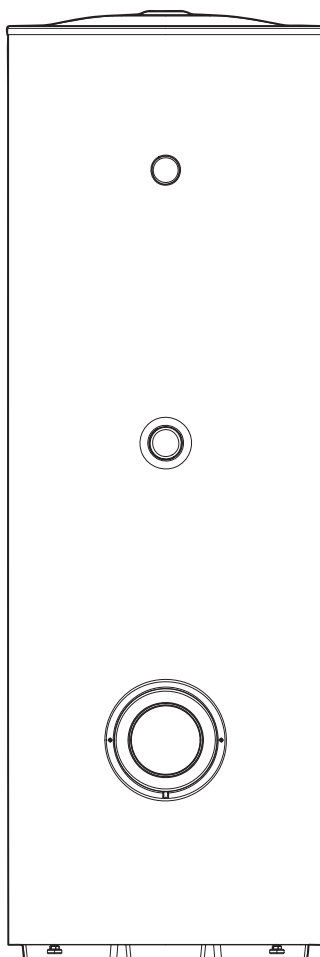


INSTRUCTIONS FOR THE INSTALLER AND
FOR THE TECHNICAL ASSISTANCE CENTRE

BPS

SOLAR STORAGE CYLINDER



Dear Installer,

Thank you for having chosen a **BPS** solar storage cylinder, a modern high quality product, providing you with the utmost wellbeing and with a high level of reliability and safety. And this is particularly the case if the storage cylinder is entrusted to a **THERMITAL** Technical Assistance Centre which is specifically capable of carrying out routine maintenance, to keep it running at maximum efficiency, with low running costs and which has original spare parts if required.

This instruction booklet contains important information and suggestions that should be observed for easy installation and better use of the solar storage cylinder **BPS**.

Thank you once again.

THERMITAL

RANGE

MODEL	CODE
BPS SOL 1500 HT	20136245
BPS SOL 2000 HT	20136246

GENERAL WARNINGS

GENERAL

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INSTALLER

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TECHNICAL ASSISTANCE CENTRE

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In some parts of the booklet, some symbols are used:












WARNING = for actions that require particular caution and adequate preparation












FORBIDDEN = for actions that absolutely **SHOULD NOT** be carried out

GENERAL WARNINGS

-  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.

BASIC SAFETY RULES

Please remember that the use of products using electric power and water involves respect for a few basic safety rules such as:

-  Never attempt to install the system without using suitable personal protection equipment and without following all applicable occupational safety standards.
-  Do not touch the product when barefoot or wet if it has any electrical accessories installed in it.
-  Never clean or service the storage cylinder without first turning the mains power switch OFF to disconnect all electrical accessories (if fitted) from the mains electricity supply.
-  Never pull, disconnect, or twist any electrical cables coming from the appliance even if it is disconnected from the mains electricity 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.

DESCRIPTION OF THE APPLIANCE

The solar storage cylinders with a double coil and a capacity of 1500 and 2000 litres, can be integrated into solar systems for producing domestic hot water.

The main technical elements of the design of the solar storage cylinder are:

- the careful study of the geometries of the tank and the coils that allow you to obtain the best performance in terms of stratification, heat exchange and reactivation times
- the inner covering, bacteriologically inert, to ensure maximum hygiene of the water processed, to reduce the possibility of limestone deposit and make cleaning easier

- the regulation of the connections to various heights for employing various types of heat generators, without influencing the stratification
- the polyurethane insulation without any CFC and the elegant outer covering to limit dispersion and to improve efficiency
- the use of the flange to facilitate cleaning and maintenance
- the use of the magnesium anode with an "anti-corrosion" function

The boilers can be equipped with a specific solar regulator and they can easily be inserted into solar equipment where the boilers or thermal systems act as auxiliary producers of heat.

IDENTIFICATION

The **BPS** solar storage cylinders can be identified by:

– Technical Label

Lists the technical and performance data of the storage cylinder.

THERMITAL		CE
RIELLO S.p.A. Via Ing. Pilade Riello, 7 - 37045 Legnago (VR)		
BOLLITORE SOLARE		
Modello	<input type="text"/>	Matricola
Codice	<input type="text"/>	Anno fabbricazione
Massima potenza assorbita s.p. (T° Primario 60°C)	<input type="text"/>	kW
Portata specifica s.p. (T° 35°C)	<input type="text"/>	l/h
Massima potenza assorbita inf. (T° Primario 60°C)	<input type="text"/>	kW
Portata specifica inf. (T° 35°C)	<input type="text"/>	l/h
Press. esercizio max.	<input type="text"/>	bar
Capacità bollitore	<input type="text"/>	l
Pot. elettr. assorbita	<input type="text"/>	W
Aliment. elettrica	<input type="text"/>	V-Hz
Collegamento di terra obbligatorio		

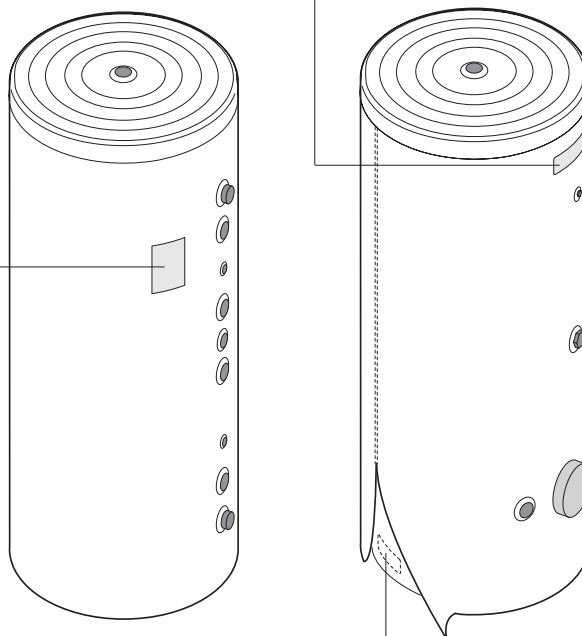
– Serial Number

Lists the serial number, the model, the power consumption and the capacity.

