2 Product Description and Overview of Types

2.1 General information

Power and torque

The details on power and torque given in the catalog refer to mounting position M1 and similar mounting positions, where the input gear stage does not completely run under oil. In addition, the gearmotors are assumed to be standard versions with standard lubrication and under normal ambient conditions.

Please note that the motor power shown in the selection tables for gearmotors is subject to selection. However, the output torque for the desired output speed is essential for the application and needs to be checked.

Speeds

The quoted output speeds of the gearmotors are recommended values. The rated output speed can be calculated from the rated speed of the motor and the gear unit reduction ratio. Please note that the actual output speed is dependent on the motor load and the supply system conditions.

Noise levels

The noise levels of all gearmotors and motors (brake motors) are well within the maximum permitted noise levels set forth in the VDI guideline 2159 for gear units and EN 60034 for motors.

Coating

Gearmotors and motors (brake motors) are painted with "blue gray" machine paint RAL 7031 as per DIN 1843 as standard. Special coatings are available on request.

Exception: Spiroplan® W..10 DT56 gearmotors have an aluminum housing and are supplied unpainted as standard.

Surface and corrosion protection

If required, all gearmotors can also be supplied with special surface protection for applications in extremely humid and chemically aggressive environments. The dimensions of the terminal box on motors with additional internal corrosion protection (feature KS) differ slightly from those of the standard type. Please request a special dimension sheet if required.

Weights

Please note that all weights shown in the catalog exclude the oil fill for the gearmotors. The weight varies according to gear unit design and gear unit size. The lubricant fill is dependent on the mounting position, and consequently it is impossible to make any generally valid statements. Please refer to "Lubricants" in the "Design and Operating Notes" section for recommended lubricant fill quantities depending on the mounting position. The exact weight is given in the order confirmation.

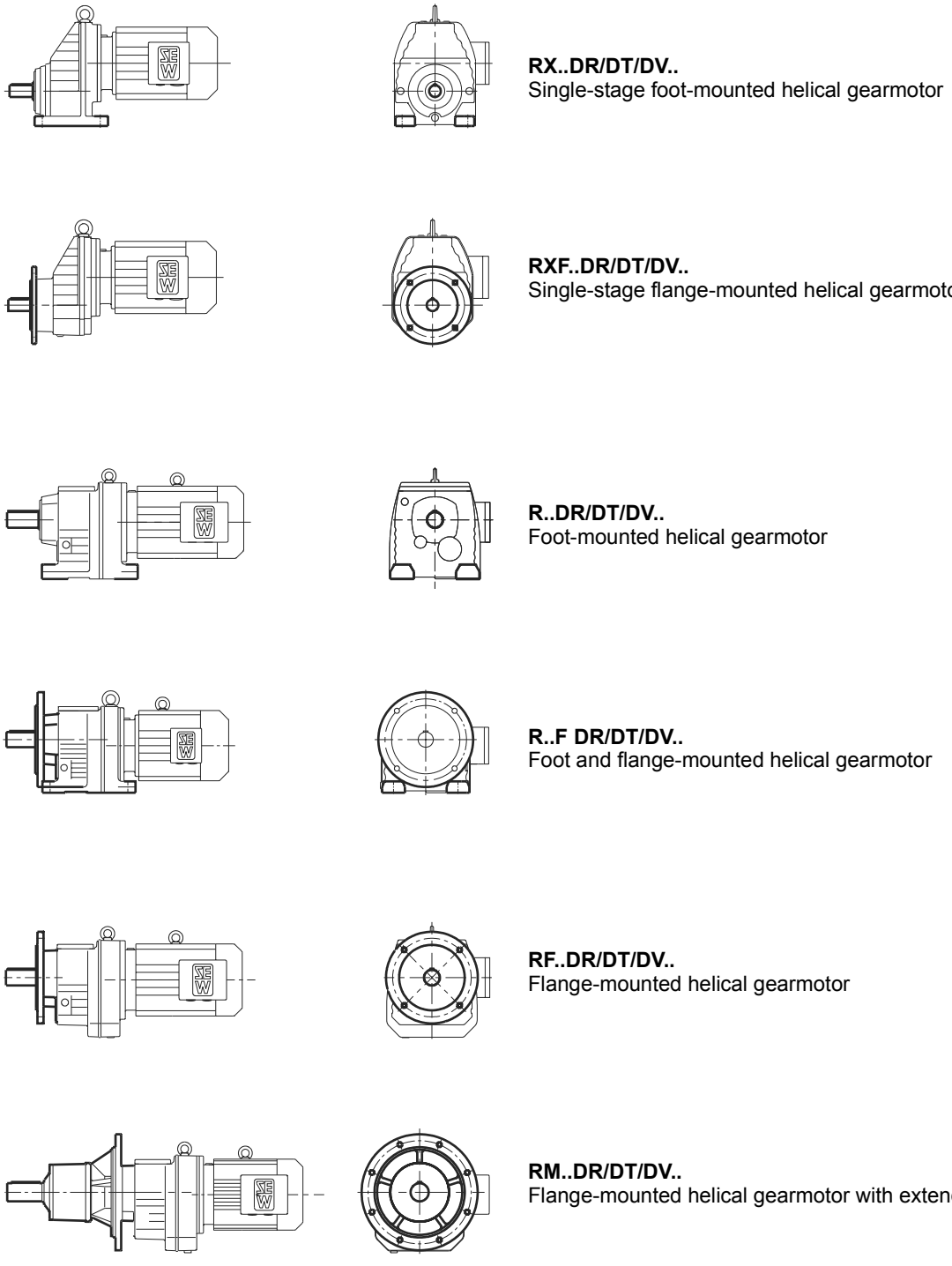
Air admission and accessibility

The gearmotors/brake motors must be mounted on the driven machine in such a way that both axially and radially there is enough space left for unimpeded air admission and for the purposes of maintenance of the brake. Please also refer to the notes on the motor dimension sheets in this regard.

