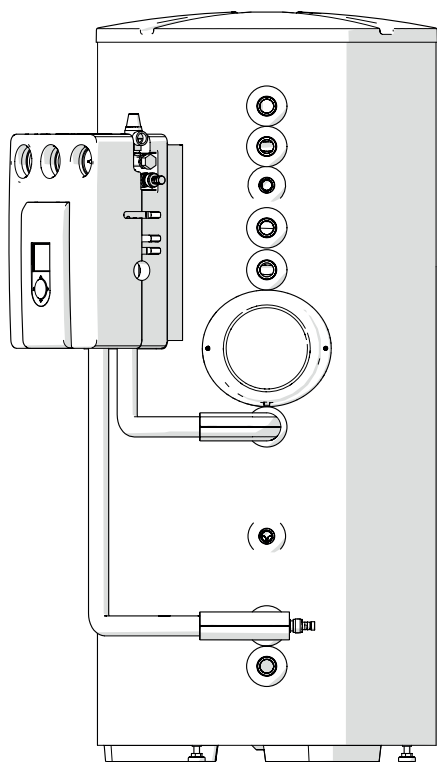


IDRA DS FI

Solar | Solar storage cylinder

EN Installation and Operation Manual



RANGE

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 Beretta 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,

Beretta

CONFORMITY

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



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.



CONTENTS

GENERAL INFORMATION3

1	General Safety Information	3
2	Precautions	3
3	Description of the appliance	4
4	Safety and control devices	4
5	Identification	4
6	System layout	5
7	Technical specifications	6

INSTALLATION8

8	Unpacking the product	8
9	Access to the solar station	8
10	Fitting the pipe insulation	8
11	Place of installation	9
12	Water quality requirements	9
13	Water connections	10
14	Typical water system schematics	11
15	Wiring diagrams	11
16	Electrical connections	11
17	System flushing	13
18	System filling cock	14
19	Device cleaning and maintenance	14

COMMISSIONING AND MAINTENANCE15

20	Putting into service	15
21	Temporary shutdown	15
22	Preparing for extended periods of disuse	15
23	Interventions on the hydraulic system	16
24	Maintenance	17
25	Cleaning and removing internal components	17
26	Recycling and disposal	18

END USER19

27	Start-up	19
28	Temporary shutdown	19
29	Preparing for extended periods of disuse	19
30	External maintenance	19

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.

1 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 **Beretta** 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 **Beretta** 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 **Beretta**. **Beretta** 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 **Beretta** 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 **Beretta'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 **Beretta** 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.

2 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.

3 DESCRIPTION OF THE APPLIANCE

Beretta IDRA DS FI double-coil solar boilers, with pre-fitted solar station, are available in four different models, can be integrated in solar systems for the production of domestic hot water and can be easily used in solar systems where **Beretta** 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"

4 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.

5 IDENTIFICATION

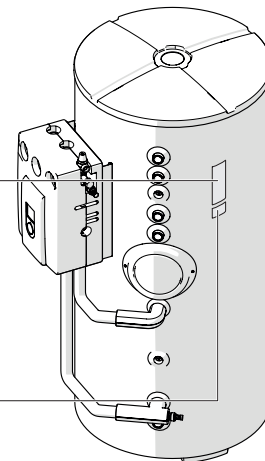
The **Beretta IDRA DS FI** solar heaters can be identified by:

Data plate

This lists the technical specifications and performance of the product.

Beretta		Beretta Castale Via Risorgimento, 1323900 Lanzo (LC)		CE	
SOLARBOILER SOLAR STORAGE CYLINDER					
Model		Serial No.		106759502	
Article No.		Serial number			
Code		Boilermaker			
Leistungsaufnahme obere Rohrschlinge (Primärkreislauftemperatur 70/80°C) Power absorbed by top coil (1° primary 80°C)				kW	
Energiegewinnung vom Brauchwasser (obere Rohrschlinge) (ΔT 30°C) Domestic hot water production - top coil				l/h	
Auslaßoberfläche obere Rohrschlinge Top coil heat exchange surface area				m²	
Auslaßoberfläche untere Rohrschlinge Bottom coil heat exchange surface area				m²	
Maximaler Boilerbetriebsdruck Maximum working pressure of storage cylinder				bar	
Boilerfüllungsvermögen Storage cylinder capacity				l	
Elektrischer Leistung Electrical consumption				W	
Anschlußspannung Power supply				V-Hz	
ERDUNG OBLIGATORISCH - OBLIGATORY GROUND CONNECTION					

CE	
Serial No.	Leistungsaufnahme obere Rohrschlinge Power absorbed by top coil
Model	Auslaßoberfläche obere Rohrschlinge Top coil heat exchange surface area
	Auslaßoberfläche untere Rohrschlinge Bottom coil heat exchange surface area



Serial number plate

This specifies the serial number and model.

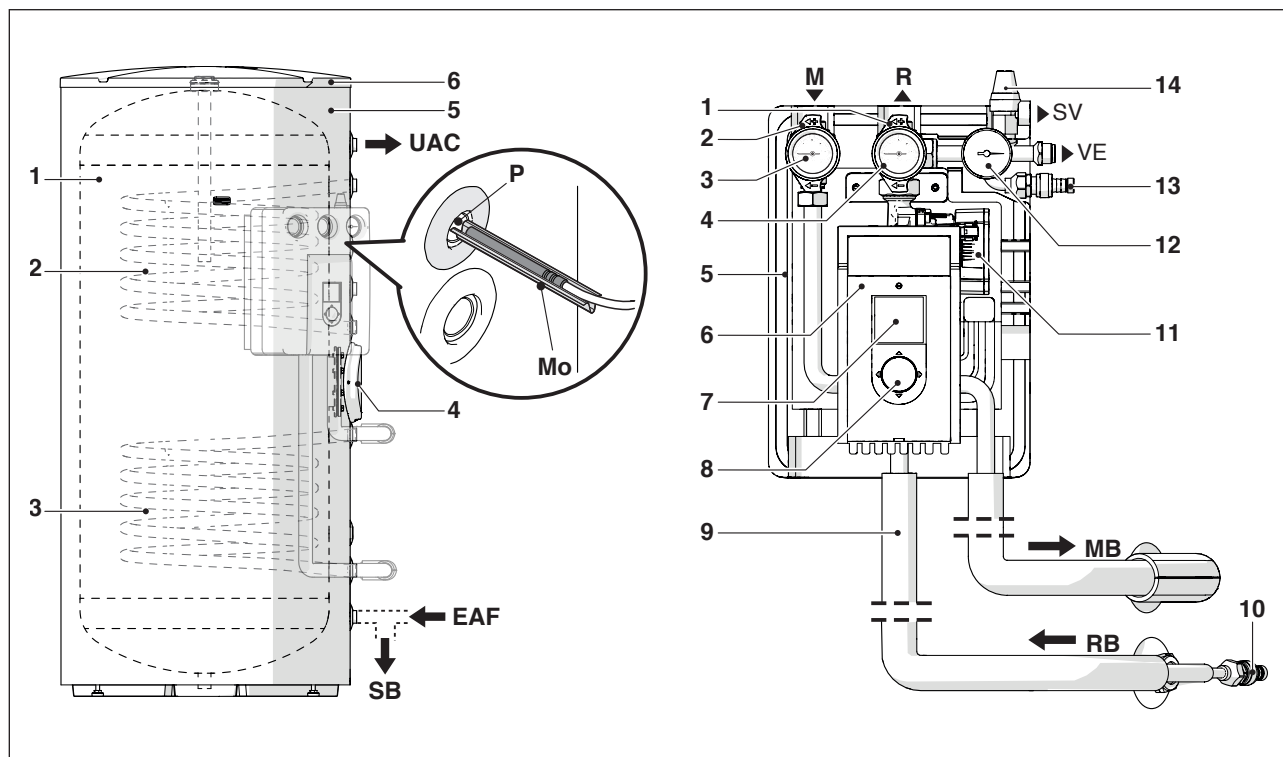


Technical data plate and Serial number plate are to be applied (by the installer) after installation is complete.



