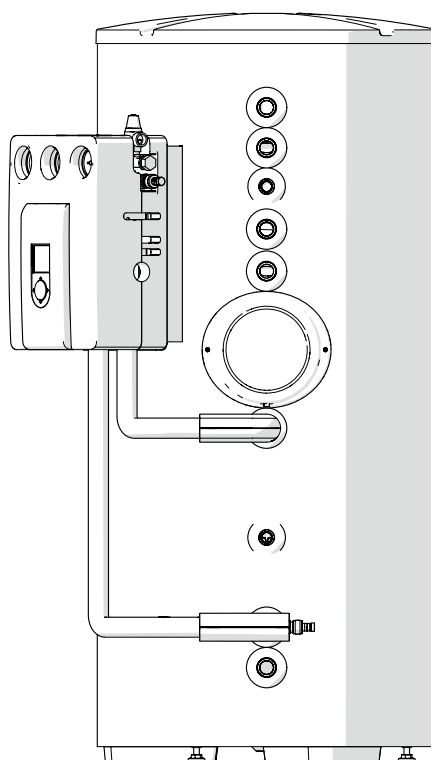


INSTALLATION AND MAINTENANCE MANUAL

TBPS KOMPACT



RANGE

| MODEL | CODE |
|------------------|----------|
| TBPS 200 KOMPACT | 20119548 |
| TBPS 300 KOMPACT | 20119549 |
| TBPS 430 KOMPACT | 20119550 |

ACCESSORIES

For a complete list of accessories and details of their compatibility, refer to the Catalogue.

Dear heating engineer,

*We would like to congratulate you on having recommended a **THERMITAL** solar storage cylinder unit: a modern product that's capable of ensuring a high degree of reliability, efficiency, quality and safety.*

While your technical skills and knowledge will certainly be more than sufficient, this booklet contains all the information that we have deemed necessary for the device's correct and easy installation.

Thank you again, and keep up the good work,

Thermital

CONFORMITY

The **THERMITAL** solar heaters comply with DIN 4753-3 and UNI EN 12897.

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At the end of its life, the product should be not be disposed of as solid urban waste, but rather it should be handed over to a differentiated waste collection centre.

The following symbols are used in this manual:












CAUTION! = Identifies actions that require caution and adequate preparation.



STOP! = Identifies actions that you MUST NOT do.











This manual, Code 20120617 - Rev. 6 (09/18) comprises 20 pages.

GENERAL SAFETY INFORMATION

-  Check that the product is complete, undamaged and as ordered as soon as you receive it. Report any discrepancies or damage to the **THERMITAL** dealer who sold it.
-  This product must be installed by a legally qualified heating engineer. On completion of the installation, the installer must issue the owner with a declaration of conformity confirming that the installation has been completed to the highest standards in compliance with the instructions provided by **THERMITAL** in this instruction manual, and that it conforms to all applicable laws and standards.
-  This product must only be used for the purpose for which it is designed and made, as specified by **THERMITAL**. **THERMITAL** declines all responsibility, contractual or other, for damage to property or injury to persons or animals caused by improper installation, adjustment, maintenance or use.
-  The product must be serviced at least once a year. Servicing must be arranged in advance with the **THERMITAL** Technical Assistance Centre.
-  All servicing and repairs must be performed by a qualified heating engineer.
-  If water leaks from the storage cylinder, turn off the water supply and contact **THERMITAL**'s Technical Assistance Centre or a qualified heating engineer immediately.
-  If the product is not going to be used for an extended period of time, contact the manufacturer's Technical Assistance Centre to have at least the following operations performed:
 - Close the shut-off cocks for the domestic hot water circuit
 - Shut down the boiler connected to the storage cylinder as instructed in its own manual
 - Switch the storage cylinder OFF at the control panel (if fitted) and at the mains power switch
 - Drain the central heating circuit and domestic hot water circuit if there is any risk of freezing.
-  This instruction manual is an integral part of the product. It must be kept safe and must ALWAYS accompany the product, even if it is sold to another owner or transferred to another user or to another installation. If you lose this manual, order a replacement immediately. Keep the product purchase documents to be presented to the **THERMITAL** authorised Technical Assistance Centre to request a service call under warranty.
-  Size the solar expansion tank so as to ensure complete absorption of the expansion of the fluid contained within the system, with reference to the prevailing regulations on the matter. In particular, consider fluid characteristics, considerable fluctuation of service temperature and vapour that might be generated during solar collector stagnation stage. Proper size of expansion tank ensures setting off of all volume changes of the heat transfer fluid, avoiding excessive pressure increase. Limited pressure changes avoid reaching safety valve opening pressure and the consequent fluid drainage.

PRECAUTIONS

The operation of any appliance that uses electrical power demands that a number of fundamental safety precautions be respected. In particular:

-  Never attempt to install the system without using suitable personal protection equipment and without following all applicable occupational safety standards.
-  It is forbidden to touch the device while barefoot or with wet or moist body parts.
-  It is forbidden to perform any technical or cleaning operations before having disconnected the device from its electrical power supply, by setting the system's main switch to "off".
-  It is forbidden to pull, detach, or twist the electrical cables protruding from the device, even if it is disconnected from its electrical power supply.
-  Do not expose the storage cylinder to the elements. It is not designed for use outdoors.
-  If solar plant pressure decreases, it is forbidden to top up with only water as there is a danger of freezing and overheating.
-  Do not use connections or safety devices or fittings (expansion vessels, pipes, insulation) that are not specifically designed and tested for use in solar water heating systems.
-  Do not allow children or infirm persons to operate the system unsupervised.
-  Do not dispose of packaging material into the environment, or leave it within the reach of children, since it can become a potential hazard. Dispose of packaging material in compliance with applicable legislation.
-  It is forbidden to use the pipes for handling.

DESCRIPTION OF THE APPLIANCE

THERMITAL TBPS KOMPACT double-coil solar boilers, with pre-fitted solar station, are available in three different models, can be integrated in solar systems for the production of domestic hot water and can be easily used in solar systems where **THERMITAL** boilers or heating units serve as an integration.

The most important technical features of these solar storage cylinders are:

- the accurate study of tank and coil geometry
- internal glazing, bacteriologically inert, to ensure the max. hygiene of treated water, reduce limescale deposits and make cleaning operations easier
- insulation made of expanded polyurethane free from CFC (chlorofluorocarbons)
- a flange for easy cleaning and maintenance of the anti-corrosion magnesium anode
- solar station enclosed in an insulating casing in EPP (Polypropylene foam), used also for solar system washing, filling and emptying as well as for circulator removal

The main components of the solar station are:

- high-efficiency circulator with variable speed (already hard-wired)
- solar regulator (already hard-wired), as indicated in paragraph "Safety and control devices"
- shut-off valves as non-return valves
- thermometers
- pressure gauge
- fitting for connection to a solar expansion tank
- suitable safety device, as indicated in paragraph "Safety and control devices"

SAFETY AND CONTROL DEVICES

Equipment safety and setting are achieved thanks to:


- Safety valve with trigger pressure set at 6 bar;
- Solar Regulator for circulator management/adjustment. It manages 9 system diagrams that can be selected. Refer to the specific manual for further details.


