Assembly and operating instructions

Solenoid-coupled centrifugal pump
vonTaine® 0502 PP and PVDF

EN

vonTaine® 0502 PP

vonTaine® 0502 PVDF

Typ:

☐ PP/FKM ☐ PVDF/FKM

☐ PP/EPDM ☐ PVDF/EPDM

A2183

Insert type and serial no. here: _____

Please carefully read these operating instructions before use. · Do not discard.
The operator shall be liable for any damage caused by installation or operating errors.
The latest version of the operating instructions are available on our homepage.

General non-discriminatory approach

In order to make it easier to read, this document uses the male form in grammatical structures but with an implied neutral sense. It is aimed equally at both men and women. We kindly ask female readers for their understanding in this simplification of the text.

Supplementary information

Please read the supplementary information in its entirety.

Information

This provides important information relating to the correct operation of the unit or is intended to make your work easier.

Warning information

Warning information includes detailed descriptions of the hazardous situation, see *Chapter 2.1 „Labelling of Warning Information“ on page 7*.

The following symbols are used to highlight instructions, links, lists, results and other elements in this document:

More symbols

Symbol	Description
1.	Action, step by step.
⇨	Outcome of an action.
	Links to elements or sections of these instructions or other applicable documents.
■	List without set order.
[Button]	Display element (e.g. indicators). Operating element (e.g. button, switch).
„Display /GUI“	Screen elements (e.g. buttons, assignment of function keys).
`CODE`	Presentation of software elements and/or texts.

Table of contents

1 General

Target group

Target group: commercial use.

These assembly and operating instructions contain basic information which must be observed for installation, operation and maintenance of the pump. Therefore, it is essential that you read these assembly and operating instructions before assembly and “start up” of the pump. Ensure that these assembly and operating instructions are permanently available at the location where the pump is operated.

Main units

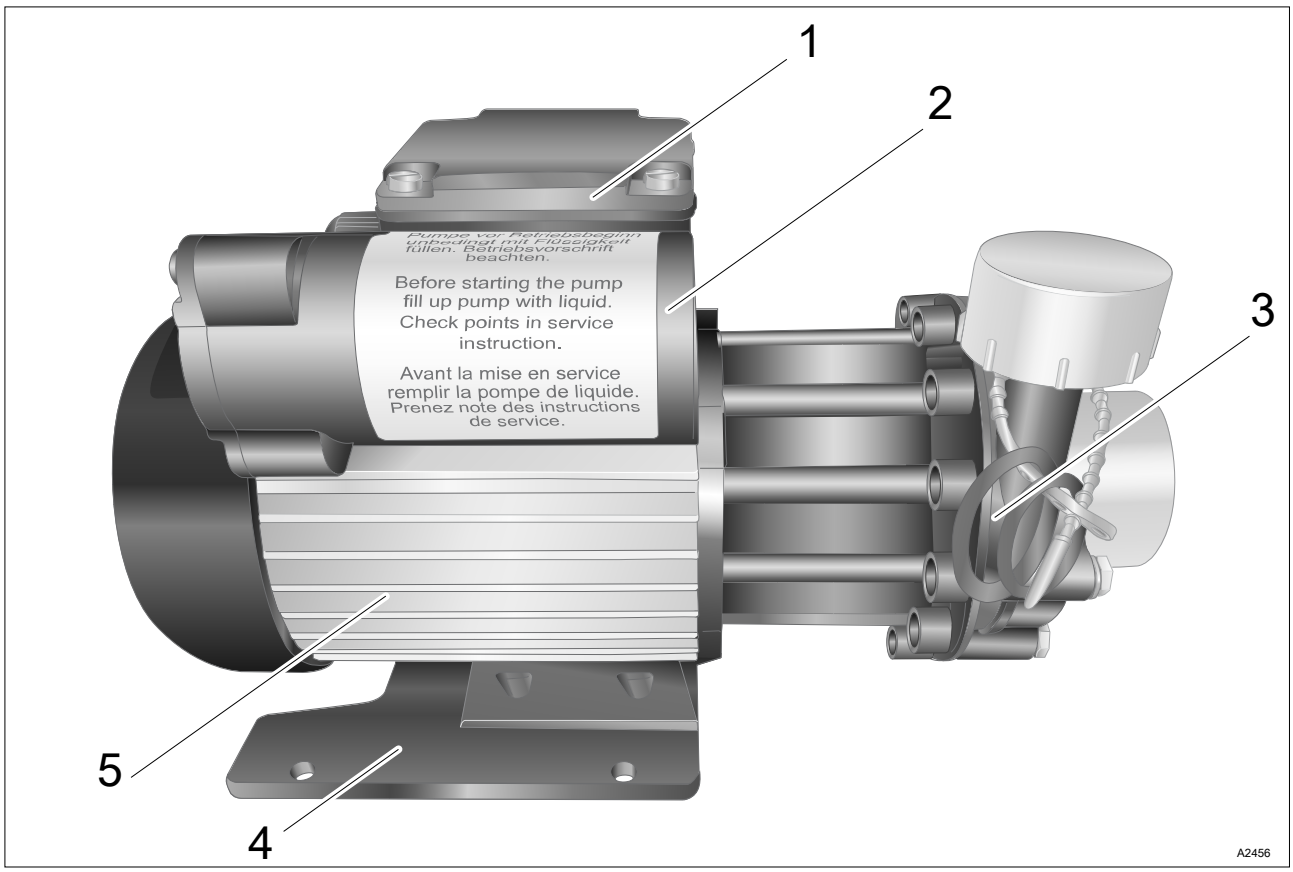

Fig. 1: Main units of the vonTaine® pump

1 Terminal box
2 Electrical capacitor
3 Pump housing with pump head
4 Mounting foot
5 Drive housing with drive motor

Intended use

von Taine® pumps are solenoid-coupled centrifugal pumps. Thanks to the solenoid coupling, the pump transports the liquid medium from a storage tank to a storage tank without any leaks or even directly into a discharge line.

The plastic pump is installed outside of the medium and/or storage tank and is integrated by means of a tube/pipe into the overall system.

The benefits for you

- Safe, reliable and leak-free pumping of liquid chemicals.
- Contactless coupling between the motor and impeller via a solenoid coupling.

Technical details

The individual components of the pump are available in different material versions. Refer to the pump nameplate or delivery note for the material version of your pump.

- Pump head made of PP or PVDF.
- FKM or EPDM seal.
- The pump is not self-priming and requires a feed.
- The hydraulic connectors have pipe threads in accordance with DIN ISO 228-1.

1.1 Part Numbers and Operating Parameters

Part no.	1023089	1023095	1028551	1028567
Pump type:	vonTaine® 0502 PP/FKM	vonTaine® 0502 PVDF/FKM	vonTaine® 0502 PP/EPDM	vonTaine® 0502 PVDF/EPDM
Max. pump capacity:	1800 l/h			
Working range:	30 ... 1800 l/h			
Max. delivery height:	4.5 mWs			
Maximum system pressure at 20°C:	1.0 bar	2.0 bar	1.0 bar	2.0 bar

1.2 Construction

Pump housing, impeller, impeller magnet and housing canister are made of plastic. The centring shafts and bearing are made of oxide ceramic. The housing canister hermetically isolates the feed chemical from the outside atmosphere. Magnetic force transmission makes the need for a shaft seal redundant, therefore there is no possibility of a leakage at the shaft.

The housing components are statically sealed by O-rings.

The pump impeller is a radial impeller.

1.3 Nameplate

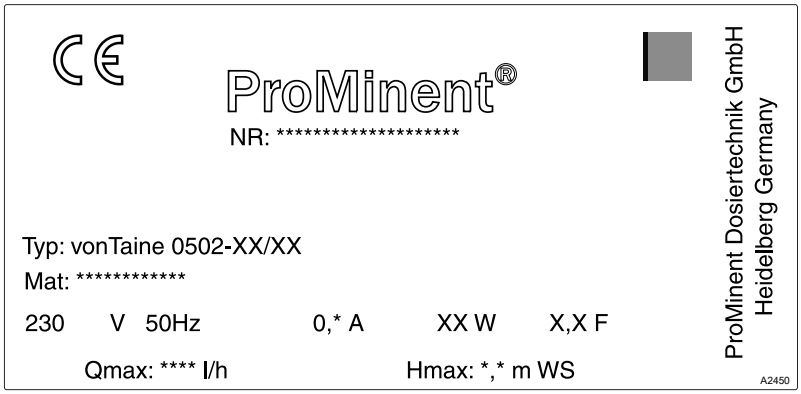

Fig. 2: Nameplate

The nameplate provides information on:

- CE mark,
- Manufacturer,
- Serial number *[NO.:]*,
- Place and country of origin,
- Type of pump with material version,
- Material number *[Mat:]*,
- Mains voltage in Volts,
- Mains frequency in Hertz,
- Current strength in Amps,
- Output in Watts,
- Capacitor capacity in Farad *[F]*,
- Maximum feed rate in l/h *[Qmax]*,
- Maximum delivery height in mWs *[Hmax]*.

1.4 Materials

Unit	XXXX PP	XXXX PVDF
Pump housing	PP	PVDF
Impeller	PP	PVDF
Impeller solenoid surround	PP	PVDF
Housing canister	PP	PVDF
Centring shaft	Oxide ceramic	Oxide ceramic
Slide bearing	Oxide ceramic	Oxide ceramic
Static seals	FKM or EPDM	FKM or EPDM

2 Safety

The adhesive labels and signs on the pump, e.g.:

- Rotational direction arrow.
- Specification for fluid connectors.
- Warning label to protect the pump from running dry.
- Nameplate.

must always be observed and maintained in a fully legible condition.

2.1 Labelling of Warning Information

Introduction

These operating instructions provide information on the technical data and functions of the product. These operating instructions provide detailed warning information and are provided as clear step-by-step instructions.

The warning information and notes are categorised according to the following scheme. A number of different symbols are used to denote different situations. The symbols shown here serve only as examples.

DANGER!

Nature and source of the danger

Consequence: Fatal or very serious injuries.

Measure to be taken to avoid this danger.

Description of hazard

– Denotes an immediate threatening danger. If the situation is disregarded, it will result in fatal or very serious injuries.

WARNING!

Nature and source of the danger

Possible consequence: Fatal or very serious injuries.