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.

6 SYSTEM LAYOUT



STORAGE CYLINDER

- 1 Storage cylinder
- 2 Top coil
- 3 Bottom coil
- 4 Flange for heater inspection
- 5 Insulation
- 6 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 discharge valve
- VE Expansion tank fitting

7 TECHNICAL SPECIFICATIONS

DESCRIPTION	IDRA DS FI				
	200	300	430	550	
Type of storage cylinder	Vertical, glazed				
Heat exchanger layout	Vertical, with elliptical section				
Storage cylinder capacity	208	301	430	551	l
Useful non-solar volume (Vbu)*	68	117	182	175	l
Solar usable volume (Vsol)**	140	184	260	376	l
Diameter of storage cylinder with insulation	604	604	755	755	mm
Height with insulation	1338	1838	1644	1988	mm
Insulation thickness	50	50	50	50	mm
Total net weight	100	122	145	185	kg
Quantity/diameter/length of magnesium anode	1/33/450	1/33/450	1/33/520	1/33/520	mm
Flange internal diameter	130	130	130	130	mm
Diameter/length of sensor sockets	16/180	16/180	16/180	16/180	mm
Top coil water capacity	3,5	4,0	5,0	5,0	l
Top coil heat exchange surface area	0,7	0,8	1,0	1,0	m ²
Bottom coil water capacity	3,5	5,0	7,0	9,0	l
Bottom coil heat exchange surface area	0,7	1,0	1,4	1,8	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	85	W
Discharges according to UNI 11300	1,38	1,53	1,67	1,89	W/K
Energy class	B	B	B	B	
PERFORMANCE RELATING TO INTEGRATION COIL					
Upper coil continuous efficiency (ACS 10-45°C) (Vbu reference volume)					
Coil delivery temperature					
80°C $\Delta T 20^\circ\text{C}$	16,1	23	31,4	31,4	kW
	400	572	774	774	l/h
70°C $\Delta T 20^\circ\text{C}$	10,3	17	20,7	20,7	kW
	247	425	505	505	l/h
60°C $\Delta T 20^\circ\text{C}$	6,5	11	15,5	15,5	kW
	160	277	375	375	l/h
50°C $\Delta T 20^\circ\text{C}$	2,4	5	7	7	kW
	57	130	170	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 $\Delta T 20^\circ\text{C}$	25	27	24	24	min
70°C $\Delta T 20^\circ\text{C}$	33	34	32	32	min
60°C $\Delta T 20^\circ\text{C}$	66	65	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	2,23	
70°C	0,86	1,34	1,66	1,69	
60°C	0,65	1,04	1,37	1,42	
PERFORMANCE RELATING TO SOLAR COIL					
Bottom coil continuous efficiency (ACS 10-45°C) (Vbu reference volume)					
Bottom coil delivery temperature					
80°C $\Delta T 20^\circ\text{C}$	17,1	29,6	44,2	53,6	kW
	419,6	727,1	1087,2	1316,3	l/h
70°C $\Delta T 20^\circ\text{C}$	10,9	21,9	28,9	35,3	kW
	268,4	537,4	709,0	867,7	l/h
60°C $\Delta T 20^\circ\text{C}$	6,9	14,2	21,6	26,4	kW
	169,4	347,7	530,9	649,7	l/h
50°C $\Delta T 20^\circ\text{C}$	2,5	6,4	9,8	11,9	kW
	62,5	158,1	239,8	293,4	l/h

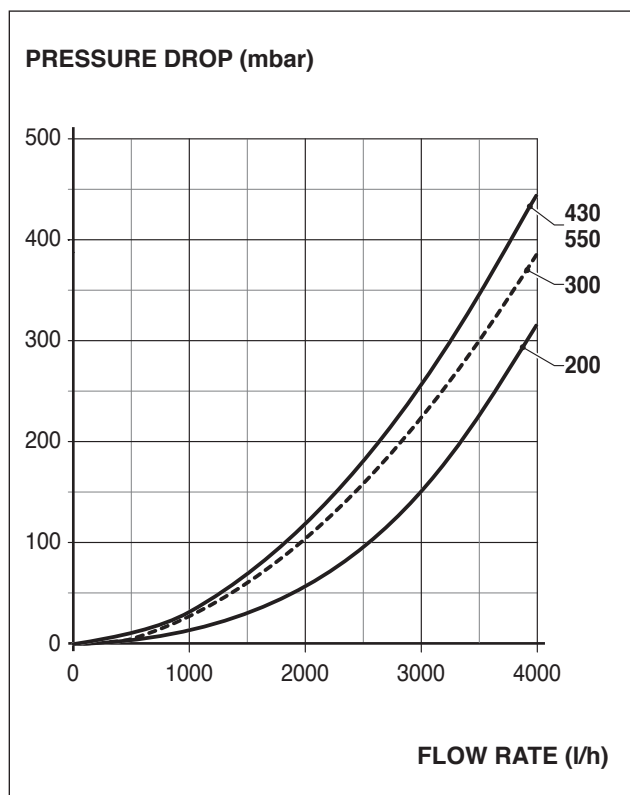
Vbu (*) The non-solar usable volume indicates the quantity of water (in litres) heated directly by the thermal integration coil. It is calculated as the volume between the upper part of the heater and the lower part of the thermal integration element (integration coil lower turn).

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).

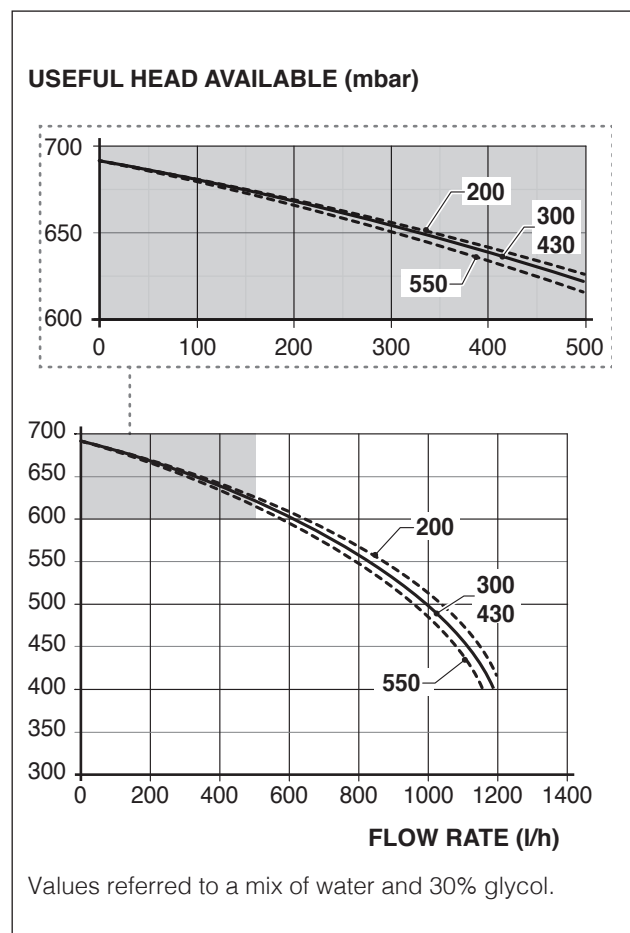
EMPTYING IN 10'	IDRA DS FI				
	200	300	430	550	
PERFORMANCE RELATING TO INTEGRATION COIL					
Quantity of domestic water obtained in 10' with heater pre-heated to 60°C (*) and primary exchanger at the indicated delivery temperature, considering an increase of the domestic water temperature of 30°C between inlet and outlet (according to EN 12897).					
Upper coil delivery temperature					
80°C	166	260	330	345	I
70°C	138	255	323	340	I
60°C	131	250	308	336	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	863	I
60°C	284	375	531	675	I
50°C	205	310	390	485	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.

