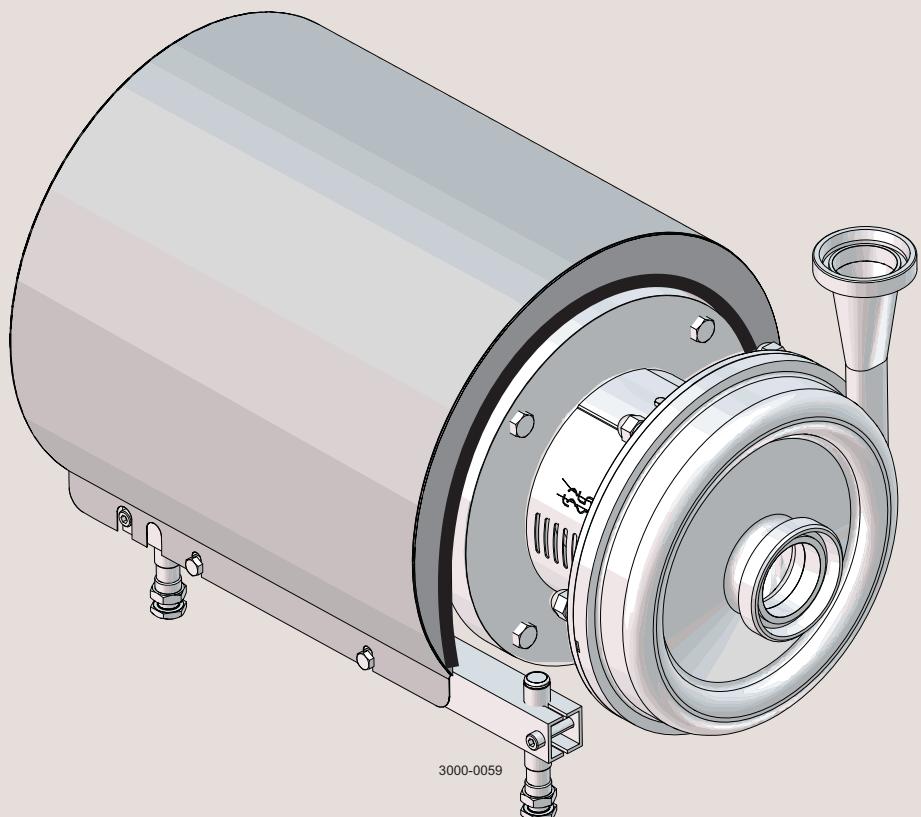




Instruction Manual

LKH Centrifugal Pump



ESE00698-EN15 2013-11

Original manual

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The information herein is correct at the time of issue but may be subject to change without prior notice

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1 EC Declaration of conformity

The designated company

Alfa Laval

Company Name

Albuen 31, DK-6000 Kolding, Denmark

Address

+45 79 32 22 00

Phone No.

hereby declare that

Pump
Denomination

LKH
Type

2009-12-29
Year

is in conformity with the following directives with amendments:

- Low Voltage Directive 2006/95/EC
- EMC Directive 2004/108/EC
- Machinery Directive 2006/42/EC

The technical construction file is retained at the above address

Manager, Product Center Fluid Handling
Title

Bjarne Søndergaard
Name

Alfa Laval Kolding
Company



Signature

Designation



*Unsafe practices and other important information are emphasised in this manual.
Warnings are emphasised by means of special signs.
Always read the manual before using the pump!*

2.1 Important information

WARNING

Indicates that special procedures must be followed to avoid serious personal injury.

CAUTION

Indicates that special procedures must be followed to avoid damage to the pump.

NOTE

Indicates important information to simplify or clarify procedures.

2.2 Warning signs

General warning:



Dangerous electrical voltage:



Caustic agents:



2 Safety

All warnings in the manual are summarised on this page.

Pay special attention to the instructions below so that severe personal injury and/or damage to the pump are avoided.

2.3 Safety precautions

Installation:

Always read the technical data thoroughly. (See chapter 6 Technical data)



Always use a lifting crane when handling the pump.

Pump without impeller screw:

Always remove the impeller before checking the direction of rotation.

Never start the pump if the impeller is fitted and the pump casing is removed.

Pump with Impeller screw:

Never start in the wrong direction of rotation with liquid in the pump.

Always have the pump electrically connected by authorised personnel. (See the motor instruction)



Operation:

Always read the technical data thoroughly. (See chapter 6 Technical data)



Never touch the pump or the pipelines when pumping hot liquids or when sterilising.

Never run the pump with both the suction side and the pressure side blocked.

Never run the pump when partially installed or not completely assembled.

Necessary precautions must be taken if leakage occurs as this can lead to hazardous situations.

Always handle lye and acid with great care.

Never use the pump for products not mentioned in the Alfa Laval pump selection program.

The Alfa Laval pump selection program can be acquired from your local Alfa Laval sales company.



Maintenance:

Always read the technical data thoroughly. (See chapter 6 Technical data)



Never service the pump when it is hot.

Never service the pump if pressurised.

Always use Alfa Laval genuine spare parts.

Motors with grease nipples:

Remember lubrication according to information plate/label on the motor.

Always disconnect the power supply when servicing the pump.



Transportation:

Transportation of the pump or the pump unit:

Never lift or elevate in any way other than described in this manual

Always drain the pump head and accessories of any liquid

Always ensure that no leakage of lubricants can occur

Always transport the pump in its upright position

Always ensure that the unit is securely fixed during transportation

Always use the original packaging or similar during transportation

3 Installation

The LKH pump is a highly efficient and economical centrifugal pump, which meets the requirements of sanitary and gentle product treatment and chemical resistance. LKH is available in the following sizes LKH-5, -10, -15, -20, -25, -35, -40, -50, -60, -70, -75, -85 and -90. The instruction manual is part of the delivery. Read the instructions carefully. The large pump sizes are very heavy. Alfa Laval therefore recommends the use of a lifting crane when handling the pump.

3.1 Unpacking/delivery

Step 1

Always use a lifting crane when handling the pump (see technical data).

Check the delivery for:

1. Complete pump.
2. Delivery note.
3. Motor instructions.

CAUTION

Alfa Laval cannot be held responsible for incorrect unpacking.

WARNING:

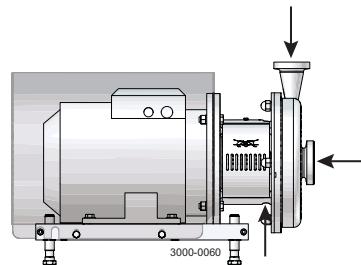
Be aware that certain pump configurations can tilt, and therefore cause injuries to feet or fingers. The pump should be supported underneath the adaptor, when not installed in the process line.

Step 2

Remove any packing materials from the inlet and the outlet.

Avoid damaging the inlet and the outlet.

Avoid damaging the connections for flushing liquid, if supplied.

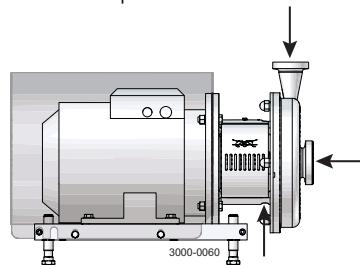


Remove packing materials!

Step 3

Inspect the pump for visible transport damage.

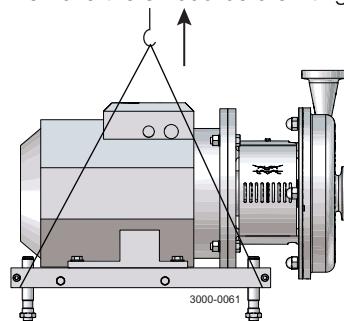
Inspection!



Step 4

Always remove the shroud, if fitted, before lifting the pump.

Remove the shroud before lifting!



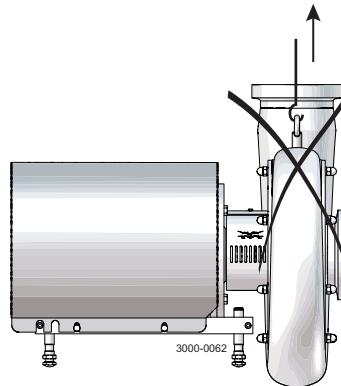
3 Installation

The LKH pump is a highly efficient and economical centrifugal pump, which meets the requirements of sanitary and gentle product treatment and chemical resistance. LKH is available in the following sizes LKH-5, -10, -15, -20, -25, -35, -40, -50, -60, -70, -75, -85 and -90. The instruction manual is part of the delivery. Read the instructions carefully. The large pump sizes are very heavy. Alfa Laval therefore recommends the use of a lifting crane when handling the pump.

Step 5

ONLY LKH-85 and LKH-90

Do **NOT** use eyebolt in casing to lift the pump. The eyebolt is for casing removal only.



Read the instructions carefully and pay special attention to the warnings! Always check the pump before operation.

- See pre-use check in section 3.3 Pre-use check - pump without impeller screw.

The large pump sizes are very heavy.

Alfa Laval therefore recommends the use of a lifting crane when handling the pump.

3.2 Installation

Step 1



Always read the technical data thoroughly.

(See chapter 6 Technical data)



Always use a lifting crane when handling the pump.



Always have the pump electrically connected by authorised personnel. (See the motor instructions).

CAUTION

Alfa Laval cannot be held responsible for incorrect installation.

WARNING:

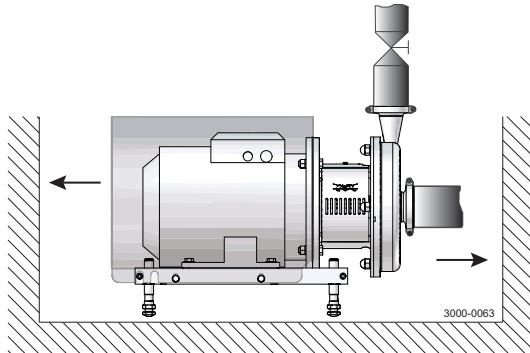
Alfa Laval recommends the installation of a lockable repair breaker. If the repair breaker is to be used as an emergency stop, the colors of the repair breaker must be red and yellow.

Caution:

The pump does not prevent back flow when intentionally or unintentionally stopped. If back flow can cause any hazardous situations, precautions must be taken e.g. check the valve to be installed in the system preventing hazardous situations from arising.

Step 2

Ensure at least 0.5 m (1.6 ft) clearance around the pump.

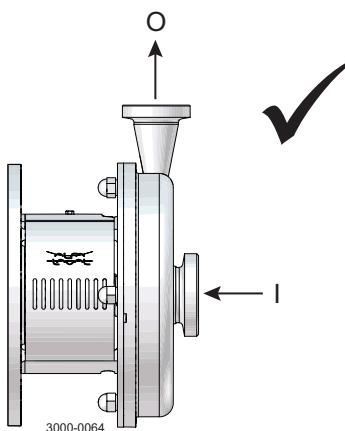


Step 3

Check that the flow direction is correct.

O: Outlet

I: Inlet



3 Installation

Read the instructions carefully and pay special attention to the warnings! Always check the pump before operation.

- See pre-use check in section 3.3 Pre-use check - pump without impeller screw.

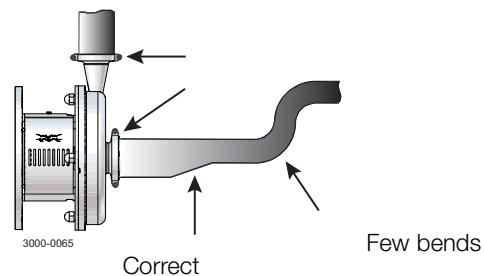
The large pump sizes are very heavy.

Alfa Laval therefore recommends the use of a lifting crane when handling the pump.

Step 4

1. Ensure that the pipelines are routed correctly.
2. Ensure that the connections are tight.

Remember seal rings

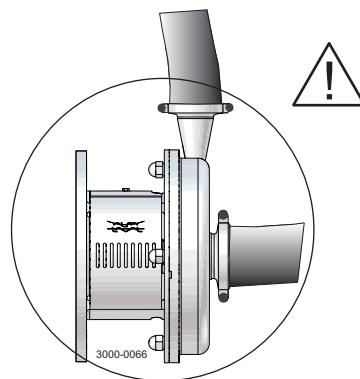


Step 5

Avoid stress on the pump.

Pay special attention to:

- Vibrations.
- Thermal expansion of the tubes.
- Excessive welding.
- Overloading of the pipelines.



Note

In case of shaft seal leakage, the media will drip from the slot in the bottom of the adaptor. In case of shaft seal leakage, Alfa Laval recommends putting a drip tray underneath the slot to collect the leakage.

Read the instructions carefully and pay special attention to the warnings!

LKH-5 to -60 comes without impeller screw as standard but can be supplied with one.

Check the direction of rotation of the impeller before operation.

- See the indication label on the pump.

3.3 Pre-use check - pump without impeller screw

Step 1

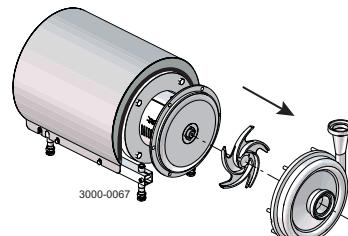


Always remove the impeller before checking the direction of rotation.



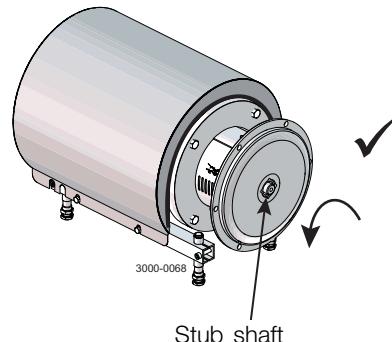
Never start the pump if the impeller is fitted and the pump casing is removed.

1.
 - A. LKH-5: Remove screws (56), spring washers (56a), clamps (55+55a) and pump casing (29).
 - B. LKH-10 to -60: Remove cap nuts (24), washers (24a) and pump casing (29).
2. Remove impeller (27) (see also instruction in section 5.4 Assembly of pump/single shaft seal).



