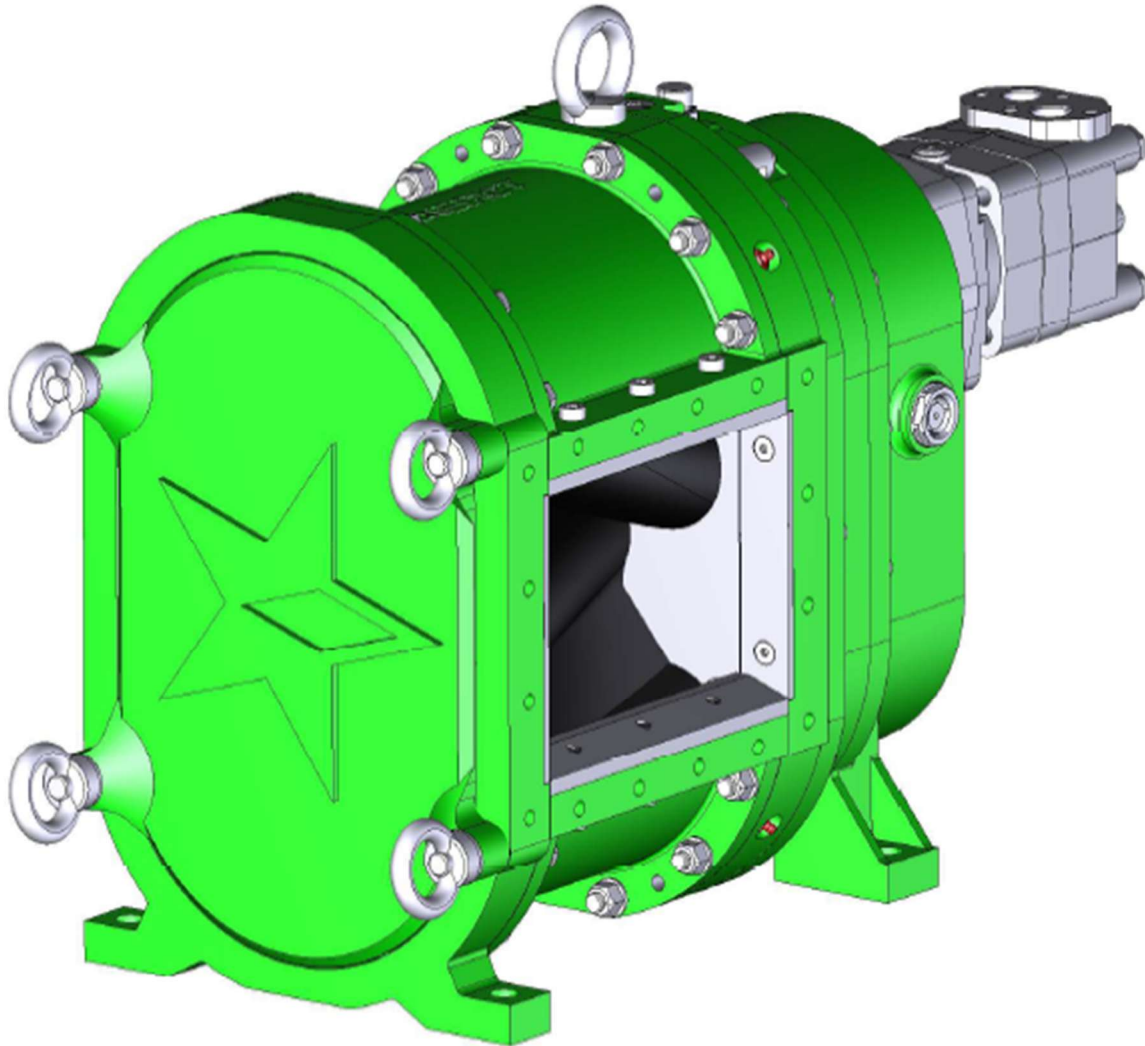


INSTALLATION AND MAINTENANCE MANUAL FOR BPF 175-240 LOBEPOMP.



Dear Customer,

With the purchase of this BENEDICT® BPF rotary lobe pump, you have become the owner of a high-quality rotary lobe pump in the market segment.

To ensure that this pump continues to operate reliably for a long time, it must be serviced regularly in accordance with the regulations.

Therefore, the operating and maintenance personnel must have access to this manual at all times, which must be carefully observed by them.

Damage that occurs if these instruction and maintenance instructions are not observed, the manufacturer's warranty will expire!

Important: Be sure to read this pump manual thoroughly before putting the rotary lobe pump into work !

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Chapter 1



1 Application purpose.

This BENEDICT® BPF pump is a rotary lobe pump.

This allows the following substances to be pumped:

- liquids containing solid particles (pay attention to the maximum ball pass)
- High viscosity liquids (viscosity)
- Liquids with trapped gases
- any other fluids that can flow

If you are unsure whether the pump is suitable for your purpose, please contact us!

The use of this pump in potentially explosive atmospheres is prohibited, unless expressly stated otherwise.

The operating points (flow rate, nominal pressure, speed) in the pump specification (see data sheet)

defined as limit values that must not be exceeded.

Any other application is outside the purpose of the pump.

In the event of damage as a result of improper application, the manufacturer's warranty expires.

If you are unsure whether the pump is suitable for your purpose, please contact us!

1.1 Predictable misuse.

- Only use the pump for pumping the specified medium.
- Do not exceed the specified speed range.
- The solids content in the medium to be pumped shall not exceed the defined limit values for particle size and solids content.
- Make sure that no foreign matter or particles, e.g. metal parts, stones, etc., can enter the pump. Medium contamination by foreign matter can cause damage to the pump elements!
- Do not use a non-working pump as a shut-off device!

Chapter 2



2 Safety instructions.

2.1 Important Information.

- Please read these instructions before installation and commissioning.
- This instruction describes the use during the entire life cycle.
- Always follow the safety and maintenance instructions in this manual.
- Never install damaged products.

The safety and maintenance instructions in this manual and on the pump are indicated by the following symbols and/or pictograms.

	<p>Danger !</p> <p>This is a warning about a dangerous situation that will inevitably lead to resulting in serious injury or death if the prescribed instructions are not followed strictly.</p>
	<p>Warning !</p> <p>This is a warning about a dangerous situation that, if the prescribed If the instructions are not followed exactly, this can lead to injuries, serious— or even result in permanent injury.</p>
	<p>Instruction !</p> <p>This is a warning about a potentially dangerous situation that, if the If the instructions are not followed exactly, this may result in minor injuries, direct or indirect property damage or improper functioning of the pump.</p>
	<p>Recommendation !</p> <p>This section provides useful information on the safe and proper use of during inspection and maintenance work so that it can function optimally.</p>

2.2 Qualified Person.

The expert person is responsible.

And must instruct the user on the basis of the instruction manual.

When working on the machine, a competent person must supervise young people and trainees, the minimum age is 16 years!

All mechanical work should only be carried out by trained specialists.

Specialists in this context are individuals who are familiar with the setting, mechanical installation, maintenance and repair work for this type of positive displacement pumps.

Furthermore, they are qualified as follows:

They are trained in mechanical engineering, agricultural and vehicle technology, for example as a mechanic (final exam has been passed and passed) and they are familiar with this subject matter and familiar with this instruction manual.

All work in the other departments of transport, storage, operation and waste disposal may only be carried out by persons who are familiar with this instruction manual and have had the appropriate training.

2.3 Before first use.

Carefully read and observe the operating and safety instructions.

Make sure you are aware of all the features, controls, and their function.

Please observe all the points of the "Checklist for first use" in the chapter "First use".

Make sure that no rotating parts can be touched.

2.4 Warning and safety stickers.

- The attached warning and safety stickers provide important information about safe operation.
- Avoid physical harm by observing these stickers.
- The warning and safety stickers must not be removed and must be replaced immediately if damaged or lost!

2.5 Pumping of hazardous substances.

If contact with the fluid cannot be made during maintenance or repair work, be excluded, corresponding safety measures should be (safety glasses, safety gloves, etc.) .

Please note! Under certain circumstances, these hazardous substances may enter the chamber or into the drive.

2.6 Personal safety

For your own safety, always wear the correct work clothing as indicated below when working on the rotary lobe pump.



Safety goggles.

To prevent eye injury from flying particles or splashing liquid in the event that pressure remains in the pump or pump lines.



Safety shoes.

To prevent foot injuries caused by falling objects and slipping on slippery surfaces.



Safety gloves.

To prevent hand injuries while working on the pump and to protect against harsh chemicals that can damage the skin.



Safety clothing.

Make sure your work clothes fit properly and are not too loose.
Work clothes must not be flammable and must be resistant to harsh chemicals.

2.7 Other Applicable Documentation.

Please observe the following added documents:

- Document Description.
- Data sheet Technical data, power and operating limits, conditions of application.
- Measuring sheet pump with attachment points.
- Exploded view with parts list.
- Drive unit documentation Power unit instruction manual.
- Documentation of accessories Instruction manual for accessories.

Chapter 3

3 Packing and Moving.

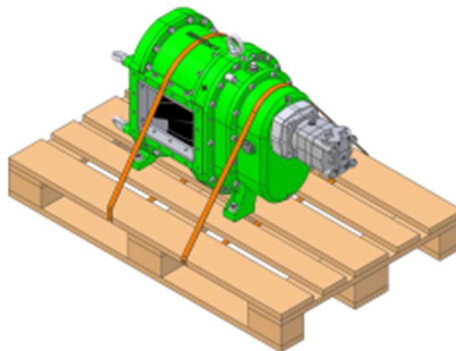
3.1 Packaging

If there are no specific customer requirements in this regard, one-time packaging is used and the BPF positive displacement pumps are shipped on it.

Check the shipment for shipping damage immediately upon receipt.

If you find such damage, immediately inform the transport company that delivered the pump to you!

Damaged pumps and/or parts must not be put into operation!



3.2 Move.

To prevent fall or fall damage while moving the pump.:

- Only use lifting and hoisting equipment with sufficient load capacity for loading/unloading!
- Only lift the pump using load handling devices (chains and/or lifting strap) on the appropriate eye bolts on the pump!

	<p>Warning !</p> <p>If the pump is not moved correctly, it may tip over or fall.</p> <p>Potentially dangerous situation resulting in serious or fatal injuries!</p>
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Chapter 4

4 First use.

4.1 Initial Commissioning Checklist

- Is the oil level in the gearbox at the right level?
- Is the oil level in the intermediate chamber at the right level?
- Are the grease nipples lubricated so that there is grease in front of the slip rings?
- Is the pump direction ok? / Check the direction of rotation of the pump.
- Is the pipe system tight and leak-free?
- Is free flow in the piping system guaranteed? / The pump must never pump into a closed pipe, make sure the correct shut-off valves are open!
- Are the drain valves closed and is the pump filled with liquid?
- Start using the pump and check inlet and outlet pressure, speed and capacity.
- Are all security systems installed and is their function guaranteed?

	Danger !
	<p>During use, the pump and drive unit may contain rotating or moving parts have, as well as having hot surfaces or being under pressure!</p> <p>Potentially dangerous situation that could result in death or serious injury!</p>

4.2 Safety instructions for use, maintenance, inspection and assembly.

- Before any work is carried out on the pump, the machine on which it is mounted must be stopped.
- Switch off the operator or depressurized and secure it against unauthorised and unintentional restart!
- During and after use, some pump surfaces may be hot!
- Before opening the pump, make sure that the installation is depressurized!
- When opening the pump, observe all regulations regarding the flow medium.
- Before restarting the pump, reinstall all safety devices.
- When restarting the machine, follow the instructions and safety instructions!

	Recommendation !
	<p>Avoid running the pump dry as much as possible!</p> <p>The fluid being pumped also acts as a coolant for the pump!</p> <p>Running dry significantly reduces the service life of the rubber rotary lobes !</p>

Chapter 5

5. Pump drives and pump direction.

In principle, this BPF rotary lobe pump can rotate in both directions due to the symmetrical shape of the pump housing and the displacers!

