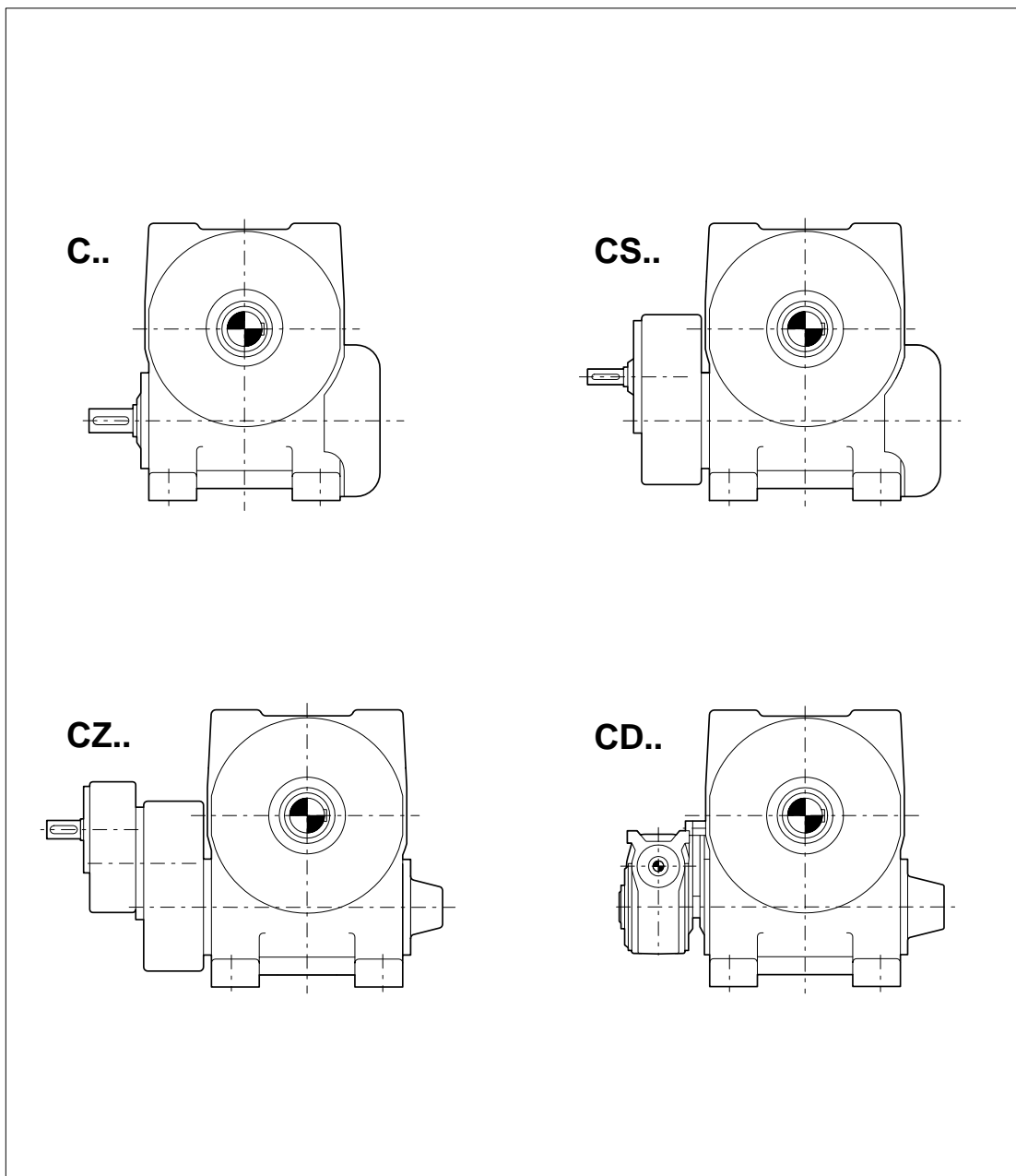


Operating Instructions

BA 6600 EN 12.94

CAVEX gear unit types C.. , CS.. , CZ.. and CD..
size 63 to 630



FLENDER

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1. Technical data

1.1 Rating plate

The rating plate of the CAVEX gear unit contains the following technical data.

