Translation of the original operating manual

Item no.: 99988158

Rev. 02. / 02/2023

Glue pump with heater
PTI-D4-H-XXX
Glue pump without heater
PTI-D4-O-XXX

Year of manufacture: 2023

We reserve the right to make technical changes to the presentations and information in this manual that are necessary for improvement of the product characteristics.

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1 EU Declaration of Conformity

DESIGN: Glue pump

Type: PTI-D4-X[1]-XXX[2]-X[3]

The glue pump has been designed and manufactured in accordance with the EC/EU directives:

Machinery Directive 2006/42/EC, EU Gazette, L 157/24 of 17 June 2006

2014/30/EU* EMC Directive EU Gazette, L 96/309 of 26 February 2014

under the sole responsibility of (manufacturer):

Timmer GmbH
Dieselstrasse 37
48485 Neuenkirchen, Germany
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The following harmonised standards have been applied:

DIN EN ISO 12100:2010 Safety of machinery –

General principles of design – Risk assessment and risk reduction

DIN EN 809: 2012-10 Pumps and pump units for liquids – Common safety requirements

DIN EN ISO 4414:2010 Pneumatic fluid power – General rules and safety requirements for systems and their components

DIN EN 61000-2-2 Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – immunity standard for industrial environments

DIN EN 61000-2-3 Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments*

Person responsible for compiling the documentation: Timmer GmbH

Address: see Manufacturer

Neuenkirchen, April 2022

City / date

Klaus Gehrmann (Managing Director)

H[1]=with heater/ O[1]=without heater; XXX[2]=suction pipe length, XX[3]=special option (material/design/firmware)

*For pumps with integrated heating/control

2 About this manual

2.1 Use and safekeeping

Please note the following points:

- The pump can only be appropriately and safely commissioned, operated and maintained with the aid of this operating manual.
- This operating manual refers only to the product that is specified on the cover sheet.
- This operating manual is part of the scope of delivery.
- Consequently, always keep this operating manual in legible condition, within easy reach for the operator, in the vicinity of the pump. Keep this document with the pump in the event of resale or rental.
- This operating manual is intended only for instructed, authorised and qualified personnel.
- The section on safety provides an overview of all important safety aspects for optimal protection of personnel, and for safe and trouble-free operation of the pump.
- The manufacturer is not liable for damage resulting from failure to comply with the instructions in this operating manual.
- Reprints, translations and duplications in any from, including excerpts, require the written consent of the publisher.
- The copyright remains with the manufacturer.

2.2 Manufacturer information

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2.3 Areas of applicability

This product complies with the directives of the European Union.

In this regard, please note:

- The provided EU Declaration of Conformity
- The intended use
- The non-intended use

2.4 Guarantee and warranty

For all Timmer pumps, we grant the initial purchaser a one year warranty on workmanship and material, starting from the date of purchase; provided that the pump is used as intended. Normal wear is excluded from the liability. The warranty is automatically null and void, if parts other than original Timmer spare parts are installed in the Timmer pump.

In accordance with applicable law, Timmer GmbH excludes all liability for consequential damages. In all cases the liability of Timmer GmbH shall be restricted to, and shall in no case exceed the equivalent value of the purchase price. Prior to purchase and shipment of the Timmer pump, the customer should review the national and local laws and regulations to ensure that the product, the installation and the application are in compliance with the applicable regulations.

- Notify the manufacturer immediately of warranty claims after defects or faults are detected.
- The warranty shall also be invalidated, in all cases where liability claims cannot be legally asserted.
- The information, illustrations and descriptions in this operating manual do not give rise to any claims for changes to systems and components that have already been delivered.
- No liability is accepted for damage or malfunctions that occur as described below:
  - Disregarding the operating manual
  - Unauthorised modifications of the system
  - Operating error
  - Failure to perform maintenance tasks

3 Safety

3.1 Basic information concerning safety

The Safety section provides an overview of all important safety aspects for optimal protection of personnel, as well as for safe and trouble-free use of the pump, from transport to operation and disposal.

Failure to comply with the instructions and safety notices cited in this operating manual can result in considerable hazards for personnel and material damage of the pump.

The pump is operationally reliable.

Under the following circumstances, more extensive residual risks can be associated with the pump, if

- The pump is not used as intended.
- The pump is used improperly or operated by untrained or uninstructed personnel.
- The pump is not properly maintained or serviced.
- The safety instructions, notices and warnings specified in this operating manual are not complied with.
- The pump is improperly modified or converted.
- The prescribed maintenance is not performed in a timely manner.

3.2 Compliance with the instructions in the operating manual

Every person who is assigned to perform tasks on the pump must have read and understood this operating manual, particularly the "Safety" section.

Knowledge of and compliance with the content of this manual are the prerequisites for protecting personnel from danger and avoiding errors.

Consequently, all safety notices must always be complied with, compliance is in the interest of your safety.

The operating manual is a component of the pump and must always be available in the vicinity of the product. The operating manual must be complied with. If content of this operating manual is not clear or not understandable, contact the manufacturer without delay, see the paragraph "Manufacturer information".

In addition to the safety instructions in this operating manual the following rules and regulations must also be complied with:

- The intended use
- The applicable accident prevention regulations (UVV)
- Occupational health regulations
- Generally accepted rules for safety
- Country-specific regulations
- The manufacturer information (safety data sheets) for operating materials and auxiliary materials, chemical substances

Moreover, these rules and regulations can be supplemented with work instructions that take into account plant-internal regulations or operational particularities.

In supplementation to this operating manual, company-internal instruction with due consideration of the technical qualifications of the respective persons must also be provided.

3.3 Operational prerequisites

Dependence on other installations and equipment must be tested by the owner separately.

Moreover, the following prerequisites must be met for regular operation of the pump, unless they are within our area of responsibility:

- Properly concluded installation.
- Successful trial run with all required adjustment tasks.
- Instruction of operating personnel concerning operation of the pump and the applicable safety regulations.
- If hot or cold machine parts result in additional danger, then the customer must provide guards that prevent these parts from being touched.
- The possibility of hazards due to electrical energy must be excluded (for details in this regard see VDE guidelines or guidelines issued by the electrical utility, for example).
- The pump must be easily accessible.
- Designation of a person who is primarily responsible for proper operation.

3.4 Intended use

- The pump and the operating manual are intended exclusively for commercial use.
- The pump must only be used to pump glues that are customary in the market for labelling machines. Use of a different medium can only occur with the permission of Timmer.
- The pump must only be operated within the limits specified for intended use (see section "Technical data").
- The pump must only be operated in closed rooms.
- The pumped medium must be compatible with the materials of the pump (see section "Technical data").
- The owner of the pump is responsible for selection of the medium to be pumped.

3.5 Non-intended use

A use other than the use described in the section, "Intended use" and in this operating manual, and any use that extends beyond the specified intended use, is considered non-intended use. The manufacturer shall not be liable for damage resulting from non-intended use. This risk is borne solely by the user / owner.

- The pump must not be used or placed in service by private users.
- The pump must not be operated without medium.
- Do not modify the pump in any manner whatsoever.
- Operating the pump with bypassed safety devices is prohibited.

3.6 Foreseeable misuse

The following points describe foreseeable misuse of the pump:

- Setup on uneven, slippery, or unstable substrates
- Attachment of transport aids on the housing
- Failure to comply with the operating data
- Failure to comply with the maintenance intervals

3.7 Labelling on the pump

The data on the rating plate affixed on the pump must always be complied with. The rating plate must not be removed, and it must be kept in completely legible condition.

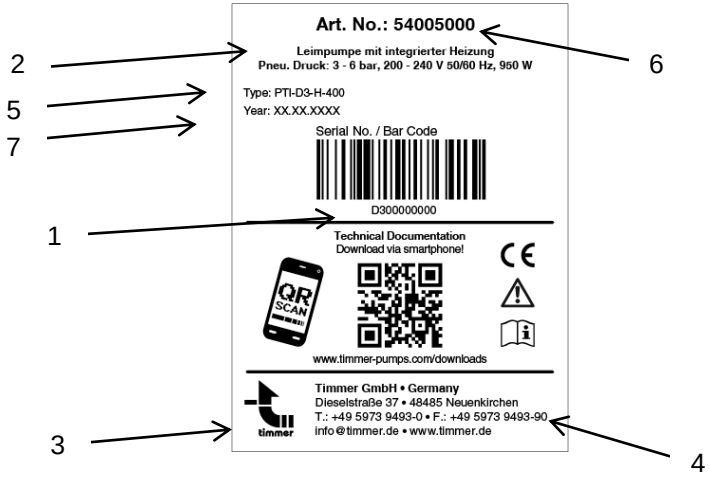


Fig. 1: Rating plate

1	Serial number	5	Type key
2	Product designation	6	Item number
3	Logo	7	Date
4	Manufacturer address		

3.8 Qualifications of personnel

Tasks on the pump must only be performed in accordance with existing rules and statutory regulations, by personnel who have been instructed and who are qualified in this regard, in compliance with due diligence obligations.

