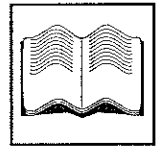


OPERATING INSTRUCTIONS



Disperger
HTD3-P

Serial No.: 12976 (VSMO Serial # HD-0112)
Codeword: Ohio Paper

Ohio Paperboard
HTD3-P manual
dated 28.2.97
(rec'd 3/5/97)

corrected filling #8
page 9.1 - 6/8/97

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1 Introduction

These operating instructions are to familiarize the user with the machine. They contain a description of the machine's design and its principle of operation. Following these operating instructions ensures rapid and safe start-up and maintenance of the machine.

1.1 Explanation of warnings and symbols



This symbol indicates an **imminent hazard**. If this hazard is not avoided, it will lead to **death or serious injuries**.



This symbol indicates a **potentially hazardous situation**. If it is not avoided, it **could result in death or serious injuries**.



This symbol indicates a **potentially hazardous situation**. If it is not avoided, it **could result in minor or moderate injuries**.



This symbol indicates a **potentially damaging situation**. If it is not avoided, it **could result in damage to the product or surrounding equipment**.



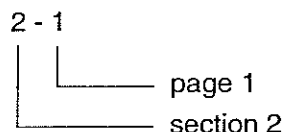
This symbol indicates special hints for the user and other particularly useful information. It is **not** a signal word for a hazardous or damaging situation.

- denotes listings
- ⇒ denotes cross-references to other pages, sections, figures, and tables
- denotes „task to be performed“
- denotes „monitoring task“
- ✓ denotes „task completed“
- ↪ denotes „result of a completed task“

1.2 Numbering of pages, figures and tables

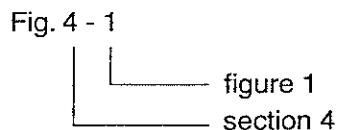
Pages

The pages are numbered consecutively throughout each individual section.

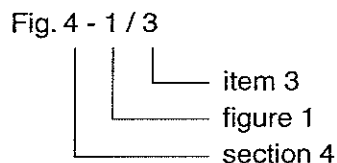


Figures

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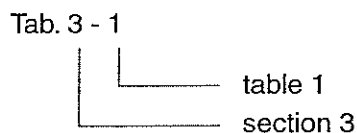


Cross-references to figures

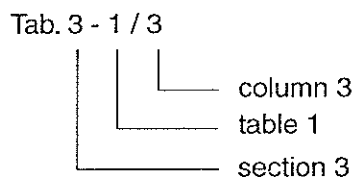


Tables

The tables are numbered consecutively throughout each individual section.



Cross-references to tables



1.3 Abbreviations

Sec.	Section
Fig.	Figure
Tab.	Table
Cont'd	Continued

1.4 Dimensions

Unless specified otherwise, all dimensions are in mm.

2 Safety Instructions

2.1 General safety instructions

For operation of the machine, the local safety and accident prevention rules and regulations are in any case binding.

State of the art

This VOITH SULZER stock preparation machine has been built in accordance with state-of-the-art standards and the recognized safety rules. Nevertheless, its use may constitute a risk to life and limb of the user or of third parties, or cause damage to the machine and to other material property, if:

- the machine is not used as designated,
- the machine is operated by untrained personnel,
- the machine is modified or converted improperly and/or
- the safety instructions are not observed.

Therefore, every person involved in erecting, operating, inspecting, maintaining, servicing and repairing the machine must read, understand and observe the complete operating instructions, particularly the Safety Instructions.

Preconditions for using the machine:

The machine may only be used:

- in perfect technical condition,
- as designated,
- according to the instructions set out in the operating manual, and only by safety-conscious persons who are fully aware of the risks involved in operating the machine,
- if all safety devices and emergency shut-off components are fitted and operative.

Any functional disorders, especially those affecting the safety of the machine, must therefore be rectified immediately.

2.2 Designated use of the machine

Use

Preprocessing

- Disperse the fibre bundle
- Improve the washability and flotability of disturbing components
- Allow flotability of ink particles clinging to fibres

Subsequent processing after screening and cleaning plants

- Disperse dirt specks, stickies and coating particles

Adding bleaching chemicals

Liability for non-designated use

Using the machine for purposes other than those mentioned above is considered contrary to its designated use. VOITH SULZER Stoffaufbereitung GmbH cannot be held liable for any resulting damage. The risk of such misuse lies entirely with the user.

2.3 Organizational measures

Availability of operating instructions

The operating instructions must be available wherever the machine is in use.

Additional regulations

In addition to the operating instructions, observe all other generally applicable legal and other mandatory regulations relevant to accident prevention and environmental protection and instruct the personnel to comply with them.

Additional instructions

Supplement the operating manual by instructions covering the duties involved in supervising and notifying special organizational features, such as job organisation, working sequence or the personnel entrusted with the work.

Checks

Check regularly whether the personnel carries out the work in compli-

ance with the operating instructions and whether they pay attention to risks and safety factors.

Protective equipment

Use protective equipment wherever and whenever required.

Safety instructions and warnings

Observe all safety instructions and warnings attached to the machine. Make sure that these signs are legible and replace damaged and illegible plates.

Modifications or changes in operating conditions

In the event of safety-relevant machine modifications or changes in operating conditions, stop the machine immediately and report the malfunction to the person responsible for the machine.

Rebuilds or modifications

Never make any unauthorized rebuilds and modifications which might impair safety. Any verbal agreements with the manufacturer or the design engineer require written confirmation.

Replacing damaged parts

Parts of the machine that are not in perfect working order must be replaced immediately with original spare parts (⇒ Sec. 9.0, Spare Parts).

Use only original spare and wearing parts from VOITH SULZER Stoffaufbereitung GmbH! Unauthorized parts provide no guarantee that they have been designed and manufactured according to the application. **Danger of accidents!**

Checks and maintenance

Adhere to prescribed intervals or intervals specified in the operating instructions for routine checks and maintenance work.

Working with hazardous substances

Make sure that dangers to the environment caused by hazardous substances are precluded when working on lubricating systems and devices and when cleaning the machine with solvent-containing detergents.

Lifting gears

Make sure that the lifting capacity of the lifting gears to be properly installed is at least equal to the weight of the machine or of the parts to be lifted (⇒ Sec. 3.3, Weights).

Guards

Guards must be removed only after the machine has been shut down and secured against restart.

Ensure that all guards have been fitted again before starting or restarting the machine.

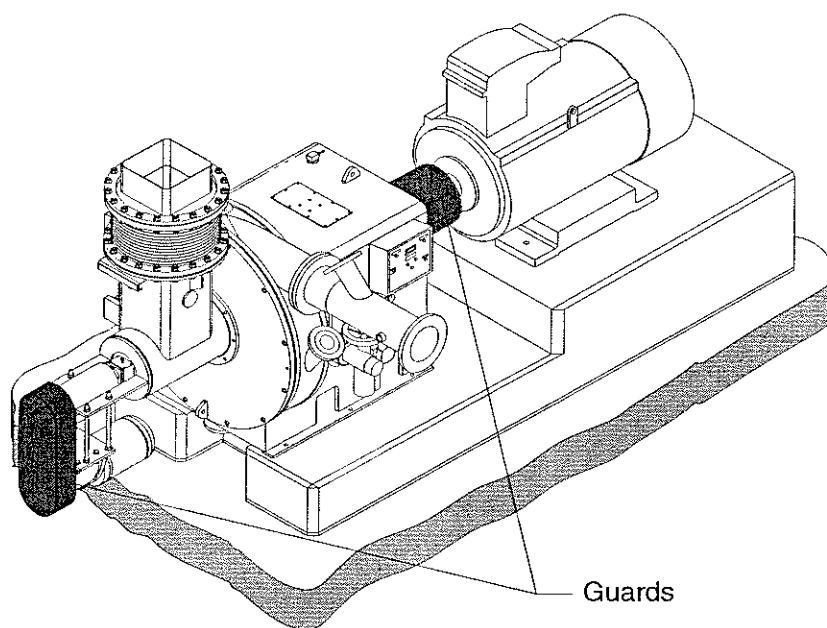
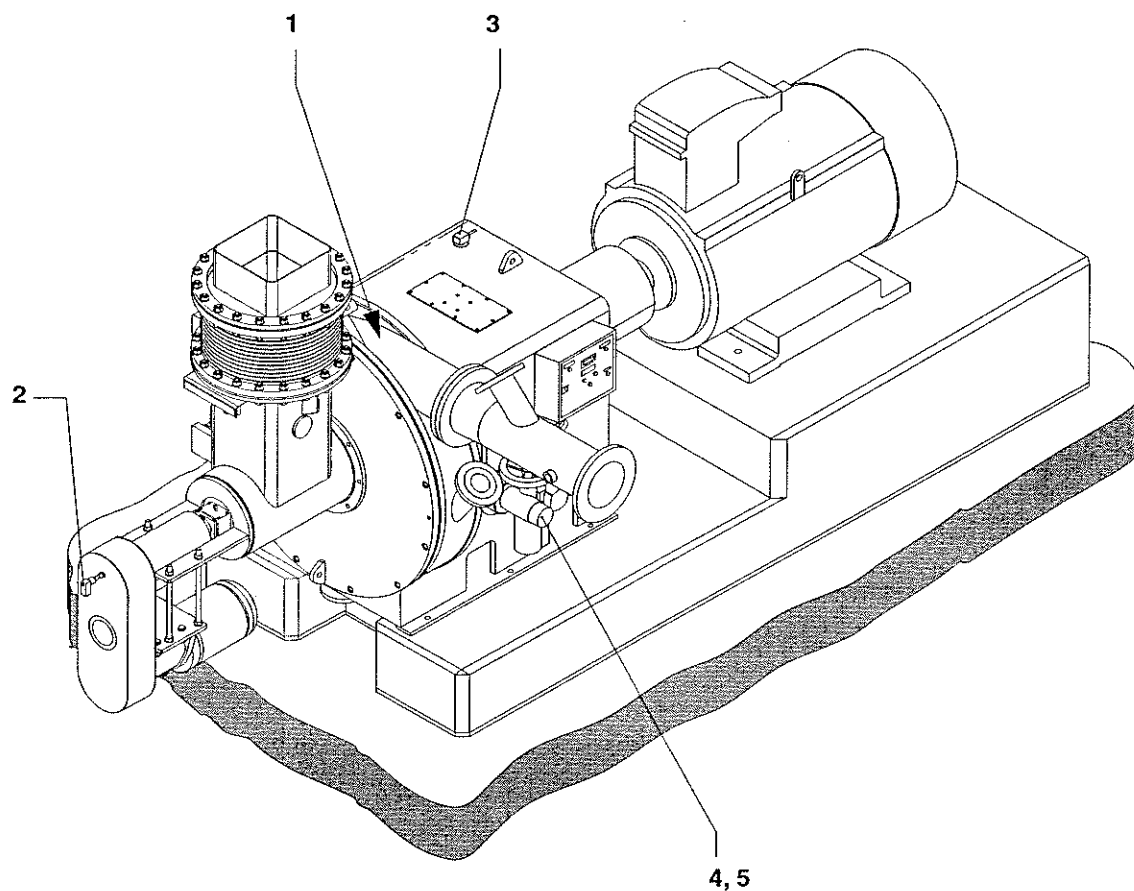


Fig. 2-1 Guards

Safety devices

Make sure that safety devices are neither removed nor bypassed.



- | | | | | | |
|---|---|---|--|---|-----------------------------------|
| 1 | Temperature monitoring unit in rotor casing | 3 | Oil level indicator in bearing housing | 5 | Torque control for rotor actuator |
| 2 | Zero-speed switch at belt drive | 4 | Travel limiter for rotor actuator of stock inlet | | |

Fig. 2-2 Safety devices on the disperger

2.4 Selection and qualification of personnel

Qualification of personnel

Any work on the machine must be executed only by trained and instructed personnel authorized by the owner.

Responsibilities

Responsibilities in the operation of the machine must be clearly established and observed, so that no unclear competences might impair safety.

Instructions contrary to safety

Give the operator the authority to refuse instructions by third parties that are contrary to safety.

Maintenance and repair

Maintenance and repair demand special knowledge and may only be carried out by trained technical specialists.

2.5 Noise protection

Depending on the operating conditions, place of installation, pipe runs, and other unit parts, the machine may produce a noise level which exceeds 70 dB (A).

Therefore, wear appropriate ear protection when working in the immediate vicinity of the machine in operation.

In general, the machine is operated/controlled from a sound-proof operating room.

2.6 Additional hazards

Entanglement, crushing and cut/sever hazards due to:

- moving machine parts left exposed by removing covers for inspection, sampling, etc.,
- running and exposed shafts, cylinders, drums, or belts,
- automatically operated discharge valve traps.

Burning or scalding hazards when

opening or keeping open function-check and/or sampling openings on equipment operating at high temperatures (above 40°C).

Harmful gases and vapours

Open covers may allow harmful gases or vapours to escape into the atmosphere.

Hazard of bursting sight glasses and glass cones due to:

- pressure pulses (caused, for example, by rapidly opening or closing shut-off elements),
- external blows.

3 Technical Data

3.1 Machine data

Machine design	HTD3-P
Serial No.	12976
Year of manufacture	1996

3.2 Filling

Filling type		G1
Filling design		Cast
Discharge method		Wet
Number of segments		8
Outer-Ø / Stator	mm	1,117
Outer-Ø / Rotor	mm	1,146

3.3 Weights

Disperger	kg	5,500
Coupling	kg	180
Rotor (without filling)	kg	444
Filling segment	kg	approx. 17

3.4 Operating data

Max. installable power	kW	1,000
Rotor speed	rpm	1,000
Max. adm. torque	Nm	9,540

3.5 Water supply

Dilution in rotor casing

Min. flushing-water line pressure	bar	3
Min. volumetric flushing-water flow	l/min	Depending on setting
Flushing water temperature	°C	

Filling flushing

Min. water pressure	bar	3
Water consumption	l/min	Depending on setting
Water temperature	°C	

3.6 Drive data

Main drive

Motor output	kW	1,000
Motor speed	rpm	1,000
Protection class		IP54

Drive / Feed screw

Motor output	kW	5.5
Motor speed	rpm	1,460
Geared motor/ output speed	rpm	260

3.7 Solenoid switch / KSR - float

Breaking capacity	W	40
Switching voltage	V	250
Ambient temperature	°C	150

4 Technical Description

4.1 Usage

Preprocessing

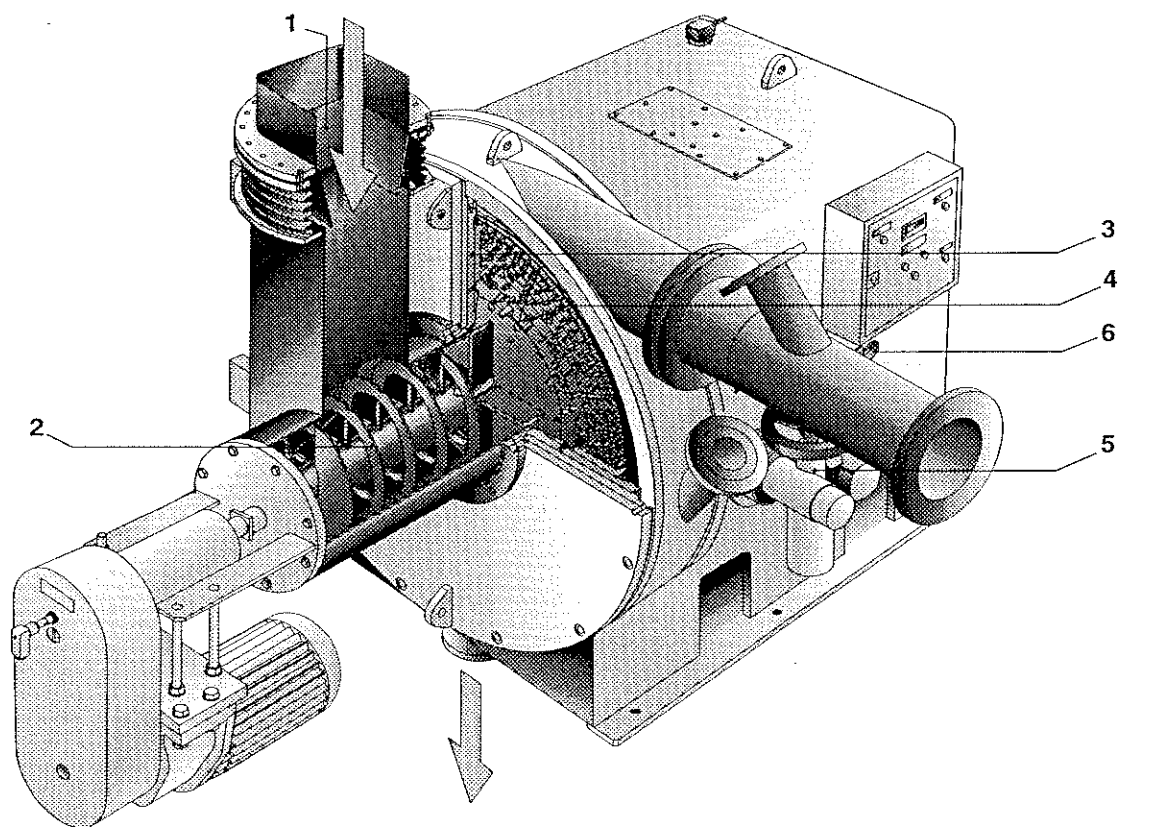
- Disperse the fibre bundle
- Improve the washability and flotability of disturbing components
- Allow flotability of ink particles clinging to fibres

Subsequent processing after screening and cleaning plants

- Disperse dirt specks, stickies and coating particles

Adding bleaching chemicals

4.2 Operating principle



- | | | |
|-----------------|------------------|--|
| 1 Stock feed | 3 Stator filling | 5 Actuating drive |
| 2 Feeding screw | 4 Rotor filling | 6 Oil level sight with temperature display |

Fig. 4-1 Disperger operating principle

Steam-heated stock (up to a max. of 130°C/27% stock density) falls in crumble consistency through the feed chute to the stock feed (Fig. 4-1/1). The feeding screw (Fig. 4-1/2) presses the stock between the rotor and stator filling (Fig. 4-1/3 and 4). The stock flows through the filling from the inside to the outside whereby dirt specks and stickies or flakes are pulped. The stock is pumped out of the machine through a tangential branch.

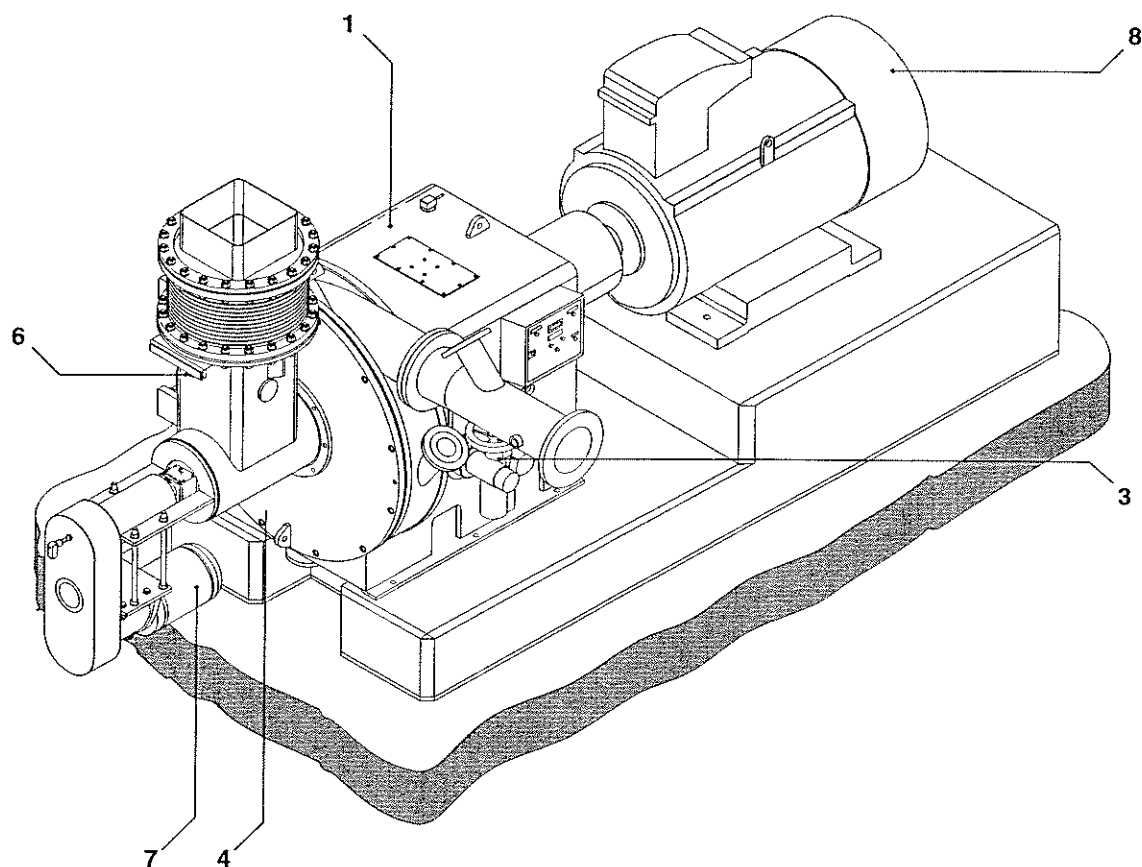
The power input is automatically controlled via a pressure transmitter in the stock outlet. The absorbed specific energy can thus be kept constant.

To compensate for wear, the rotor can be re-adjusted by an electro-mechanical actuating drive.

The filling must be flushed through during start-up and shutdown.

4.3 Design

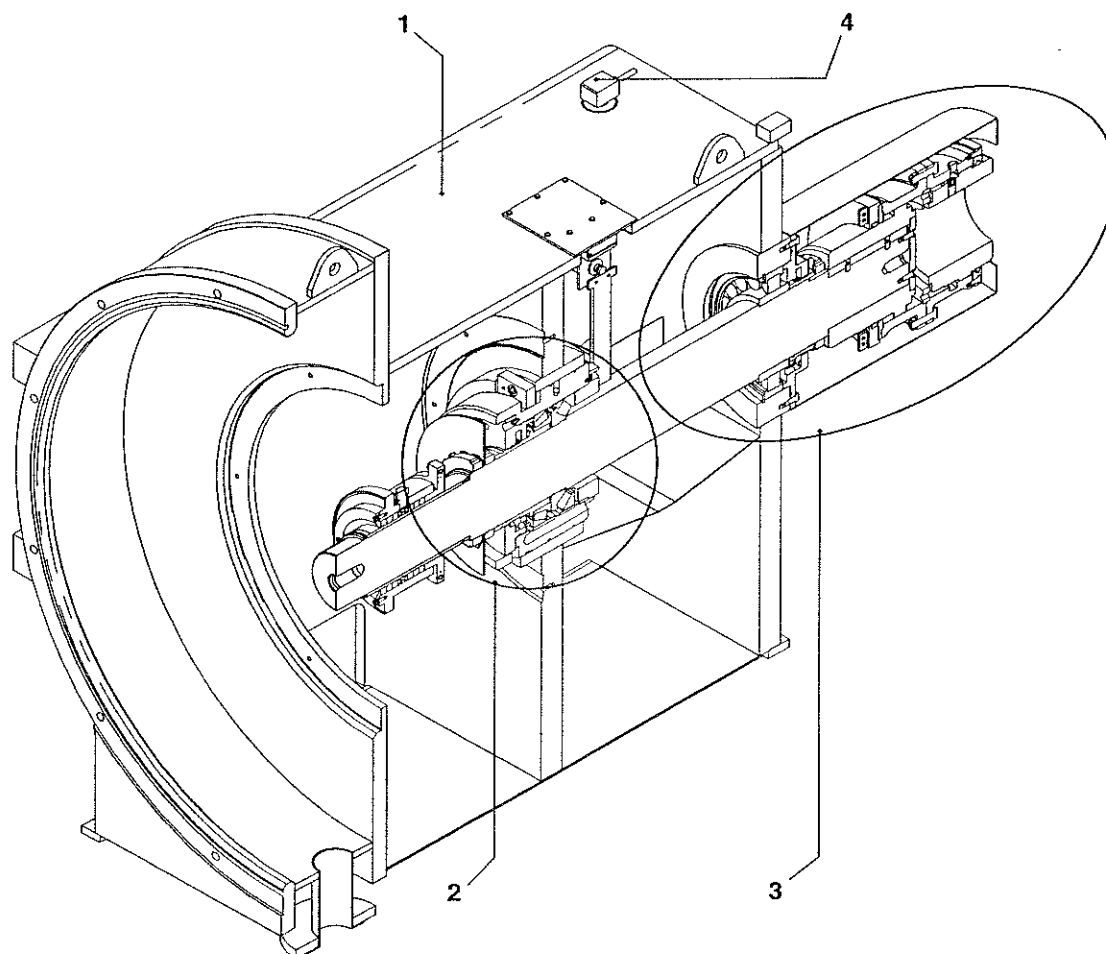
Component overview



- | | | |
|-------------------------|-------------------------|-----------------------|
| 1 Bearing with coupling | 4 Swing cover | 7 Drive to stock feed |
| 2 Rotor (not shown) | 5 filling (not shown) | 8 Drive |
| 3 Rotor adjustment | 6 Stock feed with drive | |

Fig. 4-2 Component overview

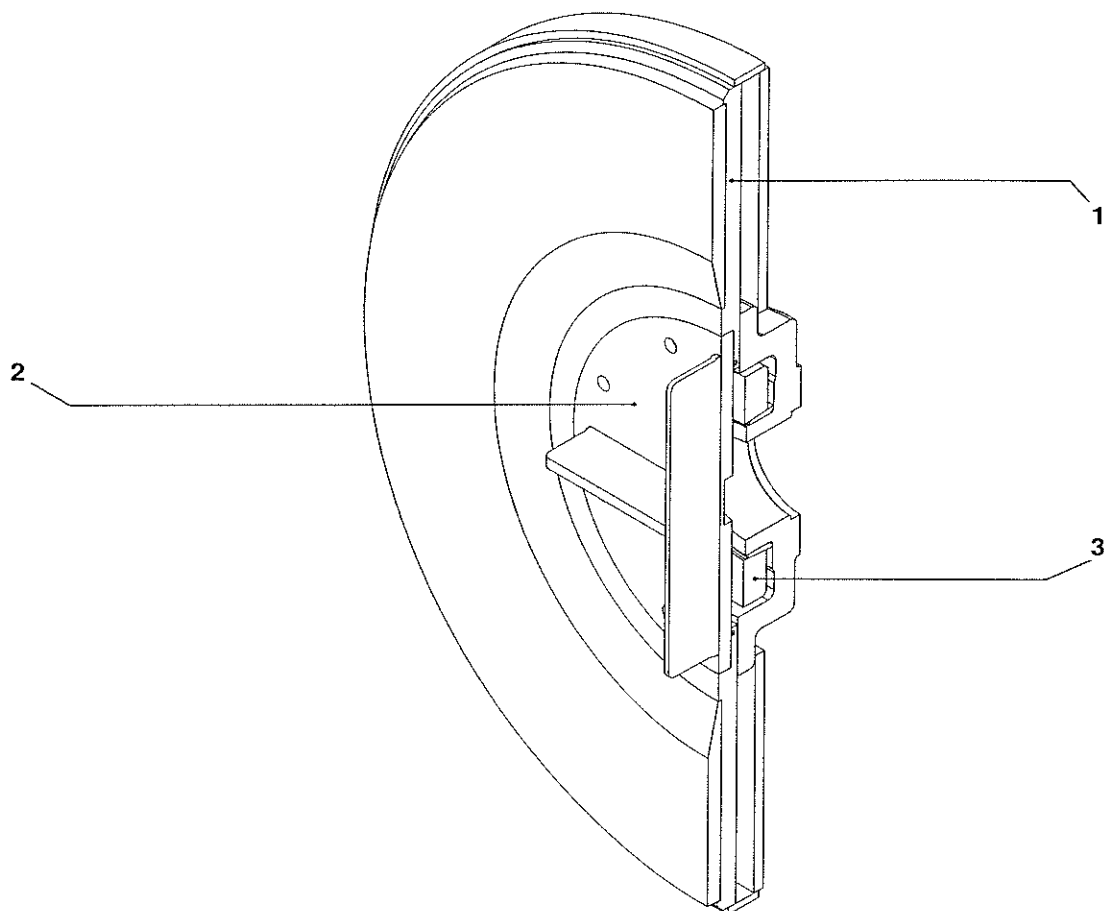
Bearing unit with coupling



- | | |
|---------------------|-----------------------------|
| 1 Bearing case | 3 Bearing with coupling |
| 2 Main bearing unit | 4 KSR-float magnetic switch |

