OPERATING INSTRUCTION

MAGNETICALLY COUPLED CENTRIFUGAL PUMP

centrifugalPUMP SERIES **MP**

TRANSLATION EN

About this manual

Special instructions in this manual are marked with text and symbols.

NOTE

Notes or instructions that facilitate work and ensure safe operation.

CAUTION

Failure to observe these safety instructions may result in malfunctions or damage to property.

WARNING

Failure to observe these safety instructions may result in damage to property and personal injury.

WARNING DANGER TO LIFE

Failure to observe these safety instructions may result in serious personal injury or death.

NOTE

Keep the instructions for future use!

CAUTION

Subject to technical modifications!

Quality notes

The **sera** quality management and quality assurance system is certified in accordance with DIN EN ISO 9001:2015.
The **sera** product complies with the applicable safety requirements and accident prevention regulations.

1. GENERAL 4
1.1 Design criteria 4
1.2 Proper use 5
1.3 Noise level 5
2. SAFEY INSTRUCTIONS 6
2.1 Personnel qualification and training 6
2.2 Dangers if the safety instructions are not observed 7
2.3 Safety-conscious work 7
2.4 Safety instructions for the operator/user 7
2.5 Safety instructions for maintenance, inspection and installation work 7
2.6 Unauthorised conversion and production of spare parts 7
2.7 Improper modes of operation 8
2.8 Personal protective equipment during maintenance and repair 8
3. TRANSPORT AND STORAGE 8
3.1 Transport 8
3.2 Storage 8
3.3 Environmental conditions for transport and storage 8
4. FUNCTIONAL DESCRIPTION 9
4.1 General description 9
4.2 Constructive structure 9
5. TECHNICAL DATA 10
6.1 Pump data 10
6.2 Motor data 10
6.2 Characteristic curves 11
6.3 Materials 13
6.4 Dimensions 14
6. INSTALLATION 18
6.1 Installation / Mounting 18
6.2. Installation example 18
6.3 Electrical connection 20
7. COMMISSIONING / DECOMMISSIONING 21
7.1 Piping and pressure testing 21
7.2 Initial operation and recommissioning 21
7.3 Decommissioning 22
7.4 Disposal 22
8. MAINTENANCE / SERVICING 23
8.1 General notes 23
8.2 Preventive maintenance 23
9. MOUNTING 24
10. MALFUNCTION, CAUSE, REMEDY 27
11. CLEARANCE CERTIFICATE 28
DECLARATION OF CONFORMITY 29

1. GENERAL

The pump may only be operated for the purposes confirmed by the manufacturer.
In case of changed operating conditions, **sera** must be consulted.

To ensure proper functioning, optimum service life and to protect against damage resulting from improper handling, these operating instructions must be read carefully and observed!

All pumps of this series are constantly subjected to intensive quality and safety checks.
They comply with the relevant EC safety directives, in particular the EC Machinery Directive 2006/42/EC.

sera is not liable for damage caused by improper pump operation, by exceeding the technical application limits or by the choice of unsuitable materials. The operation of the pump, especially in connection with hazardous substances, is at your own risk.

1.1 Design criteria

NOTE

Already during the planning of a system, i.e. before the pump is used for the first time, all basic questions regarding the pump's usability must be clarified.

Suitable calculations and careful system planning must ensure that the pump cannot be operated outside the permissible operating range at any time.
The application limits of the pump can be found in the master data sheet as well as in the product description. All information on permissible pressure load, maximum media and ambient temperature, maximum viscosity and resistance to aggressive media must be carefully checked with regard to the existing operating conditions before initial commissioning. In case of doubt, consult an expert or have critical questions checked by the relevant approval authorities.

NOTE

Always observe the regulations of the local and statutory safety and supervisory authorities when designing the pump!

WARNING

Please note that the parameters for the flow rate and delivery head change during suction operation with varying suction heights and suction pipe diameters. The corresponding performance data can be found in the characteristic curve for the respective pump type.
Please also note that all operating data in these operating instructions refer to water at 20 °C and that not all specified limit values apply at the same time.

1.2 Proper use

sera products are to be used exclusively for the intended purpose specified in the product description and acceptance test certificate. In case of changes of the intended use, the suitability for the new conditions of use must be clarified with **sera**!
Criteria for the intended use:

- Operating conditions at the installation site.
- Power supply.

Additionally for products in contact with the medium:

- Consider the properties of the pumped medium (see the safety and product data sheet for the pumped medium used - the safety data sheet must be provided by the supplier/operator of the pumped medium).
- Pressure and temperature of the pumped medium.

CAUTION

Attention must be paid to the resistance of the pump materials! (see relevant resistance lists)

When pumping media that crystallise, make absolutely sure that the medium does not crystallise in the pump. If necessary, all parts that come into contact with the medium must be flushed thoroughly immediately after decommissioning.

OPERATIONAL LIMITS		
Maximum operating pressure	up to 6,2 bar (90 psi)	
Maximum viscosity	150 cP	
Maximum medium temperature	PP: 82°C (180°F)	PVDF: 104°C (220°F)

It should be noted that the maximum media temperature depends on the application.
Please refer to the relevant literature or contact the chemical manufacturer.

SOLIDS	
Maximum particle size:	100 µm
Maximum particle hardness:	80HS
Maximum solids concentration:	10%

Conveying media containing solids requires the use of ceramic or SiC plain bearings.
Solids-containing pumped media increase wear.
Please observe the maximum permissible motor power of the magnetic coupling.

NOTE

Unauthorised disassembly of the pump or the use of spare parts not supplied by **sera** will invalidate the warranty!

1.3 Noise level

The noise level is < 70 dB (A) according to DIN EN 12639 (noise measurement of liquid pumps).

2. SAFEY INSTRUCTIONS

WARNING DANGER TO LIFE

WEARERS OF PACEMAKERS ARE STRICTLY PROHIBITED FROM OPENING AND UNPACKING DELIVERIES CONTAINING MAGNETS AND FROM WORKING ON THE OPENED PUMP!

WARNING

For the **sera** products, the regulations applicable at the installation site, the listed instructions, the safety data sheet of the pumped medium (for media-affected products) and especially the safety instructions must be observed before commissioning, installation and during operation!

WARNING

Strong magnetic fields emanate from unmounted drive magnets and the impeller units,
which can negatively influence the function of pacemakers. This can lead to failure of the pacemaker.
failure of the pacemaker.

Keep drive magnets away from sensitive electronic components and medical devices of all kinds.

When the pump is assembled, i.e. when it is closed, no magnetic fields from the magnets have any effect on the outside. Strong magnetic fields emanate from drive magnets. When approaching (placing) the drive magnet on ferromagnetic surfaces (e.g. welding tables), there is a risk of fingers being crushed.

It is essential to keep assembly areas clean, as all ferromagnetic materials are attracted by the magnetic fields.

Observance of the operating instructions and especially the safety instructions helps:

- To avoid hazards for people, machines and the environment.
- Increase the reliability and service life of the product and the entire plant.
- To reduce repair costs and downtime.

2.1 Personnel qualification and training

The personnel for operation, maintenance, inspection and assembly must have the appropriate qualifications for this work. The area of responsibility, competence and supervision of the personnel must be precisely regulated by the operator. If the personnel does not have the necessary knowledge, appropriate training and instruction must be provided by the operator. If necessary, this can be done by the manufacturer/supplier on behalf of the pump operator. Furthermore, the operator must ensure that the contents of the operating manual are fully understood by the personnel.

2.2 Dangers if the safety instructions are not observed

Failure to comply with the safety instructions may result in the loss of any claims for damages. Failure to comply with the safety instructions may result in a hazard to persons as well as to the environment and the product and may, for example, result in the following hazard:

- Failure of important functions of the product.
- Danger to the environment due to leakage of hazardous substances.
- Prescribed maintenance and servicing work can no longer be carried out or is ineffective.
- Danger to persons due to electrical and mechanical effects.
- Danger to people and machinery due to aggressive chemical effects or reactions.
- G Danger to people and machinery from chemical reactions and the formation of explosive atmospheres when aggressive, oxidative media such as iron III chloride $FeCl_3$) and hydrogen peroxide (H_2O_2) are dosed.

2.3 Safety-conscious work

The safety instructions listed in this operating manual, the existing national regulations for accident prevention, the safety regulations for the pumped medium applicable in the respective country of use and any internal working, operating and safety regulations of the operator must be observed.

2.4 Safety instructions for the operator/user

- If hot or cold machine parts lead to hazards, these parts must be protected against contact by the customer.
- Contact protection for moving parts must not be removed when the machine is in operation.
- Hazardous materials (e.g. toxic, hot) must be discharged in such a way that there is no danger to persons or the environment. Legal regulations must be complied with.
- Hazards due to electrical energy must be excluded (for details see e.g. the regulations of the VDE and the local power supply companies)

2.5 Safety instructions for maintenance, inspection and installation work

The operator must ensure that all maintenance, inspection and assembly work is carried out by authorised and qualified personnel who have adequately informed themselves by studying the operating instructions in detail.
Only use spare parts that meet the requirements of the specified operating conditions.
Before recommissioning, the points listed in the section „Commissioning“ must be observed.

WARNING

All screw connections and joints may only be loosened when the system is depressurised!
Have defective mains connection lines or signal lines replaced by qualified personnel!

The pump is magnetically coupled. When carrying out repairs, be aware of the risk of magnetic fields, e.g. influence on pacemakers, when handling permanent magnetic components.

2.6 Unauthorised conversion and production of spare parts

Conversion or modifications are only permitted after consultation with the manufacturer. Original spare parts and accessories authorised by the manufacturer are used for safety. The use of other parts may invalidate liability for the resulting consequences.

WARNING

The use of unauthorised parts or unauthorised modifications invalidate any warranty claim against the manufacturer.

