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PS with vapour-proof, non-detachable insulation

Installation and Operation Manual
PS THERMAL STORES
with vapour-proof, non-detachable insulation

EN

PS with vapour-proof, non-detachable insulation

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1 - Description

These thermal stores are designed for storing and distribution of heat/cold. They are suitable as buffer tanks for inverter heat pumps to ensure sufficient water volume during evaporator defrosting. The tanks have four connections to connect sources of heat/cold and a heating/cooling system, two connections for universal inlets/outlets, two connections for temperature sensors and one for a safety valve. They come with vapour-proof non-detachable insulation.

When needed, an ETT-A, C, D2, M, R, U, F2, P, S electric heating element, for codes see the Catalogue.

1.1 - Tank protection

The inner surface has no surface finish, no anticorrosion protection. On its lacquered outer surface there is a hard PU foam insulation covered with hard plastic.

1.2 - Connection points on the tank

2x G 6/4" F connection for connecting a heat/cold source

2x G 6/4" F connection for a universal inlet/outlet

1x G 6/4" F connection to connect return pipe from the heating system

1x G 5/4" F connection to connect flow pipe to the heating system

3x G 1/2" F connection for a temperature sensor and safety valve

1.3 - Packaging

These thermal stores are delivered standing, each screwed to its separate pallet, packed in bubble wrap.

2 - General Information

This 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. Installation may be done only by qualified staff in compliance with valid rules, standards and Manufacturer's instructions.

This appliance is designed to accumulate and distribute heat/cold. It shall be connected to a heating/cooling system and sources of heat/cold.

Using the tank for other purposes than stated in this Manual (e.g. as a hot water storage tank) is forbidden and the manufacturer accepts no responsibility for damage caused by improper or wrong use.

3 - Technical Data and Dimensions

3.1 - Regulus PS 100 IZ (code 19769)

Energy Efficiency Data (as per EC Regulation No. 812/2013)	
	valid for a thermal store with insulation
Energy efficiency class	A
Static loss	34 W
Storage volume	99 l

Technical data	
Total thermal store volume	99 l
Max. working temperature in thermal store	95 °C
Min. working temperature in thermal store	7 °C
Max. working pressure in thermal store	3 bar
Thermal store diameter	450 mm
Thermal store diameter with insulation	560 mm
Thermal store overall height	795 mm
Tipping height without insulation	1030 mm
Thermal store perimeter insulation thickness	55 mm
Thermal store bottom insulation thickness	50 mm
Thermal store top insulation thickness	50 mm
Empty weight without insulation	28 kg

Materials	
Thermal store material	S235JR
Thermal store perimeter insulation	PU foam
Thermal store outer surface insulation	hard plastics
Top and bottom thermal store insulation	PU foam

Insulation thermal conductivity $\lambda \leq 0.037$ W/mK, thermal resistance (short/long term) 150/100 °C, fire class E.

Accessories	
Electric heating element	ETT-A, C, D2, M, R, U, F2, P, S
Heating element max. length	500 mm

Dimensions		CONNECTIONS			
		pos.	description	connection	height [mm]
		Heat sources			
B1	Supply from heat source	G 6/4" F	605		
B2	Return to heat source	G 6/4" F	185		
Heating system					
H1	Flow to heating system	G 5/4" F	795		
H2	Return from heating system	G 6/4" F	185		
Control and safety					
C1	Temperature sensor	G 1/2" F	605		
C2	Temperature sensor	G 1/2" F	395		
P	Safety valve	G 1/2" F	185		
Universal inlet/outlet					
U1	Universal inlet/outlet	G 6/4" F	605		
U2	Universal inlet/outlet	G 6/4" F	445		

3.2 - Regulus PS 200 IZ (code 19770)

Energy Efficiency Data (as per EC Regulation No. 812/2013)	
	valid for a thermal store with insulation
Energy efficiency class	B
Static loss	57 W
Storage volume	204 l

