OPERATING INSTRUCTIONS

MAGNETICALLY COUPLED CENTRIFUGAL PUMP

centrifugalPUMP SERIES **M**

TRANSLATION OF THE ORIGINAL OPERATING INSTRUCTIONS 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.

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1. General

The pump may only be operated for the purposes confirmed by the manufacturer.
If the operating conditions change, **sera** must be consulted.

CAUTION

If the pump is fitted with a PTFE, ceramic or SiC bearing bush, it cannot run dry without damaging the pump. However, the pump can be operated without liquid in the housing if the pump is fitted with a carbon bush. The exact period of time during which the pump can be operated dry with a carbon bushing depends on the operating conditions, pump size and environment.

1.1 Proper use

sera products may only be used for the intended purpose specified in the product description and acceptance test certificate.
If the intended use changes, 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:

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

CAUTION

Pay attention to the resistance of the pump materials! (see relevant resistance lists)

When pumping crystallising media, it is essential to ensure that the medium does not crystallise in the pump. If necessary, all parts in contact with the medium must be rinsed thoroughly immediately after decommissioning.

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

Please note 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 solids-laden media requires the use of ceramic or SiC plain bearings.
Solid-laden 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!

1.2 Sound pressure level

The sound pressure level is < 70 dB (A) in accordance with DIN EN 12639 (noise measurement of liquid pumps)

2. SAFETY INSTRUCTIONS

WARNING DANGER TO LIFE

Pacemaker wearers are strictly prohibited from opening and unpacking deliveries containing magnets and from working on the opened pump!

WARNING

For **sera** products, the regulations applicable at the installation site, the instructions listed, the safety data sheet for the pumped medium (for products that come into contact with the medium) and, in particular, the safety instructions must be observed before commissioning, installation and during operation!

Observance of the operating instructions and in particular the safety instructions helps to

- Avoid danger to people, machines and the environment.
- Increase the reliability and service life of the product and the entire system.
- Reduce repair costs and downtimes.

2.1 Personnel qualification and training

The personnel for operation, maintenance, inspection and installation 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 do not have the necessary knowledge, appropriate training and instruction must be provided by the operator. If necessary, this can be carried out by the manufacturer/supplier on behalf of the pump operator. Furthermore, the operator must ensure that the contents of the operating instructions are fully understood by the personnel.

2.2 Dangers if the safety instructions are not observed

Failure to observe the safety instructions may result in the loss of any claims for damages. Failure to observe the safety instructions may result in danger to persons, the environment and the product and may, for example, result in the following hazards:

- 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.
- Danger to people and machinery due to chemical reactions and the formation of explosive atmospheres when dosing aggressive, oxidising media such as iron-III-chloride ($FeCl_3$) and hydrogen peroxide (H_2O_2).

2.3 Safety conscious working

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

2.4 Safety instructions for the operator/user

- If hot or cold machine parts pose a hazard, these parts must be protected against contact on site.
- 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 risk 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 installation work is carried out by authorised and qualified specialist personnel who have studied the operating instructions in detail.
Only spare parts that fulfil the requirements of the specified operating conditions may be used.
Before recommissioning, the points listed in the „Commissioning" section must be observed.

WARNING

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

The pump is magnetically coupled. When carrying out repairs, attention must be paid to the danger of magnetic fields, e.g. influence on pacemakers, when handling permanently magnetic components.

2.6 Unauthorised conversion and manufacture of spare parts

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

WARNING

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

2.7 Unauthorised modes of operation

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

2.8 Personal protective equipment during maintenance and repair

The safety recommendations of the German Hazardous Substances Ordinance (GefStoffV) (§14 safety data sheet) or the safety regulations for the pumped medium applicable in the respective country of use must be observed.
In the event of a malfunction, the following possible emissions must be observed:

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

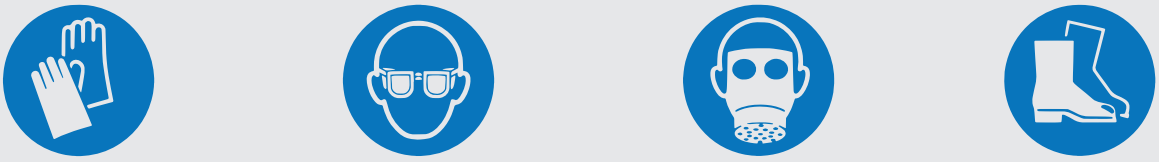
emissions must be monitored by appropriate control systems for the entire plant.

WARNING

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

NOTE

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



3. TRANSPORT AND TEMPORARY STORAGE

3.1 Transport

The pump is delivered ready for operation.
In the event of transport damage, a report must always be made by the carrier.
The pump must always be transported professionally.

3.2 Temporary storage

Zwischenlagerung soll bei trockenen Verhältnissen erfolgen.
Die Pumpe ist gegen Eindringen von Verunreinigungen zu schützen.

3.3 Ambient conditions for storage and transport

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

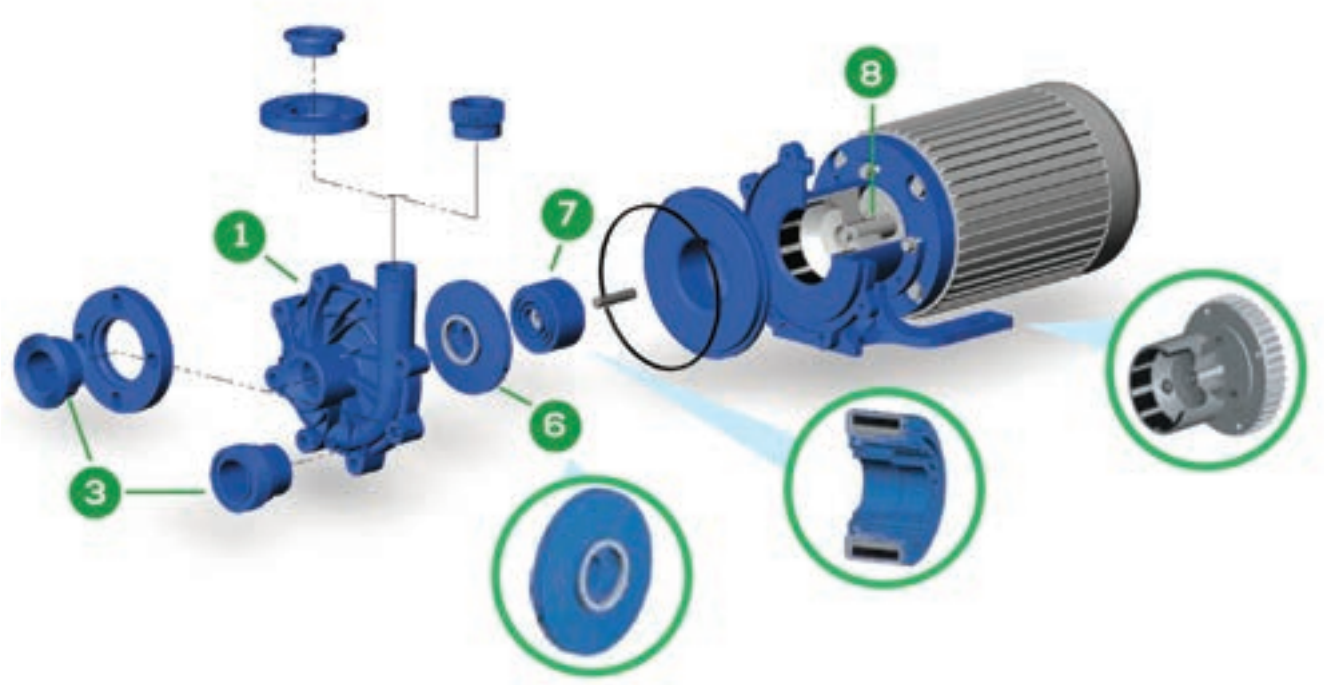
4. FUNCTIONAL DESCRIPTION

4.1 General description

The magnetic centrifugal pumps of the M series are normal-priming centrifugal pumps made of plastic, single-stage, in block design. The pump and electric motor are connected by a magnetic coupling that transmits the motor power to the impeller.

4.2 Constructive design

The pump housing, impeller magnet unit and containment can are made of plastic. Oxide ceramic pump shafts and a carbon shaft bearing are used as standard. The containment shroud hermetically seals the pumped medium from the atmosphere. No shaft seal is required due to the magnetic force transmission. Therefore, no leakage at the shaft is possible as with 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	DESCRIPTION
1	Thermoplastic housing
3	Connection options
6	Impeller
7	Dry-running system/magnet technology
8	Easy Set magnet

NOTE

The materials can be found on the type plate or the delivery note!

