

FEUER- LÖSCHTECHNIK *FIRE FIGHTING*

BEDIENUNGS- UND WARTUNGSANLEITUNG OPERATION AND MAINTENANCE MANUAL

**ISTRUZIONI PER L'USO E LA MANUTENZIONE
INSTRUCTIONS DE SERVICE ET DE MAINTENANCE
INSTRUCCIONES DE SERVICIO Y MANTENIMIENTO
INSTRUKCJA OBSŁUGI I KONSERWACJI
РУКОВОДСТВО ПО ОБСЛУЖИВАНИЮ И ТЕХУХОДУ**

Feuerlöschtechnik *Fire Fighting*



Fire Fighting Pump NP 4000

FPN 15-3000

with VACUMAT

Specifications as per Acknowledgement of Order

Order No.:

Pump Identification No.:

1. Description of the Fire Fighting Pump

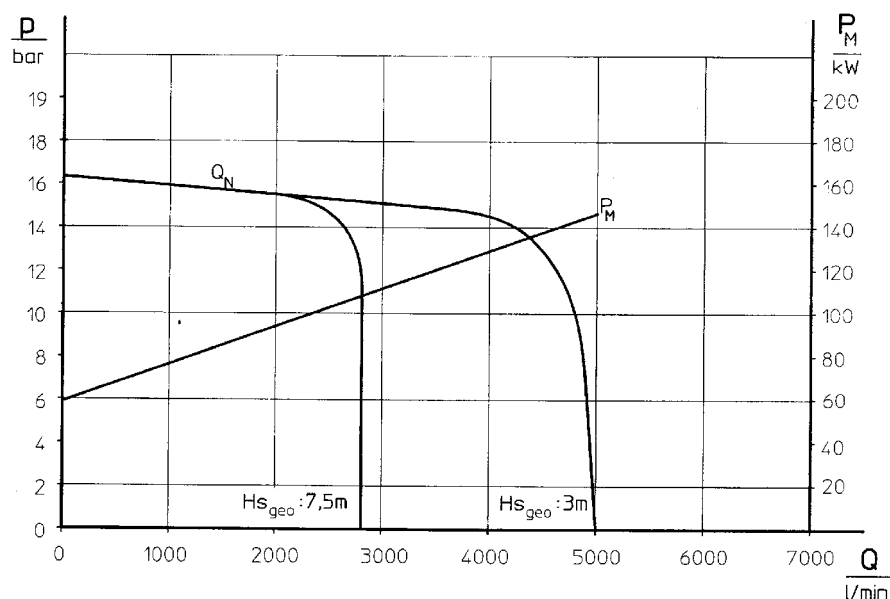
1.1 General information

This rotary pump has been designed especially for fire fighting purposes. It can be mounted on a fire fighting vehicle. The vehicle engine drives the pump via an auxiliary drive with a universal joint. But integration into a Diesel engine driven pumping unit is also possible. The main feature of a fire fighting pump is its constant state of readiness. But only by faithfully observing all operating and maintenance instructions is it possible to reduce the time required to start pumping operation to a minimum. This operation manual should be made available to the operator.

1.2 Specifications

Flow rate	l/min	3000
Rated pressure	bar	15
Rated speed	min ⁻¹	2500
Max. flow rate at 3m head	l/min	ca. 5000
Max. pressure	bar	17
Optimum suction speed	min ⁻¹	1500 - 2200
Max. speed	min ⁻¹	2700
Venting time for 7,5 m suction head (with suction hoses DN 125)	s	ca. 25
sense of rotation of pump (look on shaft)		clockwise

Performance diagram



1.3 Rotary pump

The suction end of the single stage pump carries various couplings with suction basket and stop valves (Option). Connections for the pressure/vacuum gauge are provided.

The pump shaft of stainless steel runs in permanently lubricated deep groove ball bearings. It is sealed on the pump case side by a maintenance-free slide seal. The pump can be drained by the drain cock on the bottom of the pump case. There is an extra drain cock at the suction end.

Option Thermal Bypass

When the pump is running at a low flow rate the overheating of the water in the pump case is automatically prevented by a thermostat which opens a bypass at approx. 55 - 60° C and drains the hot water from the pump case.



Caution!

When mounting the pump on a vehicle the vehicle manufacturer has to provide the supports for the pipe lines and hoses on the suction and the delivery end to avoid breakage at the pump base or at the couplings.

When installing the lines of the thermostat preventing the overheating and the vent lines make sure that they cannot hamper or endanger the operating crew.

1.4 Venting

The vent pump, driven by a toothed belt, vent the rotary pump and the suction hoses until the pump draws water and builds up pressure. The vent pump is driven via an electromagnetic clutch and is automatically switched off when the pressure exceeds 0.8 bar.

At the standard type pump the vent pump is push button controlled and switched off by a manometric switch. By connecting the vent pump to a NO contact the can be automatically controlled by the pump head. This alternative should not be adopted when the pump is connected up to a water tank because no venting is necessary when drawing water from a tank.

When pumping bilge water with less than 1 bar head the automatic activation of the vent pump must be avoided.

If the pump unit is mounted on a vehicle with an integrated water tank electromagnetic valves prevent drainage from the tank when the pump is not in action. Control of the valve is synchronized with the vent pump.

1.5 Head valves

The B-head valves which are flanged to the water distributor are normally closed i. e. even if the valves are open springs force the valve disks onto the valve seats. This enables priming the pump with the valves being open. When the pump produces pressure the valve disks are lifted off their seats. To avoid backlash pull out the lateral retaining pin and unscrew the the valve stem right to the stop. In this way the valve disks are lifted off their seats and pipes located above the pump can be drained



Caution!

If the head valves provided are to be replaced by a different type of valve a check valve has to be installed to facilitate venting.

1.6 Material

Pump case and impeller are of sea water-steady Aluminium. All other parts which get into contact with the liquid medium (pump shaft, standard parts etc) are of stainless steel.

The seals are of NBR (acrylnitril-butadien synthetic rubber)



2. Safety

This manual lists the fundamental safety rules for the installation, operation and maintenance of the pump.

The engineers, fitters and operators responsible for the pump should read this manual prior to its installation and use.

This manual must be available at the pump when in operation.

Observe not only the safety rules mentioned under this heading but also the safety rules mentioned in the other chapters of the manual.

According to the EU directives for machinery this pump is an integral part of machinery. A written statement by the manufacturer concerning the EU directive is available. A certificate of conformity for the aggregate (fire fighting vehicle) has to be obtained.

2.1 Qualifications and training

The personnel responsible for the installation, operation, maintenance and supervision has to be appropriately qualified. The management has to issue directions as to responsibility, duties and supervision. Unqualified operators have to be trained accordingly.

2.2 Dangers resulting from non-observation of safety rules

Non-observance of safety rules may entail hazards to people, machine or environment.

Non-observance of safety rules may render the warranty invalid.

In particular, it may impair

- proper working of the pump unit
- maintenance and repair work of the pump
- hazards to persons by electrical, mechanical or chemical causes
- the environment by the leakage of hazardous substances

2.3 Safe operation

Strictly observe the safety rules of this manual, any additional national rules for the prevention of accidents as well as any local safety rules.

2.4 Safety rules for the operator

The customer is responsible for providing suitable guards for hot or cold parts of machinery that might present potential hazards.

Guards from moving parts (e. g. clutch) must not be removed during operation.

Leaking hazardous (hot or poisonous) liquids (e. g. at the shaft seal) have to be evacuated in such a way that hazards to persons or the environment are avoided.

Observe any additional rules issued by the authorities.

Do not squirt the water jet in direction of any persons.

Take care to exclude any hazards from electrical energy supplies. For details see VDE rules or those of the local power works.

2.5 Safety rules for installation, maintenance and check-up

The customer has to make sure that all installation and maintenance work, as well as check-ups, is carried out by authorized and qualified personnel only. Any work on the pump to be carried out only with the pump switched off. Make sure to follow the shut down procedure for the pump as laid down in this manual.

Pumps and pump aggregates delivering health hazardous media have to be decontaminated.