Fig. 4-3 Bearing unit with coupling

Rotor



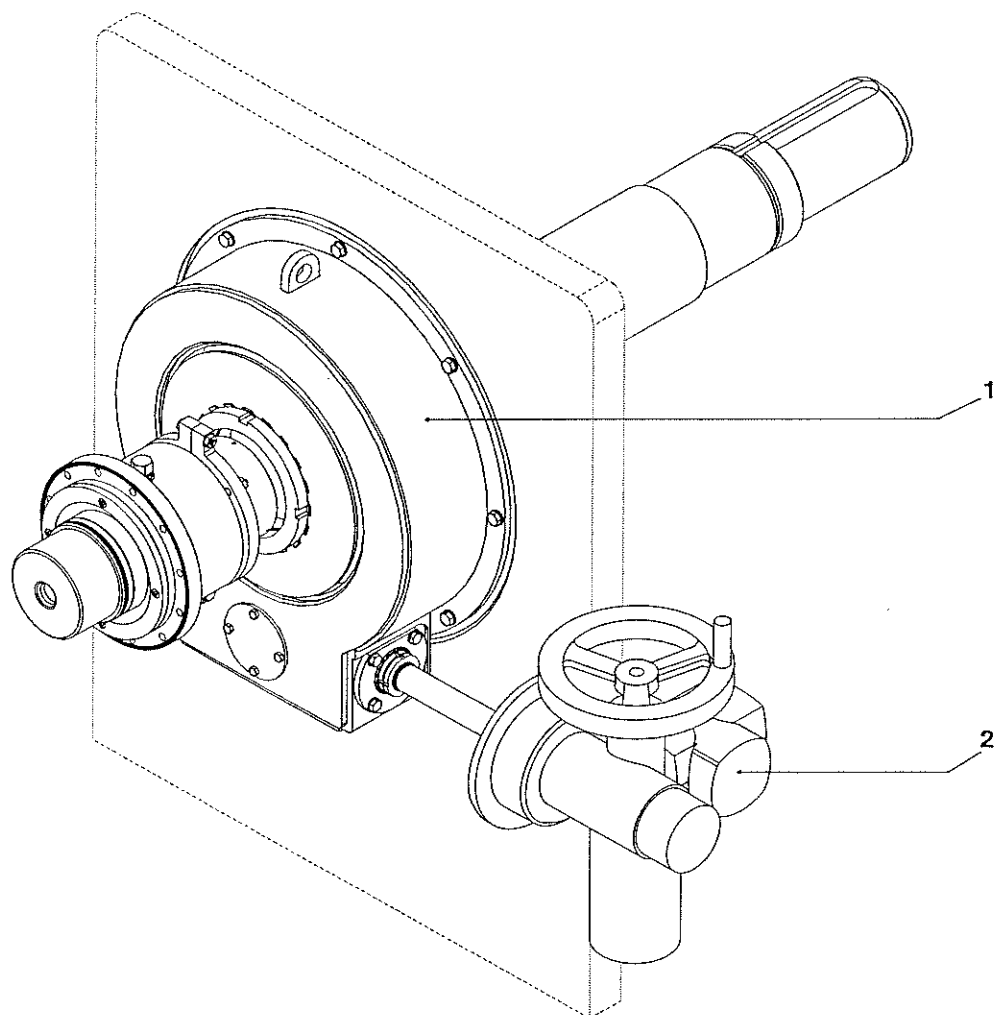
1 Rotor

2 Rotor cap

3 Shrink disc

Fig. 4-4 Rotor

Rotor adjustment

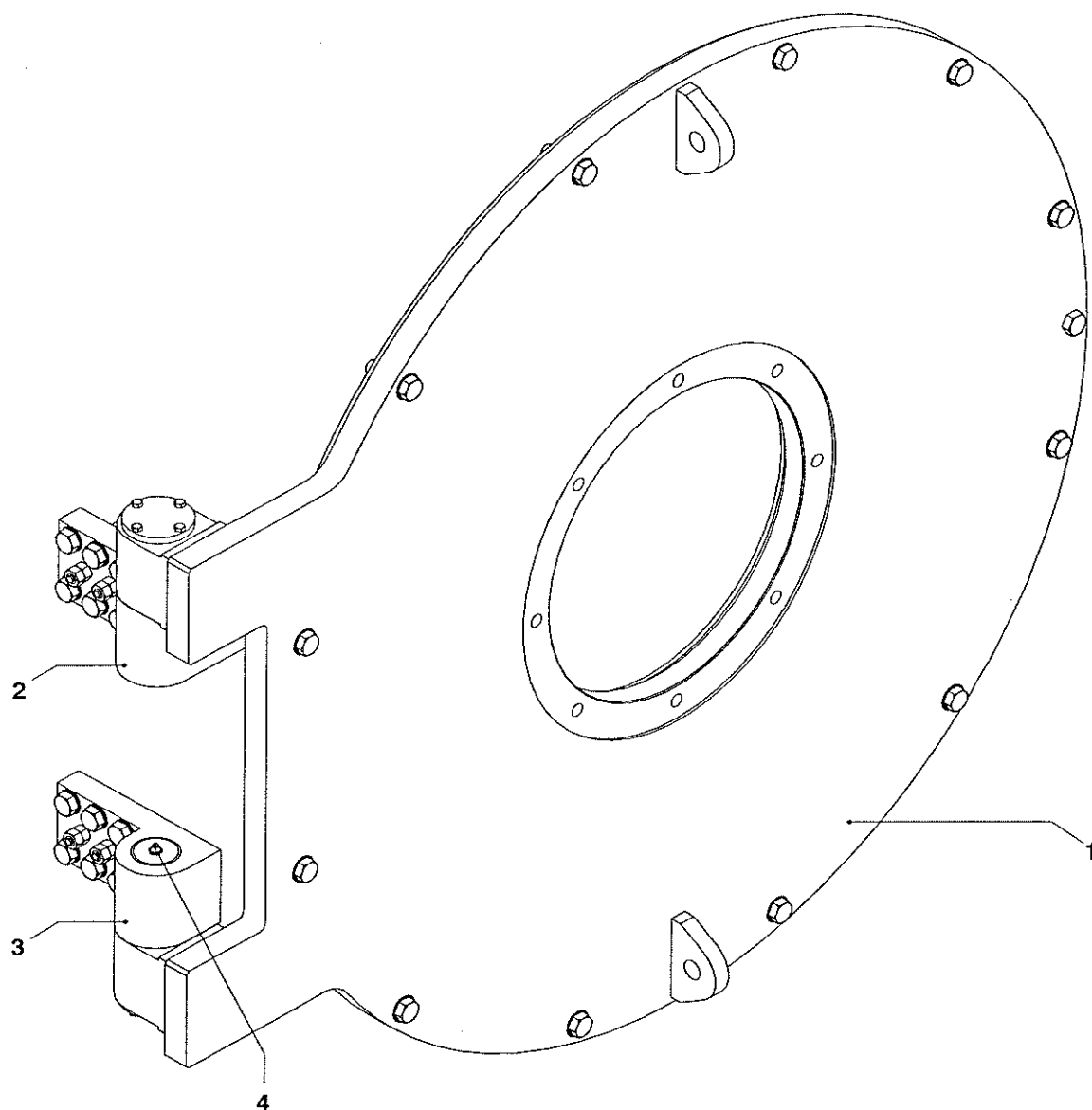


1 Casing

2 Electro-mechanical actuating
drive

Fig. 4-5 Rotor adjustment

Swing cover



1 Swing cover

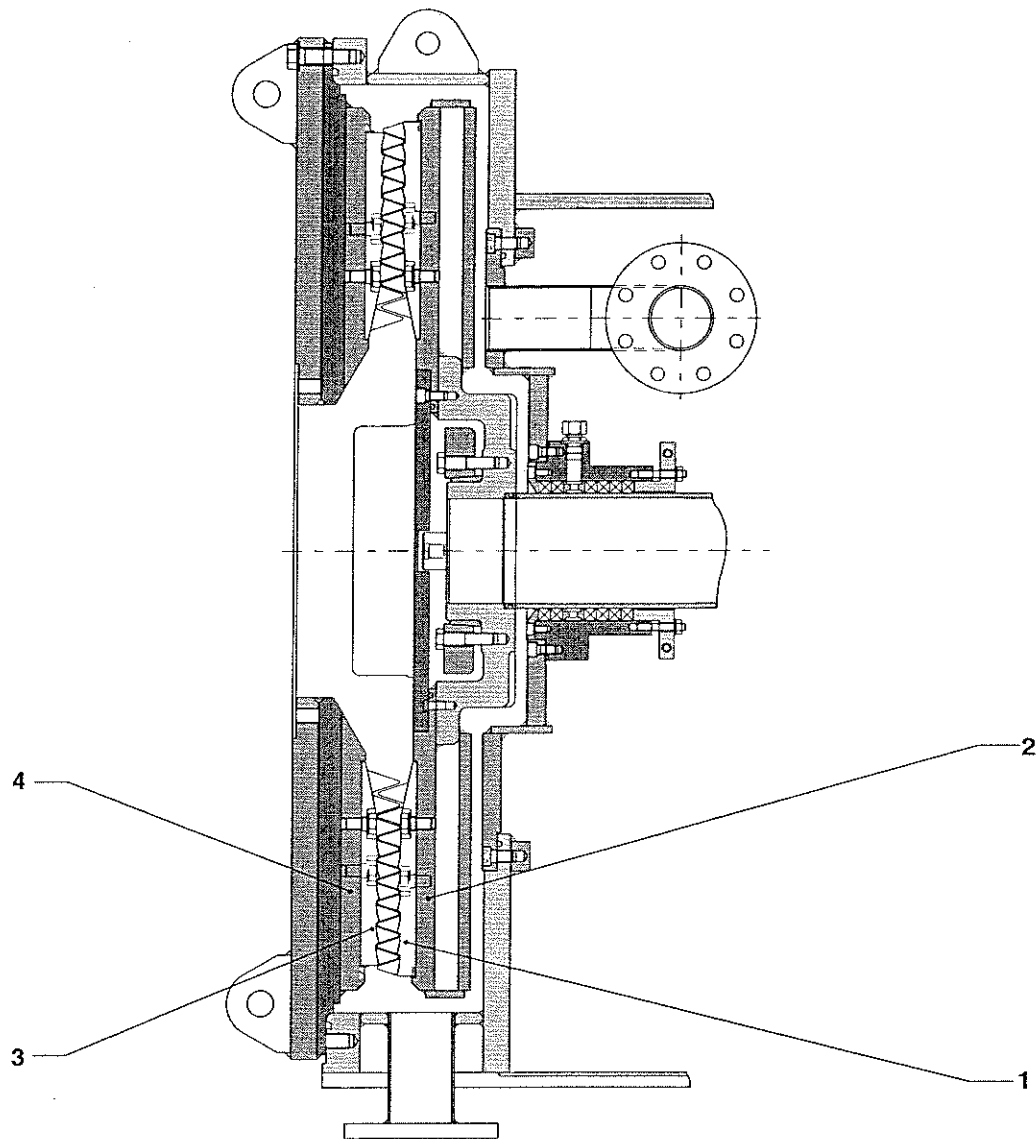
2 Hinge B

3 Hinge A

4 Lubrication nipple

Fig. 4-6 Swing cover

Filling



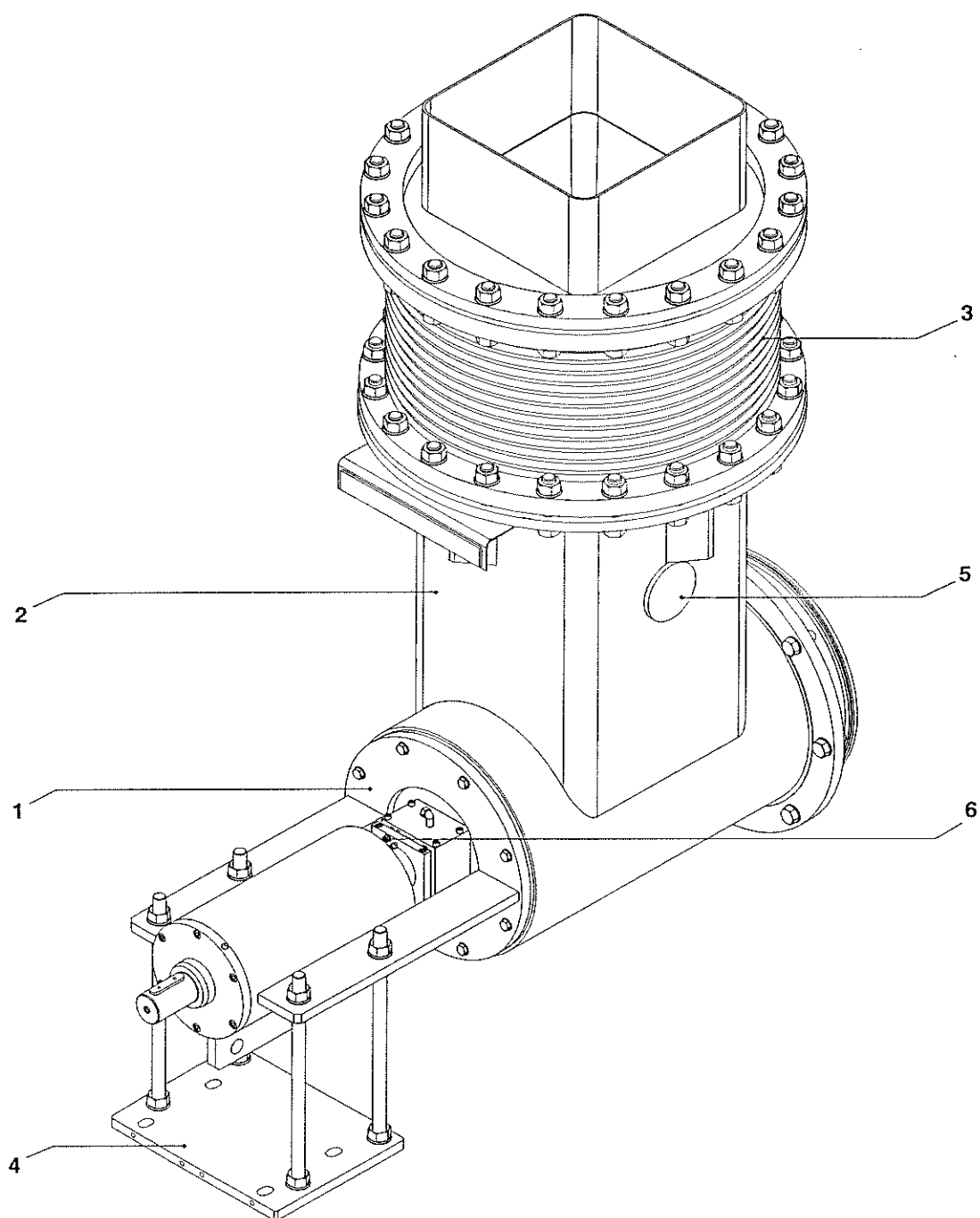
- 1 Rotor segment 8x
- 2 Segment retainer

- 3 Stator segment 8x

- 4 Segment retainer

Fig. 4-7 Filling

Stock feed with screw



1 Bearing casing

2 Screw casing

3 Compensator

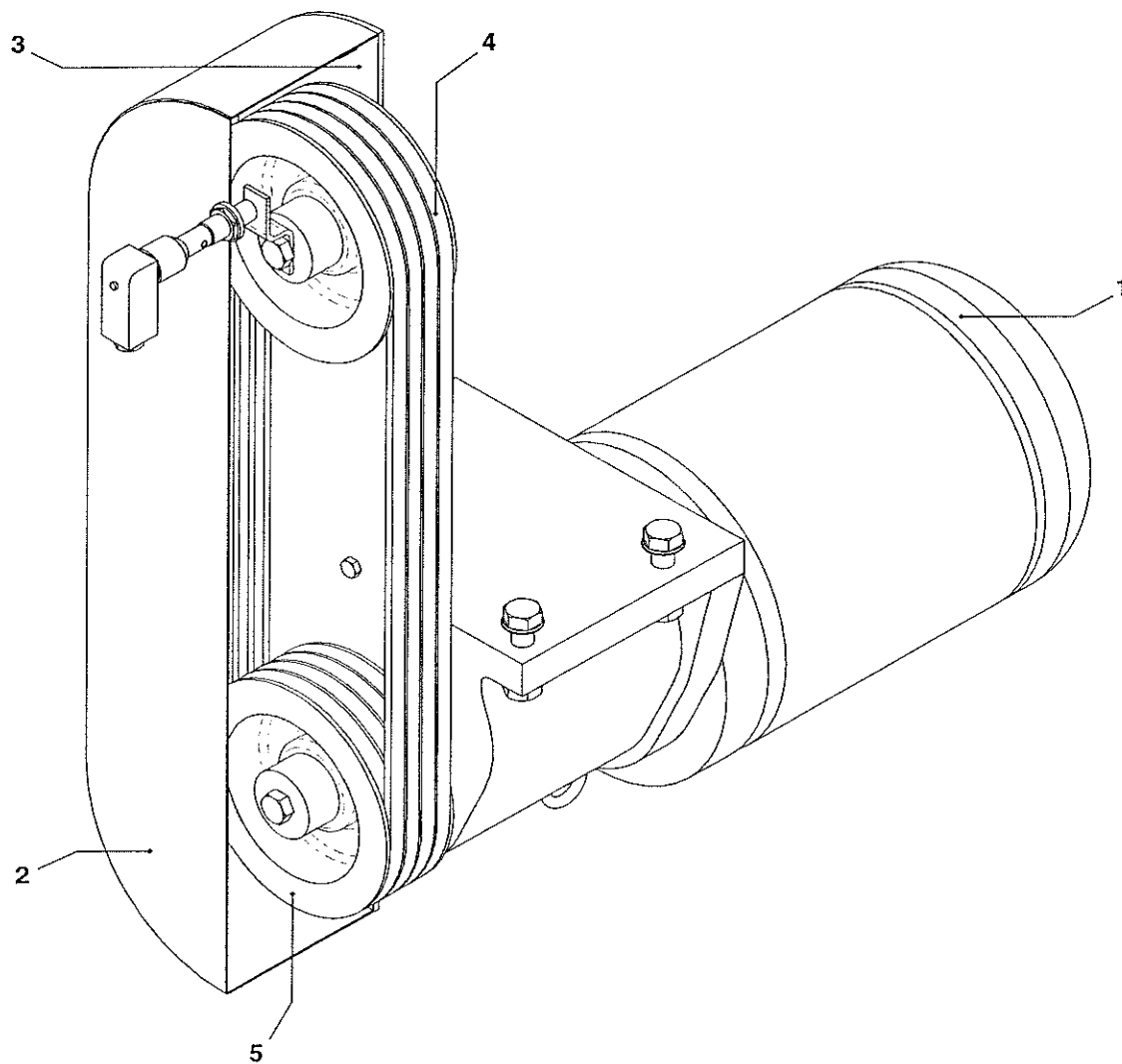
4 Plate

5 Cover

6 Lubrication nipple

Fig. 4-8 Stock feed with screw

Drive to stock feed



- | | | |
|-----------------|----------------------------|-----------------|
| 1 Geared motor | 3 Upper section / 2 pieces | 5 V-belt pulley |
| 2 Lower section | 4 V-belt | |

Fig. 4-9 Drive to stock feed

5 Installation

5.1 Unpacking the machine

- Loosen the machine fixing in the shipping case.
- Check consignment against delivery note for completeness.
- Check consignment for transport damage.
- Report transport damage immediately to VOITH SULZER Stoffaufbereitung GmbH.

5.2 Transporting the machine

The transport weight of the empty machine is approx. 5.5t.



Ensure that the ropes and lifting equipment are suitable for the transport weight of the empty machine.

Only use undamaged ropes and lifting equipment.

Only attach the ropes to the planned and marked positions.

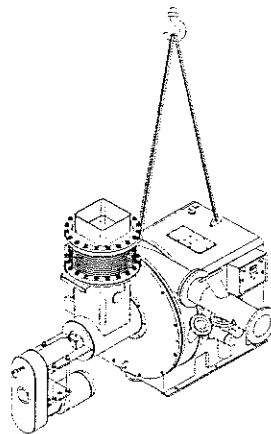


Fig. 5-1 Correct lifting of the machine

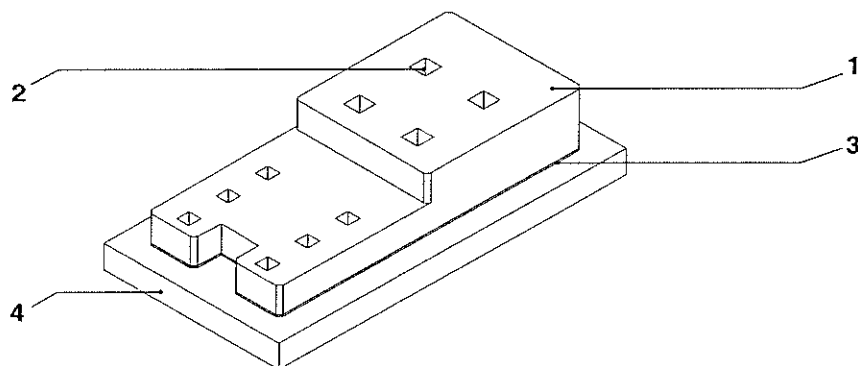
5.3 Disposing of packing materials

- Dispose of the packing materials in an environmentally-conscious manner.
- Return packing materials for recycling.
- ☐ Observe the applicable regulations.

The customer is responsible for laying the foundations.

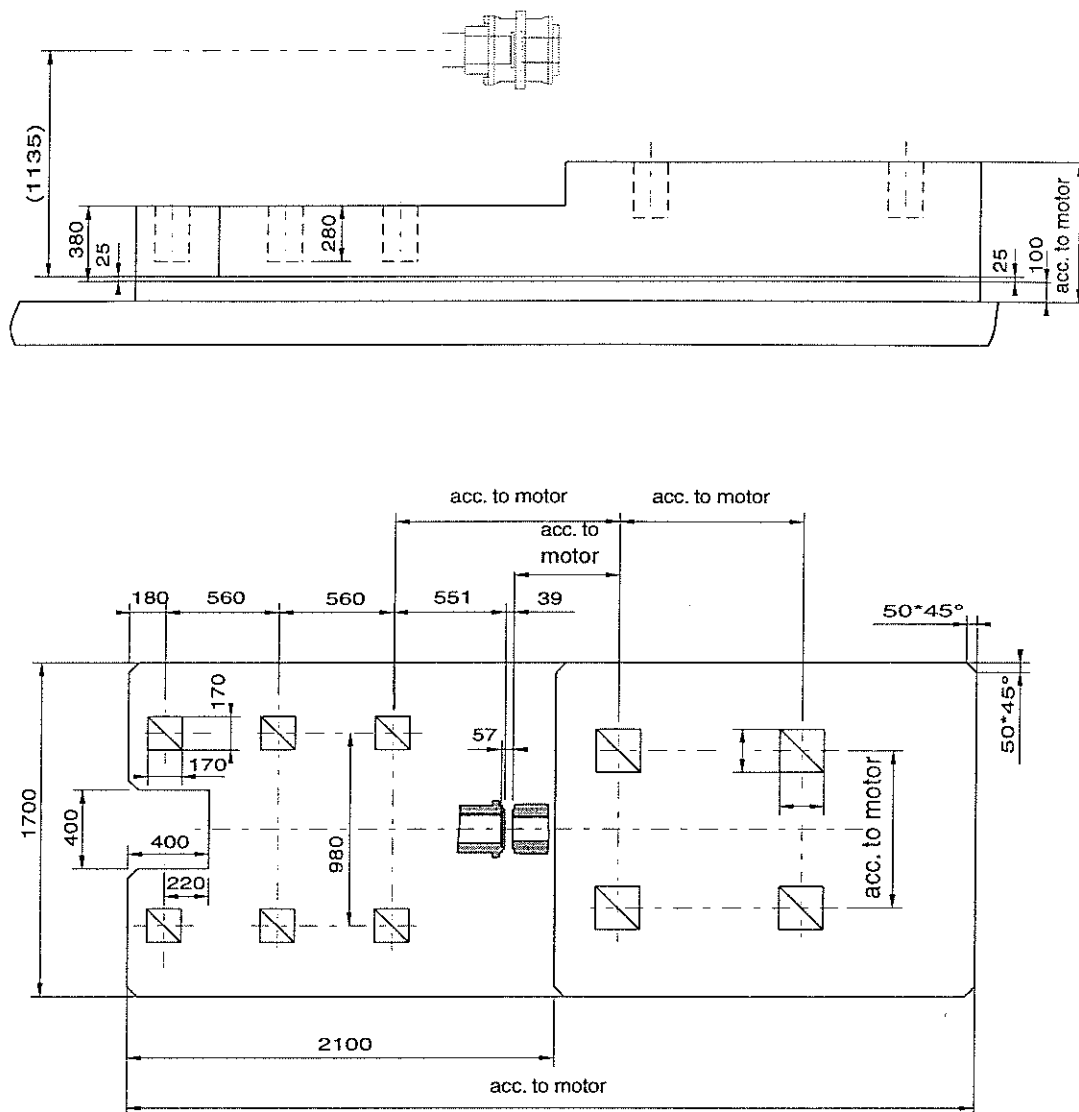
5.4 Laying the foundations

Foundation reinforcements are to be determined on-site. The foundation plan contains all dimensions necessary for laying the foundations (⇨ Fig. 5-3).



- | | | | |
|---|---------------------|---|-------------------------|
| 1 | Foundations | 3 | Sound insulation boards |
| 2 | Foundation recesses | 4 | Concrete base |

Fig. 5-2 Overall view



Foundations - general

Preparation

- Cut sound insulation boards to size and position them on the workshop floor
- Set up boarding as shown in the foundation plan (⇔ Fig. 5-3)
- Make and lay reinforcements
- Fill foundation recesses (⇔ Fig. 5-2/2) with filling materials

Concreting

- Mix and pour in concrete, allow to set in

Finishing work

- Remove boarding
- Remove filling materials
- Clean recesses

NOTICE

Do not use thinners otherwise the sealing mortar will not harden.



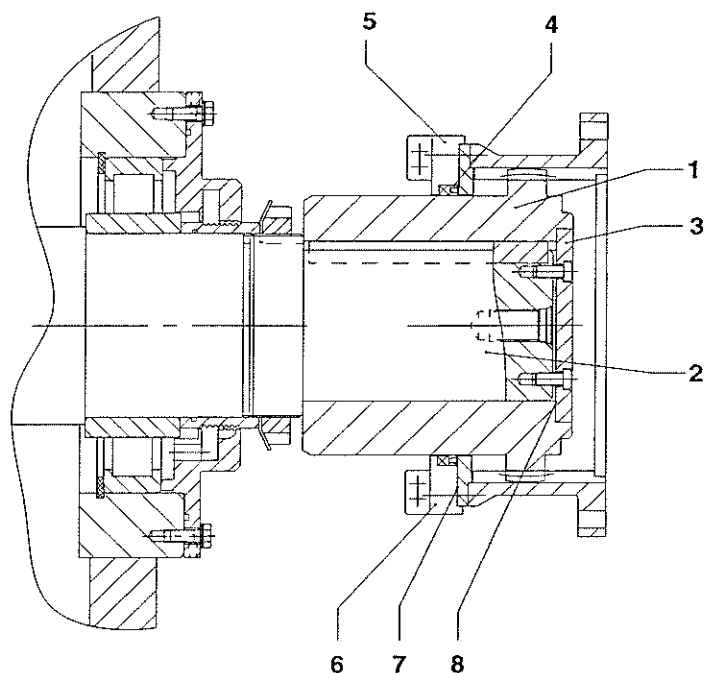
5.5 Setting up and aligning

Preconditions

- ✓ Foundations are prepared.

Machine

Preparation

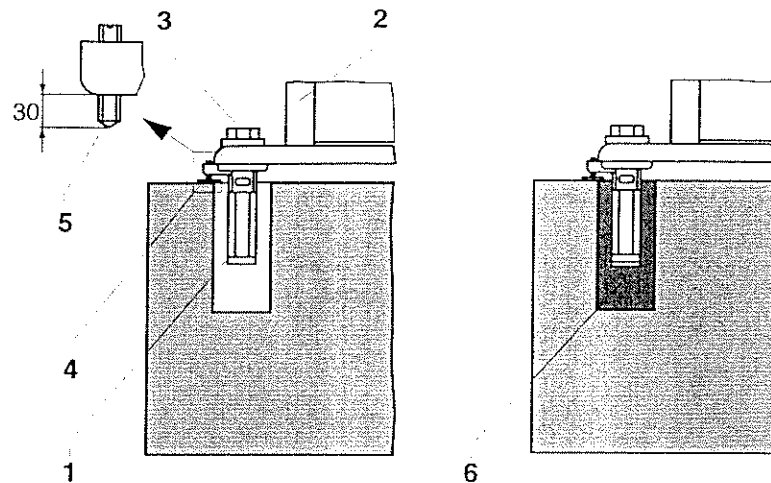


- | | | | |
|---|-----------------|---|-----------------------|
| 1 | Coupling half | 5 | Coupling cover, split |
| 2 | Disperger shaft | 6 | Contact surface |
| 3 | End plate | 7 | Contact surface |
| 4 | Seal | 8 | Contact surface |

Fig. 5-4 Mounting the coupling half

- Fill sealing groove (Fig. 5-4/4) with grease cushion.
- Push coupling half (Fig. 5-4/1) onto shaft (Fig. 5-4/2).
- Clean contact surfaces (Fig. 5-4/6, 7 and 8) with cold cleaner.
- Observe Flender operating instructions.
- Coat contact surfaces (Fig. 5-4/6, 7 and 8) with Flender sealing compound or Loctite 573.
- Mount end plate (Fig. 5-4/3).
- Mount coupling cover halves (Fig. 5-4/5).

Set-up



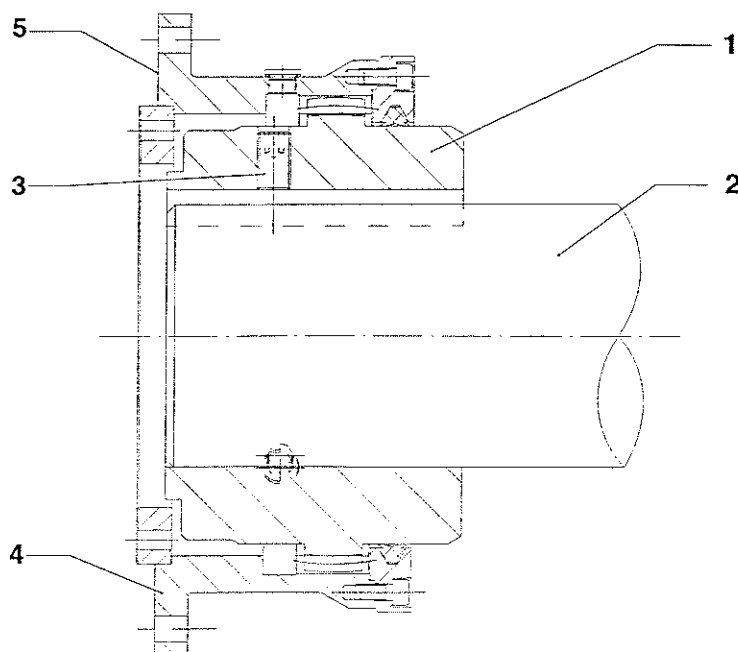
- | | |
|-------------------------------|-------------------|
| 1 Foundation blocks, 6 pieces | 4 Flat steel |
| 2 Machine | 5 Adjusting screw |
| 3 Hexagon bolts M24, 6 pieces | 6 Sealing mortar |

Fig. 5-5 Setting up the machine

- Hang the Machine (Fig. 5-5/2) on a crane (⇒ Fig. 5-1, Correct lifting of the machine)
- Fix the foundation blocks to the machine with 6 x hexagon bolts (Fig. 5-5/3)
- Position the flat steel (Fig. 5-5/4)
- Screw the adjusting screw (Fig. 5-5/5) in to the specified depth
- Lower the machine onto the flat steel
- Position the machine according to the foundation plan
- Turn the adjusting screw (Fig. 5-5/5) to align the machine horizontally
- Mix and pour in the sealing mortar (Fig. 5-5/6) and allow to set in
- Slightly tighten the bolts (Fig. 5-5/3)

Motor

Preparation

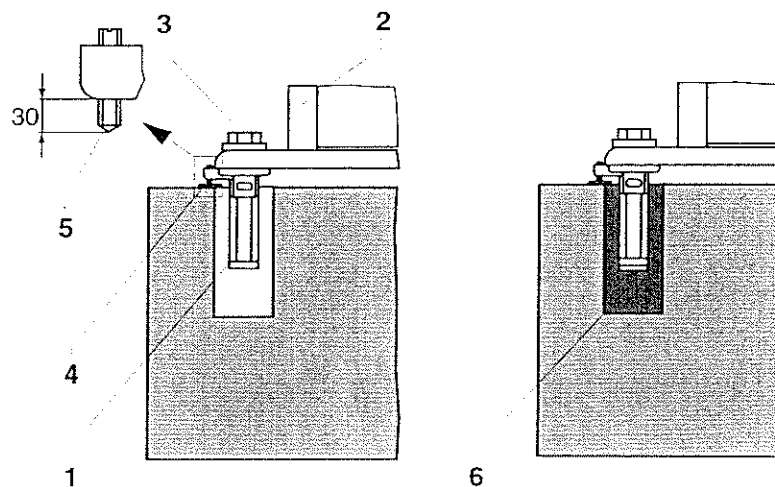


- | | | | |
|---|---------------|---|-----------------------|
| 1 | Coupling half | 4 | Coupling cover, split |
| 2 | Motor shaft | 5 | Contact surface |
| 3 | Stud bolt | | |

Fig. 5-6 Mounting the coupling half

- Push coupling half (Fig. 5-6/1) onto shaft (Fig. 5-6/2).
- Position coupling half as shown in Fig. 5-6 and fasten with stud bolt (Fig. 5-6/3).
- Clean contact surface (Fig. 5-6/5) with cold cleaner.
- Observe Flender operating instructions.
- Coat contact surface (Fig. 5-6/5) with Flender sealing compound or Loctite 573.
- Mount coupling halves (Fig. 5-6/4).

Set-up



- | | |
|-------------------------------|-------------------|
| 1 Foundation blocks, 4 pieces | 4 Flat steel |
| 2 Motor | 5 Adjusting screw |
| 3 Hexagon bolts M24, 4 pieces | 6 Sealing mortar |

Fig. 5-7 Setting up the motor

- Hang the motor (Fig. 5-7/2) on a crane
- Fix the foundation blocks to the motor with 4 x hexagon bolts (Fig. 5-7/3)
- Position the flat steel (Fig. 5-7/4)
- Screw the adjusting screw (Fig. 5-7/5) in to the specified depth
- Lower the motor onto the flat steel
- Turn the adjusting screws (Fig. 5-7/5) to align the motor horizontally
- Set correct clearance between motor and machine shaft journals (⇒ Fig. 5-8, Journal clearance machine - motor)

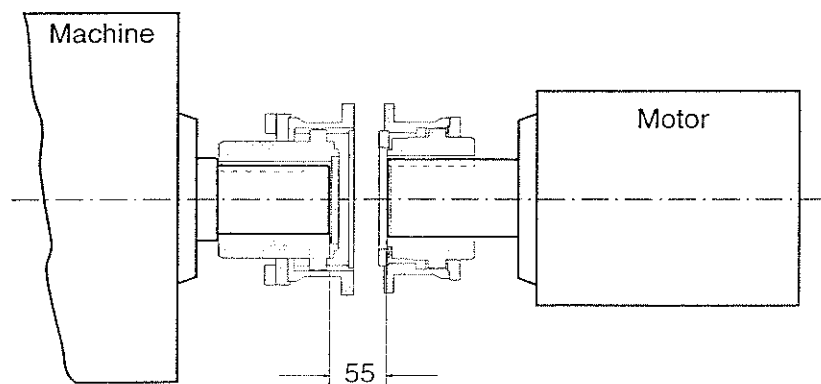
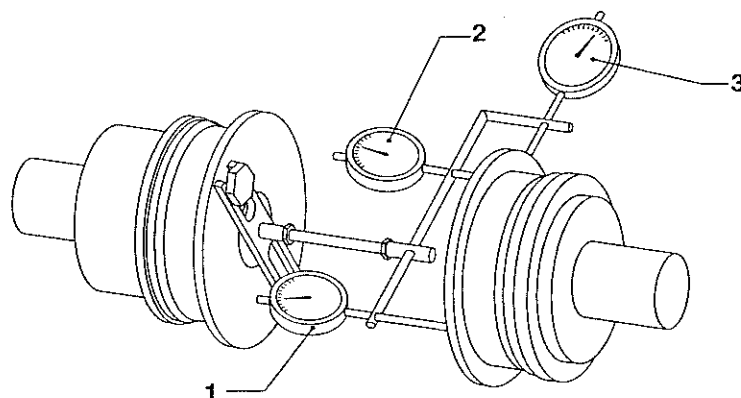


Fig. 5-8 Journal clearance machine - motor

- Adjust the centric alignment of the machine and motor shaft
(⇒ Fig. 5-9, Align motor to machine) (Measuring device not in machine scope of delivery)

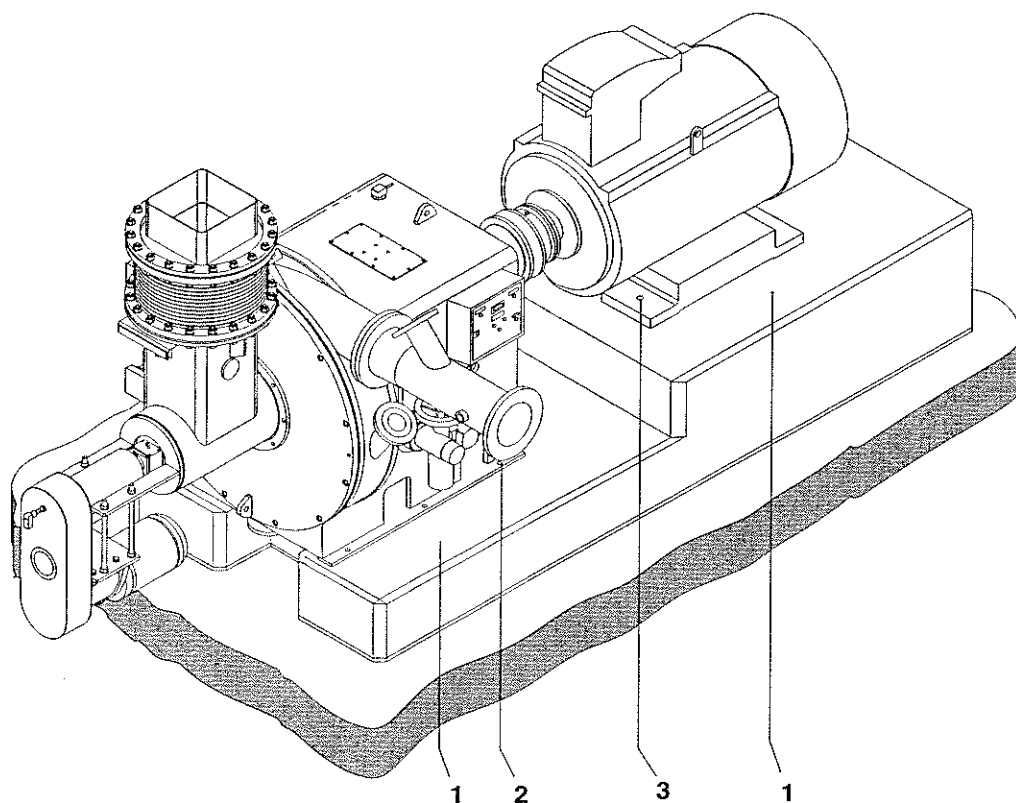


- 1 Dial gauge to determine the axial deviation
- 2 Dial gauge to determine the axial deviation
- 3 Dial gauge to determine the radial deviation

Fig. 5-9 Align motor to machine

- Mix and pour in the sealing mortar (Fig. 5-7/6) and allow to set in
- Slightly tighten bolts (Fig. 5-7/3)

Apply finishing mortar for machine and motor

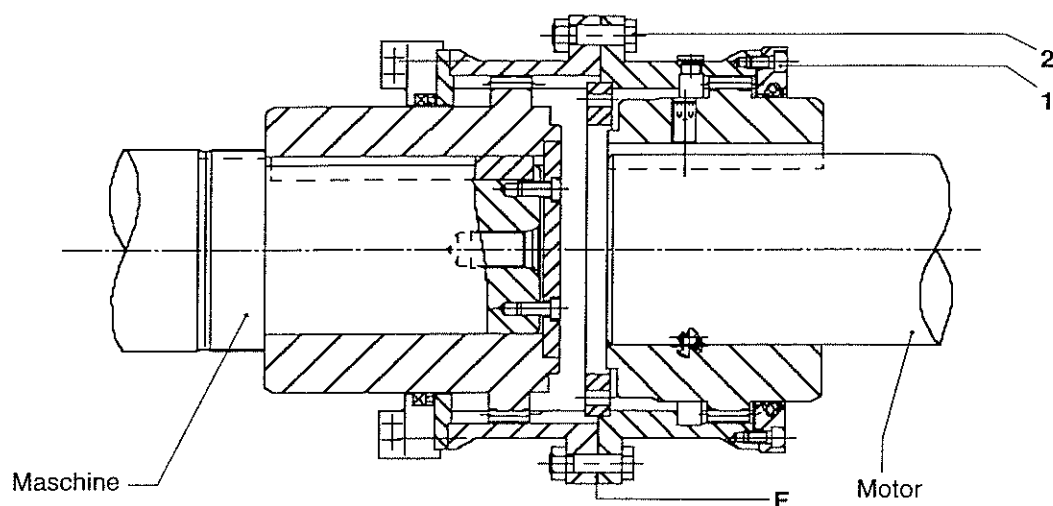


- 1 Finishing mortar
- 2 Fastening bolts for the machine
- 3 Fastening bolts for the motor

Fig. 5-10 Apply finishing mortar for machine and motor

- Set up boarding for the finishing mortar
- Mix and pour in the finishing mortar (Fig. 5-10/1) and allow to set in
- Remove boarding
- Tighten the fastening bolts (Fig. 5-10/2 and 3)

Fitting the coupling



1 Socket head cap screws

2 Dowel screws

Fig. 5-11 Fitting the coupling

Preconditions

- ✓ Coupling halves are mounted to disperger shaft and motor shaft.
- ✓ Adhere to the installation and operating instructions V 432 from Flender to ensure proper use of the ZWN 342 coupling.
- ✓ All contact surfaces are clean.
- ✓ Lubricants must be clean and applied according to required specifications.

