

ИНСТРУКЦИИ ПО УСТАНОВКЕ, ЭКСПЛУАТАЦИИ И ОБСЛУЖИВАНИЮ

ВИНТОВОЙ НАСОС

KIBER KSF



01.611.32.0001

INOXPA S.A.U.

Telers, 60
17820 - Banyoles (España)

hereby declare under our sole responsibility that the

Machine: **PROGRESSIVE CAVITY PUMP**

Model: **KIBER KSF**

Type: **KIBER KSF-20, KIBER 2KSF-20, KIBER KSF-25,
KIBER 2KSF-25, KIBER KSF-30, KIBER 2KSF-30,
KIBER KSF-40, KIBER 2KSF-40, KIBER KSF-50,
KIBER 2KSF-50, KIBER KSF-60, KIBER KSF-80,**

Serial number: **IXXXXXXXXXX to IXXXXXXXXXX
XXXXXXXXXXIINXXX to XXXXXXXXXXXIINXXX**

fulfills all the relevant provisions of the following directive:

**Machinery Directive 2006/42/EC
Regulation (EC) n° 1935/2004
Regulation (EC) n° 2023/2006**

and with the following harmonized standards and/or regulations:

**EN ISO 12100:2010
EN 809:1998+A1:2009/AC:2010
EN 12162:2001+A1:2009
EN 60204-1:2018**

The technical file has been prepared by the signer of this document.



David Reyero Brunet
Technical Office Manager
25th October 2021

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2. Generalities

2.1. INSTRUCTIONS MANUAL

This manual contains information regarding the reception, installation, operation, assembly, disassembly and maintenance of the KIBER KSF pumps.

Carefully read the instruction prior to starting the pump, familiarize yourself with the installation, operation and correct use of the filter and strictly follow the instructions. These instructions should be kept in a safe location near the installation area.

The information published in the instruction manual is based on updated data.

INOXPA reserves the right to modify this instruction manual without prior notice.

2.2. COMPLIANCE WITH THE INSTRUCTIONS

Not following the instructions may impose a risk for the operators, the environment and the machine, and may result in the loss of the right to claim damages.

This non-compliance may result in the following risks:

- failure of important machine/plant functions,
- failure of specific maintenance and repair procedures,
- possible electrical, mechanical and chemical hazards,
- risk to the environment due to the type of substances released.

2.3. WARRANTY

Any warranty will be void immediately and lawfully and, additionally, INOXPA will be compensated for any civil liability claims submitted by third parties, in the following cases:

- the service and maintenance work have not been carried out in accordance with the service instructions, the repairs have not been carried out by our personnel or have been carried out without our written authorisation,
- modifications have been carried out on our material or equipment without written authorisation,
- the parts or lubricants used are not original INOXPA parts and products,
- the material or equipment has been improperly used, has been used negligently, or has not been used according to the instructions and their intended,
- the pump parts are damaged because they have been subjected to high pressure due to not having used a safety valve.

The General Conditions of Delivery already in your possession are also applicable.



The machine may not undergo any modification without prior approval from the manufacturer.

For your safety, only use original spare parts and accessories.

The usage of other parts will relieve the manufacturer of any liability.

Changing the service conditions can only be carried out with prior written authorization from INOXPA.

Please do not hesitate to contact us in case of doubts or if further explanations are required regarding specific data (adjustments, assembly, disassembly, etc.)

3. Safety

3.1. WARNING SYMBOLS



Safety hazard for people in general and/or for equipment



Electric hazard

ATTENTION

Important instruction for the protection of the equipment and its functions

3.2. GENERAL SAFETY INSTRUCTIONS



Read the instruction manual carefully before installing and starting the pump. Contact INOXPA in case of doubt.

3.2.1. During the installation



The [9. Technical Specifications of chapter 9](#) should always be observed.

Never start the pump before connecting it to the lines.

Check for proper specifications of the motors, especially if its working conditions create an explosions hazard.



During the installations, all the electric work should be carried out by authorized personnel.

3.2.2. During operation



The [Technical Specifications of chapter 9](#) should always be observed. Under no circumstances can the specified limit values be exceeded.

NEVER touch the pump or the pipework during operation if the pump is being used for transferring hot liquids or during cleaning.

The pump contains moving parts. Never place your fingers inside the pump during operation.

NEVER operate with the suction and discharge valves closed.

NEVER spray water directly on the electrical motor. The standard motor protection is IP55: protection against dust and water spray.

3.2.3. During maintenance



The [Technical Specifications of chapter 9](#) shall always be observed.

NEVER disassemble the pump until the pipes have been emptied. Remember that liquid will remain inside the pump's pump casing (if does not have a purge). Bear in mind that the pumped liquid may be hazardous or extremely hot. Consult the regulations in effect in each country for these cases.

Do not leave loose parts on the floor.



ALWAYS disconnect the electrical power to the pumps prior to carrying out any maintenance.

Remove the fuses and disconnect the cable from the motor's terminals.

All electrical work must be carried out by authorized personnel

4. General Information

4.1. DESCRIPTION

With a compact and robust design, INOXPA's KSF progressive cavity pumps form part of our range of positive-displacement pumps with helical rotor, intended for viscous fluids.

The hydraulic parts that form the pump are the rotor and the stator. The rotor is a round-section worm. The stator has two ribs and its pitch doubles that of the rotor, thus allowing empty cavities between the stator and the rotor. These cavities are used to transport the fluid. When the rotor turns within the stator, the cavities move longitudinally from the suction area to the discharge nozzle.

These kinds of pumps are suitable for pressures from 6 bar (single-stage stator) to 12 bar (double-stage stator). KSF pumps are designed with a fully health-compliant and easy-to-clean transmission.

Moreover, there is a more robust design of transmission for a longer service life under heavy duty working conditions.

The standard connections are DIN 11851. Also it is possible to choose other types of connections for the pump, like the CLAMP, SMS, RJT, flanges DIN 2633 PN 16, etc.

All pump parts in contact with the pumped product are manufactured in AISI 316L stainless steel. The stator is manufactured in NBR, according to the FDA norm, and the standard sealing is EN 12756 L+K mechanical seal.

This equipment is suitable for his use in food process.

4.2. APPLICATION

The KIBER KSF progressive cavity pumps are used to transfer products of low and high viscosity as well as products containing soft particles.

Some of its applications are for use with edible oils, wine, concentrates and beverages in general.

The intended use of the pump is defined for its characteristic curve.

ATTENTION



The range of application for each type of pump is limited. The pump was selected for a given set of pumping conditions when the order was placed. INOXPA shall not be liable for any damage resulting from the incompleteness of the information provided by the purchaser (nature of the fluid, rpm, etc.).

5. Installation

5.1. RECEPTION OF THE PUMP



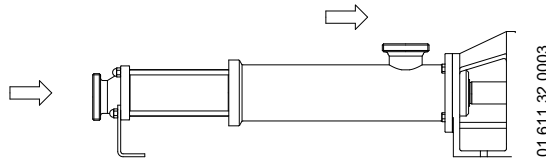
INOXPA cannot be held responsible for the damage sustained by the equipment during transport or unpacking. Please visually check that the packaging is not damaged.