5.1 Hydraulically driven pump.

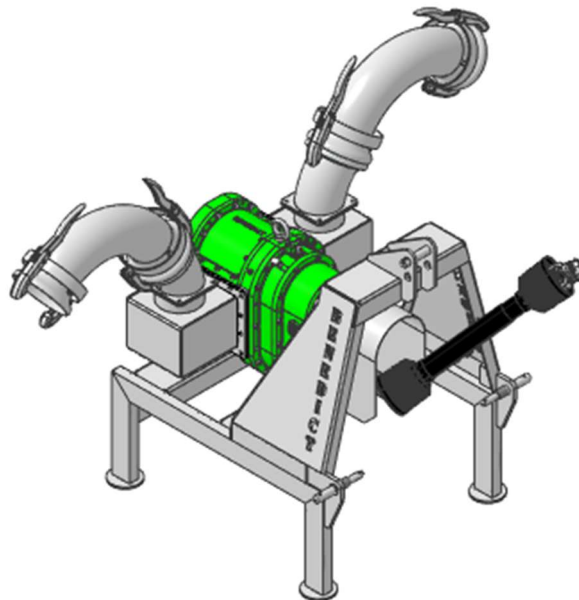
A BPF pump can be equipped with an OMT.250 hydraulic motor that is permanently mounted on the pump. The direction of rotation of the hydraulic motor therefore determines the direction of rotation of the pump!

- Do not exceed the maximum speed of 600 revolutions per minute!

5.2 PTO driven pump.

In a BPF pump that is used behind a tractor with PTO drive for pumping medium, the upper or lower shaft determines the direction of rotation of the pump!

- Do not exceed the maximum speed of 600 revolutions per minute!
- When using an adapter with a profile of 1 3/8 – 6 pieces, the starting torque must not exceed 1500 Nm.
- You can achieve this by using the supplied PTO shaft with M.10 shear bolt protection.
- This limitation of the starting torque does not constitute an overpressure protection of the pump!



	Danger !
	<p>Do not leave a PTO-driven pump running unattended.</p> <p>Potentially dangerous situation that could result in death or serious physical injury !</p>

Chapter 6

6 Maintenance and inspection.

In the reference to number in the text below (1 & 2 for example) these numbers can be found in the explosion drawing of the pump in Chapter 8 page 25.

6.1 Buffer chamber.

- The buffer chamber serves as a space between the pump chamber and gearbox.
- If there is a mechanical seal leak, the contamination of the pump chamber will not be immediate the gearbox so that the bearings and gears are not contaminated and / or damaged.
- If the mechanical seals do leak and medium from the pump chamber is inserted into the then it will leak from the vent caps.
- The leakage of the mechanical seals can be visually observed in this way.
- If the buffer chamber is contaminated by liquid from the pump chamber because the mechanical seals have leaked, it must be cleaned. (**described in § 6.6**)

	<p>Instruction !</p> <p>The buffer chamber must always be depressurised and under no circumstances be plugged so that it can not be longer vented or ventilated freely !</p>
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6.2 Buffer chamber oil.

- A mineral oil with a viscosity ISO VG must be **used.68**
- Fill the barrier chamber with oil to the centre of the sight glass.
- The sealing chamber oil also serves as cooling and lubrication of the slip rings
- After the first 30 hours of operation, check the oil and arrow.
- Interval for checking the oil and the arrow every 300 operating hours.
- Replace the cavity oil every 3000 hours of operation.
- If you notice contaminated oil, replace it immediately and also check the mechanical seals for leaking . **If necessary, replace the mechanical seals !**

6.3 Gearbox oil.

- A mineral oil must be used in the gearbox with a viscosity of **ISO VG.220 (80W.90)** of high industrial quality.
- Fill the gearbox with oil to the centre of the sight glass.
- The gearbox oil serves as lubrication for the bearings and gears.
- After the first 50 hours of operation, check the oil and arrow.
- Interval for checking the oil and the arrow every 500 operating hours.
- Change the gearbox oil every 5000 operating hours.
- If contaminated oil is detected, replace it immediately.

6.4 Grease lubrication between pump chamber and buffer chamber.

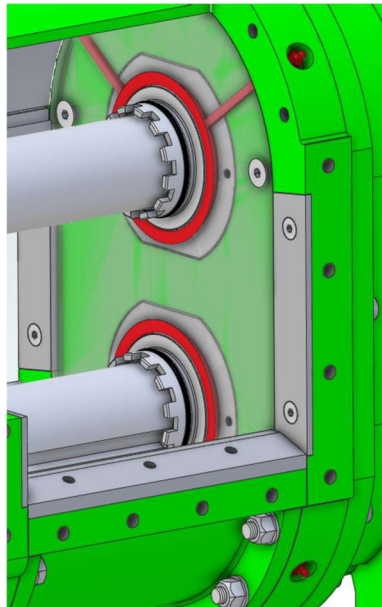
There are 4 grease nipples on the pump itself.

The 2 grease nipples at the top of the pump are for the top gap.

The 2 grease nipples at the bottom of the pump are for the lower gap.

By lubricating this space, fibres are prevented from accumulating between the rotary lobes and the mechanical seals and then exerting pressure on the mechanical seals and even getting in between, causing the mechanical seals to leak and the barrier chamber to become contaminated!

- Use a high-quality grease that is water-resistant **EUROL Marine Grease EP 2/3**.
- When lubricating, give 5 turns with the grease gun per grease nipple.
- Lubricate the grease nipples when the pump is put into operation.
- Lubricate the grease nipples before and after longer operating breaks of 3 to 4 weeks.



	Instruction !
	Only lubricate whilst the pump is running, so that the grease is distributed evenly spread out in the space in between !

6.5 Cleaning the pump chamber.

Cleaning the pump chamber is recommended if the pump is not to be used for a long time!
(**more than 14 days**).

The pump chamber can be rinsed simply by pumping water, or by opening the pump chamber
(**described in § 7.2**) and then spraying it out with water.

6.6 Cleaning the buffer chamber after pollution

The demarcation chamber pollution can be divided into three categories:

1. **Light pollution.**
2. **Medium pollution.**
3. **Heavy pollution.**

In order to properly clean the buffer chamber in all three cases, the contaminated liquid must be removed from the chamber, you must proceed as follows.

Remove the plugs on the bottom and top of the lock chamber and let the contaminated liquid drain out.

Collect this liquid in a container, and then dispose of this liquid according to the prescribed environmental standards.

6.6.1 Light pollution.

In case of light soiling, you can "rinse" it after the contaminated liquid has been removed from the chamber by spraying hot water (steam cleaner) into the top drain hole of the chamber and letting it drain out at the bottom.

If there is no more contamination coming out, blow it dry with the air compressor so that most of the water is out and then rinse once with diesel (B7), then collect it in a container and then dispose of this liquid according to the prescribed environmental standards.

Then fill the buffer chamber with the prescribed amount of oil (described in § 6.2).

6.6.2 Medium pollution.

- Open the pump chamber **(described in § 7.2).**
- Disassemble the rotary lobes **(described in § 7.4).**
- Disassemble the crown nut and washers **(described in § 7.6)**
- Disassemble the radial wear plates and clamping blocks **(described in § 7.8).**
- Disassemble the wear plate on the lock chamber side **(described in § 7.9).**
- Disassemble the mounting bushing by screwing two M.8 bolts into the tap holes and then turning the mounting bushing forward until it is out of the lock chamber seat.

Now there is so much space around the axles that the locking chamber can also be thoroughly cleaned with hot water (steam cleaner).

If there is no more contamination coming out of it, blow dry with the air compressor so that most of the water is out.

Subsequently, all disassembled parts can be reassembled or replaced with new parts.

When all parts are reassembled, rinse once with diesel (B7), then collect it in a container and then dispose of this liquid according to the prescribed environmental standards.

Then fill the sealing chamber with the prescribed amount of oil (described in § 6.2), and lubricate the space between them over the 4 grease nipples (described in § 6.4).

6.6.3 Heavy pollution.

- Open the pump chamber (**described in § 7.2**).
- Disassemble the rotary lobes (**described in § 7.4**).
- Remove the crown nut and washers (**described in § 7.6**).
- Disassemble the radial wear plates and clamping blocks (**described in § 7.8**).
- Disassemble the wear plate on the lock chamber side (**described in § 7.9**).
- Disassemble the mounting bushing by screwing two M.8 bolts into the tap holes and then turning the mounting bushing forward until it is out of the lock chamber seat.
- **Now share the buffer chamber from the gearbox !**
- Loosen the 14 pieces of Allen screws (**56 & 58**) that connect the gearbox intermediate plate (**4**) and connect the intermediate chamber plate (**5**).
- By tightening the set screw (**53**) you can push the two pump parts that together form the locking chamber apart.
- The barrier chamber is now divided and you can now thoroughly clean the inside of the chamber with a steam cleaner until all contamination is removed from the surfaces.
- Then dry the parts again and reassemble the two pump parts (**4 & 5**). Subsequently, all disassembled parts can be reassembled or replaced with new parts.

When all parts are reassembled, rinse once with diesel (B7), then collect it in a container and then dispose of this liquid according to the prescribed environmental standards.

Then fill the sealing chamber with the prescribed amount of oil (described in § 6.2), and smear the space between them over the four grease nipples (described in § 6.4).

Chapter 7

7 Repair.

In the reference to number in the text below (1 & 2 for example) these numbers can be found in the explosion drawing of the pump in Chapter 8 page 25.

7.1 Conversion and assembly of parts.

Conversion and/or modification of the pump is only allowed after consultation with the manufacturer.

Only original spare or replacement parts provided by the manufacturer may be used.

The use of other parts that have not been ordered from the manufacturer will result in the manufacturer's warranty being voided if damage to the pump occurs!

7.2 Opening the pump chamber.

To be able to open the pump chamber, the cover at the back of the pump must be unscrewed about 4 M.16 eye nuts (38).

Before these 4 eye nuts are loosened, a number of precautions must be taken.

- The pump must be stationary and, if necessary, it must be blocked!
- Loosen the eye nuts alternately and release the pressure in the pump chamber as much as possible.
- Place a container under the pump to collect medium that runs out of the pump chamber.
- When the pump chamber is completely depressurized and deflated, the eye nuts can be loosened and the cover with wear plate removed.

	Warning !
	<p>If there is still too much pressure in the pump chamber or buffer chamber, fluid may escape spray, which can cause injury.</p> <p>Always wear safety goggles and suitable work clothing!</p>

7.3 Inspection of the pump chamber.

In order to be able to inspect the pump chamber properly, it can be sprayed clean with water.

During the inspection, you can check the pump room for wear and damage to the displacers and wear parts that are in it.

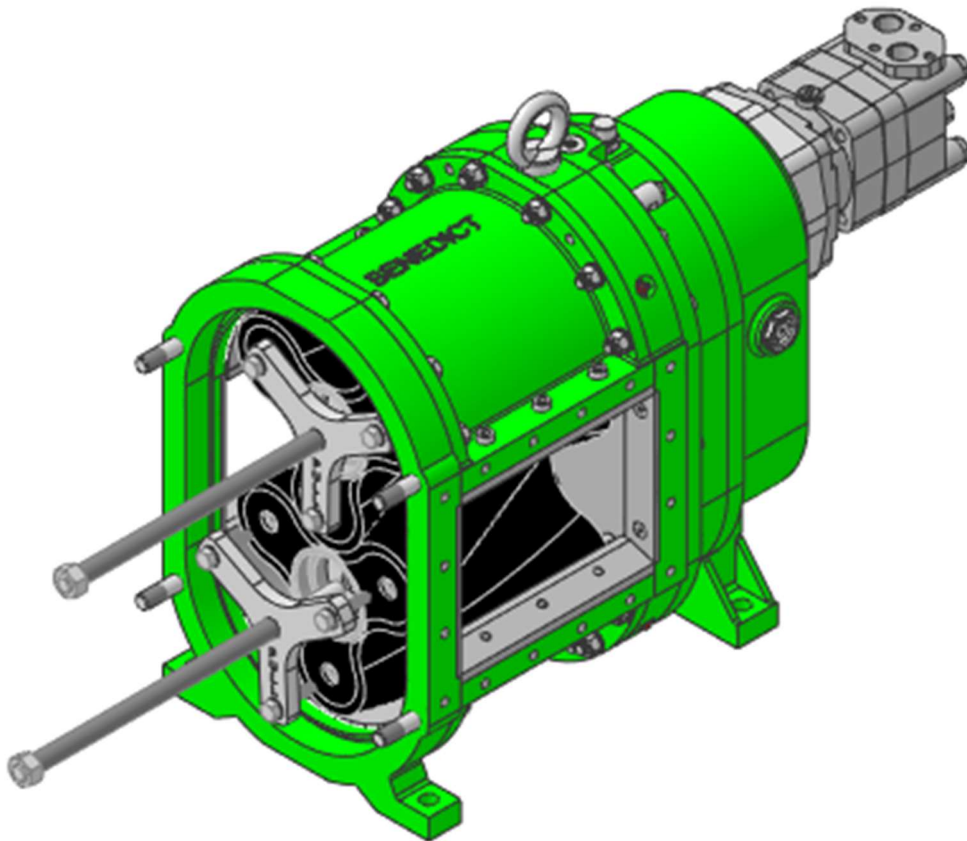
If it is necessary to replace it, you can proceed as follows.