1. Ident No. of the gear unit
2. Type and size
3. Torque in Nm
4. Speed n_1 in 1/min
5. Speed n_2 in 1/min
6. Oil grade (CLP or PG oil, see Table 10.2: Lubricants)
7. Oil viscosity in VG according ISO *)
8. Oil quantity in l *)
9. Number of Operating Instructions

*) For CAVEX gear units with several oil chambers consecutively numbered multiple data.

Further data are listed in the contract of supply in in these Operating Instructions.

1.2 Weights

Type	Approx. weight (kg) for size																	
	63	80	100	120	140	160	180	200	225	250	280	315	355	400	450	500	560	630
C..	15	25	42	65	90	125	170	220	290	380	520	700	1030	1400	1980	2700	3700	5000
CS..	21	31	54	77	112	147	205	255	340	430	600	780	1160	1530	2200	2920	4100	5400
CZ..			60	83	118	153	217	267	362	452	635	815	1210	1580	2280	3000	4230	5530
CD..			57	80	115	150	210	260	350	440	600	810	1180	1600	2240	3040	4170	5630

Table 1.1: Weights

Note: All weight data of Table 1.1 are without oil filling and attachments.

1.3 Measuring surface - Sound pressure level

The measuring surface - sound pressure level of the CAVEX gear unit applies, according to DIN 45635 to a measuring surface at a distance of 1 m from the gear unit surface at a nominal power rating of at least 30 %.

The measuring surface - sound pressure level given in Table 1.2 are derived from statistical evaluations of our quality control department. It is to be expected that the CAVEX gear unit will not exceed these noise values. If during repeat measurement on site clear measurement conditions cannot be established, the measuring obtained on FLENDER test rigs will apply.

Size :		63 - 80	100 - 120	140 - 160	180 - 200	225 - 250	280 - 315	355 - 400	450 - 500	560 - 630
Type	n_1 1/min	L_{pA} dB(A)								
C..	3000	79	83	86						
	1500	<70	<70	73	75	79	82	87		
	750	<70	<70	<70	<70	<70	71	76	81	85
CS..	3000	71	75	78	81	85				
	1500	<70	<70	72	75	79	82	84	87	90
	750	<70	<70	<70	<70	74	77	79	83	85
CZ..	3000		71	71	74	77	80	84	83	85
	1500		<70	<70	<70	71	74	78	81	83
	750		<70	<70	<70	<70	<70	73	76	77
CD..	3000		76	78	80	82	84			
	1500		<70	<70	<70	<70	71	74	77	79
	750		<70	<70	<70	<70	<70	<70	<70	<70

Table 1.2: Measuring surface - Sound pressure level L_{pA} in dB(A)

2. General notes

2.1 Introduction

These Operating Instructions constitute part of the gear unit shipment and should be kept in the immediate vicinity of the gear unit at all times.

Caution!

Every person dealing with the installation, operation, maintenance and repair of the gear unit should have read and understood the Operating Instructions and should observe them. We accept no liability for any damage or malfunction resulting from non-observance of the Operating Instructions.

The CAVEX gear unit described herein was built according to the standard safety regulations and is in accordance with the state-of-the-art at the time of these Operating Instructions go into print.

2.2 Copyright

The copyright of these Operating Instructions remains the property of **FLENDER GMBH**.

These Operating Instructions may not be duplicated in part or whole, utilized for the purpose of publicity or communicated to third parties without our express consent.

Please contact our works listed below in respect of all technical queries:

FLENDER GMBH

D-46393 Bocholt

Tel.: 02871/92-0

Fax: 02871/92-2596

or one of our service branches which are listed in Section 11. "Spare parts Stock, Service addresses".

3. Safety notes

3.1 Use as prescribed

- The CAVEX gear unit is constructed in accordance with the state-of-the-art. Unauthorized modifications, attachments and changes which impair the reliability are not permissible. This especially applies to contact protection devices.
- The CAVEX gear unit may only be used and operated within the scope of the conditions specified in the contract of supply.