Operating material required

- Sealing compound or Loctite 573 Part No. 0614042
- Gear oil VG 680 (DIN 51519 at 40°C)

Special tools required

- Torque spanner up to 210 Nm min.

Fit the coupling

- Clean contact surface F with cold cleaner.
- Use a clean brush to coat the contact surface F with the sealing compound delivered by Flender or with Loctite 573.
- Close coupling.
- Tighten socket head cap screws (Fig. 5-11/1) with 49 Nm.
- Tighten dowel screws (Fig. 5-11/2) with 210 Nm.

5.6 Connecting

Machine

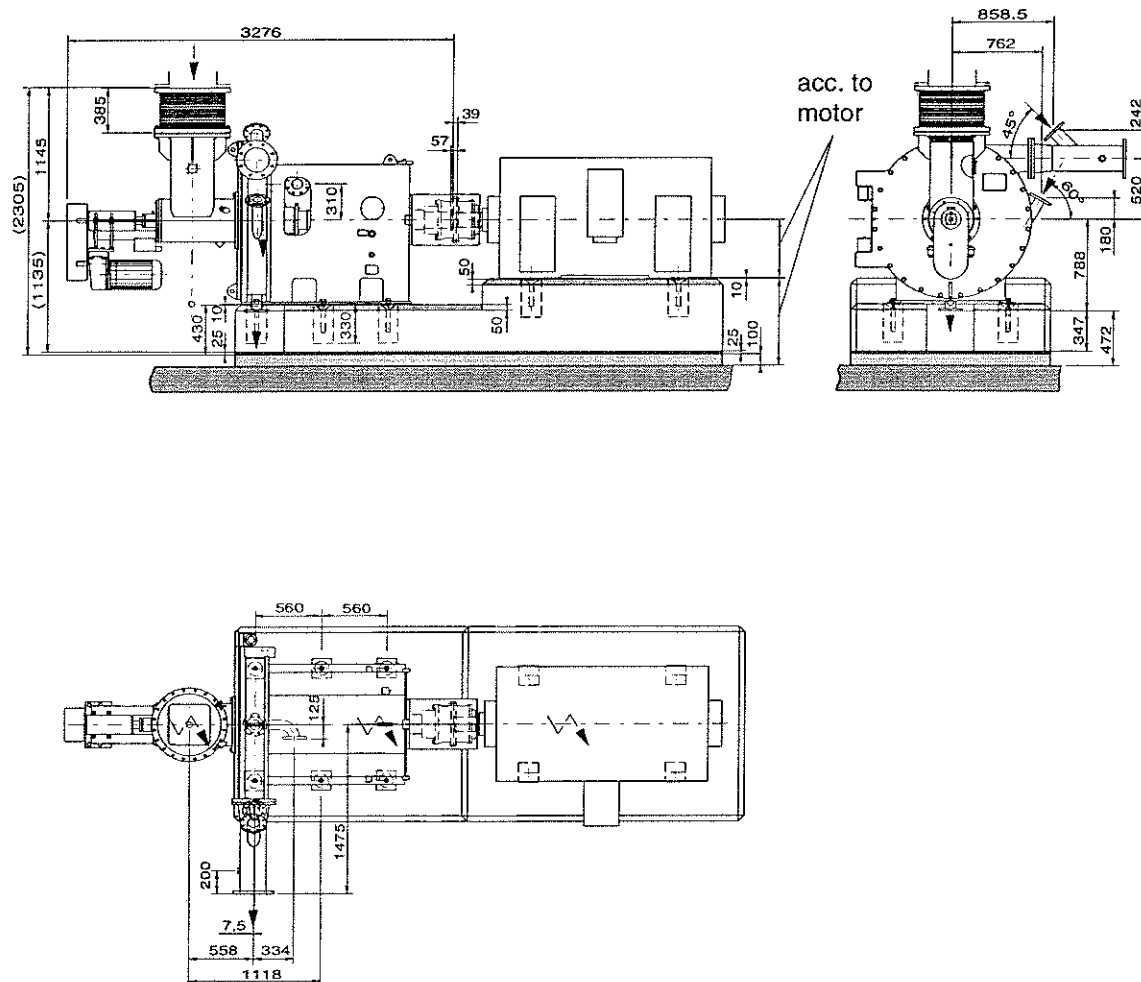


Fig. 5-12 Connection plan

Pipework

The inlet and outlet circuits can be positioned more or less as required. In order to avoid disturbing deposits, for example in dead corners, the single pieces of pipework should be flanged exactly centric.

NOTICE

All pipework must be connected completely free of tension

and not joined with force using fastening screws.

Support or suspend circuits so that they do not swing or affect the machine during operation, for example through pipework expansion caused by heat.

Sample ports

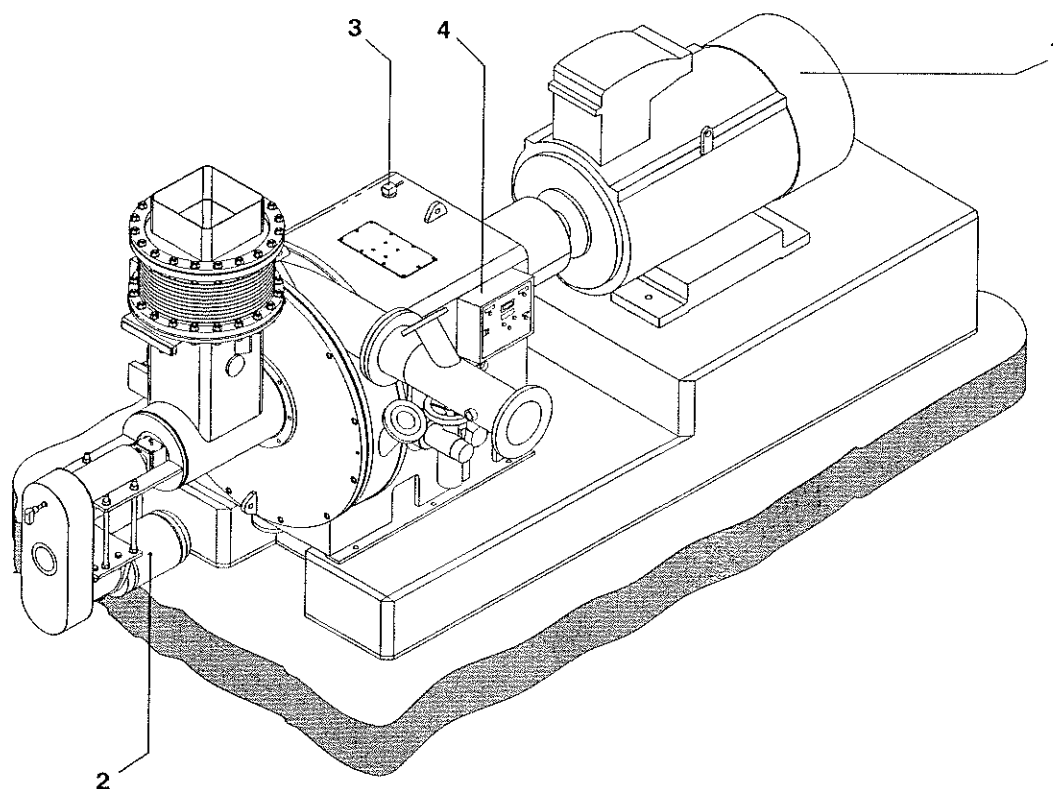
The disperger is to be equipped with appropriate sampling valves and fittings.

NOTICE

If the sampling ports are opened while the machine is pressurized, hot stock coming out of the machine may cause burns on hands and face.

Never open sampling ports while machine is pressurized.

Electricity



1 Main drive
2 Screw drive

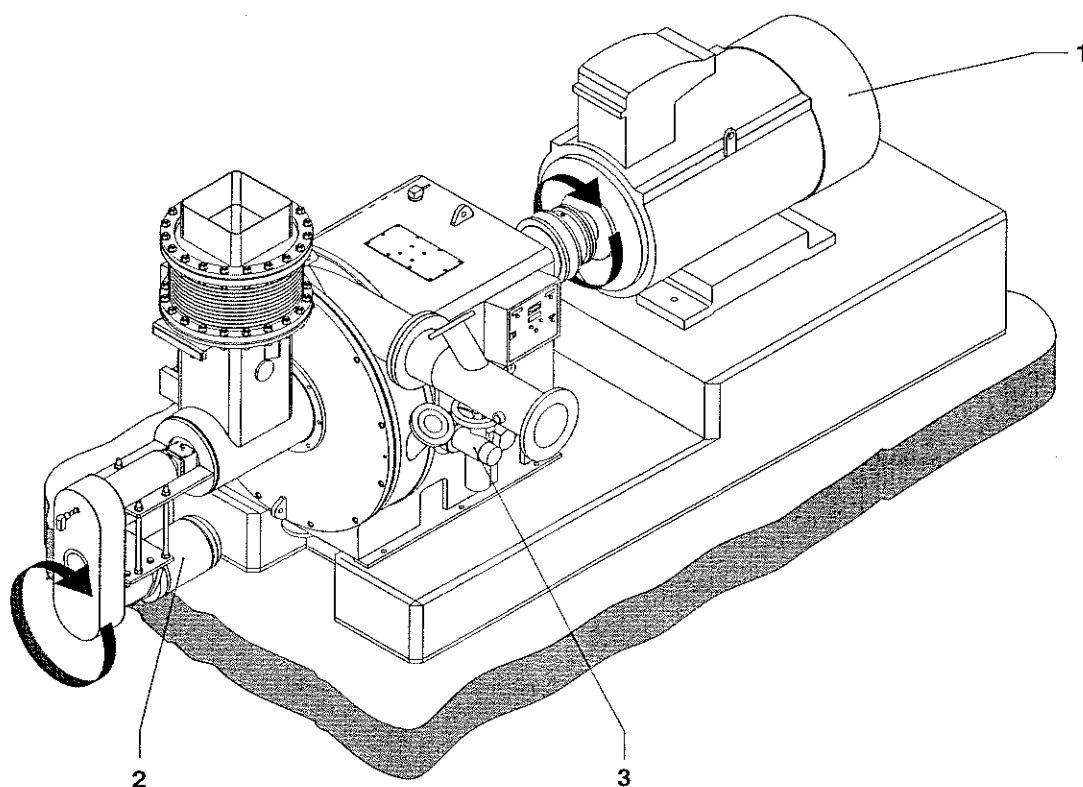
3 Oil-level indicator

4 Digital display

Fig. 5-13 Electrical connections

- Connect main drive (Fig. 5-13/1)
- Connect screw drive (Fig. 5-13/2)
- Connect oil-level indicator (Fig. 5-13/3)
- Connect digital display (Fig. 5-13/4).

5.7 Checking rotation direction



1 Main drive

2 Stock feed drive

3 Actuator

Fig. 5-14 Rotation directions

Main drive

Preconditions

- ✓ Motor is connected electrically.

Rotation direction check

- Switch motor on for a short time.
- The motor must rotate clockwise as seen on the drive journal (⇒ Fig. 5-14, Rotation directions).
- Switch the motor off again
- Fit the coupling protection

Stock feed drive

Preconditions

- ✓ Gear motor is connected electrically.

Rotation direction check

- Switch gear motor on for a short time.
- ☐ Gear motor must rotate counter-clockwise as seen on the drive journal (⇒ Fig. 5-14, Rotation directions).
- Switch gear motor off again.

Actuating drive

Preconditions

- ✓ Actuating drive is connected electrically
- ✓ Switch is changed over to „Local“.

Rotation direction check

- Operate „+“ pushbutton.
- ☐ Displayed numerical value must increase.

5.8 Fitting the belt pulleys

Preconditions

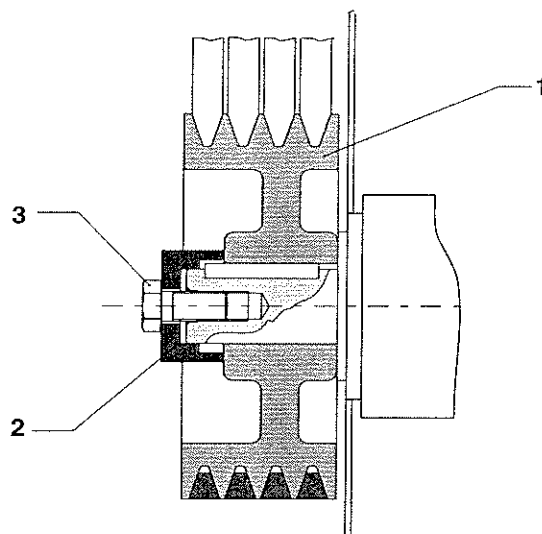
- ✓ Main switch is switched off and secured against unintentional switching-on
- ✓ V-belt is removed

Parts

Part No.	Qty.	Designation
	1	Belt pulley for motor
	1	Belt pulley for machine

Tab. 5-1 Parts for fitting V-belts

Fitting



- | | |
|---------------|--------|
| 1 Belt pulley | 3 Bolt |
| 2 End plate | |

Fig. 5-15 Fitting and removing the belt pulleys

- Push belt pulley (Fig. 5-15/1) onto shaft.
- Position end plate v(Fig. 5-15/2).
- Insert and tighten bolt (Fig. 5-15/3).

Removal

- Loosen bolt (Fig. 5-15/3).
- Remove end plate (Fig. 5-15/2).



Always secure belt pulleys with a crane before removing them.

The belt pulley can be damaged when slipping down from the shaft journal.

- Remove belt pulley (Fig. 5-15/1) from shaft.

5.9 Fitting the V-belts

Preconditions

- ✓ Main switch is switched off and secured against unintentional switching-on
- ✓ Motor and machine belt pulleys are fitted.

Position V-belts

- Set the minimum centre clearance between motor journal and rotor shaft for V-belt fitting.
- Position V-belts

Tension V-belts

- Tension V-belts with the correct initial tension (⇒ Fig. 5-16, Standard values for tensioning and Tab. 5-2, Control data).
- Rotate the drive several times so that the tension is evenly spread across all V-belts.
- Check parallel alignment of gear journal and screw journal by measuring the distance on the tension bolts.



Loose V-belts can lead to reductions in performance, heavier wear (smell of rubber), and even to screen blockage.

The V-belt tension must be readjusted after several hours of operation.

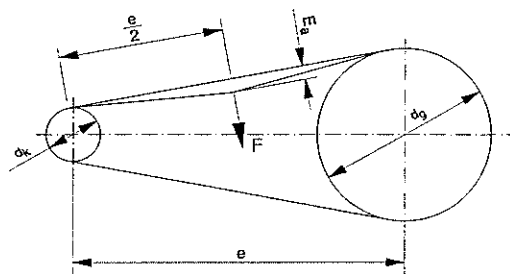


Fig. 5-16 Standard values for tensioning

Motor belt pulley-Ø d_g	mm	200
Screw belt pulley-Ø d_k	mm	180
Centre distance e	mm	370
Test load per V-belt F	N	75
Deflection E_a	mm	12.6

Tab. 5-2 Control data

5.10 Preparing for initial start-up

Preconditions

- ✓ Machine is fully installed and connected
- ✓ Coupling protection is removed
- ✓ Main switch is switched off and secured

Flush

- Flush machine and circuits thoroughly

Lubricate

- Check that all lubricating points are lubricated. (⇒ Sec. 8.2, Lubrication)

Checklist

Component	Nominal status	Checked
Connections (⇒ Sec. 5.6, Connecting)	-allocation correct -screws tightened	
Rotor	Radial movement possible	
Protection fixture	Installed	
Safety devices	Installed and correctly adjusted	
Emergency switch	Position known	

Tab. 5-3 Checklist

The machine is ready for operation when all items in the checklist have been controlled.

5.11 Dismantling

Preconditions

- ✓ Main switch OFF
- ✓ Machine is empty and cleaned

Dismantle

- Loosen all connections
- Loosen all foundation screw connections

The machine can now be lifted and transported to the desired position.

6 Operation

6.1 Safety information for operation

Protection devices

Rotating parts such as V-belts, couplings, shafts, rotors etc. can grasp loose clothing, long hair, jewellery or parts of the body.

You can be seriously injured or even killed.

The machine must never be used without the necessary protection devices.

Safety devices

The machine must never be operated without the required safety devices.

Protection of persons

Unplanned incidents which can injure persons can occur at anytime.

In order to be able to react quickly, check the location of the NOT-AUS (emergency) switch every time before putting the machine into operation and check whether it works as well.

Safe operation

This machine can be operated under pressure. Therefore it must be ensured that casing covers, service openings, windows etc. are properly closed with undamaged, reliable fixing materials.

Covers which suddenly blow off can cause serious injuries and scalding.

The machine must never be used at a pressure above the maximum allowable operating pressure of 2.0 bar.

This pressure is reached when the disperger is run at 130°C. A higher temperature is not allowed.

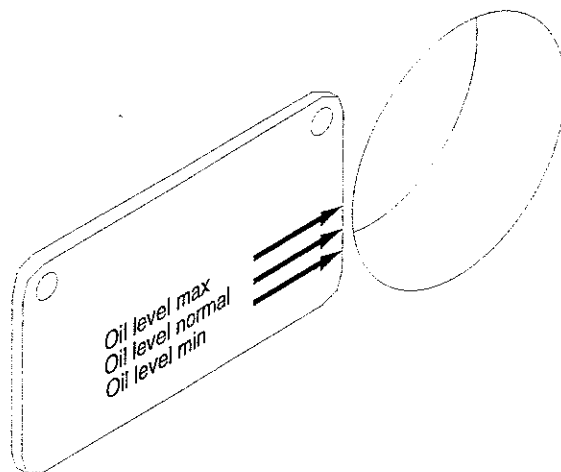
6.2 Measures before start-up

Preconditions

- ✓ Disperger is cleaned and closed.
- ✓ Main switch is switched on.
- ✓ Protection devices are fitted.

Measures

- Check the oil level in the main bearing assembly.



- Visually control the disperger system

6.3 Conditions for optimal operation

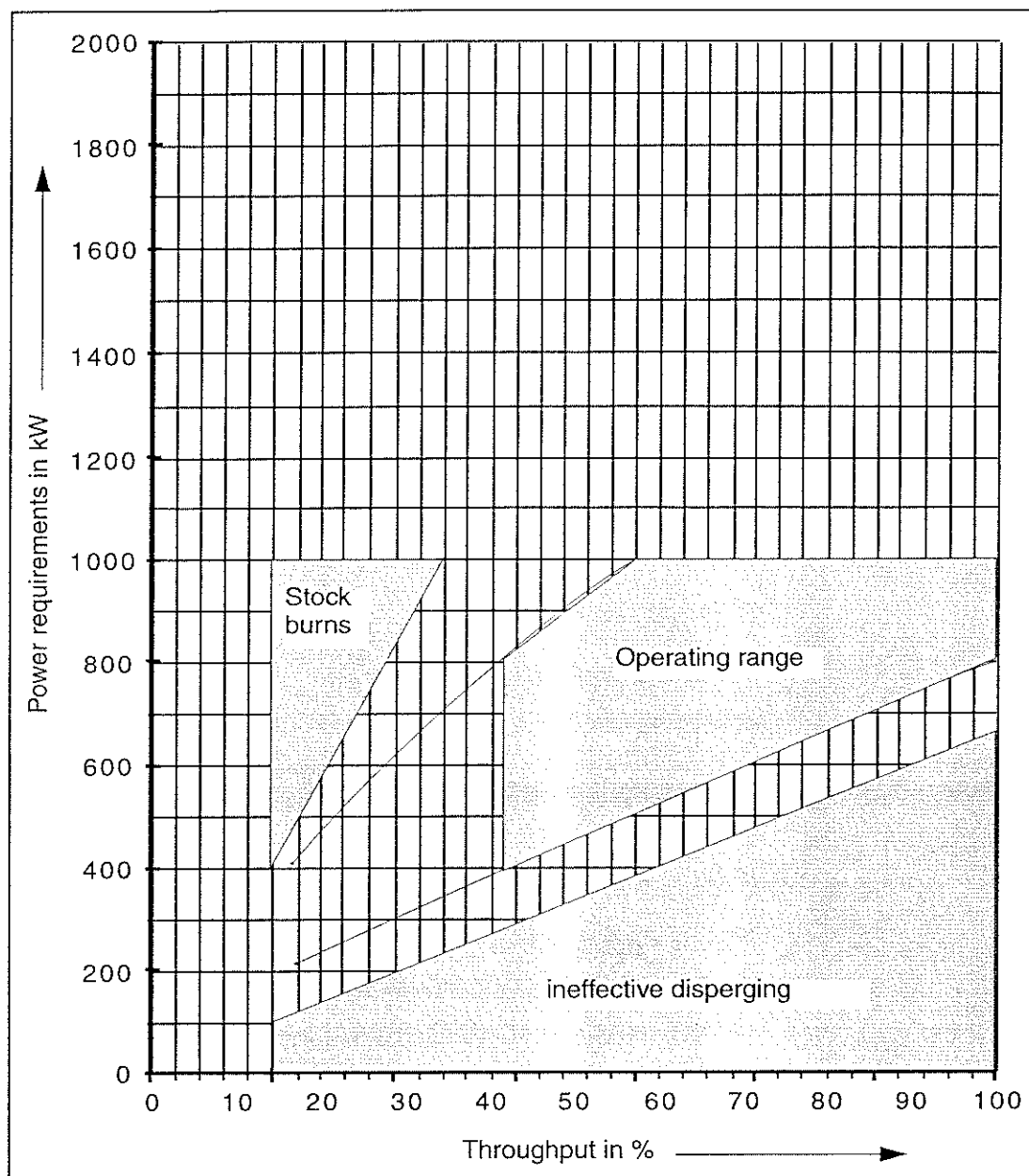


Fig. 6-1 Adjusting the throughput using the power requirements

6.4 Start-up

Precondition

- ✓ All installed interlocks function

Starting up

- Use the process control system, with the installed hardware and software, to put the disperger into operation.

6.5 Checks during operation

Disperger

- Check oil level indicator in bearing housing.
- Check oil temperature.

Heating screw

- Check pressure monitoring unit.
- Check temperature.

Check specific energy against nominal value

Filling

- Check filling clearance.
- ☐ Filling gap should be between 0.5 and 5 mm.
- Adjust stock density at the double wire press as required.

Rotor casing

- Check temperature monitoring unit.
- ☐ Temperature must not exceed 120°C.

Steam circuit

- Check the steam pressure relative to the desired stock temperature.
- Check sensors and valves.

Check power requirements using the DCS

- ☐ Observe setpoint values and measured values.

Stock quantity

- Check the wire press speed.

6.6 Shutdown

- Use the distributed control system, with the installed hardware and software, to shut the disperger down.

6.7 Prolonged shutdown

- Thoroughly flush the machine and pipework.



Never use petrol or other flammable materials for cleaning purposes. Do not point the nozzle directly at seals or electrical circuits when using steam jet cleaners, cover the parts first.

- Thoroughly clean the inside and outside of the machine.

7 Troubleshooting

Fault	Possible causes	Fault clearance	Remarks
Low disperger effect	Specific disperger energy too low	Increase power setpoint value	
		Check press pressures	
		Check filling for wear	
		Replace filling when necessary	
Disperger motor load too high	Specific disperger energy too high	Increase stock density after the wire press	
	Temperature before disperger too low	Reduce power setpoint value	
		Reduce press pressures	
Stock burns	Throughput too low	Increase temperature setpoint value	
		Control steam feed	
	Specific disperger energy too high		
Steam emission at ascending screw	No filling flushing water during shut-down	Increase throughput	
		Reduce power setpoint value	
		Check filling flushing water	
Steam emission at ascending screw	Steam feed too high	Check temperature control or measurement	
	Throughput too low	Increase throughput	
Filling wear too high	Stock not cleaned sufficiently	Check screening or cleaning stage	

Tab. 7-1 Troubleshooting

8 Maintenance

8.1 Safety information for maintenance work

Guards

Ensure that all necessary guards are refitted after completion of all maintenance work.

The customer has to install on site guards protecting against burns caused by touching hot surfaces $> 75\text{ }^{\circ}\text{C}$.

Safety devices

Make sure that all safety devices work properly after completion of all maintenance work.

Protection of persons

Before starting maintenance work, ensure that the main switches of the machine and all previous and following machines are switched off and protected against unintentional switching on.

Also ensure that the machine and all stock circuits leading to the machine are empty and non-pressurised.

Safe operation

In order to ensure safe operation after completion of maintenance work, only original, undamaged fastening materials (screws, washers, safety elements, nuts etc.) as well as new seals may be used during refitting.

8.2 Lubrication



Interval
yearly

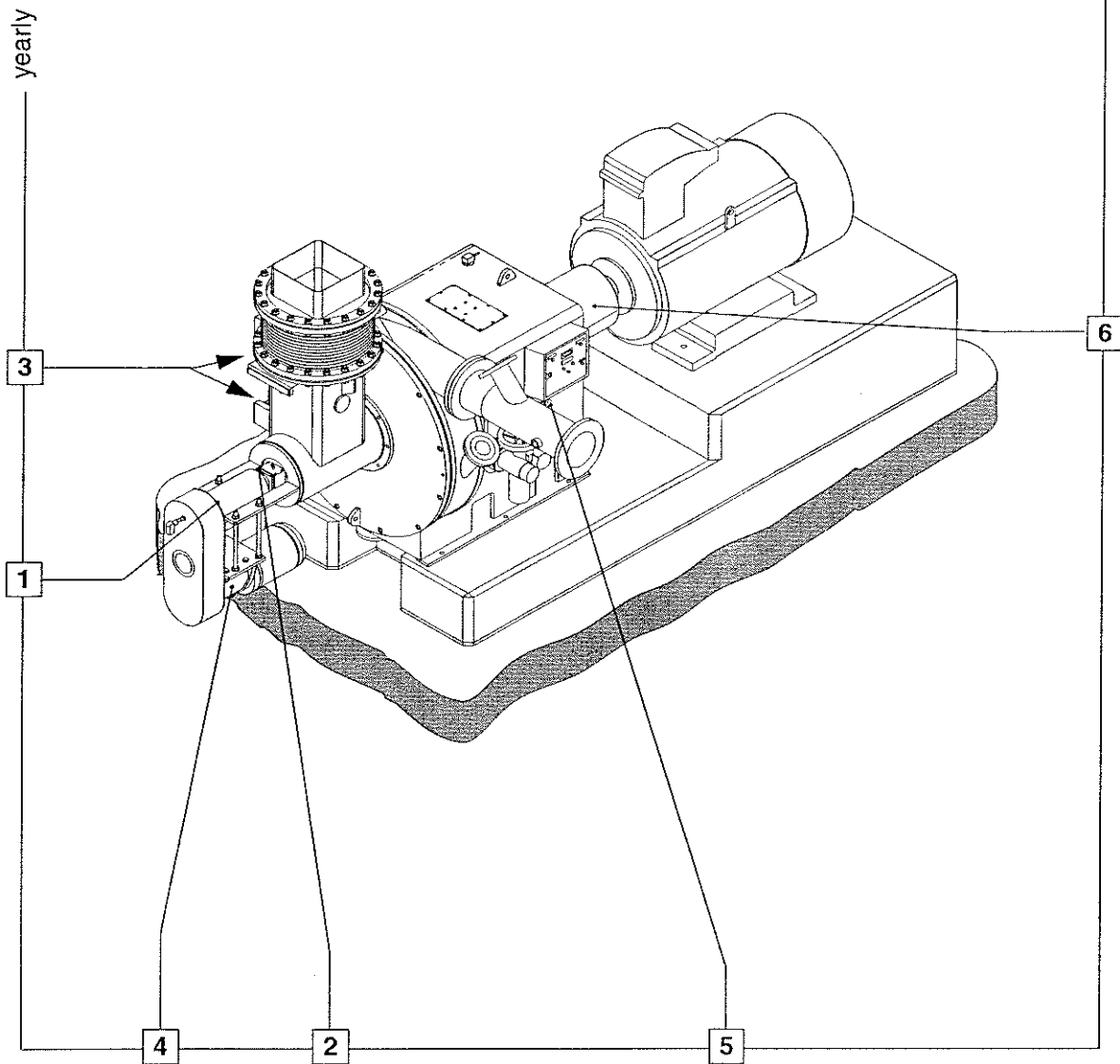


Fig. 8-1 Lubrication points



The disperger bearing unit has been lubricated at the factory and is ready for operation.

N.	Lubrication interval	Lubrication method	Component	Lubrication point	Lubricant	Quantity per point
1	yearly	Grease gun	Stock feed: Screw bearing unit (near pulley drive)	Lubrication point R 1/4 „I	Grease	50 g
2			Stock feed: Screw bearing unit (near chute)			100 g
3			Swing cover			20 g
4		Oiling	Geared motor	Screw plug	Oil	3 l
5		Sump lubrication	Bearing unit: main bearing			65 l
6		Oiling	Coupling			0.8 l

Tab. 8-1 Lubricant index

NOTICE



Using the wrong oil or grease can considerably reduce the service life of the bearing.

Only use lubricants which are within the ranges specified in the following tables.

