SEW EURODRIVE

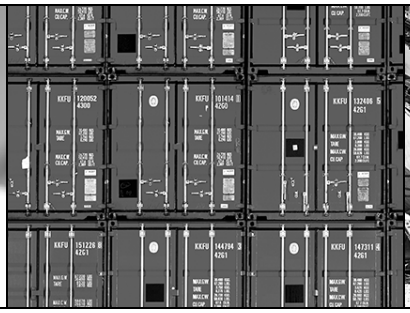
# Operating Instructions

Drive Unit
**MGF..-DSM**

Edition 12/2013

20254946 / EN






# Contents

# Contents

# 1 General information

## 1.1 How to use this documentation

The documentation is an integral part of the product and contains important information on operation and service. The documentation is written for all employees who assemble, install, start up, and service this product.

The documentation must be accessible and legible. Make sure that persons responsible for the system and its operation, as well as persons who work independently on the unit, have read through the documentation carefully and understood it. If you are unclear about any of the information in this documentation, or if you require further information, contact SEW-EURODRIVE.

## 1.2 Structure of the safety notes

### 1.2.1 Meaning of signal words

The following table shows the graduation and meaning of the signal words for safety notes, warnings regarding potential risks of damage to property, and other notes.

| Signal word | Meaning | Consequences if disregarded |
|---|---|---|
| ⚠ **DANGER!** | Imminent hazard | Severe or fatal injuries |
| ⚠ **WARNING!** | Possible dangerous situation | Severe or fatal injuries |
| ⚠ **CAUTION!** | Possible dangerous situation | Minor injuries |
| **NOTICE** | Possible damage to property | Damage to the drive system or its environment |
| **INFORMATION** | Useful information or tip: Simplifies handling of the drive system. | |

### 1.2.2 Design of the section-related safety notes

Section-related safety notes do not apply to a specific action, but to several actions pertaining to one subject. The symbols used either indicate a general hazard or a specific hazard.

This is the formal structure of a safety note for a specific section:

**⚠ SIGNAL WORD!**

Type and source of danger.

Possible consequence(s) if disregarded.

- Measure(s) to prevent the danger.

### 1.2.3 Design of the embedded safety notes

Embedded safety notes are directly integrated into the instructions just before the description of the dangerous action.

This is the formal structure of an embedded safety note:

- ⚠ **SIGNAL WORD!** Type and source of hazard.

  Possible consequence(s) if disregarded.

  – Measure(s) to prevent the hazard.

## 1.3 Rights to claim under warranty

A requirement of fault-free operation and fulfillment of any rights to claim under limited warranty is that you adhere to the information in the documentation. Therefore read the documentation before you start working with the unit.

## 1.4 Exclusion of liability

You must comply with the information contained in this documentation to ensure safe operation and to achieve the specified product characteristics and performance features. SEW-EURODRIVE assumes no liability for injury to persons or damage to equipment or property resulting from non-observance of these operating instructions. In such cases, any liability for defects is excluded.

## 1.5 Copyright

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## 1.6 Product names and trademarks

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# 2 Safety notes

The following basic safety notes must be read carefully to prevent injury to persons and damage to property. The operator must ensure that the basic safety notes are read and adhered to. Ensure that persons responsible for the system and its operation, as well as persons who work independently on the unit, have read through the operating instructions carefully and understood them. If you are unclear about any of the information in this documentation, or if you require further information, please contact SEW-EURODRIVE.

## *2.1 General information*

Never install damaged products or take them into operation. Submit a complaint to the shipping company immediately in the event of damage.

During operation, MGF..-DSM drive units can have live, bare and movable or rotating parts as well as hot surfaces, depending on their degree of protection.

Removing covers without authorization, improper use as well as incorrect installation or operation may result in severe injuries to persons or damage to property.

Refer to the documentation for additional information.

## *2.2 Target group*

**Only qualified electricians** are authorized to install, start up or service the units or correct unit faults (observing IEC 60364 or CENELEC HD 384 or DIN VDE 0100 and IEC 60664 or DIN VDE 0110 as well as national accident prevention guidelines).

Qualified electricians in the context of these basic safety notes are all persons familiar with installation, assembly, startup and operation of the product who possess the necessary qualifications.

All persons involved in any other work, such as transportation, storage, operation and disposal, must be trained appropriately.

## 2.3 Designated use

MGF..-DSM drive units are components intended for installation in electrical systems or machines.

In case of installation in machines, taking the MGF..-DSM drive units into operation (i.e. start of designated operation) is prohibited until it is determined that the machine meets the requirements stipulated in EC Directive 2006/42/EC (Machinery Directive).

Startup (i.e. the start of designated use) is only permitted under observance of EMC directive 2004/108/EC (EMC Directive).

MGF..-DSM drive units comply with the regulations of the Low Voltage Directive 2006/95/EC. The standards given in the declaration of conformity are applied to the MGF..-DSM drive units.

You must observe the technical data and information on the connection requirements as provided on the nameplate and in the documentation.

### 2.3.1 Safety functions

MGF..-DSM drive units may not perform any safety functions.

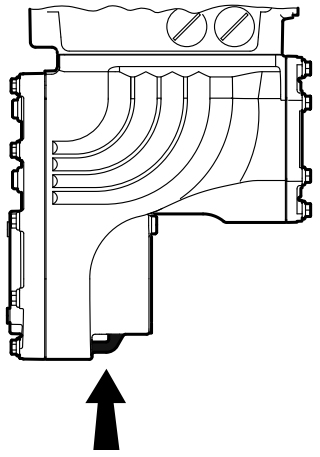
### 2.3.2 Lifting applications

MGF..-DSM drive units may generally not be used for lifting applications and inclining tracks.

## 2.4 Transportation, storage

You must observe the notes in the documentation regarding transportation, storage and proper handling. Use suitable, sufficiently rated handling equipment (e.g. rope guides) if required. Do not attach any additional loads. Observe climatic conditions in accordance with the documentation.

The following figure shows the eyebolt of MGF..-DSM drive units:



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## 2.5 Installation

The units must be installed and cooled according to the regulations and specifications in the corresponding documentation.

Protect the MGF..-DSM drive units from improper strain.

The following applications are prohibited unless explicitly permitted:

- Use in potentially explosive atmospheres.
- Use in areas exposed to harmful oils, acids, gases, vapors, dust, radiation, etc.
- Use in non-stationary applications that are subject to mechanical vibration and shock loads as stated in the documentation for MGF..-DSM drive units.

Important: MGF..-DSM drive units and corresponding mount-on parts must not protrude into footways.

## 2.6 Electrical connection

Working on live parts of MGF..-DSM drive units is not permitted.

The drive is operated as a generator due to the kinetic energy of the system/machine. Secure the output shaft against rotation before opening the wiring compartment.

Electrical installation must be carried out in compliance with pertinent regulations (e.g. cable cross sections, fusing, protective conductor connection). For any additional information, refer to the applicable documentation.

You find notes on EMC-compliant installation, such as shielding, grounding, arrangement of filters and routing of lines, in the documentation of the MGF..-DSM drive units. The manufacturer of the system or machine is responsible for maintaining the limits established by EMC legislation.

Protective measures and protection devices must comply with the regulations in force (e.g. EN 60204-1 or EN 61800-5-1).

## 2.7 Safe disconnection

MGF..-DSM drive units meet all requirements for safe disconnection of power and electronics connections in accordance with EN 61800-5-1. All connected circuits must also satisfy the requirements for safe disconnection to ensure reliable isolation.

## 2.8 Operation

Systems with integrated MGF..-DSM drive units might have to be equipped with additional monitoring and protection devices so they comply with applicable safety guidelines, such as the law governing technical equipment, accident prevention regulations, etc. Additional protective measures may be necessary for applications with increased potential risk.

The connection boxes must be closed and screwed on before the supply voltages are connected to MGF..-DSM drive units.

Mechanical blocking or internal safety functions of the unit can cause a motor standstill. Eliminating the cause of the problem or performing a reset may result in the drive restarting automatically. If, for safety reasons, this is not permitted for the driven machine, disconnect the unit from the supply system before correcting the error.

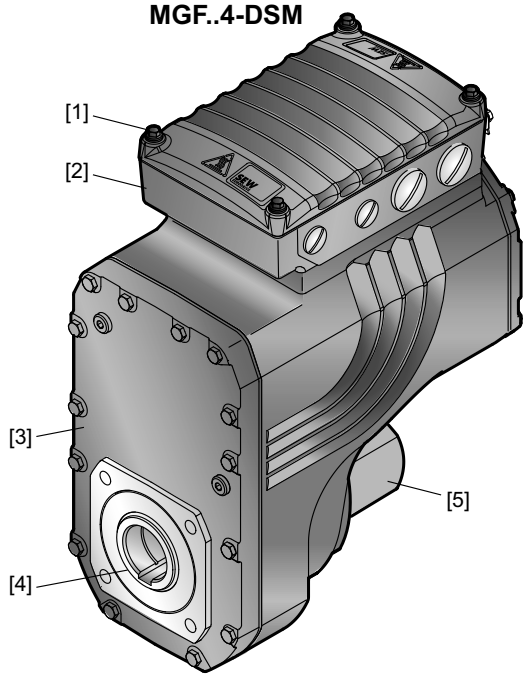
Caution: Danger of burns: The surface temperatures of MGF..-DSM drive units can be more than 60 °C during operation.

# 3 Unit structure

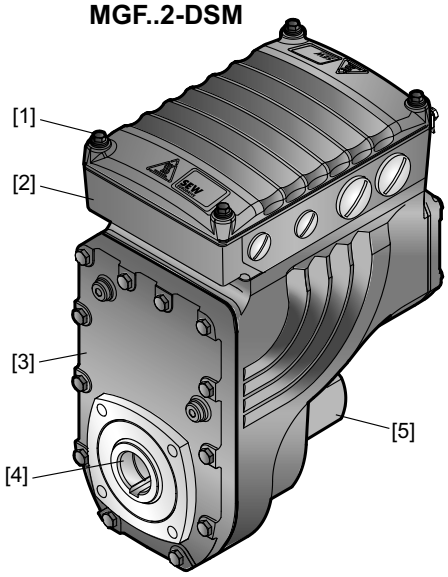
## *3.1 MGF..-DSM drive unit*

MGF..-DSM is a unit consisting of a gear unit and a synchronous motor in a compact aluminum die-cast housing (see following figure).

**MGF..4-DSM**




**MGF..2-DSM**

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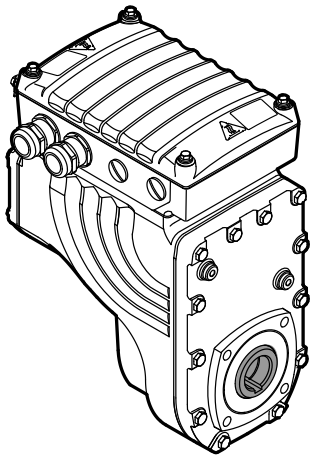
[1] MGF..-DSM cover
[2] Connection ring for cable glands
[3] Inspection cover
[4] Output shaft variant (pictured here: hollow shaft with keyway)
[5] Optional cover

## 3.2 Shaft types

MGF..-DSM is available with the following shaft types:

### 3.2.1 MGF..-DSM with hollow shaft and keyway (MGFA..)

The following figure shows a MGF..-DSM unit with hollow shaft and keyway:



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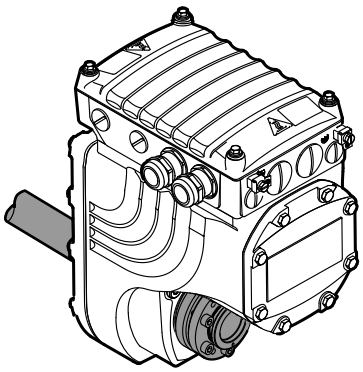
### 3.2.2 MGF..-DSM with TorqLOC® hollow shaft mounting system (MGFT..)

The following figure shows a MGF..-DSM unit with TorqLOC® hollow shaft mounting system



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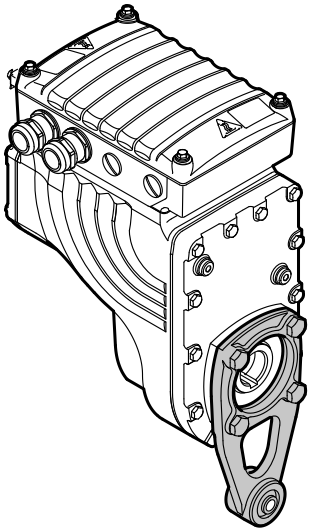
## 3.3 Housing mounting

### 3.3.1 Torque arm (for MGF.T)

The following figure shows the torque arm for MGF.T:



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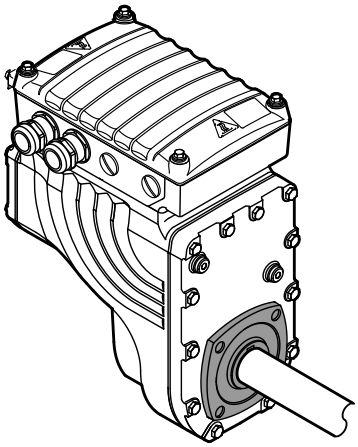
### 3.3.2 Housing with threads (for MGF.S)

The following figure shows the housing type with threads for mounting a torque arm. This type does not include a centering shoulder, which means it is not suitable for direct installation to the machine:



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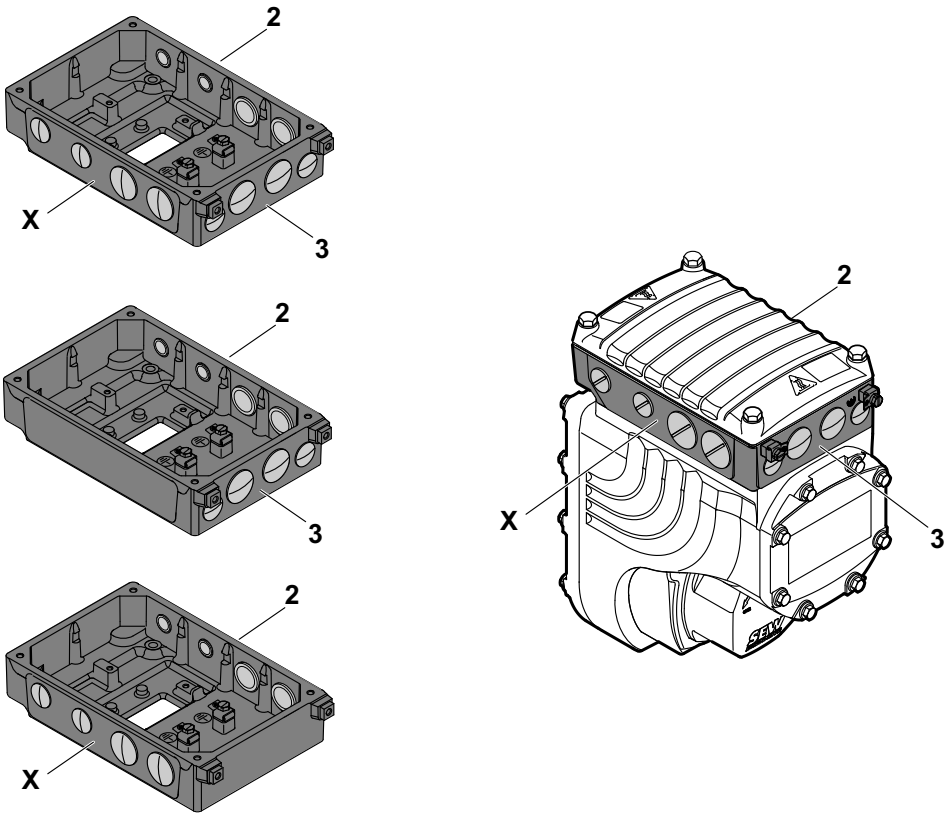
## 3.4 Cable entry positions

The following cable entries are possible for MGF..-DSM drive units:

- Position X + 2
  - X: 2 x M25 x 1.5 + 2 x M16 x 1.5
  - 2: 2 x M25 x 1.5 + 2 x M16 x 1.5
- Position X + 2 + 3
  - X: 2 x M25 x 1.5 + 2 x M16 x 1.5
  - 2: 2 x M25 x 1.5 + 2 x M16 x 1.5
  - 3: 2 x M25 x 1.5 + 2 x M16 x 1.5
- Position X + 3
  - X: 2 x M25 x 1.5 + 2 x M16 x 1.5
  - 3: 2 x M25 x 1.5 + 2 x M16 x 1.5
- Position 2 + 3
  - 2: 2 x M25 x 1.5 + 2 x M16 x 1.5
  - 3: 2 x M25 x 1.5 + 2 x M16 x 1.5

### 3.4.1 Overview

The following figure shows the possible cable entries:

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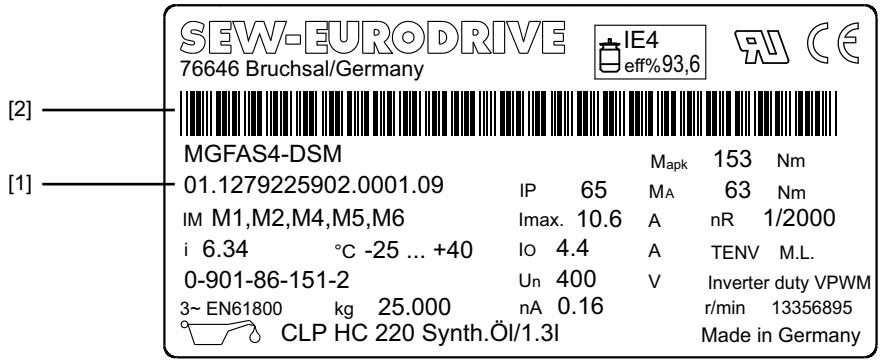
## 3.5 Example nameplate and type designation of the drive unit

### 3.5.1 Nameplate

The following figure gives an example of an MGF..-DSM nameplate For the structure of the type designation, refer to chapter "Type designation".

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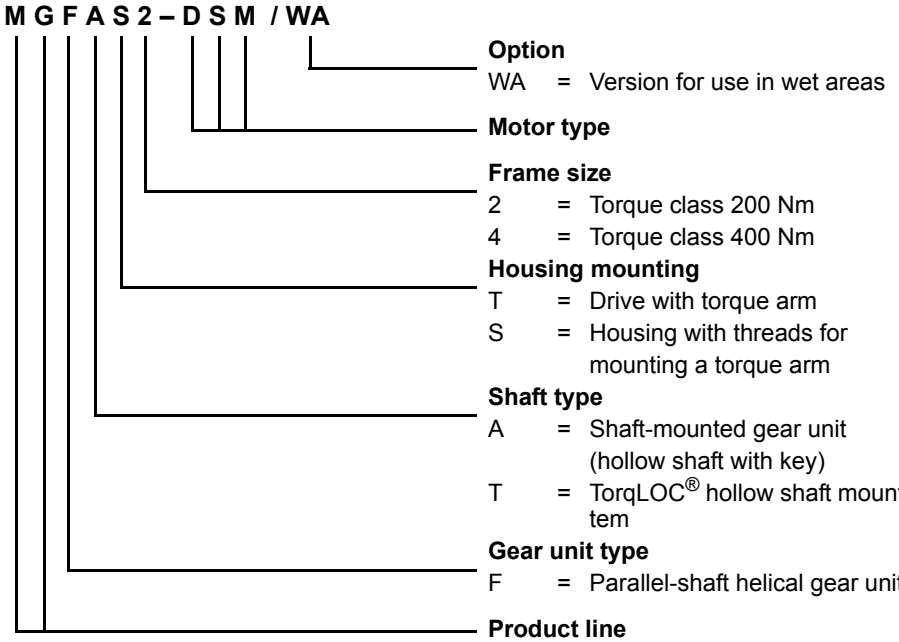
[1] Unique serial number
[2] The bar code on the nameplate (code 39) according to ISO/IEC 16388 represents the unique serial number (with a period as separator).

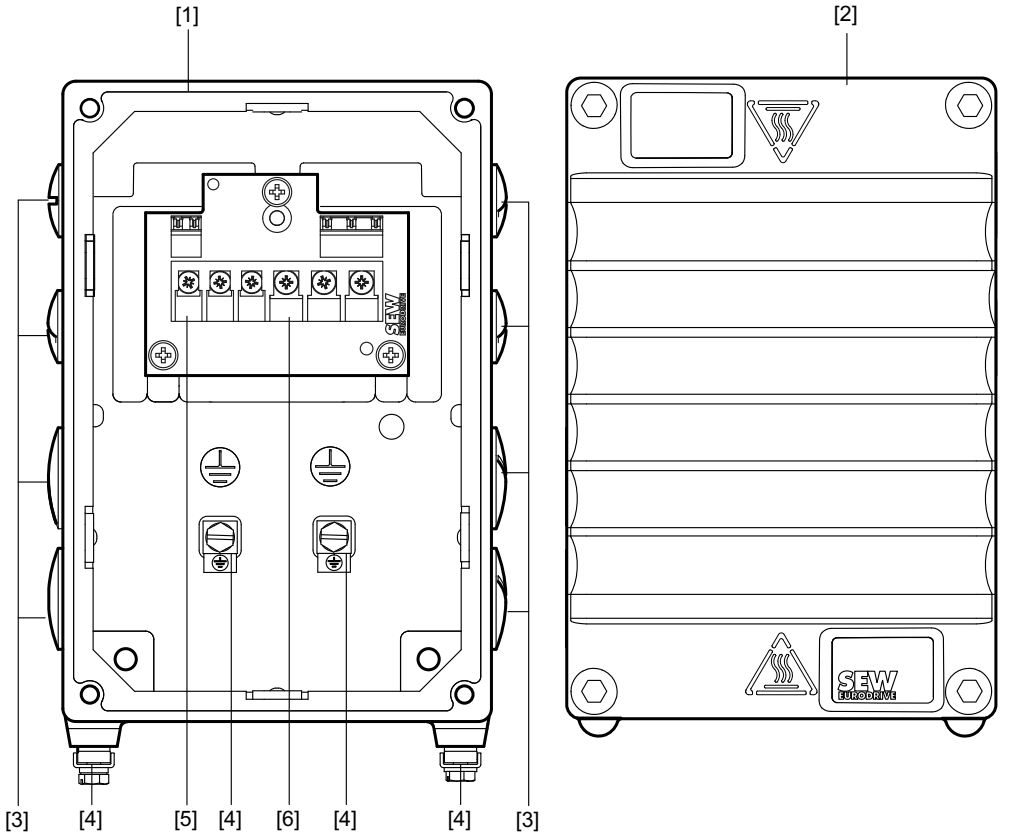
### 3.5.2 Type designation

The following table shows the type designation for MGF..-DSM:



## 3.6 MGF..-DSM cover and connection box

The following figure shows the connection box and the MGF..-DSM cover:

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[1] Connection ring
[2] MGF..-DSM cover
[3] Cable glands
[4] Screws for PE connection ⏚
[5] KTY connection
[6] Line connection L1, L2, L3

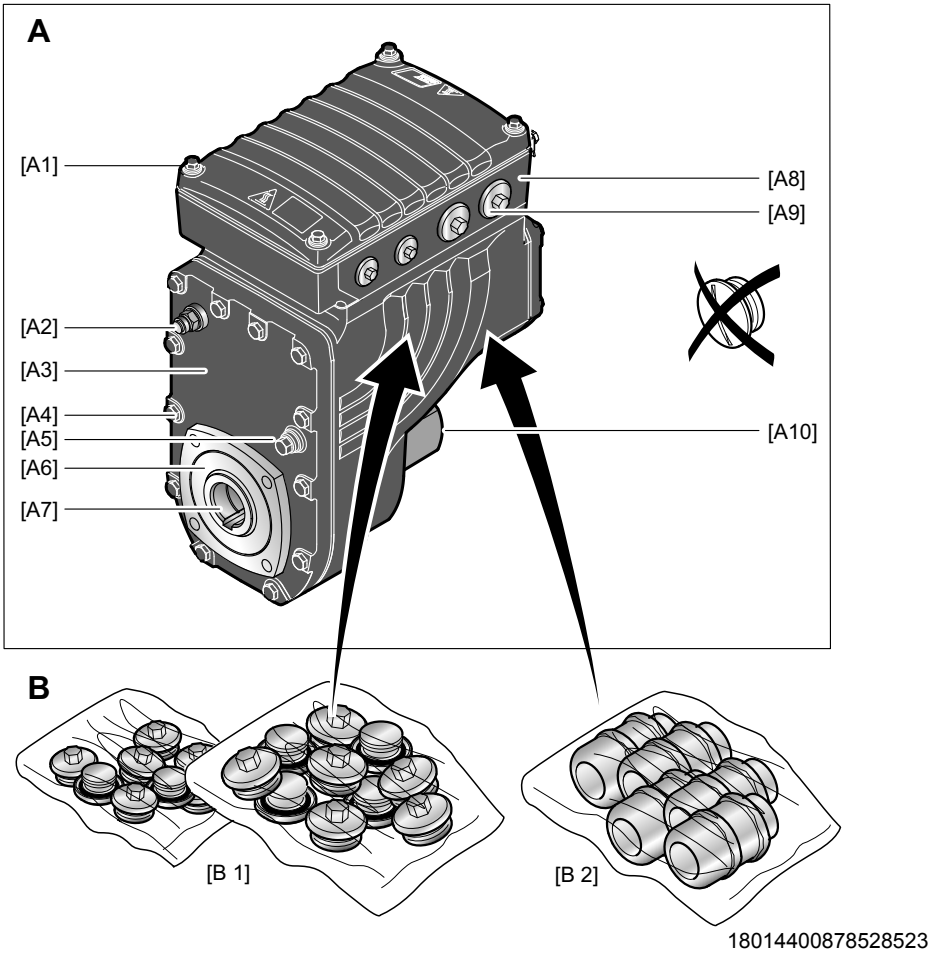
## 3.7 MGF..-DSM with optional version for wet areas (/WA option)

### INFORMATION

Slight color differences are possible in the HP200 surface finish due to the treatment process (individual treatment of the components).

The following figure shows the additional features of MGF..-DSM drive units with the optional version for applications in wet areas (/WA option):

- The variant for use in wet areas is delivered as standard with screw plugs made of stainless steel.
- Plastic screw plugs can be chosen instead. To achieve degree of protection IP66 and compatibility with cleaning agents, you have to replace the plastic screw plugs by suitable screw fittings made of stainless steel.

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In this publication, all illustrations depicting the version for use in wet areas are displayed with a shading (= HP200 surface protection).

| | | |
|---|---|---|
| **A** | **Scope of delivery** | |
| [A1] | Mounting screws for cover made of stainless steel | |
| [A2] | Breather valve mounted and activated according to mounting position, see chapter "Technical data and dimension sheets" | |
| [A3] | HP200 surface protection, see chapter "Technical data and dimension sheets" | |
| [A4] | Mounting screws for gear unit housing made of stainless steel | |
| [A5] | Oil screw plug made of stainless steel (hexagon) | |
| [A6] | Fluorocarbon rubber oil seal | |
| [A7] | Output shaft made of stainless steel | |
| [A8] | Connection ring only possible with cable outlet pointing "downward" or "on the side":<br>– In connection with mounting positions M1, M2, M3*: 2 + 3, 2 + X, X + 3, 2 + X + 3<br>– In connection with mounting position M4: 2 + X<br>– In connection with mounting position M5: X + 3<br>– In connection with mounting position M6: 2 + 3 | |
| [A9] | Standard:<br>Screw plugs made of stainless steel | Optional:<br>Plastic screw plugs. To achieve degree of protection IP66 and compatibility with cleaning agents, you have to replace the plastic screw plugs by suitable screw fittings made of stainless steel. |
| [A10] | Additional cover opposite the output side | |

| | |
|---|---|
| **B** | **Required screw fittings** |
| [B1] | Screw plugs made of stainless steel, if required [1)] |
| [B2] | Cable glands made of stainless steel [1)] |

* = Mounting position M3 only possible after consultation with SEW-EURODRIVE

The required screw fittings can be ordered from SEW-EURODRIVE. For an overview, refer to chapter "Optional metal screw fittings".

[1)] Make sure to select plug seals that are compatible with the used cleaning agents

# 4 Mechanical installation

## 4.1 Installation notes

**INFORMATION**

Adhere to the safety notes during installation.

**⚠ WARNING**

Improper installation/disassembly of MGF..-DSM drive units and mount-on components.

Risk of injury.

- Adhere to the notes about installation and disassembly.
- Before releasing shaft connections, make sure that there are no active torsional moments present (tensions within the system).

**⚠ WARNING**

Risk of injury if the drive unit starts up unintentionally and danger of electrical voltage.

Severe or fatal injuries.

- Disconnect the MGF..-DSM drive unit from the power supply before you start working on the unit and secure it against unintentional reconnection to the power supply.
- Secure the output shaft against rotation.

## 4.2 Required tools and resources

- Set of wrenches
- Torque wrench
- Mounting device
- Compensation elements (shims and spacing rings), if necessary
- Mounting materials for output components
- Lubricant (e.g. NOCO® Fluid)
- Standard parts are not included in the delivery

### 4.2.1 Installation tolerances for shaft ends

Diameter tolerance in accordance with DIN 748:

- ISO H7 for hollow shafts

### 4.2.2 Tolerances for torque ratings

The specified torques must be adhered to with a tolerance of +/− 10%.

## 4.3 Installation requirements

Check that the following conditions have been met:

- The entries on the nameplate of the MGF..-DSM unit match the voltage supply system.
- The drive is undamaged (no damage caused by transportation or storage)
- Ambient temperature according to the operating instructions, nameplate and lubricant table in chapter "Technical data/lubricants".
- The drive must not be assembled in the following ambient conditions:
  - Potentially-explosive atmosphere
  - Oils
  - Acids
  - Gases
  - Vapors
  - Radiation
- For special designs: The drive is designed in accordance with the actual ambient conditions.
- Clean the output shafts and flange surfaces thoroughly to ensure they are free of anti-corrosion agents, contamination or similar. Use a commercially available solvent. Do not expose the sealing lips of the oil seals to the solvent – damage to the material.
- When the drive is installed in abrasive ambient conditions, protect the output end oil seals against wear.