THERMITAL		CE
RIELLO S.p.A. Via Ing. Pilade Riello, 7 - 37045 Legnago (VR)		
Matricola	<input type="text"/>	Pot. ass. sup. max.
Modello	<input type="text"/>	Pot. ass. inf. max.
		kW

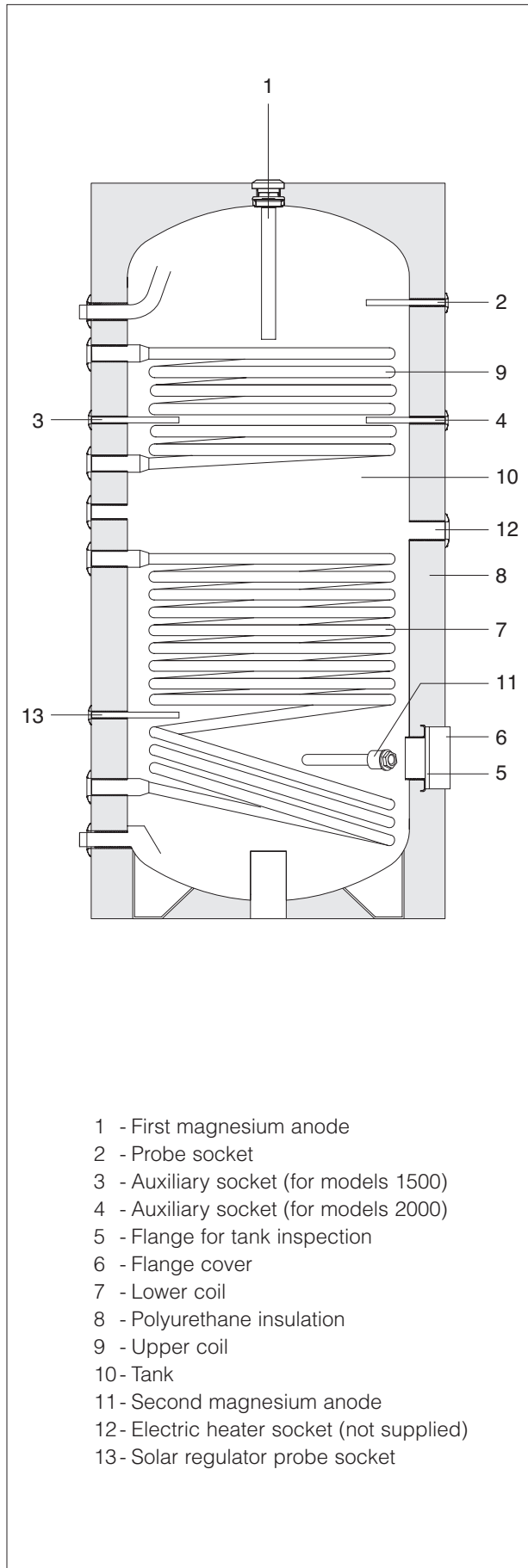
– Product Label

Lists the name of the product.

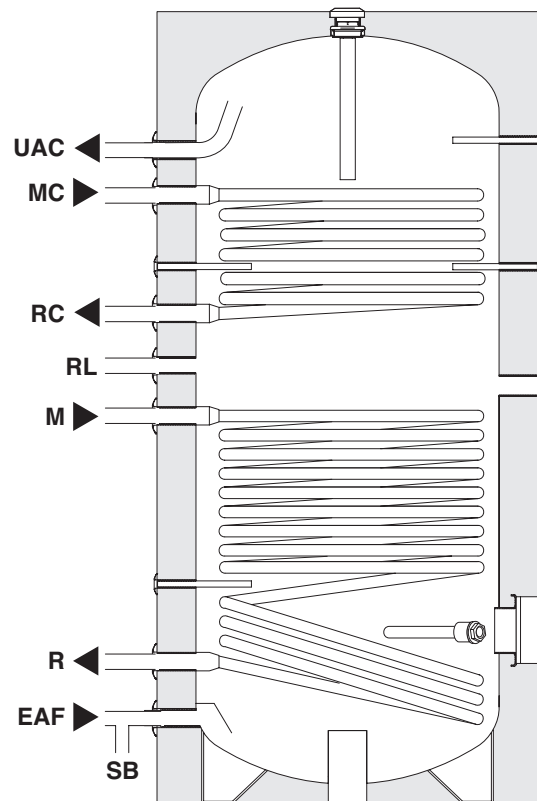


Tampering, removal, lack of identification labels or anything else which does not permit the safe identification of the product, makes any installation and maintenance operation difficult.

STRUCTURE



WATER CIRCUIT



UAC - DHW outlet
 MC - Flow
 RC - Return
 M - Flow
 R - Return
 RL - DHW recirculation
 EAF - Domestic cold water inlet
 SB - Cylinder drain

BOILER
 SOLAR

! The **BPS** solar storage cylinder is not equipped with load circulators which should be appropriately sized and installed on the system. For the recommended flow rate of the solar heating circuit, see the instructions for assembling the solar collector and the **THERMITAL** operation and maintenance manual of the storage system.

