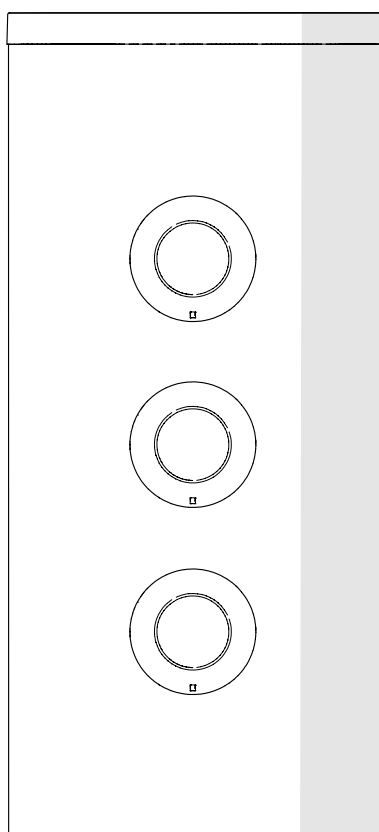


IDRA PLUS DS

Solar | Solar storage cylinder



EN Installation and Operation Manual

RANGE

MODEL	CODE
IDRA PLUS DS 1000	20136280
IDRA PLUS DS 1500	20136282
IDRA PLUS DS 2000	20136285
IDRA PLUS DS 3000	20052796

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.

CONTENTS

GENERAL INFORMATION 2

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

INSTALLATION 5

7	Unpacking the product	5
8	Installing the magnesium anodes	5
9	Fitting the insulation (models 2000 - 3000)	5
10	Place of installation	6
11	Installation in older systems and systems requiring modernisation	6
12	Water quality requirements	6
13	Water connections	7
14	Recycling and disposal	8

END USER 8

15	Start-up	8
16	Temporary shutdown	8
17	Preparing for extended periods of disuse	8
18	External maintenance	8

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.
- ⊖** 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.

3 DESCRIPTION OF THE APPLIANCE

Beretta IDRA PLUS DS solar tanks can be integrated into solar systems to produce domestic hot water. They can also be paired with heat pumps or boilers and heating units.

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

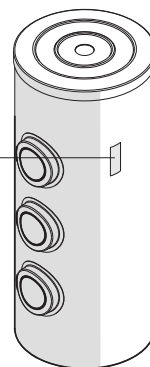
- special tank design and shape for optimum performance in terms of stratification, heat exchange and replenishment time
- Water fittings are available at different heights, permitting different hot water generators to be used without reducing the stratification effect
- insulation made of expanded polyurethane free from CFC (chlorofluorocarbons)
- the use of three flanges, which means additional exchangers can be added

4 IDENTIFICATION

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

Data plate

This lists the technical specifications and performance of the product.