After the maintenance work, all guards and safety devices have to be put back into place. Prior to starting the pump again take notice again of the instructions headed "Starting operation"

2.6 Unauthorized alterations

Modifications and alterations are subject to authorization by the manufacturer. Genuine spare parts from the manufacturer and authorized accessories are essential for the safety of the equipment.

If any unauthorized spare parts have been used any claim under the warranty clause becomes invalid.

2.7 Unauthorized mode of operation

Strictly observe the instructions under Par. 1 of this manual to make sure the pump works properly. The limits set out under "Specifications" must not be exceeded.

3.0 Mode of operation

Pump performance will decrease with increasing suction head

The pump should be located as near to the water supply as possible.

To prevent airlocks make sure to avoid the formation of loops in the suction line higher than the suction port.

There is quite a number of factors responsible for the differential between the manometric and the geodetic head: Length and diameter of the suction hose, resistance of the strainer basket, atmospheric pressure, and water temperature.

4.0 Tips for transport, storage, installation and safety

4.1 Transport

For transportation, fix the fire fighting pump on a pallet. Pumps on pallets cannot be stacked on top of each other. To move the pump the pallet has to be lifted.



Caution! Do not use pump fixtures for attaching the pump to a crane.

4.2 Storage

If the pump is stored in a dry place no special precautions are necessary for about a whole year. At the threat of frost, however, make sure to drain the pump completely.

4.3 Installation

If the pump is to be mounted on a vehicle it has to be fastened to it by the pedestal or chassis.

The drive flange has to be fixed by screws of 10.9 quality.



Caution! If heavy pipes or fixtures have to be flanged to the intake or the tank make sure to prop them up properly on the vehicle.

Any hose or pipeline flanged to the tank, the delivery port or an extension has to be stressfree. It may be advisable to connect up the pipes by way of a hose.

To evacuate the drainage e. g. of the VACUMAT, the by-pass, the drain cock run the hoses below the vehicle.

The connections of the pressure meters have female threads of G 3/8" and tube joints of 8 mm ext. diam. The tubes from the pressure-meters have to slope towards the pump.



Caution! Mandatory safety devices for the vehicle

A by-pass to **protect the pump against overheating** is mandatory. A thermostat valve is fixed to the spiral pump casing for the purpose.

The pump has to be protected against excessive pressure. A manometric switch is optional.

The speed control of the vehicle can be made use of for controlling the NC switch. It has to be set to open at a **pressure of 17 bar**.

The drive shaft and the drive shaft flange have to have guards **to prevent contact**. The guards for the toothed belt of the VACUMAT have been provided by the manufacturer. Where applicable, flap valves have to be fitted to the delivery ports to prevent the pressure inside the pump to exceed 17 bar.

5.0 Operation of the rotary fire fighting pump

5.1 Starting up

5.1.1 Water supply from rivers, lakes, and reservoirs

- Place the fire fighting vehicle as close to the body of water as possible.
- Lay out the suction hoses and connect them to the pump. Avoid airlocks.
- Immerse the suction basket at least 20 - 30 cm below the water surface. The higher the performance the deeper put in the basket. To prevent the clogging of the suction basket put a screen round it. Shut the drain cocks under the pump and under the suction port.
- Close all delivery ports
- Close those suction ports that are not required. And open the required stop valves.
- Start engine
- Set a speed of 1500 - 2200 rpm. The priming cycle is completed as soon as the gauge registers pressure and the vent pump deliver no more water. The vent pumps will by then have been shut off automatically by the pressure switch.
- The pump should not run dry for more than 6 minutes.
- Gradually open the valves required and open the throttle until the desired head is reached.



Caution!

Maximum pressure $p_{a \max}$ in normal pressure pump must not exceed 17 bar !

4.1.2 Hydrants

- Close drain cocks and delivery ports.
- Connect suction hose to hydrant and pump.
- Open required stop valve and close those suction ports that are not required.
- Turn on hydrant.
- Switch on the pump. As soon as the gauge (on the right) registers head pressure, gradually open the required delivery or ball valves.
- Set throttle to the required head pressure.



Caution!

The input pressure p_e must not exceed 5 bar !

The water being fed to the pump with a certain pressure, the vacuum/pressure gauge will deflect to the right. Watch the gauge constantly. The more water the pump draws from the hydrant the more the feed pressure will drop. It should not drop below 0.5 bar. When the pressure gets near that mark throttle down accordingly. Otherwise the feed hose might collapse and reduce or even stop the water supply, or air might get sucked in.

5.2 Performance during operation

- Constantly watch the gauges. An experienced operator will obtain useful information from their readings. If, for instance, the vacuum-meter registers growing negative pressure the suction basket is likely to be clogged (viz. Chapter 5)
- The delivery pressure has to be adapted to the quality or state of the hoses.
- -Do not run the pump at full throttle when all delivery ports are closed lest the water inside the pump gets too hot. Throttle down in good time. At 55° C the bypass opens automatically and the hot water will be discharged. (Option)
- Head valves and branch cock should be opened and closed gradually (Backlash!)
- Avoid cavitation. When the engine speed is stepped up but the pressure does not increase whereas the vacuum on the feed side is rising instead and the pump is getting noisy, it is a sign for cavitation.

5.3 Drainage work

This type of pump pump is suitable for drainage. In view of the low head in drainage work run the engine at low speed to avoid cavitation.

5.4 Ending operation

- Throttle down the engine and let engine cool off. Stop engine
- In case of hydrant water supply, shut off hydrant.
- Open drain cocks
- Disconnect suction and delivery hose lines.
- If polluted, aggressive, or sea water had been pumped rinse the pump with clear water e. g. from a hydrant. Switch on the pump button to rinse also the vent pumps.
- Run the dry priming test.

5.5 Antifreeze precautions

At very low temperatures, the waterflow through the pump and the hoselines have to be kept going to prevent them from freezing up.

After ending the operation, carefully drain all parts that carried water. After draining, switch on the pump again and run it with the idling engine for about 30 seconds.

During long frost periods, pour about 2 l antifreeze into the suction port while the pump is running.

6.0 Trouble shooting

Below are listed a few potential disturbances that may occur with the pump or the hose lines. By closely watching the instruments (vacuum, pressure, engine speed) the operator can diagnose the trouble during operation. If you are unable to correct the faults yourself get into touch with a franchised dealer or our after sales service.

Trouble	Cause	Remedy
No vacuum, inspite of priming for some time.	Vent-, ball-, or drain cock of pump open Suction basket not deep enough in the water Leaks in suction line. Couplings not tightened. Leak in suction hose Leaking head valve	Close cocks Suction basket at least 30 cm below water surface Tighten coupling. Replace hose Try fixing blind coupling Replace valve seal
If none of these applicable, run a dry priming test	Vent pump clogged or faulty. Check if air is forced through vent ports Ball cocks leaking Faulty shaft seal.	Rinse vent pumps Dismantle vent pumps Replace seals Replace slide ring sealing
High vacuum but no or only little water	Check valve in the suction basket blocked or frozen. Suction strainer or feed port clogged	Thaw, clean or replace strainer basket Clean or replace strainer
Water delivery stops after priming. Water jet being interrupted repeatedly.	Pressure valve is fully open Suction basket not deep enough in water. Sucks in air. Leak in suction line (Couplings!)	Open only slightly Lower suction basket Seal or replace
Irregular water jet at the branch.(bangs from air pockets) Pressure fluctuates	If air pockets continue in jet the eddy round the suction basket sucks in air. Leaks in pump or feed line	Lower suction basket Seal pump, Replace suction hose.
Head drops suddenly (not to zero) Vacuum rises	Delivery hose burst	Shut pressure valve and replace hose
Head drops gradually. Vacuum rises	Suction line clogged (Suction basket, strainer in feed port) At the manifold another delivery port has been opened or larger nozzle size in branch	Reduce speed to idling mode. Switch off pump. Clean suction basket and hose Open throttle until required engine speed is reached
Head rises gradually. Vacuum drops	At the manifold a delivery port has been closed or branch nozzle diam. reduced.	Reduce engine speed until delivery pressure is reached.