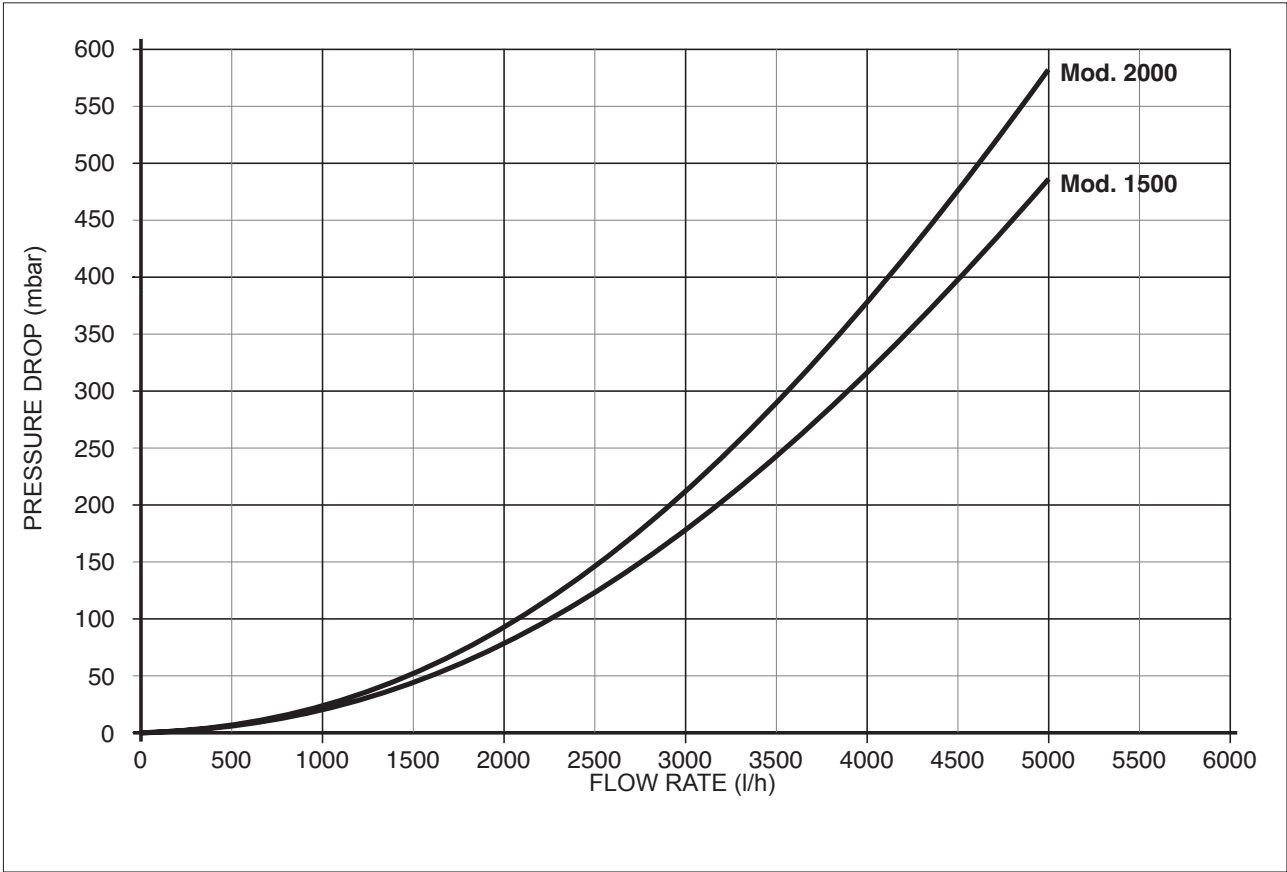
TECHNICAL DATA

DESCRIPTION	BPS SOL 1500 HT	BPS SOL 2000 HT	
Type of storage cylinder	Vitrified		
Storage cylinder layout	Vertical		
Heat exchanger layout	Vertical		
Storage cylinder capacity	1390	1950	l
Useful non-solar volume (Vbu)	525	800	l
Diameter with insulation	1200	1300	mm
Diameter of storage cylinder without insulation	1000	1100	mm
Height without insulation	2120	2370	mm
Height with insulation	2185	2470	mm
Insulation thickness	100	100	mm
Total net weight	325	540	kg
First magnesium anode (Ø x length)	32x700		mm
Second magnesium anode (Ø x length)	32x400		mm
Flange diameter (external/internal)	290/220		mm
Diameter/length of sensor socket	8/200		mm
Sleeve for electric heating element (**)	1" 1/2		
Coil water capacity	19,4	28,1	L
Coil heat exchange surface area	3,4	4,6	m ²
Power absorbed by coil (*)	88	120	kW
Domestic hot water production (*)	2200	2900	l/h
Flow required at coil (*)	3,8	5,2	m ³ /h
Top coil water capacity	10,4	16,9	l
Top coil heat exchange surface area	1,8	2,8	m ²
Power absorbed by top coil (*)	47	73	kW
Hot water production – top coil (*)	1200	1800	l/h
Flow required at top coil (*)	2	3,1	m ³ /h
Maximum operating pressure	8		bar
Maximum operating temperature	99		°C
Discharges according to EN 12897:2006 (ΔT=45 °C, ambient 20°C and storage at 65°C)	162	186	W
	3,89	4,46	kWh/24h
Insulation type	Soft PU		
Maximum operating pressure of coil	10		bar
Maximum working temperature of coil	110		°C
NL performance factor	55	84	

