Brass Form

PUMP STATION FOR SOLAR SYSTEMS

Solar station

100% GREEK PRODUCT

- SUPERIOR EFFICIENSY
- PREMIUM QUALITY & DURABILITY
- SIMPLICITY
- VERSATILE MAINTENANCE OPTIONS
- ELECTRONIC CONTROLLER

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INSTALLATION INSTRUCTIONS

DESCRIPTION

The solar pump station for forced-circulation solar thermal systems is a pre-assembled set of components installed in solar heating systems and is responsible for the efficient circulation of heat from the solar collectors to the storage tank. It ensures optimal fluid flow, maximizes energy efficiency, reduces heat losses, and maintains system stability. It is designed to provide reliable operation and long service life for solar heating installations.

It is designed for professionals seeking high-performance solutions for solar thermal applications. Whether for residential or commercial use, it ensures optimal circulation, reduces operating costs, and enhances sustainability. It is equipped with a PWM circulator and an optional electronic controller, which make the system more energy-efficient, durable, and controllable—resulting in improved performance and energy savings.

It is available with two-way connection, supply and return pipes, or with a single return-pipe connection.

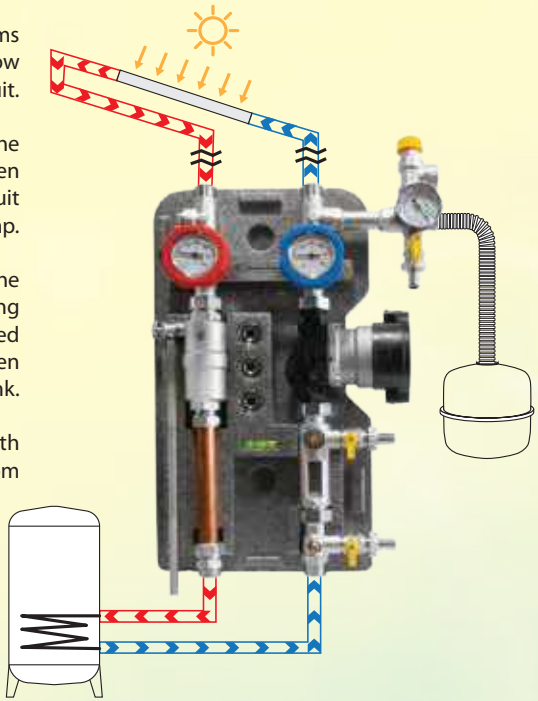
PRINCIPLE OF OPERATION

The solar station for forced-circulation systems operates by continuously regulating the flow of the fluid within the solar thermal circuit.

When the sun heats the collectors, the water absorbs thermal energy and then circulates through the closed circuit with the help of the circulation pump.

The electronic controller manages the operation of the pump and, depending on its settings, activates the pump based on the temperature difference between the collectors and the storage tank.

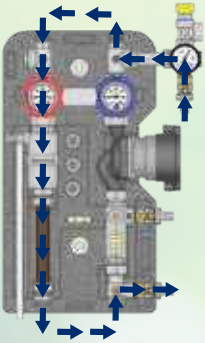
In this way, the system achieves a smooth temperature distribution, protecting it from overheating and overpressure.



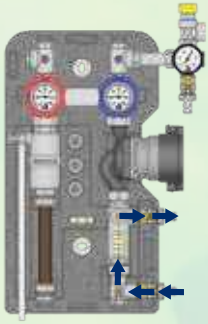
KEY BENEFITS

• Multiple Maintenance and Cleaning Options
By using the three-way diverter ball valve just before the flow meter, both the circulation pump and the flow meter are protected and isolated during the flushing process. This provides the user with flexible ways to flush the system, allowing for general or partial cleaning.

Protection of the circulation pump



Partial flushing of the Flow meter scale



• Premium Quality & Durability
Manufactured from high-quality materials and advanced technology. Strict quality control standards ensure long-term reliability and minimal wear.

• Maximum Performance
Optimized flow control ensures maximum heat transfer and energy savings, reducing operating costs while improving overall system efficiency.

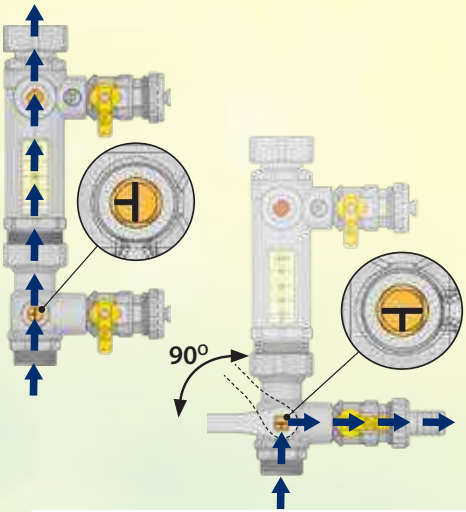
• Ease of Use
The simplified design allows for quick installation and easy connection to the circuit.

