

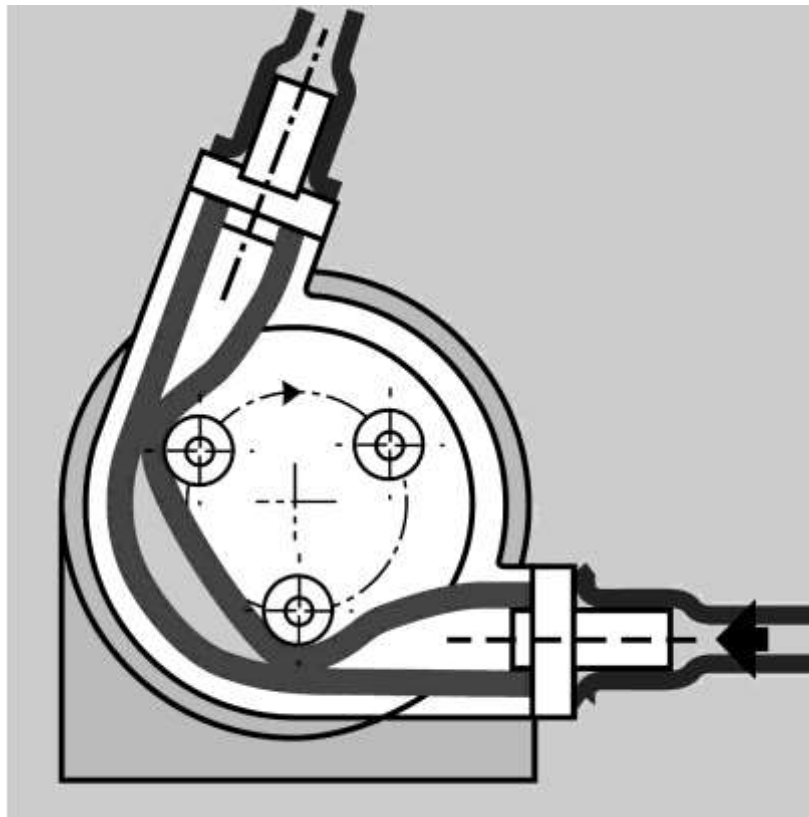


Ponndorf



Hose Pump

Type *P_change 6/9*



Operation Manual

Content

2.	General	3
2.1	Service address.....	3
2.2	General information.....	3
2.3	Labelling.....	4
2.4	Guarantee.....	5
2.5	Technical data.....	5
3.	Safety	6
3.1	Marking of details in the operation manual.....	6
3.2	Safety instructions for hose pumps in hazardous locations.....	7
3.3	Intended use.....	7
3.4	Qualification and training of personnel.....	8
3.5	Dangers in case of non-observance of the safety instructions.....	8
3.6	Safety-conscious working.....	9
3.7	Safety instructions for the operator/user.....	9
3.8	Safety instructions for maintenance / inspection / assembly.....	9
3.9	Unauthorized modifications or use of unoriginal parts.....	10
3.10	Unauthorized operating methods.....	10
4.	Transport, storage and disposal	11
4.1	Transport.....	11
4.2	Storage.....	11
4.3	Disposal.....	11
5.	Description of pump and accessories	12
5.1	Detector for hose leakages.....	13
5.2	Diagram of the leakage detector for operating the pumps in non-hazardous locations (art.-no. 93-000-055).....	14
6.	Installation / Connection / Operation	15
6.1	Electrical connection.....	15
6.2	Mechanical connection.....	16
6.3	Installing the pump hose.....	18
7.	Maintenance / Service	20
7.1	Changing the pump hose.....	20
7.2	Maintenance / Service.....	21
7.3	Cleaning.....	21

7.4	Drawing of spare parts P_change 6/9 flanged	22
7.5	Liste of spare parts P_change 6/9 flanged	23
7.6	Drawing of spare parts P_change 6/9 coupled.....	24
7.7	List of spare parts P_change 6/9 coupled	25
8.	Characteristic curves	26
9.	Accompanying documents	27

2. General

2.1 Service address

PONNDORF GERÄTETECHNIK GmbH
Leipziger Strasse 374
D - 34123 Kassel
Tel. +49 561 51139 - 0
Fax: +49 561 51139 - 88
E-Mail: service@ponndorf.de

2.2 General information

Ponndorf Hose Pumps are a self-priming positive displacement pumps without any glands or valves. The pumping medium only comes in contact the inner surface of the pump hose, but not with the moving parts of the pump. Therefore the pumps are particularly suitable for pumping aggressive, abrasive and viscous liquids, but as well for pumping liquids containing coarse-grained solids and sensitive materials which require to be pumped gently.



Hose pumps are only intended to pump free-flowing liquids but not to pump gaseous pumping media.



The functioning of a hose pump can lead to abrasion on the pump hose. For applications in which the possible abrasion is intermittent or not permissible, appropriate filter technology must be provided by the customer.



To guarantee the tightness and chemical compatibility of the pump hoses, the manufacturer of the hose pump must be consulted in case of possible changes of the pumping media unless this information does not appear from available documents.