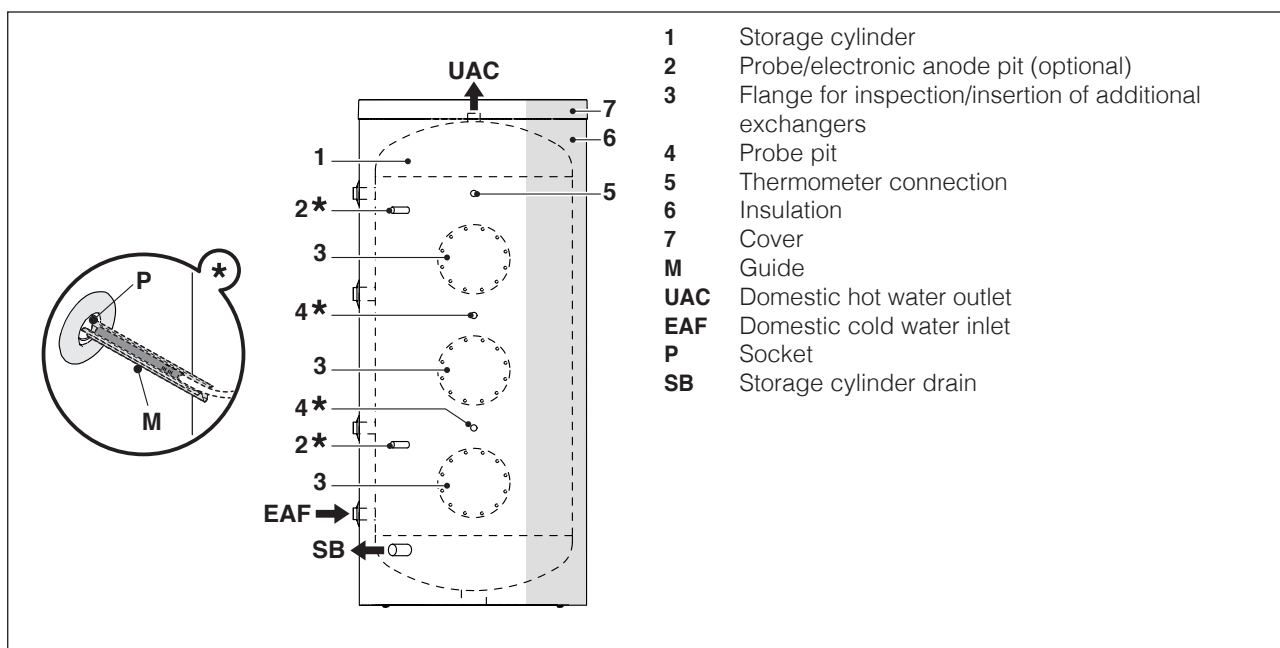
Serial number plate

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.

⚠ On models 2000 and 3000 the technical data plate and serial number plate must be applied (by the installer) after the insulation has been fitted.

5 SYSTEM LAYOUT



6 TECHNICAL SPECIFICATIONS

DESCRIPTION	IDRA PLUS DS				
	1000	1500	2000	3000	
Type of storage cylinder	Vertical, glazed				
Heat exchanger layout	Horizontal				
Storage cylinder capacity	955	1430	1990	2959	l
Useful non-solar volume (Vbu) (*)	490	790	1210	1745	l
Solar usable volume (Vsol) (**)	465	640	780	1214	l
Diameter of storage cylinder with insulation	990	1200	1300	1450	mm
Diameter of storage cylinder without insulation	790	1000	1100	1250	mm
Height with insulation	2205	2185	2470	2680	mm
Height without insulation	2140	2120	2425	2650	mm
Insulation thickness	100				mm
Total net weight	190	305	325	543	kg
First magnesium anode (Ø x length)	32x700				mm
Second magnesium anode (Ø x length)	-	32x400	32x700		mm
Flange diameter (external/internal)	290/220				mm
Diameter/length of sensor sockets	8/200				mm
Sleeve for electric heating element (***)	1" 1/2				Ø
Maximum operating pressure of storage cylinder	10	8			bar
Maximum operating temperature	99				°C
Discharges according to EN 12897:2006 ΔT=45 °C (ambient 20°C and storage at 65°C)	142	162	186	344	W
	3,408	3,888	4,464	8,26	kWh/24h
Energy class	C	C	C	-	
Insulation type	Soft PU shells				

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). The value shown in the table refers to the coil located in the central part of the puffer. The position of the coil can be changed and the volume changes as a result.

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).

(*)** Electrical heating element (not supplied).

7 UNPACKING THE PRODUCT

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

The insulation and cladding components on models 2000 and 3000 are supplied separately from the structural parts and should be assembled when you receive the product, as described in the section "Fitting the insulation (models 2000 - 3000)".

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

- Instruction manual
- Bar code labels
- Hydraulic test certificate



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.

8 INSTALLING THE MAGNESIUM ANODES

Use the anodes provided; when assembling, note the position and lengths provided in the technical data table.

IDRA PLUS DS 1000 ÷ 1500

- Partially remove the cladding, remove the washer and unscrew the anode-holder plug in the sleeve using a spanner
- Insert the anode provided, tighten the anode using a spanner and then put the washer back in position.

IDRA PLUS DS 2000 - 3000 models

- Before fitting the cladding, unscrew the anode-holder plug in the sleeve using a spanner
- Insert the anode provided and tighten the anode using a spanner.

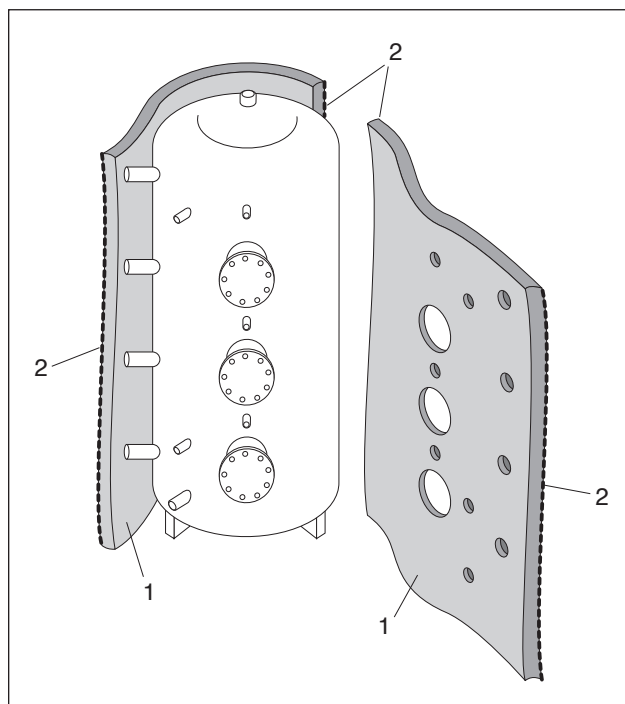
NOTE: Tighten the anode plug to a torque of 25-30 Nm.

