

# **Operating Instructions**



G.7 Hoist Gear Units

Edition 06/2020

25941488/EN





# Table of contents

1	Genera	l informa	tion	5		
	1.1	About thi	s documentation	. 5		
	1.2	Structure	of the safety notes	. 5		
		1.2.1	Meaning of signal words	5		
		1.2.2	Structure of section-related safety notes	5		
		1.2.3	Structure of embedded safety notes	6		
	1.3	Rights to	claim under limited warranty	. 6		
	1.4	Product r	names and trademarks	. 6		
	1.5	Copyrigh	t notice	. 6		
2	Safety	notes		7		
	2.1	Prelimina	ary information	. 7		
	2.2	Duties of	the user	. 7		
	2.3	Target gr	OUD	. 7		
	2.4	Designat	ed use	. 8		
	2.5	Transpor	tation/storage	. 9		
	2.6	Installatio	on/assembly	. 9		
	2.7	Startup/o	peration	. 9		
2	Coor	Sit atruati		40		
3			aign of C. 7 holot goor units	10		
	3.1 2.2	Namonia	to/type designation	10		
	3.2		Nemonlete of C 7 heist ager units	11		
		3.Z.I	Nameplate of a heist gear units	11		
		3.Z.Z	Turne designation of a C Z hoist gearmater	12		
		3.2.3	Type designation of a G.7 holst gearnotof	13		
4	Mechar	nical insta	allation	14		
	4.1	Prerequis	sites for installation	14		
		4.1.1	Required tools/resources	14		
		4.1.2	Installation tolerances	15		
	4.2	Installing	the gear unit	15		
		4.2.1	Tightening torques for retaining screws	16		
		4.2.2	Tightening torques for oil level plugs, oil drain plugs, screw plugs, breather valves, and oil sight glasses	16		
		4.2.3	Installing the gear unit	16		
		4.2.4	Installation in damp locations or outdoors	17		
		4.2.5	Gear unit venting	17		
		4.2.6	Painting the gear unit	18		
	4.3	Gear unit	t with multiple-spline shaft	19		
		4.3.1	Mounting output elements	19		
	4.4 Direct mounting of a motor on a gear unit					
		4.4.1	Tightening torques	21		
		4.4.2	Selecting and using Loctite <sup>®</sup>	21		
		4.4.3	Technical data	21		
5	Startur			ງງ		
5	5 1	Invortor (	operated dearmotors	<b>~~</b> 22		
	0.1			~~		

	5.2	Checkin	ig the oil level	. 23
	5.3	Pseudo	-leakage at shaft seals	. 23
	5.4	Compor	nents made of elastomers with fluorocarbon rubber	. 24
6	Inspec	tion/maiı	ntenance	25
	6.1	Wearing	g parts	. 27
	6.2	Inspecti	on/maintenance intervals	. 28
	6.3	Lubricar	nt change intervals	. 29
	6.4	Inspecti	on/maintenance of the gear unit	. 29
		6.4.1	Checking the oil level and changing the oil	29
		6.4.2	Replacing the oil seal	32
		6.4.3	Painting the gear unit	32
7	Mounti	ing posit	ions	33
	7.1	Designa	ation of the mounting positions	. 33
	7.2	Change	of mounting position	. 33
	7.3	Mountin	g position sheets	. 34
		7.3.1	Key to the mounting position sheets	34
		7.3.2	Mounting positions for hoist gear units	35
8	Techni	cal data.		36
	8.1	Extende	ed storage	. 36
		8.1.1	Storage conditions	37
	8.2	Lubricar	nts	. 38
		8.2.1	Bearing greases	38
		8.2.2	Lubricant table	39
		8.2.3	Lubricant fill quantities	44
9	Malfun	ctions a	nd remedies	45
	9.1	Gear un	its	. 45
	9.2	Service		. 47
	9.3	Waste c	lisposal	. 47
10	Addres	ss list		48
	Index .			51



# 1 General information

### 1.1 About this documentation

### The documentation at hand is the original.

This documentation is an integral part of the product. The documentation is intended for all employees who perform work on the product.

Make sure this documentation is accessible and legible. Ensure that persons responsible for the systems and their operation as well as persons who work on the product independently 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 grading and meaning of the signal words for safety notes.

Signal word	Meaning	Consequences if disregarded	
	Imminent hazard	Severe or fatal injuries	
	Possible dangerous situation	Severe or fatal injuries	
	Possible dangerous situation	Minor injuries	
NOTICE	Possible damage to property	Damage to the product or its envi- ronment	
INFORMATION	Useful information or tip: Simplifies handling of the product.		

### 1.2.2 Structure of section-related safety notes

Section-related safety notes do not apply to a specific action but to several actions pertaining to one subject. The hazard 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 hazard.

Possible consequence(s) if disregarded.

• Measure(s) to prevent the hazard.



### Meaning of the hazard symbols

The hazard symbols in the safety notes have the following meaning:

Hazard symbol	Meaning
	General hazard
	Warning of hot surfaces
	Warning of risk of crushing
	Warning of automatic restart

#### 1.2.3 Structure of 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:

**A** SIGNAL WORD! Type and source of hazard. Possible consequence(s) if disregarded. Measure(s) to prevent the hazard.

### 1.3 Rights to claim under limited warranty

Read the information in this documentation. This is essential for fault-free operation and fulfillment of any rights to claim under limited warranty. Read the documentation before you start working with the product.

### 1.4 Product names and trademarks

The brands and product names in this documentation are trademarks or registered trademarks of their respective titleholders.

### 1.5 Copyright notice

© 2020 SEW-EURODRIVE. All rights reserved. Unauthorized reproduction, modification, distribution or any other use of the whole or any part of this documentation is strictly prohibited.

### 2.1 **Preliminary information**

The following general safety notes serve the purpose of preventing injury to persons and damage to property. They primarily apply to the use of products described in this documentation. If you use additional components, also observe the relevant warning and safety notes.

### 2.2 Duties of the user

As the user, you must ensure that the basic safety notes are observed and complied with. Make sure that persons responsible for the machinery and its operation as well as persons who work on the device independently have read through the documentation carefully and understood it.

As the user, you must ensure that all of the work listed in the following may be carried out only by qualified specialists:

- Setup and installation
- Installation and connection
- Startup
- Maintenance and repairs
- Shutdown
- Disassembly

Ensure that the persons who work on the product pay attention to the following regulations, conditions, documentation, and information:

- National and regional safety and accident prevention regulations
- Warning and safety signs on the product
- All other relevant project planning documents, installation and startup instructions, and wiring diagrams
- Do not assemble, install or operate damaged products
- · All system-specific specifications and conditions

Ensure that systems in which the product is installed are equipped with additional monitoring and protection devices. Observe the applicable safety regulations and leg-islation governing technical work equipment and accident prevention regulations.

### 2.3 Target group

Specialist for mechanical work Any mechanical work may be performed only by adequately qualified specialists. Specialists in the context of this documentation are persons who are familiar with the design, mechanical installation, troubleshooting, and maintenance of the product who possess the following qualifications:

- Qualifications in the field of mechanics in accordance with the national regulations
- Familiarity with this documentation



Specialist for elec- trotechnical work	Any electrotechnical work may be performed only by electrically skilled persons with a suitable education. Electrically skilled persons in the context of this documentation are persons who are familiar with electrical installation, startup, troubleshooting, and maintenance of the product who possess the following qualifications:
	• Qualifications in the field of electrical engineering in accordance with the national regulations
	Familiarity with this documentation
Additional qualific- ations	In addition to that, these persons must be familiar with the valid safety regulations and laws, as well as with the requirements of the standards, directives, and laws specified in this documentation.
	The persons must have the express authorization of the company to operate, pro- gram, parameterize, label, and ground devices, systems, and circuits in accordance with the standards of safety technology.
Instructed persons	All work in the areas of transportation, storage, operation and waste disposal must be carried out by persons who are trained appropriately. The purpose of the training is to give persons the ability to perform the required tasks and work steps in a safe and correct manner.

#### 2.4 Designated use

The product is intended for installation in electrical plants or machines.

In case of installation in electrical systems or machines, startup of the product is prohibited until it is determined that the machine meets the requirements stipulated in the local laws and directives. For Europe, Machinery Directive 2006/42/EC as well as the EMC Directive 2014/30/EU apply. Observe EN 60204-1 (Safety of machinery - electrical equipment of machines). The product meets the requirements stipulated in the Low Voltage Directive 2014/35/EU.

The standards given in the declaration of conformity apply to the product.