IDENTIFICATION

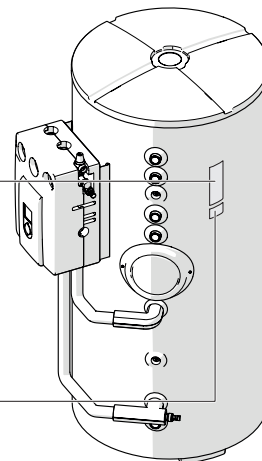
The **THERMITAL TBPS KOMPACT** solar heaters can be identified by:

Data plate

This lists the technical specifications and performance of the product.

| THERMITAL  | |
|--|-------------------------------------|
| SOLARBOILER SOLAR STORAGE CYLINDER | |
| Model: <input type="text"/> | Hersteller: <input type="text"/> |
| Model: <input type="text"/> | Serial number: <input type="text"/> |
| Artikel Nr.: <input type="text"/> | Baujahr: <input type="text"/> |
| Code: <input type="text"/> | Year: <input type="text"/> |
| Leistungsaufnahme obere Rohrschlinge (Primärkreislaufftemperatur 74/60°C) Power absorbed by top coil (T° primary 60°C) | <input type="text"/> kW |
| Erzeugung von Brauchwasser oben Rohrschlinge 37°/58°C Domestic Hot Water production - top coil | <input type="text"/> l/h |
| Austauschoberfläche obere Rohrschlinge Top coil heat exchange surface area | <input type="text"/> m² |
| Austauschoberfläche untere Rohrschlinge Bottom coil heat exchange surface area | <input type="text"/> m² |
| Maximaler Boilerbetriebsdruck Maximum working pressure of storage cylinder | <input type="text"/> bar |
| Boilerfüllungsmenge Storage cylinder capacity | <input type="text"/> l |
| Elektrischer Leistung Electrical consumption | <input type="text"/> W |
| Anschlussspannung Power supply | <input type="text"/> V-Hz |
| ERDUNG OBLIGATORISCH - OBLIGATORY GROUND CONNECTION | |

| THERMITAL  | |
|--|---|
| SOLARBOILER SOLAR STORAGE CYLINDER | |
| Hersteller: <input type="text"/> | Leistungsaufnahme obere Rohrschlinge <input type="text"/> kW |
| Serial number: <input type="text"/> | Erzeugung von Brauchwasser oben Rohrschlinge <input type="text"/> l/h |
| Model: <input type="text"/> | Austauschoberfläche obere Rohrschlinge <input type="text"/> m² |
| Model: <input type="text"/> | Austauschoberfläche untere Rohrschlinge <input type="text"/> m² |



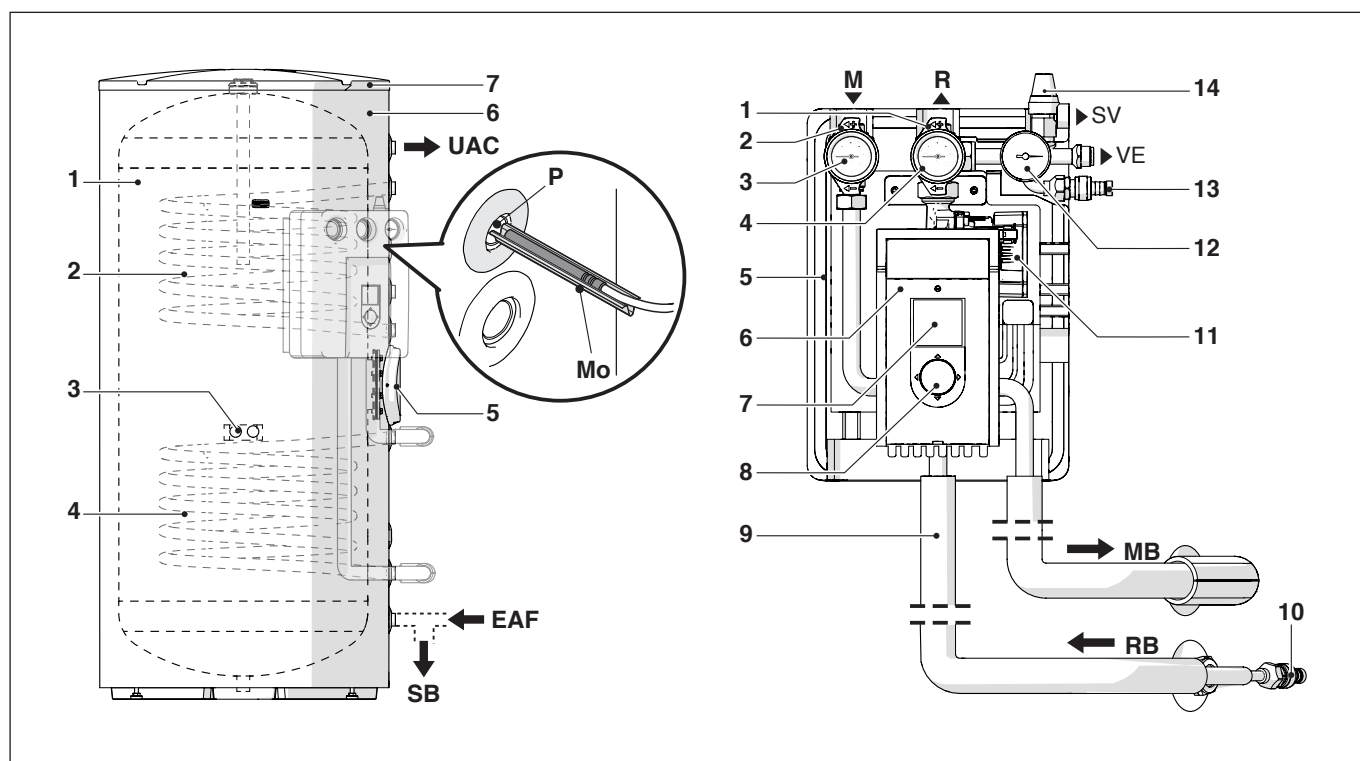
Serial number plate

This specifies the serial number and model.



If these plates or any other means of clearly identifying the product are defaced, removed or lost, proper installation and servicing may be rendered difficult.

SYSTEM LAYOUT



STORAGE CYLINDER

- 1 Storage cylinder
- 2 Top coil
- 3 Preset for lifting handles (accessory) and/or device grounding point
- 4 Bottom coil
- 5 Flange for heater inspection
- 6 Insulation
- 7 Cover
- P Socket
- Mo Guide
- UAC Domestic hot water outlet
- EAF Domestic cold water inlet
- SB Storage cylinder drain

SOLAR STATION

- 1 Return Valve (solar plant return) with built-in non-return valve
- 2 Delivery Valve (solar plant delivery) with built-in non-return valve
- 3 Outlet temperature gauge
- 4 Return temperature gauge
- 5 Insulation
- 6 Solar controller
- 7 Display
- 8 Multidirectional joystick
- 9 Pipe insulation (to be fitted during the installation)
- 10 Tap A for system filling/draining
- 11 Pump
- 12 Pressure gauge
- 13 Tap B for system filling/draining
- 14 Safety valve (6 bar)
- M Solar circuit outlet. Inlet of heat transfer fluid coming from solar collector.
- R Solar circuit return. Outlet of heat transfer fluid towards solar collector.
- MB Heater delivery. Outlet of heat transfer fluid towards solar heater.
- RB Heater return. Inlet of heat transfer fluid coming from solar heater.
- SV Safety valve drain
- VE Expansion tank fitting

TECHNICAL SPECIFICATIONS

| DESCRIPTION | TBPS KOMPACT | | | |
|--|-----------------------------------|----------|----------|----------------|
| | 200 | 300 | 430 | |
| Type of storage cylinder | Vertical, glazed | | | |
| Heat exchanger layout | Vertical, with elliptical section | | | |
| Storage cylinder capacity | 208 | 301 | 442 | l |
| Useful non-solar volume (Vbu)* | 68 | 117 | 182 | l |
| Solar usable volume (Vsol)** | 140 | 184 | 260 | l |
| Diameter of storage cylinder with insulation | 604 | 604 | 755 | mm |
| Height with insulation | 1338 | 1838 | 1644 | mm |
| Insulation thickness | 50 | 50 | 50 | mm |
| Total net weight | 100 | 122 | 145 | kg |
| Quantity/diameter/length of magnesium anode | 1/33/450 | 1/33/450 | 1/33/520 | mm |
| Flange internal diameter | 130 | 130 | 130 | mm |
| Diameter/length of sensor sockets | 16/180 | 16/180 | 16/180 | mm |
| Top coil water capacity | 3,5 | 4,0 | 5,0 | l |
| Top coil heat exchange surface area | 0,7 | 0,8 | 1,0 | m ² |
| Bottom coil water capacity | 3,5 | 5,0 | 7,0 | l |
| Bottom coil heat exchange surface area | 0,7 | 1,0 | 1,4 | m ² |
| Maximum operating pressure of storage cylinder | 10 | | | bar |
| Maximum operating pressure of coils | 10 | | | bar |
| Maximum operating temperature | 99 | | | °C |
| Discharges according to EN 12897:2006 $\Delta T=45^{\circ}\text{C}$ (ambient 20°C and storage at 65°C) | 62 | 69 | 75 | W |
| Discharges according to UNI 11300 | 1,38 | 1,53 | 1,67 | W/K |
| Energy class | B | B | B | |
| PERFORMANCE RELATING TO INTEGRATION COIL | | | | |
| Upper coil continuous efficiency (ACS 10-45°C) (Vbu reference volume) | | | | |
| Coil delivery temperature | | | | |
| 80°C ΔT 20°C | 16,1 | 23 | 31,4 | kW |
| | 400 | 572 | 774 | l/h |
| 70°C ΔT 20°C | 10,3 | 17 | 20,7 | kW |
| | 247 | 425 | 505 | l/h |
| 60°C ΔT 20°C | 6,5 | 11 | 15,5 | kW |
| | 160 | 277 | 375 | l/h |
| 50°C ΔT 20°C | 2,4 | 5 | 7 | kW |
| | 57 | 130 | 170 | l/h |
| Set-up time required to heat the heater to 60°C, referred to the integration coil probe, to the different upper coil inlet temperatures with a coil outlet/inlet delta (Δ) of 20°C (Vbu reference volume) | | | | |
| Upper coil delivery temperature | | | | |
| 80°C ΔT 20°C | 25 | 27 | 24 | min |
| 70°C ΔT 20°C | 33 | 34 | 32 | min |
| 60°C ΔT 20°C | 66 | 65 | 65 | min |
| NL thermal efficiency coefficient according to DIN 4708. The NL index, referred to the integration exchanger, indicates a number of apartments having 3.5 people that can be fully supplied, with a 140 l bathtub and two other drawing points. | | | | |
| Upper coil delivery temperature | | | | |
| 80°C | 1,12 | 1,64 | 2,2 | |
| 70°C | 0,86 | 1,34 | 1,66 | |
| 60°C | 0,65 | 1,04 | 1,37 | |