8 UNPACKING THE PRODUCT

Beretta IDRA DS FI solar heaters are supplied in a single package on a wooden pallet.

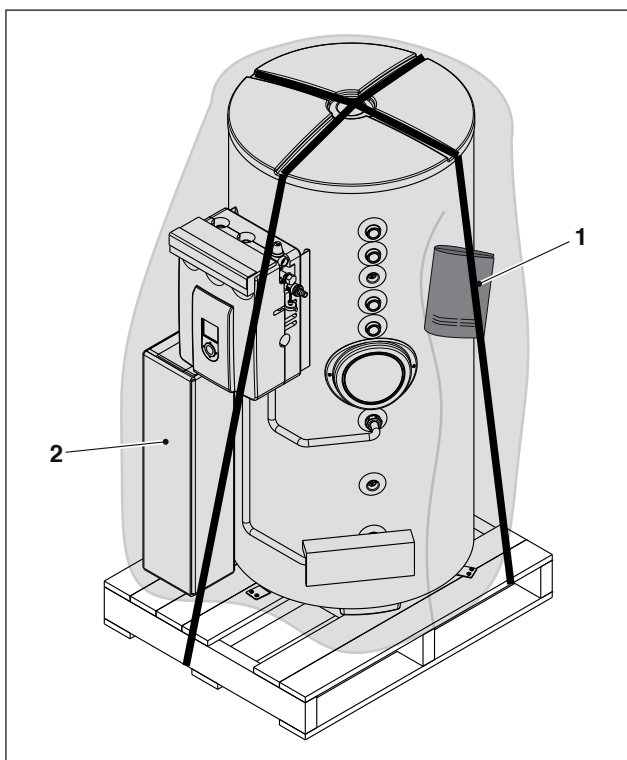
The boiler comes with a solar station supplied with solar regulator already wired to the high-efficiency circulator, and two non-wired probes to be inserted in the boiler sockets.

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.

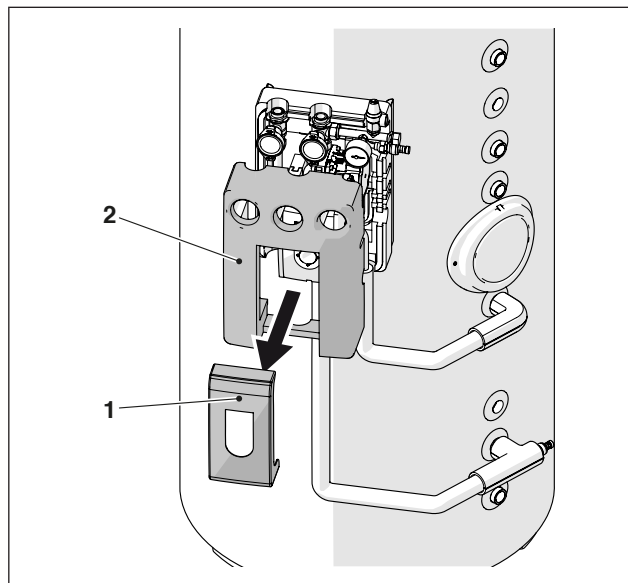


⚠ The instruction manual is an integral part of the solar storage cylinder. Once located, read it thoroughly and keep it safe.

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

9 ACCESS TO THE SOLAR STATION

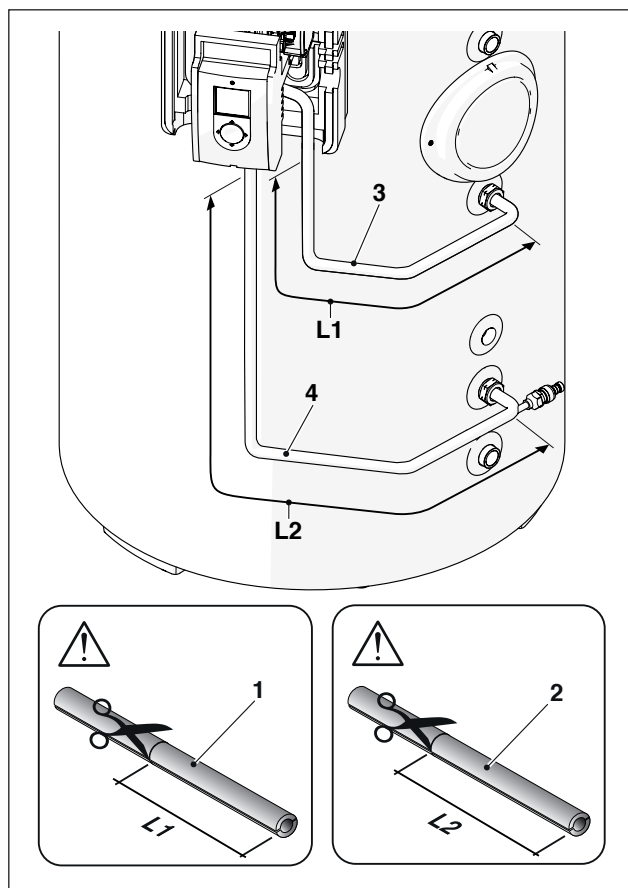
To access the solar station it is necessary to remove the solar regulator covering (1) and then the front insulation (2).