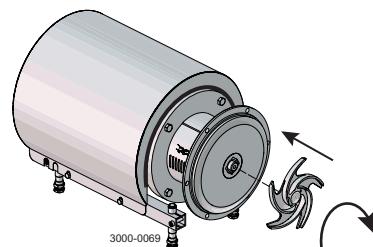
Step 2

1. Start and stop the motor momentarily.
2. Ensure that the direction of rotation of the stub shaft (7) is anticlockwise as viewed from the inlet side.



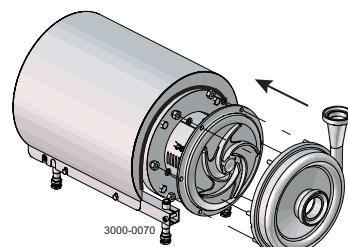
Step 3

Fit and tighten impeller (27).



Step 4

1. Fit pump casing (29).
2.
 - A. LKH-5: Fit clamps (55+55a), spring washers (56a) and tighten screws (56)
 - B. LKH-10 to -60: Fit washers (24a) and tighten cap nuts (24), according to torque values in chapter 6 Technical data



3 Installation

Read the instructions carefully and pay special attention to the warnings!

LKH-5 to -60 comes without impeller screw as standard but can be supplied with one.

Check the direction of rotation of the impeller before operation.

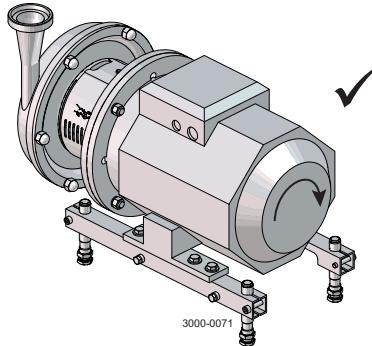
- See the indication label on the pump.

3.4 Pre-use check - pump with impeller screw



Never start in the wrong direction of rotation with liquid in the pump.

1. Start and stop the motor momentarily.
2. Ensure that the direction of rotation of the motor fan is clockwise as viewed from the rear end of the motor.



View from rear end of motor

Read the instructions carefully and pay special attention to the warnings!
LKH-5 to -60 comes without impeller screw as standard but can be supplied with one.
Check the direction of rotation of the impeller before operation.
- See the indication label on the pump.

3.5 Recycling information

Unpacking

- Packing material consists of wood, plastics, cardboard boxes and in some cases metal straps
- Wood and cardboard boxes can be re-used, recycled or used for energy recovery
- Plastics should be recycled or burnt at a licensed waste incineration plant
- Metal straps should be sent for material recycling

Maintenance

- During maintenance, oil and wearing parts in the machine are replaced
- All metal parts should be sent for material recycling
- Worn out or defective electronic parts should be sent to a licensed handler for material recycling
- Oil and all non-metal wearing parts must be disposed of in accordance with local regulations

Scraping

- At the end of use, the equipment must be recycled according to relevant local regulations. Besides the equipment itself, any hazardous residues from the process liquid must be taken into consideration and dealt with in a proper manner. When in doubt, or in the absence of local regulations, please contact your local Alfa Laval sales company.
-

4 Operation

Read the instructions carefully and pay special attention to the warnings!

4.1 Operation/Control

Step 1



Always read the technical data thoroughly. See chapter 6 Technical data

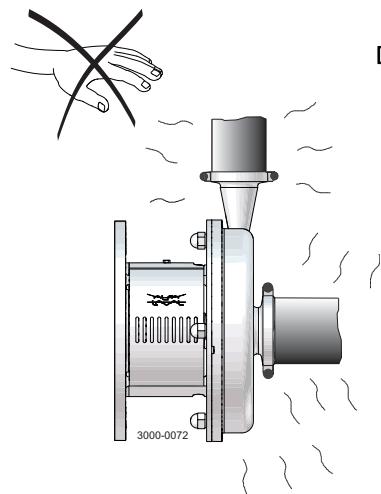
CAUTION

Alfa Laval cannot be held responsible for incorrect operation/control.

Step 2



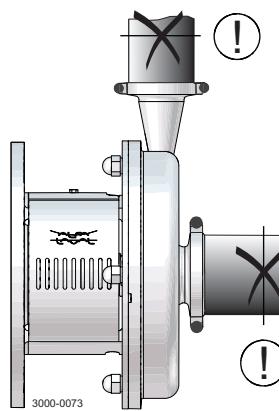
Never touch the pump or the pipelines when pumping hot liquids or when sterilising.



Danger of burns!

Step 3

Danger of explosion!



⚠ See the warning label!

Read the instructions carefully and pay special attention to the warnings!

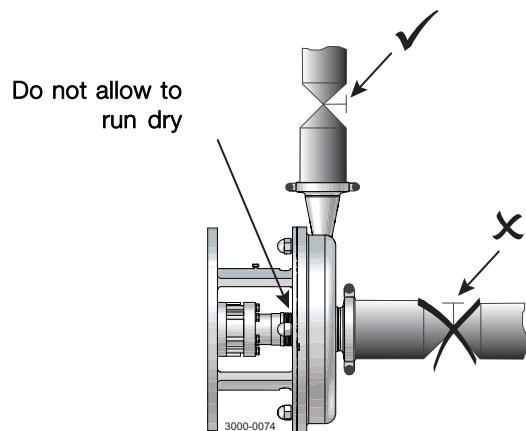
Step 4

CAUTION

The shaft seal must not run dry.

CAUTION

Never throttle the inlet side.



Step 5

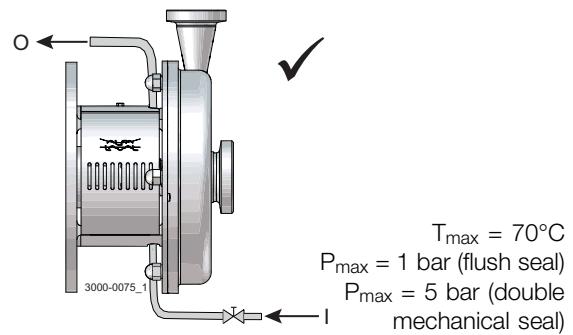
Double mechanical/flushed shaft seal:

1. Connect the inlet of the flushing liquid correctly. (R1/8" BSP).
2. Regulate the water supply correctly.

*For LKH-85: connect inlet/outlet of the flushing liquid directly on the flushing housing. (ø6 tube).

O: Outlet

I: Inlet

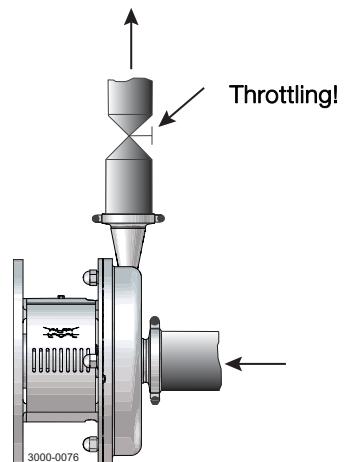


Step 6

Control:

Reduce the capacity and the power consumption by means of:

- Throttling the pressure side of the pump.
- Reducing the impeller diameter.
- Reducing the speed of the motor.



4 Operation

*Pay attention to possible faults.
Read the instructions carefully.*

4.2 Trouble shooting

NOTE!

Read the maintenance instructions carefully before replacing worn parts.

Problem	Cause/result	Remedy
Motor overloaded	<ul style="list-style-type: none">- Pumping of viscous liquids- Pumping of high density liquids- Low outlet pressure (counter pressure)- Lamination of precipitates from the liquid	<ul style="list-style-type: none">- Larger motor or smaller impeller- Higher counter pressure (throttling)- Frequent cleaning
Cavitation: <ul style="list-style-type: none">- Damage- Pressure reduction (sometimes to zero)- Increase in the noise level	<ul style="list-style-type: none">- Low inlet pressure- High liquid temperature	<ul style="list-style-type: none">- Increase the inlet pressure- Reduce the liquid temperature- Reduce the pressure drop before the pump- Reduce speed
Leaking shaft seal	<ul style="list-style-type: none">- Running dry- Incorrect rubber grade- Abrasive particles in the liquid	<p>Replace: All wearing parts</p> <p>If necessary:</p> <ul style="list-style-type: none">- Change rubber grade- Select stationary and rotating seal ring in silicon carbide/silicon carbide
Leaking O-ring seals	Incorrect rubber grade	Change rubber grade

The pump is designed for cleaning in place (CIP). CIP = Cleaning In Place.
Study the instructions carefully and pay special attention to the warnings!
NaOH = Caustic Soda.
HNO₃ = Nitric acid.

4.3 Recommended cleaning

Step 1



Always handle lye and acid with great care.

Caustic danger!



Always use rubber gloves!



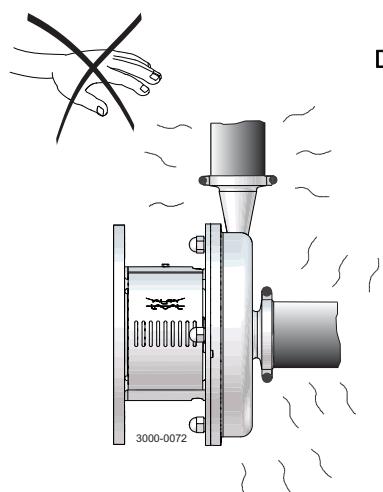
Always use protective goggles!

Step 2



Never touch the pump or the pipelines when sterilising.

Danger of burns!



Step 3

Examples of cleaning agents: Use clean water, free from chlorides.

1. 1% by weight NaOH at 70°C (158°F).

1 kg (2.2 lb) NaOH	+	100 l (26.4 gal) water	= Cleaning agent.
-----------------------	---	---------------------------	-------------------

2.2 l (0.6 gal) 33% NaOH	+	100 l (26.4 gal) water	= Cleaning agent.
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2. 0.5% by weight HNO₃ at 70°C (158°F).

0.7 l (0.2 gal) 53% HNO ₃	+	100 l (26.4 gal) water	= Cleaning agent.
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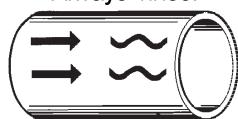
- Avoid excessive concentration of the cleaning agent
⇒ Dose gradually!
- Adjust the cleaning flow to the process.
Sterilisation of milk/viscous liquids
⇒ Increase the cleaning flow!

Step 4



Always rinse well with clean water after using a cleaning agent.

Always rinse!



Clean water Cleaning agent

NOTE

Cleaning agents must be stored/disposed of in accordance with current regulations/directives.

5 Maintenance

Maintain the pump with care. Read the instructions carefully and pay special attention to the warnings!
Always keep spare shaft seals and rubber seals in stock.
See separate motor instructions.
Check the pump for smooth operation after service.

5.1 General maintenance

Step 1



Always read the technical data thoroughly. (See chapter 6 Technical data)



Always disconnect the power supply when servicing the pump.

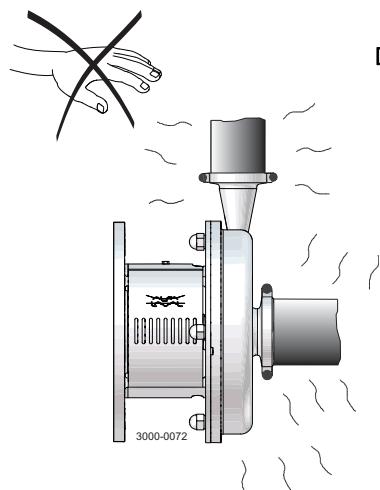
NOTE

All scrap must be stored//disposed of in accordance with current rules/directives.

Step 2



Never service the pump when it is hot.



Danger of burns!

Step 3



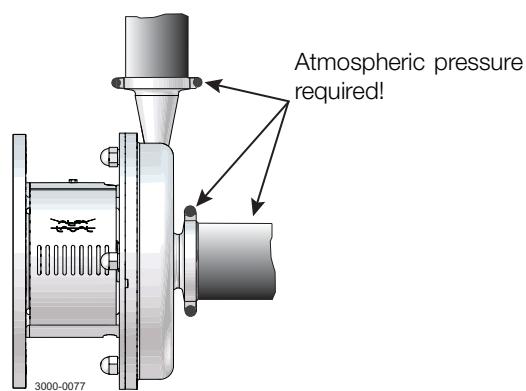
Never service the pump with pump if pressurised.

CAUTION

Fit the electrical connections correctly if they have been removed from the motor during service.

CAUTION

Pay special attention to the warnings!



Step 4

Recommended spare parts:

Order service kits from the service kits list
(See chapter 7 Parts list and service kits).

Ordering spare parts

Contact your local Alfa Laval sales company.

Note:

If the pump is supplied with FEP O-rings, Alfa Laval recommends that the casing O-ring is replaced during pump maintenance.

5 Maintenance

Maintain the pump with care. Read the instructions carefully and pay special attention to the warnings!
Always keep spare shaft seals and rubber seals in stock.
See separate motor instructions.
Check the pump for smooth operation after service.

	Shaft seal	Rubber seals	Motor bearings
Preventive maintenance	Replace after 12 months: (one-shift) Complete shaft seal	Replace when replacing the shaft seal	
Maintenance after leakage (leakage normally starts slowly)	Replace at the end of the day: Complete shaft seal	Replace when replacing the shaft seal	
Planned maintenance	<ul style="list-style-type: none">- Regular inspection for leakage and smooth operation- Keep a record of the pump- Use the statistics for inspection planning Replace after leakage: Complete shaft seal	Replace when replacing the shaft seal	<p>Yearly inspection is recommended</p> <ul style="list-style-type: none">- Replace complete bearing if worn- Ensure that the bearing is axially locked (See motor instructions)
Lubrication	Before fitting Lubricate the O-rings with silicone grease or silicone oil	Before fitting Silicone grease or silicone oil	See section 6.2 Relubrication intervals

Pre-use check

CAUTION!