2.2 Gearmotor versions

Helical gearmotors

The following versions of helical gearmotor can be supplied:



RX..DR/DT/DV..
Single-stage foot-mounted helical gearmotor

RXF..DR/DT/DV..
Single-stage flange-mounted helical gearmotor

R..DR/DT/DV..
Foot-mounted helical gearmotor

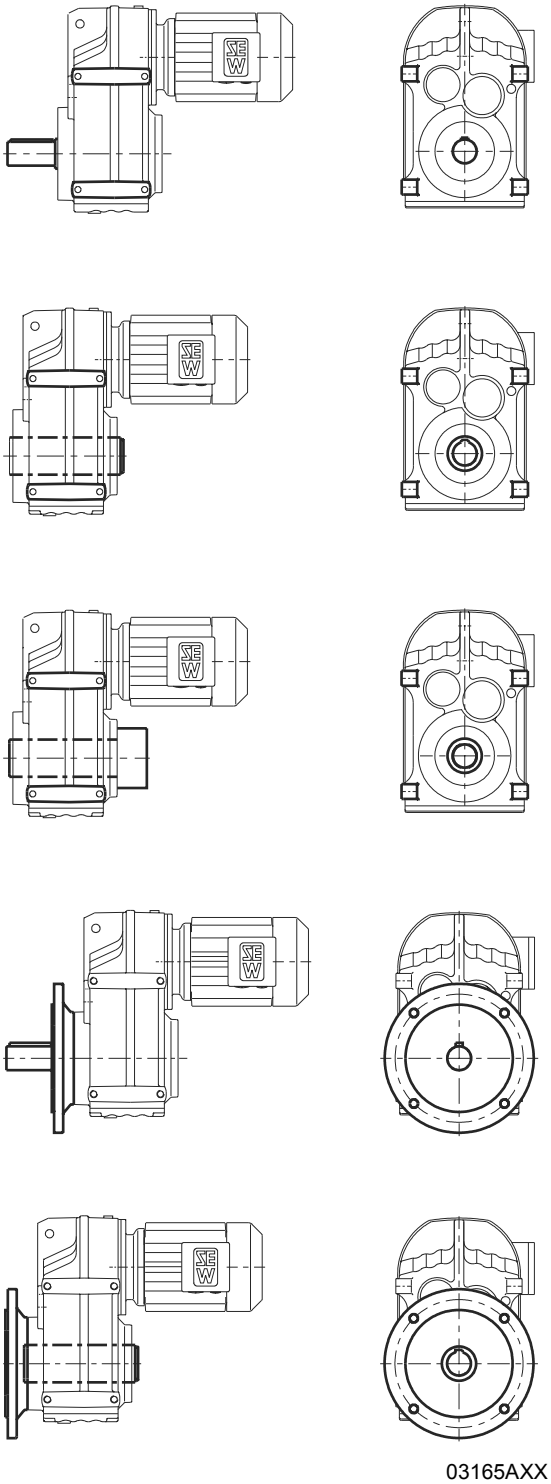
R..F DR/DT/DV..
Foot and flange-mounted helical gearmotor

RF..DR/DT/DV..
Flange-mounted helical gearmotor

RM..DR/DT/DV..
Flange-mounted helical gearmotor with extended bearing hub

03163BXX

Parallel shaft helical gearmotors The following types of parallel shaft helical gearmotors can be supplied:



F..DR/DT/DV..
Foot-mounted parallel shaft helical gearmotor

FA..B DR/DT/DV..
Foot-mounted parallel shaft helical gearmotor with hollow shaft

FV..B DR/DT/DV..
Foot-mounted parallel shaft helical gearmotor with hollow shaft and splined hollow shaft to DIN 5480

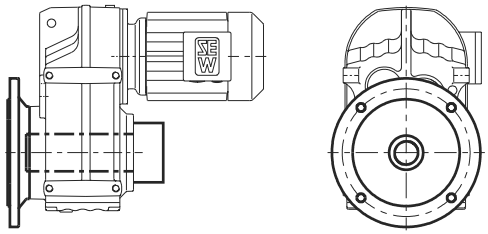
FH..B DR/DT/DV..
Foot-mounted parallel shaft helical gearmotor with hollow shaft and shrink disk

FF..DR/DT/DV..
Parallel shaft helical gearmotor in B5 flange-mounted version

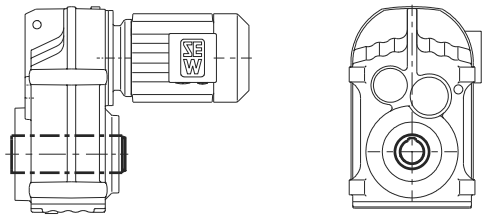
FAF..DR/DT/DV..
Parallel shaft helical gearmotor in B5 flange-mounted version with hollow shaft

FVF..DR/DT/DV..
Parallel shaft helical gearmotor in B5 flange-mounted version with hollow shaft and splined hollow shaft to DIN 5480

03165AXX

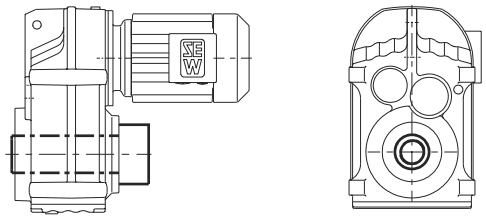


FHF..DR/DT/DV..
Parallel shaft helical gearmotor in B5 flange-mounted version with hollow shaft and shrink disk



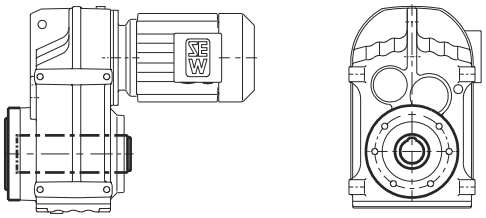
FA..DR/DT/DV..
Parallel shaft helical gearmotor with hollow shaft

FV..DR/DT/DV..
Parallel shaft helical gearmotor with hollow shaft and splined hollow shaft to DIN 5480



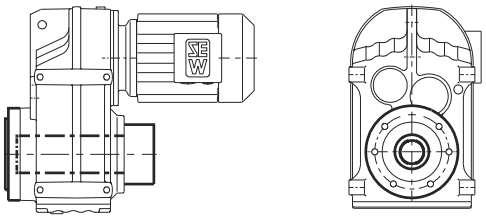
FH..DR/DT/DV..
Parallel shaft helical gearmotor with hollow shaft and shrink disk

FT..DR/DT/DV
Parallel shaft helical gearmotor with hollow shaft and TorqLOC® hollow shaft mounting system



FAZ..DR/DT/DV..
Parallel shaft helical gearmotor in B14 flange-mounted version with hollow shaft

FVZ..DR/DT/DV..
Parallel shaft helical gearmotor in B14 flange-mounted version with hollow shaft and splined hollow shaft to DIN 5480