To avoid blockages of the pumps and/or any other damages of pumps or pump hoses, the operator must guarantee that no hose damaging objects can invade the hoses (e.g. sharp-edged or too big and not pumpable objects). A suitable strainer may be used as protection.

2.3 Labelling



1. Pump Type
2. Maximum Pressure
3. Pump Number and Year of Manufacture
4. ATEX Coding (optional)
5. Ambient Temperature Limit in EX-Zone (optional)
6. Customer Number – Order Number Ponndorf

The data specified on the name plate refer to the delivery status of the Ponndorf Hose Pump. Any modification of the pump can result in a change of the specified data and the request of a new name plate for the Ponndorf Hose Pump could be necessary.

When requesting spares, the model and serial number should always be quoted.

2.4 Guarantee

The guarantee for defects of any goods delivered by us is stated in our Terms and Conditions of Sale. We do not assume any liability for defects and damages which are caused by non-observance of the instructions of the operation manual.

Furthermore we assume no liability for defects or damages which are caused by changing the operating conditions (use not in accordance with the intended use), e.g. use of a different pumping medium for which the pump hose is not suitable for, higher temperature which exceed the maximum permissible or line losses caused by media with a too high viscosity.

2.5 Technical data

		P_change	
		6	9
Max. flow rate:	[l/h H ₂ O]	90	175
Max. pressure:	[bar]	2	
Max. suction height:	[m H ₂ O]	7	
Max. viscosity of puming media:	[mPas]	2.000	2.800
Max. motor power	[kW]	0,18	
Max. speed	[n/min]	240	
Weight: Execution XXF Execution XXC Execution GMF-TF Execution GMC-TF	[kg]	2,8 3,0 10,0 13,0	
Hose sizes	[mm]	6,4x3,2	9,6x3,2
Hose material	Ponnprene Food white ²¹ CFR/FDA, Silicon Platinum*, Tygon		

*max. pressure 1 bar

3. Safety

These instructions contain basic recommendations that should be followed during installation, operation and maintenance. Therefore the operation manual has to be read by the fitter and qualified personnel/operator before installation and operation and must always be available at the location of the machine/facility.

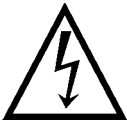
Not only the general instructions of safety mentioned in chapter - Safety - have to be observed. The more specific safety instructions mentioned in other chapters must be observed, too.

3.1 Marking of details in the operation manual

Non-observance of the safety instructions of this operation manual can endanger people. Those instructions are particularly marked with the following general danger signs:



Safety sign according to DIN 4844 - W 9



Safety sign according to DIN 4844 - W 8
when warning of electrical hazards

CAUTION

In case of safety instructions which can cause dangers for the machine or its performance the term **CAUTION** is interpolated.

Signs directly fixed to the machine, e.g.

- arrows which indicate the flow rotation
- signs for fluid connections

have to be observed and must be kept in a readable condition.

3.2 Safety instructions for hose pumps in hazardous locations

- Only qualified technical personnel is authorized to effect installation, connection, operation as well as maintenance and repair works in consideration of
 - provided instructions
 - danger signs and/or decal information
 - every other provided instructions for the user
 - the system-dependent regulations and requirements
 - the currently valid regulations concerning safety as well as rules for accident prevention

3.3 Intended use

- Ponndorf Hose Pumps are intended for use in commercial facilities and are only permitted for use in accordance to the information of the technical documentation and of the nameplate.
- If a pump is coupled to a drive unit, the operating manual of the drive and other provided components must be observed, too.

Before placing the pump into operation the operator must make sure that

- the pump and all other components were not damaged during the carriage.
- the air temperature of the ambience of the pump is observed.
- the maximum temperature of the pumping media is not exceeded.
- pump hose, clamping rings and connecting sockets are mounted properly.

In case of any discrepancies the pump must not be placed into operation!

While placing the pump into operation the characteristics (pump speed, pressure) which are prescribed in the manual and on the nameplate must not be exceeded.

3.4 Qualification and training of personnel

The technical personnel responsible for operation, maintenance, inspection and installation must be qualified for this work. Fields of responsibility, competencies and the supervision of the personnel have to be exactly regulated by the operator. If the personnel is inadequately skilled it must be trained and instructed. If necessary, this may be effected by order of the operator by the manufacturer/supplier.

Furthermore the operator has to make sure that the personnel did absolutely catch the contents of the operation manual.

3.5 Dangers in case of non-observance of the safety instructions

Non-observance of the safety instructions can endanger people, environment and equipment and can result in losing any claim for damages.

In detail non-observance can **for instance** result in the following dangers:

- failure of important functions of the machine/facility
- failure of methods prescribed for maintenance
- threat to people because of electrical, mechanical and chemical effects
- danger to the environment because of leakage of hazardous substances

3.6 Safety-conscious working

The safety instructions of this manual, the existing national rules for accident prevention as well as potential instructions of the operator for work, operation and safety have to be observed.

3.7 Safety instructions for the operator/user

- If hot or cold machine parts cause dangers, the operator is responsible for a protection against contact.
- The protection against contact of moving parts of machines in operation (e.g. coupling) must not be removed.
- Leakages of hazardous pumping media (e.g. toxic, hot) have to be discharged in a way which guarantees that no dangers to people and environment arise. Legal regulations have to be observed.
- Dangers caused by electrical power have to be eliminated.
(Please see also regulations e.g. of the VDE (in Germany) or of the local power supply companies.)