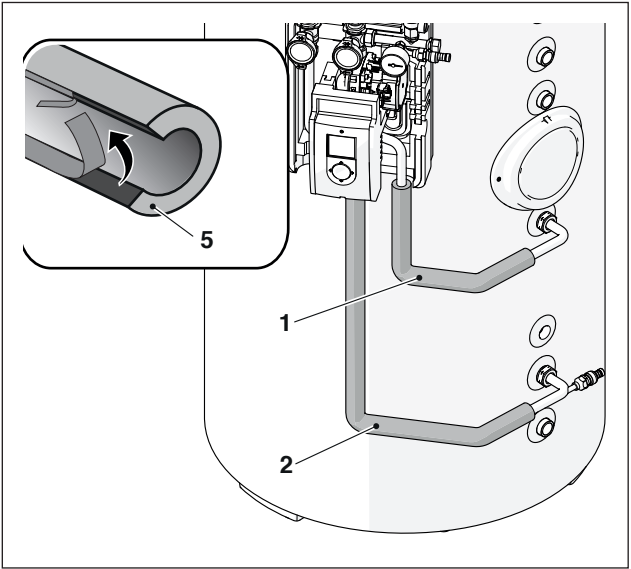
10 FITTING THE PIPE INSULATION

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

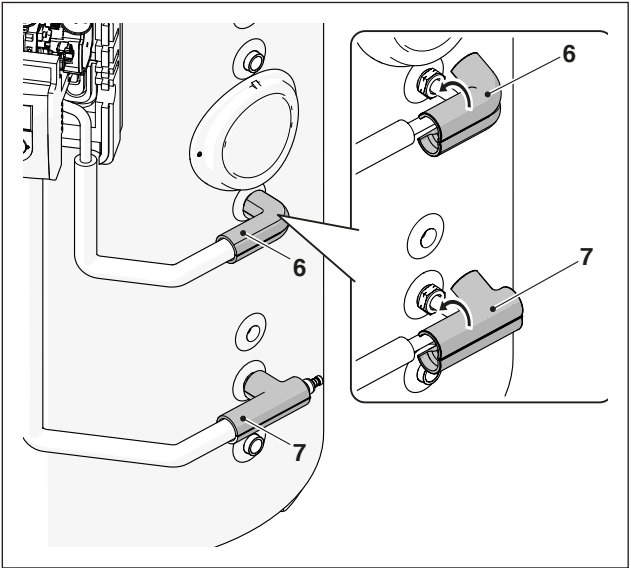
IDRA DS FI	L1	L2
200	340	785
300	545	1075
430	485	930
550	650	1350



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

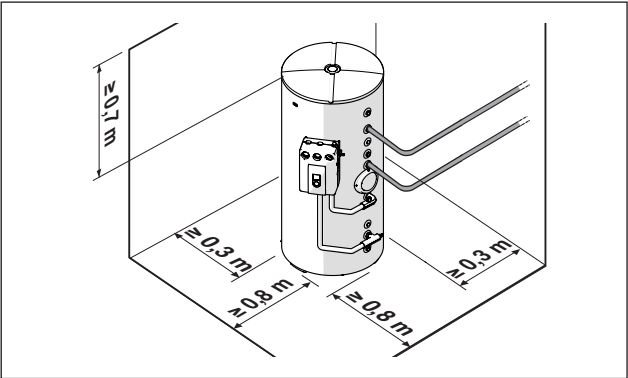


Fit the two rigid insulation pieces (6-7) to the unions.



11 PLACE OF INSTALLATION

Beretta IDRA DS FI 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.

11.1 Installation in older systems and systems requiring modernisation

When installing Beretta IDRA DS FI storage cylinders in old systems or systems requiring modernisation, always perform the following checks.

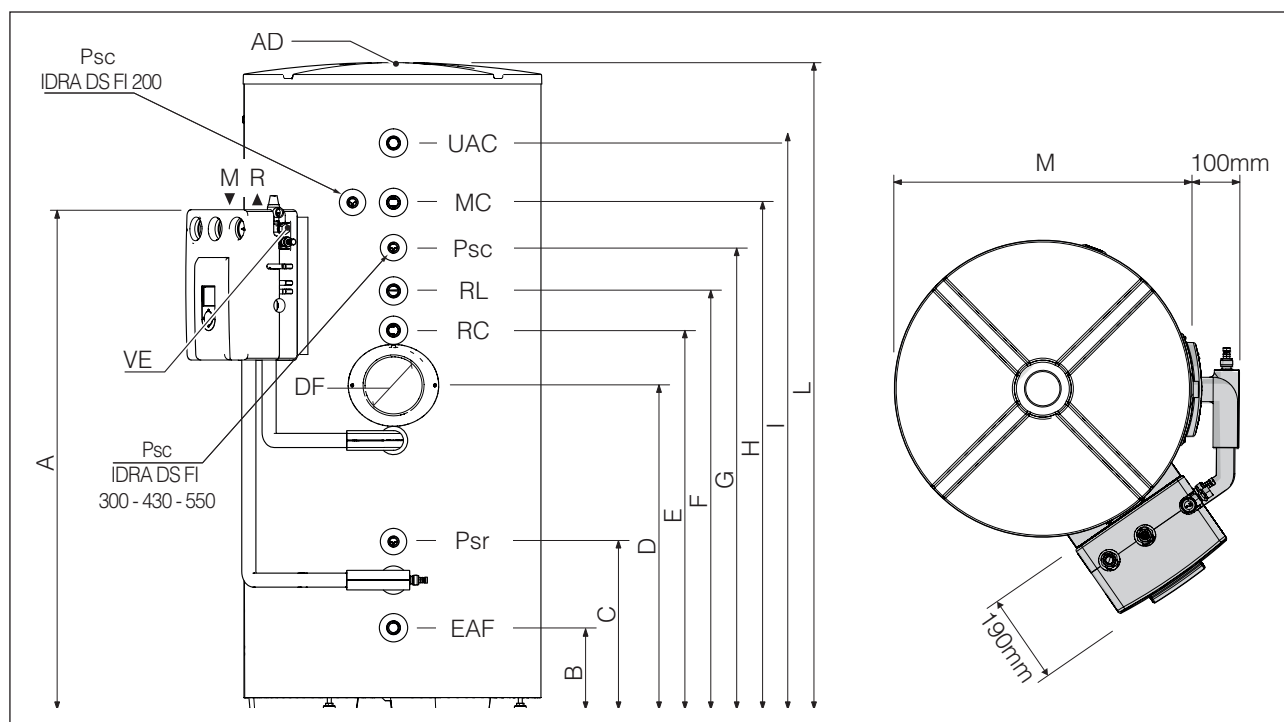
- Make sure that the system is fitted with safety and control devices in accordance with applicable legislation and standards
- Make sure that the central heating circuit has been flushed out to remove all sludge and lime scale, and has been vented and seal tested
- Make sure that a suitable water treatment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

12 WATER QUALITY REQUIREMENTS

REFERENCE VALUES	
pH	6-8
Electrical conductivity	less than 200 µS/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.

13 WATER CONNECTIONS

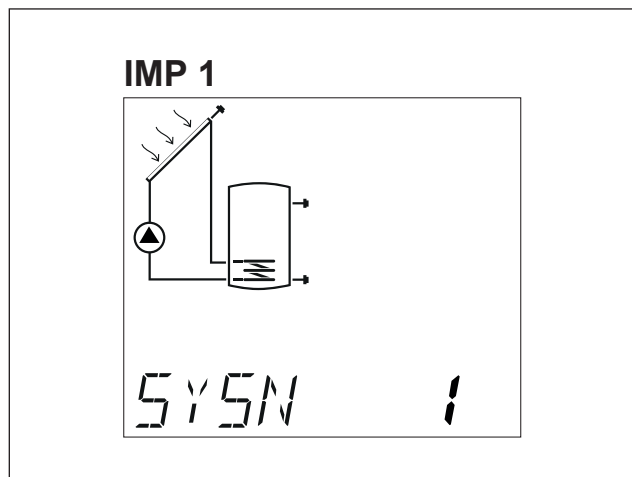


DESCRIPTION		IDRA DS FI				
		200	300	430	550	
VE	Expansion tank fitting	1/2" M				Ø
UAC	Domestic hot water outlet	1" M				Ø
MC	Outlet from boiler	1" M				Ø
RC	Return to boiler	1" M				Ø
M	Outlet from solar collector	1" M				Ø
R	Return to solar collector	1" M				Ø
RL	DHW recirculation	1" M				Ø
EAF (SB)	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	1/33/520	mm
DF	Flange internal diameter	130	130	130	130	mm
A		1120	1420	1270	1570	mm
B		171	171	208	207	mm
C		403	393	427	443	mm
D		738	903	824	1088	mm
E		878	1113	964	1328	mm
F		953	1233	1064	1428	mm
G		-	1323	1174	1538	mm
H		1098	1438	1289	1653	mm
I		1170	1670	1440	1784	mm
L		1338	1838	1644	1988	mm
M		Ø 604	Ø 604	Ø 755	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.

