7 Important information on selection tables and dimension drawings

7.1 Possible geometrical combinations

7.1.1 Structure of the combination tables

These tables show geometrically possible combinations of single-speed gear units and AC (brake) motors. Please contact SEW-EURODRIVE for information on pole-changing AC (brake) motors.

For each combination, the input speed n_e = 1400 min^{-1} and the output speed n_a, the maximum output torque M_{amax}, the permitted overhung load F_{RA} at maximum output torque (valid for foot-mounted gear units with solid shaft), the torsion angle φ (/R) and the gear unit ratio are specified.

Only if a value is specified for the torsion angle $\varphi_{(/R)}$, is the gear unit with this gear unit ratio available with "reduced backlash (/R)" option. The numerical value specifies the rotational clearance of the reduced backlash version in angular minutes ' (tolerance ± 2 angular minutes).

R77, n_e=1400 min^{-1}											820Nm
n_a min^{-1}	M_{amax} Nm	F_{Ra} N	$\varphi_{(/R)}$ '	i	DRN 63MS 63M 71MS ...	DRN 80M 90S	DRN 90L	DRN 100LS 100L	DRN 112M	DRN 132S 132M	DRN 132L 160M 160L
					3						
7.2	820	9920	7	195.24*							
8.4	820	9920	7	166.59							

Gear unit ratio: A value marked with * indicates finite gear unit ratio.

No data (-): The reduced backlash option (/R) is not possible for this i value.
Numerical value given: Option reduced backlash is possible.
The numerical value specifies the rotational clearance of the reduced backlash version in angular minutes with a tolerance of ± 2 angular minutes.

Permitted overhung load at maximum output torque M_{amax}
The value refers to the foot-mounted gear unit design with solid shaft

Maximum output torque of the gear unit

Output speed

Combination with the motor in the header is possible

Combination with the motor in the header is not possible

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2 Number of stages of the gear ratios (1, 2 or 3 stages). Helical gear units (R) – with the exception of the single-stage RX gear units – and parallel-shaft helical gear units (F) have 2 or 3 stages, depending on the gear unit ratio.

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The RX helical, helical-bevel, helical-worm and SPIROPLAN® gear units (RX, K, S and W) have a defined number of stages:

- RX helical gear units: RX.. always single-stage
- Helical-bevel gear unit: K..7 always 3-stage, K..9 always 2-stage
- Helical-worm gear units: always 2-stage
- SPIROPLAN® gear units: W..10 to W..30 always single-stage, W..37 and W..47 always 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 primary gear unit (= small gear unit) is given on the right; the number of stages of the output gear unit (= large gear unit) is given on the left. The primary gear unit of the compound gear unit is always a helical gear unit.

7.2 Selection tables for gearmotors

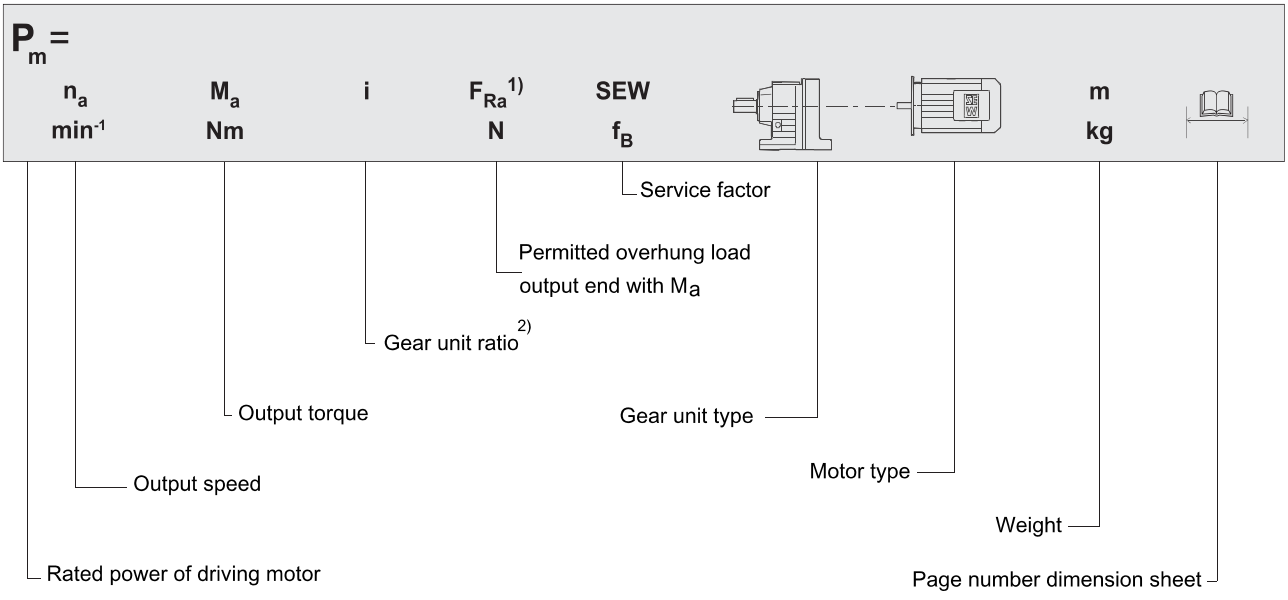
7.2.1 Structure of the selection tables

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

There are two types of selection tables:

1. For standard output speeds, sorted by the rated power P_m of the driving motor in kW.
2. For extremely low output speeds, always compound gearmotors sorted by the maximum permitted output torque M_{amax} in Nm.

Table for standard output speeds:



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[1] Overhung load for foot-mounted gear units with solid shaft; overhung loads for other design types upon request

[2] A value marked with * indicates finite gear unit ratio.

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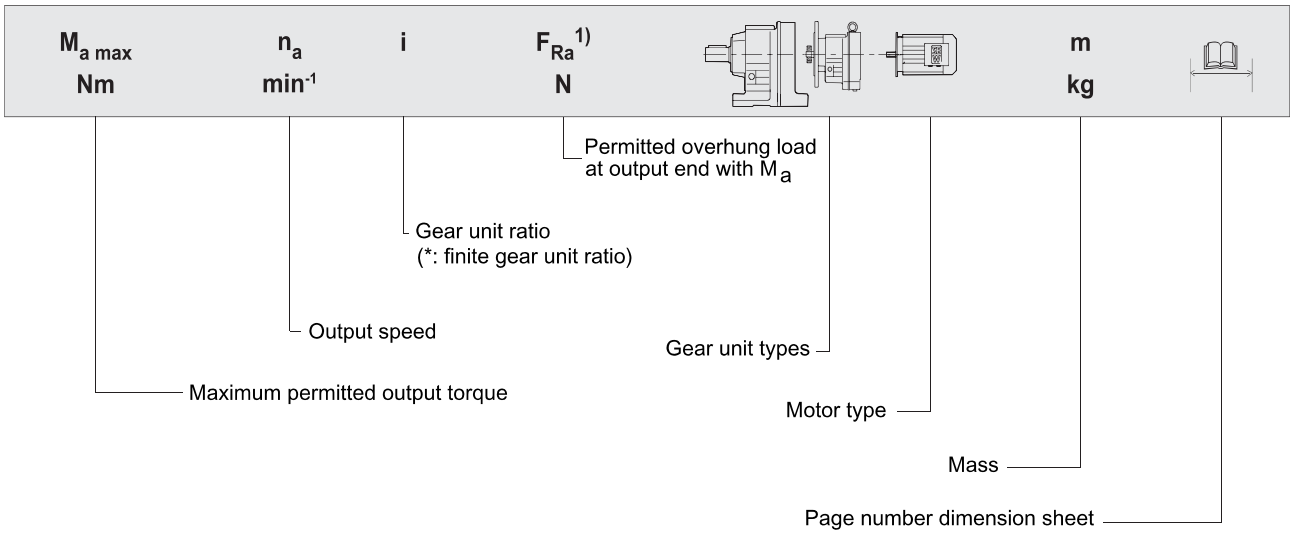
Table for extremely low output speeds (compound gearmotors):



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1) Overhung load for foot-mounted gear units with solid shaft; overhung loads for other design types upon request

INFORMATION

In drives for particularly low output speeds (multi-stage gearmotors), the motor power must be limited to the maximum permitted output torque of the gear unit.

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7.3 Dimension sheet information

7.3.1 Symbols for scope of delivery

Standard parts supplied by SEW-EURODRIVE.

Standard parts not supplied by SEW-EURODRIVE.

7.3.2 Tolerances

Shaft heights

The following tolerances apply to the indicated dimensions:

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 surface.

Shaft ends

Diameter tolerance:

Ø	≤ 50 mm	→ ISO k6
Ø	> 50 mm	→ ISO m6

Centering bores according to DIN 332, shape DR:

Ø	= 7 – 10 mm	→ M3	Ø	> 30 – 38 mm	→ M12
Ø	> 10 – 13 mm	→ M4	Ø	> 38 – 50 mm	→ M16
Ø	> 13 – 16 mm	→ M5	Ø	> 50 – 85 mm	→ M20
Ø	> 16 – 21 mm	→ M6	Ø	> 85 – 130 mm	→ M24
Ø	> 21 – 24 mm	→ M8	Ø	> 130 mm	→ M30
Ø	> 24 – 30 mm	→ M10			

Keys: according to DIN 6885 (domed type)

Keyway width to ISO N9

Hollow shafts

Diameter tolerance:

Ø	→ ISO H7 measured with plug gauge

Keys: according to DIN 6885 (domed type)

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)

Keyway width to ISO JS9

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Multiple-spline shafts

D_m Measuring roller diameter

M_e Check size

The fit of the hollow shafts with splined hollow shaft is 9H.