5. TECHNICAL DATA

6.1 Pump data

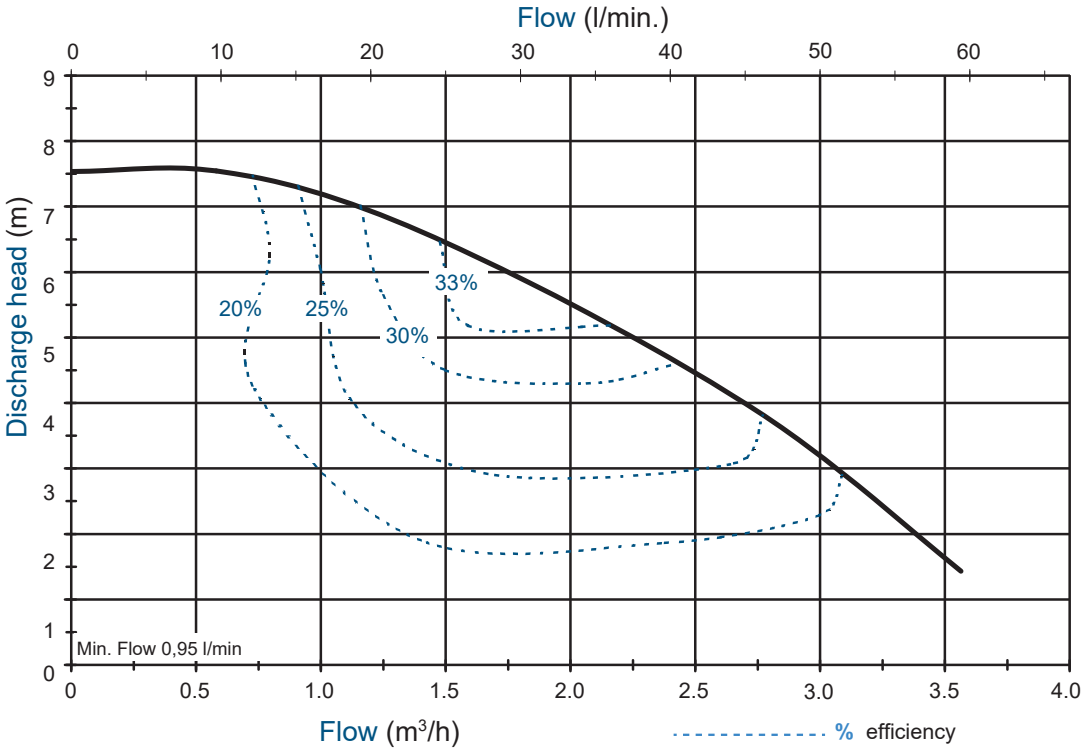
PUMP DATA			M5	M6 H	M8	M10	M15	M22 L	M22 H
Impeller	Diameter	[mm]	76,2	106	106	133	146	152,4	184,2
Flow quantity Q_N	min.	[Litre/min]	1	1,9	1,9	17	17	38	38
	max.	[Litre/min]	60	241	235	447	483	650	717
		[m³/h]	3,6	9,5	14,1	26,8	29	39	43
Discharge head	max. H	[mWC]	7,5	14,5	14,1	23	27	29	45
System pressure	max.	[bar]	4,1	5,5	5,5	6,2	6,2	6,2	6,2
Density	max.	[kg/dm³]	1,8	1,8	1,8	1,8	1,8	1,8	1,8
Viscosity	max.	[cP]	50	150	150	150	150	150	150
Temperature	max. [°C]	PP	82	82	82	82	82	82	82
		PVDF	104	104	104	104	104	104	104
Weight	approx. [kg]	PP	0,65	3,4	4,2	10,1	10,1	18	19
		PVDF	0,80	3,9	5,5	11,1	11,1	19	19,5

6.2 Motor data

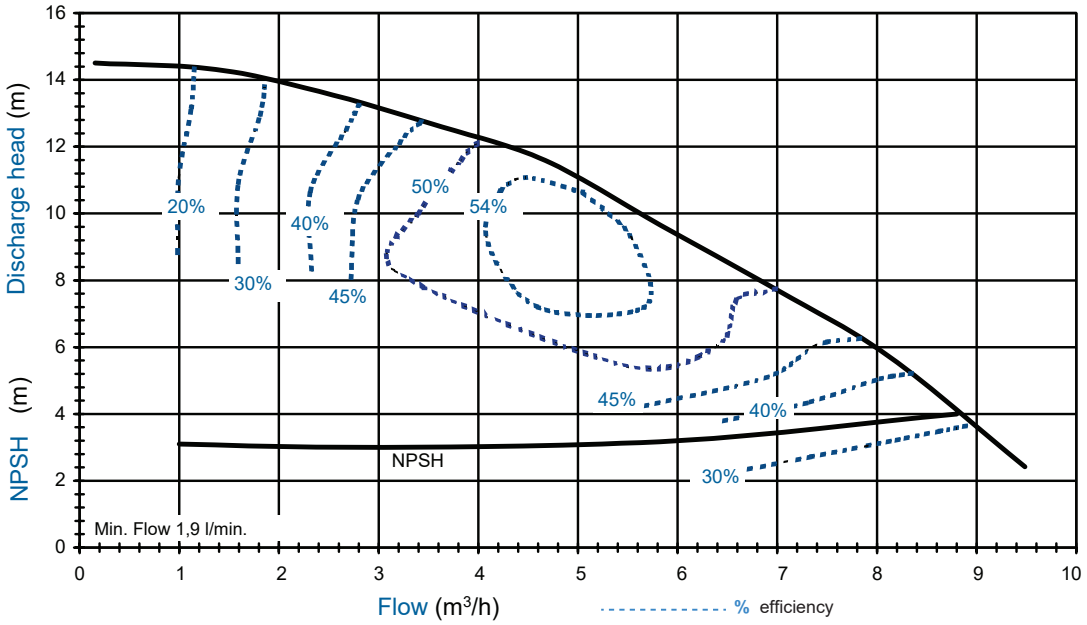
MOTOR DATA		M5	M6 H	M8	M10	M15	M22 L	M22 H
Nominal speed	[rpm]	2.900						
Power consumption	[kW]	0,18	0,37	0,55	1,5	2,2	3,0	5,5
Nominal voltage	[V]	230/400					400/690	
Frequency	[Hz]	50						
Enclosure	[IP]	55						
Isolation class		F						
Motor-Size	[BG]	63	71	71	90	90	100	132
Weight (without pump)	approx. [kg]	5,1	6,0	7,0	17,7	21,1	21,2	52,9