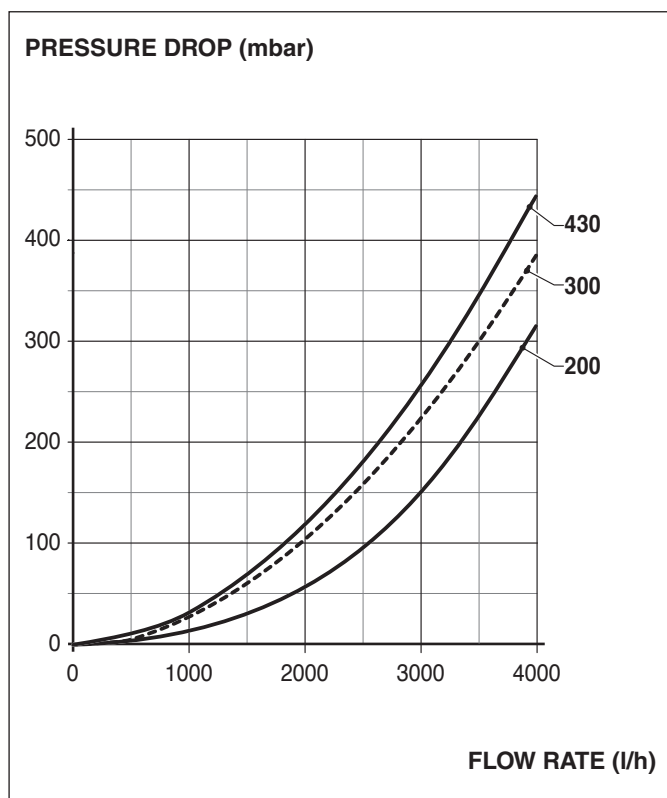
Vbu (*) The non-solar usable volume indicates the quantity of water (in litres) heated directly by the thermal integration coil. It is calculated as the volume between the upper part of the heater and the lower part of the thermal integration element (integration coil lower turn).

Vsol ()** The usable solar volume indicates the quantity of water (in litres) heated directly by the solar coil (placed in the lower part of the heater) minus the non-solar volume (Vbu).

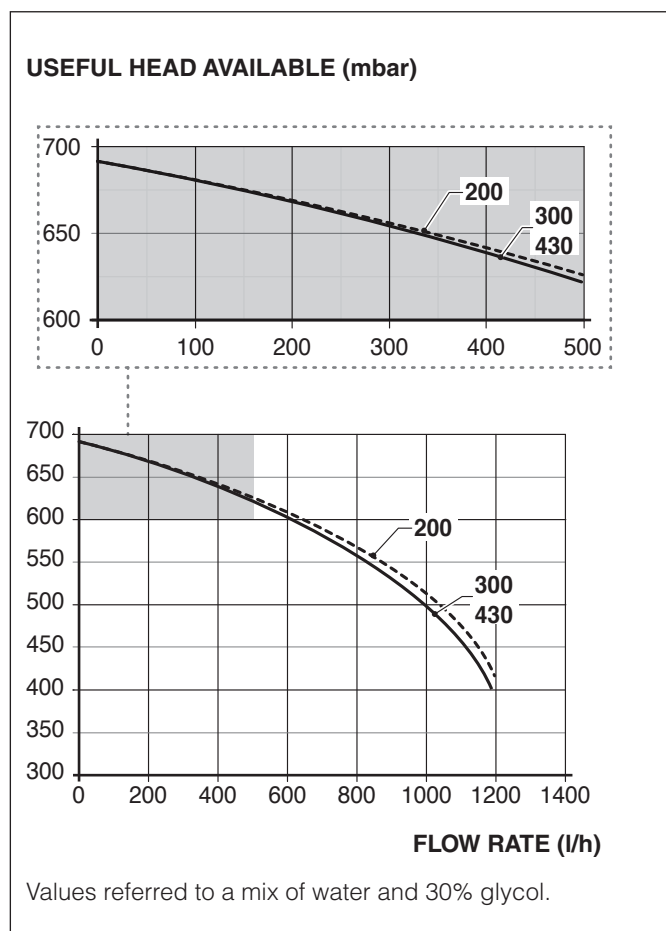
| EMPTYING IN 10' | TBPS KOMPAKT | | | |
|--|--------------|-----|-----|---|
| | 200 | 300 | 430 | |
| PERFORMANCE RELATING TO INTEGRATION COIL | | | | |
| Quantity of domestic water obtained in 10' with heater pre-heated to 60°C (*) and primary exchanger at the indicated delivery temperature, considering an increase of the domestic water temperature of 30°C between inlet and outlet (according to EN 12897). | | | | |
| Upper coil delivery temperature | | | | |
| 80°C | 166 | 260 | 330 | I |
| 70°C | 138 | 255 | 323 | I |
| 60°C | 131 | 250 | 308 | I |
| PERFORMANCE RELATING TO SOLAR COIL | | | | |
| Quantity of domestic water obtained in 10' with heater pre-heated to the indicated temperature (**) considering an increase of the domestic water temperature of 30°C between inlet and outlet (according to EN 12897). | | | | |
| Temperature of accumulation tank lower part | | | | |
| 70°C | 374 | 438 | 659 | I |
| 60°C | 284 | 375 | 531 | I |
| 50°C | 205 | 310 | 390 | I |

| DESCRIPTION | SOLAR STATION TECHNICAL DATA | |
|-----------------------------------|------------------------------|------|
| Safety valve calibration pressure | 6 | bar |
| Maximum operating temperature | 110 | °C |
| Power supply | 230~50 | V-Hz |
| Min/max electrical current draw | 0,08 ÷ 0,58 | A |
| Min/Max power consumption | 5 ÷ 63 | W |

Pressure drops TOP COIL



Useful head available BOTTOM COIL



The circulator speed is controlled through PWM signal and varies according to the thermal gradient between solar collectors and storage.

Pay attention to the system overall flow resistance (exchanger, solar collectors and pipes) at the maximum flow rate conditions provided.

UNPACKING THE PRODUCT

THERMITAL TBPS KOMPAKT solar heaters are supplied in a single package on a wooden pallet.

