



SPIROPLAN® gear units

Designation	
W..	Foot-mounted
WF..	Flange-mounted type
WAF..	Flange-mounted type and hollow shaft
WA..	Hollow shaft
WA..B	Foot-mounted, hollow shaft
WH..B	Foot-mounted, hollow shaft with shrink disk
WHF..	Flange-mounted, hollow shaft with shrink disk
WH..	Hollow shaft with shrink disk
WT..	Hollow shaft with TorqLOC® hollow shaft mounting system

3

Gear unit options

R, F and K gear units:

Designation	
/R	Reduced backlash

K, S and W gear units:

Designation	
/T	With torque arm

F gear units:

Designation	
/G	With rubber buffer

Condition monitoring

Designation	Option
/DUO	Diagnostic Unit Oil = Oil aging sensor
/DUV	Diagnostic Unit Vibration = Vibration sensor

Adapters

Designation	Option
AM..	Adapter for mounting IEC/NEMA motors
AR..	Adapter with torque limiting coupling
AT..	Adapter with hydraulic centrifugal coupling



Adapter options

Designation	Option
AM../RS	Adapters for mounting IEC/NEMA motors with backstop
AR../W	Adapter with torque limiting coupling and speed monitoring
AR../WS	Adapter with torque limiting coupling and slip monitoring
AT../RS	Adapter with hydraulic centrifugal coupling and backstop
AT../BM(G)	Adapter with hydraulic centrifugal coupling and disk brake
AT../BM(G)/HF	Adapter with hydraulic centrifugal coupling and disk brake with lock-type manual brake release
AT../BM(G)/HR	Adapter with hydraulic centrifugal coupling and disk brake with self-reengaging manual brake release