3.8 Safety instructions for maintenance / inspection / assembly

The operator has to make sure that all maintenance, inspection and installation works will be effected by authorized and qualified technical personnel, which is familiar with the contents of the operating manual.

Basically all works may only effected during shutdown periods. The proceeding to shutdown the machine described in the operating manual must be strictly observed.

Pumps or aggregates which convey harmful media have to be cleaned.

When works are finished all safety installations and protectors must immediately be refitted or be put into operation.

The articles of chapter 6 (Installation / Connection / Operation) have to be observed before reconnection.

3.9 Unauthorized modifications or use of unoriginal parts

Modifications of the machine are only permissible after prior consultation of the manufacturer. Original spare parts and accessories authorized by the manufacturer serve the safety. Use of other parts can repeal the liability for any consequences.

3.10 Unauthorized operating methods

The reliability of the supplied machine is only guaranteed in case of intended use in accordance to chapter 2 - General - of the operating manual.
The limit values stated in the data sheet must not be exceeded in any way.

4. Transport, storage and disposal

4.1 Transport



- When choosing lifting tools and separate lifting accessories the weight of the pump must be taken into consideration. The corresponding accident prevention regulations have to be observed.
(In Germany: UVV "Lastaufnahmeeinrichtungen im Hebezeugbetrieb", BG 9a)

4.2 Storage

The pump has to be protected against humidity when stored

CAUTION

In case of longer standstill before placing the pump into operation do not assemble the pump hose, during longer shutdown periods remove the hose from the pump. Otherwise the hose could be warped by the constant compression of the rollers!

4.3 Disposal



With prolonged use, pump parts can get contaminated by poisonous or radioactive pumped liquids to such an extent that cleaning may be insufficient.





CAUTION

Risk of poisoning and environmental damage by the pumped liquid!

- Use suitable personal protective equipment when carrying out any work on the pump.
- Prior to disposal of the pump:
 - Remove and dispose grease in accordance with local regulations.
 - Dispose any leaking pumped liquid in accordance with local regulations.
 - Neutralize residues of pumped liquid in the pump.
- Dispose of the pump unit and associated parts in accordance with statutory regulations.

5. Description of pump and accessories

The pump head is connected with the drive by a coupling. Pump head and drive are completely mounted on a base plate. Construction XXF/XXC means that the pump head is supplied with bare shaft extension.

	Construction	Description
	- XXF	- pump head with bare shaft extension flanged, without drive
	- XXC	- pump head with bare shaft extension flanged, without drive
	- GMF-TF - GMF-FF - GMF-I1/I3 - GMF-V1/V3	- pump with flanged gear motor incl. thermistors for frequency converter use - pump with flanged gear motor incl. thermistors and forced fan - pump with flanged gear motor incl. thermistors and integrated frequency converter - pump with flanged gear motor incl. thermistors, forced fan and integrated frequency converter
	- GMC-TF - GMC-FF - GMC-I1/I3 - GMC-V1/V3	- pump with coupled gear motor incl. thermistors for frequency converter use - pump with coupled gear motor incl. thermistors and forced fan - pump with coupled gear motor incl. thermistors and integrated frequency converter - pump with coupled gear motor incl. thermistors, forced fan and integrated frequency converter

P_change 6/9	
Material pump casing:	Aluminum alloy
Material base plate:	Steel (standard)
Paint of pump:	RAL 5003 (standard)
Ø Shaft flanged:	14x66 mm / flange B5 Ø 105mm
Ø Shaft coupled:	10x16 mm

5.1 Detector for hose leakages

The hose leakage detector is for a continuous monitoring in order to avoid unnoticed hose leakages.

Functional description

In case of a hose leakage the pump can be switched off and an alarm (horn/signal lamp) can be activated. This is only possible when using a motor contactor.

There are mounting holes M12x1 for hose leakage detector on the pump head. Depending on the mounting position of the pump head, the deepest hole must be used.

The following mentioned detectors for hose leakages are available:

art.-no. 93-000-055

Detector for hose leakages for operating the pumps in non-hazardous locations and for electrically conductive media.