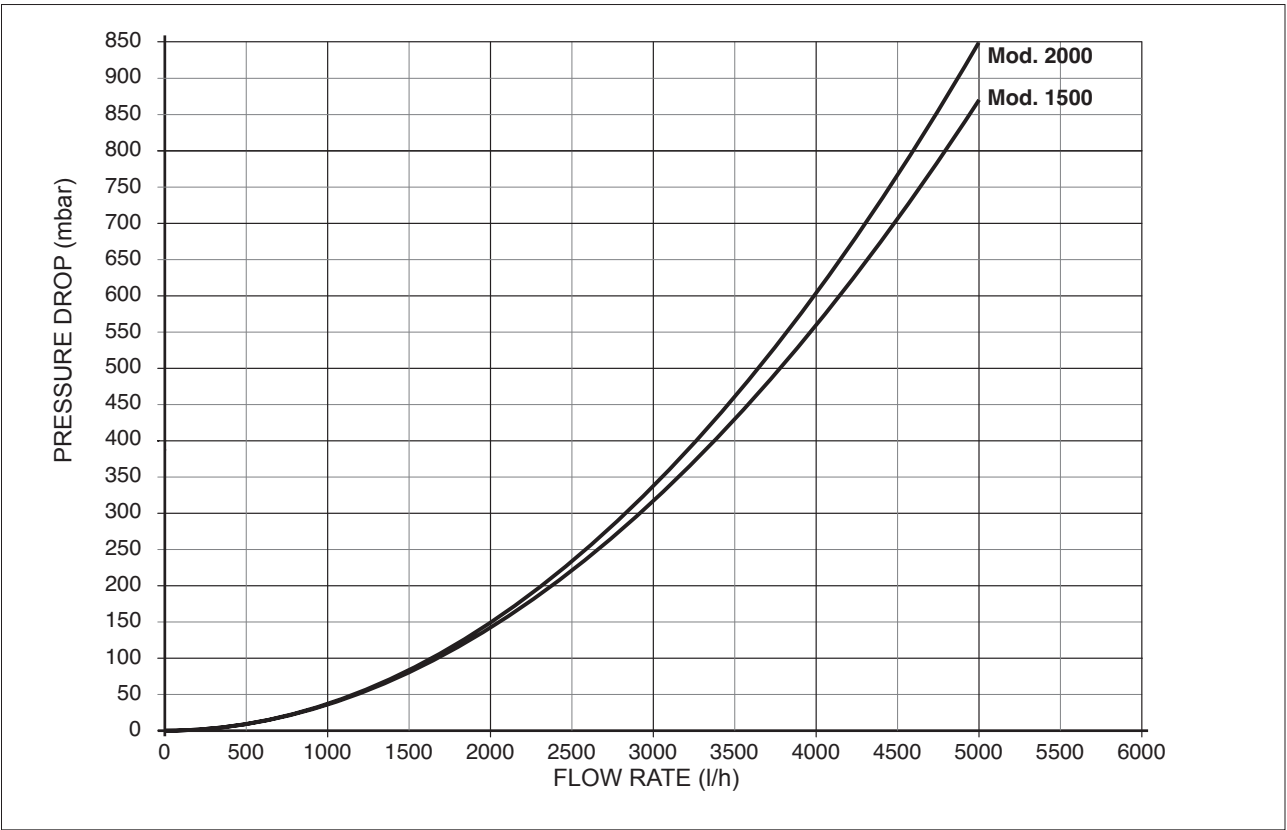
(*) In accordance with DIN 4708 with a ΔT of 20°C (80°/60°C) at the coil.

(**) Electrical heating element (not supplied)

Pressure drop TOP COIL



Pressure drops BOTTOM COIL

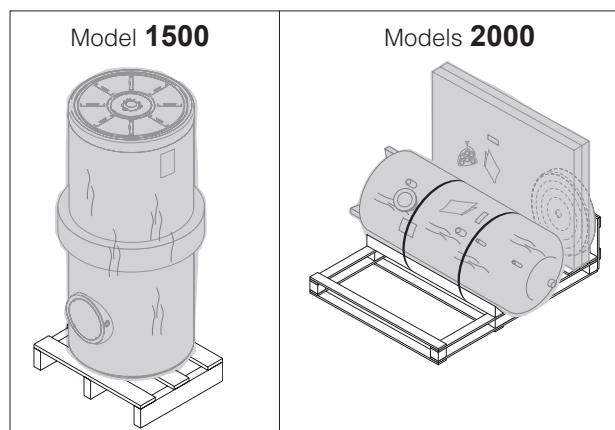


RECEIVING THE PRODUCT

The solar storage cylinders **BPS** are supplied in a single package, protected by a nylon bag and put on wood pallets.

The **BPS SOL 1500 HT** model is provided with a foam rubber shock absorbent protective band.

The two magnesium anodes are supplied in a cardboard box on the pallet.



The **BPS SOL 2000 HT** models are supplied in two separate packages:

- the first package is composed of the painted tank, protected by a nylon bag and put on wooden pallets.
- the second package, also protected by a nylon bag, is composed of the polyurethane insulation with an elegant outer covering, the outer trim rings of the pipe coupling, the top cover, the flange covers, the identification labels and the documentation.

The following material is supplied in a plastic envelope inside the package:

- Instruction booklet
- Label with bar code
- Hydraulic test certificate.

The two magnesium anodes are supplied in a cardboard box on the pallet.

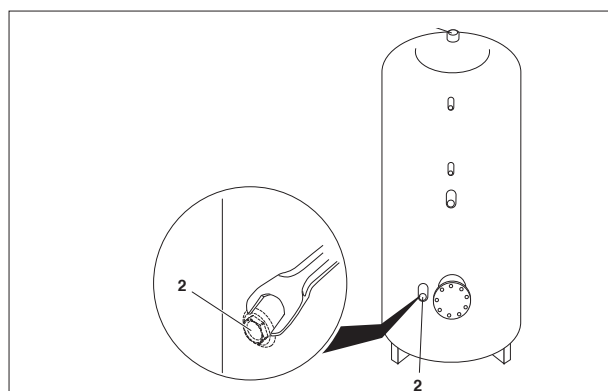
! The instruction booklet is an integral part of the storage cylinder and it is recommended that it be read and kept safe.

