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PS2F N25

Installation and Operation Manual
THERMAL STORES
PS2F 3000 N25, PS2F 4000 N25, PS2F 5000 N25

EN

PS2F N25

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1 - Description

PSWF Thermal Stores are intended for storing and subsequent distribution of thermal energy from solid-fuel fired boilers, heat pumps, solar collectors, electric boilers etc. This thermal store shall be always connected to a sealed heating circuit. It is fitted with two flanges ready to receive suitably sized tube heat exchangers. Mating flanges for heat exchangers with either G 1" or G ¾" connections are available as an option. When no heat exchanger is installed, a blind flange shall be used (option).

These heat exchangers are made of finned copper tubes that feature larger surface area and better heat transfer. The lower heat exchanger usually connects to a solar system and the upper one is used for DHW heating (continuous) which limits significantly the risk of Legionella bacteria formation. The tanks are also fitted with nine G 2,5" side sleeves to connect heat sources, four G ½" ones for sensor sheaths and one G ½" sleeve for a safety valve. El. heating elements can be installed into the 2,5" sleeves using a reducing piece.

1.1 - Models

Three models of 3027, 3996 and 4994 l capacity.

1.2 - Tank protection

The inner surface has no finish, no anticorrosion protection, the outer surface is lacquered in gray.

1.3 - Thermal insulation

Tank insulation is available as a separate item, installed on the tank on the spot for easier handling. The insulation is made of 100 mm thick fleece and fitted with a zippered outer layer in PU leather.

1.4 - Connection points on the tank

2 flanges with 210 mm inner diam.

8 side sleeves in a 90° sector, G 2,5" F thread

1 top sleeve, G 2,5" F thread

4 side sleeves for sensor sheaths, G ½" F thread

1 side sleeve for a 3 bar safety valve (included), G ½" F thread

1.5 - Packing

Tanks are delivered standing, each screwed to its pallet, packed in bubble wrap.

Included in the package are gaskets, bolts for the flange and a 3 bar safety valve with G ½" F thread.

2 - General Information

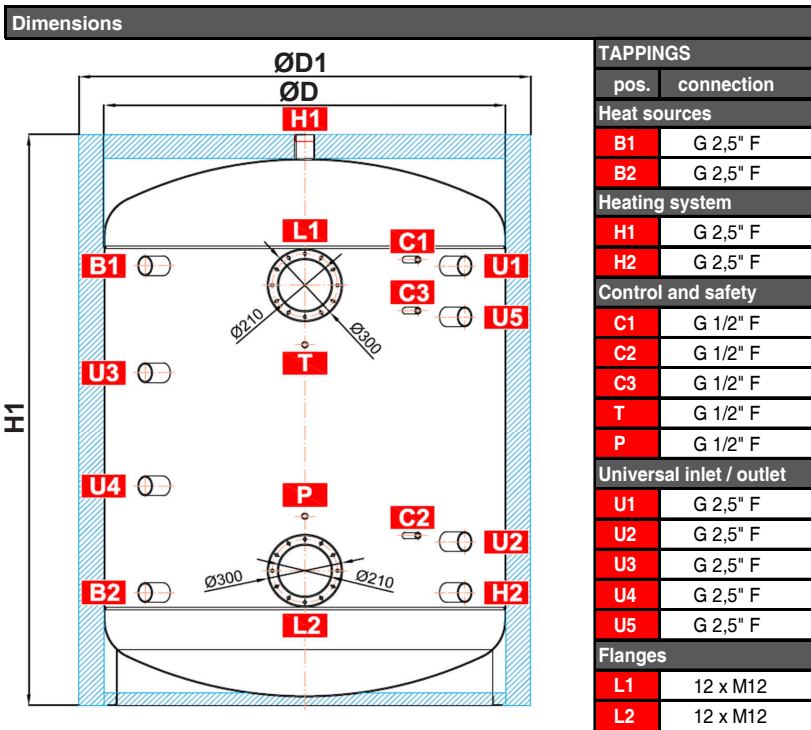
This Owners Manual is an integral and important part of the product and must be handed over to the User. Read carefully the instructions in this Manual as they contain important information concerning safety, installation, operation and maintenance. Keep this Manual for later reference. The appliance shall be installed by a qualified person according to valid rules and Manufacturer's Instructions.