6.2 Characteristic curves

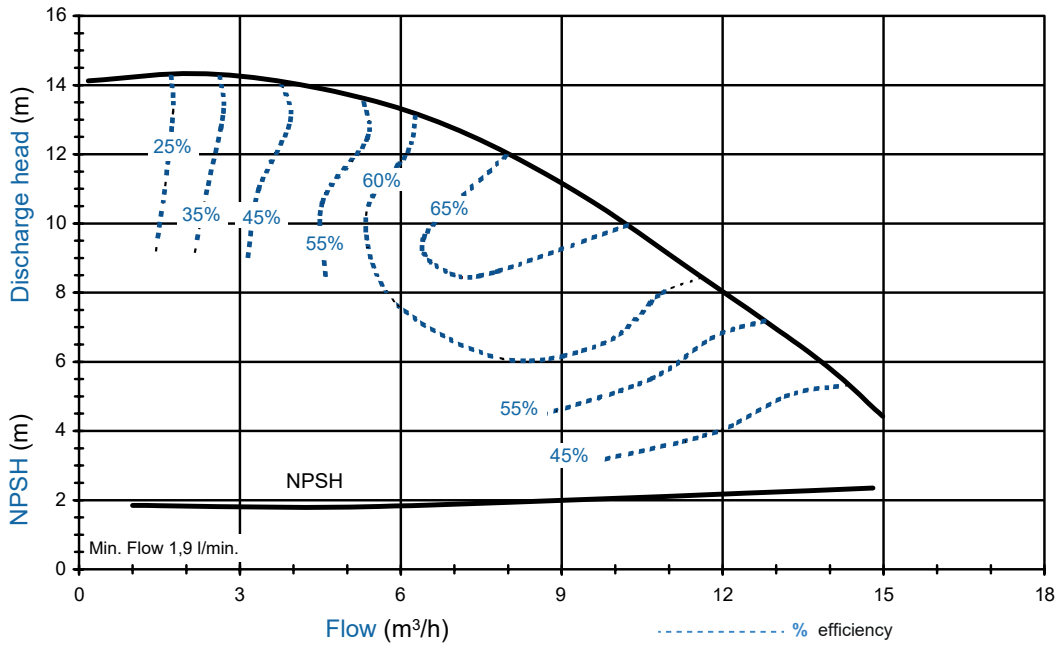
M5



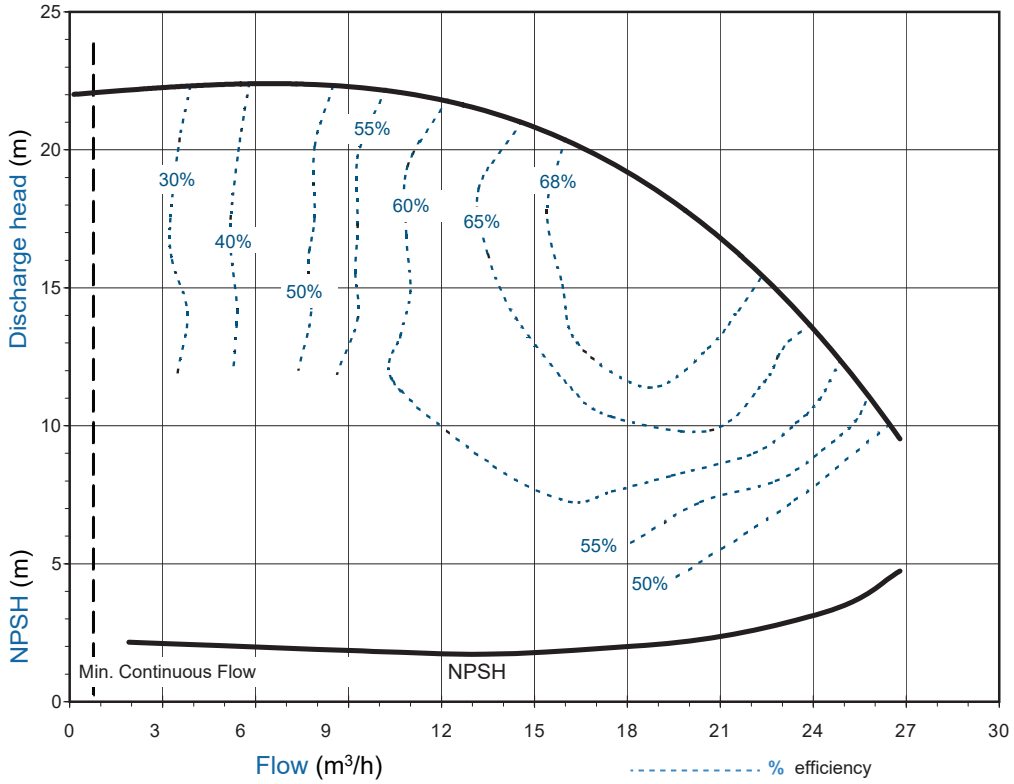
M6H



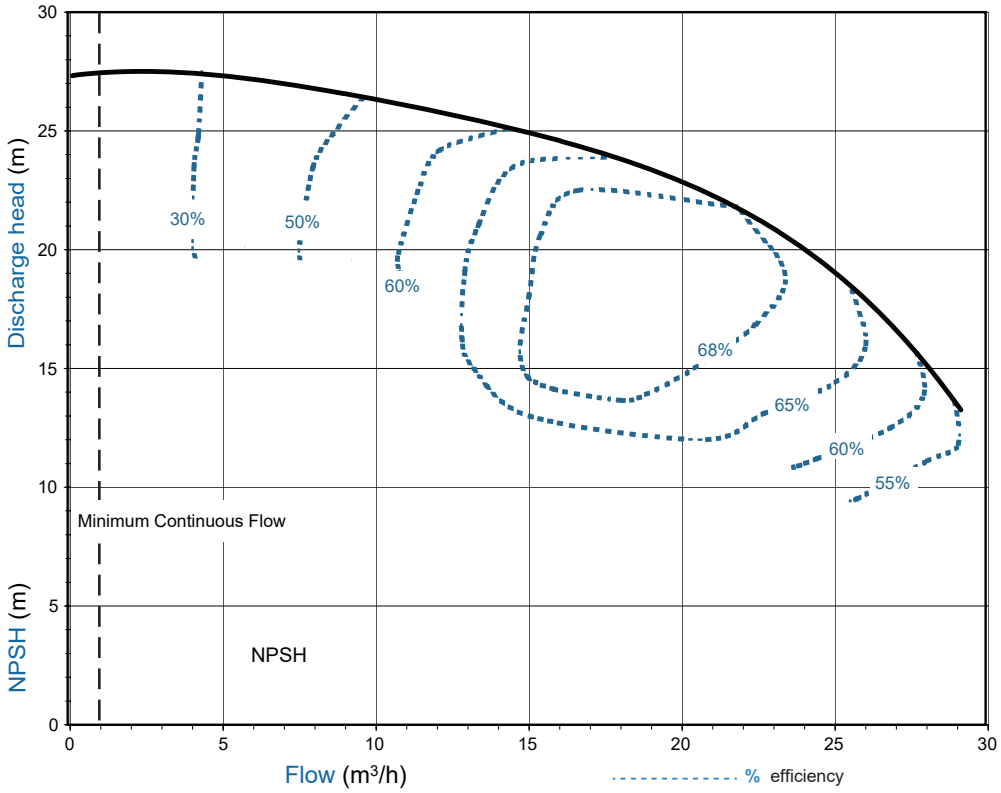
M8


Discharge head (m)
NPSH (m)
Flow (m³/h)
25%
35%
45%
55%
60%
65%
55%
45%
NPSH
Min. Flow 1,9 l/min.
% efficiency

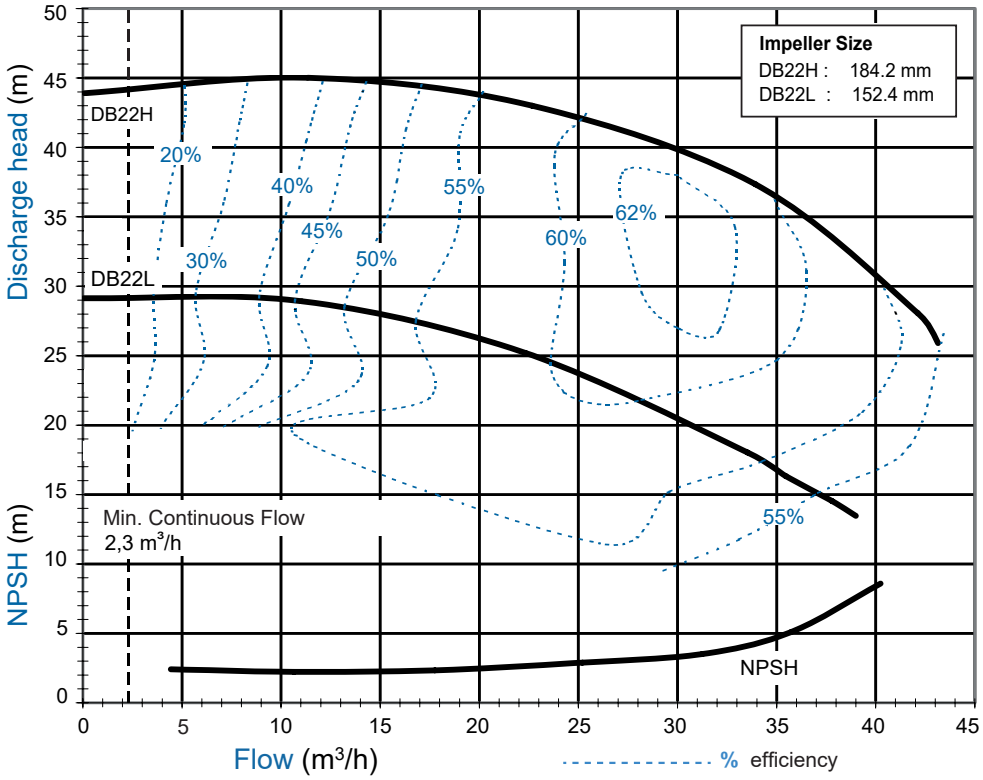
M11


Discharge head (m)
NPSH (m)
Flow (m³/h)
30%
40%
50%
55%
60%
65%
68%
55%
50%
NPSH
Min. Continuous Flow
% efficiency

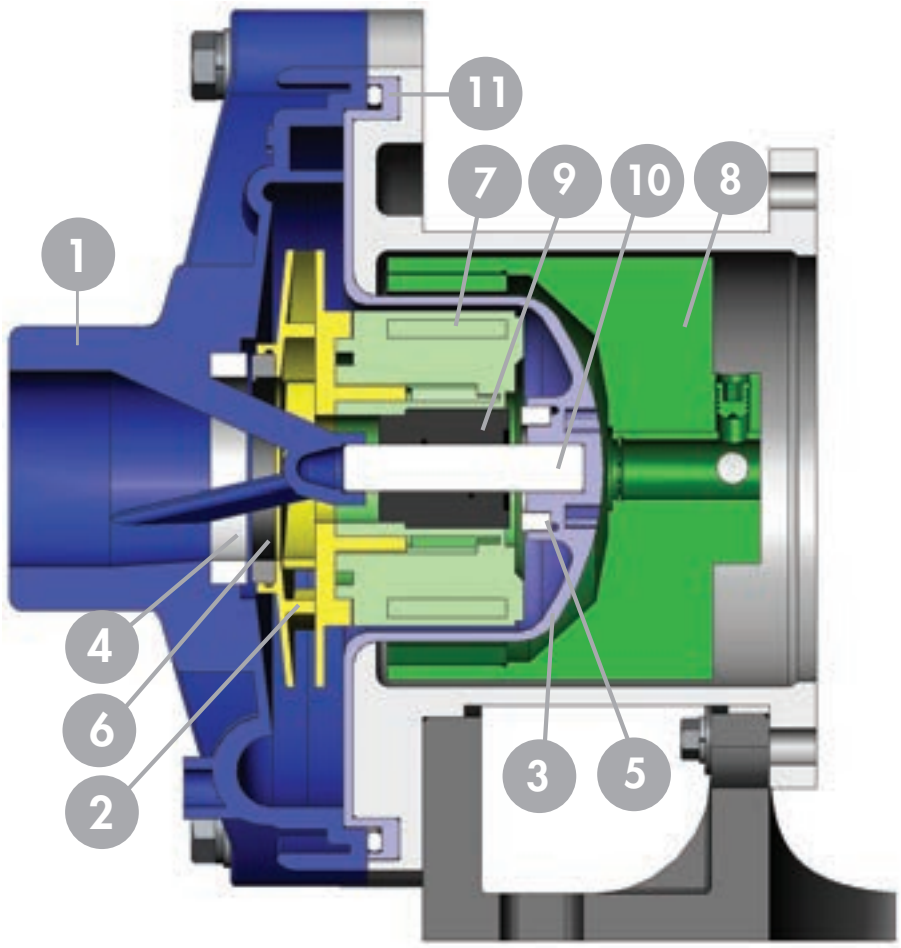
M15


Discharge head (m)
NPSH (m)
Flow (m³/h)
% efficiency
30%
50%
60%
68%
65%
60%
55%
Minimum Continuous Flow
NPSH

M22


Impeller Size
DB22H : 184.2 mm
DB22L : 152.4 mm
Discharge head (m)
NPSH (m)
Flow (m³/h)
% efficiency
DB22H
DB22L
20%
40%
45%
55%
62%
60%
50%
30%
55%
Min. Continuous Flow
2,3 m³/h
NPSH