Stock feed, rotor adjustment and various joints

Designation (grease)	Thickening agent	Tempera- ture range in °C	Viscosity at 40°C	Viscosity at 100 °C	Worked penetra- tion
NLGI grade 2...3	Lithium grease +calcium grease, polycarbonate	-40...165	74...115	8...14	

Tab. 8-2 Lubricant for stock feed, rotor adjustment and various joints

Main bearing

Designation (oil)	Viscosity at 40°C	Viscosity at 100 °C	Flash point in °C
CPL 100	95...100	10...12	220...245

Tab. 8-3 Lubricant for main bearing

Geared motor

Designation (oil)	Viscosity at 40°C	Viscosity at 100 °C	Flash point in °C
CPL 220	220...230	18...20	225...260

Tab. 8-4 Lubricant for geared motor

Coupling

Designation (oil)	Viscosity at 40°C	Viscosity at 100 °C	Flash point in °C
CPL 680	635...680	34...38	225...320

Tab. 8-5 Lubricant for coupling

Oil levels for coupling and main bearing

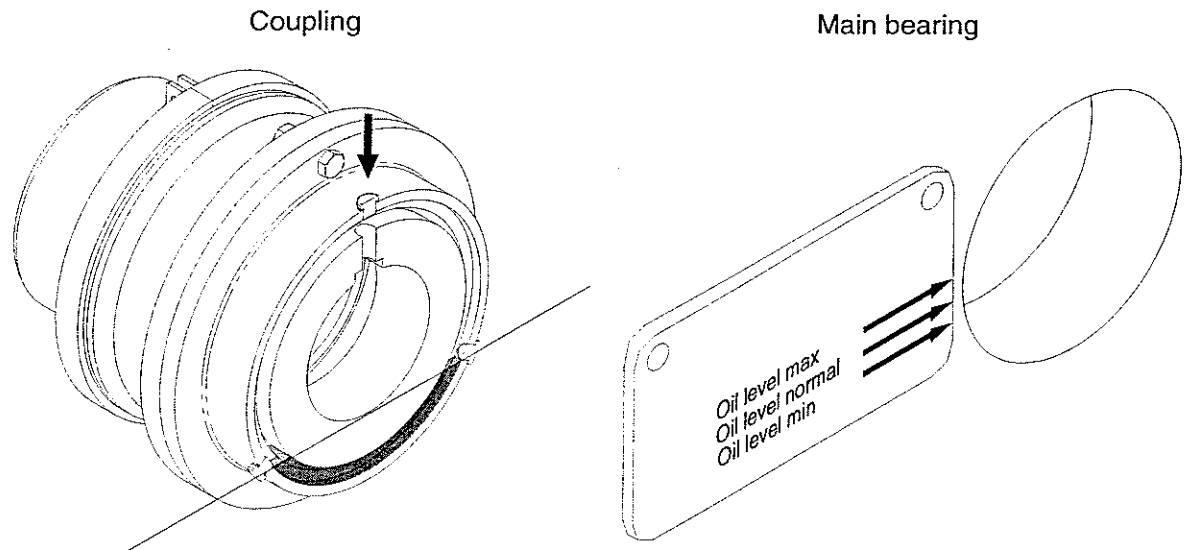


Fig. 8-2 Oil levels

8.3 Checks



Interval

monthly

monthly

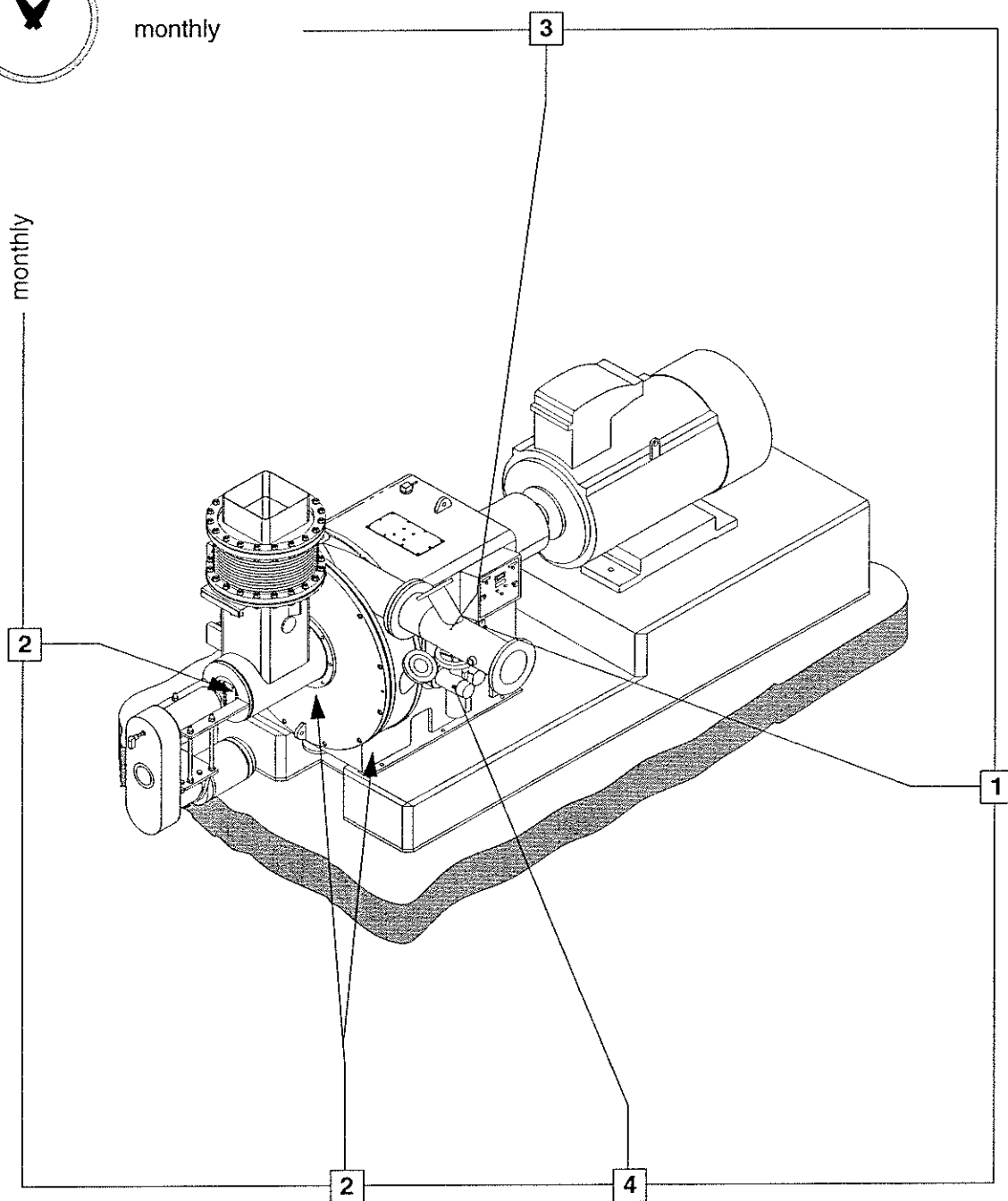
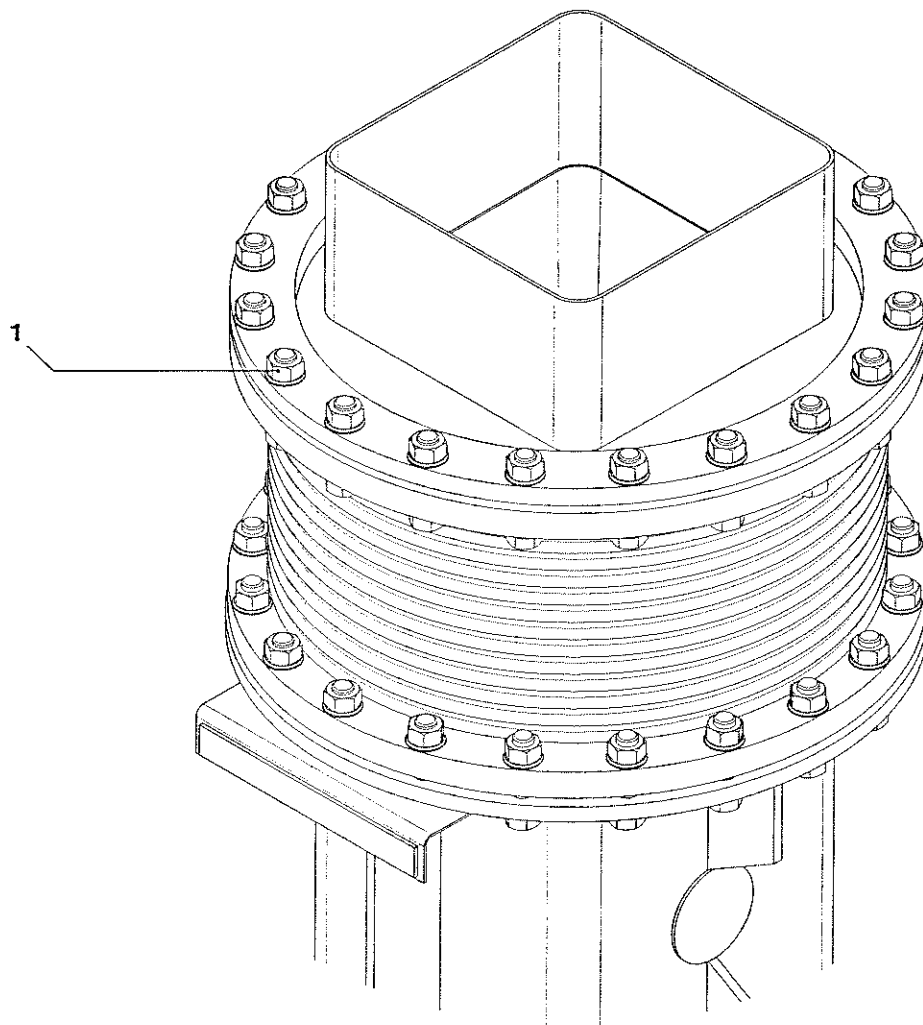


Fig. 8-3 Checks

No.	Interval	Component	Check	Measures	Remarks
1	monthly	Disperger	Check oil level	Top up oil as necessary (⇒ Sec. 8.2, Lubrica- tion)	When idle
		Disperger unit	Visual check for loose parts	Tighten loose parts as necessary	When machine is running
		Bearing laby- rinths	Visual check for oil leakage	Check oil level	
2		Stock feed, swing cover / bearing hous- ing, inside bearing hous- ing	Visual check for stock leakage	Replace seals as nec- essary	
3		All water con- nections	Visual check for water leakage	Tighten or replace con- nections as necessary	
4		Bearing	Check noise level	Lubricate or replace worn bearings	
		All compo- nents with bearings	Check temperature rise	Check oil level or grease quantity and replace worn bearings	

Tab. 8-6 Checks

8.4 Replacing the filling



1 Screw connection

Fig. 8-4 Unscrewing the stock feed chute

Parts required

Part No.	Qty.	Designation
	1	Filling

Tab. 8-7 Parts for filling replacement

General



Only replacing single segments can lead to unbalanced running.

This can permanently damage the filling and bearing.
Always replace the complete filling.

All filling fastening screws and washers must be renewed every time the filling is replaced.

Preconditions

- ✓ Main switch is switched off and secured against unintentional switching on.
- ✓ Stock pump is switched off.
- ✓ Disperger is flushed.
- ✓ Disperger is empty.

Remove feed chute

→ Loosen screw connections (Fig. 8-4/1).

Open disperger



Opening a pressurized machine can cause severe injuries and scalds on head and hands.

First open the bottom outlet valve to reduce the pressure and the temperature.

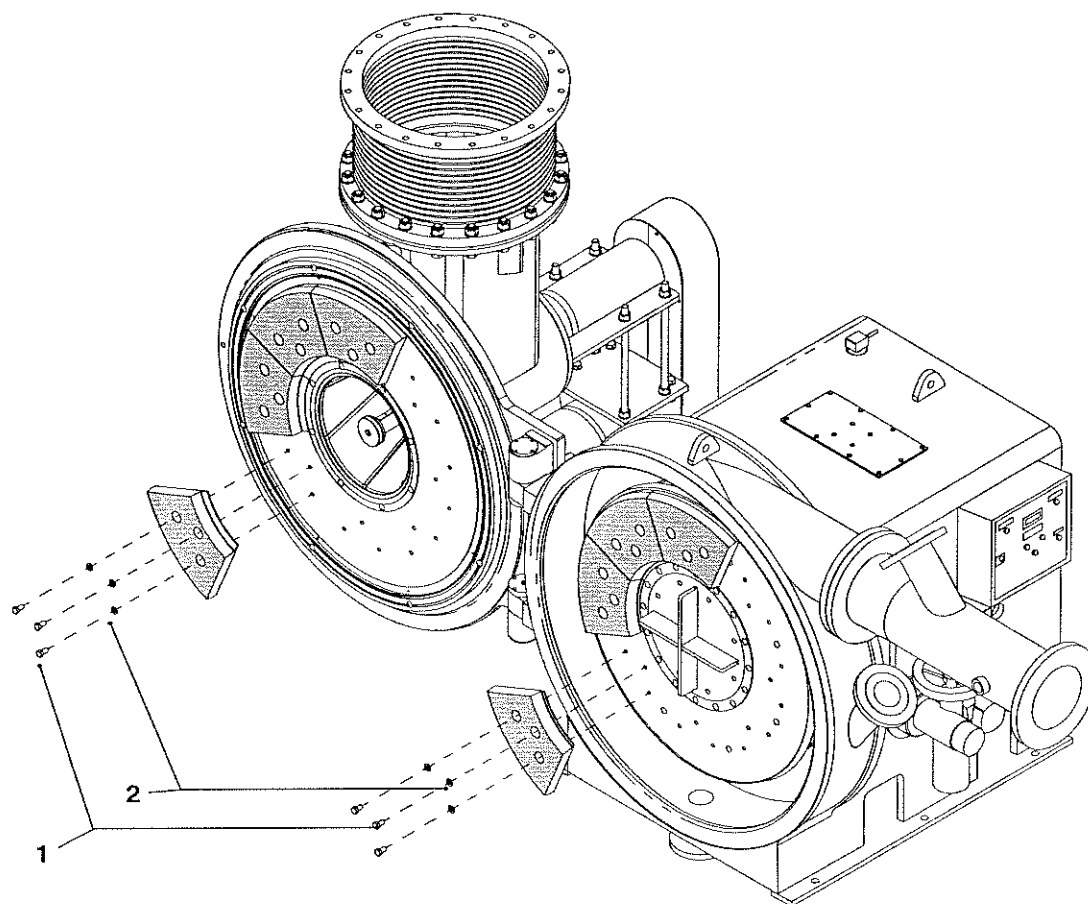
→ Loosen and remove screws on swing cover



The rotating shaft can cause serious injuries to arms and hands.

First wait until the shaft is idle and wear gloves.

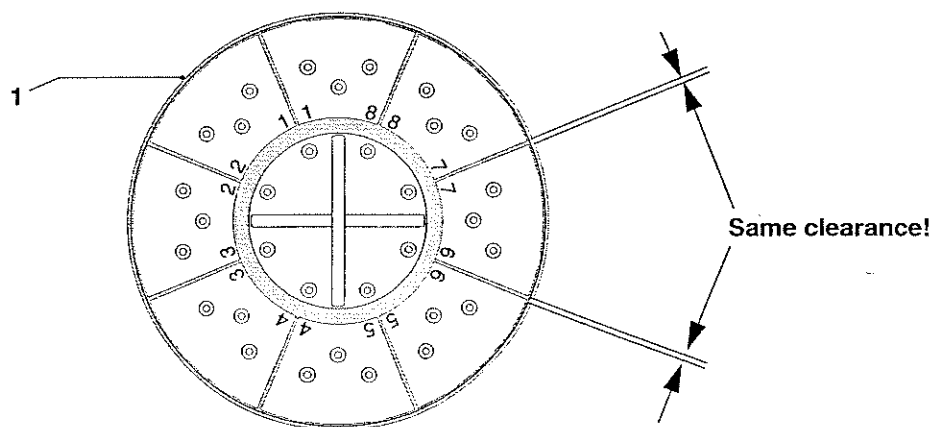
→ Swivel swing cover away.



1 Fastening screws

2 Washers

Fig. 8-5 Opening the disperger



1 Guide ring

Fig. 8-6 Filling arrangement

Replace the filling

- Remove worn filling.
- Clean contact surfaces on rotor and stator.
- Check new filling for completeness.
- Check that contact surfaces on new segments are even and clean.
- Pre-position new segments in numerical sequence (on the rear of the segments).
- Screw in and tighten screws (Fig. 8-5/1).
- ☐ Segments must still be moveable!
- Position segments on the guide ring (Fig. 8-6/1).
- Align segments.
- ☐ The clearance between the individual segments must be more or less equal.
- Tighten screws (Fig. 8-5/1).
- ☐ Tightening torque 151 Nm

Close the disperger



Do not close the disperger with the rotor in its forward position.

This can damage the teeth on the filling.

Use the rocker switch on the digital display to move the rotor back 5 - 6 mm.

- Close swing cover
- Screw in and tighten screws on swing cover
- Tightening torque 302 Nm

Close feed chute

- Fix compensator to feed circuit with screw connections (Fig. 8-4/1)

Determining the power setpoint value

General

To obtain good dispersing results it is essential to ensure a constant energy transfer to the paper stock. For this reason, the specific dispersing energy is adapted to the current operating conditions by means of a power control system. The manipulated variable is the suspension pressure in the outlet casing. This value determines the compactness of the stock in the filling and thus the energy to be transferred.

Depending on the different operating conditions, such as stock grade, stock consistency, temperature, filling type, etc., the suspension pressure in the stock outlet varies between 1.2...2 bar; this corresponds to a specific power spectrum of 40...120 kWh/t.

Specific dispersing energy control

The setpoint value of the specific dispersing energy is entered into the distributed control system. With the aid of the pressure control unit and the data gained by a permanent setpoint/actual value comparison of the actual specific energy (absorbed motor power related to the actual throughput) the suspension pressure in the rotor casing is continuously adjusted to the preset power input which is calculated from the specific dispersing energy.

The correlation between power input and operating pressure depends on the system and must be determined for each individual plant. The recommended clearance is 1...5 mm. The outlet pressure can be read out on the DCS and might be taken as a key value for the specific power requirements.

8.5 Adjusting the filling and the digital display

Description

The combined action of a constant filling clearance and the pressure control system in the rotor casing for a constant specific disperger energy produces a continuous disperging result. Therefore, the filling clearance must be readjusted at regular intervals (e.g. once a month) to compensate for wear. For this, the zero point of the filling must be newly adjusted and the specified filling clearance readjusted using the rotor adjusting unit and the digital clearance display. The display shows the real clearance between rotor and stator filling.

3 rotor positions are of special significance when adjusting the filling:

1. Zero point position (ZP)
2. Minimum position (MinP)
3. Maximum position (MaxP)

Zero point position (ZP)

ZP defines the smallest clearance to the stator at which the rotor can still just about move freely.

(This position must be entered in the digital display as the zero point).

Minimum position (MinP)

The minimum position is the smallest clearance between the rotor and stator which must be maintained during disperger operation for safety and technological reasons (filling breakage/fiber cutting). The distance between the ZP and MinP is 0.5 mm. The MinP must be secured by the limit switch on the Auma actuator.

Maximum position (MaxP)

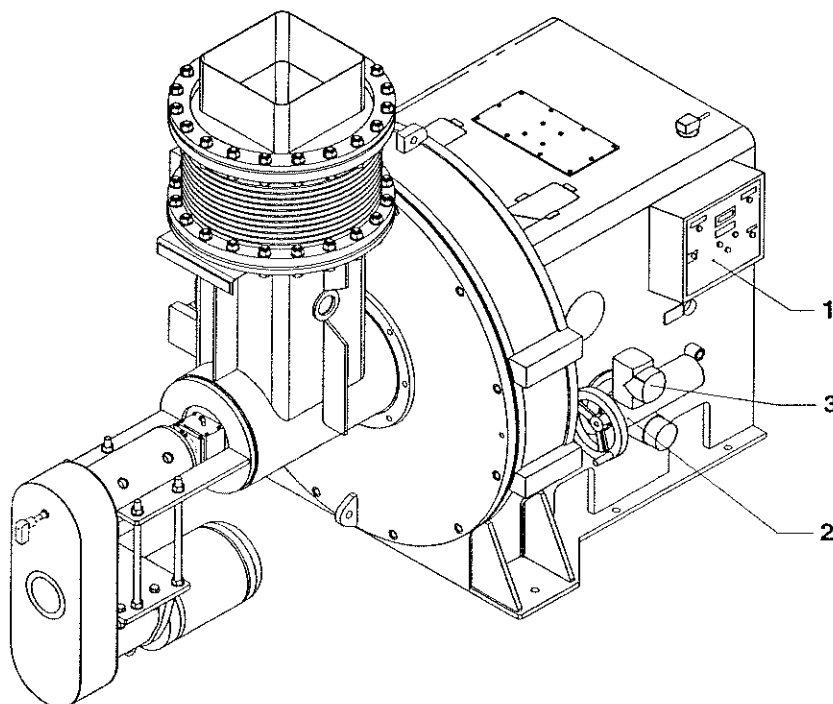
The maximum position is the largest clearance between the rotor and stator which must not be exceeded for machine design reasons. The path distance between the ZP and MaxP is 9.5 mm and may vary by ± 1 mm depending on the zero point position.

The Max.Pos. is secured by a limit switch on the Auma actuator and should not be changed during filling change.



All described filling positions can either be adjusted with the local control unit or with the handwheel.

Since handwheel adjustments are time-consuming and complicated (1mm travel equals approx. 160 revolutions) the following descriptions refer to adjustments made with the local control unit.



1 Control unit

3 Auma actuator

2 Manual drive of Auma actuator

Fig. 8-7 Adjusting the filling and the digital display

Preparations

- Switch off and secure the disperger drive main switch.
- Open disperger, clean filling and close disperger.
- Remove coupling guard.

Releasing the limit switch



Before the zero-point or minimum positions can be adjusted, the relevant limit switch must be released (Fig. 8-8, Adjusting the Auma actuator).

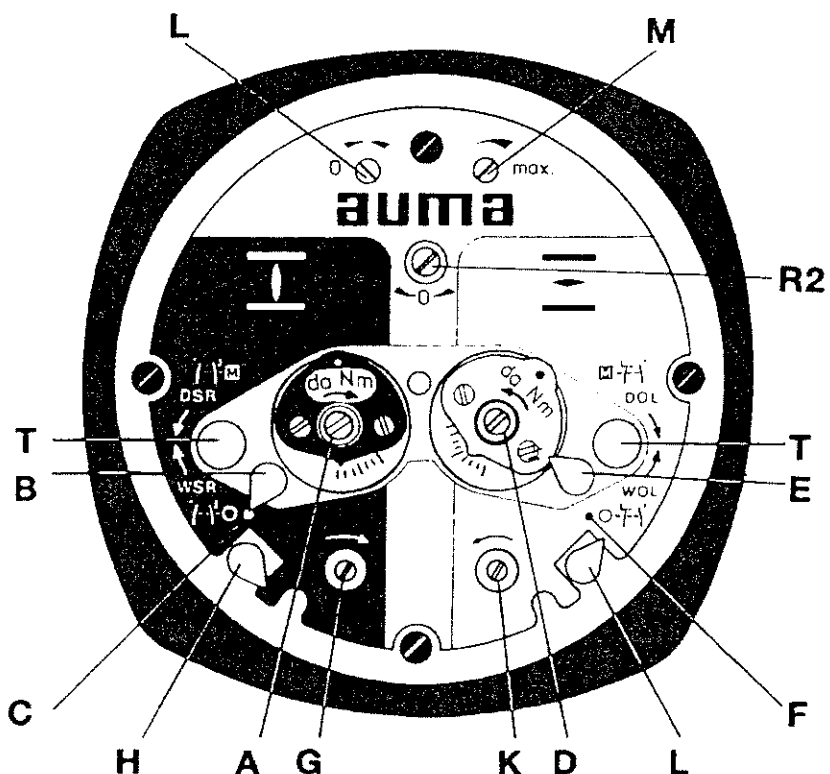


Fig. 8-8 Adjusting the Auma actuator

- Remove control unit cover of Auma actuator (Fig. 8-7/3).
- Fig. 8-9, Adjusting the Auma actuator, appears. Installation position turned through 180°.
- Press down and turn spindle **D** in direction of arrow (grating is heard and felt) until the pointer **E** has turned 90° away from point **F**.

Setting the zero point position

When installing a new filling, the zero point position of the rotor must be readjusted.

- Use the “—” pushbutton of the local control unit (Fig. 8-7/1) to reduce the filling clearance until the two filling halves come into contact.
- Use the “+” pushbutton to increase the filling clearance slowly until the rotor just about rotates freely with a ring spanner.
- Set the zero point on the control panel by activating the key switch.
- 0 appears on digital display.

Setting the minimum position

The minimum position must be newly secured by readjusting the suitable limit switches in the Auma actuator. This adjustment is carried out immediately after the zero point has been set.

- Use the “+” pushbutton of the local control unit to increase the filling clearance until a value above 1 mm appears on the digital display.



For reasons of tolerance addition, the minimum point may only be set using the “—” pushbutton or turning the hand-wheel **counter-clockwise**.

- Use the “—” pushbutton to reduce the filling clearance until 0.5 mm appears on the digital display.

Set the limit switch in the Auma actuator to secure the adjusted minimum position (⇔ Fig. 8-9, Adjusting the Auma actuator).

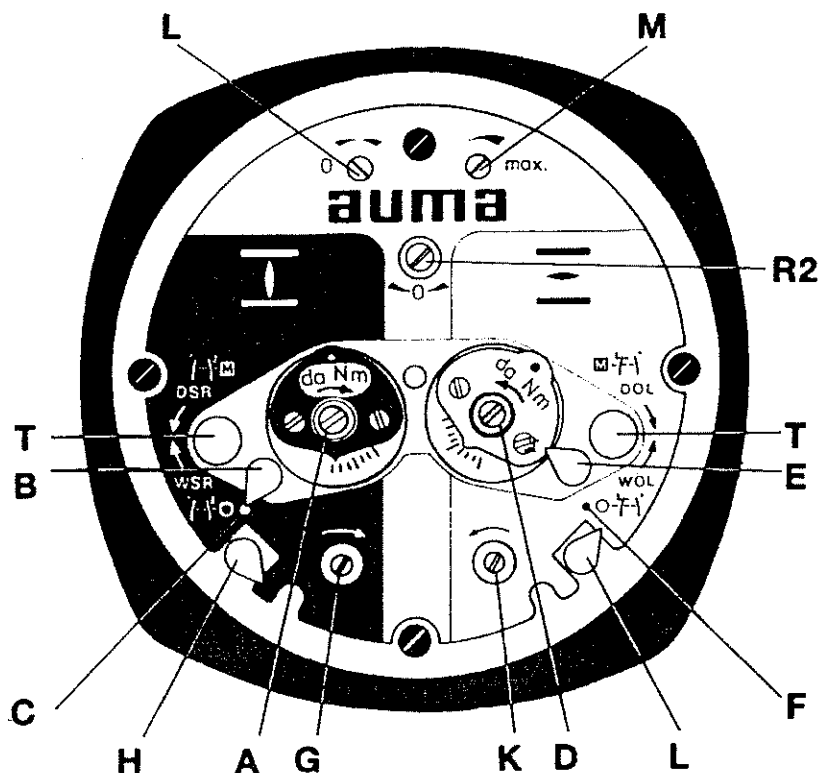


Fig. 8-9 Adjusting the Auma actuator

- Press down and turn spindle **D** in direction of arrow so that grating is heard and felt.
- Pointer **E** moves for every 90° to point **F**.

→ Stop turning the spindle after point **F** has been reached.



If the spindle has been inadvertently turned too far, continue turning and approach the setting point anew.

→ Release spindle.



Make sure that the spindle jumps out by spring force to its original position. Otherwise adjustment is not effective.

If necessary, bring spindle to original position by slight knocks or with a screwdriver.

Checking the minimum position of the limit switch

→ Use the “+” pushbutton to increase the filling clearance until a value of approx. 1.5 mm appears on the digital display.

→ Use the “—” pushbutton to reduce the filling clearance until the Auma actuator switches off automatically.

→ Check digital display.

□ Display must show 0.5 mm.

→ Repeat setting if deviation exceeds ± 0.2 mm.



Check minimum position at least twice.

Further settings



After bearing change, the maximum position must be newly adjusted and secured (↔ Sec. 8.9, Readjusting the actuator and the digital display).

Close control unit of Auma actuator.

Mount coupling guard.

8.6 Replacing the packing

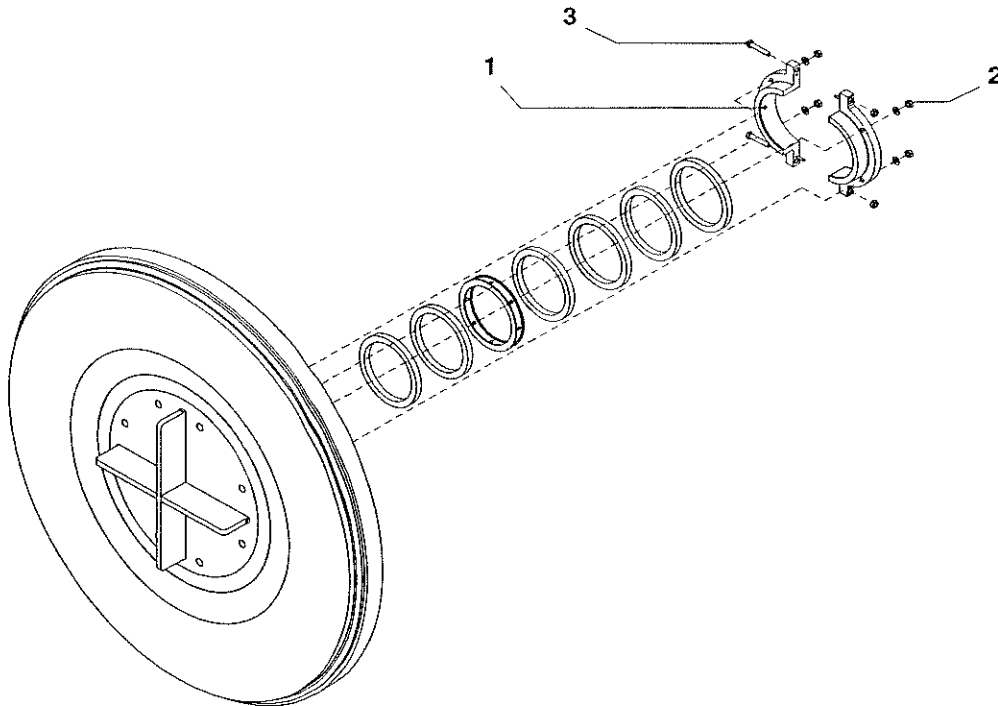
Preconditions

- ✓ Disperger is flushed.
- ✓ Disperger is empty.
- ✓ Inlet and outlet valves are shut.
- ✓ Main switch is switched off and secured against unintentional switching on.

Preparation

- Remove sealing water connection.

Removing the packing gland



1 Packing gland

2 Nut

3 Screw

Fig. 8-10 Removing the packing gland

- Loosen nut (Fig. 8-10/2)
- Pull packing gland (Fig. 8-10/1) to the rear.
- Loosen screws (Fig. 8-10/3).
- Remove packing gland halves (Fig. 8-10/1).

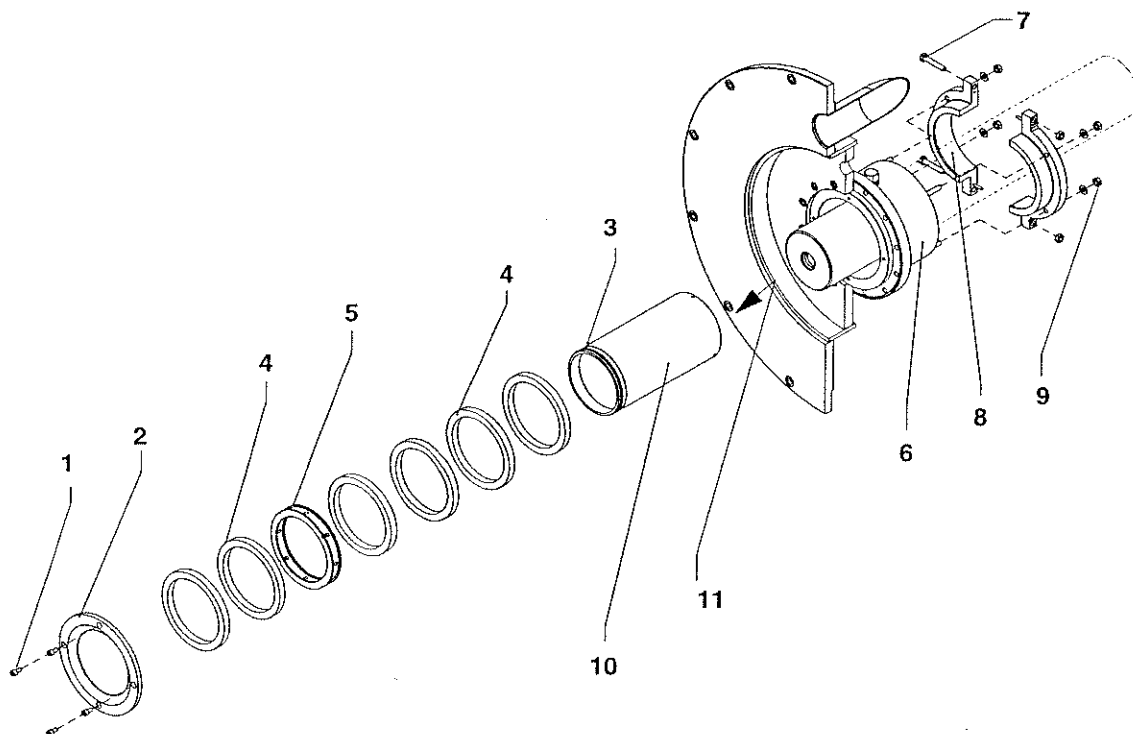
Replace packing

- Pull packing rings out with the packing extractor.
- Pull the seal cage out of the stuffing box.
- Insert new packing in reverse sequence.

Insert packing gland

- Fit the packing gland in the analog reverse sequence. (⇒ Fig. 8-10, Removing the packing gland)

8.7 Replacing the packing and shaft protection sleeve



- | | | |
|----------------|---------------------------|----------------------------|
| 1 Screw | 5 Seal cage | 9 Hexagon nut |
| 2 Ring | 6 Stuffing box | 10 Shaft protection sleeve |
| 3 O-ring | 7 Screw | 11 O-ring |
| 4 Packing ring | 8 Packing gland, 2 pieces | |

Fig. 8-11 Replacing the packing and shaft protection sleeve

Parts required

Part No.	Qty.	Designation
	5	Packing ring
	1	Shaft protection sleeve
	1	Seal

Tab. 8-8 Parts for packing and shaft protection sleeve replacement

Preconditions

- ✓ Disperger is flushed.
- ✓ Disperger is empty.
- ✓ Main switch is switched off and secured against unintentional switching on.
- ✓ Inlet and outlet valves are shut.
- ✓ Disperger is open.
- ✓ Rotor is removed.