Fit the electrical connections correctly if they have been removed from the motor during servicing.
(See pre-use check in section 3 Installation).

Pay special attention to warnings!

1. Start and stop the motor momentarily
2. Ensure that the pump operates smoothly.

5 Maintenance

5.2 Cleaning Procedure

Cleaning procedure for soiled impeller screw tapped hole:

1. Remove stub shaft (7) as per section 4 of the Service manual.
2. Submerge and soak the stub shaft for 5 minutes in COP tank with 2% caustic wash
3. Scrub the blind tapped impeller screw hole vigorously by plunging a clean 1/2" diameter sanitary bristle pipe brush in and out of the hole for two minutes while submerged.
4. Soak stub shaft (7) in acid sanitiser for 5 minutes, then scrub blind tapped hole as described in step 3 above.
5. Rinse well with clean water and blow-dry blind tapped hole with clean air.
6. Swab test the inside of the tapped hole to determine cleanliness.
7. Should the swab test fail, repeat steps 2 to 6 above until the swab test is passed.

Should swab testing continue to fail, or time is of the essence, install a new (spare) stub shaft (7).

Read the instructions carefully. The items refer to the parts list and service kits section.

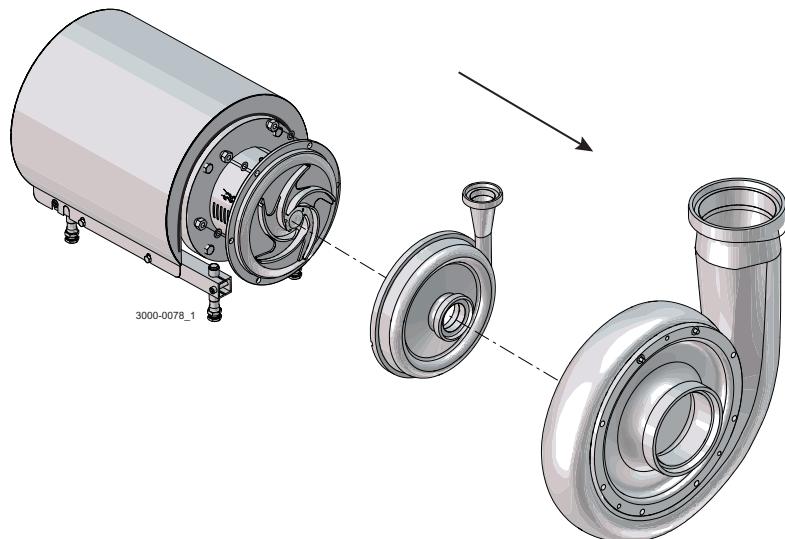
Handle scrap correctly.

* : Relates to the shaft seal.

5.3 Dismantling of pump/shaft seals

Step 1

1.
 - A. LKH-5: Remove screws (56), spring washers (56a), clamps (55+55a) and pump casing (29).
 - B. LKH-10 to 90: Unscrew cap nuts (24) and remove washers (24a) and pump casing (29).

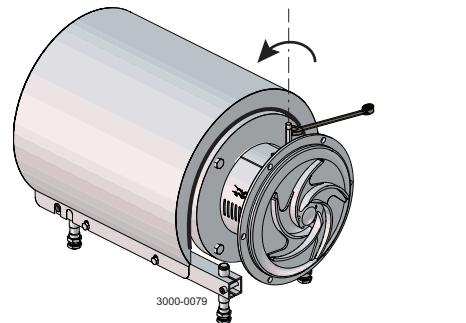


LKH-85 and LKH-90

Step 2

Flushed / Double mechanical shaft seal:

Unscrew tubes (42) using a spanner.



*

5 Maintenance

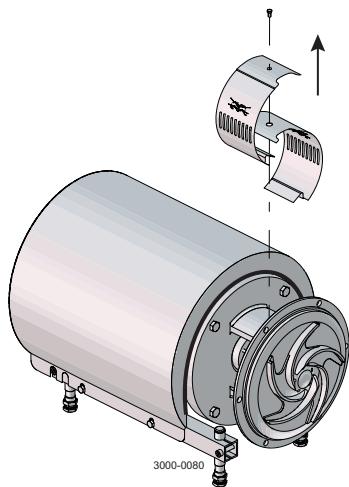
Read the instructions carefully. The items refer to the parts list and service kits section.

Handle scrap correctly.

* : Relates to the shaft seal.

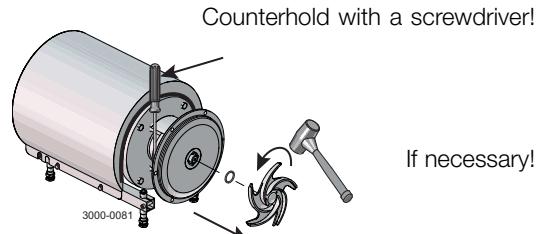
Step 3

Remove screw (23) and safety guard (22).



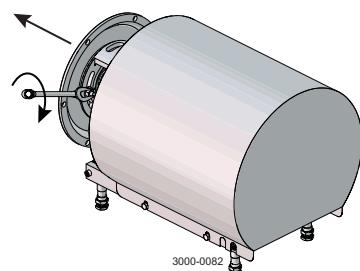
Step 4

1. Remove impeller screw (36), if fitted.
2. Remove impeller (27). If necessary, loosen the impeller by knocking gently on the impeller vanes.
3. Remove the O-ring (38) from the impeller, if fitted.



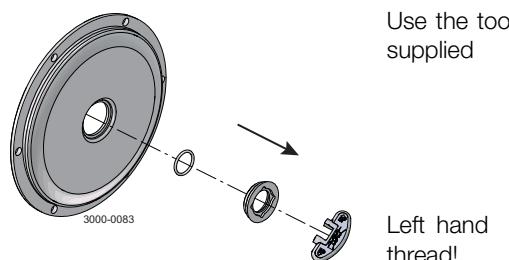
Step 5

1. Pull off the O-ring (26) from back plate (25).
2. Unscrew nuts (20) and remove washers (21) and the back plate.



Step 6

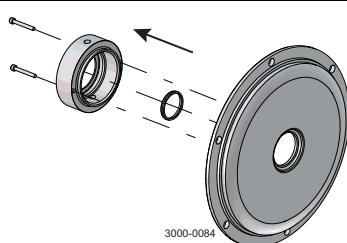
1. Remove the stationary seal ring (11).
2. Remove the O-ring (12) from back plate (25).



Step 7

Flushed shaft seal:

1. Remove screws (41) and seal housing (40).
2. Pull out lip seal (43) from the seal housing.



Read the instructions carefully. The items refer to the parts list and service kits section.

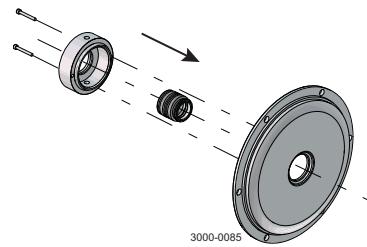
Handle scrap correctly.

* : Relates to the shaft seal.

Step 8

Double mechanical shaft seal:

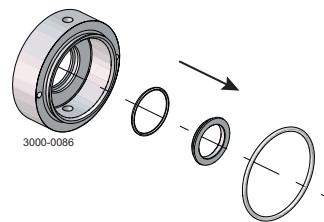
1. Remove screws (41) and seal housing (40a).
2. Remove rotating seal rings (14) and drive ring (52) from spring (13).
3. Remove O-rings (15) from rotating seal rings (14).
4. LKH-70 to 90: Remove cups (54) from rotating seal rings.



Step 9

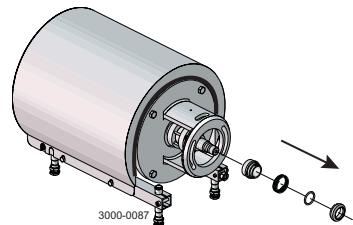
Double mechanical shaft seal:

1. Remove stationary seal ring (51) from seal housing (40a).
2. Remove O-ring (50) from stationary seal ring (51).
3. Remove O-ring (44) from seal housing (40a).



Step 10

1. Remove the complete shaft seal from stub shaft (7).
2. Remove spring (13) and rotating seal ring (14) from the drive ring (10).



*

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5 Maintenance

Read the instructions carefully. The items refer to the parts list and service kits section.

Handle scrap correctly.

* : Relates to the shaft seal.

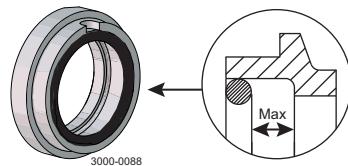
5.4 Assembly of pump/single shaft seal

Step 1

1. Remove spring (13).

NOTE!

Make sure that O-ring (15) has maximum clearance from the sealing surface.



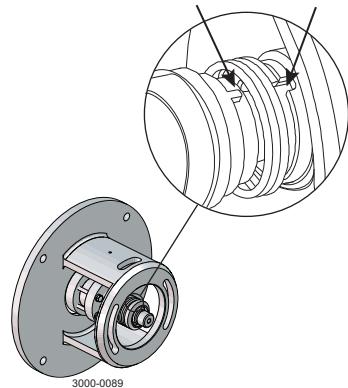
*

Step 2

1. Refit spring (13) on rotating seal ring (14).
2. Fit the spring and the rotating seal ring on drive ring (10).

CAUTION

Ensure that the driver on the drive ring enters the notch in the rotating seal ring.



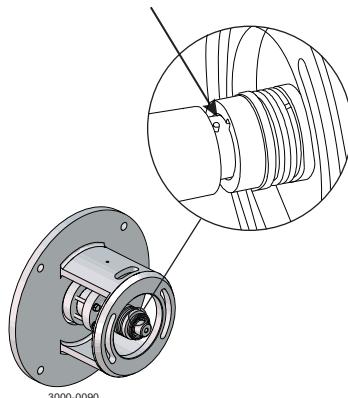
*

Step 3

Fit the complete shaft seal on stub shaft (7).

NOTE!

Make sure that Connex pin (8) on the stub shaft enters the notch in drive ring (10).



*

Step 4

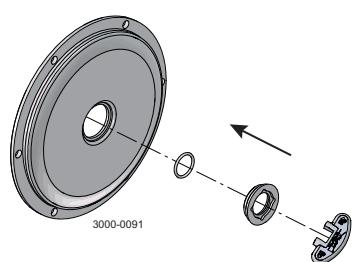
1. Fit O-ring (12) on stationary seal ring (11) and lubricate.
2. Screw the stationary seal ring into back plate (25).

CAUTION

Only tighten by hand to avoid deforming the stationary seal ring.

(Max. 7 Nm/5 lbf-ft)

Use the tool supplied



Left hand thread!

5 Maintenance

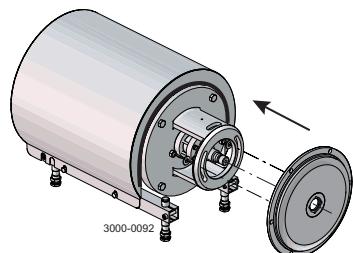
Read the instructions carefully. The items refer to the parts list and service kits section.

Handle scrap correctly.

* : Relates to the shaft seal.

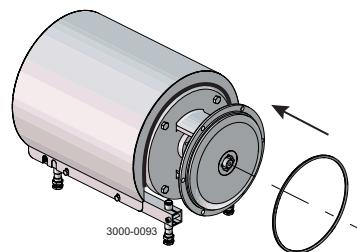
Step 5

1. Clean the sealing surfaces with contact cleaner before fitting back plate (25).
2. Carefully guide the back plate onto adaptor (16).
3. Fit washers (21) and nuts (20).



Step 6

Lubricate O-ring (26) and slide it onto back plate (25).

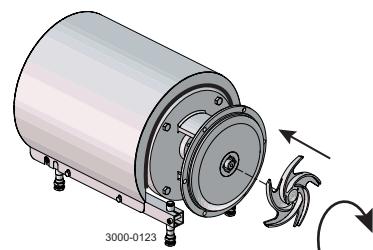


Step 7

1. Lubricate O-ring (38) and fit it in impeller (37), if impeller screw is used.
2. Lubricate impeller hub with silicone grease or oil.
3. Screw the impeller onto stub shaft (7).
4. Fit impeller screw (39) and tighten, if used.

Torque - 5-60 = 20 Nm (15 lbf-ft)

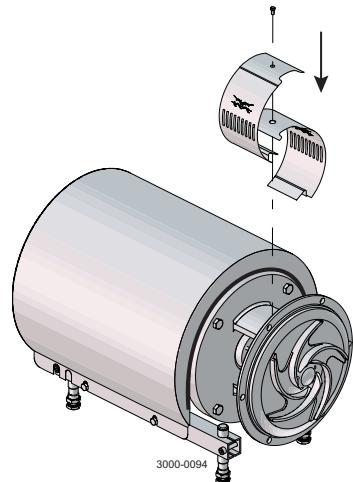
Torque - 70-90 = 50 Nm (37 lbf-ft)



Step 8

Fit safety guards (22) and screw (23) and tighten.

If pump is not supplied with flush connections, the holes in the adaptor will be covered by the guard.



