

Installation and Operation Instructions

THERMAL STORES

PS 200 N, PS 300 N, PS 500 N, PS 650 N,
PS 800 N, PS 900 N, PS 1000 N, PS 1100 N
PS 1500 N and PS 2000 N,



EN
v. 1.4

Regulus

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1 - Description

PS E Thermal Stores are intended for storing and subsequent distribution of thermal energy from solid-fuel fired boilers, heat pumps, solar collectors, electric boilers etc. No heating coils can be installed into these tanks, just an el. heating rod. Heating elements of 2-12 kW output can be installed directly into the 6/4" sleeves that are power supplied either with 230V or 3x230V/400V. Tanks are fitted with nine side sleeves to connect heat sources, four for sensor sheaths and one for a safety valve. As an option, 100mm thick insulation for these tanks is sold separately.

1.1 - Models

Ten models of 181, 280, 474, 656, 804, 860, 927, 1040, 1504 and 4989 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 flexible polyurethane foam and fitted with a zippered PVC surface layer.

1.4 - Connection points on the tank

8 side sleeves in a 90° sector (PS 200: 6 sleeves), G 6/4" F thread

1 top sleeve, G 6/4" F thread

4 side sleeves for sensor sheaths, G 1/2" F thread

1 side sleeve for a 3 bar safety valve (included), G 1/2" F thread

1.5 - Packing

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

Included in the package is a 3 bar safety valve with G 1/2" F thread.

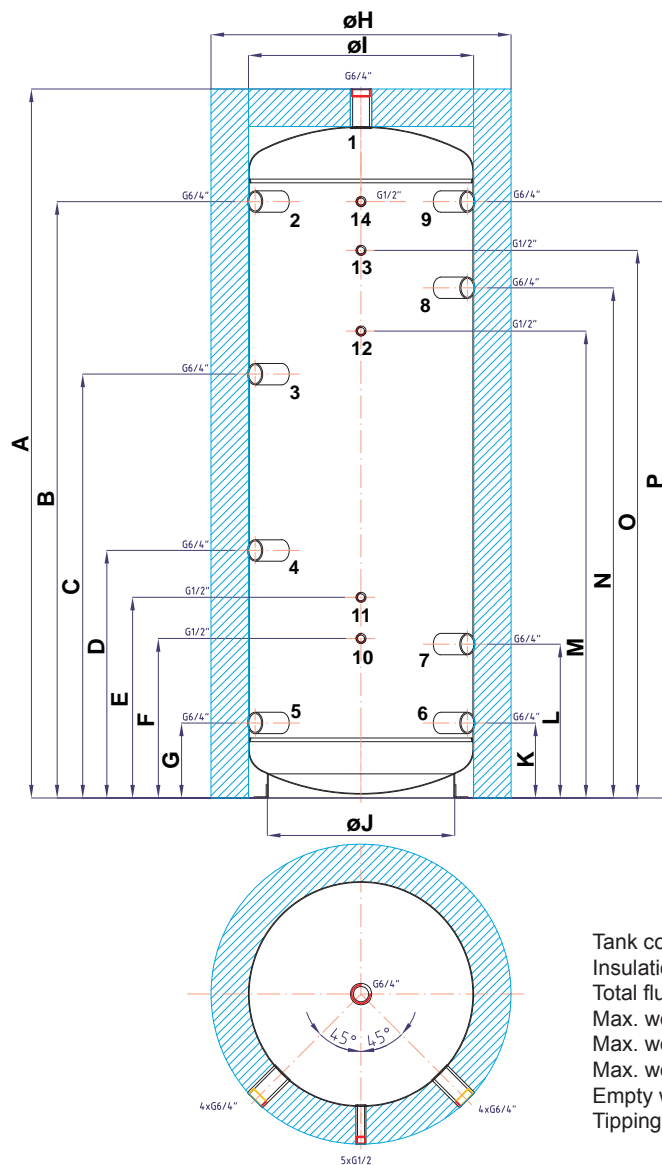
2 - General Information

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, otherwise the warranty is null and void.