• Electronic Controller
A digital differential thermostat that can be installed either on the insulation or remotely. Its preset configurations and Greek-language menu allow the user to put the system into operation immediately, without requiring specialized knowledge

BRASS FORM INNOVATION

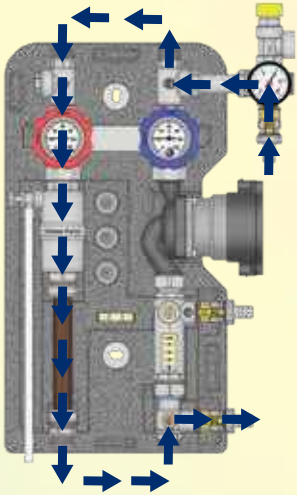
THREE WAY DIVERTED VALVE

The three-way ball valve functions as a diverted valve between the flow meter and the filling/drain valve. Using the metal key included in the package, the user can manually control the flow either toward the flow meter or toward the filling/drain valve, isolating the flow meter.



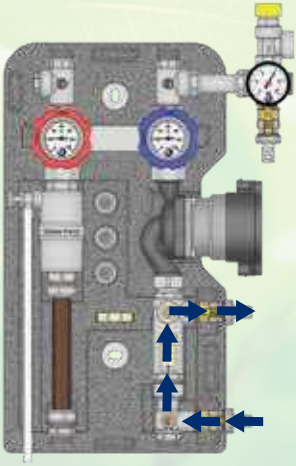
PROTECTION OF THE CIRCULATION PUMP

Filling and draining without any fluid flow through the circulation pump and without the risk of blockage caused by metallic particles in the circuit.

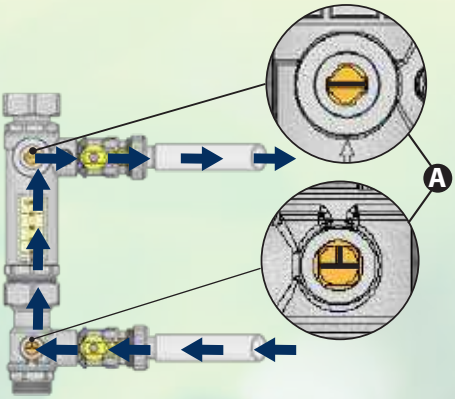


MAINTAINING VISIBILITY – LOCAL FLUSHING

Protection of the flow meter from the buildup of impurities and the resulting reduction in the readability of the instrument.

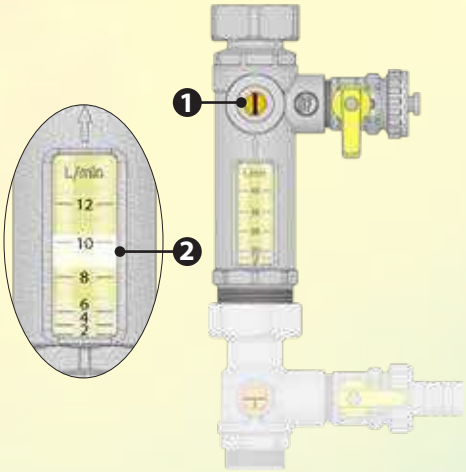


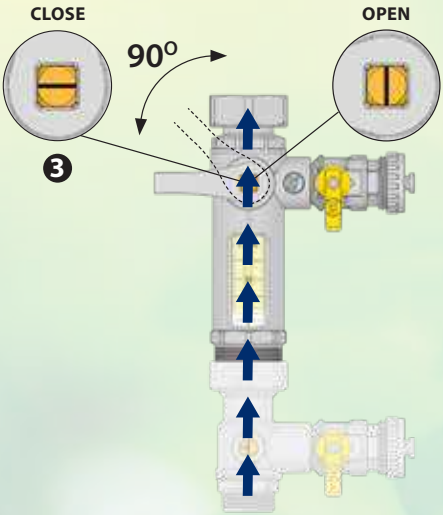
If you want to perform partial cleaning of the flow meter, connect the pump supply to the middle filling/drain valve and the return to the lower valve. The adjustment mechanisms of the flow meter, the diverter valve, and the filling/drain switches must be set to positions according to illustration A.



FLOW METER

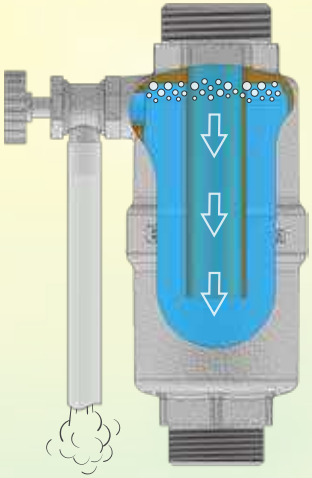
The flow meter is used to measure the volume of fluid supplied to the system. The flow rate can be adjusted using the regulating valve and can be monitored through the calibrated scale.
Inside the device, there is an indicator corresponding to the system's water flow volume. The regulating valve can be adjusted manually using the metal key included in the package. The fluid supply to the system can be shut off by rotating the valve handle 90 degrees.
It is available with flow ranges of 1–12 and 8–45 liters per minute.