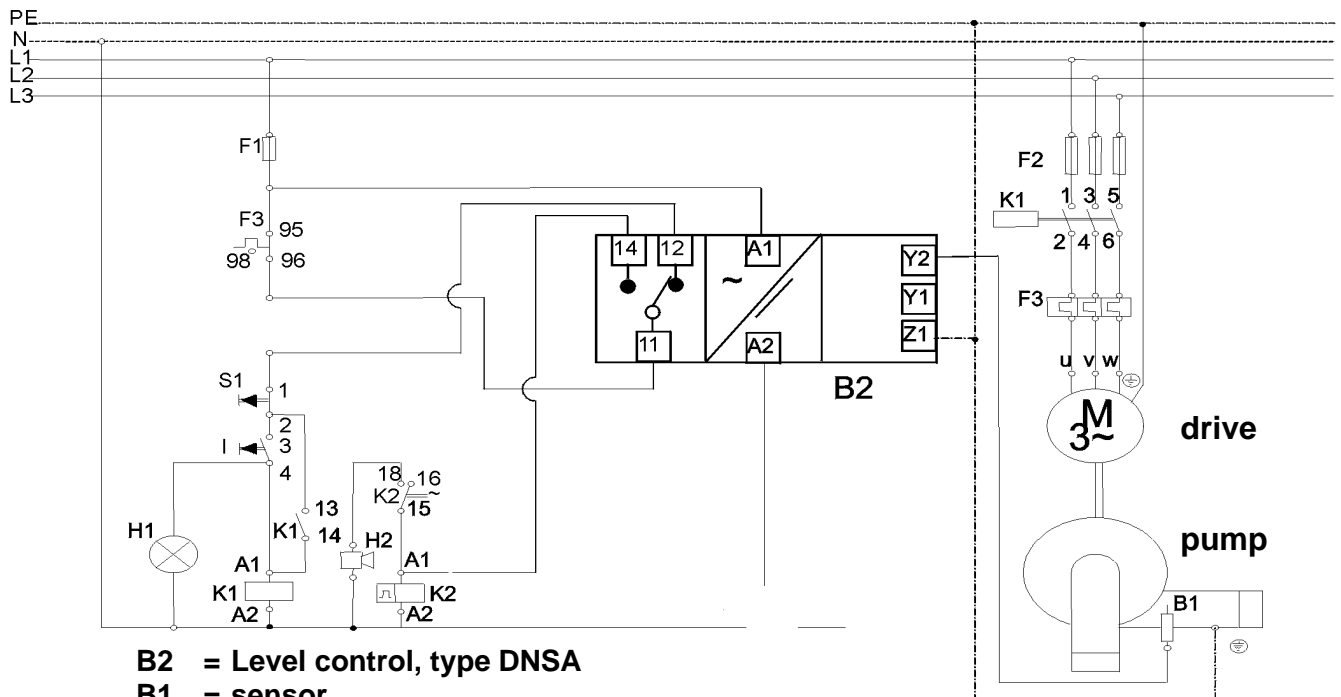
art.-no. 93-000-045

Detector for hose leakages with SPC sensor for operating the pumps in non-hazardous locations.

5.2 Diagram of the leakage detector for operating the pumps in non-hazardous locations (art.-no. 93-000-055)

The following diagram is only valid for the leakage detector consisting of:

- sensor for leakage detector (make Ponndorf, standard)
- switch amplifier (make: Disibeint, type DNSA)



- B2 = Level control, type DNSA**
B1 = sensor
F1 = fuse
F2 = motor fuse
F3 = motor overloads
H1 = run light
H2 = signal horn, signal lamp
K1 = motor contactor
K2 = flasher (0,5 sec.)
M = motor (pump drive)
S1 = push button

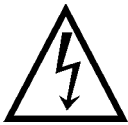


The connections must only be made by qualified and authorized personnel!

6. Installation / Connection / Operation

6.1 Electrical connection

The installation of the pump depends on the pump type and can be made stationary or movable (on wheels).



The connections must only be made by qualified and authorized personnel!

The connections must be made according to the wiring diagram in the terminal box.

For instructions to effect the electrical connection please see the attached manual of the pump drive!



The pump must be protected by fuses and a protective motor switch according to the nominal current of the motor.



The pumps must be integrated in the equipotential bonding of the whole plant. For example this can be made by grounding the base frame by using the grounding terminal in the terminal box of the motor.

6.2 Mechanical connection

The nominal width of the tubing at the suction and the discharge side should be approx. 25 % bigger than the nominal width of the pump hose.

The size of the hose pump is concurrent to the width of the pump hose. The tubing on the suction side must be vacuum proof (reinforced) and the tubing on the discharge side must withstand the maximum pressure of the pump. By using a pole changing switch the tubing on suction and discharge side must withstand the maximum pressure of the pump.

The connection can e.g. be carried out with flexible hose via connectors and hose clamps.



Example

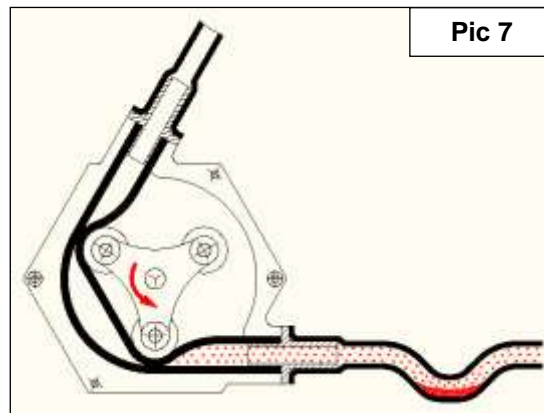
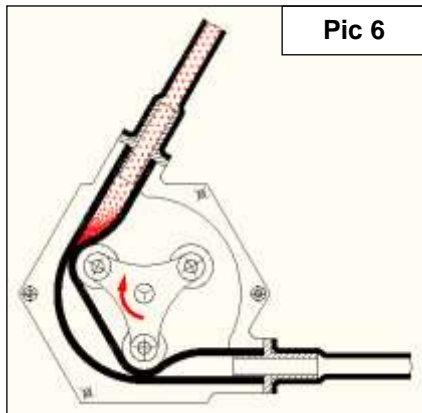
In order to avoid pressure peaks, which can cause damages of the pump hose, there should no pipe bends or 90° elbows be installed directly after the pump. Furthermore the cross section of the pipework should not be reduced.