6.3 Materials

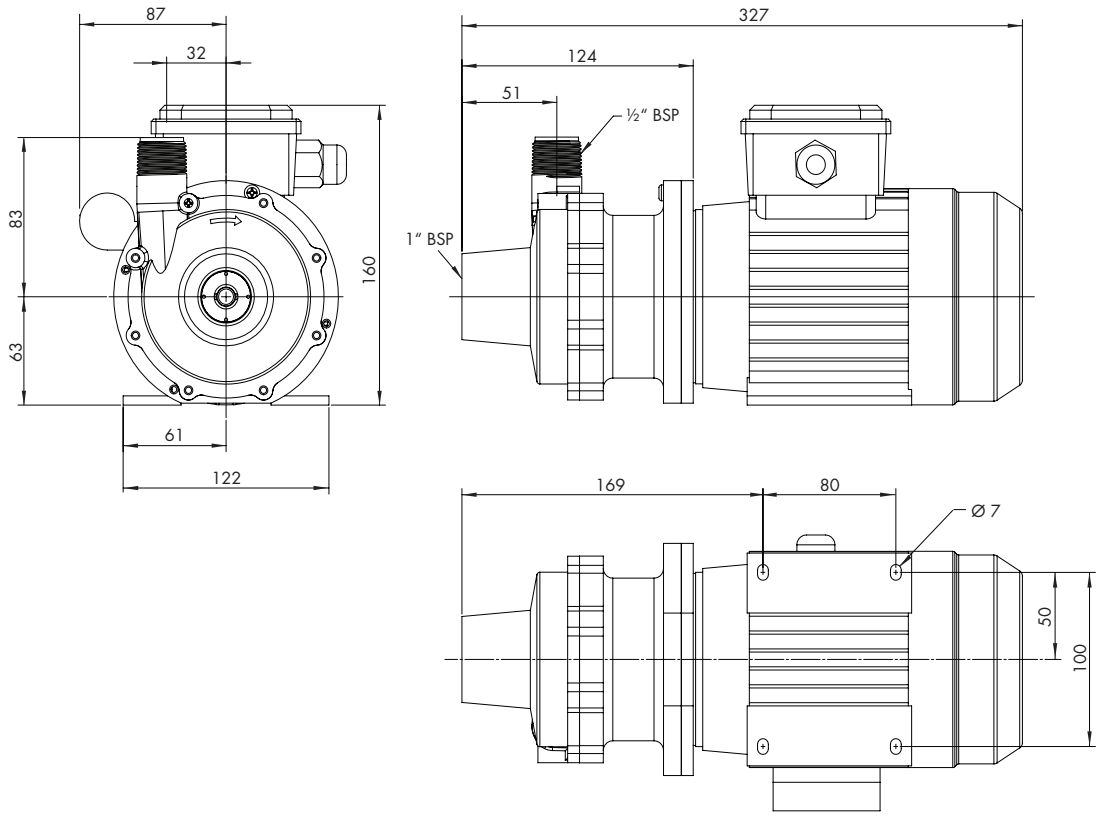


POSITION	DESCRIPTION	PP-DESIGN	PVDF-DESIGN
1, 2, 3	Housing, impeller, containment shroud	glass fibre reinforced polypropylene	carbon fibre reinforced polyvinylidene fluoride
4	Axial disc, housing	99.8% high-purity aluminium oxide ceramic, silicon carbide	
5	Axial disc, containment shroud	99.8% high-purity 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	Carbon, PTFE, 99.8% high-purity aluminium oxide ceramic, silicon carbide	
10	Shaft	99.8% high-purity aluminium oxide ceramic, Hastelloy® C, silicon carbide	
11	O-Ring	FKM, EPDM (Simriz®, Kalrez®)	

