

Manual for the
specialised craftsman

Installation
Operation
Commissioning



11201179

Thank you for buying this RESOL product.
Please read this manual carefully to get the best performance from this unit.
Please keep this manual carefully.

en

Manual

www.resol.com

Safety advice

Please pay attention to the following safety advice in order to avoid danger and damage to people and property.

Danger of electric shock:

- When carrying out works, the device must first of all be disconnected from the mains.
- It must be possible to disconnect the device from the mains at any time.
- Do not use the device if it is visibly damaged!

Instructions

Attention must be paid to the valid local standards, regulations and directives!

Information about the product

Proper usage

The pump station may only be used in the solar circuit of solar thermal systems in compliance with the technical data specified in these instructions. Due to its design the station must be mounted and operated as described in these instructions! Improper use excludes all liability claims.

EU-Declaration of conformity

The product complies with the relevant directives and is therefore labelled with the CE mark. The Declaration of Conformity is available upon request, please contact RESOL.



Target group

These instructions are exclusively addressed to authorised skilled personnel.

Only qualified electricians should carry out electrical works.

Authorised skilled personnel are persons who have theoretical knowledge and experience with the installation, commissioning, operation, maintenance, etc. of electric/electronic devices and hydraulic systems and who have knowledge of relevant standards and directives.

Subject to technical change. Errors excepted.

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Description of symbols

Warnings are indicated with a warning symbol!

Signal words describe the danger that may occur, when it is not avoided.

WARNING



means that injury, possibly life-threatening injury, can occur.

→ It is indicated how to avoid the danger described.



Note

Notes are indicated with an information symbol.

→ Arrows indicate instruction steps that should be carried out.

Disposal

- Dispose of the packaging in an environmentally sound manner.
- At the end of its working life, the product must not be disposed of as urban waste. Old appliances must be disposed of by an authorised body in an environmentally sound manner. Upon request we will take back your old appliances bought from us and guarantee an environmentally sound disposal of the devices.



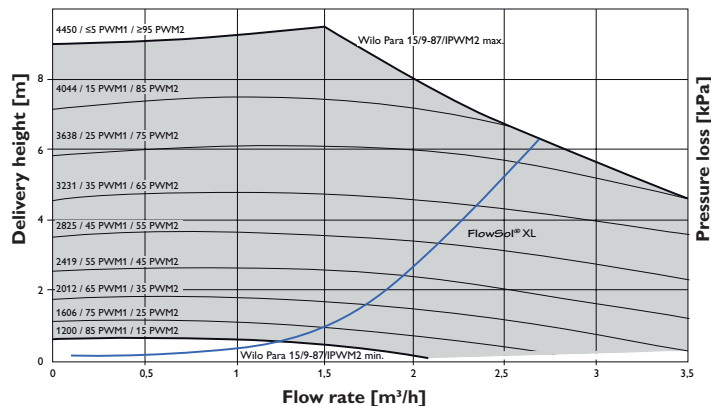
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1 Overview

- Pre-assembled twin-line pump station
- Integrated DeltaSol® BX Plus controller (optional)
- Energy-saving high-efficiency pump
- Safety assembly with connection for the expansion vessel, safety valve and pressure gauge
- Ball valves in flow and return with non-return valves and thermometer handles
- Flowmeter
- Air separator for manual venting of the solar thermal system
- Fill and drain valves
- Wall mounting bracket and mounting material

Pump characteristic/pressure loss characteristic



Technical data

Circulating pump: Wilo Para 15/9-87/IPWM2 (ErP power consumption of the pump*: 45 W)

Safety valve: 6 bar

Pressure gauge: 0 ... 10 bar

Flowmeter: 5 ... 35 l/min

For low-flow systems (0.2 l/min/m²) with collector fields of up to 100 m²

For high-flow systems (0.5 l/min/m²) with collector fields of up to 50 m²

Take the pressure loss of the system into account!

