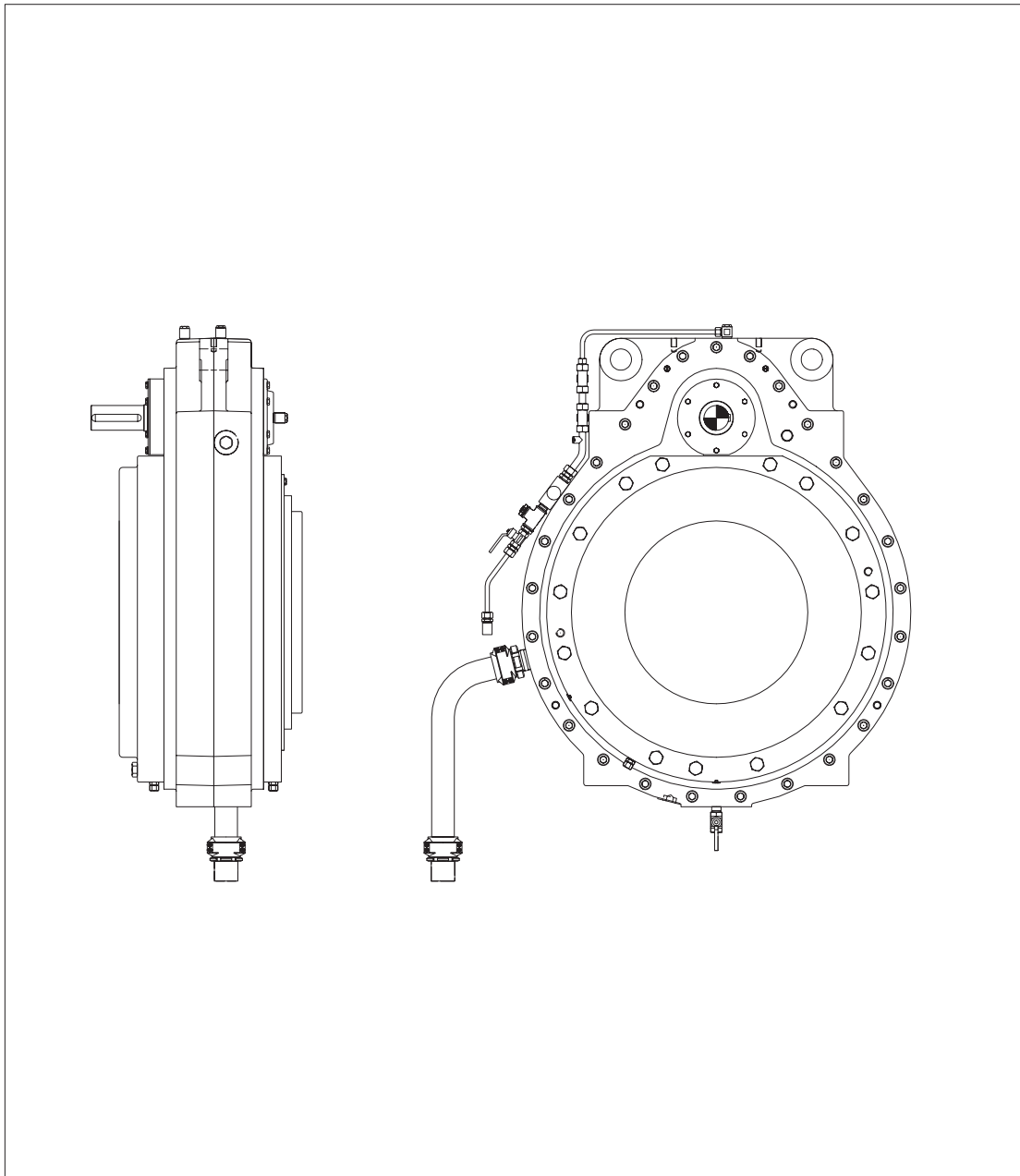


Operating Instructions

BA 5812 EN 11.01

Pick-up Roller Gear Unit SEPP type
for paper machine drives
Sizes 380 to 630



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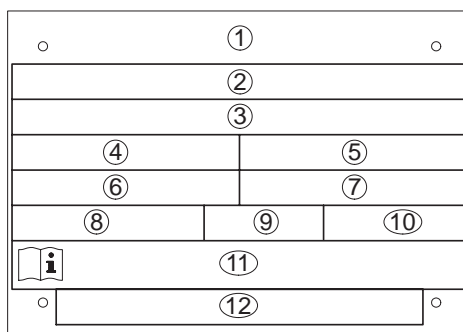
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1. Technical data

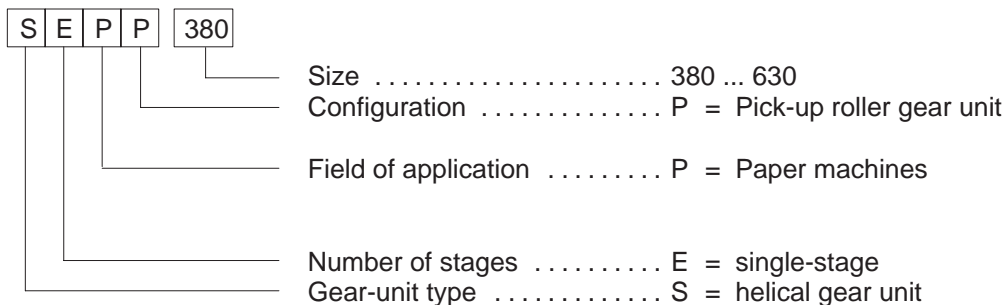
1.1 General technical data

The most important technical data are shown on the rating plate. These data together with the contractual agreements on the gear unit determine the limits of its proper use.



- | | |
|--|---|
| ① Company logo and production location | ⑦ Speed n_2 |
| ② Special information | ⑧ Type of oil |
| ③ Order no. - item - serial no. | ⑨ Viscosity of oil in VG class |
| ④ Type / Size *) | ⑩ Quantity of oil in litres for main gear housing |
| ⑤ Power rating P-RDC / P-NRL in kW | ⑪ Operating instructions number |
| ⑥ Speed n_1 | ⑫ Special information |

e.g. *)



Data on weights and measuring-surface sound levels are given in sections 1.1.1 and 1.1.2.

For further technical data, please refer to the drawings in the gear-unit documentation and the separately enclosed gear-unit table.

1.1.1 Weights

Type	Approx. weight (kg) for size				
	380	450	500	560	630
SEPP	800	1100	1600	2200	2900

Table 1.1: Weights (approx. values only)

Note: All weights are for gear unit without oil charge or attachments. For the exact weights, refer to the drawings in the gear-unit documentation.

1.1.2 Measuring-surface sound level

The gear unit has a max. measuring-surface sound level at a distance of 1 m, which is indicated in table 1.2.

The measurement is carried out to DIN 45635 Parts 1 and 23 using the sound-intensity method.

The workplace of the operating personnel is defined as the area on the measuring surface at a distance of 1 metre in the vicinity of which persons may be present.

The sound level applies for the warmed-up gear unit at input speed n_1 and input power P-NRL indicated on the rating plate.

The measuring-surface sound level includes attached lubrication units (if applicable). With outgoing and incoming pipes, the interfaces are the flanges.

If repeat measurements on site do not produce conclusive results with regard to measuring technology, the measurement obtained on the FLENDER test bench will apply.

Type	Measuring-surface sound level L_{pA} in dB(A) for gear unit size				
	380	450	500	560	630
SEPP	85 +2	86 +2	87 +2	87 +2	88 +2
max. output in kW	150	180	220	250	280

Table 1.2: Measuring-surface sound level

Note: The measuring-surface sound levels L_{pA} in dB(A) have been calculated and apply for max. output.

2. General notes

2.1 Introduction

These Operating Instructions (BA) are an integral part of the gear unit supplied and must be kept in its vicinity for reference at all times.

Caution!

All persons involved in the installation, operation, maintenance and repair of the gear unit must have read and understood these Operating Instructions and must comply with them. We accept no responsibility for damage or disruption caused by disregard of these Instructions.

These Operating Instructions apply for **"Pick-up roller gear units"**. The gear unit has been developed specifically for operation as a pick-up roller gear unit for paper machines.

The gear unit is designed only for the application described in section 1 "Technical data". Other operating conditions must be contractually agreed.

The gear unit described in these Instructions reflects the state of technical development at the time these Instructions went to print.

In the interest of technical progress we reserve the right to make changes to the individual assemblies and accessories which we regard as necessary to preserve their essential characteristics and improve their efficiency and safety.

2.2 Copyright

The copyright to these Operating Instructions is held by **FLENDER AG**.

These Operating Instructions must not be wholly or partly reproduced for competitive purposes, used in any unauthorised way or made available to third parties without our agreement.

Technical enquiries should be addressed to the following works

A. FRIEDR. FLENDER AG

D-46393 Bocholt

Tel.: 02871/92-0

Fax: 02871/92-2596

or to one of our customer-service addresses. A list of our customer-service addresses is given in section 11. "Spare parts, customer-service addresses".

3. Safety notes

3.1 Proper use

- The gear unit has been manufactured in accordance with the state of the art and is delivered in a condition for safe and reliable use. Changes made by the user which affect the safe and reliable operation of the gear unit are not permitted. This applies equally to safety features designed to prevent accidental contact.
- The gear unit should be used and operated only in accordance with the conditions laid down in the service and supply contract.

3.2 Obligations of the user

- The user must ensure that all persons involved in the installation, operation, maintenance and repair of the gear unit have read and understood these Operating Instructions and comply with them at all times in order to:
 - avoid injury or damage to the user and third parties,
 - ensure the safety and reliability of the unit,

and

- avoid disruptions and environmental damage through incorrect use.
- During transport, assembly, installation, disassembly, operation and maintenance of the unit the relevant safety and environmental regulations must be complied with.
- The gear unit should be operated, maintained or repaired only by authorised, trained and qualified personnel.
- The gear unit must not be cleaned with high-pressure cleaning equipment.
- All work on the coupling must be carried out with great care and with due regard to safety.
- All work on the gear unit must be carried out only when it is not in operation. The drive unit must be secured against being switched on accidentally (e.g. by locking the key switch or removing the fuses from the power supply). A notice should be attached to the start switch stating clearly that work is in progress.
- No welding work should be done on the gear unit. The gear unit must not be used as an earthing point for welding operations. Toothed parts and bearings may be irreparably damaged by welding.
- If any changes (e.g. overheating or unusual noises) are noticed on the gear unit during operation, the drive unit must be switched off immediately.
- Rotating drive components such as couplings, gearwheels, belt drives, etc. must be protected with appropriate safeguards against accidental contact.
- If the gear unit is intended for installation in plant or machinery, the manufacturer of such plant or machinery must ensure that the contents of these Operating Instructions are incorporated in his own instructions.
- Notices attached to the gear unit, e.g. rating plate, direction arrows, etc., must always be observed. They must be kept free from dirt and paint at all times. Missing plates must be replaced.
- All spare parts must be obtained from FLENDER.

