft position	53[1)]	54[1)]	63[1)]	64[1)]
Position of final gear	3	4	3	4
X3T...				
X4T...				

= Position of the backstop

= Alternative backstop position (depending on size and gear ratio)

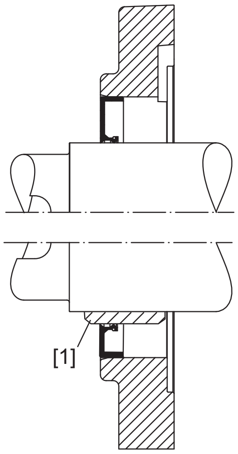
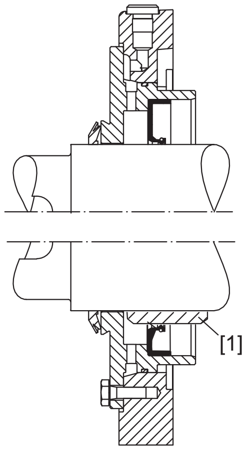
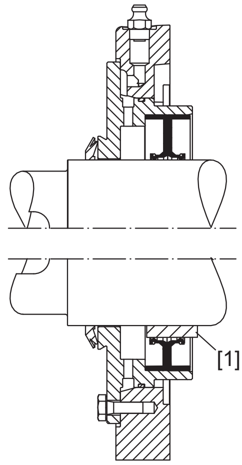
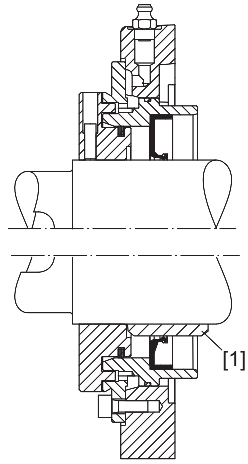
* = Contact SEW-EURODRIVE when using a backstop

1) Note the restrictions regarding external forces on the LSS

INFORMATION: For more information and a 3D view of the gear unit, refer to chapter Shaft positions.

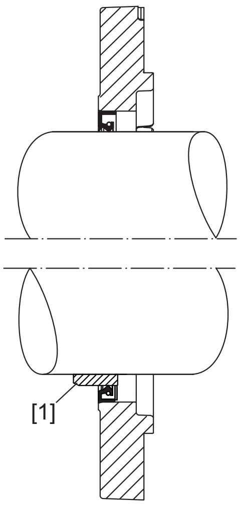
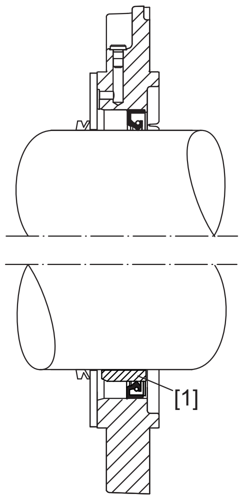
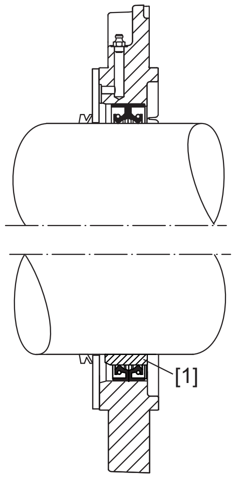
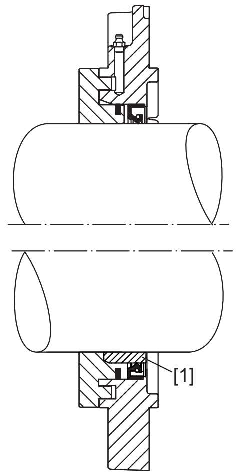
2.15 Sealing systems

2.15.1 Input shaft

Standard	Dust-proof	Dust-proof Regreasable	Radial labyrinth seal (Taconite) Regreasable
Single oil seal with dust protection lip	Single oil seal with dust protection cover	Double oil seal with dust protection cover	Single oil seal with radial labyrinth seal.
• Normal environment	• **Medium** dust load with abrasive particles	• **High** dust load with abrasive particles	• **Very high** dust load with abrasive particles
			

[1] Optional with oil seal sleeve

2.15.2 Output shaft

Standard	Dust-proof	Dust-proof Regreasable	Radial labyrinth seal (Taconite) Regreasable
Single oil seal with dust protection lip	Single oil seal with dust protection cover	Double oil seal with dust protection cover	Single oil seal with radial labyrinth seal.
• Normal environment	• **Medium** dust load with abrasive particles	• **High** dust load with abrasive particles	• **Very high** dust load with abrasive particles
			

[1] Optional with oil seal sleeve

INFORMATION

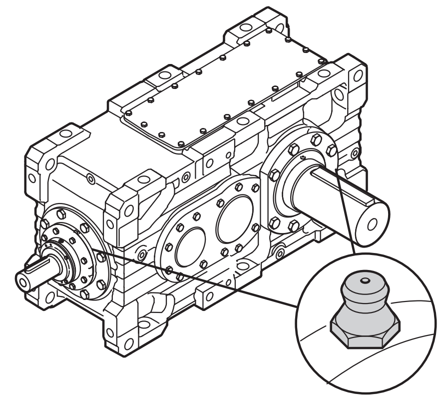
Make sure that the gear shaft is rotating during the regreasing process.

2.15.3 Position of lubrication points

Grease nipple on gear unit cover

Regreasable sealing systems are usually equipped with taper greasing nipples according to DIN 71412 A R1/8. Regreasing should be carried out at regular intervals. The lubrication points are located near the input and output shafts.

Example



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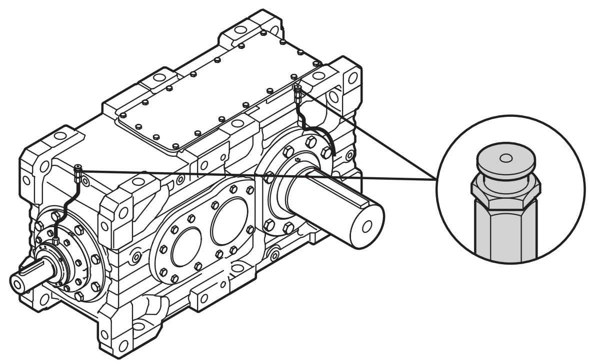
Grease nipple on the top side of the gear unit

If installation space is limited, the lubrication points can be relocated to the top side of the gear unit. Flat grease nipples according to DIN 3404 A G1/8 are used. Regreasing should be carried out at regular intervals.

Note the following points:

- This option is normally used on drives with fans, motor adapters, or V-belt drives.
- The option applies to both input and output shaft(s).

Example



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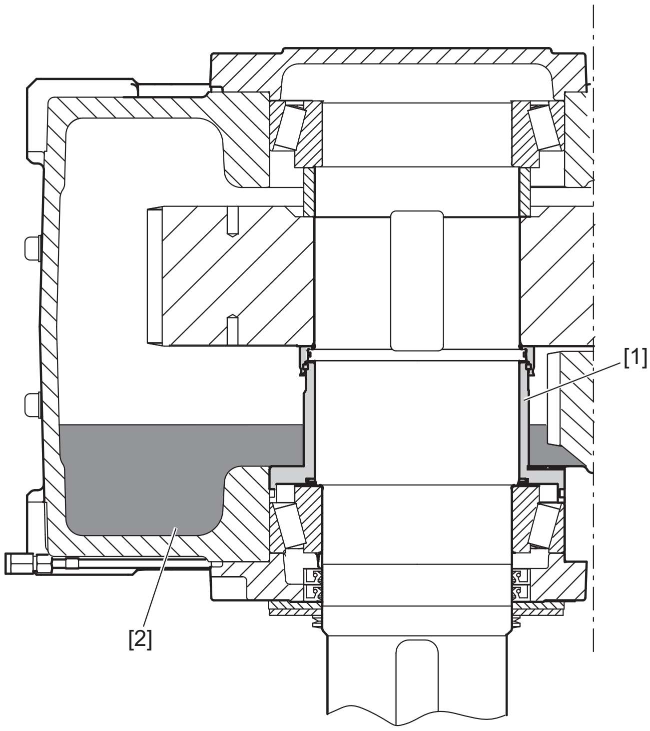
2.15.4 Drywell sealing system

In addition to normal sealing, vertical gear units with the output shaft pointing downwards can also be fitted with a drywell sealing system. The lower bearing of the output shaft is separated from the oil chamber by a built-in tube [1]. The bearing is lubricated with grease and therefore must be regreased at regular intervals (flat grease nipple, DIN 3404 A G1/8). The oil level is lower than the upper end of the tube to prevent oil [2] from leaking at this point. To ensure sufficient lubrication of the upper bearing and the gearing, each gear unit is equipped with a drywell sealing system with pressure lubrication (shaft end pump or motor pump).



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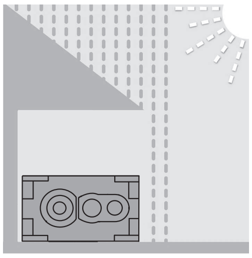
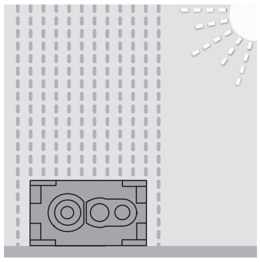
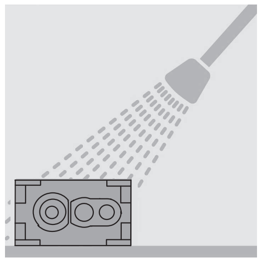
2.16 Coating and surface protection systems

Gear units are available with surface protection OS1, OS2, and OS3.

The following table gives an overview of coating and surface protection systems.

SEW design	OS 1 Low environmental pollution	OS 2 Medium environmental pollution	OS 3 High environmental pollution
Used as surface protection under typical ambient conditions Corrosivity categories DIN EN ISO 12944-2	 Suited for environments prone to condensation and atmospheres with low humidity or contamination, such as outdoor applications under roof or with protection, unheated buildings where condensation can build up. According to corrosivity category: C2 (low)	 Suited for environments with high humidity or moderate atmospheric contamination, such as applications outdoors subject to direct weathering. According to corrosivity category: C3 (moderate)	 Suitable for environments with high humidity and occasionally severe atmospheric and chemical contamination. Occasionally acidic or caustic wet cleaning. Also for applications in coastal areas with moderate salt load. According to corrosivity category: C4 (high)
Sample applications	• Systems in saw mills • Agitators and mixers	• Applications in gravel plants • Cableways	• Port cranes • Sewage treatment plants • Mining applications
Condensation test ISO 6270	120 h	120 h	240 h
Salt spray test ISO 7253	–	240 h	480 h
Top coat color[1)]	RAL 7031	RAL 7031	RAL 7031
Color according to RAL	Yes	Yes	Yes
Uncoated parts, shaft end/flanges	Water and hand perspiration repelling anticorrosion agent applied at the factory for external preservation.		

1) Standard color, can deviate depending on the order, see order documents.

INFORMATION

Sheet metal parts (e.g. protection covers) are painted in RAL 1003.

Special surface protection is also available, please contact SEW-EURODRIVE.

2.17 Storage and transport conditions

The gear units can be provided with the following protection and packaging types depending on the storage and transport conditions.

2.17.1 Internal conservation

Standard corrosion protection

After the test run, the test oil is drained out of the gear unit. The remaining oil film protects the gear unit against corrosion for a limited period of time.

Long-term corrosion protection

After the test run, the test oil is drained out of the gear unit and the interior space is filled with a vapor phase inhibitor. The breather filter is replaced by a screw plug and enclosed with the gear unit.

2.17.2 Exterior corrosion protection

The following measures are taken for exterior corrosion protection:

- Anti-corrosion agent is applied to bare, non-painted functional surfaces of shafts, flanges, mounting and foot surfaces of the housing. Remove it only using an appropriate solvent which is not harmful to the oil seal.
- Small spare parts and loose pieces, such as bolts, nuts, etc., are packed in corrosion protection plastic bags (VCI corrosion protection bags).
- Threaded holes and blind holes are covered by plastic plugs.

INFORMATION

- If the gear unit is stored longer than 6 months, regularly check the protective coating of unpainted areas as well as the paint coating. Areas in which the protective coating and/or painting has been damaged may have to be repainted.

2.17.3 Packaging

Standard packaging

The gear unit is delivered on a pallet, securely attached and without cover.

Use: Transportation by land

Long-term packaging

The gear unit is delivered in a wooden box that is also appropriate for sea transport.

Use: Sea transport and/or for long-term storage

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2.17.4 Storage conditions

INFORMATION

- During storage up to startup, the gear unit must be stored in a shock-free manner to prevent damage to the rolling bearing races.
- The output shaft must be rotated at least one full revolution every 6 months so that the position of the rolling elements in the bearings of the input and output shafts changes.
- The gear units are delivered without oil; different protection systems are required depending on the storage period and storage conditions as shown in the table below.

Corrosion protection + packaging	Storage location	Storage duration
Standard corrosion protection + Standard packaging	Under roof and enclosed at constant temperature and atmospheric humidity (5 °C < ϑ < 60 °C, < 50% relative humidity). No sudden temperature fluctuations. Controlled ventilation with filter (free from dust and dirt). No aggressive vapors, no shocks.	Max. 6 months with intact surface protection.
Long-term corrosion protection + Standard packaging	Under roof and enclosed at constant temperature and atmospheric humidity (5 °C < ϑ < 60 °C, < 50% relative humidity). No sudden temperature fluctuations. Controlled ventilation with filter (free from dust and dirt). No aggressive vapors, no shocks.	Max. 3 years with regular inspection and checking for intactness.
Long-term corrosion protection + Long-term packaging	With roof, protected against rain and shocks.	Max. 3 years with regular inspection and checking for intactness.

INFORMATION

If stored in tropical zones, provide for sufficient protection against insect damage. Contact SEW-EURODRIVE for differing requirements.

2.18 Ambient conditions

The gear units are suited for operation at ambient temperatures from -40°C to +40°C, though the standard design might have to be modified depending on the ambient temperature.

When operated in areas with low ambient temperatures, high levels of humidity, aggressive or explosive atmospheres, please consult SEW-EURODRIVE.

Sealing, lubrication, ventilation, surface protection, and other properties of the gear unit can then be adjusted to the specific ambient conditions.

2.19 Gearing and shafts

The gearing with edge corrections is made of high-quality, tempered and ground case hardening steels. The output shafts are made of tough quenched and tempered steel.

2.20 Shaft bearings

Self-aligning, cylindrical, and tapered roller bearings from well-known manufacturers are used.

2.21 Thermal rating

The thermal rating needs to be checked for every gear unit. The relevant values are listed in the Selection tables.

2.22 Very low output speeds

The gear units described in this catalog cover a nominal gear ratio range of up to 400:1. With a 4-pole motor connected to the gear unit, minimum output speeds of about 4 min^{-1} can be reached.

2.23 Noise level

The gear unit's sound-power levels, according to ISO 8579-1, are below the 50% line specified in the standard.

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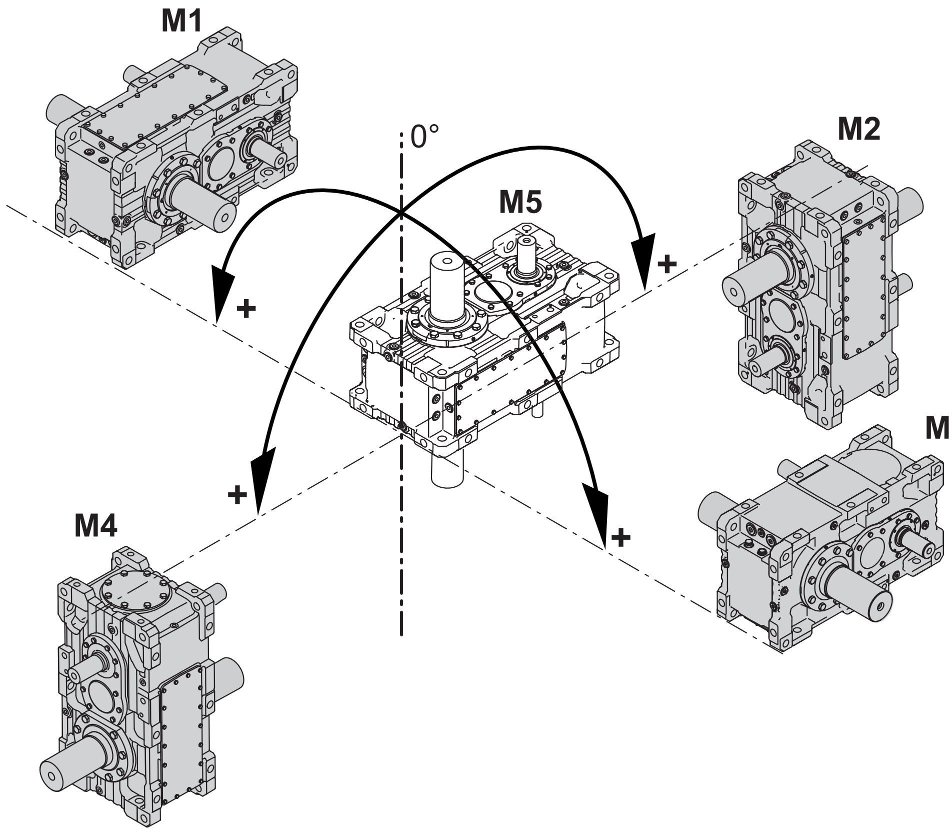
2.24 Fixed and variable pivoted mounting positions

Mounting positions deviating from the standard are differentiated between **fixed** and **variable** pivoted mounting positions.

INFORMATION

- Fixed and variable pivoted mounting positions are only possible after consultation with SEW-EURODRIVE. Observe the order documents, such as the dimension sheet.
- Fixed and variable pivoted mounting positions might involve restrictions concerning accessories and technical data. Also, delivery times might be longer. Consult SEW-EURODRIVE.



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2.24.1 Fixed pivoted mounting position

Definition:

Gear units with fixed pivoted mounting position have a fixed mounting position that differs from the standard.

This means the gear unit does not change its mounting position during operation.

Example:

The type designation is set up as follows:

M5-M1/9°

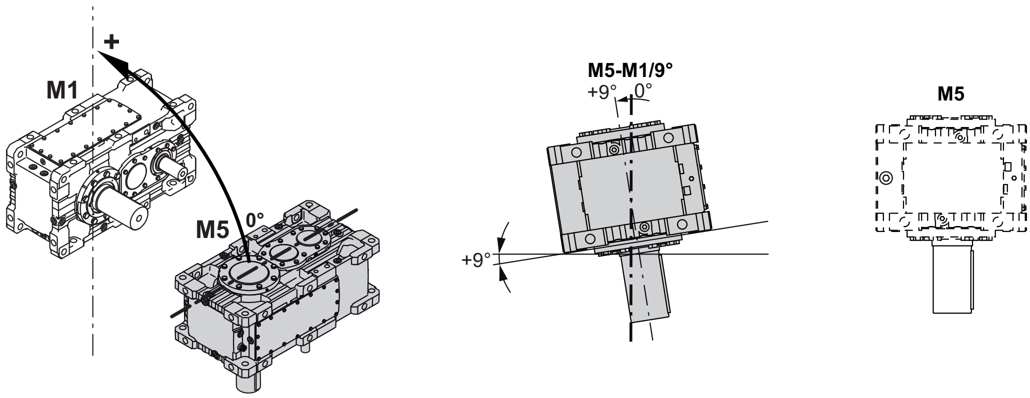
M5 = initial mounting position

M1 = pivoting direction

9° = fixed pivoting angle

Pivoted from mounting position M5 to M1 by 9°.

This results in the following fixed pivoted mounting position:



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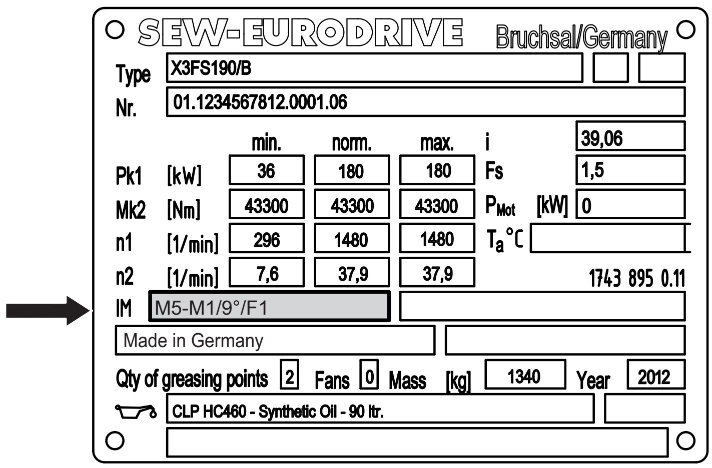
The oil level is checked in the selected fixed pivoted mounting position.

The fixed pivoted mounting position is shown on the nameplate as follows:



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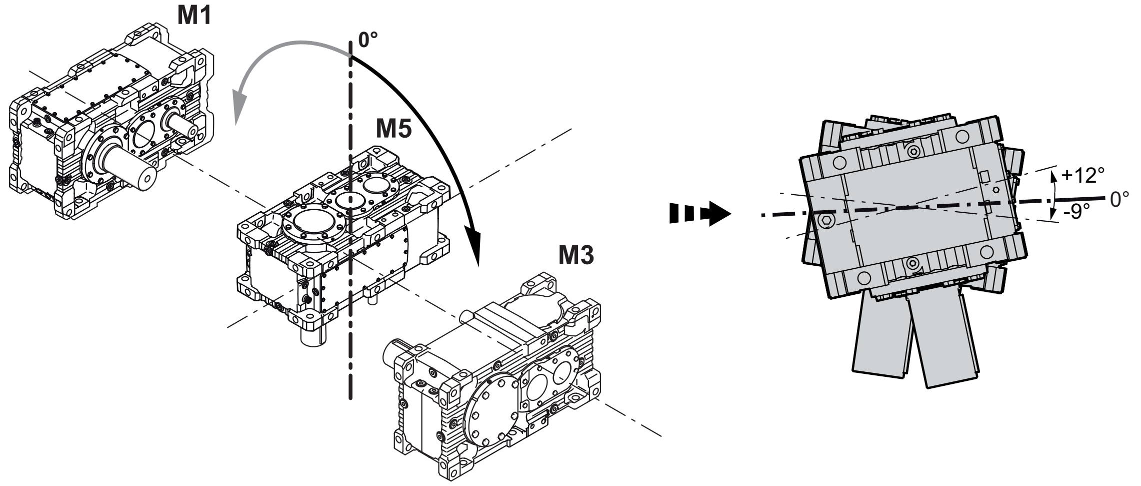
2.24.2 Variable pivoted mounting position

Definition:

Gear units with variable mounting position can change the mounting position **variably** during operation within the specified max./min. range.

Example:

The gear unit is operated in variable pivoted mounting position M5 to M3 = 9° and M5 to M1 = 12°.



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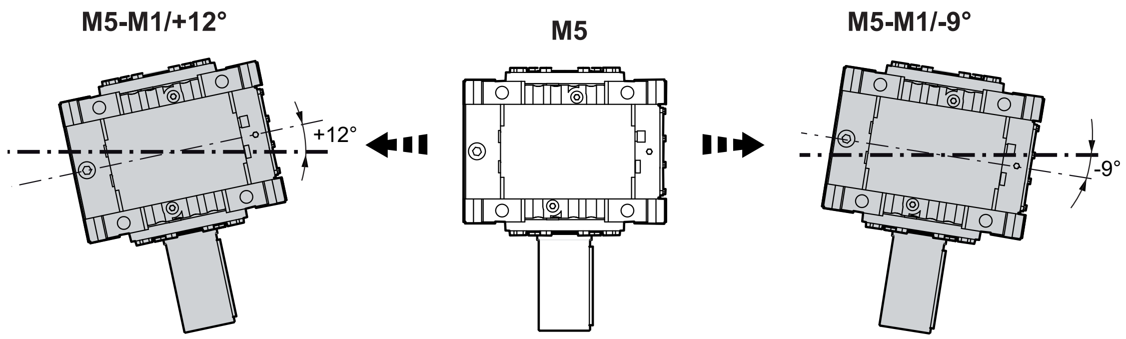
Step 1:

The largest pivoting angle determines the positive pivoting direction (12° > 9°). In this example, this is 12° toward M1.

12° → pivoted from M5 to M1 by +12°

9° → pivoted from M5 to M1 by -9°



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The type designation for this example is:

M5-M1/–9°...12°

M5 = initial mounting position

M1 = pivoting direction

12° = 12° from M5 to M1

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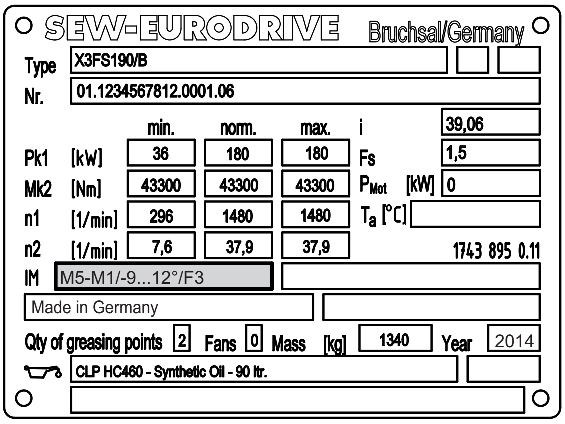
-9° = -9° from M5 to M1 (= 9° from M5 to M3)

The variable pivoted mounting position is shown on the nameplate as follows:



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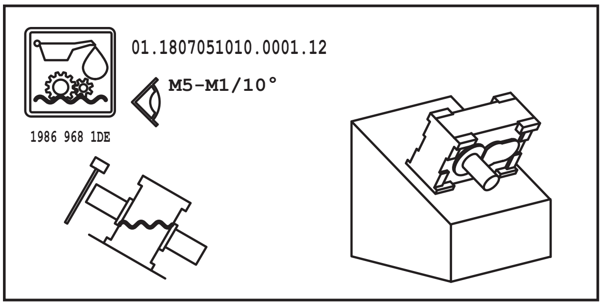
Step 2:

For variable pivoted mounting positions, the customer must determine the pivoting angle in which the oil level is checked.

An additional nameplate is used to clearly indicate the oil check angle. This nameplate lists the mounting position for the oil level check.



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2.24.3 Combination of fixed and variable pivoted mounting positions

Fixed and variable pivoted mounting positions can be combined.

Example:

The following example shows a combination of fixed and variable pivoted mounting position.

The type designation is set up as follows:

M5-M4/9° (fixed pivoted mounting position)

M5 = initial mounting position

M4 = pivoting direction

9° = fixed pivoting angle

M5-M1/-9°...12° (variable pivoted mounting position)

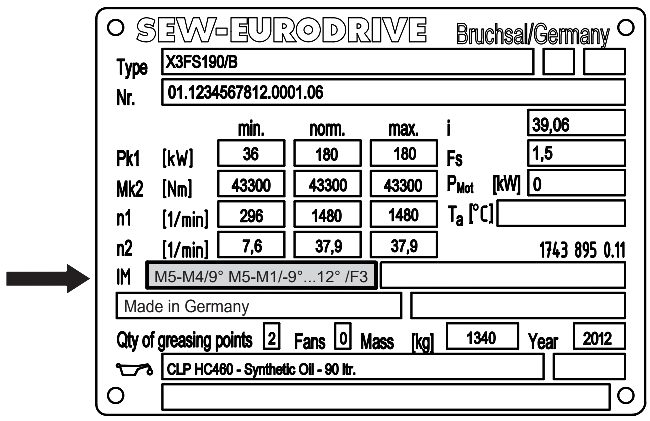
M5 = initial mounting position

M1 = pivoting direction

12° = 12° from M5 to M1

-9° = -9° from M5 to M1 (= 9° from M5 to M3)

The fixed and variable pivoted mounting position is shown on the nameplate.



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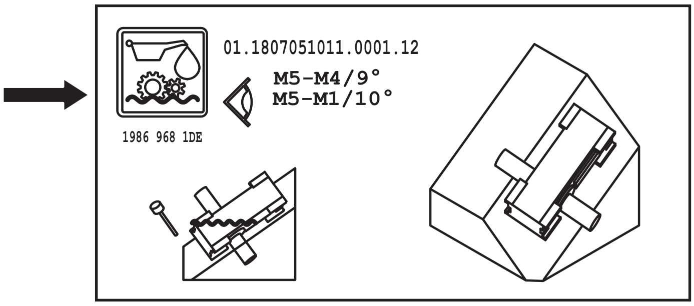
When combining fixed and variable pivoted mounting position, the customer must determine the variable pivoting angle in which the oil level is checked. The fixed angle for the oil level check is already defined.

The gear unit has an additional nameplate to ensure correct oil level checks. This nameplate lists the mounting position for the oil level check.

In this example, the operator checks the oil level at M5-M4/9° M5-M1/10°.



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3 Project planning for gear units

3.1 Additional documentation

In addition to the information in this catalog, SEW-EURODRIVE offers extensive documentation covering the entire topic of electrical drive engineering. This is primarily documentation from the "Drive Engineering – Practical Implementation" series. You can order the latest documentation from SEW-EURODRIVE. The documentation can also be downloaded in PDF format from the SEW-EURODRIVE homepage (www.sew-eurodrive.com).

3.1.1 Drive Engineering – Practical Implementation

The publication "Drive Engineering – Practical Implementation – Drive Arrangements with SEW-EURODRIVE Gear Units" features extensive information on characteristics, different features and application areas of drives by SEW-EURODRIVE. A comprehensive collection and assignment of the most important formulae for drive calculation as well as detailed examples for the most frequently used applications make this documentation an important tool for project planning and an essential addition to SEW-EURODRIVE product catalogs.

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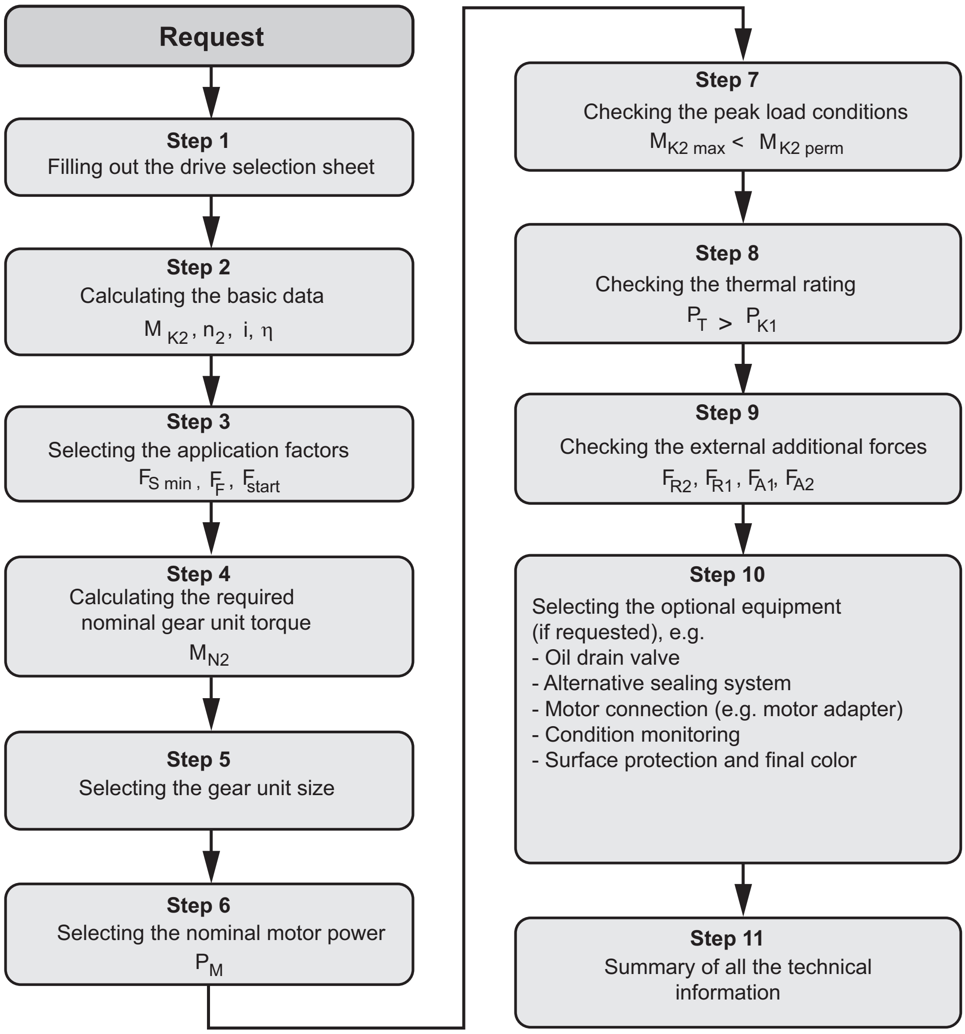
3.1.2 Explanation of the designations

The table below describes the designations.

Designation	Explanation	
α	Application angle of the radial load	°
f_1	Altitude factor (= correction factor for calculation of the thermal rating of the gear unit)	-
F_A	Axial load	kN
F_F	Peak load factor	-
F_R	Overhung load	N
F_{R1}	Overhung load on HSS (Distance from the shaft shoulder must be given)	kN
F_{R2}	Overhung load on LSS (Distance from the shaft shoulder must be given)	kN
F_S	Service factor = M_{N2} / M_{K2} = P_{N1} / P_{K1}	-
$F_{S\ min}$	Application-specific service factor	-
F_{start}	Startup factor	-
f_z	Transmission element factor	-
η	Efficiency	-
H	Installation altitude above sea level	m
HSS	High-speed gear shaft (usually input shaft)	-
i	Gear ratio	-
i_{ex}	Exact gear unit ratio	-
i_N	Nominal gear unit ratio	-
LSS	Low-speed gear shaft (usually output shaft)	-
$L_{h\ min}$	Required bearing service life	h
M_{K1}	Input torque (= Operating torque on HSS)	kNm
$M_{K1\ max}$	Peak input torque (= peak operating torque at HSS)	kNm
M_{K2}	Output torque (= Operating torque on LSS)	kNm
$M_{K2\ max}$	Peak output torque (= peak operating torque at LSS)	kNm
$M_{K2\ per}$	Permitted peak output torque	kNm
M_M	Nominal motor torque	kNm
M_{N2}	Nominal gear unit torque	kNm
n_1	Input speed (HSS)	min^{-1}
n_2	Output speed (LSS)	min^{-1}
n_M	Motor speed	min^{-1}
P_{K1}	Operating power on HSS	kW

3.2 Project planning procedure



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3.2.1 Step 1: Drive selection data

1. Machine on LSS (normally a driven machine)

Key: [...] = Values to be filled in
[X] = Mark your selection with ☒

1.1 Area of application/industry [...]

1.2 Application [...]

1.3 Ambient temperature [°C] [...]

normal | min. | max.

1.4 Installation altitude [m] [...]

1.5 Gear unit installation [X]

☐ Small space ($v_a \geq 0.5$ m/s)
☐ Large spaces and halls ($v_a \geq 1.4$ m/s)
☐ Outdoors with sun protection ($v_a \geq 3$ m/s)

1.6 Ambient conditions [X]

☐ Normal
☐ Dusty
☐ Damp
☐ Corrosive
☐ Dry

2. Load characteristics

2.1 Required speed n_2 [1/min] [...]

normal | min. | max.

2.2 Operating power on HSS P_{K1} [kW] [...]

normal | min. | max.

2.3 Operating torque on LSS M_{K2} [kNm] [...]

normal | min. | max.

2.4 Frequency of load peaks ($M_{K2\ max.}$ or $P_{K1\ max.}$)

per hour

2.5 Number of startups per hour [...]

Startups

2.6 Direction of rotation under load (LSS) [X]

☐ CW rotation
☐ CCW rotation
☐ Both directions of rotation
☐ Reversible

2.7 Operating time/day [X]

☐ < 3 hours
☐ 3 – 10 hours
☐ > 10 hours

2.8 Backstop required [X]

☐ No
☐ Yes

2.9 Exact load cycle attached [X]

☐ No
☐ Yes

3. Machine on HSS (normally a drive machine)

3.1 Type: [X]

☐ AC motor ☐ AC motor/inverter ☐ DC motor
☐ Hydraulic motor ☐ Servomotor
☐ Combustion engine with 1 – 3 cylinders
☐ Combustion engine with ≥ 4 cylinders

3.2 Motor power P_M [kW] [...]

normal | min. | max.

3.3 Motor speed n_M [kW] [...]

normal | min. | max.

3.4 Nominal motor torque M_M [kNm] [...]

normal | min. | max.

3.5 Input speed n_1 [1/min] [...]

normal | min. | max.

3.6 If electric motor: [X] [...]

☐ IEC
☐ NEMA
Motor size (IEC or NEMA code):

3.7 Motor mounting position [X] [...]

☐ B3
☐ B5
☐ V1
☐ Other:

4. Gear unit requirements

4.1 Gear unit type [X]

☐ Helical gear unit X.F.. ☐ Bevel-helical gear unit X.K..

4.2 Mounting position [X]

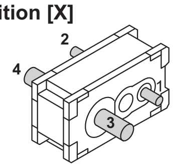
☐ M1 – M6

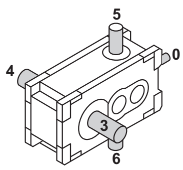
4.3 Mounting surface [X]

☐ F1 – F6

4.4 Shaft position [X]

☐ 0 ☐ 1 ☐ 2
☐ 3 ☐ 4 ☐ 5 ☐ 6





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4.5 Required service factor $F_{S\ min.}$ [X] [...]

based on

- ☐ Nomial motor power P_M / motor torque M_M
- ☐ Operating power on LSS P_{K2}
  Operating torque on LSS M_{K2}

4.6 Required bearing service life $L_{h\ min}$ [...]

Hours

4.7 Housing fixation [X]

- ☐ Foot-mounted
- ☐ Flange-mounted
- ☐ Torque arm

4.8 LSS connection to customer machine shaft [X] [...]

- ☐ Elastic coupling (claw coupling or pin coupling)
- ☐ Flexible coupling
- ☐ Rigid flange coupling
- ☐ Drum coupling
- ☐ Chain sprocket
- ☐ Pinion

- ☐ Hollow shaft – torque arm
- ☐ Hollow shaft – foot mounting
- ☐ Hollow shaft – flange mounting
- ☐ Other

4.9 LSS gear unit version [X] [...]

LSS version (if solid shaft)

- ☐ Solid shaft with keyway
- ☐ Solid shaft without keyway
- ☐ Splined solid shaft DIN 5480
- ☐ Other

LSS version (if hollow shaft)

- ☐ Hollow shaft with keyway
- ☐ Hollow shaft for shrink disc connection, includes shrink disc
- ☐ Splined hollow shaft DIN 5480
- ☐ Other

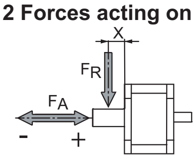
4.10 HSS connection to motor [X]

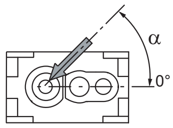
- ☐ Customer installation (base frame)
- ☐ Motor adapter with elastic coupling
- ☐ Swing base/base frame
- ☐ Motor bracket with V-belt drive
- ☐ Motor scoop
- ☐ Other, see diagram

4.11 Machine shaft bearings

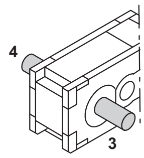
- ☐ 2 bearings, gear unit transfers only torque
- ☐ 1 bearing opposite gear unit, the gear unit acts as a bearing point
- ☐ 1 bearing directly at the gear unit, the gear unit acts as a bearing point

4.12 Forces acting on the output shaft LSS [X] [...]



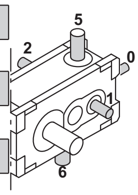


	Shaft 3	Shaft 4
Axial force F_A [kN]		
Radial force F_R [kN]		
Distance from shaft shoulder X [mm]		
Application angle of the radial force α [°]		
or variable	☐	☐



4.13 Forces acting on drive shaft HSS [X] [...]

	0	1	2	3	4	5	6
Axial force F_A [kN]							
Radial force F_R [kN]							
Distance from shaft shoulder X [mm]							
Application angle of the radial force α [°]							
or variable	☐	☐	☐	☐	☐	☐	☐



4.14 Electrical supply [X] [...]

	AC 3-phase	AC 1-phase	DC	V	Hz
Mains supply V_{Line}	☐	☐	☐	V	Hz
Auxiliary voltage V_{Aux}	☐	☐	☐	V	Hz

Degree of protection IP

Explosion protection required ☐ Yes ☐ No

4.15 Permitted cooling (if required) [X]

	Permitted	Not permitted
Fan	☐	☐
Cooling cover / cartridge	☐	☐
External oil-air cooler	☐	☐
External oil-water cooler	☐	☐

Cooling water available ☐ Yes ☐ No

Cooling water temperature °C

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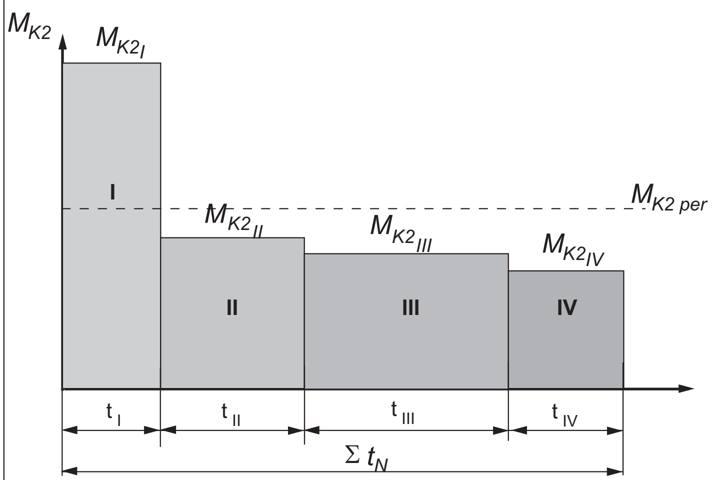
3.2.2 Step 2: Calculation of basic data – M_{K2}, n_2, i, η

<table>
<tr><td>Constant torque</td><td>$M_{K2} = \frac{P_{K1} \times 9550 \times \eta}{n_2}$ [Nm] Remark: If P_{K1} is not known, then $P_{K1} = P_M$
M_{K2} = Operating torque on LSS in Nm
P_{K1} = Operating torque on LSS in Nm
n_2 = Output speed (HSS) min^{-1}
P_M = Nominal motor power in kW
η = Efficiency</td></tr>
<tr><td>Equivalent torque with load spectrum and constant Speed n_2 for calculation of bearing service life</td><td>$M_{K2\,eq} = \sqrt[\frac{10}{3}]{(M_{K2_I})^{\frac{10}{3}} \times \frac{t_I}{\Sigma t_N} + (M_{K2_{II}})^{\frac{10}{3}} \times \frac{t_{II}}{\Sigma t_N} + \dots (M_{K2_n})^{\frac{10}{3}} \times \frac{t_n}{\Sigma t_N}}$
The following figure shows a load example:


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M_{K2} = Operating torque on LSS in Nm
$\frac{t_I}{\Sigma t_N}$ .... $\frac{t_I}{\Sigma t_N}$ = Time slice of load
I, II,...n = Load situations</td></tr>
<tr><td>Gear ratio</td><td>$i = \frac{n_1}{n_2}$
n_1 = Input speed (HSS) in min^{-1}
n_2 = Output speed (LSS) in min^{-1}</td></tr>
<tr><td>The following efficiencies – η apply to gear units</td><td>η = f (i; gear unit type)
The efficiency of the gear unit is mainly determined by the gearing and bearing friction as well by churning losses. The following guide values apply for calculating splash and pressure lubrication:
X2F.. = 0,975
X3F.. = 0.96
X4F.. = 0.94
X2K.. = 0.97
X3K.. / X3T.. = 0,955
X4K.. / X4T.. = 0,935</td></tr>
</table>

3.2.3 Step 3: Selecting the application factors

Application-specific service factor $F_{S\ min}$

Peak load factor F_F (see subsequent pages)

Startup factor F_{start} (see subsequent pages)

Application-specific service factor

The application-specific service factor $F_{S\ min}$ takes account of the typical load behavior with regard to the driven machine.

Recommended values with reference to

- Area of application
- Type of driven machine
- Operating period / day

are given in the following table.

INFORMATION

These tables apply only to gear units driven by electric motors. For other types of drive motors, the following correction values apply:

- Combustion engines with four or more cylinders:
  - $F_{S\ min}$ (selection table) + 0.25
- Combustion engines with one to three cylinders:
  - $F_{S\ min}$ (selection table) + 0.5

Area of Application	Type of application (driven machine)	Application-specific service factor $F_{S\ min}$ Operating period / day		
		< 3 h	3-10 h	> 10 h
Waste water treatment	Impeller aerator	-	1.80	2.00
	Thickeners	1.15	1.25	1.50
	Vacuum filters	1.15	1.30	1.50
	Collector	1.15	1.25	1.50
	Screw pump	-	1.30	1.50
	Brush aerators	-	-	2.00
Mining	Crushers	2.30	2.70	3.00
	Screens and shakers	1.55	1.75	2.00
	Slewing drives	-	1.55	1.80
Energy	Frequency inverters	-	1.80	2.00
	Water wheels (low speed)	-	-	1)
	Water turbines	-	-	1)
Rubber and plastic industry	Extruders (plastic)	-	1.40	1.60
	Extruders (rubber)	-	1.50	1.80
	Rubber rollers (2 in a row)	1.55	1.75	2.00
	Rubber rollers (3 in a row)	-	1.50	1.75
	Heating rollers	1.35	1.50	1.75
	Calender	-	1.65	1.65
	Mills	1.55	1.75	2.00
	Mixing rollers	1)	1)	1)
	Slab rollers	1.55	1.75	2.00
	Refiners	1.55	1.75	2.00
	Tire machines	1)	1)	1)
Timber industry	Timber industry	1)	1)	1)

Area of Application	Type of application (driven machine)	Application-specific service factor $F_{S\,min}$ Operating period / day		
		< 3 h	3-10 h	> 10 h
Cranes	Cranes and hoists	Dimensioning according to FEM1001	Dimensioning according to FEM1001	Dimensioning according to FEM1001
Food industry	Crushers and mills	-	-	1.75
	Beet slicers	-	1.25	1.50
	Drying drums	-	1.25	1.50
Metal production and processing	Winder	-	1.60	1.75
	Cutting rollers	1.55	1.75	2.00
	Table conveyors, single drives	[1]	[1]	[1]
	Table conveyors, group drives	[1]	[1]	[1]
	Table conveyors, reciprocating	[1]	[1]	[1]
	Wire drawing machines	1.35	1.50	1.75
	Rollers	[1]	[1]	[1]
Pulp and paper industry	Debarking drums and machines	1.55	1.80	-
	Rolls (pick-up, wire drive, wire suction)	-	1.80	2.00
	Drying cylinders (rolling bearings)	-	1.80	2.00
	Calenders (rolling bearings)	-	1.80	2.00
	Filters (pressure and vacuum)	-	1.80	2.00
	Beaters and chippers	1.55	1.75	2.00
	Jordan mills	-	1.50	1.75
	Presses (bark, felt, glue, suction)	-	-	1.75
	Reels	-	-	1.75
	Pulpers	[1]	[1]	[1]
	Washer filters	-	-	1.50
	Yankee cylinders (dryers)	[1]	[1]	[1]
Pumps	Centrifugal pumps	1.15	1.35	1.45
	Reciprocating pumps (single-cylinder)	1.35	1.50	1.80
	Reciprocating pumps (multi-cylinder)	1.20	1.40	1.50
	Screw pumps	-	1.25	1.50
	Rotary pumps (gear pump, vane pump)	-	-	1.25
Agitators and mixers	Agitators for liquids	1.00	1.25	1.50
	Agitators for liquids (variable density)	1.20	1.50	1.65
	Agitators for solids (non-uniform material)	1.40	1.60	1.70
	Agitators for solids (uniform material)	-	1.35	1.40
	Concrete mixers	-	1.50	1.50
Cableways	Material ropeways	-	1.40	1.50
	Aerial tramways		[1]	[1]
	Surface lifts	[1]	[1]	[1]
	Continuous aerial tramways	[1]	[1]	[1]
	Funicular railways	[1]	[1]	[1]
Fans	Heat exchangers	1.50	1.50	1.50
	Dry cooling tower	-	-	2.00
	Wet cooling towers	2.00	2.00	2.00
	Blowers (axial and radial)	1.50	1.50	1.50
Compressors	Reciprocating compressors	-	1.80	1.90
	Radial compressors	-	1.40	1.50
	Screw-type compressors	-	1.50	1.75

[1] Contact SEW-EURODRIVE

Peak load factor

The peak load factor F_F takes account of the overload capacity of the gearing and the torque-transmitting parts.

Peak load frequency per hour					
1 to 5	**6 to 20**	**21 to 40**	**41 to 80**	**81 to 160**	**> 160**
1.0	1.2	1.3	1.5	1.75	2.0

Startup factor – F_{start}

The startup factor F_{start} takes account of the overload caused by startup.

The following startup factors are guide values. The actual values depend on the application.

Startup mode	Startup factor – F_{start}
Direct	3.0
Soft start	1.8
Frequency inverter	1.5 to 2.0[1)]
Star/delta	1.3
Hydraulic coupling without delay chamber	2.0
Hydraulic coupling with delay chamber	1.6

1) Depending on settings

3.2.4 Step 4: Calculation of the required nominal gear unit torque M_{N2}

Constant load direction – constant torque:

$$M_{N2} \geq M_{K2} \times F_{S\min}$$

M_{N2} = Nominal gear unit torque in kNm
M_{K2} = Operating torque at LSS in kNm
$F_{S\,min}$ = Application-specific service factor

Reversing load direction – constant torque:

$$M_{N2} \geq M_{K2} \times F_{S\min} \times 1.43$$

M_{N2} = Nominal gear unit torque in kNm
M_{K2} = Operating torque at LSS in kNm
$F_{S\,min}$ = Application-specific service factor

3.2.5 Step 5: Selecting the size

The selection of the gear unit size is based on the nominal gear unit torque M_{N2} according to the selection tables in chapter "Selection tables" (→ 147).

The selection table guide on the foldout page of the catalog can be used to quickly locate the speed/power overview table and to make a preliminary selection of the size.

If the input speed n_1 **<** 1000 min^{-1}, the value for 1000 min^{-1} can be used for M_{N2}.

For input speeds n_1 **>** 1800 min^{-1}, contact SEW-EURODRIVE.

The following table shows an excerpt from the selection tables as an example.

X.F100.., n_1 = 1000 min^{-1}															**6.80 kNm**
					P_{TH} kW										
					M5				**20°C**	**M4**				**20°C**	
i_N	**i_{ex}**	**n_2 min^{-1}**	**M_{N2} kNm**	**P_{N1} kW**			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**7.09**	141	5.60	85	61	94	-	-	-	74	110	-	-	-	
8	**7.94**	126	5.75	78	64	99	-	-	-	77	115	-	-	-	
9	**8.52**	117	5.90	74	60	91	-	-	-	71	105	-	-	-	
10	**9.53**	105	6.10	69	63	95	-	-	-	74	110	-	-	-	
11.2	**11.03**	91	6.40	62	58	87	-	-	-	67	98	-	-	-	
12.5	**12.34**	81	6.60	57	61	90	-	-	-	70	100	-	-	-	
14	**13.93**	72	6.80	52	50	73	-	-	-	56	81	-	-	-	
16	**15.59**	64	6.80	47	53	78	-	-	-	60	87	-	-	-	
18	**17.21**	58	6.80	42	56	81	-	-	-	63	91	-	-	-	
20	**19.26**	52	6.80	38	57	84	-	-	-	65	94	-	-	-	

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3.2.6 Step 6: Selecting the nominal motor power – P_M

$$P_M \geq P_{K1} = \frac{P_{K2}}{\eta}$$

P_M = Nominal motor power in kW
P_{K1} = Operating power at HSS in kW
P_{K2} = Operating power at LSS in kW
η = Efficiency

INFORMATION

For gear units with bath lubrication, please contact SEW-EURODRIVE.

3.2.7 Step 7: Checking the peak load conditions $M_{K2\ per}$; $M_{K2\ max}$

Permitted peak output torque $M_{K2\ perm}$:

Constant load direction

$$M_{K2per} = \frac{2xM_{N2}}{F_F}$$

M_{K2per} = Permitted peak output torque in kNm
M_{N2} = Nominal gear unit torque in kNm
F_F = Peak load factor

Reversing load direction:

$$M_{K2per} = \frac{2xM_{N2}}{F_F} \times 0.7$$

M_{K2per} = Permitted peak output torque in kNm
M_{N2} = Nominal gear unit torque in kNm
F_F = Peak load factor

Calculating the peak output torque $M_{K2\ max}$:

$$M_{K\max} = \frac{P_M \times 9550 \times \eta}{n_2} \times F_{start}\ ^*$$

M_{K2max} = Peak output torque in kNm
P_M = Nominal motor power in kW
F_{start} = Startup factor
n_2 = Output speed in min^{-1}
η = Efficiency

* If the startup factor F_{start} is not specified, please observe the information in "step 3" (→ 🗎 53).

Checking the gear unit selection:

$$M_{K\max} \leq M_{K2perm}$$

M_{K2max} = Peak output torque in kNm
M_{K2per} = Permitted peak output torque in kNm

3.2.8 Step 8: Checking the thermal rating

The thermal rating P_T of a gear unit is the power that a gear unit can transmit continuously without exceeding a specific oil temperature.

The thermal rating P_T depends on the following factors:

- Ambient temperature
- Air circulation and sunlight exposure at the installation site
- Installation altitude
- Heat conduction to the foundation at the installation site
- Gear unit type, size and gear ratio
- Type of gear unit external cooling
- Type of gear unit lubrication
- Lubricant type
- Cyclic duration factor

For the following ambient conditions, the thermal rating can be directly read from the "selection tables" (→ 🗎 147):

- Ambient temperature 20 °C
- Installation in a large hall (air velocity ≥ 1.4 m/s)
- Natural cooling or cooling with
  - Fan
  - Integrated cooler (water cooling cover or water cooling cartridge)
  - Combination of fan with water cooling cartridge
- Foundation as steel support structure
- Installation altitude < 1000 m above sea level

INFORMATION

- For other ambient temperatures and types of lubricants, you can calculate the thermal rating P_T using the temperature factor f_T and the lubrication factor f_L. The resulting calculation results are approximate values. Contact SEW-EURODRIVE to determine the exact values.
- Sufficient protection from direct sunlight is absolutely necessary when installed outdoors. If the gear unit cannot be protected from direct sunlight, the thermal calculation must take the sunlight in kW/m² into account.

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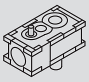
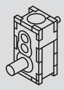
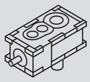
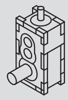
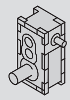
The following lubrication types, mounting positions, and thermal ratings P_{TH} of the gear unit in kW are detailed starting from the "selection tables" (→ 🗎 147). The thermal rating for other combinations can be determined using factors.

Lubrication types / mounting positions							
X.F..			X.K..			X.T..	
	M5 	M4 		M5 	M4 		M4 
X.F100			X.K100		BL	X.T100	
X.F110			X.K110			X.T110	
X.F120			X.K120			X.T120	
X.F130			X.K130			X.T130	
X.F140			X.K140			X.T140	
X.F150			X.K150			X.T150	
X.F160			X.K160		BL	X.T160	
X.F170	BL	BL	X.K170	BL		X.T170	BL
X.F180			X.K180		PL	X.T180	
X.F190			X.K190			X.T190	
X.F200			X.K200			X.T200	
X.F210			X.K210			X.T210	
X.F220			X.K220			X.T220	
X.F230			X.K230			X.T230	
X.F240			X.K240			X.T240	
X.F250			X.K250			X.T250	
X.F260			X.K260				
X.F270			X.K270				
X.F280	PL	PL	X.K280	PL	PL		
X.F290			X.K290				
X.F300			X.K300				
X.F310			X.K310				
X.F320			X.K320				

BL = Oil bath lubrication

SL = Splash lubrication

PL = Pressure lubrication

* = Contact SEW-EURODRIVE

$$P_T = P_{TH} \times f_1 \times f_T$$

P_T = Thermal rating of the gear unit in kW

P_{TH} = Nominal thermal rating of the gear unit in kW. The values in the selection tables depend on the type of cooling, mounting position, and lubrication type.

f_1 = Altitude factor

f_T = Temperature factor

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Altitude factor f_1

The following table shows the altitude factor f_1

Altitude factor	Altitude H m above sea level				
	up to 999	1000 – 2000	2000 – 3000	3000 – 4000	4000 – 5000
f_1	1.00	0.95	0.91	0.87	0.83

Temperature factors f_T

The following table shows the temperature factor f_T depending on the lubrication type, ambient temperature, and cooling option.

Temperature factor f_T										
Lubrication type	Without additional cooling or with fan					With water cooling cover or With water cooling cartridge or With water cooling cartridge and fan				
	Ambient temperature °C					Ambient temperature °C				
	10	20	30	40	50	10	20	30	40	50
Splash and pressure lubrication[1)]	1.15	1	0.85	0.7	0.55	1.1	1	0.9	0.8	0.7
Bath lubrication	1.18	1	0.85	0.65	0.48					

1) For detailed information, refer to the vertical and upright gear unit catalog

at

$$P_T < \frac{1}{3} \times P_{N1}$$

→ Contact SEW-EURODRIVE

P_T = Thermal rating of the gear unit in kW
P_{N1} = Nominal gear unit power

The gear unit's thermal rating must be at least as large as the operating power on the input shaft HSS.

$$P_T \geq P_{K1}$$

P_T = Thermal rating of the gear unit in kW
P_{K1} = Operating power at HSS in kW

INFORMATION

For other gear unit sizes and mounting positions with pressure lubrication that are not listed in the "selection tables" (→ 🗎 147), the thermal rating P_T can be calculated with pressure lubrication factor f_L.

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Pressure lubrication factor f_L

The following table shows the pressure lubrication factor f_L depending on the gear unit size, mounting position, and cooling option. In the case of gear unit sizes X260 to 320, contact SEW-EURODRIVE.

Pressure lubrication factor fL			
Size	Mounting position	Cooling options	
		- without additional cooling - with fan - with water cooling cover	- with water cooling cartridge - with water cooling cartridge and fan
XF/XK120 – 250	M5	1.05	Contact SEW-EURODRIVE
XF160 – 250	M4	1.1	
XT160 – 250	M4	1.1	

The thermal rating P_T for **pressure lubrication** can be calculated as follows. In the case of gear unit sizes X260 to 320, contact SEW-EURODRIVE.

Size	Thermal rating P_T
XF120 – 250	P_T(M4 pressure lubrication) = P_T(M1 splash lubrication) x f_L
	P_T(M5 pressure lubrication) = P_T(M1 splash lubrication) x f_L
XK120 – 250	P_T(M5 pressure lubrication) = P_T(M1 splash lubrication) x f_L
XT160 – 210	P_T(M4 pressure lubrication) = P_T(M3 pressure lubrication) x f_L
XT220 – 250	P_T(M4 pressure lubrication) = P_T(M1 pressure lubrication) x f_L

Selecting the cooling system

If the thermal rating P_T of a gear unit is not sufficient with cooling by fan, water cooling cover, or water cooling cartridge, you can use a cooling system with circulation cooling; see chapter "Cooling" (→ 🗎 95).

The proper size of the cooling system can be determined by approximation by means of the power loss P_V of the gear unit.

$$P_V = P_{K1} x (1 - \eta)$$

P_V = Power loss in kW
P_{K1} = Operating power at HSS in kW
η = efficiency see (applies only to splash or pressure lubrication)

The cooling requirements are determined by means of this power loss P_V. The selection of the required cooling system is then made in the chapter "Cooling" (→ 🗎 95).

The power loss P_V of the gear unit must be smaller than the cooling capacity of the cooling system.

P_V < cooling capacity of cooling system in kW

In addition, the selection of an appropriate cooling system depends on the following factors:

- Actual power loss to be cooled
- Present cooling water temperature and volume flow
- Ambient temperature
- Ratio of oil quantity in the gear unit to oil volume flow of cooling system > 2

INFORMATION

Please contact SEW-EURODRIVE for selecting the appropriate cooling system based on the ambient conditions of your system.

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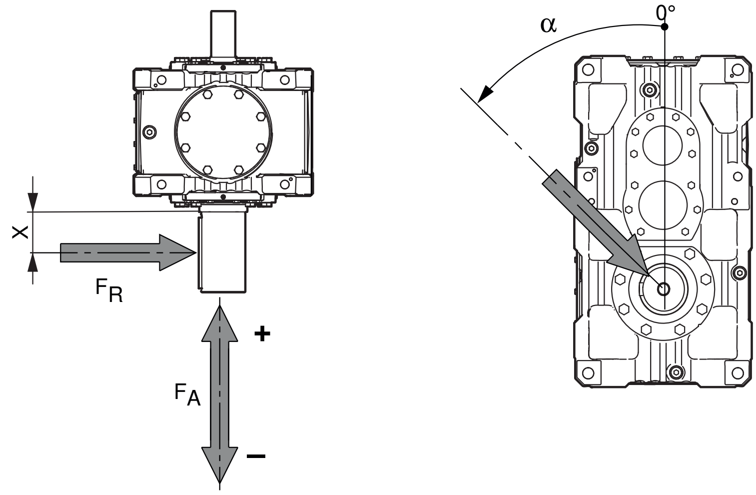
3.2.9 Step 9: Checking the external additional forces – F_R:

Dependencies

The permitted external additional forces depend on the following factors:

- Service factor
- Required bearing service life
- Direction of the axial force (from or towards gear unit)
- Application angle of the overhung load (rotating or at a specific position)
- Application point of the overhung load in relation to the shaft shoulder
- Ratio of axial to overhung load

Definition of the force application



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INFORMATION

The force application is always defined as viewed onto the output shaft end.

Determining the overhung load

Another important factor for determining the remaining overhung load is the drive component type installed at the shaft end. The following drive component factors f_Z must be considered for the various drive components.

Drive component	Drive component factor f_Z	Comments
Gear unit	1.15	< 17 teeth
Sprockets	1.40	< 13 teeth
Sprockets	1.25	< 20 teeth
Narrow V-belt pulleys	1.75	Influence of pre-tensioning
Flat V-belt pulleys	2.50	Influence of pre-tensioning
Toothed belt pulleys	1.50	Influence of pre-tensioning

The overhung load acting on the gear shaft is calculated as follows:

$$F_R = \frac{M_d \times 2000}{d_0} \times f_z$$

F_R = Overhung load in N
M_d = Torque in kNm
d_0 = Mean diameter of the installed transmission element in mm
f_Z = Drive component factor

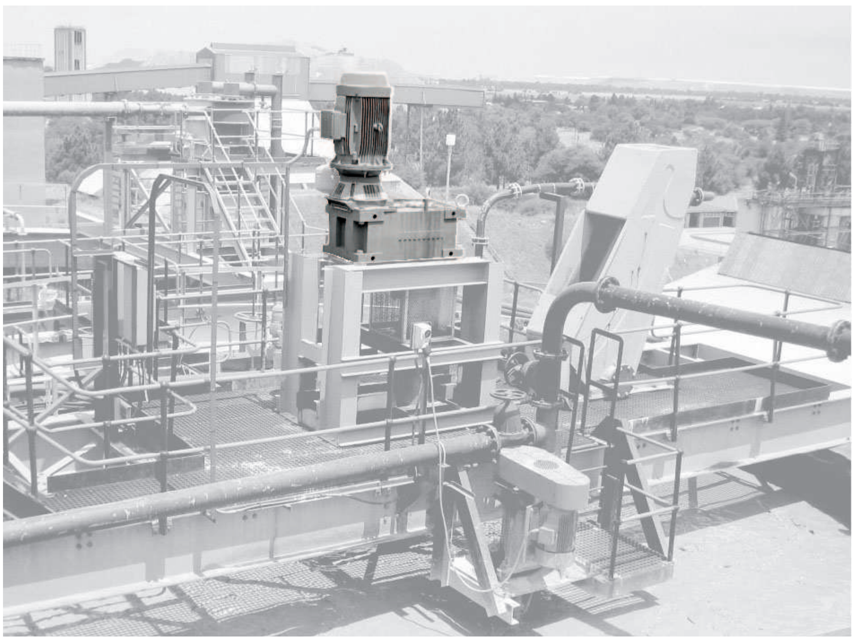
Permitted overhung and axial loads / output shaft (LSS)

For permitted overhung and axial loads on the output shaft (LSS), contact SEW-EURODRIVE.

Permitted overhung and axial loads / input shaft (HSS)

For permitted overhung and axial loads on the input shaft (HSS), contact SEW-EURODRIVE.

3.3 Example of a vertical gear unit



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3.3.1 Technical data and application conditions

A liquid with constant density is to be agitated.

- Helical gear unit with parallel shafts
- Vertical mounting position, solid output shaft
- Required output speed n_2 = 51 min^{-1}
- Operating power at LSS P_{K2} = 75 kW
- Peak input torque $M_{K1\ max}$ = 1.45 kNm
- Operating period: 24 hours per day
- The gear unit is started up twice per day (frequency of maximum input speed).
- The gear unit is operated outdoors under a protective roof. Ambient temperature range: 0°C to 40°C, wind velocity approx. 3 m/s, normal humidity
- Installation altitude H = 500 m
- Connection to a mixer shaft with flexible coupling; mixer shaft is supported externally, no radial and axial loads on the gear shaft
- Foot-mounted gear unit
- Motor power 90 kW, speed 1485 min^{-1} (IEC motor)
- Preferred lubrication type: Oil bath

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3.3.2 Calculating the gear ratio

Calculate the gear unit ratio i using the following formula:

$$i = \frac{n_1}{n_2} = \frac{1485 m^{-1}}{51 \min^{-1}} = 29.12 \min^{-1}$$

i = Gear ratio
n_1 = input speed
n_2 = required output speed

This value is used to determine the nominal gear ratio i_N = 28

3.3.3 Calculating the operating power on the HSS

The operating power P_{K1} of the drive is calculated as follows using the operating power on LSS P_{K2} or operating torque M_{K2} and with the output speed n_2 and efficiency η:

$$P_{K1} = \frac{P_{K2}}{\eta} = \frac{75 kW}{0.96} = 78.1 kW$$

P_{K1} = Operating power on HSS
P_{K2} = Operating power on LSS
η = Efficiency of a 3-stage gear unit = 0.96

3.3.4 Determining the service factor

If the customer does not specify a service factor, it can be determined on the basis of the table on "page" (→ 🗎 53).

Area of application:	Agitators and mixers
Driven machine:	Agitators with liquids
Daily operating period:	> 10 h

→ F_S = 1.5

3.3.5 Specifying the gear unit size and gear unit ratio

The required rated power of the gear unit P_{N1} is calculated using input power P_{K1} and service factor F_S using the following formula:

$P_{N1} \geq P_{K1} \times F_S$

$P_{N1} \geq 78.1 \times 1.5 = 117.1$

Approximate required nominal gear unit torque M_{N2}:

$$M_{N2} = \frac{P_{N1} \times 9.55 \times \eta}{n_2} = \frac{117.1 \times 9.55 \times 0.96}{51\text{min}^{-1}} = 21kNm$$

M_{N2} = required approximate gear unit torque
P_{N1} = required rated gear unit power
n_2 = required output speed

Preselection:

- Torque class 22 kNm, gear unit size X140, vertical drive
- Data from chapter
- Nominal power = P_{N1} = 125 kW
- Nominal gear ratio I_N
- Output speed 1485 min^{-1}
- Thermal power of vertical drive with mounting position M5 at 40°C
  - 88 kW without fan
  - 140 kW with fan

3.3.6 Calculating the peak output torque

The permitted peak output torque $M_{K2\ per}$ is calculated using the nominal gear unit torque M_{N2} determined in step 4 and the factor F_F (→ table "Startup factor " (→ 🗎 55), factor F_F).

$$M_{K2per} = \frac{2 \times M_{N2}}{F_F} = \frac{2 \times 22kNm}{1} = 44kNm$$

$M_{K2\ per}$ = permitted peak output torque
M_{N2} = nominal gear unit torque
n_2 = required output speed

3.3.7 Checking the peak output torque

The peak output torque $M_{K2\ max}$ must not exceed the permitted peak output torque $M_{K2\ per}$!

$M_{k2\ max} \leq M_{k2\ per}$

With

$$M_{K2\max} = M_{K1\max} \times i_{ex} \times \eta = 1.45kNm \times 29.14 \times 0.96 = 40.56kNm$$

$M_{K2\ max}$ = Peak output torque
$M_{K1\ max}$ = maximum input torque
i_{ex} = exact gear unit reduction ratio
η = Efficiency

40.56 kNm < 44 kNm

→ This makes the gear unit size X140 suitable from a mechanical perspective. The thermal limit rating for X140 can be checked in the next step.

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3.3.8 Calculating the thermal rating

$$P_T = P_{TH} \times f_1 \times f_L \times f_T$$

P_T = Current thermal rating of the gear unit
P_{TH} = Thermal rating of the gear unit at defined ambient conditions
f_1 = Altitude factor
f_L = Lubrication factor
f_T = Ambient temperature

According to installation conditions:

- f_1 = 1 since installation altitude < 1000 m above SL
- f_T = 0.65 for oil bath lubrication since ambient temperature is 40 °C and no water cooling cover/cartridge is used.
- f_L = 1.05 since no water cooling cover/cartridge is used.
- Therefore, P_T = 0.68 x P_{TH} whereby P_{TH} without fan = 88 kW and with fan = 140 kW

3.3.9 Checking the thermal rating

The operating power P_{K1} on the HSS must not exceed the thermal rating of the gear unit.

$P_{K1} \leq P_T$

78.1 kW $\leq P_T$

Without a fan, the thermal rating is not sufficiently independent of the lubrication type since P_T = 0.682 x 88 kW = 60 kW. This value is lower than 78.1 kW.

A fan represents a sufficient measure

as P_T = 0.682 x 140 = 95.48 kW > 78.1 kW

Gear unit X3FS140 with i = 29.14 is suitable both from a mechanical and thermal perspective.

3.3.10 Selecting the gear unit accessories

- Oil expansion tank for bath lubrication
- Dual oil seals on output shaft
- Motor adapter for IEC motor 280
- Elastic coupling type ROTEX 65 on input shaft; one hub mounted on gear unit, other hub bored and keywayed for connecting the respective motor.
- Fan in motor adapter

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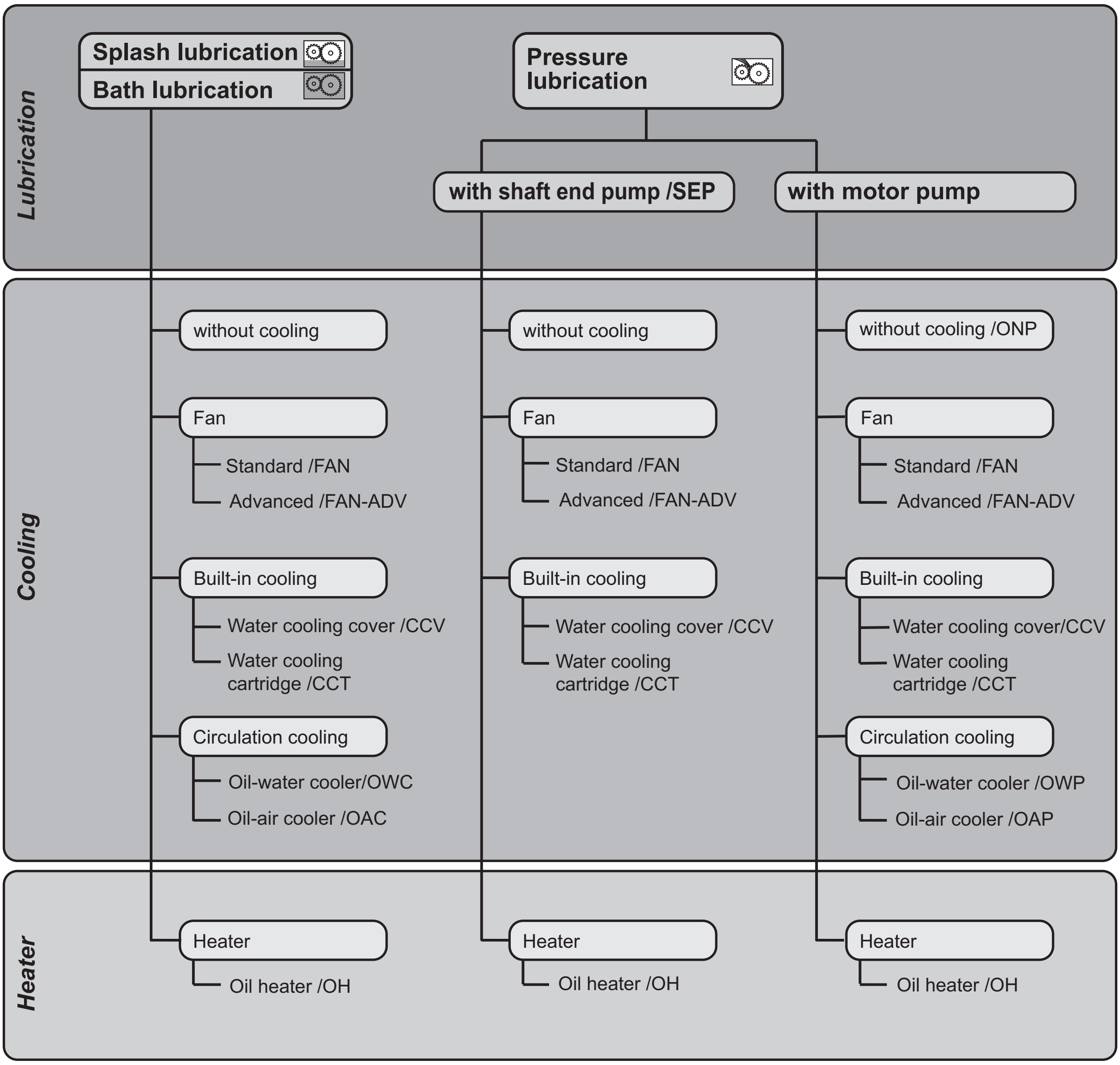
4 Lubrication, cooling, and heating

4.1 Overview of the lubrication and cooling types

The following combinations of lubrication and types of cooling are possible:



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4.2 Lubricant selection / lubricant table

INFORMATION

The oil viscosity and type (mineral/synthetic) to be used are determined by SEW-EURODRIVE specifically for each order. This information is noted in the order confirmation and on the gear unit's nameplate. You must contact SEW-EURODRIVE in case of a deviation from this specification.

4.2.1 General information on selecting the oil

Unless a special arrangement is made, SEW-EURODRIVE delivers the drives without oil fill. This does not apply to auxiliary drives and primary gear units.

INFORMATION

This means the gear unit must be filled with the correct oil grade and quantity before startup. You find the corresponding information on the nameplate of the gear unit.

The following tables provide an overview of mineral and synthetic oils.

Mineral oil

Standards

Lubrication oils are divided into ISO VG viscosity classes according to ISO 3448 and DIN 51519.

ISO class	ISO 6743-6 designation	DIN 51517-3 designation	AGMA 9005-D94 designation
150	ISO-L-CKC 150	DIN 51517-CLP 150	AGMA 4 EP
220	ISO-L-CKC 220	DIN 51517-CLP 220	AGMA 5 EP
320	ISO-L-CKC 320	DIN 51517-CLP 320	AGMA 6 EP
460	ISO-L-CKC 460	DIN 51517-CLP 460	AGMA 7 EP
680	ISO-L-CKC 680	DIN 51517-CLP 680	AGMA 8 EP

Synthetic oil

Standards

Lubrication oils are divided into ISO VG viscosity classes according to ISO 3448 and DIN 51519.

ISO class	ISO 6743-6 designation	DIN 51519 designation	AGMA 9005-D94 designation
150	ISO-L-CKT 150	CLP HC 150	AGMA 4 EP
220	ISO-L-CKT 220	CLP HC 220	AGMA 5 EP
320	ISO-L-CKT 320	CLP HC 320	AGMA 6 EP
460	ISO-L-CKT 460	CLP HC 460	AGMA 7 EP
680	ISO-L-CKT 680	CLP HC 680	AGMA 8 EP

In addition to having the required viscosity, the oil must fulfill the following criteria:

- CLP oils according to DIN 51517-3
- Micro-pitting test according to FVA, FV no. 54/ I-IV, GFT class high, damage force level >10

If synthetic oil is used, SEW-EURODRIVE recommends polyalphaolefin-based oil (CLP HC).

INFORMATION

If required, a cooling system must be used or the oil change interval must be shortened (see chapter "Lubricant change intervals" in the "Helical and Bevel-Helical X.. Series Gear Units" operating instructions).

Observe the operating temperature of the gear unit when specifying the oil change intervals.

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4.2.2 Permitted lubricants

This chapter describes the permitted lubricants and the permitted temperatures for industrial gear units from SEW-EURODRIVE.

INFORMATION

- The standard for viscosity and oil grade is the type of oil that is specified by SEW-EURODRIVE in the order (see order confirmation and nameplate).
- Contact SEW-EURODRIVE if you use bio and food grade lubricants or polyglycol oils.
- Check the compatibility of the greases and oils used.
- The tables contain the lubricants approved by SEW-EURODRIVE.
- Oils of the same viscosity class from different manufacturers do not have the same characteristics. In particular, the minimum permitted oil bath temperatures are manufacturer-specific. These temperatures are specified in the lubricant tables.
- The minimum permitted oil bath temperatures depend on the lubrication type used. These temperatures are specified in the lubricant tables. The values correspond to the maximum viscosity of the individual lubricants.
- The values specified in the lubricant tables apply as of the time of printing of this document. The data of the lubricants are subject to dynamic change on the part of the lubricant manufacturers. For the latest information about the lubricants, visit: www.sew-eurodrive.de/lubricants

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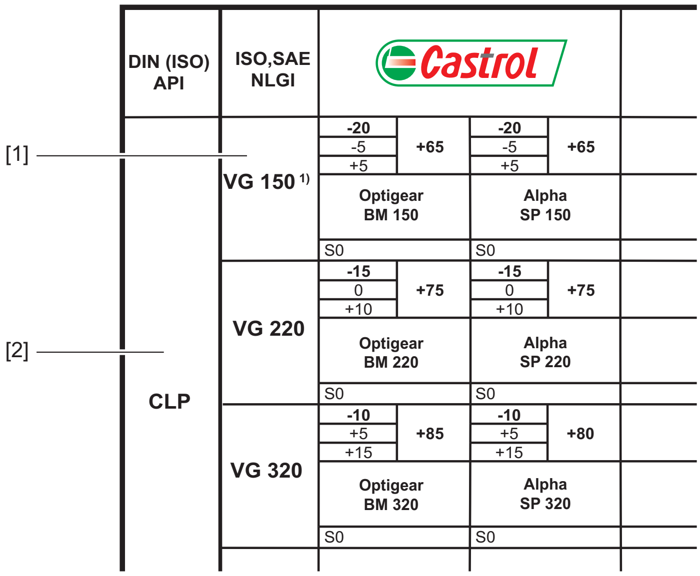
Structure of the tables and abbreviations



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[1] Viscosity class
[2] Lubricant type

Abbreviations

Icons	Designation
CLP	= Mineral oil
CLP HC	= Synthetic polyalphaolefin (PAO)
E	= Ester-based oil
	= Mineral lubricant
	= Synthetic lubricant
	= Lubricant for the food industry (**NSF H1**-compliant)
	= Biodegradable oil (lubricant for agriculture, forestry, and water management)
1)	= Lubricants may only be used if service factor $F_s \geq 1.3$

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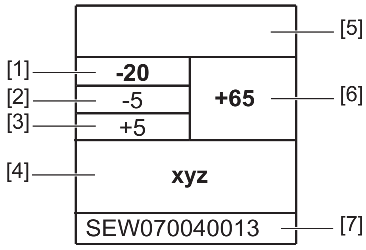
Explanation of the various lubricants



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[1] Lowest cold start temperature in °C for splash lubrication*
[2] Lowest cold start temperature in °C for drives with pumps up to a max. oil viscosity of 5000 cSt*
[3] Lowest cold start temperature in °C for drives with pumps up to a max. oil viscosity of 2000 cSt*
[4] Trade name
[5] Manufacturer
[6] Highest oil bath temperature in °C. MUST NOT BE EXCEEDED.
[7] Approvals

*In case of low temperatures, the oil must be heated to the specified minimum temperature, for example by using an oil heater. The maximally permitted oil viscosity per pump type is specified in the following chapter.

Explanation of the oil supply systems and the oil viscosity

The following pressure lubrications are designed for an oil viscosity of 2000 cSt:

- Motor pump for pressure lubrication /ONP
- Motor pump incl. air cooler for pressure lubrication /OAP
- Motor pump incl. water cooler for pressure lubrication /OWP
- Shaft end pump for pressure lubrication /SEP for agitator gear units HA

Shaft end pumps in HU housing design for the X.. series are exceptions. They are designed for an oil viscosity of 5000 cSt.

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Lubricant tables

The lubricant table is valid when this document is printed. Please refer to www.sew-eurodrive.de/lubricants for the latest version of the table.

DIN (ISO) API	ISO,SAE NLGI	Castrol	Castrol	FUCHS	FUCHS	Mobil®	Mobil®	KLÜBER LUBRICATION	Shell	TEXACO	TOTAL
CLP	VG 150 [1]	-20 -5 +5 +65 Optigear BM 150 S0	-20 -5 +5 +65 Alpha SP 150 S0	-20 -5 +5 +65 Renolin CLP 150 Plus S0	-20 -5 +5 +65 Renolin HighGear 150 S0	-20 -5 +5 +65 Mobilgear 600 XP 150 SEW070030013		-20 -5 +5 +65 Klüberoil GEM 1-150 N S0		-20 -5 +5 +65 Meropa 150 S0	
	VG 220	-15 0 +10 +75 Optigear BM 220 S0	-15 0 +10 +75 Alpha SP 220 S0	-15 0 +10 +75 Renolin CLP 220 Plus S0	-15 0 +10 +75 Renolin HighGear 220 S0	-15 0 +10 +75 Mobilgear 600 XP 220 SEW070030013		-15 0 +10 +75 Klüberoil GEM 1-220 N S0	-15 0 +10 +75 Shell Omala Oil F 220 S0	-15 0 +10 +75 Meropa 220 S0	-15 0 +10 +75 Carter EP 220 S0
	VG 320	-10 +5 +15 +85 Optigear BM 320 S0	-10 +5 +15 +80 Alpha SP 320 S0	-10 +5 +15 +80 Renolin CLP 320 Plus S0	-10 +5 +15 +80 Renolin HighGear 320 S0	-10 +5 +15 +80 Mobilgear 600 XP 320 SEW070030013		-10 +5 +15 +80 Klüberoil GEM 1-320 N S0	-10 +5 +15 +80 Shell Omala Oil F 320 S0	-10 +5 +15 +80 Meropa 320 S0	-10 +5 +15 +80 Carter EP 320 S0
	VG 460	-5 +10 +20 +90 Optigear BM 460 S0	-5 +10 +20 +90 Alpha SP 460 S0	-5 +10 +20 +90 Renolin CLP 460 Plus S0	-5 +10 +20 +90 Renolin HighGear 460 S0	-5 +10 +20 +90 Mobilgear 600 XP 460 SEW070030013		-5 +10 +20 +90 Klüberoil GEM 1-460 N S0	-5 +10 +20 +90 Shell Omala Oil F 460 S0	-5 +10 +20 +90 Meropa 460 S0	-5 +10 +20 +90 Carter EP 460 S0
	VG 680	0 +15 +25 +90 Optigear BM 680 S0	0 +15 +25 +90 Alpha SP 680 S0	0 +15 +25 +90 Renolin CLP 680 Plus S0	0 +15 +25 +90 Renolin HighGear 680 S0	0 +15 +25 +90 Mobilgear 600 XP 680 SEW070030013		0 +15 +25 +90 Klüberoil GEM 1-680 N S0		0 +15 +25 +90 Meropa 680 S0	0 +15 +25 +90 Carter EP 680 S0
	VG 1000	+5 +20 +30 +90 Optigear BM 1000 S0									

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The lubricant table is valid when this document is printed. Please refer to www.sew-eurodrive.de/lubricants for the latest version of the table.

DIN (ISO) API	ISO,SAE NLGI	Castrol	Castrol	Fuchs	Fuchs	Mobil®	Mobil®	Klüber Lubrication	Shell	Texaco	Total
CLP HC	VG 32 [1]					-40 / -30 / -25 / +30 SHC 624 S0					
	VG 68 [1]			-35 / -20 / -10 / +50 Renolin Unisyn CLP 68 S0		-40 / -25 / -15 / +50 SHC 626 S0		-35 / -20 / -10 / +50 Klübersynth GEM 4-68 N S0	-40 / -20 / -10 / +50 Omala S4 GX 68 S0		
	VG 150 [1]	-25 / -10 / 0 / +70 Alphasyn EP 150 S0	-30 / -10 / 0 / +70 Optigear Synthetic X 150 S0	-30 / -10 / +0 / +70 Renolin Unisyn CLP 150 S0		-30 / -10 / 0 / +75 SHC 629 S0	-35 / -15 / -5 / +75 SHC Gear 150 S0	-25 / -10 / 0 / 70 Klübersynth GEM 4-150 N S0	-30 / -10 / 0 / +75 Omala S4 GX 150 S0	-25 / -10 / 0 / +70 Pinnacle EP 150 S0	-35 / -15 / -5 / +75 Carter SH 150 S0
	VG 220	-25 / -5 / +5 / +80 Alphasyn EP 220 S0	-25 / -5 / +5 / +80 Optigear Synthetic X 220 S0	-25 / -5 / +5 / +80 Renolin Unisyn CLP 220 S0	-20 / 0 / +10 / +75 HighGear Synth 220 S0	-25 / -5 / 0 / +85 SHC 630 S0	-30 / -10 / +5 / +85 SHC Gear 220 S0	-25 / -5 / +5 / +80 Klübersynth GEM 4-220 N S0	-25 / -5 / +5 / +85 Omala S4 GX 220 S0	-25 / -5 / +5 / +80 Pinnacle EP 220 S0	-25 / -5 / +5 / +80 Carter SH 220 S0
	VG 320	-20 / 0 / +10 / +90 Alphasyn EP 320 S0	-20 / 0 / +10 / +90 Optigear Synthetic X 320 S0	-20 / 0 / +10 / +90 Renolin Unisyn CLP 320 S0	-15 / 0 / +15 / +85 HighGear Synth 320 S0	-20 / 0 / +10 / +95 SHC 632 S0	-25 / -5 / +10 / +95 SHC Gear 320 S0	-20 / 0 / +10 / +95 Klübersynth GEM 4-320 N S0	-20 / 0 / +10 / +95 Omala S4 GX 320 S0	-20 / 0 / +10 / +90 Pinnacle EP 320 S0	-20 / 0 / +10 / +90 Carter SH 320 S0
	VG 460	-15 / +5 / +15 / +100 Alphasyn EP 460 S0	-15 / +5 / +15 / +100 Optigear Synthetic X 460 S0	-15 / +5 / +15 / +100 Renolin Unisyn CLP 460 S0	-10 / +5 / +20 / +95 HighGear Synth 460 S0	-15 / +5 / +15 / +105 SHC 634 S0	-20 / 0 / +15 / +110 SHC Gear 460 S0	-15 / +5 / +20 / +105 Klübersynth GEM 4-460 N S0	-15 / +5 / +15 / +105 Omala S4 GX 460 S0	-15 / +5 / +15 / +100 Pinnacle EP 460 S0	-15 / +5 / +15 / +100 Carter SH 460 S0
	VG 680		-10 / +10 / +25 / +110 Optigear Synthetic X 680 S0	-10 / +10 / +25 / +110 Renolin Unisyn CLP 680 S0	-5 / +10 / +25 / +110 HighGear Synth 680 S0	-10 / +10 / +25 / +110 SHC 636 S0	-15 / +10 / +25 / +110 SHC Gear 680 S0	-10 / +10 / +25 / +110 Klübersynth GEM 4-680 N S0	-10 / +10 / +25 / +110 Omala S4 GX 680 S0		-10 / +10 / +25 / +110 Carter SH 680 S0
	VG 1000					-10 / +15 / +30 / +110 SHC 639 S0	-10 / +15 / +30 / +110 SHC Gear 1000 S0	0 / +20 / +30 / +110 Klübersynth EG4-1000 S0			

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DIN (ISO) API	ISO,SAE NLGI	Bremer & Leguil	Castrol		Fuchs		Klüber Lubrication
CLP HC NSF H1	VG 68 1)	-35 / -20 / -10 / +45 Cassida Fluid HF 68 S0	-40 / -25 / -15 / +45 Optileb HY 68 S0				-35 / -20 / -10 / +45 Klüberoil 4UH1-68 N S0
	VG 220 1)	-20 / -5 / +5 / +75 Cassida Fluid GL 220 S0	-25 / -5 / +5 / +75 Optileb GT 220 S0				-25 / -5 / +5 / +75 Klüberoil 4UH1-220 N S0
	VG 460 1)	-15 / +5 / +20 / +90 Cassida Fluid GL 460 S0	-15 / +5 / +20 / +95 Optileb GT 460 S0				-15 / +5 / +15 / +95 Klüberoil 4UH1-460 N S0
E	VG 460				-15 / +5 / +15 / +95 Plantogear 460 S S0		-15 / +5 / +15 / +95 Klüberbio CA2-460 S0

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4.2.3 Oil quantities

The following oil quantities apply to gear units with universal housing without bearing housing on the output side (no agitator design with enhanced bearing distance).

For further information on the oil quantities, refer to the technical brochure "Technology for Agitators and Aerators".

The specified oil quantity is a guide value. The precise value varies depending on the gear ratio, the number of stages and the lubrication type. The mark on the oil sight glass, oil level glass and/or oil dipstick is the decisive indicator for the correct oil quantity.

The following quantities apply for gear units with solid shafts. Minimal deviations may apply in the case of gear units with hollow shafts.

Oil quantities for mounting positions M5 and M6

Note that the oil quantity has to be increased by 20% for gear unit combinations with mounting positions M5 or M6, pressure lubrication, and oil heating. Adhere to the information on the nameplate.

X.F..

X2F..[1)]	Oil quantity in liter			X3F..[1)]	Oil quantity in liter			X4F..[1)]	Oil quantity in liter		
	Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell		Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell		Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell
X2F100	33	-	-	X3F100	33	-	-	X4F100	-	-	-
X2F110	34	-	-	X3F110	34	-	-	X4F110	-	-	-
X2F120	48	17	-	X3F120	47	17	-	X4F120	43	17	-
X2F130	52	20	13	X3F130	50	20	15	X4F130	50	18	13
X2F140	79	36	-	X3F140	77	38	-	X4F140	74	25	-
X2F150	84	38	22	X3F150	85	36	24	X4F150	78	26	20
X2F160	157	60	-	X3F160	151	58	-	X4F160	142	44	-
X2F170	157	60	39	X3F170	151	58	38	X4F170	142	44	38
X2F180	185	74	51	X3F180	184	71	54	X4F180	174	66	51
X2F190	190	77	56	X3F190	190	73	56	X4F190	180	68	53
X2F200	255	110	77	X3F200	245	110	71	X4F200	235	105	70
X2F210	255	110	77	X3F210	245	110	72	X4F210	236	105	70
X2F220	340	130	97	X3F220	317	125	95	X4F220	320	155	95
X2F230	340	130	97	X3F230	317	125	95	X4F230	320	155	95
X2F240	415	160	105	X3F240	405	150	113	X4F240	415	190	115
X2F250	415	160	105	X3F250	405	150	113	X4F250	415	190	115
X2F260	-	225	197	X3F260	-	215	188	X4F260	-	255	191
X2F270	-	225	197	X3F270	-	215	188	X4F270	-	255	191
X2F280	-	270	239	X3F280	-	265	235	X4F280	-	310	235
X2F290	-	305	289	X3F290	-	300	280	X4F290	-	395	278
X2F300	-	305	289	X3F300	-	300	280	X4F300	-	395	278
X2F310	-	421	421	X3F310	-	404	404	X4F310	-	520	398
X2F320	-	421	421	X3F320	-	404	404	X4F320	-	520	398

1) In case of EBD design with universal housing, additional oil quantities must be added, as listed in the table "Additional oil quantities for universal housing HU with extended bearing distance (EBD)".

X.K..

X2K..[1)]	Oil quantity in liter			X3K..[1)]	Oil quantity in liter			X4K..[1)]	Oil quantity in liter		
	Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell		Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell		Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell
X2K100	30	-	-	X3K100	34	-	-	X4K100	-	-	-
X2K110	29	-	-	X3K110	34	-	-	X4K110	-	-	-
X2K120	41	17	-	X3K120	46	17	-	X4K120	46	20	-
X2K130	43	17	13	X3K130	52	18	14	X4K130	48	23	13
X2K140	61	26	-	X3K140	80	34	-	X4K140	77	37	-
X2K150	64	27	19	X3K150	81	36	20	X4K150	83	38	20
X2K160	129	50	-	X3K160	143	55	-	X4K160	147	61	-
X2K170	129	50	34	X3K170	143	55	38	X4K170	147	61	38
X2K180	155	62	41	X3K180	177	72	55	X4K180	179	80	55
X2K190	155	62	41	X3K190	182	76	55	X4K190	188	87	55
X2K200	210	87	62	X3K200	242	97	76	X4K200	241	115	76
X2K210	210	87	62	X3K210	245	105	81	X4K210	244	115	76
X2K220	335	135	137	X3K220	320	120	91	X4K220	318	155	95

X2K..[1]	Oil quantity in liter			X3K..[1]	Oil quantity in liter			X4K..[1]	Oil quantity in liter		
	Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell		Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell		Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell
X2K230	335	135	137	X3K230	320	120	91	X4K230	318	155	95
X2K240	410	160	145	X3K240	405	150	99	X4K240	415	177	116
X2K250	410	160	145	X3K250	405	150	99	X4K250	415	177	116
X2K260	-	-	-	X3K260	-	215	190	X4K260	-	280	190
X2K270	-	-	-	X3K270	-	215	190	X4K270	-	280	190
X2K280	-	-	-	X3K280	-	270	241	X4K280	-	350	236
X2K290	-	-	-	X3K290	-	305	287	X4K290	-	420	281
X2K300	-	-	-	X3K300	-	305	287	X4K300	-	420	281
X2K310	-	-	-	X3K310	-	416	416	X4K310	-	560	413
X2K320	-	-	-	X3K320	-	416	416	X4K320	-	560	413

1) In case of EBD design with universal housing, additional oil quantities must be added, as listed in the table "Additional oil quantities for universal housing HU with extended bearing distance (EBD)".

X.T..

X3T..	Oil quantity in liter			X4T..	Oil quantity in liter		
	Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell		Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell
X3T100	36	-	-	X4T100	-	-	-
X3T110	36	-	-	X4T110	-	-	-
X3T120	46	17	-	X4T120	50	18	-
X3T130	47	18	14	X4T130	53	22	14
X3T140	79	32	-	X4T140	79	32	-
X3T150	81	33	20	X4T150	81	33	20
X3T160	139	53	-	X4T160	143	55	-
X3T170	139	53	34	X4T170	143	55	34
X3T180	175	72	52	X4T180	180	82	52
X3T190	175	72	52	X4T190	180	82	52
X3T200	235	97	70	X4T200	240	110	68
X3T210	235	97	70	X4T210	240	110	68
X3T220	305	120	91	X4T220	310	150	94
X3T230	305	120	91	X4T230	310	150	94
X3T240	400	150	112	X4T240	405	190	112
X3T250	400	150	112	X4T250	405	190	112

Oil quantities for mounting position M2

X.F..

X2F..	Oil quantity in liter	X3F..	Oil quantity in liter	X4F..	Oil quantity in liter
	Bath lubrication		Bath lubrication		Bath lubrication
X2F100	23	X3F100	20	X4F100	-
X2F110	23	X3F110	22	X4F110	-
X2F120	33	X3F120	35	X4F120	29
X2F130	36	X3F130	36	X4F130	33
X2F140	58	X3F140	56	X4F140	49
X2F150	58	X3F150	57	X4F150	49
X2F160	101	X3F160	93	X4F160	82
X2F170	101	X3F170	93	X4F170	82
X2F180	125	X3F180	125	X4F180	115
X2F190	125	X3F190	125	X4F190	115
X2F200	164	X3F200	164	X4F200	152

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X2F..	Oil quantity in liter	X3F..	Oil quantity in liter	X4F..	Oil quantity in liter
	Bath lubrication		Bath lubrication		Bath lubrication
X2F210	164	X3F210	164	X4F210	152
X2F220	225	X3F220	207	X4F220	211
X2F230	225	X3F230	207	X4F230	211
X2F240	285	X3F240	270	X4F240	275
X2F250	285	X3F250	270	X4F250	267

X.K..

X2K..	Oil quantity in liter	X3K..	Oil quantity in liter	X4K..	Oil quantity in liter
	Bath lubrication		Bath lubrication		Bath lubrication
X2K100	18	X3K100	22	X4K100	-
X2K110	16	X3K110	19	X4K110	-
X2K120	26	X3K120	32	X4K120	33
X2K130	26	X3K130	32	X4K130	34
X2K140	38	X3K140	49	X4K140	54
X2K150	41	X3K150	49	X4K150	56
X2K160	64	X3K160	87	X4K160	88
X2K170	64	X3K170	87	X4K170	88
X2K180	92	X3K180	120	X4K180	125
X2K190	97	X3K190	122	X4K190	129
X2K200	130	X3K200	160	X4K200	165
X2K210	130	X3K210	160	X4K210	165
X2K220	200	X3K220	205	X4K220	220
X2K230	200	X3K230	205	X4K230	220
X2K240	255	X3K240	270	X4K240	280
X2K250	255	X3K250	270	X4K250	280

X.T..

X3T..	Oil quantity in liter	X4T..	Oil quantity in liter
	Bath lubrication		Bath lubrication
X3T100	19	X4T100	-
X3T110	19	X4T110	-
X3T120	30	X4T120	36
X3T130	31	X4T130	36
X3T140	46	X4T140	55
X3T150	48	X4T150	59
X3T160	80	X4T160	89
X3T170	85	X4T170	94
X3T180	115	X4T180	120
X3T190	115	X4T190	120
X3T200	150	X4T200	155
X3T210	150	X4T210	155
X3T220	205	X4T220	215
X3T230	205	X4T230	215
X3T240	265	X4T240	275
X3T250	265	X4T250	275

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Oil quantities for mounting position M4

X.F..

X2F..	Oil quantity in liter		X3F..	Oil quantity in liter		X4F..	Oil quantity in liter	
	Bath lubrication	Pressure lubrication		Bath lubrication	Pressure lubrication		Bath lubrication	Pressure lubrication
X2F100	20	-	X3F100	26	-	X4F100	-	-
X2F110	23	-	X3F110	27	-	X4F110	-	-
X2F120	36	17	X3F120	37	17	X4F120	34	17
X2F130	37	19	X3F130	40	19	X4F130	40	19
X2F140	55	26	X3F140	65	26	X4F140	59	26
X2F150	62	27	X3F150	69	27	X4F150	59	27
X2F160	106	53	X3F160	120	53	X4F160	127	53
X2F170	106	53	X3F170	120	53	X4F170	127	53
X2F180	133	57	X3F180	155	57	X4F180	152	57
X2F190	135	57	X3F190	157	57	X4F190	152	57
X2F200	180	72	X3F200	197	72	X4F200	197	72
X2F210	180	72	X3F210	197	72	X4F210	197	72
X2F220	223	105	X3F220	263	105	X4F220	270	105
X2F230	223	105	X3F230	263	105	X4F230	270	105
X2F240	290	120	X3F240	335	120	X4F240	345	120
X2F250	290	120	X3F250	335	120	X4F250	345	120
X2F260	655	185	X3F260	630	185	X4F260	645	185
X2F270	655	185	X3F270	630	185	X4F270	645	185
X2F280	785	240	X3F280	775	240	X4F280	770	240
X2F290	955	260	X3F290	925	260	X4F290	940	260
X2F300	955	260	X3F300	925	260	X4F300	940	260
X2F310	1290	365	X3F310	1245	365	X4F310	1225	365
X2F320	1290	365	X3F320	1245	365	X4F320	1225	365

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X.K..

X2K..	Oil quantity in liter		X3K..	Oil quantity in liter		X4K..	Oil quantity in liter	
	Bath lubrication	Pressure lubrication		Bath lubrication	Pressure lubrication		Bath lubrication	Pressure lubrication
X2K100	30	-	X3K100	34	-	X4K100	-	-
X2K110	29	-	X3K110	34	-	X4K110	-	-
X2K120	41	18	X3K120	50	19	X4K120	47	18
X2K130	43	18	X3K130	53	19	X4K130	52	19
X2K140	66	26	X3K140	79	26	X4K140	82	26
X2K150	70	27	X3K150	86	29	X4K150	88	29
X2K160	136	50	X3K160	148	50	X4K160	147	50
X2K170	136	50	X3K170	148	50	X4K170	147	50
X2K180	155	57	X3K180	177	57	X4K180	188	57
X2K190	155	57	X3K190	180	57	X4K190	188	57
X2K200	210	72	X3K200	239	75	X4K200	255	72
X2K210	210	72	X3K210	239	75	X4K210	255	72
X2K220	335	105	X3K220	320	105	X4K220	335	105
X2K230	335	105	X3K230	320	105	X4K230	335	105
X2K240	410	120	X3K240	405	120	X4K240	415	120
X2K250	410	120	X3K250	405	120	X4K250	415	120
X2K260	-	-	X3K260	615	185	X4K260	630	185
X2K270	-	-	X3K270	615	185	X4K270	630	185
X2K280	-	-	X3K280	750	240	X4K280	775	240
X2K290	-	-	X3K290	930	260	X4K290	965	260
X2K300	-	-	X3K300	930	260	X4K300	965	260
X2K310	-	-	X3K310	1250	365	X4K310	1260	365
X2K320	-	-	X3K320	1250	365	X4K320	1260	365

X.T..

X3T..	Oil quantity in liter		X4T..	Oil quantity in liter	
	Bath lubrication	Pressure lubrication		Bath lubrication	Pressure lubrication
X3T100	23	-	X4T100	-	-
X3T110	23	-	X4T110	-	-
X3T120	33	17	X4T120	37	17
X3T130	34	17	X4T130	39	17
X3T140	49	25	X4T140	54	25
X3T150	59	29	X4T150	55	29
X3T160	92	50	X4T160	95	50
X3T170	92	50	X4T170	95	50
X3T180	125	57	X4T180	130	57
X3T190	125	57	X4T190	130	57
X3T200	165	72	X4T200	165	72
X3T210	165	72	X4T210	165	72
X3T220	220	105	X4T220	220	105
X3T230	220	105	X4T230	220	105
X3T240	275	120	X4T240	290	120
X3T250	275	120	X4T250	290	120

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Oil quantities for trolley drives / mounting position M1

X.T..

X3T..	Oil quantity in liter			X4T..	Oil quantity in liter		
	Splash lubrication	Pressure lubrication	Bath lubrication		Splash lubrication	Pressure lubrication	Bath lubrication
X3T100	14	-	-	X4T100	-	-	-
X3T110	15	-	-	X4T110	-	-	-
X3T120	20	-	-	X4T120	20	-	-
X3T130	22	-	-	X4T130	22	-	-
X3T140	32	-	-	X4T140	31	-	-
X3T150	32	-	-	X4T150	34	-	-
X3T160	53	53	-	X4T160	56	56	-
X3T170	53	53	-	X4T170	56	56	-
X3T180	67	67	-	X4T180	77	77	-
X3T190	67	67	-	X4T190	77	77	-
X3T200	87	87	-	X4T200	97	97	-
X3T210	87	87	-	X4T210	97	97	-
X3T220	-	140	305	X4T220	-	210	310
X3T230	-	140	305	X4T230	-	210	310
X3T240	-	170	400	X4T240	-	265	405
X3T250	-	170	400	X4T250	-	265	405

Oil quantities for trolley drives / mounting position M3

X.T..

X3T..	Oil quantity in liter		X4T..	Oil quantity in liter	
	Splash lubrication	Oil bath lubrication		Splash lubrication	Oil bath lubrication
X3T100	-	36	X4T100	-	-
X3T110	-	36	X4T110	-	-
X3T120	-	46	X4T120	-	50
X3T130	-	47	X4T130	-	53
X3T140	-	79	X4T140	-	79
X3T150	-	81	X4T150	-	81
X3T160	-	139	X4T160	-	143
X3T170	-	139	X4T170	-	143
X3T180	-	175	X4T180	-	180
X3T190	-	175	X4T190	-	180
X3T200	-	235	X4T200	-	240
X3T210	-	235	X4T210	-	230
X3T220	120	-	X4T220	145	-
X3T230	120	-	X4T230	145	-
X3T240	155	-	X4T240	180	-
X3T250	155	-	X4T250	180	-

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4.2.4 Sealing greases/rolling bearing greases

The table shows the grease types recommended by SEW-EURODRIVE for operating temperatures from -40 °C to 100 °C.

	Manufacturer	Grease
Default	Fuchs	**Renolit CX TOM 15 OEM**[1)]
	Castrol	Spheerol EPL 2
	Klüber	Petamo GHY 133 N
	Shell	Gadus S2 V220 2
	Texaco	Mulifak EP2
	Total	Multis EP 2
	Bremer & Leguil	Cassida Grease GTS2[1)]
	Fuchs	**Plantogel 2**[1)]

1) Grease used by the factory should be preferred.

INFORMATION

- The greases may only be interchanged within the same group. It is not permitted to mix different groups.
- If a customer wants to use a grease that is not listed in the table, the customer has to make sure that it is suitable for the intended application.

4.3 Accessories

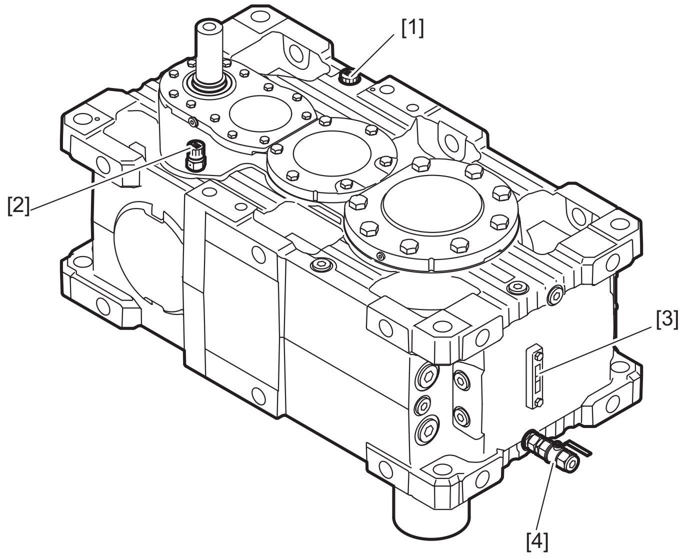
The following section describes the accessories for the several lubrication types.

INFORMATION

The position of the accessories may vary depending on gear unit design and gear unit size. For dimensions of oil dipstick, oil drain valve and oil level glass, refer to chapter Oil drain valve ODV / Oil level glass OLG / Oil dipstick OD [mm].

4.3.1 General accessories

The following figure shows the general accessories.



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[1]	Oil dipstick	[3]	Oil level glass
[2]	Gear unit venting	[4]	Oil drain valve

Visual oil level check

The gear unit includes an oil dipstick as standard.

Gear unit venting

When a gear unit is vented, non-permitted pressures, which arise from heating during operation, are avoided. The gear units are equipped with a high-quality breather filter with a filter mesh of 2 µm as standard.

Oil drain

The gear unit is equipped with an oil drain plug as standard. An optional oil drain valve may be fitted. This allows for a drain line to be easily attached when changing the gear unit oil.

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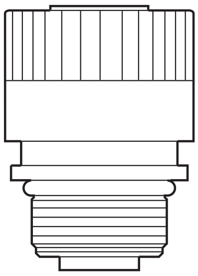
4.3.2 Breather

The following breathers can be used.

Breather (standard)



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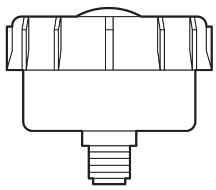
Structure

Housing material	Polyamide
Filter inserts	Polyester filter, not exchangeable
Filter size	2 µm
Threads	3/4" or 1"

Breather with filter insert (manufacturer: MAHLE)



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The breather has the following characteristics:

- Corrosion-resistant
- Robust filter housing
- High dirt-absorbing capacity

Structure

The breather has a corrosion-proof housing with air intake opening at the top. The cover with protection lip keeps splashing water off.

Housing material	Polyamide
Filter inserts	Wire mesh, galvanized
Filter size	10 µm
Threads	3/4" or 1"

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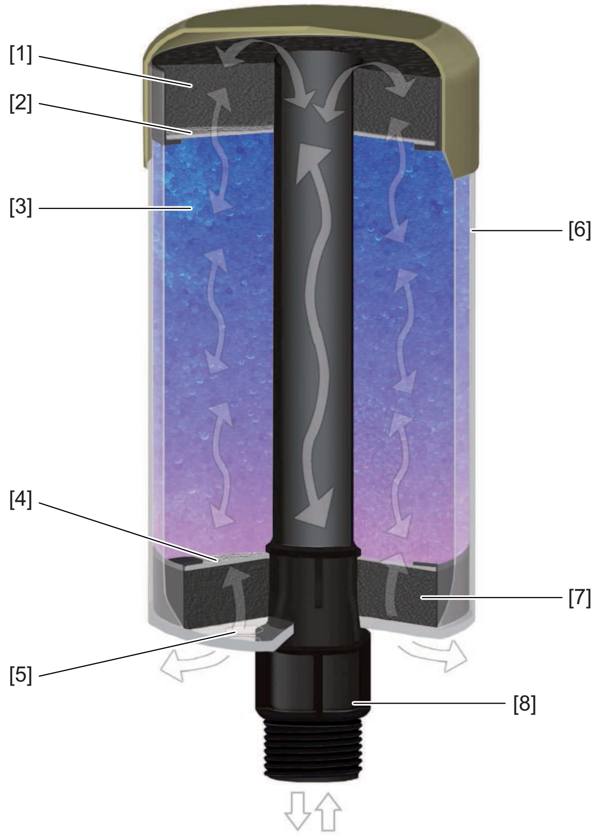
Desiccant breather filter (manufacturer: Des Case)

Structure



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[1]	Foam inlay	Reduces oil mist that comes in contact with silica gel when air escapes and ensures that the escaping air is distributed equally to the filter and the desiccant.
[2]	Filter element	Second polyester filter element that prevents the spreading of desiccant dust. Maximum efficiency due to backwashing.
[3]	Steam absorbent	Silica gel absorbs water of the flowing in air. The desiccant changes its color from blue to pink to indicate the state.
[4]	Filter element	Patented polyester filter element that filters contamination of up to 3 µm (absolute) from the air (74% efficiency at 0.5 µm). Special openings release particles if air escapes extending the service life of the filter.
[5]	Ventilation openings	Individual openings are opened depending on the required air volume in the system. Dimensioned for 20 cfm (0.566438 m). (Unit is inactive due to plug until it is used).
[6]	Loadable polycarbonate housing	Shock-absorbing, transparent casing for reliable operation and easy maintenance.
[7]	Foam inlay	Absorbs oil mist and distributes the flowing in air equally to the filter and desiccant.
[8]	Fastening via thread	Simple replacement of standard filter/breather caps with one or two adapters.

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Standard one-way breather filter

Design	DC-2	DC-3	DC-4
Size (height × diameter in cm)	11.4 × 10.2	16.5 × 10.2	21.6 × 10.2
Filter area (cm^2 per filter)	25.4	25.4	25.4
Amount of silica gel (kg)	0.45	0.68	0.91
Amount of remaining water (l)	0.18	0.27	0.36
Amount of retained water (l)	0.65	1.15	1.6
Operating temperature range (°C)	-50 to +100	+50 to +100	+50 to +100
Max. flow rate (l/mn at 70 mb)	600	600	600
Desiccant	Silica gel	Silica gel	Silica gel
Filtering (µ absolute)	3	3	3
Connection dimension	1'' NPT	1'' NPT	1'' NPT

DES-CASE breather filters comply with the European REACH requirements (valid as of 2007).

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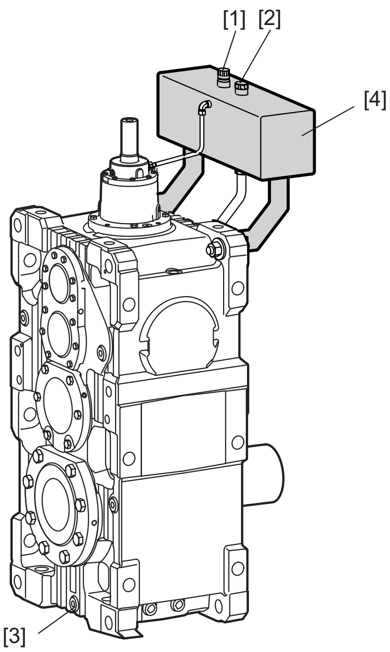
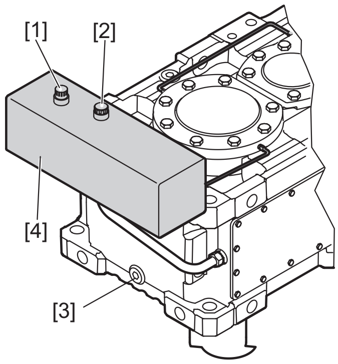
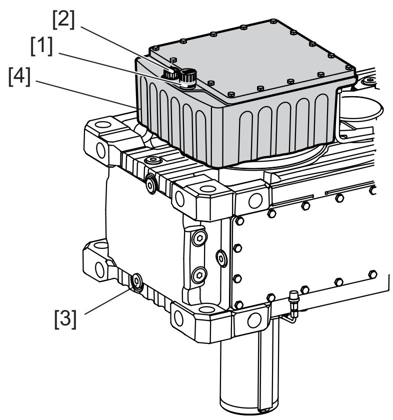
4.3.3 Additional accessories for oil bath lubrication

Oil expansion tank /ET

The oil expansion tank is designed to compensate for oil volume variations in the system caused by temperature fluctuations. When the gear unit temperature increases, the oil expansion tank absorbs some of the increasing oil volume and feeds it back to the gear unit as the temperature goes down, which means the gear unit is always completely filled with oil.

Based on the oil level specified by SEW-EURODRIVE, the oil expansion tank is designed to compensate the oil volume change within the permitted operating temperature range. A temperature decrease below the permitted temperature range causes the oil expansion tank to be completely emptied and air being sucked into the gear unit. This might result in insufficient lubrication and a malfunction of the gear unit. An increase above the permitted temperature range causes an overfilling of the expansion tank and oil might leak from the gear unit. During operation, any oil level below or above the level specified by SEW-EURODRIVE is permitted as long as there is oil in the oil expansion tank and the oil expansion tank does not overflow.

The following figure shows the accessories for mounting positions M4 and M5 by way of example.

Mounting position M4	Mounting position M5	
		

[1]	Breather	[3]	Oil drain
[2]	Oil dipstick	[4]	Oil expansion tank

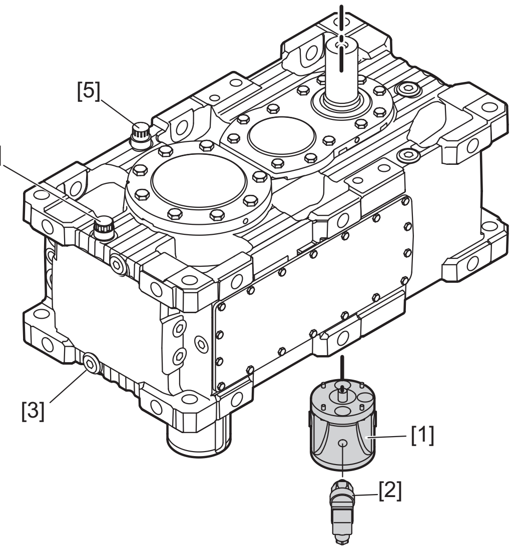
INFORMATION

For dimension sheets of the oil expansion tank, refer to chapter "Oil expansion tank / ET – mounting position M4 [mm]" (→ 🗎 351).

4.3.4 Additional pressure lubrication accessories

Shaft end pump /SEP

The figure shows the accessories for M5 mounting position.



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[1]	Shaft end pump	[4]	Breather
[2]	Pressure switch	[5]	Oil dipstick
[3]	Oil drain		

With pressure lubrication. a shaft end pump (direction-independent) supplies all bearing points and gearing outside the oil sump with oil via a tube system.

The pump is mounted externally to the gear unit and is driven by the input shaft or intermediate shaft of the gear unit via coupling. This ensures a high degree of reliability of the pump functions.

Different pump sizes are available. The adequate flow rate for the specific application depends on the following factors:

- Required oil quantity for supplying lubrication points
- Position of the pump (connected with input shaft or intermediate shaft)
- Gear unit ratio
- Speed range of the gear unit

INFORMATION

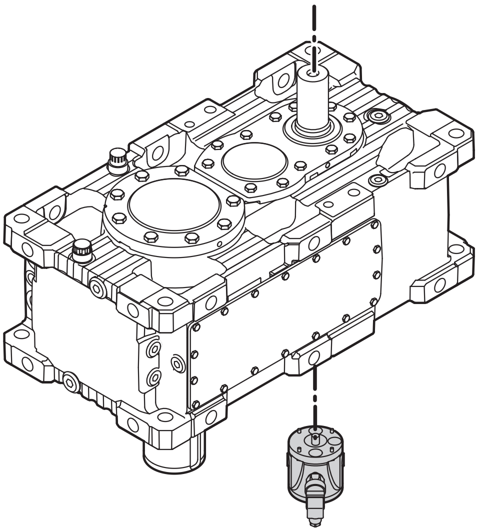
- Proper functioning of the shaft end pump is monitored via the connected pressure switch. Refer to chapter "Pressure switch /PS" (→ 🗎 132) for information.
- With regard to the selection of suitable flow rates, please consult SEW-EURODRIVE. For dimensions, refer to chapter "Shaft end pump /SEP [mm]" (→ 🗎 354).
- A minimum input speed is required for the shaft end pump to operate properly. In case of variable and low input speeds (e.g. with inverter-controlled drives), contact SEW-EURODRIVE.

Position of shaft end pump

X.F..

With helical gear units, the shaft end pump is positioned opposite the input shaft.

Universal housing /HU



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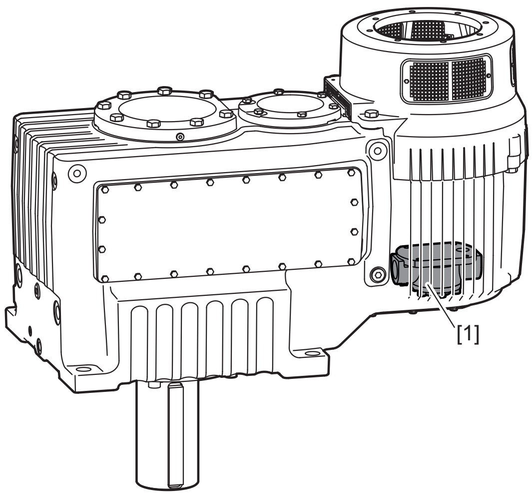
Agitator housing / HA

For further information, refer to the technical brochure "Technology for Agitators and Aerators".

The following figure shows the shaft end pump [1].



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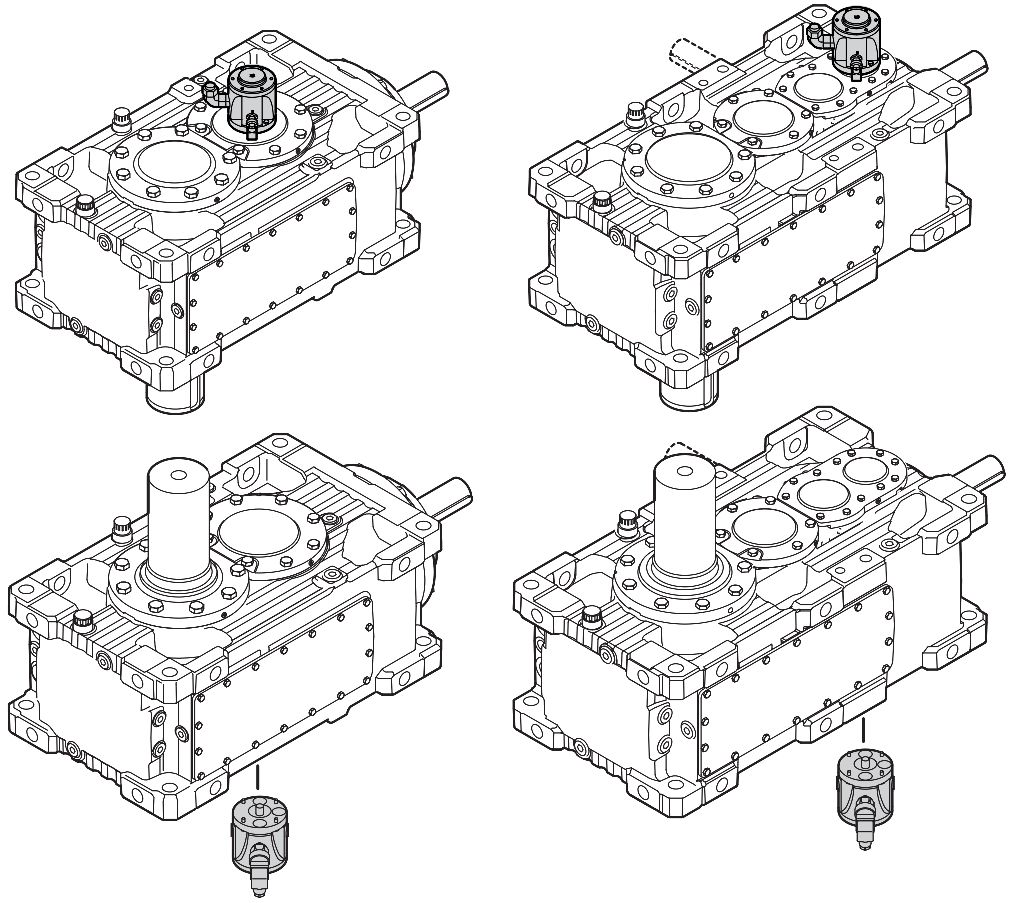
X2K/X4K/X4T

For X2K/X4K/X4T bevel-helical gear units, the shaft end pump is located opposite the output shaft.



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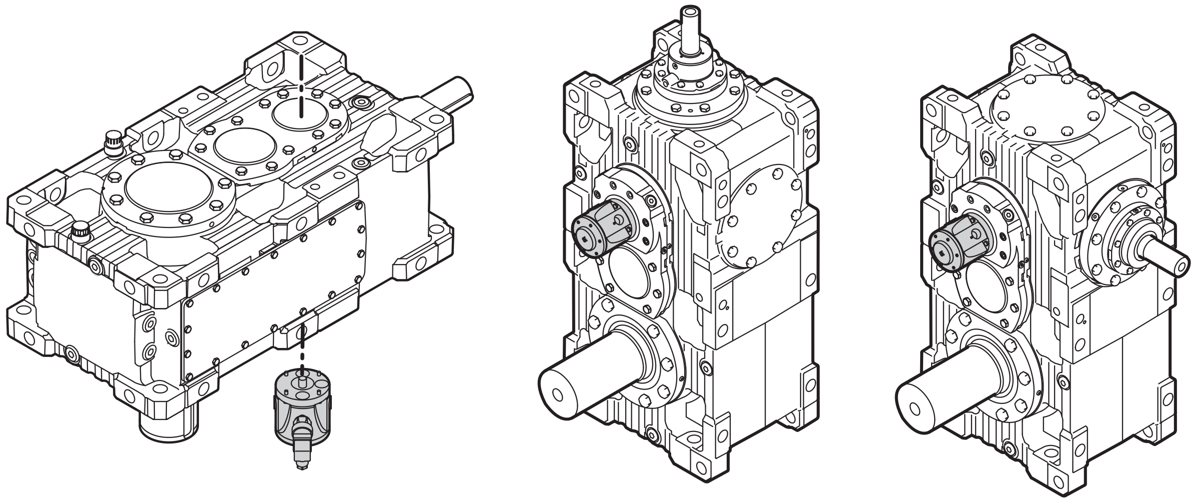
X3K/X3T

For X3K/X3T gear units, the shaft end pump is located on the output shaft side.



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Motor pump /ONP

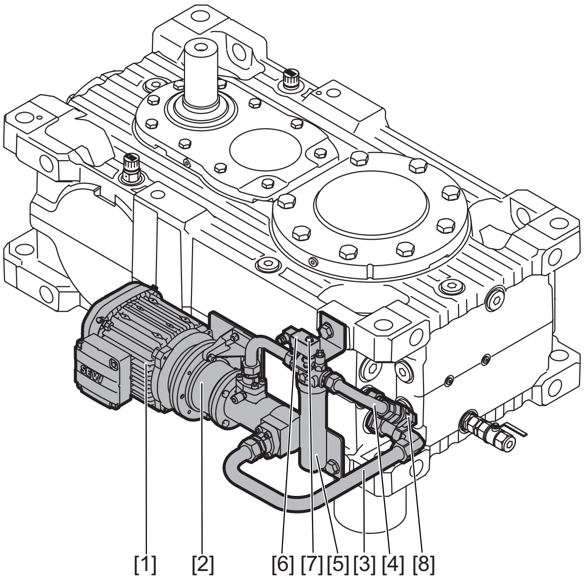
With pressure lubrication, a motor pump supplies all bearing points and gearing above the oil sump with oil via a tube system inside the gear unit.

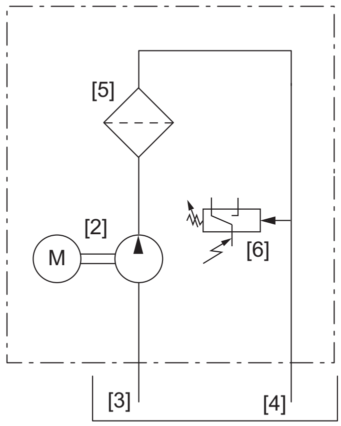
The motor pump is used, for example, when the required speed of the shaft end pump (≤ 400 min^{-1}) is not reached. It is also used in inverter operation where a shaft end pump cannot be used or can only be used under certain circumstances.

The motor pump is mounted externally to the gear unit and is independent from the speed of the gear unit.

Structure

The figure shows an example of a motor pump.





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[1] Motor
[2] Pump
[3] Riser pipe
[4] Pressure line
[5] Oil filter
[6] Pressure switch
[7] Contamination indicator
[8] Check valve

The motor pump is delivered as a complete unit but without electrical connections.

In its basic variant, the scope of the motor pump includes the following components:

- Pump with directly connected asynchronous motor (pump always running)
- Oil filter with filter element and electrical/optical contamination indicator
- Pressure switch that monitors the pump pressure. Warning or switch-off signal when the oil pressure reaches < 0.5 bar
- Option: Temperature switch with trip point for monitoring the cooling group, i.e. warning or gear unit shutdown when the oil temperature exceeds 90 °C

The following motor pump types are available:

- Directly mounted on the gear unit, incl. piping, or
- Mounted on the mounting frame for separate installation, but without piping to gear unit

The customer has to perform the following electrical wiring:

- Pressure switch to the customer's evaluation unit

- Electrical contamination indicator of the oil filter
- Pump motor
- Option: Between temperature switch and pump motor

Gear unit size and selection

The specified delivery rates of the motor pump apply to a line frequency of 50 Hz.

Motor pump	Flow rate Motor pump in l/min	Connected load Pump motor kW
ONP 005	8	0.75
ONP 010	5	0.75
ONP 015	16	1.1
ONP 020	10	1.1
ONP 030	15	1.1
ONP 040	25	1.5
ONP 050	40	2.2
ONP 060	50	3.0

INFORMATION

Motor pumps ONP 005 – 060 are designed for sizes X140 – 320.

The values differ slightly for operation with a line frequency of 60 Hz. Contact SEW-EURODRIVE.

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Installation and connection information for separate installation

The motor pump is mounted directly on the gear unit as standard.

The motor pump can be delivered as a complete unit on a mounting frame for separate installation but without electrical connections and piping. Ensure that the installation site has low vibrations and is a maximum distance of 1 m away from the gear unit. The cooling system must be installed at the same level as the gear unit or lower. If this is not possible, contact SEW-EURODRIVE.

Adhere to the following basic conditions when connecting the motor pump to the gear unit:

- Do not reduce the specified pipe cross sections.
- It is important that you choose the correct wall thickness and material when selecting pipes, hoses and screw fittings. Preferably use composite material seals for screw fittings.

SEW-EURODRIVE recommends the following pipe cross sections for connecting the motor pump to the gear unit:

Motor pump	Pump suction connection	Suction pipe	Pressure connection 1) max.	Pressure pipe2)
ONP 005	GE22-LR 3/4”	DN20 / Ø22	GE18-LR 1/2“	DN16 / Ø18
ONP 010	GE22-LR 1/2”	DN20 / Ø22	GE18-LR 1“	DN16 / Ø18
ONP 015	GE28-LR 1”	DN25 / Ø28	GE22-LR 3/4“	DN20 / Ø22
ONP 020	GE22-LR 1/2”	DN20 / Ø22	GE18-LR 1“	DN16 / Ø18
ONP 030	GE35-LR 1 1/4”	DN32 / Ø35	GE28-LR 1“	DN25 / Ø28
ONP 040	GE35-LR 1 1/4”	DN32 / Ø35	GE28-LR 1“	DN25 / Ø28
ONP 050	GE35-LR 1 1/4”	DN32 / Ø35	GE35-LR 1 1/2"	DN32 / Ø35
ONP 060	GE42-LR 1 1/2”	DN40 / Ø42	GE35-LR 1 1/2“	DN32 / Ø35

1) Max. length 1.5 m
2) Max. length 2.5 m

INFORMATION

For dimension sheets of the motor pump, refer to chapter "Motor pump /ONP..-00/M - [mm]" (→ 🗎 355). Detailed technical data is available from SEW-EURODRIVE on request.

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4

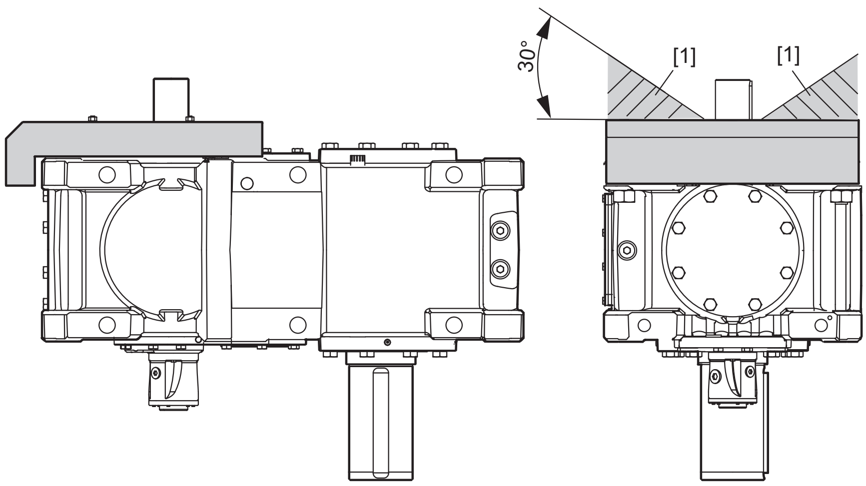
4.4 Cooling

4.4.1 Fan /FAN

Fans with optimized noise and flow engineering geometry are used. A fan may be retrofitted to raise the thermal rating or when the ambient conditions change after gear unit startup. The direction of rotation of the gear unit does not influence the operation of the fan.

SEW-EURODRIVE offers the following inverter types:

X.F.. Fan (standard) /FAN



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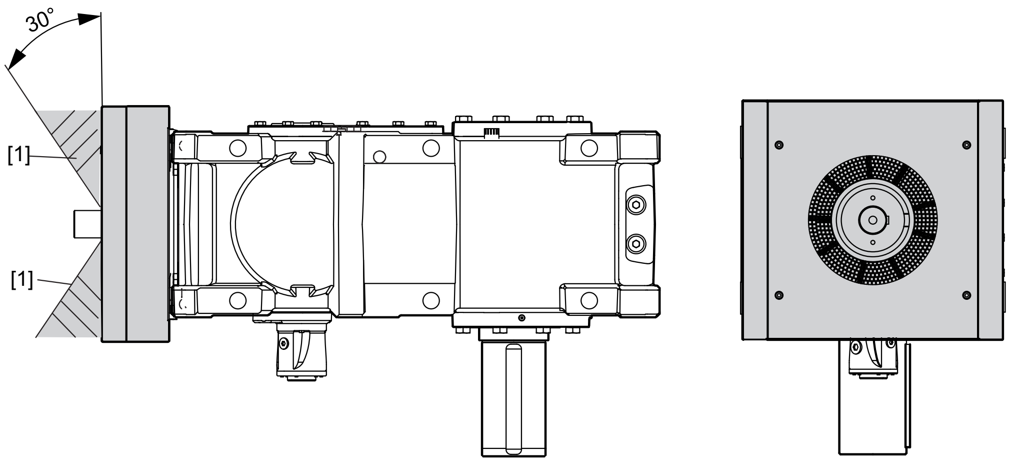
[1] Air intake that must be kept clear

X.K.. Fan (standard) /FAN



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[1] Air intake that must be kept clear

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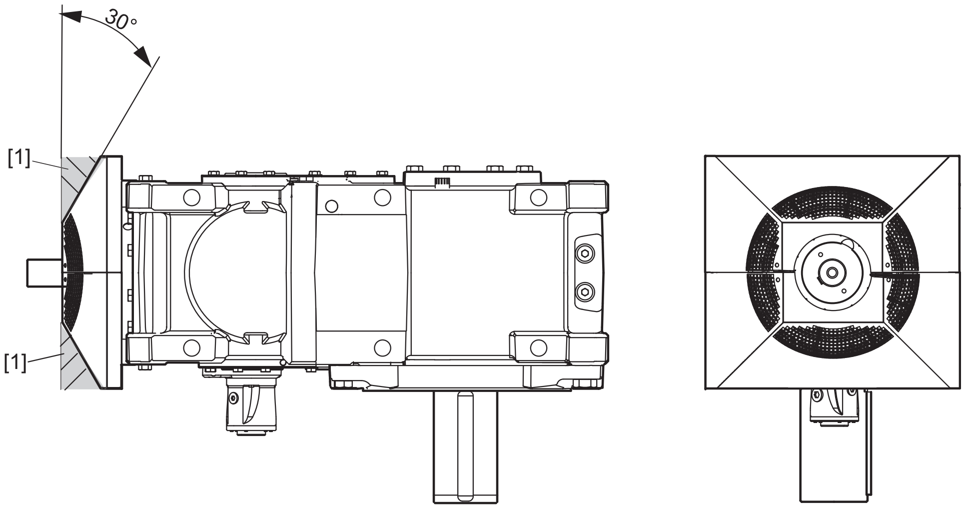
INFORMATION

On request, the fan guard is available flush with the gear unit housing on one side. Please contact SEW-EURODRIVE if required. Observe the associated restriction of the thermal rating.

X3K.. Advanced (option) /FAN-ADV

When using the type X3K.. Advanced, the connection element (such as hydraulic centrifugal coupling) can be mounted flush to the fan guard.

The air intake clearance is integrated into the fan guard.



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[1] Air intake that must be kept clear

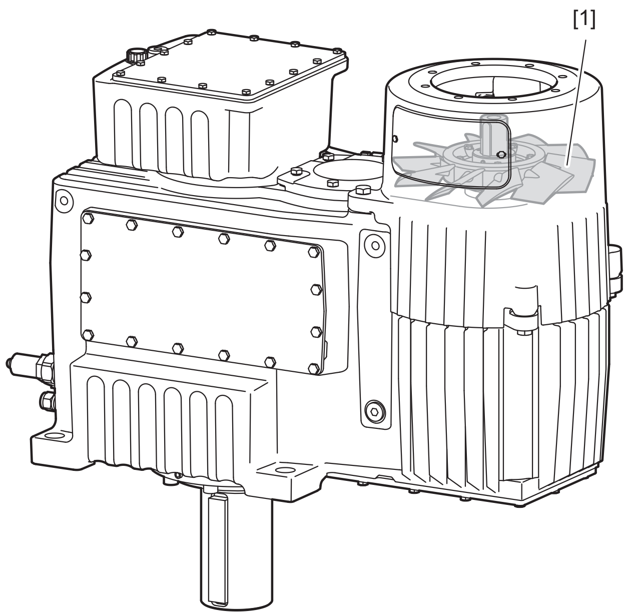
INFORMATION

The fan type X3K.. Advanced cannot be used with a torque arm because the fan guard is mounted on the stop point of the torque arm.

Agitator housing /HA

The following figure shows the axial fan [1] as an example.

For further information, refer to the technical brochure "Technology for Agitators and Aerators".



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4

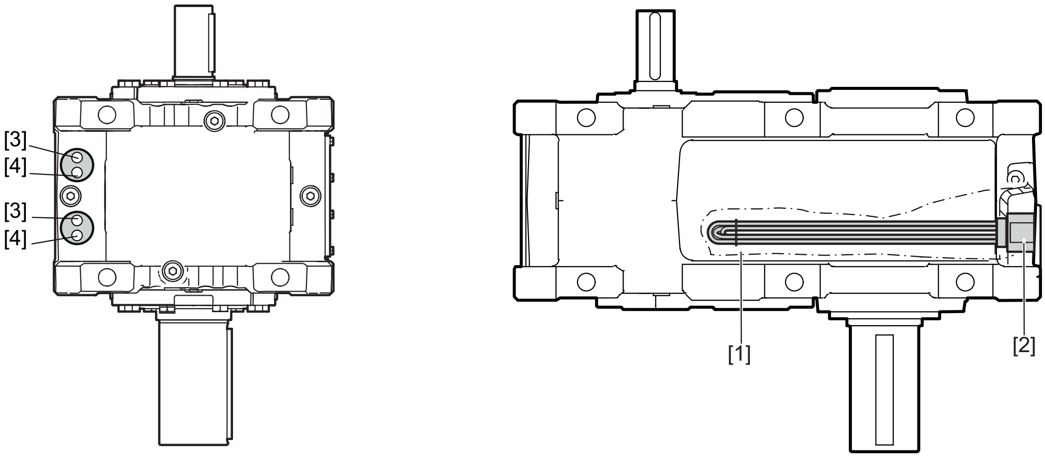
4.4.2 Built-in cooling, water cooling cartridge /CCT

The water cooling cartridge is mounted in the oil sump of the gear unit and is supplied with cooling water through a water connection that is provided by the user. It is available for sizes **X140 to 320**. For information on connection dimensions, refer to chapter "Water cooling cover, water cooling cartridge and oil heater [mm]" (→ 🗎 375).

The amount of heat that can be dissipated depends on the intake temperature and the flow rate of the cooling medium that flows through the unit. The permitted thermal rating is listed in the selection tables in chapter "Selection tables" (→ 🗎 147).

Structure

The figure shows an example of a gear unit with water cooling cartridge.



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[1] Cooling pipes
[2] Connection piece
[3] Supply
[4] Return

The water cooling cartridge consists of 3 main parts:

- Cooling pipes (CuNi alloy)
- Tube plate (brass)
- Connection piece (brass; gray cast iron; steel)

For connection to the cooling circuit, the following 2 bores with

- pipe thread G1/4" for sizes X140 – 170
- pipe thread G1/2" for sizes X180 – 320

are available. The piping is not included in the delivery.

Gear units with water cooling cartridge are delivered completely assembled.

Water cooling cartridges can be retrofitted to a certain extent. Contact SEW-EURODRIVE.

INFORMATION

- For gear unit sizes 140, 160, 180, 200, 220, 240, 260, 290, 310, the water cooling cartridge option comprises two cartridges as standard; for sizes 150, 170, 190, 210, 230, 250, 270, 280, 300, 320, it comprises one cartridge.
- The possible use as well as the maximum number of water cooling cartridges depends among others on the size, mounting position, end gear position, and lubrication type. Not all combinations of accessory options might be possible depending on the mounting position and mounting surface. Contact SEW-EURODRIVE.

Notes on connection and operation

To achieve the thermal rating specified in the selection tables in chapter "Selection tables" (→ 🗎 147), different cooling water volumes are necessary depending on gear unit size, mounting position, and lubrication type. By way of example, the following table lists the approximate values for the volume flow required for the M5 mounting position (water inflow temperature 15°C).

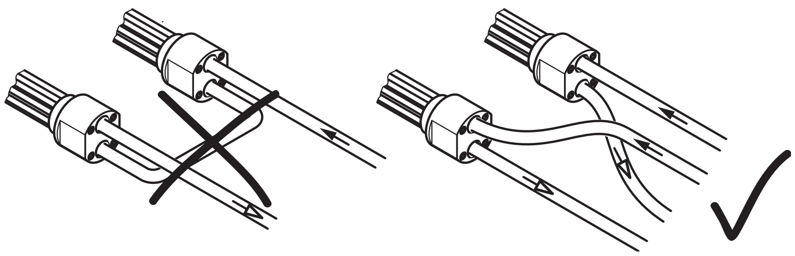
INFORMATION

Contact SEW-EURODRIVE when using another cooling water flow rate, another cooling water temperature, special cooling media (the cooling capacity of the water cooling cartridge changes), aggressive cooling media, such as brackish water or salt water.

Size	Cooling water flow rate l/min per water cooling cartridge			Max. cooling water flow rate l/min
	2-stage	3-stage	4-stage	
X140 – 150	10	8	3	15
X160 – 170	12	10	4	
X180 – 190	16	13	5	28
X200 – 210	19	15	6	
X220 – 230	23	19	8	
X240 – 250	24	21	9	
X260 – 270	17	16	6	25
X280 – 300	18	18	7	
X310 – 320	22	22	9	

The cooling circuit must be connected in parallel for gear units with 2 water cooling cartridges.

The table lists the cooling water volume flow for one water cooling cartridge. Twice the cooling water volume flow is required when using 2 water cooling cartridges.



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Requirements on the water quality

INFORMATION

Special measures have to be taken when using sea water or brackish water. Contact SEW-EURODRIVE.

The following requirements on the water quality are recommendations. In exceptional cases, certain concentrations of substances of content might cause unforeseen reactions.

The quality of the water as well as its substances are important factors for assessing the cooling water available for water cooling cartridges. The water quality is determined by the water hardness and the pH value of the water.

Water hardness

Water hardness is defined by the amount of hardeners (carbonates and bicarbonates) in the water. Hardeners accumulate on the surface of the water cooling cartridge in particular at high temperatures and in this way impair the performance. Take these deposits into account when selecting the water cooling cartridge for extremely hard water.

The following table shows the classification of German degrees of hardness to water quality °dH:

Degree of hardness[1]	Water quality
0 – 5 °dH	Very soft water
5 – 10 °dH	Soft water
10 – 20 °dH	Medium hard water
20 – 30 °dH	Hard water
> 30 °dH	Very hard water

1) 10 mg/l of hardener corresponds to 1 °dH

pH value

- The water cooling cartridge partially consists of a copper and nickel alloy, to which the following applies:

  → Corrosion problems when **pH value < 6**
- With alkaline water:

  → Corrosion problems when **water hardness < 6°dH**

  Smaller values can cause corrosion due to free carbonic acid.

  The following table describes the classification of the water quality based on the pH value:

pH Value	Water quality
4.5	Very acidic
4.5 – 6.0	Acidic
6.0 – 6.8	Slightly acidic
7.0	Neutral
7.2 – 7.7	Slightly alkaline
7.7 – 8.2	Alkaline
8.2	Very alkaline

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Cooling water assessment based on water substances

The following table provides an overview of the resistance of copper-nickel pipes against substances in non-potable water.

Assessment criterion	Approximate concentration mg/l	Evaluation CuNi10Fe1Mn
pH value	< 6	0
	6 to 9	+
	> 9	0
Chloride	up to 1000	+
	> 1000	+ (< 25000 mg/l)
Sulfate	up to 70	+
	70 to 300	+
	> 300	+ (< 25000 mg/l)
Nitrate	up to 100	+
	> 100	0
Free (aggressive) carbonic acid	up to 20	+
	20 to 50	0
	> 50	–
Oxygen	up to 2	+
	> 2	+
Ammonium	up to 2	+
	2 to 20	+
	> 20	–
Iron (dissolved)	up to 10	0
	> 10	–
Manganese (dissolved)	up to 1	0
	> 1	–
Free chlorine	up to 5	permanently < 0.5 mg/l
	> 5	intermittently < 3.0 mg/l
Sulfide		0
Ammonia		+ (< 15 mg/l)

Key

+	= usually good resistivity
0	= corrosion problems can occur in particular if several factors are assessed with 0
–	= we advise against use

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Types of cooling water/characteristics

Note the following conditions:

Industrial water

- Usually untreated water (no drinking water)
- Often very contaminated
- A water analysis is necessary for assessment
- Copper, brass and steel are very resistant against industrial water

Stream water and river water

- We recommend using copper brass pipes
- Cast iron parts must be protected against corrosion by suitable coating
- Usually untreated water (no drinking water)
- Often very contaminated
- A water analysis is necessary for assessment

4.4.3 Circulation cooling oil-water cooler for splash lubrication /OWC

An oil-water cooling system can be used if the thermal rating of the naturally cooled gear unit or cooling using a fan on the input shaft is not sufficient. The prerequisite for using an oil-water cooling system is that appropriate cooling water is available on-site.

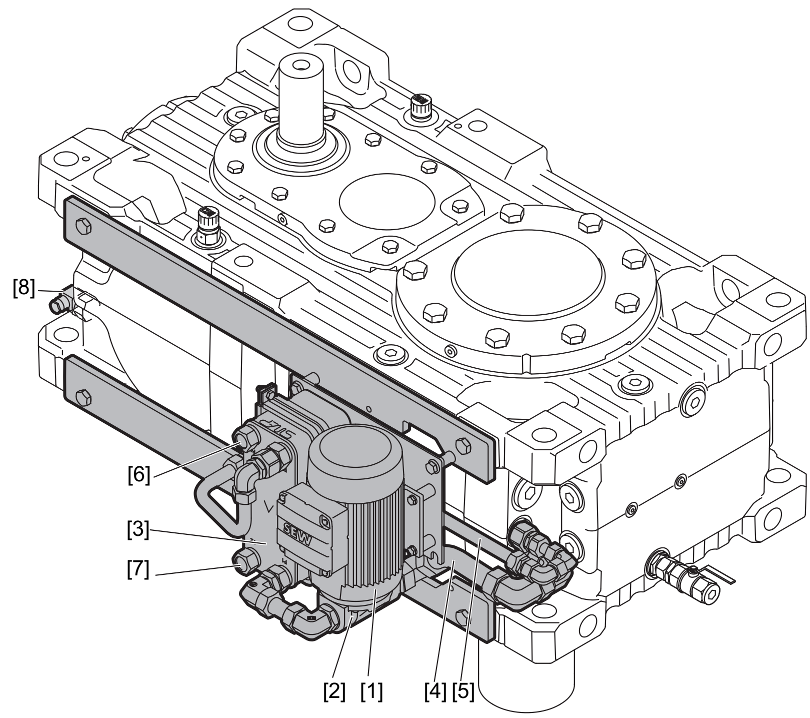
INFORMATION

- Contact SEW-EURODRIVE if you use chemically aggressive cooling media such as brackish water or salt water.
- The following information applies for gear units with splash lubrication. The cooling system with motor pump only cools the gear unit oil.
- When installing a filter in the oil-water cooling system, make sure there is sufficient height for removing the filter element and the filter hood.
- In case of gear units in mounting position M5 with bath lubrication and oil-water cooling system, an oil expansion tank is always mounted also.

Structure

SEW-EURODRIVE uses 2 different types of heat exchangers:

- For **sizes X140 – 170**, a plate heat exchanger is used for oil supply systems OWC 005/015/025.



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[1] Motor
[2] Pump
[3] Oil-water heat exchanger
[4] Suction pipe
[5] Pressure pipe
[6] Water supply
[7] Water return
[8] Temperature switch

- For **gear unit sizes X180 – 320**, a shell and tube heat exchanger is used for oil supply systems /OWC 10/20/30/40/50/60/70.

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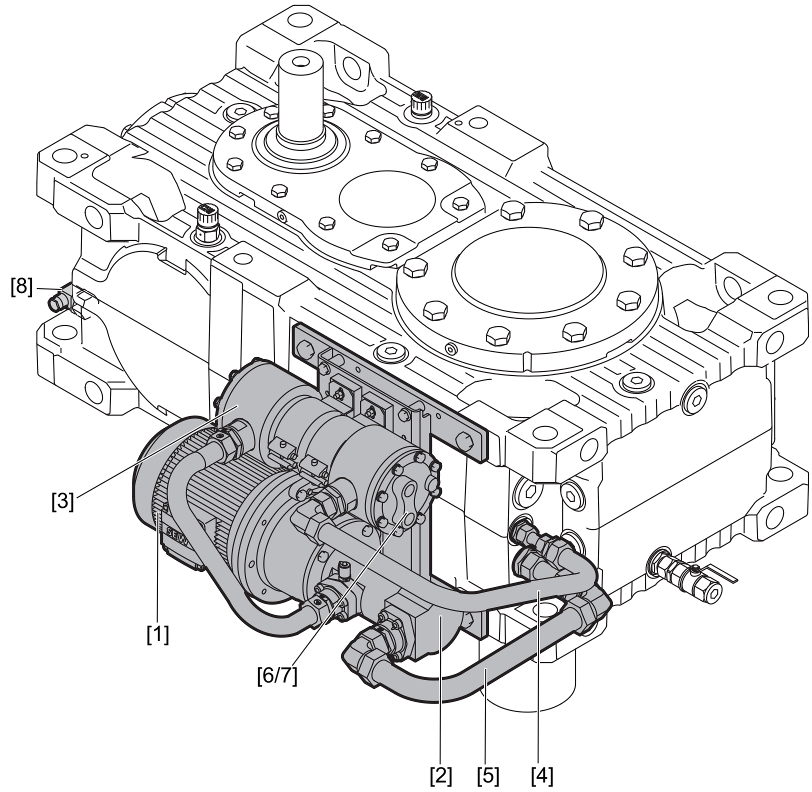

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[1]	Motor	[5]	Pressure pipe
[2]	Pump	[6]	Water supply
[3]	Oil-water heat exchanger	[7]	Water return
[4]	Suction pipe	[8]	Temperature switch

The cooling system is delivered as a complete unit but without electrical wiring.

The standard delivery of the basic cooling system includes:

- Pump with directly mounted asynchronous motor
- Oil-water heat exchanger
- Temperature switch with 2 switching points for
  - Controlled startup of the pump motor at an oil temperature > 60°C
  - Monitoring of the cooling group, i.e. warning or gear unit shutdown when the oil temperature exceeds 90°C

The following cooling system types are available:

- Directly mounted on the gear unit, incl. cooling circuit piping, or
- On the mounting frame, for separate mounting, but without piping to the gear unit

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The customer has to perform the following electrical wiring:

- Between temperature switch and pump motor
- Pump motor

Sizes, cooling capacity and selection

The cooling capacity values given in the table apply to a cooling water temperature of 30 °C, an oil temperature of 70 °C, equivalent volume flow of oil and cooling water, mineral oil CLP-CC-320, and 50 Hz line frequency.

Cooling system size	Cooling capacity of the cooling system kW	Oil flow rate of the cooling system l/min	Connected load pump motor kW	Weight[1)] kg
OWC 005[2)]	4	8	0.75	23
OWC 010	5	10	0.75	36
OWC 015[2)]	9	16	1.1	28
OWC 020	10	21	1.1	57
OWC 025[2)]	11	29	1.5	31
OWC 030	14	28	1.5	57
OWC 040	24	53	2.2	85
OWC 050	30	77	3.0	88
OWC 060	49	91	4.0	132
OWC 070	76	136	5.5	139

1) The cooling system is mounted on the gear unit
2) Cooling system with plate heat exchanger

INFORMATION

- Cooling systems OWC 005 – 070 are designed for sizes X140 – 320.
- The values differ slightly for operation with a line frequency of 60 Hz. Contact SEW-EURODRIVE.

For information on how to select the proper cooling system, refer to chapter "Step 8: Checking the thermal rating" (→ 🗎 58).

In addition, the selection of an appropriate cooling system depends on the following factors:

- Actual power loss to be cooled
- The current cooling water temperature and volume flow
- Ambient temperature
- Ratio of oil quantity in the gear unit to oil volume flow of cooling system > 2

INFORMATION

Contact SEW-EURODRIVE when selecting the appropriate cooling system based on the ambient conditions present for your system.

Installation and connection information for separate installation

The cooling system is mounted directly on the gear unit as standard.

Optionally, the cooling system can be delivered as a complete unit on a mounting frame for separate mounting but without electrical wiring and piping. Ensure that the installation site has low vibrations and is a maximum distance of 1 m away from the gear unit. Install the cooling system at the same level as the gear unit or lower. If this is not possible, contact SEW-EURODRIVE.

Adhere to the following basic conditions when connecting the cooling system to the gear unit:

- Do not reduce the specified pipe cross sections.
- It is important that you choose the correct wall thickness and material when selecting pipes, hoses and screw fittings. Preferably use composite material seals for screw fittings.

SEW-EURODRIVE recommends the following cable cross sections for connecting the cooling system to the gear unit and the cooling circuit:

Size Cooling system	Pump suction connection	Suction pipe[1]	Pressure connection	Pressure pipe[2]	Cooling water connection of cooler	Inner Ø of the cooling water line
OWC 005	GE22-LR 3/4”	DN20 / Ø22	GE18-LR 1/2“	DN16 / Ø18	G3/4"	Ø25
OWC 010	GE22-LR 1/2”	DN20 / Ø22	GE18-LR 1/2“	DN16 / Ø18	G1/2“	Ø13
OWC 015	GE28-LR 1”	DN25 / Ø28	GE22-LR 3/4“	DN20 / Ø22	G3/4"	Ø25
OWC 020	GE35-LR 1 1/4”	DN32 / Ø35	GE28-LR 1“	DN25 / Ø28	G1/2"	Ø19
OWC 025	GE35-LR 1 1/4”	DN32 / Ø35	GE28-LR 1 1/4“	DN25 / Ø28	G3/4"	Ø25
OWC 030	GE35-LR 1 1/4”	DN32 / Ø35	GE28-LR 1“	DN25 / Ø28	G1"	Ø25
OWC 040	GE42-LR 1 1/2”	DN40 / Ø42	GE35-LR 1 1/2“	DN32 / Ø35	G3/4"	Ø25
OWC 050	GE42-LR 1 1/2”	DN40 / Ø42	GE35-LR 1 1/2“	DN32 / Ø35	G1 1/4"	Ø32
OWC 060	SAE 2" SFL	DN50 / Ø2"	GE42-LR 1 1/2”	DN40 / Ø42	G1 1/2"	Ø38
OWC 070	SAE 2 1/2“ SFL	DN50 / Ø2"	GE42-LR 1 1/2”	DN40 / Ø42	G1"	Ø38

1) Max. length 1.5 m
2) Max. length 2.5 m

INFORMATION

- For dimension sheets of the oil-water cooler with motor pump, refer to chapter "Oil-water cooler /OWC..-00/M [mm]" (→ 🗎 363). Further details on the technical data of the several cooling systems are available from SEW-EURODRIVE on request.
- Dimensions for OWC 005/015/025 cooling systems for separate installation are available from SEW-EURODRIVE on request.

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4.4.4 Circulation cooling oil-water cooler for pressure lubrication /OWP

An oil-water cooling system can be used if the thermal rating of the naturally cooled gear unit or cooling using a fan on the input shaft is not sufficient. The prerequisite for using an oil-water cooling system is that appropriate cooling water is available on site.

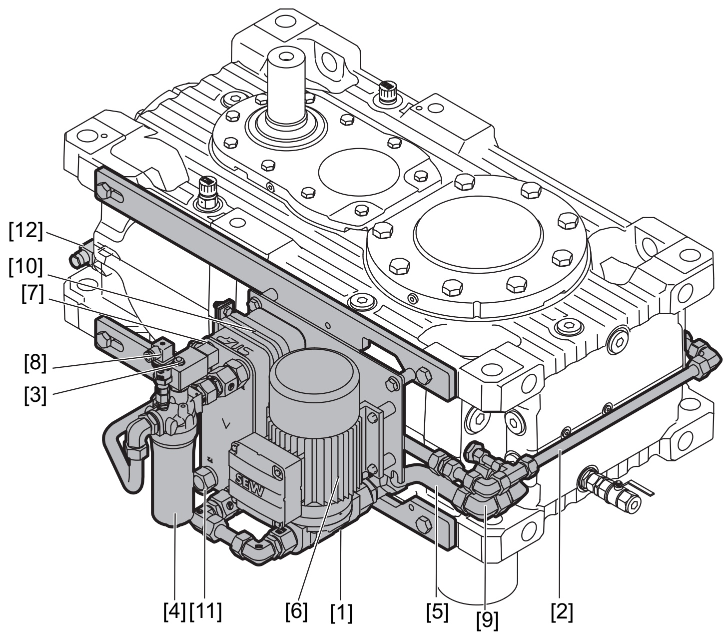
INFORMATION

- Contact SEW-EURODRIVE if you use chemically aggressive cooling media such as brackish water or salt water.
- The cooling system with motor pump cools the gear unit oil and the pressure lubrication of the gear unit.
- When installing a filter in the OWP cooling system, make sure there is sufficient height for removing the filter element and the filter hood.
- In case of gear units in mounting position M5 with bath lubrication and oil-water cooling system, an oil expansion tank is always mounted also.

Structure

SEW-EURODRIVE uses 2 different types of heat exchangers:

- For sizes **X140 – 170**, a plate heat exchanger is used for oil supply systems OWP 005/015/025.



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[1]	Motor	[7]	Oil-water heat exchanger
[2]	Pressure pipe	[8]	Pressure switch
[3]	Contamination indicator	[9]	Check valve
[4]	Oil filter	[10]	Cooling water inflow
[5]	Suction pipe	[11]	Cooling water return
[6]	Pump	[12]	Temperature switch

- For **gear unit sizes X180 – 320**, a shell and tube heat exchanger is used for oil supply systems /OWP 10/20/30/40/50/60/70.

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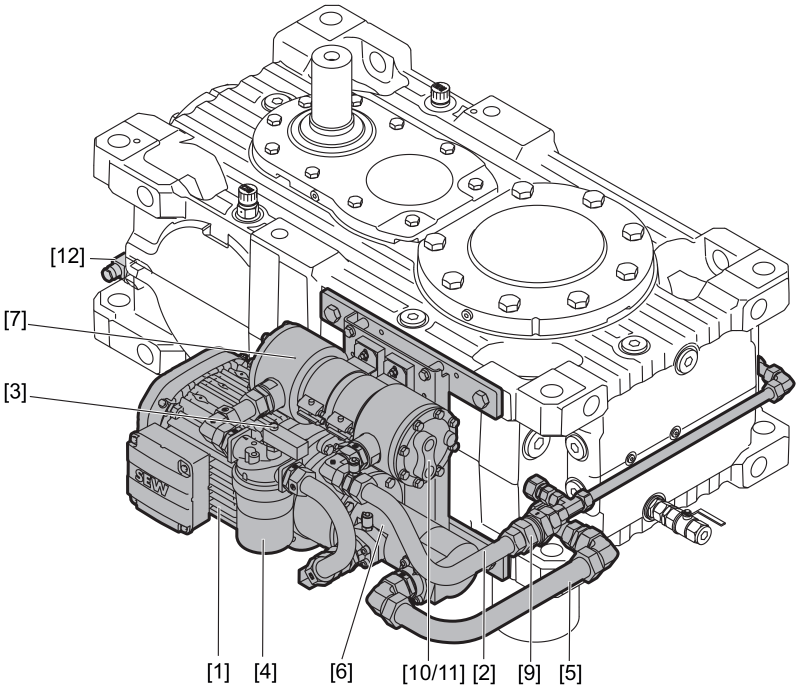

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[1]	Motor	[7]	Oil-water heat exchanger
[2]	Pressure pipe	[8]	Pressure switch (not visible in this view)
[3]	Contamination indicator	[9]	Check valve
[4]	Oil filter	[10]	Cooling water inflow
[5]	Suction pipe	[11]	Cooling water return
[6]	Pump	[12]	Temperature switch

The cooling system is delivered as a complete unit but without electrical wiring.

The standard delivery of the basic cooling system includes:

- Pump with directly connected asynchronous motor (pump always running)
- Oil-water heat exchanger
- Oil filter with filter element and electrical/optical contamination indicator
- Pressure switch that monitors the pump pressure. Warning or switch-off signal when the oil pressure reaches < 0.5 bar
- Option: Temperature switch with trip point for monitoring the cooling group, i.e. warning or gear unit shutdown when the oil temperature exceeds 90°C

The following cooling system types are available:

- Directly mounted on the gear unit, incl. cooling circuit piping, or
- On the mounting frame, for separate mounting, but without piping to the gear unit

The customer has to carry out the following electrical wiring:

- Pressure switch to the customer's evaluation unit
- Electrical contamination indicator of the oil filter
- Pump motor
- Option: Between temperature switch and pump motor

Further instrumentation available on request, such as:

- Flow monitoring
- Thermostatic valve in the oil or water circuit

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- Manometer
- Thermometer

Sizes, cooling capacity and selection

The performance data of the standardized cooling systems is summarized in the following tables.

The cooling capacity values given in the table apply to a cooling water temperature of 30 °C, an oil temperature of 70 °C, equivalent volume flow of oil and cooling water, mineral oil CLP-CC-320, and 50 Hz line frequency.

Cooling system size	Cooling capacity of the cooling system kW	Oil flow rate of the cooling system l/min	Connected load pump motor kW	Weight[1] kg
OWP 005[2]	4	8	0.75	25
OWP 010	5	10	0.75	38
OWP 015[2]	9	16	1.1	30
OWP 020	10	21	1.1	59
OWP 025[2]	11	29	1.5	33
OWP 030	14	28	1.5	59
OWP 040	24	53	3.0	87
OWP 050	30	77	4.0	90
OWP 060	49	91	5.5	134
OWP 070	76	136	7.5	141

1) The cooling system is mounted on the gear unit
2) Cooling system with plate heat exchanger

INFORMATION

- Cooling systems OWP 005 – 070 are designed for sizes X140 – 320.
- The values differ slightly for operation with a line frequency of 60 Hz. Contact SEW-EURODRIVE.

For information on how to select the proper cooling system, refer to chapter "Step 8: Checking the thermal rating" (→ 🗎 58).

In addition, the selection of an appropriate cooling system depends on the following factors:

- Actual power loss to be cooled
- The current cooling water temperature and volume flow
- Ambient temperature
- Ratio of oil quantity in the gear unit to oil volume flow of cooling system > 2

INFORMATION

Contact SEW-EURODRIVE when selecting the appropriate cooling system based on the ambient conditions present for your system.

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Installation and connection information for separate installation

The cooling system is mounted directly on the gear unit as standard.

Optionally, the cooling system can be delivered as a complete unit on a mounting frame for separate mounting but without electrical wiring and piping. Ensure that the installation site has low vibrations and is a maximum distance of 1 m away from the gear unit. Install the cooling system at the same level as the gear unit or lower. If this is not possible, contact SEW-EURODRIVE.

Adhere to the following basic conditions when connecting the cooling system to the gear unit:

- Do not reduce the specified pipe cross sections.
- It is important that you choose the correct wall thickness and material when selecting pipes, hoses and screw fittings. Preferably use composite material seals for screw fittings.

SEW-EURODRIVE recommends the following cable cross sections for connecting the cooling system to the gear unit and the cooling circuit:

Size Cooling system	Pump suction connection	Suction pipe[1)]	Pressure connection	Pressure pipe[2)]	Cooling water connection of cooler	Inner Ø of the cooling water line
OWP 005	GE22-LR 3/4”	DN20 / Ø22	GE18-LR 1/2"	DN16 / Ø18	G3/4"	Ø25
OWP 010	GE22-LR 1/2”	DN20 / Ø22	GE18-LR 1/2“	DN16 / Ø18	G1/2“	Ø13
OWP 015	GE28-LR 1”	DN25 / Ø28	GE22-LR 3/4“	DN20 / Ø22	G3/4"	Ø25
OWP 020	GE35-LR 1 1/4”	DN32 / Ø35	GE28-LR 1“	DN25 / Ø28	G1/2"	Ø19
OWP 025	GE35-LR 1 1/4”	DN32 / Ø35	GE28-LR 1“	DN25 / Ø28	G3/4"	Ø25
OWP 030	GE35-LR 1 1/4”	DN32 / Ø35	GE28-LR 1“	DN25 / Ø28	G1"	Ø25
OWP 040	GE42-LR 1 1/2”	DN40 / Ø42	GE35-LR 1 1/2“	DN32 / Ø35	G3/4"	Ø25
OWP 050	GE42-LR 1 1/2”	DN40 / Ø42	GE35-LR 1 1/2“	DN32 / Ø35	G1 1/4"	Ø32
OWP 060	SAE 2" SFL	DN50 / Ø2"	GE42-LR 1 1/2”	DN40 / Ø42	G1 1/2"	Ø38
OWP 070	SAE 2 1/2“ SFL	DN50 / Ø2"	GE42-LR 1 1/2”	DN40 / Ø42	G1"	Ø38

1) Max. length 1.5 m
2) Max. length 2.5 m

INFORMATION

- For dimension sheets of the oil-water cooler with motor pump, refer to chapter "Oil-water cooler /OWP..-00/M [mm]" (→ 🗎 368). Detailed technical data on the various cooling systems is available from SEW-EURODRIVE on request.
- Dimensions for OWP 005/015/025 cooling systems for separate installation are available from SEW-EURODRIVE on request.

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4.4.5 Circulation cooling oil-air cooler for splash lubrication /OAC

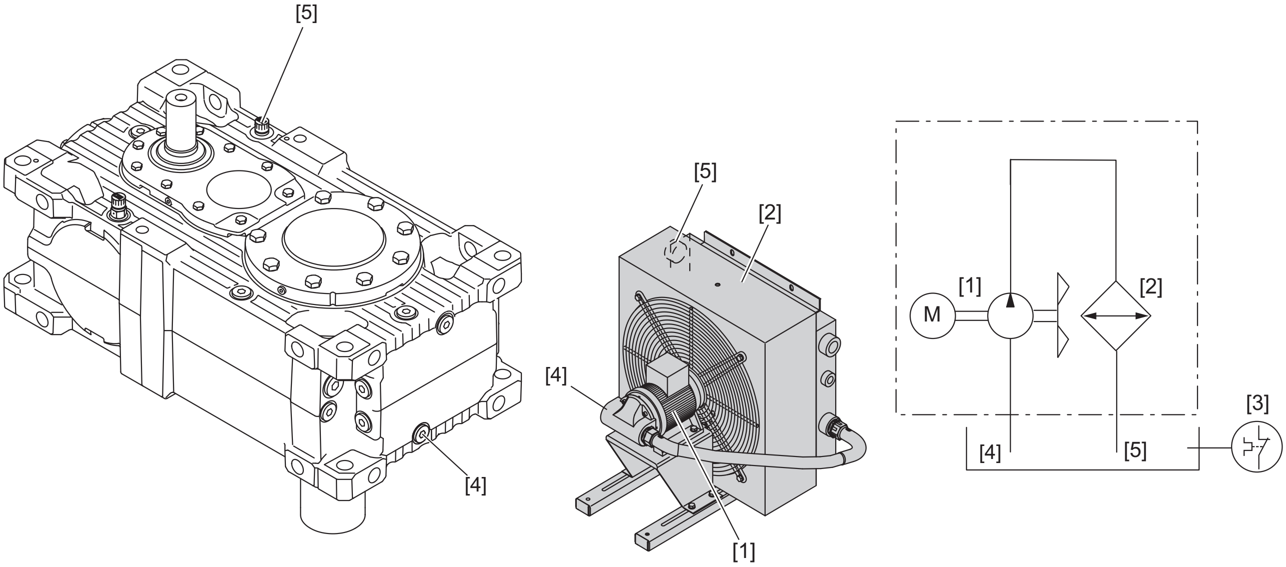
An oil-air cooling system can be used if the thermal rating of the naturally cooled gear unit or cooling using a fan on the input shaft is not sufficient.

INFORMATION

The following information applies for gear units with splash lubrication. The cooling system with a motor pump only cools the gear unit oil.

Structure

The figure shows an example of an oil-air cooler with motor pump for splash lubrication.



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[1] Motor pump
[2] Oil-air heat exchanger
[3] Temperature switch with two switching points
[4] Suction line connection
[5] Pressure line connection

The cooling system is delivered as a complete unit on a mounting frame but without electrical wiring and piping.

The standard design of the basic cooling system comprises:

- Pump with directly mounted asynchronous motor
- Oil-air heat exchanger
- Temperature switch with two switching points for
  - Controlled startup of the pump and fan motor at an oil temperature > 60°C
  - Monitoring of the cooling group, i.e. warning or gear unit shutdown when the oil temperature exceeds 90°C
- Separate fan motor (for OAC 025/060)

The customer has to perform the following electrical wiring:

- Between the temperature switch, pump motor, and fan motor
- Pump motor and fan motor
- Separate fan motor (for OAC 025/060)

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Sizes, cooling capacity and selection

The performance data of the standardized cooling systems is summarized in the following table.

The specified cooling capacity levels apply to an air temperature of 40 °C, an oil temperature of 70 °C, mineral oil CLP-CC-320, and a line frequency of 50 Hz.

Cooling system size	Cooling capacity of the cooling system kW	Oil flow rate of the cooling system l/min	Connected load pump motor kW	Weight kg
OAC 005	4	15	0.75	38
OAC 010	7	28	0.75	38
OAC 020	9	28	0.75	43
OAC 025	11	28	0.75	71
OAC 030	14	58	2.2	71
OAC 040	19	58	2.2	86
OAC 050	33	58	3	118
OAC 060	53	158	7.5	234

INFORMATION

- Cooling systems OAC 005 – 060 are designed for sizes X140 – 320.
- The values differ slightly for operation with a line frequency of 60 Hz. Contact SEW-EURODRIVE.

For information on how to select the proper cooling system, refer to chapter "Step 8: Checking the thermal rating" (→ 🗎 58).

In addition, the selection of an appropriate cooling system depends on the following factors:

- Actual power loss to be cooled
- Present volume flow
- Ambient temperature
- Ratio of oil quantity in the gear unit to oil volume flow of cooling system > 2

INFORMATION

Contact SEW-EURODRIVE when selecting the appropriate cooling system based on the ambient conditions present for your system.

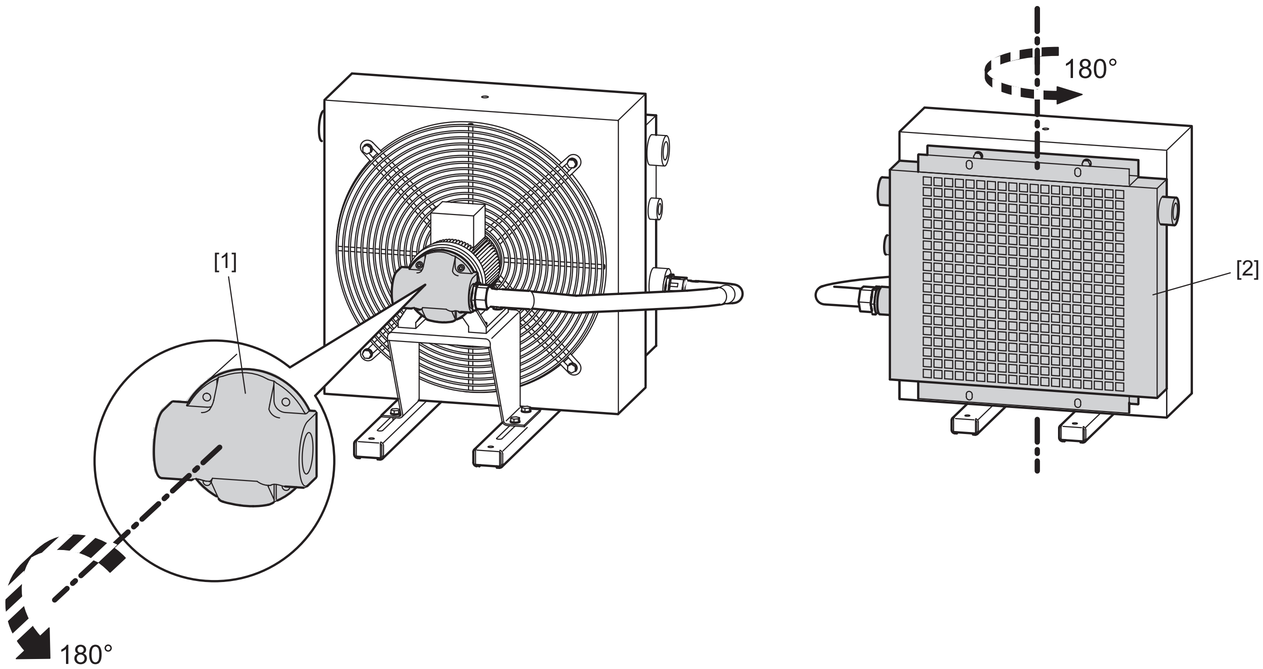
Installation and connection information

Ensure that the installation site has low vibrations and is a maximum distance of 1 m away from the gear unit. The cooling system must be installed at the same level as the gear unit or lower. If this is not possible, contact SEW-EURODRIVE.

The cooler must be installed in such a way that input and output air can flow unobstructedly. Sufficient ventilation and protection against contamination must be ensured. Adhere to the following basic conditions when connecting the cooling system to the gear unit:

- Avoid a short circuit in the cooling circuit. The suction and pressure lines must be installed on the gear unit as far apart as possible.
- Do not reduce the specified pipe cross sections.
- It is important that you choose the correct wall thickness and material when selecting pipes, hoses and screw fittings. Preferably use composite material seals for screw fittings.

The oil-air cooling system is delivered in the design as illustrated as standard. The connections of the cooling system are on the left-hand side. Suction and pressure connections should point towards the gear unit to avoid extensive pipe lengths. If required, the suction and pressure connection can be moved to the opposite side of the system. To do so, loosen the pump head [1] and the register [2], rotate them by 180° and re-attach them.



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SEW-EURODRIVE recommends the following cable cross sections for connecting the cooling system to the gear unit:

Size Cooling system	Pump suction connection	Suction line1)	Cooler pressure connection	Pressure line2)
OAC 005	G 1 1/4"	DN32	G 1"	DN25
OAC 010	G 1 1/4"	DN32	G 1"	DN25
OAC 020	G 1 1/4"	DN32	G 1"	DN25
OAC 025	G 1 1/4"	DN32	G 1"	DN25
OAC 030	G 1 1/2"	DN40	G 1"	DN32
OAC 040	G 1 1/2"	DN40	G 1 1/4"	DN32
OAC 050	G 1 1/2"	DN40	G 1 1/4"	DN32

Size Cooling system	Pump suction connection	Suction line[1]	Cooler pressure connection	Pressure line[2]
OAC 060	SAE 2 1/2"	DN50	G 1 1/2"	DN40

1) Max. length 1.5 m
2) Max. length 2.5 m

INFORMATION

- The cooler must be installed in such a way that the input and output air flow is not obstructed. You have to provide for sufficient ventilation and protection against dirt.
- For the dimensions of the oil-air cooler with motor pump, refer to chapter "Oil-air cooler /OAC..-00/S [mm]" (→ 🗎 373). Detailed technical data on the various cooling systems is available from SEW-EURODRIVE on request.
- Dimensions for OAC 005/025 cooling systems are available from SEW-EURODRIVE on request.

4.4.6 Circulation cooling oil-air cooler for pressure lubrication /OAP

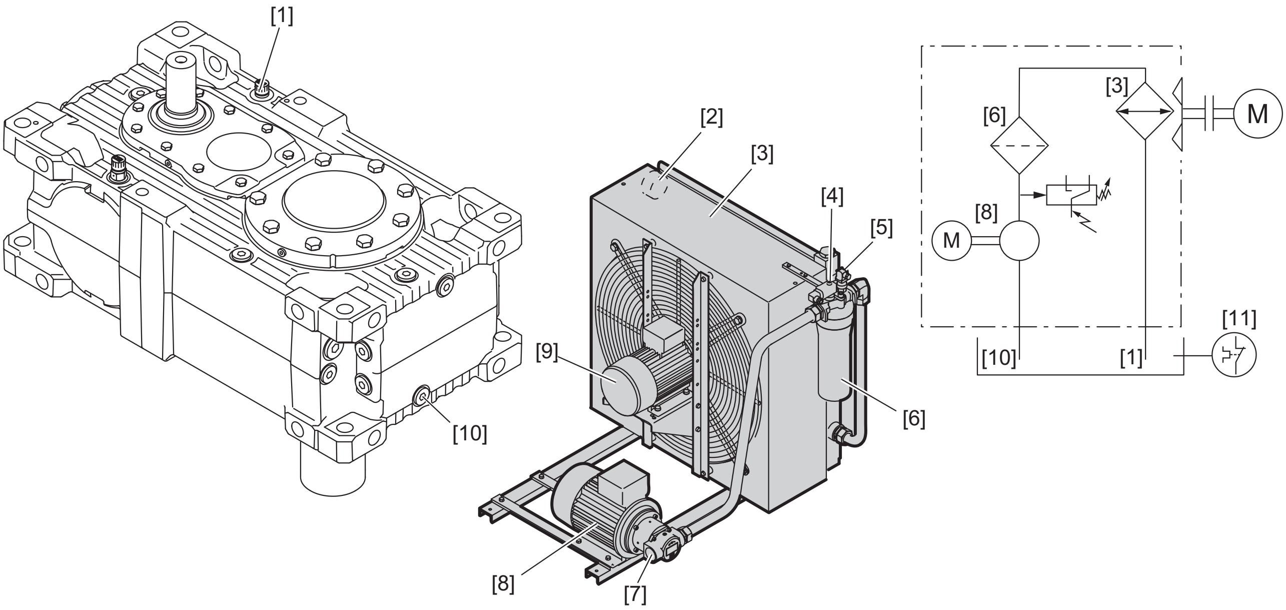
An oil-air cooling system can be used if the thermal rating of the naturally cooled gear unit or cooling using a fan on the input shaft is not sufficient.

INFORMATION

The following information applies for gear units with pressure lubrication. The cooling system with motor pump cools the gear unit oil and provides the pressure lubrication.

Structure

The figure shows an example of an oil-air cooler with motor pump for pressure lubrication.



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[1] Pressure line connection	[7] Suction line connection
[2] Pressure line connection	[8] Motor pump
[3] Oil-air heat exchanger	[9] Fan motor
[4] Contamination indicator	[10] Suction line connections
[5] Pressure switch	[11] Temperature switch with two switching points
[6] Oil filter	

The cooling system is delivered as a complete unit on a mounting frame but without electrical wiring and piping.

The standard design of the basic cooling system comprises:

- Pump with directly mounted asynchronous motor
- Oil-air heat exchanger
- Oil filter with filter element and electrical/optical contamination indicator
- Pressure switch that monitors the pump pressure. Warning or switch-off signal when the oil pressure is < 0.5 bar
- Temperature switch with two switching points for
  - Controlled startup of the fan motor with an oil temperature > 60°C
  - Monitoring of the cooling group, i.e. warning or gear unit shutdown when the oil temperature exceeds 90°C

The customer has to perform the following electrical wiring:

- Between temperature switch and cooling system
- Electrical contamination indicator of the oil filter
- Pressure switch

Further instrumentation available on request, such as:

- Flow monitoring
- Manometer
- Thermometer

Sizes, cooling capacity and selection

The specified cooling capacity levels apply to an air temperature of 40 °C, an oil temperature of 70 °C, mineral oil CLP-CC-320, and a line frequency of 50 Hz.

Cooling system size	Cooling capacity of the cooling system kW	Oil flow rate of the cooling system l/min	Connected load pump motor kW	Weight kg
OAP 005	4	15	1.1	58
OAP 010	7	28	1.5	58
OAP 020	9	28	1.5	64
OAP 025	11	28	1.5	96
OAP 030	14	58	4	96
OAP 040	20	58	4	126
OAP 050	31	58	6	128
OAP 060	53	158	7.5	230

INFORMATION

- Cooling systems OAP 005 – 060 are designed for sizes X140 – 320.
- The values differ slightly for operation with a line frequency of 60 Hz. Contact SEW-EURODRIVE.

For information on how to select the proper cooling system, refer to chapter "Step 8: Checking the thermal rating" (→ 🗎 58).

In addition, the selection of an appropriate cooling system depends on the following factors:

- Actual power loss to be cooled
- Present volume flow
- Ambient temperature
- Ratio of oil quantity in the gear unit to oil volume flow of cooling system > 2

INFORMATION

Contact SEW-EURODRIVE when selecting the appropriate cooling system based on the ambient conditions present for your system.

Installation and connection information

The cooling system and the gear unit have to be set up separately as standard. As an option, the cooling system can be mounted to the gear unit as a complete unit. In this case, the cooling system is delivered with piping but without wiring.

Ensure that the installation site has low vibrations and is a maximum distance of 1 m away from the gear unit. Install the cooling system at the same level or lower than the gear unit. If this is not possible, contact SEW-EURODRIVE.

The cooler must be installed in such a way that input and output air can flow unobstructedly. Sufficient ventilation and protection against contamination must be ensured.

Adhere to the following basic conditions when connecting the cooling system to the gear unit:

- Do not reduce the indicated cable cross-section.
- It is important that you choose the correct wall thickness and material when selecting pipes, hoses and screw fittings. Preferably use composite material seals for screw fittings.

SEW-EURODRIVE recommends the following cable cross sections for connecting the cooling system to the gear unit and the cooling circuit:

Size Cooling system	Pump suction connection	Suction line[1)]	Pressure connection	Pressure line[2)]
OAP 005	G 1 1/4"	DN32	G 1"	DN25
OAP 010	G 1 1/4"	DN32	G 1"	DN25
OAP 020	G 1 1/4"	DN32	G 1"	DN25
OAP 025	G 1 1/4"	DN32	G 1"	DN25
OAP 030	G 1 1/2"	DN40	G 1"	DN32
OAP 040	G 1 1/2"	DN40	G 1 1/4"	DN32
OAP 050	G 1 1/2"	DN40	G 1 1/4"	DN32
OAP 060	SAE 2 1/2"	DN50	G 1 1/2"	DN40

1) Max. length 1.5 m
2) Max. length 2.5 m

INFORMATION

- The cooler must be installed in such a way that the input and output air flow is not obstructed. You have to provide for sufficient ventilation and protection against dirt.
- For the dimensions of the oil-air cooler with motor pump, refer to chapter "Oil-air cooler /OAP..00/S [mm]" (→ 🗎 374). Detailed technical data on the various cooling systems is available from SEW-EURODRIVE on request.
- Dimensions for OAP 005/025 cooling systems are available from SEW-EURODRIVE on request.

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4.5 Oil heater /OH

An oil heater is required to ensure lubrication during a cold gear unit startup when the ambient temperature is low.

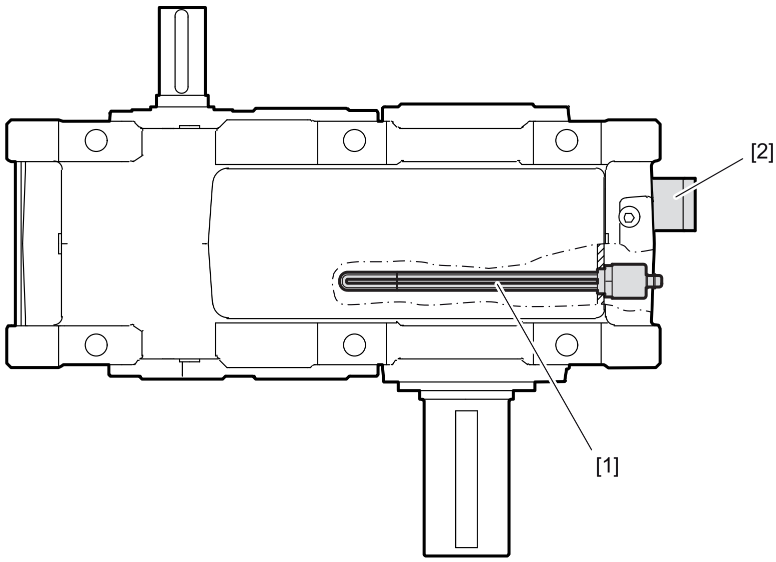
For cold start of the gear unit, take account of the oil viscosity outside the gear unit (such as oil pipes).

The heater is screwed into the gear unit housing ex works and is controlled by a thermostat. The trip temperature of the thermostat is set at the factory depending on the lubricant used.

4.5.1 Structure

The oil heater consists of 2 basic parts:

1. Heating element in the oil sump ("oil heater") with terminal box
2. Thermostat with integrated temperature sensor



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[1] Oil heater

[2] Thermostat with integrated temperature sensor

INFORMATION

- It is essential that the heating elements are fully immersed in the oil sump to prevent any damage.
- The position of the thermostat varies with variant and mounting position of the gear unit.
- The possible use as well as the maximum number of heating elements depends among others from the gear unit size, mounting position, end gear position, and lubrication type. Not all combinations of accessory options might be possible depending on the mounting position and mounting surface. Contact SEW-EURODRIVE.
- **1 heating element** is used with the following gear unit sizes as standard: 110, 130, 150, 170, 190, 210, 230, 250, 270, 280, 300, 320
- **2 heating elements** are used with the following gear unit sizes as standard: 100, 120, 140, 160, 180, 200, 220, 240, 260, 290, 310
- To keep the gear unit startup temperature, the thermostat can be energized continuously. The heating process can take several hours.
- For dimensions of the heating elements, see chapter Water cooling cover, water cooling cartridge and oil heater [mm].

4.5.2 Information on the function of the oil heater

- The trip point of the oil heater thermostat is factory-set to a temperature of about 5 K above the respective initial temperature for gear unit startup, see chapter "Permitted lubricants" (→ 🗎 71).

  At this temperature – see table "Minimum permitted initial temperature for gear unit startup" on page 105 – the thermostat disables the oil heater. Only then, the gear unit can be started. The thermostat activates the oil heater again once the temperatures is about 5 K below the switching point.
- To prevent the oil from burning, the heating elements of the heater have a maximum surface load. This is why the heating process for a cold gear unit oil can take between one and several hours. The exact duration of the heating process before the start varies depending on the gear unit size, design, mounting position, oil quantity, and ambient temperature.
- Thermostat and oil heater are installed in the gear unit and ready for operation. Prior to startup, wire them properly and connect them to the current supply.
- Contact SEW-EURODRIVE if a differing oil viscosity class is used or if ambient temperatures fall below the specified limit temperature.

4

4.5.3 Connection power

The table shows the power of the heating that may be installed.

		P_{inst}		P_{inst}	
Gear unit		1 heating element		2 heating elements	
Gear unit size	Design		K/h		K/h
100	X2F, X2K, X3K, X3T	1 x 0.4	6	2 × 0.4	11
	X3F	1 x 0.3	3	2 × 0.3	7
110	X2F, X2K, X3K, X3T	1 x 0.6	6	-	-
	X3F	1 x 0.3	4	-	-
120	X2K	1 x 0.6	6	2 × 0.6	11
	X2F, X3K, X3F, X4K,	1 x 0.7	6	2 × 0.7	11
	X4F	1 x 0.3	3	2 × 0.3	5
130	X2F, X2K, X3K, X3T, X3F, X4K, X4T	1 x 0.7	5	-	-
	X4F	1 x 0.4	3	-	-
140	X2K	1 x 0.7	4	2 × 0.7	9
	X2F, X3K, X3T, X3F, X4K, X4T	1 x 0.8	5	2 × 0.8	10
	X4F	1 x 0.4	3	2 × 0.4	5
150	X2K	1 x 0.8	5	-	-
	X2F, X3K, X3T, X3F, X4K, X4T	1 x 0.9	5	-	-
	X4F	1 x 0.6	3	-	-
160	X2K	1 x 0.9	4	2 × 0.9	8
	X2F, X3K, X3T, X3F, X4K, X4T	1 x 1.1	4	2 × 1.1	8
	X4F	1 x 0.7	3	2 × 0.7	5
170	X2K	1 x 0.9	4	-	-
	X2F, X3K, X3T, X3F, X4K, X4T	1 x 1.1	4	-	-
	X4F	1 x 0.7	3	-	-
180	X2F, X2K, X3K, X3T, X3F, X4K, X4T	1 x 1.6	5	2 × 1.6	10
	X4F	1 x 1.1	4	2 × 1.1	7
190	X2F, X2K, X3K, X3T, X3F, X4K, X4T	1 x 1.6	5	-	-
	X4F	1 x 1.1	3	-	-
200	X2K	1 x 1.6	4	2 × 1.6	8
	X2F, X3K, X3T, X3F,	1 x 1.8	4	2 × 1.8	8
	X4F	1 x 1.3	3	2 × 1.3	6
210	X2K	1 x 1.5	4	-	-
	X2F, X3K, X3T, X3F, X4K, X4T	1 x 1.8	4	-	-
	X4F	1 x 1.3	3	-	-
220	X2K	1 x 1.8	3	2 × 1.8	7
	X2F, X3K, X3T, X3F, X4F, X4K, X4T	1 x 2.2	4	2 × 2.2	8
230	X2K	1 x 1.8	3	-	-
	X2F, X3K, X3F,X3T, X4F, X4K, X4T	1 x 2.2	4	-	-
240	X2K	1 x 1.8	3	2 × 1.8	5
	X2F, X3K, X3T, X3F, X4F, X4K, X4T	1 x 2.2	3	2 × 2.2	6
250	X2K	1 x 2.2	3	-	-
	X2F, X3K, X3T, X3F, X4F, X4K, X4T	1 x 2.6	3	-	-
260	X2F, X3K, X3T, X3F, X4F, X4K, X4T	1 x 3.8	4	2 × 3.8	8
270		1 × 3.8	4	-	-
280		1 × 4.2	4	-	-
290		1 × 4.2	3	2 × 4.2	6
300		1 × 4.2	3	-	-
310		1 × 5.0	3	2 × 5.0	6
320		1 × 5.0	3	-	-

K/h = Heating capacity in Kelvin/hour P_{inst} = Power of the installed heater

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4.5.4 Limit temperature for gear unit start

The minimum permitted ambient temperature/oil temperature for gear unit startup depends on the viscosity of the oil used and the lubrication type of the gear unit.

INFORMATION

- Before startup, it might be necessary to heat up the oil with an oil heater to the temperature specified under "Initial temperature". Observe the lubricant table in chapter "Permitted lubricants" (→ 🗎 71). For the design and dimensioning of the required oil heater, contact SEW-EURODRIVE.
- For the minimally permitted initial temperature for mineral and synthetic oil, refer to the chapter "Permitted lubricants" (→ 🗎 71).

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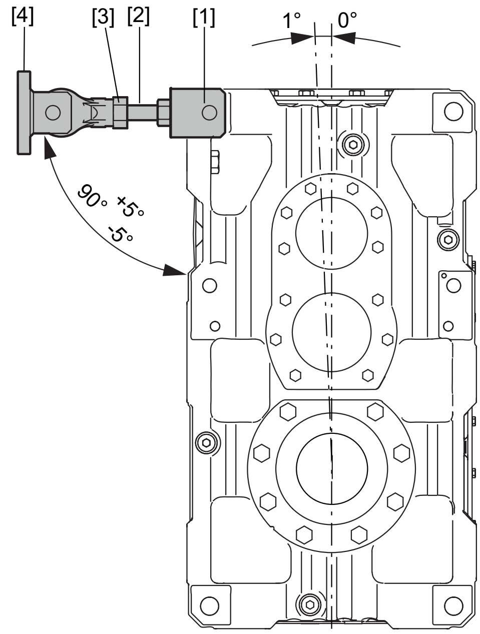
5 Options and additional features

5.1 Torque arm /T

A torque arm is available as option for shaft-mounted gear units to support the reaction torque (for dimensions see chapter "Torque arm /T [mm]" (→ 🗎 382)). The torque arm can bear tensile as well as compression stress.

The length of the torque arm can be adjusted within a certain range.

The torque arm consists of a yoke with bolt [1], a stud bolt [2], a maintenance-free joint head [3], and a yoke plate with bolt [4]. The design using the joint head allows for compensating assembly tolerances and operational displacements. Constraining forces on the output shaft are avoided in this way.



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[1] Yoke with bolt
[2] Stud bolt with nut
[3] Joint head
[4] Yoke plate with bolt

INFORMATION

Fan design X.K.. advanced cannot be used together with a torque arm because the fan guard is mounted to the attachment point of the torque arm.

To keep the bending moment on the machine shaft to a minimum, always mount the torque arm on the same side as the machine that is driven.

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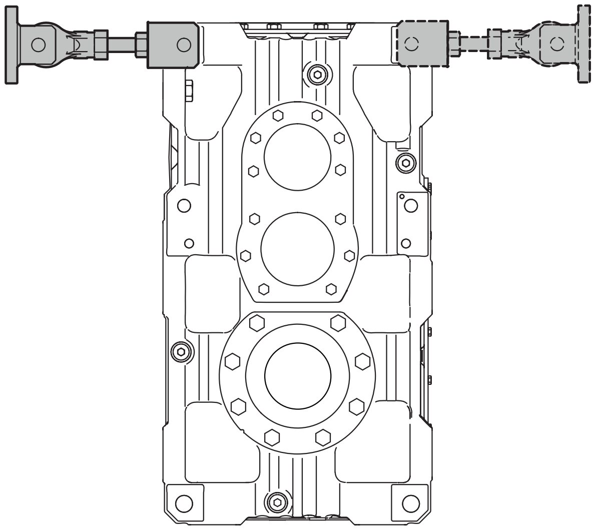
The torque arm can be mounted on the left or right of the gear unit.



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INFORMATION

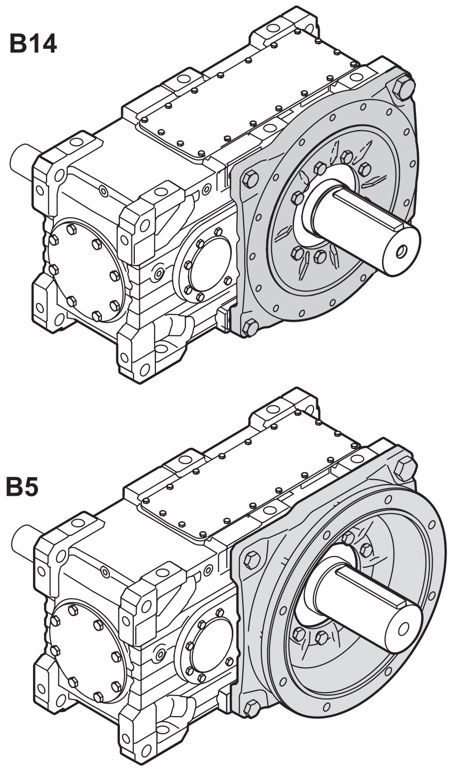
Fan design X.K.. advanced cannot be used together with a torque bracket because the fan guard is mounted to the attachment point of the torque arm.

5.2 Mounting flange /F

As an alternative to foot mounting, a mounting flange is available for gear units up to size 210. The gear unit can be attached to the operator's machine via the following 2 design types:

The mounting flange in B14 design have an outer centering and retaining threads.

In addition, a B5 design is available for the sizes X130 – 190. The mounting flange is designed with through bores.



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INFORMATION

- The mounting flange can be combined with all output shaft types. The mounting flange cannot be used with the standard sealing system. Observe the limitations for hollow-shaft gear units in chapter "Gear unit mounting for hollow-shaft gear units".
- For gear units in flange-mounted design, observe the maximum permitted weight of the motor connected via motor adapters (see chapter "Motor adapter"). A combination of foot and flange mounting is not permitted.
- For dimensions of the mounting flange, refer to chapter "Mounting flange B14 with solid and hollow shaft /F [mm]" (→ 🗎 380).

5.3 Flange coupling with keyway/FC-K

NOTICE

Improper installation and assembly can damage the gear unit.

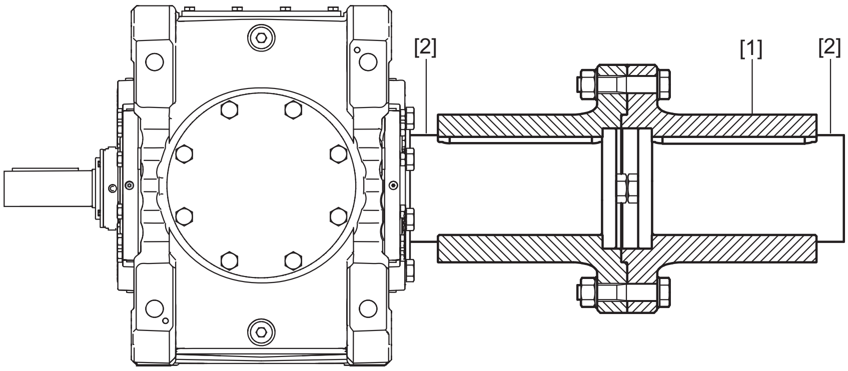
Possible damage to the gear unit.

- Gear units with flange couplings cannot be additionally secured on the floor with a rigid connection. This is why foot mounting of the gear unit or using a base frame is not permitted.

Flange couplings [1] are rigid couplings for connecting 2 shafts [2].

They are suitable for operation in both directions of rotation, but cannot compensate any shaft misalignments.

Torque between the shaft and the coupling is transmitted via a keyed connection. Both coupling halves are mounted together at their flanges.



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5.4 Backstop /BS

INFORMATION

For information on the exact position, direction of rotation dependencies, and dimensions of the backstop, refer to chapter "Backstop X.F../BS [mm]" (→ 🗎 386).

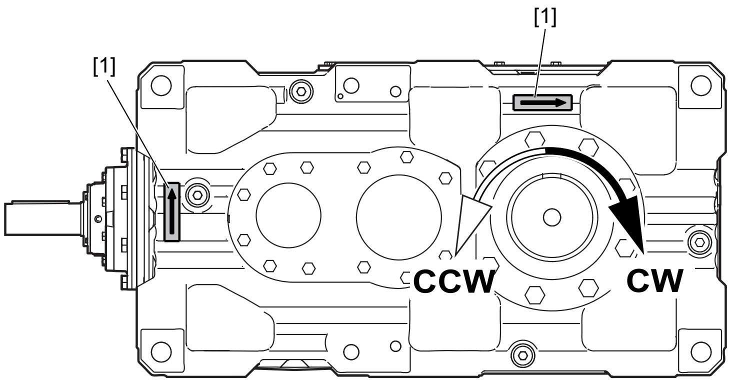
5.4.1 Use

The purpose of a backstop is to prevent undesirable directions of rotation. During operation, the backstop permits rotation only in the specified direction.

5.4.2 Description

The backstop operates with centrifugal lift-off sprags. Once the lift-off speed is reached, the sprags completely lift off from the contact surface of the outer ring. The backstop is lubricated with gear oil.

5.4.3 Direction of rotation



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SEW-EURODRIVE installs backstops according to the specifications given with the order. It is therefore essential to specify the direction of rotation for the output shaft. The customer must check whether the connected electric motor rotates in the correct direction. If not, the electric motor may damage the backstop.

The direction of rotation is defined relative to the output shaft (LSS):

- CW = Clockwise rotation
- CCW = Counterclockwise

The permitted direction of rotation [1] is indicated on the housing.

INFORMATION

If the drive has a continuous output shaft, the direction of rotation of the backstop should be specified relative to shaft position 3.

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5.4.4 Dimensioning

The backstop is dimensioned according to the following basic rules:

- Speed of the input shaft of the gear unit: 0 – 1800 min^{-1}
- Maximum permitted torque of the backstop in relation to the output shaft:

  At least 1.8 times the nominal gear unit torque except

Size	Nominal gear unit ratio i_N	Size	Nominal gear unit ratio i_N
X2F140	6.3/7	X3F260	20
X2F150	8/9	X3F270	22.4
X2F260	8	X3F280	25/28
X2F280	10	X3F300	56
X2K220	8/10	X4F120	100
X2K230	9/11.2/12.5	X4F130	125
X3F180	20	X4F290	100
X3F230	45	X4F300	112

Contact SEW-EURODRIVE for differing requirements.

Wear can occur on the backstop when operated below lift-off speed.