The pump package includes the following documents:

- shipping documents,
- installation, service and maintenance instructions manual,
- instructions and service manual of the motor¹.

Unpack the pump and check the following:

- The suction and discharge connections of the pump, removing any rest of packaging materials,

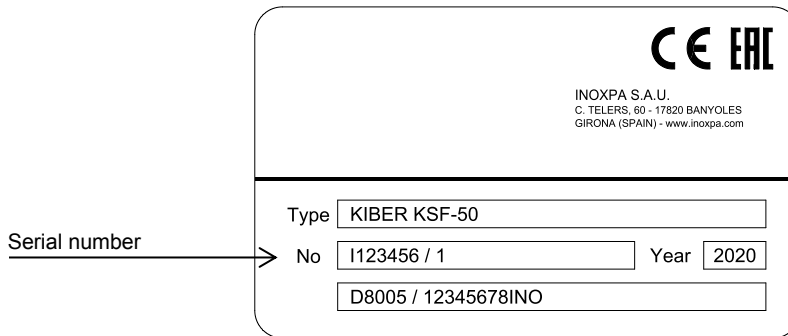


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- The pump and the motor are not damaged,
- If the equipment is not in good condition and/or any part is missing, the carrier should report accordingly as soon as possible.

5.2. IDENTIFICATION OF THE PUMP

Each pump has a nameplate with the basic data required to identify the model.



Serial number →

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5.3. TRANSPORT AND STORAGE

ATTENTION

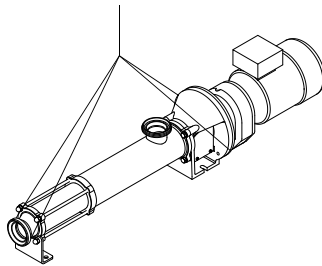


The KIBER KSF and KIBER KSFT pumps are often too heavy to be stored manually. Use an appropriate means of transport. Use the points which are indicated in the drawing for lifting the pump. Only authorized personnel should transport the pump. Do not work or walk under the heavy loads.

¹ If the pump has been supplied with a motor from INOXPA

Lift the pump as indicated below:

- Always use two support points placed as far apart as possible.



- Secure the supports so that they will not move.

See chapter 9. [Technical Specifications](#) to consult dimensions and weights.

ATTENTION



During the transport, disassembly or assembly of the pump, there is a risk of loss of stability and that the pump could fall down and cause damages to the operators. Make sure that the pump is properly supported.

5.4. LOCATION

- Place the pump as close as possible to the suction tank and it is possible below the level of the liquid.
- Leave sufficient space around the pump to provide access to both pump and motor. See chapter 9. [Technical Specifications](#) to consult dimensions and weight.
- Place the pump on a flat and level surface.
- The foundation must be hard, level, flat and vibration free.

ATTENTION



Install the pump so as to allow proper ventilation.

If the pump is installed outdoors, it should be covered by a roof. Its location should allow easy access for inspection or maintenance operations.



If the hopper is not covered when the KSTF pump is installed at the process, the hopper must cover in order to avoid the accidental access the operators to the pump's moving parts.

5.4.1. Excessive temperatures

Depending on the fluid to be pumped, high temperatures can be reached inside and around the pump.



Over 68°C the operator should take protective measures and place warning notices advising of the danger which exists if the pump is touched.

The type of protection selected should not isolate the pump entirely. It should allow for the bearings to be cooled more efficiently and for the bearings to be lubricated.

5.5. PIPES

- As a general rule, install the suction and discharge lines in straight sections, with the minimum possible number of elbows and fittings in order to reduce any pressure losses that may be caused by friction.
- Make sure that the pump's ports are properly aligned with the pipework and have a diameter similar to that of the pump connections.
- Place the pump as close as possible to the suction tank and whenever possible below the liquid level, or even below the tank level in order to achieve the largest possible static head for suction.
- Install support brackets for the lines as close as possible to the pump's suction and discharge ports in order to avoid vibrations and stress on the pump.

5.5.1. Shut-off valves

The pump may be isolated for maintenance. To accomplish this, shut-off valves must be installed and connected to the pump's suction and discharge connections.



ATTENTION

These valves must ALWAYS be open during operation of the pump.

5.5.2. Pressurisation tank

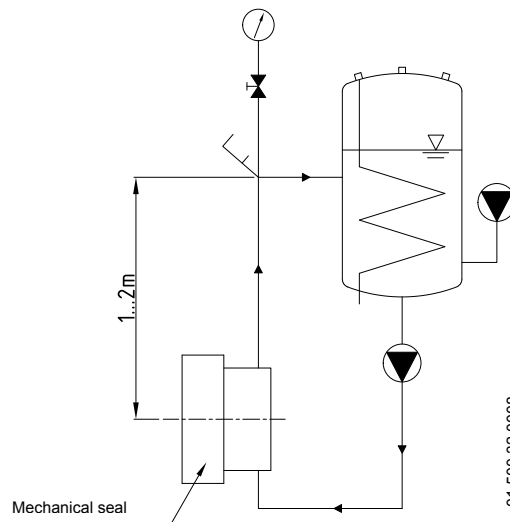
For models with a double mechanical seal a pressurisation tank needs to be fitted



ATTENTION

ALWAYS install the pressurization tank at a height of between 1 and 2 meters with respect to the pump shaft.

ALWAYS connect the coolant inlet to the bottom connection on the seal chamber. The coolant will then exit through the top connection on the chamber. See the follow figure.



Installation drawing of the pressurization tank

For more information on the pressurization tank (installation, performance, maintenance, etc.), refer to the instruction manual supplied by the manufacturer.

5.6. ELECTRICAL INSTALLATION



Only qualified personnel can connect the electric motors.

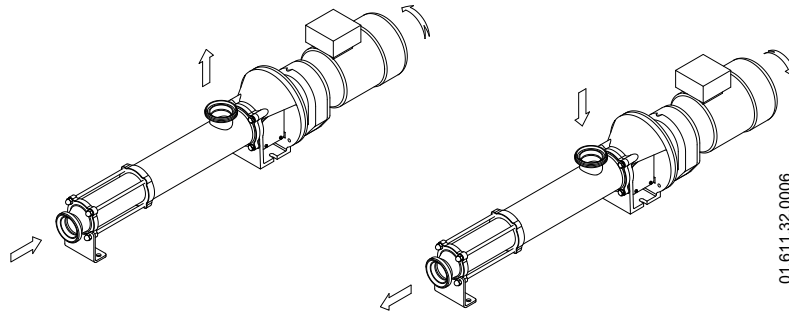
Take the necessary measures to prevent damage to cables and connections.



Electrical equipment, terminals and components of the control systems may still carry current when they are disconnected. Contacting them may impose a hazard to operators or cause irreparable material damage.

Before handling the pump, make sure that the motor is stopped.

- Connect the motor in accordance with the instructions supplied by the motor manufacturer, in accordance with the current national legislation and in compliance with EN 60204-1.
- Check the direction of rotation (see the signalling label on the pump).
- Start and stop the pump motor momentarily. Make sure that the direction of rotation is correct. If the pump rotates in the wrong direction it could cause serious damage.



ATTENTION



ALWAYS check the direction of rotation of the motor with liquid inside the pump.