3.3 Environmental protection

- When changing oil, the used oil must be collected in suitable containers. Any oil spillage must be removed immediately.
- Preservative agents should be stored separately from used oil.
- Used oil, preservative agents, oil-binding agents and oil-soaked cloths must be disposed of in accordance with environmental legislation.

3.4 Special dangers

- Depending on operating conditions, the surface of the gear unit may heat up considerably.
Danger of burns!
- When changing oil, take care to prevent scalding by hot oil.

3.5 Warnings and symbols used in these Operating Instructions (BA)



This symbol indicates safety measures which must be observed to avoid **personal injury**.

Caution!

This symbol indicates safety measures which must be observed to avoid **damage to the gear unit**.

Note: This symbol indicates general **operating instructions** which are of particular importance.

4. Handling and storage

Note: Observe the "Safety instructions" in section 3.

4.1 Scope of supply

The products supplied are listed in the despatch papers. Check immediately on receipt to ensure that all the products listed have actually been delivered. Damaged or missing parts must be notified in writing immediately.

4.2 Handling

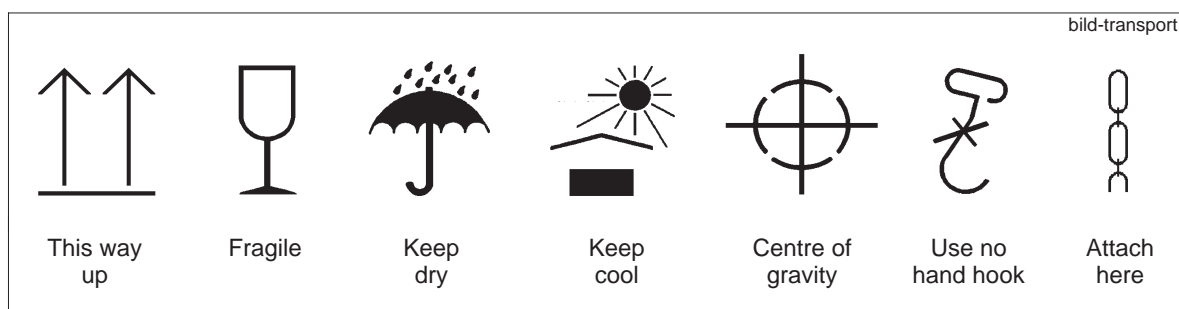


When handling FLENDER products, use only lifting and handling equipment of sufficient load-bearing capacity!

The gear unit is delivered in the fully assembled condition. Additional items (e.g. oil cooler, pipes and fittings) can be delivered separately packaged.

Different forms of packaging may be used, depending on the size of the unit and method of transport. Unless otherwise agreed, the packaging complies with the **HPE Packaging Guidelines**.

The symbols marked on the packaging must be observed at all times. These have the following meanings:



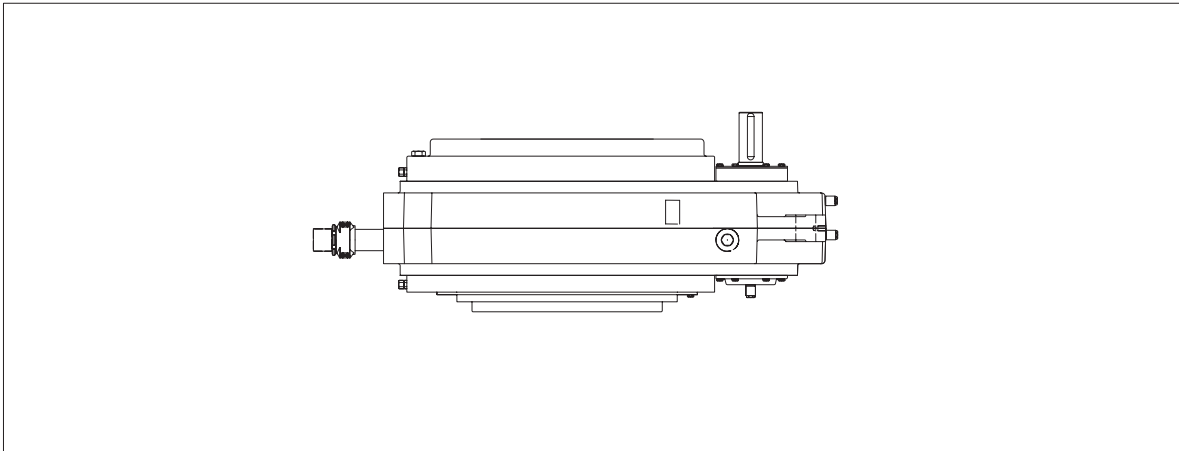
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Caution!

The gear unit must always be transported with due care to avoid danger to persons and property.
If, for example, the free shaft ends are knocked, this may damage the gear unit.

Note:

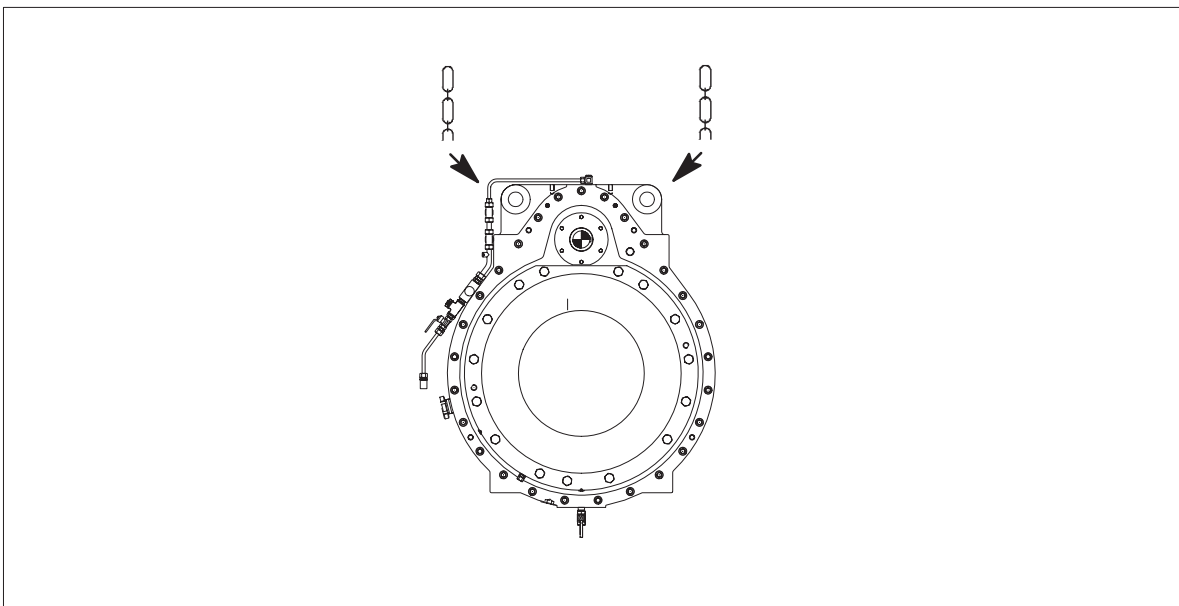
The gear units must be transported with suitable equipment only.
Never transport the gear unit with an oil charge.

**Caution!**

To avoid damaging bearings and teeth, the gear unit must not be transported lying on the hollow shaft.

Caution!

Use only the 2 eyes provided to attach lifting equipment to the unit.
Do not use the front threads at the shaft ends to attach eye bolts for transport.



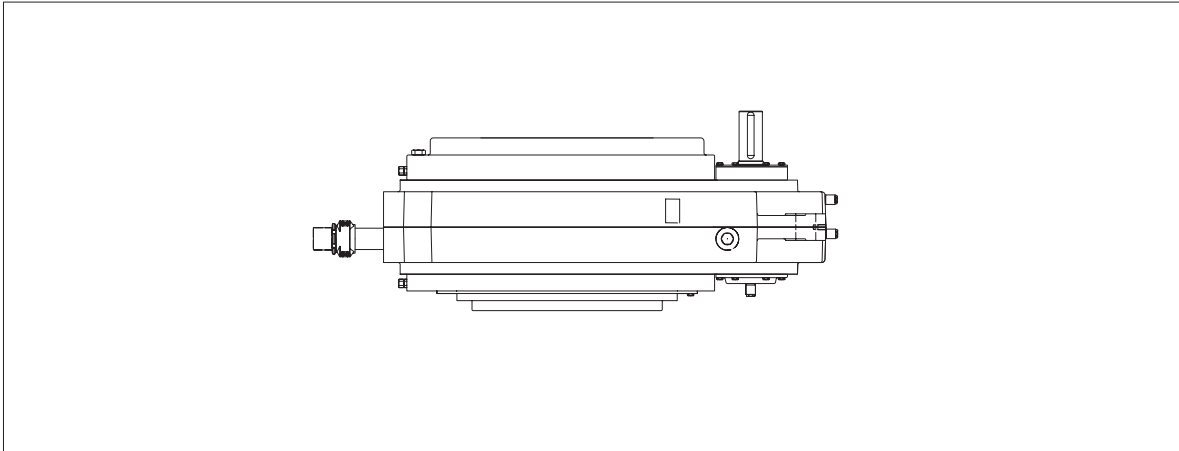
For a detailed view of the gear unit, refer to the drawings in the gear-unit documentation.

4.3 Storing the gear units

The gear unit must be stored in the position of use in a sheltered place. It must be placed on a vibration-free wooden base and covered over.



Do not stack gear units on top of one another.



Caution!

To avoid damaging bearings and teeth, the gear unit must not be stored lying on the hollow shaft.

Caution!

If the gear unit is being stored out of doors, it must be covered with particular care. It must be ensured that neither moisture nor foreign material can collect on the unit.

4.4 Standard preservation

The gear unit is provided with an internal preservative agent; the free shaft end is painted for protection.

The properties of the outer paint coat are as follows: Resistant to acids, weak alkalis, solvents, atmospheric action, temperatures up to 120 °C (temporarily up to 140 °C) and to tropical conditions.

Note: Unless otherwise agreed, we grant a guarantee of 6 months on the interior corrosion protection, and 24 months on the protective coating on the free shaft ends. The guarantee period commences on the date of delivery.

For longer periods of storage (> 6 months) we advise regular checking and, if necessary, renewal of the internal and external preservation (see section 7 "Start-up").

