7 Important Information on Selection Tables and Dimension Sheets

7.1 Information on the selection tables for R, F, K, S, W gear units

Adapter sizes

[Nm]		AQ. M_{amax} | M_{apk} | $M_{aNotaus}$											
	i	80/1-3			100/1-4			115/1-2			115/3		
FA27 2	4.16	70	70	137	70	70	141	70	70	141	87	130	148
	4.93	83	83	162	83	83	163	83	83	163	96	144	163
	5.27	89	89	170	89	89	170	89	89	170	100	150	170

Gear unit reduction ratio

Gear unit size with number of gear unit stages

m [kg]		AQA			
	s	80/1-3	100/1-4	115/1-2	115/3
FA27	2	9.0	9.6	10	10
FA27	3	9.2	9.9	10	10
FAF: + 0.7 kg / F: + 0.5 kg / FF: + 1.3 kg					

m Mass of the drive

s Number of gear unit stages

		AQA			
		80/1-3	100/1-4	115/1-2	115/3
$J_A\ 10^{-4}$	[kgm^2]	0.77	1.4	1.4	3.1
c_{TA}	[Nm/']	0.25	0.25	0.25	0.625

J_A Mass moment of inertia of the adapter

c_{TA} Torsional rigidity of the adapter

FA27							F_{Ramax}				F_{Rapk}			
n_e = 1400	i	M_{amax} [Nm]	M_{apk} [Nm]	$M_{aNotaus}$ [Nm]	n_{ak} [1/min]	$J_G\ 10^{-4}$ [kgm^2]	FA [N]	FAF [N]	F [N]	FF [N]	FA [N]	FAF [N]	F [N]	FF [N]
FA27 2	4.16	87	130	148	361	1.4	1810	1810	1380	1180	4500	4500	4500	4500
	4.93	96	144	163	304	1.0	1860	1860	1420	1210	4500	4500	4500	4500
	5.27	100	150	170	266	0.90	1880	1880	1440	1220	4500	4500	4500	4500

n_e Reference speed at continuous duty

i Gear unit reduction ratio

M_{amax} Maximum permitted output torque for continuous duty

M_{apk} Maximum permitted output torque for short-time duty

$M_{aNotaus}$ Maximum permitted output emergency stop torque, max. 1000 emergency stops

n_{ak} Breakpoint speed (output)

J_G Mass moment of inertia of the gear unit with reference to the input shaft

F_{Ramax} Maximum permitted overhung load at the output shaft at M_{amax}, load application point at the center of the shaft end

F_{Rapk} Maximum permitted overhung load at the output shaft at M_{apk}, load application point at the center of the shaft end

AQ.	i	n_{epk} [1/min]	η [%]	c_{TG} FA [Nm/']	FAF [Nm/']	F [Nm/']	FF [Nm/']
FA27 2	4.16	4120	97	46	46	21	18
	4.93	4500	97	46	46	21	18
	5.27	4500	97	46	46	21	18

i Gear unit reduction ratio

n_{epk} Maximum permitted input speed for short-time duty

η Efficiency of the gear unit (at M_{amax}, n_e=1400 rpm, mounting position M1, continuous duty)

c_{TG} Torsional rigidity of the gear unit

7.2 Information on the selection tables for BS.F, PS.F, PS.C gear units

Adapter sizes

[Nm]	i	EBH M_{amax} | M_{apk} | $M_{aNotaus}$ 03			04		
BSF202 2	3.00	40	60	90	40	60	90
	4.00	40	60	90	40	60	90
	6.00	40	60	90	40	60	90

Gear unit reduction ratio

Gear unit size with number of gear unit stages

m [kg]	s	EBH 03	04
BSF202	2	5.3	5.3
BSBF: + 0.0 kg / BSHF: + 0.0 kg			

m Mass of the drive

s Number of gear unit stages

EBH03							c_T			F_{Ramax}			F_{Rapk}		
n_e = 1500	i	M_{amax} [Nm]	M_{apk} [Nm]	$M_{aNotaus}$ [Nm]	n_{ak} [1/min]	J_{GA} 10^{-4} [kgm^2]	BSF [Nm/']	BSBF [Nm/']	BSHF [Nm/']	BSF [N]	BSBF [N]	BSHF [N]	BSF [N]	BSBF [N]	BSHF [N]
BSF202 2	3.00	40	60	90	667	1.8	1.8	2.0	2.0	2680	2970	2600	4200	4200	4200
	4.00	40	60	90	650	1.5	2.1	2.3	2.2	3000	3330	2900	4200	4200	4200
	6.00	40	60	90	650	1.3	2.3	2.6	2.5	3500	3880	3390	4200	4200	4200