*

5 Maintenance

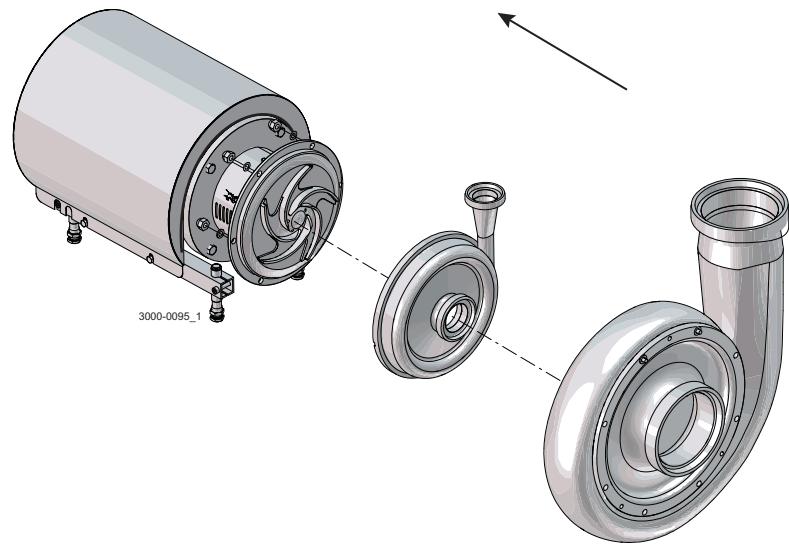
Read the instructions carefully. The items refer to the parts list and service kits section.

Handle scrap correctly.

* : Relates to the shaft seal.

Step 9

1.
 - A. LKH-5: Fit pump casing (29), clamps (55+55a), spring washers (56a) and screws (56).
 - B. LKH-10 to -90: Fit pump casing (29), washers (24a) and cap nuts (24).
2. Adjust pump casing to the right position.
3.
 - A. LKH-5: Tighten nuts (20) for back plate (25) and tighten screws (56).
 - B. LKH-10 to -90: Tighten nuts (20) for back plate (25) and tighten cap nuts (24), according to torque values in chapter 6 Technical data.



LKH-85 and LKH-90

Read the instructions carefully. The items refer to the parts list and service kits section.

Lubricate the rubber seals before fitting them.

* : Relates to the shaft seal.

5.5 Assembly of pump/flushed shaft seal

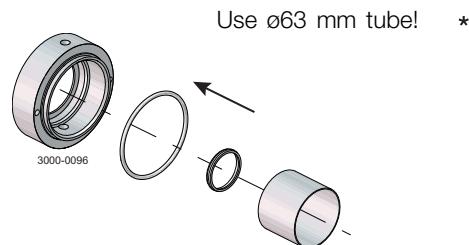
Step 1

Flushed shaft seal:

LKH-5 to -60 use ø63mm tube

LKH-70 to -90 press in lip seal by hand

1. Fit lip seal (43) in seal housing (40).
2. Lubricate O-ring (44) and slide onto the seal housing (40).
3. Fit the seal housing on back plate (25) and tighten screws (41).

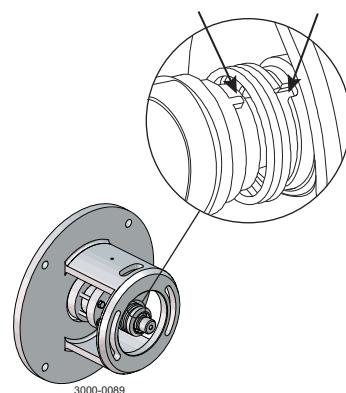


Step 2

1. Lubricate O-ring (45) and fit it in drive ring (10).
2. Fit spring (13) and rotating seal ring (14) on the drive ring.

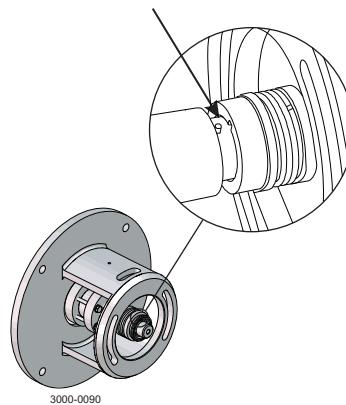
CAUTION

Ensure that the driver on the drive ring enters the notch in the rotating seal ring.



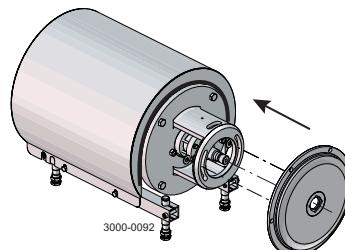
Step 3

Fit complete shaft seal on stub shaft (7) so that Connex pin (8) on the stub shaft enters the notch in drive ring (10).



Step 4

1. Carefully guide back plate (25) onto adaptor (16).
2. Fit washers (21) and nuts (20).



5 Maintenance

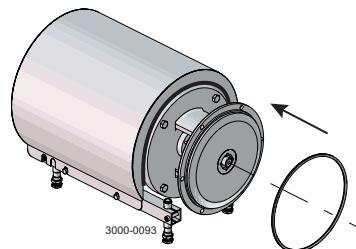
Read the instructions carefully. The items refer to the parts list and service kits section.

Lubricate the rubber seals before fitting them.

* : Relates to the shaft seal.

Step 5

Lubricate O-ring (26) and slide it onto back plate (25).

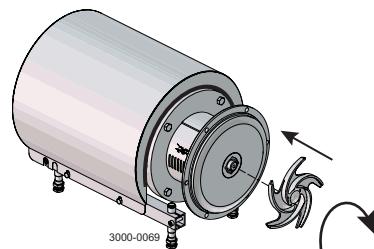


Step 6

1. Lubricate O-ring (38) and fit it in impeller (37), if impeller screw is used.
2. Lubricate the impeller hub with silicone grease or oil.
3. Screw impeller (27) onto stub shaft (7).
4. Fit impeller screw (36) and tighten, if used.

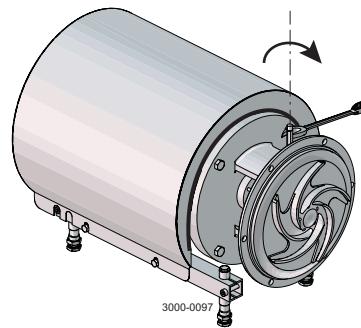
Torque - 5-60 20 Nm (15 lbf-ft)

Torque - 70-90 50 Nm (37 lbf-ft)



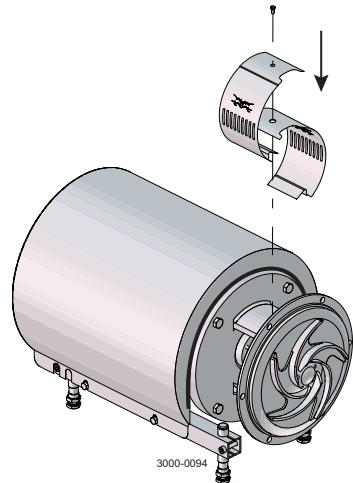
Step 7

1. Screw tubes (42) into seal housing (40).
2. Tighten with a spanner.



Step 8

Fit safety guard (22) and screw (23) and tighten.



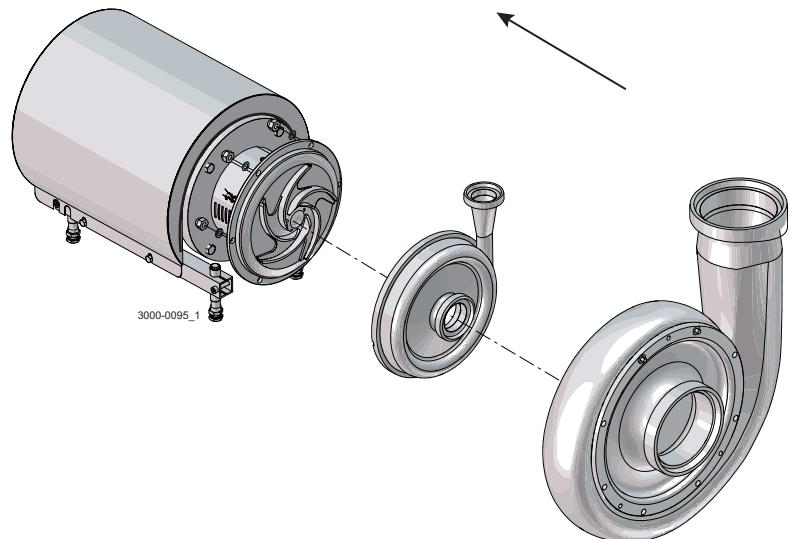
Read the instructions carefully. The items refer to the parts list and service kits section.

Lubricate the rubber seals before fitting them.

* : Relates to the shaft seal.

Step 9

1.
 - A. LKH-5: Fit pump casing (29), clamps (55+55a), spring washers (56a) and screws (56).
 - B. LKH-10 to -90: Fit pump casing (29).
2. Tighten nuts (20) for back plate (25).
3.
 - A. LKH-5: Tighten nuts (20) for back plate (25) and tighten screws (56).
 - B. LKH-10 to -90: Fit washers (24a) and cap nuts (24) and tighten, according to the torque values in chapter 6 Technical data.



LKH-85 and LKH-90

5 Maintenance

Read the instructions carefully. The items refer to the parts list and service kits section.

Lubricate the rubber seals before fitting them.

* : Relates to the shaft seal.

5.6 Assembly of pump/double mechanical shaft seal

Step 1

1. Fit O-rings (15) in rotating seal rings (14).
2. LKH-70 to -90: Fit cups (54) on rotating seal rings (14).
3. Fit spring (13) on one of the rotating seal rings (14) and place the drive ring (52) in between.

*

Step 2

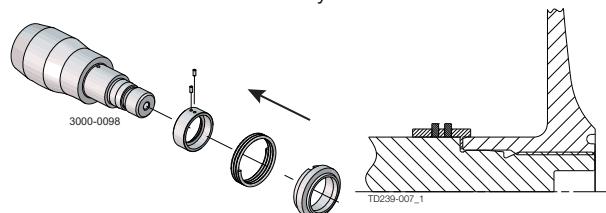
1. LKH-70 to -90: Turn the drive ring (52) in order to place it correctly on the pump shaft (7).
2. Fit the second rotating ring (14) on the other end of the spring.
3. Place the parts on the stationary seal ring fitted in back plate (25).

*

NOTE

Ensure that both drive pins on the drive ring enter the notches in rotating seal rings.

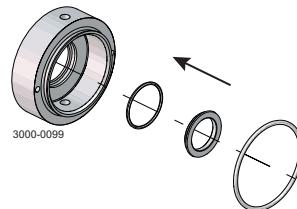
Only LKH-70-90



Step 3

1. Lubricate O-ring (44) and slide onto seal housing (40a).
2. Lubricate O-ring (50) and fit on stationary seal ring (51) and fit this in the seal housing.

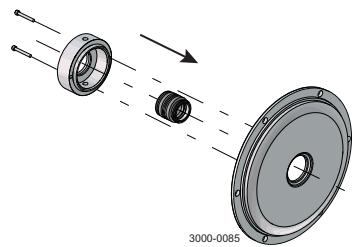
*



Step 4

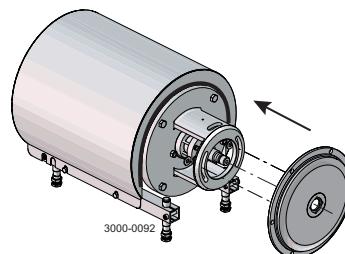
1. Clean the sealing surfaces with contact cleaner.
2. Fit seal housing (40a) on the back plate (25) and tighten screws (41).

*



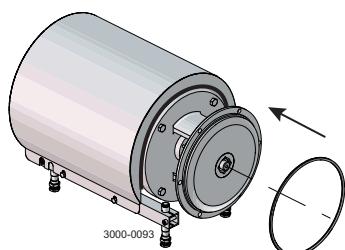
Step 5

1. To enable fitting of back plate (25) with the shaft seal, remove Connex pin (8) from stub shaft (7) (if fitted).
2. Carefully guide the back plate onto adaptor (16).
3. Fit washers (21) and nuts (20).



Step 6

Lubricate O-ring (26) and slide it onto back plate (25).



5 Maintenance

Read the instructions carefully. The items refer to the parts list and service kits section.

Lubricate the rubber seals before fitting them.

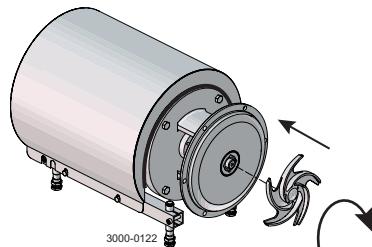
* : Relates to the shaft seal.

Step 7

1. Lubricate O-ring (38) and fit it in impeller (37), if impeller screw is used.
2. Lubricate the impeller hub with silicone grease or oil.
3. Screw impeller (27) onto stub shaft (7).
4. Fit impeller screw (36) and tighten, if used.

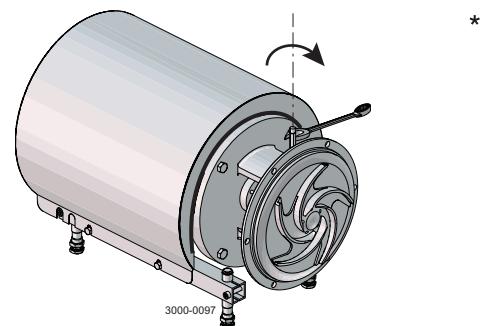
Torque - 5-60 20 Nm (15 lbf-ft)

Torque - 70-90 50 Nm (37 lbf-ft)



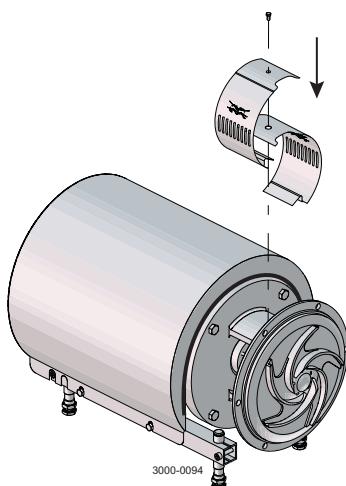
Step 8

1. Screw tubes (42) into seal housing (40a).
2. Tighten with a spanner.



Step 9

Fit safety guard (22) and screw (23) and tighten.