Important notice for the conveyance of media containing solids

There is a risk of sedimentation of solids which can settle in the pump while the pump is stopped. Depending on position hereby a lump of solids can be formed in the upper section of the hose (please see pic. 6).

To avoid any damages we recommend to reverse the direction of rotation of the pump and to connect the discharge line to the lower, horizontal connecting socket.

To get a further advantage a flexible hose should be used to connect the pump and a kind of trap should be created in which the solids settle out (please see pic. 7).



In case of longer downtimes it is also recommended to flush the complete piping including the pump sufficiently.



Hose pumps are positive displacement pumps which must not convey against closed fittings (e.g. valves). In case of exceeding the maximum permissible pressure, the pumps or other parts of the facility can be damaged. Therefore a protection against pressure exceedance must be integrated in the pipework on the discharge side (e.g. an overflow valve or a burst disk).



When using overflow valves or burst disks it must be observed that the overpressure always will be discharged in a safe direction. I.e., neither people nor tangible assets may be endangered because of emissions of the pumping medium.

6.3 Installing the pump hose



Remove power from the pump by removing the main fuses before doing any cleaning / maintenance / assembly operations.

6.3.1

Pump in delivery status



6.3.2

Open hose clamp and remove clamping rings



6.3.3

Switch on the drive. The rotating pump pulls in the pump hose. When the hose appears on the other discharge side of the casing switch the drive off again and interrupt the power from supply.



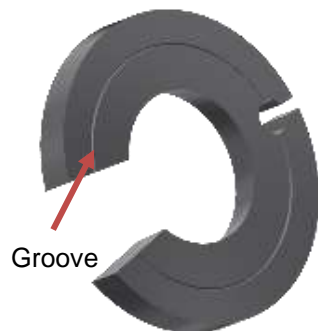
6.3.4

Place the protruding end of the hose on suction and pressure side as needed



6.3.5

Observe the mounting position of the clamping ring! The groove points to the outside of the pump



6.3.6

Install clamping rings



6.3.7

Install hose clamp



6.3.8

Pump hose is
already installed



Pump is now ready for operation!



Do not wear gloves during these operations because they may be pulled in!

CAUTION

Before starting the pump it must be secured that any valves assembled in the pipework (on suction and discharge side) are opened. Otherwise the pump or parts of the pipework could be damaged by too high increase of pressure.



The casing cover may only be removed when the drive is switched off and the power supply is interrupted (remove fuses).

7. Maintenance / Service

There are no sophisticated procedures of maintenance necessary for Ponndorf Hose Pumps.

Nevertheless there have to be made regular inspections in order to avoid any decrease of capabilities of the pump (e.g. suction capacity / discharge head / flow rate).

7.1 Changing the pump hose



Remove power from the pump by removing the main fuses before doing any cleaning / maintenance / assembly operations !

7.1.1

Open hose clamps and remove clamping rings



7.1.2

Pull out the defect hose. The extraction of the hose will be eased by changing the direction of the drive (pole changing switch) and starting of the motor.



For installation of the new pump hose please consider chapter 6.3 (Fig. 6.3.3ff)



Do not wear gloves during these operations because they may be pulled in!



It must be secured that there are no remains of the pumping medium left in the pump hose (medium could run out or spray). Especially in case of aggressive and caustic media there is danger of injuries !

7.2 Maintenance / Service

Außenfläche des Pumpenschlauches	Rotorlager	Teflonrollen
<ul style="list-style-type: none">• Check the surface of the hose for signs of wear• <u>Interval:</u> every 300 hours of operation	<ul style="list-style-type: none">• check on proper seat of bearings (no radial play!)• check on unusual heat generation• check on unusual and noticeable bearing noises• <u>Interval:</u> every time when changing the pump hose respectively every 500 hours of operation	<ul style="list-style-type: none">• check for proper seat (no seized, not worn out)• <u>Interval:</u> every 500 hours of operation