5. Technical description

Note: Observe the "Safety instructions" in section 3.

5.1 General description

The gear unit is delivered as a single-stage helical gear unit. It is designed for mounting in different horizontal positions.

It can be operated in both directions of rotation.

The gear unit is characterised by a low noise level, which is achieved by helical gears with a high contact ratio and a special sound-damping housing.

The good temperature characteristics of the gear unit are achieved by its high degree of efficiency and its large housing surface area.

Note: The gear unit must be supplied with oil by a separate oil-supply unit.

5.2 Housing

The gear unit housing is made of cast iron and in two parts. The housing is rigid in design and due to its form has excellent noise and temperature characteristics. If required, the housing can also be of steel.

The housing is fitted with adequately dimensioned eye bolts.

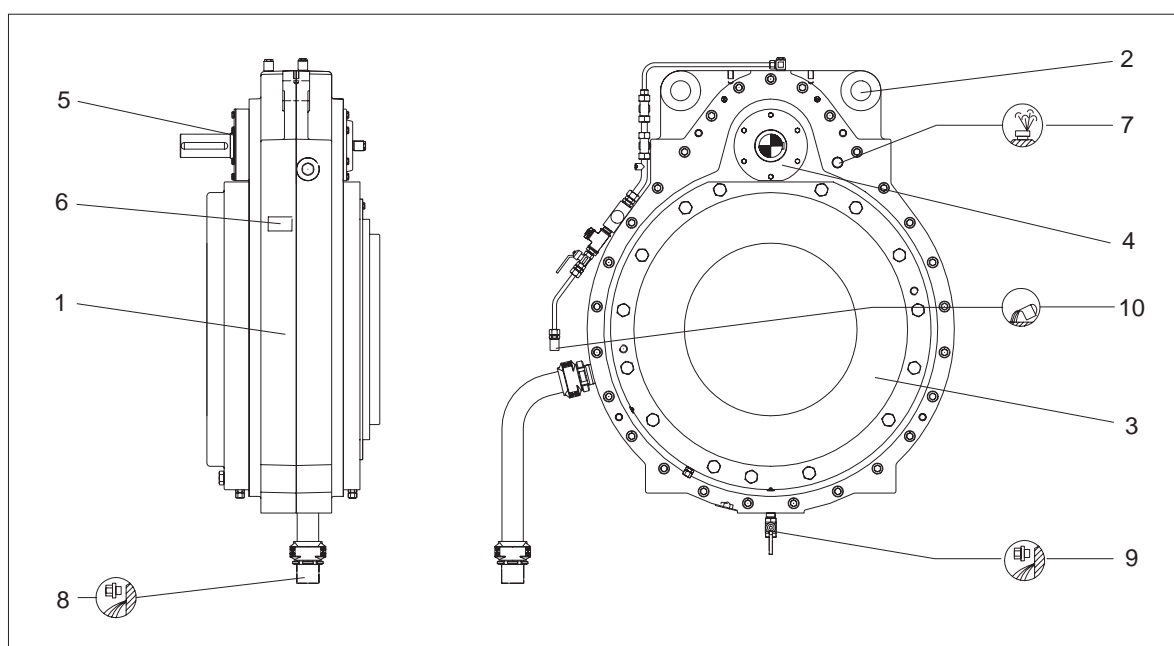
The gear unit is fitted with an oil flow limiter with signal transmitter. A breather screw is provided to ventilate the housing.

Colour codes for breather, oil drainage and symbolic representation:

Breather: yellow 

Oil inlet: yellow 

Oil drain: white 



- | | | | |
|---|------------------------------|----|-------------------------------|
| 1 | Housing | 7 | Housing ventilation |
| 2 | Eye bolt/torque reaction arm | 8 | pressureless oil return |
| 3 | Flange cover with support | 9 | Oil drain cock |
| 4 | Cover | 10 | pressurised oil feed |
| 5 | Shaft seals | 11 | Connection for leakage return |
| 6 | Rating plate | | |

For a detailed view of the gear unit, refer to the drawings in the gear-unit documentation.

5.3 Toothed components

The toothed components of the gear unit are case-hardened. Helical-gear teeth are ground. The high quality of the teeth leads to a significant noise reduction and ensures safe and reliable running.

The gear wheels are joined to the shafts by interference fits and parallel keys. These types of joints transmit with adequate reliability the torques generated.

5.4 Lubrication

For the mounting position indicated in the dimensioned drawing the teeth and rolling bearings are adequately supplied with oil by pressure circulation from a separate oil-supply unit.

Caution!

The oil feed line must be monitored with a separate pressure monitor.

5.5 Shaft bearings

All shafts are mounted on rolling bearings.

5.6 Shaft seals

Labyrinth seals at the shaft outlets prevent oil from escaping from the housing and dirt from entering the housing. Labyrinth seals are non-contacting and so prevent wear to the shaft and ensure favourable temperature characteristics.

5.7 Cooling

The gear units are cooled by a separate oil-supply unit.

Note: The equipment manufacturer's operating instructions should be observed for operation of the oil-supply unit.

5.8 Couplings, cardan shafts

As a rule, cardan shafts or all-steel couplings should be provided for the gear-unit drive.

Caution!

Couplings and cardan shafts with peripheral velocities of up to 30 m/s on the outer diameter must be statically balanced. Couplings with peripheral velocities over 30 m/s must be dynamically balanced.

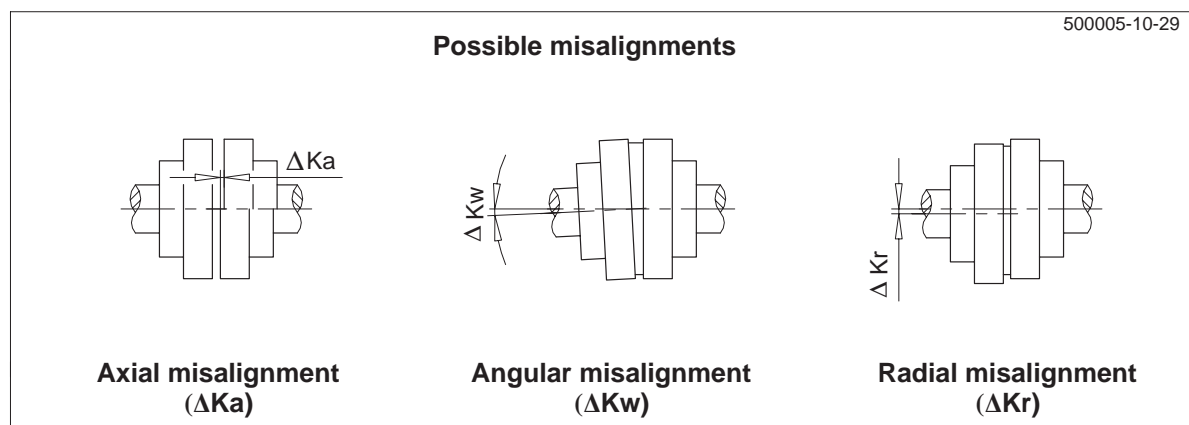
The specific Operating Instructions must be observed for the operation of the couplings or cardan shafts.

Caution!

When installing the drives, make absolutely certain that the individual components are accurately aligned in relation to each other. Inadmissibly excessive misalignments of the shaft ends to be connected due to angular and axial misalignments result in premature wear and material damage.

Note: The smaller the radial and angular misalignment between coupling parts on the shaft ends to be connected, the longer the service life and the higher the reliability of the equipment and the quieter the operation.

Misalignments of the coupling parts in relation to each other can be caused by inaccurate alignment during assembly, but also by actual operation of the equipment (expansion due to heat, shaft deflection, insufficiently rigid machine frames, etc.).



Alignment has to be effected in two axial planes arranged in vertical relation to each other. This can be done by means of a ruler (radial misalignment) and feeler gauge (angular misalignment). The aligning accuracy can be increased by using a dial gauge or, optically, by using a laser.

Caution!

The maximum permissible misalignments must under no circumstances be exceeded during operation. For the exact values please see operating instructions for the coupling. Angular and radial misalignments may occur at the same time. The sum of both misalignments must not exceed the maximum permissible value of the angular or radial misalignment.

6. Assembly

Note: Observe the "Safety instructions" in section 3.

6.1 General information on assembly and installation

Assembly and installation work must be done with great care by trained and qualified personnel. The manufacturer cannot be held liable for damage caused by incorrect assembly and installation.

During the planning phase sufficient space should be allowed around the gear unit for later care and maintenance work.

Adequate lifting equipment should be available before beginning the installation and assembly work.

Caution!

**No welding work should be done on the drive.
The drives must not be used as an earthing point for welding operations.
Toothed parts and bearings may be irreparably damaged by welding.**

Note: For dimensions, space requirement, arrangement of the supply connections (on gear units with oil cooling), refer to the drawings in the gear-unit documentation.

6.2 Shaft-mounted gear unit with hollow shaft and support on suction box

6.2.1 Assembly

- Remove corrosion-preventive coat from the machine shaft with benzine.

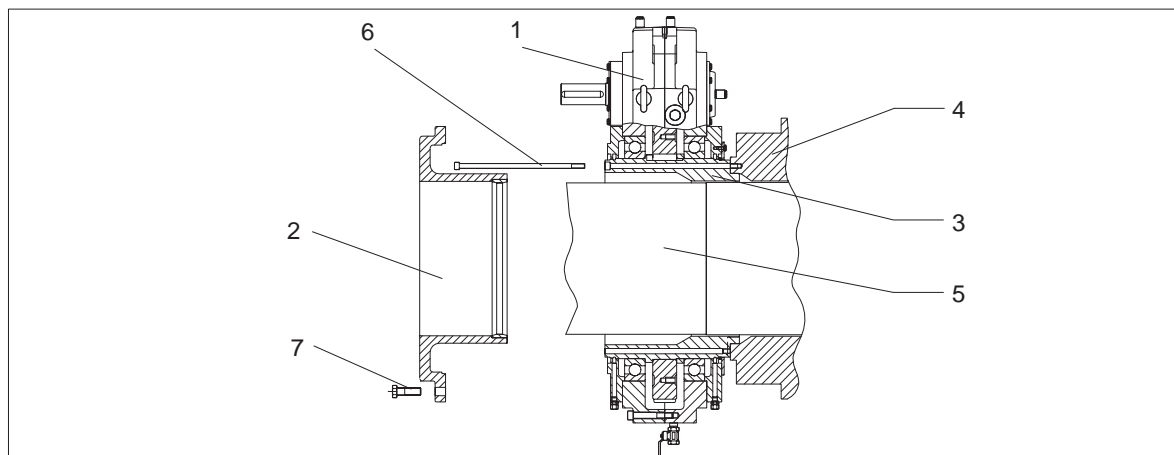


**Ensure adequate ventilation. Do not smoke!
Danger of explosion.**

- Check the hollow and machine shafts to ensure that seats and edges are not damaged. If necessary, rework the parts with a suitable tool and clean them again.