Input shaft assembly

Designation	Option
AD..	Input shaft assembly

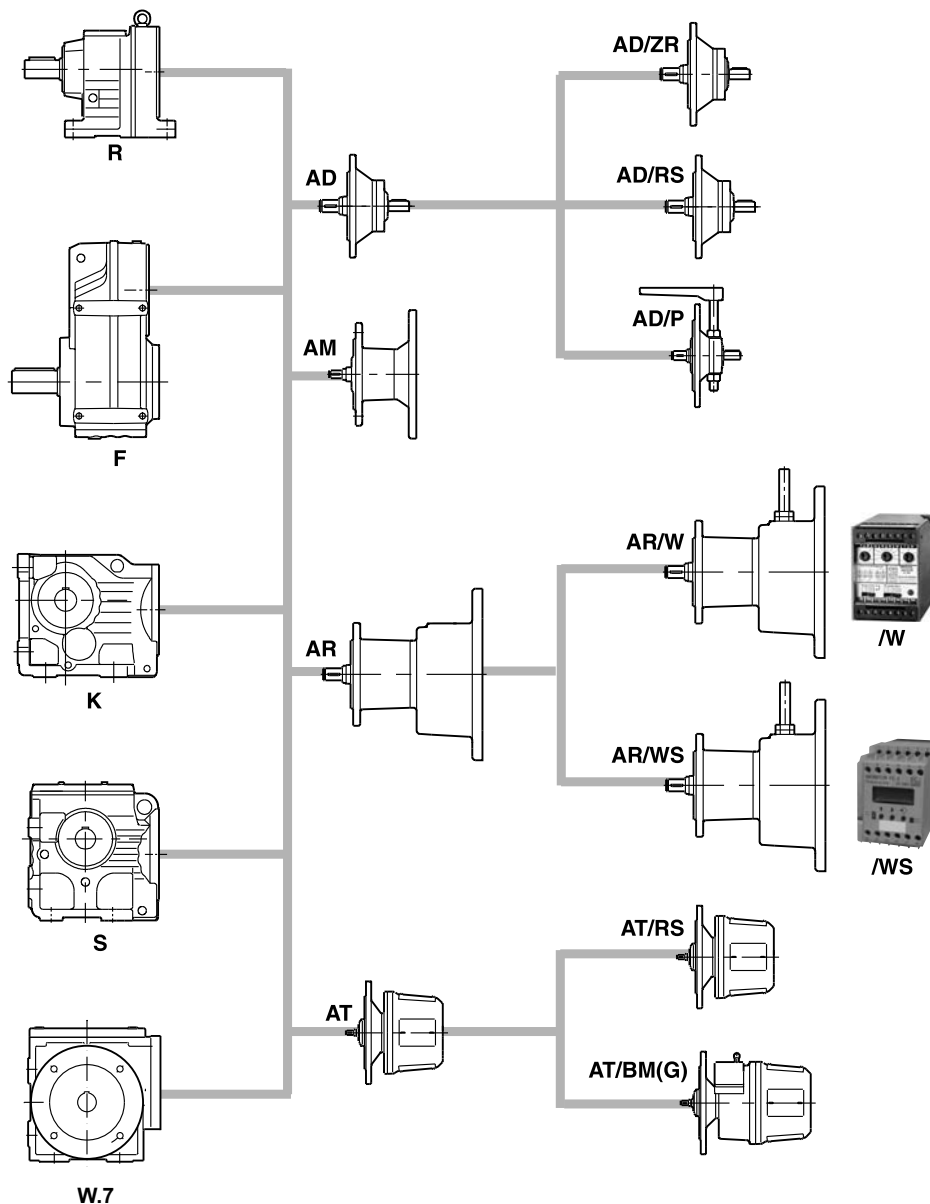
Options for input shaft assembly

Designation	Option
AD../P	Input shaft assembly with motor mounting platform
AD../RS	Input shaft assembly with backstop
AD../ZR	Input shaft assembly with centering shoulder



Components on the input side

The following figure shows an overview of the components on the input side:



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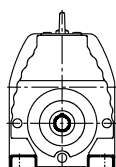
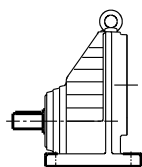
AD	Input shaft assembly	AR/WS ¹⁾	Adapter with torque limiting coupling and slip monitoring
AD/ZR	Input shaft assembly with centering shoulder	/W	Speed monitor
AD/RS	Input shaft assembly with backstop	/WS	Slip monitor
AD/P	Input shaft assembly with motor mounting platform	AT	Adapter with hydraulic centrifugal coupling
AM	Adapter for mounting IEC/NEMA motors	AT/RS	Adapter with hydraulic centrifugal coupling and backstop
AR	Adapter with torque limiting coupling	AT/BM(G)	Adapter with hydraulic centrifugal coupling and disk brake
AR/W	Adapter with torque limiting coupling and speed monitoring		

1) Only in connection with VARIBLOC® variable speed gear units



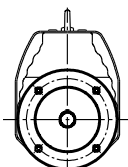
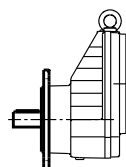
Helical gear units

The following types of helical gear units are available:



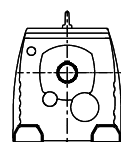
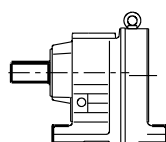
RX..

Foot-mounted single stage helical gear unit



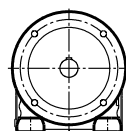
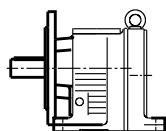
RXF..

B5 flange-mounted single-stage helical gear unit



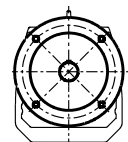
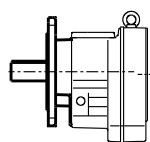
R..

Foot-mounted helical gear unit



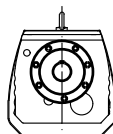
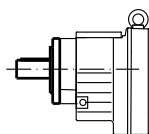
R..F

Foot and B5-flange mounted helical gear unit



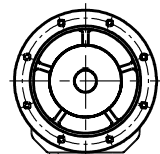
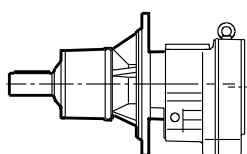
RF..