(described in § 7.4, § 7.5, § 7.6, § 7.7, § 7.8 and § 7.9.).

7.4 Disassembly of the rotary lobes. (No. 1 & 2)

To disassemble the rotary lobes, proceed as follows:

- Open the pump chamber (**described in § 7.2**).
- Remove the clamping disc (20) by unscrewing the M.20 hexagon bolt (50) in the axle head.
- Remove the 3 sealing caps (34) from the rotary lobe so that the M.10 threaded holes in the rotary lobes are exposed.
- Place the rotary lobe puller tool in the M.20 threaded hole of the axle and attach it with the 3 pieces of M.10 x 50.mm. bolts to the rotary lobe.
- Now simultaneously unscrew the upper and lower rotary lobe from the pump chamber by turning the M.18 nut (wrench size 27) on the spindle clockwise until they are off the shafts.



Recommendation !

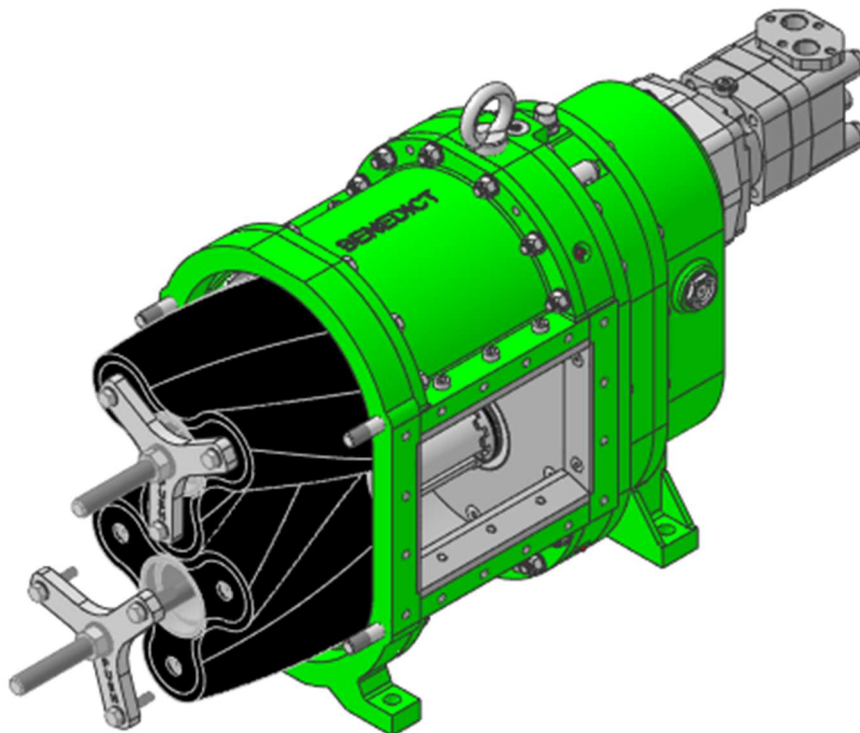
As these are helical rotary lobes, they must be removed from the pump chamber simultaneously, they must be pulled out using the special 'PULL' tool!

For optimal removal, use the 'PULL' tool on both axles simultaneous !

7.5 Assembly of the rotary lobes. (No. 1 & 2)

To install the rotary lobes, proceed as follows:

- Place the rotary lobe pusher tool on the shaft in the M.20 threaded hole and attach it to the rotary lobe with the 3 pieces of M.10 bolts, now simultaneously screw the upper and lower rotary lobes simultaneously into the pump housing by tightening the M.20 nut (wrench size 30) until the rotary lobes do not want to go further on the axles.
- Check that there is a minimum clearance between the rear of the rotary lobes (1 & 2) and the wear plate (22) of the buffer chamber. (0.3 – 0.5 .mm.) (described in § 7.6).
The rotary lobes should certainly not run too "tightly" against the wear plate (22), causing friction and heat during the rotation of the rotary lobes, causing it to "burn".
- If the rotary lobes (1 & 2) are to "tight" against the wear plate (22), disassemble the rotary lobes (described in 7.4) and then remove the keys (17) from the axles and loosen the crown nut (18) (so that the crown nut comes forward !).
If there is now minimal gap between the rotary lobes (1 & 2) and the wear plate (22) place the keys back in the axles and secure the crown nuts by placing the tapered end of the key in the crown which prevents the crown nut from coming loose.
- Now place the clamping disc (20) in the rotary lobe and secure it with the M.20 hexagon screw (50) with a **maximum tightening torque of 200 Nm !**



Recommendation !

As these are helical rotary lobes, they must be installed simultaneously in the pump chamber be pushed using the special 'PUSH' tool!

For optimal assembly, use the 'PUSH' tool on both axles simultaneous !

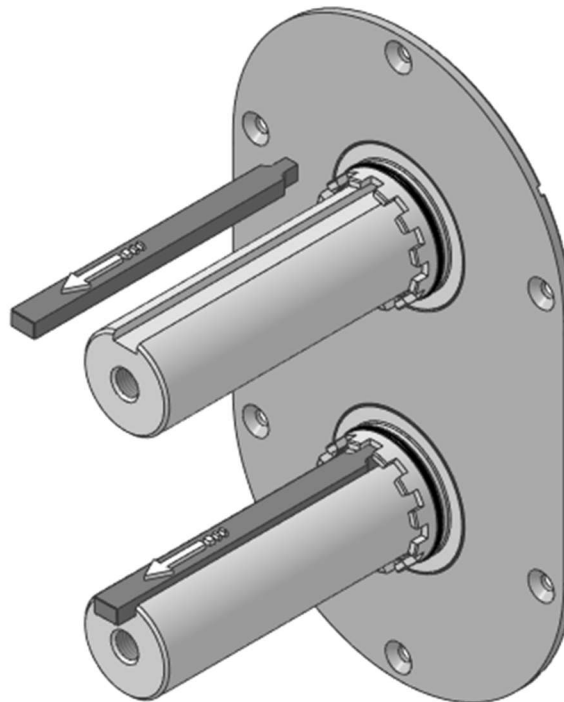
7.6 Adjusting the crown nuts. (No. 18)

Adjusting the crown nuts is essential to keep the pump running properly and friction-free, thus incurring unnecessary costs.

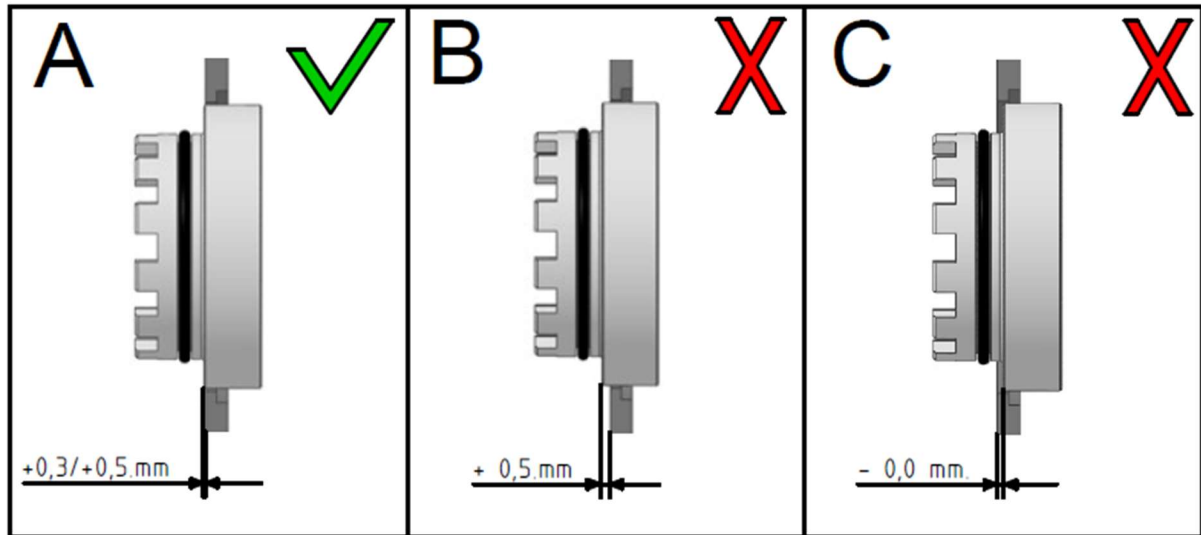
This adjustment is also important to maintain the correct tension on the sliding rings (27) so that they continue to seal well during use of the pump.

Before you can adjust the crown nuts, remove the keys (17) that secure them. Remove the keys from the shaft so that the narrowing of the keys comes out of the crown of the crown nut. Now you can unscrew the crown nuts.

REMOVE THE KEY TO UNLOCK THE CROWN NUT.



The description of the correct adjustment is shown using the table below, using drawings A, B & C.



A is the correct adjustment.

- The rotary lobes "just" run free (0,25.mm) in relation to the wear plate cover (21) and wear plate at buffer chamber side (22) and are centered in the middle of the pump chamber!

B is incorrect adjustment.

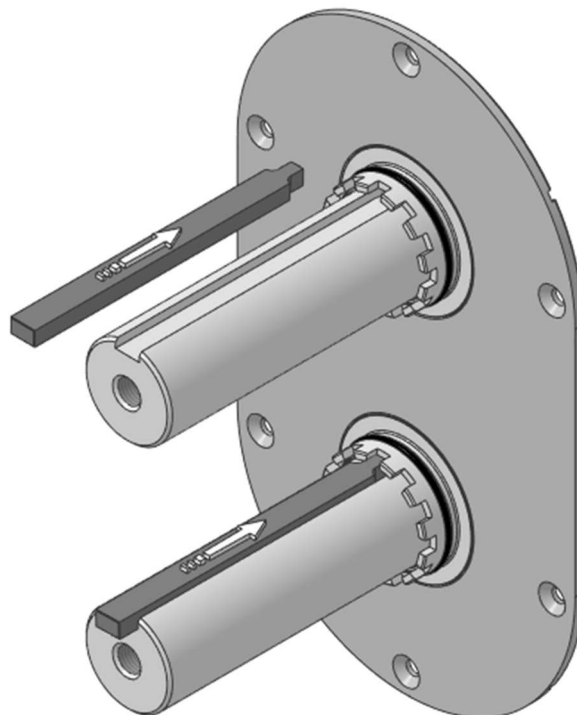
- The crown nut protrudes too far in relation to the wear plate of the buffer chamber side (22) more than 0.5.mm !
 - The rotary lobes now run into the wear plate of the cover (21) which causes friction during rotation with the result that the pump can be rotated heavily with the following consequences.
- **Unnecessary wear and tear on the front of the rotary lobes, and risk of "burning" the rubber !**
 - **Unnecessary wear on the grinding plate of the cover wear plate !**
 - **Unnecessary energy consumption !**

C is incorrect adjustment.

- The crown nut is too far back in relation to the wear plate of the buffer chamber side (22) less than 0.mm !
 - The rotary lobes now run into the wear plate of the buffer chamber (22) which causes friction during running with the result that the pump can be turned heavily with the following consequences.
- **Unnecessary wear and tear on the back of the rotary lobes, and risk of "burning" the rubber !**
 - **Unnecessary wear on the grinding plate of the buffer chamber !**
 - **Unnecessary energy consumption !**

When the crown nuts are correctly adjusted with the correct play, so that the displacers are centered in the middle of the pump chamber again, the keys can be placed back in the shafts, which immediately secures the crown nuts.