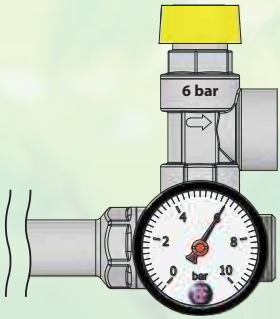
AIR VENT

The air vent is pre-installed on the system's supply line and is capable of separating air bubbles from the fluid within the closed circuit. The air becomes trapped at the upper section of the air vent chamber and can be released manually.
The air vent is equipped with a metal rotating knob and a discharge tube that directs the air and fluid outside the insulation. It is recommended that the venting process be carried out at regular intervals.



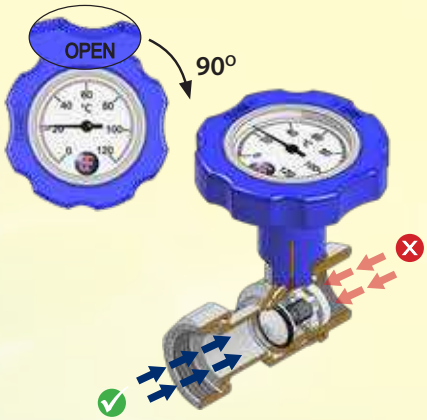
SAFETY VALVE

The safety valve for solar systems is suitable for use at high temperatures and protects the system from excessive pressure. It is preset to automatically release pressure at 6 bar. A pressure gauge is also provided for full monitoring of the system's pressure.



BALL VALVES WITH THERMOMETER

1



The supply and return ball valves can be operated by rotating the plastic base of the thermometer by 90 degrees.

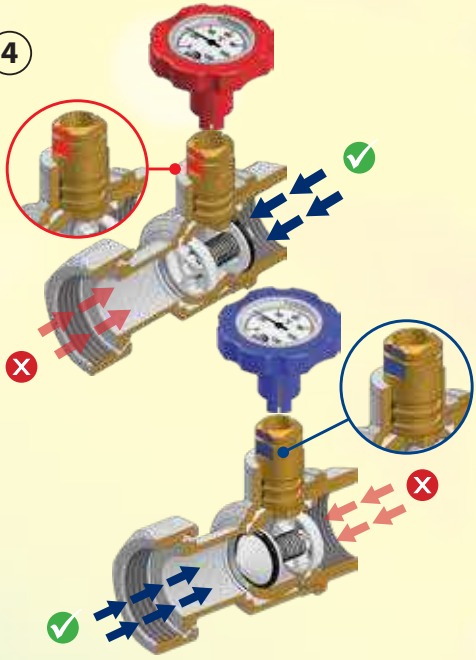
2

Both valves have an integrated check valve inside the ball, which can be bypassed by turning the handle to 45 degrees. In this position, bidirectional flow is allowed, which is necessary during system filling or cleaning.

3

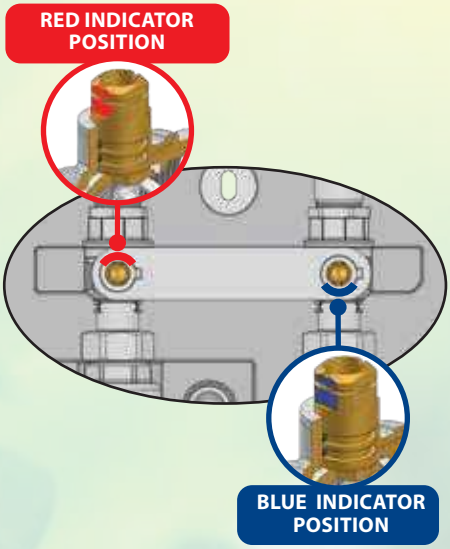
The plastic thermometer base can be easily removed by pulling it outward.
It is recommended that after years of inactivity, the valves must be operated using the special metal key included in the package.

4



ATTENTION

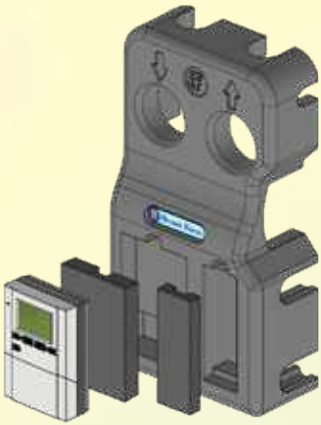
THE COLORED INDICATION ON THE SHAFT SHOWS THE FLOW DIRECTION OF THE CHECK VALVE AND MUST ALWAYS BE POSITIONED AS SPECIFIED ACCORDING TO THE DIAGRAM BELOW.