3.2 Principle duties

- The persons entrusted with installation, operation, care, maintenance as well as repair should observe the Operating Instructions in all respects in order to:
 - prevent hazard to life and limb of the user and third parties
 - ensure the reliability of the gear unit
- and
- prevent failure and environmental pollution due to incorrect handling.
 - The relevant regulations concerning industrial safety and pollution control should be observed during handling, installation, operation as well as care and maintenance.
 - Cleaning with a high-pressure cleaning device is not permissible.
 - All work on the gear unit may only be carried out when it is stationary. The drive unit must be secured to prevent accidental start-up. A notice should be displayed at the switch-on point stating that work is in progress on the gear unit.
 - The drive unit should be shut off immediately if considerably increased operating temperatures or increased gear unit noises are detected.
 - Open rotating parts must be protected by means of suitable guards to prevent accidental contact.

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- During installation of the CAVEX gear unit in units or systems, the manufacturer of the units or systems is obliged to incorporate their requirements, notes and descriptions contained in these Operating Instructions in his own Operation Instructions.
- Notes affixed to the CAVEX gear unit, such as rating plate, direction or rotation arrows, etc., must be observed. They must be kept free from paint and dirt. Missing plates must be replaced.
- Spare parts have principally to be obtained from FLENDER.

3.3 Environmental protection

- On the occasion of oil changes, the old oil should be collected in suitable receptacles. Any pools of oil which have occurred should be removed at once.
- Store preservatives and old oil separately.
- Old oil, preservatives, binding agents and oil-soaked cleaning rags should be disposed off in accordance with the relevant environmental protection regulations.

3.4 Special kind of danger

- Depending on the operating condition, the CAVEX gear unit may develop considerable surface temperatures. **Risk of burns!**
- During oil changes, there is a risk of scalding from the hot oil emerging.

3.5 Warning notes and symbols in these Operating Instructions



This symbol draws attention to safety measures which **MUST** be observed to prevent **personal injury**.

Caution!

This symbol draws attention to safety measures which **MUST** be observed to prevent **damage to the gear unit**.

Note:

This note draws attention to general **operating notes** which should be specially observed.

4. Handling and storage

Note: The notes in Section 3. "Safety Instructions" must be observed.

4.1 Scope of supply

The contents of the shipment are listed in the shipping documents. They should be checked for completeness in receipt. Any shipping damage and/or missing parts should be reported in writing at once.

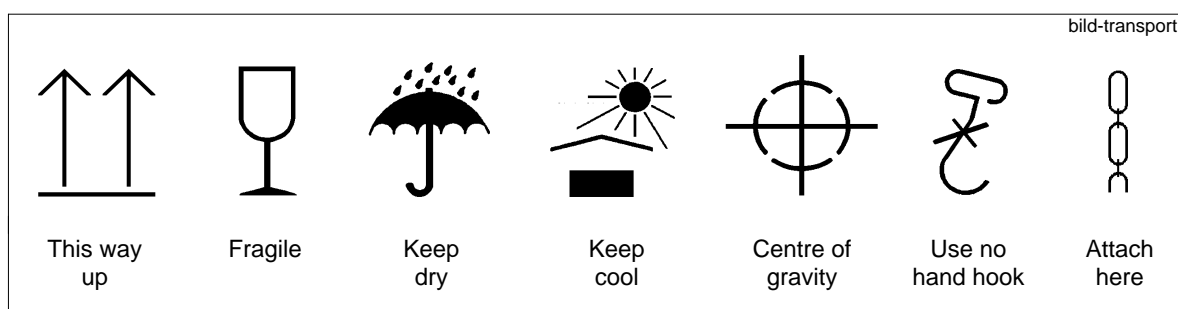
4.2 Handling



Only use hoists and load suspension devices with sufficient carrying load for the handling!

Dependent on message of shipment and size, the CAVEX gear unit will be packed according to the **HPE Packing Guidelines**, unless agreed otherwise.

The symbols shown on the packing should be noted. Their meaning is as follows:



The gear unit is to be handled with the appropriate care in order to avoid personnel injuries and damage to the gear unit. Thus, e.g. impacts on the free shaft ends may lead to a damage inside the gear unit.

4.3 Storage

The gear unit should be stored in a weather-protected place on a vibration-free base.

If stored in the open, the gear unit should be carefully protected against moisture and foreign matter.



It is not permissible to stack gear units on top of one another.

4.4 Standard preservation

The shaft ends are provided with a rust-proof coating. It is seawater- and tropic-proof for a period of 12 months.

The external coating is resistant to acids, weak alcalis, oils and solvents. It is tropic- and seawater-proof, heat resistant up to 140 °C.