7.0 Care and maintenance

Carry out regular checks and maintenance to ensure constant readiness of the pump.



Caution! Check yearly the thermostat valve. When the pump is running with closed head valves, the thermostat valve opens a bypass at approx. 50 – 55 °C.

7.1 After each operation

After each operation or exercise clean the pump and fix any damage or shortcoming. Make sure that all screws and bolts are tight.

Clean strainer basket.

Run a dry priming test

Take antifreeze precautions, if necessary

Check the seals of the suction lines.

7.2 Dry priming test

After each operation, at least every three months, a dry priming test should be run. In this way, you make sure that the pump seals are tight and the venting system works properly.

Proceed in this way:

Close suction port with a dummy coupling

Close head ports with the handwheel. Then take off the dummy couplings from the head valves again

Close drain cocks

Start engine and switch on pump (priming speed 1500 rpm . . . rated speed)

Within 30 seconds a vacuum of 0,8 bar has to be reached. Stop pump and engine.

The vacuum obtained should not drop more than 0.1 bar during one minute

Should the vacuum of 0.8 not be reached or drop more quickly than mentioned above the pump has a leak

Find the cause, repair the damage and rerun the test.

Troublefree priming with correct build-up of head pressure and cut-out of the vent pump depends not only on the state of the pump alone.

Other factors are:

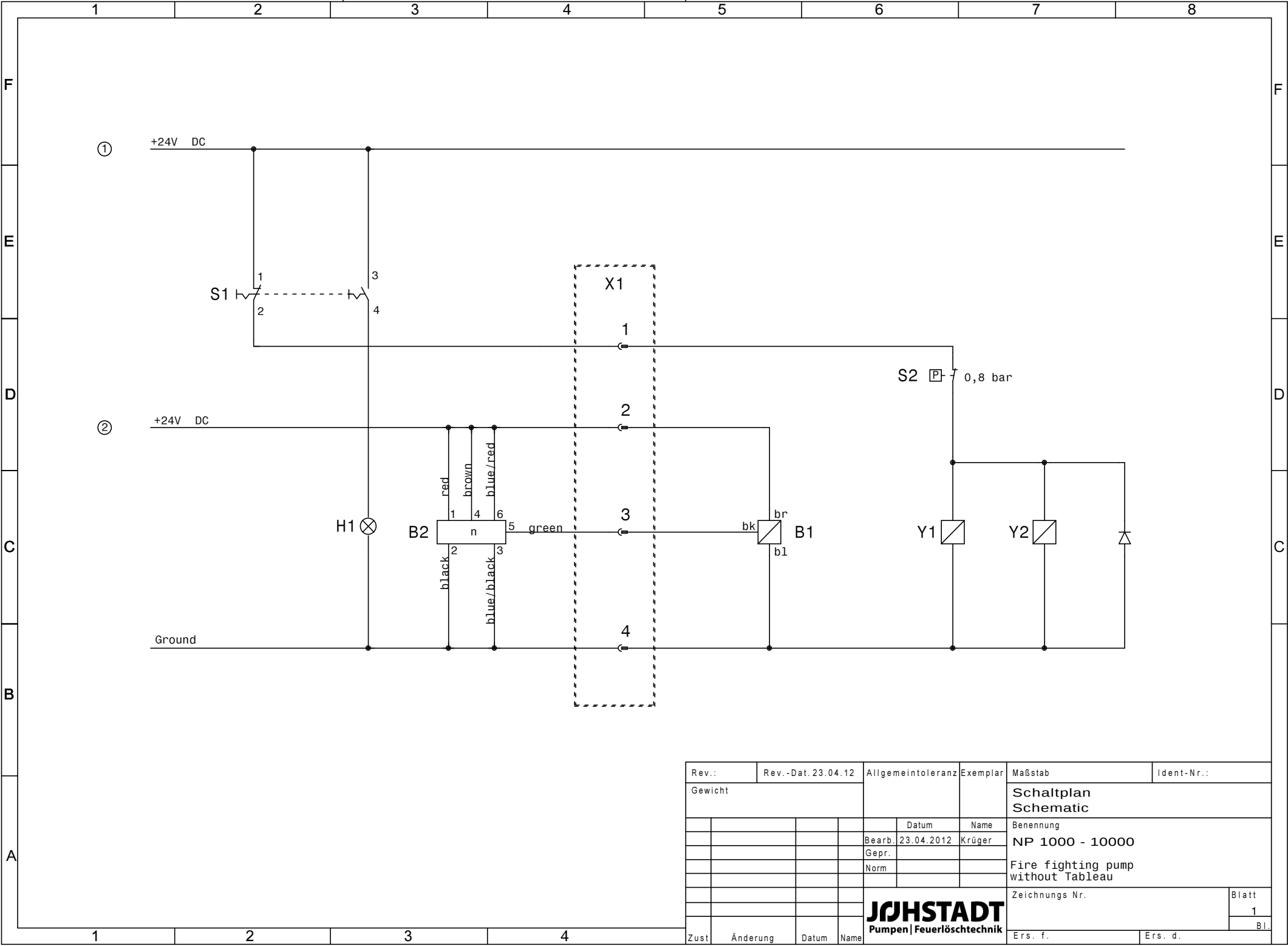
Leakproof suction hose lines.

Operative water supply.

Should there have been trouble with the water intake during an operation or exercise, the cause of the trouble has to be established after the operation.

If the dry priming test was alright the cause of the trouble cannot be in the pump.

Once every twelve months a dry priming test should be run with 2 or 3 suction hoses connected up. The dry hoses should be moved about at the couplings to detect any leaks. Repair or exchange any leaking suction hose.