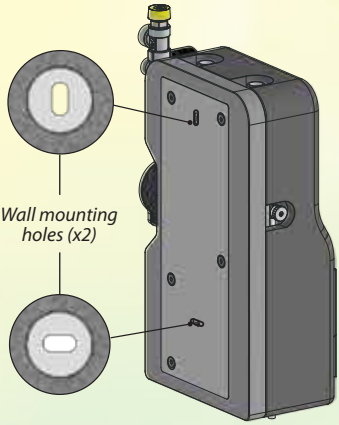


EPP INSULATION SHELL

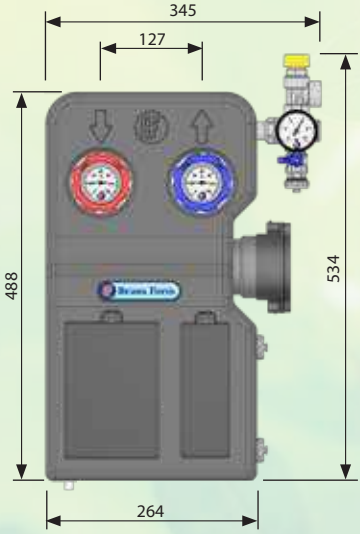
Insulation for protection and reduction of thermal losses is available for single-line and double-line assemblies, made from expanded polypropylene (EPP). Its special internal design offers not only high efficiency but also easy installation for the user, with integrated external metal brackets for secure and stable mounting, as well as multiple snap-fit connections for proper alignment of the two parts.

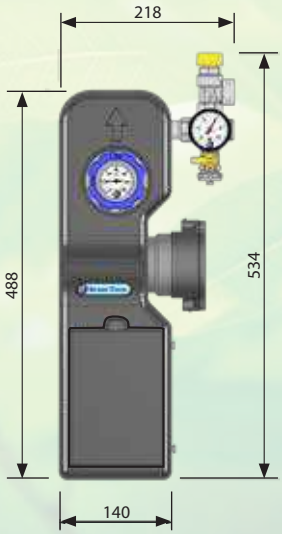
Externally, the insulation provides a designated viewing window for visual inspection of the flow meter from a specific point, using a special cover, without requiring removal of the entire outer casing. There is also a provision for installing a differential thermostat with a dedicated cover for the mounting area, so that the opening does not remain exposed if the thermostat is not installed on the assembly.





BASIC DIMENSIONS





CIRCULATION PUMP

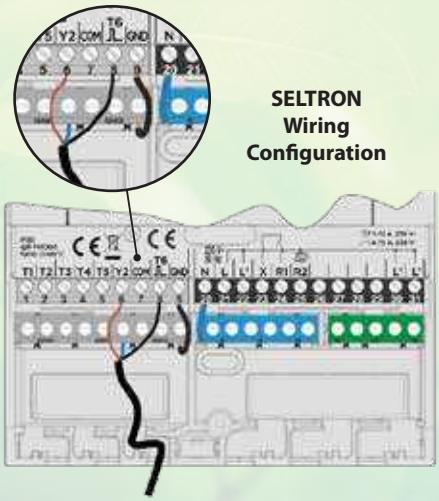
The solar pump station assembly is available with circulation pumps from well-known international suppliers, depending on the selected configuration:

- **IMP NMT NEO 15/80-130**
- **GRUNDFOS UPM3 SOLAR 15-75 130**
- **WILO PARA STG 15-130/7-50/12**

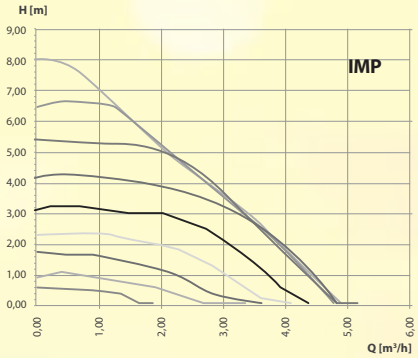
All circulation pumps can operate with variable speed using a PWM signal from the differential thermostat or manually by selecting the speed level directly on the pump.

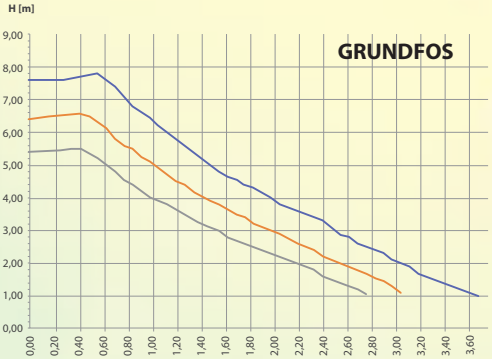
The package includes the power cable and the PWM signal cable for connecting the circulator pump. All cables are provided by the manufacturers and are intended exclusively for the corresponding pump model.