In the following cases **always** contact SEW-EURODRIVE for specifying the maintenance intervals:

- Input speed rates n_1 < 950 min^{-1}
- or any of the following gear unit designs:

n_1 min^{-1}	Size				
	X2K..	X3K..		X4K..	
950 – 1150	X2K100 – 230 $i_N \geq 10$	X100 – 130 X140 – 170 X180 – 320	all i_N $i_N \geq 31.5$ $i_N \geq 50$	X120. – 190 X200 – 320	all i_N $i_N \geq 200$
1150 – 1400	–	X100 – 110 X120 – 130 X140 – 170 X180 – 320	$i_N \geq 25$ $i_N \geq 40$ $i_N \geq 50$ $i_N \geq 63$	X120 – 170 X180 – 320	all i_N $i_N \geq 200$
> 1400	–	X100 – 130 X140 – 170	$i_N \geq 35.5$ $i_N \geq 63$	X120 – 130 X140 – 250	all i_N $i_N \geq 200$

n_1 = Input speed (HSS) i_N = Nominal gear unit ratio

INFORMATION

For information on torque limiting backstops, for example for dual drives, contact SEW-EURODRIVE.

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5.5 Motor adapter /MA

Motor adapters are available for mounting

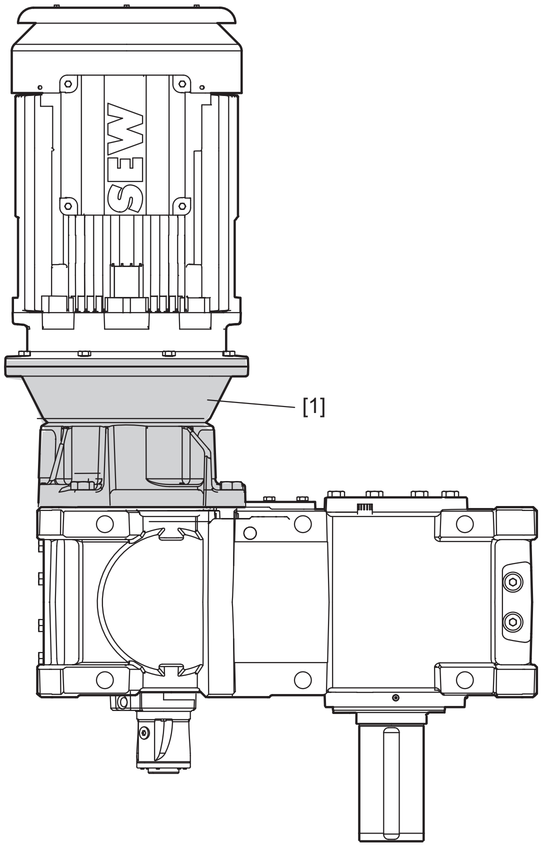
- **IEC (B5) motors** of sizes 100 to 355
- **NEMA ("C" face) motors** of sizes 182 to 449

Observe the following information:

INFORMATION

- The gear unit must be mounted in such a way that liquids cannot enter the motor adapter (HSS end) and accumulate there. Otherwise, the oil seal can be damaged, and subsequent damage can create a possible ignition source.
- An elastic claw coupling is included in the delivery.
- All motor adapters may be equipped with a fan for two-stage and three-stage gear units.
- For dimension sheets of the motor adapter, refer to chapter "IEC motor adapter /MA [mm]" (→ 🗎 397).

The following figure shows an example of the motor adapter [1] connected to the gear unit:



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5.5.1 Max. permitted motor weight

Two criteria are to be checked when mounting a motor onto the gear unit.

1. Maximum motor weight depending on gear unit version and type of mounting
2. Maximum motor weight depending on motor adapter size

INFORMATION

The motor weight must not exceed either one of these criteria.

1. Maximum motor weight depending on gear unit version and type of mounting

INFORMATION

- The following tables apply only to stationary applications. For mobile applications (e.g. travel drives), please consult SEW-EURODRIVE.
- Contact SEW-EURODRIVE in the case of deviating mounting positions/mounting surfaces.

The following applies to all tables:

G_M = Motor weight

G_G = Gear unit weight

Vertical gear units

INFORMATION

- When using the shaft-mounted design, consult SEW-EURODRIVE.
- Gear unit with mounting position M. / mounting surface F.: For M5 / F4 and M6 / F3, contact SEW-EURODRIVE.

Type of mounting	Mounting position M. / mounting surface F.		
	M5/F3 and M6/F4		
	X.F..	X.K..	X.T..
Foot-mounted design X../ B	$G_M \leq 2.0\ G_G$	$G_M \leq 1.5\ G_G$	$G_M \leq 1.75\ G_G$
Flange-mounted design X../ F	$G_M \leq 1.5\ G_G$	$G_M \leq 0.75\ G_G$	$G_M \leq 1.25\ G_G$

Upright gear units

Type of mounting	Mounting position M. / mounting surface F.		
	M4/F6		
	X.F..	X.K..	X.T..
Foot-mounted design X../ B	$G_M \leq 1.25\ G_G$	$G_M \leq 1.75\ G_G$	$G_M \leq 1.5\ G_G$
Shaft-mounted design X../ T	$G_M \leq 0.75\ G_G$	$G_M \leq 1.0\ G_G$	$G_M \leq 0.75\ G_G$
Flange-mounted design X../ F	$G_M \leq 1.0\ G_G$	$G_M \leq 1.25\ G_G$	$G_M \leq 1.0\ G_G$

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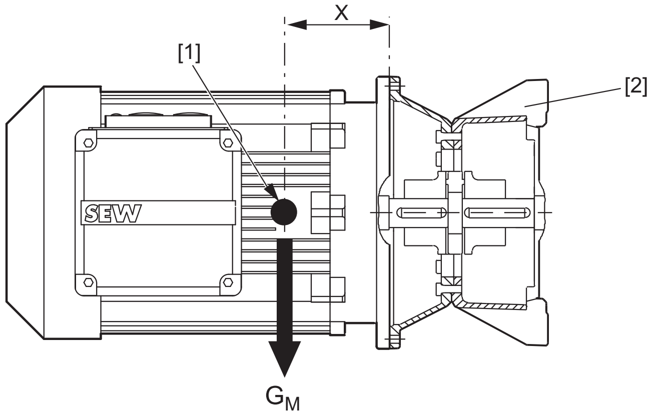
2. Maximum motor weight depending on motor adapter size

The following maximum loads on the motor adapter must not be exceeded.



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[1] Center of gravity of the motor
[2] Motor adapter

X = Distance from the center of gravity
G_M = Weight of the mounted motor

INFORMATION

The table only applies to stationary applications. For mobile applications (e.g. travel drives), contact SEW-EURODRIVE.

Motor adapter		G_M	X
IEC	**NEMA**	**kg**	**mm**
100/112	182/184	60	190
132	213/215	110	230
160/180	254/286	220	310
200	324	280	340
225	326	400	420
250/280	364 – 405	820	480
315S-L	444 – 449	1450	680
315		2000	740
355		2500	740

The maximum permitted weight G_M must be linearly reduced if the centroidal distance **X** is increased. G_M cannot be increased if the centroidal distance is reduced.

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5.5.2 Attaching the motor to the motor adapter

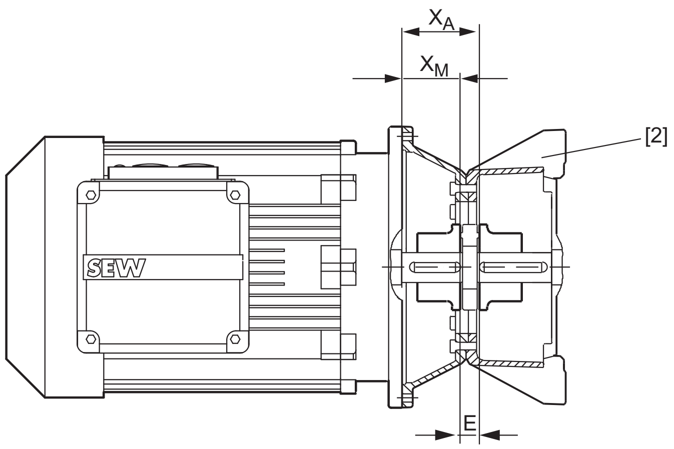
Observe the notes in chapter Important information.

1. Clean the motor shaft and flange surfaces of the motor and the motor adapter. They must be dry and free of grease.

INFORMATION

To avoid contact corrosion, SEW-EURODRIVE recommends to apply NOCO® fluid to the motor shaft before mounting the coupling half.

2. Push the coupling half onto the motor shaft and position it. When doing this, observe the information in chapter Claw coupling and the figure below. The coupling size and type are indicated on the coupling.



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[1]	Motor adapter	XA	Distance between the coupling and the motor adapter flange surface
E	Installation dimensions	XM	Distance between the coupling and the motor flange surface
	→ XM = XA - E		

3. Secure the coupling halves using the set screw.
4. Mount the motor onto the motor adapter, making sure that the claws of the coupling engage each other.

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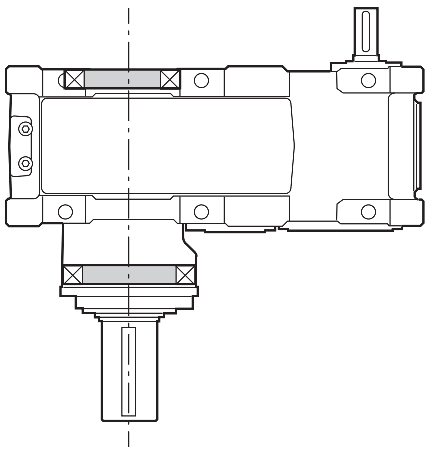
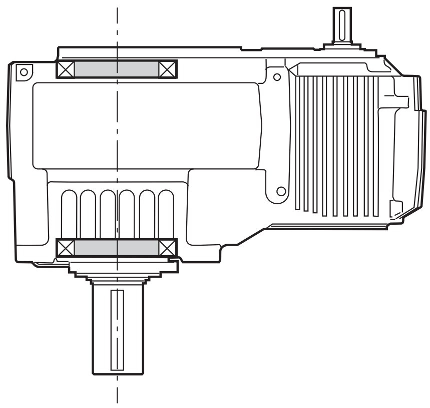
5.6 Extended bearing distance (agitator design)

A solution with extended bearing distance is not possible for applications with higher radial loads or bending moments.

The option is a standard component of the agitator design. for further information refer to the technical brochure "Technology for Agitators and Aerators".

Universal housing /HU	Agitator housing /HA
	
Number of stages: 2 – 4	Number of stages: 3
Gear unit types: X.F.., X.K.., X.T..	Gear unit type: X.F..
Bearing: Standard or reinforced bearings	
8 sizes from X140 to 210	
Nominal torque: 22 – 90 kNm	
Shaft: Solid shaft, standardized	

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6 Condition monitoring

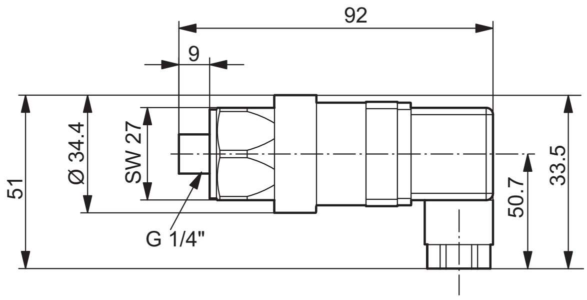
6.1 Pressure switch /PS

All gear units with pressure lubrication are equipped with a pressure switch for function monitoring.

The pressure switch is to be connected and integrated into the system in such a way that the gear unit can only be operated when the oil pump is building up pressure. A short-term compensation (max. 20 s) during startup is permitted.

Customers are responsible for the electrical connection and the evaluation of the signal.

6.1.1 Dimensions



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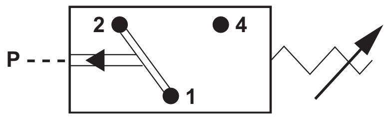
6.1.2 Electrical connection



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[1][2] NC contact
[1][4] NO contact

6.1.3 Technical data

- Switching pressure: 0.5 ± 0.2 bar
- Maximum switching capacity: 4 A – V_{AC} 250; 4 A – V_{DC} 24
- Plug connector: DIN EN 175301-803
- The tightening torque for the retaining screw in the back of the plug connector for electrical connection is 0.25 Nm.

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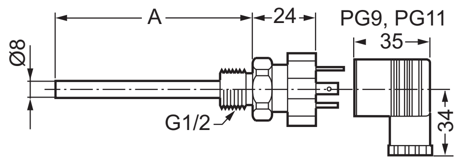
6.2 Temperature sensor /PT100

The PT100 temperature sensor can be used to measure the temperature of the gear unit oil.

The temperature sensor is located in the oil sump of the gear unit. The exact position depends on the gear unit design and shaft position.

6.2.1 Dimensions



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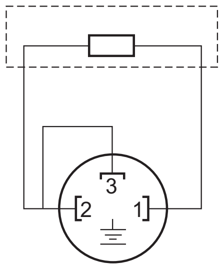
A in mm
50
150

6.2.2 Electrical connection



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[1][2] Resistor element connection

6.2.3 Technical data

- Design with thermowell and changeable measuring insert
- Sensor tolerance in K ± (0.3 + 0.005 × T), (corresponds to DIN IEC 751 class B),

  T = Oil temperature in °C
- Plug connector: DIN EN 175301-803 PG9 (IP65)
- The tightening torque for the retaining screw in the back of the plug connector for electrical connection is 0.25 Nm.

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6.3 Temperature switch /NTB

A temperature switch with preset switching temperatures of 70, 80, 90 or 100 °C is used for monitoring the gear unit oil temperature.

For various functions, the temperature switch is also used as limit value switch, for example

- for a pre-alarm

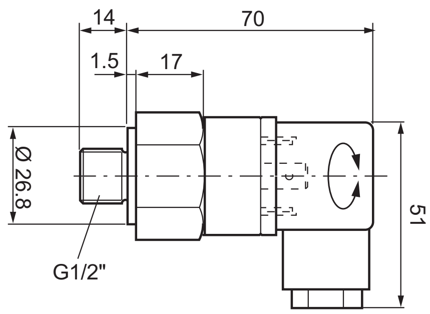
  or

- for a main alarm for switching off the main motor.

To guarantee a long service life and functioning under all conditions, it is recommended to use a relay in the power circuit instead of a direct connection through the temperature switch.

The temperature switch is located in the oil sump of the gear unit. The exact position depends on the gear unit design and shaft position.

6.3.1 Dimensions



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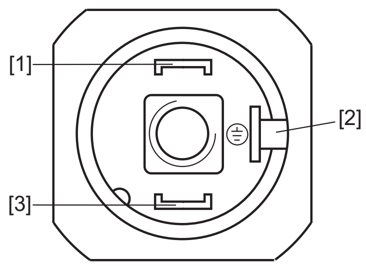
6.3.2 Electrical connection

To guarantee a long service life and trouble-free functioning, we recommend that you use a relay in the power circuit instead of a direct connection through the temperature switch.



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[1] [3] NC contact
[2] Grounding terminal 6.3 x 0.8

6.3.3 Technical data

- Trip temperature: 70 °C, 80 °C, 90 °C, 100 °C ± 5 °C
- Contact capacity: 10 A – AC 240 V

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- Plug connector: DIN EN 175301-803 PG9 (IP65)
- The tightening torque for the retaining screw in the back of the plug connector for electrical connection is 0.25 Nm.

6.4 Temperature switch /TSK

The TSK temperature switch is used with oil supply systems for circulation cooling. It is provided with 2 fixed trip points (60 °C and 90 °C) for controlling and monitoring the system.

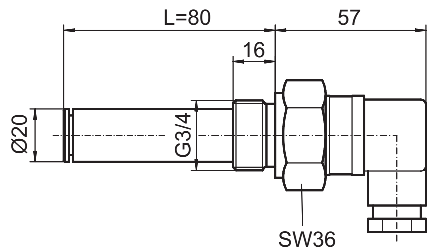
The temperature switch is integrated into the circuit of the oil supply system as follows:

- The cooling system is activated when the oil temperature reaches 60 °C
- Warning signal or disconnection of the gear unit when the oil temperature exceeds 90 °C (usually a sign of malfunction in the oil supply system)

To guarantee a long service life and functioning under all conditions, it is recommended to use a relay in the power circuit instead of a direct connection through the temperature switch.

The temperature switch is located in the oil sump of the gear unit. The exact position depends on the gear unit design and shaft position.

6.4.1 Dimensions



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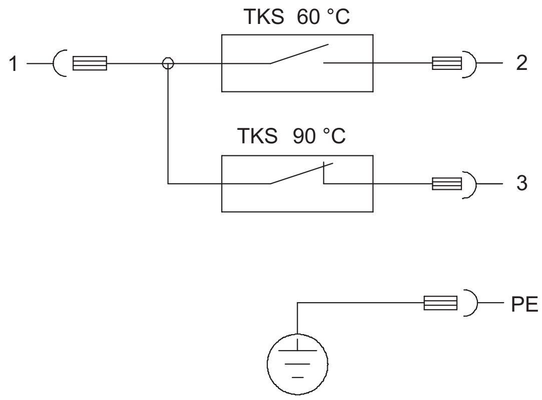
6.4.2 Electrical connection

To guarantee a long service life and trouble-free functioning, we recommend that you use a relay in the power circuit instead of a direct connection through the temperature switch.



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[1][2] Switch 60 °C NO contact
[1][3] Switch 90 °C NC contact
PE Grounding terminal

6.4.3 Technical data

- Switching temperatures: 60 °C and 90 °C
- Contact capacity: 2 A – AC 240 V
- Plug connector: DIN EN 175301-803 PG11 (IP65)
- The tightening torque for the retaining screw in the back of the plug connector for electrical connection is 0.25 Nm.

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6.5 Diagnostic unit /DUO10A

The DUO10A diagnostic unit was developed for advance planning of oil change intervals.

The diagnostic unit consists of a PT100 temperature sensor and an evaluation unit. The temperature sensor installed in the gear unit measures the current gear unit oil temperature. The diagnostic unit calculates the estimated remaining service life for the gear unit oil from the measured oil temperature. This calculated value is continuously shown on the evaluation unit's display; when needed, the display can be changed to the current gear unit oil temperature.

The oil types used by SEW are recorded in the evaluation unit, whereby an oil type approved by SEW-EURODRIVE can be adjusted on a customer-specific basis.

The oil types are as follows:

Oil type	Designation	Limit temperature
Mineral oil CLP/bio oil	OIL1	100°C
Synthetic oil CLPHC/CLP-PAO	OIL2	130°C
Polyglycol CLPPG	OIL3	130°C
Food grade oil	OIL4	100°C
Customer-specific	OIL5	Default setting = OIL1

Four switching outputs (NC/NO contact) with the following functions are available to connect the evaluation unit:

- Early warning:

  Set a few days before expiration of the remaining service life; the number of days can be set directly on the evaluation unit.

- Main alarm:

  Is set when the estimated remaining service life reaches zero.

- Limit temperature:

  Shows when the permitted oil temperature has been exceeded.

- Ready for operation:

  Displays faults in the wiring and detectable errors in the evaluation unit.

INFORMATION

Further information about the evaluation unit and accessories can be found in the "DUO10A Diagnostic Unit" manual, part no. 11473401.

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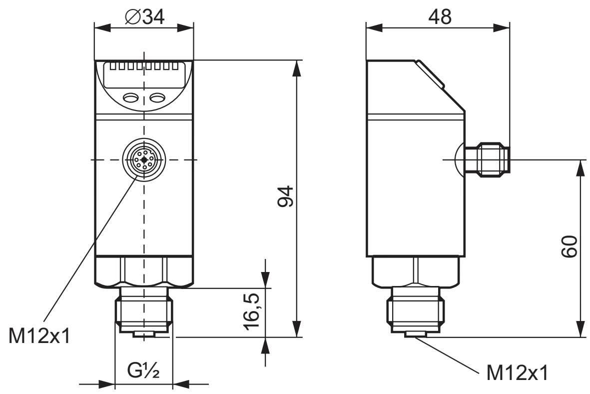
6.5.1 Dimensions



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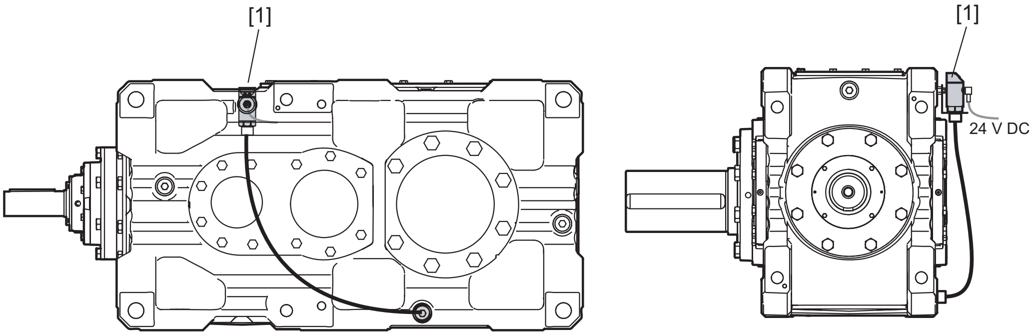
6.5.2 Mounting examples



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[1] DUO10A diagnostic unit

6.6 Vibration SmartCheck /DUV40A

Vibration SmartCheck vibration monitoring is used to detect damage of gear units and gearmotors early (e.g. bearing damage or imbalances). For this, permanent frequency-selective monitoring of the gearmotor is used. Apart from the vibration analysis, additional measured values of up to 3 signal encoders can be detected, recorded and analyzed. The additional signals can be used as reference value for signal analysis e.g. to trigger time or event-based measuring tasks. After the analysis and depending on user-defined alarm limits, the system can switch outputs and display the state using LEDs.

Vibration SmartCheck is configured using the FAG software SmartWeb. If you use several Vibration SmartCheck systems, you can control them via the FAG software SmartUtility Light centrally from one PC.

The full version of the SmartUtility software allows you to open sensors directly via the FAG software SmartWeb, to analyze measurement data in the SmartUtility Viewer and to download configurations or uploading configurations on other devices.

INFORMATION

Further information about the evaluation unit and accessories is found the "Vibration SmartCheck" operating instructions, part no. 23085312.

6.6.1 Scope of delivery

- Device Vibration SmartCheck with integrated software FAG SmartWeb
- User documentation Vibration SmartCheck and FAG SmartWeb on CD-ROM
- FAG SmartUtility Light software with user documentation on CD-ROM
- 1 Retaining screw: Hexagon socket head screw M6x45
- 1 O-ring to secure the retaining screw against loss
- 1 closing plug with logo to close assembly opening
- 3 closing plugs to close unused M12 connections

INFORMATION

Cables for connecting the device are not included in the standard delivery of Vibration SmartCheck devices.

6.6.2 Technical data

Vibration SmartCheck	
Housings	Glass fiber reinforced plastic
Fastening	Hexagon socket head screw M6 x 45 Contact surface on the machine 25 mm Ø
Current consumption	< 200 mA at 24 V
Ambient temperature	-20 to +70 °C
Internal operating temperature	-20 to +85 °C
Voltage supply	11 – 32 VDC or Power over Ethernet (PoE) based on 802.3af Mode A
Size	44 mm x 57 mm x 55 mm
Weight	Approx. 210 g
Degree of protection	IP 67
Operating system	Embedded Linux
Software	FAG SmartWeb (Mozilla Firefox ESR 38 (recommended), Internet Explorer 11, Internet Explorer 9 not recommended due to performance reasons) Vibration SmartUtility Light or optionally Vibration SmartUtility Languages: German, English, Chinese, Spanish, and French

Internal sensor technology	
oscillation	Acceleration sensor (piezoelectric sensor) Frequency range 0.8 Hz – 10 kHz Measuring range ±50 g
Temperature	Measuring range -20 to +70 °C

Measurement	
Measurement functions	Acceleration Speed and distance by integration System temperature Process parameters (e.g. speed, load, pressure)
Diagnostic methods	Time signal, envelope, spectrum and trend analysis, speed and frequency checking

Characteristic values (time and frequency range)	
Defined characteristic values	DIN/ISO 10816
Calculated characteristic values	RMS, frequency selected RMS, direct component, peak, peak to peak, crest factor, Wellhausen count, carpet level, condition monitoring Other user-specific characteristic values are possible

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Signal processor	
Frequency resolution	1600, 3200, 6400, or 12800 lines Line width min. 0.0039 Hz at 50 Hz (depending on low pass)
Measurement resolution	24 Bit (A/D converter)
Frequency range	0.8 Hz – 10 kHz
Low passes	50 Hz – 10 kHz (50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 2 kHz, 5 kHz, 10 kHz)
High passes (only envelope)	750 Hz, 1 kHz, 2 kHz (other filters upon request)

Memory	
Program and data	64 MB RAM, 128 MB Flash

Inputs and outputs	
Inputs	**2 analog inputs** (0 – 10 V / 0 – 24 V / 0 – 20 mA / 4 – 20 mA), frequency range 0 – 500 Hz, 12 Bit **1 digital input** (0 – 30 V, 0.1 Hz – 1 kHz)
Outputs	**1 analog output** (0 – 10 V / -20 mA / 4 – 20 mA), 12 Bit **1 switching output** (open collector, max. 1 A, 28 V) Optional galvanic isolation between inputs and outputs

Interfaces	
Control elements	2 capacitive pushbuttons (learning mode, alarm reset, restart, factory settings)
Display elements	1 LED to display status and alarm 1 LED to acknowledge the pushbuttons 2 LEDs to display communication
Communication	Ethernet 100 Mb/s RS485 (currently not yet supported)
Electrical connections	3 M12 plug connectors (polarity reversal protected) for supply, RS485, Inputs/outputs, and Ethernet

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6.6.3 Part numbers

	Description	Part number
Sensor	Vibration SmartCheck	19175892
Cable	Voltage supply cable 8-pin for SmartCheck 5 m; M12(B) <-> open end	19179596
Cable	Ethernet cable for SmartCheck 5 m; M12 <-> RJ45	19179618
Cable	I/O cable 8-pin for SmartCheck 5 m; M12(St) <-> open end	19179626

	Description	Part number
Base for mounting on standard gear units (R, F, K, and S gear units)	Mounting base with sealing ring M10 x 1	20593422
	Mounting base with sealing ring M12 x 1.5	20593430
	Mounting base with sealing ring M22 x 1.5	20593449
	Mounting base with sealing ring M33 x 2	20593457
	Mounting base with sealing ring M42 x 2	20593465

	Description	Part number
Base for mounting on industrial gear units	Mounting base with sealing ring G3/4	20593384
	Mounting base with sealing ring G1	20593392
	Mounting base with sealing ring G1 1/4	20593406
	Mounting base with sealing ring G1 1/2	20593414

	Description	Part number
Base for mounting on standard motors	Mounting base M5	21014175
	Mounting base M6	21014167
	Mounting base M8	20593503
	Mounting base M10	21014248
	Mounting base M12	20593473
	Mounting base M16	20593481
	Mounting base M20	20593511

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7 Design and operating notes

7.1 General information

Not included in the scope of delivery:

- Set of wrenches
- Torque wrench
- Mounting device
- Compensation elements (washers, spacing rings), if necessary
- Fasteners for input and output elements
- Lubricant, e.g. NOCO® fluid from SEW → except for hollow shaft gear units
- For hollow shaft gear units → aids for assembly/disassembly on the machine shaft
- Fastening parts for the gear unit base
- Connection cables between gear unit and separately installed oil supply systems
- Supply cables and electrical connection of accessories

7.2 Gear unit mounting

The following table shows the thread sizes and tightening torques for the individual gear unit sizes.

Size	Screw/nut	Tightening torque Strength class 8.8
		Nm
X100 – 110	M20	410
X120 – 130	M24	710
X140 – 150	M30	1420
X160 – 190	M36	2500
X200 – 230	M42	4000
X240 – 280	M48	6000
X290 – 320	M56	9600

7.3 Dimensioning the machine shaft for hollow shaft gear units

The material of the machine shaft as well as the keyed connection (on version X..A) should be dimensioned by the customer according to the loads that will occur. The shaft material must have a yield point of at least 320 N/mm².

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7.3.1 Hollow shaft with key

The key length should have at least the minimum length shown in the dimension sheets. If a longer key is used, it should be aligned symmetrically to the hollow shaft.

With a continuous machine shaft or axial forces, SEW-EURODRIVE recommends that the machine shaft be designed with a contact shoulder. Contact SEW-EURODRIVE in the case of reversing directions of the load.

For detailed information regarding the design of the machine shaft, refer to the dimension sheets in chapter Hollow shaft with key X...A [mm].

7.4 Dimensioning the machine shaft with flange coupling

The material of the machine shaft as well as the keyed connection (of versions with key) should be dimensioned by the customer according to the loads that will occur. The shaft material should have a yield point of at least 320 N/mm². Choose the dimensions of the machine shaft according to the smooth solid shaft X..R.

For detailed information regarding the design of the machine shaft, refer to the dimension sheets in chapter Flange coupling /FC [mm].

7.5 X2K.. with backstop for hollow shaft gear units

Gear unit designs X2K.. with backstop and protection cover on one gear unit side are possible for all gear unit sizes, except for the following gear unit sizes:

- X2KH100/110/120/140/160/240
- X2KA100/120

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8 Important notes

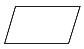
8.1 Dimension sheet information

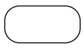
INFORMATION

- Dimension sheets and gear unit models can be found on https://www.drivegate.biz
- Unless specified otherwise, all dimensions are given in **mm**. NEMA motor adapters are an exception to this rule: Their dimensions are given in **inches**.

8.1.1 General information

Scope of delivery

 = Standard parts supplied by SEW-EURODRIVE.

 = Standard parts not supplied by SEW-EURODRIVE.

Mounting positions

The dimension sheets show the following mounting positions:

- Vertical gear units (mounting position M5)
- Upright gear units with input and output shaft arranged on top of one another (mounting position M4)
- X.T.. horizontal gear units (mounting position M1)

Consult SEW-EURODRIVE for other mounting positions or inclined or changing mounting positions (see "pivoted mounting position" on) as can occur with drives in booms, for example.

Weight

The specified weight data are guide values. The information on the nameplate is binding.

INFORMATION

The weight data in the selection tables do not include the oil fill.

Options

Chapter Dimension sheets: options shows the options in connection with gear unit X.S.. with a solid shaft. Unless indicated otherwise, all options are also possible for gear units with other shaft types.

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8.1.2 Tolerances

Shaft ends

Diameter tolerance according to DIN 748:

- Ø = Smooth output shaft /..R → ISO k6
- Ø = Output shaft as a solid shaft with key /..S → ISO m6

Center bores according to DIN 332, part 2 (type D..):

Ø	> 16...21 mm	→ M6
Ø	> 21...24 mm	→ M8
Ø	> 24...30 mm	→ M10
Ø	> 30...38 mm	→ M12
Ø	> 38...50 mm	→ M16
Ø	> 50...85 mm[1)]	→ M20
Ø	> 85...130 mm[1)]	→ M24
Ø	> 130...225 mm[1)]	→ M30

1) Dimensions not according to DIN 332; the thread depth including the counterbore is at least twice that of the nominal thread diameter

Keys according to DIN 6885 (domed type)

Hollow shafts

Diameter tolerance:

- Ø → ISO H7 for hollow shafts for shrink disk
- Ø → ISO H8 for hollow shafts with keyway

Mounting flange

Centering shoulder tolerance: ISO f7

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9 Selection tables

9.1 Information on the selection tables

The thermal rating P_{TH} depends on several influencing factors. Contact SEW-EURODRIVE for information on your specific application.

X.F100..,n_1 = 1000 min^{-1}															6.80 kNm
					P_{TH} in kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**7.09**	141	5.60	85	61	94	-	-	-	74	110	-	-	-	
8	**7.94**	126	5.75	78	64	99	-	-	-	77	115	-	-	-	
9	**8.52**	117	5.90	74	60	91	-	-	-	71	105	-	-	-	
10	**9.53**	105	6.10	69	63	95	-	-	-	74	110	-	-	-	
11.2	**11.03**	91	6.40	62	58	87	-	-	-	67	98	-	-	-	
12.5	**12.34**	81	6.60	57	61	90	-	-	-	70	100	-	-	-	
14	**13.93**	72	6.80	52	50	73	-	-	-	56	81	-	-	-	
16	**15.59**	64	6.80	47	53	78	-	-	-	60	87	-	-	-	
18	**17.21**	58	6.80	42	56	81	-	-	-	63	91	-	-	-	
20	**19.26**	52	6.80	38	57	84	-	-	-	65	94	-	-	-	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]

Key:

[1] Nominal gear unit ratio
[2] Exact gear unit ratio
[3] Output speed (LSS)
[4] Nominal gear unit torque
[5] Nominal gear unit power

Mounting position M5

[6] Without additional cooling
[7] With standard fan[2)]
[8] With water cooling cover
[9] With water cooling cartridge, see chapter "Built-in cooling, water cooling cartridge /CCT" (→ 🗎 97)
[10] With water cooling cartridge / with standard fan[2)]

Thermal rating at 20°C ambient temperature:

Mounting position M4

[11] Without additional cooling
[12] With standard fan[2)]
[13] With water cooling cover
[14] With water cooling cartridge, see chapter "Built-in cooling, water cooling cartridge /CCT" (→ 🗎 97)
[15] With water cooling cartridge / with standard fan[2)]

[16] Gear unit type / Main dimension sheet: Horizontal and universal housing / page number

Footnote in selection tables:

1) For information on the lubrication type, please contact SEW-EURODRIVE
*) Contact SEW-EURODRIVE
- No catalog design

Footnote in key:

2) If a fan is installed in the motor adapter or if the fan guard is flush on one side, P_{TH} is reduced by 20%. If such configurations are also to be combined with water cooling covers or water cooling cartridges, please contact SEW-EURODRIVE. A fan is not always possible in combination with oil bath lubrication and certain mounting positions. Observe the notes in chapter "Fan /FAN" (→ 🗎 95).

9.2 X.F..

X.F100..,n_1 = 1000 min^{-1}															6.80 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5			20°C		M4			20°C		
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**7.09**	141	5.60	85	61	94	-	-	-	74	110	-	-	-	
8	**7.94**	126	5.75	78	64	99	-	-	-	77	115	-	-	-	
9	**8.52**	117	5.90	74	60	91	-	-	-	71	105	-	-	-	**X2F..**
10	**9.53**	105	6.10	69	63	95	-	-	-	74	110	-	-	-	
11.2	**11.03**	91	6.40	62	58	87	-	-	-	67	98	-	-	-	M5
12.5	**12.34**	81	6.60	57	61	90	-	-	-	70	100	-	-	-	272
14	**13.93**	72	6.80	52	50	73	-	-	-	56	81	-	-	-	M4
16	**15.59**	64	6.80	47	53	78	-	-	-	60	87	-	-	-	296
18	**17.21**	58	6.80	42	56	81	-	-	-	63	91	-	-	-	
20	**19.26**	52	6.80	38	57	84	-	-	-	65	94	-	-	-	
22.4	**22.60**	44	6.50	31	40	50	-	-	-	45	56	-	-	-	
25	**25.29**	40	6.80	29	43	53	-	-	-	48	59	-	-	-	
28	**27.94**	36	6.80	26	37	46	-	-	-	41	51	-	-	-	
31.5	**31.27**	32	6.80	24	39	48	-	-	-	43	53	-	-	-	
35.5	**34.95**	29	6.80	21	33	41	-	-	-	37	46	-	-	-	**X3F..**
40	**39.11**	26	6.80	19	35	43	-	-	-	38	48	-	-	-	
45	**42.31**	24	6.80	17	32	40	-	-	-	35	43	-	-	-	M5
50	**47.35**	21	6.80	16	33	41	-	-	-	37	45	-	-	-	272
56	**52.91**	19	6.80	14	29	36	-	-	-	32	40	-	-	-	M4
63	**59.22**	17	6.80	12	30	38	-	-	-	34	41	-	-	-	300
71	**68.53**	15	6.80	11	29	35	-	-	-	31	39	-	-	-	
80	**76.69**	13	6.80	10	29	36	-	-	-	32	39	-	-	-	
90	**85.71**	12	6.80	9	26	32	-	-	-	28	35	-	-	-	
100	**95.92**	10	6.80	8	27	33	-	-	-	29	36	-	-	-	
X.F100..,n_1 = 1200 min^{-1}															**6.80 kNm**
7.1	**7.09**	169	5.60	100	54	100	-	-	-	72	120	-	-	-	
8	**7.94**	151	5.75	93	58	105	-	-	-	76	125	-	-	-	
9	**8.52**	141	5.90	89	56	98	-	-	-	70	115	-	-	-	**X2F..**
10	**9.53**	126	6.10	82	59	105	-	-	-	74	120	-	-	-	
11.2	**11.03**	109	6.40	75	57	95	-	-	-	68	110	-	-	-	M5
12.5	**12.34**	97	6.60	69	59	99	-	-	-	71	115	-	-	-	272
14	**13.93**	86	6.80	63	50	81	-	-	-	58	92	-	-	-	M4
16	**15.59**	77	6.80	56	53	87	-	-	-	62	98	-	-	-	296
18	**17.21**	70	6.80	51	56	91	-	-	-	64	100	-	-	-	
20	**19.26**	62	6.80	45	58	94	-	-	-	66	105	-	-	-	
22.4	**22.60**	53	6.50	37	41	57	-	-	-	46	63	-	-	-	
25	**25.29**	47	6.80	35	43	60	-	-	-	49	67	-	-	-	
28	**27.94**	43	6.80	32	38	52	-	-	-	43	58	-	-	-	
31.5	**31.27**	38	6.80	28	40	55	-	-	-	45	61	-	-	-	
35.5	**34.95**	34	6.80	25	34	47	-	-	-	38	52	-	-	-	**X3F..**
40	**39.11**	31	6.80	23	35	49	-	-	-	40	54	-	-	-	
45	**42.31**	28	6.80	21	33	45	-	-	-	37	50	-	-	-	M5
50	**47.35**	25	6.80	19	34	47	-	-	-	38	52	-	-	-	272
56	**52.91**	23	6.80	17	30	42	-	-	-	34	46	-	-	-	M4
63	**59.22**	20	6.80	15	32	43	-	-	-	35	48	-	-	-	300
71	**68.53**	18	6.80	13	30	40	-	-	-	33	44	-	-	-	
80	**76.69**	16	6.80	12	30	41	-	-	-	33	45	-	-	-	
90	**85.71**	14	6.80	10	27	37	-	-	-	30	40	-	-	-	
100	**95.92**	13	6.80	9	28	38	-	-	-	31	41	-	-	-	

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X.F100..,n_1 = 1500 min^{-1}															**6.80 kNm**
					P_{TH} kW										
					M5				20°C	M4				20°C	
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
		min^{-1}	kNm	kW											
7.1	**7.09**	212	5.60	125	*)	100	-	-	-	65	135	-	-	-	
8	**7.94**	189	5.75	115	35	110	-	-	-	69	140	-	-	-	
9	**8.52**	176	5.90	110	44	105	-	-	-	67	130	-	-	-	**X2F..**
10	**9.53**	157	6.10	105	48	110	-	-	-	70	135	-	-	-	
11.2	**11.03**	136	6.40	93	51	105	-	-	-	67	125	-	-	-	M5
12.5	**12.34**	122	6.60	86	54	110	-	-	-	69	130	-	-	-	272
14	**13.93**	108	6.80	79	47	91	-	-	-	58	105	-	-	-	M4
16	**15.59**	96	6.80	70	51	98	-	-	-	62	110	-	-	-	296
18	**17.21**	87	6.80	64	55	105	-	-	-	65	115	-	-	-	
20	**19.26**	78	6.80	57	57	105	-	-	-	67	120	-	-	-	
22.4	**22.60**	66	6.50	47	40	65	-	-	-	47	74	-	-	-	
25	**25.29**	59	6.80	44	43	69	-	-	-	50	78	-	-	-	
28	**27.94**	54	6.80	40	38	60	-	-	-	44	68	-	-	-	
31.5	**31.27**	48	6.80	35	39	63	-	-	-	46	71	-	-	-	
35.5	**34.95**	43	6.80	32	34	54	-	-	-	39	61	-	-	-	**X3F..**
40	**39.11**	38	6.80	28	35	56	-	-	-	41	63	-	-	-	
45	**42.31**	35	6.80	26	34	53	-	-	-	38	59	-	-	-	M5
50	**47.35**	32	6.80	23	35	55	-	-	-	40	61	-	-	-	272
56	**52.91**	28	6.80	21	31	49	-	-	-	35	54	-	-	-	M4
63	**59.22**	25	6.80	19	32	50	-	-	-	36	56	-	-	-	300
71	**68.53**	22	6.80	16	31	47	-	-	-	34	52	-	-	-	
80	**76.69**	20	6.80	14	31	48	-	-	-	35	53	-	-	-	
90	**85.71**	18	6.80	13	28	43	-	-	-	31	47	-	-	-	
100	**95.92**	16	6.80	12	29	44	-	-	-	32	49	-	-	-	
X.F100..,n_1 = 1800 min^{-1}															**6.80 kNm**
7.1	**7.09**	254	5.30	145	*)	94	-	-	-	47	140	-	-	-	
8	**7.94**	227	5.40	130	*)	100	-	-	-	53	145	-	-	-	
9	**8.52**	211	5.60	125	*)	105	-	-	-	57	140	-	-	-	**X2F..**
10	**9.53**	189	5.80	120	*)	110	-	-	-	62	145	-	-	-	
11.2	**11.03**	163	6.05	105	38	110	-	-	-	63	135	-	-	-	M5
12.5	**12.34**	146	6.30	99	41	115	-	-	-	65	140	-	-	-	272
14	**13.93**	129	6.50	90	41	98	-	-	-	56	115	-	-	-	M4
16	**15.59**	115	6.80	84	45	105	-	-	-	60	125	-	-	-	296
18	**17.21**	105	6.80	76	51	110	-	-	-	64	130	-	-	-	
20	**19.26**	93	6.80	68	53	115	-	-	-	67	135	-	-	-	
22.4	**22.60**	80	6.15	53	38	72	-	-	-	47	83	-	-	-	
25	**25.29**	71	6.80	53	41	76	-	-	-	50	88	-	-	-	
28	**27.94**	64	6.80	48	36	67	-	-	-	44	77	-	-	-	
31.5	**31.27**	58	6.80	43	38	70	-	-	-	46	80	-	-	-	
35.5	**34.95**	52	6.80	38	33	60	-	-	-	39	69	-	-	-	**X3F..**
40	**39.11**	46	6.80	34	34	62	-	-	-	41	71	-	-	-	
45	**42.31**	43	6.80	31	34	59	-	-	-	39	66	-	-	-	M5
50	**47.35**	38	6.80	28	35	62	-	-	-	41	69	-	-	-	272
56	**52.91**	34	6.80	25	31	55	-	-	-	36	61	-	-	-	M4
63	**59.22**	30	6.80	22	32	57	-	-	-	37	63	-	-	-	300
71	**68.53**	26	6.80	19	31	54	-	-	-	35	60	-	-	-	
80	**76.69**	23	6.80	17	32	55	-	-	-	36	60	-	-	-	
90	**85.71**	21	6.80	16	28	49	-	-	-	32	54	-	-	-	
100	**95.92**	19	6.80	14	29	50	-	-	-	33	56	-	-	-	

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X.F110..,n_1 = 1000 min^{-1}															8.50 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**8.16**	123	8.10	105	66	100	-	-	-	79	120	-	-	-	
9	**9.14**	109	8.25	97	65	100	-	-	-	79	115	-	-	-	
10	**9.80**	102	8.40	92	64	98	-	-	-	76	110	-	-	-	**X2F..**
11.2	**10.98**	91	8.50	83	67	100	-	-	-	79	115	-	-	-	
12.5	**12.69**	79	8.50	72	62	92	-	-	-	71	105	-	-	-	M5
14	**14.20**	70	8.50	64	64	96	-	-	-	74	105	-	-	-	272
16	**16.03**	62	8.50	57	57	83	-	-	-	64	93	-	-	-	M4
18	**17.94**	56	8.50	51	56	82	-	-	-	64	92	-	-	-	296
20	**19.80**	51	8.50	46	59	86	-	-	-	66	95	-	-	-	
22.4	**22.17**	45	8.50	41	61	89	-	-	-	68	99	-	-	-	
25	**26.01**	38	7.50	31	43	54	-	-	-	48	60	-	-	-	
28	**29.12**	34	7.80	29	44	55	-	-	-	50	61	-	-	-	
31.5	**32.15**	31	8.20	28	40	50	-	-	-	45	55	-	-	-	
35.5	**36.00**	28	8.50	26	41	51	-	-	-	46	56	-	-	-	
40	**40.21**	25	8.50	23	36	45	-	-	-	40	49	-	-	-	**X3F..**
45	**45.02**	22	8.50	21	36	45	-	-	-	41	50	-	-	-	
50	**48.68**	21	8.50	19	34	42	-	-	-	37	46	-	-	-	M5
56	**54.51**	18	8.50	17	35	43	-	-	-	39	48	-	-	-	272
63	**60.89**	16	8.50	15	31	38	-	-	-	34	42	-	-	-	M4
71	**68.17**	15	8.50	14	32	40	-	-	-	35	44	-	-	-	300
80	**78.85**	13	8.50	12	30	37	-	-	-	33	41	-	-	-	
90	**88.29**	11	8.50	10	31	38	-	-	-	34	42	-	-	-	
100	**98.62**	10	8.50	9	27	34	-	-	-	30	37	-	-	-	
112	**110.42**	9.1	8.50	8	27	34	-	-	-	30	37	-	-	-	
X.F110..,n_1 = 1200 min^{-1}															**8.50 kNm**
8	**8.16**	147	8.10	130	58	110	-	-	-	78	130	-	-	-	
9	**9.14**	131	8.25	115	59	110	-	-	-	78	130	-	-	-	
10	**9.80**	122	8.40	110	61	105	-	-	-	76	125	-	-	-	**X2F..**
11.2	**10.98**	109	8.50	100	64	110	-	-	-	79	130	-	-	-	
12.5	**12.69**	95	8.50	86	61	100	-	-	-	72	115	-	-	-	M5
14	**14.20**	85	8.50	77	63	105	-	-	-	75	120	-	-	-	272
16	**16.03**	75	8.50	68	57	93	-	-	-	66	105	-	-	-	M4
18	**17.94**	67	8.50	61	56	92	-	-	-	65	105	-	-	-	296
20	**19.80**	61	8.50	55	59	96	-	-	-	68	105	-	-	-	
22.4	**22.17**	54	8.50	49	61	99	-	-	-	70	110	-	-	-	
25	**26.01**	46	7.50	38	44	61	-	-	-	50	68	-	-	-	
28	**29.12**	41	7.80	35	45	63	-	-	-	51	70	-	-	-	
31.5	**32.15**	37	8.20	33	41	57	-	-	-	46	63	-	-	-	
35.5	**36.00**	33	8.50	31	42	58	-	-	-	47	64	-	-	-	
40	**40.21**	30	8.50	28	37	51	-	-	-	41	56	-	-	-	**X3F..**
45	**45.02**	27	8.50	25	37	51	-	-	-	42	57	-	-	-	
50	**48.68**	25	8.50	23	35	48	-	-	-	39	53	-	-	-	M5
56	**54.51**	22	8.50	20	36	50	-	-	-	40	55	-	-	-	272
63	**60.89**	20	8.50	18	32	44	-	-	-	36	48	-	-	-	M4
71	**68.17**	18	8.50	16	33	45	-	-	-	37	50	-	-	-	300
80	**78.85**	15	8.50	14	31	43	-	-	-	35	47	-	-	-	
90	**88.29**	14	8.50	13	32	44	-	-	-	36	48	-	-	-	
100	**98.62**	12	8.50	11	28	39	-	-	-	31	42	-	-	-	
112	**110.42**	11	8.50	10	29	39	-	-	-	31	43	-	-	-	

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X.F110..,n_1 = 1500 min^{-1}															8.50 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C					M4 20°C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**8.16**	184	8.10	160	*)	110	-	-	-	69	145	-	-	-	
9	**9.14**	164	8.25	145	*)	110	-	-	-	71	145	-	-	-	
10	**9.80**	153	8.40	140	46	115	-	-	-	72	140	-	-	-	**X2F..**
11.2	**10.98**	137	8.50	125	51	120	-	-	-	76	145	-	-	-	
12.5	**12.69**	118	8.50	110	55	110	-	-	-	71	130	-	-	-	M5
14	**14.20**	106	8.50	96	58	115	-	-	-	74	135	-	-	-	272
16	**16.03**	94	8.50	85	55	105	-	-	-	66	120	-	-	-	M4
18	**17.94**	84	8.50	76	54	105	-	-	-	66	120	-	-	-	296
20	**19.80**	76	8.50	69	58	110	-	-	-	69	125	-	-	-	
22.4	**22.17**	68	8.50	62	60	110	-	-	-	71	125	-	-	-	
25	**26.01**	58	7.50	47	44	70	-	-	-	51	80	-	-	-	
28	**29.12**	52	7.80	44	45	72	-	-	-	52	82	-	-	-	
31.5	**32.15**	47	8.20	42	41	65	-	-	-	47	74	-	-	-	
35.5	**36.00**	42	8.50	38	42	67	-	-	-	48	75	-	-	-	
40	**40.21**	37	8.50	34	37	59	-	-	-	43	66	-	-	-	**X3F..**
45	**45.02**	33	8.50	31	37	59	-	-	-	43	67	-	-	-	
50	**48.68**	31	8.50	28	36	56	-	-	-	40	62	-	-	-	M5
56	**54.51**	28	8.50	25	37	58	-	-	-	42	64	-	-	-	272
63	**60.89**	25	8.50	23	33	51	-	-	-	37	57	-	-	-	M4
71	**68.17**	22	8.50	20	34	53	-	-	-	38	59	-	-	-	300
80	**78.85**	19	8.50	18	33	50	-	-	-	36	55	-	-	-	
90	**88.29**	17	8.50	16	34	52	-	-	-	38	57	-	-	-	
100	**98.62**	15	8.50	14	29	45	-	-	-	33	50	-	-	-	
112	**110.42**	14	8.50	13	30	46	-	-	-	33	50	-	-	-	

X.F110..,n_1 = 1800 min^{-1}															8.50 kNm
8	**8.16**	221	7.70	180	*)	105	-	-	-	48	150	-	-	-	
9	**9.14**	197	7.82	165	*)	105	-	-	-	52	150	-	-	-	
10	**9.80**	184	7.96	155	*)	115	-	-	-	60	150	-	-	-	**X2F..**
11.2	**10.98**	164	8.07	140	*)	120	-	-	-	66	155	-	-	-	
12.5	**12.69**	142	8.50	130	41	120	-	-	-	67	145	-	-	-	M5
14	**14.20**	127	8.50	115	45	125	-	-	-	70	150	-	-	-	272
16	**16.03**	112	8.50	100	49	115	-	-	-	65	135	-	-	-	M4
18	**17.94**	100	8.50	91	49	110	-	-	-	64	130	-	-	-	296
20	**19.80**	91	8.50	83	55	120	-	-	-	68	135	-	-	-	
22.4	**22.17**	81	8.50	74	57	125	-	-	-	71	140	-	-	-	
25	**26.01**	69	7.10	53	42	78	-	-	-	51	90	-	-	-	
28	**29.12**	62	7.41	50	43	80	-	-	-	52	92	-	-	-	
31.5	**32.15**	56	7.70	47	39	72	-	-	-	48	83	-	-	-	
35.5	**36.00**	50	7.90	43	40	74	-	-	-	49	85	-	-	-	
40	**40.21**	45	8.05	39	36	65	-	-	-	43	74	-	-	-	**X3F..**
45	**45.02**	40	8.50	37	36	66	-	-	-	43	75	-	-	-	
50	**48.68**	37	8.50	34	36	63	-	-	-	41	70	-	-	-	M5
56	**54.51**	33	8.50	30	37	65	-	-	-	43	73	-	-	-	272
63	**60.89**	30	8.50	27	33	58	-	-	-	38	65	-	-	-	M4
71	**68.17**	26	8.50	24	34	60	-	-	-	39	67	-	-	-	300
80	**78.85**	23	8.50	21	33	57	-	-	-	37	63	-	-	-	
90	**88.29**	20	8.50	19	34	59	-	-	-	39	65	-	-	-	
100	**98.62**	18	8.50	17	30	51	-	-	-	34	57	-	-	-	
112	**110.42**	16	8.50	15	30	52	-	-	-	34	57	-	-	-	

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X.F120..,n_1 = 1000 min^{-1}																	12.8 kNm
					P_{TH} kW												
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C						M4 20°C						
		min^{-1}	kNm	kW		Fan	Cooling cover H_2O	Cooling coil H_2O	Fan + cooling coil H_2O			Fan	Cooling cover H_2O	Cooling coil H_2O	Fan + cooling coil H_2O		
6.3	**6.44**	155	11.3	190	100	150	-	-	-		97	150	-	-	-		
7.1	**7.34**	136	11.4	165	105	155	-	-	-		100	160	-	-	-		
8	**8.04**	124	11.5	155	99	145	-	-	-		100	150	-	-	-		**X2F..**
9	**9.15**	109	11.6	135	98	145	-	-	-		100	150	-	-	-		
10	**10.20**	98	11.7	125	89	130	-	-	-		92	135	-	-	-		M5
11.2	**11.61**	86	11.8	110	92	135	-	-	-		95	140	-	-	-		272
12.5	**12.83**	78	11.9	100	88	130	-	-	-		92	135	-	-	-		M4
14	**14.61**	68	12.2	90	91	135	-	-	-		96	140	-	-	-		296
16	**16.28**	61	12.4	82	79	115	-	-	-		83	120	-	-	-		
18	**18.53**	54	12.8	74	81	120	-	-	-		86	125	-	-	-		
20	**20.26**	49	10.9	58	60	75	-	-	-		65	81	-	-	-		
22.4	**23.06**	43	12.0	57	62	77	-	-	-		67	83	-	-	-		
25	**25.70**	39	12.8	54	56	70	-	-	-		61	75	-	-	-		
28	**29.26**	34	12.8	48	57	71	-	-	-		62	77	-	-	-		
31.5	**30.90**	32	12.8	45	50	63	-	-	-		54	67	-	-	-		**X3F..**
35.5	**35.18**	28	12.8	40	51	63	-	-	-		55	68	-	-	-		
40	**41.45**	24	12.8	34	51	62	-	-	-		55	68	-	-	-		M5
45	**47.18**	21	12.8	29	51	63	-	-	-		55	68	-	-	-		276
50	**49.83**	20	12.8	28	44	55	-	-	-		48	59	-	-	-		M4
56	**56.73**	18	12.8	25	45	55	-	-	-		48	60	-	-	-		300
63	**65.48**	15	12.8	21	43	53	-	-	-		46	57	-	-	-		
71	**74.54**	13	12.8	19	43	53	-	-	-		47	58	-	-	-		
80	**78.73**	13	12.8	18	38	47	-	-	-		41	51	-	-	-		
90	**89.63**	11	12.8	16	39	48	-	-	-		42	52	-	-	-		
100	**107.48**	9.3	12.8	13	34	-	-	-	-		37	-	-	-	-		
112	**122.36**	8.2	12.8	11	35	-	-	-	-		38	-	-	-	-		
125	**129.23**	7.7	12.8	11	31	-	-	-	-		34	-	-	-	-		
140	**147.12**	6.8	12.8	10	32	-	-	-	-		35	-	-	-	-		**X4F..**
160	**154.68**	6.5	12.8	9	29	-	-	-	-		31	-	-	-	-		
180	**176.09**	5.7	12.8	8	29	-	-	-	-		32	-	-	-	-		M5
200	**205.30**	4.9	12.8	7	28	-	-	-	-		30	-	-	-	-		280
224	**233.72**	4.3	12.8	6	28	-	-	-	-		31	-	-	-	-		M4
250	**246.85**	4.1	12.8	6	25	-	-	-	-		27	-	-	-	-		304
280	**281.01**	3.6	12.8	5	25	-	-	-	-		28	-	-	-	-		
315	**295.46**	3.4	12.8	5	23	-	-	-	-		25	-	-	-	-		
355	**336.35**	3.0	12.8	4	23	-	-	-	-		25	-	-	-	-		
X.F120..,n_1 = 1200 min^{-1}																	**12.8 kNm**
6.3	**6.44**	186	11.3	225	97	165	-	-	-		84	160	-	-	-		
7.1	**7.34**	163	11.4	200	105	170	-	-	-		93	170	-	-	-		
8	**8.04**	149	11.5	185	100	165	-	-	-		96	165	-	-	-		**X2F..**
9	**9.15**	131	11.6	165	98	160	-	-	-		95	165	-	-	-		
10	**10.20**	118	11.7	150	90	145	-	-	-		90	150	-	-	-		M5
11.2	**11.61**	103	11.8	130	93	150	-	-	-		94	155	-	-	-		272
12.5	**12.83**	94	11.9	120	90	145	-	-	-		93	150	-	-	-		M4
14	**14.61**	82	12.2	110	93	150	-	-	-		96	155	-	-	-		296
16	**16.28**	74	12.4	98	81	130	-	-	-		85	135	-	-	-		
18	**18.53**	65	12.8	89	84	135	-	-	-		87	140	-	-	-		
20	**20.26**	59	10.9	70	62	86	-	-	-		66	92	-	-	-		
22.4	**23.06**	52	12.0	68	64	88	-	-	-		68	94	-	-	-		
25	**25.70**	47	12.8	65	58	80	-	-	-		62	86	-	-	-		
28	**29.26**	41	12.8	57	59	81	-	-	-		63	87	-	-	-		
31.5	**30.90**	39	12.8	54	52	71	-	-	-		55	76	-	-	-		**X3F..**
35.5	**35.18**	34	12.8	47	53	72	-	-	-		56	77	-	-	-		
40	**41.45**	29	12.8	40	52	71	-	-	-		57	77	-	-	-		M5
45	**47.18**	25	12.8	35	53	72	-	-	-		57	78	-	-	-		276
50	**49.83**	24	12.8	33	46	63	-	-	-		50	68	-	-	-		M4
56	**56.73**	21	12.8	29	46	63	-	-	-		50	68	-	-	-		300
63	**65.48**	18	12.8	25	45	61	-	-	-		48	66	-	-	-		
71	**74.54**	16	12.8	22	45	61	-	-	-		49	66	-	-	-		
80	**78.73**	15	12.8	21	39	53	-	-	-		43	58	-	-	-		
90	**89.63**	13	12.8	19	41	55	-	-	-		44	60	-	-	-		
100	**107.48**	11	12.8	16	36	-	-	-	-		39	-	-	-	-		
112	**122.36**	9.8	12.8	14	36	-	-	-	-		40	-	-	-	-		
125	**129.23**	9.3	12.8	13	33	-	-	-	-		35	-	-	-	-		
140	**147.12**	8.2	12.8	11	33	-	-	-	-		36	-	-	-	-		**X4F..**
160	**154.68**	7.8	12.8	11	30	-	-	-	-		33	-	-	-	-		
180	**176.09**	6.8	12.8	10	31	-	-	-	-		33	-	-	-	-		M5
200	**205.30**	5.8	12.8	8	29	-	-	-	-		32	-	-	-	-		280
224	**233.72**	5.1	12.8	7	30	-	-	-	-		32	-	-	-	-		M4
250	**246.85**	4.9	12.8	7	26	-	-	-	-		29	-	-	-	-		304
280	**281.01**	4.3	12.8	6	27	-	-	-	-		29	-	-	-	-		
315	**295.46**	4.1	12.8	6	24	-	-	-	-		26	-	-	-	-		
355	**336.35**	3.6	12.8	5	25	-	-	-	-		27	-	-	-	-		

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X.F120..,n_1 = 1500 min^{-1}															12.8 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.44**	233	11.3	280	84	185	-	-	-	*)	170	-	-	-	
7.1	**7.34**	204	11.4	250	94	195	-	-	-	*)	175	-	-	-	
8	**8.04**	187	11.5	230	94	185	-	-	-	74	180	-	-	-	**X2F..**
9	**9.15**	164	11.6	205	95	185	-	-	-	74	175	-	-	-	
10	**10.20**	147	11.7	185	88	165	-	-	-	80	165	-	-	-	M5
11.2	**11.61**	129	11.8	165	92	170	-	-	-	86	175	-	-	-	272
12.5	**12.83**	117	11.9	150	91	165	-	-	-	89	170	-	-	-	M4
14	**14.61**	103	12.2	135	94	170	-	-	-	93	175	-	-	-	296
16	**16.28**	92	12.4	125	82	150	-	-	-	84	155	-	-	-	
18	**18.53**	81	12.8	110	85	155	-	-	-	86	160	-	-	-	
20	**20.26**	74	10.9	88	64	100	-	-	-	66	105	-	-	-	
22.4	**23.06**	65	12.0	85	66	105	-	-	-	68	110	-	-	-	
25	**25.70**	58	12.8	81	60	93	-	-	-	62	99	-	-	-	
28	**29.26**	51	12.8	71	60	95	-	-	-	63	100	-	-	-	
31.5	**30.90**	49	12.8	67	53	83	-	-	-	56	88	-	-	-	**X3F..**
35.5	**35.18**	43	12.8	59	54	84	-	-	-	56	89	-	-	-	
40	**41.45**	36	12.8	50	54	84	-	-	-	58	90	-	-	-	M5
45	**47.18**	32	12.8	44	55	85	-	-	-	59	91	-	-	-	276
50	**49.83**	30	12.8	42	48	74	-	-	-	51	79	-	-	-	M4
56	**56.73**	26	12.8	37	48	74	-	-	-	52	80	-	-	-	300
63	**65.48**	23	12.8	32	46	71	-	-	-	50	77	-	-	-	
71	**74.54**	20	12.8	28	47	72	-	-	-	51	78	-	-	-	
80	**78.73**	19	12.8	26	41	63	-	-	-	44	68	-	-	-	
90	**89.63**	17	12.8	23	42	65	-	-	-	46	70	-	-	-	
100	**107.48**	14	12.8	20	37	-	-	-	-	41	-	-	-	-	
112	**122.36**	12	12.8	17	38	-	-	-	-	42	-	-	-	-	
125	**129.23**	12	12.8	16	34	-	-	-	-	37	-	-	-	-	
140	**147.12**	10	12.8	14	35	-	-	-	-	38	-	-	-	-	**X4F..**
160	**154.68**	9.7	12.8	14	32	-	-	-	-	34	-	-	-	-	
180	**176.09**	8.5	12.8	12	32	-	-	-	-	35	-	-	-	-	M5
200	**205.30**	7.3	12.8	10	31	-	-	-	-	34	-	-	-	-	280
224	**233.72**	6.4	12.8	9	31	-	-	-	-	34	-	-	-	-	M4
250	**246.85**	6.1	12.8	9	28	-	-	-	-	30	-	-	-	-	304
280	**281.01**	5.3	12.8	8	28	-	-	-	-	31	-	-	-	-	
315	**295.46**	5.1	12.8	7	26	-	-	-	-	28	-	-	-	-	
355	**336.35**	4.5	12.8	6	26	-	-	-	-	28	-	-	-	-	
X.F120..,n_1 = 1800 min^{-1}															**12.8 kNm**
6.3	**6.44**	280	10.7	320	*)	200	-	-	-	*)	160	-	-	-	
7.1	**7.34**	245	10.8	285	75	210	-	-	-	*)	170	-	-	-	
8	**8.04**	224	10.9	260	81	205	-	-	-	*)	185	-	-	-	**X2F..**
9	**9.15**	197	11.0	230	80	200	-	-	-	*)	180	-	-	-	
10	**10.20**	176	11.1	210	78	180	-	-	-	56	175	-	-	-	M5
11.2	**11.61**	155	11.2	185	86	190	-	-	-	64	185	-	-	-	272
12.5	**12.83**	140	11.3	170	89	185	-	-	-	79	185	-	-	-	M4
14	**14.61**	123	11.6	155	93	190	-	-	-	85	190	-	-	-	296
16	**16.28**	111	11.7	140	82	165	-	-	-	80	170	-	-	-	
18	**18.53**	97	12.0	125	85	170	-	-	-	82	175	-	-	-	
20	**20.26**	89	10.9	105	64	110	-	-	-	63	115	-	-	-	
22.4	**23.06**	78	11.4	97	66	115	-	-	-	65	120	-	-	-	
25	**25.70**	70	12.8	97	60	105	-	-	-	60	110	-	-	-	
28	**29.26**	62	12.8	86	61	105	-	-	-	61	110	-	-	-	
31.5	**30.90**	58	12.8	81	54	94	-	-	-	54	98	-	-	-	**X3F..**
35.5	**35.18**	51	12.8	71	55	95	-	-	-	55	99	-	-	-	
40	**41.45**	43	12.8	60	56	95	-	-	-	59	100	-	-	-	M5
45	**47.18**	38	12.8	53	56	96	-	-	-	60	105	-	-	-	276
50	**49.83**	36	12.8	50	49	83	-	-	-	52	89	-	-	-	M4
56	**56.73**	32	12.8	44	49	84	-	-	-	52	90	-	-	-	300
63	**65.48**	27	12.8	38	48	81	-	-	-	51	88	-	-	-	
71	**74.54**	24	12.8	34	48	82	-	-	-	52	88	-	-	-	
80	**78.73**	23	12.8	32	42	72	-	-	-	46	77	-	-	-	
90	**89.63**	20	12.8	28	44	74	-	-	-	47	80	-	-	-	
100	**107.48**	17	12.8	24	39	-	-	-	-	42	-	-	-	-	
112	**122.36**	15	12.8	21	40	-	-	-	-	43	-	-	-	-	
125	**129.23**	14	12.8	20	36	-	-	-	-	39	-	-	-	-	
140	**147.12**	12	12.8	17	36	-	-	-	-	40	-	-	-	-	**X4F..**
160	**154.68**	12	12.8	16	33	-	-	-	-	36	-	-	-	-	
180	**176.09**	10	12.8	14	33	-	-	-	-	36	-	-	-	-	M5
200	**205.30**	8.8	12.8	12	32	-	-	-	-	35	-	-	-	-	280
224	**233.72**	7.7	12.8	11	33	-	-	-	-	36	-	-	-	-	M4
250	**246.85**	7.3	12.8	10	29	-	-	-	-	32	-	-	-	-	304
280	**281.01**	6.4	12.8	9	30	-	-	-	-	32	-	-	-	-	
315	**295.46**	6.1	12.8	9	27	-	-	-	-	29	-	-	-	-	
355	**336.35**	5.4	12.8	8	27	-	-	-	-	30	-	-	-	-	

X.F130..,n_1 = 1000 min^{-1}															16 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C					M4 20°C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**8.06**	124	14.3	190	105	160	-	-	-	105	160	-	-	-	
9	**9.15**	109	14.4	170	110	165	-	-	-	110	170	-	-	-	
10	**10.05**	100	14.5	155	105	155	-	-	-	110	165	-	-	-	**X2F..**
11.2	**11.41**	88	14.6	135	100	145	-	-	-	100	155	-	-	-	
12.5	**12.75**	78	14.7	125	95	140	-	-	-	99	145	-	-	-	M5
14	**14.48**	69	14.8	110	94	135	-	-	-	98	145	-	-	-	272
16	**16.04**	62	14.9	100	94	135	-	-	-	99	145	-	-	-	M4
18	**18.22**	55	15.2	90	93	135	-	-	-	98	145	-	-	-	296
20	**20.35**	49	15.6	82	84	120	-	-	-	90	130	-	-	-	
22.4	**23.11**	43	16.0	74	87	125	-	-	-	93	135	-	-	-	
25	**25.32**	39	13.6	58	65	80	-	-	-	69	86	-	-	-	
28	**28.76**	35	15.5	59	65	80	-	-	-	70	86	-	-	-	
31.5	**32.12**	31	16.0	54	60	75	-	-	-	65	81	-	-	-	
35.5	**36.48**	27	16.0	48	61	76	-	-	-	66	82	-	-	-	
40	**38.62**	26	16.0	45	54	67	-	-	-	58	72	-	-	-	**X3F..**
45	**43.87**	23	16.0	40	55	68	-	-	-	59	73	-	-	-	
50	**51.81**	19	16.0	34	54	67	-	-	-	58	72	-	-	-	M5
56	**58.84**	17	16.0	30	55	67	-	-	-	59	73	-	-	-	276
63	**62.29**	16	16.0	28	48	60	-	-	-	52	65	-	-	-	M4
71	**70.75**	14	16.0	25	48	59	-	-	-	52	64	-	-	-	300
80	**81.85**	12	16.0	21	46	56	-	-	-	50	61	-	-	-	
90	**92.96**	11	16.0	19	45	55	-	-	-	49	60	-	-	-	
100	**98.41**	10	16.0	18	41	51	-	-	-	45	55	-	-	-	
112	**111.77**	8.9	16.0	16	41	50	-	-	-	44	54	-	-	-	
125	**134.35**	7.4	16.0	13	37	-	-	-	-	40	-	-	-	-	
140	**152.59**	6.6	16.0	12	36	-	-	-	-	39	-	-	-	-	
160	**161.54**	6.2	16.0	11	33	-	-	-	-	36	-	-	-	-	
180	**183.47**	5.5	16.0	10	33	-	-	-	-	36	-	-	-	-	**X4F..**
200	**193.35**	5.2	16.0	9	31	-	-	-	-	34	-	-	-	-	
224	**219.59**	4.6	16.0	8	31	-	-	-	-	34	-	-	-	-	M5
250	**256.63**	3.9	16.0	7	30	-	-	-	-	32	-	-	-	-	280
280	**291.46**	3.4	16.0	6	29	-	-	-	-	32	-	-	-	-	M4
315	**308.56**	3.2	16.0	6	27	-	-	-	-	29	-	-	-	-	304
355	**350.43**	2.9	16.0	5	27	-	-	-	-	29	-	-	-	-	
400	**369.32**	2.7	16.0	5	25	-	-	-	-	27	-	-	-	-	
450	**419.44**	2.4	16.0	4	25	-	-	-	-	27	-	-	-	-	
X.F130..,n_1 = 1200 min^{-1}															**16 kNm**
8	**8.06**	149	14.3	230	105	175	-	-	-	93	175	-	-	-	
9	**9.15**	131	14.4	205	110	185	-	-	-	105	185	-	-	-	
10	**10.05**	119	14.5	185	110	175	-	-	-	105	180	-	-	-	**X2F..**
11.2	**11.41**	105	14.6	165	100	165	-	-	-	98	170	-	-	-	
12.5	**12.75**	94	14.7	150	96	155	-	-	-	97	160	-	-	-	M5
14	**14.48**	83	14.8	130	95	155	-	-	-	97	160	-	-	-	272
16	**16.04**	75	14.9	120	96	155	-	-	-	100	160	-	-	-	M4
18	**18.22**	66	15.2	105	95	150	-	-	-	99	160	-	-	-	296
20	**20.35**	59	15.6	99	87	135	-	-	-	91	145	-	-	-	
22.4	**23.11**	52	16.0	89	90	140	-	-	-	94	150	-	-	-	
25	**25.32**	47	13.6	70	67	92	-	-	-	71	98	-	-	-	
28	**28.76**	42	15.5	70	67	92	-	-	-	71	98	-	-	-	
31.5	**32.12**	37	16.0	65	62	85	-	-	-	66	92	-	-	-	
35.5	**36.48**	33	16.0	57	63	87	-	-	-	67	93	-	-	-	
40	**38.62**	31	16.0	54	56	76	-	-	-	59	82	-	-	-	**X3F..**
45	**43.87**	27	16.0	48	56	77	-	-	-	60	83	-	-	-	
50	**51.81**	23	16.0	40	56	76	-	-	-	60	82	-	-	-	M5
56	**58.84**	20	16.0	35	57	77	-	-	-	61	84	-	-	-	276
63	**62.29**	19	16.0	33	50	68	-	-	-	54	74	-	-	-	M4
71	**70.75**	17	16.0	29	50	67	-	-	-	54	73	-	-	-	300
80	**81.85**	15	16.0	25	48	65	-	-	-	52	70	-	-	-	
90	**92.96**	13	16.0	22	47	64	-	-	-	51	69	-	-	-	
100	**98.41**	12	16.0	21	43	58	-	-	-	47	63	-	-	-	
112	**111.77**	11	16.0	19	42	57	-	-	-	46	62	-	-	-	
125	**134.35**	8.9	16.0	16	39	-	-	-	-	42	-	-	-	-	
140	**152.59**	7.9	16.0	14	38	-	-	-	-	41	-	-	-	-	
160	**161.54**	7.4	16.0	13	35	-	-	-	-	38	-	-	-	-	
180	**183.47**	6.5	16.0	11	35	-	-	-	-	38	-	-	-	-	**X4F..**
200	**193.35**	6.2	16.0	11	33	-	-	-	-	35	-	-	-	-	
224	**219.59**	5.5	16.0	10	33	-	-	-	-	35	-	-	-	-	M5
250	**256.63**	4.7	16.0	8	31	-	-	-	-	34	-	-	-	-	280
280	**291.46**	4.1	16.0	7	31	-	-	-	-	34	-	-	-	-	M4
315	**308.56**	3.9	16.0	7	28	-	-	-	-	30	-	-	-	-	304
355	**350.43**	3.4	16.0	6	28	-	-	-	-	30	-	-	-	-	
400	**369.32**	3.2	16.0	6	26	-	-	-	-	28	-	-	-	-	
450	**419.44**	2.9	16.0	5	26	-	-	-	-	28	-	-	-	-	

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X.F130..,n_1 = 1500 min^{-1}															16 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**8.06**	186	14.3	285	94	200	-	-	-	*)	180	-	-	-	
9	**9.15**	164	14.4	255	105	210	-	-	-	67	195	-	-	-	
10	**10.05**	149	14.5	230	105	200	-	-	-	84	195	-	-	-	**X2F..**
11.2	**11.41**	131	14.6	205	98	185	-	-	-	80	180	-	-	-	
12.5	**12.75**	118	14.7	185	96	180	-	-	-	90	180	-	-	-	M5
14	**14.48**	104	14.8	165	95	175	-	-	-	90	180	-	-	-	272
16	**16.04**	94	14.9	150	98	175	-	-	-	97	185	-	-	-	M4
18	**18.22**	82	15.2	135	97	175	-	-	-	96	180	-	-	-	296
20	**20.35**	74	15.6	125	89	160	-	-	-	90	165	-	-	-	
22.4	**23.11**	65	16.0	110	92	165	-	-	-	94	170	-	-	-	
25	**25.32**	59	13.6	88	68	105	-	-	-	71	115	-	-	-	
28	**28.76**	52	15.5	88	69	105	-	-	-	71	115	-	-	-	
31.5	**32.12**	47	16.0	81	64	100	-	-	-	67	105	-	-	-	
35.5	**36.48**	41	16.0	71	65	100	-	-	-	68	105	-	-	-	
40	**38.62**	39	16.0	68	57	89	-	-	-	60	95	-	-	-	**X3F..**
45	**43.87**	34	16.0	59	58	90	-	-	-	61	96	-	-	-	
50	**51.81**	29	16.0	50	58	90	-	-	-	62	97	-	-	-	M5
56	**58.84**	25	16.0	44	59	91	-	-	-	63	98	-	-	-	276
63	**62.29**	24	16.0	42	52	80	-	-	-	56	87	-	-	-	M4
71	**70.75**	21	16.0	37	52	79	-	-	-	55	85	-	-	-	300
80	**81.85**	18	16.0	32	50	76	-	-	-	54	82	-	-	-	
90	**92.96**	16	16.0	28	49	75	-	-	-	53	81	-	-	-	
100	**98.41**	15	16.0	26	45	69	-	-	-	49	75	-	-	-	
112	**111.77**	13	16.0	23	44	68	-	-	-	48	73	-	-	-	
125	**134.35**	11	16.0	20	41	-	-	-	-	44	-	-	-	-	
140	**152.59**	9.8	16.0	17	40	-	-	-	-	44	-	-	-	-	
160	**161.54**	9.3	16.0	16	37	-	-	-	-	40	-	-	-	-	
180	**183.47**	8.2	16.0	14	37	-	-	-	-	40	-	-	-	-	**X4F..**
200	**193.35**	7.8	16.0	14	34	-	-	-	-	37	-	-	-	-	
224	**219.59**	6.8	16.0	12	34	-	-	-	-	37	-	-	-	-	M5
250	**256.63**	5.8	16.0	10	33	-	-	-	-	36	-	-	-	-	280
280	**291.46**	5.1	16.0	9	33	-	-	-	-	36	-	-	-	-	M4
315	**308.56**	4.9	16.0	9	30	-	-	-	-	32	-	-	-	-	304
355	**350.43**	4.3	16.0	8	30	-	-	-	-	32	-	-	-	-	
400	**369.32**	4.1	16.0	7	28	-	-	-	-	30	-	-	-	-	
450	**419.44**	3.6	16.0	6	27	-	-	-	-	30	-	-	-	-	
X.F130..,n_1 = 1800 min^{-1}															**16 kNm**
8	**8.06**	223	13.6	325	*)	220	-	-	-	*)	175	-	-	-	
9	**9.15**	197	13.7	290	87	230	-	-	-	*)	190	-	-	-	
10	**10.05**	179	13.8	265	92	220	-	-	-	*)	200	-	-	-	**X2F..**
11.2	**11.41**	158	13.9	235	85	205	-	-	-	*)	190	-	-	-	
12.5	**12.75**	141	14.0	210	88	195	-	-	-	67	190	-	-	-	M5
14	**14.48**	124	14.0	185	91	195	-	-	-	71	190	-	-	-	272
16	**16.04**	112	14.1	170	97	195	-	-	-	89	200	-	-	-	M4
18	**18.22**	99	14.5	155	96	195	-	-	-	89	195	-	-	-	296
20	**20.35**	88	14.8	140	89	175	-	-	-	87	185	-	-	-	
22.4	**23.11**	78	15.5	130	92	180	-	-	-	90	190	-	-	-	
25	**25.32**	71	12.9	100	69	120	-	-	-	68	125	-	-	-	
28	**28.76**	63	14.5	99	69	120	-	-	-	69	125	-	-	-	
31.5	**32.12**	56	15.1	92	64	115	-	-	-	65	120	-	-	-	
35.5	**36.48**	49	15.9	85	65	115	-	-	-	66	120	-	-	-	
40	**38.62**	47	16.0	81	58	100	-	-	-	59	105	-	-	-	**X3F..**
45	**43.87**	41	16.0	71	59	100	-	-	-	59	105	-	-	-	
50	**51.81**	35	16.0	60	60	100	-	-	-	63	110	-	-	-	M5
56	**58.84**	31	16.0	53	60	105	-	-	-	64	110	-	-	-	276
63	**62.29**	29	16.0	50	54	91	-	-	-	57	98	-	-	-	M4
71	**70.75**	25	16.0	44	53	90	-	-	-	56	97	-	-	-	300
80	**81.85**	22	16.0	38	51	87	-	-	-	55	94	-	-	-	
90	**92.96**	19	16.0	34	50	85	-	-	-	54	92	-	-	-	
100	**98.41**	18	16.0	32	46	78	-	-	-	50	85	-	-	-	
112	**111.77**	16	16.0	28	46	77	-	-	-	49	83	-	-	-	
125	**134.35**	13	16.0	24	42	-	-	-	-	46	-	-	-	-	
140	**152.59**	12	16.0	21	42	-	-	-	-	45	-	-	-	-	
160	**161.54**	11	16.0	20	38	-	-	-	-	41	-	-	-	-	
180	**183.47**	9.8	16.0	17	38	-	-	-	-	41	-	-	-	-	**X4F..**
200	**193.35**	9.3	16.0	16	36	-	-	-	-	39	-	-	-	-	
224	**219.59**	8.2	16.0	14	36	-	-	-	-	39	-	-	-	-	M5
250	**256.63**	7.0	16.0	12	35	-	-	-	-	38	-	-	-	-	280
280	**291.46**	6.2	16.0	11	34	-	-	-	-	37	-	-	-	-	M4
315	**308.56**	5.8	16.0	10	31	-	-	-	-	34	-	-	-	-	304
355	**350.43**	5.1	16.0	9	31	-	-	-	-	34	-	-	-	-	
400	**369.32**	4.9	16.0	9	29	-	-	-	-	31	-	-	-	-	
450	**419.44**	4.3	16.0	8	29	-	-	-	-	31	-	-	-	-	

X.F140..,n_1 = 1000 min^{-1}															22 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C					M4 20°C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.61**	151	20.3	330	135	210	-	295	360	115	205	-	345	415	
7.1	**7.07**	141	20.9	315	145	225	-	305	375	130	220	-	360	430	
8	**8.21**	122	21.7	285	135	200	-	260	320	125	200	-	305	370	**X2F..**
9	**8.78**	114	22.0	270	140	210	-	270	330	135	210	-	315	385	
10	**10.18**	98	22.0	230	125	185	-	230	285	125	195	-	270	330	M5
11.2	**10.89**	92	22.0	215	125	185	-	225	280	125	190	-	265	320	272
12.5	**12.95**	77	22.0	180	115	170	-	195	245	120	175	-	230	280	M4
14	**13.85**	72	22.0	170	115	165	-	190	240	120	175	-	225	275	296
16	**16.49**	61	22.0	145	115	165	-	180	230	120	175	-	210	260	
18	**17.63**	57	22.0	135	115	170	-	185	235	125	180	-	215	270	
20	**21.80**	46	21.8	110	85	105	-	125	145	90	115	-	145	170	
22.4	**23.31**	43	22.0	105	87	110	-	130	150	93	115	-	150	170	
25	**27.25**	37	22.0	88	80	99	-	115	135	85	105	-	135	150	
28	**29.14**	34	22.0	82	82	100	-	115	135	87	110	-	135	155	
31.5	**33.22**	30	22.0	72	74	91	-	100	120	78	98	-	115	135	**X3F..**
35.5	**35.52**	28	22.0	67	75	93	-	105	120	80	100	-	120	135	
40	**42.36**	24	22.0	56	70	87	-	93	110	76	94	-	105	125	M5
45	**45.30**	22	22.0	53	72	88	-	94	110	77	95	-	110	125	276
50	**51.63**	19	22.0	46	65	80	-	84	98	70	86	-	96	110	M4
56	**55.21**	18	22.0	43	66	81	-	84	99	71	88	-	97	115	300
63	**66.11**	15	22.0	36	65	80	-	81	95	70	86	-	92	110	
71	**70.69**	14	22.0	34	66	81	-	82	97	71	88	-	93	110	
80	**80.57**	12	22.0	30	57	70	-	70	82	62	76	-	79	93	
90	**86.16**	12	22.0	28	58	71	-	70	83	62	77	-	80	94	
100	**107.36**	9.3	22.0	23	48	-	-	54	-	52	-	-	60	-	
112	**114.80**	8.7	22.0	21	48	-	-	54	-	53	-	-	61	-	
125	**130.85**	7.6	22.0	18	43	-	-	48	-	47	-	-	54	-	
140	**139.92**	7.1	22.0	17	43	-	-	48	-	47	-	-	54	-	**X4F..**
160	**163.65**	6.1	22.0	15	40	-	-	44	-	44	-	-	49	-	
180	**175.00**	5.7	22.0	14	41	-	-	44	-	44	-	-	49	-	M5
200	**210.13**	4.8	22.0	12	38	-	-	41	-	41	-	-	45	-	280
224	**224.70**	4.5	22.0	11	39	-	-	42	-	42	-	-	46	-	M4
250	**256.11**	3.9	22.0	9	35	-	-	38	-	38	-	-	42	-	304
280	**273.87**	3.7	22.0	9	35	-	-	38	-	38	-	-	42	-	
315	**320.31**	3.1	22.0	8	32	-	-	34	-	35	-	-	38	-	
355	**342.53**	2.9	22.0	7	32	-	-	34	-	35	-	-	38	-	
X.F140..,n_1 = 1200 min^{-1}															**22 kNm**
6.3	**6.61**	182	20.3	395	120	235	-	320	405	*)	215	-	365	460	
7.1	**7.07**	170	20.9	380	130	245	-	330	420	*)	225	-	380	475	
8	**8.21**	146	21.7	340	125	220	-	280	360	100	215	-	325	415	**X2F..**
9	**8.78**	137	22.0	325	135	230	-	290	375	110	225	-	335	425	
10	**10.18**	118	22.0	280	125	210	-	250	325	115	210	-	290	370	M5
11.2	**10.89**	110	22.0	260	125	205	-	240	315	120	210	-	280	360	272
12.5	**12.95**	93	22.0	220	115	190	-	210	275	115	195	-	245	315	M4
14	**13.85**	87	22.0	205	115	185	-	205	270	115	195	-	240	310	296
16	**16.49**	73	22.0	170	115	185	-	195	260	120	195	-	225	295	
18	**17.63**	68	22.0	160	120	190	-	200	265	120	200	-	230	305	
20	**21.80**	55	21.8	130	87	120	-	135	165	91	125	-	160	190	
22.4	**23.31**	51	22.0	125	90	125	-	140	170	94	130	-	160	195	
25	**27.25**	44	22.0	105	83	115	-	125	150	87	120	-	140	175	
28	**29.14**	41	22.0	98	84	115	-	125	155	89	125	-	145	175	
31.5	**33.22**	36	22.0	86	76	105	-	110	135	80	110	-	125	155	**X3F..**
35.5	**35.52**	34	22.0	81	78	105	-	110	135	82	115	-	125	155	
40	**42.36**	28	22.0	68	73	99	-	100	125	78	105	-	115	140	M5
45	**45.30**	26	22.0	63	74	100	-	100	125	80	110	-	115	145	276
50	**51.63**	23	22.0	56	67	91	-	89	115	72	98	-	100	130	M4
56	**55.21**	22	22.0	52	68	93	-	90	115	73	100	-	105	130	300
63	**66.11**	18	22.0	43	67	91	-	86	110	73	99	-	99	125	
71	**70.69**	17	22.0	41	68	93	-	87	110	74	100	-	100	125	
80	**80.57**	15	22.0	36	59	80	-	74	95	64	87	-	85	105	
90	**86.16**	14	22.0	33	60	82	-	75	96	65	88	-	85	110	
100	**107.36**	11	22.0	27	50	-	-	57	-	54	-	-	64	-	
112	**114.80**	10	22.0	25	50	-	-	57	-	55	-	-	64	-	
125	**130.85**	9.2	22.0	22	45	-	-	51	-	49	-	-	57	-	
140	**139.92**	8.6	22.0	21	45	-	-	51	-	49	-	-	57	-	**X4F..**
160	**163.65**	7.3	22.0	18	42	-	-	47	-	46	-	-	52	-	
180	**175.00**	6.9	22.0	17	42	-	-	47	-	46	-	-	52	-	M5
200	**210.13**	5.7	22.0	14	40	-	-	43	-	43	-	-	48	-	280
224	**224.70**	5.3	22.0	13	41	-	-	44	-	44	-	-	49	-	M4
250	**256.11**	4.7	22.0	11	37	-	-	40	-	40	-	-	44	-	304
280	**273.87**	4.4	22.0	11	37	-	-	40	-	40	-	-	44	-	
315	**320.31**	3.7	22.0	9	34	-	-	36	-	37	-	-	40	-	
355	**342.53**	3.5	22.0	8	34	-	-	36	-	37	-	-	40	-	

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X.F140..,n_1 = 1500 min^{-1}															22 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.61**	227	20.3	495	*)	260	-	340	455	*)	190	-	365	495	
7.1	**7.07**	212	20.9	475	*)	275	-	355	480	*)	210	-	390	520	
8	**8.21**	183	21.7	425	*)	250	-	305	415	*)	220	-	345	465	**X2F..**
9	**8.78**	171	22.0	405	110	260	-	315	430	*)	230	-	355	475	
10	**10.18**	147	22.0	350	110	235	-	270	375	*)	225	-	310	420	M5
11.2	**10.89**	138	22.0	325	115	235	-	265	365	83	225	-	300	410	272
12.5	**12.95**	116	22.0	275	110	215	-	230	320	98	215	-	265	365	M4
14	**13.85**	108	22.0	255	110	215	-	225	315	100	215	-	260	355	296
16	**16.49**	91	22.0	215	115	210	-	210	300	115	215	-	245	340	
18	**17.63**	85	22.0	200	120	220	-	215	305	115	225	-	250	350	
20	**21.80**	69	21.8	165	89	140	-	150	195	89	145	-	170	220	
22.4	**23.31**	64	22.0	155	91	145	-	150	200	92	150	-	175	225	
25	**27.25**	55	22.0	130	85	130	-	135	180	86	140	-	155	200	
28	**29.14**	51	22.0	125	86	135	-	135	180	88	140	-	155	205	
31.5	**33.22**	45	22.0	110	78	120	-	120	160	79	125	-	135	180	**X3F..**
35.5	**35.52**	42	22.0	100	80	125	-	120	160	81	130	-	135	180	
40	**42.36**	35	22.0	85	75	115	-	110	145	80	125	-	125	165	M5
45	**45.30**	33	22.0	79	77	120	-	110	150	81	125	-	125	170	276
50	**51.63**	29	22.0	69	70	105	-	97	135	74	115	-	110	150	M4
56	**55.21**	27	22.0	65	71	110	-	97	135	75	115	-	110	150	300
63	**66.11**	23	22.0	54	70	105	-	93	130	75	115	-	105	145	
71	**70.69**	21	22.0	51	71	110	-	94	130	77	120	-	110	150	
80	**80.57**	19	22.0	44	62	95	-	80	110	66	100	-	91	125	
90	**86.16**	17	22.0	42	63	96	-	81	115	67	105	-	92	125	
100	**107.36**	14	22.0	34	52	-	-	61	-	57	-	-	69	-	
112	**114.80**	13	22.0	32	53	-	-	61	-	57	-	-	69	-	
125	**130.85**	11	22.0	28	47	-	-	54	-	51	-	-	61	-	
140	**139.92**	11	22.0	26	47	-	-	54	-	51	-	-	61	-	**X4F..**
160	**163.65**	9.2	22.0	22	44	-	-	50	-	48	-	-	56	-	
180	**175.00**	8.6	22.0	21	44	-	-	50	-	48	-	-	56	-	M5
200	**210.13**	7.1	22.0	17	42	-	-	46	-	45	-	-	52	-	280
224	**224.70**	6.7	22.0	16	43	-	-	47	-	47	-	-	53	-	M4
250	**256.11**	5.9	22.0	14	39	-	-	42	-	42	-	-	47	-	304
280	**273.87**	5.5	22.0	13	39	-	-	43	-	42	-	-	47	-	
315	**320.31**	4.7	22.0	11	36	-	-	39	-	39	-	-	43	-	
355	**342.53**	4.4	22.0	11	36	-	-	39	-	39	-	-	43	-	
X.F140..,n_1 = 1800 min^{-1}															**22 kNm**
6.3	**6.61**	272	19.2	560	*)	275	-	335	485	*)	*)	-	310	475	
7.1	**7.07**	255	19.8	540	*)	295	-	355	510	*)	*)	-	330	500	
8	**8.21**	219	20.5	480	*)	270	-	325	460	*)	190	-	335	490	**X2F..**
9	**8.78**	205	21.0	460	*)	285	-	335	480	*)	210	-	350	510	
10	**10.18**	177	22.0	415	*)	260	-	290	420	*)	230	-	320	460	M5
11.2	**10.89**	165	22.0	390	*)	255	-	280	410	*)	230	-	310	450	272
12.5	**12.95**	139	22.0	330	95	235	-	245	360	*)	230	-	280	400	M4
14	**13.85**	130	22.0	305	99	235	-	240	355	*)	225	-	270	395	296
16	**16.49**	109	22.0	260	110	235	-	225	335	94	235	-	260	380	
18	**17.63**	102	22.0	240	115	240	-	230	345	100	245	-	265	390	
20	**21.80**	83	21.6	195	87	155	-	160	225	81	160	-	180	250	
22.4	**23.31**	77	22.0	185	91	160	-	160	225	85	165	-	180	250	
25	**27.25**	66	22.0	160	85	150	-	145	205	81	150	-	160	225	
28	**29.14**	62	22.0	150	87	150	-	145	205	83	155	-	160	230	
31.5	**33.22**	54	22.0	130	78	135	-	125	180	76	140	-	140	200	**X3F..**
35.5	**35.52**	51	22.0	120	80	140	-	125	185	77	145	-	140	205	
40	**42.36**	42	22.0	100	77	130	-	115	170	80	140	-	135	190	M5
45	**45.30**	40	22.0	95	78	135	-	115	170	81	145	-	135	190	276
50	**51.63**	35	22.0	83	71	120	-	105	150	74	130	-	120	170	M4
56	**55.21**	33	22.0	78	72	125	-	105	155	75	130	-	120	170	300
63	**66.11**	27	22.0	65	72	120	-	99	145	77	130	-	115	165	
71	**70.69**	25	22.0	61	73	125	-	100	150	78	135	-	115	170	
80	**80.57**	22	22.0	53	63	110	-	85	125	68	115	-	97	145	
90	**86.16**	21	22.0	50	64	110	-	85	130	69	115	-	98	145	
100	**107.36**	17	22.0	41	54	-	-	64	-	58	-	-	72	-	
112	**114.80**	16	22.0	38	54	-	-	64	-	59	-	-	73	-	
125	**130.85**	14	22.0	33	48	-	-	57	-	52	-	-	64	-	
140	**139.92**	13	22.0	31	49	-	-	57	-	53	-	-	64	-	**X4F..**
160	**163.65**	11	22.0	27	45	-	-	52	-	49	-	-	58	-	
180	**175.00**	10	22.0	25	46	-	-	52	-	49	-	-	59	-	M5
200	**210.13**	8.6	22.0	21	44	-	-	49	-	47	-	-	55	-	280
224	**224.70**	8.0	22.0	19	45	-	-	50	-	49	-	-	56	-	M4
250	**256.11**	7.0	22.0	17	40	-	-	45	-	44	-	-	50	-	304
280	**273.87**	6.6	22.0	16	41	-	-	45	-	44	-	-	50	-	
315	**320.31**	5.6	22.0	14	37	-	-	41	-	40	-	-	45	-	
355	**342.53**	5.3	22.0	13	37	-	-	41	-	41	-	-	46	-	

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X.F150..,n_1 = 1000 min^{-1}															27.5 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C					M4 20°C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**8.21**	122	25.4	330	150	225	-	330	400	130	225	-	260	335	
9	**8.79**	114	25.9	315	150	225	-	325	390	135	225	-	255	330	
10	**10.19**	98	27.2	285	145	215	-	290	355	140	215	-	235	310	**X2F..**
11.2	**10.91**	92	27.5	270	145	215	-	285	350	140	215	-	230	305	
12.5	**12.64**	79	27.5	235	135	200	-	255	315	140	210	-	215	280	M5
14	**13.54**	74	27.5	220	135	200	-	250	310	135	205	-	210	275	272
16	**16.08**	62	27.5	185	130	190	-	225	280	135	200	-	195	255	M4
18	**17.22**	58	27.5	170	130	185	-	220	275	135	195	-	190	250	296
20	**20.48**	49	27.5	145	120	175	-	200	250	125	185	-	175	235	
22.4	**21.93**	46	27.5	135	120	175	-	195	245	125	185	-	170	230	
25	**27.08**	37	26.0	105	93	115	-	145	165	100	125	-	130	155	
28	**28.99**	34	27.5	105	93	115	-	140	165	99	125	-	130	150	
31.5	**33.85**	30	27.5	88	89	110	-	130	150	95	120	-	120	140	
35.5	**36.24**	28	27.5	82	88	110	-	130	145	94	115	-	120	140	
40	**41.25**	24	27.5	72	81	100	-	115	135	87	110	-	105	125	**X3F..**
45	**44.17**	23	27.5	68	80	100	-	115	130	86	105	-	105	125	
50	**52.61**	19	27.5	57	75	93	-	100	120	81	100	-	97	115	M5
56	**56.33**	18	27.5	53	77	95	-	105	120	83	100	-	99	120	276
63	**64.12**	16	27.5	47	69	85	-	91	105	75	92	-	88	105	M4
71	**68.66**	15	27.5	44	69	85	-	90	105	74	91	-	87	105	300
80	**82.10**	12	27.5	36	69	85	-	88	105	75	92	-	86	105	
90	**87.91**	11	27.5	34	68	84	-	86	100	74	91	-	85	100	
100	**100.07**	10.0	27.5	30	64	78	-	79	93	69	85	-	78	94	
112	**107.15**	9.3	27.5	28	62	76	-	76	90	67	82	-	76	91	
125	**133.33**	7.5	27.5	23	51	-	-	58	-	56	-	-	60	-	
140	**142.77**	7.0	27.5	21	51	-	-	57	-	55	-	-	59	-	
160	**162.51**	6.2	27.5	19	47	-	-	53	-	51	-	-	55	-	
180	**174.01**	5.7	27.5	17	47	-	-	52	-	51	-	-	54	-	**X4F..**
200	**203.25**	4.9	27.5	15	43	-	-	48	-	47	-	-	49	-	
224	**217.63**	4.6	27.5	14	43	-	-	47	-	46	-	-	49	-	M5
250	**260.96**	3.8	27.5	12	41	-	-	45	-	45	-	-	47	-	280
280	**279.43**	3.6	27.5	11	41	-	-	44	-	44	-	-	46	-	M4
315	**318.07**	3.1	27.5	9	38	-	-	41	-	41	-	-	43	-	304
355	**340.58**	2.9	27.5	9	37	-	-	40	-	41	-	-	42	-	
400	**397.81**	2.5	27.5	8	34	-	-	37	-	37	-	-	39	-	
450	**425.96**	2.3	27.5	7	35	-	-	37	-	38	-	-	39	-	
X.F150..,n_1 = 1200 min^{-1}															**27.5 kNm**
8	**8.21**	146	25.4	400	135	250	-	360	450	*)	230	-	260	365	
9	**8.79**	137	25.9	380	135	250	-	350	440	96	235	-	255	360	
10	**10.19**	118	27.2	345	135	240	-	315	400	115	235	-	240	340	**X2F..**
11.2	**10.91**	110	27.5	325	140	235	-	310	395	120	230	-	235	335	
12.5	**12.64**	95	27.5	280	135	225	-	280	355	130	225	-	225	310	M5
14	**13.54**	89	27.5	260	135	220	-	270	350	130	225	-	220	305	272
16	**16.08**	75	27.5	220	130	210	-	245	320	135	220	-	205	285	M4
18	**17.22**	70	27.5	205	130	210	-	240	310	130	220	-	200	280	296
20	**20.48**	59	27.5	175	125	195	-	215	285	125	210	-	185	260	
22.4	**21.93**	55	27.5	160	125	195	-	210	280	125	205	-	180	260	
25	**27.08**	44	26.0	125	96	130	-	155	190	100	140	-	135	175	
28	**28.99**	41	27.5	125	96	130	-	155	185	100	140	-	135	175	
31.5	**33.85**	35	27.5	105	92	125	-	140	170	96	135	-	125	160	
35.5	**36.24**	33	27.5	99	91	125	-	135	170	96	130	-	125	160	
40	**41.25**	29	27.5	87	84	115	-	125	155	89	120	-	110	145	**X3F..**
45	**44.17**	27	27.5	81	83	115	-	120	150	88	120	-	110	145	
50	**52.61**	23	27.5	68	78	105	-	110	135	84	115	-	105	135	M5
56	**56.33**	21	27.5	64	80	110	-	110	140	85	115	-	105	135	276
63	**64.12**	19	27.5	56	72	98	-	98	125	77	105	-	93	120	M4
71	**68.66**	17	27.5	52	71	97	-	96	120	77	105	-	91	120	300
80	**82.10**	15	27.5	44	72	98	-	94	120	78	105	-	91	120	
90	**87.91**	14	27.5	41	71	97	-	93	115	77	105	-	90	115	
100	**100.07**	12	27.5	36	66	90	-	85	105	72	97	-	83	110	
112	**107.15**	11	27.5	33	64	87	-	81	105	70	95	-	80	105	
125	**133.33**	9.0	27.5	27	53	-	-	62	-	58	-	-	63	-	
140	**142.77**	8.4	27.5	25	53	-	-	61	-	57	-	-	62	-	
160	**162.51**	7.4	27.5	22	49	-	-	56	-	53	-	-	57	-	
180	**174.01**	6.9	27.5	21	49	-	-	55	-	53	-	-	57	-	**X4F..**
200	**203.25**	5.9	27.5	18	45	-	-	50	-	49	-	-	52	-	
224	**217.63**	5.5	27.5	17	44	-	-	50	-	48	-	-	51	-	M5
250	**260.96**	4.6	27.5	14	43	-	-	48	-	47	-	-	49	-	280
280	**279.43**	4.3	27.5	13	43	-	-	47	-	46	-	-	49	-	M4
315	**318.07**	3.8	27.5	11	40	-	-	43	-	43	-	-	45	-	304
355	**340.58**	3.5	27.5	11	39	-	-	43	-	43	-	-	45	-	
400	**397.81**	3.0	27.5	9	36	-	-	39	-	39	-	-	41	-	
450	**425.96**	2.8	27.5	9	36	-	-	39	-	39	-	-	41	-	

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X.F150..,n_1 = 1500 min^{-1}															27.5 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**8.21**	183	25.4	500	*)	280	-	385	510	*)	215	-	230	380	
9	**8.79**	171	25.9	475	*)	280	-	385	510	*)	225	-	240	385	
10	**10.19**	147	27.2	430	115	270	-	350	465	*)	240	-	235	370	**X2F..**
11.2	**10.91**	137	27.5	405	120	265	-	340	455	*)	240	-	230	365	
12.5	**12.64**	119	27.5	350	125	255	-	305	415	94	245	-	225	350	M5
14	**13.54**	111	27.5	325	125	250	-	300	405	98	245	-	220	345	272
16	**16.08**	93	27.5	275	130	240	-	270	370	120	245	-	210	325	M4
18	**17.22**	87	27.5	255	130	240	-	265	360	120	245	-	210	320	296
20	**20.48**	73	27.5	215	125	225	-	235	330	125	235	-	195	300	
22.4	**21.93**	68	27.5	200	125	225	-	230	325	120	235	-	190	295	
25	**27.08**	55	26.0	155	98	155	-	170	220	100	160	-	145	200	
28	**28.99**	52	27.5	155	98	155	-	165	220	100	160	-	140	200	
31.5	**33.85**	44	27.5	130	94	145	-	155	200	96	155	-	130	185	
35.5	**36.24**	41	27.5	125	93	145	-	150	200	95	150	-	130	185	
40	**41.25**	36	27.5	110	86	135	-	135	180	89	140	-	120	170	**X3F..**
45	**44.17**	34	27.5	100	86	135	-	130	175	88	140	-	115	165	
50	**52.61**	29	27.5	85	81	125	-	120	160	86	135	-	110	155	M5
56	**56.33**	27	27.5	80	83	125	-	120	165	88	135	-	110	155	276
63	**64.12**	23	27.5	70	75	115	-	105	145	79	125	-	98	140	M4
71	**68.66**	22	27.5	65	74	115	-	105	140	79	120	-	97	140	300
80	**82.10**	18	27.5	55	75	115	-	100	140	81	125	-	97	140	
90	**87.91**	17	27.5	51	75	115	-	100	140	80	125	-	96	135	
100	**100.07**	15	27.5	45	70	105	-	92	125	75	115	-	88	125	
112	**107.15**	14	27.5	42	67	105	-	88	120	72	110	-	85	125	
125	**133.33**	11	27.5	34	56	-	-	66	-	61	-	-	67	-	
140	**142.77**	11	27.5	32	55	-	-	65	-	60	-	-	66	-	
160	**162.51**	9.2	27.5	28	51	-	-	60	-	56	-	-	61	-	
180	**174.01**	8.6	27.5	26	51	-	-	59	-	55	-	-	60	-	**X4F..**
200	**203.25**	7.4	27.5	22	47	-	-	54	-	51	-	-	55	-	
224	**217.63**	6.9	27.5	21	47	-	-	53	-	51	-	-	54	-	M5
250	**260.96**	5.7	27.5	17	46	-	-	51	-	49	-	-	53	-	280
280	**279.43**	5.4	27.5	16	45	-	-	50	-	49	-	-	52	-	M4
315	**318.07**	4.7	27.5	14	42	-	-	46	-	46	-	-	48	-	304
355	**340.58**	4.4	27.5	13	42	-	-	46	-	45	-	-	48	-	
400	**397.81**	3.8	27.5	11	38	-	-	42	-	42	-	-	44	-	
450	**425.96**	3.5	27.5	11	38	-	-	42	-	42	-	-	44	-	
X.F150..,n_1 = 1800 min^{-1}															**27.5 kNm**
8	**8.21**	219	24.1	570	*)	300	-	385	540	*)	*)	-	*)	355	
9	**8.79**	205	24.6	540	*)	300	-	385	540	*)	155	-	*)	360	
10	**10.19**	177	25.9	490	*)	290	-	370	520	*)	220	-	195	380	**X2F..**
11.2	**10.91**	165	26.1	460	*)	290	-	365	510	*)	225	-	200	380	
12.5	**12.64**	142	27.0	415	*)	280	-	330	465	*)	250	-	215	375	M5
14	**13.54**	133	27.5	390	105	275	-	320	455	*)	250	-	210	365	272
16	**16.08**	112	27.5	330	120	270	-	290	415	89	260	-	215	355	M4
18	**17.22**	105	27.5	310	125	265	-	285	410	93	260	-	210	350	296
20	**20.48**	88	27.5	260	120	250	-	255	370	110	255	-	195	330	
22.4	**21.93**	82	27.5	240	120	250	-	245	365	110	255	-	195	325	
25	**27.08**	66	26.0	190	99	175	-	180	250	94	175	-	145	225	
28	**28.99**	62	27.5	185	99	175	-	180	250	94	175	-	145	220	
31.5	**33.85**	53	27.5	160	94	165	-	165	230	91	170	-	135	210	
35.5	**36.24**	50	27.5	150	94	165	-	160	225	91	170	-	130	205	
40	**41.25**	44	27.5	130	87	150	-	145	205	85	155	-	120	190	**X3F..**
45	**44.17**	41	27.5	120	87	150	-	140	200	84	155	-	120	185	
50	**52.61**	34	27.5	100	83	140	-	130	185	86	150	-	115	175	M5
56	**56.33**	32	27.5	95	84	145	-	130	185	88	155	-	115	180	276
63	**64.12**	28	27.5	84	77	130	-	115	165	80	140	-	100	160	M4
71	**68.66**	26	27.5	78	76	130	-	110	160	79	140	-	100	155	300
80	**82.10**	22	27.5	65	77	130	-	110	160	83	140	-	100	160	
90	**87.91**	20	27.5	61	77	130	-	105	160	82	140	-	100	155	
100	**100.07**	18	27.5	54	72	120	-	98	145	77	130	-	92	145	
112	**107.15**	17	27.5	50	69	115	-	94	140	74	125	-	89	140	
125	**133.33**	14	27.5	41	58	-	-	70	-	62	-	-	70	-	
140	**142.77**	13	27.5	38	57	-	-	69	-	62	-	-	69	-	
160	**162.51**	11	27.5	33	53	-	-	63	-	57	-	-	63	-	
180	**174.01**	10	27.5	31	52	-	-	62	-	57	-	-	62	-	**X4F..**
200	**203.25**	8.9	27.5	27	49	-	-	56	-	53	-	-	57	-	
224	**217.63**	8.3	27.5	25	48	-	-	56	-	52	-	-	57	-	M5
250	**260.96**	6.9	27.5	21	47	-	-	54	-	52	-	-	55	-	280
280	**279.43**	6.4	27.5	19	47	-	-	53	-	51	-	-	55	-	M4
315	**318.07**	5.7	27.5	17	44	-	-	49	-	48	-	-	51	-	304
355	**340.58**	5.3	27.5	16	43	-	-	48	-	47	-	-	50	-	
400	**397.81**	4.5	27.5	14	40	-	-	44	-	43	-	-	46	-	
450	**425.96**	4.2	27.5	13	40	-	-	44	-	44	-	-	46	-	

X.F160..,n_1 = 1000 min^{-1}															36 kNm
					P_{TH} kW										
					M5				20°C	M4				20°C	
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.21**	161	31.6	550	220	335	-	480	580	255	375	-	710	810	
7.1	**7.00**	143	32.5	500	220	330	-	460	560	255	370	-	670	770	
8	**7.73**	129	33.6	465	200	300	-	400	490	230	335	-	560	650	**X2F..**
9	**8.71**	115	35.0	430	200	300	-	385	475	230	330	-	530	620	
10	**10.02**	100	35.6	380	190	280	-	350	430	215	315	-	465	550	M5
11.2	**11.30**	88	36.0	340	190	280	-	335	420	215	310	-	440	520	272
12.5	**12.34**	81	36.0	315	175	255	-	300	370	195	280	-	380	455	M4
14	**13.91**	72	36.0	280	170	250	-	285	360	190	275	-	360	435	296
16	**15.93**	63	36.0	240	160	235	-	260	330	180	260	-	320	395	
18	**17.95**	56	36.0	215	160	230	-	250	320	180	255	-	305	375	
20	**20.50**	49	35.7	190	140	175	-	215	245	155	195	-	255	290	
22.4	**23.10**	43	36.0	170	140	170	-	210	240	155	190	-	245	280	
25	**25.09**	40	36.0	155	130	160	-	190	220	145	175	-	220	250	
28	**28.27**	35	36.0	140	130	160	-	190	220	145	180	-	215	250	
31.5	**31.72**	32	36.0	125	105	135	-	150	175	120	145	-	170	195	**X3F..**
35.5	**35.75**	28	36.0	110	110	135	-	150	175	120	150	-	170	195	
40	**39.72**	25	36.0	98	110	140	-	150	175	125	155	-	170	195	M5
45	**44.76**	22	36.0	87	115	140	-	150	175	125	155	-	170	195	276
50	**50.22**	20	36.0	78	94	115	-	125	145	105	130	-	135	160	M4
56	**56.59**	18	36.0	69	93	115	-	120	140	105	125	-	130	155	300
63	**63.38**	16	36.0	62	100	125	-	125	150	110	135	-	135	160	
71	**71.42**	14	36.0	55	98	120	-	125	145	110	135	-	135	155	
80	**80.13**	12	36.0	49	83	100	-	100	120	91	110	-	110	130	
90	**90.31**	11	36.0	43	80	98	-	97	115	88	110	-	105	125	
100	**100.04**	10.0	36.0	40	77	-	-	87	-	84	-	-	94	-	
112	**112.74**	8.9	36.0	35	78	-	-	87	-	85	-	-	94	-	
125	**126.49**	7.9	36.0	31	66	-	-	73	-	72	-	-	78	-	
140	**142.55**	7.0	36.0	28	65	-	-	72	-	71	-	-	77	-	**X4F..**
160	**152.08**	6.6	36.0	26	61	-	-	67	-	66	-	-	71	-	
180	**171.40**	5.8	36.0	23	59	-	-	65	-	65	-	-	70	-	M5
200	**202.75**	4.9	36.0	20	63	-	-	68	-	68	-	-	72	-	280
224	**228.49**	4.4	36.0	17	61	-	-	66	-	67	-	-	71	-	M4
250	**256.35**	3.9	36.0	15	52	-	-	56	-	57	-	-	60	-	304
280	**288.90**	3.5	36.0	14	52	-	-	56	-	57	-	-	60	-	
315	**308.22**	3.2	36.0	13	48	-	-	52	-	53	-	-	55	-	
355	**347.36**	2.9	36.0	11	47	-	-	50	-	52	-	-	54	-	
X.F160..,n_1 = 1200 min^{-1}															**36 kNm**
6.3	**6.21**	193	31.6	660	200	370	-	500	640	245	420	-	780	910	
7.1	**7.00**	171	32.5	600	205	365	-	500	630	250	415	-	760	900	
8	**7.73**	155	33.6	560	190	335	-	435	550	230	375	-	640	760	**X2F..**
9	**8.71**	138	35.0	520	195	330	-	420	530	230	370	-	600	720	
10	**10.02**	120	35.6	455	185	315	-	380	490	220	350	-	530	640	M5
11.2	**11.30**	106	36.0	410	190	310	-	365	470	215	345	-	495	610	272
12.5	**12.34**	97	36.0	375	175	285	-	320	420	200	315	-	425	530	M4
14	**13.91**	86	36.0	335	175	280	-	310	405	195	310	-	405	500	296
16	**15.93**	75	36.0	290	165	265	-	280	375	185	290	-	355	455	
18	**17.95**	67	36.0	260	160	260	-	270	360	180	285	-	340	435	
20	**20.50**	59	35.7	225	145	200	-	230	280	165	220	-	285	340	
22.4	**23.10**	52	36.0	205	140	195	-	225	275	160	220	-	270	325	
25	**25.09**	48	36.0	185	130	180	-	200	250	150	205	-	240	290	
28	**28.27**	42	36.0	165	135	185	-	200	250	150	205	-	240	290	
31.5	**31.72**	38	36.0	150	110	150	-	160	200	125	170	-	185	230	**X3F..**
35.5	**35.75**	34	36.0	130	110	155	-	160	200	125	170	-	185	225	
40	**39.72**	30	36.0	120	115	160	-	160	200	130	175	-	185	225	M5
45	**44.76**	27	36.0	105	115	160	-	160	205	130	180	-	180	225	276
50	**50.22**	24	36.0	93	97	135	-	130	165	110	150	-	145	185	M4
56	**56.59**	21	36.0	83	96	130	-	125	160	105	145	-	140	180	300
63	**63.38**	19	36.0	74	105	140	-	135	170	115	155	-	150	185	
71	**71.42**	17	36.0	66	100	140	-	130	165	115	155	-	145	180	
80	**80.13**	15	36.0	59	86	115	-	110	140	95	130	-	120	150	
90	**90.31**	13	36.0	52	83	115	-	105	130	92	125	-	110	145	
100	**100.04**	12	36.0	47	80	-	-	92	-	88	-	-	99	-	
112	**112.74**	11	36.0	42	81	-	-	92	-	88	-	-	99	-	
125	**126.49**	9.5	36.0	38	69	-	-	77	-	75	-	-	83	-	
140	**142.55**	8.4	36.0	33	67	-	-	76	-	74	-	-	81	-	**X4F..**
160	**152.08**	7.9	36.0	31	63	-	-	70	-	69	-	-	75	-	
180	**171.40**	7.0	36.0	28	62	-	-	69	-	68	-	-	74	-	M5
200	**202.75**	5.9	36.0	23	66	-	-	72	-	71	-	-	77	-	280
224	**228.49**	5.3	36.0	21	64	-	-	70	-	70	-	-	75	-	M4
250	**256.35**	4.7	36.0	19	55	-	-	59	-	60	-	-	63	-	304
280	**288.90**	4.2	36.0	16	55	-	-	59	-	60	-	-	63	-	
315	**308.22**	3.9	36.0	15	51	-	-	55	-	55	-	-	58	-	
355	**347.36**	3.5	36.0	14	50	-	-	53	-	54	-	-	57	-	

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X.F160..,n_1 = 1500 min^{-1}															**36 kNm**
					P_{TH} kW										
i_N	**i_{ex}**	**n_2**	**M_{N2}**	**P_{N1}**	**M5**				**20°C**	**M4**				**20°C**	
		min^{-1}	**kNm**	**kW**			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.21**	242	31.6	820	*)	410	-	510	690	220	470	-	810	990	
7.1	**7.00**	214	32.5	750	*)	405	-	500	680	225	465	-	800	980	
8	**7.73**	194	33.6	700	*)	375	-	460	620	215	425	-	720	880	**X2F..**
9	**8.71**	172	35.0	650	170	370	-	455	620	215	420	-	710	870	
10	**10.02**	150	35.6	570	165	355	-	415	560	205	400	-	610	770	M5
11.2	**11.30**	133	36.0	510	170	350	-	395	540	210	395	-	580	730	272
12.5	**12.34**	122	36.0	470	165	320	-	350	485	195	360	-	495	630	M4
14	**13.91**	108	36.0	415	165	315	-	335	470	195	355	-	465	600	296
16	**15.93**	94	36.0	365	160	300	-	305	430	190	335	-	410	540	
18	**17.95**	84	36.0	325	160	295	-	295	415	185	330	-	385	520	
20	**20.50**	73	35.7	285	145	230	-	250	330	165	260	-	320	405	
22.4	**23.10**	65	36.0	255	140	225	-	240	320	165	255	-	305	390	
25	**25.09**	60	36.0	235	130	210	-	220	290	155	235	-	270	350	
28	**28.27**	53	36.0	205	135	215	-	220	290	155	240	-	270	345	
31.5	**31.72**	47	36.0	185	110	175	-	175	235	130	200	-	210	275	**X3F..**
35.5	**35.75**	42	36.0	165	115	180	-	170	235	130	200	-	205	270	
40	**39.72**	38	36.0	150	120	185	-	175	240	135	205	-	205	270	M5
45	**44.76**	34	36.0	130	120	185	-	175	240	135	210	-	200	270	276
50	**50.22**	30	36.0	115	100	155	-	140	195	115	175	-	160	220	M4
56	**56.59**	27	36.0	105	99	155	-	135	190	110	170	-	155	210	300
63	**63.38**	24	36.0	93	105	165	-	145	200	120	185	-	165	225	
71	**71.42**	21	36.0	82	105	165	-	140	195	120	180	-	155	215	
80	**80.13**	19	36.0	73	89	135	-	115	165	100	150	-	130	180	
90	**90.31**	17	36.0	65	86	130	-	110	155	97	145	-	120	170	
100	**100.04**	15	36.0	59	84	-	-	98	-	92	-	-	105	-	
112	**112.74**	13	36.0	53	84	-	-	98	-	92	-	-	105	-	
125	**126.49**	12	36.0	47	71	-	-	82	-	78	-	-	89	-	
140	**142.55**	11	36.0	42	70	-	-	80	-	77	-	-	87	-	**X4F..**
160	**152.08**	9.9	36.0	39	66	-	-	75	-	72	-	-	81	-	
180	**171.40**	8.8	36.0	35	65	-	-	73	-	71	-	-	79	-	M5
200	**202.75**	7.4	36.0	29	69	-	-	77	-	75	-	-	82	-	280
224	**228.49**	6.6	36.0	26	68	-	-	75	-	74	-	-	80	-	M4
250	**256.35**	5.9	36.0	23	58	-	-	63	-	63	-	-	68	-	304
280	**288.90**	5.2	36.0	21	58	-	-	63	-	63	-	-	67	-	
315	**308.22**	4.9	36.0	19	54	-	-	58	-	59	-	-	62	-	
355	**347.36**	4.3	36.0	17	53	-	-	57	-	58	-	-	61	-	
X.F160..,n_1 = 1800 min^{-1}															**36 kNm**
6.3	**6.21**	290	29.9	930	*)	425	-	500	730	*)	510	-	820	1050	
7.1	**7.00**	257	30.8	850	*)	430	-	495	730	*)	510	-	810	1050	
8	**7.73**	233	31.8	790	*)	405	-	460	660	*)	465	-	740	950	**X2F..**
9	**8.71**	207	33.2	740	*)	400	-	455	660	195	465	-	730	940	
10	**10.02**	180	33.7	650	*)	385	-	440	630	185	440	-	690	880	M5
11.2	**11.30**	159	34.2	580	*)	380	-	420	610	190	435	-	650	840	272
12.5	**12.34**	146	36.0	560	145	355	-	375	540	185	400	-	560	730	M4
14	**13.91**	129	36.0	500	150	350	-	360	520	190	395	-	520	700	296
16	**15.93**	113	36.0	435	145	330	-	325	485	180	375	-	460	620	
18	**17.95**	100	36.0	385	150	325	-	315	470	185	365	-	430	590	
20	**20.50**	88	33.8	320	135	255	-	265	375	170	295	-	360	470	
22.4	**23.10**	78	36.0	305	135	255	-	255	360	165	290	-	340	450	
25	**25.09**	72	36.0	280	130	235	-	230	330	155	270	-	300	405	
28	**28.27**	64	36.0	250	135	240	-	230	330	160	275	-	295	400	
31.5	**31.72**	57	36.0	220	110	195	-	185	265	130	225	-	230	315	**X3F..**
35.5	**35.75**	50	36.0	195	110	200	-	180	265	130	225	-	225	315	
40	**39.72**	45	36.0	175	120	210	-	185	270	140	235	-	225	315	M5
45	**44.76**	40	36.0	155	120	210	-	185	270	140	235	-	220	310	276
50	**50.22**	36	36.0	140	100	175	-	150	220	115	200	-	175	255	M4
56	**56.59**	32	36.0	125	100	175	-	145	215	115	195	-	170	245	300
63	**63.38**	28	36.0	110	110	190	-	155	230	125	210	-	175	255	
71	**71.42**	25	36.0	99	110	185	-	150	225	125	205	-	170	250	
80	**80.13**	22	36.0	88	91	155	-	125	185	105	175	-	140	205	
90	**90.31**	20	36.0	78	88	150	-	115	175	100	165	-	130	195	
100	**100.04**	18	36.0	71	85	-	-	105	-	94	-	-	110	-	
112	**112.74**	16	36.0	63	86	-	-	100	-	95	-	-	110	-	
125	**126.49**	14	36.0	56	73	-	-	86	-	81	-	-	94	-	
140	**142.55**	13	36.0	50	72	-	-	84	-	79	-	-	91	-	**X4F..**
160	**152.08**	12	36.0	47	68	-	-	78	-	75	-	-	85	-	
180	**171.40**	11	36.0	42	66	-	-	76	-	73	-	-	83	-	M5
200	**202.75**	8.9	36.0	35	72	-	-	81	-	79	-	-	87	-	280
224	**228.49**	7.9	36.0	31	71	-	-	79	-	77	-	-	85	-	M4
250	**256.35**	7.0	36.0	28	60	-	-	67	-	66	-	-	72	-	304
280	**288.90**	6.2	36.0	25	60	-	-	66	-	66	-	-	71	-	
315	**308.22**	5.8	36.0	23	56	-	-	61	-	61	-	-	66	-	
355	**347.36**	5.2	36.0	20	55	-	-	60	-	60	-	-	64	-	

X.F170..,n_1 = 1000 min^{-1}															45 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**7.72**	130	39.4	550	230	350	-	485	590	265	390	-	510	620	
9	**8.67**	115	40.5	500	230	345	-	470	570	265	385	-	485	600	
10	**9.61**	104	41.8	465	210	310	-	405	495	240	345	-	415	520	**X2F..**
11.2	**10.80**	93	43.7	435	210	310	-	395	480	235	345	-	400	495	
12.5	**12.46**	80	44.3	380	210	305	-	375	460	235	340	-	370	470	M5
14	**14.00**	71	45.0	345	205	300	-	360	445	230	335	-	355	450	272
16	**15.34**	65	45.0	315	180	260	-	305	380	200	290	-	300	380	M4
18	**17.24**	58	45.0	280	175	255	-	290	365	200	285	-	285	370	296
20	**19.79**	51	45.0	245	175	255	-	275	350	195	280	-	270	350	
22.4	**22.24**	45	45.0	215	170	250	-	265	340	190	275	-	260	340	
25	**25.47**	39	44.6	190	145	180	-	220	255	165	200	-	215	250	
28	**28.63**	35	45.0	170	145	180	-	210	245	160	200	-	205	245	
31.5	**31.18**	32	45.0	155	130	165	-	190	225	150	185	-	185	220	
35.5	**35.04**	29	45.0	140	130	160	-	185	215	145	180	-	180	215	
40	**39.42**	25	45.0	125	110	135	-	155	180	125	150	-	150	175	**X3F..**
45	**44.31**	23	45.0	110	110	135	-	150	175	120	150	-	145	170	
50	**49.36**	20	45.0	99	120	145	-	160	185	130	160	-	155	185	M5
56	**55.48**	18	45.0	88	115	140	-	150	175	125	155	-	145	175	276
63	**62.41**	16	45.0	78	97	120	-	125	150	110	135	-	125	150	M4
71	**70.14**	14	45.0	70	96	120	-	120	145	105	130	-	120	145	300
80	**78.77**	13	45.0	62	105	125	-	130	155	115	140	-	125	155	
90	**88.53**	11	45.0	55	100	125	-	125	150	110	140	-	125	150	
100	**99.59**	10	45.0	49	85	105	-	105	125	94	115	-	105	125	
112	**111.93**	8.9	45.0	44	84	105	-	100	120	93	115	-	100	120	
125	**124.34**	8.0	45.0	40	80	-	-	91	-	87	-	-	92	-	
140	**139.74**	7.2	45.0	35	78	-	-	89	-	86	-	-	90	-	
160	**157.21**	6.4	45.0	31	68	-	-	76	-	74	-	-	78	-	
180	**176.68**	5.7	45.0	28	67	-	-	75	-	73	-	-	76	-	**X4F..**
200	**189.02**	5.3	45.0	26	61	-	-	68	-	67	-	-	70	-	
224	**212.43**	4.7	45.0	23	61	-	-	68	-	67	-	-	70	-	M5
250	**251.99**	4.0	45.0	20	63	-	-	69	-	69	-	-	71	-	280
280	**283.20**	3.5	45.0	17	63	-	-	69	-	69	-	-	71	-	M4
315	**318.61**	3.1	45.0	16	54	-	-	58	-	59	-	-	60	-	304
355	**358.08**	2.8	45.0	14	53	-	-	57	-	58	-	-	59	-	
400	**383.08**	2.6	45.0	13	49	-	-	53	-	53	-	-	55	-	
450	**430.53**	2.3	45.0	11	49	-	-	52	-	53	-	-	55	-	
X.F170..,n_1 = 1200 min^{-1}															**45 kNm**
8	**7.72**	155	39.4	660	210	385	-	510	650	260	435	-	550	700	
9	**8.67**	138	40.5	600	215	380	-	500	640	260	430	-	540	690	
10	**9.61**	125	41.8	560	200	345	-	440	560	240	385	-	465	590	**X2F..**
11.2	**10.80**	111	43.7	520	205	340	-	425	540	240	385	-	440	570	
12.5	**12.46**	96	44.3	460	210	340	-	405	520	240	380	-	410	540	M5
14	**14.00**	86	45.0	415	210	335	-	385	500	235	375	-	390	520	272
16	**15.34**	78	45.0	380	180	295	-	325	430	205	325	-	325	440	M4
18	**17.24**	70	45.0	335	180	290	-	315	415	205	320	-	310	420	296
20	**19.79**	61	45.0	295	180	285	-	300	395	200	315	-	295	400	
22.4	**22.24**	54	45.0	260	175	280	-	285	385	195	310	-	280	385	
25	**25.47**	47	44.6	230	150	205	-	235	290	170	230	-	230	290	
28	**28.63**	42	45.0	205	145	205	-	225	280	165	225	-	225	280	
31.5	**31.18**	38	45.0	190	135	190	-	205	255	155	210	-	200	255	
35.5	**35.04**	34	45.0	165	135	185	-	200	245	150	205	-	195	245	
40	**39.42**	30	45.0	150	115	155	-	165	205	130	175	-	160	205	**X3F..**
45	**44.31**	27	45.0	130	110	155	-	160	200	125	170	-	155	200	
50	**49.36**	24	45.0	120	125	170	-	170	215	135	185	-	165	215	M5
56	**55.48**	22	45.0	105	115	160	-	160	200	130	180	-	155	200	276
63	**62.41**	19	45.0	94	100	140	-	135	170	115	150	-	130	170	M4
71	**70.14**	17	45.0	84	99	135	-	130	165	110	150	-	130	165	300
80	**78.77**	15	45.0	74	105	145	-	140	175	120	160	-	135	175	
90	**88.53**	14	45.0	66	105	145	-	135	170	115	160	-	130	170	
100	**99.59**	12	45.0	59	89	120	-	110	140	99	135	-	110	145	
112	**111.93**	11	45.0	52	87	120	-	110	140	97	130	-	105	140	
125	**124.34**	9.7	45.0	48	83	-	-	96	-	91	-	-	97	-	
140	**139.74**	8.6	45.0	42	82	-	-	94	-	89	-	-	95	-	
160	**157.21**	7.6	45.0	38	71	-	-	81	-	77	-	-	82	-	
180	**176.68**	6.8	45.0	34	70	-	-	79	-	76	-	-	80	-	**X4F..**
200	**189.02**	6.3	45.0	31	64	-	-	72	-	70	-	-	74	-	
224	**212.43**	5.6	45.0	28	64	-	-	72	-	70	-	-	73	-	M5
250	**251.99**	4.8	45.0	24	66	-	-	73	-	72	-	-	75	-	280
280	**283.20**	4.2	45.0	21	67	-	-	73	-	73	-	-	75	-	M4
315	**318.61**	3.8	45.0	19	57	-	-	62	-	62	-	-	64	-	304
355	**358.08**	3.4	45.0	17	56	-	-	60	-	61	-	-	62	-	
400	**383.08**	3.1	45.0	15	52	-	-	56	-	56	-	-	58	-	
450	**430.53**	2.8	45.0	14	52	-	-	55	-	56	-	-	58	-	

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X.F170..,n_1 = 1500 min^{-1} — **45 kNm**

i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} kW M5 20°C					P_{TH} kW M4 20°C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**7.72**	194	39.4	820	*)	425	-	520	710	230	485	-	560	770	
9	**8.67**	173	40.5	750	*)	420	-	510	700	235	485	-	560	760	
10	**9.61**	156	41.8	700	180	385	-	470	630	225	440	-	510	690	**X2F..**
11.2	**10.80**	139	43.7	650	180	385	-	465	630	225	435	-	500	680	
12.5	**12.46**	120	44.3	570	195	385	-	440	600	235	435	-	465	640	M5
14	**14.00**	107	45.0	520	195	380	-	425	580	235	430	-	440	610	272
16	**15.34**	98	45.0	470	170	335	-	360	495	205	375	-	365	520	M4
18	**17.24**	87	45.0	420	175	330	-	345	480	205	365	-	350	495	296
20	**19.79**	76	45.0	365	180	325	-	325	460	205	360	-	325	470	
22.4	**22.24**	67	45.0	325	175	320	-	310	445	200	355	-	310	455	
25	**25.47**	59	44.6	285	150	240	-	255	340	175	270	-	255	345	
28	**28.63**	52	45.0	255	145	235	-	245	330	170	265	-	245	335	
31.5	**31.18**	48	45.0	235	135	220	-	225	300	160	245	-	220	305	
35.5	**35.04**	43	45.0	210	135	215	-	215	290	155	240	-	210	295	
40	**39.42**	38	45.0	185	115	180	-	175	240	135	205	-	175	245	**X3F..**
45	**44.31**	34	45.0	165	115	180	-	170	235	130	200	-	170	235	
50	**49.36**	30	45.0	150	125	195	-	185	250	145	220	-	180	255	M5
56	**55.48**	27	45.0	130	120	190	-	175	235	135	210	-	170	240	276
63	**62.41**	24	45.0	115	105	160	-	145	200	120	180	-	140	200	M4
71	**70.14**	21	45.0	105	100	160	-	140	195	115	175	-	140	195	300
80	**78.77**	19	45.0	93	110	170	-	150	205	125	190	-	145	210	
90	**88.53**	17	45.0	83	110	170	-	145	200	125	185	-	140	205	
100	**99.59**	15	45.0	74	93	140	-	120	165	105	155	-	120	170	
112	**111.93**	13	45.0	66	91	140	-	115	165	100	155	-	115	165	
125	**124.34**	12	45.0	60	86	-	-	105	-	95	-	-	105	-	
140	**139.74**	11	45.0	53	85	-	-	100	-	93	-	-	100	-	
160	**157.21**	9.5	45.0	47	74	-	-	86	-	81	-	-	87	-	
180	**176.68**	8.5	45.0	42	73	-	-	84	-	80	-	-	85	-	**X4F..**
200	**189.02**	7.9	45.0	39	67	-	-	77	-	74	-	-	78	-	
224	**212.43**	7.1	45.0	35	67	-	-	76	-	74	-	-	78	-	M5
250	**251.99**	6.0	45.0	29	70	-	-	78	-	76	-	-	80	-	280
280	**283.20**	5.3	45.0	26	70	-	-	78	-	77	-	-	80	-	M4
315	**318.61**	4.7	45.0	23	60	-	-	66	-	65	-	-	68	-	304
355	**358.08**	4.2	45.0	21	59	-	-	65	-	64	-	-	66	-	
400	**383.08**	3.9	45.0	19	55	-	-	60	-	60	-	-	62	-	
450	**430.53**	3.5	45.0	17	54	-	-	59	-	59	-	-	61	-	

X.F170..,n_1 = 1800 min^{-1} — **45 kNm**

i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} kW M5 20°C					P_{TH} kW M4 20°C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**7.72**	233	37.4	940	*)	445	-	510	750	*)	530	-	560	820	
9	**8.67**	208	38.5	860	*)	450	-	500	740	*)	530	-	560	820	
10	**9.61**	187	39.7	800	*)	420	-	465	680	200	485	-	510	740	**X2F..**
11.2	**10.80**	167	41.2	740	*)	420	-	465	670	205	480	-	510	740	
12.5	**12.46**	144	42.0	650	170	425	-	470	670	220	480	-	510	730	M5
14	**14.00**	129	45.0	620	175	420	-	450	650	225	475	-	485	700	272
16	**15.34**	117	45.0	570	155	365	-	380	560	195	415	-	405	590	M4
18	**17.24**	104	45.0	500	160	360	-	365	540	195	410	-	380	570	296
20	**19.79**	91	45.0	440	165	360	-	345	520	205	405	-	355	540	
22.4	**22.24**	81	45.0	390	170	355	-	335	500	200	395	-	340	520	
25	**25.47**	71	42.3	325	140	265	-	270	380	175	305	-	275	395	
28	**28.63**	63	45.0	305	145	265	-	260	370	175	300	-	265	385	
31.5	**31.18**	58	45.0	280	135	245	-	235	335	160	280	-	240	350	
35.5	**35.04**	51	45.0	250	135	240	-	230	325	160	275	-	230	340	
40	**39.42**	46	45.0	225	115	205	-	190	270	135	230	-	185	280	**X3F..**
45	**44.31**	41	45.0	200	115	200	-	180	265	135	230	-	180	270	
50	**49.36**	36	45.0	180	130	220	-	195	285	150	250	-	195	290	M5
56	**55.48**	32	45.0	160	120	210	-	185	270	140	240	-	180	275	276
63	**62.41**	29	45.0	140	105	185	-	155	225	120	205	-	150	230	M4
71	**70.14**	26	45.0	125	105	180	-	150	220	120	200	-	145	225	300
80	**78.77**	23	45.0	110	115	195	-	160	235	130	215	-	155	240	
90	**88.53**	20	45.0	99	110	190	-	155	230	125	215	-	150	235	
100	**99.59**	18	45.0	88	95	160	-	125	190	110	180	-	125	195	
112	**111.93**	16	45.0	79	93	160	-	125	185	105	175	-	120	190	
125	**124.34**	14	45.0	72	89	-	-	110	-	98	-	-	110	-	
140	**139.74**	13	45.0	64	87	-	-	105	-	96	-	-	105	-	
160	**157.21**	11	45.0	57	76	-	-	90	-	84	-	-	91	-	
180	**176.68**	10	45.0	50	75	-	-	88	-	82	-	-	89	-	**X4F..**
200	**189.02**	9.5	45.0	47	69	-	-	80	-	76	-	-	81	-	
224	**212.43**	8.5	45.0	42	69	-	-	80	-	76	-	-	81	-	M5
250	**251.99**	7.1	45.0	35	73	-	-	83	-	80	-	-	84	-	280
280	**283.20**	6.4	45.0	31	73	-	-	82	-	80	-	-	84	-	M4
315	**318.61**	5.6	45.0	28	62	-	-	70	-	68	-	-	71	-	304
355	**358.08**	5.0	45.0	25	61	-	-	68	-	67	-	-	70	-	
400	**383.08**	4.7	45.0	23	57	-	-	63	-	62	-	-	65	-	
450	**430.53**	4.2	45.0	21	57	-	-	62	-	62	-	-	64	-	

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X.F180..,n_1 = 1000 min^{-1}															58 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.49**	154	53.8	890	*)	380	640	530	660	270	445	690	830	970	
7.1	**7.27**	138	54.6	810	225	400	650	540	680	285	465	700	830	980	
8	**8.10**	123	55.5	740	215	360	550	455	580	260	410	590	670	800	**X2F..**
9	**9.08**	110	56.8	670	230	375	550	465	590	275	430	600	670	800	
10	**9.97**	100	58.0	620	200	330	470	395	510	240	375	510	550	670	M5
11.2	**11.17**	90	58.0	560	210	345	475	400	510	250	390	510	550	660	272
12.5	**12.19**	82	58.0	510	200	320	425	360	460	235	355	460	475	580	M4
14	**13.65**	73	58.0	455	220	340	445	375	485	250	380	485	490	610	296
16	**16.06**	62	58.0	385	200	305	385	325	425	225	340	420	410	520	
18	**17.98**	56	58.0	345	195	305	375	315	410	225	340	405	390	495	
20	**19.99**	50	58.0	315	140	225	275	230	305	170	260	305	290	370	
22.4	**22.39**	45	58.0	280	145	230	275	230	310	175	265	305	285	370	
25	**25.88**	39	58.0	245	135	215	245	205	280	160	245	275	250	330	
28	**28.98**	35	58.0	215	145	225	255	210	290	170	255	285	255	340	
31.5	**31.13**	32	58.0	200	125	195	215	180	245	145	220	240	215	285	**X3F..**
35.5	**34.86**	29	58.0	180	125	195	215	180	245	145	225	240	210	285	
40	**39.86**	25	58.0	160	130	195	210	175	235	145	215	230	200	265	M5
45	**44.64**	22	58.0	140	130	195	210	175	235	145	220	230	200	265	276
50	**47.95**	21	58.0	130	115	170	180	150	205	130	190	200	170	230	M4
56	**53.70**	19	58.0	115	115	175	180	150	205	130	195	200	170	230	300
63	**64.56**	15	58.0	98	115	170	170	145	200	125	190	190	160	220	
71	**72.30**	14	58.0	87	115	170	170	145	200	130	190	190	160	220	
80	**77.67**	13	58.0	81	100	150	150	125	175	115	165	165	135	190	
90	**86.98**	11	58.0	72	105	155	150	125	175	115	170	170	140	195	
100	**106.69**	9.4	58.0	60	85	-	-	97	-	93	-	-	105	-	
112	**119.48**	8.4	58.0	53	87	-	-	98	-	95	-	-	105	-	
125	**128.35**	7.8	58.0	50	77	-	-	86	-	84	-	-	93	-	
140	**143.73**	7.0	58.0	44	80	-	-	89	-	88	-	-	96	-	**X4F..**
160	**158.55**	6.3	58.0	40	70	-	-	77	-	77	-	-	83	-	
180	**177.55**	5.6	58.0	36	72	-	-	80	-	79	-	-	86	-	M5
200	**209.50**	4.8	58.0	30	68	-	-	75	-	75	-	-	80	-	280
224	**234.60**	4.3	58.0	27	71	-	-	77	-	77	-	-	82	-	M4
250	**258.02**	4.0	58.0	25	64	-	-	69	-	69	-	-	74	-	304
280	**282.23**	3.5	58.0	23	64	-	-	69	-	70	-	-	74	-	
315	**311.32**	3.2	58.0	20	57	-	-	61	-	63	-	-	66	-	
355	**348.63**	2.9	58.0	18	58	-	-	62	-	63	-	-	67	-	
X.F180..,n_1 = 1200 min^{-1}															**58 kNm**
6.3	**6.49**	185	53.8	1050	*)	390	640	530	700	*)	470	700	860	1050	
7.1	**7.27**	165	54.6	970	*)	415	680	550	730	265	495	740	900	1050	
8	**8.10**	148	55.5	880	*)	380	590	490	640	255	440	640	770	920	**X2F..**
9	**9.08**	132	56.8	810	215	395	600	495	650	265	460	650	760	910	
10	**9.97**	120	58.0	750	*)	350	510	425	560	230	405	550	620	760	M5
11.2	**11.17**	107	58.0	670	200	365	510	425	560	245	415	560	620	760	272
12.5	**12.19**	98	58.0	610	190	340	460	385	510	230	385	495	540	660	M4
14	**13.65**	88	58.0	550	210	365	480	400	540	255	410	520	550	690	296
16	**16.06**	75	58.0	465	195	330	415	345	465	230	370	450	460	580	
18	**17.98**	67	58.0	415	195	325	400	335	455	230	365	435	435	560	
20	**19.99**	60	58.0	380	135	240	290	240	335	170	280	325	320	420	
22.4	**22.39**	54	58.0	340	140	250	295	240	340	175	285	330	315	415	
25	**25.88**	46	58.0	290	135	230	260	215	305	165	265	295	275	370	
28	**28.98**	41	58.0	260	145	240	270	225	315	175	280	305	280	380	
31.5	**31.13**	39	58.0	245	125	205	230	190	265	150	240	255	235	315	**X3F..**
35.5	**34.86**	34	58.0	215	125	210	230	190	270	150	240	255	230	315	
40	**39.86**	30	58.0	190	130	210	220	185	260	150	235	245	215	300	M5
45	**44.64**	27	58.0	170	130	215	220	185	260	150	240	245	215	295	276
50	**47.95**	25	58.0	160	115	185	190	160	225	135	210	210	185	255	M4
56	**53.70**	22	58.0	140	115	190	190	160	225	135	210	210	180	255	300
63	**64.56**	19	58.0	115	115	185	180	150	220	130	205	205	170	240	
71	**72.30**	17	58.0	105	115	185	180	150	220	135	210	205	170	240	
80	**77.67**	15	58.0	97	105	165	160	130	190	115	185	175	145	210	
90	**86.98**	14	58.0	87	105	170	160	135	195	120	190	180	150	215	
100	**106.69**	11	58.0	72	88	-	-	100	-	97	-	-	110	-	
112	**119.48**	10	58.0	64	90	-	-	105	-	99	-	-	110	-	
125	**128.35**	9.3	58.0	60	80	-	-	91	-	88	-	-	99	-	
140	**143.73**	8.3	58.0	53	83	-	-	94	-	91	-	-	100	-	**X4F..**
160	**158.55**	7.6	58.0	48	73	-	-	82	-	80	-	-	88	-	
180	**177.55**	6.8	58.0	43	75	-	-	84	-	83	-	-	90	-	M5
200	**209.50**	5.7	58.0	37	72	-	-	79	-	78	-	-	85	-	280
224	**234.60**	5.1	58.0	33	74	-	-	81	-	81	-	-	87	-	M4
250	**258.02**	4.8	58.0	30	66	-	-	72	-	73	-	-	78	-	304
280	**282.23**	4.3	58.0	27	67	-	-	73	-	74	-	-	79	-	
315	**311.32**	3.9	58.0	25	60	-	-	65	-	66	-	-	69	-	
355	**348.63**	3.4	58.0	22	61	-	-	65	-	67	-	-	70	-	

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X.F180..,n_1 = 1500 min^{-1}															58 kNm
					P_{TH} kW										
					M5				20°C	M4				20°C	
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
		min^{-1}	kNm	kW											
6.3	**6.49**	231	53.8	1350	*)	380	640	500	720	*)	485	710	880	1100	
7.1	**7.27**	206	54.6	1200	*)	405	670	530	750	*)	510	740	920	1150	
8	**8.10**	185	55.5	1100	*)	390	610	490	680	*)	470	660	810	990	**X2F..**
9	**9.08**	165	56.8	1000	*)	410	630	520	700	*)	490	690	840	1050	
10	**9.97**	150	58.0	940	*)	365	560	455	620	*)	435	600	730	900	M5
11.2	**11.17**	134	58.0	840	*)	385	560	460	630	225	450	610	720	890	272
12.5	**12.19**	123	58.0	770	*)	365	500	415	570	220	420	540	620	780	M4
14	**13.65**	110	58.0	680	190	390	520	435	600	245	450	570	640	810	296
16	**16.06**	93	58.0	580	180	355	450	375	520	225	405	490	530	680	
18	**17.98**	83	58.0	520	185	350	435	360	510	225	400	475	495	650	
20	**19.99**	75	58.0	475	*)	260	315	255	375	160	305	355	360	480	
22.4	**22.39**	67	58.0	420	120	265	315	255	375	170	315	355	355	480	
25	**25.88**	58	58.0	365	120	245	280	230	340	165	290	320	310	425	
28	**28.98**	52	58.0	325	135	260	290	235	350	175	305	330	310	435	
31.5	**31.13**	48	58.0	305	115	225	240	200	295	150	260	275	260	360	**X3F..**
35.5	**34.86**	43	58.0	270	120	225	240	200	295	150	265	275	255	360	
40	**39.86**	38	58.0	235	130	230	240	195	290	155	260	265	240	340	M5
45	**44.64**	34	58.0	210	135	235	235	195	290	160	265	265	235	340	276
50	**47.95**	31	58.0	195	115	205	205	170	250	140	230	230	200	290	M4
56	**53.70**	28	58.0	175	120	205	205	170	250	140	235	230	200	290	300
63	**64.56**	23	58.0	145	120	205	195	160	245	140	230	220	185	275	
71	**72.30**	21	58.0	130	120	205	195	160	245	140	230	220	185	275	
80	**77.67**	19	58.0	120	105	180	170	140	215	120	205	190	160	240	
90	**86.98**	17	58.0	110	110	185	170	140	215	125	210	195	160	245	
100	**106.69**	14	58.0	90	91	-	-	110	-	100	-	-	120	-	
112	**119.48**	13	58.0	80	93	-	-	110	-	105	-	-	120	-	
125	**128.35**	12	58.0	74	83	-	-	96	-	91	-	-	105	-	
140	**143.73**	10	58.0	67	86	-	-	99	-	95	-	-	110	-	**X4F..**
160	**158.55**	9.5	58.0	60	75	-	-	86	-	83	-	-	94	-	
180	**177.55**	8.4	58.0	54	78	-	-	89	-	86	-	-	96	-	M5
200	**209.50**	7.2	58.0	46	75	-	-	84	-	83	-	-	91	-	280
224	**234.60**	6.4	58.0	41	78	-	-	86	-	85	-	-	93	-	M4
250	**258.02**	6.0	58.0	38	70	-	-	77	-	77	-	-	83	-	304
280	**282.23**	5.3	58.0	34	71	-	-	78	-	78	-	-	84	-	
315	**311.32**	4.8	58.0	31	63	-	-	69	-	69	-	-	74	-	
355	**348.63**	4.3	58.0	27	64	-	-	70	-	70	-	-	75	-	
X.F180..,n_1 = 1800 min^{-1}															**58 kNm**
6.3	**6.49**	277	50.8	1500	*)	*)	590	440	720	*)	475	700	880	1150	
7.1	**7.27**	248	51.6	1350	*)	375	640	480	760	*)	510	730	920	1200	
8	**8.10**	222	52.4	1250	*)	385	600	470	700	*)	485	670	820	1050	**X2F..**
9	**9.08**	198	53.7	1150	*)	410	620	495	730	*)	510	700	850	1100	
10	**9.97**	181	54.8	1050	*)	365	560	440	650	*)	450	620	750	950	M5
11.2	**11.17**	161	55.6	960	*)	385	580	465	670	*)	470	640	780	980	272
12.5	**12.19**	148	55.8	880	*)	375	540	440	620	*)	445	580	710	890	M4
14	**13.65**	132	58.0	820	*)	410	560	460	650	225	480	610	720	920	296
16	**16.06**	112	58.0	700	*)	375	480	395	570	210	435	530	590	770	
18	**17.98**	100	58.0	620	165	370	460	380	550	215	430	510	560	730	
20	**19.99**	90	56.6	550	*)	270	330	265	405	145	325	380	400	540	
22.4	**22.39**	80	58.0	510	*)	275	330	265	405	155	335	375	390	540	
25	**25.88**	70	58.0	440	*)	260	295	240	365	155	310	340	340	475	
28	**28.98**	62	58.0	390	110	275	300	245	380	170	325	350	340	485	
31.5	**31.13**	58	58.0	365	97	235	255	205	320	145	280	295	285	405	**X3F..**
35.5	**34.86**	52	58.0	325	100	240	250	205	320	150	285	290	275	400	
40	**39.86**	45	58.0	285	130	245	250	205	320	160	285	285	265	380	M5
45	**44.64**	40	58.0	255	130	250	250	205	320	160	285	285	260	380	276
50	**47.95**	38	58.0	235	115	220	215	175	275	140	250	245	220	325	M4
56	**53.70**	34	58.0	210	115	220	215	175	275	140	255	240	215	320	300
63	**64.56**	28	58.0	175	120	220	205	170	265	140	250	230	200	305	
71	**72.30**	25	58.0	155	120	220	205	170	265	145	250	230	200	305	
80	**77.67**	23	58.0	145	105	195	180	145	230	125	220	200	170	265	
90	**86.98**	21	58.0	130	110	200	180	150	235	130	230	205	175	270	
100	**106.69**	17	58.0	110	93	-	-	110	-	105	-	-	125	-	
112	**119.48**	15	58.0	96	95	-	-	115	-	105	-	-	125	-	
125	**128.35**	14	58.0	89	84	-	-	100	-	94	-	-	110	-	
140	**143.73**	13	58.0	80	87	-	-	105	-	97	-	-	115	-	**X4F..**
160	**158.55**	11	58.0	72	77	-	-	90	-	86	-	-	99	-	
180	**177.55**	10	58.0	65	80	-	-	92	-	89	-	-	100	-	M5
200	**209.50**	8.6	58.0	55	78	-	-	88	-	86	-	-	96	-	280
224	**234.60**	7.7	58.0	49	80	-	-	91	-	89	-	-	98	-	M4
250	**258.02**	7.1	58.0	46	72	-	-	81	-	80	-	-	88	-	304
280	**282.23**	6.4	58.0	41	73	-	-	82	-	81	-	-	88	-	
315	**311.32**	5.8	58.0	37	65	-	-	72	-	72	-	-	78	-	
355	**348.63**	5.2	58.0	33	66	-	-	73	-	73	-	-	79	-	

X.F190..,n_1 = 1000 min^{-1}															65 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**7.25**	138	59.6	880	*)	390	640	550	690	275	455	690	600	760	
8	**8.14**	123	60.6	800	235	410	660	560	710	295	480	710	610	770	
9	**9.05**	110	61.5	730	235	390	580	500	630	280	440	630	530	670	**X2F..**
10	**10.17**	98	63.0	660	250	405	590	510	640	295	460	640	530	680	
11.2	**11.14**	90	65.0	630	215	355	500	430	550	255	400	540	445	570	M5
12.5	**12.52**	80	65.0	560	230	365	500	430	550	270	415	540	445	580	272
14	**13.61**	73	65.0	510	215	340	450	385	495	250	380	485	390	510	M4
16	**15.30**	65	65.0	455	225	345	450	390	500	255	390	490	390	520	296
18	**17.93**	56	65.0	390	210	325	405	350	455	240	365	440	350	465	
20	**20.15**	50	65.0	345	210	320	395	335	440	240	360	425	335	450	
22.4	**22.32**	45	63.6	310	150	240	290	240	325	180	275	320	245	335	
25	**25.08**	40	65.0	280	155	245	290	240	325	185	280	320	245	335	
28	**28.90**	35	65.0	245	145	225	260	215	295	170	260	290	220	305	
31.5	**32.47**	31	65.0	215	150	230	260	215	295	175	260	290	220	305	
35.5	**34.76**	29	65.0	205	135	210	230	195	265	155	235	260	195	270	**X3F..**
40	**39.06**	26	65.0	180	135	210	230	190	265	160	240	260	195	275	
45	**44.51**	22	65.0	160	135	205	215	180	250	155	225	240	180	255	M5
50	**50.01**	20	65.0	140	135	205	215	180	250	155	230	240	180	255	276
56	**53.55**	19	65.0	130	120	180	185	155	215	135	200	205	155	220	M4
63	**60.17**	17	65.0	115	120	180	185	155	215	135	200	205	155	220	300
71	**72.09**	14	65.0	98	120	180	180	150	205	135	195	200	150	215	
80	**81.01**	12	65.0	87	120	180	180	150	205	135	200	200	150	215	
90	**86.73**	12	65.0	81	105	160	160	130	185	120	180	175	135	190	
100	**97.45**	10	65.0	72	110	160	160	130	185	120	180	175	135	190	
112	**119.14**	8.4	65.0	60	90	-	-	100	-	98	-	-	105	-	
125	**133.87**	7.5	65.0	53	90	-	-	100	-	99	-	-	105	-	
140	**143.33**	7.0	65.0	50	81	-	-	91	-	89	-	-	94	-	
160	**161.05**	6.2	65.0	44	81	-	-	91	-	89	-	-	93	-	**X4F..**
180	**177.05**	5.6	65.0	40	74	-	-	82	-	81	-	-	84	-	
200	**198.95**	5.0	65.0	36	75	-	-	82	-	82	-	-	85	-	M5
224	**233.94**	4.3	65.0	31	72	-	-	78	-	79	-	-	81	-	280
250	**262.87**	3.8	65.0	27	73	-	-	79	-	80	-	-	83	-	M4
280	**281.43**	3.6	65.0	25	66	-	-	71	-	72	-	-	74	-	304
315	**316.23**	3.2	65.0	23	67	-	-	72	-	73	-	-	75	-	
355	**347.64**	2.9	65.0	21	60	-	-	64	-	66	-	-	67	-	
400	**390.64**	2.6	65.0	18	60	-	-	64	-	66	-	-	67	-	
X.F190..,n_1 = 1200 min^{-1}															**65 kNm**
7.1	**7.25**	166	59.6	1050	*)	400	650	550	720	*)	480	710	620	800	
8	**8.14**	147	60.6	960	*)	425	680	580	750	275	500	740	640	840	
9	**9.05**	133	61.5	870	*)	410	630	540	690	270	475	680	590	760	**X2F..**
10	**10.17**	118	63.0	800	230	430	640	540	710	290	495	690	590	760	
11.2	**11.14**	108	65.0	750	200	375	540	460	600	250	430	580	490	640	M5
12.5	**12.52**	96	65.0	670	215	390	540	465	610	265	445	590	485	640	272
14	**13.61**	88	65.0	610	205	360	485	415	550	245	410	520	430	570	M4
16	**15.30**	78	65.0	550	220	370	485	415	550	260	420	530	425	580	296
18	**17.93**	67	65.0	465	210	350	435	375	500	245	395	475	380	520	
20	**20.15**	60	65.0	415	210	345	420	360	485	245	390	460	365	500	
22.4	**22.32**	54	63.6	370	145	255	305	255	355	185	295	345	265	370	
25	**25.08**	48	65.0	340	155	260	305	255	355	185	300	345	260	370	
28	**28.90**	42	65.0	295	145	245	275	230	320	175	280	310	235	335	
31.5	**32.47**	37	65.0	260	150	245	275	230	320	175	285	310	230	335	
35.5	**34.76**	35	65.0	245	135	225	245	205	290	160	255	275	205	300	**X3F..**
40	**39.06**	31	65.0	215	135	230	245	200	290	165	260	275	205	300	
45	**44.51**	27	65.0	190	135	220	230	195	275	160	250	255	195	280	M5
50	**50.01**	24	65.0	170	140	225	230	190	275	160	250	255	195	280	276
56	**53.55**	22	65.0	160	120	195	200	165	235	140	220	220	165	245	M4
63	**60.17**	20	65.0	140	125	195	195	165	235	140	220	220	165	245	300
71	**72.09**	17	65.0	120	120	195	190	160	225	140	215	210	160	235	
80	**81.01**	15	65.0	105	125	195	190	160	230	140	220	210	160	235	
90	**86.73**	14	65.0	98	110	175	170	140	200	125	195	185	140	210	
100	**97.45**	12	65.0	87	110	175	165	140	205	125	195	185	140	210	
112	**119.14**	10	65.0	72	93	-	-	105	-	100	-	-	110	-	
125	**133.87**	9.0	65.0	64	94	-	-	105	-	105	-	-	110	-	
140	**143.33**	8.4	65.0	60	84	-	-	96	-	93	-	-	98	-	
160	**161.05**	7.5	65.0	53	84	-	-	95	-	93	-	-	98	-	**X4F..**
180	**177.05**	6.8	65.0	48	77	-	-	86	-	84	-	-	88	-	
200	**198.95**	6.0	65.0	43	78	-	-	87	-	86	-	-	90	-	M5
224	**233.94**	5.1	65.0	37	75	-	-	83	-	82	-	-	86	-	280
250	**262.87**	4.6	65.0	33	77	-	-	84	-	84	-	-	87	-	M4
280	**281.43**	4.3	65.0	30	69	-	-	75	-	75	-	-	78	-	304
315	**316.23**	3.8	65.0	27	70	-	-	76	-	76	-	-	79	-	
355	**347.64**	3.5	65.0	25	63	-	-	68	-	69	-	-	71	-	
400	**390.64**	3.1	65.0	22	63	-	-	68	-	69	-	-	71	-	

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X.F190..,n_1 = 1500 min^{-1}															65 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**7.25**	207	59.6	1300	*)	390	640	520	740	*)	495	720	610	840	
8	**8.14**	184	60.6	1200	*)	420	670	560	780	*)	530	750	640	880	
9	**9.05**	166	61.5	1100	*)	420	640	540	740	*)	500	700	610	820	**X2F..**
10	**10.17**	147	63.0	1000	*)	445	670	560	770	265	530	730	630	850	
11.2	**11.14**	135	65.0	940	*)	395	590	500	670	*)	465	640	550	740	M5
12.5	**12.52**	120	65.0	840	*)	415	590	500	680	245	480	640	550	740	272
14	**13.61**	110	65.0	770	*)	390	530	450	610	235	445	570	485	660	M4
16	**15.30**	98	65.0	680	200	400	530	450	620	250	460	580	475	660	296
18	**17.93**	84	65.0	580	195	380	475	405	560	240	430	520	420	590	
20	**20.15**	74	65.0	520	200	375	455	390	540	245	425	500	400	570	
22.4	**22.32**	67	63.6	465	125	275	330	270	390	175	325	370	290	420	
25	**25.08**	60	65.0	420	135	280	330	270	395	185	330	370	285	420	
28	**28.90**	52	65.0	365	130	260	295	240	355	175	305	335	255	380	
31.5	**32.47**	46	65.0	325	140	265	290	240	355	180	310	335	250	380	
35.5	**34.76**	43	65.0	305	125	240	260	215	320	165	280	295	225	340	**X3F..**
40	**39.06**	38	65.0	270	130	245	260	215	320	165	285	295	220	340	
45	**44.51**	34	65.0	240	140	245	250	205	305	165	275	275	210	315	M5
50	**50.01**	30	65.0	210	140	245	245	205	305	165	280	275	210	315	276
56	**53.55**	28	65.0	200	125	215	210	175	265	145	240	240	180	275	M4
63	**60.17**	25	65.0	175	125	215	210	175	265	145	245	235	175	275	300
71	**72.09**	21	65.0	145	125	215	205	170	255	145	240	225	170	265	
80	**81.01**	19	65.0	130	125	215	200	170	255	145	240	225	170	265	
90	**86.73**	17	65.0	120	115	195	180	150	225	130	215	200	150	235	
100	**97.45**	15	65.0	110	115	195	180	150	225	130	220	200	150	235	
112	**119.14**	13	65.0	90	96	-	-	115	-	105	-	-	115	-	
125	**133.87**	11	65.0	80	97	-	-	115	-	105	-	-	115	-	
140	**143.33**	10	65.0	75	87	-	-	100	-	97	-	-	105	-	
160	**161.05**	9.3	65.0	67	87	-	-	100	-	97	-	-	105	-	**X4F..**
180	**177.05**	8.5	65.0	61	79	-	-	91	-	88	-	-	93	-	
200	**198.95**	7.5	65.0	54	81	-	-	92	-	89	-	-	94	-	M5
224	**233.94**	6.4	65.0	46	79	-	-	88	-	87	-	-	91	-	280
250	**262.87**	5.7	65.0	41	81	-	-	89	-	88	-	-	92	-	M4
280	**281.43**	5.3	65.0	38	72	-	-	80	-	79	-	-	83	-	304
315	**316.23**	4.7	65.0	34	73	-	-	81	-	81	-	-	84	-	
355	**347.64**	4.3	65.0	31	66	-	-	72	-	73	-	-	75	-	
400	**390.64**	3.8	65.0	27	66	-	-	72	-	73	-	-	75	-	
X.F190..,n_1 = 1800 min^{-1}															**65 kNm**
7.1	**7.25**	248	56.3	1500	*)	*)	600	470	750	*)	490	700	580	870	
8	**8.14**	221	57.3	1350	*)	390	640	510	790	*)	520	740	620	910	
9	**9.05**	199	58.1	1250	*)	415	630	520	760	*)	520	710	600	860	**X2F..**
10	**10.17**	177	59.5	1150	*)	445	660	550	790	*)	550	740	630	890	
11.2	**11.14**	162	61.4	1050	*)	395	590	485	700	*)	480	650	560	780	M5
12.5	**12.52**	144	62.8	970	*)	420	610	510	720	*)	510	670	580	810	272
14	**13.61**	132	64.5	920	*)	400	570	480	670	*)	475	620	530	740	M4
16	**15.30**	118	65.0	820	*)	420	560	475	670	230	490	620	520	740	296
18	**17.93**	100	65.0	700	*)	400	510	430	620	230	460	560	460	660	
20	**20.15**	89	65.0	620	180	395	485	410	590	230	455	530	435	630	
22.4	**22.32**	81	63.6	560	*)	285	345	280	425	160	345	395	310	465	
25	**25.08**	72	65.0	510	*)	295	345	280	425	170	355	395	305	465	
28	**28.90**	62	65.0	440	*)	275	305	250	385	165	330	355	270	415	
31.5	**32.47**	55	65.0	390	120	280	305	250	385	175	335	355	265	415	
35.5	**34.76**	52	65.0	365	110	255	270	220	345	160	305	315	235	370	**X3F..**
40	**39.06**	46	65.0	325	115	260	270	220	345	165	310	315	235	370	
45	**44.51**	40	65.0	285	135	260	260	215	335	165	300	295	225	350	M5
50	**50.01**	36	65.0	255	140	265	260	215	335	170	300	295	220	350	276
56	**53.55**	34	65.0	235	120	230	225	185	285	145	260	255	190	300	M4
63	**60.17**	30	65.0	210	125	230	220	185	285	150	265	250	190	300	300
71	**72.09**	25	65.0	175	125	230	215	175	280	150	260	240	180	290	
80	**81.01**	22	65.0	155	125	235	215	175	280	150	265	240	180	290	
90	**86.73**	21	65.0	145	115	210	190	155	250	135	235	215	160	260	
100	**97.45**	18	65.0	130	115	210	190	155	245	135	240	215	160	260	
112	**119.14**	15	65.0	110	98	-	-	120	-	110	-	-	120	-	
125	**133.87**	13	65.0	96	99	-	-	120	-	110	-	-	120	-	
140	**143.33**	13	65.0	90	89	-	-	105	-	99	-	-	110	-	
160	**161.05**	11	65.0	80	89	-	-	105	-	99	-	-	105	-	**X4F..**
180	**177.05**	10	65.0	73	81	-	-	95	-	90	-	-	97	-	
200	**198.95**	9.0	65.0	65	83	-	-	96	-	92	-	-	98	-	M5
224	**233.94**	7.7	65.0	55	82	-	-	93	-	90	-	-	95	-	280
250	**262.87**	6.8	65.0	49	83	-	-	94	-	92	-	-	97	-	M4
280	**281.43**	6.4	65.0	46	75	-	-	84	-	83	-	-	87	-	304
315	**316.23**	5.7	65.0	41	76	-	-	85	-	84	-	-	87	-	
355	**347.64**	5.2	65.0	37	69	-	-	76	-	76	-	-	79	-	
400	**390.64**	4.6	65.0	33	69	-	-	75	-	76	-	-	78	-	

X.F200..,n_1 = 1000 min^{-1}															79 kNm
					P_{TH} kW										
					M5				20°C	M4				20°C	
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
		min^{-1}	kNm	kW											
6.3	**6.44**	155	66.9	1100	295	530	960	710	900	375	620	1000	1100	1300	
7.1	**7.31**	137	70.1	1050	270	480	860	630	810	340	560	910	990	1150	
8	**7.98**	125	71.9	970	315	520	890	670	850	375	600	940	1000	1200	**X2F..**
9	**9.05**	110	75.0	890	285	470	780	580	740	340	540	820	860	1000	
10	**10.09**	99	76.8	820	275	450	710	540	690	325	510	750	760	920	M5
11.2	**11.44**	87	79.0	740	265	430	660	500	640	315	485	700	690	840	272
12.5	**12.69**	79	79.0	670	280	445	660	500	650	330	500	700	680	830	M4
14	**14.39**	69	79.0	590	270	425	610	465	600	310	475	650	610	760	296
16	**16.28**	61	79.0	520	270	420	580	440	580	310	470	620	570	710	
18	**18.47**	54	79.0	460	255	395	530	410	540	290	440	570	520	650	
20	**20.73**	48	77.6	405	190	300	395	295	395	225	340	425	370	475	
22.4	**23.51**	43	79.0	365	185	285	370	275	375	215	325	400	345	445	
25	**25.94**	39	79.0	330	175	265	340	255	345	200	300	365	310	405	
28	**29.41**	34	79.0	290	170	265	325	245	335	195	295	350	295	390	
31.5	**32.13**	31	79.0	265	170	260	320	240	325	195	295	345	285	380	**X3F..**
35.5	**36.44**	27	79.0	235	160	250	300	225	310	185	280	325	265	355	
40	**39.25**	25	79.0	220	160	240	280	215	295	180	270	305	245	330	M5
45	**44.51**	22	79.0	195	155	235	275	210	285	180	265	295	240	320	276
50	**48.62**	21	79.0	175	155	235	265	200	280	175	260	285	230	310	M4
56	**55.14**	18	79.0	155	155	230	260	195	270	175	255	280	220	305	300
63	**64.48**	16	79.0	135	140	205	225	175	240	155	230	240	190	265	
71	**73.13**	14	79.0	115	135	205	220	170	235	150	225	235	185	255	
80	**79.88**	13	79.0	105	135	200	215	165	230	150	225	230	180	250	
90	**90.59**	11	79.0	95	135	200	210	160	225	150	220	225	175	245	
100	**99.49**	10	79.0	87	110	-	-	125	-	120	-	-	135	-	
112	**112.83**	8.9	79.0	77	105	-	-	120	-	115	-	-	130	-	
125	**123.25**	8.1	79.0	70	110	-	-	120	-	120	-	-	130	-	
140	**139.78**	7.2	79.0	62	105	-	-	120	-	115	-	-	130	-	**X4F..**
160	**152.34**	6.6	79.0	57	98	-	-	110	-	105	-	-	115	-	
180	**172.77**	5.8	79.0	50	96	-	-	105	-	105	-	-	115	-	M5
200	**199.92**	5.0	79.0	43	88	-	-	96	-	96	-	-	105	-	280
224	**226.73**	4.4	79.0	38	86	-	-	93	-	94	-	-	100	-	M4
250	**247.66**	4.0	79.0	35	86	-	-	93	-	94	-	-	100	-	304
280	**280.87**	3.6	79.0	31	85	-	-	91	-	92	-	-	98	-	
315	**306.12**	3.3	79.0	28	79	-	-	84	-	86	-	-	90	-	
355	**347.17**	2.9	79.0	25	76	-	-	81	-	83	-	-	87	-	
X.F200..,n_1 = 1200 min^{-1}															**79 kNm**
6.3	**6.44**	186	66.9	1350	*)	540	970	710	940	350	660	1050	1150	1400	
7.1	**7.31**	164	70.1	1250	*)	490	870	630	840	315	590	930	1000	1250	
8	**7.98**	150	71.9	1150	*)	550	940	690	910	365	640	1000	1100	1300	**X2F..**
9	**9.05**	133	75.0	1050	*)	495	840	620	810	330	570	890	970	1150	
10	**10.09**	119	76.8	980	255	480	770	580	760	315	550	820	870	1050	M5
11.2	**11.44**	105	79.0	890	245	455	710	530	700	305	520	760	780	960	272
12.5	**12.69**	95	79.0	800	270	475	710	540	710	325	540	760	760	950	M4
14	**14.39**	83	79.0	710	260	450	660	495	660	310	510	700	690	860	296
16	**16.28**	74	79.0	620	265	450	620	470	640	315	510	660	640	810	
18	**18.47**	65	79.0	550	255	425	570	435	590	295	475	610	570	740	
20	**20.73**	58	77.6	490	180	320	420	310	430	230	365	455	410	540	
22.4	**23.51**	51	79.0	440	180	305	395	295	410	220	350	430	375	500	
25	**25.94**	46	79.0	395	170	285	360	265	375	205	330	390	340	455	
28	**29.41**	41	79.0	350	170	285	350	260	365	200	325	380	320	435	
31.5	**32.13**	37	79.0	320	170	280	340	250	355	200	320	370	310	420	**X3F..**
35.5	**36.44**	33	79.0	285	165	270	315	235	335	190	305	345	285	395	
40	**39.25**	31	79.0	260	165	260	300	225	320	185	295	325	270	370	M5
45	**44.51**	27	79.0	230	160	255	290	220	315	185	290	315	260	355	276
50	**48.62**	25	79.0	210	160	255	285	215	305	180	285	305	250	345	M4
56	**55.14**	22	79.0	185	155	250	275	210	300	180	280	295	240	335	300
63	**64.48**	19	79.0	160	145	225	240	185	265	160	250	260	205	295	
71	**73.13**	16	79.0	140	140	220	235	180	255	160	245	250	200	285	
80	**79.88**	15	79.0	130	140	220	230	175	250	155	245	245	195	280	
90	**90.59**	13	79.0	115	140	215	220	170	245	155	240	240	190	270	
100	**99.49**	12	79.0	105	115	-	-	135	-	125	-	-	145	-	
112	**112.83**	11	79.0	92	110	-	-	130	-	120	-	-	140	-	
125	**123.25**	9.7	79.0	85	110	-	-	130	-	125	-	-	140	-	
140	**139.78**	8.6	79.0	75	110	-	-	125	-	120	-	-	135	-	**X4F..**
160	**152.34**	7.9	79.0	68	100	-	-	115	-	110	-	-	125	-	
180	**172.77**	6.9	79.0	60	100	-	-	110	-	110	-	-	120	-	M5
200	**199.92**	6.0	79.0	52	92	-	-	100	-	100	-	-	110	-	280
224	**226.73**	5.3	79.0	46	90	-	-	99	-	98	-	-	105	-	M4
250	**247.66**	4.8	79.0	42	90	-	-	98	-	99	-	-	105	-	304
280	**280.87**	4.3	79.0	37	89	-	-	96	-	97	-	-	105	-	
315	**306.12**	3.9	79.0	34	82	-	-	89	-	90	-	-	95	-	
355	**347.17**	3.5	79.0	30	80	-	-	86	-	87	-	-	92	-	

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X.F200..,n_1 = 1500 min^{-1}															79 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C					M4 20°C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	6.44	233	66.9	1650	*)	530	970	670	970	*)	680	1050	1150	1450	
7.1	7.31	205	70.1	1550	*)	480	860	600	870	*)	610	950	1050	1300	
8	7.98	188	71.9	1450	*)	560	950	680	960	*)	680	1000	1100	1400	X2F..
9	9.05	166	75.0	1350	*)	510	850	620	860	*)	610	920	1000	1250	
10	10.09	149	76.8	1200	*)	500	820	600	830	*)	590	880	960	1200	M5
11.2	11.44	131	79.0	1100	*)	480	780	570	780	280	560	830	910	1150	272
12.5	12.69	118	79.0	1000	*)	510	780	580	800	305	590	840	880	1100	M4
14	14.39	104	79.0	880	230	485	720	530	740	295	560	770	790	1000	296
16	16.28	92	79.0	780	240	480	680	510	710	305	550	730	730	940	
18	18.47	81	79.0	690	235	455	620	465	660	290	520	670	660	850	
20	20.73	72	77.6	610	160	345	455	330	480	220	400	500	460	620	
22.4	23.51	64	79.0	550	160	330	425	310	455	215	385	470	425	580	
25	25.94	58	79.0	495	155	310	390	285	415	200	360	425	380	520	
28	29.41	51	79.0	440	155	305	375	275	405	205	355	410	360	500	
31.5	32.13	47	79.0	400	160	305	365	265	395	205	350	400	345	480	X3F..
35.5	36.44	41	79.0	355	155	290	340	250	375	195	335	375	320	450	
40	39.25	38	79.0	330	165	285	325	245	360	195	325	355	300	420	M5
45	44.51	34	79.0	290	160	280	315	235	350	190	320	340	285	410	276
50	48.62	31	79.0	265	160	280	305	230	340	190	315	330	275	395	M4
56	55.14	27	79.0	235	160	275	295	220	335	185	310	320	265	380	300
63	64.48	23	79.0	200	150	250	260	195	295	170	280	280	230	335	
71	73.13	21	79.0	175	145	245	255	190	290	165	275	275	220	325	
80	79.88	19	79.0	160	145	245	245	185	285	165	270	265	215	315	
90	90.59	17	79.0	140	140	240	240	180	275	160	265	260	205	305	
100	99.49	15	79.0	130	120	-	-	140	-	130	-	-	155	-	
112	112.83	13	79.0	115	115	-	-	135	-	125	-	-	150	-	
125	123.25	12	79.0	105	115	-	-	135	-	130	-	-	150	-	
140	139.78	11	79.0	93	115	-	-	130	-	125	-	-	145	-	X4F..
160	152.34	9.8	79.0	85	105	-	-	120	-	115	-	-	130	-	
180	172.77	8.7	79.0	75	105	-	-	120	-	115	-	-	130	-	M5
200	199.92	7.5	79.0	65	96	-	-	110	-	105	-	-	115	-	280
224	226.73	6.6	79.0	57	95	-	-	105	-	105	-	-	115	-	M4
250	247.66	6.1	79.0	53	95	-	-	105	-	105	-	-	115	-	304
280	280.87	5.3	79.0	46	93	-	-	105	-	100	-	-	110	-	
315	306.12	4.9	79.0	43	87	-	-	95	-	95	-	-	100	-	
355	347.17	4.3	79.0	38	84	-	-	91	-	92	-	-	98	-	
X.F200..,n_1 = 1800 min^{-1}															79 kNm
6.3	6.44	280	63.2	1900	*)	475	920	580	970	*)	660	1050	1150	1500	
7.1	7.31	246	66.3	1750	*)	*)	830	530	870	*)	600	940	1050	1350	
8	7.98	226	68.0	1650	*)	550	940	640	980	*)	700	1050	1150	1450	X2F..
9	9.05	199	70.9	1500	*)	500	840	580	880	*)	630	930	1000	1300	
10	10.09	178	72.6	1400	*)	500	820	580	860	*)	610	900	980	1250	M5
11.2	11.44	157	75.0	1250	*)	480	780	550	820	*)	590	850	930	1200	272
12.5	12.69	142	76.6	1150	*)	520	820	600	860	*)	620	890	970	1250	M4
14	14.39	125	78.0	1050	*)	500	770	560	800	265	590	820	890	1150	296
16	16.28	111	79.0	940	*)	500	730	530	780	280	590	790	820	1050	
18	18.47	97	79.0	830	*)	475	670	490	720	270	550	720	730	960	
20	20.73	87	73.4	690	*)	360	485	345	520	200	430	540	510	700	
22.4	23.51	77	74.7	620	*)	345	455	325	490	195	415	500	470	650	
25	25.94	69	76.0	570	*)	325	410	295	450	190	385	455	420	580	
28	29.41	61	78.6	520	135	325	395	285	440	195	380	440	395	560	
31.5	32.13	56	79.0	480	135	320	380	275	430	195	375	425	375	540	X3F..
35.5	36.44	49	79.0	425	135	310	360	255	405	190	360	400	345	500	
40	39.25	46	79.0	395	155	310	345	255	390	195	350	380	325	470	M5
45	44.51	40	79.0	345	160	305	335	245	380	195	345	365	310	455	276
50	48.62	37	79.0	320	160	300	325	240	375	190	340	355	295	440	M4
56	55.14	33	79.0	280	160	295	315	230	365	190	335	345	285	425	300
63	64.48	28	79.0	240	150	270	275	210	325	175	305	300	245	370	
71	73.13	25	79.0	210	150	265	270	200	315	170	300	290	235	360	
80	79.88	23	79.0	195	145	265	260	195	310	170	295	285	230	350	
90	90.59	20	79.0	170	145	260	255	190	300	165	290	275	220	340	
100	99.49	18	77.0	155	120	-	-	150	-	135	-	-	165	-	
112	112.83	16	79.0	140	115	-	-	140	-	130	-	-	160	-	
125	123.25	15	79.0	125	120	-	-	140	-	130	-	-	155	-	
140	139.78	13	79.0	110	115	-	-	140	-	130	-	-	150	-	X4F..
160	152.34	12	79.0	105	110	-	-	125	-	120	-	-	140	-	
180	172.77	10	79.0	90	105	-	-	125	-	120	-	-	135	-	M5
200	199.92	9.0	79.0	78	100	-	-	115	-	110	-	-	125	-	280
224	226.73	7.9	79.0	69	98	-	-	110	-	110	-	-	120	-	M4
250	247.66	7.3	79.0	63	99	-	-	110	-	110	-	-	120	-	304
280	280.87	6.4	79.0	56	97	-	-	110	-	105	-	-	115	-	
315	306.12	5.9	79.0	51	90	-	-	100	-	99	-	-	110	-	
355	347.17	5.2	79.0	45	87	-	-	96	-	96	-	-	105	-	

X.F210..,n_1 = 1000 min^{-1}															90 kNm
					P_{TH} kW										
					M5				20°C	M4				20°C	
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW		fan	H_2O	H_2O	fan + H_2O		fan	H_2O	H_2O	fan + H_2O	
7.1	**7.29**	137	75.5	1100	305	540	970	730	930	385	630	1050	810	1000	
8	**8.26**	121	79.3	1050	275	490	860	660	830	345	570	920	720	910	
9	**9.04**	111	81.1	960	305	500	850	650	820	365	580	900	710	890	**X2F..**
10	**10.24**	98	84.2	880	290	480	780	600	760	350	540	820	640	820	
11.2	**11.42**	88	86.8	820	280	460	720	550	710	335	520	760	580	750	M5
12.5	**12.93**	77	90.0	750	270	440	660	510	660	320	495	700	530	690	272
14	**14.37**	70	90.0	670	290	455	660	520	670	335	510	700	530	690	M4
16	**16.27**	61	90.0	590	275	430	610	475	620	320	485	650	485	640	296
18	**18.44**	54	90.0	520	275	425	580	455	590	315	475	620	460	610	
20	**20.88**	48	90.0	460	250	385	520	405	530	285	430	550	405	540	
22.4	**23.47**	43	88.0	405	190	295	385	295	395	220	335	415	300	405	
25	**26.57**	38	90.0	370	190	290	375	285	385	220	330	400	290	395	
28	**29.37**	34	90.0	335	175	275	340	260	350	205	310	370	265	365	
31.5	**33.25**	30	90.0	295	175	270	330	250	340	200	305	355	255	355	
35.5	**36.38**	27	90.0	270	170	260	310	240	325	195	290	340	240	335	**X3F..**
40	**41.19**	24	90.0	235	165	255	300	230	315	190	290	325	235	325	
45	**44.44**	23	90.0	220	165	245	285	220	300	185	275	305	220	305	M5
50	**50.32**	20	90.0	195	155	235	270	210	285	175	260	290	210	290	276
56	**55.06**	18	90.0	180	160	240	270	210	285	180	265	290	210	295	M4
63	**62.33**	16	90.0	155	155	230	255	195	270	170	255	275	195	280	300
71	**73.02**	14	90.0	135	140	210	230	180	245	160	235	245	180	250	
80	**82.67**	12	90.0	120	140	205	220	170	240	155	230	240	175	245	
90	**90.45**	11	90.0	110	135	200	215	165	230	150	220	230	165	235	
100	**102.41**	9.8	90.0	95	135	200	205	160	225	150	220	220	160	230	
112	**112.66**	8.9	90.0	88	115	-	-	130	-	125	-	-	130	-	
125	**127.55**	7.8	90.0	78	110	-	-	125	-	120	-	-	125	-	
140	**139.56**	7.2	90.0	71	110	-	-	120	-	120	-	-	125	-	
160	**158.01**	6.3	90.0	63	105	-	-	120	-	115	-	-	120	-	**X4F..**
180	**172.51**	5.8	90.0	57	99	-	-	110	-	110	-	-	115	-	
200	**195.31**	5.1	90.0	51	98	-	-	105	-	105	-	-	110	-	M5
224	**226.38**	4.4	90.0	44	89	-	-	97	-	97	-	-	100	-	280
250	**256.30**	3.9	90.0	39	88	-	-	95	-	95	-	-	99	-	M4
280	**280.44**	3.6	90.0	35	86	-	-	93	-	94	-	-	97	-	304
315	**317.51**	3.1	90.0	31	85	-	-	91	-	92	-	-	95	-	
355	**346.64**	2.9	90.0	29	80	-	-	86	-	87	-	-	89	-	
400	**392.45**	2.5	90.0	25	78	-	-	83	-	85	-	-	87	-	
X.F210..,n_1 = 1200 min^{-1}															**90 kNm**
7.1	**7.29**	165	75.5	1350	*)	560	980	730	970	360	670	1050	820	1100	
8	**8.26**	145	79.3	1250	*)	500	880	660	870	325	600	940	740	960	
9	**9.04**	133	81.1	1150	*)	530	890	680	880	355	620	950	750	970	**X2F..**
10	**10.24**	117	84.2	1050	270	500	840	640	840	340	580	900	710	920	
11.2	**11.42**	105	86.8	980	260	490	780	590	780	325	560	820	640	840	M5
12.5	**12.93**	93	90.0	900	255	465	720	550	720	310	530	760	580	770	272
14	**14.37**	84	90.0	810	275	485	720	550	730	335	550	760	580	780	M4
16	**16.27**	74	90.0	710	265	460	660	510	680	320	520	700	530	720	296
18	**18.44**	65	90.0	630	270	455	630	485	650	320	520	670	500	680	
20	**20.88**	57	90.0	550	245	415	560	430	580	290	465	590	435	600	
22.4	**23.47**	51	88.0	490	180	315	415	310	430	225	360	445	320	450	
25	**26.57**	45	90.0	440	185	315	400	300	420	225	360	435	310	440	
28	**29.37**	41	90.0	400	175	295	365	275	385	210	335	395	285	405	
31.5	**33.25**	36	90.0	355	175	290	350	265	375	205	330	380	270	390	
35.5	**36.38**	33	90.0	320	170	280	330	250	355	200	315	360	255	370	**X3F..**
40	**41.19**	29	90.0	285	165	275	320	245	345	195	310	350	250	360	
45	**44.44**	27	90.0	265	165	265	305	235	330	190	300	330	235	340	M5
50	**50.32**	24	90.0	235	160	255	290	220	315	185	285	310	220	320	276
56	**55.06**	22	90.0	215	165	260	285	220	315	185	290	310	220	325	M4
63	**62.33**	19	90.0	190	155	250	270	210	295	180	280	290	210	305	300
71	**73.02**	16	90.0	160	145	230	245	190	270	165	255	260	190	280	
80	**82.67**	15	90.0	140	145	225	235	185	265	160	250	255	185	270	
90	**90.45**	13	90.0	130	140	220	225	175	250	155	245	245	175	260	
100	**102.41**	12	90.0	115	135	215	220	170	245	155	240	235	170	255	
112	**112.66**	11	90.0	105	115	-	-	135	-	130	-	-	140	-	
125	**127.55**	9.4	90.0	93	115	-	-	130	-	125	-	-	135	-	
140	**139.56**	8.6	90.0	85	110	-	-	125	-	125	-	-	130	-	
160	**158.01**	7.6	90.0	75	110	-	-	125	-	120	-	-	130	-	**X4F..**
180	**172.51**	7.0	90.0	69	105	-	-	115	-	115	-	-	120	-	
200	**195.31**	6.1	90.0	61	100	-	-	115	-	110	-	-	115	-	M5
224	**226.38**	5.3	90.0	52	93	-	-	105	-	100	-	-	105	-	280
250	**256.30**	4.7	90.0	46	92	-	-	100	-	100	-	-	105	-	M4
280	**280.44**	4.3	90.0	42	90	-	-	98	-	99	-	-	100	-	304
315	**317.51**	3.8	90.0	37	89	-	-	96	-	97	-	-	100	-	
355	**346.64**	3.5	90.0	34	84	-	-	90	-	92	-	-	94	-	
400	**392.45**	3.1	90.0	30	81	-	-	87	-	89	-	-	91	-	

X.F210..,n_1 = 1500 min^{-1}															90 kNm
					P_{TH} kW										
					M5				20°C	M4				20°C	
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
		min^{-1}	kNm	kW											
7.1	7.29	206	75.5	1650	*)	540	970	700	1000	*)	690	1050	820	1150	
8	8.26	182	79.3	1550	*)	495	870	620	900	*)	620	960	730	1000	
9	9.04	166	81.1	1450	*)	540	910	670	930	*)	660	980	760	1050	X2F..
10	10.24	146	84.2	1300	*)	520	860	640	880	*)	620	920	720	980	
11.2	11.42	131	86.8	1200	*)	510	830	620	850	*)	600	890	690	940	M5
12.5	12.93	116	90.0	1100	*)	490	780	590	810	290	570	840	660	890	272
14	14.37	104	90.0	1000	*)	520	790	600	820	315	600	840	650	890	M4
16	16.27	92	90.0	890	235	495	720	550	760	305	570	770	590	820	296
18	18.44	81	90.0	790	250	490	690	520	730	310	560	740	550	780	
20	20.88	72	90.0	690	230	445	600	460	650	285	510	650	480	690	
22.4	23.47	64	88.0	610	160	340	445	335	480	215	395	490	355	510	
25	26.57	56	90.0	550	165	340	430	320	465	220	395	470	340	495	
28	29.37	51	90.0	500	160	320	395	295	430	210	370	430	310	455	
31.5	33.25	45	90.0	440	165	315	380	285	415	210	365	415	295	440	
35.5	36.38	41	90.0	405	160	305	355	265	395	205	350	390	275	420	X3F..
40	41.19	36	90.0	355	160	300	345	260	385	200	345	380	265	405	
45	44.44	34	90.0	330	170	295	330	250	370	200	330	355	255	385	M5
50	50.32	30	90.0	290	165	280	310	235	350	190	315	335	240	365	276
56	55.06	27	90.0	265	165	285	310	235	350	195	320	335	240	365	M4
63	62.33	24	90.0	235	160	275	290	225	335	185	310	315	225	345	300
71	73.02	21	90.0	200	150	255	265	205	305	170	285	285	205	315	
80	82.67	18	90.0	175	150	250	255	195	295	170	280	275	200	305	
90	90.45	17	90.0	160	145	245	245	185	285	165	270	265	190	295	
100	102.41	15	90.0	145	140	240	235	180	275	160	265	255	185	285	
112	112.66	13	90.0	130	120	-	-	145	-	135	-	-	145	-	
125	127.55	12	90.0	115	115	-	-	140	-	130	-	-	140	-	
140	139.56	11	90.0	105	115	-	-	135	-	130	-	-	140	-	
160	158.01	9.5	90.0	94	115	-	-	130	-	125	-	-	135	-	X4F..
180	172.51	8.7	90.0	86	110	-	-	125	-	120	-	-	125	-	
200	195.31	7.7	90.0	76	105	-	-	120	-	115	-	-	125	-	M5
224	226.38	6.6	90.0	66	98	-	-	110	-	110	-	-	115	-	280
250	256.30	5.9	90.0	58	96	-	-	105	-	105	-	-	110	-	M4
280	280.44	5.3	90.0	53	95	-	-	105	-	105	-	-	110	-	304
315	317.51	4.7	90.0	47	94	-	-	105	-	100	-	-	105	-	
355	346.64	4.3	90.0	43	88	-	-	96	-	97	-	-	100	-	
400	392.45	3.8	90.0	38	86	-	-	93	-	94	-	-	97	-	
X.F210..,n_1 = 1800 min^{-1}															90 kNm
7.1	7.29	247	71.4	1900	*)	490	930	610	1000	*)	680	1050	770	1150	
8	8.26	218	75.0	1750	*)	450	840	560	900	*)	610	940	700	1050	
9	9.04	199	76.7	1650	*)	540	900	640	960	*)	670	990	750	1100	X2F..
10	10.24	176	79.6	1500	*)	510	850	610	910	*)	640	930	710	1050	
11.2	11.42	158	82.1	1400	*)	510	830	600	880	*)	630	900	700	990	M5
12.5	12.93	139	84.8	1250	*)	495	790	580	840	*)	600	850	660	940	272
14	14.37	125	85.6	1150	*)	540	830	620	880	*)	630	890	700	980	M4
16	16.27	111	86.8	1050	*)	510	770	580	820	275	600	830	640	910	296
18	18.44	98	88.0	920	*)	520	730	550	800	290	600	790	600	870	
20	20.88	86	90.0	830	*)	470	640	485	710	265	540	700	520	760	
22.4	23.47	77	83.2	690	*)	360	475	350	520	200	425	520	380	570	
25	26.57	68	85.1	630	*)	355	460	335	510	205	420	510	365	550	
28	29.37	61	86.0	570	*)	335	415	305	465	195	395	460	330	500	
31.5	33.25	54	88.8	520	140	330	400	295	450	200	390	445	315	485	
35.5	36.38	49	90.0	485	140	320	375	275	430	195	375	415	295	460	X3F..
40	41.19	44	90.0	425	145	315	360	265	415	200	370	400	285	445	
45	44.44	41	90.0	395	165	315	350	265	405	200	360	385	275	425	M5
50	50.32	36	90.0	350	160	300	330	250	380	195	345	360	255	400	276
56	55.06	33	90.0	320	165	305	330	250	385	195	350	360	255	400	M4
63	62.33	29	90.0	280	160	295	310	235	365	190	335	340	240	380	300
71	73.02	25	90.0	240	155	275	280	215	330	180	310	305	215	345	
80	82.67	22	90.0	215	150	270	270	205	325	175	305	295	210	335	
90	90.45	20	90.0	195	145	265	260	195	310	170	295	280	200	325	
100	102.41	18	90.0	170	145	260	250	190	300	165	290	270	195	315	
112	112.66	16	85.1	150	125	-	-	150	-	140	-	-	155	-	
125	127.55	14	90.0	140	120	-	-	145	-	135	-	-	145	-	
140	139.56	13	90.0	130	120	-	-	140	-	130	-	-	145	-	
160	158.01	11	90.0	115	115	-	-	135	-	130	-	-	140	-	X4F..
180	172.51	10	90.0	105	110	-	-	130	-	120	-	-	130	-	
200	195.31	9.2	90.0	91	110	-	-	125	-	120	-	-	130	-	M5
224	226.38	8.0	90.0	79	100	-	-	115	-	110	-	-	120	-	280
250	256.30	7.0	90.0	69	100	-	-	115	-	110	-	-	115	-	M4
280	280.44	6.4	90.0	63	99	-	-	110	-	110	-	-	115	-	304
315	317.51	5.7	90.0	56	97	-	-	110	-	105	-	-	110	-	
355	346.64	5.2	90.0	51	92	-	-	100	-	100	-	-	105	-	
400	392.45	4.6	90.0	45	89	-	-	98	-	98	-	-	100	-	

X.F220..,n_1 = 1000 min^{-1}															112 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.42**	156	87.7	1450	*)	620	-	840	1100	445	740	-	1350	1600	
7.1	**7.08**	141	90.0	1350	*)	580	-	790	1000	420	700	-	1250	1500	
8	**7.97**	125	93.2	1250	355	600	-	790	1000	435	690	-	1200	1450	**X2F..**
9	**8.80**	114	95.4	1150	335	560	-	730	930	410	650	-	1150	1300	
10	**10.06**	99	99.5	1050	370	600	-	740	950	445	690	-	1100	1300	M5
11.2	**11.10**	90	102	990	350	560	-	680	880	415	650	-	990	1200	274
12.5	**12.61**	79	106	900	360	560	-	650	820	415	630	-	890	1050	M4
14	**13.92**	72	109	840	355	550	-	620	800	410	620	-	850	1050	298
16	**16.21**	62	112	740	340	520	-	570	740	390	590	-	750	920	
18	**17.89**	56	112	670	320	495	-	530	690	370	560	-	680	850	
20	**20.46**	49	99.2	530	265	415	-	430	570	315	475	-	550	700	
22.4	**22.58**	44	107	510	255	400	-	405	540	305	460	-	520	660	
25	**25.06**	40	112	485	235	365	-	365	485	280	415	-	455	580	
28	**27.66**	36	112	440	235	360	-	350	470	275	410	-	435	560	
31.5	**30.96**	32	112	395	225	345	-	330	440	260	390	-	400	520	**X3F..**
35.5	**34.16**	29	112	355	215	330	-	310	415	250	375	-	375	485	
40	**40.46**	25	112	300	220	330	-	305	410	250	370	-	355	465	M5
45	**44.65**	22	112	270	220	325	-	295	400	245	365	-	340	450	278
50	**49.96**	20	112	245	205	305	-	270	365	230	340	-	310	410	M4
56	**55.14**	18	112	220	195	290	-	255	345	220	325	-	290	390	302
63	**64.28**	16	112	190	190	280	-	240	330	210	310	-	270	365	
71	**70.94**	14	112	170	185	275	-	235	320	210	305	-	265	355	
80	**79.39**	13	112	155	175	260	-	215	300	195	285	-	240	330	
90	**87.62**	11	112	140	170	250	-	205	285	190	275	-	230	310	
100	**101.26**	9.9	112	120	150	-	-	180	-	165	-	-	195	-	
112	**111.76**	8.9	112	110	145	-	-	175	-	160	-	-	190	-	
125	**125.06**	8.0	112	98	140	-	-	165	-	155	-	-	180	-	
140	**138.02**	7.2	112	89	135	-	-	160	-	150	-	-	170	-	**X4F..**
160	**158.12**	6.3	112	78	120	-	-	140	-	135	-	-	150	-	
180	**174.51**	5.7	112	71	115	-	-	135	-	130	-	-	145	-	M5
200	**201.61**	5.0	112	61	125	-	-	140	-	135	-	-	150	-	282
224	**222.51**	4.5	112	55	120	-	-	135	-	130	-	-	145	-	M4
250	**248.99**	4.0	112	49	115	-	-	130	-	125	-	-	140	-	306
280	**274.80**	3.6	112	45	110	-	-	125	-	120	-	-	135	-	
315	**314.81**	3.2	112	39	100	-	-	110	-	110	-	-	115	-	
355	**347.45**	2.9	112	35	98	-	-	110	-	105	-	-	115	-	
X.F220..,n_1 = 1200 min^{-1}															**112 kNm**
6.3	**6.42**	187	87.7	1750	*)	620	-	820	1100	*)	770	-	1400	1700	
7.1	**7.08**	169	90.0	1650	*)	580	-	770	1050	*)	720	-	1300	1550	
8	**7.97**	151	93.2	1500	*)	620	-	790	1050	420	730	-	1250	1500	**X2F..**
9	**8.80**	136	95.4	1400	*)	580	-	740	980	395	690	-	1200	1400	
10	**10.06**	119	99.5	1250	345	630	-	790	1050	435	730	-	1250	1500	M5
11.2	**11.10**	108	102	1200	325	590	-	730	960	410	690	-	1100	1350	274
12.5	**12.61**	95	106	1100	350	600	-	690	910	420	680	-	1000	1250	M4
14	**13.92**	86	109	1000	350	590	-	670	880	415	670	-	960	1200	298
16	**16.21**	74	112	890	335	560	-	610	810	395	640	-	840	1050	
18	**17.89**	67	112	810	320	530	-	560	760	375	600	-	760	960	
20	**20.46**	59	99.2	630	260	445	-	455	620	320	510	-	620	790	
22.4	**22.58**	53	107	620	250	430	-	430	590	310	495	-	580	740	
25	**25.06**	48	112	580	235	395	-	385	530	285	455	-	500	650	
28	**27.66**	43	112	530	230	385	-	375	520	280	445	-	480	630	
31.5	**30.96**	39	112	470	225	370	-	350	485	270	425	-	440	580	**X3F..**
35.5	**34.16**	35	112	425	215	355	-	325	455	255	405	-	410	550	
40	**40.46**	30	112	360	225	360	-	325	450	260	405	-	385	520	M5
45	**44.65**	27	112	325	225	355	-	315	440	255	400	-	375	500	278
50	**49.96**	24	112	290	210	330	-	285	405	240	370	-	335	460	M4
56	**55.14**	22	112	265	200	315	-	270	380	230	355	-	315	435	302
63	**64.28**	19	112	225	195	305	-	255	365	220	340	-	295	405	
71	**70.94**	17	112	205	190	300	-	250	355	220	335	-	285	395	
80	**79.39**	15	112	185	180	280	-	230	330	205	315	-	260	365	
90	**87.62**	14	112	165	175	270	-	220	315	195	300	-	245	345	
100	**101.26**	12	112	145	155	-	-	190	-	170	-	-	210	-	
112	**111.76**	11	112	130	150	-	-	185	-	165	-	-	200	-	
125	**125.06**	9.6	112	120	145	-	-	175	-	160	-	-	190	-	
140	**138.02**	8.7	112	105	140	-	-	170	-	155	-	-	185	-	**X4F..**
160	**158.12**	7.6	112	93	125	-	-	150	-	140	-	-	160	-	
180	**174.51**	6.9	112	85	120	-	-	145	-	135	-	-	155	-	M5
200	**201.61**	6.0	112	73	130	-	-	150	-	140	-	-	160	-	282
224	**222.51**	5.4	112	66	125	-	-	145	-	135	-	-	155	-	M4
250	**248.99**	4.8	112	59	120	-	-	140	-	130	-	-	145	-	306
280	**274.80**	4.4	112	54	115	-	-	130	-	130	-	-	140	-	
315	**314.81**	3.8	112	47	105	-	-	115	-	115	-	-	125	-	
355	**347.45**	3.5	112	43	100	-	-	115	-	110	-	-	120	-	

