

Installation and Operation Instructions

STORAGE WATER HEATERS  
WITH UPSIZED HEATING COIL  
**RBC 200HP, RBC 300HP, RBC 400HP,  
RBC 500HP, RBC 750HP, RBC 1000HP**



CE

EN  
v 1.0

**Regulus**

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# 1 - Description

RBC HP Storage water heater (further "tank") with one upsized enameled heating coil with a G 5/4" connection (750 and 1000 liter tanks have a G 6/4" connection). These tanks (except for the 1000l model) facilitate installation of an electric heating element into the G 6/4" sleeve.

These tanks with an upsized heating coil are especially suitable for use with a heat pump.

In order to reach proper working of the tank, it is necessary to design optimum hydraulics of the whole system, i.e. position of circulation pumps for sources and heating circuits, valves, non-return valves etc.

## 1.1 - Models

Six models of 200, 300, 400, 500, 750 and 1000 l capacity enabling installation of an electric heating rod or another heat source.

## 1.2 - Tank protection

Enameled inner surface and coil guarantee long service life. Enamel is done according to DIN 4753 standard. Further qualitative improvement is reached thanks to a magnesium anode rod installed inside the tank (bigger tanks are fitted with more anode rods). From 400 l upwards the tanks are fitted with 2 magnesium anode rods, tanks of 750 and 1000 l volume with 3 magnesium anode rods.

## 1.3 - Thermal insulation

Tanks up to 500l are supplied with a hard polyurethane insulation 55 mm thick with a white PVC surface. 750 and 1000l tanks are supplied with a hard polyurethane insulation 75 mm thick with white leatherette surface.

## 1.4 - Connection points on the tank

2× lateral with G 5/4" inner thread, for the heating coil (750 and 1000l tanks have a G 6/4" thread)

2× lateral with G 5/4" inner thread, for cold water inlet and hot water outlet (200, 300 and 400l tanks have a G 1" thread)

2× lateral with G 1/2" inner thread, for a temperature sensor and thermometer (RBC 1000 HP tank has one extra sheath)

1× lateral with G 1" inner thread, for circulation (200, 300 and 400l tanks have a G 3/4" thread)

1× top with G 5/4" inner thread, for a magnesium anode rod (750 and 1000l tanks have 2 upper anode rods)

1× lateral with G 6/4" inner thread, for an el. heating rod (not in RBC 1000 HP)

1× flange for the lateral inspection hole

## 1.5 - Packing

Tanks are delivered standing, each screwed to its pallet, packed in bubble wrap. It is forbidden to transport and/or store the storage tanks in a horizontal position.

# 2 - General Information

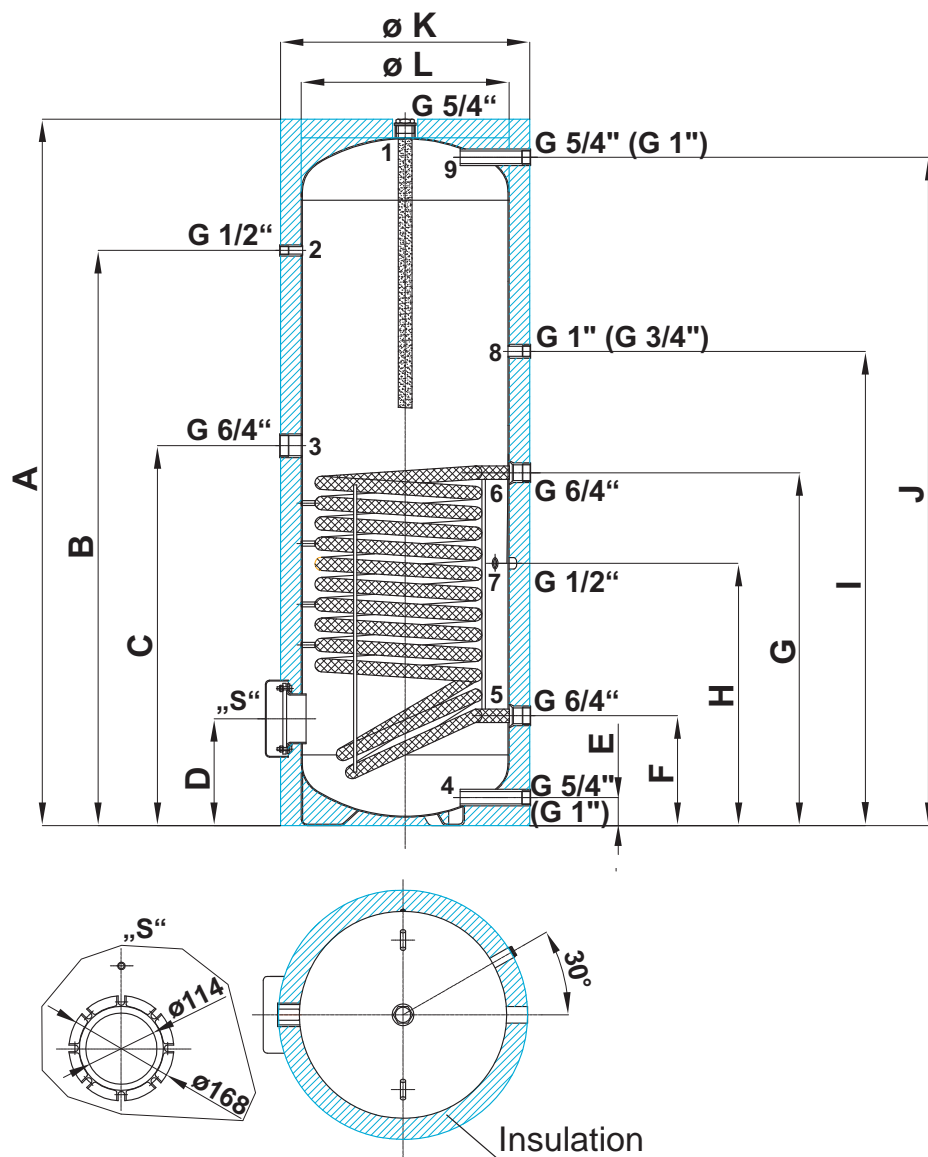
The appliance shall be installed by a qualified person according to valid rules and Manufacturer's Instructions.