Measure to be taken to avoid this danger.

– Denotes a possibly hazardous situation. If the situation is disregarded, it could result in fatal or very serious injuries.

CAUTION!

Nature and source of the danger

Possible consequence: Slight or minor injuries. Material damage.

Measure to be taken to avoid this danger.

– Denotes a possibly hazardous situation. If the situation is disregarded, it could result in slight or minor injuries. May also be used as a warning about material damage.

NOTICE!

Nature and source of the danger

Damage to the product or its surroundings.

Measure to be taken to avoid this danger.

– Denotes a possibly damaging situation. If the situation is disregarded, the product or an object in its vicinity could be damaged.

Type of information

Hints on use and additional information.

Source of the information. Additional measures.

– *Denotes hints on use and other useful information. It does not indicate a hazardous or damaging situation.*

2.2 Users' qualifications

WARNING!

Danger of injury with inadequately qualified personnel!

The operator of the plant / device is responsible for ensuring that the qualifications are fulfilled.

If inadequately qualified personnel work on the unit or loiter in the hazard zone of the unit, this could result in dangers that could cause serious injuries and material damage.

– All work on the unit should therefore only be conducted by qualified personnel.
– Unqualified personnel should be kept away from the hazard zone

Training	Definition
Instructed personnel	An instructed person is deemed to be a person who has been instructed and, if required, trained in the tasks assigned to him/her and possible dangers that could result from improper behaviour, as well as having been instructed in the required protective equipment and protective measures.
Trained user	A trained user is a person who fulfils the requirements made of an instructed person and who has also received additional training specific to the system from ProMinent or another authorised distribution partner.
Trained qualified personnel	A qualified employee is deemed to be a person who is able to assess the tasks assigned to him and recognize possible hazards based on his/her training, knowledge and experience, as well as knowledge of pertinent regulations. The assessment of a person's technical training can also be based on several years of work in the relevant field.

Training	Definition
Electrician	Electricians are deemed to be people, who are able to complete work on electrical systems and recognize and avoid possible hazards independently based on his/her technical training and experience, as well as knowledge of pertinent standards and regulations. Electricians should be specifically trained for the working environment in which the are employed and know the relevant standards and regulations. Electricians must comply with the provisions of the applicable statutory directives on accident prevention.
Customer Service department	Customer Service department refers to service technicians, who have received proven training and have been authorised by ProMinent to work on the system.

Note for the system operator

The pertinent accident prevention regulations, as well as all other generally acknowledged safety regulations, must be adhered to!

2.3 Safety Information for Maintenance, Inspection and Installation Work

It is the responsibility of the operator to ensure that all maintenance, inspection and installation work is undertaken by authorised and qualified specialist personnel.

It is the responsibility of the operator to ensure that all qualified personnel is sufficiently informed by reading the assembly and operating instructions.

Only perform all work on the pump when the pump is at a standstill. Always observe the procedure for bringing the pump to a standstill, as described in the operating instructions.

The pumps or pump units, which pump feed chemicals harmful to health, must be decontaminated – refer in this regard to the material safety data sheet for the feed chemical.

All safety and protective equipment must be refitted and made operational immediately after conclusion of the work.

Fig. 3: No access to people with pacemakers or implanted defibrillators.

WARNING!

Warning of a strong magnetic field

The pump contains very strong magnets.

– When working on the pump, pay particular attention to the danger from magnetic fields. These magnetic fields can, for example, affect pacemakers.

People affected by this must stay away from the pump. The operator of the pump must ensure that suitable measures are put in place to avoid this danger.

2.4 Intended Use

- Pumping of liquids similar to water in their viscosity.
- Pumping of acids, lyes etc.
- Pumping of gaseous liquids.
- All other uses or modifications are prohibited.

→ Pay particular attention when pumping crystallising feed chemicals that the feed chemical does not crystallise in the pump. Use a suitable agent to immediately flush through all wetted parts after decommissioning. Refer to the material safety data sheet for the feed chemical.

Resistance list

Pay attention to the resistance of the pump materials refer to the ProMinent Resistance List at www.prominent.com.

2.5 Sound Pressure Level

Sound pressure level

Sound pressure level LpA < 70 dB according to EN ISO 20361

At maximum feed rate and maximum back pressure (water).

3 Storage and Transport

- **User qualification:** instructed user, see *Chapter 2.2 „Users' qualifications“ on page 8*

Environmental conditions for storage and transport:

- Permissible ambient temperature: +1 °C ... +40 °C.
- Humidity: maximum 90 % relative air humidity, non-condensing.
- Other: No dust, no direct sunlight.

3.1 Transport

The sensor should be transported in its original packaging and in compliance with the permissible environmental conditions. No further special conditions have to be observed in relation to transport.

3.2 Disposal of Packaging

Packaging material

Dispose of packaging material in an environmentally responsible way. All packaging components carry the corresponding recycling code ♻.

4 Arrangement/Installation

- **User qualification, mechanical installation:** trained and qualified personnel, see *Chapter 2.2 „Users' qualifications“ on page 8*
- **User qualification, hydraulic installation:** trained and qualified personnel, see *Chapter 2.2 „Users' qualifications“ on page 8*
- **User qualification, electrical Installation:** Electrical technician, see *Chapter 2.2 „Users' qualifications“ on page 8*

Select the installation location so that the pump is easily accessible.

The following ambient conditions must be adhered to:

- Ambient temperature -10 ... +40°C *
- Air humidity, max. 95% relative humidity, non-condensing

* In doing so, note the freezing point of the liquid to be pumped. Do not allow the liquid to freeze in the pump.

WARNING!

Danger from hazardous substances!

Possible consequence: Fatal or very serious injuries.

Please ensure when handling hazardous substances that you have read the latest safety data sheets provided by the manufacture of the hazardous substance. The actions required are described in the safety data sheet. Check the safety data sheet regularly and replace, if necessary, as the hazard potential of a substance can be re-evaluated at any time based on new findings.

The system operator is responsible for ensuring that these safety data sheets are available and that they are kept up to date, as well as for producing an associated hazard assessment for the workstations affected.

4.1 Assembly

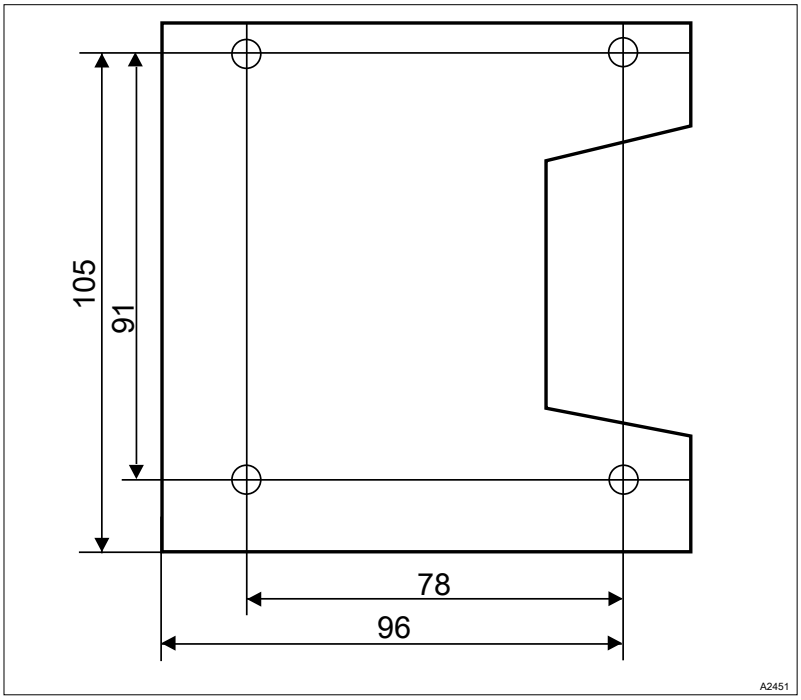

Fig. 4: Drilling template for the base plate, all dimensions in mm, tolerance ± 0.5 mm.

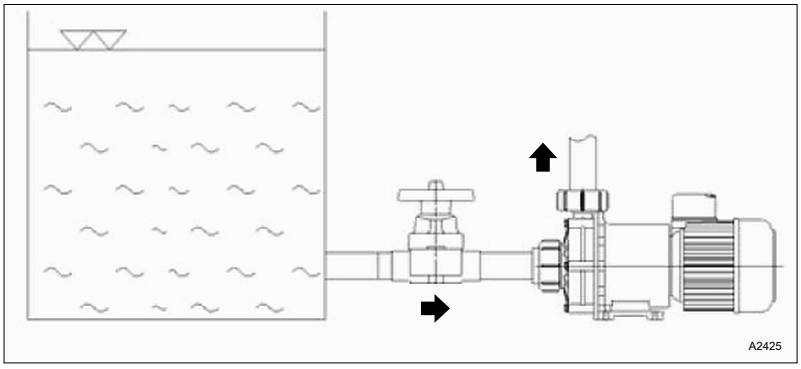

Fig. 5: Installation example

1. Assemble the pump horizontally or vertically, making sure that the motor points upwards.
2. The pump is not self-priming and needs a feed. Assemble the pump so that the medium to be pumped flows automatically to the pump, see Fig. 5.
3. Fix the pump onto a sufficiently load-bearing base surface, taking the drilling dimensions from Fig. 4. Provide the fittings on site.

4.2 Hose Lines / Pipework

CAUTION!
Pressure surges can destroy the pump housing.
Never use quick-closing valves in the pipework.