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6.2.1.1 Fitting



1	Gear unit	4	Roller	7	Fastening bolt for flange cover
2	Flange cover	5	Suction box		
3	Hollow shaft	6	Fastening bolt		

- Demount flange cover (2).
- Using suitable lifting gear, mount gear unit (1) on the roller shoulder (4).

Caution!

The hollow shaft must be exactly aligned with the roller shoulder to avoid canting.

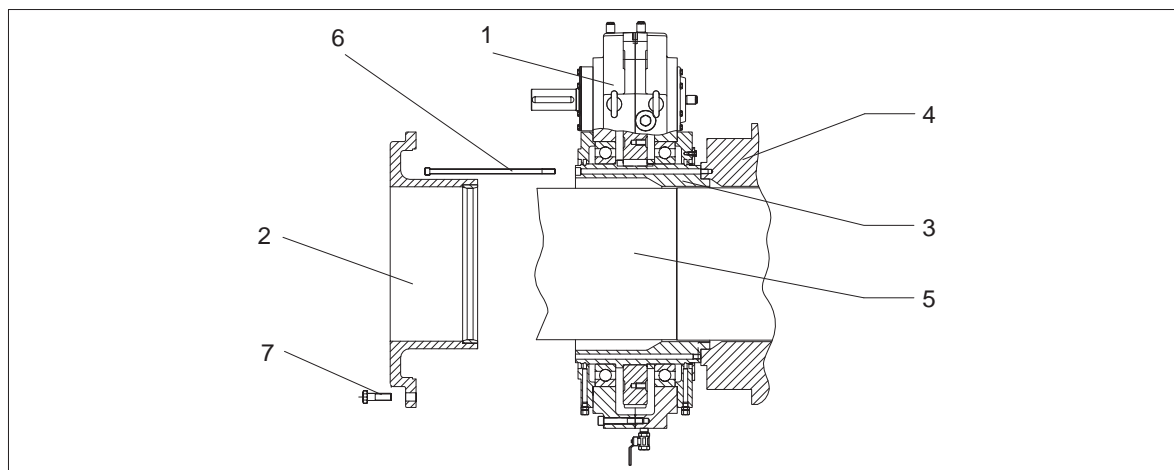
- Mount gear unit (1) on the roller (4) with fastening bolts (6).

Caution!

To avoid overloading the individual bolts, the maximum tightening torque must not be exceeded.
For tightening torques, see dimensioned drawing.

- Mount flange cover (2) in the gear unit (1) with fastening bolts (7).

6.2.2 Dismantling



1	Gear unit	4	Roller	7	Fastening bolt for flange cover
2	Flange cover	5	Suction box		
3	Hollow shaft	6	Fastening bolt		

- Undo fastening bolts (7). Demount flange cover (2). Undo fastening bolts (6) and, using suitable lifting gear, pull gear unit (1) off the roller (4).

Caution!

Avoid canting when pulling the unit off.

6.3 Description of installation work

- Remove the anti-corrosion paint on the shafts with benzine.



**Ensure adequate ventilation. Do not smoke!
Danger of explosion.**

- Pull drive unit onto shaft end and secure.

Caution!

Fit the coupling using suitable fitting equipment. Never use force or knock the couplings into position, as this will cause irreparable damage to the gearwheels, rolling bearings, locking rings, etc.

Note: If couplings are used which are to be fitted after heating, the operating instructions for the coupling concerned should be observed.

Note: Gear units whose weight requires the use of lifting gear must be attached as shown in section 4 "Handling and storage".

The unit on the input side must be precisely aligned with the gear-unit shaft, using:

- rulers
- spirit level
- dial gauge
- feeler gauge, etc.

The gear unit can now be fixed in position.

Note: The accuracy of shaft axis alignment is an important factor in determining the life span of shafts, bearings and couplings.

6.3.1 Gear unit with oil lubrication system

- Remove blank flanges and/or plugs on the pressure and suction lines of the gear unit and of the oil-supply unit.
- Install connection pipes between oil-supply unit and gear unit and connect.
- Connect up pressure monitor electrically

Note: The installation of the oil-supply unit, including cooling water in- and outflow, and the electrical installation of the monitoring equipment must be carried out in accordance with separate operating instructions.

7. Start-up

Note: Observe the "Safety instructions" in section 3.

7.1 Procedure before start-up

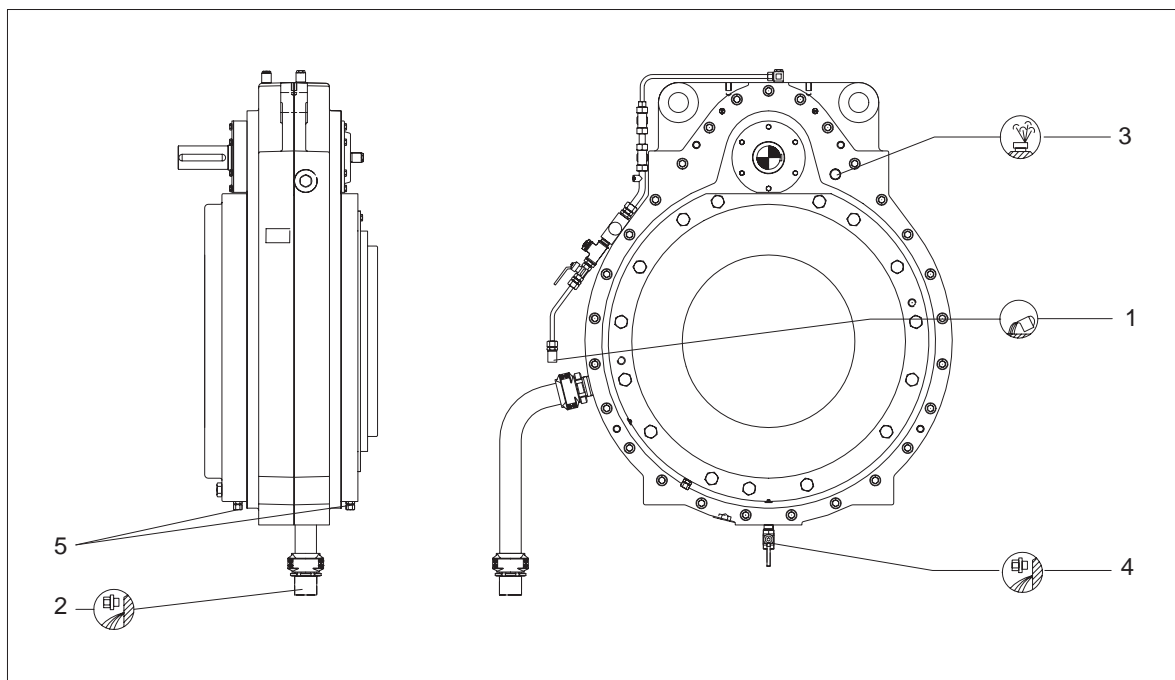
7.1.1 Removal of preservative agent

- Open oil drain tap (4), drain off the residual preservative or running-in oil into a suitable container and dispose of this oil in accordance with regulations.



Remove any oil spillage immediately with an oil-binding agent.

- Close oil drain tap.
- Connect oil feed and return to the oil-supply unit.



- 1 pressurised oil feed
2 pressureless oil return,
depending on mounting position
3 Housing ventilation

- 4 Oil drain tap,
depending on mounting position
5 Connection for leakage return

For a detailed view of the gear unit, refer to the drawings in the gear-unit documentation.

Caution!

Before start-up, replace the yellow plastic plug with a breather screw with cap (see also notice on gear unit).

7.1.2 Charging with lubricant

Note: The gear unit is supplied with lubricant by the separate oil-supply unit.

Note: For the correct type of oil (of various brands) to be used, refer to the BA 7300 EN operating instructions supplied separately. Information on the type, quantity and viscosity of the oil is given on the rating plate on the gear unit.

Caution!

Remove any oil spillage immediately with an oil-binding agent.

7.2 Start-up

Gear unit with oil-supply unit:

- Fully open the shutoff valves in the oil supply and drain line of the oil-supply unit.

Caution!

The gear unit must be operated only together with the oil-supply unit. For this purpose the oil-supply unit should be switched on at least 2 minutes before start-up of the gear unit.

Note: The start-up can begin, when the oil pressure is higher than 1.5 bar.

7.3 Removal from service

- To take the gear unit out of service, first switch off the drive unit.



Secure the drive unit to prevent it from being started up accidentally. Attach a warning notice to the start switch.

- During longer periods out of service, start the unit up briefly at intervals of approx. 3 weeks. If the gear unit is to remain out of service for longer than six months, it must be treated with preservative (see item 7.3.1).

7.3.1 Internal preservation during longer periods out of service

7.3.1.1 Internal protection with preservative agent

Before longer periods of storage gear units with forced lubrication systems, oil circulation cooling or non-contacting shaft seals should be allowed to idle with a charge of preservative agent.

Duration of protection	Preservative agent	Special measures
up to 24 months	Castrol Alpha SP 220 S	Close gear unit, replace breather screw or air filter with a yellow plug screw, (replace the original parts before start-up)
For storage periods longer than 24 months renew the preservative agent. For storage periods over 36 months FLENDER should be consulted.		

Table 7.1: Preservation procedure when using mineral oil or PAO-based synthetic oil

Duration of protection	Preservative agent	Special measures
up to 36 months	Special anti-corrosion oil TRIBOL 1390 1)	Close gear unit, replace breather screw or air filter with a yellow plug screw, (replace the original parts before start-up)
For storage periods over 36 months FLENDER should be consulted.		

Table 7.2: Preservation procedure when using PG-based synthetic oil

- Resistant to tropical conditions and sea water. Max. ambient temperature 50 °C

7.3.2 Internal preservation procedure

- Switch the gear unit off and drain the oil as described in section 10 "Maintenance and repair".
- Close oil feed and return and, if necessary, demount.
- Pour in preservative according to table 7.1 or 7.2 through the venting hole so that the helical gears submerge.
- Close the venting hole.
- Start the gear unit and allow it to idle for a short time.
- Open oil drain cock, drain preservative into a suitable container and dispose of preservative in accordance with regulations.



There is a risk of scalding from the hot preservative agent draining from the gear unit. Wear protective gloves.

- Close oil drain tap.

Caution!