This appliance is designed to accumulate heating water and distribute it subsequently. It shall be connected to a heating system and heat sources.

Using the thermal store tank for other purposes than above described 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



Tank code: **a**
 Insulation code: **b**
 Total fluid volume in tank: **c**
 Max. working pressure in tank PS200 N ÷ PS1100 N: **4 bar**
 Max. working pressure in tank PS1500 N ÷ PS2000 N: **3 bar**
 Max. working temperature in tank: **95 °C**
 Empty weight: **d**
 Tipping height without insulation: **e**

Type - model		PS200 N	PS300 N	PS500 N	PS650 N	PS800 N	PS900 N	PS1000 N	PS1100 N	PS1500 N	PS2000 N
Tank code	a	10050	10053	10054	12311	10056	13474	10058	13625	10060	10138
Insulation code	b	10107	10108	10120	12319	10123	13475	10125	13626	10146	10147
Fluid volume in tank [l]	c	181	280	474	656	804	860	927	1040	1504	2005
Empty weight [kg]	d	41	51	71	84	98	103	108	128	174	207
Tipping height [mm]	e	-	-	1920	1970	1870	2020	2110	2120	1940	2020
Dimensions [mm]	A	1326	1380	1890	1930	1820	1975	2070	2080	1860	1930
	B	1068	1095	1590	1610	1430	1645	1680	1745	1450	1485
	C	768	770	1130	1150	1050	1185	1220	1270	1070	1105
	D	468	495	660	680	670	715	750	740	690	725
	E	388	415	535	555	580	590	625	615	600	635
	F	308	335	425	425	425	390	425	395	425	425
	G	168	195	200	220	290	255	290	295	310	345
	ø H	650	750	800	900	1000	990	1000	1050	1300	1450
	ø I	450	550	600	700	800	790	800	850	1100	1250
	ø J	340	450	500	600	700	700	700	750	1000	1100
	K	168	195	200	220	290	255	290	255	310	345
	L	308	335	410	430	490	465	500	490	510	545
	M	818	845	1245	1265	1130	1300	1335	1385	1150	1185
	N	868	895	1360	1380	1210	1415	1450	1500	1230	1265
	O	968	995	1460	1480	1310	1515	1550	1620	1330	1365
	P	1068	1095	1590	1610	1430	1645	1680	1745	1450	1485

4 - Operation

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 6/4" threaded fittings. Should the tank be connected to a solar system, this must be done via a heat exchanger because solar systems are not filled with heating water. Individual connection points are assigned according to the circuits to be connected. There is a wide choice of combinations, just some examples are described in the following chapter.