INSTALLING THE MAGNESIUM ANODES

Proceed as follows to install the magnesium anodes:

- Remove the protective plugs
- Fit the two magnesium anodes in the fittings (1) and (2)
- Screw in the magnesium anodes using a suitable spanner.

NOTE: Tighten to a torque of 25 Nm.



HANDLING

Once the packaging is removed, the handling of the storage cylinder is carried out manually with equipment that is suitable for the weight of the appliance.

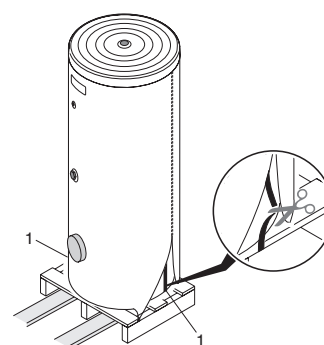
To separate the **BPS SOL 1500 HT** storage cylinder from the pallet cut the band (1) located under the insulation near the hinges.

To lift the **BPS SOL 2000 HT**, storage cylinders, after removing the insulation, bind the high part of the storage cylinder with a cord that can bear the weight and carefully lift it.

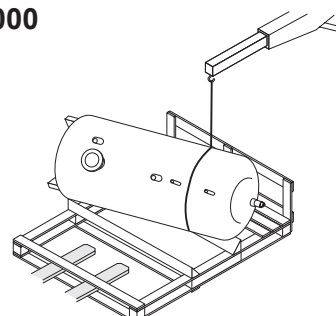
! Use suitable accident-prevention protections.

⊘ It is forbidden to dispose of the packaging material and keep it within children's reach, as it may be a potential source of danger.

Model **1500**



Models **2000**

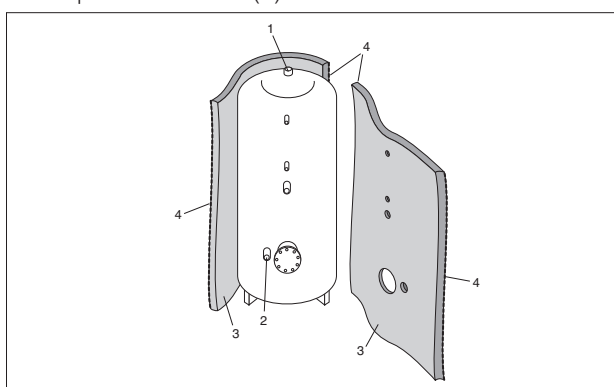


ASSEMBLY OF THE INSULATION (BPS SOL 2000 HT)

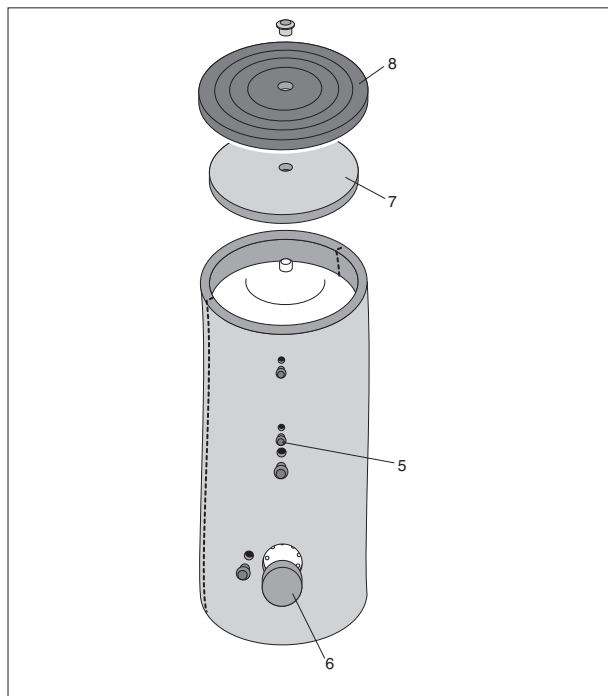
Once the tank is positioned in its place in the installation room, the insulation and the elements completing the solar storage cylinder can be assembled.

To do this:

- Remove all the material supplied in the second package.
- Assemble the two magnesium anodes on the connections (1) and (2)..
- Wind the insulation around the tank (3) following the direction of the holes already present on the inside of the insulation and secure it with the special zippers (4) located at the ends.
- Pierce the insulation near the holes for the attachments and attach the outer trim rings (5)
- Attach the flange cover (6).
- Lastly apply the upper part (7) of the insulation and in turn place the cover (8) on it



⚠ Having completed the assembly, attach the serial number, the technical data label and the product label which enable a secure identification of the storage unit (see positions on page 6).



PLACE OF INSTALLATION

The **BPS** solar storage cylinders can be installed in all rooms where a level of electrical protection of the appliance above IP X0D is not required.



The room where it is installed should be dry, to prevent rust forming.



In order to make the installation, assembly, inspection and ordinary and extraordinary maintenance operations easy, the minimum distances must be maintained and the installation room of the storage cylinder must be easily accessible. In particular, access to the room must allow, among other things, the possible total removal and re-installation at the end of the storage cylinder's useful life. The user is, therefore, responsible for any costs for removal of masonry work or anything else making it impossible or hard to access the installation room of the storage cylinder.