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.

Using the tank for other purposes than stated above is forbidden and the manufacturer accepts no responsibility for damage caused by improper or wrong use.

### 3 - Technical Data and Dimensions of a RBC HP Storage Water Heater



Tank code .....	<b>a</b>
Total tank volume .....	<b>b</b>
Heating coil volume .....	<b>c</b>
Heating coil surface area .....	<b>d</b>
Empty weight (transport) .....	<b>e</b>
Max. working temperature - tank .....	<b>95 °C</b>
Max. working temperature - heating coil .....	<b>110 °C</b>
Max. working pressure - tank .....	<b>10 bar</b>
Max. working pressure - heating coil .....	<b>16 bar</b>
DHW heating $\Delta t = 35$ °C (80/60 - 10/45) - coil .....	<b>f</b>

Note: Values in brackets in the figure are valid for RBC200HP - RBC400HP tanks.

Model		RBC 200HP	RBC 300HP	RBC 400HP	RBC 500HP	RBC 750HP	RBC 1000HP*
Tank code	a	10534	10535	10536	8546	10537	7883
Tank volume [l]	b	200	300	400	500	750	1000
Heating coil volume [l]	c	13.5	23.1	30	36.3	46.2	63
Heating coil surface area [m <sup>2</sup> ]	d	3	3.8	5	5.9	7.5	10
Empty weight (transport) [kg]	e	128	155	187	220	290	320
DHW heating $\Delta t=35\text{ }^{\circ}\text{C}$ (60/40 - 10/45) [l/h] ([kW])	f	934 (38)	1179 (48)	1572 (64)	1880 (75)	2334 (95)	3186 (127)
Dimensions [mm]	A	1265	1710	1655	1785	1870	2120
	B	1040	1430	1385	1475	1450	1730
	C	940	1150	1165	1335	1300	-
	D	257	270	280	360	400	400
	E	67	67	79	175	220	220
	F	210	230	250	295	370	345
	G	890	1080	1100	1235	1250	1695
	H	593	653	690	825	775	542 a 1193
	I	990	1200	1205	1375	1440	1235
	J	1164	1609	1541	1595	1590	1840
	ø K	610	610	710	760	950	950
	ø L	500	500	600	650	790	790

\* RBC1000HP tank has no G 6/4" sleeve for a heating rod.

## 4 - Operation

This tank is designed for operation in closed pressure circuits. Hot water is heated in the tank via the integrated heat exchanger (heating coil) from several possible heat sources like various kinds of heating boilers, renewable energy sources (heat pumps, solar collectors). An electric heating rod can be installed into the tank for DHW backup heating.