The systems can be mobile or stationary.

The product can be used to operate the following motors in industrial and commercial systems:

AC asynchronous motors with squirrel-cage rotor

Technical data and information on the connection conditions are provided on the nameplate and in chapter "Technical data" in the documentation. Always comply with the data and conditions.

Unintended or improper use of the product may result in severe injury to persons and damage to property.

Do not use the product as a climbing aid.

### 2.5 Transportation/storage

Inspect the shipment for damage as soon as you receive the delivery. Inform the shipping company immediately about any damage. If the product is damaged, it must not be assembled, installed or started up.

Observe the storage information on climatic conditions as given in chapter Storage conditions.

The permissible storage temperature is -30 °C to +50 °C.

If the product is not immediately installed, it must be stored in a dry and dust-free location. The product can be stored for up to 9 months without requiring any special measures before startup. Do not store the product outdoors.

The installed lifting eyebolts are in accordance with DIN 580. Observe the loads and regulations specified there. The tension force vector of the slings must not exceed a  $45^{\circ}$  angle in accordance with DIN 580.

The lifting eyes are designed to carry only the weight of the product. Do not mount any additional loads. If the product has several lifting eyes or lifting eyebolts, then you should use all lifting eyes and lifting eyebolts for attaching transport ropes. Tighten the screwed-in lifting eyes.

Use suitable, sufficiently rated handling equipment, that can be used for further transport.

### 2.6 Installation/assembly

Ensure that the product is installed and cooled according to the regulations in the documentation.

Protect the product from strong mechanical strain. The product and its mounting parts must never protrude into the path of persons or vehicles. Ensure that components are not deformed, particularly during transportation and handling. Electrical components must not be mechanically damaged or destroyed.

The following applications are prohibited unless the device is explicitly designed for such use:

- Operation in applications with impermissibly high mechanical vibration and shock loads in excess of the regulations stipulated in EN 61800-5-1
- Use in environments with harmful oils, acids, gases, vapors, dust, radiation, etc.

### 2.7 Startup/operation

Check the oil level before startup as described in chapter "Inspection/maintenance" (  $\rightarrow$  B 25).

Check that the direction of rotation is correct in the **decoupled** state. Listen out for unusual grinding noises as the shaft rotates.

Do not deactivate monitoring and protection devices even for a test run.

Switch off the gearmotor if in doubt whenever changes occur in relation to normal operation (e.g. increased temperatures, unusual noises, vibrations). Determine the cause. It may be necessary to contact SEW-EURODRIVE.

# 3 Gear unit structure



# **INFORMATION**

The following figures are block diagrams. Their purpose is only to make it easier to assign components to the spare parts lists. Discrepancies may occur depending on the gear unit size and version.

# 3.1 Basic design of G.7 hoist gear units



# 3.2 Nameplate/type designation

### 3.2.1 Nameplate of G.7 hoist gear units

The following figure shows an example of a nameplate for hoist gear units:

	$\bigcap$	SEW-EURODI	3IVE					
[1] [2]		76646 Bruchsal/Germany G97 DRS160112/2B	E11/T	н		Invert	er Duty VPMW	$\frac{1}{1}$
[3]-	 	01.1234567890.0001	18			3~IEC6	0034	[3]
[4]-	<u> </u> 	IM M3	i	110.42		v	380Y/Y	[4]
[5]-		Hz 50	r/min	460/4.2 2850/2	26	A	12.4/28.6	[5]
[6]-	<u> </u>	Ins.Cl. 155(F)	kW	2.0/12.5		cosø	0.52/0.88	<u> </u>
[7]-		IP 55	Duty	S3-40%		η	52.0%/79.0%	
[8]-		V br 380V AC						<u> </u>
[9]-		Nm 110						[9]
[10]-		BGE 1.5	600/0	.1			Jahr 2018	
[12]-	Ē	kg 279.000	000/8.0	22472185	DE	Made	e in Germany	

30088347275

- [1] Address
- [2] Gearmotor type designation
- Suitability for inverter operation
- [3] Production number
  - Number of phases and underlying rating and performance standard
- [4] Mounting position
  - Gear ratio
  - Nominal voltage /V
- [5] Nominal frequency /Hz
  - Rated speed of the motor / speed of the gear unit output shaft r/min
    - Rated current /A
- [6] Thermal class
  - Rated power /kW and operating mode
    - Power factor
- [7] Degree of protection in accordance with IEC 60034-5
  - Operating mode
  - Cyclic duration factor
  - Efficiency
- [8] Brake voltage /V
- [9] Braking torque /Nm
- [10] Brake control
- [11] Oil type and oil fill volume
  - Year of manufacture
- [12] Mass /kg
  - Nameplate number
  - Country of production



#### 3.2.2 Nameplate of a hoist gearmotor

The following figure shows an example of a nameplate for a DRS. gearmotor:

SEW-EURODRIVE	CE	
$[1] \xrightarrow{1} 76646 \text{ Bruchsal/Germany} \\ [2] \xrightarrow{1} \text{DRS160L12/2BE11/TH}$		
$[3] \xrightarrow{ } 01.1234567890.0001.18$	Inverter Duty VPWM 3~IEC60034	<u> </u>
[4]   Hz 50 r/min 460/2850	V 380Y/Y	<u> </u> [4]
[5] <mark> </mark> kW 2.0/12.5 S3/40%	A 12.4/28.6	[5]
[6] <mark> </mark> cosφ 0.32/0.88	IP 54	
$[7] \frac{1}{1}$ Th.Kl. 155(F)		<u> </u> [7]
[8] 1	Jahr 2018	<u> </u>
[9] 1	V br 380V AC	[9]
[10] - FF FG300 D350 WE 32	Nm 110	$-\frac{1}{1}$ [10]
[12] kg 114.000	BGE1.5 188 684 3 DE Made in Germany	

30088344843

- [1] Address
- [2] Gearmotor type designation
- [3] Production number
  - Suitability for inverter operation
  - Number of phases and underlying rating and performance standard
- [4] Nominal frequency /Hz
  - Rated speed of the motor / speed of the gear unit output shaft r/min
    Nominal voltage /V
- [5] Rated power /kW and operating mode
  - Rated current /A
- [6] Power factor
  - Degree of protection in accordance with IEC 60034-5
- [7] Thermal class
- [8] Year of manufacture
- [9] Brake voltage /V
- [10] Flange designation
  - Pinion shaft end
  - Braking torque /Nm
- [11] Mounting position
- Brake control
- [12] Mass /kg
  - Nameplate number
  - Country of production



### 3.2.3 Type designation of a G.7 hoist gearmotor

For example, a G.7 hoist gearmotor has the following type designation:

Example: G97DRS160L12/2BE11/TH				
Gear unit type	G	Gear unit		
Gear unit size	97			
Motor series	DRS	Vlotor		
Motor size	160	-		
Length	м			
Number of poles	12/2			
Brake type	BE	-		
Brake size	11			
Motor option Temperature sensor	ТН	Option		





# 4 Mechanical installation

### 4.1 **Prerequisites for installation**

# NOTICE

Damage to the gear unit/gearmotor due to improper installation. Damage to property.

• Observe the following information.

Make sure that the following requirements are met before you start installing the unit:

- The drive has not been damaged during transportation or storage.
- The entries on the nameplate of the gearmotor match the voltage supply system.
- In the case of abrasive ambient conditions, the output-side oil seals must be protected against wear.
- Output shafts and flange surfaces must be completely free from anti-corrosion agent and any kind of pollution. Use a commercially available solvent to clean the flange surfaces. Note that solvent damages the oil seal. Do not let the solvent come into contact with the sealing lips of the oil seal!
- For standard drives:
  - Check if the gearmotor is designed for the ambient temperature. For the application limits, refer to the technical documentation, the nameplate, or the lubricant table (see chapter Lubricant table).
  - Make sure the environment contains no hazardous substances (oils, acids, gases, vapors, dusts, etc.) or radiation.
- For special designs:
  - Check if the gearmotor is designed for the ambient temperature. You can find the application limits on the nameplate.

#### 4.1.1 Required tools/resources

The following tools and resources are required for the mechanical installation:

- Wrench
- Torque wrench for:
  - Gear unit mounting
- Mounting device
- · Fasteners for input and output elements
- Lubricant (e.g. NOCO<sup>®</sup> fluid)

# **INFORMATION**

i

Standard parts are not included in the delivery.