X.F220..,n_1 = 1500 min^{-1}															112 kNm
					P_{TH} kW										
					M5				20°C	M4				20°C	
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
		min^{-1}	kNm	kW											
6.3	**6.42**	234	87.7	2200	*)	570	-	730	1100	*)	770	-	1400	1750	
7.1	**7.08**	212	90.0	2050	*)	540	-	690	1050	*)	730	-	1300	1650	
8	**7.97**	188	93.2	1900	*)	620	-	760	1100	*)	770	-	1300	1600	**X2F..**
9	**8.80**	170	95.4	1750	*)	580	-	710	1000	*)	720	-	1200	1500	
10	**10.06**	149	99.5	1600	*)	650	-	780	1100	400	780	-	1300	1600	M5
11.2	**11.10**	135	102	1500	*)	610	-	740	1000	375	730	-	1200	1500	274
12.5	**12.61**	119	106	1350	*)	640	-	750	1000	410	740	-	1200	1450	M4
14	**13.92**	108	109	1250	325	630	-	720	990	405	730	-	1100	1400	298
16	**16.21**	93	112	1100	320	600	-	660	910	390	690	-	970	1200	
18	**17.89**	84	112	1000	300	570	-	610	850	370	660	-	880	1150	
20	**20.46**	73	99.2	790	240	475	-	485	690	320	560	-	700	920	
22.4	**22.58**	66	107	770	230	460	-	460	660	310	540	-	660	860	
25	**25.06**	60	112	730	220	425	-	410	590	285	495	-	570	760	
28	**27.66**	54	112	660	220	415	-	395	570	285	490	-	540	720	
31.5	**30.96**	48	112	590	215	400	-	370	540	275	470	-	495	670	**X3F..**
35.5	**34.16**	44	112	530	205	385	-	345	510	260	445	-	460	630	
40	**40.46**	37	112	450	230	400	-	350	510	270	450	-	435	600	M5
45	**44.65**	34	112	410	225	390	-	340	495	265	445	-	415	580	278
50	**49.96**	30	112	365	210	365	-	310	450	250	410	-	375	520	M4
56	**55.14**	27	112	330	205	350	-	290	430	240	395	-	350	495	302
63	**64.28**	23	112	285	200	340	-	275	410	230	380	-	325	465	
71	**70.94**	21	112	255	195	335	-	270	400	230	375	-	315	450	
80	**79.39**	19	112	230	185	310	-	245	370	215	350	-	285	415	
90	**87.62**	17	112	210	180	300	-	235	350	205	335	-	270	395	
100	**101.26**	15	112	180	160	-	-	205	-	175	-	-	225	-	
112	**111.76**	13	112	165	155	-	-	200	-	175	-	-	220	-	
125	**125.06**	12	112	150	150	-	-	190	-	165	-	-	205	-	
140	**138.02**	11	112	135	145	-	-	180	-	160	-	-	195	-	**X4F..**
160	**158.12**	9.5	112	115	130	-	-	160	-	145	-	-	175	-	
180	**174.51**	8.6	112	105	125	-	-	150	-	140	-	-	165	-	M5
200	**201.61**	7.4	112	92	135	-	-	160	-	150	-	-	175	-	282
224	**222.51**	6.7	112	83	130	-	-	155	-	145	-	-	165	-	M4
250	**248.99**	6.0	112	74	125	-	-	145	-	140	-	-	160	-	306
280	**274.80**	5.5	112	67	125	-	-	140	-	135	-	-	150	-	
315	**314.81**	4.8	112	59	110	-	-	125	-	120	-	-	135	-	
355	**347.45**	4.3	112	53	110	-	-	120	-	120	-	-	130	-	
X.F220..,n_1 = 1800 min^{-1}															**112 kNm**
6.3[1]	**6.42**	280	82.9	2500	*)	*)	-	*)	1050	*)	720	-	1350	1800	
7.1[1]	**7.08**	254	85.1	2300	*)	*)	-	*)	1000	*)	690	-	1250	1700	
8[1]	**7.97**	226	88.1	2150	*)	580	-	690	1100	*)	770	-	1300	1650	**X2F..**
9[1]	**8.80**	205	90.2	2000	*)	550	-	650	1000	*)	720	-	1200	1550	
10[1]	**10.06**	179	94.1	1800	*)	640	-	740	1100	*)	800	-	1300	1650	M5
11.2[1]	**11.10**	162	96.5	1700	*)	600	-	700	1050	*)	760	-	1200	1550	274
12.5	**12.61**	143	100	1550	*)	660	-	740	1050	385	780	-	1200	1550	M4
14	**13.92**	129	102	1400	*)	650	-	740	1050	385	770	-	1200	1500	298
16	**16.21**	111	105	1250	*)	630	-	690	990	375	740	-	1100	1400	
18	**17.89**	101	107	1150	*)	600	-	640	920	355	700	-	990	1300	
20	**20.46**	88	93.8	900	*)	495	-	500	750	310	600	-	790	1050	
22.4	**22.58**	80	101	870	*)	475	-	475	710	300	580	-	730	970	
25	**25.06**	72	105	820	*)	445	-	425	640	280	530	-	630	850	
28	**27.66**	65	106	750	195	435	-	410	620	275	520	-	600	820	
31.5	**30.96**	58	107	680	195	420	-	385	580	270	500	-	540	750	**X3F..**
35.5	**34.16**	53	112	640	185	400	-	360	550	255	480	-	500	700	
40	**40.46**	44	112	540	225	425	-	370	550	275	490	-	480	670	M5
45	**44.65**	40	112	490	225	420	-	355	540	275	480	-	455	650	278
50	**49.96**	36	112	440	210	390	-	325	495	255	450	-	410	590	M4
56	**55.14**	33	112	395	200	375	-	305	470	245	430	-	380	550	302
63	**64.28**	28	112	340	200	365	-	290	445	240	415	-	355	520	
71	**70.94**	25	112	310	200	360	-	285	435	235	405	-	340	500	
80	**79.39**	23	112	275	185	335	-	260	405	220	380	-	310	460	
90	**87.62**	21	112	250	180	325	-	245	385	210	365	-	290	435	
100	**101.26**	18	106	210	160	-	-	215	-	180	-	-	240	-	
112	**111.76**	16	112	200	160	-	-	210	-	175	-	-	235	-	
125	**125.06**	14	112	175	155	-	-	200	-	170	-	-	220	-	
140	**138.02**	13	112	160	145	-	-	190	-	165	-	-	210	-	**X4F..**
160	**158.12**	11	112	140	135	-	-	165	-	150	-	-	185	-	
180	**174.51**	10	112	125	130	-	-	160	-	145	-	-	175	-	M5
200	**201.61**	8.9	112	110	140	-	-	170	-	155	-	-	185	-	282
224	**222.51**	8.1	112	100	135	-	-	165	-	150	-	-	175	-	M4
250	**248.99**	7.2	112	89	130	-	-	155	-	145	-	-	170	-	306
280	**274.80**	6.6	112	81	125	-	-	150	-	140	-	-	160	-	
315	**314.81**	5.7	112	70	115	-	-	130	-	125	-	-	140	-	
355	**347.45**	5.2	112	64	110	-	-	130	-	125	-	-	140	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} kW										
		min⁻¹	kNm	kW	M5				20°C	M4				20°C	
							H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
X.F230..,n_1 = 1000 min⁻¹															**131 kNm**
7.1	**7.27**	138	99.0	1450	365	670	-	900	1150	485	800	-	1000	1300	
8	**7.98**	125	101	1350	*)	630	-	840	1100	450	750	-	940	1200	
9	**9.03**	111	105	1250	365	610	-	790	1000	445	700	-	880	1100	**X2F..**
10	**9.91**	101	107	1150	360	600	-	780	980	440	700	-	850	1100	
11.2	**11.39**	88	112	1050	380	610	-	750	960	450	700	-	800	1050	M5
12.5	**12.50**	80	114	980	355	580	-	690	880	425	660	-	730	940	274
14	**14.28**	70	119	890	365	570	-	650	830	420	640	-	680	880	M4
16	**15.68**	64	122	830	360	560	-	630	810	415	630	-	650	850	298
18	**18.36**	54	127	750	345	530	-	570	750	395	600	-	590	770	
20	**20.16**	50	130	690	340	530	-	560	730	390	590	-	560	750	
22.4	**23.17**	43	112	530	275	425	-	435	580	325	485	-	445	600	
25	**25.44**	39	123	530	265	410	-	415	550	310	465	-	425	570	
28	**28.38**	35	131	500	250	385	-	380	500	290	435	-	385	520	
31.5	**31.17**	32	131	455	240	370	-	360	480	280	420	-	365	500	
35.5	**35.05**	29	131	405	230	355	-	335	450	270	400	-	340	465	**X3F..**
40	**38.49**	26	131	370	220	340	-	315	425	255	385	-	320	440	
45	**45.81**	22	131	310	230	340	-	310	415	260	380	-	310	430	M5
50	**50.30**	20	131	285	225	335	-	300	405	255	375	-	300	420	278
56	**56.58**	18	131	250	210	310	-	275	375	235	345	-	275	385	M4
63	**62.12**	16	131	230	200	300	-	260	355	225	330	-	260	365	302
71	**72.79**	14	131	195	195	290	-	245	335	215	320	-	245	345	
80	**79.92**	13	131	180	190	285	-	240	330	215	315	-	240	340	
90	**89.89**	11	131	160	175	260	-	215	295	195	285	-	220	305	
100	**98.71**	10	131	145	170	255	-	210	290	190	280	-	215	300	
112	**114.66**	8.7	131	125	150	-	-	180	-	165	-	-	180	-	
125	**125.90**	7.9	131	115	150	-	-	180	-	165	-	-	180	-	
140	**141.61**	7.1	131	100	140	-	-	165	-	155	-	-	165	-	
160	**155.49**	6.4	131	93	140	-	-	165	-	150	-	-	165	-	**X4F..**
180	**179.04**	5.6	131	80	120	-	-	140	-	135	-	-	140	-	
200	**196.60**	5.1	131	73	120	-	-	140	-	130	-	-	140	-	M5
224	**228.29**	4.4	131	63	125	-	-	145	-	140	-	-	145	-	282
250	**250.68**	4.0	131	57	125	-	-	140	-	135	-	-	145	-	M4
280	**281.94**	3.5	131	51	115	-	-	130	-	125	-	-	135	-	306
315	**309.59**	3.2	131	46	115	-	-	130	-	125	-	-	130	-	
355	**356.48**	2.8	131	40	100	-	-	110	-	110	-	-	115	-	
400	**391.43**	2.6	131	37	100	-	-	110	-	110	-	-	115	-	
X.F230..,n_1 = 1200 min⁻¹															**131 kNm**
7.1	**7.27**	165	99.0	1750	*)	670	-	880	1200	440	840	-	1000	1350	
8	**7.98**	150	101	1650	*)	630	-	820	1100	*)	780	-	950	1250	
9	**9.03**	133	105	1500	*)	630	-	790	1050	430	740	-	890	1150	**X2F..**
10	**9.91**	121	107	1400	*)	620	-	780	1050	425	740	-	880	1150	
11.2	**11.39**	105	112	1250	355	640	-	800	1050	445	750	-	890	1150	M5
12.5	**12.50**	96	114	1200	335	600	-	730	970	415	700	-	810	1050	274
14	**14.28**	84	119	1050	360	610	-	700	920	425	690	-	740	980	M4
16	**15.68**	77	122	1000	355	600	-	680	890	420	680	-	710	950	298
18	**18.36**	65	127	890	345	570	-	620	820	405	650	-	640	860	
20	**20.16**	60	130	830	340	560	-	600	800	395	640	-	620	840	
22.4	**23.17**	52	112	630	270	455	-	465	630	330	520	-	485	670	
25	**25.44**	47	123	630	260	440	-	440	600	320	510	-	460	640	
28	**28.38**	42	131	600	250	415	-	405	560	300	475	-	415	580	
31.5	**31.17**	38	131	550	240	400	-	380	530	290	455	-	395	550	
35.5	**35.05**	34	131	485	230	380	-	355	495	275	435	-	365	520	**X3F..**
40	**38.49**	31	131	445	220	365	-	335	470	265	415	-	345	490	
45	**45.81**	26	131	375	235	370	-	330	460	270	415	-	335	475	M5
50	**50.30**	24	131	340	230	365	-	320	450	265	410	-	325	465	278
56	**56.58**	21	131	300	215	340	-	295	410	245	380	-	295	425	M4
63	**62.12**	19	131	275	205	325	-	280	390	235	365	-	280	405	302
71	**72.79**	16	131	235	200	315	-	260	370	225	350	-	265	385	
80	**79.92**	15	131	215	195	310	-	255	365	225	345	-	255	375	
90	**89.89**	13	131	190	180	280	-	230	325	205	315	-	230	340	
100	**98.71**	12	131	175	180	280	-	225	320	200	310	-	225	330	
112	**114.66**	10	131	150	155	-	-	195	-	170	-	-	190	-	
125	**125.90**	9.5	131	135	155	-	-	190	-	170	-	-	190	-	
140	**141.61**	8.5	131	120	145	-	-	175	-	160	-	-	175	-	
160	**155.49**	7.7	131	110	145	-	-	170	-	160	-	-	170	-	**X4F..**
180	**179.04**	6.7	131	96	125	-	-	150	-	140	-	-	150	-	
200	**196.60**	6.1	131	88	125	-	-	145	-	135	-	-	145	-	M5
224	**228.29**	5.3	131	76	135	-	-	155	-	145	-	-	155	-	282
250	**250.68**	4.8	131	69	130	-	-	150	-	145	-	-	150	-	M4
280	**281.94**	4.3	131	61	120	-	-	140	-	135	-	-	140	-	306
315	**309.59**	3.9	131	56	120	-	-	135	-	130	-	-	140	-	
355	**356.48**	3.4	131	48	105	-	-	120	-	115	-	-	120	-	
400	**391.43**	3.1	131	44	105	-	-	115	-	115	-	-	120	-	

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X.F230..,n_1 = 1500 min^{-1}															131 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**7.27**	206	99.0	2200	*)	620	-	790	1200	*)	840	-	970	1400	
8	**7.98**	188	101	2050	*)	580	-	730	1100	*)	780	-	910	1300	
9	**9.03**	166	105	1850	*)	630	-	760	1100	*)	780	-	890	1250	**X2F..**
10	**9.91**	151	107	1750	*)	630	-	750	1100	*)	770	-	880	1200	
11.2	**11.39**	132	112	1600	*)	670	-	790	1100	410	800	-	900	1250	M5
12.5	**12.50**	120	114	1450	*)	620	-	740	1050	385	750	-	850	1150	274
14	**14.28**	105	119	1350	335	650	-	760	1050	420	750	-	840	1150	M4
16	**15.68**	96	122	1250	330	640	-	730	1000	415	740	-	800	1100	298
18	**18.36**	82	127	1100	330	620	-	660	920	400	710	-	710	990	
20	**20.16**	74	130	1050	325	610	-	640	890	395	700	-	680	960	
22.4	**23.17**	65	112	790	250	490	-	495	700	330	580	-	540	760	
25	**25.44**	59	123	790	240	470	-	465	670	320	560	-	500	720	
28	**28.38**	53	131	750	235	450	-	430	620	305	520	-	460	660	
31.5	**31.17**	48	131	680	230	430	-	405	590	290	500	-	430	630	
35.5	**35.05**	43	131	610	220	415	-	375	550	280	480	-	400	590	**X3F..**
40	**38.49**	39	131	550	215	395	-	355	520	270	460	-	375	550	
45	**45.81**	33	131	465	235	410	-	355	520	280	460	-	365	540	M5
50	**50.30**	30	131	425	235	400	-	345	500	275	455	-	355	520	278
56	**56.58**	27	131	375	220	375	-	315	460	255	420	-	320	480	M4
63	**62.12**	24	131	345	210	360	-	300	440	245	405	-	305	455	302
71	**72.79**	21	131	295	205	350	-	280	415	240	390	-	285	430	
80	**79.92**	19	131	265	205	340	-	275	405	235	385	-	280	425	
90	**89.89**	17	131	235	185	315	-	245	365	215	350	-	250	380	
100	**98.71**	15	131	215	185	310	-	240	360	210	345	-	245	375	
112	**114.66**	13	131	190	160	-	-	205	-	180	-	-	205	-	
125	**125.90**	12	131	170	160	-	-	205	-	180	-	-	200	-	
140	**141.61**	11	131	150	150	-	-	190	-	170	-	-	185	-	
160	**155.49**	9.6	131	140	150	-	-	185	-	165	-	-	185	-	**X4F..**
180	**179.04**	8.4	131	120	130	-	-	160	-	145	-	-	160	-	
200	**196.60**	7.6	131	110	130	-	-	155	-	145	-	-	155	-	M5
224	**228.29**	6.6	131	95	140	-	-	165	-	155	-	-	165	-	282
250	**250.68**	6.0	131	86	140	-	-	160	-	150	-	-	160	-	M4
280	**281.94**	5.3	131	77	130	-	-	150	-	140	-	-	150	-	306
315	**309.59**	4.8	131	70	125	-	-	145	-	140	-	-	145	-	
355	**356.48**	4.2	131	61	110	-	-	125	-	125	-	-	130	-	
400	**391.43**	3.8	131	55	110	-	-	125	-	120	-	-	125	-	
X.F230..,n_1 = 1800 min^{-1}															**131 kNm**
7.1[1]	**7.27**	248	93.6	2500	*)	*)	-	630	1150	*)	790	-	880	1400	
8[1]	**7.98**	226	96.0	2300	*)	*)	-	590	1050	*)	740	-	820	1300	
9[1]	**9.03**	199	99.3	2100	*)	600	-	700	1100	*)	790	-	860	1300	**X2F..**
10[1]	**9.91**	182	101	2000	*)	590	-	690	1100	*)	780	-	850	1250	
11.2[1]	**11.39**	158	106	1800	*)	660	-	750	1150	*)	820	-	890	1300	M5
12.5[1]	**12.50**	144	108	1650	*)	620	-	700	1050	*)	770	-	830	1200	274
14	**14.28**	126	112	1500	*)	670	-	750	1100	395	800	-	850	1200	M4
16	**15.68**	115	115	1400	*)	660	-	740	1050	390	780	-	840	1200	298
18	**18.36**	98	120	1250	*)	640	-	700	1000	385	750	-	780	1100	
20	**20.16**	89	122	1150	*)	640	-	670	970	380	740	-	740	1050	
22.4	**23.17**	78	105	890	*)	510	-	510	760	320	620	-	580	850	
25	**25.44**	71	116	890	*)	490	-	485	720	310	600	-	540	800	
28	**28.38**	63	123	850	*)	470	-	445	670	295	560	-	495	730	
31.5	**31.17**	58	125	790	205	455	-	420	640	285	540	-	465	690	
35.5	**35.05**	51	127	710	205	435	-	390	600	275	520	-	425	650	**X3F..**
40	**38.49**	47	131	670	195	415	-	365	560	265	495	-	400	610	
45	**45.81**	39	131	560	235	440	-	375	570	285	500	-	390	600	M5
50	**50.30**	36	131	510	230	430	-	365	550	280	495	-	380	580	278
56	**56.58**	32	131	455	215	405	-	330	500	260	460	-	340	530	M4
63	**62.12**	29	131	410	210	385	-	315	480	250	440	-	325	500	302
71	**72.79**	25	131	350	210	375	-	300	455	245	425	-	305	480	
80	**79.92**	23	131	320	205	370	-	290	445	240	420	-	295	465	
90	**89.89**	20	131	285	190	340	-	260	400	220	380	-	265	420	
100	**98.71**	18	131	260	185	335	-	250	395	215	375	-	260	410	
112	**114.66**	16	123	215	165	-	-	215	-	185	-	-	215	-	
125	**125.90**	14	131	205	165	-	-	215	-	180	-	-	210	-	
140	**141.61**	13	131	185	155	-	-	200	-	170	-	-	195	-	
160	**155.49**	12	131	165	150	-	-	195	-	170	-	-	190	-	**X4F..**
180	**179.04**	10	131	145	135	-	-	165	-	150	-	-	165	-	
200	**196.60**	9.2	131	130	130	-	-	165	-	145	-	-	165	-	M5
224	**228.29**	7.9	131	115	145	-	-	175	-	160	-	-	175	-	282
250	**250.68**	7.2	131	105	140	-	-	170	-	155	-	-	170	-	M4
280	**281.94**	6.4	131	92	135	-	-	155	-	145	-	-	155	-	306
315	**309.59**	5.8	131	84	130	-	-	155	-	145	-	-	155	-	
355	**356.48**	5.0	131	73	115	-	-	135	-	130	-	-	135	-	
400	**391.43**	4.6	131	66	115	-	-	130	-	125	-	-	135	-	

X.F240..,n_1 = 1000 min^{-1}															156 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.30**	159	124	2100	*)	600	-	810	1150	*)	790	-	1450	1750	
7.1	**7.26**	138	133	1950	*)	590	-	800	1100	*)	780	-	1450	1750	
8	**8.01**	125	138	1850	*)	690	-	870	1150	495	820	-	1400	1650	**X2F..**
9	**9.22**	108	144	1700	*)	640	-	810	1050	465	770	-	1300	1550	
10	**10.14**	99	147	1550	395	680	-	820	1050	495	790	-	1250	1500	M5
11.2	**11.67**	86	152	1400	370	630	-	740	970	460	740	-	1100	1300	274
12.5	**12.34**	81	154	1350	435	720	-	820	1050	530	820	-	1150	1400	M4
14	**14.21**	70	156	1200	405	670	-	740	970	490	770	-	1050	1250	298
16	**15.69**	64	156	1050	400	630	-	670	880	470	710	-	900	1100	
18	**18.06**	55	156	930	375	590	-	610	810	435	670	-	810	1000	
20	**20.93**	48	155	800	290	480	-	480	650	365	560	-	630	810	
22.4	**24.09**	42	156	700	275	450	-	440	600	345	530	-	580	740	
25	**26.34**	38	156	640	270	435	-	415	570	330	510	-	530	690	
28	**30.32**	33	156	560	255	415	-	385	530	315	480	-	485	640	
31.5	**32.42**	31	156	520	270	425	-	390	540	325	490	-	485	640	**X3F..**
35.5	**37.31**	27	156	455	255	400	-	360	500	305	465	-	445	590	
40	**40.49**	25	156	420	250	385	-	345	470	290	435	-	405	540	M5
45	**46.60**	21	156	365	240	365	-	320	440	275	410	-	375	500	278
50	**49.83**	20	156	340	245	375	-	325	445	280	420	-	375	510	M4
56	**57.35**	17	156	295	230	355	-	300	420	270	400	-	350	475	302
63	**65.18**	15	156	260	225	335	-	280	390	255	375	-	320	435	
71	**75.02**	13	156	225	215	320	-	265	370	240	355	-	300	410	
80	**80.22**	12	156	210	215	325	-	265	370	245	360	-	300	415	
90	**92.34**	11	156	185	205	310	-	250	350	235	345	-	280	390	
100	**105.04**	9.5	153	160	175	-	-	205	-	190	-	-	225	-	
112	**120.90**	8.3	156	140	165	-	-	195	-	185	-	-	215	-	
125	**129.28**	7.7	156	135	170	-	-	200	-	185	-	-	215	-	
140	**148.80**	6.7	156	115	160	-	-	185	-	175	-	-	205	-	**X4F..**
160	**155.53**	6.4	156	110	155	-	-	180	-	170	-	-	195	-	
180	**179.01**	5.6	156	96	150	-	-	175	-	165	-	-	185	-	M5
200	**205.74**	4.9	156	83	145	-	-	160	-	155	-	-	175	-	282
224	**236.80**	4.2	156	72	135	-	-	155	-	150	-	-	165	-	M4
250	**253.21**	3.9	156	68	140	-	-	155	-	155	-	-	170	-	306
280	**291.45**	3.4	156	59	135	-	-	150	-	150	-	-	160	-	
315	**304.61**	3.3	156	56	125	-	-	140	-	140	-	-	150	-	
355	**350.61**	2.9	156	49	120	-	-	135	-	135	-	-	140	-	
X.F240..,n_1 = 1200 min^{-1}															**156 kNm**
6.3	**6.30**	190	124	2550	*)	*)	-	690	1100	*)	760	-	1400	1800	
7.1	**7.26**	165	133	2350	*)	*)	-	690	1100	*)	760	-	1400	1800	
8	**8.01**	150	138	2250	*)	690	-	840	1150	*)	850	-	1400	1750	**X2F..**
9	**9.22**	130	144	2000	*)	650	-	780	1100	*)	800	-	1300	1600	
10	**10.14**	118	147	1850	*)	690	-	830	1150	*)	830	-	1350	1650	M5
11.2	**11.67**	103	152	1700	*)	650	-	770	1050	435	780	-	1200	1500	274
12.5	**12.34**	97	154	1600	405	750	-	860	1150	510	880	-	1300	1600	M4
14	**14.21**	84	156	1400	375	700	-	770	1050	475	820	-	1150	1450	298
16	**15.69**	76	156	1300	390	670	-	710	960	470	770	-	1000	1250	
18	**18.06**	66	156	1100	360	630	-	650	880	435	720	-	900	1150	
20	**20.93**	57	155	970	270	500	-	500	700	360	600	-	700	910	
22.4	**24.09**	50	156	840	260	475	-	460	650	345	570	-	630	830	
25	**26.34**	46	156	770	260	460	-	435	620	335	550	-	580	780	
28	**30.32**	40	156	670	245	435	-	400	580	315	520	-	530	710	
31.5	**32.42**	37	156	630	260	450	-	405	580	325	530	-	530	720	**X3F..**
35.5	**37.31**	32	156	550	245	425	-	375	540	310	500	-	485	660	
40	**40.49**	30	156	500	250	415	-	360	510	300	470	-	440	600	M5
45	**46.60**	26	156	435	240	395	-	335	480	285	450	-	410	560	278
50	**49.83**	24	156	410	245	400	-	340	485	290	455	-	405	560	M4
56	**57.35**	21	156	355	235	380	-	315	460	275	435	-	375	530	302
63	**65.18**	18	156	310	230	365	-	300	430	265	410	-	345	485	
71	**75.02**	16	156	270	220	345	-	280	405	250	390	-	320	455	
80	**80.22**	15	156	255	220	355	-	280	410	255	395	-	320	460	
90	**92.34**	13	156	220	210	335	-	265	385	245	375	-	300	430	
100	**105.04**	11	153	190	175	-	-	220	-	195	-	-	240	-	
112	**120.90**	9.9	156	170	170	-	-	205	-	190	-	-	225	-	
125	**129.28**	9.3	156	160	170	-	-	205	-	190	-	-	225	-	
140	**148.80**	8.1	156	140	165	-	-	195	-	185	-	-	215	-	**X4F..**
160	**155.53**	7.7	156	130	160	-	-	185	-	175	-	-	205	-	
180	**179.01**	6.7	156	115	155	-	-	180	-	170	-	-	195	-	M5
200	**205.74**	5.8	156	100	150	-	-	170	-	165	-	-	185	-	282
224	**236.80**	5.1	156	87	145	-	-	165	-	155	-	-	175	-	M4
250	**253.21**	4.7	156	81	145	-	-	165	-	160	-	-	180	-	306
280	**291.45**	4.1	156	71	140	-	-	160	-	155	-	-	170	-	
315	**304.61**	3.9	156	68	130	-	-	145	-	145	-	-	155	-	
355	**350.61**	3.4	156	59	125	-	-	140	-	140	-	-	150	-	

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X.F240..,n_1 = 1500 min^{-1}															156 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3[1]	6.30	238	124	3200	*)	*)	-	*)	930	*)	*)	-	1300	1800	
7.1[1]	7.26	207	133	2950	*)	*)	-	*)	920	*)	*)	-	1300	1750	
8	8.01	187	138	2800	*)	*)	-	740	1150	*)	860	-	1400	1800	X2F..
9	9.22	163	144	2500	*)	*)	-	700	1100	*)	800	-	1300	1700	
10	10.14	148	147	2350	*)	680	-	770	1150	*)	860	-	1350	1700	M5
11.2	11.67	129	152	2100	*)	640	-	720	1100	*)	800	-	1250	1600	274
12.5	12.34	122	154	2000	*)	770	-	860	1250	*)	930	-	1400	1800	M4
14	14.21	106	156	1750	*)	710	-	800	1150	*)	860	-	1300	1650	298
16	15.69	96	156	1600	*)	710	-	750	1050	450	830	-	1150	1450	
18	18.06	83	156	1400	*)	660	-	680	980	420	770	-	1000	1300	
20	20.93	72	155	1200	*)	520	-	510	770	345	650	-	790	1050	
22.4	24.09	62	156	1050	*)	495	-	470	710	330	610	-	710	960	
25	26.34	57	156	960	*)	485	-	445	680	325	590	-	650	890	
28	30.32	49	156	840	215	460	-	410	630	310	560	-	590	820	
31.5	32.42	46	156	780	230	480	-	420	640	320	580	-	590	820	X3F..
35.5	37.31	40	156	680	220	450	-	385	600	305	550	-	530	750	
40	40.49	37	156	630	245	450	-	380	570	305	520	-	490	690	M5
45	46.60	32	156	550	235	425	-	355	540	290	495	-	450	640	278
50	49.83	30	156	510	245	440	-	360	540	300	500	-	450	640	M4
56	57.35	26	156	445	230	415	-	335	510	285	480	-	415	600	302
63	65.18	23	156	390	230	400	-	315	480	275	455	-	380	550	
71	75.02	20	156	340	220	380	-	295	450	260	435	-	355	520	
80	80.22	19	156	315	225	390	-	300	455	265	440	-	350	520	
90	92.34	16	156	275	215	370	-	280	430	255	420	-	330	490	
100	105.04	14	153	240	180	-	-	230	-	200	-	-	260	-	
112	120.90	12	156	215	170	-	-	215	-	195	-	-	245	-	
125	129.28	12	156	200	175	-	-	220	-	195	-	-	240	-	
140	148.80	10	156	175	165	-	-	205	-	190	-	-	230	-	X4F..
160	155.53	9.6	156	165	160	-	-	195	-	180	-	-	215	-	
180	179.01	8.4	156	145	155	-	-	190	-	175	-	-	210	-	M5
200	205.74	7.3	156	125	155	-	-	180	-	170	-	-	195	-	282
224	236.80	6.3	156	110	150	-	-	175	-	165	-	-	190	-	M4
250	253.21	5.9	156	100	155	-	-	175	-	170	-	-	190	-	306
280	291.45	5.1	156	88	150	-	-	170	-	160	-	-	180	-	
315	304.61	4.9	156	84	140	-	-	155	-	150	-	-	170	-	
355	350.61	4.3	156	73	130	-	-	150	-	145	-	-	160	-	

X.F240..,n_1 = 1800 min^{-1}															156 kNm
6.3[1]	6.30	286	117	3600	*)	*)	-	*)	*)	*)	*)	-	1050	1650	
7.1[1]	7.26	248	126	3350	*)	*)	-	*)	*)	*)	*)	-	1050	1650	
8[1]	8.01	225	130	3150	*)	*)	-	*)	1100	*)	810	-	1350	1850	X2F..
9[1]	9.22	195	136	2850	*)	*)	-	*)	1050	*)	760	-	1250	1700	
10[1]	10.14	178	138	2650	*)	*)	-	670	1150	*)	850	-	1300	1750	M5
11.2[1]	11.67	154	143	2350	*)	*)	-	620	1050	*)	800	-	1250	1650	274
12.5	12.34	146	145	2300	*)	750	-	800	1250	*)	950	-	1450	1900	M4
14	14.21	127	147	2000	*)	700	-	740	1150	*)	880	-	1350	1750	298
16	15.69	115	149	1850	*)	720	-	760	1150	*)	870	-	1250	1650	
18	18.06	100	152	1650	*)	680	-	700	1050	*)	810	-	1150	1500	
20	20.93	86	146	1350	*)	520	-	500	820	*)	680	-	880	1200	
22.4	24.09	75	147	1200	*)	495	-	460	760	*)	650	-	780	1050	
25	26.34	68	148	1100	*)	490	-	440	720	300	630	-	720	990	
28	30.32	59	149	960	*)	470	-	405	670	285	590	-	640	910	
31.5	32.42	56	153	920	*)	490	-	415	680	300	610	-	640	910	X3F..
35.5	37.31	48	156	820	*)	465	-	380	630	290	580	-	580	830	
40	40.49	44	156	750	225	475	-	395	620	300	560	-	540	770	M5
45	46.60	39	156	650	215	450	-	365	580	290	530	-	490	710	278
50	49.83	36	156	610	225	465	-	370	590	300	540	-	485	710	M4
56	57.35	31	156	530	215	440	-	340	550	285	520	-	445	660	302
63	65.18	28	156	470	230	430	-	330	520	280	495	-	410	610	
71	75.02	24	156	405	215	410	-	310	490	265	470	-	380	570	
80	80.22	22	156	380	225	420	-	310	495	270	480	-	380	580	
90	92.34	19	156	330	210	400	-	290	465	260	455	-	350	540	
100	105.04	17	146	275	175	-	-	235	-	200	-	-	270	-	
112	120.90	15	156	255	170	-	-	225	-	195	-	-	255	-	
125	129.28	14	156	240	175	-	-	225	-	195	-	-	255	-	
140	148.80	12	156	205	165	-	-	210	-	190	-	-	240	-	X4F..
160	155.53	12	156	200	160	-	-	200	-	180	-	-	225	-	
180	179.01	10	156	170	155	-	-	195	-	175	-	-	215	-	M5
200	205.74	8.7	156	150	160	-	-	190	-	180	-	-	210	-	282
224	236.80	7.6	156	130	155	-	-	180	-	170	-	-	200	-	M4
250	253.21	7.1	156	120	160	-	-	185	-	175	-	-	200	-	306
280	291.45	6.2	156	105	150	-	-	175	-	170	-	-	190	-	
315	304.61	5.9	156	100	140	-	-	165	-	155	-	-	175	-	
355	350.61	5.1	156	88	135	-	-	155	-	150	-	-	170	-	

X.F250..,n_1 = 1000 min^{-1}															175 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**6.78**	147	134	2150	*)	600	-	840	1150	*)	800	-	1000	1350	
8	**7.78**	129	145	2000	*)	560	-	780	1100	*)	750	-	940	1250	
9	**8.61**	116	149	1850	*)	700	-	890	1150	500	830	-	1000	1300	**X2F..**
10	**9.89**	101	155	1700	*)	650	-	830	1100	470	770	-	940	1200	
11.2	**10.89**	92	159	1550	*)	650	-	790	1050	475	760	-	880	1150	M5
12.5	**12.51**	80	164	1400	375	640	-	750	980	465	740	-	820	1050	274
14	**13.26**	75	166	1350	420	690	-	790	1050	510	790	-	840	1100	M4
16	**15.24**	66	174	1250	395	650	-	720	950	475	740	-	760	1000	298
18	**16.86**	59	175	1100	390	620	-	660	860	455	700	-	690	910	
20	**19.37**	52	175	970	365	580	-	600	790	425	650	-	620	830	
22.4	**22.49**	44	166	800	295	485	-	490	660	370	560	-	520	700	
25	**25.83**	39	170	710	280	460	-	450	610	350	530	-	475	650	
28	**28.31**	35	172	660	265	430	-	415	560	325	495	-	430	590	
31.5	**32.52**	31	175	580	255	410	-	385	530	310	470	-	400	560	
35.5	**34.84**	29	175	550	260	410	-	380	520	310	470	-	395	550	**X3F..**
40	**40.02**	25	175	475	245	385	-	350	485	295	445	-	365	510	
45	**43.51**	23	175	435	250	380	-	340	465	290	430	-	350	485	M5
50	**49.98**	20	175	380	235	360	-	320	440	275	405	-	325	455	278
56	**53.55**	19	175	355	240	370	-	320	440	280	415	-	330	460	M4
63	**61.51**	16	175	310	230	350	-	300	415	265	395	-	310	435	302
71	**70.05**	14	175	270	220	335	-	280	390	250	370	-	285	405	
80	**80.46**	12	175	235	210	320	-	265	365	240	355	-	270	380	
90	**86.21**	12	175	220	215	325	-	265	370	245	360	-	270	385	
100	**99.03**	10	175	190	205	305	-	250	350	230	340	-	255	365	
112	**112.88**	8.9	164	160	175	-	-	210	-	195	-	-	210	-	
125	**129.66**	7.7	175	150	165	-	-	195	-	185	-	-	200	-	
140	**138.93**	7.2	175	140	165	-	-	195	-	185	-	-	200	-	
160	**159.59**	6.3	175	120	165	-	-	190	-	180	-	-	195	-	**X4F..**
180	**167.13**	6.0	175	115	155	-	-	180	-	170	-	-	180	-	
200	**191.98**	5.2	175	100	150	-	-	175	-	165	-	-	175	-	M5
224	**221.09**	4.5	175	87	145	-	-	160	-	155	-	-	165	-	282
250	**253.96**	3.9	175	76	135	-	-	155	-	150	-	-	155	-	M4
280	**272.11**	3.7	175	71	140	-	-	155	-	155	-	-	160	-	306
315	**312.57**	3.2	175	62	135	-	-	150	-	150	-	-	155	-	
355	**327.35**	3.1	175	59	125	-	-	140	-	140	-	-	145	-	
400	**376.02**	2.7	175	51	120	-	-	135	-	135	-	-	135	-	
X.F250..,n_1 = 1200 min^{-1}															**175 kNm**
7.1	**6.78**	177	134	2550	*)	*)	-	720	1100	*)	780	-	950	1350	
8	**7.78**	154	145	2400	*)	*)	-	670	1050	*)	720	-	880	1250	
9	**8.61**	139	149	2250	*)	700	-	860	1200	*)	860	-	1000	1350	**X2F..**
10	**9.89**	121	155	2000	*)	650	-	810	1100	*)	800	-	940	1250	
11.2	**10.89**	110	159	1900	*)	670	-	810	1100	*)	800	-	920	1250	M5
12.5	**12.51**	96	164	1700	*)	660	-	780	1050	440	780	-	890	1200	274
14	**13.26**	90	166	1600	*)	720	-	830	1100	495	840	-	920	1250	M4
16	**15.24**	79	174	1450	*)	680	-	760	1050	465	790	-	830	1100	298
18	**16.86**	71	175	1350	380	650	-	700	950	455	750	-	750	1000	
20	**19.37**	62	175	1150	355	610	-	640	870	425	700	-	670	920	
22.4	**22.49**	53	166	960	280	510	-	510	720	365	610	-	550	770	
25	**25.83**	46	170	860	265	485	-	470	670	350	580	-	510	720	
28	**28.31**	42	172	790	255	455	-	430	610	330	540	-	460	660	
31.5	**32.52**	37	175	700	245	435	-	400	570	315	510	-	425	610	
35.5	**34.84**	34	175	650	250	435	-	395	560	315	510	-	420	600	**X3F..**
40	**40.02**	30	175	570	235	410	-	365	530	300	480	-	385	560	
45	**43.51**	28	175	520	250	410	-	360	510	295	465	-	370	540	M5
50	**49.98**	24	175	455	240	390	-	335	480	280	445	-	345	500	278
56	**53.55**	22	175	425	245	400	-	340	485	290	450	-	350	510	M4
63	**61.51**	20	175	370	235	380	-	315	455	275	430	-	325	480	302
71	**70.05**	17	175	325	225	360	-	300	425	260	405	-	305	445	
80	**80.46**	15	175	285	215	345	-	280	405	250	385	-	285	420	
90	**86.21**	14	175	265	220	350	-	280	405	255	390	-	290	425	
100	**99.03**	12	175	230	210	335	-	265	385	240	375	-	270	400	
112	**112.88**	11	164	190	180	-	-	220	-	200	-	-	220	-	
125	**129.66**	9.3	175	180	170	-	-	205	-	190	-	-	210	-	
140	**138.93**	8.6	175	165	170	-	-	205	-	190	-	-	210	-	
160	**159.59**	7.5	175	145	170	-	-	200	-	185	-	-	200	-	**X4F..**
180	**167.13**	7.2	175	140	160	-	-	185	-	175	-	-	190	-	
200	**191.98**	6.3	175	120	155	-	-	180	-	170	-	-	185	-	M5
224	**221.09**	5.4	175	105	150	-	-	170	-	165	-	-	175	-	282
250	**253.96**	4.7	175	91	145	-	-	165	-	155	-	-	165	-	M4
280	**272.11**	4.4	175	85	145	-	-	165	-	160	-	-	170	-	306
315	**312.57**	3.8	175	74	140	-	-	160	-	155	-	-	160	-	
355	**327.35**	3.7	175	70	130	-	-	145	-	145	-	-	150	-	
400	**376.02**	3.2	175	61	125	-	-	140	-	140	-	-	145	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} kW										
X.F250..,n_1 = 1500 min^{-1}															**175 kNm**
					M5 20°C					**M4** 20°C					
		min^{-1}	kNm	kW											
7.1[1]	**6.78**	221	134	3200	*)	*)	-	*)	960	*)	*)	-	*)	1300	
8[1]	**7.78**	193	145	3000	*)	*)	-	*)	900	*)	*)	-	*)	1200	
9	**8.61**	174	149	2800	*)	*)	-	770	1200	*)	870	-	960	1400	**X2F..**
10	**9.89**	152	155	2500	*)	*)	-	720	1100	*)	810	-	900	1300	
11.2	**10.89**	138	159	2350	*)	660	-	760	1100	*)	830	-	910	1300	M5
12.5	**12.51**	120	164	2100	*)	640	-	740	1100	*)	810	-	890	1250	274
14	**13.26**	113	166	2000	*)	740	-	840	1200	*)	900	-	970	1350	M4
16	**15.24**	98	174	1850	*)	690	-	780	1150	*)	840	-	910	1250	298
18	**16.86**	89	175	1650	*)	690	-	740	1050	440	810	-	820	1150	
20	**19.37**	77	175	1450	*)	650	-	670	960	410	760	-	740	1050	
22.4	**22.49**	67	166	1200	*)	530	-	530	780	350	660	-	600	880	
25	**25.83**	58	170	1050	*)	510	-	485	730	335	620	-	550	810	
28	**28.31**	53	172	990	*)	480	-	445	670	320	580	-	500	740	
31.5	**32.52**	46	175	880	*)	455	-	410	630	305	560	-	460	690	
35.5	**34.84**	43	175	820	220	460	-	405	620	310	550	-	450	680	**X3F..**
40	**40.02**	37	175	710	210	435	-	375	580	295	530	-	415	630	
45	**43.51**	34	175	660	240	445	-	380	570	300	520	-	400	600	M5
50	**49.98**	30	175	570	230	425	-	355	530	290	490	-	375	570	278
56	**53.55**	28	175	530	240	435	-	355	540	295	500	-	375	570	M4
63	**61.51**	24	175	465	230	415	-	335	510	280	475	-	350	540	302
71	**70.05**	21	175	405	230	400	-	315	475	270	450	-	325	500	
80	**80.46**	19	175	355	220	380	-	295	450	260	430	-	305	475	
90	**86.21**	17	175	330	225	385	-	300	455	265	435	-	310	475	
100	**99.03**	15	175	290	215	370	-	280	430	250	415	-	290	450	
112	**112.88**	13	164	240	180	-	-	235	-	205	-	-	230	-	
125	**129.66**	12	175	220	170	-	-	220	-	195	-	-	220	-	
140	**138.93**	11	175	210	175	-	-	220	-	195	-	-	220	-	
160	**159.59**	9.4	175	180	170	-	-	210	-	190	-	-	210	-	**X4F..**
180	**167.13**	9.0	175	175	160	-	-	195	-	180	-	-	200	-	
200	**191.98**	7.8	175	150	155	-	-	190	-	175	-	-	190	-	M5
224	**221.09**	6.8	175	130	155	-	-	185	-	170	-	-	185	-	282
250	**253.96**	5.9	175	115	150	-	-	175	-	165	-	-	175	-	M4
280	**272.11**	5.5	175	105	155	-	-	175	-	170	-	-	180	-	306
315	**312.57**	4.8	175	92	145	-	-	170	-	160	-	-	170	-	
355	**327.35**	4.6	175	88	140	-	-	155	-	150	-	-	160	-	
400	**376.02**	4.0	175	77	135	-	-	150	-	145	-	-	155	-	
X.F250..,n_1 = 1800 min^{-1}															**175 kNm**
7.1[1]	**6.78**	265	127	3600	*)	*)	-	*)	*)	*)	*)	-	*)	1100	
8[1]	**7.78**	231	137	3400	*)	*)	-	*)	*)	*)	*)	-	*)	1050	
9[1]	**8.61**	209	141	3150	*)	*)	-	*)	1150	*)	820	-	860	1400	**X2F..**
10[1]	**9.89**	182	146	2850	*)	*)	-	*)	1050	*)	770	-	800	1300	
11.2[1]	**10.89**	165	150	2650	*)	*)	-	*)	1100	*)	820	-	850	1300	M5
12.5[1]	**12.51**	144	155	2400	*)	*)	-	650	1100	*)	810	-	840	1300	274
14	**13.26**	136	156	2300	*)	720	-	780	1200	*)	920	-	950	1400	M4
16	**15.24**	118	164	2100	*)	680	-	730	1150	*)	860	-	890	1350	298
18	**16.86**	107	165	1900	*)	710	-	750	1100	*)	850	-	870	1250	
20	**19.37**	93	175	1750	*)	660	-	690	1050	*)	790	-	790	1150	
22.4	**22.49**	80	156	1350	*)	530	-	520	830	*)	690	-	640	960	
25	**25.83**	70	160	1200	*)	510	-	480	780	305	660	-	580	890	
28	**28.31**	64	163	1150	*)	485	-	440	720	295	620	-	520	810	
31.5	**32.52**	55	165	990	*)	465	-	405	670	285	590	-	480	760	
35.5	**34.84**	52	167	940	*)	470	-	405	660	290	590	-	470	740	**X3F..**
40	**40.02**	45	172	840	*)	450	-	370	610	280	560	-	430	690	
45	**43.51**	41	175	790	220	470	-	395	620	300	560	-	425	660	M5
50	**49.98**	36	175	680	215	450	-	365	580	285	530	-	395	620	278
56	**53.55**	34	175	640	225	460	-	370	580	295	540	-	395	630	M4
63	**61.51**	29	175	560	215	440	-	345	550	280	510	-	365	590	302
71	**70.05**	26	175	490	225	430	-	330	520	275	490	-	345	550	
80	**80.46**	22	175	425	215	410	-	310	490	265	465	-	325	520	
90	**86.21**	21	175	395	220	415	-	310	495	270	475	-	325	520	
100	**99.03**	18	175	345	210	395	-	290	465	255	450	-	305	495	
112	**112.88**	16	155	270	180	-	-	240	-	205	-	-	240	-	
125	**129.66**	14	172	260	170	-	-	225	-	195	-	-	225	-	
140	**138.93**	13	175	250	170	-	-	225	-	195	-	-	225	-	
160	**159.59**	11	175	215	170	-	-	215	-	190	-	-	215	-	**X4F..**
180	**167.13**	11	175	205	160	-	-	200	-	180	-	-	205	-	
200	**191.98**	9.4	175	180	155	-	-	195	-	175	-	-	195	-	M5
224	**221.09**	8.1	175	155	160	-	-	190	-	180	-	-	195	-	282
250	**253.96**	7.1	175	135	155	-	-	185	-	170	-	-	185	-	M4
280	**272.11**	6.6	175	125	160	-	-	185	-	175	-	-	190	-	306
315	**312.57**	5.8	175	110	150	-	-	175	-	170	-	-	180	-	
355	**327.35**	5.5	175	105	140	-	-	165	-	155	-	-	165	-	
400	**376.02**	4.8	175	92	135	-	-	155	-	150	-	-	160	-	

X.F260..,n_1 = 1000 min^{-1}															205 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C					M4 20°C					
		min^{-1}	kNm	kW					+					+	
6.3	**6.43**	156	178	2950	*)	*)	-	1050	1400	*)	880	-	1900	2200	
7.1	**7.28**	137	185	2750	*)	*)	-	1000	1300	*)	820	-	1750	2050	
8	**8.16**	123	192	2500	*)	760	-	1100	1450	*)	920	-	1800	2150	**X2F..**
9	**9.22**	108	198	2300	*)	710	-	1050	1350	*)	870	-	1700	2000	
10	**10.08**	99	204	2150	*)	760	-	1100	1350	550	900	-	1750	2000	M5
11.2	**11.40**	88	205	1950	*)	720	-	990	1250	520	840	-	1550	1800	274
12.5	**12.74**	78	205	1750	455	760	-	980	1250	550	870	-	1450	1700	M4
14	**14.41**	69	205	1550	430	710	-	890	1150	520	810	-	1300	1550	298
16	**15.86**	63	205	1400	425	690	-	840	1050	510	780	-	1150	1400	
18	**17.94**	56	205	1250	415	670	-	800	1000	495	770	-	1100	1300	
20	**21.22**	47	198	1000	315	520	-	590	770	400	620	-	800	990	
22.4	**24.01**	42	205	930	305	500	-	550	730	385	590	-	740	920	
25	**26.24**	38	205	850	285	465	-	500	660	360	550	-	660	830	
28	**29.75**	34	205	750	310	490	-	510	680	375	560	-	650	820	
31.5	**32.52**	31	205	680	290	460	-	465	620	350	530	-	580	740	**X3F..**
35.5	**36.78**	27	205	610	280	435	-	435	580	335	500	-	540	690	
40	**41.08**	24	205	540	280	430	-	415	560	325	485	-	500	650	M5
45	**46.47**	22	205	480	265	410	-	390	520	310	465	-	465	600	278
50	**48.31**	21	205	460	275	420	-	395	530	320	475	-	465	610	M4
56	**60.68**	16	205	365	275	415	-	375	510	315	460	-	435	570	302
63	**66.33**	15	205	335	250	380	-	340	460	285	420	-	385	510	
71	**75.02**	13	205	295	240	360	-	320	435	275	405	-	360	485	
80	**78.00**	13	205	285	245	370	-	325	440	280	410	-	365	490	
90	**88.23**	11	205	250	235	350	-	305	415	265	390	-	340	460	
100	**105.64**	9.5	205	215	195	-	-	245	-	215	-	-	270	-	
112	**119.49**	8.4	205	190	185	-	-	235	-	205	-	-	255	-	
125	**124.24**	8.0	205	180	190	-	-	235	-	210	-	-	255	-	
140	**140.53**	7.1	205	160	180	-	-	225	-	200	-	-	240	-	**X4F..**
160	**153.90**	6.5	205	145	180	-	-	220	-	200	-	-	235	-	
180	**174.09**	5.7	205	130	175	-	-	210	-	195	-	-	230	-	M5
200	**203.69**	4.9	205	110	165	-	-	190	-	175	-	-	200	-	282
224	**230.40**	4.3	205	98	160	-	-	185	-	175	-	-	195	-	M4
250	**239.55**	4.2	205	94	160	-	-	185	-	175	-	-	195	-	306
280	**270.97**	3.7	205	83	155	-	-	175	-	170	-	-	190	-	
315	**296.76**	3.4	205	76	155	-	-	175	-	165	-	-	185	-	
355	**335.68**	3.0	205	67	145	-	-	165	-	160	-	-	175	-	
X.F260..,n_1 = 1200 min^{-1}															**205 kNm**
6.3	**6.43**	187	178	3550	*)	*)	-	940	1350	*)	*)	-	1850	2250	
7.1	**7.28**	165	185	3250	*)	*)	-	890	1300	*)	*)	-	1750	2150	
8	**8.16**	147	192	3050	*)	*)	-	1100	1450	*)	940	-	1850	2250	**X2F..**
9	**9.22**	130	198	2750	*)	690	-	1000	1350	*)	890	-	1750	2100	
10	**10.08**	119	204	2600	*)	770	-	1100	1400	*)	940	-	1750	2100	M5
11.2	**11.40**	105	205	2300	*)	720	-	1000	1350	*)	880	-	1650	2000	274
12.5	**12.74**	94	205	2050	*)	790	-	1050	1350	540	920	-	1650	1950	M4
14	**14.41**	83	205	1850	*)	740	-	950	1250	500	860	-	1450	1750	298
16	**15.86**	76	205	1650	*)	720	-	890	1150	500	840	-	1300	1600	
18	**17.94**	67	205	1450	395	710	-	840	1100	490	820	-	1200	1500	
20	**21.22**	57	198	1200	*)	540	-	620	840	395	660	-	890	1100	
22.4	**24.01**	50	205	1100	280	520	-	580	790	380	630	-	820	1050	
25	**26.24**	46	205	1000	270	490	-	520	720	355	590	-	730	930	
28	**29.75**	40	205	900	300	520	-	540	740	380	610	-	720	920	
31.5	**32.52**	37	205	820	285	490	-	495	680	355	570	-	640	840	**X3F..**
35.5	**36.78**	33	205	730	270	465	-	460	640	340	540	-	590	780	
40	**41.08**	29	205	650	280	460	-	440	610	335	530	-	550	730	M5
45	**46.47**	26	205	580	265	440	-	415	570	320	500	-	510	680	278
50	**48.31**	25	205	550	275	450	-	420	580	325	520	-	510	680	M4
56	**60.68**	20	205	440	280	445	-	400	560	325	500	-	475	640	302
63	**66.33**	18	205	405	255	410	-	360	500	300	460	-	420	570	
71	**75.02**	16	205	355	245	390	-	340	480	285	440	-	395	540	
80	**78.00**	15	205	345	250	400	-	345	485	290	450	-	395	540	
90	**88.23**	14	205	305	240	380	-	325	460	275	430	-	370	510	
100	**105.64**	11	205	255	200	-	-	260	-	220	-	-	285	-	
112	**119.49**	10	205	225	190	-	-	245	-	215	-	-	270	-	
125	**124.24**	9.7	205	220	195	-	-	250	-	215	-	-	270	-	
140	**140.53**	8.5	205	190	190	-	-	235	-	210	-	-	255	-	**X4F..**
160	**153.90**	7.8	205	175	185	-	-	230	-	205	-	-	250	-	
180	**174.09**	6.9	205	155	180	-	-	225	-	200	-	-	240	-	M5
200	**203.69**	5.9	205	135	170	-	-	205	-	185	-	-	215	-	282
224	**230.40**	5.2	205	115	165	-	-	195	-	180	-	-	210	-	M4
250	**239.55**	5.0	205	115	170	-	-	200	-	185	-	-	210	-	306
280	**270.97**	4.4	205	100	160	-	-	190	-	175	-	-	200	-	
315	**296.76**	4.0	205	91	160	-	-	185	-	175	-	-	195	-	
355	**335.68**	3.6	205	81	155	-	-	175	-	170	-	-	190	-	

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X.F260..,n_1 = 1500 min^{-1}															205 kNm
					P_{TH} kW										
					M5				20°C	M4				20°C	
i_N	i_{ex}	n_2	M_{N2}	P_{N1}		fan	cooling coil H_2O	H_2O	fan + H_2O		fan	cooling coil H_2O	H_2O	fan + H_2O	
		min^{-1}	kNm	kW											
6.3[1]	**6.43**	233	178	4450	*)	*)	-	*)	1200	*)	*)	-	1750	2250	
7.1[1]	**7.28**	206	185	4100	*)	*)	-	*)	1150	*)	*)	-	1650	2100	
8	**8.16**	184	192	3800	*)	*)	-	*)	1400	*)	*)	-	1850	2300	**X2F..**
9	**9.22**	163	198	3450	*)	*)	-	880	1350	*)	*)	-	1750	2150	
10	**10.08**	149	204	3250	*)	*)	-	1000	1450	*)	950	-	1800	2250	M5
11.2	**11.40**	132	205	2900	*)	*)	-	940	1350	*)	900	-	1700	2100	274
12.5	**12.74**	118	205	2600	*)	800	-	1050	1450	*)	970	-	1750	2150	M4
14	**14.41**	104	205	2300	*)	750	-	980	1350	*)	910	-	1650	2000	298
16	**15.86**	95	205	2100	*)	750	-	950	1300	*)	890	-	1500	1850	
18	**17.94**	84	205	1850	*)	740	-	900	1250	*)	880	-	1400	1750	
20	**21.22**	71	198	1500	*)	560	-	640	920	*)	710	-	1000	1300	
22.4	**24.01**	62	205	1400	*)	540	-	600	860	360	680	-	930	1200	
25	**26.24**	57	205	1250	*)	510	-	540	790	340	640	-	830	1100	
28	**29.75**	50	205	1100	*)	550	-	570	820	375	670	-	820	1050	
31.5	**32.52**	46	205	1050	260	520	-	520	750	355	620	-	730	970	**X3F..**
35.5	**36.78**	41	205	910	250	495	-	480	700	335	590	-	660	890	
40	**41.08**	37	205	810	265	495	-	470	680	340	580	-	620	840	M5
45	**46.47**	32	205	720	255	475	-	440	640	325	560	-	570	780	278
50	**48.31**	31	205	690	265	485	-	445	650	335	570	-	570	780	M4
56	**60.68**	25	205	550	280	490	-	430	630	335	560	-	530	730	302
63	**66.33**	23	205	500	260	450	-	385	570	310	510	-	465	660	
71	**75.02**	20	205	445	245	430	-	365	540	295	490	-	435	620	
80	**78.00**	19	205	430	255	440	-	365	540	300	500	-	435	620	
90	**88.23**	17	205	380	240	420	-	345	510	285	475	-	405	580	
100	**105.64**	14	205	320	205	-	-	280	-	230	-	-	310	-	
112	**119.49**	13	205	285	195	-	-	265	-	220	-	-	295	-	
125	**124.24**	12	205	270	200	-	-	265	-	220	-	-	295	-	
140	**140.53**	11	205	240	190	-	-	250	-	215	-	-	275	-	**X4F..**
160	**153.90**	9.7	205	220	190	-	-	245	-	210	-	-	270	-	
180	**174.09**	8.6	205	195	185	-	-	235	-	210	-	-	260	-	M5
200	**203.69**	7.4	205	165	180	-	-	220	-	195	-	-	235	-	282
224	**230.40**	6.5	205	145	175	-	-	210	-	190	-	-	230	-	M4
250	**239.55**	6.3	205	140	175	-	-	215	-	195	-	-	230	-	306
280	**270.97**	5.5	205	125	170	-	-	205	-	185	-	-	220	-	
315	**296.76**	5.1	205	115	170	-	-	200	-	185	-	-	210	-	
355	**335.68**	4.5	205	100	165	-	-	190	-	180	-	-	205	-	
X.F260..,n_1 = 1800 min^{-1}															**205 kNm**
6.3[1]	**6.43**	280	167	5000	*)	*)	-	*)	*)	*)	*)	-	1450	2100*)	
7.1[1]	**7.28**	247	174	4600	*)	*)	-	*)	*)	*)	*)	-	1400	2000*)	
8[1]	**8.16**	221	181	4300	*)	*)	-	*)	1300*)	*)	*)	-	1750	2300*)	**X2F..**
9[1]	**9.22**	195	187	3900	*)	*)	-	*)	1250*)	*)	*)	-	1650	2200*)	
10[1]	**10.08**	179	194	3700	*)	*)	-	*)	1400*)	*)	*)	-	1750	2300*)	M5
11.2[1]	**11.40**	158	199	3350	*)	*)	-	*)	1300*)	*)	860*)	-	1650	2150*)	274
12.5	**12.74**	141	205	3100	*)	*)	-	980	1450*)	*)	990*)	-	1750	2200*)	M4
14	**14.41**	125	205	2750	*)	720*)	-	920	1350*)	*)	930*)	-	1650	2100*)	298
16	**15.86**	113	205	2500	*)	740*)	-	930	1350*)	*)	920*)	-	1600	2000*)	
18	**17.94**	100	205	2200	*)	730*)	-	910	1300*)	*)	910*)	-	1550	1950*)	
20	**21.22**	85	198	1800	*)	540	-	640	980	*)	740	-	1150	1450	
22.4	**24.01**	75	205	1650	*)	520	-	590	920	*)	710	-	1050	1350	
25	**26.24**	69	205	1550	*)	500	-	540	840	*)	660	-	920	1200	
28	**29.75**	61	205	1350	*)	560	-	580	880	355	710	-	910	1200	
31.5	**32.52**	55	205	1250	*)	530	-	530	810	340	660	-	810	1100	**X3F..**
35.5	**36.78**	49	205	1100	*)	510	-	490	760	325	630	-	730	1000	
40	**41.08**	44	205	980	*)	520	-	485	740	335	630	-	680	940	M5
45	**46.47**	39	205	860	235	500	-	455	690	320	600	-	620	870	278
50	**48.31**	37	205	830	245	510	-	460	700	330	610	-	620	880	M4
56	**60.68**	30	205	660	270	520	-	450	680	340	610	-	580	820	302
63	**66.33**	27	205	600	250	480	-	405	620	315	560	-	510	730	
71	**75.02**	24	205	530	240	460	-	380	580	300	530	-	475	690	
80	**78.00**	23	205	510	250	470	-	385	590	305	540	-	475	690	
90	**88.23**	20	205	455	235	450	-	360	560	295	520	-	440	650	
100	**105.64**	17	205	385	200	-	-	290	-	230	-	-	330	-	
112	**119.49**	15	205	340	195	-	-	275	-	220	-	-	310	-	
125	**124.24**	14	205	325	195	-	-	275	-	225	-	-	310	-	
140	**140.53**	13	205	290	190	-	-	260	-	215	-	-	295	-	**X4F..**
160	**153.90**	12	205	265	190	-	-	255	-	215	-	-	285	-	
180	**174.09**	10	205	235	185	-	-	245	-	210	-	-	275	-	M5
200	**203.69**	8.8	205	200	185	-	-	230	-	205	-	-	250	-	282
224	**230.40**	7.8	205	175	180	-	-	225	-	200	-	-	245	-	M4
250	**239.55**	7.5	205	170	185	-	-	225	-	200	-	-	245	-	306
280	**270.97**	6.6	205	150	175	-	-	215	-	195	-	-	230	-	
315	**296.76**	6.1	205	135	175	-	-	210	-	195	-	-	225	-	
355	**335.68**	5.4	205	120	170	-	-	200	-	185	-	-	215	-	

X.F270..,n_1 = 1000 min^{-1}															240 kNm
					P_{TH} kW										
					M5				20°C	M4				20°C	
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**7.07**	141	195	2950	*)	*)	-	1050	1400	*)	880	-	1250	1600	
8	**7.91**	126	200	2700	*)	*)	-	1050	1400	*)	880	-	1250	1600	
9	**8.96**	112	208	2500	*)	760	-	1100	1450	*)	930	-	1250	1600	**X2F..**
10	**10.03**	100	213	2300	*)	760	-	1100	1400	*)	920	-	1250	1550	
11.2	**11.07**	90	220	2150	*)	770	-	1100	1350	550	910	-	1200	1500	M5
12.5	**12.39**	81	227	1950	*)	760	-	1050	1300	550	900	-	1150	1450	274
14	**13.99**	71	236	1800	465	770	-	990	1250	560	880	-	1050	1350	M4
16	**15.66**	64	240	1650	435	720	-	910	1150	530	830	-	950	1200	298
18	**17.42**	57	240	1500	435	700	-	840	1100	520	800	-	870	1150	
20	**19.50**	51	240	1300	425	690	-	810	1050	510	780	-	830	1100	
22.4	**23.31**	43	215	1000	320	530	-	590	780	405	620	-	620	820	
25	**26.09**	38	235	980	320	530	-	580	760	405	620	-	600	800	
28	**28.82**	35	240	900	295	480	-	510	680	365	560	-	520	710	
31.5	**32.34**	31	240	810	320	500	-	520	690	385	580	-	530	710	
35.5	**35.72**	28	240	730	290	455	-	460	610	350	520	-	465	630	**X3F..**
40	**39.98**	25	240	650	285	450	-	445	590	340	510	-	450	610	
45	**45.12**	22	240	580	285	440	-	425	570	335	495	-	425	580	M5
50	**50.51**	20	240	520	280	430	-	410	550	325	485	-	410	560	278
56	**53.07**	19	240	490	280	430	-	400	540	325	485	-	400	550	M4
63	**65.96**	15	240	395	280	425	-	385	520	320	475	-	385	530	302
71	**72.85**	14	240	360	250	375	-	340	455	285	420	-	335	465	
80	**81.55**	12	240	320	245	370	-	325	445	280	410	-	325	455	
90	**85.68**	12	240	305	250	375	-	330	450	285	420	-	330	460	
100	**95.91**	10	240	270	245	370	-	320	435	280	410	-	320	445	
112	**116.03**	8.6	240	225	195	-	-	245	-	215	-	-	240	-	
125	**129.88**	7.7	240	205	190	-	-	240	-	210	-	-	235	-	
140	**136.46**	7.3	240	195	190	-	-	235	-	210	-	-	230	-	
160	**152.75**	6.5	240	175	190	-	-	235	-	210	-	-	230	-	**X4F..**
180	**169.04**	5.9	240	155	185	-	-	225	-	205	-	-	220	-	
200	**189.23**	5.3	240	140	180	-	-	215	-	200	-	-	215	-	M5
224	**223.73**	4.5	240	120	165	-	-	195	-	180	-	-	195	-	282
250	**250.44**	4.0	240	105	165	-	-	190	-	180	-	-	190	-	M4
280	**263.12**	3.8	240	100	160	-	-	185	-	175	-	-	185	-	306
315	**294.53**	3.4	240	90	160	-	-	180	-	175	-	-	180	-	
355	**325.95**	3.1	240	81	155	-	-	175	-	170	-	-	180	-	
400	**364.87**	2.7	240	72	155	-	-	170	-	165	-	-	175	-	
X.F270..,n_1 = 1200 min^{-1}															**240 kNm**
7.1	**7.07**	170	195	3550	*)	*)	-	940	1350	*)	*)	-	1200	1650	
8	**7.91**	152	200	3250	*)	*)	-	940	1350	*)	840	-	1150	1600	
9	**8.96**	134	208	3000	*)	*)	-	1100	1450	*)	950	-	1250	1650	**X2F..**
10	**10.03**	120	213	2750	*)	740	-	1050	1450	*)	940	-	1250	1650	
11.2	**11.07**	108	220	2550	*)	770	-	1100	1400	*)	950	-	1200	1600	M5
12.5	**12.39**	97	227	2350	*)	770	-	1050	1400	*)	940	-	1200	1550	274
14	**13.99**	86	236	2150	*)	800	-	1050	1350	540	940	-	1150	1500	M4
16	**15.66**	77	240	1950	*)	750	-	960	1250	510	880	-	1050	1350	298
18	**17.42**	69	240	1750	*)	740	-	900	1200	510	860	-	950	1250	
20	**19.50**	62	240	1600	405	720	-	860	1150	500	840	-	900	1200	
22.4	**23.31**	51	215	1200	*)	550	-	620	850	405	670	-	670	910	
25	**26.09**	46	235	1150	300	550	-	610	830	405	670	-	650	890	
28	**28.82**	42	240	1100	280	500	-	530	740	365	600	-	560	780	
31.5	**32.34**	37	240	970	310	540	-	550	760	390	630	-	570	790	
35.5	**35.72**	34	240	880	285	485	-	490	670	355	570	-	500	700	**X3F..**
40	**39.98**	30	240	780	280	480	-	470	650	345	560	-	480	680	
45	**45.12**	27	240	690	285	470	-	450	620	345	540	-	455	640	M5
50	**50.51**	24	240	620	280	465	-	435	600	335	530	-	440	620	278
56	**53.07**	23	240	590	280	460	-	425	590	335	530	-	430	610	M4
63	**65.96**	18	240	475	285	460	-	410	570	335	520	-	410	590	302
71	**72.85**	16	240	430	255	410	-	360	500	295	460	-	360	520	
80	**81.55**	15	240	385	250	400	-	345	490	290	450	-	345	500	
90	**85.68**	14	240	365	255	410	-	350	495	295	460	-	350	510	
100	**95.91**	13	240	325	250	400	-	340	480	290	450	-	340	495	
112	**116.03**	10	240	275	200	-	-	260	-	220	-	-	255	-	
125	**129.88**	9.2	240	245	195	-	-	250	-	220	-	-	245	-	
140	**136.46**	8.8	240	230	195	-	-	250	-	215	-	-	245	-	
160	**152.75**	7.9	240	205	195	-	-	245	-	215	-	-	240	-	**X4F..**
180	**169.04**	7.1	240	185	190	-	-	235	-	210	-	-	235	-	
200	**189.23**	6.3	240	165	185	-	-	230	-	205	-	-	225	-	M5
224	**223.73**	5.4	240	140	175	-	-	205	-	190	-	-	205	-	282
250	**250.44**	4.8	240	125	170	-	-	200	-	185	-	-	200	-	M4
280	**263.12**	4.6	240	120	170	-	-	200	-	185	-	-	200	-	306
315	**294.53**	4.1	240	105	165	-	-	195	-	180	-	-	195	-	
355	**325.95**	3.7	240	97	165	-	-	190	-	180	-	-	190	-	
400	**364.87**	3.3	240	87	160	-	-	185	-	175	-	-	185	-	

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X.F270..,n_1 = 1500 min^{-1}															240 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1[1)]	**7.07**	212	195	4450	*)	*)	-	*)	1200	*)	*)	-	*)	1550	
8[1)]	**7.91**	190	200	4050	*)	*)	-	*)	1200	*)	*)	-	*)	1550	
9	**8.96**	167	208	3750	*)	*)	-	*)	1400	*)	*)	-	1150	1700	**X2F..**
10	**10.03**	150	213	3400	*)	*)	-	920	1400	*)	910	-	1150	1650	
11.2	**11.07**	136	220	3200	*)	*)	-	1000	1450	*)	960	-	1200	1650	M5
12.5	**12.39**	121	227	2950	*)	*)	-	990	1450	*)	950	-	1150	1650	274
14	**13.99**	107	236	2700	*)	810	-	1050	1450	*)	990	-	1200	1600	M4
16	**15.66**	96	240	2450	*)	770	-	990	1350	*)	930	-	1100	1550	298
18	**17.42**	86	240	2200	*)	760	-	960	1300	*)	910	-	1050	1450	
20	**19.50**	77	240	2000	*)	750	-	910	1250	*)	900	-	1000	1350	
22.4	**23.31**	64	215	1500	*)	570	-	650	930	385	720	-	740	1050	
25	**26.09**	57	235	1450	*)	570	-	630	910	385	720	-	710	1000	
28	**28.82**	52	240	1350	*)	520	-	550	810	355	650	-	620	890	
31.5	**32.34**	46	240	1200	*)	570	-	580	840	385	680	-	630	900	
35.5	**35.72**	42	240	1100	*)	520	-	520	740	355	620	-	550	800	**X3F..**
40	**39.98**	38	240	980	260	510	-	495	720	345	610	-	520	770	
45	**45.12**	33	240	870	275	510	-	480	690	350	600	-	495	730	M5
50	**50.51**	30	240	770	270	500	-	460	670	340	580	-	475	700	278
56	**53.07**	28	240	740	270	500	-	450	660	340	580	-	465	690	M4
63	**65.96**	23	240	590	290	500	-	440	640	345	570	-	445	660	302
71	**72.85**	21	240	540	260	450	-	385	560	310	510	-	390	580	
80	**81.55**	18	240	480	255	440	-	370	550	300	500	-	375	570	
90	**85.68**	18	240	455	260	450	-	375	550	310	510	-	380	570	
100	**95.91**	16	240	410	255	440	-	360	540	300	500	-	365	560	
112	**116.03**	13	240	340	205	-	-	275	-	230	-	-	270	-	
125	**129.88**	12	240	305	200	-	-	270	-	225	-	-	260	-	
140	**136.46**	11	240	290	200	-	-	265	-	225	-	-	260	-	
160	**152.75**	9.8	240	260	200	-	-	260	-	225	-	-	255	-	**X4F..**
180	**169.04**	8.9	240	235	195	-	-	250	-	215	-	-	245	-	
200	**189.23**	7.9	240	210	190	-	-	240	-	215	-	-	240	-	M5
224	**223.73**	6.7	240	175	185	-	-	225	-	200	-	-	220	-	282
250	**250.44**	6.0	240	160	180	-	-	215	-	195	-	-	215	-	M4
280	**263.12**	5.7	240	150	180	-	-	215	-	195	-	-	210	-	306
315	**294.53**	5.1	240	135	175	-	-	205	-	190	-	-	205	-	
355	**325.95**	4.6	240	120	175	-	-	200	-	190	-	-	200	-	
400	**364.87**	4.1	240	110	170	-	-	195	-	185	-	-	200	-	
X.F270..,n_1 = 1800 min^{-1}															**240 kNm**
7.1[1)]	**7.07**	255	185	5050	*)	*)	-	*)	*)	*)	*)	-	*)	1300*)	
8[1)]	**7.91**	228	190	4650	*)	*)	-	*)	*)	*)	*)	-	*)	1350*)	
9[1)]	**8.96**	201	197	4250	*)	*)	-	*)	1300*)	*)	*)	-	*)	1650*)	**X2F..**
10[1)]	**10.03**	179	202	3900	*)	*)	-	*)	1300*)	*)	*)	-	1000	1600*)	
11.2[1)]	**11.07**	163	209	3650	*)	*)	-	*)	1400*)	*)	920*)	-	1100	1650*)	M5
12.5[1)]	**12.39**	145	215	3350	*)	*)	-	850	1400*)	*)	910*)	-	1100	1650*)	274
14	**13.99**	129	224	3100	*)	780*)	-	980	1450*)	*)	1000*)	-	1150	1700*)	M4
16	**15.66**	115	230	2850	*)	740*)	-	930	1400*)	*)	950*)	-	1100	1600*)	298
18	**17.42**	103	240	2650	*)	760*)	-	940	1350*)	*)	940*)	-	1100	1550*)	
20	**19.50**	92	240	2400	*)	750*)	-	920	1350*)	*)	930*)	-	1050	1500*)	
22.4	**23.31**	77	215	1800	*)	560	-	650	980	*)	750	-	790	1150	
25	**26.09**	69	235	1750	*)	560	-	630	960	*)	750	-	760	1100	
28	**28.82**	62	240	1650	*)	520	-	550	860	*)	680	-	650	980	
31.5	**32.34**	56	240	1450	*)	580	-	600	900	370	730	-	670	1000	
35.5	**35.72**	50	240	1300	*)	540	-	530	800	340	660	-	590	880	**X3F..**
40	**39.98**	45	240	1150	*)	520	-	500	770	335	650	-	560	850	
45	**45.12**	40	240	1050	*)	540	-	495	750	345	640	-	530	810	M5
50	**50.51**	36	240	930	250	530	-	475	730	340	630	-	510	780	278
56	**53.07**	34	240	880	250	530	-	470	720	340	630	-	495	760	M4
63	**65.96**	27	240	710	280	540	-	460	700	350	620	-	475	730	302
71	**72.85**	25	240	640	255	480	-	405	620	315	560	-	415	640	
80	**81.55**	22	240	580	250	470	-	390	600	310	540	-	400	620	
90	**85.68**	21	240	550	255	480	-	390	600	315	550	-	400	630	
100	**95.91**	19	240	490	250	470	-	375	580	310	540	-	385	610	
112	**116.03**	16	240	410	200	-	-	290	-	230	-	-	280	-	
125	**129.88**	14	240	365	195	-	-	280	-	225	-	-	270	-	
140	**136.46**	13	240	350	195	-	-	275	-	225	-	-	270	-	
160	**152.75**	12	240	310	195	-	-	270	-	225	-	-	265	-	**X4F..**
180	**169.04**	11	240	280	195	-	-	260	-	220	-	-	255	-	
200	**189.23**	9.5	240	250	190	-	-	250	-	215	-	-	245	-	M5
224	**223.73**	8.0	240	210	190	-	-	235	-	210	-	-	235	-	282
250	**250.44**	7.2	240	190	185	-	-	230	-	205	-	-	225	-	M4
280	**263.12**	6.8	240	180	185	-	-	225	-	205	-	-	225	-	306
315	**294.53**	6.1	240	160	180	-	-	220	-	200	-	-	220	-	
355	**325.95**	5.5	240	145	180	-	-	215	-	195	-	-	215	-	
400	**364.87**	4.9	240	130	175	-	-	210	-	195	-	-	210	-	

X.F280..,n_1 = 1000 min^{-1}															270 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**7.91**	126	220	3000	*)	830	-	1250	1650	*)	1050	-	1450	1850	
9	**8.86**	113	226	2750	*)	830	-	1250	1600	*)	1050	-	1400	1800	
10	**10.03**	100	235	2500	*)	910	-	1300	1600	660	1100	-	1400	1800	**X2F..**
11.2	**11.23**	89	241	2300	*)	900	-	1250	1600	650	1050	-	1400	1750	
12.5	**12.39**	81	249	2150	*)	900	-	1250	1550	660	1050	-	1350	1700	M5
14	**13.88**	72	256	2000	520	890	-	1200	1500	650	1050	-	1300	1600	274
16	**15.66**	64	265	1800	550	880	-	1100	1400	650	1000	-	1150	1500	M4
18	**17.54**	57	270	1650	540	870	-	1050	1350	640	990	-	1100	1450	298
20	**19.50**	51	270	1500	530	840	-	990	1250	620	950	-	1000	1300	
22.4	**21.85**	46	270	1350	500	790	-	910	1150	580	890	-	930	1200	
25	**26.09**	38	243	1000	395	630	-	700	910	485	730	-	720	950	
28	**29.22**	34	270	1000	385	610	-	660	870	470	710	-	680	900	
31.5	**32.26**	31	270	910	350	550	-	580	760	420	640	-	590	800	
35.5	**36.22**	28	270	810	385	590	-	610	800	455	680	-	610	820	
40	**39.98**	25	270	730	350	540	-	540	710	410	610	-	540	730	**X3F..**
45	**44.78**	22	270	650	340	530	-	520	690	400	600	-	520	710	
50	**50.51**	20	270	580	330	500	-	475	640	380	560	-	475	650	M5
56	**56.57**	18	270	520	320	490	-	460	620	370	550	-	460	630	278
63	**59.40**	17	270	495	320	485	-	455	610	370	540	-	450	620	M4
71	**73.87**	14	270	395	320	475	-	430	580	365	530	-	430	590	302
80	**81.55**	12	270	360	295	435	-	390	520	330	485	-	385	530	
90	**91.33**	11	270	320	285	425	-	375	510	325	475	-	375	520	
100	**95.91**	10	270	305	285	425	-	370	500	320	470	-	370	510	
112	**107.42**	9.3	270	275	280	415	-	360	485	315	460	-	355	500	
125	**129.88**	7.7	270	230	225	-	-	280	-	245	-	-	275	-	
140	**145.47**	6.9	270	205	220	-	-	270	-	240	-	-	270	-	
160	**152.75**	6.5	270	195	220	-	-	270	-	240	-	-	265	-	
180	**171.08**	5.8	270	175	215	-	-	260	-	235	-	-	260	-	**X4F..**
200	**189.23**	5.3	270	155	210	-	-	255	-	235	-	-	255	-	
224	**211.93**	4.7	270	140	210	-	-	245	-	230	-	-	245	-	M5
250	**250.44**	4.0	270	120	185	-	-	215	-	205	-	-	215	-	282
280	**280.49**	3.6	270	105	185	-	-	210	-	200	-	-	210	-	M4
315	**294.53**	3.4	270	100	185	-	-	210	-	200	-	-	210	-	306
355	**329.88**	3.0	270	90	180	-	-	205	-	195	-	-	205	-	
400	**364.87**	2.7	270	81	175	-	-	195	-	190	-	-	200	-	
450	**408.66**	2.4	270	73	170	-	-	190	-	185	-	-	195	-	
X.F280..,n_1 = 1200 min^{-1}															**270 kNm**
8	**7.91**	152	220	3600	*)	*)	-	1150	1600	*)	1050	-	1400	1900	
9	**8.86**	135	226	3300	*)	*)	-	1150	1600	*)	1050	-	1350	1850	
10	**10.03**	120	235	3000	*)	910	-	1250	1650	*)	1100	-	1400	1850	**X2F..**
11.2	**11.23**	107	241	2750	*)	900	-	1250	1650	*)	1100	-	1400	1850	
12.5	**12.39**	97	249	2600	*)	920	-	1250	1600	*)	1100	-	1350	1800	M5
14	**13.88**	86	256	2350	*)	910	-	1200	1600	620	1100	-	1350	1750	274
16	**15.66**	77	265	2200	*)	930	-	1200	1550	640	1100	-	1300	1700	M4
18	**17.54**	68	270	2000	520	920	-	1150	1500	640	1050	-	1200	1600	298
20	**19.50**	62	270	1800	520	890	-	1050	1400	620	1000	-	1100	1450	
22.4	**21.85**	55	270	1600	485	840	-	970	1300	580	960	-	1000	1350	
25	**26.09**	46	243	1200	380	670	-	740	1000	490	790	-	780	1050	
28	**29.22**	41	270	1200	370	650	-	700	950	475	770	-	740	1000	
31.5	**32.26**	37	270	1100	340	590	-	610	840	425	690	-	640	880	
35.5	**36.22**	33	270	970	380	640	-	650	880	465	730	-	660	920	
40	**39.98**	30	270	880	345	580	-	570	780	420	660	-	580	810	**X3F..**
45	**44.78**	27	270	790	340	560	-	550	750	410	650	-	560	780	
50	**50.51**	24	270	700	335	540	-	510	700	390	610	-	510	720	M5
56	**56.57**	21	270	620	325	530	-	490	680	385	600	-	495	700	278
63	**59.40**	20	270	590	325	530	-	480	670	380	600	-	485	690	M4
71	**73.87**	16	270	475	330	520	-	460	640	380	580	-	460	660	302
80	**81.55**	15	270	430	300	475	-	415	580	345	530	-	415	590	
90	**91.33**	13	270	385	295	465	-	400	560	340	520	-	400	580	
100	**95.91**	13	270	365	295	460	-	395	550	335	520	-	395	570	
112	**107.42**	11	270	330	290	455	-	380	540	330	500	-	380	550	
125	**129.88**	9.2	270	275	230	-	-	295	-	255	-	-	290	-	
140	**145.47**	8.2	270	245	225	-	-	290	-	250	-	-	285	-	
160	**152.75**	7.9	270	235	225	-	-	285	-	250	-	-	280	-	
180	**171.08**	7.0	270	210	220	-	-	275	-	245	-	-	270	-	**X4F..**
200	**189.23**	6.3	270	190	220	-	-	270	-	240	-	-	265	-	
224	**211.93**	5.7	270	170	215	-	-	260	-	235	-	-	260	-	M5
250	**250.44**	4.8	270	140	195	-	-	230	-	215	-	-	230	-	282
280	**280.49**	4.3	270	125	190	-	-	225	-	210	-	-	225	-	M4
315	**294.53**	4.1	270	120	195	-	-	225	-	210	-	-	225	-	306
355	**329.88**	3.6	270	110	190	-	-	220	-	205	-	-	220	-	
400	**364.87**	3.3	270	98	185	-	-	210	-	200	-	-	210	-	
450	**408.66**	2.9	270	87	180	-	-	205	-	195	-	-	205	-	

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X.F280..,n_1 = 1500 min^{-1}															270 kNm
					P_{TH} kW										
					M5				20°C	M4				20°C	
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW		Fan	H_2O	H_2O	Fan + H_2O		Fan	H_2O	H_2O	Fan + H_2O	📖
8[1]	7.91	190	220	4500	*)	*)	-	*)	1450	*)	*)	-	1200	1850	
9[1]	8.86	169	226	4100	*)	*)	-	*)	1450	*)	*)	-	1200	1850	
10	10.03	150	235	3750	*)	*)	-	1150	1650	*)	1100	-	1350	1950	X2F..
11.2	11.23	134	241	3450	*)	*)	-	1100	1650	*)	1100	-	1350	1900	
12.5	12.39	121	249	3250	*)	910	-	1150	1650	*)	1150	-	1350	1900	M5
14	13.88	108	256	2950	*)	900	-	1150	1650	*)	1150	-	1350	1850	274
16	15.66	96	265	2700	*)	970	-	1200	1650	*)	1150	-	1350	1800	M4
18	17.54	86	270	2500	*)	960	-	1200	1650	*)	1150	-	1350	1800	298
20	19.50	77	270	2250	*)	940	-	1150	1550	600	1100	-	1250	1700	
22.4	21.85	69	270	2000	*)	880	-	1050	1400	560	1050	-	1150	1550	
25	26.09	57	243	1500	*)	700	-	780	1100	475	860	-	860	1200	
28	29.22	51	270	1500	*)	680	-	730	1050	465	830	-	810	1150	
31.5	32.26	46	270	1350	*)	620	-	640	920	420	750	-	700	1000	
35.5	36.22	41	270	1200	360	680	-	690	980	465	810	-	730	1050	
40	39.98	38	270	1100	330	620	-	610	870	425	730	-	640	920	X3F..
45	44.78	33	270	980	325	610	-	580	840	415	710	-	610	890	
50	50.51	30	270	870	330	590	-	540	780	400	680	-	560	820	M5
56	56.57	27	270	780	320	580	-	520	760	395	660	-	540	790	278
63	59.40	25	270	740	325	570	-	520	750	395	660	-	530	780	M4
71	73.87	20	270	600	335	570	-	495	720	395	650	-	500	740	302
80	81.55	18	270	540	305	520	-	445	650	360	590	-	450	670	
90	91.33	16	270	480	300	510	-	430	630	350	580	-	430	650	
100	95.91	16	270	460	300	510	-	420	620	350	570	-	425	640	
112	107.42	14	270	410	295	500	-	410	600	345	560	-	410	620	
125	129.88	12	270	345	235	-	-	320	-	265	-	-	310	-	
140	145.47	10	270	305	230	-	-	305	-	260	-	-	300	-	
160	152.75	9.8	270	290	230	-	-	305	-	260	-	-	295	-	
180	171.08	8.8	270	260	225	-	-	295	-	255	-	-	290	-	X4F..
200	189.23	7.9	270	235	225	-	-	285	-	250	-	-	285	-	
224	211.93	7.1	270	210	220	-	-	280	-	245	-	-	275	-	M5
250	250.44	6.0	270	180	205	-	-	250	-	225	-	-	245	-	282
280	280.49	5.3	270	160	200	-	-	240	-	220	-	-	240	-	M4
315	294.53	5.1	270	150	205	-	-	240	-	225	-	-	240	-	306
355	329.88	4.5	270	135	200	-	-	235	-	220	-	-	235	-	
400	364.87	4.1	270	120	195	-	-	225	-	210	-	-	225	-	
450	408.66	3.7	270	110	190	-	-	220	-	210	-	-	220	-	
X.F280..,n_1 = 1800 min^{-1}															270 kNm
8[1]	7.91	228	209	5100	*)	*)	-	*)	*)	*)	*)	-	*)	1650[*]	
9[1]	8.86	203	214	4650	*)	*)	-	*)	*)	*)	*)	-	*)	1650[*]	
10[1]	10.03	179	223	4300	*)	*)	-	*)	1600[*]	*)	*)	-	1200	1900[*]	X2F..
11.2[1]	11.23	160	228	3900	*)	*)	-	*)	1550[*]	*)	1050[*]	-	1200	1900[*]	
12.5[1]	12.39	145	236	3700	*)	*)	-	1050	1650[*]	*)	1150[*]	-	1300	1900[*]	M5
14[1]	13.88	130	243	3400	*)	*)	-	1050	1650[*]	*)	1100[*]	-	1300	1900[*]	274
16	15.66	115	251	3100	*)	960[*]	-	1150	1700[*]	*)	1200[*]	-	1350	1900[*]	M4
18	17.54	103	260	2850	*)	950[*]	-	1150	1650[*]	*)	1150[*]	-	1300	1900[*]	298
20	19.50	92	270	2650	*)	950[*]	-	1150	1600[*]	*)	1150[*]	-	1300	1800[*]	
22.4	21.85	82	270	2400	*)	900[*]	-	1050	1500[*]	*)	1100[*]	-	1200	1700[*]	
25	26.09	69	243	1800	*)	710	-	800	1200	*)	910	-	940	1350	
28	29.22	62	270	1800	*)	690	-	750	1100	*)	880	-	870	1250	
31.5	32.26	56	270	1650	*)	630	-	660	990	*)	800	-	750	1100	
35.5	36.22	50	270	1450	*)	710	-	720	1050	455	860	-	790	1150	
40	39.98	45	270	1300	*)	650	-	630	940	415	780	-	690	1000	X3F..
45	44.78	40	270	1200	295	640	-	600	910	410	770	-	650	980	
50	50.51	36	270	1050	310	620	-	570	850	405	730	-	600	910	M5
56	56.57	32	270	930	305	610	-	550	820	395	720	-	580	880	278
63	59.40	30	270	890	310	610	-	540	810	395	710	-	560	860	M4
71	73.87	24	270	710	330	620	-	520	790	405	700	-	540	820	302
80	81.55	22	270	650	305	560	-	470	710	370	640	-	480	740	
90	91.33	20	270	580	300	550	-	450	690	360	630	-	460	720	
100	95.91	19	270	550	300	550	-	445	680	360	620	-	455	710	
112	107.42	17	270	490	295	540	-	430	660	350	610	-	435	690	
125	129.88	14	270	410	235	-	-	335	-	265	-	-	325	-	
140	145.47	12	270	365	230	-	-	320	-	260	-	-	315	-	
160	152.75	12	270	350	230	-	-	315	-	260	-	-	310	-	
180	171.08	11	270	310	225	-	-	305	-	255	-	-	300	-	X4F..
200	189.23	9.5	270	280	225	-	-	300	-	255	-	-	295	-	
224	211.93	8.5	270	250	220	-	-	290	-	250	-	-	285	-	M5
250	250.44	7.2	270	215	215	-	-	265	-	235	-	-	260	-	282
280	280.49	6.4	270	190	210	-	-	255	-	230	-	-	255	-	M4
315	294.53	6.1	270	180	210	-	-	255	-	235	-	-	255	-	306
355	329.88	5.5	270	160	210	-	-	250	-	230	-	-	250	-	
400	364.87	4.9	270	145	200	-	-	240	-	220	-	-	240	-	
450	408.66	4.4	270	130	200	-	-	235	-	215	-	-	235	-	

X.F290..,n_1 = 1000 min^{-1} — **308 kNm**

					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C					M4 20°C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.34**	158	238	4050	*)	*)	-	1050	1600	*)	1050	-	2150	2650	
7.1	**7.16**	140	246	3700	*)	*)	-	1050	1600	*)	1050	-	2150	2600	
8	**8.11**	123	255	3350	*)	910	-	1250	1650	*)	1150	-	2100	2500	**X2F..**
9	**9.17**	109	262	3050	*)	950	-	1300	1750	*)	1200	-	2200	2600	
10	**10.05**	100	272	2900	*)	980	-	1300	1650	*)	1150	-	2050	2400	M5
11.2	**11.36**	88	278	2650	*)	970	-	1250	1650	700	1150	-	2000	2350	274
12.5	**12.76**	78	286	2400	*)	940	-	1150	1500	680	1100	-	1750	2100	M4
14	**14.42**	69	298	2200	570	970	-	1150	1500	710	1100	-	1700	2050	298
16	**16.05**	62	307	2050	550	900	-	1050	1350	660	1050	-	1500	1800	
18	**18.14**	55	308	1800	560	930	-	1050	1350	680	1050	-	1450	1800	
20	**20.27**	49	284	1500	395	680	-	750	1000	520	810	-	1050	1300	
22.4	**22.91**	44	308	1450	410	700	-	750	1000	540	840	-	1050	1300	
25	**26.45**	38	308	1250	395	660	-	680	910	500	780	-	910	1150	
28	**28.45**	35	308	1200	425	680	-	690	920	520	790	-	900	1150	
31.5	**32.86**	30	308	1000	400	630	-	620	830	480	730	-	780	1000	**X3F..**
35.5	**37.13**	27	308	900	405	640	-	610	830	485	730	-	770	990	
40	**41.45**	24	308	810	390	600	-	570	770	460	690	-	690	900	M5
45	**46.84**	21	308	710	395	610	-	560	770	465	690	-	680	890	278
50	**49.69**	20	308	670	360	560	-	510	690	425	630	-	610	800	M4
56	**57.86**	17	308	580	375	570	-	510	690	430	640	-	600	790	302
63	**66.82**	15	308	500	340	520	-	455	620	390	580	-	520	700	
71	**75.52**	13	308	445	350	530	-	460	630	405	600	-	530	710	
80	**80.10**	12	308	420	310	465	-	400	550	355	520	-	455	620	
90	**90.53**	11	308	370	315	480	-	405	560	365	540	-	460	620	
100	**103.31**	9.7	308	330	280	-	-	350	-	310	-	-	385	-	
112	**116.77**	8.6	308	290	280	-	-	345	-	310	-	-	380	-	
125	**123.85**	8.1	308	275	255	-	-	310	-	280	-	-	340	-	
140	**139.98**	7.1	308	240	255	-	-	310	-	280	-	-	335	-	**X4F..**
160	**152.96**	6.5	308	220	240	-	-	285	-	265	-	-	310	-	
180	**172.88**	5.8	308	195	235	-	-	280	-	260	-	-	305	-	M5
200	**205.34**	4.9	308	165	225	-	-	260	-	245	-	-	280	-	282
224	**232.08**	4.3	308	145	225	-	-	255	-	245	-	-	275	-	M4
250	**246.17**	4.1	308	135	210	-	-	235	-	225	-	-	255	-	306
280	**278.23**	3.6	308	120	205	-	-	235	-	225	-	-	250	-	
315	**304.02**	3.3	308	110	195	-	-	220	-	210	-	-	235	-	
355	**343.61**	2.9	308	98	195	-	-	215	-	210	-	-	230	-	

X.F290..,n_1 = 1200 min^{-1} — **308 kNm**

6.3[1]	**6.34**	189	238	4850	*)	*)	-	*)	1400	*)	*)	-	2050	2650	
7.1[1]	**7.16**	168	246	4400	*)	*)	-	*)	1400	*)	*)	-	2050	2600	
8	**8.11**	148	255	4050	*)	*)	-	1150	1650	*)	1150	-	2100	2600	**X2F..**
9	**9.17**	131	262	3700	*)	*)	-	1200	1750	*)	1200	-	2200	2700	
10	**10.05**	119	272	3500	*)	980	-	1250	1700	*)	1200	-	2050	2550	M5
11.2	**11.36**	106	278	3150	*)	970	-	1250	1700	*)	1200	-	2050	2500	274
12.5	**12.76**	94	286	2900	*)	960	-	1200	1600	*)	1150	-	1900	2300	M4
14	**14.42**	83	298	2650	*)	1000	-	1250	1650	670	1200	-	1950	2350	298
16	**16.05**	75	307	2450	*)	940	-	1100	1500	640	1100	-	1650	2050	
18	**18.14**	66	308	2200	*)	970	-	1100	1500	660	1150	-	1650	2000	
20	**20.27**	59	284	1850	*)	700	-	770	1100	510	870	-	1200	1500	
22.4	**22.91**	52	308	1750	*)	720	-	780	1100	530	900	-	1150	1500	
25	**26.45**	45	308	1500	*)	680	-	700	990	495	830	-	1000	1300	
28	**28.45**	42	308	1400	405	720	-	720	1000	520	850	-	990	1300	
31.5	**32.86**	37	308	1200	390	670	-	650	910	490	790	-	860	1150	**X3F..**
35.5	**37.13**	32	308	1100	395	680	-	640	900	495	790	-	840	1100	
40	**41.45**	29	308	970	390	650	-	600	840	470	750	-	760	1000	M5
45	**46.84**	26	308	860	395	660	-	600	840	475	750	-	740	1000	278
50	**49.69**	24	308	810	360	600	-	540	760	435	690	-	660	900	M4
56	**57.86**	21	308	690	380	620	-	540	760	445	700	-	650	880	302
63	**66.82**	18	308	600	345	560	-	480	680	405	630	-	560	780	
71	**75.52**	16	308	530	355	580	-	485	690	420	650	-	570	790	
80	**80.10**	15	308	500	315	500	-	420	600	365	570	-	490	680	
90	**90.53**	13	308	445	320	520	-	425	610	375	580	-	495	690	
100	**103.31**	12	308	395	285	-	-	365	-	315	-	-	410	-	
112	**116.77**	10	308	350	285	-	-	360	-	315	-	-	400	-	
125	**123.85**	9.7	308	330	260	-	-	325	-	290	-	-	360	-	
140	**139.98**	8.6	308	290	260	-	-	325	-	290	-	-	355	-	**X4F..**
160	**152.96**	7.8	308	265	245	-	-	300	-	270	-	-	325	-	
180	**172.88**	6.9	308	235	240	-	-	295	-	270	-	-	320	-	M5
200	**205.34**	5.8	308	200	235	-	-	275	-	260	-	-	295	-	282
224	**232.08**	5.2	308	175	235	-	-	275	-	255	-	-	295	-	M4
250	**246.17**	4.9	308	165	215	-	-	250	-	235	-	-	270	-	306
280	**278.23**	4.3	308	145	215	-	-	245	-	235	-	-	265	-	
315	**304.02**	3.9	308	135	200	-	-	230	-	220	-	-	245	-	
355	**343.61**	3.5	308	120	200	-	-	230	-	220	-	-	245	-	

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X.F290..,n_1 = 1500 min^{-1}															308 kNm
					P_{TH} kW										
					M5				20°C	M4				20°C	
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
		min^{-1}	kNm	kW											
6.3[1)]	**6.34**	237	238	6050	*)	*)	-	*)	*)	*)	*)	-	1600	2400	
7.1[1)]	**7.16**	209	246	5550	*)	*)	-	*)	*)	*)	*)	-	1600	2400	
8[1)]	**8.11**	185	255	5050	*)	*)	-	*)	1500	*)	*)	-	1950	2600	**X2F..**
9[1)]	**9.17**	164	262	4600	*)	*)	-	*)	1600	*)	*)	-	2050	2750	
10	**10.05**	149	272	4350	*)	*)	-	1100	1700	*)	1200	-	2050	2650	M5
11.2	**11.36**	132	278	3950	*)	*)	-	1100	1700	*)	1200	-	2000	2600	274
12.5	**12.76**	118	286	3600	*)	940	-	1100	1650	*)	1200	-	1900	2450	M4
14	**14.42**	104	298	3350	*)	980	-	1150	1700	*)	1250	-	2000	2500	298
16	**16.05**	93	307	3100	*)	950	-	1100	1600	*)	1150	-	1850	2300	
18	**18.14**	83	308	2750	*)	980	-	1150	1650	*)	1200	-	1850	2350	
20	**20.27**	74	284	2300	*)	690	-	780	1150	*)	920	-	1350	1700	
22.4	**22.91**	65	308	2200	*)	720	-	780	1200	*)	950	-	1300	1700	
25	**26.45**	57	308	1900	*)	690	-	700	1050	*)	890	-	1100	1500	
28	**28.45**	53	308	1750	*)	750	-	750	1100	510	920	-	1100	1500	
31.5	**32.86**	46	308	1550	*)	710	-	680	1000	485	860	-	970	1300	**X3F..**
35.5	**37.13**	40	308	1350	355	720	-	670	1000	490	860	-	940	1300	
40	**41.45**	36	308	1200	370	700	-	630	930	475	820	-	850	1150	M5
45	**46.84**	32	308	1050	375	700	-	620	930	480	830	-	830	1150	278
50	**49.69**	30	308	1000	345	640	-	560	840	440	760	-	740	1000	M4
56	**57.86**	26	308	870	375	670	-	570	850	460	770	-	720	1000	302
63	**66.82**	22	308	750	345	610	-	510	760	420	700	-	620	890	
71	**75.52**	20	308	660	355	630	-	510	770	430	720	-	630	900	
80	**80.10**	19	308	630	315	550	-	445	670	380	630	-	540	780	
90	**90.53**	17	308	550	320	570	-	450	680	385	650	-	540	790	
100	**103.31**	15	308	490	285	-	-	385	-	320	-	-	440	-	
112	**116.77**	13	308	435	285	-	-	380	-	320	-	-	430	-	
125	**123.85**	12	308	410	260	-	-	340	-	295	-	-	385	-	
140	**139.98**	11	308	365	260	-	-	335	-	290	-	-	380	-	**X4F..**
160	**152.96**	9.8	308	330	245	-	-	310	-	275	-	-	350	-	
180	**172.88**	8.7	308	295	245	-	-	305	-	275	-	-	340	-	M5
200	**205.34**	7.3	308	245	245	-	-	295	-	270	-	-	320	-	282
224	**232.08**	6.5	308	220	245	-	-	290	-	270	-	-	315	-	M4
250	**246.17**	6.1	308	205	225	-	-	265	-	250	-	-	290	-	306
280	**278.23**	5.4	308	180	225	-	-	265	-	245	-	-	285	-	
315	**304.02**	4.9	308	165	210	-	-	245	-	235	-	-	265	-	
355	**343.61**	4.4	308	150	210	-	-	240	-	230	-	-	260	-	
X.F290..,n_1 = 1800 min^{-1}															**308 kNm**
6.3[1)]	**6.34**	284	225	6850	*)	*)	-	*)	*)	*)	*)	-	*)	1700[*)]	
7.1[1)]	**7.16**	251	233	6300	*)	*)	-	*)	*)	*)	*)	-	*)	1750[*)]	
8[1)]	**8.11**	222	241	5750	*)	*)	-	*)	*)	*)	*)	-	1700	2500[*)]	**X2F..**
9[1)]	**9.17**	196	248	5200	*)	*)	-	*)	*)	*)	*)	-	1750	2600[*)]	
10[1)]	**10.05**	179	257	4950	*)	*)	-	*)	1550[*)]	*)	*)	-	1950	2650[*)]	M5
11.2[1)]	**11.36**	158	263	4450	*)	*)	-	*)	1550[*)]	*)	*)	-	1950	2600[*)]	274
12.5[1)]	**12.76**	141	271	4100	*)	*)	-	*)	1600[*)]	*)	1150[*)]	-	1900	2500[*)]	M4
14[1)]	**14.42**	125	282	3800	*)	*)	-	1000	1650[*)]	*)	1200[*)]	-	1950	2600[*)]	298
16[1)]	**16.05**	112	290	3500	*)	910[*)]	-	1000	1600[*)]	*)	1200[*)]	-	1850	2400[*)]	
18[1)]	**18.14**	99	302	3200	*)	940[*)]	-	1050	1650[*)]	*)	1200[*)]	-	1900	2450[*)]	
20[1)]	**20.27**	89	280	2700	*)	*)	-	730	1200[*)]	*)	940[*)]	-	1450	1900[*)]	
22.4[1)]	**22.91**	79	308	2650	*)	670[*)]	-	740	1200[*)]	*)	970[*)]	-	1450	1900[*)]	
25[1)]	**26.45**	68	308	2300	*)	660[*)]	-	680	1100[*)]	*)	920[*)]	-	1250	1650[*)]	
28	**28.45**	63	308	2100	*)	760[*)]	-	750	1150[*)]	*)	970[*)]	-	1250	1650[*)]	
31.5	**32.86**	55	308	1850	*)	720[*)]	-	680	1050[*)]	460	910[*)]	-	1050	1450[*)]	**X3F..**
35.5	**37.13**	48	308	1600	*)	730[*)]	-	670	1050[*)]	465	920[*)]	-	1050	1450[*)]	
40	**41.45**	43	308	1450	*)	730[*)]	-	650	1000[*)]	465	880[*)]	-	930	1300[*)]	M5
45	**46.84**	38	308	1300	335	740[*)]	-	640	1000[*)]	470	890[*)]	-	900	1300[*)]	278
50	**49.69**	36	308	1200	310	670[*)]	-	570	900[*)]	430	810[*)]	-	800	1150[*)]	M4
56	**57.86**	31	308	1050	355	710[*)]	-	590	920[*)]	460	830[*)]	-	790	1150[*)]	302
63	**66.82**	27	308	900	330	650[*)]	-	520	820[*)]	420	760[*)]	-	680	990[*)]	
71	**75.52**	24	308	800	340	670[*)]	-	530	840[*)]	435	780[*)]	-	680	1000[*)]	
80	**80.10**	22	308	750	300	590[*)]	-	460	730[*)]	380	680[*)]	-	580	860[*)]	
90	**90.53**	20	308	670	310	600[*)]	-	460	740[*)]	390	700[*)]	-	580	870[*)]	
100	**103.31**	17	308	590	270	-	-	395	-	315	-	-	465	-	
112	**116.77**	15	308	520	270	-	-	385	-	315	-	-	450	-	
125	**123.85**	15	308	490	250	-	-	350	-	285	-	-	405	-	
140	**139.98**	13	308	435	250	-	-	345	-	285	-	-	395	-	**X4F..**
160	**152.96**	12	308	400	235	-	-	320	-	270	-	-	360	-	
180	**172.88**	10	308	350	235	-	-	310	-	270	-	-	355	-	M5
200	**205.34**	8.8	308	295	250	-	-	310	-	275	-	-	340	-	282
224	**232.08**	7.8	308	260	250	-	-	305	-	275	-	-	335	-	M4
250	**246.17**	7.3	308	245	230	-	-	280	-	255	-	-	305	-	306
280	**278.23**	6.5	308	220	230	-	-	275	-	255	-	-	300	-	
315	**304.02**	5.9	308	200	215	-	-	255	-	240	-	-	280	-	
355	**343.61**	5.2	308	175	215	-	-	255	-	240	-	-	275	-	

X.F300..,n_1 = 1000 min^{-1}															350 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW		fan	H_2O	H_2O	fan + H_2O		fan	H_2O	H_2O	fan + H_2O	
7.1	**6.75**	148	254	4050	*)	*)	-	1100	1600	*)	1050	-	1400	1950	
8	**7.66**	131	260	3650	*)	*)	-	1100	1600	*)	1050	-	1400	1900	
9	**8.64**	116	272	3400	*)	980	-	1300	1750	*)	1250	-	1550	2000	**X2F..**
10	**9.80**	102	278	3050	*)	970	-	1300	1750	*)	1200	-	1500	2000	
11.2	**10.71**	93	289	2900	*)	1000	-	1300	1700	*)	1200	-	1450	1850	M5
12.5	**12.13**	82	294	2600	*)	980	-	1250	1650	710	1150	-	1400	1800	274
14	**13.59**	74	305	2400	*)	950	-	1200	1500	690	1100	-	1300	1650	M4
16	**15.41**	65	316	2200	580	980	-	1200	1550	720	1150	-	1250	1650	298
18	**17.11**	58	328	2050	580	960	-	1100	1450	700	1100	-	1150	1500	
20	**19.39**	52	338	1850	570	940	-	1050	1400	690	1100	-	1100	1450	
22.4	**21.60**	46	303	1500	410	690	-	760	1000	530	830	-	820	1100	
25	**24.48**	41	330	1450	425	710	-	760	1000	550	850	-	820	1100	
28	**28.19**	35	337	1300	405	670	-	680	920	510	790	-	720	990	
31.5	**30.40**	33	350	1250	420	670	-	680	910	510	780	-	710	960	
35.5	**35.01**	29	350	1100	410	650	-	630	850	495	740	-	650	890	**X3F..**
40	**39.68**	25	350	960	405	630	-	610	820	485	730	-	630	860	
45	**44.16**	23	350	860	400	620	-	580	790	470	700	-	590	820	M5
50	**50.05**	20	350	760	405	630	-	580	780	475	710	-	590	810	278
56	**52.94**	19	350	720	370	570	-	520	710	435	650	-	530	740	M4
63	**61.83**	16	350	610	365	550	-	495	670	420	620	-	500	700	302
71	**71.20**	14	350	530	350	530	-	460	630	400	590	-	470	650	
80	**80.69**	12	350	470	345	520	-	445	610	395	580	-	455	630	
90	**85.35**	12	350	445	315	475	-	410	560	365	530	-	415	580	
100	**96.74**	10	350	395	320	480	-	405	560	365	540	-	410	580	
112	**110.09**	9.1	350	350	285	-	-	355	-	315	-	-	355	-	
125	**124.76**	8.0	350	310	280	-	-	345	-	310	-	-	345	-	
140	**131.98**	7.6	350	290	260	-	-	320	-	290	-	-	320	-	
160	**149.57**	6.7	350	255	260	-	-	315	-	290	-	-	315	-	**X4F..**
180	**162.99**	6.1	350	235	245	-	-	290	-	270	-	-	290	-	
200	**184.72**	5.4	350	210	240	-	-	280	-	265	-	-	285	-	M5
224	**218.80**	4.6	350	175	230	-	-	265	-	250	-	-	270	-	282
250	**247.98**	4.0	350	155	230	-	-	265	-	250	-	-	265	-	M4
280	**262.31**	3.8	350	145	215	-	-	240	-	230	-	-	245	-	306
315	**297.28**	3.4	350	130	210	-	-	240	-	230	-	-	245	-	
355	**323.95**	3.1	350	120	200	-	-	225	-	215	-	-	225	-	
400	**367.15**	2.7	350	105	195	-	-	215	-	210	-	-	220	-	
X.F300..,n_1 = 1200 min^{-1}															**350 kNm**
7.1[1)]	**6.75**	178	254	4850	*)	*)	-	*)	1450	*)	*)	-	*)	1900	
8[1)]	**7.66**	157	260	4350	*)	*)	-	*)	1450	*)	*)	-	1200	1850	
9	**8.64**	139	272	4050	*)	*)	-	1200	1750	*)	1250	-	1500	2050	**X2F..**
10	**9.80**	122	278	3650	*)	*)	-	1200	1750	*)	1200	-	1450	2050	
11.2	**10.71**	112	289	3450	*)	990	-	1250	1700	*)	1250	-	1450	1950	M5
12.5	**12.13**	99	294	3100	*)	980	-	1250	1700	*)	1200	-	1400	1900	274
14	**13.59**	88	305	2900	*)	980	-	1200	1600	*)	1150	-	1350	1800	M4
16	**15.41**	78	316	2650	*)	1000	-	1250	1650	680	1200	-	1400	1850	298
18	**17.11**	70	328	2450	*)	1000	-	1150	1550	680	1150	-	1250	1700	
20	**19.39**	62	338	2250	*)	980	-	1100	1500	670	1150	-	1200	1600	
22.4	**21.60**	56	303	1850	*)	710	-	780	1100	520	880	-	880	1200	
25	**24.48**	49	330	1750	*)	740	-	790	1100	540	910	-	880	1200	
28	**28.19**	43	337	1550	*)	700	-	710	1000	510	840	-	780	1100	
31.5	**30.40**	39	350	1500	405	710	-	710	990	520	840	-	760	1050	
35.5	**35.01**	34	350	1300	400	690	-	660	930	500	800	-	700	990	**X3F..**
40	**39.68**	30	350	1150	395	680	-	640	900	490	790	-	670	950	
45	**44.16**	27	350	1050	400	670	-	610	860	485	770	-	640	900	M5
50	**50.05**	24	350	910	405	670	-	610	860	490	770	-	630	900	278
56	**52.94**	23	350	860	370	610	-	550	770	445	700	-	560	810	M4
63	**61.83**	19	350	740	370	600	-	520	740	435	680	-	540	770	302
71	**71.20**	17	350	640	355	570	-	490	690	415	650	-	500	720	
80	**80.69**	15	350	570	350	560	-	470	670	405	630	-	480	700	
90	**85.35**	14	350	530	325	520	-	430	620	375	580	-	440	640	
100	**96.74**	12	350	470	325	520	-	425	610	375	580	-	435	640	
112	**110.09**	11	350	420	290	-	-	375	-	325	-	-	370	-	
125	**124.76**	9.6	350	370	285	-	-	360	-	320	-	-	360	-	
140	**131.98**	9.1	350	350	265	-	-	335	-	295	-	-	335	-	
160	**149.57**	8.0	350	310	265	-	-	330	-	295	-	-	330	-	**X4F..**
180	**162.99**	7.4	350	285	250	-	-	305	-	275	-	-	305	-	
200	**184.72**	6.5	350	250	245	-	-	295	-	270	-	-	295	-	M5
224	**218.80**	5.5	350	210	240	-	-	280	-	265	-	-	285	-	282
250	**247.98**	4.8	350	185	240	-	-	280	-	260	-	-	280	-	M4
280	**262.31**	4.6	350	175	220	-	-	255	-	245	-	-	260	-	306
315	**297.28**	4.0	350	155	220	-	-	250	-	240	-	-	255	-	
355	**323.95**	3.7	350	140	205	-	-	235	-	225	-	-	240	-	
400	**367.15**	3.3	350	125	205	-	-	230	-	220	-	-	235	-	

X.F300..,n_1 = 1500 min^{-1}															350 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW				H_2O	+ H_2O				H_2O	+ H_2O	
7.1[1)]	6.75	222	254	6050	*)	*)	-	*)	*)	*)	*)	-	*)	1500	
8[1)]	7.66	196	260	5450	*)	*)	-	*)	*)	*)	*)	-	*)	1550	
9[1)]	8.64	174	272	5050	*)	*)	-	*)	1600	*)	*)	-	*)	2000	X2F..
10[1)]	9.80	153	278	4550	*)	*)	-	*)	1600	*)	*)	-	1250	2000	
11.2	10.71	140	289	4350	*)	*)	-	1100	1700	*)	1200	-	1350	2000	M5
12.5	12.13	124	294	3900	*)	*)	-	1100	1700	*)	1200	-	1350	2000	274
14	13.59	110	305	3600	*)	960	-	1150	1650	*)	1200	-	1300	1900	M4
16	15.41	97	316	3300	*)	1000	-	1150	1700	*)	1250	-	1350	1950	298
18	17.11	88	328	3100	*)	1000	-	1150	1650	*)	1250	-	1350	1900	
20	19.39	77	338	2800	*)	1000	-	1150	1650	*)	1200	-	1300	1850	
22.4	21.60	69	303	2300	*)	710	-	790	1200	*)	940	-	960	1350	
25	24.48	61	330	2200	*)	740	-	790	1200	*)	970	-	950	1350	
28	28.19	53	337	1950	*)	710	-	720	1100	*)	910	-	840	1200	
31.5	30.40	49	350	1900	*)	750	-	740	1100	510	910	-	830	1200	
35.5	35.01	43	350	1650	*)	730	-	690	1000	495	880	-	760	1100	X3F..
40	39.68	38	350	1450	*)	720	-	660	990	485	860	-	720	1050	
45	44.16	34	350	1300	380	720	-	650	960	490	840	-	690	1000	M5
50	50.05	30	350	1150	385	720	-	640	950	495	850	-	680	1000	278
56	52.94	28	350	1100	355	660	-	570	860	450	780	-	610	920	M4
63	61.83	24	350	920	365	650	-	560	820	445	750	-	580	870	302
71	71.20	21	350	800	355	630	-	520	770	430	720	-	540	810	
80	80.69	19	350	710	345	610	-	500	750	420	700	-	520	790	
90	85.35	18	350	670	320	570	-	455	680	390	650	-	470	720	
100	96.74	16	350	590	320	570	-	450	680	390	650	-	465	720	
112	110.09	14	350	520	290	-	-	395	-	330	-	-	390	-	
125	124.76	12	350	460	285	-	-	380	-	320	-	-	375	-	
140	131.98	11	350	435	265	-	-	350	-	300	-	-	350	-	
160	149.57	10	350	385	265	-	-	345	-	300	-	-	345	-	X4F..
180	162.99	9.2	350	355	250	-	-	320	-	280	-	-	320	-	
200	184.72	8.1	350	310	245	-	-	310	-	275	-	-	310	-	M5
224	218.80	6.9	350	265	250	-	-	300	-	275	-	-	300	-	282
250	247.98	6.0	350	235	250	-	-	295	-	275	-	-	300	-	M4
280	262.31	5.7	350	220	230	-	-	275	-	255	-	-	275	-	306
315	297.28	5.0	350	195	230	-	-	270	-	255	-	-	270	-	
355	323.95	4.6	350	180	215	-	-	250	-	240	-	-	255	-	
400	367.15	4.1	350	155	210	-	-	245	-	235	-	-	245	-	
X.F300..,n_1 = 1800 min^{-1}															350 kNm
7.1[1)]	6.75	267	240	6850	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
8[1)]	7.66	235	246	6200	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[1)]	8.64	208	257	5750	*)	*)	-	*)	*)	*)	*)	-	*)	1800[*)]	X2F..
10[1)]	9.80	184	263	5200	*)	*)	-	*)	*)	*)	*)	-	*)	1800[*)]	
11.2[1)]	10.71	168	274	4950	*)	*)	-	*)	1600[*)]	*)	*)	-	*)	1950[*)]	M5
12.5[1)]	12.13	148	278	4450	*)	*)	-	*)	1600[*)]	*)	1100[*)]	-	1200	1950[*)]	274
14[1)]	13.59	132	289	4100	*)	*)	-	*)	1600[*)]	*)	1200[*)]	-	1250	1900[*)]	M4
16[1)]	15.41	117	299	3750	*)	*)	-	1000	1700[*)]	*)	1250[*)]	-	1300	2000[*)]	298
18[1)]	17.11	105	310	3500	*)	970[*)]	-	1100	1700[*)]	*)	1250[*)]	-	1300	1950[*)]	
20[1)]	19.39	93	320	3200	*)	960[*)]	-	1050	1650[*)]	*)	1250[*)]	-	1300	1900[*)]	
22.4[1)]	21.60	83	300	2700	*)	*)	-	750	1200[*)]	*)	960[*)]	-	1000	1500[*)]	
25[1)]	24.48	74	322	2550	*)	700[*)]	-	760	1250[*)]	*)	990[*)]	-	1000	1500[*)]	
28[1)]	28.19	64	329	2300	*)	680[*)]	-	690	1150[*)]	*)	940[*)]	-	880	1350[*)]	
31.5	30.40	59	340	2200	*)	760[*)]	-	750	1150[*)]	*)	960[*)]	-	890	1350[*)]	
35.5	35.01	51	342	1900	*)	750[*)]	-	700	1100[*)]	*)	930[*)]	-	810	1250[*)]	X3F..
40	39.68	45	350	1700	*)	730[*)]	-	670	1050[*)]	465	910[*)]	-	760	1200[*)]	
45	44.16	41	350	1550	*)	750[*)]	-	660	1050[*)]	480	900[*)]	-	730	1150[*)]	M5
50	50.05	36	350	1350	350	760[*)]	-	650	1000[*)]	485	910[*)]	-	720	1100[*)]	278
56	52.94	34	350	1300	*)	690[*)]	-	590	920[*)]	445	830[*)]	-	640	1000[*)]	M4
63	61.83	29	350	1100	350	690[*)]	-	580	890[*)]	450	810[*)]	-	610	960[*)]	302
71	71.20	25	350	960	340	670[*)]	-	540	840[*)]	430	780[*)]	-	570	900[*)]	
80	80.69	22	350	850	335	650[*)]	-	520	810[*)]	425	760[*)]	-	540	870[*)]	
90	85.35	21	350	800	310	600[*)]	-	470	740[*)]	390	700[*)]	-	495	790[*)]	
100	96.74	19	350	710	310	600[*)]	-	460	740[*)]	390	700[*)]	-	490	790[*)]	
112	110.09	16	350	630	280	-	-	400	-	325	-	-	400	-	
125	124.76	14	350	550	275	-	-	385	-	315	-	-	385	-	
140	131.98	14	350	520	255	-	-	355	-	295	-	-	355	-	
160	149.57	12	350	465	255	-	-	350	-	295	-	-	350	-	X4F..
180	162.99	11	350	425	240	-	-	325	-	280	-	-	325	-	
200	184.72	9.7	350	375	235	-	-	315	-	270	-	-	315	-	M5
224	218.80	8.2	350	315	255	-	-	315	-	285	-	-	315	-	282
250	247.98	7.3	350	280	255	-	-	310	-	280	-	-	310	-	M4
280	262.31	6.9	350	265	235	-	-	285	-	260	-	-	285	-	306
315	297.28	6.1	350	235	235	-	-	280	-	260	-	-	285	-	
355	323.95	5.6	350	215	220	-	-	265	-	245	-	-	265	-	
400	367.15	4.9	350	190	215	-	-	255	-	240	-	-	260	-	

X.F310..,n_1 = 1000 min^{-1}															425 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C					M4 20°C					
		min^{-1}	kNm	kW		Fan	Cooling cover H_2O	Cooling coil H_2O	Fan + cooling coil H_2O		Fan	Cooling cover H_2O	Cooling coil H_2O	Fan + cooling coil H_2O	
6.3	**6.63**	151	310	5000	*)	*)	-	1300	1850	*)	*)	-	2500	3050	
7.1	**7.51**	133	318	4550	*)	*)	-	1300	1850	*)	1250	-	2500	3000	
8	**8.04**	124	327	4350	*)	*)	-	1350	1850	*)	1300	-	2350	2850	**X2F..**
9	**9.10**	110	335	3950	*)	990	-	1350	1850	*)	1250	-	2350	2800	
10	**10.17**	98	347	3650	*)	1100	-	1500	1950	*)	1350	-	2400	2850	M5
11.2	**11.52**	87	355	3300	*)	1100	-	1450	1900	*)	1350	-	2350	2800	274
12.5	**12.89**	78	368	3050	*)	1100	-	1400	1800	780	1250	-	2150	2550	M4
14	**14.59**	69	380	2800	*)	1050	-	1300	1700	770	1250	-	2000	2400	298
16	**16.49**	61	392	2550	*)	1000	-	1200	1600	730	1200	-	1800	2200	
18	**18.16**	55	400	2350	*)	960	-	1150	1500	700	1150	-	1650	2000	
20	**20.94**	48	420	2200	*)	770	-	870	1200	600	980	-	1350	1650	
22.4	**23.07**	43	425	2000	*)	730	-	820	1150	570	930	-	1200	1550	
25	**25.98**	38	425	1800	*)	740	-	790	1100	570	920	-	1150	1450	
28	**29.33**	34	425	1550	460	750	-	780	1050	570	880	-	1050	1300	
31.5	**33.03**	30	425	1400	475	770	-	770	1050	590	900	-	1000	1300	**X3F..**
35.5	**36.39**	27	425	1250	455	740	-	720	980	560	860	-	930	1200	
40	**41.78**	24	425	1100	470	740	-	710	960	560	850	-	880	1150	M5
45	**46.03**	22	425	1000	450	700	-	660	900	540	810	-	820	1050	278
50	**52.25**	19	425	880	430	680	-	620	850	520	770	-	750	1000	M4
56	**57.42**	17	425	800	435	670	-	610	820	510	750	-	720	950	302
63	**64.67**	15	425	710	430	660	-	580	800	500	740	-	680	910	
71	**71.25**	14	425	650	410	630	-	550	760	475	710	-	640	860	
80	**80.87**	12	425	570	385	590	-	510	700	445	660	-	580	790	
90	**89.10**	11	425	520	390	590	-	500	700	450	660	-	580	790	
100	**108.56**	9.2	425	430	320	-	-	405	-	355	-	-	450	-	
112	**119.60**	8.4	425	390	315	-	-	395	-	350	-	-	435	-	
125	**135.76**	7.4	425	345	300	-	-	375	-	335	-	-	410	-	
140	**149.56**	6.7	425	310	290	-	-	355	-	325	-	-	390	-	**X4F..**
160	**162.03**	6.2	425	290	300	-	-	360	-	330	-	-	390	-	
180	**178.50**	5.6	425	260	290	-	-	345	-	320	-	-	370	-	M5
200	**203.96**	4.9	425	230	275	-	-	320	-	300	-	-	345	-	282
224	**224.70**	4.5	425	210	265	-	-	310	-	290	-	-	330	-	M4
250	**255.06**	3.9	425	185	255	-	-	295	-	280	-	-	315	-	306
280	**281.00**	3.6	425	165	250	-	-	280	-	270	-	-	305	-	
315	**313.92**	3.2	425	150	240	-	-	270	-	265	-	-	290	-	
355	**345.84**	2.9	425	135	230	-	-	260	-	255	-	-	280	-	
X.F310..,n_1 = 1200 min^{-1}															**425 kNm**
6.3	**6.63**	181	310	6000	*)	*)	-	*)	1700	*)	*)	-	2400	3050	
7.1	**7.51**	160	318	5450	*)	*)	-	*)	1750	*)	*)	-	2400	3050	
8	**8.04**	149	327	5250	*)	*)	-	*)	1800	*)	*)	-	2350	2900	**X2F..**
9	**9.10**	132	335	4750	*)	*)	-	1200	1800	*)	1250	-	2300	2900	
10	**10.17**	118	347	4400	*)	*)	-	1400	1950	*)	1400	-	2400	3000	M5
11.2	**11.52**	104	355	3950	*)	1100	-	1400	1950	*)	1400	-	2400	2950	274
12.5	**12.89**	93	368	3700	*)	1100	-	1350	1850	*)	1350	-	2200	2700	M4
14	**14.59**	82	380	3350	*)	1100	-	1350	1850	*)	1300	-	2200	2650	298
16	**16.49**	73	392	3050	*)	1000	-	1250	1700	*)	1250	-	2000	2450	
18	**18.16**	66	400	2850	*)	970	-	1150	1600	*)	1200	-	1850	2250	
20	**20.94**	57	420	2600	*)	750	-	870	1250	*)	1000	-	1450	1850	
22.4	**23.07**	52	425	2400	*)	720	-	810	1200	*)	970	-	1350	1700	
25	**25.98**	46	425	2150	*)	730	-	780	1150	540	970	-	1250	1600	
28	**29.33**	41	425	1900	*)	790	-	810	1150	570	950	-	1150	1450	
31.5	**33.03**	36	425	1700	450	810	-	800	1150	590	970	-	1100	1450	**X3F..**
35.5	**36.39**	33	425	1500	430	770	-	750	1050	560	920	-	1000	1350	
40	**41.78**	29	425	1350	455	790	-	740	1050	570	920	-	960	1300	M5
45	**46.03**	26	425	1200	435	750	-	690	980	540	880	-	900	1200	278
50	**52.25**	23	425	1050	420	720	-	650	920	520	840	-	820	1100	M4
56	**57.42**	21	425	960	435	720	-	640	900	520	820	-	780	1050	302
63	**64.67**	19	425	860	430	710	-	620	880	510	810	-	740	1000	
71	**71.25**	17	425	780	415	680	-	580	830	490	770	-	700	960	
80	**80.87**	15	425	690	390	630	-	530	760	460	720	-	630	880	
90	**89.10**	13	425	620	390	640	-	530	760	465	720	-	620	870	
100	**108.56**	11	425	520	320	-	-	420	-	360	-	-	475	-	
112	**119.60**	10	425	470	315	-	-	410	-	355	-	-	460	-	
125	**135.76**	8.8	425	415	305	-	-	390	-	340	-	-	430	-	
140	**149.56**	8.0	425	375	295	-	-	370	-	330	-	-	410	-	**X4F..**
160	**162.03**	7.4	425	345	310	-	-	380	-	345	-	-	415	-	
180	**178.50**	6.7	425	315	300	-	-	365	-	330	-	-	395	-	M5
200	**203.96**	5.9	425	275	285	-	-	340	-	315	-	-	370	-	282
224	**224.70**	5.3	425	250	275	-	-	325	-	305	-	-	350	-	M4
250	**255.06**	4.7	425	220	265	-	-	310	-	290	-	-	335	-	306
280	**281.00**	4.3	425	200	255	-	-	300	-	280	-	-	320	-	
315	**313.92**	3.8	425	180	250	-	-	285	-	275	-	-	305	-	
355	**345.84**	3.5	425	160	240	-	-	275	-	265	-	-	295	-	

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X.F310..,n_1 = 1500 min^{-1}															425 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3[1)]	6.63	226	310	7500	*)	*)	-	*)	*)	*)	*)	-	1950	2850	
7.1[1)]	7.51	200	318	6800	*)	*)	-	*)	*)	*)	*)	-	1950	2850	
8[1)]	8.04	187	327	6550	*)	*)	-	*)	*)	*)	*)	-	2150	2900	X2F..
9[1)]	9.10	165	335	5900	*)	*)	-	*)	1600	*)	*)	-	2150	2900	
10[1)]	10.17	147	347	5500	*)	*)	-	*)	1900	*)	*)	-	2350	3050	M5
11.2[1)]	11.52	130	355	4950	*)	*)	-	*)	1900	*)	1350	-	2350	3050	274
12.5[1)]	12.89	116	368	4600	*)	*)	-	1250	1850	*)	1350	-	2200	2850	M4
14[1)]	14.59	103	380	4200	*)	*)	-	1200	1850	*)	1350	-	2200	2800	298
16[1)]	16.49	91	392	3850	*)	970	-	1150	1750	*)	1250	-	2100	2650	
18[1)]	18.16	83	400	3550	*)	930	-	1100	1650	*)	1200	-	1950	2500	
20[1)]	20.94	72	420	3250	*)	*)	-	*)	1300	*)	1050	-	1650	2150	
22.4[1)]	23.07	65	425	3000	*)	*)	-	*)	1200	*)	990	-	1500	1950	
25[1)]	25.98	58	425	2650	*)	*)	-	720	1200	*)	990	-	1400	1850	
28	29.33	51	425	2350	*)	810	-	820	1250	*)	1000	-	1300	1700	
31.5	33.03	45	425	2100	*)	840	-	820	1250	570	1050	-	1250	1650	X3F..
35.5	36.39	41	425	1900	*)	800	-	770	1150	540	1000	-	1150	1550	
40	41.78	36	425	1650	*)	830	-	770	1150	560	1000	-	1100	1450	M5
45	46.03	33	425	1500	395	790	-	720	1100	540	960	-	1000	1350	278
50	52.25	29	425	1350	385	760	-	670	1000	520	920	-	910	1250	M4
56	57.42	26	425	1200	420	780	-	670	1000	530	900	-	870	1200	302
63	64.67	23	425	1050	420	770	-	650	970	520	890	-	820	1150	
71	71.25	21	425	970	405	740	-	610	920	500	850	-	770	1100	
80	80.87	19	425	860	380	690	-	560	850	470	800	-	690	1000	
90	89.10	17	425	780	385	690	-	560	850	475	800	-	680	990	
100	108.56	14	425	650	310	-	-	435	-	355	-	-	500	-	
112	119.60	13	425	590	305	-	-	425	-	350	-	-	490	-	
125	135.76	11	425	520	295	-	-	400	-	340	-	-	455	-	
140	149.56	10	425	470	285	-	-	380	-	325	-	-	430	-	X4F..
160	162.03	9.3	425	430	320	-	-	405	-	355	-	-	450	-	
180	178.50	8.4	425	390	310	-	-	385	-	345	-	-	425	-	M5
200	203.96	7.4	425	345	295	-	-	360	-	325	-	-	395	-	282
224	224.70	6.7	425	310	285	-	-	345	-	315	-	-	380	-	M4
250	255.06	5.9	425	275	275	-	-	330	-	305	-	-	360	-	306
280	281.00	5.3	425	250	265	-	-	315	-	295	-	-	340	-	
315	313.92	4.8	425	225	255	-	-	300	-	285	-	-	330	-	
355	345.84	4.3	425	205	250	-	-	290	-	275	-	-	315	-	
X.F310..,n_1 = 1800 min^{-1}															425 kNm
6.3[*)]	6.63	271	294	8550	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
7.1[*)]	7.51	240	300	7700	*)	*)	-	*)	*)	*)	*)	-	*)	2200[*)]	
8[*)]	8.04	224	309	7400	*)	*)	-	*)	*)	*)	*)	-	*)	2650[*)]	X2F..
9[*)]	9.10	198	316	6700	*)	*)	-	*)	*)	*)	*)	-	1750	2650[*)]	
10[*)]	10.17	177	328	6250	*)	*)	-	*)	1650[*)]	*)	*)	-	2150	3000[*)]	M5
11.2[*)]	11.52	156	335	5600	*)	*)	-	*)	1650[*)]	*)	*)	-	2150	3000[*)]	274
12.5[*)]	12.89	140	350	5250	*)	*)	-	*)	1750[*)]	*)	*)	-	2150	2900[*)]	M4
14[*)]	14.59	123	358	4750	*)	*)	-	*)	1750[*)]	*)	1250[*)]	-	2100	2850[*)]	298
16[*)]	16.49	109	371	4350	*)	*)	-	*)	1700[*)]	*)	1200[*)]	-	2000	2700[*)]	
18[*)]	18.16	99	379	4050	*)	*)	-	*)	1600[*)]	*)	1150[*)]	-	1900	2550[*)]	
20[1)]	20.94	86	398	3700	*)	*)	-	*)	1200[*)]	*)	970[*)]	-	1650	2250[*)]	
22.4[1)]	23.07	78	407	3450	*)	*)	-	*)	1150[*)]	*)	940[*)]	-	1600	2150[*)]	
25[1)]	25.98	69	423	3200	*)	*)	-	*)	1150[*)]	*)	960[*)]	-	1500	2050[*)]	
28[1)]	29.33	61	425	2850	*)	790[*)]	-	800	1300[*)]	*)	1050[*)]	-	1450	1900[*)]	
31.5[1)]	33.03	54	425	2500	*)	830[*)]	-	810	1300[*)]	*)	1100[*)]	-	1350	1850[*)]	X3F..
35.5[1)]	36.39	49	425	2300	*)	800[*)]	-	750	1200[*)]	*)	1050[*)]	-	1250	1700[*)]	
40	41.78	43	425	2000	*)	850[*)]	-	770	1200[*)]	540	1050[*)]	-	1200	1650[*)]	M5
45	46.03	39	425	1800	*)	810[*)]	-	720	1150[*)]	510	1000[*)]	-	1100	1550[*)]	278
50	52.25	34	425	1600	*)	780[*)]	-	670	1100[*)]	500	970[*)]	-	980	1400[*)]	M4
56	57.42	31	425	1450	385	820[*)]	-	690	1100[*)]	520	970[*)]	-	950	1350[*)]	302
63	64.67	28	425	1300	390	810[*)]	-	670	1050[*)]	520	960[*)]	-	900	1300[*)]	
71	71.25	25	425	1150	375	780[*)]	-	630	1000[*)]	500	920[*)]	-	840	1200[*)]	
80	80.87	22	425	1050	360	730[*)]	-	570	920[*)]	470	860[*)]	-	750	1100[*)]	
90	89.10	20	425	930	360	730[*)]	-	570	920[*)]	475	860[*)]	-	740	1100[*)]	
100	108.56	17	425	770	280	-	-	435	-	335	-	-	520	-	
112	119.60	15	425	700	275	-	-	420	-	330	-	-	500	-	
125	135.76	13	425	620	265	-	-	395	-	320	-	-	465	-	
140	149.56	12	425	560	260	-	-	375	-	310	-	-	440	-	X4F..
160	162.03	11	425	520	320	-	-	420	-	360	-	-	475	-	
180	178.50	10	425	470	310	-	-	405	-	350	-	-	450	-	M5
200	203.96	8.8	425	410	295	-	-	375	-	330	-	-	415	-	282
224	224.70	8.0	425	375	285	-	-	360	-	320	-	-	400	-	M4
250	255.06	7.1	425	330	275	-	-	340	-	310	-	-	375	-	306
280	281.00	6.4	425	300	265	-	-	325	-	300	-	-	360	-	
315	313.92	5.7	425	270	260	-	-	315	-	290	-	-	345	-	
355	345.84	5.2	425	245	250	-	-	300	-	280	-	-	330	-	

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X.F320..,n_1 = 1000 min^{-1}															475 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	7.17	139	332	4950	*)	*)	-	1300	1900	*)	1250	-	1650	2250	
8	8.11	123	337	4450	*)	*)	-	1300	1900	*)	1250	-	1650	2250	
9	8.70	115	350	4300	*)	*)	-	1450	1950	*)	1350	-	1700	2250	X2F..
10	9.84	102	356	3900	*)	1000	-	1350	1850	*)	1300	-	1600	2100	
11.2	11.00	91	370	3600	*)	1150	-	1500	1950	*)	1400	-	1700	2200	M5
12.5	12.45	80	381	3300	*)	1150	-	1450	1950	*)	1350	-	1650	2150	274
14	13.94	72	393	3000	*)	1100	-	1400	1800	790	1300	-	1550	1950	M4
16	15.76	63	407	2750	*)	1100	-	1350	1750	780	1300	-	1450	1900	298
18	17.60	57	415	2550	*)	1050	-	1300	1700	780	1250	-	1400	1800	
20	19.28	52	424	2350	610	1050	-	1250	1650	770	1250	-	1350	1750	
22.4	22.36	45	447	2150	*)	790	-	890	1200	610	1000	-	1000	1350	
25	24.49	41	455	2000	*)	780	-	860	1200	600	980	-	970	1300	
28	27.74	36	475	1850	*)	760	-	810	1100	590	950	-	900	1250	
31.5	31.13	32	475	1650	490	800	-	820	1100	610	930	-	860	1150	
35.5	35.27	28	475	1450	490	790	-	790	1050	600	920	-	820	1100	X3F..
40	38.63	26	475	1350	485	780	-	760	1050	600	900	-	800	1100	
45	44.62	22	475	1150	480	760	-	720	980	580	870	-	740	1000	M5
50	48.86	20	475	1050	475	740	-	700	950	570	860	-	720	1000	278
56	55.79	18	475	920	455	710	-	650	890	540	810	-	670	930	M4
63	60.96	16	475	850	445	680	-	620	840	520	770	-	630	870	302
71	69.06	14	475	750	440	670	-	600	820	510	760	-	610	840	
80	75.63	13	475	680	435	660	-	580	800	500	740	-	590	830	
90	86.36	12	475	600	405	620	-	530	730	470	690	-	540	760	
100	94.58	11	475	550	390	590	-	500	700	450	660	-	520	720	
112	115.92	8.6	475	450	325	-	-	415	-	365	-	-	410	-	
125	126.96	7.9	475	410	320	-	-	405	-	360	-	-	400	-	
140	144.96	6.9	475	360	310	-	-	380	-	345	-	-	380	-	
160	158.77	6.3	475	330	305	-	-	370	-	340	-	-	370	-	X4F..
180	173.01	5.8	475	300	315	-	-	375	-	345	-	-	375	-	
200	189.49	5.3	475	275	310	-	-	365	-	340	-	-	365	-	M5
224	217.79	4.6	475	240	280	-	-	330	-	310	-	-	330	-	282
250	238.53	4.2	475	220	280	-	-	320	-	305	-	-	325	-	M4
280	272.35	3.7	475	190	260	-	-	300	-	290	-	-	305	-	306
315	298.29	3.4	475	175	260	-	-	295	-	285	-	-	300	-	
355	335.20	3.0	475	155	250	-	-	280	-	275	-	-	285	-	
400	367.12	2.7	475	140	245	-	-	275	-	270	-	-	280	-	
X.F320..,n_1 = 1200 min^{-1}															475 kNm
7.1	7.17	167	332	5950	*)	*)	-	*)	1700	*)	*)	-	*)	2200	
8	8.11	148	337	5350	*)	*)	-	*)	1750	*)	*)	-	1450	2200	
9	8.70	138	350	5200	*)	*)	-	*)	1950	*)	1350	-	1600	2300	X2F..
10	9.84	122	356	4650	*)	*)	-	1250	1850	*)	1250	-	1550	2150	
11.2	11.00	109	370	4350	*)	1100	-	1400	2000	*)	1400	-	1650	2250	M5
12.5	12.45	96	381	3950	*)	1100	-	1400	1950	*)	1400	-	1650	2250	274
14	13.94	86	393	3650	*)	1100	-	1350	1850	*)	1350	-	1550	2100	M4
16	15.76	76	407	3300	*)	1100	-	1350	1850	*)	1350	-	1550	2050	298
18	17.60	68	415	3050	*)	1100	-	1300	1800	*)	1300	-	1500	2000	
20	19.28	62	424	2850	*)	1100	-	1250	1750	720	1300	-	1450	1950	
22.4	22.36	54	447	2600	*)	780	-	890	1300	*)	1050	-	1050	1500	
25	24.49	49	455	2400	*)	770	-	860	1250	*)	1050	-	1050	1450	
28	27.74	43	475	2250	*)	760	-	800	1200	*)	1000	-	940	1350	
31.5	31.13	39	475	2000	*)	830	-	850	1200	610	1000	-	930	1300	
35.5	35.27	34	475	1750	465	830	-	820	1150	600	990	-	880	1250	X3F..
40	38.63	31	475	1600	460	820	-	800	1100	600	980	-	850	1200	
45	44.62	27	475	1400	470	810	-	760	1050	590	940	-	790	1150	M5
50	48.86	25	475	1250	465	790	-	730	1050	580	930	-	770	1100	278
56	55.79	22	475	1100	445	760	-	680	970	550	880	-	710	1050	M4
63	60.96	20	475	1000	445	740	-	650	920	530	840	-	670	970	302
71	69.06	17	475	900	445	720	-	630	890	530	820	-	650	930	
80	75.63	16	475	820	435	710	-	610	870	520	810	-	630	910	
90	86.36	14	475	720	410	660	-	560	800	485	760	-	570	840	
100	94.58	13	475	650	395	640	-	530	760	465	720	-	550	800	
112	115.92	10	475	540	330	-	-	430	-	370	-	-	430	-	
125	126.96	9.5	475	495	325	-	-	420	-	365	-	-	420	-	
140	144.96	8.3	475	430	310	-	-	395	-	350	-	-	395	-	
160	158.77	7.6	475	395	305	-	-	385	-	345	-	-	385	-	X4F..
180	173.01	6.9	475	360	325	-	-	395	-	360	-	-	395	-	
200	189.49	6.3	475	330	320	-	-	385	-	355	-	-	385	-	M5
224	217.79	5.5	475	290	290	-	-	345	-	320	-	-	350	-	282
250	238.53	5.0	475	265	285	-	-	340	-	315	-	-	340	-	M4
280	272.35	4.4	475	230	270	-	-	315	-	300	-	-	320	-	306
315	298.29	4.0	475	210	265	-	-	310	-	295	-	-	315	-	
355	335.20	3.6	475	185	260	-	-	295	-	285	-	-	300	-	
400	367.12	3.3	475	170	255	-	-	290	-	280	-	-	295	-	

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X.F320..,n_1 = 1500 min^{-1}															475 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C					M4 20°C					📖
		min^{-1}	kNm	kW		Fan	H_2O (cooling cover)	H_2O (cooling cartridge)	Fan + H_2O		Fan	H_2O (cooling cover)	H_2O (cooling cartridge)	Fan + H_2O	
7.1[1)]	7.17	209	332	7450	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
8[1)]	8.11	185	337	6700	*)	*)	-	*)	*)	*)	*)	-	*)	1900	
9[1)]	8.70	172	350	6450	*)	*)	-	*)	1650	*)	*)	-	*)	2200	X2F..
10[1)]	9.84	152	356	5800	*)	*)	-	*)	1600	*)	*)	-	*)	2100	
11.2[1)]	11.00	136	370	5400	*)	*)	-	*)	1900	*)	*)	-	1500	2300	M5
12.5[1)]	12.45	120	381	4900	*)	*)	-	*)	1900	*)	1350	-	1500	2300	274
14[1)]	13.94	108	393	4550	*)	*)	-	1250	1900	*)	1350	-	1500	2200	M4
16[1)]	15.76	95	407	4150	*)	*)	-	1250	1850	*)	1350	-	1500	2150	298
18[1)]	17.60	85	415	3800	*)	1050	-	1250	1850	*)	1350	-	1450	2150	
20[1)]	19.28	78	424	3550	*)	1050	-	1200	1800	*)	1350	-	1450	2100	
22.4[1)]	22.36	67	447	3250	*)	*)	-	*)	1350	*)	1050	-	1100	1650	
25[1)]	24.49	61	455	3050	*)	*)	-	780	1300	*)	1050	-	1050	1600	
28[1)]	27.74	54	475	2800	*)	*)	-	740	1200	*)	1000	-	980	1500	
31.5	31.13	48	475	2500	*)	860	-	870	1300	*)	1100	-	1000	1450	
35.5	35.27	43	475	2200	*)	860	-	840	1250	580	1050	-	950	1400	X3F..
40	38.63	39	475	2000	*)	850	-	810	1200	580	1050	-	920	1350	
45	44.62	34	475	1750	*)	860	-	780	1150	580	1050	-	860	1250	M5
50	48.86	31	475	1600	420	840	-	760	1150	570	1000	-	830	1250	278
56	55.79	27	475	1400	410	810	-	700	1050	550	960	-	760	1150	M4
63	60.96	25	475	1250	435	800	-	690	1000	540	930	-	730	1100	302
71	69.06	22	475	1100	430	790	-	660	990	540	910	-	700	1050	
80	75.63	20	475	1000	425	770	-	640	970	530	900	-	670	1050	
90	86.36	17	475	900	400	720	-	590	890	495	830	-	610	940	
100	94.58	16	475	820	385	690	-	560	850	475	800	-	580	900	
112	115.92	13	475	680	315	-	-	445	-	365	-	-	440	-	
125	126.96	12	475	620	310	-	-	430	-	360	-	-	430	-	
140	144.96	10	475	540	300	-	-	405	-	345	-	-	405	-	
160	158.77	9.4	475	495	295	-	-	395	-	340	-	-	395	-	X4F..
180	173.01	8.7	475	450	335	-	-	420	-	370	-	-	420	-	
200	189.49	7.9	475	415	330	-	-	410	-	365	-	-	410	-	M5
224	217.79	6.9	475	360	300	-	-	370	-	335	-	-	370	-	282
250	238.53	6.3	475	330	295	-	-	360	-	330	-	-	360	-	M4
280	272.35	5.5	475	285	280	-	-	335	-	310	-	-	340	-	306
315	298.29	5.0	475	260	275	-	-	330	-	305	-	-	330	-	
355	335.20	4.5	475	235	265	-	-	315	-	295	-	-	320	-	
400	367.12	4.1	475	215	265	-	-	305	-	290	-	-	310	-	

X.F320..,n_1 = 1800 min^{-1}															475 kNm
7.1[*)]	7.17	251	314	8450	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
8[*)]	8.11	222	320	7600	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[*)]	8.70	207	331	7350	*)	*)	-	*)	*)	*)	*)	-	*)	*)	X2F..
10[*)]	9.84	183	338	6650	*)	*)	-	*)	*)	*)	*)	-	*)	1800[*)]	
11.2[*)]	11.00	164	350	6150	*)	*)	-	*)	1650[*)]	*)	*)	-	*)	2200[*)]	M5
12.5[*)]	12.45	145	362	5600	*)	*)	-	*)	1700[*)]	*)	*)	-	*)	2200[*)]	274
14[*)]	13.94	129	378	5250	*)	*)	-	*)	1800[*)]	*)	*)	-	1350	2200[*)]	M4
16[*)]	15.76	114	385	4700	*)	*)	-	*)	1800[*)]	*)	1300[*)]	-	1350	2150[*)]	298
18[*)]	17.60	102	393	4300	*)	*)	-	*)	1750[*)]	*)	1300[*)]	-	1350	2150[*)]	
20[*)]	19.28	93	401	4000	*)	*)	-	*)	1750[*)]	*)	1300[*)]	-	1350	2100[*)]	
22.4[1)]	22.36	81	423	3700	*)	*)	-	*)	1250[*)]	*)	1000[*)]	-	1050	1700[*)]	
25[1)]	24.49	73	430	3450	*)	*)	-	*)	1200[*)]	*)	1000[*)]	-	1050	1650[*)]	
28[1)]	27.74	65	450	3150	*)	*)	-	*)	1200[*)]	*)	990[*)]	-	970	1600[*)]	
31.5[1)]	31.13	58	461	2900	*)	840[*)]	-	850	1350[*)]	*)	1100[*)]	-	1050	1600[*)]	
35.5[1)]	35.27	51	465	2600	*)	860[*)]	-	830	1350[*)]	*)	1100[*)]	-	1000	1550[*)]	X3F..
40[1)]	38.63	47	475	2400	*)	850[*)]	-	800	1300[*)]	*)	1100[*)]	-	960	1500[*)]	
45	44.62	40	475	2100	*)	870[*)]	-	790	1250[*)]	560	1100[*)]	-	900	1400[*)]	M5
50	48.86	37	475	1900	*)	860[*)]	-	760	1200[*)]	550	1050[*)]	-	870	1350[*)]	278
56	55.79	32	475	1650	*)	830[*)]	-	700	1150[*)]	530	1050[*)]	-	800	1250[*)]	M4
63	60.96	30	475	1500	400	840[*)]	-	710	1100[*)]	540	1000[*)]	-	770	1200[*)]	302
71	69.06	26	475	1350	405	830[*)]	-	680	1050[*)]	540	980[*)]	-	730	1150[*)]	
80	75.63	24	475	1250	400	820[*)]	-	660	1050[*)]	530	960[*)]	-	710	1150[*)]	
90	86.36	21	475	1100	380	760[*)]	-	600	960[*)]	495	900[*)]	-	640	1050[*)]	
100	94.58	19	475	980	365	740[*)]	-	570	910[*)]	475	860[*)]	-	610	980[*)]	
112	115.92	16	475	810	285	-	-	445	-	345	-	-	445	-	
125	126.96	14	475	740	285	-	-	430	-	340	-	-	430	-	
140	144.96	12	475	650	275	-	-	405	-	330	-	-	405	-	
160	158.77	11	475	590	270	-	-	390	-	325	-	-	395	-	X4F..
180	173.01	10	475	540	335	-	-	440	-	375	-	-	435	-	
200	189.49	9.5	475	495	330	-	-	425	-	370	-	-	425	-	M5
224	217.79	8.3	475	430	300	-	-	385	-	340	-	-	385	-	282
250	238.53	7.5	475	395	295	-	-	375	-	335	-	-	375	-	M4
280	272.35	6.6	475	345	280	-	-	350	-	315	-	-	350	-	306
315	298.29	6.0	475	315	275	-	-	340	-	310	-	-	340	-	
355	335.20	5.4	475	280	270	-	-	325	-	300	-	-	330	-	
400	367.12	4.9	475	255	265	-	-	320	-	295	-	-	320	-	

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9.3 X.K..

X.K100..,n_1 = 1000 min^{-1}															6.80 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**6.88**	145	5.55	86	43	83	-	-	-	49	92	-	-	-	**X2K..**
8	**7.69**	130	5.75	80	45	87	-	-	-	52	97	-	-	-	
9	**8.71**	115	5.95	73	44	79	-	-	-	50	87	-	-	-	M5
10	**9.75**	103	6.20	68	44	78	-	-	-	49	87	-	-	-	284
11.2	**10.64**	94	6.35	65	39	67	-	-	-	43	74	-	-	-	M4
12.5	**11.91**	84	6.60	60	41	72	-	-	-	46	80	-	-	-	308
14	**13.47**	74	6.45	52	42	70	-	-	-	46	77	-	-	-	
16	**15.08**	66	6.80	49	42	70	-	-	-	46	77	-	-	-	
18	**17.05**	59	6.80	43	39	64	-	-	-	43	71	-	-	-	
20	**19.09**	52	6.80	39	39	66	-	-	-	44	72	-	-	-	
22.4	**21.09**	47	6.80	35	35	59	-	-	-	39	65	-	-	-	
25	**24.55**	41	6.80	30	38	62	-	-	-	42	67	-	-	-	**X3K..**
28	**27.12**	37	6.80	27	34	55	-	-	-	38	61	-	-	-	
31.5	**30.35**	33	6.80	24	34	55	-	-	-	37	60	-	-	-	M5
35.5	**34.35**	29	6.80	21	30	48	-	-	-	33	52	-	-	-	288
40	**38.45**	26	6.80	19	31	50	-	-	-	34	54	-	-	-	M4
45	**42.96**	23	6.80	17	27	43	-	-	-	30	47	-	-	-	312
50	**48.08**	21	6.80	15	28	45	-	-	-	31	49	-	-	-	
56	**52.49**	19	6.80	14	26	40	-	-	-	28	44	-	-	-	
63	**58.74**	17	6.80	13	26	42	-	-	-	29	45	-	-	-	
71	**67.20**	15	6.80	11	22	35	-	-	-	25	39	-	-	-	
80	**75.21**	13	6.80	10	23	36	-	-	-	25	40	-	-	-	
X.K100..,n_1 = 1200 min^{-1}															**6.80 kNm**
7.1	**6.88**	174	5.55	105	*)	84	-	-	-	34	95	-	-	-	**X2K..**
8	**7.69**	156	5.75	96	27	88	-	-	-	38	100	-	-	-	
9	**8.71**	138	5.95	88	37	84	-	-	-	44	93	-	-	-	M5
10	**9.75**	123	6.20	82	37	83	-	-	-	44	93	-	-	-	284
11.2	**10.64**	113	6.35	77	34	73	-	-	-	40	81	-	-	-	M4
12.5	**11.91**	101	6.60	72	38	78	-	-	-	43	87	-	-	-	308
14	**13.47**	89	6.45	62	39	76	-	-	-	44	84	-	-	-	
16	**15.08**	80	6.80	59	38	75	-	-	-	43	83	-	-	-	
18	**17.05**	70	6.80	52	36	70	-	-	-	41	77	-	-	-	
20	**19.09**	63	6.80	46	37	71	-	-	-	41	79	-	-	-	
22.4	**21.09**	57	6.80	42	33	64	-	-	-	37	70	-	-	-	
25	**24.55**	49	6.80	36	38	68	-	-	-	42	75	-	-	-	**X3K..**
28	**27.12**	44	6.80	33	34	61	-	-	-	38	67	-	-	-	
31.5	**30.35**	40	6.80	29	34	61	-	-	-	37	67	-	-	-	M5
35.5	**34.35**	35	6.80	26	30	53	-	-	-	33	58	-	-	-	288
40	**38.45**	31	6.80	23	31	55	-	-	-	35	60	-	-	-	M4
45	**42.96**	28	6.80	21	28	48	-	-	-	30	53	-	-	-	312
50	**48.08**	25	6.80	18	28	50	-	-	-	31	55	-	-	-	
56	**52.49**	23	6.80	17	26	45	-	-	-	29	49	-	-	-	
63	**58.74**	20	6.80	15	27	47	-	-	-	29	51	-	-	-	
71	**67.20**	18	6.80	13	23	40	-	-	-	25	43	-	-	-	
80	**75.21**	16	6.80	12	24	41	-	-	-	26	44	-	-	-	

X.K100..,n_1 = 1500 min^{-1}															**6.80 kNm**
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**6.88**	218	5.55	130	*)	74	-	-	-	*)	88	-	-	-	**X2K..**
8	**7.69**	195	5.75	120	*)	78	-	-	-	*)	92	-	-	-	
9	**8.71**	172	5.95	110	*)	84	-	-	-	*)	96	-	-	-	M5
10	**9.75**	154	6.20	100	*)	84	-	-	-	*)	95	-	-	-	284
11.2	**10.64**	141	6.35	97	*)	76	-	-	-	27	85	-	-	-	M4
12.5	**11.91**	126	6.60	90	23	81	-	-	-	31	92	-	-	-	308
14	**13.47**	111	6.45	78	27	78	-	-	-	34	88	-	-	-	
16	**15.08**	99	6.80	73	27	78	-	-	-	34	87	-	-	-	
18	**17.05**	88	6.80	65	27	73	-	-	-	33	81	-	-	-	
20	**19.09**	79	6.80	58	29	74	-	-	-	34	83	-	-	-	
22.4	**21.09**	71	6.80	52	27	67	-	-	-	31	75	-	-	-	
25	**24.55**	61	6.80	45	35	75	-	-	-	39	82	-	-	-	**X3K..**
28	**27.12**	55	6.80	41	32	67	-	-	-	36	74	-	-	-	
31.5	**30.35**	49	6.80	36	31	67	-	-	-	35	73	-	-	-	M5
35.5	**34.35**	44	6.80	32	30	60	-	-	-	33	65	-	-	-	288
40	**38.45**	39	6.80	29	31	62	-	-	-	34	68	-	-	-	M4
45	**42.96**	35	6.80	26	27	54	-	-	-	30	59	-	-	-	312
50	**48.08**	31	6.80	23	28	56	-	-	-	31	61	-	-	-	
56	**52.49**	29	6.80	21	26	51	-	-	-	29	56	-	-	-	
63	**58.74**	26	6.80	19	27	52	-	-	-	30	57	-	-	-	
71	**67.20**	22	6.80	17	23	45	-	-	-	26	49	-	-	-	
80	**75.21**	20	6.80	15	24	46	-	-	-	26	50	-	-	-	
X.K100..,n_1 = 1800 min^{-1}															**6.80 kNm**
7.1	**6.88**	262	5.20	145	*)	*)	-	-	-	*)	58	-	-	-	**X2K..**
8	**7.69**	234	5.40	135	*)	43	-	-	-	*)	66	-	-	-	
9	**8.71**	207	5.60	125	*)	75	-	-	-	*)	88	-	-	-	M5
10	**9.75**	185	5.85	115	*)	76	-	-	-	*)	88	-	-	-	284
11.2	**10.64**	169	6.00	110	*)	73	-	-	-	*)	83	-	-	-	M4
12.5	**11.91**	151	6.25	100	*)	78	-	-	-	*)	89	-	-	-	308
14	**13.47**	134	6.35	92	*)	73	-	-	-	*)	84	-	-	-	
16	**15.08**	119	6.70	87	*)	73	-	-	-	*)	83	-	-	-	
18	**17.05**	106	6.80	78	*)	69	-	-	-	*)	78	-	-	-	
20	**19.09**	94	6.80	70	*)	70	-	-	-	*)	80	-	-	-	
22.4	**21.09**	85	6.80	63	*)	64	-	-	-	17	73	-	-	-	
25	**24.55**	73	6.80	54	30	77	-	-	-	35	85	-	-	-	**X3K..**
28	**27.12**	66	6.80	49	28	70	-	-	-	32	77	-	-	-	
31.5	**30.35**	59	6.80	44	27	69	-	-	-	31	76	-	-	-	M5
35.5	**34.35**	52	6.80	39	28	63	-	-	-	32	70	-	-	-	288
40	**38.45**	47	6.80	35	29	66	-	-	-	33	72	-	-	-	M4
45	**42.96**	42	6.80	31	26	57	-	-	-	29	63	-	-	-	312
50	**48.08**	37	6.80	28	27	59	-	-	-	30	65	-	-	-	
56	**52.49**	34	6.80	26	25	54	-	-	-	28	60	-	-	-	
63	**58.74**	31	6.80	23	26	56	-	-	-	29	62	-	-	-	
71	**67.20**	27	6.80	20	23	48	-	-	-	25	53	-	-	-	
80	**75.21**	24	6.80	18	23	49	-	-	-	26	54	-	-	-	

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X.K110..,n_1 = 1000 min^{-1}															8.50 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**7.91**	126	7.35	99	47	90	-	-	-	54	100	-	-	-	**X2K..**
9	**8.86**	113	7.40	89	50	94	-	-	-	57	105	-	-	-	
10	**10.02**	100	7.48	80	48	85	-	-	-	54	94	-	-	-	M5
11.2	**11.22**	89	7.60	73	48	84	-	-	-	54	93	-	-	-	284
12.5	**12.24**	82	7.70	68	43	75	-	-	-	49	83	-	-	-	M4
14	**13.71**	73	7.80	62	45	77	-	-	-	50	85	-	-	-	308
16	**15.50**	65	7.50	52	46	76	-	-	-	51	84	-	-	-	
18	**17.36**	58	7.80	49	45	75	-	-	-	50	83	-	-	-	
20	**19.62**	51	8.00	44	41	68	-	-	-	45	74	-	-	-	
22.4	**21.97**	46	8.50	42	42	69	-	-	-	46	76	-	-	-	
25	**24.26**	41	8.50	38	38	62	-	-	-	42	68	-	-	-	
28	**28.26**	35	8.50	33	40	65	-	-	-	44	71	-	-	-	**X3K..**
31.5	**31.21**	32	8.50	30	36	58	-	-	-	40	64	-	-	-	
35.5	**34.94**	29	8.50	26	36	58	-	-	-	40	63	-	-	-	M5
40	**39.53**	25	8.50	23	32	50	-	-	-	35	55	-	-	-	288
45	**44.26**	23	8.50	21	33	52	-	-	-	36	57	-	-	-	M4
50	**49.44**	20	8.50	19	29	47	-	-	-	32	51	-	-	-	312
56	**55.35**	18	8.50	17	30	47	-	-	-	33	51	-	-	-	
63	**60.40**	17	8.50	15	27	43	-	-	-	29	46	-	-	-	
71	**67.62**	15	8.50	14	28	44	-	-	-	30	48	-	-	-	
80	**77.33**	13	8.50	12	24	37	-	-	-	26	41	-	-	-	
90	**86.58**	12	8.50	11	24	37	-	-	-	26	41	-	-	-	
X.K110..,n_1 = 1200 min^{-1}															**8.50 kNm**
8	**7.91**	152	7.35	120	*)	92	-	-	-	38	105	-	-	-	**X2K..**
9	**8.86**	135	7.40	105	32	96	-	-	-	43	110	-	-	-	
10	**10.02**	120	7.48	96	41	91	-	-	-	49	100	-	-	-	M5
11.2	**11.22**	107	7.60	87	42	90	-	-	-	48	100	-	-	-	284
12.5	**12.24**	98	7.70	82	40	81	-	-	-	45	90	-	-	-	M4
14	**13.71**	88	7.80	74	41	84	-	-	-	47	93	-	-	-	308
16	**15.50**	77	7.50	63	42	82	-	-	-	48	91	-	-	-	
18	**17.36**	69	7.80	58	42	82	-	-	-	47	90	-	-	-	
20	**19.62**	61	8.00	53	38	73	-	-	-	43	81	-	-	-	
22.4	**21.97**	55	8.50	50	39	75	-	-	-	44	83	-	-	-	
25	**24.26**	49	8.50	46	36	68	-	-	-	40	74	-	-	-	
28	**28.26**	42	8.50	39	40	72	-	-	-	44	79	-	-	-	**X3K..**
31.5	**31.21**	38	8.50	35	36	65	-	-	-	40	71	-	-	-	
35.5	**34.94**	34	8.50	32	36	64	-	-	-	39	70	-	-	-	M5
40	**39.53**	30	8.50	28	32	56	-	-	-	35	61	-	-	-	288
45	**44.26**	27	8.50	25	33	58	-	-	-	37	64	-	-	-	M4
50	**49.44**	24	8.50	22	30	52	-	-	-	33	57	-	-	-	312
56	**55.35**	22	8.50	20	30	53	-	-	-	33	58	-	-	-	
63	**60.40**	20	8.50	18	28	48	-	-	-	30	52	-	-	-	
71	**67.62**	18	8.50	17	28	49	-	-	-	31	54	-	-	-	
80	**77.33**	16	8.50	14	24	42	-	-	-	27	46	-	-	-	
90	**86.58**	14	8.50	13	24	42	-	-	-	27	46	-	-	-	

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X.K110..,n_1 = 1500 min^{-1}															8.50 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**7.91**	190	7.35	150	*)	83	-	-	-	*)	98	-	-	-	**X2K..**
9	**8.86**	169	7.40	135	*)	88	-	-	-	*)	100	-	-	-	
10	**10.02**	150	7.48	120	*)	92	-	-	-	*)	105	-	-	-	M5
11.2	**11.22**	134	7.60	110	*)	92	-	-	-	30	105	-	-	-	284
12.5	**12.24**	123	7.70	100	*)	85	-	-	-	33	96	-	-	-	M4
14	**13.71**	109	7.80	92	27	88	-	-	-	36	99	-	-	-	308
16	**15.50**	97	7.50	79	32	86	-	-	-	39	96	-	-	-	
18	**17.36**	86	7.80	73	32	85	-	-	-	39	95	-	-	-	
20	**19.62**	76	8.00	66	30	77	-	-	-	36	86	-	-	-	
22.4	**21.97**	68	8.50	63	32	79	-	-	-	37	88	-	-	-	
25	**24.26**	62	8.50	57	29	71	-	-	-	34	79	-	-	-	
28	**28.26**	53	8.50	49	37	79	-	-	-	42	87	-	-	-	**X3K..**
31.5	**31.21**	48	8.50	44	34	71	-	-	-	38	79	-	-	-	
35.5	**34.94**	43	8.50	40	34	71	-	-	-	38	78	-	-	-	M5
40	**39.53**	38	8.50	35	32	63	-	-	-	35	69	-	-	-	288
45	**44.26**	34	8.50	31	33	65	-	-	-	36	72	-	-	-	M4
50	**49.44**	30	8.50	28	29	58	-	-	-	33	64	-	-	-	312
56	**55.35**	27	8.50	25	30	59	-	-	-	33	65	-	-	-	
63	**60.40**	25	8.50	23	28	54	-	-	-	30	59	-	-	-	
71	**67.62**	22	8.50	21	28	55	-	-	-	31	61	-	-	-	
80	**77.33**	19	8.50	18	25	47	-	-	-	27	52	-	-	-	
90	**86.58**	17	8.50	16	25	48	-	-	-	27	52	-	-	-	
X.K110..,n_1 = 1800 min^{-1}															**8.50 kNm**
8	**7.91**	228	6.98	170	*)	46	-	-	-	*)	69	-	-	-	**X2K..**
9	**8.86**	203	7.03	155	*)	54	-	-	-	*)	78	-	-	-	
10	**10.02**	180	7.10	135	*)	84	-	-	-	*)	98	-	-	-	M5
11.2	**11.22**	160	7.22	125	*)	84	-	-	-	*)	97	-	-	-	284
12.5	**12.24**	147	7.30	115	*)	83	-	-	-	*)	94	-	-	-	M4
14	**13.71**	131	7.40	105	*)	85	-	-	-	*)	97	-	-	-	308
16	**15.50**	116	7.50	94	*)	81	-	-	-	*)	92	-	-	-	
18	**17.36**	104	7.90	89	*)	81	-	-	-	*)	92	-	-	-	
20	**19.62**	92	8.20	82	*)	73	-	-	-	*)	83	-	-	-	
22.4	**21.97**	82	8.50	75	*)	76	-	-	-	19	86	-	-	-	
25	**24.26**	74	8.50	68	*)	69	-	-	-	20	78	-	-	-	
28	**28.26**	64	8.50	59	32	82	-	-	-	37	91	-	-	-	**X3K..**
31.5	**31.21**	58	8.50	53	30	74	-	-	-	34	82	-	-	-	
35.5	**34.94**	52	8.50	47	29	73	-	-	-	34	81	-	-	-	M5
40	**39.53**	46	8.50	42	30	67	-	-	-	34	74	-	-	-	288
45	**44.26**	41	8.50	37	31	69	-	-	-	35	76	-	-	-	M4
50	**49.44**	36	8.50	34	28	62	-	-	-	32	68	-	-	-	312
56	**55.35**	33	8.50	30	28	63	-	-	-	32	69	-	-	-	
63	**60.40**	30	8.50	28	27	58	-	-	-	30	63	-	-	-	
71	**67.62**	27	8.50	25	28	59	-	-	-	31	65	-	-	-	
80	**77.33**	23	8.50	22	24	51	-	-	-	27	56	-	-	-	
90	**86.58**	21	8.50	19	24	51	-	-	-	27	56	-	-	-	

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X.K120..,n_1 = 1000 min^{-1}															12.8 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C					M4 20°C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.36**	157	10.2	170	74	135	-	-	-	*)	120	-	-	-	**X2K..**
7.1	**7.24**	138	10.5	155	76	135	-	-	-	43	120	-	-	-	
8	**7.95**	126	10.7	145	71	120	-	-	-	56	115	-	-	-	M5
9	**9.05**	110	11.0	130	74	125	-	-	-	62	120	-	-	-	284
10	**9.85**	102	11.2	125	62	105	-	-	-	55	100	-	-	-	M4
11.2	**11.21**	89	11.5	110	64	105	-	-	-	58	105	-	-	-	308
12.5	**12.72**	79	11.3	96	63	100	-	-	-	56	100	-	-	-	
14	**14.48**	69	11.5	86	65	105	-	-	-	58	100	-	-	-	
16	**16.36**	61	11.6	77	60	94	-	-	-	58	97	-	-	-	
18	**18.63**	54	12.0	70	61	96	-	-	-	60	99	-	-	-	
20	**20.02**	50	12.1	66	57	92	-	-	-	52	90	-	-	-	
22.4	**22.79**	44	12.3	59	58	94	-	-	-	53	92	-	-	-	**X3K..**
25	**25.75**	39	12.4	52	54	85	-	-	-	53	87	-	-	-	
28	**29.32**	34	12.4	46	54	86	-	-	-	54	89	-	-	-	M5
31.5	**30.96**	32	12.4	43	48	76	-	-	-	48	78	-	-	-	288
35.5	**35.25**	28	12.4	38	49	77	-	-	-	48	79	-	-	-	M4
40	**40.01**	25	12.4	34	42	66	-	-	-	43	69	-	-	-	312
45	**45.55**	22	12.8	30	43	68	-	-	-	44	71	-	-	-	
50	**47.92**	21	12.8	29	38	60	-	-	-	40	63	-	-	-	
56	**54.55**	18	12.8	26	39	60	-	-	-	40	63	-	-	-	
63	**61.35**	16	12.8	23	34	54	-	-	-	36	57	-	-	-	
71	**69.84**	14	12.8	20	34	54	-	-	-	36	57	-	-	-	
80	**82.12**	12	10.9	15	33	-	-	-	-	36	-	-	-	-	
90	**93.49**	11	12.3	14	34	-	-	-	-	37	-	-	-	-	
100	**104.18**	9.6	12.8	13	32	-	-	-	-	35	-	-	-	-	
112	**118.60**	8.4	12.8	12	32	-	-	-	-	35	-	-	-	-	
125	**125.27**	8.0	12.8	11	29	-	-	-	-	32	-	-	-	-	**X4K..**
140	**142.60**	7.0	12.8	10	30	-	-	-	-	32	-	-	-	-	
160	**149.93**	6.7	12.8	9	27	-	-	-	-	29	-	-	-	-	M5
180	**170.68**	5.9	12.8	8	27	-	-	-	-	30	-	-	-	-	292
200	**206.42**	4.8	12.8	7	24	-	-	-	-	26	-	-	-	-	M4
224	**234.98**	4.3	12.8	6	24	-	-	-	-	26	-	-	-	-	316
250	**248.19**	4.0	12.8	6	22	-	-	-	-	24	-	-	-	-	
280	**282.53**	3.5	12.8	5	22	-	-	-	-	24	-	-	-	-	
315	**297.06**	3.4	12.8	5	20	-	-	-	-	22	-	-	-	-	
355	**338.17**	3.0	12.8	4	21	-	-	-	-	23	-	-	-	-	
X.K120..,n_1 = 1200 min^{-1}															**12.8 kNm**
6.3	**6.36**	189	10.2	205	56	145	-	-	-	*)	110	-	-	-	**X2K..**
7.1	**7.24**	166	10.5	185	59	145	-	-	-	*)	110	-	-	-	
8	**7.95**	151	10.7	175	60	130	-	-	-	*)	120	-	-	-	M5
9	**9.05**	133	11.0	155	67	135	-	-	-	*)	125	-	-	-	284
10	**9.85**	122	11.2	150	56	115	-	-	-	39	105	-	-	-	M4
11.2	**11.21**	107	11.5	135	60	115	-	-	-	44	110	-	-	-	308
12.5	**12.72**	94	11.3	115	63	115	-	-	-	44	105	-	-	-	
14	**14.48**	83	11.5	105	64	115	-	-	-	48	105	-	-	-	
16	**16.36**	73	11.6	92	60	105	-	-	-	55	105	-	-	-	
18	**18.63**	64	12.0	84	62	110	-	-	-	57	110	-	-	-	
20	**20.02**	60	12.1	79	57	100	-	-	-	45	95	-	-	-	
22.4	**22.79**	53	12.3	70	58	105	-	-	-	46	97	-	-	-	**X3K..**
25	**25.75**	47	12.4	63	55	95	-	-	-	51	96	-	-	-	
28	**29.32**	41	12.4	55	55	96	-	-	-	52	97	-	-	-	M5
31.5	**30.96**	39	12.4	52	49	85	-	-	-	46	86	-	-	-	288
35.5	**35.25**	34	12.4	46	50	86	-	-	-	47	87	-	-	-	M4
40	**40.01**	30	12.4	40	43	74	-	-	-	43	76	-	-	-	312
45	**45.55**	26	12.8	37	45	76	-	-	-	44	79	-	-	-	
50	**47.92**	25	12.8	35	40	68	-	-	-	40	70	-	-	-	
56	**54.55**	22	12.8	31	40	68	-	-	-	40	71	-	-	-	
63	**61.35**	20	12.8	27	36	60	-	-	-	36	63	-	-	-	
71	**69.84**	17	12.8	24	36	61	-	-	-	36	63	-	-	-	
80	**82.12**	15	10.9	17	34	-	-	-	-	37	-	-	-	-	
90	**93.49**	13	12.3	17	35	-	-	-	-	38	-	-	-	-	
100	**104.18**	12	12.8	16	33	-	-	-	-	36	-	-	-	-	
112	**118.60**	10	12.8	14	33	-	-	-	-	36	-	-	-	-	
125	**125.27**	9.6	12.8	13	30	-	-	-	-	33	-	-	-	-	**X4K..**
140	**142.60**	8.4	12.8	12	31	-	-	-	-	33	-	-	-	-	
160	**149.93**	8.0	12.8	11	28	-	-	-	-	30	-	-	-	-	M5
180	**170.68**	7.0	12.8	10	28	-	-	-	-	31	-	-	-	-	292
200	**206.42**	5.8	12.8	8	25	-	-	-	-	27	-	-	-	-	M4
224	**234.98**	5.1	12.8	7	25	-	-	-	-	28	-	-	-	-	316
250	**248.19**	4.8	12.8	7	23	-	-	-	-	25	-	-	-	-	
280	**282.53**	4.2	12.8	6	23	-	-	-	-	25	-	-	-	-	
315	**297.06**	4.0	12.8	6	21	-	-	-	-	23	-	-	-	-	
355	**338.17**	3.5	12.8	5	22	-	-	-	-	24	-	-	-	-	

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X.K120..,n_1 = 1500 min^{-1}															**12.8 kNm**
					P_{TH} kW										
i_N	**i_{ex}**	**n_2**	**M_{N2}**	**P_{N1}**	**M5** 20°C					**M4** 20°C					
		min^{-1}	**kNm**	**kW**			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.36**	236	10.2	260	*)	150	-	-	-	*)	*)	-	-	-	**X2K..**
7.1	**7.24**	207	10.5	235	*)	150	-	-	-	*)	*)	-	-	-	
8	**7.95**	189	10.7	215	*)	140	-	-	-	*)	105	-	-	-	M5
9	**9.05**	166	11.0	195	*)	145	-	-	-	*)	110	-	-	-	284
10	**9.85**	152	11.2	185	*)	125	-	-	-	*)	105	-	-	-	M4
11.2	**11.21**	134	11.5	165	46	125	-	-	-	*)	110	-	-	-	308
12.5	**12.72**	118	11.3	145	57	125	-	-	-	*)	100	-	-	-	
14	**14.48**	104	11.5	130	61	130	-	-	-	*)	100	-	-	-	
16	**16.36**	92	11.6	115	60	120	-	-	-	44	110	-	-	-	
18	**18.63**	81	12.0	105	61	120	-	-	-	47	115	-	-	-	
20	**20.02**	75	12.1	98	55	115	-	-	-	*)	93	-	-	-	
22.4	**22.79**	66	12.3	88	57	115	-	-	-	*)	95	-	-	-	**X3K..**
25	**25.75**	58	12.4	78	55	105	-	-	-	44	105	-	-	-	
28	**29.32**	51	12.4	69	56	110	-	-	-	45	105	-	-	-	M5
31.5	**30.96**	48	12.4	65	49	96	-	-	-	40	92	-	-	-	288
35.5	**35.25**	43	12.4	57	50	97	-	-	-	41	94	-	-	-	M4
40	**40.01**	37	12.4	50	44	83	-	-	-	41	85	-	-	-	312
45	**45.55**	33	12.8	46	45	86	-	-	-	43	88	-	-	-	
50	**47.92**	31	12.8	44	41	77	-	-	-	39	79	-	-	-	
56	**54.55**	27	12.8	39	41	77	-	-	-	39	79	-	-	-	
63	**61.35**	24	12.8	34	37	69	-	-	-	36	71	-	-	-	
71	**69.84**	21	12.8	30	37	69	-	-	-	36	71	-	-	-	
80	**82.12**	18	10.9	22	35	-	-	-	-	38	-	-	-	-	
90	**93.49**	16	12.3	22	36	-	-	-	-	39	-	-	-	-	
100	**104.18**	14	12.8	20	34	-	-	-	-	37	-	-	-	-	
112	**118.60**	13	12.8	18	35	-	-	-	-	37	-	-	-	-	
125	**125.27**	12	12.8	17	31	-	-	-	-	34	-	-	-	-	**X4K..**
140	**142.60**	11	12.8	15	32	-	-	-	-	34	-	-	-	-	
160	**149.93**	10	12.8	14	29	-	-	-	-	31	-	-	-	-	M5
180	**170.68**	8.8	12.8	12	30	-	-	-	-	32	-	-	-	-	292
200	**206.42**	7.3	12.8	10	26	-	-	-	-	28	-	-	-	-	M4
224	**234.98**	6.4	12.8	9	27	-	-	-	-	29	-	-	-	-	316
250	**248.19**	6.0	12.8	9	24	-	-	-	-	26	-	-	-	-	
280	**282.53**	5.3	12.8	8	24	-	-	-	-	26	-	-	-	-	
315	**297.06**	5.0	12.8	7	22	-	-	-	-	24	-	-	-	-	
355	**338.17**	4.4	12.8	6	23	-	-	-	-	25	-	-	-	-	
X.K120..,n_1 = 1800 min^{-1}															**12.8 kNm**
6.3	**6.36**	283	9.70	295	*)	135	-	-	-	*)	*)	-	-	-	**X2K..**
7.1	**7.24**	249	10.0	265	*)	140	-	-	-	*)	*)	-	-	-	
8	**7.95**	226	10.1	245	*)	140	-	-	-	*)	*)	-	-	-	M5
9	**9.05**	199	10.4	220	*)	145	-	-	-	*)	61	-	-	-	284
10	**9.85**	183	10.6	210	*)	125	-	-	-	*)	90	-	-	-	M4
11.2	**11.21**	161	10.9	190	*)	130	-	-	-	*)	99	-	-	-	308
12.5	**12.72**	142	11.3	175	44	130	-	-	-	*)	76	-	-	-	
14	**14.48**	124	11.5	155	49	135	-	-	-	*)	81	-	-	-	
16	**16.36**	110	11.6	140	55	125	-	-	-	*)	110	-	-	-	
18	**18.63**	97	12.0	125	59	130	-	-	-	*)	115	-	-	-	
20	**20.02**	90	12.1	120	49	120	-	-	-	*)	78	-	-	-	
22.4	**22.79**	79	12.3	105	52	120	-	-	-	*)	79	-	-	-	**X3K..**
25	**25.75**	70	12.4	94	53	115	-	-	-	27	100	-	-	-	
28	**29.32**	61	12.4	83	54	115	-	-	-	30	105	-	-	-	M5
31.5	**30.96**	58	12.4	78	48	105	-	-	-	27	92	-	-	-	288
35.5	**35.25**	51	12.4	69	49	105	-	-	-	29	93	-	-	-	M4
40	**40.01**	45	12.4	60	44	90	-	-	-	37	89	-	-	-	312
45	**45.55**	40	12.8	55	45	93	-	-	-	39	92	-	-	-	
50	**47.92**	38	12.8	53	41	83	-	-	-	37	83	-	-	-	
56	**54.55**	33	12.8	46	41	83	-	-	-	37	84	-	-	-	
63	**61.35**	29	12.8	41	37	74	-	-	-	34	76	-	-	-	
71	**69.84**	26	12.8	36	37	75	-	-	-	34	76	-	-	-	
80	**82.12**	22	10.9	26	36	-	-	-	-	38	-	-	-	-	
90	**93.49**	19	12.3	26	37	-	-	-	-	39	-	-	-	-	
100	**104.18**	17	12.8	24	35	-	-	-	-	37	-	-	-	-	
112	**118.60**	15	12.8	21	35	-	-	-	-	38	-	-	-	-	
125	**125.27**	14	12.8	20	32	-	-	-	-	34	-	-	-	-	**X4K..**
140	**142.60**	13	12.8	18	33	-	-	-	-	34	-	-	-	-	
160	**149.93**	12	12.8	17	30	-	-	-	-	31	-	-	-	-	M5
180	**170.68**	11	12.8	15	30	-	-	-	-	32	-	-	-	-	292
200	**206.42**	8.7	12.8	12	27	-	-	-	-	29	-	-	-	-	M4
224	**234.98**	7.7	12.8	11	27	-	-	-	-	29	-	-	-	-	316
250	**248.19**	7.3	12.8	10	25	-	-	-	-	27	-	-	-	-	
280	**282.53**	6.4	12.8	9	25	-	-	-	-	27	-	-	-	-	
315	**297.06**	6.1	12.8	9	23	-	-	-	-	25	-	-	-	-	
355	**338.17**	5.3	12.8	8	24	-	-	-	-	26	-	-	-	-	

X.K130..,n_1 = 1000 min^{-1}															16 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C					M4 20°C					📖
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**7.95**	126	12.8	170	82	145	-	-	-	50	130	-	-	-	**X2K..**
9	**9.03**	111	13.1	155	83	145	-	-	-	53	130	-	-	-	
10	**9.93**	101	13.5	145	76	130	-	-	-	65	125	-	-	-	M5
11.2	**11.28**	89	13.8	130	80	135	-	-	-	69	130	-	-	-	284
12.5	**12.31**	81	13.9	120	69	115	-	-	-	64	115	-	-	-	M4
14	**13.98**	72	14.5	110	68	115	-	-	-	63	115	-	-	-	308
16	**15.90**	63	14.2	97	68	110	-	-	-	62	110	-	-	-	
18	**18.06**	55	14.4	86	70	110	-	-	-	63	110	-	-	-	
20	**20.45**	49	14.5	77	64	100	-	-	-	63	105	-	-	-	
22.4	**23.23**	43	15.0	70	65	105	-	-	-	64	105	-	-	-	
25	**25.03**	40	15.2	66	61	98	-	-	-	57	97	-	-	-	
28	**28.43**	35	15.5	59	63	100	-	-	-	58	99	-	-	-	**X3K..**
31.5	**32.19**	31	15.5	52	58	91	-	-	-	57	94	-	-	-	
35.5	**36.56**	27	15.5	46	58	92	-	-	-	58	95	-	-	-	M5
40	**38.71**	26	15.5	43	53	83	-	-	-	53	86	-	-	-	288
45	**43.96**	23	15.5	38	51	80	-	-	-	51	83	-	-	-	M4
50	**50.02**	20	15.5	34	46	71	-	-	-	47	75	-	-	-	312
56	**56.81**	18	16.0	31	45	71	-	-	-	46	74	-	-	-	
63	**59.90**	17	16.0	29	41	64	-	-	-	42	68	-	-	-	
71	**68.03**	15	16.0	26	41	64	-	-	-	43	68	-	-	-	
80	**76.69**	13	16.0	23	37	57	-	-	-	38	60	-	-	-	
90	**87.09**	11	16.0	20	37	57	-	-	-	38	61	-	-	-	
100	**102.65**	9.7	13.6	15	36	-	-	-	-	39	-	-	-	-	
112	**116.58**	8.6	15.5	15	36	-	-	-	-	39	-	-	-	-	
125	**130.23**	7.7	16.0	13	34	-	-	-	-	37	-	-	-	-	
140	**147.90**	6.8	16.0	12	34	-	-	-	-	37	-	-	-	-	
160	**156.58**	6.4	16.0	11	31	-	-	-	-	34	-	-	-	-	**X4K..**
180	**177.83**	5.6	16.0	10	31	-	-	-	-	34	-	-	-	-	
200	**187.42**	5.3	16.0	9	29	-	-	-	-	31	-	-	-	-	M5
224	**212.85**	4.7	16.0	8	29	-	-	-	-	31	-	-	-	-	292
250	**258.02**	3.9	16.0	7	26	-	-	-	-	28	-	-	-	-	M4
280	**293.04**	3.4	16.0	6	25	-	-	-	-	28	-	-	-	-	316
315	**310.23**	3.2	16.0	6	23	-	-	-	-	25	-	-	-	-	
355	**352.34**	2.8	16.0	5	23	-	-	-	-	25	-	-	-	-	
400	**371.33**	2.7	16.0	5	22	-	-	-	-	24	-	-	-	-	
450	**421.72**	2.4	16.0	4	22	-	-	-	-	24	-	-	-	-	
X.K130..,n_1 = 1200 min^{-1}															**16 kNm**
8	**7.95**	151	12.8	205	64	155	-	-	-	*)	120	-	-	-	**X2K..**
9	**9.03**	133	13.1	185	68	155	-	-	-	*)	120	-	-	-	
10	**9.93**	121	13.5	175	68	140	-	-	-	*)	130	-	-	-	M5
11.2	**11.28**	106	13.8	155	75	145	-	-	-	44	135	-	-	-	284
12.5	**12.31**	97	13.9	145	65	125	-	-	-	49	120	-	-	-	M4
14	**13.98**	86	14.5	135	67	125	-	-	-	52	120	-	-	-	308
16	**15.90**	75	14.2	115	68	120	-	-	-	52	115	-	-	-	
18	**18.06**	66	14.4	105	70	125	-	-	-	54	115	-	-	-	
20	**20.45**	59	14.5	92	65	115	-	-	-	61	115	-	-	-	
22.4	**23.23**	52	15.0	84	66	115	-	-	-	62	115	-	-	-	
25	**25.03**	48	15.2	79	62	110	-	-	-	50	105	-	-	-	
28	**28.43**	42	15.5	71	63	110	-	-	-	51	105	-	-	-	**X3K..**
31.5	**32.19**	37	15.5	63	59	100	-	-	-	56	105	-	-	-	
35.5	**36.56**	33	15.5	55	60	105	-	-	-	56	105	-	-	-	M5
40	**38.71**	31	15.5	52	54	93	-	-	-	51	95	-	-	-	288
45	**43.96**	27	15.5	46	52	90	-	-	-	49	91	-	-	-	M4
50	**50.02**	24	15.5	40	47	80	-	-	-	47	83	-	-	-	312
56	**56.81**	21	16.0	37	47	80	-	-	-	47	83	-	-	-	
63	**59.90**	20	16.0	35	42	72	-	-	-	43	75	-	-	-	
71	**68.03**	18	16.0	31	43	73	-	-	-	43	76	-	-	-	
80	**76.69**	16	16.0	27	38	64	-	-	-	39	68	-	-	-	
90	**87.09**	14	16.0	24	38	65	-	-	-	39	68	-	-	-	
100	**102.65**	12	13.6	17	37	-	-	-	-	41	-	-	-	-	
112	**116.58**	10	15.5	17	37	-	-	-	-	41	-	-	-	-	
125	**130.23**	9.2	16.0	16	36	-	-	-	-	39	-	-	-	-	
140	**147.90**	8.1	16.0	14	35	-	-	-	-	38	-	-	-	-	
160	**156.58**	7.7	16.0	13	32	-	-	-	-	35	-	-	-	-	**X4K..**
180	**177.83**	6.7	16.0	12	32	-	-	-	-	35	-	-	-	-	
200	**187.42**	6.4	16.0	11	30	-	-	-	-	32	-	-	-	-	M5
224	**212.85**	5.6	16.0	10	30	-	-	-	-	32	-	-	-	-	292
250	**258.02**	4.7	16.0	8	27	-	-	-	-	29	-	-	-	-	M4
280	**293.04**	4.1	16.0	7	27	-	-	-	-	29	-	-	-	-	316
315	**310.23**	3.9	16.0	7	24	-	-	-	-	26	-	-	-	-	
355	**352.34**	3.4	16.0	6	24	-	-	-	-	26	-	-	-	-	
400	**371.33**	3.2	16.0	6	23	-	-	-	-	25	-	-	-	-	
450	**421.72**	2.8	16.0	5	23	-	-	-	-	25	-	-	-	-	

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i N	i ex	n_2	M_{N2}	P_{N1}	P_{TH} kW M5 20°C					M4 20°C					
X.K130..,n_1 = 1500 min^{-1}															**16 kNm**
		min^{-1}	kNm	kW											
8	**7.95**	189	12.8	260	*)	160	-	-	-	*)	*)	-	-	-	**X2K..**
9	**9.03**	166	13.1	235	*)	160	-	-	-	*)	65	-	-	-	
10	**9.93**	151	13.5	220	*)	150	-	-	-	*)	120	-	-	-	M5
11.2	**11.28**	133	13.8	195	52	160	-	-	-	*)	125	-	-	-	284
12.5	**12.31**	122	13.9	185	50	135	-	-	-	*)	120	-	-	-	M4
14	**13.98**	107	14.5	170	53	135	-	-	-	*)	120	-	-	-	308
16	**15.90**	94	14.2	145	64	135	-	-	-	*)	110	-	-	-	
18	**18.06**	83	14.4	130	67	140	-	-	-	*)	115	-	-	-	
20	**20.45**	73	14.5	115	65	125	-	-	-	51	120	-	-	-	
22.4	**23.23**	65	15.0	105	66	130	-	-	-	53	125	-	-	-	
25	**25.03**	60	15.2	99	60	120	-	-	-	25	105	-	-	-	
28	**28.43**	53	15.5	89	61	125	-	-	-	28	105	-	-	-	**X3K..**
31.5	**32.19**	47	15.5	78	59	115	-	-	-	49	110	-	-	-	
35.5	**36.56**	41	15.5	69	60	115	-	-	-	50	115	-	-	-	M5
40	**38.71**	39	15.5	65	55	105	-	-	-	46	105	-	-	-	288
45	**43.96**	34	15.5	57	52	100	-	-	-	44	98	-	-	-	M4
50	**50.02**	30	15.5	50	48	91	-	-	-	46	93	-	-	-	312
56	**56.81**	26	16.0	46	48	90	-	-	-	45	92	-	-	-	
63	**59.90**	25	16.0	44	44	82	-	-	-	42	84	-	-	-	
71	**68.03**	22	16.0	39	44	82	-	-	-	43	85	-	-	-	
80	**76.69**	20	16.0	34	39	73	-	-	-	39	76	-	-	-	
90	**87.09**	17	16.0	30	39	74	-	-	-	39	76	-	-	-	
100	**102.65**	15	13.6	22	39	-	-	-	-	42	-	-	-	-	
112	**116.58**	13	15.5	22	39	-	-	-	-	42	-	-	-	-	
125	**130.23**	12	16.0	20	37	-	-	-	-	40	-	-	-	-	
140	**147.90**	10	16.0	18	36	-	-	-	-	39	-	-	-	-	
160	**156.58**	9.6	16.0	17	33	-	-	-	-	36	-	-	-	-	**X4K..**
180	**177.83**	8.4	16.0	15	34	-	-	-	-	36	-	-	-	-	
200	**187.42**	8.0	16.0	14	31	-	-	-	-	33	-	-	-	-	M5
224	**212.85**	7.0	16.0	12	31	-	-	-	-	33	-	-	-	-	292
250	**258.02**	5.8	16.0	10	28	-	-	-	-	30	-	-	-	-	M4
280	**293.04**	5.1	16.0	9	28	-	-	-	-	30	-	-	-	-	316
315	**310.23**	4.8	16.0	9	26	-	-	-	-	28	-	-	-	-	
355	**352.34**	4.3	16.0	8	26	-	-	-	-	28	-	-	-	-	
400	**371.33**	4.0	16.0	7	24	-	-	-	-	26	-	-	-	-	
450	**421.72**	3.6	16.0	6	24	-	-	-	-	26	-	-	-	-	
X.K130..,n_1 = 1800 min^{-1}															**16 kNm**
8	**7.95**	226	12.1	295	*)	150	-	-	-	*)	*)	-	-	-	**X2K..**
9	**9.03**	199	12.5	265	*)	150	-	-	-	*)	*)	-	-	-	
10	**9.93**	181	12.8	250	*)	150	-	-	-	*)	70	-	-	-	M5
11.2	**11.28**	160	13.0	220	*)	160	-	-	-	*)	83	-	-	-	284
12.5	**12.31**	146	13.2	210	*)	140	-	-	-	*)	110	-	-	-	M4
14	**13.98**	129	13.6	190	*)	140	-	-	-	*)	110	-	-	-	308
16	**15.90**	113	13.5	165	51	140	-	-	-	*)	91	-	-	-	
18	**18.06**	100	14.2	155	57	145	-	-	-	*)	94	-	-	-	
20	**20.45**	88	14.5	140	62	135	-	-	-	*)	120	-	-	-	
22.4	**23.23**	77	15.0	125	64	140	-	-	-	*)	125	-	-	-	
25	**25.03**	72	15.2	120	56	130	-	-	-	*)	89	-	-	-	
28	**28.43**	63	15.5	105	58	130	-	-	-	*)	91	-	-	-	**X3K..**
31.5	**32.19**	56	15.5	94	58	125	-	-	-	35	110	-	-	-	
35.5	**36.56**	49	15.5	83	59	125	-	-	-	38	115	-	-	-	M5
40	**38.71**	46	15.5	78	54	115	-	-	-	35	105	-	-	-	288
45	**43.96**	41	15.5	69	52	110	-	-	-	34	99	-	-	-	M4
50	**50.02**	36	15.5	60	49	99	-	-	-	42	98	-	-	-	312
56	**56.81**	32	16.0	55	48	98	-	-	-	42	97	-	-	-	
63	**59.90**	30	16.0	53	44	89	-	-	-	40	90	-	-	-	
71	**68.03**	26	16.0	46	44	89	-	-	-	41	90	-	-	-	
80	**76.69**	23	16.0	41	40	80	-	-	-	37	81	-	-	-	
90	**87.09**	21	16.0	36	40	80	-	-	-	38	82	-	-	-	
100	**102.65**	18	13.6	26	40	-	-	-	-	42	-	-	-	-	
112	**116.58**	15	15.5	26	40	-	-	-	-	42	-	-	-	-	
125	**130.23**	14	16.0	24	38	-	-	-	-	40	-	-	-	-	
140	**147.90**	12	16.0	21	37	-	-	-	-	40	-	-	-	-	
160	**156.58**	11	16.0	20	34	-	-	-	-	36	-	-	-	-	**X4K..**
180	**177.83**	10	16.0	18	34	-	-	-	-	36	-	-	-	-	
200	**187.42**	9.6	16.0	17	32	-	-	-	-	34	-	-	-	-	M5
224	**212.85**	8.5	16.0	15	32	-	-	-	-	34	-	-	-	-	292
250	**258.02**	7.0	16.0	12	29	-	-	-	-	31	-	-	-	-	M4
280	**293.04**	6.1	16.0	11	29	-	-	-	-	31	-	-	-	-	316
315	**310.23**	5.8	16.0	10	27	-	-	-	-	29	-	-	-	-	
355	**352.34**	5.1	16.0	9	27	-	-	-	-	28	-	-	-	-	
400	**371.33**	4.8	16.0	9	25	-	-	-	-	27	-	-	-	-	
450	**421.72**	4.3	16.0	8	25	-	-	-	-	27	-	-	-	-	

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X.K140..,n_1 = 1000 min^{-1} — **22 kNm**

i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} kW										📖
					M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.53**	153	18.5	305	78	190	-	225	295	*)	155	-	510	580	**X2K..**
7.1	**6.98**	143	19.0	290	80	190	-	220	290	*)	155	-	495	560	
8	**8.27**	121	19.7	255	81	170	-	185	245	*)	160	-	415	475	M5
9	**8.84**	113	20.1	245	82	170	-	185	240	*)	155	-	405	465	284
10	**10.10**	99	20.4	220	80	160	-	165	215	62	155	-	360	410	M4
11.2	**10.80**	93	20.8	210	81	155	-	160	215	63	150	-	350	400	308
12.5	**12.35**	81	20.8	185	84	155	-	150	205	57	145	-	320	370	
14	**13.21**	76	21.0	170	88	155	-	155	205	61	145	-	320	375	
16	**15.89**	63	21.0	145	79	140	-	130	175	74	140	-	270	315	
18	**16.99**	59	21.3	135	81	140	-	130	180	76	145	-	275	320	
20	**21.13**	47	21.9	110	77	135	-	120	165	73	135	-	240	285	
22.4	**22.60**	44	22.0	105	77	135	-	115	160	73	135	-	235	280	**X3K..**
25	**26.42**	38	22.0	90	73	125	-	110	150	70	130	-	210	255	
28	**28.25**	35	22.0	84	73	125	-	105	145	69	130	-	205	250	M5
31.5	**33.46**	30	22.0	71	65	110	-	91	125	65	115	-	175	210	288
35.5	**35.78**	28	22.0	67	65	110	-	89	125	64	115	-	170	210	M4
40	**40.78**	25	22.0	58	60	105	-	82	115	60	110	-	155	190	312
45	**43.61**	23	22.0	55	60	105	-	80	115	60	105	-	150	185	
50	**49.82**	20	22.0	48	55	95	-	73	105	56	99	-	135	165	
56	**53.28**	19	22.0	45	55	94	-	71	100	56	98	-	130	160	
63	**63.79**	16	22.0	38	49	83	-	62	88	50	87	-	110	135	
71	**68.21**	15	22.0	35	49	84	-	62	89	50	88	-	110	135	
80	**83.36**	12	22.0	29	46	-	-	56	-	50	-	-	99	-	
90	**89.14**	11	22.0	27	45	-	-	55	-	49	-	-	97	-	
100	**104.20**	9.6	22.0	23	40	-	-	48	-	44	-	-	83	-	
112	**111.42**	9.0	22.0	22	41	-	-	48	-	44	-	-	83	-	
125	**127.00**	7.9	22.0	19	39	-	-	46	-	42	-	-	76	-	**X4K..**
140	**135.81**	7.4	22.0	18	39	-	-	46	-	42	-	-	76	-	
160	**158.84**	6.3	22.0	15	36	-	-	42	-	39	-	-	68	-	M5
180	**169.85**	5.9	22.0	14	37	-	-	42	-	40	-	-	68	-	292
200	**206.44**	4.8	22.0	12	30	-	-	34	-	33	-	-	53	-	M4
224	**220.76**	4.5	22.0	11	30	-	-	34	-	33	-	-	53	-	316
250	**251.62**	4.0	22.0	10	29	-	-	33	-	32	-	-	50	-	
280	**269.07**	3.7	22.0	9	29	-	-	33	-	32	-	-	50	-	
315	**314.70**	3.2	22.0	8	27	-	-	30	-	30	-	-	45	-	
355	**336.53**	3.0	22.0	7	27	-	-	30	-	30	-	-	45	-	

X.K140..,n_1 = 1200 min^{-1} — **22 kNm**

i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5					M4					📖
6.3	**6.53**	184	18.5	365	*)	200	-	235	325	*)	110	-	530	620	**X2K..**
7.1	**6.98**	172	19.0	350	*)	200	-	230	320	*)	115	-	510	600	
8	**8.27**	145	19.7	305	*)	185	-	195	275	*)	155	-	440	520	M5
9	**8.84**	136	20.1	290	*)	185	-	190	270	*)	155	-	430	500	284
10	**10.10**	119	20.4	260	70	175	-	170	240	*)	160	-	385	450	M4
11.2	**10.80**	111	20.8	250	71	170	-	165	235	*)	160	-	375	440	308
12.5	**12.35**	97	20.8	220	74	170	-	160	225	*)	145	-	335	405	
14	**13.21**	91	21.0	205	79	175	-	160	230	*)	150	-	340	405	
16	**15.89**	76	21.0	170	78	155	-	140	195	59	150	-	295	350	
18	**16.99**	71	21.3	165	81	160	-	140	200	63	155	-	295	355	
20	**21.13**	57	21.9	135	78	150	-	125	185	66	150	-	260	315	
22.4	**22.60**	53	22.0	125	77	150	-	125	180	66	145	-	255	310	**X3K..**
25	**26.42**	45	22.0	110	74	140	-	115	170	64	140	-	230	280	
28	**28.25**	42	22.0	100	73	140	-	110	165	63	140	-	220	275	M5
31.5	**33.46**	36	22.0	86	66	125	-	97	145	63	130	-	190	235	288
35.5	**35.78**	34	22.0	80	66	125	-	95	140	63	130	-	185	230	M4
40	**40.78**	29	22.0	70	62	115	-	87	130	59	120	-	165	210	312
45	**43.61**	28	22.0	66	61	115	-	85	130	58	120	-	160	205	
50	**49.82**	24	22.0	58	57	105	-	77	115	56	110	-	145	185	
56	**53.28**	23	22.0	54	56	105	-	76	115	55	110	-	140	180	
63	**63.79**	19	22.0	45	50	93	-	65	100	50	97	-	120	155	
71	**68.21**	18	22.0	42	51	94	-	65	100	51	99	-	120	155	
80	**83.36**	14	22.0	35	47	-	-	59	-	51	-	-	105	-	
90	**89.14**	13	22.0	32	47	-	-	58	-	50	-	-	105	-	
100	**104.20**	12	22.0	28	42	-	-	51	-	45	-	-	90	-	
112	**111.42**	11	22.0	26	42	-	-	51	-	45	-	-	89	-	
125	**127.00**	9.4	22.0	23	40	-	-	48	-	43	-	-	82	-	**X4K..**
140	**135.81**	8.8	22.0	21	40	-	-	48	-	43	-	-	82	-	
160	**158.84**	7.6	22.0	18	38	-	-	44	-	40	-	-	74	-	M5
180	**169.85**	7.1	22.0	17	38	-	-	44	-	41	-	-	73	-	292
200	**206.44**	5.8	22.0	14	31	-	-	36	-	34	-	-	58	-	M4
224	**220.76**	5.4	22.0	13	31	-	-	36	-	34	-	-	57	-	316
250	**251.62**	4.8	22.0	12	30	-	-	34	-	33	-	-	54	-	
280	**269.07**	4.5	22.0	11	31	-	-	34	-	33	-	-	54	-	
315	**314.70**	3.8	22.0	9	28	-	-	32	-	31	-	-	48	-	
355	**336.53**	3.6	22.0	9	29	-	-	32	-	31	-	-	48	-	