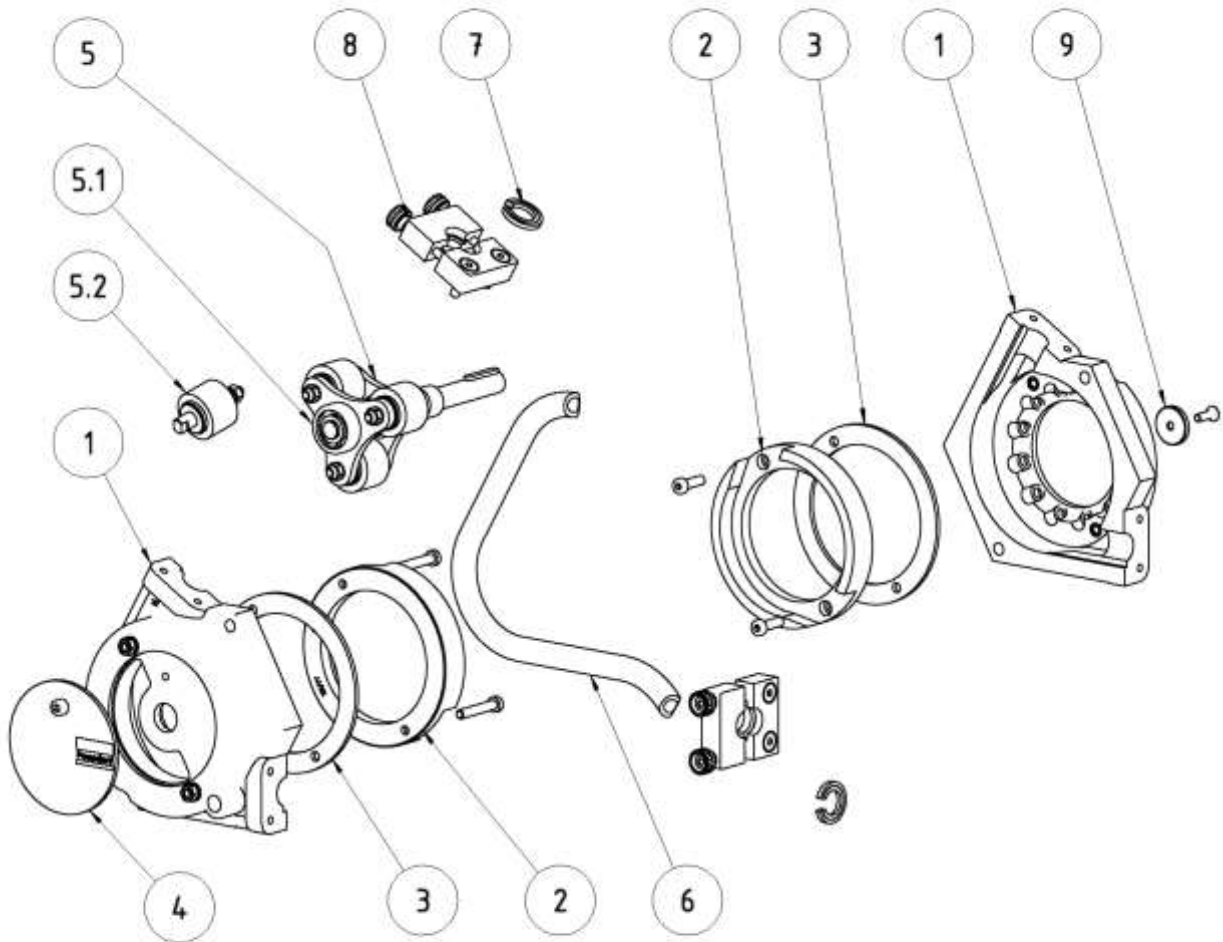
If the rotor bearings / Teflon rollers show the wear characteristics mentioned above they need to be replaced.

7.3 Cleaning

After pumping media which tend to deposit, the pump hose must be rinsed out when pumping is finished.

When changing the pump hose the inside of the pump casing should be cleaned properly.

7.4 Drawing of spare parts P_change 6/9 flanged



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7.5 Liste of spare parts P_change 6/9 flanged