Preparation

- Remove sealing water connection.

Remove stuffing box

- Loosen nuts (Fig. 8-11/9).
- Pull the packing gland (Fig. 8-11/8) to the rear.
- Loosen screws (Fig. 8-11/7).
- Remove the packing gland halves.
- Loosen screws (Fig. 8-11/1).
- Remove ring (Fig. 8-11/2).

Remove packing

- Remove packing rings (Fig. 8-11/4) with the packing extractor.
- Pull seal cage (Fig. 8-11/5) out of the stuffing box.

Remove shaft protection sleeve

- Loosen set screws in the shaft protection sleeve.
- Pull the shaft protection sleeve forwards over the shaft.

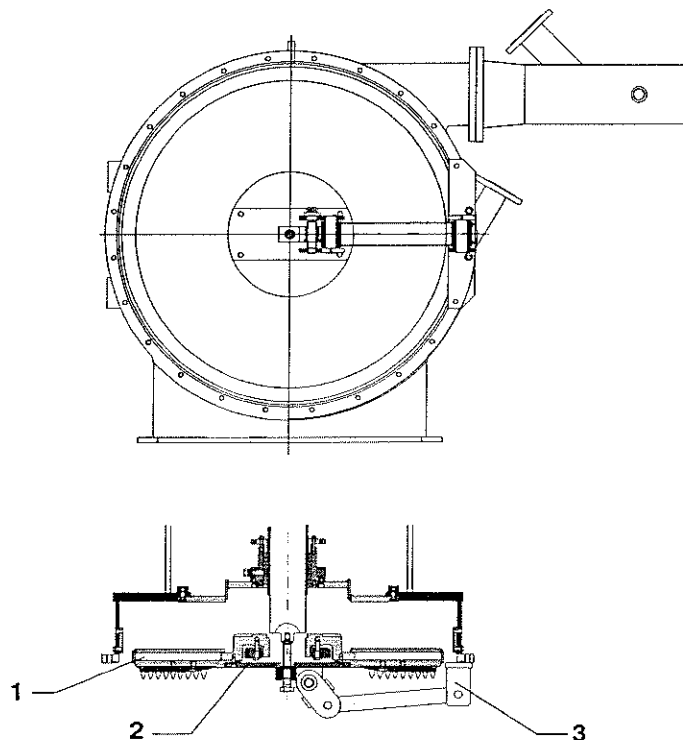
Fit shaft protection sleeve and stuffing box



Renew the O-rings (Fig. 8-11/3 and 11) during each replacement.

- Fit shaft protection sleeve and stuffing box in the analog reverse sequence. (⇒ Fig. 8-11, Replacing the packing and shaft protection sleeve).
- Swivel rotor in and remove the rotor swivel equipment
- Close the machine.

8.8 Replacing the bearing



- | | |
|----------------------|---------------------------|
| 1 Rotor | 3 Rotor removal equipment |
| 2 Take-off equipment | |

Fig. 8-12 Rotor removal equipment

Special tools required

Designation	Usage	
Rotor removal equipment	Removing and fitting the rotor	

Tab. 8-9 Special tools for bearing replacement

Auxiliary materials

Designation	Usage	
Lubricating oil (Energol CS 100)	Coating fittings, sleeves, bearing housings, bearing rings, retainers, rollers	
Assembly spray	Eases thread fittings	

Tab. 8-10 Auxiliary materials for bearing replacement

Parts required

Part No.	Qty.	Designation
	1	Seal Ø 200 x 2
	1	O-ring 180 x 5
	1	O-ring 270 x 5
	1	O-ring 350 x 5.5
	1	Sight glass GN 553-40-60
	1	Self-aligning roller thrust bearing Ø 170 / 280 x 67
	1	Tapered roller bearing Ø 200 / 280 x 51
	1	O-ring 350 x 5
	1	O-ring 200 x 6
	1	O-ring 170 x 4
	1	Cylindrical roller bearing NUBZ 234

Tab. 8-11 Parts for bearing replacement

General



Do not perform any surface removal work such as sanding, planing etc. in close proximity.

Sanding dust and other impurities considerably reduce the service life of the bearing.

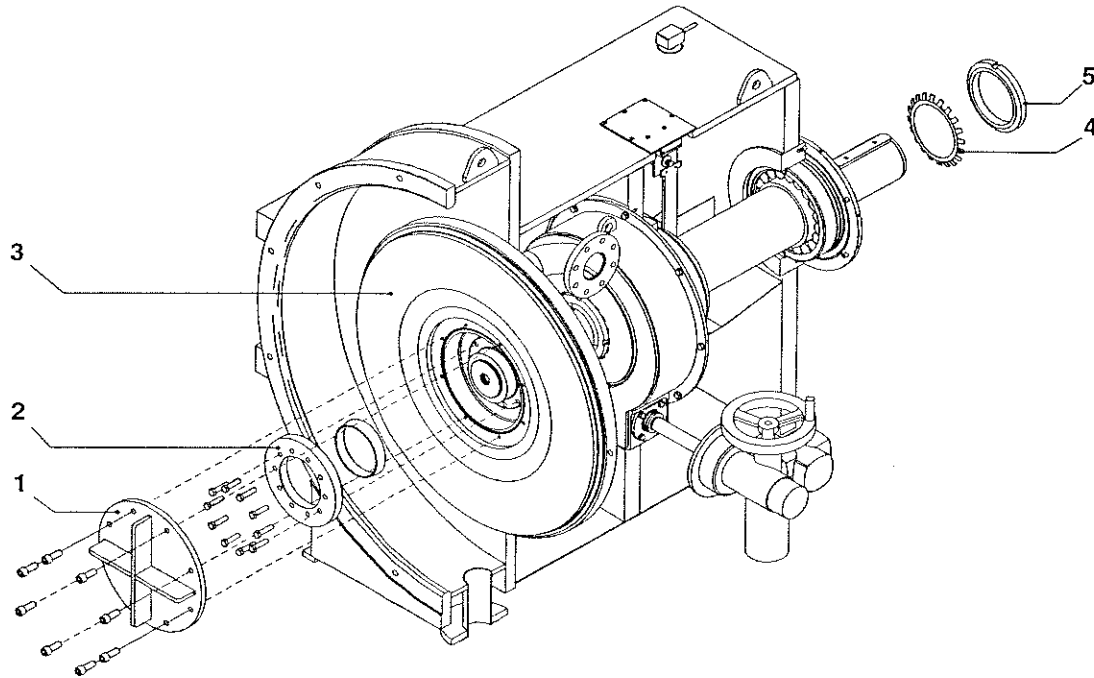
Choose a clean, isolated assembly location.

Observe the following points during bearing replacement:

- Renew all O-rings, lubricate and first insert them during the respective assembly step.
- Carefully clean all fittings, sleeves, bearing rings, retainers and rollers, check surfaces and coat with lubricating oil (⇒ Tab. 8-10/1).
- Clean all threads, check and spray with assembly spray (⇒ Tab. 8-10/2).
- Compare bearing designation with spare parts list.

Preconditions

- ✓ Disperger is empty and flushed.
- ✓ Main switch is switched off and secured against unintentional switching on.
- ✓ Special tools, auxiliary materials and parts are available at the assembly location.
- ✓ A crane or other lifting device with a minimum load capacity of $F = 30,000 \text{ N}$ (approx. 3 tons) is available.

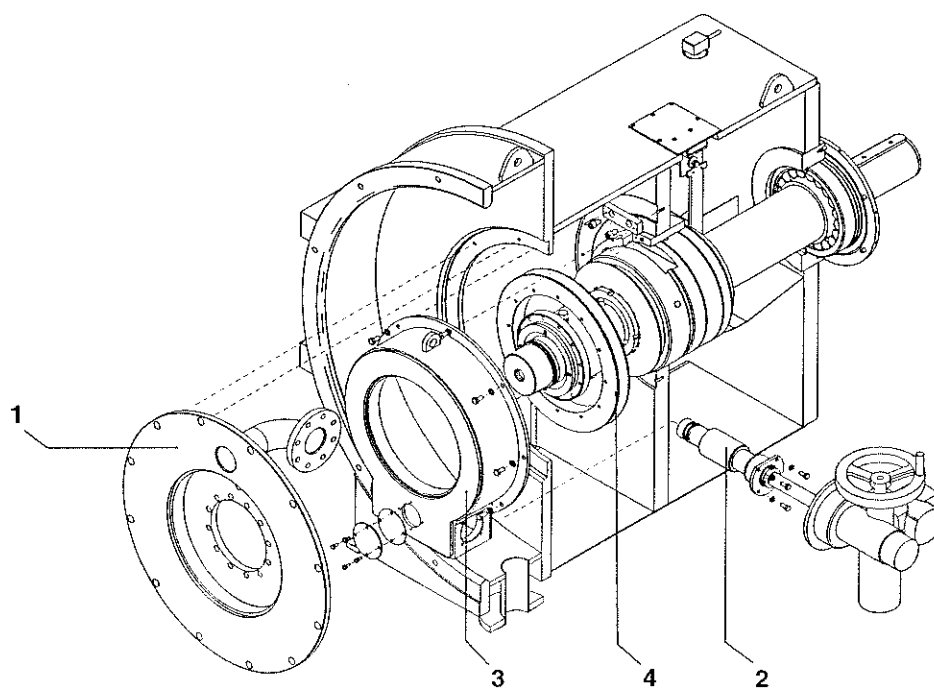


- | | | |
|---------------|----------------|-----------|
| 1 Rotor cap | 3 Rotor | 5 Locknut |
| 2 Shrink disc | 4 Locking ring | |

Fig. 8-13 Removing the rotor

Preparation

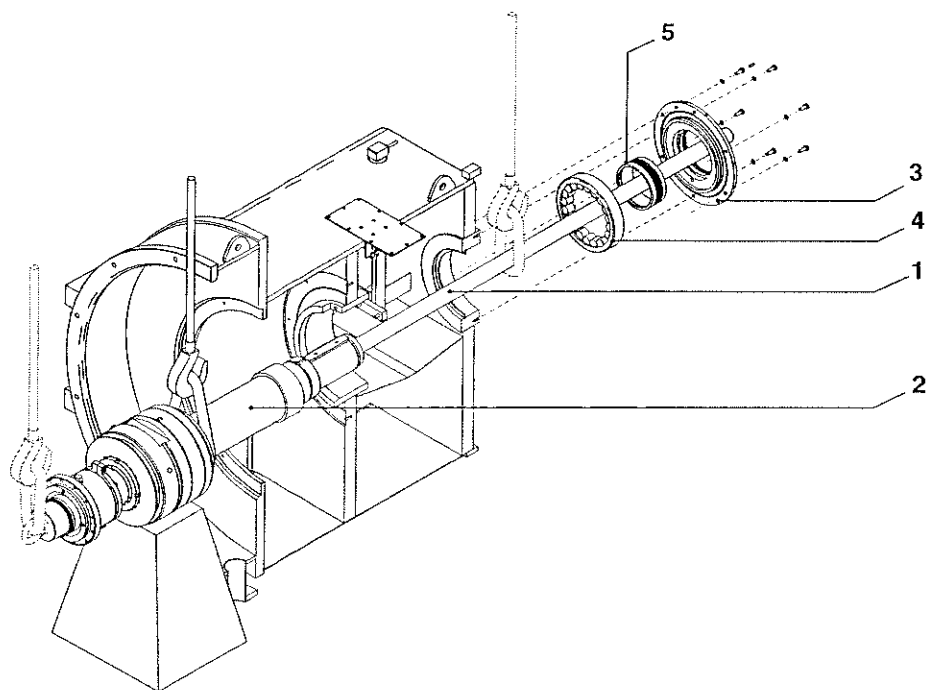
- Loosen compensator from stock feed circuit.
- Open disperger.
- Remove rotor (Fig. 8-13/3) (⇔ Fig. 8-13, Removing the rotor).
- Remove shrink disc (Fig. 8-13/2).
- ❑ Observe the documentation of our subcontractor Ringfeder (⇔ Sec. 12, Subcontractor Documentation)



- | | |
|---------|---------------|
| 1 Cover | 3 Casing |
| 2 Shaft | 4 Screw wheel |

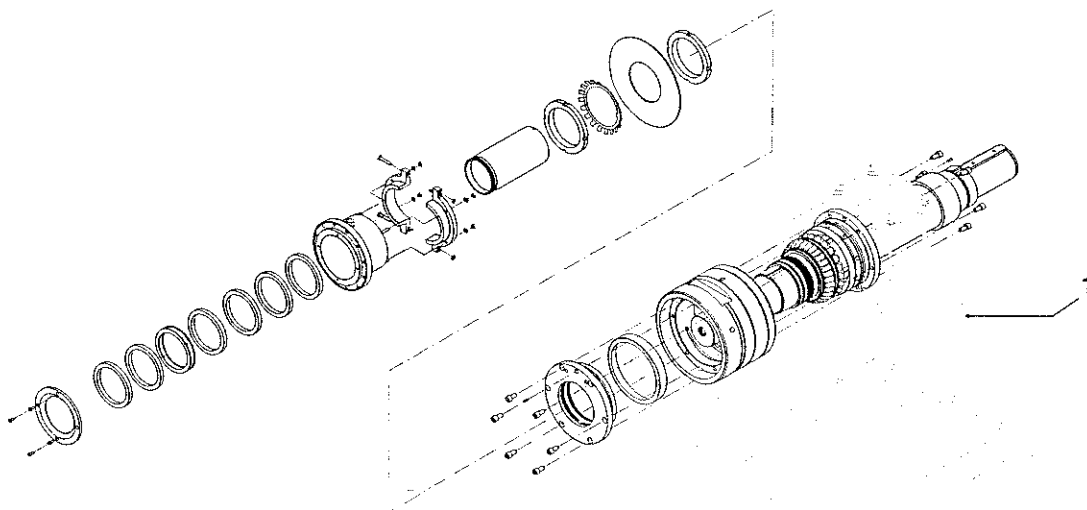
Fig. 8-14 Removing the adjusting equipment

- Position take-off equipment (Fig. 8-12/2) (⇔ Fig. 8-12, Rotor removal equipment).
- Remove rotor (Fig. 8-12/1) with take-off equipment (Fig. 8-12/2).
- Remove locknut (Fig. 8-13/5) and locking ring (Fig. 8-13/4).
- Remove cover (Fig. 8-14/1).
- Remove rotor adjustment shaft (Fig. 8-14/2).
- Remove casing (Fig. 8-14/3) and screw wheel (Fig. 8-14/4).



- | | |
|--|----------------------|
| 1 Support pipe
(not in scope of delivery) | 4 Bearing outer ring |
| 2 Shaft | 5 Sleeve |
| 3 Labyrinth cover | |

Fig. 8-15 Removing the bearing unit

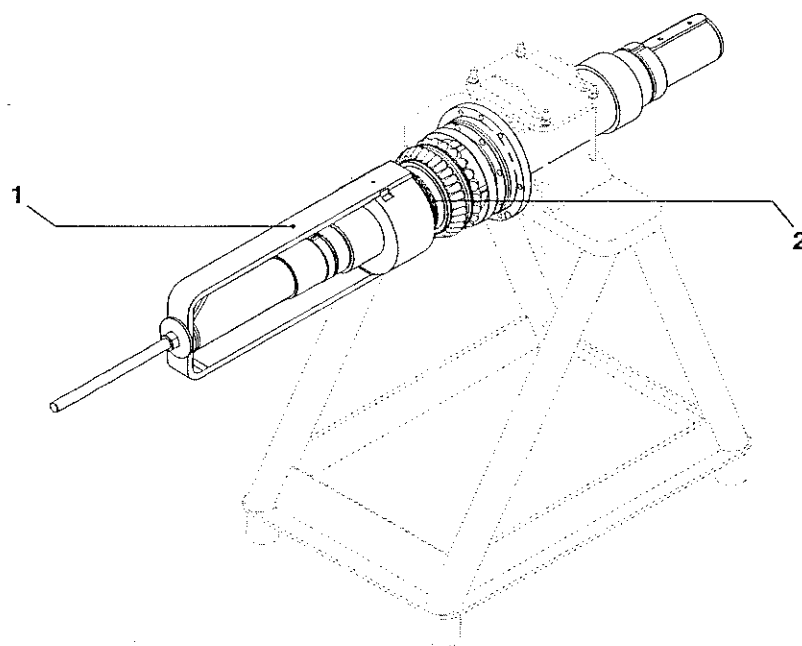


- | |
|---|
| 1 Assembly stand (not in scope of delivery) |
|---|

Fig. 8-16 Removing the bearing unit

Remove the bearing unit

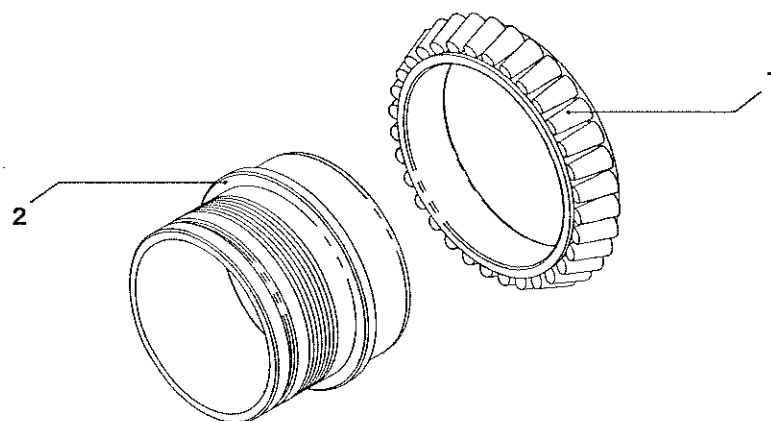
- Fit support pipe (Fig. 8-15/1) to shaft (Fig. 8-15/2).
- Hang shaft on the crane (⇔ Fig. 8-15, Removing the bearing unit).
- Lift shaft out of the disperger, repositioning the hook once.
- Position bearing unit on assembly stand (Fig. 8-16/1) and secure against turning.
- Remove bearing unit (⇔ Fig. 8-16, Removing the bearing unit).
- Remove labyrinth cover (Fig. 8-15/3).
- Remove bearing outer ring (Fig. 8-15/4) of the cylindrical roller bearing with retainer.
- Remove sleeve (Fig. 8-15/5).
- Fit **new** bearing outer ring (Fig. 8-15/4).



1 Take-off equipment 2 Sleeve

Fig. 8-17 Separating sleeve from the shaft

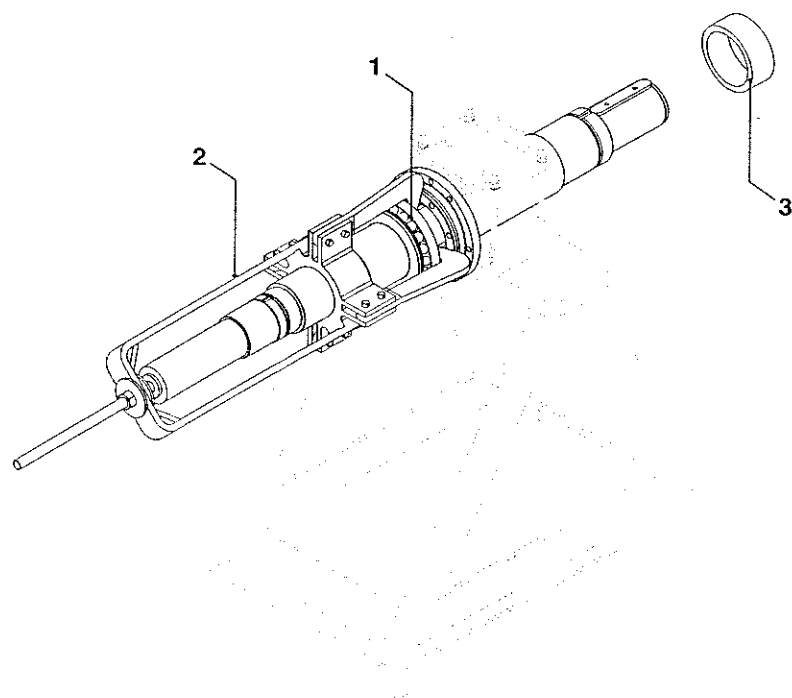
→ Pull sleeve (Fig. 8-17/2) off with the take-off equipment (Fig. 8-17/1).



1 Tapered roller bearing 2 Sleeve

Fig. 8-18 Separating tapered roller bearing from sleeve

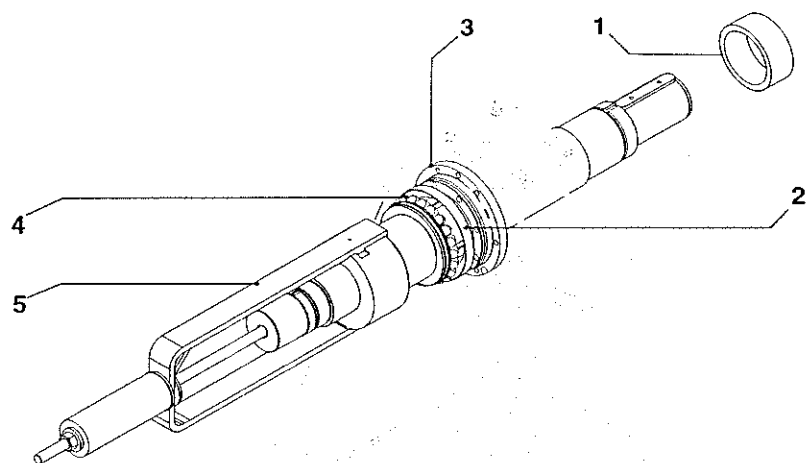
→ Pull the inner ring of the tapered roller bearing (Fig. 8-18/1) from the sleeve (Fig. 8-18/2).



- 1 Self-aligning roller thrust bearing 3 Inner ring
2 Equipment

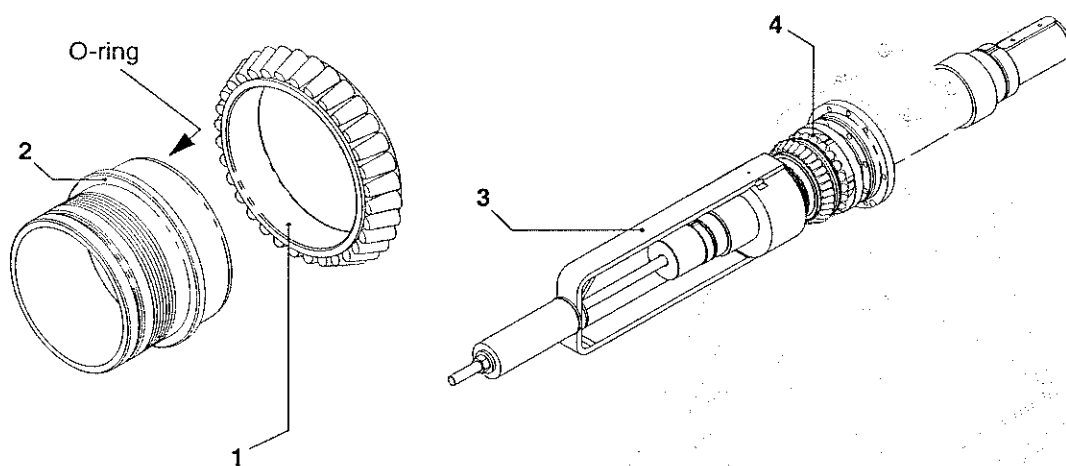
Fig. 8-19 Removing the self-aligning roller thrust bearing

- Pull the self-aligning roller thrust bearing (Fig. 8-19/1) off with the equipment (Fig. 8-19/2).
- Pull the inner ring (Fig. 8-19/3) of the cylindrical roller bearing from the shaft.



- | | |
|-----------------|---------------------------------------|
| 1 Inner ring | 4 Self-aligning roller thrust bearing |
| 2 Outer ring | 5 Equipment |
| 3 Bearing cover | |

Fig. 8-20 Fitting the self-aligning roller thrust bearing



- | | |
|--------------------------|---------------------------------------|
| 1 Tapered roller bearing | 3 Equipment |
| 2 Sleeve | 4 Self-aligning roller thrust bearing |

Fig. 8-21 Fitting the tapered roller bearing

Pre-mount bearing unit

- Preheat **new** inner ring (Fig. 8-20/1) of the cylindrical roller bearing to approx. 110°C.



Do not touch the inner ring with bare hands.
Risk of burning!
Wear gloves.

- Slip the preheated inner ring onto shaft and press at collar until pressure jointed.
- Slip the **new** outer ring (Fig. 8-20/2) of the self-aligning roller thrust bearing over the shaft up to the bearing cover (Fig. 8-20/3).



Do not push the self-aligning roller thrust bearing against the shaft collar with the retainer hanging downwards.

This presses the retainer against the stop collar of the shaft which damages the retainer.

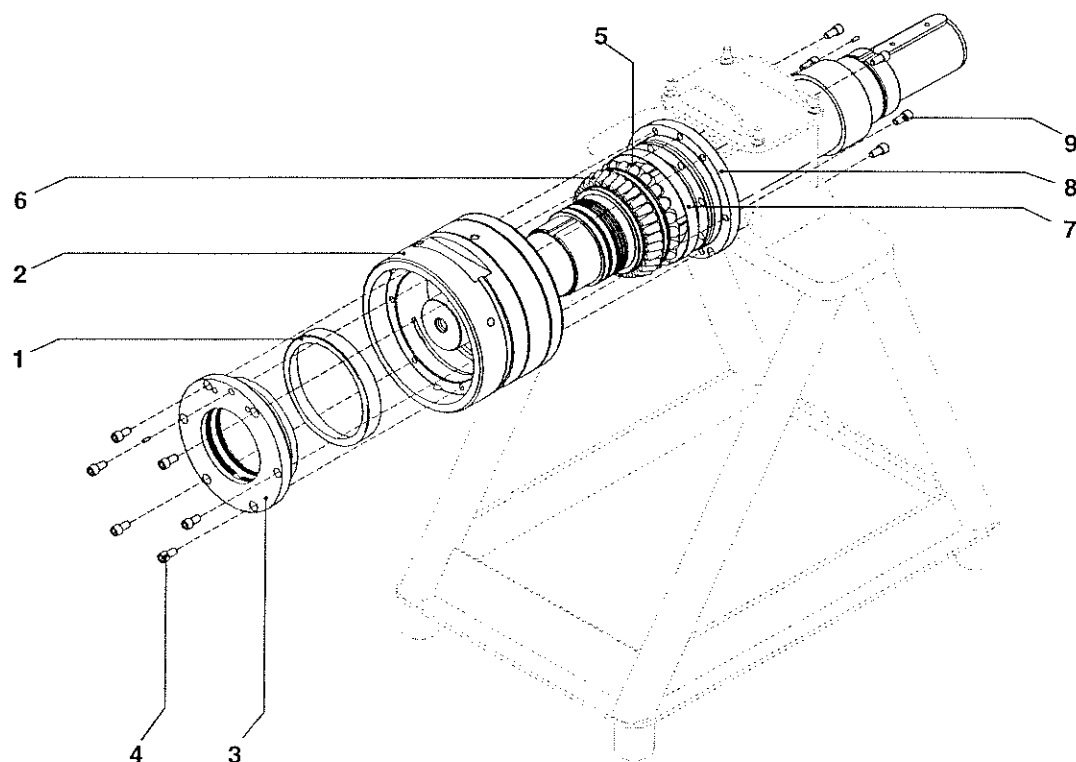
Lift the retainer slightly when pressing the self-aligning roller thrust bearing on.

- Push the inner ring of the self-aligning roller thrust bearing (Fig. 8-20/4) onto the shaft with the equipment (Fig. 8-20/5).
- Small collar to the front
- Preheat the inner ring (Fig. 8-21/1) of the tapered roller bearing to 110°C.



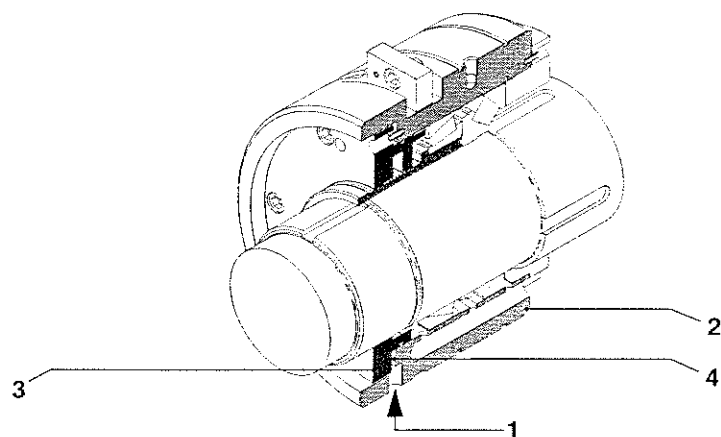
Do not touch the inner ring with bare hands.
Risk of burning!
Wear gloves.

- Slip the preheated inner ring onto the sleeve (Fig. 8-21/2).
- Small collar to the front.
- Insert O-ring in sleeve (Fig. 8-21/2).
- Slip the sleeve onto the shaft with the equipment (Fig. 8-21/3) and press against the self-aligning roller thrust bearing (Fig. 8-21/4).
- Allow sleeve to cool.



- | | |
|---------------------------------------|--------------------------|
| 1 Outer ring | 6 Tapered roller bearing |
| 2 Bearing housing | 7 Outer ring |
| 3 Bearing cover | 8 Bearing cover |
| 4 Screw | 9 Screw |
| 5 Self-aligning roller thrust bearing | |

Fig. 8-22 Pre-mounting bearing unit to set bearing play



- | | |
|-------------------|-----------------|
| 1 Drilled hole | 3 Bearing cover |
| 2 Bearing housing | 4 Clearance |

Fig. 8-23 Setting the bearing play

Setting the bearing play

- Pre-mount the outer ring (Fig. 8-22/1) of the tapered roller bearing in the bearing housing (Fig. 8-22/2).
- Fit the bearing cover (Fig. 8-22/3) in the bearing housing (Fig. 8-22/2) **without** O-ring.
- Turn screws (Fig. 8-22/4) back 1.5 turns.
- Mark position of screws.
- Slip the bearing housing (Fig. 8-22/2) over the pre-mounted inner rings of the self-aligning roller thrust bearing (Fig. 8-22/5) and tapered roller bearing (Fig. 8-22/6).
- Slip the outer ring (Fig. 8-22/7) of the self-aligning roller thrust bearing in the bearing housing (Fig. 8-22/2).
- Fit the bearing cover (Fig. 8-22/8) to the bearing housing (Fig. 8-22/2) **without** pressure springs.

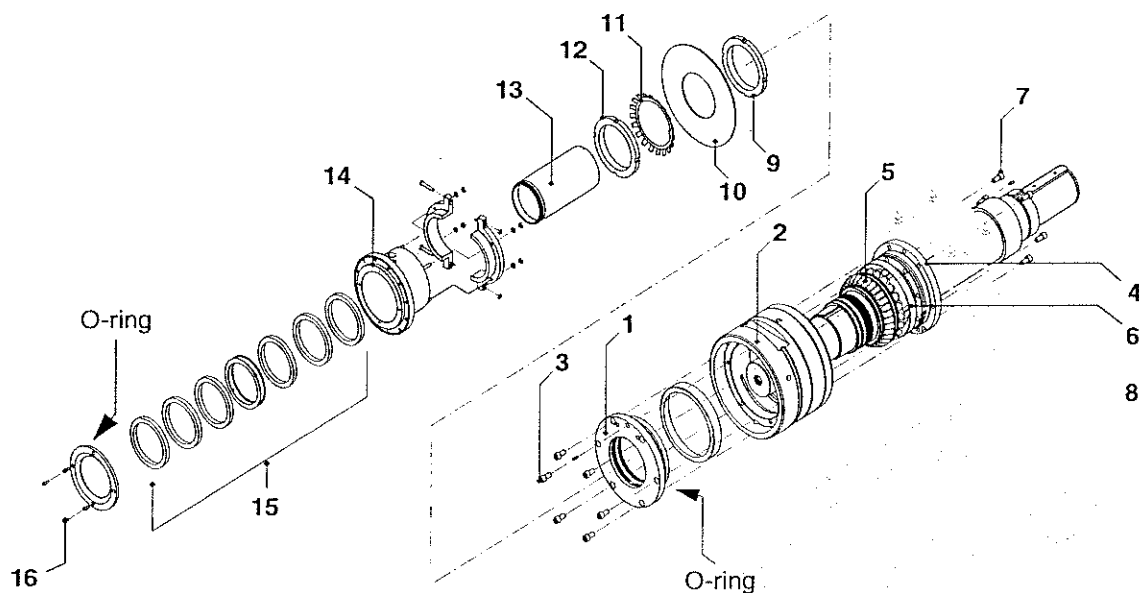


Do not tighten the screws (Fig. 8-22/9) when the bearing housing (Fig. 8-22/2) is upright

This can damage the bearing

Keep turning the bearing housing (Fig. 8-22/2) when tightening the screws (Fig. 8-22/9)

- Tighten screws (Fig. 8-22/9) (finger-tight).
- Measure clearance (Fig. 8-23/4) between bearing housing (Fig. 8-23/2) and bearing cover (Fig. 8-23/3) (↔ Fig. 8-23, Setting the bearing play).
- ☐ With feeler gauge through drilled holes (Fig. 8-23/1) (3 x at perimeter).
- Note clearance and add 0.5 mm.
- Remove bearing cover (Fig. 8-23/3) from bearing housing (Fig. 8-23/2).
- ☐ Support bearing housing with a crane to prevent it slipping over the inner ring of the tapered roller bearing (Fig. 8-22/6).
- Turn the bearing cover by the noted value + 0.5 mm and check the measurement.