This appliance is designed to accumulate heating water and distribute it subsequently. It shall be connected to a heating system and heat sources. The equipment is suitable also for continuous water heating. In such a case, the customer needs to buy a suitably sized heat exchanger (available as accessory) and have it installed into the upper flange.

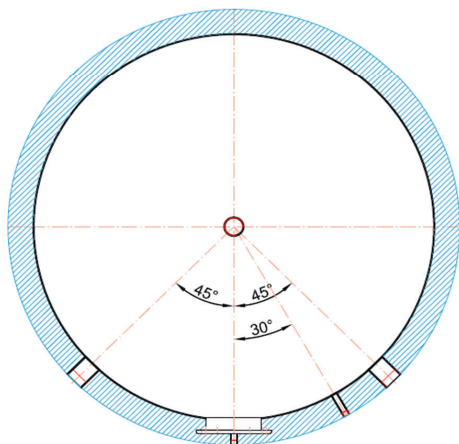
Using the thermal store for other purposes than above described (e.g. as a DHW tank) is forbidden and the manufacturer accepts no responsibility for damage caused by improper or wrong use.

The thermal store shall not be used as a DHW tank!

3 - Technical Data and Dimensions



TAPPINGS	
pos.	connection
Heat sources	
B1	G 2,5" F
B2	G 2,5" F
Heating system	
H1	G 2,5" F
H2	G 2,5" F
Control and safety	
C1	G 1/2" F
C2	G 1/2" F
C3	G 1/2" F
T	G 1/2" F
P	G 1/2" F
Universal inlet / outlet	
U1	G 2,5" F
U2	G 2,5" F
U3	G 2,5" F
U4	G 2,5" F
U5	G 2,5" F
Flanges	
L1	12 x M12
L2	12 x M12



Tank code: a
 Insulation code: b
 Total fluid volume in tank: c
 Max. working temperature in tank: 95 °C
 Max. working pressure in tank PS2F 3000 N25 + PS2F 5000 N25: 3 bar
 Empty weight: d
 Tipping height without insulation: V1

Type - model		PS2F 3000 N25	PS2F 4000 N25	PS2F 5000 N25
Tank code	a	14460	14463	14466
Insulation code	b	16363	16364	16365
Total fluid volume in tank [l]	c	3027	3996	4994
Empty weight [kg]	d	315	429	491
Tipping height without insulation [mm]	V1	2189	2490	2970
Dimensions [mm]	ØD1	1700	1800	1800
	ØD	1500	1600	1600
	B1	1545	1815	2315
	B2	445	465	465
	H1	2065	2355	2855
	H2	445	465	465
	C1	1570	1840	2340
	C2	715	780	925
	C3	1265	1490	1855
	T	1370	1630	2030
	P	670	700	800
	U1	1545	1815	2315
	U2	645	675	775
	U3	1185	1375	1705
	U4	805	905	1075
	U5	1345	1605	2005
	L1	1465	1735	2235
	L2	535	555	555

4 - Operation

This thermal store is designed to store heat and heat water for space heating in domestic or industrial applications, however always in sealed pressure circuits with forced circulation. In the thermal store, heating water is heated up from several heat sources like various types of hot-water boilers, renewable energy sources (heat pumps, solar collectors), or electric heating elements.

The thermal store shall be connected to a heat source through G 2,5" threaded fittings. Should it be connected to a solar system, too, this shall be done through a suitably sized heat exchanger installed into the lower flange.