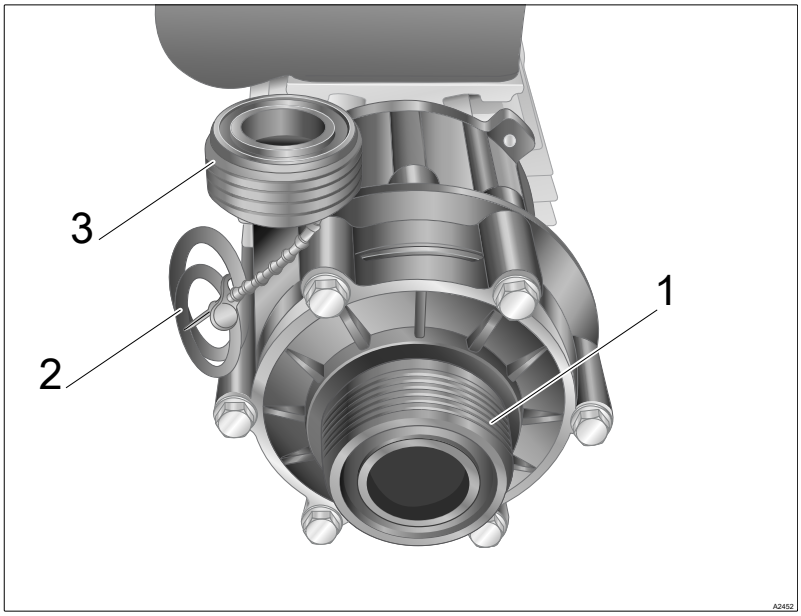

Fig. 6: Pump suction and pressure nozzles

1 Suction nozzle
2 Sealing rings provided
3 Pressure nozzle

1. Use pipework widths to match the pump's suction and pressure nozzles.

Weight of the lines
The weight of the lines may not exert a load on the pump housing.

2. Lead the suction and discharge lines without tension to the pump housing.

It is the duty of the operator of the pump to ensure that the connections to the suction and pressure nozzles are properly established.

4.2.1 Suction Line

- Use pipe or hose material as the suction line, which cannot deform from the negative pressure that occurs, not even at high temperatures.
- You have to keep the suction line as short as possible and fit it so that no gases can accumulate. Always route the suction line falling towards the pump.
- When designing pipes, fittings etc., make sure that the flow resistance is as minimal as possible.
- Make sure that the flow velocity does not exceed 1 m/s in the suction line.

4.2.2 Discharge Line

- Make sure that the guide value for the flow velocity in the discharge line is 3 m/s.
- You have to install a choke valve into the discharge line to regulate the delivery flow.

4.3 Electrical Connection

- Protect the motor with a motor protection switch.
- Switch off the supply voltage a minimum of 5 minutes before opening the terminal box.
- Check whether the data on the nameplate matches the existing power supply.
- Make sure that an electrician technician wires the electrical connectors and provides the additional protection in accordance with the regional regulations and standards.

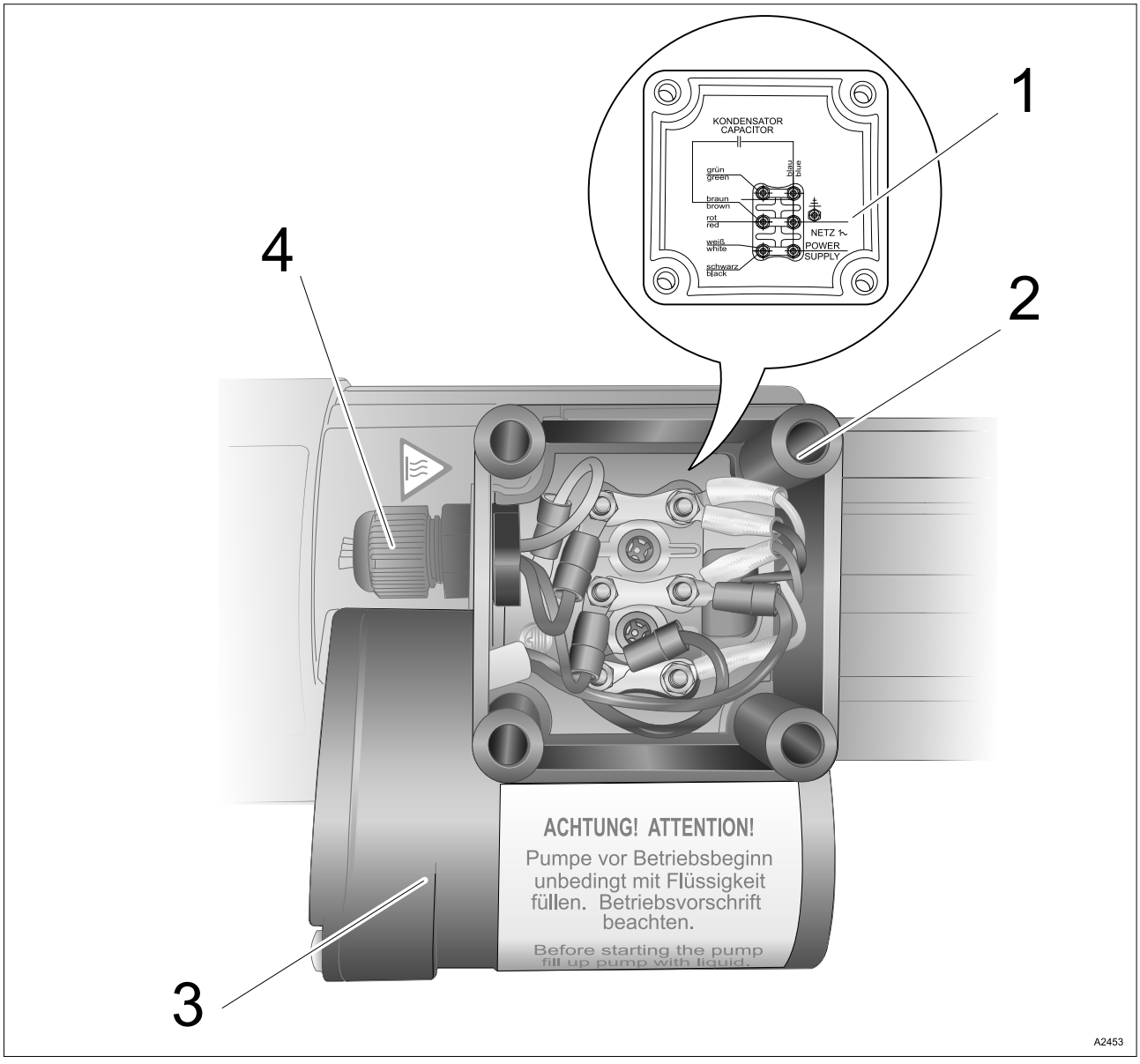

Fig. 7: Cover of the terminal box with connection diagram

1 Cover of the terminal box with connection diagram
2 Terminal box
3 Electrical capacitor
4 Cable opening with cable dummy

1. Connect the three-phase motors, as shown on the diagram in Fig. 7.

NOTICE!

Damage is possible to the pump

Pump running dry. Only check the direction of rotation with liquid in the pump.

2. Pay attention to the directional arrows on the pump, see Fig. 8

   Check the direction of rotation after installation.

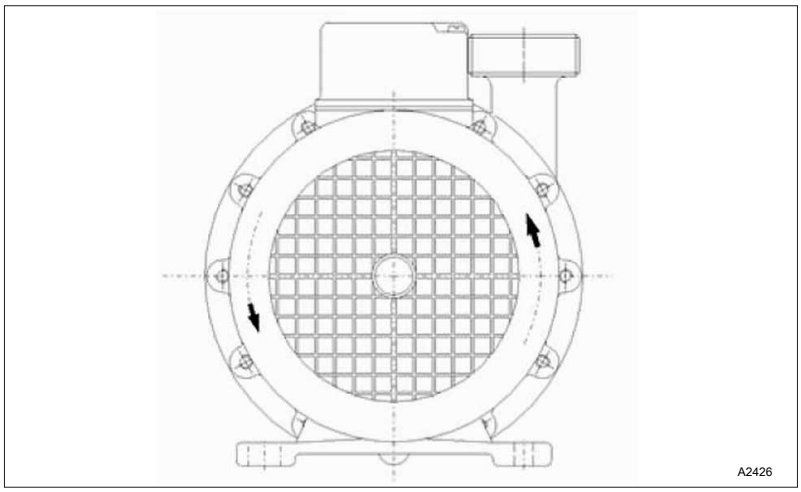

Fig. 8: Directional arrows = rotational direction of the motor

5 Start Up/Decommissioning

- **User qualification:** trained user, see *Chapter 2.2 „Users' qualifications“ on page 8*

WARNING!

Danger from hazardous substances!

Possible consequence: Fatal or very serious injuries.

Please ensure when handling hazardous substances that you have read the latest safety data sheets provided by the manufacture of the hazardous substance. The actions required are described in the safety data sheet. Check the safety data sheet regularly and replace, if necessary, as the hazard potential of a substance can be re-evaluated at any time based on new findings.

The system operator is responsible for ensuring that these safety data sheets are available and that they are kept up to date, as well as for producing an associated hazard assessment for the workstations affected.

NOTICE!

Sealed discharge line

The pump must not operate against the sealed discharge line.

The medium in the pump can heat up. The pump is damaged by this.

As the operator, take appropriate measures and processes to ensure that the pump does not work against a sealed discharge line.

5.1 Preparations for Operation

CAUTION!

Damage is possible to the pump

Do not allow the pump to run dry.

We recommend that low flow contact devices in the form of flow monitors, contact manometers, differential pressure switches or level controls, are installed.

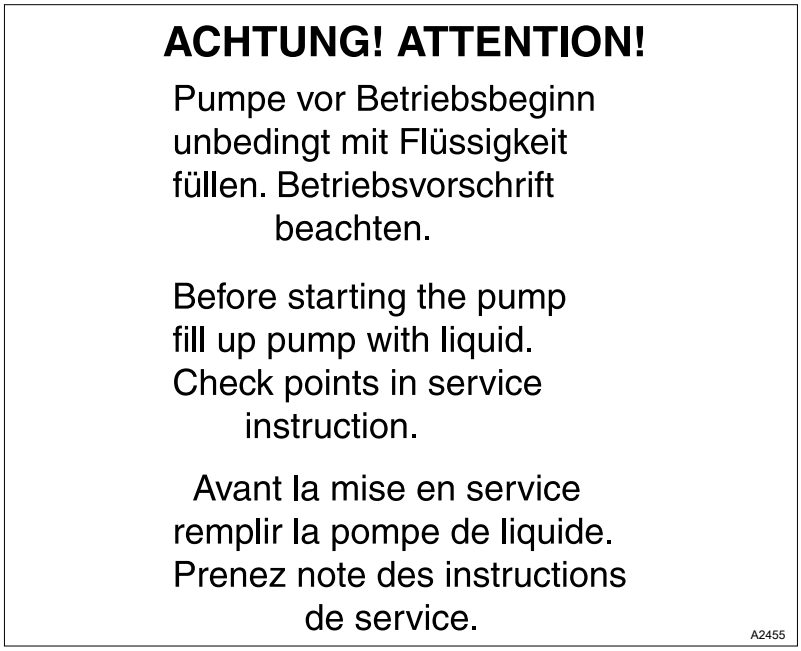

Fig. 9: Label on the pump: "It is essential that the pump is filled with liquid before the start of operation. Note the operating regulations."