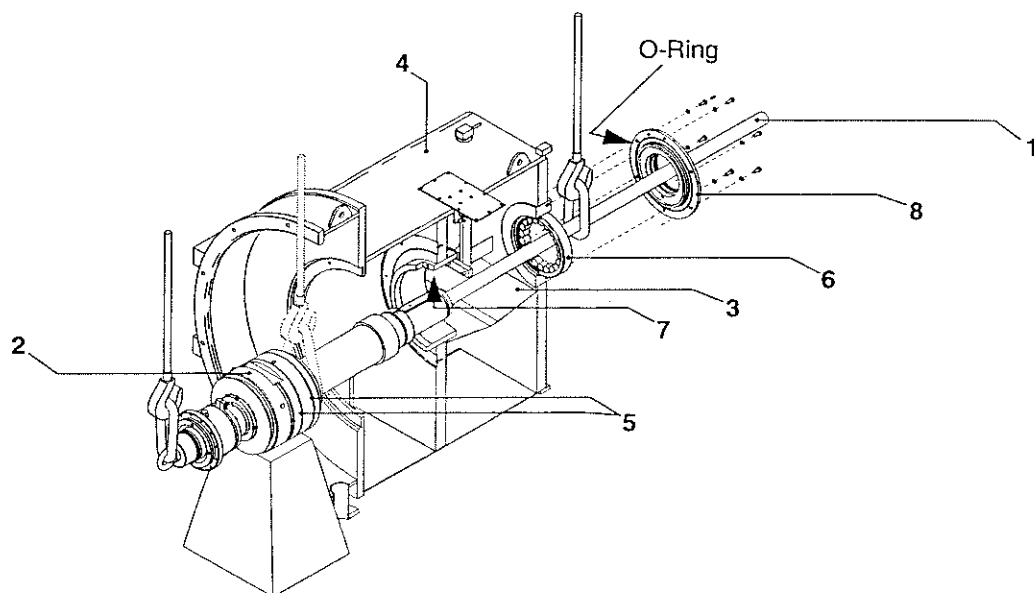


- | | | |
|-------------------|-----------------|----------------------------|
| 1 Bearing cover | 7 Screw | 13 Shaft protection sleeve |
| 2 bearing housing | 8 Oil duct | 14 Stuffing box |
| 3 Screw | 9 Locknut | 15 Packing |
| 4 Bearing cover | 10 Disc | 16 Ring |
| 5 Inner ring | 11 Locking ring | |
| 6 Pressure spring | 12 Locknut | |

Fig. 8-24 Completing bearing unit pre-mounting

Complete bearing unit pre-mounting

- Fit bearing cover (Fig. 8-24/1) in bearing housing (Fig. 8-24/2) **with** O-ring.
- Tighten screws (Fig. 8-24/3) with 150 Nm.
- Remove bearing cover (Fig. 8-24/4).
- Support bearing housing (Fig. 8-24/2) with a crane to prevent it slipping over the inner ring (Fig. 8-24/5) of the self-aligning roller thrust bearing.
- Insert pressure springs (Fig. 8-24/6) in the bearing cover (Fig. 8-24/4).
- Fit bearing cover to bearing housing (Fig. 8-24/2).
- Tighten screws (Fig. 8-24/7) with 150 Nm.
- Check clearance between the outer ring of the self-aligning roller thrust bearing and the bearing cover by using a torch through the oil duct (Fig. 8-24/8)
- Screw on locknut (Fig. 8-24/9).
- Slip disc (Fig. 8-24/10) on and secure with locking ring (Fig. 8-24/11) and locknut (Fig. 8-24/12).
- Slip shaft protection sleeve (Fig. 8-24/13) on and secure with set screws.
- Slip stuffing box (Fig. 8-24/14) on.
- Insert packing (⇒ 8.6, Replacing the packing).



- | | |
|---|------------------------------|
| 1 Support pipe (not in scope of delivery) | 5 O-rings |
| 2 bearing housing | 6 Cylindrical roller bearing |
| 3 Oil tray | 7 Tapped holes |
| 4 Main bearing housing | 8 Labyrinth cover |

Fig. 8-25 Fitting the bearing unit in the main bearing housing

Fit bearing assembly in main bearing housing

Preconditions

- ✓ The oil tray (Fig. 8-25/3) of the main bearing housing (Fig. 8-25/4) is clean.
- ✓ Bearing seatings are clean and coated with lubricating oil (Tab. 8-10/1).
- Fit 2 O-rings (Fig. 8-25/5) in the bearing housing (Fig. 8-25/2).
- Fit the shaft with the pre-mounted bearing assembly in the main bearing housing (Fig. 8-25/4), repositioning the hook once.



The roller of the cylindrical roller bearing (Fig. 8-25/6) can be damaged when the shaft is inserted.

Always lead the shaft over the support pipe (Fig. 8-25/1) during insertion

- Position the mechanical stop in the flattening in the bearing housing (Fig. 8-25/2).
- Move shaft to final position.
- Turn the bearing housing (Fig. 8-25/2) at the same time until the drilled holes in the mechanical stop are flush with the 3 tapped holes (Fig. 8-25/7) in the main bearing housing (Fig. 8-25/4).



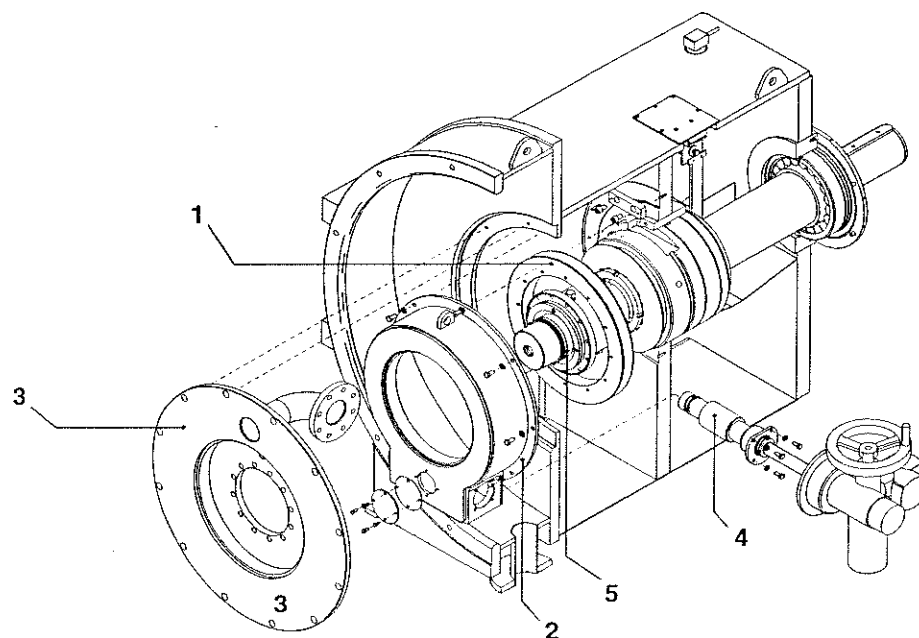
The mechanical stop must not block.

Otherwise the axial movement of the rotor is not ensured.

The play between the bearing housing and the mechanical stop must be approx. 0.1 mm.

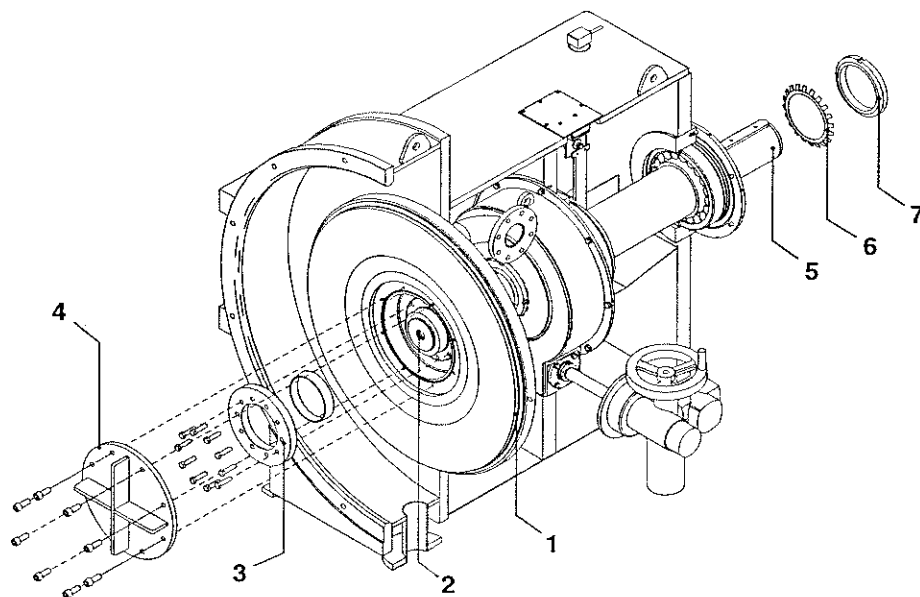
The stop must be additionally located using 2 adapter sleeves Ø 8 x 40.

- Fit the labyrinth cover (Fig. 8-25/8)



- | | |
|---------------|----------------|
| 1 Screw wheel | 4 Shaft |
| 2 Casing | 5 Stuffing box |
| 3 Cover | |

Fig. 8-26 Fitting the adjusting equipment



- | | |
|---------------|----------------|
| 1 Rotor | 5 Sleeve |
| 2 Shaft | 6 Locking ring |
| 3 Shrink disc | 7 Locknut |
| 4 Rotor cap | |

Fig. 8-27 Fitting the rotor

Fit the adjusting equipment

- Fit sleeve (Fig. 8-27/5), locking ring (Fig. 8-27/6) and locknut (Fig. 8-27/7).
- Fit screw wheel (Fig. 8-26/1) and casing (Fig. 8-26/2) (↔ Fig. 8-26, Fitting the adjusting equipment).
- Fit rotor adjustment shaft (Fig. 8-26/4).
- Fit cover (Fig. 8-26/3).
- Fit stuffing box (Fig. 8-26/5) on the cover.

Fit the rotor

- Press the rotor (Fig. 8-27/1) on the shaft (Fig. 8-27/2) with the fitting equipment.
- Fit shrink disc (Fig. 8-27/3) (↔ Sec. 12, Subcontractor Documentation) and rotor cap (Fig. 8-27/4)
- Close the disperger.
- Connect the compensator to the stock feed circuit.
- Readjust actuator and digital display (↔ Sec. 8.9, Readjusting the actuator and the digital display).

8.9 Readjusting the actuator and the digital display

Preconditions

→ Perform settings (⇔ Sec. 8.5, Adjusting the filling and the digital display).

Releasing the limit switch



→ Before the maximum positions can be adjusted, the relevant limit switch must be released (⇔ Fig. 8-29, Adjusting the Auma actuator).

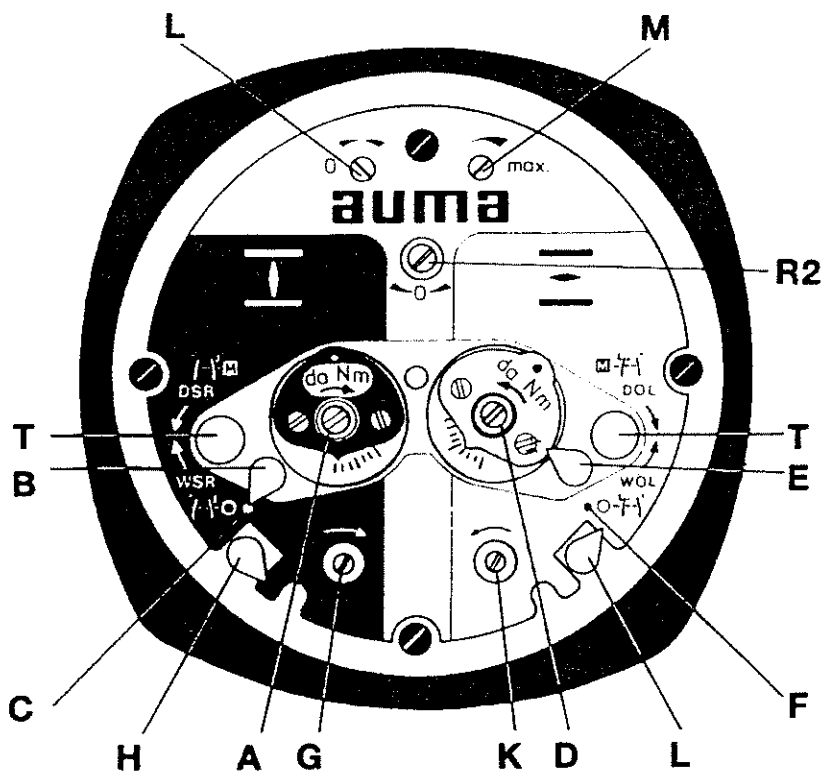


Fig. 8-28 Adjusting the Auma actuator

→ Press down and turn spindle **A** in direction of arrow (grating is heard and felt) until the pointer **B** has turned away from point **C** by 90°.

Setting the maximum position



If the filling clearance exceeds 9.5 mm, the bearings might be damaged.

Filling clearance must not exceed 9.5 mm.



The setting is carried out at VSR and must only be re-adjusted after the installation of the disperger bearing assembly.

The value indicated on the digital display for the maximum position is variable and changes by approx. ± 1 mm if the zero point is modified.

→ Use the “+” pushbutton of the local control unit to increase the filling clearance until 9.5 mm are reached.

□ digital display must read 9.5 mm.

Set the limit switch in the Auma actuator to secure the adjusted maximum position (⇨ Fig. 8-29, Adjusting the Auma actuator).

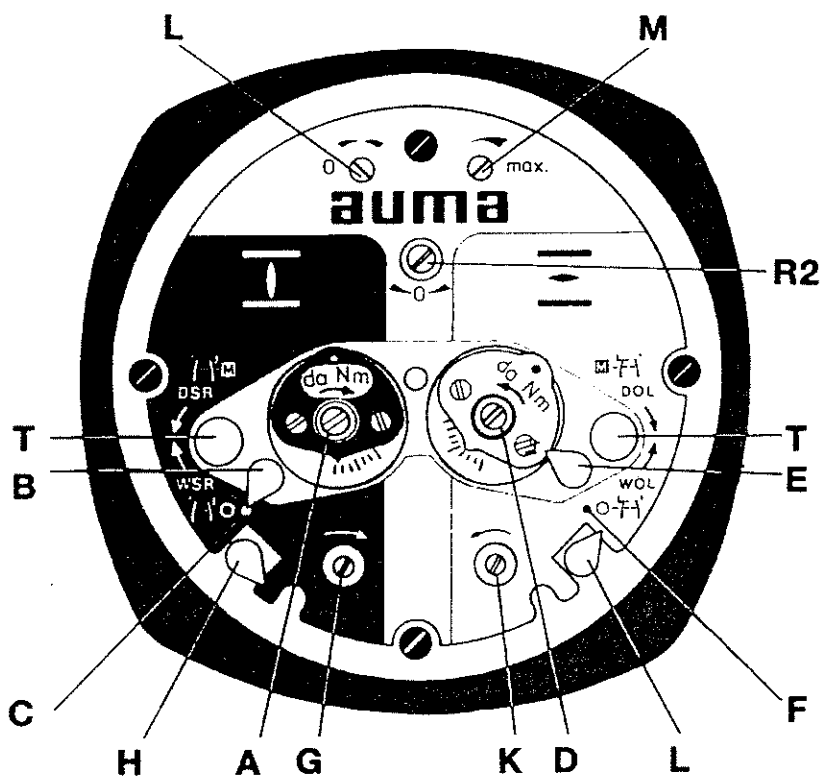


Fig. 8-29 Adjusting the Auma actuator

- Press down and turn spindle **A** in direction of arrow (grating is heard and felt).
- ☐ Pointer **B** moves for every 90° to point **C**.
- Stop turning the spindle after point **F** has been reached.



If the spindle has been inadvertently turned too far, continue turning and approach the setting point anew.

- Release spindle.



Make sure that the spindle jumps out by spring force to its original position. Otherwise adjustment is not effective.

If necessary, bring spindle to original position by slight knocks or with a screwdriver.

Checking the maximum position of the limit switch

- Use the “—” pushbutton to reduce the filling clearance until a value of approx. 8.5 mm appears on the digital display.
- Use the “+” pushbutton to increase the filling clearance until the Auma actuator switches off automatically.
- Check digital display.
- ☐ Display must show 9.5 mm.
- Repeat setting, if deviation exceeds ± 0.1 mm.



Check the maximum position at least twice.

Close control unit of Auma actuator.

Mount coupling guard.

8.10 Replacing the stock feed bearing unit

Special tools required

Designation	Usage	
Take-off equipment	Removing the screw	

Tab. 8-12 Special tools for screw bearing unit replacement

Auxiliary materials

Designation	Usage	
Lubricating oil (Energol CS 100)	Coating fittings, sleeves, bearing casing, bearing rings, retainers, rollers	
Assembly spray	Eases thread fittings	
Butt joint adhesive Burgmann Item No. 9131 30 G Set	Gluing sealing cording at the butt joints	
2-component Elastomer adhesive Burgmann Item No. 9230 300 G	For fixing at sealing points	

Tab. 8-13 Auxiliary materials for bearing replacement

Parts required

Part No.	Qty.	Designation
	1	Seal Ø 508 x 488 x 2
	1	Seal Ø 120 x 5
	1	Cellular rubber Ø 15 x 5000 (round)
	1	FK6 - ISKD 95. 0/STD
	1	FK6 - ISKD 90. 0/STD
	1	O-ring Ø 80 x 4
	1	O-ring Ø 105 x 3
	1	O-ring Ø 24 x 3
	1	Cylindrical roller bearing NU 318. 90 / 190 x 43
	1	Angular contact ball bearing 90 / 190 x 43

Tab. 8-14 Parts for bearing replacement

General



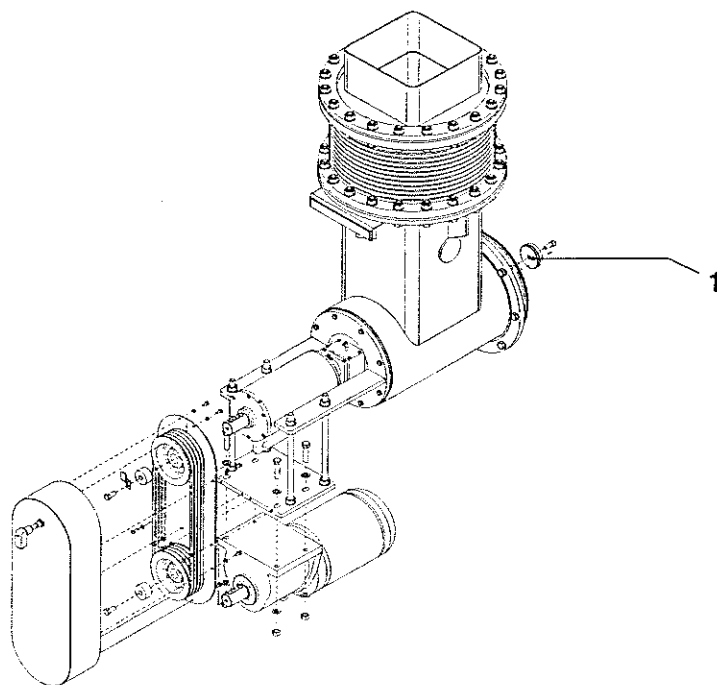
Do not perform any surface removal work such as sanding, planing etc. in close proximity.

Sanding dust and other impurities considerably reduce the service life of the bearing.

Choose a clean, isolated assembly location.

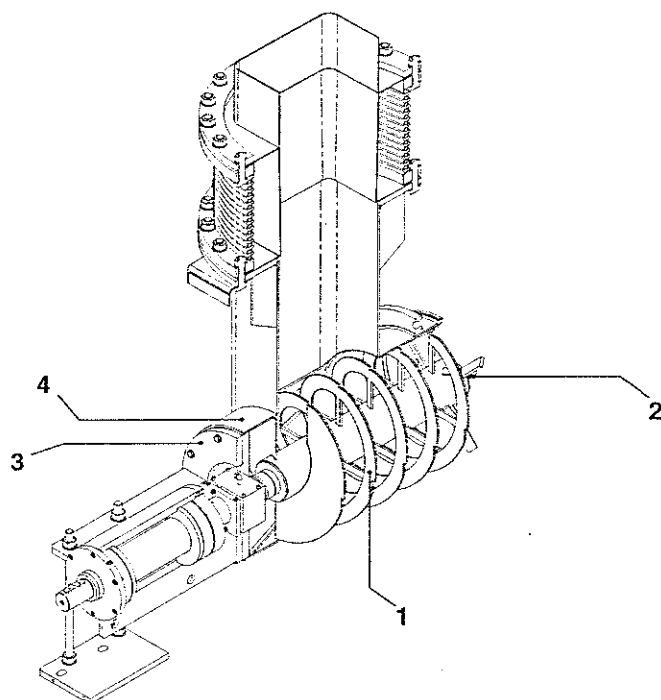
Observe the following points during bearing replacement:

- Renew all O-rings, lubricate and first insert them during the respective assembly step.
- Carefully clean all fittings, sleeves, bearing rings, retainers and rollers, check surfaces and coat with lubricating oil (Tab. 8-13/1).
- Clean all threads, check and spray with assembly spray (TTab. 8-13/2).
- Compare bearing designation with spare parts list.



1 Cover

Fig. 8-30 Removing the stock feed



1 Screw

2 Removal equipment

3 bearing housing

4 Screw casing

Fig. 8-31 Removing the screw

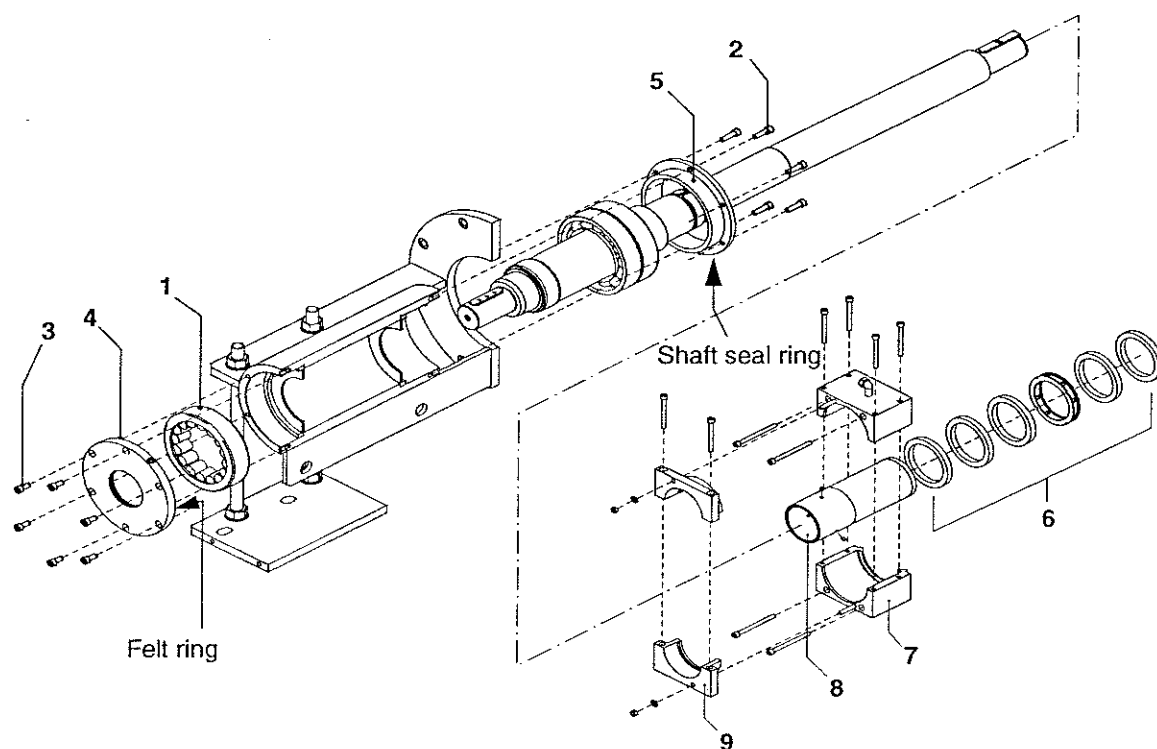
Preconditions

- ✓ Disperger is empty and flushed.
- ✓ Main switch is switched off and secured against unintentional switching on.
- ✓ Special tools, auxiliary materials and parts are available at the assembly location.
- ✓ A crane or other lifting device with a minimum load capacity of $F = 30000 \text{ N}$ (approx. 3 tons) is available

Open disperger (⇒ Page 8-9).

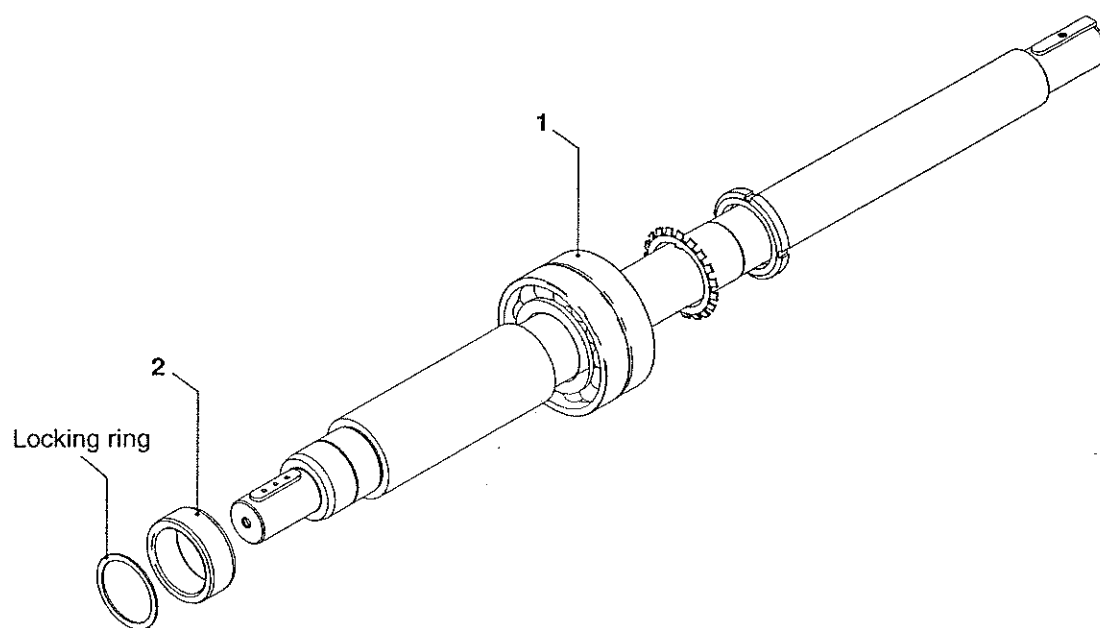
Remove stock feed

- Remove cover (Fig. 8-30/1)
- Remove drive (⇒ Fig. 8-30, Removing the stock feed)
- Press screw (Fig. 8-31/1) off with removal equipment (Fig. 8-31/2)
- Separate bearing housing (Fig. 8-31/3) from screw casing (Fig. 8-31/4)



- | | | |
|--------------|-----------------|---------------------------|
| 1 Outer ring | 4 Bearing cover | 7 Shaft protection sleeve |
| 2 Screw | 5 Bearing cover | 8 Stuffing box |
| 3 Screw | 6 Packing | 9 Packing gland |

Fig. 8-32 Removing the bearing housing



- | | |
|--------------------------------|--------------|
| 1 Angular contact ball bearing | 2 Inner ring |
|--------------------------------|--------------|

Fig. 8-33 Removing the bearing unit

Remove the bearing housing

- Remove bearing housing (⇔ Fig. 8-32, Removing the bearing housing)
- Renew outer ring (Fig. 8-32/1) of the cylindrical roller bearing.

Remove the stuffing box

- Remove packing (Fig. 8-32/6), shaft protection sleeve (Fig. 8-32/7), stuffing box (Fig. 8-32/8) and packing gland (Fig. 8-32/9) (⇔ Fig. 8-32, Removing the bearing housing).

Remove the bearing unit

- Remove the bearing unit (⇔ Fig. 8-33, Removing the bearing unit).

Fit the bearing unit

- Fit the bearing unit (⇔ Fig. 8-33, Removing the bearing unit).

Fit the stuffing box

- Fit shaft protection sleeve, stuffing box, packing and packing gland (⇔ Fig. 8-32, Removing the bearing housing).

Fit the bearing housing

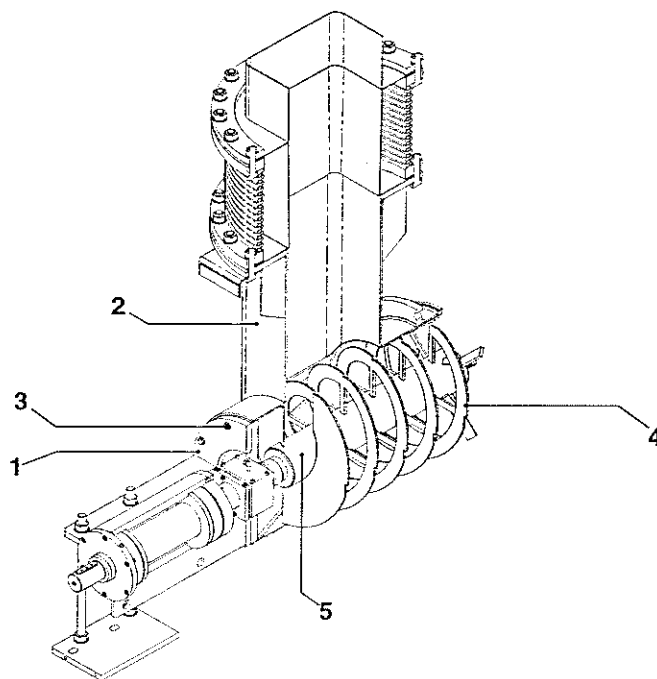
- Replace felt ring and shaft seal ring in bearing cover (Fig. 8-32/4 and 5).



Pay attention to the rollers of the cylindrical roller bearing (Fig. 8-32/1).

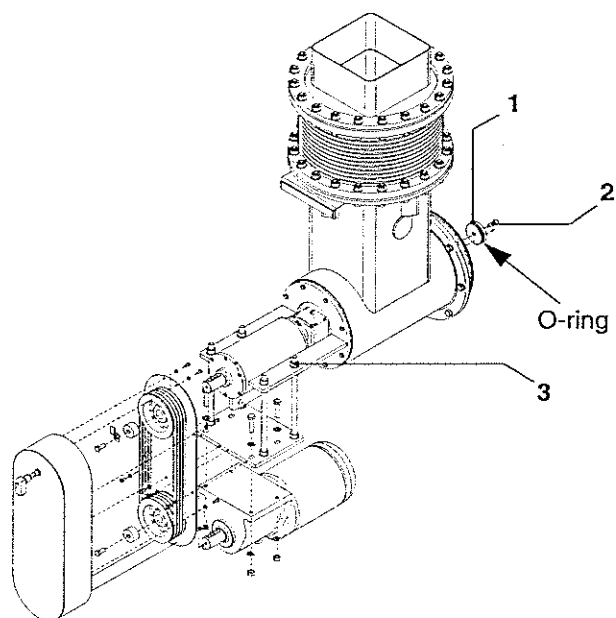
Insert the shaft carefully in the bearing housing.

- Fit the bearing housing (⇔ Fig. 8-32, Removing the bearing housing).
- Tighten screws (Fig. 8-32/2) with 35 Nm.
- Tighten screws (Fig. 8-32/3) with 35 Nm.



- | | | | |
|---|-----------------|---|-------|
| 1 | Bearing housing | 4 | Screw |
| 2 | Screw casing | 5 | Shaft |
| 3 | Screw | | |

Fig. 8-34 Fitting the screw



- | | | | |
|---|-------|---|-----|
| 1 | Cover | 3 | Nut |
| 2 | Screw | | |

Fig. 8-35 Fitting the stock feed

Fit the stock feed

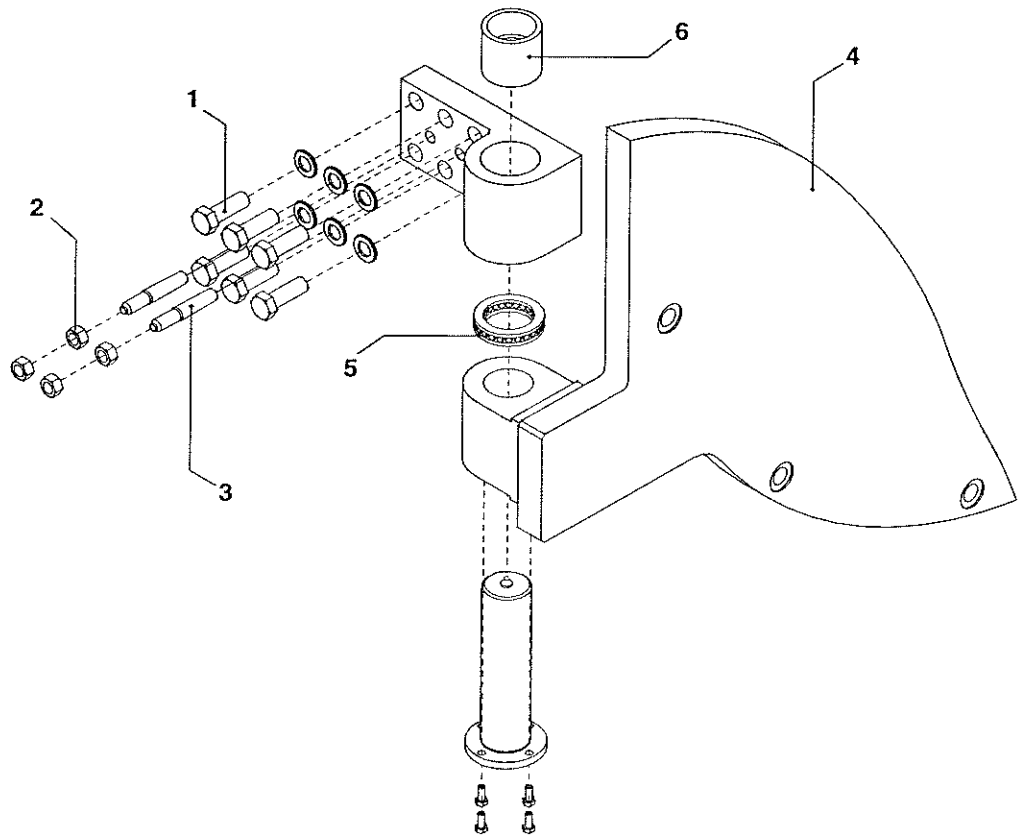
- Renew the shaft seal ring in the screw casing.
- Fit the bearing housing (Fig. 8-34/1) to the screw casing (Fig. 8-34/2).
- Tighten screws (Fig. 8-34/3) with 60 Nm.
- Slip screw (Fig. 8-34/4) on shaft (Fig. 8-34/5).
- Renew the O-rings in the cover (Fig. 8-35/1).
- Fit cover (Fig. 8-35/1) in screw (Fig. 8-34/4) with screw (Fig. 8-35/2).
- Tighten screw (Fig. 8-35/2) with 150 Nm.