For models with a seal chamber, ALWAYS make sure that the chamber is full of fluid before checking the direction of rotation.

6. Start-up



Prior to starting the pump, carefully read the instructions in section [5. Installation](#).

Carefully read section [9. Technical Specifications](#). INOXPA will not be liable for improper use of the equipment.



NEVER touch the pump or the lines if hot liquids are being pumped.

6.1. CHECKS BEFORE STARTING THE PUMP

- Completely open the shut-off valves on the suction and discharge lines.
- If liquid does not flow towards the pump, fill it with the liquid to be pumped.



ATTENTION

The pump must never turn dry.

- Check that the power supply matches the rating indicated on the motor plate.
- Check that the direction of rotation of motor is the right one.
- If the pump has a double or a cooled mechanical seal, mount the auxiliary connection corresponding to the values indicated in chapter [9. Technical Specifications](#).

6.2. CHECKS WHEN STARTING THE PUMP

- Check that the pump is not making any strange noises.
- Check if the absolute inlet pressure is sufficient to prevent cavitation in the pump. See the curve to determine the minimum pressure required above steam pressure (NPSHr).
- Control the discharge pressure.
- Check for leaks in the sealing areas.



ATTENTION

Shut-off valves on the suction pipe must not be used to regulate the flow. All shut-off valves must be fully open during operation.

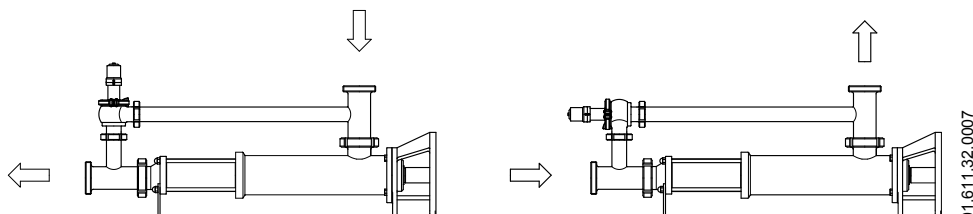


ATTENTION

Control the motor consumption to prevent an electrical overload.

6.3. BY-PASS PRESSURE

If the pump has an incorporated pressure by-pass, the rotation can be of only one direction. To invert the direction of rotation, mount an overflow valve as indicated the next figure. The single stage pump has the overflow valve calibrated at 6 bar and at 12 bar for the double stage ones. In both cases this is the maximum pressure.





The pump always leaves INOXPA with a by-pass mounted to work with the aspiration in the pump casing and the impulsion ahead.



If the pump has not an incorporated a pressure by-pass you should mount a relief valve or any other device that limits the pressure to 6 bar for single-stage stator or 12 for double-stage stator pump.

7. Troubleshooting

The following table provides solutions to problems that might arise during the operation of the pump. The pump is assumed to have been properly installed and be suitable for the relevant application.

Please contact INOXPA if technical assistance is required.

Motor overload																																											
↓	The pump does not provide enough flow or pressure																																										
↓	No pressure on the discharge side																																										
↓	Uneven discharge flow / pressure																																										
↓	Noise and vibration																																										
↓	The pump gets clogged																																										
↓	Overheated pump																																										
↓	Excessive wear																																										
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	<table border="1"> <thead> <tr> <th>PROBABLE CAUSES</th> <th>SOLUTIONS</th> </tr> </thead> <tbody> <tr> <td>Wrong direction of rotation</td> <td>Reverse the direction of rotation</td> </tr> <tr> <td>NPSH is not high enough</td> <td>Increase the available NPSH: - Place the suction tank higher - Place the pump lower - Reduce steam pressure - Increase the diameter of the suction pipe - Shorten and simplify the suction pipe</td> </tr> <tr> <td>Pump not drained</td> <td>Drain or fill</td> </tr> <tr> <td>Cavitation</td> <td>Increase suction pressure (see also 2)</td> </tr> <tr> <td>Air is suctioned by the pump</td> <td>Check the suction pipe and all its connections</td> </tr> <tr> <td>Clogged suction pipe</td> <td>Check the suction pipe and all its filters, if any</td> </tr> <tr> <td>Discharge pressure too high</td> <td>If necessary, reduce load losses, e.g. by increasing the diameter of the pipe</td> </tr> <tr> <td>Flow too high</td> <td>Reduce speed</td> </tr> <tr> <td>Fluid viscosity too high</td> <td>Reduce the viscosity, e.g. by heating the fluid</td> </tr> <tr> <td>Fluid temperature too high</td> <td>Reduce the temperature by cooling the fluid</td> </tr> <tr> <td>Mechanical seal damaged or worn out</td> <td>Replace the seal</td> </tr> <tr> <td>O-rings unsuitable for the fluid</td> <td>Fit suitable O-rings. Consult the manufacturer.</td> </tr> <tr> <td>Stressed pipes</td> <td>Connect the pipes to the pump so as to avoid stress and align the coupling</td> </tr> <tr> <td>Foreign matter in the fluid</td> <td>Fit a filter to the suction pipe</td> </tr> <tr> <td>The mechanical seal tension is too low</td> <td>Adjust according the instructions of this manual</td> </tr> <tr> <td>Pump speed too low</td> <td>Increase speed</td> </tr> <tr> <td>Pump too small</td> <td>Choose a larger pump size</td> </tr> <tr> <td>The stator is worn out or has operated in vacuum</td> <td>Replace the stator</td> </tr> <tr> <td>Pump and/or motor not attached to the bedplate.</td> <td>Attach the pump and/or motor and check whether the pipes are connected without stress</td> </tr> <tr> <td>Flow reduction</td> <td>Replace the worn stator</td> </tr> </tbody> </table>	PROBABLE CAUSES	SOLUTIONS	Wrong direction of rotation	Reverse the direction of rotation	NPSH is not high enough	Increase the available NPSH: - Place the suction tank higher - Place the pump lower - Reduce steam pressure - Increase the diameter of the suction pipe - Shorten and simplify the suction pipe	Pump not drained	Drain or fill	Cavitation	Increase suction pressure (see also 2)	Air is suctioned by the pump	Check the suction pipe and all its connections	Clogged suction pipe	Check the suction pipe and all its filters, if any	Discharge pressure too high	If necessary, reduce load losses, e.g. by increasing the diameter of the pipe	Flow too high	Reduce speed	Fluid viscosity too high	Reduce the viscosity, e.g. by heating the fluid	Fluid temperature too high	Reduce the temperature by cooling the fluid	Mechanical seal damaged or worn out	Replace the seal	O-rings unsuitable for the fluid	Fit suitable O-rings. Consult the manufacturer.	Stressed pipes	Connect the pipes to the pump so as to avoid stress and align the coupling	Foreign matter in the fluid	Fit a filter to the suction pipe	The mechanical seal tension is too low	Adjust according the instructions of this manual	Pump speed too low	Increase speed	Pump too small	Choose a larger pump size	The stator is worn out or has operated in vacuum	Replace the stator	Pump and/or motor not attached to the bedplate.	Attach the pump and/or motor and check whether the pipes are connected without stress	Flow reduction	Replace the worn stator
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8. Maintenance

8.1. GENERAL CONSIDERATIONS

This pump, just like any other machine, requires maintenance. The instructions contained in this manual cover the identification and replacement of spare parts. The instructions are aimed at maintenance personnel and those responsible for the supply of spare parts.