The following requirements must be met:

- Personnel must have special skills and experience in the respective technical area. This particularly applies for maintenance and repair tasks on mechanical and pneumatic fixtures of the pump.
- Personnel must have knowledge of applicable standards, directives, accident prevention regulations and operating conditions.
- Personnel must have been authorised by the person responsible for safety to perform each of the required activities.
- Personnel must be capable of recognising and avoiding possible dangers.

The required personnel qualifications are subject to different statutory regulations depending on the installation site. The owner must ensure compliance with applicable laws.

3.9 Personal protective equipment

Failure to wear the personal protective equipment can result in severe or fatal injury.

- Wear the operationally prescribed protective equipment, e.g. hearing protection, eye protection, safety footwear, hard hat, protective clothing and protective gloves for all tasks on the pump.

- Long hair must be tied back and covered; do not wear loose clothing or jewellery. Danger of injury through snagging, being drawn in or entanglement due to moving parts.
- Ensure that there are no unauthorised persons in the danger zone.

3.10 Warnings in the operating manual

Warnings warn of general, as well as specific situational dangers. Compliance with the warnings prevents personal injury and material damage and therefore compliance is mandatory.

The warning symbol below warns of dangers to life and limb. All warnings that include this symbol indicate a danger for personnel.

Residual risks are referred to through appropriate warnings in the manual and through warning signs on the machine.

⚠ DANGER

The signal word **DANGER** indicates an imminent threatening danger.
Failure to comply with the instruction results in severe or fatal injury.

⚠ WARNING

The signal word **WARNING** indicates a possible danger.
Failure to comply with the instruction can result in severe or fatal injury.

⚠ CAUTION

The signal word **CAUTION** indicates a possible danger.
Failure to comply with the notice can result in minor to moderate injury.

ATTENTION

The signal word ***ATTENTION*** indicates possible material damage.
Failure to comply with the notice can result in machine damage.

3.11 Other notices

Environmental protection notice

- Indicates information concerning environmental protection.

Note

- Indicates additional information for the machine or its use.

3.12 Safety notices

WARNING

General dangers

- Comply with the safety notices and warnings listed in this operating manual, the existing national accident prevention measures, as well as any internal occupational health and safety regulations, plant regulations and safety regulations issued by the owner.
- When pumping hot medium, the pump always takes on the temperature of the pumped medium. In this case only touch the pump with suitable protective gloves.
- As owner, ensure that all maintenance, inspection, and installation tasks are performed by authorised and qualified specialists who have obtained an adequate understanding through thorough study of the operating manual.
- Only perform maintenance, inspection and installation tasks on the pump, after you have disconnected the pump from all supply networks (e.g. electricity, compressed air).
- A hazardous medium (e.g. explosive, toxic, hot (>50°C)) must not be pumped with the pump.

⚠ DANGER

Danger due to high voltage (heater option)

- Attach electrical plug connections in an area that is protected against flooding, and protect electrical plug connections from moisture. Caution if water levels rise in flood areas.
- Exclude the possibility of hazards due to electrical energy. (Details in this regard are provided in the VDE regulations and in the materials issued by the local electrical utility.)
- Only an instructed and authorised person (qualified electrician) is allowed to open the housing and work on the device.
- Do not immerse the pump in fluid.
- Only operate the pump with dry, non-condensing compressed air

⚠ CAUTION

Danger due to pneumatic equipment

- In pump operation strong suction occurs in the suction area of the pump. During pump operation ensure that hands, feet, clothing worn loosely on the body (e.g. neck ties) or jewellery (e.g. necklaces) do not get into the pump inlet side (suction side) or pump outlet (pressure side). There is a shearing or entanglement hazard.

⚠ CAUTION

Dangers associated with handling hazardous substances

- Decontaminate pumps or pump units that pump harmful media.
- Only perform cleaning, repairs, troubleshooting and fault rectification, for which the possibility of contact with the medium cannot be excluded, if beforehand you have put on the appropriate personal protective equipment PPE (at least protective clothing, protective gloves, protective goggles). Comply with the safety data sheets of the manufacturers and the national laws and directives.

4 Transport

ATTENTION

Transport damage to the pump due to improper packing!

- Only transport the pump in the original packaging.

After receipt of the pump execute the following steps:

1. Remove the transport packaging of the pump.
2. Properly dispose of the packaging material.
3. Examine the pump for transport damage.
   - Immediately notify the transport company and the manufacturer of transport damage.
   - Protect the pump from further damage.
4. Check the delivery for completeness based on the delivery note.

5 Storage

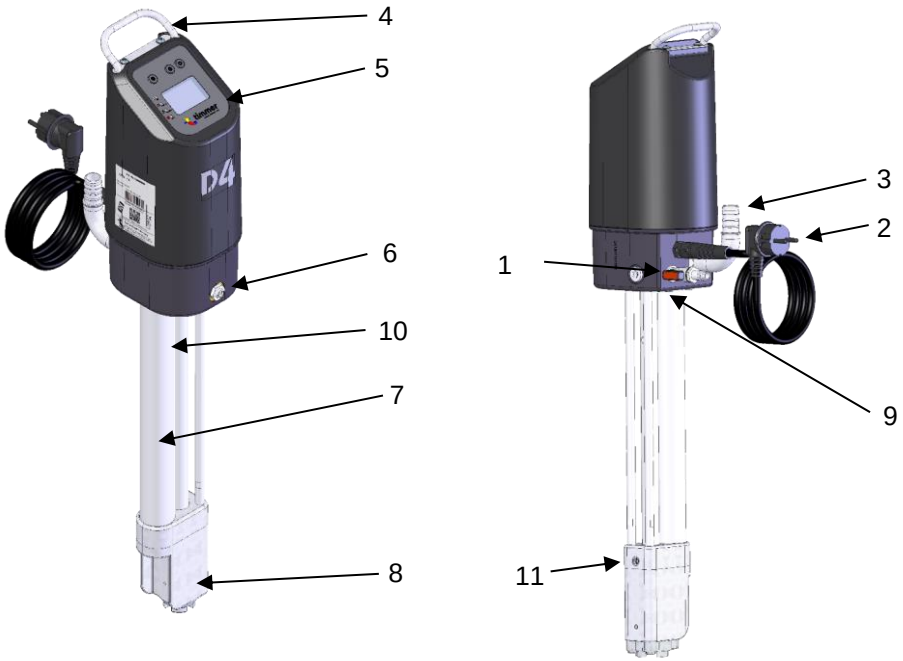
- The storage conditions influence the service life of the pump.
- The pump must not be stored for safekeeping unless it has been thoroughly cleaned beforehand.
- Extreme storage conditions accelerate the ageing process.
- We recommend a storage temperature between +10°C and +25°C.
- Exclude the possibility of exposure to ozone or ionising radiation.

6 Product description

The glue pump is a self-priming, pneumatically-powered fluid pump. An oscillating reversing valve ensures that a pneumatic drive piston is alternately charged with compressed air, as soon as the pump is supplied with compressed air. Fluid is displaced by the drive piston in the interior of the suction pipe, the suction pipe is directly connected to the drive piston.

The glue pump is used wherever labels are glued on when filling bottles, jars, etc.

Fig. 2: Device overview



1	Compressed air inlet	6	Exhaust air throttle valve
2	Connection – mains supply*	7	Riser pipe
3	Glue outlet	8	Suction unit
4	Handle	9	Pressure relief valve with protective cap
5	Input and display*	10	Thermal cutoff*
		11	Medium pressure relief valve

*Only in conjunction with the heater option

6.1 Safety components

Thermal cutoff (only for pumps with heater):

Self-resetting emergency shut-off of the heating coil, if the permissible heating coil temperature is exceeded due to a fault.

Medium pressure relief valve:

Medium outlet, when the permissible delivery pressure is exceeded, e.g. when the glue outlet is sealed.

Compressed air excess-pressure valve with cap:

If there are leaks in the compressed air circuit, e.g. after improperly performed repair tasks, undesired excess pressure can occur in the housing. In this case the pressure relief valve opens and the compressed air can escape. At the same time the protective cap of the valve will be blown off to indicate the fault.

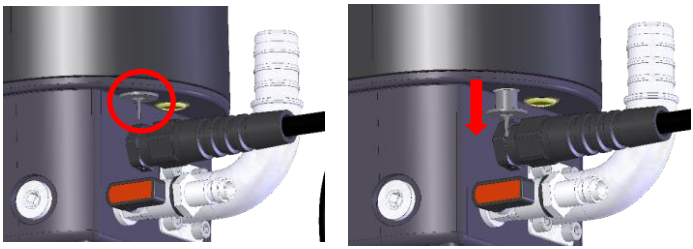


Fig. 3: Pressure relief valve with protective cap

6.2 Heater (optional)

The fluid in the riser pipe can be heated by means of an optional, factory-installed heating rod. To protect the heater, and the fluid that is pumped, the heating capacity decreases, or switches off, as soon as the intended delivery frequency is not reached.