Fit the drive

- Fit drive (⇒ Fig. 8-35, Fitting the stock feed).
- Set V-belt tension with nuts (Fig. 8-35/3) (⇒ Sec. 8.9, Readjusting the actuator and the digital display).

Close the disperger (⇒ Page 8-12)

8.11 Replacing the swing cover bearing



- | | |
|---------------|---------------------------------------|
| 1 Screw | 4 Swing cover |
| 2 Nut | 5 Self-aligning roller thrust bearing |
| 3 Tapered pin | 6 Bush |

Fig. 8-36 Replacing the swing cover bearing

Auxiliary materials

Designation	Usage	
Lubricating oil (Energol CS 100)	Coating fittings, sleeves, bearing housings, bearing rings, retainers, rollers	
Assembly spray	Eases thread fittings	

Tab. 8-15 Auxiliary materials for swing cover bearing replacement

Parts required

Part No.	Qty.	Designation
	1	Self-aligning roller thrust bearing Ø 60 / 85 x 17
	1	Bush MB 6040 DU Ø 60 / 65 x 40

Tab. 8-16 Parts for swing cover bearing replacement

General



Do not perform any surface removal work such as sanding, planing etc. in close proximity.

Sanding dust and other impurities considerably reduce the service life of the bearing.

Choose a clean, isolated assembly location.

Observe the following points during bearing replacement:

- Renew all O-rings, lubricate and first insert them during the respective assembly step.
- Carefully clean all fittings, sleeves, bearing rings, retainers and rollers, check surfaces and coat with lubricating oil (Tab. 8-15/1).
- Clean all threads, check and spray with assembly spray (Tab. 8-15/2).
- Compare bearing designation with spare parts list.

Preconditions

- ✓ Main switch is switched off and secured against unintentional switching on.
- ✓ Disperger is empty and flushed.
- ✓ Special tools, auxiliary materials and parts are available at the assembly location.
- ✓ A crane or other lifting device with a minimum load capacity of $F = 30,000 \text{ N}$ (approx. 3 tons) is available.

Remove swing cover

- Open the disperger.
- Hang the swing cover on a crane.
- Loosen screws (Fig. 8-36/1).
- Loosen nuts (Fig. 8-36/2).
- Remove tapered pins (Fig. 8-36/3).
- Lay swing cover (Fig. 8-36/4) on a clean assembly surface.

Replace the swing cover bearing

- Remove the swing cover bearing (⇒ Fig. 8-36, Replacing the swing cover bearing).
- Renew the self-aligning roller thrust bearing (Fig. 8-36/5) and bush (Fig. 8-36/6).
- Fit the swing cover bearing (⇒ Fig. 8-36, Replacing the swing cover bearing).

Fit the swing cover

- Hang the swing cover on a crane.
- Position the swing cover on the bearing housing.
- Fit tapered pins (Fig. 8-36/3).
- Tighten screws (Fig. 8-36/1) with 300 Nm.
- Lock nuts (Fig. 8-36/2).
- Check centring of the swing cover with the bearing housing.

9 Spare parts



We recommend storing spare parts in good time because long delivery times cannot always be avoided.

Use the printed form to order spare parts (→ Sec. 11, Appendix).

The position numbers in the following list in the drawings in Section 10.

9.1 Wearing parts

Pos. No.	Qty.	Designation	Part No.
009	1	Shaft protection sleeve D 155/140 x 302.5	4041914
010	3	Threaded pin DIN 914 M 6 x 10	0269410
011	1	O-ring 140 x 5	4029109
012	1	O-ring 146 x 5	4044347
022	6	Packing cord 16 x 16 x 560	0556316
091	1	Rotor segment set G1	4044952
092	48	Hexagon screw DIN 933 M 16 x 30	0227563
094	1	Stator segment set G1	4044956
238	1	O-ring 62 x 3	4560724
239	1	Shaft protection sleeve D 68/55 x 242,5	4034819
240	3	Threaded pin DIN 914 M 6 x 10	0269410
248	5	Packing cord 12 x 12 x 290	0556312

Tab. 9-1 Wearing parts

*Use our spare parts
list #EP-356-002*

9.2 Spare parts

Pos. No.	Qty.	Designation	Part No.
008	1	Bearing unit HTD3-P	4042161
009	1	Shaft protection sleeve D 155/140 x 302.5	4041914
014	1	O-ring 780 x 6	4043381
017	1	O-ring 280 x 4	4550314
030	1	O-ring 350 x 5.5	4026109
035	1	O-ring 170 x 4	4029314
036	1	Lock nut DIN 981 KM 34 M 170 x 3	0886127
037	1	Locking washer DIN 5406 MB 34	0886325
082	1	O-ring 380 x 6	4044343
083	1	Shrink disc	4042563
123	2	Thrust ball bearing DIN 711 51110 50 x 70 x 14	00881410
124	2	Needle bearing NKJ45/25N D 45/62 x 25	4028349
129	1	Lamellar ring set	4044374
130	1	Locking washer DIN 5406 MB 9	0886305
131	2	Lock nut DIN 981 KM 9 M 45 x 1.5	0886105
181	2	Cylindrical roller thrust bearing D 60/85 x 17	4028387
182	4	Sleeve D 60/65 x 40	4030990
203	1	O-ring 376 x 6	0830722
212	1	Screw D 335 x 660	4460545
215	1	O-ring 95 x 3	4460555
218	1	O-ring 24 x 3	4460558
222	1	Felt ring	0558013
228	2	Angular contact ball bearing 60/130 x 31	4460534
229	1	Cylindrical roller bearing 60/130 x 31	4460535
232	1	Locking washer DIN 5406 / 1B12	0886308

Tab. 9-2 Spare parts

Pos. No.	Qty.	Designation	Part No.
233	1	Lock nut DIN 981 KM 18 M 60 x 2	0886108
252	1	Shaft seal DIN 3760 A 68 x 100 x 10	4034825
291	1	Geared motor - speed 260 rpm	4017536
299	4	V-belt SPB	4460909

Tab. 9-2 Spare parts

9.3 Commercially available wearing parts and spares

Pos. No.	Qty.	Designation	Part No.
022	6	Packing cord 16 x 16 x 560	0556316
123	2	Thrust ball bearing DIN 711 51110 50 x 70 x 14	00881410
124	2	Needle bearing NKJ45/25N D 45/62 x 25	4028349
181	2	Cylindrical roller thrust bearing D 60/85 x 17	4028387
228	2	Angular contact ball bearing 60/130 x 31	4460534
229	1	Cylindrical roller bearing 60/130 x 31	4460535
248	5	Packing cord 12 x 12 x 290	0556312
299	4	V-belt SPB	4460909

Tab. 9-3 Commercially available wearing parts and spares

NOTICE

Only use rolling bearings with metal retainer.



10 Main Parts List

General

The main parts list is designed so that parts can be identified in an overview drawing and in the respective list.

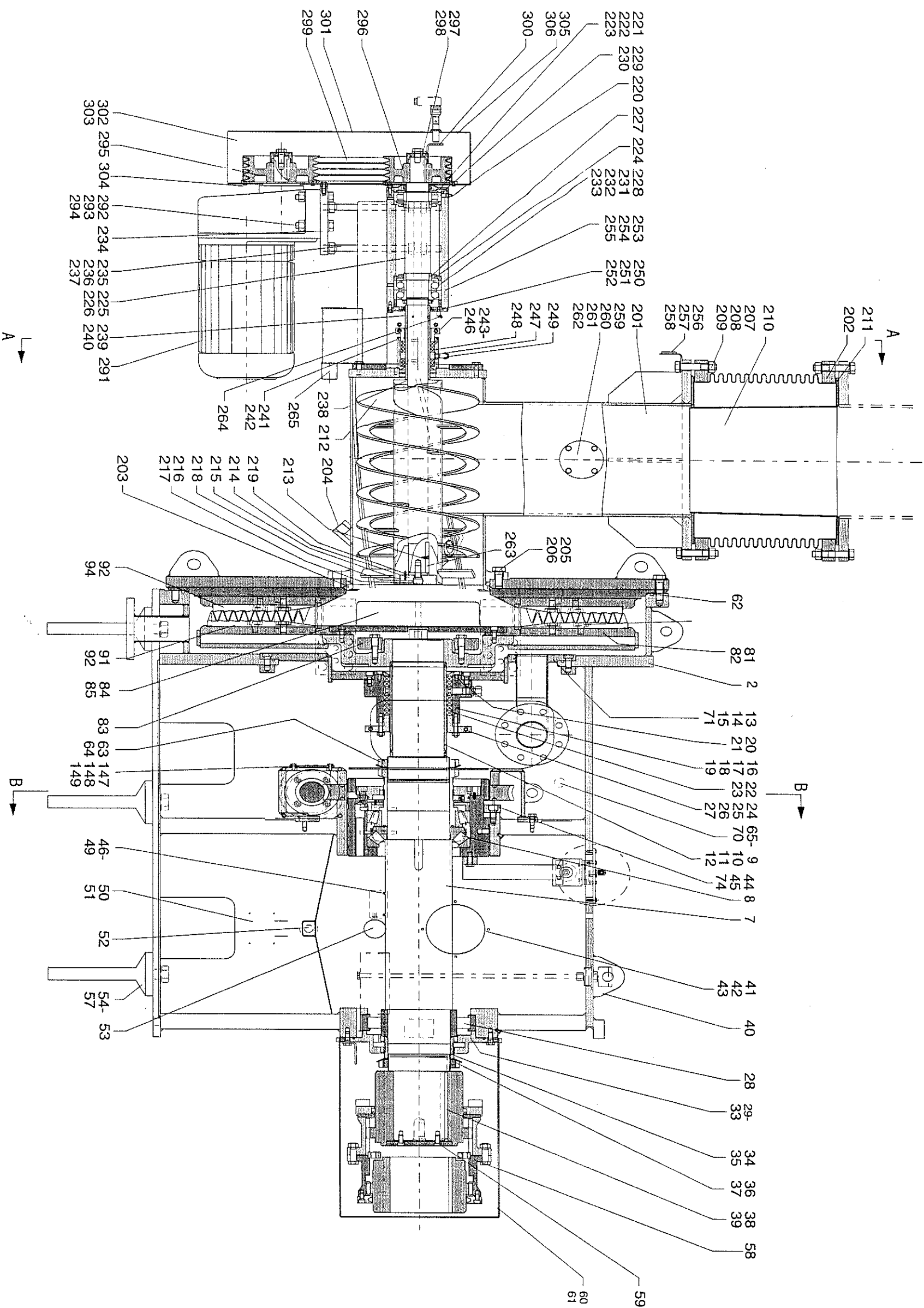


Fig. 10-1 Side view

10.1 Side view

Pos. No.	Qty.	Designation	Part No.
002	1	Bearing housing 1522 x1508 x 1452	4035024
007	1	Primary shaft D 183 x 1659	4043378
008	1	Bearing unit HTD3-P	4042161
009	1	Shaft protection sleeve D 155/140 x 302.5	4041914
010	3	Threaded pin DIN 914 M 6 x 10	0269410
011	1	O-ring 140 x 5	4029109
012	1	O-ring 146 x 5	4044347
013	1	Retaining cover 860 /238 x 357	4035025
014	1	O-ring 780 x 5	4043381
015	12	Socket head cap screw DIN 6912 M 16 x 30	0286141
016	1	Stuffing box casing D 294/187 x 153	4041916
017	1	O-ring 280 x 4	4550314
018	12	Socket head cap screw DIN 912 M 12 x 25	0286142
019	1	Screw connection DIN 2353	0499081
020	1	Final ring D 238/155, 5 x 15	4043382
021	4	Socket head cap screw DIN 912 M 8 x 16	0286103
022	6	Packing cord 16 x 16 x 560	0556316
023	1	Seal cage D 187/156 x 28	4041917
024	1	Packing gland D 290 x 230 x 55	4041918
025	4	Locking screw DIN 939 M 10 x 50	0256329
026	4	Hexagon nut DIN 934 M 10	0311010
027	4	Washer DIN 125 10.5	0331020
028	1	Cylindrical roller bearing	4570115
029	1	Labyrinth cover D 430/192 x 72	4026108
030	1	O-ring 350 x 5.5	4026109
031	6	Hexagon screw DIN 933 M 12 x 30	0227514
032	6	Washer DIN 125 13	0331021

Pos. No.	Qty.	Designation	Part No.
033	1	Dowel pin DIN 1481 8 x 20	0377242
034	1	Sleeve D 190/170 x 72	4026110
035	1	O-ring 170 x 4	4029314
036	1	Locknut DIN 981 KM 34 M 170 x 3	0886127
037	1	Locking washer DIN 5406 MB 34	0886325
038	1	Key 36 x 20 x 220	0126036
039	2	Threaded pin DIN 913 M 12 x 20	0269148
040	1	KSR solenoid switch	4033097
041	2	Cover D 200 x 5	4026112
042	2	Seal D 200 x 2	0550120
043	8	Hexagon screw DIN 933 M 8 x 16	0227451
044	1	Limit stop 160 x 40 x 25	4042202
045	2	Socket head cap screw DIN 912 M 16 x 25	0286200
046	1	Label right 90 x 50 x 3	4042972
047	1	Label left 90 x 50 x 3	4042971
048	4	Hexagon screw DIN 933 M 6 x 10	0227422
049	4	Washer DIN 125 6.4	0331016
050	1	Pressure vessel plate 148 x 105 x 2.5	0888690
051	4	Round head grooved pin DIN 1476, 3 x 10	0374058
052	2	ELESA - solenoid plug	4026116
053	2	ELESA - oil sight glass	4026117
054	6	Foundation block DIN 799 M 24 x 250	4640130
055	6	Hexagon screw DIN 933 M 24 x 60	0227687
056	6	Washer DIN 125 25	0331026
057	6	Hexagon screw DIN 933 M 16 x 70	0227571
058	1	ZAPEX coupling	4570134
059	4	Socket head cap screw DIN 912 M 12 x 25	0284679
060	2	Protective plate D 583 x 436 x 248	4028265

Pos. No.	Qty.	Designation	Part No.
061	10	Socket head cap screw DIN 912 M 8 x 16	0286103
062	1	O-ring D1265 x 8	0540008
063	1	Flinger D350/170 x 5	4043493
064	1	Locknut DIN981 KM34 M170 x 3	0886127
065	1	Vibration pickup TRV-01	4044346
066	1	Socket head cap screw DIN 912 M 4 x 10	0284053
067	1	Isolation TRX-14	4044397
068	1	Vibration monitor VIB-20	4044398
069	1	Measuring cable with anti-kink sleeve SMA/TNC connector	4044399
070	1	Warning sign "GB" 255 x 150	4045162
071	1	Screw plug VSTI G1 - ED	0254610
074	2	Dowel pin DIN1481 8 x 40	0377245
081	1	Rotor D 1180/140 x 132	4044754
082	1	O-ring 380 x 6	4044343
083	1	Shrink disc	4042563
084	1	Rotor cap D 485 x 105	4044749
085	8	Socket head cap screw DIN 912 M 12 x 20	0286141
091	1	Rotor segment set G1	4018572
092	48	Hexagon screw DIN 933 M 16 x 30	0227563
094	1	Stator segment set G1	4018571
201	1	Screw casing 995 x 719,5 x 645	4043000
202	1	Compensator DN 500 x 380	4043383
203	1	O-ring 376 x 6	0830722
204	3	Screw plug DIN 908	0254508
205	8	Hexagon screw DIN 933 M 20 x 50	0225299
206	8	Washer DIN 125, 21	0330020
207	20	Hexagon screw DIN 933 M 20 x 100	0222309
208	20	Hexagon nut DIN 934 M 20	0311020

Pos-Nr.	An-zahl	Benennung	Magazin-Nr.
291	1	Geared motor - speed 260 rpm	4017536
292	4	Hexagon screw DIN 931 M 20 x 100	0221421
293	8	Washer DIN125	0331024
294	4	Hexagon nut DIN 934	0311020
295	1	Belt pulley SPB DW 200	4016090
296	1	Belt pulley SPB DW 180	4016336
297	2	Washer D 60/19 x 33	4016337
298	2	Hexagon screw DIN 933 M 16 x 35	0227564
299	4	V-belt SPB LW 1320	4460909
300	1	Plug-in connector Gl.102 x 25 x 4	4042056
301	1	Guard 656 x 290 x 168	4018234
302	1	Upper section, 2 parts, 660 x 290 x 8	4012684
303	4	Hexagon screw DIN 933 M 8 x 16	0227451
305	4	Washer Din125, 5,3	0331015

Tab. 10-1 Parts, shown in Fig. 10-1, side view

Pos-Nr.	An-zahl	Benennung	Magazin-Nr.
238	1	O-ring 62 x 3	4560724
239	1	Shaft protection sleeve D 68/55 x 242,5	4034819
240	3	Threaded pin DIN 914 M 6 x 10	0269410
241	1	Packing gland, 2 parts, 120 x 114 x 106	4043031
242	4	Socket head cap screw / DIN 912 M 8 x 100	0286119
243	1	Packing gland, 2 parts, 120 x 114 x 44	4043030
244	2	Locking screw DIN939 M8 x 40	4034822
245	2	Hexagon nut DIN 934 M 8	0312008
246	2	Washer DIN 125	0331018
247	1	Seal cage D 92/96,5 x 20	4034823
248	5	Packing cord 12 x 12 x 290	0556312
249	1	Fitting DIN 2353	0498002
250	1	Cover D 166/70 x 14	4034824
251	6	Hexagon screw DIN 933 M 8 x 20	0225106
252	1	Shaft seal DIN 3760 A 68 x 100 x 10	4034825
253	1	bearing housing D 356/120 x 580	4043002
254	8	Hexagon screw DIN 933 M 12 x 35	0225198
255	8	Washer DIN 125, 13	0330012
256	1	Angle 3 x G.B. 153 x 350	4044386
257	1	Company plate „VSR“ 328 x 50 x 5; H = 25	0888510
258	4	Countersunk screw DIN 963 M 4 x 10	0242024
259	1	Cover D 120 x 5	4028358
260	1	Seal D 120/80 x 2	0550120
261	4	Hexagon screw DIN 933 M8 x 20	0227453
262	4	Washer DIN125 8,4	0331018
263	1	Sunk key A 16 x 10 x 100	4016260
264	1	Lubrication nipple DIN 71412	0875525
265	1	Splash guard 235 x 230 x 118	4044387

Pos-Nr.	An-zahl	Benennung	Magazin-Nr.
209	40	Washer DIN 125, 21	0330020
210	1	Guide plate D 540 x 400	4043384
211	2	Seal D 540/520 x 2	0550120
212	1	Screw D 335 x 660	4460545
213	1	Socket head cap screw DIN 6912 M 5x 12	0284575
214	1	Retaining plate D 99 x 30	4016293
215	1	O-ring D 95 x 3	4460555
216	1	Socket head cap screw DIN 912 M 16 x 45	0286204
217	1	Lock washer (Schnorr)	0345093
218	1	O-ring 24 x 3	4460558
219	1	Clamping pin DIN 1481 5 x 20	0377215
220	2	Lubrication nipple DIN 71412	0875521
221	1	Bearing cover D 170/61,5 x 19	4460526
222	1	Felt ring DIN5419 60	0558013
223	6	Hexagon screw DIN 933 M8 x 20	0227453
224	2	Shoulder ring D 130/78 x 20	4460529
225	1	Shaft D 70 x 1340	4044923
226	1	Key A 12 x 8 x 60	0126012
227	2	Spacer D 76,5/62 x 25	4460533
228	2	Angular contact ball bearing 60/130 x 31	4460534
229	1	Cylindrical roller bearing NU 312	4460535
230	1	Locking ring DIN 471 60 x 2	0348060
231	1	Spacer DA 130/114,7 x 24	4044384
232	1	Locking washer DIN 5406 MB 12	0886308
233	1	Lock nut DIN 981 KM 12 M 60 x 2	0886108
234	1	Plate 400 x 220 x 20	4012677
235	4	Locking screw M 20 x 330	4016014
236	12	Hexagon nut DIN 934 M 20	0311020
237	12	Washer DIN 125 21	0331024

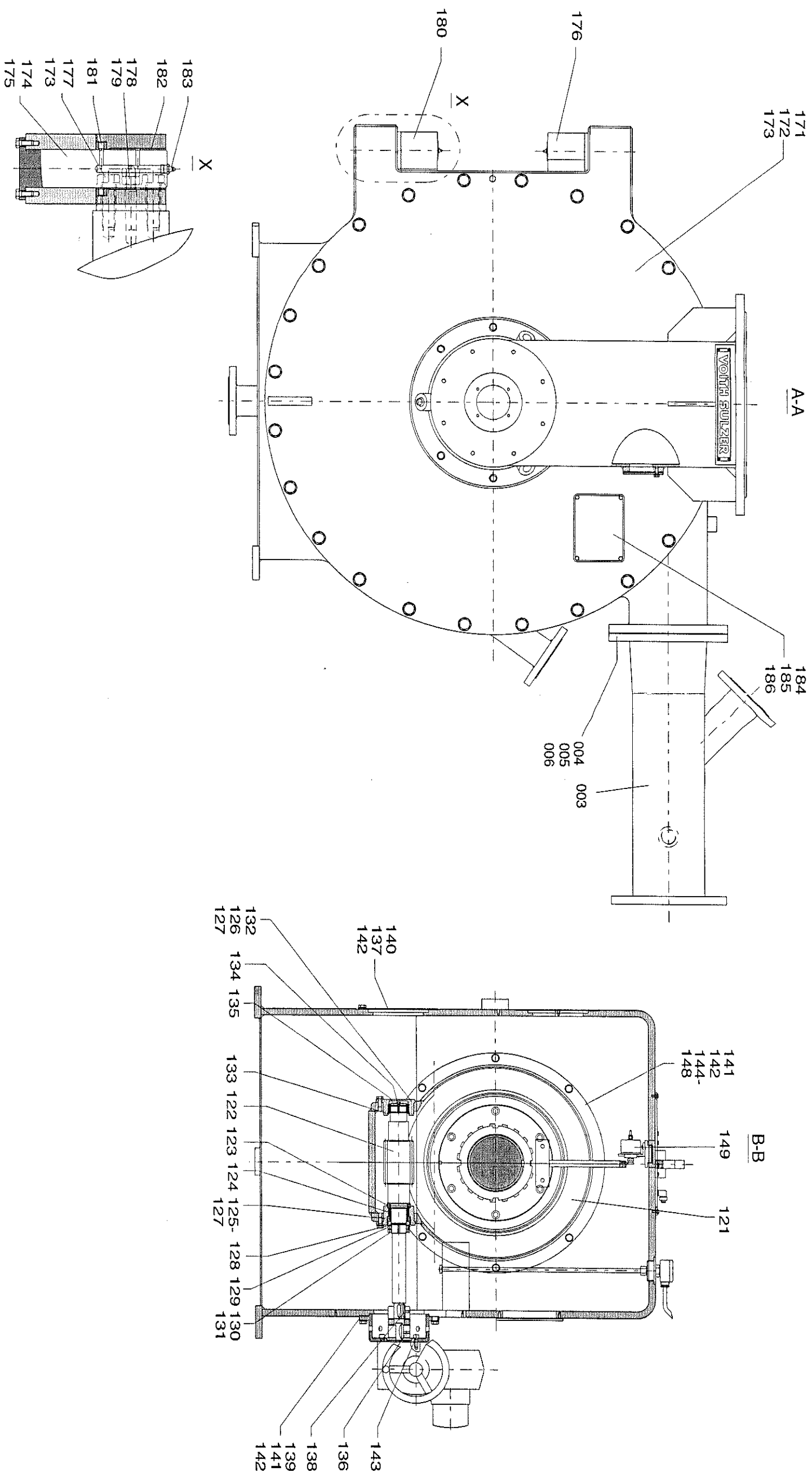


Fig. 10-2 Front view

10.2 Front view

Pos. No.	Qty.	Designation	Part No.
003	1	Reducer	4044903
004	12	Hexagon screw DIN 931 M 20 x 80	0221419
005	12	Hexagon nut DIN 934 M 20	0311020
006	1	Seal 365 x 350 x 2	4035894
121	1	Screw gear D 520 x 50	4028345
122	1	Screw shaft D 90 x 626	4044382
123	2	Thrust ball bearing DIN 711 51110 50 x 70 x 14	0881410
124	2	Needle bearing NKJ45/25A D 45/62 x 25	4028349
125	1	Bearing cover D 135 x 56	4028350
126	8	Hexagon screw DIN 933 M 10 x 25	0227483
127	8	Washer DIN 125 10,5	0331020
128	1	Cover D 70 x 25	4028351
129	1	Lamellar ring set	4044374
130	1	Locking washer DIN 5406 MB 9	0886305
131	2	Lock nut DIN 981 KM 9 M 45 x 1.5	0886105
132	1	Bearing cover D 135 x 47	4028353
133	1	Locking ring DIN 472 62 x 2	0348562
134	1	Hexagon screw DIN 933 M 6 x 16	0227424
135	1	Cover D 49 x 6	4028354
136	1	Flexible coupling -type R 28/38	4038269
137	4	Hexagon screw DIN 933 M 12 x 16	0227510
138	1	Key DIN 6885 A 8 x 7 x 36	0126008
139	1	Flange D 240/60 x 80	4037397
140	1	Cover D 240 x 5	4043497
141	11	Hexagon screw DIN 933 M 12 x 30	0227514
142	15	Washer DIN 125	0331021
143	4	Socket head cap screw DIN 912 M 10 x 20	0286123

Pos. No.	Qty.	Designation	Part No.
144	1	Casing 720 x 650 x 175	4030753
145	1	Digital display	4043092
146	1	Electric actuator (AUMA)	4037237
147	1	Cover D120 x 5	4028358
148	1	Seal D120/80 x 2	0550120
149	4	Hexagon screw DIN 933 M 8 x 16	0227451
171	1	Swing cover 1497 x 1365 x 267	4035873
172	25	Hexagon screw DIN 931 M 20 x 70	0221417
173	36	Washer DIN 125	0331024
174	2	Hinge pin D 98 x 232	4031804
175	8	Hexagon screw DIN 933 M 8 x 20	0227453
176	1	Hinge B 245 x 120 x 109	4034829
177	12	Hexagon screw DIN 933 M 20 x 70	0227628
178	4	Tapered pin DIN 7977 16 x 100	0373260
179	8	Hexagon nut DIN 934 M 16	0311016
180	1	Hinge A 245 x 120 x 109	4043386
181	2	Cylindrical roller thrust bearing D 60/85 x 17	4028387
182	4	Sleeve D 60/65 x 40	4030990
183	2	Lubrication nipple DIN 71412	0875521
184	1	Warning sign 200 x 150 x 3	4042970
185	4	Hexagon screw DIN 933 M6 x 10	0227422
186	4	Washer DIN125	0331016

Tab. 10-2 Parts, shown in 10.2, Front view

11 Appendix

The appendix includes:

- 3 Order Forms for Spare Parts

Voith Sulzer Paper Technology North America , Inc.
 603 West Street
 Mansfield, Ma 02048-1120
 Fax No.: (508) 2618810

Order Form for Spare Parts

Customer:

Address:

Prepared by:

Dept. / Tel.:

Order No.:

Codeword:

Order No.:

Machine designation:

Type / Size:

Serial No.:

Sender

Data from operating instructions

Part No.	Quantity	Designation

Requested delivery date:

Requested shipment:

Firm stamp:

Date, signature:

VOITH SULZER
 Stoffaufbereitung GmbH
 Postfach 2120
 D-88191 Ravensburg
 Fax: 0751/83 22 80

Order Form for Spare Parts

Customer:
 Address:

 Prepared by:
 Dept. / Tel.:
 Order No.:

 Codeword:
 Order No.:
 Machine designation:
 Type / Size:
 Serial No.:

Sender

Data from operating instructions

Part No.	Quantity	Designation

Requested delivery date:
 Requested shipment:
 Firm stamp:
 Date, signature:

VOITH SULZER
Stoffaufbereitung GmbH
Postfach 2120
D-88191 Ravensburg
Fax: 0751/83 22 80

Order Form for Spare Parts

Customer:
Address:
.....
Prepared by:
Dept. / Tel.:
Order No.:
.....
Codeword:
Order No.:
Machine designation:
Type / Size:
Serial No.:

Sender

Data from operating instructions

Part No.	Quantity	Designation

Requested delivery date:
Requested shipment:
Firm stamp:
Date, signature:

12 Subcontractor Documentation

Contents:

- 1 copy of operating instructions for gear motor; type G51-10/D4A4-381 M, make Bauer
- 1 copy of operating instructions for actuator; type SAR 10.1, make **auma** Werner Rister GmbH & Co. KG
- 1 copy of operating instructions for shrink disc, make Ringfeder

Eberhard Bauer GmbH & Co
Postfach 108 Eberhard-Bauer-Str. 36-60
D-73726 Esslingen D-73734 Esslingen

Telefon (0711) 3 51 80
Telefax (0711) 3 51 83 81
Telex 7 256 563

BAUER

Einzelteilverzeichnis und Schnittzeichnung

Parts list and sectional drawing

Liste des pièces et dessin en coupe

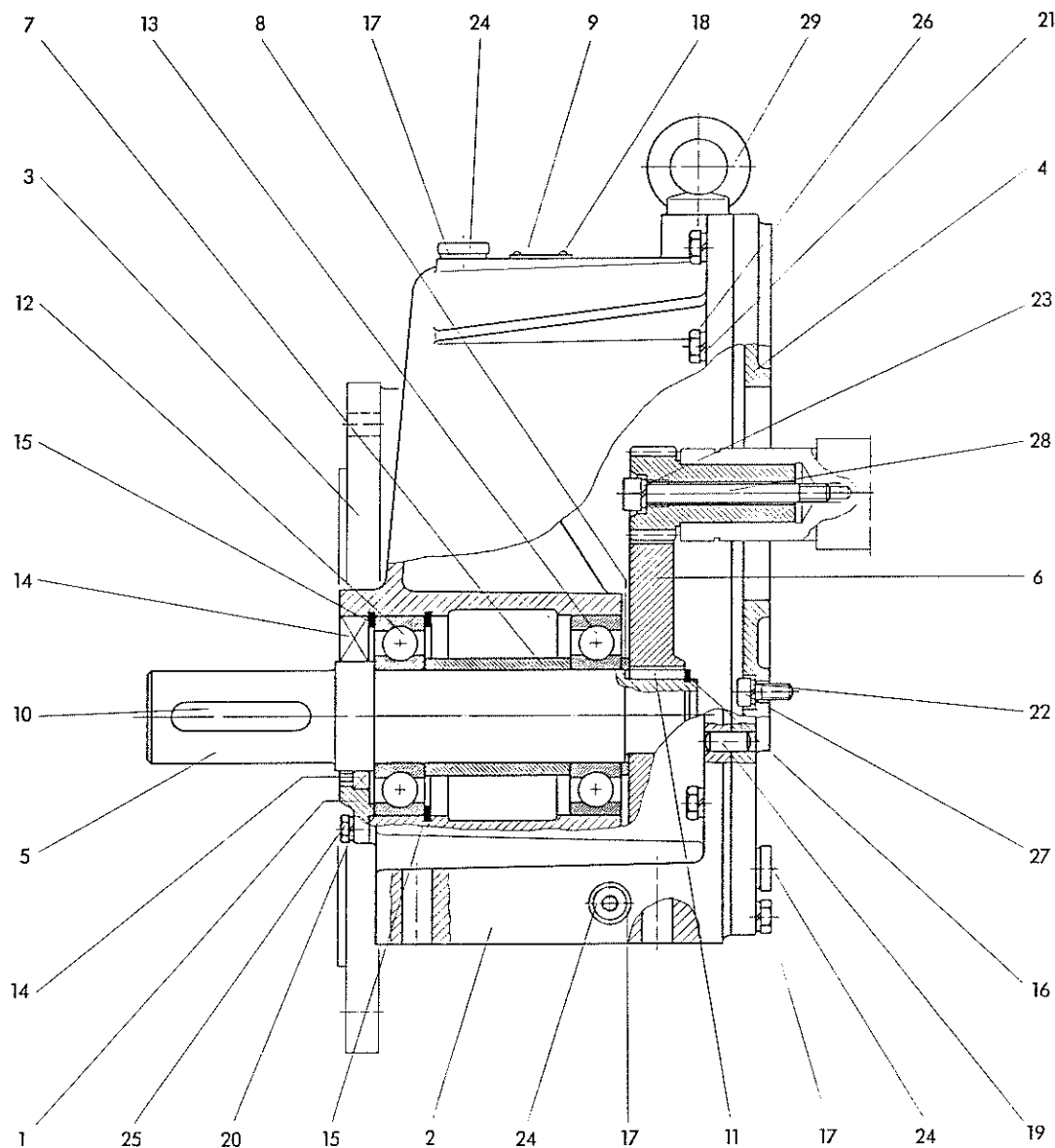
Despiece y sección

Спецификация деталей и чертёж двигателя в разрезе

ET-G 1

Getriebe Typ
Gear unit type
Réducteur type
Reductor tipo
Редуктор тип

G 01
G 11
G 21
G 31
G 41
G 51
G 61
G 71
G 81
G 91
G 101
G 111



	G01		G11		G21		G31		G41		G51	
Teil-Nr. Part-No. Pieza No. Деталь №	Stück Quantity Pièces Cantidad шт.	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Stück Quantity Pièces Cantidad шт.	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Stück Quantity Pièces Cantidad шт.	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Stück Quantity Pièces Cantidad шт.	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Stück Quantity Pièces Cantidad шт.	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Stück Quantity Pièces Cantidad шт.	Bestell-Nr. Order No. Comm. No. Código № Заказ №
1	—	—	1	3025110	1	3025110	1	3025152	1	3025195	1	3025781
2	1	1329081*	1	1329103*	1	1329120*	1	1301233*	1	1301250*	1	1301276*
3	1	*		*		*	1	*		*		*
4	1	1329472	1	1329499	1	1329511	1	1302671	1	1302698	1	1302710
5	1	1329596*	1	1329618*	1	1329634*	1	1303252*	1	1303279*	1	1303295*
6	1	*/**	1	*/**	1	*/**	1	*/**	1	*/**	1	*/**
7	1	1329651	1	1329677	1	1329677	1	1304542	1	1304615	1	1304577
8	1	1329669	1	1329685	1	1329685	1	1304551	1	1304623	1	1304585
9	1	*	1	*	1	*	1	*	1	*	1	*
10	1	1054961	1	1021729	1	1021729	1	1000705	1	1000705	1	1038427
11	1	1329715	1	1011511	1	1329723	1	1305131	1	1305166	1	1305182
12	1	1010166	1	1015672	1	1015672	1	1010174	1	1015532	1	1015541
13	1	1010166	1	1015672	1	1015672	1	1010174	1	1015532	1	1015541
14	1	1329731	1	1329740	1	1329740	1	1010913	1	1304356	1	1304321
15	2	1000365	1	1015966	1	1015966	1	1000373	1	1000381	1	1000403
16	1	1011201	1	1011227	1	1011235	1	1000179	1	1011260	1	1011278
17	4/3	1206851	3/4	1206851	3/4	1208063	4/3	1208063	3/4	1011600	3/4	1011600
18	2	1000128	2	1000128	2	1000128	2	1000128	2	1000128	2	1000128
19	2	1435094	2	1435094	2	1305573	2	1305573	2	1305581	2	1305581
20	—	—	4	1010468	4	1010468	4	1010476	4	1010484	4	1010484
21	8	1010476	8	1010484	8	1010492	8	1010492	8	1010441	8	1010441
22	6	1011669	6	1011677	6	1000969	6	1011626	6	1011626	6	1011626
—	—	—	—	—	—	—	—	—	—	—	—	—
24	4/3	1108492	3/4	1108492	3/4	1022130	4/3	1022130	4/3	1011821	4/3	1011821
25	—	—	4	1217143	4	1217143	4	1012053	4	1365703	4	1365703
26	8	1034006	8	1001141	8	1366921	8	1001159	8	1001078	8	1001078
27	6	1011855	6	1050265	6	1022237	6	1022156	6	1022156	6	1022156
—	—	—	—	—	—	—	—	—	—	—	—	—
29	—	—	—	—	—	—	1	1340204	1	1011383	1	1011383
30	*	*	*	*	*	*	*	*	*	*	*	*

*
Wegen möglicher unterschiedlicher technischer Auslegung Muster für die Bestellung:

Für Bauer Antrieb

Typ

Motor-Nr.