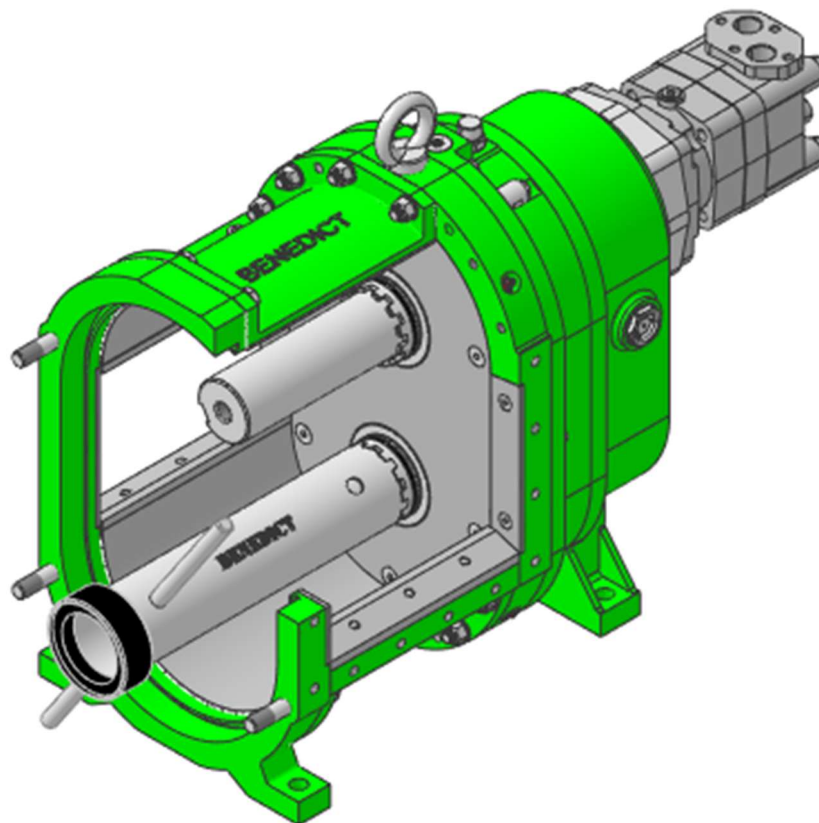
SECURING THE CROWN NUTS.



7.7 Replacing the mechanical seal set. (No. 27)

To replace the mechanical seal kit, proceed as follows:

- Make sure the buffer chamber is empty of liquid by removing the drain plug (37).
- Open the pump chamber (described in § 7.2).
- Then the rotary lobes must be disassembled (described in § 7.4).
- Then the keys (17) must be removed from the axles, so that the cam locking of the crown nut comes out of the seat and it can then be loosened.
- To loosen (counterclockwise) the crown nut (18), place the supplied tool, BPF 175 TOOL over the shaft with the cams of this in the lugs of the crown nut and turn it until the crown nut is off the thread (see below).



- Then remove the half mechanical seal ring including the O-rings from the crown nut and the mounting socket (19) with a suitable tool.



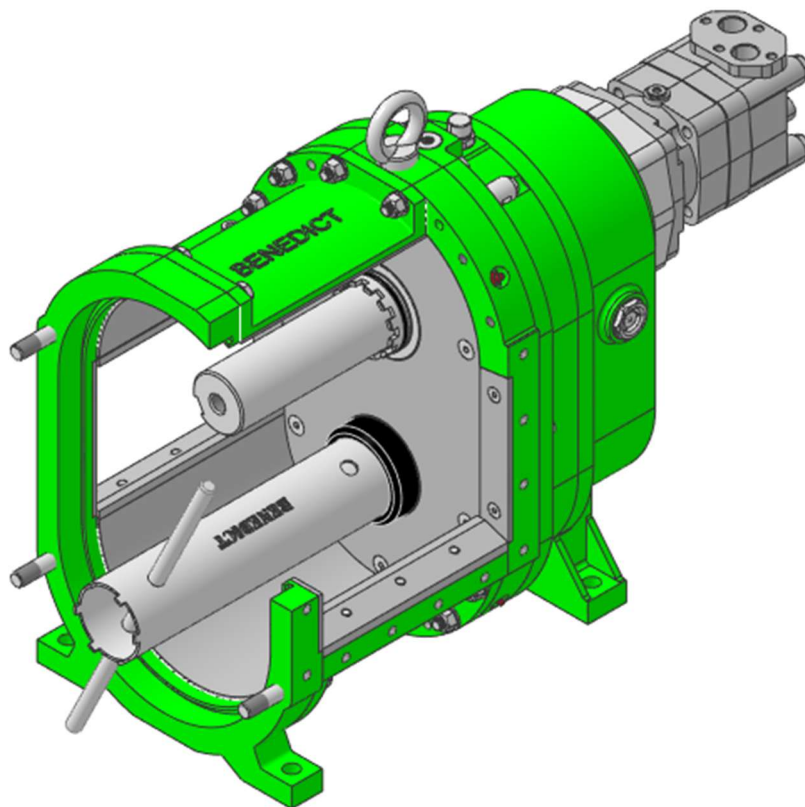
Warning !

Under no circumstances should the O-ring of a new mechanical seal be pushed into the seat with a sharp tool, which could damage it and the mechanical seals are more at risk of leaking ! (this is for all O-rings anyway !)

Always use the PUSH TOOL to assemble the mechanical seals !

	Instruction !
	<p>To ensure that the mechanical seals provide an optimal seal, they should NOT be greasy or be lubricated where they come in contact with the seats.</p> <p>Degrease the seats and O-rings !</p>

- When installing the half mechanical seal into the crown nut and the recording bus, turn the BPF 175 TOOL over and press the sliding ring halves into the seat of the crown nut and the mounting socket with the plastic ring side (**see below**).



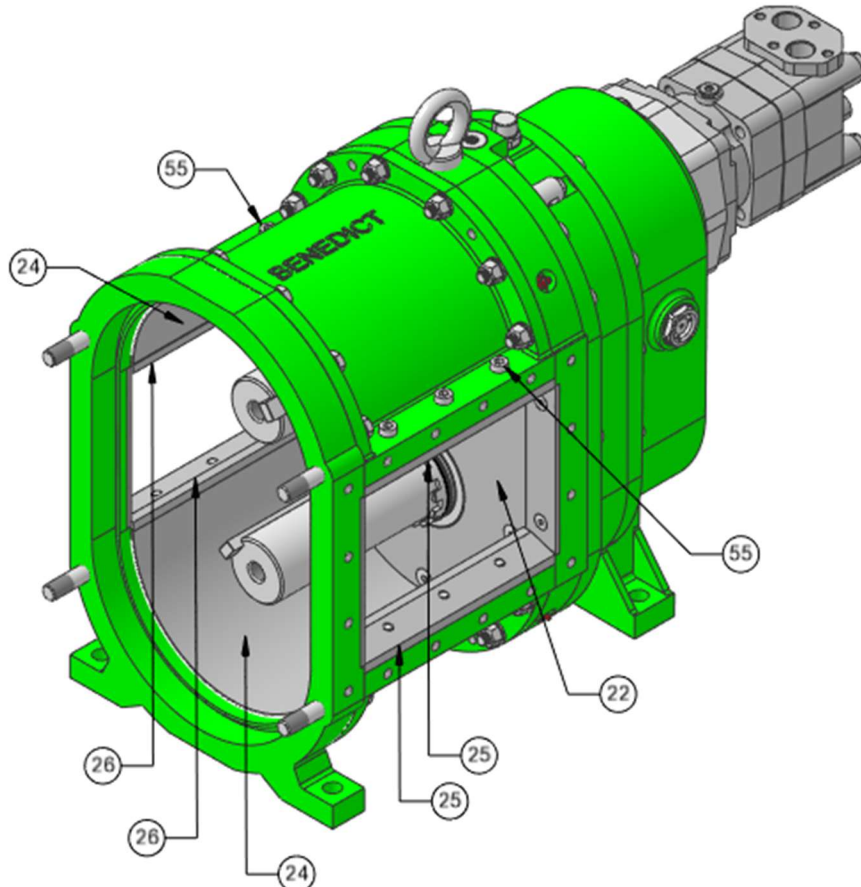
- The crown nut can be placed over the shaft again and tightened with the help of the BPF 175 TOOL (clockwise) and adjusted to **0.3 – 0.4 mm** from the wear plate ([22](#)) on the chamber side (**described in § 7.6**).

	Warning !
	<p>Damage to new mechanical seals is often caused by incorrect use!</p> <p>Make sure the grinded surfaces are not scratched or dirty!</p>

7.8 Replacing the radial wear plates. (No. 24)

To replace the radial wear plates, proceed as follows:

- Open the pump chamber (**described in § 7.2**).
- Then the rotary lobes must be disassembled (**described in § 7.4**).
- Loosen the cylindrical bolts (**55**) that hold the clamping blocks and also hold the radial wear plates in place.
- If the radial wear plates have come loose, they can be pushed out of the pump room and replaced with new ones.
- Insert the radial grinding plates back into the 45° degree slot of the clamping blocks, then push them up to the wear plate of the locking chamber (**22**) and then tighten the cylindrical bolts again.
- First tighten the clamping blocks (**25**) on the suction side and then loosen it half a turn (the clamping block must be able to "set" during tensioning).
- Then tighten the clamping blocks on the press side (**25**) against the bed of the pump housing segments (**6**) so that the radial wear plates are clamped.
- Now tighten the clamping blocks (**25**) on the suction side permanently to a **maximum tightening torque of 50 Nm !**
- The rotary lobes can then be reassembled (**described in § 7.5**).
- The pump chamber can then be closed again by placing the cover in front of the pump chamber and tightening it with the four M.16 eye nuts.

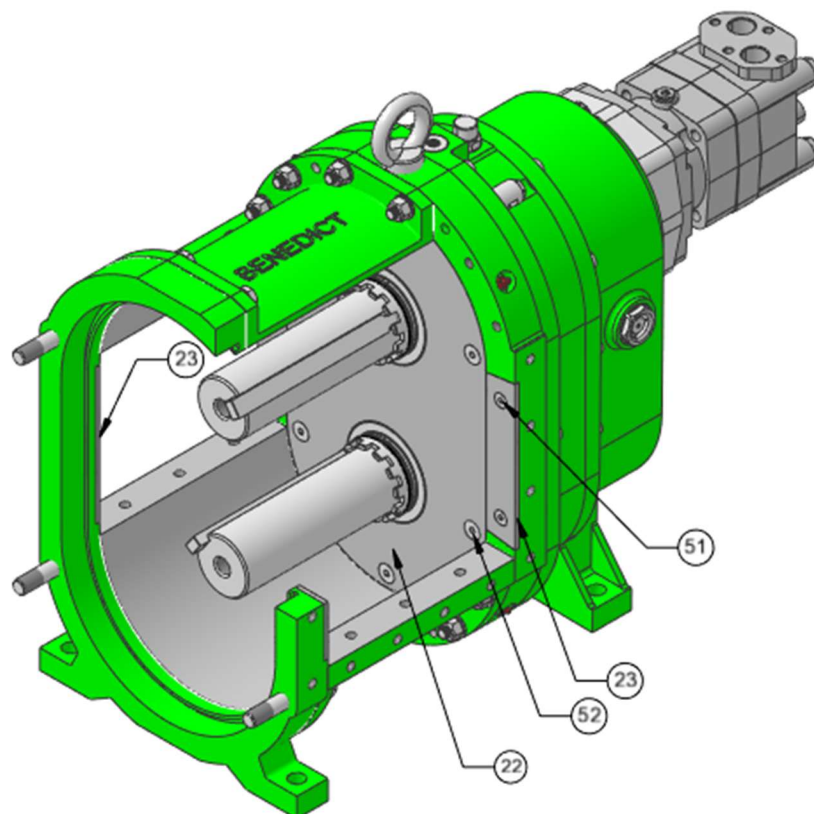


7.9 Replacing the buffer chamber side wear plate and the wear plates on the press- and suction side.

To replace the wear plate (22) and wear plates (23), proceed as follows:

- Open the pump chamber (**described in § 7.2**).
- Then the rotary lobes must be disassembled (**described in § 7.4**).
- The radial wear plates and clamping blocks must then be disassembled (**described in § 7.7**).
- Loosen the countersunk Torx screws (51 & 52) of the wear plates and remove the wear plates from the pump chamber.
- Clean the contact surfaces of the wear plates in the pump room and install the new wear plates.
- Tighten the stainless steel A4 - M.10 countersunk Torx screws (52) in the wear plate (22) on the buffer chamber side with a **maximum torque of 40 Nm !**
- Tighten the stainless steel A4 - M.8 countersunk Torx screws (51) in the wear plates (23) on the press- and suction side with a **maximum tightening torque of 20 Nm !**
- Then adjust the crown nut (**described in § 7.6**) in relation to the new wear plate and then secure it again with the key.
- The rotary lobes can then be reassembled (**described in § 7.5**).
- The pump chamber can then be closed again by placing the cover in front of the pump chamber and tightening it with the four M.16 eye nuts (38).