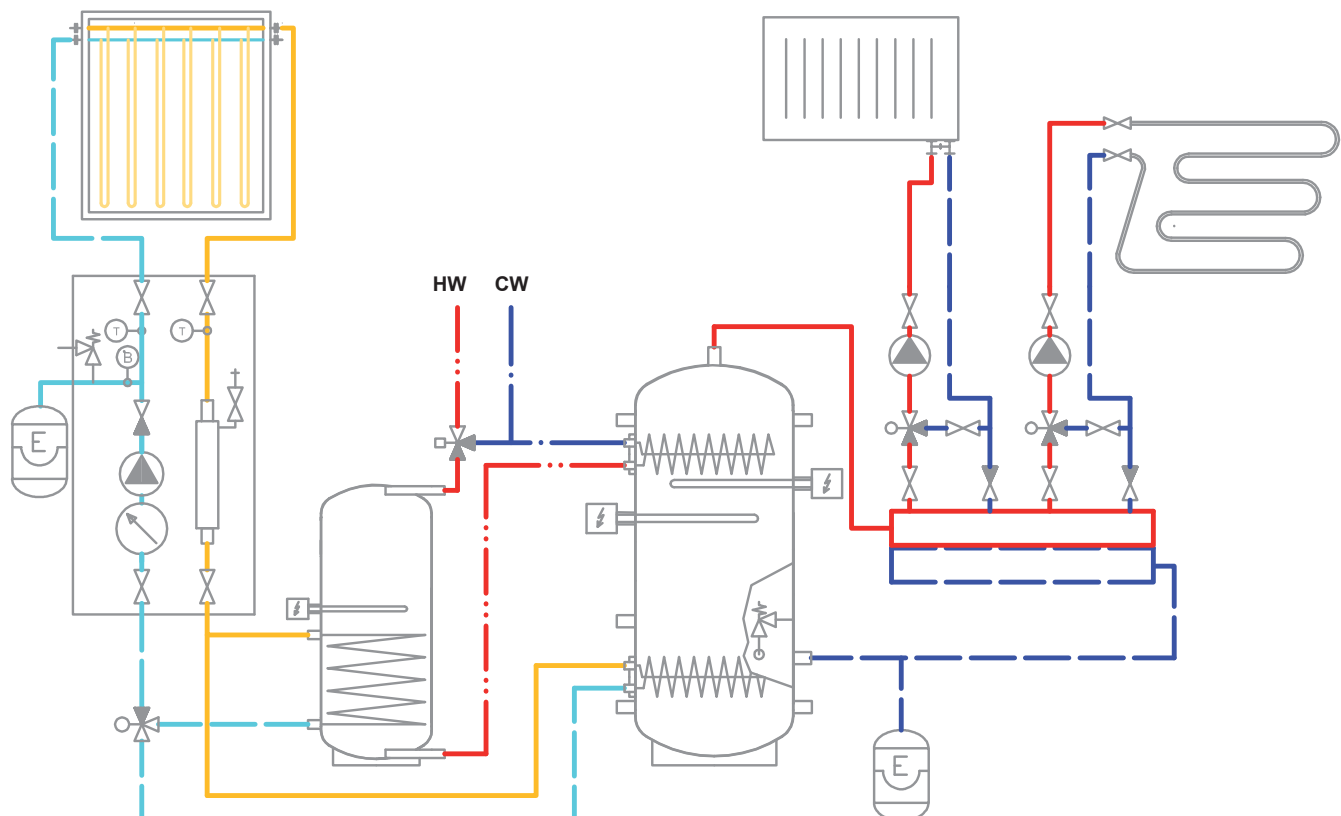
5 - Examples of ports allocation

Conn. point	Example I. Solar collectors + el. heating elements	Example II. Solar collectors + gas boiler	Example III. Solar collectors + solid fuel boiler + el. heating elements
H1	outlet to heating system	outlet to heating system	outlet to heating system
B1	plug	inlet to boiler (gas-fired)	inlet from boiler (solid-fuel-fired)
U3	el. heating element	plug	el. heating element
U4	plug	plug	plug
B2	plug	plug	outlet to boiler (solid-fuel-fired)
H2	drain valve	drain valve	drain valve
U2	inlet from heating system	inlet from heating system	inlet from heating system
U5	el. heating element	plug	el. heating element
U1	plug	inlet from heating system	plug
P	temperature sensor for solar system	temperature sensor for solar system	temperature sensor for solar system
T	thermometer	thermometer	thermometer
C3	thermostats for heating elements (adjustable+limit)	temperature sensor to heating controller	thermostats for heating elements (adjustable+limit)
C1	sensor for controller with OTC	sensor for controller with OTC	sensor for controller with OTC
C2	safety valve, G 1/2", 3 bar	safety valve, G 1/2", 3 bar	safety valve, G 1/2", 3 bar
L1	heat exchanger for preheating DHW tank	heat exchanger for preheating DHW tank	heat exchanger for preheating DHW tank
L2	solar heat exchanger	solar heat exchanger	solar heat exchanger

Connections depend on the circuit to be connected, the a.m. examples are informative only.