Carefully read chapter [9. Technical Specifications](#).

Maintenance work can only be carried out by qualified personnel that are trained and equipped with the necessary resources to carrying out this work.

All parts or materials that are replaced must be properly disposed of/recycled in accordance with the current directives applicable in each area.



ALWAYS disconnect the pump before beginning any maintenance work.

8.2. CHECK THE MECHANICAL SEAL

Periodically check that there are no leaks around the shaft. If leakage is detected through the mechanical seal, replace it following the instructions in the chapter [8.6. Disassembly and assembly of the pump](#).

8.3. TIGHTENING TORQUE

Size	Nm	lbf·ft
M6	10	7
M8	21	16
M10	42	31
M12	74	55
M16	112	83

8.4. STORAGE

Before being stored the pump must be completely emptied of liquids. Avoid, as far as possible, the exposure of the parts to excessively damp atmospheres.

8.5. CLEANING



The use of aggressive cleaning products such as caustic soda and nitric acid may give raise to skin burns.

Use rubber gloves during cleaning procedures.

Always use protective goggles.

8.5.1. Automatic CIP (clean-in-place)

If the pump is installed in a system with a CIP process, it is not necessary to disassemble the pump.

If the automatic cleaning process is not provided, proceed to disassemble the pump as indicated in the chapter [8.6. Disassembly and assembly of the pump](#).

Cleaning solutions for CIP processes. Only use clear water (chlorine-free) to mix with the cleaning agents:

a) Alkaline solution: 1% by weight of caustic soda (NaOH) at 70°C (150°F)

1 Kg NaOH + 100 l H₂O = cleaning solution

or

2,2 l NaOH at 33% + 100 l H₂O = cleaning solution

b) Acid solution: 0,5% by weight of nitric acid (HNO₃) at 70°C (150°F)

0,7 l HNO₃ at 53% + 100 l H₂O = cleaning solution

ATTENTION



Check the concentration of the cleaning solutions. Incorrect concentrations may lead to the deterioration of the pump seals.

To remove any traces of cleaning products ALWAYS perform a final rinse with clean water at the end of the cleaning process.

8.5.2. Automatic SIP (sterilization-in-place)

The process of sterilization with steam is applied to all the equipment including the pump.

Do NOT start the pump during the process of sterilization with steam.

The parts/materials suffer no damage if the indications specified in this manual are observed.

No cold liquid can enter the pump till the temperature of the pump is lower than 60°C (140°F).

The pump generates an important pressure drop through the sterilization process, use a by-pass circuit provide with a discharge valve is recommended for ensuring that the steam or overheated water sterilize the circuit integrity.



Maximum conditions during SIP process with steam or overheated water:

- a) Maximum temperature: 140°C / 284°F
- b) Maximum time: 30 min
- c) Cooling: sterile air or inert gas
- d) Materials: EPDM (recommended)
FPM/NBR (use with caution)

8.6. DISASSEMBLY AND ASSEMBLY OF THE PUMP

The assembly and disassembly of the pumps should be done by qualified personnel. Make sure that the personnel read carefully this instruction manual and, in particular, those instructions which refer to the work they will perform.

ATTENTION



Incorrect assembly or disassembly may cause damage in the pump's operation and lead to high repair costs and a long period of down time.

INOXPA is not responsible for accidents or damages caused by a failure to comply with the instructions in this manual.

Preparation

Provide for a clean working environment so some parts, including the mechanical seal, require very careful handling and others have close tolerances.

Check that the parts which are used are not damaged during transport. When doing this, you need to inspect the adjustment edge, the butted faces, the tight fit, burrs, etc.

After each disassembly, carefully clean the parts and check for any damage. Replace all damaged parts.

Tools

Use the proper tools for assembly and disassembly operations. Use them correctly.

Cleaning

Before disassembling the pump, clean it outside and inside.



NEVER clean the pump by hand when it is running.

8.6.1. Stator, rotor and connecting rod

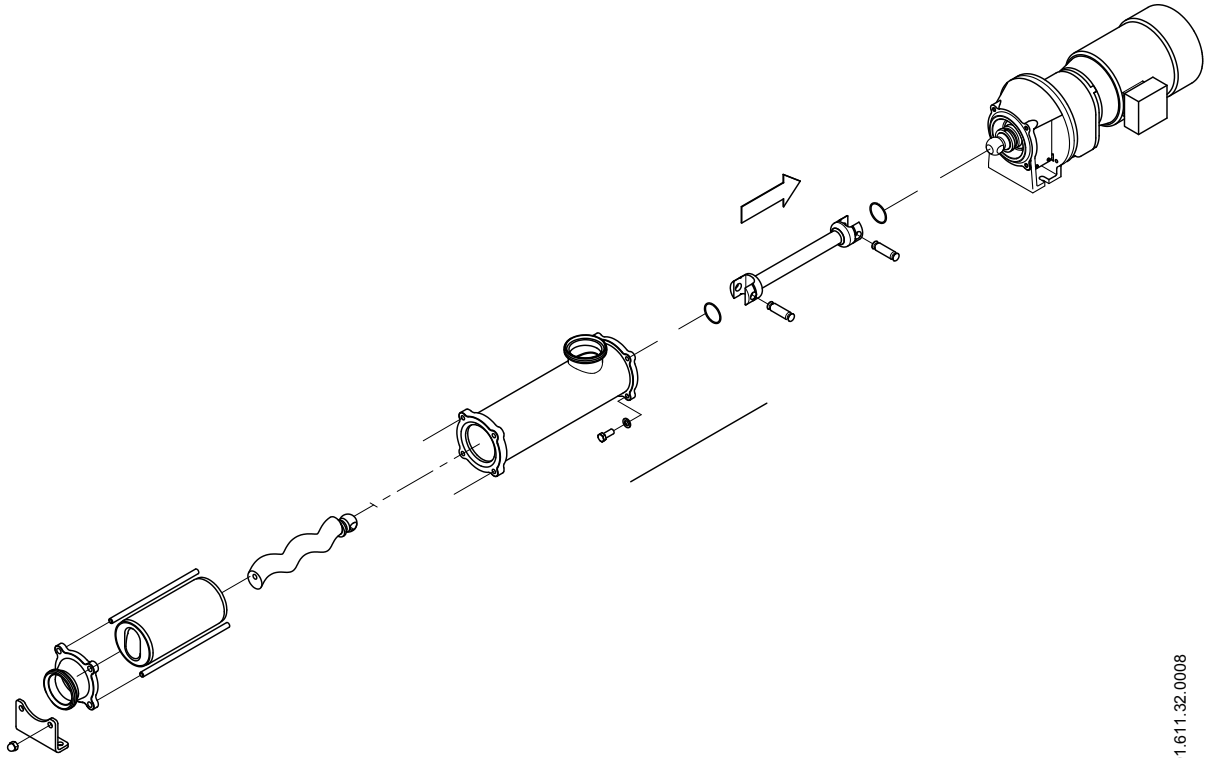
A. Standard transmission

Disassembly

- Loosen the nuts (54) and remove the leg (07) and the discharge nozzle (34).
- Pull out the tie bars (29/29A) and then remove the stator (22). If necessary secure the rotor (21) by holding the shaft complement (26).
- Remove the screws (52) and the washers (53).
- Pull out the pump casing (01, 01A) from the front side.
- For KSF pump, remove the safe ring (30) and the bolt (27) so that the rotor (21) comes out.
- For KST, remove the screws (50), washers (35), and the bolt (27) to take out the rotor (21).
- Proceed likewise on the other end of the connecting rod (24, 24A) in order to remove it.