5 Maintenance

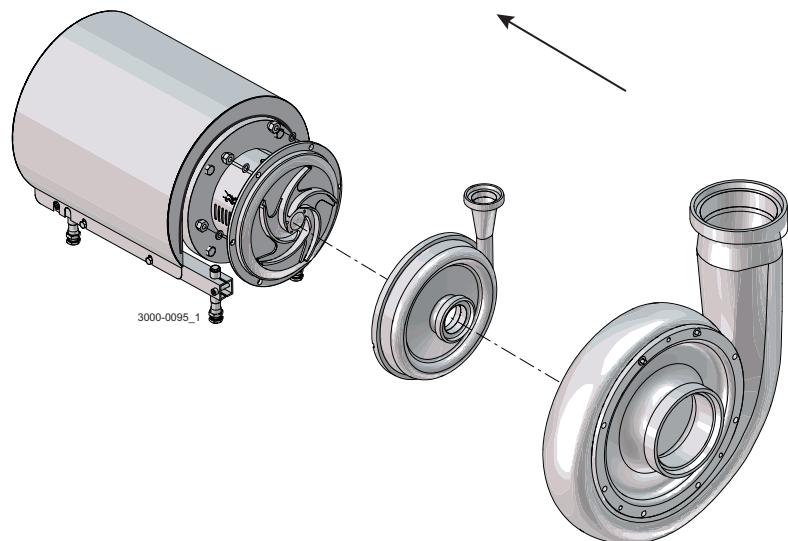
Read the instructions carefully. The items refer to the parts list and service kits section.

Lubricate the rubber seals before fitting them.

* : Relates to the shaft seal.

Step 10

1. Fit pump casing (29).
2. Tighten nuts (20) for back plate (25).
3.
 - A. LKH-5: Fit clamps (55+55a), spring washers (56a) and screws (56) and tighten.
 - B. LKH-10 to -90: Fit washers (24a) and cap nuts (24) and tighten, according to torque values in chapter 6 Technical data.



LKH-85 and LKH-90

Read the instructions carefully. The items refer to the parts list and service kits section.

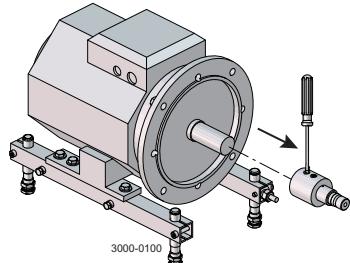
Lubricate the rubber seals before fitting them.

* : Relates to the shaft seal.

5.7 Adjustment of shaft (LKH-5)

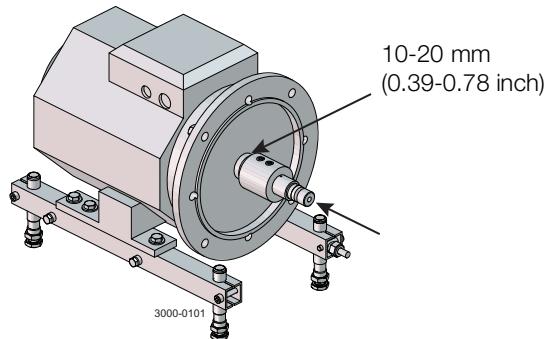
Step 1

1. Loosen screws (6).
2. Pull off stub shaft (7).



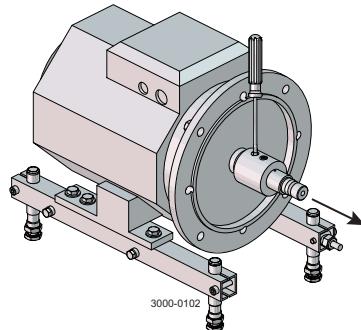
Step 2

1. Push stub shaft (7) onto the motor shaft. Screws (4) must fit in the keyway on the motor shaft.
2. Check that the clearance between the end of the stub shaft and the motor flange is 10-20 mm (0.39 - 0.78 inch).



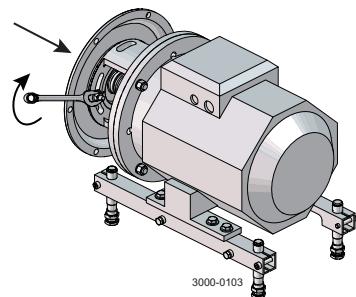
Step 3

1. Tighten screws (4) lightly and evenly.
2. Ensure that stub shaft (7) can be moved on the motor shaft.



Step 4

1. **For the double mechanical shaft seal:** Fit drive ring (52) on stub shaft (7).
2. Fit back plate (25), washers (21) and nuts (20) and tighten.



5 Maintenance

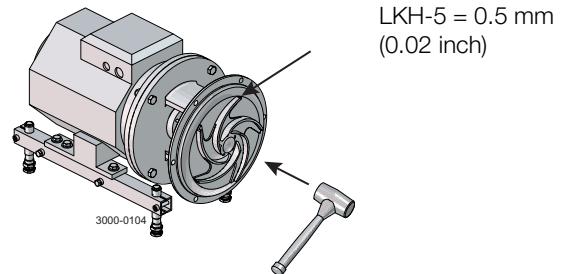
Read the instructions carefully. The items refer to the parts list and service kits section.

Lubricate the rubber seals before fitting them.

* : Relates to the shaft seal.

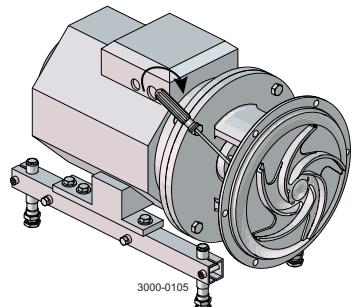
Step 5

1. Fit impeller (27) on stub shaft (7).
2. Ensure that the clearance between the impeller and back plate (25) is correct: 0.5 mm (0.02 inch) for LKH-5.



Step 6

Tighten screws (4) evenly to 15 Nm (11 lbf-ft).



Read the instructions carefully. The items refer to the parts list and service kits section.

Lubricate the rubber seals before fitting them.

* : Relates to the shaft seal.

5.8 Adjustment of shaft (LKH-10 to -90)

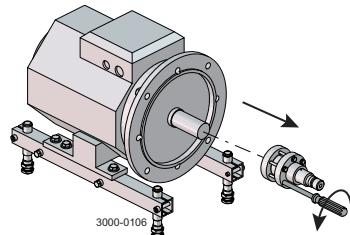
LKH-70 to -90

For securing the best fixture to the motor shaft ensure the following:

- Conical surfaces on the pump shaft and compression rings are applied with grease.
- No grease on the motor shaft.
- No grease on the inside diameter of the pump shaft.
- Screws for the compression rings are applied with grease.

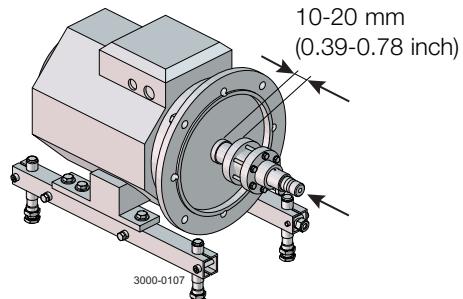
Step 1

1. Loosen screws (6).
2. Pull off stub shaft (7) together with compression rings (5a, 5b).



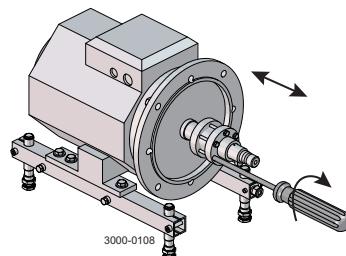
Step 2

1. Push stub shaft (7) together with compression rings (5a, 5b) onto the motor shaft.
2. Check that the clearance between the end of the stub shaft and the motor flange is 10-20 mm (0.39 - 0.78 inch).



Step 3

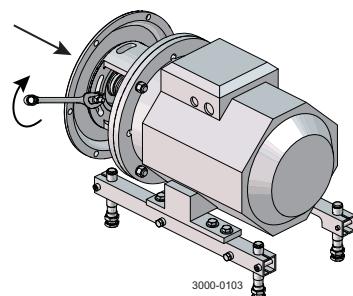
1. Tighten screws (6) lightly and evenly.
2. Ensure that stub shaft (7) can be moved on the motor shaft.



Step 4

1. For the double mechanical shaft seal:

- Fit drive ring (52) on stub shaft (7).
- Fit back plate (25), washers (21) and nuts (20) and tighten.



*

5 Maintenance

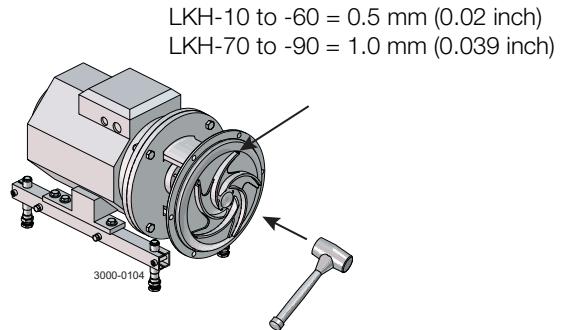
Read the instructions carefully. The items refer to the parts list and service kits section.

Lubricate the rubber seals before fitting them.

* : Relates to the shaft seal.

Step 5

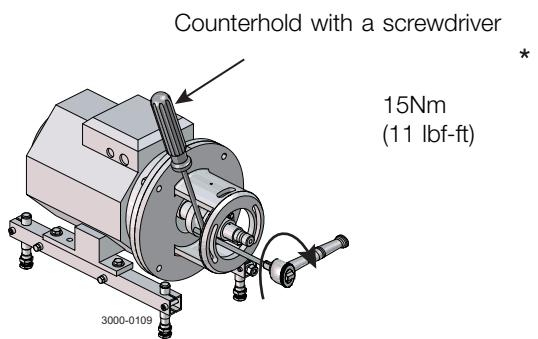
1. Fit impeller (27) on stub shaft (7).
2. Ensure that the clearance between the impeller and back plate (25) is correct: 0.5 mm (0.02 inch) for LKH-10 to -60 and 1.0 mm (0.039 inch) for LKH-70 to -90.
3. Tighten screws (6) evenly until the stub shaft (7) cannot move on the motor shaft.



LKH-10 to -60 = 0.5 mm (0.02 inch)
LKH-70 to -90 = 1.0 mm (0.039 inch)

Step 6

1. Remove impeller (27), back plate (25) and drive ring (52).
2. Tighten screws (6) evenly to 15 Nm (11 lbf-ft).



6 Technical data

*It is important to observe the technical data during installation, operation and maintenance.
Inform personnel about the technical data.*

6.1 Technical data

Data			
Max. inlet pressure	LKH-5 : LKH-10 to -70 (50 Hz): LKH-85 and LKH-90 (50 Hz): LKH-10 to -60 (60 Hz): LKH-70, LKH-75, LKH-85, LKH-90 (60 Hz): -10°C to +140°C (EPDM) (14 to 284°F)	600 kPa 1000 kPa 500 kPa 1000 kPa 500 kPa	(6 bar) (10 bar) (5 bar) (10 bar) (5 bar)
Temperature range Max. speed:	4000 rpm	(87 psi) (145 psi) (72.5 psi) (145 psi) (72.5 psi)	
Materials			
Product wetted steel parts	AISI 316L		
Other steel parts	Stainless steel		
Finish	Semi-bright		
Product wetted seals	EPDM (standard)		
Other O-rings	EPDM (standard)		
Alternative seals	Nitrile (NBR), fluorinated rubber (FPM) and FEP		
Shaft seal			
Seal types	External single, flushed or double mechanical seal		
Max. temperature flush media	70°C		
Max. water pressure (flushed seal)	Normally atmospheric (max. 1 bar) (max. 14.5 psi)		
Water consumption (flushed seal)	0.25 - 0.5 l/min. (0.07-0.13 gl)		
Max. water pressure LKH-5 to -60 (DMS)	Normally atmospheric (max. 5 bar) (max. 72.5 psi)		
Max. water pressure LKH-70 to -90 (DMS)	Normally atmospheric (max. 3 bar) (max. 43.5 psi)		
Water consumption (double mechanical seal)	0.25-0.5 l/min. (0.07-0.13 gl)		
Material, stationary seal ring	Acid-resistant steel with sealing surface of silicon carbide		
Material, rotating seal ring	Carbon (standard) or silicon carbide		
Material, O-rings	EPDM (standard)		
Alternative material, O-rings	Nitrile (NBR), fluorinated rubber (FPM) and FEP		
Motor			
Foot-flanged motor according to IEC metric standard, 2 poles = 3000/3600 rpm. at 50/60 Hz IP55, insulation class F			
Motor sizes (kW), 50 Hz	0.75 - 110 kW		
Motor sizes (kW), 60 Hz	0.9 - 110 kW		
Motor sizes (Hp), 60 Hz	1.5 - 150 Hp		

For further information, see PD sheet.

6 Technical data

*It is important to observe the technical data during installation, operation and maintenance.
Inform personnel about the technical data.*

6.2 Relubrication intervals

The table is for an internal bearing temperature of 100°C. An increase in temperature of 15°C (ambient or internal in bearings), will reduce the greasing interval and bearing lifetime by 50%. The lubrication interval for vertically mounted pumps is half the value stated in the table.