## 4.4 Setting up the drive unit

### 4.4.1 Information

- Clean the output shafts thoroughly to ensure they are free of anti-corrosion agents (use a commercially available solvent). Do not expose the bearings and sealing rings to the solvent – damage to the material!
- Carefully align the MGF..-DSM drive unit and the driven machine to avoid placing any unacceptable strain on the motor shafts (observe permissible overhung loads).
- Do not butt or hammer the shaft end.
- Ensure that cooling air supply is unobstructed and that air discharged by other units does not influence cooling.
- Use suitable cable glands for the supply leads (use reducing adapters if necessary).
- Seal the cable entry well.
- Clean the sealing faces of the MGF..-DSM cover well before reassembling the unit.
- Restore the corrosion protection if necessary.
- Check the validity of the degree of protection using the information in the operating instructions and the data on the nameplate.

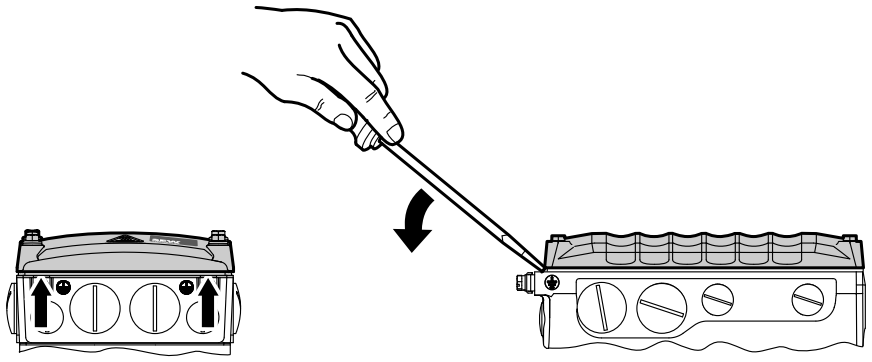
*Change in mounting position*

Make sure to read the following information when you operate the drive unit in a mounting position other than the one indicated in the order:

- **Adjust the position of the breather valve and, if necessary, the position of the pressure compensation fitting.**

### 4.4.2 Removing the MGF..-DSM cover

The following figure shows how you can lever off the cover in the intended places.



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### 4.4.3 Installation in damp locations or in the open

Drives are supplied in corrosion-resistant versions for use in damp areas or in the open. Repair any damage to the paint work if necessary.

For variants with HP200 surface treatment, observe the notes in chapter "Drive units with optional design for wet areas".

### 4.4.4 Painting drive units

**NOTICE**

Breather valves and oil seals may be damaged during painting or re-painting.

Potential damage to property.

- Clean the surface of the drive unit and make sure it is free from grease.
- Thoroughly cover the breather valves and sealing lip of the oil seals with strips prior to painting.
- Remove the strips after painting.

### 4.4.5 Gear unit venting

*Drive units with installed breather valve*

Except for the M3 mounting position, SEW-EURODRIVE delivers all MGF..-DSM drive units ordered for a specific mounting position with a breather valve that is activated and installed according to the specific mounting position.

MGF..-DSM drive units with optional "design for wet areas" are generally delivered with the activated breather valve installed corresponding to the respective mounting position.

*Drive units with separately included breather valve*

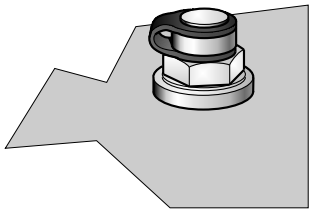
SEW-EURODRIVE delivers MGF..-DSM drive units ordered for a universal mounting position with a separately included breather valve.

In this case, the breather valve is delivered in the hollow shaft of the drive unit. Before startup, you must replace the highest oil screw plug with the provided breather valve.

*Activating the breather valve*

Once you have installed the breather valve, activate it as follows. For designs with the breather valve screwed in: Check whether the breather valve is activated. If not, you have to remove the transport fixture of the breather valve before you start up the drive unit.

1. Breather valve with transportation protection device



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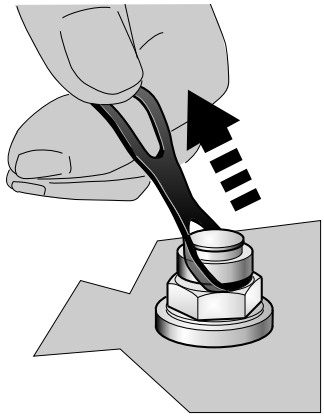
2. Remove the transport fixture



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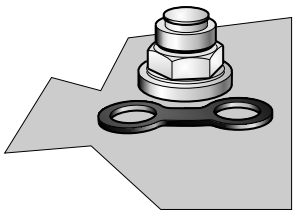
3. Activated breather valve



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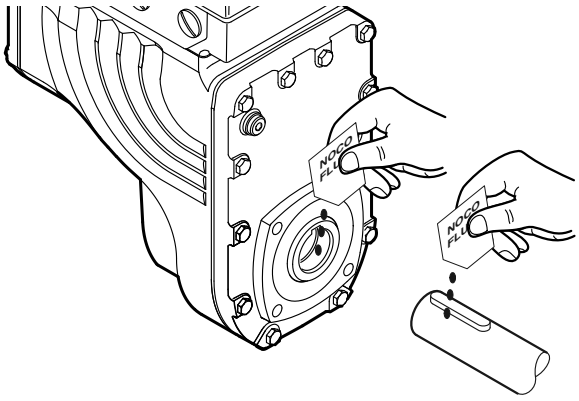
## 4.5 Shaft-mounted gear unit with keyway

**INFORMATION**

Observe the design notes in chapter "Technical data and dimension sheets" for the customer shaft design.

### 4.5.1 Installation notes

1. Apply NOCO-FLUID® and spread it thoroughly.



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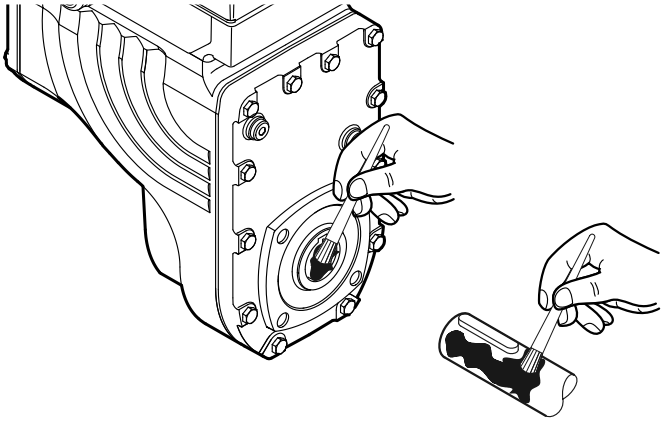

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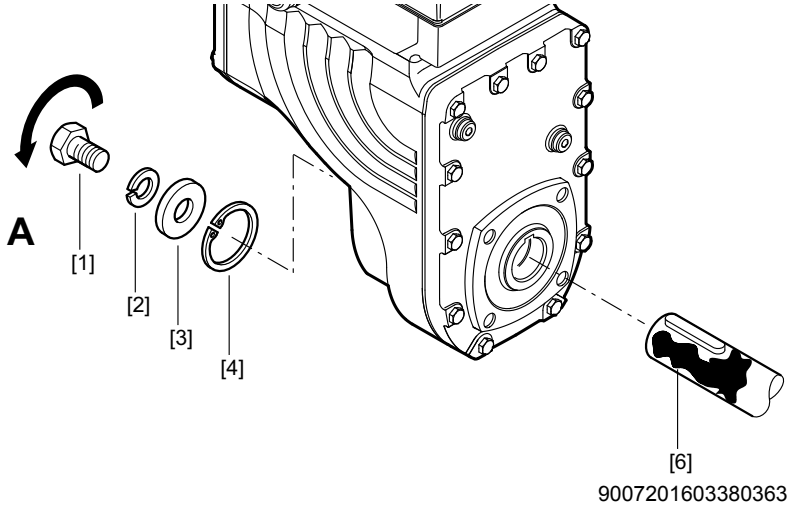
2. Mount the shaft and secure it axially (using a mounting device makes installation easier). Following a description of the three mounting types:
   - 2 A: Standard scope of delivery
   - 2 B: Installation and removal kit for customer shaft with contact shoulder
   - 2C: Installation and removal kit for customer shaft without contact shoulder

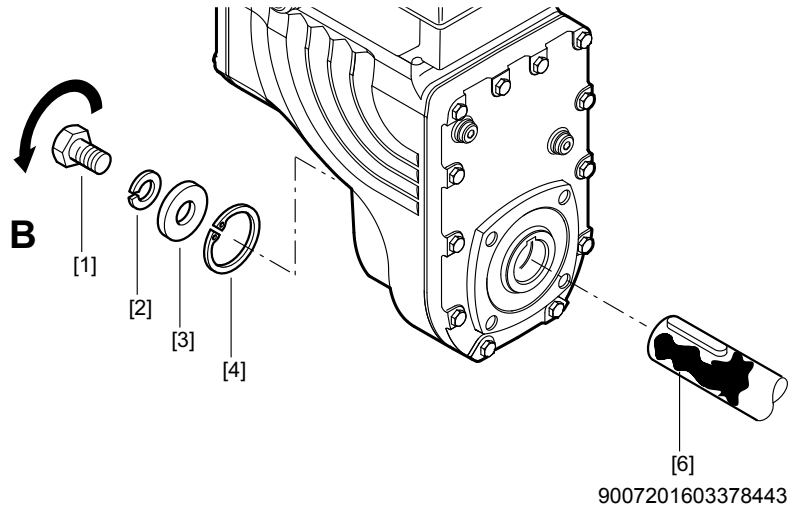
   **2 A: Standard installation procedure**




[1] Short retaining bolt (standard delivery scope)
[2] Lock washer
[3] Washer
[4] Retaining ring
[6] Customer shaft

**2 B: Installation with SEW-EURODRIVE installation and removal kit**[1)]

Customer shaft **with** contact shoulder

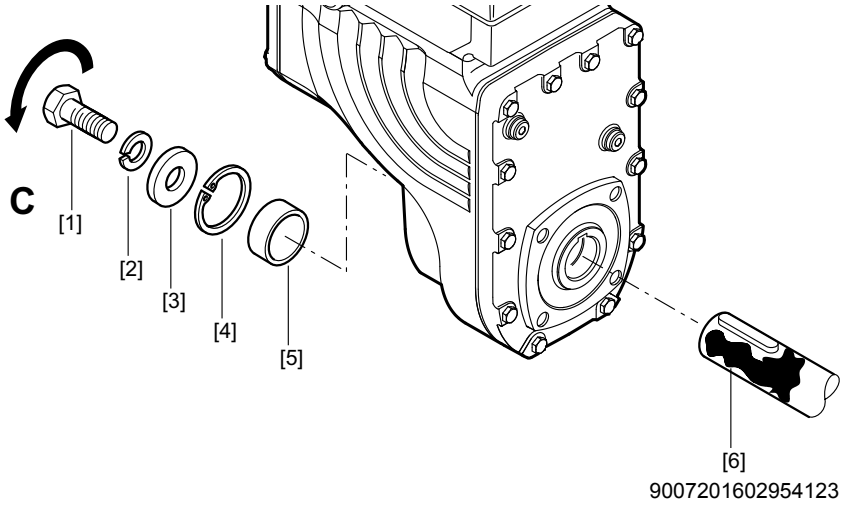



[1] Retaining screw
[2] Lock washer
[3] Washer
[4] Retaining ring
[6] Customer shaft with contact shoulder

1) Observe chapter "Technical data and dimension sheets / Design notes for gear units with hollow shaft and key "

### 2C: Installation with SEW-EURODRIVE installation and removal kit[1)]

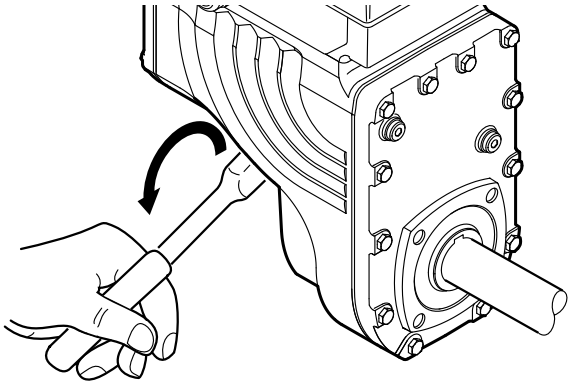
Customer shaft **without** contact shoulder




9007201602954123

[1] Retaining screw
[2] Lock washer
[3] Washer
[4] Retaining ring
[5] Spacer tube
[6] Customer shaft without contact shoulder

3. Tighten the retaining screw to the appropriate torque (see table).



9007201602952203

| Drive | Screw | Tightening torque [Nm] |
|---|---|---|
| **MGFA.2** | M10 | 20 |
| **MGFA.4** | M16 | 40 |

## INFORMATION

To avoid contact corrosion, SEW-EURODRIVE recommends that the customer shaft should additionally be lathed down between the 2 contact surfaces.

1) Observe chapter "Technical data and dimension sheets / Design notes for gear units with hollow shaft and key "

### 4.5.2 Removal notes

**⚠ WARNING**

Burns caused by hot surfaces.

Severe injuries.

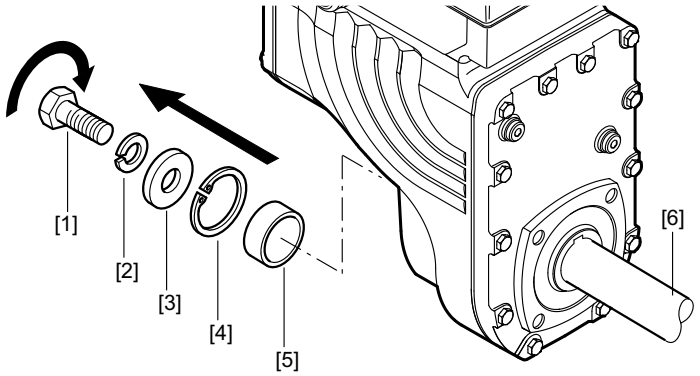
- Let the units cool down before touching them.

The following description only applies when the drive is disassembled using the SEW-EURODRIVE assembly/disassembly kit (see previous description, points 2B or 2C).

**INFORMATION**

For information on the SEW-EURODRIVE assembly/disassembly kit, see chapter "Technical data and dimension sheets / Design notes".

1. Loosen the retaining screw [1].
2. Remove parts [2] to [4] and, if applicable, the spacer tube [5].

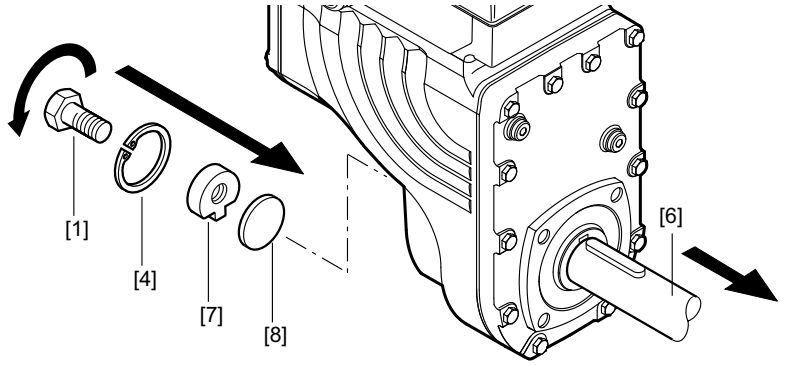



9007201603388043

[1] Retaining screw
[2] Lock washer
[3] Washer
[4] Retaining ring
[5] Spacer tube
[6] Customer shaft

3. Insert the forcing disk [8] and the fixed nut [7] from the SEW-EURODRIVE installation/removal kit between the customer shaft [6] and the retaining ring [4].
4. Re-install the retaining ring [4].

5. Screw the retaining screw [1] back in. Now you can force the drive off the shaft by tightening the bolt.

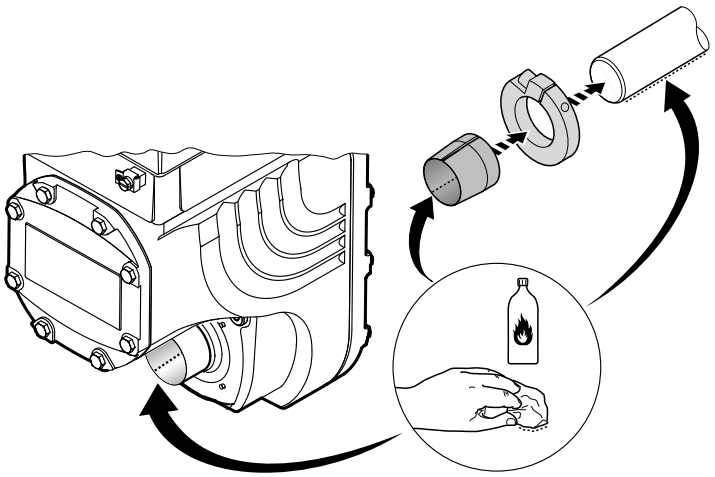



9007201603386123

[1] Retaining screw
[4] Retaining ring
[6] Customer shaft
[7] Fixed nut
[8] Forcing disk

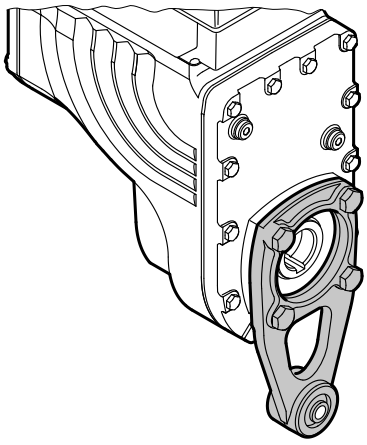
## 4.6 Shaft-mounted gear unit with TorqLOC® (customer shaft without contact shoulder)

1. Clean the customer shaft and the inside of the hollow shaft. Ensure that all traces of grease or oil are removed.
2. Install the stop ring and the bushing on the customer shaft.



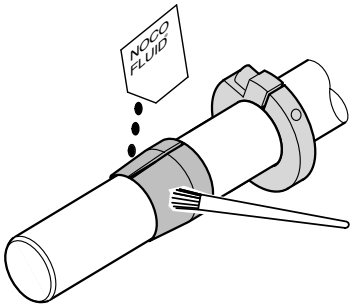
9007201603392523

3. Mount the torque arm to the MGF..-DSM drive unit; observe chapter "Torque arm".



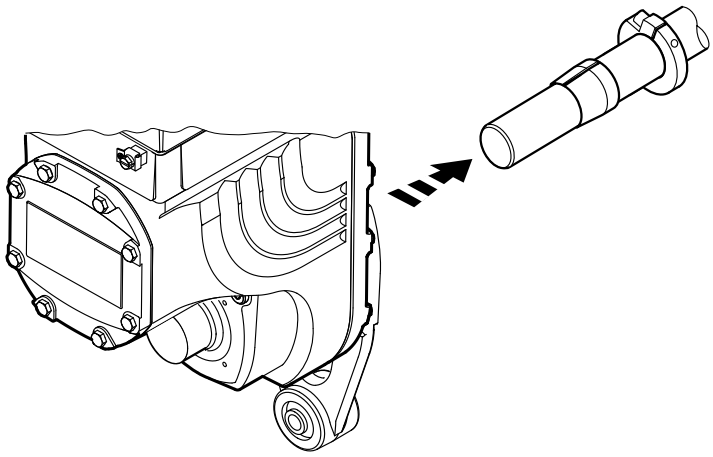
9007201603717003

4. Apply NOCO® FLUID on the bushing and spread thoroughly.



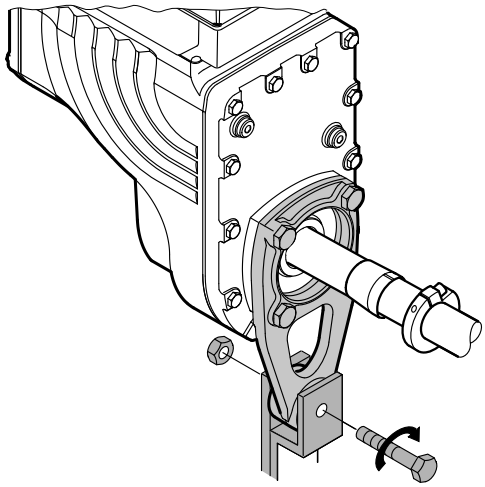

2348653451

5. Push the gear unit onto the customer shaft.



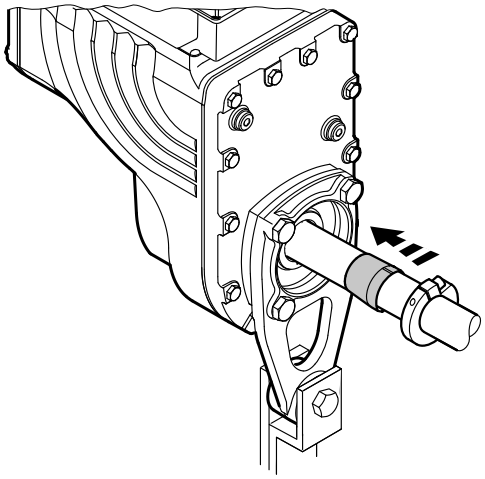
9007201603724683

6. Preassemble the torque arm to the plant structure / holding fixture (do not tighten the screws).



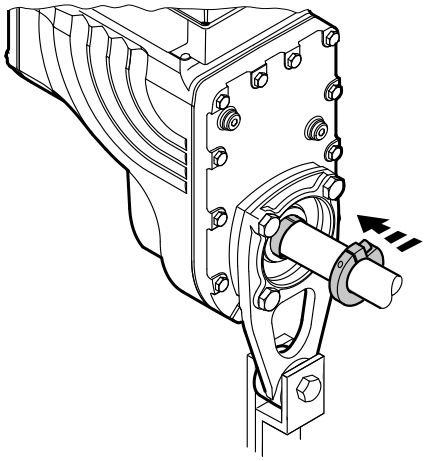
18014400858461835

7. Push the busing into the gear unit up to the stop.



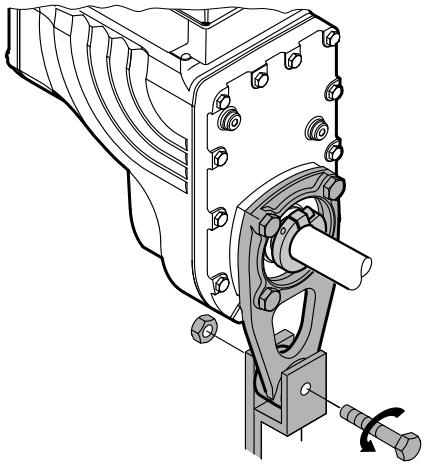
9007201603713163

8. Push the stop ring to the bushing. Mark the position of the stop ring.



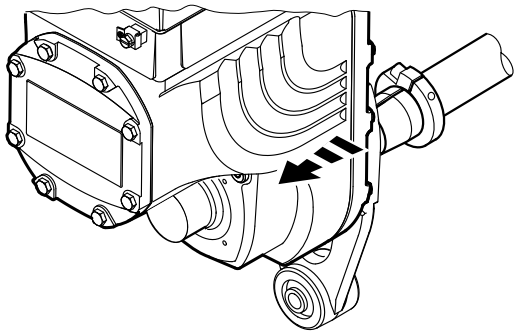
9287376139

9. Remove the torque arm from the holding fixture / plant structure.



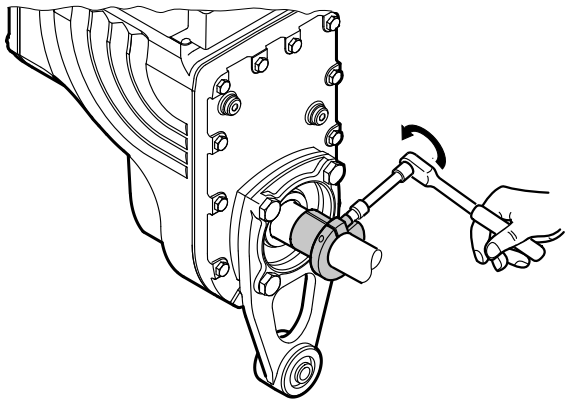
9287378955

10. Pull the gear unit off the customer shaft until the stop ring is accessible for fastening.



9287381771

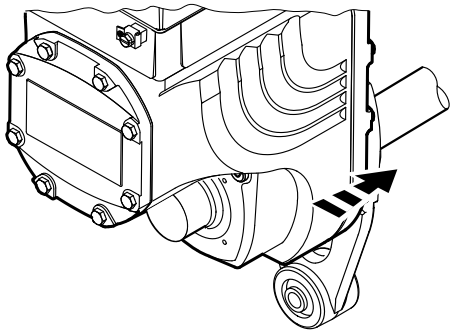
11. Make sure that the position of the stop ring has not changed (see marking).
12. Tighten the stop ring using the appropriate torque as specified in the table below.



9287922955

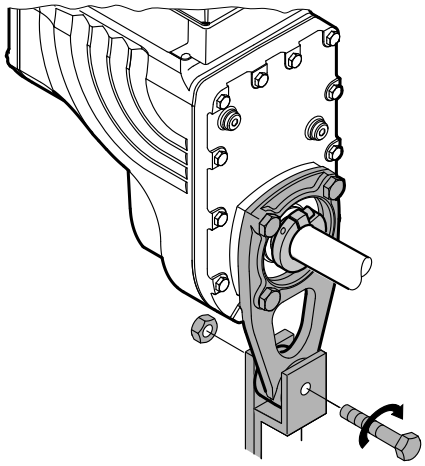
| Type | Tightening torque [Nm] | |
|---|---|---|
| | Standard version | Stainless steel |
| **MGFT.2** | 18 | 7.5 |
| **MGFT.4** | 18 | 7.5 |

13. Push the bushing and the gear unit onto the customer shaft up to the fixed stop ring.



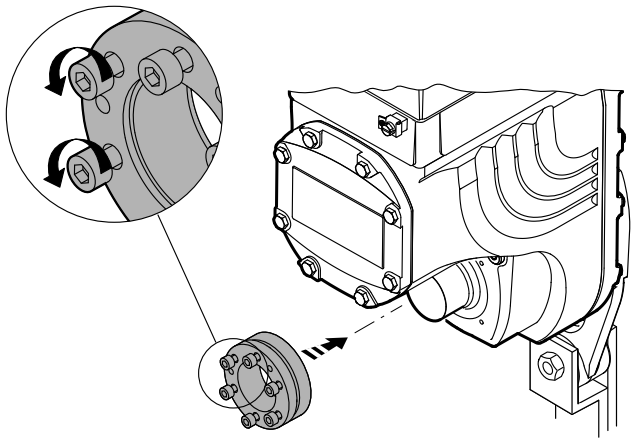
9287926923

14. Preassemble the torque arm to the plant structure / holding fixture again (do not tighten the screws).



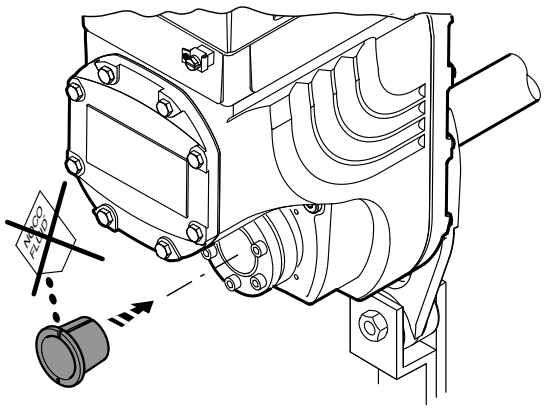
9287928843

15. Make sure that all screws are loosened and slide the shrink disk onto the hollow shaft.



9007201603398283

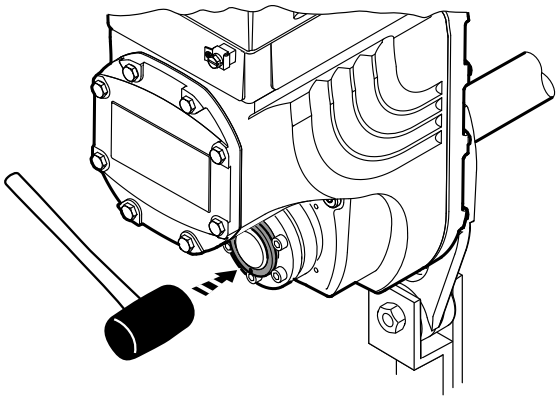
16. Slide the counter bushing onto the customer shaft and into the hollow shaft.



9007201603722763

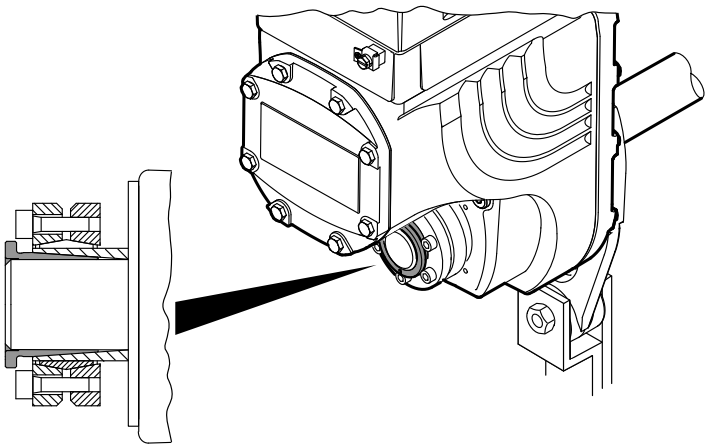
17. Insert the shrink disk completely into the seat.