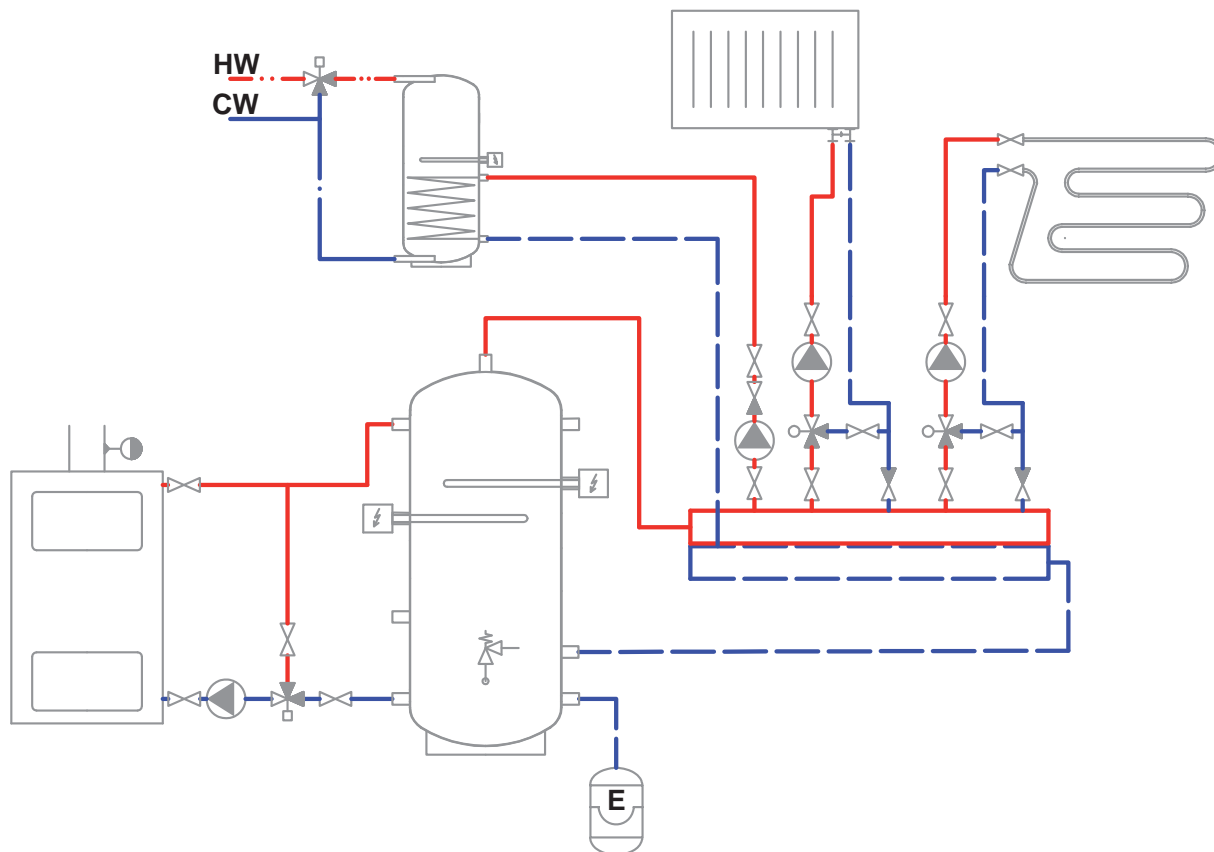
5 - Examples of ports allocation

Conn. point	Example I. -solid boil. + el.	Example II. - firepl. + gas boil.	Example III. - heat p. + el.
1	outlet to a heating system	outlet to a heating system	outlet to a heating system
2	inlet from a solid fuel boiler	outlet to a gas boiler	el. heating element
3	el. heating element	plug	inlet from a heat pump
4	plug	plug	plug
5	inlet to a solid fuel boiler	inlet to a fireplace	return line to a heat pump
6	drain valve, expansion vessel	drain valve, expansion vessel	drain valve, expansion vessel
7	return line from a heating system	return line from a heating system	return line from a heating system
8	plug	plug	plug
9	el. heating element	plug	el. heating element
10	safety valve, G 1/2", 3 bar	safety valve, G 1/2", 3 bar	safety valve, G 1/2", 3 bar
11,12,13,14	sheaths for weather compensated controller, thermometer, thermostat...		