All grease lubrication points are provided with the respective lubricant and also the initial filling of the gear unit with synthetic oil (long-term lubrication) was carried out by us.

In case that the initial filling is expressly not desired, the internal parts of the gear unit are preserved. This preservation is sufficient for normal shipping conditions (also overseas transport) and a period of 6 months until the first start-up.

In case of prolonged interim storage (> 6 months), the internal preservation as well as the external preservation should be checked and renewed, if necessary.

5. Technical description

5.1 General

Note: The notes in Section 3. "Safety Instructions" are to be observed.

The gear unit is a CAVEX worm gear unit. Its characteristic features are an extremely quiet running and a high efficiency.

5.2 Coding

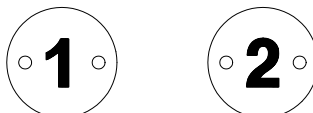
Colour coding of vent, oil level and oil drain:

Vent and oil filler: yellow

Oil level and lubrication points: red

Oil drain: white

In case of gear units with several oil chambers, the oil filling points are marked by the following signs which correspond to the rating plate data:



In case of gear units with backstop, the direction of rotation is marked by an arrow.

6. Assembly

6.1 General information on assembly

Note: The notes in Section 3. "Safety Instructions" are to be observed.

Assembly or attachment must be carried out in such a way that the gear unit is not distorted.

The air supply for cooling the CAVEX gear unit must not be impaired.

Checking the oil level must be possible.

Foundations and connecting constructions should be executed in such a way that no vibrations will be transmitted from adjacent parts and components.

The alignment to the machine on the output and the input side is to be carried out carefully while taking into account possible elastic deformations due to motive forces.

Hexagon nuts or screws are to be tightened with the prescribed torque. The tightening torque will be found in relevant table values. We recommend screws of the property class 8.8.

If external forces act on the gear unit, it is advisable to prevent a displacement by means of lateral stops.

In order to guarantee a sufficient lubrication during operation, the mounting position given in the order must be kept.

6.2 Description of assembly

- Remove corrosion protective coating from the shaft ends and the connecting surfaces with cleaning agent.



When using cleaning agents which contain solvents, ensure adequate ventilation. Pay attention to a possible inflammability of the cleaning agent.

Caution!

No cleaning agents must come underneath the sealing lips of the shaft seals.

- Fit couplings and similar attachable parts on the shaft ends and secure them.

The gear unit shaft ends have tap holes on their faces by means of which couplings, disks, gear wheels or similar can be fit.

Caution!

Hammering or tapping on is not permissible as this would damage anti-friction bearings, circlips and the like.

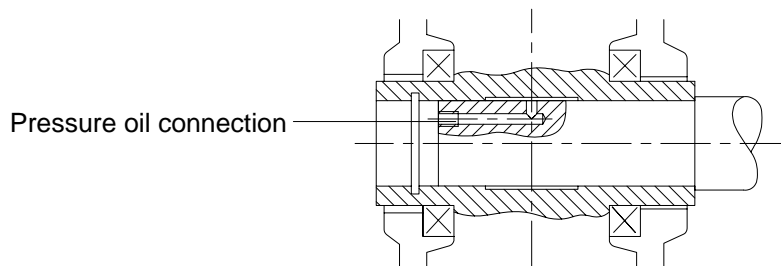
Caution!

The Operating Instructions of the part to be attached should be observed.

6.3 Assembly of a shaft mounting gear unit with parallel key

6.3.1 Preparation

For an easier disassembly, we recommend to provide for a pressure oil connection in the shaft end of the machine. For this purpose, make a bore which opens in the turned out part of the hollow shaft.



The shaft end of the machine should be executed with a parallel key according to DIN 6885 part 1 form A and should have a centering at the face according to DIN 332 form DS (with thread).

Caution!

Check the hollow and machine shaft for damage on seats or edges. If necessary, rework parts with a suitable tool and clean again.