### 4.1.2 Installation tolerances

#### Shaft end

Diameter tolerance for multiple-spline shaft in accordance with DIN 5480

- Tooth thickness tolerance: 8f
- Centering on the shaft: ISO h6
- Position tolerance of the pins: 0.2 mm

### 4.2 Installing the gear unit



Risk of injury due to improper installation/disassembly.

Severe personal injury and damage to property.

- Work on the gear unit only when the machine is not in use.
- Secure the drive unit against unintentional power-up.
- Prevent heavy component parts (e.g. shrink disks) against falling during installation/disassembly.

# **A** CAUTION

A CAUTION

Risk of injury due to protruding gear unit parts.

Severe injuries.

• Keep a sufficient safety distance to the gear unit/gearmotor.

# NOTICE

Damage to gear unit/gearmotor due to cold air currents. Condensed water in the gear unit can cause damage.

Damage to property.

Protect the gear unit from direct cold air currents.



### INFORMATION

When installing the gear unit, make sure that the oil level and drain plugs as well as the breather valves are easily accessible!

Mounting position

Oil level

It is only permitted to install the gear unit or gearmotor in the specified mounting position. Observe the information on the nameplate.

Check the mounting position-dependent oil level; see chapter Inspection/maintenance of the gear unit. The gear units are filled with the required oil quantity at the factory. There may be slight deviations at the oil level plug as a result of the mounting position, which are permitted within the manufacturing tolerances.

Adjust the lubricant fill quantities and the position of the breather valve accordingly in the event of a change of mounting position. Observe chapter "Lubricant fill quantities" ( $\rightarrow \blacksquare 44$ ) and chapter "Mounting positions" ( $\rightarrow \blacksquare 33$ ).

Contact SEW-EURODRIVE in the event of changes in the mounting position.





### Submounting The support structure must have the following characteristics:

- Level
- Vibration damping
- Torsionally rigid

The following table shows the maximally permitted flatness defect for flange mounting (guide values based on DIN ISO 1101):

Gear unit size	Flatness defect		
67 – 157	Max. 0.5 mm		

Always mount gearmotors using screws of strength class 8.8.

Strength class of the screws

### 4.2.1 Tightening torques for retaining screws

Mount the gearmotors with the following tightening torques:

Screw/nut	Tightening torque ± 10% Strength class 8.8 Nm
M12	93
M16	230
M20	464

# 4.2.2 Tightening torques for oil level plugs, oil drain plugs, screw plugs, breather valves, and oil sight glasses

Observe the tightening torques in the following table when screwing in:

Thread	Tightening torque		
	Nm		
M10 × 1	8		
M12 × 1.5	14		
M22 × 1.5	45		

#### 4.2.3 Installing the gear unit

The following table shows the thread sizes of the gear units depending on the size:

	Gear unit type
Screw	G.7
M12	G67, G77
M16	G97, G107
M20	G157



#### 4.2.4 Installation in damp locations or outdoors

# NOTICE

Paint can block the breather valve and damage the sealing lips of the oil seals.

Damage to property.

- Thoroughly cover the breather valve and sealing lip of the oil seals with strips prior to painting/re-painting.
- · Remove the adhesive strips after painting.

Drives are supplied in corrosion-resistant versions with a suitable surface protection coating for use in damp areas or outdoors.

- Repair any damage to the paint work (e.g. on the breather valve or the lifting eyes).
- In the event of setup outdoors, the drives must not be exposed to direct sunlight. Install appropriate protection devices, e.g. a cover or a canopy. The protection device must not cause heat build-up.
- The system operator must ensure that no foreign objects (e.g. falling objects or coverings) affect the operation of the gear unit.

#### 4.2.5 Gear unit venting

# NOTICE

Dirt and dust in the environment impair the function of the breather valve. Potential damage to property.

Check the breather valve function regularly and replace it if necessary.

• In the event of high dirt and dust load, use a breather filter instead of a breather valve.





#### Activating the breather valve

1. Before startup, check whether the transport protection on the breather valve has been removed and the valve is therefore activated. The following figure shows a breather valve with transport protection:



2. Remove the transport protection.



⇒ The following figure shows an activated breather valve:



#### 4.2.6 Painting the gear unit

### NOTICE

Paint can block the breather valve and damage the sealing lips of the oil seals.

Damage to property.

- Thoroughly cover the breather valve and sealing lip of the oil seals with strips prior to painting/re-painting.
- Remove the strips after painting.



### 4.3 Gear unit with multiple-spline shaft

#### 4.3.1 Mounting output elements

### NOTICE

Damage to the bearing, housing, or shafts due to incorrect mounting.

Possible damage to property.

• Never force mount-on components of the rope drum or other components onto the shaft end by hitting them with a hammer.

# **INFORMATION**

i

To make mounting easier, coat the output element carefully with lubricant (e.g.  $\mathsf{NOCO}^{\otimes}$  fluid).

### 4.4 Direct mounting of a motor on a gear unit



### **INFORMATION**

Secure all pinions on the motor or input shaft with Loctite<sup>®</sup> 649, even if a retaining ring is additionally present.

If the pinion is already fastened to the shaft, start cleaning the sealing surface (step 6).

Joining the pinion to the motor or input shaft

Cleaning the sealing surfaces

Sealing threads

that lead into the

housing interior

- 1. Clean and degrease the shaft and the bore of the pinion.
- 2. Apply Loctite<sup>®</sup> 649 to the shaft behind the groove over the entire area of the circumference.



22763067787

- 3. Warm the pinion up to at least 100  $^\circ\text{C}$  to a maximum of 130  $^\circ\text{C}.$
- 4. Push the pinion onto the shaft.
- 5. Secure the pinion on the shaft with the retaining ring.
- 6. Remove oils, grease, irregularities of the surface, rust, and old Loctite<sup>®</sup> residue from the flange surfaces.

To prevent oil from escaping after installation, flange threads that lead into the housing interior must be sealed!

7. Clean and degrease the thread through bores that lead into the housing interior and their studs.



8. Apply Loctite<sup>®</sup> 5188 (selection according to the table at the end of the chapter) in a continuous ring on the upper threads of the flange thread and the stud.



22795758347

[\*] Loctite<sup>®</sup> according to the table at the end of the chapter

Screwing in the studs

- 9. Screw the studs into the thread up to the shoulder.
- 10. Remove any excess Loctite<sup>®</sup> (see following diagram) from the sealing surface 60 minutes after screwing in at the latest.



22347379211

Sealing the flange surface

# INFORMATION

i

Joining flange sur-

faces

Always apply the sealant over a large area.



- 11. Spread the Loctite<sup>®</sup> 5188 only over one of the sealing surfaces. Apply the sealant in beads or over a large area without gaps. Use a suitable application tool that does not contaminate the sealing surface, for example, a non-shedding brush or a short-hair lamb's wool roller.
- 12. Join the flange surfaces together. Next, **immediately** tighten the nuts with the specified torque (see the table below). If you tighten the nuts too late, the sealing film can tear.
- 13. The sealant must harden for 30 minutes and must not come into contact with the gear oil during this time.



### 4.4.1 Tightening torques

Screw/nut	Tightening torque		
	Nm		
M8	27.3		
M10	54		
M12	93		
M16	230		

#### 4.4.2 Selecting and using Loctite<sup>®</sup>

Sealant	Use	Suitability	Batch size	Part num- ber
Loctite <sup>®</sup> 649	Locking agent for pinions	All gear units	50 ml	09120998
Loctite® 5188	Surface sealant	G.7 gear unit	50 ml	03207013

#### 4.4.3 Technical data

i

i

#### Sealing and rolling bearing grease

The table shows the lubricants recommended by SEW-EURODRIVE:

Area of operation	Ambient temperature	Manufactur- er	Туре
Standard	-40 °C to +80 °C	Fuchs	Renolit CX-TOM 15 <sup>1)</sup>
Standard	-40 °C to +80 °C	Klüber	Petamo GHY 133 N

1) Bearing grease based on semi-synthetic base oil.

# **INFORMATION**

The following grease quantities are required:

- For fast-running bearings (gear unit input side): Fill the cavities between the rolling elements one-third full with grease.
- For slow-running bearings (gear unit output side): Fill the cavities between the rolling elements two-thirds full with grease.

# INFORMATION

If a customer wants to use a grease that is not listed in the above table, the customer has to make sure that it is suitable for the intended application.



# 5 Startup



# ▲ CAUTION

Damage to the gear unit due to improper startup.

Possible damage to property.