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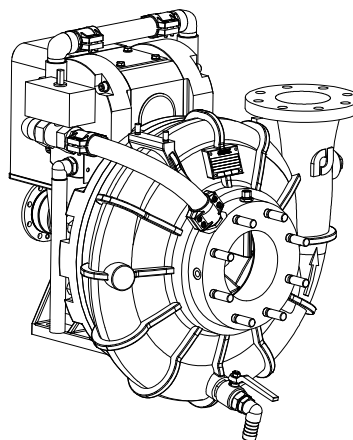
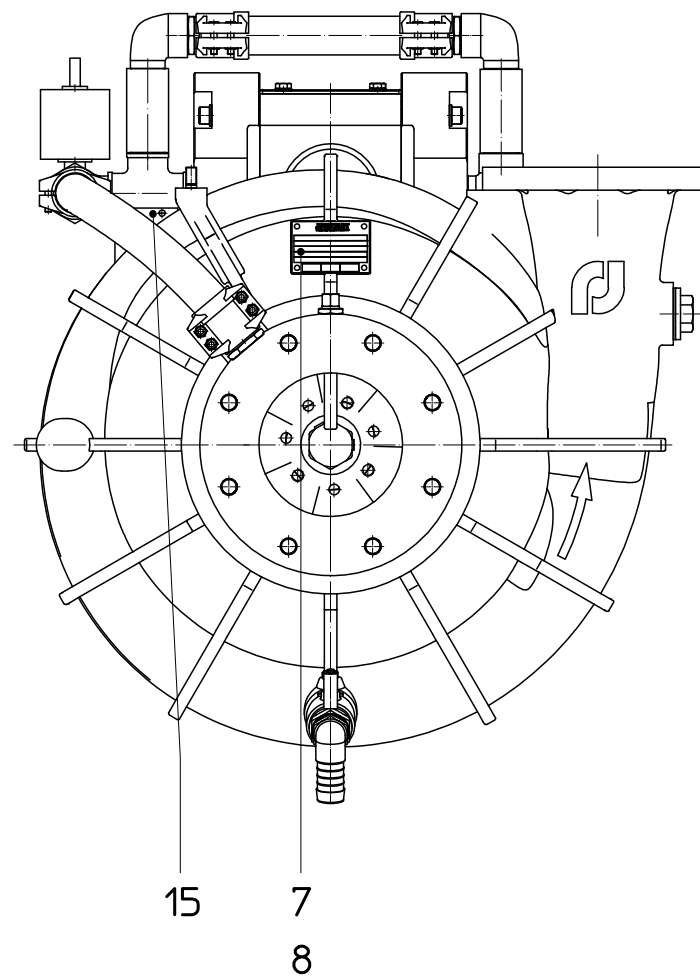
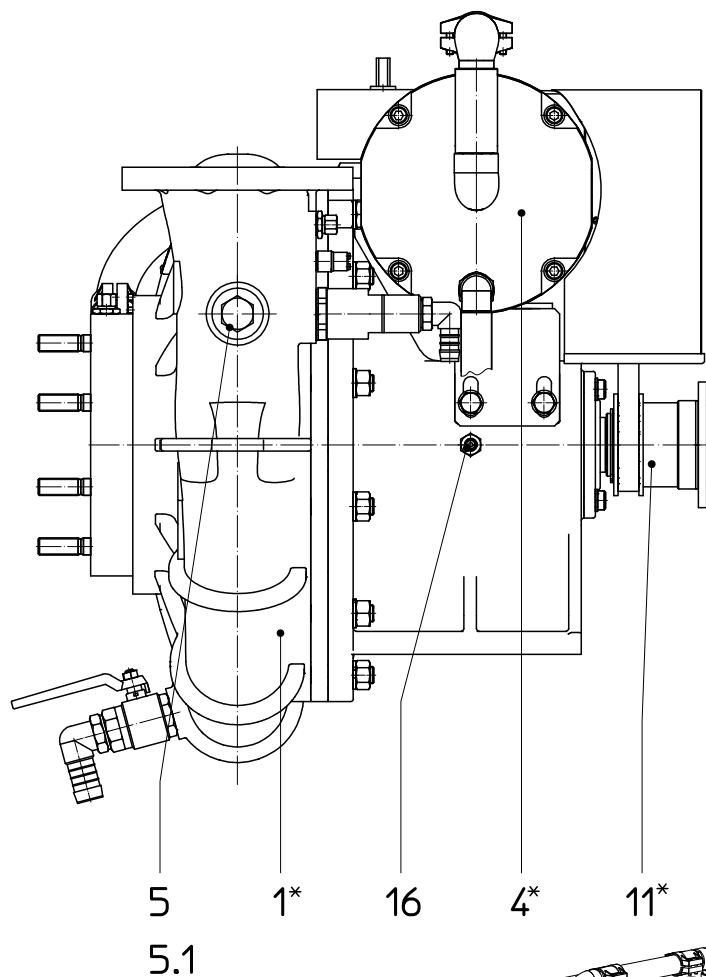
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Bezugsnamen	Funktion	Function
S1	Schalter VACUMAT Aus	Button VACUMAT Off
S2	Druckschalter Pumpe 0,8 bar	Pressure switch pump 0,8 bar
Y1	Kupplung VACUMAT	Clutch VACUMAT
Y2	Tankabsperrventil	Tank stop valve
S10	Druckschalter Pumpe	Pressure switch pump
B1	Drehzahlsensor	Speed sensor
B2	Drehzahlmesser	Speed meter with hour meter
H1	Kontrollleuchte VACUMAT	Control light VACUMAT
Hinweise: 1* +24V DC Mit Kupplung vom Nebenantrieb einschalten. 2* +24V DC Mit der Zündung Klemme 15 einschalten. Einstellung der Drehzahl: Pin 1 (8-poliger Stecker) einschalten. Config-Taster Pin 11 (14-poliger Stecker) betätigen und festhalten. Pin 4 (8-pliger Stecker) einschalten. Config-Taster loslassen. (PULSE) Config-Taster 3s lang drücken. (10000.0) Config-Taster kurz drücken. Wert einstellen. Config-Taster 3s lang drücken. Nächste Dezimalstelle einstellen. Wert (00010.0) einstellen. Config-Taster 3s lang drücken (Pulse) Ausschalten. Impulszahl ist gespeichert.		Notes: 1* 24V DC Switch on with the clutch of PTO. 2* 24V DC Switch on with the ignition terminal 15. Setting the number of pulse: Switch on pin 1 (8-pin-connector). Press and hold config-button pin 11 (14-pin connector). Switch on pin 4 (8-pin connector). Release config-button. (PULSE) 3s long press the config-button. (10000.0) Short press the config-button. Set value. 3s long press the config-button. Set the next decimal place. Set the value. (00010.0) 3s long press the config-button. (PULSE) Switch off. Number of pulse is stored.

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					Bl.
Zust	Änderung	Datum	Name	Ers. f.	Ers. d.

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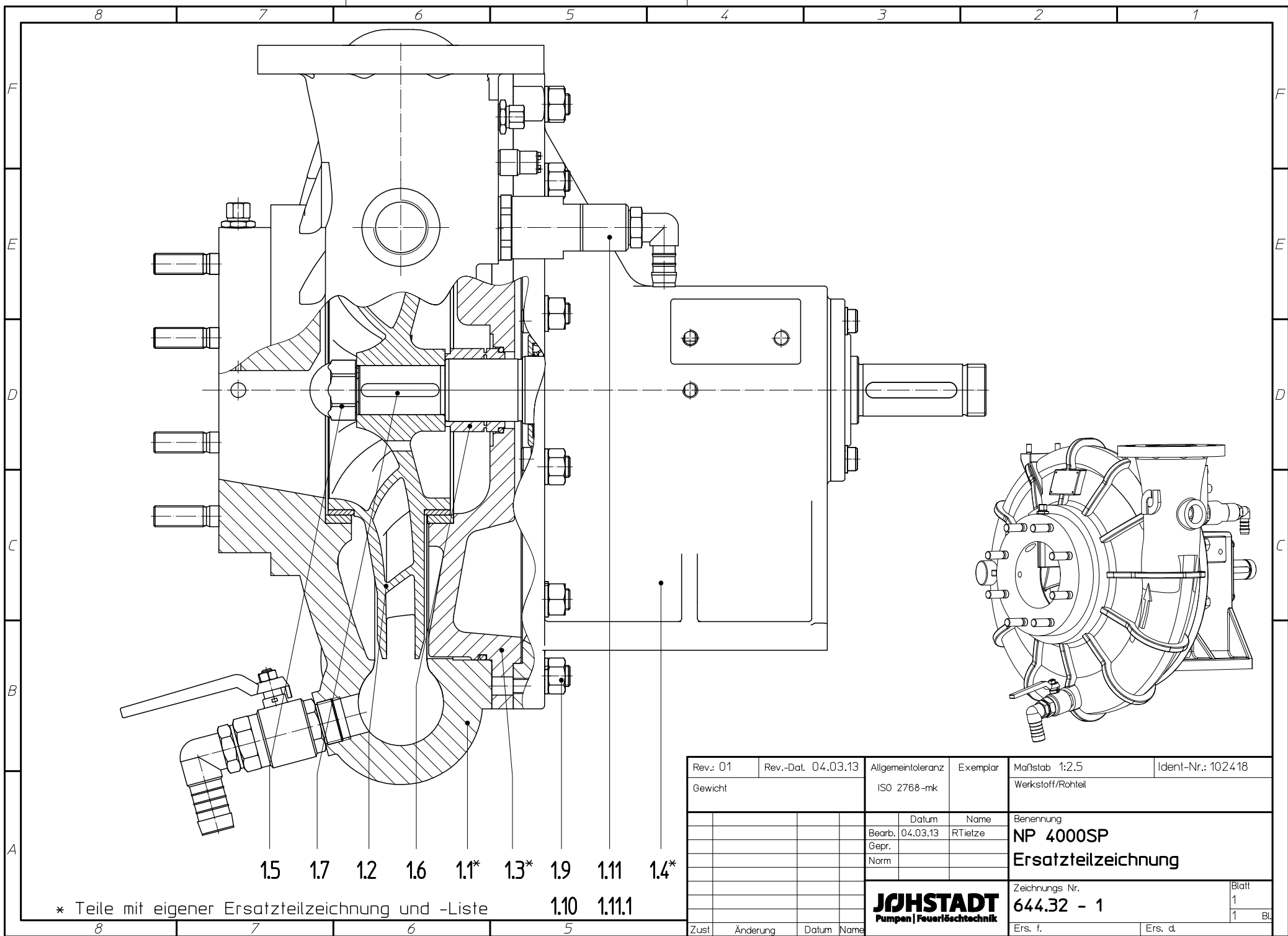
Pumpen | Feuerlöschtechnik