B5 flange-mounted helical gear unit



RZ..

B14 flange-mounted helical gear unit



RM..

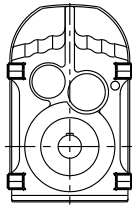
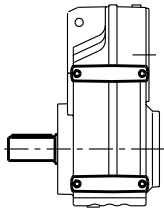
B5 flange-mounted type with extended bearing hub

63665axx

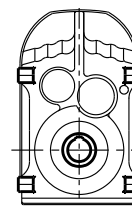
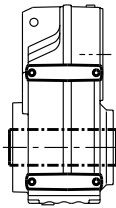


Parallel shaft helical gear units

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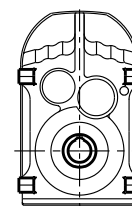
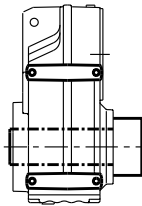


F..
Foot-mounted parallel shaft helical gear unit

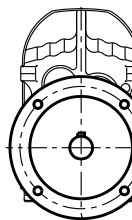
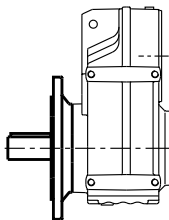


FA..B
Foot-mounted parallel shaft helical gear unit with hollow shaft

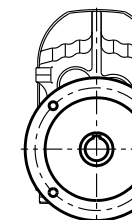
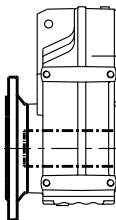
FV..B
Foot-mounted parallel shaft gear unit with hollow shaft and splining according to standard 5480



FH..B
Foot-mounted parallel shaft helical gear unit with hollow shaft and shrink disk



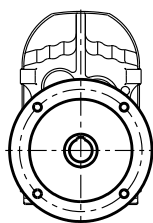
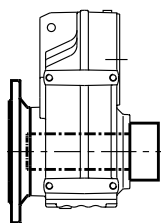
FF..
B5 flange-mounted parallel shaft helical gear unit



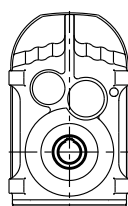
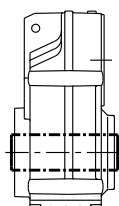
FAF..
B5 flange-mounted parallel shaft helical gear unit with hollow shaft

FVF..
B5 flange-mounted parallel shaft gear unit with hollow shaft and splining according to standard 5480

52182axx

**FHF..**

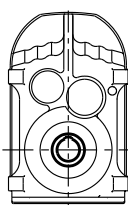
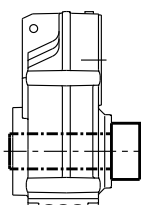
B5 flange-mounted parallel shaft helical gear unit with hollow shaft and shrink disk

**FA..**

Parallel shaft helical gear unit with hollow shaft

FV..

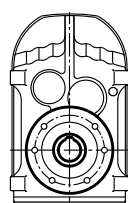
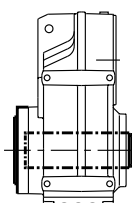
Parallel shaft helical gear unit with hollow shaft and splining according to standard 5480

**FH..**

Parallel shaft helical gear unit with hollow shaft and shrink disk

FT..

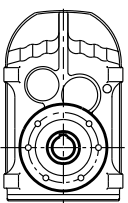
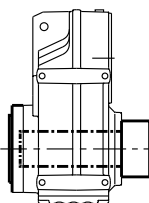
Parallel shaft helical gear unit with hollow shaft and TorqLOC® hollow shaft mounting system

**FAZ..**

B14 flange-mounted parallel shaft helical gear unit with hollow shaft

FVZ..