18. Tap lightly on the flange of the counter bushing to ensure that the socket is fitted securely in the hollow shaft.



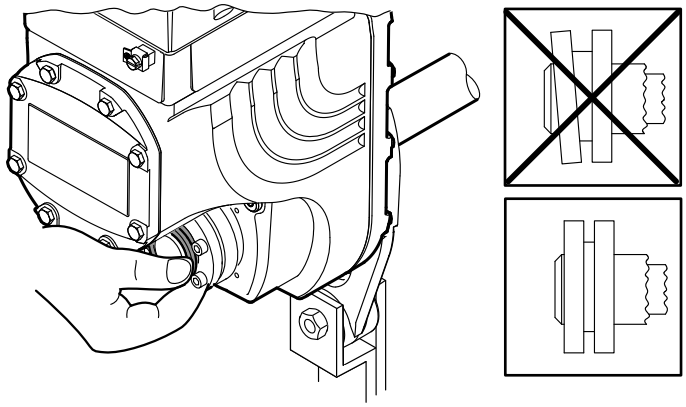
9007201603711243

19. Make sure that the customer shaft is seated in the counter bushing.



4914556939

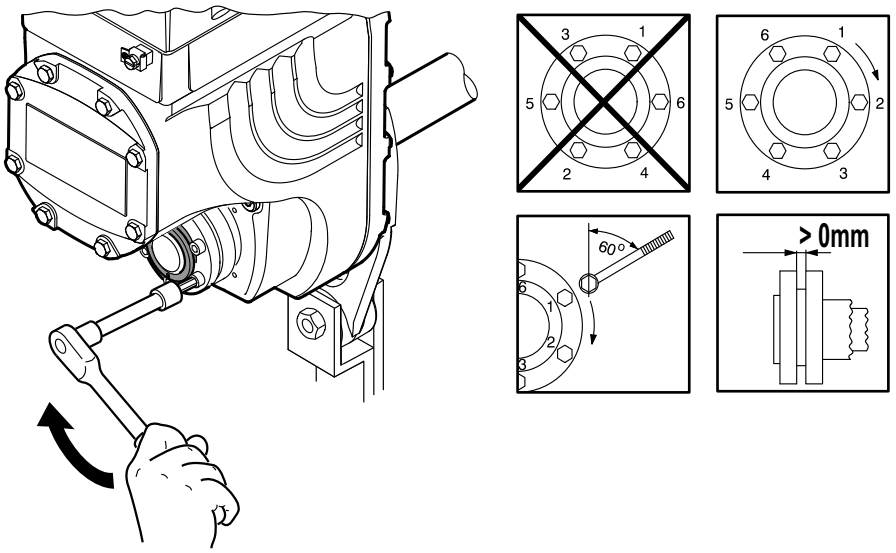
20. Manually tighten the screws of the shrink disk and ensure that the outer rings of the shrink disk are parallel.



9007201603396363

21. Tighten the locking bolts by working round several times from one bolt to the next (not in diametrically opposite sequence):

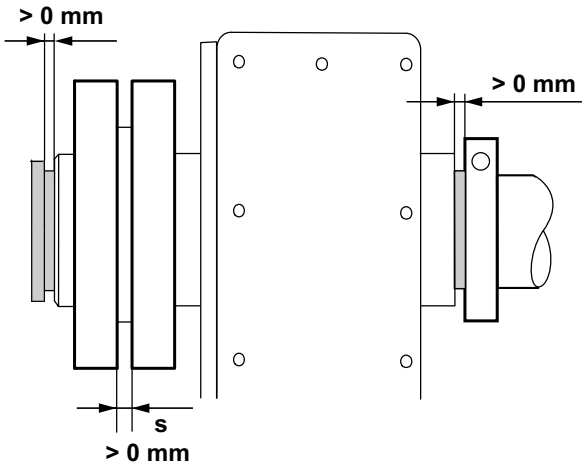
    The exact values for the tightening torques are shown on the shrink disk.




9007201603400203

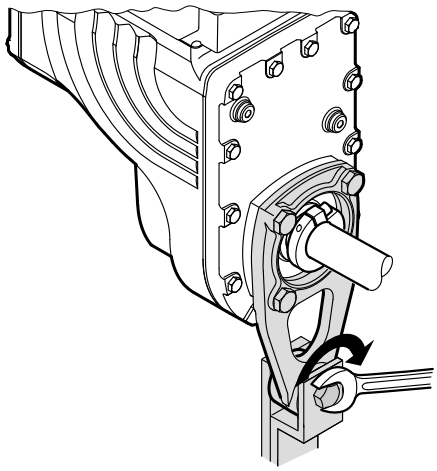
22. After installation, make sure the remaining gap s between the outer rings of the shrink disks is > 0 mm.

23. The remaining gap between counter bushing and hollow shaft end as well as bushing and stop ring must be > 0 mm.




9007201603402123

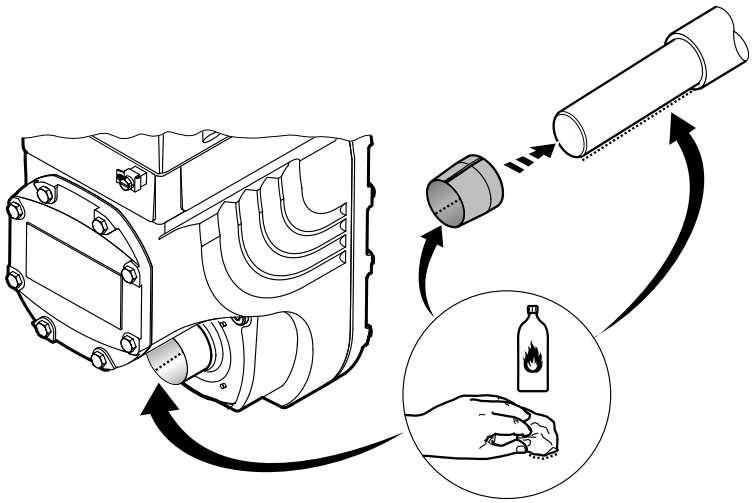
24. Securely tighten the torque arm; observe chapter "Torque arm".



9007201603718923

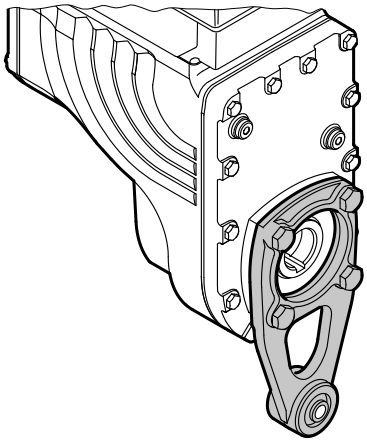
### *4.7 Shaft-mounted gear unit with TorqLOC® (customer shaft with contact shoulder)*

1. Clean the customer shaft and the inside of the hollow shaft. Ensure that all traces of grease or oil are removed.



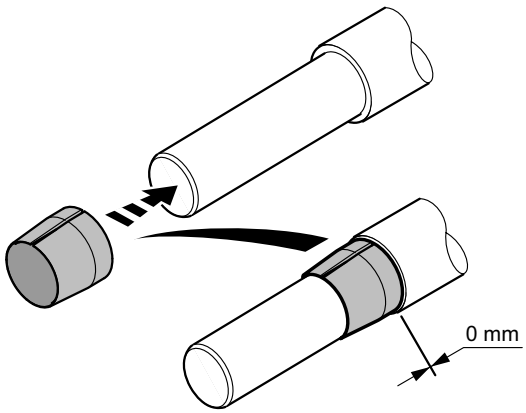
9007201603735307

2. Mount the torque arm to the MGF..-DSM drive unit; observe chapter "Torque arm".



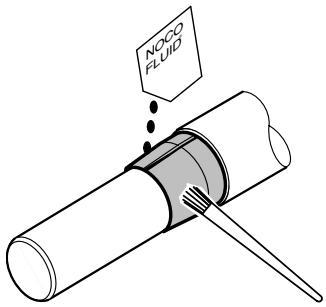
9007201603717003

3. Slide the bushing onto the customer shaft.



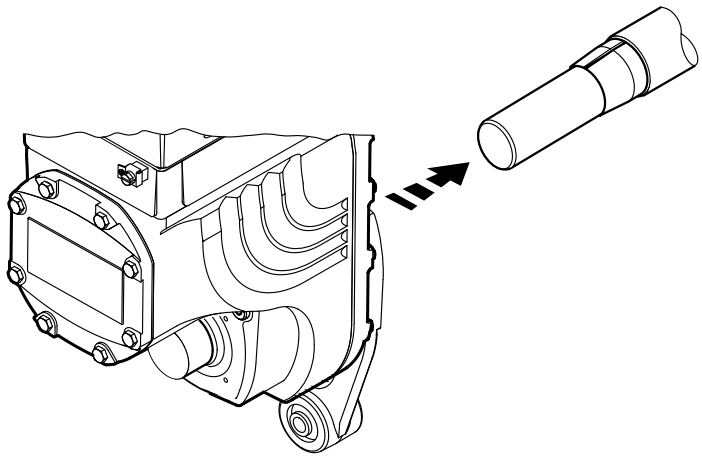

2349377035

4. Apply NOCO® FLUID on the bushing and spread thoroughly.



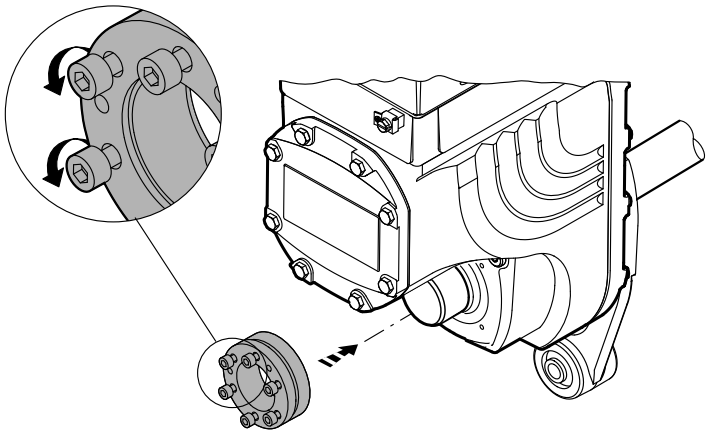

2349367435

5. Push the gear unit onto the customer shaft.



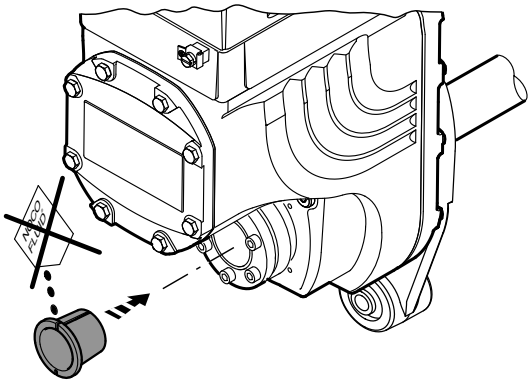
9007201603733387

6. Make sure that all screws are loosened and slide the shrink disk onto the hollow shaft.



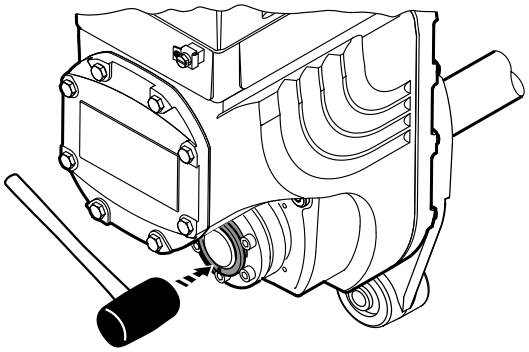
9007201604112267

7. Slide the counter bushing onto the customer shaft and into the hollow shaft.



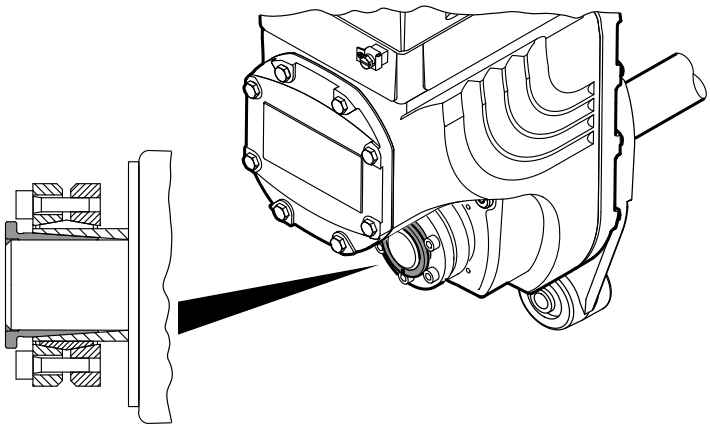
9007201603731467

8. Insert the shrink disk completely into the seat.
9. Tap lightly on the flange of the counter bushing to ensure that the socket is fitted securely in the hollow shaft.



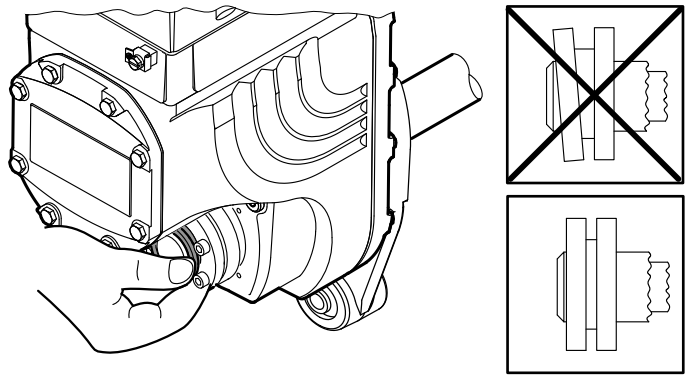
9007201604116107

10. Make sure that the customer shaft is seated in the counter bushing.



4914563467

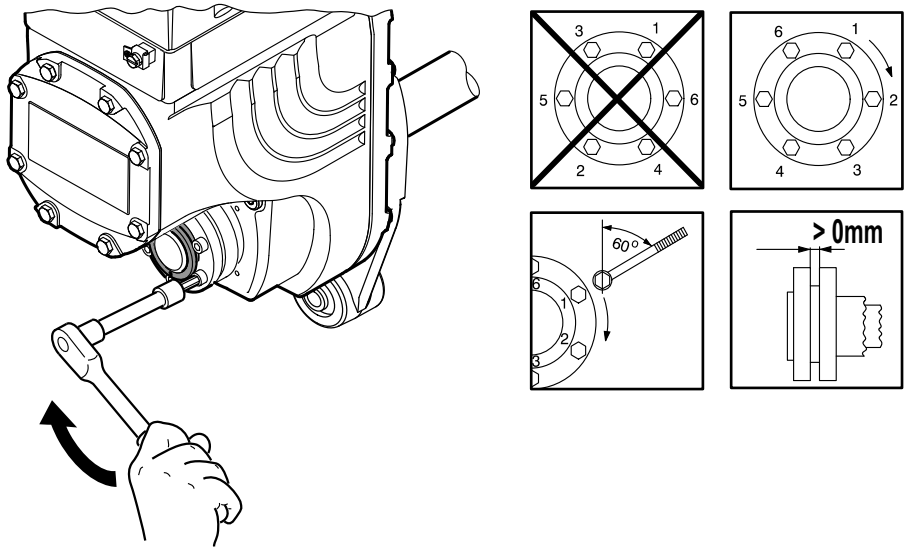
11. Manually tighten the screws of the shrink disk and ensure that the outer rings of the shrink disk are parallel.



9007201604110347

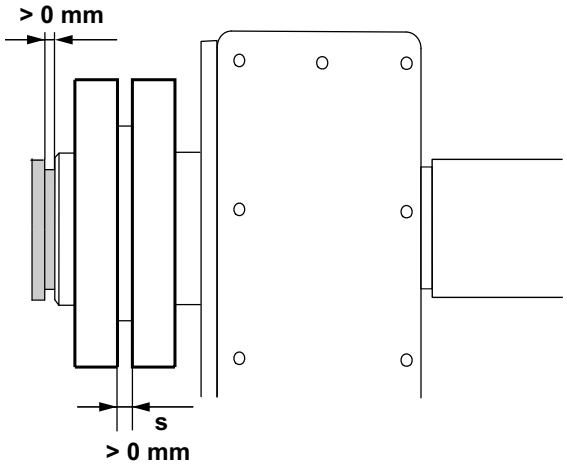
12. Tighten the locking bolts by working round several times from one bolt to the next (not in diametrically opposite sequence).

    The exact values for the tightening torques are shown on the shrink disk.



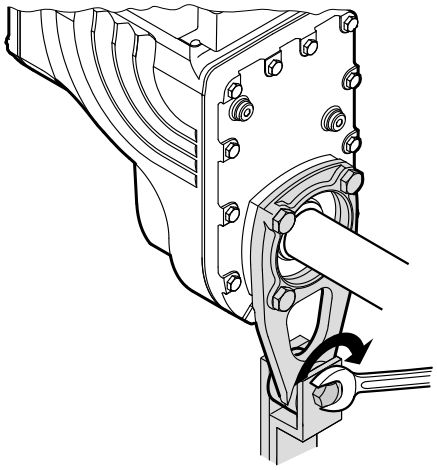

9007201604114187

13. After installation, make sure the remaining gap s between the outer rings of the shrink disks is > 0 mm.
14. The remaining gap between counter bushing and hollow shaft end must be > 0 mm.




4986221323

15. Mount the torque arm and tighten it securely; observe chapter "Torque arm".



9007201607498251

## 4.8 Shaft-mounted gear unit with TorqLOC® – Removal, cleaning, lubrication

### 4.8.1 Removal notes

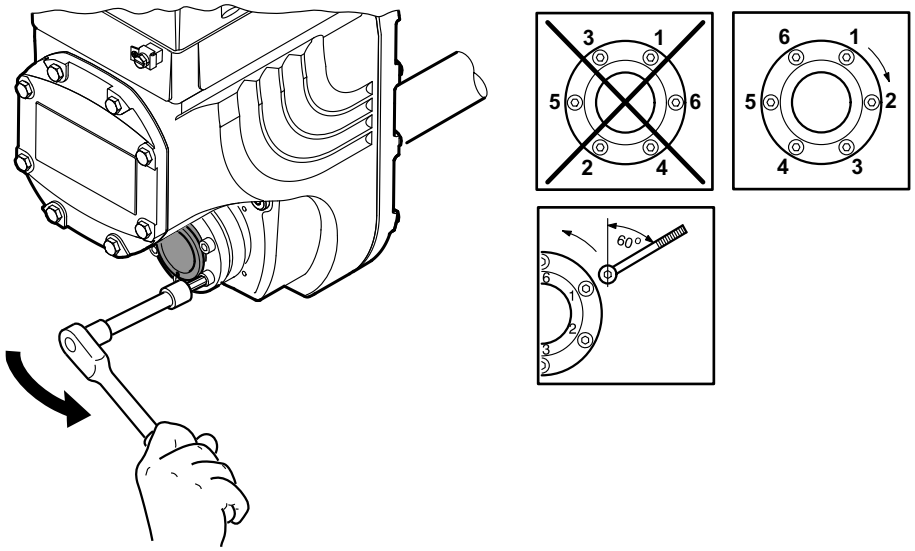
**⚠ WARNING**

Burns caused by hot surfaces.

Severe injuries.

- Let the units cool down before touching them.

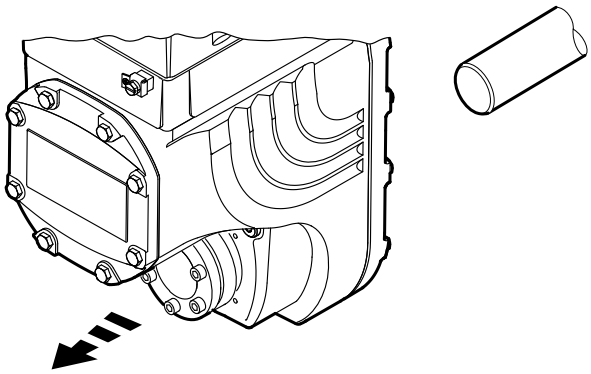
1. Loosen the locking screws one after the other by a quarter rotation to avoid tilting the outer rings.




4810047499

2. Unscrew the locking bolts evenly one after the other.
   Do not remove the locking screws completely.
3. Dismantle the conical steel bushing.
   If required, use the outer rings as pullers as follows:
   – Remove all the locking screws.
   – Screw the respective number of screws in the tapped holes of the shrink disk.
   – Support the inner ring against the gear unit housing.
   – Pull off the conical steel bushing by tightening the screws.

4. Remove the gear unit from the shaft.



4810051979

5. Remove the shrink disk from the hub.

### 4.8.2 Cleaning and lubrication

There is no need to dismantle removed shrink disks before they are reinstalled.

Clean and lubricate the shrink disk if it is dirty.

Lubricate the tapered surfaces with one of the following solid lubricants:

| Lubricant (Mo S2) | Sold as |
|---|---|
| Molykote 321 (lube coat) | Spray |
| Molykote spray (powder spray) | Spray |
| Molykote G Rapid | Spray or paste |
| Aemasol MO 19P | Spray or paste |
| Aemasol DIO-sétral 57 N (lube coat) | Spray |

Grease the locking screws with a multipurpose grease such as Molykote BR 2 or similar.

## 4.9 Installing the protective cover

**⚠ WARNING**

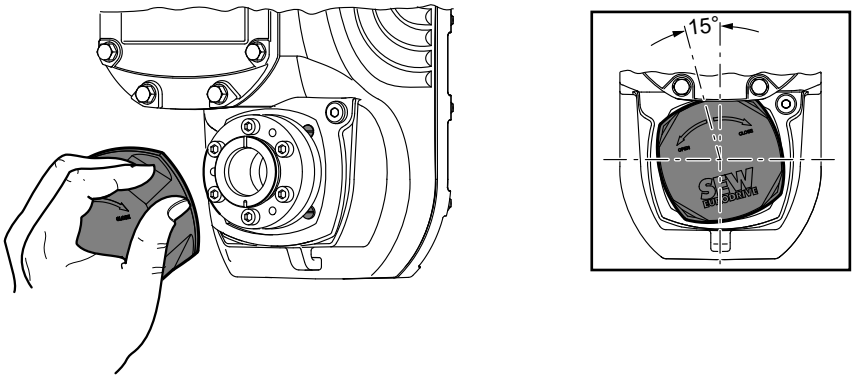
Risk of injury caused by rapidly moving output elements.

Severe injuries.

- Disconnect the drive unit from the power supply and safeguard it against unintentional power up before you start working on it.
- Equip the input and output elements with a touch guard.

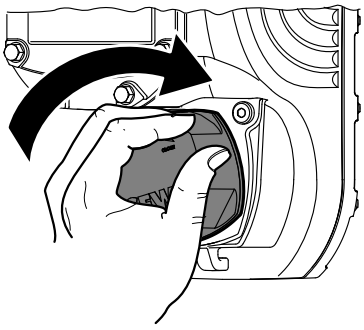
### 4.9.1 Installing the fixed cover

1. Place the cover offset by 15° counterclockwise .



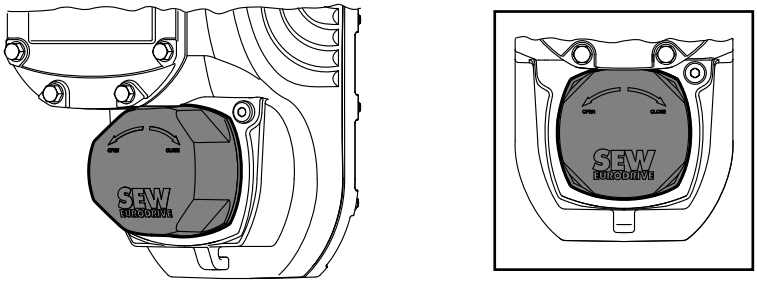

9007201604120715

2. Turn the cover clockwise until it locks in position.



9007201604122635

3. The following figure shows the installed cover:



9007201604124555

### 4.9.2 Installation without cover

In certain individual cases (e.g. through-shaft), a cover cannot be installed. In these cases, the cover is not necessary if the system or unit manufacturer provides corresponding components to guarantee for the compliance with the required degree of protection.

If this results in additional maintenance, you have to describe this in the operating instructions for the system or component.

## 4.10 Torque arm

**NOTICE**

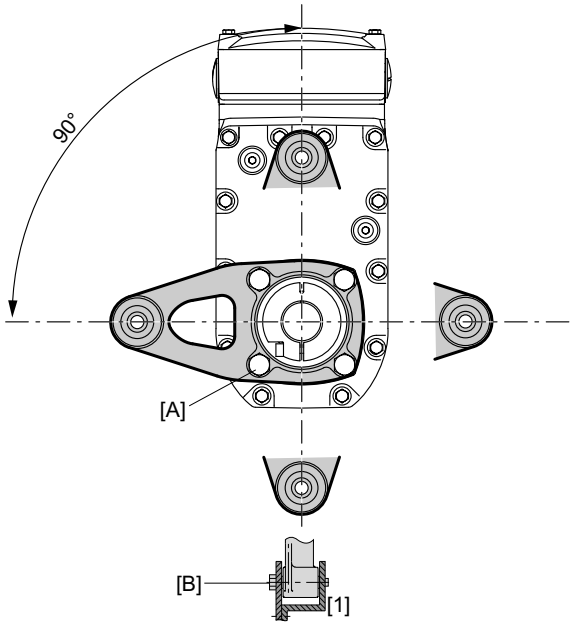
Inappropriate installation might damage the MGF..-DSM drive unit.

Possible damage to property.

- Do not place torque arms under strain during installation.
- Always use bolts of quality 8.8 to fasten torque arms.

### 4.10.1 MGF.T2 and MGF.T4 torque arm

*Installation options* The following figure shows the MGF.T2 and MGF.T4 torque arm:

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[1] Apply bearings to both ends of the bushing

*Tightening torques* The following table shows the required tightening torques:

| Drive | Screw A | | Screw B | |
|---|---|---|---|---|
| | Size | Tightening torque [Nm] | Size | Tightening torque [Nm] |
| **MGF.T2** | M10 | 48 Nm | M10 | 20 Nm |
| **MGF.T4** | M12 | 70 Nm | M10 | 20 Nm |

## 4.11 Tightening torques

**⚠ WARNING**

Burns caused by hot surfaces.

Severe injuries.

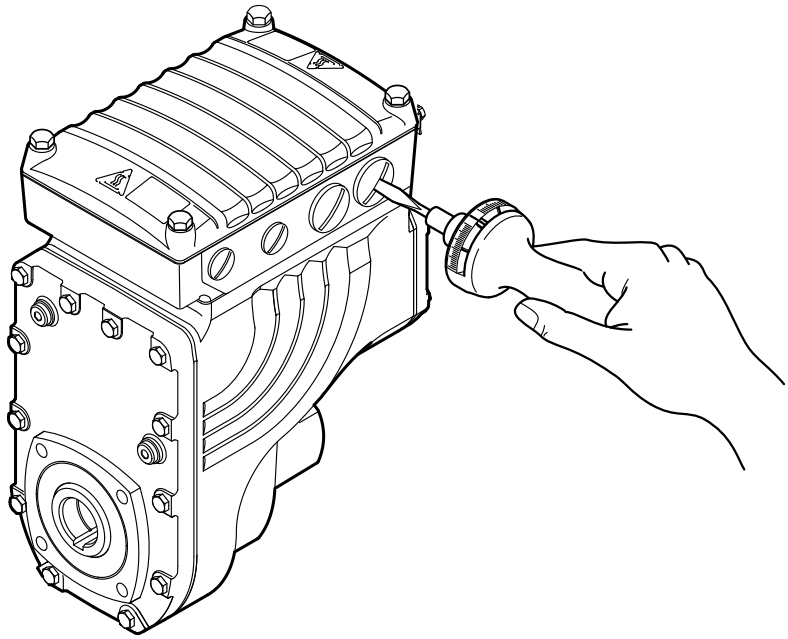
- Let the units cool down before touching them.

### 4.11.1 Blanking plugs

Tighten the plastic blanking plugs included in the delivery with 2.5 Nm:

*Example*

The following figure shows an example. The number and position of cable entries depends on the variant you have ordered.



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### 4.11.2 Cable glands

*Tightening torques*

Tighten the EMC cable glands optionally supplied by SEW-EURODRIVE to the following torques:

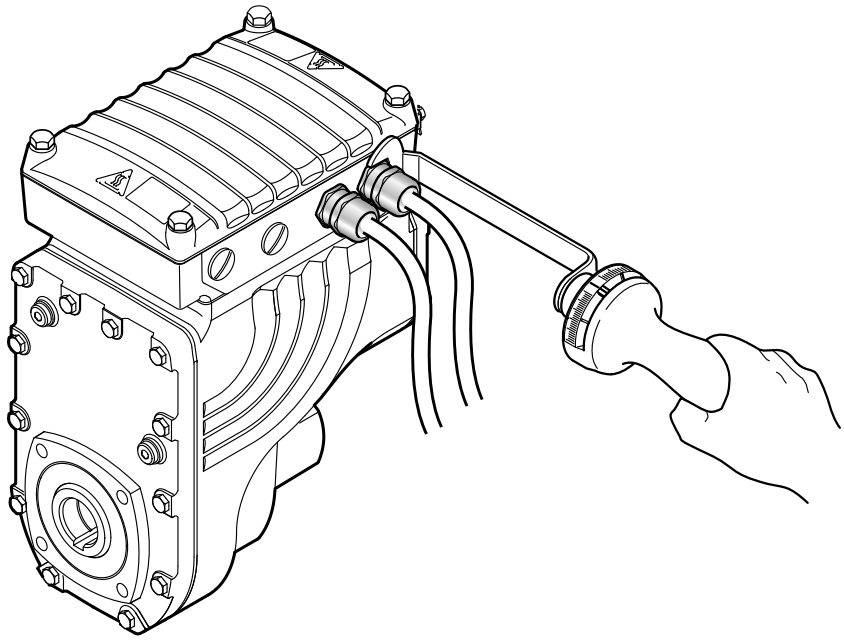
| Screw fitting | Part number | Contents | Size | Outer diameter of cable | Tightening torque |
|---|---|---|---|---|---|
| **EMC cable glands (nickel-plated brass)** | 1820 478 3 | 10 pc | M16 x 1.5 | 5 to 9 mm | 4.0 Nm |
| | 1820 480 5 | 10 pc | M25 x 1.5 | 11 to 16 mm | 7.0 Nm |
| **EMC cable glands (stainless steel)** | 1821 636 6 | 10 pc | M16 x 1.5 | 5 to 9 mm | 4.0 Nm |
| | 1821 638 2 | 10 pc | M25 x 1.5 | 11 to 16 mm | 7.0 Nm |

The cable retention in the cable gland must withstand the following removal force of the cable from the cable gland:

- Cable with outer diameter > 10 mm: ≥ 160 N
- Cable with outer diameter < 10 mm: = 100 N

*Example*

The following figure shows an example. The number and position of cable entries depends on the variant you have ordered.