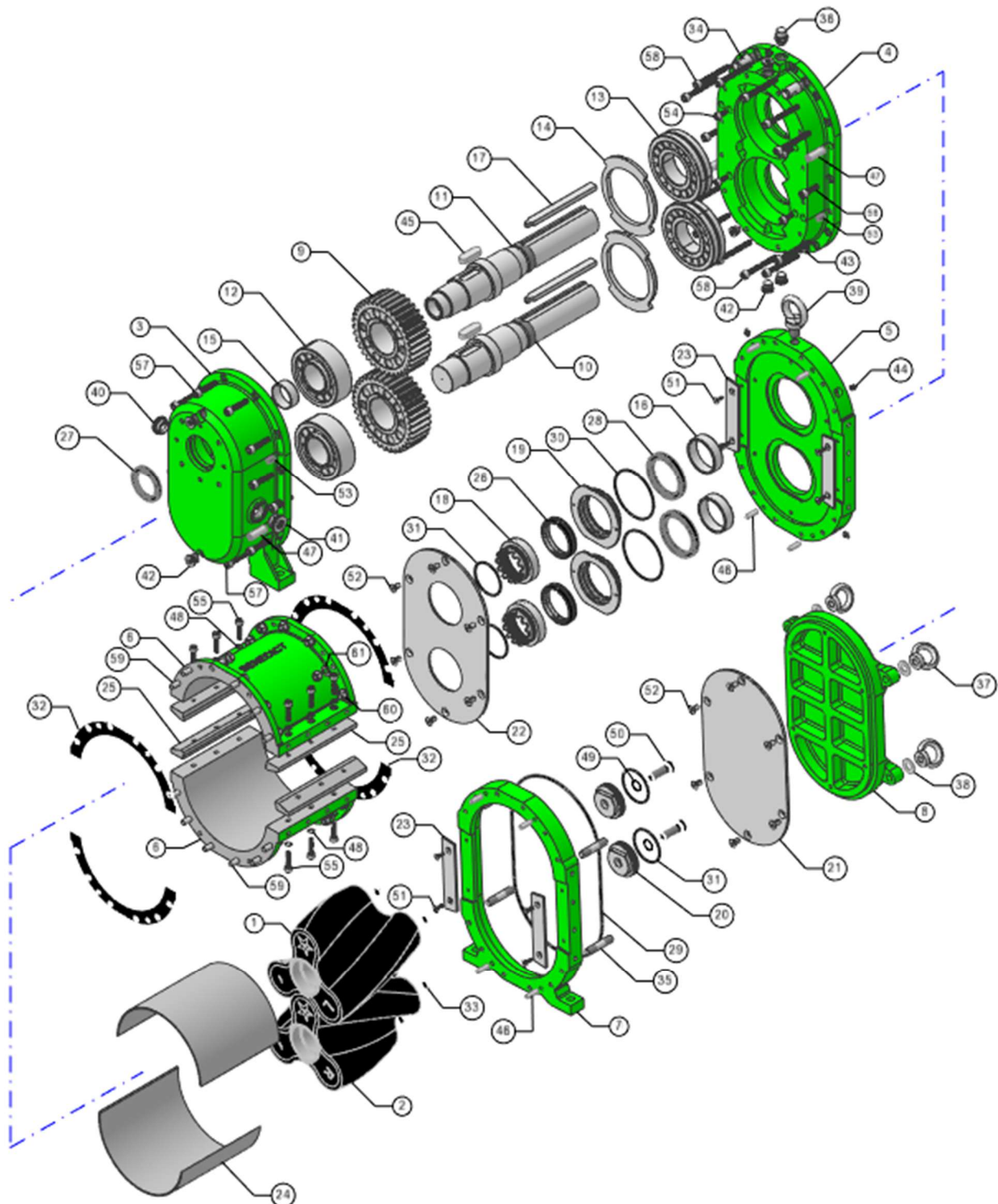
Do not forget to re-lubricate the space between the pump chamber and the slip rings over the four grease nipples (44) (described in § 6.4)



Chapter 8

8 Exploded view and parts list.

8.1.1. Exploded view BPF.175-240 1B. OMT250



8.1.2. Parts list BPF.175-240 1B. OMT250.

PART LIST FOR ROTARY LOBE PUMP BPF.175-240 1B.OMT250 HYDROMOTOR.

POS.	PART NR.	DESCRIPTION	MATERIAL	QUANTITY P.PUMP.
	A175000			
1	A175001	Rotary lobe 240.mm - 3 wing left	NBR	1
2	A175002	Rotary lobe 240.mm - 3 wing right	NBR	1
1	A175003	Rotary lobe 240.mm - 3 wing left	EPDM	1
2	A175004	Rotary lobe 240.mm - 3 wing right	EPDM	1
1	A175005	Rotary lobe 240.mm - 3 wing left	FKM	1
2	A175006	Rotary lobe 240.mm - 3 wing right	FKM	1

	B175100			
3	B175101	Gearbox 140.mm 1B.	A356-T6	1
4	B175103	Gearbox intermediate plate 78.mm	A356-T6	1
5	B175104	Intermediate chambre plate 40.mm	A356-T6	1
6	B175105	Pump housing segment 240.mm	HT250	2
7	B175106	Cover flange of pump housing 40.mm	ZG20MN	1
8	B175107	Cover pump housing	A356-T6	1

	C175200			
9	C175201	Gear	42CrMo4	2
10	C175202	Shaft short / blind	42CrMo4	1
11	C175203	Motor shaft with internal 1.3/8 SAE spline	42CrMo4	1

	D175300			
12	D175301	Cylindrical roller bearing- NJ 2313 ECP	DIN 5412	2
13	D175302	Spherical roller bearing - 21315 E	DIN 635	2
14	D175303	Locking ring bearing	RVS.316	2
15	D175304	Hardened inner ring - IR55x60x25	DIN 5405	1
16	D175305	Hardened inner ring - IR75x85x25	DIN 5405	2
17	D175306	Key 18x11x208	C.45	2

	E175400			
18	E175401	Crown nut mechanical seal	42CrMo4	2
19	E175402	Recording bus mechanical seal	42CrMo4	2
20	E175403	Sealing ring	42CrMo4	2
18	E175404	Crown nut	RVS.316	2
19	E175405	Recording bus	RVS.316	2
20	E175406	Sealing ring	RVS.316	2

	F175500			
21	F175501	Wearplate cover - 6.mm	XAR.400	1
22	F175502	Wearplate intermediate cover - 8.mm	XAR.400	1
23	F175503	Wearplate sides - 5.mm	XAR.400	4
24	F175504	Radial wear plate - 3.mm	XAR.400	2
25	F175505	Clamping module radial wear plate - 20.mm	42CrMo4	4
21	F175508	Wearplate cover - 6.mm	RVS.316	1
22	F175509	Wearplate intermediate cover - 8.mm	RVS.316	1

23	F175510	Wearplate sides - 5.mm	RVS.316	4
24	F175511	Radial wear plate - 3.mm	RVS.316	2
25	F175512	Clamping module suction site - 20.mm	RVS.316	4

	G175600			
26	G175601	Mechanical seal set / Duronit 76.90 / H-45	NBR	2
26	G175602	Mechanical seal set / Duronit 76.90 / H-45	EPDM	2
26	G175603	Mechanical seal set / Duronit 76.90 / H-45	FKM	2
27	G175604	Rotary shaft seal - WAS 60x85x10	NBR	1
28	G175605	Rotary shaft seal - WAD 85x110x13	NBR	2
29	G175606	O-ring cover - Ø.6 x 1176.mm	NBR	1
30	G175607	O-ring recording bus - Ø.4 x 112.mm	NBR	2
31	G175608	O-ring crown nut / sealing ring - Ø.4 x 70.mm	NBR	4
32	G175609	Gasket pump housing segment - 0,5.mm.	PU	4
33	G175610	Sealing cap - Ø.20 x 5.mm	PU	6

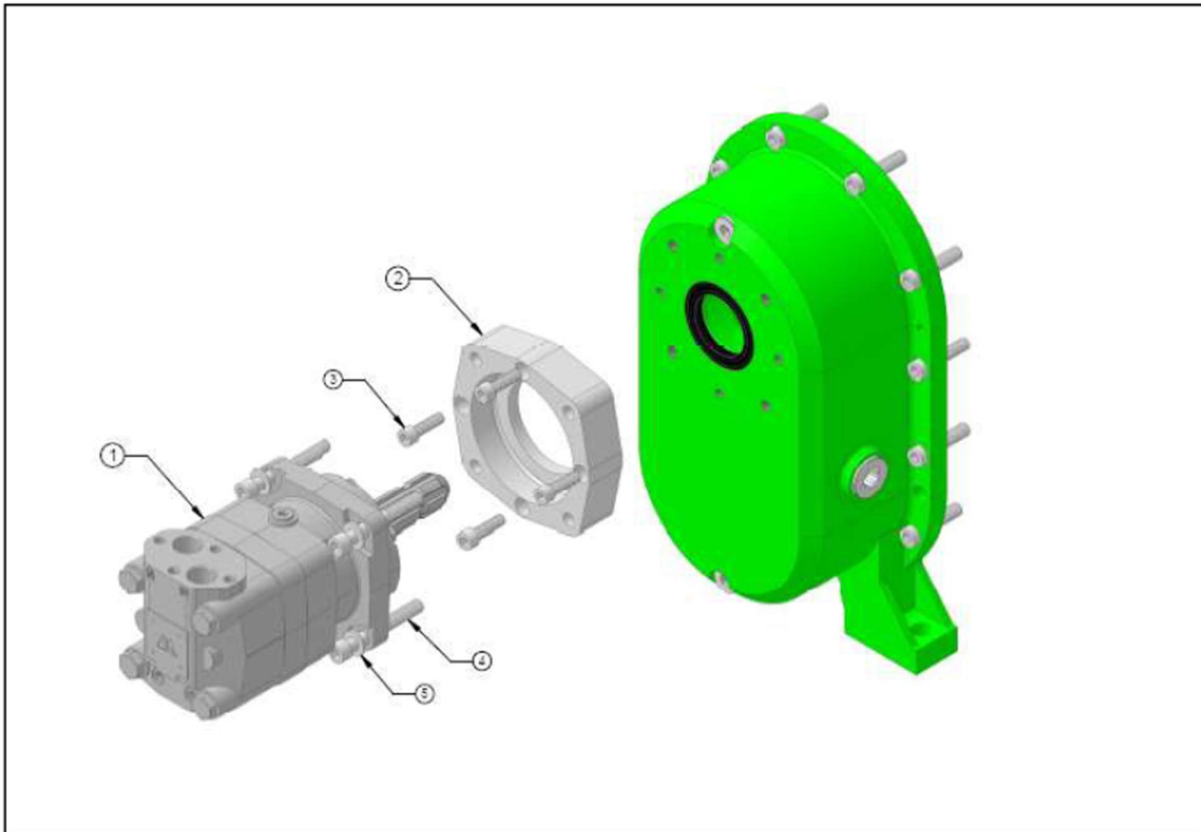
	H175700			
34	H175701	Airvent pipe	A380	2
35	H175702	Stud bolt - M.16x75.mm	S355	4

	BPF1000			
36	BPF1010	Airvent filter - R.1/2"	DIN 939	1
37	BPF1020	Eye bolt - M.16	DIN 582	4
38	BPF1022	Ring cover - Ø.16x35x3.mm	S355	4
39	BPF1025	Eye nut - M.20	DIN 580	1
40	BPF1030	Oil level glass - G1" BSP.	A380	1
41	BPF1040	Screw plug - G1" BSP.	DIN 910	1
42	BPF1042	Screw plug - G1/2" BSP.	DIN 910	5
43	BPF1044	Screw plug - G3/8" BSP.	DIN 910	2
44	BPF1050	Grease nipple - M.10x1.mm	DIN 71412	4
45	BPF1060	Key 20x12x60 / gear	DIN 6885A	2
46	BPF1070	Dowel pin - Ø.10x32.mm	DIN 7 A2	8
47	BPF1072	Dowel pin - Ø.16x50.mm	DIN 7979D	4
48	BPF1080	Seal ring copper - Ø.10x16x1.mm	DIN 7603A	12
49	BPF1082	Seal ring copper - Ø.21x26x1.mm	DIN 7603A	2
50	BPF1090	Hexagon socket head cap screw / low - M.20x50	DIN 6912	2
51	BPF1100	Countersunk screw Torx - M.8x20 A.2	DIN 7991	4
52	BPF1102	Countersunk screw Torx - M.10x20 A.2	DIN 7991	6
53	BPF 1104	Adjusting screw / hexagon socket - M.12x20 A2	DIN 913	4
54	BPF1210	Cylindrical socket head cap bolt - M.10x20 A.2	DIN 912	4
55	BPF1220	Cylindrical socket head cap bolt - M.10x40	DIN 912	12
56	BPF1230	Cylindrical socket head cap bolt - M.12x35	DIN 912	2
57	BPF1240	Cylindrical socket head cap bolt - M.12x50	DIN 912	12
58	BPF1250	Cylindrical socket head cap bolt - M.12x90	DIN 912	12
59	BPF 1260	Hexagon bolt - M.12x40	DIN 933	12
60	BPF1264	Lock nut - M.12	DIN 980	12
61	BPF1274	Lock ring - Ø.12x18x1,5.mm	DIN 125A	24

8.1.3. Exploded view BPF.175-240 1B. OMT250.

PART LIST FOR ROTARY LOBE PUMP BPF.175-240 1B.OMT250 HYDROMOTOR.