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

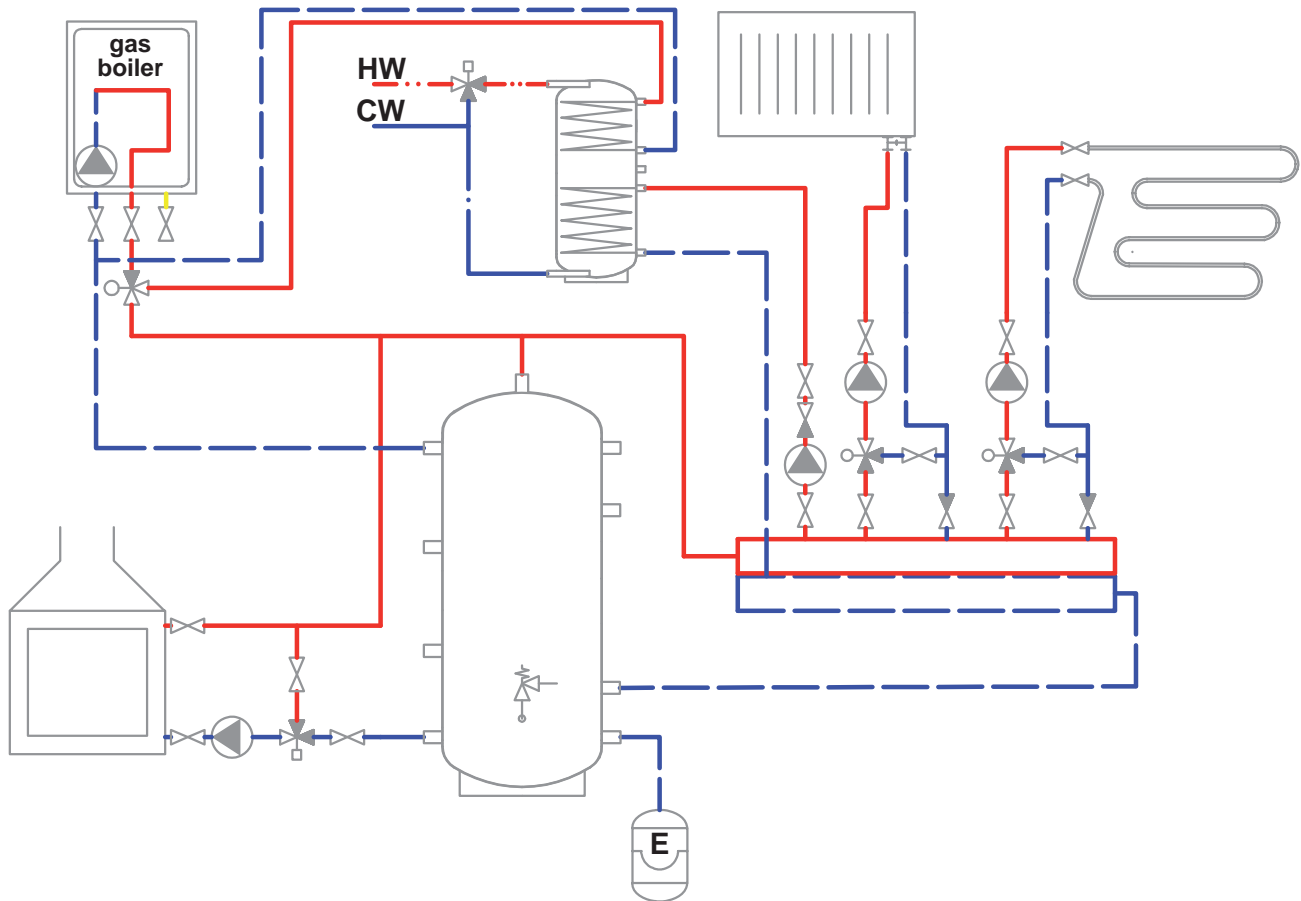
Example I.

Solid fuel boiler and el. heating element.