1. Use a suitable liquid to fill the pump housing and the suction line, noting the material safety data sheet for the feed chemical.
2. Check that all connector threads are tight.
3. Open all suction-side shut-off valves.

5.2 Start Up

NOTICE!

Contamination/metal particles

Protect the pump from coarse dirt and magnetisable metal particles in the feed chemical.

As the operator, put in place appropriate measures and processes to ensure that no dirt/metal particles enter the pump.

1. Switch on the motor.
2. Immediately check the direction of rotation of the motor by switching it on and off as follows.
   ⇨ The direction of rotation must match the directional arrow.
3. Control the operating point by slowly opening the discharge-side choke valve.

   If no choke valve is installed on the discharge side, then the operating point will set itself automatically in accordance with the characteristic line for the system.

5.3 Operation

Proceed as follows if the motor protection switch switches off the motor:

1. Before switching on again, check whether the pump impeller is rotating smoothly.
2. Check whether the suction line and the pump housing are filled with medium.
3. Switch on the motor again.

If the pump pumps briefly and then the delivery flow stops, then the solenoid coupling is overloaded and uncoupled. Proceed as described in *Chapter 7 „Faults, Possible Causes, Rectification“ on page 24*.

5.4 Decommissioning

1. Switch off the motor.
2. Close the shut-off valves.
3. If the medium remains in the system, then secure the fittings from being opened accidentally.

6 Maintenance/Servicing

- **User qualification, mechanical work:** trained and qualified personnel, see *Chapter 2.2 „Users' qualifications“ on page 8*
- **User qualification, hydraulic work:** trained qualified personnel, see *Chapter 2.2 „Users' qualifications“ on page 8*
- **User qualification, electrical work:** Electrical technician, see *Chapter 2.2 „Users' qualifications“ on page 8*

WARNING!

Danger from hazardous substances!

Possible consequence: Fatal or very serious injuries.

Please ensure when handling hazardous substances that you have read the latest safety data sheets provided by the manufacture of the hazardous substance. The actions required are described in the safety data sheet. Check the safety data sheet regularly and replace, if necessary, as the hazard potential of a substance can be re-evaluated at any time based on new findings.

The system operator is responsible for ensuring that these safety data sheets are available and that they are kept up to date, as well as for producing an associated hazard assessment for the workstations affected.

6.1 Preventative Maintenance

WARNING!

Risk of injury from the solenoid forces

There is a risk of injury from magnetic forces when assembling or dismantling the pump head.

As the operator, put in place appropriate measures and processes to ensure that no one can be injured or endangered by the magnetic field.

Make sure when assembling or dismantling the pump that there are no magnetisable metal particles at the workplace. These metal particles will remain stuck to the pump and can damage parts of the pump.

As the operator, put in place appropriate measures and processes to ensure that there are no magnetisable metal particles at the workplace.

1. Clean the fan cowling to prevent the motor from overheating.
   ⇨ Interval: at least once per month.

2. Glide bearing, centring shaft and thrust rings are designed for continuous operation, but should be checked for deposits at regular intervals.

   ⇨ Interval: once a year.

   In the event of dirt, sludge-like and crystallising media, check the pump at shorter intervals if required and clean when necessary, see *Chapter 6.2 „Dismantling the Pump Head“ on page 21*.

3. Check the status of the static seals at regular intervals and replace the components if required, see *Chapter 6.2 „Dismantling the Pump Head“ on page 21*.

6.2 Dismantling the Pump Head

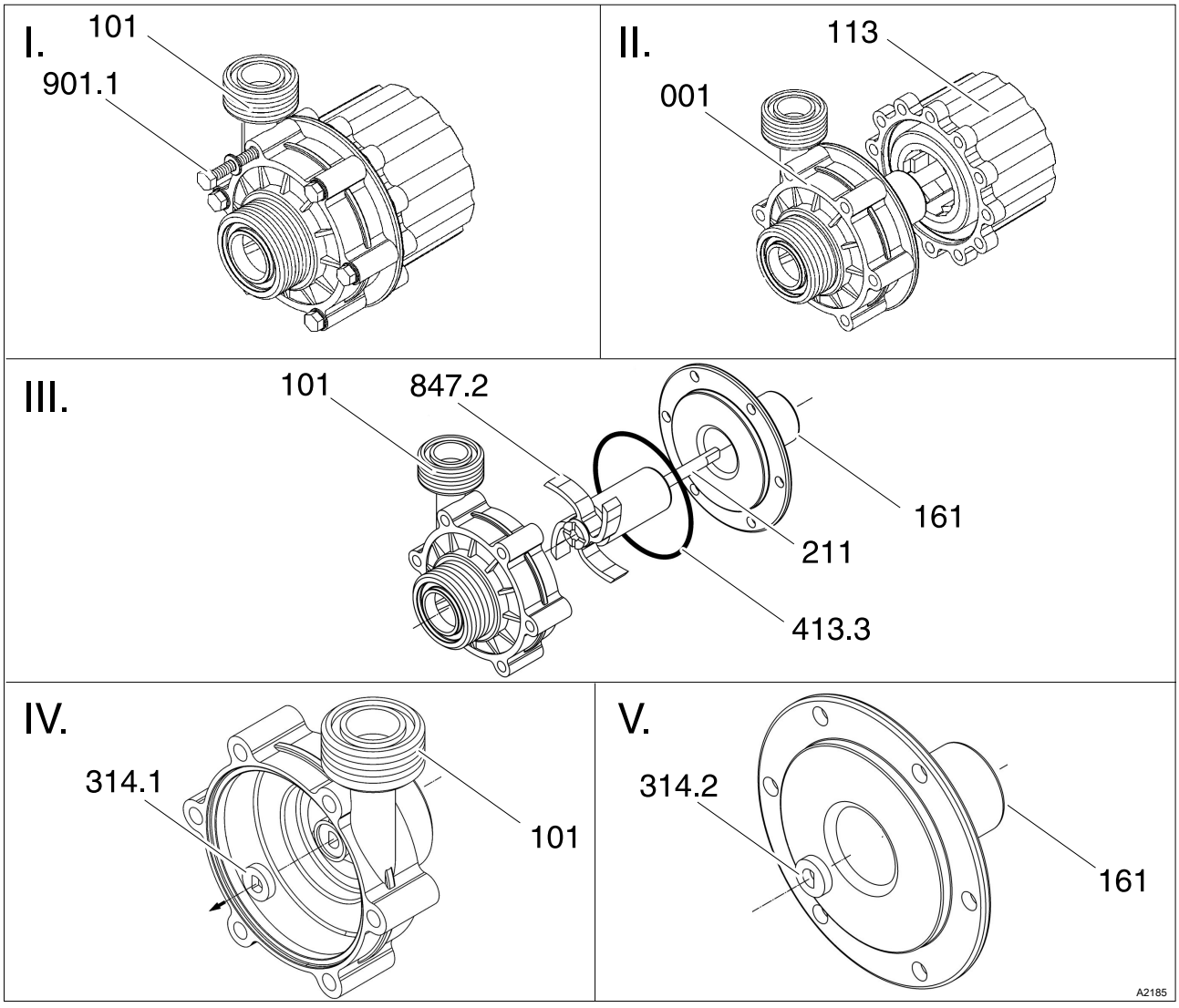

Fig. 10: Dismantling the pump head

1. I: Remove the 6 screws (901.1) on the pump housing (101).

   Tool: jaw spanner/box wrench SW8.

2. II: Carefully pull the pump head assembly (001) from the connecting piece (113).

   Tool: no tool required.

3. III: Remove the pump housing (101) from the centring shaft (211).

   Remove the impeller with the magnet (847.2) from the housing canister (161).

   Tool: no tool required.

4. IV: Remove the thrust washer (314.1) from the pump housing (101).

   Tool: no tool required.

5. V: Carry out a visual inspection of the thrust washer (314.2) in the housing canister (161). The thrust washer cannot be removed from the housing canister. If the thrust washer is damaged or worn, then replace the housing canister with the thrust washer.

   Tool: no tool required.