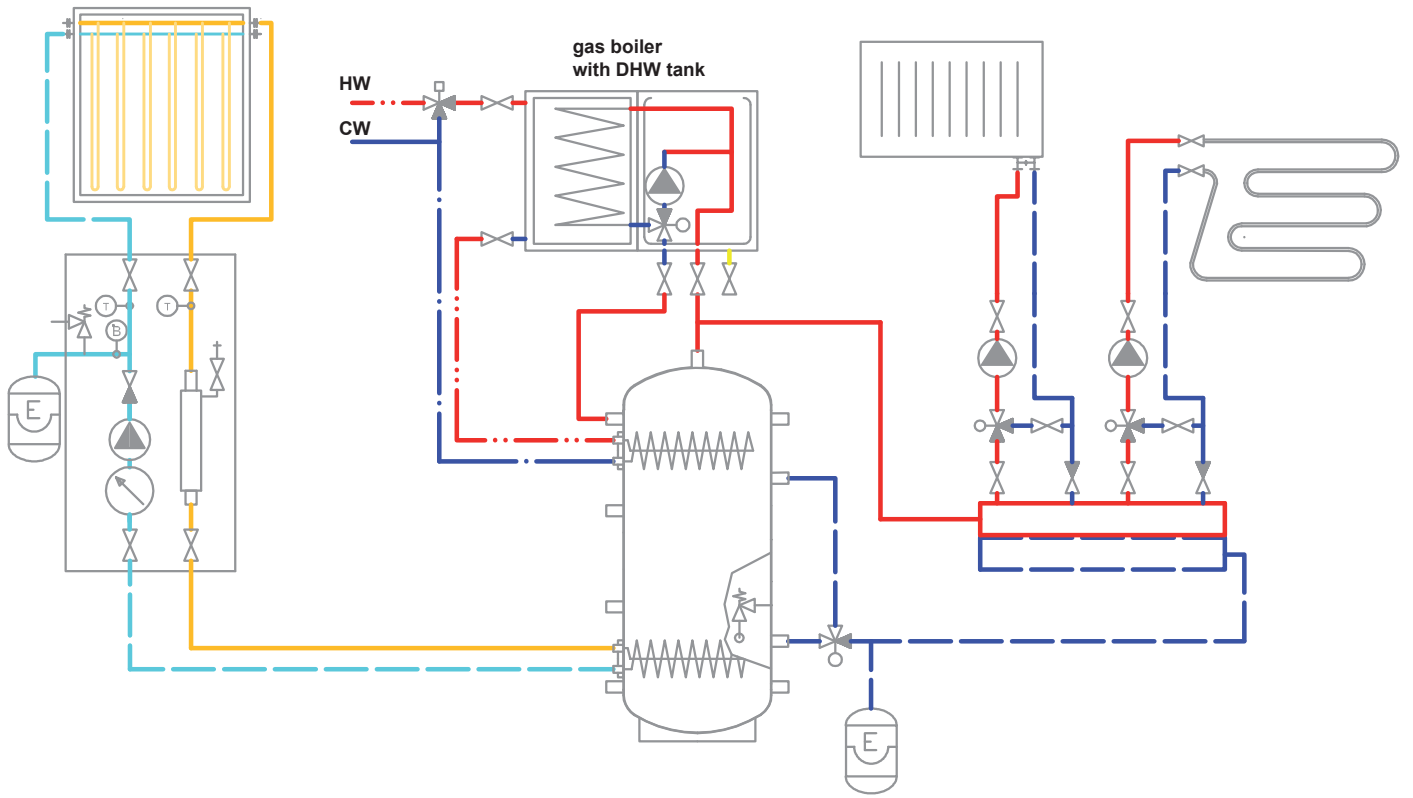
Example I.