2.7 Improper modes of operation

The operational safety of the delivered product is only guaranteed if it is used as intended in accordance with chapter „General" under „Proper use". The limit values specified therein must not be exceeded under any circumstances..

2.8 Personal protective equipment during maintenance and repair

The safety advice of the Hazardous Substances Ordinance (GefStoffV) of the FRG (§14 Safety Data Sheet) or the safety regulations for the pumped medium valid in the respective country of use must be observed.
In the event of a malfunction, pay attention to the following possible emissions:

- Leakage of liquids.
- Leakage of vapours.
- Noise emissions (sound power level).

Emissions shall be monitored by appropriate control systems of the overall installation.

WARNING

Use protective clothing, protective gloves and suitable face and respiratory protection in accordance with the safety data sheet for the pumped medium!

NOTE

Personal protective equipment must be provided by the operator of the plant!

3. TRANSPORT AND STORAGE

3.1 Transport

The pump is delivered ready for operation.
In the event of transport damage, a statement of facts must always be carried out by the carrier.
The pump must always be transported professionally.

3.2 Storage

Intermediate storage should take place in dry conditions.
The pump must be protected against the ingress of impurities.

NOTE

The maximum permissible storage period is six months from the start of the delivery date.

3.3 Environmental conditions for transport and storage

Temperature: -10 °C up to +50 °C
Humidity: max. 95 % rel. humidity (non-condensing)

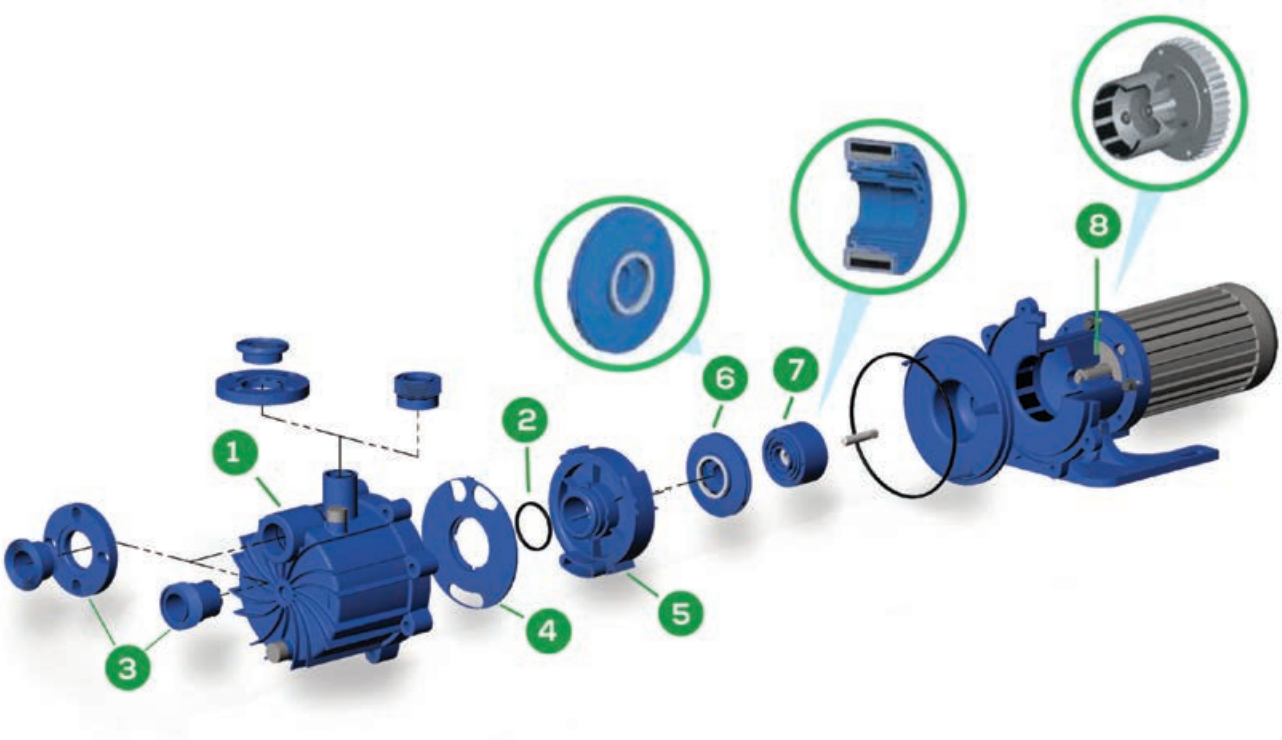
4. FUNCTIONAL DESCRIPTION

4.1 General description

Die Magnetkreiselpumpen der Baureihe MP sind selbstansaugende Kreiselpumpen aus Kunststoff, einstufig, in Blockbauweise. Pumpe und Elektromotor sind durch eine Magnetkupplung verbunden, die die Motorkraft auf das Laufrad überträgt.

4.2 Constructive structure

Pump housing, impeller magnet unit and containment can are made of plastic. Pump shafts made of oxide ceramics and a shaft bearing made of carbon are used as standard. The containment can hermetically seals the pumped medium from the atmosphere. Due to the magnetic power transmission, no shaft seal is required. Therefore, no leakage at the shaft is possible as in pumps with mechanical seals or stuffing box packings. The housing parts are statically sealed via O-rings. The impeller of the pump is designed as a radial impeller.
The individual components of the pump are available in different materials, depending on the medium.



POS	BESCHREIBUNG	
1	Thermoplastic housing	Same housing for 50/60Hz operation. The housing functions as a receiver tank and does not require a foot valve due to its „gooseneck" design.
2	O-Ring	the O-ring creates a vacuum-stable seal between the inner volute casing and the receiver.
3	Connection possibilities	BSP or NPT threads, loose flanges (GRP or steel), screw-in parts.
4	Separator	Separates the gas component from the liquid medium.
5	Inner spiral housing	Allows efficient removal of air from the suction line, improves suction performance.
6	Impeller	The two-piece impeller design allows the impeller to be replaced without having to replace the internal magnet.
7	Dry-running system/ Magnetic technology	The pump can run dry for hours - if carbon bearing bushes are used. Neodymium magnets are the most powerful and efficient magnets on the market. The inner magnets are fully encapsulated in unfilled polypropylene or PVDF.
8	Easy Set-Magnet	The „Easy-Set" system ensures optimal magnet alignment without measuring tools.

5. TECHNICAL DATA

6.1 Pump data

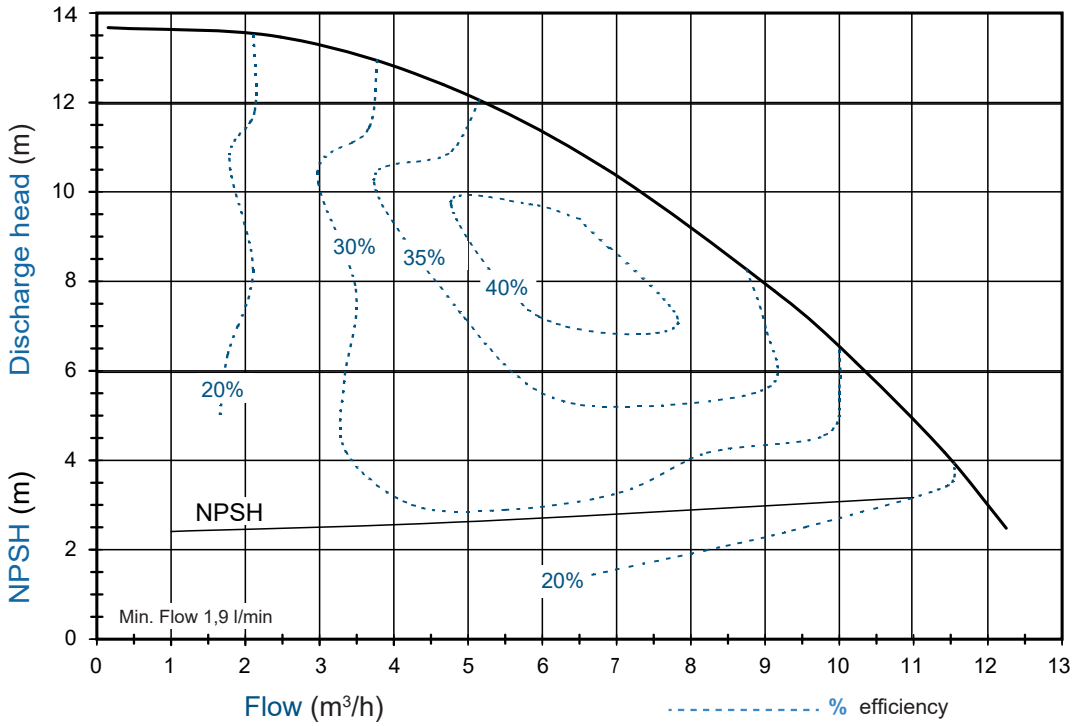
PUMP DATA			MP10	MP11	MP15	MP22
Impeller	Diameter	[mm]	106,2	133	140	177,8
Flow quantity Q_N	min.	[Litre/min]	1,9	15	20	39
	max.	[Litre/min]	203	400	430	798
		[m^3/h]	12,2	24,0	25,8	47,9
Discharge head	max. H	[mWC]	13,7	21,3	23,3	37,9
System pressure	max.	[bar]	5,5	6,2	6,2	6,2
Density	max.	[kg/dm^3]	1,8	1,8	1,8	1,8
Viscosity	max.	[cP]	150	150	150	150
Temperature	max. [°C]	PP	82	82	82	82
		PVDF	104	104	104	104
Weight	approx. [kg]	PP	5,1	12,8	12,8	21,0
		PVDF	5,4	13,9	13,9	23,0