**Before re-starting the gear unit replace the screw plug with the breather screw or air filter.
See also item 7.1.1.**

7.3.3 External preservation

Duration of protection	Preservative agent	Layer thickness	Remarks
up to 24 months	Tectyl 846 K19	approx. 50 µm	Long-term wax-based preservative agent, resistant to sea water and tropical conditions (soluble with CH compounds)

Table 7.3: External protection of shaft ends and other bright machined surfaces

7.3.3.1 External preservation procedure

- Clean the surfaces
- To separate the sealing lip of the shaft sealing ring and the preservative agent, the shaft should be brushed with grease in the area of the sealing lip
- Apply preservative agent

8. Operation

Note: Observe the "Safety instructions" in section 3.

8.1 General operating data

During operation the unit must be monitored for:

- excessive operating temperature If mineral oil is used, the gear unit is suitable for a temperature of 80 °C in continuous operation. The maximum short-term operating temperature is 90 °C. See also section 10.
 - changes in gear noise
 - possible oil leakage at the housing and shaft seals
- and
- correct oil level (see also section 7 "Start-up").

Caution!

If any irregularities are noticed during operation or if the pressure monitor in the oil-cooling system (if installed) triggers the alarm, switch the drive unit off at once. Determine the cause of the fault, using the table in section 9. This table contains a list of possible faults, their causes and suggested remedies. If the cause cannot be identified or the unit repaired with the facilities available, you are advised to contact one of our customer-service offices for specialist assistance (see section 11.).

9. Faults, causes and remedy

Note: Observe the "Safety instructions" in section 3.

9.1 General information on faults and malfunctions

Note: Faults and malfunctions occurring during the guarantee period and requiring repair work on the gear unit must be carried out only by FLENDER Customer Service. In the case of faults and malfunctions occurring after the guarantee period and whose cause cannot be precisely identified we advise our customers to contact our customer service.

Caution!

FLENDER will not be bound by the terms of the guarantee or otherwise be responsible in cases of improper use of the gear unit, modifications carried out without FLENDER's agreement or use of spare parts not supplied by FLENDER.



To remedy faults and malfunctions, the gear unit must always be taken out of service. Secure the drive unit to prevent it from being started up accidentally. Attach a warning notice to the start switch.

9.2 Possible faults

Malfunctions	Causes	Remedy
Changes in gear noise	Damage to gear teeth	Contact Customer Service. Check all toothed components and replace any damaged parts.
	Excessive bearing play	Contact Customer Service. Adjust bearing play.
	Bearing defective	Contact Customer Service. Replace defective bearings.
Increased temperature at bearing points	Oil flow in gear unit housing too low	Check separate oil-supply unit and, if necessary, top up oil
	Oil too old	Check date of last oil change and, if necessary, change oil. See section 10 or operator information for separate oil-supply unit
	Bearing defective	Contact Customer Service. Check and, if necessary, replace seals.
Operating temperature too high	Oil level in housing too high	Check oil return
	Oil too old	Check date of last oil change and, if necessary, change oil. See section 10 or operator information for separate oil-supply unit
	Oil badly contaminated	Change oil. See section 10 or operator information for separate oil-supply unit
	Coolant flow too low Coolant temperature too high Oil flow through oil-cooler too low through: very dirty oil filter	See operator information for separate oil-supply unit
Loud noises in area of gear-unit fastening	Fastening has worked loose	Tighten bolts / nuts to prescribed torque. Replace damaged bolts / nuts.
Oil leakage from gear unit	Inadequate sealing of housing covers or joints	Check and, if necessary, replace seals. Seal joints
Fault in oil-supply unit		See operator information for separate oil-supply unit

Table 9.1: Faults, causes and remedies

10. Maintenance and repair

Note: Observe the "Safety instructions" in section 3.

10.1 General notes on maintenance

Note: Maintenance and repair work should be done with great care by trained and qualified personnel only.

Caution!

The periods indicated in table 10.1 depend on the conditions under which the gear unit is operated. Only average periods can therefore be stated here. These refer to:

a daily operating time of	24 hours
a duty factor of	100%
an input-drive speed of	1500 1/min
a maximum oil temperature of	90 °C (mineral oil only)

Note: Under different operating conditions the periods indicated below should be adjusted accordingly.

Measures	Periods	Remarks
Check oil temperature	daily	
Check for unusual gear unit noise	daily	
Check gear unit for leaks	monthly	
Test oil for water content	after 400 service hours once per year at least	see item 10.2.1
First oil change after start-up	see section 10.2.2 or operator information for separate oil-supply unit	
Subsequent oil changes		
Cleaning the breather screw	every 3 months	see item 10.2.3
Clean gear-unit housing	every 5000 service hours	see item 10.2.4
Check tightness of fastening bolts	after 1 month, then every 5000 service hours	see item 10.2.5
Carry out complete inspection of gear unit	approx. 2 years	see item 10.2.6

Table 10.1: Maintenance and repair work

10.2 Description of maintenance and repair work

10.2.1 Test oil for water-content

For detailed information on testing the oil for water-content apply to the lubricant manufacturer.

10.2.2 Changing the oil

Note: Please observe the notes in the operator information for the separate oil-supply unit.

Caution!

When changing the oil, always re-charge the gear unit with the same type of oil. Never mix different types of oil or oils made by different manufacturers. Never mix synthetic oils with mineral-based oils or with other synthetic oils. When changing from mineral-based oil to synthetic oil or from one type of synthetic oil to another, flush the gear unit well with the new type of oil beforehand.

When changing the oil, the housing must be flushed with oil to remove sludge, metal particles and oil residue. Use the same type of oil as is used for normal operation. High-viscosity oils should be heated beforehand. Ensure that all residues have been removed before filling with fresh oil.

Note: Drain the oil while it is still warm, i.e. immediately after switching the machinery off.

- Stop the gear unit by switching off the drive unit



Secure the drive unit to prevent it from being started up accidentally. Attach a warning notice to the start switch.

Note: For the correct type of oil (of various brands) to be used, refer to the BA 7300 EN operating instructions supplied separately. Information on the type, quantity and viscosity of the oil is given on the rating plate on the gear unit.

10.2.3 Cleaning the breather screw

Remove any dust which has collected on the breather screw. It should be cleaned at least every 3 months. To do this, the breather screw must be removed, cleaned with benzine or similar agent and dried. It can also be cleaned by blowing out with compressed air.

10.2.4 Cleaning the gear unit

- Stop the gear unit by switching off the drive unit



Secure the drive unit to prevent it from being started up accidentally. Attach a warning notice to the start switch.

- Remove any corrosion.

Caution!

The gear unit must not be cleaned with high-pressure cleaning equipment.

10.2.5 Check tightness of fastening bolts

- Stop the gear unit by switching off the drive unit



Secure the drive unit to prevent it from being started up accidentally. Attach a warning notice to the start switch.

- Fully open the shutoff valves in the oil inlet and outlet line of the oil-supply unit.
- Check tightness of all fastening bolts with a torque wrench

Thread size	Strength class	Tightening torque (with $\mu = 0.20$)
M 10	8.8	60 Nm
M 12	8.8	105 Nm
M 16	8.8	255 Nm
M 20	8.8	500 Nm
M 24	8.8	870 Nm
M 30	8.8	1750 Nm
M 36	8.8	3050 Nm
M 42	8.8	4950 Nm
M 48	8.8	7400 Nm
M 56	8.8	11700 Nm

Table 10.3: Tightening torques

Note: Damaged bolts should be replaced with new bolts of the same type and strength class.

- Tightening torques for fastening bolts of other strength classes are, if necessary, documented on the dimensioned drawing.

10.2.6 General inspection of gear unit

The general inspection of the gear unit should be carried out by the FLENDER Customer Service, as our engineers have the experience and training necessary to identify any components requiring replacement.

10.3 Lubricants

The oil selected for use in the gear unit must be of the viscosity (VG class) indicated on the rating plate. The viscosity class applies for the contractually agreed operating conditions.

FLENDER must be consulted for any change in operating conditions.

Note: For the correct type of oil (of various brands) to be used, refer to the BA 7300 EN operating instructions supplied separately.

We are familiar with the composition of these lubricants and, as far as we are currently aware, they possess the properties with regard to load-bearing capacity, corrosion resistance, resistance to grey staining and compatibility with seals and interior paint coats which are necessary for the type of gear unit concerned.

We therefore advise our customers to select one of the lubricants listed in the BA 7300 EN instructions, taking into account the VG class specified on the rating plate.

Note: To avoid misunderstandings, we should like to point out that this recommendation is in no way intended as a guarantee of the quality of the lubricant supplied. Each lubricant manufacturer is responsible for the quality of his own product.

Should you, for an important reason of your own, not wish to follow our recommendation, you assume responsibility for the technical suitability of the lubricant used.

11. Spare parts, customer-service addresses

11.1 Stocking spare parts

By stocking the most important spare and wearing parts on site you can ensure that the gear unit is ready for use at any time.

To order spare parts, refer to the spare-parts list.

For further information refer to the spare-parts drawing stated in the list.

We guarantee only the original spare parts supplied by us.

Caution!

Please note that spare parts and accessories not supplied by us have not been tested or approved by us. The installation and/or use of such products may therefore impair essential characteristics of the gear unit, thereby posing an active or passive risk to safety. FLENDER will assume no liability or guarantee for damage caused by spare parts and accessories not supplied by FLENDER.

Please note that certain components often have special production and supply specifications and that we supply you with spare parts which comply fully with the current state of technical development as well as current legislation.

When ordering spare parts, always state the following:

Order no. / Item	Type / Size	Part no.	Quantity
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11.2 Spare-part and customer-service addresses

When ordering spare parts or the services of our specialist engineers, apply first to FLENDER AG.