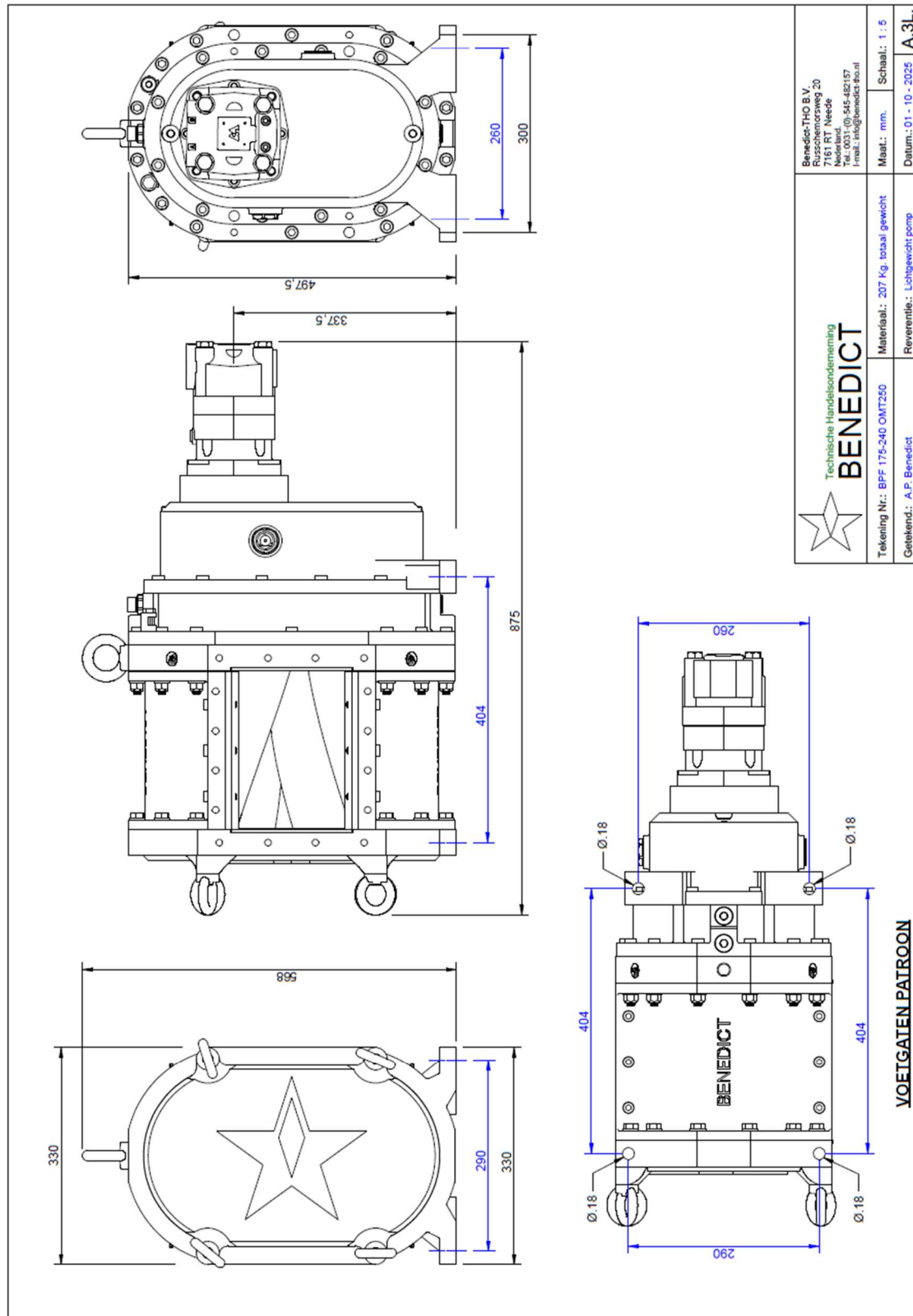
MOUNTING OF THE OMT.250 HYDRAULIC MOTOR TO THE GEARBOX.



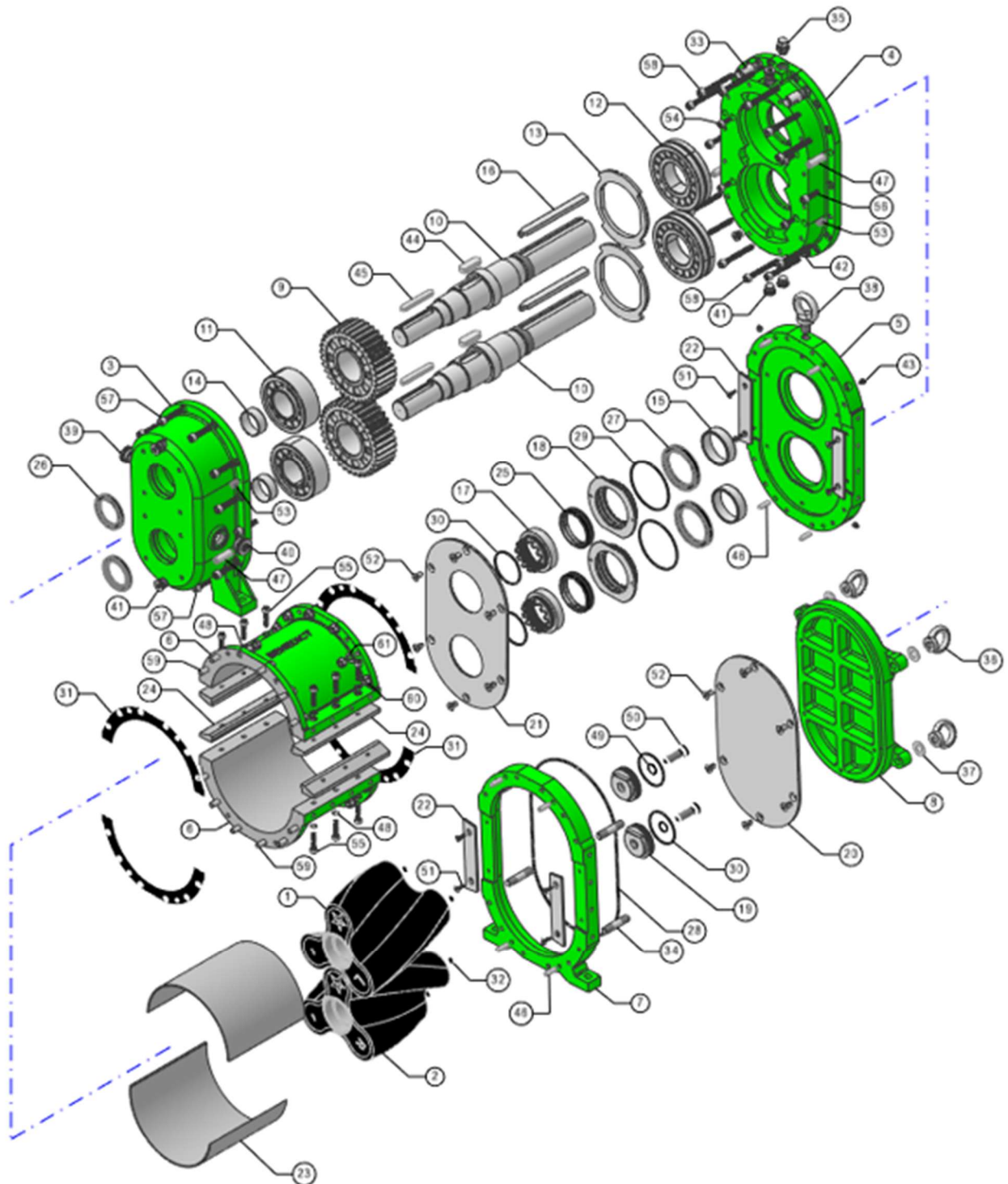
POS.	ARTIKEL NR.	OMSCHRIJVING	MATERIAAL	AANTAL PER POMP
1	Z175901	Hydromotor OMT.250 1.3/8		1
2	Z175902	Hydraulic motor adapter ring	A380	1
3	BPF1220	Cylindrical socket head cap srew M.10x40	DIN 912	4
4	BPF1251	Cylindrical socket head cap srew M.12x90	DIN 912	4
5	BPF1274	Lock ring Ø.12 x 18	DIN 125A	4

8.1.4. Dimensions and measurements.

DIMESIONS LOBEPUMP TYPE / BPF 175-240 1B.OMT250 / 207 Kg. total weight.



8.2.1. Exploded view BPF.175-240 2BO.48



8.2.2. Parts list BPF.175-240 2BO.48.

PART LIST FOR ROTARY LOBE PUMP BPF.175-240 / 2BO.48.SHAFT.

POS.	PART NR.	DESCRIPTION	MATERIAL	QUANTITY P.PUMP.
	A175000			
1	A175001	Rotary lobe 240.mm - 3 wing left	NBR	1
2	A175002	Rotary lobe 240.mm - 3 wing right	NBR	1
1	A175003	Rotary lobe 240.mm - 3 wing left	EPDM	1
2	A175004	Rotary lobe 240.mm - 3 wing right	EPDM	1
1	A175005	Rotary lobe 240.mm - 3 wing left	FKM	1
2	A175006	Rotary lobe 240.mm - 3 wing right	FKM	1
	B175100			
3	B175101	Gearbox 140.mm 1B.	A356-T6	1
4	B175103	Gearbox intermediate plate 78.mm	A356-T6	1
5	B175104	Intermediate chambre plate 40.mm	A356-T6	1
6	B175105	Pump housing segment 240.mm	HT250	2
7	B175106	Cover flange of pump housing 40.mm	ZG20MN	1
8	B175107	Cover pump housing	A356-T6	1
	C175200			
9	C175201	Gear	42CrMo4	2
10	C175202	Shaft with keyway 14 x 100 / Ø.48.mm	42CrMo4	1
	D175300			
11	D175301	Cylindrical roller bearing- NJ 2313 ECP	DIN 5412	2
12	D175302	Spherical roller bearing - 21315 E	DIN 635	2
13	D175303	Locking ring bearing	RVS.316	2
14	D175304	Hardened inner ring - IR 55x60x25	DIN 5405	1
15	D175305	Hardened inner ring - IR 75x85x25	DIN 5405	2
16	D175306	Key 18x11x208	C.45	2
	E175400			
17	E175401	Crown nut mechanical seal	42CrMo4	2
18	E175402	Recording bus mechanical seal	42CrMo4	2
19	E175403	Sealing ring	42CrMo4	2
17	E175404	Crown nut	RVS.316	2
18	E175405	Recording bus	RVS.316	2
19	E175406	Sealing ring	RVS.316	2
	F175500			
20	F175501	Wearplate cover - 6.mm	XAR.400	1
21	F175502	Wearplate intermediate cover - 8.mm	XAR.400	1
22	F175503	Wearplate sides - 5.mm	XAR.400	4
23	F175504	Radial wear plate - 3.mm	XAR.400	2
24	F175505	Clamping module radial wear plate - 20.mm	42CrMo4	4
20	F175508	Wearplate cover - 6.mm	RVS.316	1
21	F175509	Wearplate intermediate cover - 8.mm	RVS.316	1
22	F175510	Wearplate sides - 5.mm	RVS.316	4