B14 flange-mounted parallel shaft gear unit with hollow shaft and splining according to standard 5480

**FHZ..**

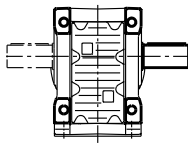
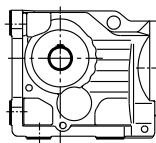
B14 flange-mounted parallel shaft helical gear unit with hollow shaft and shrink disk

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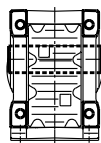
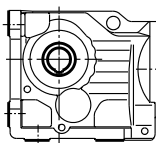


Helical-bevel gear units

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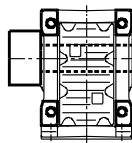
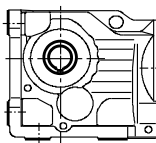


K..
Foot-mounted helical-bevel gear unit

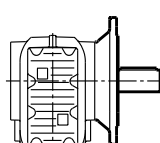
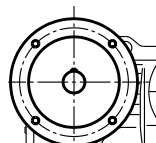


KA..B
Foot-mounted helical-bevel gear unit with hollow shaft

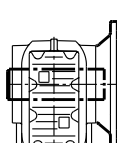
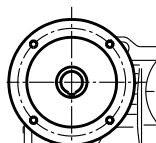
KV..B
Foot-mounted helical-bevel gear unit with hollow shaft and splining according to standard 5480



KH..B
Foot-mounted helical-bevel gear unit with hollow shaft and shrink disk



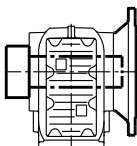
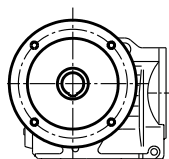
KF..
B5 flange-mounted helical-bevel gear unit



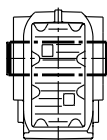
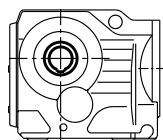
KAF..
B5 flange-mounted helical-bevel gear unit with hollow shaft

KVF..
B5 flange-mounted helical-bevel gear unit with hollow shaft and splining according to standard 5480

52186axx

**KHF..**

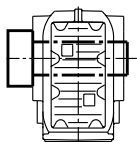
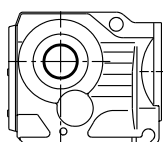
B5 flange-mounted helical-bevel gear unit with hollow shaft and shrink disk

**KA..**

Helical-bevel gear unit with hollow shaft

KV..

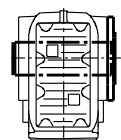
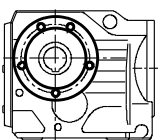
Helical-bevel gear unit with hollow shaft and splining according to standard 5480

**KH..**

Helical-bevel gear unit with hollow shaft and shrink disk

KT..

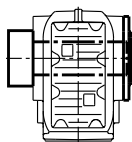
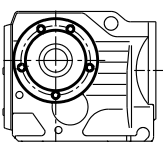
Helical-bevel gearmotor with hollow shaft and TorqLOC® hollow shaft mounting system

**KAZ..**

B14 flange-mounted helical-bevel gear unit with hollow shaft

KVZ..

B14 flange-mounted helical-bevel gear unit with hollow shaft and splining according to standard 5480

**KHZ..**

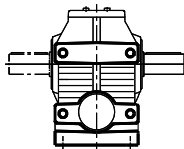
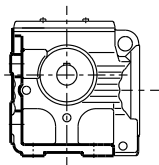
B14 flange-mounted helical-bevel gear unit with hollow shaft and shrink disk

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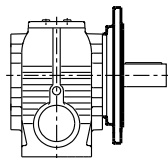
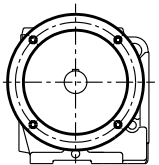


Helical-worm gear units

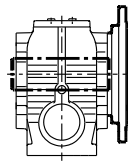
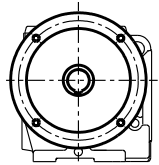
The following types of helical-worm gear units are available:



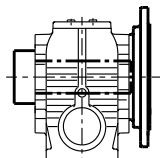
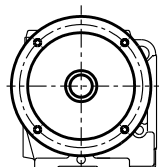
S..
Foot-mounted helical-worm gear unit



SF..
B5 flange-mounted helical-worm gear unit

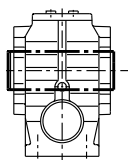
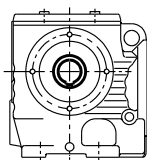


SAF..
B5 flange-mounted helical-worm gear unit with hollow shaft

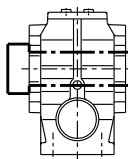
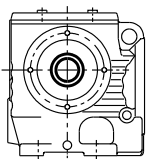


SHF..
B5 flange-mounted helical-worm gear unit with hollow shaft and shrink disk

52188axx

**SA..**

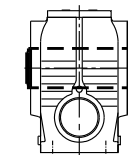
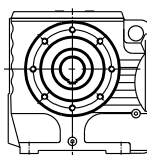
Helical-worm gear unit with hollow shaft

**SH..**

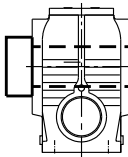
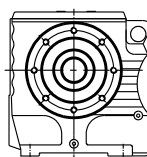
Helical-worm gear unit with hollow shaft and shrink disk

ST..

Helical-worm gear unit with hollow shaft and TorqLOC® hollow shaft mounting system

**SAZ..**

B14 flange-mounted helical-worm gear unit with hollow shaft

**SHZ..**

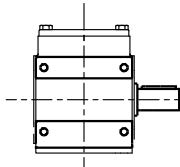
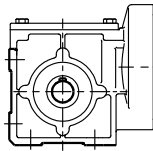
B14 flange-mounted helical-worm gear unit with hollow shaft and shrink disk

52189axx

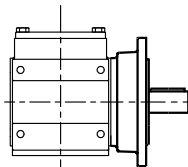
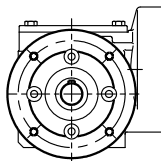


SPIROPLAN® gear units

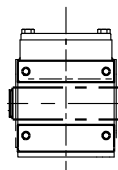
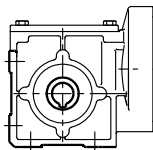
The following types of SPIROPLAN® gear units are available:



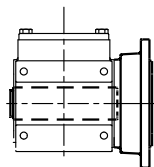
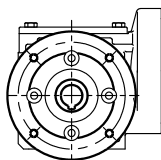
W..
Foot-mounted SPIROPLAN® gear units



WF..
Flange-mounted SPIROPLAN® gear units

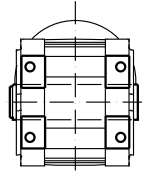
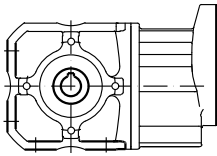


WA..
SPIROPLAN® gear units with hollow shaft

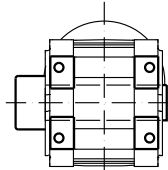
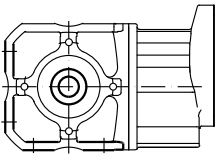


WAF..
Flange-mounted SPIROPLAN® gear units with hollow shaft

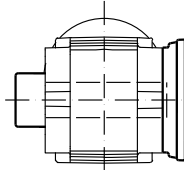
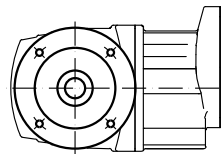
63666axx

**WA..B**

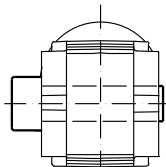
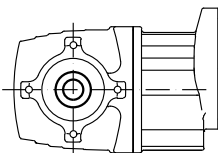
Foot-mounted SPIROPLAN® gear units with hollow shaft

**WH..B**

Foot-mounted SPIROPLAN® gear units with hollow shaft and shrink disk

**WHF..**

Flange-mounted SPIROPLAN® gear units with hollow shaft and shrink disk

**WH..**

SPIROPLAN® gear units with hollow shaft and shrink disk

WT..