6.2 Motor data

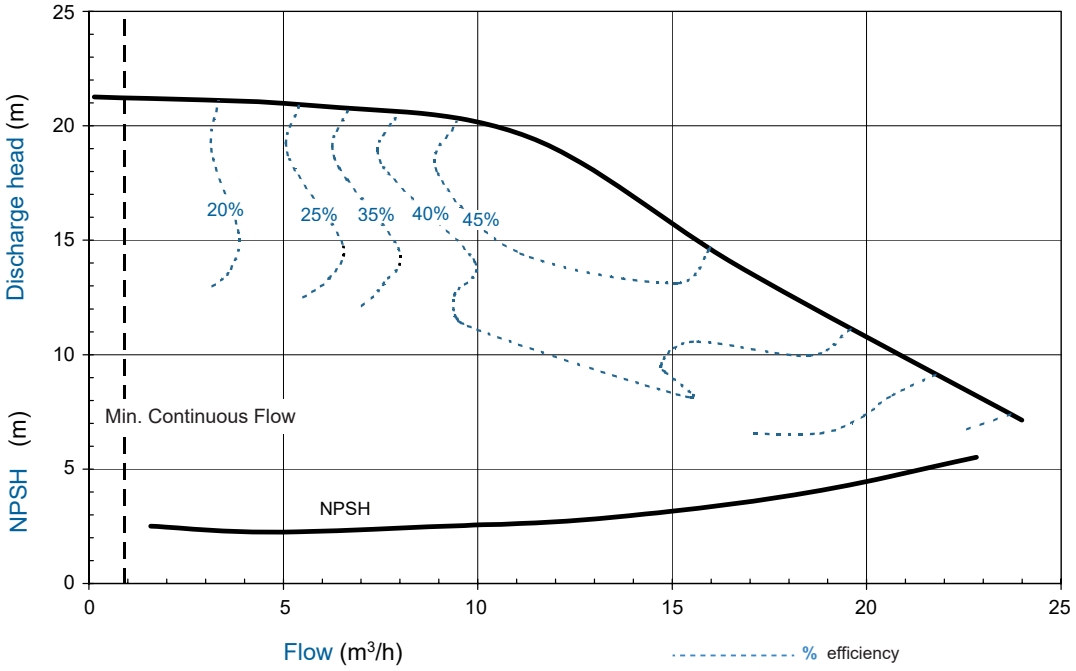
MOTOR DATA		MP10	MP11	MP15	MP22
Nominal speed	[rpm]	2.900			
Power consumption	[kW]	0,55	1,5	2,2	5,5
Nominal voltage	[V]	230/400	230/400	230/400	400/690
Frequency	[Hz]	50			
Enclosure	[IP]	55			
Isolation class		F			
Motor-Size	[BG]	71	90	90	132
Weight (without pump)	approx. [kg]	7,0	17,7	21,1	53,0

6.2 Characteristic curves

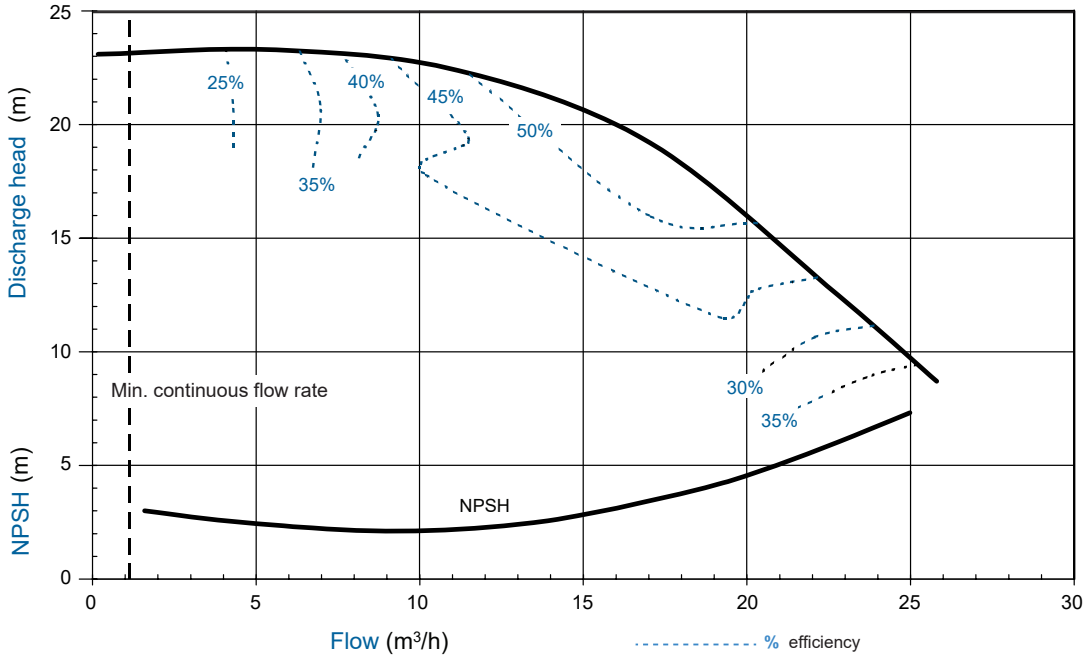
MP10



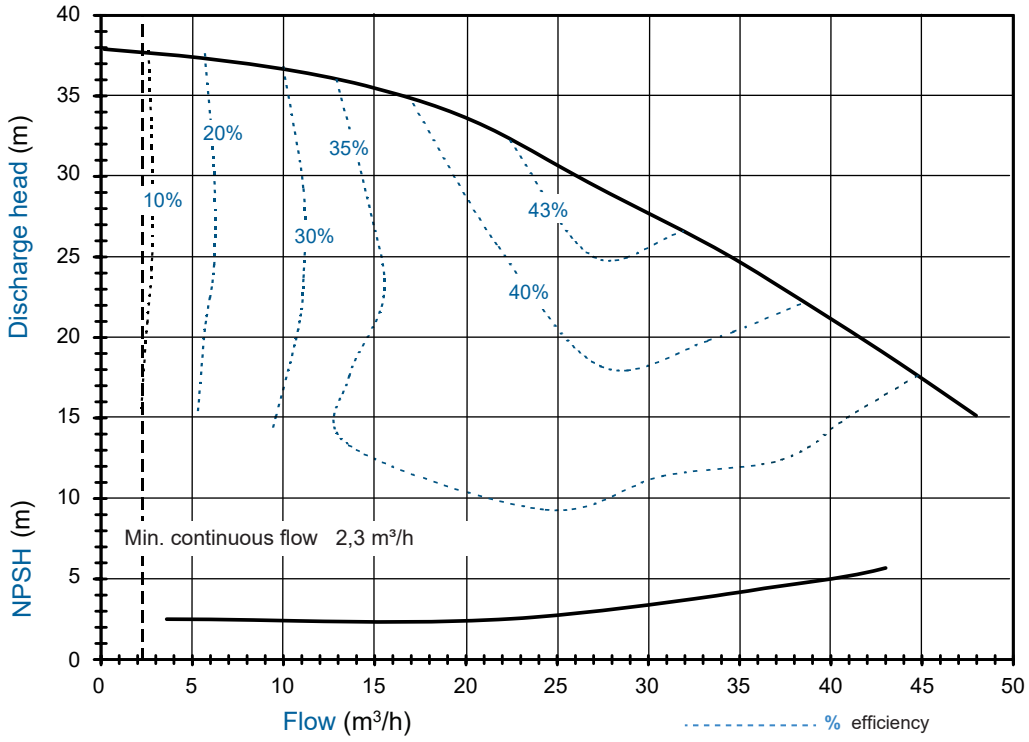
MP11



MP15


Discharge head (m)
NPSH (m)
Flow (m³/h)
25%
40%
45%
50%
35%
30%
35%
Min. continuous flow rate
NPSH
% efficiency

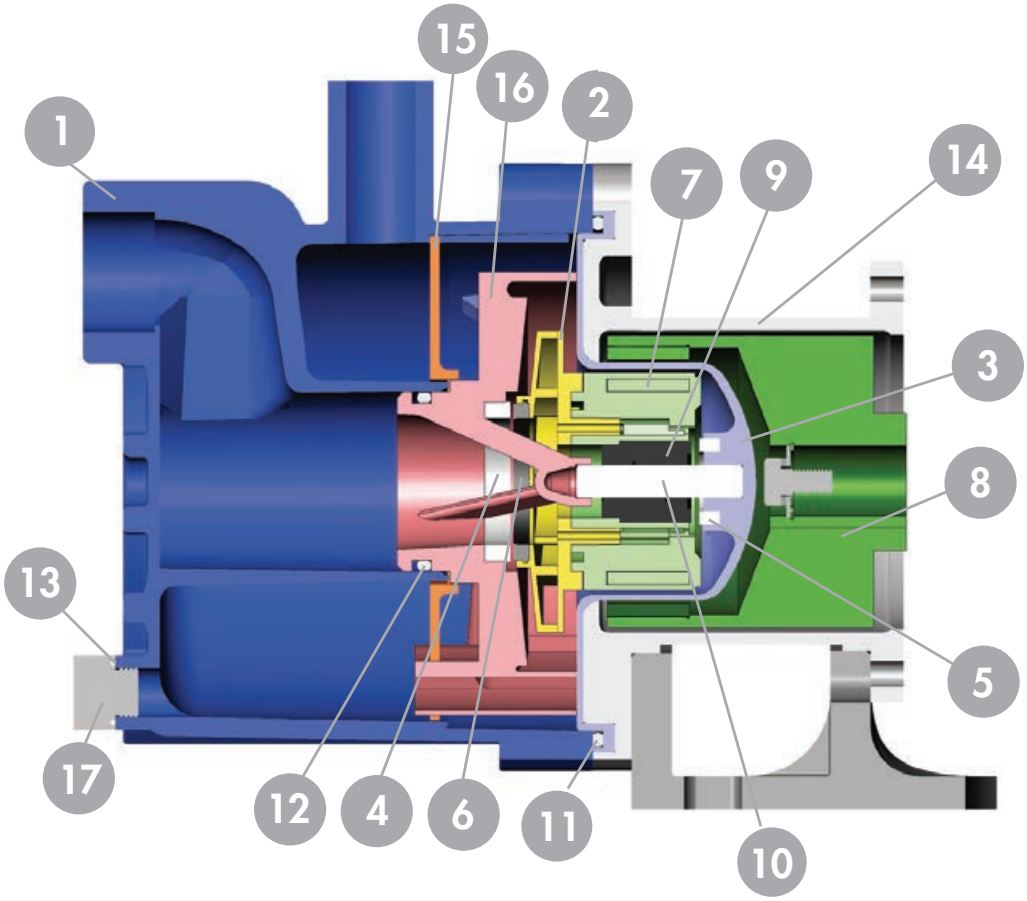
MP22


Discharge head (m)
NPSH (m)
Flow (m³/h)
20%
35%
10%
30%
43%
40%
Min. continuous flow 2,3 m³/h
% efficiency

6.3 Materials

NOTE

Die Werkstoffe sind dem Typschild oder dem Lieferschein zu entnehmen!