6.4 Dimensions

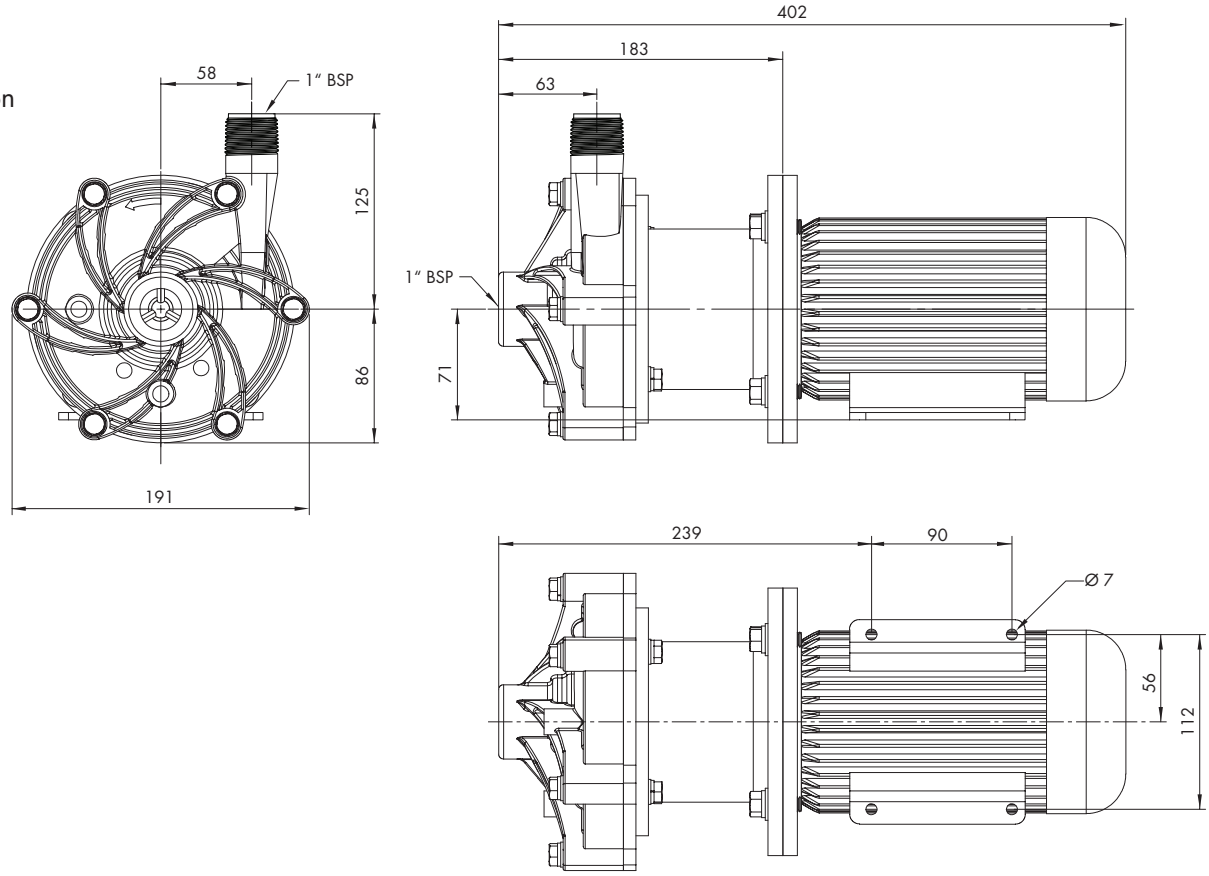
M5

Threaded connection



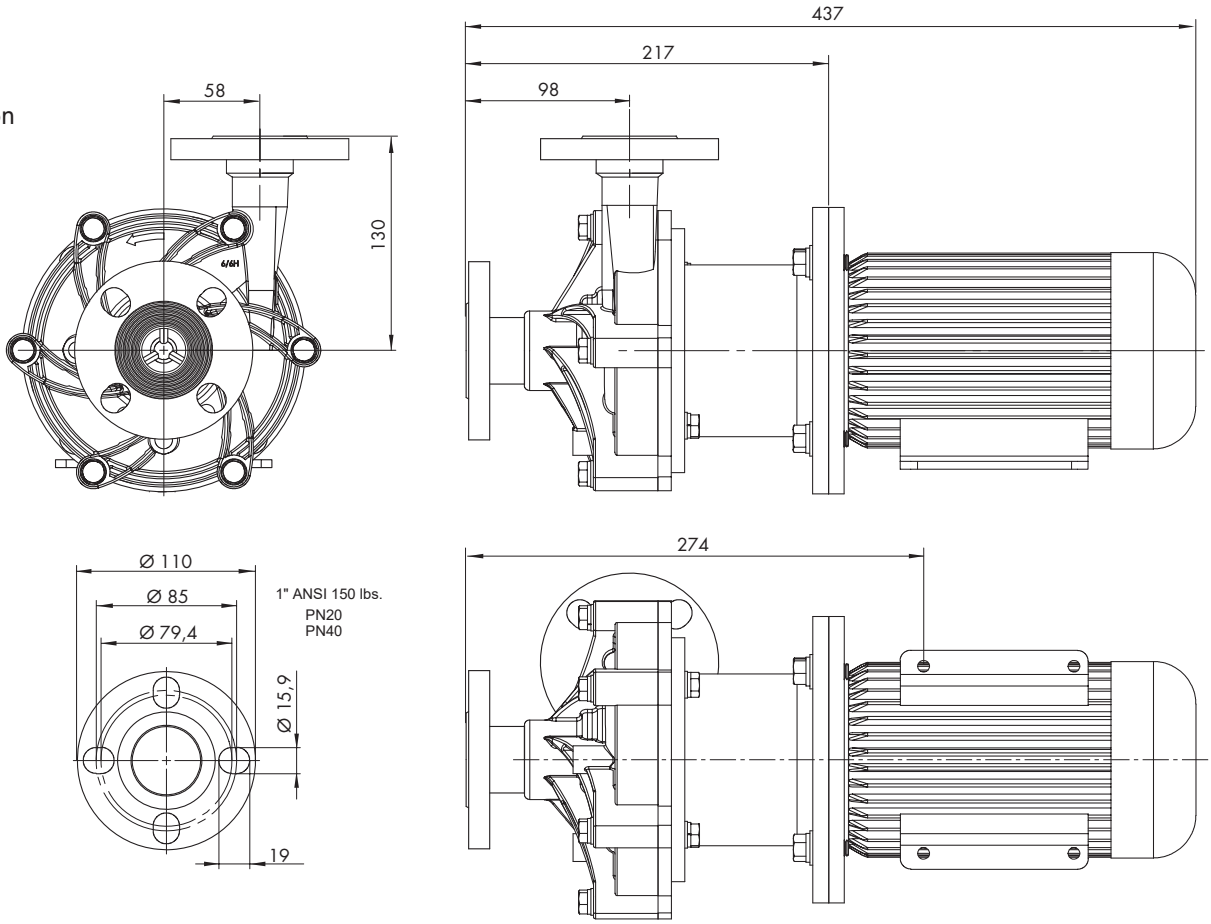
M6H

Threaded connection



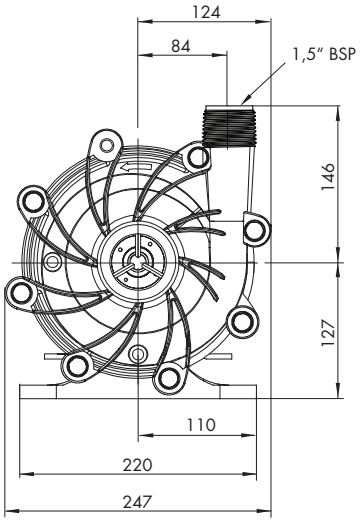
M6H

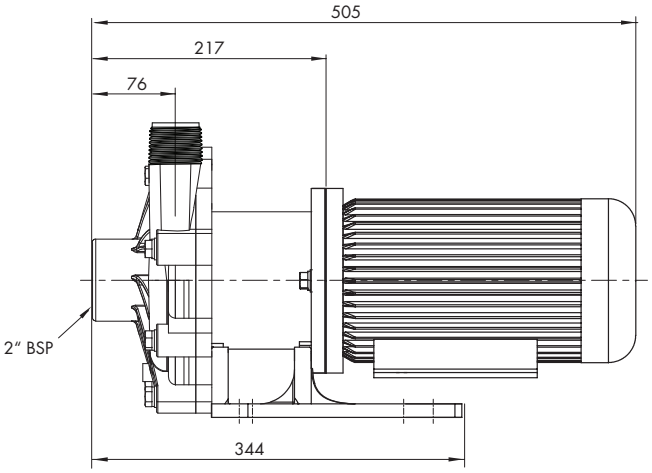
Flange connection

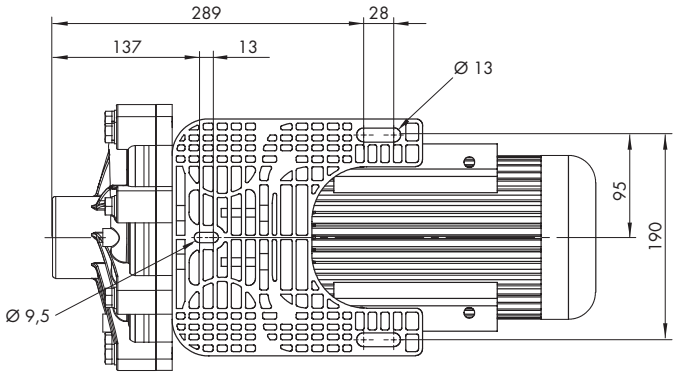


M8

Threaded connection

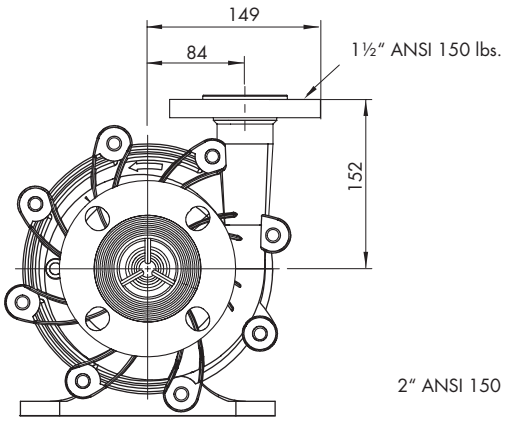


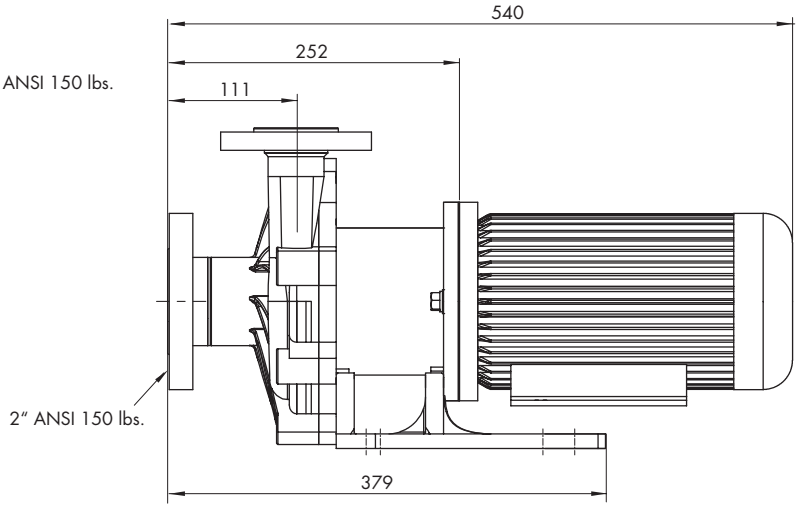




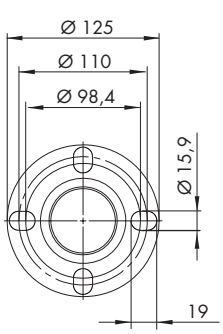
M11

Flange connection

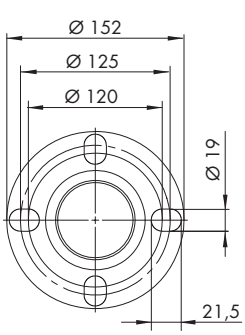


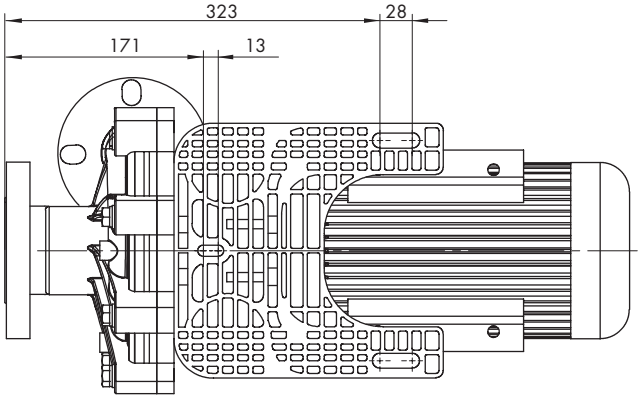


1½" ANSI 150 lbs.

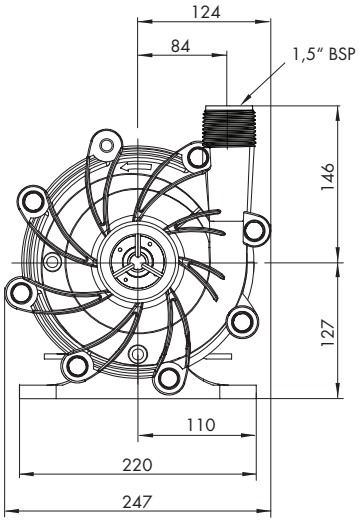


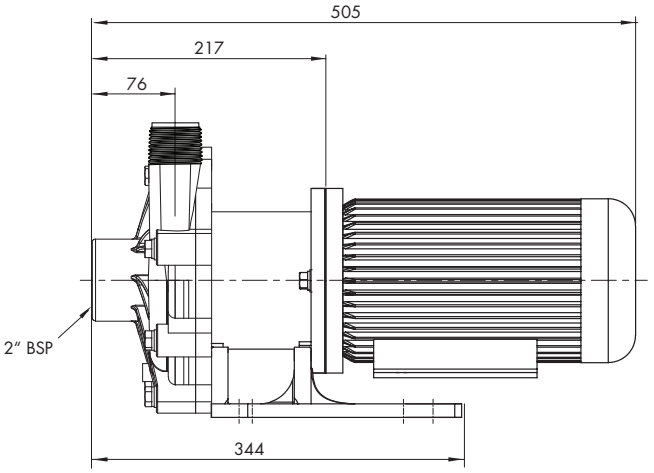
2" ANSI 150 lbs.