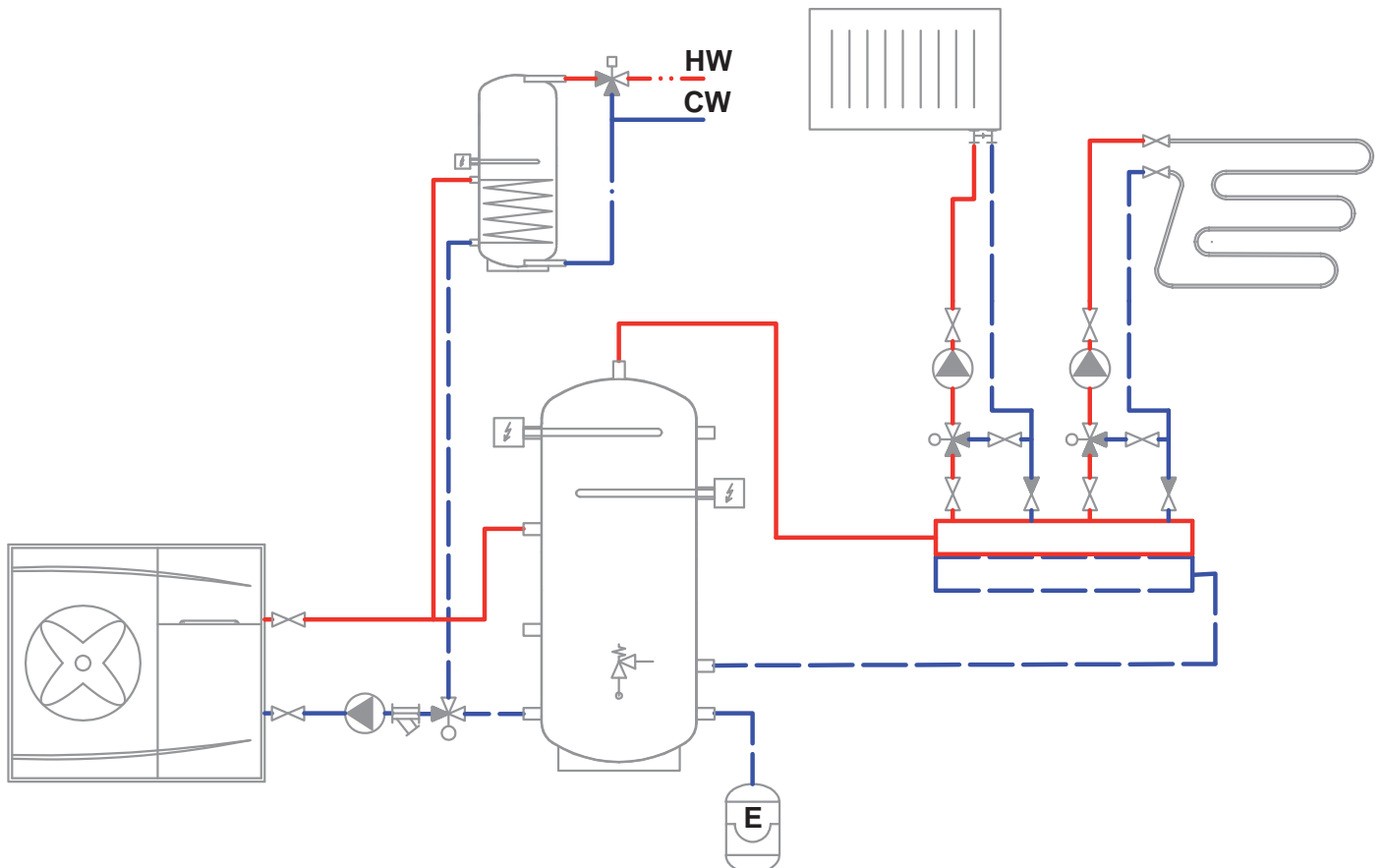
Example II.

Gas fired boiler and hydronic fireplace.



Example III.

Heat pump and electric heating element.



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

The tank can is not primarily intended for use with a solar system but if needed, this can be done via a heat exchanger between the solar system and the tank. In such a case, insulate well 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

This tank is not designed for DHW heating.

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

Thermal insulation of flexible polyurethane foam with a zippered PVC surface layer.