Assembly

- For the KSF model, connect the connecting rod (24) to the shaft complement (26) with the bolt (27) and attach the bolt with the safe ring (30).
- For the KSFT, connect the feeder screw (24A) to the shaft with the bolt (27) that will be attached with the screws (50), washers (35) and add some industrial adhesive LOCTITE 270 to ensure that the screws (50) do not loosen.
- Proceed likewise with the rotor on the other end of the connecting rod (21).
- Mount the pump casing (01,01A) and fasten it with the screws (52) and the washers (53).
- Introduce the stator (22) lubricating it with soapy water and if necessary secure the rotor (21) by holding the shaft complement (26).
- Mount the discharge flange (34) and the leg (07) and fasten it with the nuts (54).



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**ATTENTION**

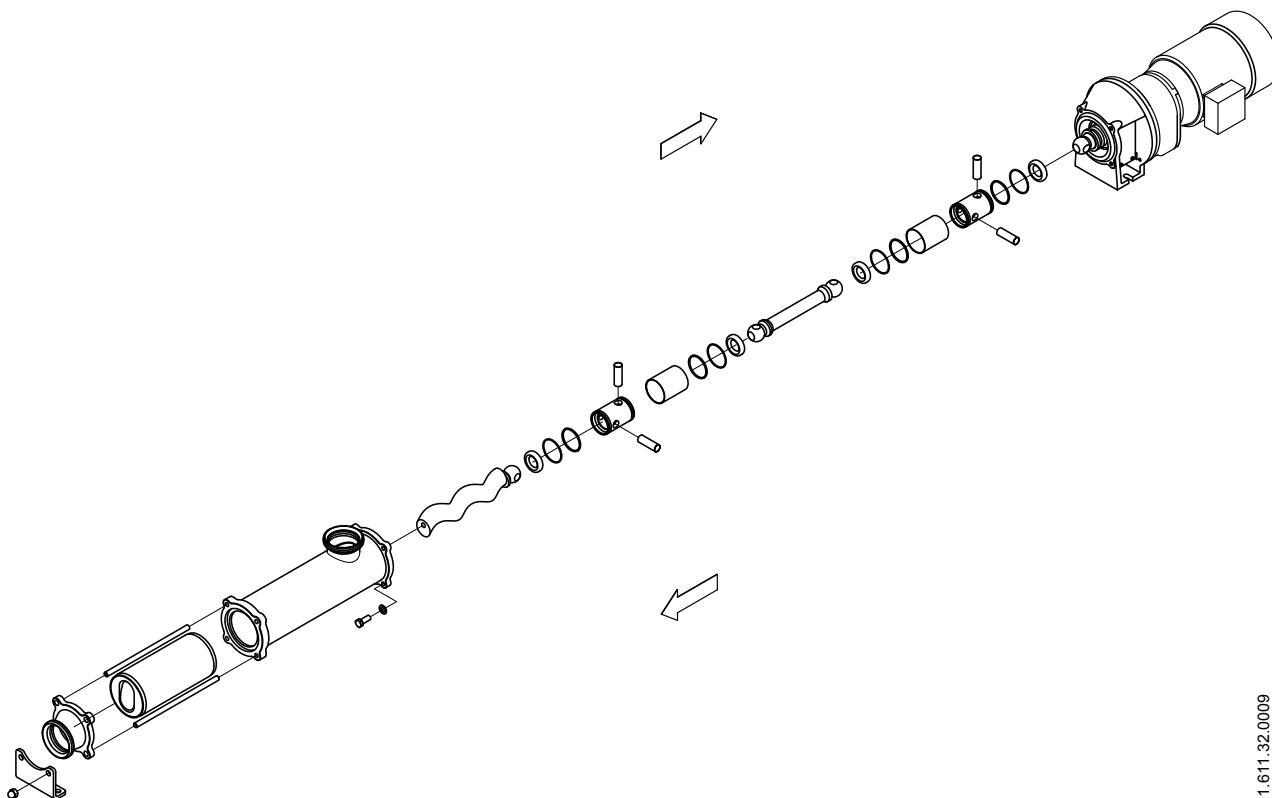
When installing the different parts and seals, use soapy water to allow them to slide better.

B. Heavy duty transmission (only optional for KIBER KSF)**Disassembly**

- Loosen the nuts (54) and remove the leg (07) and the discharge nozzle (34).
- Pull out the tie bars (29, 29A) and then remove the stator (22). If necessary secure the rotor (21) by holding the shaft complement (26).
- Remove the screws (52) and the washers (53).
- Pull out the pump casing (01, 01A) from the front side.
- Remove the safe rings (30), the transmission shield bushing (17A) and the bolts (27), so that the rotor (21) and one end of the connecting rod (24, 24A) come out.
- Proceed likewise on the other end of the connecting rod in order to remove it.

Assembly

- Place the O-ring (81) on the shaft complement (26) and on the connecting rod (24), and the seals (80A) on the transmission bushing (43).
- Place this bushing on the shaft complement (26) and place the drive bolt (27) and the bolt for the connecting rod.
- Place the transmission shield bushing (17A) on the bushing (43) and fasten it with the safe rings (30).
- Proceed likewise with the rotor on the other end of the connecting rod (21).
- Mount the pump casing (01) and fasten it with the screws (52) and the washers (53).
- Introduce the stator (22) lubricating it with soapy water and if necessary secure the rotor (21) by holding the shaft complement (26).
- Mount the discharge flange (34) and the leg (07) and fasten it with the nuts (54).



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**ATTENTION**

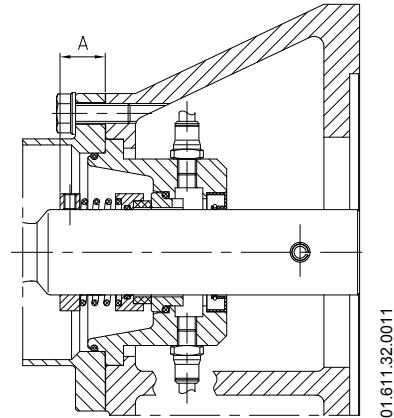
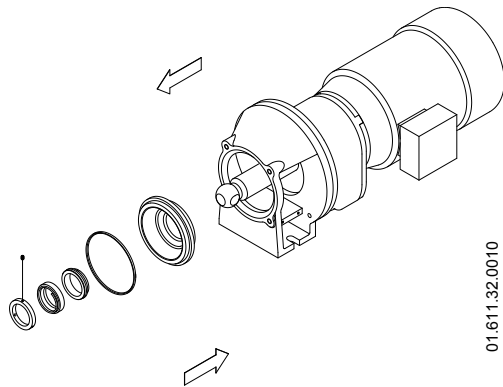
When installing the different parts and seals, use soapy water to allow them to slide better.