6.2.1 LED display

During operation there are various operating states that are shown in the display.

Fig. 4: Display

1 The green LED "ON" is illuminated:
The heater is functional.

2 The green "Heating" LED is flashing:
The heater is active. The length of the switch-on time symbolises the required heating power.
The heater cannot be used for cooling.

3 The LED "Warning" is flashing:
An operating error is present. The error can be identified and rectified as described in section 10 on page 32.

4 The LED "Error" is illuminated:
A system error is present. The error can be identified and rectified as described in section 10 on page 32.

6.2.2 Maintenance display

During operation the maintenance status is shown in the display.

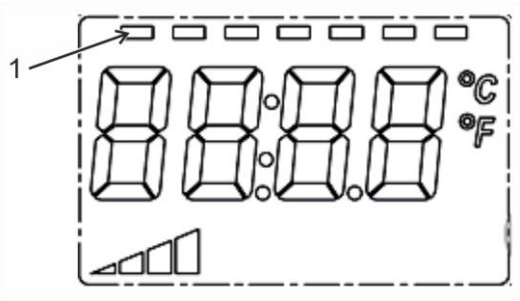


Fig. 5: Maintenance display

The number of maintenance bars (1) in the display depends on the number of strokes previously performed by the pump. If all bars are black, maintenance is required.

7 Installation

7.1 Safety

⚠ WARNING

Personnel are in danger due to improper installation!

- Installation tasks must only be executed by trained personnel.
- Wear personal protective equipment (PPE).

⚠ CAUTION

Personnel are in danger due to inadequate lighting!

- Only perform installation tasks on the pump in an adequately illuminated and air-conditioned environment.

7.2 Preparations

1. Connect the pump to the outlet hose and the system components without mechanical tension.
2. Ensure that the system components are properly supported to prevent loading of the pump parts.

▶ Note

- The following connections are required:
  - Electrical connection.
  - Pneumatic connection with 3 to 6 bar.
- The pump is self-priming.

7.3 Pump connection

7.3.1 Compressed air connection

The pump is operated with compressed air from 3 to 6 bar.

1. Install a hose (outer diameter 8 mm) from the compressed air source to the pump.
2. Ensure that a 1/4" filter/regulator with shut-off valve is installed upstream of the pump.
3. Ensure that the access to the shut-off device for the compressed air supply is always freely accessible. If necessary you must install a separate shut-off device.

7.3.2 Electrical connection (optional)

1. Establish a connection to an earth contact electrical connection with the voltage and frequency specified on the rating plate.

7.3.3 Mounting in the container

⚠ CAUTION

Health impairment due to contact with harmful media!

- All tasks for which the possibility of contact with the medium cannot be excluded, must only be executed if the appropriate personal protective equipment PPE (at least protective clothing, protective gloves, protective goggles) has been put on beforehand.
- Comply with the safety data sheets provided by the manufacturers and the national laws and regulations.
- All pipe connections and hose connections on the pump must be sealed leak-tight.

The pump must be fixed in place with the Timmer accessories (clamp ring and glue lid) so that it is stable on the glue bucket, and adjusted to the proper height.

Fig. 6: Mounting on the container

1. Place the pump with the stainless steel cover and the height adjustment element on the glue container.
   The height should be adjusted in such a manner that the suction pipe touches the floor of the container.
2. Ensure that the pump is firmly seated.
3. Mount the delivery hose.
   The delivery hose must have an inner diameter of at least 3/4" to convey high-viscosity media. If the delivery hose is longer than 1 m, the inner diameter of the hose must be at least 1" or 1¼“.

▶ Note

When attaching throttles or shut-off devices in the glue outlet, the compressed air must be limited to 4 bar, so that media pressure of 18 bar is not exceeded.

8 Commissioning

ATTENTION

Destruction of the pump due to excessive air pressure!

Excessive air pressure can destroy the pressurised components and cause the pump to burst.

- Operate the pump with air pressure of maximum 6 bar.
- Ensure that the exit point of the pumped medium is not clogged or sealed.
- When attaching throttles or shut-off devices in the glue outlet, the compressed air must be limited to 4 bar, so that media pressure of 18 bar is not exceeded.

1. Establish the electrical (optional) and pneumatic connection, as described in section 7.3 on page 23, and install the pump as also described there.
2. Set the compressed air to a value between 3 bar and 6 bar.

   The pump is ready for operation.
3. Open the ball valve for the compressed air supply.

   The pump starts pumping.

Before use, check housing, mains plug and cable for damage and moisture. Only use devices that are dry and undamaged.

9 Operation

⚠ WARNING

Danger of fire, pump damage, container damage due to hot surfaces on the suction pipe / heating coil.

If fluid is not flowing through the unit the heating coil becomes extremely hot before it switches off.

- Prior to switching on the heater, always ensure that the glue is being pumped.
- Only operate the pump briefly in idle when the heater is active.
- Unattended pump operation is prohibited.
- Do not pump flammable fluids.

Danger due to unintentional switch-on of the heater.

The heater always switches itself on automatically when the energy supply is switched on (e.g. after a power failure) or after automatic reset of the thermal cutoff, as soon as the work piston moves (compressed air is switched on).

- When not in use, always disconnect the heater from the mains supply (e.g. mains plug).

⚠ WARNING

General dangers

- Check the device for damage after each use. If the housing, the cable or the plug is damaged, or if the protective cap of the pressure relief valve is missing, you must take the device out of service immediately and rectify the fault.

9.1 Switching glue delivery on/off

Switching on

1 Open the ball valve to activate the pump delivery. If the heater is plugged in, the heater will also be switched on at the same time.

Switching off

1 Close the ball valve to deactivate pump delivery. If the heater is plugged in, the heater will also be switched off at the same time.

9.2 Regulating the delivery rate

1. Ensure that the pressure is set to a value between 3 bar and 6 bar.
   The pump works and pumps the medium.

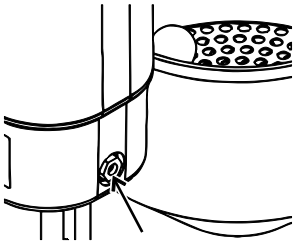


Fig. 7: Exhaust air adjustment

2. Adjust the exhaust air throttle with a flat-blade screwdriver (see arrow) to regulate the delivery rate.

▶ Note

Viscous media are pumped with a slower piston speed at initial intake.

9.3 Heater adjustment (optional)

9.3.1 Conversion of units of measure

To switch from degrees Celsius (°C) to Fahrenheit (°F) proceed as follows:

1. Disconnect the pump from the power supply.

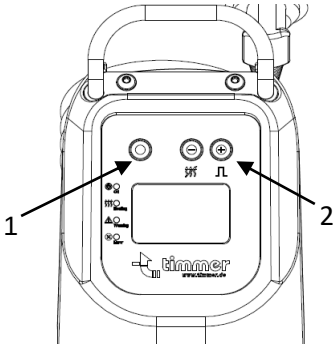


Fig. 8: Set the unit

2. Press and hold the Set button (1) and restore the power supply.
3. Wait until four vertical lines are shown in the display.
4. Release the Set button.
5. Press and hold the Plus button (2) until the temperature is displayed.

Note

Repeat the process to convert the unit back to °C.

9.4 Setting the temperature – setpoint adjustment

Note

- The setpoint of the glue temperature is adjusted in degrees Celsius (°C).
- All values specified for temperature in this operating manual are specified in degrees Celsius.
- A temperature differential of 1°C corresponds to a temperature differential of 1°K.
- The temperature is set during operation.

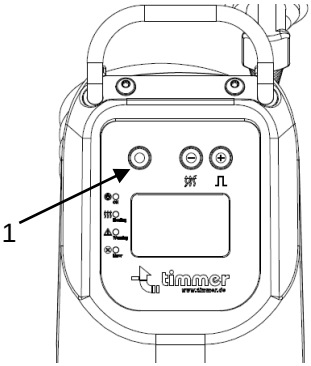


Fig. 9: Adjusting the display

Proceed as follows to set the desired setpoint of the glue temperature:

1. Press and hold the Set button (1) for 3 seconds.
   Temperature adjustment will be activated. (Temperature display is flashing).
2. Use the Plus/Minus buttons to increase or decrease the temperature in 0.5°C / 0.5°F increments.
3. Release the Set button.
   The temperature setting will be saved.
   The display changes back to the existing actual temperature.

Note

Repeat the procedure to set the target temperature again.

9.5 Frequency display

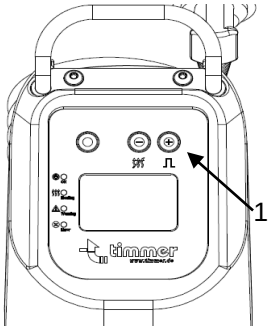


Fig. 10: Adjusting the frequency

1. During operation press and hold the Plus button (1) for 3 seconds.
   The actual set frequency will appear in the display.

Note

To change the frequency follow the instructions in section 9.1 on page 27.

