


7 Selections and dimensions - Overview

7.1 Possible combinations table

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

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

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

R77, $n_e = 1700$ rpm										7250 lb-in	
n_a rpm	T_{aMax} lb-in	$F_{Ra}^{1)}$ lb	ϕ (/R)	i	DR63 DRS71	DRN80M DRN90S	DRN90L	DRN100L DRN100LM	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
 3											
7.2	820	9920	6.4	195.24*							
8.4	820	9920	6.5	166.59							

Gear ratio; * indicates a finite ratio.

Dash (-) means reduced backlash (/R) option is not possible.

A numeric value represents the rotational clearance (in angular minutes) for gear unit that contains reduced backlash option.

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

Maximum output torque of the gear unit

Output speed

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



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



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

9007212631946763US



Number of gear stages (1, 2 or 3 stages). ^{the}Snuggler parallel-shaft gear units (F-series) and helical gear units (R-series) have 2 or 3 stages, depending on the ratio. RX helical, helical-bevel (K-series), helical-worm (S-series) and SPIROPLAN[®] (W-series) gear units do not depend on the ratio and have the following stages:

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



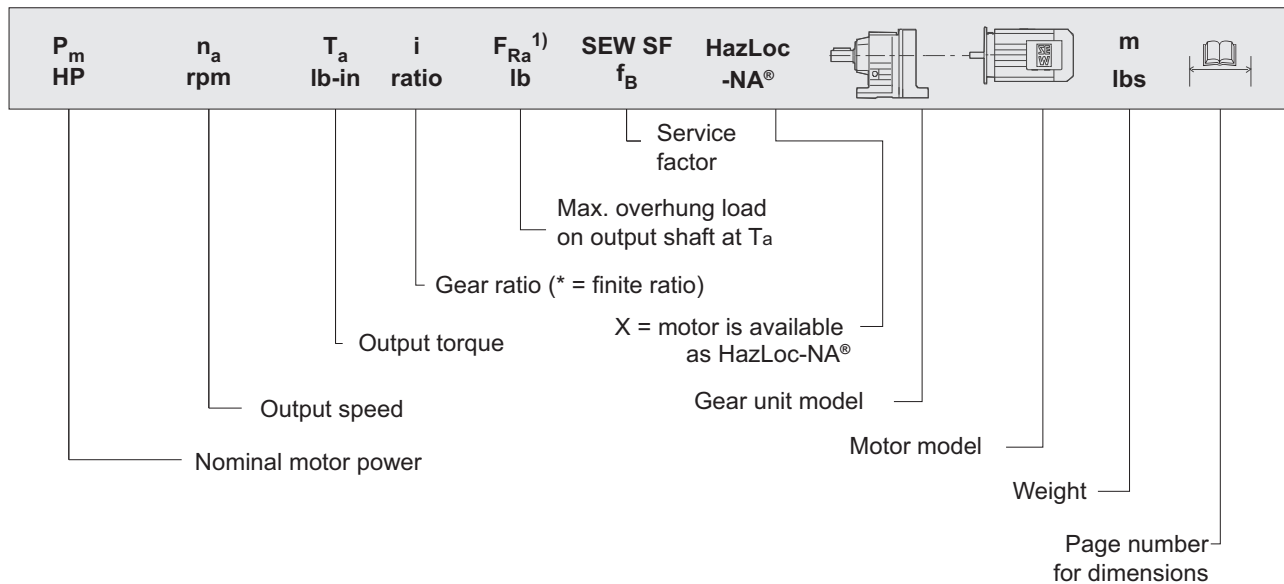
Stages of the compound gear unit ratios (2-2, 3-3, 2-3 or 3-2 stages). The number of stages of the smaller gear unit is shown on the right; the number of stages of the larger gear unit is shown on the left. The smaller gear unit of the compound is always a helical gear unit (RF-series).

7.2 Selections table

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

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

7.2.1 Standard output speeds:



18014410461306123US

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

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

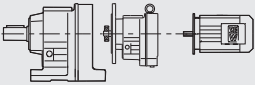

INFORMATION



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

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

7.2.2 Extremely low output speeds (compound gearmotors):

T _{a max} lb-in	n _a rpm	i	F _{Ra} ¹⁾ lb		m lbs	
Maximum output torque	Output speed	Gear ratio (* = finite ratio)	Max. overhung load on output shaft at T _{aMax}	Gear unit model	Motor model	Weight
						Page number for dimensions

9007211206567307US

- 1)
- Overhung load value applies to **foot-mounted** gear units with **solid** shaft; overhung loads for hollow shaft and other design types are available upon request.
- In addition, the F_{Ra} value shown assumes the gearmotor is producing full output torque, T_{aMax}. However, if the gearmotor is producing less than 100% of T_{aMax}, the value of F_{Ra} may increase.

INFORMATION



In drives for particularly low output speeds (compound gearmotors), the motor power must be limited based upon the maximum output torque of the gear unit. Torque limiting protection is recommended. See (→ 58)

7.3 Dimension sheet information

7.3.1 Tolerances

Shaft heights

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

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

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

7

Solid Shafts

INCH

METRIC

Diameter tolerance:

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

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

Hollow Shafts

Diameter tolerance:

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

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

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

Flanges

Centering shoulder tolerance:

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

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

Multiple-spline shafts

D _m	Measuring roller diameter
M _e	Check size

7.3.2 Centering Bores

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

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

7.3.3 Symbols for scope of delivery



Standard parts supplied by SEW-EURODRIVE.



Standard parts not supplied by SEW-EURODRIVE.

7.3.4 Breather valves

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

7.3.5 Shrink disk connection

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

- Surface roughness $R_z \leq 16 \mu\text{m}$
- Elastic limit of the customer shaft material R_e and/or $R_{p0.2} \geq 305 \text{ N/mm}^2$
- Customer shaft should be a solid shaft. Please contact SEW-EURODRIVE if you desire to use a hollow shaft for the customer shaft.

7.3.6 Splined hollow shaft

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

7.3.7 Rubber buffer for FA/FH/FV/FT

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

7.3.8 Motor options

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

7.3.9 Special designs

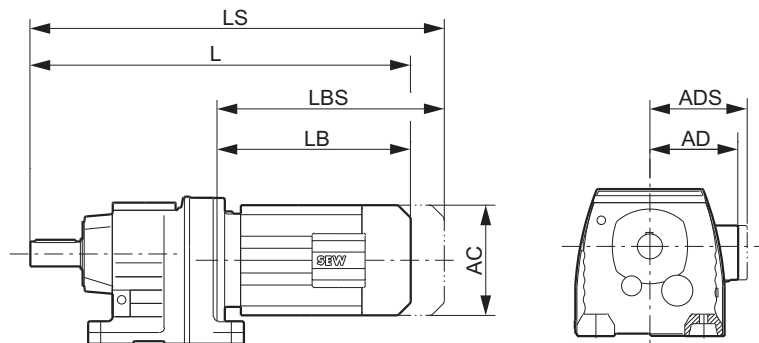
The terminal box dimensions in special designs might vary from the standard

7.3.10 Torque Arms

For hollow shaft units of K, S, and W, the torque arm dimensions are shown. To specify the angle of degrees when mounted, see (→ 66)

7.3.11 Gearmotor dimension drawings

The dimension drawings of the gearmotors are described below:



8671113739

- L Total length of gearmotor
- LS Total length of gearmotor including brake
- LB Length of motor
- LBS Length of brakemotor
- AC Diameter of motor
- AD Center of motor shaft to top part of terminal box
- ADS Center of brakemotor shaft to top part of terminal box