ABB IEC motors, IE2

Motor power (kW)	LKH5 -90 LKHI10 -60* LKH-110* LKHSP LKH UltraPure 50/60 Hz	LKHPF-10 -70 LKHI-10 -60 LKH-100 LKH-120 50/60 Hz	LKH-85 50/60 Hz
0.75	Permanently lubricated	Permanently lubricated	
1.1	Permanently lubricated	Permanently lubricated	
1.5	Permanently lubricated	Permanently lubricated	
2.2	Permanently lubricated	Permanently lubricated	
3.0	Permanently lubricated	Not available	
4.0	Permanently lubricated	4300h/3300h - DE/NDE:10g	
5.5	Permanently lubricated	3600h/3000h - DE/NDE:15g	
7.5	Permanently lubricated	3600h/3000h - DE/NDE:15g	
11	Permanently lubricated	3100h/2300h - DE/NDE:25g	
15	Permanently lubricated	3100h/2300h - DE/NDE:25g	
18.5	Permanently lubricated	3100h/2300h - DE/NDE:25g	
22	Permanently lubricated	8000h/6000h - DE/NDE:42g	
30	Permanently lubricated	4500h/2000h - DE/NDE:55g	8000h/6000h - DE/NDE:40g
37	Permanently lubricated	5000h/2500h - DE/NDE:55g	8000h/6000h - DE/NDE:40g
45	Permanently lubricated	2500h/1000h - DE/NDE:55g	8000h/6000h - DE/NDE:40g
55	Permanently lubricated	2500h/1000h - DE/NDE:73g	8000h/3000h - DE/NDE:60g
75	Permanently lubricated	1500h/500h - DE/NDE:73g	4000h/1500h - DE/NDE:60g
90			4000h/2800h - DE/NDE:45g
110			4000h/2800h - DE/NDE:45g

* inlet pressure less than 10 bar (145 psi)

Recommended grease types:

LKHPF-10/-70 – LKH-110 - LKH-120:

Esso: Unirex N2 or N3 (Lithium complex base)
Mobil: Mobilith SHC 100 (Lithium complex base)
Shell: Albida EMS 2 (Lithium complex base)
Klüüber: Klüüberplex BEM 41-132 (Special lithium base)
FAG: Arcanol TEMP110 (Lithium complex base)
Lubcon: Turmogrease L 802 EP PLUS (Lithium complex base)

LKH-85:

Klüüber: Klüüberplex Quiet BQH 72-102 (Polyurea base)
Lubcon: Turmogrease PU703 (Polyurea base)

WARNING: Polyurea-based grease must not be mixed with Lithium complex base grease and vice versa.

6 Technical data

*It is important to observe the technical data during installation, operation and maintenance.
Inform personnel about the technical data.*

WEG IEC Motors, IE3

Motor power (kW)	LKH-5 -70 LKHI-10 -60* LKH-110* LKHSP, LKH Evap LKH UltraPure 50/60 HZ
0.75	Permanently lubricated
1.1	Permanently lubricated
1.5	Permanently lubricated
2.2	Permanently lubricated
3.0	Permanently lubricated
4.0	Permanently lubricated
5.5	Permanently lubricated
7.5	Permanently lubricated
11	Permanently lubricated
15	Permanently lubricated
18.5	Permanently lubricated
22	10000/10000h - DE/NDE: 18g
30	10000/10000h - DE/NDE: 21g
37	10000/10000h - DE/NDE: 21g
45	Not available
55	5000/5000h - DE/NDE: 27g
75	5000/5000h - DE/NDE: 27g

* inlet pressure < 10 bar (145 psi)

Recommended grease types:

Mobil

POLYREX EM 103

6 Technical data

*It is important to observe the technical data during installation, operation and maintenance.
Inform personnel about the technical data.*

Table 1. Sterling Nema motors

Motor RPM	Frame VS. HP	Type of service Standard 8 hrs/day	Heavy duty 24 hrs/day
3600	143T - 286TS 1.5 - 30	*	*
	324TS - 455TS 40 - 150	6 Months	2 Months
1800	143T - 256T 1 - 20	*	*
	284T - 326T 25 - 50	4 Months	18 Months
	364T - 445T 60 - 150	9 Months	3 Months
1200	143T - 256T 0.75 - 10	*	*
	284T - 326T 15 - 30	4 Years	16 Years
	364T - 445T 40 - 125	1 Year	4 Months

* Motors of this size normally do not have bearings that can be re-lubricated.

These bearings should be replaced at least every 5 years for 8 hr/day service, or every 2 years for 24 hr/day service.

Warning: Bearing grease must be Klüber NBU-15 - DO NOT SUBSTITUTE!

6 Technical data

*It is important to observe the technical data during installation, operation and maintenance.
Inform personnel about the technical data.*

6.3 Torque Specifications

The table below specifies the tightening torques for the screws, bolts and nuts for this pump.
Always use below torques if no other values are stated. This can be a matter of personal safety.

Size	Nm	Tightening torque	Ibf·ft
M8	20	14.8	
M10	40	29.5	
M12	67	49.0	
M14	110	81.0	

6 Technical data

*It is important to observe the technical data during installation, operation and maintenance.
Inform personnel about the technical data.*

6.4 Noise emission

Pump Type	Sound pressure level (dBA)
LKH-5	60
LKH-10	69
LKH-15	72
LKH-20	70
LKH-25	74
LKH-35	71
LKH-40	75
LKH-45	70
LKH-50	75
LKH-60	77
LKH-70	88
LKH-75	79
LKH-85	86
LKH-90	75
LKH-112	70
LKH-113	69
LKH-114	68
LKH-122	75
LKH-123	77
LKH-124	80
SolidC-1	68
SolidC-2	72
SolidC-3	73
SolidC-4	72
MR-166	76
MR-185	82
MR-200	81
MR-300	82
GM	54
FM-OS	61

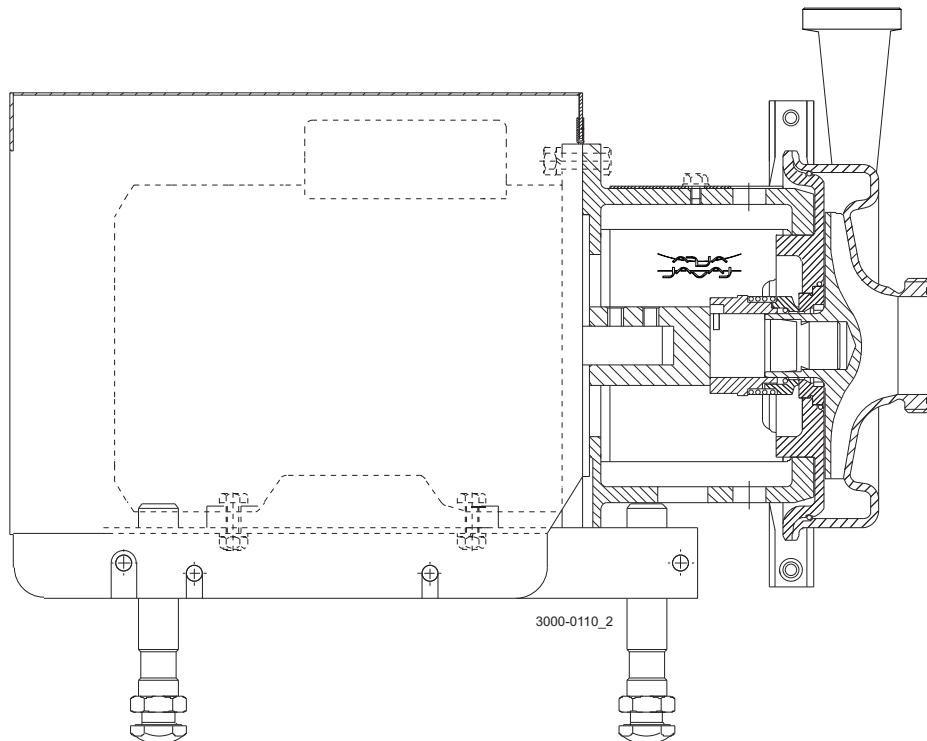
The above LKH noise levels are the same for LKHPF, LKHI, LKH UltraPure, LKH Evap and LKHex.
The above SolidC noise levels are the same for SolidC UltraPure.

The noise measurements have been carried out using the original motor and shroud, at the approximate Best Efficiency Point (BEP) with water at ambient temperature and at 50 Hz.

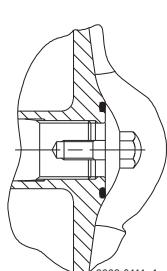
Very often, the noise level generated by the flow through the process system (e.g. valves, pipes, tanks etc.) is much higher than what generated by the pump itself. Therefore, it is important to consider the noise level from the total system and take the necessary precautions with regard to personal safety if required.

The drawing shows LKH pump, sanitary version.

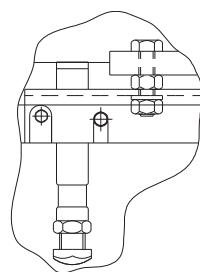
7.1 LKH-5 Sanitary version



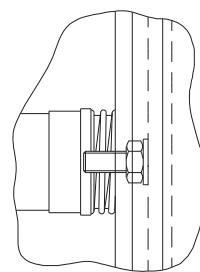
US legs are different to the ones shown. For further information see US spare parts.



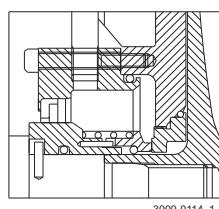
Impeller screw
3000-0111_1



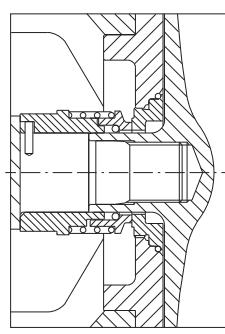
Fitting of legs
0.75-1.1 kW
3000-0112_1



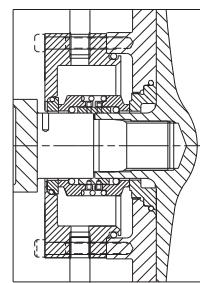
Fitting of back plate
3000-0113_1



Flushed shaft seal
3000-0114_1



Single shaft seat
3001-0058

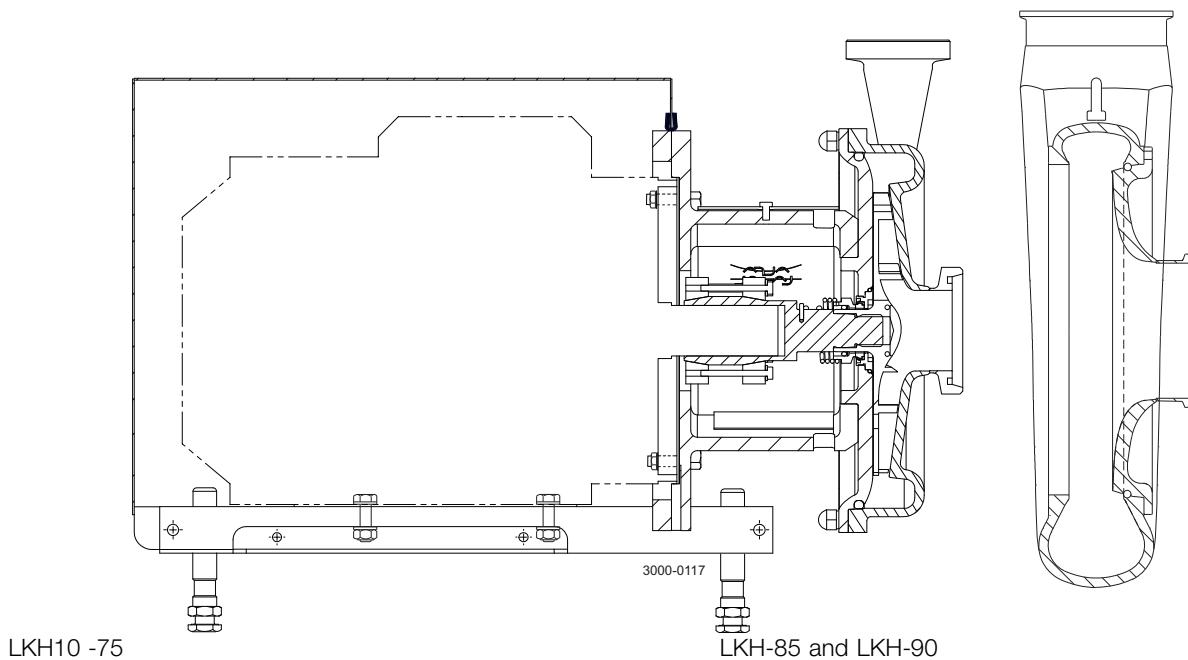


Double mechanical shaft seal
3000-0115_1

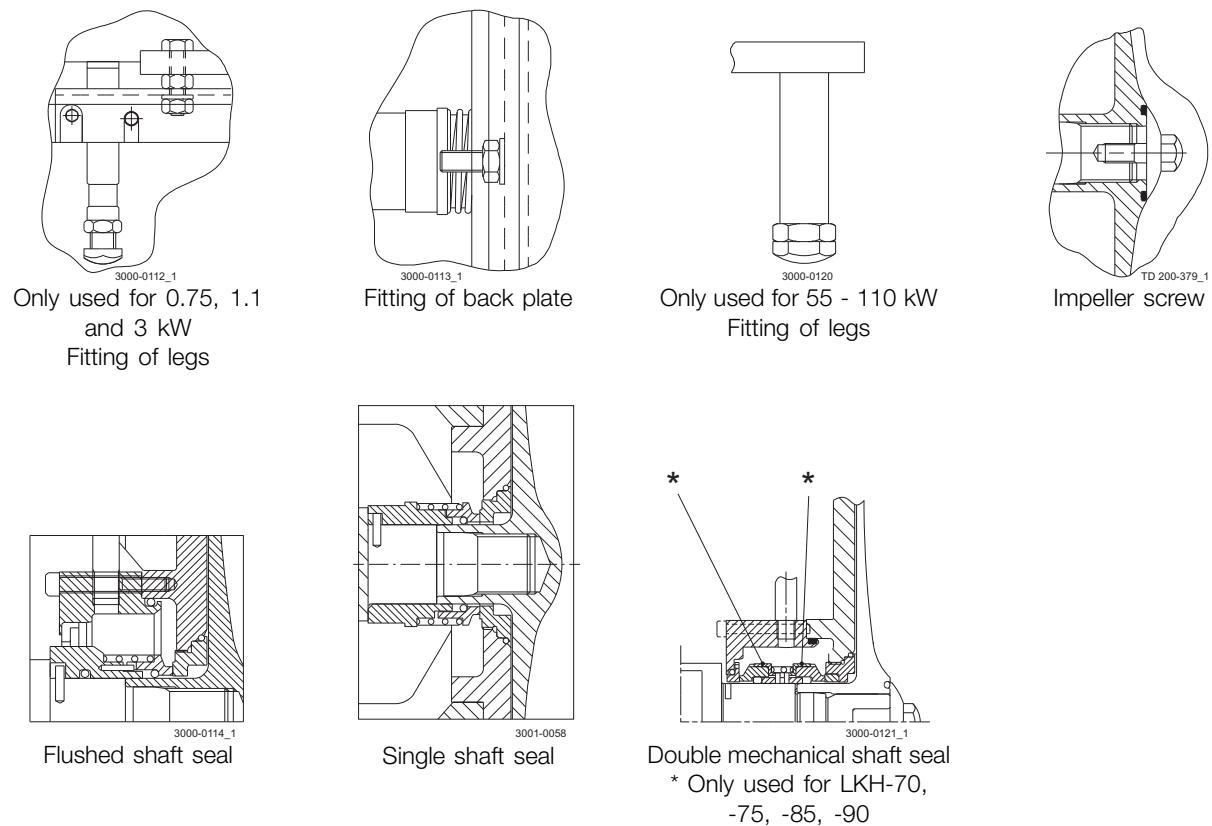
7 Parts list and service kits

The drawing shows the LKH pump, sanitary version.