9.6 Switching the heater On/Off

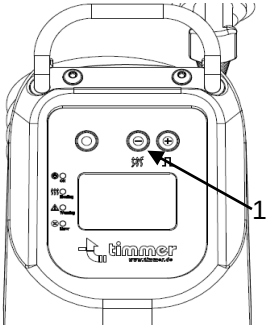


Fig. 11: Adjusting the frequency

The heater always switches itself on automatically when the energy supply is switched on (e.g. after a power failure) or after automatic reset of the thermal cutoff, if the work piston is moving (compressed air switched on).

The heater switches itself off, if drive piston movement is not detected within 30 s. When the drive piston is activated again, the heater switches on automatically.

Switching off the heater:

1. In operation, press and hold the Minus key (1) for 3 seconds.
   Heating Off will appear in the display.

Switching on the heater

1. In operation, press and hold the Minus key (1) for 3 seconds.
   The Heating Off message will disappear from the display.

Safe, permanent, switch-off of the heater is only possible by disconnecting the pump from the mains connection (e.g. unplugging the mains plug).

10 Fault rectification

Note

- Detailed descriptions concerning the procedure are provided in section 14 on page 42.
- An overview of the position of the components is provided in section 14.2 on page 44.
- Contact Timmer Service if there are any questions. See section 2.2 on page 7 for the contact details.

10.1 Error messages (display)

Error message (display)	Fault cause	How to eliminate the fault
F003	Temperature sensor open or < 0°C	Replace temperature sensor or pump medium above 0°C
F004	Temperature sensor short circuit or > 80°C	Replace temperature sensor or pump medium below 50°C

10.2 Faults

Fault	Fault cause	How to eliminate the fault
Pump does not run or it runs too slow	Insufficient compressed air pressure	Set pressure between 3 and 6 bar
	Changeover valve is defective	Repair the pump Avoid switching from oiled to non-oiled compressed air
	The hose cross-section is too small	Use a hose with a larger cross-section
	Wrong exhaust air throttle setting	Set the speed with the exhaust air throttle
	Fluid piston jams	Check material resistance
	Defective electronics	Repair the pump
	Defective fuse	Replace the fuse
Pump runs too sluggish	Fluid piston is gummed up with glue residues.	Dismount and clean suction base
	Fluid piston or drive piston is damaged	Repair the pump

Fault	Fault cause	How to eliminate the fault
Pump runs but it fails to pump any medium	Suction base is gummed up with glue residues	Dismount and clean suction base
	Delivery hose is clogged	Clean delivery hose
	Glue piston is contaminated	Clean and check
	Suction base has leaks	Check the seal and replace if necessary
	Excessive viscosity of the glue	High-viscosity media in excess of 100,000 mPas cannot be pumped
	Delivery hose has cracks or needle size holes	Replace delivery hose
	Counter-pressure at the injection point is too high	Reduce the counter-pressure at the injection point.
	Threaded fittings, ball valve or non-return valve either have no passage or reduced passage	Restore the passage by cleaning or replacing
	Guide band worn	Replace the complete fluid piston
	Defective piston rod	Check whether the piston rod moves
	Connection of the piston rod on the pneumatic cylinder	Check the connection
	No suction effect	Check the ball contact in the suction section under the suction ball

Fault	Fault cause	How to eliminate the fault
Electronics fault	Electronic components defective due to transport damage or fall of the pump	Replace printed circuit board
	Wrong voltage applied	Check whether 200-240 VAC is applied. If the voltage is wrong send the pump back to the factory
	Defective cable on the pump	Replace cable
Heater does not heat	Heating coil or electronics are defective	Send the pump back to the factory or request suitable spare parts
	Pump runs too fast or too slow.	Change the setting on the exhaust air throttle
	Heater switched off.	Switch on heater.
No function display	Defective electronics	Send the pump back to the factory or request suitable spare parts
Heater does not switch off	Heating coil is defective	Send the pump back to the factory or request suitable spare parts

11 Cleaning

11.1 Safety

⚠ DANGER

Life-threatening danger due to electrical hazards!

Life-threatening danger due to contact with energised components. Switched on electrical components can execute uncontrolled movements.

- Cleaning tasks must only be executed by trained personnel.
- Disconnect the pump before wet cleaning of the outside parts of the power supply.
- Completely dry the pump, in particular the mains plug, before use.

ATTENTION

Pump damage due to hardening, crystallising media!

- When pumping fluids that contain solids that harden, crystallise, or that can corrode pump materials due to chemical or physical properties, the pump must be cleaned before longer standstill periods.
- A longer standstill period is defined depending on the previously pumped medium and the change of its aggregate state from fluid to solid.
- The definition is the responsibility of the owner and must always be complied with to avoid pump damage.

ATTENTION

Pump damage due to cleaning with agents that are chemically incompatible!

- Only clean the pump with a cleaning agent that is suitable for the pump material and the pumped medium.
- Liquid and solid cleaning agents must not exceed a temperature of 50°C.
- If in doubt use water for cleaning.

11.2 Cleaning prior to a standstill period

1. Place the pump and glue lid on a suitable container with water.
2. Connect the media outlet to the container so that pumping in the circuit is possible.
3. Pump the water at a temperature of 50°C and a frequency of 2 Hz until all residues have been removed from the pump. After approx. 30 minutes, the pump should be cleaned, if not repeat this process
4. Completely empty the pump.

   To do this, pull the suction pipe out of the water far enough that air is suctioned in.
5. Turn the pump upside down so that the media outlet of the pump is the lowest point and the water flows out.
6. Alternatively you can manually activate the non-return valve in the suction base so that the water can flow out completely.
7. Clean the outside parts of the pump with a damp sponge.

11.3 Cleaning before decommissioning

1. Clean and empty the pump as described in the preceding paragraph.

   ATTENTION – device damage to cleaning fluid residues. Residues of cleaning fluid that remain in the pump for a long time can shorten the service life of the pump. Ensure that the pump is completely emptied when decommissioning and storing the pump.

▶ Note

Additional information on storage is provided in section 5 on page 18.

12 Maintenance

12.1 Safety

⚠ DANGER

Life-threatening danger due to electrical hazards!

Life-threatening danger due to contact with energised components. Switched on electrical components can execute uncontrolled movements.

- Cleaning tasks must only be executed by trained personnel.
- Disconnect the pump from the power supply before cleaning.

⚠ WARNING

Hazard for personnel due to trapped compressed air and pressurised medium!

- Do not service or clean the pump, hoses or the outlet valve for the compressed air while the system is pressurised.
- Before performing tasks on the pump de-pressurise the pneumatic section and the fluid section.
- Shut off the compressed air supply and wait until the residual pressure is dissipated via the outlet valve for the compressed air.
- Empty the pump before replacing components.

⚠ WARNING

Hazard for personnel due to spraying fluids (media)!

- Ensure that the material hoses and other components can withstand the fluid pressure generated by this pump.
- Regularly check the pump for damage or wear.
- Ensure that the pneumatic valve, the outlet area for the compressed air and the suction side and pressure side are clean and functioning effectively for the medium.
- De-pressurise the pump before dismounting. Under some circumstances there may still be a low residual pressure in the pressure chamber that causes medium to spray out.
- Before any dismounting tasks on the pump, comply with the safety data sheets provided for the previously pumped chemicals.

⚠ WARNING

Personnel are in danger due to improper installation!

- Installation tasks must only be executed by trained personnel.
- Wear personal protective equipment (PPE).

⚠ CAUTION

Personnel are in danger due to inadequate lighting!

- Only perform installation tasks on the pump in an adequately illuminated and air-conditioned environment.

12.2 Maintenance tasks

The pump is wear-resistant. The quality of the compressed air supply, the characteristics of the pumped media (such as abrasiveness, viscosity, etc.) and the operating conditions can negatively influence the service life of the pump.

Consequently, we recommend regular inspection of the pump.

Nevertheless, should a fault occur, or if the delivery capacity decreases, you can perform the following tasks:

- Eliminate any malfunctions as described in section 10 on page 32.
- Send the pump to Timmer for repair.

The remaining service life until the next necessary maintenance is shown in the display. See section 6.2.2 on page 22 for details.

12.3 Maintenance schedule

Check the device for damage before each use. If the housing, the cable or the plug is damaged, or if the protective cap of the pressure relief valve is missing, you must take the device out of service immediately.

Execute maintenance after 15 million double strokes.

- The maintenance tasks to be executed depend on the use conditions in operation.
- Contact Timmer Service if there are any questions.

12.4 Timmer Service

We recommend having Timmer Service perform all recurring maintenance tasks, particularly for the entire pneumatic unit and electrical unit.

Timmer offers a comprehensive service concept in this regard.

13 Decommissioning

13.1 Safety

⚠ WARNING

Personnel are in danger due to improper installation!

- Installation tasks must only be executed by trained personnel.
- Wear personal protective equipment (PPE).

⚠ CAUTION

Health impairment due to contact with harmful media!