The assumed fit of the customer shaft in the dimension sheets of the catalog is 7d.

The fit pair 9H/7d specified in the dimension sheets is a clearance fit. Depending on the application requirements, it is the customer's responsibility to choose another fit pair and to manufacture the customer shaft accordingly.

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 respective dimension sheets.

7.3.3 Eyebolts, lifting eyes

R07 – R27 helical gear units, K..167 – K..187 helical-bevel gear units, motors up to DRN90 and SPIROPLAN® gearmotors W..10 – W..30 are delivered without special transportation fixtures. All other gear units and motors are equipped with cast-on lifting eyes, screw-on lifting eyes or screw-on eyebolts.

Gear unit/motor type	Screw-on		Cast-on lifting eyes
	Lifting eyebolts	lifting eyes	
R..37 – R..57	—	X	—
R..67 – R..167	X	—	—
RX57 – RX67	—	X	—
RX77 – RX107	X	—	—
F..27 – F..157	—	—	X
K..19 – K..49	—	X	—
K..37 – K..157	—	—	X
S..37 – S47	—	X	—
S..47 – S..97	—	—	X
W..37 – W..47	—	X	—
≥ DRN100L	X	—	—

Legend: — not available, X available

7.3.4 Breather valves

The gear unit dimension drawings always show the screw plugs. The corresponding screw plug is replaced by an activated breather valve at the factory depending on the ordered mounting position M1 to M6. The result may be slightly altered contour dimensions.

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7.3.5 Shrink disk connection

In order to non-positively transfer the torques stated in the catalog in case of gear units with hollow shaft and shrink disk connection, observe the following peripheral conditions in addition to the information on the respective dimension sheet when dimensioning the customer shaft:

- Surface roughness $R_z \leq 16$ µm
- Elastic limit of the customer shaft material R_e and/or $Rp_{0.2} \geq 305$ N/mm²
- Design of the customer shaft as solid shaft

For customer shaft designs as hollow shaft, contact SEW-EURODRIVE.

7.3.6 Splined hollow shaft

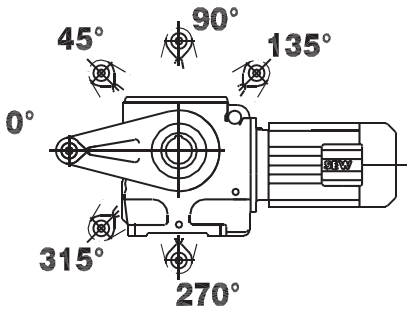
FV.. hollow shaft gear unit sizes 27 to 107, and KV.. sizes 37 to 107 are supplied with splining according to standard DIN 5480.

7.3.7 Rubber buffer for FA/FH/FV/FT

The depictions on the dimension sheets show the rubber buffers for FA/FH/FV/FT gear units in loose state. Preload 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 Position of the torque arm

The following illustration shows the possible torque arm positions for helical-worm gear units, the 2-stage K..9 helical-bevel gear units, and SPIROPLAN® gear units (135° position not possible with SPIROPLAN® gear units) as well as the respective angles:



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For more information about torque arms, refer to the respective dimension sheets of the gearmotors:

Gearmotor	Dimension sheets on page
Helical-bevel gearmotors	(→ 🗎 616)
Helical-worm gearmotors	(→ 🗎 757)
SPIROPLAN® gearmotors	(→ 🗎 840)

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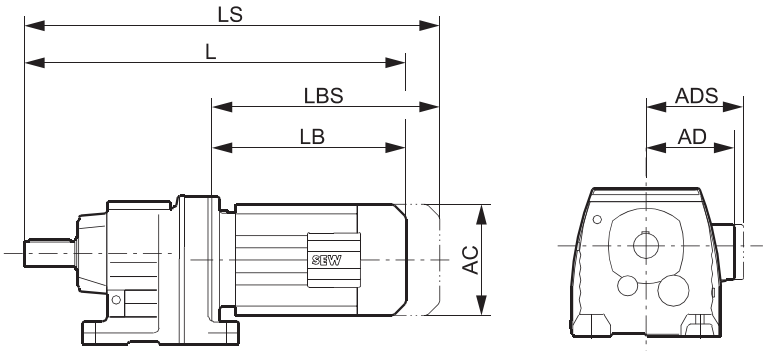
7.3.9 Gearmotor dimension drawings

The dimension drawings of the gearmotors are described below:



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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

INFORMATION

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

INFORMATION

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

7.3.10 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.

7.3.11 Special designs

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

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