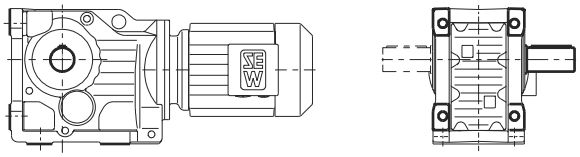


FHZ..DR/DT/DV..
Parallel shaft helical gearmotor in B14 flange-mounted version with hollow shaft and shrink disk

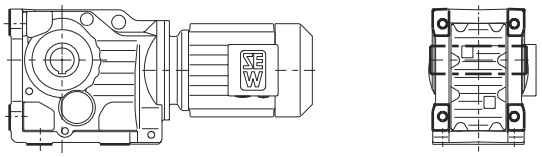
03166AXX

Helical-bevel gearmotors

The following types of helical-bevel gearmotors can be supplied:

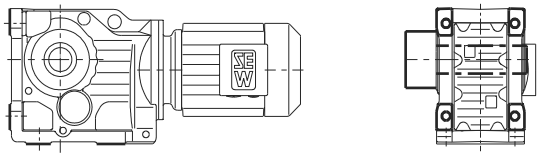


K..DR/DT/DV..
Foot-mounted helical-bevel gearmotor

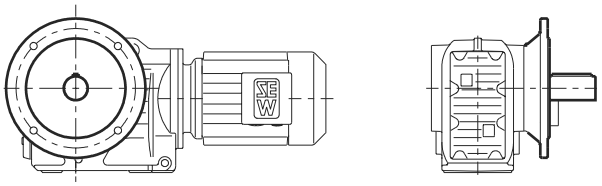


KA..B DR/DT/DV..
Foot-mounted helical-bevel gearmotor with hollow shaft

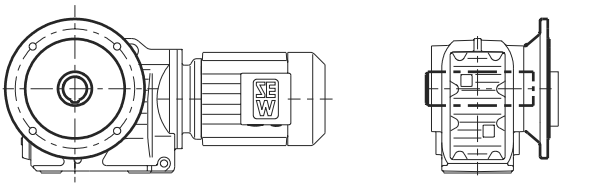
KV..B DR/DT/DV..
Foot-mounted helical-bevel gearmotor with hollow shaft and splined hollow shaft to DIN 5480



KH..B DR/DT/DV..
Foot-mounted helical-bevel gearmotor with hollow shaft and shrink disk



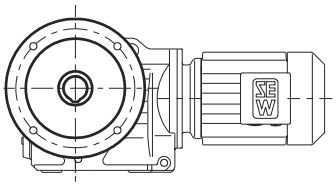
KF..DR/DT/DV..
Helical-bevel gearmotor in B5 flange-mounted version

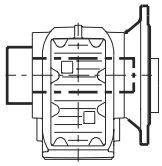


KAF..DR/DT/DV..
Helical-bevel gearmotor in B5 flange-mounted version with hollow shaft

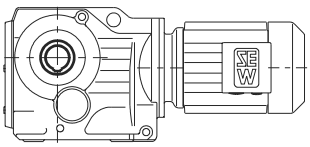
KVF..DR/DT/DV..
Helical-bevel gearmotor in B5 flange-mounted version with hollow shaft and splined hollow shaft to DIN 5480

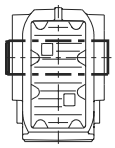
03173AXX





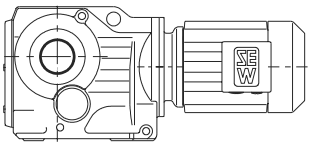
KHF..DR/DT/DV..
Helical-bevel gearmotor in B5 flange-mounted version with hollow shaft and shrink disk

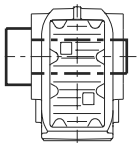




KA..DR/DT/DV..
Helical-bevel gearmotor with hollow shaft

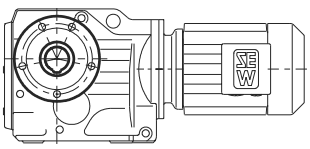
KV..DR/DT/DV..
Helical-bevel gearmotor with hollow shaft and splined hollow shaft to DIN 5480

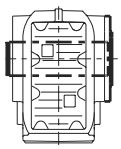




KH..DR/DT/DV..
Helical-bevel gearmotor with hollow shaft and shrink disk

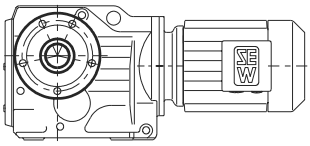
KT..DR/DT/DV..
Helical-bevel gearmotor with hollow shaft and TorqLOC® hollow shaft mounting system

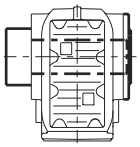




KAZ..DR/DT/DV..
Helical-bevel gearmotor in B14 flange-mounted version with hollow shaft

KVZ..DR/DT/DV..
Helical-bevel gearmotor in B14 flange-mounted version with hollow shaft and splined hollow shaft to DIN 5480