- Only perform cleaning, repairs, troubleshooting and fault rectification tasks, for which the possibility of contact with the medium cannot be excluded, if beforehand you have put on the appropriate personal protective equipment PPE (at least protective clothing, protective gloves, protective goggles).
- Comply with the safety data sheets provided by the manufacturers and the national laws and regulations.

13.2 Execution

1. Disconnect the electrical connection of the pump from the supply network.
2. Disconnect the compressed air supply line to the pump.
3. Execute the necessary cleaning tasks as described in chapter 11 on page 36.

▶ Note

Information on storage is provided in section 5 on page 18.

14 Replacing components / Spare parts

14.1 Safety

⚠ DANGER

Life-threatening danger due to electrical hazards!

Life-threatening danger due to contact with energised components. Switched on electrical components can execute uncontrolled movements.

- Tasks on the pump must only be executed by trained and authorised personnel (qualified electrician).
- Disconnect the pump from the power supply before performing other tasks.

⚠ WARNING

Personnel are in danger due to improper installation!

- Installation tasks must only be executed by trained personnel.
- Wear personal protective equipment (PPE).

⚠ WARNING

Hazard for personnel due to spraying fluids (media)!

- Ensure that the material hoses and other components can withstand the fluid pressure generated by this pump.
- Regularly check the pump for damage or wear.
- Ensure that the pneumatic valve, the outlet area for the compressed air and the suction side and pressure side are clean and functioning effectively for the medium.
- De-pressurise the pump before dismounting. Under some circumstances there may still be a low residual pressure in the pressure chamber that causes medium to spray out.
- Before any dismounting tasks on the pump, comply with the safety data sheets provided for the previously pumped chemicals.

⚠ WARNING

Hazard for personnel due to trapped compressed air and pressurised medium!

- Do not service or clean the pump, hoses or the outlet valve for the compressed air while the system is pressurised.
- Before performing tasks on the pump de-pressurise the pneumatic section and the fluid section.
- Shut off the compressed air supply and wait until the residual pressure is dissipated via the outlet valve for the compressed air.
- Empty the pump before replacing components.

⚠ CAUTION

Personnel are in danger due to inadequate lighting!

- Only perform installation tasks on the pump in an adequately illuminated and air-conditioned environment.

ATTENTION

Pump damage due to incorrect tightening torque of the housing screws!

- The prescribed tightening torque for the socket head screws of the housing cover is 1 Nm.
- To prevent pump damage and leaks, do not exceed this value.
- Use a calibrated torque spanner.

ATTENTION

Material damage on electrical components due to electrostatic discharge!

- Comply with ESD protective measures for tasks on electronic components (e.g. replacing fuses or printed circuit board).
- Contact Timmer Service if there are any questions. See section 2.2 on page 7 for the contact details.