SPIROPLAN® gear unit with hollow shaft and TorqLOC®

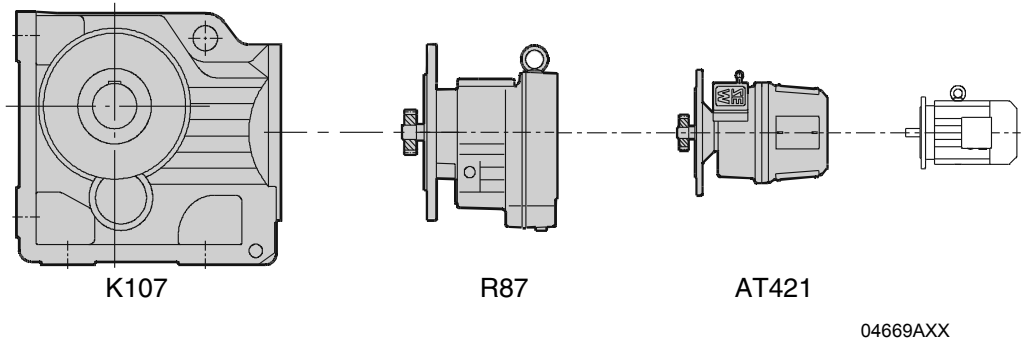
63667axx



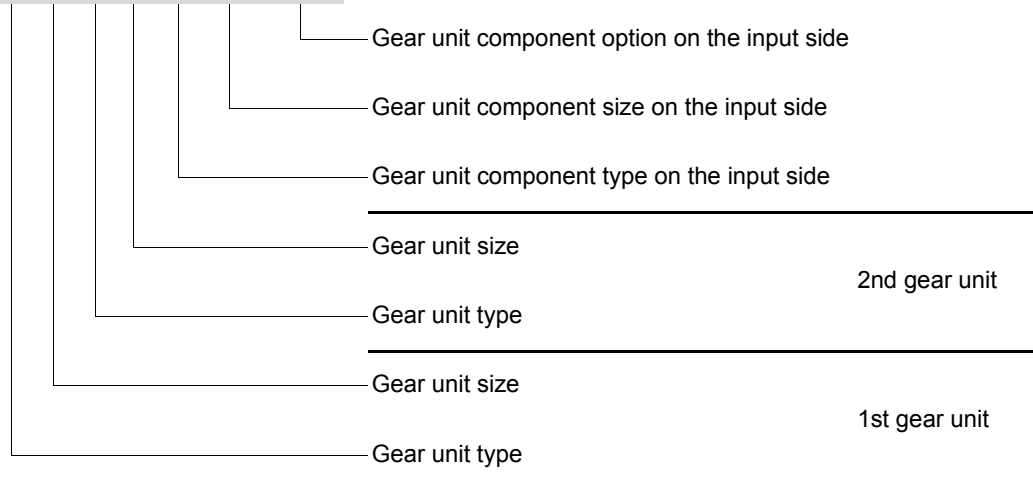
3.2 Type designation

Examples:

The type designation of the gear unit starts from the component on the output end. For example, a helical-bevel multi-stage gear unit with hydraulic centrifugal coupling has the following type designation:



K 107 R 87 AT 421 /BMG





3.3 Gear unit nameplate

Example: Nameplate for helical gear units

The following figure shows an example of a nameplate for a helical gear unit with AR.. adapter:



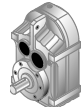


n_a	[r/min]	Maximum permitted output speed
M_{amax}	[Nm]	Maximum permitted output torque
M_R	[Nm]	Slip torque (applies only to AR.. adapters)
IM		Mounting position
i		Gear unit reduction ratio





