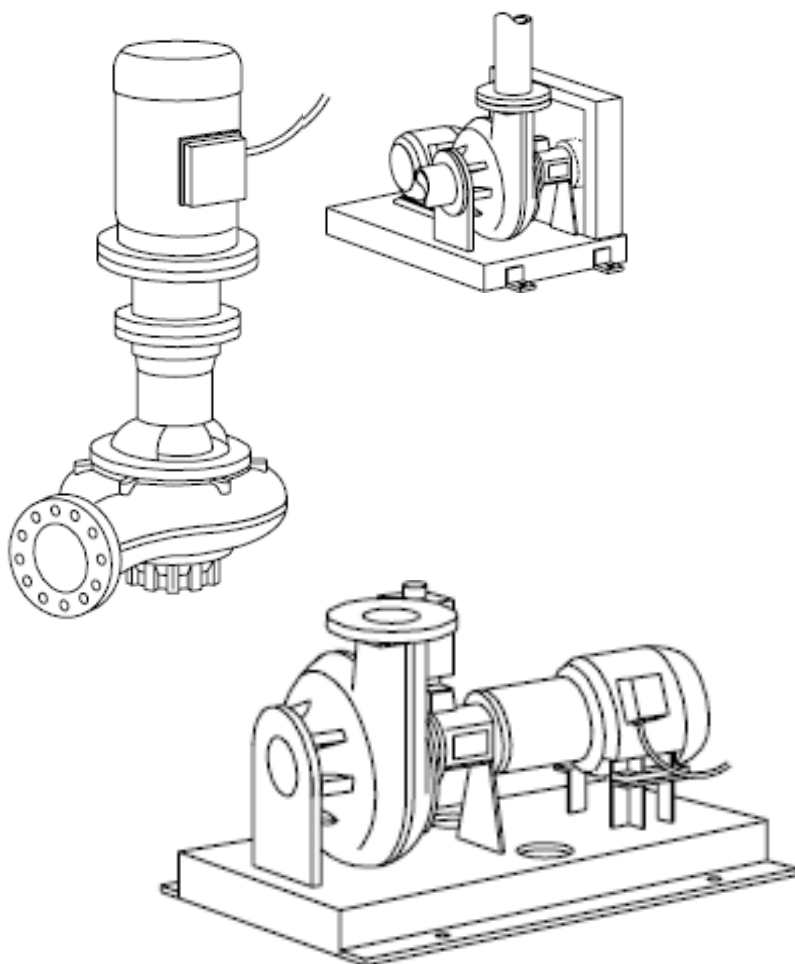


OPERATION & MAINTENANCE MANUAL

Dry installed pump type LANDY BTP.



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1 FOREWORD:

Congratulations on choosing a LANDUSTRIE BTP pump, which will undoubtedly serve you both reliably and economically for a long time, providing you follow the Maintenance Instructions given in this manual.

Proper use and maintenance will prolong the operational life of your pump.

This manual contains different warnings and safety precautions.

Read this manual properly, so dangerous situations, physical injury or damage can be avoided.



The BTP-pump is designed for professional use only. Service and maintenance may only be executed by authorized staff, after reading this manual.

When ordering spare parts, always quote.



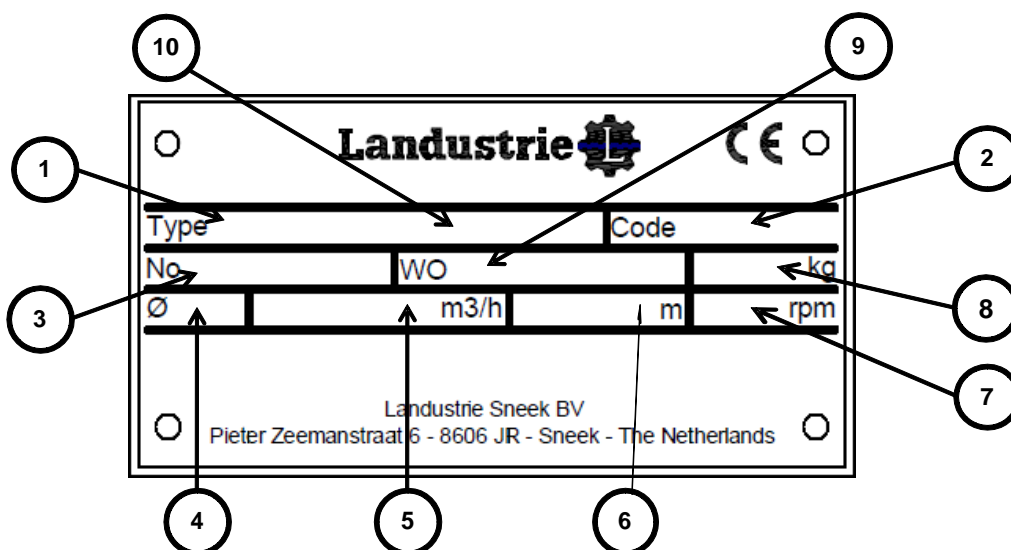
1. Pump type
2. Pump code
3. Serial number
4. Work order number

The main characteristics of the pump are given on the data-plate.

The front page of this book reveals, if applicable, a label containing all relevant information.

PUMP IDENTIFICATION

1. TYPE = Pump type
2. CODE = Pump code
3. No. = Serial number
4. Ø = Impeller diameter
5. m³/h = Flow
6. m = Head
7. rpm = Pump speed
8. kg = Pump weight
9. WO = Work order number
10. = Installation option + special version code (if applicable)



2. SAFETY AND ENVIRONMENT:

2.1 General safety instructions

- Only trained and authorized staff may install, and maintain the pump after carefully reading this manual.
- Only use the pump for its intended purpose and under the regulated circumstances.
- Don't go near rotating parts.
- Clean the pump before maintenance and inspection.
- Observe the local regulations when working with aggressive, corrosive, toxic, flammable and explosive chemicals.
- Never remove safety signs, keep them clean.
- Always connect to a grounded circuit.
- Before maintenance and inspection always disconnect the pump from the mains.
- Use a proper hoist for lifting and handling the pump.
- Never drop the loose cable end in water.



2.2 Environment

Parts which will be replaced during repair, maintenance or renewal, could contain materials which could be harmful to the environment.

Please be also aware that some of the components can be very useful for reuse.

The owner is responsible for careful disposal and processing of the materials.

Do this in according to the local environmental regulations.



2.3 Applied Symbols:

In this manual:



General warning
Danger!



Warning
Electrical hazard



Warning, aggressive, corrosive,
toxic, flammable and explosive chemicals



Warning
rotating parts



Warning
No public access



Warning
Safety sign



Attention !
Important for correct use



Environment
Advice



Important advice



Information referral



Safety shoe/boots
and safety gloves

Recommended

On the pump:



Warning
Electrical hazard



Warning
rotating parts



EC-conformity symbol

3. TECHNICAL DATA:

3.1 General:

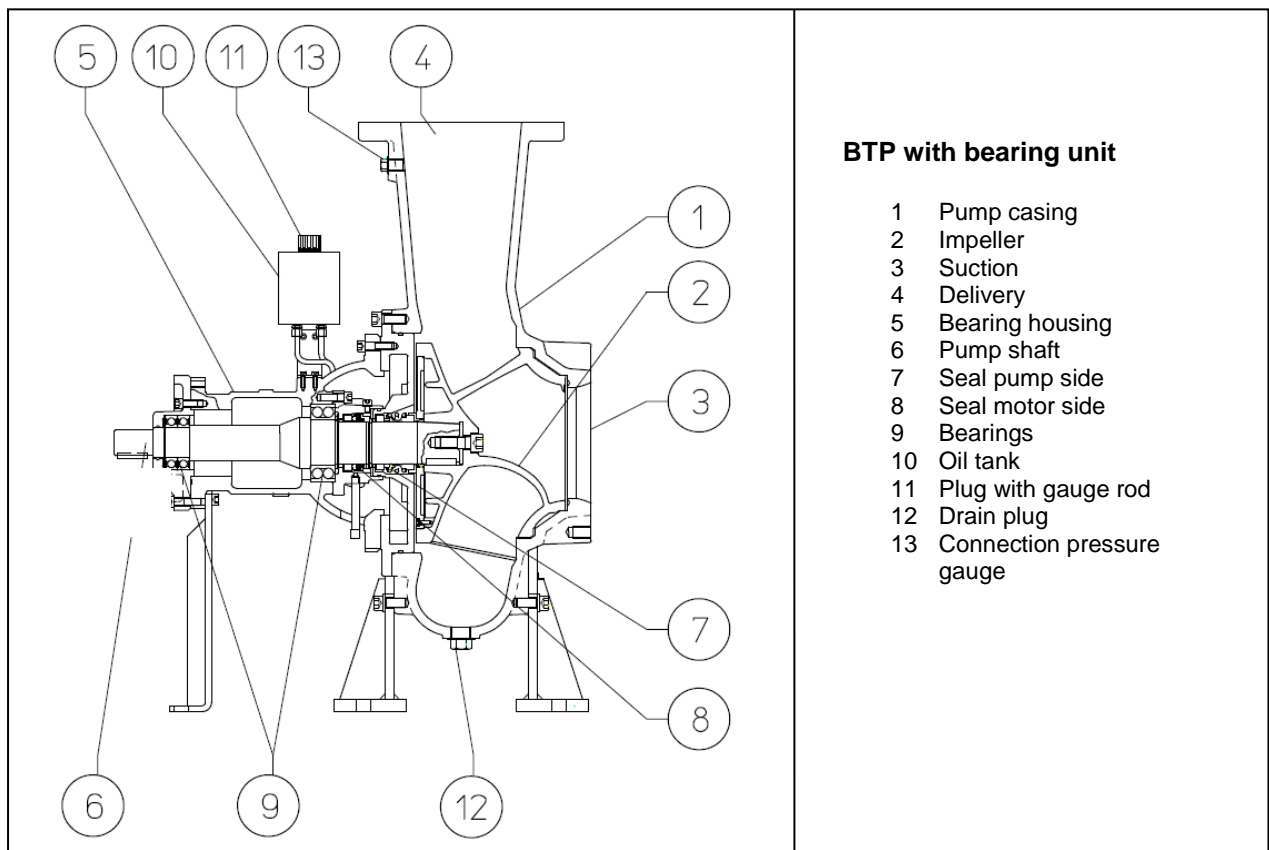
The BTP pump is cast iron closed spiral vane impeller pump, designed to pump sewage and other solids containing waste water with low energy consumption.

The impeller is designed in such a way that fibrous materials will not hook onto the edge but slide along towards the impeller passage.

3.2 Construction:

- Two independent shaft seals, running in oil.
- Heavy duty bearings, greased for life.
- closed spiral vane impeller for low energy consumption.
- Vanes at the backside prevent solids entering the seal area and reducing the pressure on the seal.

3.3 Main parts:



3.4 Sound level:

Depending on duty point and speed, the pump will produce a certain sound level. Next to this the piping system may produce some noise and vibration. By altering the pipe support and using rubber compensators the vibration will be reduced.

In the next table the sound levels of the BTP pumps are shown.

Sound levels BTP pumps		
Type	Speed [rpm]	Sound level [dB]
BTP62-40 BTP62-50	960/1450 960/1450	<70 <70

4. CHECK POINTS BEFORE INSTALLATION:

After unpacking the pump, follow out the following check points:

4.1 Delivery-check:

Check for possible transport damage.
Check for complete delivery.



When the delivery is incomplete or damaged, please contact your dealer immediately.

4.2 Oil level:

Check the oil level in the oil tank.
The oil plug has a gauge rod and the level should be between the two indications.

4.3 Power supply:

Before making the electrical connections, check if the line voltage and frequency are the same as on the pump data-plate.
If thermostats are supplied make sure that they are correctly connected.
For examples of electrical diagrams and pump cable coding, see appendix 1 and 2.



4.4 Motor protection:

The pump should always be connected to the line by means of a suitable motor protection circuit breaker.

If the pump is started direct on line (DOL), the protection breaker should be set to the current, as given on the data-plate.

For star delta start (YD), it is preferable to install the over current relay directly after the main contact. In this case, the pump is also adequately protected in star-connection. The maximum setting of the over current relay is $0.6 \times$ the current as given on the data plate.

It is preferable also to set the protection breaker at a 10% lower current, because all breakers require at least 110% of the adjusted current before tripping.



4.5 Motor check:

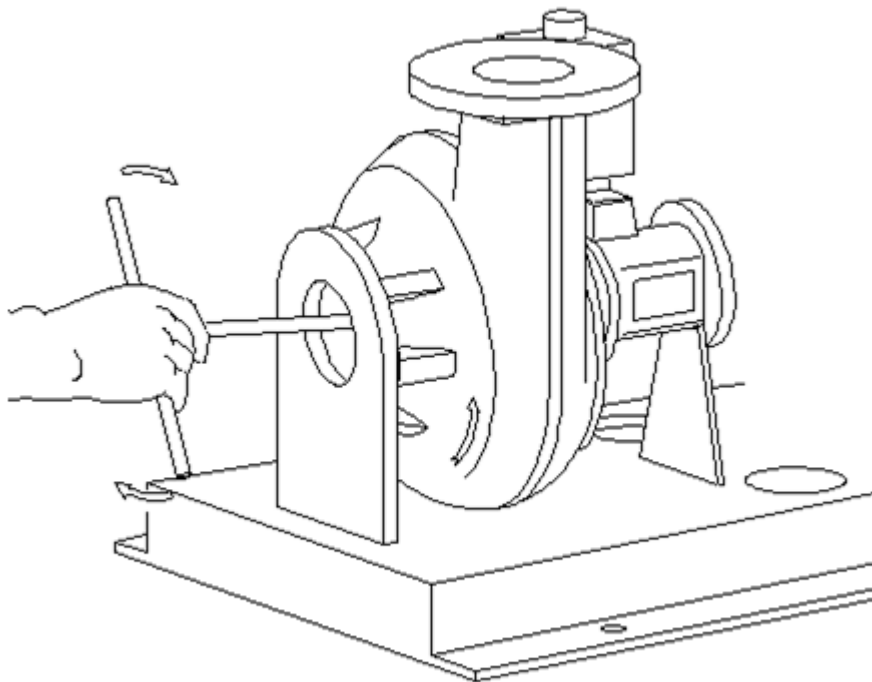
If you in doubt about the condition of the motor, “Megger” test motor windings against grounding wire.

The value should be at least 1 M-Ohm.

4.6 Pump seals:

Turn the impeller clockwise by hand, using a proper socket wrench.

Following this procedure sticking mechanical seal surfaces will be loosened smoothly.



4.7 Installation:

Check if all components for your installation are delivered. See also chapter 6.



5. FIRST PUMP START:

5.1 Direction of rotation:

A correct direction of rotation is essential for proper operation.

Check the direction of rotation with the arrow on the pump-casing.

This can be done by observing the direction of rotation of the motor or coupling.



5.2 Current-check:

The current must be checked during normal operation.

Apply an ammeter to one of the phase wires and check if the current is not higher than the value stated on the motor data-plate. If this is the case, check for:



- low voltage ?
- Specific gravity or viscosity too high ?
- blocked volute ?
- direction of rotation correct ?

If the problem cannot be solved contact your dealer or the manufacturer service department .

Service department Sneek:
tel. 0031 515 486 880
fax 0031 515 486 980

Establishment Veenendaal:
tel. 0031 318 512 900
fax 0031 317 517 940

service@landustrie.nl
24/24 tel. 0031 6 51 27 83 24

5.3 Start frequency:

When the pump is controlled by level regulation, the on and off levels should be adjusted in such a way that the pump does not make more than 20 starts per hour.