X.K140..,n_1 = 1500 min^{-1}															22 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	6.53	230	18.5	455	*)	200	-	225	345	*)	*)	-	485	600	X2K..
7.1	6.98	215	19.0	435	*)	200	-	225	340	*)	*)	-	485	600	
8	8.27	181	19.7	385	*)	195	-	200	300	*)	110	-	460	560	M5
9	8.84	170	20.1	365	*)	195	-	195	295	*)	110	-	445	540	284
10	10.10	149	20.4	330	*)	185	-	180	270	*)	150	-	410	495	M4
11.2	10.80	139	20.8	315	*)	185	-	175	265	*)	150	-	400	485	308
12.5	12.35	121	20.8	275	*)	185	-	170	255	*)	115	-	345	430	
14	13.21	114	21.0	260	*)	190	-	170	260	*)	125	-	345	435	
16	15.89	94	21.0	215	65	170	-	150	225	*)	155	-	315	390	
18	16.99	88	21.3	205	70	175	-	150	225	*)	160	-	315	395	
20	21.13	71	21.9	170	74	170	-	135	210	*)	155	-	280	350	
22.4	22.60	66	22.0	160	75	165	-	130	205	*)	155	-	270	345	X3K..
25	26.42	57	22.0	135	73	160	-	120	190	40	145	-	245	315	
28	28.25	53	22.0	125	72	160	-	120	185	42	145	-	240	305	M5
31.5	33.46	45	22.0	105	66	140	-	105	165	56	140	-	210	270	288
35.5	35.78	42	22.0	100	66	140	-	100	160	56	140	-	200	260	M4
40	40.78	37	22.0	88	62	130	-	92	150	53	130	-	180	235	312
45	43.61	34	22.0	82	62	130	-	91	145	53	130	-	175	230	
50	49.82	30	22.0	72	58	120	-	82	135	53	125	-	160	210	
56	53.28	28	22.0	68	57	120	-	81	130	52	120	-	155	205	
63	63.79	24	22.0	57	51	105	-	69	115	48	110	-	130	175	
71	68.21	22	22.0	53	52	105	-	70	115	49	110	-	130	175	
80	83.36	18	22.0	43	48	-	-	63	-	51	-	-	120	-	
90	89.14	17	22.0	41	48	-	-	62	-	50	-	-	115	-	
100	104.20	14	22.0	35	43	-	-	54	-	45	-	-	98	-	
112	111.42	13	22.0	32	43	-	-	55	-	45	-	-	98	-	
125	127.00	12	22.0	28	41	-	-	51	-	43	-	-	90	-	X4K..
140	135.81	11	22.0	27	42	-	-	51	-	43	-	-	90	-	
160	158.84	9.4	22.0	23	39	-	-	47	-	40	-	-	80	-	M5
180	169.85	8.8	22.0	21	39	-	-	47	-	41	-	-	80	-	292
200	206.44	7.3	22.0	18	33	-	-	38	-	35	-	-	63	-	M4
224	220.76	6.8	22.0	17	33	-	-	38	-	35	-	-	63	-	316
250	251.62	6.0	22.0	15	32	-	-	37	-	34	-	-	59	-	
280	269.07	5.6	22.0	14	32	-	-	37	-	34	-	-	59	-	
315	314.70	4.8	22.0	12	30	-	-	34	-	32	-	-	53	-	
355	336.53	4.5	22.0	11	30	-	-	34	-	32	-	-	53	-	
X.K140..,n_1 = 1800 min^{-1}															22 kNm
6.3	6.53	276	17.5	520	*)	160	-	165	330	*)	*)	-	340	485	X2K..
7.1	6.98	258	18.0	495	*)	165	-	170	330	*)	*)	-	345	490	
8	8.27	218	18.6	435	*)	185	-	190	310	*)	*)	-	440	550	M5
9	8.84	204	19.0	415	*)	185	-	190	310	*)	*)	-	430	540	284
10	10.10	178	19.3	370	*)	185	-	175	285	*)	100	-	415	520	M4
11.2	10.80	167	19.7	355	*)	190	-	175	280	*)	105	-	405	510	308
12.5	12.35	146	19.8	315	*)	190	-	175	270	*)	*)	-	330	430	
14	13.21	136	19.9	295	*)	195	-	175	275	*)	*)	-	325	430	
16	15.89	113	19.9	245	*)	180	-	155	240	*)	145	-	330	415	
18	16.99	106	20.2	230	*)	185	-	155	245	*)	150	-	330	420	
20	21.13	85	20.7	190	60	180	-	140	225	*)	145	-	290	375	
22.4	22.60	80	21.1	180	63	175	-	135	220	*)	145	-	280	365	X3K..
25	26.42	68	22.0	160	65	170	-	125	205	*)	140	-	250	335	
28	28.25	64	22.0	150	67	170	-	125	205	*)	140	-	245	325	M5
31.5	33.46	54	22.0	130	65	150	-	110	180	37	145	-	220	290	288
35.5	35.78	50	22.0	120	65	150	-	105	175	39	145	-	215	285	M4
40	40.78	44	22.0	105	61	140	-	96	160	39	135	-	190	255	312
45	43.61	41	22.0	98	60	140	-	95	160	40	135	-	185	250	
50	49.82	36	22.0	87	57	130	-	86	145	47	130	-	170	230	
56	53.28	34	22.0	81	57	130	-	84	145	46	130	-	165	225	
63	63.79	28	22.0	68	51	115	-	73	125	45	115	-	140	190	
71	68.21	26	22.0	64	52	115	-	73	125	46	115	-	140	190	
80	83.36	22	22.0	52	49	-	-	66	-	49	-	-	125	-	
90	89.14	20	22.0	49	49	-	-	65	-	48	-	-	125	-	
100	104.20	17	22.0	42	44	-	-	57	-	43	-	-	105	-	
112	111.42	16	22.0	39	44	-	-	57	-	44	-	-	105	-	
125	127.00	14	22.0	34	42	-	-	54	-	42	-	-	96	-	X4K..
140	135.81	13	22.0	32	42	-	-	54	-	42	-	-	95	-	
160	158.84	11	22.0	27	40	-	-	49	-	39	-	-	85	-	M5
180	169.85	11	22.0	26	40	-	-	49	-	40	-	-	85	-	292
200	206.44	8.7	22.0	21	34	-	-	40	-	36	-	-	68	-	M4
224	220.76	8.2	22.0	20	34	-	-	40	-	36	-	-	68	-	316
250	251.62	7.2	22.0	17	33	-	-	39	-	35	-	-	64	-	
280	269.07	6.7	22.0	16	33	-	-	39	-	35	-	-	63	-	
315	314.70	5.7	22.0	14	31	-	-	35	-	33	-	-	57	-	
355	336.53	5.3	22.0	13	31	-	-	35	-	33	-	-	56	-	

X.K150..,n_1 = 1000 min^{-1}															27.5 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C					M4 20°C					📖
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**8.11**	123	23.5	310	90	210	-	250	325	*)	175	-	330	410	**X2K..**
9	**8.68**	115	24.0	295	92	210	-	245	320	*)	175	-	320	400	
10	**10.27**	97	24.6	255	91	185	-	205	270	*)	175	-	280	350	M5
11.2	**10.99**	91	25.1	245	92	185	-	200	265	63	175	-	275	340	284
12.5	**12.54**	80	25.4	220	90	170	-	180	235	73	170	-	250	310	M4
14	**13.43**	74	26.0	210	90	170	-	175	235	74	165	-	240	300	308
16	**15.34**	65	25.5	180	95	170	-	175	230	71	160	-	235	295	
18	**16.43**	61	25.8	170	95	170	-	170	225	73	160	-	230	290	
20	**19.73**	51	26.1	145	88	155	-	150	195	83	155	-	205	260	
22.4	**21.13**	47	26.5	135	85	150	-	140	190	80	150	-	195	245	
25	**26.25**	38	27.2	110	83	145	-	130	180	80	150	-	180	230	
28	**28.10**	36	27.5	105	83	145	-	130	175	79	145	-	175	225	**X3K..**
31.5	**32.81**	30	27.5	91	79	135	-	120	165	76	140	-	160	210	
35.5	**35.13**	28	27.5	85	78	135	-	115	160	75	140	-	160	205	M5
40	**41.56**	24	27.5	72	72	120	-	100	140	72	130	-	140	180	288
45	**44.50**	22	27.5	67	69	120	-	98	135	70	125	-	135	175	M4
50	**50.65**	20	27.5	59	65	110	-	90	125	65	115	-	120	160	312
56	**54.23**	18	27.5	55	64	110	-	88	125	65	115	-	120	155	
63	**61.88**	16	27.5	49	60	100	-	80	110	61	105	-	110	140	
71	**66.26**	15	27.5	45	59	100	-	78	110	60	105	-	105	140	
80	**79.22**	13	27.5	38	53	90	-	69	98	55	96	-	92	125	
90	**84.83**	12	27.5	35	53	89	-	68	97	54	95	-	90	120	
100	**103.52**	9.7	27.5	29	50	-	-	62	-	54	-	-	85	-	
112	**110.85**	9.0	27.5	27	49	-	-	61	-	54	-	-	83	-	
125	**129.41**	7.7	27.5	23	47	-	-	57	-	51	-	-	76	-	
140	**138.56**	7.2	27.5	22	47	-	-	57	-	51	-	-	76	-	
160	**157.72**	6.3	27.5	19	43	-	-	51	-	47	-	-	68	-	**X4K..**
180	**168.89**	5.9	27.5	18	43	-	-	51	-	46	-	-	67	-	
200	**197.26**	5.1	27.5	15	40	-	-	47	-	44	-	-	62	-	M5
224	**211.23**	4.7	27.5	14	40	-	-	46	-	43	-	-	61	-	292
250	**256.39**	3.9	27.5	12	34	-	-	39	-	37	-	-	51	-	M4
280	**274.54**	3.6	27.5	11	34	-	-	39	-	37	-	-	50	-	316
315	**312.49**	3.2	27.5	10	32	-	-	36	-	34	-	-	46	-	
355	**334.61**	3.0	27.5	9	32	-	-	36	-	35	-	-	45	-	
400	**390.84**	2.6	27.5	8	30	-	-	33	-	32	-	-	42	-	
450	**418.50**	2.4	27.5	7	30	-	-	33	-	32	-	-	41	-	
X.K150..,n_1 = 1200 min^{-1}															**27.5 kNm**
8	**8.11**	148	23.5	370	*)	220	-	260	360	*)	140	-	315	420	**X2K..**
9	**8.68**	138	24.0	355	*)	220	-	255	350	*)	140	-	310	415	
10	**10.27**	117	24.6	310	*)	200	-	215	300	*)	175	-	285	375	M5
11.2	**10.99**	109	25.1	295	77	200	-	210	295	*)	175	-	280	365	284
12.5	**12.54**	96	25.4	265	79	190	-	190	265	*)	175	-	255	335	M4
14	**13.43**	89	26.0	250	80	185	-	185	260	*)	175	-	250	330	308
16	**15.34**	78	25.5	215	88	185	-	185	260	*)	165	-	240	320	
18	**16.43**	73	25.8	205	90	185	-	180	255	*)	160	-	235	310	
20	**19.73**	61	26.1	170	88	170	-	160	220	73	170	-	220	285	
22.4	**21.13**	57	26.5	165	85	165	-	150	210	70	160	-	205	270	
25	**26.25**	46	27.2	135	84	160	-	140	200	73	160	-	190	255	
28	**28.10**	43	27.5	125	83	160	-	135	200	73	160	-	185	250	**X3K..**
31.5	**32.81**	37	27.5	110	80	155	-	125	185	71	150	-	170	230	
35.5	**35.13**	34	27.5	100	79	150	-	125	180	70	150	-	165	225	M5
40	**41.56**	29	27.5	86	73	140	-	110	160	71	140	-	150	205	288
45	**44.50**	27	27.5	80	71	135	-	105	155	68	135	-	145	195	M4
50	**50.65**	24	27.5	71	66	125	-	95	140	64	130	-	130	180	312
56	**54.23**	22	27.5	66	66	125	-	94	140	64	125	-	125	175	
63	**61.88**	19	27.5	58	61	115	-	85	125	61	120	-	115	160	
71	**66.26**	18	27.5	54	61	115	-	83	125	60	120	-	110	155	
80	**79.22**	15	27.5	46	55	100	-	73	110	55	105	-	98	140	
90	**84.83**	14	27.5	43	54	100	-	72	110	55	105	-	96	135	
100	**103.52**	12	27.5	35	52	-	-	66	-	56	-	-	90	-	
112	**110.85**	11	27.5	33	51	-	-	65	-	55	-	-	89	-	
125	**129.41**	9.3	27.5	28	48	-	-	60	-	52	-	-	81	-	
140	**138.56**	8.7	27.5	26	49	-	-	60	-	52	-	-	81	-	
160	**157.72**	7.6	27.5	23	45	-	-	54	-	48	-	-	72	-	**X4K..**
180	**168.89**	7.1	27.5	21	44	-	-	54	-	47	-	-	71	-	
200	**197.26**	6.1	27.5	18	42	-	-	50	-	45	-	-	65	-	M5
224	**211.23**	5.7	27.5	17	41	-	-	49	-	44	-	-	64	-	292
250	**256.39**	4.7	27.5	14	36	-	-	42	-	39	-	-	54	-	M4
280	**274.54**	4.4	27.5	13	36	-	-	41	-	39	-	-	53	-	316
315	**312.49**	3.8	27.5	12	33	-	-	38	-	36	-	-	49	-	
355	**334.61**	3.6	27.5	11	33	-	-	38	-	36	-	-	49	-	
400	**390.84**	3.1	27.5	9	31	-	-	35	-	34	-	-	45	-	
450	**418.50**	2.9	27.5	9	31	-	-	35	-	33	-	-	44	-	

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X.K150..,n_1 = 1500 min^{-1}															27.5 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C					M4 20°C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**8.11**	185	23.5	465	*)	225	-	255	380	*)	*)	-	235	375	**X2K..**
9	**8.68**	173	24.0	445	*)	225	-	255	380	*)	*)	-	235	380	
10	**10.27**	146	24.6	385	*)	215	-	225	330	*)	135	-	270	385	M5
11.2	**10.99**	136	25.1	365	*)	215	-	220	325	*)	140	-	260	375	284
12.5	**12.54**	120	25.4	330	*)	205	-	200	295	*)	170	-	255	360	M4
14	**13.43**	112	26.0	315	*)	200	-	195	290	*)	170	-	250	350	308
16	**15.34**	98	25.5	270	*)	205	-	200	290	*)	145	-	225	325	
18	**16.43**	91	25.8	255	69	205	-	195	285	*)	140	-	220	320	
20	**19.73**	76	26.1	215	80	190	-	170	255	*)	175	-	225	315	
22.4	**21.13**	71	26.5	205	77	185	-	160	240	*)	170	-	215	300	
25	**26.25**	57	27.2	170	83	180	-	150	230	45	170	-	195	280	
28	**28.10**	53	27.5	160	82	180	-	150	225	47	165	-	190	275	**X3K..**
31.5	**32.81**	46	27.5	135	79	170	-	135	210	51	160	-	175	255	
35.5	**35.13**	43	27.5	125	78	170	-	135	205	52	160	-	170	250	M5
40	**41.56**	36	27.5	110	74	155	-	120	185	64	155	-	160	230	288
45	**44.50**	34	27.5	100	71	150	-	110	175	62	150	-	150	220	M4
50	**50.65**	30	27.5	88	67	140	-	100	160	59	140	-	135	200	312
56	**54.23**	28	27.5	82	67	140	-	100	160	58	140	-	135	195	
63	**61.88**	24	27.5	73	62	130	-	91	145	58	130	-	120	180	
71	**66.26**	23	27.5	68	62	130	-	89	145	57	130	-	120	175	
80	**79.22**	19	27.5	57	56	115	-	78	125	54	120	-	105	155	
90	**84.83**	18	27.5	53	56	115	-	77	125	54	120	-	100	155	
100	**103.52**	14	27.5	44	53	-	-	71	-	56	-	-	97	-	
112	**110.85**	14	27.5	41	53	-	-	70	-	55	-	-	95	-	
125	**129.41**	12	27.5	35	50	-	-	64	-	52	-	-	87	-	
140	**138.56**	11	27.5	33	50	-	-	64	-	53	-	-	87	-	
160	**157.72**	9.5	27.5	29	46	-	-	58	-	48	-	-	77	-	**X4K..**
180	**168.89**	8.9	27.5	27	46	-	-	57	-	48	-	-	76	-	
200	**197.26**	7.6	27.5	23	43	-	-	53	-	45	-	-	70	-	M5
224	**211.23**	7.1	27.5	21	43	-	-	52	-	45	-	-	69	-	292
250	**256.39**	5.9	27.5	18	38	-	-	45	-	41	-	-	59	-	M4
280	**274.54**	5.5	27.5	17	37	-	-	44	-	40	-	-	58	-	316
315	**312.49**	4.8	27.5	15	35	-	-	40	-	37	-	-	53	-	
355	**334.61**	4.5	27.5	14	35	-	-	40	-	38	-	-	52	-	
400	**390.84**	3.8	27.5	12	33	-	-	38	-	35	-	-	48	-	
450	**418.50**	3.6	27.5	11	32	-	-	37	-	35	-	-	47	-	
X.K150..,n_1 = 1800 min^{-1}															**27.5 kNm**
8	**8.11**	222	22.2	530	*)	190	-	205	370	*)	*)	-	*)	220	**X2K..**
9	**8.68**	207	22.7	500	*)	195	-	210	370	*)	*)	-	*)	230	
10	**10.27**	175	23.2	435	*)	205	-	220	345	*)	*)	-	210	355	M5
11.2	**10.99**	164	23.8	415	*)	210	-	220	340	*)	*)	-	210	350	284
12.5	**12.54**	144	24.0	375	*)	205	-	200	315	*)	130	-	240	360	M4
14	**13.43**	134	24.7	360	*)	205	-	195	310	*)	130	-	230	350	308
16	**15.34**	117	24.2	310	*)	215	-	205	315	*)	*)	-	185	305	
18	**16.43**	110	24.5	290	*)	210	-	200	310	*)	*)	-	175	295	
20	**19.73**	91	24.7	245	64	200	-	180	275	*)	165	-	225	325	
22.4	**21.13**	85	25.1	230	60	195	-	170	265	*)	160	-	210	310	
25	**26.25**	69	27.2	200	70	190	-	160	250	*)	160	-	195	290	
28	**28.10**	64	27.5	190	72	190	-	155	245	*)	160	-	190	285	**X3K..**
31.5	**32.81**	55	27.5	165	74	185	-	140	230	*)	155	-	170	265	
35.5	**35.13**	51	27.5	155	75	180	-	140	225	*)	155	-	165	255	M5
40	**41.56**	43	27.5	130	73	165	-	125	200	49	160	-	165	245	288
45	**44.50**	40	27.5	120	70	160	-	120	190	48	155	-	155	235	M4
50	**50.65**	36	27.5	105	66	150	-	110	175	48	145	-	140	215	312
56	**54.23**	33	27.5	99	66	150	-	105	175	48	145	-	135	210	
63	**61.88**	29	27.5	88	62	140	-	96	160	52	140	-	125	195	
71	**66.26**	27	27.5	82	62	140	-	94	155	52	140	-	125	190	
80	**79.22**	23	27.5	68	56	125	-	82	140	51	125	-	110	170	
90	**84.83**	21	27.5	64	56	125	-	81	135	50	125	-	105	165	
100	**103.52**	17	27.5	52	54	-	-	75	-	54	-	-	100	-	
112	**110.85**	16	27.5	49	54	-	-	73	-	54	-	-	100	-	
125	**129.41**	14	27.5	42	51	-	-	68	-	51	-	-	91	-	
140	**138.56**	13	27.5	39	51	-	-	68	-	51	-	-	91	-	
160	**157.72**	11	27.5	34	47	-	-	61	-	47	-	-	81	-	**X4K..**
180	**168.89**	11	27.5	32	47	-	-	60	-	47	-	-	79	-	
200	**197.26**	9.1	27.5	28	44	-	-	56	-	44	-	-	73	-	M5
224	**211.23**	8.5	27.5	26	44	-	-	55	-	44	-	-	71	-	292
250	**256.39**	7.0	27.5	21	39	-	-	47	-	42	-	-	62	-	M4
280	**274.54**	6.6	27.5	20	38	-	-	46	-	41	-	-	61	-	316
315	**312.49**	5.8	27.5	18	36	-	-	43	-	38	-	-	56	-	
355	**334.61**	5.4	27.5	16	36	-	-	43	-	38	-	-	56	-	
400	**390.84**	4.6	27.5	14	34	-	-	39	-	36	-	-	51	-	
450	**418.50**	4.3	27.5	13	34	-	-	39	-	36	-	-	50	-	

X.K160..,n_1 = 1000 min^{-1}															36 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C					M4 20°C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.38**	157	30.0	500	*)	280	-	330	440	145	330	-	530	640	**X2K..**
7.1	**7.19**	139	30.8	460	*)	280	-	320	430	150	325	-	495	610	
8	**7.93**	126	31.3	425	110	260	-	285	385	150	300	-	425	520	M5
9	**8.94**	112	31.9	380	110	260	-	275	370	150	295	-	400	500	284
10	**9.69**	103	32.1	360	110	235	-	245	325	140	265	-	340	425	M4
11.2	**10.92**	92	32.5	320	115	230	-	235	315	140	265	-	320	405	308
12.5	**12.35**	81	32.5	285	130	240	-	240	320	150	270	-	315	400	
14	**13.92**	72	33.0	255	135	245	-	240	325	155	275	-	310	400	
16	**15.53**	64	33.5	235	125	220	-	205	280	140	240	-	255	335	
18	**17.51**	57	36.0	225	125	215	-	200	275	140	240	-	245	325	
20	**20.23**	49	36.0	195	125	220	-	195	270	140	245	-	235	315	
22.4	**22.80**	44	36.0	170	120	210	-	185	255	135	235	-	220	295	**X3K..**
25	**24.77**	40	36.0	160	115	200	-	175	240	130	225	-	205	275	
28	**27.91**	36	36.0	140	115	200	-	170	235	130	220	-	195	265	M5
31.5	**30.94**	32	36.0	125	110	190	-	155	215	120	205	-	175	245	288
35.5	**34.87**	29	36.0	110	105	180	-	145	205	115	200	-	165	230	M4
40	**39.12**	26	36.0	100	90	155	-	125	175	100	170	-	140	195	312
45	**44.08**	23	36.0	89	89	155	-	120	170	99	170	-	135	190	
50	**48.46**	21	36.0	81	79	135	-	105	150	88	150	-	115	165	
56	**54.62**	18	36.0	72	80	135	-	105	150	89	150	-	115	165	
63	**62.05**	16	36.0	63	72	120	-	91	130	79	135	-	99	140	
71	**69.92**	14	36.0	56	72	120	-	91	130	79	135	-	98	140	
80	**81.90**	12	36.0	48	77	-	-	95	-	85	-	-	100	-	
90	**92.30**	11	36.0	43	75	-	-	92	-	83	-	-	99	-	
100	**100.25**	10.0	36.0	39	72	-	-	86	-	79	-	-	93	-	
112	**112.98**	8.9	36.0	35	72	-	-	86	-	79	-	-	93	-	
125	**126.75**	7.9	36.0	31	62	-	-	73	-	68	-	-	78	-	**X4K..**
140	**142.85**	7.0	36.0	28	61	-	-	71	-	67	-	-	76	-	
160	**152.40**	6.6	36.0	26	57	-	-	66	-	63	-	-	71	-	M5
180	**171.76**	5.8	36.0	23	56	-	-	65	-	62	-	-	69	-	292
200	**198.63**	5.0	36.0	20	52	-	-	59	-	57	-	-	63	-	M4
224	**223.85**	4.5	36.0	18	52	-	-	59	-	57	-	-	63	-	316
250	**251.14**	4.0	36.0	16	45	-	-	51	-	50	-	-	54	-	
280	**283.03**	3.5	36.0	14	45	-	-	50	-	50	-	-	54	-	
315	**301.95**	3.3	36.0	13	42	-	-	46	-	46	-	-	49	-	
355	**340.30**	2.9	36.0	12	41	-	-	45	-	45	-	-	48	-	
X.K160..,n_1 = 1200 min^{-1}															**36 kNm**
6.3	**6.38**	188	30.0	600	*)	290	-	325	470	*)	350	-	570	710	**X2K..**
7.1	**7.19**	167	30.8	550	*)	290	-	320	460	*)	350	-	550	700	
8	**7.93**	151	31.3	510	*)	275	-	295	420	*)	325	-	475	600	M5
9	**8.94**	134	31.9	460	*)	275	-	280	405	125	325	-	445	570	284
10	**9.69**	124	32.1	430	*)	255	-	250	360	125	295	-	375	490	M4
11.2	**10.92**	110	32.5	385	*)	250	-	240	350	130	290	-	355	465	308
12.5	**12.35**	97	32.5	340	110	260	-	250	355	140	295	-	345	460	
14	**13.92**	86	33.0	310	120	270	-	250	360	150	305	-	340	455	
16	**15.53**	77	33.5	280	115	240	-	220	310	140	270	-	285	385	
18	**17.51**	69	36.0	265	120	240	-	215	305	140	270	-	270	370	
20	**20.23**	59	36.0	230	125	245	-	210	305	145	275	-	260	360	
22.4	**22.80**	53	36.0	205	120	235	-	195	285	135	260	-	240	335	**X3K..**
25	**24.77**	48	36.0	190	115	225	-	185	270	130	250	-	220	315	
28	**27.91**	43	36.0	170	115	220	-	175	265	130	245	-	210	305	M5
31.5	**30.94**	39	36.0	150	110	210	-	165	245	125	230	-	190	280	288
35.5	**34.87**	34	36.0	135	105	200	-	155	230	120	225	-	180	260	M4
40	**39.12**	31	36.0	120	91	175	-	130	195	105	190	-	150	220	312
45	**44.08**	27	36.0	105	90	170	-	125	190	100	190	-	145	215	
50	**48.46**	25	36.0	98	81	150	-	110	170	91	170	-	125	185	
56	**54.62**	22	36.0	87	82	155	-	110	170	91	170	-	125	185	
63	**62.05**	19	36.0	76	73	135	-	97	150	82	150	-	105	160	
71	**69.92**	17	36.0	68	74	135	-	96	145	82	150	-	105	160	
80	**81.90**	15	36.0	58	79	-	-	100	-	88	-	-	110	-	
90	**92.30**	13	36.0	51	78	-	-	98	-	86	-	-	105	-	
100	**100.25**	12	36.0	47	74	-	-	92	-	82	-	-	99	-	
112	**112.98**	11	36.0	42	75	-	-	91	-	82	-	-	98	-	
125	**126.75**	9.5	36.0	37	64	-	-	77	-	71	-	-	83	-	**X4K..**
140	**142.85**	8.4	36.0	33	63	-	-	75	-	69	-	-	81	-	
160	**152.40**	7.9	36.0	31	59	-	-	70	-	65	-	-	75	-	M5
180	**171.76**	7.0	36.0	28	58	-	-	68	-	64	-	-	73	-	292
200	**198.63**	6.0	36.0	24	54	-	-	63	-	60	-	-	67	-	M4
224	**223.85**	5.4	36.0	21	54	-	-	62	-	60	-	-	67	-	316
250	**251.14**	4.8	36.0	19	47	-	-	54	-	52	-	-	57	-	
280	**283.03**	4.2	36.0	17	47	-	-	53	-	52	-	-	57	-	
315	**301.95**	4.0	36.0	16	44	-	-	49	-	48	-	-	52	-	
355	**340.30**	3.5	36.0	14	43	-	-	48	-	47	-	-	51	-	

X.K160..,n_1 = 1500 min^{-1}															36 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.38**	235	30.0	760	*)	255	-	250	460	*)	355	-	550	740	**X2K..**
7.1	**7.19**	209	30.8	690	*)	260	-	260	460	*)	355	-	550	730	
8	**7.93**	189	31.3	630	*)	275	-	275	445	*)	345	-	510	680	M5
9	**8.94**	168	31.9	570	*)	275	-	275	435	*)	340	-	500	660	284
10	**9.69**	155	32.1	540	*)	270	-	255	395	*)	320	-	430	570	M4
11.2	**10.92**	137	32.5	485	*)	265	-	245	385	*)	315	-	400	540	308
12.5	**12.35**	121	32.5	430	*)	285	-	260	395	110	325	-	395	540	
14	**13.92**	108	33.0	385	*)	290	-	260	400	125	335	-	385	530	
16	**15.53**	97	33.5	350	93	265	-	230	350	125	300	-	320	450	
18	**17.51**	86	36.0	335	96	265	-	225	345	130	300	-	305	430	
20	**20.23**	74	36.0	290	110	270	-	220	340	140	305	-	290	420	
22.4	**22.80**	66	36.0	255	110	260	-	205	320	135	290	-	265	390	**X3K..**
25	**24.77**	61	36.0	235	110	250	-	195	305	130	280	-	245	365	
28	**27.91**	54	36.0	210	110	245	-	185	295	130	275	-	235	350	M5
31.5	**30.94**	48	36.0	190	110	235	-	175	275	125	260	-	215	320	288
35.5	**34.87**	43	36.0	170	105	225	-	165	265	120	250	-	200	305	M4
40	**39.12**	38	36.0	150	91	195	-	140	225	105	215	-	165	255	312
45	**44.08**	34	36.0	135	89	190	-	135	220	105	215	-	155	245	
50	**48.46**	31	36.0	120	82	170	-	120	190	93	190	-	135	215	
56	**54.62**	27	36.0	110	82	175	-	115	190	93	190	-	135	215	
63	**62.05**	24	36.0	95	75	155	-	105	170	84	170	-	115	185	
71	**69.92**	21	36.0	85	75	155	-	100	170	85	170	-	115	185	
80	**81.90**	18	36.0	72	82	-	-	110	-	91	-	-	120	-	
90	**92.30**	16	36.0	64	81	-	-	105	-	90	-	-	115	-	
100	**100.25**	15	36.0	59	77	-	-	98	-	85	-	-	105	-	
112	**112.98**	13	36.0	52	77	-	-	97	-	86	-	-	105	-	
125	**126.75**	12	36.0	47	66	-	-	82	-	74	-	-	89	-	**X4K..**
140	**142.85**	11	36.0	41	65	-	-	80	-	72	-	-	87	-	
160	**152.40**	9.8	36.0	39	62	-	-	75	-	68	-	-	81	-	M5
180	**171.76**	8.7	36.0	34	61	-	-	73	-	67	-	-	79	-	292
200	**198.63**	7.6	36.0	30	57	-	-	67	-	63	-	-	72	-	M4
224	**223.85**	6.7	36.0	27	57	-	-	66	-	63	-	-	71	-	316
250	**251.14**	6.0	36.0	24	50	-	-	57	-	55	-	-	61	-	
280	**283.03**	5.3	36.0	21	50	-	-	57	-	55	-	-	61	-	
315	**301.95**	5.0	36.0	20	46	-	-	52	-	51	-	-	56	-	
355	**340.30**	4.4	36.0	18	45	-	-	51	-	50	-	-	55	-	
X.K160..,n_1 = 1800 min^{-1}															**36 kNm**
6.3	**6.38**	282	28.5	860	*)	*)	-	*)	410	*)	305	-	510	730	**X2K..**
7.1	**7.19**	250	29.3	790	*)	*)	-	*)	420	*)	315	-	510	730	
8	**7.93**	227	29.7	720	*)	230	-	195	425	*)	330	-	495	690	M5
9	**8.94**	201	30.3	650	*)	235	-	205	420	*)	335	-	490	680	284
10	**9.69**	186	30.5	610	*)	255	-	230	405	*)	325	-	455	620	M4
11.2	**10.92**	165	31.0	550	*)	255	-	230	400	*)	320	-	440	600	308
12.5	**12.35**	146	30.8	485	*)	285	-	260	420	*)	340	-	435	600	
14	**13.92**	129	31.3	440	*)	295	-	260	425	*)	350	-	420	590	
16	**15.53**	116	31.8	400	*)	280	-	240	380	*)	320	-	355	500	
18	**17.51**	103	34.0	380	*)	280	-	235	370	105	320	-	340	485	
20	**20.23**	89	36.0	345	*)	285	-	230	370	120	325	-	320	465	
22.4	**22.80**	79	36.0	310	79	275	-	210	345	120	310	-	290	435	**X3K..**
25	**24.77**	73	36.0	285	87	265	-	200	330	120	300	-	265	405	
28	**27.91**	64	36.0	250	89	260	-	190	320	125	295	-	250	390	M5
31.5	**30.94**	58	36.0	225	100	250	-	180	300	125	280	-	230	355	288
35.5	**34.87**	52	36.0	200	99	240	-	170	285	120	270	-	215	335	M4
40	**39.12**	46	36.0	180	87	210	-	145	240	105	235	-	175	280	312
45	**44.08**	41	36.0	160	86	205	-	140	235	100	230	-	170	270	
50	**48.46**	37	36.0	145	80	185	-	125	210	93	205	-	145	240	
56	**54.62**	33	36.0	130	81	185	-	120	210	94	205	-	145	235	
63	**62.05**	29	36.0	115	74	165	-	105	185	85	185	-	125	205	
71	**69.92**	26	36.0	100	74	170	-	105	185	85	185	-	120	205	
80	**81.90**	22	36.0	87	83	-	-	115	-	94	-	-	125	-	
90	**92.30**	20	36.0	77	82	-	-	110	-	92	-	-	120	-	
100	**100.25**	18	36.0	71	78	-	-	105	-	88	-	-	115	-	
112	**112.98**	16	36.0	63	79	-	-	105	-	88	-	-	115	-	
125	**126.75**	14	36.0	56	68	-	-	86	-	76	-	-	95	-	**X4K..**
140	**142.85**	13	36.0	50	67	-	-	84	-	75	-	-	92	-	
160	**152.40**	12	36.0	47	63	-	-	79	-	71	-	-	86	-	M5
180	**171.76**	10	36.0	41	62	-	-	77	-	69	-	-	83	-	292
200	**198.63**	9.1	36.0	36	59	-	-	71	-	65	-	-	76	-	M4
224	**223.85**	8.0	36.0	32	59	-	-	70	-	65	-	-	75	-	316
250	**251.14**	7.2	36.0	29	51	-	-	60	-	57	-	-	65	-	
280	**283.03**	6.4	36.0	25	51	-	-	60	-	57	-	-	64	-	
315	**301.95**	6.0	36.0	24	48	-	-	55	-	53	-	-	59	-	
355	**340.30**	5.3	36.0	21	47	-	-	54	-	52	-	-	58	-	

X.K170..,n_1 = 1000 min^{-1}															45 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW				H_2O	+ H_2O				H_2O	+ H_2O	
8	7.93	126	37.5	510	*)	275	-	320	430	145	325	-	350	470	X2K..
9	8.92	112	38.5	460	*)	275	-	310	415	150	320	-	335	450	
10	9.86	101	39.1	425	115	270	-	290	390	155	315	-	305	415	M5
11.2	11.08	90	39.9	385	120	270	-	280	380	160	310	-	295	400	284
12.5	12.05	83	40.1	360	115	245	-	245	335	145	275	-	255	350	M4
14	13.54	74	40.6	325	120	240	-	240	325	150	275	-	245	335	308
16	15.35	65	40.8	290	135	250	-	245	330	155	275	-	240	335	
18	17.25	58	41.3	260	135	245	-	235	320	155	275	-	230	325	
20	19.30	52	41.9	235	130	225	-	210	285	145	250	-	205	290	
22.4	21.70	46	45.0	225	125	225	-	205	280	145	250	-	200	280	
25	25.15	40	45.0	195	130	230	-	200	280	145	255	-	195	280	
28	28.26	35	45.0	175	130	225	-	195	270	145	250	-	190	270	X3K..
31.5	30.78	32	45.0	160	120	210	-	175	245	135	230	-	170	250	
35.5	34.60	29	45.0	140	120	205	-	170	240	135	225	-	165	240	M5
40	38.45	26	45.0	125	115	195	-	160	225	125	215	-	155	225	288
45	43.22	23	45.0	115	110	190	-	155	215	125	210	-	150	220	M4
50	48.62	21	45.0	100	93	160	-	125	180	105	175	-	125	180	312
56	54.64	18	45.0	89	92	160	-	125	175	100	175	-	120	175	
63	60.23	17	45.0	82	82	140	-	110	155	91	155	-	105	155	
71	67.69	15	45.0	73	83	140	-	105	155	92	155	-	105	155	
80	77.11	13	45.0	64	74	125	-	94	135	82	140	-	92	135	
90	86.67	12	45.0	57	73	125	-	91	130	81	135	-	90	135	
100	101.79	9.8	45.0	48	78	-	-	95	-	85	-	-	94	-	
112	114.40	8.7	45.0	43	78	-	-	95	-	86	-	-	94	-	
125	124.60	8.0	45.0	40	74	-	-	89	-	82	-	-	89	-	
140	140.03	7.1	45.0	35	73	-	-	87	-	80	-	-	87	-	
160	157.54	6.3	45.0	31	64	-	-	75	-	70	-	-	75	-	X4K..
180	177.05	5.6	45.0	28	63	-	-	73	-	69	-	-	73	-	
200	189.42	5.3	45.0	26	58	-	-	67	-	64	-	-	68	-	M5
224	212.88	4.7	45.0	23	58	-	-	66	-	64	-	-	67	-	292
250	246.86	4.1	45.0	20	54	-	-	61	-	59	-	-	62	-	M4
280	277.45	3.6	45.0	18	53	-	-	60	-	58	-	-	61	-	316
315	312.13	3.2	45.0	16	46	-	-	51	-	51	-	-	53	-	
355	350.79	2.9	45.0	14	46	-	-	51	-	50	-	-	52	-	
400	375.29	2.7	45.0	13	43	-	-	48	-	47	-	-	49	-	
450	421.78	2.4	45.0	12	43	-	-	47	-	47	-	-	49	-	
X.K170..,n_1 = 1200 min^{-1}															45 kNm
8	7.93	151	37.5	610	*)	285	-	315	455	*)	345	-	360	510	X2K..
9	8.92	135	38.5	550	*)	285	-	310	450	*)	345	-	355	500	
10	9.86	122	39.1	510	*)	290	-	300	430	130	340	-	330	470	M5
11.2	11.08	108	39.9	465	*)	285	-	285	415	130	335	-	310	450	284
12.5	12.05	100	40.1	430	*)	265	-	255	370	135	305	-	270	395	M4
14	13.54	89	40.6	390	98	260	-	245	355	135	300	-	260	380	308
16	15.35	78	40.8	345	115	270	-	255	365	150	305	-	260	380	
18	17.25	70	41.3	310	120	270	-	245	355	155	305	-	250	365	
20	19.30	62	41.9	280	125	250	-	225	320	145	280	-	220	325	
22.4	21.70	55	45.0	270	125	250	-	215	315	145	280	-	215	320	
25	25.15	48	45.0	235	130	255	-	215	310	150	285	-	210	315	
28	28.26	42	45.0	205	130	250	-	205	300	145	280	-	200	305	X3K..
31.5	30.78	39	45.0	190	120	235	-	185	275	135	260	-	180	280	
35.5	34.60	35	45.0	170	120	230	-	180	270	135	255	-	175	275	M5
40	38.45	31	45.0	150	115	215	-	170	250	130	240	-	165	255	288
45	43.22	28	45.0	135	110	215	-	165	245	125	235	-	160	245	M4
50	48.62	25	45.0	120	95	180	-	135	200	105	200	-	130	205	312
56	54.64	22	45.0	105	93	175	-	130	195	105	195	-	125	200	
63	60.23	20	45.0	98	84	160	-	115	175	94	175	-	110	175	
71	67.69	18	45.0	87	85	160	-	115	175	95	175	-	110	175	
80	77.11	16	45.0	77	76	140	-	99	150	85	155	-	97	155	
90	86.67	14	45.0	68	75	140	-	96	150	83	155	-	95	150	
100	101.79	12	45.0	58	80	-	-	100	-	89	-	-	99	-	
112	114.40	10	45.0	52	81	-	-	100	-	89	-	-	99	-	
125	124.60	9.6	45.0	48	77	-	-	94	-	85	-	-	93	-	
140	140.03	8.6	45.0	42	76	-	-	92	-	83	-	-	91	-	
160	157.54	7.6	45.0	38	66	-	-	79	-	73	-	-	79	-	X4K..
180	177.05	6.8	45.0	33	65	-	-	77	-	72	-	-	77	-	
200	189.42	6.3	45.0	31	60	-	-	71	-	66	-	-	71	-	M5
224	212.88	5.6	45.0	28	60	-	-	70	-	66	-	-	71	-	292
250	246.86	4.9	45.0	24	56	-	-	64	-	62	-	-	65	-	M4
280	277.45	4.3	45.0	22	55	-	-	63	-	61	-	-	64	-	316
315	312.13	3.8	45.0	19	48	-	-	54	-	53	-	-	56	-	
355	350.79	3.4	45.0	17	48	-	-	54	-	53	-	-	55	-	
400	375.29	3.2	45.0	16	45	-	-	50	-	50	-	-	52	-	
450	421.78	2.8	45.0	14	45	-	-	50	-	49	-	-	51	-	

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X.K170..,n_1 = 1500 min^{-1}															45 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C					M4 20°C					📖
		min^{-1}	kNm	kW		Fan	Cooling cover H_2O	Cooling cartridge H_2O	Fan + H_2O		Fan	Cooling cover H_2O	Cooling cartridge H_2O	Fan + H_2O	
8	7.93	189	37.5	760	*)	250	-	240	450	*)	350	-	320	530	**X2K..**
9	8.92	168	38.5	690	*)	260	-	250	450	*)	355	-	325	520	
10	9.86	152	39.1	640	*)	285	-	275	455	*)	360	-	335	520	M5
11.2	11.08	135	39.9	580	*)	290	-	275	445	*)	355	-	330	510	284
12.5	12.05	124	40.1	540	*)	280	-	260	405	*)	330	-	290	450	M4
14	13.54	111	40.6	485	*)	275	-	250	390	*)	325	-	275	430	308
16	15.35	98	40.8	430	*)	295	-	265	405	120	340	-	280	435	
18	17.25	87	41.3	390	*)	290	-	255	395	125	335	-	265	420	
20	19.30	78	41.9	355	100	275	-	235	360	130	310	-	240	375	
22.4	21.70	69	45.0	335	105	275	-	230	355	135	310	-	230	365	
25	25.15	60	45.0	290	115	280	-	225	350	145	315	-	225	360	
28	28.26	53	45.0	260	120	280	-	215	340	145	310	-	215	350	**X3K..**
31.5	30.78	49	45.0	240	115	260	-	200	310	135	290	-	195	320	
35.5	34.60	43	45.0	210	115	255	-	190	305	135	285	-	190	310	M5
40	38.45	39	45.0	190	115	245	-	180	285	130	270	-	175	290	288
45	43.22	35	45.0	170	110	240	-	175	275	130	265	-	170	285	M4
50	48.62	31	45.0	150	94	200	-	140	230	110	225	-	140	235	312
56	54.64	27	45.0	135	93	200	-	135	225	105	220	-	135	230	
63	60.23	25	45.0	125	85	180	-	120	195	96	195	-	120	200	
71	67.69	22	45.0	110	85	180	-	120	195	97	200	-	115	200	
80	77.11	19	45.0	96	77	160	-	105	175	87	175	-	105	180	
90	86.67	17	45.0	85	76	160	-	100	170	86	175	-	100	175	
100	101.79	15	45.0	73	83	-	-	110	-	92	-	-	105	-	
112	114.40	13	45.0	65	84	-	-	105	-	93	-	-	105	-	
125	124.60	12	45.0	59	80	-	-	100	-	88	-	-	99	-	
140	140.03	11	45.0	53	78	-	-	98	-	87	-	-	97	-	
160	157.54	9.5	45.0	47	69	-	-	84	-	76	-	-	84	-	**X4K..**
180	177.05	8.5	45.0	42	68	-	-	82	-	75	-	-	82	-	
200	189.42	7.9	45.0	39	63	-	-	76	-	70	-	-	76	-	M5
224	212.88	7.0	45.0	35	63	-	-	75	-	70	-	-	75	-	292
250	246.86	6.1	45.0	30	59	-	-	69	-	65	-	-	69	-	M4
280	277.45	5.4	45.0	27	58	-	-	67	-	64	-	-	68	-	316
315	312.13	4.8	45.0	24	51	-	-	58	-	56	-	-	59	-	
355	350.79	4.3	45.0	21	51	-	-	58	-	56	-	-	59	-	
400	375.29	4.0	45.0	20	48	-	-	54	-	52	-	-	55	-	
450	421.78	3.6	45.0	18	47	-	-	53	-	52	-	-	55	-	
X.K170..,n_1 = 1800 min^{-1}															45 kNm
8	7.93	227	35.6	870	*)	*)	-	*)	400	*)	305	-	230	510	**X2K..**
9	8.92	202	36.6	790	*)	*)	-	*)	410	*)	315	-	245	510	
10	9.86	183	37.1	730	*)	245	-	200	435	*)	350	-	285	520	M5
11.2	11.08	162	37.7	660	*)	250	-	210	435	*)	350	-	290	510	284
12.5	12.05	149	38.0	610	*)	265	-	235	415	*)	340	-	295	480	M4
14	13.54	133	38.6	560	*)	270	-	230	405	*)	335	-	285	465	308
16	15.35	117	38.5	490	*)	300	-	265	430	*)	350	-	295	475	
18	17.25	104	39.2	445	*)	295	-	255	420	*)	350	-	280	455	
20	19.30	93	39.7	400	*)	290	-	245	390	105	330	-	255	415	
22.4	21.70	83	42.7	385	*)	290	-	235	380	110	330	-	245	400	
25	25.15	72	45.0	350	89	295	-	230	380	130	340	-	235	395	
28	28.26	64	45.0	310	95	295	-	225	365	135	335	-	225	385	**X3K..**
31.5	30.78	58	45.0	285	94	275	-	205	335	130	310	-	205	350	
35.5	34.60	52	45.0	255	98	270	-	195	325	130	305	-	195	340	M5
40	38.45	47	45.0	230	110	260	-	185	310	130	290	-	185	320	288
45	43.22	42	45.0	205	105	255	-	180	300	125	290	-	175	310	M4
50	48.62	37	45.0	180	91	215	-	145	250	105	240	-	145	255	312
56	54.64	33	45.0	160	90	215	-	140	240	105	240	-	140	250	
63	60.23	30	45.0	145	84	190	-	125	215	97	215	-	125	220	
71	67.69	27	45.0	130	84	195	-	125	215	97	215	-	120	220	
80	77.11	23	45.0	115	77	175	-	110	190	88	190	-	110	195	
90	86.67	21	45.0	100	76	170	-	105	185	87	190	-	105	190	
100	101.79	18	45.0	87	85	-	-	115	-	95	-	-	110	-	
112	114.40	16	45.0	78	85	-	-	115	-	96	-	-	110	-	
125	124.60	14	45.0	71	81	-	-	105	-	91	-	-	105	-	
140	140.03	13	45.0	63	80	-	-	105	-	90	-	-	100	-	
160	157.54	11	45.0	56	70	-	-	89	-	79	-	-	88	-	**X4K..**
180	177.05	10	45.0	50	69	-	-	86	-	77	-	-	86	-	
200	189.42	9.5	45.0	47	64	-	-	79	-	72	-	-	79	-	M5
224	212.88	8.5	45.0	42	64	-	-	79	-	72	-	-	79	-	292
250	246.86	7.3	45.0	36	61	-	-	73	-	67	-	-	73	-	M4
280	277.45	6.5	45.0	32	60	-	-	71	-	66	-	-	71	-	316
315	312.13	5.8	45.0	29	53	-	-	61	-	58	-	-	62	-	
355	350.79	5.1	45.0	26	52	-	-	61	-	58	-	-	62	-	
400	375.29	4.8	45.0	24	49	-	-	57	-	54	-	-	58	-	
450	421.78	4.3	45.0	21	49	-	-	56	-	54	-	-	57	-	

X.K180..,n_1 = 1000 min^{-1}															58 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C					M4 20°C					📖
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.32**	158	50.1	850	*)	220	400	350	490	*)	300	470	630	760	**X2K..**
7.1	**7.07**	141	51.0	770	*)	240	410	365	500	*)	325	480	640	780	
8	**8.00**	125	51.7	690	*)	235	350	310	425	*)	290	405	500	620	M5
9	**8.96**	112	52.5	630	*)	245	355	315	435	*)	305	410	495	620	284
10	**9.77**	102	53.2	590	*)	235	315	285	385	*)	280	365	420	530	M4
11.2	**10.95**	91	54.2	540	*)	245	315	285	390	155	290	365	415	520	308
12.5	**12.57**	80	52.9	455	130	250	320	265	360	165	285	350	360	465	
14	**14.08**	71	54.1	415	135	255	320	265	365	170	290	350	355	460	
16	**16.17**	62	54.4	365	145	240	290	240	330	165	270	315	305	400	
18	**18.11**	55	58.0	345	150	250	290	245	335	175	275	315	305	400	
20	**19.74**	51	58.0	320	140	230	265	225	305	160	260	290	275	365	
22.4	**22.10**	45	58.0	285	150	240	275	230	315	170	270	300	280	375	**X3K..**
25	**25.55**	39	58.0	245	135	220	240	200	280	155	245	260	240	325	
28	**28.61**	35	58.0	220	135	220	240	200	280	155	245	260	235	320	M5
31.5	**32.36**	31	58.0	195	120	195	205	170	240	135	215	225	200	275	288
35.5	**36.24**	28	58.0	175	125	200	210	175	245	140	225	230	200	280	M4
40	**38.93**	26	58.0	160	115	180	185	155	220	125	200	200	175	245	312
45	**43.60**	23	58.0	145	115	180	185	155	220	130	200	200	175	245	
50	**47.57**	21	58.0	135	100	160	160	135	190	115	180	175	150	215	
56	**53.27**	19	58.0	120	105	165	165	135	195	115	185	180	150	215	
63	**60.90**	16	58.0	105	91	145	140	115	165	100	155	150	125	180	
71	**68.20**	15	58.0	93	93	145	140	115	170	105	160	155	130	185	
80	**79.89**	13	58.0	80	86	-	-	105	-	95	-	-	115	-	
90	**89.46**	11	58.0	71	88	-	-	105	-	97	-	-	115	-	
100	**103.42**	9.7	58.0	61	81	-	-	97	-	90	-	-	105	-	
112	**115.81**	8.6	58.0	55	83	-	-	99	-	92	-	-	105	-	
125	**124.41**	8.0	58.0	51	75	-	-	89	-	83	-	-	96	-	**X4K..**
140	**139.32**	7.2	58.0	46	77	-	-	90	-	85	-	-	97	-	
160	**153.68**	6.5	58.0	41	68	-	-	79	-	76	-	-	85	-	M5
180	**172.10**	5.8	58.0	37	69	-	-	79	-	76	-	-	85	-	292
200	**204.90**	4.9	58.0	31	62	-	-	70	-	68	-	-	75	-	M4
224	**229.46**	4.4	58.0	28	63	-	-	71	-	70	-	-	76	-	316
250	**246.49**	4.1	58.0	26	58	-	-	64	-	63	-	-	69	-	
280	**276.03**	3.6	58.0	23	58	-	-	64	-	63	-	-	69	-	
315	**304.49**	3.3	58.0	21	52	-	-	57	-	57	-	-	61	-	
355	**340.98**	2.9	58.0	19	53	-	-	58	-	58	-	-	62	-	
X.K180..,n_1 = 1200 min^{-1}															**58 kNm**
6.3	**6.32**	190	50.1	1000	*)	*)	340	280	485	*)	290	440	620	790	**X2K..**
7.1	**7.07**	170	51.0	930	*)	*)	365	305	510	*)	310	465	640	830	
8	**8.00**	150	51.7	830	*)	220	345	295	455	*)	295	415	560	700	M5
9	**8.96**	134	52.5	750	*)	235	350	300	465	*)	315	415	540	700	284
10	**9.77**	123	53.2	710	*)	240	325	280	420	*)	300	375	465	600	M4
11.2	**10.95**	110	54.2	640	*)	250	325	285	425	*)	310	380	455	600	308
12.5	**12.57**	95	52.9	550	*)	265	335	275	400	145	310	370	400	530	
14	**14.08**	85	54.1	500	*)	275	335	275	405	155	320	370	390	530	
16	**16.17**	74	54.4	440	130	265	305	255	365	160	300	335	340	460	
18	**18.11**	66	58.0	415	135	275	305	255	375	165	310	335	335	460	
20	**19.74**	61	58.0	380	130	255	280	235	345	160	290	310	300	415	
22.4	**22.10**	54	58.0	340	140	265	290	240	355	170	300	315	305	425	**X3K..**
25	**25.55**	47	58.0	295	130	240	250	210	310	155	270	275	260	370	
28	**28.61**	42	58.0	265	135	245	250	205	310	155	275	275	255	365	M5
31.5	**32.36**	37	58.0	235	120	215	215	180	270	140	240	235	215	310	288
35.5	**36.24**	33	58.0	210	125	225	220	180	275	145	250	240	215	315	M4
40	**38.93**	31	58.0	195	115	200	195	160	245	130	225	215	190	280	312
45	**43.60**	28	58.0	175	115	200	195	160	245	130	225	215	185	275	
50	**47.57**	25	58.0	160	105	180	170	140	215	115	200	190	160	240	
56	**53.27**	23	58.0	145	105	185	175	145	220	120	205	190	165	245	
63	**60.90**	20	58.0	125	93	160	145	120	185	105	175	160	135	205	
71	**68.20**	18	58.0	110	95	165	145	125	190	105	180	165	135	210	
80	**79.89**	15	58.0	96	88	-	-	110	-	98	-	-	125	-	
90	**89.46**	13	58.0	85	90	-	-	115	-	100	-	-	125	-	
100	**103.42**	12	58.0	74	84	-	-	105	-	93	-	-	115	-	
112	**115.81**	10	58.0	66	86	-	-	105	-	95	-	-	115	-	
125	**124.41**	9.6	58.0	61	78	-	-	93	-	86	-	-	100	-	**X4K..**
140	**139.32**	8.6	58.0	55	79	-	-	94	-	88	-	-	105	-	
160	**153.68**	7.8	58.0	50	71	-	-	83	-	79	-	-	90	-	M5
180	**172.10**	7.0	58.0	44	71	-	-	83	-	79	-	-	90	-	292
200	**204.90**	5.9	58.0	38	64	-	-	73	-	71	-	-	79	-	M4
224	**229.46**	5.2	58.0	34	66	-	-	75	-	73	-	-	81	-	316
250	**246.49**	4.9	58.0	31	60	-	-	68	-	66	-	-	73	-	
280	**276.03**	4.3	58.0	28	60	-	-	67	-	66	-	-	72	-	
315	**304.49**	3.9	58.0	25	54	-	-	60	-	59	-	-	65	-	
355	**340.98**	3.5	58.0	23	55	-	-	61	-	61	-	-	66	-	

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X.K180..,n_1 = 1500 min^{-1}															58 kNm
					P_{TH} kW										
					M5				20°C	M4				20°C	📖
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
		min^{-1}	kNm	kW											
6.3	**6.32**	237	50.1	1250	*)	*)	*)	*)	405	*)	*)	330	560	790	**X2K..**
7.1	**7.07**	212	51.0	1150	*)	*)	*)	*)	440	*)	*)	360	590	830	
8	**8.00**	188	51.7	1050	*)	*)	260	*)	435	*)	270	360	540	730	M5
9	**8.96**	167	52.5	940	*)	*)	280	*)	460	*)	290	380	560	760	284
10	**9.77**	154	53.2	880	*)	*)	305	255	450	*)	300	375	520	700	M4
11.2	**10.95**	137	54.2	800	*)	230	305	260	455	*)	315	385	510	690	308
12.5	**12.57**	119	52.9	680	*)	270	345	265	435	*)	335	390	445	620	
14	**14.08**	107	54.1	620	*)	280	345	265	440	*)	340	390	435	610	
16	**16.17**	93	54.4	550	*)	285	320	265	410	140	330	355	380	540	
18	**18.11**	83	58.0	520	*)	295	325	265	415	150	340	360	375	540	
20	**19.74**	76	58.0	480	*)	280	295	245	385	145	320	330	335	485	
22.4	**22.10**	68	58.0	425	120	290	300	250	395	155	335	335	335	495	**X3K..**
25	**25.55**	59	58.0	370	110	265	265	215	350	140	300	295	285	425	
28	**28.61**	52	58.0	330	115	265	260	215	350	145	305	290	280	420	M5
31.5	**32.36**	46	58.0	290	110	240	225	190	305	135	270	255	235	360	288
35.5	**36.24**	41	58.0	260	120	250	230	190	310	140	280	255	235	365	M4
40	**38.93**	39	58.0	240	105	225	205	170	275	130	250	230	205	320	312
45	**43.60**	34	58.0	215	110	225	205	165	275	130	255	225	200	320	
50	**47.57**	32	58.0	200	100	205	180	150	245	120	225	200	175	280	
56	**53.27**	28	58.0	180	105	210	180	150	250	120	235	205	175	285	
63	**60.90**	25	58.0	155	93	180	155	130	210	105	200	170	150	240	
71	**68.20**	22	58.0	140	95	185	155	130	215	110	205	175	150	240	
80	**79.89**	19	58.0	120	90	-	-	120	-	100	-	-	135	-	
90	**89.46**	17	58.0	105	92	-	-	120	-	105	-	-	135	-	
100	**103.42**	15	58.0	92	86	-	-	110	-	96	-	-	120	-	
112	**115.81**	13	58.0	82	88	-	-	110	-	99	-	-	120	-	
125	**124.41**	12	58.0	77	79	-	-	99	-	89	-	-	110	-	**X4K..**
140	**139.32**	11	58.0	68	81	-	-	99	-	91	-	-	110	-	
160	**153.68**	9.8	58.0	62	73	-	-	88	-	81	-	-	97	-	M5
180	**172.10**	8.7	58.0	55	73	-	-	87	-	82	-	-	96	-	292
200	**204.90**	7.3	58.0	47	67	-	-	78	-	74	-	-	85	-	M4
224	**229.46**	6.5	58.0	42	69	-	-	80	-	76	-	-	86	-	316
250	**246.49**	6.1	58.0	39	62	-	-	72	-	69	-	-	78	-	
280	**276.03**	5.4	58.0	35	62	-	-	71	-	69	-	-	77	-	
315	**304.49**	4.9	58.0	32	56	-	-	64	-	62	-	-	69	-	
355	**340.98**	4.4	58.0	28	57	-	-	65	-	64	-	-	70	-	

X.K180..,n_1 = 1800 min^{-1}															58 kNm
6.3[1]	**6.32**	285	47.3	1450	*)	*)	*)	*)	*)	*)	*)	*)	415	740	**X2K..**
7.1[1]	**7.07**	255	48.2	1300	*)	*)	*)	*)	*)	*)	*)	*)	455	780	
8[1]	**8.00**	225	48.8	1200	*)	*)	*)	*)	355	*)	*)	*)	470	720	M5
9[1]	**8.96**	201	49.6	1050	*)	*)	*)	*)	380	*)	*)	290	500	740	284
10[1]	**9.77**	184	50.3	1000	*)	*)	*)	*)	420	*)	265	325	500	700	M4
11.2[1]	**10.95**	164	51.2	910	*)	*)	245	*)	440	*)	285	345	520	730	308
12.5	**12.57**	143	50.1	780	*)	235	330	235	450	*)	320	395	485	680	
14	**14.08**	128	51.1	710	*)	250	330	235	455	*)	335	390	470	670	
16	**16.17**	111	51.4	620	*)	290	330	260	440	*)	345	370	420	600	
18	**18.11**	99	54.8	590	*)	300	330	260	445	*)	355	375	410	600	
20	**19.74**	91	56.0	550	*)	285	305	240	410	*)	335	340	365	540	
22.4	**22.10**	81	58.0	510	*)	300	310	250	420	130	350	350	365	550	**X3K..**
25	**25.55**	70	58.0	445	*)	270	265	215	370	120	315	305	305	470	
28	**28.61**	63	58.0	395	*)	275	265	210	370	125	320	300	295	465	M5
31.5	**32.36**	56	58.0	350	95	250	235	190	325	125	290	265	250	395	288
35.5	**36.24**	50	58.0	310	100	260	240	195	335	135	300	270	250	400	M4
40	**38.93**	46	58.0	290	93	235	210	170	300	120	270	240	220	355	312
45	**43.60**	41	58.0	260	97	235	210	170	295	125	270	235	215	350	
50	**47.57**	38	58.0	240	94	215	185	155	265	115	245	210	190	310	
56	**53.27**	34	58.0	215	99	220	190	155	270	120	250	210	190	310	
63	**60.90**	30	58.0	190	91	195	160	135	230	105	215	180	160	265	
71	**68.20**	26	58.0	165	93	200	165	135	235	110	220	180	155	265	
80	**79.89**	23	58.0	145	90	-	-	125	-	105	-	-	140	-	
90	**89.46**	20	58.0	130	92	-	-	125	-	105	-	-	140	-	
100	**103.42**	17	58.0	110	86	-	-	115	-	98	-	-	130	-	
112	**115.81**	16	58.0	99	88	-	-	115	-	100	-	-	130	-	
125	**124.41**	14	58.0	92	80	-	-	100	-	91	-	-	115	-	**X4K..**
140	**139.32**	13	58.0	82	81	-	-	105	-	93	-	-	115	-	
160	**153.68**	12	58.0	74	73	-	-	91	-	83	-	-	100	-	M5
180	**172.10**	10	58.0	67	73	-	-	90	-	83	-	-	100	-	292
200	**204.90**	8.8	58.0	56	69	-	-	82	-	77	-	-	90	-	M4
224	**229.46**	7.8	58.0	50	70	-	-	83	-	79	-	-	91	-	316
250	**246.49**	7.3	58.0	47	64	-	-	75	-	72	-	-	82	-	
280	**276.03**	6.5	58.0	42	64	-	-	75	-	71	-	-	81	-	
315	**304.49**	5.9	58.0	38	58	-	-	67	-	64	-	-	73	-	
355	**340.98**	5.3	58.0	34	59	-	-	68	-	66	-	-	74	-	

X.K190..,n_1 = 1000 min^{-1}															65 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	📖
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**7.05**	142	55.4	840	*)	240	425	370	520	*)	325	495	440	590	**X2K..**
8	**7.92**	126	56.2	760	*)	245	415	365	510	*)	330	485	425	580	
9	**8.93**	112	57.3	690	*)	250	370	330	450	*)	315	425	365	495	M5
10	**10.04**	100	58.4	620	*)	255	355	320	440	*)	315	415	350	480	284
11.2	**10.91**	92	59.3	590	*)	255	330	300	405	155	300	380	315	435	M4
12.5	**12.26**	82	60.8	540	*)	255	320	285	395	160	295	370	305	420	308
14	**14.04**	71	59.2	455	140	260	335	285	385	175	300	365	290	405	
16	**15.77**	63	60.6	415	145	270	335	285	390	180	305	370	290	405	
18	**18.05**	55	60.8	365	150	255	300	255	350	175	285	325	255	360	
20	**20.29**	49	65.0	345	160	260	305	260	355	180	290	330	260	360	
22.4	**22.04**	45	65.0	320	150	245	275	235	325	170	270	305	235	330	
25	**24.77**	40	65.0	285	150	245	275	235	325	175	275	300	235	330	**X3K..**
28	**28.53**	35	65.0	245	140	230	250	210	295	160	255	275	210	300	
31.5	**32.06**	31	65.0	220	145	235	250	210	295	160	260	275	210	300	M5
35.5	**36.14**	28	65.0	195	125	205	210	180	255	145	225	235	175	255	288
40	**40.61**	25	65.0	175	130	210	215	185	260	150	235	240	180	265	M4
45	**43.48**	23	65.0	160	120	190	190	160	230	130	210	210	160	235	312
50	**48.85**	20	65.0	145	120	190	190	160	230	135	210	210	160	235	
56	**53.11**	19	65.0	135	110	175	170	145	205	120	190	185	140	210	
63	**59.68**	17	65.0	120	110	175	170	145	205	120	190	185	140	210	
71	**68.00**	15	65.0	105	94	150	145	120	175	105	165	155	120	175	
80	**76.41**	13	65.0	93	96	150	145	120	175	105	165	160	120	180	
90	**89.21**	11	65.0	80	92	-	-	115	-	100	-	-	115	-	
100	**100.24**	10.0	65.0	71	93	-	-	115	-	105	-	-	115	-	
112	**115.48**	8.7	65.0	62	88	-	-	105	-	97	-	-	105	-	
125	**129.76**	7.7	65.0	55	88	-	-	105	-	97	-	-	105	-	
140	**138.93**	7.2	65.0	51	81	-	-	95	-	89	-	-	96	-	**X4K..**
160	**156.11**	6.4	65.0	46	81	-	-	94	-	90	-	-	96	-	
180	**171.61**	5.8	65.0	42	73	-	-	85	-	81	-	-	86	-	M5
200	**192.84**	5.2	65.0	37	72	-	-	83	-	80	-	-	85	-	292
224	**228.80**	4.4	65.0	31	67	-	-	75	-	73	-	-	77	-	M4
250	**257.10**	3.9	65.0	28	68	-	-	76	-	74	-	-	78	-	316
280	**275.25**	3.6	65.0	26	62	-	-	69	-	68	-	-	71	-	
315	**309.29**	3.2	65.0	23	62	-	-	69	-	68	-	-	71	-	
355	**340.02**	2.9	65.0	21	56	-	-	61	-	61	-	-	63	-	
400	**382.06**	2.6	65.0	19	56	-	-	61	-	62	-	-	64	-	
X.K190..,n_1 = 1200 min^{-1}															**65 kNm**
7.1	**7.05**	170	55.4	1000	*)	*)	360	295	510	*)	315	465	395	610	**X2K..**
8	**7.92**	152	56.2	910	*)	*)	370	305	510	*)	320	465	400	610	
9	**8.93**	134	57.3	820	*)	235	365	315	480	*)	320	435	385	550	M5
10	**10.04**	120	58.4	750	*)	245	355	305	470	*)	325	420	365	530	284
11.2	**10.91**	110	59.3	710	*)	255	340	300	440	*)	320	395	335	490	M4
12.5	**12.26**	98	60.8	640	*)	260	325	290	430	*)	320	385	320	470	308
14	**14.04**	85	59.2	550	*)	280	350	295	425	155	325	385	310	455	
16	**15.77**	76	60.6	500	*)	290	350	295	430	165	335	385	310	455	
18	**18.05**	66	60.8	440	140	280	320	270	390	170	315	350	275	405	
20	**20.29**	59	65.0	415	145	285	320	275	395	180	325	350	275	410	
22.4	**22.04**	54	65.0	385	140	270	295	250	365	170	300	320	250	375	
25	**24.77**	48	65.0	340	145	270	290	245	365	175	305	320	245	375	**X3K..**
28	**28.53**	42	65.0	295	135	255	260	220	330	160	285	290	220	340	
31.5	**32.06**	37	65.0	265	140	255	260	220	330	165	290	290	220	340	M5
35.5	**36.14**	33	65.0	235	125	225	225	190	285	145	250	245	185	290	288
40	**40.61**	30	65.0	210	130	235	230	195	290	150	260	250	190	300	M4
45	**43.48**	28	65.0	195	120	210	200	170	260	135	235	220	170	265	312
50	**48.85**	25	65.0	175	120	210	200	170	255	135	235	220	165	265	
56	**53.11**	23	65.0	160	110	195	180	150	230	125	215	200	150	235	
63	**59.68**	20	65.0	145	110	195	180	150	230	125	215	195	150	235	
71	**68.00**	18	65.0	125	96	165	150	125	195	110	185	165	125	200	
80	**76.41**	16	65.0	110	99	170	150	130	200	110	190	170	125	205	
90	**89.21**	13	65.0	96	95	-	-	120	-	105	-	-	120	-	
100	**100.24**	12	65.0	85	96	-	-	120	-	105	-	-	120	-	
112	**115.48**	10	65.0	74	90	-	-	110	-	100	-	-	110	-	
125	**129.76**	9.2	65.0	66	91	-	-	110	-	100	-	-	110	-	
140	**138.93**	8.6	65.0	62	83	-	-	100	-	93	-	-	100	-	**X4K..**
160	**156.11**	7.7	65.0	55	84	-	-	99	-	93	-	-	100	-	
180	**171.61**	7.0	65.0	50	76	-	-	89	-	84	-	-	90	-	M5
200	**192.84**	6.2	65.0	44	75	-	-	87	-	83	-	-	89	-	292
224	**228.80**	5.2	65.0	38	69	-	-	79	-	76	-	-	81	-	M4
250	**257.10**	4.7	65.0	34	70	-	-	80	-	78	-	-	82	-	316
280	**275.25**	4.4	65.0	31	65	-	-	73	-	71	-	-	75	-	
315	**309.29**	3.9	65.0	28	64	-	-	72	-	71	-	-	74	-	
355	**340.02**	3.5	65.0	25	58	-	-	64	-	64	-	-	67	-	
400	**382.06**	3.1	65.0	23	58	-	-	65	-	64	-	-	67	-	

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X.K190..,n_1 = 1500 min^{-1}															65 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**7.05**	213	55.4	1250	*)	*)	*)	*)	430	*)	*)	345	*)	590	**X2K..**
8	**7.92**	189	56.2	1150	*)	*)	*)	*)	445	*)	*)	360	*)	590	
9	**8.93**	168	57.3	1050	*)	*)	275	*)	460	*)	290	380	315	560	M5
10	**10.04**	149	58.4	930	*)	*)	285	*)	465	*)	300	385	320	560	284
11.2	**10.91**	137	59.3	880	*)	235	320	270	470	*)	320	395	340	550	M4
12.5	**12.26**	122	60.8	800	*)	240	310	260	460	*)	325	385	325	530	308
14	**14.04**	107	59.2	690	*)	285	360	290	470	*)	350	405	330	520	
16	**15.77**	95	60.6	620	*)	300	360	295	470	*)	360	405	325	520	
18	**18.05**	83	60.8	550	*)	300	335	285	435	150	345	370	300	465	
20	**20.29**	74	65.0	520	*)	310	335	285	445	160	360	375	295	470	
22.4	**22.04**	68	65.0	480	*)	295	310	260	410	150	335	345	270	430	
25	**24.77**	61	65.0	425	120	295	305	255	410	160	340	340	265	430	**X3K..**
28	**28.53**	53	65.0	370	115	275	275	230	370	150	315	305	235	385	
31.5	**32.06**	47	65.0	330	120	280	270	230	370	155	320	305	230	385	M5
35.5	**36.14**	42	65.0	290	120	250	235	200	320	145	280	260	200	330	288
40	**40.61**	37	65.0	260	125	260	240	200	330	150	295	265	200	340	M4
45	**43.48**	34	65.0	245	115	235	210	180	290	135	260	235	180	300	312
50	**48.85**	31	65.0	215	115	235	210	175	290	135	265	235	175	300	
56	**53.11**	28	65.0	200	110	215	190	160	265	125	240	210	160	270	
63	**59.68**	25	65.0	180	110	215	190	160	260	125	245	210	155	270	
71	**68.00**	22	65.0	155	97	190	160	135	220	110	210	180	135	230	
80	**76.41**	20	65.0	140	99	190	160	135	225	115	215	180	135	230	
90	**89.21**	17	65.0	120	97	-	-	130	-	110	-	-	125	-	
100	**100.24**	15	65.0	105	98	-	-	125	-	110	-	-	125	-	
112	**115.48**	13	65.0	93	93	-	-	115	-	105	-	-	115	-	
125	**129.76**	12	65.0	82	93	-	-	115	-	105	-	-	115	-	
140	**138.93**	11	65.0	77	85	-	-	105	-	96	-	-	105	-	**X4K..**
160	**156.11**	9.6	65.0	68	86	-	-	105	-	96	-	-	105	-	
180	**171.61**	8.7	65.0	62	78	-	-	94	-	87	-	-	95	-	M5
200	**192.84**	7.8	65.0	55	77	-	-	92	-	86	-	-	93	-	292
224	**228.80**	6.6	65.0	47	72	-	-	84	-	80	-	-	86	-	M4
250	**257.10**	5.8	65.0	42	73	-	-	85	-	81	-	-	87	-	316
280	**275.25**	5.4	65.0	39	67	-	-	77	-	75	-	-	79	-	
315	**309.29**	4.8	65.0	35	67	-	-	77	-	74	-	-	79	-	
355	**340.02**	4.4	65.0	32	60	-	-	68	-	67	-	-	70	-	
400	**382.06**	3.9	65.0	28	61	-	-	69	-	68	-	-	71	-	
X.K190..,n_1 = 1800 min^{-1}															**65 kNm**
7.1[1]	**7.05**	255	52.4	1450	*)	*)	*)	*)	*)	*)	*)	*)	*)	475	**X2K..**
8[1]	**7.92**	227	53.1	1300	*)	*)	*)	*)	*)	*)	*)	*)	*)	490	
9[1]	**8.93**	202	54.2	1150	*)	*)	*)	*)	375	*)	*)	*)	*)	520	M5
10[1]	**10.04**	179	55.2	1050	*)	*)	*)	*)	385	*)	*)	290	*)	530	284
11.2[1]	**10.91**	165	56.0	1000	*)	*)	*)	*)	440	*)	285	340	280	540	M4
12.5[1]	**12.26**	147	57.5	910	*)	*)	245	*)	445	*)	295	345	290	540	308
14	**14.04**	128	56.0	780	*)	255	345	260	485	*)	345	410	330	560	
16	**15.77**	114	57.4	710	*)	270	345	260	485	*)	360	410	325	550	
18	**18.05**	100	57.5	620	*)	305	345	285	465	*)	360	385	315	510	
20	**20.29**	89	61.4	590	*)	320	345	285	475	*)	375	390	310	510	
22.4	**22.04**	82	62.5	550	*)	300	315	260	435	*)	350	355	280	470	
25	**24.77**	73	65.0	510	*)	305	310	260	435	135	355	355	275	465	**X3K..**
28	**28.53**	63	65.0	445	*)	285	280	230	395	130	330	315	240	420	
31.5	**32.06**	56	65.0	395	*)	290	275	230	395	135	335	315	235	420	M5
35.5	**36.14**	50	65.0	350	100	265	245	205	345	135	300	275	210	360	288
40	**40.61**	44	65.0	310	110	275	245	205	355	145	310	280	210	370	M4
45	**43.48**	41	65.0	290	99	245	220	180	315	130	280	245	185	330	312
50	**48.85**	37	65.0	260	105	250	215	180	310	130	280	245	180	325	
56	**53.11**	34	65.0	240	100	230	195	165	285	125	260	220	165	295	
63	**59.68**	30	65.0	215	105	230	195	165	285	125	260	220	165	295	
71	**68.00**	26	65.0	190	95	200	165	140	240	110	225	185	140	250	
80	**76.41**	24	65.0	170	97	205	170	140	245	115	230	190	140	255	
90	**89.21**	20	65.0	145	98	-	-	135	-	110	-	-	130	-	
100	**100.24**	18	65.0	130	98	-	-	130	-	110	-	-	130	-	
112	**115.48**	16	65.0	110	93	-	-	120	-	105	-	-	120	-	
125	**129.76**	14	65.0	99	93	-	-	120	-	105	-	-	120	-	
140	**138.93**	13	65.0	92	86	-	-	110	-	98	-	-	110	-	**X4K..**
160	**156.11**	12	65.0	82	86	-	-	110	-	98	-	-	110	-	
180	**171.61**	10	65.0	75	78	-	-	98	-	89	-	-	99	-	M5
200	**192.84**	9.3	65.0	67	77	-	-	95	-	88	-	-	97	-	292
224	**228.80**	7.9	65.0	57	74	-	-	88	-	83	-	-	90	-	M4
250	**257.10**	7.0	65.0	50	75	-	-	89	-	84	-	-	91	-	316
280	**275.25**	6.5	65.0	47	69	-	-	81	-	77	-	-	83	-	
315	**309.29**	5.8	65.0	42	69	-	-	80	-	77	-	-	82	-	
355	**340.02**	5.3	65.0	38	62	-	-	71	-	69	-	-	73	-	
400	**382.06**	4.7	65.0	34	63	-	-	72	-	70	-	-	74	-	

X.K200..,n_1 = 1000 min^{-1}															79 kNm
					P_{TH} kW										
					M5 20°C					M4 20°C					📖
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.40**	156	56.6	950	*)	255	540	395	590	*)	380	630	760	950	**X2K..**
7.1	**7.26**	138	58.0	860	*)	265	540	405	590	*)	385	630	760	940	
8	**8.11**	123	59.1	780	*)	290	510	390	550	*)	380	580	670	830	M5
9	**9.20**	109	60.4	700	*)	295	485	375	530	*)	380	560	620	790	284
10	**9.91**	101	60.9	660	*)	305	445	355	490	185	360	500	540	680	M4
11.2	**11.24**	89	62.2	600	*)	300	430	340	475	190	360	485	510	650	308
12.5	**12.45**	80	66.5	580	155	315	460	340	470	200	365	495	480	620	
14	**14.12**	71	68.9	530	155	310	445	325	455	205	360	480	455	590	
16	**16.32**	61	72.2	480	175	305	405	305	420	210	340	430	395	520	
18	**18.50**	54	75.1	440	175	300	390	295	405	205	340	415	375	495	
20	**20.56**	49	78.1	410	170	290	365	275	385	200	325	390	350	465	
22.4	**23.31**	43	79.0	365	165	280	345	260	365	195	315	370	325	435	**X3K..**
25	**25.72**	39	79.0	335	155	260	315	240	335	180	295	340	290	395	
28	**29.17**	34	79.0	295	155	255	305	230	325	180	290	325	280	380	M5
31.5	**31.97**	31	79.0	270	150	240	275	210	295	165	265	295	245	340	288
35.5	**36.26**	28	79.0	235	145	235	265	205	290	165	260	285	235	325	M4
40	**39.61**	25	79.0	215	145	230	260	200	280	165	255	275	225	320	312
45	**44.92**	22	79.0	190	140	225	245	185	270	155	245	260	215	300	
50	**48.39**	21	79.0	180	135	215	230	175	255	150	235	245	200	285	
56	**54.88**	18	79.0	160	135	215	230	175	250	150	235	245	195	280	
63	**61.95**	16	79.0	140	120	195	205	155	225	135	215	215	175	250	
71	**70.26**	14	79.0	125	120	190	195	150	220	135	210	210	170	240	
80	**79.69**	13	78.0	105	115	-	-	140	-	125	-	-	155	-	
90	**90.37**	11	79.0	96	115	-	-	140	-	125	-	-	150	-	
100	**99.70**	10	79.0	87	105	-	-	125	-	115	-	-	140	-	
112	**113.07**	8.8	79.0	77	105	-	-	125	-	115	-	-	135	-	
125	**123.51**	8.1	79.0	70	105	-	-	125	-	115	-	-	135	-	**X4K..**
140	**140.07**	7.1	79.0	62	105	-	-	120	-	115	-	-	130	-	
160	**152.66**	6.6	79.0	57	97	-	-	110	-	105	-	-	120	-	M5
180	**173.13**	5.8	79.0	50	95	-	-	110	-	105	-	-	115	-	292
200	**197.54**	5.1	79.0	44	81	-	-	91	-	89	-	-	98	-	M4
224	**224.02**	4.5	79.0	39	80	-	-	89	-	87	-	-	96	-	316
250	**244.71**	4.1	79.0	36	80	-	-	89	-	88	-	-	95	-	
280	**277.52**	3.6	79.0	32	78	-	-	86	-	85	-	-	92	-	
315	**302.47**	3.3	79.0	29	72	-	-	79	-	79	-	-	85	-	
355	**343.03**	2.9	79.0	26	72	-	-	79	-	79	-	-	84	-	
X.K200..,n_1 = 1200 min^{-1}															**79 kNm**
6.3	**6.40**	188	56.6	1150	*)	*)	455	*)	560	*)	340	580	720	960	**X2K..**
7.1	**7.26**	165	58.0	1050	*)	*)	465	285	560	*)	355	580	720	960	
8	**8.11**	148	59.1	940	*)	245	470	325	550	*)	370	560	680	890	M5
9	**9.20**	130	60.4	840	*)	255	470	330	550	*)	375	560	670	880	284
10	**9.91**	121	60.9	800	*)	300	455	345	530	*)	385	520	600	780	M4
11.2	**11.24**	107	62.2	720	*)	305	435	335	510	*)	380	500	560	740	308
12.5	**12.45**	96	66.5	690	*)	330	475	340	510	*)	390	520	530	700	
14	**14.12**	85	68.9	630	*)	325	460	325	495	170	390	500	495	670	
16	**16.32**	74	72.2	580	150	330	425	315	465	195	375	460	435	590	
18	**18.50**	65	75.1	530	155	325	410	305	450	195	370	440	415	570	
20	**20.56**	58	78.1	495	155	315	385	285	430	195	360	415	380	530	
22.4	**23.31**	51	79.0	440	150	305	360	270	405	185	345	390	350	495	**X3K..**
25	**25.72**	47	79.0	400	140	285	330	245	375	175	325	360	315	450	
28	**29.17**	41	79.0	350	145	280	320	235	365	175	320	345	300	430	M5
31.5	**31.97**	38	79.0	320	145	265	290	220	330	170	295	310	265	385	288
35.5	**36.26**	33	79.0	285	145	260	280	215	325	165	290	300	255	370	M4
40	**39.61**	30	79.0	260	145	260	275	205	315	165	290	295	245	360	312
45	**44.92**	27	79.0	230	140	250	260	195	300	160	275	280	230	340	
50	**48.39**	25	79.0	215	135	240	245	185	285	155	265	260	215	320	
56	**54.88**	22	79.0	190	135	240	240	185	285	155	265	260	210	315	
63	**61.95**	19	79.0	165	125	215	215	165	255	140	240	230	185	280	
71	**70.26**	17	79.0	150	120	215	210	160	245	140	235	225	180	275	
80	**79.69**	15	78.0	130	120	-	-	150	-	130	-	-	165	-	
90	**90.37**	13	79.0	115	120	-	-	145	-	130	-	-	160	-	
100	**99.70**	12	79.0	105	110	-	-	135	-	120	-	-	145	-	
112	**113.07**	11	79.0	92	110	-	-	130	-	120	-	-	145	-	
125	**123.51**	9.7	79.0	84	110	-	-	130	-	120	-	-	140	-	**X4K..**
140	**140.07**	8.6	79.0	74	105	-	-	125	-	120	-	-	140	-	
160	**152.66**	7.9	79.0	68	100	-	-	115	-	110	-	-	130	-	M5
180	**173.13**	6.9	79.0	60	99	-	-	115	-	110	-	-	125	-	292
200	**197.54**	6.1	79.0	53	85	-	-	97	-	93	-	-	105	-	M4
224	**224.02**	5.4	79.0	47	83	-	-	94	-	91	-	-	100	-	316
250	**244.71**	4.9	79.0	43	83	-	-	94	-	92	-	-	100	-	
280	**277.52**	4.3	79.0	38	81	-	-	90	-	89	-	-	97	-	
315	**302.47**	4.0	79.0	35	76	-	-	84	-	83	-	-	90	-	
355	**343.03**	3.5	79.0	31	75	-	-	83	-	83	-	-	89	-	

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X.K200..,n_1 = 1500 min^{-1}															79 kNm
					P_{TH} kW										
					M5				20°C	M4				20°C	📖
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
		min^{-1}	kNm	kW											
6.3[1)]	**6.40**	234	56.6	1400	*)	*)	*)	*)	390	*)	*)	400	590	920	**X2K..**
7.1[1)]	**7.26**	207	58.0	1300	*)	*)	*)	*)	410	*)	*)	420	600	920	
8[1)]	**8.11**	185	59.1	1150	*)	*)	295	*)	465	*)	*)	455	600	880	M5
9[1)]	**9.20**	163	60.4	1050	*)	*)	310	*)	475	*)	295	465	600	880	284
10[1)]	**9.91**	151	60.9	1000	*)	255	410	270	530	*)	370	500	610	840	M4
11.2[1)]	**11.24**	133	62.2	900	*)	260	415	280	530	*)	375	500	610	840	308
12.5	**12.45**	120	66.5	870	*)	305	480	305	540	*)	405	540	580	810	
14	**14.12**	106	68.9	790	*)	310	460	295	520	*)	400	520	540	760	
16	**16.32**	92	72.2	720	*)	350	450	320	510	*)	410	490	490	690	
18	**18.50**	81	75.1	660	*)	345	430	310	500	*)	405	470	460	660	
20	**20.56**	73	78.1	620	*)	340	405	290	475	165	395	440	420	610	
22.4	**23.31**	64	79.0	550	*)	325	375	270	445	155	380	415	385	570	**X3K..**
25	**25.72**	58	79.0	500	*)	310	345	250	415	150	355	380	340	520	
28	**29.17**	51	79.0	440	*)	305	330	240	400	155	350	365	325	495	M5
31.5	**31.97**	47	79.0	400	130	295	310	230	375	165	330	335	295	445	288
35.5	**36.26**	41	79.0	355	135	290	300	220	365	165	325	325	280	430	M4
40	**39.61**	38	79.0	325	135	285	290	215	355	165	325	315	265	415	312
45	**44.92**	33	79.0	285	130	275	270	205	340	155	310	295	250	390	
50	**48.39**	31	79.0	270	130	265	260	195	320	155	300	280	235	370	
56	**54.88**	27	79.0	235	135	265	255	190	320	155	300	275	230	365	
63	**61.95**	24	79.0	210	125	245	230	170	285	140	270	245	200	325	
71	**70.26**	21	79.0	185	120	240	220	165	280	140	265	240	195	315	
80	**79.69**	19	78.0	160	120	-	-	160	-	135	-	-	180	-	
90	**90.37**	17	79.0	145	120	-	-	155	-	135	-	-	175	-	
100	**99.70**	15	79.0	130	115	-	-	140	-	125	-	-	160	-	
112	**113.07**	13	79.0	115	110	-	-	140	-	125	-	-	155	-	
125	**123.51**	12	79.0	105	110	-	-	140	-	125	-	-	150	-	**X4K..**
140	**140.07**	11	79.0	93	110	-	-	135	-	125	-	-	150	-	
160	**152.66**	9.8	79.0	85	105	-	-	125	-	115	-	-	135	-	M5
180	**173.13**	8.7	79.0	75	100	-	-	120	-	115	-	-	135	-	292
200	**197.54**	7.6	79.0	66	89	-	-	105	-	98	-	-	110	-	M4
224	**224.02**	6.7	79.0	59	87	-	-	100	-	96	-	-	110	-	316
250	**244.71**	6.1	79.0	54	87	-	-	100	-	96	-	-	110	-	
280	**277.52**	5.4	79.0	47	85	-	-	96	-	93	-	-	105	-	
315	**302.47**	5.0	79.0	43	79	-	-	89	-	87	-	-	96	-	
355	**343.03**	4.4	79.0	38	79	-	-	88	-	87	-	-	95	-	
X.K200..,n_1 = 1800 min^{-1}															**79 kNm**
6.3[*)]	**6.40**	281	53.5	1600	*)	*)	*)	*)	*)	*)	*)	*)	*)	800	**X2K..**
7.1[*)]	**7.26**	248	54.8	1450	*)	*)	*)	*)	*)	*)	*)	*)	*)	800	
8[*)]	**8.11**	222	55.9	1350	*)	*)	*)	*)	*)	*)	*)	*)	435	810	M5
9[*)]	**9.20**	196	57.1	1200	*)	*)	*)	*)	*)	*)	*)	*)	450	800	284
10[*)]	**9.91**	182	57.6	1150	*)	*)	290	*)	470	*)	310	425	560	840	M4
11.2[*)]	**11.24**	160	58.8	1000	*)	*)	300	*)	475	*)	320	430	560	830	308
12.5[1)]	**12.45**	145	62.9	990	*)	*)	430	*)	520	*)	360	520	590	850	
14[1)]	**14.12**	127	65.1	900	*)	230	430	*)	520	*)	370	510	570	830	
16	**16.32**	110	68.3	820	*)	335	455	295	540	*)	420	510	530	760	
18	**18.50**	97	71.0	750	*)	340	435	285	520	*)	415	485	495	720	
20	**20.56**	88	73.6	700	*)	335	410	270	500	*)	410	455	450	670	
22.4	**23.31**	77	75.3	630	*)	325	380	250	470	*)	390	425	410	620	**X3K..**
25	**25.72**	70	77.2	590	*)	310	345	230	435	*)	370	390	365	570	
28	**29.17**	62	78.5	530	*)	305	330	225	420	*)	365	375	340	540	M5
31.5	**31.97**	56	79.0	480	*)	310	320	235	405	150	355	350	315	495	288
35.5	**36.26**	50	79.0	425	110	305	310	225	390	150	345	340	300	475	M4
40	**39.61**	45	79.0	390	115	300	300	220	380	155	345	330	285	460	312
45	**44.92**	40	79.0	345	110	290	280	205	360	150	330	310	265	430	
50	**48.39**	37	79.0	320	120	280	270	200	350	150	320	295	250	405	
56	**54.88**	33	79.0	285	125	285	265	195	345	150	320	290	240	400	
63	**61.95**	29	79.0	250	120	260	235	175	310	140	295	260	215	355	
71	**70.26**	26	79.0	220	115	255	230	170	305	140	290	250	205	345	
80	**79.69**	23	74.5	185	125	-	-	165	-	140	-	-	190	-	
90	**90.37**	20	79.0	175	120	-	-	160	-	140	-	-	185	-	
100	**99.70**	18	79.0	155	115	-	-	150	-	130	-	-	170	-	
112	**113.07**	16	79.0	140	115	-	-	145	-	125	-	-	165	-	
125	**123.51**	15	79.0	125	115	-	-	145	-	130	-	-	160	-	**X4K..**
140	**140.07**	13	79.0	110	110	-	-	140	-	125	-	-	155	-	
160	**152.66**	12	79.0	100	105	-	-	130	-	120	-	-	145	-	M5
180	**173.13**	10	79.0	90	105	-	-	125	-	115	-	-	140	-	292
200	**197.54**	9.1	79.0	80	91	-	-	110	-	100	-	-	120	-	M4
224	**224.02**	8.0	79.0	70	90	-	-	105	-	100	-	-	115	-	316
250	**244.71**	7.4	79.0	64	90	-	-	105	-	100	-	-	115	-	
280	**277.52**	6.5	79.0	57	87	-	-	100	-	97	-	-	110	-	
315	**302.47**	6.0	79.0	52	82	-	-	94	-	91	-	-	100	-	
355	**343.03**	5.2	79.0	46	81	-	-	92	-	90	-	-	100	-	

X.K210..,n_1 = 1000 min^{-1}															90 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	7.25	138	64.4	950	*)	295	580	430	630	*)	420	670	530	740	X2K..
8	8.21	122	66.1	860	*)	275	550	410	590	*)	400	630	500	700	
9	9.19	109	67.4	790	*)	300	510	390	560	*)	390	580	455	630	M5
10	10.40	96	68.5	710	*)	290	470	360	520	*)	370	540	415	580	284
11.2	11.22	89	69.1	670	*)	310	450	355	495	190	370	500	390	540	M4
12.5	12.71	79	70.5	600	*)	300	420	330	465	185	355	470	360	500	308
14	14.10	71	75.8	580	160	320	465	350	480	205	370	500	365	510	
16	15.96	63	78.2	530	160	315	445	335	465	210	365	485	350	495	
18	18.48	54	81.8	480	180	310	405	315	430	210	350	435	315	445	
20	20.92	48	85.0	440	180	305	390	300	415	210	345	420	305	430	
22.4	23.28	43	88.8	415	175	295	370	285	395	205	335	395	285	405	
25	26.36	38	90.0	370	175	290	355	275	385	205	330	380	275	395	X3K..
28	29.13	34	90.0	335	160	265	320	245	345	185	300	340	245	355	
31.5	32.97	30	90.0	295	155	255	300	230	325	180	285	320	230	335	M5
35.5	36.20	28	90.0	270	150	245	280	215	305	170	270	295	215	310	288
40	40.99	24	90.0	240	150	240	270	210	295	170	265	285	205	300	M4
45	44.85	22	90.0	220	145	235	260	205	290	165	260	280	200	295	312
50	50.78	20	90.0	190	140	225	245	190	275	160	250	265	190	280	
56	54.79	18	90.0	180	135	215	235	180	260	155	240	250	180	265	
63	62.03	16	90.0	160	135	220	230	180	255	155	240	245	180	265	
71	70.15	14	90.0	140	125	200	205	160	230	140	220	220	160	235	
80	79.42	13	90.0	125	125	195	200	155	225	135	215	215	155	230	
90	90.23	11	88.0	105	115	-	-	145	-	130	-	-	145	-	
100	102.16	9.8	90.0	97	115	-	-	140	-	125	-	-	140	-	
112	112.90	8.9	90.0	87	110	-	-	130	-	120	-	-	130	-	
125	127.82	7.8	90.0	77	105	-	-	125	-	115	-	-	125	-	
140	139.86	7.2	90.0	71	105	-	-	125	-	115	-	-	125	-	X4K..
160	158.34	6.3	90.0	62	105	-	-	120	-	115	-	-	120	-	
180	172.87	5.8	90.0	57	97	-	-	110	-	105	-	-	115	-	M5
200	195.72	5.1	90.0	50	95	-	-	110	-	105	-	-	110	-	292
224	223.68	4.5	90.0	45	83	-	-	93	-	91	-	-	95	-	M4
250	253.24	3.9	90.0	39	81	-	-	91	-	89	-	-	93	-	316
280	277.10	3.6	90.0	36	80	-	-	89	-	88	-	-	92	-	
315	313.72	3.2	90.0	32	79	-	-	87	-	87	-	-	90	-	
355	342.51	2.9	90.0	29	74	-	-	81	-	81	-	-	84	-	
400	387.77	2.6	90.0	26	72	-	-	79	-	79	-	-	82	-	

X.K210..,n_1 = 1200 min^{-1}															90 kNm
7.1	7.25	166	64.4	1150	*)	*)	490	305	600	*)	390	620	455	740	X2K..
8	8.21	146	66.1	1050	*)	*)	465	285	570	*)	365	580	430	700	
9	9.19	131	67.4	940	*)	255	475	325	560	*)	380	560	435	660	M5
10	10.40	115	68.5	850	*)	250	450	315	530	*)	370	530	415	630	284
11.2	11.22	107	69.1	800	*)	310	455	350	530	*)	390	520	410	600	M4
12.5	12.71	94	70.5	720	*)	300	425	325	500	*)	375	485	370	560	308
14	14.10	85	75.8	700	*)	335	480	355	520	*)	400	530	385	570	
16	15.96	75	78.2	640	*)	335	460	340	510	175	395	500	365	550	
18	18.48	65	81.8	580	155	335	430	325	475	200	385	460	335	500	
20	20.92	57	85.0	530	160	330	415	315	460	200	380	445	325	485	
22.4	23.28	52	88.8	495	160	325	390	295	440	200	365	420	300	460	
25	26.36	46	90.0	445	160	320	375	285	425	200	360	405	290	445	X3K..
28	29.13	41	90.0	400	145	290	335	255	385	180	330	360	255	400	
31.5	32.97	36	90.0	355	145	280	315	240	360	175	315	340	240	375	M5
35.5	36.20	33	90.0	325	150	270	295	225	340	175	300	315	225	350	288
40	40.99	29	90.0	285	150	265	285	220	330	170	295	305	220	340	M4
45	44.85	27	90.0	260	145	265	275	215	325	170	295	295	210	330	312
50	50.78	24	90.0	230	140	255	260	200	305	160	280	280	200	315	
56	54.79	22	90.0	215	140	245	245	190	290	155	270	265	190	300	
63	62.03	19	90.0	190	140	245	245	190	290	155	270	260	185	300	
71	70.15	17	90.0	170	125	220	215	170	260	145	245	235	165	265	
80	79.42	15	90.0	150	125	215	210	165	250	140	240	225	160	260	
90	90.23	13	88.0	130	120	-	-	150	-	135	-	-	150	-	
100	102.16	12	90.0	115	120	-	-	145	-	130	-	-	145	-	
112	112.90	11	90.0	105	110	-	-	135	-	125	-	-	140	-	
125	127.82	9.4	90.0	93	110	-	-	135	-	120	-	-	135	-	
140	139.86	8.6	90.0	85	110	-	-	130	-	120	-	-	130	-	X4K..
160	158.34	7.6	90.0	75	105	-	-	125	-	120	-	-	130	-	
180	172.87	6.9	90.0	69	100	-	-	120	-	110	-	-	120	-	M5
200	195.72	6.1	90.0	61	99	-	-	115	-	110	-	-	115	-	292
224	223.68	5.4	90.0	54	86	-	-	99	-	95	-	-	100	-	M4
250	253.24	4.7	90.0	47	85	-	-	96	-	93	-	-	98	-	316
280	277.10	4.3	90.0	43	84	-	-	94	-	92	-	-	97	-	
315	313.72	3.8	90.0	38	82	-	-	92	-	91	-	-	95	-	
355	342.51	3.5	90.0	35	77	-	-	86	-	85	-	-	88	-	
400	387.77	3.1	90.0	31	76	-	-	84	-	83	-	-	86	-	

X.K210..,n_1 = 1500 min^{-1}															90 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C					M4 20°C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1[1)]	7.25	207	64.4	1450	*)	*)	*)	*)	440	*)	*)	450	*)	680	X2K..
8[1)]	8.21	183	66.1	1300	*)	*)	*)	*)	415	*)	*)	420	*)	640	
9[1)]	9.19	163	67.4	1200	*)	*)	295	*)	470	*)	*)	455	*)	640	M5
10[1)]	10.40	144	68.5	1050	*)	*)	295	*)	460	*)	295	445	285	610	284
11.2[1)]	11.22	134	69.1	1000	*)	265	415	275	540	*)	385	500	380	640	M4
12.5[1)]	12.71	118	70.5	900	*)	260	405	270	520	*)	370	485	365	610	308
14	14.10	106	75.8	870	*)	310	485	320	560	*)	415	540	395	640	
16	15.96	94	78.2	800	*)	315	460	310	540	*)	410	520	375	610	
18	18.48	81	81.8	720	*)	360	450	330	530	*)	420	490	360	570	
20	20.92	72	85.0	660	*)	355	430	320	510	170	415	475	340	550	
22.4	23.28	64	88.8	620	*)	345	405	300	485	170	405	445	320	520	
25	26.36	57	90.0	560	*)	340	390	290	470	175	395	430	305	500	X3K..
28	29.13	51	90.0	500	*)	315	345	255	425	155	365	380	270	450	
31.5	32.97	45	90.0	445	110	300	325	240	400	155	350	360	250	425	M5
35.5	36.20	41	90.0	405	135	300	315	240	385	170	340	340	240	400	288
40	40.99	37	90.0	355	135	295	300	230	370	170	330	325	230	390	M4
45	44.85	33	90.0	325	140	290	290	220	365	170	330	315	225	380	312
50	50.78	30	90.0	290	135	280	275	210	345	160	315	300	210	360	
56	54.79	27	90.0	270	135	270	260	200	330	155	305	285	200	340	
63	62.03	24	90.0	240	135	275	260	195	330	160	305	280	195	340	
71	70.15	21	90.0	210	125	250	230	175	295	145	275	250	175	305	
80	79.42	19	90.0	185	125	245	225	170	285	145	270	240	170	295	
90	90.23	17	88.0	160	125	-	-	165	-	140	-	-	160	-	
100	102.16	15	90.0	145	120	-	-	155	-	135	-	-	155	-	
112	112.90	13	90.0	130	115	-	-	145	-	130	-	-	145	-	
125	127.82	12	90.0	115	115	-	-	140	-	125	-	-	140	-	
140	139.86	11	90.0	105	110	-	-	140	-	125	-	-	140	-	X4K..
160	158.34	9.5	90.0	93	110	-	-	135	-	125	-	-	135	-	
180	172.87	8.7	90.0	86	105	-	-	125	-	115	-	-	125	-	M5
200	195.72	7.7	90.0	76	100	-	-	120	-	115	-	-	125	-	292
224	223.68	6.7	90.0	67	90	-	-	105	-	100	-	-	105	-	M4
250	253.24	5.9	90.0	59	89	-	-	105	-	98	-	-	105	-	316
280	277.10	5.4	90.0	54	88	-	-	100	-	97	-	-	105	-	
315	313.72	4.8	90.0	48	86	-	-	98	-	95	-	-	100	-	
355	342.51	4.4	90.0	44	81	-	-	91	-	89	-	-	94	-	
400	387.77	3.9	90.0	39	79	-	-	89	-	87	-	-	92	-	
X.K210..,n_1 = 1800 min^{-1}															90 kNm
7.1[*)]	7.25	248	60.9	1600	*)	*)	*)	*)	*)	*)	*)	*)	*)	470	X2K..
8[*)]	8.21	219	62.5	1450	*)	*)	*)	*)	*)	*)	*)	*)	*)	440	
9[*)]	9.19	196	63.7	1350	*)	*)	*)	*)	*)	*)	*)	*)	*)	520	M5
10[*)]	10.40	173	64.8	1200	*)	*)	*)	*)	*)	*)	*)	*)	*)	510	284
11.2[*)]	11.22	160	65.3	1150	*)	*)	290	*)	475	*)	320	425	*)	620	M4
12.5[*)]	12.71	142	66.6	1000	*)	*)	290	*)	465	*)	315	415	275	600	308
14[1)]	14.10	128	71.7	990	*)	*)	435	*)	540	*)	370	530	350	660	
16[1)]	15.96	113	73.9	900	*)	240	430	230	530	*)	380	520	345	640	
18	18.48	97	77.3	820	*)	345	460	310	550	*)	430	510	365	620	
20	20.92	86	80.4	750	*)	350	440	300	540	*)	425	490	350	600	
22.4	23.28	77	83.6	700	*)	345	410	285	510	*)	415	460	325	560	
25	26.36	68	85.1	630	*)	345	395	275	495	*)	410	440	310	540	X3K..
28	29.13	62	87.4	590	*)	315	350	240	445	*)	380	395	265	485	
31.5	32.97	55	88.6	520	*)	305	325	225	420	*)	360	365	250	455	M5
35.5	36.20	50	90.0	485	*)	315	325	245	415	155	360	355	250	435	288
40	40.99	44	90.0	430	115	310	310	235	400	155	355	340	240	425	M4
45	44.85	40	90.0	390	120	305	300	225	390	155	350	330	230	410	312
50	50.78	35	90.0	345	115	295	285	210	370	155	335	310	215	390	
56	54.79	33	90.0	325	125	290	270	205	355	155	325	295	205	375	
63	62.03	29	90.0	285	130	290	270	200	355	155	325	295	205	370	
71	70.15	26	90.0	255	120	265	240	180	320	145	300	260	185	335	
80	79.42	23	90.0	225	120	260	230	175	310	140	295	255	175	325	
90	90.23	20	84.0	185	125	-	-	170	-	145	-	-	170	-	
100	102.16	18	90.0	175	125	-	-	165	-	140	-	-	165	-	
112	112.90	16	90.0	155	115	-	-	155	-	130	-	-	155	-	
125	127.82	14	90.0	140	115	-	-	150	-	130	-	-	150	-	
140	139.86	13	90.0	125	115	-	-	145	-	130	-	-	145	-	X4K..
160	158.34	11	90.0	110	110	-	-	140	-	125	-	-	140	-	
180	172.87	10	90.0	105	105	-	-	130	-	120	-	-	130	-	M5
200	195.72	9.2	90.0	91	105	-	-	125	-	115	-	-	130	-	292
224	223.68	8.0	90.0	80	93	-	-	110	-	105	-	-	110	-	M4
250	253.24	7.1	90.0	71	91	-	-	110	-	100	-	-	110	-	316
280	277.10	6.5	90.0	65	90	-	-	105	-	100	-	-	110	-	
315	313.72	5.7	90.0	57	89	-	-	105	-	99	-	-	105	-	
355	342.51	5.3	90.0	52	83	-	-	96	-	92	-	-	98	-	
400	387.77	4.6	90.0	46	82	-	-	93	-	91	-	-	96	-	

X.K220..,n_1 = 1000 min^{-1}															112 kNm
					P_{TH} kW										
					M5				20°C	M4				20°C	📖
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.40**	156	84.4	1400	*)	*)	-	370	640	*)	440	-	880	1150	**X2K..**
7.1	**7.07**	141	87.6	1350	*)	*)	-	380	650	*)	445	-	880	1150	
8	**8.11**	123	90.4	1200	*)	*)	-	310	550	*)	370	-	760	990	M5
9	**8.95**	112	93.2	1100	*)	*)	-	305	550	*)	375	-	740	960	286
10	**9.91**	101	94.6	1050	*)	375	-	430	620	*)	470	-	710	910	M4
11.2	**10.94**	91	98.0	970	*)	375	-	420	610	*)	470	-	680	880	310
12.5	**12.56**	80	92.4	800	*)	410	-	455	630	260	480	-	670	850	
14	**13.86**	72	97.0	760	*)	395	-	430	600	250	465	-	620	800	
16	**16.15**	62	100	670	210	395	-	410	560	265	450	-	550	710	
18	**17.82**	56	107	650	205	380	-	390	540	255	435	-	520	670	
20	**20.64**	48	112	590	220	390	-	380	530	270	445	-	495	650	
22.4	**22.78**	44	112	530	220	390	-	370	520	270	440	-	475	630	**X3K..**
25	**25.28**	40	112	480	200	350	-	325	460	240	395	-	410	550	
28	**27.90**	36	112	435	210	355	-	325	465	245	400	-	405	550	M5
31.5	**32.02**	31	112	380	205	330	-	295	415	230	365	-	355	480	290
35.5	**35.34**	28	112	345	200	325	-	290	405	230	360	-	340	465	M4
40	**39.55**	25	112	305	185	295	-	260	365	210	330	-	300	415	314
45	**43.65**	23	112	280	180	295	-	250	355	205	325	-	290	405	
50	**48.32**	21	112	255	175	280	-	235	335	195	310	-	270	375	
56	**53.33**	19	112	230	170	275	-	230	325	195	305	-	260	365	
63	**61.86**	16	112	200	150	240	-	195	280	170	265	-	220	310	
71	**68.27**	15	112	180	150	235	-	190	275	165	260	-	215	305	
80	**81.61**	12	112	150	155	-	-	195	-	170	-	-	210	-	
90	**90.07**	11	112	135	155	-	-	190	-	170	-	-	205	-	
100	**99.97**	10	112	125	145	-	-	175	-	160	-	-	190	-	
112	**110.34**	9.1	112	110	140	-	-	170	-	155	-	-	185	-	
125	**123.47**	8.1	112	99	135	-	-	160	-	150	-	-	175	-	**X4K..**
140	**136.27**	7.3	112	90	130	-	-	155	-	145	-	-	165	-	
160	**156.11**	6.4	112	79	115	-	-	135	-	130	-	-	145	-	M5
180	**172.29**	5.8	112	71	115	-	-	135	-	125	-	-	145	-	294
200	**198.08**	5.0	112	63	110	-	-	125	-	120	-	-	135	-	M4
224	**218.61**	4.6	112	57	105	-	-	120	-	115	-	-	130	-	318
250	**244.62**	4.1	112	51	100	-	-	115	-	110	-	-	125	-	
280	**269.99**	3.7	112	46	99	-	-	110	-	110	-	-	120	-	
315	**309.29**	3.2	112	40	89	-	-	99	-	98	-	-	105	-	
355	**341.36**	2.9	112	36	88	-	-	97	-	96	-	-	105	-	
X.K220..,n_1 = 1200 min^{-1}															**112 kNm**
6.3	**6.40**	188	84.4	1700	*)	*)	-	*)	480	*)	*)	-	730	1100	**X2K..**
7.1	**7.07**	170	87.6	1600	*)	*)	-	*)	490	*)	*)	-	730	1100	
8	**8.11**	148	90.4	1450	*)	*)	-	*)	395	*)	*)	-	620	930	M5
9	**8.95**	134	93.2	1350	*)	*)	-	*)	410	*)	*)	-	630	940	286
10	**9.91**	121	94.6	1250	*)	335	-	375	630	*)	465	-	750	1000	M4
11.2	**10.94**	110	98.0	1150	*)	340	-	365	620	*)	465	-	720	970	310
12.5	**12.56**	96	92.4	960	*)	415	-	455	680	*)	510	-	740	970	
14	**13.86**	87	97.0	910	*)	400	-	425	650	*)	495	-	680	900	
16	**16.15**	74	100	810	*)	425	-	420	620	235	490	-	610	810	
18	**17.82**	67	107	780	*)	410	-	400	590	230	475	-	570	770	
20	**20.64**	58	112	710	185	420	-	390	590	250	485	-	540	740	
22.4	**22.78**	53	112	640	190	420	-	380	580	250	485	-	520	720	**X3K..**
25	**25.28**	47	112	580	170	380	-	335	510	225	435	-	445	630	
28	**27.90**	43	112	520	185	385	-	335	510	235	440	-	435	620	M5
31.5	**32.02**	37	112	455	200	365	-	310	465	235	410	-	385	550	290
35.5	**35.34**	34	112	410	200	360	-	300	455	230	405	-	370	530	M4
40	**39.55**	30	112	370	180	330	-	270	410	210	370	-	325	475	314
45	**43.65**	27	112	335	180	325	-	260	400	205	365	-	310	460	
50	**48.32**	25	112	305	175	310	-	245	375	200	345	-	290	425	
56	**53.33**	23	112	275	175	305	-	240	365	195	340	-	280	415	
63	**61.86**	19	112	240	155	270	-	205	315	175	295	-	235	355	
71	**68.27**	18	112	215	150	265	-	200	310	170	295	-	230	345	
80	**81.61**	15	112	180	160	-	-	205	-	180	-	-	225	-	
90	**90.07**	13	112	165	155	-	-	200	-	175	-	-	220	-	
100	**99.97**	12	112	145	150	-	-	185	-	165	-	-	205	-	
112	**110.34**	11	112	135	145	-	-	180	-	160	-	-	195	-	
125	**123.47**	9.7	112	120	140	-	-	170	-	155	-	-	185	-	**X4K..**
140	**136.27**	8.8	112	110	135	-	-	160	-	150	-	-	175	-	
160	**156.11**	7.7	112	94	120	-	-	145	-	135	-	-	155	-	M5
180	**172.29**	7.0	112	86	120	-	-	140	-	130	-	-	150	-	294
200	**198.08**	6.1	112	75	115	-	-	130	-	125	-	-	140	-	M4
224	**218.61**	5.5	112	68	110	-	-	125	-	120	-	-	135	-	318
250	**244.62**	4.9	112	61	105	-	-	120	-	115	-	-	130	-	
280	**269.99**	4.4	112	55	105	-	-	115	-	115	-	-	125	-	
315	**309.29**	3.9	112	48	93	-	-	105	-	100	-	-	110	-	
355	**341.36**	3.5	112	44	92	-	-	100	-	100	-	-	110	-	

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X.K220..,n_1 = 1500 min^{-1}															112 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	📖
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3[1)]	**6.40**	234	84.4	2100	*)	*)	-	*)	*)	*)	*)	-	*)	820	**X2K..**
7.1[1)]	**7.07**	212	87.6	2000	*)	*)	-	*)	*)	*)	*)	-	*)	840	
8[1)]	**8.11**	185	90.4	1800	*)	*)	-	*)	*)	*)	*)	-	*)	670	M5
9[1)]	**8.95**	168	93.2	1650	*)	*)	-	*)	*)	*)	*)	-	*)	680	286
10[1)]	**9.91**	151	94.6	1550	*)	*)	-	*)	520	*)	*)	-	640	980	M4
11.2[1)]	**10.94**	137	98.0	1450	*)	*)	-	*)	530	*)	395	-	650	980	310
12.5	**12.56**	119	92.4	1200	*)	365	-	390	710	*)	510	-	810	1100	
14	**13.86**	108	97.0	1150	*)	355	-	360	680	*)	495	-	750	1050	
16	**16.15**	93	100	1000	*)	435	-	410	680	*)	530	-	680	940	
18	**17.82**	84	107	980	*)	420	-	380	650	*)	510	-	630	890	
20	**20.64**	73	112	880	*)	440	-	385	640	*)	530	-	590	850	
22.4	**22.78**	66	112	800	*)	440	-	375	630	*)	520	-	560	830	**X3K..**
25	**25.28**	59	112	720	*)	400	-	325	560	*)	470	-	480	720	
28	**27.90**	54	112	650	*)	405	-	330	560	195	480	-	470	710	M5
31.5	**32.02**	47	112	570	170	400	-	325	520	220	455	-	425	630	290
35.5	**35.34**	42	112	520	175	395	-	315	510	220	450	-	405	610	M4
40	**39.55**	38	112	460	160	365	-	280	460	205	410	-	355	540	314
45	**43.65**	34	112	415	160	360	-	270	450	205	405	-	340	530	
50	**48.32**	31	112	380	165	345	-	255	425	200	390	-	315	490	
56	**53.33**	28	112	345	165	340	-	250	415	195	385	-	305	480	
63	**61.86**	24	112	295	155	300	-	215	360	175	335	-	255	410	
71	**68.27**	22	112	270	150	295	-	210	350	175	330	-	245	400	
80	**81.61**	18	112	225	160	-	-	215	-	185	-	-	245	-	
90	**90.07**	17	112	205	160	-	-	210	-	180	-	-	240	-	
100	**99.97**	15	112	185	150	-	-	200	-	170	-	-	220	-	
112	**110.34**	14	112	165	145	-	-	190	-	165	-	-	210	-	
125	**123.47**	12	112	150	140	-	-	180	-	160	-	-	200	-	**X4K..**
140	**136.27**	11	112	135	135	-	-	170	-	155	-	-	190	-	
160	**156.11**	9.6	112	120	125	-	-	150	-	140	-	-	165	-	M5
180	**172.29**	8.7	112	105	120	-	-	150	-	135	-	-	165	-	294
200	**198.08**	7.6	112	94	120	-	-	140	-	130	-	-	150	-	M4
224	**218.61**	6.9	112	85	115	-	-	135	-	125	-	-	145	-	318
250	**244.62**	6.1	112	76	110	-	-	130	-	125	-	-	140	-	
280	**269.99**	5.6	112	69	110	-	-	125	-	120	-	-	135	-	
315	**309.29**	4.8	112	60	97	-	-	110	-	105	-	-	120	-	
355	**341.36**	4.4	112	55	96	-	-	110	-	105	-	-	115	-	
X.K220..,n_1 = 1800 min^{-1}															**112 kNm**
6.3[*)]	**6.40**	281	79.8	2400	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2K..**
7.1[*)]	**7.07**	255	82.8	2250	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
8[*)]	**8.11**	222	85.5	2050	*)	*)	-	*)	*)	*)	*)	-	*)	*)	M5
9[*)]	**8.95**	201	88.1	1900	*)	*)	-	*)	*)	*)	*)	-	*)	*)	286
10[*)]	**9.91**	182	89.5	1750	*)	*)	-	*)	*)	*)	*)	-	450	870	M4
11.2[*)]	**10.94**	165	92.7	1650	*)	*)	-	*)	*)	*)	*)	-	460	870	310
12.5[1)]	**12.56**	143	87.4	1350	*)	*)	-	*)	640	*)	435	-	750	1100	
14[1)]	**13.86**	130	91.7	1300	*)	*)	-	*)	620	*)	420	-	730	1050	
16	**16.15**	111	95.1	1150	*)	385	-	355	700	*)	520	-	730	1050	
18	**17.82**	101	101	1100	*)	375	-	330	660	*)	500	-	680	980	
20	**20.64**	87	105	1000	*)	410	-	335	660	*)	530	-	630	940	
22.4	**22.78**	79	109	930	*)	415	-	325	650	*)	530	-	600	900	**X3K..**
25	**25.28**	71	112	860	*)	380	-	280	570	*)	480	-	510	780	
28	**27.90**	65	112	780	*)	395	-	290	580	*)	490	-	495	780	M5
31.5	**32.02**	56	112	680	*)	415	-	325	560	190	485	-	455	700	290
35.5	**35.34**	51	112	620	*)	410	-	315	540	195	475	-	435	680	M4
40	**39.55**	46	112	550	*)	375	-	280	490	180	435	-	375	600	314
45	**43.65**	41	112	500	125	370	-	270	480	180	430	-	360	580	
50	**48.32**	37	112	455	145	365	-	260	455	190	415	-	335	540	
56	**53.33**	34	112	415	145	360	-	255	445	190	410	-	320	530	
63	**61.86**	29	112	355	140	320	-	225	390	175	360	-	275	450	
71	**68.27**	26	112	325	145	315	-	215	380	175	355	-	265	440	
80	**81.61**	22	112	270	160	-	-	225	-	185	-	-	265	-	
90	**90.07**	20	112	245	160	-	-	220	-	180	-	-	255	-	
100	**99.97**	18	112	220	155	-	-	205	-	175	-	-	235	-	
112	**110.34**	16	112	200	145	-	-	195	-	170	-	-	225	-	
125	**123.47**	15	112	180	140	-	-	185	-	165	-	-	210	-	**X4K..**
140	**136.27**	13	112	160	140	-	-	180	-	155	-	-	200	-	
160	**156.11**	12	112	140	125	-	-	160	-	140	-	-	175	-	M5
180	**172.29**	10	112	130	125	-	-	155	-	140	-	-	170	-	294
200	**198.08**	9.1	112	115	120	-	-	145	-	135	-	-	160	-	M4
224	**218.61**	8.2	112	100	115	-	-	140	-	130	-	-	155	-	318
250	**244.62**	7.4	112	91	115	-	-	135	-	125	-	-	150	-	
280	**269.99**	6.7	112	83	110	-	-	130	-	125	-	-	140	-	
315	**309.29**	5.8	112	72	100	-	-	115	-	110	-	-	125	-	
355	**341.36**	5.3	112	65	98	-	-	115	-	110	-	-	125	-	

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X.K230..,n_1 = 1000 min^{-1}															131 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**7.25**	138	95.5	1400	*)	*)	-	385	660	*)	445	-	550	840	**X2K..**
8	**7.96**	126	99.0	1350	*)	*)	-	395	670	*)	450	-	560	840	
9	**9.19**	109	102	1200	*)	*)	-	325	570	*)	380	-	480	730	M5
10	**10.09**	99	106	1150	*)	*)	-	320	570	*)	385	-	465	720	286
11.2	**11.22**	89	108	1050	*)	380	-	445	640	*)	475	-	510	720	M4
12.5	**12.32**	81	111	970	*)	385	-	435	630	245	480	-	495	700	310
14	**14.22**	70	104	790	205	420	-	460	640	275	490	-	495	680	
16	**15.61**	64	110	760	210	420	-	450	630	275	490	-	480	670	
18	**18.29**	55	113	670	230	405	-	415	570	275	460	-	425	600	
20	**20.08**	50	119	640	220	390	-	395	540	270	445	-	405	570	
22.4	**23.37**	43	126	580	220	385	-	375	520	265	440	-	380	540	
25	**25.66**	39	131	550	225	385	-	370	520	270	440	-	375	540	**X3K..**
28	**28.63**	35	131	495	210	360	-	335	470	250	405	-	335	490	
31.5	**31.43**	32	131	450	210	355	-	325	460	245	400	-	325	475	M5
35.5	**36.26**	28	131	390	210	340	-	300	425	240	375	-	300	435	290
40	**39.82**	25	131	355	205	335	-	295	415	235	370	-	290	425	M4
45	**44.78**	22	131	315	190	305	-	265	370	215	340	-	260	380	314
50	**49.17**	20	131	290	185	300	-	255	365	210	335	-	255	375	
56	**54.71**	18	131	260	175	280	-	235	335	195	310	-	235	340	
63	**60.08**	17	131	240	175	275	-	230	325	195	305	-	225	335	
71	**70.05**	14	131	205	155	245	-	200	285	175	270	-	200	295	
80	**76.91**	13	131	185	155	240	-	195	280	170	265	-	195	290	
90	**92.41**	11	131	155	160	-	-	195	-	175	-	-	195	-	
100	**101.47**	9.9	131	140	155	-	-	190	-	175	-	-	190	-	
112	**113.21**	8.8	131	125	145	-	-	175	-	160	-	-	175	-	
125	**124.31**	8.0	131	115	145	-	-	170	-	160	-	-	175	-	
140	**139.81**	7.2	131	105	140	-	-	165	-	155	-	-	165	-	**X4K..**
160	**153.52**	6.5	131	94	135	-	-	160	-	150	-	-	160	-	
180	**176.77**	5.7	131	81	120	-	-	140	-	130	-	-	140	-	M5
200	**194.10**	5.2	131	74	120	-	-	135	-	130	-	-	140	-	294
224	**224.29**	4.5	131	65	110	-	-	125	-	120	-	-	125	-	M4
250	**246.28**	4.1	131	59	110	-	-	120	-	120	-	-	125	-	318
280	**277.00**	3.6	131	52	105	-	-	115	-	115	-	-	120	-	
315	**304.16**	3.3	131	48	100	-	-	115	-	110	-	-	115	-	
355	**350.23**	2.9	131	41	91	-	-	100	-	100	-	-	105	-	
400	**384.57**	2.6	131	38	90	-	-	99	-	99	-	-	100	-	
X.K230..,n_1 = 1200 min^{-1}															**131 kNm**
7.1	**7.25**	166	95.5	1700	*)	*)	-	*)	495	*)	*)	-	*)	750	**X2K..**
8	**7.96**	151	99.0	1600	*)	*)	-	*)	510	*)	*)	-	*)	760	
9	**9.19**	131	102	1450	*)	*)	-	*)	415	*)	*)	-	*)	650	M5
10	**10.09**	119	106	1350	*)	*)	-	*)	425	*)	*)	-	*)	660	286
11.2	**11.22**	107	108	1250	*)	340	-	390	650	*)	475	-	500	780	M4
12.5	**12.32**	97	111	1150	*)	345	-	380	640	*)	475	-	485	760	310
14	**14.22**	84	104	950	*)	430	-	455	690	*)	520	-	520	760	
16	**15.61**	77	110	920	*)	430	-	450	680	230	520	-	500	750	
18	**18.29**	66	113	810	*)	435	-	425	630	260	500	-	455	670	
20	**20.08**	60	119	770	195	420	-	405	600	250	490	-	430	640	
22.4	**23.37**	51	126	700	195	420	-	385	580	250	480	-	400	610	
25	**25.66**	47	131	660	195	420	-	375	570	250	480	-	390	600	**X3K..**
28	**28.63**	42	131	600	185	390	-	340	520	235	450	-	350	550	
31.5	**31.43**	38	131	540	190	385	-	330	510	235	440	-	340	530	M5
35.5	**36.26**	33	131	470	205	375	-	315	475	240	420	-	320	490	290
40	**39.82**	30	131	430	205	370	-	310	465	235	415	-	310	480	M4
45	**44.78**	27	131	380	190	340	-	275	415	215	375	-	275	430	314
50	**49.17**	24	131	345	185	335	-	265	405	215	370	-	265	420	
56	**54.71**	22	131	315	175	310	-	245	375	200	345	-	245	385	
63	**60.08**	20	131	285	175	305	-	240	365	200	340	-	240	380	
71	**70.05**	17	131	245	160	275	-	210	320	180	305	-	210	330	
80	**76.91**	16	131	225	155	270	-	205	315	175	300	-	205	325	
90	**92.41**	13	131	185	165	-	-	210	-	180	-	-	205	-	
100	**101.47**	12	131	170	160	-	-	205	-	180	-	-	200	-	
112	**113.21**	11	131	150	150	-	-	185	-	165	-	-	185	-	
125	**124.31**	9.7	131	140	150	-	-	180	-	165	-	-	180	-	
140	**139.81**	8.6	131	125	140	-	-	175	-	160	-	-	175	-	**X4K..**
160	**153.52**	7.8	131	110	140	-	-	170	-	155	-	-	170	-	
180	**176.77**	6.8	131	98	125	-	-	145	-	135	-	-	150	-	M5
200	**194.10**	6.2	131	89	120	-	-	145	-	135	-	-	145	-	294
224	**224.29**	5.4	131	78	115	-	-	130	-	125	-	-	135	-	M4
250	**246.28**	4.9	131	71	115	-	-	130	-	125	-	-	130	-	318
280	**277.00**	4.3	131	63	105	-	-	120	-	120	-	-	125	-	
315	**304.16**	3.9	131	57	105	-	-	120	-	115	-	-	120	-	
355	**350.23**	3.4	131	50	95	-	-	105	-	105	-	-	110	-	
400	**384.57**	3.1	131	45	94	-	-	105	-	105	-	-	105	-	

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X.K230..,n_1 = 1500 min^{-1}															131 kNm
					P_{TH} kW										
					M5				20°C	M4				20°C	
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1[1)]	**7.25**	207	95.5	2100	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2K..**
8[1)]	**7.96**	188	99.0	2000	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[1)]	**9.19**	163	102	1800	*)	*)	-	*)	*)	*)	*)	-	*)	*)	M5
10[1)]	**10.09**	149	106	1700	*)	*)	-	*)	*)	*)	*)	-	*)	*)	286
11.2[1)]	**11.22**	134	108	1550	*)	*)	-	*)	540	*)	395	-	*)	730	M4
12.5[1)]	**12.32**	122	111	1450	*)	*)	-	*)	550	*)	400	-	*)	740	310
14	**14.22**	105	104	1200	*)	385	-	400	720	*)	530	-	520	850	
16	**15.61**	96	110	1150	*)	390	-	390	710	*)	530	-	500	830	
18	**18.29**	82	113	1000	*)	450	-	420	690	*)	540	-	480	760	
20	**20.08**	75	119	960	*)	440	-	400	660	*)	530	-	450	720	
22.4	**23.37**	64	126	880	*)	440	-	380	630	*)	520	-	415	690	
25	**25.66**	58	131	830	*)	440	-	370	620	*)	520	-	405	680	**X3K..**
28	**28.63**	52	131	740	*)	410	-	335	570	200	485	-	365	620	
31.5	**31.43**	48	131	680	*)	405	-	325	560	200	480	-	350	600	M5
35.5	**36.26**	41	131	590	185	415	-	330	530	230	470	-	340	560	290
40	**39.82**	38	131	530	185	405	-	320	520	230	460	-	325	550	M4
45	**44.78**	33	131	475	170	370	-	285	470	210	420	-	290	490	314
50	**49.17**	31	131	435	170	365	-	275	455	210	415	-	280	480	
56	**54.71**	27	131	395	170	345	-	255	425	200	390	-	260	440	
63	**60.08**	25	131	360	170	340	-	250	415	200	385	-	250	430	
71	**70.05**	21	131	305	160	310	-	220	365	180	345	-	220	380	
80	**76.91**	20	131	280	155	305	-	215	360	180	340	-	215	370	
90	**92.41**	16	131	235	165	-	-	220	-	190	-	-	220	-	
100	**101.47**	15	131	210	165	-	-	215	-	185	-	-	215	-	
112	**113.21**	13	131	190	155	-	-	200	-	175	-	-	195	-	
125	**124.31**	12	131	175	150	-	-	195	-	170	-	-	195	-	
140	**139.81**	11	131	155	145	-	-	185	-	165	-	-	185	-	**X4K..**
160	**153.52**	9.8	131	140	145	-	-	180	-	160	-	-	180	-	
180	**176.77**	8.5	131	120	125	-	-	155	-	145	-	-	155	-	M5
200	**194.10**	7.7	131	110	125	-	-	150	-	140	-	-	155	-	294
224	**224.29**	6.7	131	97	120	-	-	140	-	130	-	-	140	-	M4
250	**246.28**	6.1	131	88	115	-	-	140	-	130	-	-	140	-	318
280	**277.00**	5.4	131	79	110	-	-	130	-	125	-	-	130	-	
315	**304.16**	4.9	131	72	110	-	-	125	-	120	-	-	130	-	
355	**350.23**	4.3	131	62	99	-	-	115	-	110	-	-	115	-	
400	**384.57**	3.9	131	57	98	-	-	110	-	110	-	-	115	-	
X.K230..,n_1 = 1800 min^{-1}															**131 kNm**
7.1[*)]	**7.25**	248	90.3	2400	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2K..**
8[*)]	**7.96**	226	93.6	2250	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[*)]	**9.19**	196	96.9	2050	*)	*)	-	*)	*)	*)	*)	-	*)	*)	M5
10[*)]	**10.09**	178	100	1900	*)	*)	-	*)	*)	*)	*)	-	*)	*)	286
11.2[*)]	**11.22**	160	102	1750	*)	*)	-	*)	*)	*)	*)	-	*)	590	M4
12.5[*)]	**12.32**	146	105	1650	*)	*)	-	*)	*)	*)	*)	-	*)	600	310
14[1)]	**14.22**	127	98.4	1350	*)	*)	-	*)	650	*)	460	-	410	820	
16[1)]	**15.61**	115	103	1300	*)	*)	-	*)	660	*)	465	-	415	830	
18	**18.29**	98	107	1150	*)	415	-	385	710	*)	540	-	480	820	
20	**20.08**	90	112	1100	*)	405	-	360	680	*)	530	-	445	770	
22.4	**23.37**	77	119	990	*)	415	-	335	650	*)	530	-	410	730	
25	**25.66**	70	123	940	*)	415	-	325	640	*)	530	-	390	720	**X3K..**
28	**28.63**	63	126	860	*)	395	-	300	590	*)	495	-	350	650	
31.5	**31.43**	57	129	800	*)	395	-	290	570	*)	490	-	335	640	M5
35.5	**36.26**	50	129	690	*)	430	-	330	570	210	495	-	350	610	290
40	**39.82**	45	131	640	*)	425	-	320	560	210	490	-	340	590	M4
45	**44.78**	40	131	570	*)	390	-	285	500	190	445	-	300	530	314
50	**49.17**	37	131	520	140	385	-	275	490	190	440	-	290	520	
56	**54.71**	33	131	470	150	365	-	260	455	190	415	-	270	480	
63	**60.08**	30	131	430	150	360	-	255	445	190	410	-	260	470	
71	**70.05**	26	131	370	150	330	-	230	395	180	370	-	230	415	
80	**76.91**	23	131	335	150	325	-	220	390	180	365	-	225	405	
90	**92.41**	19	131	280	165	-	-	230	-	190	-	-	230	-	
100	**101.47**	18	131	255	165	-	-	225	-	185	-	-	225	-	
112	**113.21**	16	131	230	155	-	-	205	-	175	-	-	205	-	
125	**124.31**	14	131	210	150	-	-	200	-	175	-	-	200	-	
140	**139.81**	13	131	185	145	-	-	190	-	165	-	-	190	-	**X4K..**
160	**153.52**	12	131	170	145	-	-	185	-	165	-	-	185	-	
180	**176.77**	10	131	145	130	-	-	160	-	145	-	-	165	-	M5
200	**194.10**	9.3	131	135	125	-	-	155	-	145	-	-	160	-	294
224	**224.29**	8.0	131	115	120	-	-	150	-	135	-	-	150	-	M4
250	**246.28**	7.3	131	105	120	-	-	145	-	135	-	-	145	-	318
280	**277.00**	6.5	131	94	115	-	-	135	-	130	-	-	140	-	
315	**304.16**	5.9	131	86	115	-	-	135	-	125	-	-	135	-	
355	**350.23**	5.1	131	75	100	-	-	120	-	115	-	-	120	-	
400	**384.57**	4.7	131	68	100	-	-	115	-	110	-	-	120	-	

X.K240..,n_1 = 1000 min^{-1}															156 kNm
					P_{TH} kW										
					M5				20°C	M4				20°C	
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	6.38	157	122	2050	*)	*)	-	*)	*)	*)	*)	-	800	1150	X2K..
7.1	7.34	136	128	1850	*)	*)	-	*)	*)	*)	*)	-	760	1100	
8	8.09	124	130	1750	*)	*)	-	*)	620	*)	445	-	860	1150	M5
9	9.31	107	135	1550	*)	*)	-	*)	580	*)	415	-	780	1050	286
10	9.82	102	136	1500	*)	395	-	450	710	*)	540	-	840	1100	M4
11.2	11.31	88	143	1350	*)	380	-	415	660	*)	520	-	750	990	310
12.5	11.92	84	128	1150	*)	420	-	475	700	*)	540	-	780	1000	
14	13.71	73	137	1100	*)	405	-	440	660	*)	520	-	700	920	
16	15.32	65	138	980	*)	450	-	460	650	295	530	-	650	850	
18	17.64	57	156	960	*)	435	-	430	620	285	510	-	600	790	
20	20.36	49	156	830	235	450	-	430	620	300	520	-	570	770	
22.4	23.44	43	156	720	230	430	-	395	570	290	495	-	520	710	X3K..
25	25.64	39	156	660	220	400	-	360	530	270	460	-	465	640	
28	29.51	34	156	570	215	395	-	345	510	270	450	-	440	610	M5
31.5	32.47	31	156	520	230	385	-	335	480	270	430	-	405	560	290
35.5	37.38	27	156	450	225	375	-	320	465	265	420	-	385	540	M4
40	39.96	25	156	425	225	375	-	315	455	260	420	-	375	520	314
45	46.00	22	156	370	215	355	-	295	430	250	400	-	345	490	
50	48.83	20	156	350	205	335	-	275	400	235	375	-	320	450	
56	56.20	18	156	305	200	320	-	260	380	225	355	-	300	425	
63	62.51	16	156	275	190	305	-	245	355	215	340	-	275	395	
71	71.95	14	156	235	185	295	-	230	335	205	325	-	260	375	
80	82.39	12	156	210	180	-	-	225	-	205	-	-	250	-	
90	94.83	11	156	180	175	-	-	215	-	200	-	-	240	-	
100	103.71	9.6	156	165	165	-	-	200	-	185	-	-	220	-	
112	119.37	8.4	156	145	160	-	-	190	-	180	-	-	210	-	
125	127.64	7.8	156	135	165	-	-	190	-	180	-	-	210	-	X4K..
140	146.91	6.8	156	115	155	-	-	180	-	175	-	-	200	-	
160	153.55	6.5	156	110	145	-	-	170	-	165	-	-	185	-	M5
180	176.74	5.7	156	97	140	-	-	165	-	155	-	-	175	-	294
200	205.47	4.9	156	84	125	-	-	140	-	135	-	-	150	-	M4
224	236.50	4.2	156	73	120	-	-	135	-	130	-	-	145	-	318
250	252.89	4.0	156	68	120	-	-	135	-	130	-	-	145	-	
280	291.08	3.4	156	59	115	-	-	130	-	130	-	-	140	-	
315	304.22	3.3	156	57	110	-	-	125	-	125	-	-	130	-	
355	350.17	2.9	156	49	105	-	-	120	-	120	-	-	125	-	
X.K240..,n_1 = 1200 min^{-1}															156 kNm
6.3[1)]	6.38	188	122	2450	*)	*)	-	*)	*)	*)	*)	-	*)	920	X2K..
7.1[1)]	7.34	163	128	2250	*)	*)	-	*)	*)	*)	*)	-	*)	880	
8[1)]	8.09	148	130	2050	*)	*)	-	*)	*)	*)	*)	-	660	1100	M5
9[1)]	9.31	129	135	1850	*)	*)	-	*)	*)	*)	*)	-	610	980	286
10[1)]	9.82	122	136	1800	*)	*)	-	*)	640	*)	495	-	790	1150	M4
11.2[1)]	11.31	106	143	1650	*)	*)	-	*)	620	*)	475	-	760	1050	310
12.5	11.92	101	128	1400	*)	375	-	405	720	*)	530	-	820	1100	
14	13.71	88	137	1300	*)	365	-	370	670	*)	510	-	740	1000	
16	15.32	78	138	1200	*)	465	-	450	700	*)	570	-	710	960	
18	17.64	68	156	1150	*)	450	-	420	670	*)	550	-	650	900	
20	20.36	59	156	1000	*)	475	-	420	670	265	570	-	620	870	
22.4	23.44	51	156	870	*)	455	-	390	620	260	540	-	560	800	X3K..
25	25.64	47	156	790	*)	425	-	355	570	245	500	-	495	720	
28	29.51	41	156	690	180	420	-	340	550	245	490	-	465	680	M5
31.5	32.47	37	156	620	215	420	-	345	530	260	480	-	435	630	290
35.5	37.38	32	156	540	215	410	-	330	510	260	470	-	410	610	M4
40	39.96	30	156	510	210	410	-	320	500	260	465	-	400	590	314
45	46.00	26	156	440	205	390	-	300	475	245	445	-	370	550	
50	48.83	25	156	420	200	370	-	285	445	235	415	-	340	510	
56	56.20	21	156	365	195	355	-	265	420	225	400	-	315	480	
63	62.51	19	156	330	190	340	-	255	400	220	380	-	295	450	
71	71.95	17	156	285	180	325	-	240	375	210	365	-	275	425	
80	82.39	15	156	250	185	-	-	235	-	210	-	-	265	-	
90	94.83	13	156	215	180	-	-	225	-	205	-	-	255	-	
100	103.71	12	156	200	170	-	-	210	-	190	-	-	230	-	
112	119.37	10	156	170	165	-	-	200	-	185	-	-	225	-	
125	127.64	9.4	156	160	165	-	-	200	-	185	-	-	220	-	X4K..
140	146.91	8.2	156	140	160	-	-	190	-	180	-	-	210	-	
160	153.55	7.8	156	135	150	-	-	180	-	170	-	-	195	-	M5
180	176.74	6.8	156	115	145	-	-	170	-	160	-	-	185	-	294
200	205.47	5.8	156	100	130	-	-	145	-	140	-	-	160	-	M4
224	236.50	5.1	156	88	125	-	-	140	-	135	-	-	150	-	318
250	252.89	4.7	156	82	125	-	-	140	-	135	-	-	150	-	
280	291.08	4.1	156	71	120	-	-	135	-	135	-	-	145	-	
315	304.22	3.9	156	68	115	-	-	130	-	130	-	-	140	-	
355	350.17	3.4	156	59	110	-	-	125	-	125	-	-	135	-	

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X.K240..,n_1 = 1500 min^{-1}															156 kNm
					P_{TH} kW										
					M5 20°C					M4 20°C					📖
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW		Fan	Cooling coil H_2O	Cartridge H_2O	Fan + cartridge H_2O		Fan	Cooling coil H_2O	Cartridge H_2O	Fan + cartridge H_2O	
6.3[*)]	**6.38**	235	122	3100	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2K..**
7.1[*)]	**7.34**	204	128	2800	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
8[*)]	**8.09**	185	130	2600	*)	*)	-	*)	*)	*)	*)	-	*)	720	M5
9[*)]	**9.31**	161	135	2350	*)	*)	-	*)	*)	*)	*)	-	*)	680	286
10[*)]	**9.82**	153	136	2250	*)	*)	-	*)	*)	*)	*)	-	*)	1000	M4
11.2[*)]	**11.31**	133	143	2050	*)	*)	-	*)	*)	*)	*)	-	530	970	310
12.5[1)]	**11.92**	126	128	1750	*)	*)	-	*)	620	*)	440	-	760	1150	
14[1)]	**13.71**	109	137	1600	*)	*)	-	*)	610	*)	435	-	730	1100	
16	**15.32**	98	138	1450	*)	435	-	390	740	*)	580	-	770	1100	
18	**17.64**	85	156	1450	*)	425	-	360	710	*)	560	-	700	1000	
20	**20.36**	74	156	1250	*)	465	-	370	710	*)	590	-	660	980	
22.4	**23.44**	64	156	1100	*)	445	-	340	660	*)	560	-	590	900	**X3K..**
25	**25.64**	59	156	990	*)	425	-	315	610	*)	530	-	520	810	
28	**29.51**	51	156	860	*)	420	-	300	590	*)	520	-	485	770	M5
31.5	**32.47**	46	156	780	*)	450	-	340	590	235	530	-	470	730	290
35.5	**37.38**	40	156	680	170	440	-	325	560	235	510	-	440	690	M4
40	**39.96**	38	156	630	170	440	-	320	560	235	510	-	425	680	314
45	**46.00**	33	156	550	165	420	-	295	520	225	485	-	390	630	
50	**48.83**	31	156	520	180	405	-	285	495	225	465	-	365	580	
56	**56.20**	27	156	455	175	390	-	270	470	220	445	-	335	550	
63	**62.51**	24	156	410	180	375	-	260	445	215	425	-	315	510	
71	**71.95**	21	156	355	175	360	-	245	425	210	410	-	295	485	
80	**82.39**	18	156	310	185	-	-	245	-	210	-	-	285	-	
90	**94.83**	16	156	270	180	-	-	235	-	205	-	-	270	-	
100	**103.71**	14	156	245	170	-	-	215	-	195	-	-	250	-	
112	**119.37**	13	156	215	165	-	-	210	-	190	-	-	235	-	
125	**127.64**	12	156	200	165	-	-	210	-	190	-	-	235	-	**X4K..**
140	**146.91**	10	156	175	160	-	-	200	-	185	-	-	220	-	
160	**153.55**	9.8	156	165	150	-	-	185	-	170	-	-	210	-	M5
180	**176.74**	8.5	156	145	145	-	-	175	-	165	-	-	195	-	294
200	**205.47**	7.3	156	125	130	-	-	155	-	145	-	-	170	-	M4
224	**236.50**	6.3	156	110	125	-	-	145	-	140	-	-	160	-	318
250	**252.89**	5.9	156	105	125	-	-	145	-	140	-	-	160	-	
280	**291.08**	5.2	156	89	125	-	-	140	-	140	-	-	155	-	
315	**304.22**	4.9	156	85	120	-	-	135	-	135	-	-	150	-	
355	**350.17**	4.3	156	74	115	-	-	130	-	130	-	-	140	-	
X.K240..,n_1 = 1800 min^{-1}															**156 kNm**
6.3[*)]	**6.38**	282	115	3500	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2K..**
7.1[*)]	**7.34**	245	120	3150	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
8[*)]	**8.09**	222	123	2950	*)	*)	-	*)	*)	*)	*)	-	*)	*)	M5
9[*)]	**9.31**	193	127	2650	*)	*)	-	*)	*)	*)	*)	-	*)	*)	286
10[*)]	**9.82**	183	128	2550	*)	*)	-	*)	*)	*)	*)	-	*)	730[*)]	M4
11.2[*)]	**11.31**	159	135	2300	*)	*)	-	*)	*)	*)	*)	-	*)	720[*)]	310
12.5[1)]	**11.92**	151	121	2000	*)	*)	-	*)	*)	*)	*)	-	550	1050[*)]	
14[1)]	**13.71**	131	129	1850	*)	*)	-	*)	*)	*)	*)	-	540	1000[*)]	
16[1)]	**15.32**	117	130	1650	*)	*)	-	*)	700[*)]	*)	520[*)]	-	760	1150[*)]	
18[1)]	**17.64**	102	147	1650	*)	*)	-	*)	670[*)]	*)	510[*)]	-	720	1100[*)]	
20[1)]	**20.36**	88	147	1400	*)	385[*)]	-	*)	700[*)]	*)	560[*)]	-	680	1050[*)]	
22.4[1)]	**23.44**	77	156	1300	*)	375[*)]	-	*)	650[*)]	*)	540[*)]	-	600	960[*)]	**X3K..**
25[1)]	**25.64**	70	156	1200	*)	370[*)]	-	*)	600[*)]	*)	510[*)]	-	530	870[*)]	
28[1)]	**29.51**	61	156	1050	*)	370[*)]	-	*)	580[*)]	*)	510[*)]	-	485	820[*)]	M5
31.5[1)]	**32.47**	55	156	940	*)	450[*)]	-	315	610[*)]	*)	540[*)]	-	495	790[*)]	290
35.5[1)]	**37.38**	48	156	810	*)	445[*)]	-	300	590[*)]	*)	530[*)]	-	460	750[*)]	M4
40[1)]	**39.96**	45	156	760	*)	445[*)]	-	290	580[*)]	*)	530[*)]	-	440	730[*)]	314
45[1)]	**46.00**	39	156	660	*)	425[*)]	-	270	550[*)]	185	510[*)]	-	400	680[*)]	
50[1)]	**48.83**	37	156	630	*)	420[*)]	-	275	520[*)]	200	490[*)]	-	380	640[*)]	
56[1)]	**56.20**	32	156	550	140	400[*)]	-	260	495[*)]	195	465[*)]	-	350	600[*)]	
63[1)]	**62.51**	29	156	490	155	395[*)]	-	260	475[*)]	205	455[*)]	-	330	560[*)]	
71[1)]	**71.95**	25	156	425	155	380[*)]	-	240	450[*)]	200	435[*)]	-	305	530[*)]	
80	**82.39**	22	156	375	180	-	-	250	-	210	-	-	300	-	
90	**94.83**	19	156	325	175	-	-	240	-	205	-	-	285	-	
100	**103.71**	17	156	295	165	-	-	220	-	190	-	-	260	-	
112	**119.37**	15	156	260	160	-	-	215	-	190	-	-	250	-	
125	**127.64**	14	156	240	160	-	-	215	-	190	-	-	245	-	**X4K..**
140	**146.91**	12	156	210	155	-	-	200	-	180	-	-	230	-	
160	**153.55**	12	156	200	145	-	-	190	-	170	-	-	215	-	M5
180	**176.74**	10	156	175	140	-	-	180	-	165	-	-	205	-	294
200	**205.47**	8.8	156	150	130	-	-	160	-	150	-	-	180	-	M4
224	**236.50**	7.6	156	130	125	-	-	150	-	145	-	-	170	-	318
250	**252.89**	7.1	156	125	130	-	-	150	-	145	-	-	170	-	
280	**291.08**	6.2	156	105	125	-	-	145	-	140	-	-	160	-	
315	**304.22**	5.9	156	100	120	-	-	140	-	135	-	-	155	-	
355	**350.17**	5.1	156	89	115	-	-	135	-	130	-	-	145	-	

X.K250..,n_1 = 1000 min^{-1}															175 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	📖
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**6.86**	146	131	2050	*)	*)	-	*)	*)	*)	*)	-	*)	760	**X2K..**
8	**7.88**	127	137	1850	*)	*)	-	*)	*)	*)	*)	-	*)	720	
9	**8.69**	115	140	1700	*)	*)	-	*)	610	*)	*)	-	500	820	M5
10	**9.99**	100	145	1550	*)	*)	-	*)	620	*)	435	-	500	820	286
11.2	**10.56**	95	146	1500	*)	385	-	445	690	*)	520	-	560	820	M4
12.5	**12.13**	82	154	1350	*)	385	-	425	670	*)	520	-	530	790	310
14	**12.80**	78	138	1150	*)	425	-	485	710	*)	540	-	560	800	
16	**14.71**	68	148	1100	*)	410	-	450	670	*)	520	-	510	740	
18	**16.47**	61	149	980	*)	455	-	470	660	295	530	-	500	710	
20	**18.92**	53	162	930	*)	440	-	440	620	285	510	-	465	660	
22.4	**21.88**	46	169	840	230	440	-	425	600	295	510	-	445	640	
25	**25.14**	40	175	750	225	425	-	395	570	285	490	-	410	600	**X3K..**
28	**27.55**	36	175	690	220	410	-	370	540	275	470	-	385	570	
31.5	**31.64**	32	175	600	215	390	-	345	500	265	445	-	355	530	M5
35.5	**34.89**	29	175	540	235	390	-	345	490	275	440	-	345	510	290
40	**40.08**	25	175	475	225	375	-	320	460	260	420	-	325	475	M4
45	**42.95**	23	175	440	225	370	-	315	455	260	415	-	320	470	314
50	**49.33**	20	175	385	215	355	-	295	425	245	395	-	300	445	
56	**52.47**	19	175	365	205	335	-	275	400	235	370	-	280	410	
63	**60.27**	17	175	320	200	325	-	265	385	230	365	-	270	400	
71	**67.18**	15	175	285	190	305	-	245	355	215	340	-	245	365	
80	**77.17**	13	175	250	185	300	-	235	345	210	330	-	240	355	
90	**88.53**	11	175	215	185	-	-	230	-	205	-	-	230	-	
100	**101.70**	9.8	175	190	175	-	-	215	-	195	-	-	220	-	
112	**111.45**	9.0	175	170	170	-	-	205	-	185	-	-	205	-	
125	**128.02**	7.8	175	150	160	-	-	190	-	180	-	-	195	-	
140	**137.16**	7.3	175	140	165	-	-	190	-	180	-	-	195	-	**X4K..**
160	**157.56**	6.3	175	120	155	-	-	180	-	175	-	-	185	-	
180	**165.01**	6.1	175	115	145	-	-	170	-	165	-	-	175	-	M5
200	**189.54**	5.3	175	100	140	-	-	165	-	155	-	-	165	-	294
224	**220.81**	4.5	175	88	125	-	-	140	-	135	-	-	145	-	M4
250	**253.64**	3.9	175	76	120	-	-	135	-	130	-	-	140	-	318
280	**271.76**	3.7	175	71	120	-	-	135	-	130	-	-	140	-	
315	**312.17**	3.2	175	62	115	-	-	130	-	125	-	-	130	-	
355	**326.93**	3.1	175	59	110	-	-	125	-	125	-	-	130	-	
400	**375.54**	2.7	175	52	110	-	-	120	-	120	-	-	125	-	
X.K250..,n_1 = 1200 min^{-1}															**175 kNm**
7.1[1]	**6.86**	175	131	2450	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2K..**
8[1]	**7.88**	152	137	2250	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[1]	**8.69**	138	140	2050	*)	*)	-	*)	*)	*)	*)	-	*)	710	M5
10[1]	**9.99**	120	145	1850	*)	*)	-	*)	*)	*)	*)	-	*)	710	286
11.2[1]	**10.56**	114	146	1800	*)	*)	-	*)	640	*)	480	-	470	820	M4
12.5[1]	**12.13**	99	154	1650	*)	*)	-	*)	640	*)	480	-	470	820	310
14	**12.80**	94	138	1400	*)	380	-	420	740	*)	540	-	540	870	
16	**14.71**	82	148	1300	*)	370	-	385	690	*)	520	-	490	800	
18	**16.47**	73	149	1200	*)	470	-	460	720	*)	570	-	520	790	
20	**18.92**	63	162	1100	*)	455	-	425	680	*)	550	-	475	740	
22.4	**21.88**	55	169	1000	*)	465	-	415	660	260	550	-	455	710	
25	**25.14**	48	175	910	*)	450	-	385	620	255	530	-	420	670	**X3K..**
28	**27.55**	44	175	830	*)	435	-	365	590	250	510	-	395	630	
31.5	**31.64**	38	175	720	*)	415	-	340	550	240	485	-	365	590	M5
35.5	**34.89**	34	175	650	220	425	-	350	540	265	485	-	360	570	290
40	**40.08**	30	175	570	210	410	-	330	510	255	465	-	335	540	M4
45	**42.95**	28	175	530	210	405	-	320	500	255	460	-	330	530	314
50	**49.33**	24	175	460	200	385	-	300	475	245	440	-	310	495	
56	**52.47**	23	175	440	200	370	-	285	445	235	415	-	290	460	
63	**60.27**	20	175	380	195	360	-	275	430	230	405	-	280	450	
71	**67.18**	18	175	340	190	340	-	255	395	220	380	-	255	415	
80	**77.17**	16	175	300	185	330	-	245	385	215	370	-	250	400	
90	**88.53**	14	175	260	190	-	-	240	-	210	-	-	240	-	
100	**101.70**	12	175	225	180	-	-	225	-	205	-	-	230	-	
112	**111.45**	11	175	205	170	-	-	210	-	195	-	-	215	-	
125	**128.02**	9.4	175	180	165	-	-	200	-	185	-	-	205	-	
140	**137.16**	8.7	175	170	165	-	-	200	-	185	-	-	205	-	**X4K..**
160	**157.56**	7.6	175	145	160	-	-	190	-	180	-	-	195	-	
180	**165.01**	7.3	175	140	150	-	-	180	-	170	-	-	185	-	M5
200	**189.54**	6.3	175	120	145	-	-	170	-	160	-	-	175	-	294
224	**220.81**	5.4	175	105	130	-	-	145	-	140	-	-	150	-	M4
250	**253.64**	4.7	175	92	125	-	-	140	-	135	-	-	145	-	318
280	**271.76**	4.4	175	86	125	-	-	140	-	135	-	-	145	-	
315	**312.17**	3.8	175	75	120	-	-	135	-	130	-	-	140	-	
355	**326.93**	3.7	175	71	115	-	-	130	-	130	-	-	135	-	
400	**375.54**	3.2	175	62	110	-	-	125	-	125	-	-	130	-	

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X.K250..,n_1 = 1500 min^{-1}															175 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	📖
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1[*)]	**6.86**	219	131	3050	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2K..**
8[*)]	**7.88**	190	137	2800	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[*)]	**8.69**	173	140	2600	*)	*)	-	*)	*)	*)	*)	-	*)	*)	M5
10[*)]	**9.99**	150	145	2350	*)	*)	-	*)	*)	*)	*)	-	*)	*)	286
11.2[*)]	**10.56**	142	146	2250	*)	*)	-	*)	*)	*)	*)	-	*)	680	M4
12.5[*)]	**12.13**	124	154	2050	*)	*)	-	*)	*)	*)	*)	-	*)	680	310
14[1)]	**12.80**	117	138	1750	*)	*)	-	*)	640	*)	450	-	*)	860	
16[1)]	**14.71**	102	148	1650	*)	*)	-	*)	620	*)	440	-	*)	830	
18	**16.47**	91	149	1450	*)	440	-	400	760	*)	580	-	510	880	
20	**18.92**	79	162	1400	*)	430	-	370	710	*)	570	-	465	820	
22.4	**21.88**	69	169	1250	*)	455	-	370	700	*)	580	-	445	790	
25	**25.14**	60	175	1150	*)	440	-	340	660	*)	560	-	405	740	**X3K..**
28	**27.55**	54	175	1050	*)	435	-	325	620	*)	540	-	380	700	
31.5	**31.64**	47	175	900	*)	415	-	300	580	*)	520	-	350	650	M5
35.5	**34.89**	43	175	820	*)	460	-	350	600	240	530	-	370	640	290
40	**40.08**	37	175	710	*)	440	-	325	560	230	510	-	345	600	M4
45	**42.95**	35	175	660	170	435	-	320	550	230	510	-	335	590	314
50	**49.33**	30	175	580	165	415	-	295	520	225	485	-	315	560	
56	**52.47**	29	175	550	175	405	-	290	495	225	460	-	300	520	
63	**60.27**	25	175	475	175	395	-	275	480	220	450	-	285	510	
71	**67.18**	22	175	430	180	375	-	260	445	215	425	-	265	470	
80	**77.17**	19	175	370	175	365	-	250	430	210	415	-	255	400	
90	**88.53**	17	175	325	185	-	-	250	-	215	-	-	255	-	
100	**101.70**	15	175	285	180	-	-	235	-	205	-	-	240	-	
112	**111.45**	13	175	260	170	-	-	220	-	195	-	-	225	-	
125	**128.02**	12	175	225	165	-	-	210	-	190	-	-	215	-	
140	**137.16**	11	175	210	165	-	-	210	-	190	-	-	215	-	**X4K..**
160	**157.56**	9.5	175	185	160	-	-	200	-	180	-	-	205	-	
180	**165.01**	9.1	175	175	150	-	-	185	-	170	-	-	190	-	M5
200	**189.54**	7.9	175	150	145	-	-	175	-	165	-	-	180	-	294
224	**220.81**	6.8	175	130	130	-	-	155	-	150	-	-	160	-	M4
250	**253.64**	5.9	175	115	125	-	-	150	-	140	-	-	150	-	318
280	**271.76**	5.5	175	105	130	-	-	150	-	145	-	-	150	-	
315	**312.17**	4.8	175	93	125	-	-	140	-	135	-	-	145	-	
355	**326.93**	4.6	175	89	120	-	-	135	-	135	-	-	140	-	
400	**375.54**	4.0	175	77	115	-	-	130	-	130	-	-	135	-	
X.K250..,n_1 = 1800 min^{-1}															**175 kNm**
7.1[*)]	**6.86**	262	123	3450	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2K..**
8[*)]	**7.88**	228	129	3150	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[*)]	**8.69**	207	132	2950	*)	*)	-	*)	*)	*)	*)	-	*)	*)	M5
10[*)]	**9.99**	180	137	2650	*)	*)	-	*)	*)	*)	*)	-	*)	*)	286
11.2[*)]	**10.56**	170	138	2550	*)	*)	-	*)	*)	*)	*)	-	*)	*)	M4
12.5[*)]	**12.13**	148	145	2350	*)	*)	-	*)	*)	*)	*)	-	*)	*)	310
14[1)]	**12.80**	141	130	2000	*)	*)	-	*)	*)	*)	*)	-	*)	720[*)]	
16[1)]	**14.71**	122	139	1850	*)	*)	-	*)	*)	*)	*)	-	*)	700[*)]	
18[1)]	**16.47**	109	140	1650	*)	*)	-	*)	720[*)]	*)	530[*)]	-	445	900[*)]	
20[1)]	**18.92**	95	153	1600	*)	*)	-	*)	690[*)]	*)	520[*)]	-	420	850[*)]	
22.4[1)]	**21.88**	82	159	1400	*)	380[*)]	-	*)	690[*)]	*)	550[*)]	-	400	820[*)]	
25[1)]	**25.14**	72	175	1350	*)	370[*)]	-	*)	640[*)]	*)	530[*)]	-	360	760[*)]	**X3K..**
28[1)]	**27.55**	65	174	1250	*)	375[*)]	-	*)	620[*)]	*)	520[*)]	-	335	720[*)]	
31.5[1)]	**31.64**	57	175	1100	*)	365[*)]	-	*)	580[*)]	*)	500[*)]	-	305	670[*)]	M5
35.5[1)]	**34.89**	52	175	980	*)	460[*)]	-	320	630[*)]	*)	550[*)]	-	365	690[*)]	290
40[1)]	**40.08**	45	175	850	*)	440[*)]	-	300	590[*)]	*)	530[*)]	-	335	640[*)]	M4
45[1)]	**42.95**	42	175	790	*)	440[*)]	-	290	580[*)]	*)	530[*)]	-	325	630[*)]	314
50[1)]	**49.33**	36	175	690	*)	420[*)]	-	270	540[*)]	185	500[*)]	-	305	590[*)]	
56[1)]	**52.47**	34	175	660	*)	415[*)]	-	275	520[*)]	200	485[*)]	-	300	560[*)]	
63[1)]	**60.27**	30	175	570	*)	405[*)]	-	265	500[*)]	200	475[*)]	-	285	540[*)]	
71[1)]	**67.18**	27	175	510	155	395[*)]	-	260	475[*)]	205	450[*)]	-	270	510[*)]	
80[1)]	**77.17**	23	175	445	155	385[*)]	-	250	460[*)]	200	440[*)]	-	260	455	
90	**88.53**	20	175	390	180	-	-	260	-	215	-	-	260	-	
100	**101.70**	18	175	340	175	-	-	240	-	205	-	-	245	-	
112	**111.45**	16	175	310	165	-	-	225	-	195	-	-	230	-	
125	**128.02**	14	175	270	160	-	-	215	-	190	-	-	220	-	
140	**137.16**	13	175	250	160	-	-	215	-	190	-	-	220	-	**X4K..**
160	**157.56**	11	175	220	155	-	-	200	-	180	-	-	205	-	
180	**165.01**	11	175	210	145	-	-	190	-	170	-	-	195	-	M5
200	**189.54**	9.5	175	180	140	-	-	180	-	165	-	-	185	-	294
224	**220.81**	8.2	175	160	135	-	-	160	-	150	-	-	165	-	M4
250	**253.64**	7.1	175	140	130	-	-	155	-	145	-	-	155	-	318
280	**271.76**	6.6	175	130	130	-	-	155	-	145	-	-	155	-	
315	**312.17**	5.8	175	110	125	-	-	145	-	140	-	-	150	-	
355	**326.93**	5.5	175	105	120	-	-	140	-	135	-	-	145	-	
400	**375.54**	4.8	175	93	115	-	-	135	-	130	-	-	140	-	

X.K260..,n_1 = 1000 min^{-1}															205 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C					M4 20°C					📖
		min^{-1}	kNm	kW		fan	H_2O cooling cover	H_2O cooling coil	fan + H_2O		fan	H_2O cooling cover	H_2O cooling coil	fan + H_2O	
12.5	**12.59**	79	166	1450	*)	495	-	580	840	*)	640	-	1000	1300	
14	**14.24**	70	175	1350	*)	475	-	540	790	*)	620	-	920	1150	
16	**16.19**	62	185	1250	*)	550	-	580	800	325	660	-	860	1100	
18	**18.32**	55	195	1150	*)	530	-	540	750	315	630	-	780	1000	
20	**21.10**	47	205	1050	*)	540	-	520	730	320	630	-	730	950	
22.4	**23.86**	42	205	930	235	530	-	495	700	315	620	-	680	900	**X3K..**
25	**26.09**	38	205	850	220	480	-	435	620	290	560	-	590	790	
28	**29.51**	34	205	750	215	470	-	415	600	285	550	-	550	750	M5
31.5	**30.68**	33	205	720	220	470	-	410	600	285	550	-	540	730	290
35.5	**34.70**	29	205	640	215	460	-	390	570	280	540	-	510	700	M4
40	**38.86**	26	205	570	245	460	-	390	550	295	520	-	475	650	314
45	**43.96**	23	205	510	235	440	-	365	520	280	495	-	440	600	
50	**47.48**	21	205	470	235	425	-	350	495	275	475	-	410	570	
56	**53.70**	19	205	420	230	420	-	335	480	270	465	-	395	540	
63	**60.78**	16	205	370	215	385	-	305	430	250	425	-	345	485	
71	**68.75**	15	205	325	210	365	-	285	410	240	405	-	325	455	
80	**84.73**	12	205	265	195	-	-	260	-	220	-	-	290	-	
90	**95.84**	10	205	235	190	-	-	245	-	215	-	-	275	-	
100	**104.76**	9.5	205	215	175	-	-	225	-	200	-	-	250	-	
112	**118.50**	8.4	205	190	170	-	-	215	-	190	-	-	235	-	
125	**123.21**	8.1	205	180	170	-	-	215	-	195	-	-	235	-	**X4K..**
140	**139.37**	7.2	205	160	170	-	-	210	-	190	-	-	230	-	
160	**152.63**	6.6	205	145	165	-	-	200	-	185	-	-	220	-	M5
180	**172.65**	5.8	205	130	160	-	-	190	-	180	-	-	210	-	294
200	**203.69**	4.9	205	110	140	-	-	165	-	155	-	-	180	-	M4
224	**230.40**	4.3	205	99	140	-	-	160	-	150	-	-	175	-	318
250	**239.55**	4.2	205	95	140	-	-	160	-	155	-	-	175	-	
280	**270.97**	3.7	205	84	135	-	-	155	-	150	-	-	165	-	
315	**296.76**	3.4	205	77	135	-	-	150	-	145	-	-	165	-	
355	**335.68**	3.0	205	68	130	-	-	145	-	140	-	-	155	-	
X.K260..,n_1 = 1200 min^{-1}															**205 kNm**
12.5[1]	**12.59**	95	166	1700	*)	*)	-	485	840	*)	620	-	1100	1400	
14[1]	**14.24**	84	175	1600	*)	*)	-	440	780	*)	600	-	970	1300	
16	**16.19**	74	185	1500	*)	560	-	560	860	*)	700	-	940	1250	
18	**18.32**	66	195	1400	*)	540	-	520	800	*)	670	-	850	1150	
20	**21.10**	57	205	1250	*)	550	-	500	780	*)	670	-	780	1050	
22.4	**23.86**	50	205	1100	*)	540	-	475	750	*)	660	-	730	1000	**X3K..**
25	**26.09**	46	205	1000	*)	495	-	420	670	*)	600	-	620	880	
28	**29.51**	41	205	900	*)	485	-	400	640	240	590	-	580	840	M5
31.5	**30.68**	39	205	870	*)	490	-	395	640	245	590	-	570	820	290
35.5	**34.70**	35	205	770	*)	480	-	375	610	240	580	-	530	780	M4
40	**38.86**	31	205	690	225	500	-	400	610	280	580	-	510	730	314
45	**43.96**	27	205	610	215	480	-	370	570	270	550	-	470	680	
50	**47.48**	25	205	570	225	470	-	360	550	270	530	-	440	640	
56	**53.70**	22	205	500	220	460	-	345	530	265	520	-	420	620	
63	**60.78**	20	205	445	215	425	-	315	480	250	475	-	370	550	
71	**68.75**	17	205	390	205	410	-	295	455	240	455	-	345	520	
80	**84.73**	14	205	320	195	-	-	270	-	225	-	-	310	-	
90	**95.84**	13	205	280	190	-	-	255	-	215	-	-	290	-	
100	**104.76**	11	205	255	175	-	-	235	-	200	-	-	265	-	
112	**118.50**	10	205	230	170	-	-	225	-	195	-	-	250	-	
125	**123.21**	9.7	205	220	175	-	-	225	-	195	-	-	250	-	**X4K..**
140	**139.37**	8.6	205	195	170	-	-	220	-	195	-	-	240	-	
160	**152.63**	7.9	205	175	165	-	-	210	-	190	-	-	230	-	M5
180	**172.65**	7.0	205	155	160	-	-	200	-	180	-	-	220	-	294
200	**203.69**	5.9	205	135	145	-	-	175	-	160	-	-	190	-	M4
224	**230.40**	5.2	205	120	140	-	-	170	-	160	-	-	185	-	318
250	**239.55**	5.0	205	115	145	-	-	170	-	160	-	-	185	-	
280	**270.97**	4.4	205	100	140	-	-	160	-	155	-	-	175	-	
315	**296.76**	4.0	205	92	135	-	-	160	-	150	-	-	170	-	
355	**335.68**	3.6	205	81	130	-	-	150	-	145	-	-	165	-	

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X.K260..,n_1 = 1500 min^{-1}															205 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
12.5[1)]	**12.59**	119	166	2150	*)	*)	-	*)	650	*)	*)	-	940	1400	
14[1)]	**14.24**	105	175	2000	*)	*)	-	*)	630	*)	*)	-	900	1350	
16[1)]	**16.19**	93	185	1850	*)	500	-	475	870	*)	690	-	1000	1400	
18[1)]	**18.32**	82	195	1750	*)	485	-	435	810	*)	660	-	910	1300	
20[1)]	**21.10**	71	205	1600	*)	510	-	425	800	*)	680	-	830	1200	
22.4[1)]	**23.86**	63	205	1400	*)	500	-	395	770	*)	670	-	760	1150	**X3K..**
25[1)]	**26.09**	57	205	1300	*)	470	-	350	680	*)	610	-	650	980	
28[1)]	**29.51**	51	205	1150	*)	460	-	325	660	*)	600	-	600	930	M5
31.5[1)]	**30.68**	49	205	1100	*)	465	-	325	650	*)	600	-	580	910	290
35.5[1)]	**34.70**	43	205	960	*)	460	-	305	620	*)	590	-	540	860	M4
40[1)]	**38.86**	39	205	860	*)	530	-	385	660	245	630	-	550	830	314
45[1)]	**43.96**	34	205	760	*)	510	-	360	620	235	600	-	500	780	
50[1)]	**47.48**	32	205	710	190	510	-	365	610	255	590	-	480	740	
56[1)]	**53.70**	28	205	630	190	500	-	345	590	250	580	-	450	700	
63[1)]	**60.78**	25	205	550	195	470	-	325	540	245	530	-	400	630	
71[1)]	**68.75**	22	205	490	190	450	-	305	510	235	510	-	375	590	
80	**84.73**	18	205	400	190	-	-	285	-	225	-	-	335	-	
90	**95.84**	16	205	350	185	-	-	270	-	215	-	-	310	-	
100	**104.76**	14	205	320	175	-	-	245	-	200	-	-	285	-	
112	**118.50**	13	205	285	165	-	-	235	-	195	-	-	265	-	
125	**123.21**	12	205	275	170	-	-	235	-	200	-	-	270	-	**X4K..**
140	**139.37**	11	205	240	165	-	-	225	-	195	-	-	255	-	
160	**152.63**	9.8	205	220	160	-	-	215	-	190	-	-	245	-	M5
180	**172.65**	8.7	205	195	155	-	-	205	-	180	-	-	230	-	294
200	**203.69**	7.4	205	165	145	-	-	185	-	165	-	-	200	-	M4
224	**230.40**	6.5	205	150	145	-	-	175	-	160	-	-	195	-	318
250	**239.55**	6.3	205	140	145	-	-	180	-	165	-	-	195	-	
280	**270.97**	5.5	205	125	140	-	-	170	-	160	-	-	185	-	
315	**296.76**	5.1	205	115	140	-	-	165	-	155	-	-	180	-	
355	**335.68**	4.5	205	100	135	-	-	160	-	150	-	-	175	-	
X.K260..,n_1 = 1800 min^{-1}															**205 kNm**
12.5[*)]	**12.59**	143	157	2450	*)	*)	-	*)	*)	*)	*)	-	640	1200[*)]	
14[*)]	**14.24**	126	166	2250	*)	*)	-	*)	*)	*)	*)	-	620	1150[*)]	
16[*)]	**16.19**	111	175	2100	*)	*)	-	*)	760[*)]	*)	600[*)]	-	960	1400[*)]	
18[*)]	**18.32**	98	186	2000	*)	*)	-	*)	740[*)]	*)	580[*)]	-	930	1350[*)]	
20[*)]	**21.10**	85	199	1850	*)	*)	-	*)	740[*)]	*)	620[*)]	-	840	1300[*)]	
22.4[*)]	**23.86**	75	205	1700	*)	*)	-	*)	700[*)]	*)	610[*)]	-	760	1200[*)]	**X3K..**
25[*)]	**26.09**	69	205	1550	*)	*)	-	*)	630[*)]	*)	560[*)]	-	640	1050[*)]	
28[*)]	**29.51**	61	205	1350	*)	360[*)]	-	*)	600[*)]	*)	550[*)]	-	580	970[*)]	M5
31.5[*)]	**30.68**	59	205	1300	*)	375[*)]	-	*)	600[*)]	*)	560[*)]	-	570	950[*)]	290
35.5[*)]	**34.70**	52	205	1150	*)	365[*)]	-	*)	580[*)]	*)	550[*)]	-	510	900[*)]	M4
40[*)]	**38.86**	46	205	1050	*)	530[*)]	-	350	680[*)]	*)	640[*)]	-	570	900[*)]	314
45[*)]	**43.96**	41	205	910	*)	500[*)]	-	325	640[*)]	*)	620[*)]	-	520	840[*)]	
50[*)]	**47.48**	38	205	850	*)	520[*)]	-	350	640[*)]	220	620[*)]	-	500	800[*)]	
56[*)]	**53.70**	34	205	750	*)	510[*)]	-	330	620[*)]	215	600[*)]	-	470	770[*)]	
63[*)]	**60.78**	30	205	660	165	495[*)]	-	320	570[*)]	225	570[*)]	-	425	690[*)]	
71[*)]	**68.75**	26	205	590	160	475[*)]	-	300	540[*)]	215	540[*)]	-	395	650[*)]	
80	**84.73**	21	205	480	175	-	-	290	-	215	-	-	350	-	
90	**95.84**	19	205	420	170	-	-	270	-	210	-	-	330	-	
100	**104.76**	17	205	385	160	-	-	250	-	195	-	-	300	-	
112	**118.50**	15	205	340	155	-	-	235	-	190	-	-	280	-	
125	**123.21**	15	205	330	160	-	-	235	-	195	-	-	280	-	**X4K..**
140	**139.37**	13	205	290	155	-	-	225	-	190	-	-	265	-	
160	**152.63**	12	205	265	155	-	-	220	-	185	-	-	255	-	M5
180	**172.65**	10	205	235	145	-	-	205	-	180	-	-	240	-	294
200	**203.69**	8.8	205	200	145	-	-	190	-	170	-	-	210	-	M4
224	**230.40**	7.8	205	175	145	-	-	185	-	165	-	-	205	-	318
250	**239.55**	7.5	205	170	145	-	-	185	-	165	-	-	205	-	
280	**270.97**	6.6	205	150	140	-	-	175	-	160	-	-	195	-	
315	**296.76**	6.1	205	140	140	-	-	170	-	160	-	-	190	-	
355	**335.68**	5.4	205	120	135	-	-	165	-	155	-	-	180	-	

X.K270..,n_1 = 1000 min^{-1}															240 kNm
					P_{TH} kW										
					M5				20°C	M4				20°C	
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
14	**13.83**	72	186	1450	*)	510	-	600	860	*)	660	-	690	970	
16	**15.48**	65	193	1350	*)	490	-	550	800	*)	630	-	630	900	
18	**17.78**	56	203	1250	*)	580	-	600	840	345	690	-	640	900	
20	**19.91**	50	212	1150	*)	560	-	560	780	330	660	-	590	840	
22.4	**23.17**	43	231	1100	*)	550	-	530	740	330	640	-	550	780	
25	**25.94**	39	240	1000	*)	540	-	510	720	330	640	-	530	760	**X3K..**
28	**28.65**	35	240	910	230	495	-	445	640	300	580	-	460	670	
31.5	**32.07**	31	240	810	225	485	-	430	620	295	560	-	440	640	M5
35.5	**33.70**	30	240	770	230	485	-	420	610	295	560	-	430	630	290
40	**37.72**	27	240	690	225	475	-	405	590	290	550	-	410	610	M4
45	**42.68**	23	240	610	250	460	-	390	550	295	520	-	385	560	314
50	**47.78**	21	240	540	250	460	-	380	540	295	520	-	380	560	
56	**52.14**	19	240	500	240	435	-	355	500	280	485	-	350	510	
63	**58.37**	17	240	450	240	425	-	345	490	275	475	-	340	500	
71	**66.76**	15	240	395	220	385	-	300	430	250	425	-	300	435	
80	**74.73**	13	240	350	220	385	-	300	425	250	425	-	295	435	
90	**93.07**	11	237	280	195	-	-	260	-	220	-	-	255	-	
100	**104.18**	9.6	240	255	195	-	-	250	-	215	-	-	250	-	
112	**115.07**	8.7	240	230	175	-	-	225	-	200	-	-	225	-	
125	**128.81**	7.8	240	205	175	-	-	225	-	200	-	-	220	-	
140	**135.33**	7.4	240	195	175	-	-	220	-	200	-	-	220	-	**X4K..**
160	**151.49**	6.6	240	175	175	-	-	215	-	195	-	-	215	-	
180	**167.65**	6.0	240	155	165	-	-	200	-	185	-	-	200	-	M5
200	**187.66**	5.3	240	140	165	-	-	200	-	185	-	-	200	-	294
224	**223.73**	4.5	240	120	145	-	-	170	-	160	-	-	170	-	M4
250	**250.44**	4.0	240	105	140	-	-	165	-	155	-	-	165	-	318
280	**263.12**	3.8	240	100	140	-	-	160	-	155	-	-	165	-	
315	**294.53**	3.4	240	90	140	-	-	160	-	155	-	-	165	-	
355	**325.95**	3.1	240	82	135	-	-	150	-	150	-	-	155	-	
400	**364.87**	2.7	240	73	130	-	-	150	-	145	-	-	150	-	
X.K270..,n_1 = 1200 min^{-1}															**240 kNm**
14[1)]	**13.83**	87	186	1750	*)	*)	-	495	850	*)	640	-	670	1050	
16[1)]	**15.48**	78	193	1600	*)	415	-	455	800	*)	620	-	600	960	
18	**17.78**	67	203	1500	*)	590	-	580	890	*)	730	-	660	990	
20	**19.91**	60	212	1400	*)	570	-	540	840	*)	700	-	610	920	
22.4	**23.17**	52	231	1300	*)	570	-	510	790	*)	690	-	560	860	
25	**25.94**	46	240	1200	*)	560	-	490	770	*)	680	-	530	830	**X3K..**
28	**28.65**	42	240	1100	*)	510	-	430	680	*)	620	-	460	740	
31.5	**32.07**	37	240	970	*)	500	-	410	660	255	600	-	440	710	M5
35.5	**33.70**	36	240	930	*)	500	-	405	650	255	600	-	430	700	290
40	**37.72**	32	240	830	*)	495	-	385	630	250	590	-	410	670	M4
45	**42.68**	28	240	730	225	500	-	395	600	285	570	-	400	630	314
50	**47.78**	25	240	650	230	500	-	390	600	285	580	-	395	620	
56	**52.14**	23	240	600	230	480	-	365	560	275	540	-	365	580	
63	**58.37**	21	240	540	225	470	-	355	540	270	530	-	355	560	
71	**66.76**	18	240	470	215	425	-	315	480	250	475	-	310	495	
80	**74.73**	16	240	420	215	425	-	310	475	250	475	-	310	490	
90	**93.07**	13	237	335	195	-	-	270	-	225	-	-	265	-	
100	**104.18**	12	240	305	195	-	-	260	-	220	-	-	260	-	
112	**115.07**	10	240	275	180	-	-	235	-	205	-	-	235	-	
125	**128.81**	9.3	240	245	180	-	-	235	-	205	-	-	230	-	
140	**135.33**	8.9	240	235	175	-	-	230	-	200	-	-	230	-	**X4K..**
160	**151.49**	7.9	240	210	175	-	-	225	-	200	-	-	220	-	
180	**167.65**	7.2	240	190	165	-	-	210	-	190	-	-	210	-	M5
200	**187.66**	6.4	240	170	165	-	-	205	-	190	-	-	210	-	294
224	**223.73**	5.4	240	145	145	-	-	175	-	165	-	-	180	-	M4
250	**250.44**	4.8	240	125	145	-	-	170	-	160	-	-	175	-	318
280	**263.12**	4.6	240	120	145	-	-	170	-	160	-	-	170	-	
315	**294.53**	4.1	240	110	145	-	-	170	-	160	-	-	170	-	
355	**325.95**	3.7	240	98	135	-	-	160	-	155	-	-	160	-	
400	**364.87**	3.3	240	87	135	-	-	155	-	150	-	-	160	-	

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X.K270..,n_1 = 1500 min^{-1}															240 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	📖
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
14[1)]	**13.83**	108	186	2200	*)	*)	-	*)	660	*)	*)	-	*)	960	
16[1)]	**15.48**	97	193	2050	*)	*)	-	*)	640	*)	*)	-	*)	920	
18[1)]	**17.78**	84	203	1850	*)	530	-	495	910	*)	730	-	650	1100	
20[1)]	**19.91**	75	212	1750	*)	510	-	455	850	*)	700	-	590	1000	
22.4[1)]	**23.17**	65	231	1600	*)	530	-	430	810	*)	700	-	530	940	
25[1)]	**25.94**	58	240	1500	*)	520	-	410	790	*)	690	-	500	900	**X3K..**
28[1)]	**28.65**	52	240	1350	*)	485	-	360	700	*)	630	-	435	800	
31.5[1)]	**32.07**	47	240	1200	*)	480	-	340	680	*)	620	-	405	760	M5
35.5[1)]	**33.70**	45	240	1150	*)	485	-	335	670	*)	620	-	400	750	290
40[1)]	**37.72**	40	240	1050	*)	475	-	315	640	*)	610	-	375	720	M4
45[1)]	**42.68**	35	240	910	*)	540	-	385	660	250	630	-	405	700	314
50[1)]	**47.78**	31	240	820	*)	540	-	375	650	250	630	-	395	700	
56[1)]	**52.14**	29	240	760	200	520	-	370	620	260	600	-	380	650	
63[1)]	**58.37**	26	240	670	195	510	-	355	600	255	590	-	365	630	
71[1)]	**66.76**	22	240	590	200	470	-	325	540	245	530	-	325	560	
80[1)]	**74.73**	20	240	530	200	475	-	315	530	245	530	-	320	560	
90	**93.07**	16	237	420	190	-	-	280	-	225	-	-	280	-	
100	**104.18**	14	240	380	190	-	-	275	-	220	-	-	270	-	
112	**115.07**	13	240	345	175	-	-	245	-	205	-	-	245	-	
125	**128.81**	12	240	305	175	-	-	240	-	205	-	-	240	-	
140	**135.33**	11	240	290	175	-	-	240	-	200	-	-	240	-	**X4K..**
160	**151.49**	9.9	240	260	170	-	-	230	-	200	-	-	230	-	
180	**167.65**	8.9	240	235	165	-	-	215	-	190	-	-	220	-	M5
200	**187.66**	8.0	240	210	165	-	-	215	-	190	-	-	215	-	294
224	**223.73**	6.7	240	180	150	-	-	185	-	170	-	-	185	-	M4
250	**250.44**	6.0	240	160	145	-	-	180	-	165	-	-	180	-	318
280	**263.12**	5.7	240	150	145	-	-	180	-	165	-	-	180	-	
315	**294.53**	5.1	240	135	145	-	-	175	-	165	-	-	180	-	
355	**325.95**	4.6	240	120	140	-	-	165	-	160	-	-	170	-	
400	**364.87**	4.1	240	110	135	-	-	165	-	155	-	-	165	-	
X.K270..,n_1 = 1800 min^{-1}															**240 kNm**
14[*)]	**13.83**	130	178	2500	*)	*)	-	*)	*)	*)	*)	-	*)	720[*)]	
16[*)]	**15.48**	116	184	2300	*)	*)	-	*)	*)	*)	*)	-	*)	700[*)]	
18[*)]	**17.78**	101	194	2150	*)	*)	-	*)	800[*)]	*)	640[*)]	-	*)	1050[*)]	
20[*)]	**19.91**	90	203	2000	*)	*)	-	*)	770[*)]	*)	620[*)]	-	510	1000[*)]	
22.4[*)]	**23.17**	78	222	1850	*)	*)	-	*)	750[*)]	*)	640[*)]	-	*)	950[*)]	
25[*)]	**25.94**	69	233	1750	*)	*)	-	*)	730[*)]	*)	630[*)]	-	*)	910[*)]	**X3K..**
28[*)]	**28.65**	63	240	1650	*)	*)	-	*)	650[*)]	*)	590[*)]	-	*)	800[*)]	
31.5[*)]	**32.07**	56	240	1450	*)	380[*)]	-	*)	620[*)]	*)	580[*)]	-	*)	760[*)]	M5
35.5[*)]	**33.70**	53	240	1400	*)	390[*)]	-	*)	620[*)]	*)	580[*)]	-	*)	750[*)]	290
40[*)]	**37.72**	48	240	1250	*)	385[*)]	-	*)	600[*)]	*)	580[*)]	-	*)	720[*)]	M4
45[*)]	**42.68**	42	240	1100	*)	530[*)]	-	350	680[*)]	*)	640[*)]	-	395	750[*)]	314
50[*)]	**47.78**	38	240	980	*)	530[*)]	-	340	670[*)]	*)	650[*)]	-	380	740[*)]	
56[*)]	**52.14**	35	240	910	*)	540[*)]	-	355	650[*)]	*)	630[*)]	-	380	700[*)]	
63[*)]	**58.37**	31	240	810	*)	530[*)]	-	340	630[*)]	220	620[*)]	-	360	680[*)]	
71[*)]	**66.76**	27	240	710	*)	495[*)]	-	320	570[*)]	225	570[*)]	-	330	610[*)]	
80[*)]	**74.73**	24	240	630	170	495[*)]	-	315	570[*)]	230	570[*)]	-	325	600[*)]	
90	**93.07**	19	237	500	175	-	-	285	-	215	-	-	285	-	
100	**104.18**	17	240	455	175	-	-	275	-	215	-	-	275	-	
112	**115.07**	16	240	410	160	-	-	250	-	200	-	-	250	-	
125	**128.81**	14	240	370	160	-	-	245	-	200	-	-	245	-	
140	**135.33**	13	240	350	160	-	-	240	-	195	-	-	240	-	**X4K..**
160	**151.49**	12	240	315	160	-	-	230	-	195	-	-	235	-	
180	**167.65**	11	240	285	155	-	-	220	-	185	-	-	220	-	M5
200	**187.66**	9.6	240	250	155	-	-	215	-	185	-	-	220	-	294
224	**223.73**	8.0	240	215	150	-	-	190	-	170	-	-	195	-	M4
250	**250.44**	7.2	240	190	145	-	-	185	-	170	-	-	190	-	318
280	**263.12**	6.8	240	180	145	-	-	185	-	165	-	-	185	-	
315	**294.53**	6.1	240	165	145	-	-	180	-	165	-	-	185	-	
355	**325.95**	5.5	240	145	140	-	-	170	-	160	-	-	175	-	
400	**364.87**	4.9	240	130	135	-	-	165	-	155	-	-	170	-	

X.K280..,n_1 = 1000 min^{-1}															270 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	📖
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
16	**15.48**	65	209	1450	*)	620	-	700	990	*)	780	-	790	1100	
18	**17.34**	58	217	1350	*)	620	-	670	960	*)	770	-	750	1050	
20	**19.91**	50	230	1250	*)	660	-	670	920	400	770	-	710	980	
22.4	**22.30**	45	240	1150	305	650	-	650	900	395	760	-	680	950	
25	**25.94**	39	260	1100	320	660	-	620	870	405	760	-	640	910	
28	**29.05**	34	270	1000	305	630	-	580	820	385	730	-	600	860	**X3K..**
31.5	**32.07**	31	270	910	290	590	-	530	750	360	680	-	540	780	
35.5	**35.92**	28	270	810	275	560	-	490	700	345	640	-	500	730	M5
40	**37.72**	27	270	780	285	580	-	495	710	355	660	-	500	740	290
45	**42.25**	24	270	690	280	560	-	475	690	350	650	-	485	720	M4
50	**47.78**	21	270	610	295	540	-	450	630	345	600	-	445	650	314
56	**53.51**	19	270	550	290	530	-	435	610	340	590	-	430	630	
63	**58.37**	17	270	510	285	510	-	410	580	325	560	-	405	590	
71	**65.38**	15	270	450	275	485	-	385	550	315	540	-	385	560	
80	**74.73**	13	270	395	255	440	-	345	490	290	490	-	340	500	
90	**83.70**	12	270	355	250	435	-	335	475	280	480	-	330	485	
100	**104.18**	9.6	264	280	230	-	-	295	-	255	-	-	290	-	
112	**116.68**	8.6	270	255	225	-	-	290	-	250	-	-	285	-	
125	**128.81**	7.8	270	230	205	-	-	260	-	230	-	-	260	-	
140	**144.27**	6.9	270	205	200	-	-	250	-	225	-	-	250	-	
160	**151.49**	6.6	270	195	205	-	-	255	-	230	-	-	250	-	**X4K..**
180	**169.67**	5.9	270	175	200	-	-	245	-	225	-	-	245	-	
200	**187.66**	5.3	270	160	190	-	-	230	-	215	-	-	235	-	M5
224	**210.18**	4.8	270	140	190	-	-	225	-	210	-	-	225	-	294
250	**250.44**	4.0	270	120	160	-	-	190	-	180	-	-	190	-	M4
280	**280.49**	3.6	270	105	160	-	-	185	-	180	-	-	190	-	318
315	**294.53**	3.4	270	100	160	-	-	185	-	175	-	-	185	-	
355	**329.88**	3.0	270	91	155	-	-	180	-	175	-	-	185	-	
400	**364.87**	2.7	270	82	155	-	-	175	-	170	-	-	175	-	
450	**408.66**	2.4	270	73	150	-	-	170	-	165	-	-	175	-	
X.K280..,n_1 = 1200 min^{-1}															**270 kNm**
16[1)]	**15.48**	78	209	1750	*)	560	-	620	1000	*)	780	-	780	1200	
18[1)]	**17.34**	69	217	1650	*)	570	-	590	980	*)	770	-	740	1150	
20	**19.91**	60	230	1500	*)	680	-	660	990	*)	820	-	740	1100	
22.4	**22.30**	54	240	1400	*)	680	-	640	960	*)	820	-	700	1050	
25	**25.94**	46	260	1300	*)	690	-	620	940	355	820	-	660	1000	
28	**29.05**	41	270	1200	*)	660	-	570	880	345	780	-	610	950	**X3K..**
31.5	**32.07**	37	270	1100	*)	620	-	520	810	325	730	-	550	860	
35.5	**35.92**	33	270	980	*)	590	-	480	760	310	700	-	510	810	M5
40	**37.72**	32	270	930	*)	610	-	490	770	325	720	-	510	820	290
45	**42.25**	28	270	830	230	600	-	465	740	315	700	-	490	790	M4
50	**47.78**	25	270	740	280	590	-	465	700	340	670	-	465	730	314
56	**53.51**	22	270	660	275	580	-	445	680	330	660	-	450	700	
63	**58.37**	21	270	610	280	560	-	425	650	330	630	-	425	670	
71	**65.38**	18	270	540	265	540	-	400	610	315	600	-	400	630	
80	**74.73**	16	270	475	255	495	-	365	550	290	550	-	360	570	
90	**83.70**	14	270	425	250	485	-	350	540	285	540	-	350	550	
100	**104.18**	12	264	335	230	-	-	310	-	260	-	-	305	-	
112	**116.68**	10	270	305	230	-	-	305	-	260	-	-	300	-	
125	**128.81**	9.3	270	275	210	-	-	275	-	235	-	-	270	-	
140	**144.27**	8.3	270	245	205	-	-	265	-	230	-	-	265	-	
160	**151.49**	7.9	270	235	210	-	-	265	-	235	-	-	265	-	**X4K..**
180	**169.67**	7.1	270	210	205	-	-	255	-	230	-	-	255	-	
200	**187.66**	6.4	270	190	195	-	-	240	-	220	-	-	245	-	M5
224	**210.18**	5.7	270	170	190	-	-	235	-	215	-	-	235	-	294
250	**250.44**	4.8	270	145	165	-	-	200	-	185	-	-	200	-	M4
280	**280.49**	4.3	270	130	165	-	-	195	-	185	-	-	200	-	318
315	**294.53**	4.1	270	120	165	-	-	195	-	185	-	-	195	-	
355	**329.88**	3.6	270	110	165	-	-	190	-	180	-	-	190	-	
400	**364.87**	3.3	270	98	160	-	-	180	-	175	-	-	185	-	
450	**408.66**	2.9	270	88	155	-	-	180	-	170	-	-	180	-	

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X.K280..,n_1 = 1500 min^{-1}															270 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
16[1)]	15.48	97	209	2200	*)	*)	-	*)	860	*)	670	-	580	1150	
18[1)]	17.34	87	217	2050	*)	*)	-	*)	860	*)	670	-	590	1150	
20[1)]	19.91	75	230	1900	*)	650	-	600	1050	*)	840	-	740	1200	
22.4[1)]	22.30	67	240	1750	*)	650	-	570	1000	*)	840	-	700	1150	
25[1)]	25.94	58	260	1650	*)	670	-	550	980	*)	850	-	660	1100	
28[1)]	29.05	52	270	1500	*)	650	-	510	920	*)	820	-	600	1050	X3K..
31.5[1)]	32.07	47	270	1350	*)	610	-	465	850	*)	770	-	530	940	
35.5[1)]	35.92	42	270	1200	*)	590	-	425	790	*)	730	-	490	880	M5
40[1)]	37.72	40	270	1150	*)	610	-	435	810	*)	760	-	490	900	290
45[1)]	42.25	36	270	1050	*)	600	-	410	780	*)	740	-	465	860	M4
50[1)]	47.78	31	270	920	230	640	-	460	770	310	740	-	480	820	314
56[1)]	53.51	28	270	820	225	620	-	440	750	305	720	-	460	790	
63[1)]	58.37	26	270	760	250	620	-	435	720	315	700	-	445	760	
71[1)]	65.38	23	270	680	240	590	-	410	680	300	670	-	415	720	
80[1)]	74.73	20	270	590	240	550	-	375	620	290	620	-	380	640	
90[1)]	83.70	18	270	530	235	540	-	365	600	285	600	-	365	630	
100	104.18	14	264	415	230	-	-	330	-	265	-	-	325	-	
112	116.68	13	270	380	225	-	-	320	-	260	-	-	315	-	
125	128.81	12	270	345	210	-	-	285	-	240	-	-	285	-	
140	144.27	10	270	310	205	-	-	275	-	235	-	-	275	-	
160	151.49	9.9	270	295	205	-	-	275	-	240	-	-	275	-	X4K..
180	169.67	8.8	270	260	205	-	-	270	-	235	-	-	270	-	
200	187.66	8.0	270	235	195	-	-	255	-	225	-	-	255	-	M5
224	210.18	7.1	270	210	190	-	-	245	-	220	-	-	245	-	294
250	250.44	6.0	270	180	170	-	-	210	-	195	-	-	210	-	M4
280	280.49	5.3	270	160	170	-	-	210	-	190	-	-	210	-	318
315	294.53	5.1	270	150	170	-	-	205	-	190	-	-	205	-	
355	329.88	4.5	270	135	165	-	-	200	-	185	-	-	200	-	
400	364.87	4.1	270	125	165	-	-	190	-	180	-	-	195	-	
450	408.66	3.7	270	110	160	-	-	185	-	180	-	-	190	-	
X.K280..,n_1 = 1800 min^{-1}															270 kNm
16[*)]	15.48	116	200	2500	*)	*)	-	*)	*)	*)	*)	-	*)	940[*)]	
18[*)]	17.34	104	208	2350	*)	*)	-	*)	*)	*)	*)	-	*)	950[*)]	
20[*)]	19.91	90	218	2150	*)	*)	-	*)	950[*)]	*)	780[*)]	-	640	1200[*)]	
22.4[*)]	22.30	81	230	2000	*)	520[*)]	-	*)	950[*)]	*)	780[*)]	-	640	1200[*)]	
25[*)]	25.94	69	250	1900	*)	570[*)]	-	*)	950[*)]	*)	810[*)]	-	600	1150[*)]	
28[*)]	29.05	62	264	1750	*)	550[*)]	-	*)	890[*)]	*)	780[*)]	-	540	1050[*)]	X3K..
31.5[*)]	32.07	56	270	1650	*)	530[*)]	-	*)	820[*)]	*)	740[*)]	-	480	970[*)]	
35.5[*)]	35.92	50	270	1450	*)	510[*)]	-	*)	760[*)]	*)	710[*)]	-	430	900[*)]	M5
40[*)]	37.72	48	270	1400	*)	540[*)]	-	*)	780[*)]	*)	730[*)]	-	435	920[*)]	290
45[*)]	42.25	43	270	1250	*)	530[*)]	-	*)	750[*)]	*)	720[*)]	-	400	880[*)]	M4
50[*)]	47.78	38	270	1100	*)	640[*)]	-	435	810[*)]	*)	770[*)]	-	480	880[*)]	314
56[*)]	53.51	34	270	980	*)	630[*)]	-	415	780[*)]	255	750[*)]	-	455	850[*)]	
63[*)]	58.37	31	270	910	*)	640[*)]	-	430	770[*)]	285	740[*)]	-	450	820[*)]	
71[*)]	65.38	28	270	810	*)	620[*)]	-	400	720[*)]	275	710[*)]	-	420	770[*)]	
80[*)]	74.73	24	270	710	215	580[*)]	-	380	670[*)]	275	660[*)]	-	390	700[*)]	
90[*)]	83.70	22	270	640	210	570[*)]	-	365	650[*)]	270	650[*)]	-	370	680[*)]	
100	104.18	17	264	500	220	-	-	335	-	260	-	-	335	-	
112	116.68	15	270	455	215	-	-	325	-	260	-	-	325	-	
125	128.81	14	270	415	200	-	-	295	-	235	-	-	295	-	
140	144.27	12	270	370	195	-	-	285	-	235	-	-	285	-	
160	151.49	12	270	350	200	-	-	285	-	235	-	-	285	-	X4K..
180	169.67	11	270	315	195	-	-	275	-	230	-	-	275	-	
200	187.66	9.6	270	285	190	-	-	255	-	220	-	-	260	-	M5
224	210.18	8.6	270	255	185	-	-	250	-	220	-	-	250	-	294
250	250.44	7.2	270	215	175	-	-	220	-	195	-	-	220	-	M4
280	280.49	6.4	270	190	170	-	-	215	-	195	-	-	215	-	318
315	294.53	6.1	270	185	170	-	-	215	-	195	-	-	215	-	
355	329.88	5.5	270	165	170	-	-	205	-	190	-	-	210	-	
400	364.87	4.9	270	150	165	-	-	200	-	185	-	-	200	-	
450	408.66	4.4	270	130	160	-	-	195	-	180	-	-	195	-	

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X.K290..,n_1 = 1000 min^{-1}															308 kNm
					P_{TH} kW										📖
					M5 20°C					M4 20°C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW		Fan	H_2O	H_2O	Fan + H_2O		Fan	H_2O	H_2O	Fan + H_2O	
12.5	**12.37**	81	240	2100	*)	550	-	630	1000	*)	790	-	1250	1600	
14	**13.98**	72	253	1950	*)	580	-	630	1000	*)	820	-	1250	1600	
16	**15.91**	63	263	1800	*)	720	-	730	1050	*)	880	-	1150	1450	
18	**17.98**	56	278	1700	*)	720	-	700	1000	*)	870	-	1050	1400	
20	**20.45**	49	292	1550	*)	710	-	660	960	415	850	-	970	1250	
22.4	**23.12**	43	308	1450	*)	730	-	660	960	430	870	-	950	1250	**X3K..**
25	**26.69**	37	308	1250	*)	680	-	590	870	405	800	-	820	1100	
28	**30.17**	33	308	1100	300	690	-	580	860	410	810	-	800	1100	M5
31.5	**32.00**	31	308	1050	275	630	-	520	770	375	740	-	700	960	290
35.5	**36.17**	28	308	920	275	610	-	495	740	370	720	-	660	920	M4
40	**40.09**	25	308	830	315	600	-	490	710	380	690	-	610	840	314
45	**45.31**	22	308	740	320	610	-	485	700	385	690	-	590	820	
50	**48.97**	20	308	690	310	560	-	445	640	360	630	-	530	740	
56	**55.35**	18	308	610	310	570	-	440	640	365	630	-	520	730	
63	**62.70**	16	308	540	280	500	-	385	550	325	550	-	440	620	
71	**70.87**	14	308	475	285	510	-	385	560	330	560	-	440	620	
80	**81.36**	12	308	415	260	-	-	340	-	295	-	-	380	-	
90	**91.96**	11	308	365	265	-	-	335	-	295	-	-	375	-	
100	**106.18**	9.4	308	320	250	-	-	310	-	280	-	-	345	-	
112	**120.01**	8.3	308	280	250	-	-	310	-	280	-	-	340	-	
125	**127.30**	7.9	308	265	230	-	-	280	-	255	-	-	310	-	**X4K..**
140	**143.88**	7.0	308	235	230	-	-	280	-	260	-	-	310	-	
160	**157.21**	6.4	308	215	215	-	-	255	-	240	-	-	280	-	M5
180	**177.69**	5.6	308	190	220	-	-	260	-	245	-	-	285	-	294
200	**206.45**	4.8	308	165	195	-	-	225	-	215	-	-	245	-	M4
224	**233.34**	4.3	308	145	195	-	-	225	-	215	-	-	240	-	318
250	**247.50**	4.0	308	140	180	-	-	205	-	200	-	-	225	-	
280	**279.74**	3.6	308	120	180	-	-	205	-	200	-	-	220	-	
315	**305.67**	3.3	308	110	170	-	-	190	-	190	-	-	205	-	
355	**345.48**	2.9	308	99	170	-	-	190	-	185	-	-	205	-	
X.K290..,n_1 = 1200 min^{-1}															**308 kNm**
12.5[1)]	**12.37**	97	240	2500	*)	*)	-	*)	870	*)	700	-	1200	1650	
14[1)]	**13.98**	86	253	2350	*)	*)	-	*)	910	*)	730	-	1250	1700	
16	**15.91**	75	263	2150	*)	710	-	670	1100	*)	910	-	1200	1650	
18	**17.98**	67	278	2000	*)	710	-	640	1050	*)	910	-	1150	1550	
20	**20.45**	59	292	1850	*)	710	-	610	1000	*)	890	-	1000	1400	
22.4	**23.12**	52	308	1750	*)	730	-	600	1000	*)	920	-	1000	1400	**X3K..**
25	**26.69**	45	308	1500	*)	690	-	540	920	*)	850	-	860	1250	
28	**30.17**	40	308	1350	*)	700	-	530	910	335	860	-	820	1200	M5
31.5	**32.00**	38	308	1250	*)	640	-	475	820	*)	780	-	720	1050	290
35.5	**36.17**	33	308	1100	*)	630	-	450	780	305	770	-	680	1000	M4
40	**40.09**	30	308	1000	280	660	-	490	780	365	760	-	650	940	314
45	**45.31**	26	308	880	285	660	-	485	770	365	760	-	630	930	
50	**48.97**	25	308	830	290	620	-	455	710	355	700	-	570	830	
56	**55.35**	22	308	730	290	620	-	445	700	355	700	-	550	820	
63	**62.70**	19	308	640	275	550	-	395	610	325	620	-	470	700	
71	**70.87**	17	308	570	280	560	-	395	620	330	630	-	470	710	
80	**81.36**	15	308	500	265	-	-	355	-	300	-	-	410	-	
90	**91.96**	13	308	440	265	-	-	350	-	300	-	-	400	-	
100	**106.18**	11	308	380	250	-	-	325	-	285	-	-	365	-	
112	**120.01**	10.0	308	340	250	-	-	320	-	285	-	-	360	-	
125	**127.30**	9.4	308	320	230	-	-	290	-	260	-	-	325	-	**X4K..**
140	**143.88**	8.3	308	280	235	-	-	295	-	265	-	-	325	-	
160	**157.21**	7.6	308	260	215	-	-	270	-	245	-	-	295	-	M5
180	**177.69**	6.8	308	230	220	-	-	270	-	250	-	-	295	-	294
200	**206.45**	5.8	308	200	200	-	-	240	-	225	-	-	260	-	M4
224	**233.34**	5.1	308	175	200	-	-	235	-	220	-	-	255	-	318
250	**247.50**	4.8	308	165	185	-	-	215	-	205	-	-	235	-	
280	**279.74**	4.3	308	145	185	-	-	215	-	205	-	-	235	-	
315	**305.67**	3.9	308	135	175	-	-	200	-	195	-	-	220	-	
355	**345.48**	3.5	308	120	175	-	-	200	-	195	-	-	215	-	