- Observe the following information.
- Check the correct oil level before startup; see chapter Inspection/maintenance of the gear unit.
- The oil level plugs and oil drain plugs, as well as the breather plugs and breather valves, must be freely accessible.
- The most important technical data is provided on the nameplate. Additional data relevant for operation is available in drawings and the order confirmation.
- After gear unit setup, ensure that all retaining screws are tight.
- Make sure that the alignment has not changed after tightening the mounting elements.
- Prior to startup, ensure that rotating shafts and couplings are equipped with suitable protection covers.
- If the gear unit has an oil sight glass to monitor the oil level, the oil sight glass must be protected against damage.
- It is essential that there is no open fire or risk of sparks when working on the gear unit.
- Protect the gear unit from falling objects.
- Remove any available transport protection prior to startup.
- Strictly observe the safety notes in the individual chapters.

### 5.1 Inverter-operated gearmotors

For gear units with servomotor, the maximum and r.m.s. values of project planning must be observed during startup. The buyer is obliged to make the data available to the user.



# 5.2 Checking the oil level

Before startup, make sure that the oil level corresponds to the mounting position. Observe the chapter Checking the oil level and changing the oil.

If the gear unit is equipped with an oil sight glass, you can also determine the oil level at the oil sight glass.

# NOTICE

Damage to the gear unit due to oil leaking from the damaged oil sight glass.

Possible damage to the unit.

- Attach a protective device to prevent the oil sight glass from being damaged by mechanical impacts.
- 1. Observe the information in chapter General information.
- 2. Check the oil level at the oil sight glass according to the following figure:



4158756363

[1] The oil level must be within this range.

3. Proceed as follows if the oil level is too low:

- Open the respective oil fill plug; see chapter "Inspection/maintenance of the gear unit" (→ 
   <sup>1</sup> 29).
- Fill in new oil of the same type up to the mark via the oil fill plug.
- Screw in the oil fill plug.

### 5.3 Pseudo-leakage at shaft seals

Due to their operating principle, seals between moving surfaces at shaft passages cannot be completely tight, as a lubricant film must form during operation. The lubricant film between shaft and sealing lip keeps the built-up of heat and wear on the sealing system to a minimum and ensures the intended service life. The optimum sealing properties are only achieved after the run-in phase.



# 5.4 Components made of elastomers with fluorocarbon rubber



Health risk due to dangerous gases, vapors, and residue created by heating fluoro-carbon rubber to > 200  $^\circ C.$ 

Damage to health.

- Make sure that components made of fluorocarbon rubber are not exposed to temperatures > 200 °C. Remove the components, if necessary.
- Avoid inhaling fluorocarbon rubber gases and vapors as well as skin and eye contact.
- Avoid contact with the cooled-down fluorocarbon rubber, as dangerous residue has formed while it was heated.

Under normal operating conditions and at temperatures up to 200  $^{\circ}$ C, fluorocarbon rubber is very stable and safe. However, when heated to more than 300  $^{\circ}$ C, e.g. by fire or the flame of a cutting torch, fluorocarbon rubber forms harmful gases and vapors, as well as residue.

In G.7 gear units, the following components may contain elastomers made of fluorocarbon rubber:

- Oil seals
- Breather valve
- Screw plugs

The user is responsible for safe handling during the service life including eco-friendly disposal.

SEW-EURODRIVE is not responsible for damage caused by improper handling.



# 6 Inspection/maintenance



# **A** WARNING

Risk of injury if the drive starts up unintentionally.

Severe or fatal injuries.

- · Disconnect the drive from the power supply before you start working on the unit.
- Prevent the drive from starting up unintentionally for example, by locking the key switch or removing the fuses from the current supply, and attach a warning sign that prohibits switching on the drive.

# **A** WARNING

Risk of in

Risk of injury if preloaded shaft connections are loosened. Severe or fatal injuries.

 Before releasing any shaft connections, make sure there is no active torsional torque present that could lead to tension within the system.

# **A** WARNING

Risk of burns due to hot gear unit and hot gear unit lubricant.

Severe injuries.

- · Let the gear unit cool down before you start working on it.
- Carefully remove the oil level plug and the oil drain plug.

# NOTICE

Loss of lubricant qualities due to filling of wrong lubricant.

Damage to the gear unit.

- Do not mix synthetic lubricants and mineral lubricants.
- Do not mix different synthetic lubricants.

# NOTICE

Damage to oil seal caused by cleaning the gear unit with a high pressure device.

Gear unit damage.

• Do not clean the gear unit with a high-pressure cleaning device.

# NOTICE

Damage to gear unit due to ingress of foreign objects during maintenance and inspection work.

Gear unit failure.

Prevent foreign particles from entering into the gear unit during maintenance and inspection work.

# INFORMATION



i

Maintain the inspection and maintenance intervals. This is necessary to ensure operational safety.

# INFORMATION

Perform a safety check and functional check following maintenance and repair work.



### 6.1 Wearing parts

•	-		
Gearing	If you observe the SEW-EURODRIVE design criteria and the inspection and mainte- nance intervals, then the service life of the gearing components specified during pro- ject planning will apply.		
Rolling bearings	Rolling bearings in the gear unit, adapter, and input shaft assembly have a limited ser- vice life, even under ideal operating conditions. This nominal bearing service life is a solely statistical value. The actual service life of an individual bearing may deviate greatly from this value. The main influencing factors are:		
	Rotational speed		
	Equivalent bearing load		
	Operating temperature		
	Lubricant (type, viscosity, additives, pollution)		
	Lubricant supply of the bearing		
	Misalignment under operating load		
	Therefore the rolling bearings must be inspected regularly. Observe the corresponding inspection and maintenance intervals in the chapters Inspection/maintenance intervals and "Lubricant change intervals" ( $\rightarrow \blacksquare$ 29).		
	For information on the nominal bearing service life under certain operating conditions, contact SEW-EURODRIVE.		
Lubricants	Lubricants are subject to aging. Their service life is limited depending on the load con- ditions.		
	The service life depends significantly on the oil operating temperature. The dependency of lubricant change intervals on the operating temperature is depicted in the figure in chapter "Lubricant change intervals" ( $\rightarrow \square$ 29).		
Oil seals	Oil seals are contact seals that seal unit housings at emerging elements, such as shafts, from the environment. Oil seals are wear parts with a service life that is influenced by the following factors, among others:		
	Shaft speed and circumferential speed at the sealing lip		
	Ambient conditions (temperature, dust, humidity, pressure, chemicals, radiation)		
	Lubricant (type, viscosity, additives, pollution)		
	Surface quality of the sealing		
	Lubricant supply of the sealing		
	Oil seal material		

Due to the various influencing factors, it is not possible to predict the service life. Therefore the oil seals must be inspected regularly. Observe the corresponding inspection and maintenance intervals in the chapters Inspection/maintenance intervals and "Lubricant change intervals" ( $\rightarrow \square$  29).



# 6.2 Inspection/maintenance intervals

The following table lists the obligatory intervals and the corresponding measures:

Tii	me interval	Wł	nat to do?
Every 3000 hours of operation; at least		•	Check oil and oil level
	every 6 months	•	Check running noise for possible bearing damage
		•	Visual inspection of the seals for leakage
		•	Check that all screw plugs, any oil sight glass, the breather valve, and the gear unit cover screws are tight.
•	<ul> <li>Depending on the operating conditions (see illustration in chapter "Lubricant change intervals" (→</li></ul>		Change synthetic oil
			Replace rolling bearing grease (re- commendation)
•	According to oil temperature	•	Replace oil seal (do not install it in the same track again)
•	Varying (depending on external factors)	•	Touch up or renew the surface/ anti-corrosion coating



### 6.3 Lubricant change intervals

Use the following figure to determine the number of operating hours between 2 oil changes based on the sustained oil bath temperature at normal ambient conditions. In case of special designs under severe/aggressive ambient conditions, change the lubricant more frequently.



- [1] Operating hours
- [2] Sustained oil bath temperature
- [3] CLP PG/CLP PG NSF H1
- [4] CLP HC/ CLP HC NSF H1
- [5] CLP (CC)/E
- [6] SEW GearOil Base
- [7] SEW GearOil Poly (H1)
- Average value per oil type at 70 °C

### 6.4 Inspection/maintenance of the gear unit

#### 6.4.1 Checking the oil level and changing the oil

The procedure when checking the oil level and changing the oil depends on the mounting position. The following table lists the procedure for the relevant gear unit.