8.6.2. Mechanical seal**Disassembly**

- Follow the disassembly procedure described in the preceding section.
- If the protections (47A) were not removed previously, remove them now.
- Loosen the pins (55) to remove the seal ring (31).
- Remove the seal cover (09) to pull out the seal at the same time as the mechanical seal (08).
- Finally, gently remove the stationary part of the seal, which has remained housed inside the seal cover.

Assembly

- Mount the fixed part of the mechanical seal (08) and the O-ring (80) to the seal cover (09).
- Place the cover on the bearings support (06A).
- Slide the rotary part of the seal (08) into the shaft complement (26).
- Place the seal ring (31) on the shaft and fasten it with the pins (55) according to the following assembly dimension:



Tipo bomba	A (mm)
KSF – 20	12
KSF – 25/30	16,5
KSF – 40/50	23
KSF – 60/80	25,5

ATTENTION



When mounting the new seal, be care to mount the parts and seals with soapy water to facilitate their sliding.

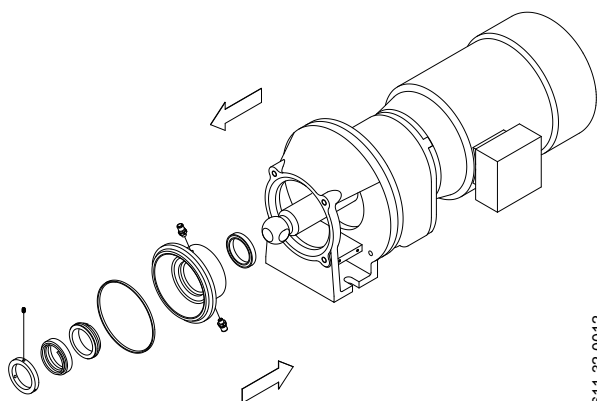
8.6.3. Cooled mechanical seal

Disassembly

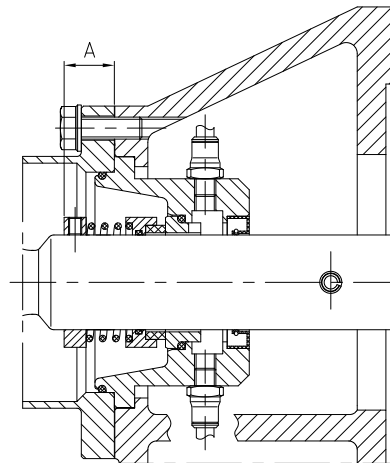
- First follow the disassembly procedure described in chapter [8.7.1. Stator, rotor and connecting rod](#).
- If the protections (47A) were not removed previously, remove them now.
- Remove the raccords (92) of the cover (09A).
- Loosen the pins (55) to remove the seal ring (31).
- Remove the seal cover (09) to pull out the seal at the same time as the mechanical seal (08) and the lip seal (88B).
- Finally, gently remove the stationary part of the seal, which has remained housed inside the seal cover and the lip seal.

Assembly

- Mount the fixed part of the mechanical seal (08) and the O-ring (80) and the raccords (92) to the seal cover, the quenching liquid pipes can be connected to the connections through the bearing support windows (09A).
- Place the cover on the bearings support (06A).
- Slide the rotary part of the seal (08) into the shaft complement (26).
- Place the seal ring (31) on the shaft and fasten it with the pins (55) according to the A dimension showed in chapter [8.6.2. Mechanical seal](#).



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01.611.32.0013

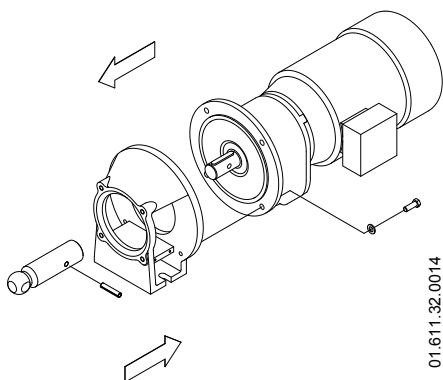
8.6.4. Change of drive

Disassembly

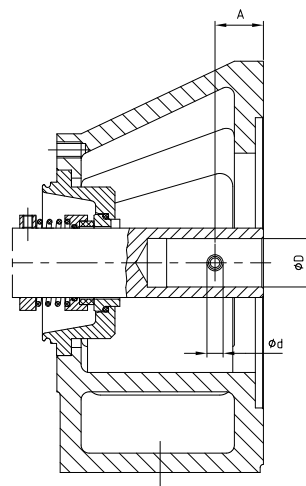
- Remove the elastic pin (05) from the shaft complement (26).
- Remove the screws (52A) and the washers (93) and pull out the drive (93).

Assembly

- Drill a hole in the drive shaft as shown in the figure below.
- Mount the drive (93) to the flange support (06A) and fasten it with the screws (52A) and washers (53A).
- Slide the shaft complement (26) over the drive shaft (93) and fasten it with the pin (56).



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01.611.32.0015

Pump type	A (mm)	ØD	Ød
KSF – 20	20	19 / 20 / 24	6 / 8
KSF – 25/30	20	24 / 25 / 28	8
KSF – 40/50	30	24 / 25 / 28 / 30	8
KSF – 60/80	35	35 / 38 / 40 / 42	10 / 12

9. Technical Specifications

Maximum viscosity	1 000 000 mPa.s
Maximum temperature	85°C
Sound level	60 – 80 dB(A)
Suction / discharge connections	DIN 11851



Use special protection when the noise level in the operation area exceeds 85 dB(A).

Materials

Parts in contact with the product	AISI 316L
Other stainless steel parts	AISI 304
Seals in contact with the product	NBR
Stator	Black NBR
Other materials for the seal	consult with INOXPA
Surface finish	matt

Mechanical seal

Type of seal:	single inside seal
Stationary parts material	ceramic
Rotary parts material	graphite
Seal material	NBR

Cooled mechanical seal

Working pressure	0,5 bar
Flow rate of the circulation	2,5 – 5 l/min

Double mechanical seal

Operating pressure	1,5 – 2 bar above the operating pressure of the pump
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Gland packing

Packing material	Teflon-reinforced aramid fibre
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Pump type	Volume 100 rev (l)	Maximum flow (m ³ /h)	Maximum pressure (bar)		Maximum speed (rpm)	Minimum starting torque (Nm)	
			Single stage	Double stage		Single stage	Double stage
KSF-20	3,30	2,8	6	12	1 450	18	30
KSF-25	6,10	3,5	6	12	950	20	36
KSF-30	10,6	6,0	6	12	950	25	45
KSF-40	25,7	14,6	6	12	950	45	80
KSF-50	47,2	20,4	6	12	720	70	125
KSF-60	86,4	25,9	6	12	500	110	190
KSF-80	201,6	48,4	6	12	400	150	260