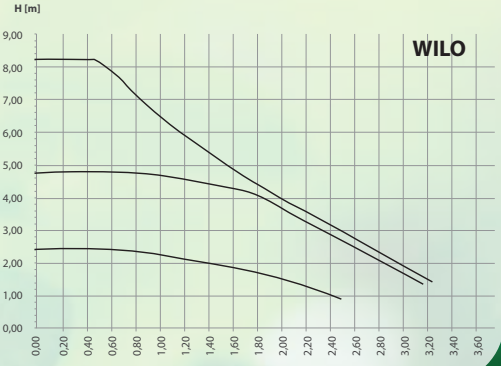
One end of the cable comes pre-assembled with specially designed terminals that connect to the circulation pump, while the other ends are connected to the differential thermostat according to the wiring diagram.



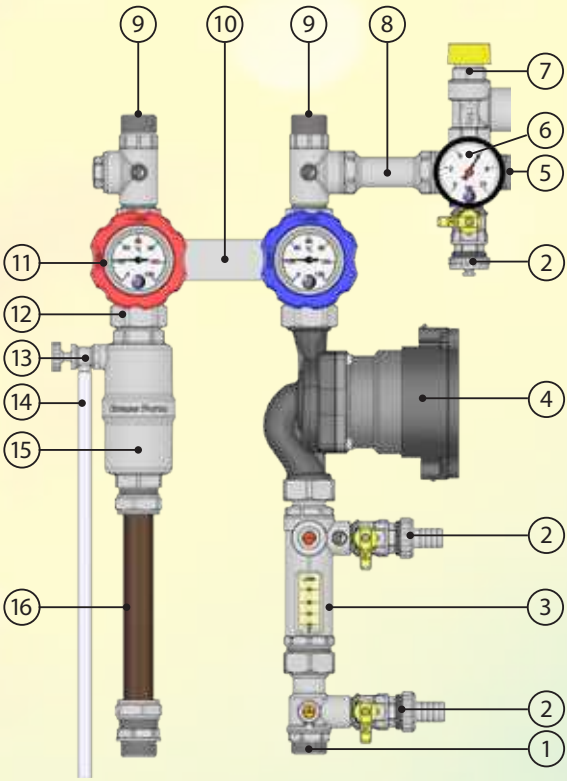
SELTRON Wiring Configuration



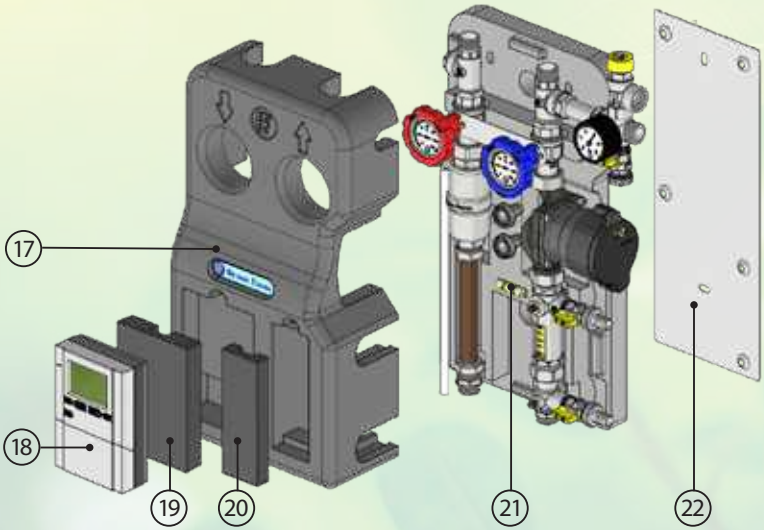




LIST OF COMPONENTS



1. 3 way diverting valve
2. Three-way diverted valve
3. Filling/drain valve with cap and hose connection nozzle
4. Flow meter with adjustment mechanism
5. Connection port for expansion vessel
6. Pressure gauge 0–10 bar
7. 6-bar safety valve for solar systems
8. Cross fitting with extension nipple
9. T-type fitting
10. Valve support bracket
11. Valve handle with thermometer
12. Ball valve with integrated check valve
13. Air vent with metal knob
14. Drain tube
15. Air vent
16. Connection extension
17. Insulation cover
18. Electronic differential temperature controller
19. Mounting base for the temperature controller
20. Flow meter inspection window
21. Spirit level
22. Wall-mounting bracket



PRODUCT RANGE

Code		Circulation Pump	Flow Meter (L/min)
3501		IMP NMT NEO 15/80-130	1-12
3511		Wilo Para STG 15-130/7-50/12	1-12
3502		Grundfos UPM3 Solar 15-75 130	1-12
3512		IMP NMT NEO 15/80-130	8-45
3503		Wilo Para STG 15-130/7-50/12	8-45
3513		Grundfos UPM3 Solar 15-75 130	8-45
1035		IMP NMT NEO 15/80-130	1-12
1135		Wilo Para STG 15-130/7-50/12	1-12
2035		Grundfos UPM3 Solar 15-75 130	1-12
2135		IMP NMT NEO 15/80-130	8-45
3035		Wilo Para STG 15-130/7-50/12	8-45
3135		Grundfos UPM3 Solar 15-75 130	8-45

* For the IMP circulation pump models, cables from 0.5 to 2 meters are available.