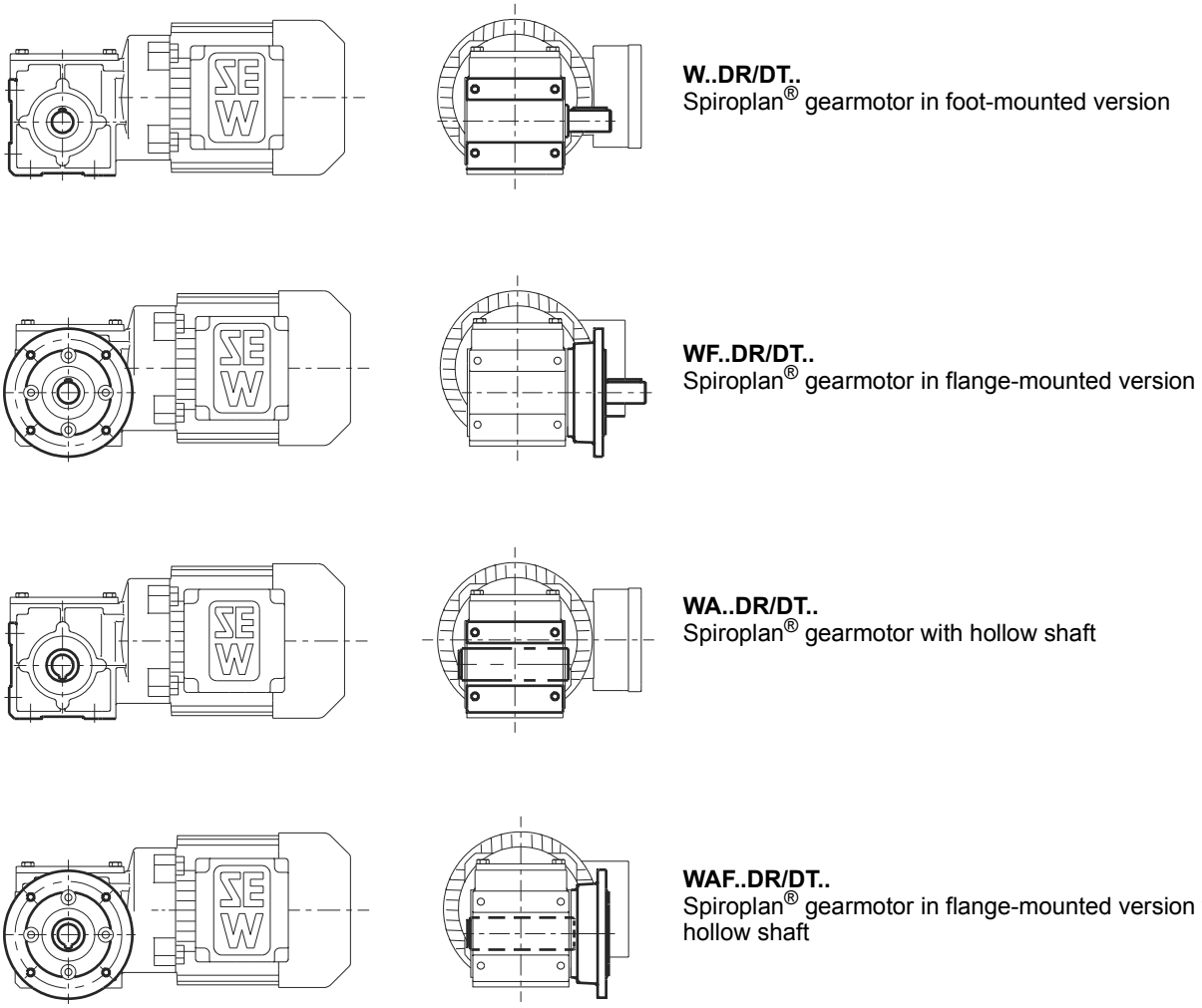


KHZ..DR/DT/DV..
Helical-bevel gearmotor in B14 flange-mounted version with hollow shaft and shrink disk

03174AXX

Spiroplan® gear-motors

The following types of Spiroplan® gearmotors can be supplied:



W..DR/DT..
Spiroplan® gearmotor in foot-mounted version

WF..DR/DT..
Spiroplan® gearmotor in flange-mounted version

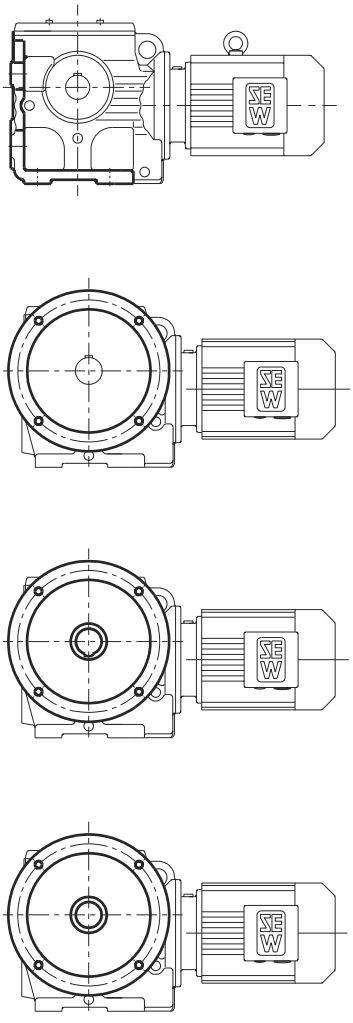
WA..DR/DT..
Spiroplan® gearmotor with hollow shaft

WAF..DR/DT..
Spiroplan® gearmotor in flange-mounted version with hollow shaft

03188AXX

Helical-worm gearmotors

The following types of helical-worm gearmotors can be supplied:



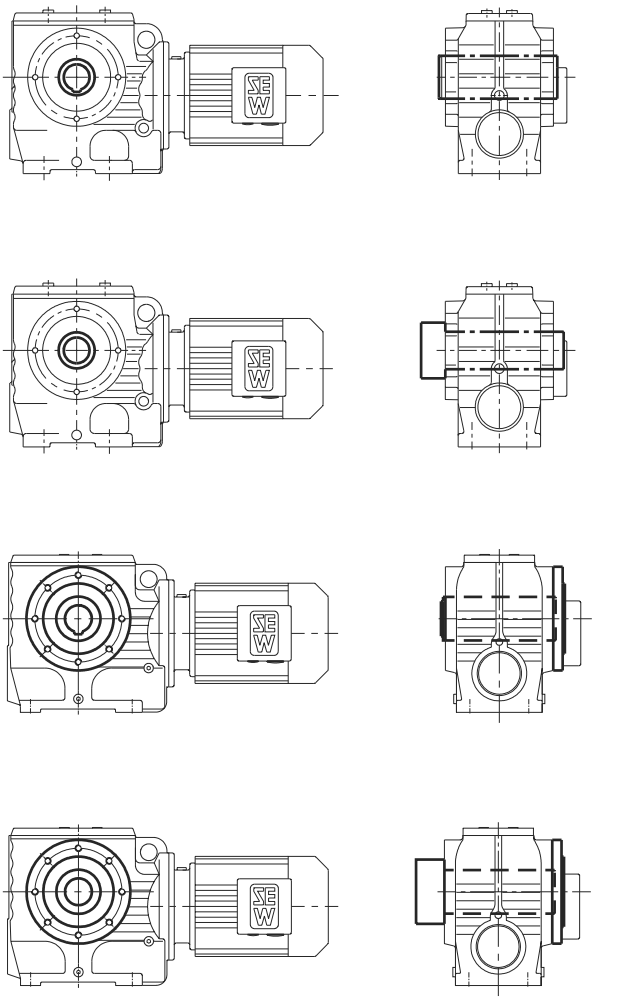
S..DR/DT/DV..
Foot-mounted helical-worm gearmotor