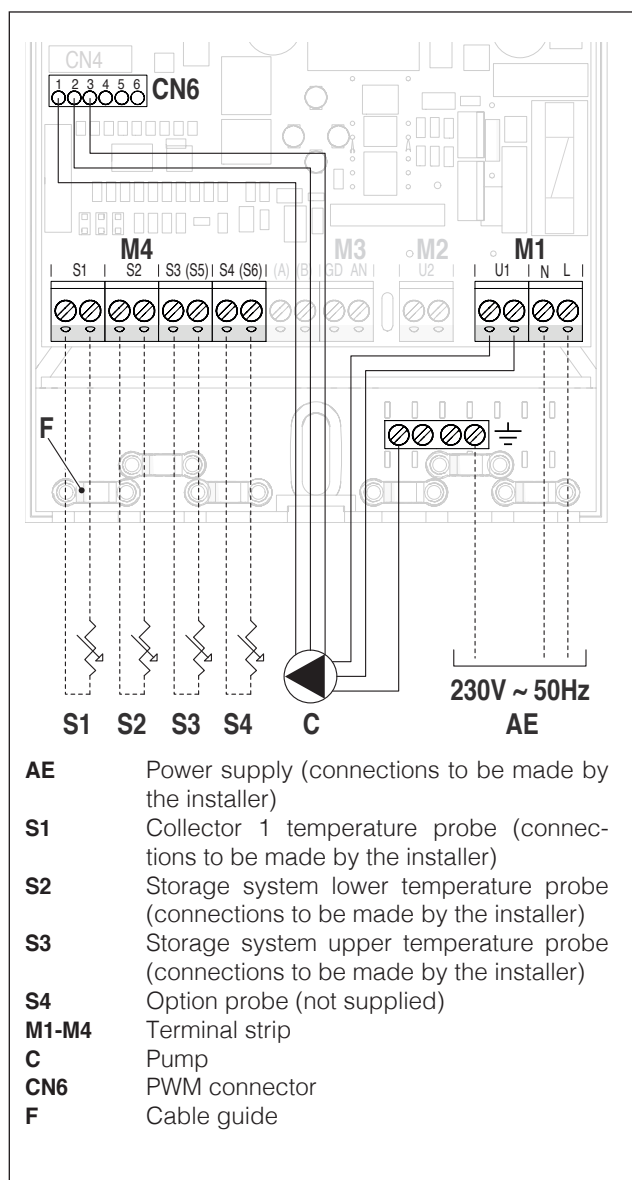
14 TYPICAL WATER SYSTEM SCHEMATICS

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.

15 WIRING DIAGRAMS



16 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).

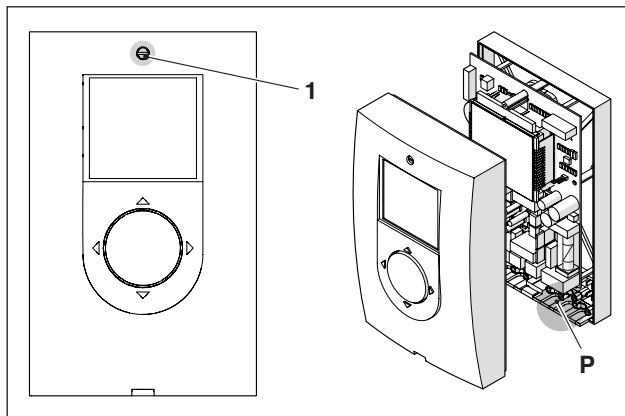


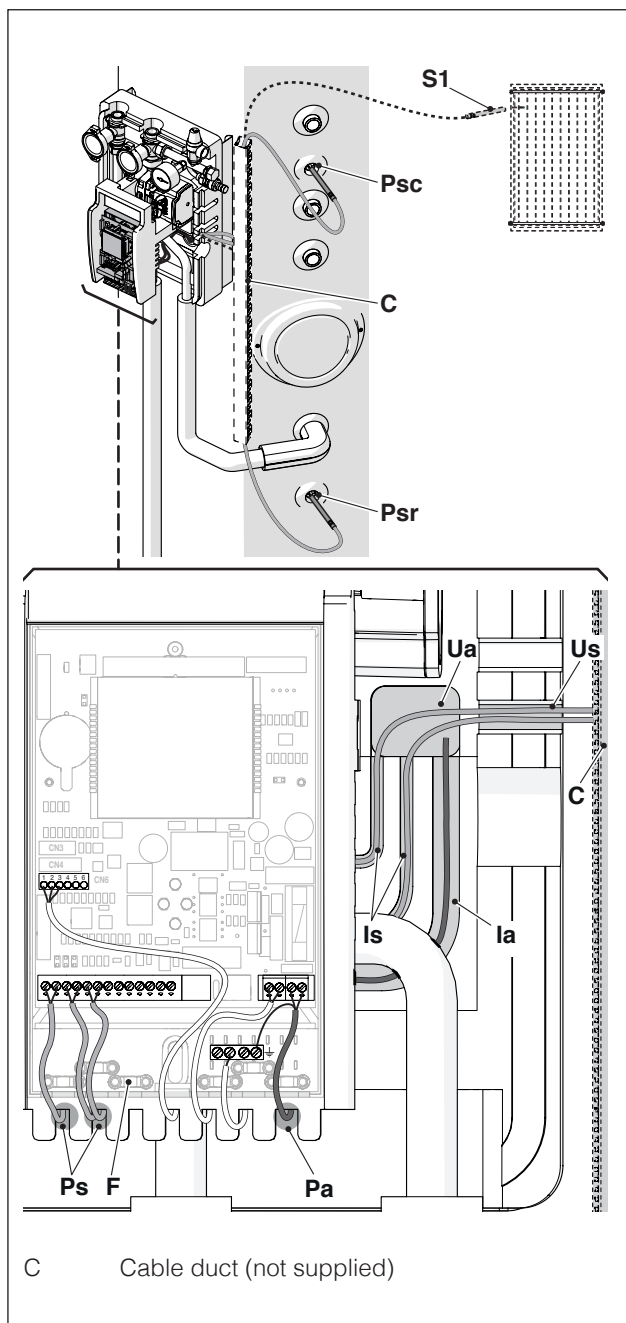
It is strictly forbidden to use pipes of any kind to ground the appliance.

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.

17 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).