n_e	Reference speed at continuous duty
i	Gear unit reduction ratio
M_{amax}	Maximum permitted output torque for continuous duty
M_{apk}	Maximum permitted output torque for short-time duty
$M_{aNotaus}$	Maximum permitted output emergency stop torque, max. 1000 emergency stops
n_{ak}	Breakpoint speed (output)
J_{GA}	Mass moment of inertia of the gear unit including adapter with reference to the input shaft
c_T	Torsional rigidity of the gear unit / gear unit with adapter
F_{Ramax}	Maximum permitted overhung load at the output shaft at M_{amax}, load application point at the center of the shaft end
F_{Rapk}	Maximum permitted overhung load at the output shaft at M_{apk}, load application point at the center of the shaft end

EBH				M1			M2;M4			M3;M5-6			φ		
	i	n_{epk} [1/min]	η [%]	a_0	a_1	a_2	a_0	a_1	a_2	a_0	a_1	a_2	[']	/R [']	/M [']
BSF202 2	3.00	4500	93.7	4.10	-0.011	77457	14.47	-0.020	66498	6.12	-0.013	75323	6	3	-
	4.00	4500	93.7	4.26	-0.014	76815	20.11	-0.028	60846	7.52	-0.017	73532	6	3	-
	6.00	4500	93.7	4.50	-0.019	75905	30.66	-0.042	51203	10.05	-0.024	70662	6	3	-

i	Gear unit reduction ratio
n_{epk}	Maximum permitted input speed for short-time duty
η	Efficiency of the gear unit (at M_{amax}, n_e=1500 rpm, mounting position M1, continuous duty)
φ	Circumferential backlash
a_0, a_1, a_2	Gear unit constants as regards the rise in temperature in the gear unit

7.3 Information about the dimension sheets

Scope of delivery

= Standard parts supplied by SEW-EURODRIVE.

= Standard parts not supplied by SEW-EURODRIVE.

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:

∅	≤ 50 mm	→ ISO k6
∅	> 50 mm	→ ISO m6

Center bores according to DIN 332, shape DR:

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

Keys: according to DIN 6885 (domed type)

Hollow shafts

Diameter tolerance:

∅ → ISO H7 measured with plug gauge

Keys: according to DIN 6885 (domed type)

Exception: Key for WA37 with shaft ∅ 25 mm according to DIN 6885-3 (low form)

Multiple-spline shafts

Dm	= Measuring roller diameter
Me	= Check gauge

Flanges

Centering shoulder tolerance:

∅	≤ 230 mm (flange sizes A120...A300)	→ ISO j6
∅	> 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 dimension sheets show the possible flanges for the respective sizes.

Eyebolts, lifting eyes

R07...R27 helical gear units and SPIROPLAN® gearmotors W..10 to W..30 are delivered without special transportation fixtures. All other gear units and motors are equipped with cast-on suspension eye lugs, screw-on suspension eye lugs or screw-on lifting eyebolts.

Gear unit/motor type	screw-on,		cast-on eyebolts
	lifting eyebolts	eyebolts	
R..37-R..57	-	•	-
R..67-R..167	•	-	-
RX57-RX67	-	•	-
RX77-RX107	•	-	-
F..27-F..157	-	-	•
K..37-K..157	-	-	•
K..167-K..187	•	-	-
W..37, W..47	-	•	-
S..37-S..47	-	•	-
S..57-S..97	-	-	•
BS.F502..802	-	•	-
PS.F621..921	-	•	-
PS.F622..922	-	•	-

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. Contour dimensions might be slightly different as a result.

Shrink disk connection

Hollow shaft gear unit with shrink disk connection: If required, please request a detailed data sheet on shrink disks, data sheet no. 33 753 ..95.

Splined hollow shaft

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

Rubber buffer for FA/FH/FV/FT

Preload rubber buffer by the indicated value mL. The characteristic curve of spring for the rubber buffers is available at SEW-EURODRIVE on request.