SF..DR/DT/DV..
Helical-worm gearmotor in B5 flange-mounted version

SAF..DR/DT/DV..
Helical-worm gearmotor in B5 flange-mounted version with hollow shaft

SHF..DR/DT/DV..
Helical-worm gearmotor in B5 flange-mounted version with hollow shaft and shrink disk

03180AXX



SA..DR/DT/DV..
Helical-worm gearmotor with hollow shaft

SH..DR/DT/DV..
Helical-worm gearmotor with hollow shaft and shrink disk

ST..DR/DT/DV..
Helical-worm gearmotor with hollow shaft and TorqLOC® hollow shaft mounting system

SAZ..DR/DT/DV..
Helical-worm gearmotor in B14 flange-mounted version with hollow shaft

SHZ..DR/DT/DV..
Helical-worm gearmotor in B14 flange-mounted version with hollow shaft and shrink disk

03181AXX

Multi-stage gearmotors

You can achieve particularly low output speeds by using multi-stage gear units or multi-stage gearmotors. Such a setup requires a helical gear unit/gearmotor on the input end as a second gear unit.

When doing this, it is necessary to limit the motor power depending on the maximum permitted output torque of the gear unit.

Reduced backlash version

Gear units with reduced backlash in helical, parallel shaft helical and helical-bevel design are available as of gear unit size 37. The circumferential backlash of these gear units is considerably less than that of the standard versions so that positioning tasks can be solved with great precision. The circumferential backlash is specified in angular minutes ['] in the technical data. The dimension sheets for the standard versions are applicable.

NOCO® fluid for protection against contact corrosion

As standard, all shaft-mounted gearmotors are supplied with NOCO® fluid, a paste that prevents contact corrosion. Use this paste in accordance with the instructions in the gear unit operating instructions. It facilitates service and stripping down jobs.

NOCO® fluid is food grade according to USDA-H1. You can tell that NOCO® fluid is a food grade oil by the USDA-H1 identification label on its packaging.

RM gearmotors

RM gearmotors are a special type of helical gearmotors with an extended output bearing hub. They are specially designed for agitating applications and can be used in applications subject to high overhung and axial loads as well as flexural torque. The remaining data correspond to the standard helical gearmotors. You can find special project planning notes for RM gearmotors in "Project Planning for Gear Units/RM gear units" section.

Spiroplan® right-angle gearmotors

Spiroplan® right-angle gearmotors are robust, single stage right-angle gearmotors with Spiroplan® gearing. They distinguish themselves from helical-worm gear units by the material combination used in the gearing (steel/steel), the special tooth meshing relationships and the aluminum housing. As a result, Spiroplan® right-angle gearmotors are wear-free, very quiet-running and lightweight.

Due to their extremely short design and aluminum housing it is possible to achieve very compact and lightweight drive solutions.

After the running-in period, Spiroplan® right-angle gearmotors are below the sound pressure level of 55 dB(A) (in 4-pole operation on a 50 Hz supply system). Their sound-pressure level in brand new state may be 3 to 5 dB(A) above that of the run-in condition.

The wear-free gearing and lubrication for life permit long maintenance-free operation. The oil filling being independent of the mounting position makes any position possible for Spiroplan® right-angle gearmotors without altering the quantity of oil. The identical hole distances in the foot and frontal face as well as the identical shaft centers to the foot and frontal face make for a wide range of mounting options.

Two different flange diameters are available. On request, Spiroplan® right-angle gearmotors can be equipped with a torque arm.

Brake motors

On request, motors and gearmotors can be supplied with an integrated mechanical brake. The SEW-EURODRIVE brake is an electromagnetic disk brake with a DC coil that releases electrically and brakes using spring force. The design principle means the brake is applied if the power fails. This means it complies with fundamental safety requirements. The brake can also be released mechanically if equipped with manual brake release. For this purpose, either a hand lever or a setscrew is supplied with the brake. The hand lever springs back automatically and the setscrew is lockable. The brake is activated by a brake control system housed either in the wiring space of the motor or in the switch cabinet.

A significant feature of the brakes is their very short length. The brake bearing end shield is a part of both the motor and the brake. The integrated construction of the SEW-EURODRIVE brake motor permits particularly compact and sturdy solutions.

International markets

SEW-EURODRIVE is a member of the AGMA (American Gear Manufacturers' Association), and as such, all its gear units and gearmotors conform to AGMA specifications.

We supply motors for connection conditions according to CSA and NEMA standards on request (registered with UL).

For the Japanese market, we offer motors conforming to JIS standards. Contact your sales representative to assist you in such cases.

2.3 Explosion protection to ATEX

Field of application

Directive 94/9/EC or ATEX lays down new regulations for explosion protection in all types of devices for the European market. This directive applies to gearmotors and motors as well. As of July 1, 2003, Directive 94/9/EC will apply without restrictions to the use of gearmotors and motors within the European Union. Other European countries, such as Switzerland, have since come into line with this regulation.

Scope

SEW-EURODRIVE now only supplies explosion-proof gearmotors and motors in accordance with the corresponding ATEX directive. The same applies to explosion-proof options and accessories.

Depending on their features and dimensions, explosion-proof gearmotors and motors are suitable for:

- Potentially explosive atmospheres (gas), zone 1 or 2.
- Potentially explosive atmospheres (dust), zone 21 or 22.

SEW-EURODRIVE offers gearmotors and motors of categories

- II2G
- II2D
- II3G-D
- II3D

for operation in zones 1, 21, 2 and 22.

Other documents

The "Explosion-Proof Drives according. to EU Directive 94/9/EC" system description and the volume of the same name in the "Drive Engineering - Practical Implementation" series provide you with basic information about this topic.

Please refer to the "Explosion-Proof Drives" catalog and the "Variable Speed Gearmotors" catalog for detailed information about explosion-proof SEW-EURODRIVE products.

2.4 Energy efficient motors

CEMEP, the association of European electric motor manufacturers, has reached an agreement with the European Commission's General Directorate for Energy that all 2 and 4-pole low-voltage AC motors from 1 to 100 kW will be classified on the basis of their efficiency, and that this classification will be identified on the nameplate and in catalogs. The following different categories will be used: EFF3, EFF2 and EFF1. EFF3 refers to motors without any particular efficiency requirement. EFF2 indicates improved efficiency motors and EFF1 is for high-efficiency motors.

Type DT/DV four-pole AC motors of motor size 90S and greater meet the requirements of efficiency class EFF 2. These motors are described in the "Gearmotors" catalog.