Solar collectors and el. heating elements.



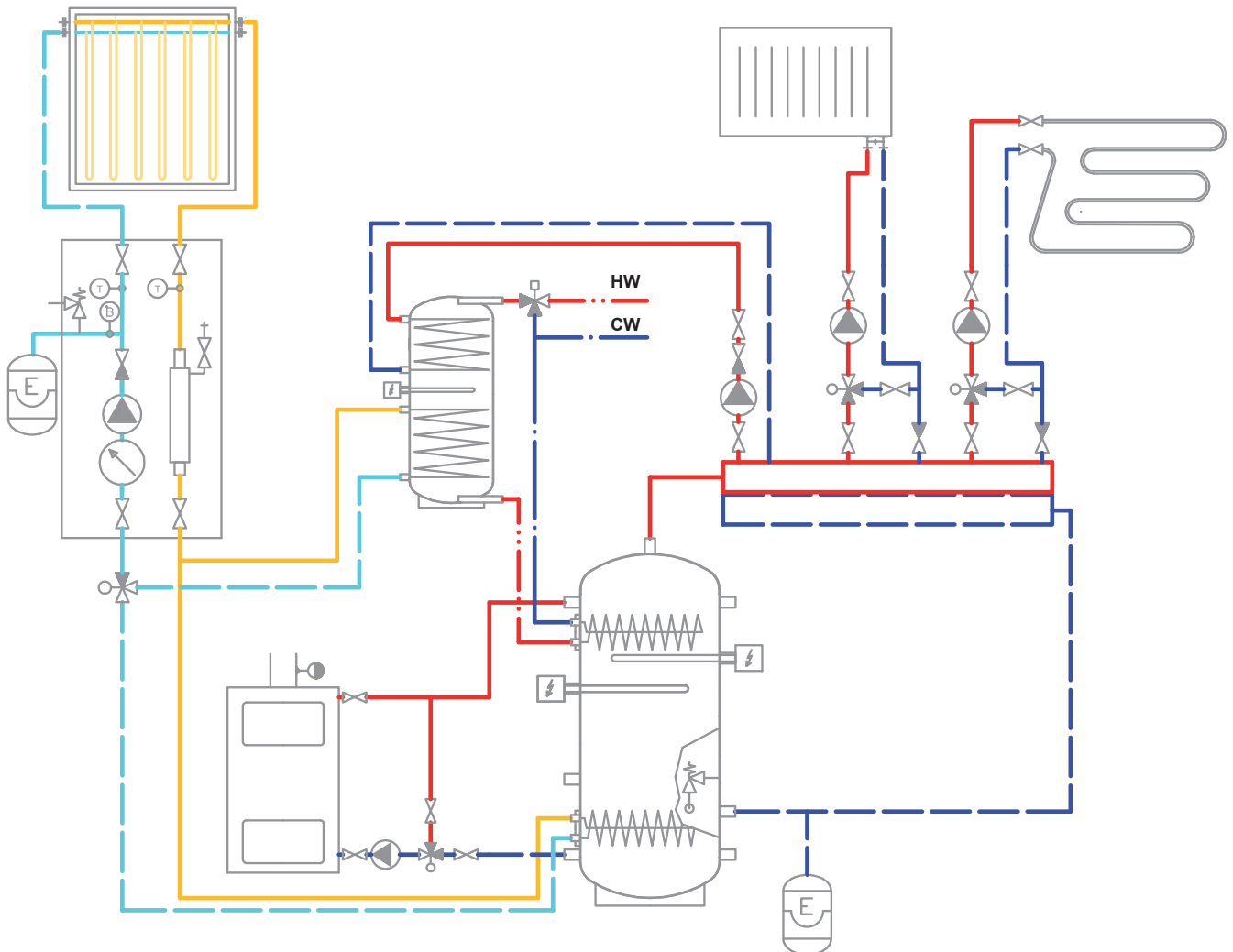
Example II.

Solar collectors and combi gas boiler.



Example III.