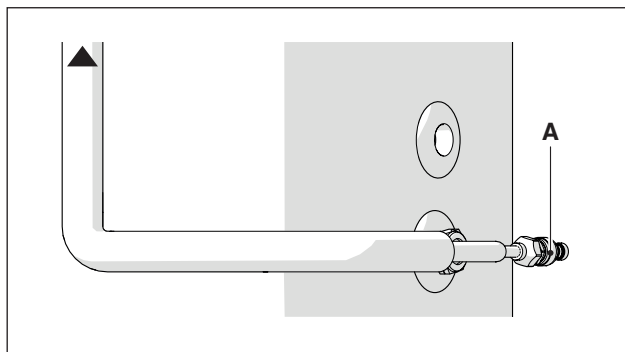
During system flushing, pay attention to water coming out of the taps as vapour could be released with risk of burns or scalds. Use suitable personal protective equipment.



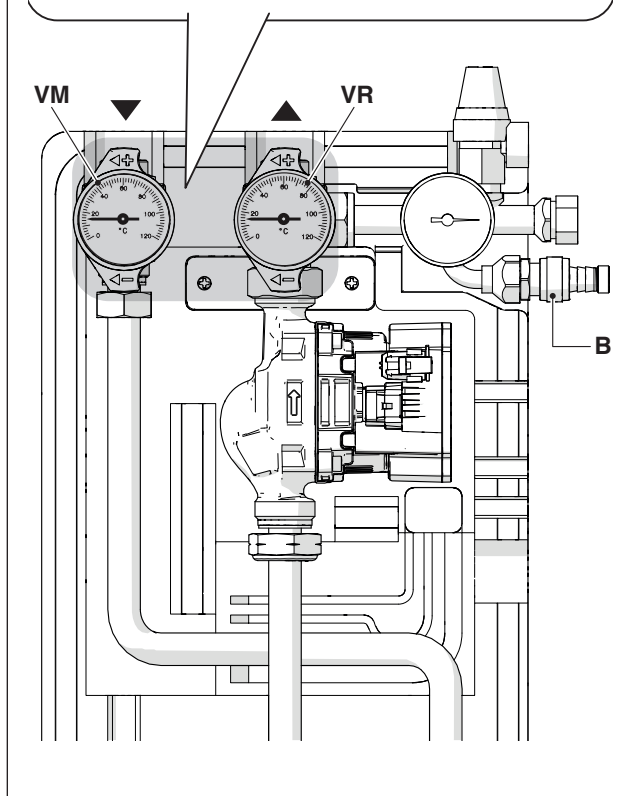
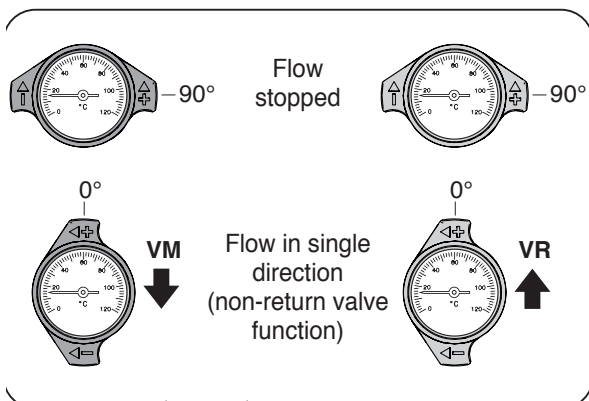
If copper piping has been used and joints have been hot brazed, flush out the system to remove any brazing residues. Seal test the system after you have flushed it out.



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



18 SYSTEM FILLING COCK

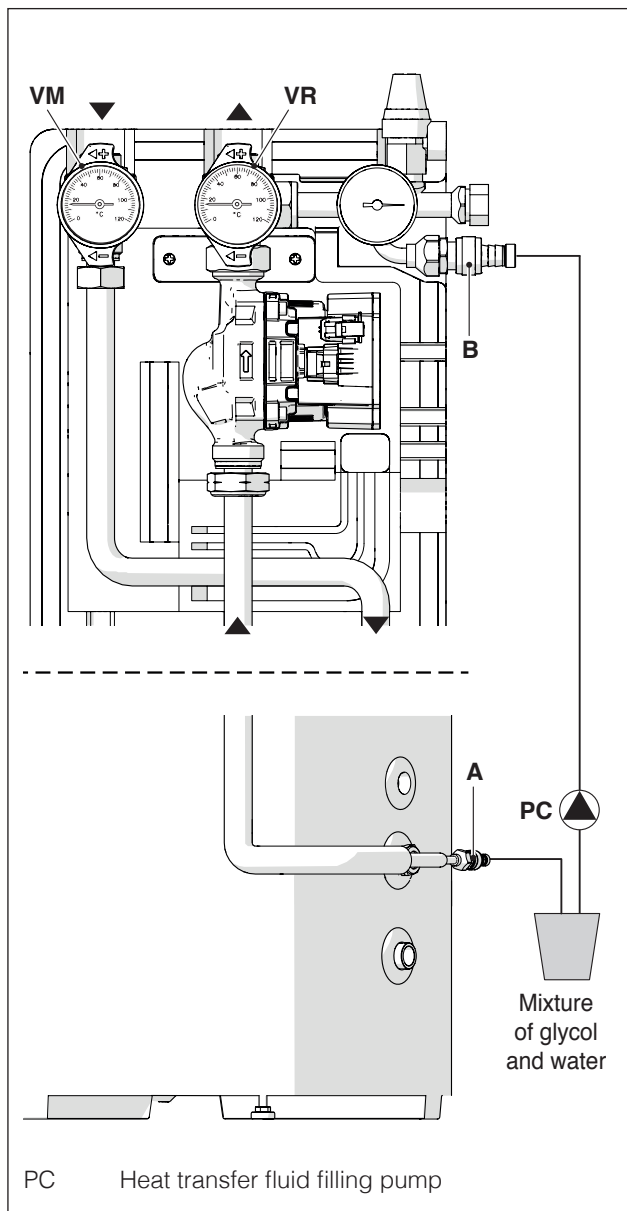
Before filling the system:

- 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.

19 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.

19.1 Checking the seals

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

19.2 External cleaning

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

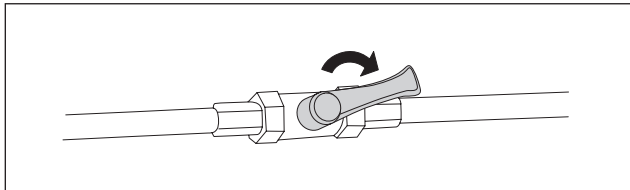
Use a dry cloth to clean the insulation and the solar regulator display to remove any dust.

⊘ Do not use abrasive products, petrol or triethylene.