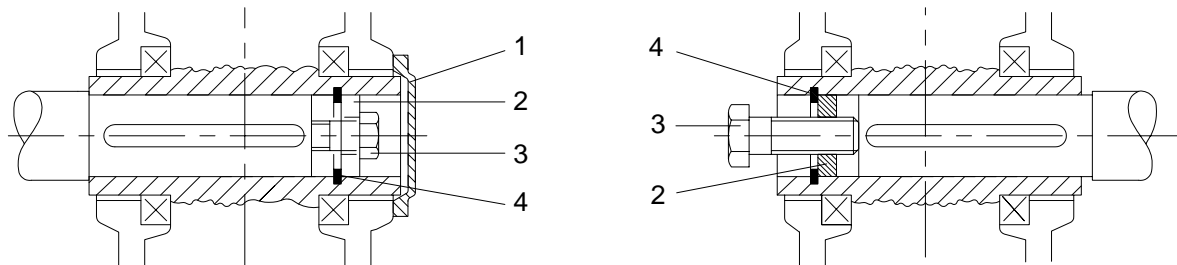
Note:

Protect the cleaned contact surfaces by a suitable lubricant which prevents the formation of fitting rust (e.g. Altemp Q Paste NB 50 by Messrs. Klüber).

6.3.2 Assembly

The assembly of the hollow shaft gear unit onto the machine shaft can be carried out by means of end plate and circlip as far as these are part of the shipment.

Note: By relocating the end plate and using a suitable screw, the end plate can be used as forcing plate.



- 1 Cover plate
- 2 End plate (forcing plate)

- 3 Screw
- 4 Circlip

Caution!

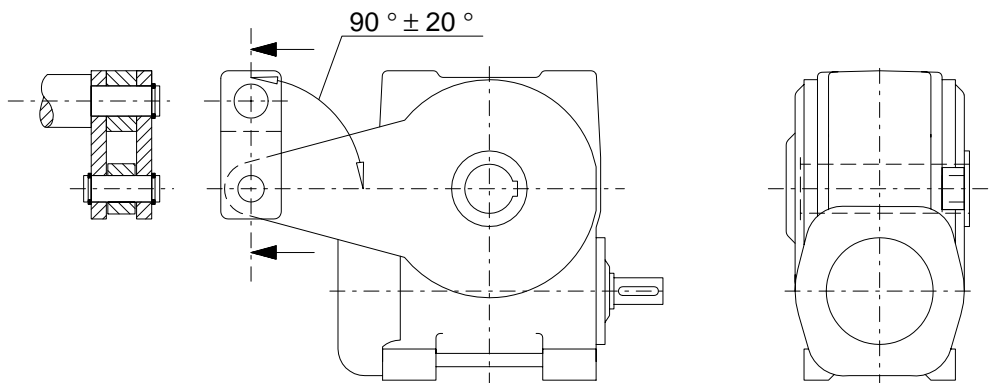
The hollow shaft must only be pulled against a machine shaft collar for types with torque arm since, for other types, the bearings would be distorted.

Caution!

The hollow shaft should be aligned with the machine shaft in order to avoid canting.

6.4 Torque bracing

In case of gear units with torque arm, bracing the torque via bolts and brackets is advisable (see following drawing) so that the gear unit remains undistorted on the machine shaft.



Note: Pay attention to the misalignment of the coupling at the input shaft due to deformation of the machine shaft.

7. Start-up

Note: The notes in Section 3. "Safety Instructions" are to be observed.

7.1 Oil filling

Caution!

Check the oil level before startup. The oil should be filled up at least up to the mid of the oil sight glass or up to the lower edge of the oil level opening (marked red). The upper screw plug (marked yellow) should be replaced by the supplied vent plug.

7.1.1 Gear unit with oil filling

In many cases, the gear units are filled by us with synthetic lubricant by Messrs. TRIBOL before shipment.

Note: The rating plate shows the note: Filled with oil

7.1.2 Gear unit without oil filling

In case the CAVEX gear unit was ordered without oil filling, oil is to be filled in the gear unit before the startup after parts which were possibly delivered separately, such as angular oil level indicator, pipes, pressure gauge and the like, have been connected.

The oil quantity given on the rating plate is a reference value. When filling the oil - especially in case of multi-stage gear units with interconnected oil chambers - wait for an appropriate time until the oil has spread evenly and thus the final oil level can be determined.

In the Lubricant Table (Table 10.2), different lubricants are listed according to the recommendation of the oil companies. Equivalent foam-free trade-marked oils of other companies can be used, too. What is important is that the oil grade (PG or CLP) marked on the rating plate is observed. However, we cannot guarantee the perfect suitability of each selected lubricant.