6. INSTALLATION OPTIONS:

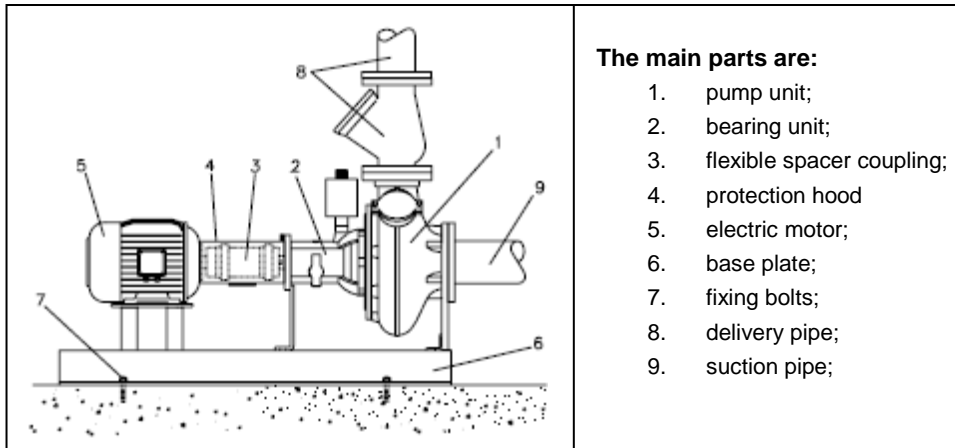
6.1 General:

For the BTP pumps the following installations are possible:

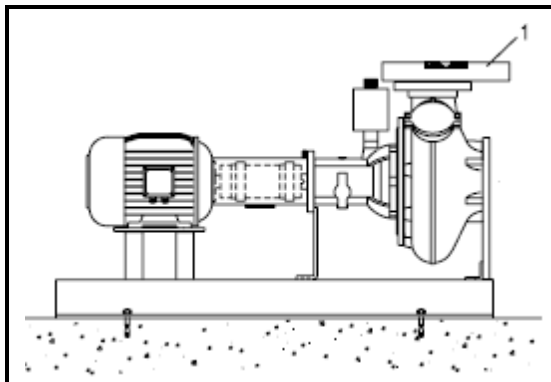
- Installation -H Horizontal, on base plate
- Installation -R Horizontal, on rail construction
- Installation -V Vertical, on support
- Installation -K V-belt driven

6.2 Installation - H:

Horizontal installation on base plate.



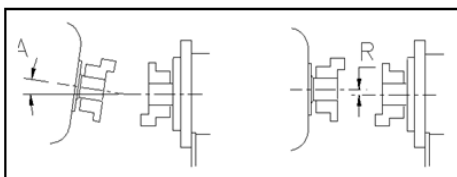
Checkpoints before operation:



- Fixation of the base-plate to the floor.
- Flanges straight horizontal and vertical see fig. pos 1.
- Pump and motor shaft aligned, see 6.2.1.
- Maximum flange forces and moments, see 6.5.
- Adjust start and stop levels in such a way that the pump does not make more than 20 starts per hour.

6.2.1 Alignment of pump and motor shaft:

After the base-plate is fixed to the floor, the alignment of pump and motor-shaft must be checked. When the base-plate is fixed to the floor, forces on the base-plate might have disturbed the alignment .

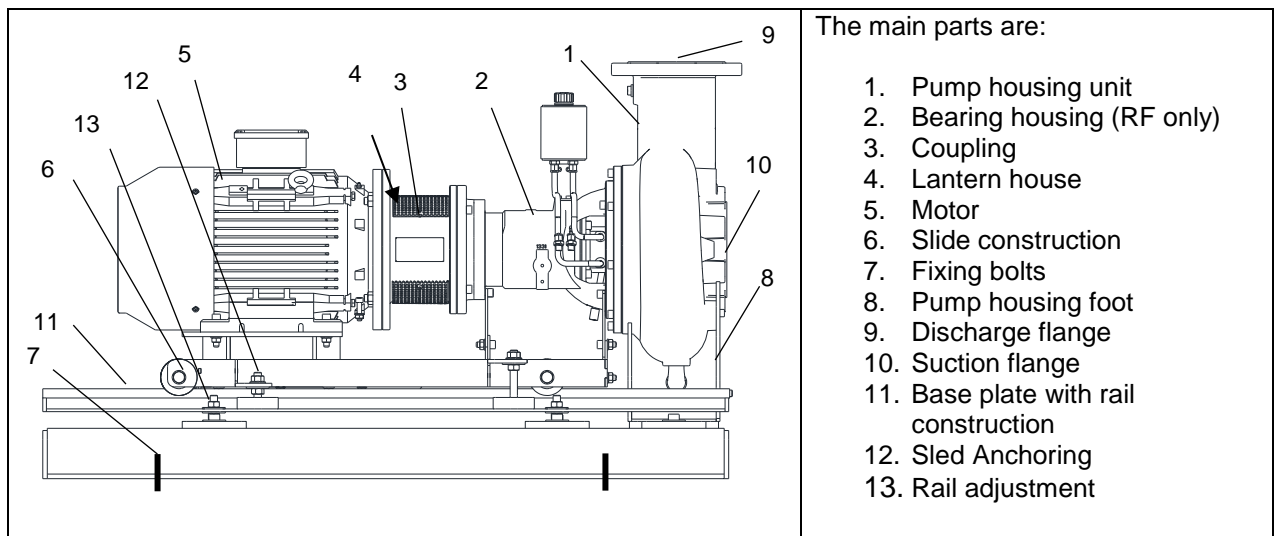


- Remove the protection hood, (pos 4).
- Check for:
 - 1 radial deflection (R) max. 0.4mm.
 - 2 angular deflection (A) max. 1°



To improve the alignment, use skims underneath the motor and pump fixing bolts. Re-install the protection hood in the original position.

6.3. Installation R-

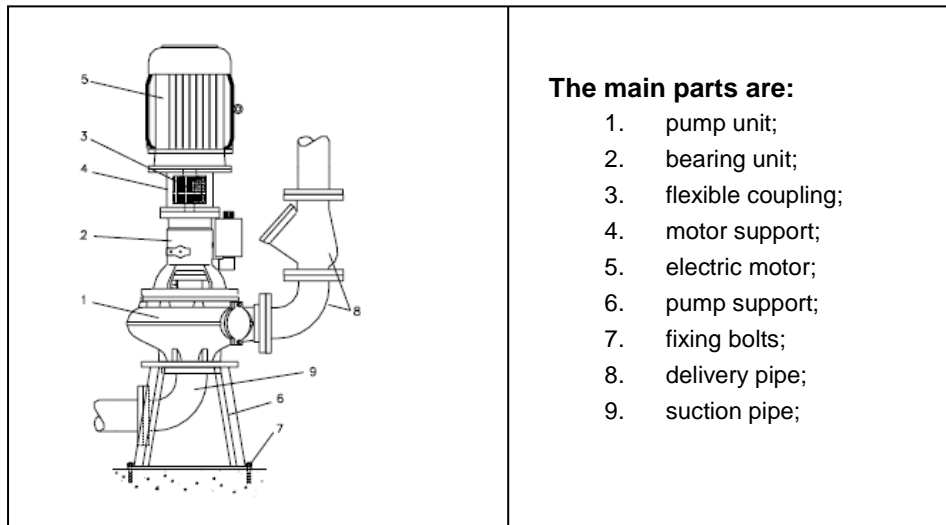


When installing, it must be ensured that:

- The base plate (pos.11) is anchored to the foundation (pos. 7).
- The top surface of the discharge flange is level, (pos.9).
- The base plate is filled with non-shrinking concrete
- The forces on the discharge and suction flanges do not exceed the values according to the table in section 6.6.
- The rails are adjusted accordingly with pos. 13 that it is level and that the pump can be smoothly driven in and out of the pump housing. See par. 7.6.5
- The carriage anchoring pos.12 is adjusted in such a way that the wheels are not under tension when the pump is not being serviced.
- The start and stop levels of the level control are set so that the pump does not make more than 20 starts per hour.
- If the base plate is connected to a subsequent base plate with rail construction, orientation must be correct. The rails are properly oriented when the pin on the end of the rails falls into the hole of the successive rails. The rails are symmetrical and can optionally be turned around on the base plate. The rails can be adjusted with the aid of pos. 13 can be adjusted in all directions. Adjust the rail construction and the coupled rails on the rail construction of the pump.

6.4 Installation -V:

Vertical installation on support.