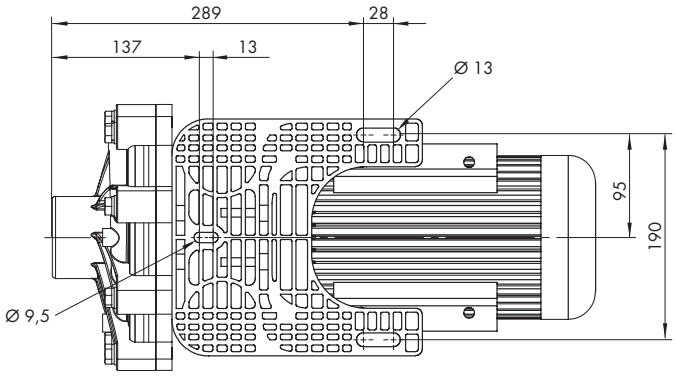




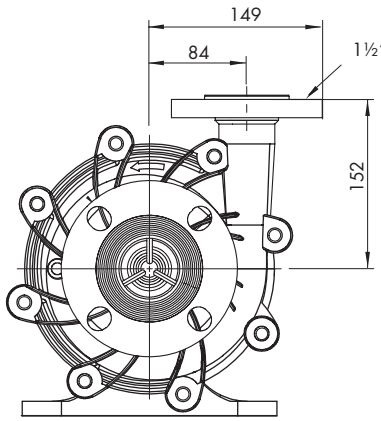
M15
Threaded connection

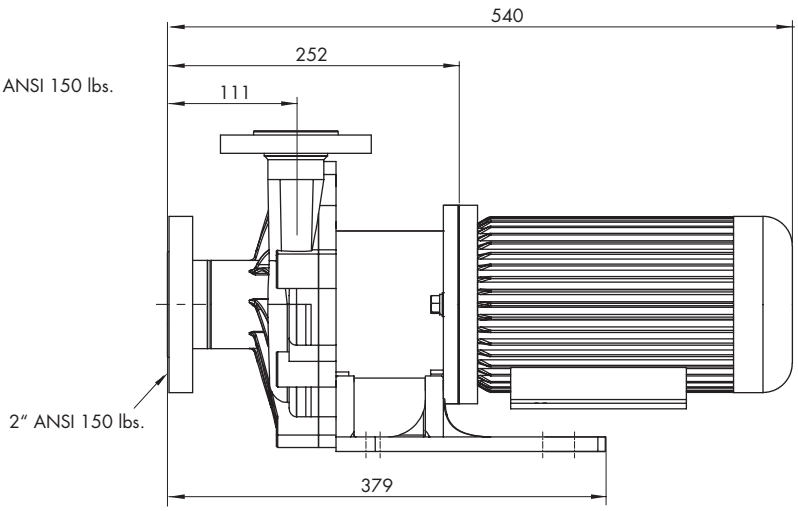


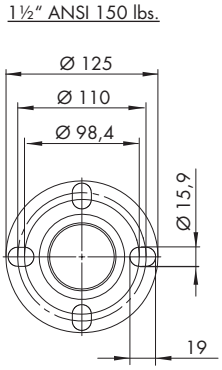


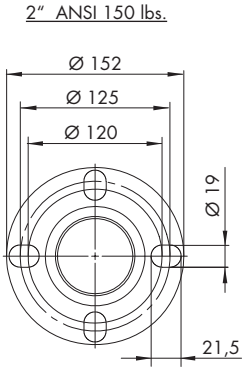


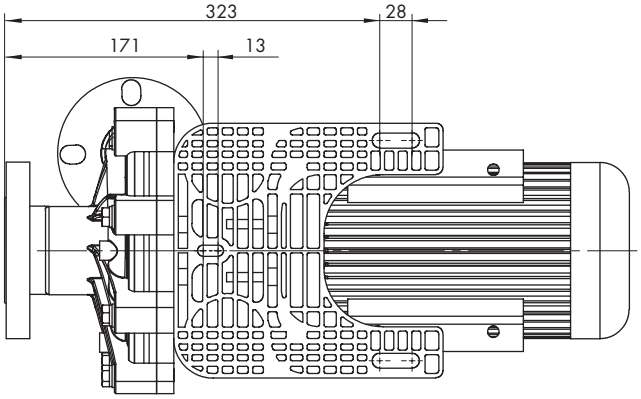
M15
Flange connection





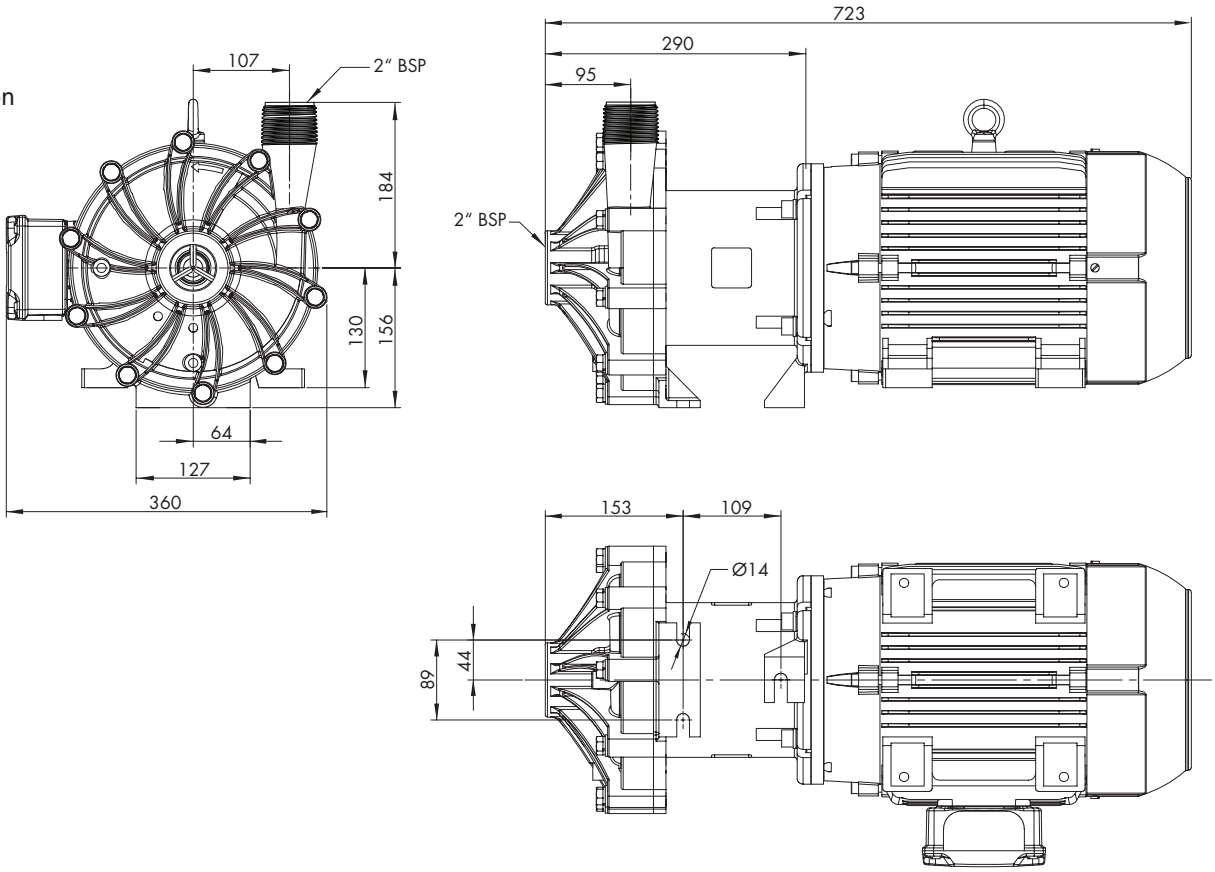






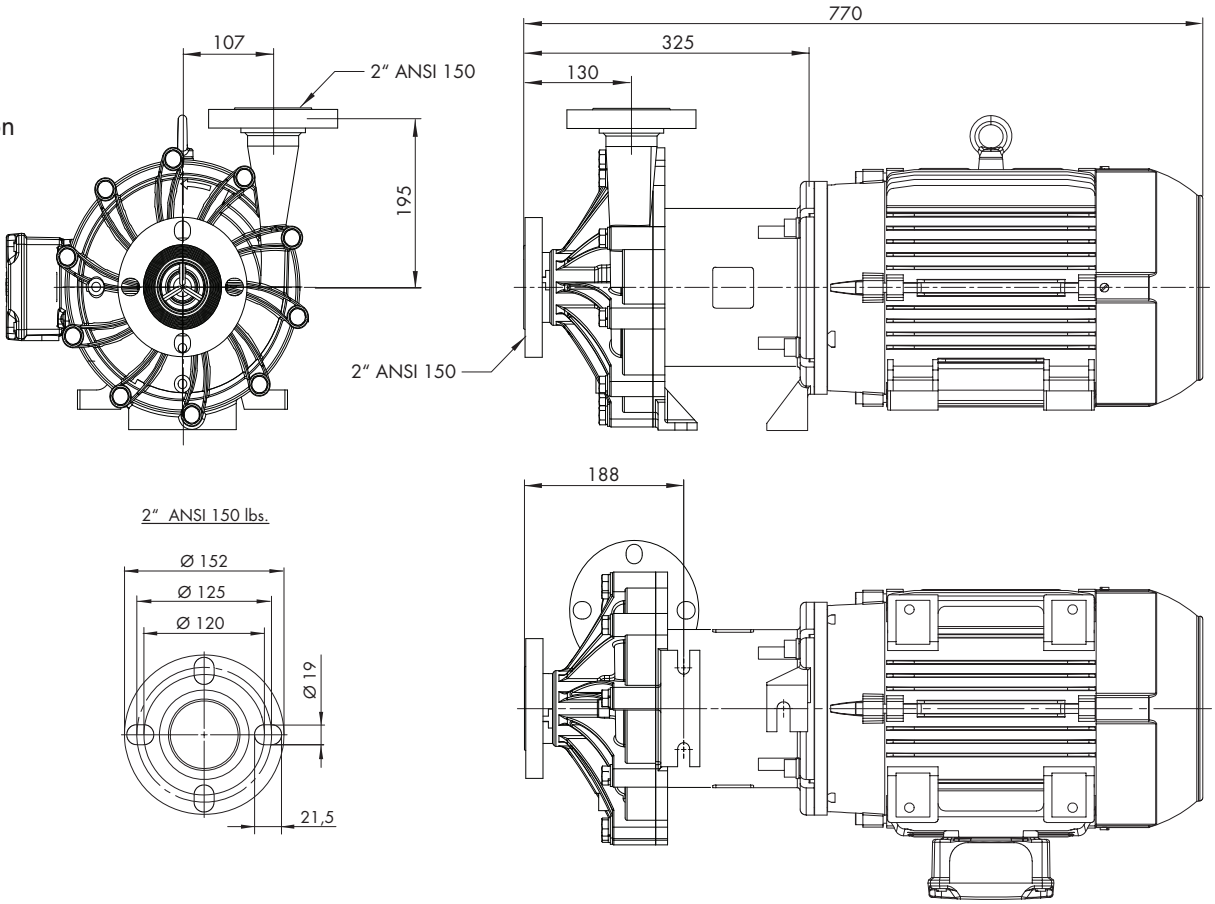
M22

Threaded connection



M22

Flange connection



6. INSTALLATION

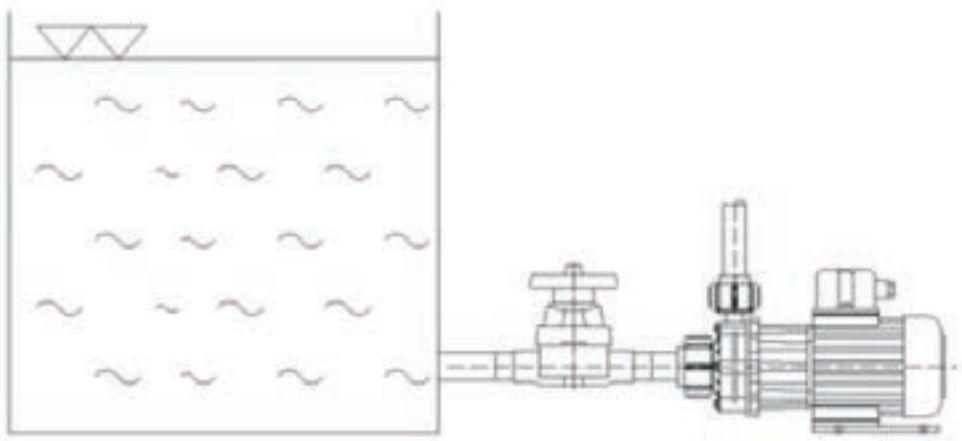
6.1 Set-up

The installation location should be selected so that the pump is easily accessible. The following values must be observed:

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

Do not install any quick-closing valves in the pipework! Pressure surges will destroy the pump housing. The motor feet must be securely fastened to a solid base!