The nominal oil viscosity given on the rating plate of each gear unit is decisive for the oil selection. It is more advisable to switch to oils of a higher viscosity than to oils of a lower viscosity. Then two-stage gear units show different oil viscosities on their rating plate for the different oil chambers.

7.2 Grease lubrication of bearings

Rolling contact bearings above the oil level are equipped with grease filling.

7.3 Mounting and attachment parts

In case of CAVEX gear units with special auxiliary devices (e.g. pumps, filter oil cooler, spring pressure brakes, multi-plate clutch or similar), the special Operating Instructions for these parts are to be observed.

7.3.1 Gear unit with back stop

Before starting up, check whether the back stop can be turned in free-wheel direction of rotation without an increased use of force. When doing so, observe the direction of rotation arrows on the gear unit.

Caution!

To prevent damage to destruction of the back stop, it is essential to ensure that the motor is not run in the stop direction of the backstop!

Mounted or attached back stops are automatically lubricated.

7.4 Electric connection (for CAVEX gear units with attached motor)

We enclose a wiring diagram in the terminal box of each electric motor from which can be seen how the motor should be connected. When connecting, make sure that the supply voltage corresponds to the voltage given on the rating plate.

For protection against overload or two-phase run, we generally recommends the use of a motor protection switch. The overload relay is to be set to the correct nominal current intensity assigned to the respective nominal voltage (see rating plate). Earthed or protective conductors should be connected to the provided earth terminal.

If the motor runs in the wrong direction of rotation, 2 phases of the supply main should be interchanged.



In principle, only specially trained personnel should work on the terminal box and on life parts. Observe the special safety regulations.

7.5 Startup

When starting up, make sure that the vent screw is installed with cap; remove plastic screw plug or plug screw, if necessary.

Then, it is recommendable to first load the gear unit in intermittent operation, i.e. an alternation of several minutes a normal operating load and of intermission several times the operating period. The operating time can be gradually increased up to normal operation while monitoring the operating temperature. Operating temperatures up to approx. 100 °C are permissible.

8. Operation

Note: The notes in Section 3. "Safety Instructions" are to be observed.

During operation, the CAVEX gear unit should be checked for:

- excessive operating temperature
- any changes in gear unit noises
- possible oil leakage.

Caution!

If irregularities occur during operation, the cause of the malfunction should be determined with the aid of the Troubleshooting Table (Section 9).

The Troubleshooting Table lists possible malfunctions, their causes as well as possibilities for remedying them.

If the cause cannot be determined or there is no facility for repair with own equipment, we recommend calling in one of our service fitters (see Section 11.).

9. Disturbances, reasons and remedy

Note: Disturbances occurring during the warranty period which necessitate repair of the gear unit may only be remedied by FLENDER Service personnel. Even after the warranty period has elapsed, we recommend to consult our service division.



When remedying malfunctions, the gear unit should principally be shut down.

9.1 Possible disturbances

Malfunctions	Causes	Remedy
Change in gear unit running noises	Excessive bearing play	Call in FLENDER Service. Adjust bearing play.
	Bearing defective	Call in FLENDER Service. Replace defective bearing.
	Damage to tooth systems	Call in FLENDER Service. Check toothed components if necessary, replace damaged components.
	Gear unit mounting has loosened	Tighten bolts/nuts at recommended tightening torque. Replace damaged bolts/nuts.
Excessive operating temperature	Oil level in gear unit housing too high or too low	Check the oil level at room temperature, correct oil level, if necessary
	Oil is overaged	Check when last oil change was carried out; change oil, if necessary. See Section 10.
	Oil is very dirty	Change oil. See Section 10.
	Intake opening in fan cowl and/or gear unit housing very dirty	Clean fan cowl and gear unit housing
	Grease filling of the bearings is overaged	New grease lubrication. See Section 10.
	Bearing defective	Call in FLENDER Service. Check bearing, replace if necessary
Oil leakage	Radial shaft seals defective	Check radial shaft seals, replace if necessary.

Table 9.1: Information of disturbances

10. Maintenance and repair

Note: All maintenance and repair works should be carried out with due care and only by thoroughly trained personnel.
The notes in Section 3. "Safety Instructions" are to be observed.

Keeping the inspection intervals forms part for the warranty conditions.