INSTALLATION ON OLD APPLIANCES OR APPLIANCES THAT NEED TO BE UPDATED

When the **BPS** solar storage cylinders are installed on appliances that are old or that need to be updated, make sure that:

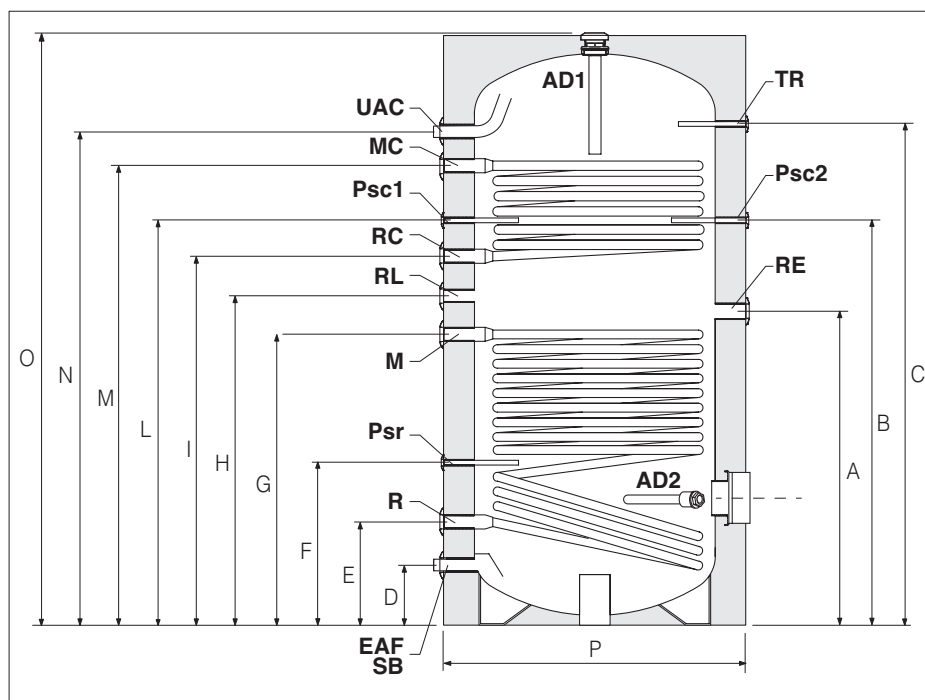
- The installation comes with the safety and control components in compliance with the specific regulations
- The appliance has been washed, cleaned of mud and grime, de-aerated and the water seals have been checked
- There is a treatment system for when the supply/make-up water is particular (the values in the table can be used as reference values).

REFERENCE VALUES	
pH	6-8
Electric 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
M alkalinity	less than 50 ppm
Total hardness	less than 35°F
Sulphur ions	none
Ammonia ions	none
Silicon ions	less than 30 ppm

HYDRAULIC CONNECTIONS

The **BPS** solar storage cylinders can be connected to heat generators, even those already installed, provided they have adequate heat output and comply with the direction of the water flow. Moreover, they can be easily integrated into **THERMITAL** solar equipment which include solar collectors, the fastening system, the hydraulic unit, the expansion tank and the thermostatic mixer valve.

Installation on appliances that are old or that need to be updated. The **BPS** storage cylinders include probe holder wells to insert possible probes.



The characteristics of the hydraulic connections are as follows:

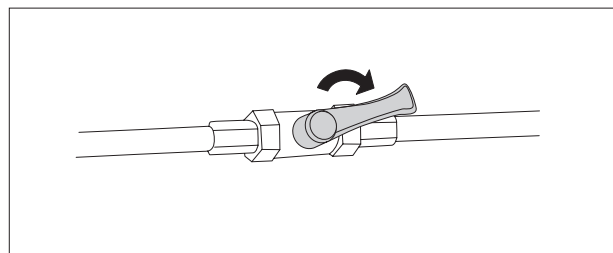
DESCRIPTION	BPS MODEL		
	1500 HT	2000 HT	
UAC Domestic hot water outlet	1"1/2 F		Ø
MC Outlet from boiler	1"1/4 F		Ø
RC Return to boiler	1"1/4 F		Ø
M Outlet from solar collector	1"1/4 F		Ø
R Return to solar collector	1"1/4 F		Ø
RL DHW recirculation	1" F		Ø
EAF (SB) Domestic cold water inlet (storage cylinder drain)	1"1/2 F		Ø
Psc1 Diameter/length of boiler sensor socket	8/200	-	mm
Psc2 Diameter/length of boiler sensor socket	-	8/200	mm
Psr Diameter/length of solar controller sensor socket	8/200		mm
RE Sleeve for electric heating element (not supplied)	1"1/2 F		Ø
AD1 Diameter/length of first magnesium anode	32/700		Ø/mm
AD2 Diameter/length of second magnesium anode	32/400		Ø/mm
TR Temperature gauge	1/2" F		Ø
A	1230	1340	mm
B	-	1487	mm
C	1775	2000	mm
D	280	250	mm
E	415	400	mm
F	525	662	mm
G	1125	1205	mm
H	1225	1315	mm
I	1325	1425	mm
L	1420	-	mm
M	1730	1870	mm
N	1890	1990	mm
O	2120	2045	mm
P	1200	1300	mm

We recommend isolating valves in the outlet and return lines.

FIRST COMMISSIONING PREPARATION

Before the start-up and before testing the boiler, it is absolutely necessary to check that:

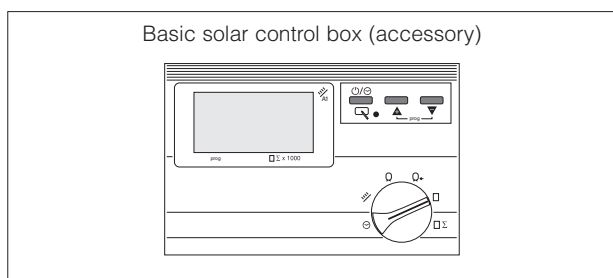
- The water supply taps of the domestic water circuit are open
- The water connections to the respective boiler and to the water unit of the solar equipment have been carried out correctly
- The procedure for washing and filling up of the solar heating circuit with the water-glycol has been carried out correctly, and the equipment has been de-aerated at the same time.