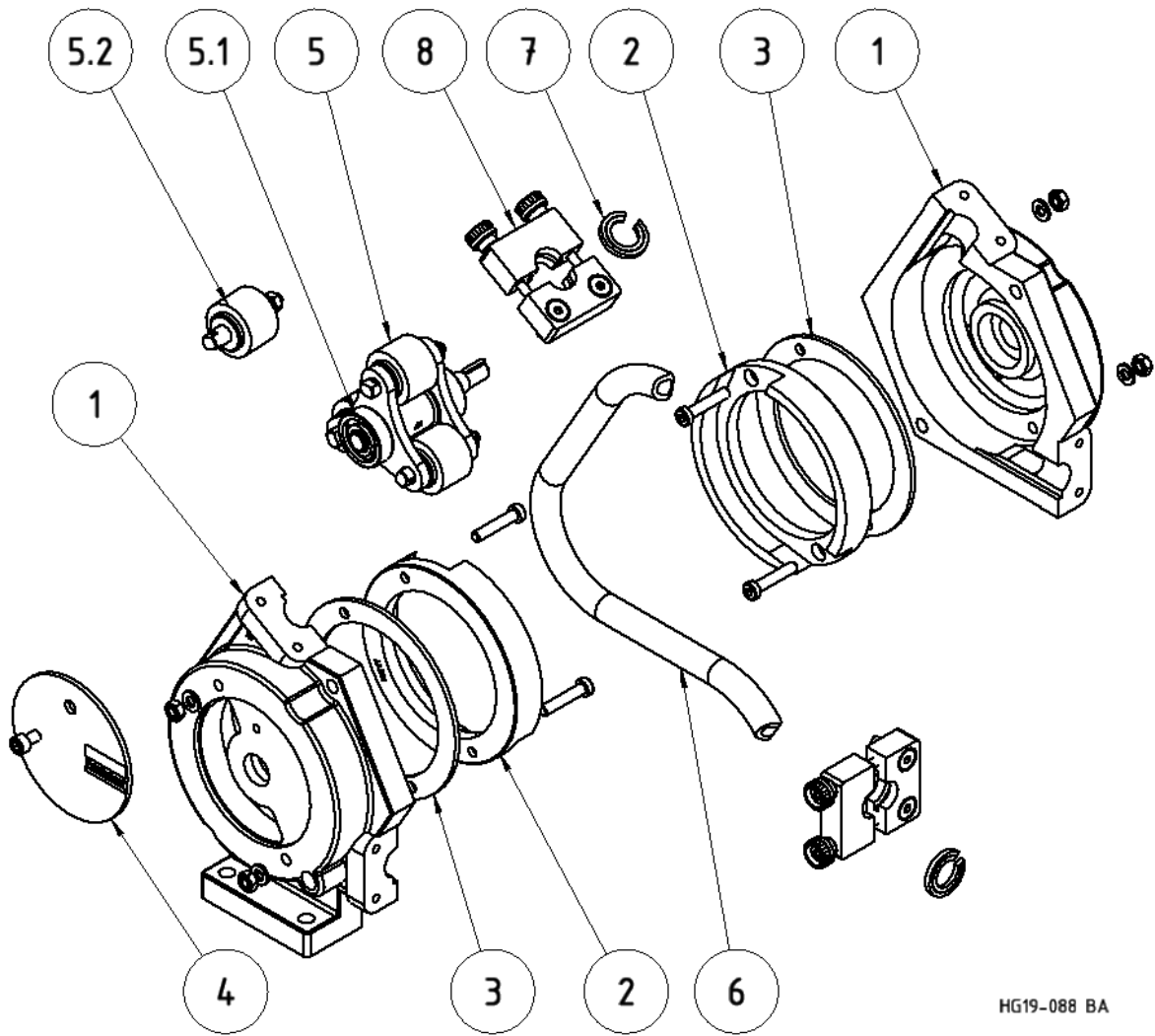
Pos.	Description	Qty./ Pump	Part-No.	
			P_change 6	P_change 9
1	Casing complete ¹⁾	1	19-010-011	
2	Set of inserts, Teflon ¹⁾	1	19-010-112	
3	Insert ring	2	19-010-026	
4	Casing cover complete ¹⁾			
	Material:	- plexiglass	1	10-010-007
5	Rotor complete ²⁾	1	19-010-023	
5.1	Ball bearing	1	10-010-020	
5.2	Rollers complete, Teflon	1	19-010-117	
6	Pumpe hose ³⁾			
	Material:	- Ponnprene F acc. FDA	19-010-061	19-010-072
		- Silicone Platinum	19-010-065	19-010-076
		- Tygon	19-010-069	19-010-080
7	Clamping ring	2	19-010-037	19-010-034
8	Flange systeme complete ¹⁾	2	19-010-036	
9	Lock washer ¹⁾	1	10-010-056	

¹⁾ incl. mouting material

²⁾ incl. rollers and ball bearing

³⁾ Length of hose = 1 mtr; further hose lengths on request

7.6 Drawing of spare parts P_change 6/9 coupled



HG19-088 BA

7.7 List of spare parts P_change 6/9 coupled

Pos.	Benennung	Anzahl/ Pumpe	Artikel-Nr.	
			P_change 6	P_change 9
1	Casing complete ¹⁾	1	19-010-011	
2	Set of inserts, Teflon ¹⁾	1	19-010-112	
3	Insert ring	2	19-010-026	
4	Casing cover complete ¹⁾			
	Material:	- plexiglass	1	10-010-007
5	Rotor complete ²⁾	1	19-010-022	
5.1	Ball bearing	2	10-010-020	
5.2	Rollers complete, Teflon	1	19-010-117	
6	Pump hose ³⁾			
	Material:	- Ponnprene F acc. FDA	19-010-061	19-010-072
		- Silicone Platinum	19-010-065	19-010-076
		- Tygon	19-010-069	19-010-080
7	Clamping ring	2	19-010-037	19-010-034
8	Flange system complete ¹⁾	2	19-010-036	