Measures	Periods	Remarks
Monitor oil temperature, gear unit noises and tightness	Continuously	In case of changes, see Table 9.1
Check oil level	Every 3 months	Oil level at least up to the mid of the oil sight glass or the lower edge of the oil level opening when the gear unit is cold and stopped
Initial oil change	After approx. 300 - 600 (1000 - 2000) op. hrs	See 7.1.2 and 10.1.1
Subsequent oil changes	After approx. 2000 - 4000 (6000 - 12000) op. hrs, at the latest after 18 months (5 years)	See 7.1.2 and 10.1.1
Relubrication of the bearings	See signs with precise instructions at the pressure-feed lubrication nipples	See 10.1.2
Renew grease in the bearings	After approx. 10000 to 15000 op. hrs, at the latest after 5 years	See 10.1.2
Clean vent screw	When dirty	
Clean fan and housing	When dirty	See 10.1.3
Check fixing screws for tightness	At the same time as oil change	See 10.1.4

Table 10.1: Inspection intervals

Note: The periods in brackets apply to synthetic oils.

10.1 Description of maintenance and repairs

10.1.1 Carrying out oil changes

Caution!

When changing the oil, the gear unit should be filled with the oil grade previously in use. Mixing oils of different grades is not permissible. In particular, synthetic oils may not be mixed with mineral oils.

Note: The oil should be drained off immediately after the shut-down of the gear unit as long as the oil is still warm. The oil has to be dropped for a sufficient period of time, so that oil sludge, abrasive particles and residues of old oil can be removed. Shimmering abrasive particles of bronze in the oil are completely harmless.

10.1.2 Greases

In Table 10.2, usable greases for rolling contact bearings are listed.

Caution!

When re-lubricating, greases of different soap bases may not be mixed.

10.1.3 Cleaning the fan and housing

Caution!

Cleaning with a high-pressure cleaning device is not permissible.

10.1.4 Checking the fixing screws for tightness

Check all fixing screws for tightness and tighten if necessary.

The tightening torques for the fixing screws are to be taken from the relevant tables.

Note: Unserviceable screws should be replaced by fresh ones of the same property class and type.

10.1.5 Lubricant table

Oil selection should always be determined by the oil viscosity (VG Class) specified on the rating plate of the gear unit.











Lubricant	Viscosity ISO-VG DIN 51519 at 40 °C mm ² /s	Examples of lubricants									
											
Synthetic oils 1)	VG 1000	Degol GS 1000				SYNTHESO D 1000 EP			TRIBOL 800/1000		
	VG 680	Degol GS 680		Polydea PGLP 680		SYNTHESO D 680 EP	Glygoyle HE 680		TRIBOL 800 / 680		
	VG 460	Degol GS 460	Energol SG-XP460	Polydea PGLP 460	GLYCOLUBE 460	SYNTHESO D 460 EP	Glygoyle HE 460	Tivela Öl SD	TRIBOL 800 / 460		
	VG 320	Degol GS 320				SYNTHESO D 320 EP	Glygoyle HE 320		TRIBOL 800 / 320		
	VG 220	Degol GS 220		Polydea PGLP 220	GLYCOLUBE 220	SYNTHESO D 220 EP	Glygoyle 30	Tivela Öl WB	TRIBOL 800 / 220		
	VG 150	Degol GS 150		Polydea PGLP 150		SYNTHESO D 150 EP	Glygoyle 22	Tivela Öl WA	TRIBOL 800 / 150		
Mineral oils 2)	VG 1000								TRIBOL 1100/1000		
	VG 680	Degol BG 680	Energol GR-XP 680	Falcon CLP 680	SPARTAN EP 680		Mobilgear 636		TRIBOL 1100 / 680	Ersolan 680	
	VG 460	Degol BG 460	Energol GR-XP 460	Falcon CLP 460	SPARTAN EP 460		Mobilgear 634		TRIBOL 1100 / 460	Ersolan 460	
	VG 320	Degol BG 320	Energol GR-XP 320	Falcon CLP 320	SPARTAN EP 320		Mobilgear 632		TRIBOL 1100 / 320	Ersolan 320	
	VG 220	Degol BG 220	Energol GR-XP 220	Falcon CLP 220	SPARTAN EP 220		Mobilgear 630		TRIBOL 1100 / 220	Ersolan 220	
	VG 150	Degol BG 150	Energol GR-XP 150	Falcon CLP 150	SPARTAN EP 150		Mobilgear 629		TRIBOL 1100 / 150	Ersolan 150	
Lithium saponified anti-friction bearing greases		Aralub HL 2	Energol LS 3	Glissando 20 Glissando 30	BEACON 3	CENTOPLEX GLP 402	Mobilux 2 Mobilux 3	Alvania grease R3 Alvania grease G3	MOLUB-ALLOY BRB 572	Wiolub LFK 2	Longtime PD 2