Ball valves in flow and return with non-return valves and thermometer handles: Non-return valve: Opening pressure 20 mbar, openable

Thermometer: 0 ... 160 °C

Connection to expansion vessel: 1" ET, flat sealing

Outlet safety valve: 1" IT

Connections to the solar pipes: 1" IT

Maximum temperature flow/return: 120 °C / 95 °C

Maximum pressure: 6 bar

Medium: Water with max. 50% glycol

Dimensions: approx. 470 x 380 x 220 mm (with insulation)

Distance centres: 125 mm

Distance centre/wall: 73 mm

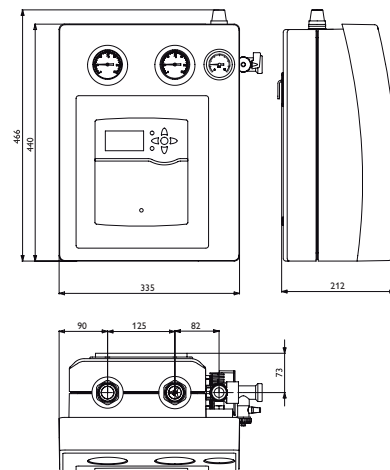
Material: Fittings: brass

Seals: AFM 34

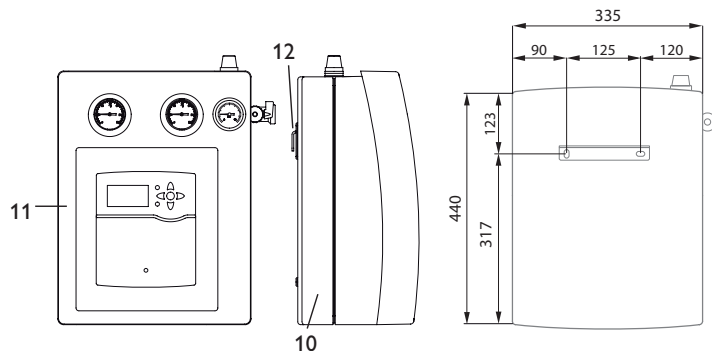
O-rings: FKM

Insulation: EPP foam

* 50% of the rated power consumption



2 Mounting the station



- 10 Back half of the insulation
- 11 Front half of the insulation
- 12 Wall mounting bracket

Controller depending on the version of the station

- Determine the mounting site of the station.
- Take the station out of the packaging.
- Remove the front half of the insulation and the controller panel.
- Remove the locking springs from the wall mounting bracket, lift and pull the flow and return lines off the wall mounting bracket.
- Remove the back half of the insulation.
- Mark the drill holes by means of the wall mounting bracket, then drill and insert wall plugs.
- Fasten the wall mounting bracket to the wall with the screws. For this purpose, use a crosshead screw driver.
- Push the back half of the insulation onto the wall mounting bracket.
- Insert the flow and return lines into the wall mounting bracket and fasten them by means of the locking springs.
- Connect the pipework between pump station and store and collector respectively.



Note

All connections are already tightened such that they usually do not have to be tightened again. However, during commissioning of the system all connections have to be checked for leaks (pressure test).

3 Flushing and filling the solar system

WARNING!

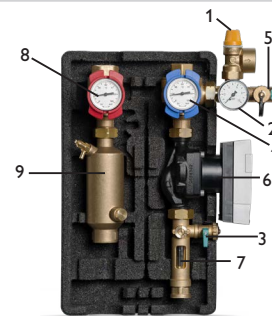


Scald danger!

Pressure surge damage!

If the medium enters strongly heated, empty collectors, pressure surges caused by evaporation can occur.