7.2 LKH-10, -15, -20, -25, -35, -40, -50, -60, -70, -75, -85, -90 sanitary version



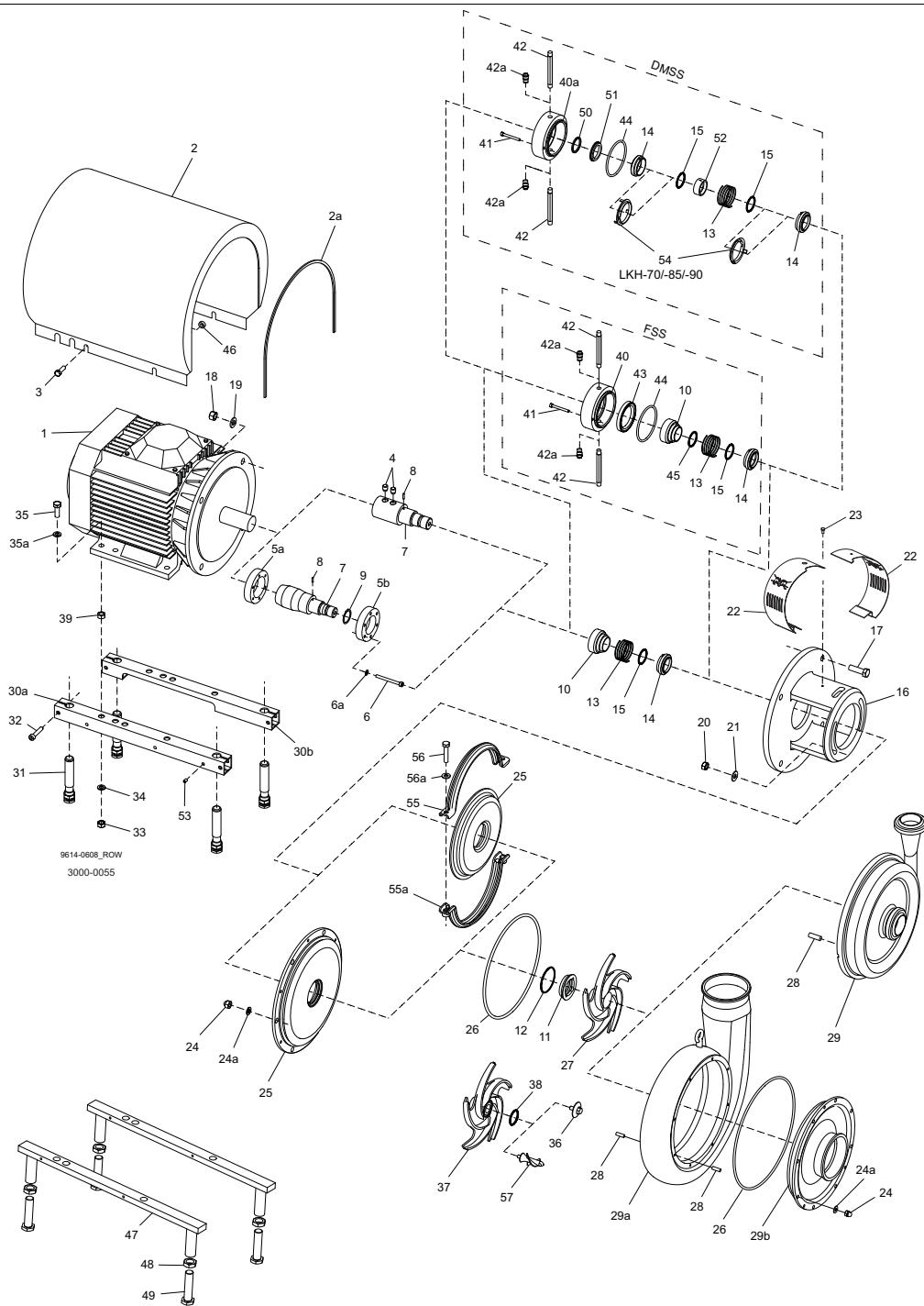
US legs are different to the ones shown. For further information see US spare parts.



7 Parts list and service kits

The drawing shows the LKH pump, sanitary version.

7.3 LKH - Product wetted parts



7 Parts list and service kits

The drawing shows the LKH pump, sanitary version.

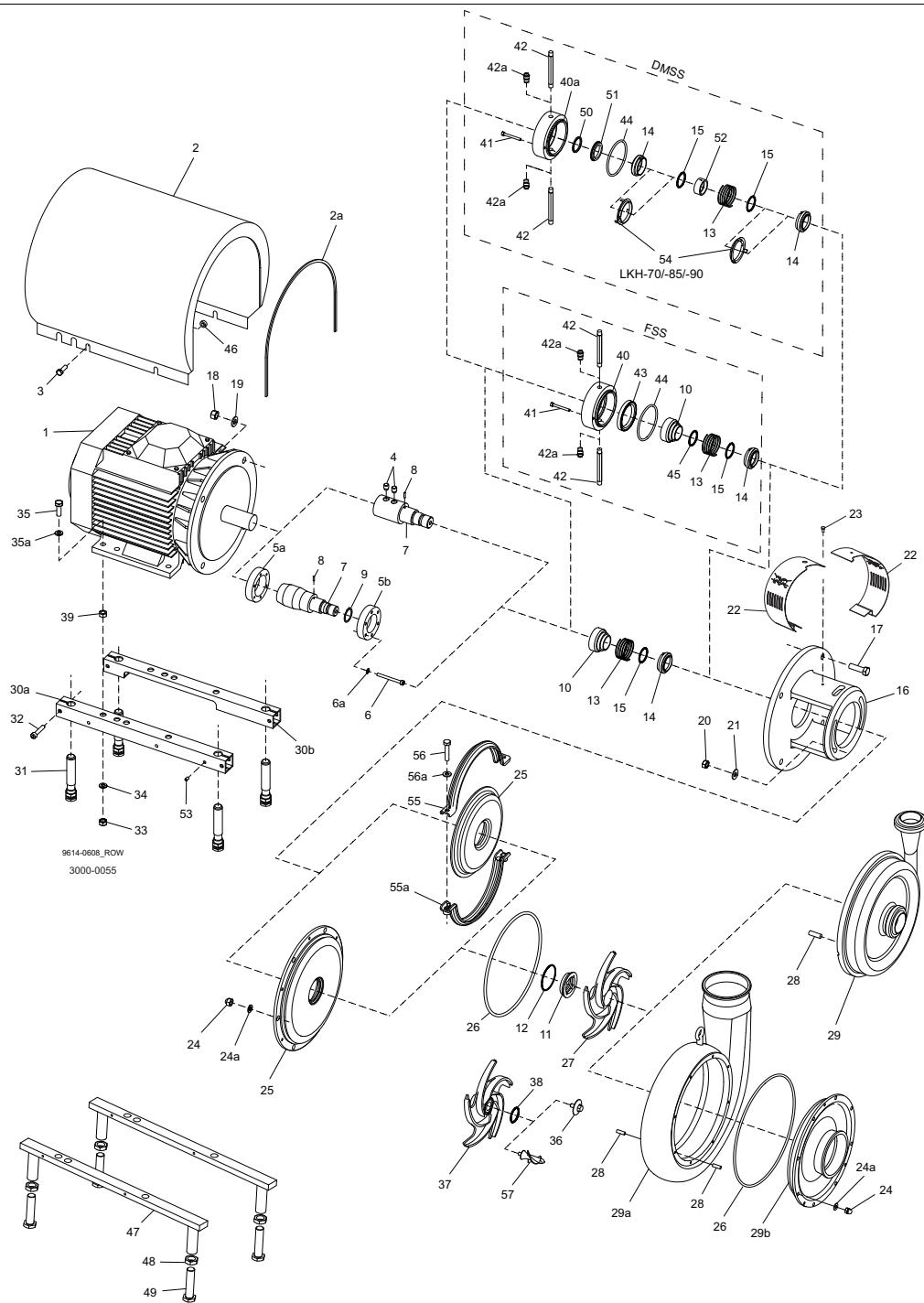
Parts list

Pos.	Qty	Denomination
20	2	Nut
21	2	Washer
24	6	Cap nut
24a	6	Washer
25	1	Back plate
26 ◊♦○★△▲ ❖❖■■❖❖●●	1	O-ring
27	1	Impeller
28	6	Bolt
29	1	Pump casing
36	1	Impeller screw
37	1	Impeller for impeller screw
38 ♦★△✧❖●	1	O-ring
55	1	Upper clamp
55a	1	Lower clamp
56	2	Screw
56a	2	Spring washer
57	1	Inducer

7 Parts list and service kits

The drawing shows the LKH pump, sanitary version.

7.4 LKH - Motor-dependent parts



7 Parts list and service kits

The drawing shows the LKH pump, sanitary version.

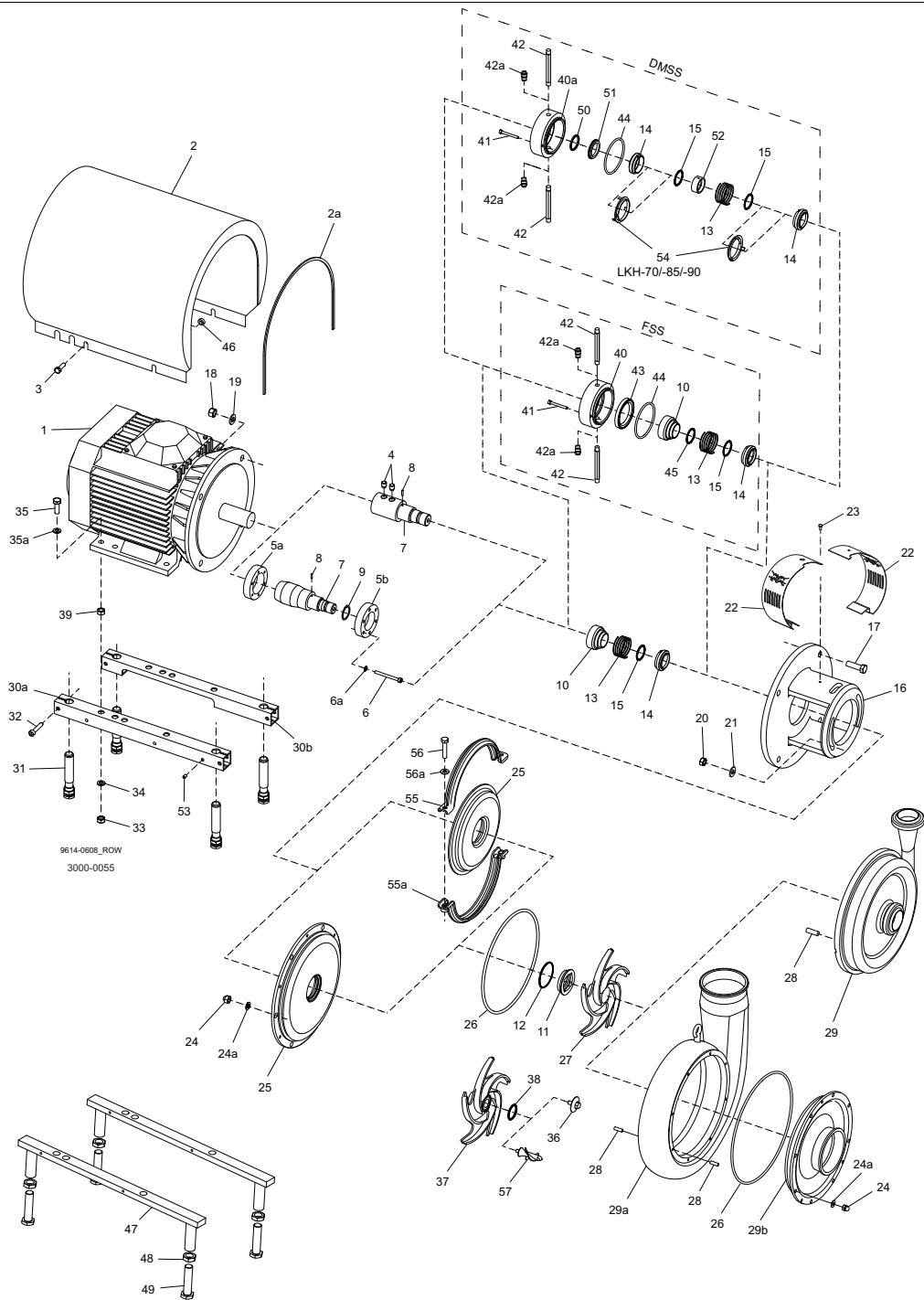
Parts list

Pos.	Qty	Denomination
1	1	Motor ABB ¹⁾ (Full speed)
2	1	Shroud
3	4	Screw
4	2	Screw
5a	1	Compression ring with thread
5b	1	Compression ring without thread
6	6	Screw
6a	6	Washer
7	1	Shaft incl. pin
8	1	Connex pin
9	1	Retaining ring
16	1	Adaptor
17	4	Screw for adaptor
18	4	Nut for adaptor
19	4	Washer for adaptor
22	1	Safety guard set
23	1	Screw for safety guard
30a	1	Support bar, right
30b	1	Support bar, left
31	4	Leg
32	4	Screw
33	4	Nut
34	4	Spring washer
35	4	Screw
35a	4	Washer
39	4	Nut
46	4	Distance sleeve
47	2	Leg bracket
48	4	Nut for leg
49	4	Screw for leg
53	4	Pivot screw

7 Parts list and service kits

The drawing shows the LKH pump, sanitary version.