TECHNICAL SPECIFICATIONS

Technical Characteristics

- Fluid: water, water–glycol mixture (50%)
- Maximum Operating Temperature
- Supply from solar collectors: 160°C
- Return to solar collectors: 110°C
- Maximum Operating Pressure: 10 bar
- Safety Valve: 6 bar
- Safety relief valve setting: 6 bar
- Flow Meter: 1–12 or 8–45 L/min
- Pipe Connection Threads: ISO 228-1, G 3/4 M
- Pressure Gauge: 0–10 bar
- Thermometers: 0–120°C

Component Materials

- Brass: CW617N and CW614N (Chromium-plated finish)
- Insulation: EPP, Density 45 kg/m^3
- Sealing Elements: Viton O-rings, Klinger gaskets
- Thread Sealing: Anaerobic adhesive Loxeal
- Copper Component Sealing: Mechanical compression fittings with brass ferrule

Circulation Pump

- Body: Cast iron
- Body Length: 130 mm
- Connection Thread: G 1" M (ISO 228-1)
- Power Supply: 230V, 50/60 Hz
- Maximum Pressure: 10 bar
- Maximum Temperature: 110°C
- Protection Class: IP44

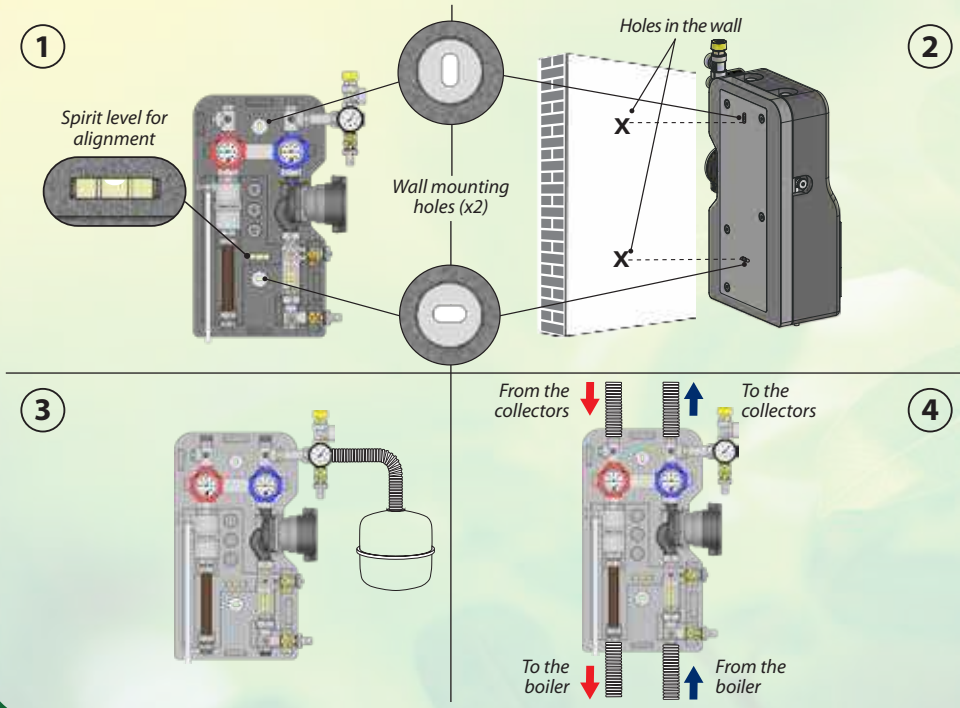
INSTALLATION

The installation of the pump station must be carried out only by certified and experienced installers. The product is supplied pre-assembled and ready for use. All individual components are factory-connected, sealed, and tested. The product may only be installed vertically and at a lower height than the solar collectors.
The model with supply and return lines can be installed only with a specific fluid flow direction, according to the flow direction indicators located on the front side of the insulation.
The model with a supply line can be installed only on the supply line of the circuit and with the flow direction following the arrow marked on the front side of the insulation.

Installation must always be carried out using the appropriate tools. All tightening must be performed in a way that ensures sealing connections without damaging the components.

Intallation Steps

- Remove the front insulation cover.
- Align the product on the mounting surface using the built-in spirit level and mark the two hole positions on the wall.
- After drilling with the appropriate drill bit, place the product on the surface and secure it with the mounting screws.
- Connect the expansion vessel to the appropriate fitting.
- Connect the supply and return pipes according to the diagram.
- Connect the electronic controller to the pump and to the power supply.
  For safety reasons, it is recommended that the cables mast be placed outside the insulation.
- Place the controller into the specially designed slot on the front cover, or mount it remotely on a wall.
- Install the front insulation cover and ensure it is securely locked with the rear cover.



FLUSHING THE CIRCUIT

Before starting the system, it is recommended to flush the circuit using a special pump. For the protection of the product, it is advised to isolate the circulator pump and the flow meter during this procedure.
The product allows for either full or partial cleaning. Full cleaning is performed on the entire closed circuit, with the ability to isolate both the circulator and the flow meter.
Partial cleaning can be carried out locally on the flow meter only, without requiring the draining of the fluid from the rest of the circuit.