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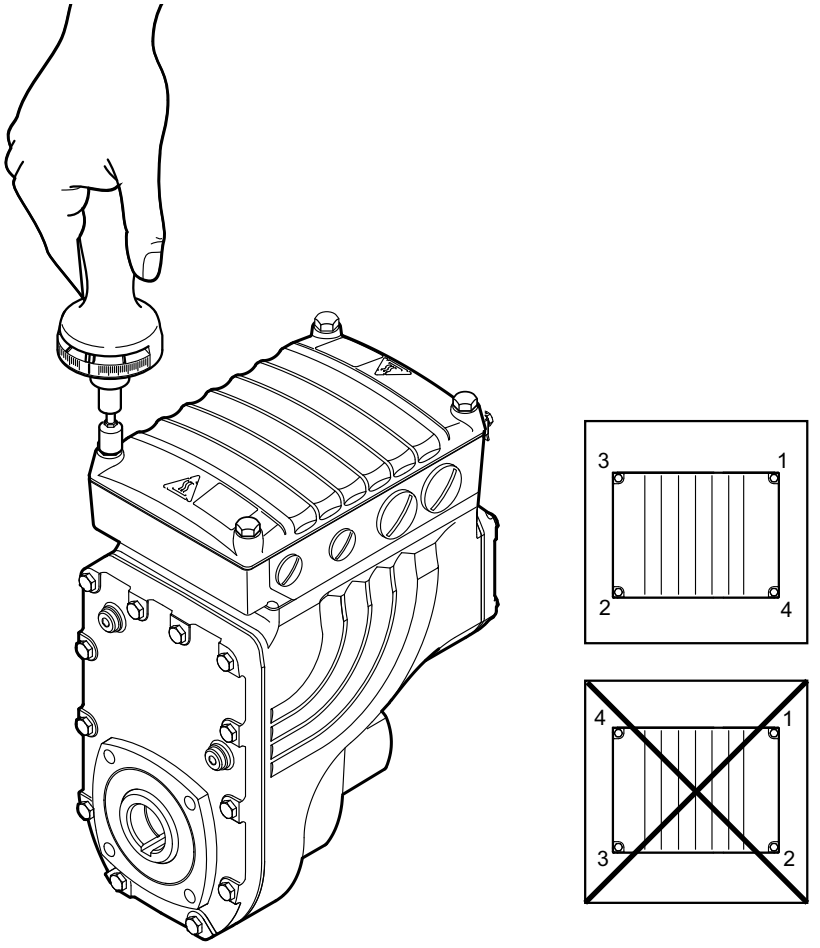
### 4.11.3 MGF..-DSM cover

Screw on the MGF..-DSM cover as follows: Insert the screws and tighten them crosswise **step by step** with a tightening torque of 6 Nm.

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## 4.12 Drive units with optional version for use in wet areas

### INFORMATION

SEW-EURODRIVE guarantees that the HP200 special surface is free from faults when delivered. Report any transportation damage immediately.

Although the housing surfaces have a high impact resistance, they are to be handled with care. The corrosion protection can be affected by damage to the surface as a result from improper handling during transport, installation, operation, cleaning, etc. SEW-EURODRIVE is not liable for such damage.

### 4.12.1 Installation notes

### NOTICE

Loss of degree of protection IP66 and incompatibility with cleaning agents.

Possible damage to property.

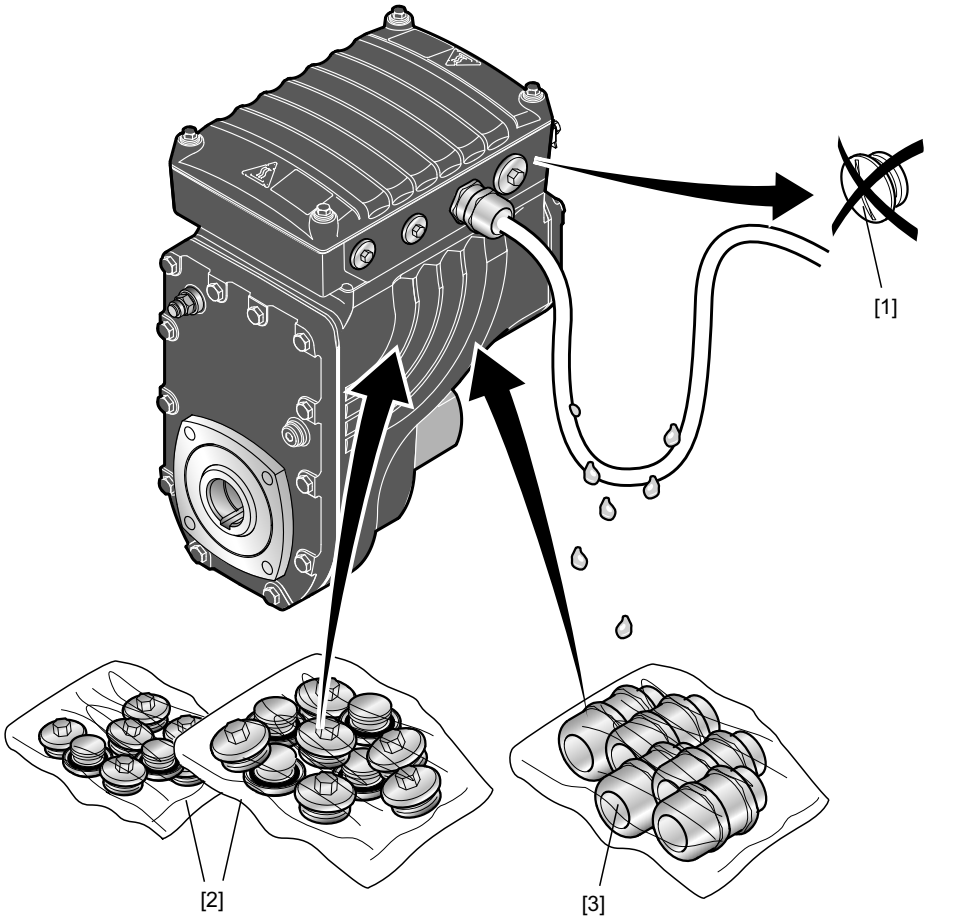
- Replace the optionally supplied plastic screw plugs with suitable stainless steel screw fittings.

Observe the following additional notes when installing MGF..-DSM drive units in optional design for use in wet areas:

- Make sure to prevent moisture and dirt from entering the unit during installation.
- After electrical installation, make sure that the sealing and sealing surfaces are clean during assembly.
- When performing maintenance work, check the condition of the gaskets as well as the tightening torques of the screw fittings. If damaged: Consult SEW-EURODRIVE.
- When the cover / electronics cover is opened after an operating period of ≥ 6 months, the gasket between the connection box and the cover / electronics cover must always be replaced. For this purpose it is essential that you observe the chapter "Inspection and maintenance".
- Make sure to install the cables with a drip loop. Observe the permitted bending radii of the installed cables for cable routing.
- Use only stainless steel cable glands and screw plugs offered by SEW-EURODRIVE, see chapter "Technical data and dimension sheets".
- You must seal unused cable bushings and plug connectors with suitable screw plugs, see chapter "Technical data and dimension sheets".
- To prevent permanent water accumulation in the B-side cover, you must clean it at regular intervals.

*Example*

The following figure gives an example of a cable entry with drip loop and the replacement of the plastic screw plugs supplied as standard with suitable stainless steel screw fittings.

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[1] The optionally delivered plastic screw plugs must be replaced by suitable screw plugs made of stainless steel.

[2] Stainless steel screw plugs, if required
(see chapter "Technical data and dimension sheets")

[3] Required stainless steel cable glands
(see chapter "Technical data and dimension sheets")

*Mounting positions*

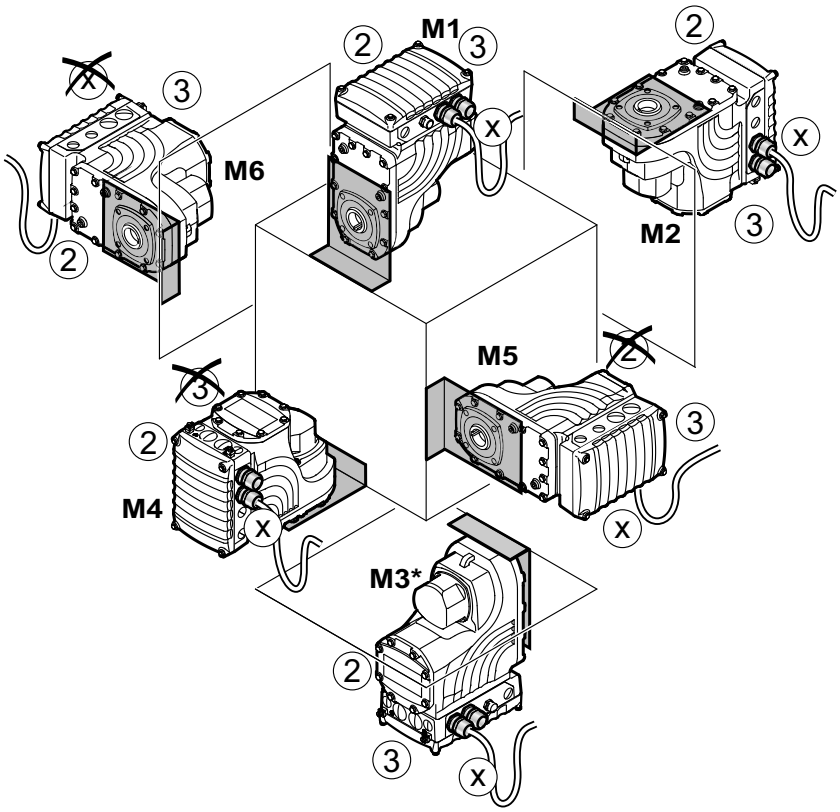
MGF..-DSM drive units in optional design for use in wet areas are delivered with pressure compensation and breather valve installed according to the mounting position.

This is why MGF..-DSM drive units with optional design for use in wet areas must be used only in the mounting position specified in the order:

- Mounting position
  - M1
  - M2
  - M3 (only after consultation with SEW-EURODRIVE)
  - M4
  - M5
  - M6
- Cable entries
  - Position 3 (not possible with M4 mounting position)
  - Position 2 (not possible with M5 mounting position)
  - Position X (not possible with M6 mounting position)

*Mounting positions*

The following figure shows the position of MGF..-DSM when installed in mounting positions M1 to M6.

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***** = Mounting position M3 only possible after consultation with SEW-EURODRIVE

### 4.12.2 Tightening torques when using optional design for use in wet areas

**⚠ WARNING**

Burns caused by hot surfaces.

Severe injuries.

- Let the units cool down before touching them.

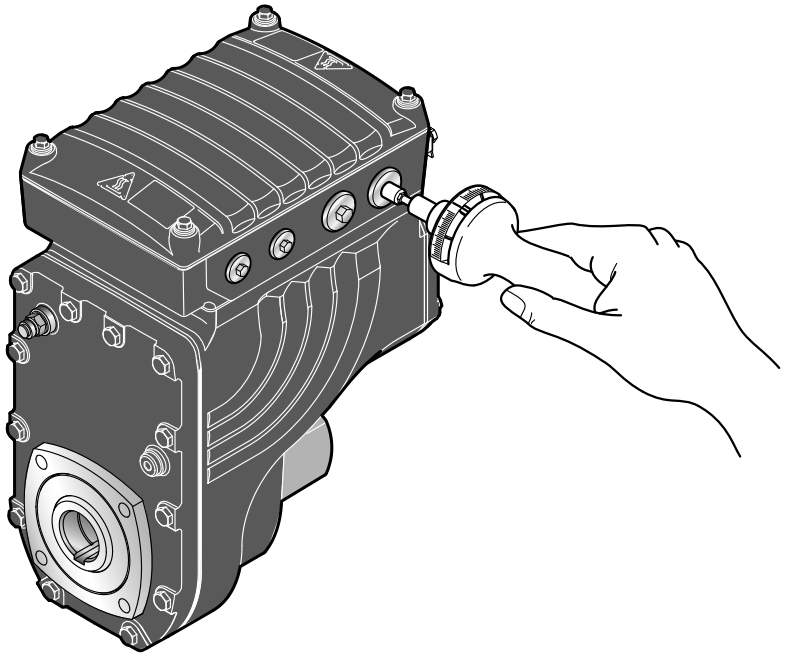
*Blanking plugs*

Tighten the stainless steel blanking plugs supplied by SEW-EURODRIVE with 6.8 Nm:

| Type of screw fitting | Contents | Size | Part number | Tightening torque |
|---|---|---|---|---|
| **Screw plugs Hexagon (made of stainless steel)** | 10 pcs | M16 x 1.5 | 1 824 734 2 | 6.8 Nm |
| | 10 pcs | M25 x 1.5 | 1 824 735 0 | 6.8 Nm |

*Example*

The following figure shows an example. The number and position of cable entries depends on the variant you have ordered.



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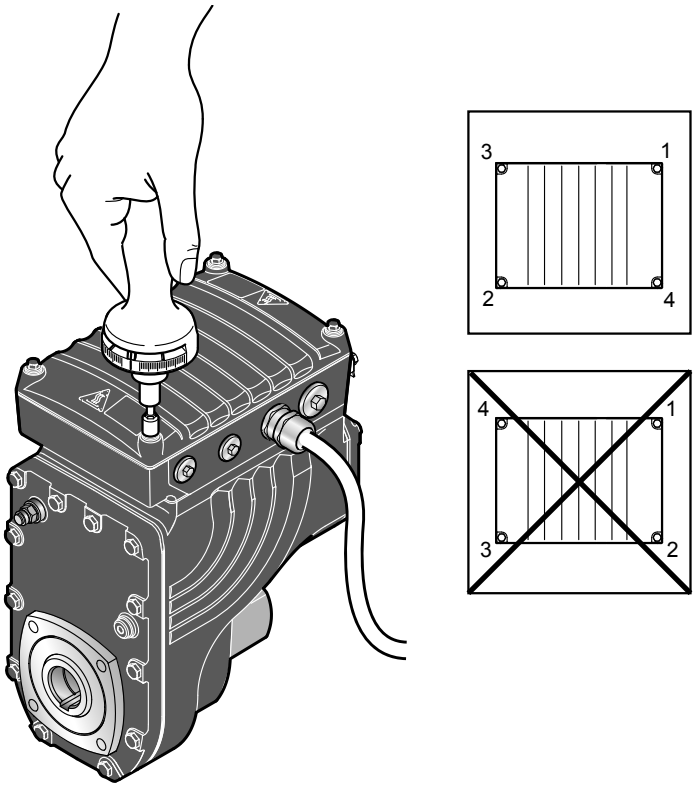
*MGF..-DSM cover*

Screw on the MGF..-DSM cover as follows: Insert the screws and tighten them crosswise **step by step** with a tightening torque of 6 Nm.

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*EMC cable glands*

Tighten the EMC cable glands optionally supplied by SEW-EURODRIVE with the following tightening torques:

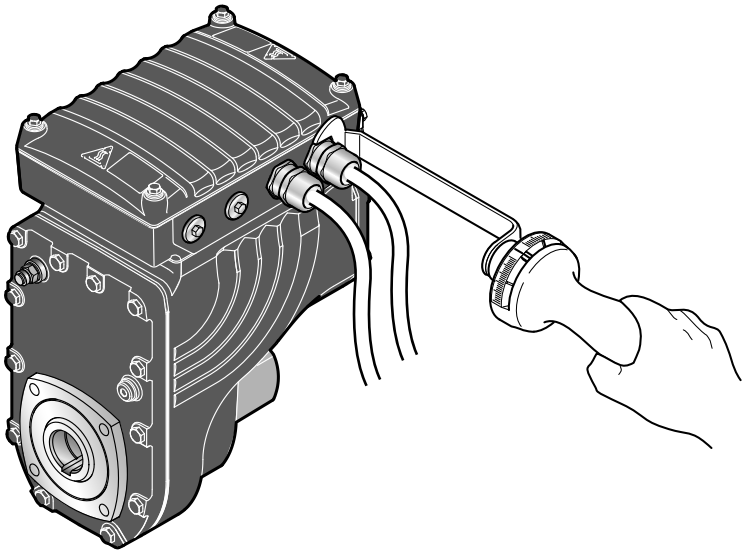
| Screw fitting | Part number | Contents | Size | Outer diameter of cable | Tightening torque |
|---|---|---|---|---|---|
| **EMC cable glands (nickel-plated brass)** | 1820 478 3 | 10 pcs | M16 x 1.5 | 5 to 9 mm | 4.0 Nm |
| | 1820 480 5 | 10 pcs | M25 x 1.5 | 11 to 16 mm | 7.0 Nm |
| **EMC cable glands (stainless steel)** | 1821 636 6 | 10 pcs | M16 x 1.5 | 5 to 9 mm | 4.0 Nm |
| | 1821 638 2 | 10 pcs | M25 x 1.5 | 11 to 16 mm | 7.0 Nm |

The cable retention in the cable gland must withstand the following removal force of the cable from the cable gland:

- Cable with outer diameter > 10 mm: ≥ 160 N
- Cable with outer diameter < 10 mm: = 100 N

*Example*

The following figure shows an example. The number and position of cable entries depends on the variant you have ordered.



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# 5 Electrical installation

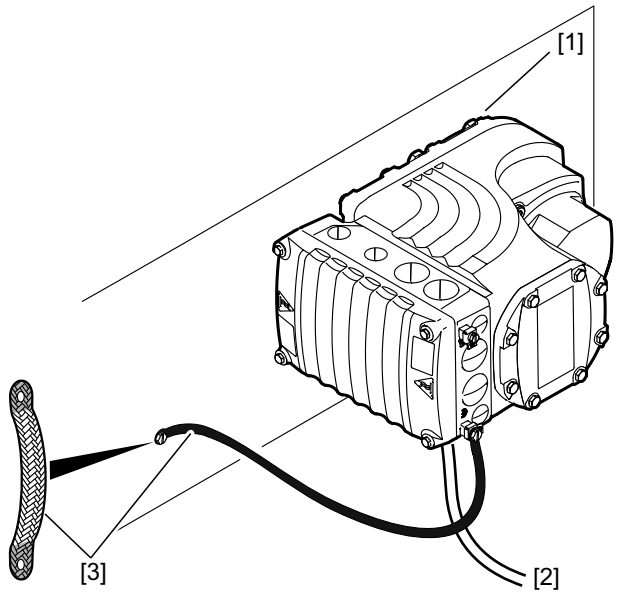
**INFORMATION**

Adhere to the safety notes during installation.

## *5.1 Equipotential bonding*

Regardless of the protective earth connection, it is essential that **low-impedance, HF-capable equipotential bonding** is provided (see also EN 60204-1 or DIN VDE 0100-540):

- Provide for a connection over a wide area between the MGF..-DSM drive unit and the mounting rail.
- To do so, use a ground strap (HF litz wire), for example, to connect the MGF..-DSM drive unit and the plant's grounding point.

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[1] Conductive connection over a large area between drive unit and mounting plate
[2] PE conductor in the supply cable
[3] EMC-compliant equipotential bonding, for example using a ground strap (HF litz wire)

## 5.2 Installation instructions

### 5.2.1 Thermal motor protection

**NOTICE**

Faulty installation.

Electromagnetic interference of the drives.

- Install the connecting lead of the KTY separately from other power cables, maintaining a distance of at least 200 mm.
  The cables can only be routed together if either the KTY cable or the power cable is shielded.

### 5.2.2 Permitted cable cross section of terminals

*Line terminals* Adhere to the permitted cable cross sections for installation:

| **Line terminals X2** | |
|---|---|
| **Connection cross section ($mm^2$)** | 1.0 $mm^2$ – 4.0 $mm^2$ |
| **Connection cross section (AWG)** | AWG17 – AWG12 |
| **Permitted tightening torque** | 1.2 – 1.4 Nm (10.6 – 12.4 lb.in) |
| **Conductor end sleeves** | • **For single assignment:** Connect only single-wire conductors or flexible conductors with conductor end sleeve (DIN 46228 part 1, material E-CU) with or without insulating shrouds<br>• Permitted length of the conductor end sleeve: At least 10 mm |

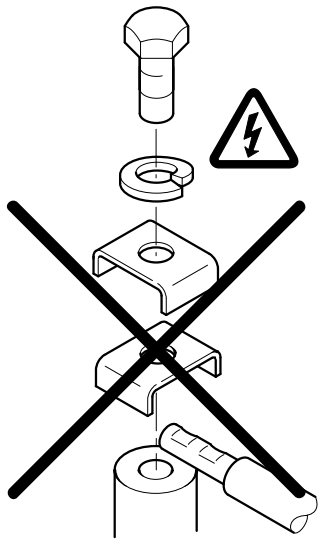
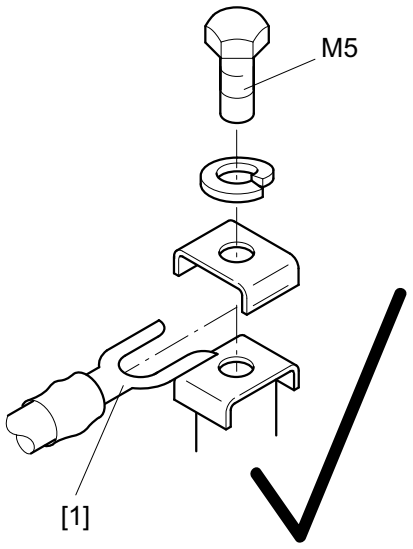
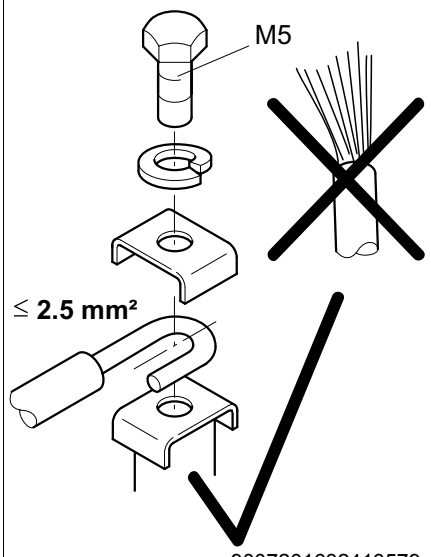
### 5.2.3 Notes on PE connection

**⚠ WARNING**

Electric shock due to incorrect connection of PE.

Severe or fatal injuries.

- The permitted tightening torque for the screw is 2.0 – 2.4 Nm (18 – 21 lb.in).
- Observe the following notes regarding PE connection.

| **Prohibited assembly** | **Recommendation:**<br>**Assembly with forked cable lug**<br>**Permitted for all cross sections** | **Assembly with solid connecting wire**<br>**Permitted for cross sections up to**<br>**Max. 2.5 mm²** |
|---|---|---|
|  |  |  |

[1] Forked cable lug suitable for M5 PE screws

## 5.3 Terminal assignment

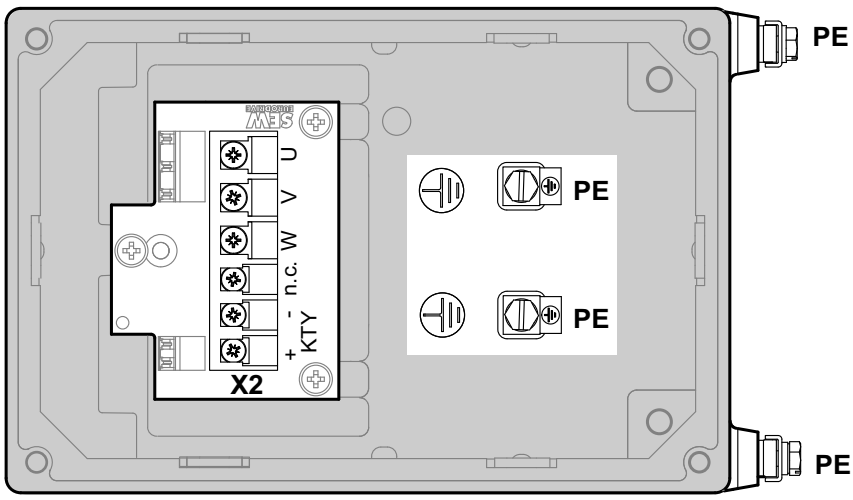
**⚠ WARNING**

Electric shock caused by regenerative operation when the shaft turns.

Severe or fatal injuries.

- Secure the output shaft against rotation while the cover is removed.

The following figure shows the terminal assignment of the MGF..-DSM drive unit:

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| Frequency inverter connection | | | |
|---|---|---|---|
| **Terminal** | **Name** | **Function** | **Permitted tightening torque** |
| **X2** | **KTY +** | Temperature sensor KTY + | 0.8 to 1.1 Nm |
| | **KTY-** | Temperature sensor KTY - | 0.8 to 1.1 Nm |
| | **n.c.** | Not assigned | 0.8 to 1.1 Nm |
| | **W** | Phase W | 1.2 to 1.6 Nm |
| | **V** | Phase V | 1.2 to 1.6 Nm |
| | **U** | Phase U | 1.2 to 1.6 Nm |
| ⏚ | **PE** | PE connection | 2.0 to 3.3 Nm |

**INFORMATION**

It is essential that you observe the wiring instructions in the documentation of the frequency inverter you use.

## 5.4 Thermal motor protection

**NOTICE**

The unit might overheat due the low thermal time constants of the winding.

Possible damage to property.

- In addition to the temperature sensor also activate current monitoring ($I^2t$, rms current monitoring), or activate a motor model for thermal protection as with SEW-EURODRIVE servo systems.

### 5.4.1 Temperature sensor KTY84 – 130

**NOTICE**

Damage to the temperature sensor and the motor winding caused by excessive test currents.

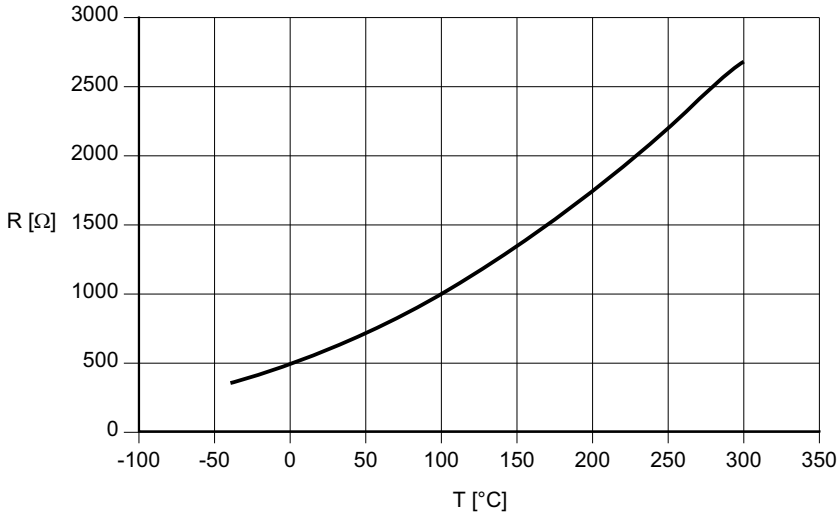
Possible damage to property.

- Use test currents < 3 mA in the KTY circuit. Doing so avoids excessive self-heating of the temperature sensor and consequently prevents its insulation and the motor winding from damage.

It is important that the KTY is connected properly and with correct polarity to ensure proper evaluation of the temperature sensor.

**Typical characteristic curve of KTY**

The following figure shows the resistance of the KTY sensor subject to the motor temperature:

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For detailed information about how to connect the KTY sensor, refer to chapter "Terminal assignment".

# 6 Startup

## 6.1 Startup notes

**INFORMATION**

- It is essential to adhere to the safety notes during startup.
- Correct project planning for the drive is a prerequisite for successful startup. For project planning notes, refer to the catalog.
- The motor speed must not exceed 2000 rpm.
  Set the maximum speed on the frequency inverter. For information on the procedure, refer to the documentation of the frequency inverter.

## 6.2 Prerequisites for startup

### 6.2.1 Before startup

Before startup, make sure that:

- The MGF..-DSM unit is undamaged and not blocked
- The measures described in chapter "Extended storage" are performed after an extended storage period
- All connections have been made properly
- The direction of rotation of the MGF..-DSM unit is correct
- All protective covers have been properly installed
- All motor protection equipment is active and set for the rated motor current
- There are no other sources of danger
- No heat-sensitive or insulating materials are covering the surface of the MGF..-DSM unit

### 6.2.2 During startup

During startup, make sure that:

- The motor is running properly, which means
  - No overload,
  - No speed fluctuation,
  - No loud noises,
  - No unusual vibrations, etc.

  In case of problems, refer to chapter "Service".

# 7 Service

**NOTICE**

Improper handling of MGF..-DSM drive units may lead to damage.

Possible damage to property

- Note that only qualified personnel is permitted to repair drives from SEW-EURODRIVE.
- Consult the SEW-EURODRIVE Service department.

## *7.1 Malfunctions of the mechanical MGF..-DSM drive*

The following table shows the troubleshooting options for malfunctions of the mechanical MGF..-DSM drive:

| Malfunction | Possible cause | Remedy |
|---|---|---|
| Unusual, regular running noise | Meshing/grinding noise: Bearing damage | Consult SEW-EURODRIVE Service |
| | Knocking noise: Irregularity in the gearing | |
| Unusual, regular running noise | Foreign objects in the oil | Stop the drive and consult SEW-EURODRIVE Service |
| Oil leaking from the gear unit cover plate | Seal on the inspection cover is not tight | Consult SEW-EURODRIVE Service |
| Oil leaking from the terminal box | Internal seal defective | Consult SEW-EURODRIVE Service |
| Oil leaking from oil seal at output end[1)] | Oil seal defective | Replace oil seal |
| | Too much oil | Correct the oil quantity |
| | Drive installed in the wrong mounting position or breather valve installed in wrong position. | Install the breather valve correctly |
| Output shaft does not turn even though the motor is running | Shaft-hub connection in the gear unit interrupted | Send MGF..-DSM in for repair. |
| MGF..-DSM unit does not start | Supply cable interrupted | Check connections, correct if necessary |
| | Fuse blown | Replace fuse |
| | Motor protection tripped | Check motor protection for correct setting, correct fault if necessary |
| | Frequency inverter faulty, overloaded, incorrectly wired, or incorrectly set | Check frequency inverter, check wiring |
| Incorrect direction of rotation | Incorrect setpoint polarity | Check frequency inverter, check setpoints |
| MGF..-DSM unit hums and has high current consumption | Drive is blocked | Check drive |
| | Frequency inverter set incorrectly | Check frequency inverter |

| Malfunction | Possible cause | Remedy |
|---|---|---|
| MGF..-DSM unit heats up excessively (measure temperature, significantly higher than 100 °C) | Overload | Measure power, use larger MGF..-DSM or reduce load if necessary, check travel profile |
| | Ambient temperature too high | Comply with permitted temperature range |
| | Insufficient cooling | Correct cooling air supply or clear cooling air passages |
| | Nominal duty type (S1 to S10, EN 60034) exceeded, e.g. due to excessive effective torque | Adjust nominal duty type to required operating conditions; if necessary, call in a specialist to determine the correct drive |
| | Frequency inverter not optimized | Check frequency inverter |

1) Short-term oil / grease leakage at the oil seal is possible in the run-in phase (24 hours running time).