Type DTE/DVE four-pole AC motors of motor sizes 90S to 225S meet the requirements of efficiency class EFF 1. These motors are referred to as energy efficient motors. Energy efficient motors are described in a separate catalog. The "DTE/DVE Energy Efficient Motors" catalog contains the product description, technical data and detailed project planning notes.

International regulations

DT/DT and DTE/DVE four-pole AC motors comply with the energy efficiency standards and energy efficiency regulations of the following countries:

- Australia
- New Zealand

Preparations are in progress for the following countries:

- Brazil
- Canada
- USA

If required, you can request separate catalogs from SEW-EURODRIVE containing technical data applicable to a specific country.

2.5 Unit designations for gear units and options

Helical gear units

RX..	Single-stage foot-mounted
RXF..	Single-stage flange-mounted
R..	Foot-mounted
R..F	Foot and flange-mounted
RF..	Flange-mounted
RM..	Flange-mounted with extended bearing hub

Parallel shaft helical gear units

F..	Foot-mounted
FA..B	Foot-mounted and hollow shaft
FH..B	Foot-mounted and hollow shaft with shrink disk
FV..B	Foot-mounted and splined hollow shaft to DIN 5480
FF..	B5 flange-mounted
FAF..	B5 flange-mounted and hollow shaft
FHF..	B5 flange-mounted and hollow shaft with shrink disk
FVF..	B5 flange-mounted and splined hollow shaft to DIN 5480
FA..	Hollow shaft
FH..	Hollow shaft with shrink disk
FT..	Hollow shaft with TorqLOC® hollow shaft mounting system
FV..	Splined hollow shaft to DIN 5480
FAZ..	B14 flange-mounted and hollow shaft
FHZ..	B14 flange-mounted and hollow shaft with shrink disk
FVZ..	B14 flange-mounted and splined hollow shaft to DIN 5480

Helical-bevel gear units

K..	Foot-mounted
KA..B	Foot-mounted and hollow shaft
KH..B	Foot-mounted and hollow shaft with shrink disk
KV..B	Foot-mounted and splined hollow shaft to DIN 5480
KF..	B5 flange-mounted
KAF..	B5 flange-mounted and hollow shaft
KHF..	B5 flange-mounted and hollow shaft with shrink disk
KVF..	B5 flange-mounted and splined hollow shaft to DIN 5480
KA..	Hollow shaft
KH..	Hollow shaft with shrink disk
KT..	Hollow shaft with TorqLOC® hollow shaft mounting system
KV..	Splined hollow shaft to DIN 5480

KAZ..	B14 flange-mounted and hollow shaft
KHZ..	B14 flange-mounted and hollow shaft with shrink disk
KVZ..	B14 flange-mounted and splined hollow shaft to DIN 5480

Spiroplan® right-angle gear units

W..	Foot-mounted
WF..	Flange-mounted
WA..	Hollow shaft
WAF..	Flange-mounted and hollow shaft

Helical-worm gear units

S..	Foot-mounted
SF..	B5 flange-mounted
SAF..	B5 flange-mounted and hollow shaft
SHF..	B5 flange-mounted and hollow shaft with shrink disk
SA..	Hollow shaft
SH..	Hollow shaft with shrink disk
ST..	Hollow shaft with TorqLOC® hollow shaft mounting system
SAZ..	B14 flange-mounted and hollow shaft
SHZ..	B14 flange-mounted and hollow shaft with shrink disk

R, F, K gear unit option

/R	Reduced backlash

K, W and S gear unit option

/T	With torque arm

F gear unit option

/G	With rubber buffer

2.6 Unit designation for AC motors and options

Standard AC motor, series

DT.., DV..	Foot-mounted
DR.., DT.., DV..	Attached motor for gear units
DFR.., DFT.., DFV..	Flange-mounted
DT..F, DV..F	Foot and flange-mounted

Pole-changing AC motors with soft start

SDT.., SDV..	Foot-mounted
SDFT.., SDFV..	Flange-mounted
SDT..F, SDV..F	Foot and flange-mounted

Motor options

/BR, /BM(G)	Brake (reduced noise)
../HF	.. with lockable manual brake release
../HR	.. with automatic manual brake disengagement
/MM..	MOVIMOT® (integrated frequency inverter)
/MSW..	MOVI-SWITCH® (integrated switching and protection function)
/LN	Low-noise fan guard for motor sizes 71 to 132S
/RS	Backstop
/TF	Thermistor sensor (PTC resistance)
/TH	Thermostat (bimetallic switch)
/U	Non-ventilated
/VR	Forced cooling fan, $1 \times 24\ V_{DC}$
/VR	Forced cooling fan, $1 \times 100 ... 240\ V_{AC}$, 50/60 Hz
/VS	Forced cooling fan, $1 \times 220 ... 266\ V_{AC}$, 50 Hz
/V	Forced cooling fan, $3 \times 380 ... 415\ V_{AC}$, 50 Hz
/Z	Additional flywheel mass (flywheel fan)
/C	Protection cowl for the fan guard

Plug connector on AC motor options

/IS	Integrated plug connector
/AMA..	HAN modular 10B plug connector on terminal box with two-clamp closure
/AMB..	HAN modular 10B plug connector on terminal box with two-clamp closure
/AMD..	HAN modular 10B plug connector on terminal box with one-clamp closure
/AME..	HAN modular 10B plug connector on terminal box with one-clamp closure
/ASB..	HAN 10ES plug connector on terminal box with two-clamp closure
/ASD..	HAN 10ES plug connector on terminal box with one-clamp closure
/ASE..	HAN 10ES plug connector on terminal box with one-clamp closure
/ASK..	HAN 10ES ECOFAST® plug connector on terminal box with one-clamp closure, additionally with mounting screws for optional carrier plate