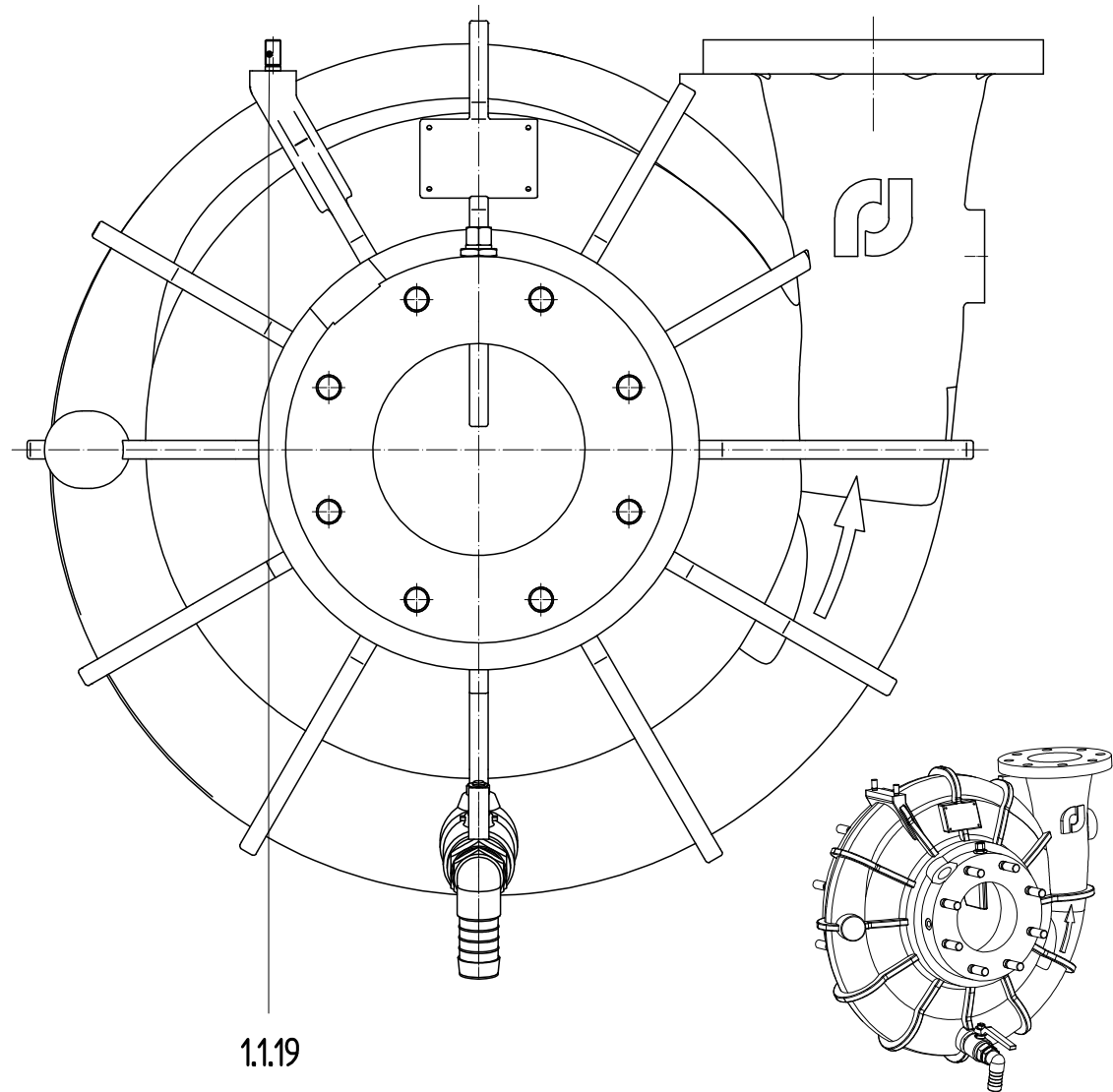
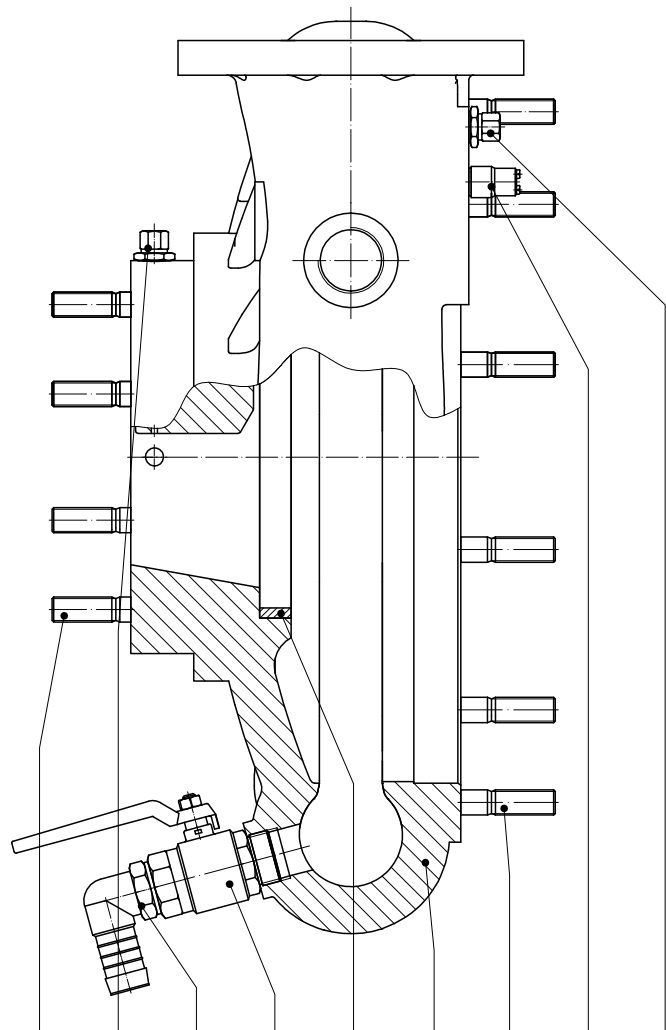
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		Norm			
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				Ers. f.	Ers. d.
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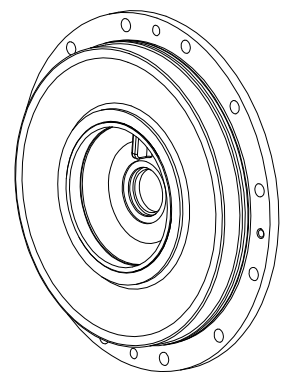
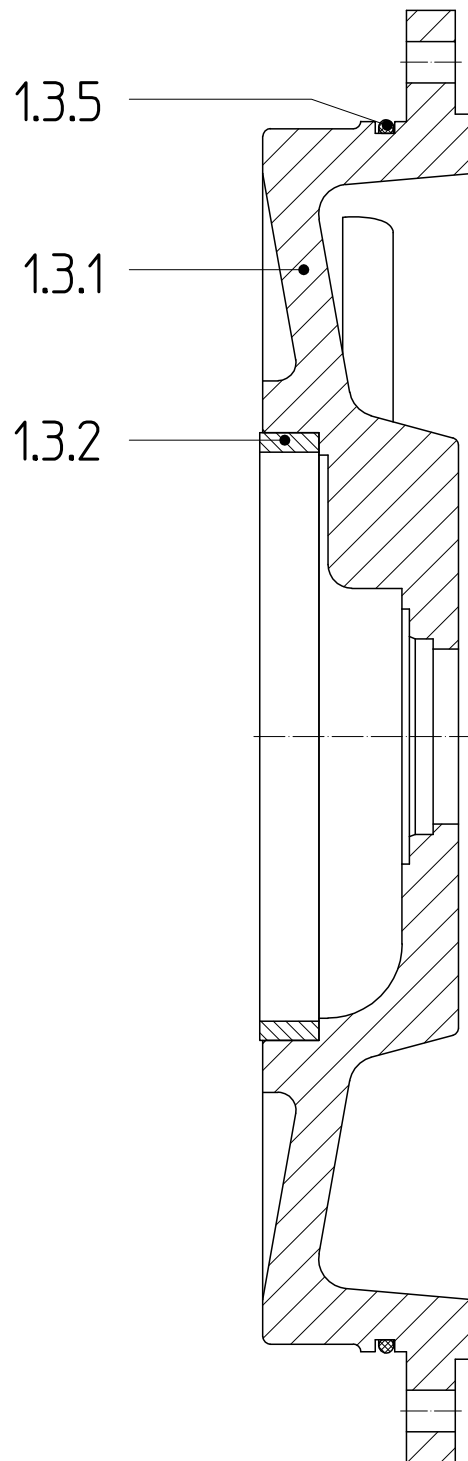
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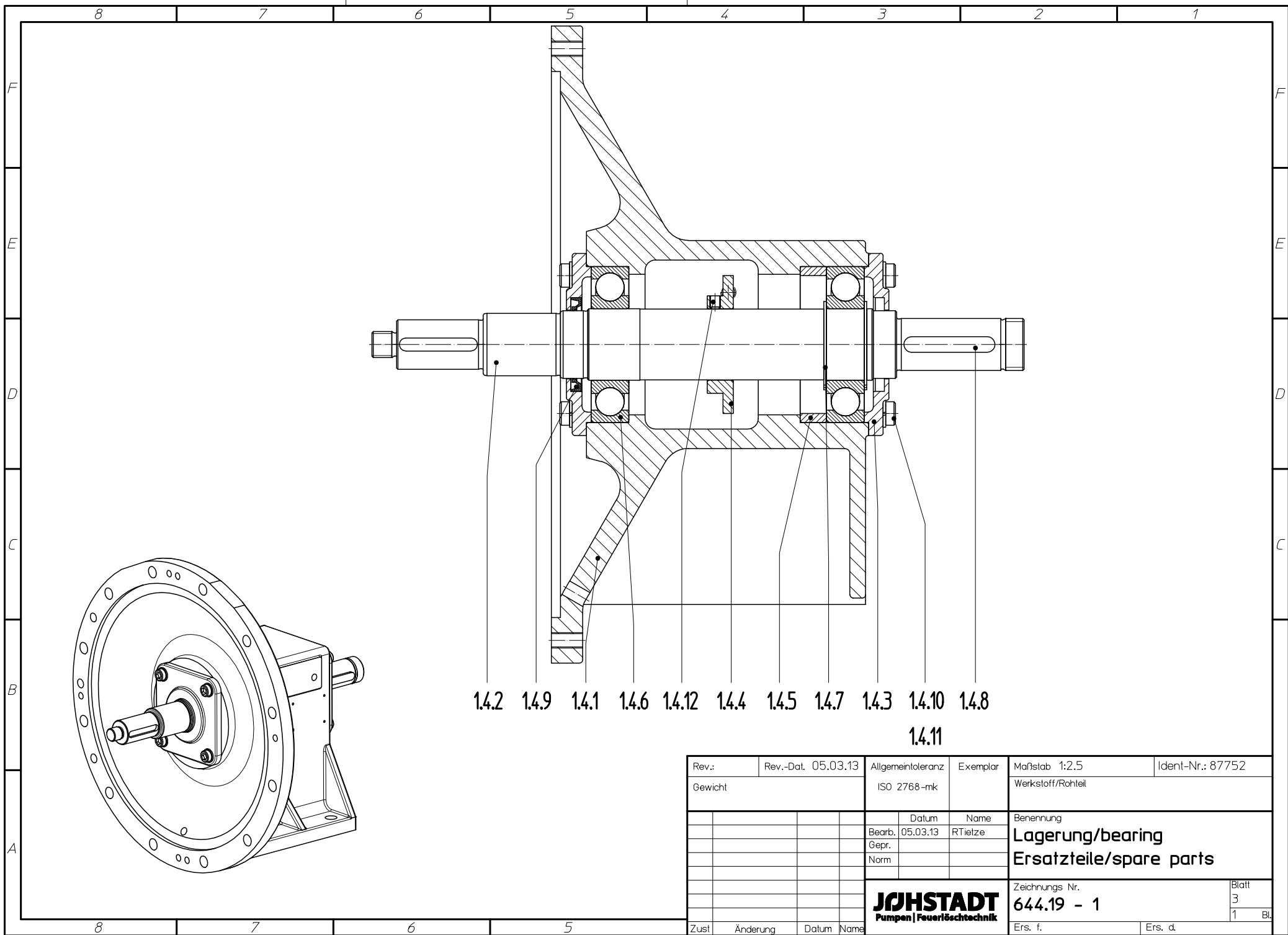