Technical data	
Total thermal store volume	204 l
Max. working temperature in thermal store	95 °C
Min. working temperature in thermal store	7 °C
Max. working pressure in thermal store	3 bar
Thermal store diameter	450 mm
Thermal store diameter with insulation	560 mm
Thermal store overall height	1480 mm
Tipping height without insulation	1620 mm
Thermal store perimeter insulation thickness	55 mm
Thermal store bottom insulation thickness	50 mm
Thermal store top insulation thickness	50 mm
Empty weight without insulation	47 kg

Materials	
Thermal store material	S235JR
Thermal store perimeter insulation	PU foam
Thermal store outer surface insulation	hard plastics
Top and bottom thermal store insulation	PU foam

Insulation thermal conductivity $\lambda \leq 0.037$ W/mK, thermal resistance (short/long term) 150/100 °C, fire class E.

Accessories	
Electric heating element	ETT-A, C, D2, M, R, U, F2, P, S
Heating element max. length	500 mm

Dimensions		CONNECTIONS			
		pos.	description	connection	height [mm]
		Heat sources			
B1	Supply from heat source	G 6/4" F	1285		
B2	Return to heat source	G 6/4" F	185		
Heating system					
H1	Flow to heating system	G 5/4" F	1480		
H2	Return from heating system	G 6/4" F	185		
Control and safety					
C1	Temperature sensor	G 1/2" F	1285		
C2	Temperature sensor	G 1/2" F	735		
P	Safety valve	G 1/2" F	185		
Universal inlet/outlet					
U1	Universal inlet/outlet	G 6/4" F	1285		
U2	Universal inlet/outlet	G 6/4" F	785		

3.3 - Regulus PS 300 IZ (code 21560)

Energy Efficiency Data (as per EC Regulation No. 812/2013)	
	valid for a thermal store with insulation
Energy efficiency class	B
Static loss	67 W
Storage volume	301 l

Technical data	
Total thermal store volume	301 l
Max. working temperature in thermal store	95 °C
Min. working temperature in thermal store	7 °C
Max. working pressure in thermal store	3 bar
Thermal store diameter	550 mm
Thermal store diameter with insulation	650 mm
Thermal store overall height	1475 mm
Tipping height without insulation	1615 mm
Thermal store perimeter insulation thickness	50 mm
Thermal store bottom insulation thickness	50 mm
Thermal store top insulation thickness	50 mm
Empty weight without insulation	59 kg

Materials	
Thermal store material	S235JR
Thermal store perimeter insulation	PU foam
Thermal store outer surface insulation	hard plastics
Top and bottom thermal store insulation	PU foam

Insulation thermal conductivity $\lambda \leq 0.037$ W/mK, thermal resistance (short/long term) 150/100 °C, fire class E.

Accessories	
Electric heating element	ETT-A, C, D2, M, R, U, F2, P, S
Heating element max. length	585 mm

Dimensions			
CONNECTIONS			
pos.	description	connection	height [mm]
Heat sources			
B1	Supply from heat source	G 6/4" F	1230
B2	Return to heat source	G 6/4" F	225
Heating system			
H1	Flow to heating system	G 5/4" F	1475
H2	Return from heating system	G 6/4" F	225
Control and safety			
C1	Temperature sensor	G 1/2" F	1230
C2	Temperature sensor	G 1/2" F	725
P	Safety valve	G 1/2" F	225
Universal inlet/outlet			
U1	Universal inlet/outlet	G 6/4" F	1230
U2	Universal inlet/outlet	G 6/4" F	775

3.4 - Regulus PS 500 IZ (code 21561)

Energy Efficiency Data (as per EC Regulation No. 812/2013)	
	valid for a thermal store with insulation
Energy efficiency class	C
Static loss	83 W
Storage volume	469 l