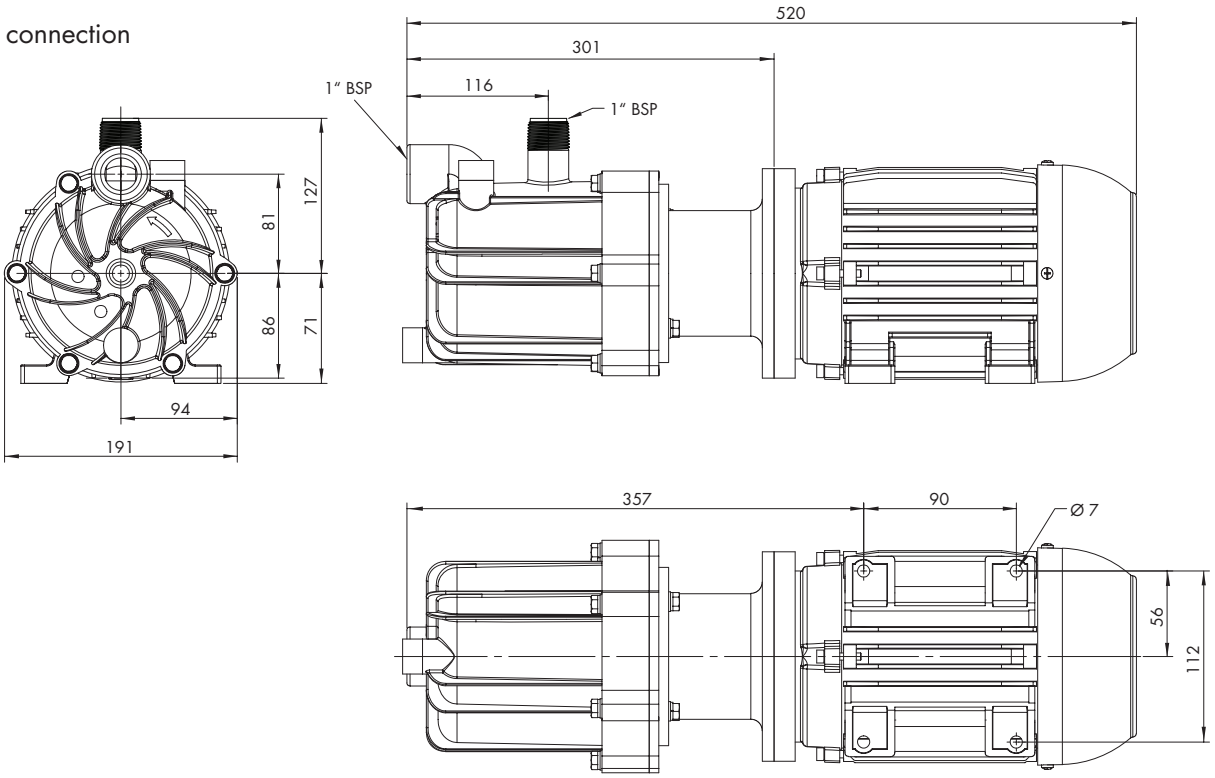


POS.	DESCRIPTION	PP-DESIGN	PVDF-DESIGN
1, 2, 3, 15, 16	Housing, impeller, containment can, separator, inner volute casing	glass fibre reinforced Polypropylene	carbon fibre reinforced Polyvinylidene fluoride
4	Axial disc, housing	99.8% High-purity aluminium oxide ceramic, silicon carbide	
5	Axial disc, containment can	99.8% High purity aluminium oxide ceramic	
6	Thrust ring, impeller	Molybdenum disulphide-filled PTFE, silicon carbide	
7	Internal magnet	Neodymium-iron-boron magnets encapsulated in encapsulated in unfilled PP	Neodymium-iron-boron magnets, encapsulated in encapsulated in unfilled PVDF
8	Drive magnet	Nickel-plated neodymium iron boron magnets / steel	
9	Plain bearing	Kohlenstoff, PTFE, 99,8% hochreine Aluminiumoxid-Keramik, Siliziumkarbid	
10	Shaft	Carbon, PTFE, 99.8% high-purity aluminium oxide ceramic, silicon carbide	
11,12, 13	O-Ring	FKM, EPDM (Simriz®, Kalrez®)	