9 FITTING THE INSULATION (MODELS 2000 - 3000)

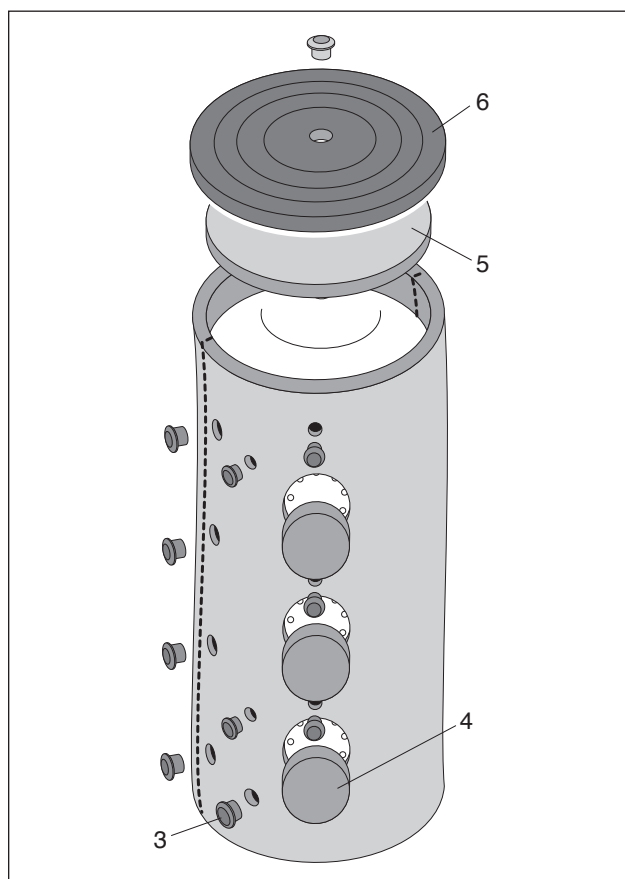
Once the tank is in the right position in the installation room, the insulation and finishing parts for the tank can be installed.

Proceed as follows:

- Wrap the insulation (1) around the storage cylinder, carefully lining up the fittings with the holes on the inside of the insulation. Secure the insulation in place with the zips (2) at the edges of the two sections



- Drill the holes in the insulation for the connectors and insert the washers (3)
- Fit the flange cover (4)
- Finally, fit the insulation top panel (5) and cover it with the thermoformed cover (6).



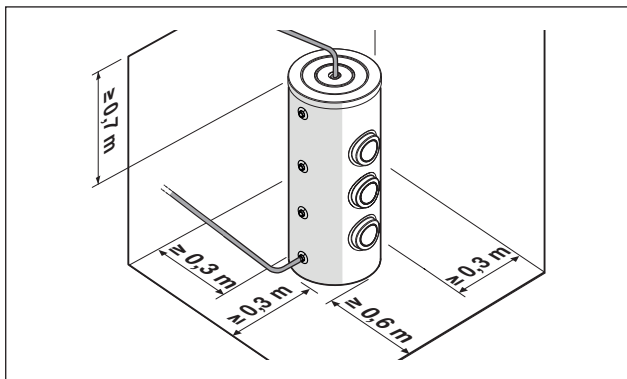
If disassembling is required, proceed in reverse order.



To finish the assembly, apply the serial number plate, rating plate and product plate, so that the tank can be easily identified.

10 PLACE OF INSTALLATION

Beretta IDRA PLUS DS solar heaters can be installed in all rooms not requiring a level of electrical protection of the device greater than IP X0D.