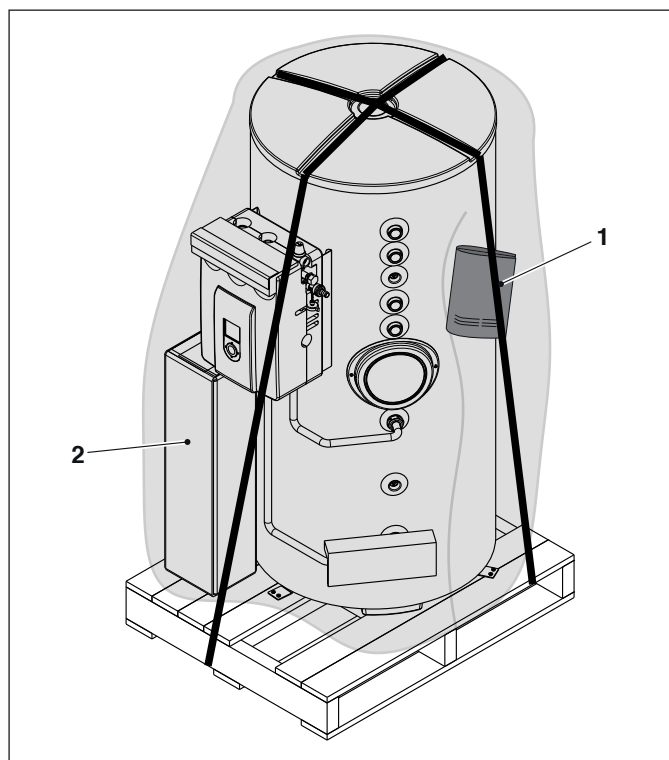
The boiler comes with a solar station supplied with solar regulator already wired to the high-efficiency circulator, and two non-wired probes to be inserted in the boiler sockets.

The following items are delivered in a plastic bag (1) inside the packaging:

- Instruction manuals
- Bar code label
- Hydraulic test certificate
- Energy label (to be applied to device upon installation)
- No. 1 solar probe PT1000
- No. 2 probes NTC.

The following items (for application during the installation) are delivered in a cardboard box (2) inside the packaging:

- Flexible insulation for pipes
- Rigid insulation for pipe unions.



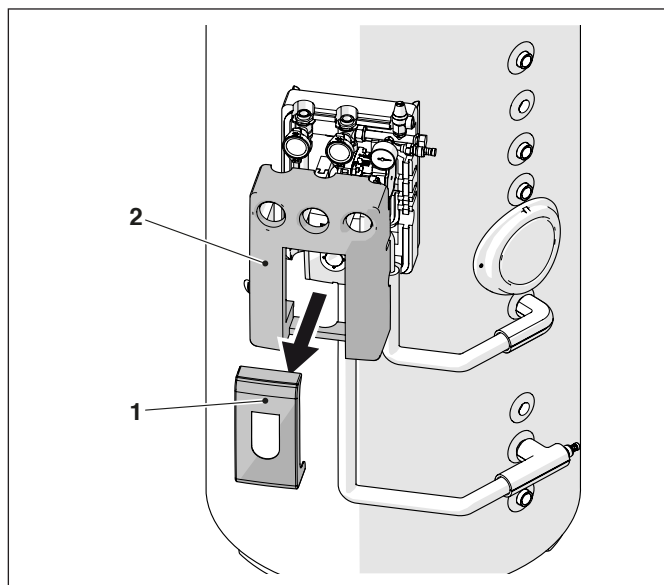
The instruction manual is an integral part of the solar storage cylinder. Once located, read it thoroughly and keep it safe.



For handling operations, thoroughly follow the instructions on device package label.

ACCESS TO THE SOLAR STATION

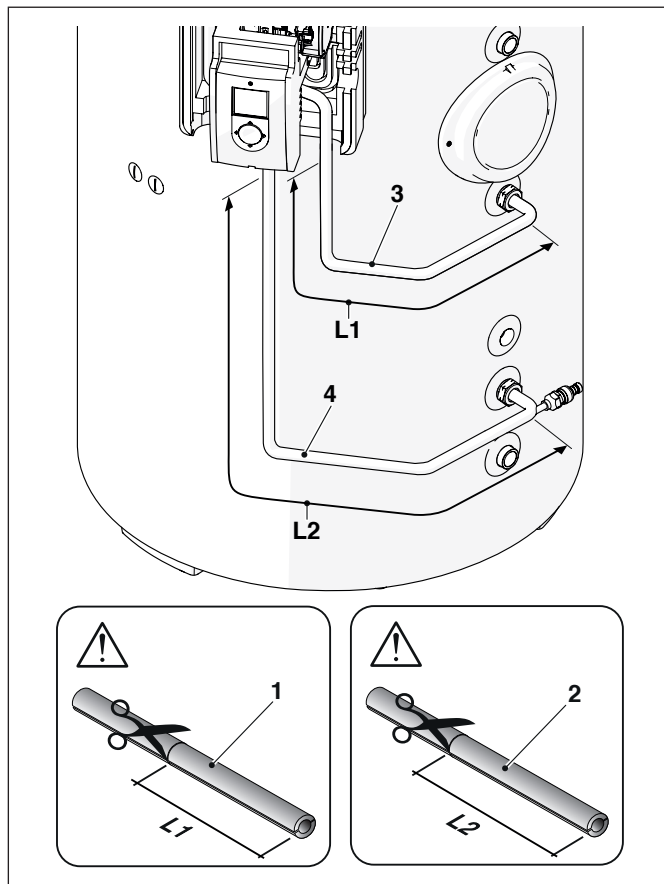
To access the solar station it is necessary to remove the solar regulator covering (1) and then the front insulation (2).



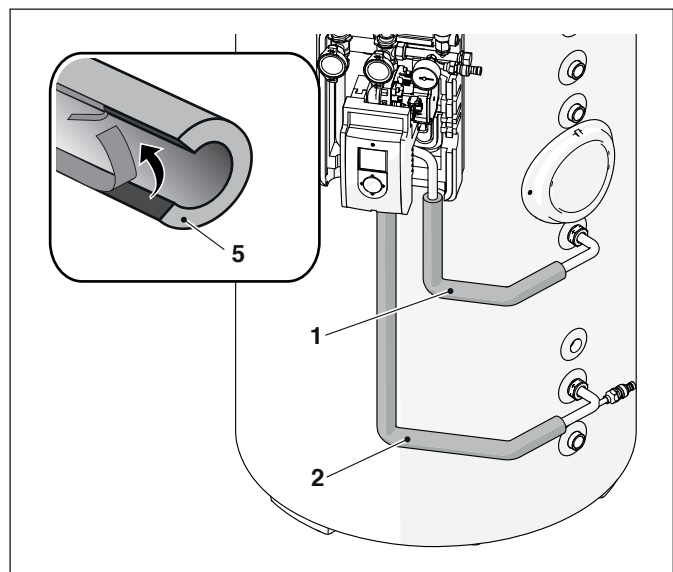
FITTING THE PIPE INSULATION

Cut the insulation (1-2) for the two pipes (3-4) to the lengths given in the following table:

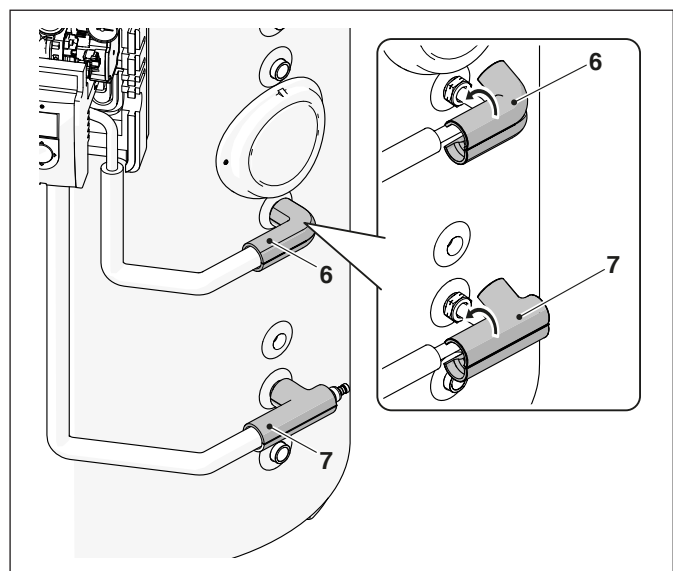
| TBPS KOMPAKT | L1 | L2 |
|--------------|-----|------|
| 200 | 340 | 785 |
| 300 | 545 | 1075 |
| 430 | 485 | 930 |



Remove the adhesive film (5) and fit the two sections of insulation (1-2) to the pipes, with the join at the rear.