20 PUTTING INTO SERVICE

It is essential to perform the following checks before starting up or testing the functioning of the storage cylinder. In particular, check that:

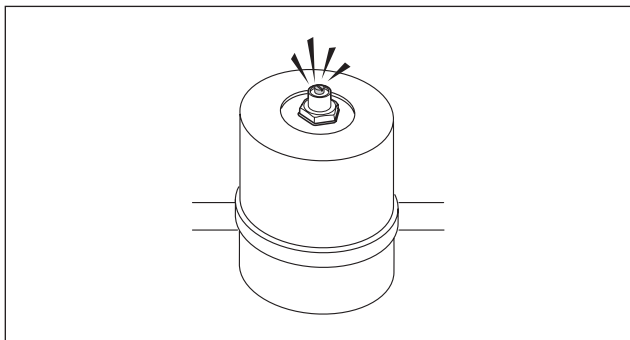
- The supply cocks in the domestic water circuit are all open



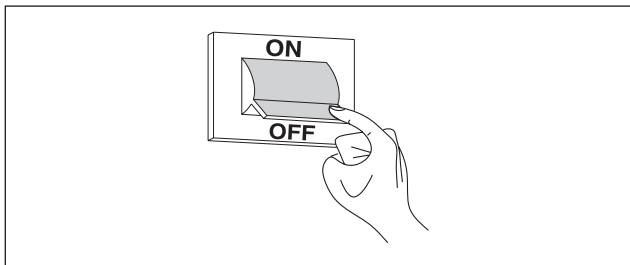
- The water connections to the boiler and solar collectors have been made correctly
- All the pipes in the water circuit have been insulated in conformity to relevant standards
- The solar collector circuit has been correctly flushed out and filled with water-glycol mix, and all air has been bled out of the circuit (see the manual for the solar collectors)
- Start up the boiler (if installed) as instructed in its own manual.
- Put the solar collectors into service. See the manuals for the solar collectors and associated accessories.

Once the system has been started up, perform the following checks:

- Make sure that all pumps are free and rotate in the right direction
- Make sure that all circuits have been bled.



- Make sure that the boiler and solar collectors connected to the system shut down correctly when their mains power switches are turned OFF.



Provided the above checks have been completed satisfactorily, restart the system and verify its performance.

21 TEMPORARY SHUTDOWN

If you are going away for a short period of time like a week-end or a short holiday, etc., and outdoor temperatures are going to remain above ZERO, proceed as follows:

- Adjust the storage cylinder thermostat to its minimum setting.

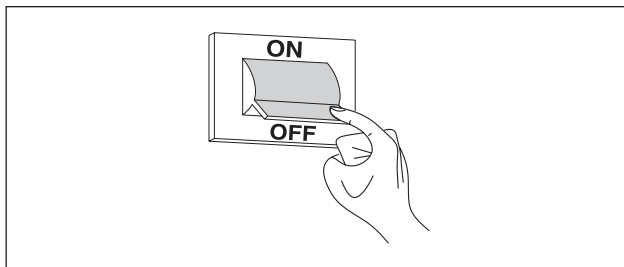


If the temperature to which the heater is exposed can fall below 0°C (frost hazard), perform the operations described in paragraph "Preparing for extended periods of disuse".

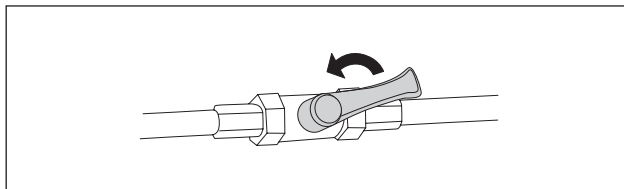
22 PREPARING FOR EXTENDED PERIODS OF DISUSE

If the storage cylinder is not going to be used for an extended period of time, perform the following operations:

- Switch the electricity supply to the storage cylinder's valve group and to any associated boiler OFF at the main switch and at the control panel



- Close the shut-off cocks for the domestic hot water circuit.




Drain the central heating circuit and domestic hot water circuit if there is any risk of freezing.

23 INTERVENTIONS ON THE HYDRAULIC SYSTEM

23.1 Draining the system

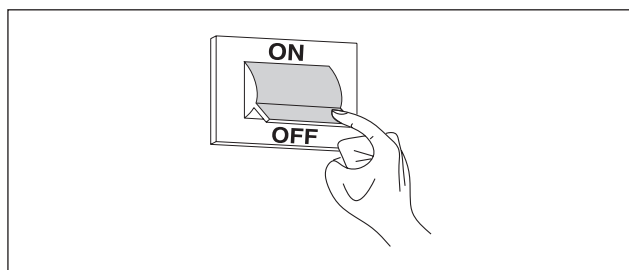
- Connect a rubber hose to taps (A) and (B)
- Connect the opposite end to a vessel
- Open system drain taps and allow full drainage
- Close system drain taps and remove the rubber hose
- The exhausted heat transfer fluid must be disposed of according to the prevailing regulations, pursuant to the instructions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

23.2 Disassembling the circulator

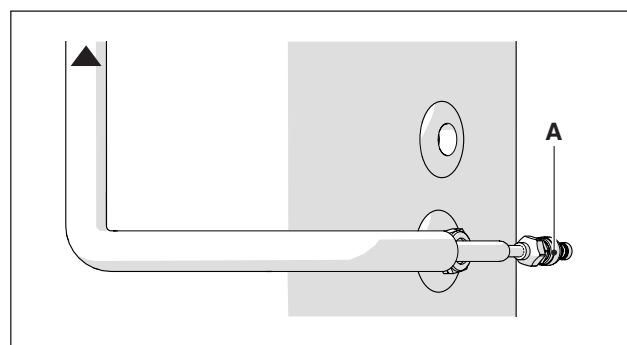
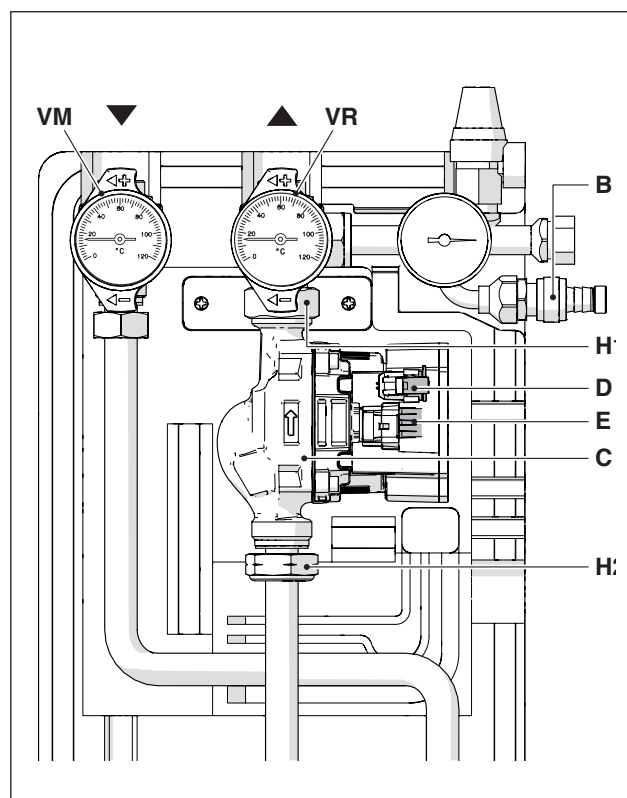
 Remove the circulator when system has cooled down.

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 clockwise by 90°
- Open taps (A) and (B) and drain the solar circuit
- Loosen ring nuts (H1) and (H2) and remove circulator (C).



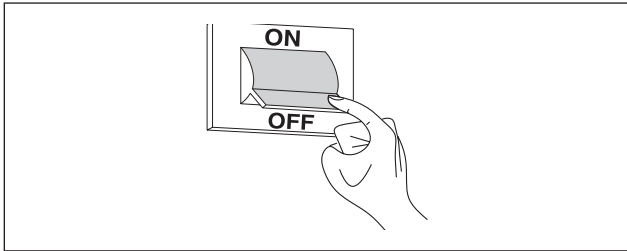
Reverse the above steps to fit the new pump.
Fill the solar circuit as described in paragraph "System filling cock".