Overall view of the components

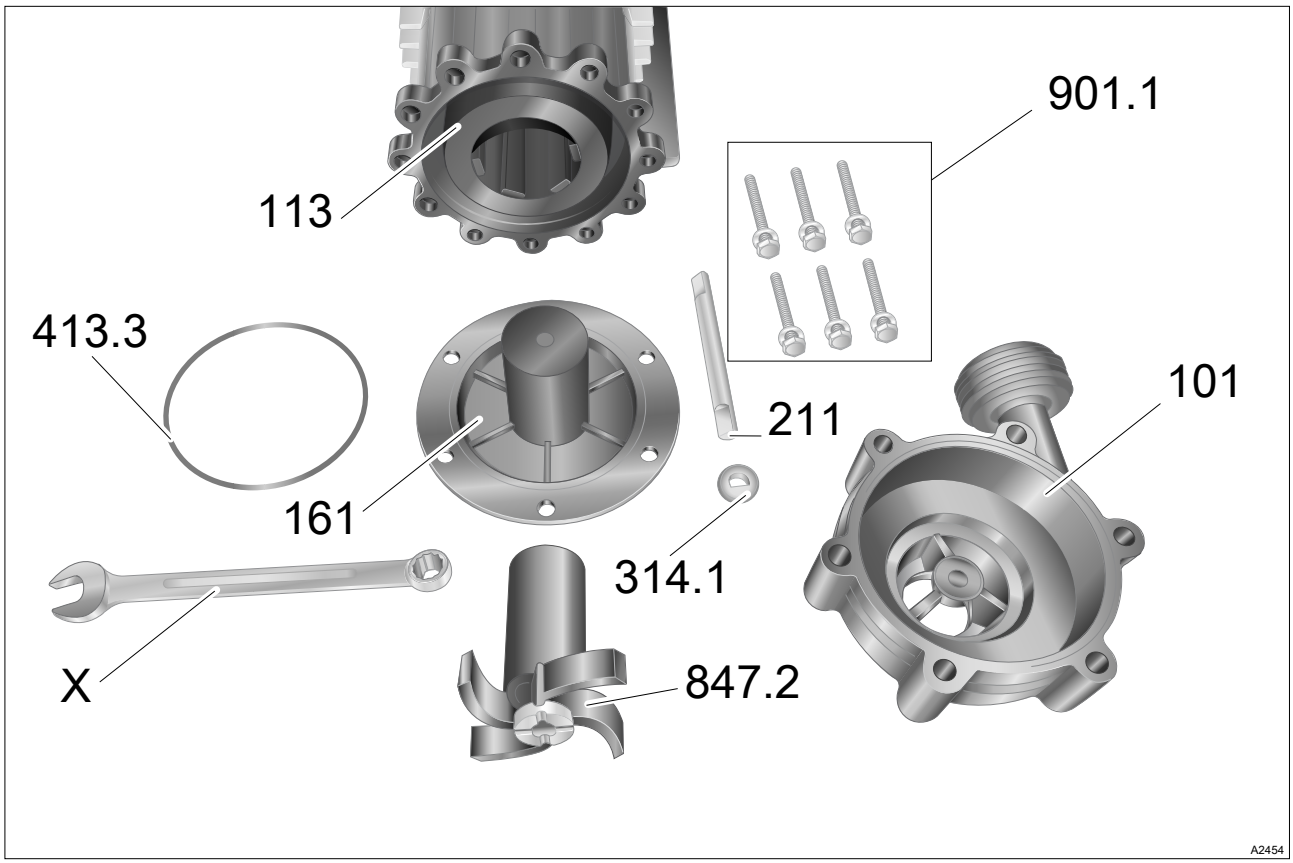

Fig. 11: Overall view of the components

101 Pump housing
113 Connecting piece
161 Housing canister
211 Centring shaft
314.1 Thrust washer
413.3 O-ring
847.2 Impeller with magnet
901.1 Screws with washers, 6 no.
X Jaw spanner/box wrench SW8

6.3 Assembling the Pump Head

Moving the impeller magnet.

After assembling the pump head, the impeller with the magnet (847.2) should still move axially on the centring shaft (211).

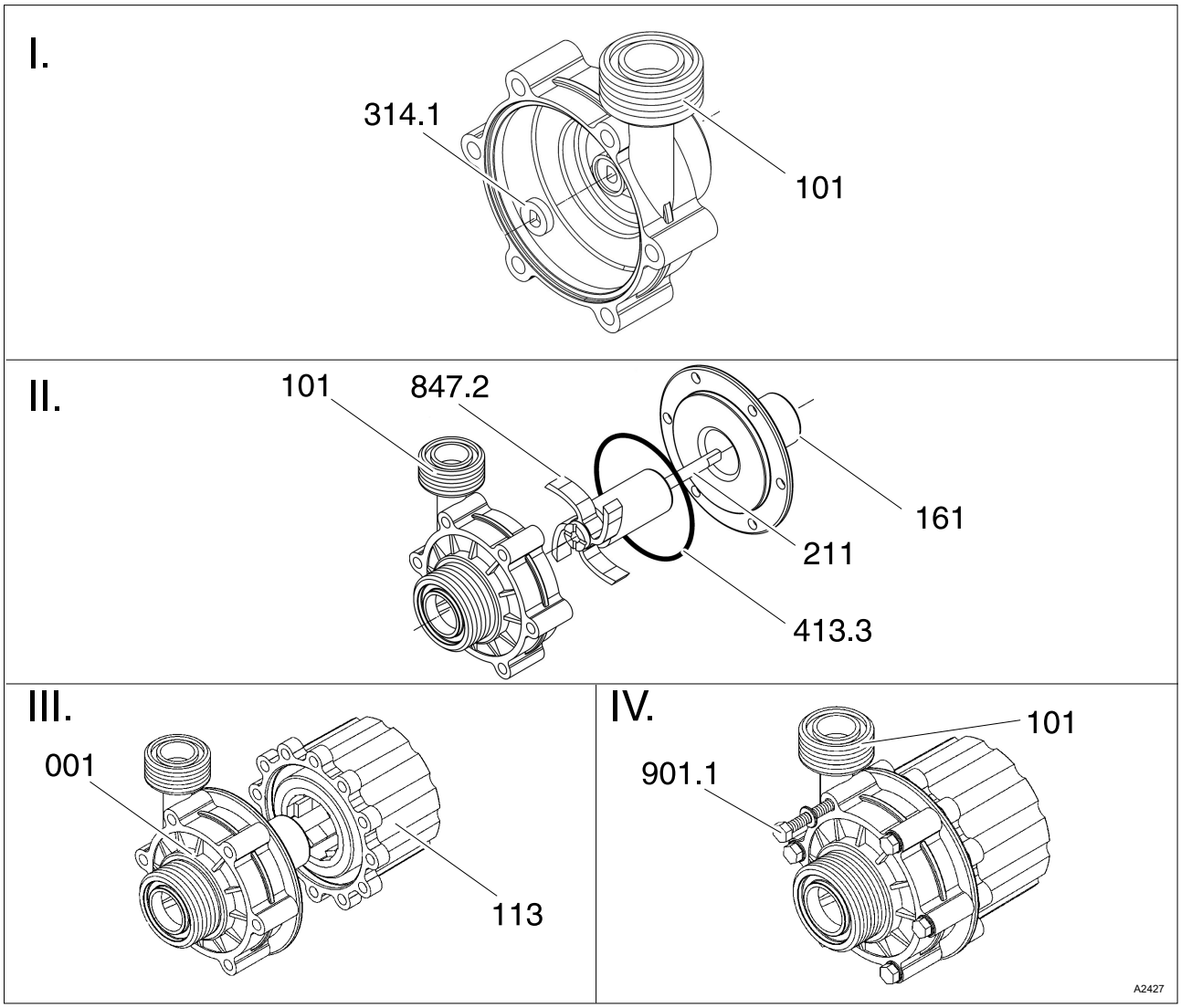

Fig. 12: Assembling the pump head

1. I: Place the thrust washer (314.1) into the pump housing (101).
2. II: Insert the impeller with the magnet (847.2) into the housing canister (161).

   Insert a new O-ring 413.3 into the housing canister (161).

   Place the centring shaft (211) into the pump housing (101).
3. III: Insert the pump head (001) into the connecting piece (113).
4. IV: Fix the pump housing (101) with the 6 screws (901.1) - tightening torque 7 Nm.

   Tool: Jaw spanner/box wrench SW8/torque wrench

7 Faults, Possible Causes, Rectification

- **User qualification:** trained user, see *Chapter 2.2 „Users' qualifications“ on page 8*

Fault description	Cause	Remedy
The pump does not run once it has been switched on.	No mains voltage.	Check the mains voltage.
	Foreign body in the pump housing.	Remove the foreign body.
Uncouple the solenoid coupling.	The specific weight and/or the viscosity of the feed chemical are too high.	Check the pump capacity and//or other viscosity of the feed chemical.
	The pump was switched off and restarted before the rotor came to a standstill.	The rotor must come to a standstill before you restart.
The motor is becoming too hot.	Fan and fan cowling are dirty.	Clean the fan and fan cowling.
The pump is running but not pumping.	Air in the lines.	Bleed/vent.
The pump is making loud flowing noises.	Cavitation.	■ Increase the suction line. ■ Throttle on the suction side. ■ Lower the temperature of the liquid.
The pump is now drawing in by suction.	No liquid in the pump.	Open the slider.
Feed rate too low.	The choke valve is not fully open.	Fully open the choke valve.
	Air in the system.	Bleed/vent.
	The cross-section of the suction and discharge line is too small (high losses).	Increase the cross-section of the suction and discharge line.
Feed rate too high.	The losses from the system are less than assumed.	Install a choke fitting into the discharge line.

8 Use Parts Disposal/Declaration of Decontamination

- **User qualification:** instructed user, see *Chapter 2.2 „Users' qualifications“ on page 8*

WARNING!

Danger from hazardous substances!

Possible consequence: Fatal or very serious injuries.

Please ensure when handling hazardous substances that you have read the latest safety data sheets provided by the manufacture of the hazardous substance. The actions required are described in the safety data sheet. Check the safety data sheet regularly and replace, if necessary, as the hazard potential of a substance can be re-evaluated at any time based on new findings.

The system operator is responsible for ensuring that these safety data sheets are available and that they are kept up to date, as well as for producing an associated hazard assessment for the workstations affected.

NOTICE!

The used part can only be accepted with a completed Declaration of Decontamination

Printed copy also available as a download at: www.prominent.com

A completed and signed "Declaration of Decontamination" is required by law and in order to protect our staff, before your order can be processed.

Ensure that the Declaration of Decontamination is attached to the outside of the package. Otherwise we are unable to accept your delivery.

NOTICE!

Regulations governing the disposal of used parts

– Note the national regulations and legal standards that currently apply in your country when disposing of the product.

ProMinent GmbH, Heidelberg/Germany will take back clean used parts.

9 Technical Data

Part no.	1023089	1023095	1028551	1028567
Pump type	vonTaine® 0502 PP/FKM	vonTaine® 0502 PVDF/FKM	vonTaine® 0502 PP/EPDM	vonTaine® 0502 PVDF/EPDM
Pump capacity Qmax.	1800 l/h			
Working range	30 ... 1800 l/h			
Delivery height Hmax.	4.5 mWs			
Maximum system pressure at 20°C	1.0 bar	2.0 bar	1.0 bar	2.0 bar
Motor capacity	60 W			
Voltage 50 Hz	230 V			
Current 50 Hz	0.7 A			
Speed 50 Hz	2871 rpm			
cos φ	0.961			
Degree of protection	IP 55			
Insulation class	F			
Max. temperature of the medium	80 °C	95 °C	80 °C	95 °C
Maximum viscosity	<20 mPas			
Max. ambient temperature	40 °C			
Max. density of the medium	1.25 ... 1.35 kg/dm³			
Suction connector	G 5/4			
Pressure connector	G 1			
Pump head	PP	PVDF	PP	PVDF
Impeller	PP	PVDF	PP	PVDF
Colour of liquid end	black	white	black	white
Slide bearing	Oxide ceramic			
Centring shaft	Oxide ceramic			
Impeller thrust ring	Oxide ceramic			
Housing thrust ring	Oxide ceramic			
Seal material	FKM	FKM	EPDM	EPDM
Motor colour	RAL 2003			
Weight approx.	2.7 kg	2.8 kg	2.7 kg	2.8 kg
Dimensions LxWxH	240 x 120 x 145 mm			

10 Spare Parts

Ordering address for spare parts and accessories: The current address for ordering spare parts and accessories can be found on the homepage of the manufacturer www.prominent.com.