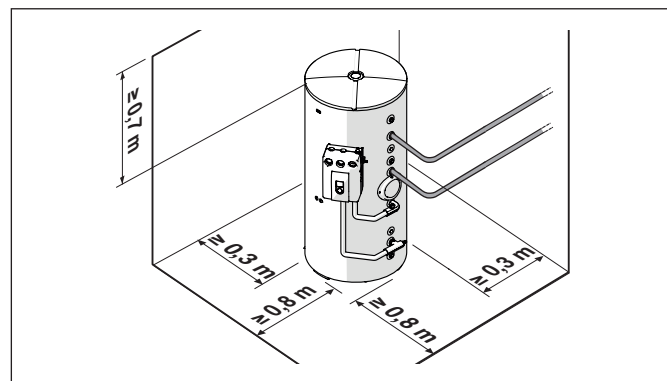


Fit the two rigid insulation pieces (6-7) to the unions.



PLACE OF INSTALLATION

THERMITAL TBPS KOMPACT storage cylinders can be installed in any room where there is no specific requirement for an electrical protection rating higher than IP X0D.



NOTE: the above-indicated dimensions are recommended for a correct maintenance and access to the device.

⚠ When installing the boiler, allow sufficient space around it to access all safety and control devices and to permit easy maintenance.

INSTALLATION IN OLDER SYSTEMS AND SYSTEMS REQUIRING MODERNISATION

When installing **THERMITAL TBPS KOMPACT** storage cylinders in old systems or systems requiring modernisation, always perform the following checks.

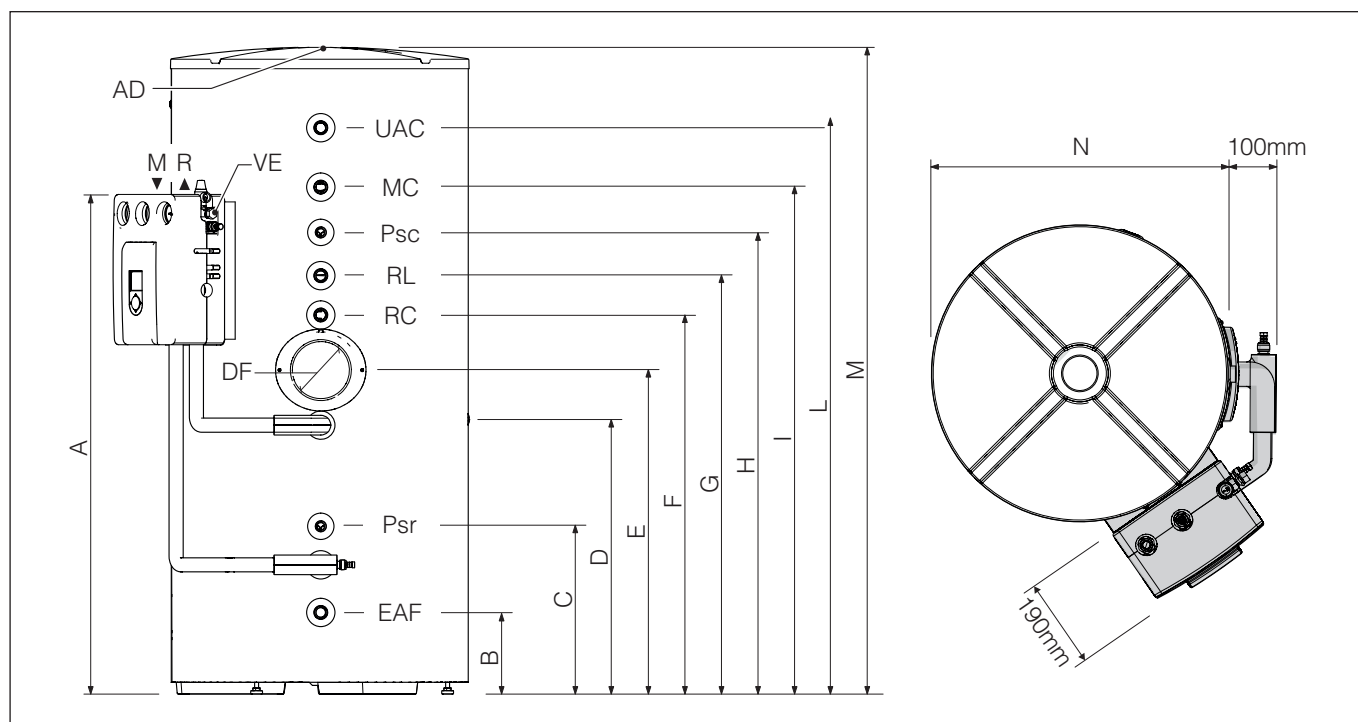
- Make sure that the system is fitted with safety and control devices in accordance with applicable legislation and standards
- Make sure that the central heating circuit has been flushed out to remove all sludge and lime scale, and has been vented and seal tested
- Make sure that a suitable water treatment system is installed if the quality of the supply/recirculation water so demands (refer to the reference values listed in the table alongside).

WATER QUALITY REQUIREMENTS

| REFERENCE VALUES | |
|-------------------------|--|
| pH | 6-8 |
| Electrical conductivity | less than 200 $\mu\text{S}/\text{cm}$ (25°C) |
| Chlorine ions | less than 50 ppm |
| Sulphuric acid ions | less than 50 ppm |
| Total iron | less than 0.3 ppm |
| Alkalinity M | less than 50 ppm |
| Total hardness | less than 35°F |
| Sulphur ions | none |
| Ammonia ions | none |
| Silicon ions | less than 30 ppm |

The values above ensure proper operation of the system. Refer to the limit values specified in the current standards and regulations on the installation site.

WATER CONNECTIONS

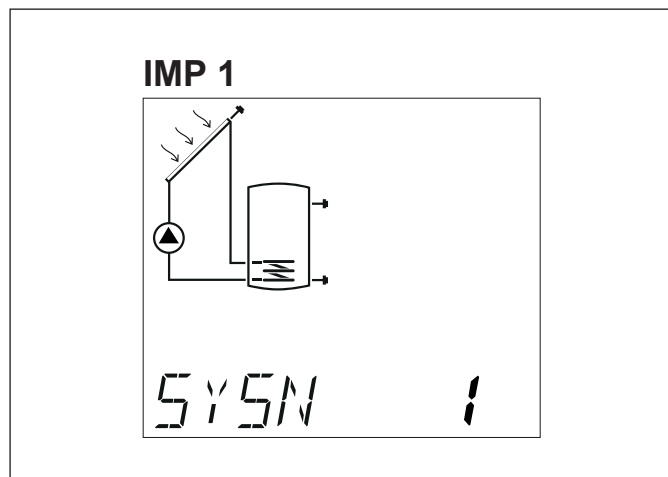


| DESCRIPTION | | TBPS KOMPACT | | | |
|-------------|--|--------------|----------|----------|----|
| | | 200 | 300 | 430 | |
| VE | Expansion tank fitting | 1/2" M | | | Ø |
| UAC | Domestic hot water outlet | 1" M | | | Ø |
| MC | Outlet from boiler | 1" M | | | Ø |
| RC | Return to boiler | 1" M | | | Ø |
| M | Outlet from solar collector | 1" M | | | Ø |
| R | Return to solar collector | 1" M | | | Ø |
| RL | DHW recirculation | 1" M | | | Ø |
| EAF (SB) | Domestic cold water inlet | 1" M | | | Ø |
| Psc | Diameter/length of boiler sensor socket | 16/180 | | | mm |
| Psr | Diameter/length of solar controller sensor socket | 16/180 | | | mm |
| AD | Quantity/diameter/length of magnesium anode | 1/33/450 | 1/33/450 | 1/33/520 | mm |
| DF | Flange internal diameter | 130 | 130 | 130 | mm |
| A | | 1120 | 1420 | 1270 | mm |
| B | | 171 | 171 | 208 | mm |
| C | | 403 | 393 | 427 | mm |
| D | M8 threaded inserts for grounding point/accessory handles connection | 700 | 700 | 700 | mm |
| E | | 738 | 903 | 824 | mm |
| F | | 878 | 1113 | 964 | mm |
| G | | 953 | 1233 | 1064 | mm |
| H | | 1029 | 1323 | 1174 | mm |
| I | | 1098 | 1438 | 1289 | mm |
| L | | 1170 | 1670 | 1440 | mm |
| M | | 1338 | 1838 | 1644 | mm |
| N | | Ø 604 | Ø 604 | Ø 755 | mm |

- ⚠ It is recommended to install shut-off valves at domestic water inlet and outlet.
- ⚠ Check the efficiency of the seals when filling/refilling the storage cylinder.
- ⚠ Any electric junction between probe cable and extensions for the connection to the electric panel must be soldered and protected with a sheath or a suitable electric insulation.