## *7.2 SEW-EURODRIVE Service*

### 7.2.1 Sending in a unit for repair

If a fault cannot be rectified, please contact the SEW-EURODRIVE Electronics Service (see "Address List").

When you contact the SEW Electronics Service, always quote the digits on the status label so that our service personnel can assist you more effectively.

**Provide the following information when sending the unit in for repair:**

- Serial number (see nameplate)
- Type designation
- Unit variant
- Short description of the application (application, control mode, etc.)
- Nature of the fault
- Accompanying circumstances
- Your own presumptions as to what has happened
- Any unusual events preceding the problem, etc.

## *7.3 Storage*

Observe the following instructions when shutting down or storing MGF..-DSM drive units:

- If you shut down and store the MGF..-DSM drive unit for a longer period, you must close open cable entries and cover contacts with protective caps.
- Make sure that the unit is not subject to mechanical impact during storage.

Observe the notes on storage temperature in the "Technical Data" chapter.

## 7.4 Extended storage

### 7.4.1 Drive

**NOTICE**

Volatilization of the VCI anti-corrosion agent

Possible damage to property

- MGF..-DSM drive units must be kept tightly closed until they are started up.

**INFORMATION**

For storage periods longer than 9 months, SEW-EURODRIVE recommends the "Extended storage" variant. MGF..-DSM drive units of this type are designated with a corresponding label.

A VCI corrosion inhibitor (volatile corrosion inhibitor) is added to the lubricant in these MGF..-DSM drive units. Please note that this VCI corrosion inhibitor is only effective in a temperature range between -25 °C and +50 °C. The shaft ends are also treated with an anti-corrosion agent. If not specified otherwise, the MGF..-DSM drive units in "extended storage" design are equipped with OS2 surface protection. You can also order OS3 instead of OS2. For further information, refer to chapter "Surface protection".

### 7.4.2 Storage conditions

Observe the storage conditions specified in the following table for extended storage:

| Climate zone | Packaging[1)] | Storage location[2)] | Storage duration |
|---|---|---|---|
| **Temperate (Europe, USA, Canada, China and Russia, excluding tropical zones)** | Packed in containers, with desiccant and moisture indicator sealed in the plastic wrap. | Under roof, protected against rain and snow, no shock loads. | Up to 3 years with regular checks of the packaging and moisture indicator (rel. humidity < 50%). |
| | Open | Under roof and enclosed at constant temperature and atmospheric humidity (5 °C < ϑ < 50 °C, < 50% relative humidity).<br>No sudden temperature fluctuations. Controlled ventilation with filter (free from dust and dirt). Protected against aggressive vapors and shocks. | 2 years or more with regular inspections. Check for cleanness and mechanical damage during 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.<br>Protected against insect damage and mildew by chemical treatment. | With roof, protected against rain and shocks. | Up to 3 years with regular checks of the packaging and moisture indicator (rel. humidity < 50%). |
| | Open | Under roof and enclosed at constant temperature and atmospheric humidity (5 °C < ϑ < 50 °C, < 50% relative humidity).<br>No sudden temperature fluctuations. Controlled ventilation with filter (free from dust and dirt). No aggressive vapors, no shocks. Protected against insect damage. | 2 years or more with regular inspections. Check for cleanness and mechanical damage during inspection. Check corrosion protection. |

1) The packaging must be carried out by an experienced company using the packaging materials that have been explicitly specified for the particular application.

2) SEW-EURODRIVE recommends to store the drive according to the mounting position.

## *7.5 Disposal*

Observe the applicable regulations: Dispose of the following materials in accordance with the regulations in force:

- Aluminum scrap
  - Housing parts
- Steel scrap:
  - Gears
  - Shafts
  - Anti-friction bearings
- Electronics scrap (circuit boards)
- Plastic (housing), sheet metal, copper, etc.

Collect waste oil and dispose of it according to the regulations in force.

# 8 Inspection and maintenance

## 8.1 Inspection and maintenance intervals

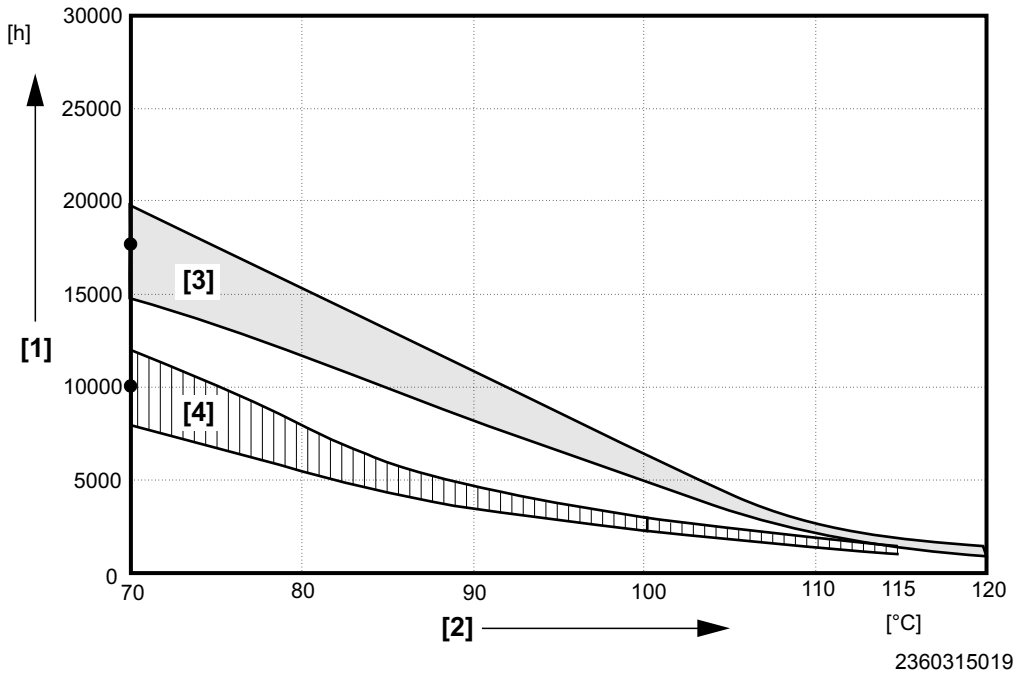
The following table shows the inspection and replacement intervals for MGF..-DSM drive units.

| Time interval | What to do? | Who is permitted to perform the work? |
|---|---|---|
| Every 3,000 hours of operation, at least every 6 months | Check running noise for possible bearing damage | Qualified personnel at customer site |
| | In the event of a bearing damage: Have the bearing replaced by SEW-EURODRIVE Service or qualified personnel trained by SEW-EURODRIVE. | SEW-EURODRIVE Service |
| | | Qualified personnel trained by SEW-EURODRIVE |
| | Visual inspection of the seals for leakage | Qualified personnel at customer site |
| | In the event of a leakage at the output oil seal: Replacing the oil seal | Qualified personnel at customer site |
| | In the event of any other leakage: Consult SEW-EURODRIVE SERVICE | SEW-EURODRIVE Service |
| | For gear units with a torque arm: Check rubber buffers and replace them if necessary | Qualified personnel at customer site |
| Recommendation:<br>Every 10,000 hours of operation[1)] | Have the motor inspected by SEW-EURODRIVE Service or qualified personnel trained by SEW-EURODRIVE. | SEW-EURODRIVE Service |
| | | Qualified personnel trained by SEW-EURODRIVE |
| MGF..-DSM drive units are equipped with long-term lubrication. Depending on the operating conditions and the oil temperature, the oil must be changed at least every 5 years (see chapter "Lubricant change intervals"). | Change synthetic oil | Qualified personnel at customer site |
| | Replace output oil seal (do not install it in the same track) | Qualified personnel at customer site |
| When the cover / electronics cover is removed after an operating period of ≥ 6 months. | When the cover / electronics cover is opened after an operating period of ≥ 6 months, the gasket between the connection box and the cover / electronics cover must always be replaced.<br>The 6-month period can be shortened by harsh ambient/operating conditions, e.g. cleaning with aggressive chemicals or frequent temperature fluctuations. | Qualified personnel at customer site |
| Each time the cover / electronics cover is removed | Visual inspection of the gasket between connection box and cover / electronics cover: Replace the gasket if it is damaged or separating from the connection box. | Qualified personnel at customer site |
| Varying (depending on external factors) | Touch up or renew the surfaces/anticorrosion coating | Qualified personnel at customer site |
| | To prevent permanent water accumulation in the B-side cover, you must clean it at regular intervals. | Qualified personnel at customer site |

1) Wear times are influenced by many factors. The system manufacturer must calculate the required inspection/maintenance intervals individually in accordance with the project planning documents.

## 8.2 Lubrication change intervals

The following figure shows the lubricant change intervals for MGF..-DSM drive units for normal ambient conditions:




[1] Operating hours
[2] Sustained oil bath temperature
[3] CLP HC / HCE
[4] CLP / HLP / E

- Average value per oil type at 70 °C

## 8.3 Inspection and maintenance work

### 8.3.1 Preliminary work regarding inspection and maintenance

Observe the following notes before you start with inspection/maintenance work on the MGF..-DSM.

**⚠ WARNING**

Risk of injury if the drive starts up unintentionally.

Electric shock caused by dangerous voltages in the connection box.

Severe or fatal injuries.

- Before removing the cover, de-energize the MGF..-DSM drive units via a suitable external disconnection device.
- Secure the drive unit against unintended re-connection of the voltage supply.
- Secure the output shaft against rotation.

**⚠ WARNING**

Danger of burns due to hot surfaces and hot gear unit oil.

Severe injuries.

- Let the units cool down before touching them.
- Remove the screw plugs and the breather valve carefully.
- The gear unit must still be warm, otherwise the high viscosity of excessively cold oil will make it more difficult to drain the oil correctly.

**NOTICE**

Damage to the MGF..-DSM drive unit

Potential damage to property

- Make sure that only the SEW-EURODRIVE Service or qualified personnel trained by SEW-EURODRIVE opens the inspection cover.

**NOTICE**

Filling in the wrong oil may result in significantly different lubricant characteristics.

Potential damage to property

- Do not mix different synthetic lubricants and do not mix synthetic and mineral lubricants!
- Synthetic oil is used as the standard lubricant.

### 8.3.2 Changing the oil

*Draining the oil*

1. Observe the notes in chapter "Preliminary work for inspection and maintenance".
2. ⚠ **DANGER:** Burns caused by hot surfaces.

   Severe injuries

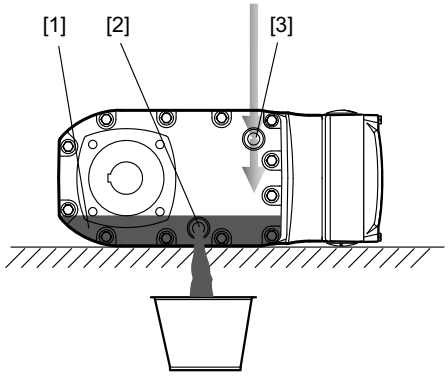
   - Let the units cool down before touching them.
3. Remove the MGF..-DSM drive unit from the system, otherwise it is not possible to change the oil.
4. SEW-EURODRIVE recommends that you drain the oil in the position depicted in the figure below:
5. Place an adequate container underneath the oil drain plug [2].
6. ⚠ **WARNING:** Risk of burns due to hot gear oil.

   Severe injuries

   - Let the units cool down before touching them.
   - Remove the screw plugs and the breather valve carefully.
   - The gear unit must still be warm, otherwise the high viscosity of excessively cold oil will make it more difficult to drain the oil correctly.
7. Remove the lowest screw plug [2] or the breather valve (depends on the mounting position according to the mounting position sheet).
8. It is easier to drain the oil when you also remove the upper screw plug [3] or breather valve (air can flow in).
9. Drain the oil. Completely remove the residual oil [1] with a suitable device.

*Recommended position*

The following figure shows the position recommended for draining the oil:

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*Filling in the oil*

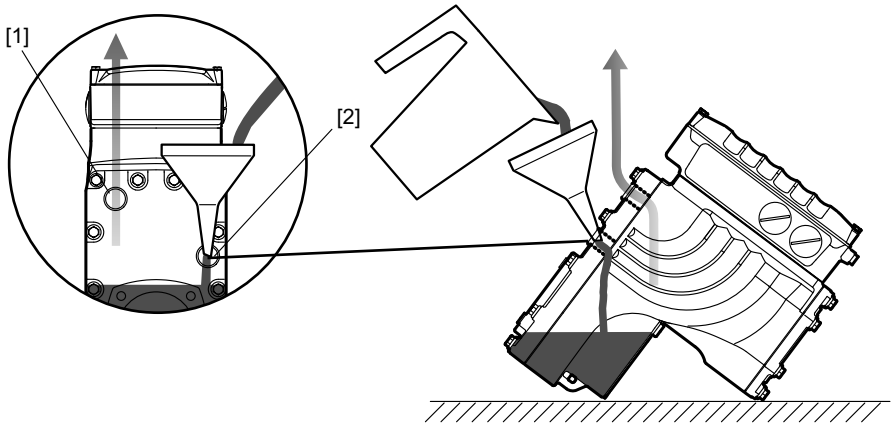
1. Observe the notes in chapter "Preliminary work for inspection and maintenance".
2. SEW-EURODRIVE recommends that you fill in the new oil in the position depicted in the figure below.
3. **IMPORTANT:** Filling in the wrong oil may result in significantly different lubricant characteristics. Potential damage to property
   - Do not mix different synthetic lubricants and do not mix synthetic and mineral lubricants.
   - Synthetic oil is used as the standard lubricant.
4. Fill in new oil of the same type via the lower bore hole [1].

   It is easier to fill in the oil when you also remove the upper breather plug [2] or breather valve (air can flow out).

   For the oil quantity required for your mounting position, refer to the nameplate or the chapter "Technical data and dimension sheets/Lubricant fill quantities".
5. Re-insert the screw plug and the breather valve. Depending on the mounting position used, observe the mounting position sheet.
6. Touch up or renew the surface protection/anticorrosion coating.

*Recommended position*

The following figure shows the position recommended for filling in the new oil.

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### 8.3.3 Replacing the output oil seal

1. Observe the notes in chapter "Preliminary work for inspection and maintenance".
2. Remove the MGF..-DSM drive unit from the system.
3. **IMPORTANT:** Oil seals with a temperature below 0 °C may get damaged during installation.

   Potential damage to property.

   - Store oil seals at ambient temperatures over 0 °C.
   - Warm up the oil seals before you install them, if necessary.
4. When changing the oil seal, ensure that there is a sufficient grease reservoir between the dust lip and protective lip, depending on the type of gear unit.
5. If you use double oil seals, fill one-third of the gap with grease.
6. Do not install the oil seal on the same track.
7. Touch up or renew the surface protection/anticorrosion coating.

### 8.3.4 Painting the drive unit

1. Observe the notes in chapter "Preliminary work for inspection and maintenance".
2. **IMPORTANT:** Breather valves and oil seals may be damaged during painting or re-painting.

   Potential damage to property.

   - Clean the surface of the drive unit and make sure it is free from grease.
   - Thoroughly cover the breather valves and sealing lip of the oil seals with strips prior to painting.
   - Remove the strips after painting.

### 8.3.5 Cleaning the drive unit

Observe the notes in chapter "Preliminary work for inspection and maintenance".

Excessive dirt, dust or shavings can have a negative impact on the function of synchronous motors; in extreme cases, these factors can cause the motor to break down.

For this reason, you must clean the drives at regular intervals (after one year at the latest) to ensure a sufficiently large area for heat dissipation.

Insufficient heat dissipation can have unwanted consequences. The bearing service life is reduced through operation at impermissibly high temperatures (bearing grease degrades).

### 8.3.6 Connection cables

Observe the notes in chapter "Preliminary work for inspection and maintenance".

Check the connection cable for damage at regular intervals and replace if necessary.

### 8.3.7 Replacing the gasket between connection box and cover

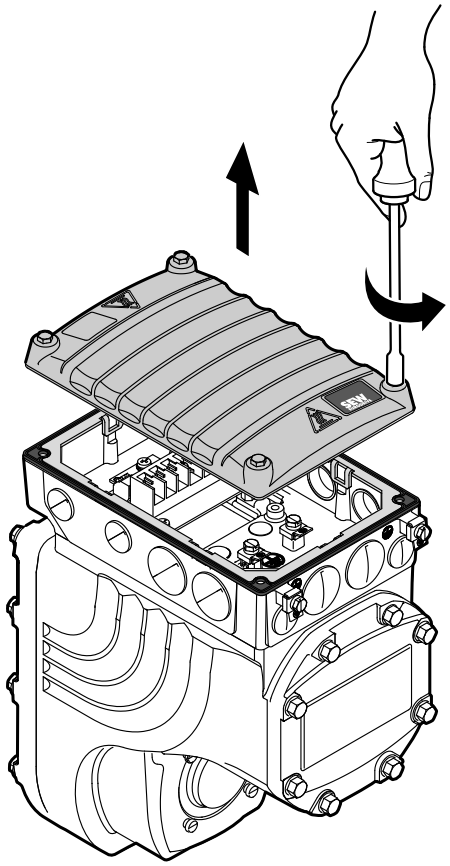
*Spare part kit*

The gasket is available as spare part from SEW-EURODRIVE.

| Contents | Part number<br>MGF..2-DSM drive unit (die-cast design)<br>MGF..4-DSM drive unit (die-cast design) |
|---|---|
| **1 pc** | 2 821 162 6 |
| **10 pcs** | 2 821 163 4 |
| **50 pcs** | 2 821 164 2 |

*Steps*

1. Observe the notes in chapter "Preliminary work for inspection and maintenance".
2. Loosen the screws of the cover and remove it.



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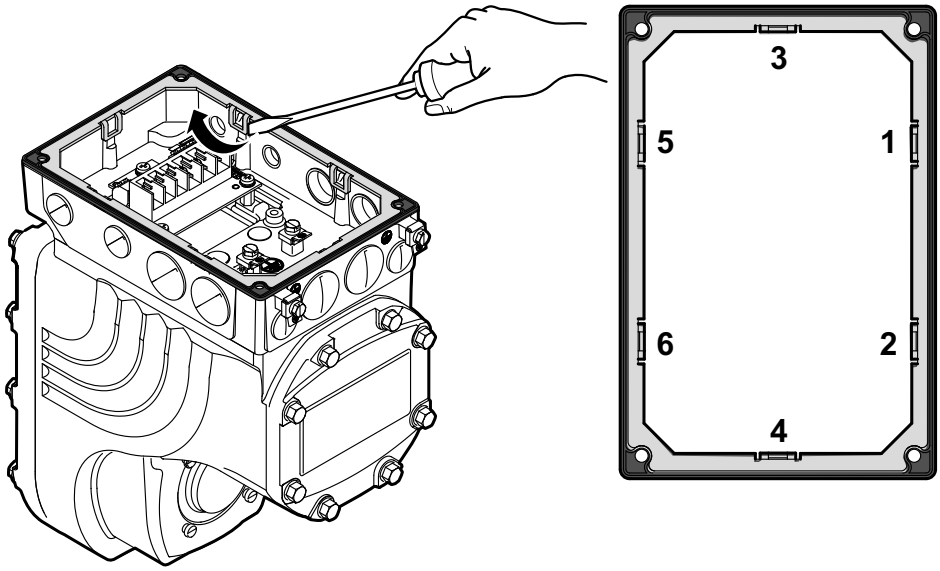
3. **NOTICE** Loss of the guaranteed degree of protection.

   Possible damage to property.

   - Make sure not to damage the sealing surfaces when removing the gasket.

4. Loosen the used gasket by levering it off the retaining cams. This becomes easier when you keep to the sequence shown in the figure below.

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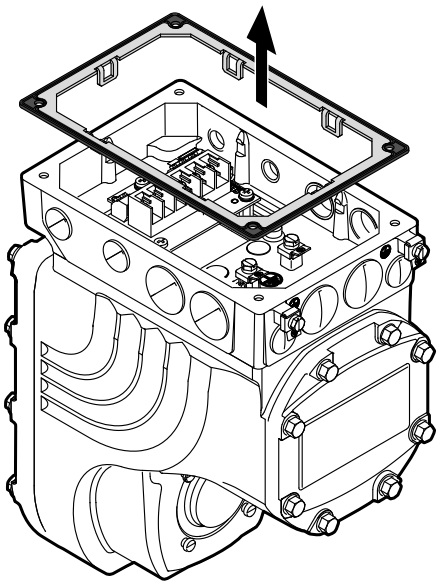
5. Remove the used gasket completely from the connection box.



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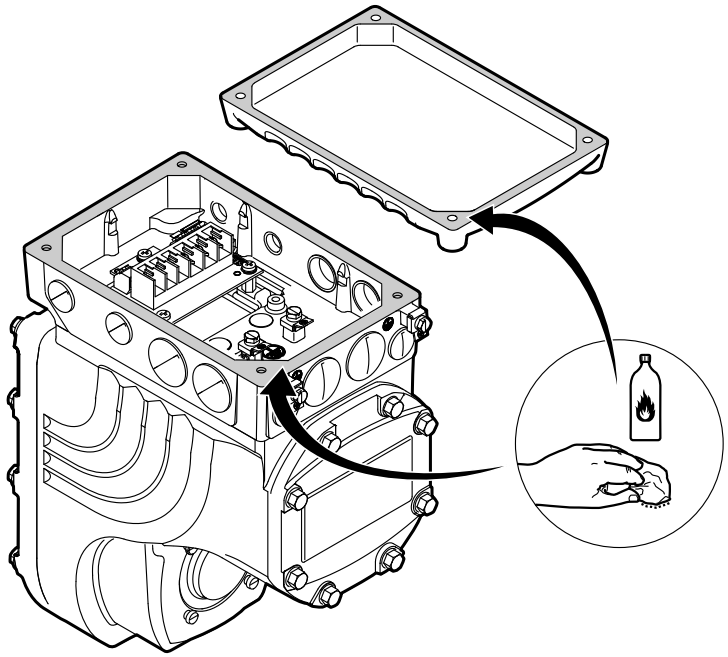
6. ⚠ **CAUTION:** Risk of injury due to sharp edges.

   Cuts.

   - Use protective gloves for cleaning.
   - Work may only be carried out by qualified personnel.

   Clean the sealing surfaces of the connection box and the cover carefully.



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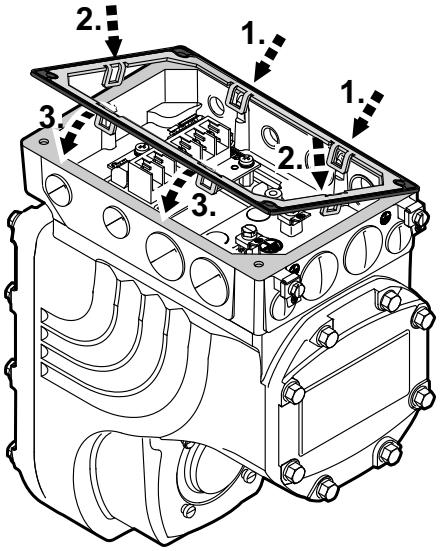
7. Place the new gasket on the connection box and fix it in position with the retaining cams. This becomes easier when you keep to the sequence shown in the figure below.

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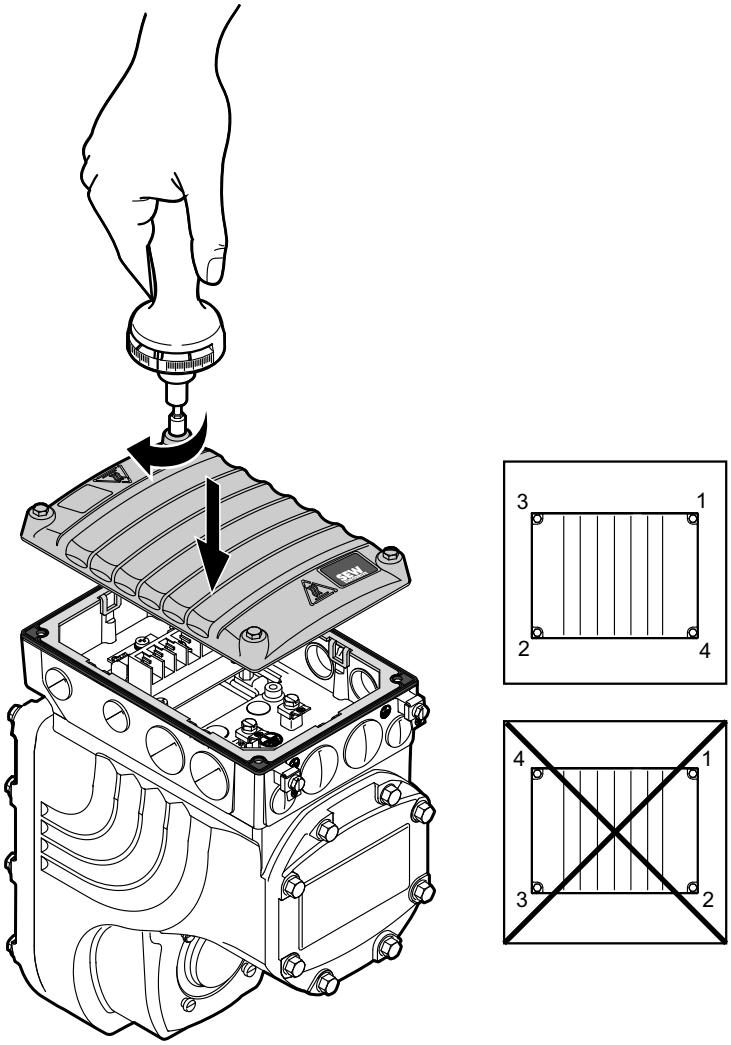
8. Check the installation and startup of the drive unit using the applicable operating instructions.

9. Place the cover on the connection box again and fasten it.

   Screw on the MGF..-DSM cover as follows: Insert the screws and tighten them crosswise **step by step** with a tightening torque of 6 Nm.

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# 9 Technical data and dimension sheets

## 9.1 General technical data of MGF..-DSM

| MGF..-DSM | | |
|---|---|---|
| **Ambient temperature** | $\vartheta_A$ | – 25 °C to + 60 °C [1]<br>As of + 40 °C, certain factors reduce the power and must be considered; consult SEW-EURODRIVE. |
| **Climate class** | | EN 60721-3-3, class 3K3 |
| **Storage temperature** | $\vartheta_S$ | – 25 °C to + 70 °C (EN 60721-3-3) |
| **Proof of mechanical strength** | | According to EN 61800-5-1 |
| **Degree of protection** | **IP** | Standard: IP65 according to EN 60529<br>(MGF..-DSM housing closed and all cable glands sealed)<br><br>With optional package for applications in wet areas: IP66 according to EN 60529<br>(MGF..-DSM housing closed and all cable glands sealed) |
| **Duty type** | | S1, continuous duty (EN 60034-1) |
| **Type of cooling** | | Self-cooling to DIN 41751 and EN 61800-5-1 |
| **Installation altitude** | h | Up to h ≤ 1000 m without restrictions.<br>Restrictions apply to heights ≥ 1000 m; please contact SEW-EURODRIVE. |
| **Required preventive measures** | | Grounding the unit |

1) Observe the permitted temperature range of the oil to be used (see chapter "Lubricant table").

## 9.2 Motor data of MGF..-DSM

### 9.2.1 System voltage: 400 V, connection type of motor: 人

| Motor | $J_{mot}$ [kgm² × 10⁻⁴] | $n_N$ [rpm] | $n_{max}$ [rpm] | KTY limit [°C] | $V_N$ [V] | $M_0$ [Nm] | $I_0$ [A] | $V_{p0}$ cold [V] | $C_T$ [Nm/A] | $R_1$ Ω | $L_1$ [mH] | Number of poles of the motor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MGF..2-DSM** | 2.26 | 2000 | 2000 | 150 | 400 | 4 | 1.85 | 144.8 | 2.17 | 5.17 | 47.3 | 10 |
| **MGF..4-DSM** | 11.05 | 2000 | 2000 | 150 | 400 | 10 | 4.40 | 165 | 2.28 | 1.1 | 17.8 | 10 |

| | |
|---|---|
| $J_{mot}$ | Mass moment of inertia of the motor |
| $n_N$ | Rated speed |
| $n_{max}$ | Maximum permitted speed |
| **KTY limit** | Maximum permitted motor temperature measured at KTY |
| $V_N$ | Nominal voltage |
| $M_0$ | Standstill torque (thermal continuous torque at low speeds) |
| $I_0$ | Standstill current |
| $V_{p0}$ **cold** | Magnet wheel voltage at 1000 rpm |
| $C_T$ | Torque constant |
| $R_1$ | Resistance between connection phase and star point |
| $L_1$ | Inductance between connection phase and star point |

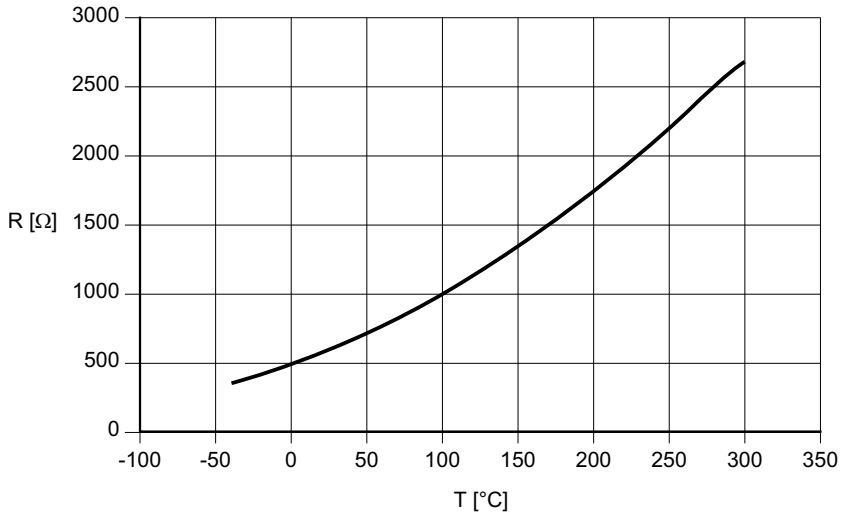
## 9.3 Technical data of KTY temperature sensor

The temperature sensor KTY84 - 130 continuously measures the motor temperature:

| Technical data | KTY84 - 130 |
|---|---|
| **Connection** | Red (+)<br>Blue (-) |
| **Total resistance at 20 – 25 °C** | 540 Ω < R < 640 Ω |
| **Test current** | < 3 mA |

### 9.3.1 Typical characteristic curve of KTY

The following figure shows a typical characteristic curve of the KTY:

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## 9.4 Current carrying capacity of terminals

| Current carrying capacity of terminals | | |
|---|---|---|
| **Supply system terminals** | X2 | Max. 24 A |

## 9.5 Permitted currents, speeds and torques

**NOTICE**

Damage to the MGF..-DSM unit

Potential damage to property

- To protect the MGF..-DSM unit, you must observe the following currents, speeds, and torques.