24 MAINTENANCE

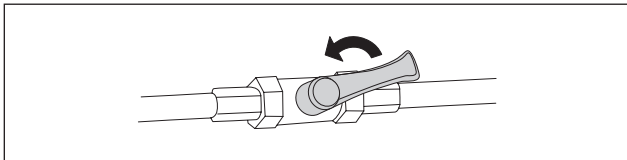
Scheduled maintenance is essential for the safety, efficiency and long working life of your storage cylinder. Proper maintenance also reduces energy consumption and ensures reliability over time. Have your storage cylinder serviced either by the manufacturer's Technical Assistance Centre or by a qualified heating engineer at least once a year.

Perform the following operations before beginning any maintenance:

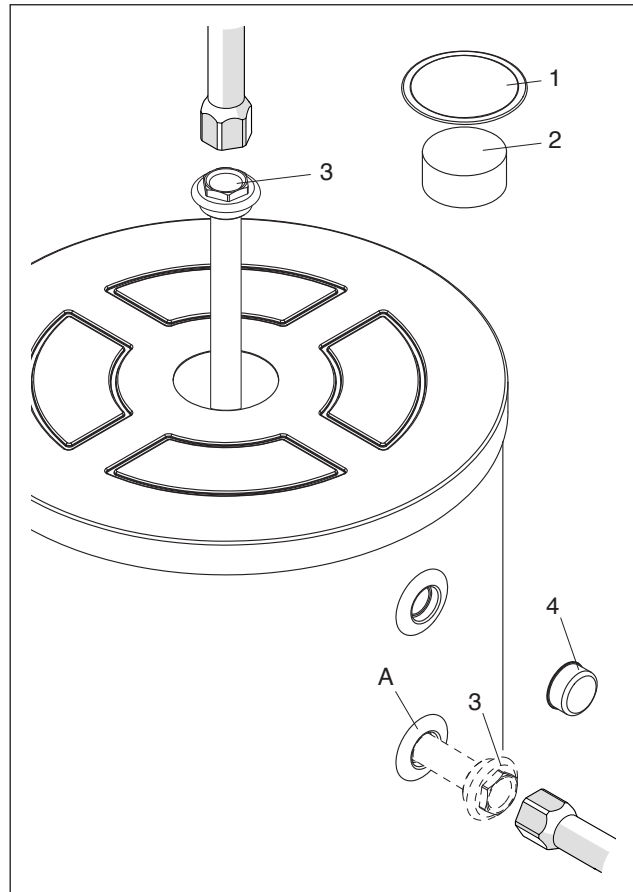
- Switch the electricity supply to the storage cylinder's valve group and to any associated boiler OFF at the main switch and at the control panel



- Close the shut-off cocks for the domestic hot water circuit



- Drain the storage cylinder's DHW (secondary) water circuit.



Cleaning inside the storage cylinder

- Remove the screws (4)
- Remove the flange cover (5)
- Remove the insulation (6)
- Unscrew the bolts (7) and remove the cover (8)
- Remove the seal (9)
- Clean inside the storage cylinder and remove any residues through the access hole.

25 CLEANING AND REMOVING INTERNAL COMPONENTS

EXTERNAL CLEANING

Clean the outside of the storage cylinder with a soft cloth dampened in soapy water. To remove stubborn marks, use a cloth dampened in a 50% mix of water and denatured alcohol or a suitable cleaning product. Dry the storage cylinder after cleaning it.



Do not use abrasive products, petrol or triethylene.

INTERNAL CLEANING

Removing and checking the first magnesium anode

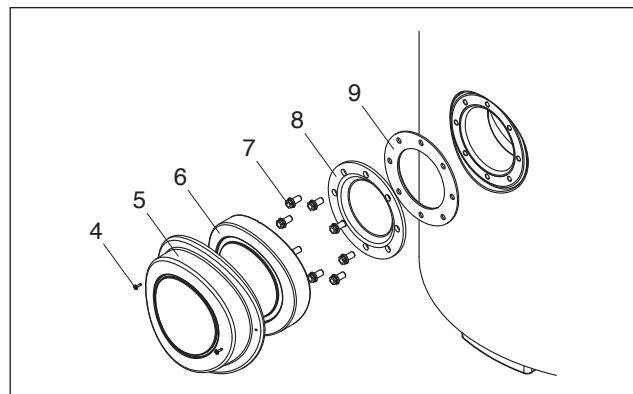
If the magnesium anode is fitted in the top of the storage cylinder, remove the cover (1) and insulation (2), and use a suitable wrench to unscrew the anode holder (3).

If the magnesium anode is fitted in position (A), remove the cover (4) and use a suitable wrench to unscrew the anode holder (3).

Check the magnesium anode for wear and replace it if necessary.

On completion of cleaning, follow the above steps in the reverse order to refit all removed parts.

NOTE: Tighten the anode plug to a torque of 25-30 Nm.



Check the seal for wear and replace it if necessary. On completion of cleaning, follow the above steps in the reverse order to refit all removed parts.



Tighten the bolts (7), proceeding diagonally around the flange to apply pressure uniformly around the seal.

- Fill the storage cylinder's DHW (secondary circuit) and check that there are no leaks from any of the seals
- Check the performance of the storage cylinder.

25.1 Troubleshooting

SUPPLEMENTARY HEATING CIRCUIT

FAULT	CAUSE	SOLUTION
The storage cylinder functions incorrectly or irregularly	Flow rate too high	- Fit a pressure limiter - Fit a flow reducer
	There are blockages or deposits in the domestic hot water circuit	- Check and clean as necessary
	Filling pump	- Check the pump
	The water temperature from the boiler is too low	- Check the setting
	There is air in the primary circuit	- Bleed the circuit

SOLAR COLLECTOR CIRCUIT

FAULT	CAUSE	SOLUTION
The storage cylinder functions incorrectly or irregularly	There is air in the circuit	- Bleed the circuit
	The flow rate is too low or too high	- Check the flow rate of the collector circuit
	Pressure is too low	- Check that circuit pressure is approximately 3 bar when cold
	There is lime scale or sludge in the cylinder	- Check and clean as necessary
The storage cylinder loses a lot of heat overnight	There is natural circulation to the collectors	- Make sure that the non-return valve is efficient and closes properly. Replace if necessary

26 RECYCLING AND DISPOSAL

The device is primarily composed of:

Materiale	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

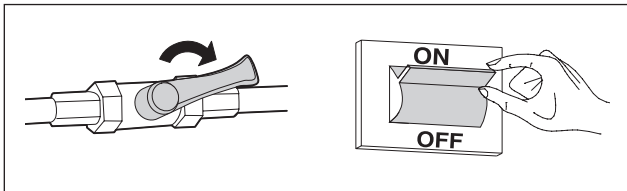
Refer to the **GENERAL SAFETY INFORMATION** and **PRECAUTIONS** section for safety-related information.

27 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
- Switch the electricity supply ON at the mains power switch and at control panel switch (if fitted).



28 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".

29 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.

30 EXTERNAL MAINTENANCE

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



Do not use abrasive products, petrol or triethylene.

**Via Risorgimento, 23 A
23900 - Lecco (LC)**

www.berettaboilers.com

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