Mounting	Fill level check	C Oil change		
position		Draining possibility	Pressure compensation provided by	
M1	Oil level plug	Drain plug	Breather plug on motor flange	
M3	Oil sight glass	Drain plug on motor flange	Breather plug	
M5	Oil level plug	Drain plug on motor flange	Breather plug	
M6	Oil level plug	Drain plug	Breather plug on motor flange	

Refer to chapter "Mounting positions" ( $\rightarrow$   $\blacksquare$  33) for notes on the mounting positions.



You cannot check the oil level of gear units in pivoted mounting position. The gear units are delivered with the correct oil level. Observe the specifications and fill quantities on the nameplate if you have to change the oil.

### Checking the oil level at the oil level plug

Proceed as follows to check the oil level of the gear unit:

- 1. Observe the notes in chapter Information on gear unit inspection/maintenance.
- 2. Determine the positions of the oil level plug and the breather valve using the mounting position sheets. See chapter "Mounting positions" ( $\rightarrow \square$  33).
- 3. Place a container underneath the oil level plug.
- 4. Slowly unscrew the oil level plug. Small amounts of oil may leak out as the permitted maximum oil level is higher than the lower edge of the oil level bore.
- 5. Check the oil level according to the following figure and the corresponding table.



634361867

Oil level bore
 Oil level setpoint

Х	Min/max oil level

Ø oil level bore	Approved fluctuation "x" of the oil level mm
M10 × 1	1.5
M12 × 1.5	2
M22 × 1.5	3

6. Proceed as follows if the oil level is too low:

- Fill in fresh oil of the same type (contact SEW-EURODRIVE if necessary) via the breather bore, up to the lower edge of the oil level bore.
- Screw in the breather valve again. Observe the tightening torques in chapter Tightening torques for oil level plugs, oil drain plugs, screw plugs, breather valves and oil sight glasses.
- 7. Screw in the oil level plug again. Observe the tightening torques in chapter Tightening torques for oil level plugs, oil drain plugs, screw plugs, breather valves and oil sight glasses.

#### Checking the oil via the oil drain plug

Proceed as follows to check the gear unit oil:

1. Observe the notes in chapter Information on gear unit inspection/maintenance.



- 2. Determine the position of the oil drain plug using the mounting position sheets. See chapter "Mounting positions" ( $\rightarrow B 33$ ).
- 3. Remove a little oil from the oil drain plug.
- 4. Check the oil consistency:
  - Viscosity
  - If you can see that the oil is heavily contaminated, SEW-EURODRIVE recommends to change the oil even if this is outside the service intervals specified in Inspection and maintenance intervals.
- 5. Check the oil level. See chapter Checking the oil level via the oil level plug.

#### Changing the oil via the oil drain plug and the breather valve

# **WARNING**



Risk of burns due to hot gear unit and hot gear unit oil.

Serious injuries.

- Let the gear unit cool down before you start working on it. Due to the better flowability, the gear unit oil should still be warm so that the gear unit can be drained best.
- 1. Observe the information at the beginning of chapter "Inspection/maintenance" ( $\rightarrow$   $\cong$  25).
- 3. Place a container underneath the oil drain plug.
- 4. Remove the oil level plug, the breather valve and the oil drain plug.
- 5. Drain all the oil.
- 6. Re-insert the oil drain plug. Observe for this the tightening torques in chapter Tightening torques for oil level plugs, oil drain plugs, screw plugs, breather valves and oil sight glasses.
- 7. Fill in fresh oil of the same type (contact SEW-EURODRIVE if necessary) via the breather bore. Do not mix different synthetic lubricants!
  - Fill the oil according to the quantity specified on the nameplate. See chapter Lubricant fill quantities.
  - Check the oil level at the oil level plug.
- 8. Re-insert the oil level plug and the breather valve. Observe for this the tightening torques in chapter Tightening torques for oil level plugs, oil drain plugs, screw plugs, breather valves and oil sight glasses.



### 6.4.2 Replacing the oil seal

### NOTICE

Damage to oil seal when mounted below 0  $^\circ\text{C}.$ 

Damage to oil seal.

- Store oil seals at ambient temperatures over 0 °C.
- If necessary, heat the oil seal before mounting it.

#### Proceed as follows:

- 1. Ensure that there is a sufficient grease reservoir between the dust lip and sealing lip, depending on the gear unit design.
- 2. If you use double oil seals, the space has to be filled with grease for one third.

### 6.4.3 Painting the gear unit

# NOTICE

Paint can block the breather valve and damage the sealing lips of the oil seals.

Damage to property.

- Thoroughly cover the breather valve and sealing lip of the oil seals with strips prior to painting/re-painting.
- Remove the strips after painting.



# 7 Mounting positions

### 7.1 Designation of the mounting positions

The following illustration shows the SEW-EURODRIVE mounting positions M1 – M6:



9007229303316107

### 7.2 Change of mounting position

Observe the following information when you operate the gearmotor in a mounting position other than the one indicated in the order:

- Changes of the mounting position require new project planning. Contact SEW-EURODRIVE.
- Adjust the lubricant fill quantity to the changed mounting position.
- Adjust the position of the breather valve.



# 7.3 Mounting position sheets

### 7.3.1 Key to the mounting position sheets

# INFORMATION

<b>i</b>
----------

The positions of the breather valve, oil level plug, and oil drain plug specified in the mounting position sheets are binding and comply with the assembly specifications.

The motors are only depicted symbolically on the mounting position sheets.

#### Symbols used

The following table shows the icons used in the mounting position sheets.

Symbol	Meaning		
	Breather valve		
	Oil level plug		
	Oil drain plug		



#### Mounting positions for hoist gear units 7.3.2

#### G67-G157



(曲

业

# 8 Technical data

### 8.1 Extended storage

i

i

# **INFORMATION**

For storage periods longer than 9 months, SEW-EURODRIVE recommends the "extended storage" gear unit type. Gear units in this design are designated with a corresponding label.

# **INFORMATION**

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

For gear units of the "extended storage" design, the following measures are taken:

- A VCI anti-corrosion agent (volatile corrosion inhibitors) is added to the lubricant.
  - Please note that this VCI anti-corrosion agent is only effective in a temperature range of -25  $^{\circ}$ C to +50  $^{\circ}$ C.
- The flange contact surfaces and shaft ends are also treated with an anti-corrosion agent.

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



# 8

### 8.1.1 Storage conditions

Climate zone	Packaging <sup>1)</sup>	Storage <sup>2)</sup>	Storage duration
	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 on the packaging and moisture in- dicator (relative atmospheric hu- midity < 50%).
Temperate (Europe, USA, Canada, China and Russia, ex- cluding tropical zones)	Open	Under roof and enclosed at constant temperature and atmospheric humidity $(5 \degree C < \vartheta < 50 \degree C, < 50\%$ relative humidity). No sudden temperature fluctuations. Controlled ventilation with filter (free from dust and dirt). No ag- gressive vapors, no shocks.	2 years or more with regular in- spections. Check for cleanness and mechanical damage during the inspection. Check corrosion protection.
Tropical (Asia, Africa, Central and South America, Aus- tralia, New Zeal- and excluding temperate zones)	Packed in containers, with desiccant and moisture indicator sealed in the plastic wrap. Protected against in- sect damage and mil- dew by chemical treat- ment.	Under roof, protected against rain and shocks.	Up to 3 years with regular checks on the packaging and moisture in- dicator (relative atmospheric hu- midity < 50%).
	Open	Under roof and enclosed at constant temperature and atmospheric humidity (5 °C < ϑ < 50 °C, relative humidity < 50%). No sudden temperature fluctuations. Controlled ventilation with filter (free from dust and dirt). No ag- gressive vapors, no shocks. Protected against insect damage.	2 years or more with regular in- spections. Check for cleanness and mechanical damage during the 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 gear units according to the mounting position.



### 8.2 Lubricants

Unless a special arrangement is made, SEW-EURODRIVE supplies the drives with a lubricant fill adapted for the specific gear unit and mounting position. The mounting position (see chapter "Mounting positions" ( $\rightarrow \square$  33)) must therefore be specified in the drive order. You must adapt the lubricant fill in case of any subsequent changes made to the mounting position (see chapter Lubricant fill quantities).

#### 8.2.1 Bearing greases

The gear unit rolling bearings are given a factory-fill with the greases listed below. SEW-EURODRIVE recommends re-greasing the rolling bearings with a grease filling at the same time as changing the oil.

The table shows the lubricants recommended by SEW-EURODRIVE:

Area of operation	Ambient temperature	Manufactur- er	Туре
Standard	-40 °C to +80 °C	Fuchs	Renolit CX-TOM 15 <sup>1)</sup>
Standard	-40 °C to +80 °C	Klüber	Petamo GHY 133 N

1) Bearing grease based on semi-synthetic base oil.