Table 10.2: Lubricants

1) Synthetic lubricants (polyglycols) in accordance with designation PG as per DIN 51 502. These oils are distinguished by their high aging resistance and favourable effect on the efficiency of the gear unit.

They are suitable for operating temperatures from -20 °C to +100 °C (briefly +110 °C).

2) Mineral base gear oils in accordance with designation CLP as per DIN 51 502. These oils comply with the minimum requirements as specified in DIN 51517 Part 3.

They are suitable for operating temperatures from -10 °C to +90 °C (briefly +100 °C).

Note: If the operating temperature of the gear unit exceeds or undershoots the limit values stated under 1) oder 2), FLENDER should be consulted.

11. Spare parts, service facility addresses

11.1 Spare Parts Stock

When ordering spare parts, please make use of the Spare Parts List which forms part of this documentation.

If necessary, a Spare Parts List can be ordered from FLENDER stating the ident. No. of the CAVEX gear unit.

We assume warranty only for original spare parts supplied by us.

Caution!

We would expressly draw attention to the fact that spare parts are not supplied by us have not be tested or approved by us either. Fitting and/or use of such products can therefore adversely affect structurally specified properties of the CAVEX gear unit and will thus impair active and/or passive safety. No form of reliability or warranty will be assumed by FLENDER for damage occasions by the use of non-original spare parts.

When ordering spare parts, the following data should be stated:

Ident-Nr. of the gear unit	(see rating plate)
Part No.	(from Spare Parts List)
Quantity	(from Spare parts List)

11.2 Service addresses

When ordering spare parts or requesting a service fitter, please contact FLENDER GMBH.

FLENDER Germany

A. FRIEDR. FLENDER GMBH

D- 46393 Bocholt - Tel.: (0 28 71) 92-0 - Fax: (0 28 71) 92 25 96
E-mail: contact@flender.com • <http://www.flender.com>
Shipping address: Alfred - Flender - Strasse 77, D- 46395 Bocholt

A. FRIEDR. FLENDER GMBH - Kupplungswerk Mussum

Industriepark Bocholt - Schlavenhorst 100 - D- 46395 Bocholt - Tel.: (0 28 71) 92 28 68 - Fax: (0 28 71) 92 25 79
E-mail: anja.blits@flender.com • <http://www.flender.com>

A. FRIEDR. FLENDER GMBH - Werk Friedrichsfeld

Laboratoriumstrasse 2 - D- 46562 Voerde - Tel.: (0 28 71) 92-0 - Fax: (0 28 71) 92 25 96
E-mail: contact@flender.com • <http://www.flender.com>

A. FRIEDR. FLENDER GMBH - Getriebewerk Penig

Thierbacher Strasse 24 - D- 09322 Penig - Tel.: (03 73 81) 60 - Fax: (03 73 81) 8 02 86
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■ Subsidiary, Manufacturing,
Sales and Stock

● Subsidiary,
Sales and Stock

● Flender Sales Office

⊕ Flender Representative Office

□ Representative with Manufacturing
Licence, Sales and Stock

○ Manufacturer's Agent

12. Declaration by the manufacturer

Declaration by the manufacturer

in accordance with EEC Engineering Guideline 98/37/EG, Appendix I I B

We hereby declare that the

CAVEX gear unit types C.. , CS.. , CZ.. and CD..
size 63 to 630

described in these Operating Instructions are intended for incorporation in a machine, and that it is prohibited to put them into service before verifying that the machine into which they are incorporated complies with the EEC Guidelines (original edition 98/37/EG including any subsequent amendments thereto).

This Manufacturer's Declaration takes into account all the unified standards (inasmuch as they apply to our products) published by the European Commission in the Official Journal of the European Community.



Bocholt, 1994-12-30

Signature (person responsible for products)