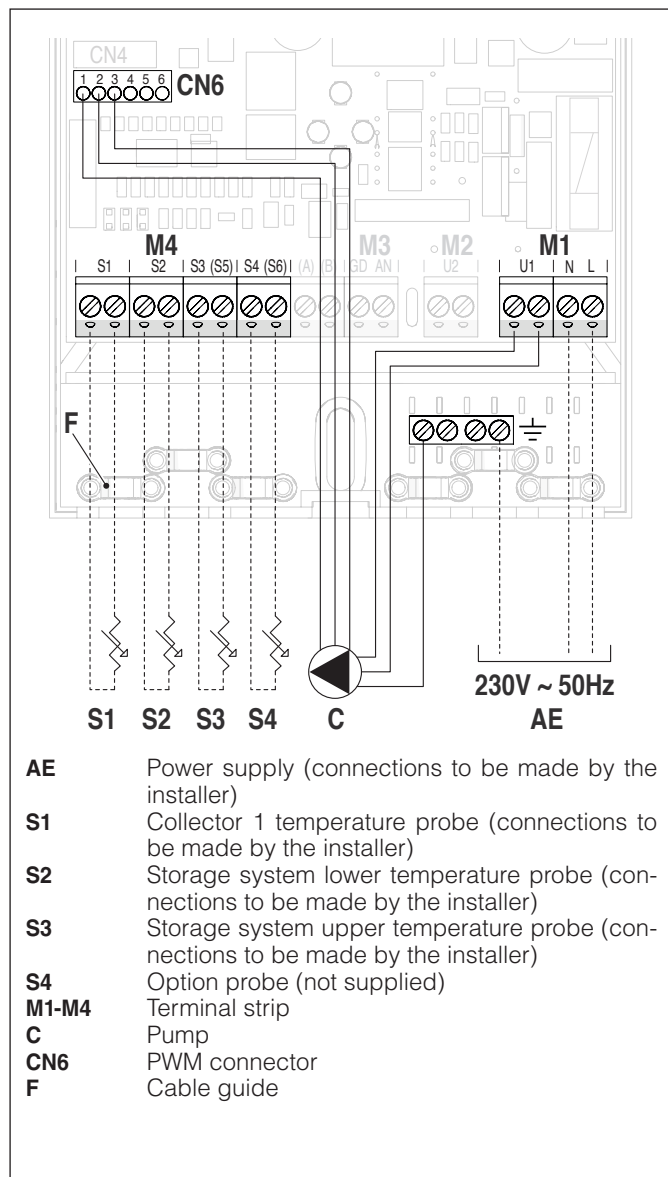
TYPICAL WATER SYSTEM SCHEMATICS

The diagram below shows the solar regulator default setting.



Please refer to the instruction manual supplied with the solar regulator for any system setup and further details.

WIRING DIAGRAMS



ELECTRICAL CONNECTIONS



The following is mandatory:

- have an omnipolar magneto-thermal circuit breaker and a disconnecting switch compliant with the prevailing standards of the installation country
- respect the polarity of the L1 (Phase) - N (Neutral) connections
- use cables with insulation and cross section conforming to applicable standards (minimum cross section 1.5 mm²)
- refer to the wiring diagrams in this manual for all electric operations
- make sure the appliance is connected to an efficient ground (earth).

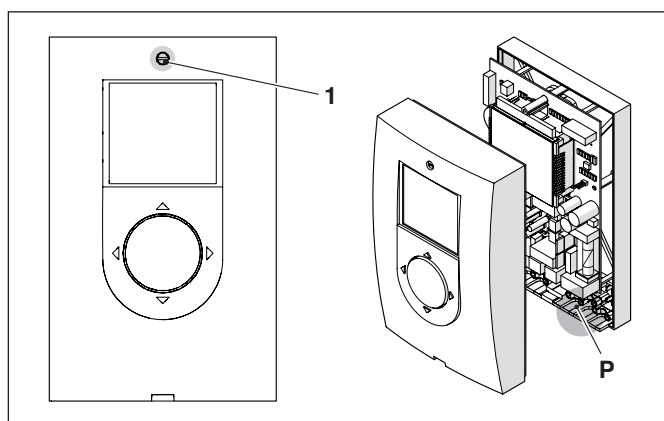


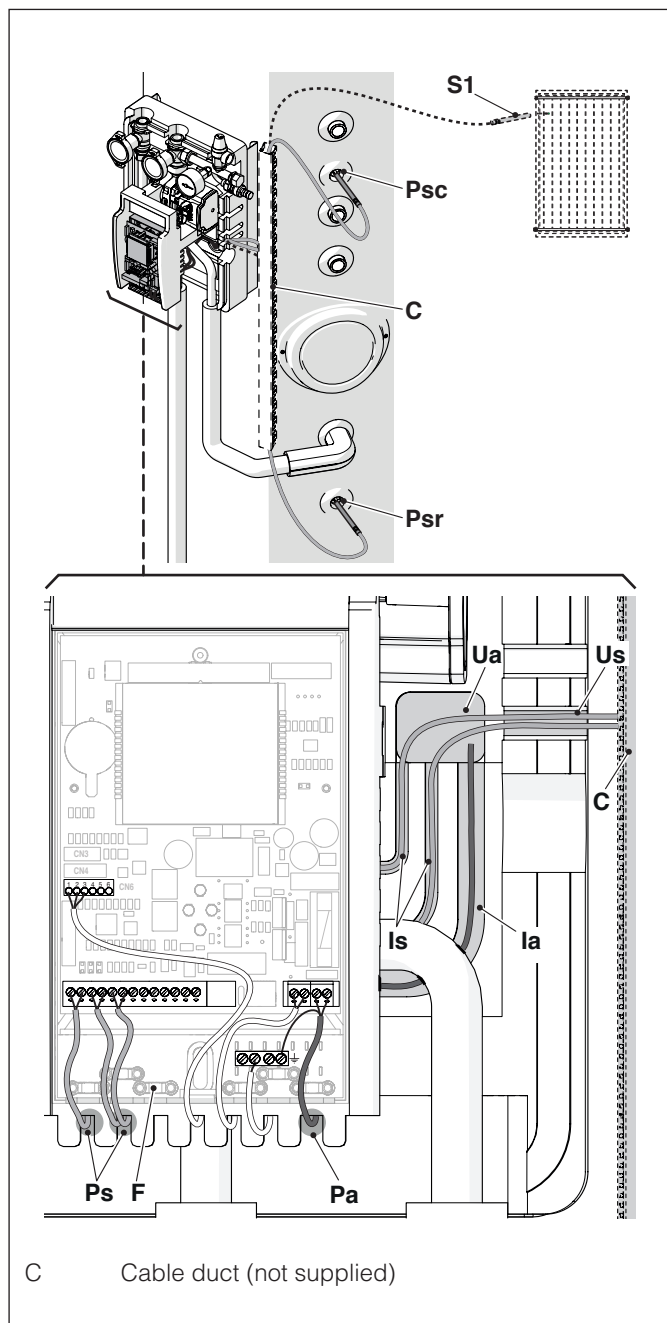
It is strictly forbidden to use pipes of any kind to ground the appliance.

The manufacturer is not responsible for any damage caused by failure to earth connect the device and failure to comply with what is indicated in the wiring diagrams. Refer to the manual supplied with the solar controller for details of all electrical connections, programming, etc..

The solar regulator is provided already wired except for the power supply cable and the temperature probes.

To make electrical connections, undo screw (1) on cover and remove cover from solar regulator.