FLENDER Germany

A. FRIEDR. FLENDER AG

46393 Bocholt - Tel.: (0 28 71) 92-0 - Fax: (0 28 71) 92 25 96

E-mail: contact@flender.com • www.flender.com

Shipping address: Alfred - Flender - Strasse 77 - 46395 Bocholt

A. FRIEDR. FLENDER AG - Kupplungswerk Mussum

Industriepark Bocholt - Schlavenhorst 100 - 46395 Bocholt - Tel.: (0 28 71) 92 28 68 - Fax: (0 28 71) 92 25 79

E-mail: couplings@flender.com • www.flender.com

A. FRIEDR. FLENDER AG - Werk Friedrichsfeld

Am Industriepark 2 - 46562 Voerde - Tel.: (0 28 71) 92-0 - Fax: (0 28 71) 92 25 96

E-mail: contact@flender.com • www.flender.com

A. FRIEDR. FLENDER AG - Getriebewerk Penig

Thierbacher Strasse 24 - 09322 Penig - Tel.: (03 73 81) 60 - Fax: (03 73 81) 8 02 86

E-mail: ute.tappert@flender.com • www.flender.com

FLENDER - TÜBINGEN GMBH

72007 Tübingen - Tel.: (0 70 71) 7 07-0 - Fax: (0 70 71) 70 74 00

E-mail: sales-motox@flender-motox.com • www.flender.com

Shipping address: Bahnhofstrasse 40 - 72072 Tübingen

LOHER GMBH

94095 Ruhstorf - Tel.: (0 85 31) 3 90 - Fax: (0 85 31) 3 94 37

E-mail: info@loher.de • www.loher.de

Shipping address: Hans-Loher-Strasse 32 - 94099 Ruhstorf

FLENDER SERVICE GMBH

44607 Herne - Tel.: (0 23 23) 940-0 - Fax: (0 23 23) 940 333

E-mail: infos@flender-service.com • www.flender-service.com

24h Service Hotline +49 (0) 17 22 81 01 00

Shipping address: Südstrasse 111 - 44625 Herne

A. FRIEDR. FLENDER AG - FLENDER GUSS

Obere Hauptstrasse 228-230 - 09228 Chemnitz / Wittgensdorf - Tel.: (0 37 22) 64-0 - Fax: (0 37 22) 64 21 89

E-mail: flender.guss@flender-guss.com • www.flender-guss.de

Germany

A. FRIEDR. FLENDER AG

46393 BOCHOLT - TEL.: (0 28 71) 92 - 0 - FAX: (0 28 71) 92 25 96

SHIPPING ADDRESS: ALFRED - FLENDER - STRASSE 77 - 46395 BOCHOLT

E-mail: contact@flender.com • www.flender.com

VERTRIEBSZENTRUM BOCHOLT

46393 Bocholt
Alfred-Flender-Strasse 77, 46395 Bocholt
Tel.: (0 28 71) 92 - 0
Fax: (0 28 71) 92 - 14 35
E-mail: vz.bocholt@flender.com

VERTRIEBSZENTRUM STUTT GART

70472 Stuttgart
Friedlzheimer Strasse 3, 70499 Stuttgart
Tel.: (07 11) 7 80 54 - 51
Fax: (07 11) 7 80 54 - 50
E-mail: vz.stuttgart@flender.com

VERTRIEBSZENTRUM MÜNCHEN

85750 Karlsfeld
Liebigstrasse 14, 85757 Karlsfeld
Tel.: (0 81 31) 90 03 - 0
Fax: (0 81 31) 90 03 - 33
E-mail: vz.muenchen@flender.com

VERTRIEBSZENTRUM BERLIN

Schlossallee 8, 13156 Berlin
Tel.: (0 30) 91 42 50 58
Fax: (0 30) 47 48 79 30
E-mail: vz.berlin@flender.com

EUROPE

AUSTRIA

Flender Ges.m.b.H.
Industriezentrum Nö-Süd
Strasse 4, Objekt 14, Postfach 132
2355 Wiener Neudorf
Phone: +43 (0) 22 36 6 45 70
Fax: +43 (0) 22 36 6 45 70 10
E-mail: office@flender.at
www.flender.at

BELGIUM & LUXEMBOURG

N.V. Flender Belge S.A.
Cyriel Buyssestraat 130
1800 Vilvoorde
Phone: +32 (0) 2 - 2 53 10 30
Fax: +32 (0) 2 - 2 53 09 66
E-mail: sales@flender.be

BULGARIA

A. Friedr. Flender AG
Branch Office
c/o Auto - Profi GmbH
Alabin Str. 52, 1000 Sofia
Phone: +359 (0) 2 - 9 80 66 06
Fax: +359 (0) 2 - 9 80 33 01
E-mail: sofia@auto-profi.com

CROATIA / SLOVENIA BOSNIA-HERZEGOVINA

A. Friedr. Flender AG
Branch Office
c/o HUM - Naklada d.o.o.
Mandroviceva 3, 10000 Zagreb
Phone: +385 (0) 1 - 2 30 60 25
Fax: +385 (0) 1 - 2 30 60 24
E-mail: flender@hi.hinet.hr

CZECH REPUBLIC

A. Friedr. Flender AG
Branch Office
Hotel DUO, Teplicka 17
19000 Praha 9
Phone: +420 (0) 2 - 83 88 23 00
Fax: +420 (0) 2 - 83 88 22 05
E-mail: flender_pumprla@hotelduo.cz

DENMARK

Flender Scandinavia A/S
Rugmarken 35 B, 3520 Farum
Phone: +45 - 70 22 60 03
Fax: +45 - 44 99 16 62
E-mail: kontakt@flenderscandinavia.com
www.flenderscandinavia.com

ESTHONIA / LATVIA / LITHUANIA

Flender Branch Office
Addinol Mineralöl Marketing OÜ
Suur-Sõjamäe 32
11415 Tallinn / Esthonia
Phone: +372 (0) 6 - 27 99 99
Fax: +372 (0) 6 - 27 99 90
E-mail: flender@addinol.ee
www.addinol.ee

FINLAND

Flender Oy
Ruosilantie 2 B, 00390 Helsinki
Phone: +358 (0) 9 - 4 77 84 10
Fax: +358 (0) 9 - 4 36 14 10
E-mail: webmaster@flender.fi
www.flender.fi

FRANCE

Flender s.a.r.l.
3, rue Jean Monnet - B.P. 5
78996 Elancourt Cedex
Phone: +33 (0) 1 - 30 66 39 00
Fax: +33 (0) 1 - 30 66 35 13
E-mail: sales@flender.fr

SALES OFFICES:

Flender s.a.r.l.
36, rue Jean Broquin
69006 Lyon
Phone: +33 (0) 4 - 72 83 95 20
Fax: +33 (0) 4 - 72 83 95 39
E-mail: sales@flender.fr

Flender - Graffenstaden SA
1, rue du Vieux Moulin
67400 Illkirch-Graffenstaden
B.P. 84
67402 Illkirch - Graffenstaden
Phone: +33 (0) 3 - 88 67 60 00
Fax: +33 (0) 3 - 88 67 06 17
E-mail: flencomm@flender-graff.com

GREECE

Flender Hellas Ltd.
2, Delfon str., 11146 Athens
Phone: +30 210 - 2 91 72 80
Fax: +30 210 - 2 91 71 02
E-mail: flender@otenet.gr
Mangrinox S.A.
14, Grevenon str., 11855 Athens
Phone: +30 210 - 3 42 32 01
Fax: +30 210 - 3 45 99 28
E-mail: mangrinox@otenet.gr

HUNGARY

A. Friedr. Flender AG
Branch Office
Bécsi Út 3-5, 1023 Budapest
Phone: +36 (0) 1 - 3 45 07 90 / 91
Fax: +36 (0) 1 - 3 45 07 92
E-mail: jambor.laszlo@axelero.hu

ITALY

Flender Cigala S.p.A.
Parco Tecnologico Manzoni
Palazzina G
Viale delle industrie, 17
20040 Caponago (MI)
Phone: +39 (0) 02 - 95 96 31
Fax: +39 (0) 02 - 95 74 39 30
E-mail: info@flendercigala.it

THE NETHERLANDS

Flender Nederland B.V.
Industrieterrein Lansinghage
Platinastraat 133
2718 ST Zoetermeer
Postbus 725
2700 AS Zoetermeer
Phone: +31 (0) 79 - 3 61 54 70
Fax: +31 (0) 79 - 3 61 54 69
E-mail: sales@flender.nl
www.flender.nl

SALES OFFICES:

Flender Nederland B.V.
Lage Brink 5-7
7317 BD Apeldoorn
Postbus 1073
7301 BH Apeldoorn
Phone: +31 (0) 55 - 5 27 50 00
Fax: +31 (0) 55 - 5 21 80 11
E-mail: tom.alberts@flender-group.com

Bruinhof B.V.

Boterdiep 37
3077 AW Rotterdam
Postbus 9607
3007 AP Rotterdam
Phone: +31 (0) 10 - 4 97 08 08
Fax: +31 (0) 10 - 4 82 43 50
E-mail: info@bruinhof.nl
www.bruinhof.nl

NORWAY

Elektroprosess AS
Frysjaveien 40, 0884 Oslo
Postboks 165, Kjelsås
0411 Oslo
Phone: +47 (0) 2 - 2 02 10 30
Fax: +47 (0) 2 - 2 02 10 50 / 51
E-mail: post@elektroprosess.no

POLAND

A. Friedr. Flender AG
Branch Office
Przedstawicielstwo w Polsce
ul. Wyzwolenia 27
43 - 190 Mikołów
Phone: +48 (0) 32 - 2 26 45 61
Fax: +48 (0) 32 - 2 26 45 62
E-mail: flender@pro.onet.pl
www.flender.pl

PORTUGAL

Rodamientos FEYC, S.A.
R. Jaime Lopes Dias, 1668 CV
1750 - 124 Lissabon
Phone: +351 (0) 21 - 7 54 24 10
Fax: +351 (0) 21 - 7 54 24 19
E-mail: info@rportugal.com

ROMANIA

A. Friedr. Flender AG
Branch Office
98 - 106, Soseaua Mihai Bravu
Sector 2, Bloc D 16, Sc 1, Apartament 4
021331 Bucuresti - 2
Phone: +40 (0) 21 - 4 91 10 08
Fax: +40 (0) 21 - 4 91 10 08
E-mail: flender@fx.ro

RUSSIA

F & F GmbH
Tjuschina 4-6
191119 St. Petersburg
Phone: +7 (0) 8 12 - 3 20 90 34
Fax: +7 (0) 8 12 - 3 40 27 60
E-mail: flendergus@mail.spbnit.ru

SLOVAKIA

A. Friedr. Flender AG
Branch Office
Vajanského 49
P.O. Box 286, 08001 Presov
Phone: +421 (0) 51 - 7 70 32 67
Fax: +421 (0) 51 - 7 70 32 67
E-mail: micenko.flender@nextra.sk

SPAIN

Flender Ibérica S.A.
Poligono Industrial San Marcos
Calle Morse, 31 (Parcela D-15)
28906 Getafe - Madrid
Phone: +34 (0) 91 - 6 83 61 86
Fax: +34 (0) 91 - 6 83 46 50
E-mail: f-iberica@flender.es
www.flender.es

SWEDEN

Flender Scandinavia
Åsensvägen 2
44339 Lerum
Phone: +46 (0) 302 - 1 25 90
Fax: +46 (0) 302 - 1 25 56
E-mail: kontakt@flenderscandinavia.com
www.flenderscandinavia.com