Torque arm position

The following illustration shows the possible torque arm positions for helical-worm gear units and SPIROPLAN® gear units (135û position not possible with SPIROPLAN® gear units) as well as the respective angles:

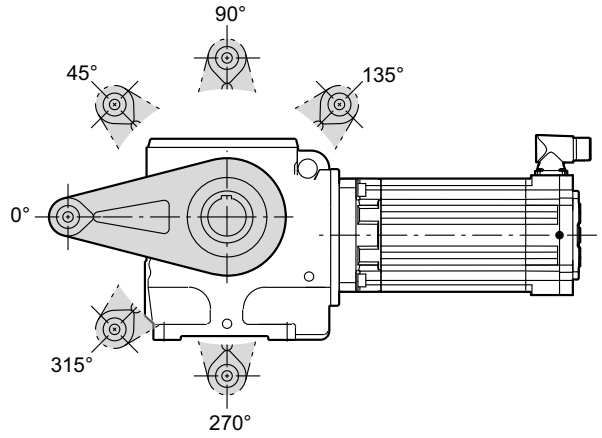

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Figure 29: Position of the torque arm for S and W gear units

For information on torque arms for helical-worm gear units, refer to the dimension sheets from page 380, for specifications on torque arms for SPIROPLAN® gear units, refer to the dimension sheets from page 410.

The following illustration shows the possible torque arm positions for BS.F gear units:

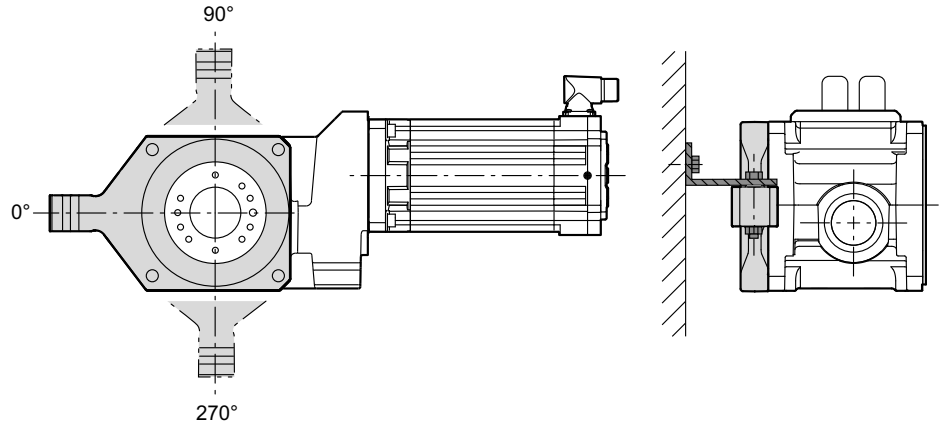

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Figure 30: Position of the torque arm for BS.F gear units

For specifications regarding torque arms for helical-bevel gear units, refer to page 474.

Tolerances and chamfers for flange block gear units

For detailed information, refer to page 475 or page 536.

Front and foot end mounting of BS.F..B gear units

For detailed information, refer to page 473.

7.4 Gearmotor dimensions

Motor options

The motor dimensions may change due to motor options. Refer to the dimension drawings of the motor options.

Special designs

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

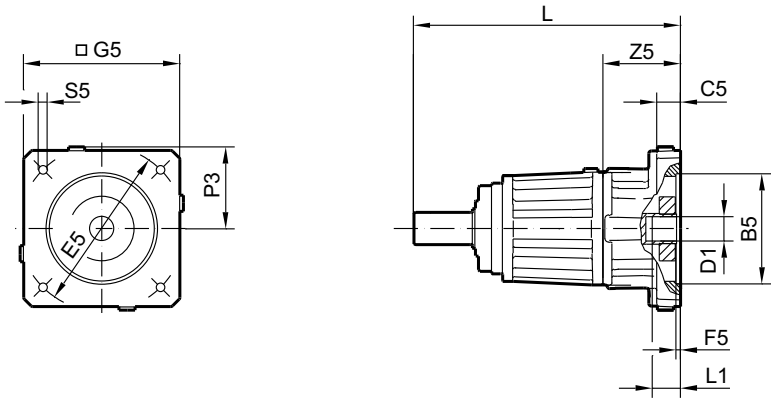
EN 50347

European standard EN 50347 became effective in August 2001. This standard adopts the dimension designations for three-phase AC motors of size 56 to 315M and flange size 65 to 740 from the IEC 72-1 standard.

The new dimension designations given in EN 50347 / IEC 72-1 are used for the relevant dimensions in the dimension sheet tables.

Dimension designations of gearmotors

Below an overview of dimension designations for gearmotors:



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G5	Square dimension	C5	Flange thickness
S5	Threaded hole	B5	Centering diameter
P3	Projecting length of closing plug	D1	Coupling bore diameter
E5	Hole circle diameter	F5	Centering depth
L	Total length of the gear unit with adapter	L1	Maximum insertion depth of motor shaft
Z5	Adapter length		

INFORMATION

For motors with other feedback systems than resolvers, possible additional lengths must be considered.