FIRST COMMISSIONING

The transfer of heat into the solar heating circuit takes place when the temperature of the solar collector is higher than that of the storage cylinder. Therefore in managing the solar equipment the exact temperature is not important, but rather the temperature difference.

- Set the temperature difference between the collector and the storage cylinder (see the instruction manual of the control box).
- Commission the boiler for the auxiliary heating of the storage cylinder.

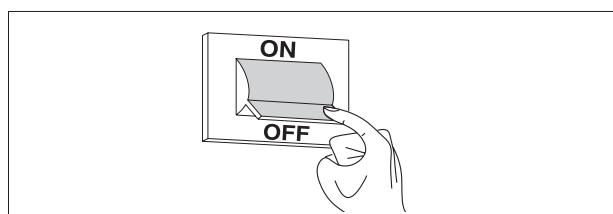
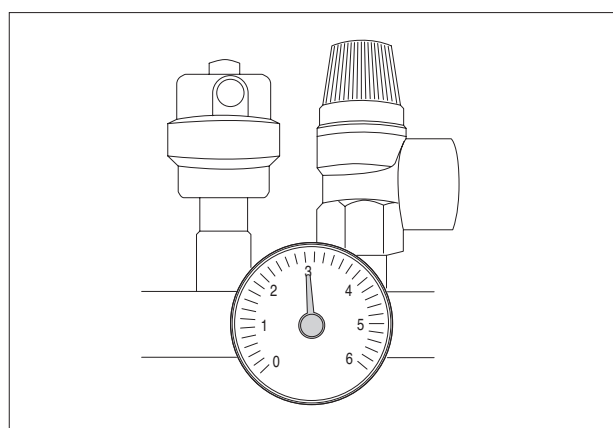
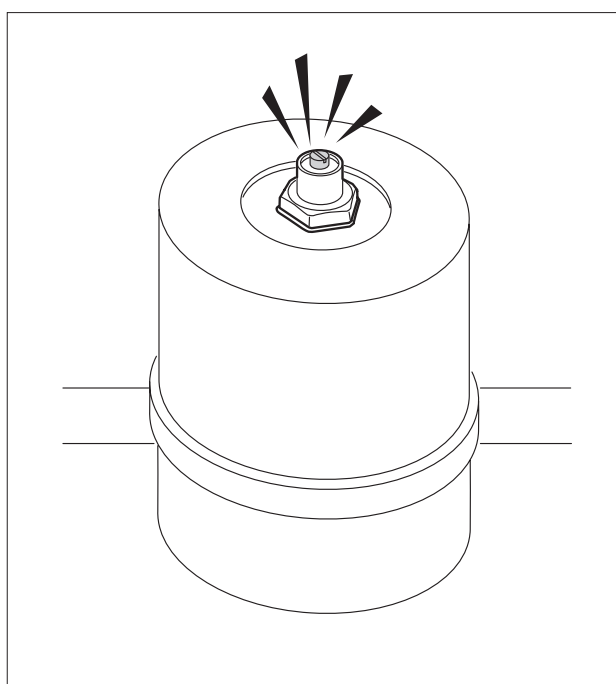
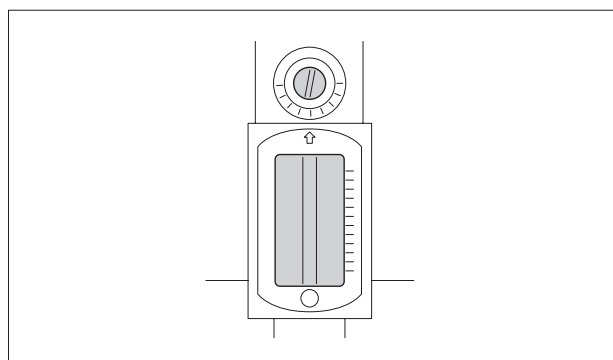


CHECKS DURING AND AFTER THE FIRST COMMISSIONING

At the start-up make sure that:

- The flow rate of the solar heating circuit is 30 l/h per m² of collector surface
- The solar heating circuit is completely vented
- The cold pressure of the equipment is about 3 bar
- The safety valves intervenes at 6 bar
- The piping of the hydraulic supply are insulated in full respect of current regulations.

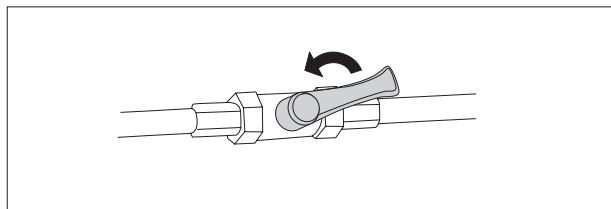
If all conditions have been met, restart the boiler and storage cylinder and check the regulated temperature and the amount of DHW that can be taken.



DEACTIVATION FOR LONG PERIODS

Not using the solar storage cylinder for a long period of time requires that the following operations be carried out:

- Empty the solar heating circuit
- Close the intercept devices of the sanitary system
- Switch off the boiler in the manner described in the appliance's instruction booklet
- Position the system's master switch to off.



⚠ Drain the heating and domestic hot water systems if there is any risk of freezing.