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		Gepr.			
		Norm			
				Zeichnungs Nr.	
				644.32 - 1.1	
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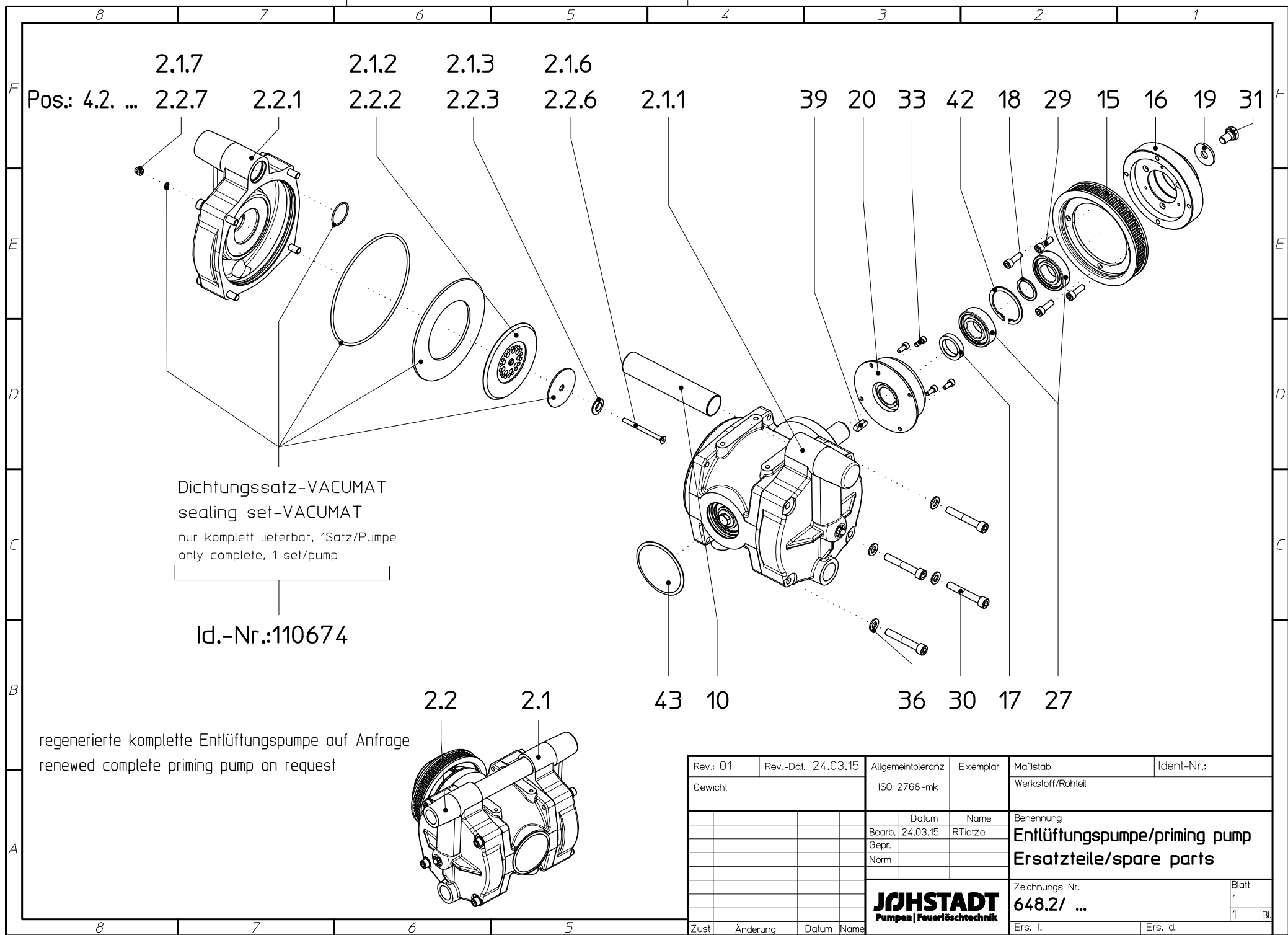
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					Datum	Name		Benennung			
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				Gepr.				Ersatzteile/spare parts			
				Norm							