Solar collectors, solid fuel boiler and el. heating elements.



6 - Installation and Commissioning

Installation shall meet valid rules and may be done by qualified staff only.

Defects caused by improper installation, use or handling are not covered by warranty.

After the tank is installed and connected to an existing heating system, it is recommended to clean the entire heating system using a suitable cleaning agent, e.g. MR-501/R.

Anti-corrosion protective liquid should be also used, e.g. MR-501/F or F1.

6.1 - Connection to heat sources

Place the tank on the floor, as close to your heat source as possible. Mount the insulation, cf. Installing Insulation on the Tank. Connect the heating circuits to inlets and outlets respecting the thermal stratification in the tank. Install a drain valve at the lowest point of the tank. Install an air vent valve at the highest point of the system. Insulate all the connecting piping.

6.2 - Connection to a solar system

This tank is suitable for use with a solar system. In such a case a suitably sized heat exchanger shall be installed into the lower flange. Insulate meticulously all the piping between the tank and the solar system.

6.3 - El. heating element installation

The tank may be fitted with electric heating elements up to 12kW output. They can be power-supplied either directly (elements with built-in thermostat) or via a controller for the entire heating system.

All electric heating elements shall be protected by a safety thermostat.

Electric heating elements shall be installed by an authorized person only.

6.4 - Commissioning

The tank shall be filled up together with the heating system, respecting valid standards and rules. In order to minimize corrosion, special additives for heating systems should be used. The quality of heating water depends on the quality of filling water at commissioning, on the top-up water and on the frequency of topping up. This has a strong influence on the lifetime of heating systems. Poor quality of heating water may cause problems like corrosion or incrustation, esp. on heat transfer surfaces.

Fill the heating circuits with the appropriate fluids and air-bleed the entire system. Check all connections for leaks and verify the system pressure. Set the heating controller in compliance with the documentation and manufacturer's recommendations. Check regularly proper function of all control and adjustment elements.

7 - Installing Insulation on the Tank

Instructions

Product description

Fleece thermal insulation with PU leather surface.

Warning

Insulation installation shall be done in two or three persons, depending on its size. The insulation **must not be installed at temperatures below 20 °C**. If this cannot be avoided, the insulation shall be pre-warmed in another room to at least 20 °C. It is impossible to install insulation of lower temperature, there is a risk of damage, esp. to the zipper. Do not use any tools for installation.

Keep away from open fire.

Installing Insulation

1. Fix the tank following installation instructions.
2. Wrap the insulation around the tank carefully. Check that the insulation adheres to its body perfectly. This can be reached by rubbing and patting the insulation by hand from its center evenly in both directions until the insulation adheres to the tank's surface completely and no bubbles are left.
3. Use the holes for sleeves as a rest during the insulation installation.
4. At least one person presses the insulation to the tank, pulling both ends together. The other person closes the zippe.
5. Put on the upper insulation and cover.
6. Push on the covering plastic rosettes depending on the size of sleeves, or put on the flange plug(s) with insulation.
7. Finish the tank installation in compliance with the respective instructions and valid standards and rules.