23	F175511	Radial wear plate - 3.mm	RVS.316	2
24	F175512	Clamping module radial wear plate - 20.mm	RVS.316	4

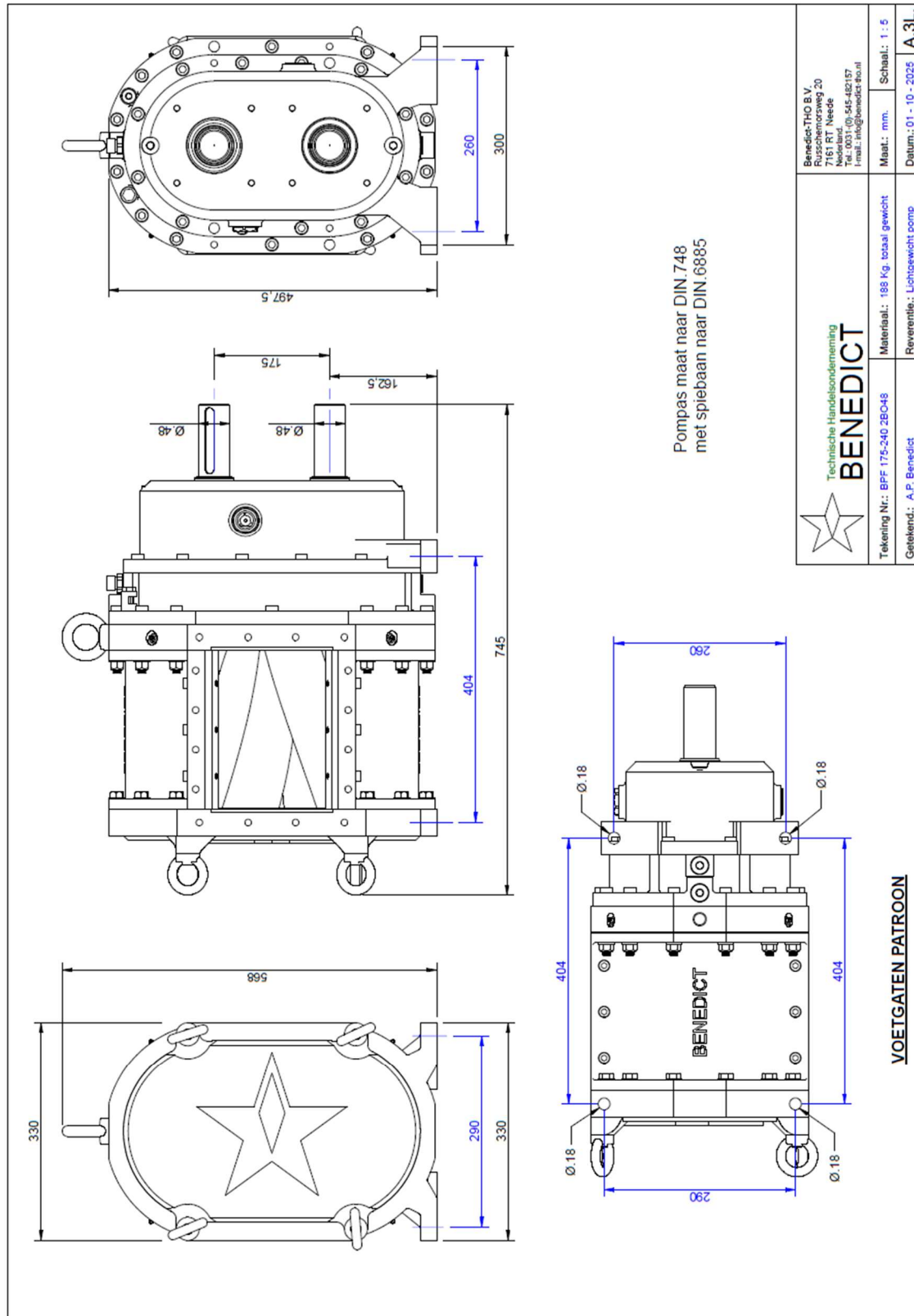
	G175600			
25	G175601	Mechanical seal set / Duronit 76.90 / H-45	NBR	2
25	G175602	Mechanical seal set / Duronit 76.90 / H-45	EPDM	2
25	G175603	Mechanical seal set / Duronit 76.90 / H-45	FKM	2
26	G175604	Rotary shaft seal - WAS 60x85x10	NBR	1
27	G175605	Rotary shaft seal - WAD 85x110x13	NBR	2
28	G175606	O-ring cover - Ø.6 x 1176.mm	NBR	1
29	G175607	O-ring recording bus - Ø.4 x 112.mm	NBR	2
30	G175608	O-ring crown nut / sealing ring - Ø.4 x 70.mm	NBR	4
31	G175609	Gasket pump housing segment - 0,5.mm.	PU	4
32	G175610	Sealing cap - Ø.20 x 5.mm	PU	6

	H175700			
33	H175701	Airvent pipe	A380	2
34	H175702	Stud bolt - M.16X75.mm	SPEC	4

	BPF1000			
35	BPF1010	Airvent filter - R.1/2"	DIN 939	1
36	BPF1020	Eye bolt - M.16	DIN 582	4
37	BPF1022	Ring cover - Ø.16x35x3.mm	SPEC	4
38	BPF1025	Eye nut - M.20	DIN 580	1
39	BPF1030	Oil level glass - G1" BSP.	A380	1
40	BPF1040	Screw plug - G1" BSP.	DIN 910	1
41	BPF1042	Screw plug - G1/2" BSP.	DIN 910	5
42	BPF1044	Screw plug - G3/8" BSP.	DIN 910	2
43	BPF1050	Grease nipple - M.10x1.mm	DIN 71412	4
44	BPF1060	Key 20x12x60 / gear	DIN 6885A	2
45	BPF1061	Key 14x9x100	DIN 6885A	2
46	BPF1070	Dowel pin - Ø.10x32.mm	DIN 7 A2	8
47	BPF1072	Dowel pin - Ø.16x50.mm	DIN 7979D	4
48	BPF1080	Seal ring copper - Ø.10x16x1.mm	DIN 7603A	12
49	BPF1082	Seal ring copper - Ø.21x26x1.mm	DIN 7603A	2
50	BPF1090	Hexagon socket head cap screw / low - M.20x50	DIN 6912	2
51	BPF1100	Countersunk screw Torx - M.8x20 A.2	DIN 7991	4
52	BPF1102	Countersunk screw Torx - M.10x20 A.2	DIN 7991	6
53	BPF 1104	Adjusting screw / hexagon socket - M.12x20 A2	DIN 913	4
54	BPF1210	Cylindrical socket head cap bolt - M.10x20 A.2	DIN 912	4
55	BPF1220	Cylindrical socket head cap bolt - M.10x40	DIN 912	12
56	BPF1230	Cylindrical socket head cap bolt - M.12x35	DIN 912	2
57	BPF1240	Cylindrical socket head cap bolt - M.12x50	DIN 912	12
58	BPF1250	Cylindrical socket head cap bolt - M.12x90	DIN 912	12
59	BPF 1260	Hexagon bolt - M.12x40	DIN 933	12
60	BPF1264	Lock nut - M.12	DIN 980	12
61	BPF1274	Lock ring - Ø.12x18x1,5.mm	DIN 125A	24

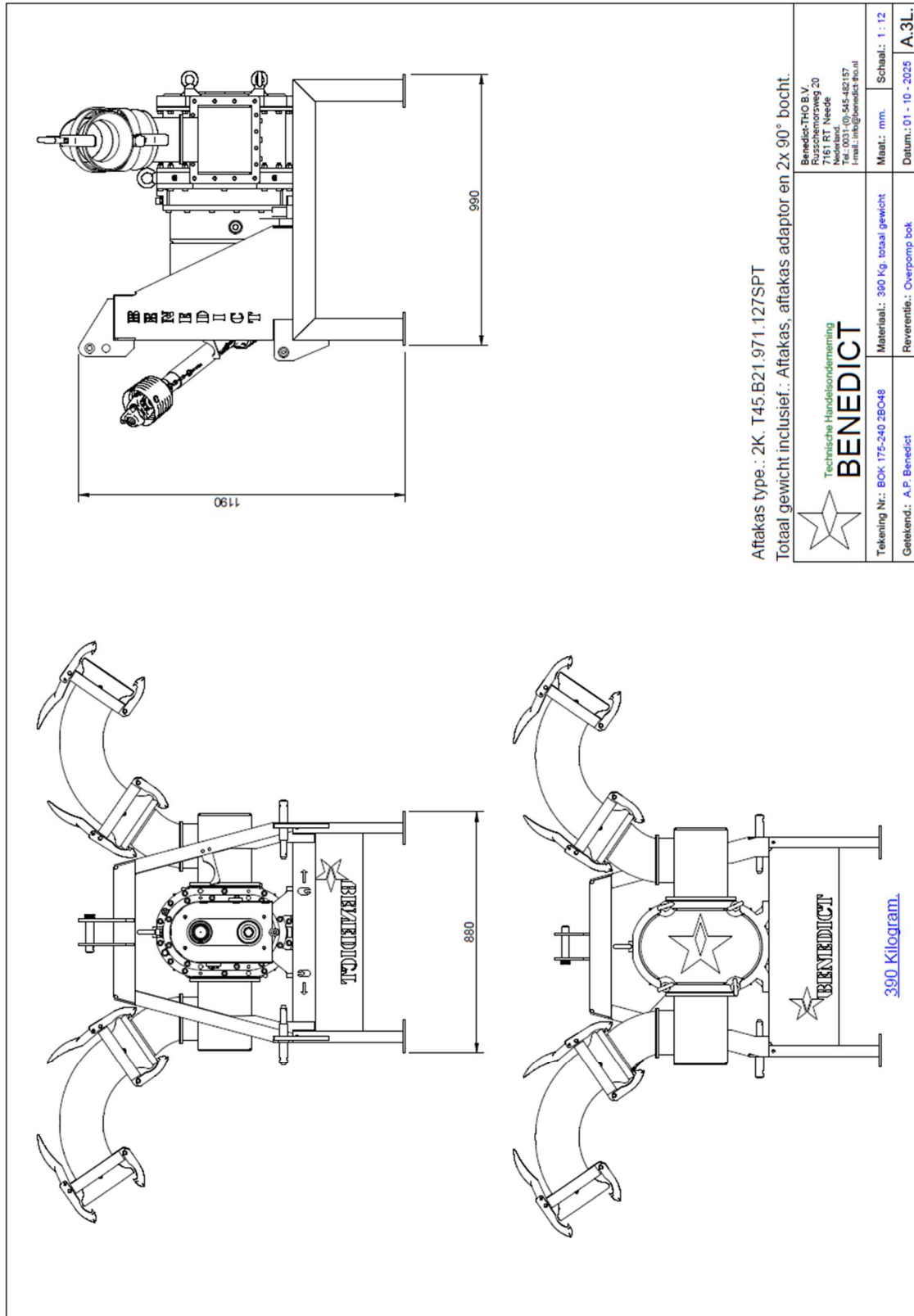
8.2.3. Dimensions and measurements.

DIMENSIONS LOBEPUMP TYPE / BPF 175-240 2BO48 / 188 Kg. total weight.

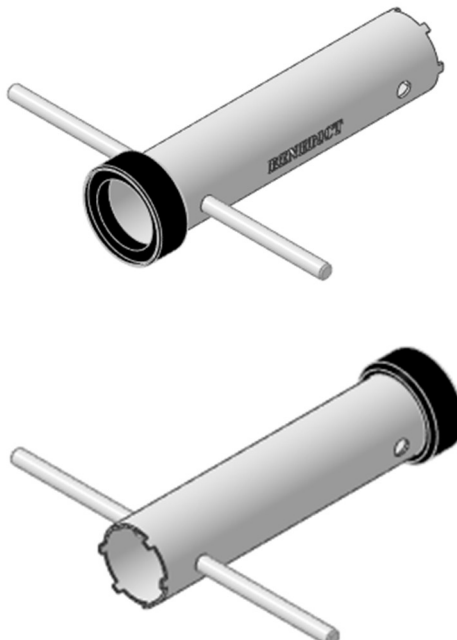
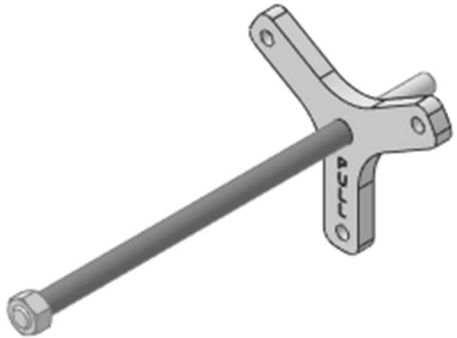
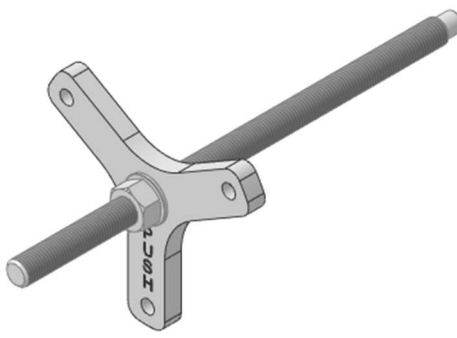


8.3.1. Dimensions and measurements.

DIMENSIONS OVERPUMP UNIT TYPE / TRESTLE 175-240 2BO.48 / 390 Kg. total weight.