3.4 Overview of gear units

Axially parallel gear units

Gear unit type For details, refer to		RX.. page 133	R.. page 137	F.. page 224
Technical data				
Max. continuous torque	M_{amax} [Nm]	36-830	31-4300	87-7840
Gear ratio range	i	1.3-8.23	3.21-216.28	3.77-276.77
Option with reduced backlash	/R	x	x	x
Mechanical data				
Hollow shaft		-	-	x
Flange-mounting		x	x	x
Foot-mounting		x	x	-
B5 flange		x	x	x
B14 flange		-	x	x

Right-angle gear units

Gear unit type For details, refer to		K.. page 322	S.. page 420	W.7 page 513
Technical data				
Max. continuous torque	M_{amax} [Nm]	125-8000	43-480	70-180
Gear ratio range	i	3.98-176.05	6.8-75.06	3.2- 74.98
Option with reduced backlash	/R	x	-	-
Mechanical data				
Hollow shaft		x	x	x
Flange-mounting		x	x	x
Foot-mounting		x	x	x
B5 flange		x	x	x
B14 flange		x	x	-

For information on all available options and variants, refer to page 25 and subsequent pages.



4 Project Planning Information

Project planning has to be carried out for all gear units. The data specified in this catalog only applies if project planning was carried out correctly. Project planning is particularly important for gear units with increased ambient temperatures as of size 97 and for helical-worm gear units with small gear ratios.

SEW-EURODRIVE will gladly perform this project planning for you.

4.1 Drive and gear unit selection data

Certain data of the application have to be provided to being able to precisely define the components for your drive. The abbreviations used for project planning are summarized in the following table:

Designation	Meaning	Unit
n_{amin}	Minimum output speed	[rpm]
n_{amax}	Maximum output speed	[rpm]
P_a at n_{amin}	Output power at minimum output speed	[kW]
P_a at n_{amax}	Output power at maximum output speed	[kW]
M_a at n_{amin}	Output torque at minimum output speed	[Nm]
M_a at n_{amax}	Output torque at maximum output speed	[Nm]
F_{RA}	Overhung load on gear unit output	[N]
F_{Aa}	Axial load on gear unit output	[N]
n_e	Input speed	[rpm]
P_m at n_e	Input power = motor power	[Nm]
M_e at n_e	Input torque	[Nm]
$M_{e max}$	Maximum input torque	[Nm]
F_{Re}	Overhung load on gear unit input	[N]
F_{Ae}	Axial load on gear unit input	[N]
J_{Last}	Mass moment of inertia to be driven	[10 ⁻⁴ kgm ²]
R, F, K, S, W M1 - M6	Required gear unit type and mounting position (see chapter Mounting positions, churning losses)	-
IP..	Required degree of protection	-
ϑ_{Umg}	Ambient temperature	[°C]
H	Installation altitude	[m above sea level]
S.., ..% cdf	Duty type and cyclic duration factor (cdf) or exact load cycle can be entered.	-
Z	Starting frequency; alternatively, exact load cycle can be specified	[1/h]
U_{Bremse}	Operating voltage of the brake (AT with brake)	[V]
M_B	Required braking torque (AT with brake)	[Nm]
M_R	Slip torque (AR)	[Nm]
Type of the motors	... Electric motor ... Internal combustion engine ... Hydraulic motor	-



Determining the application data

It is necessary to have data on the machine to be driven (mass, speed, setting range, etc.) to project the drive correctly.

These data help determine the required power, torque and speed. Refer to the SEW publication "Drive Engineering Practical Implementation / Drive Planning" or the SEW project planning tool SEW Workbench for assistance.

4

Selecting the correct drive

The appropriate drive can be selected once the power and speed of the drive have been calculated and with regard to mechanical requirements.

Required motor data

As the dimensions of servomotors are not standardized, the following motor data must be known to select the appropriate adapter:

- Shaft diameter and length
- Flange dimensions (edge length, diameter, centering shoulder and hole circle)
- Maximum torque

SEW-EURODRIVE will gladly assist you in selection and project planning.