6.2. Installation example



CAUTION

The NPSH value available on the system side must be 0.5 m (2 ft) higher than the required NPSH value of the pump. Suction head, pipework loss and the vapour pressure of the pumped liquid must be taken into account.

NOTE

The maximum suction height is reduced in relation to the atmospheric pressure (by approx. 0.1 m every 100 metres in height).

- Keep the suction pipe as short as possible to minimise pipe losses.
- The pump should be installed in a dry, vibration-free location protected from flooding.

The following regulations must be observed when installing the suction line:

- The pipe connection to the suction nozzle of the pump must be installed in such a way that air pockets are prevented. The suction line upstream of the pump suction side should have a straight calming section of approx. 1 m to ensure a laminar flow and to prevent cavitation.
- Unnecessary deflections of the suction line mean additional suction losses and can lead to cavitation.
- Flange connection bolts must be tightened evenly crosswise.
- M series pumps are designed to be operated in a horizontal position with the discharge side facing upwards.

- The pipework must be free of tension; if necessary, pipework expansion joints must be fitted upstream of the pump connections (suction and pressure side).
- The pipework on the suction side should not have any raised points, as air pockets can occur which reduce the suction capacity of the pump. Ideally, the suction-side pipework should be horizontal or sloping towards the pump from below.
- If there is dirt or deposits in the tank, it is advisable to install a suction strainer upstream of the pipe inlet. This prevents dirt particles from entering the pump. The suction strainer should be cleaned at regular intervals.
- We recommend installing a pressure gauge on the suction side of the pipework.
- Non-return and control valves, if used, should be installed in the discharge pipework. The control valve is for flow control. Shut-off valves on the suction and discharge side are used for pump maintenance. The non-return valve protects the pump from a pressure surge. This is particularly important if the static delivery head is very high.

CAUTION

Observe the maximum permissible system pressure ($P_{max.}$ (in bar)) of the pump on the type plate.

The suction line must be designed for the pump vacuum, the pressure line for the nominal pressure stage of the pump.

CAUTION

The live parts may only be connected by qualified and authorised specialist personnel.

Observe the instructions described in the „Safety instructions“ chapter.

In particular, the power supply to live units must be disconnected until all wiring work to be carried out has been completed and the terminal box cover has been refitted.

Before commissioning the electrical part of the system, the responsible specialist personnel must check that all electrical protective devices such as contactors, fuses etc. have been installed correctly and properly.

NOTE

If a check 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 discharge side.

If a flexible hose is to be used instead of a pipe, it must be vacuum-stable and chemically resistant to the medium to be pumped.

- The inlet valve must be fully open so as not to restrict the suction flow.
- When using flange connections, we recommend Gore-Tex or Gylon flange gaskets with low contact pressure.

It is advisable to plan a flushing connection to clean the pump during servicing and before dismantling.
A T-piece can be installed in the pressure line to allow the pump housing to be vented before operation.

6.3 Motor / electrics

Install the motor on site in accordance with the VDE specifications and the electrical circuit. The motor must be protected against overload! When connecting the motor, ensure that it rotates clockwise when viewing the fan.

CAUTION

Do not switch on the pump to check the direction of rotation while it is filled with the medium!

Check all electrical connections against the wiring diagram of the motor. Ensure that the voltage, frequency, phase and current match the mains supply.

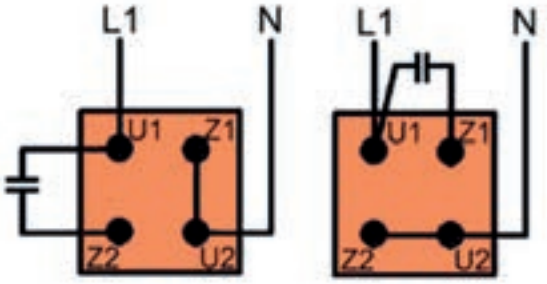
To check the correct direction of rotation of the motor:

1. Install the pump in the system
2. Open the inlet and outlet valves fully.
3. Turn the motor (let it run for 1-2 seconds) and determine the direction of rotation of the motor fan. Use the arrow on the pump housing to indicate the direction of rotation.

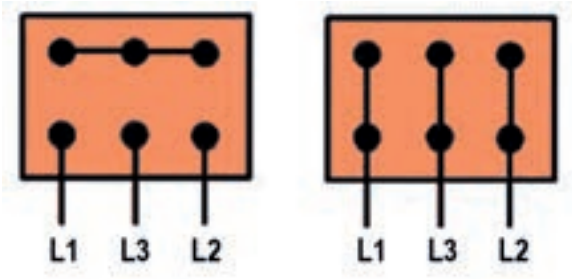
- We recommend installing a control valve in the pressure line to regulate the flow rate.

6.4 Electrical connection

1-phase AC motors must be connected according to the following diagram:



3-phasige 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.
- The supply voltage must have been switched off for at least 5 minutes before any intervention in the pump terminal box.
- Ensure that the data specified on the type plate corresponds to that 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

Adjustment of the operating point by slowly opening the shut-off valve on the pressure side. If no shut-off element is installed on the pressure side, the operating point adjusts itself according to the system characteristic curve.

CAUTION

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

CAUTION

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

7.1 Operation

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

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

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

7.2 Decommissioning

- Switch off the motor.
- Close the shut-off valves.
- In the event that the medium remains in the system, the valves must be secured against accidental opening.

7.3 Disposal

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

CAUTION

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

8. MAINTENANCE / SERVICING

8.1 General information

The pump is suitable for continuous operation and requires no special maintenance.

8.2 Preventive maintenance

- To prevent the motor from overheating, the fan cowl 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 deposits at regular intervals. should be checked for deposits at regular intervals. In the case of contaminated, silted and crystallising media media, the pumps must be checked at shorter intervals and cleaned if necessary.

CAUTION

When installing or removing the pump, ensure that there are no metal particles in the workplace!
There is a risk of injury from magnetic forces when installing or removing the pump head!

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

9. ASSEMBLY / DISASSEMBLY PUMP HEAD

9.1 Mounting

Required tools:

- Socket spanner set, metric
- Spanner set, metric
- Hexagon spanner set, imperial
- Hexagon spanner set, metric
- Hexagon spanner set SAE (for NEMA motors)
- Combination pliers
- 2 slotted screwdrivers

STEP 1:

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

CAUTION

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

STEP 2:

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

STEP 3:

For IEC motors, the motor adapter (part no. 14) must first be fitted to the motor flange. This is done using the supplied screws, washers and spring washers (items no. 27, 28, 29) as shown in Fig. 2.

The tightening torques of the screws are as follows:

M4 =	1,7 Nm	(15 in/lb)
M5 =	3,4 Nm	(30 in/lb)
M6 =	10,2 Nm	(90 in/lb)
M8 =	14,7 Nm	(130 in/lb)
M10=	27,1 Nm	(240 in/lb)
M12=	54,3 Nm	(480 in/lb)

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

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).

Fig. 1

Fig. 2

Fig. 3

STEP 4:

Slide the drive magnet unit (item no. 13) onto the motor shaft as far as it will go. The inserted snap ring ensures exact positioning (see Fig. 4 and 5).

Fig. 4

Fig. 5

CAUTION

The magnet attracts surrounding metallic objects!

IEC Motors:

With the screw, the spring washer and the washer (item no. 21, 22, 23). Secure the drive magnet unit on the motor shaft. Screw the screw into the thread of the motor shaft (secure the drive magnet unit against turning). (See Fig. 6)
Observe the tightening torques of the screws.

NEMA Motors:

Screw the two grub screws into the threads provided on the side of the drive magnet unit (see Fig. 7).

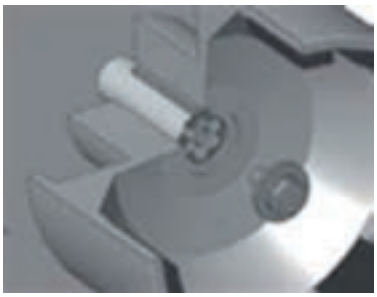


Fig. 6

Fig. 7

STEP 5:

Install the pump head on the drive unit.
To do this, secure the motor with the drive magnet unit in a horizontal position on a workbench.

NOTE

If the pump is equipped with an O-ring (only for NEMA 56C and 145TC), place the O-ring (item 12) in the groove provided on the motor adapter (item 15).

Now carefully push the pump head onto the drive unit.

CAUTION

The magnet attracts surrounding metallic objects!

STEP 6:

Secure the connection between the pump and motor with the four screws, spring washers and washers (items 24, 25, 26) and tighten them with a nut or spanner. Please refer to the table above for the tightening torque.

Fig. 8

Fig. 9

STEP 7:

Turn the motorised fan to ensure that the pump rotates freely and is not blocked.

9.2 Dismantling

Required tools:

- Socket spanner set, metric
- Spanner set, metric
- Hexagon spanner set, imperial
- Hexagon spanner set, metric
- Hexagon spanner set, SAE (for NEMA motors)
- Combination pliers
- 2 slotted screwdrivers

WARNING

Rotating parts. Parts of the pump rotate during operation. Observe the prescribed safety guidelines to secure the motor against restarting before working on the pump.

WARNING

Danger from chemical substances. The pump conveys chemical substances. Ensure that you wear adequate protective clothing, safety goggles and the safety measures for working with hazardous substances. After draining and decontaminating the pump, make sure you wear appropriate protective clothing. There may still be residues of the substance in the pump.

WARNING

Danger of magnetic forces. The pump may only be dismantled as described below. The magnets exert high forces of attraction in order to abruptly attract the wet end and motor. To avoid injury, do not place your fingers between the end faces of the motor and wet end. Risk of crushing!