# **INFORMATION**

i

- The following grease quantities are required:
- For fast-running bearings (gear unit input side): Fill the cavities between the rolling elements one-third full with grease.
- For slow-running bearings (gear unit output side): Fill the cavities between the rolling elements two-thirds full with grease.



#### 8.2.2 Lubricant table

### NOTICE

Damage to the gear unit due to improper lubricants.

Possible damage to property.

- The oil viscosity and type (mineral/synthetic) to be used are determined by SEW-EURODRIVE specifically for each order. This information is noted in the order confirmation and on the gear unit's nameplate. If you use other lubricants for the gear units and/or use the lubricants at temperatures outside the recommended temperature range, SEW-EURODRIVE does not assume liability.
- The lubricant recommendation in the lubricant table in no way represents a guarantee regarding the quality of the lubricant delivered by each respective supplier. Each lubricant manufacturer is responsible for the quality of their product.
- Do not mix synthetic lubricants.
- Do not mix synthetic lubricants and mineral lubricants.
- Oils of the same viscosity class from different manufacturers do not have the same characteristics. In particular, the minimally and maximally permitted oil bath temperatures are manufacturer-specific. These temperatures are specified in the lubricant tables.
- The values specified in the lubricant tables apply as of the time of printing of this document. The data of the lubricants is subject to dynamic change on the part of the lubricant manufacturers. For the latest information about the lubricants, visit: www.sew-eurodrive.de/lubricants.

#### Information on table structure



18014416412986635

- [1] Gear unit type
- [2] Ambient temperature range
- [3] Viscosity class
- [4] Note on special approvals
- [5] Lubricant type



The specified ambient temperatures are guide values for selecting a suitable lubricant. The exact upper and lower temperature limits for project planning are specified in the table with the respective trade name. Bear in mind during project planning that the viscosity increases at low temperatures and that this might influence the starting behavior.

#### Information on the various lubricants



- [1] Lowest oil sump temperature in °C; going below this value during operation is not permitted
- [2] Trade name
- [3] Manufacturer
- [4] Highest oil sump temperature in °C. The service life will be considerably reduced when this temperature is exceeded. Observe the lubricant change intervals according to chapter "Lubricant change intervals" (→ 
  29).
- [5] Approvals regarding compatibility of the lubricant with approved oil seals



#### Lubricant compatibility with oil seal

Approval	Explanation
SEW0700413:	A lubricant especially recommended with regard to compatibility with the approved oil seals. The lubricant exceeds the state-of- the-art requirements regarding elastomer compatibility.

### Approved application temperature range of the oil seals

In the low temperature range, oil seals can withstand shaft deflections (e. g. through overhung load) only to a limited extent. Especially avoid or limit pulsating or changing radial displacements of the shaft. Contact SEW-EURODRIVE, if required.

Oil seal	Permitted
material class	oil sump temperature
NBR	-40 °C to +80 °C
FKM	-25 °C to +115 °C
FKM-PSS	-25 °C to +115 °C

**Limitations of use** of oil seals with the specific lubricant are described in the following table:

Material class		Manufacturer		Material		
1	1	NBR	1	Freudenberg		72 NBR 902
	1		2	Trelleborg		4NV11
S 2		FKM	1	Freudenberg	1	75 FKM 585
	2				2	75 FKM 170055
			2	Trelleborg	1	VCBVR

#### Examples:

**S11**: Only the elastomer 72NBR902 of the Freudenberg company meets the requirements of the approval in conjunction with the specific lubricant.

**S2**: Only the elastomer FKM meets the requirements of the approval in conjunction with the specific lubricant.



Key

The following table shows the abbreviations and symbols used in the lubricant table and explains what they mean:

Abbrevi- ation/sym- bol	Meaning
	Synthetic lubricant (marked gray)
	Mineral lubricant
CLP	Mineral oil
CLP PG	Polyglycol (PG)
CLP HC	Synthetic hydrocarbons – polyalphaolefin (PAO)
E	Ester-based oil
₩ <b>}</b>	Lubricant for the food processing industry and feed industry. Oils are NSF-H1 registered and compliant in accordance with FDA 21 CFR § 178.3570
	Easily biodegradable oil for environmentally sensitive areas
Æx>	Lubricant suitable for ATEX environment
1)	Helical-worm gear units with CLP-PG: Contact SEW-EURODRIVE
2)	Low-viscosity grease
3)	With appropriate measures, the gear units can be operated at ambient temperatures as low as -40 °C. Contact SEW-EURODRIVE
RWDR	Oil seal



#### Lubricant table for G.. gear units

The lubricant table is valid on the day this document is published. Refer to **www.sew-eurodrive.de/lubricants** for the latest tables.

Observe the thermal limit of the oil seal material, see chapter "Lubricant compatibility with oil seal" ( $\rightarrow \blacksquare$  41).



- [1] Note on special approvals
- [2] Oil type

- [3] Ambient temperature range
- [4] Standard

i

i

#### 8.2.3 Lubricant fill quantities

# **INFORMATION**

The specified fill quantities are **guide values**. The exact values vary depending on the number of gear stages and the gear ratio. Always check the oil level plug during filling for the exact oil quantity.

# **INFORMATION**

Unless a special arrangement is made, SEW-EURODRIVE supplies the drives with a lubricant fill adapted for the specific mounting position. The mounting position (see chapter Designation of the mounting positions) must therefore be specified in the drive order.

When the mounting position is changed, the lubricant fill quantity must be adapted accordingly (see the following chapters). Consequently, a mounting position may only be **changed** after consultation with SEW-EURODRIVE; **otherwise your rights to claim under limited warranty no longer apply.** 

The following table shows guide values for lubricant fill quantities in relation to the mounting positions M1 - M6.

	G67	G77	G97	G107	G157
M1	2.5	4.8	14.6	20.8	29.2
M3	2	4.4	9.3	14.7	21.9
M5	1.8	3.6	10.1	14.7	21.1
M6	1.8	3.6	9.1	13	18.4

25941488/EN - 06/2020

# 9 Malfunctions and remedies



# **A WARNING**

Risk of death or injury if the drive starts up unintentionally.

Severe or fatal injuries.

- De-energize the motor before you start working on the unit.
- Secure the motor against unintended power-up.

# **A** CAUTION



Risk of burns due to hot gear unit and hot gear unit oil.

Serious injuries.

- · Let the gear unit cool down before you start working on it.
- Carefully remove the oil level plug and the oil drain plug.

# NOTICE

Damage to gear unit/gearmotor due to improper operation.

Damage to the gear unit/gearmotor.

- Repair works at SEW-EURODRIVE gear units may only be performed by qualified personnel. In the context of this documentation, qualified personnel are persons who are familiar with the "Technical regulations on operating safety" (TRBS).
- Drive and motor may only be disconnected by qualified personnel.
- Contact SEW-EURODRIVE.

### 9.1 Gear units

Fault	Possible cause	Measure
Unusual, regular run- ning noise	<ul> <li>Meshing/grinding noise: Bearing damage</li> </ul>	Stop the drive
	<ul> <li>Knocking noise: Irregularity in the gearing</li> </ul>	Contact SEW-EURODRIVE
	<ul> <li>Deformation of the housing upon tightening</li> </ul>	<ul> <li>Check the oil consistency; change bearings</li> </ul>
	<ul> <li>Noise generation caused by in- sufficient rigidity of the gear unit foundation</li> </ul>	<ul> <li>Check the gear unit mounting for pos- sible deformation and correct if neces- sary</li> </ul>
		Reinforce the gear unit foundation
Unusual, irregular run-	Foreign objects in the oil	Check the oil consistency
ning noises		Stop the drive, contact     SEW-EURODRIVE