Sensor connections

- Route probe cables through the cable guides (F), the fairleads (Ps), the passages on the insulation (Is), the solar station outlets (Us/Ua) and connect them to terminal board M4 of solar regulator (terminals S1-S2-S3-S4) making reference to the instructions provided in the specific regulator manual.

Upon connection, or should it be necessary to increase probe cable length, refer to these remarks:

- Absolutely avoid laying probe cable together with mains power cables and/or AC cables
- Absolutely avoid routing cables close to strong magnetic fields
- Avoid any cable jointing as much as possible; solder and duly insulate any indispensable jointing
- Use twisted and shielded wires
- Use cables having a cross-section of over 0.5 mm²

Solar controller power connections

- Route the supply cable through the cable guides (F), the fairleads (Pa), the passages on the insulation (Ia), the solar station outlets (Ua) and connect it to terminal board M1 of solar regulator (terminals L-N-GND) making reference to the instructions provided in the specific regulator manual.

Once electrical connections are completed, fasten cables using the guides supplied, close regulator cover and solar station protection housing.

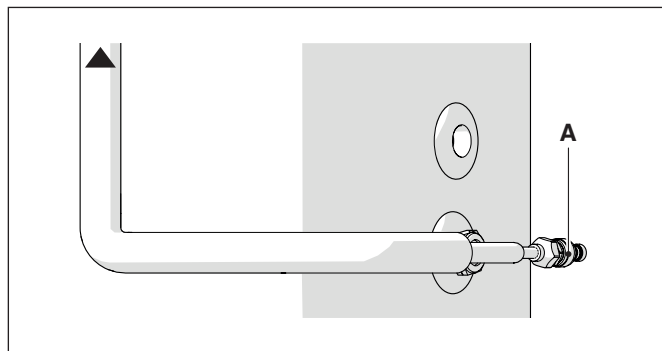
SYSTEM FLUSHING

Before filling the system with mixture of water and glycol, it is necessary to flush the pipes of the solar system to eliminate all residues of fluid or scale.

Proceed as follows.

- Turn handle on valve (VR) clockwise
- Open taps (A) and (B) on the return tube
- Flush water in through the cock (B) and wait for it to come out of the cock (A)
- Allow water to come out for at least 30 seconds
- Turn handle on valve (VR) counter clockwise
- Close taps (A) and (B).

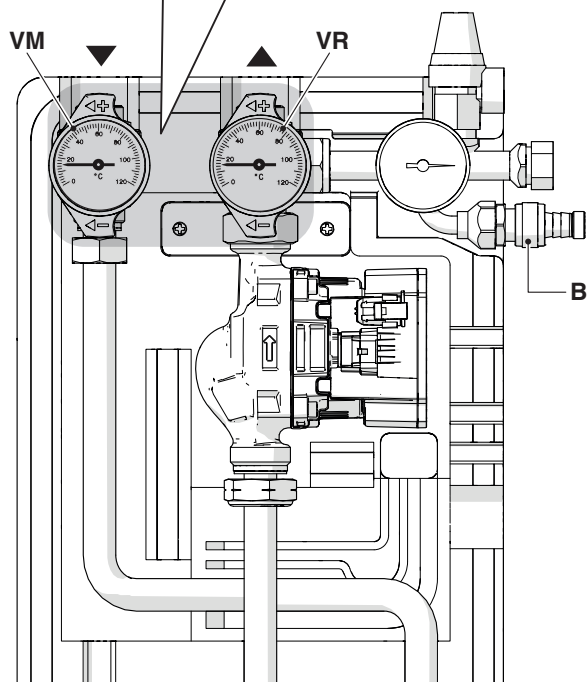
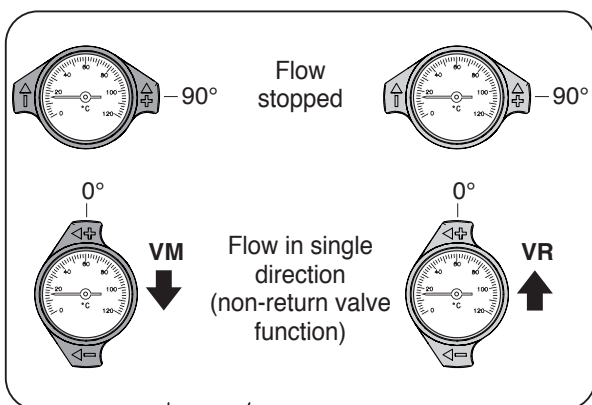
! During system flushing, pay attention to water coming out of the taps as vapour could be released with risk of burns or scalds. Use suitable personal protective equipment.



! If copper piping has been used and joints have been hot brazed, flush out the system to remove any brazing residues. Seal test the system after you have flushed it out.

! The solar circuit must be immediately filled with a mixture of water and glycol, that avoids freezing and corrosion.

Position of the knob of the valves VM - VR



SYSTEM FILLING COCK

Before filling the system:

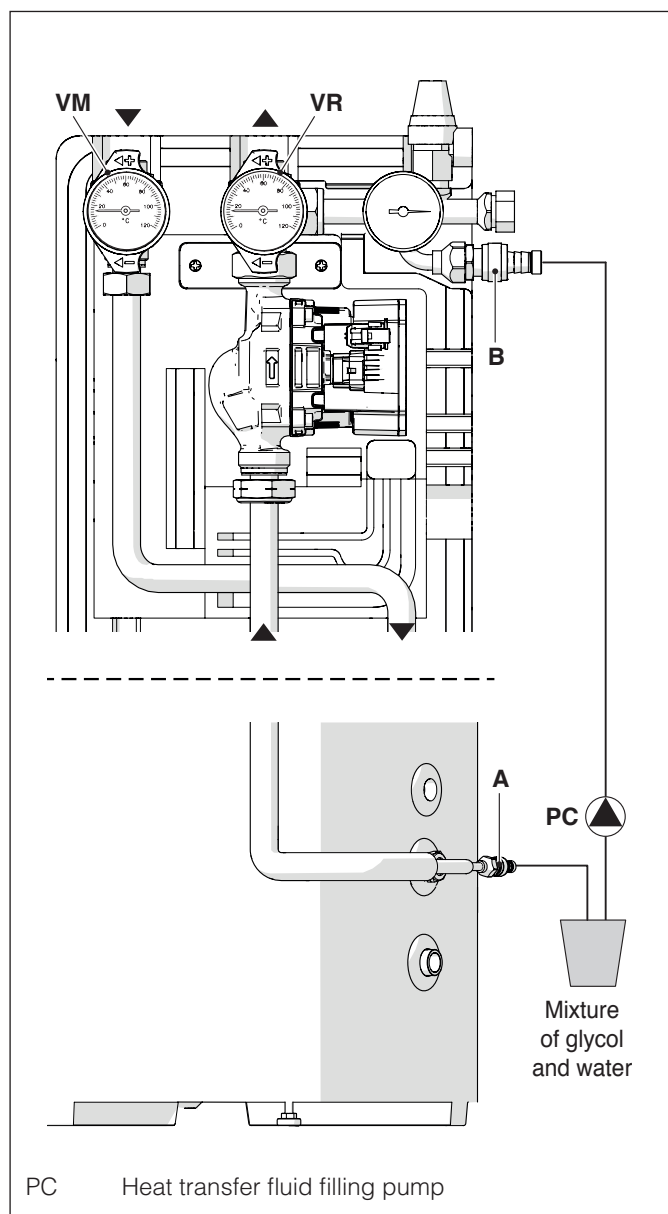
- Cut power off to the solar station and to the connected integration system, by setting the system's main switch and the device's main switch to OFF



Always use a mixture of water and glycol suitable for solar applications. Choose the mixture according to the minimum temperature that can be reached at the installation site and to the maximum service temperature of solar collectors. For further information, please refer to the glycol safety data sheet.

When using glycol not pre-mixed:

- Do NOT part fill the circuit with pure glycol then add water later.
- Ensure that filling water characteristics comply with prevailing regulations; if that is not so, filling water must be treated. Use portable treatment systems, for instance. In particular, when chlorine content is very high (> 50ppm) you must use distilled water for the mixture.