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

11 INSTALLATION IN OLDER SYSTEMS AND SYSTEMS REQUIRING MODERNISATION

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

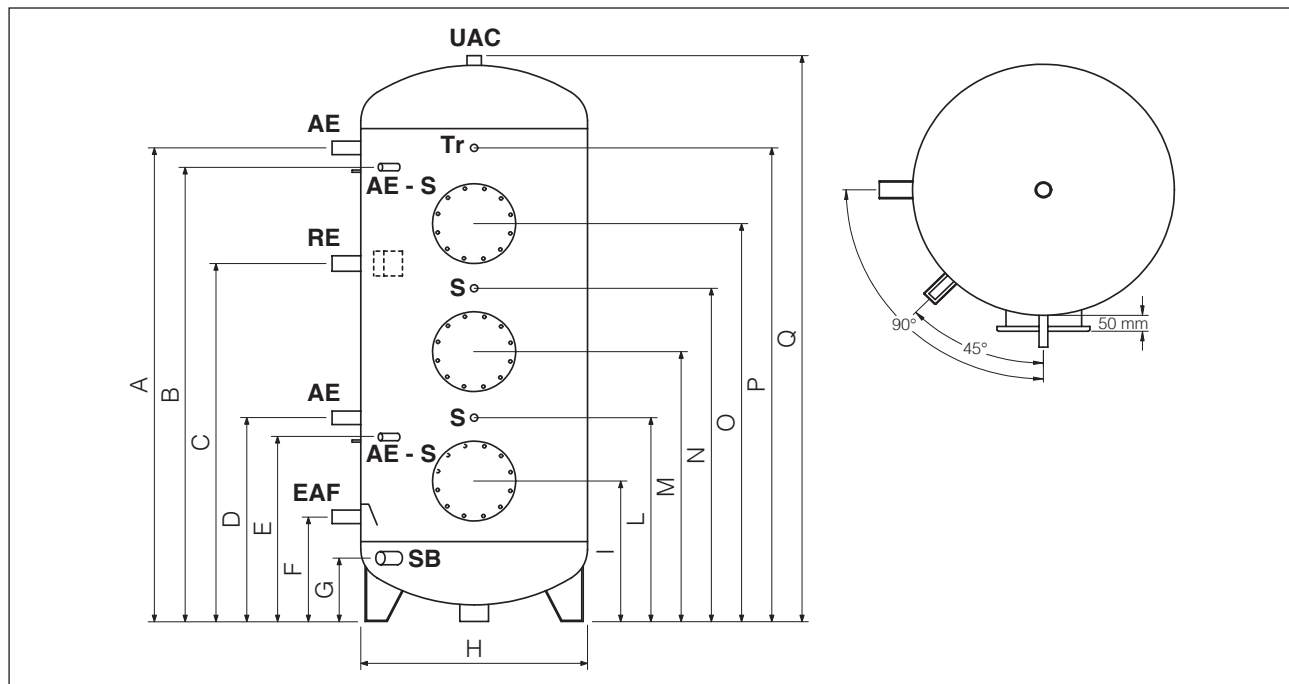
- Make sure that the system is fitted with safety and control devices in accordance with applicable legislation and standards
- Make sure that the central heating circuit has been flushed out to remove all sludge and lime scale, and has been vented and seal tested
- Make sure that a suitable water treatment 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 $\mu\text{S}/\text{cm}$ (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.

13 WATER CONNECTIONS



DESCRIPTION	IDRA PLUS DS				
	1000	1500	2000	3000	
UAC - Domestic hot water outlet	1 1/2" F		2" F		Ø
EAF - Domestic cold water inlet	1 1/2" F		2" F		Ø
SB - Storage cylinder drain	1" F	1" 1/4 F	1" 1/4 F	1" 1/4 F	Ø
AE - Magnesium anode	1" 1/4 F				Ø
AE - S - Diameter/Length of probe pit or electronic anode	8/200				mm
S - Diameter/length of sensor socket	8/200				mm
Tr - Temperature gauge	1/2" F				Ø
RE - Sleeve for electric heating element (not supplied)	1 1/2" F				Ø
A	1830	1720	1990	2265	mm
B	1760	1650	1920	2195	mm
C	1295	1250	1345	1455	mm
D	760	800	820	865	mm
E	690	730	750	795	mm
F	350	435	410	475	mm
G	240	280	250	190	mm
H	790	1000	1100	1250	mm
I	470	545	555	580	mm
L	-	760	820	865	mm
M	1075	1075	1085	1165	mm
N	1295	1290	1345	1455	mm
O	1610	1505	1670	1860	mm
P	1830	1720	1990	2265	mm
Q	2140	2120	2425	2700	mm
Net weight with insulation	188	303	321	543	kg



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.



In case of a probe, 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.



Install the magnesium anode supplied (for the models 2000 - 3000).

14 RECYCLING AND DISPOSAL

The device is primarily composed of:

Material	Component
carbon steel	structural work
PU (polyurethane)	insulation
PE (polyethylene)	water connection washers
ABS (acrylonitrile-butadiene-styrene)	covers
PVC (polyvinyl chloride)	lining

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

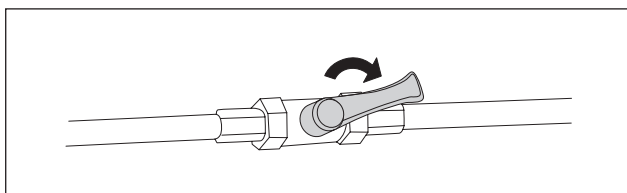
Refer to the **GENERAL SAFETY INFORMATION** and **PRECAUTIONS** section for safety-related information.

15 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).



16 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".

17 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.

18 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.