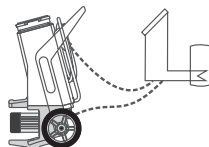
→ **In order to prevent the solar fluid from vaporising inside the collectors, do not fill or flush the system during times of strong irradiation!**



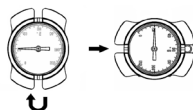
- 1 Safety valve
- 2 Pressure gauge
- 3 Drain valve
- 4 Return ball valve with non-return valve and thermometer handle
- 5 Fill valve
- 6 Pump
- 7 Flowmeter
- 8 Flow ball valve with non-return valve and thermometer handle
- 9 Air separator

Before flushing the system

- Disconnect the expansion vessel from the solar thermal system.
- Connect the pressure hose of the filling and flushing station to the fill valve (5) of the pump station.
- Connect the flushing hose of the filling and flushing station to the drain valve (3) of the pump station.



- Close the ball valve of the pump station (4).
- Open the fill valve (5) and the drain valve (3).
- Switch on the filling pump of the filling and flushing station.
- Flush the solar thermal system for at least 15 minutes by means of the filling and flushing station until the discharged solar fluid is free of gas bubbles and dirt particles.
- During flushing, vent the solar thermal system several times until the discharged solar fluid (e. g. Tyfocor®, see chap. 11) is free of air bubbles.
- Open the ball valve of the pump station (4).



After flushing the system

- Connect the expansion vessel to the solar thermal system.
- Close the drain valve (3) of the pump station while the filling pump is running.
- Increase the system pressure (approx. 3,5-4 bar). The system pressure can be read from the pressure gauge.
- Close the fill valve (5).
- Switch off the filling pump.
- Check the pressure gauge to see whether the system pressure reduces and eliminate leaks where necessary.
- Slowly discharge the heat transfer fluid by means of the drain valve (3) until the operating pressure is set.
- Remove the hoses of the filling and flushing station and screw the caps onto the fill and drain valves. Manually start the solar thermal pump at maximum speed (see controller manual) and let the fluid circulate for at least 15 minutes.
- Vent the solar thermal system several times.
- Check the system pressure at the pressure gauge.



- Check the antifreeze ratio (not required if a ready-mix is used).



4 Ball valve positions

WARNING! Scald danger! Damage by overpressure!



When the ball valve is closed, too high pressure may occur in the blocked-off line if it is heated.

→ In order to prevent scald danger and damage by overpressure, make sure the blocked-off line is not heated.



Ball valve in operating position, fluid flow in flow direction only



Ball valve open, fluid flow in both directions possible



Ball valve closed, no fluid flow

5 Draining the system

- Open the ball valve (4).
- Open the air vent at the highest point of the system (above the collectors).
- Open the drain valve (5).

6 Non-return valves

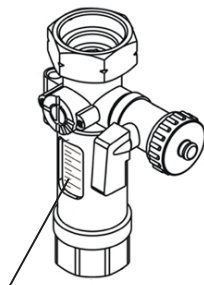
The non-return valves of the pump station are integrated into the ball valves in flow and return and have an opening pressure of 20 mbar.

In order to completely drain the system, the non-return valves have to be opened.

- For this purpose, turn the handles of the ball valves by 45°.
- For normal system operation, open the ball valves completely.

7 Flowmeter

The flowmeter measures and indicates the flow rate with a range of 5 - 35 l/min. For the device to function faultlessly, the system must be flushed and free of grit.



Read the flow rate from the upper edge of the float.

8 Air separator

WARNING!

Scald danger!



During venting, the air discharged can reach temperatures of more than 100 °C.

→ In order to avoid scalding, pay attention to the system temperatures!

The air separator is used for venting the water/glycol mixture in the solar circuit. The air separated from the heat transfer fluid gathers in the air scoop and can be discharged manually at the air vent valve.

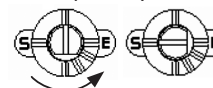
- Open the air vent valve and collect the discharged fluid in a suitable container.
- Check the system pressure after venting and, if necessary, increase it to the specified operating pressure



9 Maintenance

In the case of maintenance (such as a replacement of the pump) proceed as follows:

- Close the ball valve (4).
- Turn the slot of the flowmeter spindle by 90° anti-clockwise (see figure below).