Rev.:	Rev.-Dat. 05.03.13	Allgemeintoleranz	Exemplar	Maßstab 1:2,5	Ident-Nr.: 87752
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		Gepr.			
		Norm			
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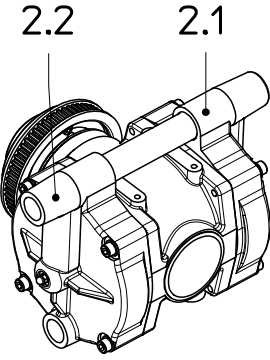
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Dichtungssatz-VACUMAT
sealing set-VACUMAT
nur komplett lieferbar, 1Satz/Pumpe
only complete, 1 set/pump

Id.-Nr.:110674

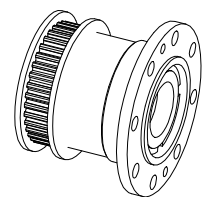
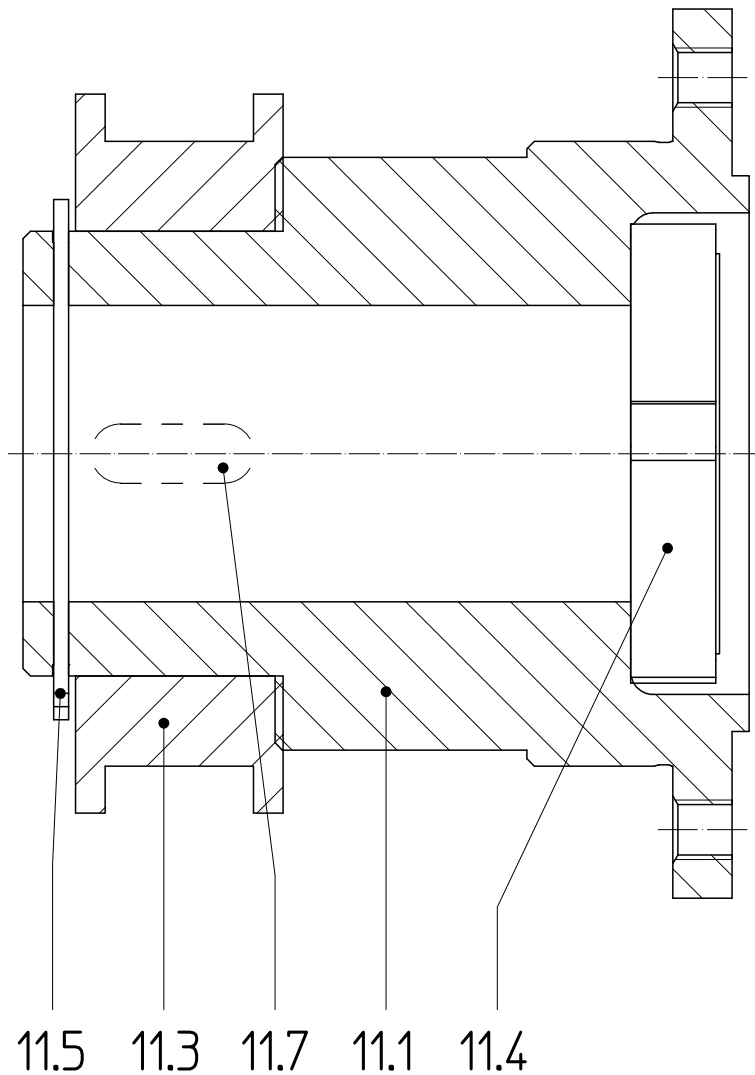
regenerierte komplette Entlüftungspumpe auf Anfrage
renewed complete priming pump on request



Rev.: 01		Rev.-Dat. 24.03.15		Allgemeintoleranz		Exemplar		Maßstab		Ident-Nr.:	
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					Bearb. 24.03.15	RTietze		Entlüftungspumpe/priming pump Ersatzteile/spare parts			
					Gepr.						
					Norm						

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Rev.: 01		Rev.-Dat. 05.03.13		Allgemeintoleranz		Exemplar		Maßstab 1:1		Ident-Nr.: 102410		
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				Gepr.								
				Norm								
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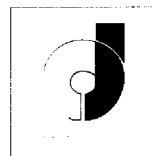
Ersatzteilliste *Spare parts list*

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owst / PF.SSTLB.ETL

Artikel	108319	NP4000S	FPN15-3000 RG	
1	108303	NP4000SP		1 Stück
1.1	108302	PUMPENGEHAEUSE	PUMP CASING	1 Stück
1.1.1	106619	SPIRALGEHAEUSE	SPIRAL CASING	1 Stück
1.1.2	104537	SCHLEIFRING	SLIP RING	1 Stück
1.1.4	5546	STIFTSCHRAUBE	STUD BOLT	8 Stück
1.1.5	23826	KUGELHAHN	BALL VALVE	1 Stück
1.1.6	72233	SCHLAUCHTUELLE	HOSE SOCKET	1 Stück
1.1.9	16778	VERSCHRAUBUNG	FITTING	1 Stück
1.1.10	24076	STUETZHUELSE	SUPPORT TUBING	2 Stück
1.1.11	16778	VERSCHRAUBUNG	FITTING	1 Stück
1.1.12	12746	VERSCHLUSSSCHRAUBE	SCREW PLUG	1 Stück
1.1.12.1	59746	DICHTRING	SEALING RING	1 Stück
1.1.13	29316	EL-MEMBRANDRUCKSCHAL	PRESSURE SWITCH	1 Stück
1.1.17	913	DICHTRING	SEALING RING	1 Stück
1.1.18	63489	STIFTSCHRAUBE	STUD BOLT	12 Stück
1.1.19	64368	STIFTSCHRAUBE	STUD BOLT	2 Stück
1.1.21	29364	ZYLINDERSCHRAUBE	CYLINDER HEAD SCREW	4 Stück
1.1.22	29363	SCHEIBE	WASHER	4 Stück
1.2	74329	LAUFRAD	IMPELLER	1 Stück
1.3	106622	GEHAEUSEDECKEL-VOLLS	CASING CAP-COMplete	1 Stück
1.3.1	70294	GEHAEUSEDECKEL	HOUSING COVER	1 Stück
1.3.2	104537	SCHLEIFRING	SLIP RING	1 Stück
1.3.3	29364	ZYLINDERSCHRAUBE	CYLINDER HEAD SCREW	4 Stück
1.3.4	29363	SCHEIBE	WASHER	4 Stück
1.3.5	65676	RUNDRING	O-RING	1 Stück
1.4	87752	LAGERUNG	BEARING	1 Stück
1.4.1	86861	LAGERSOCKEL	BEARING BRACKET	1 Stück
1.4.2	65639	PUMPENWELLE	PUMP SHAFT	1 Stück
1.4.3	65640	LAGERDECKEL	BEARING COVER	2 Stück
1.4.4	62919	GEBERSCHEIBE	PULS DISK	1 Stück
1.4.5	87751	DISTANZRING	SPACER RING	1 Stück
1.4.6	4010	RILLENKUGELLAGER	GROOVED BALL BEARING	2 Stück
1.4.7	3954	SICHERUNGSRING	LOCKING RING	2 Stück
1.4.8	3964	PASSFEDER	FEATHER KEY	1 Stück
1.4.9	59747	WELLENDICHTRING	PACKING RING	1 Stück
1.4.10	67559	ZYLINDERSCHRAUBE	CYLINDER HEAD SCREW	8 Stück
1.4.11	2404	FEDERRING	SPRING RING	8 Stück
1.4.12	83185	GEWINDESTIFT	GRUB SCREW	1 Stück
1.5	65691	LAUFRADMUTTER	IMPELLER NUT	1 Stück
1.6	59748	GLEITRINGDICHTUNG	MECHANICAL SEAL	1 Stück
1.7	66155	PASSFEDER	FEATHER KEY	2 Stück
1.9	2234	SECHSKANTMUTTER	HEXAGON NUT;	12 Stück
1.10	43	FEDERRING	SPRING RING	12 Stück
1.11	82697	THERMOSTAT-VENTIL-1.	THERMOSTAT VALVE	1 Stück
1.11.1	92465	DICHTRING	SEALING RING	1 Stück
4	109312	ENTLUEFTUNGSPUMPENAN	PRIMING PUMP MOUNTING	1 Stück
4.1	72680	ENTLUEFTUNGSPUMPENR	BRACKET FOR VACUMAT	1 Stück
4.2	85500	ENTLUEFTUNGSPUMPE	VACUMAT	1 Stück