10.1 Exploded View Drawing

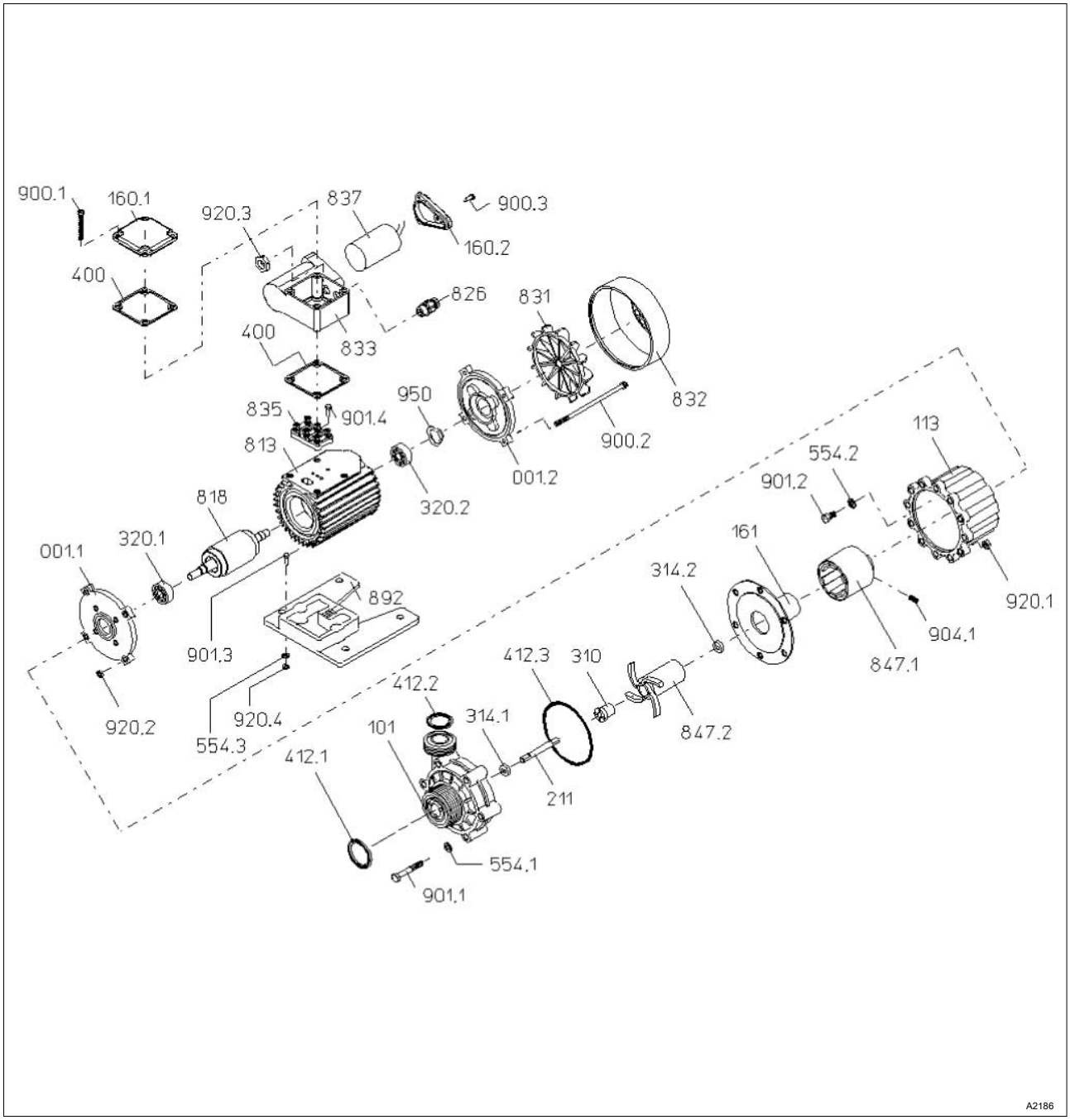

Fig. 13: Exploded view drawing

10.2 vonTaine® 0502 PP/FKM parts list

Position	Quantity	Part number	Description	Material
001.1	1	PUMA.00.0070.001	Bearing label A-side	PPS
001.2	1	PUMA.00.0070.002	Bearing label B-side	PPS
101	1	PUMA.05.0035.007	Pump housing G5/4 - G1	Polypropylene
160.1	1	PUMA.00.0045.014	Terminal box cover	Polypropylene
160.2	1	PUMA.00.0045.011	Cover for capacitor chamber	Polypropylene
161+314.2	1	PUMA.05.0035.036	Housing canister with thrust washer	Polypropylene
113	1	PUMA.00.0090.224	Connecting piece	Polypropylene
211	1	PUMA.05.0050.083	Centring shaft	Oxide ceramic
310	1	PUMA.05.0050.046	Slide bearing	Oxide ceramic
314.1	1	PUMA.05.0050.040	Thrust washer (housing)	Oxide ceramic
320.1	1	PUMA.00.0090.293	Ball bearing 6000 ZZ	
320.2	1	PUMA.00.0090.293	Ball bearing 6000 ZZ	
400	2	PUMA.00.0045.012	Terminal box seal	EPDM
412.1	1	FISF.00.0000.181	O-ring 26x3.5 (suction side)	FKM
412.2	1	PUMA.05.0035.012	O-ring 22x3 (discharge side)	FKM
412.3	1	PUMA.05.0035.020	O-ring 66x2	FKM
554.1	6	PUMA.05.0035.014	Washer D5.3	A2 - DIN125
554.2	4	PUMA.05.0035.014	Washer D5.3	A2 - DIN125
554.3	4	PUMA.00.0070.005	Fan washer Ø4.3	A2 - DIN6798
813	1	PUMA.00.0070.003	Winding with housing 60 W, 1-phase	230V / 50Hz
818	1	PUMA.00.0070.009	Rotor with shaft 60 W	
826	1	PUMA.00.0090.290	Cable threaded connector M12	
831	1	PUMA.00.0090.209	Fan blade	Polypropylene
832	1	PUMA.00.0090.210	Fan cowling	Polypropylene
833	1	PUMA.00.0045.010	Terminal box + capacitor chamber	Polypropylene
835	1	PUMA.00.0090.035	Terminal board	PPS
837	1	PUMA.00.0090.155	Capacitor 4µF	
847.1	1	PUMA.05.0035.042	Drive magnet	Polypropylene
847.2	1	PUMA.05.0035.005	Internal magnet with impeller	Polypropylene
892	1	PUMA.00.0070.012	Mounting plate	Polypropylene
900.1	4	PUMA.00.0090.042	Cylinder head screws M4x45	A2 - DIN84
900.2	4	PUMA.00.0070.006	Collar screws m4x108	galvanized
900.3	3	SO00.00.0000.092	Oval-head screw	A2 - DIN7981
901.1	6	PUMA.05.0035.015	Hex bolt M5x35	A2 - DIN933
901.2	4	PUMA.00.0090.223	Hex bolt M5x10	A2 - DIN933

Position	Quantity	Part number	Description	Material
901.3	4	PUMA.00.0070.004	Hex bolt M4x12	A2 - DIN933
901.4	2	PUMA.00.0090.031	Cylinder head screws M4x12	galvanized
904.1	1	PUMA.03.0030.002	Set screw	A2 - DIN916
920.1	6	PUMA.00.0090.225	Hexagonal nut M5	A2 - DIN934
920.2	4	PUMA.00.0250.030	Hexagonal nut M4	A2 - DIN934
920.3	1	SO00.00.0000.993	Counter nut M12	XX
920.4	4	PUMA.00.0250.030	Hexagonal nut M4	A2 - DIN934
950	1	PUMA.00.0070.007	Wave spring	

10.3 vonTaine® 0502 PVDF/FKM parts list

Position	Quantity	Part number	Description	Material
1.1	1	PUMA.00.0070.001	Bearing label A-side	PPS
1.2	1	PUMA.00.0070.002	Bearing label B-side	PPS
101	1	PUMA.05.0035.016	Pump housing G5/4 - G1	PVDF
160.1	1	PUMA.00.0045.014	Terminal box cover	Polypropylene
160.2	1	PUMA.00.0045.011	Cover for capacitor chamber	Polypropylene
161+314.2	1	PUMA.05.0035.040	Housing canister with thrust washer	PVDF
113	1	PUMA.00.0090.224	Connecting piece	Polypropylene
211	1	PUMA.05.0050.083	Centring shaft	Oxide ceramic
310	1	PUMA.05.0050.046	Slide bearing	Oxide ceramic
314.1	1	PUMA.05.0050.040	Thrust washer (housing)	Oxide ceramic
320.1	1	PUMA.00.0090.293	Ball bearing 6000 ZZ	
320.2	1	PUMA.00.0090.293	Ball bearing 6000 ZZ	
400	2	PUMA.00.0045.012	Terminal box seal	EPDM
412.1	1	FISF.00.0000.181	O-ring 26x3.5 (suction side)	FKM
412.2	1	PUMA.05.0035.012	O-ring 22x3 (discharge side)	FKM
412.3	1	PUMA.05.0035.020	O-ring 66x2	FKM
554.1	6	PUMA.05.0035.014	Washer D5.3	A2 - DIN125
554.2	4	PUMA.05.0035.014	Washer D5.3	A2 - DIN125
554.3	4	PUMA.00.0070.005	Fan washer Ø4.3	A2 - DIN6798
813	1	PUMA.00.0070.003	Winding with housing 60 W, 1-phase	230V - 50Hz
818	1	PUMA.00.0070.009	Rotor with shaft 60 W	
826	1	PUMA.00.0090.290	Cable threaded connector M12	
831	1	PUMA.00.0090.209	Fan blade	Polypropylene
832	1	PUMA.00.0090.210	Fan cowling	Polypropylene
833	1	PUMA.00.0045.010	Terminal box + capacitor chamber	Polypropylene
835	1	PUMA.00.0090.035	Terminal board	PPS
837	1	PUMA.00.0090.155	Capacitor 4µF	
847.1	1	PUMA.05.0035.042	Drive magnet	Polypropylene
847.2	1	PUMA.05.0035.021	Internal magnet with impeller	PVDF
892	1	PUMA.00.0070.012	Mounting plate	Polypropylene
900.1	4	PUMA.00.0090.042	Cylinder head screws M4x45	A2 - DIN84
900.2	4	PUMA.00.0070.006	Collar screws m4x108	galvanized
900.3	3	SO00.00.0000.092	Oval-head screw	A2 - DIN7981
901.1	6	PUMA.05.0035.015	Hex bolt M5x35	A2 - DIN933
901.2	4	PUMA.00.0090.223	Hex bolt M5x10	A2 - DIN933
901.3	4	PUMA.00.0070.004	Hex bolt M4x12	A2 - DIN933