9.1. PARTICLE SIZE



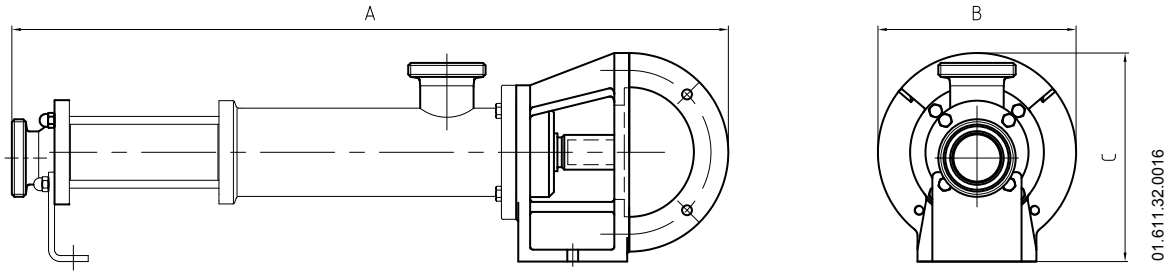
Only soft particles can be pumped

Pump type	Inside diameter of connections (mm)	Maximum nominal sphere size (mm)	Recommended nominal sphere size (mm)
KSF-20	35	13	5
KSF-25	48	18	6
KSF-30	48	24	8
KSF-40	60,5	30	10
KSF-50	72	40	13
KSF-60	97,5	48	16
KSF-80	97,5	62	20

9.2. WEIGHT

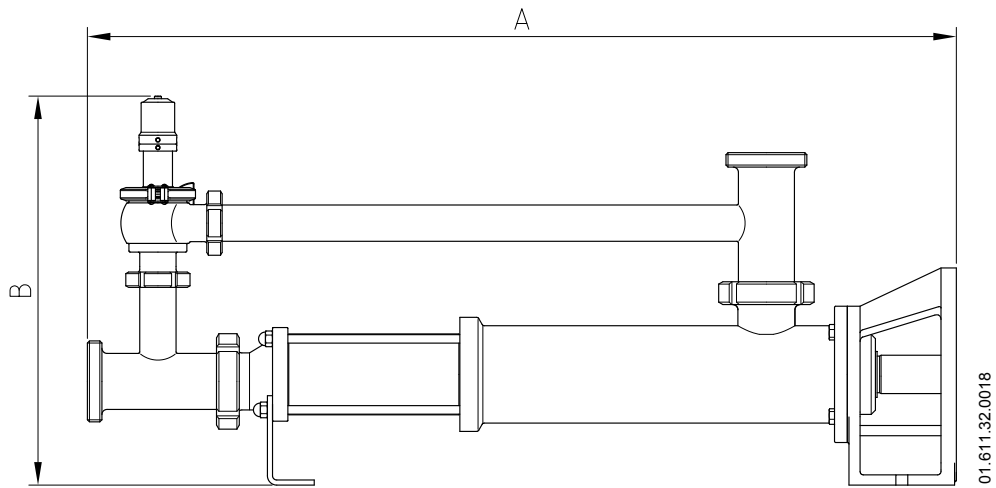
Pump type	Weight (Kg)	Pump type	Weight (Kg)	Pump type	Weight (Kg)	Pump type	Weight (Kg)
KSF-20	11	2KSF-20	12	KSFT-20	16	2KSFT-20	19
KSF-25	18	2KS-25	19	KSFT-25	25	2KSFT-25	25
KSF-30	19	2KS-30	20	KSFT-30	26	2KSFT-30	25
KSF-40	32	2KS-40	38	KSFT-40	41	2KSFT-40	30
KSF-50	36	2KS-50	45	KSFT-50	45	2KSFT-50	30
KSF-60	68			KSFT-60	87		
KSF-80	85			KSFT-80	104		

9.3. DIMENSIONS OF KIBER KSF PUMP



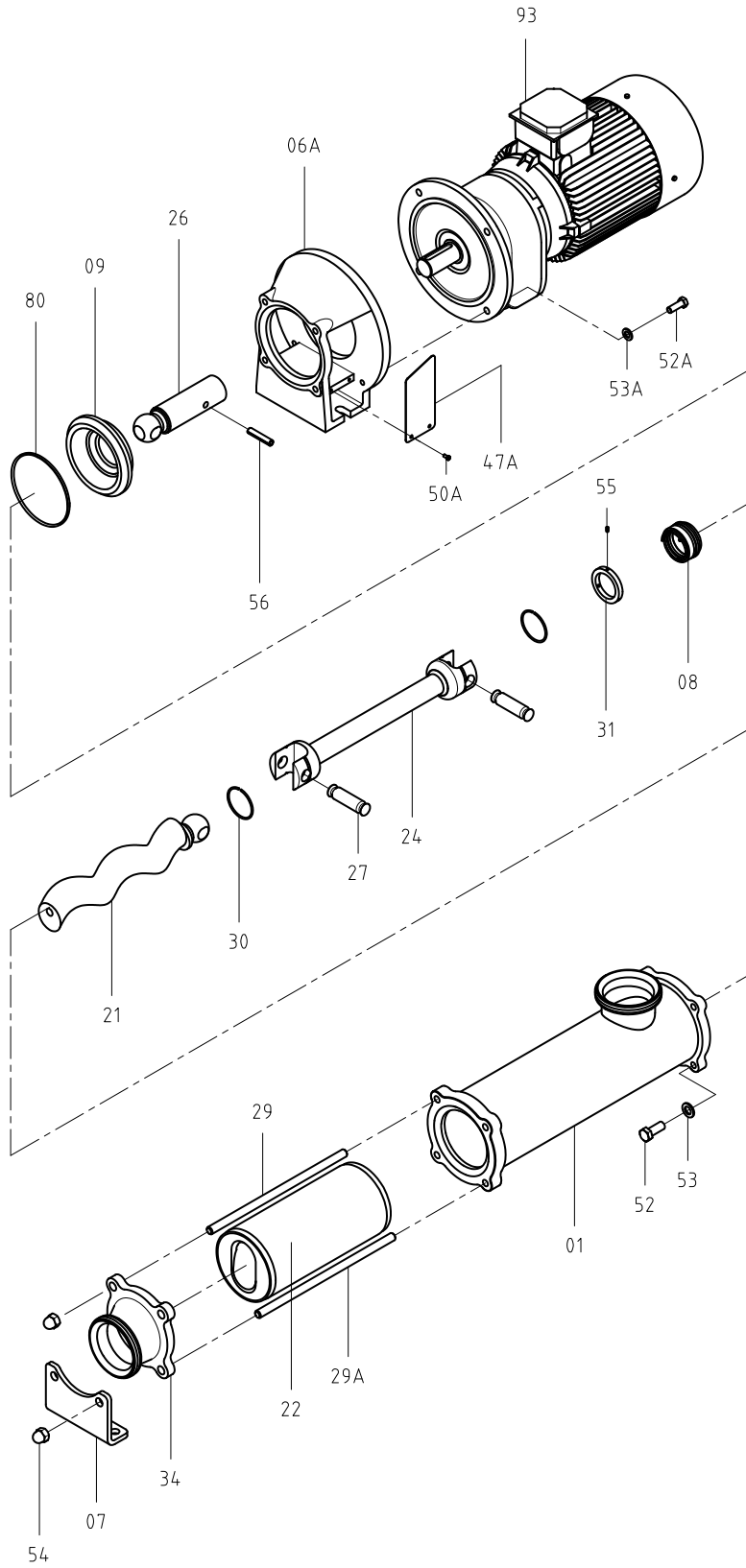
Pump type	A	B	C
KSF-20	569	160	170
2KSF-20	669	160	170
KSF-25	723	200	210
2KSF-25	815	200	210
KSF-30	723	200	210
2KSF-30	873	200	210
KSF-40	985	250	255
2KSF-40	1 175	250	255
KSF-50	1 061	250	255
2KSF-50	1 315	250	255
KSF-60	1 265	300	310
KSF-80	1 395	300	310