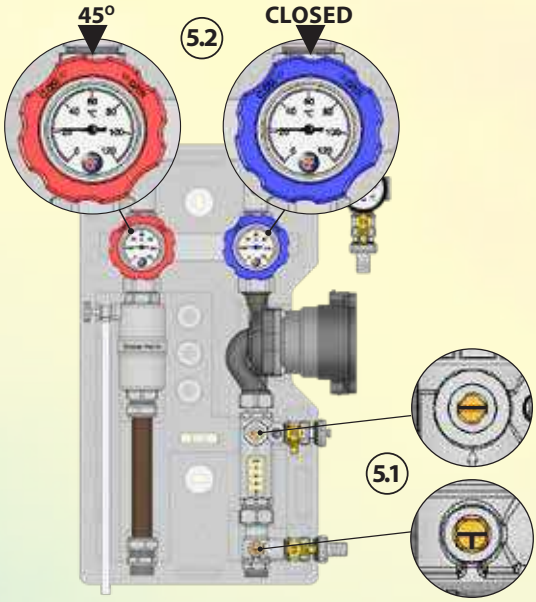
5

Make sure that the adjustment mechanisms of the flow meter and the diverter valve are in the closed position as shown in the diagram **(5.1)**

Turn the supply valve (blue handle) clockwise to the closed position to prevent flow toward the circulator.

Turn the return valve (red handle) to 45 degrees so that the non-return valve opens and allows bidirectional flow **(5.2)**

Remove the caps from the filling/draining valves and install the hose connectors.



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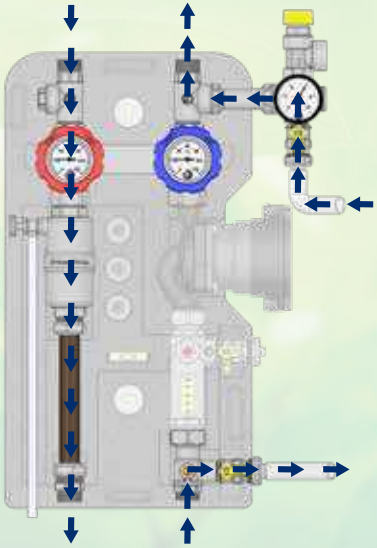


Connect the supply line of an external pump to the upper filling/draining valve and the return line to the lower valve.
Open the valves where the pump is connected.
Activate the pump and fill the circuit with a suitable cleaning fluid.
For a complete flushing, keep the process running for a few minutes.

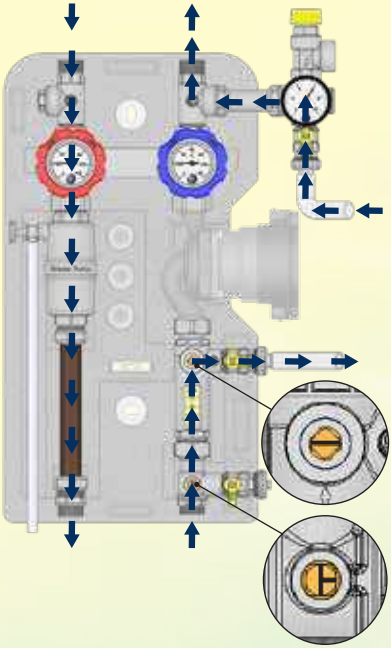
7

If you wish to include the flow meter in the flushing process, connect the return line of the external pump to the middle filling/draining valve as shown in layout 7

The adjustment mechanism of the diverter valve must be in the open position and the filling/draining valve in the closed position.

The adjustment mechanism of the flow meter must be in the closed (horizontal) position, and the filling/draining valve open with the hose connector installed.

Caution: To protect the flow meter, the fluid speed during flushing must not exceed 50 L/min. Adjust the speed using the handle of the filling/draining valve.



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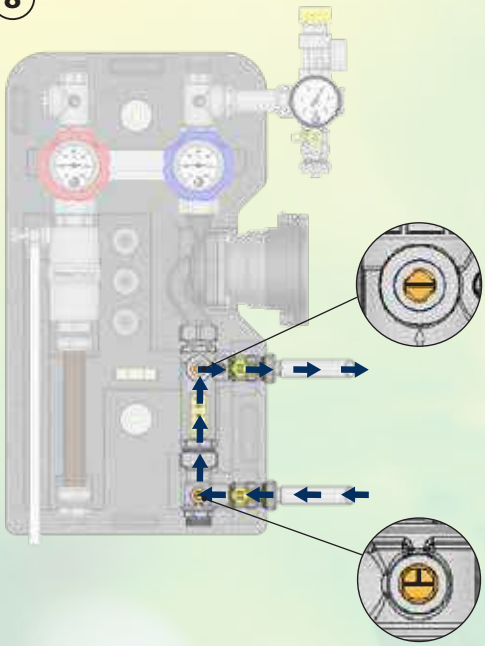
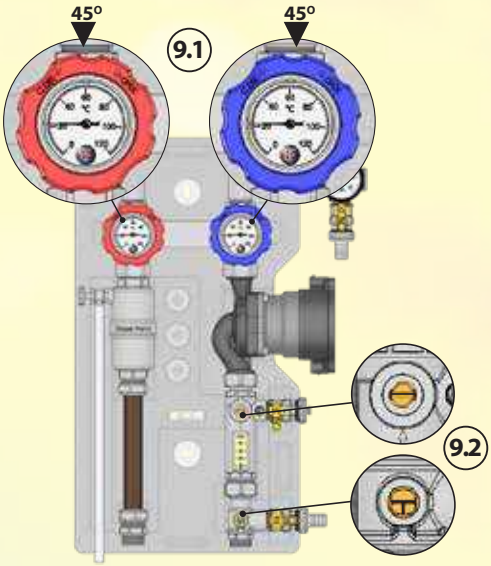