SWITZERLAND

Flender AG
Zeughausstr. 48
5600 Lenzburg
Phone: +41 (0) 62 8 85 76 00
Fax: +41 (0) 62 8 85 76 76
E-mail: info@flender.ch
www.flender.ch

TURKEY

Flender Güc Aktarma Sistemleri
Sanayi ve Ticaret Ltd. Sti.
IMES Sanayi, Sitesi
E Blok 502, Sokak No. 22
81260 Dudullu - Istanbul
Phone: +90 (0) 2 16 - 4 66 51 41
Fax: +90 (0) 2 16 3 64 59 13
E-mail: cuzkan@flendertr.com
www.flendertr.com

UKRAINE

A. Friedr. Flender AG
Branch Office, c/o DIV - Deutsche Industrie-
vertretung, Prospect Pobedy 44
252057 Kiev
Phone: +380 (0) 44 - 4 46 80 49
Fax: +380 (0) 44 - 2 30 29 30
E-mail: flender@div.kiev.ua

UNITED KINGDOM & EIRE

Flender Power Transmission Ltd.
Thornbury Works, Leeds Road
Bradford
West Yorkshire BD3 7EB
Phone: +44 (0) 12 74 65 77 00
Fax: +44 (0) 12 74 66 98 36
E-mail: flenders@flender-power.co.uk
www.flender-power.co.uk

FLENDER

SERBIA-MONTENEGRO ALBANIA / MACEDONIA

A. Friedr. Flender AG
Branch Office
c/o G.P.Inzenjering d.o.o.
III Bulevar 54 / 19
11070 Novi Beograd
Phone: +381 (0) 11 - 60 44 73
Fax: +381 (0) 11 - 3 11 67 91
E-mail: flender@eunet.yu

AFRICA

NORTH AFRICAN COUNTRIES

Please refer to Flender s.a.r.l.
3, rue Jean Monnet - B.P. 5
78996 Elancourt Cedex
Phone: +33 (0) 1 - 30 66 39 00
Fax: +33 (0) 1 - 30 66 35 13
E-mail: sales@flender.fr

EGYPT

Sons of Farid Hassanen
81 Matbaa Ahlia Street
Boulac 11221, Cairo
Phone: +20 (0) 2 - 5 75 15 44
Fax: +20 (0) 2 - 5 75 17 02
E-mail: hussein@sonfarid.com

SOUTH AFRICA

Flender Power Transmission (Pty.) Ltd.
Cnr. Furnace St & Quality Rd.
P.O. Box 131, Isando 1600
Johannesburg
Phone: +27 (0) 11 - 5 71 20 00
Fax: +27 (0) 11 - 3 92 24 34
E-mail: sales@flender.co.za
www.flender.co.za

SALES OFFICES:

Flender Power Transmission (Pty.) Ltd.
Unit 3 Marconi Park
9 Marconi Crescent, Montague Gardens
P.O. Box 37291
Chempet 7442, Cape Town
Phone: +27 (0) 21 - 5 51 50 03
Fax: +27 (0) 21 - 5 52 38 24
E-mail: sales@flender.co.za

Flender Power Transmission (Pty.) Ltd.
Unit 3 Goshawk Park
Falcon Industrial Estate
P.O. Box 1608
New Germany 3620, Durban
Phone: +27 (0) 31 - 7 05 38 92
Fax: +27 (0) 31 - 7 05 38 72
E-mail: sales@flender.co.za

Flender Power Transmission (Pty.) Ltd.
9 Industrial Crescent, Ext. 25
P.O. Box 17609, Witbank 1035
Phone: +27 (0) 13 - 6 92 34 38
Fax: +27 (0) 13 - 6 92 34 52
E-mail: sales@flender.co.za

Flender Power Transmission (Pty.) Ltd.
Unit 14 King Fisher Park, Alton
Cnr. Ceramic Curve & Alumina Allee
P.O. Box 101995
Meerensee 3901, Richards Bay
Phone: +27 (0) 35 - 7 51 15 63
Fax: +27 (0) 35 - 7 51 15 64
E-mail: sales@flender.co.za

AMERICA

ARGENTINA

Chilicote S.A.
Avda. Julio A. Roca 546
C 1067 ABN Buenos Aires
Phone: +54 (0) 11 - 43 31 66 10
Fax: +54 (0) 11 - 43 31 42 78
E-mail: chilicote@chilicote.com.ar

BRASIL

Flender Brasil Ltda.
Rua Quatorze, 60 - Cidade Industrial
32211 - 970, Contagem - MG
Phone: +55 (0) 31 - 33 69 21 00
Fax: +55 (0) 31 - 33 69 21 66
E-mail: vendas@flenderbrasil.com

SALES OFFICES:

Flender Brasil Ltda.
Rua James Watt, 142
conj. 142 - Brooklin Novo
04576 - 050, São Paulo - SP
Phone: +55 (0) 11 - 55 05 99 33
Fax: +55 (0) 11 - 55 05 30 10
E-mail: flesao@uol.com.br

Flender Brasil Ltda.
Rua Campos Salles, 1095
sala 04 - Centro 14015 - 110,
Ribeirão Preto - SP
Phone: +55 (0) 16 - 6 35 15 90
Fax: +55 (0) 16 - 6 35 11 05
E-mail: flender.ribpreto@uol.com.br

CANADA

Flender Power Transmission Inc.
215 Shields Court, Units 4 - 6
Markham, Ontario L3R 8V2
Phone: +1 (0) 9 05 - 3 05 10 21
Fax: +1 (0) 9 05 - 3 05 10 23
E-mail: flender@ca.inter.net
www.flenderpti.com

SALES OFFICE:

Flender Power Transmission Inc.
34992 Bemina Court
Abbotsford - Vancouver
B.C. V3G 1C2
Phone: +1 (0) 6 04 - 8 59 66 75
Fax: +1 (0) 6 04 - 8 59 68 78
E-mail: tvickers@rapidnet.net

CHILE / ARGENTINA / BOLIVIA ECUADOR / PARAGUAY / URUGUAY

Flender Cono Sur Limitada
Avda. Galvarino Gallardo 1534
Providencia, Santiago
Phone: +56 (0) 2 - 2 35 32 49
Fax: +56 (0) 2 - 2 64 20 25
E-mail: flender@flender.cl
www.flender.cl

COLOMBIA

A.G.P. Representaciones Ltda.
Flender Liaison Office Colombia
Av Boyaca No 23A
50 Bodega UA 7-1, Bogotá 53
Phone: +57 (0) 1 - 5 70 63 54
Fax: +57 (0) 1 - 5 70 73 35
E-mail: aguerrero@agp.com.co
www.agp.com.co

MEXICO

Flender de Mexico S.A. de C.V.
17, Pte. 713 Centro
72000 Puebla
Phone: +52 (0) 2 22 - 2 37 19 00
Fax: +52 (0) 2 22 - 2 37 11 33
E-mail: szugasti@flendermexico.com
www.flendermexico.com

SALES OFFICES:

Flender de Mexico S.A. de C.V.
Lago Nargis No. 38
Col. Granada,
11520 Mexico, D.F.
Phone: +52 (0) 55 - 52 54 30 37
Fax: +52 (0) 55 - 55 31 69 39
E-mail: info@flendermexico.com

Flender de Mexico S.A. de C.V.
Ave. San Pedro No. 231-5
Col. Miravalle
64660 Monterrey, N.L.
Phone: +52 (0) 81 - 83 63 82 82
Fax: +52 (0) 81 - 83 63 82 83
E-mail: info@flendermexico.com

PERU

Potencia Industrial E.I.R.L.
Calle Victor González Olaechea N° 110
Urb. La Aurora - Miraflores,
P.O.Box: Av. 2 de Mayo N° 679
Of.108-Miraflores
Casilla N° 392, Lima 18
Phone: +51 (0) 1 - 2 42 84 68
Fax: +51 (0) 1 - 2 42 08 62
E-mail: cesarzam@chavin.rcp.net.pe

USA

Flender Corporation
950 Tollgate Road
P.O. Box 1449, Elgin, IL. 60123
Phone: +1 (0) 8 47 - 9 31 19 90
Fax: +1 (0) 8 47 - 9 31 07 11
E-mail: flender@flenderusa.com
www.flenderusa.com

Flender Corporation
Service Centers West
4234 Foster Ave.
Bakersfield, CA. 93308
Phone: +1 (0) 6 61 - 3 25 44 78
Fax: +1 (0) 6 61 - 3 25 44 70
E-mail: flender1@lightspeed.net

VENEZUELA

F. H. Transmisiones S.A.
Urbanización Buena Vista
Calle Johan Schafer o Segunda Calle
Municipio Sucre, Petare
Caracas
Phone: +58 (0) 2 - 21 52 61
Fax: +58 (0) 2 - 21 18 38
E-mail: fhtransm@telcel.net.ve
www.fhtransmisiones.com

ASIA

BANGLADESH / SRI LANKA

Please refer to Flender Limited
No. 2 St. George's Gate Road
5th Floor, Hastings
Kolkata - 700 022
Phone: +91 (0) 33 - 2 23 05 45
Fax: +91 (0) 33 - 2 23 18 57
E-mail: flender@flenderindia.com

PEOPLE'S REPUBLIC OF CHINA

Flender Power Transmission
(Tianjin) Co. Ltd.
ShuangHu Rd.- Shuangchen Rd. West
Beichen Economic Development
Area (BEDA)
Tianjin 300400
Phone: +86 (0) 22 - 26 97 20 63
Fax: +86 (0) 22 - 26 97 20 61
E-mail: flender@flendertj.com
www.flendertj.com
Flender Power Transmission
(Tianjin) Co. Ltd.
Beijing Office
C-415, Lufthansa Center
50 Liangmaqiao Road, Chaoyang District
Beijing 100016
Phone: +86 (0) 10 - 64 62 21 51
Fax: +86 (0) 10 - 64 62 21 43
E-mail: beijing@flenderprc.com.cn

Flender Power Transmission
(Tianjin) Co. Ltd.
Shanghai Office
1101-1102 Harbour Ring Plaza
18 Xizang Zhong Rd.
Shanghai 200 001
Phone: +86 (0) 21 - 53 85 31 48
Fax: +86 (0) 21 - 53 85 31 46
E-mail: shanghai@flenderprc.com.cn

Flender Power Transmission
(Tianjin) Co. Ltd.
Wuhan Office
Rm. 1503, Jianyin Building,
709 Jiانشedadao
Wuhan 430 015
Phone: +86 (0) 27 - 85 48 67 15
Fax: +86 (0) 27 - 85 48 68 36
E-mail: wuhan@flenderprc.com.cn