Warning

Insulation installation shall be done in two or three persons, depending on its size. The zippered, PVC coated flexible-foam 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

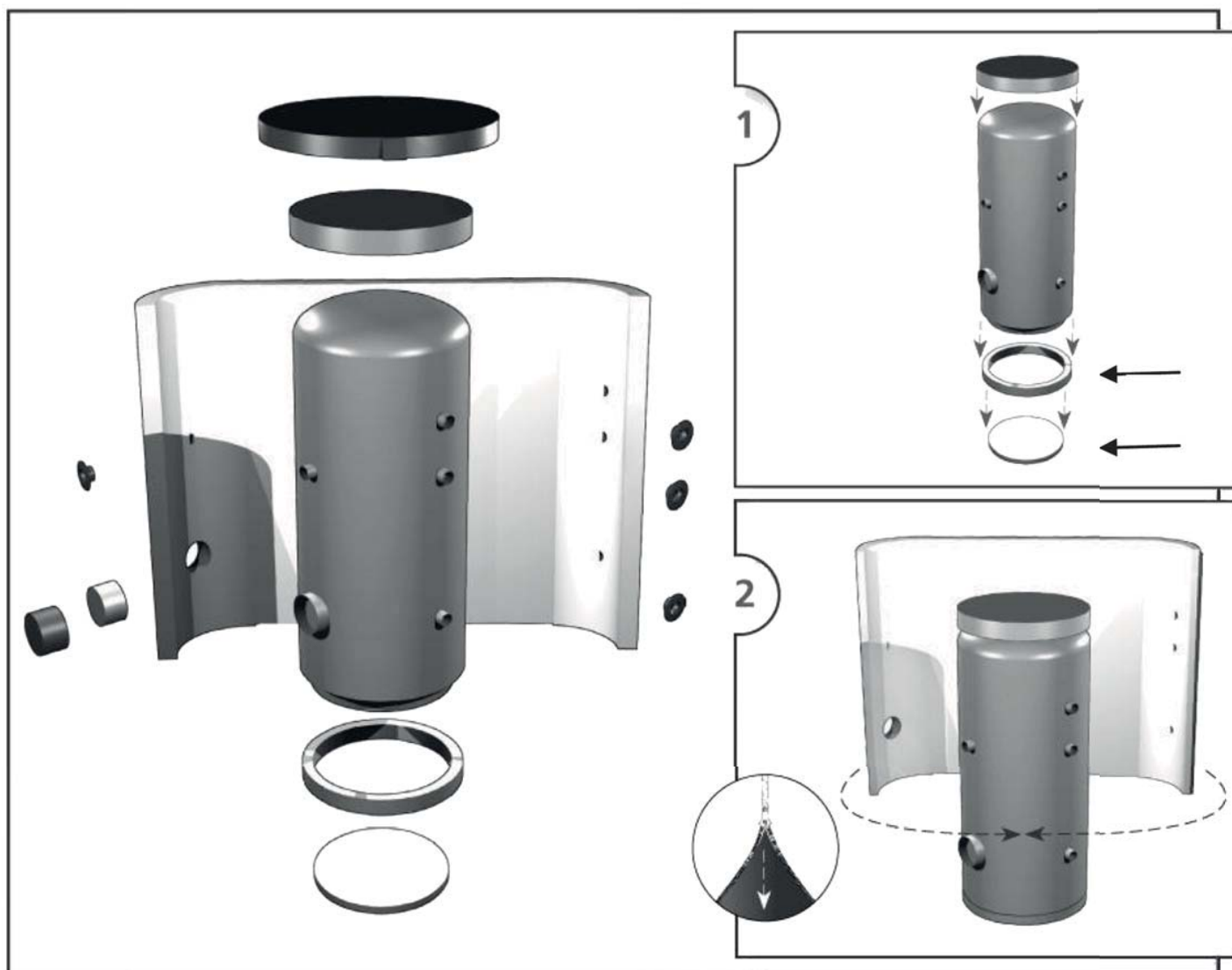
1. Fix the tank following installation instructions.
2. Wrap the insulation around the tank carefully. Check that the insulation adheres to its body perfectly. This can be reached by rubbing and patting the insulation by hand from its center evenly in both directions until the insulation adheres to the 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 zipper.
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.

Installation instructions for soft insulation with PU leather surface



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 tank scope of supply.



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