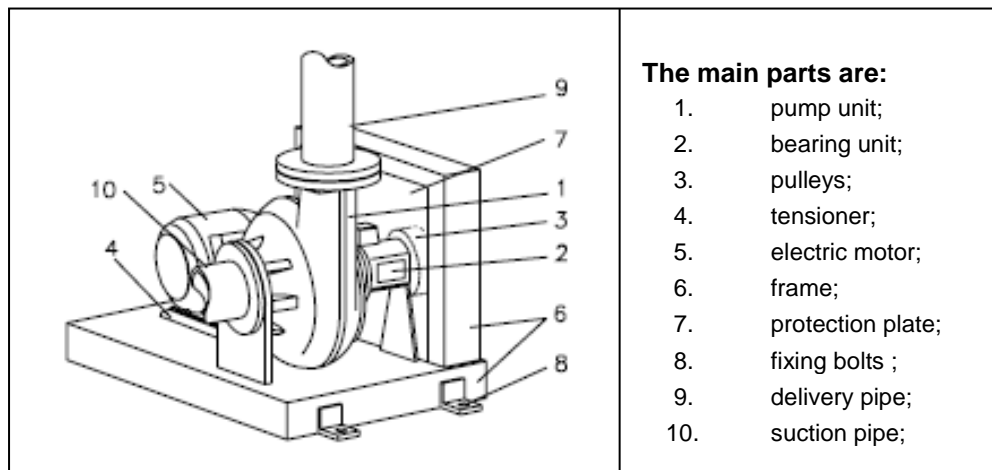


Check points before operation:

- Fixation of the base-plate to the floor, (pos. 7).
- Flanges straight horizontal and vertical
- Maximum flange forces and moments, see chapter 6.6.
- Adjust start and stop levels in such a way that the pump does not make more than 20 starts per hour.

6.5 Installation –K:

V-belt driven with motor and frame.

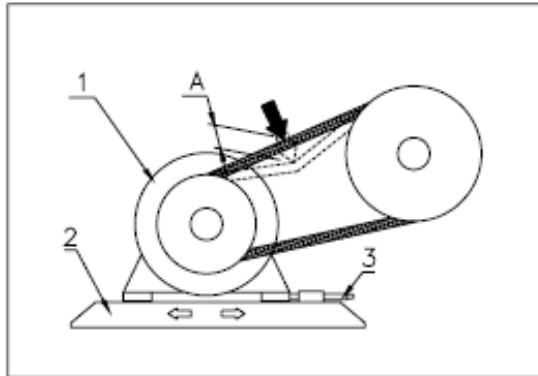


Checkpoints before operation:

- Fixation of the base-plate to the floor, (pos. 8).
- Flanges straight horizontal and vertical
- Maximum flange forces and moments, see chapter 6.6.
- Adjust start and stop levels in such a way that the pump does not make more than 20 starts per hour.
- Correct tension of the V-belts. see .6.4.1

6.5.1 Tension of the V-belts:

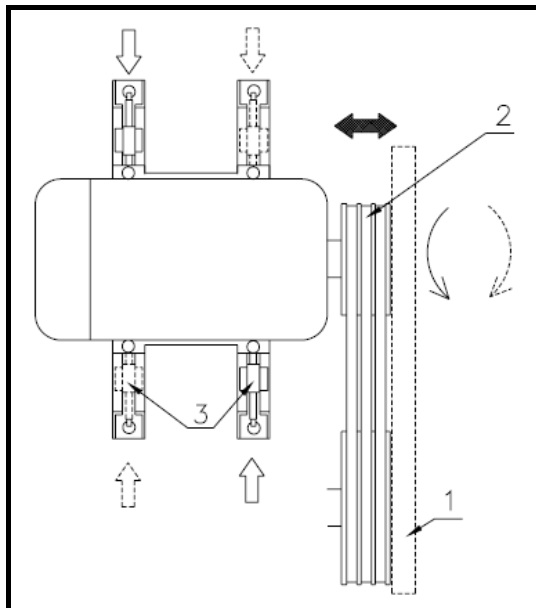
Check the correct tension of the V-belts as follows:



- Remove one of the protection plates.
- Put a force of 75N on one of the V-belts in the middle of the 2 pulleys, see fig.
- The pressing-in (A) must be about 1 cm .
- Is the value too small (tension too high), move the electric motor (1) towards the pump.
- Is the value too high (tension too low), move the electric motor away from the pump.
- The difference between the three belts may not be more than 0.5 cm.
- In that case renew all three V-belts.
- To move the electromotor, use the tensioning rail (2)
- Place both tensioners (3) underneath the motor.
- Loosen the motor fixing bolts a bit, and screw-in the tensioners (taut) or screw-out (slack), until the correct tension is reached.
- Retention the fixing bolts of the motor, and Re-check the tension again.



Check afterwards if both pulleys are still aligned (see fig).



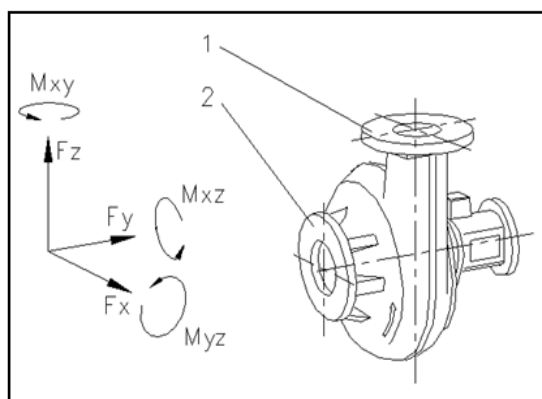
- Use a ruler (1) to align the pulleys.
- If necessary the motor pulley can be moved on the shaft.
- Loosen the 3 cup screws from the hub and push the pulley towards the motor to set it free from the shaft.
- Move the pulley to the right position and fasten the cup screws.
- Check the alignment again and repeat until the right position is achieved.
- When the motor-shaft is not parallel to the pump shaft, the motor can be rotated as shown. Loosen the motor fixing bolts and use the tensioners (3) to rotate the motor. If necessary, one of the tensioners can be placed into the rail at the other side of the motor.
- Check the correct tension of the V-belts!
- Replace the protection plate.



The pump is now ready to use.

6.6 Maximum flange forces and moments:

Because of the pipeline system, specific forces on the discharge and suction flanges will occur.



This forces consists of two factors

1. Forces F_x , F_y and F_z
2. Moments M_{xy} , M_{xz} and M_{yz}

The forces and moments may not exceed the values stated in the table below:

Pump type	F_x [N]	F_y [N]	F_z [N]	M_{xy} [Nm]	M_{xz} [Nm]	M_{yz} [Nm]
BTP62-40	1400	1400	3000	1200	1200	1300
BTP62-50	1400	1400	3000	1200	1200	1300

7. MAINTENANCE

7.1 General:



Always disconnect the pump from the mains before inspection or disassembly.



Clean the pump thoroughly.

7.2 Maintenance schedule

- After the first 100 running hours:
 - Check the oil (see chapter 7.4).
 - If there is more than a few drops of water in it, contact your dealer.
- Every 6 months or 1000 running hours:
 - Check the oil (see chapter 7.4).
 - If there are more than a few cm³ water in it, contact your dealer.
- Refresh the oil every year or when it is no longer transparent. (see chapter 7.5)



7.3 Lubricants:

- The bearings are greased for life and needs no refill.
- The oil reservoir is filled with Shell Tellus 32 or an equivalent.
Viscosity: 32 cSt.
When another kind of oil is used this is marked on a label on the pump.



7.4 Oil level:

Check the oil level in the oil tank.
The oil plug has a gauge rod and the level should be between the two marks.



7.5 Oil change:



Collection, storage and removal of the oil should be executed according to the regulations of the local authorities.



Always use the right kind of oil!



To drain the oil, remove one of the oil pipes, or use the drain pipe.



We advise to flush the system with fresh oil, before filling it up.



7.6 Flexible coupling:

Between motor and pump a flexible coupling is used to absorb vibrations and misalignment. Also the dismantling of the bearing housing or motor will become easy.

(Not applicable for version -K).

For maintenance and renewal of elastomers version -H, see 7.6.1 and 7.6.2.

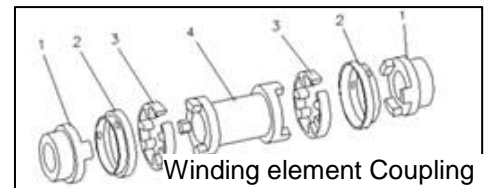
For version -V see 7.6.3 and 7.6.4



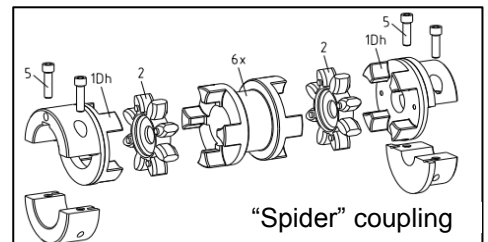
When working on the pump make sure it cannot start unexpectedly !