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X.K290..,n_1 = 1500 min^{-1}															308 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	📖
		min^{-1}	kNm	kW		Fan	Cooling cover H_2O	Cooling coil H_2O	Fan + cooling coil H_2O		Fan	Cooling cover H_2O	Cooling coil H_2O	Fan + cooling coil H_2O	
12.5[1)]	12.37	121	240	3150	*)	*)	-	*)	*)	*)	*)	-	820	1450[*)]	
14[1)]	13.98	107	253	2950	*)	*)	-	*)	*)	*)	*)	-	860	1500[*)]	
16[1)]	15.91	94	263	2700	*)	*)	-	*)	1000[*)]	*)	870[*)]	-	1200	1750[*)]	
18[1)]	17.98	83	278	2500	*)	*)	-	*)	1000[*)]	*)	870[*)]	-	1200	1750[*)]	
20[1)]	20.45	73	292	2300	*)	610[*)]	-	*)	990[*)]	*)	870[*)]	-	1050	1600[*)]	
22.4[1)]	23.12	65	308	2150	*)	640[*)]	-	*)	990[*)]	*)	900[*)]	-	1000	1550[*)]	X3K..
25[1)]	26.69	56	308	1900	*)	620[*)]	-	*)	900[*)]	*)	850[*)]	-	860	1350[*)]	
28[1)]	30.17	50	308	1650	*)	630[*)]	-	*)	900[*)]	*)	870[*)]	-	820	1300[*)]	M5
31.5[1)]	32.00	47	308	1550	*)	590[*)]	-	*)	810[*)]	*)	790[*)]	-	720	1150[*)]	290
35.5[1)]	36.17	41	308	1400	*)	580[*)]	-	*)	780[*)]	*)	780[*)]	-	660	1100[*)]	M4
40[1)]	40.09	37	308	1250	*)	690[*)]	-	460	840[*)]	*)	820[*)]	-	680	1050[*)]	314
45[1)]	45.31	33	308	1100	*)	690[*)]	-	450	830[*)]	310	820[*)]	-	660	1050[*)]	
50[1)]	48.97	31	308	1050	*)	670[*)]	-	445	780[*)]	320	770[*)]	-	600	950[*)]	
56[1)]	55.35	27	308	910	235	670[*)]	-	435	770[*)]	325	780[*)]	-	580	930[*)]	
63[1)]	62.70	24	308	810	250	610[*)]	-	400	680[*)]	310	690[*)]	-	500	800[*)]	
71[1)]	70.87	21	308	710	255	620[*)]	-	400	690[*)]	320	710[*)]	-	500	810[*)]	
80	81.36	18	308	620	255	-	-	370	-	300	-	-	440	-	
90	91.96	16	308	550	255	-	-	365	-	300	-	-	430	-	
100	106.18	14	308	475	245	-	-	340	-	285	-	-	390	-	
112	120.01	12	308	420	245	-	-	330	-	285	-	-	385	-	
125	127.30	12	308	400	225	-	-	300	-	265	-	-	350	-	X4K..
140	143.88	10	308	350	230	-	-	305	-	270	-	-	345	-	
160	157.21	9.5	308	320	215	-	-	275	-	250	-	-	315	-	M5
180	177.69	8.4	308	285	215	-	-	275	-	250	-	-	315	-	294
200	206.45	7.3	308	250	205	-	-	250	-	230	-	-	275	-	M4
224	233.34	6.4	308	220	205	-	-	245	-	230	-	-	270	-	318
250	247.50	6.1	308	205	190	-	-	230	-	215	-	-	250	-	
280	279.74	5.4	308	185	190	-	-	225	-	215	-	-	245	-	
315	305.67	4.9	308	165	180	-	-	210	-	200	-	-	230	-	
355	345.48	4.3	308	150	180	-	-	205	-	200	-	-	225	-	
X.K290..,n_1 = 1800 min^{-1}															308 kNm
12.5[*)]	12.37	146	226	3550	*)	*)	-	*)	*)	*)	*)	-	*)	1050[*)]	
14[*)]	13.98	129	238	3300	*)	*)	-	*)	*)	*)	*)	-	*)	1150[*)]	
16[*)]	15.91	113	248	3050	*)	*)	-	*)	*)	*)	*)	-	980	1650[*)]	
18[*)]	17.98	100	263	2850	*)	*)	-	*)	770[*)]	*)	*)	-	990	1650[*)]	
20[*)]	20.45	88	276	2650	*)	*)	-	*)	830[*)]	*)	740[*)]	-	1000	1650[*)]	
22.4[*)]	23.12	78	299	2500	*)	*)	-	*)	840[*)]	*)	770[*)]	-	980	1600[*)]	X3K..
25[*)]	26.69	67	308	2250	*)	*)	-	*)	780[*)]	*)	750[*)]	-	820	1400[*)]	
28[*)]	30.17	60	308	2000	*)	*)	-	*)	770[*)]	*)	760[*)]	-	760	1350[*)]	M5
31.5[*)]	32.00	56	308	1900	*)	*)	-	*)	700[*)]	*)	710[*)]	-	650	1200[*)]	290
35.5[*)]	36.17	50	308	1650	*)	*)	-	*)	670[*)]	*)	700[*)]	-	590	1150[*)]	M4
40[*)]	40.09	45	308	1500	*)	660[*)]	-	390	840[*)]	*)	830[*)]	-	700	1150[*)]	314
45[*)]	45.31	40	308	1350	*)	670[*)]	-	375	830[*)]	*)	840[*)]	-	660	1100[*)]	
50[*)]	48.97	37	308	1250	*)	670[*)]	-	405	800[*)]	*)	800[*)]	-	620	1050[*)]	
56[*)]	55.35	33	308	1100	*)	680[*)]	-	395	800[*)]	*)	810[*)]	-	600	1000[*)]	
63[*)]	62.70	29	308	970	*)	640[*)]	-	385	720[*)]	285	740[*)]	-	530	880[*)]	
71[*)]	70.87	25	308	860	*)	650[*)]	-	385	730[*)]	290	750[*)]	-	520	880[*)]	
80	81.36	22	308	750	230	-	-	375	-	285	-	-	465	-	
90	91.96	20	308	660	235	-	-	370	-	290	-	-	455	-	
100	106.18	17	308	570	230	-	-	340	-	280	-	-	410	-	
112	120.01	15	308	510	230	-	-	335	-	280	-	-	400	-	
125	127.30	14	308	480	210	-	-	305	-	260	-	-	360	-	X4K..
140	143.88	13	308	420	220	-	-	305	-	260	-	-	360	-	
160	157.21	11	308	385	205	-	-	280	-	245	-	-	325	-	M5
180	177.69	10	308	340	205	-	-	280	-	245	-	-	325	-	294
200	206.45	8.7	308	300	205	-	-	255	-	235	-	-	290	-	M4
224	233.34	7.7	308	265	200	-	-	255	-	230	-	-	285	-	318
250	247.50	7.3	308	250	190	-	-	235	-	215	-	-	260	-	
280	279.74	6.4	308	220	190	-	-	230	-	215	-	-	255	-	
315	305.67	5.9	308	200	180	-	-	215	-	205	-	-	240	-	
355	345.48	5.2	308	180	175	-	-	210	-	205	-	-	235	-	

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X.K300..,n_1 = 1000 min^{-1}															350 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	📖
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
14	**13.18**	76	260	2150	*)	560	-	640	1000	*)	800	-	830	1200	
16	**14.94**	67	273	2000	*)	570	-	610	970	*)	800	-	780	1150	
18	**16.95**	59	281	1800	*)	740	-	730	1050	*)	890	-	820	1150	
20	**19.21**	52	302	1700	*)	730	-	700	1000	*)	880	-	780	1100	
22.4	**21.79**	46	320	1600	*)	720	-	670	970	425	860	-	720	1050	
25	**24.70**	40	345	1500	*)	720	-	640	940	425	860	-	700	1000	**X3K..**
28	**28.44**	35	350	1350	*)	700	-	600	880	415	820	-	640	950	
31.5	**32.24**	31	350	1200	300	680	-	570	850	410	810	-	610	910	M5
35.5	**34.10**	29	350	1100	285	640	-	530	790	385	760	-	560	840	290
40	**38.65**	26	350	980	280	630	-	500	760	380	740	-	530	810	M4
45	**42.71**	23	350	890	325	620	-	500	720	390	700	-	510	750	314
50	**48.41**	21	350	780	320	610	-	480	700	385	690	-	490	730	
56	**52.18**	19	350	730	315	580	-	455	650	370	650	-	460	680	
63	**59.14**	17	350	650	310	560	-	440	630	360	630	-	440	660	
71	**66.81**	15	350	570	290	510	-	390	560	330	570	-	390	580	
80	**75.72**	13	350	510	290	510	-	385	560	330	570	-	385	570	
90	**86.70**	12	330	415	265	-	-	345	-	300	-	-	345	-	
100	**98.25**	10	350	390	270	-	-	345	-	300	-	-	345	-	
112	**113.15**	8.8	350	340	255	-	-	320	-	285	-	-	320	-	
125	**128.23**	7.8	350	300	255	-	-	315	-	285	-	-	315	-	
140	**135.65**	7.4	350	285	235	-	-	285	-	260	-	-	290	-	**X4K..**
160	**153.73**	6.5	350	250	235	-	-	280	-	260	-	-	285	-	
180	**167.52**	6.0	350	230	220	-	-	260	-	245	-	-	265	-	M5
200	**189.86**	5.3	350	200	220	-	-	260	-	245	-	-	265	-	294
224	**219.99**	4.5	350	175	200	-	-	230	-	220	-	-	235	-	M4
250	**249.32**	4.0	350	155	200	-	-	230	-	220	-	-	235	-	318
280	**263.73**	3.8	350	145	185	-	-	210	-	205	-	-	215	-	
315	**298.90**	3.3	350	130	185	-	-	210	-	205	-	-	215	-	
355	**325.71**	3.1	350	120	175	-	-	195	-	190	-	-	200	-	
400	**369.14**	2.7	350	105	175	-	-	195	-	190	-	-	200	-	
X.K300..,n_1 = 1200 min^{-1}															**350 kNm**
14[1)]	**13.18**	91	260	2550	*)	*)	-	*)	880	*)	720	-	660	1200	
16[1)]	**14.94**	80	273	2400	*)	*)	-	*)	890	*)	720	-	660	1200	
18	**16.95**	71	281	2150	*)	720	-	670	1100	*)	920	-	820	1250	
20	**19.21**	62	302	2050	*)	720	-	640	1050	*)	920	-	780	1200	
22.4	**21.79**	55	320	1900	*)	730	-	620	1000	*)	910	-	720	1150	
25	**24.70**	49	345	1800	*)	720	-	590	990	*)	900	-	680	1100	**X3K..**
28	**28.44**	42	350	1600	*)	710	-	550	930	*)	870	-	630	1050	
31.5	**32.24**	37	350	1400	*)	700	-	520	900	*)	860	-	590	990	M5
35.5	**34.10**	35	350	1350	*)	660	-	485	830	*)	800	-	540	920	290
40	**38.65**	31	350	1200	*)	640	-	460	800	315	790	-	520	880	M4
45	**42.71**	28	350	1050	290	670	-	500	790	375	770	-	520	840	314
50	**48.41**	25	350	940	285	660	-	480	760	365	760	-	500	810	
56	**52.18**	23	350	880	300	630	-	465	720	365	720	-	475	760	
63	**59.14**	20	350	780	290	620	-	445	700	355	700	-	455	730	
71	**66.81**	18	350	690	280	570	-	405	620	330	630	-	410	650	
80	**75.72**	16	350	610	280	560	-	395	620	330	630	-	400	640	
90	**86.70**	14	330	500	265	-	-	360	-	305	-	-	360	-	
100	**98.25**	12	350	470	270	-	-	360	-	310	-	-	360	-	
112	**113.15**	11	350	405	255	-	-	330	-	290	-	-	335	-	
125	**128.23**	9.4	350	360	255	-	-	325	-	290	-	-	330	-	
140	**135.65**	8.8	350	340	235	-	-	300	-	270	-	-	300	-	**X4K..**
160	**153.73**	7.8	350	300	235	-	-	295	-	265	-	-	295	-	
180	**167.52**	7.2	350	275	220	-	-	275	-	250	-	-	275	-	M5
200	**189.86**	6.3	350	245	220	-	-	270	-	250	-	-	275	-	294
224	**219.99**	5.5	350	210	205	-	-	240	-	230	-	-	245	-	M4
250	**249.32**	4.8	350	185	205	-	-	240	-	225	-	-	245	-	318
280	**263.73**	4.6	350	175	190	-	-	220	-	210	-	-	225	-	
315	**298.90**	4.0	350	155	190	-	-	220	-	210	-	-	225	-	
355	**325.71**	3.7	350	145	180	-	-	205	-	200	-	-	210	-	
400	**369.14**	3.3	350	125	180	-	-	200	-	200	-	-	210	-	

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X.K300..,n_1 = 1500 min^{-1}															350 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
14[1)]	13.18	114	260	3200	*)	*)	-	*)	*)	*)	*)	-	*)	940[*)]	
16[1)]	14.94	100	273	2950	*)	*)	-	*)	*)	*)	*)	-	*)	940[*)]	
18[1)]	16.95	88	281	2700	*)	*)	-	*)	1050[*)]	*)	880[*)]	-	700	1300[*)]	
20[1)]	19.21	78	302	2550	*)	*)	-	*)	1050[*)]	*)	880[*)]	-	700	1300[*)]	
22.4[1)]	21.79	69	320	2400	*)	630[*)]	-	*)	1000[*)]	*)	890[*)]	-	650	1200[*)]	
25[1)]	24.70	61	345	2250	*)	630[*)]	-	*)	970[*)]	*)	890[*)]	-	610	1200[*)]	**X3K..**
28[1)]	28.44	53	350	2000	*)	640[*)]	-	*)	920[*)]	*)	880[*)]	-	560	1100[*)]	
31.5[1)]	32.24	47	350	1750	*)	630[*)]	-	*)	890[*)]	*)	860[*)]	-	510	1050[*)]	M5
35.5[1)]	34.10	44	350	1650	*)	600[*)]	-	*)	830[*)]	*)	810[*)]	-	470	970[*)]	290
40[1)]	38.65	39	350	1450	*)	600[*)]	-	*)	790[*)]	*)	800[*)]	-	440	930[*)]	M4
45[1)]	42.71	35	350	1350	*)	710[*)]	-	470	860[*)]	*)	840[*)]	-	520	930[*)]	314
50[1)]	48.41	31	350	1200	*)	690[*)]	-	450	820[*)]	310	820[*)]	-	495	900[*)]	
56[1)]	52.18	29	350	1100	*)	680[*)]	-	455	790[*)]	330	790[*)]	-	480	850[*)]	
63[1)]	59.14	25	350	970	*)	670[*)]	-	435	770[*)]	325	780[*)]	-	460	820[*)]	
71[1)]	66.81	22	350	860	255	620[*)]	-	405	700[*)]	320	710[*)]	-	420	740[*)]	
80[1)]	75.72	20	350	760	255	620[*)]	-	400	690[*)]	320	710[*)]	-	415	730[*)]	
90	86.70	17	330	630	260	-	-	375	-	305	-	-	375	-	
100	98.25	15	350	590	260	-	-	375	-	310	-	-	375	-	
112	113.15	13	350	510	250	-	-	345	-	295	-	-	350	-	
125	128.23	12	350	450	250	-	-	340	-	295	-	-	345	-	
140	135.65	11	350	425	230	-	-	310	-	270	-	-	315	-	**X4K..**
160	153.73	9.8	350	375	230	-	-	305	-	270	-	-	310	-	
180	167.52	9.0	350	345	220	-	-	280	-	255	-	-	285	-	M5
200	189.86	7.9	350	305	220	-	-	280	-	255	-	-	285	-	294
224	219.99	6.8	350	265	210	-	-	255	-	235	-	-	260	-	M4
250	249.32	6.0	350	235	210	-	-	250	-	235	-	-	255	-	318
280	263.73	5.7	350	220	195	-	-	235	-	220	-	-	235	-	
315	298.90	5.0	350	195	195	-	-	230	-	220	-	-	235	-	
355	325.71	4.6	350	180	185	-	-	215	-	205	-	-	220	-	
400	369.14	4.1	350	160	180	-	-	210	-	205	-	-	220	-	
X.K300..,n_1 = 1800 min^{-1}															350 kNm
14[*)]	13.18	137	246	3650	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
16[*)]	14.94	120	255	3350	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
18[*)]	16.95	106	266	3050	*)	*)	-	*)	770[*)]	*)	*)	-	*)	1150[*)]	
20[*)]	19.21	94	278	2800	*)	*)	-	*)	780[*)]	*)	710[*)]	-	*)	1150[*)]	
22.4[*)]	21.79	83	295	2650	*)	*)	-	*)	850[*)]	*)	760[*)]	-	*)	1200[*)]	
25[*)]	24.70	73	318	2500	*)	*)	-	*)	830[*)]	*)	760[*)]	-	*)	1150[*)]	**X3K..**
28[*)]	28.44	63	335	2300	*)	*)	-	*)	800[*)]	*)	780[*)]	-	*)	1050[*)]	
31.5[*)]	32.24	56	350	2100	*)	*)	-	*)	760[*)]	*)	760[*)]	-	*)	1000[*)]	M5
35.5[*)]	34.10	53	350	2000	*)	*)	-	*)	720[*)]	*)	730[*)]	-	*)	940[*)]	290
40[*)]	38.65	47	350	1750	*)	*)	-	*)	690[*)]	*)	720[*)]	-	*)	900[*)]	M4
45[*)]	42.71	42	350	1600	*)	680[*)]	-	*)	860[*)]	*)	850[*)]	-	485	980[*)]	314
50[*)]	48.41	37	350	1400	*)	670[*)]	-	375	830[*)]	*)	840[*)]	-	455	940[*)]	
56[*)]	52.18	34	350	1300	*)	690[*)]	-	415	820[*)]	*)	820[*)]	-	470	900[*)]	
63[*)]	59.14	30	350	1150	*)	680[*)]	-	395	790[*)]	*)	810[*)]	-	445	870[*)]	
71[*)]	66.81	27	350	1050	*)	650[*)]	-	395	740[*)]	290	750[*)]	-	420	790[*)]	
80[*)]	75.72	24	350	910	*)	650[*)]	-	385	730[*)]	295	750[*)]	-	410	780[*)]	
90	86.70	21	330	750	235	-	-	380	-	295	-	-	390	-	
100	98.25	18	350	700	240	-	-	380	-	300	-	-	385	-	
112	113.15	16	350	610	235	-	-	350	-	285	-	-	355	-	
125	128.23	14	350	540	235	-	-	345	-	285	-	-	350	-	
140	135.65	13	350	510	220	-	-	310	-	265	-	-	320	-	**X4K..**
160	153.73	12	350	450	220	-	-	305	-	265	-	-	315	-	
180	167.52	11	350	410	210	-	-	285	-	250	-	-	290	-	M5
200	189.86	9.5	350	365	210	-	-	280	-	250	-	-	285	-	294
224	219.99	8.2	350	315	210	-	-	260	-	240	-	-	265	-	M4
250	249.32	7.2	350	280	205	-	-	260	-	235	-	-	265	-	318
280	263.73	6.8	350	265	195	-	-	240	-	220	-	-	245	-	
315	298.90	6.0	350	235	190	-	-	235	-	220	-	-	240	-	
355	325.71	5.5	350	215	185	-	-	220	-	210	-	-	225	-	
400	369.14	4.9	350	190	180	-	-	215	-	210	-	-	225	-	

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X.K310..,n_1 = 1000 min^{-1}															425 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	📖
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
12.5[1]	**13.23**	76	368	3000	*)	*)	-	*)	1050	*)	830	-	1500	1900	
14[1]	**14.58**	69	376	2800	*)	*)	-	*)	1000	*)	800	-	1350	1750	
16	**17.02**	59	392	2500	*)	800	-	810	1200	*)	1000	-	1350	1750	
18	**18.75**	53	405	2350	*)	770	-	760	1150	*)	970	-	1250	1600	
20	**21.20**	47	422	2150	*)	770	-	720	1100	*)	950	-	1150	1500	
22.4	**23.35**	43	425	1950	*)	760	-	690	1050	*)	930	-	1050	1450	**X3K..**
25	**26.30**	38	425	1750	*)	740	-	650	990	*)	910	-	970	1300	
28	**28.97**	35	425	1600	*)	730	-	630	960	415	890	-	920	1250	M5
31.5	**32.89**	30	425	1400	*)	710	-	580	900	405	860	-	830	1150	290
35.5	**36.23**	28	425	1250	*)	680	-	540	850	390	820	-	770	1100	M4
40	**41.69**	24	425	1100	350	720	-	580	850	440	820	-	740	1050	314
45	**45.93**	22	425	1000	345	700	-	560	830	435	810	-	710	990	
50	**50.63**	20	425	920	350	670	-	530	770	425	760	-	650	910	
56	**55.78**	18	425	830	345	660	-	510	760	415	750	-	630	880	
63	**64.44**	16	425	720	340	620	-	475	690	395	690	-	560	780	
71	**70.99**	14	425	660	330	590	-	450	660	380	660	-	530	740	
80	**85.15**	12	425	550	305	-	-	400	-	345	-	-	455	-	
90	**93.81**	11	425	495	290	-	-	385	-	335	-	-	435	-	
100	**105.65**	9.5	425	440	290	-	-	370	-	330	-	-	415	-	
112	**116.40**	8.6	425	400	285	-	-	360	-	325	-	-	405	-	
125	**132.12**	7.6	425	355	275	-	-	345	-	310	-	-	380	-	**X4K..**
140	**145.56**	6.9	425	320	265	-	-	330	-	300	-	-	365	-	
160	**162.61**	6.1	425	285	260	-	-	320	-	295	-	-	355	-	M5
180	**179.15**	5.6	425	260	255	-	-	305	-	285	-	-	340	-	294
200	**209.33**	4.8	425	225	235	-	-	275	-	260	-	-	300	-	M4
224	**230.61**	4.3	425	205	230	-	-	270	-	255	-	-	290	-	318
250	**261.77**	3.8	425	180	220	-	-	255	-	245	-	-	280	-	
280	**288.39**	3.5	425	165	215	-	-	245	-	240	-	-	270	-	
315	**322.18**	3.1	425	145	210	-	-	240	-	235	-	-	260	-	
355	**354.94**	2.8	425	135	205	-	-	230	-	225	-	-	250	-	
X.K310..,n_1 = 1200 min^{-1}															**425 kNm**
12.5[1]	**13.23**	91	368	3600	*)	*)	-	*)	*)	*)	*)	-	1250	1850	
14[1]	**14.58**	82	376	3350	*)	*)	-	*)	*)	*)	*)	-	1200	1750	
16[1]	**17.02**	71	392	3000	*)	*)	-	*)	1200	*)	1000	-	1450	1950	
18[1]	**18.75**	64	405	2800	*)	710	-	*)	1150	*)	970	-	1300	1800	
20[1]	**21.20**	57	422	2600	*)	730	-	*)	1100	*)	970	-	1200	1650	
22.4[1]	**23.35**	51	425	2350	*)	710	-	*)	1050	*)	950	-	1100	1550	**X3K..**
25[1]	**26.30**	46	425	2100	*)	720	-	560	1000	*)	930	-	1000	1450	
28[1]	**28.97**	41	425	1900	*)	710	-	530	980	*)	920	-	940	1400	M5
31.5[1]	**32.89**	36	425	1700	*)	690	-	495	920	*)	890	-	840	1250	290
35.5[1]	**36.23**	33	425	1550	*)	660	-	455	860	*)	850	-	770	1200	M4
40[1]	**41.69**	29	425	1350	*)	760	-	560	920	400	900	-	780	1150	314
45[1]	**45.93**	26	425	1200	*)	750	-	540	890	395	880	-	740	1100	
50[1]	**50.63**	24	425	1100	310	730	-	530	850	400	840	-	690	1000	
56[1]	**55.78**	22	425	1000	305	720	-	510	820	395	830	-	660	990	
63[1]	**64.44**	19	425	870	325	680	-	485	760	390	770	-	590	880	
71[1]	**70.99**	17	425	790	310	650	-	460	720	375	740	-	560	840	
80	**85.15**	14	425	660	295	-	-	415	-	345	-	-	485	-	
90	**93.81**	13	425	600	290	-	-	395	-	335	-	-	460	-	
100	**105.65**	11	425	530	285	-	-	385	-	330	-	-	440	-	
112	**116.40**	10	425	480	280	-	-	375	-	325	-	-	425	-	
125	**132.12**	9.1	425	425	270	-	-	355	-	315	-	-	400	-	**X4K..**
140	**145.56**	8.2	425	385	265	-	-	335	-	305	-	-	380	-	
160	**162.61**	7.4	425	345	260	-	-	330	-	300	-	-	370	-	M5
180	**179.15**	6.7	425	310	250	-	-	315	-	290	-	-	355	-	294
200	**209.33**	5.7	425	270	235	-	-	285	-	265	-	-	315	-	M4
224	**230.61**	5.2	425	245	235	-	-	280	-	265	-	-	305	-	318
250	**261.77**	4.6	425	215	225	-	-	265	-	255	-	-	290	-	
280	**288.39**	4.2	425	195	220	-	-	255	-	245	-	-	280	-	
315	**322.18**	3.7	425	175	215	-	-	245	-	240	-	-	270	-	
355	**354.94**	3.4	425	160	205	-	-	240	-	230	-	-	260	-	

X.K310..,n_1 = 1500 min^{-1}															425 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
12.5*)	13.23	113	368	4500	*)	*)	-	*)	*)	*)	*)	-	*)	1500*)	
14*)	14.58	103	376	4200	*)	*)	-	*)	*)	*)	*)	-	*)	1450*)	
16*)	17.02	88	392	3750	*)	*)	-	*)	1000*)	*)	*)	-	1300	1950*)	
18*)	18.75	80	405	3500	*)	*)	-	*)	980*)	*)	*)	-	1250	1900*)	
20*)	21.20	71	422	3250	*)	*)	-	*)	990*)	*)	880*)	-	1150	1800*)	
22.4*)	23.35	64	425	2950	*)	*)	-	*)	950*)	*)	860*)	-	1100	1700*)	X3K..
25*)	26.30	57	425	2650	*)	*)	-	*)	920*)	*)	870*)	-	970	1550*)	
28*)	28.97	52	425	2400	*)	*)	-	*)	890*)	*)	860*)	-	900	1500*)	M5
31.5*)	32.89	46	425	2100	*)	550*)	-	*)	840*)	*)	840*)	-	790	1350*)	290
35.5*)	36.23	41	425	1900	*)	530*)	-	*)	790*)	*)	810*)	-	710	1250*)	M4
40*)	41.69	36	425	1650	*)	770*)	-	485	960*)	*)	950*)	-	800	1300*)	314
45*)	45.93	33	425	1500	*)	760*)	-	460	940*)	*)	940*)	-	760	1250*)	
50*)	50.63	30	425	1400	*)	770*)	-	490	910*)	*)	910*)	-	720	1150*)	
56*)	55.78	27	425	1250	*)	760*)	-	470	890*)	335	900*)	-	680	1100*)	
63*)	64.44	23	425	1100	270	740*)	-	475	840*)	360	850*)	-	630	1000*)	
71*)	70.99	21	425	980	260	710*)	-	450	800*)	350	820*)	-	590	950*)	
80	85.15	18	425	820	270	-	-	425	-	330	-	-	520	-	
90	93.81	16	425	750	260	-	-	400	-	325	-	-	490	-	
100	105.65	14	425	660	265	-	-	390	-	325	-	-	465	-	
112	116.40	13	425	600	260	-	-	380	-	320	-	-	450	-	
125	132.12	11	425	530	255	-	-	355	-	305	-	-	420	-	X4K..
140	145.56	10	425	480	245	-	-	340	-	295	-	-	400	-	
160	162.61	9.2	425	430	245	-	-	330	-	295	-	-	385	-	M5
180	179.15	8.4	425	390	240	-	-	315	-	285	-	-	365	-	294
200	209.33	7.2	425	335	235	-	-	295	-	270	-	-	330	-	M4
224	230.61	6.5	425	305	230	-	-	290	-	265	-	-	325	-	318
250	261.77	5.7	425	270	225	-	-	275	-	260	-	-	305	-	
280	288.39	5.2	425	245	220	-	-	265	-	250	-	-	295	-	
315	322.18	4.7	425	220	210	-	-	255	-	245	-	-	280	-	
355	354.94	4.2	425	200	205	-	-	245	-	235	-	-	270	-	
X.K310..,n_1 = 1800 min^{-1}															425 kNm
12.5*)	13.23	136	348	5150	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
14*)	14.58	123	355	4750	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
16*)	17.02	106	372	4250	*)	*)	-	*)	*)	*)	*)	-	*)	1750*)	
18*)	18.75	96	383	4000	*)	*)	-	*)	*)	*)	*)	-	*)	1700*)	
20*)	21.20	85	399	3650	*)	*)	-	*)	*)	*)	*)	-	940	1700*)	
22.4*)	23.35	77	408	3400	*)	*)	-	*)	*)	*)	*)	-	930	1700*)	X3K..
25*)	26.30	68	425	3150	*)	*)	-	*)	*)	*)	*)	-	850	1550*)	
28*)	28.97	62	425	2850	*)	*)	-	*)	*)	*)	*)	-	760	1450*)	M5
31.5*)	32.89	55	425	2500	*)	*)	-	*)	*)	*)	670*)	-	650	1350*)	290
35.5*)	36.23	50	425	2300	*)	*)	-	*)	580*)	*)	640*)	-	*)	1250*)	M4
40*)	41.69	43	425	2000	*)	690*)	-	*)	930*)	*)	930*)	-	780	1350*)	314
45*)	45.93	39	425	1800	*)	680*)	-	*)	900*)	*)	920*)	-	740	1300*)	
50*)	50.63	36	425	1650	*)	740*)	-	*)	920*)	*)	930*)	-	720	1250*)	
56*)	55.78	32	425	1500	*)	730*)	-	390	890*)	*)	920*)	-	680	1200*)	
63*)	64.44	28	425	1300	*)	750*)	-	440	870*)	*)	890*)	-	640	1100*)	
71*)	70.99	25	425	1200	*)	720*)	-	415	830*)	300	860*)	-	600	1050*)	
80[1]	85.15	21	425	990	*)	-	-	415	-	300	-	-	540	-	
90[1]	93.81	19	425	890	*)	-	-	395	-	295	-	-	510	-	
100[1]	105.65	17	425	790	225	-	-	380	-	295	-	-	480	-	
112[1]	116.40	15	425	720	225	-	-	370	-	295	-	-	465	-	
125[1]	132.12	14	425	630	220	-	-	350	-	290	-	-	430	-	X4K..
140[1]	145.56	12	425	580	215	-	-	330	-	280	-	-	410	-	
160[1]	162.61	11	425	520	220	-	-	325	-	280	-	-	390	-	M5
180[1]	179.15	10	425	470	215	-	-	310	-	270	-	-	375	-	294
200[1]	209.33	8.6	425	405	225	-	-	300	-	270	-	-	345	-	M4
224[1]	230.61	7.8	425	370	225	-	-	290	-	265	-	-	335	-	318
250[1]	261.77	6.9	425	325	215	-	-	275	-	255	-	-	315	-	
280[1]	288.39	6.2	425	295	210	-	-	265	-	250	-	-	305	-	
315[1]	322.18	5.6	425	265	205	-	-	255	-	240	-	-	290	-	
355[1]	354.94	5.1	425	240	200	-	-	245	-	235	-	-	280	-	

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X.K320..,n_1 = 1000 min^{-1}															475 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5 20°C					M4 20°C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
14[1]	14.13	71	391	3000	*)	*)	-	*)	1100	*)	850	-	900	1400	
16[1]	15.48	65	398	2800	*)	*)	-	*)	1050	*)	840	-	850	1350	
18	18.17	55	418	2500	*)	820	-	820	1200	*)	1050	-	950	1350	
20	19.90	50	429	2350	*)	810	-	790	1200	*)	1000	-	910	1350	
22.4	22.63	44	448	2150	*)	800	-	750	1100	*)	990	-	840	1250	
25	24.79	40	457	2000	*)	800	-	720	1100	*)	980	-	810	1200	X3K..
28	28.08	36	475	1850	*)	760	-	660	1000	*)	930	-	730	1100	
31.5	30.76	33	475	1650	*)	750	-	640	980	430	920	-	700	1050	M5
35.5	35.12	28	475	1450	*)	730	-	600	920	420	880	-	650	1000	290
40	38.46	26	475	1350	*)	720	-	580	890	415	860	-	620	970	M4
45	44.52	22	475	1150	370	750	-	600	890	465	870	-	630	940	314
50	48.76	21	475	1050	355	720	-	570	840	445	830	-	590	890	
56	54.06	18	475	960	360	690	-	540	790	435	780	-	550	820	
63	59.21	17	475	880	355	680	-	520	770	425	770	-	540	800	
71	68.80	15	475	760	350	630	-	485	700	405	700	-	490	720	
80	75.36	13	475	690	345	620	-	470	680	400	690	-	475	710	
90	90.93	11	475	570	310	-	-	410	-	350	-	-	410	-	
100	99.58	10	475	520	305	-	-	400	-	345	-	-	400	-	
112	112.81	8.9	475	460	300	-	-	385	-	340	-	-	390	-	
125	123.56	8.1	475	420	290	-	-	370	-	330	-	-	370	-	
140	141.08	7.1	475	370	280	-	-	350	-	320	-	-	355	-	X4K..
160	154.51	6.5	475	335	275	-	-	340	-	315	-	-	345	-	
180	173.63	5.8	475	300	270	-	-	325	-	305	-	-	330	-	M5
200	190.17	5.3	475	275	265	-	-	320	-	300	-	-	325	-	294
224	223.52	4.5	475	235	240	-	-	285	-	270	-	-	290	-	M4
250	244.81	4.1	475	215	235	-	-	275	-	260	-	-	280	-	318
280	279.52	3.6	475	190	225	-	-	260	-	250	-	-	270	-	
315	306.14	3.3	475	170	225	-	-	255	-	250	-	-	265	-	
355	344.02	2.9	475	155	215	-	-	240	-	240	-	-	250	-	
400	376.78	2.7	475	140	210	-	-	240	-	235	-	-	245	-	
X.K320..,n_1 = 1200 min^{-1}															475 kNm
14[1]	14.13	85	391	3600	*)	*)	-	*)	*)	*)	*)	-	*)	1250	
16[1]	15.48	78	398	3350	*)	*)	-	*)	*)	*)	*)	-	*)	1250	
18[1]	18.17	66	418	3000	*)	*)	-	*)	1250	*)	1050	-	920	1450	
20[1]	19.90	60	429	2800	*)	750	-	*)	1200	*)	1000	-	870	1400	
22.4[1]	22.63	53	448	2600	*)	760	-	*)	1150	*)	1000	-	800	1350	
25[1]	24.79	48	457	2400	*)	760	-	610	1100	*)	1000	-	760	1300	X3K..
28[1]	28.08	43	475	2200	*)	740	-	570	1050	*)	960	-	690	1200	
31.5[1]	30.76	39	475	2000	*)	730	-	540	1000	*)	940	-	660	1150	M5
35.5[1]	35.12	34	475	1750	*)	710	-	500	940	*)	910	-	600	1050	290
40[1]	38.46	31	475	1600	*)	700	-	485	910	*)	900	-	580	1050	M4
45[1]	44.52	27	475	1400	*)	800	-	590	960	420	940	-	630	1050	314
50[1]	48.76	25	475	1250	*)	770	-	550	910	405	900	-	590	980	
56[1]	54.06	22	475	1150	320	750	-	540	860	410	860	-	560	920	
63[1]	59.21	20	475	1050	315	740	-	520	840	405	850	-	540	890	
71[1]	68.80	17	475	910	330	690	-	495	780	400	780	-	500	810	
80[1]	75.36	16	475	830	325	680	-	480	760	395	770	-	490	790	
90	90.93	13	475	690	305	-	-	425	-	355	-	-	425	-	
100	99.58	12	475	630	300	-	-	410	-	350	-	-	415	-	
112	112.81	11	475	550	300	-	-	400	-	345	-	-	400	-	
125	123.56	9.7	475	510	290	-	-	380	-	335	-	-	385	-	
140	141.08	8.5	475	445	280	-	-	360	-	320	-	-	365	-	X4K..
160	154.51	7.8	475	405	275	-	-	350	-	315	-	-	355	-	
180	173.63	6.9	475	360	265	-	-	335	-	305	-	-	340	-	M5
200	190.17	6.3	475	330	265	-	-	325	-	300	-	-	335	-	294
224	223.52	5.4	475	285	245	-	-	295	-	275	-	-	300	-	M4
250	244.81	4.9	475	260	240	-	-	285	-	270	-	-	290	-	318
280	279.52	4.3	475	225	230	-	-	270	-	260	-	-	280	-	
315	306.14	3.9	475	205	225	-	-	265	-	255	-	-	275	-	
355	344.02	3.5	475	185	215	-	-	250	-	245	-	-	260	-	
400	376.78	3.2	475	170	215	-	-	245	-	240	-	-	255	-	

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X.K320..,n_1 = 1500 min^{-1}															475 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M5				20°C	M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
14*)	14.13	106	391	4500	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
16*)	15.48	97	398	4200	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
18*)	18.17	83	418	3750	*)	*)	-	*)	1050*)	*)	*)	-	*)	1400*)	
20*)	19.90	75	429	3500	*)	*)	-	*)	1050*)	*)	900*)	-	*)	1400*)	
22.4*)	22.63	66	448	3200	*)	*)	-	*)	1050*)	*)	920*)	-	*)	1350*)	
25*)	24.79	61	457	3000	*)	*)	-	*)	1000*)	*)	920*)	-	*)	1300*)	X3K..
28*)	28.08	53	475	2750	*)	*)	-	*)	940*)	*)	900*)	-	*)	1200*)	
31.5*)	30.76	49	475	2500	*)	*)	-	*)	910*)	*)	890*)	-	*)	1150*)	M5
35.5*)	35.12	43	475	2200	*)	570*)	-	*)	870*)	*)	870*)	-	*)	1100*)	290
40*)	38.46	39	475	2000	*)	570*)	-	*)	840*)	*)	860*)	-	*)	1050*)	M4
45*)	44.52	34	475	1750	*)	810*)	-	510	1000*)	*)	1000*)	-	600	1150*)	314
50*)	48.76	31	475	1600	*)	780*)	-	475	960*)	*)	960*)	-	560	1050*)	
56*)	54.06	28	475	1450	*)	790*)	-	500	930*)	*)	930*)	-	550	1000*)	
63*)	59.21	25	475	1300	*)	780*)	-	480	910*)	345	920*)	-	530	990*)	
71*)	68.80	22	475	1150	*)	760*)	-	485	850*)	370	870*)	-	510	910*)	
80*)	75.36	20	475	1050	275	740*)	-	470	830*)	365	860*)	-	495	890*)	
90	90.93	16	475	860	275	-	-	430	-	340	-	-	440	-	
100	99.58	15	475	780	275	-	-	420	-	335	-	-	425	-	
112	112.81	13	475	690	275	-	-	405	-	335	-	-	410	-	
125	123.56	12	475	630	270	-	-	385	-	325	-	-	395	-	
140	141.08	11	475	550	260	-	-	365	-	315	-	-	375	-	X4K..
160	154.51	9.7	475	510	260	-	-	355	-	310	-	-	365	-	
180	173.63	8.6	475	450	255	-	-	340	-	300	-	-	350	-	M5
200	190.17	7.9	475	410	250	-	-	330	-	300	-	-	340	-	294
224	223.52	6.7	475	355	245	-	-	305	-	280	-	-	315	-	M4
250	244.81	6.1	475	320	240	-	-	295	-	275	-	-	300	-	318
280	279.52	5.4	475	280	230	-	-	280	-	265	-	-	290	-	
315	306.14	4.9	475	260	225	-	-	275	-	260	-	-	280	-	
355	344.02	4.4	475	230	215	-	-	260	-	250	-	-	270	-	
400	376.78	4.0	475	210	215	-	-	255	-	245	-	-	265	-	
X.K320..,n_1 = 1800 min^{-1}															475 kNm
14*)	14.13	127	370	5100	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
16*)	15.48	116	377	4750	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
18*)	18.17	99	397	4250	*)	*)	-	*)	*)	*)	*)	-	*)	1150*)	
20*)	19.90	90	406	4000	*)	*)	-	*)	*)	*)	*)	-	*)	1150*)	
22.4*)	22.63	80	425	3650	*)	*)	-	*)	*)	*)	*)	-	*)	1200*)	
25*)	24.79	73	432	3400	*)	*)	-	*)	*)	*)	*)	-	*)	1200*)	X3K..
28*)	28.08	64	452	3150	*)	*)	-	*)	*)	*)	*)	-	*)	1100*)	
31.5*)	30.76	59	460	2900	*)	*)	-	*)	*)	*)	*)	-	*)	1050*)	M5
35.5*)	35.12	51	475	2650	*)	*)	-	*)	*)	*)	700*)	-	*)	990*)	290
40*)	38.46	47	475	2400	*)	*)	-	*)	620*)	*)	690*)	-	*)	950*)	M4
45*)	44.52	40	475	2100	*)	730*)	-	*)	980*)	*)	980*)	-	*)	1150*)	314
50*)	48.76	37	475	1900	*)	700*)	-	*)	920*)	*)	940*)	-	*)	1100*)	
56*)	54.06	33	475	1750	*)	760*)	-	*)	940*)	*)	950*)	-	510	1050*)	
63*)	59.21	30	475	1600	*)	760*)	-	400	910*)	*)	940*)	-	490	1050*)	
71*)	68.80	26	475	1350	*)	770*)	-	450	890*)	*)	910*)	-	500	970*)	
80*)	75.36	24	475	1250	*)	760*)	-	435	870*)	315	900*)	-	480	950*)	
90[1]	90.93	20	475	1050	*)	-	-	420	-	310	-	-	435	-	
100[1]	99.58	18	475	940	*)	-	-	410	-	305	-	-	425	-	
112[1]	112.81	16	475	830	235	-	-	395	-	310	-	-	410	-	
125[1]	123.56	15	475	760	230	-	-	380	-	300	-	-	395	-	
140[1]	141.08	13	475	660	225	-	-	355	-	295	-	-	370	-	X4K..
160[1]	154.51	12	475	610	225	-	-	345	-	295	-	-	360	-	
180[1]	173.63	10	475	540	225	-	-	330	-	285	-	-	345	-	M5
200[1]	190.17	9.5	475	495	225	-	-	320	-	285	-	-	335	-	294
224[1]	223.52	8.1	475	425	235	-	-	310	-	280	-	-	320	-	M4
250[1]	244.81	7.4	475	385	230	-	-	300	-	270	-	-	305	-	318
280[1]	279.52	6.4	475	340	220	-	-	285	-	260	-	-	290	-	
315[1]	306.14	5.9	475	310	220	-	-	275	-	260	-	-	285	-	
355[1]	344.02	5.2	475	275	210	-	-	260	-	245	-	-	270	-	
400[1]	376.78	4.8	475	250	205	-	-	255	-	245	-	-	265	-	

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9.4 X.T..

X.T100..,n_1 = 1000 min^{-1}															6.80 kNm
					P_{TH} kW										
										M4		20°C			
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
14	**13.47**	74	6.45	52	42	54	-	-	-	52	75	-	-	-	
16	**15.08**	66	6.80	49	42	54	-	-	-	52	75	-	-	-	
18	**17.05**	59	6.80	43	39	50	-	-	-	47	69	-	-	-	
20	**19.09**	52	6.80	39	39	51	-	-	-	48	70	-	-	-	
22.4	**21.09**	47	6.80	35	35	46	-	-	-	43	63	-	-	-	
25	**24.55**	41	6.80	30	38	48	-	-	-	45	64	-	-	-	**X3T..**
28	**27.12**	37	6.80	27	34	43	-	-	-	40	58	-	-	-	
31.5	**30.35**	33	6.80	24	34	43	-	-	-	40	57	-	-	-	M4
35.5	**34.35**	29	6.80	21	30	38	-	-	-	34	49	-	-	-	320
40	**38.45**	26	6.80	19	31	39	-	-	-	36	51	-	-	-	M1
45	**42.96**	23	6.80	17	27	34	-	-	-	31	45	-	-	-	328
50	**48.08**	21	6.80	15	28	35	-	-	-	32	46	-	-	-	
56	**52.49**	19	6.80	14	26	32	-	-	-	29	41	-	-	-	
63	**58.74**	17	6.80	13	26	33	-	-	-	30	43	-	-	-	
71	**67.20**	15	6.80	11	22	28	-	-	-	25	36	-	-	-	
80	**75.21**	13	6.80	10	23	29	-	-	-	26	37	-	-	-	
X.T100..,n_1 = 1200 min^{-1}															**6.80 kNm**
14	**13.47**	89	6.45	62	39	57	-	-	-	52	84	-	-	-	
16	**15.08**	80	6.80	59	38	57	-	-	-	52	84	-	-	-	
18	**17.05**	70	6.80	52	36	53	-	-	-	48	77	-	-	-	
20	**19.09**	63	6.80	46	37	54	-	-	-	49	79	-	-	-	
22.4	**21.09**	57	6.80	42	33	49	-	-	-	44	70	-	-	-	
25	**24.55**	49	6.80	36	38	53	-	-	-	46	72	-	-	-	**X3T..**
28	**27.12**	44	6.80	33	34	48	-	-	-	41	65	-	-	-	
31.5	**30.35**	40	6.80	29	34	47	-	-	-	41	64	-	-	-	M4
35.5	**34.35**	35	6.80	26	30	42	-	-	-	36	56	-	-	-	320
40	**38.45**	31	6.80	23	31	44	-	-	-	37	58	-	-	-	M1
45	**42.96**	28	6.80	21	28	38	-	-	-	32	50	-	-	-	328
50	**48.08**	25	6.80	18	28	39	-	-	-	33	52	-	-	-	
56	**52.49**	23	6.80	17	26	36	-	-	-	30	47	-	-	-	
63	**58.74**	20	6.80	15	27	37	-	-	-	31	48	-	-	-	
71	**67.20**	18	6.80	13	23	31	-	-	-	26	41	-	-	-	
80	**75.21**	16	6.80	12	24	32	-	-	-	27	42	-	-	-	

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X.T100..,n_1 = 1500 min^{-1}															**6.80 kNm**
					P_{TH} kW										
										M4				**20°C**	
i_N	**i_{ex}**	**n_2**	**M_{N2}**	**P_{N1}**			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
		min^{-1}	**kNm**	**kW**											
14	**13.47**	111	6.45	78	27	58	-	-	-	52	96	-	-	-	
16	**15.08**	99	6.80	73	27	58	-	-	-	51	95	-	-	-	
18	**17.05**	88	6.80	65	27	55	-	-	-	48	88	-	-	-	
20	**19.09**	79	6.80	58	29	56	-	-	-	49	89	-	-	-	
22.4	**21.09**	71	6.80	52	27	50	-	-	-	44	80	-	-	-	
25	**24.55**	61	6.80	45	35	58	-	-	-	47	83	-	-	-	**X3T..**
28	**27.12**	55	6.80	41	32	53	-	-	-	42	75	-	-	-	
31.5	**30.35**	49	6.80	36	31	52	-	-	-	42	74	-	-	-	M4
35.5	**34.35**	44	6.80	32	30	47	-	-	-	37	64	-	-	-	320
40	**38.45**	39	6.80	29	31	49	-	-	-	38	67	-	-	-	M1
45	**42.96**	35	6.80	26	27	43	-	-	-	33	58	-	-	-	328
50	**48.08**	31	6.80	23	28	44	-	-	-	34	60	-	-	-	
56	**52.49**	29	6.80	21	26	41	-	-	-	31	54	-	-	-	
63	**58.74**	26	6.80	19	27	42	-	-	-	32	56	-	-	-	
71	**67.20**	22	6.80	17	23	36	-	-	-	28	48	-	-	-	
80	**75.21**	20	6.80	15	24	37	-	-	-	28	49	-	-	-	
X.T100..,n_1 = 1800 min^{-1}															**6.80 kNm**
14	**13.47**	134	6.35	92	*)	54	-	-	-	49	105	-	-	-	
16	**15.08**	119	6.70	87	*)	53	-	-	-	49	105	-	-	-	
18	**17.05**	106	6.80	78	*)	51	-	-	-	46	96	-	-	-	
20	**19.09**	94	6.80	70	*)	52	-	-	-	47	98	-	-	-	
22.4	**21.09**	85	6.80	63	*)	48	-	-	-	42	88	-	-	-	
25	**24.55**	73	6.80	54	30	61	-	-	-	46	92	-	-	-	**X3T..**
28	**27.12**	66	6.80	49	28	56	-	-	-	42	83	-	-	-	
31.5	**30.35**	59	6.80	44	27	55	-	-	-	41	82	-	-	-	M4
35.5	**34.35**	52	6.80	39	28	51	-	-	-	37	72	-	-	-	320
40	**38.45**	47	6.80	35	29	53	-	-	-	39	75	-	-	-	M1
45	**42.96**	42	6.80	31	26	47	-	-	-	34	65	-	-	-	328
50	**48.08**	37	6.80	28	27	48	-	-	-	35	67	-	-	-	
56	**52.49**	34	6.80	26	25	45	-	-	-	32	61	-	-	-	
63	**58.74**	31	6.80	23	26	46	-	-	-	33	63	-	-	-	
71	**67.20**	27	6.80	20	23	40	-	-	-	28	54	-	-	-	
80	**75.21**	24	6.80	18	23	41	-	-	-	29	55	-	-	-	

X.T110..,n_1 = 1000 min^{-1}															8.50 kNm
					P_{TH} kW										
										M4			20°C		
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
		min^{-1}	kNm	kW											
16	**15.50**	65	7.50	52	46	59	-	-	-	56	81	-	-	-	
18	**17.36**	58	7.80	49	45	58	-	-	-	56	81	-	-	-	
20	**19.62**	51	8.00	44	41	52	-	-	-	50	72	-	-	-	
22.4	**21.97**	46	8.50	42	42	54	-	-	-	51	74	-	-	-	
25	**24.26**	41	8.50	38	38	48	-	-	-	46	66	-	-	-	
28	**28.26**	35	8.50	33	40	51	-	-	-	47	68	-	-	-	**X3T..**
31.5	**31.21**	32	8.50	30	36	46	-	-	-	42	61	-	-	-	
35.5	**34.94**	29	8.50	26	36	45	-	-	-	42	60	-	-	-	M4
40	**39.53**	25	8.50	23	32	40	-	-	-	36	52	-	-	-	320
45	**44.26**	23	8.50	21	33	41	-	-	-	38	54	-	-	-	M1
50	**49.44**	20	8.50	19	29	37	-	-	-	34	48	-	-	-	328
56	**55.35**	18	8.50	17	30	37	-	-	-	34	49	-	-	-	
63	**60.40**	17	8.50	15	27	34	-	-	-	31	44	-	-	-	
71	**67.62**	15	8.50	14	28	35	-	-	-	31	45	-	-	-	
80	**77.33**	13	8.50	12	24	30	-	-	-	27	38	-	-	-	
90	**86.58**	12	8.50	11	24	30	-	-	-	27	38	-	-	-	
X.T110..,n_1 = 1200 min^{-1}															**8.50 kNm**
16	**15.50**	77	7.50	63	42	63	-	-	-	57	91	-	-	-	
18	**17.36**	69	7.80	58	42	62	-	-	-	56	90	-	-	-	
20	**19.62**	61	8.00	53	38	56	-	-	-	50	81	-	-	-	
22.4	**21.97**	55	8.50	50	39	58	-	-	-	52	83	-	-	-	
25	**24.26**	49	8.50	46	36	52	-	-	-	47	74	-	-	-	
28	**28.26**	42	8.50	39	40	56	-	-	-	48	76	-	-	-	**X3T..**
31.5	**31.21**	38	8.50	35	36	51	-	-	-	44	68	-	-	-	
35.5	**34.94**	34	8.50	32	36	50	-	-	-	43	68	-	-	-	M4
40	**39.53**	30	8.50	28	32	44	-	-	-	38	59	-	-	-	320
45	**44.26**	27	8.50	25	33	46	-	-	-	39	61	-	-	-	M1
50	**49.44**	24	8.50	22	30	41	-	-	-	35	54	-	-	-	328
56	**55.35**	22	8.50	20	30	41	-	-	-	35	55	-	-	-	
63	**60.40**	20	8.50	18	28	38	-	-	-	32	49	-	-	-	
71	**67.62**	18	8.50	17	28	39	-	-	-	33	51	-	-	-	
80	**77.33**	16	8.50	14	24	33	-	-	-	28	43	-	-	-	
90	**86.58**	14	8.50	13	24	33	-	-	-	28	43	-	-	-	

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X.T110..,n_1 = 1500 min^{-1}															8.50 kNm
					P_{TH} kW										
										M4				20°C	
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
		min^{-1}	kNm	kW											
16	**15.50**	97	7.50	79	32	64	-	-	-	56	105	-	-	-	
18	**17.36**	86	7.80	73	32	64	-	-	-	56	105	-	-	-	
20	**19.62**	76	8.00	66	30	58	-	-	-	50	92	-	-	-	
22.4	**21.97**	68	8.50	63	32	60	-	-	-	52	94	-	-	-	
25	**24.26**	62	8.50	57	29	54	-	-	-	47	85	-	-	-	
28	**28.26**	53	8.50	49	37	62	-	-	-	49	88	-	-	-	**X3T..**
31.5	**31.21**	48	8.50	44	34	56	-	-	-	45	79	-	-	-	
35.5	**34.94**	43	8.50	40	34	55	-	-	-	44	78	-	-	-	M4
40	**39.53**	38	8.50	35	32	50	-	-	-	39	68	-	-	-	320
45	**44.26**	34	8.50	31	33	52	-	-	-	40	70	-	-	-	M1
50	**49.44**	30	8.50	28	29	46	-	-	-	36	63	-	-	-	328
56	**55.35**	27	8.50	25	30	47	-	-	-	36	63	-	-	-	
63	**60.40**	25	8.50	23	28	43	-	-	-	33	57	-	-	-	
71	**67.62**	22	8.50	21	28	44	-	-	-	34	59	-	-	-	
80	**77.33**	19	8.50	18	25	38	-	-	-	29	50	-	-	-	
90	**86.58**	17	8.50	16	25	38	-	-	-	29	50	-	-	-	
X.T110..,n_1 = 1800 min^{-1}															**8.50 kNm**
16	**15.50**	116	7.50	94	*)	60	-	-	-	54	115	-	-	-	
18	**17.36**	104	7.90	89	*)	60	-	-	-	53	115	-	-	-	
20	**19.62**	92	8.20	82	*)	55	-	-	-	48	100	-	-	-	
22.4	**21.97**	82	8.50	75	*)	57	-	-	-	50	105	-	-	-	
25	**24.26**	74	8.50	68	*)	52	-	-	-	45	93	-	-	-	
28	**28.26**	64	8.50	59	32	65	-	-	-	49	98	-	-	-	**X3T..**
31.5	**31.21**	58	8.50	53	30	59	-	-	-	45	88	-	-	-	
35.5	**34.94**	52	8.50	47	29	58	-	-	-	44	87	-	-	-	M4
40	**39.53**	46	8.50	42	30	55	-	-	-	39	76	-	-	-	320
45	**44.26**	41	8.50	37	31	57	-	-	-	41	79	-	-	-	M1
50	**49.44**	36	8.50	34	28	51	-	-	-	37	70	-	-	-	328
56	**55.35**	33	8.50	30	28	51	-	-	-	37	71	-	-	-	
63	**60.40**	30	8.50	28	27	47	-	-	-	34	64	-	-	-	
71	**67.62**	27	8.50	25	28	49	-	-	-	35	66	-	-	-	
80	**77.33**	23	8.50	22	24	42	-	-	-	30	56	-	-	-	
90	**86.58**	21	8.50	19	24	42	-	-	-	30	57	-	-	-	

X.T120..,n_1 = 1000 min^{-1}															12.8 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}						M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
12.5	**12.72**	79	11.3	96	50	67	-	-	-	68	100	-	-	-	
14	**14.48**	69	11.5	86	51	69	-	-	-	70	105	-	-	-	
16	**16.36**	61	11.6	77	53	68	-	-	-	65	94	-	-	-	
18	**18.63**	54	12.0	70	54	69	-	-	-	66	96	-	-	-	
20	**20.02**	50	12.1	66	46	62	-	-	-	62	91	-	-	-	
22.4	**22.79**	44	12.3	59	47	63	-	-	-	63	93	-	-	-	**X3T..**
25	**25.75**	39	12.4	52	48	62	-	-	-	58	85	-	-	-	
28	**29.32**	34	12.4	46	49	62	-	-	-	59	86	-	-	-	M4
31.5	**30.96**	32	12.4	43	43	55	-	-	-	52	76	-	-	-	320
35.5	**35.25**	28	12.4	38	44	56	-	-	-	53	77	-	-	-	M1
40	**40.01**	25	12.4	34	39	49	-	-	-	45	65	-	-	-	328
45	**45.55**	22	12.8	30	40	51	-	-	-	47	68	-	-	-	
50	**47.92**	21	12.8	29	36	45	-	-	-	42	60	-	-	-	
56	**54.55**	18	12.8	26	36	46	-	-	-	42	60	-	-	-	
63	**61.35**	16	12.8	23	32	41	-	-	-	37	54	-	-	-	
71	**69.84**	14	12.8	20	33	41	-	-	-	37	54	-	-	-	
80	**82.12**	12	10.9	15	33	-	-	-	-	36	-	-	-	-	
90	**93.49**	11	12.3	14	34	-	-	-	-	37	-	-	-	-	
100	**104.18**	9.6	12.8	13	32	-	-	-	-	35	-	-	-	-	
112	**118.60**	8.4	12.8	12	32	-	-	-	-	36	-	-	-	-	
125	**125.27**	8.0	12.8	11	29	-	-	-	-	32	-	-	-	-	**X4T..**
140	**142.60**	7.0	12.8	10	30	-	-	-	-	33	-	-	-	-	
160	**149.93**	6.7	12.8	9	27	-	-	-	-	30	-	-	-	-	M4
180	**170.68**	5.9	12.8	8	27	-	-	-	-	30	-	-	-	-	324
200	**206.42**	4.8	12.8	7	24	-	-	-	-	26	-	-	-	-	M1
224	**234.98**	4.3	12.8	6	24	-	-	-	-	27	-	-	-	-	332
250	**248.19**	4.0	12.8	6	22	-	-	-	-	24	-	-	-	-	
280	**282.53**	3.5	12.8	5	22	-	-	-	-	24	-	-	-	-	
315	**297.06**	3.4	12.8	5	20	-	-	-	-	22	-	-	-	-	
355	**338.17**	3.0	12.8	4	21	-	-	-	-	23	-	-	-	-	
X.T120..,n_1 = 1200 min^{-1}															**12.8 kNm**
12.5	**12.72**	94	11.3	115	35	67	-	-	-	67	110	-	-	-	
14	**14.48**	83	11.5	105	38	69	-	-	-	69	115	-	-	-	
16	**16.36**	73	11.6	92	49	73	-	-	-	65	105	-	-	-	
18	**18.63**	64	12.0	84	50	74	-	-	-	67	105	-	-	-	
20	**20.02**	60	12.1	79	39	62	-	-	-	61	100	-	-	-	
22.4	**22.79**	53	12.3	70	40	64	-	-	-	63	105	-	-	-	**X3T..**
25	**25.75**	47	12.4	63	46	66	-	-	-	59	95	-	-	-	
28	**29.32**	41	12.4	55	46	67	-	-	-	60	96	-	-	-	M4
31.5	**30.96**	39	12.4	52	41	60	-	-	-	53	85	-	-	-	320
35.5	**35.25**	34	12.4	46	42	61	-	-	-	54	86	-	-	-	M1
40	**40.01**	30	12.4	40	39	54	-	-	-	47	74	-	-	-	328
45	**45.55**	26	12.8	37	40	56	-	-	-	48	76	-	-	-	
50	**47.92**	25	12.8	35	36	50	-	-	-	43	68	-	-	-	
56	**54.55**	22	12.8	31	36	51	-	-	-	43	68	-	-	-	
63	**61.35**	20	12.8	27	33	45	-	-	-	39	60	-	-	-	
71	**69.84**	17	12.8	24	33	46	-	-	-	39	61	-	-	-	
80	**82.12**	15	10.9	17	34	-	-	-	-	38	-	-	-	-	
90	**93.49**	13	12.3	17	35	-	-	-	-	39	-	-	-	-	
100	**104.18**	12	12.8	16	33	-	-	-	-	37	-	-	-	-	
112	**118.60**	10	12.8	14	33	-	-	-	-	37	-	-	-	-	
125	**125.27**	9.6	12.8	13	30	-	-	-	-	33	-	-	-	-	**X4T..**
140	**142.60**	8.4	12.8	12	31	-	-	-	-	34	-	-	-	-	
160	**149.93**	8.0	12.8	11	28	-	-	-	-	31	-	-	-	-	M4
180	**170.68**	7.0	12.8	10	28	-	-	-	-	31	-	-	-	-	324
200	**206.42**	5.8	12.8	8	25	-	-	-	-	27	-	-	-	-	M1
224	**234.98**	5.1	12.8	7	25	-	-	-	-	28	-	-	-	-	332
250	**248.19**	4.8	12.8	7	23	-	-	-	-	25	-	-	-	-	
280	**282.53**	4.2	12.8	6	23	-	-	-	-	25	-	-	-	-	
315	**297.06**	4.0	12.8	6	21	-	-	-	-	23	-	-	-	-	
355	**338.17**	3.5	12.8	5	22	-	-	-	-	24	-	-	-	-	

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X.T120..,n$_1$ = 1500 min^{-1}																**12.8 kNm**
					P_{TH} kW											
i_N	**i_{ex}**	**n_2**	**M_{N2}**	**P_{N1}**						**M4**			**20°C**			
		min^{-1}	**kNm**	**kW**			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O		
12.5	**12.72**	118	11.3	145	*)	53	-	-	-	61	125	-	-	-	
14	**14.48**	104	11.5	130	*)	57	-	-	-	65	125	-	-	-	
16	**16.36**	92	11.6	115	35	76	-	-	-	65	120	-	-	-	
18	**18.63**	81	12.0	105	38	77	-	-	-	66	120	-	-	-	
20	**20.02**	75	12.1	98	*)	56	-	-	-	58	115	-	-	-	
22.4	**22.79**	66	12.3	88	*)	57	-	-	-	60	115	-	-	-	**X3T..**
25	**25.75**	58	12.4	78	38	70	-	-	-	59	110	-	-	-	
28	**29.32**	51	12.4	69	39	71	-	-	-	60	110	-	-	-	M4
31.5	**30.96**	48	12.4	65	35	63	-	-	-	53	97	-	-	-	320
35.5	**35.25**	43	12.4	57	35	64	-	-	-	54	98	-	-	-	M1
40	**40.01**	37	12.4	50	37	60	-	-	-	48	85	-	-	-	328
45	**45.55**	33	12.8	46	38	62	-	-	-	49	88	-	-	-	
50	**47.92**	31	12.8	44	35	56	-	-	-	44	78	-	-	-	
56	**54.55**	27	12.8	39	35	57	-	-	-	44	78	-	-	-	
63	**61.35**	24	12.8	34	32	51	-	-	-	40	70	-	-	-	
71	**69.84**	21	12.8	30	32	51	-	-	-	40	70	-	-	-	
80	**82.12**	18	10.9	22	35	-	-	-	-	40	-	-	-	-	
90	**93.49**	16	12.3	22	36	-	-	-	-	40	-	-	-	-	
100	**104.18**	14	12.8	20	34	-	-	-	-	38	-	-	-	-	
112	**118.60**	13	12.8	18	34	-	-	-	-	39	-	-	-	-	
125	**125.27**	12	12.8	17	31	-	-	-	-	35	-	-	-	-	**X4T..**
140	**142.60**	11	12.8	15	31	-	-	-	-	36	-	-	-	-	
160	**149.93**	10	12.8	14	28	-	-	-	-	32	-	-	-	-	M4
180	**170.68**	8.8	12.8	12	29	-	-	-	-	33	-	-	-	-	324
200	**206.42**	7.3	12.8	10	26	-	-	-	-	29	-	-	-	-	M1
224	**234.98**	6.4	12.8	9	26	-	-	-	-	29	-	-	-	-	332
250	**248.19**	6.0	12.8	9	24	-	-	-	-	27	-	-	-	-	
280	**282.53**	5.3	12.8	8	24	-	-	-	-	27	-	-	-	-	
315	**297.06**	5.0	12.8	7	22	-	-	-	-	25	-	-	-	-	
355	**338.17**	4.4	12.8	6	23	-	-	-	-	25	-	-	-	-	
X.T120..,n$_1$ = 1800 min^{-1}																**12.8 kNm**
12.5	**12.72**	142	11.3	175	*)	*)	-	-	-	44	135	-	-	-	
14	**14.48**	124	11.5	155	*)	*)	-	-	-	49	135	-	-	-	
16	**16.36**	110	11.6	140	*)	73	-	-	-	60	130	-	-	-	
18	**18.63**	97	12.0	125	*)	75	-	-	-	63	135	-	-	-	
20	**20.02**	90	12.1	120	*)	31	-	-	-	50	120	-	-	-	
22.4	**22.79**	79	12.3	105	*)	34	-	-	-	53	125	-	-	-	**X3T..**
25	**25.75**	70	12.4	94	*)	69	-	-	-	57	120	-	-	-	
28	**29.32**	61	12.4	83	*)	70	-	-	-	58	120	-	-	-	M4
31.5	**30.96**	58	12.4	78	*)	63	-	-	-	52	105	-	-	-	320
35.5	**35.25**	51	12.4	69	20	63	-	-	-	52	110	-	-	-	M1
40	**40.01**	45	12.4	60	33	64	-	-	-	47	94	-	-	-	328
45	**45.55**	40	12.8	55	34	67	-	-	-	49	98	-	-	-	
50	**47.92**	38	12.8	53	32	61	-	-	-	44	87	-	-	-	
56	**54.55**	33	12.8	46	33	61	-	-	-	45	87	-	-	-	
63	**61.35**	29	12.8	41	31	56	-	-	-	40	78	-	-	-	
71	**69.84**	26	12.8	36	31	56	-	-	-	40	78	-	-	-	
80	**82.12**	22	10.9	26	35	-	-	-	-	41	-	-	-	-	
90	**93.49**	19	12.3	26	36	-	-	-	-	42	-	-	-	-	
100	**104.18**	17	12.8	24	34	-	-	-	-	40	-	-	-	-	
112	**118.60**	15	12.8	21	34	-	-	-	-	40	-	-	-	-	
125	**125.27**	14	12.8	20	31	-	-	-	-	36	-	-	-	-	**X4T..**
140	**142.60**	13	12.8	18	31	-	-	-	-	37	-	-	-	-	
160	**149.93**	12	12.8	17	28	-	-	-	-	33	-	-	-	-	M4
180	**170.68**	11	12.8	15	29	-	-	-	-	34	-	-	-	-	324
200	**206.42**	8.7	12.8	12	27	-	-	-	-	30	-	-	-	-	M1
224	**234.98**	7.7	12.8	11	27	-	-	-	-	30	-	-	-	-	332
250	**248.19**	7.3	12.8	10	24	-	-	-	-	28	-	-	-	-	
280	**282.53**	6.4	12.8	9	25	-	-	-	-	28	-	-	-	-	
315	**297.06**	6.1	12.8	9	23	-	-	-	-	26	-	-	-	-	
355	**338.17**	5.3	12.8	8	23	-	-	-	-	26	-	-	-	-	

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X.T130..,n_1 = 1000 min^{-1}															16 kNm
					P_{TH} kW										
										M4 20°C					
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
		min^{-1}	kNm	kW											
16	**15.90**	63	14.2	97	55	73	-	-	-	73	110	-	-	-	
18	**18.06**	55	14.4	86	56	75	-	-	-	75	110	-	-	-	
20	**20.45**	49	14.5	77	57	73	-	-	-	69	100	-	-	-	
22.4	**23.23**	43	15.0	70	58	75	-	-	-	71	105	-	-	-	
25	**25.03**	40	15.2	66	51	67	-	-	-	66	97	-	-	-	
28	**28.43**	35	15.5	59	52	68	-	-	-	68	99	-	-	-	**X3T..**
31.5	**32.19**	31	15.5	52	52	66	-	-	-	62	90	-	-	-	
35.5	**36.56**	27	15.5	46	53	67	-	-	-	63	92	-	-	-	M4
40	**38.71**	26	15.5	43	48	61	-	-	-	57	83	-	-	-	320
45	**43.96**	23	15.5	38	46	59	-	-	-	55	80	-	-	-	M1
50	**50.02**	20	15.5	34	43	54	-	-	-	50	71	-	-	-	328
56	**56.81**	18	16.0	31	42	53	-	-	-	49	71	-	-	-	
63	**59.90**	17	16.0	29	39	49	-	-	-	45	64	-	-	-	
71	**68.03**	15	16.0	26	39	49	-	-	-	45	64	-	-	-	
80	**76.69**	13	16.0	23	35	44	-	-	-	40	57	-	-	-	
90	**87.09**	11	16.0	20	35	44	-	-	-	40	57	-	-	-	
100	**102.65**	9.7	13.6	15	36	-	-	-	-	40	-	-	-	-	
112	**116.58**	8.6	15.5	15	36	-	-	-	-	40	-	-	-	-	
125	**130.23**	7.7	16.0	13	34	-	-	-	-	38	-	-	-	-	
140	**147.90**	6.8	16.0	12	34	-	-	-	-	37	-	-	-	-	
160	**156.58**	6.4	16.0	11	31	-	-	-	-	34	-	-	-	-	**X4T..**
180	**177.83**	5.6	16.0	10	31	-	-	-	-	34	-	-	-	-	
200	**187.42**	5.3	16.0	9	29	-	-	-	-	31	-	-	-	-	M4
224	**212.85**	4.7	16.0	8	29	-	-	-	-	31	-	-	-	-	324
250	**258.02**	3.9	16.0	7	26	-	-	-	-	28	-	-	-	-	M1
280	**293.04**	3.4	16.0	6	25	-	-	-	-	28	-	-	-	-	332
315	**310.23**	3.2	16.0	6	23	-	-	-	-	26	-	-	-	-	
355	**352.34**	2.8	16.0	5	23	-	-	-	-	25	-	-	-	-	
400	**371.33**	2.7	16.0	5	22	-	-	-	-	24	-	-	-	-	
450	**421.72**	2.4	16.0	4	22	-	-	-	-	24	-	-	-	-	
X.T130..,n_1 = 1200 min^{-1}															**16 kNm**
16	**15.90**	75	14.2	115	42	74	-	-	-	73	120	-	-	-	
18	**18.06**	66	14.4	105	45	76	-	-	-	75	125	-	-	-	
20	**20.45**	59	14.5	92	54	79	-	-	-	70	110	-	-	-	
22.4	**23.23**	52	15.0	84	55	81	-	-	-	72	115	-	-	-	
25	**25.03**	48	15.2	79	43	69	-	-	-	66	110	-	-	-	
28	**28.43**	42	15.5	71	44	70	-	-	-	68	110	-	-	-	**X3T..**
31.5	**32.19**	37	15.5	63	50	72	-	-	-	64	100	-	-	-	
35.5	**36.56**	33	15.5	55	50	73	-	-	-	64	105	-	-	-	M4
40	**38.71**	31	15.5	52	46	66	-	-	-	59	93	-	-	-	320
45	**43.96**	27	15.5	46	44	64	-	-	-	56	90	-	-	-	M1
50	**50.02**	24	15.5	40	43	60	-	-	-	51	80	-	-	-	328
56	**56.81**	21	16.0	37	42	59	-	-	-	51	80	-	-	-	
63	**59.90**	20	16.0	35	39	54	-	-	-	46	72	-	-	-	
71	**68.03**	18	16.0	31	39	54	-	-	-	46	73	-	-	-	
80	**76.69**	16	16.0	27	35	49	-	-	-	41	65	-	-	-	
90	**87.09**	14	16.0	24	35	49	-	-	-	41	65	-	-	-	
100	**102.65**	12	13.6	17	37	-	-	-	-	41	-	-	-	-	
112	**116.58**	10	15.5	17	37	-	-	-	-	41	-	-	-	-	
125	**130.23**	9.2	16.0	16	35	-	-	-	-	39	-	-	-	-	
140	**147.90**	8.1	16.0	14	35	-	-	-	-	39	-	-	-	-	
160	**156.58**	7.7	16.0	13	32	-	-	-	-	36	-	-	-	-	**X4T..**
180	**177.83**	6.7	16.0	12	32	-	-	-	-	36	-	-	-	-	
200	**187.42**	6.4	16.0	11	30	-	-	-	-	33	-	-	-	-	M4
224	**212.85**	5.6	16.0	10	30	-	-	-	-	33	-	-	-	-	324
250	**258.02**	4.7	16.0	8	27	-	-	-	-	29	-	-	-	-	M1
280	**293.04**	4.1	16.0	7	27	-	-	-	-	29	-	-	-	-	332
315	**310.23**	3.9	16.0	7	24	-	-	-	-	27	-	-	-	-	
355	**352.34**	3.4	16.0	6	24	-	-	-	-	27	-	-	-	-	
400	**371.33**	3.2	16.0	6	23	-	-	-	-	25	-	-	-	-	
450	**421.72**	2.8	16.0	5	23	-	-	-	-	25	-	-	-	-	

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X.T130..,n_1 = 1500 min^{-1}															16 kNm
					P_{TH} kW										
										M4 20°C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
16	**15.90**	94	14.2	145	*)	64	-	-	-	68	135	-	-	-	
18	**18.06**	83	14.4	130	*)	68	-	-	-	71	135	-	-	-	
20	**20.45**	73	14.5	115	41	83	-	-	-	70	130	-	-	-	
22.4	**23.23**	65	15.0	105	44	85	-	-	-	71	130	-	-	-	
25	**25.03**	60	15.2	99	*)	64	-	-	-	64	120	-	-	-	
28	**28.43**	53	15.5	89	*)	65	-	-	-	65	125	-	-	-	**X3T..**
31.5	**32.19**	47	15.5	78	43	76	-	-	-	64	115	-	-	-	
35.5	**36.56**	41	15.5	69	43	78	-	-	-	65	115	-	-	-	M4
40	**38.71**	39	15.5	65	40	71	-	-	-	59	105	-	-	-	320
45	**43.96**	34	15.5	57	38	68	-	-	-	56	100	-	-	-	M1
50	**50.02**	30	15.5	50	41	67	-	-	-	52	92	-	-	-	328
56	**56.81**	26	16.0	46	40	66	-	-	-	52	92	-	-	-	
63	**59.90**	25	16.0	44	38	61	-	-	-	47	83	-	-	-	
71	**68.03**	22	16.0	39	38	61	-	-	-	48	84	-	-	-	
80	**76.69**	20	16.0	34	35	55	-	-	-	43	75	-	-	-	
90	**87.09**	17	16.0	30	35	55	-	-	-	43	75	-	-	-	
100	**102.65**	15	13.6	22	38	-	-	-	-	43	-	-	-	-	
112	**116.58**	13	15.5	22	38	-	-	-	-	43	-	-	-	-	
125	**130.23**	12	16.0	20	36	-	-	-	-	41	-	-	-	-	
140	**147.90**	10	16.0	18	36	-	-	-	-	41	-	-	-	-	
160	**156.58**	9.6	16.0	17	33	-	-	-	-	37	-	-	-	-	**X4T..**
180	**177.83**	8.4	16.0	15	33	-	-	-	-	37	-	-	-	-	
200	**187.42**	8.0	16.0	14	30	-	-	-	-	35	-	-	-	-	M4
224	**212.85**	7.0	16.0	12	30	-	-	-	-	35	-	-	-	-	324
250	**258.02**	5.8	16.0	10	28	-	-	-	-	31	-	-	-	-	M1
280	**293.04**	5.1	16.0	9	28	-	-	-	-	31	-	-	-	-	332
315	**310.23**	4.8	16.0	9	25	-	-	-	-	28	-	-	-	-	
355	**352.34**	4.3	16.0	8	25	-	-	-	-	28	-	-	-	-	
400	**371.33**	4.0	16.0	7	24	-	-	-	-	26	-	-	-	-	
450	**421.72**	3.6	16.0	6	24	-	-	-	-	27	-	-	-	-	
X.T130..,n_1 = 1800 min^{-1}															**16 kNm**
16	**15.90**	113	13.5	165	*)	*)	-	-	-	53	145	-	-	-	
18	**18.06**	100	14.2	155	*)	*)	-	-	-	58	145	-	-	-	
20	**20.45**	88	14.5	140	*)	81	-	-	-	67	140	-	-	-	
22.4	**23.23**	77	15.0	125	*)	83	-	-	-	69	145	-	-	-	
25	**25.03**	72	15.2	120	*)	43	-	-	-	58	130	-	-	-	
28	**28.43**	63	15.5	105	*)	47	-	-	-	59	135	-	-	-	**X3T..**
31.5	**32.19**	56	15.5	94	25	77	-	-	-	62	130	-	-	-	
35.5	**36.56**	49	15.5	83	28	78	-	-	-	63	130	-	-	-	M4
40	**38.71**	46	15.5	78	26	71	-	-	-	58	120	-	-	-	320
45	**43.96**	41	15.5	69	26	68	-	-	-	55	115	-	-	-	M1
50	**50.02**	36	15.5	60	37	71	-	-	-	52	105	-	-	-	328
56	**56.81**	32	16.0	55	37	71	-	-	-	52	100	-	-	-	
63	**59.90**	30	16.0	53	36	66	-	-	-	48	93	-	-	-	
71	**68.03**	26	16.0	46	36	66	-	-	-	48	94	-	-	-	
80	**76.69**	23	16.0	41	33	60	-	-	-	43	84	-	-	-	
90	**87.09**	21	16.0	36	34	60	-	-	-	43	84	-	-	-	
100	**102.65**	18	13.6	26	38	-	-	-	-	45	-	-	-	-	
112	**116.58**	15	15.5	26	38	-	-	-	-	45	-	-	-	-	
125	**130.23**	14	16.0	24	37	-	-	-	-	42	-	-	-	-	
140	**147.90**	12	16.0	21	36	-	-	-	-	42	-	-	-	-	
160	**156.58**	11	16.0	20	33	-	-	-	-	38	-	-	-	-	**X4T..**
180	**177.83**	10	16.0	18	33	-	-	-	-	38	-	-	-	-	
200	**187.42**	9.6	16.0	17	31	-	-	-	-	36	-	-	-	-	M4
224	**212.85**	8.5	16.0	15	31	-	-	-	-	36	-	-	-	-	324
250	**258.02**	7.0	16.0	12	28	-	-	-	-	32	-	-	-	-	M1
280	**293.04**	6.1	16.0	11	28	-	-	-	-	32	-	-	-	-	332
315	**310.23**	5.8	16.0	10	26	-	-	-	-	29	-	-	-	-	
355	**352.34**	5.1	16.0	9	26	-	-	-	-	29	-	-	-	-	
400	**371.33**	4.8	16.0	9	24	-	-	-	-	28	-	-	-	-	
450	**421.72**	4.3	16.0	8	25	-	-	-	-	28	-	-	-	-	

X.T140..,n_1 = 1000 min^{-1}															22 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}						M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
12.5	**12.35**	81	20.8	185	*)	93	-	235	255	91	150	-	155	195	
14	**13.21**	76	21.0	170	48	96	-	235	255	94	155	-	155	200	
16	**15.89**	63	21.0	145	64	97	-	205	220	86	140	-	130	170	
18	**16.99**	59	21.3	135	67	100	-	205	225	88	140	-	135	175	
20	**21.13**	47	21.9	110	65	95	-	180	200	84	135	-	120	160	
22.4	**22.60**	44	22.0	105	65	95	-	180	195	83	135	-	120	155	**X3T..**
25	**26.42**	38	22.0	90	62	91	-	160	180	80	125	-	110	145	
28	**28.25**	35	22.0	84	62	90	-	160	175	79	125	-	110	145	M4
31.5	**33.46**	30	22.0	71	59	83	-	135	150	71	110	-	95	125	320
35.5	**35.78**	28	22.0	67	58	82	-	130	145	70	110	-	93	125	M1
40	**40.78**	25	22.0	58	55	77	-	120	135	66	105	-	85	115	328
45	**43.61**	23	22.0	55	54	76	-	115	130	65	100	-	84	110	
50	**49.82**	20	22.0	48	51	71	-	105	115	60	94	-	76	100	
56	**53.28**	19	22.0	45	51	71	-	100	115	60	94	-	75	100	
63	**63.79**	16	22.0	38	45	63	-	87	98	53	83	-	65	88	
71	**68.21**	15	22.0	35	46	64	-	87	98	53	83	-	65	88	
80	**83.36**	12	22.0	29	45	-	-	79	-	50	-	-	60	-	
90	**89.14**	11	22.0	27	45	-	-	78	-	50	-	-	59	-	
100	**104.20**	9.6	22.0	23	40	-	-	67	-	44	-	-	52	-	
112	**111.42**	9.0	22.0	22	40	-	-	67	-	45	-	-	52	-	
125	**127.00**	7.9	22.0	19	38	-	-	62	-	43	-	-	49	-	**X4T..**
140	**135.81**	7.4	22.0	18	39	-	-	62	-	43	-	-	49	-	
160	**158.84**	6.3	22.0	15	36	-	-	56	-	40	-	-	45	-	M4
180	**169.85**	5.9	22.0	14	36	-	-	56	-	40	-	-	46	-	324
200	**206.44**	4.8	22.0	12	30	-	-	44	-	33	-	-	36	-	M1
224	**220.76**	4.5	22.0	11	30	-	-	44	-	33	-	-	37	-	332
250	**251.62**	4.0	22.0	10	29	-	-	42	-	32	-	-	35	-	
280	**269.07**	3.7	22.0	9	29	-	-	42	-	32	-	-	35	-	
315	**314.70**	3.2	22.0	8	27	-	-	38	-	30	-	-	32	-	
355	**336.53**	3.0	22.0	7	27	-	-	38	-	30	-	-	32	-	
X.T140..,n_1 = 1200 min^{-1}															**22 kNm**
12.5	**12.35**	97	20.8	220	*)	78	-	240	270	81	165	-	160	220	
14	**13.21**	91	21.0	205	*)	84	-	240	275	86	170	-	160	220	
16	**15.89**	76	21.0	170	47	100	-	215	245	85	155	-	140	190	
18	**16.99**	71	21.3	165	50	105	-	215	245	87	155	-	140	195	
20	**21.13**	57	21.9	135	55	100	-	195	220	84	150	-	130	180	
22.4	**22.60**	53	22.0	125	56	100	-	190	215	83	150	-	125	175	**X3T..**
25	**26.42**	45	22.0	110	56	96	-	170	195	80	140	-	115	165	
28	**28.25**	42	22.0	100	56	95	-	165	190	79	140	-	115	160	M4
31.5	**33.46**	36	22.0	86	56	91	-	145	165	72	125	-	100	140	320
35.5	**35.78**	34	22.0	80	56	90	-	140	165	71	125	-	98	140	M1
40	**40.78**	29	22.0	70	53	84	-	125	150	67	115	-	90	130	328
45	**43.61**	28	22.0	66	52	83	-	125	145	66	115	-	89	125	
50	**49.82**	24	22.0	58	50	79	-	110	130	62	105	-	80	115	
56	**53.28**	23	22.0	54	50	78	-	110	130	61	105	-	79	115	
63	**63.79**	19	22.0	45	45	70	-	93	110	54	93	-	68	99	
71	**68.21**	18	22.0	42	46	71	-	93	110	55	94	-	69	100	
80	**83.36**	14	22.0	35	46	-	-	85	-	52	-	-	64	-	
90	**89.14**	13	22.0	32	46	-	-	84	-	52	-	-	63	-	
100	**104.20**	12	22.0	28	41	-	-	72	-	46	-	-	55	-	
112	**111.42**	11	22.0	26	41	-	-	72	-	47	-	-	55	-	
125	**127.00**	9.4	22.0	23	39	-	-	66	-	44	-	-	52	-	**X4T..**
140	**135.81**	8.8	22.0	21	39	-	-	66	-	45	-	-	52	-	
160	**158.84**	7.6	22.0	18	37	-	-	60	-	42	-	-	48	-	M4
180	**169.85**	7.1	22.0	17	37	-	-	60	-	42	-	-	48	-	324
200	**206.44**	5.8	22.0	14	31	-	-	47	-	34	-	-	39	-	M1
224	**220.76**	5.4	22.0	13	31	-	-	47	-	34	-	-	39	-	332
250	**251.62**	4.8	22.0	12	30	-	-	45	-	34	-	-	37	-	
280	**269.07**	4.5	22.0	11	30	-	-	45	-	34	-	-	37	-	
315	**314.70**	3.8	22.0	9	28	-	-	40	-	31	-	-	34	-	
355	**336.53**	3.6	22.0	9	28	-	-	40	-	31	-	-	34	-	

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X.T140..,n_1 = 1500 min^{-1}															22 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}						M4 20°C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
12.5	**12.35**	121	20.8	275	*)	*)	-	230	280	*)	180	-	165	245	
14	**13.21**	114	21.0	260	*)	*)	-	230	280	*)	185	-	165	250	
16	**15.89**	94	21.0	215	*)	99	-	225	265	72	175	-	145	220	
18	**16.99**	88	21.3	205	*)	105	-	225	270	77	175	-	150	220	
20	**21.13**	71	21.9	170	*)	100	-	200	240	81	170	-	135	205	
22.4	**22.60**	66	22.0	160	*)	100	-	195	235	81	170	-	135	200	**X3T..**
25	**26.42**	57	22.0	135	*)	98	-	175	215	78	160	-	125	190	
28	**28.25**	53	22.0	125	*)	97	-	170	210	77	160	-	120	185	M4
31.5	**33.46**	45	22.0	105	48	98	-	155	190	72	145	-	105	165	320
35.5	**35.78**	42	22.0	100	49	98	-	150	185	71	140	-	105	160	M1
40	**40.78**	37	22.0	88	46	92	-	135	165	67	135	-	95	150	328
45	**43.61**	34	22.0	82	46	91	-	130	165	66	130	-	93	145	
50	**49.82**	30	22.0	72	47	87	-	120	150	62	120	-	85	135	
56	**53.28**	28	22.0	68	46	87	-	115	145	62	120	-	84	130	
63	**63.79**	24	22.0	57	43	78	-	100	125	55	105	-	73	115	
71	**68.21**	22	22.0	53	44	79	-	100	125	56	110	-	73	115	
80	**83.36**	18	22.0	43	46	-	-	93	-	54	-	-	68	-	
90	**89.14**	17	22.0	41	45	-	-	91	-	54	-	-	67	-	
100	**104.20**	14	22.0	35	41	-	-	78	-	48	-	-	59	-	
112	**111.42**	13	22.0	32	41	-	-	77	-	48	-	-	59	-	
125	**127.00**	12	22.0	28	39	-	-	72	-	46	-	-	55	-	**X4T..**
140	**135.81**	11	22.0	27	39	-	-	71	-	47	-	-	56	-	
160	**158.84**	9.4	22.0	23	37	-	-	64	-	43	-	-	51	-	M4
180	**169.85**	8.8	22.0	21	37	-	-	64	-	44	-	-	51	-	324
200	**206.44**	7.3	22.0	18	32	-	-	52	-	36	-	-	41	-	M1
224	**220.76**	6.8	22.0	17	32	-	-	51	-	36	-	-	41	-	332
250	**251.62**	6.0	22.0	15	31	-	-	49	-	35	-	-	40	-	
280	**269.07**	5.6	22.0	14	31	-	-	48	-	35	-	-	40	-	
315	**314.70**	4.8	22.0	12	29	-	-	44	-	33	-	-	37	-	
355	**336.53**	4.5	22.0	11	29	-	-	43	-	33	-	-	37	-	
X.T140..,n_1 = 1800 min^{-1}															**22 kNm**
12.5	**12.35**	146	19.8	315	*)	*)	-	195	255	*)	190	-	160	265	
14	**13.21**	136	19.9	295	*)	*)	-	190	260	*)	195	-	160	265	
16	**15.89**	113	19.9	245	*)	73	-	225	280	*)	190	-	150	240	
18	**16.99**	106	20.2	230	*)	79	-	225	280	*)	190	-	155	245	
20	**21.13**	85	20.7	190	*)	90	-	200	255	65	185	-	140	225	
22.4	**22.60**	80	21.1	180	*)	91	-	195	245	67	185	-	135	220	**X3T..**
25	**26.42**	68	22.0	160	*)	91	-	175	225	70	175	-	125	210	
28	**28.25**	64	22.0	150	*)	90	-	170	220	71	175	-	125	205	M4
31.5	**33.46**	54	22.0	130	*)	100	-	160	205	70	160	-	110	180	320
35.5	**35.78**	50	22.0	120	*)	100	-	155	200	69	155	-	110	180	M1
40	**40.78**	44	22.0	105	29	95	-	140	180	65	145	-	98	165	328
45	**43.61**	41	22.0	98	30	94	-	135	175	65	145	-	97	160	
50	**49.82**	36	22.0	87	39	93	-	125	165	62	135	-	88	150	
56	**53.28**	34	22.0	81	40	93	-	120	160	61	135	-	87	145	
63	**63.79**	28	22.0	68	39	85	-	105	140	55	120	-	76	130	
71	**68.21**	26	22.0	64	40	86	-	105	140	56	120	-	76	130	
80	**83.36**	22	22.0	52	44	-	-	98	-	55	-	-	71	-	
90	**89.14**	20	22.0	49	43	-	-	95	-	55	-	-	70	-	
100	**104.20**	17	22.0	42	39	-	-	82	-	49	-	-	62	-	
112	**111.42**	16	22.0	39	39	-	-	81	-	50	-	-	62	-	
125	**127.00**	14	22.0	34	37	-	-	75	-	47	-	-	58	-	**X4T..**
140	**135.81**	13	22.0	32	38	-	-	75	-	48	-	-	58	-	
160	**158.84**	11	22.0	27	35	-	-	67	-	44	-	-	53	-	M4
180	**169.85**	11	22.0	26	36	-	-	67	-	45	-	-	53	-	324
200	**206.44**	8.7	22.0	21	33	-	-	55	-	37	-	-	44	-	M1
224	**220.76**	8.2	22.0	20	33	-	-	55	-	38	-	-	44	-	332
250	**251.62**	7.2	22.0	17	32	-	-	52	-	37	-	-	42	-	
280	**269.07**	6.7	22.0	16	32	-	-	52	-	37	-	-	42	-	
315	**314.70**	5.7	22.0	14	30	-	-	46	-	34	-	-	38	-	
355	**336.53**	5.3	22.0	13	30	-	-	46	-	34	-	-	38	-	

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X.T150..,n_1 = 1000 min^{-1}															27.5 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}						M4				20°C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
16	**15.34**	65	25.5	180	57	105	-	180	200	100	170	-	135	185	
18	**16.43**	61	25.8	170	58	105	-	175	200	100	165	-	135	180	
20	**19.73**	51	26.1	145	74	110	-	160	180	95	150	-	120	165	
22.4	**21.13**	47	26.5	135	72	105	-	150	175	92	145	-	115	155	
25	**26.25**	38	27.2	110	71	105	-	140	160	90	145	-	110	150	
28	**28.10**	36	27.5	105	71	105	-	140	160	90	145	-	110	150	**X3T..**
31.5	**32.81**	30	27.5	91	68	98	-	130	145	86	135	-	100	140	
35.5	**35.13**	28	27.5	85	68	97	-	125	145	85	135	-	100	140	M4
40	**41.56**	24	27.5	72	65	91	-	115	130	78	120	-	90	125	320
45	**44.50**	22	27.5	67	63	89	-	110	125	75	120	-	87	120	M1
50	**50.65**	20	27.5	59	59	83	-	98	115	71	110	-	81	110	328
56	**54.23**	18	27.5	55	59	82	-	96	110	70	110	-	80	110	
63	**61.88**	16	27.5	49	55	77	-	88	100	65	100	-	73	100	
71	**66.26**	15	27.5	45	55	76	-	86	100	64	100	-	72	100	
80	**79.22**	13	27.5	38	50	69	-	75	88	58	90	-	64	89	
90	**84.83**	12	27.5	35	50	68	-	74	86	57	89	-	63	88	
100	**103.52**	9.7	27.5	29	50	-	-	71	-	55	-	-	60	-	
112	**110.85**	9.0	27.5	27	49	-	-	69	-	55	-	-	59	-	
125	**129.41**	7.7	27.5	23	46	-	-	64	-	51	-	-	55	-	
140	**138.56**	7.2	27.5	22	47	-	-	64	-	52	-	-	56	-	
160	**157.72**	6.3	27.5	19	43	-	-	57	-	48	-	-	51	-	**X4T..**
180	**168.89**	5.9	27.5	18	42	-	-	56	-	47	-	-	50	-	
200	**197.26**	5.1	27.5	15	40	-	-	52	-	44	-	-	47	-	M4
224	**211.23**	4.7	27.5	14	40	-	-	52	-	44	-	-	47	-	324
250	**256.39**	3.9	27.5	12	34	-	-	43	-	38	-	-	40	-	M1
280	**274.54**	3.6	27.5	11	34	-	-	43	-	37	-	-	39	-	332
315	**312.49**	3.2	27.5	10	32	-	-	39	-	35	-	-	36	-	
355	**334.61**	3.0	27.5	9	32	-	-	39	-	35	-	-	37	-	
400	**390.84**	2.6	27.5	8	30	-	-	36	-	33	-	-	34	-	
450	**418.50**	2.4	27.5	7	30	-	-	36	-	32	-	-	34	-	
X.T150..,n_1 = 1200 min^{-1}															**27.5 kNm**
16	**15.34**	78	25.5	215	*)	98	-	175	210	96	185	-	135	205	
18	**16.43**	73	25.8	205	*)	100	-	170	205	97	185	-	135	200	
20	**19.73**	61	26.1	170	60	115	-	165	195	95	170	-	125	180	
22.4	**21.13**	57	26.5	165	58	110	-	155	190	92	165	-	120	175	
25	**26.25**	46	27.2	135	64	110	-	145	175	91	160	-	115	170	
28	**28.10**	43	27.5	125	64	110	-	145	175	90	160	-	110	165	**X3T..**
31.5	**32.81**	37	27.5	110	62	105	-	130	160	86	150	-	105	155	
35.5	**35.13**	34	27.5	100	62	105	-	130	155	86	150	-	105	155	M4
40	**41.56**	29	27.5	86	63	100	-	120	145	79	135	-	94	140	320
45	**44.50**	27	27.5	80	61	97	-	115	135	77	135	-	91	135	M1
50	**50.65**	24	27.5	71	57	91	-	105	125	72	125	-	84	125	328
56	**54.23**	22	27.5	66	57	90	-	100	125	71	125	-	83	125	
63	**61.88**	19	27.5	58	55	85	-	92	115	66	115	-	76	115	
71	**66.26**	18	27.5	54	54	84	-	90	110	66	115	-	75	115	
80	**79.22**	15	27.5	46	50	77	-	79	98	60	100	-	67	100	
90	**84.83**	14	27.5	43	50	76	-	78	96	59	100	-	66	100	
100	**103.52**	12	27.5	35	51	-	-	75	-	57	-	-	63	-	
112	**110.85**	11	27.5	33	50	-	-	73	-	57	-	-	62	-	
125	**129.41**	9.3	27.5	28	47	-	-	67	-	53	-	-	58	-	
140	**138.56**	8.7	27.5	26	48	-	-	68	-	54	-	-	59	-	
160	**157.72**	7.6	27.5	23	44	-	-	61	-	49	-	-	53	-	**X4T..**
180	**168.89**	7.1	27.5	21	43	-	-	60	-	49	-	-	53	-	
200	**197.26**	6.1	27.5	18	41	-	-	55	-	46	-	-	50	-	M4
224	**211.23**	5.7	27.5	17	41	-	-	54	-	46	-	-	49	-	324
250	**256.39**	4.7	27.5	14	36	-	-	46	-	39	-	-	42	-	M1
280	**274.54**	4.4	27.5	13	35	-	-	45	-	39	-	-	41	-	332
315	**312.49**	3.8	27.5	12	33	-	-	42	-	36	-	-	38	-	
355	**334.61**	3.6	27.5	11	33	-	-	42	-	37	-	-	38	-	
400	**390.84**	3.1	27.5	9	31	-	-	38	-	34	-	-	36	-	
450	**418.50**	2.9	27.5	9	31	-	-	38	-	34	-	-	35	-	

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X.T150..,n_1 = 1500 min^{-1}															27.5 kNm
					P_{TH} kW										
										M4				20°C	
i_N	i_{ex}	n_2	M_{N2}	P_{N1}											
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
16	**15.34**	98	25.5	270	*)	*)	-	145	205	68	205	-	135	225	
18	**16.43**	91	25.8	255	*)	*)	-	140	200	71	200	-	130	225	
20	**19.73**	76	26.1	215	*)	115	-	165	215	88	190	-	125	205	
22.4	**21.13**	71	26.5	205	*)	110	-	155	200	84	185	-	120	200	
25	**26.25**	57	27.2	170	*)	115	-	145	190	88	180	-	115	190	
28	**28.10**	53	27.5	160	*)	110	-	140	185	88	180	-	115	190	**X3T..**
31.5	**32.81**	46	27.5	135	37	110	-	130	175	84	175	-	110	180	
35.5	**35.13**	43	27.5	125	39	105	-	125	170	84	170	-	105	175	M4
40	**41.56**	36	27.5	110	56	110	-	120	160	80	160	-	98	160	320
45	**44.50**	34	27.5	100	54	105	-	115	155	77	150	-	94	155	M1
50	**50.65**	30	27.5	88	52	100	-	105	140	72	145	-	87	145	328
56	**54.23**	28	27.5	82	51	99	-	105	140	72	140	-	86	145	
63	**61.88**	24	27.5	73	51	95	-	96	125	67	130	-	79	130	
71	**66.26**	23	27.5	68	51	94	-	94	125	67	130	-	78	130	
80	**79.22**	19	27.5	57	48	86	-	83	110	61	115	-	70	115	
90	**84.83**	18	27.5	53	48	86	-	82	110	60	115	-	69	115	
100	**103.52**	14	27.5	44	51	-	-	79	-	59	-	-	67	-	
112	**110.85**	14	27.5	41	50	-	-	78	-	59	-	-	66	-	
125	**129.41**	12	27.5	35	47	-	-	71	-	56	-	-	61	-	
140	**138.56**	11	27.5	33	48	-	-	71	-	56	-	-	62	-	
160	**157.72**	9.5	27.5	29	44	-	-	64	-	51	-	-	56	-	**X4T..**
180	**168.89**	8.9	27.5	27	43	-	-	63	-	51	-	-	56	-	
200	**197.26**	7.6	27.5	23	41	-	-	58	-	48	-	-	52	-	M4
224	**211.23**	7.1	27.5	21	41	-	-	57	-	48	-	-	52	-	324
250	**256.39**	5.9	27.5	18	37	-	-	50	-	42	-	-	44	-	M1
280	**274.54**	5.5	27.5	17	37	-	-	49	-	41	-	-	44	-	332
315	**312.49**	4.8	27.5	15	34	-	-	45	-	38	-	-	41	-	
355	**334.61**	4.5	27.5	14	34	-	-	45	-	38	-	-	41	-	
400	**390.84**	3.8	27.5	12	32	-	-	41	-	36	-	-	38	-	
450	**418.50**	3.6	27.5	11	32	-	-	40	-	36	-	-	38	-	
X.T150..,n_1 = 1800 min^{-1}															**27.5 kNm**
16	**15.34**	117	24.2	310	*)	*)	-	*)	165	*)	215	-	110	240	
18	**16.43**	110	24.5	290	*)	*)	-	*)	160	*)	210	-	110	235	
20	**19.73**	91	24.7	245	*)	98	-	155	215	69	210	-	125	225	
22.4	**21.13**	85	25.1	230	*)	94	-	145	205	66	200	-	120	220	
25	**26.25**	69	27.2	200	*)	105	-	135	195	76	200	-	115	210	
28	**28.10**	64	27.5	190	*)	105	-	130	190	78	200	-	115	210	**X3T..**
31.5	**32.81**	55	27.5	165	*)	105	-	120	175	79	190	-	105	195	
35.5	**35.13**	51	27.5	155	*)	100	-	115	175	79	190	-	105	195	M4
40	**41.56**	43	27.5	130	38	115	-	120	170	78	175	-	99	180	320
45	**44.50**	40	27.5	120	36	110	-	115	165	75	170	-	95	175	M1
50	**50.65**	36	27.5	105	37	105	-	105	150	71	160	-	88	160	328
56	**54.23**	33	27.5	99	38	105	-	100	145	71	155	-	87	160	
63	**61.88**	29	27.5	88	45	100	-	97	140	67	145	-	81	145	
71	**66.26**	27	27.5	82	45	100	-	95	135	66	145	-	80	145	
80	**79.22**	23	27.5	68	45	94	-	85	120	61	130	-	72	130	
90	**84.83**	21	27.5	64	44	93	-	84	120	61	130	-	71	130	
100	**103.52**	17	27.5	52	49	-	-	82	-	61	-	-	69	-	
112	**110.85**	16	27.5	49	48	-	-	80	-	60	-	-	68	-	
125	**129.41**	14	27.5	42	46	-	-	74	-	57	-	-	64	-	
140	**138.56**	13	27.5	39	46	-	-	73	-	57	-	-	64	-	
160	**157.72**	11	27.5	34	42	-	-	66	-	53	-	-	58	-	**X4T..**
180	**168.89**	11	27.5	32	42	-	-	64	-	52	-	-	58	-	
200	**197.26**	9.1	27.5	28	40	-	-	60	-	50	-	-	54	-	M4
224	**211.23**	8.5	27.5	26	39	-	-	58	-	49	-	-	54	-	324
250	**256.39**	7.0	27.5	21	38	-	-	52	-	43	-	-	46	-	M1
280	**274.54**	6.6	27.5	20	38	-	-	51	-	43	-	-	46	-	332
315	**312.49**	5.8	27.5	18	35	-	-	47	-	40	-	-	42	-	
355	**334.61**	5.4	27.5	16	35	-	-	47	-	40	-	-	43	-	
400	**390.84**	4.6	27.5	14	33	-	-	43	-	38	-	-	40	-	
450	**418.50**	4.3	27.5	13	33	-	-	43	-	37	-	-	39	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} kW										
X.T160..,n_1 = 1000 min^{-1}															**36 kNm**
					M3	20°C									
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
12.5	**12.35**	81	32.5	285	130	220	-	245	310	150	245	-	255	325	
14	**13.92**	72	33.0	255	135	225	-	240	305	155	250	-	255	325	
16	**15.53**	64	33.5	235	125	200	-	205	260	140	220	-	215	280	
18	**17.51**	57	36.0	225	125	200	-	195	250	140	220	-	210	270	
20	**20.23**	49	36.0	195	125	205	-	190	245	140	225	-	205	265	
22.4	**22.80**	44	36.0	170	120	195	-	175	230	135	215	-	190	250	**X3T..**
25	**24.77**	40	36.0	160	115	185	-	160	215	130	205	-	180	235	
28	**27.91**	36	36.0	140	115	185	-	155	210	130	205	-	175	230	M4
31.5	**30.94**	32	36.0	125	110	175	-	145	190	120	190	-	160	210	320
35.5	**34.87**	29	36.0	110	105	165	-	135	180	115	185	-	150	200	M1
40	**39.12**	26	36.0	100	90	145	-	115	155	100	155	-	125	170	328
45	**44.08**	23	36.0	89	89	140	-	110	150	99	155	-	125	165	
50	**48.46**	21	36.0	81	79	125	-	95	130	88	135	-	105	145	
56	**54.62**	18	36.0	72	80	125	-	94	130	89	140	-	105	145	
63	**62.05**	16	36.0	63	72	110	-	83	115	79	125	-	93	125	
71	**69.92**	14	36.0	56	72	110	-	82	115	79	125	-	93	125	
80	**81.90**	12	36.0	48	78	-	-	87	-	85	-	-	97	-	
90	**92.30**	11	36.0	43	77	-	-	85	-	83	-	-	94	-	
100	**100.25**	10.0	36.0	39	73	-	-	79	-	79	-	-	89	-	
112	**112.98**	8.9	36.0	35	73	-	-	79	-	79	-	-	88	-	
125	**126.75**	7.9	36.0	31	62	-	-	67	-	68	-	-	75	-	**X4T..**
140	**142.85**	7.0	36.0	28	61	-	-	65	-	67	-	-	73	-	
160	**152.40**	6.6	36.0	26	58	-	-	61	-	63	-	-	68	-	M4
180	**171.76**	5.8	36.0	23	57	-	-	60	-	62	-	-	67	-	324
200	**198.63**	5.0	36.0	20	53	-	-	55	-	57	-	-	61	-	M1
224	**223.85**	4.5	36.0	18	53	-	-	55	-	57	-	-	61	-	332
250	**251.14**	4.0	36.0	16	46	-	-	47	-	50	-	-	53	-	
280	**283.03**	3.5	36.0	14	46	-	-	47	-	50	-	-	52	-	
315	**301.95**	3.3	36.0	13	42	-	-	43	-	46	-	-	48	-	
355	**340.30**	2.9	36.0	12	42	-	-	43	-	45	-	-	48	-	
X.T160..,n_1 = 1200 min^{-1}															**36 kNm**
12.5	**12.35**	97	32.5	340	110	240	-	270	355	140	270	-	275	370	
14	**13.92**	86	33.0	310	120	245	-	265	350	150	280	-	275	370	
16	**15.53**	77	33.5	280	115	220	-	225	300	140	250	-	235	315	
18	**17.51**	69	36.0	265	120	220	-	215	290	140	245	-	225	310	
20	**20.23**	59	36.0	230	125	225	-	205	280	145	250	-	220	305	
22.4	**22.80**	53	36.0	205	120	215	-	190	260	135	240	-	205	285	**X3T..**
25	**24.77**	48	36.0	190	115	205	-	175	245	130	230	-	190	265	
28	**27.91**	43	36.0	170	115	205	-	165	235	130	225	-	185	260	M4
31.5	**30.94**	39	36.0	150	110	195	-	155	220	125	215	-	170	240	320
35.5	**34.87**	34	36.0	135	105	185	-	145	205	120	205	-	160	225	M1
40	**39.12**	31	36.0	120	91	160	-	120	175	105	175	-	135	195	328
45	**44.08**	27	36.0	105	90	155	-	115	170	100	175	-	130	185	
50	**48.46**	25	36.0	98	81	140	-	100	150	91	155	-	115	165	
56	**54.62**	22	36.0	87	82	140	-	100	145	91	155	-	115	165	
63	**62.05**	19	36.0	76	73	125	-	87	130	82	140	-	99	145	
71	**69.92**	17	36.0	68	74	125	-	86	130	82	140	-	98	145	
80	**81.90**	15	36.0	58	81	-	-	92	-	88	-	-	100	-	
90	**92.30**	13	36.0	51	79	-	-	90	-	86	-	-	100	-	
100	**100.25**	12	36.0	47	75	-	-	84	-	82	-	-	94	-	
112	**112.98**	11	36.0	42	76	-	-	84	-	82	-	-	93	-	
125	**126.75**	9.5	36.0	37	65	-	-	71	-	71	-	-	79	-	**X4T..**
140	**142.85**	8.4	36.0	33	64	-	-	69	-	69	-	-	77	-	
160	**152.40**	7.9	36.0	31	60	-	-	65	-	65	-	-	72	-	M4
180	**171.76**	7.0	36.0	28	59	-	-	63	-	64	-	-	70	-	324
200	**198.63**	6.0	36.0	24	55	-	-	58	-	60	-	-	65	-	M1
224	**223.85**	5.4	36.0	21	55	-	-	58	-	60	-	-	64	-	332
250	**251.14**	4.8	36.0	19	48	-	-	50	-	52	-	-	56	-	
280	**283.03**	4.2	36.0	17	48	-	-	50	-	52	-	-	55	-	
315	**301.95**	4.0	36.0	16	44	-	-	46	-	48	-	-	51	-	
355	**340.30**	3.5	36.0	14	44	-	-	45	-	47	-	-	50	-	

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X.T160..,n_1 = 1500 min^{-1}															36 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M3		20°C								
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
12.5	**12.35**	121	32.5	430	*)	260	-	300	415	110	305	-	305	430	
14	**13.92**	108	33.0	385	*)	270	-	290	410	125	310	-	300	430	
16	**15.53**	97	33.5	350	93	250	-	250	350	125	280	-	255	370	
18	**17.51**	86	36.0	335	96	245	-	235	340	130	280	-	245	360	
20	**20.23**	74	36.0	290	110	255	-	225	330	140	285	-	240	355	
22.4	**22.80**	66	36.0	255	110	240	-	205	305	135	275	-	220	330	**X3T..**
25	**24.77**	61	36.0	235	110	235	-	190	285	130	260	-	205	310	
28	**27.91**	54	36.0	210	110	230	-	180	275	130	260	-	200	300	M4
31.5	**30.94**	48	36.0	190	110	220	-	165	255	125	245	-	185	280	320
35.5	**34.87**	43	36.0	170	105	210	-	155	240	120	235	-	170	265	M1
40	**39.12**	38	36.0	150	91	185	-	130	200	105	205	-	145	225	328
45	**44.08**	34	36.0	135	89	180	-	125	195	105	200	-	140	220	
50	**48.46**	31	36.0	120	82	160	-	110	170	93	180	-	120	190	
56	**54.62**	27	36.0	110	82	160	-	105	170	93	180	-	120	190	
63	**62.05**	24	36.0	95	75	145	-	93	150	84	160	-	105	170	
71	**69.92**	21	36.0	85	75	145	-	92	150	85	160	-	105	165	
80	**81.90**	18	36.0	72	84	-	-	99	-	91	-	-	110	-	
90	**92.30**	16	36.0	64	83	-	-	96	-	90	-	-	105	-	
100	**100.25**	15	36.0	59	79	-	-	90	-	85	-	-	100	-	
112	**112.98**	13	36.0	52	79	-	-	90	-	86	-	-	100	-	
125	**126.75**	12	36.0	47	68	-	-	76	-	74	-	-	84	-	**X4T..**
140	**142.85**	11	36.0	41	67	-	-	74	-	72	-	-	82	-	
160	**152.40**	9.8	36.0	39	63	-	-	69	-	68	-	-	77	-	M4
180	**171.76**	8.7	36.0	34	62	-	-	67	-	67	-	-	75	-	324
200	**198.63**	7.6	36.0	30	58	-	-	62	-	63	-	-	69	-	M1
224	**223.85**	6.7	36.0	27	58	-	-	61	-	63	-	-	69	-	332
250	**251.14**	6.0	36.0	24	50	-	-	53	-	55	-	-	59	-	
280	**283.03**	5.3	36.0	21	50	-	-	53	-	55	-	-	59	-	
315	**301.95**	5.0	36.0	20	47	-	-	49	-	51	-	-	54	-	
355	**340.30**	4.4	36.0	18	46	-	-	48	-	50	-	-	53	-	
X.T160..,n_1 = 1800 min^{-1}															**36 kNm**
12.5	**12.35**	146	30.8	485	*)	275	-	325	470	*)	325	-	325	480	
14	**13.92**	129	31.3	440	*)	280	-	310	460	*)	335	-	315	480	
16	**15.53**	116	31.8	400	*)	270	-	270	400	*)	310	-	275	415	
18	**17.51**	103	34.0	380	*)	270	-	255	385	105	305	-	265	405	
20	**20.23**	89	36.0	345	*)	275	-	240	370	120	315	-	255	395	
22.4	**22.80**	79	36.0	310	79	265	-	220	345	120	300	-	235	370	**X3T..**
25	**24.77**	73	36.0	285	87	255	-	200	320	120	290	-	220	350	
28	**27.91**	64	36.0	250	89	250	-	190	310	125	285	-	210	340	M4
31.5	**30.94**	58	36.0	225	100	245	-	175	290	125	275	-	195	315	320
35.5	**34.87**	52	36.0	200	99	235	-	165	270	120	260	-	180	295	M1
40	**39.12**	46	36.0	180	87	200	-	135	230	105	225	-	150	250	328
45	**44.08**	41	36.0	160	86	200	-	130	220	100	225	-	145	245	
50	**48.46**	37	36.0	145	80	180	-	115	195	93	200	-	130	215	
56	**54.62**	33	36.0	130	81	180	-	110	195	94	200	-	125	215	
63	**62.05**	29	36.0	115	74	160	-	98	170	85	180	-	110	190	
71	**69.92**	26	36.0	100	74	165	-	96	170	85	180	-	110	190	
80	**81.90**	22	36.0	87	86	-	-	105	-	94	-	-	115	-	
90	**92.30**	20	36.0	77	85	-	-	100	-	92	-	-	115	-	
100	**100.25**	18	36.0	71	81	-	-	95	-	88	-	-	105	-	
112	**112.98**	16	36.0	63	81	-	-	94	-	88	-	-	105	-	
125	**126.75**	14	36.0	56	70	-	-	80	-	76	-	-	89	-	**X4T..**
140	**142.85**	13	36.0	50	69	-	-	78	-	75	-	-	87	-	
160	**152.40**	12	36.0	47	65	-	-	73	-	71	-	-	81	-	M4
180	**171.76**	10	36.0	41	64	-	-	71	-	69	-	-	79	-	324
200	**198.63**	9.1	36.0	36	60	-	-	65	-	65	-	-	73	-	M1
224	**223.85**	8.0	36.0	32	60	-	-	65	-	65	-	-	72	-	332
250	**251.14**	7.2	36.0	29	52	-	-	56	-	57	-	-	62	-	
280	**283.03**	6.4	36.0	25	52	-	-	55	-	57	-	-	62	-	
315	**301.95**	6.0	36.0	24	48	-	-	51	-	53	-	-	57	-	
355	**340.30**	5.3	36.0	21	48	-	-	50	-	52	-	-	56	-	

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X.T170..,n_1 = 1000 min^{-1}															45 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M3 20°C										
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
16	**15.35**	65	40.8	290	135	225	-	200	270	155	255	-	210	285	
18	**17.25**	58	41.3	260	135	225	-	195	260	155	250	-	205	275	
20	**19.30**	52	41.9	235	130	205	-	175	235	145	230	-	185	250	
22.4	**21.70**	46	45.0	225	125	205	-	170	230	145	230	-	180	245	
25	**25.15**	40	45.0	195	130	210	-	165	225	145	230	-	180	245	
28	**28.26**	35	45.0	175	130	205	-	160	220	145	230	-	175	240	**X3T..**
31.5	**30.78**	32	45.0	160	120	190	-	145	200	135	210	-	160	220	
35.5	**34.60**	29	45.0	140	120	190	-	140	195	135	210	-	155	215	M4
40	**38.45**	26	45.0	125	115	180	-	130	185	125	195	-	145	200	320
45	**43.22**	23	45.0	115	110	175	-	130	180	125	195	-	140	195	M1
50	**48.62**	21	45.0	100	93	150	-	105	150	105	165	-	115	160	328
56	**54.64**	18	45.0	89	92	145	-	105	145	100	160	-	115	160	
63	**60.23**	17	45.0	82	82	130	-	91	125	91	140	-	100	140	
71	**67.69**	15	45.0	73	83	130	-	91	125	92	145	-	100	140	
80	**77.11**	13	45.0	64	74	115	-	80	115	82	125	-	89	125	
90	**86.67**	12	45.0	57	73	115	-	78	110	81	125	-	87	120	
100	**101.79**	9.8	45.0	48	79	-	-	84	-	85	-	-	92	-	
112	**114.40**	8.7	45.0	43	79	-	-	84	-	86	-	-	92	-	
125	**124.60**	8.0	45.0	40	75	-	-	79	-	82	-	-	87	-	
140	**140.03**	7.1	45.0	35	74	-	-	78	-	80	-	-	85	-	
160	**157.54**	6.3	45.0	31	65	-	-	67	-	70	-	-	74	-	**X4T..**
180	**177.05**	5.6	45.0	28	63	-	-	66	-	69	-	-	72	-	
200	**189.42**	5.3	45.0	26	59	-	-	61	-	64	-	-	67	-	M4
224	**212.88**	4.7	45.0	23	59	-	-	61	-	64	-	-	66	-	324
250	**246.86**	4.1	45.0	20	54	-	-	56	-	59	-	-	61	-	M1
280	**277.45**	3.6	45.0	18	54	-	-	55	-	58	-	-	60	-	332
315	**312.13**	3.2	45.0	16	47	-	-	48	-	51	-	-	52	-	
355	**350.79**	2.9	45.0	14	47	-	-	47	-	50	-	-	52	-	
400	**375.29**	2.7	45.0	13	44	-	-	44	-	47	-	-	49	-	
450	**421.78**	2.4	45.0	12	43	-	-	44	-	47	-	-	48	-	
X.T170..,n_1 = 1200 min^{-1}															**45 kNm**
16	**15.35**	78	40.8	345	115	250	-	210	300	150	280	-	220	320	
18	**17.25**	70	41.3	310	120	245	-	200	290	155	280	-	215	310	
20	**19.30**	62	41.9	280	125	230	-	185	265	145	255	-	195	280	
22.4	**21.70**	55	45.0	270	125	230	-	180	255	145	255	-	190	275	
25	**25.15**	48	45.0	235	130	235	-	175	255	150	260	-	185	275	
28	**28.26**	42	45.0	205	130	230	-	170	250	145	255	-	180	270	**X3T..**
31.5	**30.78**	39	45.0	190	120	215	-	155	225	135	240	-	165	245	
35.5	**34.60**	35	45.0	170	120	210	-	145	220	135	235	-	160	240	M4
40	**38.45**	31	45.0	150	115	200	-	140	205	130	220	-	150	225	320
45	**43.22**	28	45.0	135	110	195	-	135	200	125	220	-	145	220	M1
50	**48.62**	25	45.0	120	95	165	-	110	165	105	185	-	120	185	328
56	**54.64**	22	45.0	105	93	165	-	110	165	105	180	-	120	180	
63	**60.23**	20	45.0	98	84	145	-	95	145	94	160	-	105	160	
71	**67.69**	18	45.0	87	85	145	-	95	145	95	160	-	105	160	
80	**77.11**	16	45.0	77	76	130	-	84	125	85	145	-	93	140	
90	**86.67**	14	45.0	68	75	130	-	82	125	83	140	-	91	135	
100	**101.79**	12	45.0	58	82	-	-	89	-	89	-	-	97	-	
112	**114.40**	10	45.0	52	82	-	-	89	-	89	-	-	97	-	
125	**124.60**	9.6	45.0	48	78	-	-	83	-	85	-	-	91	-	
140	**140.03**	8.6	45.0	42	77	-	-	82	-	83	-	-	89	-	
160	**157.54**	7.6	45.0	38	67	-	-	71	-	73	-	-	77	-	**X4T..**
180	**177.05**	6.8	45.0	33	66	-	-	69	-	72	-	-	76	-	
200	**189.42**	6.3	45.0	31	61	-	-	64	-	66	-	-	70	-	M4
224	**212.88**	5.6	45.0	28	61	-	-	64	-	66	-	-	70	-	324
250	**246.86**	4.9	45.0	24	57	-	-	59	-	62	-	-	64	-	M1
280	**277.45**	4.3	45.0	22	56	-	-	58	-	61	-	-	63	-	332
315	**312.13**	3.8	45.0	19	49	-	-	50	-	53	-	-	55	-	
355	**350.79**	3.4	45.0	17	49	-	-	50	-	53	-	-	55	-	
400	**375.29**	3.2	45.0	16	46	-	-	47	-	50	-	-	51	-	
450	**421.78**	2.8	45.0	14	46	-	-	46	-	49	-	-	51	-	

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X.T170..,n_1 = 1500 min^{-1}															45 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M3				20°C						
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
16	**15.35**	98	40.8	430	*)	270	-	220	345	120	315	-	230	365	
18	**17.25**	87	41.3	390	*)	270	-	210	335	125	310	-	220	355	
20	**19.30**	78	41.9	355	100	260	-	195	305	130	290	-	205	325	
22.4	**21.70**	69	45.0	335	105	255	-	190	295	135	290	-	200	315	
25	**25.15**	60	45.0	290	115	265	-	185	295	145	295	-	195	315	
28	**28.26**	53	45.0	260	120	260	-	175	285	145	290	-	190	310	**X3T..**
31.5	**30.78**	49	45.0	240	115	240	-	160	260	135	270	-	175	285	
35.5	**34.60**	43	45.0	210	115	240	-	155	255	135	265	-	170	275	M4
40	**38.45**	39	45.0	190	115	230	-	145	240	130	255	-	160	260	320
45	**43.22**	35	45.0	170	110	225	-	140	230	130	250	-	155	255	M1
50	**48.62**	31	45.0	150	94	190	-	115	195	110	210	-	130	210	328
56	**54.64**	27	45.0	135	93	185	-	110	190	105	205	-	125	205	
63	**60.23**	25	45.0	125	85	165	-	100	165	96	185	-	110	185	
71	**67.69**	22	45.0	110	85	170	-	99	165	97	185	-	110	185	
80	**77.11**	19	45.0	96	77	150	-	88	150	87	165	-	98	165	
90	**86.67**	17	45.0	85	76	150	-	85	145	86	165	-	95	160	
100	**101.79**	15	45.0	73	85	-	-	94	-	92	-	-	100	-	
112	**114.40**	13	45.0	65	86	-	-	94	-	93	-	-	100	-	
125	**124.60**	12	45.0	59	81	-	-	89	-	88	-	-	96	-	
140	**140.03**	11	45.0	53	80	-	-	87	-	87	-	-	94	-	
160	**157.54**	9.5	45.0	47	70	-	-	75	-	76	-	-	82	-	**X4T..**
180	**177.05**	8.5	45.0	42	69	-	-	73	-	75	-	-	80	-	
200	**189.42**	7.9	45.0	39	64	-	-	68	-	70	-	-	74	-	M4
224	**212.88**	7.0	45.0	35	64	-	-	67	-	70	-	-	74	-	324
250	**246.86**	6.1	45.0	30	60	-	-	62	-	65	-	-	68	-	M1
280	**277.45**	5.4	45.0	27	59	-	-	61	-	64	-	-	67	-	332
315	**312.13**	4.8	45.0	24	51	-	-	53	-	56	-	-	58	-	
355	**350.79**	4.3	45.0	21	51	-	-	53	-	56	-	-	58	-	
400	**375.29**	4.0	45.0	20	48	-	-	49	-	52	-	-	54	-	
450	**421.78**	3.6	45.0	18	48	-	-	49	-	52	-	-	54	-	
X.T170..,n_1 = 1800 min^{-1}															**45 kNm**
16	**15.35**	117	38.5	490	*)	285	-	215	380	*)	340	-	225	400	
18	**17.25**	104	39.2	445	*)	285	-	205	365	*)	335	-	220	390	
20	**19.30**	93	39.7	400	*)	280	-	200	340	105	320	-	210	360	
22.4	**21.70**	83	42.7	385	*)	280	-	195	330	110	320	-	205	355	
25	**25.15**	72	45.0	350	89	285	-	185	325	130	325	-	200	355	
28	**28.26**	64	45.0	310	95	285	-	180	315	135	320	-	195	345	**X3T..**
31.5	**30.78**	58	45.0	285	94	265	-	160	290	130	300	-	180	315	
35.5	**34.60**	52	45.0	255	98	260	-	155	280	130	295	-	170	310	M4
40	**38.45**	47	45.0	230	110	250	-	150	265	130	280	-	165	290	320
45	**43.22**	42	45.0	205	105	250	-	145	260	125	280	-	160	285	M1
50	**48.62**	37	45.0	180	91	210	-	120	215	105	235	-	130	235	328
56	**54.64**	33	45.0	160	90	205	-	115	210	105	230	-	130	230	
63	**60.23**	30	45.0	145	84	185	-	100	185	97	205	-	115	205	
71	**67.69**	27	45.0	130	84	185	-	100	185	97	210	-	115	205	
80	**77.11**	23	45.0	115	77	170	-	90	165	88	185	-	100	185	
90	**86.67**	21	45.0	100	76	165	-	88	160	87	185	-	99	180	
100	**101.79**	18	45.0	87	87	-	-	99	-	95	-	-	105	-	
112	**114.40**	16	45.0	78	88	-	-	99	-	96	-	-	105	-	
125	**124.60**	14	45.0	71	84	-	-	93	-	91	-	-	100	-	
140	**140.03**	13	45.0	63	83	-	-	91	-	90	-	-	99	-	
160	**157.54**	11	45.0	56	72	-	-	79	-	79	-	-	86	-	**X4T..**
180	**177.05**	10	45.0	50	71	-	-	77	-	77	-	-	84	-	
200	**189.42**	9.5	45.0	47	66	-	-	71	-	72	-	-	77	-	M4
224	**212.88**	8.5	45.0	42	66	-	-	70	-	72	-	-	77	-	324
250	**246.86**	7.3	45.0	36	62	-	-	65	-	67	-	-	71	-	M1
280	**277.45**	6.5	45.0	32	61	-	-	64	-	66	-	-	70	-	332
315	**312.13**	5.8	45.0	29	53	-	-	56	-	58	-	-	61	-	
355	**350.79**	5.1	45.0	26	53	-	-	55	-	58	-	-	61	-	
400	**375.29**	4.8	45.0	24	50	-	-	52	-	54	-	-	57	-	
450	**421.78**	4.3	45.0	21	50	-	-	51	-	54	-	-	56	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} kW										
		min^{-1}	kNm	kW	M3				20°C						
							H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
X.T180..,n_1 = 1000 min^{-1}															**58 kNm**
12.5	**12.57**	80	52.9	455	130	235	335	285	365	165	270	350	295	385	
14	**14.08**	71	54.1	415	135	240	340	280	365	170	275	350	295	390	
16	**16.17**	62	54.4	365	145	230	315	245	320	165	255	315	260	345	
18	**18.11**	55	58.0	345	150	235	320	245	325	175	265	315	260	345	
20	**19.74**	51	58.0	320	140	220	300	220	295	160	245	290	240	315	
22.4	**22.10**	45	58.0	285	150	230	310	225	300	170	255	300	245	325	**X3T..**
25	**25.55**	39	58.0	245	135	210	275	190	260	155	230	260	210	285	
28	**28.61**	35	58.0	220	135	210	280	190	260	155	235	260	210	285	M4
31.5	**32.36**	31	58.0	195	120	185	240	160	220	135	205	225	180	245	320
35.5	**36.24**	28	58.0	175	125	190	250	160	225	140	210	230	180	250	M1
40	**38.93**	26	58.0	160	115	170	220	145	200	125	190	200	160	220	328
45	**43.60**	23	58.0	145	115	175	225	140	200	130	190	200	160	220	
50	**47.57**	21	58.0	135	100	155	200	125	175	115	170	175	140	195	
56	**53.27**	19	58.0	120	105	160	200	125	180	115	175	180	140	200	
63	**60.90**	16	58.0	105	91	135	170	105	150	100	150	150	120	165	
71	**68.20**	15	58.0	93	93	140	175	105	150	105	155	155	120	170	
80	**79.89**	13	58.0	80	88	-	-	99	-	95	-	-	110	-	
90	**89.46**	11	58.0	71	90	-	-	100	-	97	-	-	110	-	
100	**103.42**	9.7	58.0	61	83	-	-	92	-	90	-	-	100	-	
112	**115.81**	8.6	58.0	55	85	-	-	93	-	92	-	-	105	-	
125	**124.41**	8.0	58.0	51	77	-	-	83	-	83	-	-	93	-	**X4T..**
140	**139.32**	7.2	58.0	46	78	-	-	84	-	85	-	-	94	-	
160	**153.68**	6.5	58.0	41	70	-	-	75	-	76	-	-	83	-	M4
180	**172.10**	5.8	58.0	37	70	-	-	74	-	76	-	-	83	-	324
200	**204.90**	4.9	58.0	31	62	-	-	66	-	68	-	-	73	-	M1
224	**229.46**	4.4	58.0	28	64	-	-	67	-	70	-	-	75	-	332
250	**246.49**	4.1	58.0	26	58	-	-	61	-	63	-	-	68	-	
280	**300.03**	3.6	58.0	23	58	-	-	61	-	63	-	-	67	-	
315	**304.49**	3.3	58.0	21	52	-	-	54	-	57	-	-	60	-	
355	**340.98**	2.9	58.0	19	54	-	-	55	-	58	-	-	61	-	
X.T180..,n_1 = 1200 min^{-1}															**58 kNm**
12.5	**12.57**	95	52.9	550	*)	240	335	310	410	145	280	370	320	425	
14	**14.08**	85	54.1	500	*)	245	345	300	405	155	290	370	315	425	
16	**16.17**	74	54.4	440	130	240	320	270	360	160	275	335	280	380	
18	**18.11**	66	58.0	415	135	250	330	265	360	165	280	335	280	385	
20	**19.74**	61	58.0	380	130	235	305	240	325	160	265	310	255	350	
22.4	**22.10**	54	58.0	340	140	245	320	240	330	170	275	315	260	360	**X3T..**
25	**25.55**	47	58.0	295	130	220	285	205	290	155	250	275	225	315	
28	**28.61**	42	58.0	265	135	225	290	200	285	155	250	275	220	315	M4
31.5	**32.36**	37	58.0	235	120	200	250	170	245	140	220	235	190	270	320
35.5	**36.24**	33	58.0	210	125	205	260	170	250	145	230	240	190	275	M1
40	**38.93**	31	58.0	195	115	185	230	150	220	130	205	215	170	245	328
45	**43.60**	28	58.0	175	115	185	230	150	220	130	205	215	170	240	
50	**47.57**	25	58.0	160	105	165	205	130	190	115	185	190	150	215	
56	**53.27**	23	58.0	145	105	170	210	130	195	120	190	190	150	215	
63	**60.90**	20	58.0	125	93	145	180	110	165	105	165	160	125	185	
71	**68.20**	18	58.0	110	95	150	185	110	165	105	165	165	130	185	
80	**79.89**	15	58.0	96	91	-	-	105	-	98	-	-	115	-	
90	**89.46**	13	58.0	85	93	-	-	105	-	100	-	-	120	-	
100	**103.42**	12	58.0	74	86	-	-	97	-	93	-	-	110	-	
112	**115.81**	10	58.0	66	88	-	-	98	-	95	-	-	110	-	
125	**124.41**	9.6	58.0	61	79	-	-	88	-	86	-	-	98	-	**X4T..**
140	**139.32**	8.6	58.0	55	81	-	-	89	-	88	-	-	99	-	
160	**153.68**	7.8	58.0	50	72	-	-	79	-	79	-	-	88	-	M4
180	**172.10**	7.0	58.0	44	73	-	-	78	-	79	-	-	87	-	324
200	**204.90**	5.9	58.0	38	65	-	-	69	-	71	-	-	77	-	M1
224	**229.46**	5.2	58.0	34	67	-	-	71	-	73	-	-	79	-	332
250	**246.49**	4.9	58.0	31	61	-	-	64	-	66	-	-	71	-	
280	**300.03**	4.3	58.0	28	61	-	-	64	-	66	-	-	71	-	
315	**304.49**	3.9	58.0	25	55	-	-	57	-	59	-	-	63	-	
355	**340.98**	3.5	58.0	23	56	-	-	58	-	61	-	-	65	-	

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X.T180..,n_1 = 1500 min^{-1}															58 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M3			20°C							
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
12.5	**12.57**	119	52.9	680	*)	220	325	335	460	*)	285	390	340	475	
14	**14.08**	107	54.1	620	*)	230	335	325	450	*)	295	390	335	475	
16	**16.17**	93	54.4	550	*)	250	325	295	405	140	290	355	305	430	
18	**18.11**	83	58.0	520	*)	260	335	290	405	150	300	360	305	430	
20	**19.74**	76	58.0	480	*)	245	310	260	365	145	280	330	275	395	
22.4	**22.10**	68	58.0	425	120	255	325	260	370	155	295	335	280	400	**X3T..**
25	**25.55**	59	58.0	370	110	230	290	220	320	140	265	295	240	350	
28	**28.61**	52	58.0	330	115	235	295	210	315	145	270	290	235	350	M4
31.5	**32.36**	46	58.0	290	110	210	260	185	275	135	240	255	205	300	320
35.5	**36.24**	41	58.0	260	120	220	270	185	275	140	250	255	205	305	M1
40	**38.93**	39	58.0	240	105	195	240	160	245	130	225	230	180	270	328
45	**43.60**	34	58.0	215	110	200	240	155	245	130	225	225	180	270	
50	**47.57**	32	58.0	200	100	180	215	140	215	120	200	200	160	240	
56	**53.27**	28	58.0	180	105	185	220	140	215	120	210	205	160	245	
63	**60.90**	25	58.0	155	93	160	190	120	185	105	180	170	135	205	
71	**68.20**	22	58.0	140	95	165	190	120	185	110	185	175	135	210	
80	**79.89**	19	58.0	120	94	-	-	115	-	100	-	-	125	-	
90	**89.46**	17	58.0	105	96	-	-	115	-	105	-	-	125	-	
100	**103.42**	15	58.0	92	89	-	-	105	-	96	-	-	115	-	
112	**115.81**	13	58.0	82	91	-	-	105	-	99	-	-	115	-	
125	**124.41**	12	58.0	77	82	-	-	93	-	89	-	-	105	-	**X4T..**
140	**139.32**	11	58.0	68	84	-	-	94	-	91	-	-	105	-	
160	**153.68**	9.8	58.0	62	75	-	-	83	-	81	-	-	93	-	M4
180	**172.10**	8.7	58.0	55	75	-	-	83	-	82	-	-	92	-	324
200	**204.90**	7.3	58.0	47	68	-	-	74	-	74	-	-	82	-	M1
224	**229.46**	6.5	58.0	42	70	-	-	75	-	76	-	-	84	-	332
250	**246.49**	6.1	58.0	39	64	-	-	68	-	69	-	-	76	-	
280	**300.03**	5.4	58.0	35	64	-	-	68	-	69	-	-	75	-	
315	**304.49**	4.9	58.0	32	57	-	-	60	-	62	-	-	67	-	
355	**340.98**	4.4	58.0	28	59	-	-	62	-	64	-	-	69	-	
X.T180..,n_1 = 1800 min^{-1}															**58 kNm**
12.5	**12.57**	143	50.1	780	*)	*)	280	345	495	*)	265	395	350	510	
14	**14.08**	128	51.1	710	*)	190	295	330	485	*)	275	390	345	510	
16	**16.17**	111	51.4	620	*)	240	320	315	450	*)	300	370	325	470	
18	**18.11**	99	54.8	590	*)	250	330	310	445	*)	310	375	320	470	
20	**19.74**	91	56.0	550	*)	240	310	275	400	*)	295	340	290	430	
22.4	**22.10**	81	58.0	510	*)	260	320	270	405	130	305	350	290	435	**X3T..**
25	**25.55**	70	58.0	445	*)	235	290	225	350	120	280	305	250	380	
28	**28.61**	63	58.0	395	*)	240	290	220	345	125	280	300	245	380	M4
31.5	**32.36**	56	58.0	350	95	220	260	190	300	125	255	265	215	325	320
35.5	**36.24**	50	58.0	310	100	230	270	190	300	135	265	270	215	335	M1
40	**38.93**	46	58.0	290	93	205	240	165	265	120	235	240	190	295	328
45	**43.60**	41	58.0	260	97	210	245	160	265	125	240	235	185	295	
50	**47.57**	38	58.0	240	94	190	220	145	235	115	215	210	165	260	
56	**53.27**	34	58.0	215	99	195	225	145	235	120	220	210	165	265	
63	**60.90**	30	58.0	190	91	170	195	125	200	105	195	180	140	225	
71	**68.20**	26	58.0	165	93	175	200	125	205	110	195	180	140	225	
80	**79.89**	23	58.0	145	95	-	-	120	-	105	-	-	130	-	
90	**89.46**	20	58.0	130	97	-	-	120	-	105	-	-	135	-	
100	**103.42**	17	58.0	110	90	-	-	110	-	98	-	-	120	-	
112	**115.81**	16	58.0	99	92	-	-	110	-	100	-	-	120	-	
125	**124.41**	14	58.0	92	84	-	-	98	-	91	-	-	110	-	**X4T..**
140	**139.32**	13	58.0	82	85	-	-	99	-	93	-	-	110	-	
160	**153.68**	12	58.0	74	77	-	-	87	-	83	-	-	97	-	M4
180	**172.10**	10	58.0	67	77	-	-	86	-	83	-	-	96	-	324
200	**204.90**	8.8	58.0	56	71	-	-	77	-	77	-	-	86	-	M1
224	**229.46**	7.8	58.0	50	72	-	-	79	-	79	-	-	88	-	332
250	**246.49**	7.3	58.0	47	66	-	-	71	-	72	-	-	80	-	
280	**300.03**	6.5	58.0	42	66	-	-	71	-	71	-	-	79	-	
315	**304.49**	5.9	58.0	38	59	-	-	63	-	64	-	-	71	-	
355	**340.98**	5.3	58.0	34	61	-	-	64	-	66	-	-	72	-	

X.T190..,n_1 = 1000 min^{-1}															65 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M3			20°C							
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
14	**14.04**	71	59.2	455	140	245	345	235	325	175	285	365	250	345	
16	**15.77**	63	60.6	415	145	255	355	235	325	180	290	370	250	350	
18	**18.05**	55	60.8	365	150	240	325	215	295	175	270	325	225	315	
20	**20.29**	49	65.0	345	160	250	335	215	300	180	275	330	230	320	
22.4	**22.04**	45	65.0	320	150	230	310	195	275	170	260	305	210	295	
25	**24.77**	40	65.0	285	150	235	315	195	275	175	260	300	210	295	**X3T..**
28	**28.53**	35	65.0	245	140	220	290	175	250	160	245	275	190	270	
31.5	**32.06**	31	65.0	220	145	220	290	175	250	160	245	275	190	275	M4
35.5	**36.14**	28	65.0	195	125	195	250	150	215	145	215	235	165	235	320
40	**40.61**	25	65.0	175	130	200	260	155	220	150	220	240	170	240	M1
45	**43.48**	23	65.0	160	120	180	230	135	195	130	200	210	150	215	328
50	**48.85**	20	65.0	145	120	180	230	135	195	135	200	210	150	215	
56	**53.11**	19	65.0	135	110	165	210	120	175	120	180	185	135	195	
63	**59.68**	17	65.0	120	110	165	210	120	175	120	180	185	135	195	
71	**68.00**	15	65.0	105	94	140	175	105	150	105	155	155	115	165	
80	**76.41**	13	65.0	93	96	145	180	105	150	105	160	160	115	165	
90	**89.21**	11	65.0	80	94	-	-	100	-	100	-	-	110	-	
100	**100.24**	10.0	65.0	71	95	-	-	100	-	105	-	-	110	-	
112	**115.48**	8.7	65.0	62	90	-	-	95	-	97	-	-	105	-	
125	**129.76**	7.7	65.0	55	90	-	-	95	-	97	-	-	105	-	
140	**138.93**	7.2	65.0	51	82	-	-	86	-	89	-	-	94	-	**X4T..**
160	**156.11**	6.4	65.0	46	83	-	-	86	-	90	-	-	94	-	
180	**171.61**	5.8	65.0	42	75	-	-	78	-	81	-	-	85	-	M4
200	**192.84**	5.2	65.0	37	74	-	-	76	-	80	-	-	83	-	324
224	**228.80**	4.4	65.0	31	68	-	-	69	-	73	-	-	76	-	M1
250	**257.10**	3.9	65.0	28	69	-	-	70	-	74	-	-	77	-	332
280	**275.25**	3.6	65.0	26	63	-	-	64	-	68	-	-	70	-	
315	**309.29**	3.2	65.0	23	63	-	-	64	-	68	-	-	70	-	
355	**340.02**	2.9	65.0	21	56	-	-	57	-	61	-	-	63	-	
400	**382.06**	2.6	65.0	19	57	-	-	58	-	62	-	-	63	-	
X.T190..,n_1 = 1200 min^{-1}															**65 kNm**
14	**14.04**	85	59.2	550	*)	255	350	240	355	155	295	385	255	375	
16	**15.77**	76	60.6	500	*)	260	360	240	355	165	305	385	255	380	
18	**18.05**	66	60.8	440	140	255	335	225	320	170	285	350	235	345	
20	**20.29**	59	65.0	415	145	260	345	225	325	180	295	350	240	350	
22.4	**22.04**	54	65.0	385	140	245	320	205	300	170	275	320	220	320	
25	**24.77**	48	65.0	340	145	250	320	200	300	175	280	320	220	325	**X3T..**
28	**28.53**	42	65.0	295	135	230	295	180	270	160	260	290	200	295	
31.5	**32.06**	37	65.0	265	140	235	300	180	270	165	265	290	200	295	M4
35.5	**36.14**	33	65.0	235	125	205	260	155	235	145	230	245	170	255	320
40	**40.61**	30	65.0	210	130	215	270	160	240	150	240	250	175	265	M1
45	**43.48**	28	65.0	195	120	190	240	140	215	135	215	220	155	235	328
50	**48.85**	25	65.0	175	120	195	240	140	210	135	215	220	155	235	
56	**53.11**	23	65.0	160	110	175	220	125	190	125	195	200	140	210	
63	**59.68**	20	65.0	145	110	180	220	125	190	125	200	195	140	210	
71	**68.00**	18	65.0	125	96	155	185	105	165	110	170	165	120	180	
80	**76.41**	16	65.0	110	99	155	190	110	165	110	175	170	120	185	
90	**89.21**	13	65.0	96	98	-	-	105	-	105	-	-	115	-	
100	**100.24**	12	65.0	85	98	-	-	105	-	105	-	-	115	-	
112	**115.48**	10	65.0	74	93	-	-	99	-	100	-	-	110	-	
125	**129.76**	9.2	65.0	66	93	-	-	99	-	100	-	-	110	-	
140	**138.93**	8.6	65.0	62	85	-	-	90	-	93	-	-	99	-	**X4T..**
160	**156.11**	7.7	65.0	55	86	-	-	90	-	93	-	-	98	-	
180	**171.61**	7.0	65.0	50	77	-	-	81	-	84	-	-	89	-	M4
200	**192.84**	6.2	65.0	44	76	-	-	80	-	83	-	-	87	-	324
224	**228.80**	5.2	65.0	38	70	-	-	73	-	76	-	-	80	-	M1
250	**257.10**	4.7	65.0	34	72	-	-	74	-	78	-	-	81	-	332
280	**275.25**	4.4	65.0	31	66	-	-	67	-	71	-	-	74	-	
315	**309.29**	3.9	65.0	28	65	-	-	67	-	71	-	-	73	-	
355	**340.02**	3.5	65.0	25	59	-	-	60	-	64	-	-	66	-	
400	**382.06**	3.1	65.0	23	59	-	-	61	-	64	-	-	66	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} kW										📖
X.T190..,n_1 = 1500 min^{-1}															**65 kNm**
					M3 20°C										
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
14	**14.04**	107	59.2	690	*)	235	340	230	380	*)	300	405	245	405	
16	**15.77**	95	60.6	620	*)	250	345	230	380	*)	315	405	250	410	
18	**18.05**	83	60.8	550	*)	265	340	230	355	150	305	370	245	380	
20	**20.29**	74	65.0	520	*)	275	350	230	360	160	315	375	245	385	
22.4	**22.04**	68	65.0	480	*)	255	325	210	330	150	295	345	225	355	
25	**24.77**	61	65.0	425	120	260	325	205	325	160	300	340	225	355	**X3T..**
28	**28.53**	53	65.0	370	115	245	300	185	295	150	280	305	205	325	
31.5	**32.06**	47	65.0	330	120	245	305	180	295	155	285	305	205	325	M4
35.5	**36.14**	42	65.0	290	120	220	270	160	255	145	250	260	180	280	320
40	**40.61**	37	65.0	260	125	230	275	165	265	150	260	265	180	290	M1
45	**43.48**	34	65.0	245	115	205	250	145	235	135	235	235	160	260	328
50	**48.85**	31	65.0	215	115	210	250	145	235	135	235	235	160	260	
56	**53.11**	28	65.0	200	110	190	225	130	210	125	215	210	145	235	
63	**59.68**	25	65.0	180	110	195	225	130	210	125	215	210	145	235	
71	**68.00**	22	65.0	155	97	165	195	110	180	110	185	180	125	200	
80	**76.41**	20	65.0	140	99	170	200	115	185	115	190	180	125	205	
90	**89.21**	17	65.0	120	100	-	-	115	-	110	-	-	120	-	
100	**100.24**	15	65.0	105	100	-	-	110	-	110	-	-	120	-	
112	**115.48**	13	65.0	93	96	-	-	105	-	105	-	-	115	-	
125	**129.76**	12	65.0	82	96	-	-	105	-	105	-	-	115	-	
140	**138.93**	11	65.0	77	88	-	-	95	-	96	-	-	105	-	**X4T..**
160	**156.11**	9.6	65.0	68	89	-	-	95	-	96	-	-	105	-	
180	**171.61**	8.7	65.0	62	80	-	-	85	-	87	-	-	93	-	M4
200	**192.84**	7.8	65.0	55	79	-	-	84	-	86	-	-	91	-	324
224	**228.80**	6.6	65.0	47	74	-	-	77	-	80	-	-	84	-	M1
250	**257.10**	5.8	65.0	42	75	-	-	78	-	81	-	-	85	-	332
280	**275.25**	5.4	65.0	39	69	-	-	71	-	75	-	-	78	-	
315	**309.29**	4.8	65.0	35	69	-	-	71	-	74	-	-	78	-	
355	**340.02**	4.4	65.0	32	62	-	-	63	-	67	-	-	69	-	
400	**382.06**	3.9	65.0	28	62	-	-	64	-	68	-	-	70	-	
X.T190..,n_1 = 1800 min^{-1}															**65 kNm**
14	**14.04**	128	56.0	780	*)	*)	295	200	395	*)	280	410	220	425	
16	**15.77**	114	57.4	710	*)	205	310	195	390	*)	295	410	220	425	
18	**18.05**	100	57.5	620	*)	255	330	225	380	*)	315	385	240	405	
20	**20.29**	89	61.4	590	*)	270	340	220	380	*)	325	390	240	410	
22.4	**22.04**	82	62.5	550	*)	255	320	200	350	*)	310	355	220	380	
25	**24.77**	73	65.0	510	*)	265	325	200	350	135	315	355	225	380	**X3T..**
28	**28.53**	63	65.0	445	*)	245	300	175	315	130	290	315	200	345	
31.5	**32.06**	56	65.0	395	*)	250	300	175	310	135	295	315	200	345	M4
35.5	**36.14**	50	65.0	350	100	230	270	160	275	135	265	275	180	305	320
40	**40.61**	44	65.0	310	110	240	280	165	280	145	275	280	185	310	M1
45	**43.48**	41	65.0	290	99	215	250	145	250	130	250	245	165	280	328
50	**48.85**	37	65.0	260	105	215	250	140	250	130	250	245	160	280	
56	**53.11**	34	65.0	240	100	205	230	130	230	125	230	220	150	255	
63	**59.68**	30	65.0	215	105	205	230	130	225	125	230	220	150	255	
71	**68.00**	26	65.0	190	95	180	200	115	195	110	200	185	130	215	
80	**76.41**	24	65.0	170	97	180	205	115	200	115	205	190	130	220	
90	**89.21**	20	65.0	145	105	-	-	120	-	110	-	-	125	-	
100	**100.24**	18	65.0	130	105	-	-	115	-	110	-	-	125	-	
112	**115.48**	16	65.0	110	97	-	-	110	-	105	-	-	120	-	
125	**129.76**	14	65.0	99	98	-	-	110	-	105	-	-	115	-	
140	**138.93**	13	65.0	92	90	-	-	99	-	98	-	-	105	-	**X4T..**
160	**156.11**	12	65.0	82	90	-	-	98	-	98	-	-	105	-	
180	**171.61**	10	65.0	75	82	-	-	88	-	89	-	-	96	-	M4
200	**192.84**	9.3	65.0	67	81	-	-	86	-	88	-	-	94	-	324
224	**228.80**	7.9	65.0	57	76	-	-	80	-	83	-	-	88	-	M1
250	**257.10**	7.0	65.0	50	77	-	-	81	-	84	-	-	89	-	332
280	**275.25**	6.5	65.0	47	71	-	-	74	-	77	-	-	81	-	
315	**309.29**	5.8	65.0	42	71	-	-	74	-	77	-	-	81	-	
355	**340.02**	5.3	65.0	38	64	-	-	66	-	69	-	-	72	-	
400	**382.06**	4.7	65.0	34	64	-	-	66	-	70	-	-	73	-	

X.T200..,n_1 = 1000 min^{-1}															79 kNm
					P_{TH} kW										📖
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M3, 20°C										
		min^{-1}	kNm	kW		fan	H_2O cooling cover	H_2O cooling coil	fan + H_2O		fan	H_2O cooling cover	H_2O cooling coil	fan + H_2O	
12.5	**12.45**	80	66.5	580	155	295	460	360	475	200	345	495	380	500	
14	**14.12**	71	68.9	530	155	290	450	340	450	205	340	480	360	480	
16	**16.32**	61	72.2	480	175	285	425	305	405	210	325	430	325	435	
18	**18.50**	54	75.1	440	175	285	415	290	390	205	320	415	315	420	
20	**20.56**	49	78.1	410	170	275	400	270	365	200	310	390	290	395	
22.4	**23.31**	43	79.0	365	165	265	380	250	340	195	295	370	275	375	**X3T..**
25	**25.72**	39	79.0	335	155	250	355	225	315	180	280	340	250	345	
28	**29.17**	34	79.0	295	155	245	350	215	300	180	275	325	240	330	M4
31.5	**31.97**	31	79.0	270	150	225	315	195	270	165	250	295	215	300	320
35.5	**36.26**	28	79.0	235	145	225	310	190	265	165	245	285	210	290	M1
40	**39.61**	25	79.0	215	145	220	305	185	255	165	245	275	205	285	328
45	**44.92**	22	79.0	190	140	210	290	170	245	155	235	260	195	270	
50	**48.39**	21	79.0	180	135	205	275	160	230	150	225	245	180	255	
56	**54.88**	18	79.0	160	135	205	275	160	230	150	225	245	180	255	
63	**61.95**	16	79.0	140	120	185	250	140	205	135	205	215	160	225	
71	**70.26**	14	79.0	125	120	180	245	140	200	135	200	210	155	220	
80	**79.69**	13	78.0	105	115	-	-	135	-	125	-	-	145	-	
90	**90.37**	11	79.0	96	115	-	-	130	-	125	-	-	145	-	
100	**99.70**	10	79.0	87	110	-	-	120	-	115	-	-	130	-	
112	**113.07**	8.8	79.0	77	105	-	-	115	-	115	-	-	130	-	
125	**123.51**	8.1	79.0	70	105	-	-	115	-	115	-	-	130	-	**X4T..**
140	**140.07**	7.1	79.0	62	105	-	-	115	-	115	-	-	125	-	
160	**152.66**	6.6	79.0	57	99	-	-	105	-	105	-	-	115	-	M4
180	**173.13**	5.8	79.0	50	97	-	-	105	-	105	-	-	115	-	324
200	**197.54**	5.1	79.0	44	82	-	-	86	-	89	-	-	96	-	M1
224	**224.02**	4.5	79.0	39	81	-	-	84	-	87	-	-	94	-	332
250	**244.71**	4.1	79.0	36	81	-	-	84	-	88	-	-	93	-	
280	**277.52**	3.6	79.0	32	78	-	-	81	-	85	-	-	90	-	
315	**302.47**	3.3	79.0	29	73	-	-	76	-	79	-	-	84	-	
355	**343.03**	2.9	79.0	26	73	-	-	75	-	79	-	-	83	-	
X.T200..,n_1 = 1200 min^{-1}															**79 kNm**
12.5	**12.45**	96	66.5	690	*)	285	455	385	520	*)	355	520	400	540	
14	**14.12**	85	68.9	630	*)	290	450	360	490	170	350	500	380	520	
16	**16.32**	74	72.2	580	150	300	435	330	450	195	345	460	345	475	
18	**18.50**	65	75.1	530	155	295	425	310	430	195	340	440	330	460	
20	**20.56**	58	78.1	495	155	290	410	285	400	195	330	415	310	435	
22.4	**23.31**	51	79.0	440	150	275	390	265	375	185	315	390	290	410	**X3T..**
25	**25.72**	47	79.0	400	140	260	365	240	340	175	295	360	265	375	
28	**29.17**	41	79.0	350	145	255	355	225	330	175	290	345	250	365	M4
31.5	**31.97**	38	79.0	320	145	245	330	210	300	170	270	310	230	330	320
35.5	**36.26**	33	79.0	285	145	240	320	200	290	165	265	300	220	320	M1
40	**39.61**	30	79.0	260	145	235	315	195	280	165	265	295	215	310	328
45	**44.92**	27	79.0	230	140	225	305	180	265	160	255	280	205	295	
50	**48.39**	25	79.0	215	135	220	290	170	250	155	245	260	190	280	
56	**54.88**	22	79.0	190	135	220	290	170	250	155	245	260	190	275	
63	**61.95**	19	79.0	165	125	200	260	150	225	140	220	230	170	250	
71	**70.26**	17	79.0	150	120	195	255	145	215	140	215	225	165	240	
80	**79.69**	15	78.0	130	120	-	-	140	-	130	-	-	155	-	
90	**90.37**	13	79.0	115	120	-	-	140	-	130	-	-	150	-	
100	**99.70**	12	79.0	105	110	-	-	125	-	120	-	-	140	-	
112	**113.07**	11	79.0	92	110	-	-	125	-	120	-	-	135	-	
125	**123.51**	9.7	79.0	84	110	-	-	125	-	120	-	-	135	-	**X4T..**
140	**140.07**	8.6	79.0	74	110	-	-	120	-	120	-	-	135	-	
160	**152.66**	7.9	79.0	68	105	-	-	110	-	110	-	-	125	-	M4
180	**173.13**	6.9	79.0	60	100	-	-	110	-	110	-	-	120	-	324
200	**197.54**	6.1	79.0	53	86	-	-	91	-	93	-	-	100	-	M1
224	**224.02**	5.4	79.0	47	84	-	-	89	-	91	-	-	99	-	332
250	**244.71**	4.9	79.0	43	84	-	-	89	-	92	-	-	99	-	
280	**277.52**	4.3	79.0	38	82	-	-	86	-	89	-	-	95	-	
315	**302.47**	4.0	79.0	35	77	-	-	80	-	83	-	-	88	-	
355	**343.03**	3.5	79.0	31	76	-	-	79	-	83	-	-	88	-	

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X.T200..,n_1 = 1500 min^{-1}															79 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M3				20°C						
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
12.5	**12.45**	120	66.5	870	*)	235	425	395	560	*)	335	540	410	590	
14	**14.12**	106	68.9	790	*)	240	420	365	530	*)	340	520	390	570	
16	**16.32**	92	72.2	720	*)	300	435	355	500	*)	360	490	370	530	
18	**18.50**	81	75.1	660	*)	300	425	335	480	*)	355	470	355	510	
20	**20.56**	73	78.1	620	*)	295	410	305	445	165	345	440	330	480	
22.4	**23.31**	64	79.0	550	*)	280	390	275	415	155	335	415	305	450	**X3T..**
25	**25.72**	58	79.0	500	*)	270	370	250	375	150	315	380	275	415	
28	**29.17**	51	79.0	440	*)	265	360	235	360	155	310	365	265	400	M4
31.5	**31.97**	47	79.0	400	130	260	340	225	335	165	295	335	245	365	320
35.5	**36.26**	41	79.0	355	135	255	335	210	320	165	290	325	235	355	M1
40	**39.61**	38	79.0	325	135	255	330	205	310	165	285	315	230	345	328
45	**44.92**	33	79.0	285	130	245	315	190	295	155	275	295	215	330	
50	**48.39**	31	79.0	270	130	235	300	180	280	155	265	280	205	310	
56	**54.88**	27	79.0	235	135	235	300	175	275	155	265	275	200	310	
63	**61.95**	24	79.0	210	125	215	270	155	250	140	245	245	180	275	
71	**70.26**	21	79.0	185	120	215	265	150	240	140	240	240	175	270	
80	**79.69**	19	78.0	160	125	-	-	150	-	135	-	-	165	-	
90	**90.37**	17	79.0	145	125	-	-	150	-	135	-	-	165	-	
100	**99.70**	15	79.0	130	115	-	-	135	-	125	-	-	150	-	
112	**113.07**	13	79.0	115	115	-	-	130	-	125	-	-	145	-	
125	**123.51**	12	79.0	105	115	-	-	130	-	125	-	-	145	-	**X4T..**
140	**140.07**	11	79.0	93	115	-	-	125	-	125	-	-	140	-	
160	**152.66**	9.8	79.0	85	105	-	-	120	-	115	-	-	130	-	M4
180	**173.13**	8.7	79.0	75	105	-	-	115	-	115	-	-	130	-	324
200	**197.54**	7.6	79.0	66	90	-	-	97	-	98	-	-	110	-	M1
224	**224.02**	6.7	79.0	59	89	-	-	95	-	96	-	-	105	-	332
250	**244.71**	6.1	79.0	54	89	-	-	95	-	96	-	-	105	-	
280	**277.52**	5.4	79.0	47	86	-	-	91	-	93	-	-	100	-	
315	**302.47**	5.0	79.0	43	81	-	-	85	-	87	-	-	94	-	
355	**343.03**	4.4	79.0	38	80	-	-	84	-	87	-	-	93	-	
X.T200..,n_1 = 1800 min^{-1}															**79 kNm**
12.5[1]	**12.45**	145	62.9	990	*)	*)	335	340	560	*)	280	520	365	600	
14[1]	**14.12**	127	65.1	900	*)	*)	340	335	550	*)	290	510	365	590	
16	**16.32**	110	68.3	820	*)	275	420	365	540	*)	360	510	385	570	
18	**18.50**	97	71.0	750	*)	275	410	340	520	*)	360	485	365	550	
20	**20.56**	88	73.6	700	*)	280	400	305	480	*)	355	455	335	520	
22.4	**23.31**	77	75.3	630	*)	270	380	275	440	*)	340	425	310	485	**X3T..**
25	**25.72**	70	77.2	590	*)	260	360	240	400	*)	320	390	280	445	
28	**29.17**	62	78.5	530	*)	260	350	230	380	*)	315	375	265	425	M4
31.5	**31.97**	56	79.0	480	*)	270	345	235	365	150	310	350	260	400	320
35.5	**36.26**	50	79.0	425	110	265	340	220	350	150	305	340	245	385	M1
40	**39.61**	45	79.0	390	115	265	335	210	340	155	305	330	235	375	328
45	**44.92**	40	79.0	345	110	255	320	195	320	150	290	310	220	355	
50	**48.39**	37	79.0	320	120	250	310	185	305	150	285	295	210	340	
56	**54.88**	33	79.0	285	125	250	310	180	300	150	285	290	210	335	
63	**61.95**	29	79.0	250	120	230	280	160	270	140	260	260	185	300	
71	**70.26**	26	79.0	220	115	225	275	155	260	140	255	250	180	295	
80	**79.69**	23	74.5	185	130	-	-	160	-	140	-	-	175	-	
90	**90.37**	20	79.0	175	130	-	-	155	-	140	-	-	170	-	
100	**99.70**	18	79.0	155	120	-	-	145	-	130	-	-	160	-	
112	**113.07**	16	79.0	140	115	-	-	140	-	125	-	-	155	-	
125	**123.51**	15	79.0	125	120	-	-	140	-	130	-	-	150	-	**X4T..**
140	**140.07**	13	79.0	110	115	-	-	135	-	125	-	-	150	-	
160	**152.66**	12	79.0	100	110	-	-	125	-	120	-	-	135	-	M4
180	**173.13**	10	79.0	90	110	-	-	120	-	115	-	-	135	-	324
200	**197.54**	9.1	79.0	80	93	-	-	105	-	100	-	-	115	-	M1
224	**224.02**	8.0	79.0	70	92	-	-	100	-	100	-	-	110	-	332
250	**244.71**	7.4	79.0	64	92	-	-	99	-	100	-	-	110	-	
280	**277.52**	6.5	79.0	57	89	-	-	96	-	97	-	-	105	-	
315	**302.47**	6.0	79.0	52	84	-	-	89	-	91	-	-	99	-	
355	**343.03**	5.2	79.0	46	83	-	-	88	-	90	-	-	98	-	

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X.T210..,n_1 = 1000 min^{-1}															90 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M3				20°C						
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
14	**14.10**	71	75.8	580	160	300	465	290	410	205	350	500	310	435	
16	**15.96**	63	78.2	530	160	300	455	275	395	210	345	485	300	425	
18	**18.48**	54	81.8	480	180	295	425	260	365	210	330	435	275	390	
20	**20.92**	48	85.0	440	180	290	420	250	355	210	325	420	270	380	
22.4	**23.28**	43	88.8	415	175	280	405	235	335	205	315	395	255	360	
25	**26.36**	38	90.0	370	175	275	395	225	325	205	310	380	245	355	**X3T..**
28	**29.13**	34	90.0	335	160	255	360	205	290	185	285	340	220	320	
31.5	**32.97**	30	90.0	295	155	240	340	190	275	180	270	320	210	305	M4
35.5	**36.20**	28	90.0	270	150	230	320	180	260	170	255	295	195	280	320
40	**40.99**	24	90.0	240	150	225	310	175	250	170	250	285	190	275	M1
45	**44.85**	22	90.0	220	145	225	305	170	245	165	250	280	190	270	328
50	**50.78**	20	90.0	190	140	215	295	160	235	160	240	265	180	260	
56	**54.79**	18	90.0	180	135	205	280	155	225	155	230	250	170	245	
63	**62.03**	16	90.0	160	135	205	280	150	220	155	230	245	170	245	
71	**70.15**	14	90.0	140	125	190	250	135	200	140	210	220	150	220	
80	**79.42**	13	90.0	125	125	185	245	135	195	135	205	215	150	215	
90	**90.23**	11	88.0	105	120	-	-	130	-	130	-	-	140	-	
100	**102.16**	9.8	90.0	97	115	-	-	125	-	125	-	-	135	-	
112	**112.90**	8.9	90.0	87	110	-	-	115	-	120	-	-	125	-	
125	**127.82**	7.8	90.0	77	110	-	-	115	-	115	-	-	125	-	
140	**139.86**	7.2	90.0	71	105	-	-	110	-	115	-	-	120	-	**X4T..**
160	**158.34**	6.3	90.0	62	105	-	-	110	-	115	-	-	120	-	
180	**172.87**	5.8	90.0	57	99	-	-	100	-	105	-	-	110	-	M4
200	**195.72**	5.1	90.0	50	97	-	-	100	-	105	-	-	110	-	324
224	**223.68**	4.5	90.0	45	84	-	-	86	-	91	-	-	94	-	M1
250	**253.24**	3.9	90.0	39	82	-	-	84	-	89	-	-	92	-	332
280	**277.10**	3.6	90.0	36	81	-	-	83	-	88	-	-	91	-	
315	**313.72**	3.2	90.0	32	80	-	-	82	-	87	-	-	89	-	
355	**342.51**	2.9	90.0	29	74	-	-	76	-	81	-	-	83	-	
400	**387.77**	2.6	90.0	26	73	-	-	74	-	79	-	-	81	-	

X.T210..,n_1 = 1200 min^{-1}															90 kNm
14	**14.10**	85	75.8	700	*)	295	460	285	435	*)	360	530	310	465	
16	**15.96**	75	78.2	640	*)	295	450	275	420	175	355	500	300	450	
18	**18.48**	65	81.8	580	155	305	435	270	395	200	350	460	290	425	
20	**20.92**	57	85.0	530	160	300	430	260	380	200	345	445	280	410	
22.4	**23.28**	52	88.8	495	160	295	415	245	360	200	335	420	265	390	
25	**26.36**	46	90.0	445	160	290	405	235	350	200	330	405	255	380	**X3T..**
28	**29.13**	41	90.0	400	145	265	370	205	315	180	305	360	230	345	
31.5	**32.97**	36	90.0	355	145	255	350	195	295	175	290	340	215	325	M4
35.5	**36.20**	33	90.0	325	150	245	330	190	280	175	275	315	205	305	320
40	**40.99**	29	90.0	285	150	245	325	180	275	170	270	305	200	300	M1
45	**44.85**	27	90.0	260	145	240	320	175	265	170	270	295	195	295	328
50	**50.78**	24	90.0	230	140	230	305	165	255	160	260	280	185	280	
56	**54.79**	22	90.0	215	140	220	290	160	240	155	245	265	175	265	
63	**62.03**	19	90.0	190	140	225	290	160	240	155	250	260	175	265	
71	**70.15**	17	90.0	170	125	205	260	140	215	145	225	235	160	240	
80	**79.42**	15	90.0	150	125	200	255	140	210	140	220	225	155	235	
90	**90.23**	13	88.0	130	125	-	-	135	-	135	-	-	145	-	
100	**102.16**	12	90.0	115	120	-	-	130	-	130	-	-	140	-	
112	**112.90**	11	90.0	105	115	-	-	125	-	125	-	-	135	-	
125	**127.82**	9.4	90.0	93	110	-	-	120	-	120	-	-	130	-	
140	**139.86**	8.6	90.0	85	110	-	-	120	-	120	-	-	130	-	**X4T..**
160	**158.34**	7.6	90.0	75	110	-	-	115	-	120	-	-	125	-	
180	**172.87**	6.9	90.0	69	105	-	-	110	-	110	-	-	115	-	M4
200	**195.72**	6.1	90.0	61	100	-	-	105	-	110	-	-	115	-	324
224	**223.68**	5.4	90.0	54	87	-	-	91	-	95	-	-	99	-	M1
250	**253.24**	4.7	90.0	47	86	-	-	89	-	93	-	-	97	-	332
280	**277.10**	4.3	90.0	43	85	-	-	87	-	92	-	-	95	-	
315	**313.72**	3.8	90.0	38	83	-	-	86	-	91	-	-	94	-	
355	**342.51**	3.5	90.0	35	78	-	-	80	-	85	-	-	87	-	
400	**387.77**	3.1	90.0	31	77	-	-	78	-	83	-	-	85	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} kW										
X.T210..,n_1 = 1500 min^{-1}															**90 kNm**
		min^{-1}	kNm	kW	M3				20°C						
							H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
14	**14.10**	106	75.8	870	*)	245	430	250	455	*)	345	540	280	490	
16	**15.96**	94	78.2	800	*)	250	420	235	435	*)	350	520	270	475	
18	**18.48**	81	81.8	720	*)	305	435	265	430	*)	370	490	285	460	
20	**20.92**	72	85.0	660	*)	305	430	255	415	170	365	475	280	450	
22.4	**23.28**	64	88.8	620	*)	300	415	235	390	170	355	445	265	430	
25	**26.36**	57	90.0	560	*)	300	405	230	380	175	350	430	255	415	**X3T..**
28	**29.13**	51	90.0	500	*)	275	370	200	340	155	320	380	230	375	
31.5	**32.97**	45	90.0	445	110	265	355	185	320	155	310	360	215	355	M4
35.5	**36.20**	41	90.0	405	135	265	345	195	310	170	300	340	215	340	320
40	**40.99**	37	90.0	355	135	260	335	185	300	170	295	325	205	330	M1
45	**44.85**	33	90.0	325	140	260	330	180	295	170	295	315	200	325	328
50	**50.78**	30	90.0	290	135	250	315	170	280	160	280	300	190	310	
56	**54.79**	27	90.0	270	135	240	305	165	265	155	270	285	185	295	
63	**62.03**	24	90.0	240	135	240	305	165	265	160	270	280	185	295	
71	**70.15**	21	90.0	210	125	220	275	145	240	145	245	250	165	265	
80	**79.42**	19	90.0	185	125	215	270	140	235	145	245	240	160	260	
90	**90.23**	17	88.0	160	130	-	-	145	-	140	-	-	155	-	
100	**102.16**	15	90.0	145	125	-	-	140	-	135	-	-	150	-	
112	**112.90**	13	90.0	130	120	-	-	130	-	130	-	-	140	-	
125	**127.82**	12	90.0	115	115	-	-	125	-	125	-	-	140	-	
140	**139.86**	11	90.0	105	115	-	-	125	-	125	-	-	135	-	**X4T..**
160	**158.34**	9.5	90.0	93	115	-	-	120	-	125	-	-	130	-	
180	**172.87**	8.7	90.0	86	105	-	-	115	-	115	-	-	125	-	M4
200	**195.72**	7.7	90.0	76	105	-	-	110	-	115	-	-	120	-	324
224	**223.68**	6.7	90.0	67	92	-	-	96	-	100	-	-	105	-	M1
250	**253.24**	5.9	90.0	59	90	-	-	94	-	98	-	-	105	-	332
280	**277.10**	5.4	90.0	54	89	-	-	93	-	97	-	-	100	-	
315	**313.72**	4.8	90.0	48	88	-	-	91	-	95	-	-	99	-	
355	**342.51**	4.4	90.0	44	82	-	-	85	-	89	-	-	92	-	
400	**387.77**	3.9	90.0	39	81	-	-	83	-	87	-	-	90	-	
X.T210..,n_1 = 1800 min^{-1}															**90 kNm**
14[1)]	**14.10**	128	71.7	990	*)	*)	340	*)	420	*)	290	530	*)	485	
16[1)]	**15.96**	113	73.9	900	*)	*)	345	*)	420	*)	300	520	*)	480	
18	**18.48**	97	77.3	820	*)	280	420	245	450	*)	365	510	270	490	
20	**20.92**	86	80.4	750	*)	285	415	230	435	*)	370	490	260	475	
22.4	**23.28**	77	83.6	700	*)	285	405	215	410	*)	360	460	250	450	
25	**26.36**	68	85.1	630	*)	290	395	205	395	*)	355	440	240	440	**X3T..**
28	**29.13**	62	87.4	590	*)	265	360	175	355	*)	330	395	210	395	
31.5	**32.97**	55	88.6	520	*)	260	345	165	330	*)	315	365	200	375	M4
35.5	**36.20**	50	90.0	485	*)	275	350	190	330	155	320	355	215	365	320
40	**40.99**	44	90.0	430	115	270	340	185	320	155	310	340	210	355	M1
45	**44.85**	40	90.0	390	120	270	335	180	315	155	310	330	205	350	328
50	**50.78**	35	90.0	345	115	260	320	170	295	155	295	310	195	330	
56	**54.79**	33	90.0	325	125	255	310	165	285	155	290	295	185	320	
63	**62.03**	29	90.0	285	130	255	310	165	285	155	290	295	185	320	
71	**70.15**	26	90.0	255	120	235	280	150	260	145	265	260	170	285	
80	**79.42**	23	90.0	225	120	230	275	145	250	140	260	255	165	280	
90	**90.23**	20	84.0	185	130	-	-	150	-	145	-	-	160	-	
100	**102.16**	18	90.0	175	130	-	-	145	-	140	-	-	155	-	
112	**112.90**	16	90.0	155	120	-	-	135	-	130	-	-	145	-	
125	**127.82**	14	90.0	140	120	-	-	130	-	130	-	-	145	-	
140	**139.86**	13	90.0	125	120	-	-	130	-	130	-	-	140	-	**X4T..**
160	**158.34**	11	90.0	110	115	-	-	125	-	125	-	-	135	-	
180	**172.87**	10	90.0	105	110	-	-	120	-	120	-	-	130	-	M4
200	**195.72**	9.2	90.0	91	110	-	-	115	-	115	-	-	125	-	324
224	**223.68**	8.0	90.0	80	95	-	-	100	-	105	-	-	110	-	M1
250	**253.24**	7.1	90.0	71	94	-	-	98	-	100	-	-	105	-	332
280	**277.10**	6.5	90.0	65	92	-	-	97	-	100	-	-	105	-	
315	**313.72**	5.7	90.0	57	91	-	-	95	-	99	-	-	105	-	
355	**342.51**	5.3	90.0	52	85	-	-	88	-	92	-	-	96	-	
400	**387.77**	4.6	90.0	46	84	-	-	86	-	91	-	-	94	-	

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X.T220..,n_1 = 1000 min^{-1}															**112 kNm**
					P_{TH} kW										
i_N	**i_{ex}**	**n_2**	**M_{N2}**	**P_{N1}**	**M1**				**20°C**						
		min^{-1}	**kNm**	**kW**			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
12.5	**12.56**	80	92.4	800	*)	385	-	550	690	260	455	-	670	830	
14	**13.86**	72	97.0	760	*)	370	-	510	660	250	440	-	620	770	
16	**16.15**	62	100	670	210	370	-	475	610	265	425	-	550	690	
18	**17.82**	56	107	650	205	360	-	450	580	255	415	-	520	650	
20	**20.64**	48	112	590	220	370	-	440	570	270	420	-	495	630	
22.4	**22.78**	44	112	530	220	365	-	430	560	270	415	-	475	610	**X3T..**
25	**25.28**	40	112	480	200	330	-	375	490	240	375	-	410	540	
28	**27.90**	36	112	435	210	335	-	370	490	245	380	-	405	530	M4
31.5	**32.02**	31	112	380	205	315	-	335	435	230	350	-	355	465	332
35.5	**35.34**	28	112	345	200	310	-	325	425	230	345	-	340	450	M1
40	**39.55**	25	112	305	185	280	-	290	380	210	315	-	300	400	330
45	**43.65**	23	112	280	180	280	-	280	370	205	310	-	290	390	
50	**48.32**	21	112	255	175	265	-	260	345	195	295	-	270	360	
56	**53.33**	19	112	230	170	260	-	250	335	195	290	-	260	350	
63	**61.86**	16	112	200	150	230	-	215	290	170	250	-	220	300	
71	**68.27**	15	112	180	150	225	-	210	280	165	250	-	215	290	
80	**81.61**	12	112	150	160	-	-	210	-	170	-	-	210	-	
90	**90.07**	11	112	135	155	-	-	205	-	170	-	-	205	-	
100	**99.97**	10	112	125	150	-	-	190	-	160	-	-	190	-	
112	**110.34**	9.1	112	110	145	-	-	185	-	155	-	-	185	-	
125	**123.47**	8.1	112	99	140	-	-	175	-	150	-	-	175	-	**X4T..**
140	**136.27**	7.3	112	90	135	-	-	165	-	145	-	-	165	-	
160	**156.11**	6.4	112	79	120	-	-	145	-	130	-	-	145	-	M4
180	**172.29**	5.8	112	71	115	-	-	145	-	125	-	-	145	-	326
200	**198.08**	5.0	112	63	110	-	-	130	-	120	-	-	135	-	M1
224	**218.61**	4.6	112	57	105	-	-	125	-	115	-	-	130	-	334
250	**244.62**	4.1	112	51	105	-	-	120	-	110	-	-	125	-	
280	**269.99**	3.7	112	46	100	-	-	115	-	110	-	-	120	-	
315	**309.29**	3.2	112	40	90	-	-	105	-	98	-	-	105	-	
355	**341.36**	2.9	112	36	89	-	-	100	-	96	-	-	105	-	
X.T220..,n_1 = 1200 min^{-1}															**112 kNm**
12.5	**12.56**	96	92.4	960	*)	360	-	560	740	*)	460	-	740	920	
14	**13.86**	87	97.0	910	*)	350	-	520	700	*)	445	-	680	860	
16	**16.15**	74	100	810	*)	380	-	500	660	235	445	-	610	770	
18	**17.82**	67	107	780	*)	370	-	475	620	230	435	-	570	730	
20	**20.64**	58	112	710	185	380	-	460	610	250	445	-	540	700	
22.4	**22.78**	53	112	640	190	380	-	445	600	250	440	-	520	680	**X3T..**
25	**25.28**	47	112	580	170	345	-	390	530	225	395	-	445	590	
28	**27.90**	43	112	520	185	350	-	390	530	235	405	-	435	590	M4
31.5	**32.02**	37	112	455	200	335	-	355	475	235	375	-	385	520	332
35.5	**35.34**	34	112	410	200	330	-	340	460	230	370	-	370	500	M1
40	**39.55**	30	112	370	180	300	-	305	415	210	340	-	325	445	330
45	**43.65**	27	112	335	180	295	-	295	405	205	335	-	310	430	
50	**48.32**	25	112	305	175	285	-	275	380	200	315	-	290	400	
56	**53.33**	23	112	275	175	280	-	265	370	195	315	-	280	390	
63	**61.86**	19	112	240	155	245	-	230	315	175	275	-	235	330	
71	**68.27**	18	112	215	150	245	-	220	310	170	270	-	230	325	
80	**81.61**	15	112	180	165	-	-	225	-	180	-	-	225	-	
90	**90.07**	13	112	165	160	-	-	220	-	175	-	-	220	-	
100	**99.97**	12	112	145	155	-	-	205	-	165	-	-	205	-	
112	**110.34**	11	112	135	150	-	-	195	-	160	-	-	195	-	
125	**123.47**	9.7	112	120	145	-	-	185	-	155	-	-	185	-	**X4T..**
140	**136.27**	8.8	112	110	140	-	-	175	-	150	-	-	175	-	
160	**156.11**	7.7	112	94	125	-	-	155	-	135	-	-	155	-	M4
180	**172.29**	7.0	112	86	120	-	-	150	-	130	-	-	150	-	326
200	**198.08**	6.1	112	75	115	-	-	140	-	125	-	-	140	-	M1
224	**218.61**	5.5	112	68	110	-	-	135	-	120	-	-	135	-	334
250	**244.62**	4.9	112	61	110	-	-	130	-	115	-	-	130	-	
280	**269.99**	4.4	112	55	105	-	-	125	-	115	-	-	125	-	
315	**309.29**	3.9	112	48	94	-	-	110	-	100	-	-	110	-	
355	**341.36**	3.5	112	44	93	-	-	110	-	100	-	-	110	-	

i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} kW M1 20°C		H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	📖
		min⁻¹	kNm	kW											
X.T220..,n_1 = 1500 min^{-1}															**112 kNm**
12.5	**12.56**	119	92.4	1200	*)	*)	-	540	760	*)	420	-	810	1050	
14	**13.86**	108	97.0	1150	*)	*)	-	500	720	*)	405	-	750	970	
16	**16.15**	93	100	1000	*)	355	-	520	710	*)	460	-	680	880	
18	**17.82**	84	107	980	*)	345	-	485	670	*)	445	-	630	830	
20	**20.64**	73	112	880	*)	375	-	475	660	*)	460	-	590	790	
22.4	**22.78**	66	112	800	*)	375	-	455	650	*)	455	-	560	770	**X3T..**
25	**25.28**	59	112	720	*)	340	-	400	570	*)	415	-	480	660	
28	**27.90**	54	112	650	*)	350	-	395	570	195	420	-	470	660	M4
31.5	**32.02**	47	112	570	170	355	-	375	530	220	405	-	425	580	332
35.5	**35.34**	42	112	520	175	350	-	360	510	220	400	-	405	560	M1
40	**39.55**	38	112	460	160	320	-	320	455	205	365	-	355	500	330
45	**43.65**	34	112	415	160	315	-	310	445	205	360	-	340	485	
50	**48.32**	31	112	380	165	305	-	290	420	200	345	-	315	450	
56	**53.33**	28	112	345	165	300	-	285	410	195	340	-	305	440	
63	**61.86**	24	112	295	155	270	-	245	350	175	300	-	255	375	
71	**68.27**	22	112	270	150	265	-	235	340	175	295	-	245	365	
80	**81.61**	18	112	225	170	-	-	245	-	185	-	-	245	-	
90	**90.07**	17	112	205	165	-	-	240	-	180	-	-	240	-	
100	**99.97**	15	112	185	160	-	-	220	-	170	-	-	220	-	
112	**110.34**	14	112	165	155	-	-	210	-	165	-	-	210	-	
125	**123.47**	12	112	150	150	-	-	200	-	160	-	-	200	-	**X4T..**
140	**136.27**	11	112	135	145	-	-	190	-	155	-	-	190	-	
160	**156.11**	9.6	112	120	130	-	-	170	-	140	-	-	165	-	M4
180	**172.29**	8.7	112	105	125	-	-	165	-	135	-	-	165	-	326
200	**198.08**	7.6	112	94	120	-	-	150	-	130	-	-	150	-	M1
224	**218.61**	6.9	112	85	115	-	-	145	-	125	-	-	145	-	334
250	**244.62**	6.1	112	76	115	-	-	140	-	125	-	-	140	-	
280	**269.99**	5.6	112	69	110	-	-	135	-	120	-	-	135	-	
315	**309.29**	4.8	112	60	99	-	-	120	-	105	-	-	120	-	
355	**341.36**	4.4	112	55	98	-	-	115	-	105	-	-	115	-	
X.T220..,n_1 = 1800 min^{-1}															**112 kNm**
12.5[1)]	**12.56**	143	87.4	1350	*)	*)	-	385	700	*)	*)	-	750	1000	
14[1)]	**13.86**	130	91.7	1300	*)	*)	-	375	680	*)	*)	-	730	990	
16	**16.15**	111	95.1	1150	*)	295	-	495	740	*)	425	-	730	970	
18	**17.82**	101	101	1100	*)	285	-	460	700	*)	415	-	680	910	
20	**20.64**	87	105	1000	*)	325	-	455	690	*)	450	-	630	870	
22.4	**22.78**	79	109	930	*)	330	-	440	670	*)	450	-	600	840	**X3T..**
25	**25.28**	71	112	860	*)	300	-	375	590	*)	410	-	510	720	
28	**27.90**	65	112	780	*)	320	-	380	590	*)	420	-	495	710	M4
31.5	**32.02**	56	112	680	*)	365	-	385	560	190	425	-	455	650	332
35.5	**35.34**	51	112	620	*)	360	-	370	550	195	420	-	435	620	M1
40	**39.55**	46	112	550	*)	330	-	330	490	180	385	-	375	550	330
45	**43.65**	41	112	500	125	325	-	315	475	180	380	-	360	530	
50	**48.32**	37	112	455	145	320	-	300	450	190	365	-	335	495	
56	**53.33**	34	112	415	145	315	-	290	440	190	360	-	320	480	
63	**61.86**	29	112	355	140	285	-	255	380	175	320	-	275	410	
71	**68.27**	26	112	325	145	280	-	245	370	175	315	-	265	400	
80	**81.61**	22	112	270	170	-	-	260	-	185	-	-	265	-	
90	**90.07**	20	112	245	170	-	-	255	-	180	-	-	255	-	
100	**99.97**	18	112	220	160	-	-	235	-	175	-	-	235	-	
112	**110.34**	16	112	200	155	-	-	225	-	170	-	-	225	-	
125	**123.47**	15	112	180	150	-	-	210	-	165	-	-	210	-	**X4T..**
140	**136.27**	13	112	160	145	-	-	200	-	155	-	-	200	-	
160	**156.11**	12	112	140	130	-	-	175	-	140	-	-	175	-	M4
180	**172.29**	10	112	130	130	-	-	175	-	140	-	-	170	-	326
200	**198.08**	9.1	112	115	125	-	-	160	-	135	-	-	160	-	M1
224	**218.61**	8.2	112	100	120	-	-	155	-	130	-	-	155	-	334
250	**244.62**	7.4	112	91	115	-	-	150	-	125	-	-	150	-	
280	**269.99**	6.7	112	83	115	-	-	140	-	125	-	-	140	-	
315	**309.29**	5.8	112	72	105	-	-	125	-	110	-	-	125	-	
355	**341.36**	5.3	112	65	100	-	-	125	-	110	-	-	125	-	

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X.T230..,n_1 = 1000 min^{-1}															131 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1				20°C						
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
14	**14.22**	70	104	790	205	390	-	370	530	275	460	-	495	660	
16	**15.61**	64	110	760	210	395	-	365	520	275	465	-	480	650	
18	**18.29**	55	113	670	230	380	-	345	485	275	435	-	425	570	
20	**20.08**	50	119	640	220	370	-	330	465	270	420	-	405	550	
22.4	**23.37**	43	126	580	220	365	-	320	450	265	415	-	380	520	
25	**25.66**	39	131	550	225	365	-	315	445	270	415	-	375	510	**X3T..**
28	**28.63**	35	131	495	210	340	-	285	410	250	385	-	335	470	
31.5	**31.43**	32	131	450	210	335	-	280	400	245	380	-	325	455	M4
35.5	**36.26**	28	131	390	210	320	-	265	375	240	355	-	300	415	332
40	**39.82**	25	131	355	205	315	-	260	365	235	350	-	290	405	M1
45	**44.78**	22	131	315	190	290	-	235	330	215	320	-	260	365	330
50	**49.17**	20	131	290	185	285	-	230	325	210	315	-	255	360	
56	**54.71**	18	131	260	175	265	-	210	300	195	295	-	235	325	
63	**60.08**	17	131	240	175	260	-	205	295	195	290	-	225	320	
71	**70.05**	14	131	205	155	235	-	185	260	175	255	-	200	280	
80	**76.91**	13	131	185	155	230	-	180	255	170	255	-	195	275	
90	**92.41**	11	131	155	160	-	-	185	-	175	-	-	195	-	
100	**101.47**	9.9	131	140	160	-	-	180	-	175	-	-	190	-	
112	**113.21**	8.8	131	125	150	-	-	165	-	160	-	-	175	-	
125	**124.31**	8.0	131	115	145	-	-	165	-	160	-	-	175	-	
140	**139.81**	7.2	131	105	140	-	-	155	-	155	-	-	165	-	**X4T..**
160	**153.52**	6.5	131	94	140	-	-	155	-	150	-	-	160	-	
180	**176.77**	5.7	131	81	120	-	-	135	-	130	-	-	140	-	M4
200	**194.10**	5.2	131	74	120	-	-	130	-	130	-	-	140	-	326
224	**224.29**	4.5	131	65	110	-	-	120	-	120	-	-	125	-	M1
250	**246.28**	4.1	131	59	110	-	-	120	-	120	-	-	125	-	334
280	**277.00**	3.6	131	52	105	-	-	110	-	115	-	-	120	-	
315	**304.16**	3.3	131	48	105	-	-	110	-	110	-	-	115	-	
355	**350.23**	2.9	131	41	92	-	-	98	-	100	-	-	105	-	
400	**384.57**	2.6	131	38	91	-	-	97	-	99	-	-	100	-	
X.T230..,n_1 = 1200 min^{-1}															**131 kNm**
14	**14.22**	84	104	950	*)	375	-	340	540	*)	470	-	520	720	
16	**15.61**	77	110	920	*)	380	-	335	540	230	470	-	500	700	
18	**18.29**	66	113	810	*)	395	-	340	510	260	460	-	455	630	
20	**20.08**	60	119	770	195	380	-	325	490	250	445	-	430	600	
22.4	**23.37**	51	126	700	195	380	-	315	475	250	440	-	400	570	
25	**25.66**	47	131	660	195	380	-	310	475	250	440	-	390	560	**X3T..**
28	**28.63**	42	131	600	185	355	-	285	435	235	410	-	350	510	
31.5	**31.43**	38	131	540	190	350	-	280	425	235	405	-	340	495	M4
35.5	**36.26**	33	131	470	205	345	-	275	405	240	385	-	320	455	332
40	**39.82**	30	131	430	205	340	-	270	395	235	380	-	310	445	M1
45	**44.78**	27	131	380	190	310	-	240	360	215	345	-	275	400	330
50	**49.17**	24	131	345	185	305	-	235	350	215	340	-	265	390	
56	**54.71**	22	131	315	175	285	-	220	325	200	320	-	245	360	
63	**60.08**	20	131	285	175	280	-	215	320	200	315	-	240	350	
71	**70.05**	17	131	245	160	250	-	190	280	180	280	-	210	310	
80	**76.91**	16	131	225	155	250	-	185	275	175	275	-	205	300	
90	**92.41**	13	131	185	170	-	-	195	-	180	-	-	205	-	
100	**101.47**	12	131	170	165	-	-	190	-	180	-	-	200	-	
112	**113.21**	11	131	150	155	-	-	175	-	165	-	-	185	-	
125	**124.31**	9.7	131	140	150	-	-	170	-	165	-	-	180	-	
140	**139.81**	8.6	131	125	145	-	-	165	-	160	-	-	175	-	**X4T..**
160	**153.52**	7.8	131	110	145	-	-	160	-	155	-	-	170	-	
180	**176.77**	6.8	131	98	125	-	-	140	-	135	-	-	150	-	M4
200	**194.10**	6.2	131	89	125	-	-	140	-	135	-	-	145	-	326
224	**224.29**	5.4	131	78	115	-	-	125	-	125	-	-	135	-	M1
250	**246.28**	4.9	131	71	115	-	-	125	-	125	-	-	130	-	334
280	**277.00**	4.3	131	63	110	-	-	120	-	120	-	-	125	-	
315	**304.16**	3.9	131	57	105	-	-	115	-	115	-	-	120	-	
355	**350.23**	3.4	131	50	97	-	-	105	-	105	-	-	110	-	
400	**384.57**	3.1	131	45	95	-	-	100	-	105	-	-	105	-	

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X.T230..,n_1 = 1500 min^{-1}															**131 kNm**
					P_{TH} kW										
i_N	**i_{ex}**	**n_2**	**M_{N2}**	**P_{N1}**	**M1**				**20°C**						
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
14	**14.22**	105	104	1200	*)	300	-	*)	520	*)	440	-	520	770	
16	**15.61**	96	110	1150	*)	305	-	*)	520	*)	440	-	500	760	
18	**18.29**	82	113	1000	*)	380	-	310	530	*)	475	-	480	700	
20	**20.08**	75	119	960	*)	370	-	295	510	*)	460	-	450	660	
22.4	**23.37**	64	126	880	*)	375	-	285	500	*)	455	-	415	630	
25	**25.66**	58	131	830	*)	375	-	280	495	*)	455	-	405	620	**X3T..**
28	**28.63**	52	131	740	*)	355	-	260	455	200	425	-	365	560	
31.5	**31.43**	48	131	680	*)	350	-	255	445	200	420	-	350	540	M4
35.5	**36.26**	41	131	590	185	365	-	275	440	230	415	-	340	510	332
40	**39.82**	38	131	530	185	360	-	270	430	230	410	-	325	495	M1
45	**44.78**	33	131	475	170	330	-	245	390	210	375	-	290	445	330
50	**49.17**	31	131	435	170	325	-	235	380	210	370	-	280	435	
56	**54.71**	27	131	395	170	305	-	225	355	200	345	-	260	400	
63	**60.08**	25	131	360	170	305	-	220	350	200	340	-	250	390	
71	**70.05**	21	131	305	160	275	-	200	310	180	305	-	220	345	
80	**76.91**	20	131	280	155	270	-	195	305	180	305	-	215	335	
90	**92.41**	16	131	235	175	-	-	205	-	190	-	-	220	-	
100	**101.47**	15	131	210	170	-	-	200	-	185	-	-	215	-	
112	**113.21**	13	131	190	160	-	-	185	-	175	-	-	195	-	
125	**124.31**	12	131	175	155	-	-	180	-	170	-	-	195	-	
140	**139.81**	11	131	155	150	-	-	175	-	165	-	-	185	-	**X4T..**
160	**153.52**	9.8	131	140	150	-	-	170	-	160	-	-	180	-	
180	**176.77**	8.5	131	120	130	-	-	150	-	145	-	-	155	-	M4
200	**194.10**	7.7	131	110	130	-	-	145	-	140	-	-	155	-	326
224	**224.29**	6.7	131	97	120	-	-	135	-	130	-	-	140	-	M1
250	**246.28**	6.1	131	88	120	-	-	135	-	130	-	-	140	-	334
280	**277.00**	5.4	131	79	115	-	-	125	-	125	-	-	130	-	
315	**304.16**	4.9	131	72	115	-	-	125	-	120	-	-	130	-	
355	**350.23**	4.3	131	62	100	-	-	110	-	110	-	-	115	-	
400	**384.57**	3.9	131	57	100	-	-	110	-	110	-	-	115	-	
X.T230..,n_1 = 1800 min^{-1}															**131 kNm**
14[1]	**14.22**	127	98.4	1350	*)	*)	-	*)	410	*)	355	-	410	740	
16[1]	**15.61**	115	103	1300	*)	*)	-	*)	420	*)	360	-	415	740	
18	**18.29**	98	107	1150	*)	335	-	*)	530	*)	455	-	480	740	
20	**20.08**	90	112	1100	*)	325	-	*)	500	*)	445	-	445	700	
22.4	**23.37**	77	119	990	*)	335	-	*)	495	*)	450	-	410	660	
25	**25.66**	70	123	940	*)	335	-	*)	490	*)	450	-	390	650	**X3T..**
28	**28.63**	63	126	860	*)	325	-	*)	455	*)	425	-	350	590	
31.5	**31.43**	57	129	800	*)	325	-	*)	445	*)	420	-	335	570	M4
35.5	**36.26**	50	129	690	*)	375	-	265	465	210	435	-	350	550	332
40	**39.82**	45	131	640	*)	370	-	260	455	210	430	-	340	540	M1
45	**44.78**	40	131	570	*)	340	-	230	410	190	395	-	300	480	330
50	**49.17**	37	131	520	140	335	-	225	400	190	390	-	290	470	
56	**54.71**	33	131	470	150	320	-	220	375	190	370	-	270	435	
63	**60.08**	30	131	430	150	315	-	215	370	190	365	-	260	425	
71	**70.05**	26	131	370	150	290	-	200	335	180	330	-	230	375	
80	**76.91**	23	131	335	150	290	-	195	325	180	325	-	225	365	
90	**92.41**	19	131	280	175	-	-	215	-	190	-	-	230	-	
100	**101.47**	18	131	255	175	-	-	210	-	185	-	-	225	-	
112	**113.21**	16	131	230	160	-	-	195	-	175	-	-	205	-	
125	**124.31**	14	131	210	160	-	-	190	-	175	-	-	200	-	
140	**139.81**	13	131	185	155	-	-	180	-	165	-	-	190	-	**X4T..**
160	**153.52**	12	131	170	150	-	-	175	-	165	-	-	185	-	
180	**176.77**	10	131	145	135	-	-	155	-	145	-	-	165	-	M4
200	**194.10**	9.3	131	135	130	-	-	150	-	145	-	-	160	-	326
224	**224.29**	8.0	131	115	125	-	-	140	-	135	-	-	150	-	M1
250	**246.28**	7.3	131	105	125	-	-	140	-	135	-	-	145	-	334
280	**277.00**	6.5	131	94	120	-	-	130	-	130	-	-	140	-	
315	**304.16**	5.9	131	86	115	-	-	130	-	125	-	-	135	-	
355	**350.23**	5.1	131	75	105	-	-	115	-	115	-	-	120	-	
400	**384.57**	4.7	131	68	105	-	-	115	-	110	-	-	120	-	

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X.T240..,n_1 = 1000 min^{-1}															156 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1				20°C						
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
12.5	**11.92**	84	128	1150	*)	385	-	590	770	*)	500	-	780	970	
14	**13.71**	73	137	1100	*)	375	-	540	720	*)	480	-	700	880	
16	**15.32**	65	138	980	*)	420	-	540	700	295	500	-	650	820	
18	**17.64**	57	156	960	*)	410	-	510	660	285	485	-	600	770	
20	**20.36**	49	156	830	235	425	-	495	650	300	495	-	570	740	
22.4	**23.44**	43	156	720	230	405	-	455	610	290	470	-	520	680	**X3T..**
25	**25.64**	39	156	660	220	380	-	415	550	270	440	-	465	620	
28	**29.51**	34	156	570	215	370	-	395	530	270	430	-	440	590	M4
31.5	**32.47**	31	156	520	230	365	-	375	500	270	410	-	405	540	332
35.5	**37.38**	27	156	450	225	355	-	360	480	265	400	-	385	520	M1
40	**39.96**	25	156	425	225	355	-	350	470	260	400	-	375	500	330
45	**46.00**	22	156	370	215	340	-	325	440	250	380	-	345	470	
50	**48.83**	20	156	350	205	320	-	305	410	235	355	-	320	435	
56	**56.20**	18	156	305	200	305	-	285	385	225	340	-	300	410	
63	**62.51**	16	156	275	190	290	-	265	360	215	325	-	275	380	
71	**71.95**	14	156	235	185	280	-	250	340	205	310	-	260	360	
80	**82.39**	12	156	210	185	-	-	245	-	205	-	-	250	-	
90	**94.83**	11	156	180	185	-	-	235	-	200	-	-	240	-	
100	**103.71**	9.6	156	165	170	-	-	215	-	185	-	-	220	-	
112	**119.37**	8.4	156	145	165	-	-	210	-	180	-	-	210	-	
125	**127.64**	7.8	156	135	170	-	-	210	-	180	-	-	210	-	**X4T..**
140	**146.91**	6.8	156	115	160	-	-	195	-	175	-	-	200	-	
160	**153.55**	6.5	156	110	150	-	-	185	-	165	-	-	185	-	M4
180	**176.74**	5.7	156	97	145	-	-	175	-	155	-	-	175	-	326
200	**205.47**	4.9	156	84	125	-	-	150	-	135	-	-	150	-	M1
224	**236.50**	4.2	156	73	120	-	-	140	-	130	-	-	145	-	334
250	**252.89**	4.0	156	68	120	-	-	140	-	130	-	-	145	-	
280	**291.08**	3.4	156	59	120	-	-	135	-	130	-	-	140	-	
315	**304.22**	3.3	156	57	115	-	-	130	-	125	-	-	130	-	
355	**350.17**	2.9	156	49	110	-	-	125	-	120	-	-	125	-	
X.T240..,n_1 = 1200 min^{-1}															**156 kNm**
12.5	**11.92**	101	128	1400	*)	*)	-	550	780	*)	460	-	820	1050	
14	**13.71**	88	137	1300	*)	*)	-	500	730	*)	445	-	740	960	
16	**15.32**	78	138	1200	*)	410	-	550	750	*)	510	-	710	910	
18	**17.64**	68	156	1150	*)	395	-	510	700	*)	495	-	650	850	
20	**20.36**	59	156	1000	*)	420	-	500	700	265	510	-	620	820	
22.4	**23.44**	51	156	870	*)	405	-	465	640	260	485	-	560	750	**X3T..**
25	**25.64**	47	156	790	*)	380	-	420	590	245	455	-	495	680	
28	**29.51**	41	156	690	180	375	-	400	560	245	445	-	465	640	M4
31.5	**32.47**	37	156	620	215	380	-	390	540	260	435	-	435	600	332
35.5	**37.38**	32	156	540	215	375	-	375	520	260	430	-	410	570	M1
40	**39.96**	30	156	510	210	370	-	365	510	260	425	-	400	550	330
45	**46.00**	26	156	440	205	355	-	340	475	245	405	-	365	520	
50	**48.83**	25	156	420	200	340	-	315	445	235	380	-	340	480	
56	**56.20**	21	156	365	195	325	-	295	420	225	365	-	315	450	
63	**62.51**	19	156	330	190	310	-	280	395	220	350	-	295	420	
71	**71.95**	17	156	285	180	300	-	260	370	210	335	-	275	395	
80	**82.39**	15	156	250	195	-	-	260	-	210	-	-	265	-	
90	**94.83**	13	156	215	190	-	-	250	-	205	-	-	255	-	
100	**103.71**	12	156	200	175	-	-	230	-	190	-	-	230	-	
112	**119.37**	10	156	170	170	-	-	220	-	185	-	-	225	-	
125	**127.64**	9.4	156	160	175	-	-	220	-	185	-	-	220	-	**X4T..**
140	**146.91**	8.2	156	140	165	-	-	210	-	180	-	-	210	-	
160	**153.55**	7.8	156	135	155	-	-	195	-	170	-	-	195	-	M4
180	**176.74**	6.8	156	115	150	-	-	185	-	160	-	-	185	-	326
200	**205.47**	5.8	156	100	130	-	-	160	-	140	-	-	160	-	M1
224	**236.50**	5.1	156	88	125	-	-	150	-	135	-	-	150	-	334
250	**252.89**	4.7	156	82	125	-	-	150	-	135	-	-	150	-	
280	**291.08**	4.1	156	71	125	-	-	145	-	135	-	-	145	-	
315	**304.22**	3.9	156	68	120	-	-	135	-	130	-	-	140	-	
355	**350.17**	3.4	156	59	115	-	-	130	-	125	-	-	135	-	