6.4 Dimensions

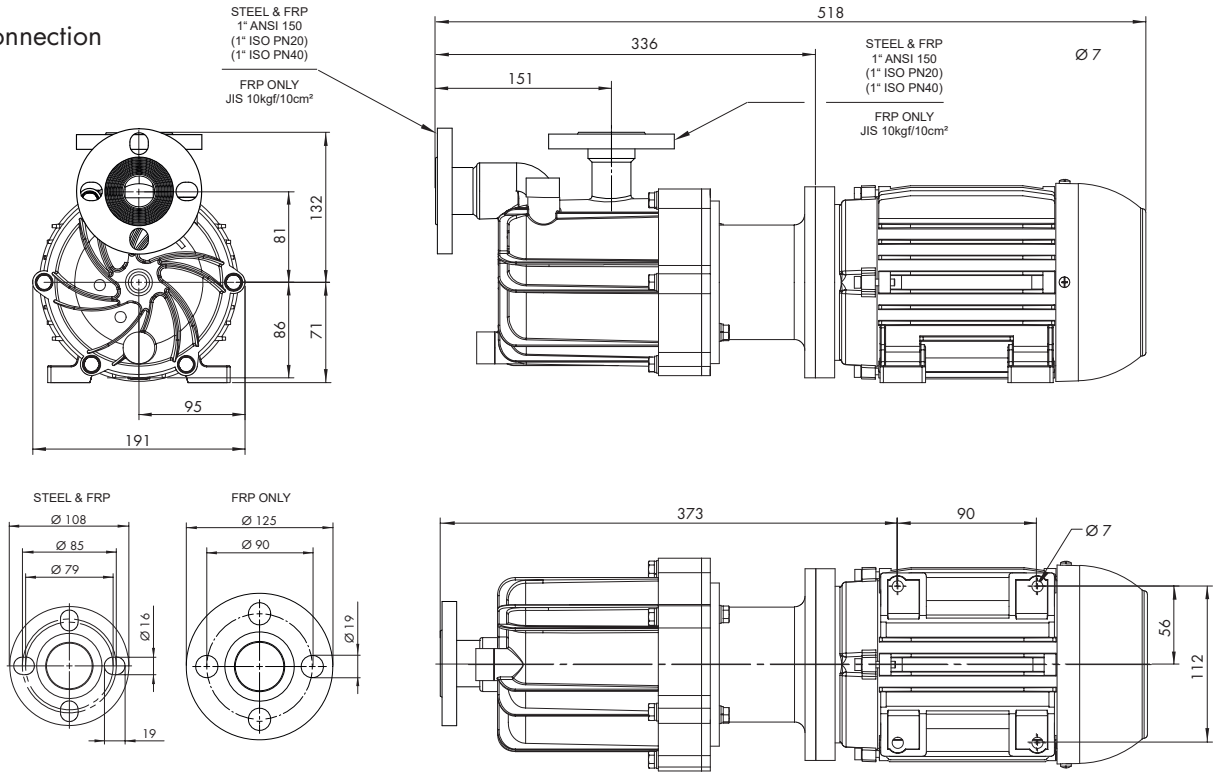
MP10

Threaded connection



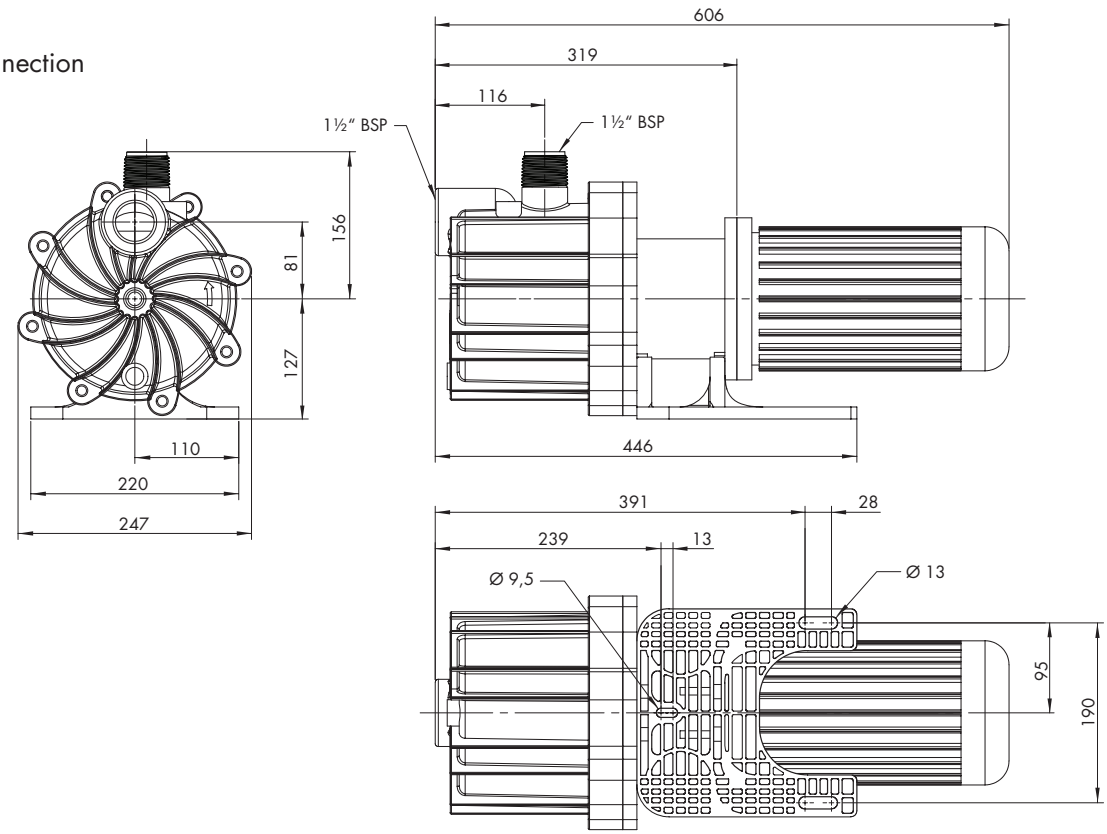
MP10

Flange connection



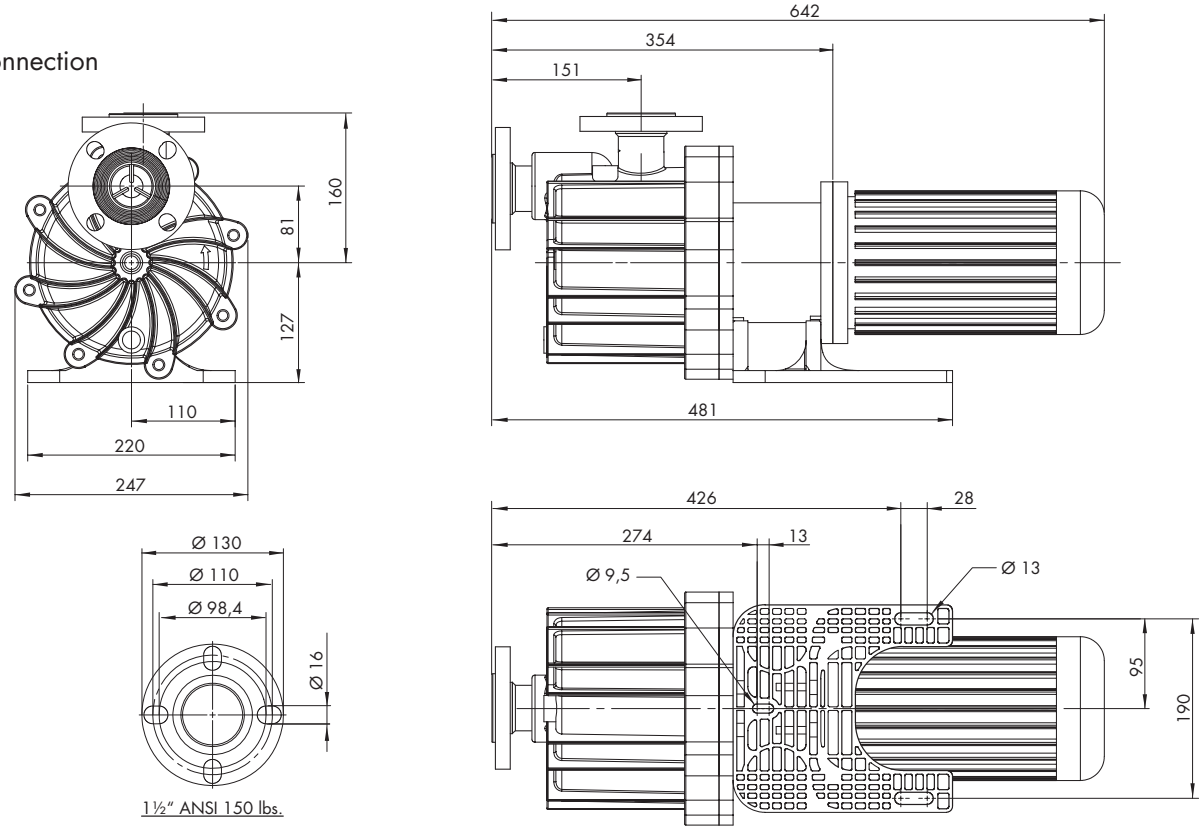
MP11

Threaded connection



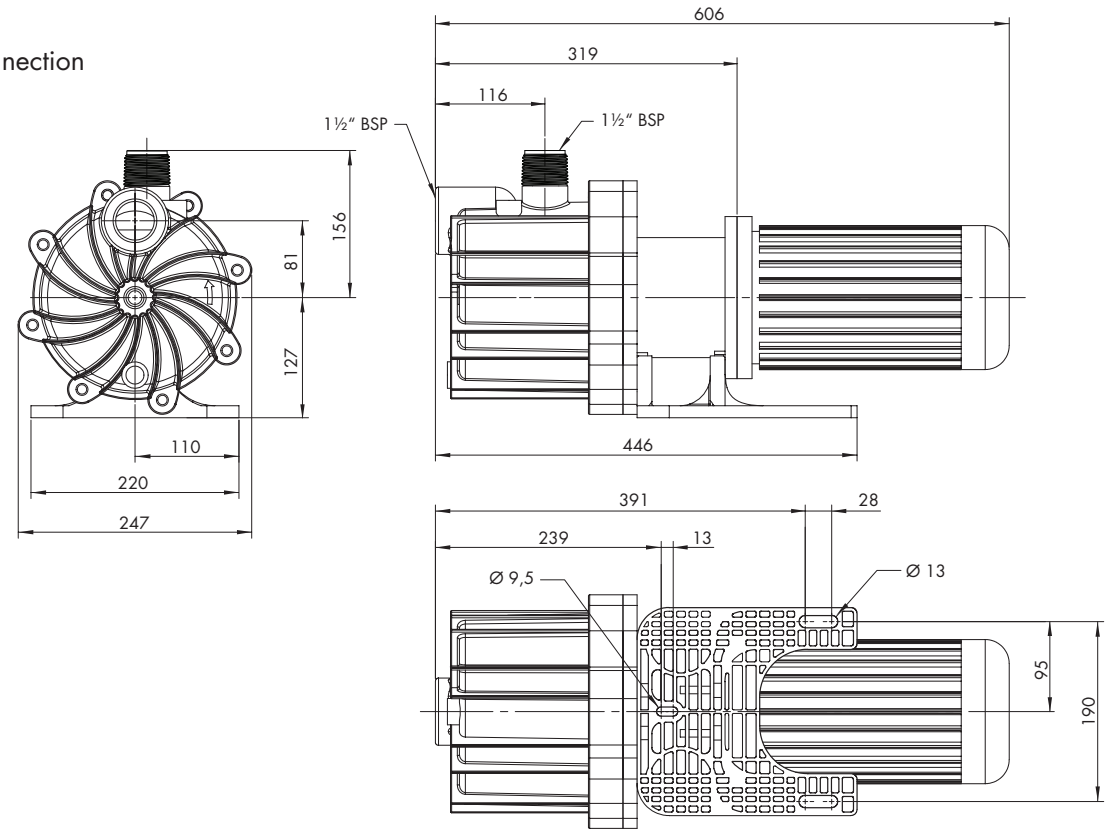
MP11

Flange connection



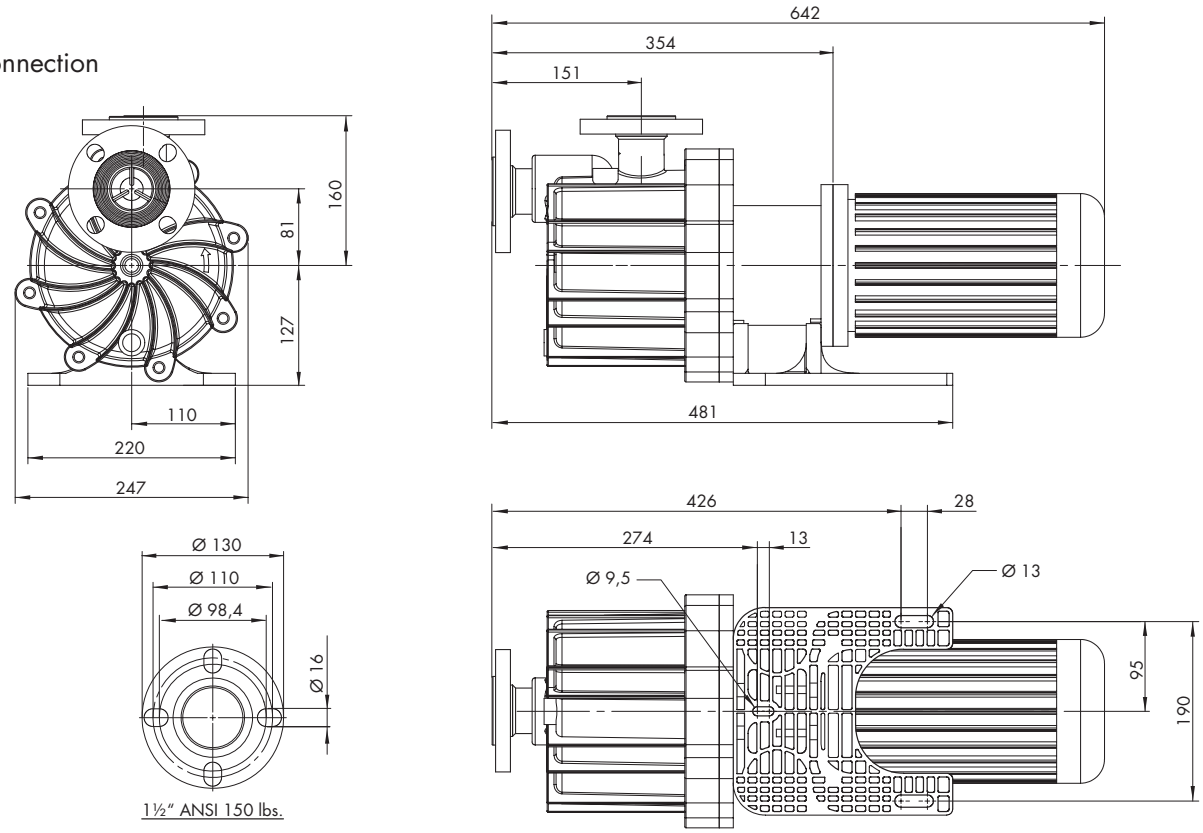
MP15

Threaded connection



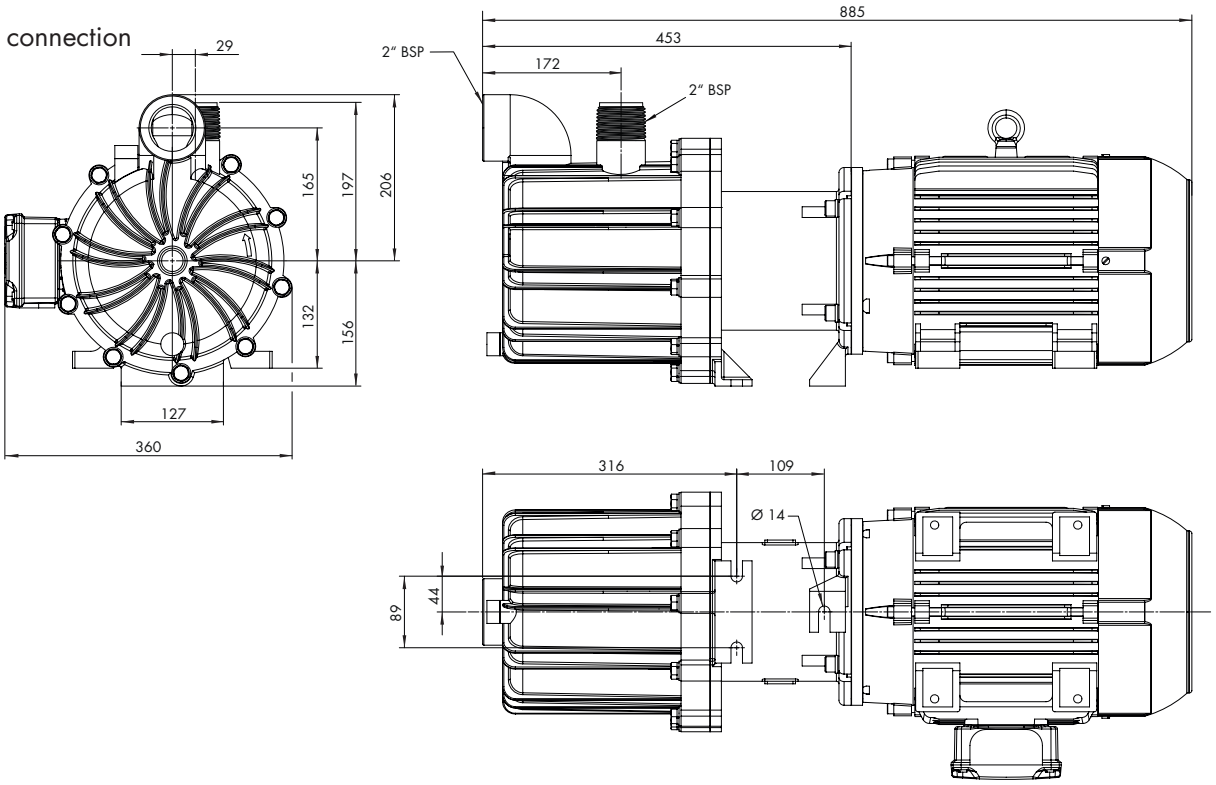
MP15

Flange connection