8.4 Special assembly tools.

<p>BPF 175 TOOL</p> 	<ul style="list-style-type: none"> • Special pipe tool for loosening and tightening the E175401 crown nut. <p>By changing the position of the handle.</p> <ul style="list-style-type: none"> • Special pipe tool for pressing the mechanical seal into the crown nut E175401 and the recording bus E175402.
<p>BPF 175 PULL</p> 	<ul style="list-style-type: none"> • Special pulling tool for removing the rotary lobes from the shafts. <p>Due the fact that the rotary lobes are helical rotated they must be pulled off the shaft at the same time, it's recommended to use two BPF 175 PULL tools!</p>
<p>BPF 175 PUSH</p> 	<ul style="list-style-type: none"> • Special pushing tool for mounting the roatary lobes over the shafts. <p>Due the fact that the rotary lobes are helical rotated the must be pushed over the shafts at the same time, it's recommended to use two BPF 175 PUSH tools!</p>

Chapter 9

9 Tables.

9.1 Maintenance Instructions Table.

Frequency of preventative & Routine Maintenance

	Initial Startup (See Chapter 4)	30 operating hours after initial startup	Every 100 operating hours	Every 200 operating hours	Every 2000 operating hours And once a Year	More then 60 days out of service
Grease Nipples. Lubricate.	X	X	X			
Buffer Chamber Oil Check.	X	X		X		
Buffer Chamber Oil. Change.					X	
Gear Oil. Check.	X			X		
Gear Oil. Change.		X			X	
Mechanical Seals One Rotation, when not in service. (to prevent the seals from sticking together)						X

	Warning !
	If liquid freezes in the pump chamber, it may damage the pump!
	Make sure there is no liquid in the pump chamber if the temperature drops below zero !

9.2 Table of tightening torques Nm.

Table of tightening torques Nm.

Position Number	Part Number	Description	Material	Maximum torque moment Nm.
Pump Assembly				
50	BPF1090	Hexagon socket head cap screw / low M.20x50	Steel. 8.8	200 Nm.
51	BPF1100	Countersunk screw Torx M.8x20 A.2	SSt. / A2	20 Nm.
52	BPF1102	Countersunk screw Torx M.10x20 A.2	SSt. / A2	20 Nm.
54	BPF1210	Adjusting screw / hexagon socket M.12x20 A2	SSt. / A2	20 Nm.
55	BPF1220	Cylindrical socket head cap screw M.10x20 A.2	Steel. 8.8	50 Nm.
55	BPF1221	Cylindrical socket head cap screw M.10x40	SSt. / A2	40 Nm.
56	BPF1230	Cylindrical socket head cap screw M.12x35	Steel. 8.8	30 Nm.
57	BPF1240	Cylindrical socket head cap screw M.12x50	Steel. 8.8	30 Nm.
58	BPF1250	Cylindrical socket head cap screw M.12x90	Steel. 8.8	30 Nm.
59	BPF1260	Hexagon bolt M.12x40	Steel. 8.8	50 Nm.
Hydraulic Motor Assembly				
3	BPF1220	Cylindrical socket head cap screw M.10x40	Steel. 8.8	30 Nm.
4	BPF1251	Cylindrical socket head cap screw M.12x90	Steel. 8.8	30 Nm.
Pump Flange Assembly				
	BPF1280	Hexagonal flange bolt M.12x35	Steel. 8.8	40 Nm.
	BPF1281	Hexagonal flange bolt M.12x35	SSt. / A2	40 Nm.

The position number in the table above refer to the exploded drawings of:

Chapter 8.1 / Page 22 / Exploded view BPF.175-240 1B. OMT250 .

Chapter 8.2 / Page 24 / Exploded view BPF.175-240 1B. OMT250 hydraulic motor assembly.

Chapter 8.3 / Page 26 / Exploded view BPF.175-240 2BO.48 .

	Recommendation !
	To prevent ' contact corrosion ' between different materials, in this case steel and stainless steel bolts and nuts, and the cast iron- and aluminium pump housing, we recommend cleaning the thread and then applying it to the thread apply a thin layer of anti-seize paste to prevent seizing !

9.3 Table of lubricants used.

Tabel of lubricants used.

	Filling volume	Lubricant	Brand	Viscosity
Buffer chamber	2,75 liter	Mineral oil	*Eurol Hykrol VHLP ISO 68	ISO VG 68
Gearbox	3,75 liter	Mineral oil	*Eurol HPG 80W-90 GL5	ISO VG 200
Grease nipples	20 gram pro nippel	Grease	*Eurol Marine Grease EP 2/3	465 NLGI 2/3

*Product and safety information regarding these lubricants is available upon request!

	Instruction !
	Oil level in the valve chamber should be just above the top shaft! (2.75 ltr. maximum). The oil level in the gearbox should be just above the sight glass! (3.75 ltr. maximum).

If you have overhauled the pump and completely removed the grease from the gaps of the pump chamber around the upper and lower shaft, they must be fully lubricated again!

Lubricate the amount of grease lubrication at the first lubrication of the grease nipples (44) so much that the grease enters the pump chamber between the outer diameter of the crown nut (18) and the wear plate of the buffer chamber (22).

	± 20 strokes of grease per grease nipple would be required following a complete overhaul of the pump! (A new pump is always filled at the factory.)
	± 5 turns of grease per grease nipple should be sufficient for periodic lubrication! (See Table 9.1 / page 30 for maintenance instructions.)

Chapter 10

10.1 Troubleshooting.

Troubleshooting in the case of pump failure.

The pump stops or encounters significant resistance after being switched on.	The pump is no longer drawing in liquid, or is doing so intermittently.	A leak from the vent in the intermediate chamber.	The pump is getting too hot	Vibrations and rattling noises.	Possible cause	Solutions
X					The traction is too weak	Choose a drive with more traction.
X			X	X	The rotary lobe are not properly adjusted	Readjust the crown nut so that the rotary lobe does not press too tightly against the wear plate.
X	X		X	X	The rubber covering of the rotary lobes has swollen and is 'stuck' in the pump chamber.	Check the fluid resistance of the rubber on the rotary lobes.
	X			X	The rubber lining on the rotary lobes is worn or damaged.	Replace the rotary lobes with new ones.
	X				The wear plates in the pump chamber are worn out.	The wear plates in the pump chamber have been replaced.
X					Blockage in the pump chamber.	Remove the pump housing cover and inspect the pump chamber.
	X				Leak in the suction line.	Check the suction line and connections for leaks.
				X	The pump drive shaft is not aligned.	Check whether the pump drive shaft and the external motor are aligned.
		X			The mechanical seals are leaking.	Remove the mechanical seals and replace it if necessary.

Chapter 11

11 Technical Data.

11.1 Technical Data Pump BPF 175-240.

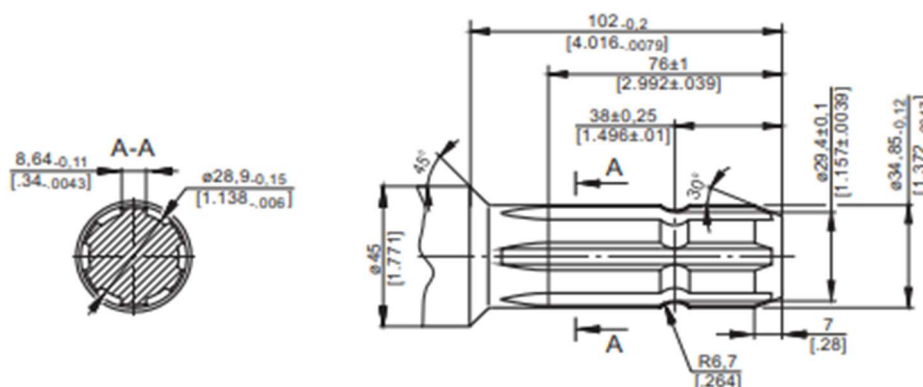
BPF 175-240.

- **Theoretical volume:** 10.70 liters per revolution.
- **Maximum speed:** 600 min⁻¹.
- **Max. capacity:** 380 m³/h.
- **Maximum working pressure:** 5 bar.
- **Ball passage pump chamber:** Ø.75 mm.

11.2 Technical Data hydromotor OMT.250.

OMT.250 1.3/8 - 6.Teeth.

- **Type:** OMT 1.3/8 – 6 teeth.
- **Main port connection:** 3/4" BSP.
- **Drain port connection:** 1/4" BSP.
- **Diameter shaft:** 34,93.mm – (1.3/8").
- **Type shaft spline:** P.t.o. 6 teeth 1.3/8."
- **Mounting flange:** SAE A flange 4 holes Ø.14.mm.
- **Maximum oil flow:** 125 l/min.
- **Maximum pressure cont. :** 200 bar.
- **Maximum pressure int.:** 240 bar.
- **Maximum pressure peak:** 280 bar.
- **Stroke volume:** 251,8 cc.
- **Maximum speed:** 500 RPM.
- **Minimum speed:** 8 RPM.
- **Maximum output:** 33,5 kW.
- **Maximum torque:** 730 Nm.
- **Total length pump:** 335 mm.
- **Total weight pump:** 20,8 Kg.



Chapter 12

12 EU Declaration of Conformity / EU Declaration of Installation.

12.1 EU Declaration of Conformity.

EU Declaration of Conformity

This declaration of conformity is issued under the full responsibility of the manufacturer.

The manufacturer:

Benedict pompen fabriek b.v.
Russchemorsweg 20
7161 RT Neede
Netherlands.

Product of the declaration:

- Product: Rotary Lobe Pump
- Model / type: BPF 175-240
- Year of construction: from 06-2026

The subject matter described above is in accordance with the relevant Union harmonisation legislation:

- **Directive:** Machinery Directive 2006/42/EC.

The following harmonized Standards were applied:

- **DIN EN ISO 809:2012-10** Pumps and pump units for liquids General safety requirements.
- **DIN EN ISO 12100:2011-03** Safety of machinery – Basic concepts for design – Risk assessment and risk reduction.

Document authorised representative and undersigned:

Neede: 01/06/2026.

Andreas Benedict

Andreas Benedict – Director.

12.2 EU Declaration of Incorporation.

EU Declaration of Installation.

This declaration of incorporation is issued under the full responsibility of the manufacturer.

The manufacturer:

Benedict pompen fabriek b.v.
Russchemorsweg 20
7161 RT Neede
Netherlands.

Product of the declaration:

- Product: Rotary Lobe Pump
- Model / type: BPF 175-240
- Year of construction: from 06-2026

The subject matter described above is in accordance with the relevant Union harmonisation legislation:

- **Directive:** Machinery Directive (2006/42/EC) Annex IIB concerns an incomplete machine.

The relevant essential health and safety requirements have been applied and described in this manual.

The incomplete machine may only be put into operation when it has been established that the machine in which the incomplete machine is installed complies with the requirements of the Machinery Directive (2006/42EC).

The following harmonized Standards were applied:

- **DIN EN ISO 809:2012-10** Pumps and pump units for liquids General safety requirements.
- **DIN EN ISO 12100:2011-03** Safety of machinery – Basic concepts for design – Risk assessment and risk reduction.

The manufacturer undertakes to send the specific documents relating to the incomplete machine to national authorities electronically on request.

The specific technical documents relating to the machinery in accordance with Annex VII Part B have been drawn up.

Document authorised representative and undersigned:

Neede: 01/06/2026.

Andreas Benedict

Andreas Benedict – Director.