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X.T240..,n_1 = 1500 min^{-1}															156 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1 20°C										
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
12.5[1)]	**11.92**	126	128	1750	*)	*)	-	*)	680	*)	*)	-	760	1050	
14[1)]	**13.71**	109	137	1600	*)	*)	-	*)	660	*)	*)	-	730	1000	
16	**15.32**	98	138	1450	*)	*)	-	520	780	*)	485	-	770	1000	
18	**17.64**	85	156	1450	*)	*)	-	480	730	*)	470	-	700	950	
20	**20.36**	74	156	1250	*)	375	-	480	730	*)	500	-	660	910	
22.4	**23.44**	64	156	1100	*)	365	-	435	670	*)	485	-	590	830	**X3T..**
25	**25.64**	59	156	990	*)	350	-	400	620	*)	460	-	520	750	
28	**29.51**	51	156	860	*)	350	-	375	590	*)	450	-	485	700	M4
31.5	**32.47**	46	156	780	*)	395	-	400	580	235	465	-	470	670	332
35.5	**37.38**	40	156	680	170	385	-	380	560	235	455	-	440	640	M1
40	**39.96**	38	156	630	170	385	-	370	550	235	450	-	425	620	330
45	**46.00**	33	156	550	165	365	-	340	510	225	430	-	390	570	
50	**48.83**	31	156	520	180	355	-	325	485	225	410	-	365	530	
56	**56.20**	27	156	455	175	340	-	305	455	220	395	-	335	500	
63	**62.51**	24	156	410	180	335	-	290	435	215	380	-	315	470	
71	**71.95**	21	156	355	175	320	-	270	410	210	365	-	295	440	
80	**82.39**	18	156	310	195	-	-	280	-	210	-	-	285	-	
90	**94.83**	16	156	270	190	-	-	270	-	205	-	-	270	-	
100	**103.71**	14	156	245	180	-	-	245	-	195	-	-	250	-	
112	**119.37**	13	156	215	175	-	-	235	-	190	-	-	235	-	
125	**127.64**	12	156	200	175	-	-	235	-	190	-	-	235	-	**X4T..**
140	**146.91**	10	156	175	170	-	-	220	-	185	-	-	220	-	
160	**153.55**	9.8	156	165	160	-	-	210	-	170	-	-	210	-	M4
180	**176.74**	8.5	156	145	155	-	-	195	-	165	-	-	195	-	326
200	**205.47**	7.3	156	125	135	-	-	170	-	145	-	-	170	-	M1
224	**236.50**	6.3	156	110	130	-	-	160	-	140	-	-	160	-	334
250	**252.89**	5.9	156	105	130	-	-	160	-	140	-	-	160	-	
280	**291.08**	5.2	156	89	130	-	-	155	-	140	-	-	155	-	
315	**304.22**	4.9	156	85	125	-	-	145	-	135	-	-	150	-	
355	**350.17**	4.3	156	74	120	-	-	140	-	130	-	-	140	-	
X.T240..,n_1 = 1800 min^{-1}															**156 kNm**
12.5[1)]	**11.92**	151	121	2000	*)	*)	-	*)	*)	*)	*)	-	540	950	
14[1)]	**13.71**	131	129	1850	*)	*)	-	*)	*)	*)	*)	-	540	920	
16[1)]	**15.32**	117	130	1650	*)	*)	-	*)	740	*)	*)	-	760	1050	
18[1)]	**17.64**	102	147	1650	*)	*)	-	*)	710	*)	410	-	720	1000	
20[1)]	**20.36**	88	147	1400	*)	*)	-	405	720	*)	455	-	670	980	
22.4[1)]	**23.44**	77	156	1300	*)	*)	-	365	660	*)	440	-	600	880	**X3T..**
25[1)]	**25.64**	70	156	1200	*)	*)	-	335	610	*)	425	-	520	790	
28[1)]	**29.51**	61	156	1050	*)	280	-	315	580	*)	420	-	485	750	M4
31.5[1)]	**32.47**	55	156	940	*)	380	-	390	610	*)	475	-	495	730	332
35.5[1)]	**37.38**	48	156	810	*)	375	-	370	590	*)	465	-	460	690	M1
40[1)]	**39.96**	45	156	760	*)	380	-	355	570	*)	460	-	440	670	330
45[1)]	**46.00**	39	156	660	*)	360	-	330	540	185	440	-	400	620	
50[1)]	**48.83**	37	156	630	*)	365	-	325	510	200	430	-	380	580	
56[1)]	**56.20**	32	156	550	140	345	-	305	480	195	410	-	350	540	
63[1)]	**62.51**	29	156	490	155	345	-	295	465	205	400	-	330	510	
71[1)]	**71.95**	25	156	425	155	330	-	275	435	200	385	-	305	480	
80	**82.39**	22	156	375	195	-	-	295	-	210	-	-	300	-	
90	**94.83**	19	156	325	190	-	-	285	-	205	-	-	285	-	
100	**103.71**	17	156	295	180	-	-	260	-	190	-	-	260	-	
112	**119.37**	15	156	260	175	-	-	245	-	190	-	-	250	-	
125	**127.64**	14	156	240	175	-	-	245	-	190	-	-	245	-	**X4T..**
140	**146.91**	12	156	210	170	-	-	230	-	180	-	-	230	-	
160	**153.55**	12	156	200	160	-	-	215	-	170	-	-	215	-	M4
180	**176.74**	10	156	175	155	-	-	205	-	165	-	-	205	-	326
200	**205.47**	8.8	156	150	140	-	-	175	-	150	-	-	180	-	M1
224	**236.50**	7.6	156	130	135	-	-	170	-	145	-	-	170	-	334
250	**252.89**	7.1	156	125	135	-	-	165	-	145	-	-	170	-	
280	**291.08**	6.2	156	105	130	-	-	160	-	140	-	-	160	-	
315	**304.22**	5.9	156	100	125	-	-	155	-	135	-	-	155	-	
355	**350.17**	5.1	156	89	120	-	-	145	-	130	-	-	145	-	

X.T250..,n_1 = 1000 min^{-1}															175 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1			20°C							
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
14	**12.80**	78	138	1150	*)	390	-	360	580	*)	500	-	560	770	
16	**14.71**	68	148	1100	*)	380	-	335	540	*)	485	-	510	710	
18	**16.47**	61	149	980	*)	425	-	375	560	295	500	-	500	680	
20	**18.92**	53	162	930	*)	410	-	355	530	285	485	-	465	640	
22.4	**21.88**	46	169	840	230	415	-	350	520	295	485	-	445	610	
25	**25.14**	40	175	750	225	400	-	330	490	285	460	-	410	570	**X3T..**
28	**27.55**	36	175	690	220	385	-	315	465	275	445	-	385	540	
31.5	**31.64**	32	175	600	215	365	-	295	435	265	425	-	355	510	M4
35.5	**34.89**	29	175	540	235	370	-	300	430	275	415	-	345	485	332
40	**40.08**	25	175	475	225	355	-	285	405	260	400	-	325	455	M1
45	**42.95**	23	175	440	225	350	-	280	400	260	395	-	320	450	330
50	**49.33**	20	175	385	215	335	-	265	380	245	375	-	300	425	
56	**52.47**	19	175	365	205	315	-	250	355	235	355	-	280	395	
63	**60.27**	17	175	320	200	310	-	240	345	230	345	-	270	380	
71	**67.18**	15	175	285	190	290	-	225	320	215	320	-	245	350	
80	**77.17**	13	175	250	185	285	-	215	310	210	315	-	240	340	
90	**88.53**	11	175	215	190	-	-	215	-	205	-	-	230	-	
100	**101.70**	9.8	175	190	180	-	-	205	-	195	-	-	220	-	
112	**111.45**	9.0	175	170	175	-	-	195	-	185	-	-	205	-	
125	**128.02**	7.8	175	150	165	-	-	185	-	180	-	-	195	-	
140	**137.16**	7.3	175	140	165	-	-	185	-	180	-	-	195	-	**X4T..**
160	**157.56**	6.3	175	120	160	-	-	175	-	175	-	-	185	-	
180	**165.01**	6.1	175	115	150	-	-	165	-	165	-	-	175	-	M4
200	**189.54**	5.3	175	100	145	-	-	160	-	155	-	-	165	-	326
224	**220.81**	4.5	175	88	125	-	-	135	-	135	-	-	145	-	M1
250	**253.64**	3.9	175	76	120	-	-	130	-	130	-	-	140	-	334
280	**271.76**	3.7	175	71	120	-	-	130	-	130	-	-	140	-	
315	**312.17**	3.2	175	62	115	-	-	125	-	125	-	-	130	-	
355	**326.93**	3.1	175	59	115	-	-	120	-	125	-	-	130	-	
400	**375.54**	2.7	175	52	110	-	-	115	-	120	-	-	125	-	
X.T250..,n_1 = 1200 min^{-1}															**175 kNm**
14	**12.80**	94	138	1400	*)	*)	-	*)	540	*)	465	-	540	810	
16	**14.71**	82	148	1300	*)	*)	-	*)	510	*)	450	-	490	740	
18	**16.47**	73	149	1200	*)	415	-	345	570	*)	510	-	520	740	
20	**18.92**	63	162	1100	*)	400	-	325	540	*)	495	-	475	690	
22.4	**21.88**	55	169	1000	*)	415	-	325	540	260	500	-	455	660	
25	**25.14**	48	175	910	*)	400	-	310	510	255	480	-	420	620	**X3T..**
28	**27.55**	44	175	830	*)	390	-	295	485	250	465	-	395	580	
31.5	**31.64**	38	175	720	*)	370	-	280	455	240	440	-	365	540	M4
35.5	**34.89**	34	175	650	220	390	-	300	460	265	445	-	360	530	332
40	**40.08**	30	175	570	210	370	-	285	435	255	425	-	335	495	M1
45	**42.95**	28	175	530	210	370	-	280	430	255	420	-	330	490	330
50	**49.33**	24	175	460	200	350	-	265	405	245	400	-	310	460	
56	**52.47**	23	175	440	200	335	-	250	385	235	380	-	290	430	
63	**60.27**	20	175	380	195	330	-	245	370	230	370	-	280	415	
71	**67.18**	18	175	340	190	310	-	230	345	220	345	-	255	385	
80	**77.17**	16	175	300	185	305	-	220	335	215	340	-	250	370	
90	**88.53**	14	175	260	195	-	-	225	-	210	-	-	240	-	
100	**101.70**	12	175	225	185	-	-	215	-	205	-	-	230	-	
112	**111.45**	11	175	205	180	-	-	205	-	195	-	-	215	-	
125	**128.02**	9.4	175	180	170	-	-	195	-	185	-	-	205	-	
140	**137.16**	8.7	175	170	170	-	-	195	-	185	-	-	205	-	**X4T..**
160	**157.56**	7.6	175	145	165	-	-	185	-	180	-	-	195	-	
180	**165.01**	7.3	175	140	155	-	-	175	-	170	-	-	185	-	M4
200	**189.54**	6.3	175	120	150	-	-	165	-	160	-	-	175	-	326
224	**220.81**	5.4	175	105	130	-	-	145	-	140	-	-	150	-	M1
250	**253.64**	4.7	175	92	125	-	-	135	-	135	-	-	145	-	334
280	**271.76**	4.4	175	86	125	-	-	135	-	135	-	-	145	-	
315	**312.17**	3.8	175	75	120	-	-	130	-	130	-	-	140	-	
355	**326.93**	3.7	175	71	120	-	-	125	-	130	-	-	135	-	
400	**375.54**	3.2	175	62	115	-	-	120	-	125	-	-	130	-	

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SEW EURODRIVE

i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW	P_{TH} kW M1 20°C		H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
X.T250..,n_1 = 1500 min^{-1}															**175 kNm**
14[1)]	**12.80**	117	138	1750	*)	*)	-	*)	*)	*)	*)	-	*)	760	
16[1)]	**14.71**	102	148	1650	*)	*)	-	*)	*)	*)	*)	-	*)	740	
18	**16.47**	91	149	1450	*)	*)	-	*)	550	*)	490	-	510	800	
20	**18.92**	79	162	1400	*)	*)	-	*)	530	*)	475	-	465	740	
22.4	**21.88**	69	169	1250	*)	370	-	*)	530	*)	495	-	445	710	
25	**25.14**	60	175	1150	*)	360	-	*)	500	*)	475	-	405	660	**X3T..**
28	**27.55**	54	175	1050	*)	360	-	*)	485	*)	465	-	380	630	
31.5	**31.64**	47	175	900	*)	345	-	*)	455	*)	445	-	350	580	M4
35.5	**34.89**	43	175	820	*)	400	-	280	485	240	470	-	370	580	308
40	**40.08**	37	175	710	*)	380	-	265	460	230	450	-	345	540	M1
45	**42.95**	35	175	660	170	380	-	260	455	230	445	-	335	530	316
50	**49.33**	30	175	580	165	365	-	245	430	225	425	-	315	500	
56	**52.47**	29	175	550	175	355	-	245	410	225	410	-	300	470	
63	**60.27**	25	175	475	175	345	-	240	400	220	400	-	285	455	
71	**67.18**	22	175	430	180	330	-	230	375	215	375	-	265	425	
80	**77.17**	19	175	370	175	325	-	220	365	210	370	-	255	410	
90	**88.53**	17	175	325	200	-	-	240	-	215	-	-	255	-	
100	**101.70**	15	175	285	190	-	-	225	-	205	-	-	240	-	
112	**111.45**	13	175	260	180	-	-	210	-	195	-	-	225	-	
125	**128.02**	12	175	225	175	-	-	200	-	190	-	-	215	-	
140	**137.16**	11	175	210	175	-	-	200	-	190	-	-	215	-	**X4T..**
160	**157.56**	9.5	175	185	170	-	-	190	-	180	-	-	205	-	
180	**165.01**	9.1	175	175	160	-	-	180	-	170	-	-	190	-	M4
200	**189.54**	7.9	175	150	155	-	-	170	-	165	-	-	180	-	312
224	**220.81**	6.8	175	130	135	-	-	150	-	150	-	-	160	-	M1
250	**253.64**	5.9	175	115	130	-	-	145	-	140	-	-	150	-	320
280	**271.76**	5.5	175	105	130	-	-	145	-	145	-	-	150	-	
315	**312.17**	4.8	175	93	125	-	-	140	-	135	-	-	145	-	
355	**326.93**	4.6	175	89	125	-	-	135	-	135	-	-	140	-	
400	**375.54**	4.0	175	77	120	-	-	130	-	130	-	-	135	-	
X.T250..,n_1 = 1800 min^{-1}															**175 kNm**
14[1)]	**12.80**	141	130	2000	*)	*)	-	*)	*)	*)	*)	-	*)	590	
16[1)]	**14.71**	122	139	1850	*)	*)	-	*)	*)	*)	*)	-	*)	580	
18[1)]	**16.47**	109	140	1650	*)	*)	-	*)	470	*)	420	-	445	800	
20[1)]	**18.92**	95	153	1600	*)	*)	-	*)	455	*)	415	-	420	760	
22.4[1)]	**21.88**	82	159	1400	*)	*)	-	*)	475	*)	445	-	400	740	
25[1)]	**25.14**	72	175	1350	*)	*)	-	*)	450	*)	435	-	360	680	**X3T..**
28[1)]	**27.55**	65	174	1250	*)	*)	-	*)	440	*)	430	-	335	640	
31.5[1)]	**31.64**	57	175	1100	*)	280	-	*)	420	*)	415	-	305	600	M4
35.5[1)]	**34.89**	52	175	980	*)	385	-	*)	495	*)	480	-	365	620	308
40[1)]	**40.08**	45	175	850	*)	375	-	230	470	*)	460	-	335	580	M1
45[1)]	**42.95**	42	175	790	*)	375	-	220	465	*)	460	-	325	570	316
50[1)]	**49.33**	36	175	690	*)	360	-	210	435	185	440	-	305	530	
56[1)]	**52.47**	34	175	660	*)	360	-	225	430	200	425	-	300	510	
63[1)]	**60.27**	30	175	570	*)	355	-	220	415	200	415	-	285	490	
71[1)]	**67.18**	27	175	510	155	345	-	220	395	205	400	-	270	455	
80[1)]	**77.17**	23	175	445	155	335	-	215	385	200	390	-	260	440	
90	**88.53**	20	175	390	200	-	-	245	-	215	-	-	260	-	
100	**101.70**	18	175	340	190	-	-	230	-	205	-	-	245	-	
112	**111.45**	16	175	310	180	-	-	215	-	195	-	-	230	-	
125	**128.02**	14	175	270	175	-	-	205	-	190	-	-	220	-	
140	**137.16**	13	175	250	175	-	-	205	-	190	-	-	220	-	**X4T..**
160	**157.56**	11	175	220	170	-	-	195	-	180	-	-	205	-	
180	**165.01**	11	175	210	160	-	-	185	-	170	-	-	195	-	M4
200	**189.54**	9.5	175	180	155	-	-	175	-	165	-	-	185	-	312
224	**220.81**	8.2	175	160	140	-	-	155	-	150	-	-	165	-	M1
250	**253.64**	7.1	175	140	135	-	-	150	-	145	-	-	155	-	320
280	**271.76**	6.6	175	130	135	-	-	150	-	145	-	-	155	-	
315	**312.17**	5.8	175	110	130	-	-	145	-	140	-	-	150	-	
355	**326.93**	5.5	175	105	125	-	-	140	-	135	-	-	145	-	
400	**375.54**	4.8	175	93	120	-	-	130	-	130	-	-	140	-	

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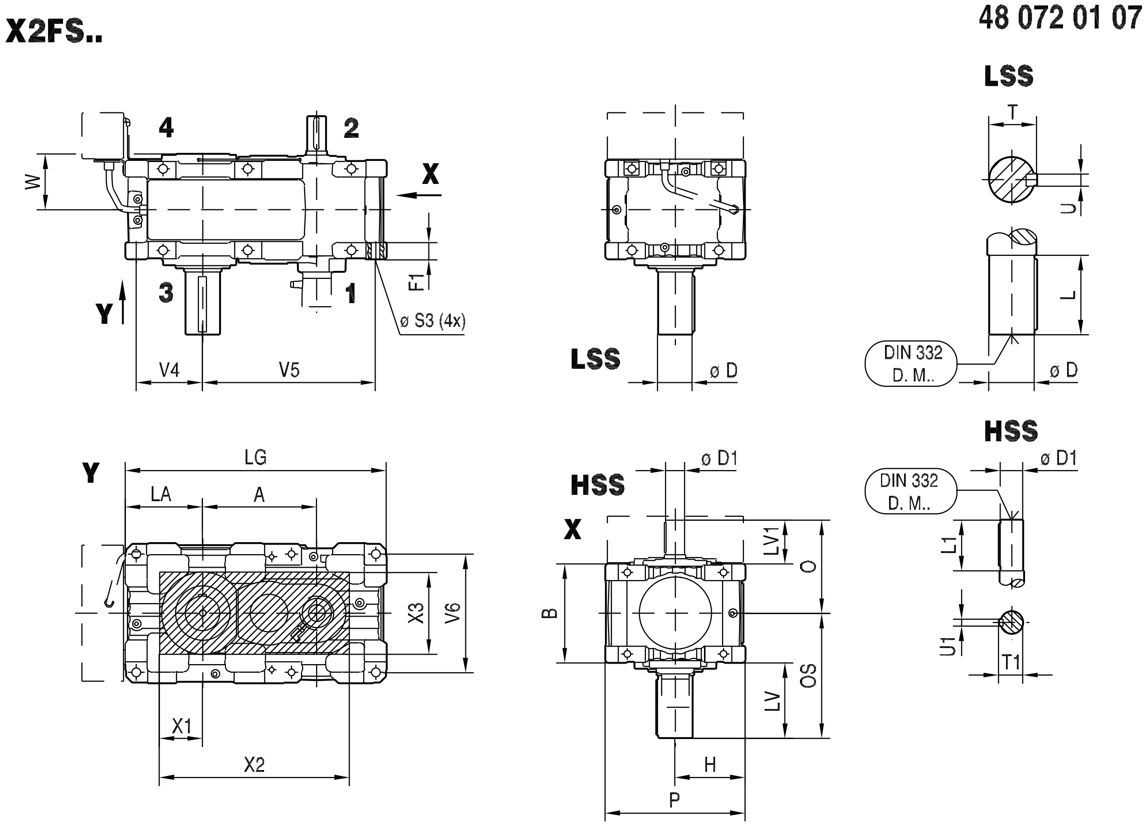
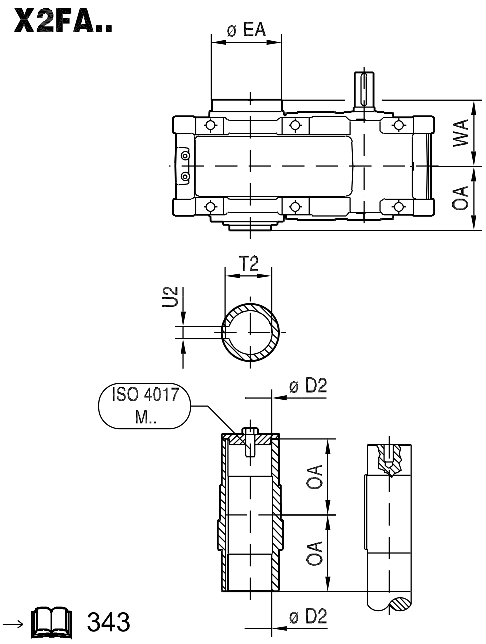
10 Dimension sheets: vertical gear units, mounting position M5

10.1 X.F.. helical gear units [mm]

10.1.1 X2F100 - 210





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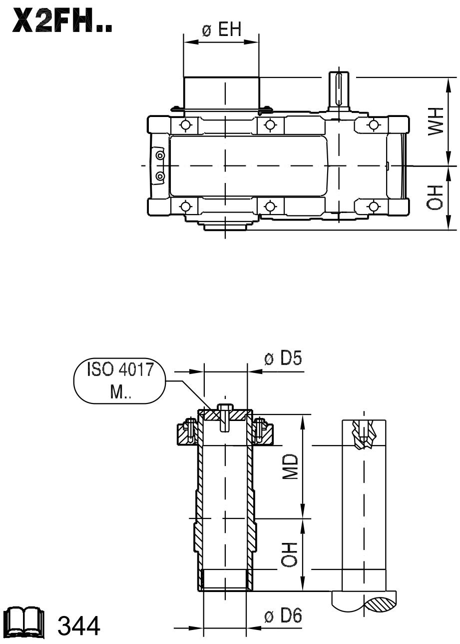

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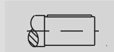
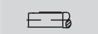
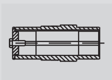
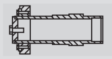
X.F..																X.FS.. LSS 							
X.F..	A	B	F1	H	LA	LG	P	Ø S3 (4x)	V4	V5	V6	W	X1	X2	X3	Ø D	L	LV	OS	T	V	DIN 332 DR.M..	kg
X100	278	260	47	$190_{-0.5}$	$190_{-0.5}$	658	380	24	160	441	315	153	120	490	240	80_{m6}	170	213	343	85	22_{h9}	M20	210
X110	298	260	47	$190_{-0.5}$	$215_{-0.5}$	703	380	24	185	461	315	153	125	510	250	90_{m6}	170	216	346	95	25_{h9}	M24	225
X120	327	300	53	$225_{-0.5}$	$215_{-0.5}$	767	450	28	184	521	380	174	150	590	305	100_{m6}	210	251	401	106	28_{h9}	M24	325
X130	363	300	53	$225_{-0.5}$	$250_{-0.5}$	838	450	28	219	557	380	174	165	640	325	110_{m6}	210	254	404	116	28_{h9}	M24	375
X140	388	360	67	$265_{-0.5}$	$250_{-0.5}$	903	530	35	210	613	445	202	165	675	320	120_{m6}	210	252	432	127	32_{h9}	M24	520
X150	430	360	67	$265_{-0.5}$	$295_{-0.5}$	990	530	35	255	655	445	202	180	735	360	130_{m6}	250	295	475	137	32_{h9}	M24	600
X160	474	425	81	$315_{-0.5}$	$355_{-0.5}$	1144	630	42	303	737	525	240	195	815	390	140_{m6}	250	294	506	148	36_{h9}	M30	905
X170	525	425	81	$315_{-0.5}$	$355_{-0.5}$	1195	630	42	303	788	525	240	195	860	390	160_{m6}	300	344	556	169	40_{h9}	M30	1055
X180	544	475	81	$335_{-0.5}$	$370_{-0.5}$	1249	670	42	318	827	565	277	205	895	410	170_{m6}	300	355	592	179	40_{h9}	M30	1350
X190	576	475	81	$335_{-0.5}$	$370_{-0.5}$	1281	670	42	318	859	565	277	205	930	410	170_{m6}	300	355	592	179	40_{h9}	M30	1425
X200	614	515	91	$375_{-0.5}$	$420_{-0.5}$	1409	750	48	360	930	630	298	235	1020	470	180_{m6}	300	354	612	190	45_{h9}	M30	1910
X210	650	515	91	$375_{-0.5}$	$420_{-0.5}$	1445	750	48	360	966	630	298	235	1055	470	190_{m6}	350	404	662	200	45_{h9}	M30	1940

HSS	i = 6.3 ... 11.2* / i = 7.1 ... 12.5** / i = 8 ... 14***							i = 12.5 ... 18* / i = 14 ... 20** / i = 16 ... 22.4***						
	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..
X100**	42_{k6}	110	144	274	45	12_{h9}	M16	32_{k6}	80	114	244	35	10_{h9}	M12
X110***	42_{k6}	110	144	274	45	12_{h9}	M16	32_{k6}	80	114	244	35	10_{h9}	M12
X120*	55_{m6}	110	140	290	59	16_{h9}	M20	42_{k6}	110	140	290	45	12_{h9}	M16
X130***	55_{m6}	110	140	290	59	16_{h9}	M20	42_{k6}	110	140	290	45	12_{h9}	M16
X140*	70_{m6}	140	168	348	74.5	20_{h9}	M20	55_{m6}	110	138	318	59	16_{h9}	M20
X150***	70_{m6}	140	168	348	74.5	20_{h9}	M20	55_{m6}	110	138	318	59	16_{h9}	M20
X160*	80_{m6}	170	199	412	85	22_{h9}	M20	70_{m6}	140	169	382	74.5	20_{h9}	M20
X170***	80_{m6}	170	199	412	85	22_{h9}	M20	70_{m6}	140	169	382	74.5	20_{h9}	M20
X180*	90_{m6}	170	207	445	95	25_{h9}	M24	75_{m6}	140	177	415	79.5	20_{h9}	M20
X190**	90_{m6}	170	207	445	95	25_{h9}	M24	75_{m6}	140	177	415	79.5	20_{h9}	M20
X200*	100_{m6}	210	246	504	106	28_{h9}	M24	90_{m6}	170	206	464	95	25_{h9}	M24
X210**	100_{m6}	210	246	504	106	28_{h9}	M24	90_{m6}	170	206	464	95	25_{h9}	M24

X.FA.. 									X.FH.. 								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg	LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X100	75^{H8}	158	173	80.4	20^{JS9}	207	M20x60-8.8	200	X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	210
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	215	X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	225
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	305	X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	315
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	350	X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	365
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	485	X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	510
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	550	X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	580
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	835	X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	865
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	975	X170	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1030
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1250	X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1300
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1325	X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1375
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1825	X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1895
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1825	X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1910

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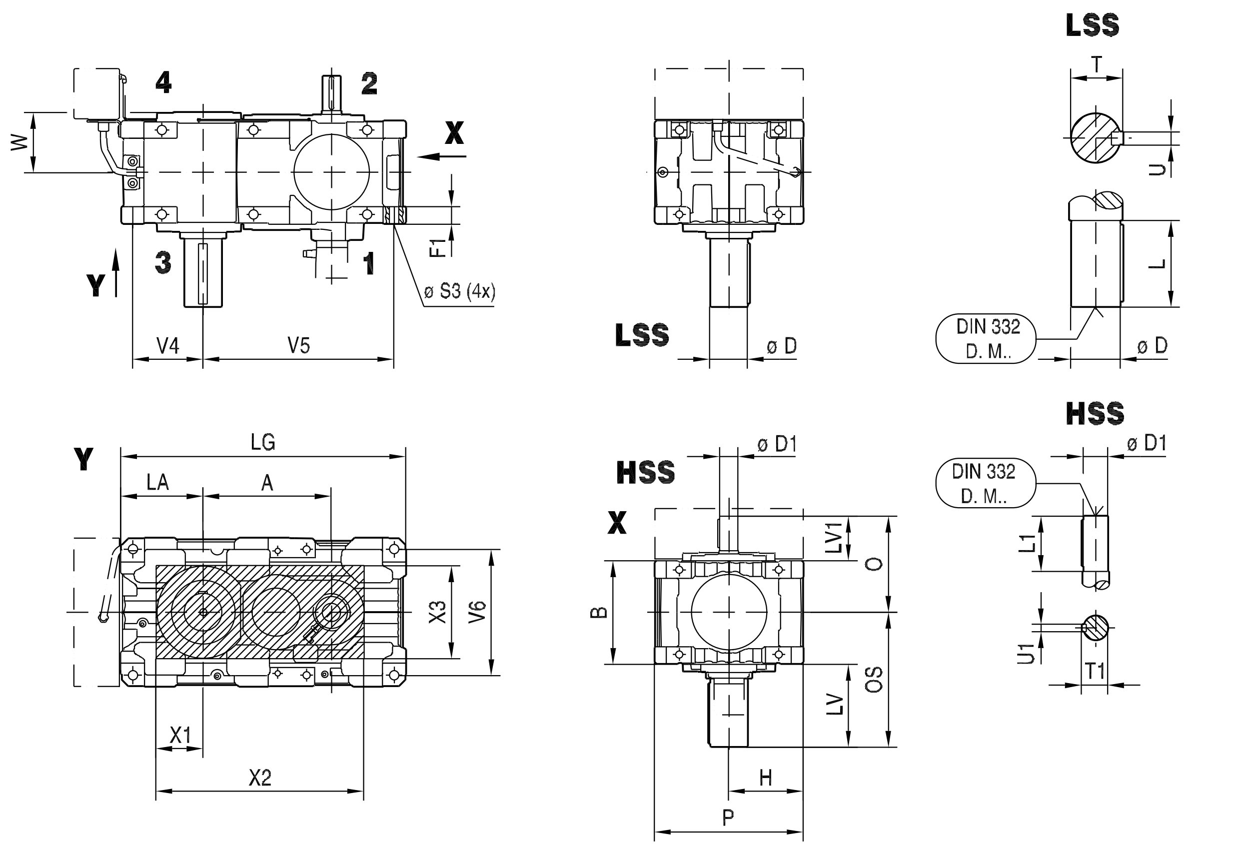
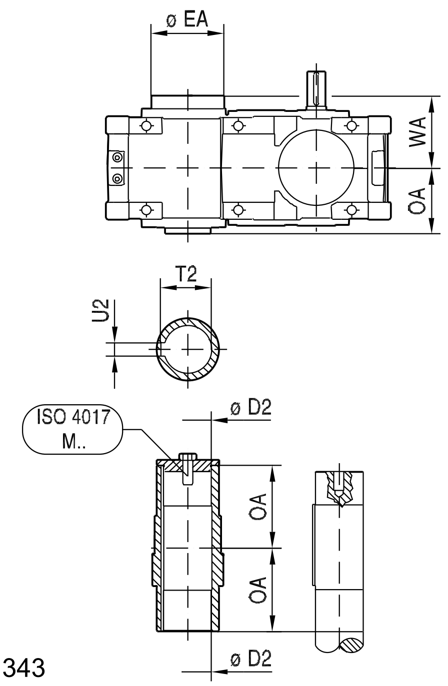
10.1.2 X2F220 - 320

X2FS..

48 075 01 07



X2FA..



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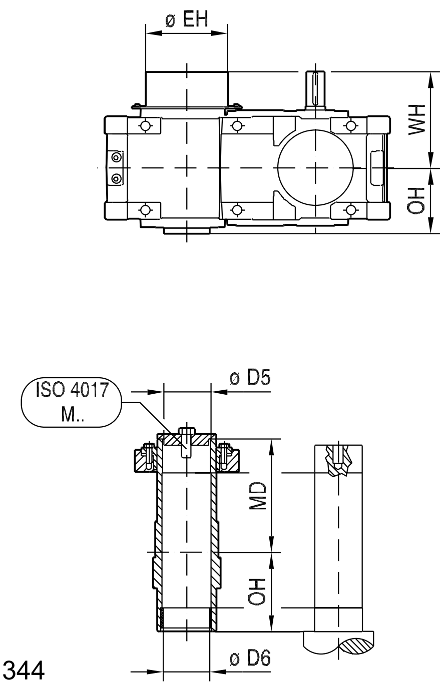
X2FH..



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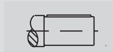
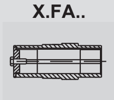
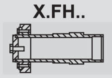
X.F..															X.FS.. LSS 							
X.F..	A	B	F1	H	LA	LG	P	Ø S3 (4x)	V4	V5	V6	W	X1	X2	X3	Ø D	L	LV	OS	T	V	DIN 332 DR.M..	kg
X220	694	540	100	$425_{-0.5}$	$465_{-0.5}$	1584	850	48	403	1057	725	331	260	1150	520	210_{m6}	350	433	703	221	50_{h9}	M30	2685
X230	734	540	100	$425_{-0.5}$	$465_{-0.5}$	1624	850	48	403	1097	725	331	260	1190	520	230_{m6}	410	493	763	241	50_{h9}	M36	2865
X240	776	625	105	$450_{-0.5}$	$495_{-0.5}$	1721	900	56	425	1155	760	377	290	1270	580	230_{m6}	410	498	811	241	50_{h9}	M36	3665
X250	799	625	105	$450_{-0.5}$	$495_{-0.5}$	1744	900	56	425	1178	760	377	290	1290	580	240_{m6}	410	498	811	252	56_{h9}	M36	3815
X260	855	705	105	$500_{-0.5}$	$545_{-0.5}$	1900	1017	56	475	1285	860	417	290	1375	580	250_{m6}	410	495	847	262	56_{h9}	M36	4470
X270	890	705	105	$500_{-0.5}$	$545_{-0.5}$	1935	1017	56	475	1320	860	419	310	1430	620	270_{m6}	470	568	920	282	63_{h9}	M36	4600
X280	942	705	105	$555_{-0.5}$	$610_{-0.5}$	2052	1127	56	540	1372	970	419	310	1480	620	290_{m6}	470	568	920	302	63_{h9}	M36	5370
X290	987	785	124	$580_{-0.5}$	$620_{-0.5}$	2187	1177	65	539	1486	995	465	330	1560	660	290_{m6}	470	570	962	302	63_{h9}	M36	6570
X300	1016	785	124	$580_{-0.5}$	$620_{-0.5}$	2216	1177	65	539	1515	995	465	330	1590	660	300_{m6}	470	570	962	314	70_{h9}	M36	7270
X310	1100	850	124	$630_{-0.5}$	$680_{-0.5}$	2410	1277	65	598	1647	1095	499	360	1720	720	320_{m6}	470	574	999	334	70_{h9}	M42	7520
X320	1134	850	124	$630_{-0.5}$	$680_{-0.5}$	2444	1277	65	598	1681	1095	499	360	1755	720	340_{m6}	550	654	1079	355	80_{h9}	M42	8320

HSS	i = 6.3 ... 11.2* / i = 7.1 ... 12.5** / i = 8 ... 14***							i = 12.5 ... 18* / i = 14 ... 20** / i = 16 ... 22.4***						
	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..
X220*	110_{m6}	210	268	538	116	28_{h9}	M24	100_{m6}	210	268	538	106	28_{h9}	M24
X230**	110_{m6}	210	268	538	116	28_{h9}	M24	100_{m6}	210	268	538	106	28_{h9}	M24
X240*	120_{m6}	210	270	583	127	32_{h9}	M24	110_{m6}	210	270	583	116	28_{h9}	M24
X250**	120_{m6}	210	270	583	127	32_{h9}	M24	110_{m6}	210	270	583	116	28_{h9}	M24
X260*	130_{m6}	250	320	673	137	32_{h9}	M24	120_{m6}	210	280	633	127	32_{h9}	M24
X270**	130_{m6}	250	320	673	137	32_{h9}	M24	120_{m6}	210	280	633	127	32_{h9}	M24
X280***	130_{m6}	250	320	673	137	32_{h9}	M24	120_{m6}	210	280	633	127	32_{h9}	M24
X290*	150_{m6}	250	320	713	158	36_{h9}	M30	150_{m6}	250	320	713	158	36_{h9}	M30
X300**	150_{m6}	250	320	713	158	36_{h9}	M30	150_{m6}	250	320	713	158	36_{h9}	M30
X310*	170_{m6}	300	370	795	179	40_{h9}	M30	170_{m6}	300	370	795	179	40_{h9}	M30
X320**	170_{m6}	300	370	795	179	40_{h9}	M30	170_{m6}	300	370	795	179	40_{h9}	M30

X.FA.. 									X.FH.. 									
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg	LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2505	**X220**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2610
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2645	**X230**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2755
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3380	**X240**	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3545
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3510	**X250**	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3670
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4070	**X260**	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4220
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4470	**X270**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4720
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4870	**X280**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5120
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	5920	**X290**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6170
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6570	**X300**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6820
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	6770	**X310**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	7120
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7520	**X320**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	7870

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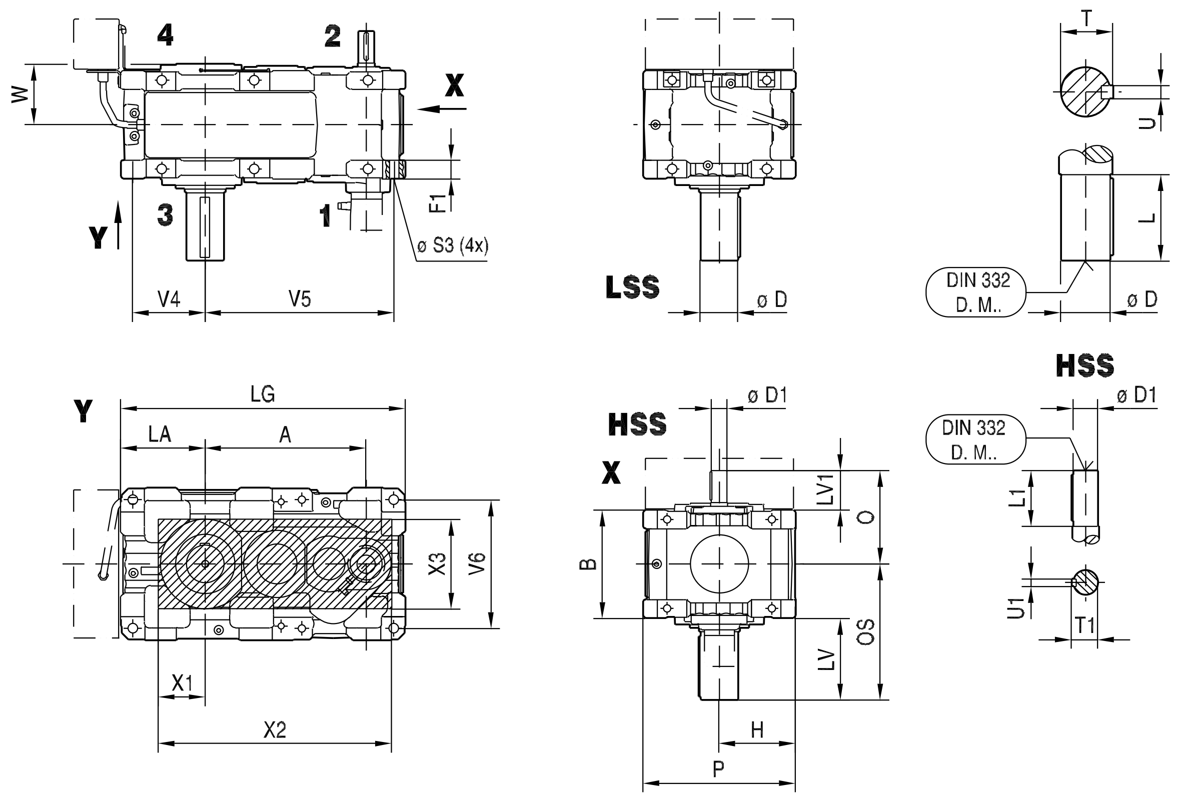
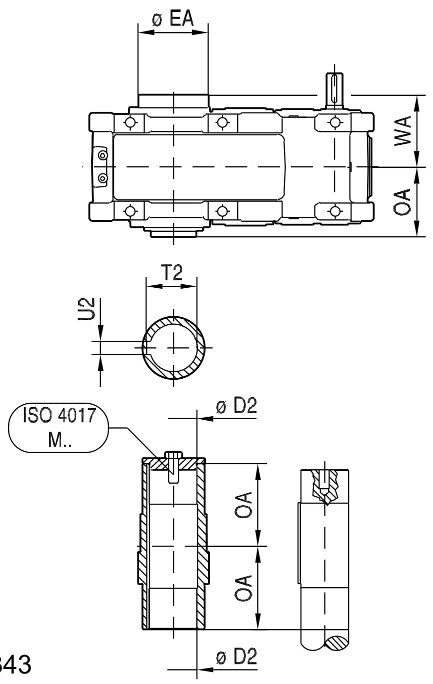
10.1.3 X3F100 - 210

X3FS..

48 073 01 07



X3FA..



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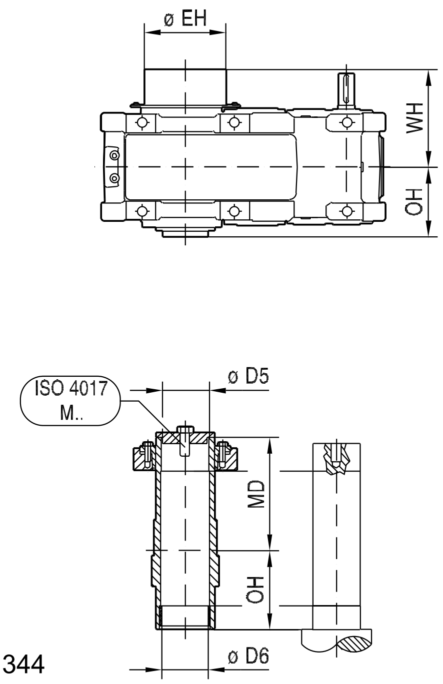
X3FH..



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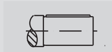
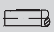
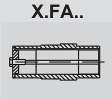
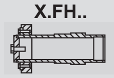
X.F..															X.FS.. LSS 							
X.F..	A	B	F1	H	LA	LG	P	Ø S3 (4x)	V4	V5	V6	W	X1	X2	X3	Ø D	L	LV	OS	T	V	DIN 332 DR.M..	kg
X100	360	260	47	$190_{-0.5}$	$190_{-0.5}$	663	380	24	160	441	315	153	120	560	240	80_{m6}	170	213	343	85	22_{h9}	M20	225
X110	380	260	47	$190_{-0.5}$	$215_{-0.5}$	708	380	24	185	461	315	153	125	585	250	90_{m6}	170	216	346	95	25_{h9}	M24	230
X120	427	300	53	$225_{-0.5}$	$215_{-0.5}$	767	450	28	184	521	380	174	150	670	305	100_{m6}	210	251	401	106	28_{h9}	M24	345
X130	463	300	53	$225_{-0.5}$	$250_{-0.5}$	838	450	28	219	557	380	174	165	715	325	110_{m6}	210	254	404	116	28_{h9}	M24	410
X140	502	360	67	$265_{-0.5}$	$250_{-0.5}$	903	530	35	210	613	445	202	165	765	320	120_{m6}	210	252	432	127	32_{h9}	M24	580
X150	544	360	67	$265_{-0.5}$	$295_{-0.5}$	990	530	35	255	655	445	202	180	820	360	130_{m6}	250	295	475	137	32_{h9}	M24	635
X160	611	425	81	$315_{-0.5}$	$355_{-0.5}$	1144	630	42	303	737	525	240	195	920	390	140_{m6}	250	294	506	148	36_{h9}	M30	985
X170	662	425	81	$315_{-0.5}$	$355_{-0.5}$	1195	630	42	303	788	525	240	195	970	390	160_{m6}	300	344	556	169	40_{h9}	M30	1140
X180	707	475	81	$335_{-0.5}$	$370_{-0.5}$	1249	670	42	318	827	565	277	205	1030	410	170_{m6}	300	355	592	179	40_{h9}	M30	1465
X190	739	475	81	$335_{-0.5}$	$370_{-0.5}$	1281	670	42	318	859	565	277	205	1065	410	170_{m6}	300	355	592	179	40_{h9}	M30	1530
X200	794	515	91	$375_{-0.5}$	$420_{-0.5}$	1409	750	48	360	930	630	298	235	1160	470	180_{m6}	300	354	612	190	45_{h9}	M30	1870
X210	830	515	91	$375_{-0.5}$	$420_{-0.5}$	1445	750	48	360	966	630	298	235	1195	470	190_{m6}	350	404	662	200	45_{h9}	M30	1950

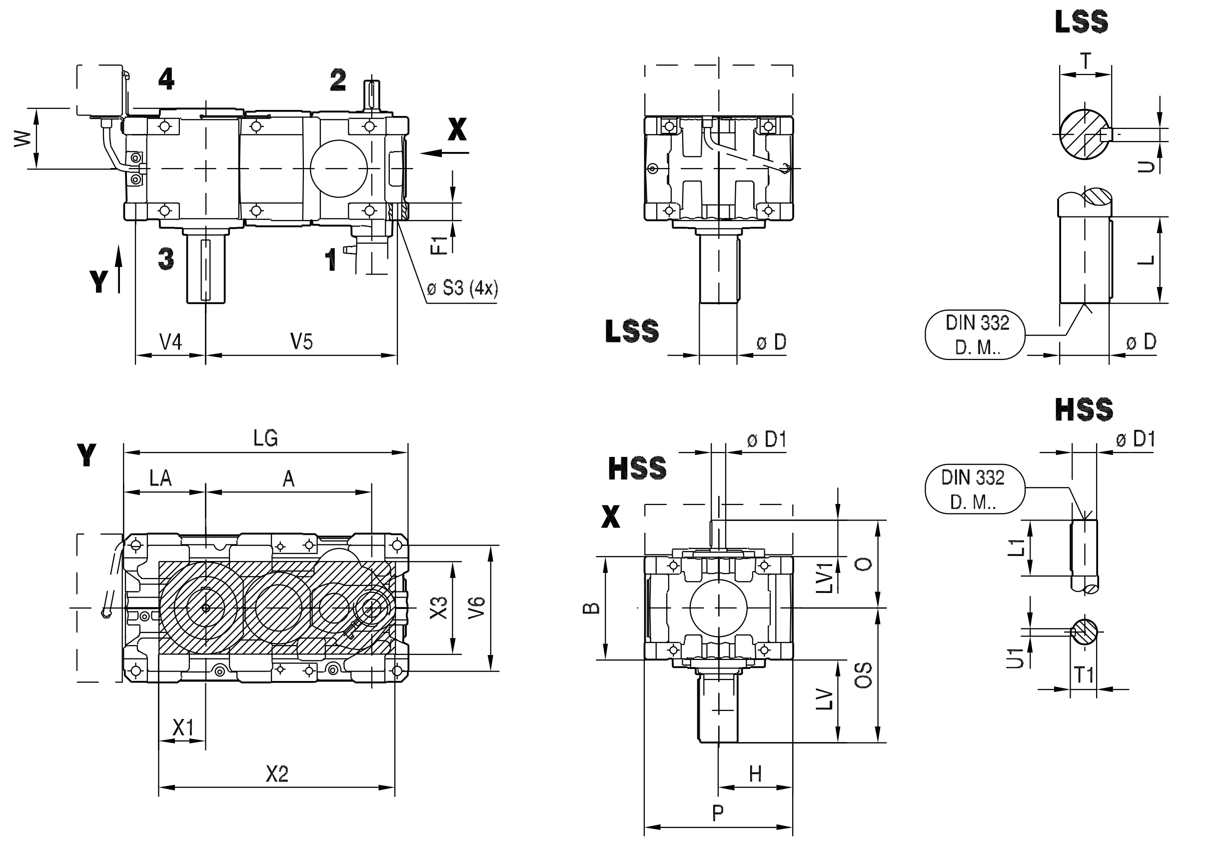
HSS	i = 20 ... 56* / i = 22.4 ... 63** / i = 25 ... 71***							i = 63 ... 90* / i = 71 ... 100** / i = 80 ... 112***						
	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..
X100**	32_{k6}	80	114	244	35	10_{h9}	M12	32_{k6}	80	114	244	35	10_{h9}	M12
X110***	32_{k6}	80	114	244	35	10_{h9}	M12	32_{k6}	80	114	244	35	10_{h9}	M12
X120*	38_{k6}	80	108	258	41	10_{h9}	M12	38_{k6}	80	108	258	41	10_{h9}	M12
X130***	38_{k6}	80	108	258	41	10_{h9}	M12	38_{k6}	80	108	258	41	10_{h9}	M12
X140*	45_{k6}	110	138	318	48.5	14_{h9}	M16	45_{k6}	110	138	318	48.5	14_{h9}	M16
X150***	45_{k6}	110	138	318	48.5	14_{h9}	M16	45_{k6}	110	138	318	48.5	14_{h9}	M16
X160*	60_{m6}	140	168	381	64	18_{h9}	M20	50_{k6}	110	138	351	53.5	14_{h9}	M16
X170***	60_{m6}	140	168	381	64	18_{h9}	M20	50_{k6}	110	138	351	53.5	14_{h9}	M16
X180*	70_{m6}	140	173	411	74.5	20_{h9}	M20	55_{m6}	110	143	381	59	16_{h9}	M20
X190**	70_{m6}	140	173	411	74.5	20_{h9}	M20	55_{m6}	110	143	381	59	16_{h9}	M20
X200*	75_{m6}	140	172	430	79.5	20_{h9}	M20	60_{m6}	140	172	430	64	18_{h9}	M20
X210**	75_{m6}	140	172	430	79.5	20_{h9}	M20	60_{m6}	140	172	430	64	18_{h9}	M20

X.FA.. 									X.FH.. 								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg	LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X100	75^{H8}	158	173	80.4	20^{JS9}	207	M20x60-8.8	215	**X100**	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	225
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	220	**X110**	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	230
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	325	**X120**	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	335
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	410	**X130**	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	400
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	545	**X140**	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	570
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	585	**X150**	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	585
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	915	**X160**	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	945
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1060	**X170**	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1115
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1365	**X180**	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1415
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1430	**X190**	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1480
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1785	**X200**	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1855
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1835	**X210**	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1920

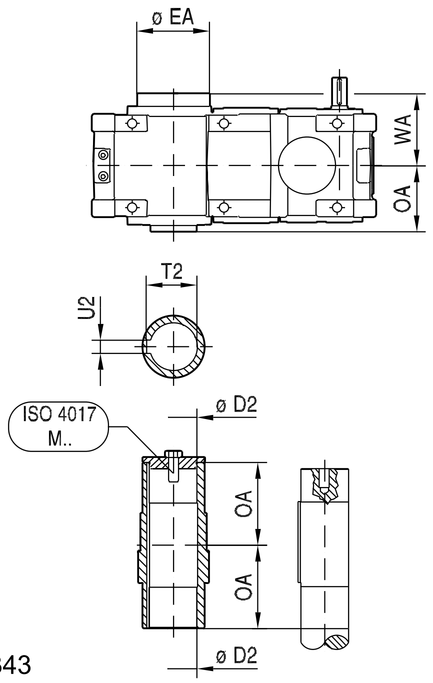
10.1.4 X3F220 - 320

X3FS..

48 076 01 07



X3FA..



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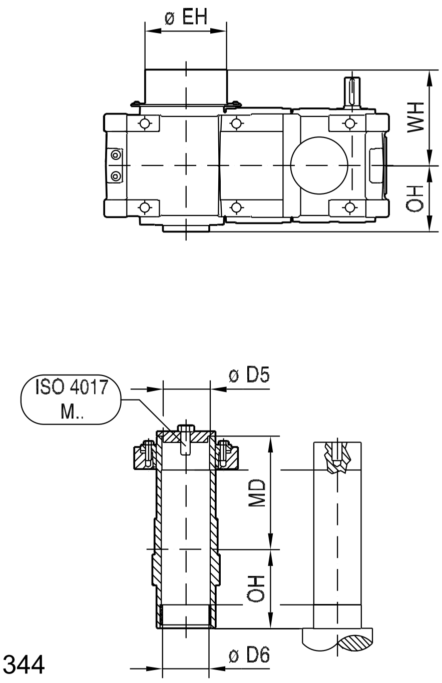
X3FH..



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X.F..																X.FS.. LSS							
X.F..	A	B	F1	H	LA	LG	P	Ø S3 (4x)	V4	V5	V6	W	X1	X2	X3	Ø D	L	LV	OS	T	V	DIN 332 DR.M..	kg
X220	894	540	100	$425_{-0.5}$	$465_{-0.5}$	1584	850	48	403	1057	725	331	260	1295	520	210_{m6}	350	433	703	221	50_{h9}	M30	2665
X230	934	540	100	$425_{-0.5}$	$465_{-0.5}$	1624	850	48	403	1097	725	331	260	1335	520	230_{m6}	410	493	763	241	50_{h9}	M36	2885
X240	1004	625	105	$450_{-0.5}$	$495_{-0.5}$	1721	900	56	425	1155	760	377	290	1445	580	230_{m6}	410	498	811	241	50_{h9}	M36	3725
X250	1027	625	105	$450_{-0.5}$	$495_{-0.5}$	1744	900	56	425	1178	760	377	290	1465	580	240_{m6}	410	498	811	252	56_{h9}	M36	3835
X260	1113	705	105	$500_{-0.5}$	$545_{-0.5}$	1900	1000	56	475	1285	860	417	290	1575	580	250_{m6}	410	495	847	262	56_{h9}	M36	4520
X270	1148	705	105	$500_{-0.5}$	$545_{-0.5}$	1935	1000	56	475	1320	860	419	310	1630	620	270_{m6}	470	568	920	282	63_{h9}	M36	5020
X280	1200	705	105	$555_{-0.5}$	$610_{-0.5}$	2052	1110	56	540	1372	970	419	310	1685	620	290_{m6}	470	568	920	302	63_{h9}	M36	5505
X290	1279	785	124	$580_{-0.5}$	$620_{-0.5}$	2187	1160	65	539	1486	995	465	330	1805	660	290_{m6}	470	570	962	302	63_{h9}	M36	6920
X300	1308	785	124	$580_{-0.5}$	$620_{-0.5}$	2216	1160	65	539	1515	995	465	330	1835	660	300_{m6}	470	570	962	314	70_{h9}	M36	7620
X310	1435	850	124	$630_{-0.5}$	$680_{-0.5}$	2410	1260	65	598	1647	1095	499	360	2005	720	320_{m6}	470	574	999	334	70_{h9}	M42	8470
X320	1469	850	124	$630_{-0.5}$	$680_{-0.5}$	2444	1260	65	598	1681	1095	499	360	2040	720	340_{m6}	550	654	1079	355	80_{h9}	M42	9370

HSS	i = 20 ... 50* / i = 22.4 ... 56** / i = 25 ... 63***							i = 56 ... 90* / i = 63 ... 100** / i = 71 ... 112***						
	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..
X220*	80_{m6}	170	217	487	85	22_{h9}	M20	70_{m6}	140	187	457	74.5	20_{h9}	M20
X230**	80_{m6}	170	217	487	85	22_{h9}	M20	70_{m6}	140	187	457	74.5	20_{h9}	M20
X240*	90_{m6}	170	219	532	95	25_{h9}	M24	75_{m6}	140	189	502	79.5	20_{h9}	M20
X250**	90_{m6}	170	219	532	95	25_{h9}	M24	75_{m6}	140	189	502	79.5	20_{h9}	M20
X260*	100_{m6}	210	260	613	106	28_{h9}	M24	80_{m6}	170	220	573	85	22_{h9}	M20
X270**	100_{m6}	210	260	613	106	28_{h9}	M24	80_{m6}	170	220	573	85	22_{h9}	M20
X280***	100_{m6}	210	260	613	106	28_{h9}	M24	80_{m6}	170	220	573	85	22_{h9}	M20
X290*	100_{m6}	210	268	661	106	28_{h9}	M24	100_{m6}	210	268	661	106	28_{h9}	M24
X300**	100_{m6}	210	268	661	106	28_{h9}	M24	100_{m6}	210	268	661	106	28_{h9}	M24
X310*	110_{m6}	210	269	694	116	28_{h9}	M24	110_{m6}	210	269	694	116	28_{h9}	M24
X320**	110_{m6}	210	269	694	116	28_{h9}	M24	110_{m6}	210	269	694	116	28_{h9}	M24

X.FA..									X.FH..								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg	LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2485	**X220**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2590
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2665	**X230**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2775
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3440	**X240**	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3605
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3530	**X250**	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3690
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4070	**X260**	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4220
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4470	**X270**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4770
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4970	**X280**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5320
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6270	**X290**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6520
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6870	**X300**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	7120
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7670	**X310**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8020
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	8470	**X320**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8320

10.1.5 X4F120 - 210

X4FS..

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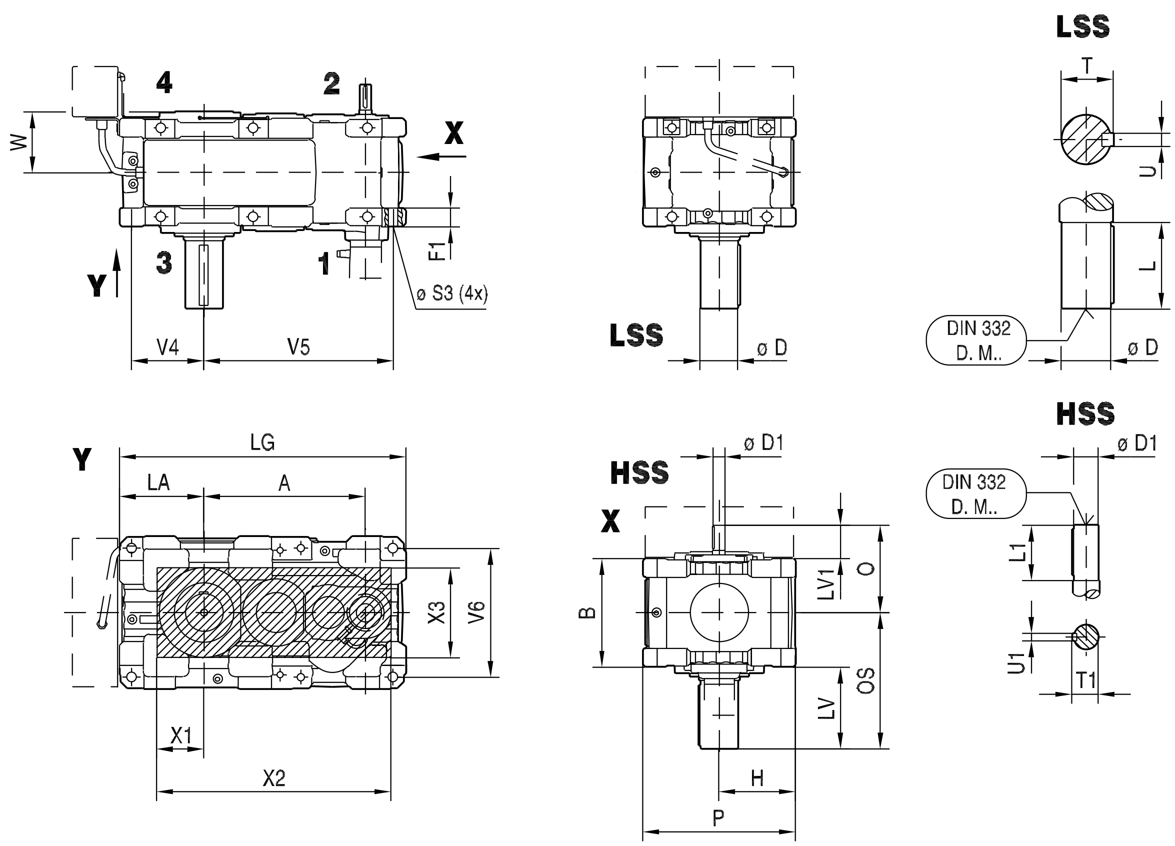
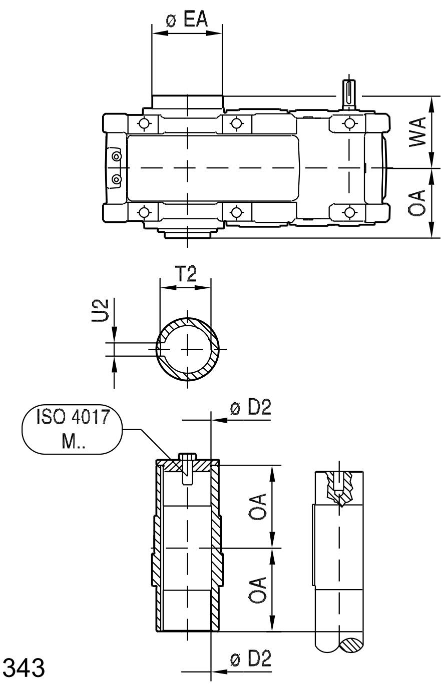


X4FA..



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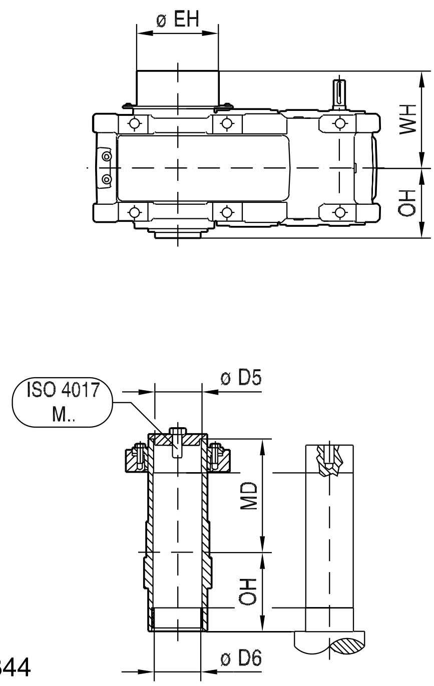
X4FH..



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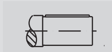
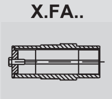
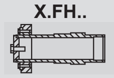
X.F..															X.FS.. LSS 							
X.F..	A	B	F1	H	LA	LG	P	Ø S3 (4x)	V4	V5	V6	W	X1	X2	X3	Ø D	L	LV	OS	T	V	DIN 332 DR.M..	kg
X120	427	300	53	$225_{-0.5}$	$215_{-0.5}$	772	450	28	184	521	380	174	150	670	305	100_{m6}	210	251	401	106	28_{h9}	M24	360
X130	463	300	53	$225_{-0.5}$	$250_{-0.5}$	843	450	28	219	557	380	174	165	715	325	110_{m6}	210	254	404	116	28_{h9}	M24	400
X140	502	360	67	$265_{-0.5}$	$250_{-0.5}$	908	530	35	210	613	445	202	165	765	320	120_{m6}	210	252	432	127	32_{h9}	M24	570
X150	544	360	67	$265_{-0.5}$	$295_{-0.5}$	995	530	35	255	655	445	202	180	820	360	130_{m6}	250	295	475	137	32_{h9}	M24	650
X160	611	425	81	$315_{-0.5}$	$355_{-0.5}$	1149	630	42	303	737	525	240	195	920	390	140_{m6}	250	294	506	148	36_{h9}	M30	975
X170	662	425	81	$315_{-0.5}$	$355_{-0.5}$	1200	630	42	303	788	525	240	195	970	390	160_{m6}	300	344	556	169	40_{h9}	M30	1175
X180	707	475	81	$335_{-0.5}$	$370_{-0.5}$	1254	670	42	318	827	565	277	205	1035	410	170_{m6}	300	355	592	179	40_{h9}	M30	1425
X190	739	475	81	$335_{-0.5}$	$370_{-0.5}$	1287	670	42	318	859	565	277	205	1065	410	170_{m6}	300	355	592	179	40_{h9}	M30	1465
X200	794	515	91	$375_{-0.5}$	$420_{-0.5}$	1415	750	48	360	930	630	298	235	1160	470	180_{m6}	300	354	612	190	45_{h9}	M30	1920
X210	830	515	91	$375_{-0.5}$	$420_{-0.5}$	1451	750	48	360	966	630	298	235	1195	470	190_{m6}	350	404	662	200	45_{h9}	M30	2110

10

HSS	i = 100 ... 180* / i = 112 ... 200** / i = 125 ... 224***						i = 200 ... 355* / i = 224 ... 400** / i = 250 ... 450***						
	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..
X120*	28_{k6}	60	88	238	31	8_{h9}	M10	28_{k6}	60	88	238	31	8_{h9}	M10
X130***	28_{k6}	60	88	238	31	8_{h9}	M10	28_{k6}	60	88	238	31	8_{h9}	M10
X140*	32_{k6}	80	108	288	35	10_{h9}	M12	32_{k6}	80	108	288	35	10_{h9}	M12
X150***	32_{k6}	80	108	288	35	10_{h9}	M12	32_{k6}	80	108	288	35	10_{h9}	M12
X160*	38_{k6}	80	107	320	41	10_{h9}	M12	38_{k6}	80	107	320	41	10_{h9}	M12
X170***	38_{k6}	80	107	320	41	10_{h9}	M12	38_{k6}	80	107	320	41	10_{h9}	M12
X180*	50_{k6}	110	143	381	53.5	14_{h9}	M16	38_{k6}	80	113	351	41	10_{h9}	M12
X190**	50_{k6}	110	143	381	53.5	14_{h9}	M16	38_{k6}	80	113	351	41	10_{h9}	M12
X200*	55_{m6}	110	142	400	59	16_{h9}	M20	42_{k6}	110	142	400	45	12_{h9}	M16
X210**	55_{m6}	110	142	400	59	16_{h9}	M20	42_{k6}	110	142	400	45	12_{h9}	M16

X.FA.. 									X.FH.. 								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg	LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	340	**X120**	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	350
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	375	**X130**	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	390
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	535	**X140**	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	560
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	600	**X150**	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	630
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	905	**X160**	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	935
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1095	**X170**	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1150
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1325	**X180**	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1375
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1365	**X190**	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1415
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1835	**X200**	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1905
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1995	**X210**	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	2080

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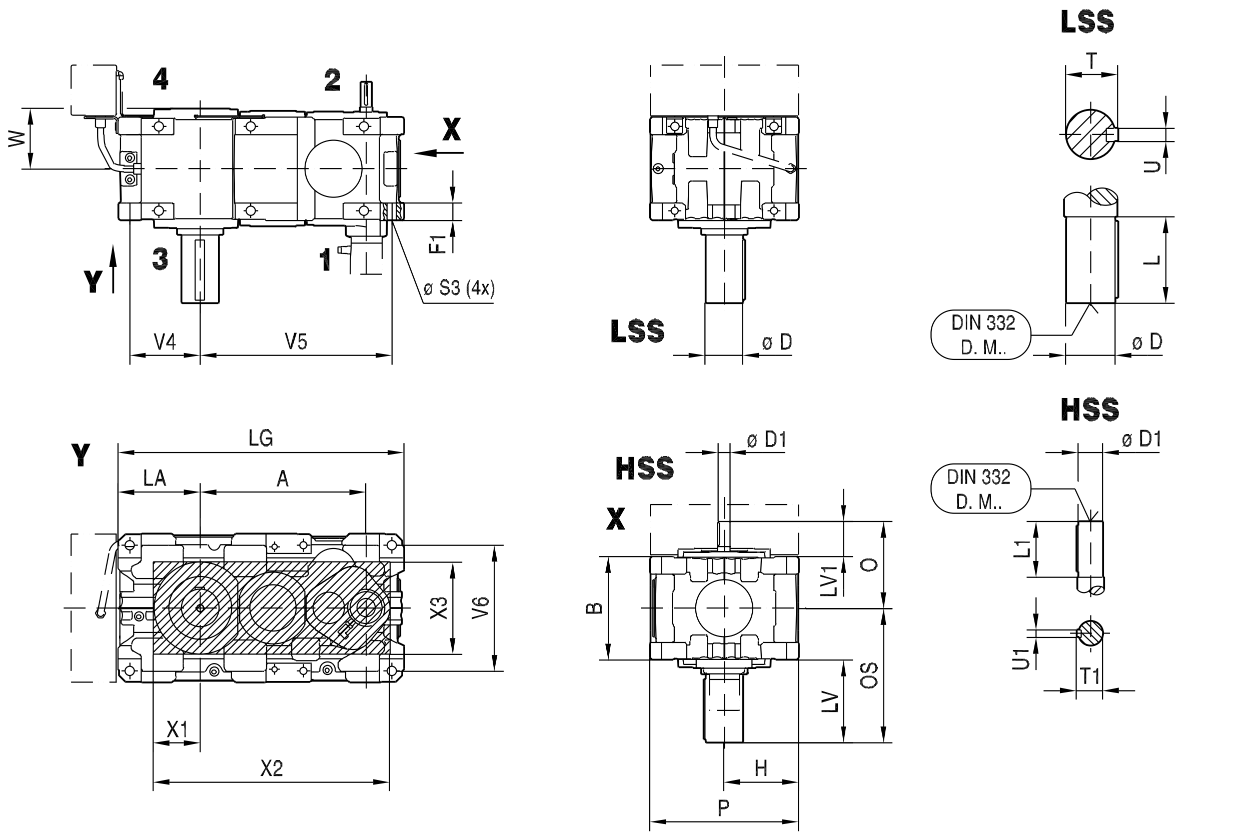
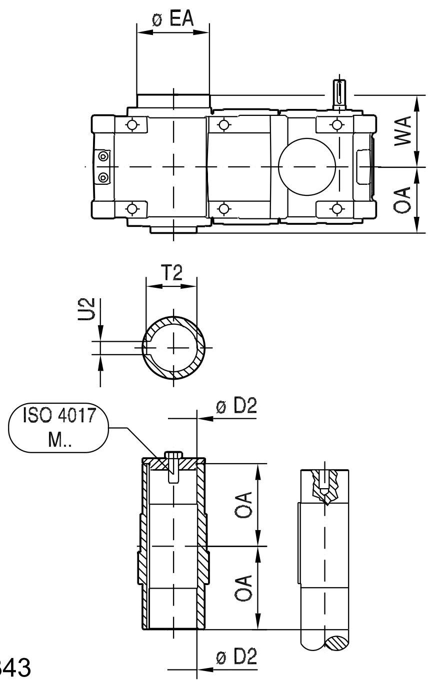
10.1.6 X4F220 - 320

X4FS..

48 077 01 07



X4FA..



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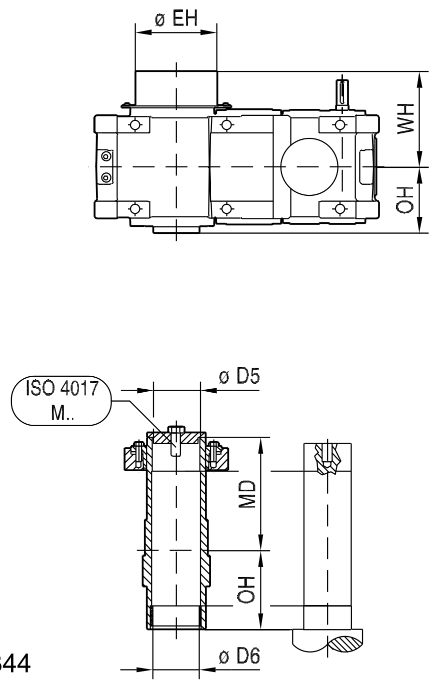
X4FH..



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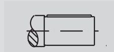
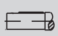
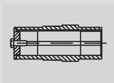
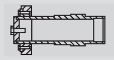
	X.F..														X.FS.. LSS 							
X.F..	A	B	F1	H	LA	LG	P	Ø S3 (4x)	V4	V5	V6	W	X1	X2	X3	Ø D	L	LV	OS	T	V	DIN 332 DR.M..	kg
X220	894	540	100	$425_{-0.5}$	$465_{-0.5}$	1591	850	48	403	1057	725	331	260	1295	520	210_{m6}	350	433	703	221	50_{h9}	M30	2715
X230	934	540	100	$425_{-0.5}$	$465_{-0.5}$	1631	850	48	403	1097	725	331	260	1335	520	230_{m6}	410	493	763	241	50_{h9}	M36	3075
X240	1004	625	105	$450_{-0.5}$	$495_{-0.5}$	1729	900	56	425	1155	760	377	290	1445	580	230_{m6}	410	498	811	241	50_{h9}	M36	3785
X250	1027	625	105	$450_{-0.5}$	$495_{-0.5}$	1752	900	56	425	1178	760	377	290	1465	580	240_{m6}	410	498	811	252	56_{h9}	M36	3910
X260	1113	705	105	$500_{-0.5}$	$545_{-0.5}$	1909	1000	56	475	1285	860	417	290	1575	580	250_{m6}	410	495	847	262	56_{h9}	M36	4620
X270	1148	705	105	$500_{-0.5}$	$545_{-0.5}$	1941	1000	56	475	1320	860	419	310	1630	620	270_{m6}	470	568	920	282	63_{h9}	M36	5120
X280	1200	705	105	$555_{-0.5}$	$610_{-0.5}$	2058	1110	56	540	1372	970	419	310	1685	620	290_{m6}	470	568	920	302	63_{h9}	M36	5670
X290	1279	785	124	$580_{-0.5}$	$620_{-0.5}$	2196	1160	65	539	1486	995	465	330	1805	660	290_{m6}	470	570	962	302	63_{h9}	M36	7070
X300	1308	785	124	$580_{-0.5}$	$620_{-0.5}$	2225	1160	65	539	1515	995	465	330	1835	660	300_{m6}	470	570	962	314	70_{h9}	M36	7820
X310	1435	850	124	$630_{-0.5}$	$680_{-0.5}$	2419	1260	65	598	1647	1095	499	360	2005	720	320_{m6}	470	574	999	334	70_{h9}	M42	8670
X320	1469	850	124	$630_{-0.5}$	$680_{-0.5}$	2453	1260	65	598	1681	1095	499	360	2040	720	340_{m6}	550	654	1079	355	80_{h9}	M42	9620

HSS	i = 100 ... 180* / i = 112 ... 200** / i = 125 ... 224***							i = 200 ... 355* / i = 224 ... 400** / i = 250 ... 450***						
	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..
X220*	60_{m6}	140	187	457	64	18_{h9}	M20	50_{k6}	110	157	427	53.5	14_{h9}	M16
X230**	60_{m6}	140	187	457	64	18_{h9}	M20	50_{k6}	110	157	427	53.5	14_{h9}	M16
X240*	70_{m6}	140	189	502	74.5	20_{h9}	M20	55_{m6}	110	159	472	59	16_{h9}	M20
X250**	70_{m6}	140	189	502	74.5	20_{h9}	M20	55_{m6}	110	159	472	59	16_{h9}	M20
X260*	75_{m6}	140	190	543	79.5	20_{h9}	M20	60_{m6}	140	190	543	64	18_{h9}	M20
X270**	75_{m6}	140	190	543	79.5	20_{h9}	M20	60_{m6}	140	190	543	64	18_{h9}	M20
X280***	75_{m6}	140	190	543	79.5	20_{h9}	M20	60_{m6}	140	190	543	64	18_{h9}	M20
X290*	80_{m6}	170	221	614	85	22_{h9}	M20	80_{m6}	170	221	614	85	22_{h9}	M20
X300**	80_{m6}	170	221	614	85	22_{h9}	M20	80_{m6}	170	221	614	85	22_{h9}	M20
X310*	90_{m6}	170	220	645	95	25_{h9}	M24	90_{m6}	170	220	645	95	25_{h9}	M24
X320**	90_{m6}	170	220	645	95	25_{h9}	M24	90_{m6}	170	220	645	95	25_{h9}	M24

X.FA.. 									X.FH.. 									
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg	LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2535	**X220**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2640
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2855	**X230**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2965
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3500	**X240**	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3665
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3605	**X250**	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3765
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4170	**X260**	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4320
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4620	**X270**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4870
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	5120	**X280**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5370
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6370	**X290**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6620
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	7070	**X300**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	7320
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7820	**X310**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8170
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	8470	**X320**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8820

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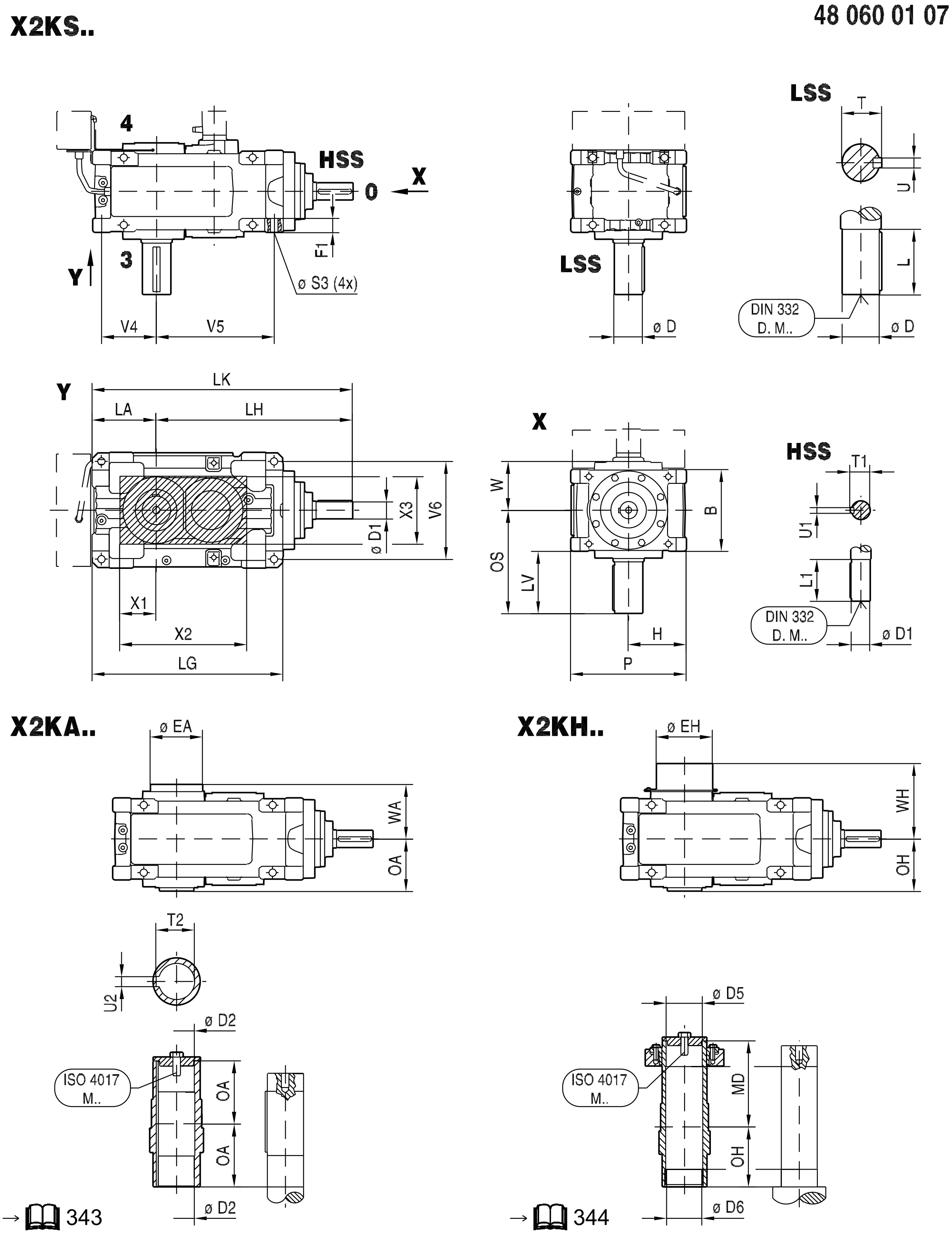
10.2 X.K.. bevel-helical gear units [mm]

10.2.1 X2K100 - 210



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X.K..																	
X2K..	B	F1	H	LA	LG	LH	LK	P	Ø S3 (4x)	V4	V5	V6	W	X1	X2	X3	kg
X100	260	47	$190_{-0.5}$	$190_{-0.5}$	601	655	845	380	24	160	384	315	153	120	395	240	240
X110	260	47	$190_{-0.5}$	$215_{-0.5}$	646	675	890	380	24	185	404	315	153	125	420	250	255

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X.K..																	
X2K..	**B**	**F1**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S3 (4x)**	**V4**	**V5**	**V6**	**W**	**X1**	**X2**	**X3**	**kg**
X120	300	53	$225_{-0.5}$	$215_{-0.5}$	697	752	967	450	28	184	451	380	174	150	475	305	355
X130	300	53	$225_{-0.5}$	$250_{-0.5}$	768	788	1038	450	28	219	487	380	174	165	525	325	410
X140	360	67	$265_{-0.5}$	$250_{-0.5}$	784	816	1066	530	35	210	494	445	202	165	535	320	570
X150	360	67	$265_{-0.5}$	$295_{-0.5}$	871	858	1153	530	35	255	536	445	202	180	595	360	660
X160	425	81	$315_{-0.5}$	$355_{-0.5}$	1023	1010	1365	630	42	303	617	525	240	195	645	390	1010
X170	425	81	$315_{-0.5}$	$355_{-0.5}$	1074	1061	1416	630	42	303	668	525	240	195	695	390	1130
X180	475	81	$335_{-0.5}$	$370_{-0.5}$	1105	1137	1507	670	42	318	682	565	277	205	715	410	1380
X190	475	81	$335_{-0.5}$	$370_{-0.5}$	1137	1169	1539	670	42	318	714	565	277	205	750	410	1495
X200	515	91	$375_{-0.5}$	$420_{-0.5}$	1241	1268	1688	750	48	360	760	630	298	235	790	470	1930
X210	515	91	$375_{-0.5}$	$420_{-0.5}$	1277	1304	1724	750	48	360	795	630	298	235	825	470	2040

LSS	**Ø D**	**L**	**LV**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**HSS**	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X100	80_{m6}	170	213	343	85	22_{h9}	M20	**X100**	50_{k6}	110	53.5	14_{h9}	M16
X110	90_{m6}	170	216	346	95	25_{h9}	M24	**X110**	50_{k6}	110	53.5	14_{h9}	M16
X120	100_{m6}	210	251	401	106	28_{h9}	M24	**X120**	60_{m6}	140	64	18_{h9}	M20
X130	110_{m6}	210	254	404	116	28_{h9}	M24	**X130**	60_{m6}	140	64	18_{h9}	M20
X140	120_{m6}	210	252	432	127	32_{h9}	M24	**X140**	70_{m6}	140	74.5	20_{h9}	M20
X150	130_{m6}	250	295	475	137	32_{h9}	M24	**X150**	70_{m6}	140	74.5	20_{h9}	M20
X160	140_{m6}	250	294	506	148	36_{h9}	M30	**X160**	85_{m6}	170	90	22_{h9}	M20
X170	160_{m6}	300	344	556	169	40_{h9}	M30	**X170**	85_{m6}	170	90	22_{h9}	M20
X180	170_{m6}	300	355	592	179	40_{h9}	M30	**X180**	100_{m6}	210	106	28_{h9}	M24
X190	170_{m6}	300	355	592	179	40_{h9}	M30	**X190**	100_{m6}	210	106	28_{h9}	M24
X200	180_{m6}	300	354	612	190	45_{h9}	M30	**X200**	110_{m6}	210	116	28_{h9}	M24
X210	190_{m6}	350	404	662	200	45_{h9}	M30	**X210**	110_{m6}	210	116	28_{h9}	M24

X.KA..									X.KA..									
LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**	**LSS**	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X100	75^{H8}	158	173	80.4	20^{JS9}	207	M20x60-8.8	230	**X100**	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	240
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	245	**X110**	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	255
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	335	**X120**	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	345
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	385	**X130**	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	400
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	535	**X140**	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	560
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	610	**X150**	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	640
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	940	**X160**	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	970
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1050	**X170**	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1105
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1280	**X180**	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1330
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1395	**X190**	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1445
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1845	**X200**	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1915
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1925	**X210**	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	2010

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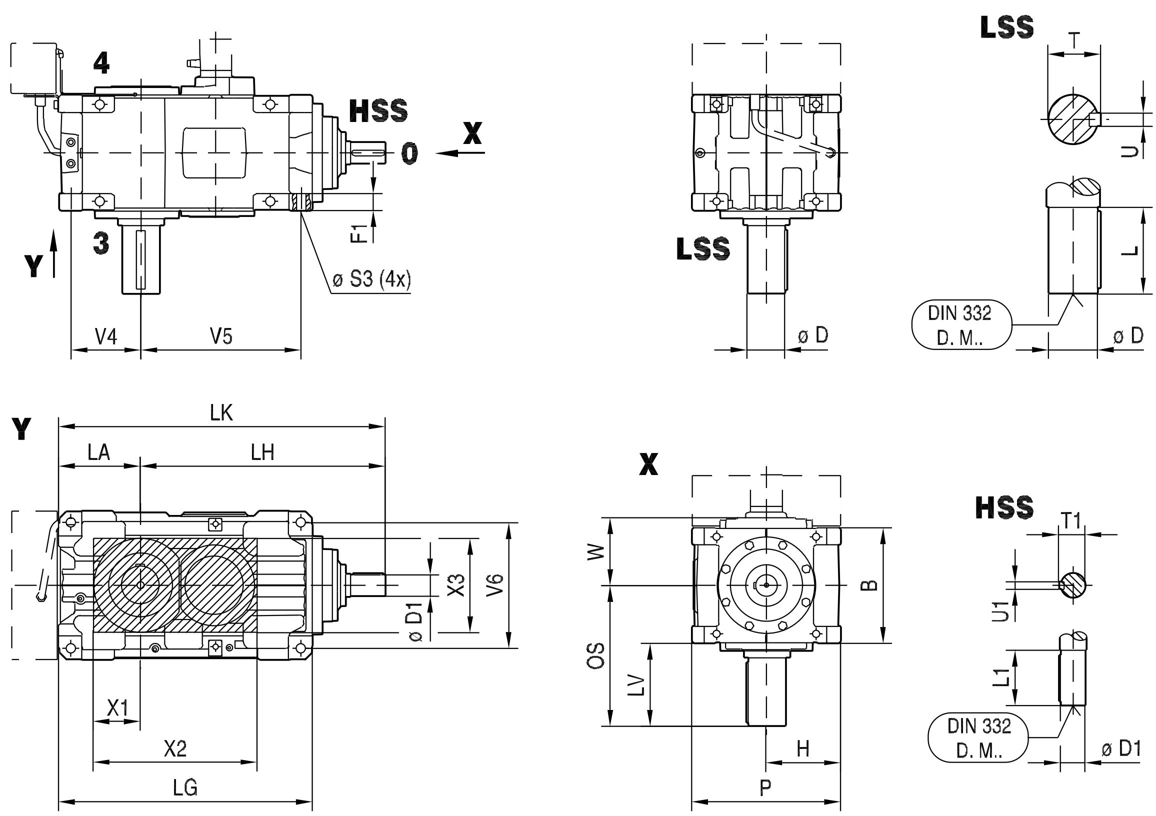
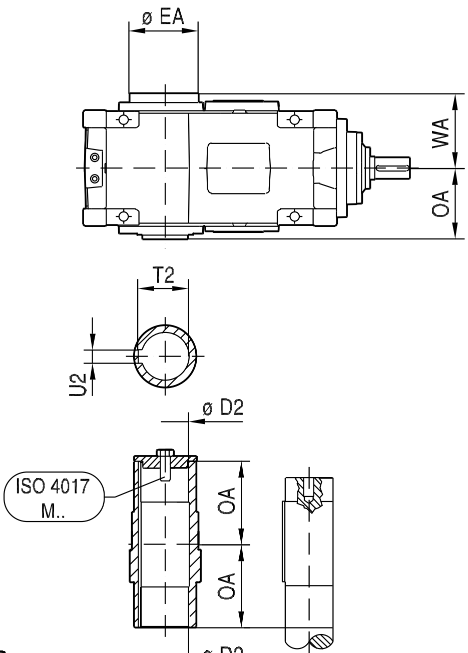
10.2.2 X2K220 - 250

X2KS..

48 063 01 07



X2KA..



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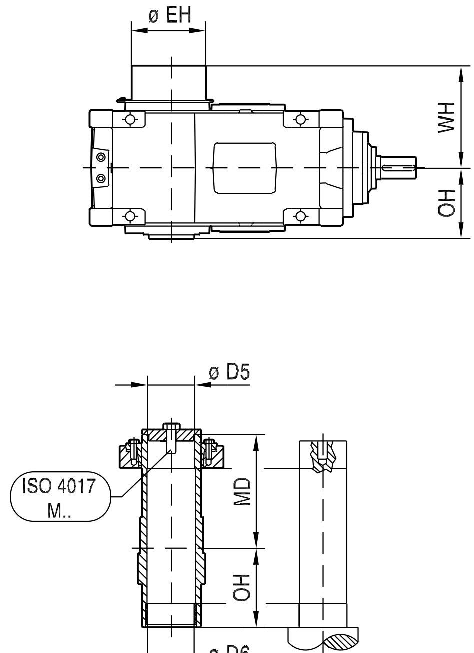
X2KH..



→ 📖 344

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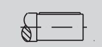
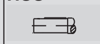
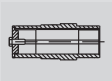
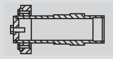
X.K..																
X2K..	**B**	**F1**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S3 (4x)**	**V4**	**V5**	**V6**	**W**	**X1**	**X2**	**X3**	**kg**
X220	610	100	$425_{-0.5}$	$465_{-0.5}$	1412	1436	1901	850	48	403	887	725	366	260	890	515	2895
X230	610	100	$425_{-0.5}$	$465_{-0.5}$	1452	1476	1941	850	48	403	927	725	366	260	930	515	3075
X240	700	105	$450_{-0.5}$	$495_{-0.5}$	1531	1476	1971	900	56	425	965	760	415	290	980	575	3975
X250	700	105	$450_{-0.5}$	$495_{-0.5}$	1554	1499	1994	900	56	425	988	760	415	290	1000	575	3980

LSS 	**Ø D**	**L**	**LV**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X220	210_{m6}	350	433	738	221	50_{h9}	M30
X230	230_{m6}	410	493	798	241	50_{h9}	M36
X240	230_{m6}	410	498	848	241	50_{h9}	M36
X250	240_{m6}	410	498	848	252	56_{h9}	M36

HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X220	120_{m6}	210	127	32_{h9}	M24
X230	120_{m6}	210	127	32_{h9}	M24
X240	130_{m6}	210	137	32_{h9}	M24
X250	130_{m6}	210	137	32_{h9}	M24

X.KA.. 								
LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	387.5	221.4	50^{JS9}	452	M30x90-8.8	2700
X230	210^{H8}	360	387.5	221.4	50^{JS9}	452	M30x90-8.8	2845
X240	230^{H8}	420	438	241.4	50^{JS9}	507	M36x110-8.8	3670
X250	240^{H8}	420	438	252.4	56^{JS9}	507	M36x110-8.8	3655

X.KH.. 									
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211_{H9}	484	533	387.5	597	M30x90-8.8	2810
X230	210^{H7}	211_{H9}	484	533	387.5	597	M30x90-8.8	2950
X240	230^{H7}	231_{H9}	558	609	438	692	M36x110-8.8	3835
X250	240^{H7}	241_{H9}	558	609	438	692	M36x110-8.8	3815

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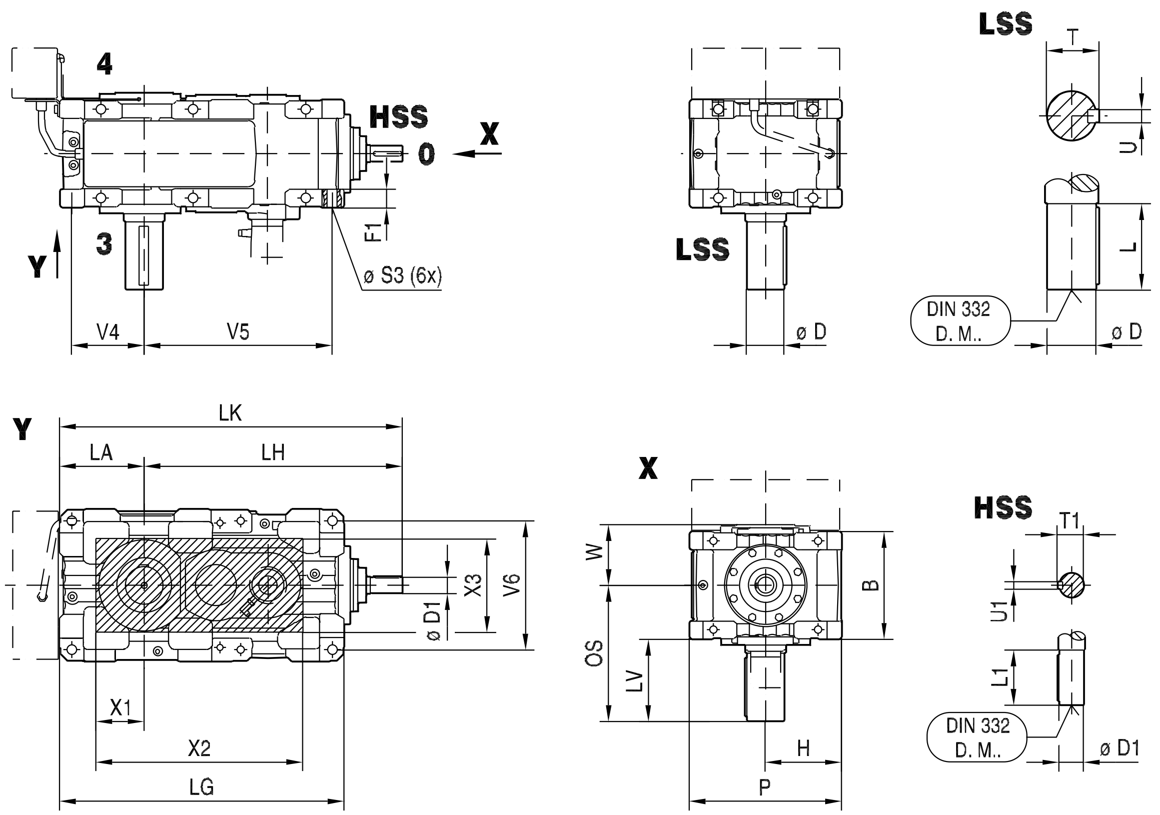
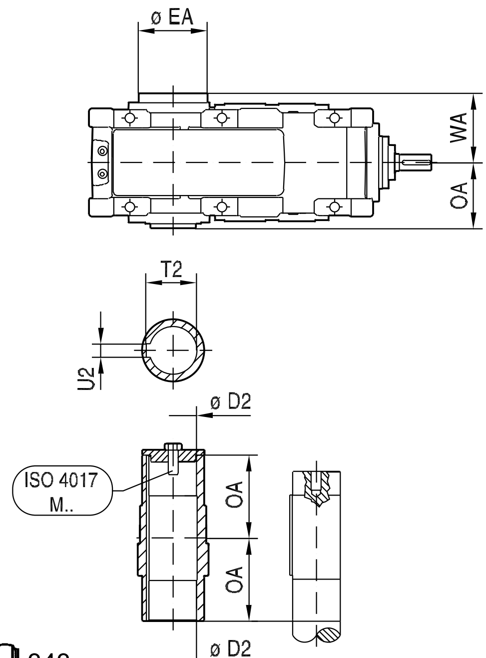
10.2.3 X3K100 - 210

X3KS..

48 061 01 07

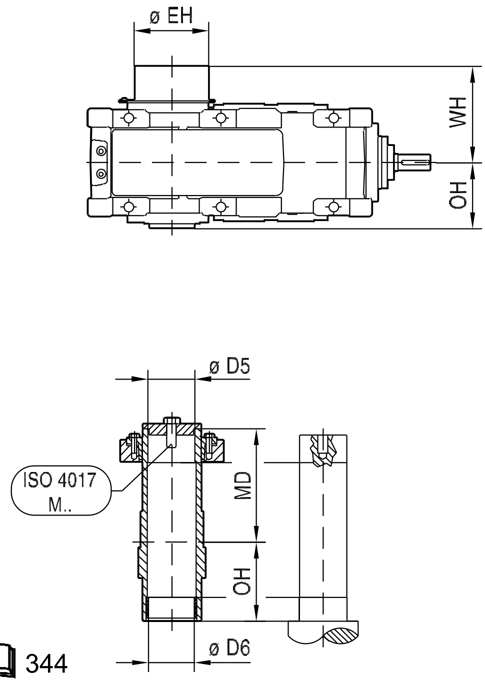


X3KA..



→ 343

X3KH..



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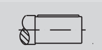
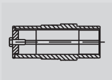
X.K..																	
X3K..	**B**	**F1**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S3 (4x)**	**V4**	**V5**	**V6**	**W**	**X1**	**X2**	**X3**	**kg**
X100	260	47	$190_{-0.5}$	$190_{-0.5}$	658	632	822	380	24	160	441	315	153	120	490	240	240
X110	260	47	$190_{-0.5}$	$215_{-0.5}$	703	652	867	380	24	185	461	315	153	125	510	250	260
X120	300	53	$225_{-0.5}$	$215_{-0.5}$	767	745	960	450	28	184	521	380	174	150	590	305	365
X130	300	53	$225_{-0.5}$	$250_{-0.5}$	838	781	1031	450	28	219	557	380	174	165	640	325	415
X140	360	67	$265_{-0.5}$	$250_{-0.5}$	903	879	1129	530	35	210	613	445	202	165	675	320	610
X150	360	67	$265_{-0.5}$	$295_{-0.5}$	990	921	1216	530	35	255	655	445	202	180	735	360	650
X160	425	81	$315_{-0.5}$	$355_{-0.5}$	1144	1036	1391	630	42	303	737	525	240	195	815	390	1000
X170	425	81	$315_{-0.5}$	$355_{-0.5}$	1195	1087	1442	630	42	303	788	525	240	195	860	390	1145
X180	475	81	$335_{-0.5}$	$370_{-0.5}$	1249	1135	1505	670	42	318	827	565	277	205	895	410	1415
X190	475	81	$335_{-0.5}$	$370_{-0.5}$	1281	1167	1537	670	42	318	859	565	277	205	930	410	1525
X200	515	91	$375_{-0.5}$	$420_{-0.5}$	1409	1286	1706	750	48	360	930	630	298	235	1020	470	2040
X210	515	91	$375_{-0.5}$	$420_{-0.5}$	1445	1322	1742	750	48	360	966	630	298	235	1055	470	2140

LSS 	**Ø D**	**L**	**LV**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X100	80_{m6}	170	213	343	85	22_{h9}	M20
X110	90_{m6}	170	216	346	95	25_{h9}	M24
X120	100_{m6}	210	251	401	106	28_{h9}	M24
X130	110_{m6}	210	254	404	116	28_{h9}	M24
X140	120_{m6}	210	252	432	127	32_{h9}	M24
X150	130_{m6}	250	295	475	137	32_{h9}	M24
X160	140_{m6}	250	294	506	148	36_{h9}	M30
X170	160_{m6}	300	344	556	169	40_{h9}	M30
X180	170_{m6}	300	355	592	179	40_{h9}	M30
X190	170_{m6}	300	355	592	179	40_{h9}	M30
X200	180_{m6}	300	354	612	190	45_{h9}	M30
X210	190_{m6}	350	404	662	200	45_{h9}	M30

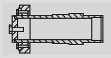
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X100	32_{k6}	80	35	10_{h9}	M12
X110	32_{k6}	80	35	10_{h9}	M12
X120	38_{k6}	100	41	10_{h9}	M12
X130	38_{k6}	100	41	10_{h9}	M12
X140	50_{k6}	110	53.5	14_{h9}	M16
X150	50_{k6}	110	53.5	14_{h9}	M16
X160	60_{m6}	140	64	18_{h9}	M20
X170	60_{m6}	140	64	18_{h9}	M20
X180	70_{m6}	140	74.5	20_{h9}	M20
X190	70_{m6}	140	74.5	20_{h9}	M20
X200	80_{m6}	170	85	22_{h9}	M20
X210	80_{m6}	170	85	22_{h9}	M20

X.KA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X100	75^{H8}	158	173	80.4	20^{JS9}	207	M20x60-8.8	230
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	250
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	345
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	390
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	575
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	600
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	930
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1065
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1315
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1425
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1955
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	2025

X.KH..

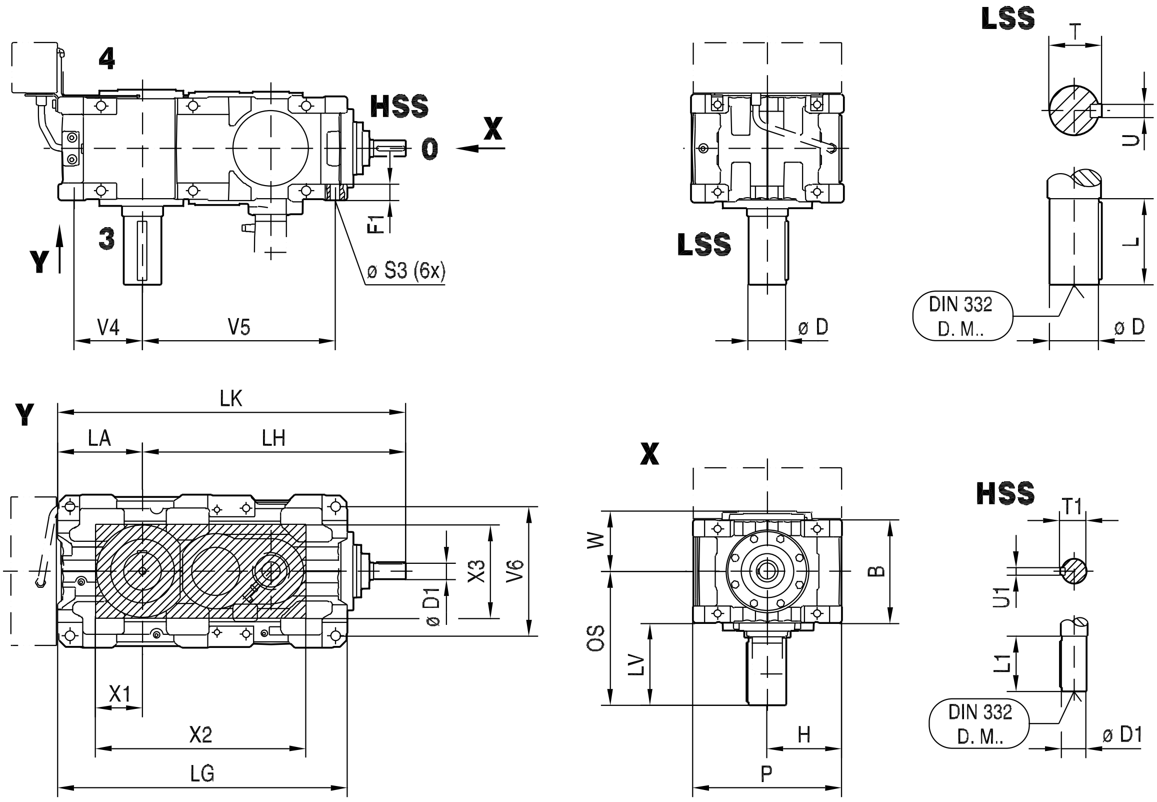


LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	240
X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	260
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	355
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	405
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	600
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	630
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	960
X170	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1120
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1365
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1475
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	2025
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	2110

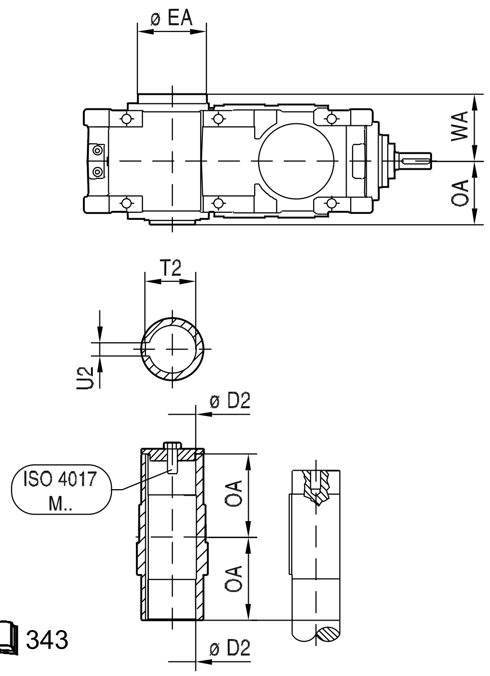
10.2.4 X3K220 - 320

X3KS..

48 064 01 07



X3KA..



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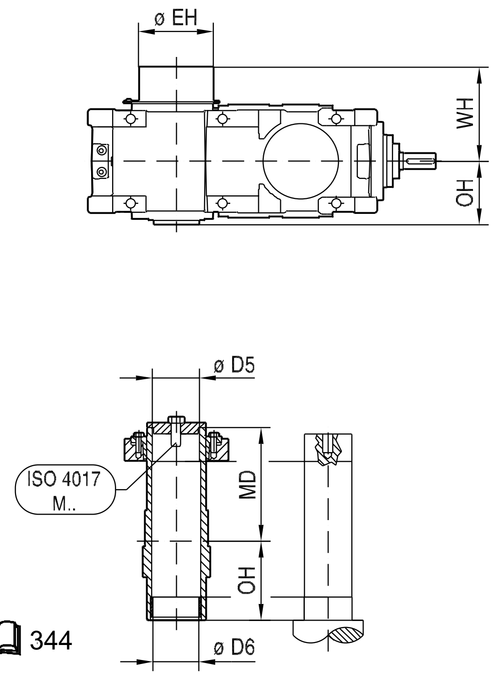
X3KH..



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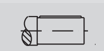
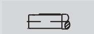
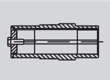
X.K..																
X3K..	**B**	**F1**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S3 (4x)**	**V4**	**V5**	**V6**	**W**	**X1**	**X2**	**X3**	**kg**
X220	540	100	$425_{-0.5}$	$465_{-0.5}$	1584	1430	1895	850	48	403	1057	725	331	260	1150	520	2925
X230	540	100	$425_{-0.5}$	$465_{-0.5}$	1624	1470	1935	850	48	403	1097	725	331	260	1190	520	3095
X240	625	105	$450_{-0.5}$	$495_{-0.5}$	1721	1597	2092	900	56	425	1155	760	377	290	1270	580	3945
X250	625	105	$450_{-0.5}$	$495_{-0.5}$	1744	1620	2115	900	56	425	1178	760	377	290	1290	580	4075
X260	705	105	$500_{-0.5}$	$545_{-0.5}$	1900	1767	2312	1000	56	475	1285	860	417	290	1375	580	4870
X270	705	105	$500_{-0.5}$	$545_{-0.5}$	1935	1802	2347	1000	56	475	1320	860	419	310	1430	620	5370
X280	705	105	$555_{-0.5}$	$610_{-0.5}$	2052	1854	2464	1110	56	540	1372	970	419	310	1480	620	5870
X290	785	124	$580_{-0.5}$	$620_{-0.5}$	2187	2021	2641	1160	65	539	1486	995	465	330	1560	660	7020
X300	785	124	$580_{-0.5}$	$620_{-0.5}$	2216	2050	2670	1160	65	539	1515	995	465	330	1590	660	7720
X310	850	124	$630_{-0.5}$	$680_{-0.5}$	2410	2135	2815	1260	65	598	1647	1095	499	360	1720	720	8570
X320	850	124	$630_{-0.5}$	$680_{-0.5}$	2444	2169	2849	1260	65	598	1681	1095	499	360	1755	720	9470

LSS 	**Ø D**	**L**	**LV**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X220	210_{m6}	350	433	703	221	50_{h9}	M30
X230	230_{m6}	410	493	763	241	50_{h9}	M36
X240	230_{m6}	410	498	811	241	50_{h9}	M36
X250	240_{m6}	410	498	811	252	56_{h9}	M36
X260	250_{m6}	410	495	847	262	56_{h9}	M36
X270	270_{m6}	470	568	920	282	63_{h9}	M36
X280	290_{m6}	470	568	920	302	63_{h9}	M36
X290	290_{m6}	470	570	962	302	63_{h9}	M36
X300	300_{m6}	470	570	962	314	70_{h9}	M36
X310	320_{m6}	470	574	999	334	70_{h9}	M42
X320	340_{m6}	550	654	1079	355	80_{h9}	M42

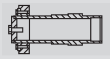
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**	**i**
X220	85_{m6}	170	90	22_{h9}	M20	-
X230	85_{m6}	170	90	22_{h9}	M20	-
X240	100_{m6}	210	106	28_{h9}	M24	-
X250	100_{m6}	210	106	28_{h9}	M24	-
X260	110_{m6}	210	116	28_{h9}	M24	-
X270	110_{m6}	210	116	28_{h9}	M24	-
X280	110_{m6}	210	116	28_{h9}	M24	-
X290	120_{m6}	210	127	32_{h9}	M24	-
X300	120_{m6}	210	127	32_{h9}	M24	-
X310	130_{m6}	250	137	32_{h9}	M24	i = 12.5 ... 35.5*
	130_{m6}	210	137	32_{h9}	M24	i = 40 ... 71**
X320	130_{m6}	250	137	32_{h9}	M24	i = 14 ... 40*
	130_{m6}	210	137	32_{h9}	M24	i = 45 ... 80**

X.KA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2745
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2875
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3660
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3770
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4420
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4870
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	5320
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6370
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6970
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7720
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	8420

X.KH..

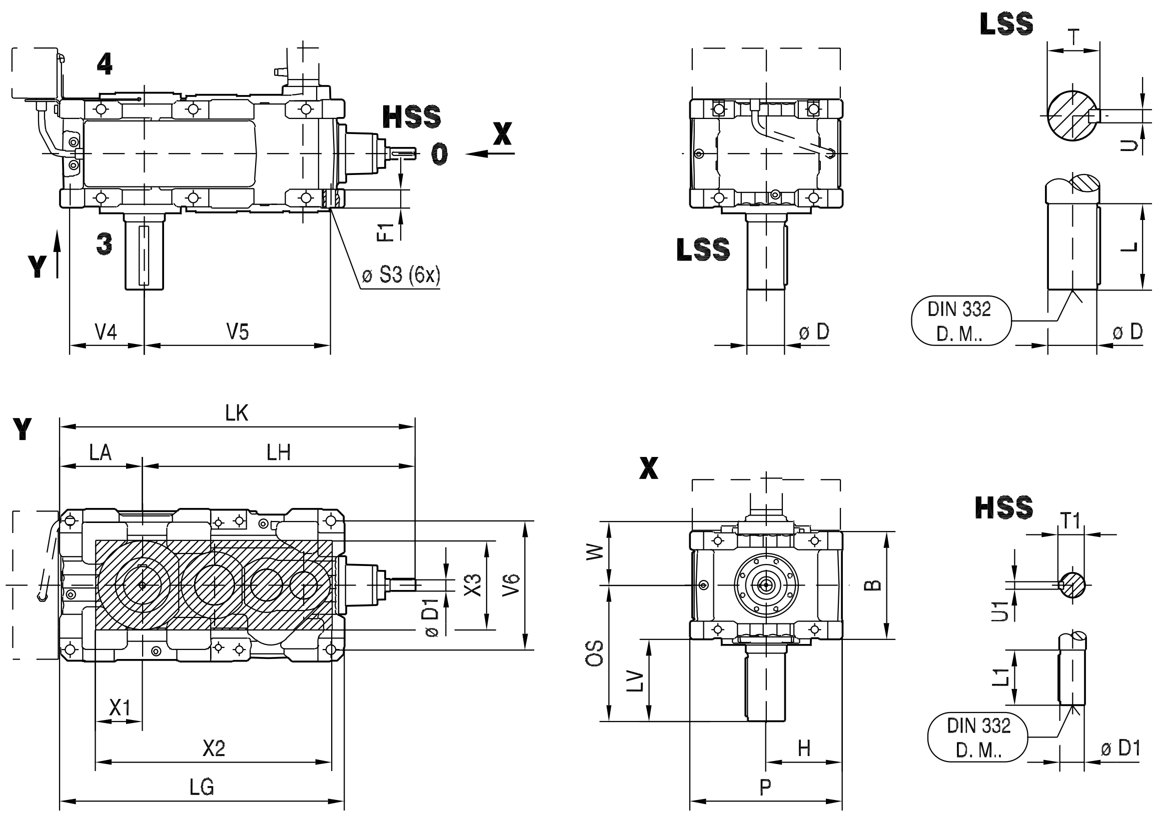


LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2850
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2985
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3825
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3930
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4570
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5120
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5570
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6420
X300	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	7220
X310	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8070
X320	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8770

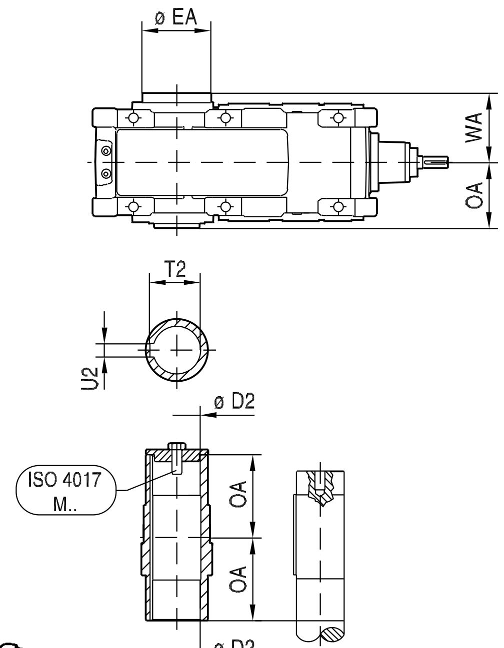
10.2.5 X4K120 - 210

X4KS..

48 062 01 07



X4KA..



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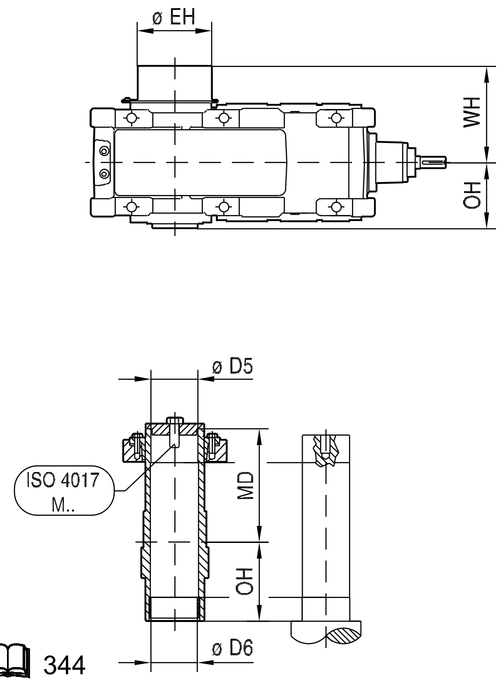
X4KH..



→ 344

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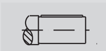
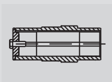
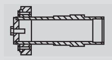
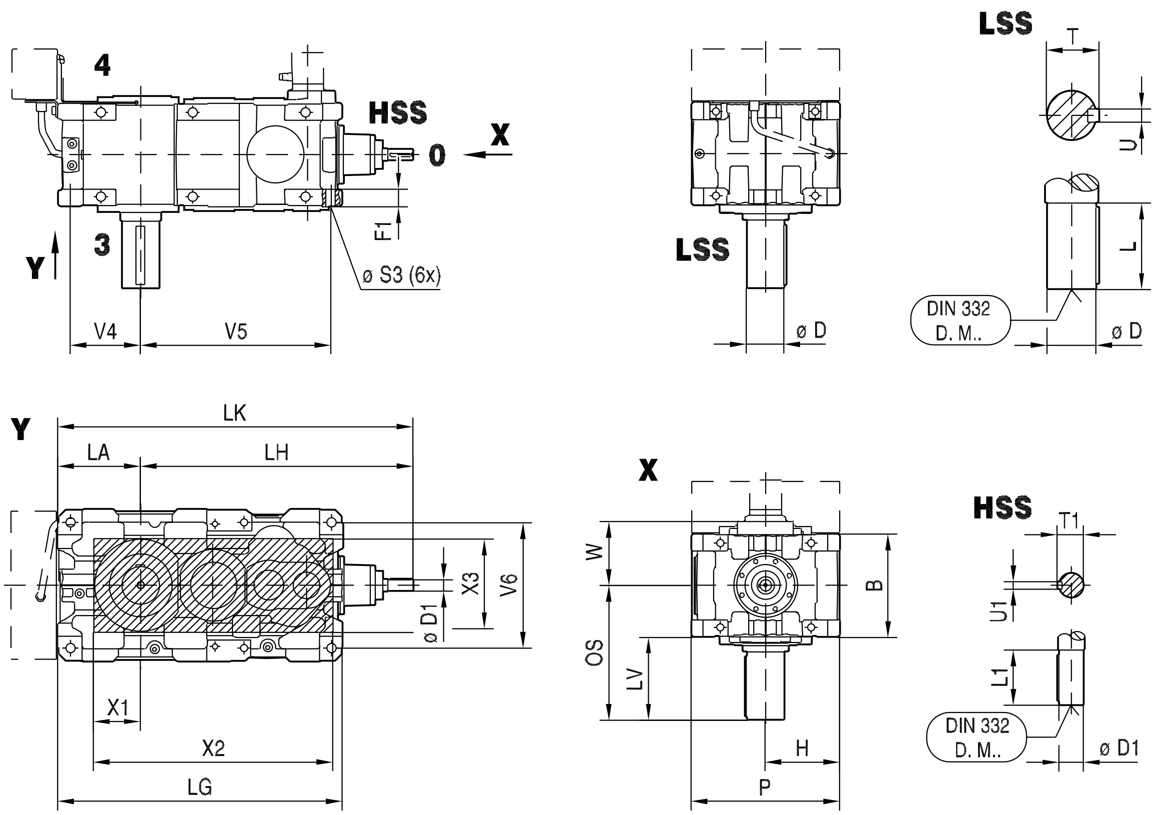
X.K..																
X4K..	**B**	**F1**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S3 (4x)**	**V4**	**V5**	**V6**	**W**	**X1**	**X2**	**X3**	**kg**
X120	300	53	$225_{-0.5}$	$215_{-0.5}$	767	710	925	450	28	184	521	380	174	150	670	305	345
X130	300	53	$225_{-0.5}$	$250_{-0.5}$	838	746	996	450	28	219	557	380	174	165	715	325	385
X140	360	67	$265_{-0.5}$	$250_{-0.5}$	903	856	1106	530	35	210	613	445	202	165	765	320	565
X150	360	67	$265_{-0.5}$	$295_{-0.5}$	990	898	1193	530	35	255	655	445	202	180	820	360	635
X160	425	81	$315_{-0.5}$	$355_{-0.5}$	1144	1029	1384	630	42	303	737	525	240	195	920	390	975
X170	425	81	$315_{-0.5}$	$355_{-0.5}$	1195	1080	1435	630	42	303	788	525	240	195	970	390	1135
X180	475	81	$335_{-0.5}$	$370_{-0.5}$	1249	1198	1568	670	42	318	827	565	277	205	1030	410	1425
X190	475	81	$335_{-0.5}$	$370_{-0.5}$	1281	1230	1600	670	42	318	859	565	277	205	1065	410	1435
X200	515	91	$375_{-0.5}$	$420_{-0.5}$	1409	1285	1705	750	48	360	930	630	298	235	1160	470	1870
X210	515	91	$375_{-0.5}$	$420_{-0.5}$	1445	1321	1741	750	48	360	966	630	298	235	1195	470	1920

LSS 	**Ø D**	**L**	**LV**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**HSS** 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X120	100_{m6}	210	251	401	106	28_{h9}	M24	**X120**	28_{k6}	60	31	8_{h9}	M10
X130	110_{m6}	210	254	404	116	28_{h9}	M24	**X130**	28_{k6}	60	31	8_{h9}	M10
X140	120_{m6}	210	252	432	127	32_{h9}	M24	**X140**	32_{k6}	80	35	10_{h9}	M12
X150	130_{m6}	250	295	475	137	32_{h9}	M24	**X150**	32_{k6}	80	35	10_{h9}	M12
X160	140_{m6}	250	294	506	148	36_{h9}	M30	**X160**	38_{k6}	100	41	10_{h9}	M12
X170	160_{m6}	300	344	556	169	40_{h9}	M30	**X170**	38_{k6}	100	41	10_{h9}	M12
X180	170_{m6}	300	355	592	179	40_{h9}	M30	**X180**	50_{k6}	110	53.5	14_{h9}	M16
X190	170_{m6}	300	355	592	179	40_{h9}	M30	**X190**	50_{k6}	110	53.5	14_{h9}	M16
X200	180_{m6}	300	354	612	190	45_{h9}	M30	**X200**	50_{k6}	110	53.5	14_{h9}	M16
X210	190_{m6}	350	404	662	200	45_{h9}	M30	**X210**	50_{k6}	110	53.5	14_{h9}	M16

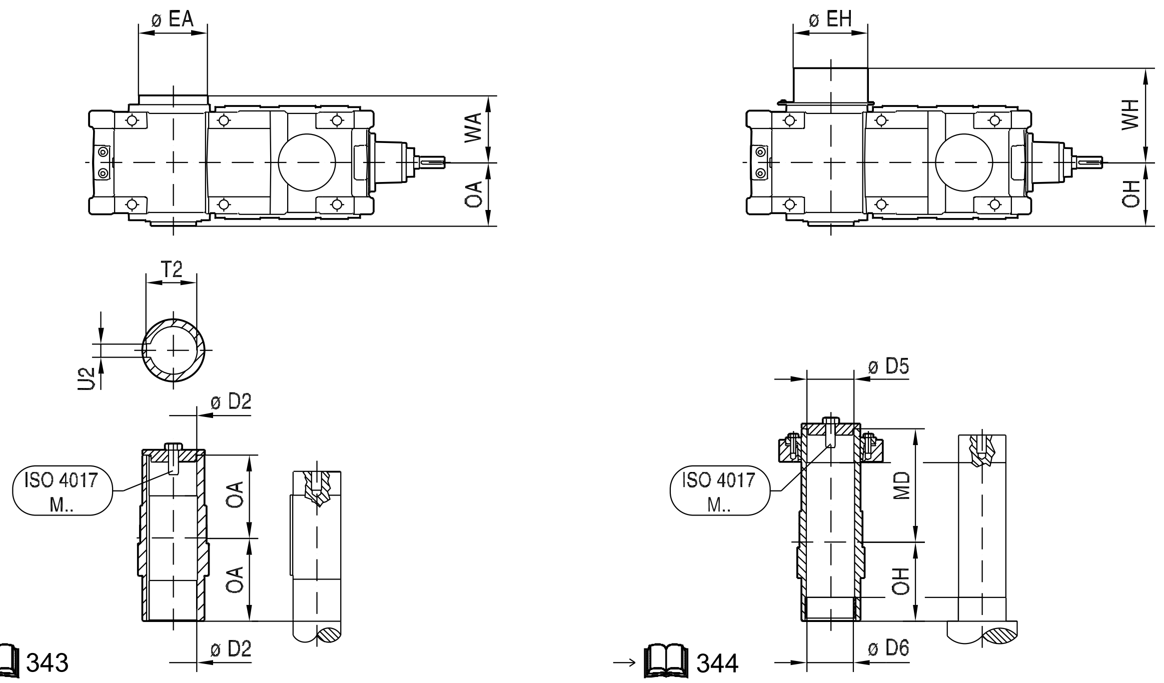
X.KA.. 									X.KH.. 								
LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**	**LSS**	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	325	**X120**	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	335
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	360	**X130**	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	375
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	530	**X140**	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	555
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	585	**X150**	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	615
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	905	**X160**	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	935
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1055	**X170**	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1110
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1325	**X180**	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1375
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1335	**X190**	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1385
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1785	**X200**	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1855
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1805	**X210**	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1890

10.2.6 X4K220 - 320

X4KS.. **48 065 01 07**



X4KA.. **X4KH..**



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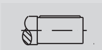
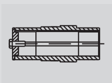
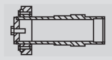
X.K..																	
X4K..	**B**	**F1**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S3 (4x)**	**V4**	**V5**	**V6**	**W**	**X1**	**X2**	**X3**	**kg**
X220	540	100	$425_{-0.5}$	$465_{-0.5}$	1584	1456	1921	850	48	403	1057	725	331	260	1295	520	2735
X230	540	100	$425_{-0.5}$	$465_{-0.5}$	1624	1498	1963	850	48	403	1097	725	331	260	1335	520	2975
X240	625	105	$450_{-0.5}$	$495_{-0.5}$	1721	1595	2090	900	56	425	1155	760	377	290	1445	580	3815
X250	625	105	$450_{-0.5}$	$495_{-0.5}$	1744	1618	2113	900	56	425	1178	760	377	290	1465	580	4045
X260	705	105	$500_{-0.5}$	$545_{-0.5}$	1900	1785	2330	1000	56	475	1285	860	417	290	1575	580	4620
X270	705	105	$500_{-0.5}$	$545_{-0.5}$	1935	1820	2365	1000	56	475	1320	860	419	310	1630	620	5120
X280	705	105	$555_{-0.5}$	$610_{-0.5}$	2052	1872	2482	1110	56	540	1372	970	419	310	1685	620	5670
X290	785	124	$580_{-0.5}$	$620_{-0.5}$	2187	2015	2635	1160	65	539	1486	995	465	330	1805	660	7070
X300	785	124	$580_{-0.5}$	$620_{-0.5}$	2216	2044	2664	1160	65	539	1515	995	465	330	1835	660	7820
X310	850	124	$630_{-0.5}$	$680_{-0.5}$	2410	2256	2936	1260	65	598	1647	1095	499	360	2005	720	8670
X320	850	124	$630_{-0.5}$	$680_{-0.5}$	2444	2290	2970	1260	65	598	1681	1095	499	360	2040	720	9620

LSS 	**Ø D**	**L**	**LV**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**HSS** 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X220	210_{m6}	350	433	703	221	50_{h9}	M30	**X220**	60_{m6}	140	64	18_{h9}	M20
X230	230_{m6}	410	493	763	241	50_{h9}	M36	**X230**	60_{m6}	140	64	18_{h9}	M20
X240	230_{m6}	410	498	811	241	50_{h9}	M36	**X240**	70_{m6}	140	74.5	20_{h9}	M20
X250	240_{m6}	410	498	811	252	56_{h9}	M36	**X250**	70_{m6}	140	74.5	20_{h9}	M20
X260	250_{m6}	410	495	847	262	56_{h9}	M36	**X260**	80_{m6}	170	85	22_{h9}	M20
X270	270_{m6}	470	568	920	282	63_{h9}	M36	**X270**	80_{m6}	170	85	22_{h9}	M20
X280	290_{m6}	470	568	920	302	63_{h9}	M36	**X280**	80_{m6}	170	85	22_{h9}	M20
X290	290_{m6}	470	570	962	302	63_{h9}	M36	**X290**	85_{m6}	170	90	22_{h9}	M20
X300	300_{m6}	470	570	962	314	70_{h9}	M36	**X300**	85_{m6}	170	90	22_{h9}	M20
X310	320_{m6}	470	574	999	334	70_{h9}	M42	**X310**	100_{m6}	210	106	28_{h9}	M24
X320	340_{m6}	550	654	1079	355	80_{h9}	M42	**X320**	100_{m6}	210	106	28_{h9}	M24

X.KA.. 									X.KH.. 								
LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**	**LSS**	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2555	**X220**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2660
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2755	**X230**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2865
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3530	**X240**	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3695
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3740	**X250**	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3900
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4170	**X260**	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4320
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4620	**X270**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4870
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	5120	**X280**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5370
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6370	**X290**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6620
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	7070	**X300**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	7320
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7820	**X310**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8170
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	8470	**X320**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8820

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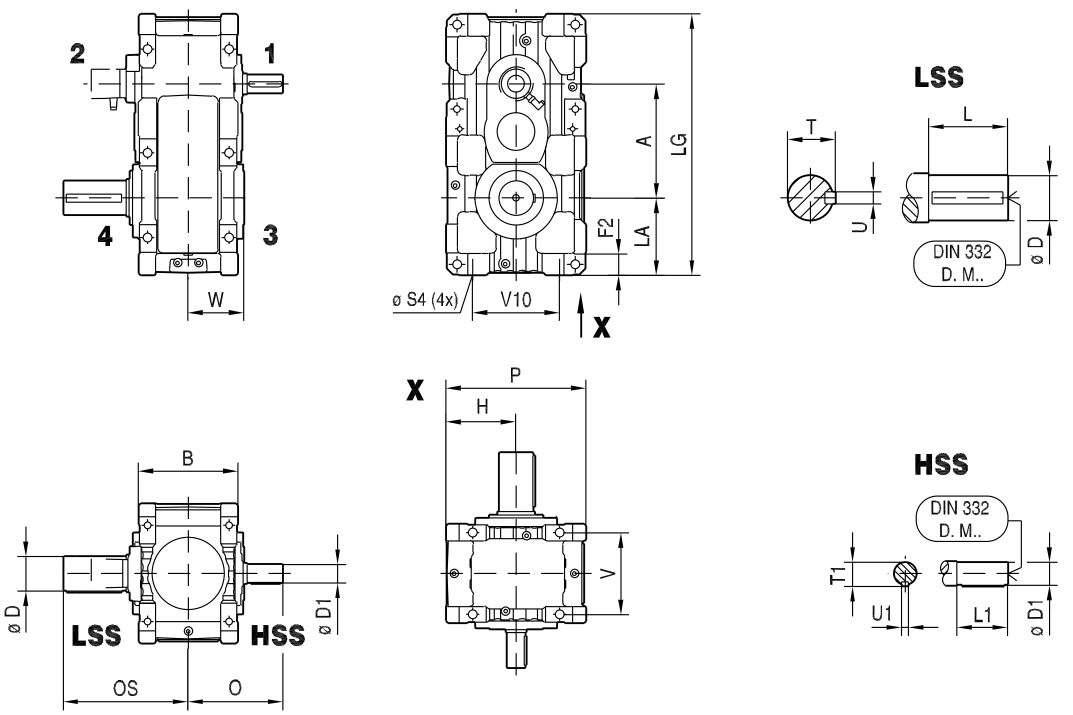
11 Dimension sheets: upright gear units, mounting position M4

11.1 X.F.. helical gear units [mm]

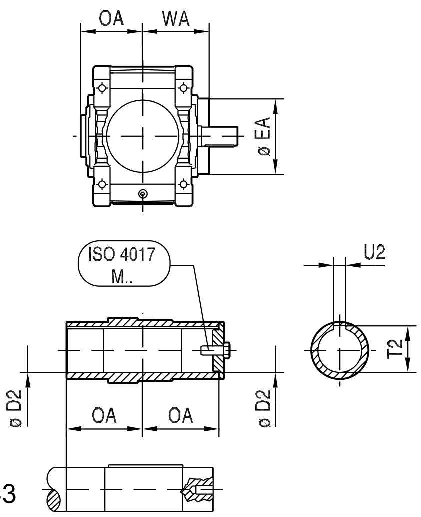
11.1.1 X2F100 - 210

X2FS..

48 033 02 09



X2FA..



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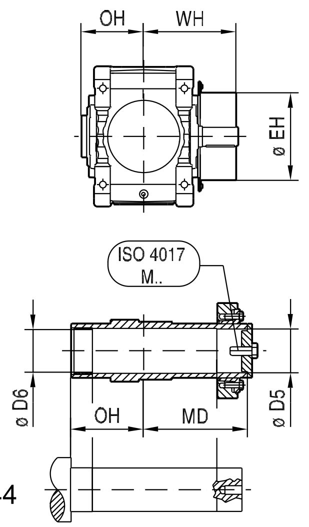
X2FH..



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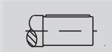
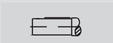
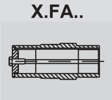
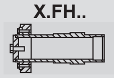
X.F..											X.FS.. LSS 						
X.F..	A	B	F2	H	LA	LG	P	Ø S4 (4x)	V10	V14	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X100	278	260	62	$190_{-0.5}$	$190_{-0.5}$	658	380	24	250	210	153	80_{m6}	170	343	85	22_{h9}	M20	210
X110	298	260	62	$190_{-0.5}$	$215_{-0.5}$	703	380	24	250	210	153	90_{m6}	170	346	95	25_{h9}	M24	225
X120	327	300	68	$225_{-0.5}$	$215_{-0.5}$	767	450	28	300	245	174	100_{m6}	210	401	106	28_{h9}	M24	325
X130	363	300	68	$225_{-0.5}$	$250_{-0.5}$	838	450	28	300	245	174	110_{m6}	210	404	116	28_{h9}	M24	375
X140	388	360	86	$265_{-0.5}$	$250_{-0.5}$	903	530	35	335	290	202	120_{m6}	210	432	127	32_{h9}	M24	520
X150	430	360	86	$265_{-0.5}$	$295_{-0.5}$	990	530	35	335	290	202	130_{m6}	250	475	137	32_{h9}	M24	600
X160	474	425	105	$315_{-0.5}$	$355_{-0.5}$	1144	630	42	400	340	240	140_{m6}	250	506	148	36_{h9}	M30	905
X170	525	425	105	$315_{-0.5}$	$355_{-0.5}$	1195	630	42	400	340	240	160_{m6}	300	556	169	40_{h9}	M30	1055
X180	544	475	107	$335_{-0.5}$	$370_{-0.5}$	1249	670	42	415	390	277	170_{m6}	300	592	179	40_{h9}	M30	1350
X190	576	475	107	$335_{-0.5}$	$370_{-0.5}$	1281	670	42	415	390	277	170_{m6}	300	592	179	40_{h9}	M30	1425
X200	614	515	128	$375_{-0.5}$	$420_{-0.5}$	1409	750	48	455	420	298	180_{m6}	300	612	190	45_{h9}	M30	1910
X210	650	515	128	$375_{-0.5}$	$420_{-0.5}$	1445	750	48	455	420	298	190_{m6}	350	662	200	45_{h9}	M30	1940

HSS	i = 6.3 ... 11.2* / i = 7.1 ... 12.5** / i = 8 ... 14***						i = 12.5 ... 18* / i = 14 ... 20** / i = 16 ... 22.4***					
	Ø D1	L1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	O	T1	U1	DIN 332 DR.M..
X100**	42_{k6}	110	274	45	12_{h9}	M16	32_{k6}	80	244	35	10_{h9}	M12
X110***	42_{k6}	110	274	45	12_{h9}	M16	32_{k6}	80	244	35	10_{h9}	M12
X120*	55_{m6}	110	290	59	16_{h9}	M20	42_{k6}	110	290	45	12_{h9}	M16
X130***	55_{m6}	110	290	59	16_{h9}	M20	42_{k6}	110	290	45	12_{h9}	M16
X140*	70_{m6}	140	348	74.5	20_{h9}	M20	55_{m6}	110	318	59	16_{h9}	M20
X150***	70_{m6}	140	348	74.5	20_{h9}	M20	55_{m6}	110	318	59	16_{h9}	M20
X160*	80_{m6}	170	412	85	22_{h9}	M20	70_{m6}	140	382	74.5	20_{h9}	M20
X170***	80_{m6}	170	412	85	22_{h9}	M20	70_{m6}	140	382	74.5	20_{h9}	M20
X180*	90_{m6}	170	445	95	25_{h9}	M24	75_{m6}	140	415	79.5	20_{h9}	M20
X190**	90_{m6}	170	445	95	25_{h9}	M24	75_{m6}	140	415	79.5	20_{h9}	M20
X200*	100_{m6}	210	504	106	28_{h9}	M24	90_{m6}	170	464	95	25_{h9}	M24
X210**	100_{m6}	210	504	106	28_{h9}	M24	90_{m6}	170	464	95	25_{h9}	M24

X.FA.. 							
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X100	75^{H8}	158	173	80.4	20^{JS9}	207	M20x60-8.8	200
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	215
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	305
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	350
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	485
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	550
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	835
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	975
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1250
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1325
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1825
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1825

X.FH.. 								
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	210
X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	225
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	315
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	365
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	510
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	580
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	865
X170	150^{H7}	153^{H9}	368	364	256	427	M30x90-8.8	1030
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1300
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1375
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1895
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1910

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X2FS..

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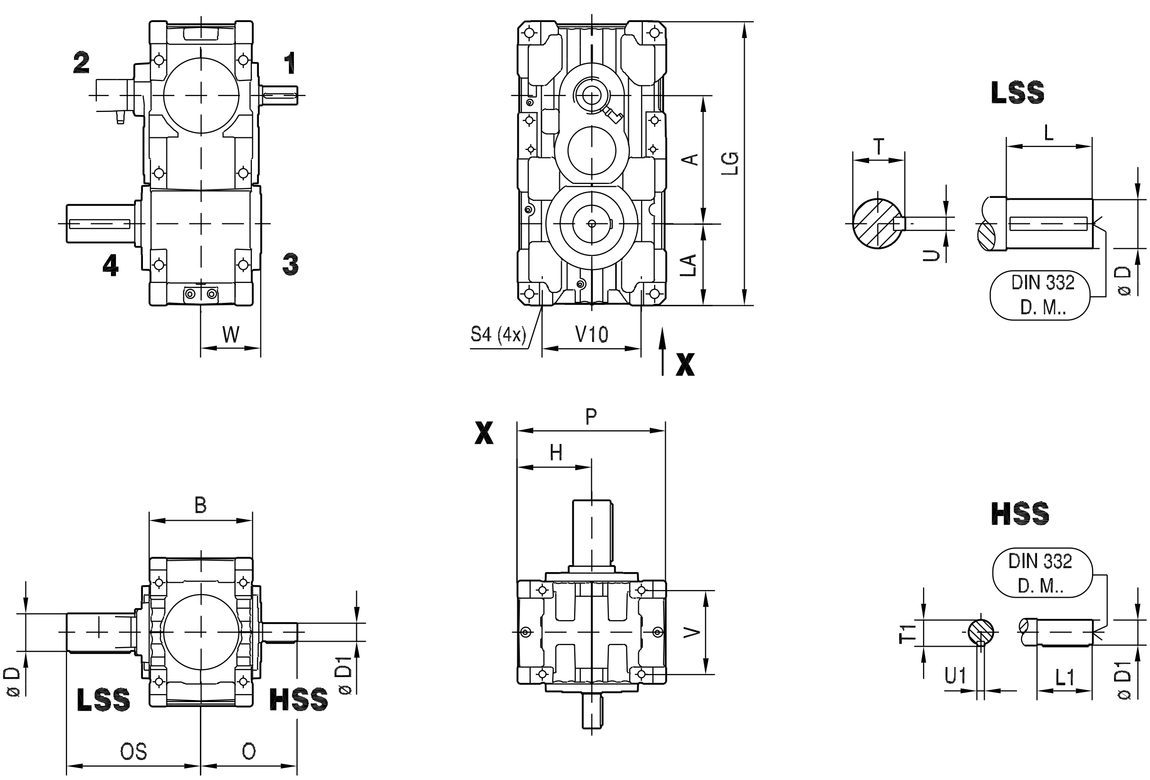
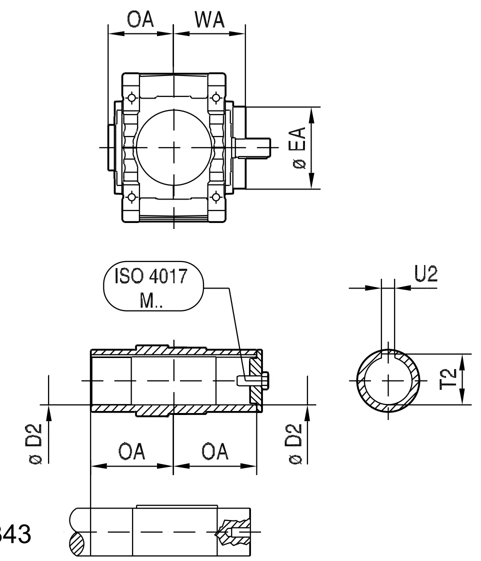


X2FA..

X2FH..



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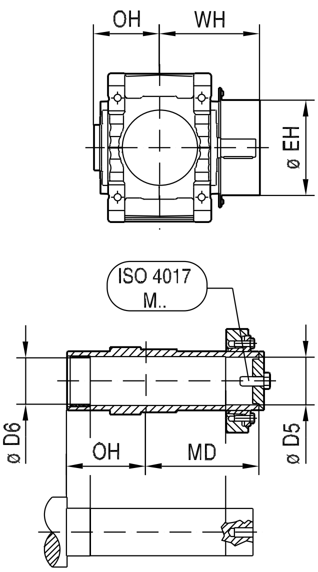

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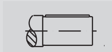
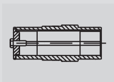
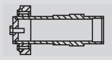
X.F..											X.FS.. LSS 						
X.F..	A	B	H	LA	LG	P	S4 (4x)	V10	V14	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X220	694	540	$425_{-0.5}$	$465_{-0.5}$	1584	850	M42x63	610	440	331	210_{m6}	350	703	221	50_{h9}	M30	2685
X230	734	540	$425_{-0.5}$	$465_{-0.5}$	1624	850	M42x63	610	440	331	230_{m6}	410	763	241	50_{h9}	M36	2865
X240	776	625	$450_{-0.5}$	$495_{-0.5}$	1721	900	M48x72	600	510	377	230_{m6}	410	811	241	50_{h9}	M36	3665
X250	799	625	$450_{-0.5}$	$495_{-0.5}$	1744	900	M48x72	600	510	377	240_{m6}	410	811	252	56_{h9}	M36	3815
X260	855	705	$500_{-0.5}$	$545_{-0.5}$	1900	1000	M48x72	710	590	417	250_{m6}	410	847	262	56_{h9}	M36	4470
X270	890	705	$500_{-0.5}$	$545_{-0.5}$	1935	1000	M48x72	710	590	419	270_{m6}	470	920	282	63_{h9}	M36	4600
X280	942	705	$555_{-0.5}$	$610_{-0.5}$	2052	1110	M48x72	710	590	419	290_{m6}	470	920	302	63_{h9}	M36	5370
X290	987	785	$580_{-0.5}$	$620_{-0.5}$	2187	1160	M48x72	765	655	465	290_{m6}	470	962	302	63_{h9}	M36	6570
X300	1016	785	$580_{-0.5}$	$620_{-0.5}$	2216	1160	M48x72	765	655	465	300_{m6}	470	962	314	70_{h9}	M36	7270
X310	1100	850	$630_{-0.5}$	$680_{-0.5}$	2410	1260	M48x72	860	720	499	320_{m6}	470	999	334	70_{h9}	M42	7520
X320	1134	850	$630_{-0.5}$	$680_{-0.5}$	2444	1260	M48x72	860	720	499	340_{m6}	550	1079	355	80_{h9}	M42	8320

HSS	i = 6.3 ... 11.2* / i = 7.1 ... 12.5** / i = 8 ... 14***						i = 12.5 ... 18* / i = 14 ... 20** / i = 16 ... 22.4***					
	Ø D1	L1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	O	T1	U1	DIN 332 DR.M..
X220*	110_{m6}	210	538	116	28_{h9}	M24	100_{m6}	210	538	106	28_{h9}	M24
X230**	110_{m6}	210	538	116	28_{h9}	M24	100_{m6}	210	538	106	28_{h9}	M24
X240*	120_{m6}	210	583	127	32_{h9}	M24	110_{m6}	210	583	116	28_{h9}	M24
X250**	120_{m6}	210	583	127	32_{h9}	M24	110_{m6}	210	583	116	28_{h9}	M24
X260*	130_{m6}	250	673	137	32_{h9}	M24	120_{m6}	210	633	127	32_{h9}	M24
X270**	130_{m6}	250	673	137	32_{h9}	M24	120_{m6}	210	633	127	32_{h9}	M24
X280***	130_{m6}	250	673	137	32_{h9}	M24	120_{m6}	210	633	127	32_{h9}	M24
X290*	150_{m6}	250	713	158	36_{h9}	M30	150_{m6}	250	713	158	36_{h9}	M30
X300**	150_{m6}	250	713	158	36_{h9}	M30	150_{m6}	250	713	158	36_{h9}	M30
X310*	170_{m6}	300	795	179	40_{h9}	M30	170_{m6}	300	795	179	40_{h9}	M30
X320**	170_{m6}	300	795	179	40_{h9}	M30	170_{m6}	300	795	179	40_{h9}	M30

X.FA.. 									X.FH.. 									
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg	LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2505	**X220**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2610
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2645	**X230**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2755
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3380	**X240**	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3545
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3510	**X250**	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3670
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4070	**X260**	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4220
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4470	**X270**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4720
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4870	**X280**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5120
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	5920	**X290**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6170
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6570	**X300**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6820
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	6770	**X310**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	7120
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7520	**X320**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	7870

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X3FS..

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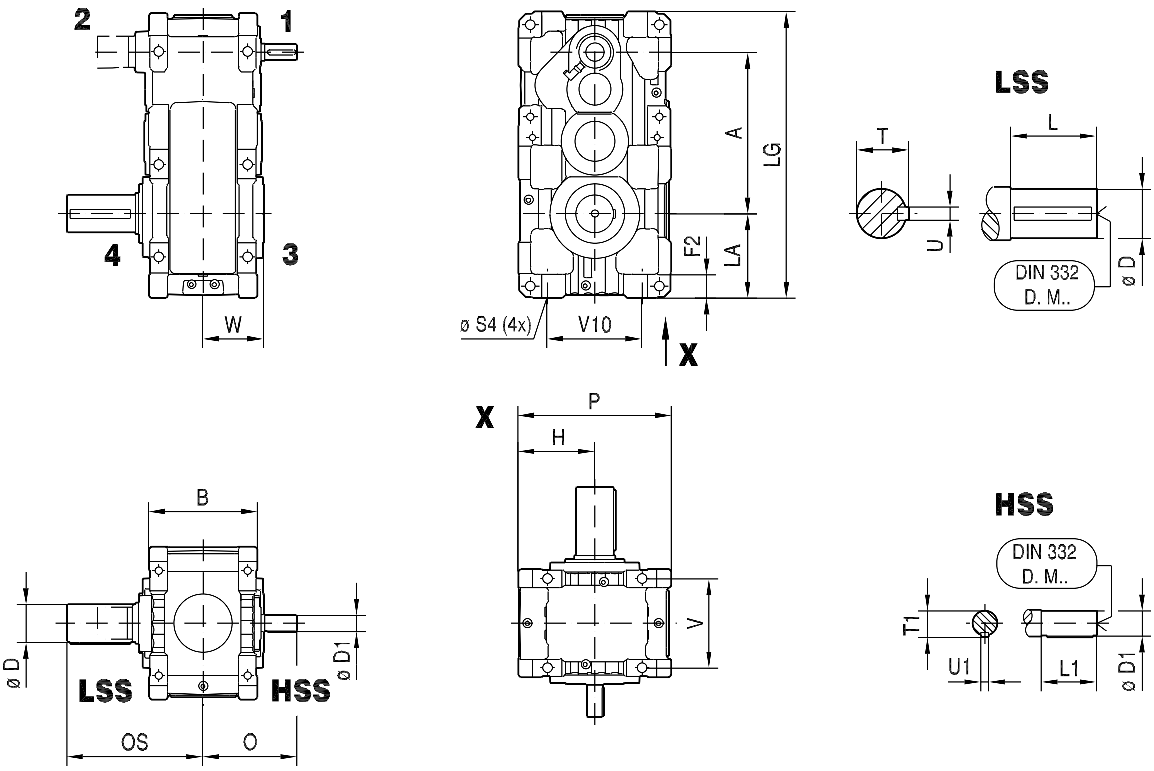
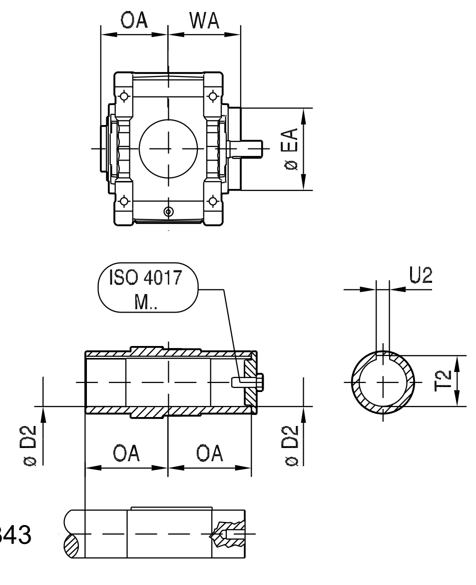


X3FA..



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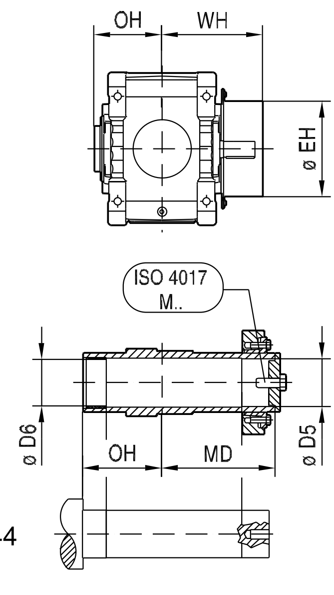
X3FH..



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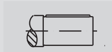
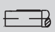
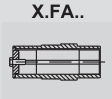
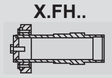
X.F..												X.FS.. LSS 						
X.F..	**A**	**B**	**F2**	**H**	**LA**	**LG**	**P**	**Ø S4 (4x)**	**V10**	**V14**	**W**	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**kg**
X100	360	260	62	$190_{-0.5}$	$190_{-0.5}$	663	380	24	250	210	153	80_{m6}	170	343	85	22_{h9}	M20	225
X110	380	260	62	$190_{-0.5}$	$215_{-0.5}$	708	380	24	250	210	153	90_{m6}	170	346	95	25_{h9}	M24	230
X120	427	300	68	$225_{-0.5}$	$215_{-0.5}$	767	450	28	300	245	174	100_{m6}	210	401	106	28_{h9}	M24	345
X130	463	300	68	$225_{-0.5}$	$250_{-0.5}$	838	450	28	300	245	174	110_{m6}	210	404	116	28_{h9}	M24	410
X140	502	360	86	$265_{-0.5}$	$250_{-0.5}$	903	530	35	335	290	202	120_{m6}	210	432	127	32_{h9}	M24	580
X150	544	360	86	$265_{-0.5}$	$295_{-0.5}$	990	530	35	335	290	202	130_{m6}	250	475	137	32_{h9}	M24	635
X160	611	425	105	$315_{-0.5}$	$355_{-0.5}$	1144	630	42	400	340	240	140_{m6}	250	506	148	36_{h9}	M30	985
X170	662	425	105	$315_{-0.5}$	$355_{-0.5}$	1195	630	42	400	340	240	160_{m6}	300	556	169	40_{h9}	M30	1140
X180	707	475	107	$335_{-0.5}$	$370_{-0.5}$	1249	670	42	415	390	277	170_{m6}	300	592	179	40_{h9}	M30	1465
X190	739	475	107	$335_{-0.5}$	$370_{-0.5}$	1281	670	42	415	390	277	170_{m6}	300	592	179	40_{h9}	M30	1530
X200	794	515	128	$375_{-0.5}$	$420_{-0.5}$	1409	750	48	455	420	298	180_{m6}	300	612	190	45_{h9}	M30	1870
X210	830	515	128	$375_{-0.5}$	$420_{-0.5}$	1445	750	48	455	420	298	190_{m6}	350	662	200	45_{h9}	M30	1950

HSS	**i = 20 ... 56* / i = 22.4 ... 63** / i = 25 ... 71*****						**i = 63 ... 90* / i = 71 ... 100** / i = 80 ... 112*****					
	**Ø D1**	**L1**	**O**	**T1**	**U1**	**DIN 332 DR.M..**	**Ø D1**	**L1**	**O**	**T1**	**U1**	**DIN 332 DR.M..**
X100**	32_{k6}	80	244	35	10_{h9}	M12	32k6	80	244	35	10_{h9}	M12
X110***	32_{k6}	80	244	35	10_{h9}	M12	32_{k6}	80	244	35	10_{h9}	M12
X120*	38_{k6}	80	258	41	10_{h9}	M12	38_{k6}	80	258	41	10_{h9}	M12
X130***	38_{k6}	80	258	41	10_{h9}	M12	38_{k6}	80	258	41	10_{h9}	M12
X140*	45_{k6}	110	318	48.5	14_{h9}	M16	45_{k6}	110	318	48.5	14_{h9}	M16
X150***	45_{k6}	110	318	48.5	14_{h9}	M16	45_{k6}	110	318	48.5	14_{h9}	M16
X160*	60_{m6}	140	381	64	18_{h9}	M20	50_{k6}	110	351	53.5	14_{h9}	M16
X170***	60_{m6}	140	381	64	18_{h9}	M20	50_{k6}	110	351	53.5	14_{h9}	M16
X180*	70_{m6}	140	411	74.5	20_{h9}	M20	55_{m6}	110	381	59	16_{h9}	M20
X190**	70_{m6}	140	411	74.5	20_{h9}	M20	55_{m6}	110	381	59	16_{h9}	M20
X200*	75_{m6}	140	430	79.5	20_{h9}	M20	60_{m6}	140	430	64	18_{h9}	M20
X210**	75_{m6}	140	430	79.5	20_{h9}	M20	60_{m6}	140	430	64	18_{h9}	M20

X.FA.. 							
LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X100	75^{H8}	158	173	80.4	20^{JS9}	207	M20x60-8.8	215
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	220
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	325
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	410
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	545
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	585
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	915
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1060
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1365
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1430
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1785
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1835

X.FH.. 								
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	225
X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	230
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	335
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	400
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	570
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	585
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	945
X170	150^{H7}	153^{H9}	368	364	256	427	M30x90-8.8	1115
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1415
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1480
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1855
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1920

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X3FS..

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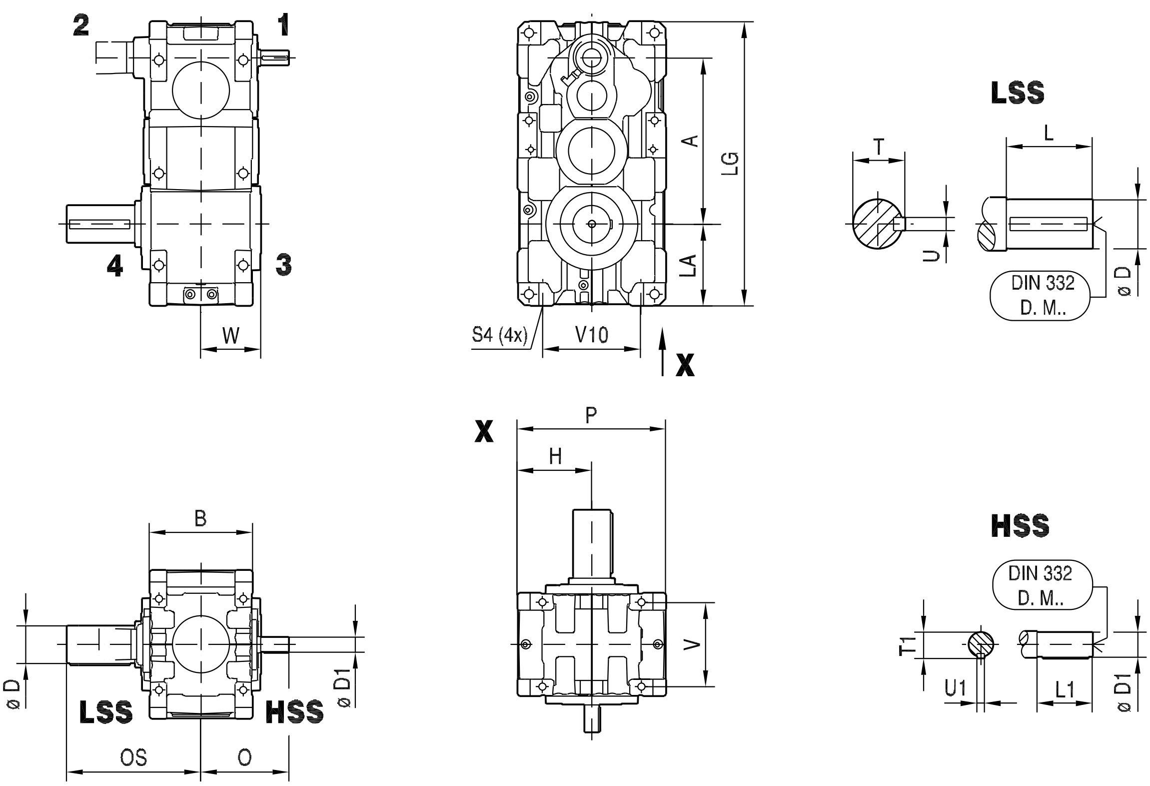
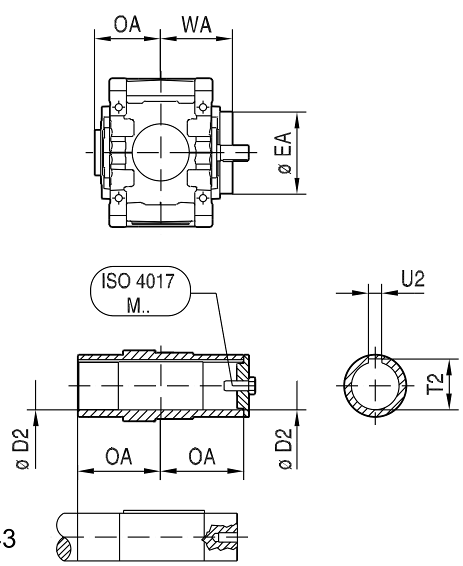


X3FA..



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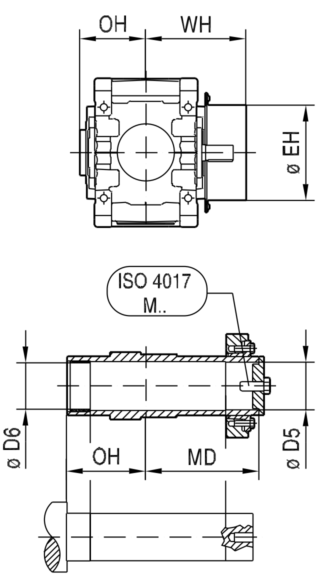
X3FH..



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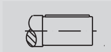
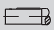
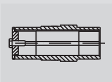
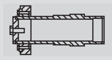
X.F..										X.FS.. LSS 						
X.F...	**A**	**B**	**H**	**LA**	**LG**	**P**	**S4 (4x)**	**V10**	**V14**	**W**	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**kg**
X220	894	540	$425_{-0.5}$	$465_{-0.5}$	1584	850	M42x63	610	440	331	210_{m6}	350	703	221	50_{h9}	M30	2665
X230	934	540	$425_{-0.5}$	$465_{-0.5}$	1624	850	M42x63	610	440	331	230_{m6}	410	763	241	50_{h9}	M36	2885
X240	1004	625	$450_{-0.5}$	$495_{-0.5}$	1721	900	M48x72	600	510	377	230_{m6}	410	811	241	50_{h9}	M36	3725
X250	1027	625	$450_{-0.5}$	$495_{-0.5}$	1744	900	M48x72	600	510	377	240_{m6}	410	811	252	56_{h9}	M36	3835
X260	1113	705	$500_{-0.5}$	$545_{-0.5}$	1900	1000	M48x72	710	590	417	250_{m6}	410	847	262	56_{h9}	M36	4520
X270	1148	705	$500_{-0.5}$	$545_{-0.5}$	1935	1000	M48x72	710	590	419	270_{m6}	470	920	282	63_{h9}	M36	5020
X280	1200	705	$555_{-0.5}$	$610_{-0.5}$	2052	1110	M48x72	710	590	419	290_{m6}	470	920	302	63_{h9}	M36	5505
X290	1279	785	$580_{-0.5}$	$620_{-0.5}$	2187	1160	M48x72	765	655	465	290_{m6}	470	962	302	63_{h9}	M36	6920
X300	1308	785	$580_{-0.5}$	$620_{-0.5}$	2216	1160	M48x72	765	655	465	300_{m6}	470	962	314	70_{h9}	M36	7620
X310	1435	850	$630_{-0.5}$	$680_{-0.5}$	2410	1260	M48x72	860	720	499	320_{m6}	470	999	334	70_{h9}	M42	8470
X320	1469	850	$630_{-0.5}$	$680_{-0.5}$	2444	1260	M48x72	860	720	499	340_{m6}	550	1079	355	80_{h9}	M42	9370

HSS	**i = 20 ... 50* / i = 22.4 ... 56** / i = 25 ... 63*** **						**i = 56 ... 90* / i = 63 ... 100** / i = 71 ... 112*** **					
	**Ø D1**	**L1**	**O**	**T1**	**U1**	**DIN 332 DR.M..**	**Ø D1**	**L1**	**O**	**T1**	**U1**	**DIN 332 DR.M..**
X220*	80_{m6}	170	487	85	22_{h9}	M20	70_{m6}	140	457	74.5	20_{h9}	M20
X230**	80_{m6}	170	487	85	22_{h9}	M20	70_{m6}	140	457	74.5	20_{h9}	M20
X240*	90_{m6}	170	532	95	25_{h9}	M24	75_{m6}	140	502	79.5	20_{h9}	M20
X250**	90_{m6}	170	532	95	25_{h9}	M24	75_{m6}	140	502	79.5	20_{h9}	M20
X260*	100_{m6}	210	613	106	28_{h9}	M24	80_{m6}	170	573	85	22_{h9}	M20
X270**	100_{m6}	210	613	106	28_{h9}	M24	80_{m6}	170	573	85	22_{h9}	M20
X280***	100_{m6}	210	613	106	28_{h9}	M24	80_{m6}	170	573	85	22_{h9}	M20
X290*	100_{m6}	210	661	106	28_{h9}	M24	100_{m6}	210	661	106	28_{h9}	M24
X300**	100_{m6}	210	661	106	28_{h9}	M24	100_{m6}	210	661	106	28_{h9}	M24
X310*	110_{m6}	210	694	116	28_{h9}	M24	110_{m6}	210	694	116	28_{h9}	M24
X320**	110_{m6}	210	694	116	28_{h9}	M24	110_{m6}	210	694	116	28_{h9}	M24

X.FA.. 								
LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2485
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2665
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3440
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3530
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4070
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4470
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4970
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6270
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6870
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7670
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	8470

X.FH.. 								
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2590
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2775
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3605
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3690
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4220
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4770
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5320
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6520
X300	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	7120
X310	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8020
X320	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8320

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X4FS..

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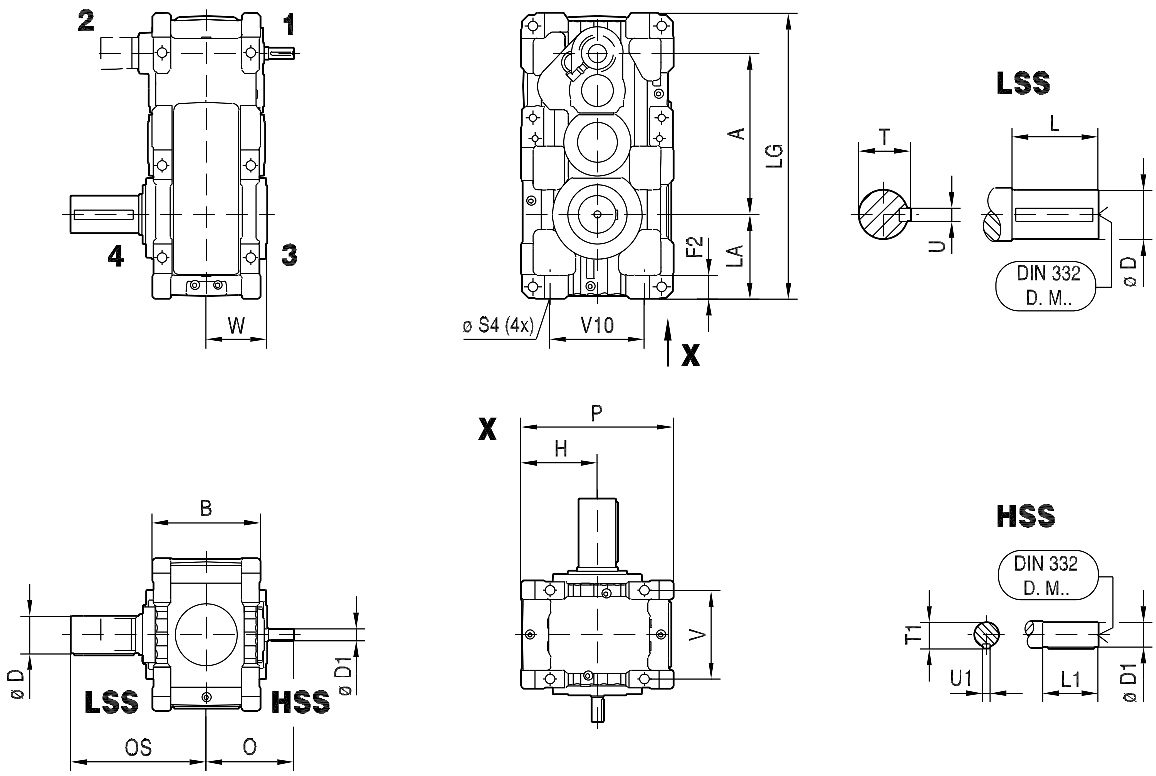
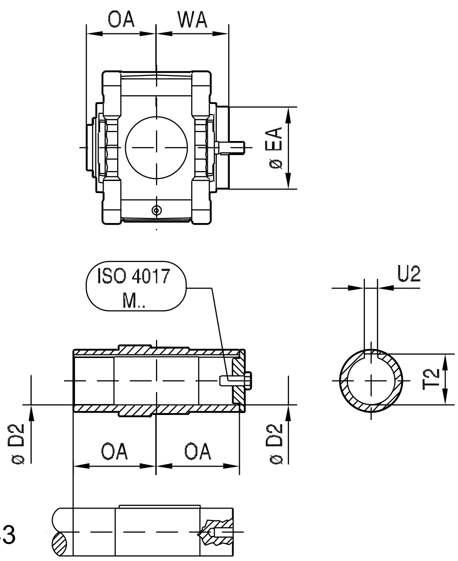


X4FA..

X4FH..



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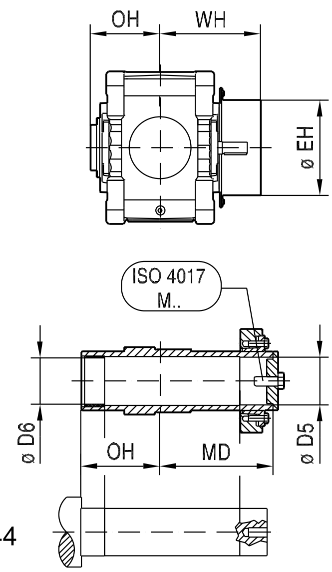

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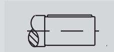
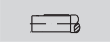
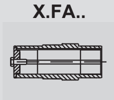
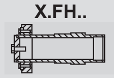
X.F..											X.FS.. LSS 						
X.F..	A	B	F2	H	LA	LG	P	Ø S4 (4x)	V10	V14	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X120	427	300	68	$225_{-0.5}$	$215_{-0.5}$	772	450	28	300	245	174	100_{m6}	210	401	106	28_{h9}	M24	360
X130	463	300	68	$225_{-0.5}$	$250_{-0.5}$	843	450	28	300	245	174	110_{m6}	210	404	116	28_{h9}	M24	400
X140	502	360	86	$265_{-0.5}$	$250_{-0.5}$	908	530	35	335	290	202	120_{m6}	210	432	127	32_{h9}	M24	570
X150	544	360	86	$265_{-0.5}$	$295_{-0.5}$	995	530	35	335	290	202	130_{m6}	250	475	137	32_{h9}	M24	650
X160	611	425	105	$315_{-0.5}$	$355_{-0.5}$	1149	630	42	400	340	240	140_{m6}	250	506	148	36_{h9}	M30	975
X170	662	425	105	$315_{-0.5}$	$355_{-0.5}$	1200	630	42	400	340	240	160_{m6}	300	556	169	40_{h9}	M30	1175
X180	707	475	107	$335_{-0.5}$	$370_{-0.5}$	1254	670	42	415	390	277	170_{m6}	300	592	179	40_{h9}	M30	1425
X190	739	475	107	$335_{-0.5}$	$370_{-0.5}$	1287	670	42	415	390	277	170_{m6}	300	592	179	40_{h9}	M30	1465
X200	794	515	128	$375_{-0.5}$	$420_{-0.5}$	1415	750	48	455	420	298	180_{m6}	300	612	190	45_{h9}	M30	1920
X210	830	515	128	$375_{-0.5}$	$420_{-0.5}$	1451	750	48	455	420	298	190_{m6}	350	662	200	45_{h9}	M30	2110

HSS	i = 100 ... 180* / i = 112 ... 200** / i = 125 ... 224***						i = 200 ... 355* / i = 224 ... 400** / i = 250 ... 450***					
	Ø D1	L1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	O	T1	U1	DIN 332 DR.M..
X120*	28_{k6}	60	238	31	8_{h9}	M10	28_{k6}	60	238	31	8_{h9}	M10
X130***	28_{k6}	60	238	31	8_{h9}	M10	28_{k6}	60	238	31	8_{h9}	M10
X140*	32_{k6}	80	288	35	10_{h9}	M12	32_{k6}	80	288	35	10_{h9}	M12
X150***	32_{k6}	80	288	35	10_{h9}	M12	32_{k6}	80	288	35	10_{h9}	M12
X160*	38_{k6}	80	320	41	10_{h9}	M12	38_{k6}	80	320	41	10_{h9}	M12
X170***	38_{k6}	80	320	41	10_{h9}	M12	38_{k6}	80	320	41	10_{h9}	M12
X180*	50_{k6}	110	381	53.5	14_{h9}	M16	38_{k6}	80	351	41	10_{h9}	M12
X190**	50_{k6}	110	381	53.5	14_{h9}	M16	38_{k6}	80	351	41	10_{h9}	M12
X200*	55_{m6}	110	400	59	16_{h9}	M20	42_{k6}	110	400	45	12_{h9}	M16
X210**	55_{m6}	110	400	59	16_{h9}	M20	42_{k6}	110	400	45	12_{h9}	M16

X.FA.. 								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	340
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	375
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	535
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	600
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	905
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1095
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1325
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1365
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1835
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1995

X.FH.. 									
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	350
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	390
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	560
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	630
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	935
X170	150^{H7}	153^{H9}	368	364	256	427	M30x90-8.8	1150
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1375
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1415
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1905
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	2080

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X4FS..

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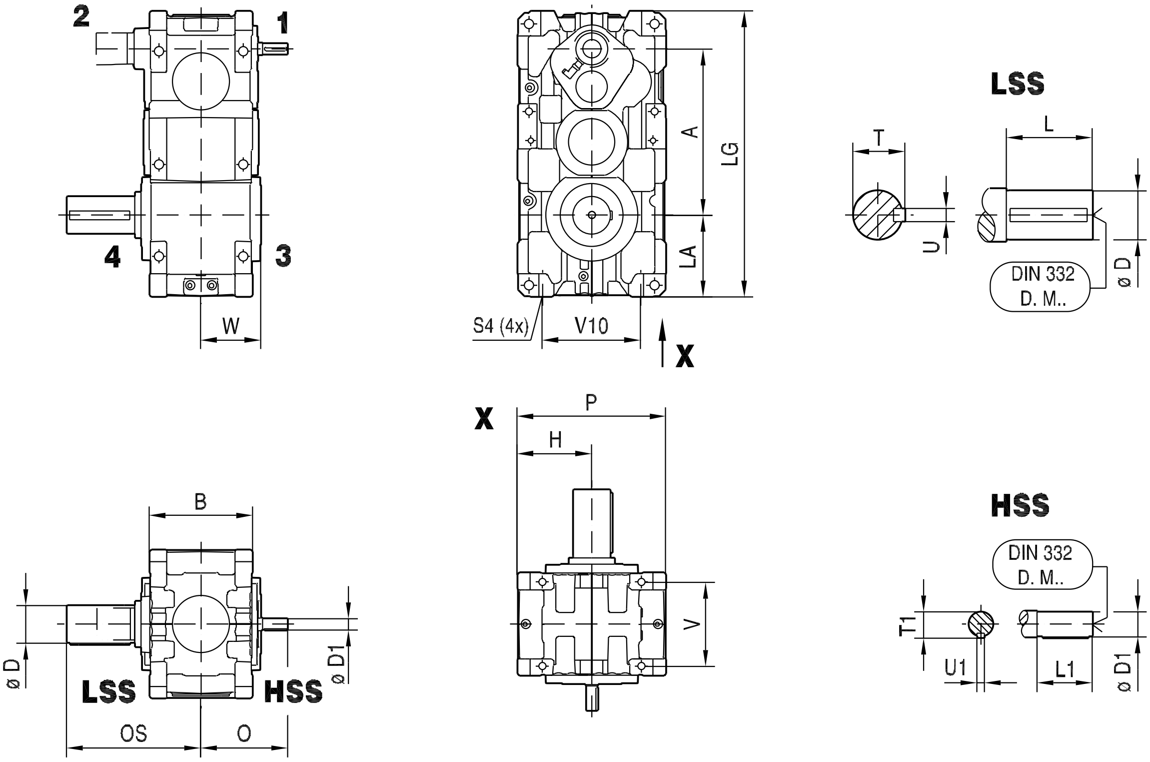
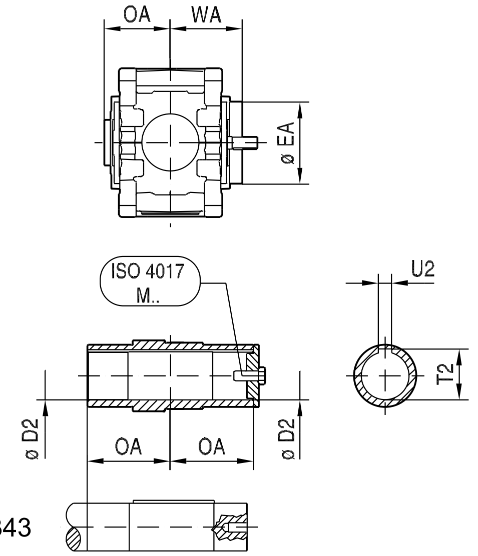


X4FA..

X4FH..



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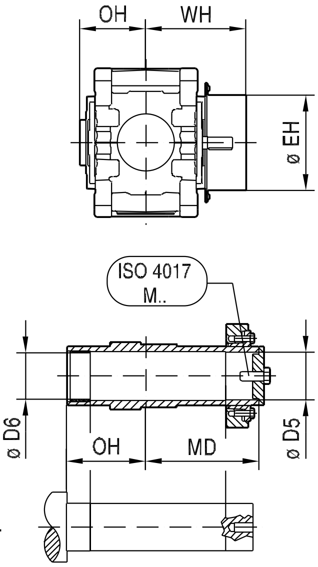

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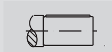
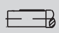
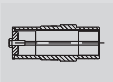
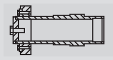
X.F..										X.FS.. LSS 						
X.F..	A	B	H	LA	LG	P	S4 (4x)	V10	V14	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X220	894	540	$425_{-0.5}$	$465_{-0.5}$	1591	850	M42x63	610	440	331	210_{m6}	350	703	221	50_{h9}	M30	2715
X230	934	540	$425_{-0.5}$	$465_{-0.5}$	1631	850	M42x63	610	440	331	230_{m6}	410	763	241	50_{h9}	M36	3075
X240	1004	625	$450_{-0.5}$	$495_{-0.5}$	1729	900	M48x72	600	510	377	230_{m6}	410	811	241	50_{h9}	M36	3785
X250	1027	625	$450_{-0.5}$	$495_{-0.5}$	1752	900	M48x72	600	510	377	240_{m6}	410	811	252	56_{h9}	M36	3910
X260	1113	705	$500_{-0.5}$	$545_{-0.5}$	1909	1000	M48x72	710	590	417	250_{m6}	410	847	262	56_{h9}	M36	4620
X270	1148	705	$500_{-0.5}$	$545_{-0.5}$	1941	1000	M48x72	710	590	419	270_{m6}	470	920	282	63_{h9}	M36	5120
X280	1200	705	$555_{-0.5}$	$610_{-0.5}$	2058	1110	M48x72	710	590	419	290_{m6}	470	920	302	63_{h9}	M36	5670
X290	1279	785	$580_{-0.5}$	$620_{-0.5}$	2196	1160	M48x72	765	655	465	290_{m6}	470	962	302	63_{h9}	M36	7070
X300	1308	785	$580_{-0.5}$	$620_{-0.5}$	2225	1160	M48x72	765	655	465	300_{m6}	470	962	314	70_{h9}	M36	7820
X310	1435	850	$630_{-0.5}$	$680_{-0.5}$	2419	1260	M48x72	860	720	499	320_{m6}	470	999	334	70_{h9}	M42	8670
X320	1469	850	$630_{-0.5}$	$680_{-0.5}$	2453	1260	M48x72	860	720	499	340_{m6}	550	1079	355	80_{h9}	M42	9620

HSS	i = 100 ... 180* / i = 112 ... 200** / i = 125 ... 224***						i = 200 ... 355* / i = 224 ... 400** / i = 250 ... 450***					
	Ø D1	L1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	O	T1	U1	DIN 332 DR.M..
X220*	60_{m6}	140	457	64	18_{h9}	M20	50_{k6}	110	427	53.5	14_{h9}	M16
X230**	60_{m6}	140	457	64	18_{h9}	M20	50_{k6}	110	427	53.5	14_{h9}	M16
X240*	70_{m6}	140	502	74.5	20_{h9}	M20	55_{m6}	110	472	59	16_{h9}	M20
X250**	70_{m6}	140	502	74.5	20_{h9}	M20	55_{m6}	110	472	59	16_{h9}	M20
X260*	75_{m6}	140	543	79.5	20_{h9}	M20	60_{m6}	140	543	64	18_{h9}	M20
X270**	75_{m6}	140	543	79.5	20_{h9}	M20	60_{m6}	140	543	64	18_{h9}	M20
X280***	75_{m6}	140	543	79.5	20_{h9}	M20	60_{m6}	140	543	64	18_{h9}	M20
X290*	80_{m6}	170	614	85	22_{h9}	M20	80_{m6}	170	614	85	22_{h9}	M20
X300**	80_{m6}	170	614	85	22_{h9}	M20	80_{m6}	170	614	85	22_{h9}	M20
X310*	90_{m6}	170	645	95	25_{h9}	M24	90_{m6}	170	645	95	25_{h9}	M24
X320**	90_{m6}	170	645	95	25_{h9}	M24	90_{m6}	170	645	95	25_{h9}	M24

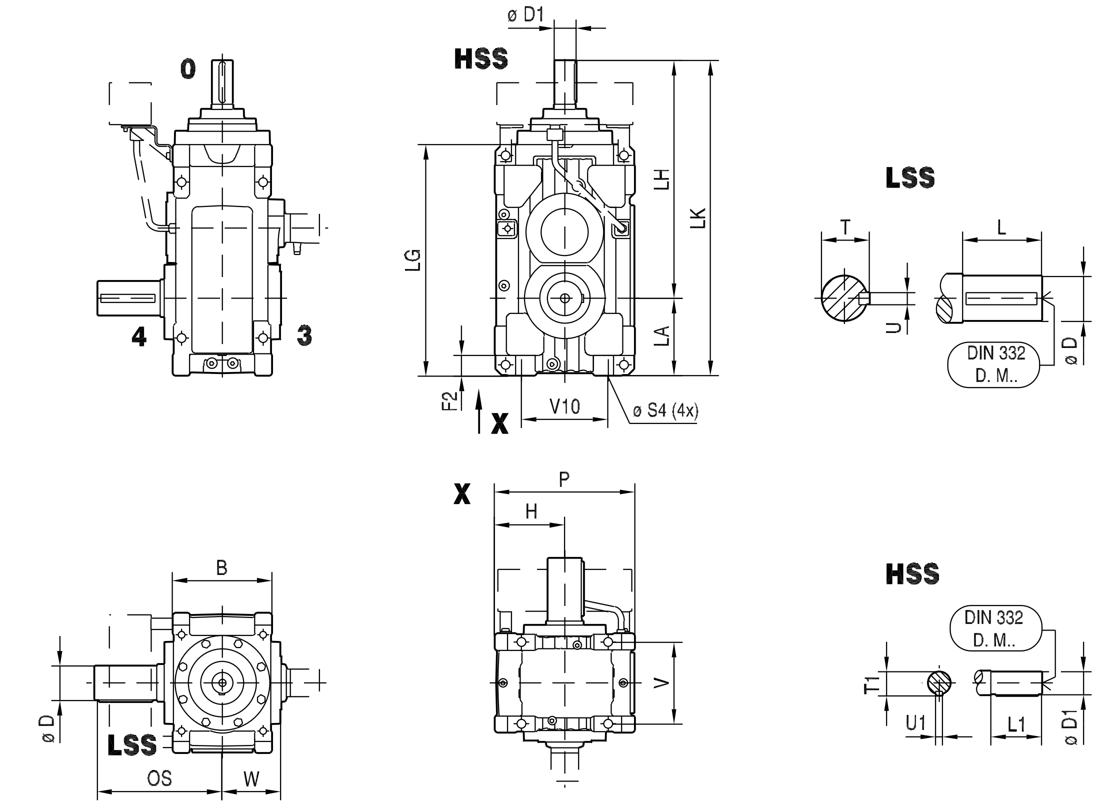
X.FA.. 								X.FH.. 								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg	LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2535	**X220**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2640
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2855	**X230**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2965
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3500	**X240**	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3665
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3605	**X250**	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3765
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4170	**X260**	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4320
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4620	**X270**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4870
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	5120	**X280**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5370
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6370	**X290**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6620
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	7070	**X300**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	7320
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7820	**X310**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8170
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	8470	**X320**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8820

11.2 X.K.. bevel-helical gear units [mm]

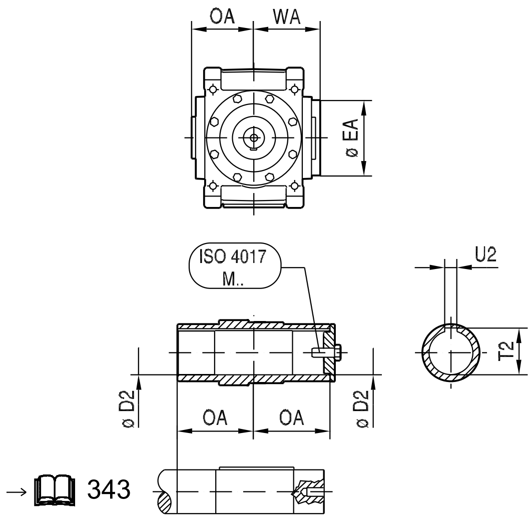
11.2.1 X2K100 - 210

X2KS..

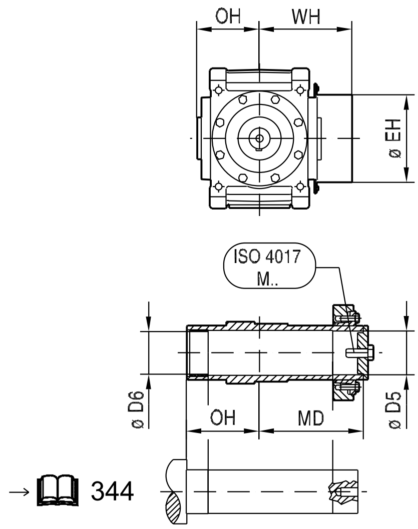
48 039 02 09



X2KA..



X2KH..



X.K..													
X2K..	**B**	**F2**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S4 (4x)**	**V10**	**V14**	**W**	**kg**
X100	260	62	190$_{-0.5}$	190$_{-0.5}$	601	655	845	380	24	250	210	153	240
X110	260	62	190$_{-0.5}$	215$_{-0.5}$	646	675	890	380	24	250	210	153	255
X120	300	68	225$_{-0.5}$	215$_{-0.5}$	697	752	967	450	28	300	245	174	355
X130	300	68	225$_{-0.5}$	250$_{-0.5}$	768	788	1038	450	28	300	245	174	410
X140	360	86	265$_{-0.5}$	250$_{-0.5}$	784	816	1066	530	35	335	290	202	570

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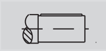
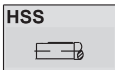
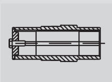
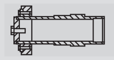
X150	360	86	$265_{-0.5}$	$295_{-0.5}$	871	858	1153	530	35	335	290	202	660
X160	425	105	$315_{-0.5}$	$355_{-0.5}$	1023	1010	1365	630	42	400	340	240	1010
X170	425	105	$315_{-0.5}$	$355_{-0.5}$	1074	1061	1416	630	42	400	340	240	1130
X180	475	107	$335_{-0.5}$	$370_{-0.5}$	1105	1137	1507	670	42	415	390	277	1380
X190	475	107	$335_{-0.5}$	$370_{-0.5}$	1137	1169	1539	670	42	415	390	277	1495
X200	515	128	$375_{-0.5}$	$420_{-0.5}$	1241	1268	1688	750	48	455	420	298	1930
X210	515	128	$375_{-0.5}$	$420_{-0.5}$	1277	1304	1724	750	48	455	420	298	2040

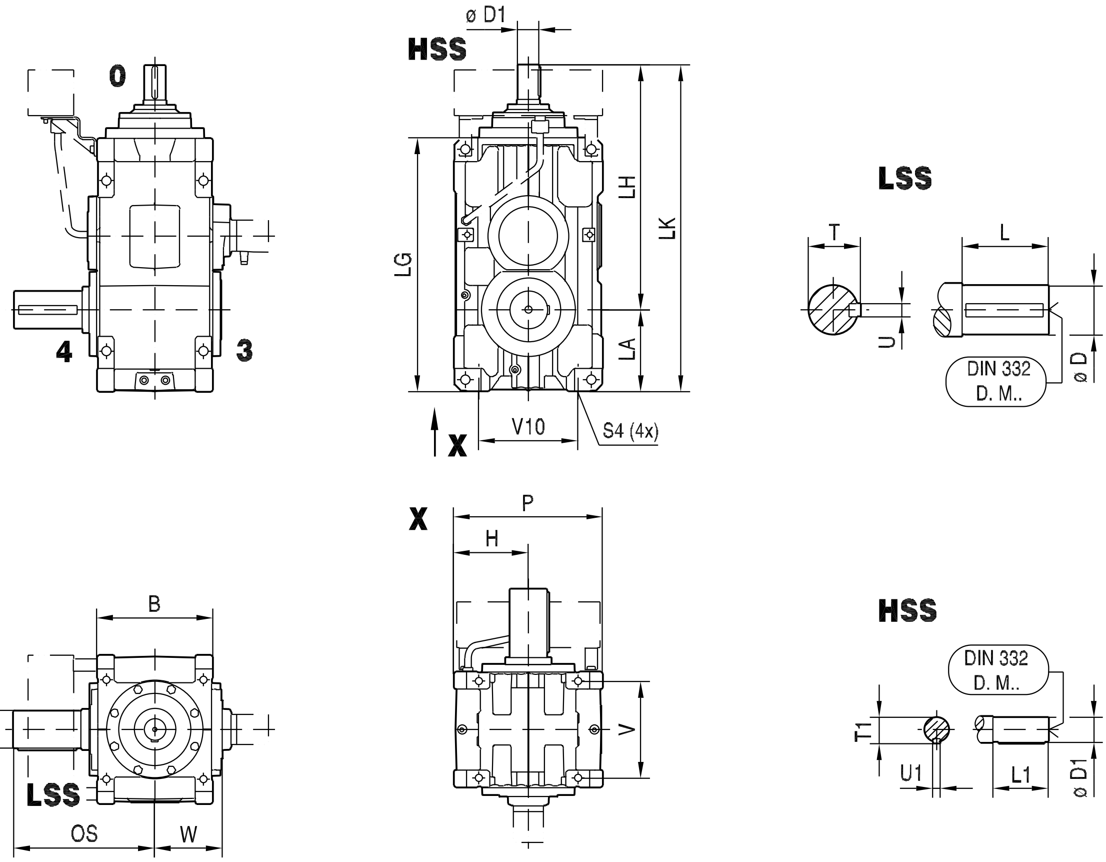
LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**HSS** 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X100	80_{m6}	170	343	85	22_{h9}	M20	**X100**	50_{k6}	110	53.5	14_{h9}	M16
X110	90_{m6}	170	346	95	25_{h9}	M24	**X110**	50_{k6}	110	53.5	14_{h9}	M16
X120	100_{m6}	210	401	106	28_{h9}	M24	**X120**	60_{m6}	140	64	18_{h9}	M20
X130	110_{m6}	210	404	116	28_{h9}	M24	**X130**	60_{m6}	140	64	18_{h9}	M20
X140	120_{m6}	210	432	127	32_{h9}	M24	**X140**	70_{m6}	140	74.5	20_{h9}	M20
X150	130_{m6}	250	475	137	32_{h9}	M24	**X150**	70m6	140	74.5	20_{h9}	M20
X160	140_{m6}	250	506	148	36_{h9}	M30	**X160**	85_{m6}	170	90	22_{h9}	M20
X170	160_{m6}	300	556	169	40_{h9}	M30	**X170**	85_{m6}	170	90	22_{h9}	M20
X180	170_{m6}	300	592	179	40_{h9}	M30	**X180**	100_{m6}	210	106	28_{h9}	M24
X190	170_{m6}	300	592	179	40_{h9}	M30	**X190**	100_{m6}	210	106	28_{h9}	M24
X200	180_{m6}	300	612	190	45_{h9}	M30	**X200**	110_{m6}	210	116	28_{h9}	M24
X210	190_{m6}	350	662	200	45_{h9}	M30	**X210**	110_{m6}	210	116	28_{h9}	M24

X.KA.. 									**X.KH..** 								
LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**	**LSS**	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X100	75^{H8}	158	173	80.4	20^{JS9}	207	M20x60-8.8	230	**X100**	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	240
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	245	**X110**	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	255
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	335	**X120**	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	345
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	385	**X130**	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	400
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	535	**X140**	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	560
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	610	**X150**	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	640
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	940	**X160**	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	970
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1050	**X170**	150^{H7}	153^{H9}	368	364	256	427	M30x90-8.8	1105
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1280	**X180**	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1330
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1395	**X190**	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1445
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1845	**X200**	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1915
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1925	**X210**	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	2010

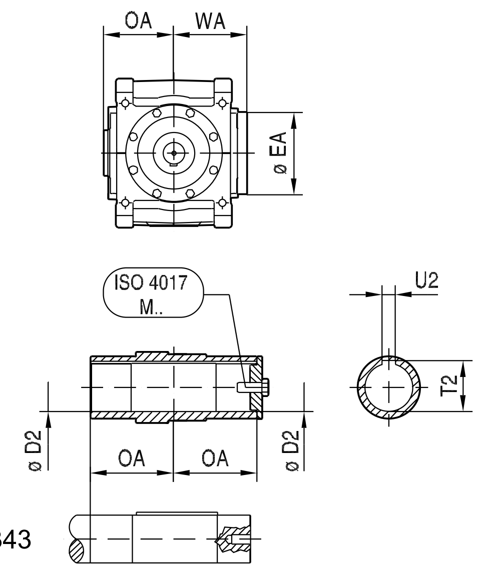
11.2.2 X2K220 - 250

48 040 03 09

X2KS..



X2KA..



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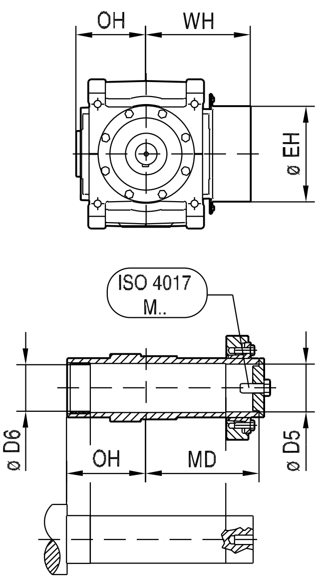
X2KH..



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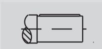
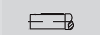
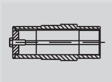
X.K..												
X2K..	**B**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S4 (4x)**	**V10**	**V14**	**W**	**kg**
X220	610	$425_{-0.5}$	$465_{-0.5}$	1412	1436	1901	850	M42x63	610	510	370	2895
X230	610	$425_{-0.5}$	$465_{-0.5}$	1452	1476	1941	850	M42x63	610	510	370	3075
X240	700	$450_{-0.5}$	$495_{-0.5}$	1531	1476	1971	900	M48x72	600	585	421	3975
X250	700	$450_{-0.5}$	$495_{-0.5}$	1554	1499	1994	900	M48x72	600	585	421	3980

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X220	210_{m6}	350	738	221	50_{h9}	M30
X230	230_{m6}	410	798	241	50_{h9}	M36
X240	230_{m6}	410	848	241	50_{h9}	M36
X250	240_{m6}	410	848	252	56_{h9}	M36

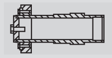
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X220	120_{m6}	210	127	32_{h9}	M24
X230	120_{m6}	210	127	32_{h9}	M24
X240	130_{m6}	210	137	32_{h9}	M24
X250	130_{m6}	210	137	32_{h9}	M24

X.KA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	387.5	221.4	50^{JS9}	452	M30x90-8.8	2700
X230	210^{H8}	360	387.5	221.4	50^{JS9}	452	M30x90-8.8	2845
X240	230^{H8}	420	438	241.4	50^{JS9}	507	M36x110-8.8	3670
X250	240^{H8}	420	438	252.4	56^{JS9}	507	M36x110-8.8	3655

X.KH..

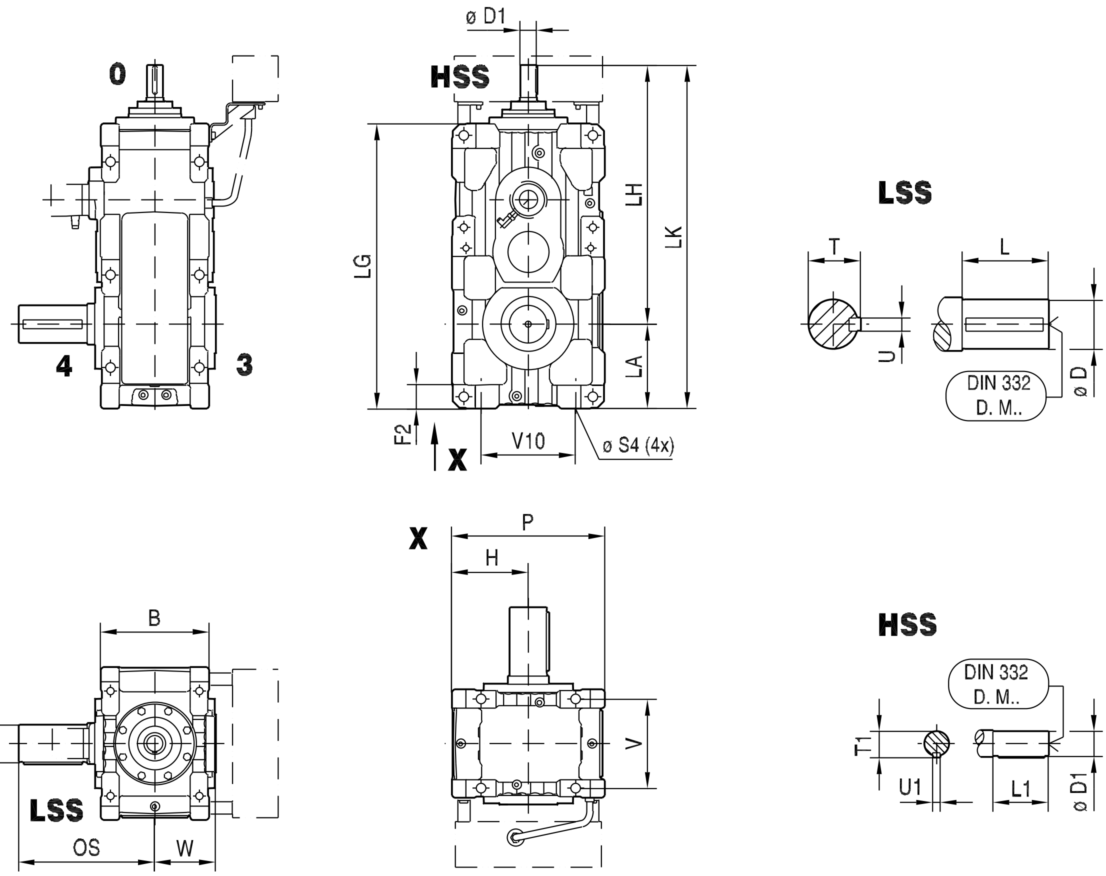


LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	533	387.5	597	M30x90-8.8	2810
X230	210^{H7}	211^{H9}	484	533	387.5	597	M30x90-8.8	2950
X240	230^{H7}	231^{H9}	558	609	438	692	M36x110-8.8	3835
X250	240^{H7}	241^{H9}	558	609	438	692	M36x110-8.8	3815

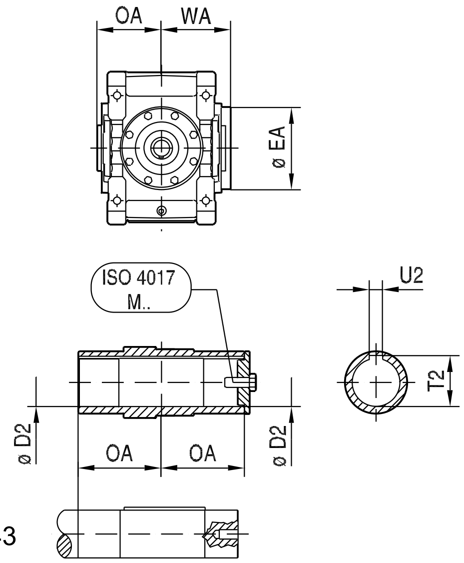
11.2.3 X3K100 - 210

X3KS..

48 041 02 09



X3KA..



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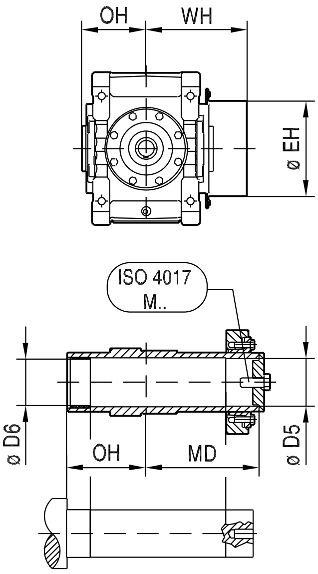
X3KH..



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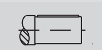
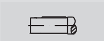
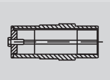
X.K..												
X3K..	**B**	**F2**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S4 (4x)**	**V10**	**V14**	**W**	**kg**
X100	260	62	$190_{-0.5}$	$190_{-0.5}$	658	632	822	380	24	250	210	153	240
X110	260	62	$190_{-0.5}$	$215_{-0.5}$	703	652	867	380	24	250	210	153	260
X120	300	68	$225_{-0.5}$	$215_{-0.5}$	767	745	960	450	28	300	245	174	365
X130	300	68	$225_{-0.5}$	$250_{-0.5}$	838	781	1031	450	28	300	245	174	415
X140	360	86	$265_{-0.5}$	$250_{-0.5}$	903	879	1129	530	35	335	290	202	610
X150	360	86	$265_{-0.5}$	$295_{-0.5}$	990	921	1216	530	35	335	290	202	650
X160	425	105	$315_{-0.5}$	$355_{-0.5}$	1144	1036	1391	630	42	400	340	240	1000
X170	425	105	$315_{-0.5}$	$355_{-0.5}$	1195	1087	1442	630	42	400	340	240	1145
X180	475	107	$335_{-0.5}$	$370_{-0.5}$	1249	1135	1505	670	42	415	390	277	1415
X190	475	107	$335_{-0.5}$	$370_{-0.5}$	1281	1167	1537	670	42	415	390	277	1525
X200	515	128	$375_{-0.5}$	$420_{-0.5}$	1409	1286	1706	750	48	455	420	298	2040
X210	515	128	$375_{-0.5}$	$420_{-0.5}$	1445	1322	1742	750	48	455	420	298	2140

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X100	80_{m6}	170	343	85	22_{h9}	M20
X110	90_{m6}	170	346	95	25_{h9}	M24
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	148	36_{h9}	M30
X170	160_{m6}	300	556	169	40_{h9}	M30
X180	170_{m6}	300	592	179	40_{h9}	M30
X190	170_{m6}	300	592	179	40_{h9}	M30
X200	180_{m6}	300	612	190	45_{h9}	M30
X210	190_{m6}	350	662	200	45_{h9}	M30

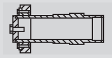
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X100	32_{k6}	80	35	10_{h9}	M12
X110	32_{k6}	80	35	10_{h9}	M12
X120	38_{k6}	100	41	10_{h9}	M12
X130	38_{k6}	100	41	10_{h9}	M12
X140	50_{k6}	110	53.5	14_{h9}	M16
X150	50_{k6}	110	53.5	14_{h9}	M16
X160	60_{m6}	140	64	18_{h9}	M20
X170	60_{m6}	140	64	18_{h9}	M20
X180	70_{m6}	140	74.5	20_{h9}	M20
X190	70_{m6}	140	74.5	20_{h9}	M20
X200	80_{m6}	170	85	22_{h9}	M20
X210	80_{m6}	170	85	22_{h9}	M20

X.KA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X100	75^{H8}	158	173	80.4	20^{JS9}	207	M20x60-8.8	230
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	250
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	345
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	390
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	575
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	600
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	930
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1065
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1315
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1425
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1955
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	2025

X.KH..