Stück

Benennung

*
Due to a different possible technical layout order example:

For Bauer drives

type

motor no

pieces

designation

*
Du fait d'une possible différence dans le dimensionnement technique prière de fournir un modèle lors de la commande:

Pour entraînements Bauer

type

moteur no

pièces

designation

*
Ante la posibilidad de versiones técnicamente diferentes modelo de pedido:

Para accionamiento Bauer

tipo

motor Nº

cantidad

designación

*
Из-за возможной различной технической интерпретации образец для заказа:

Для приводов фирмы «Бауэр»

тип

Двигатель №

шт.

Обозначение

Benennung
Designation
Designation
Designación
Обозначение

Lagerflansch / Bearing flange / Bride de palier / Brida del rodamiento / Фланец подшипника
Getriebegehäuse, Fuß / Gearbox, foot / Carter du réducteur, pied / Carcasa del reductor con base / Корпус передачи, лапы
Getriebegehäuse, Flansch / Gearbox, flange / Carter du réducteur, bride / Carcasa del reductor con brida / Корпус передачи, фланец
Getriebedeckel / Gears cover / Couvercle du réducteur / Tapa del reductor / Крышка передачи
Arbeitswelle / Output shaft / Arbre secondaire / Arbol de salida / Рабочий вал
Zahnradgetriebe / Gear unit / Réducteur à engrenages / Reductor a engranajes / Зубчатая передача
Distanzhülse / Spacer / Douille d'espacement / Casquillo distanciador / Распорная втулка
Distanzring / Spacer ring / Bague d'espacement / Anillo distanciador / Распорное кольцо
Schmierschild / Lubrication instruction plate / Instructions de graissage / Placa de lubricación / Табличка с инструкцией по смазке
Paßfeder / Key / Clavette / Chaveta / Призматическая шпонка
Paßfeder / Key / Clavette / Chaveta / Призматическая шпонка
Wälzlager / Anti-friction bearing / Roulement / Rodamiento / Подшипник качения
Wälzlager / Anti-friction bearing / Roulement / Rodamiento / Подшипник качения
Wellendichtung mit Staublippe / Rotating shaft seal with lip / Garniture étanche d'arbre avec lèvre anti-poussière / Retén con labio / Уплотнение вала с пылеуловителем
Sicherungsring / Retainer ring / Circlip / Anillo de seguridad / Стопорное кольцо
Sicherungsring / Retainer ring / Circlip / Anillo de seguridad / Стопорное кольцо
Dichtring / Sealing ring / Bague d'étanchéité / Retén / Уплотнительное кольцо
Kerbnagel / Dowel / Clou cannelé / Remache / Просечной штифт
Kerbstift / Dowel pin / Goupille cannelée / Pasador / Просечной штифт
Federring / Spring washer / Rondelle ressort / Anillo de muelle / Пружинное кольцо
Federring / Spring washer / Rondelle ressort / Anillo de muelle / Пружинное кольцо
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Verschlußschraube / Cover screw / Vis de fermeture / Tapón roscado / Резьбовая пробка
Sechskantschraube / Hexagon bolt / Vis à tête hexagonale / Tornillo hexagonal / Винт с шестигранной головкой
Sechskantschraube / Hexagon bolt / Vis à tête hexagonale / Tornillo hexagonal / Винт с шестигранной головкой
Zylinderschraube / Fillister head screw / Vis à tête cylindrique / Tapa intermedia / Винт с цилиндрической головкой
Zylinderschraube / Fillister head screw / Vis à tête cylindrique / Tapa intermedia / Винт с цилиндрической головкой
Ringschraube / Eye bolt / vis à oisilet / Cáncamo / Рым-болт
Schmierstoff / Lubricant / Lubrifiant / Lubricante / Смазочное средство

**
Auf dem Zahnrad eingeprägte Daten
angeben

**
Feed in the data impressed on the
gear wheel

**
Entrée des données frappées sur la
roue dentée

**
Introducir los datos estampados en el
engranaje

**
Ввести выбитые на зубатом
колесе данные

	G61		G71		G81		G91		G101		G111	
Teil-Nr. Part-No. Pièce No. Piezo № Деталь №	Stück Quantity Pièces Cantidad Шт.	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Stück Quantity Pièces Cantidad Шт.	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Stück Quantity Pièces Cantidad Шт.	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Stück Quantity Pièces Cantidad Шт.	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Stück Quantity Pièces Cantidad Шт.	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Stück Quantity Pièces Cantidad Шт.	Bestell-Nr. Order No. Comm. No. Código № Заказ №
1	1	3025802	1	3025802	1	3026566	1	3024555	1	3024563	1	3024580
2	1	1301292*	1	1301314*	1	1301331*	1	1301357*	1	1301373*	1	1301390*
3	1	*	1	*	1	*	1	*	1	*	1	*
4	1	1302736	1	1302752	1	1302779	1	1302795	1	1302817	1	1302833
5	1	1303317*	1	1303333*	1	1303350*	1	1303376*	1	1303392*	1	1303414*
6		*/ **		*/ **		*/ **		*/ **		*/ **		*/ **
7	1	1304640	1	1304640	1	1304674	1	1304712	1	1304747	1	1304780
8	1	1304658	1	1304658	1	1304682	1	1304721	1	1304755	1	1304798
9	1	*	1	*	1	*	1	*	1	*	1	*
10	1	1164104	1	1164104	1	1000578	1	1305221	1	1000594	1	1305247
11	1	1305204	1	1305158	1	1305174	1	1305263	1	1305301	1	1305344
12	1	1015567	1	1015567	1	1305395	1	1039881	1	1029029	1	1053841
13	1	1015567	1	1015567	1	1305395	1	1039881	1	1029029	1	1053841
14	1	1304364	1	1304364	1	1304372	1	1304381	1	1304399	1	1304402
15	1	1000314	1	1000314	1	1000322	1	1000349	1	1011324	1	1305565
16	1	1015893	1	1011286	1	1011294	1	1011308	1	1011316	1	1000250
17	3/4	1011588	3/4	1011588	3/4	1011588	3/4	1011588	3/4	1011588	3/4	1011588
18	2	1000128	2	1000128	2	1000128	2	1000128	2	1000128	2	1000128
19	2	1305581	2	1305590	2	1305590	2	1305603	2	1305603	2	1305603
20	4	1010484	4	1010484	4	1010492	4	1010492	4	1010441	4	1010441
21	8	1010450	8	1010450	11	1000039	11	1000039	14	1000039	14	1033956
22	6	1011634	6	1011634	6	1011634	6	1011634	6	1016164	6	1016164
23	—	—	—	—	1	1011626	1	1011626	1	1011634	1	1011634
24	3/4	1011839	3/4	1011839	3/4	1011839	3/4	1011839	3/4	1011839	3/4	1011839
25	4	1365703	4	1365703	4	1366921	4	1366921	4	1001078	4	1001078
26	8	1001094	8	1001094	11	1034031	11	1034031	14	1001116	14	1041380
27	6	1050991	6	1050991	6	1050991	6	1050991	6	1016148	6	1016148
28	—	—	—	—	1	1254405	1	1254405	1	1305646	1	1305646
29	1	1011391	1	1011391	1	1011391	1	1011391	1	1011405	1	1011405
30		*		*		*		*		*		*

*
Wegen möglicher unterschiedlicher technischer Auslegung Muster für die Bestellung:

Für Bauer Antrieb

Typ _____
Motor-Nr. _____
Stück _____
Benennung _____

*
Due to a different possible technical layout order example:

For Bauer drives

type _____
motor no _____
pieces _____
designation _____

*
Du fait d'une possible différence dans le dimensionnement technique prière de fournir un modèle lors de la commande:

Pour entraînements Bauer

type _____
moteur no _____
pièces _____
designation _____

*
Ante la posibilidad de versiones técnicamente diferentes modelo de pedido:

Para accionamiento Bauer

tipo _____
motor Nº _____
cantidad _____
designación _____

*
Из-за возможной различной технической интерпретации образца для заказа:

Для приводов фирмы «Бауэр»

тип _____
Двигатель № _____
шт. _____
Обозначение _____

Benennung
Designation
Designation
Designación
Обозначение

Lagerflansch / Bearing flange / Bride de polier / Brida del rodamiento / Фланец подшипника
Getriebegehäuse, Fuß / Gearbox, foot / Carter du réducteur, pied / Carcasa del reductor con base / Корпус передачи, лапы
Getriebegehäuse, Flansch / Gearbox, flange / Carter du réducteur, bride / Carcasa del reductor con brida / Корпус передачи, фланец
Getriebedeckel / Gears cover / Couvercle du réducteur / Tapa del reductor / Крышка передачи
Arbeitswelle / Output shaft / Arbre secondaire / Arbol de salida / Рабочий вал
Zahnradgetriebe / Gear unit / Réducteur à engrenages / Reductor a engranajes / Зубчатая передача
Distanzhülse / Spacer / Douille d'espacement / Casquillo distanciador / Распорная втулка
Distanzring / Spacer ring / Bague d'espacement / Anillo distanciador / Распорное кольцо
Schmierschild / Lubrication instruction plate / Instructions de graissage / Placa de lubricación / Табличка с инструкцией по смазке
Paßfeder / Key / Clavette / Chaveta / Призматическая шпонка
Paßfeder / Key / Clavette / Chaveta / Призматическая шпонка
Wälzlager / Anti-friction bearing / Roulement / Rodamiento / Подшипник качения
Wälzlager / Anti-friction bearing / Roulement / Rodamiento / Подшипник качения
Wellendichtung mit Staublippe / Rotating shaft seal with lip / Garniture étanche d'arbre avec lèvre anti-poussière / Retén con labio / Уплотнение вала с пылеуловителем
Sicherungsring / Retainer ring / Circlip / Anillo de seguridad / Стопорное кольцо
Sicherungsring / Retainer ring / Circlip / Anillo de seguridad / Стопорное кольцо
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Kerbnagel / Dowel / Clou cannelé / Remache / Просечной штифт
Kerbstift / Dowel pin / Goupille cannelée / Pasador / Просечной штифт
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Zylinderschraube / Filister head screw / Vis à tête cylindrique / Tapa intermedia / Винт с цилиндрической головкой
Ringschraube / Eye bolt / vis à œillet / Cáncamo / Рым-болт
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**
Auf dem Zahnrad eingeprägte Daten
angeben

**
Feed in the data impressed on the
gear wheel

**
Entrée des données frappées sur la
roue dentée

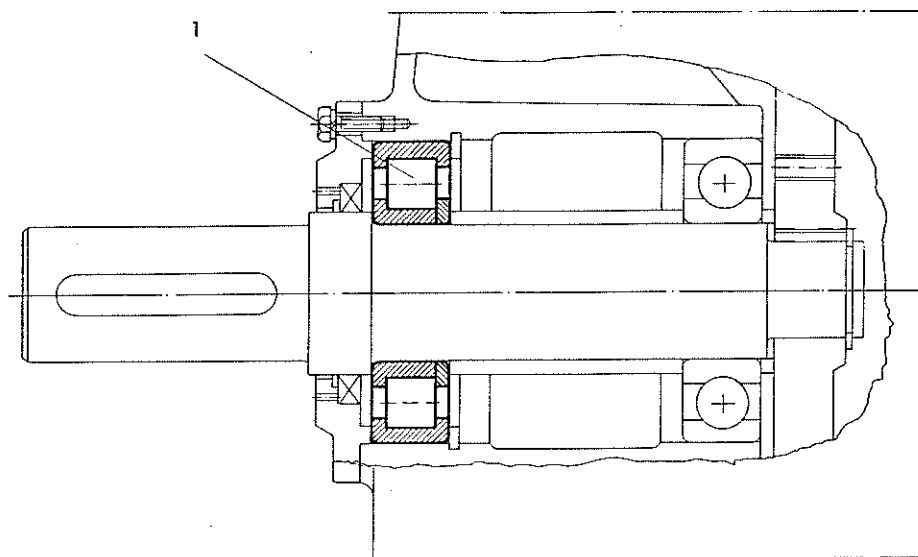
**
Introducir los datos estampados en el
engranaje

**
Ввести выбитые на зубчатом
колесе данные

Ausführung: Verstärkte Lagerung / Design: Reinforced bearings / Version: roulement renforcé /
Versión: cojinetes reforzados / Исполнение: Усиленный подшипник

Getriebe Typ
Gear unit type
Réducteur type
Reductor tipo
Редуктор тип

G 01
G 11
G 21
G 31
G 41
G 51
G 61
G 71
G 81
G 91
G 101
G 111



Getriebe Typ / Gear unit type / Réducteur type / Reductor tipo / Редуктор тип

		G 01	G 11	G 21	G 31	G 41	G 51
Teil-Nr. Part-No. Pièce No. Pieza № Деталь №	Stück Quantity Pièces Cantidad Шт.	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Bestell-Nr. Order No. Comm. No. Código № Заказ №

Ausführung: Verstärkte Lagerung / Design: Reinforced bearings / Version: roulement renforcé / Versión: cojinetes reforzados /
Исполнение: Усиленный подшипник

1	2	1315871	1315889	1315889	1315846	1315854	1054562
---	---	---------	---------	---------	---------	---------	---------

Ausführung: Doppelte Wellendichtung / Design: Doubles shaft seal / Version: double joint d'étanchéité / Versión: retén doble /
Исполнение: Двойное уплотнение вала

1	1	*	3025128	3025128	3025161	3025209	3025799
2	2	*	1329740	1329740	1010913	1304356	1304321

Getriebe Typ / Gear unit type / Réducteur type / Reductor tipo / Редуктор тип

		G 61	G 71	G 81	G 91	G 101	G 111
Teil-Nr. Part-No. Pièce No. Pieza № Деталь №	Stück Quantity Pièces Cantidad Шт.	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Bestell-Nr. Order No. Comm. No. Código № Заказ №	Bestell-Nr. Order No. Comm. No. Código № Заказ №

Ausführung: Verstärkte Lagerung / Design: Reinforced bearings / Version: roulement renforcé / Versión: cojinetes reforzados /
Исполнение: Усиленный подшипник

1	2	1054601	1054601	1001396	1054589	1054635	1315862
---	---	---------	---------	---------	---------	---------	---------

Ausführung: Doppelte Wellendichtung / Design: Doubles shaft seal / Version: double joint d'étanchéité / Versión: retén doble /
Исполнение: Двойное уплотнение вала

1	1	3025811	3025811	3026574	3024920	3024938	3024946
2	2	1304364	1304364	1304372	1304381	1304399	1304402

*
nicht möglich

*
not possible

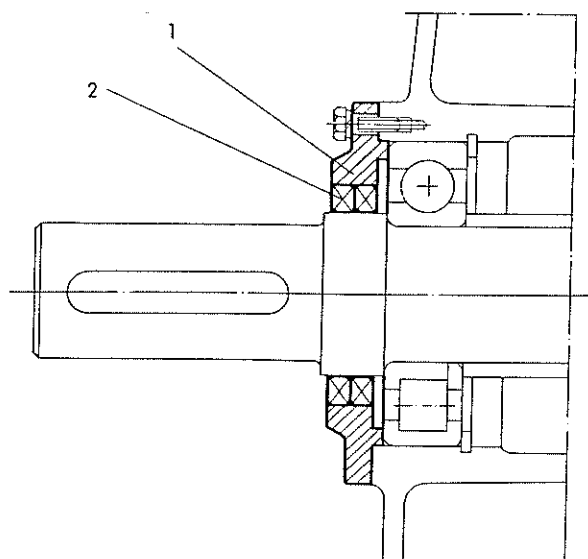
*
impossible

*
no es posible

*
Нельзя

Ausführung: Doppelte Wellendichtung / Design: Doubles shaft seal / Version: double joint d'étanchéité /
Version: retén doble / Исполнение: Двойное уплотнение вала

Getriebe Typ
Gear unit type
Réducteur type
Reductor tipo
Редуктор тип



G 01
G 11
G 21
G 31
G 41
G 51
G 61
G 71
G 81
G 91
G 101
G 111

Benennung
Designation
Designation
Designación
Обозначение

Wälzlager / Anti-friction bearing / Roulement / Rodamiento / Подшипник качения

Lagerflansch / Bearing flange / Bride de palier / Brida del rodamiento / Фланец подшипника

Wellendichtung mit Staublippe / Rotating shaft seal with lip / Garniture étanche d'arbre avec lèvre anti-poussière / Retén con labio / Уплотнение вала с пылеуловителем

Benennung
Designation
Designation
Designación
Обозначение

Wälzlager / Anti-friction bearing / Roulement / Rodamiento / Подшипник качения

Lagerflansch / Bearing flange / Bride de palier / Brida del rodamiento / Фланец подшипника

Wellendichtung mit Staublippe / Rotating shaft seal with lip / Garniture étanche d'arbre avec lèvre anti-poussière / Retén con labio / Уплотнение вала с пылеуловителем

Eberhard Bauer GmbH & Co
Eberhard-Bauer-Str. 36-59
P.O. Box 108
D-7300 Esslingen-Neckar

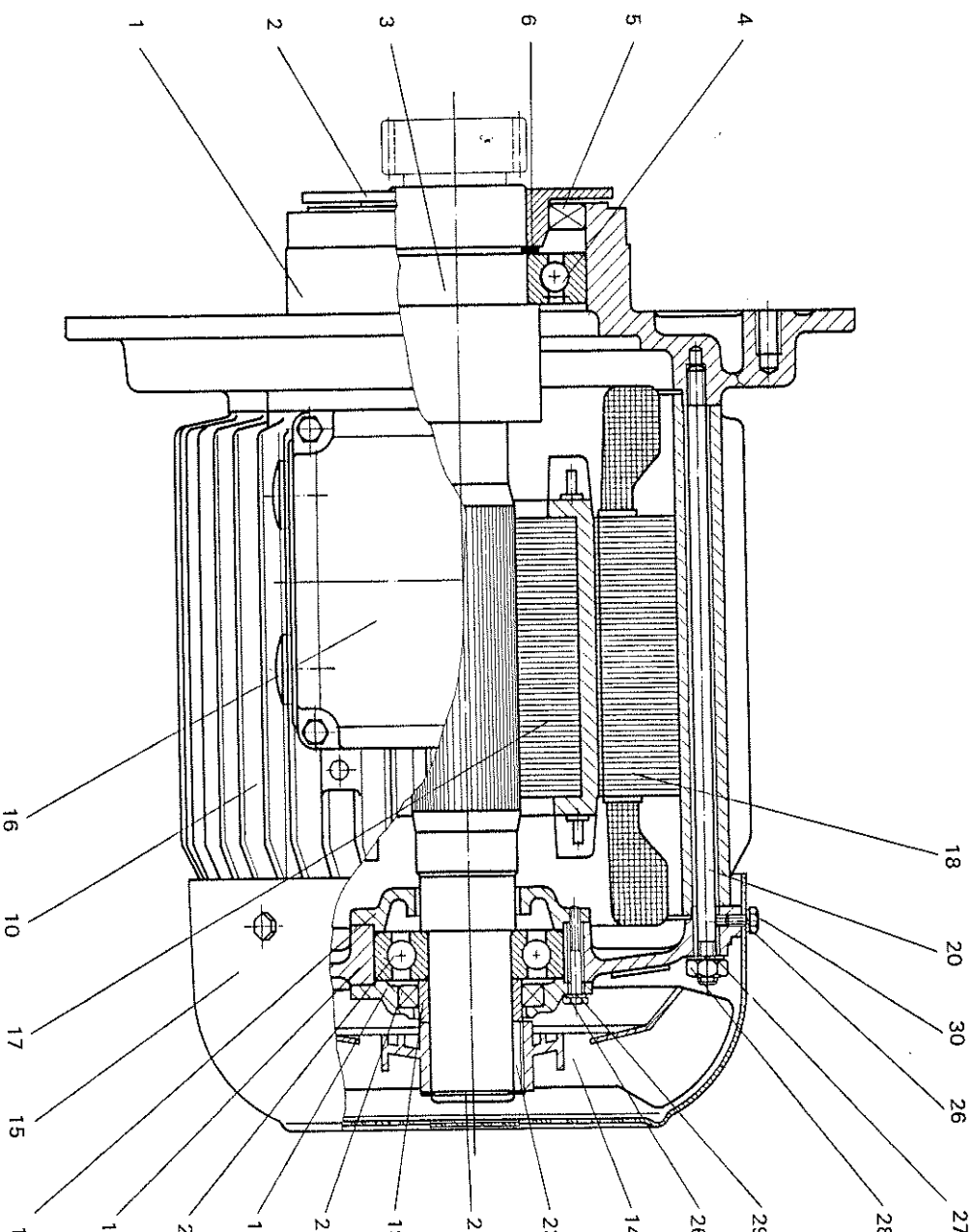
Tel. (07 11) 3 51 80
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BAULEER

ET-D 4A

Einzelteilverzeichnis und Schnittzeichnung
Parts list and sectional drawing
Liste des pièces et dessin en coupe
Despiece y sección
Спецификация деталей и чертёж двигателя в разрезе

Motor-Typ
Motor type
Moteur type
Motor tipo
Двигатель тип



Anbaubare Getriebe
Adaptable gear unit
Réducteur adaptable
Reductor adaptable
Адаптируемые редукторы
G 31, G 32, G 41, G 42, G 43, G 51, G 52, G 53, G 61, G 62, G 63, G 71, G 72, G 73,
G 81, G 82, G 83, G 91, G 92, G 93, G 103, G 113
AG 32, AG 42, AG 43, AG 52, AG 53, AG 62, AG 63, AG 72, AG 73, AG 82, AG 83,
AG 92, AG 93, AG 103, AG 113
SG 6, SG 7

Anbaubore Getriebe / Adaptable gear unit / Reducteur adaptable / Reductor adaptable / Адаптивные редукторы

G31	G41	G61	G81
G32 AG32 SG6	G42 AG42	G62 AG62	G82 AG82
G43 AG43	G51	G71	G91
G53 AG 53	G52 AG52 SG7	G72 AG72	G92 AG92
	G63 AG63	G83 AG83	G103 AG103
	G73 AG73	G93 AG93	G113 AG113

Teil-Nr. Part No. Pieza No. Pieza No	Stück Quantity Piecés Cantidad	Bestell-Nr. Order No. Comm. No. Código Nr	Bestell-Nr. Order No. Comm. No. Código Nr	Bestell-Nr. Order No. Comm. No. Código Nr	Bestell-Nr. Order No. Comm. No. Código Nr	Benennung Designation Designacion Обозначение
1	1	1304119	1304151	1304194	1304224	Motordeckel / Cover / Couverture-moteur / Tapa del motor / Крышка двигателя
2	1	1304968	1304984	1304992	1305000	Labyrintheller / Labyrinth seal / Joint à labyrinthe / Ploio labirintico / Лабиринтная тарелка
3	1	*	*	*	*	Läuferwelle / Rotor shaft / Aixe du rotor / Eje del rotor / Вал ротора
4	1	1315897	1315901	1315919	1315986	Walzlager / Anti-friction bearing / Roulement / Rodamiento / Подшипник качения
5	1	1304453	1304470	1304488	1304496	Wellendichtung / Rotating shaft seal / Garniture étanche d'arbre / Reten / Уплотнение вала
6	1	1011286	1011286	1011308	1000250	Sicherungsring / Retainer ring / Circlip / Anillo de seguridad / Стопорное кольцо

10	1	*	*	*	*	Ständergehäuse / Stator housing / Carcasse du stator / Carcasa del estator / Корпус статора
11	1	1014650	1014650	1014650	1014650	Lagerhansch / Bearing flange / Bride de palier / Brida del rodamiento / Фланец подшипника
12	1	1014668	1014668	1014668	1014668	V-Lagerschild / End shield / Flaque / Escudo del motor / Щит подшипника
13	1	1014676	1014676	1014676	1014676	Lagerhansch / Bearing flange / Bride de palier / Brida del rodamiento / Фланец подшипника
14	1	1014684	1014684	1014684	1014684	Flügelrad / Fan / Ventilateur / Aspa ventilador / Вентилятор
15	1	*	*	*	*	Lüfterhaube / Fan cover / Couverture du ventilateur / Casquette / Неплак вентилятора
16	1	*	*	*	*	Klemmkasten volts. / Terminal box, compl. / Boite à bornes, compl. / Caja de bornes, compl. / Клеммная коробка в сборе
17	1	*	*	*	*	Läufer / Rotor / Rotor / Rotor
18	1	*	*	*	*	Ständer bewickelt / Stator with winding / Stator avec bobinage / Estator bobinado / Панет сердечника, обмотанный
19	1	1014749	1014749	1014749	1014749	Dischachble / Spacer / Douille d'espacement / Casquillo espaciador / Распорная втулка
20	4	*	*	*	*	Stehbolzen / Stay bolt / Goujon / Espantago / Распорный болт
21	1	1015541	1015541	1015541	1015541	Walzlager / Anti-friction bearing / Roulement / Rodamiento / Подшипник качения
22	1	1011022	1011022	1011022	1011022	Wellendichtung mit Stauchlippe / Rotating shaft seal with lip / Garniture étanche d'arbre avec levre anti-pousière / Reten con labio / Уплотнение вала с пылеуловителем
23	1	1011570	1011570	1011570	1011570	Robfeder / Key / Clavette / Chaveta / Призматическая шпонка
25	1	1011286	1011286	1011286	1011286	Sicherungsring / Ret. iner ring / Circlip / Anillo de seguridad / Стопорное кольцо
26	8	1010484	1010484	1010484	1010484	Federling / Spring washer / Rondelle ressort / Anillo de muelle / Пружинное кольцо
27	4	1010441	1010441	1010441	1010441	Federling / Spring washer / Rondelle ressort / Anillo de muelle / Пружинное кольцо
28	4	1012177	1012177	1012177	1012177	Sechskantmutter / Hexagon nut / Ecrou hexagonal / Tuerca hexagonal / Шестигранная гайка
29	4	1011987	1011987	1011987	1011987	Sechskantschraube / Hexagon bolt / Vis à tête hexagonale / Tornillo hexagonal / Винт с шестигранной головкой
30	4	1012070	1012070	1012070	1012070	Sechskantschraube / Hexagon bolt / Vis à tête hexagonale / Tornillo hexagonal / Винт с шестигранной головкой

Technical drawing

*
Wegen möglicher unterschiedlicher technischer Auslegung Muster für die Bestellung:

*
Due to a different possible technical layout order examples:

*
De fait d'une possible différence dans le dimensionnement technique ordre de la commande:

*
Ante la posibilidad de versiones técnicamente diferentes modelo de pedido:

*
Из за возможной разницы технической интерпретации образцов для заказа:

For Bauer Antrieb

For Bauer drives

Pour entraînements Bauer

Para accionamiento Bauer

Для привидов фирмы "Бавард"

Nur zusammen geliefert werden:
Blechpaket (bewickelt) und Ständergehäuse;
Läuferwelle und Läuferpaket

The following parts will only be delivered together:
stator packet (with winding) and stator housing;
rotor shaft and rotor package

Constituent une unité de livraison:
paquet de tôles statorique (bobine) et carcasse statorique;
arbre rotorique et paquet de tôles rotorique.

Se suministra sólo conpactamente:
paquete de choppers (bobinado) y carcasa del estator;
eje del rotor y paquete del rotor.

Поставляются только совместно:
панет сердечника / обмотанный / корпус статора;
Бал ротора и панет ротора



Installation and removal instructions for Shrink Discs RINGFEDER® RfN 4071

**S 84-2
E**

The following instructions are valid for the Shrink Discs RINGFEDER®:

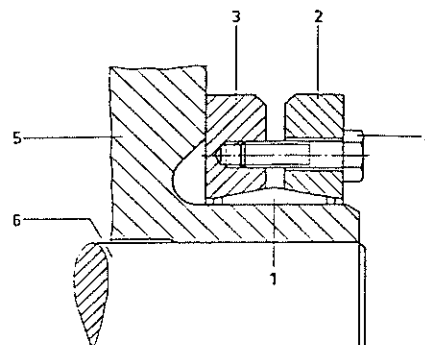
Standard-Series RfN 4071
Heavy Duty-Series RfN 4091
Light Duty-Series RfN 4051

General instructions

Shrink Discs RINGFEDER® as well as Locking Assemblies RINGFEDER® are delivered in a ready-to-install condition. Only the bigger and heavier Shrink Discs should be dismantled for easier installation.

Important!

Shrink Discs RINGFEDER® have stickers with different tightening torques. Those which are not valid in the specified case have to be removed!



- 1 inner ring
- 2 front thrust ring
- 3 rear thrust ring
- 4 locking screw
- 5 hub
- 6 shaft

INSTALLATION

1. The contact area for the Shrink Disc on the hub extension has to be cleaned and greased.
2. Distance pieces which have been used for shipping purposes only must be removed.
3. Do not tighten screws before the Shrink Disc is positioned on the hub extension.
4. Before the Shrink Disc and hub are positioned on the shaft, do not start to tighten the screws. Otherwise deformations may occur.
5. For easy positioning the contact surfaces of the shaft and the hub (dia. d_w) should be oiled. (On these surfaces no MoS_2 should be used.)
6. Before final tightening of the screws both thrust rings should be squarely positioned by preloading the locking screws.
7. Finally the locking screws have to be tightened clockwise (not in a diametrically opposite sequence). The screws have to be tightened in two, three or more stages up to the indicated tightening torque T_A .

REMOVAL

1. For dismantling the screws should be released clockwise in several stages to avoid tilting of the thrust rings.

Under no circumstances the locking screws should be taken out of the threads, as due to pretensioning the Shrink Disc could jump apart.
2. The shaft can be taken out of the hub i.e. the hub can be withdrawn from the shaft. For easier dismantling the shaft should be cleaned and oiled.
3. The Shrink Disc can now be removed from the hub extension.

CLEANING AND RE-LUBRICATION

The following hints are only valid for Shrink Discs RINGFEDER®.

After having been in use Shrink Discs should be dismantled and cleaned. The cones have been lubricated with greases containing MoS_2 (e.g. Molykote G Rapid). If the working surfaces are not damaged, they have to be relubricated with Molykote BR 2. Also the screws (threads and contact areas for the heads) have to be lubricated with Molykote BR 2.

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RINGFEDER