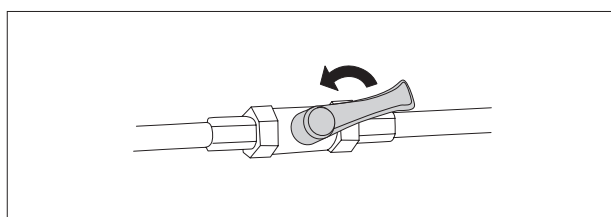
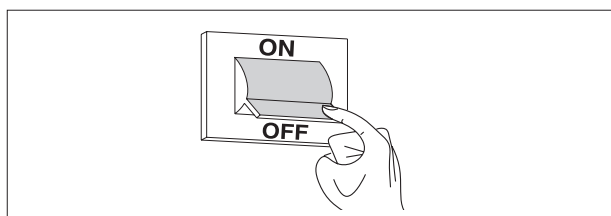
The **THERMITAL** Technical Assistance Centre is available if the procedure reported above is difficult to do.

MAINTENANCE

Periodic maintenance, which is essential for safety purposes, the efficiency and the life of the solar storage cylinder, provides reduced consumption and keeps the product reliable over time. Remember that the maintenance of the storage cylinder, can be carried out by the **THERMITAL** Technical Assistance Centre or else by qualified professional personnel and should take place at least once a year.

Before doing any maintenance work:

- Disconnect the storage cylinder's hydraulic unit and the respective generator from the electrical supply, positioning the main switch and that of the control panel to "off"
- Close the intercept devices of the sanitary system
- Empty the storage cylinder's secondary circuit.



CLEANING THE STORAGE CYLINDER AND DISMANTLING THE INTERNAL COMPONENTS

OUTSIDE

Cleaning the cover of the storage cylinder should be carried out with damp cloths and water and soap. In the case of stubborn stains dampen the cloth with a mixture of 50% water and methylated spirit or with specific products for the marks. Once the cleaning is finished, dry the storage cylinder.



Do not use abrasive products, gasoline or trichloroethylene.

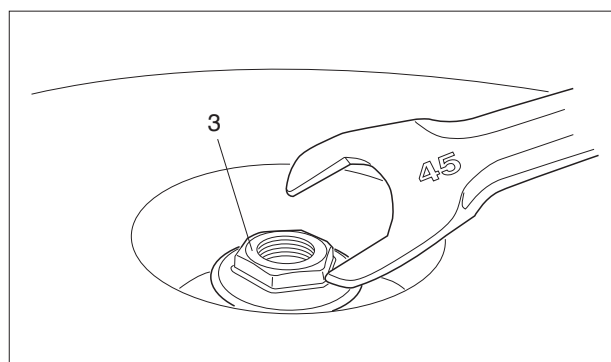
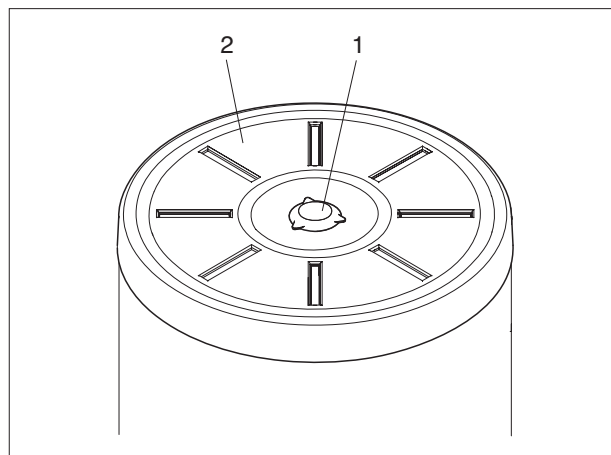
INSIDE

Removing and checking the magnesium anode

- Remove the plug (1), the cover (2) and the central insulating disc that covers the anode
- With a 45 mm spanner unscrew the anode holder plug (3).
- Check the state of wear of the magnesium anode and replace it if necessary.

Perform the same operation on the second magnesium anode, using a box wrench.

Once the cleaning operations are finished, reassemble all the components, following the above instructions in the reverse order.



Cleaning the parts inside the storage cylinder

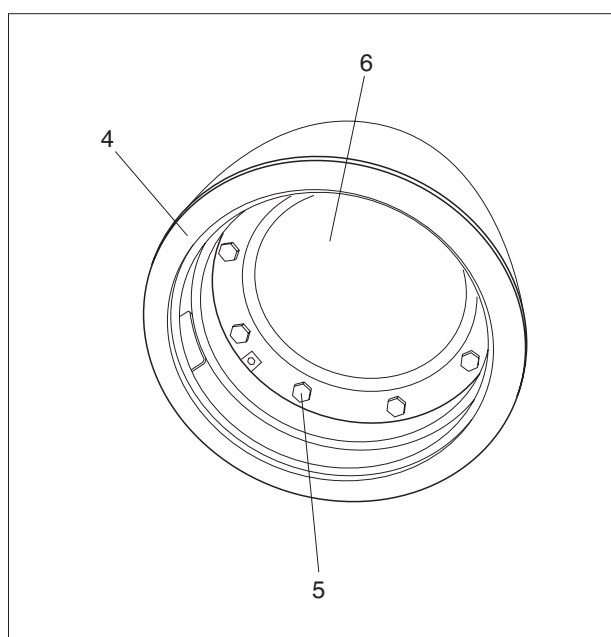
- Remove the flange cover (4).
- Unscrew the fastening nuts (5) of the flange (6) and remove it together with the gasket
- Clean the inside surfaces and remove the residues through the opening.

Once the cleaning operations are finished, reassemble all the components, following the above instructions in the reverse order.



Tighten the bolts (5) of the flange fastening (6) with a "cross-head" system to uniformly distribute pressure on the gasket.

- Load the storage cylinder's secondary circuit and check the seal of the gaskets.
- Carry out a performance test.



NOTE

THERMITAL

**RIELLO S.p.A.
Via Ing. Pilade Riello, 7
37045 - Legnago (VR)
www.thermital.it**

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