Position	Quantity	Part number	Description	Material
901.4	2	PUMA.00.0090.031	Cylinder head screws M4x12	galvanized
904.1	1	PUMA.03.0030.002	Set screw	A2 - DIN916
920.1	6	PUMA.00.0090.225	Hexagonal nut M5	A2 - DIN934
920.2	4	PUMA.00.0250.030	Hexagonal nut M4	A2 - DIN934
920.3	1	SO00.00.0000.993	Counter nut M12	
920.4	4	PUMA.00.0250.030	Hexagonal nut M4	A2 - DIN934
950	1	PUMA.00.0070.007	Wave spring	

10.4 vonTaine® 0502 PP/EPDM parts list

Position	Quantity	Part number	Description	Material
1.1	1	PUMA.00.0070.001	Bearing label A-side	PPS
1.2	1	PUMA.00.0070.002	Bearing label B-side	PPS
101	1	PUMA.05.0035.007	Pump housing G5/4 - G1	Polypropylene
160.1	1	PUMA.00.0045.014	Terminal box cover	Polypropylene
160.2	1	PUMA.00.0045.011	Cover for capacitor chamber	Polypropylene
161+314.2	1	PUMA.05.0035.036	Housing canister with thrust washer	Polypropylene
113	1	PUMA.00.0090.224	Connecting piece	Polypropylene
211	1	PUMA.05.0050.083	Centring shaft	Oxide ceramic
310	1	PUMA.05.0050.046	Slide bearing	Oxide ceramic
314.1	1	PUMA.05.0050.040	Thrust washer (housing)	Oxide ceramic
320.1	1	PUMA.00.0090.293	Ball bearing 6000 ZZ	
320.2	1	PUMA.00.0090.293	Ball bearing 6000 ZZ	
400	2	PUMA.00.0045.012	Terminal box seal	EPDM
412.1	1	FISF.00.0000.180	O-ring 26x3.5 (suction side)	EPDM
412.2	1	PUMA.05.0035.011	O-ring 22x3 (discharge side)	EPDM
412.3	1	PUMA.05.0035.019	O-ring 66x2	EPDM
554.1	6	PUMA.05.0035.014	Washer D5.3	A2 - DIN125
554.2	4	PUMA.05.0035.014	Washer D5.3	A2 - DIN125
554.3	4	PUMA.00.0070.005	Fan washer Ø4.3	A2 - DIN6798
813	1	PUMA.00.0070.003	Winding with housing 60 W, 1-phase	230V - 50Hz
818	1	PUMA.00.0070.009	Rotor with shaft 60 W	
826	1	PUMA.00.0090.290	Cable threaded connector M12	
831	1	PUMA.00.0090.209	Fan blade	Polypropylene
832	1	PUMA.00.0090.210	Fan cowling	Polypropylene
833	1	PUMA.00.0045.010	Terminal box + capacitor chamber	Polypropylene
835	1	PUMA.00.0090.035	Terminal board	PPS
837	1	PUMA.00.0090.155	Capacitor 4µF	
847.1	1	PUMA.05.0035.042	Drive magnet	Polypropylene
847.2	1	PUMA.05.0035.005	Internal magnet with impeller	Polypropylene
892	1	PUMA.00.0070.012	Mounting plate	Polypropylene
900.1	4	PUMA.00.0090.042	Cylinder head screws M4x45	A2 - DIN84
900.2	4	PUMA.00.0070.006	Collar screws m4x108	galvanized
900.3	3	SO00.00.0000.092	Oval-head screw	A2 - DIN7981
901.1	6	PUMA.05.0035.015	Hex bolt M5x35	A2 - DIN933
901.2	4	PUMA.00.0090.223	Hex bolt M5x10	A2 - DIN933
901.3	4	PUMA.00.0070.004	Hex bolt M4x12	A2 - DIN933

Position	Quantity	Part number	Description	Material
901.4	2	PUMA.00.0090.031	Cylinder head screws M4x12	galvanized
904.1	1	PUMA.03.0030.002	Set screw	A2 - DIN916
920.1	6	PUMA.00.0090.225	Hexagonal nut M5	A2 - DIN934
920.2	4	PUMA.00.0250.030	Hexagonal nut M4	A2 - DIN934
920.3	1	SO00.00.0000.993	Counter nut M12	
920.4	4	PUMA.00.0250.030	Hexagonal nut M4	A2 - DIN934
950	1	PUMA.00.0070.007	Wave spring	

10.5 vonTaine® 0502 PVDF/EPDM parts list

Position	Quantity	Part number	Description	Material
1.1	1	PUMA.00.0070.001	Bearing label A-side	PPS
1.2	1	PUMA.00.0070.002	Bearing label B-side	PPS
101	1	PUMA.05.0035.016	Pump housing G5/4 - G1	PVDF
160.1	1	PUMA.00.0045.014	Terminal box cover	Polypropylene
160.2	1	PUMA.00.0045.011	Cover for capacitor chamber	Polypropylene
161+314.2	1	PUMA.05.0035.040	Housing canister with thrust washer	PVDF
113	1	PUMA.00.0090.224	Connecting piece	Polypropylene
211	1	PUMA.05.0050.083	Centring shaft	Oxide ceramic
310	1	PUMA.05.0050.046	Slide bearing	Oxide ceramic
314.1	1	PUMA.05.0050.040	Thrust washer (housing)	Oxide ceramic
320.1	1	PUMA.00.0090.293	Ball bearing 6000 ZZ	
320.2	1	PUMA.00.0090.293	Ball bearing 6000 ZZ	
400	2	PUMA.00.0045.012	Terminal box seal	EPDM
412.1	1	FISF.00.0000.180	O-ring 26x3.5 (suction side)	EPDM
412.2	1	PUMA.05.0035.011	O-ring 22x3 (discharge side)	EPDM
412.3	1	PUMA.05.0035.043	O-ring 64x2	EPDM
554.1	6	PUMA.05.0035.014	Washer D5.3	A2 - DIN125
554.2	4	PUMA.05.0035.014	Washer D5.3	A2 - DIN125
554.3	4	PUMA.00.0070.005	Fan washer Ø4.3	A2 - DIN6798
813	1	PUMA.00.0070.003	Winding with housing 60 W, 1-phase	230V / 50Hz
818	1	PUMA.00.0070.009	Rotor with shaft 60 W	
826	1	PUMA.00.0090.290	Cable threaded connector M12	
831	1	PUMA.00.0090.209	Fan blade	Polypropylene
832	1	PUMA.00.0090.210	Fan cowling	Polypropylene
833	1	PUMA.00.0045.010	Terminal box + capacitor chamber	Polypropylene
835	1	PUMA.00.0090.035	Terminal board	PPS
837	1	PUMA.00.0090.155	Capacitor 4µF	
847.1	1	PUMA.05.0035.042	Drive magnet	Polypropylene
847.2	1	PUMA.05.0035.021	Internal magnet with impeller	PVDF
892	1	PUMA.00.0070.012	Mounting plate	Polypropylene
900.1	4	PUMA.00.0090.042	Cylinder head screws M4x45	A2 - DIN84
900.2	4	PUMA.00.0070.006	Collar screws m4x108	galvanized
900.3	3	SO00.00.0000.092	Oval-head screw	A2 - DIN7981
901.1	6	PUMA.05.0035.015	Hex bolt M5x35	A2 - DIN933
901.2	4	PUMA.00.0090.223	Hex bolt M5x10	A2 - DIN933
901.3	4	PUMA.00.0070.004	Hex bolt M4x12	A2 - DIN933

Position	Quantity	Part number	Description	Material
901.4	2	PUMA.00.0090.031	Cylinder head screws M4x12	galvanized
904.1	1	PUMA.03.0030.002	Set screw	A2 - DIN916
920.1	6	PUMA.00.0090.225	Hexagonal nut M5	A2 - DIN934
920.2	4	PUMA.00.0250.030	Hexagonal nut M4	A2 - DIN934
920.3	1	SO00.00.0000.993	Counter nut M12	
920.4	4	PUMA.00.0250.030	Hexagonal nut M4	A2 - DIN934
950	1	PUMA.00.0070.007	Wave spring	