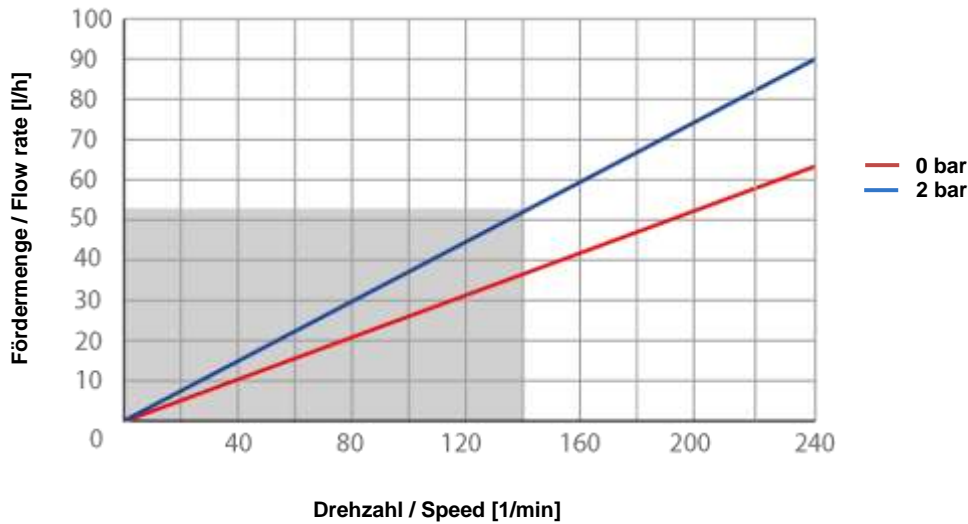
¹⁾ incl. mouting material

²⁾ incl. rollers and ball bearing

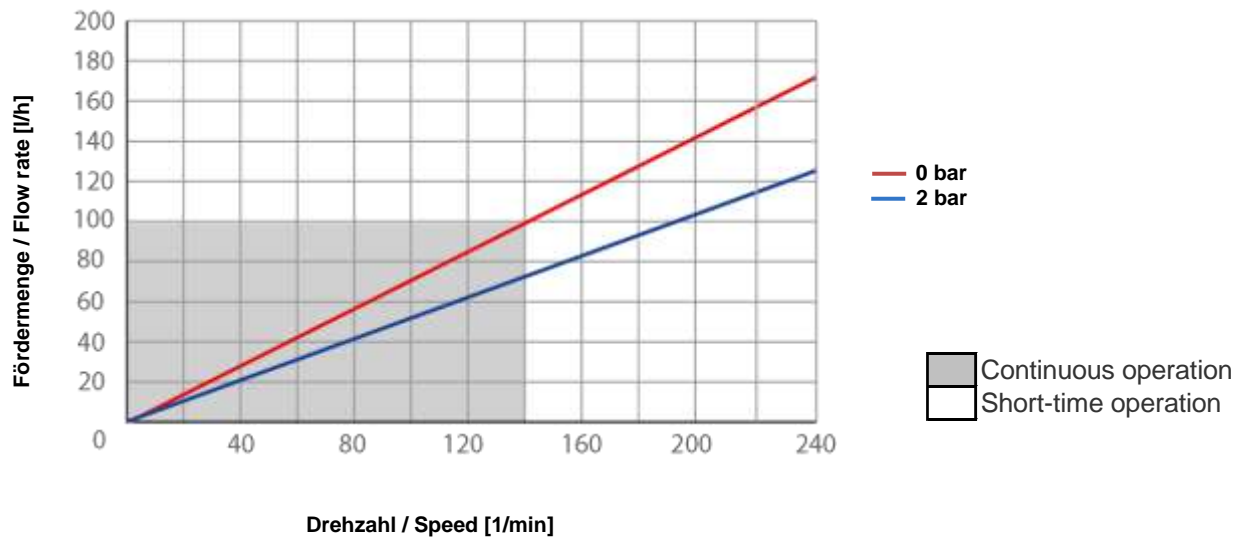
³⁾ Length of hose = 1 mtr; further hose lengths on request

8. Characteristic curves

P_change 6



P_change 9



Important:

The characteristic curves are based on pumping water.

So the actual flow rate of the pump can be different in case of pumping media with a higher viscosity.

9. Accompanying documents

Accompanying documents are enclosed (corresponding to the extent of delivery).

EU – DECLARATION of CONFORMITY

Herewith we declare that the products

Designation: **PONNDORF hose pump units of the type**

**P_classic; P_classic twin
P_classicplus; P_classicplus twin
P_food&pharma; P_food&pharma twin
P_eco
P_eco/food&pharma
P_high pressure, P_high pressure twin
P_delta
P_change**

comply in the constructions delivered with the following EC / EU directives

- | | |
|------------|---|
| 2006/42/EC | Directive of the European Parliament and of the Council on machinery and amending Directive 95/16/EC |
| 2014/35/EU | Directive of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits |
| 2014/30/EU | Directive of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to electromagnetic compatibility |

Applied, harmonized standards, in particular: - EN 809 A1/AC

Authorized representative for the completion of the technical documentation :

Till Völker
Ponndorf Gerätetechnik GmbH
Leipziger Straße 374, D – 34123 Kassel

Kassel, November 30, 2020
(Place and date of issue)


.....
Till Völker
General Manager

This declaration is no warrant of properties for the purpose of the product liability. The safety instructions of the operating manual provided must be observed!

If the above mentioned series are technically modified without our approval, this declaration shall no longer be applicable.

EC – DECLARATION of CONFORMITY

Herewith we declare that the products

Designation: **PONNDORF hose humps of the types**

**P_classic; P_classic twin
P_classicplus; P_classicplus twin
P_food&pharma; P_food&pharma twin
P_eco
P_eco/food&pharma
P_high pressure, P_high pressure twin
P_delta
P_change**

complies with the following EC directives

2006/42/EC Directive of European Parliament and of the Council on machinery and amending Directive 95/16/EC

Applied harmonized standards, in particular: - EN 809 A1/AC

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