To fill the system, proceed as follows:

- Connect the filling pump (PC) as shown
- Turn handle on valve (VR) clockwise
- Open taps (A) and (B) on the return tube
- Open manual degassing tap and any bleeder valve, located at the highest points of the system, and keep them open throughout the filling procedure.
- Pump the heat transfer fluid around the circuit with an external filling pump until all air bubbles have been eliminated. Close the manual bleed valve and any vent valves opened previously.
- Turn handle on valve (VR) counter clockwise
- Temporarily raise the pressure in the system to 4 bar.
- Start up the system for about 20 minutes.
- Repeat air bleeding operation until system is completely free of air bubbles.
- set the system pressure.
- Close taps (A) and (B).



The set pressure must ensure that the one measured at the solar collectors is positive with respect to the ambient one (avoid depression in the solar field) and must be set considering both the safety valve opening pressure (6) and the solar expansion reservoir pre-charge pressure. To set the system pressure correctly, refer to the design manual.



Do not fill the system in bright, sunny conditions or if the collectors are hot.



Use a manual bleed valve, which should be installed at the highest point in the system, to ensure that all air bubbles have been eliminated from the circuit.

DEVICE CLEANING AND MAINTENANCE



Service the system at least once a year and carry out the inspections specified in the relevant manual.

The following operations must be exclusively performed by Technical Assistance Centre.

Checking the seals

After commissioning, check hydraulic fitting sealing. Make sure there is no leakage close to electric components to avoid short-circuits.

External cleaning

Clean the outside of the storage cylinder with a soft cloth dampened in soapy water. Use a dry cloth to clean the insulation and the solar regulator display to remove any dust.



Do not use abrasive products, petrol or triethylene.

INTERVENTIONS ON THE HYDRAULIC SYSTEM

Draining the system

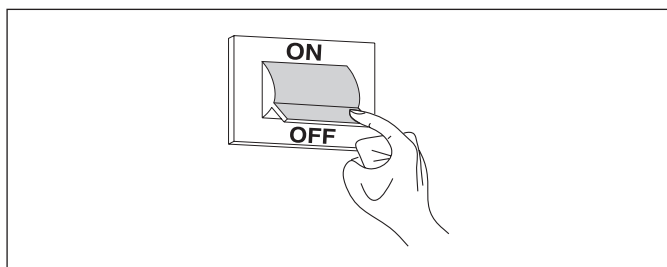
- Connect a rubber hose to taps (A) and (B)
- Connect the opposite end to a vessel
- Open system drain taps and allow full drainage
- Close system drain taps and remove the rubber hose
- The exhausted heat transfer fluid must be disposed of according to the prevailing regulations, pursuant to the instructions provided in the safety data sheet supplied with the glycol.

Disassembling the circulator

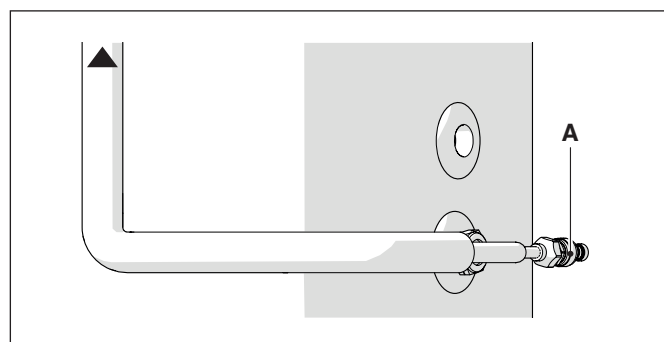
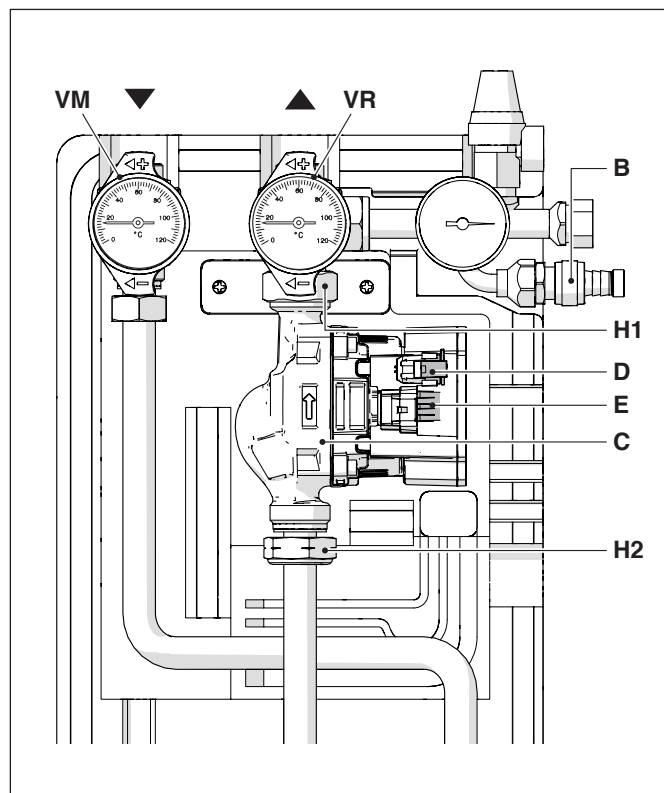
⚠ Remove the circulator when system has cooled down.

Before removing circulator (C):

- Cut power off to the solar station and to the connected integration system, by setting the system's main switch and the device's main switch to OFF



- Disconnect circulator power by removing connectors (D) and (E)
- Move away any wiring and electric devices below to protect them against any leakage of heat transfer fluid
- Close valves (VR) and (VM) by turning handle clock-wise by 90°
- Open taps (A) and (B) and drain the solar circuit
- Loosen ring nuts (H1) and (H2) and remove circulator (C).



Reverse the above steps to fit the new pump.
Fill the solar circuit as described in paragraph "System filling cock".

RECYCLING AND DISPOSAL

The device is primarily composed of:

| Material | Component |
|---------------------------------------|--|
| steel | structural work |
| metal materials | tubes, circulator |
| ABS (acrylonitrile-butadiene-styrene) | solar regulator casing, covering and covers |
| EPP (polypropylene foam) | solar station insulation |
| PU (polyurethane) | boiler insulation |
| synthetic rubber | pipe insulation |
| electrical and electronic components | cables and wiring, solar regulator, circulator |

At the end of the device's useful life, these components must be separated and disposed of according to current regulations in the country of installation.

END USER INSTRUCTIONS

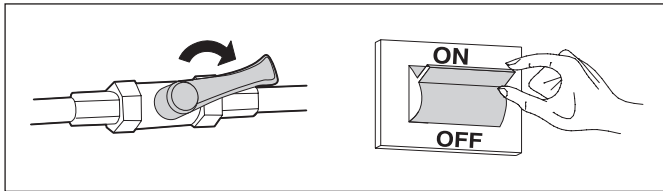
Refer to the **GENERAL SAFETY INFORMATION** and **PRECAUTIONS** section for safety-related information.

START-UP

The heater commissioning must be performed by Technical Assistance Centre personnel.

Under certain circumstances, such as after long periods of disuse, the user may need to re-start it without involving the Technical Assistance Centre. Before doing so, perform the following checks and operations.

- Check that the supply cocks in the domestic water circuit are all open
- Check that the system main switch and the control main switch are active "ON".



For further information concerning the solar regulator, refer to the dedicated manual supplied with the product.

TEMPORARY SHUTDOWN

To reduce to the environmental impact and save energy, in case of brief absences, week-ends, short trips, etc., and with external temperatures above 0°C, set the heater temperature control, where available, to the minimum value.



If the temperature to which the heater is exposed can fall below 0°C (frost hazard), perform the operations described in paragraph "Preparing for extended periods of disuse".

PREPARING FOR EXTENDED PERIODS OF DISUSE

If the storage cylinder is not going to be used for an extended period of time, ask the manufacturer's Technical Assistance Centre to make the system safe.

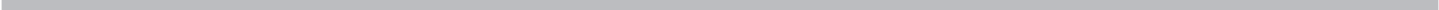
EXTERNAL MAINTENANCE

Clean the outside of the storage cylinder with a soft cloth dampened in soapy water.

Use a dry cloth to clean the insulation and the solar regulator display to remove any dust.



Do not use abrasive products, petrol or triethylene.



THERMITAL

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The manufacturer strives to continuously improve all products. Appearance, dimensions, technical specifications, standard equipment and accessories are therefore liable to modification without notice.