Inspection of flexible couplings arrangement "H"

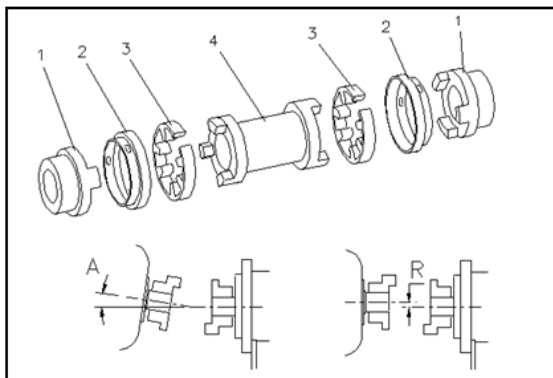
Is your installation equipped with a "Winding element" coupling, then go to paragraph 7.6.1



Is your installation equipped with a "Spider" coupling, then go to paragraph 7.6.3



7.6.1 Check winding element coupling arrangement –H:



- Remove the protective cover from the coupling.
- Check that the spacer (4) has no play compared to the solid parts (1)
- Remove both mounting pieces (pos 2) by unscrewing the fastening screws.
- Remove the rubber elements (3) and check for wear. If the metal parts (1) and (4) need to be replaced, continue with chapter 7.6.2.
- Check that the shaft ends of the pump and motor are in Line up with each other by a row on the two fixed coupling parts (1). Do this on both the top and on the side of the coupling.

- 1. The radial deviation (R) max 0.4mm.
- 2. Radial deflection (R) max. 0.4mm.
- 3. Angular deflection (A) max. 1° See fig.

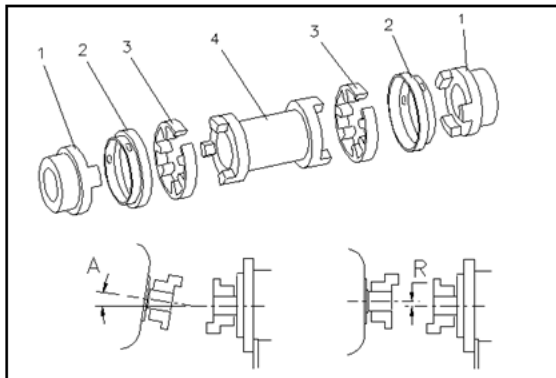
To correct the alignment, use skims underneath the motor and pump fixing bolts.

Re-install the spacer, elastomers, rings and protecting hood.

The pump is now ready to use.

7.6.2 Renewal of the coupling -H:

If necessary the coupling can be renewed as follows:



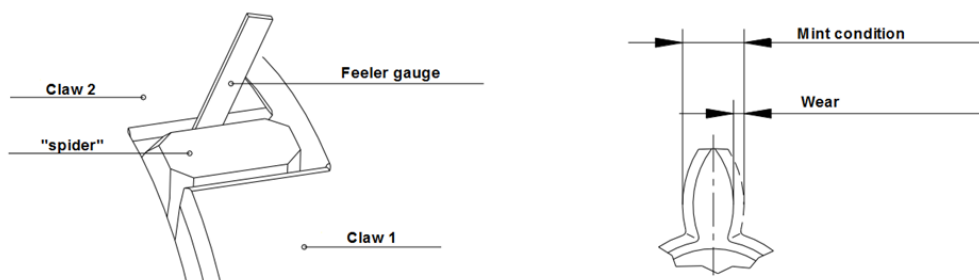
- Remove the rings (2) and elastomers (3).
- Remove the spacer (4).
- Loosen the cup screws from the flanges (1) and pull the flanges from the shaft with a proper tool.
- Heat-up the new flanges and put them on the shafts.
- The distance between the flanges must be about 5mm more than the length of the spacer (4).
- Fasten the cup screws from the flanges.
- Check the alignment of motor- and pump shaft (see 7.6.1)
- Place the new spacer, elastomers and rings.
- Replace the protecting hood.

The pump is now ready to use.

7.6.3 Control "Spider" link Arrangement -H

This type is a low-maintenance clutch. In principle, an annual visual inspection is sufficient.

- Check the alignment of the coupling and adjust if necessary.
- Check the total length of the coupling
- Visually inspect the coupling components for damage
- Visually inspect the bolt connections
- Check the play between the elastomer spider and the claw according to the diagram below (Measure total play on one side).
- When the spider is damaged or worn, it must be replaced. Replace both Elastomer spiders at the same time.
- When metal parts (claws, shells or the spacer) are damaged, the coupling must be replaced in its entirety.



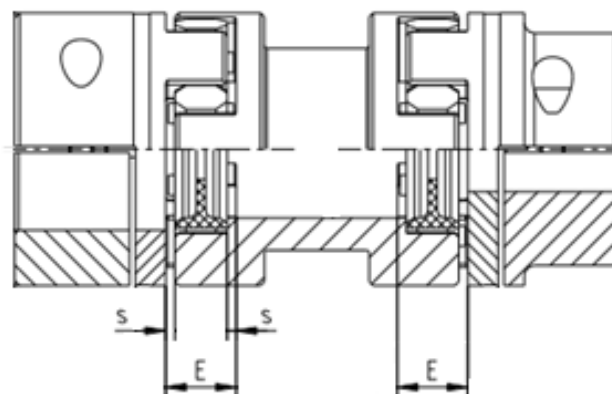
Wear indication "Spider" Coupling			
Dimensions	Maximum clearance X-max. (mm)	Dimensions	Maximum clearance X-max. (mm)
28	3	48	4
38	3	65	5
42	4	75	6



During the first inspection after commissioning of the installation, or after replacement of the Flexible coupling, the tightening torques of the bolt connections must be checked.

7.6.4 Mounting the "Spider" Coupling

- Assemble the clutch, claws with keyway, spacer and spiders
- Place the coupling on the motor and pump shaft and fit the loose shells and the mounting bolts.
- Tighten the bolts by hand, so that the loose shells almost touch the axles.
- Position the claws in such a way that the total length of the coupling is correct according to the diagram below.
- Make sure the spider is centered between the claws, and that measures "E" and "s" are correct according to the diagram below.
- Then tighten the bolts alternately to the prescribed torque.

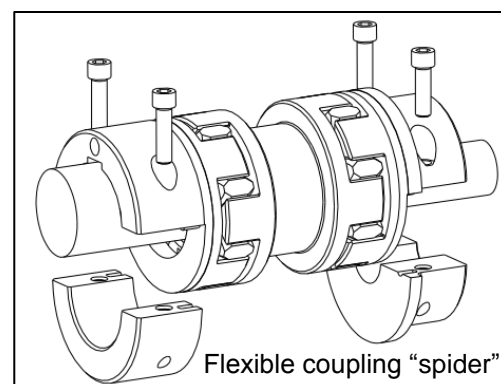


Dimensions / Type	Sizes (mm)		Tightening torque (Nm)	Dimensions / Type	Sizes (mm)		Tightening torque (Nm)
	E	s			E	s	
28	20	2,5	35	48	28	3,5	120
38	24	3	35	65	35	4,5	120
42	26	3	69	75	40	5	295

Your pump is now ready for operation again at this point.