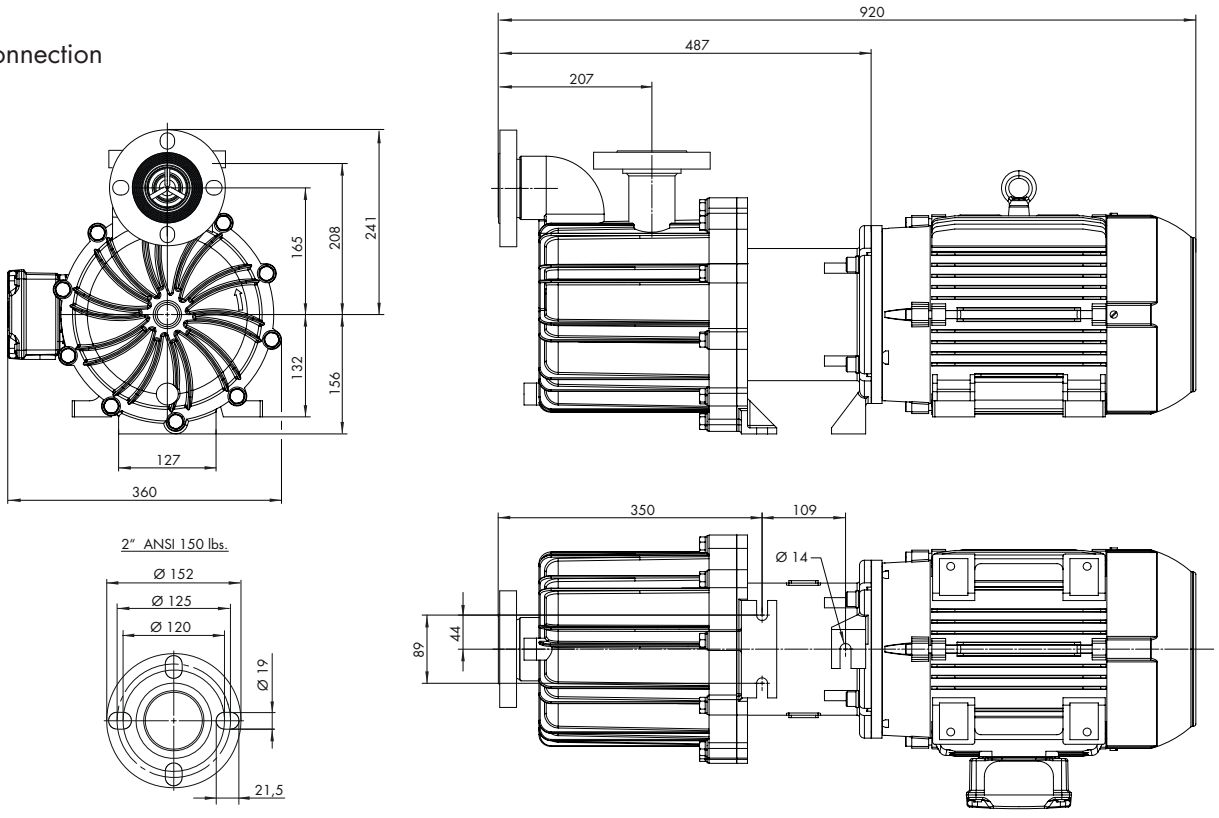
MP22

Threaded connection



MP22

Flange connection



6. INSTALLATION

6.1 Installation / Mounting

The installation site should be chosen so that the pump is easily accessible.
The motor feet must be fastened securely and on a firm base!
Do not install any quick-closing valves in the pipeline! Pressure surges destroy the pump housing.

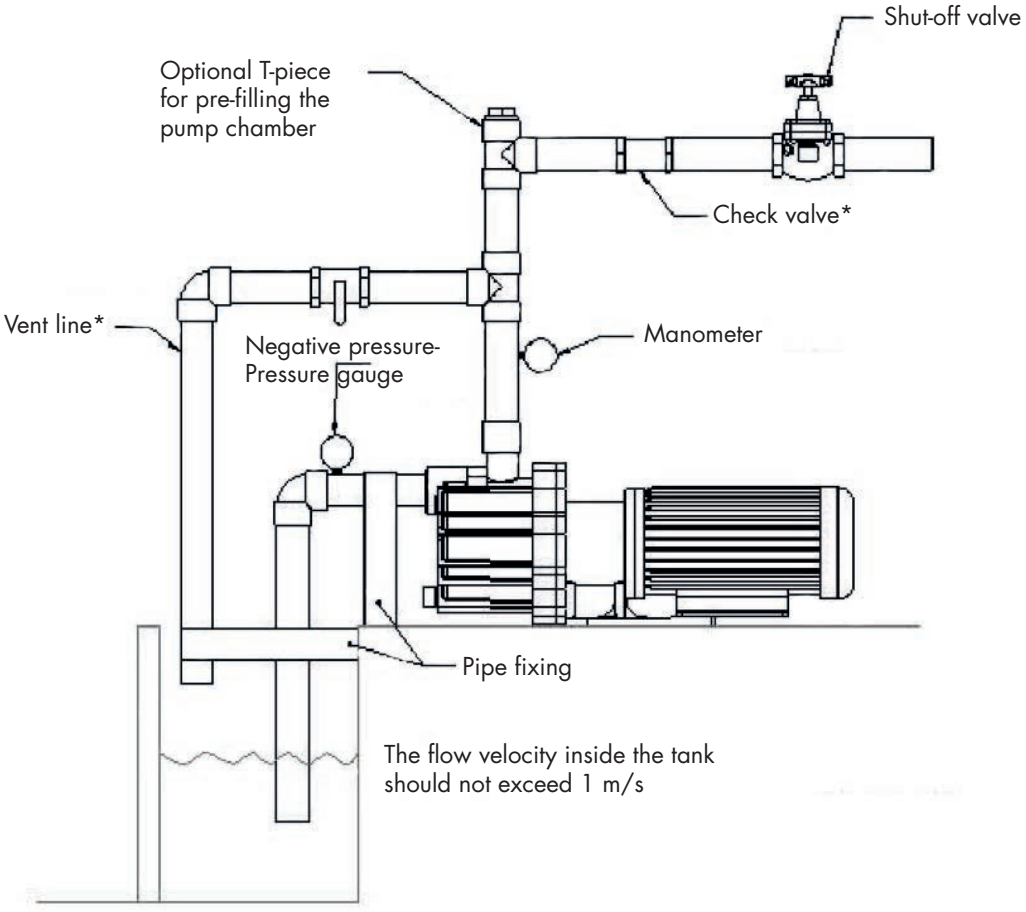
The following values must be observed:

Ambient temperature:	-10 °C up to +40 °C
Humidity:	max. 95 % relative humidity (non-condensing)

NOTE

For all motors of sizes IEC 63, IEC 71 as well as IEC 80 in design B5, spacers must be used to fix the pump.

6.2. Installation example



* A vent line is required if there is a non-return valve in the system and it is not at a distance greater than or equal to the suction lift to the pump outlet.

⚠ CAUTION

Always ensure sufficient net positive suction head available (NPSHa). The recommended value is at least 0.5 m (2 feet) above the required net positive suction head (NPSHr).
Suction head, pipe loss and the vapour pressure of the pumped medium must be included in the calculation.

When installing the suction line, the following regulations must be observed:

- Keep the suction line as short as possible
- Pumps of the MP series may only be operated in horizontal orientation (with the pressure side up).
- The pumps of the MP series achieve their self-priming by building up a vacuum. It is therefore necessary that the suction line is vacuum-stable.
- Install the suction and discharge lines free of stress and vibration. All suction and pressure lines must be secured with fasteners so that the pump housing is not exposed to any stress.
- The suction line is to be as short as possible and without elbows on a direct route.
- The suction line in front of the pump suction side should have a straight calming section of approx. one metre to ensure laminar flow and to prevent cavitation.
- Unnecessary deflections of the suction line mean additional suction losses and can lead to cavitation.
- The suction line should have at least the diameter of the pump inlet, better more, in order not to negatively influence the NPSH value. Never use a smaller suction line!
- Install valves or bends at a distance of at least 10 times the pipe diameter from the pump.
- If there are solids in the tank, a strainer on the suction side can be installed to prevent foreign matter from entering the pump. To prevent cavitation, the strainer must be cleaned regularly.
- It is recommended to use a vacuum gauge in the suction line.
- For higher suction heights, the use of a foot valve is recommended.
- If non-return or control valves are used, they must be installed in the discharge line. Shut-off valves on the suction and discharge side are used to shut off the pump for maintenance work. A non-return valve protects the pump from damage due to water hammer. This is particularly important with high static head.

i NOTE

If a non-return valve is used on the pressure side, the distance to the pump must be at least as high as the maximum suction height. If this is not possible, a vent valve must be provided on the pressure side.

- When using flexible hose, pay attention to vacuum stability (reinforced hose), temperature range and chemical resistance.
- The shut-off valve on the suction side must be fully open to avoid restricting the suction flow.
- When installing pumps with flanges, we recommend using seals with low seating stress, e.g. made of Gore-Tex or Gylon (expanded PTFE).
- It is advisable to install a flushing system in the piping so that the pump can be flushed when it is taken out of service.

NOTE

The pump is equipped with a 1/2" BSP female thread connection in the pump housing.

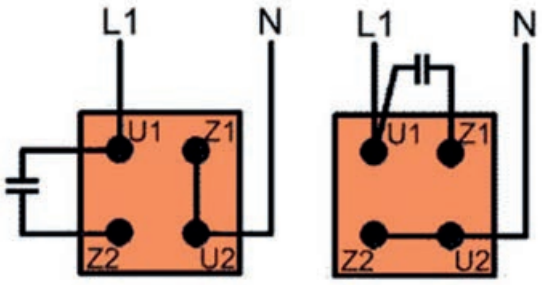
- A „T-piece" can be installed in the discharge line for filling the casing with liquid before pump operation.
- „Filling" is defined as filling the casing as follows:

Pump type	Litre
centrifugalPUMP **MP10**	2,7
centrifugalPUMP **MP11**	3,8
centrifugalPUMP **MP15**	3,8
centrifugalPUMP **MP22**	9,5

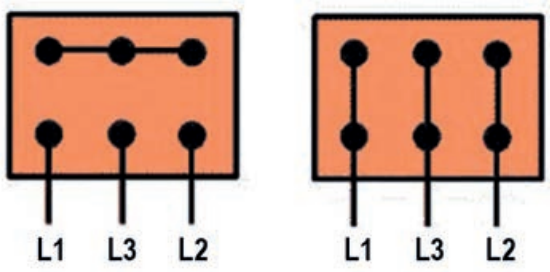
- Suction" is the evacuation of all air from the suction line/pump. The air is replaced by liquid.

6.3 Electrical connection

1-phase AC motors are to be connected according to the following scheme:



3-phase AC motors are to be connected as follows:



Star connection

Delta connection

CAUTION

Do not check the direction of rotation without liquid in the pump!

- The motor must be protected by a motor protection switch.
- Before any intervention in the terminal box of the pump, the supply voltage must have been switched off for at least 5 minutes.
- Make sure that the data on the type plate correspond to those of the existing power supply.
- The electrical connection and the additional protection must be carried out by a specialist in accordance with the local regulations of the power supply company or VDE.

7. COMMISSIONING / DECOMMISSIONING

7.1 Piping and pressure testing

Before commissioning the pump, clean all pipes carefully and flush them if necessary. Make sure that no impurities remain in the pipelines that could damage the pump. The pump must be connected to the piping by a suitably trained specialist. The piping must be free of tensions; if necessary, pipe compensators must be installed in front of the pump connections (suction and pressure side). All flange connections must be checked for tightness. Before commissioning, subject the piping including the pump to a pressure test. Check the permissible operating pressure of the pump using the data sheets supplied.

WARNING

During a pressure test, the maximum permissible operating pressure of the pump must not be exceeded. To avoid dangerous static charging, the piping must be earthed. When using plastic pipes, the earthing must be carried out depending on the electrical conductivity of the material. Observe the information in the conductivity certificate of the plastic manufacturer. The piping must also be fastened separately.

7.2 Initial operation and recommissioning

It is essential to observe and follow chapter 2 „SAFETY INSTRUCTIONS“.

Before commissioning the pumps for the first time and before each commissioning after a repair, make sure that the casing screws for mounting the front casing of the pump and the motor screws for mounting the drive motor are sufficiently tightened. Observe the torque specifications. Never put the pump into operation if the casing screws or motor screws are missing or insufficiently tightened. Otherwise there is a considerable risk of injury due to components coming loose and flying around.
Ensure that the pump is sufficiently filled with liquid before commissioning.

CAUTION

The pump must not be run against the closed pressure line for a longer period of time. This may cause the medium in the pump housing to heat up and damage the internal parts of the pump!

CAUTION

The pump must be protected from coarse impurities and magnetisable metal particles in the pumped medium!

If the motor is switched off by the motor protection switch, proceed as follows:

- Before switching on again, check whether the impeller of the pump can be turned easily.
- Check that the suction pipe and pump housing are filled with liquid.
- Switch on the motor again.

  If the pump delivers briefly and the flow then stops, the magnetic coupling has been overloaded and thus disengaged. Please proceed as described in „Chapter 8“.

7.3 Decommissioning

- Switch off the engine.
- Close the shut-off valves.
- In case the medium remains in the system, secure the fittings against accidental opening.

7.4 Disposal

This product and parts of it must be disposed of in an environmentally friendly manner.

CAUTION

Please observe the regulations currently in force in your town (especially with regard to electronic waste)!
For Germany:
The cleaned old parts can be handed in at the municipal collection points of the cities and communities.

8. MAINTENANCE / SERVICING

8.1 General notes

Die Pumpe ist für Dauerbetrieb geeignet und erfordert keine besondere Wartung.

8.2 Preventive maintenance

- To avoid overheating of the motor, the fan guard must be cleaned at least once a month!

- Slide bearings, pump shaft and axial discs are designed for continuous operation, but should be checked for
- should be checked for deposits at regular intervals. In the case of contaminated, sludgy and crystallising media, the pumps must be the pumps must be checked at shorter intervals and cleaned if necessary.

CAUTION

When assembling or disassembling the pump, make sure that there are no metal particles at the workplace!
When assembling or disassembling the pump head, there is a risk of injury from magnetic forces!

The condition of the static seals must be checked at regular intervals and replaced if necessary.

9. MOUNTING

Required tools:

- Socket spanner set, metric
- Spanner set, metric
- Hexagon socket set „
- Hexagon wrench set, metric
- Hexagon wrench set SAE (for NEMA engines)
- Combination pliers

STEP 1:

Remove the pump, the drive magnet and the assembly parts from the packaging.