Technical data	
Total thermal store volume	469 l
Max. working temperature in thermal store	95 °C
Min. working temperature in thermal store	7 °C
Max. working pressure in thermal store	3 bar
Thermal store diameter	650 mm
Thermal store diameter with insulation	750 mm
Thermal store overall height	1615 mm
Tipping height without insulation	1785 mm
Thermal store perimeter insulation thickness	50 mm
Thermal store bottom insulation thickness	50 mm
Thermal store top insulation thickness	50 mm
Empty weight without insulation	80 kg

Materials	
Thermal store material	S235JR
Thermal store perimeter insulation	PU foam
Thermal store outer surface insulation	hard plastics
Top and bottom thermal store insulation	PU foam

Insulation thermal conductivity $\lambda \leq 0.037$ W/mK, thermal resistance (short/long term) 150/100 °C, fire class E.

Accessories	
Electric heating element	ETT-A, C, D2, M, R, U, F2, P, S
Heating element max. length	680 mm

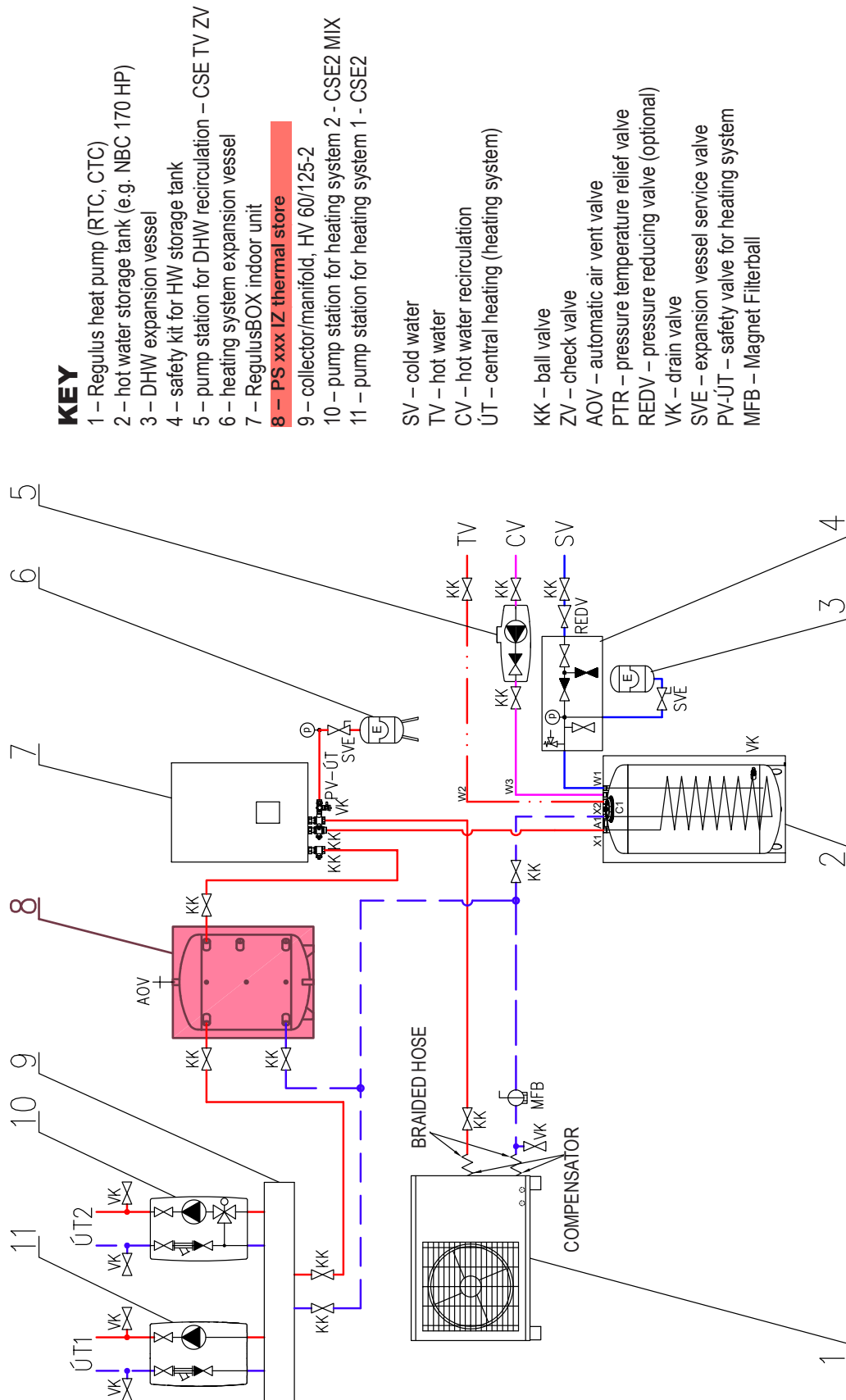
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4 - Operation