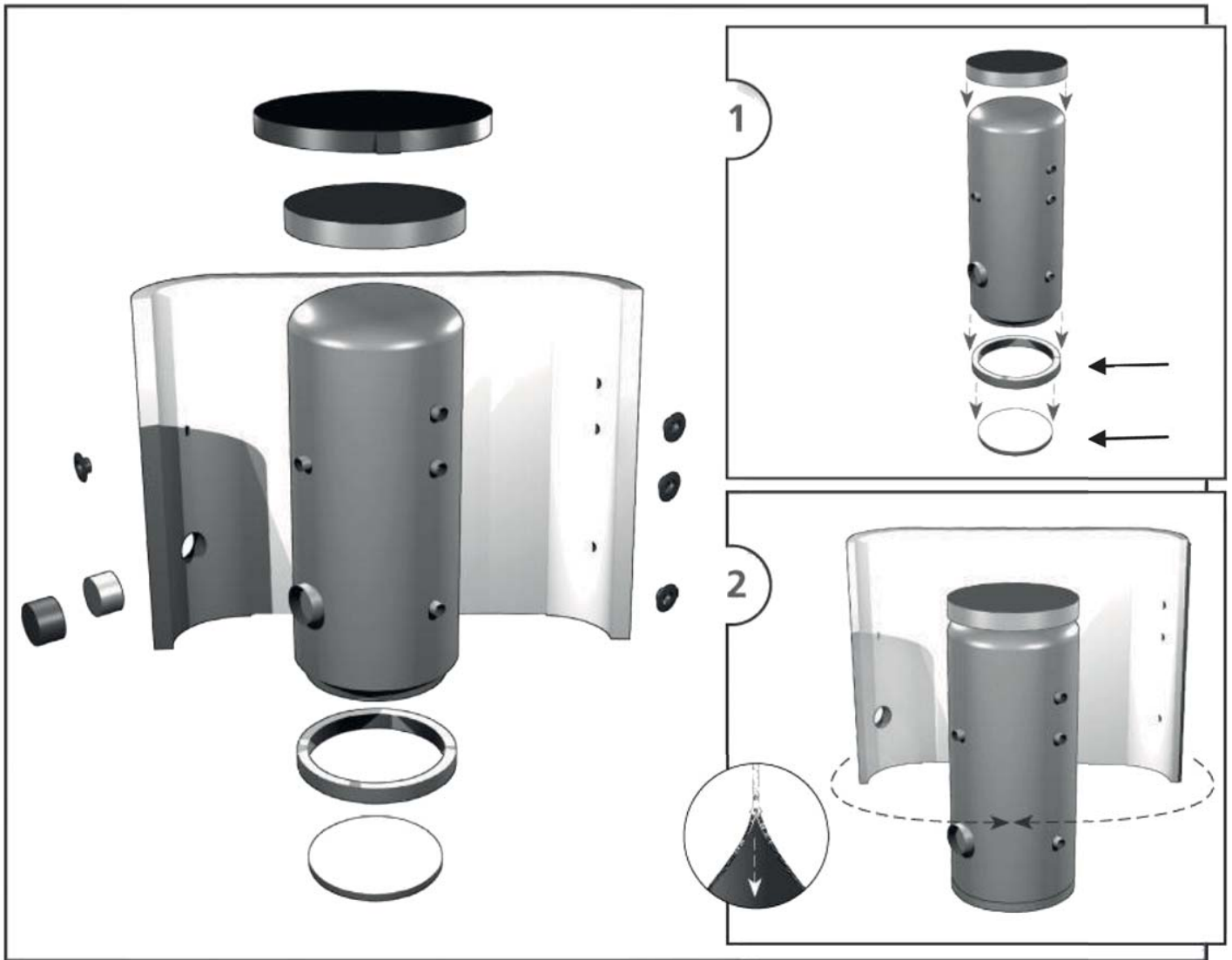
Warranty on insulation

The insulation is covered by a 24-month warranty. This period starts the next day after the insulation is sold.

- Warranty shall become null and void if:
 - the procedure described in the Installation Manual was not respected,
 - the product was used for other purposes than intended.
- Warranty does not cover:
 - usual wear and tear,
 - damage caused by fire, water, electricity or a natural disaster,
 - defects caused by failure to use the product in compliance with its intended purpose, by improper use and insufficient maintenance,
 - defects caused by mechanical damage to the product,
 - defects caused by tampering or incompetent repair.



+ 20.0° C
+ 68.0° F



8 - Maintenance

If the tank is fitted with a heating element, disconnect it from the mains first. Clean the exterior of the tank with a soft cloth and a mild detergent. Never use abrasive cleaners or solvents. Check all connections for leaks.

9 - Disposal

Packing shall be disposed of in compliance with the valid rules. When the product reaches the end of its life, it shall not be disposed of as household waste. It shall be dropped off at a Local Waste Recycling Center. Insulation shall be recycled as plastic and the steel vessel as scrap iron.

10 - Warranty

This product is covered by warranty under the conditions listed in this Manual and in compliance with the Warranty Certificate. A Warranty Certificate is an integral part of this thermal store scope of supply.