The heat transfer fluid can now be drained from the pump.

- Open the drain valve (3).

If necessary, open the union nut at the pressure side.

- Now dismount the pump.

10 Safety devices

The pump station is equipped with a diaphragm safety valve which corresponds to the relevant directives and regulations. For installation and operation, please pay attention to the following advice:

- The safety valve has to be easily accessible. The efficiency of the valve must not be influenced or disabled by barriers!
- The strainer or other restriction devices must not be mounted between collector (-field) and safety valve!
- The diameter of the discharge pipe must correspond to the diameter of the valve outlet; the maximum length must not exceed 2 m; more than 2 bends are inadmissible. When these values are exceeded, you have to install a discharge pipe with larger dimensions. Do not use more than 3 bends and pipes longer than 4 m!
- If the discharge pipe leads into a drain pipe with a funnel, the diameter of the drain pipe has to be at least twice as large as the valve inlet. The opening of the discharge pipe must be inclined downwards. It must be routed such that the opening can be seen but does not present any risk to a person standing or passing by.
- We recommend placing a container below the discharge pipe. If the safety valve opens, the fluid will be collected and can be refilled into the system when the pressure is too low.

11 Accessories

SBS 2000 filling and flushing station

The SBS 2000 has been especially designed for professionally filling and flushing solar thermal and heating systems. Its many thought-out details facilitate transport, operation and cleaning, the attractive design makes it the ideal companion for a professional performance.



Heat transfer and cleaning fluids

In our product portfolio, you will find a range of heat transfer fluids for different applications, available as readymix or concentrate, as well as cleaning fluids.



Filling and injection pump

Filling and injection pump with non-return valve for pressure increase and refilling of heat transfer fluids. ½" ET self-sealing with O-ring, 15mm tube connection. Pump output 2 l/min, 4,5 bar max.



See our full range of accessories on our website: www.resol.com

12 Information about the pump

Depending on the version, the station is equipped with different pumps. Data concerning the pump in your station are available at the pump manufacturer under www.wilo.com or www.wilointec.com.

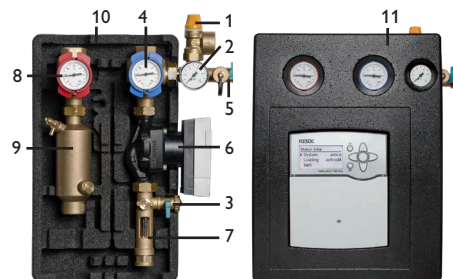
Upon request we will provide you with further information.



Note

The warranty for the pump is void if the pump is disassembled after removal.

13 List of spare parts



Pos.	Art. no.	Article
1	11201100	Safety valve 6 bar DN20
2	11200039	Pressure gauge
3	11200058	Fill / drain valve
4	11201103	Return ball valve with non-return valve and thermometer handle DN 25
5	11200058	Fill / drain valve
6	64400078	Wilo Para 15/9-87/IPWM2
7	11201105	Flowmeter 5 ... 35 l/min
8	11201106	Flow ball valve with non-return valve and thermometer handle DN 25
9	11201107	Air separator DN25
10	11201101	Back half of the insulation XL
11	11201102	Front half of the insulation XL
12	11201108	Wall mounting bracket XL (not shown)
13	11201117	Controller panel (not shown)

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Important note

The texts and drawings in this manual are correct to the best of our knowledge. As faults can never be excluded, please note:

Your own calculations and plans, under consideration of the current standards and directions should only be basis for your projects. We do not offer a guarantee for the completeness of the drawings and texts of this manual - they only represent some examples. They can only be used at your own risk. No liability is assumed for incorrect, incomplete or false information and/or the resulting damages.

Note

The design and the specifications can be changed without notice.

The illustrations may differ from the original product.

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