Fault	Possible cause	Measure
Oil leaking from inspec- tion cover	<ul> <li>Seal of the inspection cover leaking</li> </ul>	Tighten the screws of the inspection cover and observe the gear unit. Con- tact SEW-EURODRIVE if oil is still leaking
	Seal defective	Contact SEW-EURODRIVE
Small amounts of oil leak from the oil seal during run-in phase	Function-related pseudo-leakage	• There is no fault. Remove with soft, lint- free cloth and keep monitoring it
Film of moisture around the dust lip of the oil seal	Function-related pseudo-leakage	• There is no fault. Remove with soft, lint- free cloth and keep monitoring it
Oil leaking from the oil seal	Oil seal leaking/defective	<ul> <li>Check sealing system. It may be ne- cessary to contact SEW-EURODRIVE</li> </ul>
Oil leaking from motor	Too much oil	Check oil level, correct if necessary
(e.g. terminal box or	Gear unit not ventilated	Vent gear unit
	Oil seal leaking/defective	<ul> <li>Check sealing system. It may be ne- cessary to contact SEW-EURODRIVE</li> </ul>
Oil leaking from flange	Flange gasket leaking/defective	<ul> <li>Check sealing system. It may be ne- cessary to contact SEW-EURODRIVE</li> </ul>
	Too much oil	Check oil level, correct if necessary
	Gear unit not ventilated	Vent gear unit
Oil leaking from	Too much oil	Check oil quantity, correct if necessary
breather valve	Function-related oil mist	There is no fault
	Drive not installed in proper mounting position	<ul> <li>Install breather valve correctly and ad- just the oil level</li> </ul>
	Frequent cold starts (oil foaming)     and/or high oil level	Install oil expansion tank
Output shaft does not turn although the motor is running or the input shaft is rotated	<ul> <li>Shaft-hub connection in the gear unit interrupted</li> </ul>	<ul> <li>Send in the gear unit/gearmotor for re- pair</li> </ul>



### 9.2 Service

If you require customer service, include the following information:

- Nameplate data (complete)
- Nature and extent of the problem
- Time the failure occurred and any accompanying circumstances
- Presumed cause
- A digital picture of the failure, if possible

### 9.3 Waste disposal

Dispose of the product and all parts separately in accordance with their material structure and the national regulations. Put the product through a recycling process or contact a specialist waste disposal company. If possible, divide the product into the following categories:

- Iron, steel or cast iron
- Stainless steel
- Aluminum
- Copper
- Plastics

The following materials are hazardous to health and the environment. These materials must be collected and disposed of separately.

• Oil and grease

Collect used oil and grease separately according to type. Ensure that the used oil is not mixed with solvent. Dispose of used oil and grease correctly.



# 10 Address list

India			
Registered Of	fice Vadodara	SEW-EURODRIVE INDIA PRIVATE LIMITED	Phone : +91 265 3045200
Assembly		Plot No.4, GIDC Por,	Fax : +91 265 3045300
Sales		Ramangamdi,	http://www.seweurodriveindia.com
Services		Vadodara-391 243, Gujarat, India.	salesvadodara@seweurodriveindia.com
Assembly	Chennai	SEW-EURODRIVE INDIA PRIVATE LIMITED	lel : +91 44 3/188888
Sales		Plot No. K3/1, Sipcot Industrial Park Phase II,	Fax : +91 44 37188811
Services		Mambakkam Village, Sriperumbudur - 602105,	saleschennai@seweurodriveindia.com
		Kancheepuram, Dist Chennai, Iamil Nadu, India.	
	Pune	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel : +91 02135 628700
		Plot No. D236/1, Chakan Industriall Area Phase – II,	Fax : +91 02135 628715
		Village - varale, Tal Khed, Dist Pune 410 501,	saleschennai@seweurodriveindia.com
		Maharashtra, India.	
Technical	Ahmedabad	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 79 40072067 / 68
Offices		306, Shaan office complex, Behind Sakar-IV,	Fax +91 79 40072069
		Ellisebridge, Ashram Road,	salesahmedabad@seweurodriveindia.com
		Ahmedabad – 380006, Gujarat	
	Aurangabad	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 86000 12333
		Flat.No.406 , Prism Appt.	salesaurangabad@seweurodriveindia.com
		The Venus Housing Society.	
		Beed Bypass Road, Behind Nishant Park Hotel,	
	. <u></u>	Aurangabad – 431005, Maharashtra.	
	Bangalore	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 80 28370664
		Sy.no:41-P3, Peenya1, Phase 1A, Peenya Village,	Fax +91 80 28370665
		Yeswanthapura Hobli, Bangalore North Taluk,	salesbangalore@seweurodriveindia.com
		Bangalore - 560058, Karnataka	
	Bangalore	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 80 28522662 / 28522663
		# C-104, 3rd Block, KSSIDC Complex,	salesbangalore@seweurodriveindia.com
		Electronic City.	
		Bangalore – 560100, Karnataka	
	Chandigarh	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 81462 67606
		#699, Type -3, Power Colony,	saleschandigarh@seweurodriveindia.com
		Chandigarh - Rupnagar Highway	
		Rupnagar - 140001, Punjab	
	Chennai	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 44 42849812 / 13 / 14 / 15
		"The Polygon", 3rd floor, 142,	Fax +91 44 42849816
		Mount Road, Saidapet,	saleschennai@seweurodriveindia.com
		Anna Salai, Chennai – 600 015	
	Dhaka	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 0088-01729-097309
		ROSE DALE, 653, 6Th Floor, Flat-6E	salesdhaka@seweurodrivebangladesh.com
		Jahan Box Lane, Gabtola, Moghbazar, Ramna	
		Dhaka-1217	
	Gandhinagar	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 787 8601656
		Office No. 304, Siddhraj Zavod,	salesgandhinagar@seweurodriveindia.com
		Between Kh-0 & G-0 Circle,	
		Sarkhej Gandhinagar Highway, Sargasan,	
		Gandhinagar – 382421	
	Gurugram	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 0124- 4202295-7
		Plot No. 395,	salesgurgaon@seweurodriveindia.com
		Phase-IV Udgyog Vihar	
		Gurugram, 122002, Haryana	



Indore	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel: +91 9752412068
	Indore – Madhya Pradesh	salesindore@seweurodriveindia.com
Jaipur	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 7728896489
		salesjaipur@seweurodriveindia.com
Cochin	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 98951 30375
	House No: 30/1168 A	salescochin@seweurodriveindia.com
	Kaniyampuzha Road	
	Vyttila Post Office	
	Cochin – 682019, Kerala	
Coimbatore	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 422 2322420
	687/2, Sri Sakthivel Towers (Near Deepam Hospital)	Fax +91 422 2323988
	Trichy Road, Ramanathapuram	salescoimbatore@seweurodriveindia.com
	Coimbatore - 641 045, Tamil Nadu	
Cuttack-	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 99374 46333
Bhubaneshwar	Plot No-87, Nuasahi,	salescuttack@seweurodriveindia.com
	Rasulgarh,Bhubaneswar	
	Dist-Khordha	
	Bhubaneswar-751010	
	Orissa	
Hyderabad	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 40 27713140
	204,2nd Floor , Amsri Shamira, Secunderabad	Fax +91 40 27713141
	Hyderabad - 500003, Telangana	saleshyderabad@seweurodriveindia.com
Jamshedpur	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 99341 23671
	Flat No :- S1 "Kashi Kunj",h. No. 60,	salesjamshedpur@seweurodriveindia.com
	New Rani Kudar Road No - 3, P.o. + P.sKadma	
	Jamshedpur - 831005, Jharkhand	T 1
Koinapur		Tel. +91 86000 20846
	C/O. MI.S.V.Pawai.461/37,	saleskolnapur@seweurodriveiridia.com
	Abnideep Residency,	
	Kelbenur, 416 122 Mehereehtre	
Kolkota		Tol +01 22 22027457
NOIKala	2nd floor, Room No. 35 Chowringhoo Court	$E_{22} \pm 01.33.22804204$
	55 Chowringhoo Road	saloskolkata@sowourodrivoindia.com
	So, Chowninghee Road	saleskolkala@sewediodiiveliidia.com
Lucknow		Tel +01 07036 27333
Edeknow		saleslucknow@seweurodriveindia.com
	#69 Shiv Vibar Colony	salesidekilew@sewediedilveilidia.com
	Vikas Nagar - Sector 5	
	Lucknow - 226022 Uttar Pradesh	
Ludhiana	SEW-FURODRIVE INDIA PRIVATE LIMITED	Tel: +91 9878746730 / 9725004458
	1093. Street No 7. Janakouri	salesludhiana@seweurodriveindia.com
	Near Cheema Chowk.	
	Ludhiana -141003. Puniab. India	
Mumbai	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 22 28348440
	312 A. 3rd Floor, Acme Plaza J B. Nagar	Fax +91 22 28217858
	Andheri Kurla Road. Andheri (E)	salesmumbai@seweurodriveindia.com
	Mumbai - 400059 Maharashtra	