14.2 Position of the components

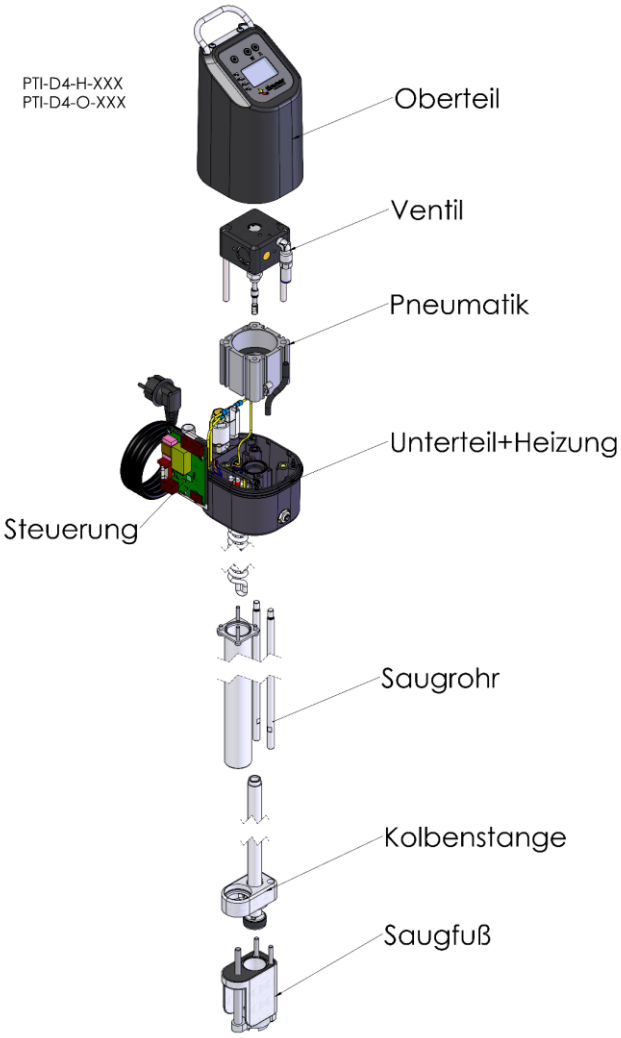


Fig. 12: Overview

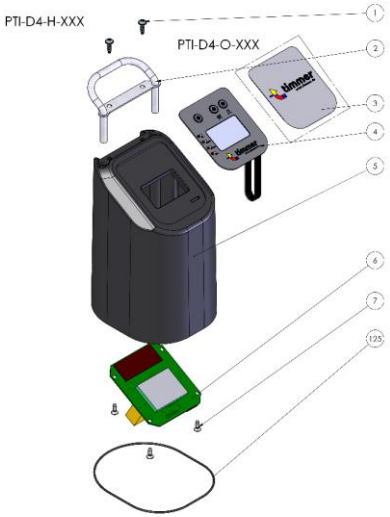


Fig. 12: Upper part

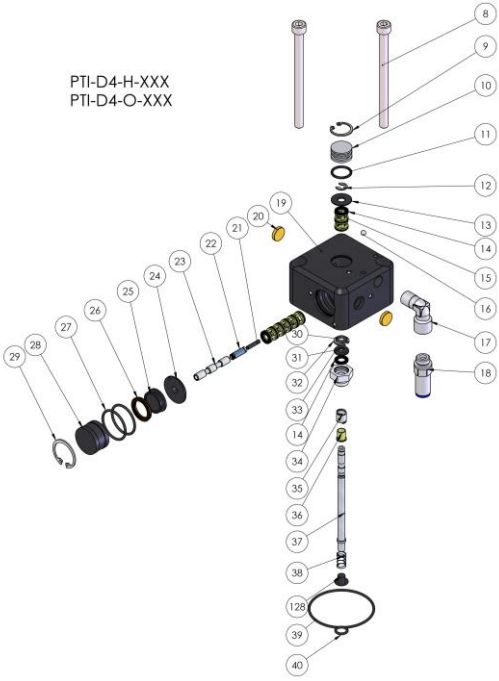


Fig. 13: Valve

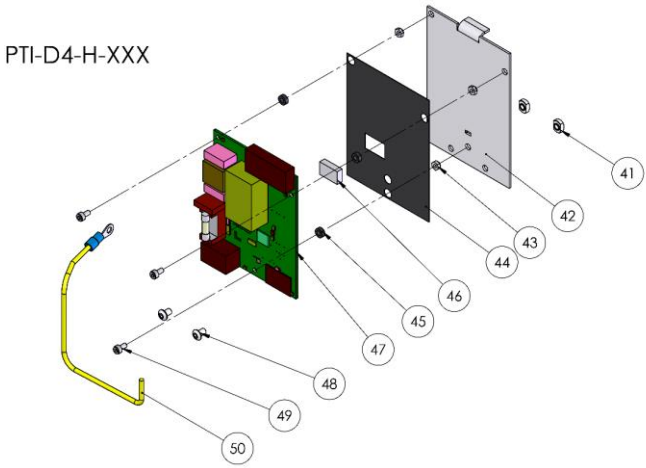


Fig. 14: Control

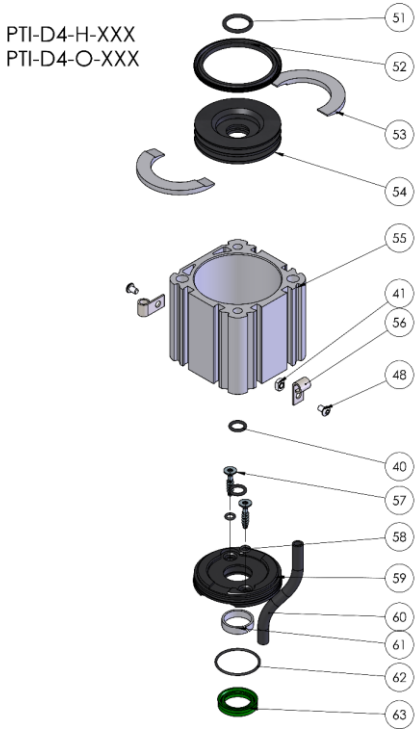


Fig. 15: Pneumatics

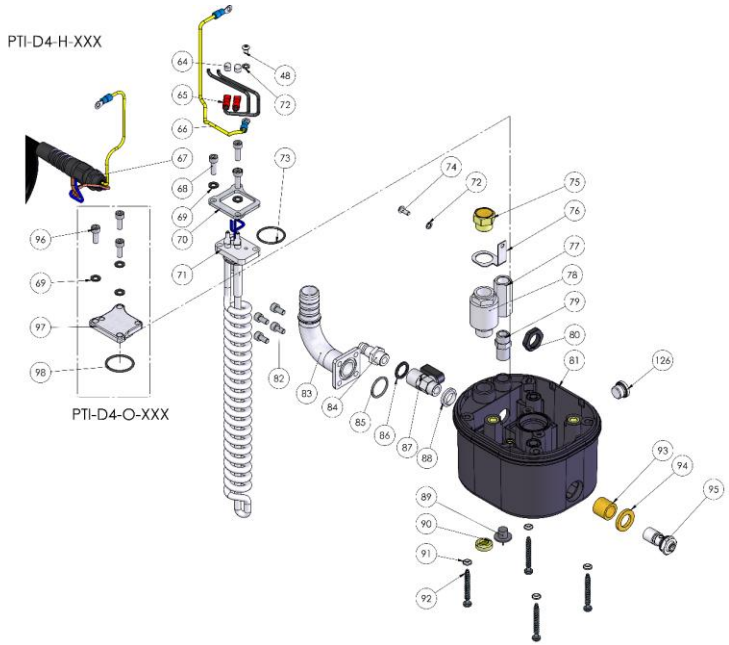


Fig. 16: Housing lower part + heater

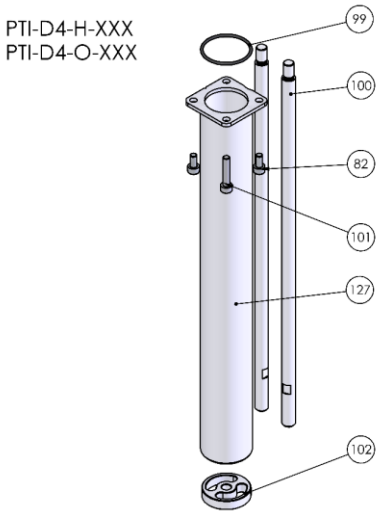


Fig. 17: Suction pipe

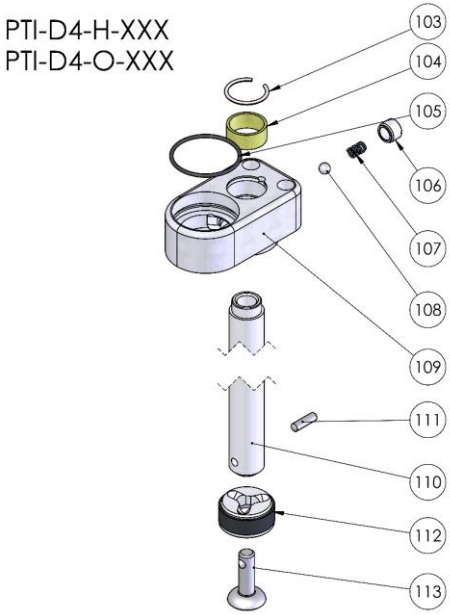


Fig. 18: Piston rod

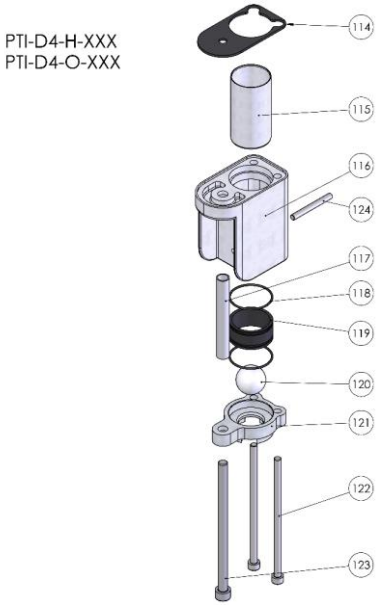


Fig. 19: Suction base, Pump version 0
valid for serial numbers D4 XX XX XXXX

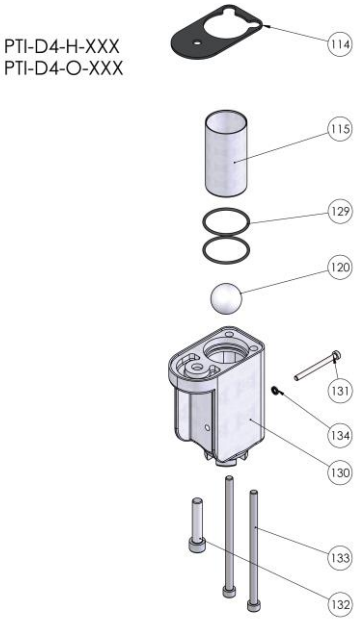


Abb. 20 Suction base, Pump version A
valid for serial numbers D4 XX XX XXXX **A**

Note

Spare parts are only available through the wear parts packages. The packages differ depending on the selected variant. In this case the spare part numbers are provided separately.

Use only original Timmer spare parts.

	Designation	Item	Pcs.	Parts package no. / replacement part no.		
40	O-ring 9x2	79010014	4	54000400-A Wear parts package fluid and pneumatic section Pump version A valid for serial numbers D4 XX XX XXXX **A**	54000400-0 Wear parts package fluid and pneumatic section Pump version 0 valid for serial numbers D4 XX XX XXXX	54000401 Wear parts package for pneumatic section Pump version 0 valid for serial numbers D4 XX XX XXXX
39	O-ring 59x2	79010381	2			
125	O-ring 133x2	79010909	1			
63	Rod seal	70030056	1			
62	O-ring 30x1.5	70019135	1			
58	O-ring 5x1.5	70010032	2			
91	PTFE sealing ring	54000244	4			
52	Piston seal Ø63	70010463	1			
51	O-ring 17x2.5	70010144	1			
61	Guide band	70030079	1			
14	Valve seal	AZ00.001.0	10			
27	O-ring 28x2	79010723	2			
26	Piston seal Ø12	70020027	1			
30	O-ring 5.5x2.5	70011607	1			
31	O-ring 6.5x2	70011543	1			
11	O-ring 16x2	70020020	1			
112	Glue piston	54000297	1			54000402-0 Wear parts package fluid Pump version 0 valid for serial numbers D4
105	O-ring 37x2	70010108	1			
104	Plain bearing bush	70010590	1			
73	O-ring 25, 12x1.78	70011155	1			
98	O-ring 25x2	70011046	1			
99	O-ring 34x2	70011195	1			
85	O-ring 19x2	70011201	1			
114	Sealing plate	54000208	1			
112	Glue piston	54000297	1	54000400-A Wear parts package fluid and pneumatic section Pump version A valid for serial numbers D4 XX XX XXXX **A**		54000402-A Wear parts package fluid Pump version A valid for serial numbers D4 XX XX XXXX **A**
105	O-ring 37x2	70010108	1			
104	Plain bearing bush	70010590	1			
73	O-ring 25,12x1,78	70011155	1			
98	O-ring 25x2	70011046	1			
99	O-ring 34x2	70011195	1			
85	O-ring 19x2	70011201	1			
114	Sealing plate	54000208	1			
129	O-ring 34x2	70011195	2			
134	Sealing washer	79011854	1			

116	Suction base	54000329	1	54000403-0 Wear parts package for suction base Pump version 0 valid for serial numbers D4 XX XX XXXX 0
121	Suction base attachment	54000330	1	
119	Suction base insert	54000356	1	
117	Threaded sleeve	54000381	1	
120	Ball Ø 25	70050009	1	
124	Dowel pin	79011311	1	
123	Socket head screw	79011579	1	
122	Socket head screw	79011745	2	
115	Cylinder pipe	54000207	1	
118	O-ring 34x1.5	70011663	2	
129	O-Ring 34x2	70011195	2	54000403-A Wear parts package for suction base Pump version A valid for serial numbers D4 XX XX XXXX A
134	Sealing washer	79011854	1	
130	Suction base	54000341	1	
131	Socket head screw	79011746	1	
120	Ball Ø 25	70050009	1	
132	Socket head screw	79010128	1	
133	Socket head screw	79011310	2	
115	Cylinder pipe	54000207	1	

	Designation	**Item**	**Pcs.**	**Parts package no. / replacement part no.**
71	Heater incl. Sensor	54000152	1	54000152 Wear part package heater incl. item 73
2	Handle	54000125	1	Spare part no. same item number
1	Button head screw	70011417	2	
3	Membrane keyboard	54000397	1	
4	Film cover	79010914	1	
5	Cover	54000221	1	
6	Temperature controller	54000326	1	
7	Countersunk head screw M4x12	70011014	4	
8	Socket head screw	79011580	2	
9	Retaining ring	79010008	1	
10	Valve cover	54000350	1	
12	Lock washer	70060190	1	
13	Support disc	54000295	1	
15	Cage	AZ00.002.0	7	
16	Ball Ø4,72	79010352	10	
17	Elbow union	12367507	1	
18	Non-return valve	03170379	2	