7.6.5 Disassembly of the "Spider" coupling

- Remove both shells from the coupling (!). Keep the shells together per coupling half
- If the shells do not come loose manually, use a plastic hammer if necessary.
- Remove the compound coupling from the shafts.
(Note: consists of several parts)

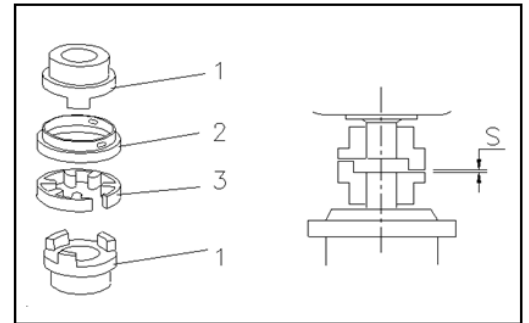


7.6.6 Inspection of flexible couplings arrangement -V ,RF and HF:

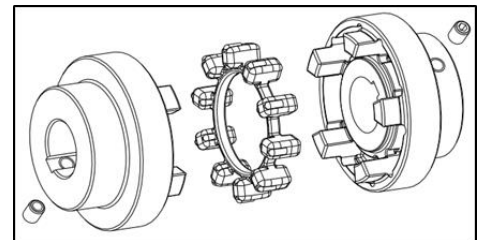
With an installation a coupling with rubber 'wrapping element':

Control flexible coupling with wrapping element

- Remove the protective caps from the lantern housing and check whether the clutch play is free.
- Remove both caps (pos. 2) through the unscrewing the fastening screws.
- Remove the rubber element (3) and check for wear. If the metal parts need to be replaced then continue with chapter 8.6.4.
- Check that the distance (S) is between 2-4 mm.
- Bring the new rubber element, if necessary (3) and attach the cover caps (2).
- After this the protective caps of the lantern house reapply.



The pump is now ready for operation again at this point.

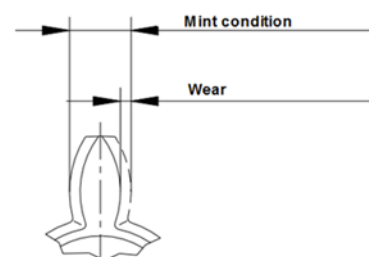
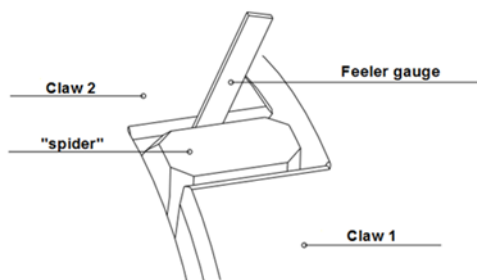


With an installation a coupling with rubber 'spider':

Controle flexibele koppeling met 'spin' element -V en -RF

This type is a low-maintenance clutch. In principle, an annual visual inspection is sufficient.

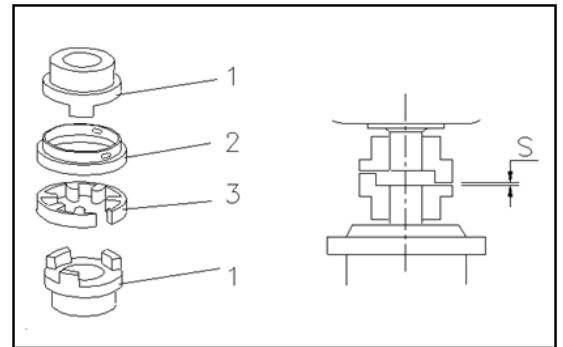
- Check the alignment of the coupling and adjust if necessary.
- Check the total length of the coupling
- Visually inspect the coupling components for damage
- Visually inspect the bolt connections
- Check the play between the elastomer spider and the claw according to the diagram below (Measure total play on one side).
- When the spider is damaged or worn, it must be replaced.
- When metal parts (claws, shells or the spacer) are damaged, the coupling must be replaced in its entirety.



Wear indication "Spider" Coupling			
Dimensions	Maximum clearance X-max. (mm)	Dimensions	Maximum clearance X-max. (mm)
28	3	48	4
38	3	65	5
42	4	75	6

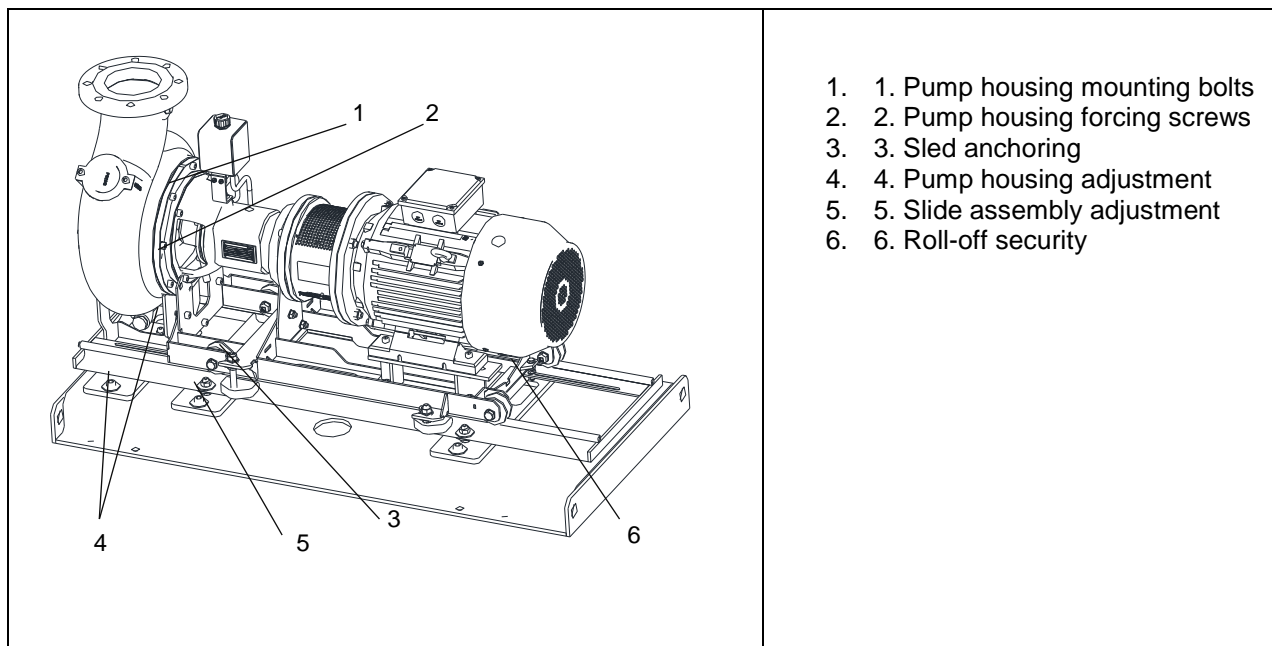
7.6.7 Renewal Flexible coupling installation –V and RF:

- Remove the protective caps from the lantern housing and remove the print caps (2) and the rubber element.
- Remove the electric motor from the lantern house.
- Remove the setscrews from the hubs.
- The old clutch parts can now be removed using a correct trigger.
- Pay attention to the current position on the axis!
- Mount the hub parts (1) on both the motor shaft and the pump shaft.
- Think about the correct positioning!
- Place the electric motor back on the lantern housing.
- Check that the distance (S) is between 204 mm and tighten set screws.
- Check whether the coupling parts are aligned.
- Fit the new rubber element (3) and fit the cover caps (2).
- After this, replace the protective caps of the lantern housing.



The pump is now ready for operation again at this point.

7.6.8 Adjustment and use of slide construction set-up RS and RF



Pump adjustment on existing pipework after base plate installation:

1. Remove the bolts, pos.1, from the pump housing and keep them.
2. Tighten nuts, pos.3 and bottom 2 nuts, pos. 6 loose.
3. Use forcing bolts pos.2 to roll the pump out of the pump housing and tighten the bottom nuts pos. 6 again.
4. Unscrew bolts, pos. 4 slightly loose. Install the pump housing on the existing pipework. Tighten bolts pos. 4 back into position.
5. Unscrew the bolts and upper nuts, pos. 5 slightly loose. Also loosen the bottom nuts pos 6 a little.
6. Roll the pump towards the pump housing and adjust pos.5 so that the pump can roll smoothly into the pump housing.
7. Tighten the bolts and nuts of pos.5 in position
8. Roll the pump into the pump housing and retighten bolts pos.1 in the pump housing. Make sure that forcing screws pos.2 are unscrewed far enough.
9. Unscrew the lower nuts from pos. 3 so that the wheels are not under tension. Then tighten the top nuts.
10. Tighten the lower nuts from pos. 6 fixed.