Encoder on AC motor options

/AV1Y	Absolute encoder with solid shaft, MSI and sin/cos signals and 24 V_{DC} supply
/AV1H	Multi-turn absolute encoder with solid shaft, Hiperface® and sin/cos signals with 7 ... 12 V_{DC} supply
/ES..T	Encoder with spread shaft, TTL (RS-422) signals and 5 V_{DC} supply
/ES..S	Encoder with spread shaft, sin/cos signals and 24 V_{DC} supply
/ES..R	Encoder with spread shaft, TTL (RS-422) signals and 24 V_{DC} supply
/EV1T	Encoder with solid shaft, TTL (RS-422) signals and 5 V_{DC} supply
/EV1S	Encoder with solid shaft, sin/cos signals and 24 V_{DC} supply
/EV1R	Encoder with solid shaft, TTL (RS-422) signals and 24 V_{DC} supply
/EV1H	Single-turn absolute encoder with solid shaft, Hiperface® and sin/cos signals with 7 ... 12 V_{DC} supply
/EH1T	Encoder with hollow shaft, TTL (RS-422) signals and 5 V_{DC} supply
/EH1S	Encoder with hollow shaft, sin/cos signals and 24 V_{DC} supply
/EH1R	Encoder with hollow shaft, TTL (RS-422) signals and 24 V_{DC} supply
/NV1..	Proximity sensor with A track and 24 V_{DC} supply
/NV2..	Proximity sensor with A and B track and 24 V_{DC} supply

Mounting device for encoders on AC motor options

ES..A	.. with spread shaft
EV1A	.. with solid shaft

2.7 Corrosion and surface protection

General information

SEW-EURODRIVE offers various optional protective measures for operating motors and gear units under special ambient conditions.

The protective measures are made up of two groups:

- Corrosion protection KS for motors
- Surface protection OS for motors and gear units

For motors, optimum protection is offered by a combination of corrosion protection KS and surface protection OS.

In addition, special optional protective measures for the output shafts are also possible.

Corrosion protection KS

Corrosion protection KS for motors is made up of the following measures:

- All retaining screws that are removed in operation are made from stainless steel.
- The nameplates are made from stainless steel.
- Various motor components are provided with a top coating.
- The flange contact surfaces and shaft ends are treated with a temporary anti-corrosion agent.
- Additional measures for brake motors.

A sticker labeled "KORROSIONSSCHUTZ" (corrosion protection) on the fan guard indicates special treatment has been applied.

Motors with a forced cooling fan and motors with a spreadshaft encoder (ES..) cannot be supplied with corrosion protection KS.

Surface protection OS

Instead of the standard surface protection, motors and gear units are optionally available with exterior surface protection OS1, OS2 or OS3. The special procedure Z can also be performed in addition to OS1, OS2 and OS3. The special procedure Z means that large surface recesses are sprayed with a rubber filling prior to painting.

Surface protection	Structure of coats	Coat thickness [µm]	Suitable for
Standard	1 × dip priming 1 × one-pack topcoat	ca. 50-70	• Normal ambient conditions • Relative humidity below 90 % • Surface temperature up to max. 120 °C • Corrosivity category C1[1]
OS1	1 × dip priming 1 × two-pack base coat 1 × two-pack varnish	ca. 120-150	• Low environmental pollution • Relative humidity max. 95 % • Surface temperature up to max. 120 °C • Corrosivity category C2[1]
OS2	1 × dip priming 2 × two-pack base coat 1 × two-pack varnish	ca. 170-210	• Medium environmental pollution • Relative humidity up to 100 % • Surface temperature up to max. 120 °C • Corrosivity category C3[1]
OS3	1 × dip priming 2 × two-pack base coat 2 × two-pack varnish	ca. 220-270	• High environmental pollution • Relative humidity up to 100 % • Surface temperature up to max. 120 °C • Corrosivity category C4[1]

1 according to DIN EN ISO 12 944-2

Special protective measures

Gearmotor output shafts can be treated with special optional protective measures for operation subject to severe environmental pollution or in particularly demanding applications.

Action	Protection principle	Suitable for
Kanisil coating	Surface coating of the contact surface of the oil seal	Severe environmental pollution and in conjunction with FKM oil seal (Viton)
Stainless steel output shaft	Surface protection through high-quality material	Particularly exacting applications in terms of exterior surface protection

NOCO-FLUID®

As standard, SEW-EURODRIVE supplies NOCO-FLUID® corrosion protection and lubricant with every hollow shaft gear unit. Use NOCO-FLUID® when installing hollow shaft gear units. This will reduce any possible fretting corrosion and facilitate possible removal later on.

Furthermore, NOCO-FLUID® is also suitable for protecting machined metal surfaces that do not have corrosion protection. These include parts of shaft ends or flanges. You can also order larger containers of NOCO-FLUID® from SEW-EURODRIVE.

NOCO-FLUID® is food grade according to USDA-H1. You can tell that NOCO-FLUID® is a food grade oil by the USDA-H1 identification label on its packaging.

2.8 Extended storage

Version

You can also order gear units prepared for "extended storage". In this case, a VCI (volatile corrosion inhibitor) is added to the lubricant in these gear units. Unless specified otherwise, the gear unit will be provided with exterior surface protection OS1. You can order OS2 or OS3 instead of OS1.

Surface protection	Suitable for
OS1	Low environmental pollution
OS2	Medium environmental pollution
OS3	High environmental pollution

Oil fill

Note the following points concerning the oil fill:

- **Mineral oil (CLP) and synthetic oil (CLP HC):** Gear units will be supplied with an oil fill according to the mounting position (M1 ... M6) and are ready for operation.
- **Synthetic oil (CLP PG):** In some cases, gear units are supplied with an increased oil level. Before startup, adjust the oil level to match the required mounting position (M1 ... M6). The oil fill quantities for gear units are specified in Sec. 6.1 "Lubricants" (→ page 69).

The gear units must remain tightly sealed until taken into operation to prevent the VCI corrosion protection agent from evaporating.

Always check the oil level before you take the gear unit into operation!

Storage conditions

Comply with the storage conditions specified in the following table for extended storage:

Climate zone	Packaging[1]	Storage location	Storage time
Temperate (Europe, USA, Canada, China and Russia, excluding tropical zones)	Packed in containers, with desiccant and moisture indicator sealed in the plastic wrap.	With roof, protected against rain and snow, no shock loads.	Max. 3 years with regular checks on the packaging and moisture indicator (rel. humidity < 50 %).
	Open	Under roof, enclosed at constant temperature and atmospheric humidity (5 °C < ϑ < 60 °C, < 50 % relative humidity). No sudden temperature fluctuations and controlled ventilation with filter (free from dirt and dust). No aggressive vapors and no shock loads.	Two years or more given regular inspections. Check for cleanliness and mechanical damage as part of the inspection. Check corrosion protection.
Tropical (Asia, Africa, Central and South America, Australia, New Zealand excluding temperate zones)	Packed in containers, with desiccant and moisture indicator sealed in the plastic wrap. Protected against insect damage and mildew by chemical treatment.	With roof, protected against rain, no shock loads.	Up to three years with regular checks of the packaging and moisture indicator (rel. humidity < 50 %).
	Open	Under roof, enclosed at constant temperature and atmospheric humidity (5 °C < ϑ < 60 °C, < 50 % relative humidity). No sudden temperature fluctuations and controlled ventilation with filter (free from dirt and dust). No aggressive vapors and no shock loads. Protection against insect damage.	Two years or more given regular inspections. Check for cleanliness and mechanical damage as part of the inspection. Check corrosion protection.