9.4. DIMENSIONS OF KIBER KSF PUMP WITH BY-PASS PRESSURE



Pump type	A	B
KSF-20	489	417
2KSF-20	589	417
KSF-25	623	467
2KSF-25	715	467
KSF-30	623	464
2KSF-30	773	464
KSF-40	860	507
2KSF-40	1 050	507
KSF-50	936	537
2KSF-50	1 190	537
KSF-60	1 115	621
KSF-80	1 245	607

9.5. EXPLODED DRAWING AND PARTS LIST OF KIBER KSF PUMP

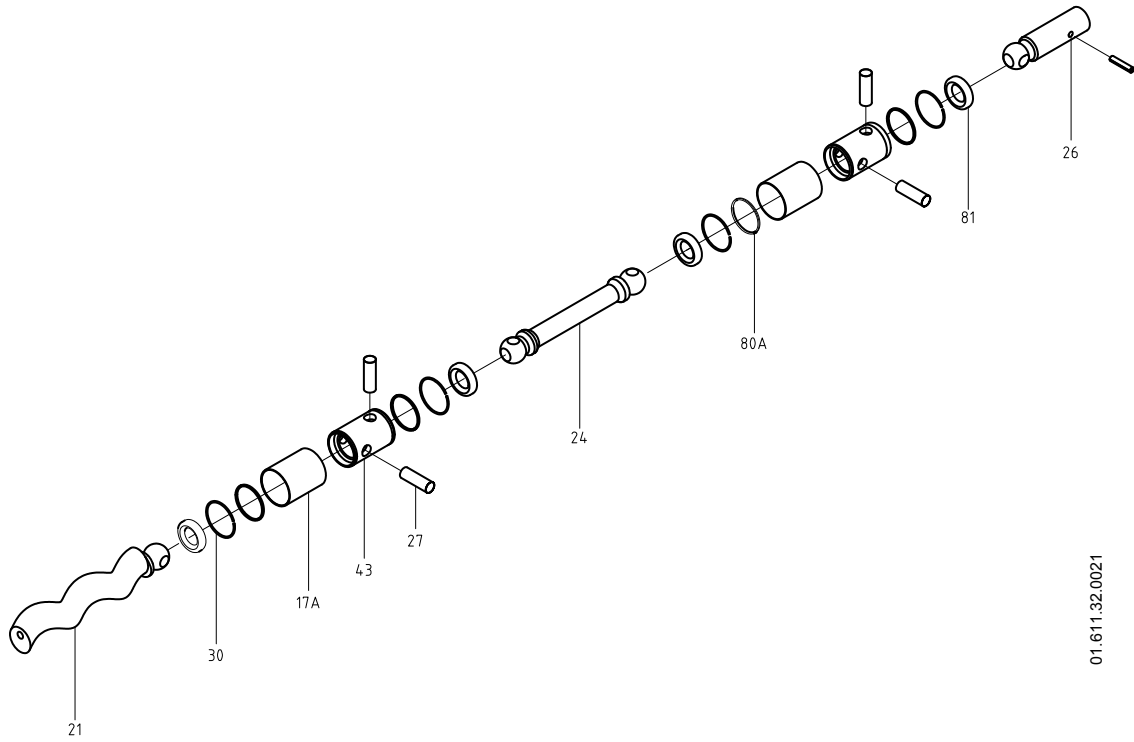


01.611.32.0019

Position	Description	Quantity	Material
01	Pump casing	1	AISI 316L
06	Bearing support	1	GG-25
07	Leg	1	AISI 304
08	Mechanical seal*	1	-
09	Seal cover	1	AISI 316L
21	Rotor	1	AISI 316L
22	Stator*	1	NBR negro
24	Connecting rod	1	AISI 316L
26	Shaft complement	1	AISI 316L
27	Bolt*	2	AISI 316L
29	Upper tie bar	2	AISI 304
29A	Lower tie bar	2	AISI 304
30	Safe ring	2	AISI 316L
31	Seal stop ring	1	AISI 316L
31A	Stop washer	1	F-522
34	Discharge nozzle	1	AISI 316L
47A	Protection	2	Plastic
50A	Screw	4	A2
52	Hexagonal screw	4	A2
52A	Hexagonal screw	4	A2
53	Flat washer	4	A2
53A	Spring washer	4	A2
54	Blind nut	4	A2
55	Pin	3	A2
56	Pin	1	A2
80	O-ring*	1	NBR
93	Drive	1	-

* Recommended spare parts

9.6. HEAVY DUTY TRANSMISSION

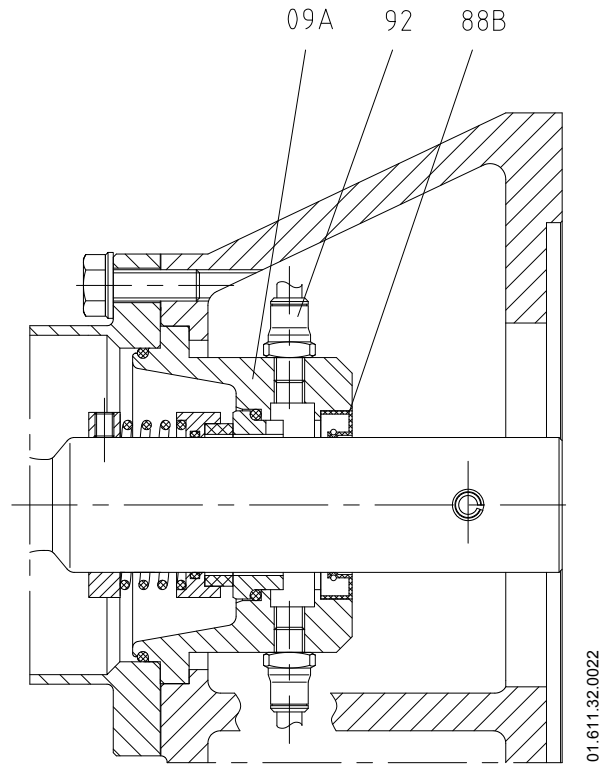


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Position	Description	Quantity	Material
17A	Transmission shield bushing	2	AISI 316L
21	Rotor	1	AISI 316L
24	Connecting rod	1	AISI 316L
26	Shaft complement	1	AISI 316L
27	Bolt*	4	AISI 316L
30	Safe ring	4	AISI 316L
43	Transmission bushing	2	AISI 316L
80A	O-ring*	4	NBR
81	O-ring*	4	NBR

* Recommended spare parts

9.7. COOLED MECHANICAL SEAL



Position	Description	Quantity	Material
09A	Cooled seal cover	1	AISI 316L
88B	Lip seal*	1	NBR
92	Racord	2	AISI 316

* Recommended spare parts

Насосы — Винтовые насосы Kiber KS, Kiber KSF

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Замечания

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