Use carriage assembly for maintenance:

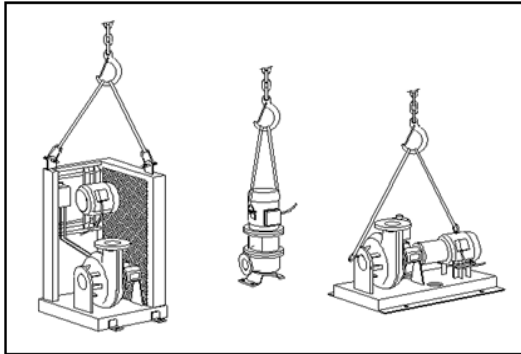
1. Remove the bolts, pos.1, from the pump housing and keep them.
2. Unscrew nuts, pos.3 and bottom 2 nuts, pos. 6 loose.
3. Use forcing bolts pos.2 to roll the pump out of the pump housing and tighten the bottom nuts pos. 6 again.
4. After maintenance, unscrew the bottom nuts of pos. 6 and roll the pump back into the pump housing.
5. retighten the bolts, pos.1, in the pump housing. Make sure that forcing screws pos.2 are unscrewed far enough.
6. Unscrew the lower nuts from pos. 3 so that the wheels are just under tension. Then tighten the top nuts.
7. Tighten the lower nuts from pos. 6

8. TRANSPORT AND STORAGE:



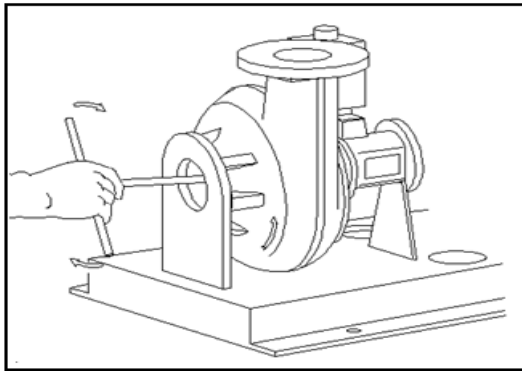
Always use a proper hoisting tool for lifting the pump.
Use the lifting eyes as shown in fig.9.1

To avoid oil spill, the pump must be transported and stored in the same position as the installation. Or a sealing plug should be used for the oil tank.



In case of long storage, the pump must be protected against moisture and heat.

Before storing the pump clean it with a water jet.

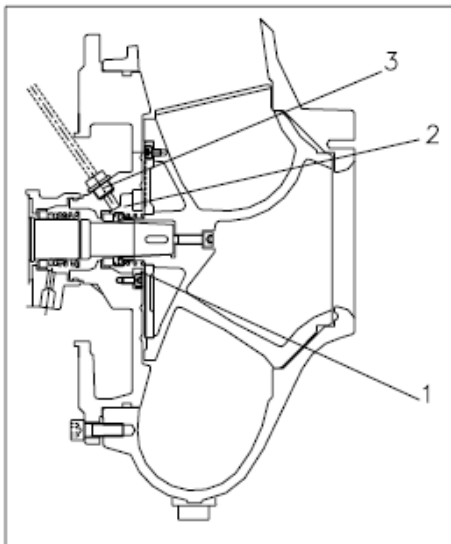


On a regular base (every three months), turn the impeller by hand, this is necessary to prevent sticking of the mechanical seal surfaces.

After 6 months of storage, a general inspection is advised, before installing the pump.

9. OPTIONS:


9.1 Seal flushing:




- Optional, the pump can be delivered with a seal flushing connection.
- A ring , pos. 1, is mounted in the seal housing, with a small fitting around the impeller hub or sealing parts.
- The flushing water inlet is connected to pos. 3.
- The flushing water keeps the sealing room pos.2 behind the impeller free from the pumped liquid.
- We advise to use an electromagnetic valve and a flow indicator in the flushing system so to be sure to have flushing water during pump operation.

The needed flushing pressure must be at least 2/3 of the pump pressure.


10. TROUBLE SHOOTING:




When working on the motor, make sure that the power is switched off.




Only qualified electricians may do the electrical work.



When working on the pump make sure it cannot start unexpectedly!




When starting the pump ensure nobody goes near rotating parts.



Observe the general safety instructions for operation and maintenance and observe the local electrical and safety regulations!

Problem:	Possible cause:	Required action:	Checkpoints:
Pump does not start	No voltage on motor terminals	Check power supply	<ul style="list-style-type: none"> * Main power * Main isolator switch * Fuses * Main power protection relay
		Check motor protection	<ul style="list-style-type: none"> * Earth leakage relay * Motor protection relay * Motor temperature * Water in oil detector
		Check starts-and stop signals	<ul style="list-style-type: none"> * Too low waste water level * Obstructed level switches * Switches interchanged * Control panel
	Motor failure	Check motor wiring	* Phase resistance
	Impeller blocked	Check pump or impeller	<ul style="list-style-type: none"> * Impeller or volute blocked * Worn or broken impeller
Pump does not stop	No stop signal	Check level regulation	<ul style="list-style-type: none"> * Float switches * Control panel
	Wrong start and stop level	Check level regulation	<ul style="list-style-type: none"> * Obstructed level switches * Adjust start and stop level * Power supply not stable
Pump starts and stops repeated	Fault in power supply	Check power supply	<ul style="list-style-type: none"> * Low voltage * Not all 3 phases available * Setting of motor protection
	Fault in level regulation	Check level regulation	<ul style="list-style-type: none"> * Control panel * Float switches * Obstructed level switches
	Motor overloaded	Check cooling motor/pump	<ul style="list-style-type: none"> * Wrong direction of rotation * Impeller or volute blocked * Protection in automatic reset mode
Current too high	Fault in power supply	Check power supply	* Low voltage
	Pump failure	Check pump or impeller	<ul style="list-style-type: none"> * Impeller or volute blocked * Viscosity or spec. gravity too high
Pump runs but no flow or too low flow	Clogging or air lock	Check discharge	<ul style="list-style-type: none"> * Discharge obstructed * Valve fully or partly closed * Air pocket in pump or discharge
	Pump failure	Check pump	<ul style="list-style-type: none"> * Impeller or volute blocked * Pump is sucking too much air * Worn or broken impeller
	Fault in power supply	Check power supply	<ul style="list-style-type: none"> * Control panel * Fuses * Low voltage
	Too low capacity	Check discharge	<ul style="list-style-type: none"> * Discharge obstructed * Valve fully or partly closed * Air pocket in pump or discharge
High level alarm	Pump failure	Check pump	<ul style="list-style-type: none"> * Impeller or volute blocked * Pump is sucking too much air * Worn or broken impeller * Worn or broken bearings
	Fault in power supply	Check power supply	<ul style="list-style-type: none"> * Fuses * Control panel
	Motor failure	Check motor	* Continuity and isolation
			* = If Applicable



If the pump still does not start, consult Technical expert:

Service department Sneek:

tel. 0031 515 486 880

fax 0031 515 486 980

Establishment Veenendaal:

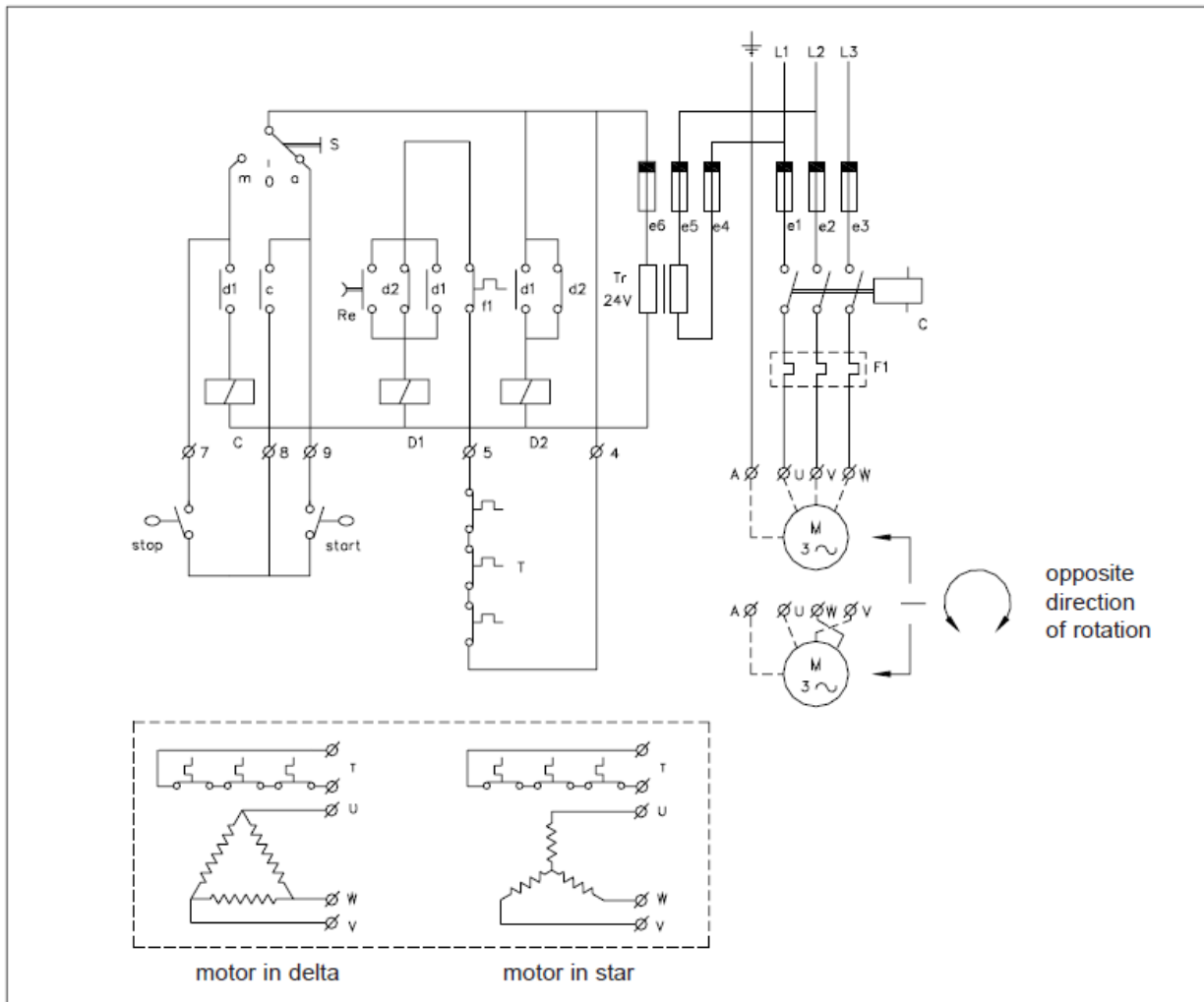
tel. 0031 318 512 900

fax 0031 317 517 940

service@landustrie.nl

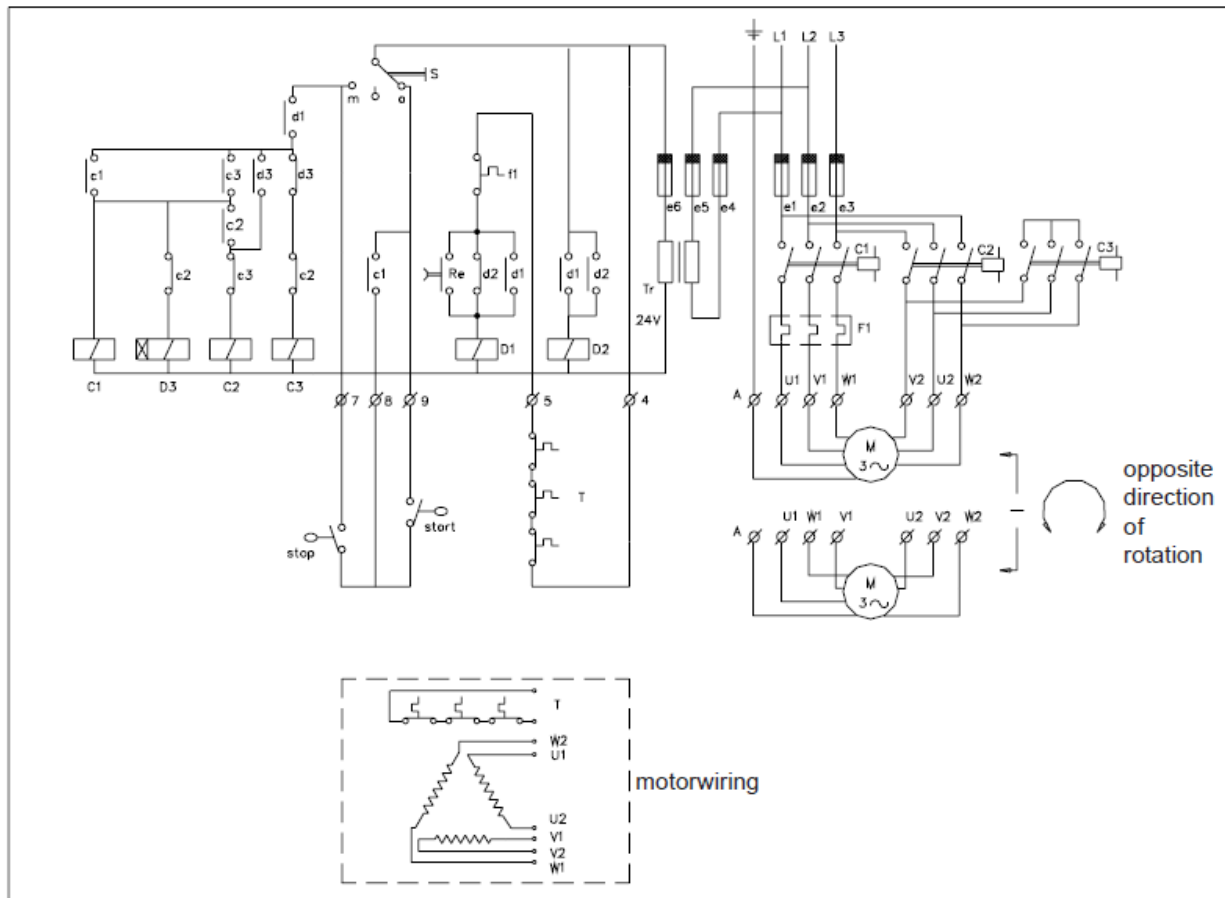
24/24 tel. 0031 6 51 27 83 24

APPENDIX 1; Example of a direct-on-line connection diagram:



CODING	
e1, e2, e3	Line fuses
e4, e5	Fuses, primary control-circuit
e6	Fuses, secondary control-circuit
C	Maincontactor
F1	Motor protection circuit breaker with manual reset
D1	Auxiliary relay for motor protection
D2	Auxiliary relay for power failure
Tr	Transformer
S	Manual-off -auto selector switch
Start	Level switch pump start
Stop	Level switch pump stop
Re	Reset push button
M	Pump motor
T	Thermostats (if fitted)

APPENDIX 2; Example of a star-delta connection diagram:



CODING	
e1, e2, e3	Line fuses
e4, e5	Fuses, primary control-circuit
e6	Fuses, secondary control-circuit
F1	Motor protection circuit breaker with manual reset
C	Maincontactor
D1	Relay delta connection
D2	Relay star connection
Tr	Transformer
S	Manual-off-auto selector switch
Start	Level switch pump start
Stop	Level switch pump stop
Re	Reset push button
M	Pump motor
T	Thermostats (if fitted)

APPENDIX 3; EC- Declaration of Conformity:

DECLARATION OF CONFORMITY

Landustrie Sneek bv
Pieter Zeemanstraat 6,
P.O.box 199, 8600 AD Telephone +31 0515 - 486888, Fax +31 0515 - 412398
SNEEK, THE NETHERLANDS E-mail: info@landustrie.nl, Internet: www.landustrie.nl

Herewith declares, that the submersible pumps series LANDY BTP, as manufactured by Landustrie Sneek BV.

in accordance with:

- ~ The Machinery 2006/42/EG, annex IIB
- ~ EMC-Directive 2004/108/EC

en declares conformity to:

- ~ the following (parts of) harmonized standards:
NEN-EN-ISO 12100:2010 and NEN-EN 809.
- ~ the following (parts of) technical specifications:
NEN-EN 61000-6-4, NEN-EN 61000-6-2, NEN-EN 60204 and NEN-EN 60439-1

Sneek, April 26th, 2021

F.R. Rijpma, Quality Assurance Manager



Notes:

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Notes:

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www.landustrie.nl

Notes:

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There is a solid vertical line on the left side, creating a margin. The paper appears to be a standard notebook or ledger page.

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