	Designation	Item	Pcs.	Parts package no. / replacement part no.
19	Basic block	54000248	1	Spare part no. same item number
20	Silencer	15027228	1	
21	Bolt	54000301	1	
22	Spring	79011663	1	
23	Valve tappet	54000290	1	
24	Valve intermediate cover	54000291	1	
25	Valve piston	54000292	1	
28	Valve cover	54000293	2	
29	Retaining ring	70011127	1	
32	Retaining ring	70010536	1	
33	Support ring	54000302	1	
34	Nut	54000375	1	
35	Spring	79010365	1	
36	Spring sleeve	54000376	1	
37	Push rod	54000380	1	
38	Spring	79011664	1	
41	T-nut	31601303	3	
42	Carrier plate	54000328	1	
43	Setting nut	70060160	3	
44	Insulation foil	54000242	1	
45	Spacer	54000342	3	
46	Thermal pad	54000243	1	
47	Printed circuit board	54000325	1	
48	Button head screw	79010616	5	
49	Socket head screw	79010440	3	
50	Earthing cable	54000197	1	
53	Magnetic ring	31603494	3	
54	Piston	54000322	1	
55	Cylinder pipe	54000332	1	
56	Cable clamp	79020055	2	
57	Screw	70011418	2	
59	Cylinder bottom	54000331	1	
60	Exhaust air hose	54000303	1	
64	Protective cap	79010941	2	
65	Connection cable	54000170	2	
66	Earthing cable	54000156	1	
67	Connection cable	79020014	1	
68	Screw	70060023	3	
69	Washer	79010166	3	

	Designation	Item	Pcs.	Parts package no. / replacement part no.
70	Holding plate	54000145	1	
72	Spring lock washer	70060047	2	
74	Screw	79010308	1	
75	Silencer	15018207	1	
76	Earthing plate	54000151	1	
77	Non-return	21159133	1	
78	Non-return	21150401	1	
79	Overpressure nipple	54000382	1	
80	Locknut	79020011	1	
81	Housing	54000246	1	Spare part no. same item number
82	Screw	70060005	6	
83	Bushing flange	54000085	1	
84	Barbed fitting	21380261	1	
86	Sealing ring	15030503	1	
87	Ball valve	20060417	1	
88	Pressure gauge gasket	18300016	1	
89	Plug	79020054	1	
90	Silencer	15027206	1	
92	Screw	70011427	4	
93	Silencer	54000333	1	
94	Silencer	54000368	1	
95	Throttle	21013005	1	
96	Screw	70060081	3	
97	Sealing cap	54000344	1	
126	Screw plug	12779007	1	
100	Tie rod	54000093	2	
101	Screw	70010268	2	Spare part no. same item number
102	Threaded ring	54000206	1	
103	Circlip	70011250	1	
106	Pressure relief valve	54000218	1	
107	Spring	79011381	1	
108	Ball	79010241	1	
109	Suction base cover	54000189	1	
110	Piston rod	54000373	1	
111	Dowel pin	79010771	1	
113	Pressure valve tappet	54000355	1	
127	Riser pipe	54000143	1	
128	Valve stop	54000352	1	

14.3 Replacing the suction base

14.3.1 Pump version 0

Valid for serial numbers D4 XX XX XXXX

If the suction base is damaged or clogged it can be replaced or dismounted.

1. Disconnect the pump from the power supply and the compressed air.
2. Take the pump out of the medium.

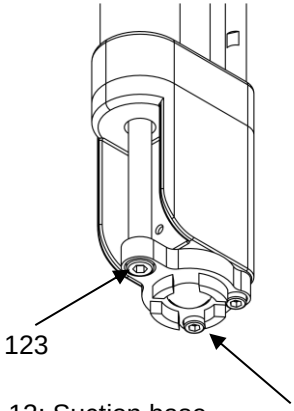
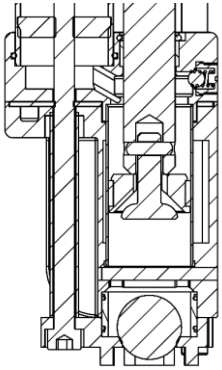


Fig. 13: Suction base



Suction base – cross section

3. Unscrew the screws (item 123, 122).
4. Unplug the suction base (item 116).
5. Remove the gasket (item 114).
6. Clean the suction base or replace the suction base with an original Timmer spare part.

Note

For installation, proceed in the reverse sequence.

14.3.2 Pump version A

Valid for serial numbers D4 XX XX XXXX A

If the suction base is damaged or clogged it can be replaced or dismounted.

1. Disconnect the pump from the power supply and the compressed air.
2. Take the pump out of the medium.

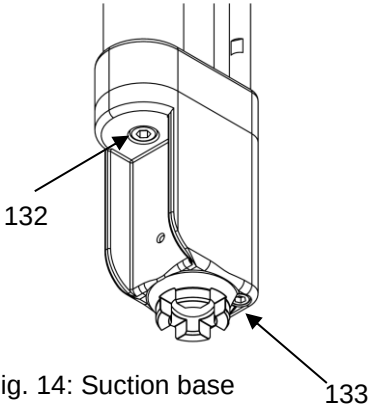
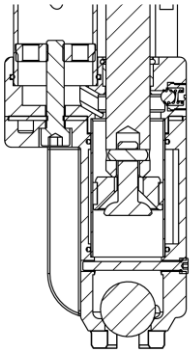


Fig. 14: Suction base



Suction base – cross section

3. Unscrew the screws (item 132, 133).
4. Unplug the suction base (item 130).
5. Remove the gasket (item 114).
6. Clean the suction base or replace the suction base with an original Timmer spare part.
7. tighten the screws with a torque of 10 Nm.

Note

For installation, proceed in the reverse sequence.

14.4 Replacement of the heater

If the heater is damaged or defective, it must be replaced.

1. Disconnect the pump from the power supply and the compressed air.
2. Take the pump out of the medium.

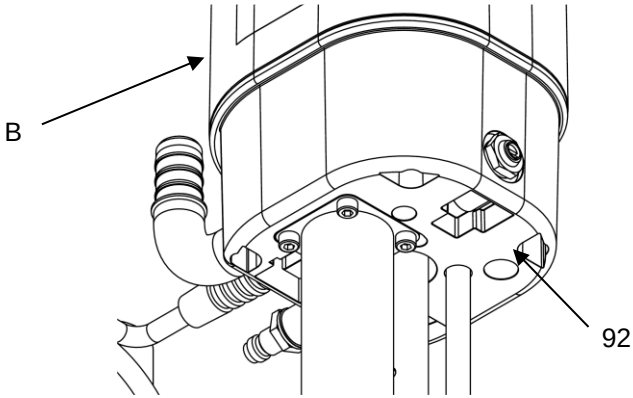


Fig. 15: View from below

3. Unscrew the 4 screws in the housing (item 92).
4. Take off the upper part of the housing (B).

Note

The following item numbers refer to the exploded drawing in section 14.2 on page 48.

5. Unscrew and remove the screws (item 8).
6. Lift the valve assembly and detach the exhaust air hose.
7. Unscrew the piston nut (item 34). Use the bore in the piston rod (item 110) to counter.
8. Remove the complete component.
9. Take out the cylinder pipe (item 55).

   When mounting the pipe, pay attention to the proper position of the air slot that is on the lower edge.
10. Remove the piston (item 54).
11. Dismount the cylinder bottom (item 59).
12. Remove all connection cables and earthing cable of the heater.
13. Remove the holding plate (item 70) with the screws.
14. Take an M4 screw and screw it into the heater.

    Now you can pull out the heater with the aid of a pull-out weight.
15. Clean the area and re-insert the heater.
16. Fix the holding plate in place again with the screws.

Note

- For installation proceed in the reverse sequence.
- Then ensure that all screws, cables and seals are installed.
- Ensure that the O-ring (H) is seated between the upper part and lower part on the correct edge as shown in the figure.
- Max. torque of screws for fixing the upper part is 1 Nm.

14.5 Replacing the display

If the display / controller is damaged or defective it must be replaced.

1. Disconnect the pump from the power supply and the compressed air.
2. Take the pump out of the medium.

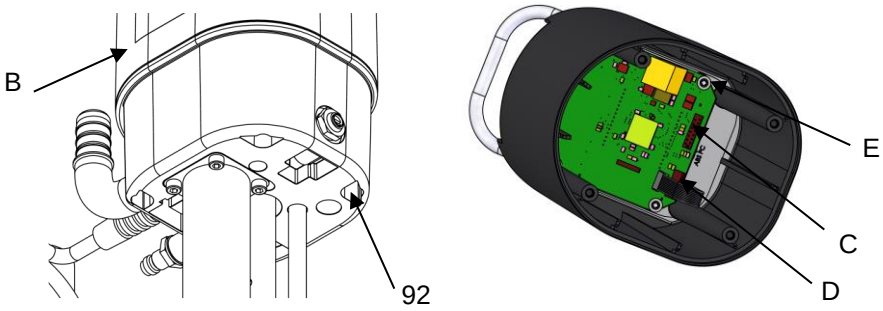


Fig. 16: View from below View of printed circuit board

3. Unscrew the four screws in the housing (item 92).
4. Take off the upper part of the housing (B).
5. Disconnect the connecting cable (C) between printed circuit board and upper part of the housing.
6. Unscrew the screws (E).
7. Disconnect the cable (D) from the printed circuit board in the upper part of the membrane keyboard, by detaching the slider.
8. Take out the printed circuit board.
9. Insert a new printed circuit board.