1 Packaging must be performed by an experienced company using the packaging materials that have been expressly specified for the particular application.

2.9 Drives for aseptic environments

High demands are placed on hygiene both for the production of beverages and food and in the chemical and pharmaceutical industries. Often, regulations stipulate a completely germ-free environment. The drive solutions used in the past made it very hard to clean the production system as thoroughly as required. Standard motors usually have cooling fins and fans. Dirt can collect in these components, from where it cannot be fully removed due to problems of accessibility. This can lead to a build up of germs!

SEW-EURODRIVE solves this problem by using special aseptic gearmotors. Thanks to their smooth surface, the helical, parallel shaft, helical-bevel or helical-worm gearmotors in aseptic design are easy to clean and prevent a build up of germs or bacteria on the surface.

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Figure 1: Aseptic gearmotor from SEW-EURODRIVE

The drives for aseptic environments are equipped with special AC motors of the DAS80 ... DAS100 series. These motors have the following characteristics:

- Motors with a smooth surface without cooling fins
- Pure convection cooling (without fan)
- Rated power in S1 mode 0.25 kW ... 1.5 kW
- Motor enclosure IP66 as standard (brake motors IP65)
- Electrical connection via plug connector in enclosure IP66
- Motor to be mounted directly on standard R, F, K and S gear units
- with KS corrosion protection
- Surface protection coating to protect against chemicals and solvents
- All surface recesses sprayed with elastic rubber compound as an option
- Optional with brake for 110 ... 500 V
- Optional with encoder for speed-controlled inverter operation

Aseptic gearmotors from SEW-EURODRIVE also create the perfect conditions in your production system for the hygienic production and packaging of food and beverages.

You will find detailed information on aseptic gearmotors from SEW-EURODRIVE in the "Aseptic Drives DAS" catalog available from SEW-EURODRIVE.

2.10 Sample unit designation of a gearmotor

The unit designation of the gearmotor starts from the component on the output end. For instance, a multi-staged helical-bevel gearmotor with thermistor sensor in the motor winding has the following unit designation:

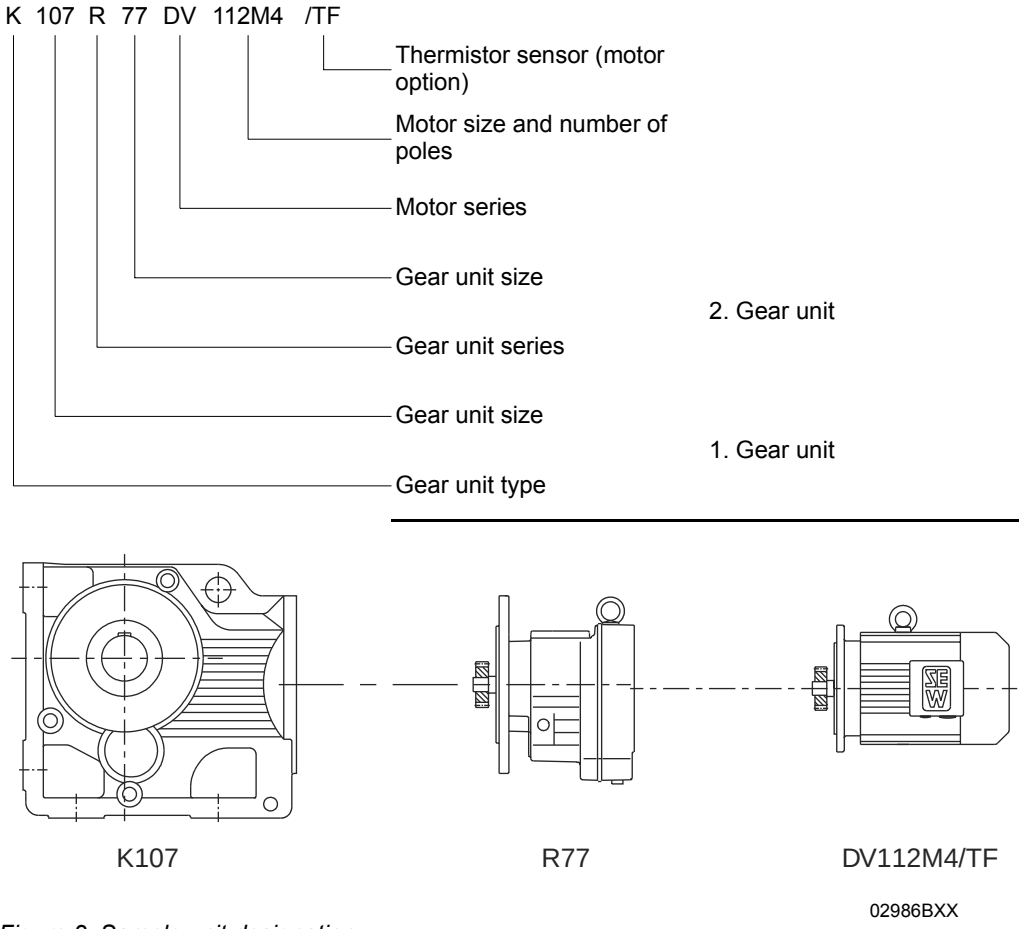

Figure 2: Sample unit designation

Other examples:

- RF 97 / R DV100M4 / BMG / HR
  - –Gear unit type: Reduced backlash (/ R) helical gear unit in flange-mounted version
  - –Gear unit size: 97
  - –Motor series: DV AC motor
  - –Motor size 100M, 4-pole
  - –Motor options: Low-noise brake (/ BMG) with automatic manual brake disengagement (/ HR)
- FAF 47 / R DT90L4 / BMG / C
  - –Gear unit type: Reduced backlash parallel shaft helical gear unit (/ F) in B5 flange-mounted version with hollow shaft
  - –Gear unit size: 47
  - –Motor series: DT AC motor
  - –Motor size 90L, 4-pole
  - –Motor options: Low-noise brake (/ BMG) and protection cowl for the fan guard (/ C)