**MGF2..-DSM**

| | $n_a$ at $n_e$= 1 rpm [rpm] | $n_a$ at $n_e$= 2000 rpm [rpm] | $M_a$ [Nm] | $I_{cont.}$ [A] | $M_{apk}$ [Nm] | $I_{max}$ [A] | $M_{aE-merg.Off}$ [Nm] | $i_{tot}$ | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|
| **2-stage** | 0.20 | 400.0 | 20 | 1.85 | 76 | 7.00 | 210 | 5.00 | 15.7 |
| | 0.19 | 374.5 | 21 | 1.85 | 81 | 7.00 | 215 | 5.34 | |
| | 0.16 | 320.0 | 25 | 1.85 | 95 | 7.00 | 225 | 6.25 | |
| | 0.14 | 285.7 | 28 | 1.85 | 106 | 7.00 | 235 | 7.00 | |
| | 0.12 | 242.7 | 33 | 1.85 | 125 | 7.00 | 245 | 8.24 | |
| | 0.10 | 206.0 | 39 | 1.85 | 147 | 7.00 | 330 | 9.71 | |
| | 0.10 | 192.9 | 42 | 1.85 | 157 | 7.00 | 330 | 10.37 | |
| | 0.08 | 164.7 | 49 | 1.85 | 184 | 7.00 | 330 | 12.14 | |
| | 0.07 | 147.1 | 55 | 1.85 | 206 | 7.00 | 330 | 13.6 | |
| | 0.06 | 125.0 | 64 | 1.85 | 220 | 6.35 | 330 | 16.00 | |
| | 0.05 | 108.0 | 74 | 1.85 | 220 | 5.45 | 330 | 18.52 | |
| | 0.05 | 101.0 | 80 | 1.85 | 220 | 5.10 | 330 | 19.81 | |
| | 0.04 | 87.5 | 92 | 1.85 | 220 | 4.40 | 330 | 22.86 | |
| **3-stage** | 0.04 | 71.3 | 113 | 1.85 | 220 | 3.60 | 330 | 28.07 | 16.0 |
| | 0.03 | 60.6 | 133 | 1.85 | 220 | 3.05 | 330 | 33.02 | |
| | 0.03 | 53.7 | 149 | 1.85 | 220 | 2.70 | 330 | 37.24 | |
| | 0.02 | 47.4 | 169 | 1.85 | 220 | 2.40 | 330 | 42.19 | |
| | 0.02 | 44.4 | 181 | 1.85 | 220 | 2.25 | 330 | 45.03 | |
| | 0.02 | 38.8 | 200 | 1.80 | 220 | 1.95 | 330 | 51.51 | |
| | 0.02 | 36.2 | 200 | 1.65 | 220 | 1.85 | 330 | 55.25 | |

| | |
|---|---|
| | = Preferred gear ratio |
| $M_{apk}$ | = Maximum permitted torque for short-time duty[1)] |
| $I_{max}$ | = Maximum permitted current for short-time duty |
| $M_a$ | = MGF..-DSM continuous output torque |
| $I_{cont.}$ | = Continuous current S1 duty |
| $M_{aEmerg.Off}$ | = Maximum permitted torque for non-cyclical special loads, maximum 1000 cycles |
| $n_a$ | = Output speed |
| $n_e$ | = Motor speed |

1) If $M_{apk}$ occurs more often than 10 times per hour, detailed project planning must be carried out using SEW Workbench.

| MGF4..-DSM | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | $n_a$ | | $M_a$ | $I_{cont.}$ | $M_{apk}$ | $I_{max}$ | $M_{aE-merg.Off}$ | $i_{tot}$ | Weight |
| | at $n_e$= 1 rpm [rpm] | at $n_e$= 2000 rpm [rpm] | [Nm] | [A] | [Nm] | [A] | [Nm] | | [kg] |
| 2-stage | 0.20 | 400.8 | 50 | 4.40 | 150 | 13.20 | 420 | 4.99 | 23.6 |
| | 0.17 | 347.2 | 57 | 4.40 | 173 | 13.20 | 450 | 5.76 | |
| | 0.16 | 315.5 | 63 | 4.40 | 190 | 13.20 | 470 | 6.34 | |
| | 0.13 | 268.8 | 74 | 4.40 | 223 | 13.20 | 515 | 7.44 | |
| | 0.13 | 253.8 | 78 | 4.40 | 236 | 13.20 | 525 | 7.88 | |
| | 0.11 | 223.2 | 89 | 4.40 | 269 | 13.20 | 560 | 8.96 | |
| | 0.09 | 182.3 | 109 | 4.40 | 329 | 13.20 | 675 | 10.97 | |
| | 0.08 | 158.0 | 126 | 4.40 | 380 | 13.20 | 710 | 12.66 | |
| | 0.07 | 143.6 | 139 | 4.40 | 418 | 13.20 | 710 | 13.93 | |
| | 0.06 | 122.2 | 163 | 4.40 | 475 | 12.80 | 710 | 16.36 | |
| | 0.06 | 115.4 | 173 | 4.40 | 475 | 12.10 | 710 | 17.33 | |
| | 0.05 | 101.5 | 197 | 4.40 | 475 | 10.60 | 710 | 19.70 | |
| | 0.05 | 91.7 | 218 | 4.40 | 475 | 9.60 | 710 | 21.82 | |
| | 0.04 | 77.8 | 257 | 4.40 | 475 | 8.15 | 710 | 25.72 | |
| 3-stage | 0.03 | 69.3 | 288 | 4.40 | 475 | 7.25 | 710 | 28.88 | 24.0 |
| | 0.03 | 58.3 | 342 | 4.40 | 475 | 6.10 | 710 | 34.29 | |
| | 0.03 | 54.6 | 366 | 4.40 | 475 | 5.70 | 710 | 36.61 | |
| | 0.02 | 46.7 | 400 | 4.10 | 475 | 4.85 | 710 | 42.86 | |
| | 0.02 | 41.7 | 400 | 3.65 | 475 | 4.35 | 710 | 48.00 | |
| | 0.02 | 35.4 | 400 | 3.10 | 475 | 3.70 | 710 | 56.49 | |

| | |
|---|---|
| | = Preferred gear ratio |
| $M_{apk}$ | = Maximum permitted torque for short-time duty[1)] |
| $I_{max}$ | = Maximum permitted current for short-time duty |
| $M_a$ | = MGF..-DSM continuous output torque |
| $I_{cont.}$ | = Continuous current S1 duty |
| $M_{aEmerg.Off}$ | = Maximum permitted torque for non-cyclical special loads, maximum 1000 cycles |
| $n_a$ | = Output speed |
| $n_e$ | = Motor speed |

1) If $M_{apk}$ occurs more often than 10 times per hour, detailed project planning must be carried out using SEW Workbench.

## 9.6 Surface protection

### 9.6.1 General information

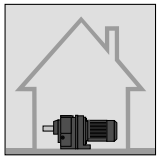
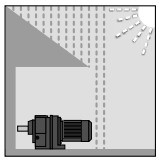
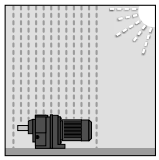
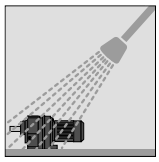
SEW-EURODRIVE offers the following optional protective measures for MGF..-DSM drive units that are operated under special ambient conditions.

- OS surface protection
- HP200 high protection treatment (only in connection with the optional variant for wet areas)

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

### 9.6.2 Surface protection

Instead of standard surface protection, MGF..-DSM drive units can be equipped with OS1 to OS3 surface protection as an option. The special procedure Z can also be performed in addition. Special measure Z means that large contour recesses are filled with rubber before painting.

| Surface protection | | Ambient conditions | Sample applications |
|---|---|---|---|
| **Standard** |  | Suitable for machines and systems in buildings and rooms indoors with neutral atmospheres.<br>Similar to corrosivity category[1]:<br>• C1 (negligible) | • Machines and systems in the automobile industry<br>• Conveyor systems in logistics areas<br>• Conveyor systems at airports |
| **OS1** |  | Suited for environments prone to condensation and atmospheres with low humidity or contamination, such as applications outdoors under roof or with protection.<br>Similar to corrosivity category[1]:<br>• C2 (low) | • Systems in saw mills<br>• Hall gates<br>• Agitators and mixers |
| **OS2** |  | Suited for environments with high humidity or mean atmospheric contamination, such as applications outdoors subject to direct weathering.<br>Similar to corrosivity category[1]:<br>• C3 (moderate) | • Funiculars and chair-lifts<br>• Applications in gravel plants |
| **OS3** |  | Suited for environments with high humidity and occasionally severe atmospheric and chemical contamination. Occasionally acidic or caustic wet cleaning. Also for applications in coastal areas with moderate salt load.<br>Similar to corrosivity category[1]:<br>• C4 (high) | • Sewage treatment works<br>• Port cranes<br>• Mining applications |
| **HP200 high protection surface treatment[2]** |  | For hygienic areas in the food and beverage industry with regular acidic and caustic wet cleaning. Anti-stick properties support the cleaning process even in inaccessible areas. | • Hygienic and aseptic conveyors in the beverage industry<br>• Systems in cheese dairies and butcher shops<br>• "Splash zones" in the food industry |

1) According to DIN EN ISO 12 944-2

2) Only in connection with the optional variant for wet areas

### 9.6.3 Special protective measures

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

| Measure | Protection principle | Suitable for |
|---|---|---|
| **Fluorocarbon rubber oil seal (standard for MGF..-DSM drive units)** | High quality material | Drives subject to chemical contamination |
| **Surface treatment on output shaft end** | Surface treatment on the contact surface of the oil seal | Severe environmental impact and in conjunction with fluorocarbon rubber oil seal |
| **Output shaft made of stainless steel (when using the design for use in wet areas - standard)** | Surface protection with high-quality material | Particularly demanding applications in terms of surface protection |

### 9.6.4 NOCO® fluid

SEW-EURODRIVE supplies NOCO® fluid, an anti-corrosion agent and lubricant, with every MGF..-DSM drive unit with hollow shaft as standard. Use NOCO® fluid when installing hollow shaft gear units. Using this fluid can help prevent contact corrosion and makes it easier to disassemble the drive at a later time. NOCO® fluid is also suitable for protecting machined metal surfaces that do not have corrosion protection, such as parts of shaft ends or flanges. You can also order NOCO® fluid in larger quantities from SEW-EURODRIVE.

NOCO® fluid is a food grade substance according to NSF-H1. The food grade NOCO® fluid has a corresponding NSF-H1 label on the packaging.

## 9.7 Variant for use in wet areas

### 9.7.1 Sealing material

*Resistance to cleaning agents*

The sealing material used in MGF..-DSM drive units has been tested for resistance to cleaning agents.

Resistance to the following cleaning agents was proven in the tests performed by the company ECOLAB®:

| **Alkaline and chlorinated alkaline foam cleaning agents** | | |
|---|---|---|
| **Designation** | **Application concentration** | **Application temperature** |
| P3-topax 19 | 5% | 40 °C |

| **Acid foam cleaning agents** | | |
|---|---|---|
| **Designation** | **Application concentration** | **Application temperature** |
| P3-topax 56 | 5% | 40 °C |
| P3-topax 58 | 5% | 40 °C |

| **TFC cleaner** | | |
|---|---|---|
| **Designation** | **Application concentration** | **Application temperature** |
| P3-topactive 200 | 4% | 40 °C |
| P3-topactive 500 | 4% | 40 °C |

| **Disinfectant** | | |
|---|---|---|
| **Designation** | **Application concentration** | **Application temperature** |
| P3-topax 990 | 5% | 23 °C |

| | | |
|---|---|---|
| DI water | – | 40 °C |

**Product specifications:**

| | |
|---|---|
| P3-topax 19 | Alkaline foam cleaning agent |
| P3-topax 56 | Acid foam cleaning agent based on phosphoric acid |
| P3-topax 58 | Acid foam cleaning agent based on organic acids |
| P3-topactive 200 | Alkaline cleaning agent for operational cleaning as TFC application |
| P3-topactive 500 | Acid cleaning agent for operational cleaning as TFC application |
| P3-topax 990 | Alkaline foam disinfectant based on alkylamine acetate |
| DI water | Demineralized water |

### 9.7.2 HP200 surface treatment

**INFORMATION**

The information in this chapter is based on the current technical knowledge and experience. No legally binding guarantee of certain properties or of the suitability for a specific application purpose can be derived from the given information.

*Characteristics* Thermoplastic fluorinated polymer coating with nearly non-porous surface, excellent anti-stick properties and chemical resistance. Approved for contact with food.

*Properties* The HP200 surface finish has the following properties:

| HP200 surface treatment | |
|---|---|
| **Anti-adhesive properties** | Excellent |
| **Wear resistance** | Good, not suitable for abrasion or high pressure |
| **Chemical resistance** | Excellent |
| **Solvent resistance** | Not soluble |
| **Corrosion resistance** | DIN 50021, > 1000 h depending on layer structure |
| **Flammability** | Not flammable |
| **Temperature resistance** | –40 to +200 °C, thermoplastic behavior |
| **Layer thickness** | Approx. 25 µm |
| **Color** | Silver-gray<br>Slight color differences are possible in the HP200 surface finish due to the treatment process (individual treatment of the components). |
| **Food grade approval** | Approved according to German Federal law and US FDA (no. 21 CFR 175.300) |

*Cleaning* **Do not mix cleaning and disinfecting agents under any circumstances.**

**Never mix acids and chloralkalis, as poisonous chlorine gas will result.**

**Strictly observe the safety instructions of the cleaning agent manufacturer.**

*Certificate of Ecolab Deutschland GmbH*

**Ecolab Deutschland GmbH**
**P.O. Box 13 04 06**
**D-40554 Düsseldorf**

certifies that

**a material resistance test**

was performed for

**SEW-EURODRIVE GmbH & Co. KG**
**Ernst-Blickle-Straße 42**
**D-76646 Bruchsal**

with the following cleaning agents and disinfectants:
**P3-topax 19**, **P3-topax 56**, **P3-topax 58**, **P3-topax 686**, **P3-topactive 200**, **P3-topactive 500**, **P3-topactive DES**, **P3-topax 990** and **P3-oxysan ZS**, and **demineralized water**.

The protective properties of the **High Protection surface treatment HP 200** tested against the above-mentioned Ecolab products used in the test can be considered to be positive according to the cleaning procedures mentioned overleaf.

Düsseldorf, 14 August 2009

**Ecolab Deutschland GmbH**

i.V.

**Thomas Wershofen**
Manager Corporate Service RD&E
Center of Excellence EMEA
Food & Beverage Division

i. A.

**Karin Uhlenbrock**
Service Engineer RD&E
Center of Excellence EMEA
Food & Beverage Divsion

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ECOLAB

SEW EURODRIVE

**This certificate for the HP200 surface treatment is based on**

- documented test procedures on material resistance
- defined product specifications
- a standardized cleaning procedure

**Test procedure**

**Dipping test:**
- Immersion into the test medium with contact surface toward ambient air

**Test period:**
- 7 days

**Evaluation:**
- Evaluation approx. 7 days after regeneration
- Evaluation of changes of the protective properties according to DIN EN ISO 4628-1
- Evaluation of decorative changes (color, brightness, blistering)
  (+) no changes
  (o) possible minor changes
  (-) possible changes under long-term influence

The HP200 surface treatment was tested in the following media:

| **Alkaline and chlorinated foam cleaners** | | | |
|---|---|---|---|
| P3-topax 19 | 5% | 40°C | o |
| P3-topax 686 | 5% | 40°C | o |

| **Acid foam cleaning agents** | | | |
|---|---|---|---|
| P3-topax 56 | 5% | 40°C | o |
| P3-topax 58 | 5% | 40°C | + |

| **TFC cleaning agents** | | | |
|---|---|---|---|
| P3-topactive 200 | 4% | 40°C | o |
| P3-topactive 500 | 4% | 40°C | o |

| **Disinfectants** | | | |
|---|---|---|---|
| P3-topax 990 | 5% | 23°C | + |
| P3-topactive DES | 3% | 23°C | + |
| P3-oxysan ZS | 1% | 23°C | + |

| | | | |
|---|---|---|---|
| DI water | - | 40°C | + |

**Product specifications:**

**P3-topax 19**
Alkaline foam cleaning agent
**P3-topax 56**
Acid foam cleaning agent based on phosphoric acid
**P3-topax 58**
Acid foam cleaning agent based on organic acids
**P3-topax 686**
Alkaline foam cleaning agent with active chlorine
**P3-topactive 200**
Alkaline cleaning agent for operational cleaning as TFC application
**P3-topactive 500**
Acid cleaning agent for operational cleaning as TFC application
**P3-topax 990**
Alkaline foam disinfectant based on alkylamine acetate
**P3-topactive DES**
Foam and TFC capable disinfectant based on $H_2O_2$ and peroxy acid
**P3-oxysan ZS**
Disinfectant based on peroxy compounds
**DI water**
Demineralized water

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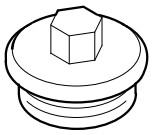
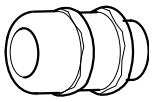
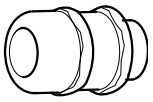
## 9.8 Screw fittings

The following tables show the screw connections available from SEW-EURODRIVE:

### 9.8.1 Cable glands / screw plugs

| Type of screw fitting | Figure | Contents | Size | Tightening torque[1)] | Part number |
|---|---|---|---|---|---|
| **Screw plugs Hexagon (made of stainless steel)** |  | 10 pcs | M16 x 1.5 | 6.8 Nm | 1 824 734 2 |
| | | 10 pcs | M25 x 1.5 | 6.8 Nm | 1 824 735 0 |
| **EMC cable gland (nickel-plated brass)** |  | 10 pcs | M16 x 1.5 | 4 Nm | 1 820 478 3 |
| | | 10 pcs | M25 x 1.5 | 7 Nm | 1 820 480 5 |
| **EMC cable gland (made of stainless steel)** |  | 10 pcs | M16 x 1.5 | 4 Nm | 1 821 636 6 |
| | | 10 pcs | M25 x 1.5 | 7 Nm | 1 821 638 2 |

1) The specified torques must be adhered to with a tolerance of +/− 10%.

## 9.9 Mounting positions

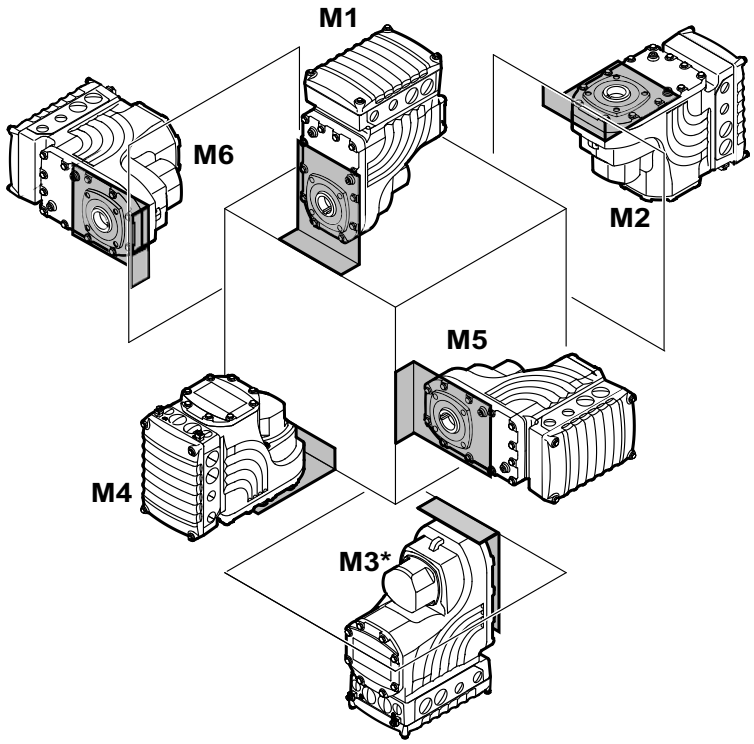
### 9.9.1 Mounting position designation

The following mounting positions are possible for MGF..-DSM drive units:

- Specified mounting position: M1 or M2 or M3* or M4 or M5 or M6
- Universal use in mounting positions M1, M2, M3*, M4, M5, M6

*Mounting positions M1 to M6*

The following figure shows the spatial orientation of MGF..-DSM in mounting positions M1 to M6:

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***** = Mounting position M3 only possible after consultation with SEW-EURODRIVE

### 9.9.2 Mounting positions

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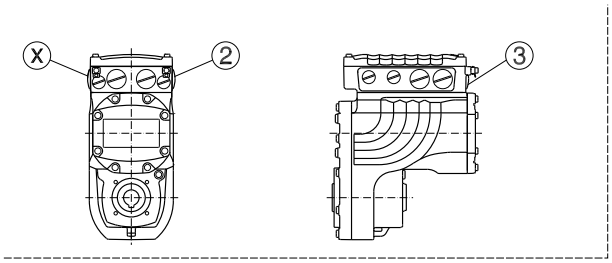


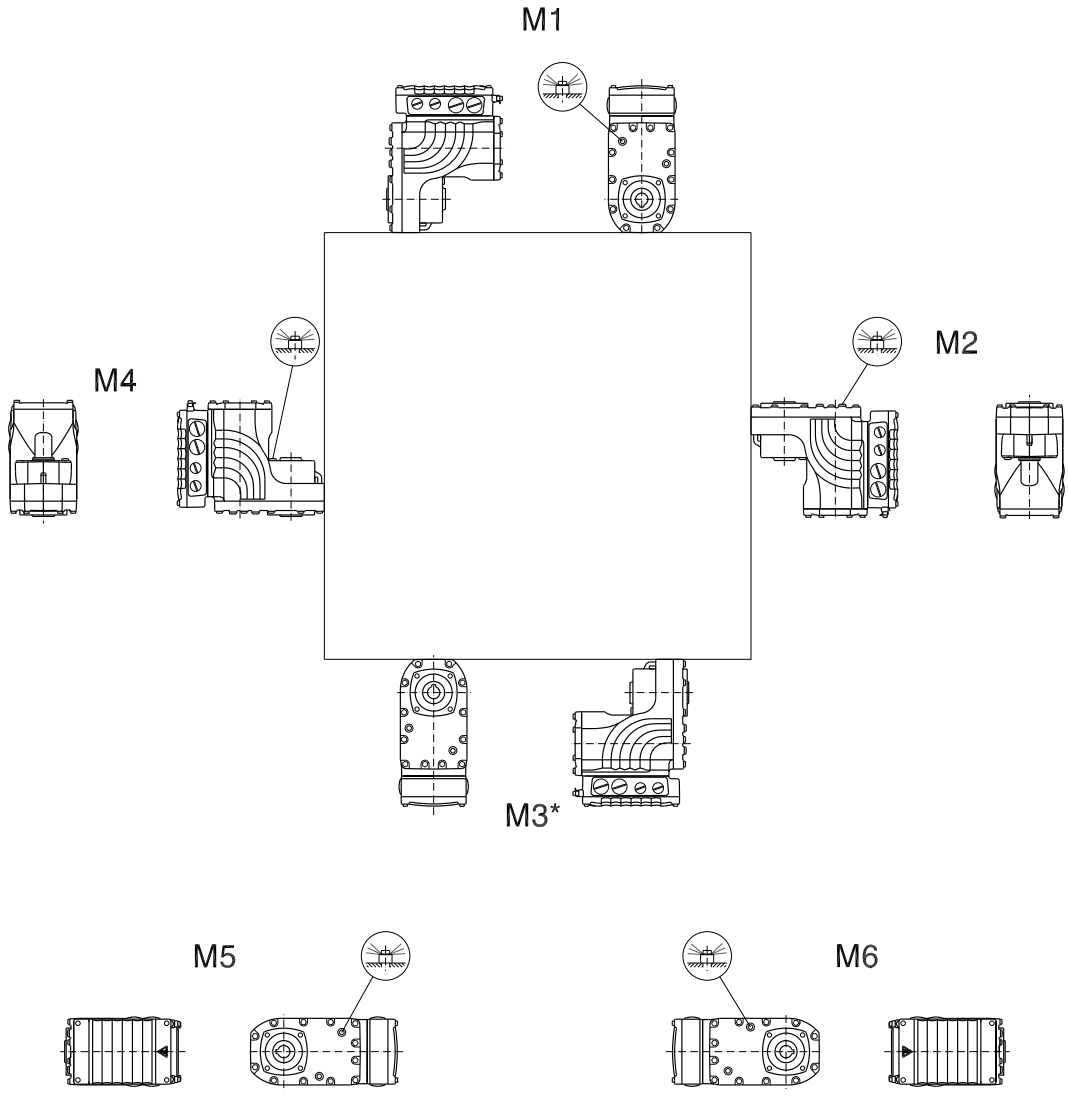


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***** = Mounting position M3 only after consultation with SEW-EURODRIVE

= Breather valve

## 9.10 Lubricants

### 9.10.1 Lubricant fill quantities of the die-cast variant

Unless a special arrangement is made, SEW-EURODRIVE supplies the drives with a lubricant fill adapted for the specific gear ratio.

| MGF..2 | | MGF..4 | |
|---|---|---|---|
| **Gear ratio i** | **Fill quantities in liters For mounting positions M1, M2, M3*, M4, M5, M6** | **Gear ratio i** | **Fill quantities in liters For mounting positions M1, M2, M3*, M4, M5, M6** |
| 55.25 | 0.59 l | 56.49 | 1.3 l |
| 51.51 | | 48.00 | |
| 45.03 | | 42.86 | |
| 42.19 | | 36.6 | |
| 37.24 | | 34.29 | |
| 33.02 | | 28.89 | |
| 28.07 | | 25.72 | 1.37 l |
| 22.86 | 0.63 l | 21.82 | |
| 19.81 | | 19.70 | |
| 18.52 | | 17.33 | |
| 16.00 | | 16.36 | |
| 13.60 | | 13.93 | |
| 12.14 | | 12.66 | |
| 10.37 | | 10.97 | |
| 9.71 | | 8.96 | 1.41 l |
| 8.24 | 0.68 l | 7.88 | |
| 7.00 | | 7.44 | |
| 6.25 | | 6.34 | |
| 5.34 | | 5.76 | |
| 5.00 | | 4.99 | |

* M3 mounting position only after consultation with SEW-EURODRIVE

= Preferred gear ratio

### 9.10.2 Key to lubricant tables

Abbreviations, meaning of shading and notes:

| | |
|---|---|
| CLP HC | = Synthetic hydrocarbons |
| E | = Ester oil (water hazard classification 1) |
| HCE | = Synthetic hydrocarbons + ester oil (USDA - H1 certification) |
| | = Synthetic lubricant (= synthetic-based roller bearing grease) |
| 4) | Observe the critical starting behavior at low temperatures. |
| 6) | Ambient temperature |
|  | Lubricant for the food industry (food grade oil) |
|  | Biodegradable oil (lubricant for agriculture, forestry, and water management) |

### 9.10.3 Rolling bearing grease

The rolling bearings are filled with the following greases at the factory:

| | Ambient temperature | Manufacturer | Type |
|---|---|---|---|
| **Gear unit rolling bearings** | -40°C ... +80°C | Fuchs | Renolit CX-TOM15[1)] |
| | -40°C ... +80°C | Klüber | Petamo GHY 133 N |
| **Special grease for gear unit rolling bearings** | | | |
|  | -40°C ... +40°C | Castrol | Obeen FS 2 |
|  | -20°C ... +40°C | Fuchs | Plantogel 2S |

1) Rolling bearing grease based on semi-synthetic base oil.