The thermal store is suitable for storing and distribution of heat/cold and as a buffer tank for inverter heat pumps to ensure sufficient water volume during evaporator defrosting.

5 - Example of Thermal Store Connections

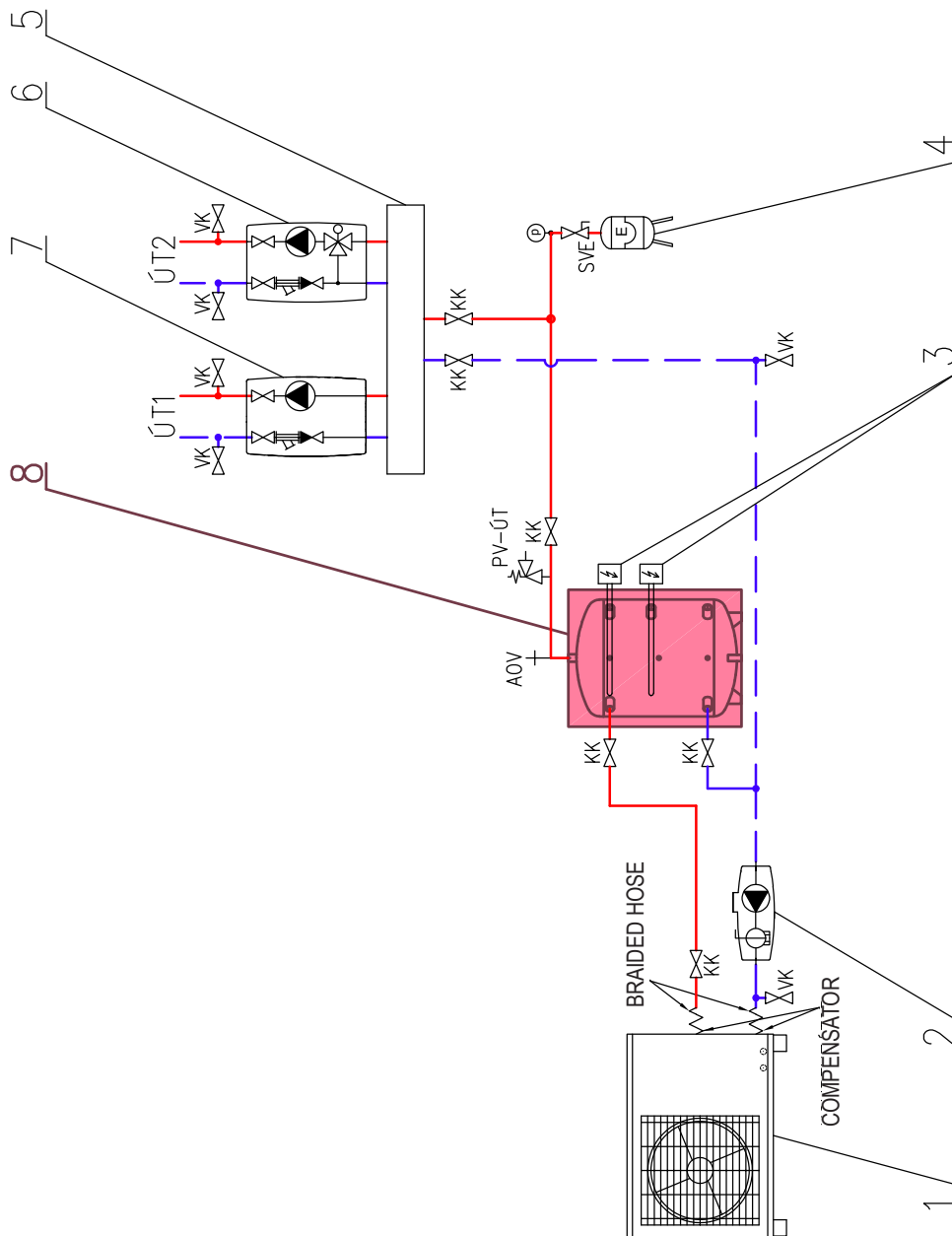
5.1 - With RegulusBOX



5.2 - With el. heating elements

KEY

- 1 – Regulus heat pump (RTC, CTC)
- 2 – CSE TC W PWM MFB pump station
- 3 – electric heating elements
- 4 – heating system expansion vessel
- 5 – collector/manifold, HV 60/125-2
- 6 – pump station for heating system 2 - CSE2 MIX
- 7 – pump station for heating system 1 - CSE2
- 8 – PS xxx IZ thermal store



ÚT – central heating (heating system)

KK – ball valve

ZV – check valve

AOV – automatic air vent valve

VK – drain valve

SVE – expansion vessel service valve

PV-ÚT – safety valve for heating system

MFB – Magnet Filterball

6 - Installation and Commissioning

The installation of an electric heating element may be done by qualified staff only.

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

Should the tank be equipped with an electric heating element, it is recommended to install it before connecting the pipes of the heating system.

After the tank is installed and connected to an existing heating/cooling system, it is recommended to clean the entire heating/cooling system using a suitable cleaning agent for heating systems.

It is recommended to add protective anti-corrosion fluid into the heating system. The respective item codes can be found in the Catalogue or at www.regulus.eu.

6.1 - Connection to sources of heat/cold

Place the tank on the floor as close as possible to the source of heat /cold and level it. Connect the source of heat/cold and the heating/cooling system to inlets and outlets. Install a safety valve in the „P“ connection (see Chap. 3). There must not be any shut-off valve between the tank and the safety valve. Install an air vent valve at the highest point of the system. Install a drain valve at the lowest point of the system. Insulate all the connection piping.