CAUTION

Keep all metallic particles, tools and electronic devices away from the drive magnet.
The drive magnet must be free of metal chips.

STEP 2:

Place the drive motor on a suitable work surface as shown in Fig.1.

STEP 3:

For IEC motors, the motor adapter must first be mounted on the motor flange.
This is done with the screws, washers and lock washers supplied as shown in Fig. 2.

The tightening torques of the screws are as follows:

IEC 63	(M4)	=	3,4 Nm	(30 in/lb)
IEC 71	(M5)	=	10,2 Nm	(90 in/lb)
IEC 80	(M6)	=	10,2 Nm	(90 in/lb)

Please note that the motor adapter for sizes IEC 63 or IEC 71 can be used on both sides. Make sure that you mount it on the correct side. Use a suitable grease for the threads of the screws.

STEP 4:

Grease the motor shaft with suitable grease and place the key, supplied with the electric motor, in the keyway of the electric motor.

NOTE

The motor shaft must be clean and free of burrs. The bore of the drive magnet is precision machined and has a tolerance of +0.0127 mm (0.0005 inch)/ -0 mm (0 inch).

Figure 1

Figure 2

Figure 3

STEP 5:

Push the drive magnet unit onto the motor shaft as shown in fig. 4 and 5 until the circlip integrated in the bore rests on the shaft end of the drive motor.

Figure 4

Figure 5

STEP 6:

Securing the drive magnet on the motor shaft

CAUTION

The strong permanent magnets can attract surrounding metallic objects or the tool used.

when using IEC motors:

As shown in Fig. 6, the drive magnet unit is secured on the motor shaft by means of the parts supplied (screw, spring washer and washer). To do this, turn the screw (with washer and spring washer) into the thread in the motor shaft. To enable tightening, secure the drive magnet unit against turning.

IEC 63	(M4)	=	1,7 Nm	(15 in/lb)
IEC 71	(M5)	=	3,4 Nm	(30 in/lb)
IEC 80	(M6)	=	10,2 Nm	(90 in/lb)

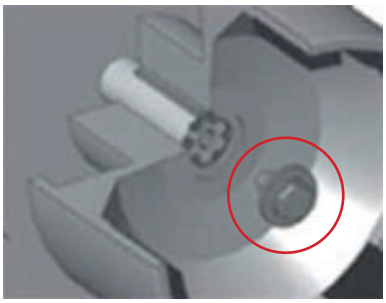


Figure 6

when using NEMA motors:

Secure the drive magnet unit using the two 3/8" grub screws supplied. These are screwed into the two threads on the side of the drive magnet unit using a 3/16" Allen key (see fig. 7).

The tightening torque for this is 25.8 Nm (228 in/lb).

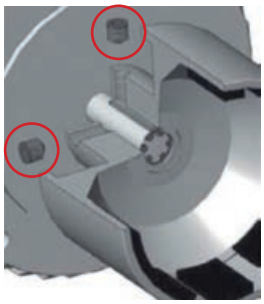


Figure 7

STEP 7:

Fix and secure the previously mounted drive unit (electric motor with mounted drive magnet unit) in a horizontal position on a workbench.

Carefully push the pump head onto the drive unit (see fig. 8).
On the last 5 cm there is a very strong magnetic attraction force between the pump and the drive magnet unit. Screw the pump to the drive unit (fig. 9).

Use the screws, spring washers and washers supplied.
Use a 9/16“ hexagon nut or a 9/16“ spanner.

The tightening torque is 27.1 Nm (240 in/lb).

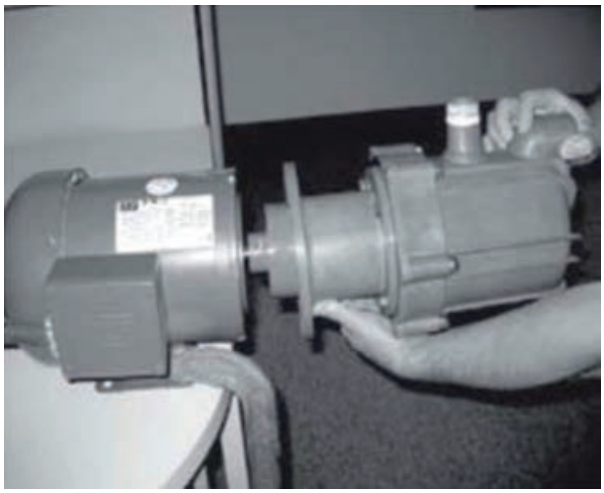


Figure 8

Figure 9

STEP 9:

Turn the motor fan to make sure that the pump turns freely and does not block.

10. MALFUNCTION, CAUSE, REMEDY

Malfunction	Possible cause	Rectification of the fault
Pump does not start after switching on	No voltage	Check voltage
	Foreign matter in the pump housing	Remove foreign bodies
Disengagement of the magnetic coupling	The specific gravity and/or viscosity of the pumped liquid is too high.	Throttle the delivery; use a stronger magnetic coupling and a stronger motor
	Pump was switched off and restarted before the rotor came to a standstill.	the rotor must come to a standstill before it can be restarted
Motor gets too hot	Fan cover is dirty	Clean fan and fan guard .
Pump runs and does not deliver	Air in the pipes	vent
Pump has loud flow noises	Cavitation	enlarge the suction line
		throttle on the pressure side
		Lower the temperature of the liquid
Pump does not prime	No liquid in the pump	Fill pump head
Delivery rate too low	Air in the system	Vent
	Cross-section of suction and discharge pipe too small (high losses)	Increase cross-section of suction and discharge line
	Valve not fully open	Open valve completely
Delivery rate too high	Losses of the system are lower than assumed	Install a throttle valve in the discharge line.

11. CLEARANCE CERTIFICATE

NOTE

Inspection / repair of machines and machine parts is only carried out after the clearance certificate was filled in correctly and completely by authorized and qualified personnel.

NOTE

Acceptance will be refused if parts are returned to the manufacturer without a proper clearance certificate.

All industrial companies are obligated by the legal provisions for occupational health, e.g. the workplaces ordinances, the Ordinance on Hazardous Substances, the regulations for prevention of accidents and the environmental protection regulations such as the Waste Management Act and the German Household Water Act to protect their employees or man and the environment from detrimental effects when handling hazardous substances.

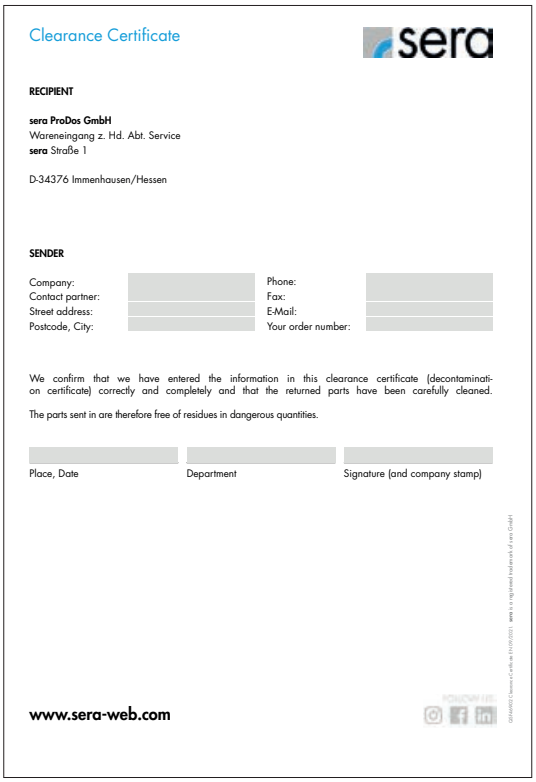
Should special safety precautions be necessary despite careful draining and cleaning of the product the necessary information are to be provided.

Machines which are operated with radioactive media shall only be inspected and/or repaired in the safety area of the owner by a **sera** specialized fitter.

The clearance certificate is part of the inspection-/repair order.
sera reserves the right to refuse acceptance of the order for other reasons.

DOWNLOAD
Clearance certificate

Or directly scan
the QR code opposite:



Clearance Certificate

sera

RECIPIENT

sera ProDos GmbH
Wareneingang z. Hd. Abt. Service
sera Straße 1

D-34376 Immenhausen/Hessen

SENDER

Company:		Phone:	
Contact partner:		Fax:	
Street address:		E-Mail:	
Postcode, City:		Your order number:	

We confirm that we have entered the information in this clearance certificate (decontamination certificate) correctly and completely and that the returned parts have been carefully cleaned.

The parts sent in are therefore free of residues in dangerous quantities.

Place, Date | Department | Signature (and company stamp)

www.sera-web.com

EG-KONFORMITÄTSERKLÄRUNG
FÜR EINE MASCHINE

Original

Firmenbezeichnung und vollständige Anschrift des Herstellers:

***sera Technology Austria GmbH**, Gewerbestraße 5, Österreich - 4774 Sankt Marienkirchen*

Beschreibung und Identifizierung der Maschine:

Horizontale, selbstansaugende, magnetgekuppelte Kreiselpumpe

Bezeichnung: centrifugalPUMP

Baureihen: MP 10, 11, 15, 22

Die Maschine entspricht allen einschlägigen Bestimmungen dieser Richtlinie:

2006/42/EG Maschinen
2014/30/EU Elektromagnetische Verträglichkeit

Gegebenenfalls angewandte harmonisierte Normen:

EN ISO 12100-1
EN ISO 12100-2
EN 809

Ort und Datum der Erklärung:

Sankt Marienkirchen, 14.02.2022

Angaben zur Person, die zur Ausstellung dieser Erklärung im Namen des Herstellers bevollmächtigt ist, sowie Unterschrift dieser Person:

Marco Kisch
(Geschäftsführer)

Technische Änderungen vorbehalten: stand 14.02.2022

NOTES

NOTES

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