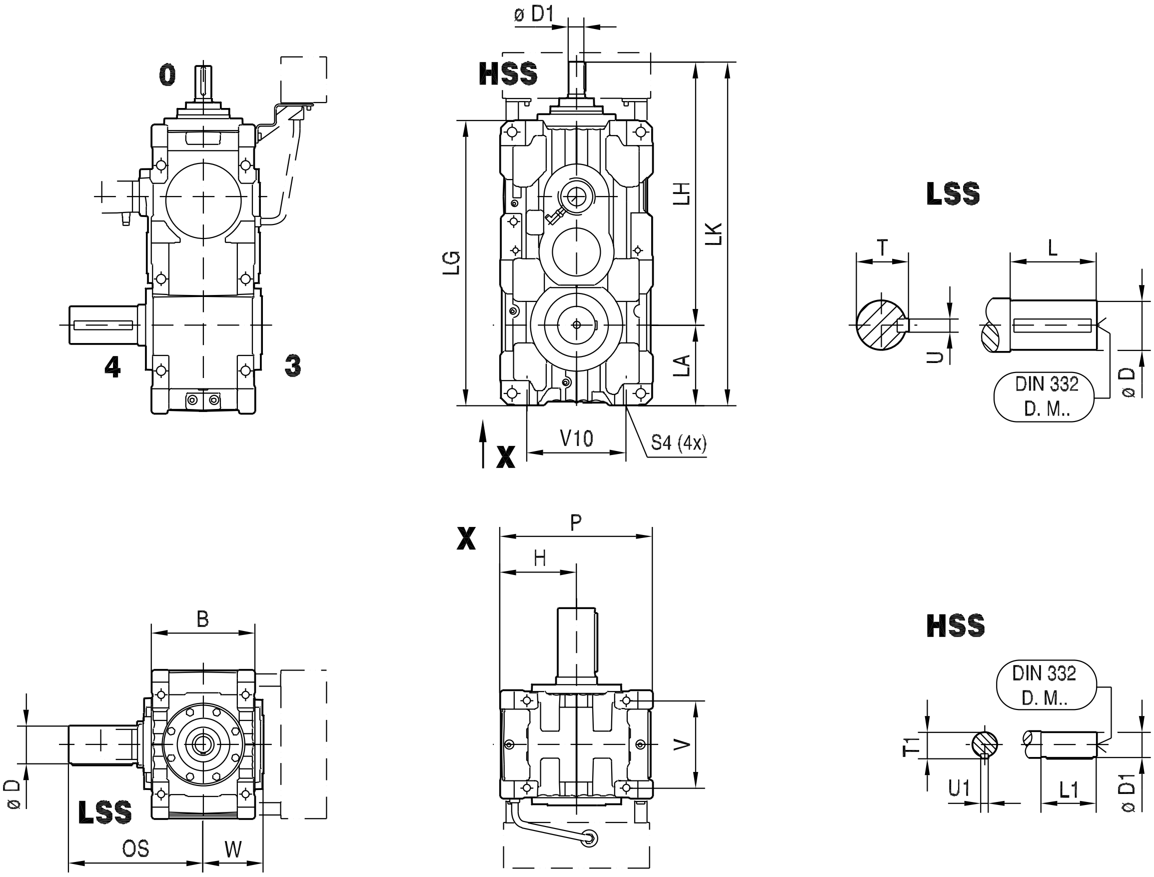


LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	240
X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	260
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	355
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	405
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	600
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	630
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	960
X170	150^{H7}	153^{H9}	368	364	256	427	M30x90-8.8	1120
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1365
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1475
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	2025
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	2110

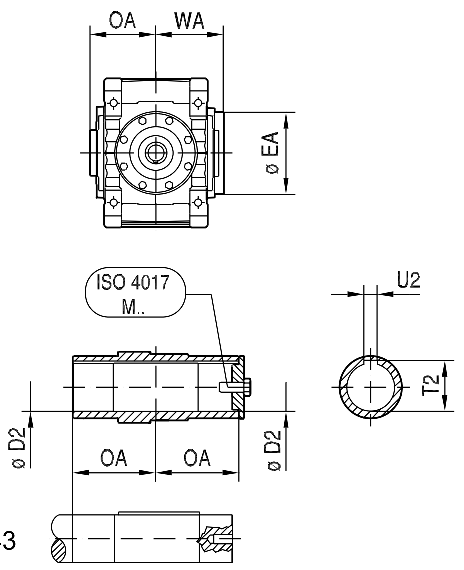
11.2.4 X3K220 - 320

X3KS..

48 042 03 09



X3KA..



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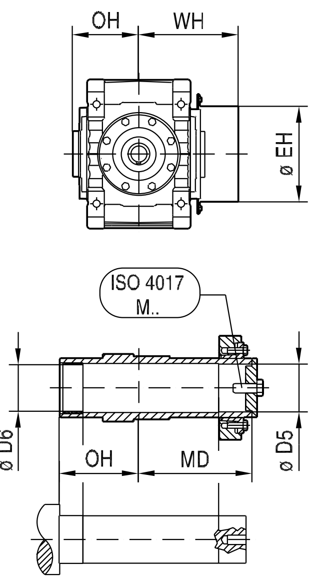
X3KH..



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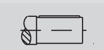
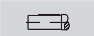
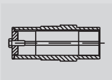
X.K..												
X3K..	**B**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S4 (4x)**	**V10**	**V14**	**W**	**kg**
X220	540	$425_{-0.5}$	$465_{-0.5}$	1584	1430	1895	850	M42x63	610	440	331	2925
X230	540	$425_{-0.5}$	$465_{-0.5}$	1624	1470	1935	850	M42x63	610	440	331	3095
X240	625	$450_{-0.5}$	$495_{-0.5}$	1721	1597	2092	900	M48x72	600	510	377	3945
X250	625	$450_{-0.5}$	$495_{-0.5}$	1744	1620	2115	900	M48x72	600	510	377	4075
X260	705	$500_{-0.5}$	$545_{-0.5}$	1900	1767	2312	1017	M48x72	710	590	417	4870
X270	705	$500_{-0.5}$	$545_{-0.5}$	1935	1802	2347	1017	M48x72	710	590	419	5370
X280	705	$555_{-0.5}$	$610_{-0.5}$	2052	1854	2464	1127	M48x72	710	590	419	5870
X290	785	$580_{-0.5}$	$620_{-0.5}$	2187	2021	2641	1177	M48x72	765	655	465	7020
X300	785	$580_{-0.5}$	$620_{-0.5}$	2216	2050	2670	1177	M48x72	765	655	465	7720
X310	850	$630_{-0.5}$	$680_{-0.5}$	2410	2135	2815	1277	M48x72	860	720	499	8570
X320	850	$630_{-0.5}$	$680_{-0.5}$	2444	2169	2849	1277	M48x72	860	720	499	9470

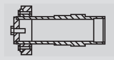
LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**HSS** 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**	**i**
X220	210_{m6}	350	703	221	50_{h9}	M30	**X220**	85_{m6}	170	90	22_{h9}	M20	-
X230	230_{m6}	410	763	241	50_{h9}	M36	**X230**	85_{m6}	170	90	22_{h9}	M20	-
X240	230_{m6}	410	811	241	50_{h9}	M36	**X240**	100_{m6}	210	106	28_{h9}	M24	-
X250	240_{m6}	410	811	252	56_{h9}	M36	**X250**	100_{m6}	210	106	28_{h9}	M24	-
X260	250_{m6}	410	847	262	56_{h9}	M36	**X260**	110_{m6}	210	116	28_{h9}	M24	-
X270	270_{m6}	470	920	282	63_{h9}	M36	**X270**	110_{m6}	210	116	28_{h9}	M24	-
X280	290_{m6}	470	920	302	63_{h9}	M36	**X280**	110_{m6}	210	116	28_{h9}	M24	-
X290	290_{m6}	470	962	302	63_{h9}	M36	**X290**	120_{m6}	210	127	32_{h9}	M24	-
X300	300_{m6}	470	962	314	70_{h9}	M36	**X300**	120_{m6}	210	127	32_{h9}	M24	-
X310	320_{m6}	470	999	334	70_{h9}	M42	**X310**	130_{m6}	250	137	32_{h9}	M24	i = 12.5 ... 35.5*
								130_{m6}	210	137	32_{h9}	M24	i = 40 ... 71**
X320	340_{m6}	550	1079	355	80_{h9}	M42	**X320**	130_{m6}	250	137	32_{h9}	M24	i = 14 ... 40*
								130_{m6}	210	137	32_{h9}	M24	i = 45 ... 80**

X.KA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2745
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2875
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3660
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3770
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4420
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4870
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	5320
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6370
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6970
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7720
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	8420

X.KH..

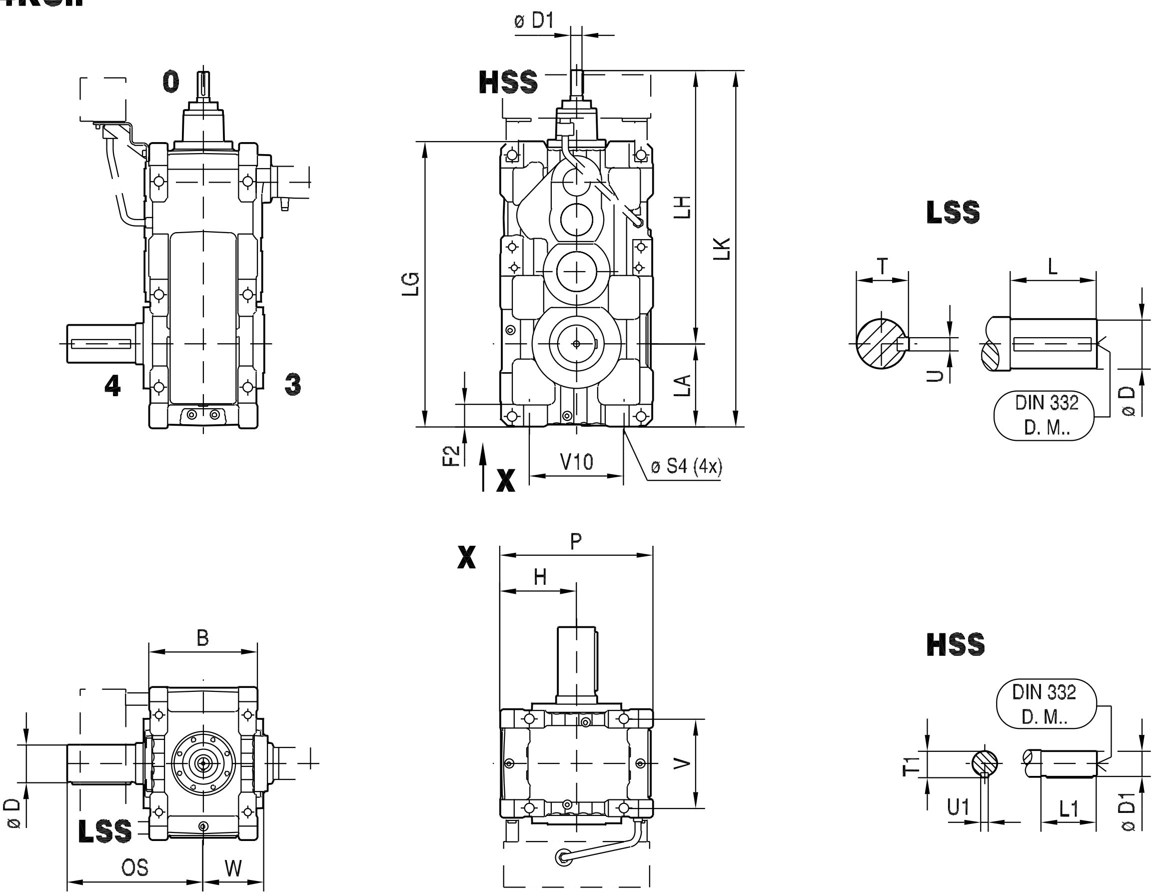


LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2850
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2985
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3825
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3930
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4570
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5120
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5570
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6420
X300	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	7220
X310	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8070
X320	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8770

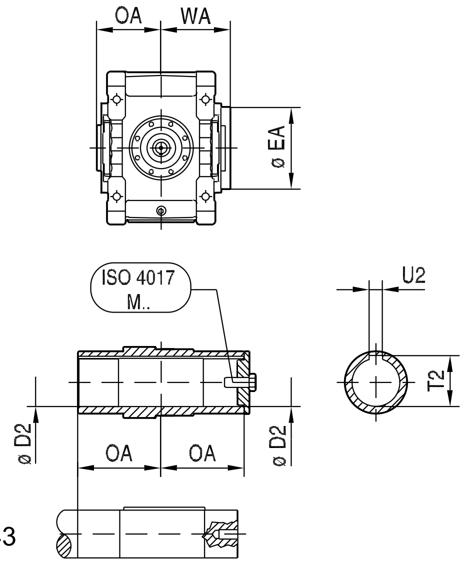
11.2.5 X4K120 - 210

48 043 02 09

X4KS..



X4KA..



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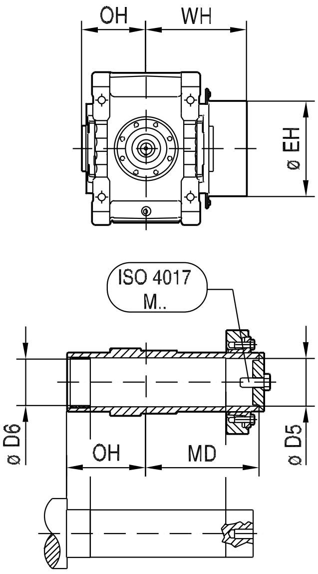
X4KH..



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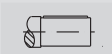
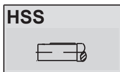
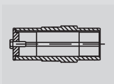
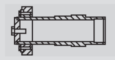
X.K..													
X4K..	B	F2	H	LA	LG	LH	LK	P	Ø S4 (4x)	V10	V14	W	kg
X120	300	68	$225_{-0.5}$	$215_{-0.5}$	767	710	925	450	28	300	245	174	345
X130	300	68	$225_{-0.5}$	$250_{-0.5}$	838	746	996	450	28	300	245	174	385
X140	360	86	$265_{-0.5}$	$250_{-0.5}$	903	856	1106	530	35	335	290	202	565
X150	360	86	$265_{-0.5}$	$295_{-0.5}$	990	898	1193	530	35	335	290	202	635
X160	425	105	$315_{-0.5}$	$355_{-0.5}$	1144	1029	1384	630	42	400	340	240	975
X170	425	105	$315_{-0.5}$	$355_{-0.5}$	1195	1080	1435	630	42	400	340	240	1135
X180	475	107	$335_{-0.5}$	$370_{-0.5}$	1249	1198	1568	670	42	415	390	277	1425
X190	475	107	$335_{-0.5}$	$370_{-0.5}$	1281	1230	1600	670	42	415	390	277	1435
X200	515	128	$375_{-0.5}$	$420_{-0.5}$	1409	1285	1705	750	48	455	420	298	1870
X210	515	128	$375_{-0.5}$	$420_{-0.5}$	1445	1321	1741	750	48	455	420	298	1920

LSS 	Ø D	L	OS	T	U	DIN 332 DR.M..
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	148	36_{h9}	M30
X170	160_{m6}	300	556	169	40_{h9}	M30
X180	170_{m6}	300	592	179	40_{h9}	M30
X190	170_{m6}	300	592	179	40_{h9}	M30
X200	180_{m6}	300	612	190	45_{h9}	M30
X210	190_{m6}	350	662	200	45_{h9}	M30

HSS 	Ø D1	L1	T1	U1	DIN 332 DR.M..
X120	28_{k6}	60	31	8_{h9}	M10
X130	28_{k6}	60	31	8_{h9}	M10
X140	32_{k6}	80	35	10_{h9}	M12
X150	32_{k6}	80	35	10_{h9}	M12
X160	38_{k6}	100	41	10_{h9}	M12
X170	38_{k6}	100	41	10_{h9}	M12
X180	50_{k6}	110	53.5	14_{h9}	M16
X190	50_{k6}	110	53.5	14_{h9}	M16
X200	50_{k6}	110	53.5	14_{h9}	M16
X210	50_{k6}	110	53.5	14_{h9}	M16

X.KA.. 								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	325
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	360
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	530
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	585
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	905
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1055
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1325
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1335
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1785
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1805

X.KH.. 								
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	335
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	375
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	555
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	615
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	935
X170	150^{H7}	153^{H9}	368	364	256	427	M30x90-8.8	1110
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1375
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1385
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1855
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1890

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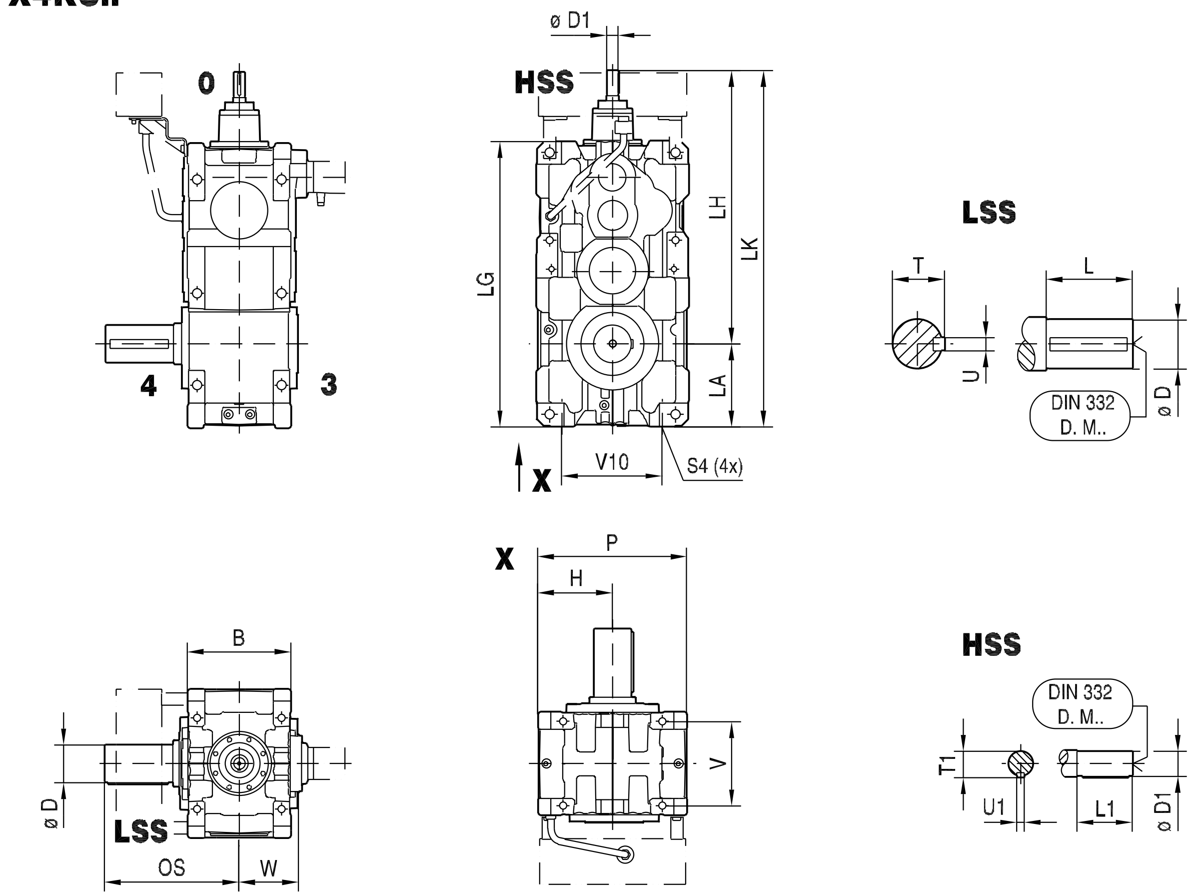
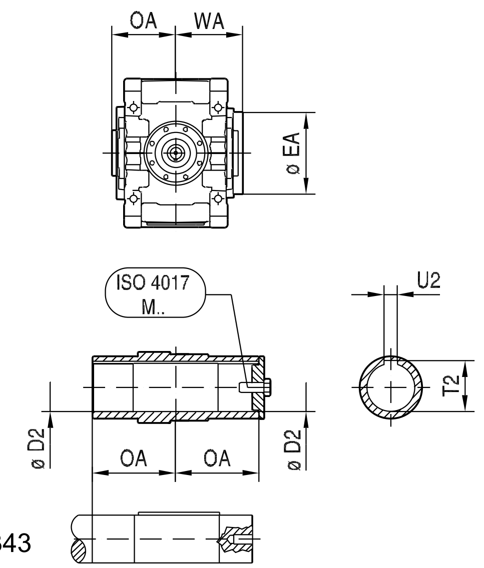
X4KS..



X4KA..



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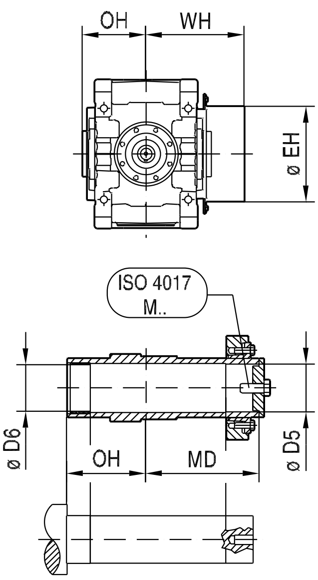
X4KH..



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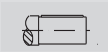
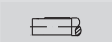
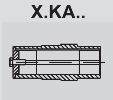
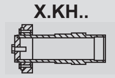
X.K..												
X4K..	**B**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S4 (4x)**	**V10**	**V14**	**W**	**kg**
X220	540	$425_{-0.5}$	$465_{-0.5}$	1584	1456	1921	850	M42x63	610	440	331	2735
X230	540	$425_{-0.5}$	$465_{-0.5}$	1624	1498	1963	850	M42x63	610	440	331	2975
X240	625	$450_{-0.5}$	$495_{-0.5}$	1721	1595	2090	900	M48x72	600	510	377	3815
X250	625	$450_{-0.5}$	$495_{-0.5}$	1744	1618	2113	900	M48x72	600	510	377	4045
X260	705	$500_{-0.5}$	$545_{-0.5}$	1900	1785	2330	1000	M48x72	710	590	417	4620
X270	705	$500_{-0.5}$	$545_{-0.5}$	1935	1820	2365	1000	M48x72	710	590	419	5120
X280	705	$555_{-0.5}$	$610_{-0.5}$	2052	1872	2482	1110	M48x72	710	590	419	5670
X290	785	$580_{-0.5}$	$620_{-0.5}$	2187	2015	2635	1160	M48x72	765	655	465	7070
X300	785	$580_{-0.5}$	$620_{-0.5}$	2216	2044	2664	1160	M48x72	765	655	465	7820
X310	850	$630_{-0.5}$	$680_{-0.5}$	2410	2256	2936	1260	M48x72	860	720	499	8670
X320	850	$630_{-0.5}$	$680_{-0.5}$	2444	2290	2970	1260	M48x72	860	720	499	9620

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X220	210_{m6}	350	703	221	50_{h9}	M30
X230	230_{m6}	410	763	241	50_{h9}	M36
X240	230_{m6}	410	811	241	50_{h9}	M36
X250	240_{m6}	410	811	252	56_{h9}	M36
X260	250_{m6}	410	847	262	56_{h9}	M36
X270	270_{m6}	470	920	282	63_{h9}	M36
X280	290_{m6}	470	920	302	63_{h9}	M36
X290	290_{m6}	470	962	302	63_{h9}	M36
X300	300_{m6}	470	962	314	70_{h9}	M36
X310	320_{m6}	470	999	334	70_{h9}	M42
X320	340_{m6}	550	1079	355	80_{h9}	M42

HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X220	60_{m6}	140	64	18_{h9}	M20
X230	60_{m6}	140	64	18_{h9}	M20
X240	70_{m6}	140	74.5	20_{h9}	M20
X250	70_{m6}	140	74.5	20_{h9}	M20
X260	80_{m6}	170	85	22_{h9}	M20
X270	80_{m6}	170	85	22_{h9}	M20
X280	80_{m6}	170	85	22_{h9}	M20
X290	85_{m6}	170	90	22_{h9}	M20
X300	85_{m6}	170	90	22_{h9}	M20
X310	100_{m6}	210	106	28_{h9}	M24
X320	100_{m6}	210	106	28_{h9}	M24

X.KA.. 								
LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2555
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2755
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3530
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3740
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4170
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4620
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	5120
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6370
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	7070
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7820
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	8470

X.KH.. 								
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2660
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2865
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3695
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3900
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4320
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4870
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5370
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6620
X300	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	7320
X310	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8170
X320	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8820

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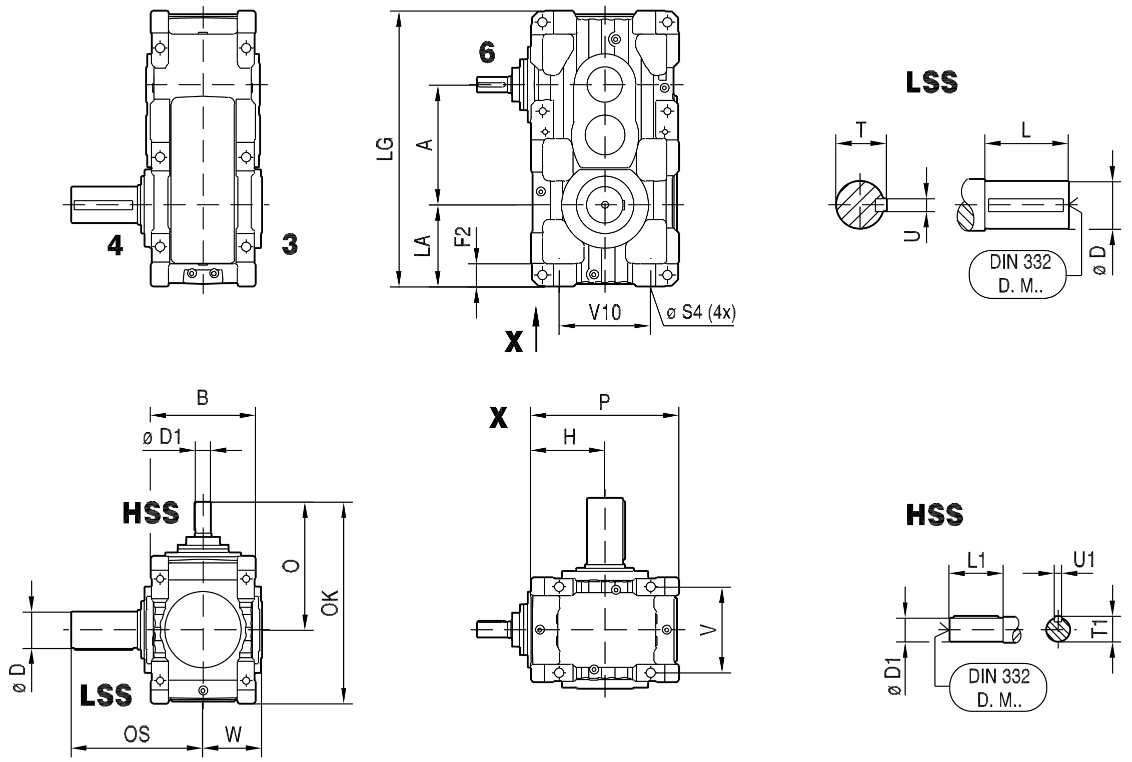
12 Dimension sheets: trolley drives

12.1 X.T.. bevel-helical gear units, mounting position M4 [mm]

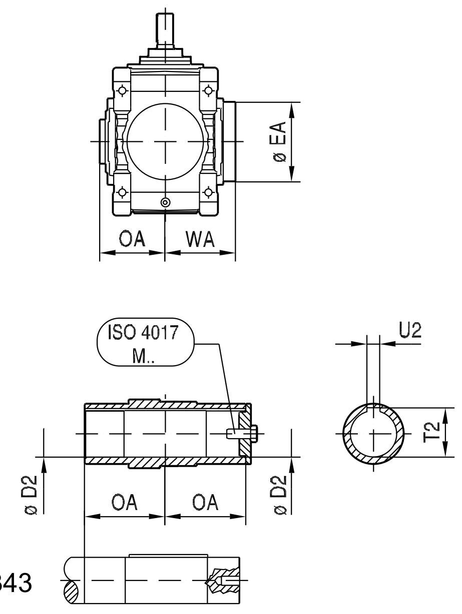
12.1.1 X3T100 - 210

X3TS..

48 045 02 09



X3TA..



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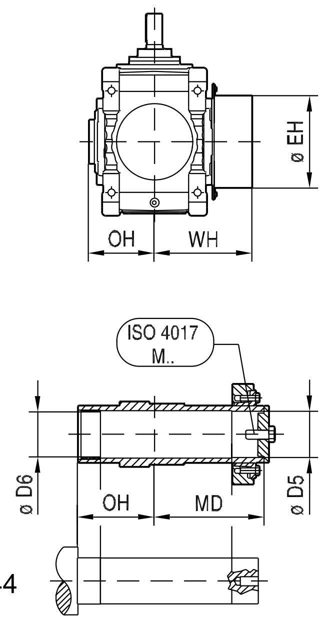
X3TH..



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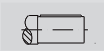
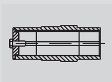
X.T..

X3T..	A	B	F2	H	LA	LG	O	OK	P	Ø S4 (4x)	V10	V14	W	kg
X100	278	260	62	$190_{-0.5}$	$190_{-0.5}$	658	354	544	380	24	250	210	153	245
X110	298	260	62	$190_{-0.5}$	$215_{-0.5}$	703	354	544	380	24	250	210	153	265
X120	327	300	68	$225_{-0.5}$	$215_{-0.5}$	767	418	643	450	28	300	245	174	375
X130	363	300	68	$225_{-0.5}$	$250_{-0.5}$	838	418	643	450	28	300	245	174	425
X140	388	360	86	$265_{-0.5}$	$250_{-0.5}$	903	491	756	530	35	335	290	202	620
X150	430	360	86	$265_{-0.5}$	$295_{-0.5}$	990	491	756	530	35	335	290	202	660
X160	474	425	105	$315_{-0.5}$	$355_{-0.5}$	1144	562	877	630	42	400	340	240	1020
X170	525	425	105	$315_{-0.5}$	$355_{-0.5}$	1195	562	877	630	42	400	340	240	1165
X180	544	475	107	$335_{-0.5}$	$370_{-0.5}$	1249	591	926	670	42	415	390	277	1340
X190	576	475	107	$335_{-0.5}$	$370_{-0.5}$	1281	591	926	670	42	415	390	277	1415
X200	614	515	128	$375_{-0.5}$	$420_{-0.5}$	1409	672	1047	750	48	455	420	298	1890
X210	650	515	128	$375_{-0.5}$	$420_{-0.5}$	1445	672	1047	750	48	455	420	298	1935

LSS 	Ø D	L	OS	T	U	DIN 332 DR.M..
X100	80_{m6}	170	343	85	22_{h9}	M20
X110	90_{m6}	170	346	95	25_{h9}	M24
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	148	36_{h9}	M30
X170	160_{m6}	300	556	169	40_{h9}	M30
X180	170_{m6}	300	592	179	40_{h9}	M30
X190	170_{m6}	300	592	179	40_{h9}	M30
X200	180_{m6}	300	612	190	45_{h9}	M30
X210	190_{m6}	350	662	200	45_{h9}	M30

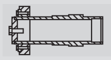
HSS 	Ø D1	L1	T1	U1	DIN 332 DR.M..
X100	32_{k6}	80	35	10_{h9}	M12
X110	32_{k6}	80	35	10_{h9}	M12
X120	38_{k6}	100	41	10_{h9}	M12
X130	38_{k6}	100	41	10_{h9}	M12
X140	50_{k6}	110	53.5	14_{h9}	M16
X150	50_{k6}	110	53.5	14_{h9}	M16
X160	60_{m6}	140	64	18_{h9}	M20
X170	60_{m6}	140	64	18_{h9}	M20
X180	70_{m6}	140	74.5	20_{h9}	M20
X190	70_{m6}	140	74.5	20_{h9}	M20
X200	80_{m6}	170	85	22_{h9}	M20
X210	80_{m6}	170	85	22_{h9}	M20

X.TA..



LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X100	75^{H8}	158	173	80.4	20^{JS9}	207	M20x60-8.8	235
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	255
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	355
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	400
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	585
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	610
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	950
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1085
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1240
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1315
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1805
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1820

X.TH..



LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	245
X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	265
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	365
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	415
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	610
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	640
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	980
X170	150^{H7}	153^{H9}	368	364	256	427	M30x90-8.8	1140
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1290
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1365
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1875
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1905

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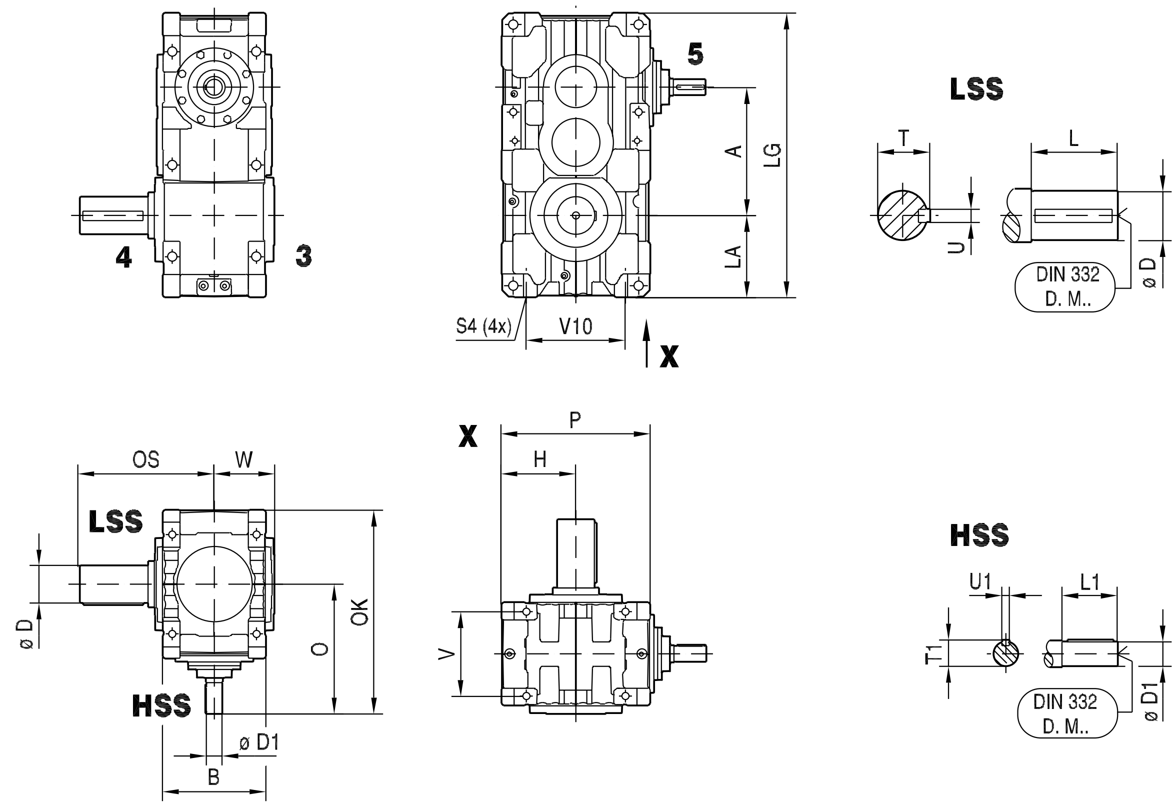
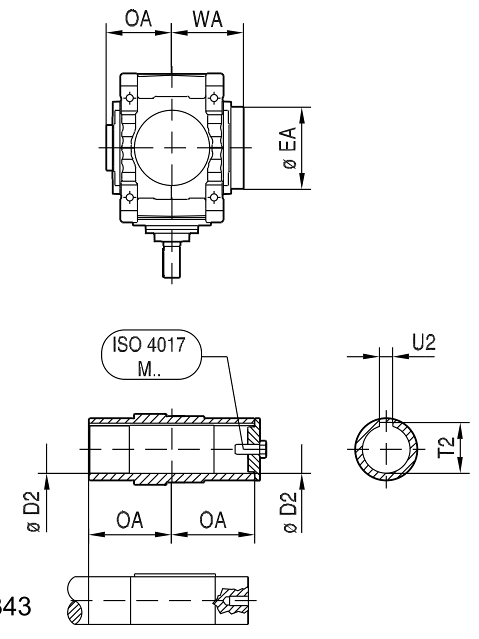
12.1.2 X3T220 - 250

X3TS..

48 046 03 09



X3TA..



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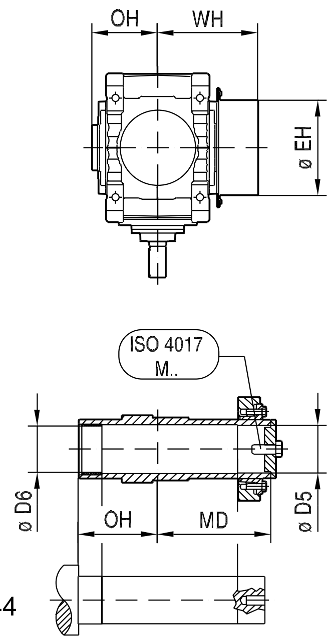
X3TH..



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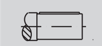
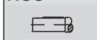
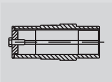
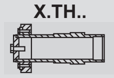
X.T..													
X3T..	**A**	**B**	**H**	**LA**	**LG**	**O**	**OK**	**P**	**Ø S4 (4x)**	**V10**	**V14**	**W**	**kg**
X220	694	540	$425_{-0.5}$	$465_{-0.5}$	1584	736	1161	850	M42x63	610	440	331	2655
X230	734	540	$425_{-0.5}$	$465_{-0.5}$	1624	736	1161	850	M42x63	610	440	331	2845
X240	776	625	$450_{-0.5}$	$495_{-0.5}$	1721	821	1271	900	M48x72	600	510	377	3645
X250	799	625	$450_{-0.5}$	$495_{-0.5}$	1744	821	1271	900	M48x72	600	510	377	3775

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X220	210_{m6}	350	703	221	50_{h9}	M30
X230	230_{m6}	410	763	241	50_{h9}	M36
X240	230_{m6}	410	811	241	50_{h9}	M36
X250	240_{m6}	410	811	252	56_{h9}	M36

HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X220	85_{m6}	170	90	22_{h9}	M20
X230	85_{m6}	170	90	22_{h9}	M20
X240	100_{m6}	210	106	28_{h9}	M24
X250	100_{m6}	210	106	28_{h9}	M24

X.TA.. 								
LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2475
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2625
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3645
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3470

X.TH.. 								
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2580
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2735
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3525
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3630

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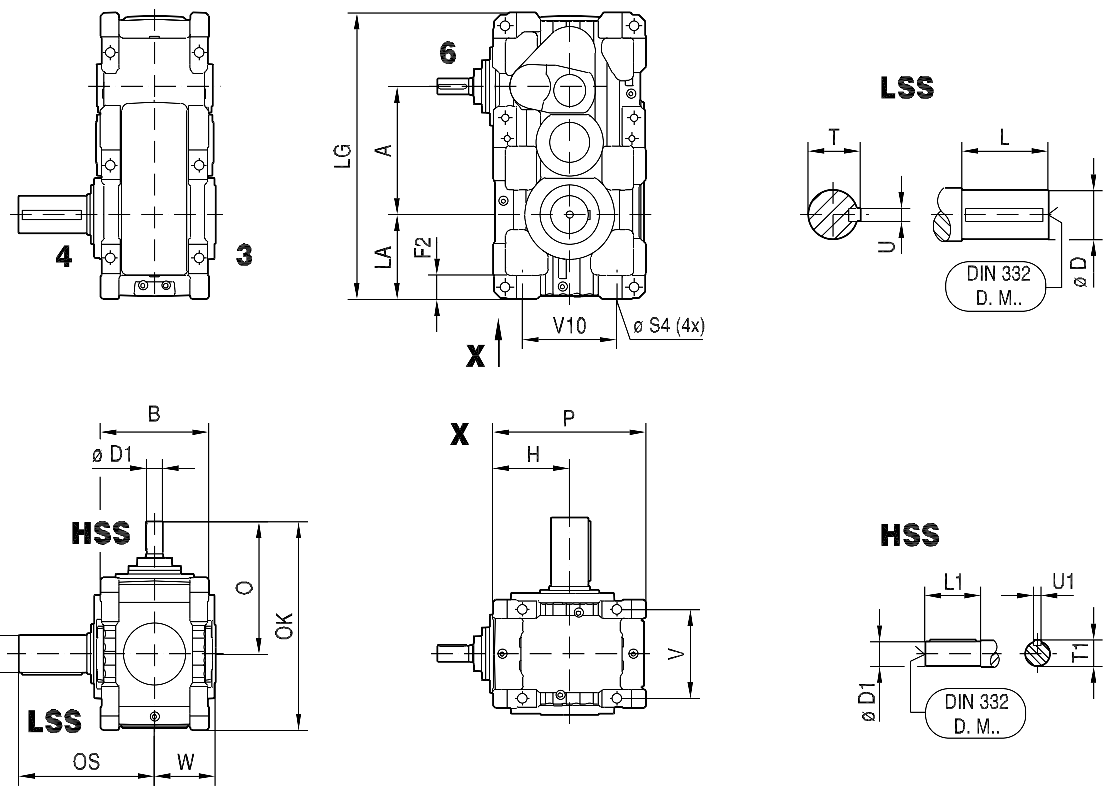
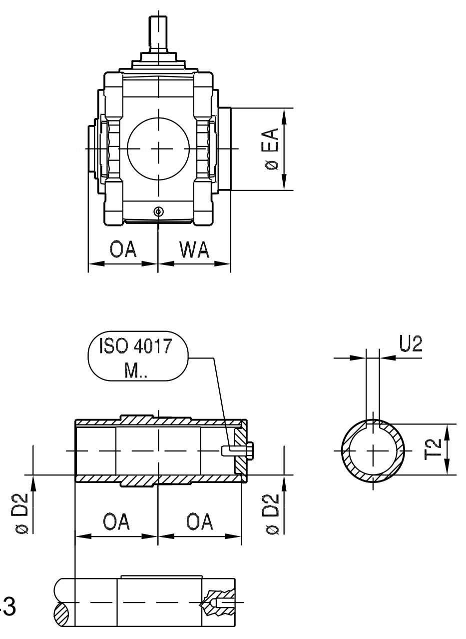
12.1.3 X4T120 - 210

X4TS.. 48 047 02 09



X4TA..



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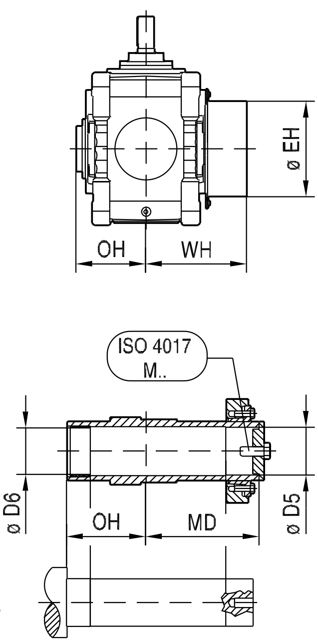
X4TH..



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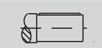
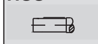
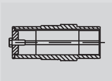
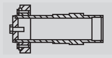
X.T..														
X3T..	**A**	**B**	**F2**	**H**	**LA**	**LG**	**O**	**OK**	**P**	**Ø S4 (4x)**	**V10**	**V14**	**W**	**kg**
X120	337	300	68	$225_{-0.5}$	$215_{-0.5}$	767	383	608	450	28	300	245	174	360
X130	373	300	68	$225_{-0.5}$	$250_{-0.5}$	838	383	608	450	28	300	245	174	400
X140	403	360	86	$265_{-0.5}$	$250_{-0.5}$	903	467	732	530	35	335	290	202	580
X150	445	360	86	$265_{-0.5}$	$295_{-0.5}$	990	467	732	530	35	335	290	202	650
X160	490	425	105	$315_{-0.5}$	$355_{-0.5}$	1144	554	869	630	42	400	340	240	1000
X170	541	425	105	$315_{-0.5}$	$355_{-0.5}$	1195	554	869	630	42	400	340	240	1160
X180	562	475	107	$335_{-0.5}$	$370_{-0.5}$	1249	653	988	670	42	415	390	277	1375
X190	594	475	107	$335_{-0.5}$	$370_{-0.5}$	1281	653	988	670	42	415	390	277	1440
X200	627	515	128	$375_{-0.5}$	$420_{-0.5}$	1409	671	1046	750	48	455	420	298	1920
X210	663	515	128	$375_{-0.5}$	$420_{-0.5}$	1445	671	1046	750	48	455	420	298	1970

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	148	36_{h9}	M30
X170	160_{m6}	300	556	169	40_{h9}	M30
X180	170_{m6}	300	592	179	40_{h9}	M30
X190	170_{m6}	300	592	179	40_{h9}	M30
X200	180_{m6}	300	612	190	45_{h9}	M30
X210	190_{m6}	350	662	200	45_{h9}	M30

HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X120	28_{k6}	60	31	8_{h9}	M10
X130	28_{k6}	60	31	8_{h9}	M10
X140	32_{k6}	80	35	10_{h9}	M12
X150	32_{k6}	80	35	10_{h9}	M12
X160	38_{k6}	100	41	10_{h9}	M12
X170	38_{k6}	100	41	10_{h9}	M12
X180	50_{k6}	110	53.5	14_{h9}	M16
X190	50_{k6}	110	53.5	14_{h9}	M16
X200	50_{k6}	110	53.5	14_{h9}	M16
X210	50_{k6}	110	53.5	14_{h9}	M16

X.TA.. 								
LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	340
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	375
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	545
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	600
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	930
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1080
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1275
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1335
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1835
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1855

X.TH.. 								
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	350
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	390
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	570
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	630
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	960
X170	150^{H7}	153^{H9}	368	364	256	427	M30x90-8.8	1135
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1325
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1385
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1905
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1940

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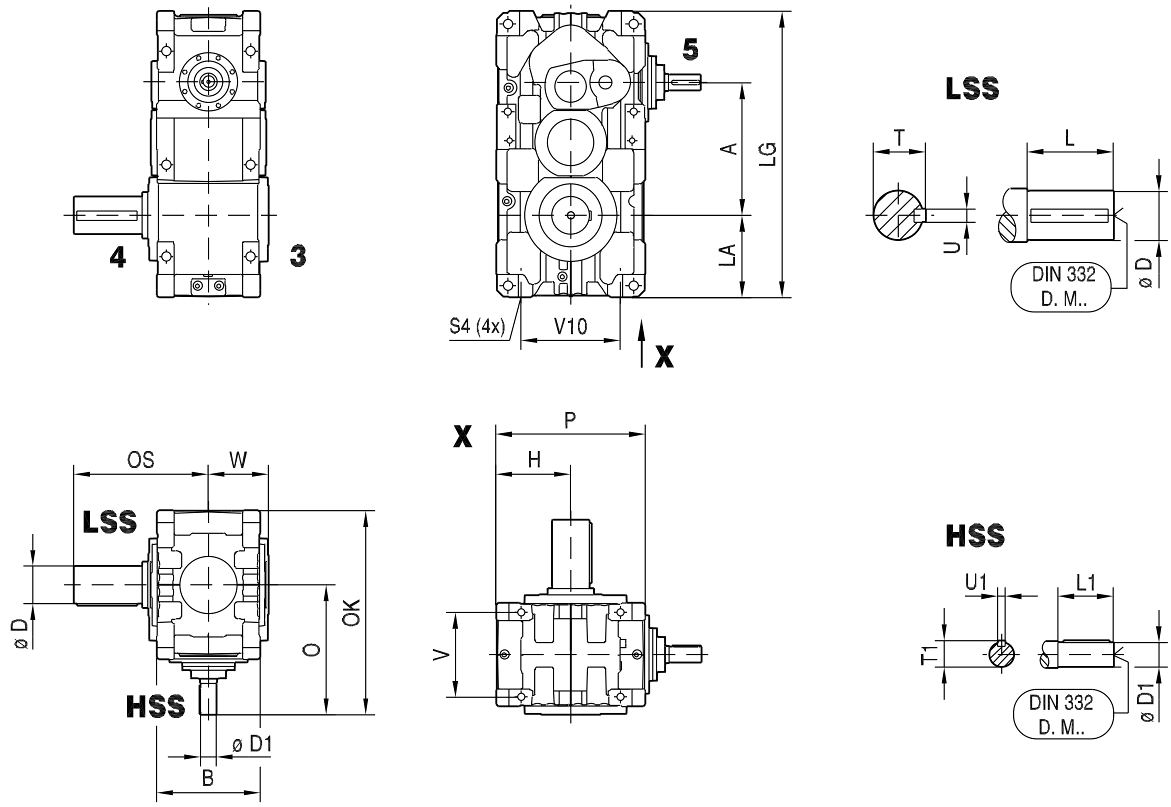
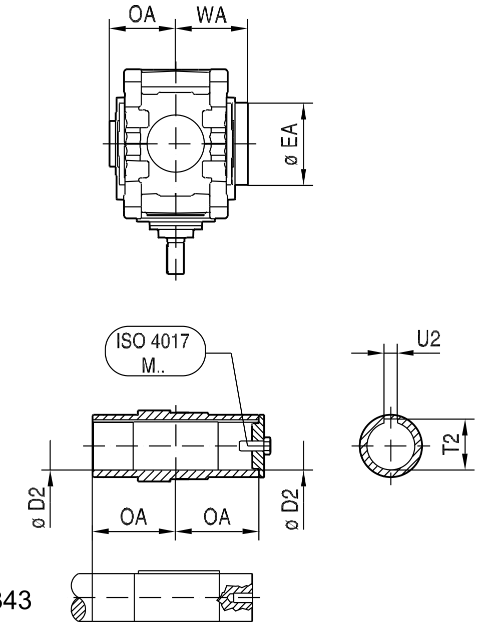
12.1.4 X4T220 - 250

X4TS..

48 048 03 09



X4TA..



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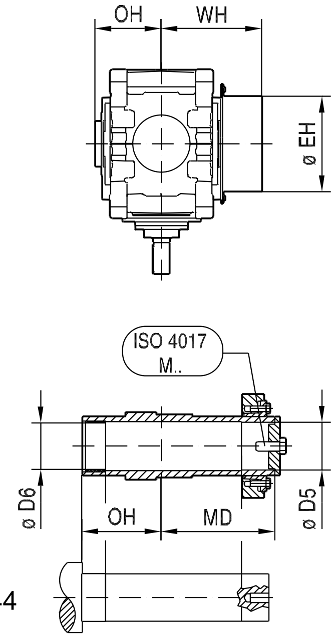
X4TH..



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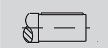
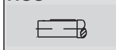
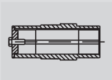
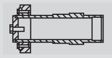
X.T..													
X4T..	**A**	**B**	**H**	**LA**	**LG**	**O**	**OK**	**P**	**Ø S4 (4x)**	**V10**	**V14**	**W**	**kg**
X220	718	540	$425_{-0.5}$	$465_{-0.5}$	1584	761	1186	850	M42x63	610	440	331	2700
X230	758	540	$425_{-0.5}$	$465_{-0.5}$	1624	761	1186	850	M42x63	610	440	331	2880
X240	806	625	$450_{-0.5}$	$495_{-0.5}$	1721	817	1267	900	M48x72	600	510	377	3680
X250	829	625	$450_{-0.5}$	$495_{-0.5}$	1744	817	1267	900	M48x72	600	510	377	3835

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X220	210_{m6}	350	703	221	50_{h9}	M30
X230	230_{m6}	410	763	241	50_{h9}	M36
X240	230_{m6}	410	811	241	50_{h9}	M36
X250	240_{m6}	410	811	252	56_{h9}	M36

HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X220	60_{m6}	140	64	18_{h9}	M20
X230	60_{m6}	140	64	18_{h9}	M20
X240	70_{m6}	140	74.5	20_{h9}	M20
X250	70_{m6}	140	74.5	20_{h9}	M20

X.TA.. 								
LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2520
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2660
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3395
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3530

X.TH.. 								
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2625
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2770
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3560
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3690

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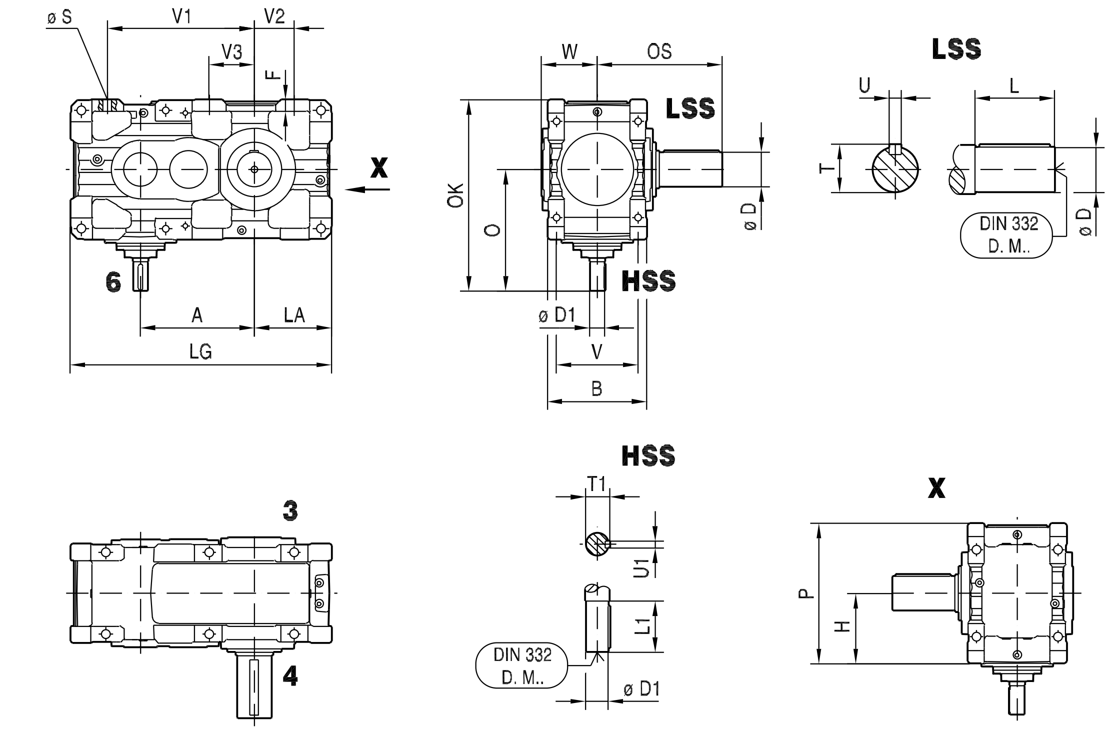
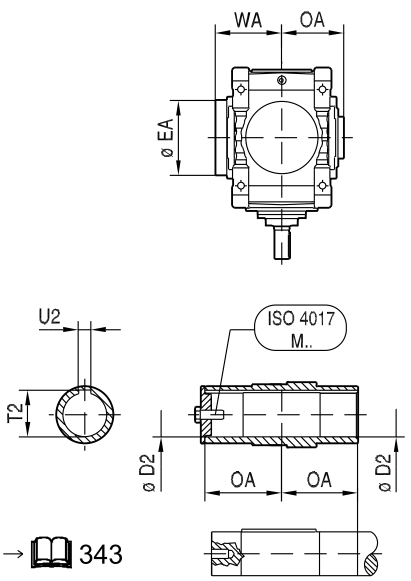
12.2 X.T.. Bevel-helical gear units, horizontal mounting position [mm]

12.2.1 X3T100 - 210

X3TS.. 48 029 01 09



X3TA..



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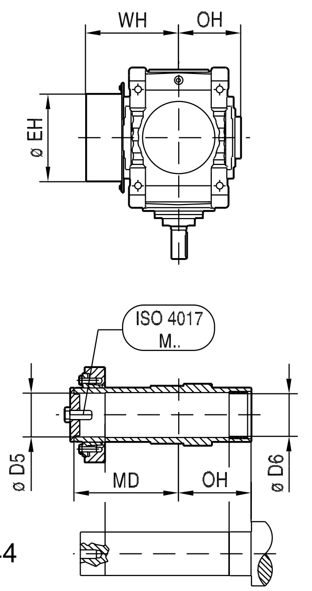
X3TH..



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X.T..																
X3T.	A	B	F	H	LA	LG	O	OK	P	Ø S	V	V1	V2	V3	W	kg
X100	278	260	29	$190_{-0.5}$	$190_{-0.5}$	658	354	544	380	24 (4x)	210	370	90	-	153	240
X110	298	260	29	$190_{-0.5}$	$215_{-0.5}$	703	354	544	380	24 (4x)	210	390	115	-	153	260
X120	327	300	33	$225_{-0.5}$	$215_{-0.5}$	767	418	643	450	28 (4x)	245	440	105	-	174	370
X130	363	300	33	$225_{-0.5}$	$250_{-0.5}$	838	418	643	450	28 (4x)	245	475	140	-	174	420
X140	388	360	42	$265_{-0.5}$	$250_{-0.5}$	903	491	756	530	35 (4x)	290	510	110	-	202	610
X150	430	360	42	$265_{-0.5}$	$295_{-0.5}$	990	491	756	530	35 (4x)	290	555	155	-	202	650
X160	474	425	50	$315_{-0.5}$	$355_{-0.5}$	1144	562	877	630	42 (4x)	340	620	185	-	240	1005

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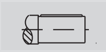
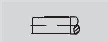
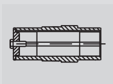
X170	525	425	50	$315_{-0.5}$	$355_{-0.5}$	1195	562	877	630	42 (4x)	340	670	185	-	240	1150
X180	544	475	55	$335_{-0.5}$	$370_{-0.5}$	1249	591	926	670	42 (6x)	390	710	190	215	277	1326
X190	576	475	55	$335_{-0.5}$	$370_{-0.5}$	1281	591	926	670	42 (6x)	390	740	190	215	277	1400
X200	614	515	60	$375_{-0.5}$	$420_{-0.5}$	1409	672	1047	750	48 (6x)	420	780	205	230	298	1870
X210	650	515	60	$375_{-0.5}$	$420_{-0.5}$	1445	672	1047	750	48 (6x)	420	815	205	230	298	1915

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X100	80_{m6}	170	343	85	22_{h9}	M20
X110	90_{m6}	170	346	95	25_{h9}	M24
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	148	36_{h9}	M30
X170	160_{m6}	300	556	169	40_{h9}	M30
X180	170_{m6}	300	592	179	40_{h9}	M30
X190	170_{m6}	300	592	179	40_{h9}	M30
X200	180_{m6}	300	612	190	45_{h9}	M30
X210	190_{m6}	350	662	200	45_{h9}	M30

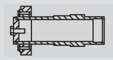
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X100	32_{k6}	80	35	10_{h9}	M12
X110	32_{k6}	80	35	10_{h9}	M12
X120	38_{k6}	100	41	10_{h9}	M12
X130	38_{k6}	100	41	10_{h9}	M12
X140	50_{k6}	110	53.5	14_{h9}	M16
X150	50_{k6}	110	53.5	14_{h9}	M16
X160	60_{m6}	140	64	18_{h9}	M20
X170	60_{m6}	140	64	18_{h9}	M20
X180	70_{m6}	140	74.5	20_{h9}	M20
X190	70_{m6}	140	74.5	20_{h9}	M20
X200	80_{m6}	170	85	22_{h9}	M20
X210	80_{m6}	170	85	22_{h9}	M20

X.TA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X100	75^{H8}	158	173	80.4	20^{JS9}	207	M20x60-8.8	230
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	250
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	350
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	395
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	575
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	600
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	935
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1070
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1225
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1300
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1785
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1800

X.TH..



LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	240
X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	260
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	360
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	410
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	600
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	630
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	965
X170	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1125
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1275
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1350
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1855
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1885

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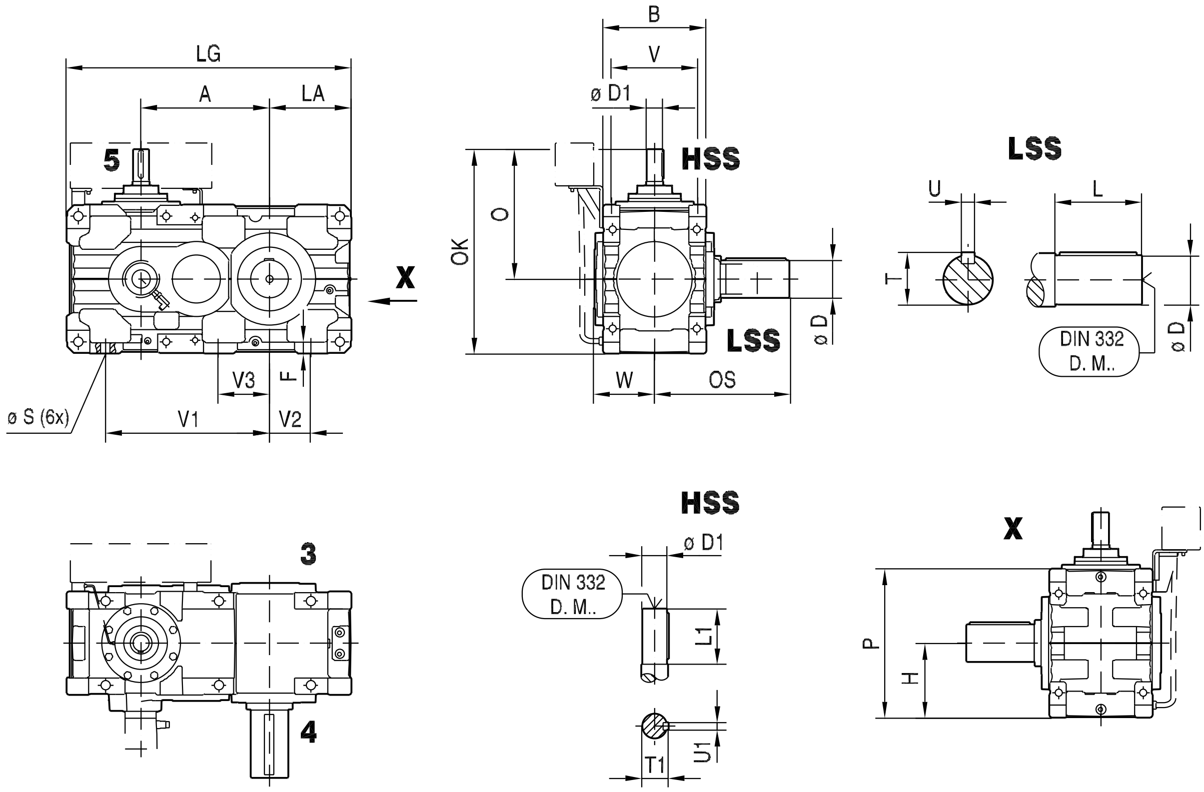
12.2.2 X3T220 - 250

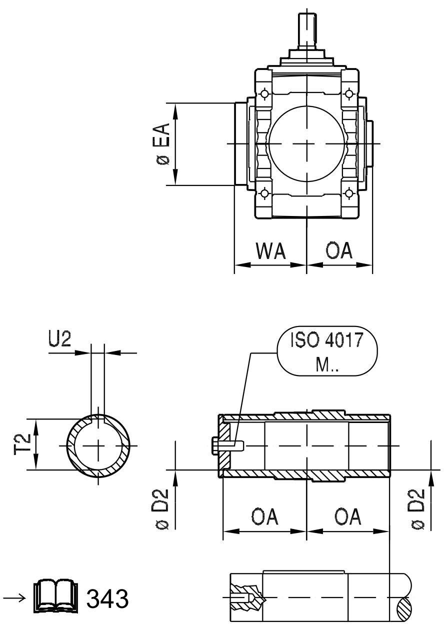
X3TS..

48 030 01 09



X3TA..

X3TH..



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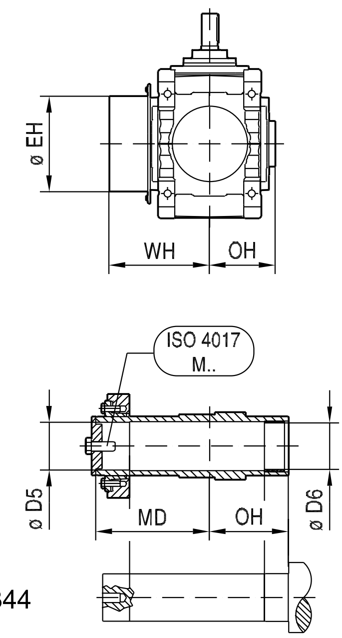

→ 📖 344

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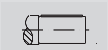
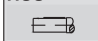
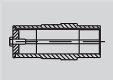
X.T..															
X3T.	**A**	**B**	**F**	**H**	**LA**	**LG**	**O**	**OK**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X220	694	540	62	$425_{-0.5}$	$465_{-0.5}$	1584	736	1161	850	48	440	910	250	280	331	2620
X230	734	540	62	$425_{-0.5}$	$465_{-0.5}$	1624	736	1161	850	48	440	950	250	280	331	2810
X240	776	625	68	$450_{-0.5}$	$495_{-0.5}$	1721	821	1271	900	56	510	990	250	305	377	3610
X250	799	625	68	$450_{-0.5}$	$495_{-0.5}$	1744	821	1271	900	56	510	1010	250	305	377	3740

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X220	210_{m6}	350	703	221	50_{h9}	M30
X230	230_{m6}	410	763	241	50_{h9}	M36
X240	230_{m6}	410	811	241	50_{h9}	M36
X250	240_{m6}	410	811	252	56_{h9}	M36

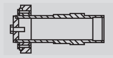
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X220	85_{m6}	170	90	22_{h9}	M20
X230	85_{m6}	170	90	22_{h9}	M20
X240	100_{m6}	210	106	28_{h9}	M24
X250	100_{m6}	210	106	28_{h9}	M24

X.TA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2440
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2590
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3325
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3435

X.TH..



LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2545
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2700
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3490
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3595

12

12.2.3 X4T120 - 210

X4TS..

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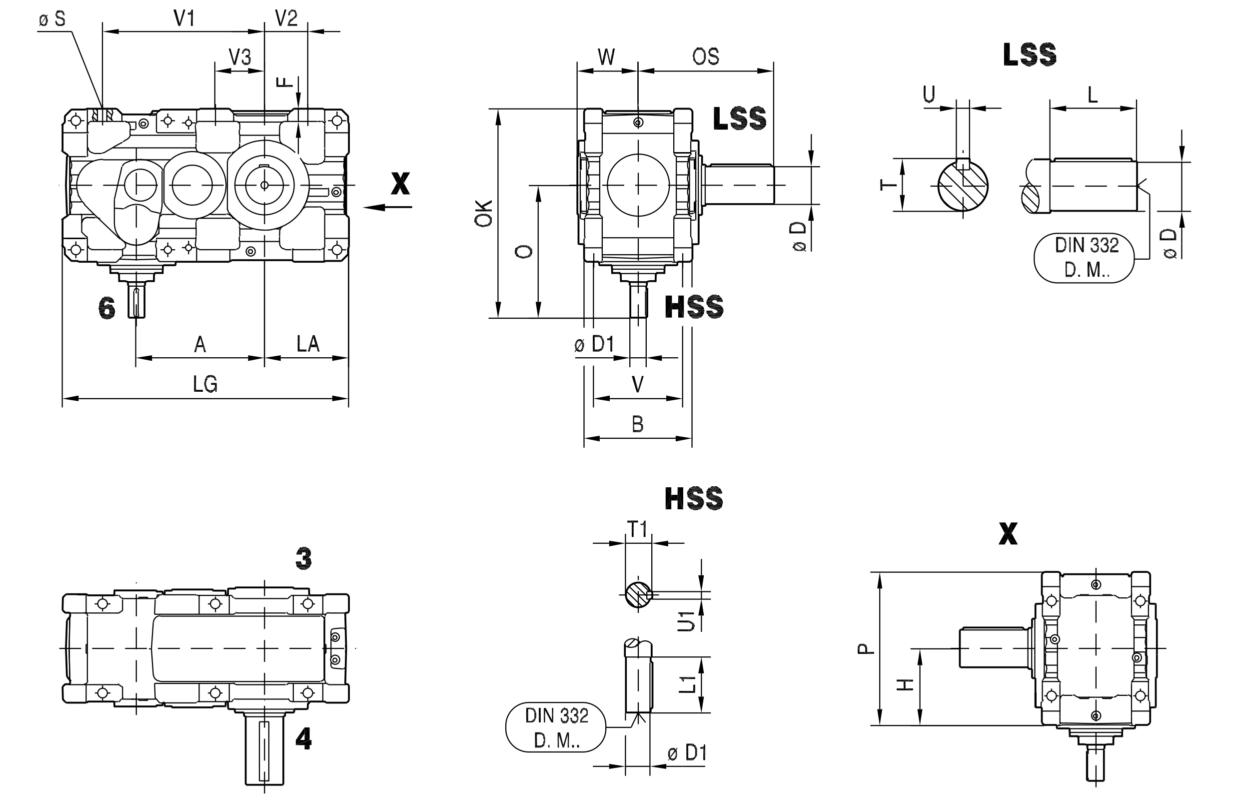
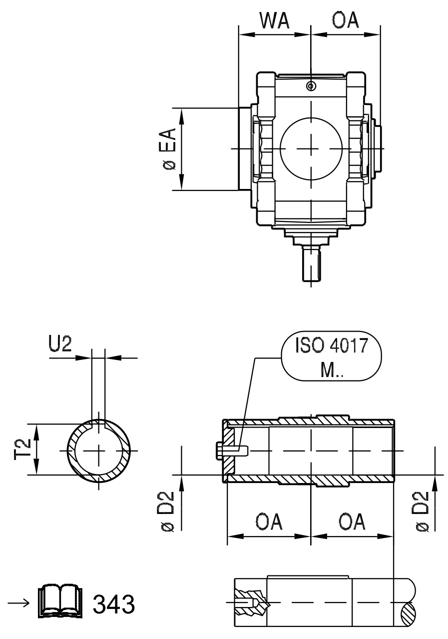


X4TA..



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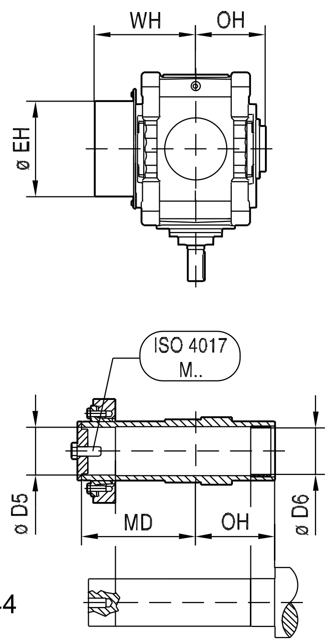
X4TH..



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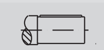
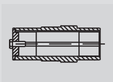
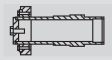
X.T..															
X4T.	**A**	**B**	**F**	**H**	**LA**	**LG**	**O**	**OK**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X120	337	300	33	$225_{-0.5}$	$215_{-0.5}$	767	383	608	450	28 (4x)	245	440	105	-	174	355
X130	373	300	33	$225_{-0.5}$	$250_{-0.5}$	838	383	608	450	28 (4x)	245	475	140	-	174	395
X140	403	360	42	$265_{-0.5}$	$250_{-0.5}$	903	467	732	530	35 (4x)	290	510	110	-	202	570
X150	445	360	42	$265_{-0.5}$	$295_{-0.5}$	990	467	732	530	35 (4x)	290	555	155	-	202	640
X160	490	425	50	$315_{-0.5}$	$355_{-0.5}$	1144	554	869	630	42 (4x)	340	620	185	-	240	985
X170	541	425	50	$315_{-0.5}$	$355_{-0.5}$	1195	554	869	630	42 (4x)	340	670	185	-	240	1145
X180	562	475	55	$335_{-0.5}$	$370_{-0.5}$	1249	653	988	670	42 (6x)	390	710	190	215	277	1360
X190	594	475	55	$335_{-0.5}$	$370_{-0.5}$	1281	653	988	670	42 (6x)	390	740	190	215	277	1425
X200	627	515	60	$375_{-0.5}$	$420_{-0.5}$	1409	671	1046	750	48 (6x)	420	780	205	230	298	1900
X210	663	515	60	$375_{-0.5}$	$420_{-0.5}$	1445	671	1046	750	48 (6x)	420	815	205	230	298	1950

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	148	36_{h9}	M30
X170	160_{m6}	300	556	169	40_{h9}	M30
X180	170_{m6}	300	592	179	40_{h9}	M30
X190	170_{m6}	300	592	179	40_{h9}	M30
X200	180_{m6}	300	612	190	45_{h9}	M30
X210	190_{m6}	350	662	200	45_{h9}	M30

HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X120	28_{k6}	60	31	8_{h9}	M10
X130	28_{k6}	60	31	8_{h9}	M10
X140	32_{k6}	80	35	10_{h9}	M12
X150	32_{k6}	80	35	10_{h9}	M12
X160	38_{k6}	100	41	10_{h9}	M12
X170	38_{k6}	100	41	10_{h9}	M12
X180	50_{k6}	110	53.5	14_{h9}	M16
X190	50_{k6}	110	53.5	14_{h9}	M16
X200	50_{k6}	110	53.5	14_{h9}	M16
X210	50_{k6}	110	53.5	14_{h9}	M16

X.TA.. 								
LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	335
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	370
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	535
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	590
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	915
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1065
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1260
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1320
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1815
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1835

X.TH.. 								
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	345
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	385
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	560
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	620
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	945
X170	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1120
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1310
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1370
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1885
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1920

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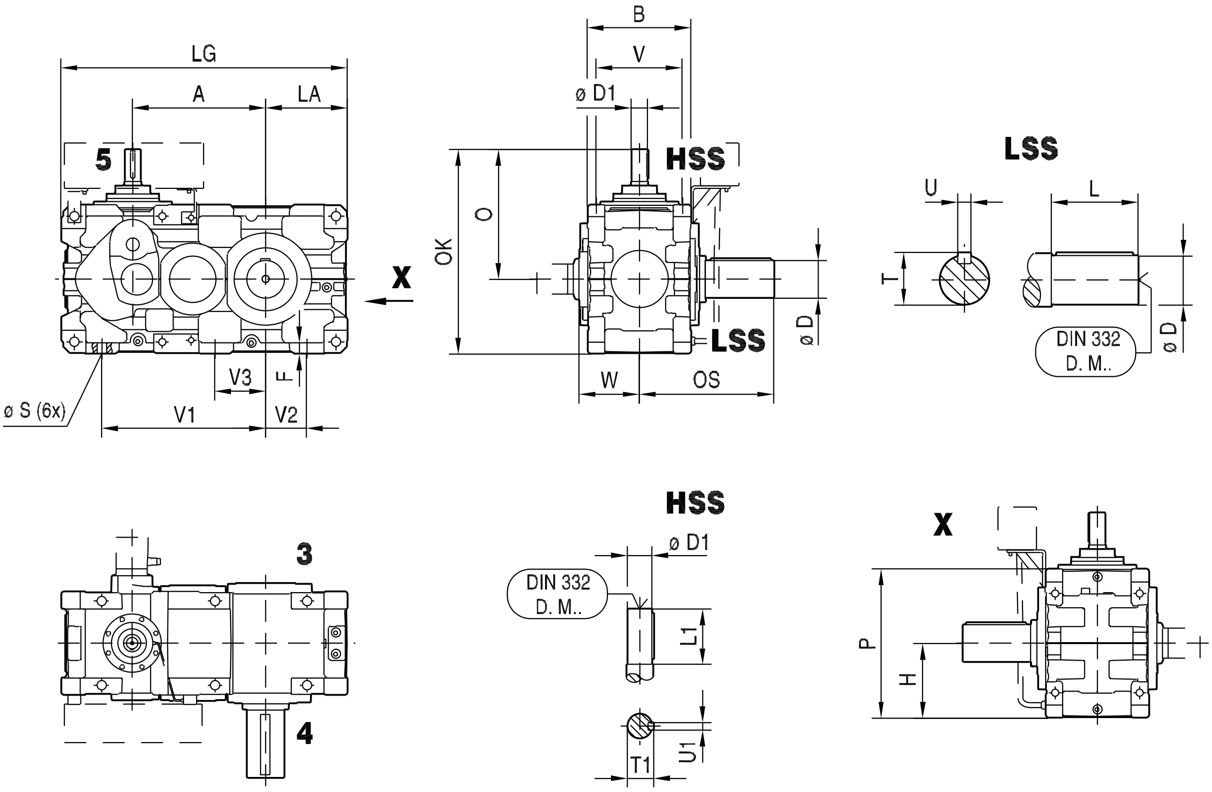
12.2.4 X4T220 - 250

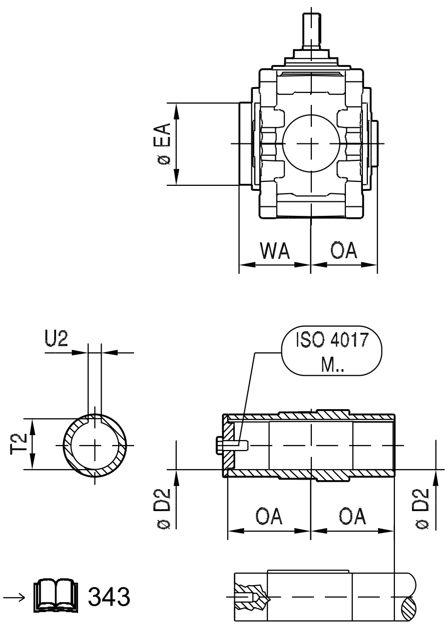
X4TS..

48 032 01 09

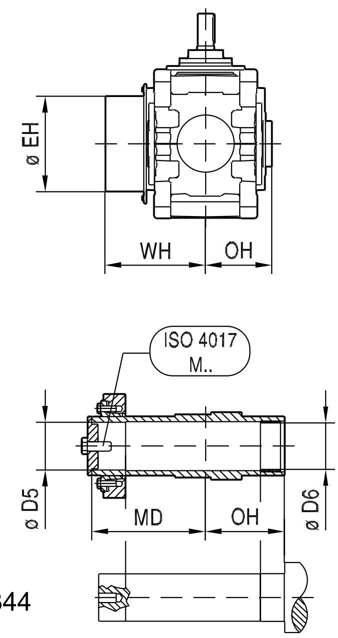


X4TA..

X4TH..



→ 343



→ 344

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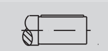
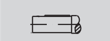
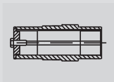
X.T..															
X4T.	**A**	**B**	**F**	**H**	**LA**	**LG**	**O**	**OK**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X220	718	540	62	$425_{-0.5}$	$465_{-0.5}$	1584	761	1186	850	48	440	910	250	280	331	2665
X230	758	540	62	$425_{-0.5}$	$465_{-0.5}$	1624	761	1186	850	48	440	950	250	280	331	2845
X240	806	625	68	$450_{-0.5}$	$495_{-0.5}$	1721	817	1267	900	56	510	990	250	305	377	3645
X250	829	625	68	$450_{-0.5}$	$495_{-0.5}$	1744	817	1267	900	56	510	1010	250	305	377	3800

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X220	210_{m6}	350	703	221	50_{h9}	M30
X230	230_{m6}	410	763	241	50_{h9}	M36
X240	230_{m6}	410	811	241	50_{h9}	M36
X250	240_{m6}	410	811	252	56_{h9}	M36

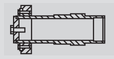
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X220	60_{m6}	140	64	18_{h9}	M20
X230	60_{m6}	140	64	18_{h9}	M20
X240	70_{m6}	140	74.5	20_{h9}	M20
X250	70_{m6}	140	74.5	20_{h9}	M20

X.TA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2485
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2625
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3360
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3495

X.TH..



LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2590
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2735
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3525
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3655

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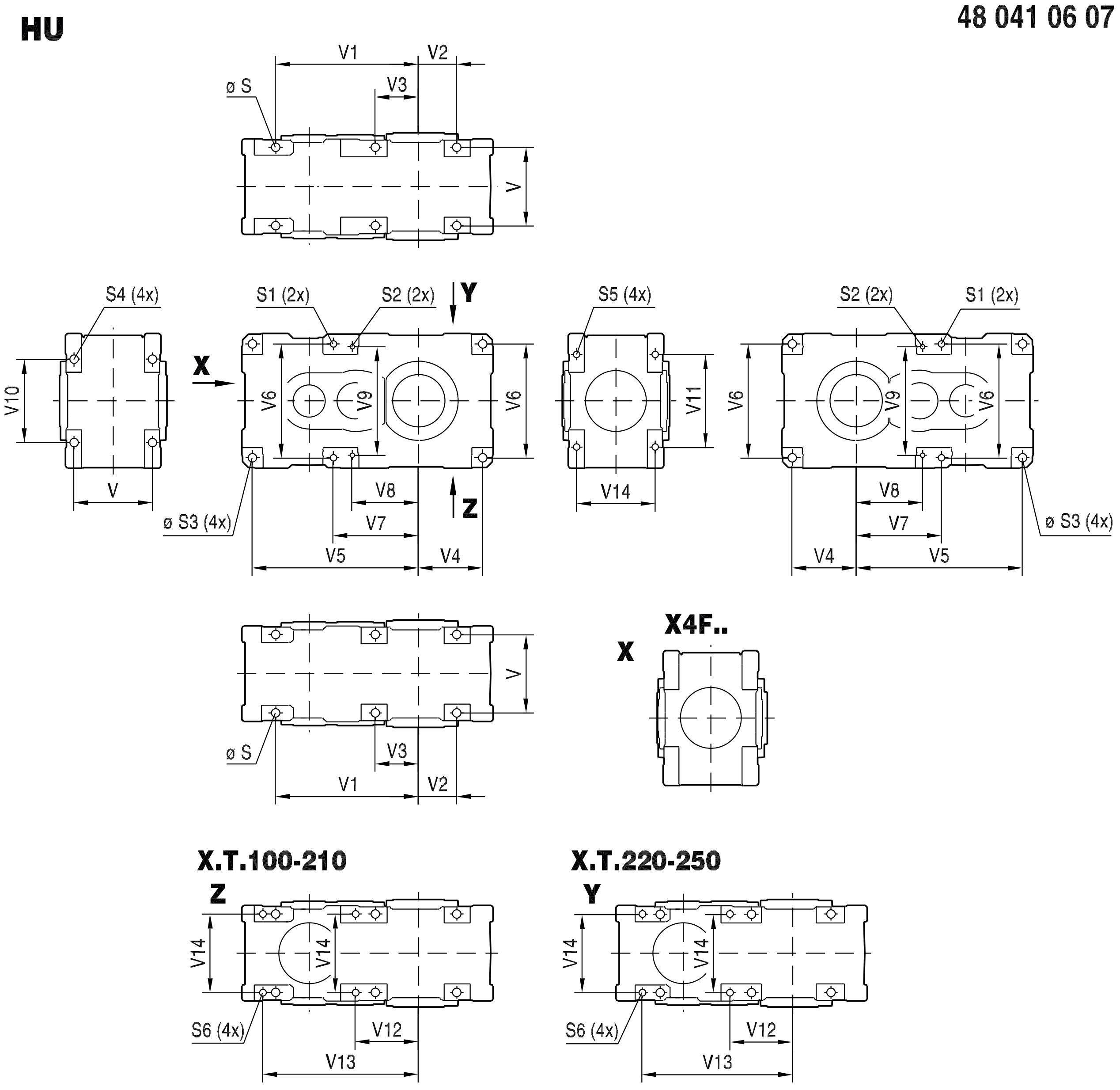
13 Dimension sheets: options

13.1 Housing bores [mm]

13.1.1 Universal housing /HU



	Ø S	S1 (2x)	S2 (2x)	ØS3 (4x)	S4 (4x)	S5 (4x)	S6 (4x)	V	V1	V2	V3	V4	V5
X100	24 (4x)	M20	-	24	ø 24	M20	M20	210	370	90	-	160	441
X110	24 (4x)	M20	-	24	ø 24	M20	M20	210	390	115	-	185	461
X120	28 (4x)	M24	-	28	ø 28	M24	M24	245	440	105	-	184	521
X130	28 (4x)	M24	-	28	ø 28	M24	M24	245	475	140	-	219	557
X140	35 (4x)	M30	-	35	ø 35	M30	M30	290	510	110	-	210	613
X150	35 (4x)	M30	M20	35	ø 35	M30	M30	290	555	155	-	255	655
X160	42 (4x)	M36	M24	42	ø 42	M36	M36	340	620	185	-	303	737
X170	42 (4x)	M36	M24	42	ø 42	M36	M36	340	670	185	-	303	788

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	Ø S	S1 (2x)	S2 (2x)	ØS3 (4x)	S4 (4x)	S5 (4x)	S6 (4x)	V	V1	V2	V3	V4	V5
X180	42(6x)	M36	M30	42	ø 42	M36	M36	390	710	190	215	318	827
X190	42(6x)	M36	M30	42	ø 42	M36	M36	390	740	190	215	318	859
X200	48(6x)	M42	M30	48	ø 48	M42	M42	420	780	205	230	360	930
X210	48(6x)	M42	M30	48	ø 48	M42	M42	420	815	205	230	360	966
X220	48(6x)	M42	M36	48	M42x63	M42	M42	440	910	250	280	403	1057
X230	48(6x)	M42	M36	48	M42x63	M42	M42	440	950	250	280	403	1097
X240	56(6x)	M48	M36	56	M48x72	M48	M48	510	990	250	305	425	1155
X250	56(6x)	M48	M36	56	M48x72	M48	M48	510	1010	250	305	425	1178
X260	56(6x)	M48	M48	56	M48x72	M48	-	590	1110	300	350	475	1285
X270	56(6x)	M48	M48	56	M48x72	M48	-	590	1110	300	350	475	1320
X280	56(6x)	M48	-	56	M48x72	M48	-	590	1190	360	380	540	1372
X290	65(6x)	M48	-	65	M48x72	M48	-	655	1280	330	355	539	1486
X300	65(6x)	M48	-	65	M48x72	M48	-	655	1280	330	355	539	1515
X310	65(6x)	M48	-	65	M48x72	M48	-	720	1435	385	455	598	1647
X320	65(6x)	M48	-	65	M48x72	M48	-	720	1435	385	455	598	1681

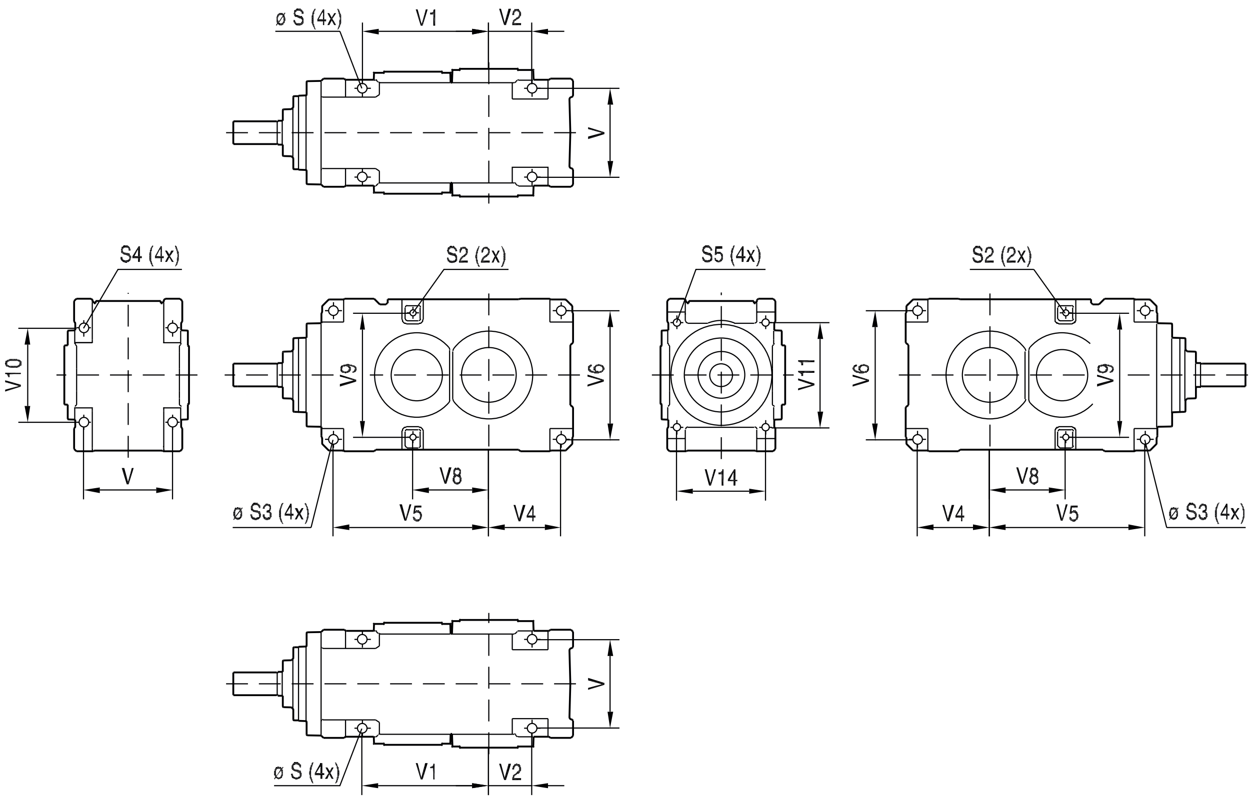
	V6	V7	V8	V9	V10	V11[1)]	V11[2)]	V12[3)]	V13[4)]	V12[5)]	V13[6)]	V14
X100	315	197	-	-	250	-	250	153	403	-	-	210
X110	315	217	-	-	250	-	250	173	423	-	-	210
X120	380	233	-	-	300	300	310	172	482	187	487	245
X130	380	269	-	-	300	300	310	208	518	223	523	245
X140	445	277	-	-	335	350	350	213	563	228	578	290
X150	445	319	250	430	335	350	350	255	605	270	620	290
X160	525	348	265	500	400	390	415	266.5	681.5	294.5	584.5	345
X170	525	399	265	500	400	390	415	317.5	732.5	345.5	735.5	345
X180	565	424	333	546	415	425	460	314	774	349.5	774.5	390
X190	565	456	333	546	415	425	460	346	806	381.5	806.5	390
X200	630	478	350	610	455	490	510	359	869	382.5	872.5	420
X210	630	514	350	610	455	490	510	395	905	418.5	908.5	420
X220	725	531	415	680	610	540	600	394	994	448.5	988.5	440
X230	725	571	415	680	610	540	600	434	1034	488.5	1028.5	440
X240	760	625	450	740	600	550	600	476	1076	532	1081	510
X250	760	648	450	740	600	550	600	499	1099	554	1104	510
X260	860	683	500	860	710	710	710	-	-	-	-	590
X270	860	718	500	860	710	710	710	-	-	-	-	590
X280	970	569	-	970	710	710	710	-	-	-	-	590
X290	995	558	-	995	765	830	830	-	-	-	-	655
X300	995	587	-	995	765	830	830	-	-	-	-	655
X310	1095	621	-	1095	860	860	860	-	-	-	-	720
X320	1095	655	-	1095	860	860	860	-	-	-	-	720

1) X3F, X4K
2) X2F, X3K
3) X2T, X3T
4) X2T, X3T
5) X2T, X3T
6) X2T, X3T

13.1.2 Universal housing X2K100 - 250 /HU

HU

48 002 03 10



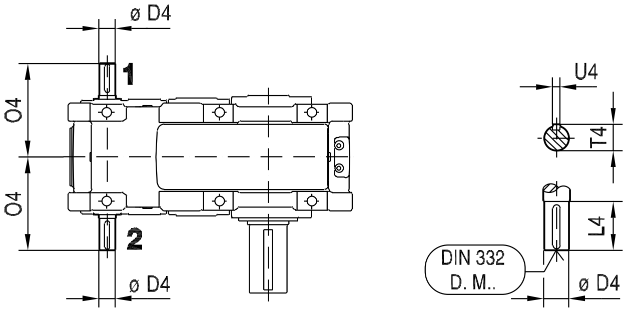
X2K	Ø S (4x)	S2 (2x)	Ø S3 (4x)	S4 (4x)	S5 (4x)	V	V1	V2	V4	V5	V6	V8	V9	V10	V11	V14
X100	24	M20	24	ø 24	M20	210	315	90	160	384	315	197	315	250	250	210
X110	24	M20	24	ø 24	M20	210	335	115	185	404	315	217	315	250	250	210
X120	28	M24	28	ø 28	M24	245	370	105	184	451	380	233	380	300	310	245
X130	28	M24	28	ø 28	M24	245	405	140	219	487	380	269	380	300	310	245
X140	35	M30	35	ø 35	M30	290	390	110	210	494	445	277	445	335	350	290
X150	35	M20	35	ø 35	M30	290	435	155	255	536	445	250	430	335	350	290
X160	42	M24	42	ø 42	M36	340	495	185	303	617	525	265	500	400	415	345
X170	42	M24	42	ø 42	M36	340	545	185	303	668	525	265	500	400	415	345
X180	42	M30	42	ø 42	M36	390	555	190	318	682	565	333	546	415	460	390
X190	42	M30	42	ø 42	M36	390	585	190	318	714	565	333	546	415	460	390
X200	48	M30	48	ø 48	M42	420	605	205	360	760	630	350	610	455	510	420
X210	48	M30	48	ø 48	M42	420	640	205	360	795	630	350	610	455	510	420
X220	48	M36	48	M42x63	M42	510	730	250	403	887	725	415	680	610	600	510
X230	48	M36	48	M42x63	M42	510	770	250	403	927	725	415	680	610	600	510
X240	56	M36	56	M48x72	M48	585	780	250	425	965	760	450	740	600	600	585
X250	56	M36	56	M48x72	M48	585	805	250	425	988	760	450	740	600	600	585

13.2 Input shaft /HSST [mm]

13.2.1 X2F..

HSST

48 061 02 09



X2F..	i = 6.3 ... 11.2* / i = 7.1 ... 12.5** / i = 8 ... 14***						i = 12.5 ... 18* / i = 14 ... 20** / i = 16 ... 22.4***					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X100**	42_{k6}	110	274	45	12_{h9}	M16	32_{k6}	80	244	35	10_{h9}	M12
X110***	42_{k6}	110	274	45	12_{h9}	M16	32_{k6}	80	244	35	10_{h9}	M12
X120*	55_{m6}	110	290	59	16_{h9}	M20	42_{k6}	110	290	45	12_{h9}	M16
X130***	55_{m6}	110	290	59	16_{h9}	M20	42_{k6}	110	290	45	12_{h9}	M16
X140*	70_{m6}	140	348	74.5	20_{h9}	M20	55_{m6}	110	318	59	16_{h9}	M20
X150***	70_{m6}	140	348	74.5	20_{h9}	M20	55_{m6}	110	318	59	16_{h9}	M20
X160*	70_{m6}	140	382	74.5	20_{h9}	M20	70_{m6}	140	382	74.5	20_{h9}	M20
X170***	70_{m6}	140	382	74.5	20_{h9}	M20	70_{m6}	140	382	74.5	20_{h9}	M20

X2F..	i = 6.3 ... 11.2* / i = 7.1 ... 12.5**						i = 12.5 ... 18* / i = 14 ... 20**					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X180*	90_{m6}	170	445	95	25_{h9}	M24	75_{m6}	140	415	79.5	20_{h9}	M20
X190**	90_{m6}	170	445	95	25_{h9}	M24	75_{m6}	140	415	79.5	20_{h9}	M20
X200*	90_{m6}	170	464	95	25_{h9}	M24	90_{m6}	170	464	95	25_{h9}	M24
X210**	90_{m6}	170	464	95	25_{h9}	M24	90_{m6}	170	464	95	25_{h9}	M24

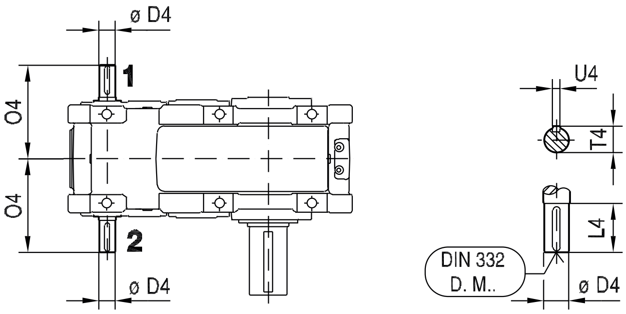
X2F..	i = 6.3 ... 11.2* / i = 7.1 ... 12.5**						i = 12.5 ... 18* / i = 14 ... 20**					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X220*	100_{m6}	210	538	106	28_{h9}	M24	100_{m6}	210	538	106	28_{h9}	M24
X230**	100_{m6}	210	538	106	28_{h9}	M24	100_{m6}	210	538	106	28_{h9}	M24
X240*	110_{m6}	210	583	116	28_{h9}	M24	110_{m6}	210	583	116	28_{h9}	M24
X250**	110_{m6}	210	583	116	28_{h9}	M24	110_{m6}	210	583	116	28_{h9}	M24

X2F..	i = 6.3 ... 11.2* / i = 7.1 ... 12.5** / i = 8 ... 14***						i = 12.5 ... 18* / i = 14 ... 20** / i = 16 ... 22.4***					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X260*	130_{m6}	250	673	137	32_{h9}	M24	130_{m6}	250	673	137	32_{h9}	M24
X270**	130_{m6}	250	673	137	32_{h9}	M24	130_{m6}	250	673	137	32_{h9}	M24
X280***	130_{m6}	250	673	137	32_{h9}	M24	130_{m6}	250	673	137	32_{h9}	M24
X290*	150_{m6}	250	713	158	36_{h9}	M30	150_{m6}	250	713	158	36_{h9}	M30
X300**	150_{m6}	250	713	158	36_{h9}	M30	150_{m6}	250	713	158	36_{h9}	M30
X310*	170_{m6}	300	795	179	40_{h9}	M30	170_{m6}	300	795	179	40_{h9}	M30
X320**	170_{m6}	300	795	179	40_{h9}	M30	170_{m6}	300	795	179	40_{h9}	M30

13.2.2 X3F..

HSST

48 061 02 09



X3F..	i = 20 ... 56* / i = 22.4 ... 63** / i = 25 ... 71***						i = 63 ... 90* / i = 71 ... 100** / i = 80 ... 112***					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X100**	32_{k6}	80	244	35	10_{h9}	M12	32_{k6}	80	244	35	10_{h9}	M12
X110***	32_{k6}	80	244	35	10_{h9}	M12	32_{k6}	80	244	35	10_{h9}	M12
X120*	38_{k6}	80	258	41	10_{h9}	M12	38_{k6}	80	258	41	10_{h9}	M12
X130***	38_{k6}	80	258	41	10_{h9}	M12	38_{k6}	80	258	41	10_{h9}	M12
X140*	45_{k6}	110	318	48.5	14_{h9}	M16	45_{k6}	110	318	48.5	14_{h9}	M16
X150***	45_{k6}	110	318	48.5	14_{h9}	M16	45_{k6}	110	318	48.5	14_{h9}	M16
X160*	60_{m6}	140	381	64	18_{h9}	M20	50_{k6}	110	351	53.5	14_{h9}	M16
X170***	60_{m6}	140	381	64	18_{h9}	M20	50_{k6}	110	351	53.5	14_{h9}	M16

X3F..	i = 20 ... 56* / i = 22.4 ... 63**						i = 63 ... 90* / i = 71 ... 100**					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X180*	60_{m6}	140	411	64	18_{h9}	M20	55_{m6}	110	381	59	16_{h9}	M20
X190**	60_{m6}	140	411	64	18_{h9}	M20	55_{m6}	110	381	59	16_{h9}	M20
X200*	75_{m6}	140	430	79.5	20_{h9}	M20	60_{m6}	140	430	64	18_{h9}	M20
X210**	75_{m6}	140	430	79.5	20_{h9}	M20	60_{m6}	140	430	64	18_{h9}	M20

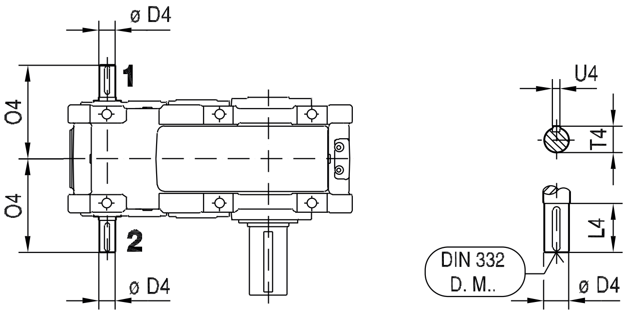
X3F..	i = 20 ... 56* / i = 22.4 ... 63**						i = 63 ... 90* / i = 71 ... 100**					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X220*	80_{m6}	170	487	85	22_{h9}	M20	70_{m6}	140	457	74.5	20_{h9}	M20
X230**	80_{m6}	170	487	85	22_{h9}	M20	70_{m6}	140	457	74.5	20_{h9}	M20
X240*	90_{m6}	170	532	95	25_{h9}	M24	75_{m6}	140	502	79.5	20_{h9}	M20
X250**	90_{m6}	170	532	95	25_{h9}	M24	75_{m6}	140	502	79.5	20_{h9}	M20

X3F..	i = 20 ... 50* / i = 22.4 ... 56** / i = 25 ... 63***						i = 56 ... 90* / i = 63 ... 100** / i = 71 ... 112***					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X260*	100_{m6}	210	613	106	28_{h9}	M24	80_{m6}	170	573	85	22_{h9}	M20
X270**	100_{m6}	210	613	106	28_{h9}	M24	80_{m6}	170	573	85	22_{h9}	M20
X280***	100_{m6}	210	613	106	28_{h9}	M24	80_{m6}	170	573	85	22_{h9}	M20
X290*	100_{m6}	210	661	106	28_{h9}	M24	100_{m6}	210	661	106	28_{h9}	M24
X300**	100_{m6}	210	661	106	28_{h9}	M24	100_{m6}	210	661	106	28_{h9}	M24
X310*	110_{m6}	210	694	116	28_{h9}	M24	110_{m6}	210	694	116	28_{h9}	M24
X320**	110_{m6}	210	694	116	28_{h9}	M24	110_{m6}	210	694	116	28_{h9}	M24

13.2.3 X4F..

HSST

48 061 02 09



X4F..	i = 100 ... 180* / i = 112 ... 200** / i = 125 ... 224***						i = 200 ... 355* / i = 224 ... 400** / i = 250 ... 450***					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X120*	28_{k6}	60	238	31	8_{h9}	M10	28_{k6}	60	238	31	8_{h9}	M10
X130***	28_{k6}	60	238	31	8_{h9}	M10	28_{k6}	60	238	31	8_{h9}	M10
X140*	32_{k6}	80	288	35	10_{h9}	M12	32_{k6}	80	288	35	10_{h9}	M12
X150***	32_{k6}	80	288	35	10_{h9}	M12	32_{k6}	80	288	35	10_{h9}	M12
X160*	38_{k6}	80	320	41	10_{h9}	M12	38_{k6}	80	320	41	10_{h9}	M12
X170***	38_{k6}	80	320	41	10_{h9}	M12	38_{k6}	80	320	41	10_{h9}	M12

X4F..	i = 100 ... 180* / i = 112 ... 200**						i = 200 ... 355* / i = 224 ... 400**					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X180*	50_{k6}	110	381	53.5	14_{h9}	M16	38_{k6}	80	351	41	10_{h9}	M12
X190**	50_{k6}	110	381	53.5	14_{h9}	M16	38_{k6}	80	351	41	10_{h9}	M12
X200*	55_{m6}	110	400	59	16_{h9}	M20	42_{k6}	110	400	45	12_{h9}	M16
X210**	55_{m6}	110	400	59	16_{h9}	M20	42_{k6}	110	400	45	12_{h9}	M16

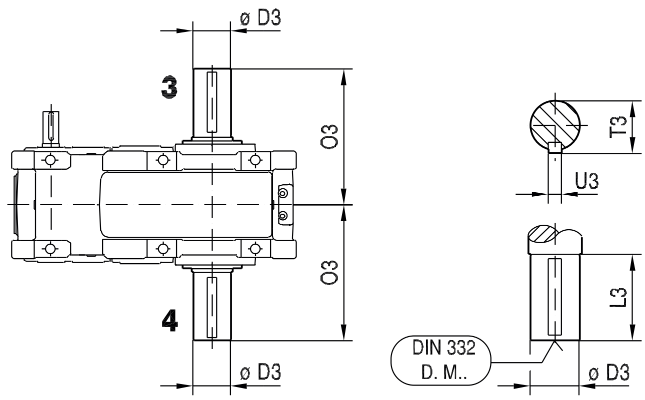
X4F..	i = 100 ... 180* / i = 112 ... 200**						i = 200 ... 355* / i = 224 ... 400**					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X220*	60_{m6}	140	457	64	18_{h9}	M20	50_{k6}	110	427	53.5	14_{h9}	M16
X230**	60_{m6}	140	457	64	18_{h9}	M20	50_{k6}	110	427	53.5	14_{h9}	M16
X240*	70_{m6}	140	502	74.5	20_{h9}	M20	55_{m6}	110	472	59	16_{h9}	M20
X250**	70_{m6}	140	502	74.5	20_{h9}	M20	55_{m6}	110	472	59	16_{h9}	M20

X4F..	i = 100 ... 180* / i = 112 ... 200** / i = 125 ... 224***						i = 200 ... 355* / i = 224 ... 400** / i = 250 ... 450***					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X260*	75_{m6}	140	543	79.5	20_{h9}	M20	60_{m6}	140	543	64	18_{h9}	M20
X270**	75_{m6}	140	543	79.5	20_{h9}	M20	60_{m6}	140	543	64	18_{h9}	M20
X280***	75_{m6}	140	543	79.5	20_{h9}	M20	60_{m6}	140	543	64	18_{h9}	M20
X290*	80_{m6}	170	614	85	22_{h9}	M20	80_{m6}	170	614	85	22_{h9}	M20
X300**	80_{m6}	170	614	85	22_{h9}	M20	80_{m6}	170	614	85	22_{h9}	M20
X310*	90_{m6}	170	645	95	25_{h9}	M24	90_{m6}	170	645	95	25_{h9}	M24
X320**	90_{m6}	170	645	95	25_{h9}	M24	90_{m6}	170	645	95	25_{h9}	M24

13.3 Output shaft /LSST [mm]

LSST

48 060 02 09



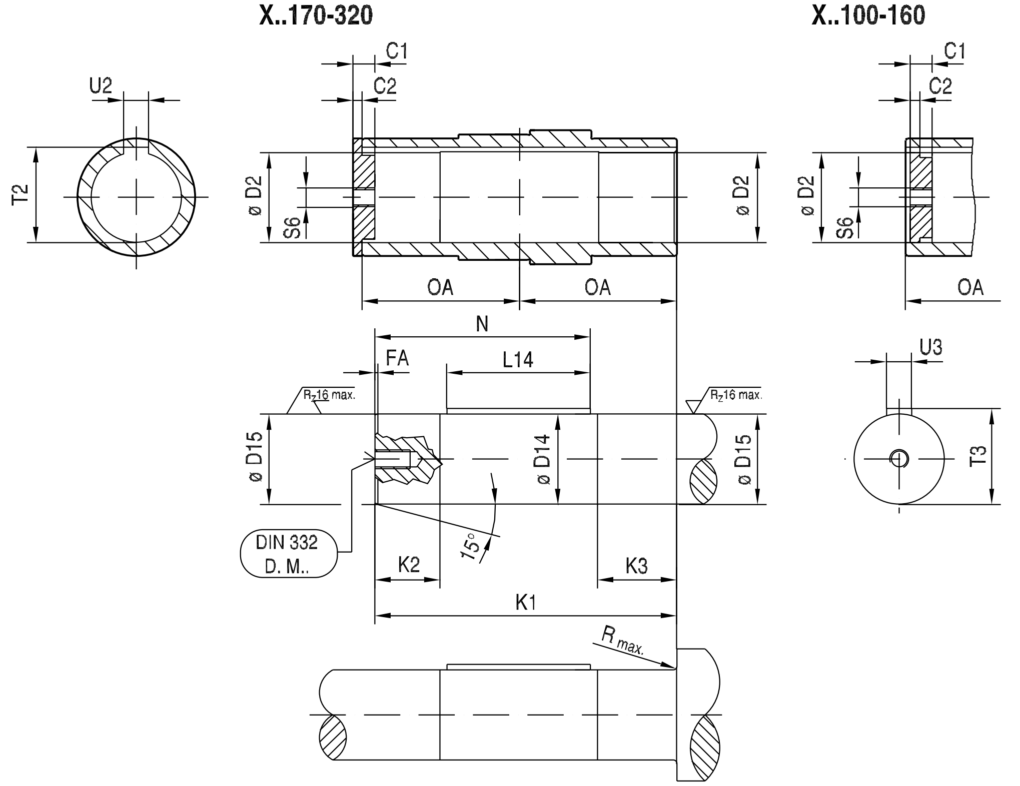
	Ø D3	L3	O3	T3	U3	DIN 332 D.M..
X100	80_{m6}	170	343	85	22_{h9}	M20
X110	90_{m6}	170	346	95	25_{h9}	M24
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	148	36_{h9}	M30
X170	160_{m6}	300	556	169	40_{h9}	M30
X180	170_{m6}	300	592	179	40_{h9}	M30
X190	170_{m6}	300	592	179	40_{h9}	M30
X200	180_{m6}	300	612	190	45_{h9}	M30
X210	190_{m6}	350	662	200	45_{h9}	M30
X220	210_{m6}	350	703	221	50_{h9}	M30
X2KS220	210_{m6}	350	738	221	50_{h9}	M30
X230	230_{m6}	410	763	241	50_{h9}	M36
X2KS230	230_{m6}	410	798	241	50_{h9}	M36
X240	230_{m6}	410	811	241	50_{h9}	M36
X2KS240	230_{m6}	410	848	241	50_{h9}	M36
X250	240_{m6}	410	811	252	56_{h9}	M36
X2KS250	240_{m6}	410	848	252	56_{h9}	M36
X260	250_{m6}	410	847	262	56_{h9}	M36
X270	270_{m6}	470	920	282	63_{h9}	M36
X280	290_{m6}	470	920	302	63_{h9}	M36
X290	290_{m6}	470	962	302	63_{h9}	M36
X300	300_{m6}	470	962	314	70_{h9}	M36
X310	320_{m6}	470	999	334	70_{h9}	M42
X320	340_{m6}	550	1079	355	80_{h9}	M42

22781056/EN – 03/2017

SEW EURODRIVE

13.4 Hollow shaft with keyway X...A [mm]

48 039 10 07

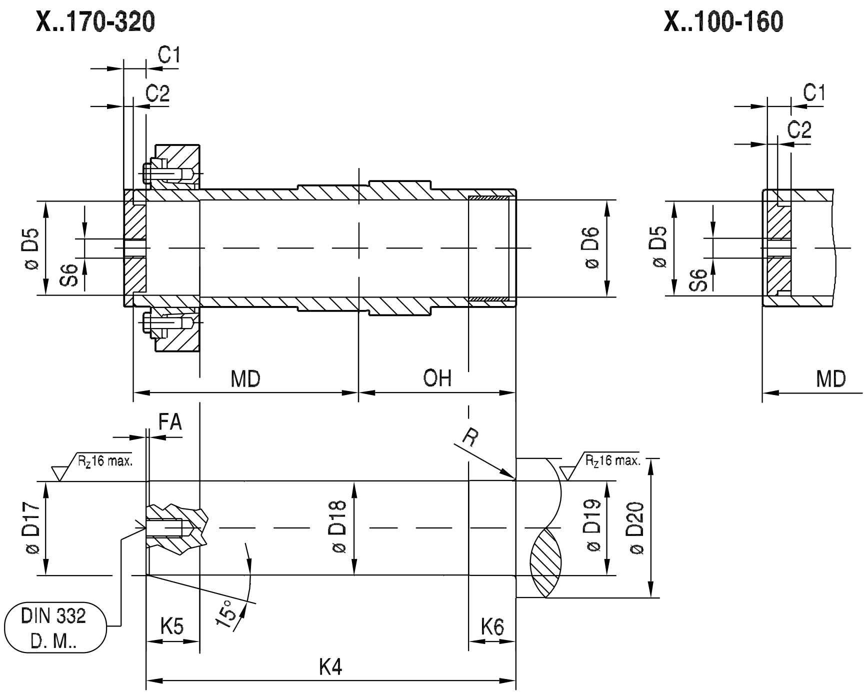


	C1	C2	Ø D2	Ø D14	Ø D15	FA	K1	K2	K3	L14	N	OA	$R_{max.}$	S6	T2	T3	U2	U3	DIN 332 D.M..
X100	25	12	75^{H8}	75_{h11}	75_{js7}	2	312	47.5	81	120	220	173	1.6	M24	79.9	79.5	20^{JS9}	20_{h9}	M20
X110	30	14	85^{H8}	85_{h11}	85_{js7}	2	312.5	45	84	100	210	176	1.6	M30	90.4	90	22^{JS9}	22_{h9}	M24
X120	30	14	95^{H8}	95_{h11}	95_{js7}	2	342	53	92	140	244.5	190.5	1.6	M30	100.4	100	25^{JS9}	25_{h9}	M24
X130	30	14	105^{H8}	105_{h11}	105_{js7}	2	347	68	109	160	258	194	1.6	M30	111.4	111	28^{JS9}	28_{h9}	M24
X140	30	14	115^{H8}	115_{h11}	115_{js7}	2	403	61	102	200	306	222	1.6	M30	122.4	122	32^{JS9}	32_{h9}	M24
X150	30	14	125^{H8}	125_{h11}	125_{js7}	3	408	76	117	200	308.5	224.5	1.6	M30	132.4	132	32^{JS9}	32_{h9}	M24
X160	36	16	135^{H8}	135_{h11}	135_{js7}	3	465	80	127	250	361	256	1.6	M36	143.4	143	36^{JS9}	36_{h9}	M30
X170	36	17	150^{H8}	150_{h11}	150_{js7}	3	493	96	115	280	377	256	1.6	M36	158.4	158	36^{JS9}	36_{h9}	M30
X180	36	17	165^{H8}	165_{h11}	165_{js7}	3	565	109	128	300	423	292	2	M36	174.4	174	40^{JS9}	40_{h9}	M30
X190	36	17	165^{H8}	165_{h11}	165_{js7}	3	565	109	128	300	423	292	2	M36	174.4	174	40^{JS9}	40_{h9}	M30
X200	36	17	180^{H8}	180_{h11}	180_{js7}	3	620	130	149	320	460.5	319.5	2	M36	190.4	190	45^{JS9}	45_{h9}	M30
X210	36	17	190^{H8}	190_{h11}	190_{js7}	3	620	130	149	320	460.5	319.5	2	M36	200.4	200	45^{JS9}	45_{h9}	M30
X220	36	17	210^{H8}	210_{h11}	210_{js7}	3	686	133	152	370	518.5	352.5	2.5	M36	221.4	221	50^{JS9}	50_{h9}	M30
X2KA220	36	17	210^{H8}	210_{h11}	210_{js7}	3	756	133	152	370	554	387.5	2.5	M36	221.4	221	50^{JS9}	50_{h9}	M30
X230	36	17	210^{H8}	210_{h11}	210_{js7}	3	686	133	152	370	518.5	352.5	2.5	M36	221.4	221	50^{JS9}	50_{h9}	M30
X2KA230	36	17	210^{H8}	210_{h11}	210_{js7}	3	756	133	152	370	554	387.5	2.5	M36	221.4	221	50^{JS9}	50_{h9}	M30
X240	45	22	230^{H8}	230_{h11}	230_{js7}	3	778	147	170	370	562.5	400.5	2.5	M42	241.4	241	50^{JS9}	50_{h9}	M36
X2KA240	45	22	230^{H8}	230_{h11}	230_{js7}	3	853	147	170	370	600	438	2.5	M42	241.4	241	50^{JS9}	50_{h9}	M36
X250	45	22	240^{H8}	240_{h11}	240_{js7}	3	778	147	170	370	562.5	400.5	2.5	M42	252.4	252	56^{JS9}	56_{h9}	M36
X2KA250	45	22	240^{H8}	240_{h11}	240_{js7}	3	853	147	170	370	600	438	2.5	M42	252.4	252	56^{JS9}	56_{h9}	M36
X260	45	22	240^{H8}	240_{h11}	240_{js7}	3	851	143	166	450	639	437	2.5	M42	252.4	252	56^{JS9}	56_{h9}	M36
X270	45	22	275^{H8}	275_{h11}	275_{js7}	4	877	158	181	450	652	450	5	M42	287.4	287	63^{JS9}	63_{h9}	M36
X280	45	22	275^{H8}	275_{h11}	275_{js7}	4	877	158	181	500	677	450	5	M42	287.4	287	63^{JS9}	63_{h9}	M36
X290	45	22	290^{H8}	290_{h11}	290_{js7}	4	961	160	183	500	719	492	5	M42	302.4	302	63^{JS9}	63_{h9}	M36
X300	45	22	290^{H8}	290_{h11}	290_{js7}	4	961	160	183	500	719	492	5	M42	302.4	302	63^{JS9}	63_{h9}	M36
X310	55	28	320^{H8}	320_{h11}	320_{js7}	4	1030	170	197	560	781.5	528.5	5	M48	334.4	334	70^{JS9}	70_{h9}	M42
X320	55	28	320^{H8}	320_{h11}	320_{js7}	4	1030	170	197	560	781.5	528.5	5	M48	334.4	334	70^{JS9}	70_{h9}	M42

22781056/EN – 03/2017

13.5 Hollow shaft with shrink disk X..H [mm]

48 040 06 07



	C1	C2	Ø D5	Ø D6	Ø D17	Ø D18	Ø D19	Ø D20	FA	K4	K5	K6	MD	OH	R	S6	DIN 332 D.M..
X100	30	14	80^{H7}	81^{H9}	80_{h6}	80_{h11}	81_{m6}	95	2	394.5_{-1}	46	42_{-1}	261	173	3	M30	M24
X110	30	14	90^{H7}	91^{H9}	90_{h6}	90_{h11}	91_{m6}	105	2	400.5_{-1}	46	42_{-1}	265	176	3	M30	M24
X120	30	14	100^{H7}	101^{H9}	100_{h6}	100_{h11}	101_{m6}	115	2	437_{-1}	51	52_{-1}	286.5	190.5	3	M30	M24
X130	30	14	110^{H7}	111^{H9}	110_{h6}	110_{h11}	111_{m6}	125	2	449_{-1}	55	52_{-1}	297	194	3	M30	M24
X140	30	14	120^{H7}	121^{H9}	120_{h6}	120_{h11}	121_{m6}	135	2	509_{-1}	59	62_{-1}	329	222	3	M30	M24
X150	30	14	130^{H7}	131^{H9}	130_{h6}	130_{h11}	131_{m6}	145	3	520_{-1}	66	62_{-1}	337.5	224.5	3	M30	M24
X160	36	16	140^{H7}	141^{H9}	140_{h6}	140_{h11}	141_{m6}	155	3	583_{-1}	66	73_{-1}	375	256	4	M36	M30
X170	36	17	150^{H7}	151^{H9}	150_{h6}	150_{h11}	151_{m6}	165	3	600_{-1}	83	73_{-1}	364	256	4	M36	M30
X180	36	17	165^{H7}	166^{H9}	165_{g6}	165_{h11}	166_{m6}	180	3	672_{-1}	83	83_{-1}	400	292	4	M36	M30
X190	36	17	165^{H7}	166^{H9}	165_{g6}	165_{h11}	166_{m6}	180	3	672_{-1}	83	83_{-1}	400	292	4	M36	M30
X200	36	17	180^{H7}	181^{H9}	180_{g6}	180_{h11}	181_{m6}	195	3	750_{-1}	101	83_{-1}	450.5	319.5	4	M36	M30
X210	36	17	190^{H7}	191^{H9}	190_{g6}	190_{h11}	191_{m6}	205	3	753_{-1}	106	83_{-1}	453.5	319.5	4	M36	M30
X220	36	17	210^{H7}	211^{H9}	210_{g6}	210_{h11}	211_{m6}	230	3	830_{-1}	118	108_{-1}	497.5	352.5	5	M36	M30
X2KH220	36	17	210^{H7}	211^{H9}	210_{g6}	210_{h11}	211_{m6}	230	3	900_{-1}	118	108_{-1}	532.5	387.5	5	M36	M30
X230	36	17	210^{H7}	211^{H9}	210_{g6}	210_{h11}	211_{m6}	230	3	830_{-1}	118	108_{-1}	497.5	352.5	5	M36	M30
X2KH230	36	17	210^{H7}	211^{H9}	210_{g6}	210_{h11}	211_{m6}	230	3	900_{-1}	118	108_{-1}	532.5	387.5	5	M36	M30
X240	45	22	230^{H7}	231^{H9}	230_{g6}	230_{h11}	231_{m6}	250	3	948_{-1}	140	108_{-1}	571.5	400.5	5	M42	M36
X2KH240	45	22	230^{H7}	231^{H9}	230_{g6}	230_{h11}	231_{m6}	250	3	1023_{-1}	140	108_{-1}	609	438	5	M42	M36
X250	45	22	240^{H7}	241^{H9}	240_{g6}	240_{h11}	241_{m6}	260	3	948_{-1}	140	108_{-1}	571.5	400.5	5	M42	M36
X2KH250	45	22	240^{H7}	241^{H9}	240_{g6}	240_{h11}	241_{m6}	260	3	1023_{-1}	140	108_{-1}	609	438	5	M42	M36
X260	45	22	250^{H7}	255^{H9}	250_{g6}	250_{h11}	255_{m6}	280	4	1021_{-1}	140	108_{-1}	608	437	5	M42	M36
X270	45	22	280^{H7}	285^{H9}	280_{g6}	280_{h11}	285_{m6}	310	4	1056_{-1}	146	143_{-1}	630	450	5	M42	M36
X280	45	22	280^{H7}	285^{H9}	280_{g6}	280_{h11}	285_{m6}	310	4	1056_{-1}	146	143_{-1}	630	450	5	M42	M36
X290	45	22	300^{H7}	305^{H9}	300_{g6}	300_{h11}	305_{m6}	330	4	1147_{-1}	152	143_{-1}	679	492	5	M42	M36
X300	45	22	300^{H7}	305^{H9}	300_{g6}	300_{h11}	305_{m6}	330	4	1147_{-1}	152	143_{-1}	679	492	5	M42	M36
X310	55	28	320^{H7}	325^{H9}	320_{g6}	320_{h11}	325_{m6}	350	4	1241_{-1}	165	143_{-1}	740.5	528.5	5	M48	M42
X320	55	28	320^{H7}	325^{H9}	320_{g6}	320_{h11}	325_{m6}	350	4	1241_{-1}	165	143_{-1}	740.5	528.5	5	M48	M42

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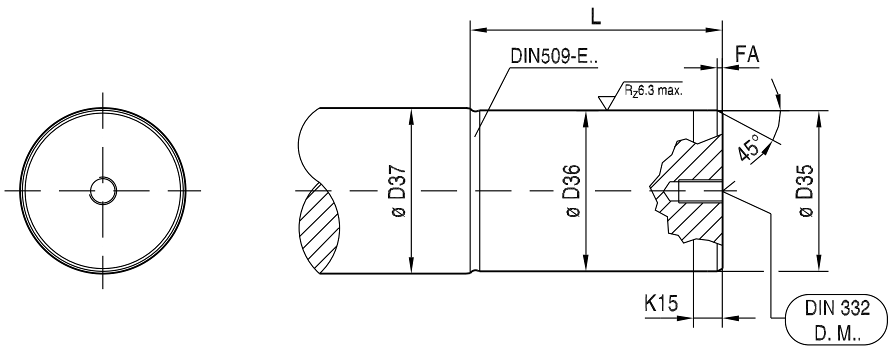
13.6 Solid shaft, smooth design X..R [mm]

For more information, refer to "page" (→ 🗎 24).

48 016 03 08



13

	Ø D35	Ø D36	Ø D37	FA	K15	L	DIN 332 D.M..	DIN 509
X100	85_{h9}	85_{v6}	90	2	9	131	M20	E2.5x0.4
X110	85_{h9}	85_{v6}	100	2	9	131	M20	E2.5x0.4
X120	115_{h9}	115_{v6}	120	2	9	165	M24	E2.5x0.4
X130	115_{h9}	115_{v6}	130	2	9	165	M24	E2.5x0.4
X140	135_{h9}	135_{v6}	140	3	11	202	M30	E2.5x0.4
X150	135_{h9}	135_{v6}	160	3	11	202	M30	E2.5x0.4
X160	165_{h9}	165_{v6}	170	3	11	222	M30	E2.5x0.4
X170	165_{h9}	165_{v6}	170	3	11	222	M30	E2.5x0.4
X180	175_{h9}	175_{v6}	180	3	14	253	M30	E2.5x0.4
X190	175_{h9}	175_{v6}	180	3	14	253	M30	E2.5x0.4
X200	195_{h9}	195_{v6}	200	3	14	283	M30	E2.5x0.4
X210	195_{h9}	195_{v6}	200	3	14	283	M30	E2.5x0.4
X220	235_{h9}	235_{v6}	240	3	14	298	M36	E2.5x0.4
X230	235_{h9}	235_{v6}	240	3	14	298	M36	E2.5x0.4
X240	275_{h9}	275_{v6}	280	4	14	318	M36	E2.5x0.4
X250	275_{h9}	275_{v6}	280	4	14	318	M36	E2.5x0.4
X260	275_{h9}	275_{v6}	280	4	14	318	M36	E2.5x0.4
X270	295_{h9}	295_{v6}	300	4	19	343	M36	E2.5x0.4
X280	295_{h9}	295_{v6}	300	4	19	343	M36	E2.5x0.4
X290	315_{h9}	315_{v6}	320	4	19	373	M36	E2.5x0.4
X300	315_{h9}	315_{v6}	320	4	19	373	M36	E2.5x0.4
X310	355_{h9}	355_{v6}	360	4	19	413	M42	E2.5x0.4
X320	355_{h9}	355_{v6}	360	4	19	413	M42	E2.5x0.4

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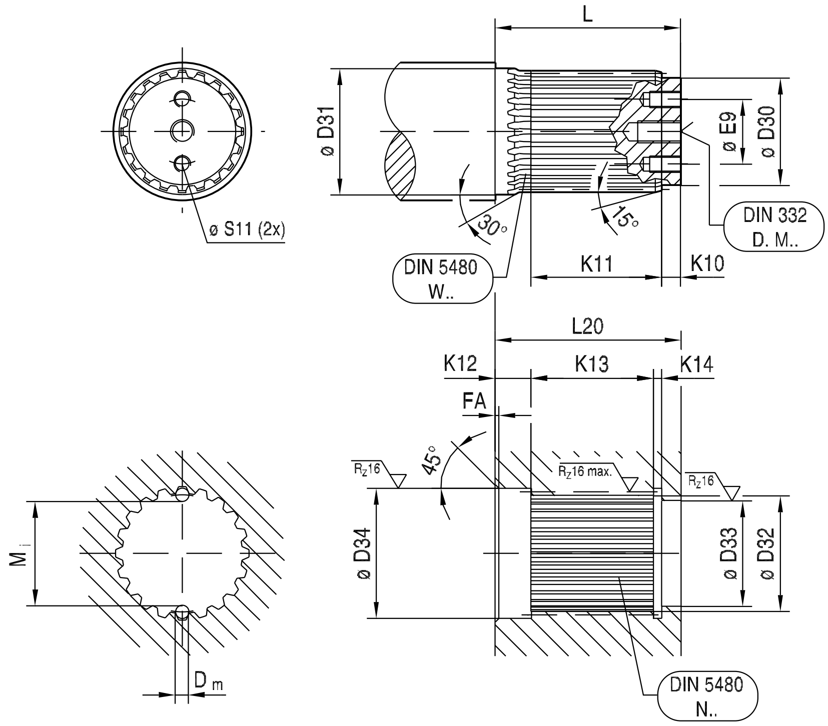
13.7 Splined solid shaft X..L [mm]

48 084 05 07

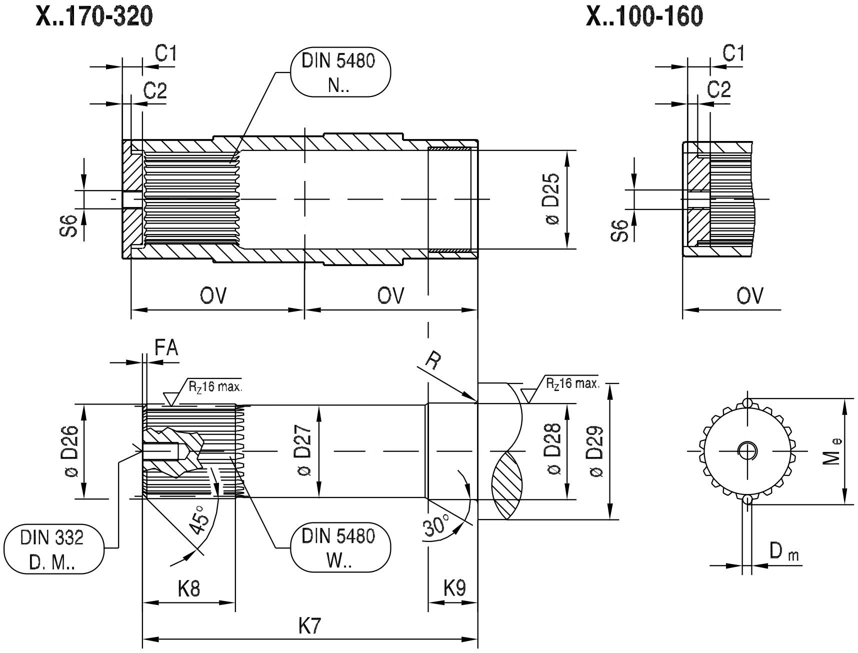


22781056/EN – 03/2017

	ØD30	ØD31	ØD32	ØD33	ØD34	Dm	ØE9	FA	K10	K11	K12	K13	K14	L	L20	M i	Ø S11 (2x)	DIN 332 D.M..	DIN 5480
X100	60_{k6}	80_{k6}	69^{H10}	60^{H7}	80^{H7}	5.25	-	2	12	71	28	65	10	110	111^{+1}	$63.932^{0.160}_{0.060}$	-	M20	W 75x3x30x24x8m N 75x3x30x24x9H
X110	70_{k6}	90_{k6}	79^{H10}	70^{H7}	90^{H7}	5.25	-	2	12	71	28	65	10	110	111^{+1}	$73.922^{0.148}_{0.056}$	-	M20	W 85x3x30x27x8m N 85x3x30x27x9H
X120	85_{k6}	105_{k6}	94^{H10}	85^{H7}	105^{H7}	5.25	-	2	15	76	31	70	10	121	122^{+1}	$89.066^{0.146}_{0.055}$	-	M20	W 100x3x30x32x8m N 100x3x30x32x9H
X130	95_{k6}	115_{k6}	104^{H10}	95^{H7}	115^{H7}	5.25	-	2	15	81	31	75	10	126	127^{+1}	$99.001^{0.158}_{0.060}$	-	M24	W 110x3x30x35x8m N 110x3x30x35x9H
X140	100_{k6}	125_{k6}	110^{H10}	100^{H7}	125^{H7}	9	-	2	20	103	38	95	12	160	161^{+1}	$101.103^{0.173}_{0.064}$	-	M24	W 120x5x30x22x8m N 120x5x30x22x9H
X150	110_{k6}	135_{k6}	120^{H10}	110^{H7}	135^{H7}	9	-	2	20	108	38	100	12	165	166^{+1}	$111.103^{0.173}_{0.064}$	-	M24	W 130x5x30x24x8m N 130x5x30x24x9H
X160	120^{k6}	145_{k6}	130^{H10}	120^{H7}	145^{H7}	9	-	2	25	118	43	110	12	185	186^{+1}	$121.003^{0.173}_{0.064}$	-	M24	W 140x5x30x26x8m N 140x5x30x26x9H
X170	130_{k6}	155_{k6}	140^{H10}	130^{H7}	155^{H7}	9	-	2	25	128	43	120	12	195	196^{+1}	$131.103^{0.173}_{0.064}$	-	M24	W 150x5x30x28x8m N 150x5x30x28x9H
X180	140_{k6}	165_{k6}	150^{H10}	140^{H7}	165^{H7}	9	80	3	25	163	48	155	12	230	231^{+1}	$141.103^{0.173}_{0.064}$	M24x30	M30	W 160x5x30x30x8m N 160x5x30x30x9H
X190	140_{k6}	165_{k6}	150^{H10}	140^{H7}	165^{H7}	9	80	3	25	163	48	155	12	230	231^{+1}	$141.103^{0.173}_{0.064}$	M24x30	M30	W 160x5x30x30x8m N 160x5x30x30x9H
X200	155_{k6}	185_{k6}	170^{H10}	155^{H7}	185^{H7}	9	95	3	25	173	48	165	12	240	241^{+1}	$161.103^{0.173}_{0.064}$	M24x30	M30	W 180x5x30x34x8m N 180x5x30x34x9H
X210	155_{k6}	185_{k6}	170^{H10}	155^{H7}	185^{H7}	9	95	3	25	173	48	165	12	240	241^{+1}	$161.103^{0.173}_{0.064}$	M24x30	M30	W 180x5x30x34x8m N 180x5x30x34x9H
X220	195_{k6}	225_{k6}	210^{H10}	195^{H7}	225^{H7}	9	125	3	30	163	53	155	12	240	241^{+1}	$201.103^{0.194}_{0.071}$	M24x30	M30	W 220x5x30x42x8m N 220x5x30x42x9H
X230	195_{k6}	225_{k6}	210^{H10}	195^{H7}	225^{H7}	9	125	3	30	163	53	155	12	240	241^{+1}	$201.103^{0.194}_{0.071}$	M24x30	M30	W 220x5x30x42x8m N 220x5x30x42x9H
X240	225_{k6}	255_{k6}	240^{H10}	225^{H7}	25^{H7}	9	140	3	35	168	58	160	12	255	256^{+1}	$231.103^{0.194}_{0.071}$	M30x36	M36	W 250x5x30x48x8m N 250x5x30x48x9H
X250	225_{k6}	255_{k6}	240^{H10}	225^{H7}	255^{H7}	9	140	3	35	168	58	160	12	255	256^{+1}	$231.103^{0.194}_{0.071}$	M30x36	M36	W 250x5x30x48x8m N 250x5x30x48x9H
X260	230_{k6}	265_{k6}	244^{H10}	230^{H7}	265^{H7}	14	160	3	35	193	64	183	12	283	284^{+1}	$230.592^{0.202}_{0.074}$	M30x36	M36	W 260x8x30x31x8m N 260x8x30x31x9H
X270	250_{k6}	285_{k6}	264^{H10}	250^{H7}	285^{H7}	14	160	3	35	203	64	193	12	293	294^{+1}	$250.650^{0.213}_{0.078}$	M30x36	M36	W 280x8x30x34x8m N 280x8x30x34x9H
X280	250_{k6}	285_{k6}	264^{H10}	250^{H7}	285^{H7}	14	160	3	35	203	64	193	12	293	294^{+1}	$250.650^{0.213}_{0.078}$	M30x36	M36	W 280x8x30x34x8m N 280x8x30x34x9H
X290	270_{k6}	305_{k6}	284^{H10}	270^{H7}	305^{H7}	14	190	3	40	233	69	223	12	333	334^{+1}	$270.915^{0.200}_{0.073}$	M30x36	M36	W 300x8x30x36x8m N 300x8x30x36x9H
X300	270_{k6}	305_{k6}	284^{H10}	270^{H7}	305^{H7}	14	190	3	40	233	69	223	12	333	334^{+1}	$270.915^{0.200}_{0.073}$	M30x36	M36	W 300x8x30x36x8m N 300x8x30x36x9H
X310	310_{k6}	345_{k6}	324^{H10}	310^{H7}	345^{H7}	14	220	3	40	243	69	233	12	343	344^{+1}	$310.683^{0.199}_{0.073}$	M30x36	M36	W 340x8x30x41x8m N 340x8x30x41x9H
X320	310_{k6}	345_{k6}	324^{H10}	310^{H7}	345^{H7}	14	220	3	40	243	69	233	12	343	344^{+1}	$310.683^{0.199}_{0.073}$	M30x36	M36	W 340x8x30x41x8m N 340x8x30x41x9H

13.8 Splined hollow shaft X..V [mm]

48 057 05 07



	C1	C2	Ø D25	Ø D26	Ø D27	Ø D28	Ø D29	Dm	FA	K7	K8	K9	M e	OV	R	S6	DIN 332 D.M..	DIN 5480
X100	30	14	81^{H9}	74.4_{h10}	73	81_{m6}	95	6	3	306_{-1}	81	42_{-1}	$81.326^{-0.069}_{-0.125}$	173	3	M30	M24	W 75x3x30x24x8f N 75x3x30x24x9H
X110	30	14	91^{H9}	84.4_{h10}	83	91_{m6}	105	6	3	311.5_{-1}	81	42_{-1}	$91.092^{-0.068}_{-0.123}$	176	3	M30	M24	W 85x3x30x27x8f N 85x3x30x27x9H
X120	30	14	101^{H9}	94.4_{h10}	93	101_{m6}	115	6	3	341_{-1}	91	52_{-1}	$101.141^{-0.068}_{-0.122}$	190.5	3	M30	M24	W 95x3x30x30x8f N 95x3x30x30x9H
X130	30	14	111^{H9}	109.4_{h10}	108	111_{m6}	125	6	3	346_{-1}	86	52_{-1}	$116.076^{-0.078}_{-0.139}$	194	3	M30	M24	W 110x3x30x35x8f N 110x3x30x35x9H
X140	30	14	121^{H9}	119.4_{h10}	118	121_{m6}	135	6	3	402_{-1}	101	62_{-1}	$126.095^{-0.078}_{-0.138}$	222	3	M30	M24	W 120x3x30x38x8f N 120x3x30x38x9H
X150	30	14	131^{H9}	129.4_{h10}	128	131_{m6}	145	6	3	407_{-1}	101	62_{-1}	$136.329^{-0.081}_{-0.144}$	224.5	3	M30	M24	W 130x3x30x42x8f N 130x3x30x42x9H
X160	36	16	141^{H9}	139.4_{h10}	138	141_{m6}	155	6	3	464_{-1}	111	73_{-1}	$146.167^{-0.080}_{-0.143}$	256	4	M36	M30	W 140x3x30x45x8f N 140x3x30x45x9H
X170	36	17	151^{H9}	149.4_{h10}	148	151_{m6}	165	6	3	492_{-1}	121	73_{-1}	$156.172^{-0.079}_{-0.141}$	256	4	M36	M30	W 150x3x30x48x8f N 150x3x30x48x9H
X180	36	17	166^{H9}	159_{h10}	158	166_{m6}	180	10	5	564_{-1}	166	83_{-1}	$170.009^{-0.086}_{-0.152}$	292	4	M36	M30	W 160x5x30x30x8f N 160x5x30x30x9H
X190	36	17	166^{H9}	159_{h10}	158	166_{m6}	180	10	5	564_{-1}	166	83_{-1}	$170.009^{-0.086}_{-0.152}$	292	4	M36	M30	W 160x5x30x30x8f N 160x5x30x30x9H
X200	36	17	191^{H9}	179_{h10}	178	191_{m6}	205	10	5	619_{-1}	176	83_{-1}	$190.090^{-0.087}_{-0.155}$	319.5	4	M36	M30	W 180x5x30x34x8f N 180x5x30x34x9H
X210	36	17	191^{H9}	179_{h10}	178	191_{m6}	205	10	5	619_{-1}	176	83_{-1}	$190.090^{-0.087}_{-0.155}$	319.5	4	M36	M30	W 180x5x30x34x8f N 180x5x30x34x9H
X220	36	17	211^{H9}	199_{h10}	198	211_{m6}	230	10	5	685_{-1}	201	108_{-1}	$210.158^{-0.088}_{-0.157}$	352.5	5	M36	M30	W 200x5x30x38x8f N 200x5x30x38x9H
X2KV 220	36	17	211^{H9}	199_{h10}	198	211_{m6}	230	10	5	755_{-1}	201	108_{-1}	$210.158^{-0.088}_{-0.157}$	387.5	5	M36	M30	W 200x5x30x38x8f N 200x5x30x38x9H
X230	36	17	211^{H9}	199_{h10}	198	211_{m6}	230	10	5	685_{-1}	201	108_{-1}	$210.158^{-0.088}_{-0.157}$	352.5	5	M36	M30	W 200x5x30x38x8f N 200x5x30x38x9H
X2KV 230	36	17	211^{H9}	199_{h10}	198	211_{m6}	230	10	5	755_{-1}	201	108_{-1}	$210.158^{-0.088}_{-0.157}$	387.5	5	M36	M30	W 200x5x30x38x8f N 200x5x30x38x9H
X240	45	22	231^{H9}	219_{h10}	218	231_{m6}	250	10	5	777_{-1}	216	108_{-1}	$230.215^{-0.102}_{-0.179}$	400.5	5	M42	M36	W 220x5x30x42x8f N 220x5x30x42x9H
X2KV 240	45	22	231^{H9}	219_{h10}	218	231_{m6}	250	10	5	852_{-1}	216	108_{-1}	$230.215^{-0.102}_{-0.179}$	438	5	M42	M36	W 220x5x30x42x8f N 220x5x30x42x9H
X250	45	22	241^{H9}	219_{h10}	218	241_{m6}	260	10	5	777_{-1}	216	108_{-1}	$230.215^{-0.102}_{-0.179}$	400.5	5	M42	M36	W 220x5x30x42x8f N 220x5x30x42x9H
X2KV 250	45	22	241^{H9}	219_{h10}	218	241_{m6}	260	10	5	852_{-1}	216	108_{-1}	$230.215^{-0.102}_{-0.179}$	438	5	M42	M36	W 220x5x30x42x8f N 220x5x30x42x9H
X260	45	22	255^{H9}	239_{h10}	238	255_{m6}	275	10	5	850_{-1}	216	108_{-1}	$250.264^{-0.102}_{-0.180}$	437	5	M42	M36	W 240x5x30x46x8f N 240x5x30x46x9H
X270	45	22	285^{H9}	258.4_{h10}	258	285_{m6}	305	16	8	876_{-1}	248	143_{-1}	$276.230^{-0.101}_{-0.177}$	450	5	M42	M36	W 260x8x30x31x8f N 260x8x30x31x9H
X280	45	22	285^{H9}	258.4_{h10}	258	285_{m6}	305	16	8	876_{-1}	248	143_{-1}	$276.230^{-0.101}_{-0.177}$	450	5	M42	M36	W 260x8x30x31x8f N 260x8x30x31x9H
X290	45	22	305^{H9}	278.4_{h10}	278	305_{m6}	325	16	8	960_{-1}	268	143_{-1}	$297.014^{-0.105}_{-0.184}$	492	5	M42	M36	W 280x8x30x34x8f N 280x8x30x34x9H
X300	45	22	305^{H9}	278.4_{h10}	278	305_{m6}	325	16	8	960_{-1}	268	143_{-1}	$297.014^{-0.105}_{-0.184}$	492	5	M42	M36	W 280x8x30x34x8f N 280x8x30x34x9H
X310	55	28	325^{H9}	298.4_{h10}	298	325_{m6}	345	16	8	1029_{-1}	318	143_{-1}	$316.655^{-0.102}_{-0.180}$	528.5	5	M48	M42	W 300x8x30x36x8f N 300x8x30x36x9H
X320	55	28	325^{H9}	298.4_{h10}	298	325_{m6}	345	16	8	1029_{-1}	318	143_{-1}	$316.655^{-0.102}_{-0.180}$	528.5	5	M48	M42	W 300x8x30x36x8f N 300x8x30x36x9H

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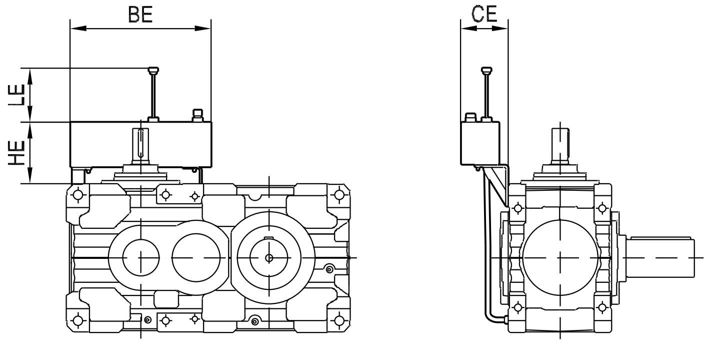
13.9 Oil expansion tank /ET – mounting position M1/M3 [mm]

INFORMATION

The dimensions of the oil expansion tanks are provided for information purposes only. Final dimensions are specified order-specifically by SEWEURODRIVE. For further information, refer to chapter "Oil expansion tank /ET" (→ 88).

ET

48 013 02 10



X3T	Mounting position	BE	CE	HE	LE
X100	M3	380	200	194	193
X110	M3	380	200	194	193
X120	M3	380	215	197	193
X130	M3	380	215	197	193
X140	M3	530	285	223	202
X150	M3	530	285	223	202
X160	M3	580	344	263	260
X170	M3	580	344	263	260
X180	M3	580	290	268	260
X190	M3	580	290	268	260
X200	M3	690	336	293	290
X210	M3	690	336	293	290
X220	M1	820	355	328	312
X230	M1	820	355	328	312
X240	M1	820	360	345	312
X250	M1	820	360	345	312

X4T	Mounting position	BE	CE	HE	LE
X120	M3	380	215	197	193
X130	M3	380	215	197	193
X140	M3	530	220	253	202
X150	M3	530	220	253	202
X160	M3	580	285	313	260
X170	M3	580	285	313	260
X180	M3	580	283	365	260
X190	M3	580	283	365	260
X200	M3	690	313	374	290
X210	M3	690	313	374	290
X220	M1	820	333	417	312
X230	M1	820	333	417	312
X240	M1	820	340	425	312
X250	M1	820	340	425	312

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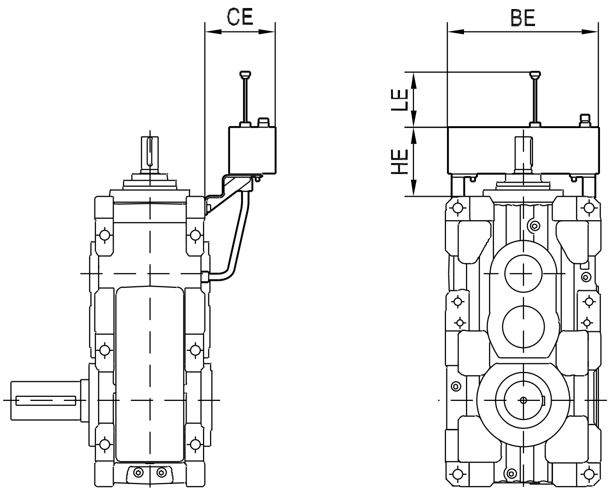
13.10 Oil expansion tank /ET – mounting position M4 [mm]

INFORMATION

The dimensions of the oil expansion tanks are provided for information purposes only. Final dimensions are specified order-specifically by SEWEURODRIVE. For further information, refer to chapter "Oil expansion tank /ET" (→ 🗎 88).

ET

48 012 03 10



X2K	Mounting position	BE	CE	HE	LE
X100	M4	380	176	231	193
X110	M4	380	176	231	193
X120	M4	380	175	224	193
X130	M4	380	175	224	193
X140	M4	530	220	255	202
X150	M4	530	220	255	202
X160	M4	580	285	314	260
X170	M4	580	285	314	260
X180	M4	580	290	327	260
X190	M4	580	290	327	260
X200	M4	690	335	394	290
X210	M4	690	335	394	290
X220	M4	820	350	449	312
X230	M4	820	350	449	312
X240	M4	820	360	401	312
X250	M4	820	360	401	312

X3K	Mounting position	BE	CE	HE	LE
X100	M4	380	200	190	193
X110	M4	380	200	190	193
X120	M4	380	215	201	193
X130	M4	380	215	201	193
X140	M4	530	170	225	202
X150	M4	530	170	225	202
X160	M4	580	240	272	260
X170	M4	580	240	272	260
X180	M4	580	290	268	260

X3K	Mounting position	BE	CE	HE	LE
X190	M4	580	290	268	260
X200	M4	690	336	294	290
X210	M4	690	336	294	290
X220	M4	820	355	328	312
X230	M4	820	355	328	312
X240	M4	820	360	344	312
X250	M4	820	360	344	312

X4K	Mounting position	BE	CE	HE	LE
X120	M4	380	215	201	193
X130	M4	380	215	201	193
X140	M4	530	220	255	202
X150	M4	530	220	255	202
X160	M4	580	285	314	260
X170	M4	580	285	314	260
X180	M4	580	283	365	260
X190	M4	580	283	365	260
X200	M4	690	313	375	290
X210	M4	690	313	375	290
X220	M4	820	333	417	312
X230	M4	820	333	417	312
X240	M4	820	285	424	312
X250	M4	820	285	424	312

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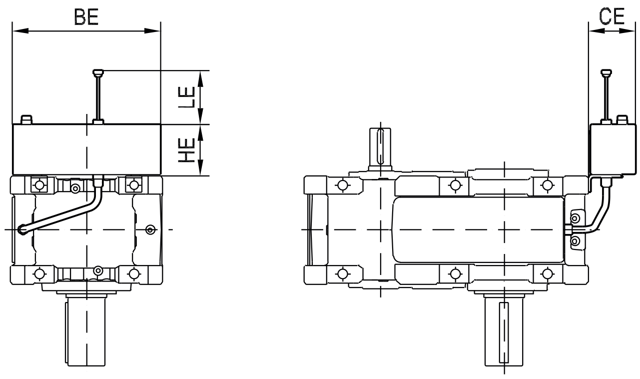
13.11 Oil expansion tank /ET – mounting position M5/M6 [mm]

INFORMATION

The dimensions of the oil expansion tanks are provided for information purposes only. Final dimensions are specified order-specifically by SEWEURODRIVE. For further information, refer to chapter "Oil expansion tank /ET" (→ 88).

ET

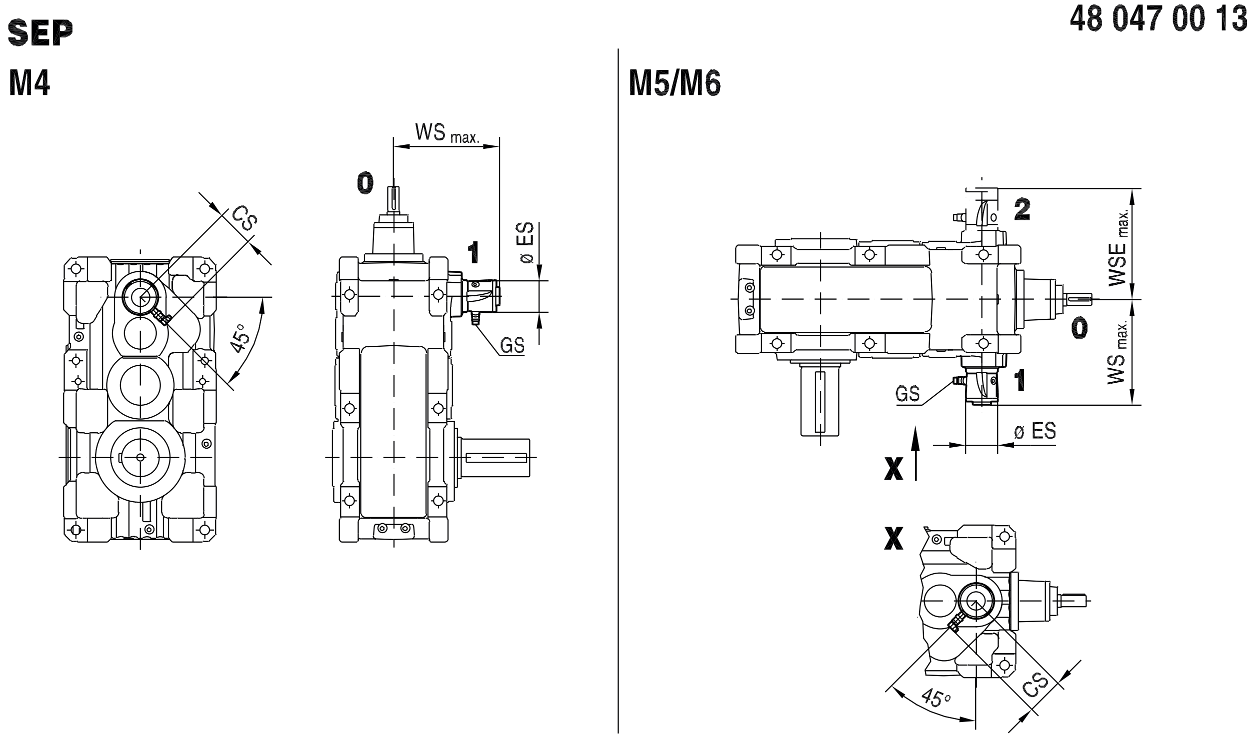
48 058 05 09



	Mounting position	BE	CE	HE	LE
X100	M5/M6	380	165	170	193
X110	M5/M6	380	165	170	193
X120	M5/M6	380	165	167	193
X130	M5/M6	380	165	167	193
X140	M5/M6	530	175	180	202
X150	M5/M6	530	175	180	202
X160	M5/M6	580	225	228	260
X170	M5/M6	580	225	228	260
X180	M5/M6	580	225	228	260
X190	M5/M6	580	225	228	260
X200	M5/M6	690	240	253	290
X210	M5/M6	690	240	253	290
X220	M5/M6	820	275	280	312
X230	M5/M6	820	275	280	312
X240	M5/M6	820	275	273	312
X250	M5/M6	820	275	273	312

13.12 Shaft end pump /SEP [mm]

For further information, refer to chapter "Shaft end pump /SEP" (→ 🗎 89).



	CS	GS	WS max.	WSE max.	Ø ES
X120	163	G3/4"	362	402	140
X130	163	G3/4"	362	402	140
X140	163	G3/4"	392	432	140
X150	163	G3/4"	392	432	140
X160	163	G3/4"	442.5	482.5	140
X170	163	G3/4"	442.5	482.5	140
X180	163	G3/4"	468	508	140
X190	163	G3/4"	468	508	140
X200	163	G3/4"	503.5	543.5	140
X210	163	G3/4"	503.5	543.5	140
X220	163	G3/4"	538.5	578.5	140
X230	163	G3/4"	538.5	578.5	140
X240	163	G3/4"	583.5	623.5	140
X250	163	G3/4"	583.5	623.5	140
X260	163	G3/4"	598.5	638.5	140
X270	163	G3/4"	598.5	638.5	140
X280	163	G3/4"	598.5	638.5	140
X290	163	G3/4"	639.5	679.5	140
X300	163	G3/4"	639.5	679.5	140
X310	163	G3/4"	672	712	140
X320	163	G3/4"	672	712	140

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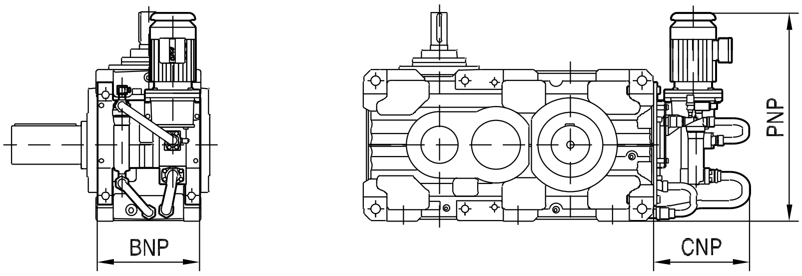
13.13 Motor pump /ONP..-00/M - [mm]

For further information, refer to chapter "Motor pump /ONP" (→ 🗎 92).

ONP.. -00/M

48 024 00 14



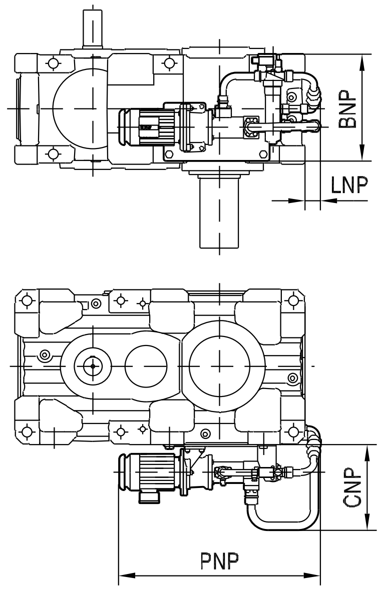
		BNP	CNP	PNP	kg
X160 – 170	ONP005-00/M	395	284	596	20
X160 – 170	ONP015-00/M	395	293	596	22
X180 – 190	ONP020-00/M	457	401	691	44
X200 – 210		497	401	705	
X220 – 230		519	401	772	
X180 – 190	ONP030-00/M	457	415	868	44
X200 – 210		497	415	882	
X220 – 230		519	415	949	
X240 – 250		604	415	954	
X260 – 270		680	415	956	
X280		680	415	956	
X290 – 300		745	415	966	
X310 – 320		810	415	1014	
X180 – 190	ONP040-00/M	457	415	838	67
X200 – 210		497	415	852	
X220 – 230		519	415	919	
X240 – 250		604	415	924	
X260 – 270		680	415	926	
X280		680	415	926	
X290 – 300		745	415	936	
X310 – 320		810	415	984	
X310 – 320	ONP050-00/M	810	462	1014	70

13.14 Motor pump /ONP..-10/M – mounting position M5/M6 [mm]

For further information, refer to chapter "Motor pump /ONP" (→ 🗎 92).

ONP.. -10/M

48 021 02 10



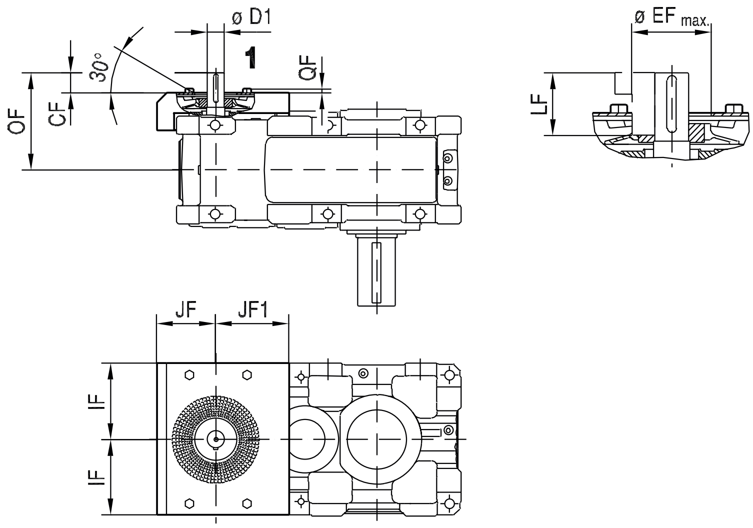
		BNP	CNP	LNP	PNP	kg
X..140 – 150	ONP005-10/M	387	284	27	568	16
X..160 – 170		413	284	31	603	
X..140 – 150	ONP015-10/M	387	293	27	580	18
X..160 – 170		413	293	31	615	
X..180 – 190	ONP020-10/M	460	258	40	866	40
X..200 – 210		500	258	28	889	
X..180 – 190	ONP030-10/M	460	366	66	942	40
X..200 – 210		500	366	70	982	
X..220 – 230		510	366	70	996	
X..240 – 250		585	366	70	1013	
X..260 – 270		663	366	60	1002	
X..280		663	366	60	1002	
X..290 – 300		760	366	45	1031	
X..180 – 190	ONP040-10/M	460	366	66	912	60
X..200 – 210		500	366	70	952	
X..220 – 230		510	366	70	966	
X..240 – 250		585	366	70	983	
X..260 – 270		663	366	60	972	
X..280		663	366	60	972	
X..290 – 300		760	366	45	1001	
X..310 – 320		826	385	40	1013	
X..310 – 320	ONP050-10/M	826	385	40	1043	63

13.15 Fan X..P /FAN [mm]

For further information, refer to chapter "X.F.. Fan (standard) /FAN" (→ 🗎 95).

X..F /FAN

48 009 00 14



/FAN						i = 6.3 ... 11.2* i = 7.1 ... 12.5** i = 8 ... 14***				i = 12.5 ... 18* i = 14 ... 20** i = 16 ... 22.4***			
X2F..	**Ø EF_{max}**	**IF**	**JF**	**JF1**	**QF**	**CF**	**Ø D1**	**LF**	**OF**	**CF**	**Ø D1**	**LF**	**OF**
X100**	110	185	215	155	11	61	42_{k6}	80	274	31	32_{k6}	50	244
X110***	110	185	215	155	11	61	42_{k6}	80	274	31	32_{k6}	50	244
X120*	130	220	247	186	11	56	55_{m6}	75	290	56	42_{k6}	75	290
X130***	130	220	247	186	11	56	55_{m6}	75	290	56	42_{k6}	75	290
X140*	150	253	290	231.5	11	81	70_{m6}	100	348	51	55_{m6}	70	318
X150***	150	253	290	231.5	11	81	70_{m6}	100	348	51	55_{m6}	70	318
X160*	170	310	340	262.5	11	106	80_{m6}	125	412	76	70_{m6}	95	382
X170***	170	310	340	262.5	11	106	80_{m6}	125	412	76	70_{m6}	95	382
X180*	215	327.5	400	310	11	96	90_{m6}	120	445	66	75_{m6}	90	415
X190**	215	327.5	400	310	11	96	90_{m6}	120	445	66	75_{m6}	90	415
X200*	215	367.5	445	310	11	136	100_{m6}	160	504	96	90_{m6}	120	464
X210**	215	367.5	445	310	11	136	100_{m6}	160	504	96	90_{m6}	120	464
X220*	245	420	500	355	16	131	110_{m6}	155	538	131	100_{m6}	155	538
X230**	245	420	500	355	16	131	110_{m6}	155	538	131	100_{m6}	155	538
X240*	270	445	530	405	16	126	120_{m6}	150	583	126	110_{m6}	150	583
X250**	270	445	530	405	16	126	120_{m6}	150	583	126	110_{m6}	150	583
X260*	305	495	585	412	16	160	130_{m6}	185	673	120	120_{m6}	145	633
X270**	305	495	585	412	16	160	130_{m6}	185	673	120	120_{m6}	145	633
X280***	305	550	585	432	16	160	130_{m6}	185	673	120	120_{m6}	145	633
X290*	340	575	670	482	16	160	150_{m6}	185	713	160	150_{m6}	185	713
X300**	340	575	670	482	16	160	150_{m6}	185	713	160	150_{m6}	185	713
X310*	340	625	725	535	16	210	170_{m6}	235	795	210	170_{m6}	235	795
X320**	340	625	725	535	16	210	170_{m6}	235	795	210	170_{m6}	235	795

/FAN						i = 20 ... 56* i = 22.4 ... 63** i = 25 ... 71***				i = 63 ... 90* i = 71 ... 100** i = 80 ... 112***			
X3F..	**Ø $EF_{max.}$**	**IF**	**JF**	**JF1**	**QF**	**CF**	**Ø D1**	**LF**	**OF**	**CF**	**Ø D1**	**LF**	**OF**
X100**	85	185	160	190	11	31	32k6	55	244	31	32_{k6}	55	244

X110* **	85	185	160	190	11	31	32_{k6}	55	244	31	32_{k6}	55	244
X120*	95	220	185	225	11	24	38_{k6}	50	258	24	38_{k6}	50	258
X130* **	95	220	185	225	11	24	38_{k6}	50	258	24	38_{k6}	50	258
X140*	110	255	213	260	11	51	45_{k6}	75	318	51	45_{k6}	75	318
X150* **	110	255	213	260	11	51	45_{k6}	75	318	51	45_{k6}	75	318
X160*	150	310	235	305	11	75	60_{m6}	100	381	45	50_{k6}	70	351
X170* **	150	310	235	305	11	75	60_{m6}	100	381	45	50_{k6}	70	351
X180*	190	327.5	260	325	11	71	70_{m6}	95	411	41	55_{m6}	65	381
X190**	190	327.5	260	325	11		70_{m6}	95	411	41	55_{m6}	65	381
X200*	215	367.5	305	362	11	66	75_{m6}	90	430	66	60_{m6}	90	430
X210**	215	367.5	305	362	11	66	75_{m6}	90	430	66	60_{m6}	90	430
X220*	245	420	311	409	16	96	80_{m6}	120	487	66	70_{m6}	90	457
X230**	245	420	311	409	16	96	80_{m6}	120	487	66	70_{m6}	90	457
X240*	245	445	350	433	16	89	90_{m6}	115	532	59	75_{m6}	85	502
X250**	245	445	350	433	16	89	90_{m6}	115	532	59	75_{m6}	85	502

/FAN						**i = 20 ... 50* i = 22.4 ... 56** i = 25 ... 63*****				**i = 56 ... 90* i = 63 ... 100** i = 71 ... 112*****			
X3F..	**Ø $EF_{max.}$**	**IF**	**JF**	**JF1**	**QF**	**CF**	**Ø D1**	**LF**	**OF**	**CF**	**Ø D1**	**LF**	**OF**
X260*	245	495	400	490	16	125	100_{m6}	150	613	85	80_{m6}	110	573
X270**	245	495	400	490	16	125	100_{m6}	150	613	85	80_{m6}	110	573
X280* **	245	550	400	690	16	125	100_{m6}	150	613	85	80_{m6}	110	573
X290*	270	575	413	785	16	120	100_{m6}	145	661	120	100_{m6}	145	661
X300**	270	575	413	785	16	120	100_{m6}	145	661	120	100_{m6}	145	661
X310*	305	625	412	878	16	120	110_{m6}	145	694	120	110_{m6}	145	694
X320**	305	625	412	878	16	120	110_{m6}	145	694	120	110_{m6}	145	694

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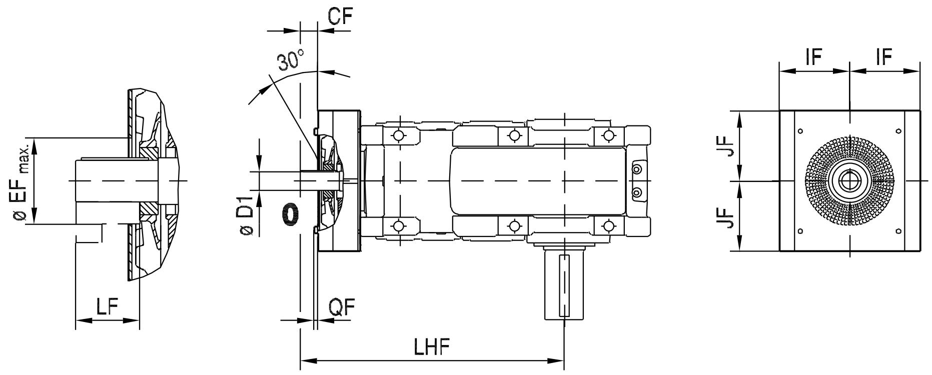
13.16 Fan X..K /FAN [mm]

For further information, refer to chapter "X.K.. Fan (standard) /FAN" (→ 🗎 95).

X..K /FAN

48 005 00 14



/FAN								
X2K..	**CF**	**Ø D1**	**Ø EF max.**	**IF**	**JF**	**LF**	**LHF**	**QF**
X100	61	50_{k6}	110	185	165	80	655	11
X110	61	50_{k6}	110	185	165	80	675	11
X120	86	60_{m6}	130	220	200	105	752	11
X130	86	60_{m6}	130	220	200	105	788	11
X140	81	70_{m6}	150	260	233	100	816	11
X150	81	70_{m6}	150	260	233	100	858	11
X160	106	85_{m6}	170	310	270	125	1010	11
X170	106	85_{m6}	170	310	270	125	1061	11
X180	141	100_{m6}	190	330	303	160	1137	11
X190	141	100_{m6}	190	330	303	160	1169	11
X200	136	110_{m6}	215	370	338	155	1268	11
X210	136	110_{m6}	215	370	338	155	1304	11
X220	131	120_{m6}	245	420	385	150	1436	16
X230	131	120_{m6}	245	420	385	150	1476	16
X240	126	130_{m6}	270	445	435	145	1476	16
X250	126	130_{m6}	270	445	435	145	1499	16

/FAN									
X3K..	**CF**	**Ø D1**	**Ø EF max.**	**IF**	**JF**	**LF**	**LHF**	**QF**	**i**
X100	31	32_{k6}	105	185	165	50	632	11	–
X110	31	32_{k6}	105	185	165	50	652	11	–
X120	46	38_{k6}	135	220	200	65	745	11	–
X130	46	38_{k6}	135	220	200	65	781	11	–
X140	51	50_{k6}	155	260	230	70	879	11	–
X150	51	50_{k6}	155	260	230	70	921	11	–
X160	76	60_{m6}	170	310	270	95	1036	11	–
X170	76	60_{m6}	170	310	270	95	1087	11	–
X180	71	70_{m6}	190	330	303	90	1135	11	–
X190	71	70_{m6}	190	330	303	90	1167	11	–
X200	96	80_{m6}	215	370	338	115	1286	11	–
X210	96	80_{m6}	215	370	338	115	1322	11	–
X220	96	85_{m6}	245	420	350	115	1430	16	–
X230	96	85_{m6}	245	420	350	115	1470	16	–

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X240	131	100_{m6}	245	445	398	150	1597	14	–
X250	131	100_{m6}	245	445	398	150	1620	14	–
X260	124	110_{m6}	245	495	438	145	1767	14	–
X270	124	110_{m6}	245	495	438	145	1802	14	–
X280	124	110_{m6}	245	495	438	145	1854	14	–
X290	124	120_{m6}	270	575	483	145	2021	14	–
X300	124	120_{m6}	270	575	483	145	2050	14	–
X310	164	130_{m6}	305	625	520	185	2135	14	i = 12.5 ... 35.5
	124	130_{m6}	305	625	520	145	2095	14	i = 40 ... 71
X320	164	130_{m6}	305	625	520	185	2169	14	i = 14 ... 40
	124	130_{m6}	305	625	520	145	2129	14	i = 45 ... 80

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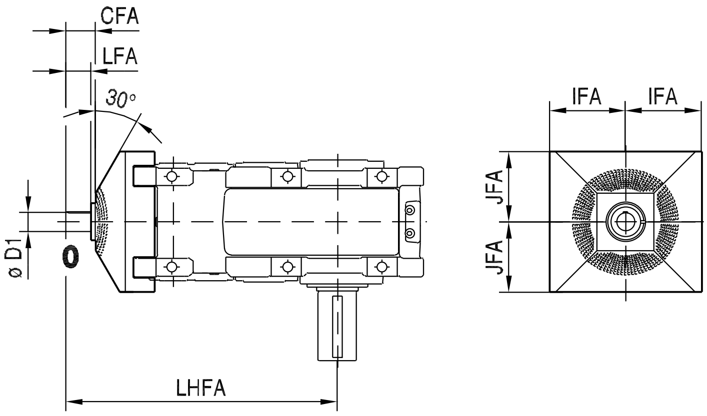
13.17 Fan X..K /FAN-ADV [mm]

For further information, refer to chapter "X3K.. Advanced (option) /FAN-ADV" (→ 🗎 96).

X..K /FAN-ADV

48 006 00 14



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/FAN-ADV							
X3K..	CFA	Ø D1	IFA	JFA	LFA	LHFA	i
X100	54	32_{k6}	189	167	50	632	–
X110	54	32_{k6}	189	167	50	652	–
X120	71	38_{k6}	224	192	65	745	–
X130	71	38_{k6}	224	192	65	781	–
X140	69	50_{k6}	264	232	65	879	–
X150	69	50_{k6}	264	232	65	921	–
X160	100	60_{m6}	314	277	95	1036	–
X170	100	60_{m6}	314	277	95	1087	–
X180	91	70_{m6}	334	304	85	1135	–
X190	91	70_{m6}	334	304	85	1167	–
X200	116	80_{m6}	374	327	110	1286	–
X210	116	80_{m6}	374	327	110	1322	–
X220	116	85_{m6}	424	345	110	1430	–
X230	116	85_{m6}	424	345	110	1470	–
X240	146	100_{m6}	449	392	140	1597	–
X250	146	100_{m6}	449	392	140	1620	–
X260	141	110_{m6}	499	438	135	1767	–
X270	141	110_{m6}	499	438	135	1802	–
X280	141	110_{m6}	554	438	135	1854	–
X290	135	120_{m6}	579	483	130	2021	–
X300	135	120_{m6}	579	483	130	2050	–
X3K.310	175	130_{m6}	629	515	170	2135	i = 12.5 ... 35.5
	135	130_{m6}	629	515	130	2095	i = 40 ... 71
X3K.320	175	130_{m6}	629	515	170	2169	i = 14 ... 40
	135	130_{m6}	629	515	130	2129	i = 45 ... 80

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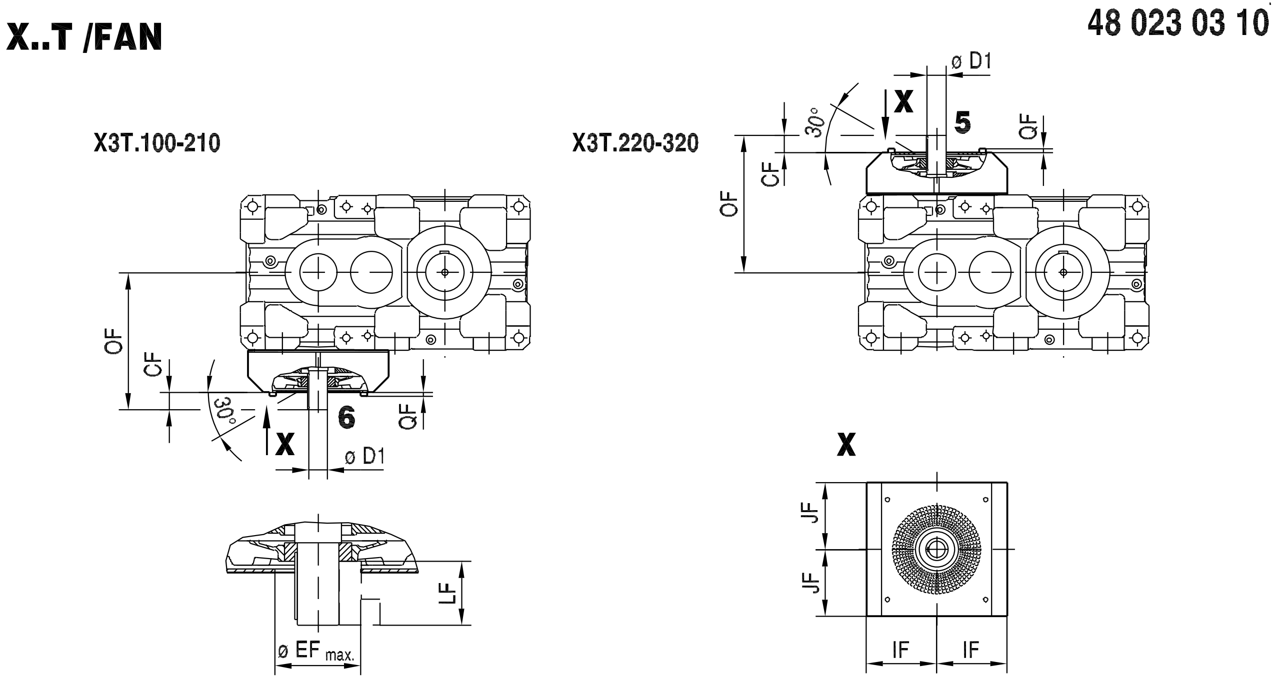
13.18 Fan X..T /FAN [mm]

For further information, refer to chapter "X.K.. Fan (standard) /FAN" (→ 🗎 95).



/FAN								
X3T..	**CF**	**Ø D1**	**Ø EFmax.**	**IF**	**JF**	**LF**	**OF**	**QF**
X100	31	32_{k6}	85	185	165	50	354	11
X110	31	32_{k6}	85	185	165	50	354	11
X120	46	38_{k6}	95	220	200	65	418	11
X130	46	38_{k6}	95	220	200	65	418	11
X140	51	50_{k6}	130	260	230	70	491	11
X150	51	50_{k6}	130	260	230	70	491	11
X160	76	60_{m6}	150	310	270	95	562	11
X170	76	60_{m6}	150	310	270	95	562	11
X180	71	70_{m6}	190	330	303	90	591	11
X190	71	70_{m6}	190	330	303	90	591	11
X200	96	80_{m6}	215	370	338	115	672	11
X210	96	80_{m6}	215	370	338	115	672	11
X220	96	85_{m6}	245	420	350	115	736	16
X230	96	85_{m6}	245	420	350	115	736	16
X240	131	100_{m6}	245	445	398	150	821	14
X250	131	100_{m6}	245	445	398	150	821	14

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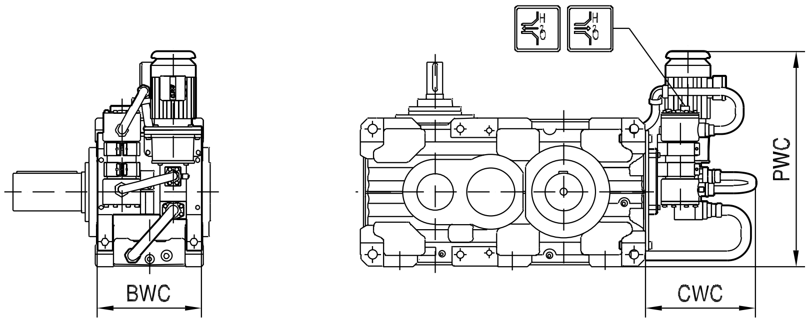
13.19 Oil-water cooler /OWC..-00/M [mm]

For further information, refer to chapter "Circulation cooling oil-water cooler for splash lubrication /OWC" (→ 🗎 102).

OWC.. -00/M 48 026 00 14



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		BWC	CWC	PWC	H_2O H_2O	kg
X..140 – 150	OWC005-00/M	345	284	500	G3/4"	23
X..140 – 150	OWC015-00/M	345	312	504	G3/4"	28
X..160 – 170		395	312	601		
X..160 – 170	OWC025-00/M	395	291	601	G3/4"	31
X..180 – 190	OWC010-00/M	457	354	697	G1/2"	36
X..200 – 210		497	354	712		
X..220 – 230		519	354	778		
X..240 – 250		604	354	786		
X..180 – 190	OWC020-00/M	457	426	818	G1/2"	57
X..200 – 210		497	426	832		
X..220 – 230		519	426	899		
X..240 – 250		604	426	907		
X..180 – 190	OWC030-00/M	457	426	838	G1"	57
X..200 – 210		497	426	852		
X..220 – 230		519	426	919		
X..240 – 250		604	426	927		
X..180 – 190	OWC040-00/M	457	479	959	G3/4"	85
X..200 – 210		497	479	956		
X..220 – 230		519	479	968		
X..240 – 250		604	479	976		
X..260 – 270		680	480	976		
X..280		680	480	976		
X..290 – 300		745	480	986		
X..310 – 320		810	480	1033		
X..220 – 230	OWC050-00/M	519	479	1016	G1 1/4"	88
X..240 – 250		604	479	1024		
X..260 – 270		680	470	1024		
X..280		680	470	1024		
X..290 – 300		745	470	1034		
X..310 – 320		810	470	1081		
X..240 – 250	OWC060-00/M	604	531	1135	G1 1/2"	132
X..260 – 270		680	490	1165		
X..280		680	490	1165		
X..290 – 300		745	490	1187		
X..310 – 320		810	490	1195		
X..260 – 270	OWC-070-00/M	680	540	1242	G1"	139
X..280		680	540	1242		
X..290 – 300		745	540	1255		
X..310 – 320		810	540	1257		

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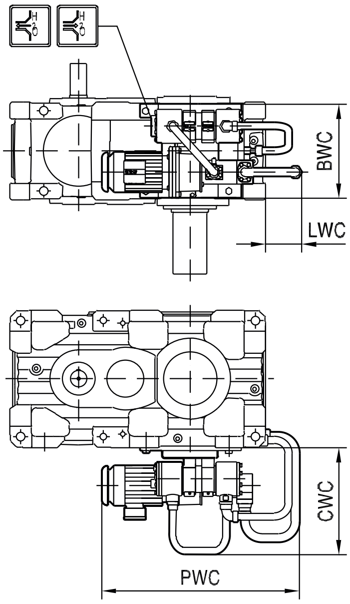
13.20 Oil-water cooler /OWC..-10/M [mm]

For further information, refer to chapter "Circulation cooling oil-water cooler for splash lubrication /OWC" (→ 🗎 102).

OWC.. -10/M

48 014 02 10



		BWC	CWC	LWC	PWC	H_2O H_2O	kg
X..140 – 150	OWC005-10/M	345	284	27	588	G3/4"	23
X..140 – 150	OWC015-10/M	345	310	27	598	G3/4"	28
X..160 – 170		395	312	29	631		
X..160 – 170	OWC025-10/M	395	308	29	631	G3/4"	31
X..180 – 190	OWC010-10/M	457	345	72	829	G1/2"	36
X..200 – 210		497	345	57	829		
X..220 – 230		519	345	55	829		
X..240 – 250		604	345	35	829		
X..180 – 190	OWC020-10/M	457	405	106	812	G1/2"	57
X..200 – 210		497	405	91	812		
X..220 – 230		519	405	87	812		
X..240 – 250		604	405	68	812		
X..180 – 190	OWC030-10/M	457	405	106	832	G1"	57
X..200 – 210		497	405	91	832		
X..220 – 230		519	405	87	832		
X..240 – 250		604	405	68	832		
X..180 – 190	OWC040-10/M	497	460	184	1004	G3/4"	85
X..200 – 210		497	460	169	1004		
X..220 – 230		519	460	166	1004		
X..240 – 250		604	460	145	1004		
X..260 – 270		680	460	66	906		
X..280		680	460	66	906		
X..290 – 300		745	460	41	906		
X..310 – 320		810	460	36	906		

		BWC	CWC	LWC	PWC	H₂O in / H₂O out	kg
X..220 – 230	OWC050-10/M	519	460	166	1052	G1 1/4"	88
X..240 – 250		604	460	145	1052		
X..260 – 270		680	460	66	954		
X..280		680	460	66	954		
X..290 – 300		745	460	41	954		
X..310 – 320		810	460	36	954		
X..240 – 250	OWC060-10/M	604	490	184	1264	G1 1/2"	132
X..260 – 270		680	490	80	1164		
X..280		680	490	80	1164		
X..290 – 300		745	490	68	1164		
X..310 – 320		810	490	60	1164		
X..260 – 270	OWC-070-10/M	680	537	80	1225	G1"	139
X..280		680	537	80	1225		
X..290 – 300		745	537	68	1225		
X..310 – 320		810	537	60	1225		

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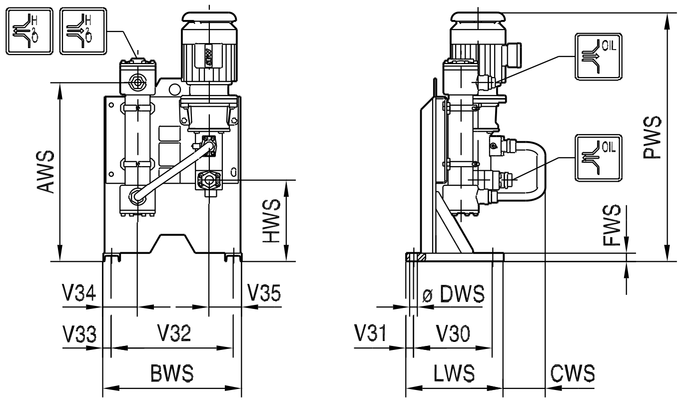
13.21 Oil-water cooler /OWC..-00/S [mm]

For further information, refer to chapter "Circulation cooling oil-water cooler for splash lubrication /OWC" (→ 🗎 102).

OWC.. -00/S

48 014 03 08



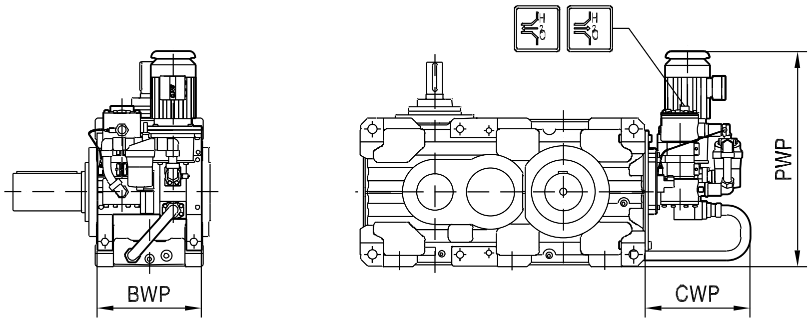
13

	AWS	BWS	CWS	ØDWS	FWS	HWS	LWS	PWS	V30	V31	V32	V33	V34	V35	H_2O H_2O	OIL	OIL	kg
OWC 010-00/S	790	480	100	12	30	217	350	883	275	30	430	25	127	117	G1/2"	GE18-LR 1"	GE22-LR 1/2”	60
OWC 020-00/S	670	480	150	12	30	292	350	890	275	30	430	25	125	117	G1/2"	GE28-LR 1"	GE35-LR 1 1/4"	80
OWC 030-00/S	641	480	150	12	30	292	350	916	275	30	430	25	125	117	G1"	GE28-LR 1"	GE35-LR 1 1/4"	80
OWC 040-00/S	603	480	215	12	30	250	350	981	275	30	430	25	120	137	G3/4"	GE35-LR 1 1/2"	GE42-LR 1 1/2”	107
OWC 050-00/S	603	480	215	12	30	250	350	1030	275	30	430	25	120	137	G1 1/4"	GE35-LR 1 1/2"	GE42-LR 1 1/2”	110
OWC 060-00/S	814	630	115	12	30	322	470	1153	390	30	577	25	164	137	G1 1/2"	GE42-LR 1 1/2”	SAE 2" SFL	167
OWC 070-00/S	916	630	165	12	30	288	470	1226	390	30	577	25	164	157	G1"	GE42-LR 2 1/2”	SAE 2 1/2"SFL	174

13.22 Oil-water cooler /OWP..-00/M [mm]

For further information, refer to chapter "Circulation cooling oil-water cooler for pressure lubrication /OWP" (→ 🗎 106).

OWP.. -00/M **48 025 00 14**



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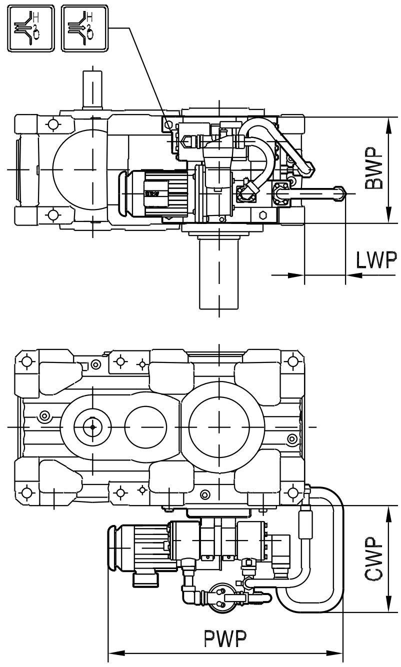
		BWP	CWP	PWP		kg
X..160 – 170	OWP015-00/M	395	455	601	G3/4"	30
X..160 – 170	OWP025-00/M	395	502	601	G3/4"	33
X..180 – 190	OWP010-00/M	457	354	697	G1/2"	38
X..200 – 210		497	354	712		
X..220 – 230		519	354	778		
X..240 – 250		604	354	786		
X..180 – 190	OWP020-00/M	457	415	818	G1/2"	59
X..200 – 210		497	415	832		
X..220 – 230		519	415	899		
X..240 – 250		604	415	907		
X..180 – 190	OWP030-00/M	457	415	838	G1"	59
X..200 – 210		497	415	852		
X..220 – 230		519	415	919		
X..240 – 250		604	415	927		
X..180 – 190	OWP040-00/M	457	486	1007	G3/4"	87
X..200 – 210		497	486	1004		
X..220 – 230		519	486	1016		
X..240 – 250		604	490	1024		
X..260 – 270		680	500	1024		
X..280		680	500	1024		
X..290 – 300		745	500	1034		
X..310 – 320		810	500	1081		
X..220 – 230	OWP050-00/M	519	486	1039	G1 1/4"	90
X..240 – 250		604	490	1047		
X..260 – 270		680	500	1047		
X..280		680	500	1047		
X..290 – 300		745	500	1057		
X..310 – 320		810	500	1104		
X..240 – 250	OWP060-00/M	604	565	1185	G1 1/2"	134
X..260 – 270		680	565	1215		
X..280		680	565	1215		
X..290 – 300		745	565	1237		
X..310 – 320		810	565	1245		
X..260 – 270	OWP-070-00/M	680	540	1242	G1"	141
X..280		680	540	1242		
X..290 – 300		745	540	1255		
X..310 – 320		810	540	1257		

13.23 Oil-water cooler /OWP..-10/M [mm]

For further information, refer to chapter "Circulation cooling oil-water cooler for pressure lubrication /OWP" (→ 🗎 106).

OWP.. -10/M 48 019 02 10



		BWP	CWP	LWP	PWP		kg
X..140 – 150	OWP005-10/M	441	409	27	568	G3/4"	25
X..140 – 150	OWP015-10/M	441	455	27	580	G3/4"	30
X..160 – 170		467	455	31	615		
X..160 – 170	OWP025-10/M	426	502	31	615	G3/4"	33
X..180 – 190	OWP010-10/M	457	345	72	829	G1/2"	38
X..200 – 210		497	345	57	829		
X..220 – 230		519	345	55	829		
X..240 – 250		604	345	35	829		
X..180 – 190	OWP020-10/M	457	405	106	812	G1/2"	59
X..200 – 210		497	405	91	812		
X..220 – 230		519	405	87	812		
X..240 – 250		604	405	68	812		
X..180 – 190	OWP030-10/M	457	405	106	832	G1"	59
X..200 – 210		497	405	91	832		
X..220 – 230		519	405	87	832		
X..240 – 250		604	405	68	832		
X..180 – 190	OWP040-10/M	457	460	184	1052	G3/4"	87
X..200 – 210		497	460	169	1052		
X..220 – 230		519	460	166	1052		
X..240 – 250		604	460	145	1052		
X..260 – 270		680	460	66	954		
X..280		680	460	66	954		
X..290 – 300		745	460	41	954		
X..310 – 320		810	460	36	954		

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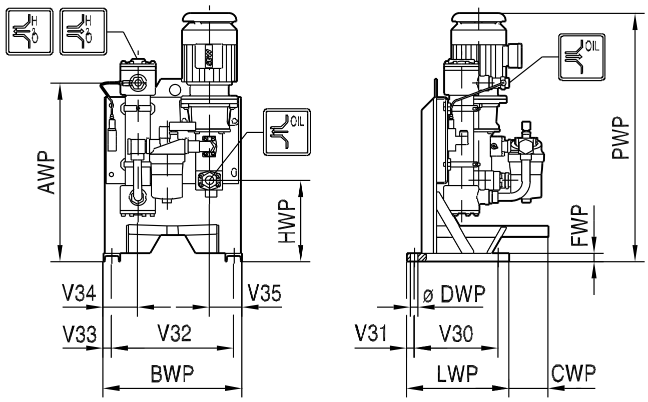
		BWP	CWP	LWP	PWP		kg
X..220 – 230	OWP050-10/M	519	460	166	1075	G1 1/4"	90
X..240 – 250		604	460	145	1075		
X..260 – 270		680	460	66	977		
X..280		680	460	66	977		
X..290 – 300		745	460	41	977		
X..310 – 320		810	460	36	977		
X..240 – 250	OWP060-10/M	604	490	184	1314	G1 1/2"	134
X..260 – 270		680	490	80	1214		
X..280		680	490	80	1214		
X..290 – 300		745	490	68	1214		
X..310 – 320		810	490	60	1214		
X..260 – 270	OWP-070-10/M	680	537	80	1225	G1"	141
X..280		680	537	80	1225		
X..290 – 300		745	537	68	1225		
X..310 – 320		810	537	60	1225		

13.24 Oil-water cooler /OWP..-00/S [mm]

For further information, refer to chapter "Circulation cooling oil-water cooler for pressure lubrication /OWP" (→ 🗎 106).

OWP.. -00/S

48 017 02 10



	AWP	BWP	CWP	Ø DWP	FWP	HWP	LWP	PWP
OWP010-00/S	790	480	158	12	30	217	350	883
OWP020-00/S	670	480	158	12	30	292	350	890
OWP030-00/S	641	480	158	12	30	292	350	916
OWP040-00/S	603	480	158	12	30	250	350	1000
OWP050-00/S	603	480	158	12	30	250	350	1023
OWP060-00/S	814	630	178	12	30	322	470	1161
OWP070-00/S	916	630	178	12	30	288	470	1176

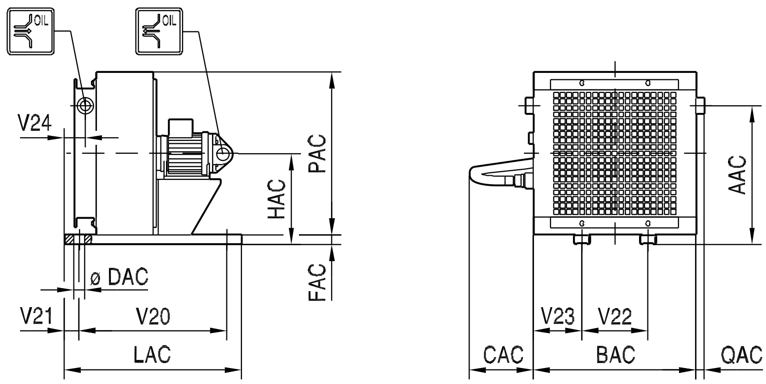
	V30	V31	V32	V33	V34	V35	H_2O H_2O	OIL	OIL	kg
OWP010-00/S	275	30	430	25	127	117	G1/2"	GE18-LR 1"	GE22-LR 1/2”	60
OWP020-00/S	275	30	430	25	125	117	G1/2"	GE28-LR 1"	GE35-LR 1 1/4"	80
OWP030-00/S	275	30	430	25	125	117	G1"	GE28-LR 1"	GE35-LR 1 1/4"	80
OWP040-00/S	275	30	430	25	120	137	G3/4"	GE35-LR 1 1/2"	GE42-LR 1 1/2”	107
OWP050-00/S	275	30	430	25	120	137	G1 1/4"	GE35-LR 1 1/2"	GE42-LR 1 1/2”	110
OWP060-00/S	390	30	577	25	164	137	G1 1/2"	GE42-LR 1 1/2”	SAE 2" SFL	167
OWP070-00/S	390	30	577	25	164	157	G1"	GE42-LR 2 1/2”	SAE 2 1/2"SFL	174

13.25 Oil-air cooler /OAC..-00/S [mm]

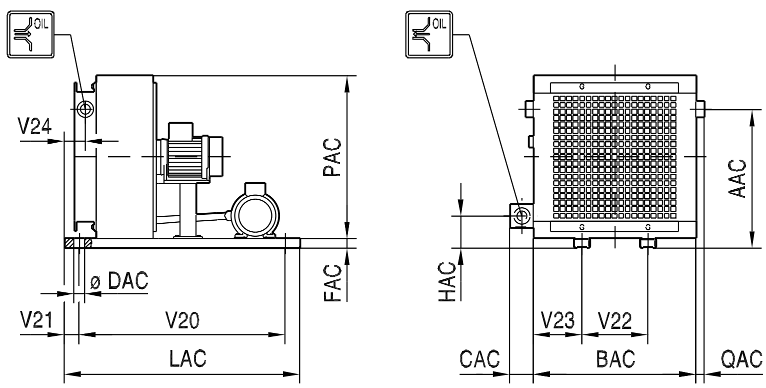
For further information, refer to chapter "Circulation cooling oil-air cooler for splash lubrication /OAC" (→ 🗎 110).

OAC..-00/S

48 086 04 07



OAC 025+060



	AAC	BAC	CAC	Ø DAC	FAC	HAC	LAC	PAC	QAC	V20	V21	V22	V23	V24	OIL	OIL	kg
OAC005-00/S	365	440	119	9	30	247	550	440	25	510	20	203	118.5	66.5	G1 1/4"	G1"	38
OAC010-00/S	365	440	119	9	30	247	550	440	25	510	20	203	118.5	66.5	G1 1/4"	G1"	38
OAC020-00/S	426	500	119	9	30	277	550	500	25	510	20	203	148.5	66.5	G1 1/4"	G1"	43
OAC025-00/S	510	580	134	9	30	287	760	580	24	720	20	356	112	66.5	G1 1/4"	G1"	71
OAC030-00/S	510	580	134	9	30	317	550	580	24	510	20	356	112	66.5	G1 1/2"	G1"	71
OAC040-00/S	620	700	132	9	30	377	550	700	10	510	20	356	172	66.5	G1 1/2"	G1 1/4"	86
OAC050-00/S	798.5	870	134	9	30	462	550	870	11	510	20	508	181	66.5	G1 1/2"	G1 1/4"	118
OAC060-00/S	951	1010	91	12	30	172	1200	1020	5	1160	20	518	246	109.5	SAE 2 1/2"	G1 1/2"	234

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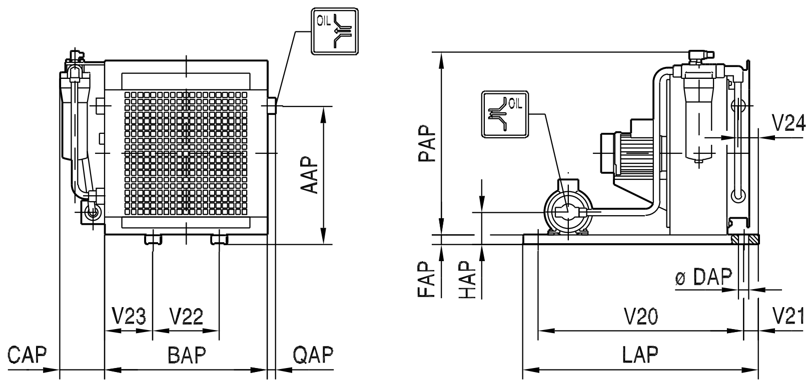
13.26 Oil-air cooler /OAP..00/S [mm]

For further information, refer to chapter "Circulation cooling oil-air cooler for pressure lubrication /OAP" (→ 🗎 114).

OAP..-00/S

48 016 02 10



	AAP	BAP	CAP	Ø DAP	FAP	HAP	LAP	PAP	QAP	V20	V21	V22	V23	V24	OIL	OIL	kg
OAP005-00/S	365	440	170	9	30	118	680	512	25	640	20	203	118.5	66.5	G1 1/4"	G1"	58
OAP010-00/S	365	440	170	9	30	118	680	521	25	640	20	203	118.5	66.5	G1 1/4"	G1"	58
OAP020-00/S	426	500	170	9	30	118	705	572	25	665	20	203	148.5	66.5	G1 1/4"	G1"	64
OAP025-00/S	510	580	185	9	30	117	760	652	24	720	20	356	112	66.5	G1 1/4"	G1"	96
OAP030-00/S	510	580	200	9	30	149	845	654	24	805	20	356	112	66.5	G1 1/2"	G1"	96
OAP040-00/S	779	700	182	9	30	149	895	914	10	855	20	356	172	66.5	G1 1/2"	G1 1/4"	126
OAP050-00/S	798	870	192	9	30	149	1050	944	13	1010	20	508	181	66.5	G1 1/2"	G1 1/4"	128
OAP060-00/S	951	1010	170	12	30	172	1200	1138	120	1160	20	518	246	109.5	SAE 2 1/2"	G1 1/2"	230

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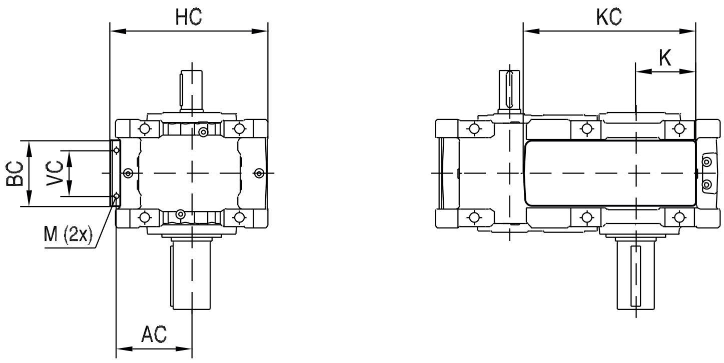
13.27 Water cooling cover, water cooling cartridge and oil heater [mm]

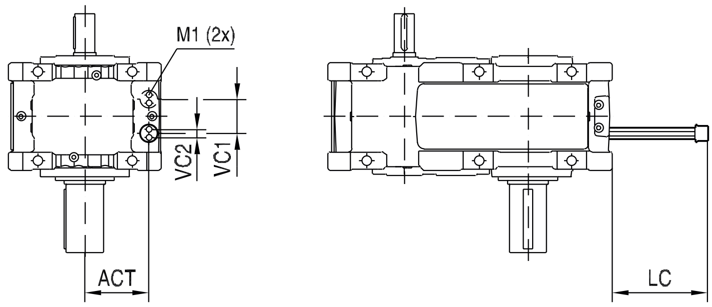
Additional information on the water cooling cartridge can be found in chapter "Built-in cooling, water cooling cartridge /CCT" (→ 🗎 97), while information on the oil heater is provided in chapter "Oil heater /OH" (→ 🗎 117).