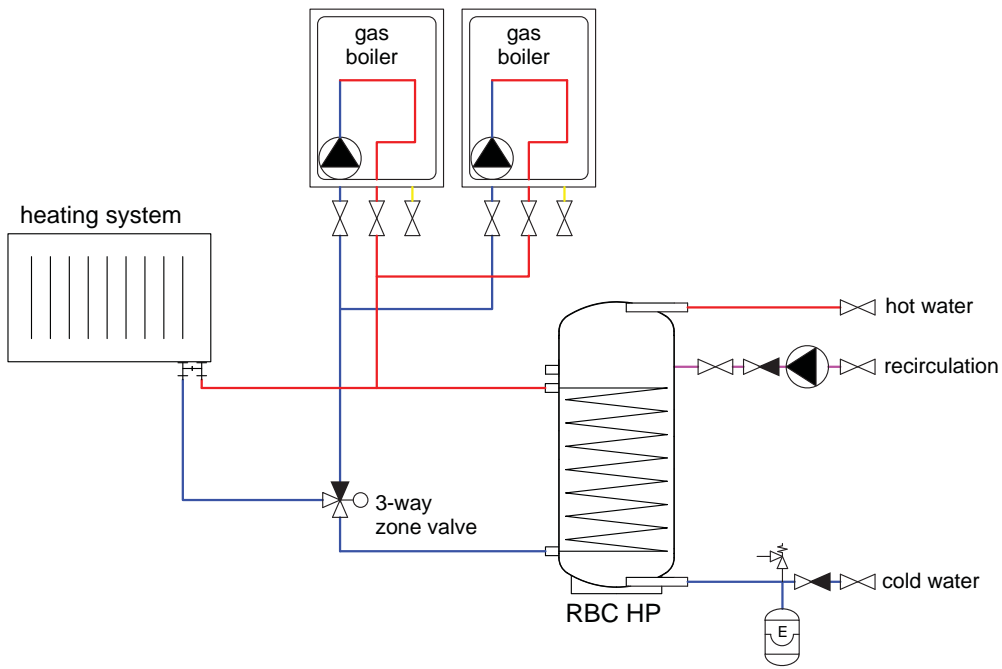
Hot water temperature should be set to 60-65 °C. This temperature guarantees the best operation and at the same time, it prevents formation of Legionella bacteria.

## 5 - Examples of Assigning Connection Points

Conn. point	Example I. with a cascade of gas boilers	Example II. with a solar system	Example III. with a heat pump
1	magnesium anode rod	magnesium anode rod	magnesium anode rod
2	thermometer	thermometer	thermometer
3	plug	plug	electric heating rod
4	cold water inlet	cold water inlet	cold water inlet
5	outlet to a boiler	outlet to a solar system	outlet to a heat pump
6	inlet from a boiler	inlet from a solar system	inlet from a heat pump
7	temperature sensor, thermostat	temperature sensor	temperature sensor
8	recirculation	plug	recirculation
9	hot water outlet	hot water outlet	hot water outlet
flange	blinded	blinded	blinded

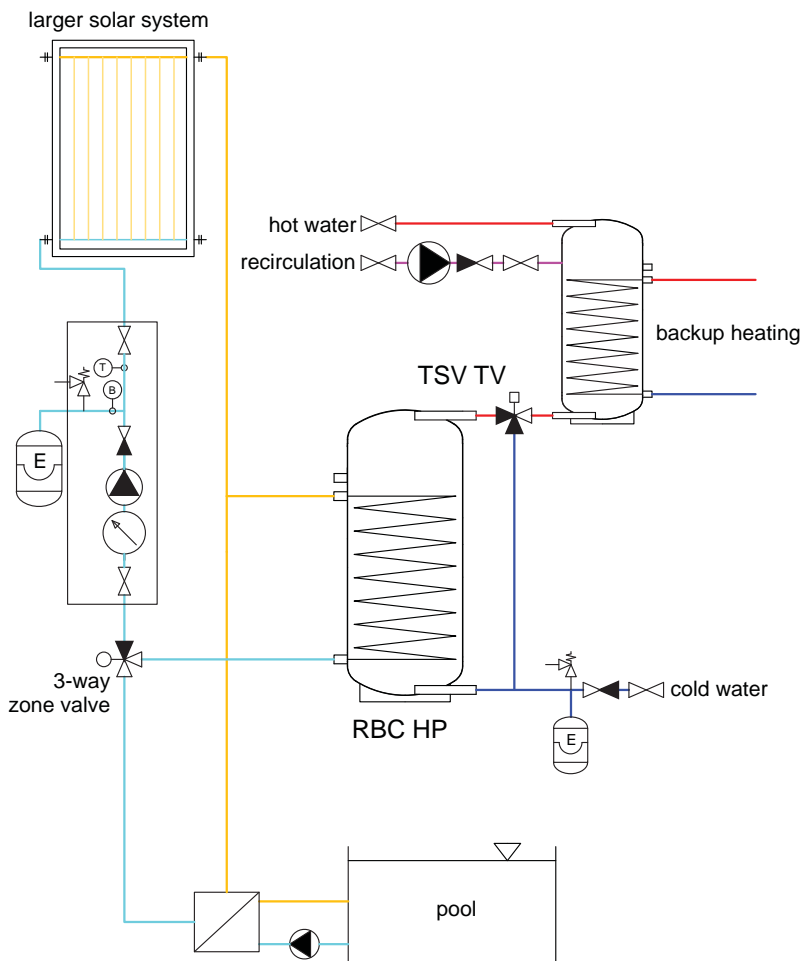
### Example I.