7.5 LKH - Shaft seal



7 Parts list and service kits

The drawing shows the LKH pump, sanitary version.

Parts list

Pos.	Qty	Denomination
□♦		Complete shaft seal
❖◊		Complete shaft seal
○★		Complete shaft seal
■✖		Complete shaft seal
△▲		Complete seal
10	1	Drive ring
11	1	Stationary seal ring
12	1	O-ring
13	1	Spring
14	1	Rotating seal ring
15	1	O-ring
40	1	Seal housing
40a	1	Seal housing
41	2	Screw for seal housing
42	2	Tube
42a	2	Fitting
43	1	Lip seal
44	1	O-ring for seal housing
45	1	O-ring for drive ring
50	1	O-ring
51	1	Sec. stationary seal ring
52	1	Drive ring
54	2	Cup

Service kits

Denomination	EPDM	NBR	FPM	FEP
Service kit for single shaft seal C/SIC				
□ Service kit, C/SIC (LKH-5)	9611-92-2302	9611-92-2303	9611-92-2304	9611-92-2305
□ Service kit, C/SIC (LKH-10/15)	9611-92-2072	9611-92-2073	9611-92-2074	9611-92-2075
□ Service kit, C/SIC (LKH-20)	9611-92-2080	9611-92-2081	9611-92-2082	9611-92-2083
□ Service kit, C/SIC (LKH-25/35/45)	9611-92-2178	9611-92-2179	9611-92-2180	9611-92-2181
□ Service kit, C/SIC (LKH-40/50/60)	9611-92-2088	9611-92-2089	9611-92-2090	9611-92-2091
Service kit for single shaft seal SIC/SIC				
❖ Service kit, SIC/SIC (LKH-5)	9611-92-2522	9611-92-2523	9611-92-2524	9611-92-2525
❖ Service kit, SIC/SIC (LKH-10/15)	9611-92-2546	9611-92-2547	9611-92-2548	9611-92-2549
❖ Service kit, SIC/SIC (LKH-20)	9611-92-2570	9611-92-2571	9611-92-2572	9611-92-2573
❖ Service kit, SIC/SIC (LKH-25/35/45)	9611-92-2594	9611-92-2595	9611-92-2596	9611-92-2597
❖ Service kit, SIC/SIC (LKH-40/50/60)	9611-92-2619	9611-92-2620	9611-92-2621	9611-92-2622
Service kit for single shaft seal and impeller screw C/SIC				
◆ Service kit, C/SIC (LKH-5)	9611-92-2306	9611-92-2307	9611-92-2308	9611-92-2309
◆ Service kit, C/SIC (LKH-10/15)	9611-92-2114	9611-92-2115	9611-92-2116	9611-92-2117
◆ Service kit, C/SIC (LKH-20)	9611-92-2122	9611-92-2123	9611-92-2124	9611-92-2125
◆ Service kit, C/SIC (LKH-25/35/45)	9611-92-2182	9611-92-2183	9611-92-2184	9611-92-2185
◆ Service kit, C/SIC (LKH-40/50/60)	9611-92-2130	9611-92-2131	9611-92-2132	9611-92-2133
◆ Service kit, C/SIC (LKH-70)	9611-92-2238	9611-92-2239	9611-92-2240	9611-92-2241
◆ Service kit, C/SIC (LKH-85)	9611-92-2952	9611-92-2953	9611-92-2954	9611-92-2955
◆ Service kit, C/SIC (LKH-90)	9611-92-2867	9611-92-2868	9611-92-2869	9611-92-2870
Service kit for single shaft seal and impeller screw SIC/SIC				
❖ Service kit, SIC/SIC (LKH-5)	9611-92-2526	9611-92-2527	9611-92-2528	9611-92-2529
❖ Service kit, SIC/SIC (LKH-10/15)	9611-92-2550	9611-92-2551	9611-92-2552	9611-92-2553

7 Parts list and service kits

The drawing shows the LKH pump, sanitary version.

◊ Service kit, SIC/SIC (LKH-20)	9611-92-2574	9611-92-2575	9611-92-2576	9611-92-2577
◊ Service kit, SIC/SIC (LKH-25/35/45)	9611-92-2598	9611-92-2599	9611-92-2600	9611-92-2601
◊ Service kit, SIC/SIC (LKH-40/50/60)	9611-92-2623	9611-92-2624	9611-92-2625	9611-92-2626
◊ Service kit, SIC/SIC (LKH-70)	9611-92-2643	9611-92-2644	9611-92-2645	9611-92-2646
◊ Service kit, SIC/SIC (LKH-85)	9611-92-2964	9611-92-2965	9611-92-2966	9611-92-2967
◊ Service kit, SIC/SIC (LKH-90)	9611-92-2879	9611-92-2880	9611-92-2881	9611-92-2882

Service kit for flushed shaft seal C/SIC

○ Service kit, C/SIC (LKH-5)	9611-92-2310	9611-92-2311	9611-92-2312	9611-92-2313
○ Service kit, C/SIC (LKH-10/15)	9611-92-2076	9611-92-2077	9611-92-2078	9611-92-2079
○ Service kit, C/SIC (LKH-20)	9611-92-2084	9611-92-2085	9611-92-2086	9611-92-2087
○ Service kit, C/SIC (LKH-25/35/45)	9611-92-2186	9611-92-2187	9611-92-2188	9611-92-2189
○ Service kit, C/SIC (LKH-40/50/60)	9611-92-2092	9611-92-2093	9611-92-2094	9611-92-2095

Service kit for flushed shaft seal SIC/SIC

■ Service kit, SIC/SIC (LKH-5)	9611-92-2530	9611-92-2531	9611-92-2532	9611-92-2533
■ Service kit, SIC/SIC (LKH-10/15)	9611-92-2554	9611-92-2555	9611-92-2556	9611-92-2557
■ Service kit, SIC/SIC (LKH-20)	9611-92-2578	9611-92-2579	9611-92-2580	9611-92-2581
■ Service kit, SIC/SIC (LKH-25/35/45)	9611-92-2602	9611-92-2603	9611-92-2604	9611-92-2605
■ Service kit, SIC/SIC (LKH-40/50/60)	9611-92-2627	9611-92-2628	9611-92-2629	9611-92-2630

Service kits

Denomination	EPDM	NBR	FPM	FEP
Service kit for flushed shaft seal and impeller screw C/SIC				
* Service kit, C/SIC (LKH-5)	9611-92-2314	9611-92-2315	9611-92-2316	9611-92-2317
* Service kit, C/SIC (LKH-10/15)	9611-92-2118	9611-92-2119	9611-92-2120	9611-92-2121
* Service kit, C/SIC (LKH-20)	9611-92-2126	9611-92-2127	9611-92-2128	9611-92-2129
* Service kit, C/SIC (LKH-25/35/45)	9611-92-2190	9611-92-2191	9611-92-2192	9611-92-2193
* Service kit, C/SIC (LKH-40/50/60)	9611-92-2134	9611-92-2135	9611-92-2136	9611-92-2137
* Service kit, C/SIC (LKH-70)	9611-92-2242	9611-92-2243	9611-92-2244	9611-92-2245
* Service kit, C/SIC (LKH-85)	9611-92-2956	9611-92-2957	9611-92-2958	9611-92-2959
* Service kit, C/SIC (LKH-90)	9611-92-2871	9611-92-2872	9611-92-2873	9611-92-2874

Service kit for flushed shaft seal and impeller screw SIC/SIC

○ Service kit, SIC/SIC (LKH-5)	9611-92-2534	9611-92-2535	9611-92-2536	9611-92-2537
○ Service kit, SIC/SIC (LKH-10/15)	9611-92-2558	9611-92-2559	9611-92-2560	9611-92-2561
○ Service kit, SIC/SIC (LKH-20)	9611-92-2582	9611-92-2583	9611-92-2584	9611-92-2585
○ Service kit, SIC/SIC (LKH-25/35/45)	9611-92-2606	9611-92-2607	9611-92-2608	9611-92-2609
○ Service kit, SIC/SIC (LKH-40/50/60)	9611-92-2631	9611-92-2632	9611-92-2633	9611-92-2634
○ Service kit, SIC/SIC (LKH-70)	9611-92-2647	9611-92-2648	9611-92-2649	9611-92-2650
○ Service kit, SIC/SIC (LKH-85)	9611-92-2968	9611-92-2969	9611-92-2970	9611-92-2971
○ Service kit, SIC/SIC (LKH-90)	9611-92-2883	9611-92-2884	9611-92-2885	9611-92-2886

Service kit for double mechanical shaft seal C/SIC

△ Service kit, C/SIC (LKH-5)	9611-92-2318	9611-92-2319	9611-92-2320	9611-92-2321
△ Service kit, C/SIC (LKH-10/15)	9611-92-2206	9611-92-2207	9611-92-2208	9611-92-2209
△ Service kit, C/SIC (LKH-20)	9611-92-2214	9611-92-2215	9611-92-2216	9611-92-2217
△ Service kit, C/SIC (LKH-25/35/45)	9611-92-2222	9611-92-2223	9611-92-2224	9611-92-2225
△ Service kit, C/SIC (LKH-40/50/60)	9611-92-2230	9611-92-2231	9611-92-2232	9611-92-2233

7 Parts list and service kits

The drawing shows the LKH pump, sanitary version.

Service kit for double mechanical shaft seal SIC/SIC

⌘ Service kit, SIC/SIC (LKH-5)	9611-92-2538	9611-92-2539	9611-92-2540	9611-92-2541
⌘ Service kit, SIC/SIC (LKH-10/15)	9611-92-2562	9611-92-2563	9611-92-2564	9611-92-2565
⌘ Service kit, SIC/SIC (LKH-20)	9611-92-2586	9611-92-2587	9611-92-2588	9611-92-2589
⌘ Service kit, SIC/SIC (LKH-25/35/45)	9611-92-2610	9611-92-2611	9611-92-2612	9611-92-2613
⌘ Service kit, SIC/SIC (LKH-40/50/60)	9611-92-2635	9611-92-2636	9611-92-2637	9611-92-2638

Service kit for double mechanical shaft seal and impeller screw C/SIC

▲ Service kit, C/SIC (LKH-5)	9611-92-2322	9611-92-2323	9611-92-2324	9611-92-2325
▲ Service kit, C/SIC (LKH-10/15)	9611-92-2210	9611-92-2211	9611-92-2212	9611-92-2213
▲ Service kit, C/SIC (LKH-20)	9611-92-2218	9611-92-2219	9611-92-2220	9611-92-2221
▲ Service kit, C/SIC (LKH-25/35/45)	9611-92-2226	9611-92-2227	9611-92-2228	9611-92-2229
▲ Service kit, C/SIC (LKH-40/50/60)	9611-92-2234	9611-92-2235	9611-92-2236	9611-92-2237
▲ Service kit, C/SIC (LKH-70)	9611-92-2416	9611-92-2417	9611-92-2418	9611-92-2419
▲ Service kit, C/SIC (LKH-85)	9611-92-2960	9611-92-2961	9611-92-2962	9611-92-2963
▲ Service kit, C/SIC (LKH-90)	9611-92-2875	9611-92-2876	9611-92-2877	9611-92-2878

Service kit for double mechanical shaft seal and impeller screw SIC/SIC

● Service kit, SIC/SIC (LKH-5)	9611-92-2542	9611-92-2543	9611-92-2544	9611-92-2545
● Service kit, SIC/SIC (LKH-10/15)	9611-92-2566	9611-92-2567	9611-92-2568	9611-92-2569
● Service kit, SIC/SIC (LKH-20)	9611-92-2590	9611-92-2591	9611-92-2592	9611-92-2593
● Service kit, SIC/SIC (LKH-25/35/45)	9611-92-2614	9611-92-2615	9611-92-2616	9611-92-2617
● Service kit, SIC/SIC (LKH-40/50/60)	9611-92-2639	9611-92-2640	9611-92-2641	9611-92-2642
● Service kit, SIC/SIC (LKH-70)	9611-92-2651	9611-92-2652	9611-92-2653	9611-92-2654
● Service kit, SIC/SIC (LKH-85)	9611-92-2972	9611-92-2973	9611-92-2974	9611-92-2975
● Service kit, SIC/SIC (LKH-90)	9611-92-2887	9611-92-2888	9611-92-2889	9611-92-2890

Parts marked with are included in the service kits. Recommended spare parts: Service kits. 900601/3

Conversion kit - single to double mechanical shaft seal: Please order double mechanical service kit + pos. 40a+41+42 (for LKH-85 pos 40a+41+42a). Conversion kit single to flushed shaft seal: Please order Flushed service kit + pos. 40+41+42 (for LKH85 pos. 40+41+42a).

Replace to inducer (for pump with impeller screw). Please order pos. 7+57+38. Replace inducer (for pump without impellerscrew) please order pos. 7+57+37+38.

How to contact Alfa Laval

Contact details for all countries are continually updated on our website.

Please visit www.alfalaval.com to access the information directly.

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