If you wish to perform a partial cleaning of the flow meter, connect the pump supply line to the middle filling/draining valve and the return line to the lower valve. The adjustment mechanisms of the flow meter, the diverter valve, and the filling/draining valves must be set according to illustration 8.

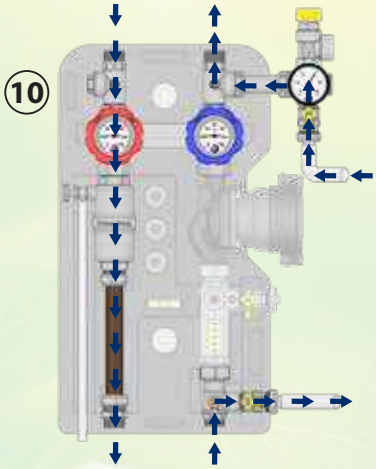
FILLING / START UP THE SYSTEM

Before starting the system, it is recommended to clean the circuit (follow the instructions in the section SYSTEM CLEANING)



9

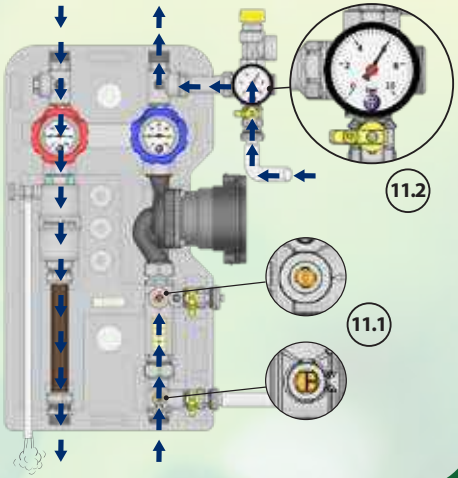
Make sure that the ball valves with thermometers are in the intermediate 45° position, allowing bidirectional flow and bypassing the check valve **(9.1)**.
Remove the caps from the filling/drain valves and connect the hose adapters.
Ensure that the regulating mechanisms of the flow meter and the diverter valve are in the closed position as shown in the diagram **(9.2).**



Remove the caps from the filling/drain valves and connect the hose adapters.
Connect the supply line of the flushing pump to the upper filling/drain valve and the return line of the pump to the lower valve, as shown in diagram 10.
Open the filling/drain valves to which the pump is connected.
Activate the pump and fill the circuit with a suitable fluid for solar systems.

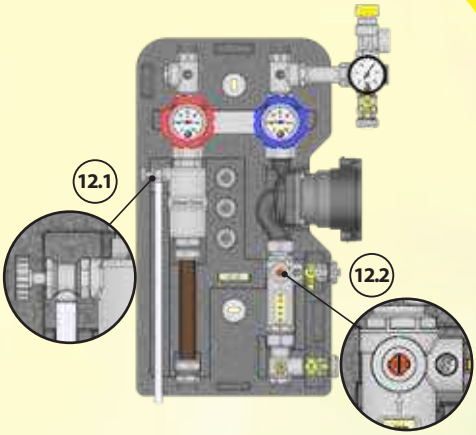
11

Open the regulating mechanisms of the flow meter and the diverter valve by rotating the adjustment control to its initial position **(11.1)**.
Let the flushing pump operate for a few minutes until the system is completely filled and free of air.
Close the lower filling/drain valve and wait until the pressure in the circuit increases **(11.2)**.



12

Finally, close the upper filling/drain valve, switch off and disconnect the flushing pump.
Attach the safety caps to the filling/drain valves and place the hose connectors in the specially designed slots on the insulation housing.
Bleed the circuit by opening the air vent of the air vent **(12.1).**
Adjust the desired fluid flow in the circuit using the flow meter's regulating mechanism **(12.2).**



INTEGRATED SOLUTIONS FOR CONNECTING SOLAR THERMAL SYSTEMS

The new Brass Form component range is specially designed for solar applications, ensuring durability and reliability even at very high operating temperatures.

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