STEP 1:

Switch off the pump and secure the motor against being switched on again. Close all inlet and outlet valves of the pump and drain the medium. Decontaminate the pump!

WARNING

The pump must be completely cleaned of all hazardous substances before dismantling. The pump and pipework must no longer be pressurised. The pump should cool down to room temperature before disassembly.

STEP 2:

Remove the pump from the system and place it securely on a suitable workbench. Secure the pump on the workbench. Remove the screw connection from the motor and pump head.

STEP 3:

Hold the pump head and pull it off the drive unit. (See Fig. 10)

Fig. 10

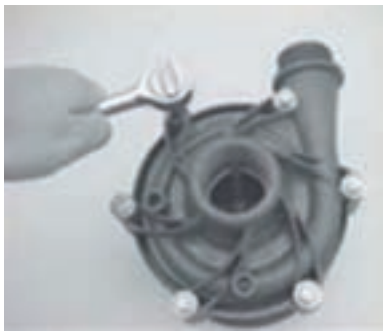


Fig. 11

STEP 4:

Place the pump on the workbench with the motor adapter facing downwards.

STEP 5:

Remove the six housing screws with the lock washers (items 15, 16, 17). (See Fig. 11)

STEP 6:

Carefully remove the housing from the motor adapter. Inspect the housing for damage and wear. Check the suction and pressure-side connections for hairline cracks. (See Fig. 12) Also check the O-rings for chemical attack, wear and damage.

STEP 7:

Remove the drive magnet unit (item no. 4, 4A, 5, 5A) and inspect it for wear and/or damage. Also look for grinding marks (see Fig. 13)

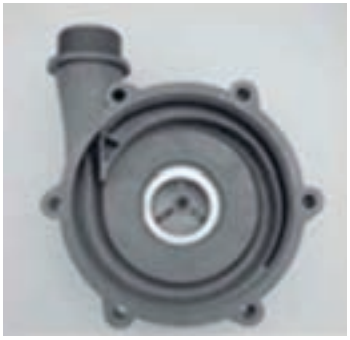


Fig. 12

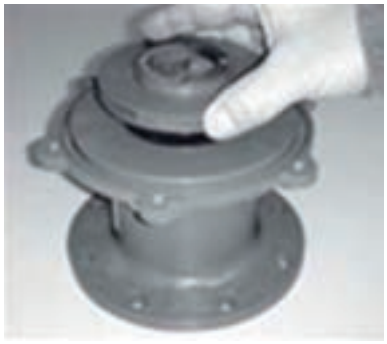


Fig. 13

STEP 8:

Check the thrust ring and the plain bearing for wear

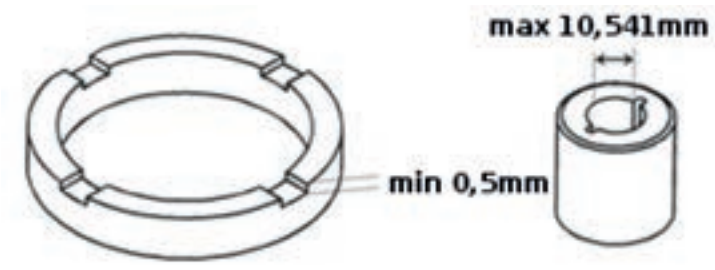


Fig. 14

STEP 9:

Remove the pump shaft (item no. 6) from the containment can and check it for damage and wear (see Fig. 15)

STEP 10:

Remove the can (item 7) from the motor adapter (item 11). If necessary, you can remove the containment shroud by lightly tapping it with a soft object (wood, plastic). Check the containment shroud for grinding marks (see Fig. 16).

Fig. 15

Fig. 16

STEP 11:

Remove the O-ring (item no. 4) from the containment can and check it for chemical attack, wear and damage.

STEP 12:

Check the drive magnet unit for grinding marks, damage, corrosion and loose magnet segments.

Reassembly is carried out in reverse order.

9.3 Replacing the drive magnet unit

STEP 1:

IEC Motors:
Remove the screw, circlip and washer (items 21, 22, 23)
NEMA Motors:
Remove the 2 grub screws (item no. 13B)

CAUTION

Magnet attracts surrounding metallic objects!

STEP 2:

Remove the drive magnet unit from the motor shaft as shown in Fig. 17.

Fig. 17

STEP 3:

To reassemble or replace the drive magnet unit, follow the instructions in the ASSEMBLY chapter.

10. MALFUNCTION, CAUSE, REMEDY

Fault	Possible cause	Remedy of the fault
Pump does not start after switching on	No voltage	Check voltage
	Foreign bodies in the pump housing	Remove foreign bodies
Disengagement of the magnetic coupling	The specific gravity and/or the viscosity of the pumped liquid are too high	the rotor must come to a standstill before it can be restarted Clean the fan and fan guard.
	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 the fan and fan guard
Pump runs and does not deliver	Air in the pipes	Vent
Pump has loud flow noises	Cavitation	Enlarge the intake pipe
		Throttle on the pressure side
		Lower the temperature of the liquid
Pump does not prime	No liquid in the pump	Open the slide valve
Delivery rate too low	Air in the system	Vent
	Cross-section of suction and pressure line too small (high losses)	Increase the cross-section of the suction and pressure line
	Valve not fully open	Open valve completely
Delivery rate too high	System losses are lower than assumed	Install a throttle valve in the pressure 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.

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Clearance certificate

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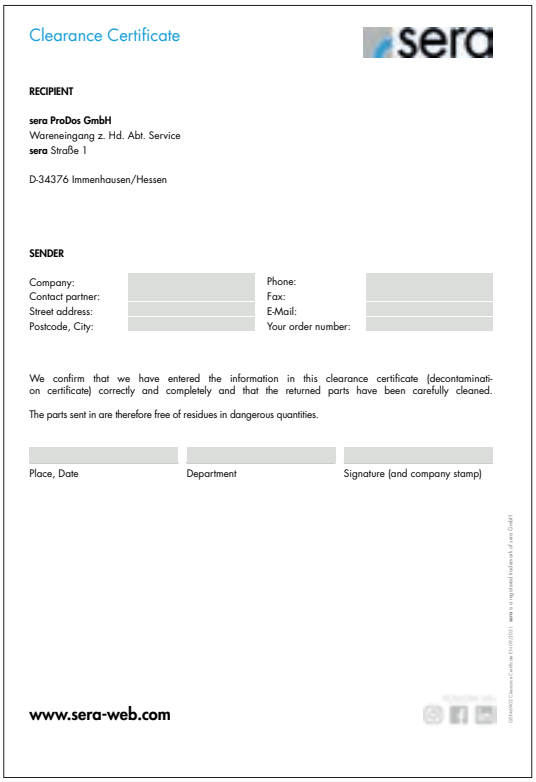

Clearance Certificate

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Contact partner:
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Postcode, City:

Phone:
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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.

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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, magnetgekuppelte Kreiselpumpe

Bezeichnung: centrifugalPUMP

Baureihen: M 3, 4, 5, 5.5, 6, 6H, 7, 8, 9, 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:

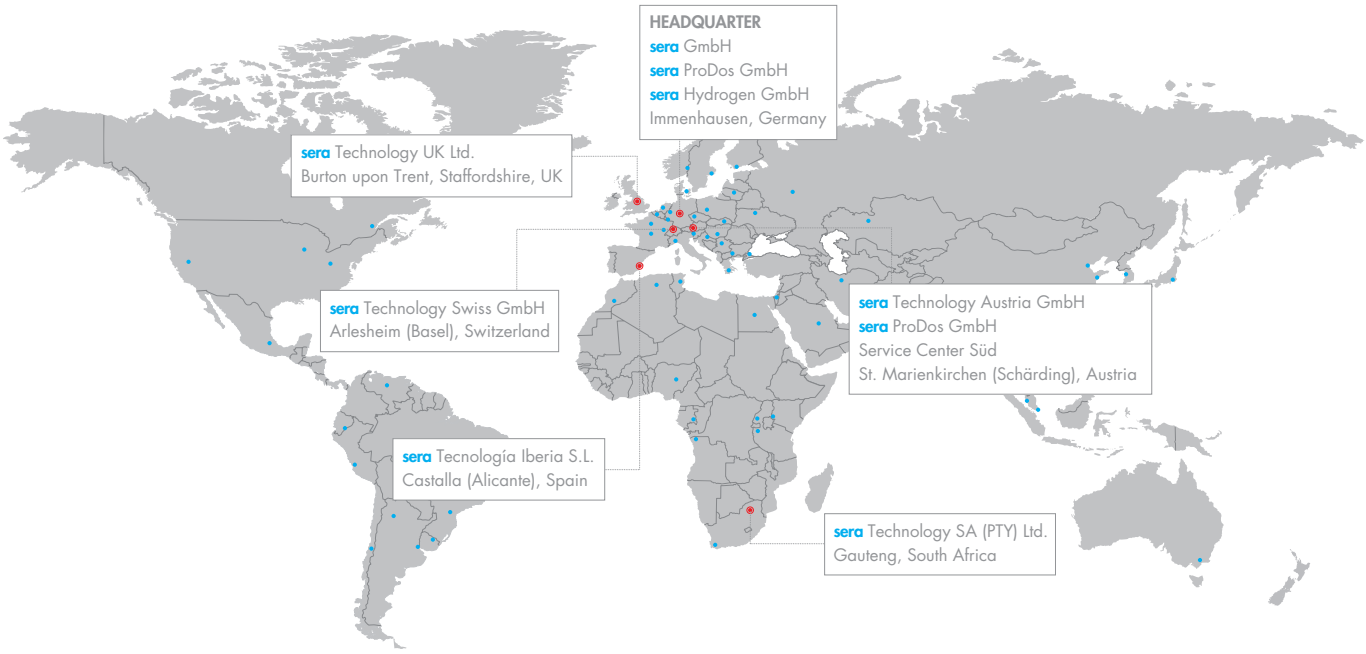
Marco Kisch
(Geschäftsführer)

Technische Änderungen vorbehalten: stand 14.02.2022

NOTES

NOTES

FOLLOW US



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