4.2.2.1	85469	ZYLINDERKOPF-VOLLST.	CYLINDER HEAD-COMPLETE	1 Stück
4.2.2.1.1	85361	ZYLINDERKOPF	CYLINDER HEAD	1 Stück
4.2.2.1.2	103299	VENTILKOERPER	VALVE BODY	1 Stück
4.2.2.1.3	103300	MEMBRANDRUCKSCHEIBE	PRESSURE SWITCH	1 Stück
4.2.2.1.6	103301	SENKSCRAUBE	COUNTERSNUK SCREW	1 Stück
4.2.2.1.7	6434	SECHSKANT-HUTMUTTER	HEXAGON CAP NUT	1 Stück
4.2.2.2	103257	ZYLINDERKOPF-VOLLST.	CYLINDER HEAD-COMPLETE	1 Stück
4.2.2.2.1	103258	ZYLINDERKOPF	CYLINDER HEAD	1 Stück
4.2.2.2.2	103299	VENTILKOERPER	VALVE BODY	1 Stück
4.2.2.2.3	103300	MEMBRANDRUCKSCHEIBE	PRESSURE SWITCH	1 Stück
4.2.2.2.6	103301	SENKSCRAUBE	COUNTERSNUK SCREW	1 Stück
4.2.2.2.7	6434	SECHSKANT-HUTMUTTER	HEXAGON CAP NUT	1 Stück
4.2.10	71281	VERBINDUNGSBOLZEN	BOLT	4 Stück
4.2.15	72540	ZAHNRIEMENSCHLEIBE	BELT PULLEY	1 Stück
4.2.16	72541	NABE	HUB	1 Stück
4.2.17	72561	ABSTANDSBUCHSE	SPACER SLEEVE	1 Stück
4.2.18	72565	DISTANZRING	SPACER RING	1 Stück
4.2.19	72687	ENDSCHEIBE	END WASHER	1 Stück
4.2.20	72969	MAGNETKUPPLUNG	MAGNETIC COUPLING	1 Stück
4.2.27	8880	RILLENKUGELLAGER	BALL-BEARING	2 Stück
4.2.29	7914	ZYLINDERSCHRAUBE	CYLINDER HEAD SCREW	8 Stück
4.2.30	50069	ZYLINDERSCHRAUBE	CYLINDER HEAD SCREW	8 Stück
4.2.31	15464	SECHSKANTSCHRAUBE	HEXAGON SCREW	1 Stück
4.2.33	2254	ZYLINDERSCHRAUBE	CYLINDER HEAD SCREW	4 Stück
4.2.36	771	SCHEIBE	WASHER	8 Stück
4.2.39	3466	PASSFEDER	FEATHER	1 Stück
4.2.42	717	SICHERUNGSRING	LOCKING RING	1 Stück
4.2.43	72538	ABDECKUNG	COVER;	1 Stück
4.3	72730	RIEMENSCHUTZ-VOLLST.	BELT GUARD	1 Stück
4.10	72857	KUGELHAHN-M-PNEUM-AN	BALL VALVE	1 Stück
4.11	52119	ZAHNRIEMEN	TOOTH BELT	1 Stück
4.12	4229	SECHSKANTSCHRAUBE	HEXAGON SCREW	4 Stück
4.13	2268	SECHSKANTSCHRAUBE	HEXAGONAL SCREW	4 Stück
4.14	2250	SECHSKANTSCHRAUBE	HEXAGONAL SCREW	4 Stück
4.15	2567	SCHEIBE	WASHER	4 Stück
4.16	2261	SCHEIBE	WASHER;	4 Stück
4.17	2293	SCHEIBE	WASHER	4 Stück
4.18	72233	SCHLAUCHTUELLE	HOSE SOCKET	2 Stück
4.19	6001	SCHLAUCHSCHELLE	THUMBPLATE HOSE CLIP	2 Stück
4.20	37316	SAUGSCHLAUCH	SUCTION HOSE	2 m
4.21	72656	SCHLAUCH	FLEXIBLE TUBE	0,8 m
4.22	18491	DOPPELNIPPEL	DOUBLE NIBBLE	1 Stück
4.23	53715	WINKEL	ANGLE	1 Stück
4.25	72657	SCHLAUCHTUELLE	HOSE SOCKET	2 Stück
4.26	72658	SCHLAUCHSCHELLE	HOSE CLIP	2 Stück
4.27	7857	METALLKLAMMERPROFIL	METALIC CLAMP PROFIL	0,5 m
5	91212	VERSCHLUSSSCHRAUBE	SCREW PLUG	1 Stück
5.1	92465	DICHTRING	SEALING RING	1 Stück
6	56140	LEITUNGSSTAMM	CABLE	1 Stück
7	78557	TYPENSCHILD	DATA PLATE	1 Stück
8	11319	HALBRUNDKERBNAGEL	ROUND-HEAD NOTCH NAIL	4 Stück
11	102410	ANTRIEB	DRIVE	1 Stück
11.1	59576	KUPPLUNGSFLANSCH	COUPLING FLANGE	1 Stück

11.3	72689	ZAHNRIEMENSCHIEBE	SPOCKET BELT PULLEY	1 Stück
11.4	7165	SICHERUNGSMUTTER	locking nut	1 Stück
11.5	8324	SICHERUNGSRING	LOCKING RING	1 Stück
11.7	15342	PASSFEDER	FEATHER	1 Stück
15	77952	STECKERBLECH	SOCKET PLATE	1 Stück
16	9867	EL-SENSOR	SENSOR	1 Stück



PF Pumpen und Feuerlöschtechnik GmbH
Zechensteig 225
D-09477 Jöhstadt
Telefon: 03 73 43/8 10
Telefax: 03 73 43/22 87
E-Mail: info@pfjoehstadt.de
Internet: <http://www.pfjoehstadt.de>

Declaration of incorporation
as defined by the Directive Machinery 98/37/EG

Herewith we declare that the supplied pump model

Fire fighting centrifugal pump NP 4000 FPN 15-3000

is intended to be incorporated into machinery or assembled with other machinery to constitute machinery covered by this directive and must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the directive as amended by 98/37/EG.

Applied harmonized standards, in particular

EN 1028-1, EN 1028-2

EN 953

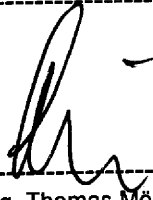
EN ISO 12100-1, EN ISO 12100-2

EN ISO 9905

EN 294

EN 60204-1

Jöhstadt, 25.07.07


Dipl.-Ing. Thomas Möckel