   ATTENTION – danger of damaging the surface of the printed circuit board. The screws that are present can scratch the printed circuit board when it is being inserted. Carefully insert the printed circuit board.

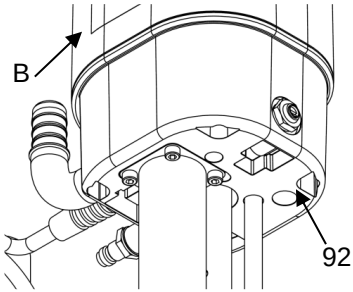
Note

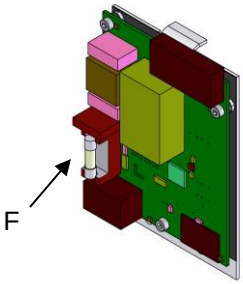
- For installation proceed in the reverse sequence.
- Then ensure that all screws, cables and seals are installed.
- Ensure that the O-ring (H) is seated between the upper part and lower part on the correct edge as shown in the figure.
- Max. torque of screws for fixing the upper part is 1 Nm.

14.6 Replacing the fuse

If the fuse is damaged or defective it must be replaced.

1. Disconnect the pump from the power supply and the compressed air.
2. Take the pump out of the medium.





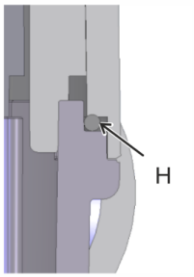


Fig. 17: View from below Printed circuit board O-ring

3. Unscrew the four screws in the housing (item 92).
4. Take off the upper part of the housing (B).
5. Take out the fuse (F).
6. Insert a new fuse (original Timmer spare part).
7. Mount the upper part of the housing.

Note

- For installation proceed in the reverse sequence.
- Then ensure that all screws, cables and seals are installed.
- Ensure that the O-ring (H) is seated between the upper part and lower part on the correct edge as shown in the figure.
- Max. torque of screws for fixing the upper part is 1 Nm.

14.7 Seal kit package

The seals must be replaced at the intervals specified in the maintenance schedule.

1. Disconnect the pump from the power supply and the compressed air.
2. Take the pump out of the medium.
3. Proceed as described in section 14.4, page 56.

   After the heater is dismounted, you can continue dismounting the lower parts (G).

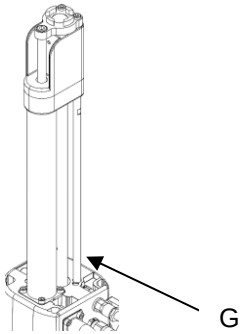


Fig. 18: Lower parts (riser pipe with suction base)

4. Dismount the suction base as described in section 14.3, page 55.

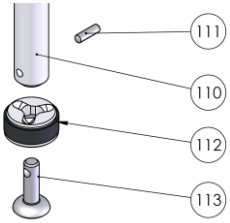


Fig. 19: Glue piston with guide band (K)

5. Dismount the piston rod (item 110).
6. Dismount the glue piston (item 112).

Note

The following item numbers refer to the exploded drawing in section 14.2 on page 42.

7. Dismount the suction base cover (item 102).
8. Dismount the riser pipe (item 127).
9. Replace the O-ring.
10. Replace all seals with the new seals from the sealing kit package.

Note

- For installation proceed in the reverse sequence.
- Then ensure that all screws, cables and seals are installed.
- Ensure that the O-ring (H) is seated between the upper part and lower part on the correct edge as shown in the figure.
- Max. torque of screws for fixing the upper part is 1 Nm.

Note

You can obtain the glue piston with the guide band as spare part in the sealing kit package, from Timmer.

15 Disposal

15.1 Return shipment

Please send the pump to the following address:

Timmer GmbH
Dieselstrasse 37
48485 Neuenkirchen, Germany
Germany

▶ Note

- Please send the pump in the original packaging, to avoid transport damage.
- The pump must be flushed and the surface must be clean.
- If flushing is not possible, the media connections must always be sealed leak-tight to prevent the medium from running out.
- Always include a safety data sheet of the last pumped medium or cleaning agent with the returned device.

16 Technical data

General data	
Operating conditions	+5 to +35°C at maximum 80% relative humidity
Drive	Pneumatic
Delivery rate with water	33 cm³ per double stroke (4 l/min, 240 l/h at 2 Hz)
Flow rate per piston stroke	Upward approx. 50% – downward approx. 50%
Stroke count	max. 120 strokes/min. adjustable via exhaust air throttle
Viscosity of the pumped medium	up to approx. 100,000 mPa/s
Suction height	3 m
Delivery side connection	Hose connector 19 mm
Temperature – medium	Max. 50°C
Weight	Approx. 7.1 kg
Sound pressure level (1m)	At 6 bar (0.1 MPa) / 0.5 Hz 46 dB(A) At 6 bar (0.3 MPa) / 1 Hz 53 dB(A) At 6 bar (0.7 MPa) / 2 Hz 61 dB(A)
Sound power level (ISO 9614-2)	At 6 bar (0.1 MPa) / 0.5 Hz 57 dB(A) At 6 bar (0.3 MPa) / 1 Hz 64 dB(A) At 6 bar (0.7 MPa) / 2 Hz 72 dB(A)

Pneumatic data	
Compressed air connection	¼" thread
Operating pressure	3 to 6 bar compressed air, filtered particle size max. 40 µm, max. supplemental oiling 25 mg/m³ The use with oiled compressed air leads to the "washing out" of the lifetime lubrication required for oil-free operation. This can cause malfunctions if, after lubricated operation, the system returns to non-lubricated operation.

Pneumatic data	
	For pumps with heater option, only use dry, non-condensing compressed air.

Heater – technical data (optional)	
Electrical connection	200V-240 V 50/60 Hz
Electrical cable	H07 BQ-F 3G1,5
Variable adjustment of the heating capacity at different delivery capacities	0 to 900 W
Temperature regulator	Electronic
Temperature adjustment	via display and membrane keyboard
Temperature range	Adjustable from 0 to 50°C
Protection class	Housing IP66 / standard plug IP44
Power consumption	approx. 950 W
Motion monitoring of the drive piston	

Material of the parts in contact with the medium	
Suction and pressure valves	Stainless steel
Drive housing	POM
Fluid housing	POM/stainless steel
Suction pipe	Stainless steel
Fluid ball	Stainless steel
Electrical housing	ABS
Suction base	Stainless steel
Fluid valve seat	FPM

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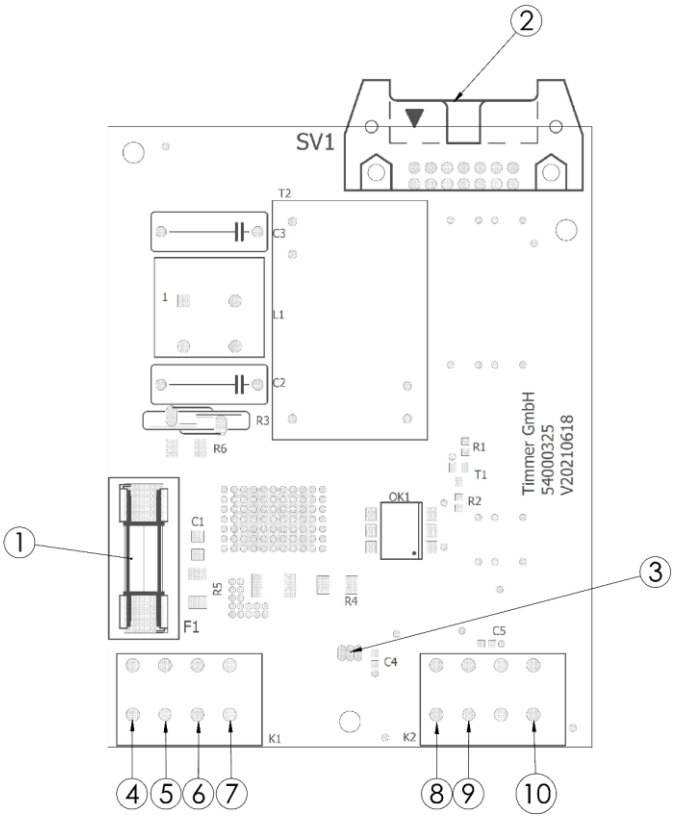

Fig. 20: Circuit diagram

1	Fuse	7	Heater
2	Controller membrane keyboard	8	Temperature
3	Hall sensor	9	Temperature
4	L1	10	Earth
5	N		
6	Heater		

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