### 9.10.4 Lubricant table

The following table shows the permitted lubricants:

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| | 6) | DIN (ISO) | ISO,NLGI | Mobil® | Shell | | ARAL | TEXACO | Tribol | Optimol Castrol | FUCHS | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MGF | °C -50 0 +50 +100 | | | | | | | | | | | |
| | Standard -20 +60 | CLP HC | VG 220 | Mobil SHC 630 | Shell Omala S4 GX 220 | Klüberoil GEM 4-220 N | Aral Degol PAS 220 | Pinnacle EP 220 | Tribol 1510/220 | Optigear Synthetic X 220 | Renolin Unisyn CLP 220 | |
| | -40 +40 | CLP HC | VG 150 | Mobil SHC 629 | Shell Omala S4 GX 150 | Klübersynth GEM 4-150 N | | Pinnacle EP 150 | | Optigear Synthetic X 150 | Renolin Unisyn CLP 150 | Carter SH 150 |
| | 4) -40 +20 | CLP HC | VG 68 | Mobil SHC 626 | Shell Omala S4 GX 68 | | | | | | Renolin Unisyn CLP 68 | |
| | 4) -40 0 | CLP HC | VG 32 | Mobil SHC 624 | | Klüber-Summit HySyn FG-32 | | Cetus PAO 46 | | Optileb HY 32 | Renolin Unisyn OL 32 | |
| | -10 +40 | CLP HC NSF H1 | VG 460 | | | Klüberoil 4UH1-460 N | | | | Optileb GT 460 | Cassida Fluid GL 460 | Dacnis SH 32 |
| | -20 +30 | | VG 220 | | | Klüberoil 4UH1-220 N | | | | Optileb GT 220 | Cassida Fluid GL 220 | |
| | 4) -40 0 | | VG 68 | | | Klüberoil 4UH1-68 N | | | | Optileb HY 68 | Cassida Fluid HF 68 | |
| | 4) -20 +40 | E | VG 460 | | Shell Naturelle Gear Fluid EP 460 | Klüberbio CA2-460 | | | | | Plantogear 460 S | |

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## 9.11 Design notes for gear units with hollow shaft and key

### INFORMATION

Always use the supplied NOCO® fluid for assembly. The fluid prevents contact corrosion and facilitates subsequent disassembly.

The key dimension X is defined by the customer; however, X must be > DK.

### 9.11.1 Installation

SEW-EURODRIVE recommends 2 variants for installing the hollow shaft and key on the input shaft of the driven machine (= customer shaft):

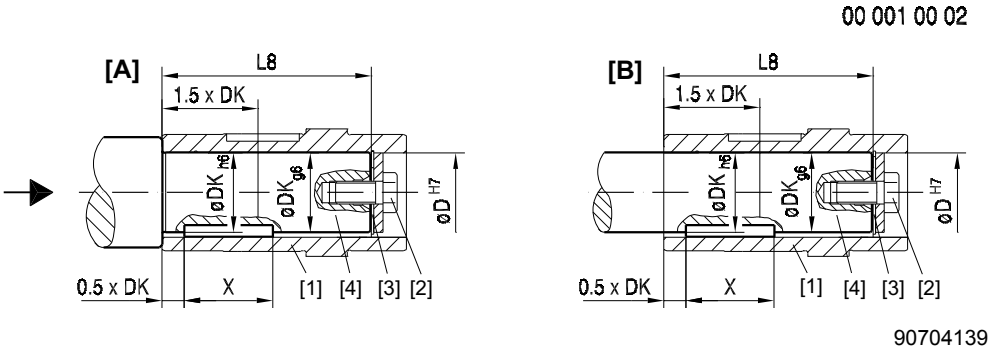
1. Use the provided fastening parts for installation.
2. Use the optional assembly/disassembly kit for installation.

### 9.11.2 1. Supplied fastening parts

The following fastening parts are provided as standard:

- Retaining screw with washer [2]
- Retaining ring [3]

*Customer shaft*




[1] Hollow shaft
[2] Retaining screw with washer
[3] Retaining ring
[4] Customer shaft

- The installation length of the customer shaft with contact shoulder [A] must be L8 - 1 mm.
- The installation length of the customer shaft without contact shoulder [B] must equal L8.

*Dimensions and tightening torque*

The retaining screw [2] must be tightened to the tightening torque MS given in the following table.

| Gear unit type | $D^{H7}$ [mm] | DK [mm] | L8 [mm] | MS [Nm] |
|---|---|---|---|---|
| **MGFA.2** | 25 | 25 | 100 | 20 |
| **MGFA.2** | 30 | 30 | 101 | 20 |
| **MGFA.4** | 30 | 30 | 124 | 20 |
| **MGFA.4** | 35 | 35 | 123.5 | 20 |
| **MGFA.4** | 40 | 40 | 123 | 40 |

### 9.11.3 2. Assembly/disassembly kit

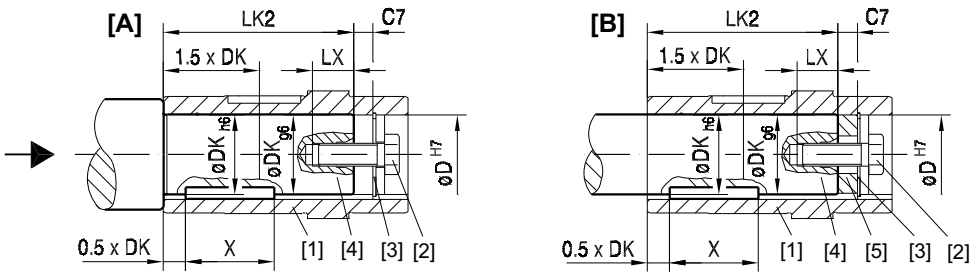
You can use the optional assemblydisassembly kit for installation. You can order the kit for the specific size by quoting the part numbers in the table below. The delivery includes:

- Spacer tube for installation without contact shoulder [5]
- Retaining screw for installation [2]
- Forcing washer for removal [7]
- Locked nut for removal [8]

The short retaining screw delivered as standard is not required.

*Customer shaft*

00 002 00 02

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[1] Hollow shaft
[2] Retaining screw with washer
[3] Retaining ring
[4] Customer shaft
[5] Spacer tube

- The installation length of the customer shaft must be LK2. Do not use the spacer if the customer shaft **has a contact shoulder [A]**.
- The installation length of the customer shaft must be LK2. Use the spacer if the customer shaft **has a contact shoulder [B]**.

*Dimensions, tightening torque, and part numbers*

The retaining screw [2] must be tightened to the tightening torque MS given in the following table.

| Type | $D^{H7}$ [mm] | DK [mm] | LK2 [mm] | $LX^{+2}$ [mm] | C7 [mm] | MS [Nm] | Part number of assembly/disassembly kit |
|---|---|---|---|---|---|---|---|
| **MGFA.2** | 25 | 25 | 83.5 | 22 | 16 | 20 | 064 368 46 |
| **MGFA.2** | 30 | 30 | 84.5 | 22 | 16 | 20 | 064 368 54 |
| **MGFA.4** | 30 | 30 | 106 | 22 | 16 | 20 | 064 368 54 |
| **MGFA.4** | 35 | 35 | 105.5 | 28 | 18 | 20 | 064 368 62 |
| **MGFA.4** | 40 | 40 | 105.5 | 36 | 18 | 40 | 064 368 70 |

## 9.12 Dimension drawings

### 9.12.1 Notes on the dimension sheets

*Scope of delivery*

= Standard parts supplied by SEW-EURODRIVE.

= Standard parts not supplied by SEW-EURODRIVE.

*Tolerances*

*Shaft ends*

Diameter tolerance:

| | | |
|---|---|---|
| Ø | ≤ 50 mm | → ISO k6 |
| Ø | > 50 mm | → ISO m6 |

Center bores according to DIN 332, shape DR:

| | | |
|---|---|---|
| Ø | = 7...10 mm | → M3 |
| Ø | > 10...13 mm | → M4 |
| Ø | > 13...16 mm | → M5 |
| Ø | > 16...21 mm | → M6 |
| Ø | > 21...24 mm | → M8 |
| Ø | > 24...30 mm | → M10 |
| Ø | > 30...38 mm | → M12 |
| Ø | > 38...50 mm | → M16 |

Keys: according to DIN 6885 (domed type).

*Hollow shafts*

Diameter tolerance:

| | |
|---|---|
| Ø | → ISO H7 measured with plug gauge |

*Breather valves and cable glands*

The dimension drawings always show the screw plugs. The contour dimensions may vary slightly due to preinstalled breather valves, plug connectors or pressure compensation fittings (e.g. in conjunction with the MGF..-DSM package for wet areas).

### 9.12.2 MGF..2..-DSM

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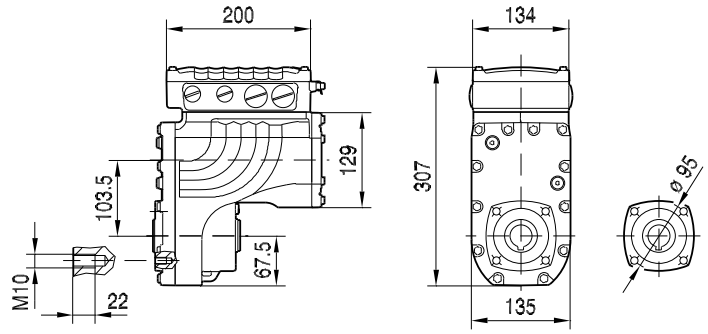
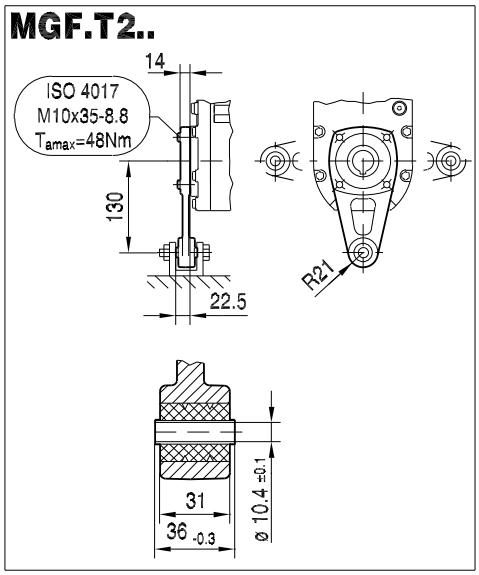
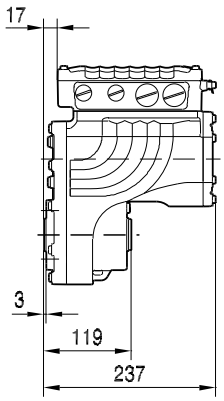
**MGFAS2-DSM**



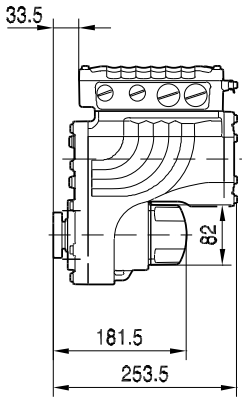

**MGF.T2..**



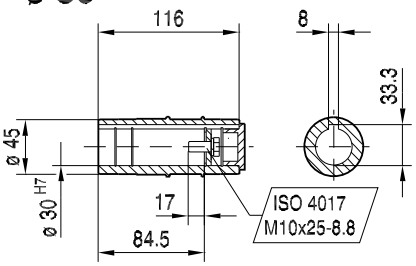

**MGFAS2-DSM**



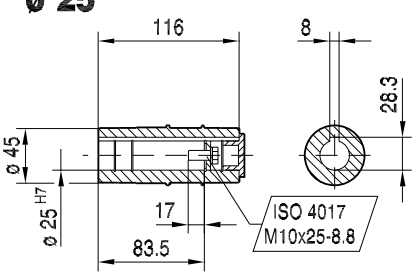

**MGFTS2-DSM**



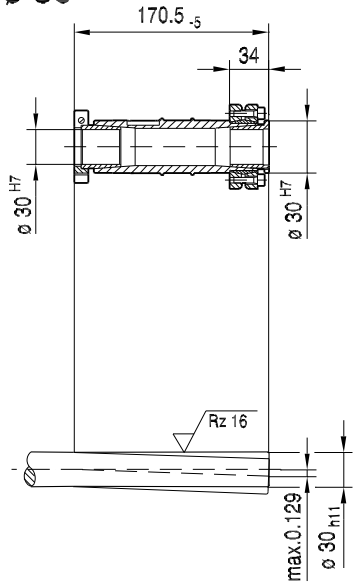

**ø 30 H7**

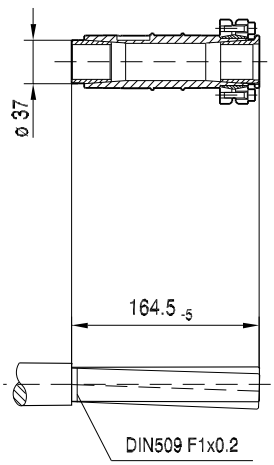



**ø 25 H7**




**ø 30 H7**

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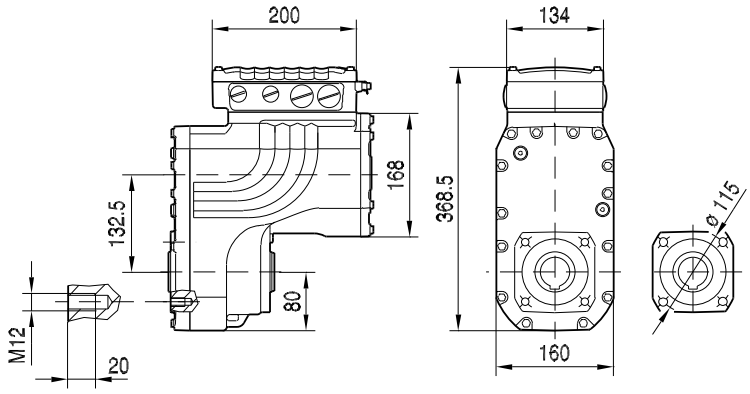
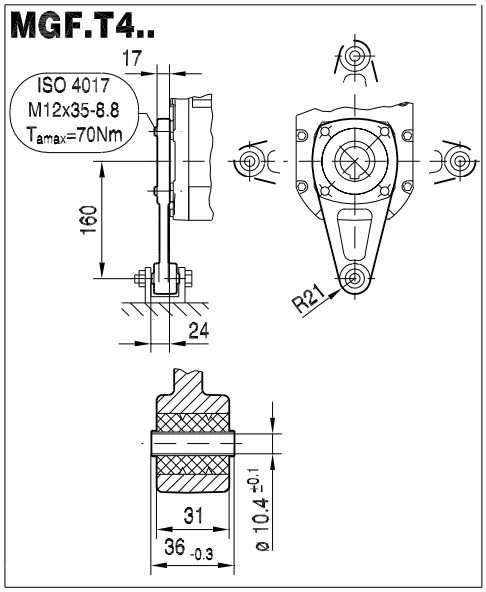
### 9.12.3 MGF..4..-DSM

03 019 01 10

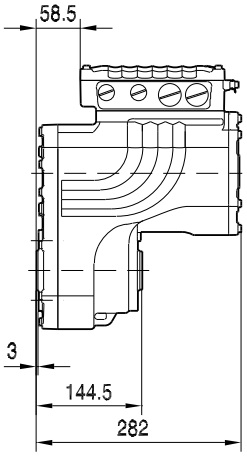
**MGFAS4-DSM**



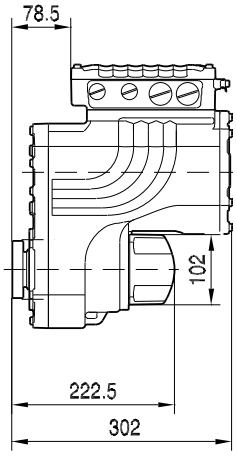

**MGF.T4..**



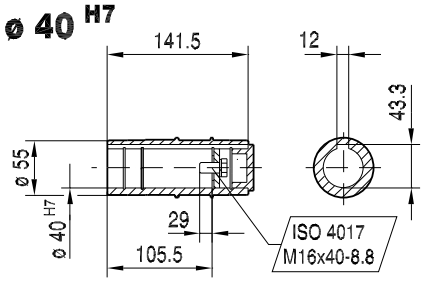

**MGFAS4-DSM**



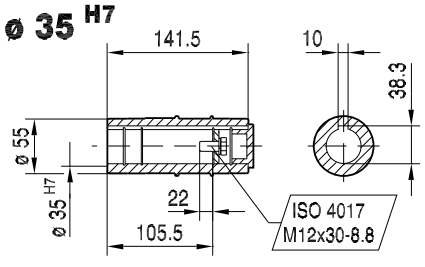

**MGFTS4-DSM**



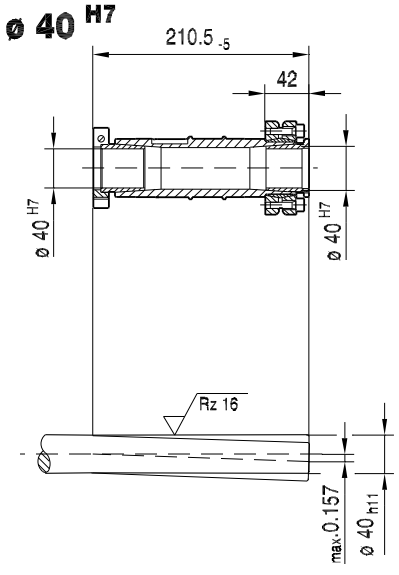

**ø 40 H7**

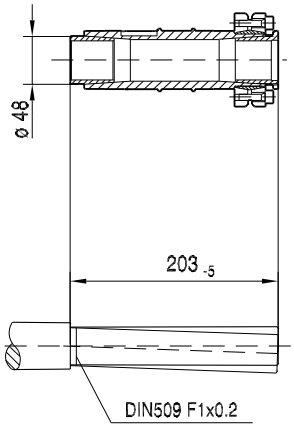



**ø 35 H7**




**ø 40 H7**

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# 10 Address list

| Germany | | | |
|---|---|---|---|
| **Headquarters**<br>**Production**<br>**Sales** | **Bruchsal** | SEW-EURODRIVE GmbH & Co KG<br>Ernst-Blickle-Straße 42<br>D-76646 Bruchsal<br>P.O. Box<br>Postfach 3023 • D-76642 Bruchsal | Tel. +49 7251 75-0<br>Fax +49 7251 75-1970<br>http://www.sew-eurodrive.de<br>sew@sew-eurodrive.de |
| **Production / Industrial Gears** | **Bruchsal** | SEW-EURODRIVE GmbH & Co KG<br>Christian-Pähr-Str.10<br>D-76646 Bruchsal | Tel. +49 7251 75-0<br>Fax +49 7251 75-2970 |
| **Service Competence Center** | **Mechanics / Mechatronics** | SEW-EURODRIVE GmbH & Co KG<br>Ernst-Blickle-Straße 1<br>D-76676 Graben-Neudorf | Tel. +49 7251 75-1710<br>Fax +49 7251 75-1711<br>sc-mitte@sew-eurodrive.de |
| | **Electronics** | SEW-EURODRIVE GmbH & Co KG<br>Ernst-Blickle-Straße 42<br>D-76646 Bruchsal | Tel. +49 7251 75-1780<br>Fax +49 7251 75-1769<br>sc-elektronik@sew-eurodrive.de |
| **Drive Technology Center** | **North** | SEW-EURODRIVE GmbH & Co KG<br>Alte Ricklinger Straße 40-42<br>D-30823 Garbsen (near Hannover) | Tel. +49 5137 8798-30<br>Fax +49 5137 8798-55<br>sc-nord@sew-eurodrive.de |
| | **East** | SEW-EURODRIVE GmbH & Co KG<br>Dänkritzer Weg 1<br>D-08393 Meerane (near Zwickau) | Tel. +49 3764 7606-0<br>Fax +49 3764 7606-30<br>sc-ost@sew-eurodrive.de |
| | **South** | SEW-EURODRIVE GmbH & Co KG<br>Domagkstraße 5<br>D-85551 Kirchheim (near München) | Tel. +49 89 909552-10<br>Fax +49 89 909552-50<br>sc-sued@sew-eurodrive.de |
| | **West** | SEW-EURODRIVE GmbH & Co KG<br>Siemensstraße 1<br>D-40764 Langenfeld (near Düsseldorf) | Tel. +49 2173 8507-30<br>Fax +49 2173 8507-55<br>sc-west@sew-eurodrive.de |
| | **Drive Service Hotline / 24 Hour Service** | | +49 800 SEWHELP<br>+49 800 7394357 |
| | Additional addresses for service in Germany provided on request! | | |

| France | | | |
|---|---|---|---|
| **Production**<br>**Sales**<br>**Service** | **Haguenau** | SEW-USOCOME<br>48-54 route de Soufflenheim<br>B. P. 20185<br>F-67506 Haguenau Cedex | Tel. +33 3 88 73 67 00<br>Fax +33 3 88 73 66 00<br>http://www.usocome.com<br>sew@usocome.com |
| **Production** | **Forbach** | SEW-USOCOME<br>Zone industrielle<br>Technopôle Forbach Sud<br>B. P. 30269<br>F-57604 Forbach Cedex | Tel. +33 3 87 29 38 00 |
| **Assembly**<br>**Sales**<br>**Service** | **Bordeaux** | SEW-USOCOME<br>Parc d'activités de Magellan<br>62 avenue de Magellan - B. P. 182<br>F-33607 Pessac Cedex | Tel. +33 5 57 26 39 00<br>Fax +33 5 57 26 39 09 |
| | **Lyon** | SEW-USOCOME<br>Parc d'affaires Roosevelt<br>Rue Jacques Tati<br>F-69120 Vaulx en Velin | Tel. +33 4 72 15 37 00<br>Fax +33 4 72 15 37 15 |
| | **Nantes** | SEW-USOCOME<br>Parc d'activités de la forêt<br>4 rue des Fontenelles<br>F-44140 Le Bignon | Tel. +33 2 40 78 42 00<br>Fax +33 2 40 78 42 20 |

| France | | | |
|---|---|---|---|
| | **Paris** | SEW-USOCOME<br>Zone industrielle<br>2 rue Denis Papin<br>F-77390 Verneuil l'Etang | Tel. +33 1 64 42 40 80<br>Fax +33 1 64 42 40 88 |
| | Additional addresses for service in France provided on request! | | |

| Algeria | | | |
|---|---|---|---|
| **Sales** | **Algiers** | REDUCOM Sarl<br>16, rue des Frères Zaghnoune<br>Bellevue<br>16200 El Harrach Alger | Tel. +213 21 8214-91<br>Fax +213 21 8222-84<br>info@reducom-dz.com<br>http://www.reducom-dz.com |

| Argentina | | | |
|---|---|---|---|
| **Assembly**<br>**Sales** | **Buenos Aires** | SEW EURODRIVE ARGENTINA S.A.<br>Ruta Panamericana Km 37.5, Lote 35<br>(B1619IEA) Centro Industrial Garín<br>Prov. de Buenos Aires | Tel. +54 3327 4572-84<br>Fax +54 3327 4572-21<br>sewar@sew-eurodrive.com.ar<br>http://www.sew-eurodrive.com.ar |

| Australia | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Melbourne** | SEW-EURODRIVE PTY. LTD.<br>27 Beverage Drive<br>Tullamarine, Victoria 3043 | Tel. +61 3 9933-1000<br>Fax +61 3 9933-1003<br>http://www.sew-eurodrive.com.au<br>enquires@sew-eurodrive.com.au |
| | **Sydney** | SEW-EURODRIVE PTY. LTD.<br>9, Sleigh Place, Wetherill Park<br>New South Wales, 2164 | Tel. +61 2 9725-9900<br>Fax +61 2 9725-9905<br>enquires@sew-eurodrive.com.au |

| Austria | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Wien** | SEW-EURODRIVE Ges.m.b.H.<br>Richard-Strauss-Strasse 24<br>A-1230 Wien | Tel. +43 1 617 55 00-0<br>Fax +43 1 617 55 00-30<br>http://www.sew-eurodrive.at<br>sew@sew-eurodrive.at |

| Belarus | | | |
|---|---|---|---|
| **Sales** | **Minsk** | SEW-EURODRIVE BY<br>RybalkoStr. 26<br>BY-220033 Minsk | Tel.+375 17 298 47 56 / 298 47 58<br>Fax +375 17 298 47 54<br>http://www.sew.by<br>sales@sew.by |

| Belgium | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Brussels** | **SEW-EURODRIVE n.v./s.a.**<br>Researchpark Haasrode 1060<br>Evenementenlaan 7<br>BE-3001 Leuven | Tel. +32 16 386-311<br>Fax +32 16 386-336<br>http://www.sew-eurodrive.be<br>info@sew-eurodrive.be |
| **Service Competence Center** | **Industrial Gears** | **SEW-EURODRIVE n.v./s.a.**<br>Rue de Parc Industriel, 31<br>BE-6900 Marche-en-Famenne | Tel. +32 84 219-878<br>Fax +32 84 219-879<br>http://www.sew-eurodrive.be<br>service-wallonie@sew-eurodrive.be |

| Brazil | | | |
|---|---|---|---|
| **Production**<br>**Sales**<br>**Service** | **São Paulo** | SEW-EURODRIVE Brasil Ltda.<br>Avenida Amâncio Gaiolli, 152 - Rodovia Presidente Dutra Km 208<br>Guarulhos - 07251-250 - SP<br>SAT - SEW ATENDE - 0800 7700496 | Tel. +55 11 2489-9133<br>Fax +55 11 2480-3328<br>http://www.sew-eurodrive.com.br<br>sew@sew.com.br |

| Brazil | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Rio Claro** | SEW-EURODRIVE Brasil Ltda.<br>Rodovia Washington Luiz, Km 172<br>Condomínio Industrial Conpark<br>Caixa Postal: 327<br>13501-600 – Rio Claro / SP | Tel. +55 19 3522-3100<br>Fax +55 19 3524-6653<br>montadora.rc@sew.com.br |
| | **Joinville** | SEW-EURODRIVE Brasil Ltda.<br>Rua Dona Francisca, 12.346 – Pirabeiraba<br>89239-270 – Joinville / SC | Tel. +55 47 3027-6886<br>Fax +55 47 3027-6888<br>filial.sc@sew.com.br |
| | **Indaiatuba** | SEW-EURODRIVE Brasil Ltda.<br>Estrada Municipal Jose Rubim, 205<br>Rodovia Santos Dumont Km 49<br>13347-510 - Indaiatuba / SP | Tel. +55 19 3835-8000<br>sew@sew.com.br |

| Bulgaria | | | |
|---|---|---|---|
| **Sales** | **Sofia** | BEVER-DRIVE GmbH<br>Bogdanovetz Str.1<br>BG-1606 Sofia | Tel. +359 2 9151160<br>Fax +359 2 9151166<br>bever@bever.bg |

| Cameroon | | | |
|---|---|---|---|
| **Sales** | **Douala** | Electro-Services<br>Rue Drouot Akwa<br>B.P. 2024<br>Douala | Tel. +237 33 431137<br>Fax +237 33 431137<br>electrojemba@yahoo.fr |

| Canada | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Toronto** | SEW-EURODRIVE CO. OF CANADA LTD.<br>210 Walker Drive<br>Bramalea, ON L6T 3W1 | Tel. +1 905 791-1553<br>Fax +1 905 791-2999<br>http://www.sew-eurodrive.ca<br>l.watson@sew-eurodrive.ca |
| | **Vancouver** | SEW-EURODRIVE CO. OF CANADA LTD.<br>Tilbury Industrial Park<br>7188 Honeyman Street<br>Delta, BC V4G 1G1 | Tel. +1 604 946-5535<br>Fax +1 604 946-2513<br>b.wake@sew-eurodrive.ca |
| | **Montreal** | SEW-EURODRIVE CO. OF CANADA LTD.<br>2555 Rue Leger<br>Lasalle, PQ H8N 2V9 | Tel. +1 514 367-1124<br>Fax +1 514 367-3677<br>a.peluso@sew-eurodrive.ca |
| | Additional addresses for service in Canada provided on request! | | |

| Chile | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Santiago** | SEW-EURODRIVE CHILE LTDA.<br>Las Encinas 1295<br>Parque Industrial Valle Grande<br>LAMPA<br>RCH-Santiago de Chile<br>P.O. Box<br>Casilla 23 Correo Quilicura - Santiago - Chile | Tel. +56 2 75770-00<br>Fax +56 2 75770-01<br>http://www.sew-eurodrive.cl<br>ventas@sew-eurodrive.cl |

| China | | | |
|---|---|---|---|
| **Production**<br>**Assembly**<br>**Sales**<br>**Service** | **Tianjin** | SEW-EURODRIVE (Tianjin) Co., Ltd.<br>No. 46, 7th Avenue, TEDA<br>Tianjin 300457 | Tel. +86 22 25322612<br>Fax +86 22 25323273<br>info@sew-eurodrive.cn<br>http://www.sew-eurodrive.cn |
| **Assembly**<br>**Sales**<br>**Service** | **Suzhou** | SEW-EURODRIVE (Suzhou) Co., Ltd.<br>333, Suhong Middle Road<br>Suzhou Industrial Park<br>Jiangsu Province, 215021 | Tel. +86 512 62581781<br>Fax +86 512 62581783<br>suzhou@sew-eurodrive.cn |

| China | | | |
|---|---|---|---|
| | **Guangzhou** | SEW-EURODRIVE (Guangzhou) Co., Ltd.<br>No. 9, JunDa Road<br>East Section of GETDD<br>Guangzhou 510530 | Tel. +86 20 82267890<br>Fax +86 20 82267922<br>guangzhou@sew-eurodrive.cn |
| | **Shenyang** | SEW-EURODRIVE (Shenyang) Co., Ltd.<br>10A-2, 6th Road<br>Shenyang Economic Technological Development Area<br>Shenyang, 110141 | Tel. +86 24 25382538<br>Fax +86 24 25382580<br>shenyang@sew-eurodrive.cn |
| | **Wuhan** | SEW-EURODRIVE (Wuhan) Co., Ltd.<br>10A-2, 6th Road<br>No. 59, the 4th Quanli Road, WEDA<br>430056 Wuhan | Tel. +86 27 84478388<br>Fax +86 27 84478389<br>wuhan@sew-eurodrive.cn |
| | **Xi'An** | SEW-EURODRIVE (Xi'An) Co., Ltd.<br>No. 12 Jinye 2nd Road<br>Xi'An High-Technology Industrial Development Zone<br>Xi'An 710065 | Tel. +86 29 68686262<br>Fax +86 29 68686311<br>xian@sew-eurodrive.cn |
| | Additional addresses for service in China provided on request! | | |

| Colombia | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Bogotá** | SEW-EURODRIVE COLOMBIA LTDA.<br>Calle 22 No. 132-60<br>Bodega 6, Manzana B<br>Santafé de Bogotá | Tel. +57 1 54750-50<br>Fax +57 1 54750-44<br>http://www.sew-eurodrive.com.co<br>sew@sew-eurodrive.com.co |

| Croatia | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Zagreb** | KOMPEKS d. o. o.<br>Zeleni dol 10<br>HR 10 000 Zagreb | Tel. +385 1 4613-158<br>Fax +385 1 4613-158<br>kompeks@inet.hr |