# **10** Address list

Nagpur	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 95610 89525
0.	Plot No 49, New Kailash Nager,	salesnagpur@seweurodriveindia.com
	Samta colony, Nagpur-440027, Maharashtra	
Nashik	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 96657 52978
	107, "YOG" Bunglow, Mahatama Nagar,	salesnashik@seweurodriveindia.com
	Trimbak Road, Nashik – 422 007, Maharashtra	
New Delhi	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 11 26944551
	# B-206 DLF Towers-B	Fax +91 11 26944467
	District Centre Jasola	salesdelhi@seweurodriveindia.com
	New Delhi -110044	
Navi Mumbai	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 022 27780081 / 82
	A-803, 8th Floor, A-Wing,	salesnavimumbai@seweurodriveindia.com
	Technocity Premises Co-Op Society Ltd,	
	Plot no. X4/1 & X4/2, TTC Industrial Area,	
	Mahape, Navi Mumbai - 400710, Maharashtra	
Pune	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 20 25635466 / 467
	Plot No. 7,"Shri Shantadurga Niwas"	salespune@seweurodriveindia.com
	Shivaji Co –operative Housing Society Ltd.,	
	Behind J.W. Marriot. Off Senapati Bapat Marg.	
	Pune –411 016, Maharashtra	
Raipur	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 771 4090765
	Shop No. 204, 2nd Floor, Lalganga	Fax +91 771 4090765
	Business Park, Pachpedi Naka, NH-43,	salesraipur@seweurodriveindia.com
	Dhamtari Road,	
	Raipur 492 001 - Chhatisgarh	
Rajkot	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 8511149383
	Block No.64, Ajanta Park Flat, Sadhu Vaswani	salesrajkot@seweurodriveindia.com
	Marg, University Road, Rajkot- 360 005, Gujarat	
Ranchi	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 82946 30772
		salesranchi@seweurodriveindia.com
Srilanka	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel.: +94 (11) 2733198 / 9
	C/o.SM International (PTE) Ltd,	Fax.: +94 (11) 2733043
	No.9, Dakshinarama Road,	salessrilanka@seweurodriveindia.com
	Mount Lavina 10370 SriLanka	
Tiruchirappalli	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 97899 79855
	Plot no 27 ,3rd Floor, Gandhi Street,	salestrichy@seweurodriveindia.com
	New Selva nagar, Pon nagar,	
	Trichy-620001 Tamilnadu	
Vadodara	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 265 2355259
	Unit No. 301, Savorite Bldg,	+91 265 2345260
	Plot No. 143, Vinayak Society, off old Padra Road,	salesvadodara@seweurodriveindia.com
	Vadodara - 390020, Gujarat	
Vijayawada	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 8978861212
	3rd Floor, H No.8-164, Masjid Street	salesvijayawada@seweurodriveindia.com
	Land Mark- Teja Clinic Building, Gollapdudi,	
	Vijayawada-521225, Andhra Pradesh	
Vellore	SEW-EURODRIVE INDIA PRIVATE LIMITED	Tel. +91 9600002247
	23/2, 3rd Main Road, Vani Vidyalaya School Road,	salesvellore@seweurodriveindia.com
	Bharathi Nagar Extension,	

# Index

# Α

Adjustment in mounting position	15
Agitator gear unit	
Strength class of the screws	16
	24
Assembly	0
Salety hotes	ອ
В	
Bearing greases	38
Breather valve	15
Activate	18
С	
Changing the mounting position 15, 33,	38
Checking the oil level	23
Via the oil level plug	30
Copyright notice	6
Customer service	47
D	
Designated use	8
Direct mounting	19
E	
Flastomers	24
Embedded safety notes	6
Extended storage	
F	
	16
Fluorocarbon rubber	2/
	27
6	
Gaskets	23
Gear unit mounting 16,	19
Strength class	16
Gear unit structure	10
Gear unit venting	17
Gear unit with solid shaft	19
Grease filling	38
Н	
Hazard symbols	
Meaning	6

# I

Input and output elements					
Mounting					
Inspection					
Inspection intervals					
Gear unit	28				
Inspection tasks					
Gear unit	29				
Oil change	29				
Oil check	29				
Oil level check	29				
Installation					
Input and output elements	19				
Mechanical	14				
Installation tolerances	15				
Installing the gear unit	15				
L					
 Loclass					
Leakage	23				
	44				
Compatibility with oil seal	41				
	39				
	29				
Lubricant fill quantities	44				
Lubricant table	~ ~				
Notes	39				
Lubricants	38				
Μ					
Maintenance	25				
Maintenance intervals					
Gear unit	28				
Maintenance tasks					
Gear unit	29				
Oil change	29				
Oil check	29				
Oil level check	29				
Malfunction					
Gear unit	45				
Running noise	45				
Malfunctions	45				
Mechanical installation	14				
Motor mounting	19				

Mounting position sheets...... 33

# Index

Mounting position sheets, key       3         Mounting positions       3         Designation       3         Parallel-shaft helical gearmotors       3	34 33 33 35
Ν	
Nameplate 11, 1 Notes Designation in the documentation	12
Meaning of the hazard symbols	6
0	
Oil change	29 29
Oil check	29
Oil level check	29
Oil quantity	14
Lubricant compatibility	41
Oil seals 1	14
Oil sight glass	23
P	
Painting gear units	32
Mounting positions	35
Performance data 11, 1	12
Product names	6
Pseudo-leakage 2	23
R	
Repair	47
Resources 1	14
Rights to claim under limited warranty	6
S	

# Safety notes

Assembly
----------

Designation in the documentation 5
Meaning of the hazard symbols6
Preliminary information7
Setup
Storage
Structure of embedded6
Structure of section-related 5
Transport
Section-related safety notes 5
Service
Setting up the gear unit 15
Signal words in safety notes 5
Solid shaft 19
Startup 22
Storage
Strength class
Gear unit mounting 16

### Т

Target group	7
Technical data	36
Tightening torques	16
Tools	14
Trademarks	6
Transport	9
Type designation	13
U	
Use	8
V	
Ventilation	17
Venting	17
W	
Waste disposal	47



				1				 			 		 					 
<u> </u>		 			 			 		 	 		 	 		 		
<u> </u>		 			 		 	 	 	 	 		 	 		 	 	
<u> </u>		 			 			 		 	 		 	 		 		
L																		
<u> </u>		 						 		 					_			_
L					L													
L																		
<u> </u>		 						 	_	 					_			_
L								 					 	 				
<u> </u>		 			 			 		 	 		 	 		 		
<u> </u>		 			 		 	 	 	 	 		 	 		 		
<u> </u>		 	-					 		 								
L					L			 										
<u> </u>		 																
L								 		 	 			 				
<u> </u>				<u> </u>	L			 		 	 		 	 				 
<u> </u>		 						 		 			 	 		 		 
<u> </u>				<u> </u>	L			 		 	 		 	 				 
-																		
L								 		 	 			 				 
<u> </u>																		
				-	-													
L																		
				-														

				1				 			 		 					 
<u> </u>		 						 		 	 		 	 		 		
<u> </u>		 			 		 	 	 	 	 		 	 		 	 	
<u> </u>		 			 			 		 	 			 		 		
L																		
<u> </u>		 						 		 					_			_
L					L													
L																		
<u> </u>		 						 	_	 					_			_
L								 					 	 				
<u> </u>		 			 			 		 	 		 	 		 		
<u> </u>		 			 		 	 	 	 	 		 	 		 		
<u> </u>		 	-					 		 								
L					L			 										
<u> </u>		 																
L								 		 	 			 				
<u> </u>				<u> </u>	L			 		 	 		 	 				 
<u> </u>		 						 		 			 	 		 		 
<u> </u>				<u> </u>	L			 		 	 		 	 				 
-																		
L								 		 	 			 				 
<u> </u>																		
				-	-													
L																		
				-														







# SEW-EURODRIVE INDIA PVT. LTD.

#### Registered Office, Assembly & Service

Plot No. 4, G.I.D.C., Por, Ramangamdi, Vadodara-391 243, Gujarat, India. Tel : +91 265 3045200

#### **Assembly & Service**

Plot No. K3/1, Sipcot Industrial Park Phase II, Mambakkam Village, Sriperumbudur - 602105, Kancheepuram, Dist.- Chennai,Tamil Nadu, India. Tel : +91 44 37188888, Fax : +91 44 37188811

#### **Assembly & Service**

Plot No. D236/1, Chakan Industrial Area Phase – II, Village - Varale, Tal.- Khed, Dist.- Pune 410 501, Maharashtra, India. Tel : +91 02135 628700 Fax : +91 02135 628715



marketing@seweurodriveindia.com www.seweurodriveindia.com www.sew-eurodrive.com