Flender Power Transmission
(Tianjin) Co. Ltd.
Guangzhou Office
Rm. 2802, Guangzhou International
Electronics Tower
403 Huanshi Rd. East
Guangzhou 510 095
Phone: +86 (0) 20 - 87 32 60 42
Fax: +86 (0) 20 - 87 32 60 45
E-mail: guangzhou@flenderprc.com.cn

Flender Power Transmission
(Tianjin) Co. Ltd.
Chengdu Office
G-6 / F Guoxin Mansion,
77 Xiyu Street
Chengdu 610 015
Phone: +86 (0) 28 - 86 19 83 72
Fax: +86 (0) 28 - 86 19 88 10
E-mail: chengdu@flenderprc.com.cn

FLENDER

Flender Power Transmission
(Tianjin) Co. Ltd.
Shenyang Office
Rm. 2-163, Tower I, City Plaza Shenyang
206 Nanjing Street (N), Heping District
Shenyang 110 001
Phone: +86 (0) 24 - 23 34 20 48
Fax: +86 (0) 24 - 23 34 20 46
E-mail: shenyang@flenderprc.com.cn

Flender Power Transmission
(Tianjin) Co. Ltd.
Xi'an Office
Rm. 302, Shaanzi Zhong Da
International Mansion
30 Southern Rd.
Xi'an 710 002
Phone: +86 (0) 29 - 7 20 32 68
Fax: +86 (0) 29 - 7 20 32 04
E-mail: xian@flenderprc.com.cn

INDIA

Flender Limited
Head Office:
No. 2 St. George's Gate Road
5th Floor, Hastings
Kolkata - 700 022
Phone: +91 (0) 33 - 22 23 05 45
Fax: +91 (0) 33 - 22 23 08 30
E-mail: flender@flenderindia.com

Flender Limited
Industrial Growth Centre
Rakhajungle, Nimpura
Kharagpur - 721 302
Phone: +91 (0) 3222 - 23 33 07
Fax: +91 (0) 3222 - 23 33 64
E-mail: works@flenderindia.com

SALES OFFICES:
Flender Limited
Eastern Regional Sales Office
No. 2 St. George's Gate Road
5th Floor, Hastings
Kolkata - 700 022
Phone: +91 (0) 33 - 22 23 05 45
Fax: +91 (0) 33 - 22 23 08 30
E-mail: ero@flenderindia.com

Flender Limited
Western Regional Sales Office
Plot No. 23, Sector 19 - C
Vashi, Navi Mumbai - 400 705
Phone: +91 (0) 22 - 27 65 72 27
Fax: +91 (0) 22 - 27 65 72 28
E-mail: wro@flenderindia.com

Flender Limited
Southern Regional Sales Office
41 Nelson Manickam Road
Aminjikarai,
Chennai - 600 029
Phone: +91 (0) 44 - 23 74 39 21
Fax: +91 (0) 44 - 23 74 39 19
E-mail: sro@flenderindia.com

Flender Limited
Northern Regional Sales Office
209-A, Masjid Moth, 2nd Floor
(Behind South Extension II)
New Delhi - 110 049
Phone: +91 (0) 11 - 26 25 02 21
Fax: +91 (0) 11 - 26 25 63 72
E-mail: nro@flenderindia.com

INDONESIA

Flender Singapore Pte. Ltd.
Representative Office
Perkantoran Puri Niaga II
Jalan Puri Kencana Blok J1
No. 2i, Kembangan
Jakarta Barat 11610
Phone: +62 (0) 21 - 5 82 86 24
Fax: +62 (0) 21 - 5 82 86 23
E-mail: bobwall@cbn.net.id

IRAN

Cimaghand Co. Ltd.
P.O. Box 15745-493
No. 13, 16th East Street
Beyhaghi Ave., Argentina Sq.
Tehran 15156
Phone: +98 (0) 21 - 8 73 02 14
Fax: +98 (0) 21 - 8 73 39 70
E-mail: info@cimaghand.com

ISRAEL

Greenshpon Engineering Works Ltd.
Haamelim Street 20
P.O. Box 10108, 26110 Haifa
Phone: +972 (0) 4 - 8 72 11 87
Fax: +972 (0) 4 - 8 72 62 31
E-mail: sales@greenshpon.com
www.greenshpon.com

JAPAN

Flender Japan Co., Ltd.
WBG Marive East 21F
Nakasa 2 - 6
Mihama-ku, Chiba-shi
Chiba 261-7121
Phone: +81 (0) 43 - 2 13 39 30
Fax: +81 (0) 43 - 2 13 39 55
E-mail: contact@flender-japan.com

KOREA

Flender Ltd.
7th Fl. Dorim Bldg.
1823 Bangbae-Dong, Seocho-Ku,
Seoul 137-060
Phone: +82 (0) 2 - 34 78 63 37
Fax: +82 (0) 2 - 34 78 63 45
E-mail: flender@unitel.co.kr

KUWAIT

South Gulf Company
Al-Reqai, Plot 1, Block 96
P.O. Box 26229, Safat 13123
Phone: +965 (0) - 4 88 39 15
Fax: +965 (0) - 4 88 39 14
E-mail: adelameen@hotmail.com

LEBANON

Gabriel Acar & Fils s.a.r.l.
Dahr-el-Jamal
Zone Industrielle, Sin-el-Fil
B.P. 80484, Beyrouth
Phone: +961 (0) 1 - 49 82 72
Fax: +961 (0) 1 - 49 49 71
E-mail: gacar@beirut.com

MALAYSIA

Flender Singapore Pte. Ltd.
Representative Office
37 A - 2, Jalan PJU 1/39
Dataran Prima
47301 Petaling Jaya
Selangor Darul Ehsan
Phone: +60 (0) 3 - 78 80 42 63
Fax: +60 (0) 3 - 78 80 42 73
E-mail: flender@tm.net.my

PAKISTAN

Please refer to
A. Friedr. Flender AG
46393 Bocholt
Phone: +49 (0) 28 71 - 92 22 59
Fax: +49 (0) 28 71 - 92 15 16
E-mail: ludger.wittag@flender.com

PHILIPPINES

Flender Singapore Pte. Ltd.
Representative Office
28/F, Unit 2814
The Enterprise Centre
6766 Ayala Avenue corner
Paeso de Roxas, Makati City
Phone: +63 (0) 2 - 8 49 39 93
Fax: +63 (0) 2 - 8 49 39 17
E-mail: roman@flender.com.ph

BAHRAIN / IRAQ / JORDAN / LYBIA OMAN / QATAR / U.A.E. / YEMEN

Please refer to A. Friedr. Flender AG
Middle East Sales Office
IMES Sanayi Sitesi
E Blok 502, Sokak No. 22
81260 Dudullu - Istanbul
Phone: +90 (0) 2 16 - 4 99 66 23
Fax: +90 (0) 2 16 - 3 64 59 13
E-mail: meso@flendertr.com

SAUDI ARABIA

South Gulf Co.
Al-Khobar, Dahrn Str.
Middle East Trade Center
3rd floor, Flat # 23
P.O. Box 20434 31952 Al-Khobar
Phone: +966 (0) 3 - 8 87 53 32
Fax: +966 (0) 3 - 8 87 53 31
E-mail: adelameen@hotmail.com

SINGAPORE

Flender Singapore Pte. Ltd.
13 A, Tech Park Crescent
Singapore 637843
Phone: +65 (0) - 68 97 94 66
Fax: +65 (0) - 68 97 94 11
E-mail: flender@singnet.com.sg
www.flender.com.sg

SYRIA

Misrabi Co & Trading
Mezzeh Autostrade Transportation
Building 4/A, 5th Floor
P.O. Box 12450, Damascus
Phone: +963 (0) 11 - 6 11 67 94
Fax: +963 (0) 11 - 6 11 09 08
E-mail: ismael.misrabi@gmx.net

TAIWAN

A. Friedr. Flender AG
Taiwan Branch Company
1F, No. 5, Lane 240
Nan Yang Street, Hsichih
Taipei Hsien 221
Phone: +886 (0) 2 - 26 93 24 41
Fax: +886 (0) 2 - 26 94 36 11
E-mail: flender_tw@flender.com.tw

THAILAND

Flender Singapore Pte. Ltd.
Representative Office
23/F M Thai Tower, All Seasons Place
87 Wireless Road, Phatumwan
Bangkok 10330
Phone: +66 (0) 2 - 6 27 91 09
Fax: +66 (0) 2 - 6 27 90 01
E-mail: christian.beckers@flender.th.com

VIETNAM

Flender Singapore Pte. Ltd.
Representative Office
Suite 6/6A, 16F Saigon Tower
29 Le Duan Street, District 1
Ho Chi Minh City, Vietnam
Phone: +84 (0) 8 - 8 23 62 97
Fax: +84 (0) 8 - 8 23 62 88
E-mail: flender@hcm.vnn.vn

A U S T R A L I A

Flender (Australia) Pty. Ltd.
9 Nello Place, P.O. Box 6047
Wetherill Park
N.S.W. 2164, Sydney
Phone: +61 (0) 2 - 97 56 23 22
Fax: +61 (0) 2 - 97 56 48 92, 97 56 14 92
E-mail: sales@flender.com.au
www.flender.com.au

SALES OFFICES:
Flender (Australia) Pty. Ltd.
Suite 3, 261 Centre Rd.
Bentleigh, VIC 3204 Melbourne
Phone: +61 (0) 3 - 95 57 08 11
Fax: +61 (0) 3 - 95 57 08 22
E-mail: sales@flender.com.au

Flender (Australia) Pty. Ltd.
Suite 5, 1407 Logan Rd.
Mt. Gravatt
QLD 4122, Brisbane
Phone: +61 (0) 7 - 34 22 23 89
Fax: +61 (0) 7 - 34 22 24 03
E-mail: sales@flender.com.au

Flender (Australia) Pty. Ltd.
Suite 2 403 Great Eastern Highway
W.A. 6104, Redcliffe - Perth
Phone: +61 (0) 8 - 94 77 41 66
Fax: +61 (0) 8 - 94 77 65 11
E-mail: sales@flender.com.au

NEW ZEALAND

Please refer to Flender (Australia) Pty. Ltd.
9 Nello Place, P.O. Box 6047
Wetherill Park
N.S.W. 2164, Sydney
Phone: +61 (0) 2 - 97 56 23 22
Fax: +61 (0) 2 - 97 56 48 92
E-mail: sales@flender.com.au

12. Declaration by the manufacturer

Declaration by the manufacturer

in accordance with EC Engineering Guideline 98/37/EC, Appendix II B

We hereby declare that the

**Pick-up Roller Gear Unit SEPP type
for paper machine drives
Sizes 380 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 EC Guidelines (original edition 98/37/EC 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, 2001-11-23

Signature (person responsible for products)