| Czech Republic | | | |
|---|---|---|---|
| **Sales**<br>**Assembly**<br>**Service** | **Hostivice** | SEW-EURODRIVE CZ s.r.o.<br>Floriánova 2459<br>253 01 Hostivice | Tel. +420 255 709 601<br>Fax +420 235 350 613<br>http://www.sew-eurodrive.cz<br>sew@sew-eurodrive.cz |
| | **Drive Service Hotline / 24 Hour Service** | HOT-LINE +420 800 739 739 (800 SEW SEW) | **Servis:**<br>Tel. +420 255 709 632<br>Fax +420 235 358 218<br>servis@sew-eurodrive.cz |

| Denmark | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Copenhagen** | SEW-EURODRIVEA/S<br>Geminivej 28-30<br>DK-2670 Greve | Tel. +45 43 9585-00<br>Fax +45 43 9585-09<br>http://www.sew-eurodrive.dk<br>sew@sew-eurodrive.dk |

| Egypt | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Cairo** | Copam Egypt<br>for Engineering & Agencies<br>33 EI Hegaz ST, Heliopolis, Cairo | Tel. +20 2 22566-299 +1 23143088<br>Fax +20 2 22594-757<br>http://www.copam-egypt.com/<br>copam@datum.com.eg |

| Estonia | | | |
|---|---|---|---|
| **Sales** | **Tallin** | ALAS-KUUL AS<br>Reti tee 4<br>EE-75301 Peetri küla, Rae vald, Harjumaa | Tel. +372 6593230<br>Fax +372 6593231<br>veiko.soots@alas-kuul.ee |

| Finland | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Hollola** | SEW-EURODRIVE OY<br>Vesimäentie 4<br>FIN-15860 Hollola 2 | Tel. +358 201 589-300<br>Fax +358 3 780-6211<br>http://www.sew-eurodrive.fi<br>sew@sew.fi |
| **Service** | **Hollola** | SEW-EURODRIVE OY<br>Keskikankaantie 21<br>FIN-15860 Hollola | Tel. +358 201 589-300<br>Fax +358 3 780-6211<br>http://www.sew-eurodrive.fi<br>sew@sew.fi |
| **Production**<br>**Assembly** | **Karkkila** | SEW Industrial Gears Oy<br>Valurinkatu 6, PL 8<br>FI-03600 Karkkila, 03601 Karkkila | Tel. +358 201 589-300<br>Fax +358 201 589-310<br>sew@sew.fi<br>http://www.sew-eurodrive.fi |

| Gabon | | | |
|---|---|---|---|
| **Sales** | **Libreville** | ESG Electro Services Gabun<br>Feu Rouge Lalala<br>1889 Libreville<br>Gabun | Tel. +241 741059<br>Fax +241 741059<br>esg_services@yahoo.fr |

| Great Britain | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Normanton** | SEW-EURODRIVE Ltd.<br>DeVilliers Way<br>Trident Park<br>Normanton<br>West Yorkshire<br>WF6 1GX | Tel. +44 1924 893-855<br>Fax +44 1924 893-702<br>http://www.sew-eurodrive.co.uk<br>info@sew-eurodrive.co.uk |
| | **Drive Service Hotline / 24 Hour Service** | | Tel. 01924 896911 |

| Greece | | | |
|---|---|---|---|
| **Sales** | **Athens** | Christ. Boznos & Son S.A.<br>12, K. Mavromichali Street<br>P.O. Box 80136<br>GR-18545 Piraeus | Tel. +30 2 1042 251-34<br>Fax +30 2 1042 251-59<br>http://www.boznos.gr<br>info@boznos.gr |

| Hong Kong | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Hong Kong** | SEW-EURODRIVE LTD.<br>Unit No. 801-806, 8th Floor<br>Hong Leong Industrial Complex<br>No. 4, Wang Kwong Road<br>Kowloon, Hong Kong | Tel. +852 36902200<br>Fax +852 36902211<br>contact@sew-eurodrive.hk |

| Hungary | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Budapest** | SEW-EURODRIVE Kft.<br>H-1037 Budapest<br>Kunigunda u. 18 | Tel. +36 1 437 06-58<br>Fax +36 1 437 06-50<br>http://www.sew-eurodrive.hu<br>office@sew-eurodrive.hu |

| India | | | |
|---|---|---|---|
| **Registered Office**<br>**Assembly**<br>**Sales**<br>**Service** | **Vadodara** | SEW-EURODRIVE India Private Limited<br>Plot No. 4, GIDC<br>POR Ramangamdi • Vadodara - 391 243<br>Gujarat | Tel. +91 265 3045200, +91 265 2831086<br>Fax +91 265 3045300, +91 265 2831087<br>http://www.seweurodriveindia.com<br>salesvadodara@seweurodrivein-dia.com |

| India | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Chennai** | SEW-EURODRIVE India Private Limited<br>Plot No. K3/1, Sipcot Industrial Park Phase II<br>Mambakkam Village<br>Sriperumbudur - 602105<br>Kancheepuram Dist, Tamil Nadu | Tel. +91 44 37188888<br>Fax +91 44 37188811<br>saleschennai@seweurodriveindia.com |

| Ireland | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Dublin** | Alperton Engineering Ltd.<br>48 Moyle Road<br>Dublin Industrial Estate<br>Glasnevin, Dublin 11 | Tel. +353 1 830-6277<br>Fax +353 1 830-6458<br>info@alperton.ie<br>http://www.alperton.ie |

| Israel | | | |
|---|---|---|---|
| **Sales** | **Tel-Aviv** | Liraz Handasa Ltd.<br>Ahofer Str 34B / 228<br>58858 Holon | Tel. +972 3 5599511<br>Fax +972 3 5599512<br>http://www.liraz-handasa.co.il<br>office@liraz-handasa.co.il |

| Italy | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Solaro** | SEW-EURODRIVE di R. Blickle & Co.s.a.s.<br>Via Bernini,14<br>I-20020 Solaro (Milano) | Tel. +39 02 96 9801<br>Fax +39 02 96 980 999<br>http://www.sew-eurodrive.it<br>sewit@sew-eurodrive.it |

| Ivory Coast | | | |
|---|---|---|---|
| **Sales** | **Abidjan** | SICA<br>Société Industrielle & Commerciale pour l'Afrique<br>165, Boulevard de Marseille<br>26 BP 1173 Abidjan 26 | Tel. +225 21 25 79 44<br>Fax +225 21 25 88 28<br>sicamot@aviso.ci |

| Japan | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Iwata** | SEW-EURODRIVE JAPAN CO., LTD<br>250-1, Shimoman-no,<br>Iwata<br>Shizuoka 438-0818 | Tel. +81 538 373811<br>Fax +81 538 373855<br>http://www.sew-eurodrive.co.jp<br>sewjapan@sew-eurodrive.co.jp |

| Kazakhstan | | | |
|---|---|---|---|
| **Sales** | **Almaty** | ТОО "СЕВ-ЕВРОДРАЙВ"<br>пр.Райымбека, 348<br>050061 г. Алматы<br>Республика Казахстан | Тел. +7 (727) 334 1880<br>Факс +7 (727) 334 1881<br>http://www.sew-eurodrive.kz<br>sew@sew-eurodrive.kz |

| Kenya | | | |
|---|---|---|---|
| **Sales** | **Nairobi** | Barico Maintenances Ltd<br>Kamutaga Place<br>Commercial Street<br>Industrial Area<br>P.O.BOX 52217 - 00200<br>Nairobi | Tel. +254 20 6537094/5<br>Fax +254 20 6537096<br>info@barico.co.ke |

| Latvia | | | |
|---|---|---|---|
| **Sales** | **Riga** | SIA Alas-Kuul<br>Katlakalna 11C<br>LV-1073 Riga | Tel. +371 6 7139253<br>Fax +371 6 7139386<br>http://www.alas-kuul.com<br>info@alas-kuul.com |

| Lebanon | | | |
|---|---|---|---|
| **Sales Lebanon** | **Beirut** | Gabriel Acar & Fils sarl<br>B. P. 80484<br>Bourj Hammoud, Beirut | Tel. +961 1 510 532<br>Fax +961 1 494 971<br>ssacar@inco.com.lb |
| | | After Sales Service | service@medrives.com |
| **Sales Jordan / Kuwait / Saudi Arabia / Syria** | **Beirut** | Middle East Drives S.A.L. (offshore)<br>Sin El Fil.<br>B. P. 55-378<br>Beirut | Tel. +961 1 494 786<br>Fax +961 1 494 971<br>info@medrives.com<br>http://www.medrives.com |
| | | After Sales Service | service@medrives.com |

| Lithuania | | | |
|---|---|---|---|
| **Sales** | **Alytus** | UAB Irseva<br>Statybininku 106C<br>LT-63431 Alytus | Tel. +370 315 79204<br>Fax +370 315 56175<br>irmantas@irseva.lt<br>http://www.sew-eurodrive.lt |

| Luxembourg | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Brussels** | **SEW-EURODRIVE n.v./s.a.**<br>Researchpark Haasrode 1060<br>Evenementenlaan 7<br>BE-3001 Leuven | Tel. +32 16 386-311<br>Fax +32 16 386-336<br>http://www.sew-eurodrive.lu<br>info@sew-eurodrive.be |

| Madagascar | | | |
|---|---|---|---|
| **Sales** | **Antananarivo** | Ocean Trade<br>BP21bis. Andraharo<br>Antananarivo.<br>101 Madagascar | Tel. +261 20 2330303<br>Fax +261 20 2330330<br>oceantrabp@moov.mg |

| Malaysia | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Johor** | SEW-EURODRIVE SDN BHD<br>No. 95, Jalan Seroja 39, Taman Johor Jaya<br>81000 Johor Bahru, Johor<br>West Malaysia | Tel. +60 7 3549409<br>Fax +60 7 3541404<br>sales@sew-eurodrive.com.my |

| Mexico | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Quéretaro** | SEW-EURODRIVE MEXICO SA DE CV<br>SEM-981118-M93<br>Tequisquiapan No. 102<br>Parque Industrial Quéretaro<br>C.P. 76220<br>Quéretaro, México | Tel. +52 442 1030-300<br>Fax +52 442 1030-301<br>http://www.sew-eurodrive.com.mx<br>scmexico@seweurodrive.com.mx |

| Mongolia | | | |
|---|---|---|---|
| **Sales** | **Ulan Bator** | SEW-EURODRIVE Representative Office Mongolia<br>Olympic street 8,<br>2nd floor Juulchin corp bldg.,<br>Sukhbaatar district,<br>Ulaanbaatar 14253 | Tel. +976-70009997<br>Fax +976-70009997<br>http://www.sew-eurodrive.mn<br>sew@sew-eurodrive.mn |

| Morocco | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Mohammedia** | SEW-EURODRIVE SARL<br>2 bis, Rue Al Jahid<br>28810 Mohammedia | Tel. +212 523 32 27 80/81<br>Fax +212 523 32 27 89<br>sew@sew-eurodrive.ma<br>http://www.sew-eurodrive.ma |

| Namibia | | | |
|---|---|---|---|
| **Sales** | **Swakopmund** | DB Mining & Industrial Services<br>Einstein Street<br>Strauss Industrial Park<br>Unit1<br>Swakopmund | Tel. +264 64 462 738<br>Fax +264 64 462 734<br>sales@dbmining.in.na |

| Netherlands | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Rotterdam** | SEW-EURODRIVE B.V.<br>Industrieweg 175<br>NL-3044 AS Rotterdam<br>Postbus 10085<br>NL-3004 AB Rotterdam | Tel. +31 10 4463-700<br>Fax +31 10 4155-552<br>Service: 0800-SEWHELP<br>http://www.sew-eurodrive.nl<br>info@sew-eurodrive.nl |

| New Zealand | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Auckland** | SEW-EURODRIVE NEW ZEALAND LTD.<br>P.O. Box 58-428<br>82 Greenmount drive<br>East Tamaki Auckland | Tel. +64 9 2745627<br>Fax +64 9 2740165<br>http://www.sew-eurodrive.co.nz<br>sales@sew-eurodrive.co.nz |
| | **Christchurch** | SEW-EURODRIVE NEW ZEALAND LTD.<br>10 Settlers Crescent, Ferrymead<br>Christchurch | Tel. +64 3 384-6251<br>Fax +64 3 384-6455<br>sales@sew-eurodrive.co.nz |

| Nigeria | | | |
|---|---|---|---|
| **Sales** | **Lagos** | EISNL Engineering Solutions and Drives Ltd<br>Plot 9, Block A, Ikeja Industrial Estate ( Ogba Scheme)<br>Adeniyi Jones St. End<br>Off ACME Road, Ogba, Ikeja, Lagos<br>Nigeria | Tel. +234 (0)1 217 4332<br>team.sew@eisnl.com<br>http://www.eisnl.com |

| Norway | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Moss** | SEW-EURODRIVE A/S<br>Solgaard skog 71<br>N-1599 Moss | Tel. +47 69 24 10 20<br>Fax +47 69 24 10 40<br>http://www.sew-eurodrive.no<br>sew@sew-eurodrive.no |

| Pakistan | | | |
|---|---|---|---|
| **Sales** | **Karachi** | Industrial Power Drives<br>Al-Fatah Chamber A/3, 1st Floor Central Commercial Area,<br>Sultan Ahmed Shah Road, Block 7/8,<br>Karachi | Tel. +92 21 452 9369<br>Fax +92-21-454 7365<br>seweurodrive@cyber.net.pk |

| Paraguay | | | |
|---|---|---|---|
| **Sales** | **Fernando de la Mora** | SEW-EURODRIVE PARAGUAY S.R.L<br>De la Victoria 112, Esquina nueva Asunción<br>Departamento Central<br>Fernando de la Mora, Barrio Bernardino | Tel. +595 991 519695<br>Fax +595 21 3285539<br>sew-py@sew-eurodrive.com.py |

| Peru | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Lima** | SEW DEL PERU MOTORES REDUCTORES S.A.C.<br>Los Calderos, 120-124<br>Urbanizacion Industrial Vulcano, ATE, Lima | Tel. +51 1 3495280<br>Fax +51 1 3493002<br>http://www.sew-eurodrive.com.pe<br>sewperu@sew-eurodrive.com.pe |

| Poland | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Lodz** | SEW-EURODRIVE Polska Sp.z.o.o.<br>ul. Techniczna 5<br>PL-92-518 Łódź | Tel. +48 42 676 53 00<br>Fax +48 42 676 53 49<br>http://www.sew-eurodrive.pl<br>sew@sew-eurodrive.pl |

| | | | |
|---|---|---|---|
| **Poland** | | | |
| | **Service** | Tel. +48 42 6765332 / 42 6765343<br>Fax +48 42 6765346 | Linia serwisowa Hotline 24H<br>Tel. +48 602 739 739<br>(+48 602 SEW SEW)<br>serwis@sew-eurodrive.pl |
| **Portugal** | | | |
| **Assembly**<br>**Sales**<br>**Service** | **Coimbra** | SEW-EURODRIVE, LDA.<br>Apartado 15<br>P-3050-901 Mealhada | Tel. +351 231 20 9670<br>Fax +351 231 20 3685<br>http://www.sew-eurodrive.pt<br>infosew@sew-eurodrive.pt |
| **Romania** | | | |
| **Sales**<br>**Service** | **Bucharest** | Sialco Trading SRL<br>str. Brazilia nr. 36<br>011783 Bucuresti | Tel. +40 21 230-1328<br>Fax +40 21 230-7170<br>sialco@sialco.ro |
| **Russia** | | | |
| **Assembly**<br>**Sales**<br>**Service** | **St. Petersburg** | ZAO SEW-EURODRIVE<br>P.O. Box 36<br>RUS-195220 St. Petersburg | Tel. +7 812 3332522 +7 812 5357142<br>Fax +7 812 3332523<br>http://www.sew-eurodrive.ru<br>sew@sew-eurodrive.ru |
| **Senegal** | | | |
| **Sales** | **Dakar** | SENEMECA<br>Mécanique Générale<br>Km 8, Route de Rufisque<br>B.P. 3251, Dakar | Tel. +221 338 494 770<br>Fax +221 338 494 771<br>senemeca@sentoo.sn<br>http://www.senemeca.com |
| **Serbia** | | | |
| **Sales** | **Beograd** | DIPAR d.o.o.<br>Ustanicka 128a<br>PC Košum, IV sprat<br>SRB-11000 Beograd | Tel. +381 11 347 3244 / +381 11 288 0393<br>Fax +381 11 347 1337<br>office@dipar.rs |
| **Singapore** | | | |
| **Assembly**<br>**Sales**<br>**Service** | **Singapore** | SEW-EURODRIVE PTE. LTD.<br>No 9, Tuas Drive 2<br>Jurong Industrial Estate<br>Singapore 638644 | Tel. +65 68621701<br>Fax +65 68612827<br>http://www.sew-eurodrive.com.sg<br>sewsingapore@sew-eurodrive.com |
| **Slovakia** | | | |
| **Sales** | **Bratislava** | SEW-Eurodrive SK s.r.o.<br>Rybničná 40<br>SK-831 06 Bratislava | Tel. +421 2 33595 202<br>Fax +421 2 33595 200<br>sew@sew-eurodrive.sk<br>http://www.sew-eurodrive.sk |
| | **Žilina** | SEW-Eurodrive SK s.r.o.<br>Industry Park - PChZ<br>ulica M.R.Štefánika 71<br>SK-010 01 Žilina | Tel. +421 41 700 2513<br>Fax +421 41 700 2514<br>sew@sew-eurodrive.sk |
| | **Banská Bystrica** | SEW-Eurodrive SK s.r.o.<br>Rudlovská cesta 85<br>SK-974 11 Banská Bystrica | Tel. +421 48 414 6564<br>Fax +421 48 414 6566<br>sew@sew-eurodrive.sk |
| | **Košice** | SEW-Eurodrive SK s.r.o.<br>Slovenská ulica 26<br>SK-040 01 Košice | Tel. +421 55 671 2245<br>Fax +421 55 671 2254<br>sew@sew-eurodrive.sk |

| Slovenia | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Celje** | Pakman - Pogonska Tehnika d.o.o.<br>UI. XIV. divizije 14<br>SLO - 3000 Celje | Tel. +386 3 490 83-20<br>Fax +386 3 490 83-21<br>pakman@siol.net |

| South Africa | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Johannesburg** | SEW-EURODRIVE (PROPRIETARY) LIMITED<br>Eurodrive House<br>Cnr. Adcock Ingram and Aerodrome Roads<br>Aeroton Ext. 2<br>Johannesburg 2013<br>P.O.Box 90004<br>Bertsham 2013 | Tel. +27 11 248-7000<br>Fax +27 11 494-3104<br>http://www.sew.co.za<br>info@sew.co.za |
| | **Cape Town** | SEW-EURODRIVE (PROPRIETARY) LIMITED<br>Rainbow Park<br>Cnr. Racecourse & Omuramba Road<br>Montague Gardens<br>Cape Town<br>P.O.Box 36556<br>Chempet 7442<br>Cape Town | Tel. +27 21 552-9820<br>Fax +27 21 552-9830<br>Telex 576 062<br>bgriffiths@sew.co.za |
| | **Durban** | SEW-EURODRIVE (PROPRIETARY) LIMITED<br>48 Prospecton Road<br>Isipingo<br>Durban<br>P.O. Box 10433, Ashwood 3605 | Tel. +27 31 902 3815<br>Fax +27 31 902 3826<br>cdejager@sew.co.za |
| | **Nelspruit** | SEW-EURODRIVE (PTY) LTD.<br>7 Christie Crescent<br>Vintonia<br>P.O.Box 1942<br>Nelspruit 1200 | Tel. +27 13 752-8007<br>Fax +27 13 752-8008<br>robermeyer@sew.co.za |

| South Korea | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Ansan** | SEW-EURODRIVE KOREA CO., LTD.<br>B 601-4, Banweol Industrial Estate<br>#1048-4, Shingil-Dong, Danwon-Gu,<br>Ansan-City, Kyunggi-Do Zip 425-839 | Tel. +82 31 492-8051<br>Fax +82 31 492-8056<br>http://www.sew-korea.co.kr<br>master.korea@sew-eurodrive.com |
| | **Busan** | SEW-EURODRIVE KOREA Co., Ltd.<br>No. 1720 - 11, Songjeong - dong<br>Gangseo-ku<br>Busan 618-270 | Tel. +82 51 832-0204<br>Fax +82 51 832-0230<br>master@sew-korea.co.kr |

| Spain | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Bilbao** | SEW-EURODRIVE ESPAÑA, S.L.<br>Parque Tecnológico, Edificio, 302<br>E-48170 Zamudio (Vizcaya) | Tel. +34 94 43184-70<br>Fax +34 94 43184-71<br>http://www.sew-eurodrive.es<br>sew.spain@sew-eurodrive.es |

| Swaziland | | | |
|---|---|---|---|
| **Sales** | **Manzini** | C G Trading Co. (Pty) Ltd<br>PO Box 2960<br>Manzini M200 | Tel. +268 2 518 6343<br>Fax +268 2 518 5033<br>engineering@cgtrading.co.sz |

| Sweden | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Jönköping** | SEW-EURODRIVE AB<br>Gnejsvägen 6-8<br>S-55303 Jönköping<br>Box 3100 S-55003 Jönköping | Tel. +46 36 3442 00<br>Fax +46 36 3442 80<br>http://www.sew-eurodrive.se<br>jonkoping@sew.se |

| Switzerland | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Basel** | Alfred Imhof A.G.<br>Jurastrasse 10<br>CH-4142 Münchenstein bei Basel | Tel. +41 61 417 1717<br>Fax +41 61 417 1700<br>http://www.imhof-sew.ch<br>info@imhof-sew.ch |

| Tanzania | | | |
|---|---|---|---|
| **Sales** | **Dar es Salaam** | SEW-EURODRIVE PTY LIMITED TANZANIA<br>Plot 52, Regent Estate<br>PO Box 106274<br>Dar Es Salaam | Tel. +255 0 22 277 5780<br>Fax +255 0 22 277 5788<br>uroos@sew.co.tz |

| Thailand | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Chonburi** | SEW-EURODRIVE (Thailand) Ltd.<br>700/456, Moo.7, Donhuaroh<br>Muang<br>Chonburi 20000 | Tel. +66 38 454281<br>Fax +66 38 454288<br>sewthailand@sew-eurodrive.com |

| Tunisia | | | |
|---|---|---|---|
| **Sales** | **Tunis** | T. M.S. Technic Marketing Service<br>Zone Industrielle Mghira 2<br>Lot No. 39<br>2082 Fouchana | Tel. +216 79 40 88 77<br>Fax +216 79 40 88 66<br>http://www.tms.com.tn<br>tms@tms.com.tn |

| Turkey | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Kocaeli-Gebze** | SEW-EURODRİVE<br>Sistemleri San. Ve TIC. Ltd. Sti<br>Gebze Organize Sanayi Böl. 400 Sok No. 401<br>41480 Gebze Kocaeli | Tel. +90-262-9991000-04<br>Fax +90-262-9991009<br>http://www.sew-eurodrive.com.tr<br>sew@sew-eurodrive.com.tr |

| Ukraine | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Dnipropetrovsk** | ООО «СЕВ-Евродрайв»<br>ул.Рабочая, 23-В, офис 409<br>49008 Днепропетровск | Тел. +380 56 370 3211<br>Факс. +380 56 372 2078<br>http://www.sew-eurodrive.ua<br>sew@sew-eurodrive.ua |

| United Arab Emirates | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Sharjah** | Copam Middle East (FZC)<br>Sharjah Airport International Free Zone<br>P.O. Box 120709<br>Sharjah | Tel. +971 6 5578-488<br>Fax +971 6 5578-499<br>copam_me@eim.ae |

| USA | | | |
|---|---|---|---|
| **Production**<br>**Assembly**<br>**Sales**<br>**Service** | **Southeast Region** | SEW-EURODRIVE INC.<br>1295 Old Spartanburg Highway<br>P.O. Box 518<br>Lyman, S.C. 29365 | Tel. +1 864 439-7537<br>Fax Sales +1 864 439-7830<br>Fax Manufacturing +1 864 439-9948<br>Fax Assembly +1 864 439-0566<br>Fax Confidential/HR +1 864 949-5557<br>http://www.seweurodrive.com<br>cslyman@seweurodrive.com |
| **Assembly**<br>**Sales**<br>**Service** | **Northeast Region** | SEW-EURODRIVE INC.<br>Pureland Ind. Complex<br>2107 High Hill Road, P.O. Box 481<br>Bridgeport, New Jersey 08014 | Tel. +1 856 467-2277<br>Fax +1 856 845-3179<br>csbridgeport@seweurodrive.com |
| | **Midwest Region** | SEW-EURODRIVE INC.<br>2001 West Main Street<br>Troy, Ohio 45373 | Tel. +1 937 335-0036<br>Fax +1 937 332-0038<br>cstroy@seweurodrive.com |
| | **Southwest Region** | SEW-EURODRIVE INC.<br>3950 Platinum Way<br>Dallas, Texas 75237 | Tel. +1 214 330-4824<br>Fax +1 214 330-4724<br>csdallas@seweurodrive.com |

| USA | | | |
|---|---|---|---|
| | **Western Region** | SEW-EURODRIVE INC.<br>30599 San Antonio St.<br>Hayward, CA 94544 | Tel. +1 510 487-3560<br>Fax +1 510 487-6433<br>cshayward@seweurodrive.com |
| | Additional addresses for service in the USA provided on request! | | |

| Venezuela | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Valencia** | SEW-EURODRIVE Venezuela S.A.<br>Av. Norte Sur No. 3, Galpon 84-319<br>Zona Industrial Municipal Norte<br>Valencia, Estado Carabobo | Tel. +58 241 832-9804<br>Fax +58 241 838-6275<br>http://www.sew-eurodrive.com.ve<br>ventas@sew-eurodrive.com.ve<br>sewfinanzas@cantv.net |

| Vietnam | | | |
|---|---|---|---|
| **Sales** | **Ho Chi Minh City** | **All sectors except harbor and offshore:**<br>Nam Trung Co., Ltd<br>250 Binh Duong Avenue, Thu Dau Mot Town, Binh Duong Province<br>HCM office: 91 Tran Minh Quyen Street<br>District 10, Ho Chi Minh City | Tel. +84 8 8301026<br>Fax +84 8 8392223<br>namtrungco@hcm.vnn.vn<br>truongtantam@namtrung.com.vn<br>khanh-nguyen@namtrung.com.vn |
| | | **Harbor and offshore:**<br>DUC VIET INT LTD<br>Industrial Trading and Engineering Services<br>A75/6B/12 Bach Dang Street, Ward 02,<br>Tan Binh District, 70000 Ho Chi Minh City | Tel. +84 8 62969 609<br>Fax +84 8 62938 842<br>totien@ducvietint.com |
| | **Hanoi** | Nam Trung Co., Ltd<br>R.205B Tung Duc Building<br>22 Lang ha Street<br>Dong Da District, Hanoi City | Tel. +84 4 37730342<br>Fax +84 4 37762445<br>namtrunghn@hn.vnn.vn |

| Zambia | | | |
|---|---|---|---|
| **Sales** | **Kitwe** | EC Mining Limited<br>Plots No. 5293 & 5294,Tangaanyika Road, Off Mutentemuko Road,<br>Heavy Industrial Park,<br>P.O.BOX 2337<br>Kitwe | Tel. +260 212 210 642<br>Fax +260 212 210 645<br>sales@ecmining.com<br>http://www.ecmining.com |

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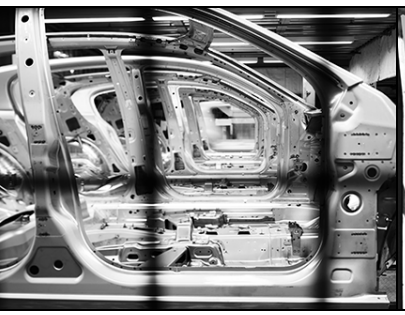

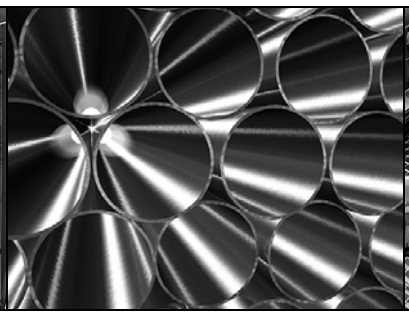


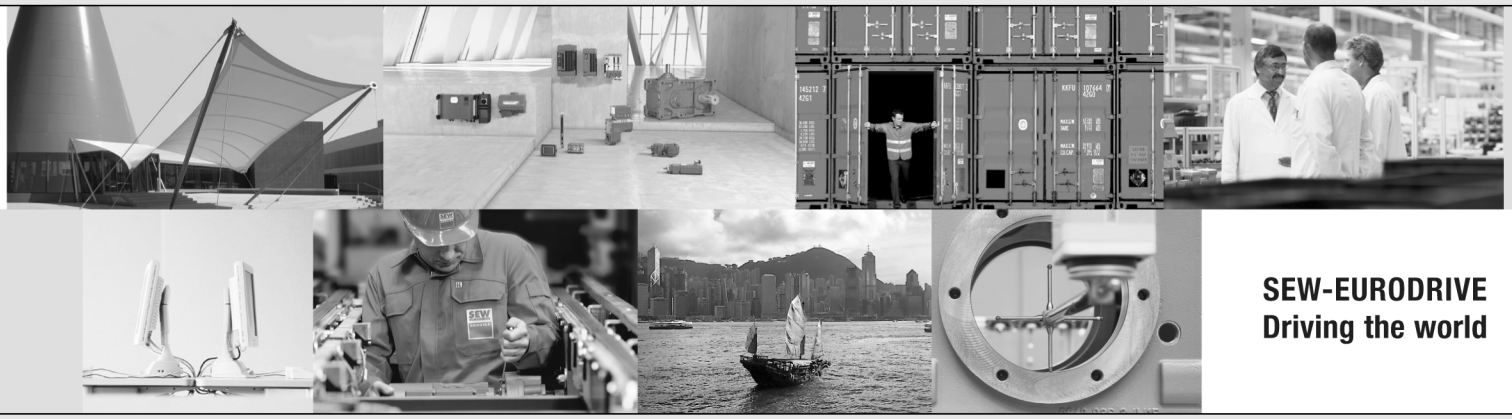

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**Driving the world**

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