When using the tank for storing cold or when using it alternately for storing either heat or cold, thoroughly insulate all parts of the piping, including fittings and equipment connected to the tank (heating element, thermostats etc.) with vapor barrier insulation to prevent condensation on the surface of these parts.

6.2 - Installation of an electric heating element

The thermal store can be equipped with electric heating elements of the models ETT-A, C, D2, M, R, U, F2, P, S. The max. length of the heating element is shown in the Data Sheet of the respective tank. Installing electric heating elements with no thermostatic head is possible only under the condition of placing the thermostat sensors above the heating elements.

6.3 - Commissioning

Ground the tank before commissioning.

This tank is not designed for DHW heating.

The tank shall be filled up together with the heating/cooling system, respecting valid standards and rules. In order to minimize corrosion, special protective additives for heating systems should be used (see the Catalogue). The quality of heating water, of top-up water and the frequency of topping has a strong influence on the lifetime of heating systems. Poor quality of heating water may cause problems like corrosion and incrustation.

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

7 - Maintenance

If the tank is fitted with a heating element, disconnect it from the mains before cleaning. 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.

8 - Disposal

Packaging 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.

9 - Warranty

This product is covered by warranty according to the conditions described in this Manual and according to the Warranty Certificate. A Warranty Certificate is an integral part of the supply.