48 002 00 14

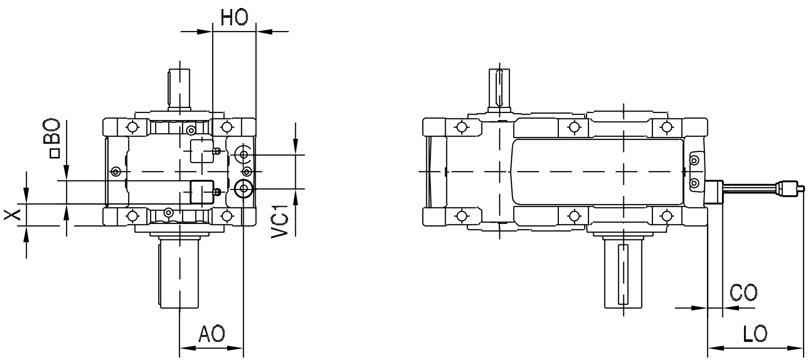
CCV



CCT



OH



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13.27.1 Water cooling cover /CCV

	AC	BC	HC	K	KC	M (2x)	VC
X100	191	165	410	128	361	G3/8"	50

	AC	BC	HC	K	KC	M (2x)	VC
X110	191	165	410	153	397	G3/8"	50
X120	226	193	480	147	420	G3/8"	110
X130	229	193	480	182	481	G3/8"	120
X180	332	290	702	262	755	G1/2"	200
X2K.180	332	290	702	262	706	G1/2"	200
X190	332	290	702	262	755	G1/2"	200
X2K.190	332	290	702	262	706	G1/2"	200
X200	372	310	782	297	847	G1/2"	200
X2K.200	372	310	782	297	796	G1/2"	200
X210	372	310	782	297	847	G1/2"	200
X2K.210	372	310	782	297	796	G1/2"	200

13.27.2 Water cooling cartridge /CCT

	ACT	LC X2F	LC X3F	LC X4F	LC X2K	LC X3K	LC X4K	M1 (2x)	VC2	VC1	max.
X140	209	695	695	465	615	695	695	G1/4"	24	100	2
X150	209	825	825	555	695	825	825	G1/4"	24	100	1
X160	250	945	945	615	825	945	945	G1/4"	24	115	2
X170	250	945	945	695	825	945	945	G1/4"	24	115	1
X180	280	950	950	700	900	950	950	G1/2"	34	150	2
X190	280	1000	950	700	900	1000	950	G1/2"	34	150	1
X200	320	1100	1050	800	1000	1100	1050	G1/2"	34	150	2
X210	320	1150	1100	800	1000	1150	1100	G1/2"	34	150	1
X220	362	1350	1350	1350	1150	1350	1350	G1/2"	34	180	2
X230	362	1350	1350	1350	1200	1350	1350	G1/2"	34	180	1
X240	385	1400	1400	1400	1200	1400	1400	G1/2"	34	200	2
X250	385	1450	1450	1450	1250	1450	1450	G1/2"	34	200	1
X260	430	1600	1600	1600	-	1600	1600	G1/2"	35	280	2
X270	430	1600	1600	1600	-	1600	1600	G1/2"	35	280	1
X280	485	1750	1750	1750	-	1750	1750	G1/2"	35	280	1
X290	505	1750	1750	1750	-	1750	1750	G1/2"	35	300	2
X300	505	1750	1750	1750	-	1750	1750	G1/2"	35	300	1
X310	545	2050	2050	2050	-	2050	2050	G1/2"	35	360	2
X320	545	2050	2050	2050	-	2050	2050	G1/2"	35	360	1

13.27.3 Oil heater /OH

	AO	BO	CO	HO	LO X2F	LO X3F	LO X4F	LO X2K	LO X3K	LO X4K	VC1	X	max.
X100	151	100	91	82	490	400	-	490	490	-	75	13	2
X110	151	100	91	82	580	400	-	580	580	-	75	13	1
X120	175	100	112	75	680	680	400	580	680	680	90	35	2
X130	175	100	112	75	680	680	490	680	680	680	90	35	1
X140	209	100	85	80	780	780	490	680	780	780	100	75	2
X150	209	100	85	85	890	890	580	780	890	890	100	75	1
X160	250	100	85	115	1010	1010	680	890	1010	1010	115	90	2
X170	250	100	85	115	1010	1010	680	890	1010	1010	115	90	1
X180	280	100	82	120	960	960	710	960	960	960	150	90	2
X190	280	100	82	120	960	960	710	960	960	960	150	90	1
X200	320	100	82	130	1110	1110	810	960	1110	1110	150	110	2
X210	320	100	82	130	1110	1110	810	960	1110	1110	150	110	1
X220	362	100	82	140	1310	1310	1310	1110	1310	1310	180	110	2
X230	362	100	82	140	1310	1310	1310	1110	1310	1310	180	110	1
X240	380	100	82	150	1310	1310	1310	1110	1310	1310	200	130	2
X250	380	100	82	150	1510	1510	1510	1310	1510	1510	200	130	1
X260	430	100	77	170	1660	1660	1660	-	1660	1660	280	122.5	2
X270	430	100	77	170	1660	1660	1660	-	1660	1660	280	122.5	1
X280	485	100	77	170	1810	1810	1810	-	1810	1810	280	122.5	1
X290	505	100	76	192.5	1810	1810	1810	-	1810	1810	300	142.5	2
X300	505	100	76	192.5	1810	1810	1810	-	1810	1810	300	142.5	1
X310	545	100	75	190	2110	2110	2110	-	2110	2110	360	142.5	2
X320	545	100	75	190	2110	2110	2110	-	2110	2110	360	142.5	1

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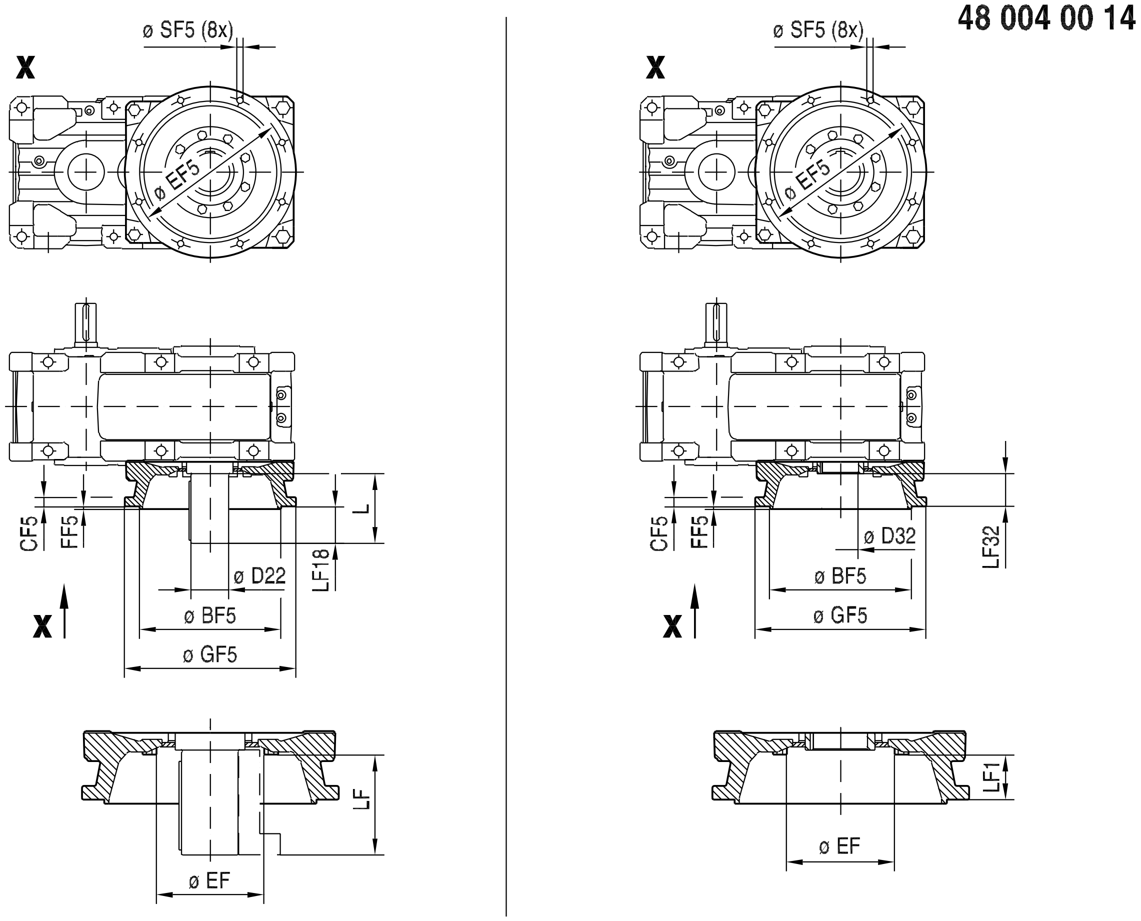
13.28 Mounting flange B5 with solid and hollow shaft F [mm]

Does not apply to agitating applications with extended bearing distance.

For current information on agitating applications with extended bearing distance, refer to the brochure "Technology for Agitators and Aerators".

For further information, refer to chapter "Mounting flange /F" (→ 🗎 123).

F-B5



Solid shaft

	Ø BF5	CF5	Ø D22	Ø EF5	Ø EF	FF5	Ø GF5	L	LF	LF18	Ø SF5 (8x)	kg
X130	400_{js7}	24.5	110_{m6}	450	228	6	500	210	217	127	18	65
X140	450_{js7}	29.5	120_{m6}	500	228	6	550	210	212	113	22	100
X150	500_{js7}	29.5	130_{m6}	550	258	7	600	250	255	113	22	115
X160	550_{js7}	29.5	140_{m6}	600	280	7	660	250	246	148	22	135
X170	620_{js7}	34.5	160_{m6}	680	280	7	730	300	296	139	27	160
X180	620_{f7}	35	170_{m6}	680	285	7	750	300	290	184	27	175
X190	620_{f7}	35	170_{m6}	680	285	7	750	300	290	184	27	175

Hollow shaft

	Ø BF5	CF5	Ø D32	Ø EF5	Ø EF	FF5	Ø GF5	LF1	LF32	Ø SF5 (8x)	kg
X130	400_{js7}	24.5	105^{H8}	450	228	6	500	90	83	18	65
X140	450_{js7}	29.5	115^{H8}	500	228	6	550	99	97	22	100
X150	500_{js7}	29.5	125^{H8}	550	258	7	600	142	137	22	115
X160	550_{js7}	29.5	135^{H8}	600	280	7	660	98	102	22	135
X170	620_{js7}	34.5	150^{H8}	680	280	7	730	157	161	27	160
X180	620_{f7}	35	165^{H8}	680	285	7	750	106	116	27	175
X190	620_{f7}	35	165^{H8}	680	285	7	750	106	116	27	175

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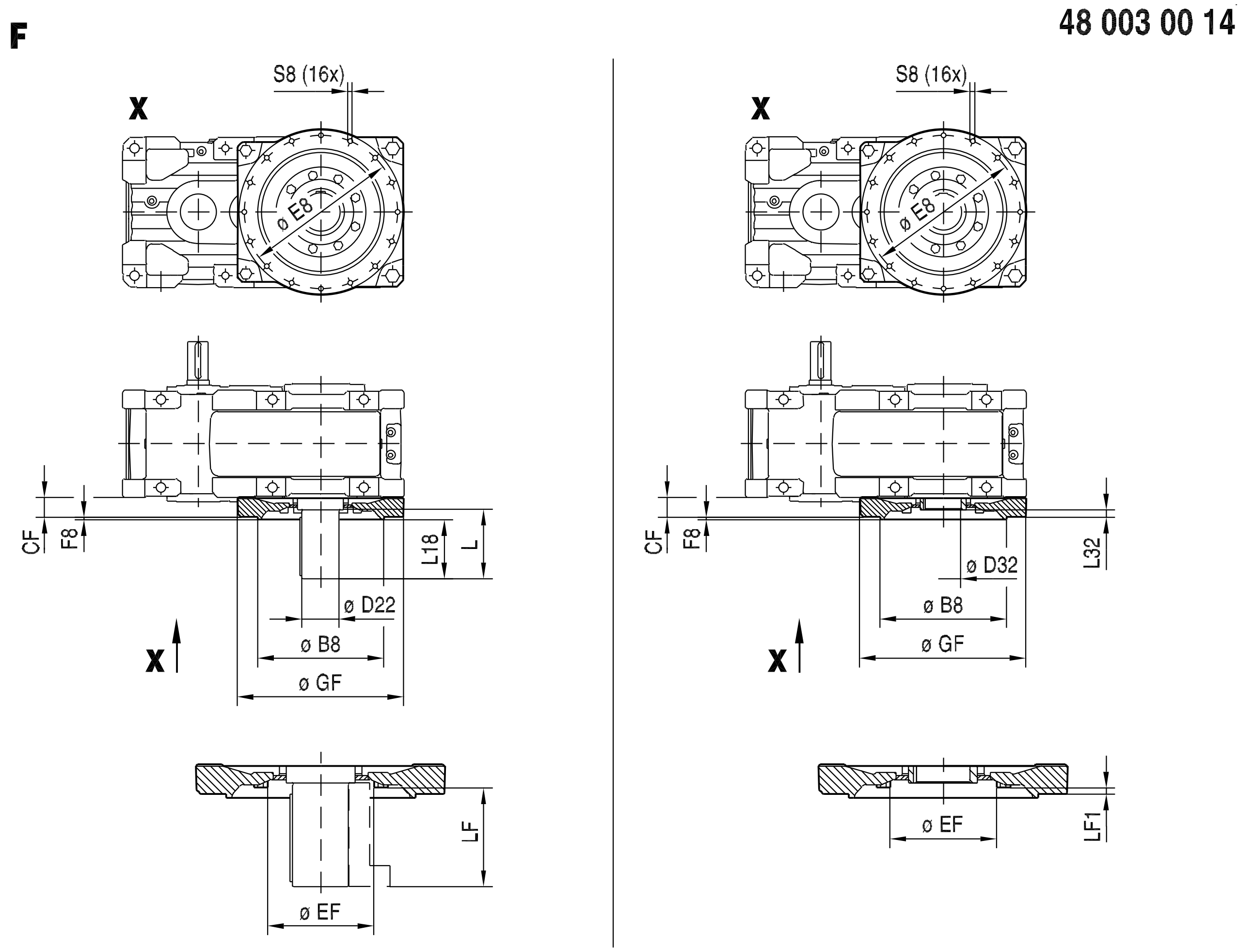
13.29 Mounting flange B14 with solid and hollow shaft /F [mm]

Does not apply to agitating applications with extended bearing distance.

For current information on agitating applications with extended bearing distance, refer to the brochure "Technology for Agitators and Aerators".

For further information, refer to chapter "Mounting flange /F" (→ 🗎 123).



Solid shaft

	Ø B8	CF	Ø D22	Ø E8	Ø EF	F8	Ø GF	L	L18	LF	S8 (16x)	kg
X100	300_{f7}	41	80_{m6}	350	164	5	395	170	172	179	M12x22	25
X110	300_{f7}	41	90_{m6}	350	174	5	395	170	175	182	M12x22	25
X120	340_{f7}	50	100_{m6}	400	208	5	445	210	201	215	M16x28	35
X130	340_{f7}	50	110_{m6}	400	228	5	445	210	205	217	M16x28	35
X140	430_{f7}	57	120_{m6}	515	228	5	565	210	196	212	M16x28	60
X150	430_{f7}	57	130_{m6}	515	258	5	565	250	238	255	M16x28	60
X160	520_{f7}	64	140_{m6}	620	280	5	670	250	230	246	M20x32	85
X170	520_{f7}	64	160_{m6}	620	280	5	670	300	280	296	M20x32	85
X180	560_{f7}	70	170_{m6}	680	285	5	734	300	285	290	M24x38	105
X190	560_{f7}	70	170_{m6}	680	285	5	734	300	285	290	M24x38	105
X200	560_{f7}	77	180_{m6}	680	345	5	740	300	278	290	M24x38	110
X210	560_{f7}	77	190_{m6}	680	345	5	740	350	328	340	M24x38	110

Hollow shaft

	Ø B8	CF	Ø D32	Ø E8	Ø EF	F8	Ø GF	L32	LF	S8 (16x)	kg
X100	300_{f7}	41	75^{H8}	350	164	5	395	-2	7	M12x22	25

	Ø B8	CF	Ø D32	Ø E8	Ø EF	F8	Ø GF	L32	LF	S8 (16x)	kg
X110	300_{f7}	41	85^{H8}	350	174	5	395	-5	7	M12x22	25
X120	$340f_{f7}$	50	95^{H8}	400	208	5	445	9	14	M16x28	35
X130	340_{f7}	50	105^{H8}	400	228	5	445	5	12	M16x28	35
X140	430_{f7}	57	115^{H8}	515	228	5	565	14	16	M16x28	60
X150	430_{f7}	57	125^{H8}	515	258	5	565	12	17	M16x28	60
X160	520_{f7}	64	135^{H8}	620	280	5	670	20	16	M20x32	85
X170	520_{f7}	64	150^{H8}	620	280	5	670	20	16	M20x32	85
X180	560_{f7}	70	165^{H8}	680	285	5	734	15	5	M24x38	105
X190	560_{f7}	70	165^{H8}	680	285	5	734	15	5	M24x38	105
X200	560_{f7}	77	180^{H8}	680	345	5	740	14	12	M24x38	110
X210	560_{f7}	77	190^{H8}	680	345	5	740	14	12	M24x38	110

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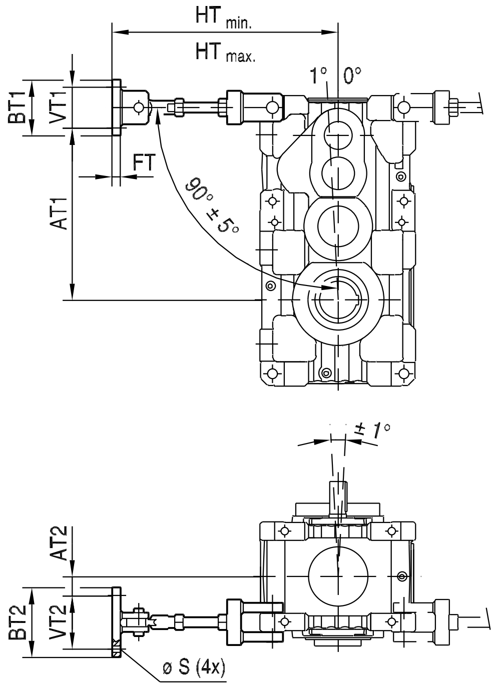
13.30 Torque arm /T [mm]

For further information, refer to chapter "Torque arm /T" (→ 🗎 121).

T

48 001 00 14



	AT1	AT1 (X2K)	AT2	AT2 (X2K)	BT1	BT2	FT	HTmin.	HTmax.	Ø S (4x)	VT1	VT2
X100	406	349	46.5	46.5	120	160	25	435	475	13.5	70	120
X110	426	369	46.5	46.5	120	160	25	435	475	13.5	70	120
X120	486	416	63.5	63.5	120	160	25	509	549	13.5	70	120
X130	522	452	63.5	63.5	120	160	25	509	549	13.5	70	120
X140	578	459	86.5	86.5	120	160	25	547	587	13.5	70	120
X150	620	501	86.5	86.5	120	160	25	547	587	13.5	70	120
X160	672	552	78	78	180	240	30	725	775	22	130	188
X170	723	603	78	78	180	240	30	725	775	22	130	188
X180	762	617	103	103	180	240	30	745	795	22	130	188
X190	794	649	103	103	180	240	30	745	795	22	130	188
X200	865	695	118	118	200	250	30	795	845	22	130	188
X210	901	730	118	118	200	250	30	795	845	22	130	188
X220	992	822	126	161	200	250	30	840	890	22	130	188
X230	1032	862	126	161	200	250	30	840	890	22	130	188
X240	1045	855	150	187.5	300	300	30	920	970	26	220	220
X250	1068	878	150	187.5	300	300	30	920	970	26	220	220
X260	1175	-	190	-	300	300	30	970	1020	26	220	220
X270	1210	-	190	-	300	300	30	970	1020	26	220	220
X280	1262	-	190	-	300	300	30	1025	1075	26	220	220
X290	1376	-	220.5	-	300	300	40	1143	1193	26	220	220
X300	1405	-	220.5	-	300	300	40	1143	1193	26	220	220
X310	1537	-	253	-	300	300	40	1193	1243	26	220	220
X320	1571	-	253	-	300	300	40	1193	1243	26	220	220

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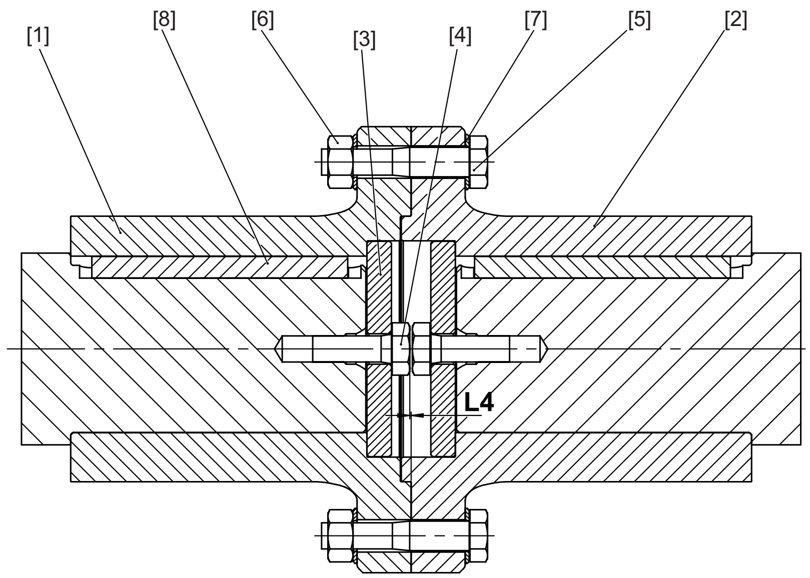
13.31 Flange coupling with keyway /FC-K [mm]

13.31.1 Component overview



[1] Contact surface
[2] Contact surface
[3] End plate
[4] Screws ISO 4041 M..X..-10.9-M3GY
[5] Screw ISO 4041 M..X..-10.9-M3GY
[6] Nut ISO 4023 M..X..-10-ST-M3GY
[7] Washer ISO 7090..-200HV-A2F
[8] Key DIN 6885-1, C45K for FC240-500, 42CrMo4 for FC580-800

Designation	Contact surface [1] kg	Contact surface [2] kg	Contact surface [3] kg	Screws [4]	Screw/nut [5/6]	Key [8]
FC240/080 - K - F (M)	17.4	18.0	1.0	M20×55	12× M16×75	B22×14×140
FC240/090 - K - F (M)	15.8	16.3	1.2	M24×65	12× M16×75	B25×14×140
FC300/100 - K - F (M)	38.4	39.8	2.2	M24×65	12× M20×100	B28×16×180
FC300/110 - K - F (M)	35.7	37.1	2.2	M24×65	14× M20×100	B28×16×180
FC300/120 - K - F (M)	32.9	34.2	2.2	M24×65	14× M20×100	B32×18×180
FC355/130 - K - F (M)	66.3	66.4	3.0	M24×65	12× M24×120	B32×18×215
FC355/140 - K - F (M)	62.0	62.0	4.2	M30×80	14× M24×120	B36×20×215
FC390/160 - K - F (M)	82.2	84.7	5.3	M30×80	16× M24×130	B40×22×260
FC455/170 - K - F (M)	117.4	120.3	7.1	M30×80	12× M30×150	B40×22×260
FC455/180 - K - F (M)	110.5	113.4	7.1	M30×80	14× M30×150	B45×25×260
FC500/190 - K - F (M)	176.7	183.2	9.2	M30×80	16× M30×160	B45×25×310
FC500/210 - K - F (M)	159.7	166.2	9.2	M30×80	18× M30×160	B50×28×310
FC580/230 - K - F (M)	278.9	287.8	16.0	M36×100	16× M36×180	B50×28×370
FC580/240 - K - F (M)	266.4	275.3	16.0	M36×100	18× M36×180	B56×32×360
FC580/250 - K - F (M)	254.9	263.8	16.0	M36×100	18× M36×180	B56×32×360
FC690/270 - K - F (M)	432.4	444.1	25.5	M36×100	18× M36×190	B63×32×420
FC690/290 - K - F (M)	401.1	412.9	25.5	M36×100	20× M36×190	B63×32×420
FC760/300 - K - F (M)	536.7	551.9	30.1	M36×100	20× M36×200	B70×36×410
FC760/320 - K - F (M)	290	320	320	480	650	18×45
FC800/340 - K - F (M)	320	340	350	520	690	20×45

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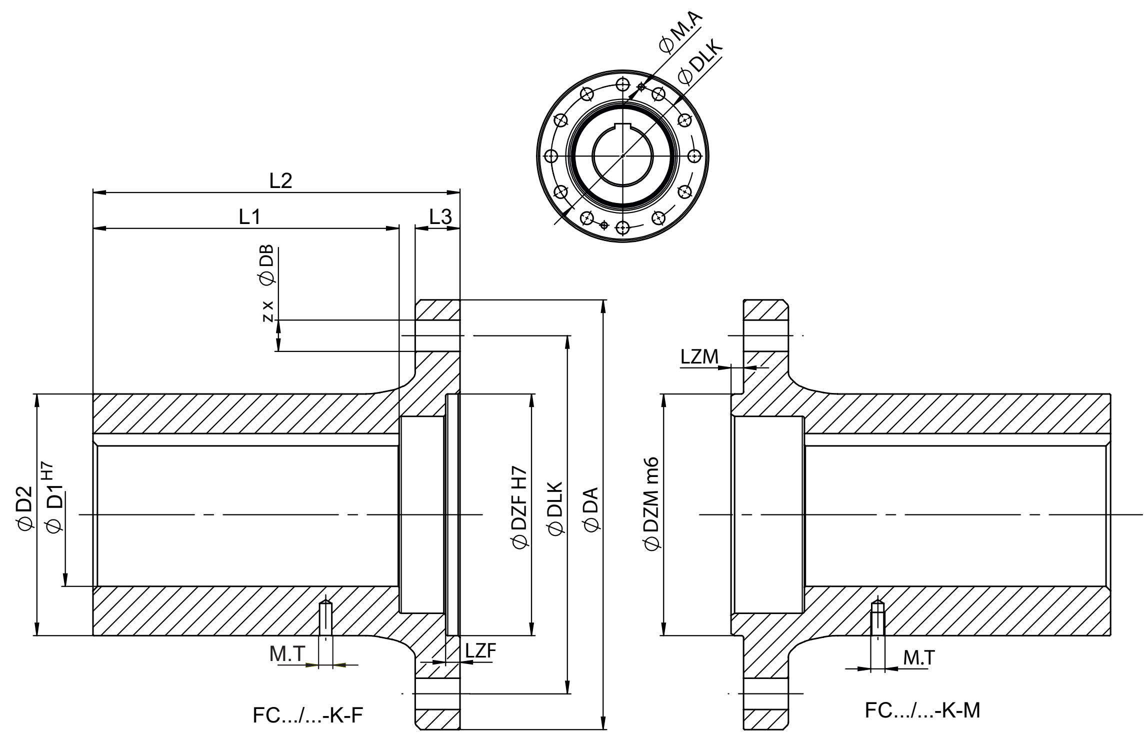
13.31.2 Geometry overview



Designation	Gear unit	Ø $D1_{MIN}$	Ø $D1_{NORM}$	Ø $D1_{MAX}$	Ø DA	Ø D2	Ø DLK	z × Ø DB	Ø DZ M/F
FC240/080 - K - F (M)	X100	70	80	90	240	135	200	12x17.5	135
FC240/090 - K - F (M)	X110	70	90	90	240	135	200	12x17.5	135
FC300/100 - K - F (M)	X120	90	100	120	300	180	250	12x22	180
FC300/110 - K - F (M)	X130	90	110	120	300	180	250	14x22	180
FC300/120 - K - F (M)	X140	90	120	120	300	180	250	14x22	180
FC355/130 - K - F (M)	X150	120	130	140	355	220	300	12x26	220
FC355/140 - K - F (M)	X160	120	140	140	355	220	300	14x26	220
FC390/160 - K - F (M)	X170	150	160	160	390	240	335	16x26	240
FC455/170 - K - F (M)	X180-190	160	170	180	455	270	380	12x33	270
FC455/180 - K - F (M)	X200	160	180	180	455	270	380	14x33	270
FC500/190 - K - F (M)	X210	180	190	210	500	315	425	16x33	315
FC500/210 - K - F (M)	X220	180	210	210	500	315	425	18x33	315
FC580/230 - K - F (M)	X230-240	220	230	250	580	375	500	16x39	375
FC580/240 - K - F (M)	X250	220	240	250	580	375	500	18x39	375
FC580/250 - K - F (M)	X260	220	250	250	580	375	500	18x39	375
FC690/270 - K - F (M)	X270	260	270	290	690	435	590	18x39	435
FC690/290 - K - F (M)	X280-290	260	290	290	690	435	590	20x39	435
FC760/300 - K - F (M)	X300	290	300	320	760	480	660	20x39	480
FC760/320 - K - F (M)	X310	290	320	320	760	480	650	18x45	480
FC800/340 - K - F (M)	X320	320	340	350	800	520	690	20x45	510

All dimensions are in mm.

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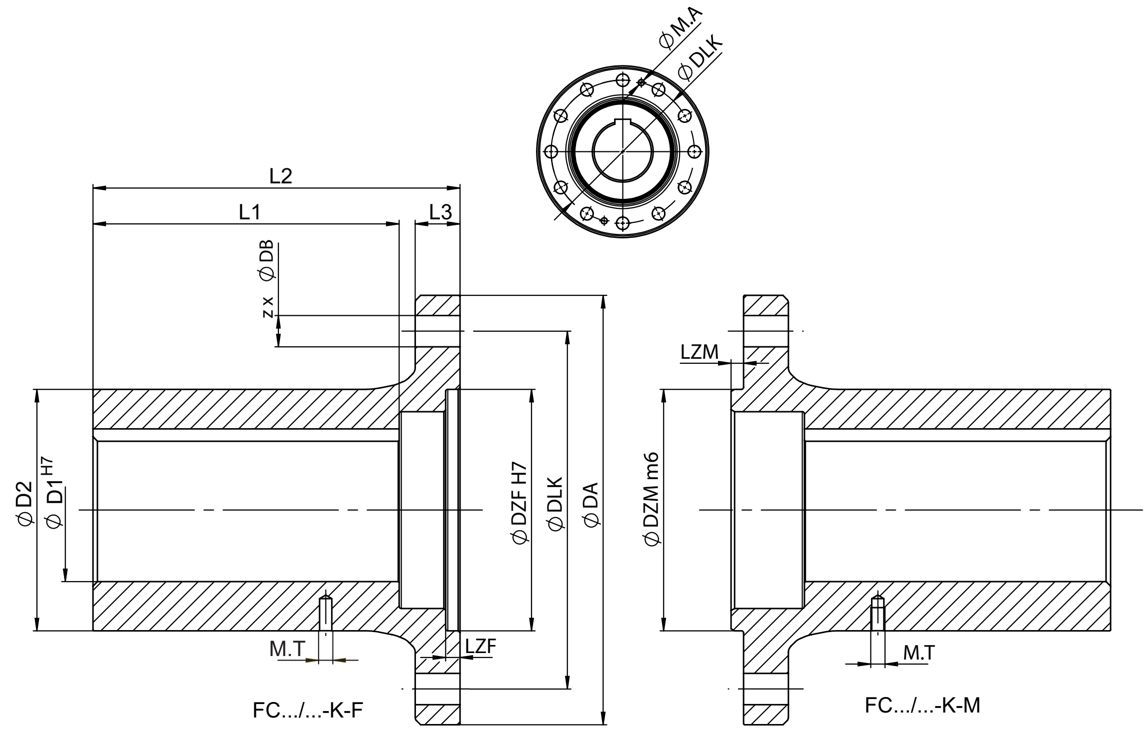

Designation	L1	L2	L3	L4	LZFH7	LZMm6	M.A	M.T
FC240/080 - K - F (M)	171	205	25	6.5	8	7	2x M10	M8
FC240/090 - K - F (M)	171	205	25	1.0	8	7	2x M10	M8
FC300/100 - K - F (M)	211	245	35	1.0	11	10	2x M12	M8
FC300/110 - K - F (M)	211	245	35	1.0	11	10	2x M12	M8
FC300/120 - K - F (M)	211	245	35	1.0	11	10	2x M12	M8
FC355/130 - K - F (M)	251	296	45	12.0	11	10	2x M12	M12
FC355/140 - K - F (M)	251	296	45	1.3	11	10	2x M12	M12
FC390/160 - K - F (M)	301	346	50	1.3	11	10	2x M12	M12
FC455/170 - K - F (M)	301	346	55	1.3	11	10	2x M16	M12
FC455/180 - K - F (M)	301	346	60	1.3	11	10	2x M16	M12
FC500/190 - K - F (M)	351	397	60	2.3	16	15	2x M16	M12
FC500/210 - K - F (M)	351	397	65	2.3	16	15	2x M16	M12
FC580/230 - K - F (M)	411	466	65	2.5	16	15	2x M16	M16
FC580/240 - K - F (M)	411	466	65	2.5	16	15	2x M16	M16
FC580/250 - K - F (M)	411	466	65	2.5	16	15	2x M16	M16
FC690/270 - K - F (M)	471	531	70	2.5	16	15	2x M20	M16
FC690/290 - K - F (M)	471	531	70	2.5	16	15	2x M20	M16
FC760/300 - K - F (M)	471	539	75	10.5	16	15	2x M20	M20
FC760/320 - K - F (M)	471	539	75	2.0	16	15	2x M20	M20
FC800/340 - K - F (M)	551	619	80	2.0	16	15	2x M20	M20

All dimensions are in mm.

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13.32 Backstop X.F../BS [mm]

For further information, refer to chapter "Backstop /BS" (→ 🗎 125).

X.F../BS **48 037 02 07**

Fig. A
extern

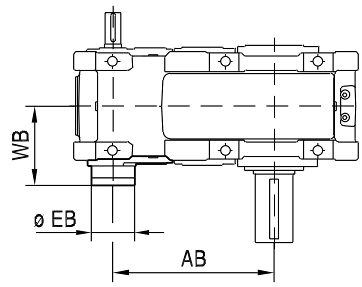
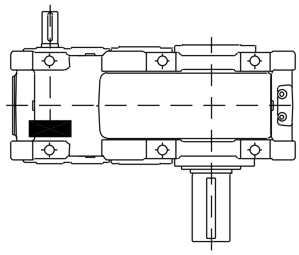


Fig. B
intern



X2F..	i_{tot}	Fig	AB	Ø EB	WB
X100	7.1 - 10	A	278	143	214
	11.2 - 20	A	278	133	213
X110	8 - 11.2	A	298	143	214
	12.5 - 22.4	A	298	133	213
X120	6.3 - 9	A	327	175	251
	10 - 18	A	327	153	235
X130	8 - 11.2	A	363	175	251
	12.5 - 22.4	A	363	153	235
X140	6.3 - 11.2	A	388	190	294
	12.5 - 18	A	388	175	284
X150	8 - 14	A	430	190	294
	16 - 22.4	A	430	175	284

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X2F..	i_{tot}	Fig	AB	Ø EB	WB
X160	6.3 - 14	A	474	210	321
	16 - 18	A	474	190	320
X170	8 - 18	A	525	210	321
	20 - 22.4	A	525	190	320
X180	6.3 - 8	A	544	245	373
	9 - 18	A	544	210	360
X190	7.1 - 9	A	576	245	373
	10 - 20	A	576	210	360
X200	6.3 - 7.1	A	614	288	401
	8 - 11.2	A	614	245	394
	12.5 - 18	A	614	210	381
X210	7.1 - 8	A	650	288	401
	9 - 12.5	A	650	245	394
	14 - 20	A	650	210	381
X220	6.3 - 11.2	A	694	288	428
	12.5 - 18	A	694	245	426
X230	7.1 - 12.5	A	734	288	428
	14 - 20	A	734	245	426
X240	6.3 - 7.1	A	776	322	472
	8 - 18	A	776	288	472
X250	7.1 - 10	A	799	322	472
	11.2 - 20	A	799	288	472
X260	6.3 - 7.1	A	855	412	562
	8 - 11.2	A	855	322	563
	12.5 - 18	A	855	288	534
X270	7.1 - 8	A	890	412	562
	9 - 12.5	A	890	322	563
	14 - 20	A	890	288	534
X280	8 - 9	A	942	412	562
	10 - 14	A	942	322	563
	16 - 22.5	A	942	288	534
X290	6.3 - 7.1	A	987	420	655
	8 - 14	A	987	412	610
	16 - 18	A	987	322	606
X300	7.1 - 8	A	1016	420	655
	9 - 16	A	1016	412	610
	18 - 20	A	1016	322	606
X310	6.3 - 11.2	A	1100	420	688
	12.5 - 18	A	1100	412	643
X320	7.1 - 12.5	A	1134	420	688
	14 - 20	A	1134	412	643

X3F..	i_{tot}	Fig	AB	Ø EB	WB
X100	22.4 - 100	A	360	96	210
X110	25 - 112	A	380	96	210
X120	20 - 28	A	427	133	228
	31.5 - 90	B	-	-	-
X130	25 - 35.5	A	463	133	228
	40 - 112	B	-	-	-
X140	20 - 35.5	A	502	143	257
	40 - 90	B	-	-	-
X150	25 - 45	A	544	143	257
	50 - 112	B	-	-	-

X3F..	i_{tot}	Fig	AB	Ø EB	WB
X160	20 - 28	A	611	175	316
	31.5 - 90	B	-	-	-
X170	25 - 35.5	A	662	175	316
	40 - 112	B	-	-	-
X180	20 - 35.5	A	707	190	349
	40 - 90	B	-	-	-
X190	22.4 - 40	A	739	190	349
	45 - 100	B	-	-	-
X200	20 - 35.5	A	794	210	368
	40 - 90	B	-	-	-
X210	22.4 - 40	A	830	210	368
	45 - 100	B	-	-	-
X220	20 - 35.5	A	894	210	396
	40 - 56	A	894	190	394
	63 - 90	A	894	175	384
X230	22.4 - 40	A	934	210	396
	45 - 63	A	934	190	394
	71 - 100	A	934	175	384
X240	20 - 22.4	A	1004	245	460
	25 - 56	A	1004	210	447
	63 - 90	A	1004	190	446
X250	22.4 - 25	A	1027	245	460
	28 - 63	A	1027	210	447
	71 - 100	A	1027	190	446
X260	20 - 35.5	A	1113	245	503
	40 - 90	A	1113	210	491
X270	22.4 - 40	A	1148	245	503
	45 - 100	A	1148	210	491
X280	25 - 45	A	1200	245	503
	50 - 112	A	1200	210	491
X290	20 - 35.5	A	1279	288	550
	40 - 50	A	1279	245	548
	56 - 90	A	1279	210	536
X300	22.4 - 40	A	1308	288	550
	45 - 56	A	1308	245	548
	63 - 100	A	1308	210	536
X310	20 - 25	A	1435	322	584
	28 - 50	A	1435	288	585
	56 - 90	A	1435	245	583
X320	22.4 - 28	A	1469	322	584
	31.5 - 56	A	1469	288	585
	63 - 100	A	1469	245	583

X4F..	i_{tot}	Fig	AB	Ø EB	WB
X120	100 - 355	A	427	85	215
X130	125 - 450	A	463	85	215
X140	100 - 355	A	502	96	255
X150	125 - 450	A	544	96	255
X160	100 - 355	B	-	-	-
X170	125 - 450	B	-	-	-
X180	100 - 355	B	-	-	-
X190	112 - 400	B	-	-	-
X200	100 - 355	B	-	-	-
X210	112 - 400	B	-	-	-

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X4F..	i_{tot}	Fig	AB	Ø EB	WB
X220	100 - 355	B	-	-	-
X230	112 - 400	B	-	-	-
X240	100 - 355	B	-	-	-
X250	112 - 400	B	-	-	-
X260	100 - 355	B	-	-	-
X270	112 - 400	B	-	-	-
X280	125 - 450	B	-	-	-
X290	100 - 355	B	-	-	-
X300	112 - 400	B	-	-	-
X310	100 - 355	B	-	-	-
X320	112 - 400	B	-	-	-

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13.33 Backstop X.K../BS [mm]

For further information, refer to chapter "Backstop /BS" (→ 🗎 125).

X.K../BS

48 038 02 07

Fig. A
extern

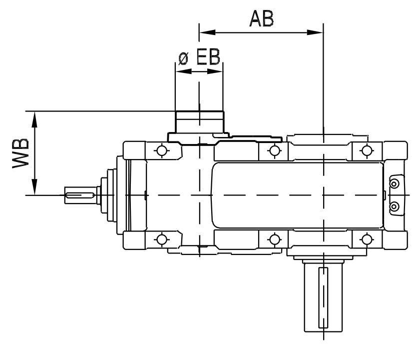
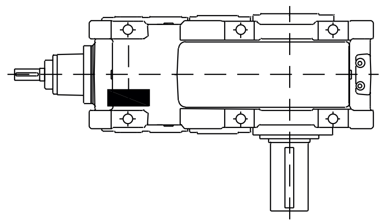


Fig. C
intern



X2KS..	i_{tot}	Fig	AB	Ø EB	WB
X100	7.1 - 12.5	A	164	175	244
X110	8 - 14	A	184	175	244
X120	6.3 - 11.2	A	190	190	268
X130	8 - 14	A	226	190	268
X140	6.3 - 11.2	A	225	210	295
X150	8 - 14	A	267	210	295
X160	6.3 - 11.2	A	274	245	343
X170	8 - 14	A	325	245	343
X180	6.3 - 11.2	A	316	288	386
X190	7.1 - 12.5	A	348	288	386
X200	6.3 - 11.2	A	356	288	403
X210	7.1 - 12.5	A	392	288	403
X220	6.3 - 11.2	A	402	322	495
X230	7.1 - 12.5	A	442	322	495
X240	6.3 - 11.2	A	441	420	598
X250	7.1 - 12.5	A	464	420	598

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X3K..	i_{tot}	Fig	AB	Ø EB	WB
X100	14 - 80	A	278	133	213
X110	16 - 90	A	298	133	213
X120	12.5 -71	A	327	153	235
X130	16 - 90	A	363	153	235
X140	12.5 - 18	A	388	190	294
	20 - 71	A	388	175	284
X150	16 - 22.4	A	430	190	294
	25 - 90	A	430	175	284
X160	12.5 - 22.4	A	474	210	321
	25 - 71	A	474	190	320
X170	16 - 28	A	525	210	321
	31.5 - 90	A	525	190	320
X180	12.5 - 71	A	544	210	360
X190	14 - 80	A	576	210	360
X200	12.5 - 22.4	A	614	245	394
	25 - 71	A	614	210	381
X210	14 - 25	A	650	245	394
	28 - 80	A	650	210	381
X220	12.5 - 22.4	A	694	288	428
	25 - 71	A	694	245	426
X230	14 - 25	A	734	288	428
	28 - 80	A	734	245	426
X240	12.5 - 35.5	A	776	288	472
	40 - 71	A	776	245	470
X250	14 - 80	A	799	288	472
X260	12.5 - 22.4	A	855	322	563
	25 - 71	A	855	288	553
X270	14 - 25	A	890	322	563
	28 - 80	A	890	288	553
X280	16 - 28	A	942	322	563
	31.5 - 90	A	942	288	553
X290	12.5 - 28	A	987	412	610
	31.5 - 71	A	987	322	606
X300	14 - 31.5	A	1016	412	610
	35.5 - 80	A	1016	322	606
X310	12.5 - 22.4	A	1100	420	688
	25 - 71	A	1100	412	643
X320	14 - 25	A	1134	420	688
	28 - 80	A	1134	412	643

X4K..	i_{tot}	Fig	AB	Ø EB	WB
X120	80 - 355	C	-	-	-
X130	100 - 450	C	-	-	-
X140	80 - 355	C	-	-	-
X150	100 - 450	C	-	-	-
X160	80 - 355	C	-	-	-
X170	100 - 450	C	-	-	-
X180	80 - 355	C	-	-	-
X190	90 - 400	C	-	-	-
X200	80 - 355	C	-	-	-
X210	90 - 400	C	-	-	-
X220	80 - 90	A	894	190	394
	100 - 355	A	894	175	384

X4K..	i_{tot}	Fig	AB	Ø EB	WB
X230	90 - 112	A	934	190	394
	125 - 400	A	934	175	384
X240	80 - 90	A	1004	210	447
	100 - 355	A	1004	190	446
X250	90 - 100	A	1027	210	447
	112 - 400	A	1027	190	446
X260	80 - 355	A	1113	210	491
X270	90 - 400	A	1148	210	491
X280	100 - 450	A	1200	210	491
X290	80	A	1279	245	548
	90 - 355	A	1279	210	536
X300	90 - 100	A	1308	245	548
	112 - 400	A	1308	210	536
X310	80	A	1435	288	585
	90 - 355	A	1435	245	583
X320	90 - 100	A	1469	288	585
	112 - 400	A	1469	245	583

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13.34 Backstop X.T../BS [mm]

For further information, refer to chapter "Backstop /BS" (→ 🗎 125).

X.T../BS

48 003 00 10

Fig. A
extern

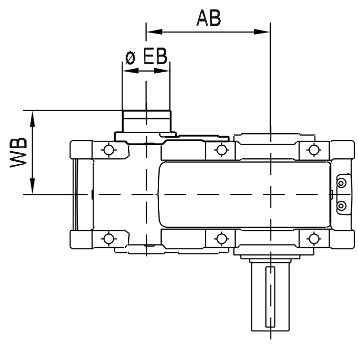
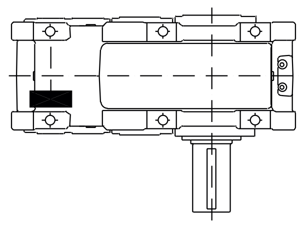


Fig. C
intern



X3T..	i_{tot}	Fig	AB	Ø EB	WB
X100	14 - 80	A	278	133	213
X110	16 - 90	A	298	133	213
X120	12.5 -71	A	327	153	235
X130	16 - 90	A	363	153	235

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X3T..	i_{tot}	Fig	AB	Ø EB	WB
X140	12.5 - 18	A	388	190	273
	20 - 71	A	388	175	284
X150	16 - 22.4	A	430	190	273
	25 - 90	A	430	175	284
X160	12.5 - 22.4	A	474	210	321
	25 - 71	A	474	190	320
X170	16 - 28	A	525	210	321
	31.5 - 90	A	525	190	320
X180	12.5 -71	A	544	210	360
X190	14 - 80	A	576	210	360
X200	12.5 - 22.4	A	614	245	394
	25 - 71	A	614	210	381
X210	14 - 25	A	650	245	394
	28 - 80	A	650	210	381
X220	12.5 - 22.4	A	694	290	428
	25 - 71	A	694	245	426
X230	14 - 25	A	734	290	428
	28 - 80	A	734	245	426
X240	12.5 - 35.5	A	776	290	472
	40 - 71	A	776	245	470
X250	14 - 80	A	799	290	472

X4T..	i_{tot}	Fig	AB	Ø EB	WB
X120	80 - 355	C	-	-	-
X130	100 - 450	C	-	-	-
X140	80 - 355	C	-	-	-
X150	100 - 450	C	-	-	-
X160	80 - 355	C	-	-	-
X170	100 - 450	C	-	-	-
X180	80 - 355	C	-	-	-
X190	90 - 400	C	-	-	-
X200	80 - 355	C	-	-	-
X210	90 - 400	C	-	-	-
X220	80 - 90	A	894	190	394
	100 - 355	A	894	175	384
X230	90 - 112	A	934	190	394
	125 - 400	A	934	175	384
X240	80 - 90	A	1004	210	447
	100 - 355	A	1004	190	446
X250	90 - 100	A	1027	210	447
	112 - 400	A	1027	190	446

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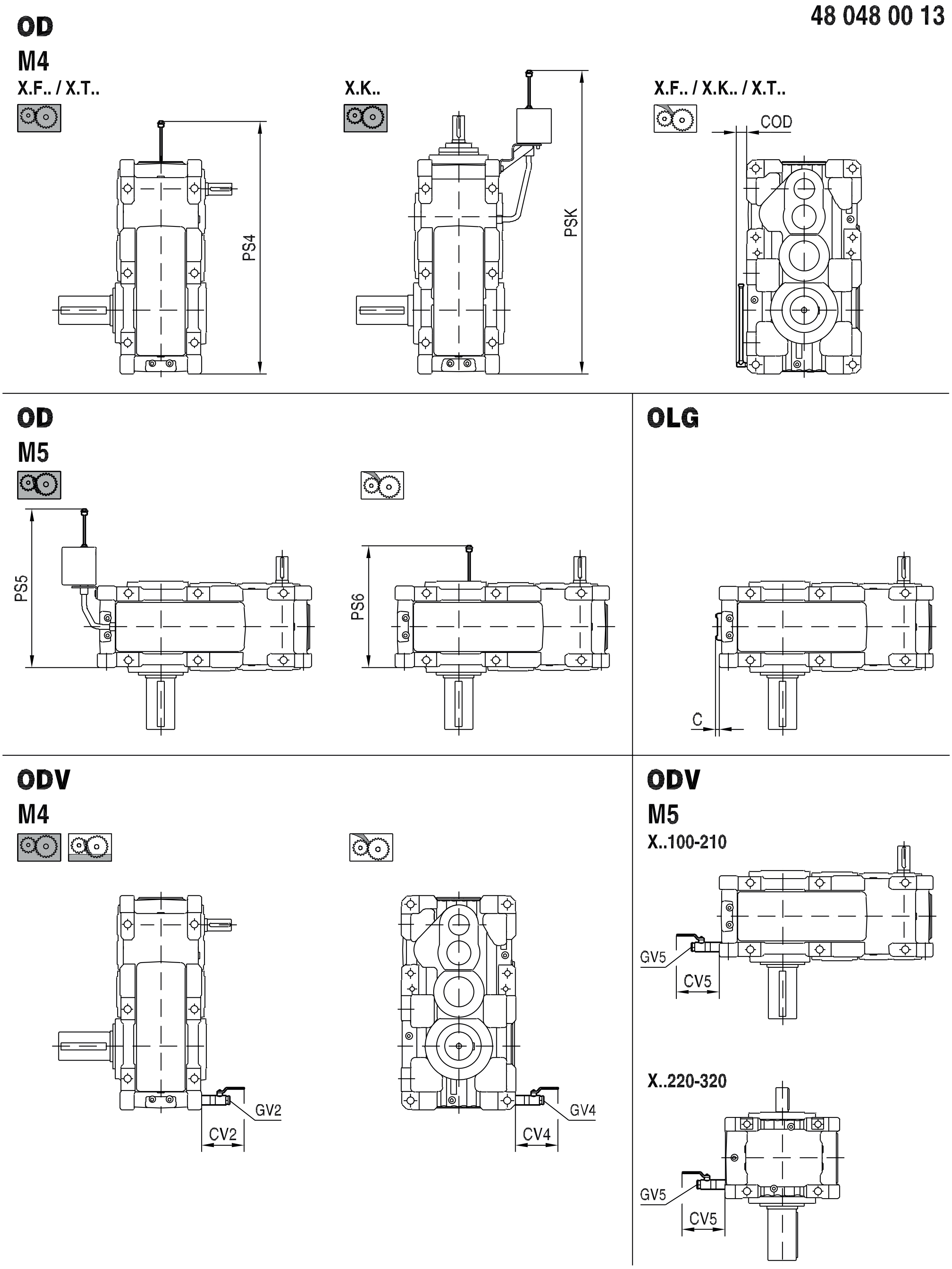
13.35 Oil drain valve ODV / oil level glass OLG / oil dipstick OD [mm]

For further information, refer to chapter "Accessories" (→ 🗎 84).



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	ODV						OLG	OD				
	Mounting position M4				Mounting position M5			Mounting position M4			Mounting position M5	
	CV2	GV2	CV4	GV4	CV5	GV5	C	PS4	PSK	COD	PS5	PS6
X100	89	G1/2"	-	-	143	G1/2"	-	790	1060	-	620	420
X110	89	G1/2"	-	-	143	G1/2"	-	830	1100	-	620	420
X120	83	G1/2"	-	-	142	G1/2"	-	880	1270	54	660	480
X130	83	G1/2"	-	-	142	G1/2"	-	950	1240	54	660	480
X140	66	G1/2"	-	-	136	G1/2"	-	1040	1370	41	750	560
X150	66	G1/2"	-	-	136	G1/2"	-	1120	1450	41	750	560
X160	91	G1"	-	-	182	G1"	-	1300	1620	49	810	660
X170	91	G1"	-	-	182	G1"	-	1350	1670	49	810	660
X180	92	G1"	-	-	179	G1"	15	1470	1830	51	970	750
X190	92	G1"	-	-	179	G1"	15	1500	1865	51	970	750
X200	75	G1"	-	-	178	G1"	15	1640	1985	48	1010	800
X210	75	G1"	-	-	178	G1"	15	1680	2020	48	1010	800
X220	107	G1 1/4"	-	-	214	G1 1/4"	16	1940	2220	90	1100	1000
X230	107	G1 1/4"	288	G1"	214	G1 1/4"	16	1980	2260	90	1100	1000
X240	86	G1 1/4"	288	G1"	211	G1 1/4"	16	2110	2380	92	1170	1150
X250	86	G1 1/4"	288	G1"	211	G1 1/4"	16	2130	2400	92	1170	1150
X260	85	G1 1/4"	288	G1"	213	G1 1/4"	13	2270	-	89	-	1180
X270	85	G1 1/4"	288	G1"	213	G1 1/4"	13	2300	-	89	-	1180
X280	85	G1 1/4"	288	G1"	213	G1 1/4"	13	2420	-	89	-	1180
X290	70	G1 1/4"	268	G1"	208	G1 1/4"	11	2610	-	89	-	1320
X300	70	G1 1/4"	268	G1"	208	G1 1/4"	11	2640	-	89	-	1320
X310	66	G1 1/4"	270	G1"	212	G1 1/4"	11	2880	-	71	-	1430
X320	66	G1 1/4"	270	G1"	212	G1 1/4"	11	2920	-	71	-	1430

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13.36 IEC motor adapter /MA [mm]

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).

13.36.1 Information for connecting a SEW motor to the IEC motor adapter

Motor on motor adapter	P_M kW	M_{ne} min^{-1}	Motor weight kg	Brakemotor weight kg	Brake	STD braking torque Nm	Motor adapter	IEC flange	Ø shaft end
IEC motor standard IE3									
DRN100L4	3	1456	34	40	BE5	40	IEC100	250	28
DRN112M 4	4	1464	452	52	BE5	55	IEC112	250	28
DRN132S 4	5,5	1461	56	71	BE11	80	IEC132	300	38
DRN132M 4	7,5	1468	73	91	BE11	110	IEC132	300	38
DRN132L 4	9,2	1470	81	110	BE20	150	IEC132	300	38
DRN160M 4	11	1473	115	145	BE20	150	IEC160	350	42
DRN160L 4	15	1474	130	165	BE20	200	IEC160	350	42
DRN180M 4	18,5	1478	155	195	BE30	300	IEC180	350	48
DRN180L 4	22	1477	170	210	BE30	300	IEC180	350	48
DRN200L 4	30	1480	280	335	BE32	400	IEC200	400	55
DRN225S 4	37	1482	310	365	BE32	500	IEC225	450	60
DRN225M 4	45	1482	310	365	BE32	600	IEC225	450	60
DRN250M 4	55	1482	460	550	BE62	800	IEC250	550	65
DRN280S 4	75	1482	520	600	BE62	1000	IEC280	550	75
DRN280M 4	90	1481	630	720	BE62	1200	IEC280	550	75
DRN315S 4	110	1488	870	1000	BE122	1600	IEC315S–L	660	80
DRN315L 4	160	1486	1020	1150	BE122	2000	IEC315S–L	660	80
DRN315H 4	200	1489	1140	1270	BE122	2000	IEC315S–L	660	80

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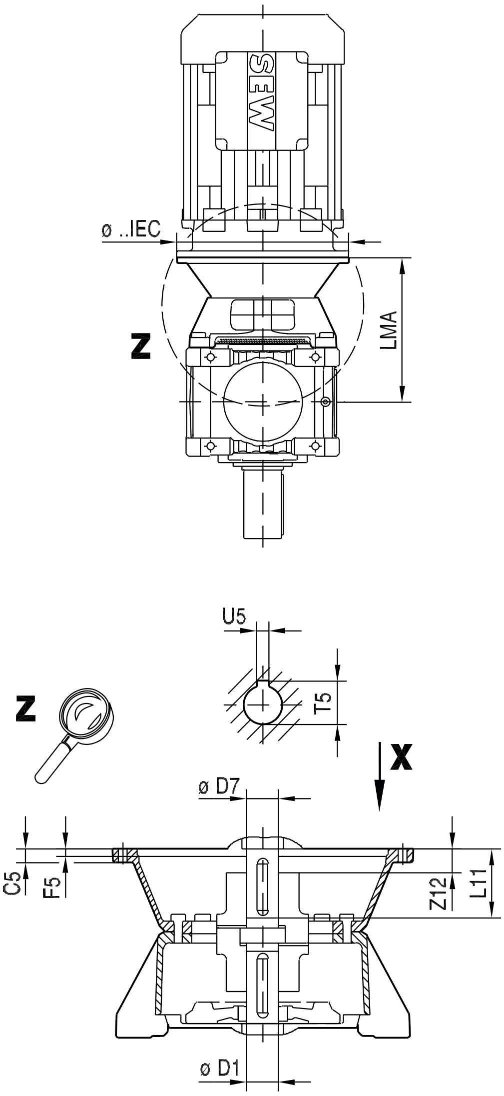
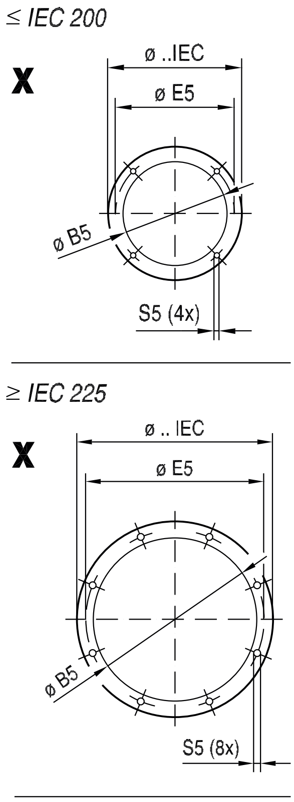
13.36.2 IEC motor adapter X2F100 – 250

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).

X2F..

48 013 00 14





												i = 6.3 ... 11.2* i = 7.1 ... 12.5** i = 8 ... 14***			i = 12.5 ... 18* i = 14 ... 20** i = 16 ... 22.4***			kg
X2F..	**IEC**	**Ø IEC**	**Ø B5**	**C5**	**Ø D7**	**Ø E5**	**F5**	**L11**	**S5**	**T5**	**U5**	**Ø D1**	**LMA**	**Z12**	**Ø D1**	**LMA**	**Z12**	
X100**	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	–	–	–	32	379	66	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	–	–	–	32	379	47.5	45
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	42	391	53	32	391	58	50
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	42	421	72	32	421	72	55
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	42	451	64	32	451	77	75

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												i = 6.3 ... 11.2* i = 7.1 ... 12.5** i = 8 ... 14***			i = 12.5 ... 18* i = 14 ... 20** i = 16 ... 22.4***			kg
X2F..	**IEC**	**Ø IEC**	**Ø B5**	**C5**	**Ø D7**	**Ø E5**	**F5**	**L11**	**S5**	**T5**	**U5**	**Ø D1**	**LMA**	**Z12**	**Ø D1**	**LMA**	**Z12**	
X110* **	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	–	–	–	32	379	66	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	–	–	–	32	379	47.5	45
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	42	391	53	32	391	58	50
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	42	421	72	32	421	72	55
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	42	451	64	32	451	77	75
X120*	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	–	–	–	42	403	54	60
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	55	433	17	42	433	17	75
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	55	463	44.5	42	463	37.5	90
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	55	463	47	42	463	47	90
X130* **	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	–	–	–	42	403	54	60
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	55	433	17	42	433	17	75
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	55	463	44.5	42	463	37.5	90
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	55	463	47	42	463	47	90
X140*	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	520.5	53.5	55	520.5	60.5	110
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	520.5	48.5	55	520.5	62.5	110
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	520.5	31	55	520.5	31	135
X150* **	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	520.5	53.5	55	520.5	60.5	110
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	520.5	48.5	55	520.5	62.5	110
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	520.5	31	55	520.5	31	135
X160*	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	–	–	–	70	550.5	42	135
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	–	–	–	70	550.5	50	135
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	589.5	47.5	70	589.5	62	165
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	625.5	46	70	625.5	72	210
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	665.5	88	–	–	–	235
X170* **	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	–	–	–	70	550.5	42	135
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	–	–	–	70	550.5	50	135
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	589.5	47.5	70	589.5	62	165
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	625.5	46	70	625.5	72	210
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	665.5	88	–	–	–	235
X180*	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	90	621.5	39	75	621.5	62	170
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	90	657.5	38	75	657.5	73	215
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	90	697.5	83	75	697.5	88	240
X190**	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	90	621.5	39	75	621.5	62	170
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	90	657.5	38	75	657.5	73	215
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	90	697.5	83	75	697.5	88	240
X200*	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	676.5	18	90	676.5	33	240
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	716.5	56	90	716.5	78	240
X210**	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	676.5	18	90	676.5	33	240
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	716.5	56	90	716.5	78	240
X220*	315	800	680^{H7}	25	85H7	740	7	170	M20 (8x)	90.4	22^{JS9}	–	–	–	100	711	18	245
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	110	751	56	100	751	56	275
X230**	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	–	–	–	100	711	18	245
	355	800	680^{H7}	25	10^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	110	751	56	100	751	56	275
X240*	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	–	–	–	110	795.5	56	295
X250**	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	–	–	–	110	795.5	56	295

13.36.3 IEC motor adapter X3F100 – 270

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).

X3F..

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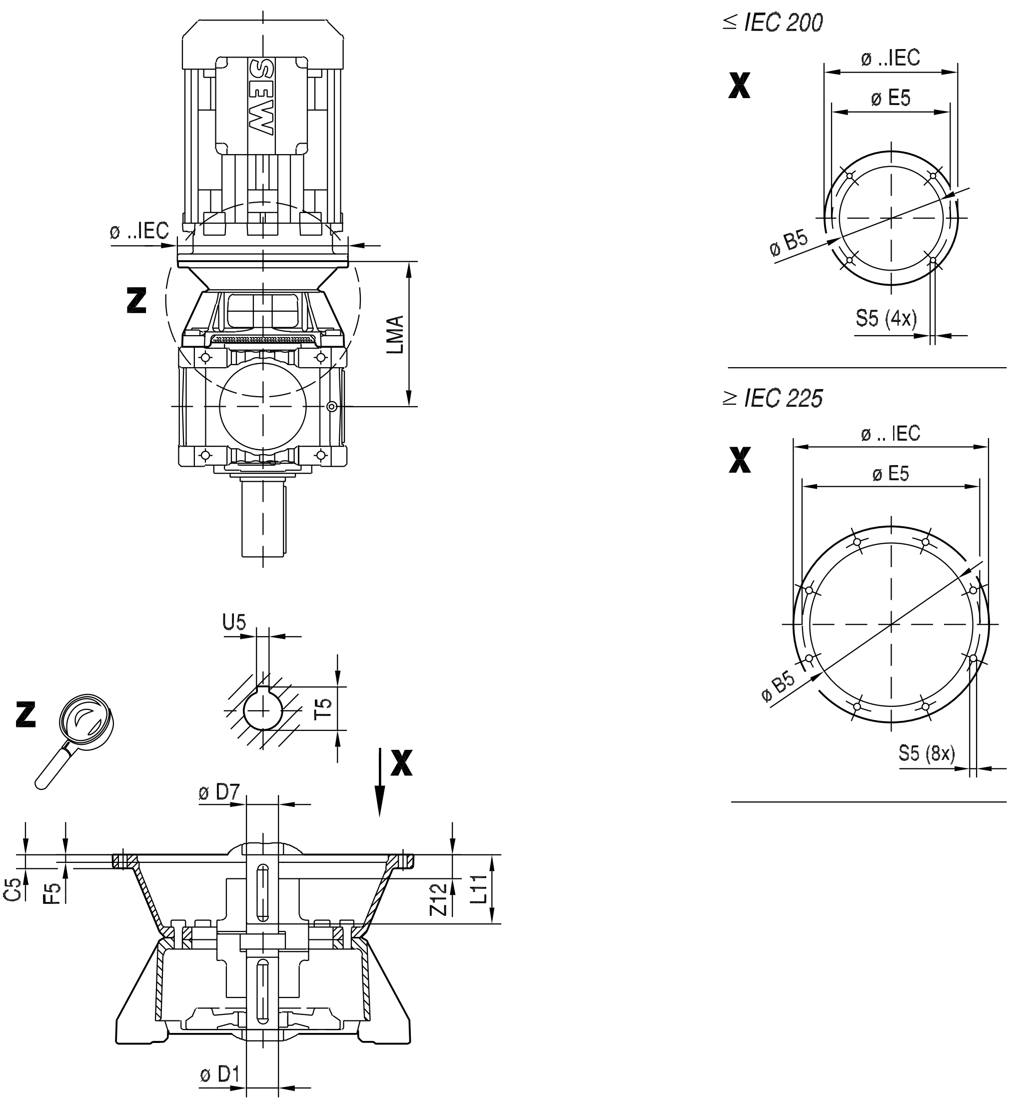

												i = 20 ... 56* i = 22.4 ... 63** i = 25 ... 71***			i = 63 ... 90* i = 71 ... 100** i = 80 ... 112***			kg
X3F..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X100**	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	351	30.5	32	351	30.5	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	379	66	32	379	66	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	379	47.5	32	379	47.5	45
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	391	58	–	–	–	50
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	32	421	72	–	–	–	55

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												i = 20 ... 56* i = 22.4 ... 63** i = 25 ... 71***			i = 63 ... 90* i = 71 ... 100** i = 80 ... 112***			kg
X3F..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X110* **	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	351	30.5	32	351	30.5	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	379	66	32	379	66	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	379	47.5	32	379	47.5	45
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	391	58	–	–	–	50
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	32	421	72	–	–	–	55
X120*	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	–	–	–	38	363	36	50
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	38	391	64	38	391	64	50
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	38	391	48	38	391	48	50
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	38	403	56	–	–	–	60
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	38	433	70	–	–	–	65
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	38	463	49	–	–	–	90
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	38	463	50	–	–	–	90
X130* **	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	–	–	–	38	363	36	50
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	38	391	64	38	391	64	50
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	38	391	48	38	391	48	50
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	38	403	56	–	–	–	60
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	38	433	70	–	–	–	65
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	38	463	49	–	–	–	90
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	38	463	50	–	–	–	90
X140*	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	45	448.5	62	45	448.5	62	70
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	45	448.5	48	45	448.5	48	70
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	45	460.5	59	45	460.5	59	80
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	45	490.5	42.5	–	–	–	95
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	45	520.5	73	–	–	–	110
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	45	520.5	64	–	–	–	110
X150* **	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	45	448.5	62	45	448.5	62	70
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	45	448.5	48	45	448.5	48	70
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	45	460.5	59	45	460.5	59	80
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	45	490.5	42.5	–	–	–	95
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	45	520.5	73	–	–	–	110
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	45	520.5	64	–	–	–	110
X160*	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	–	–	–	50	483.5	51.5	105
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	–	–	–	50	483.5	48.5	105
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	510.5	37	50	510.5	61	120
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	540.5	42	50	540.5	53	130
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	550.5	46	50	550.5	63	140
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	550.5	46	50	550.5	63	140
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	589.5	67	–	–	–	165
X170* **	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	–	–	–	50	483.5	51.5	105
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	–	–	–	50	483.5	48.5	105
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	510.5	37	50	510.5	61	120
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	540.5	42	50	540.5	53	130
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	550.5	46	50	550.5	63	140
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	550.5	46	50	550.5	63	140
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	589.5	67	–	–	–	165
X180*	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	–	–	–	55	543	68	125
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	572.5	37	55	573	67	130
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	582.5	52	55	583	62	145
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	582.5	52	55	583	62	145
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	621.5	66	–	–	–	175
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	657.5	77	–	–	–	215
X190**	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	–	–	–	55	542.5	68	125
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	572.5	37	55	572.5	67	130
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	582.5	52	55	582.5	62	145
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	582.5	52	55	582.5	62	145
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	621.5	66	–	–	–	175
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	657.5	77	–	–	–	215
X200*	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	–	–	–	60	591.5	71	160
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	75	601.5	52	60	601.5	52	175
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	75	601.5	52	60	601.5	57	175
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	75	640.5	61	60	640.5	61	200
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	75	676.5	62	–	–	–	245
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	75	716.5	87	–	–	–	270
X210**	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	–	–	–	60	591.5	71	160
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	75	601.5	52	60	601.5	52	175
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	75	601.5	52	60	601.5	57	175
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	75	640.5	61	60	640.5	61	200
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	75	676.5	62	–	–	–	245
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	75	716.5	87	–	–	–	270

												i = 20 ... 56* i = 22.4 ... 63** i = 25 ... 71***			i = 63 ... 90* i = 71 ... 100** i = 80 ... 112***			kg
X3F..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X220*	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	80	636	29	70	636	54	180
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	80	636	24	70	636	59	190
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	675	48	70	675	63	210
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	711	59	–	–	–	250
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	751	89	–	–	–	275
X230**	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	80	636	29	70	636	54	180
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	80	636	24	70	636	59	190
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	675	48	70	675	63	210
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	711	59	–	–	–	250
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	751	89	–	–	–	275
X240*	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	–	–	–	75	680.5	49	200
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	–	–	–	75	680.5	54	200
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	90	719.5	53	75	719.5	58	230
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	90	755.5	44	75	755.5	74	270
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	90	795.5	89	–	–	–	295
X250**	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	–	–	–	75	681	49	200
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	–	–	–	75	681	54	200
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	90	720	53	75	720	58	230
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	90	756	44	75	756	74	270
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	90	796	89	–	–	–	295

												i = 20 ... 50* i = 22.4 ... 56**			i = 56 ... 90* i = 63 ... 100**			kg
X3F..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X260*	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	100	785.5	33	80	785.5	73	260
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	821.5	39	80	821.5	59	300
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	861.5	56	80	861.5	109	325
X270**	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	100	785.5	33	80	785.5	73	260
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	821.5	39	80	821.5	59	300
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	861.5	56	80	861.5	109	325

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13.36.4 IEC motor adapter X4K120 – 270

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).

X4F..

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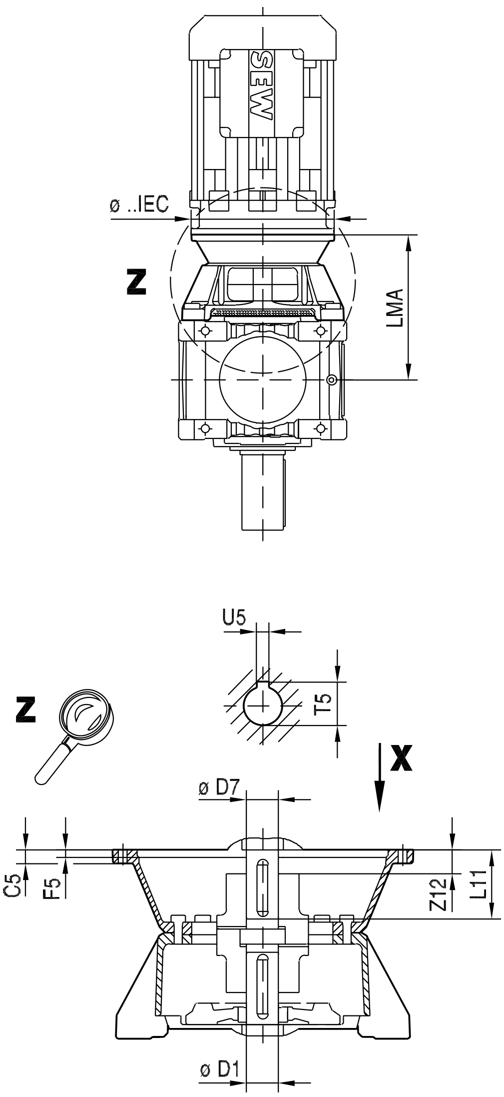

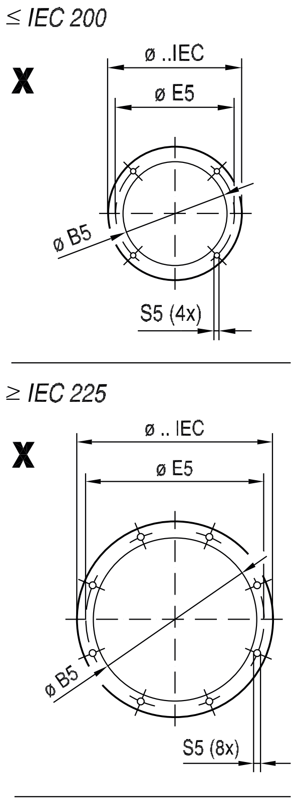

												i = 100 ... 180* i = 112 ... 200** i = 125 ... 224***			i = 200 ... 355* i = 224 ... 400** i = 250 ... 450***			kg
X4F..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X120*	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	353	31	28	353	31	45
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	353	31	28	353	31	45
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	28	363	41	28	363	41	50
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	28	391	74	–	–	–	50
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	28	391	59	–	–	–	50
X130***	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	353	31	28	353	31	45
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	353	31	28	353	31	45
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	28	363	41	28	363	41	50
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	28	391	74	–	–	–	50
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	28	391	59	–	–	–	50

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												i = 100 ... 180* i = 112 ... 200** i = 125 ... 224***			i = 200 ... 355* i = 224 ... 400** i = 250 ... 450***			kg
X4F..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X140*	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	–	–	–	–	410.5	39	65
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	–	–	–	–	410.5	39	65
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	420.5	49	32	420.5	49	70
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	448.5	77	32	448.5	77	75
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	448.5	72	32	448.5	72	75
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	32	460.5	69	–	–	–	80
X150***	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	–	–	–	32	410.5	39	65
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	–	–	–	32	410.5	39	65
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	420.5	49	32	420.5	49	70
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	448.5	77	32	448.5	77	75
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	448.5	72	32	448.5	72	75
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	32	460.5	69	–	–	–	80
X160*	132	300	230^{H7}	15	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	450.5	47	38	450.5	47	47
	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	38	483.5	80	38	483.5	80	80
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	38	483.5	65	38	483.5	65	65
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	38	510.5	71	–	–	–	71
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	38	540.5	75.5	–	–	–	75.5
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	38	550.5	76	–	–	–	76
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	38	550.5	86	–	–	–	86
X170***	132	300	230^{H7}	15	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	450.5	47	38	450.5	47	47
	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	38	483.5	80	38	483.5	80	80
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	38	483.5	65	38	483.5	65	65
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	38	510.5	71	–	–	–	71
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	38	540.5	75.5	–	–	–	75.5
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	38	550.5	76	–	–	–	76
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	38	550.5	86	–	–	–	86
X180*	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	515.5	53	38	515.5	66	115
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	515.5	53	38	515.5	63	115
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	542.5	55	38	542.5	67	120
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	572.5	82	–	–	–	130
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	582.5	75	–	–	–	145
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	582.5	65	–	–	–	145
X190**	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	515.5	53	38	515.5	66	115
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	515.5	53	38	515.5	63	115
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	542.5	55	38	542.5	67	120
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	572.5	82	–	–	–	130
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	582.5	75	–	–	–	145
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	582.5	65	–	–	–	145
X200*	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	55	534.5	53	42	534.5	66	140
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	55	534.5	53	42	534.5	53	140
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	55	561.5	68	42	561.5	68	150
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	55	591.5	77	42	591.5	80	160
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	55	601.5	75	–	–	–	175
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	55	601.5	65	–	–	–	175
X210**	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	55	534.5	53	42	534.5	66	140
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	55	534.5	53	42	534.5	53	140
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	55	561.5	68	42	561.5	68	150
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	55	591.5	77	42	591.5	80	160
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	55	601.5	75	–	–	–	175
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	55	601.5	65	–	–	–	175
X220*	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	–	–	–	50	569	57	150
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	–	–	–	50	569	57	150
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	596	55	50	596	55	160
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	626	75	50	626	69	165
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	636	64	50	636	69	180
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	636	64	50	636	65	180
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	675	80	–	–	–	210
X230**	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	–	–	–	50	569	57	150
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	–	–	–	50	569	57	150
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	596	55	50	596	55	160
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	626	75	50	626	69	165
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	636	64	50	636	69	180
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	636	64	50	636	65	180
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	675	80	–	–	–	210
X240*	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	–	–	–	55	640.5	70	180
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	670.5	74.5	55	670.5	74	185
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	680.5	54	55	680.5	74	200
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	680.5	54	55	680.5	65	200
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	719.5	73	–	–	–	230

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												i = 100 ... 180* i = 112 ... 200** i = 125 ... 224***			i = 200 ... 355* i = 224 ... 400** i = 250 ... 450***			kg
X4F..	**IEC**	**Ø IEC**	**Ø B5**	**C5**	**Ø D7**	**Ø E5**	**F5**	**L11**	**S5**	**T5**	**U5**	**Ø D1**	**LMA**	**Z12**	**Ø D1**	**LMA**	**Z12**	
X250**	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	–	–	–	55	640.5	70	180
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	670.5	74.5	55	670.5	74	185
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	680.5	54	55	680.5	74	200
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	680.5	54	55	680.5	65	200
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	719.5	73	–	–	–	230
X260*	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	–	–	–	60	706.5	70	210
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	–	–	–	60	736.5	69	215
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	75	746.5	69	60	746.5	69	230
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	75	746.5	69	60	746.5	65	230
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	75	785.5	78	60	785.5	90	260
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	75	821.5	82	–	–	–	300
X270*	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	–	–	–	60	706.5	70	210
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	–	–	–	60	736.5	69	215
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	75	746.5	69	60	746.5	69	230
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	75	746.5	69	60	746.5	65	230
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	75	785.5	78	60	785.5	90	260
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	75	821.5	82	–	–	–	300

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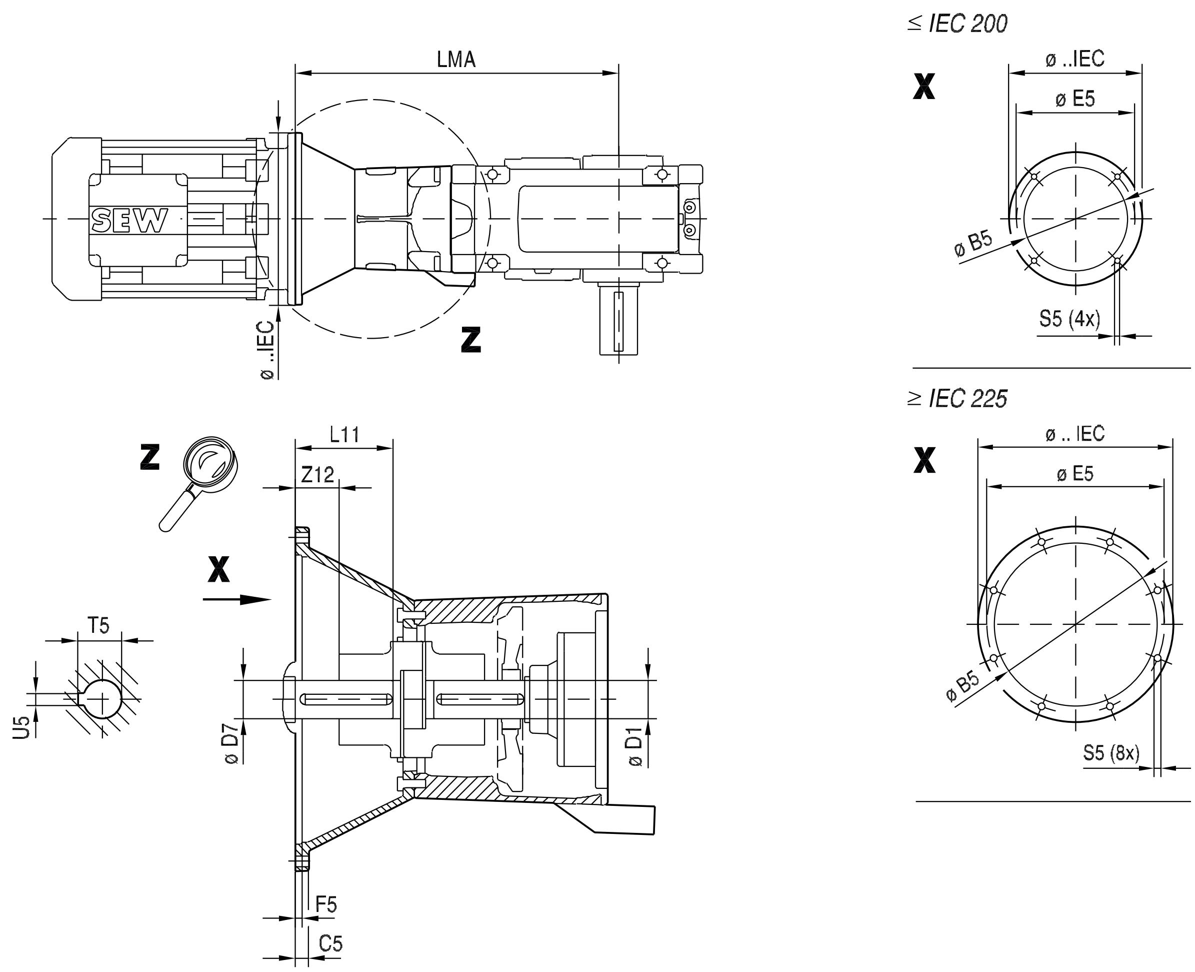
13.36.5 IEC motor adapter X2K100 – 230

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).

X2K..

48 010 00 14



X2K..	IEC	Ø IEC	Ø IB5	C5	Ø D7	Ø IE5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X100	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	50	768	38	50
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	50	798	66	55
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	828	73	73
X110	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	50	788	38	50
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	50	818	66	55
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	848	73	73
X120	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	60	895	36	70
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	925	48	85
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	925	47	85
X130	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	60	931	36	70
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	961	48	85
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	961	47	85
X140	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	989	54	100
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	989	49	100
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	989	32.5	130
X150	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	1031	54	100
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	1031	49	100
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	1031	32.5	130

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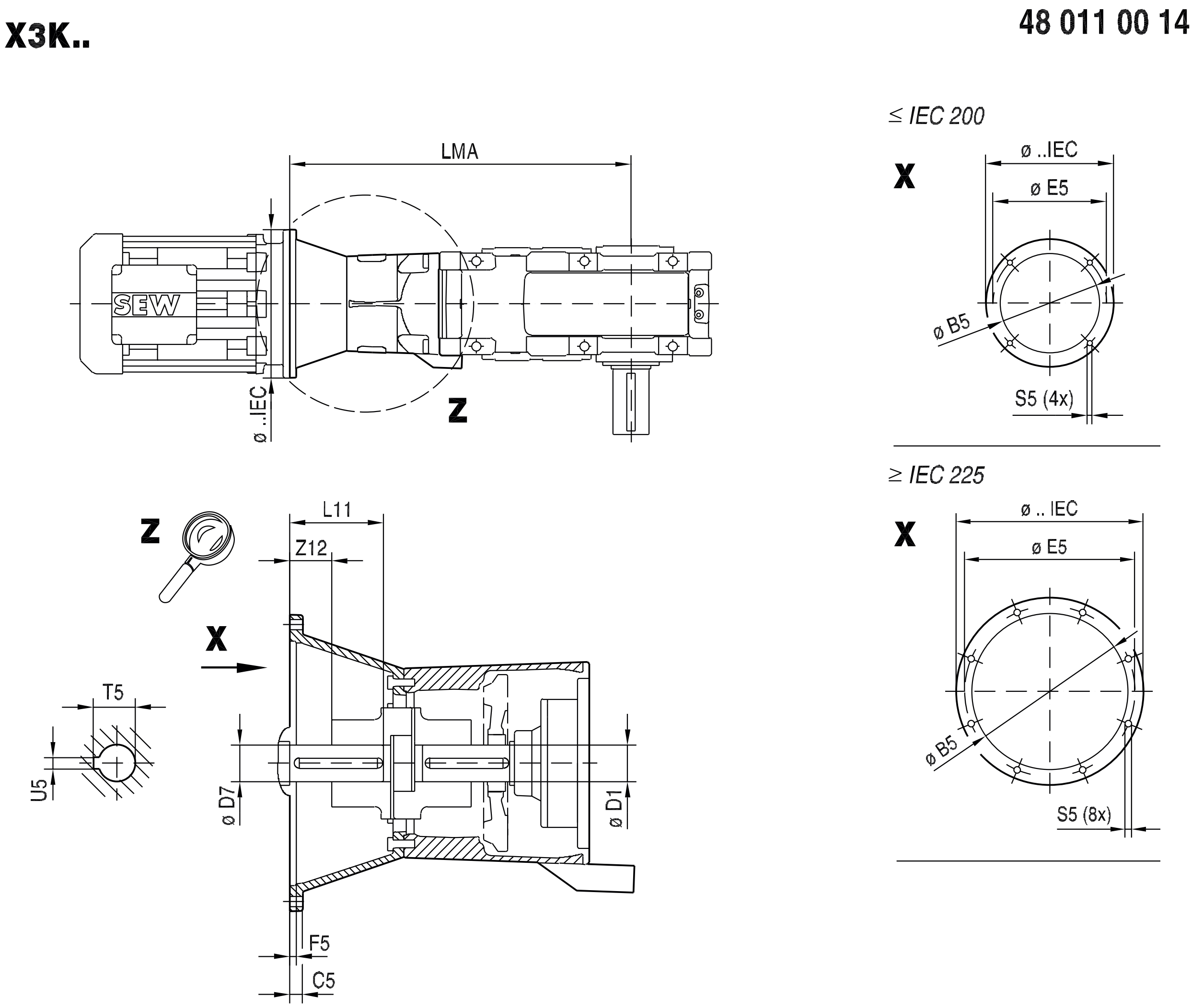
X2K..	IEC	Ø IEC	Ø IB5	C5	Ø D7	Ø IE5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X160	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	85	1183	43	150
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	85	1219	46	190
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	85	1259	84	220
X170	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	85	1234	43	150
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	85	1270	46	190
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	85	1310	84	220
X180	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	100	1310	34	170
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	1346	40	215
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	1386	80	240
X190	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	100	1342	34	170
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	1378	40	215
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	1418	80	240
X200	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	110	1441	18	230
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	110	1481	42.5	260
X210	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	110	1477	18	230
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	110	1517	42.5	260
X220	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	120	1649	38	300
X230	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	120	1689	38	300

13.36.6 IEC motor adapter X3K100 – 270

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).



X3K..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X100	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	735	31	30
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	763	62	40
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	763	46	40
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	775	54	45
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	32	805	68	50
X110	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	755	31	30
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	783	62	40
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	783	46	40
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	795	54	45
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	32	825	68	50
X120	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	848	34	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	38	876	62	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	38	876	46.5	45
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	38	888	59	55
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	38	918	79	60
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	38	948	68	85
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	38	948	68	85

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X3K..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X130	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	884	34	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	38	912	62	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	38	912	46.5	45
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	38	924	59	55
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	38	954	79	60
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	38	984	68	85
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	38	984	68	85
X140	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	50	1010	51.5	60
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	50	1010	51	60
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	50	1022	42.5	70
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	50	1052	43	85
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	1082	57	100
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	1082	64	100
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	50	1082	38	125
X150	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	50	1052	51.5	60
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	50	1052	51	60
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	50	1064	42.5	70
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	50	1094	43	85
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	1124	57	100
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	1124	64	100
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	50	1124	38	125
X160	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	1166	42	95
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	1196	44	115
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	1206	46	120
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	1206	50	120
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	1245	69	150
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	60	1281	80	190
X170	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	1217	42	95
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	1247	44	115
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	1257	46	120
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	1257	50	120
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	1296	69	150
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	60	1332	80	190
X180	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	1297	71	115
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	1307	52	130
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	1307	52	130
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	1346	66	160
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	1382	75	200
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	70	1422	92	225
X190	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	1329	71	115
	250	550	350^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	1339	52	130
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	1339	52	130
	315S–L	660	450^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	1378	66	160
	315	800	550^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	1414	75	200
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	70	1454	92	225
X200	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	80	1454	50	150
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	80	1454	50	150
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	1493	62	180
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	1529	73	220
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	1569	110	250
X210	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	80	1490	50	150
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	80	1490	50	150
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	1529	62	180
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	1565	73	220
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	1605	110	250
X220	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	85	1600	50	180
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	85	1600	50	180
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	85	1639	64.5	210
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	85	1675	60	250
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	85	1715	100	275
X230	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	85	1640	50	180
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	85	1640	50	180
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	85	1679	64.5	210
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	85	1715	60	250
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	85	1755	100	275
X240	315S–L	660	680^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	100	1770	32.5	225
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	1806	39	270
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	1846	74	295
X250	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	100	1793	32.5	225
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	1829	39	270
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	1869	74	295

X3K..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X260	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	110	1940	33	265
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	110	1976	54	305
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	110	2016	89	330
X270	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	110	1975	33	265
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	110	2011	54	305
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	110	2051	89	330

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13.36.7 IEC motor adapter X4K120 – 280

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).

X4K..

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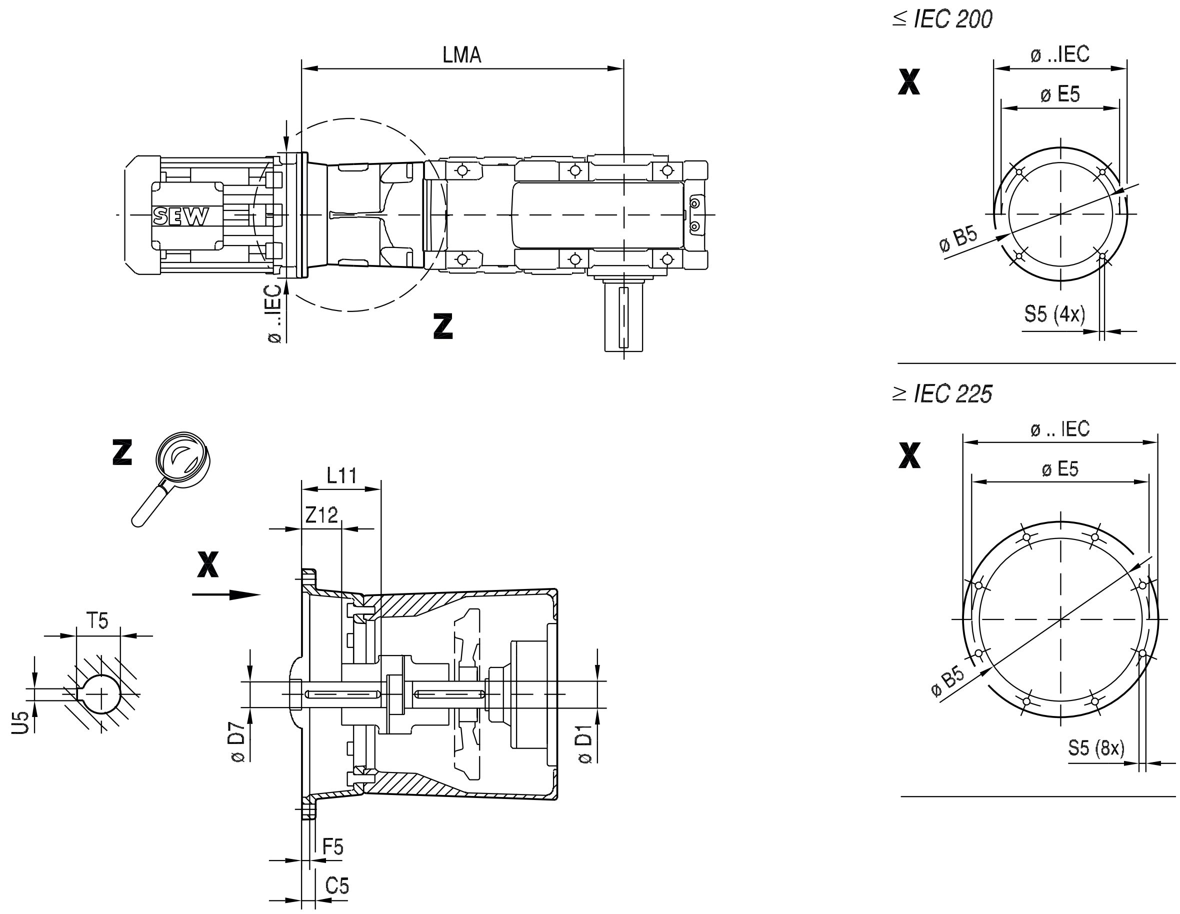

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X4K..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X120	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	803	19	35
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	803	19	35
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	28	813	28	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	28	841	62	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	28	841	48	45
X130	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	839	19	35
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	839	19	35
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	28	849	28	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	28	877	62	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	28	877	48	45
X140	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	949	21	50
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	949	21	50
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	959	31	50
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	987	62	60
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	987	47	60
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	999	54	65

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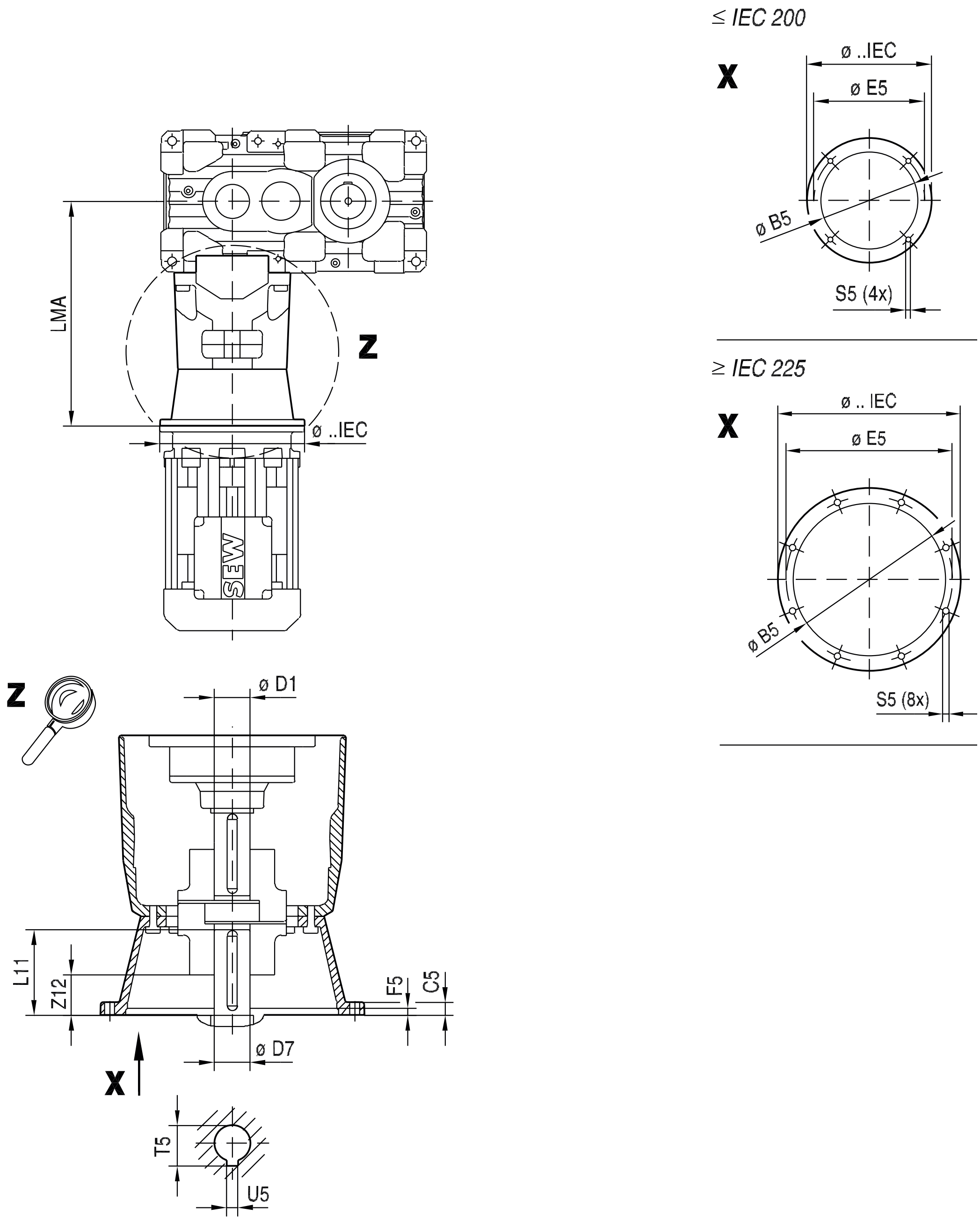
X4K..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X150	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	991	21	50
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	991	21	50
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	1001	31	50
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	1029	62	60
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	1029	47	60
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	1041	54	65
X160	132	300	230^{H7}	15	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	1121	28	80
	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	38	1154	44.5	85
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	38	1154	48.5	85
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	38	1181	68	95
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	38	1211	62	110
X170	132	300	230^{H7}	15	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	1172	28	80
	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	38	1205	44.5	85
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	38	1205	48.5	85
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	38	1232	68	95
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	38	1262	62	110
X180	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	1329	50.5	95
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	1329	42	95
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	1356	55	105
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	1386	80	110
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	1396	73	125
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	1396	65	125
X190	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	1361	50.5	95
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	1361	42	95
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	1388	55	105
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	1418	80	110
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	1428	73	125
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	1428	65	125
X200	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	1416	50.5	125
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	1416	50.5	125
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	1443	53	135
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	1473	80	140
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	1483	63	155
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	1483	63	155
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	50	1522	90.5	185
X210	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	1452	50.5	125
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	1452	50.5	125
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	1479	53	135
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	1509	80	140
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	1519	63	155
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	1519	63	155
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	50	1558	90.5	185
X220	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	60	1587	50.5	140
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	60	1587	50.5	140
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	1614	64	150
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	1644	71	160
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	1654	63	170
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	1654	63	170
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	1693	90	200
X230	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	60	1627	50.5	140
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	60	1627	50.5	140
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	1654	64	150
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	1684	71	160
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	1694	63	170
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	1694	63	170
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	1733	90	200
X240	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	70	1727	41	170
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	1757	71	180
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	1767	51	190
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	1767	51	190
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	1806	69.5	220
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	1842	74	260
X250	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	70	1750	41	170
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	1780	71	180
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	1790	51	190
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	1790	51	190
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	1829	69.5	220
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	1865	74	260

X4K..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X260	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	80	1917	12	240
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	80	1947	42	245
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	80	1957	42	250
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	80	1957	49	250
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	1996	66	280
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	2032	57	320
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	2072	107	345
X270	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	80	1952	12	240
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	80	1982	42	245
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	80	1992	42	250
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	80	1992	49	250
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	2031	66	280
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	2067	57	320
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	2107	107	345
280	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	80	2004	12	240
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	80	2034	42	245
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	80	2044	42	250
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	80	2044	49	250
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	2083	66	280
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	2119	57	320
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	2159	107	345

13.36.8 IEC motor adapter X3T100 – 210

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).

X3T.. 48 004 02 10



X3T..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X100	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	457	31	30
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	485	62	40
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	485	46	40
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	497	54	45
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	32	527	68	50
X110	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	457	31	30
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	485	62	40
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	485	46	40
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	497	54	45
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	32	527	68	50

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X3T..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X120	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	521	34	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	38	549	62	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	38	549	46.5	45
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	38	561	59	55
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	38	591	79	60
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	38	621	68	85
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	38	621	68	85
X130	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	521	34	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	38	549	62	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	38	549	46.5	45
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	38	561	59	55
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	38	591	79	60
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	38	621	68	85
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	38	621	68	85
X140	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	50	622	51.5	60
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	50	622	51	60
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	50	634	42.5	70
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	50	664	43	85
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	694	57	100
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	694	64	100
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	50	694	38	125
X150	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	50	622	51.5	60
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	50	622	51	60
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	50	634	42.5	70
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	50	664	43	85
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	694	57	100
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	694	64	100
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	50	694	38	125
X160	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	692	42	95
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	722	44	115
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	732	46	120
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	732	50	120
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	771	69	150
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	60	807	80	190
X170	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	692	42	95
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	722	44	115
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	732	46	120
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	732	50	120
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	771	69	150
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	60	807	80	190
X180	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	753	71	115
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	763	52	130
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	763	52	130
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	802	66	160
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	838	75	200
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	70	878	92	225
X190	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	753	71	115
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	763	52	130
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	763	52	130
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	802	66	160
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	838	75	200
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	70	878	92	225
X200	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	80	840	50	150
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	80	840	50	150
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	879	62	180
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	915	73	220
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	955	110	250
X210	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	80	840	50	150
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	80	840	50	150
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	879	62	180
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	915	73	220
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	955	110	250

13.36.9 IEC motor adapter X3T220 – 250

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).

X3T..

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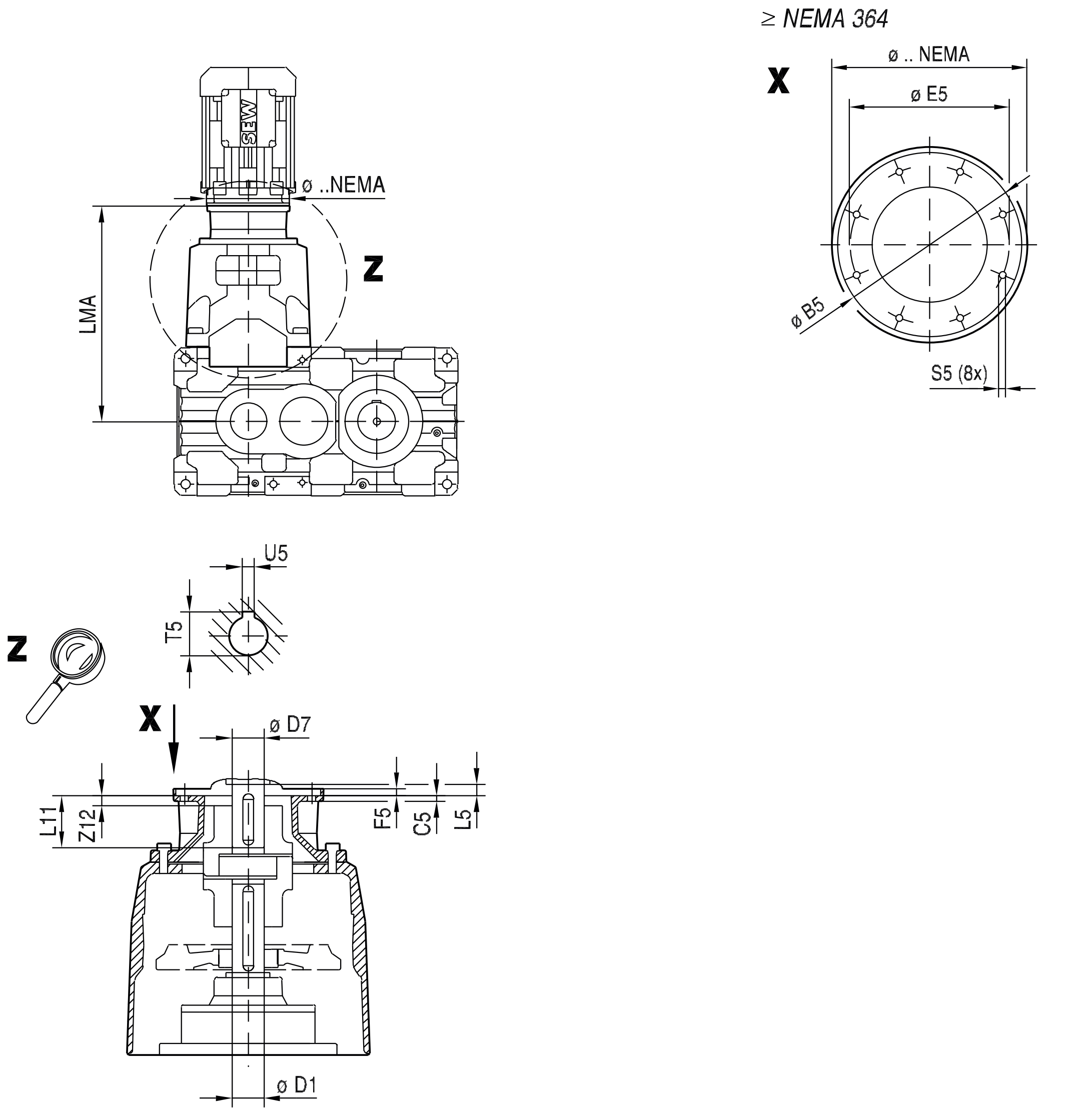

X3T..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X220	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	85	906	50	180
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	85	906	50	180
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	85	945	64.5	210
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	85	981	60	250
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	85	1021	100	275
X230	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	85	906	50	180
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	85	906	50	180
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	85	945	64.5	210
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	85	981	60	250
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	85	1021	100	275
X240	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	100	994	32.5	225
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	1030	39	270
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	1070	74	295

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X3T..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X250	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	100	994	32.5	225
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	1030	39	270
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	1070	74	295

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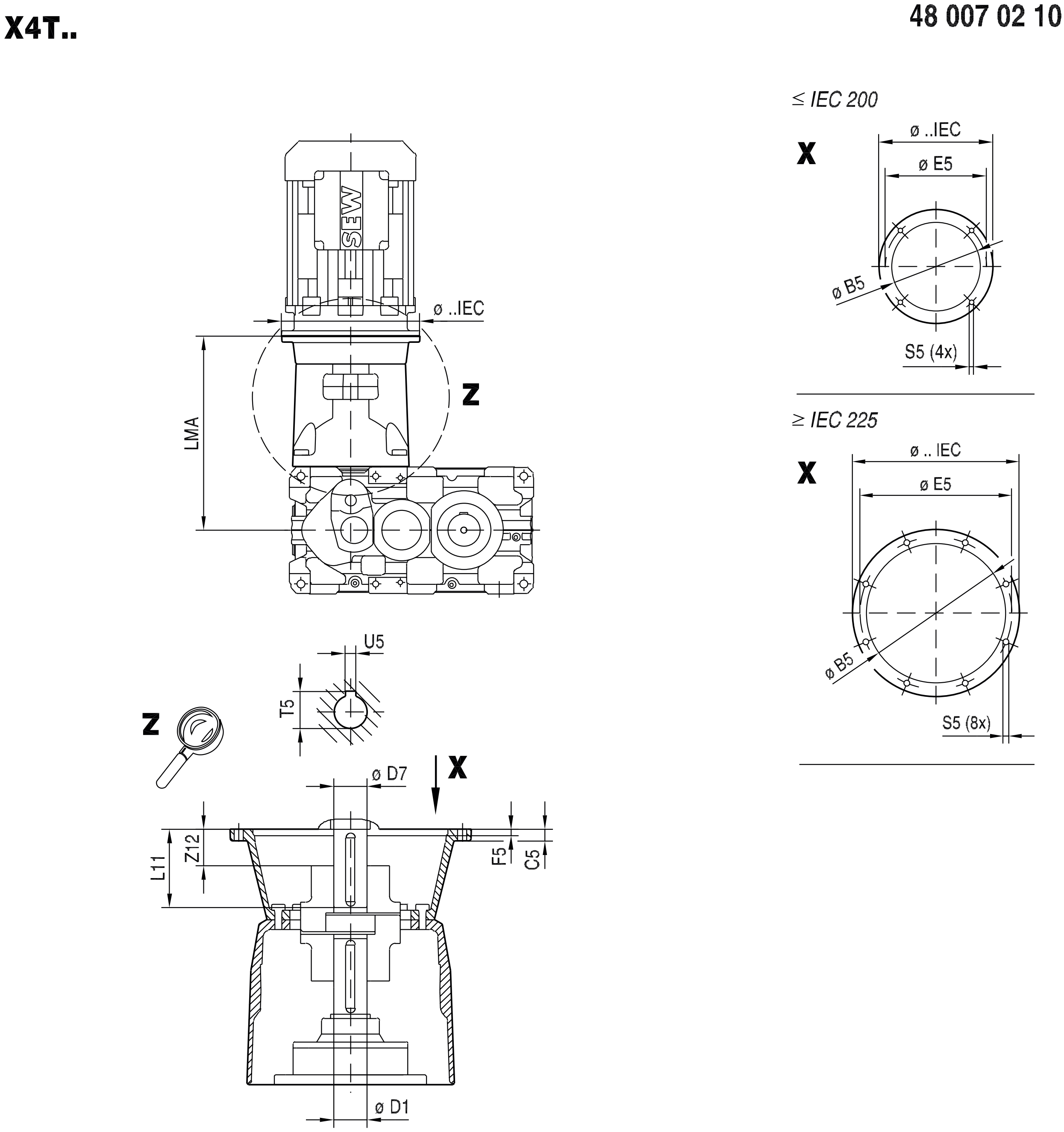
13.36.10 IEC motor adapter X4T120 – 210

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).



X4T..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X120	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	476	19	35
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	476	19	35
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	28	486	28	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	28	514	62	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	28	514	48	45
X130	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	476	19	35
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	476	19	35
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	28	486	28	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	28	514	62	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	28	514	48	45

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X4T..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X140	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	561	21	50
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	561	21	50
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	571	31	50
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	599	62	60
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	599	47	60
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	611	54	65
X150	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	561	21	50
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	561	21	50
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	571	31	50
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	599	62	60
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	599	47	60
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	611	54	65
X160	132	300	230^{H7}	15	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	647	28	80
	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	38	680	44.5	85
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	38	680	48.5	85
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	38	707	68	95
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	38	737	62	110
X170	132	300	230^{H7}	15	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	647	28	80
	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	38	680	44.5	85
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	38	680	48.5	85
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	38	707	68	95
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	38	737	62	110
X180	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	785	50.5	95
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	785	42	95
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	812	55	105
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	842	80	110
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	852	73	125
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	852	65	125
X190	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	785	50.5	95
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	785	42	95
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	812	55	105
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	842	80	110
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	852	73	125
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	852	65	125
X200	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	802	50.5	125
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	802	50.5	125
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	829	53	135
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	859	80	140
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	869	63	155
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	869	63	155
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	50	908	90.5	185
X210	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	802	50.5	125
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	802	50.5	125
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	829	53	135
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	859	80	140
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	869	63	155
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	869	63	155
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	50	908	90.5	185

13

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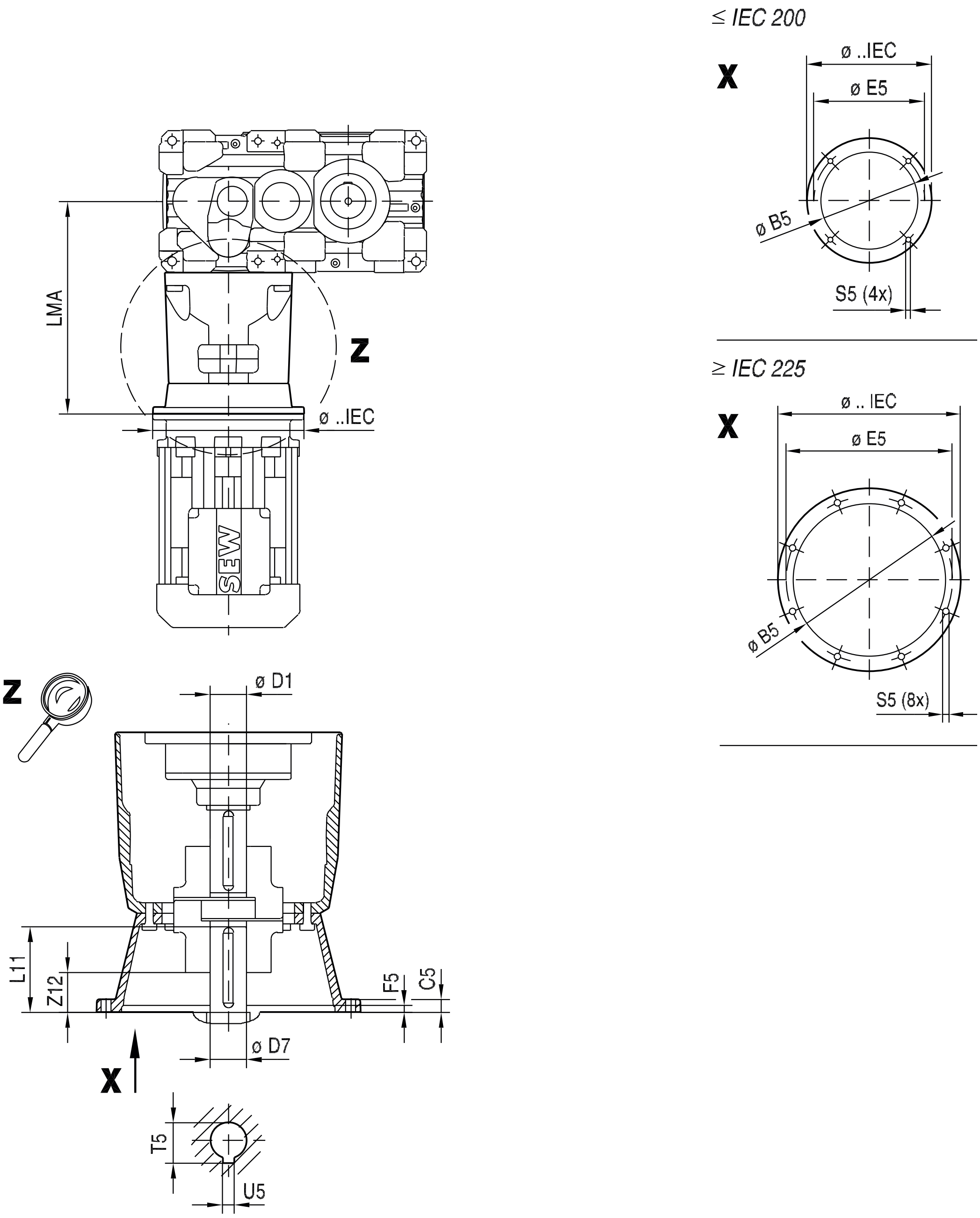
13.36.11 IEC motor adapter X4T220 – 250

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).

X4T..

48 006 02 10



X4T..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X220	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	60	893	50.5	140
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	60	893	50.5	140
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	920	64	150
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	950	71	160
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	960	63	170
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	960	63	170
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	999	90	200

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X4T..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X230	160	350	250 H7	45	42 H7	300	5	110	M16 (4x)	45.3	12 JS9	60	893	50.5	140
	180	350	250 H7	45	48 H7	300	5	110	M16 (4x)	51.8	14 JS9	60	893	50.5	140
	200	400	300 H7	20	55 H7	350	6	110	M16 (4x)	59.3	16 JS9	60	920	64	150
	225	450	350 H7	20	60 H7	400	6	140	M16 (8x)	64.4	18 JS9	60	950	71	160
	250	550	450 H7	25	65 H7	500	7	140	M16 (8x)	69.4	18 JS9	60	960	63	170
	280	550	450 H7	25	75 H7	500	7	140	M16 (8x)	79.9	20 JS9	60	960	63	170
	315S-L	660	550 H7	25	80 H7	600	7	170	M20 (8x)	85.4	22 JS9	60	999	90	200
X240	200	400	300 H7	20	55 H7	350	6	110	M16 (4x)	59.3	16 JS9	70	951	41	170
	225	450	350 H7	20	60 H7	400	6	140	M16 (8x)	64.4	18 JS9	70	981	71	180
	250	550	450 H7	25	65 H7	500	7	140	M16 (8x)	69.4	18 JS9	70	991	51	190
	280	550	450 H7	25	75 H7	500	7	140	M16 (8x)	79.9	20 JS9	70	991	51	190
	315S-L	660	550 H7	25	80 H7	600	7	170	M20 (8x)	85.4	22 JS9	70	1030	69.5	220
	315	800	680 H7	25	85 H7	740	7	170	M20 (8x)	90.4	22 JS9	70	1066	74	260
X250	200	400	300 H7	20	55 H7	350	6	110	M16 (4x)	59.3	16 JS9	70	951	41	170
	225	450	350 H7	20	60 H7	400	6	140	M16 (8x)	64.4	18 JS9	70	981	71	180
	250	550	450 H7	25	65 H7	500	7	140	M16 (8x)	69.4	18 JS9	70	991	51	190
	280	550	450 H7	25	75 H7	500	7	140	M16 (8x)	79.9	20 JS9	70	991	51	190
	315S-L	660	550 H7	25	80 H7	600	7	170	M20 (8x)	85.4	22 JS9	70	1030	69.5	220
	315	800	680 H7	25	85 H7	740	7	170	M20 (8x)	90.4	22 JS9	70	1066	74	260

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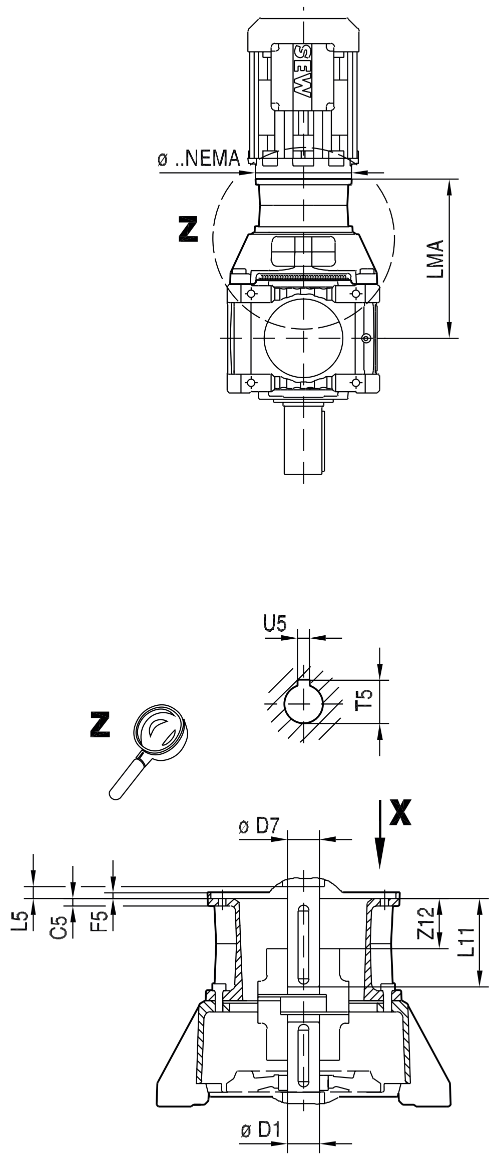
13.37 NEMA motor adapter /MA [inch]

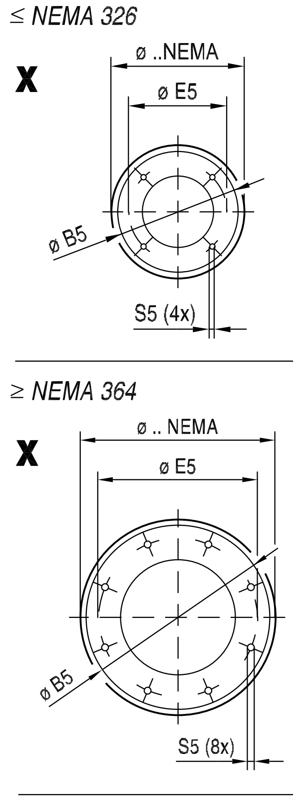
13.37.1 NEMA motor adapter X2F100 – 230

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).

X2F..

48 019 00 14





inch																			kg
													i = 6.3 ... 11.2* i = 7.1 ... 12.5** i = 8 ... 14***			i = 12.5 ... 18* i = 14 ... 20** i = 16 ... 22.4***			
X2F..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X100**	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	–	–	–	1.26	13.66	0.69	40
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	–	–	–	1.26	15.39	2.43	40
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.65	16.38	2.66	1.26	16.38	3.27	50
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.65	17.24	2.51	1.26	17.24	2.51	55

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inch																			kg
													i = 6.3 ... 11.2* i = 7.1 ... 12.5** i = 8 ... 14***			i = 12.5 ... 18* i = 14 ... 20** i = 16 ... 22.4***			
X2F..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X110***	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	–	–	–	1.26	13.66	0.69	40
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	–	–	–	1.26	15.39	2.43	40
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.65	16.38	2.66	1.26	16.38	3.27	50
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.65	17.24	2.51	1.26	17.24	2.51	55
X120*	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	–	–	–	1.65	16.85	2.33	60
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.17	17.72	1.37	1.65	17.72	1.37	70
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.17	20.00	3.65	1.65	20.00	3.65	75
X130***	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	–	–	–	1.65	16.85	2.71	60
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.17	17.72	1.37	1.65	17.72	1.37	70
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.17	20.00	3.65	1.65	20.00	3.65	75
X140*	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	–	–	–	2.17	19.98	3.05	85
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	22.26	3.87	2.17	22.26	4.11	95
	444–445	16.6	16H7	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	23.44	4.14	2.17	23.44	4.37	115
X150***	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	–	–	–	2.17	19.98	3.05	85
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	22.26	3.87	2.17	22.26	4.11	95
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	23.44	4.14	2.17	23.44	4.37	115
X160*	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	–	–	–	2.76	20.81	1.01	125
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	–	–	–	2.76	23.17	3.57	130
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	26.20	4.57	2.76	26.20	4.54	160
	447–449	16.6	16^{H7}	0.79	3,38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	26.20	4.04	2.76	26.20	3.96	170
X170***	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	–	–	–	2.76	20.81	1.01	125
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	–	–	–	2.76	23.17	3.57	130
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	26.20	4.57	2.76	26.20	4.54	160
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	26.20	4.04	2.76	26.20	3.96	170
X180*	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.54	27.46	4.35	2.95	27.46	4.31	165
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.54	27.46	3.84	2.95	27.46	4.31	180
X190**	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.54	27.46	4.35	2.95	27.46	4.31	165
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.54	27.46	3.84	2.95	27.46	4.31	180
X200*	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	28.21	2.30	3.54	28.21	3.84	205
X210**	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	28.21	2.30	3.54	28.21	3.84	205
X220*	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	–	–	–	3.94	29.57	2.07	210
X230**	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	–	–	–	3.94	29.57	2.07	210

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13.37.2 NEMA motor adapter X3F100 – 270

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).

X3F..

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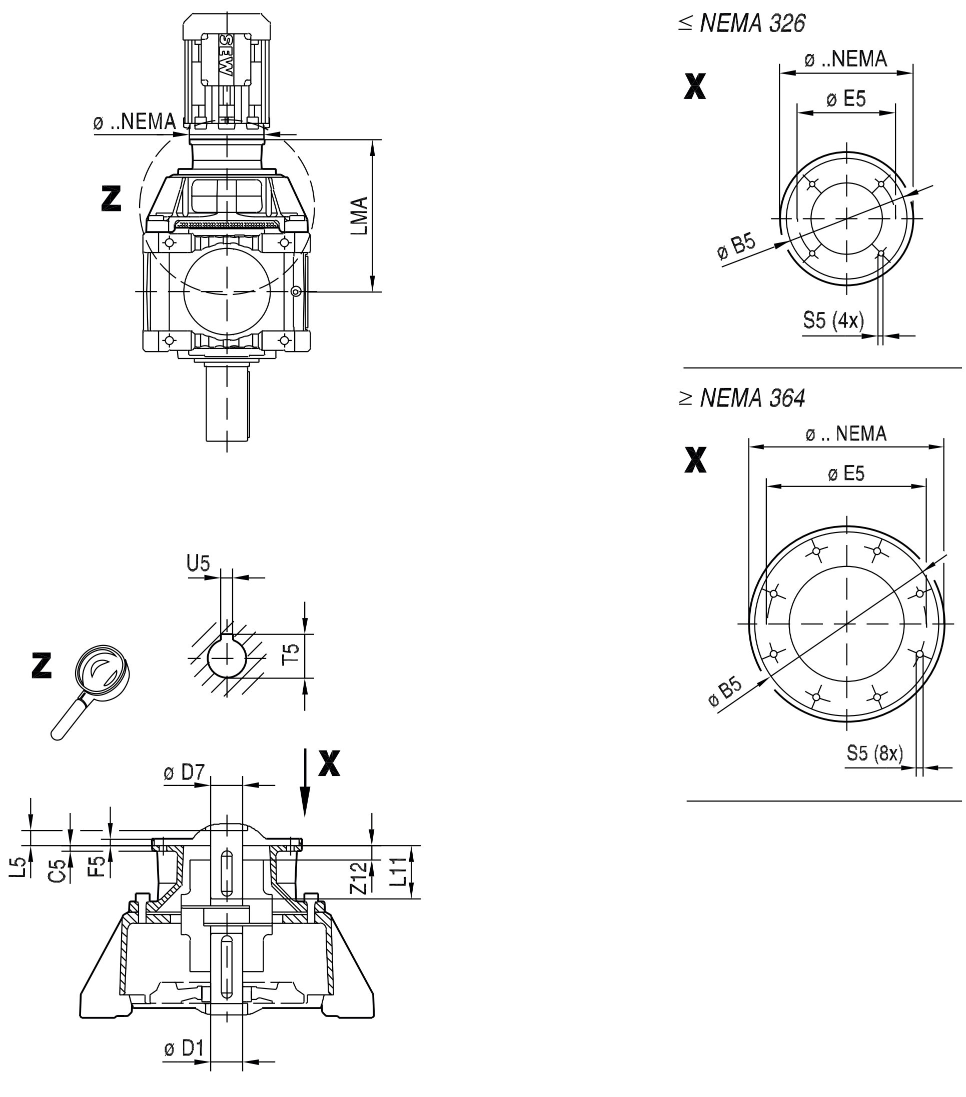

inch																			
													i = 20 ... 56* i = 22.4 ... 63** i = 25 ... 71***			i = 63 ... 90* i = 71 ... 100** i = 80 ... 112***			kg
X3F..	**NEMA**	**Ø NEMA**	**Ø B5**	**C5**	**Ø D7**	**Ø E5**	**F5**	**L5**	**L11**	**S5**	**T5**	**U5**	**Ø D1**	**LMA**	**Z12**	**Ø D1**	**LMA**	**Z12**	
X100**	213–215	9	8 1/2 H7	0.55	1.37 M7	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	5/16 +0.00197	1.26	13.66	1.33	1.26	13.66	1.33	35
	254–256	9	10 1/2 H7	0.55	1.62 M7	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8 +0.00197	1.26	13.66	0.69	1.26	13.66	0.69	40
	284–286	11 1/4	12 1/2 H7	0.59	1.88 M7	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2 +0.00197	1.26	15.39	2.42	–	–	–	45
	324–326	13	12 1/2 H7	0.71	2.12 M7	11	0.2	1/4	5	0.69 (4x)	2.362	1/2 +0.00197	1.26	16.38	3.26	–	–	–	50
X110***	213–215	9	8 1/2 H7	0.55	1.37 M7	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	5/16 +0.00197	1.26	13.66	1.33	1.26	13.66	1.33	35
	254–256	9	8 1/2 H7	0.55	1.62 M7	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8 +0.00197	1.26	13.66	0.69	1.26	13.66	0.69	40
	284–286	11 1/4	10 1/2 H7	0.59	1.88 M7	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2 +0.00197	1.26	15.39	2.42	–	–	–	45
	324–326	13	12 1/2 H7	0.71	2.12 M7	11	0.2	1/4	5	0.69 (4x)	2.362	1/2 +0.00197	1.26	16.38	3.26	–	–	–	50

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inch																			kg
													i = 20 ... 56* i = 22.4 ... 63** i = 25 ... 71***			i = 63 ... 90* i = 71 ... 100** i = 80 ... 112***			
X3F..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X120*	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	5/16$^{0.00197}$	–	–	–	1.50	14.13	1.55	45
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.50	14.13	0.62	1.50	14.13	0.64	45
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	15.87	2.23	1.50	15.87	2.24	50
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	16.85	3.18	–	–	–	60
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.50	17.72	1.45	–	–	–	70
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.50	20.00	3.73	–	–	–	75
X130***	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	5/16$^{+0.00197}$	–	–	–	1.50	14.13	1.29	45
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.50	14.13	0.62	1.50	14.13	0.62	45
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	15.87	2.23	1.50	15.87	2.23	50
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	16.85	3.18	–	–	–	60
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.50	17.72	1.45	–	–	–	70
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.50	20.00	3.73	–	–	–	75
X140*	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.77	16.40	0.78	1.77	16.40	0.78	65
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.77	18.13	2.36	1.77	18.13	2.36	70
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.77	19.11	3.11	1.77	19.11	3.11	75
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.77	19.98	3.03	–	–	–	85
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.77	22.26	4.08	–	–	–	95
X150***	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.77	16.40	0.78	1.77	16.40	0.78	65
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.77	18.13	2.36	1.77	18.13	2.36	70
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.77	19.11	3.11	1.77	19.11	3.11	75
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.77	19.98	3.03	–	–	–	85
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.77	22.26	4.08	–	–	–	95
X160*	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	–	–	–	1.97	18.01	1.07	105
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	–	–	–	1.97	19.07	2.15	110
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	20.81	2.28	1.97	20.81	3.31	125
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	20.81	1.53	1.97	20.81	1.81	125
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	23.17	3.66	–	–	–	130
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	26.20	4.98	–	–	–	160
X170***	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	–	–	–	1.97	18.01	1.07	105
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	–	–	–	1.97	19.07	2.15	110
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	20.81	2.28	1.97	20.81	3.31	125
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	20.81	1.53	1.97	20.81	1.81	125
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	23.17	3.66	–	–	–	130
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	26.20	4.98	–	–	–	160
X180*	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	–	–	–	2.17	22.07	3.39	120
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	22.07	1.33	2.17	22.07	1.57	130
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	24.43	3.54	2.17	24.43	3.93	140
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	27.46	4.58	–	–	–	165
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	27.46	4.58	–	–	–	180
X190**	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	–	–	–	2.17	22.07	3.39	120
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	22.07	1.33	2.17	22.07	1.57	130
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	24.43	3.54	2.17	24.43	3.93	140
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	27.46	4.58	–	–	–	165
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	27.46	4.58	–	–	–	180
X200*	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.95	22.81	1.18	2.36	22.81	1.37	160
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.95	25.18	3.54	2.36	25.18	3.54	165
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.95	28.21	4.39	2.36	28.21	4.39	195
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.95	28.21	4.39	–	–	–	205
X210**	364–365	13	16^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.95	22.81	1.18	2.36	22.81	1.37	160
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.95	25.18	3.54	2.36	25.18	3.54	165
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.95	28.21	4.39	2.36	28.21	4.39	195
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.95	28.21	4.39	–	–	–	205
X220*	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	–	–	–	2.76	24.17	1.45	165
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.15	26.54	1.64	2.76	26.54	3.62	185
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	29.57	4.69	2.76	29.57	4.47	200
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	29.57	4.10	–	–	–	210
X230**	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	–	–	–	2.76	24.17	1.45	165
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.15	26.54	1.64	2.76	26.54	3.62	185
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	29.57	4.69	2.76	29.57	4.47	200
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	29.57	4.10	–	–	–	210
X240*	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	–	–	–	2.95	28.29	3.81	195
	444–445	16.6	12 1/2^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.54	31.32	4.83	2.95	31.32	4.47	220
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.54	31.32	4.47	2.95	31.32	4.47	235
X250**	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	–	–	–	2.95	28.29	3.81	195
	444–445	16.6	12 1/2^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.54	31.32	4.83	2.95	31.32	4.47	220
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.54	31.32	4.47	2.95	31.32	4.47	235

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inch																			kg
													i = 20 ... 50* i = 22.4 ... 56**			i = 56 ... 90* i = 63 ... 100**			
X3F..	**NEMA**	**Ø NEMA**	**Ø B5**	**C5**	**Ø D7**	**Ø E5**	**F5**	**L5**	**L11**	**S5**	**T5**	**U5**	**Ø D1**	**LMA**	**Z12**	**Ø D1**	**LMA**	**Z12**	
X260*	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	$7/8^{+0.00197}$	3.94	33.92	4.27	3.15	33.92	4.82	250
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	$7/8^{+0.00197}$	3.94	33.92	3.68	3.15	33.92	4.47	265
X270**	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	$7/8^{+0.00197}$	3.94	33.92	4.27	3.15	33.92	4.82	250
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	$7/8^{+0.00197}$	3.94	33.92	3.68	3.15	33.92	4.47	265

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13.37.3 NEMA motor adapter X4F100 – 270

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).

X4F..

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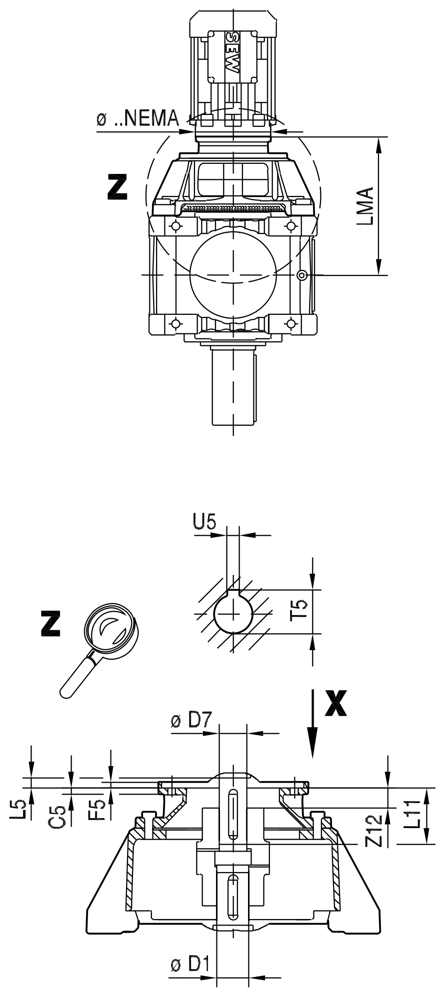

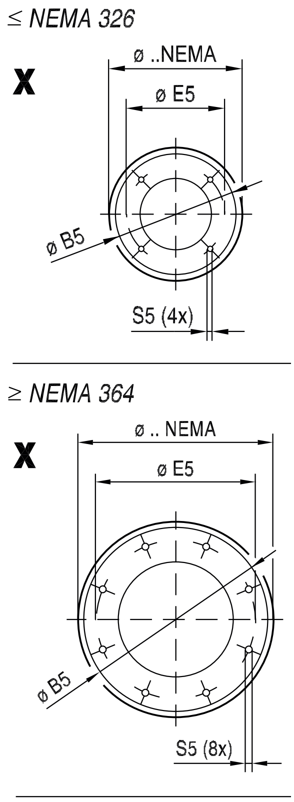

inch																			kg
													i = 100 ... 180* i = 112 ... 200** i = 125 ... 224***			i = 200 ... 355* i = 224 ... 400** i = 250 ... 450***			
X4F..	NEMA	ØNEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X120*	182–184	9	$8\ 1/2^{H7}$	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	$1/4^{+0.00197}$	1.02	14.13	0.73	1.10	14.13	1.02	45
	213–215	9	$8\ 1/2^{H7}$	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	$5/16^{+0.00197}$	1.68	14.13	1.69	1.10	14.13	1.69	45
	254–256	9	$8\ 1/2^{H7}$	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	$3/8^{+0.00197}$	2.04	14.13	1.62	–	–	–	45
	284–286	11 1/4	$8\ 1/2^{H7}$	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	$1/2^{+0.00197}$	2.42	15.87	2.44	–	–	–	50
X130***	182–184	9	$8\ 1/2^{H7}$	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	$1/4^{+0.00197}$	1.02	14.13	0.73	1.10	14.13	1.02	45
	213–215	9	$8\ 1/2^{H7}$	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	$5/16^{+0.00197}$	1.68	14.13	1.69	1.10	14.13	1.69	45
	254–256	9	$8\ 1/2^{H7}$	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	$3/8^{+0.00197}$	2.04	14.13	1.62	–	–	–	45
	284–286	11 1/4	$10\ 1/2^{H7}$	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	$1/2^{+0.00197}$	2.42	15.87	2.44	–	–	–	50
X140*	182–184	9	$8\ 1/2^{H7}$	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	$1/4^{0.00197}$	–	–	–	1.26	16.40	1.14	65
	213–215	9	$8\ 1/2^{H7}$	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	$5/16^{+0.00197}$	1.26	16.40	1.41	1.26	16.40	1.43	65
	254–256	9	$8\ 1/2^{H7}$	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	$3/8^{+0.00197}$	1.26	16.40	2.15	1.26	16.40	2.15	65
	284–286	11 1/4	$10\ 1/2^{H7}$	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	$1/2^{+0.00197}$	1.26	18.13	2.70	–	–	–	75
X150***	182–184	9	$8\ 1/2^{H7}$	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	$1/4^{+0.00197}$	–	–	–	1.26	16.40	1.14	65
	213–215	9	$8\ 1/2^{H7}$	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	$5/16^{+0.00197}$	1.26	16.40	1.41	1.26	16.40	1.43	65
	254–256	9	$8\ 1/2^{H7}$	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	$3/8^{+0.00197}$	1.26	16.40	2.15	1.26	16.40	2.15	65
	284–286	11 1/4	$10\ 1/2^{H7}$	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	$1/2^{+0.00197}$	1.26	18.13	2.70	–	–	–	75

inch																			kg
													i = 100 ... 180* i = 112 ... 200** i = 125 ... 224***			i = 200 ... 355* i = 224 ... 400** i = 250 ... 450***			
X4F..	NEMA	ØNEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X160*	213–215	9	8 1/2^{H7}	0.47	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	5/16$^{+0.00197}$	1.50	18.01	1.69	1.50	18.01	1.69	105
	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.50	18.01	2.31	1.50	18.01	2.51	105
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	19.07	2.58	1.50	19.07	2.58	110
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	20.81	3.50	–	–	–	125
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.50	20.81	2.44	–	–	–	125
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.50	23.17	4.36	–	–	–	140
X170***	213–215	9	8 1/2^{H7}	0.47	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.50	18.01	1.69	1.50	18.01	1.69	105
	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.50	18.01	2.31	1.50	18.01	2.51	105
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	19.07	2.58	1.50	19.07	2.58	110
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	20.81	3.50	–	–	–	125
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.50	20.81	2.44	–	–	–	125
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.50	23.17	4.36	–	–	–	140
X180*	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	19.27	1.13	1.50	19.27	2.35	115
	284–286	11 1/4	8 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	20.33	2.07	1.50	20.33	2.48	115
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	22.07	3.38	1.50	22.07	3.34	120
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	22.07	2.554	–	–	–	130
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	24.43	4.09	–	–	–	140
X190**	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	19.27	1.13	1.50	19.27	2.35	115
	284–286	11 1/4	8 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	20.33	2.10	1.50	20.33	2.48	115
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	22.07	2.88	1.50	22.07	3.34	120
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	22.07	2.55	–	–	–	130
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	24.43	4.09	–	–	–	140
X200*	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	–	–	–	1.65	20.02	1.07	140
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	2.17	21.08	2.12	1.65	21.08	2.12	140
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.17	22.81	3.38	1.65	22.81	3.38	150
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.17	22.81	2.16	–	–	–	160
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.17	25.18	4.09	–	–	–	165
X210**	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	–	–	–	1.65	20.02	1.07	140
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	2.17	21.08	2.12	1.65	21.08	2.12	140
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.17	22.81	3.38	1.65	22.81	3.38	150
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.17	22.81	2.16	–	–	–	160
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.17	25.18	4.09	–	–	–	165
X220*	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	–	–	–	1.97	21.38	1.37	150
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	–	–	–	1.97	22.44	2.28	150
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	24.17	2.87	1.97	24.17	3.46	155
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	24.17	1.84	1.97	24.17	2.44	165
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	26.54	3.81	1.97	26.54	4.09	175
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	29.57	4.89	–	–	–	200
X230**	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	–	–	–	1.97	21.38	1.37	150
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	–	–	–	1.97	22.44	2.28	150
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	24.17	2.87	1.97	24.17	3.46	155
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	24.17	1.84	1.97	24.17	2.44	165
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	26.54	3.81	1.97	26.54	4.09	175
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	29.57	4.89	–	–	–	200
X240*	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	–	–	–	2.17	25.93	3.46	180
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	25.93	1.37	2.17	25.93	2.87	190
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	28.29	3.62	2.17	28.29	4.29	195
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	31.32	4.83	–	–	–	225
X250**	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	–	–	–	2.17	25.93	3.46	180
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	25.93	1.37	2.17	25.93	2.87	190
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	28.29	3.62	2.17	28.29	4.29	195
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	31.32	4.83	–	–	–	225
X260*	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	–	–	–	2.36	28.52	3.46	210
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.95	28.52	2.24	2.36	28.52	2.24	215
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.95	30.89	4.21	2.36	30.89	3.81	225
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.95	33.92	4.87	2.36	33.92	5.06	250
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.95	33.92	4.87	–	–	–	265
X270**	324–326	13	12 1/2^{H7}	0.67	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	–	–	–	2.36	28.52	3.46	210
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.95	28.52	2.24	2.36	28.52	2.24	215
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.95	30.89	4.21	2.36	30.89	3.81	225
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.95	33.92	4.87	2.36	33.92	5.06	250
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.95	33.92	4.87	–	–	–	265

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13.37.4 NEMA motor adapter X2K100 – 210

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).

X2K..

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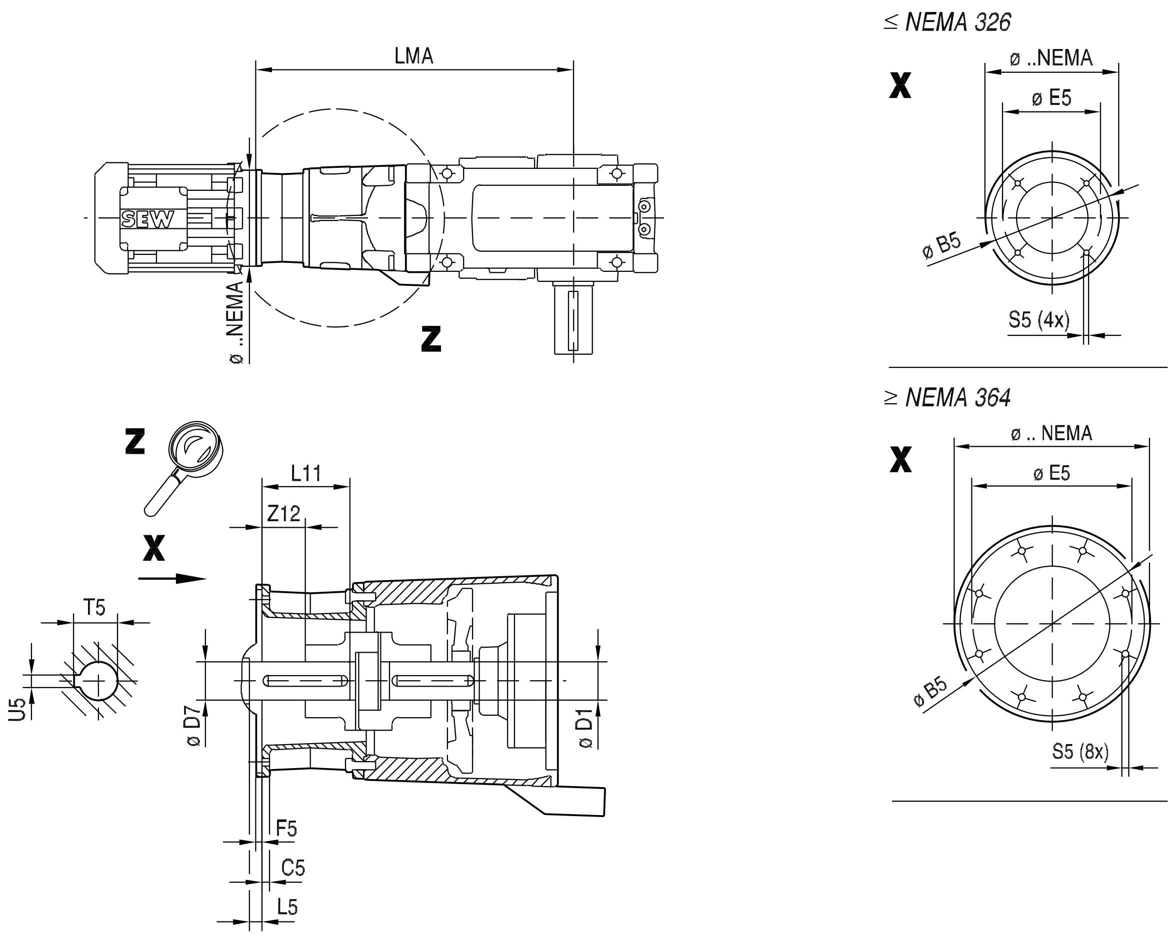

									inch							kg
X2K..	**NEMA**	**Ø NEMA**	**Ø B5**	**C5**	**Ø D7**	**Ø E5**	**F5**	**L5**	**L11**	**S5**	**T5**	**U5**	**Ø D1**	**LMA**	**Z12**	
X100	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	31.22	2.36	45
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	32.09	1.37	60
X110	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	32.01	2.36	45
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	32.87	1.37	60
X120	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	35.91	2.56	60
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	38.19	3.65	70
X130	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	37.32	2.56	60
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	39.61	3.65	70
X140	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	40.71	3.77	90
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	41.89	4.16	110
X150	404–405	13	16^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	42.36	3.77	90
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	43.54	4.16	110
X160	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	49.57	4.32	145
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	49.57	3.68	155
X170	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	51.57	4.32	145
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	51.57	3.68	155
X180	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	54.57	4.15	160
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	54.57	3.68	180

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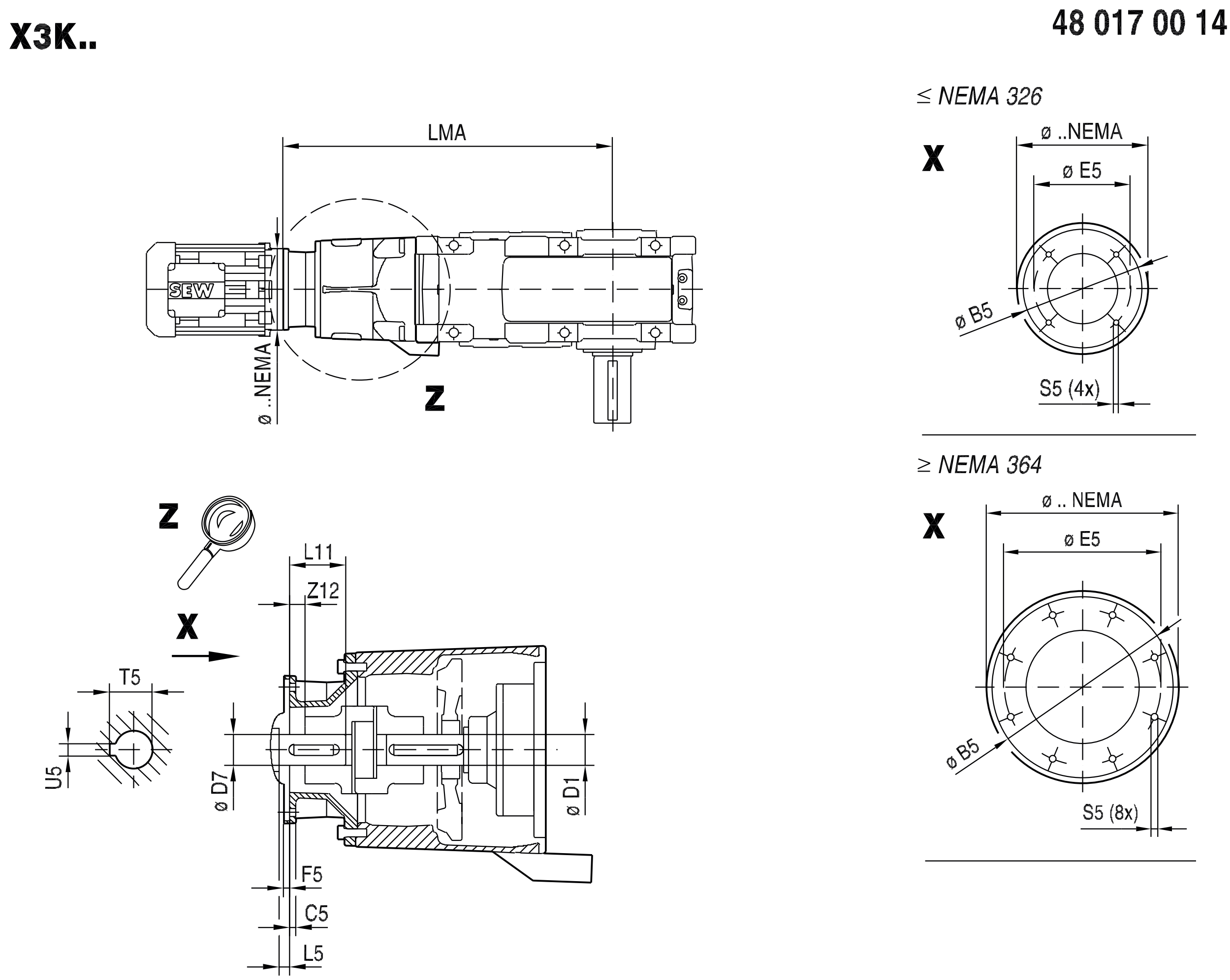
inch																kg
X2K..	**NEMA**	**Ø NEMA**	**Ø B5**	**C5**	**Ø D7**	**Ø E5**	**F5**	**L5**	**L11**	**S5**	**T5**	**U5**	**Ø D1**	**LMA**	**Z12**	
X190	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	$7/8^{+0.00197}$	3.94	55.83	4.15	160
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	$7/8^{+0.00197}$	3.94	55.83	3.68	180
X200	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	$7/8^{+0.00197}$	4.33	58.31	2.07	195
X210	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	$7/8^{+0.00197}$	4.33	59.72	2.07	195

13.37.5 NEMA motor adapter X3K100 – 270

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).



								inch								kg
X3K..	**NEMA**	**Ø NEMA**	**Ø B5**	**C5**	**Ø D7**	**Ø E5**	**F5**	**L5**	**L11**	**S5**	**T5**	**U5**	**Ø D1**	**LMA**	**Z12**	
X100	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	5/16$^{+0.00197}$	1.26	28.78	1.35	30
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.26	28.78	0.54	30
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.26	30.51	2.27	35
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.26	31.50	3.11	45
X110	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	5/16$^{+0.00197}$	1.26	29.57	1.35	30
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.26	29.57	0.54	30
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.26	31.30	2.27	35
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.26	32.28	3.11	45
X120	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	5/16$^{+0.00197}$	1.50	33.23	1.37	35
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.50	33.23	0.97	40
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	34.96	2.40	45
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	35.95	2.90	50
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.50	36.81	3.16	60
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.50	39.09	4.44	70
X130	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.50	34.65	1.37	35
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.50	34.65	0.97	40
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	36.38	2.40	45
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	37.36	2.90	50
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.50	38.23	3.16	60
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.50	40.51	4.44	70

inch																kg
X3K..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	
X140	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	38.50	0.78	55
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	40.24	2.49	60
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	41.22	2.78	65
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	42.09	2.93	75
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	44.37	4.01	85
	444–445	16.6	16^{H7}	0.79	3,38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	1.97	45.55	4.30	105
X150	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	40.16	0.78	55
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	41.89	2.49	60
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	42.87	2.78	65
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	43.74	2.93	75
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	46.02	4.01	85
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	1.97	47.21	4.30	105
X160	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	46.61	1.42	105
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	46.61	1.59	105
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	48.98	3.66	115
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	52.01	5.09	140
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	52.01	4.73	155
X170	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	48.62	1.42	105
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	48.62	1.59	105
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	50.98	3.66	115
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	54.02	5.09	140
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	54.02	4.73	155
X180	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	50.59	1.18	115
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	52.95	3.54	120
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	55.98	4.59	150
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	55.98	4.59	165
X190	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	51.85	1.18	115
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	54.21	3.54	120
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	57.24	4.59	150
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	57.24	4.59	165
X200	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.15	58.74	3.46	145
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	61.77	4.83	175
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	61.77	4.43	185
X210	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.15	60.16	3.46	145
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	63.19	4.82	175
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	63.19	4.31	185
X220	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.35	64.49	3.46	175
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	67.52	4.90	200
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	67.52	4.51	215
X230	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.35	66.06	3.46	175
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	69.09	4.90	200
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	69.09	4.51	215
X240	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	72.68	4.30	220
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	72.68	3.71	230
X250	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	73.58	4.30	220
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	73.58	3.71	230
X260	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	4.33	79.37	4.30	255
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	4.33	79.37	3.71	265
X270	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	4.33	80.75	4.30	255
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	4.33	80.75	3.71	265

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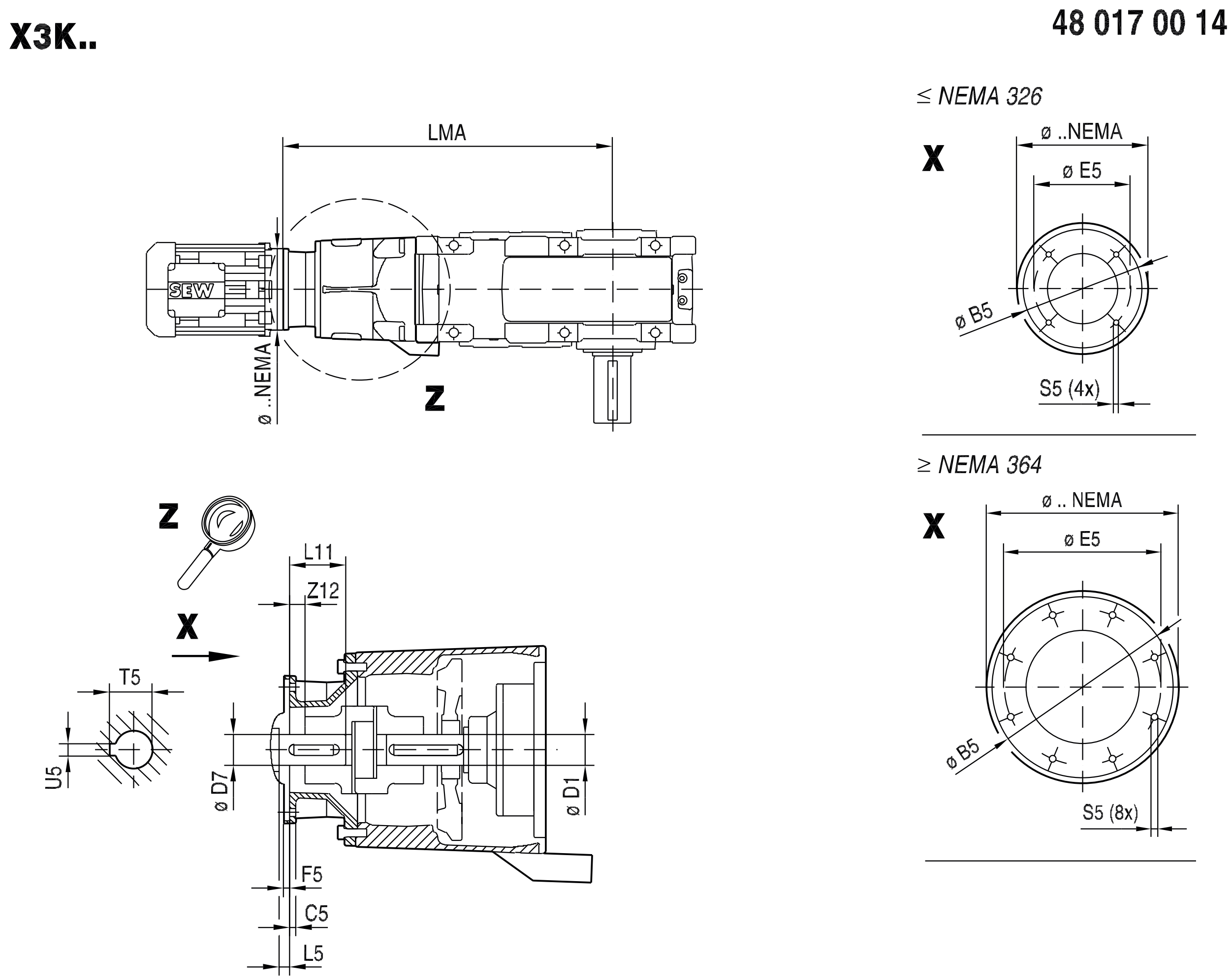
13.37.6 NEMA motor adapter X4K120 – 280

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).



	inch															kg
X4K..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	
X120	182-184	9	$8\ 1/2^{H7}$	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	$1/4^{+0.00197}$	1.10	31.85	1.02	35
	213–215	9	$8\ 1/2^{H7}$	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	$5/16^{+0.00197}$	1.10	31.85	1.27	35
	254–256	9	$8\ 1/2^{H7}$	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	$3/8^{+0.00197}$	1.10	31.85	0.74	40
	284–286	11 1/4	$10\ 1/2^{H7}$	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	$1/2^{+0.00197}$	1.10	33.58	2.11	45
X130	182–184	9	$8\ 1/2^{H7}$	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	$1/4^{+0.00197}$	1.10	33.27	1.02	35
	213–215	9	$8\ 1/2^{H7}$	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	$5/16^{+0.00197}$	1.10	33.27	1.27	35
	254–256	9	$8\ 1/2^{H7}$	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	$3/8^{+0.00197}$	1.10	33.27	0.74	40
	284–286	11 1/4	$10\ 1/2^{H7}$	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	$1/2^{+0.00197}$	1.10	35.00	2.11	45
X140	182–184	9	$8\ 1/2^{H7}$	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	$1/4^{+0.00197}$	1.26	37.60	1.10	50
	213–215	9	$8\ 1/2^{H7}$	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	$5/16^{+0.00197}$	1.26	37.60	0.84	50
	254–256	9	$8\ 1/2^{H7}$	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	$3/8^{+0.00197}$	1.26	37.60	1.05	50
	284–286	11 1/4	$10\ 1/2^{H7}$	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	$1/2^{+0.00197}$	1.26	39.33	2.07	55
X150	182–184	9	$8\ 1/2^{H7}$	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	$1/4^{+0.00197}$	1.26	39.25	1.10	50
	213–215	9	$8\ 1/2^{H7}$	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	$5/16^{+0.00197}$	1.26	39.25	0.84	50
	254–256	9	$8\ 1/2^{H7}$	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	$3/8^{+0.00197}$	1.26	39.25	1.05	50
	284–286	11 1/4	$10\ 1/2^{H7}$	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	$1/2^{+0.00197}$	1.26	40.98	2.07	55
X160	213–215	9	$8\ 1/2^{H7}$	0.47	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	$5/16^{+0.00197}$	1.50	44.41	1.31	80
	254–256	9	$8\ 1/2^{H7}$	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	$3/8^{+0.00197}$	1.50	44.41	1.52	85
	284–286	11 1/4	$10\ 1/2^{H7}$	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	$1/2^{+0.00197}$	1.50	45.47	2.16	85
	324–326	13	$12\ 1/2^{H7}$	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	$1/2^{+0.00197}$	1.50	47.21	2.79	90

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inch																kg
X4K..	**NEMA**	**Ø NEMA**	**Ø B5**	**C5**	**Ø D7**	**Ø E5**	**F5**	**L5**	**L11**	**S5**	**T5**	**U5**	**Ø D1**	**LMA**	**Z12**	
X170	213–215	9	8 1/2^{H7}	0.47	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	5/16$^{+0.00197}$	1.50	46.42	1.31	80
	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.50	46.42	1.52	85
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	47.48	2.16	85
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	49.21	2.79	90
X180	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	51.30	0.97	95
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	52.36	2.04	95
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	54.09	3.22	100
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	54.09	2.20	115
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	56.46	4.09	120
X190	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	52.56	0.99	95
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	53.62	2.04	95
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	55.35	3.22	100
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	55.35	2.20	115
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	57.72	4.09	120
X200	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	54.72	0.99	125
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	55.79	2.04	125
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	57.52	3.22	130
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	57.52	2.00	145
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	59.88	3.97	150
	444–445[1)]	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	1.97	62.91	4.85	180
X210	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	56.14	0.99	125
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	57.20	2.04	125
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	58.94	3.22	130
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	58.94	2.00	145
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	61.30	3.97	150
	444–445[1)]	16.6	16H7	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	1.97	64.33	4.85	180
X220	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	2.36	61.46	0.89	140
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	2.36	62.52	1.99	140
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	64.25	3.23	150
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	64.25	2.20	160
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	66.61	3.97	165
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	69.65	4.83	195
X230	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	2.36	63.03	0.89	140
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	2.36	64.09	1.99	140
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	65.83	3.23	150
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	65.83	2.20	160
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	68.19	3.97	165
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	71.22	4.83	195
X240	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.76	68.70	2.29	170
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	68.70	1.18	180
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	71.06	3.50	185
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	74.09	4.61	215
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	74.09	4.61	225
X250	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.76	69.61	2.29	170
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	69.61	1.18	180
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	71.97	3.50	185
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	75	4.61	215
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	75	4.61	225
X260	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	3.15	76.18	1.18	235
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	3.15	76.18	1.18	235
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.15	78.54	3.54	245
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	81.58	4.81	270
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	81.58	4.61	285
X270	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	3.15	77.56	1.18	235
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	3.15	77.56	1.18	235
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.15	79.92	3.54	245
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	82.95	4.81	270
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	82.95	4.61	285
X280	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	3.15	79.60	1.18	235
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	3.15	79.69	1.18	235
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.15	81.96	3.54	245
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	84.99	4.81	270
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	84.99	4.61	285

1) Contact SEW-EURODRIVE

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13.37.7 NEMA motor adapter X3T100 - 210

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).

X3T..

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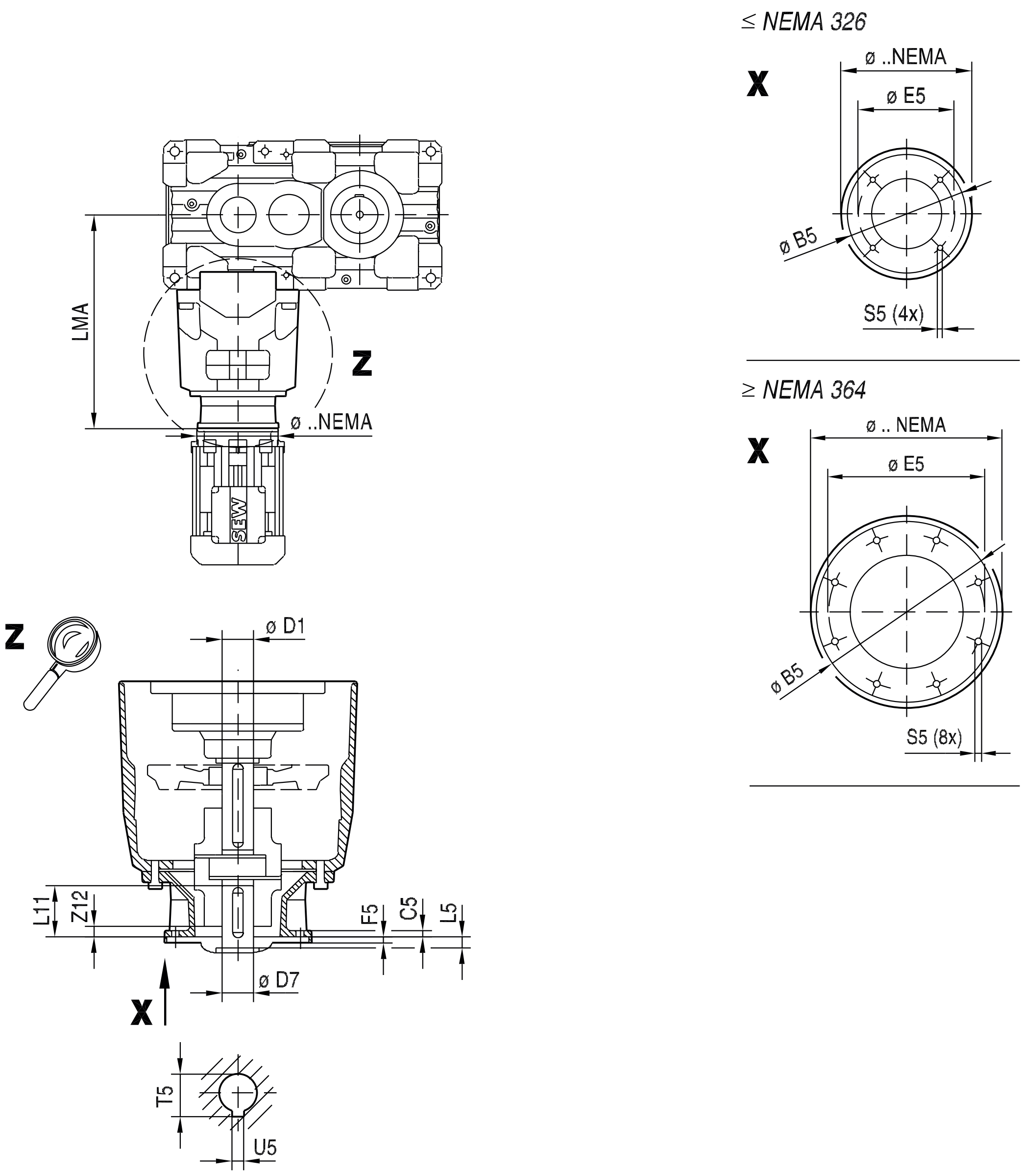

inch																kg
X3T..	NEMA		Ø B5	C5	Ø D7		F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	
X100	213-215	9	8 1/2 H7	0.55	1.37 M7	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	$3/8^{+0.00197}$	1.26	17.83	1.37	30
	254-256	9	8 1/2 H7	0.55	1.62 M7	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	$3/8^{+0.00197}$	1.26	17.83	0.54	30
	284-286	11 1/4	10 1/2 H7	0.59	1.88 M7	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	$1/2^{+0.00197}$	1.26	19.57	2.27	35
	324-326	13	12 1/2 H7	0.71	2.12 M7	11	0.2	1/4	5	0.69 (4x)	2.362	$1/2^{+0.00197}$	1.26	20.55	3.11	45
X110	213-215	9	8 1/2 H7	0.55	1.37 M7	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	$3/8^{+0.00197}$	1.26	17.83	1.37	30
	254-256	9	8 1/2 H7	0.55	1.62 M7	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	$3/8^{+0.00197}$	1.26	17.83	0.54	30
	284-286	11 1/4	10 1/2 H7	0.59	1.88 M7	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	$1/2^{+0.00197}$	1.26	19.57	2.27	35
	324-326	13	12 1/2 H7	0.71	2.12 M7	11	0.2	1/4	5	0.69 (4x)	2.362	$1/2^{+0.00197}$	1.26	20.55	3.11	45

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inch																kg
X3T..	**NEMA**		**Ø B5**	**C5**	**Ø D7**		**F5**	**L5**	**L11**	**S5**	**T5**	**U5**	**Ø D1**	**LMA**	**Z12**	
X120	213-215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.50	20.35	1.27	35
	254-256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.50	20.35	0.97	40
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	22.09	2.38	45
	324-326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	23.07	3.30	50
	364-365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.50	23.94	3.14	60
	404-405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.50	26.22	4.44	70
X130	213-215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.50	20.35	1.27	35
	254-256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.50	20.35	0.97	40
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	22.09	2.38	45
	324-326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	23.07	3.30	50
	364-365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.50	23.94	3.14	60
	404-405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.50	26.22	4.44	70
X140	254-256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.97	23.23	0.78	55
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	24.96	2.50	60
	324-326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	25.95	3.11	65
	364-365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	26.81	2.93	75
	404-405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	29.09	4.01	85
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	1.97	30.28	4.27	105
X150	254-256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.97	23.23	0.78	55
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	24.96	2.50	60
	324-326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	25.95	3.11	65
	364-365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	26.81	2.93	75
	404-405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	29.09	4.01	85
	444-445	16.6	16^{H7}	0.79	3,38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	1.97	30.28	4.27	105
X160	324-326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	27.95	2.28	105
	364-365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	27.95	1.59	105
	404-405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	30.32	3.66	115
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	33.35	5.06	140
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	33.35	4.71	155
X170	324-326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	27.95	2.28	105
	364-365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	27.95	1.59	105
	404-405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	30.32	3.66	115
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	33.35	5.06	140
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	33.35	4.71	155
X180	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	29.17	1.18	115
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	31.54	3.54	120
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	34.57	4.59	150
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	34.57	4.59	165
X190	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	29.17	1.18	115
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	31.54	3.54	120
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	34.57	4.59	150
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	34.57	4.59	165
X200	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.15	34.57	3.46	145
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	37.60	4.85	175
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	37.60	4.46	185
X210	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.15	34.57	3.46	145
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	37.60	4.85	175
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	37.60	4.46	185

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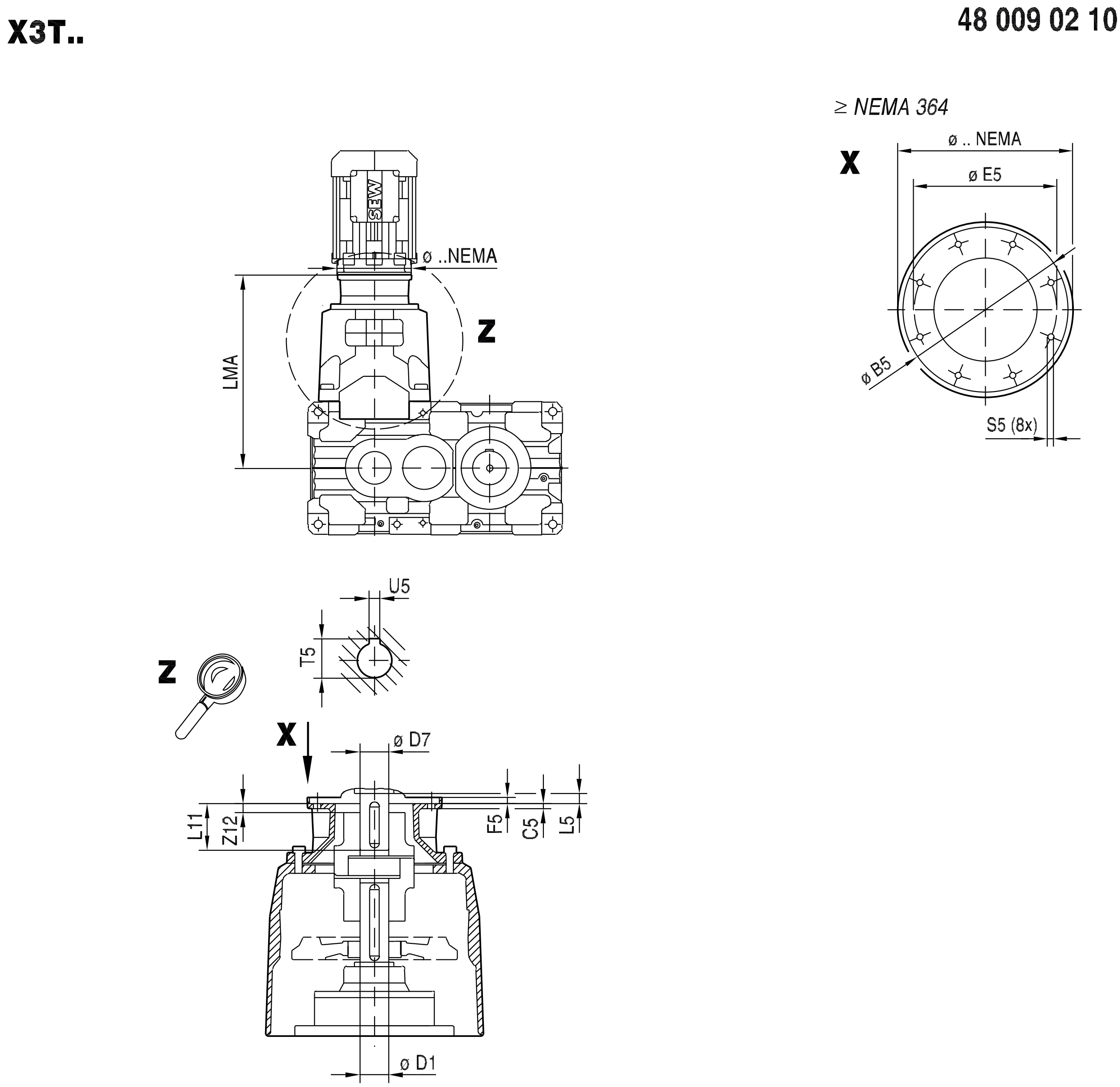
13.37.8 NEMA motor adapter X3T220 - 250

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).



X3T..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
	inch															
X220	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.35	37.17	3.46	175
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	40.20	4.90	200
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	40.20	4.51	215
X230	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.35	37.17	3.46	175
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	40.20	4.90	200
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	40.20	4.51	215
X240	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	42.13	4.27	220
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	42.13	3.68	230
X250	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	42.13	4.27	220
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	42.13	3.68	230

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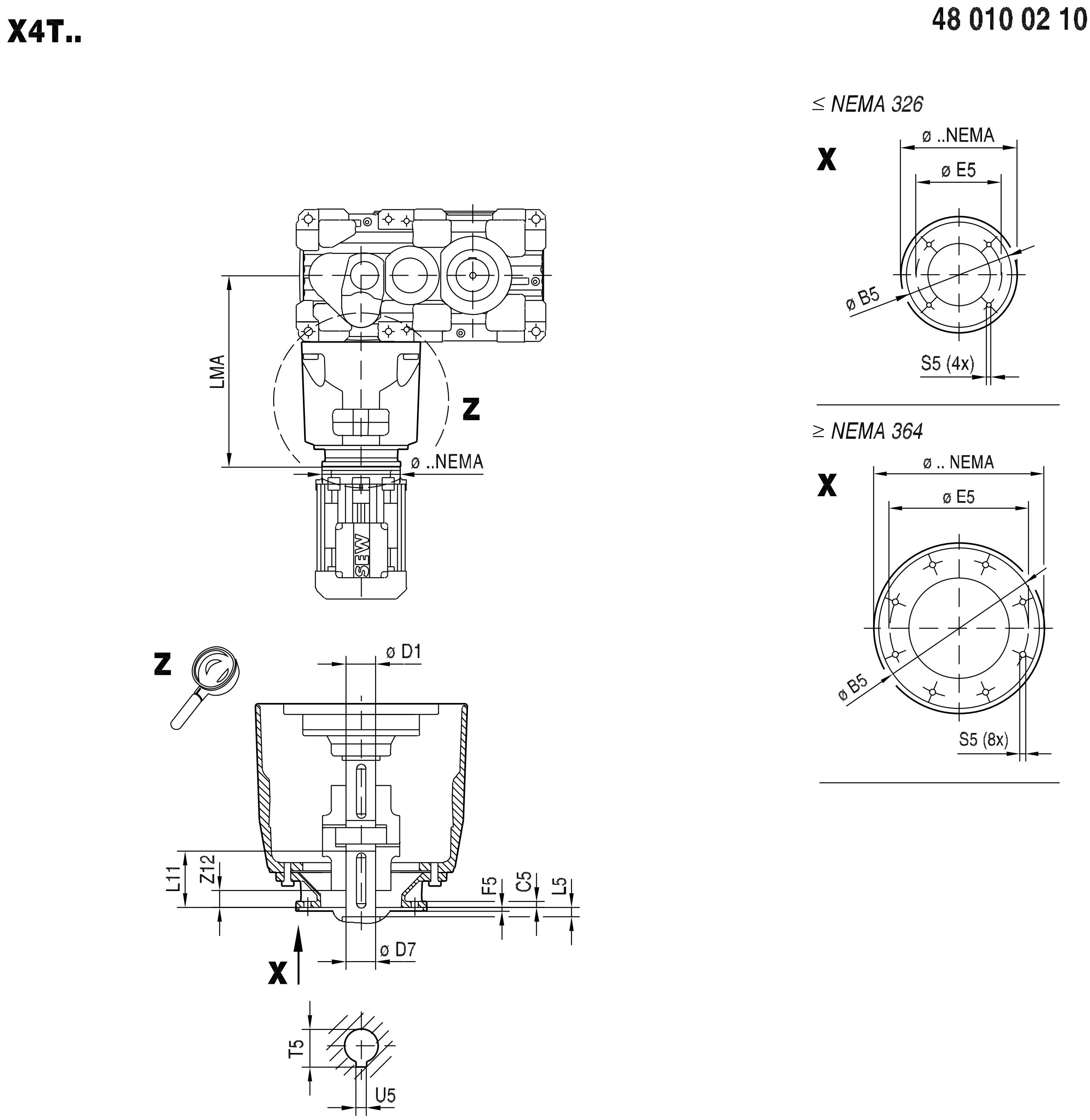
13.37.9 NEMA motor adapter X4T120 - 210

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).



								inch								kg
X4T..	**NEMA**	**Ø NEMA**	**Ø B5**	**C5**	**Ø D7**	**Ø E5**	**F5**	**L5**	**L11**	**S5**	**T5**	**U5**	**Ø D1**	**LMA**	**Z12**	
X120	182-184	9	8 1/2^{H7}	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.10	18.98	1.02	35
	213-215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.10	18.98	1.27	35
	254-256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.10	18.98	0.74	40
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.10	20.71	2.11	45
X130	182-184	9	8 1/2^{H7}	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.10	18.98	1.02	35
	213-215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.10	18.98	1.27	35
	254-256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.10	18.98	0.74	40
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.10	20.71	2.11	45

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inch																kg
X4T..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	
X140	182-184	9	8 1/2^{H7}	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	22.32	1.10	50
	213-215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	22.32	0.84	50
	254-256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.26	22.32	1.05	50
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.26	24.06	2.07	55
X150	182-184	9	8 1/2^{H7}	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	22.32	1.10	50
	213-215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	22.32	0.84	50
	254-256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.26	22.32	1.05	50
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.26	24.06	2.07	55
X160	213-215	9	8 1/2^{H7}	0.47	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.50	25.75	1.31	80
	254-256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.50	25.75	1.52	85
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	26.81	2.16	85
	324-326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	28.54	2.79	90
X170	213-215	9	8 1/2^{H7}	0.47	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.50	25.75	1.31	80
	254-256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.50	25.75	1.52	85
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	26.81	2.16	85
	324-326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	28.54	2.79	90
X180	254-256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	29.88	0.99	95
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	30.95	2.04	95
	324-326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	32.68	3.22	100
	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	32.68	2.20	115
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	35.04	4.09	120
X190	254-256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	29.88	0.99	95
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	30.95	2.04	95
	324-326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	32.68	3.22	100
	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	32.68	2.20	115
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	35.04	4.09	120
X200	254-256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	30.55	0.97	125
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	31.61	2.03	125
	324-326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	33.35	3.22	130
	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	33.35	2.00	145
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	35.71	3.97	150
	444-445[1)]	16.6	16H7	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	1.97	38.74	4.85	180
X210	254-256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	30.55	0.99	125
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	31.61	2.03	125
	324-326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	33.35	3.22	130
	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	33.35	2.00	145
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	35.71	3.97	150
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	1.97	38.74	4.85	180

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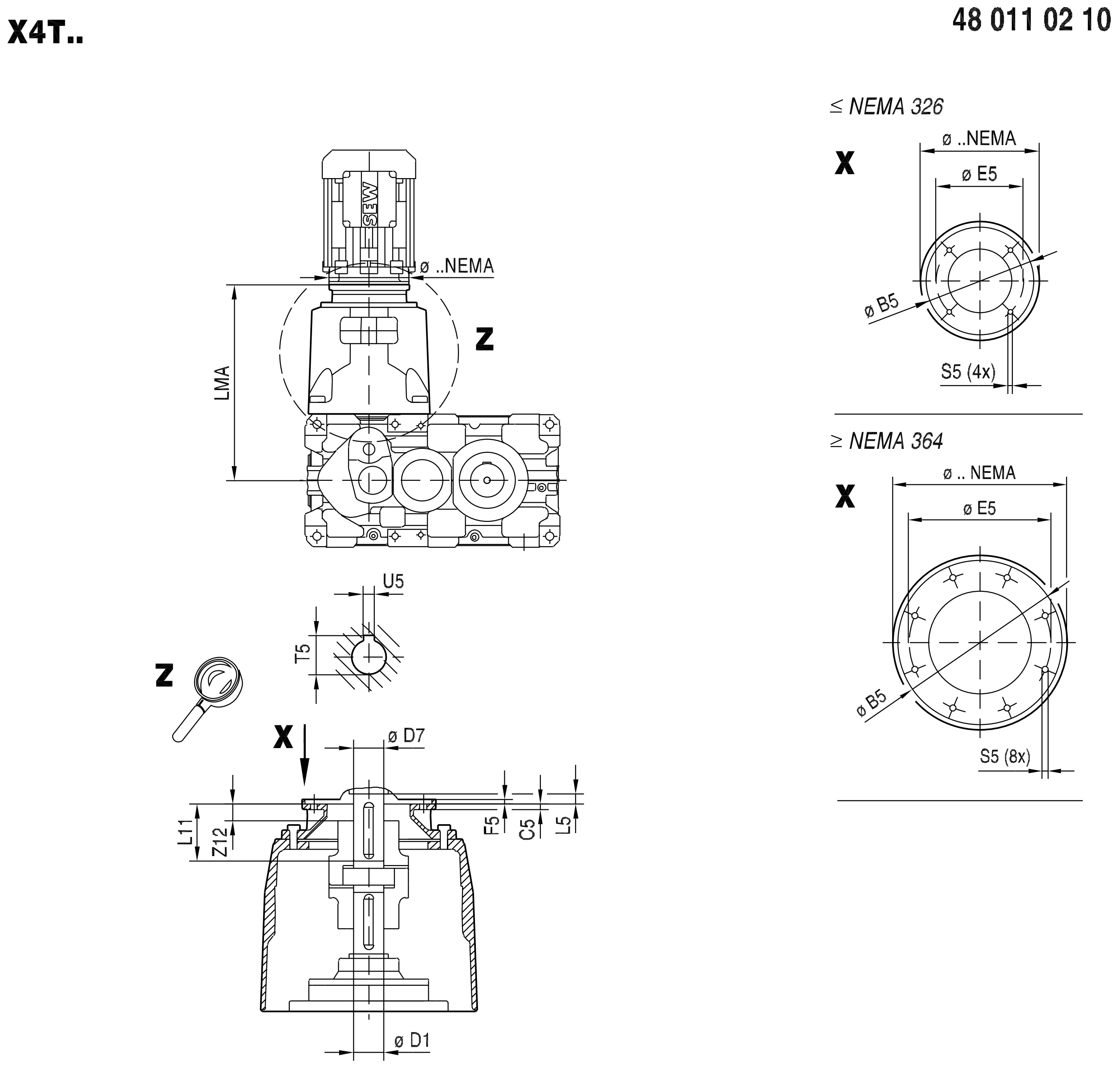
13.37.10 NEMA motor adapter X4T220 – 250

For further information, refer to chapter "Motor adapter /MA" (→ 🗎 127).



								inch								kg
X4T..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	
X220	254-256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	2.36	34.13	0.89	140
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	2.36	35.20	2.02	140
	324-326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	36.93	3.23	150
	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	36.93	2.20	160
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	39.29	3.97	165
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	42.32	4.85	195
X230	254-256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	2.36	34.13	0.89	140
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	2.36	35.20	2.02	140
	324-326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	36.93	3.23	150
	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	36.93	2.20	160
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	39.29	3.97	165
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	42.32	4.85	195

inch																	kg
X4T..	**NEMA**	**Ø NEMA**	**Ø B5**	**C5**	**Ø D7**	**Ø E5**	**F5**	**L5**	**L11**	**S5**	**T5**	**U5**	**Ø D1**	**LMA**	**Z12**		
X240	324-326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.76	38.15	2.29		170
	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	38.15	1.18		180
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	40.51	3.50		185
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	43.54	4.59		215
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	43.54	4.59		225
X250	324-326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.76	38.15	2.29		170
	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	38.15	1.18		180
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	40.51	3.50		185
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	43.54	4.59		215
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	43.54	4.59		225

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14 Address directory SEW-EURODRIVE

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	Bahía Blanca	SEW EURODRIVE ARGENTINA S.A. O'Higgins 95, 1er Piso A (B8000IVA) Bahía Blanca Prov. de Buenos Aires	Tel. +54 291-451-7345 http://www.sew-eurodrive.com.ar sewbb@sew-eurodrive.com.ar
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	Brisbane	SEW-EURODRIVE PTY. LTD. 1 /34 Collinsvale St Rocklea, Queensland, 4106	Tel. +61 7 3276 5100 Fax +61 7 3276 5102 enquires@sew-eurodrive.com.au
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Belarus			
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Service Competence Center	Industrial Gears	SEW-EURODRIVE n.v./s.a. Rue de Parc Industriel, 31 6900 Marche-en-Famenne	Tel. +32 84 219-878 Fax +32 84 219-879 http://www.sew-eurodrive.be service-IG@sew-eurodrive.be
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	Montreal	SEW-EURODRIVE CO. OF CANADA LTD. 2555 Rue Leger Lasalle, PQ H8N 2V9	Tel. +1 514 367-1124 Fax +1 514 367-3677 a.peluso@sew-eurodrive.ca

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Egypt			
Sales Service	Cairo	Copam Egypt for Engineering & Agencies Building 10, Block 13005, First Industrial 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
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	Oulu	SEW Industrial Gears Oy Paulaharjuntie 22 90530 Oulu	Tel. +358 201 589 300 sew@sew.fi
	Vaasa	SEW Industrial Gears Oy Asemakatu 7 65100 Vaasa	Tel. +358 201 589-300 sew@sew.fi
	Kuopio	SEW Industrial Gears Oy Leväsentie 23 70780 Kuopio	Tel. +358 201 589-300 sew@sew.fi
	Tampere	SEW Industrial Gears Oy Hermiankatu 3 A 33720 Tampere	Tel. +358 201 589-300 sew@sew.fi

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Production	Forbach	SEW-USOCOME Zone industrielle Technopôle Forbach Sud B. P. 30269 57604 Forbach Cedex	Tel. +33 3 87 29 38 00
	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
Technical Offices	Alsace	SEW-USOCOME	Tel. +33 3 89 74 51 62 Fax +33 3 89 76 58 71
	Aquitaine / Charentes	SEW-USOCOME	Tel. +33 5 57 26 39 08 Fax +33 5 57 26 39 09
	Auvergne / Limousin	SEW-USOCOME	Tel. +33 5 55 20 12 10 Fax +33 5 55 20 12 11
	Lower Normandie	SEW-USOCOME	Tel. +33 2 31 37 92 86 Fax +33 2 31 74 68 15
	Brittany	SEW-USOCOME	Tel. +33 2 40 78 42 04 Fax +33 2 40 78 42 20
	Burgundy	SEW-USOCOME	Tel. +33 3 85 49 92 18 Fax +33 3 85 49 92 19
	Centre / Poitou	SEW-USOCOME	Tel. +33 2 40 78 42 11 Fax +33 2 40 78 42 20
	Champagne-Ardenne	SEW-USOCOME	Tel. +33 3 25 79 63 24 Fax +33 3 25 79 63 25
	Franche-Comté	SEW-USOCOME	Tel. +33 3 84 68 57 71 Fax +33 3 84 68 57 95
	Île-de-France East / Aisne	SEW-USOCOME	Tel. +33 3 23 62 81 24 Fax +33 3 23 62 81 44
	Île-de-France North / Picardie	SEW-USOCOME	Tel. +33 1 41 05 92 74 Fax +33 1 41 05 92 75
	Île-de-France South	SEW-USOCOME	Tel. +33 1 60 81 10 56 Fax +33 1 60 81 10 57
	Lorraine / Alsace North	SEW-USOCOME	Tel. +33 3 83 96 28 04 Fax +33 3 83 96 28 07
	Midi-Pyrénées / Roussillon	SEW-USOCOME	Tel. +33 5 61 08 15 85 Fax +33 5 61 08 16 44
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	Provence-Alpes-Côte d’Azur	SEW-USOCOME	Tel. +33 4 91 18 00 11 Fax +33 4 91 18 00 12
	Rhône-Alpes East	SEW-USOCOME	Tel. +33 4 75 05 65 95 Fax +33 4 75 05 65 96
	Rhône-Alpes North	SEW-USOCOME	Tel. +33 4 74 99 60 03 Fax +33 4 74 99 60 15
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Gabon			
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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
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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
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	Erfurt	SEW-EURODRIVE GmbH & Co KG Dubliner Straße 12 99091 Erfurt	Tel. +49 361 21709-70 Fax +49 361 21709-79 tb-erfurt@sew-eurodrive.de
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	Münster	SEW-EURODRIVE GmbH & Co KG Hafenplatz 4 48155 Münster	Tel. +49 251 41475-11 Fax +49 251 41475-50 tb-muenster@sew-eurodrive.de
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	Regensburg	SEW-EURODRIVE GmbH & Co KG Im Gewerbepark A15 93059 Regensburg	Tel. +49 941 46668-68 Fax +49 941 46668-66 tb-regensburg@sew-eurodrive.de
	Rhine-Main	SEW-EURODRIVE GmbH & Co KG Niederstedter Weg 5 61348 Bad Homburg	Tel. +49 6172 9617-0 Fax +49 6172 9617-50 tb-rheinmain@sew-eurodrive.de
	Stuttgart	SEW-EURODRIVE GmbH & Co KG Friedrich-List-Straße 46 70771 Leinfelden-Echterdingen	Tel. +49 711 16072-0 Fax +49 711 16072-72 tb-stuttgart@sew-eurodrive.de
	Zwickau / Meerane	SEW-EURODRIVE GmbH & Co KG Dänkritzer Weg1 08393 Meerane	Tel. +49 3764 7606-0 Fax +49 3764 7606-20 tb-zwickau@sew-eurodrive.de
Great Britain			
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	Drive Service Hotline / 24 Hour Service		Tel. 01924 896911
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
Technical Offices	Midlands	SEW-EURODRIVE Ltd. 5 Sugar Brook court Aston Road Bromsgrove Worcs. B60 3EX	Tel. +44 1527 877-319 Fax +44 1527 575-245
	Scotland	SEW-EURODRIVE Ltd. No 37 Enterprise House Springkerse Business Park Stirling FK7 7UF	Tel. +44 17 8647-8730 Fax +44 17 8645-0223
	Northern Ireland	Heyn Engineering (NI) Ltd. 1 Corry Place, Belfast, BT3 9AH	Tel. +44 02890350022 Fax +44 02890350012 http://www.heyn.co.uk info@heyn.co.uk
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
Technical Office	Thessaloniki	Christ. Boznos & Son S.A. Asklipiou 26 562 24 Evosmos, Thessaloniki	Tel. +30 2 310 7054-00 Fax +30 2 310 7055-15 info@boznos.gr

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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
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	Bellary	SEW-EURODRIVE India Private Limited Door no-56/279 Ward No-15, Sindhigi compound, Near Raghavendra talkies, Bellary-583101, Karnataka	Tel. +91 77609 88668 salesbellary@seweurodriveindia.com
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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
	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

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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
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Drive Center	Bologna	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via della Grafica, 47 40064 Ozzano dell'Emilia (Bo)	Tel. +39 051 65-23-801 Fax +39 02 96 980 499 bologna@sew-eurodrive.it
	Caserta	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Viale Carlo III Km. 23,300 81020 S. Nicola la Strada (Caserta)	Tel. +39 0823 219011 Fax +39 02 96 980 599 caserta@sew-eurodrive.it
	Pescara	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Viale Europa,132 65010 Villa Raspa di Spoltore (PE)	Tel. +39 085 41-59-427 Fax +39 02 96 980 699 pescara@sew-eurodrive.it
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	Verona	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via Antonio Meucci, 5 37042 - Caldiero (VR)	Tel. +39 045 89-239-11 Fax +39 02 96 980 814 verona@sew-eurodrive.it
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Japan			
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Latvia			
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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			
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Luxembourg			
representation: Belgium			
Macedonia			
Sales	Skopje	Boznos DOOEL Dime Anicin 2A/7A 1000 Skopje	Tel. +389 23256553 Fax +389 23256554 http://www.boznos.mk
Malaysia			
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Namibia			
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Netherlands			
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	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
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Nigeria			
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Pakistan			
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Paraguay			
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Peru			
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Philippines			
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Poland			
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	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
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	Radom	SEW-EURODRIVE Polska Sp.z.o.o. ul. Słowackiego 84 26-600 Radom	Tel. +48 48 679 47 00 Fax +48 48 679 47 09
	Rzeszów	SEW-EURODRIVE Polska Sp.z.o.o. ul. Armii Krajowej 80 35-307 Rzeszów	Tel. +48 17 784 27 00 Fax +48 17 784 27 09
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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
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representation: South Africa			
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Slovakia			
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	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

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	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
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	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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	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
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	Daejeon	SEW-EURODRIVE KOREA CO., LTD. No.302 Hongin officetel, 28, Daehak-ro, Yuseong-gu, Daejeon, Zip 305-710	Tel. +82 42 828-6461 Fax +82 42 828-6463
	Gwangju	SEW-EURODRIVE KOREA CO., LTD. 5fl., Hyundai B/D B, 40, Bungmun-daero, Buk-gu, Gwangju, Zip 500-855	Tel. +82 62 511-9172 Fax +82 62 511-9174
	Seoul	SEW-EURODRIVE KOREA CO., LTD. No.1804 Ace Hiend Tower 8th, 84, Gasan digital 1-ro, Geumcheon-gu, Seoul, Zip 153-797	Tel. +82 2 862-8051 Fax +82 2 862-8199
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	Bern / Solothurn	Rudolf Bühler Muntersweg 5 2540 Grenchen	Tel. +41 32 652 2339 Fax +41 32 652 2331
	Central Switzerland, Aargau	Armin Pfister Stierenweid 4950 Huttwil, BE	Tel. +41 62 962 54 55 Fax +41 62 962 54 56
	Zürich, Ticino	Gian-Michele Muletta Fischerstrasse 61 8132 Egg bei Zürich	Tel. +41 44 994 81 15 Fax +41 44 994 81 16
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	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
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	Hat Yai	SEW-EURODRIVE (Thailand) Ltd. Hadyai Country Home Condominium 59/101 Soi.17/1 Rachas-Utid Road. Hadyai, Songkhla 90110	Tel. +66 74 359441 Fax +66 74 359442 sewthailand@sew-eurodrive.com
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Technical Offices	Adana	SEW-EURODRİVE Hareket	Tel. +90 533 491 81 77 / +90 542 660 34 89 Fax +90 262 999 10 09
	Ankara	SEW-EURODRİVE Hareket Sistemleri San. Ve TIC. Ltd. Sti 1368.Cadde Eminel İşmerkezi No: 18/68 İvogsan / Ankara	Tel. +90 312 385 33 90 Fax +90 312 385 32 58
	Bursa	SEW-EURODRİVE Hareket Sistemleri San. Ve TIC. Ltd. Sti Üçevler Mah. Bayraktepe Sok. Akay İş Merkezi Kat:3 No: 7/6 Nilüfer / Bursa	Tel. +90 224 443 45 60 Fax +90 224 443 45 58
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Assembly Sales Service	Northeast Region	SEW-EURODRIVE INC. Pureland Ind. Complex 2107 High Hill Road, P.O. Box 481 Bridgeport, New Jersey 08014	Tel. +1 856 467-2277 Fax +1 856 845-3179 csbridgeport@seweurodrive.com
	Midwest Region	SEW-EURODRIVE INC. 2001 West Main Street Troy, Ohio 45373	Tel. +1 937 335-0036 Fax +1 937 332-0038 cstroy@seweurodrive.com
	Southwest Region	SEW-EURODRIVE INC. 3950 Platinum Way Dallas, Texas 75237	Tel. +1 214 330-4824 Fax +1 214 330-4724 csdallas@seweurodrive.com
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	Hanoi	MICO LTD Quảng Trị - North Vietnam / All sectors except Construction Materials 8th Floor, Ocean Park Building, 01 Dao Duy Anh St, Ha Noi, Viet Nam	Tel. +84 4 39386666 Fax +84 4 3938 6888 nam_ph@micogroup.com.vn http://www.micogroup.com.vn

15 Abbreviation key

α	Application angle of the radial load	°
f_1	Altitude factor (= correction factor for calculation of the thermal rating of the gear unit)	-
F_A	Axial load	kN
F_F	Peak load factor	-
F_R	Overhung load	N
F_{R1}	Overhung load on HSS (Distance from the shaft shoulder must be given)	kN
F_{R2}	Overhung load on LSS (Distance from the shaft shoulder must be given)	kN
F_S	Service factor = M_{N2} / M_{K2} = P_{N1} / P_{K1}	-
$F_{S\ min}$	Application-specific service factor	-
F_{start}	Startup factor	-
f_z	Transmission element factor	-
η	Efficiency	-
H	Installation altitude above sea level	m
HSS	High-speed gear unit shaft (usually input shaft)	-
i	Gear ratio	-
i_{ex}	Exact gear unit ratio	-
i_N	Nominal gear unit ratio	-
LSS	Low-speed gear unit shaft (usually output shaft)	-
$L_{h\ min}$	Required bearing service life	h
M_{K1}	Input torque (= operating torque on HSS)	kNm
$M_{K1\ max}$	Peak input torque (= peak operating torque on HSS)	kNm
M_{K2}	Output torque (= operating torque on LSS)	kNm
$M_{K2\ max}$	Peak output torque (= peak operating torque on LSS)	kNm
$M_{K2\ per}$	Permitted peak output torque	kNm
M_M	Nominal motor torque	kNm
M_{N2}	Nominal gear unit torque	kNm
n_1	Input speed (HSS)	rpm
n_2	Output speed (LSS)	rpm
n_M	Motor speed	rpm
P_{K1}	Operating power on HSS	kW
$P_{K1\ max}$	Peak operating power on HSS	kW
$P_{K1\ per}$	Permitted peak operating power on HSS	kW
P_{K2}	Operating power on LSS	kW
P_M	Nominal motor power	kW
P_T	Nominal gear unit power (referring to HSS)	kW
P_{TH}	Thermal rating of the gear unit at defined ambient conditions	kW

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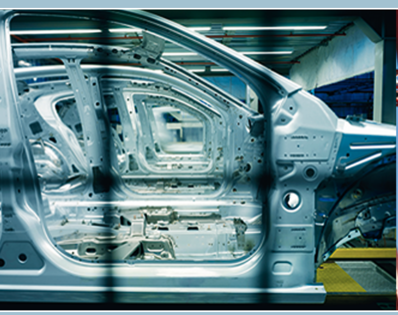

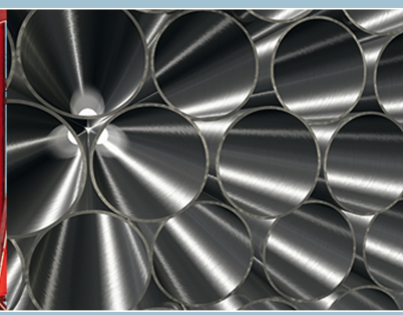


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