11 Appendix

11.1 Dimensional Drawing of vonTaine® 0502 PP and PVDF

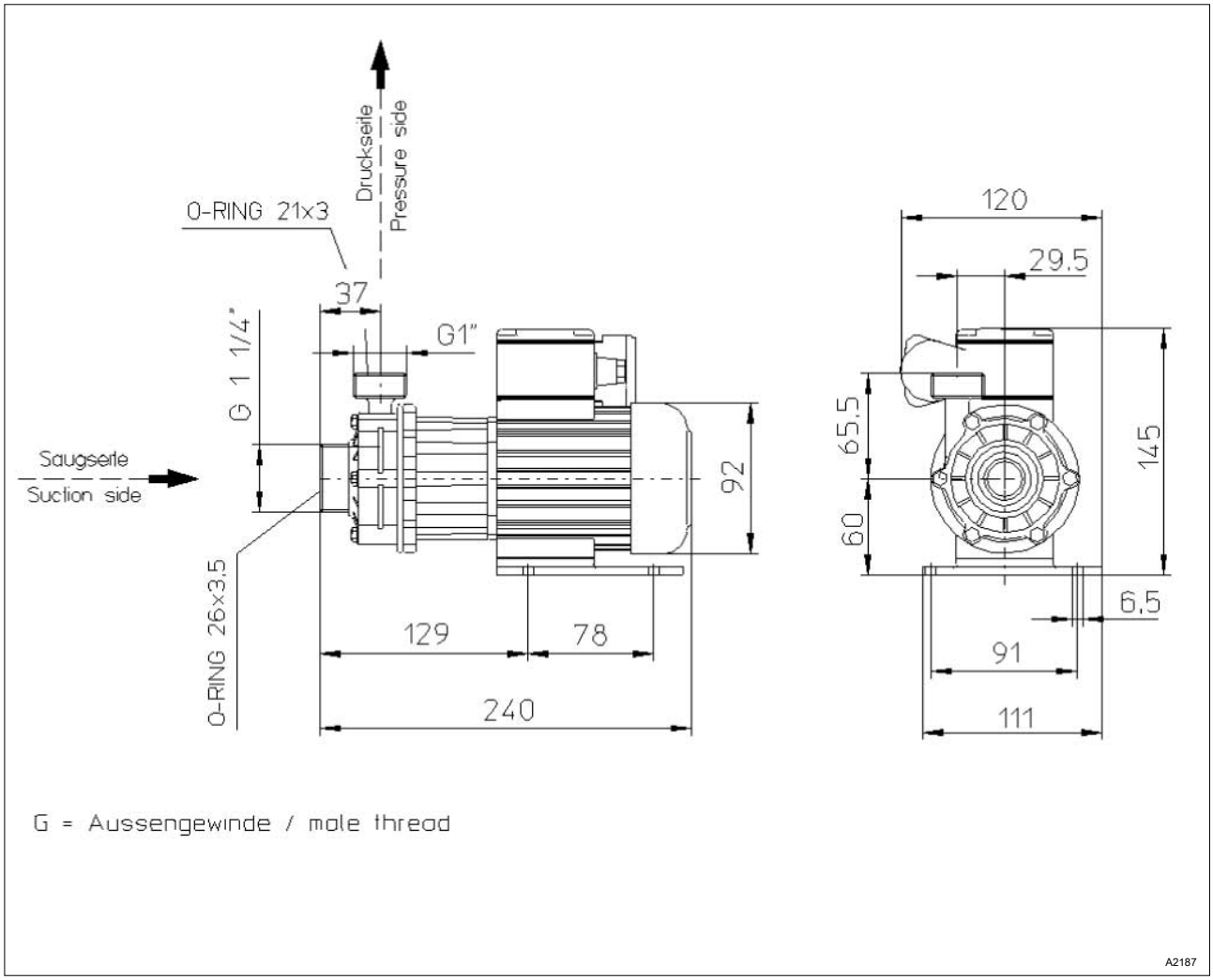

Fig. 14: Dimensional drawing of vonTaine® 0502 PP and PVDF

11.2 Characteristic Curves

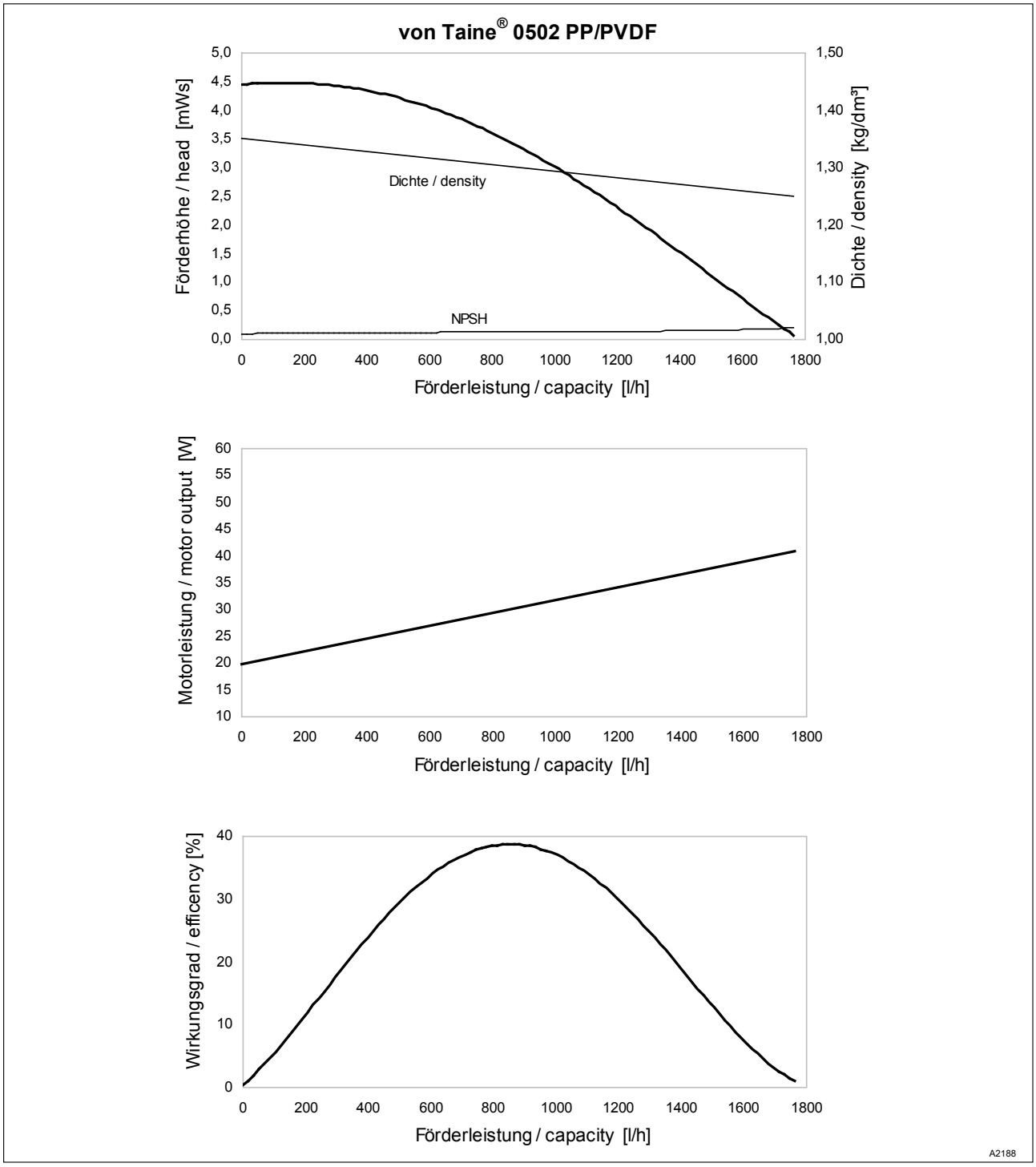

Fig. 15: Characteristic curves: pump capacity in relation to delivery height (mWs) / motor output (W) / efficiency (%)

11.3 Motor Data Sheet

Motor Datenblatt

Motor data sheet
Fiche technique pour moteur

Motor-Typ motor type type du moteur	St.69,5/50-1		Leistungsfaktor cos φ power factor facteur de puissance	0,961	
Maschinenart type of machine désignation	1-ph. Motor		Wirkungsgrad efficiency rendement	42	%
Bauform mounting construction	IM V3		Wärmeklasse temperature class classe d´isolement	F	
Bemessungsleistung rated output puissance nominale	0,060	kW	Anzugsstrom starting current courant de démarrage	2,86	fach fold fois
Schutzart protection class degré de protection	IP55		Anzugsmoment starting torque couple de démarrage	0,75	fach fold fois
Bemessungsspannung rated voltage tension nominale	1-ph. 220-240V (50Hz)		Kippmoment pull-out torque couple de décrochage	2,3	fach fold fois
Bemessungsstrom rated current courant nominal	0,7 A		Umgebungstemperatur ambient temperature température ambiante	max. 40 °C	
Bemessungsfrequenz rated frequency fréquence nominale	50Hz		Schaltung connection branchement	1-ph.	
Bemessungsdrehzahl rated speed vitesse nominale	2871	U/min. rpm t/mn	Identcode identcode code d´identification		
Pumpentyp pump type type de pompe	Kreiselpumpe mit Magnetkupplung				
Anmerkung comment remarque	Die Daten entsprechen den Angaben der Motorenhersteller. Kenndaten funktionsgleicher Motoren anderer Hersteller ändern sich nur unwesentlich. Angabe ohne Gewähr.				
	The data correspond to the details given by the motor manufacturers. Ratings of motors with the same functions made by other producers show insignificant changes only. This information is supplied without liability.				
	Les données techniques correspondent au descriptif du fabricant des moteurs. Les données techniques de moteurs similaires chez d´autres fabricants varient très peu. Ces données sont d´ordre général.				
ProMinent GmbH · 69123 Heidelberg · Germany					Nr. / No.
					Datum / Date 19.11.2003

A2189

Fig. 16: Motor data sheet

11.4 EC Declaration of Conformity for Machinery

In accordance with DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL, Appendix I, BASIC HEALTH AND SAFETY REQUIREMENTS, section 1.7.4.2. C.

We,

- ProMinent GmbH
- Im Schuhmachergewann 5 - 11
- D - 69123 Heidelberg, Germany,

hereby declare that the product specified in the following, complies with the relevant basic health and safety requirements of the EC Directive, on the basis of its functional concept and design and in the version distributed by us. Any modification to the product not approved by us will invalidate this declaration.

Extract from the EC Declaration of Conformity

Designation of the product:	Centrifugal pump
Product type:	von Taine
Serial number:	see nameplate on the device
Relevant EC directives:	EC Machinery Directive (2006/42/EC) EC EMC Directive (2004/108/EC) Compliance with the protection targets of the Low Voltage Directive 2006/95/EC according to Appendix I, No. 1.5.1 of the Machinery Directive 2006/42/EC
Harmonised standards applied, in particular:	EN ISO 12100 EN 809
Date:	17.02.2014

You can download the EC Declaration of Conformity at www.prominent.com

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