- with a cascade of gas boilers

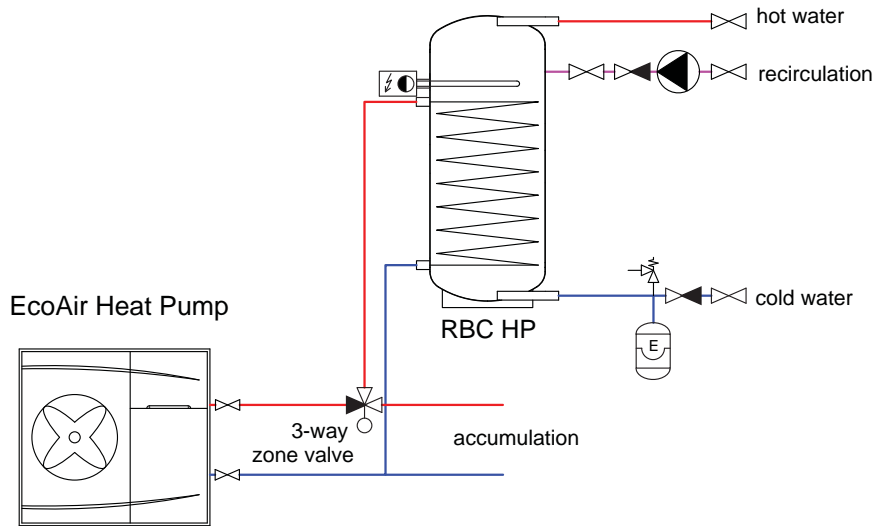


### Example II.

- with a solar system



**Example III.**  
- with a heat pump



**Table of limit values for total dissolved solids in hot water**

Description	pH	Total dissolved solids (TDS)	Ca	Chlorides	Mg	Na	Fe
Max. value	6.5 - 9.5	600 mg/l	40 mg/l	100 mg/l	20 mg/l	200 mg/l	0,2 mg/l

# 6 - Installation and Commissioning

Installation must meet valid rules and may be done only by qualified staff. The tank shall be placed on the floor, as close to the heat source as possible. **Warning: Defects caused by improper installation, use or handling are not covered by warranty.**

## 6.1 - Connection to heat sources

Connect heating circuits to the inlet and outlet of the heating coil. The heat source for the tank - an enameled coil - connect with G 5/4" couplings.

## 6.2 - Connection to a solar system

The tank can be used with a solar system. In such a case, the inlet for hot heat-carrying liquid coming from the solar system shall be connected to the G 5/4" upper sleeve and the lower outlet connects to the return piping to the solar system. Insulate all the piping between the tank and the solar system.

## 6.3 - Heating rod installation

The G 6/4" side sleeve is designed to accommodate an electric heating rod (RBC 1000HP tank has no sleeve for a heating rod). Heating rods of output up to 12 kW can be used (depending on the tank diameter and rod length), connected either directly to the mains (thermostat-equipped rods), or to a heating system controller. The installation may be done by qualified staff only.

**Warning: Electric heating elements shall be protected by a safety thermostat.**

## 6.4 - Connection to water mains

DHW piping shall be done according to valid rules. G 5/4" threaded couplers are used to connect the tank to a cold water inlet and hot water outlet. A 6bar safety valve shall be installed at the cold water inlet. Installation of a reducing valve to the tank inlet is recommended. If the pressure from water mains exceeds 6 bar, a reducing valve is necessary. In order to prevent water loss, an expansion tank should be installed at the cold water inlet as well (8 l volume for RBC 200HP, 12 l volume for RBC 300HP and 400HP, 18 l for RBC 500HP, 24 l for RBC 750HP and 35 l for RBC 1000HP).

Should the water be too hard, install a water softener before the tank. In case the water contains mechanical impurities, install a strainer.

A suitable thermostatic mixing valve should be installed at the hot-water outlet from the tank, preventing too hot water from entering the taps.

Install a drain valve to the lowest point of the tank.

Complete DHW piping shall be properly insulated.

## 6.5 - Electronic anode rod installation

A so called electronic anode rod can be used instead of the magnesium one. Its principle advantage is that its proper function is signaled by an indication lamp while a magnesium anode rod needs to be taken out for check. In such a case, just visual check of the indication lamp is sufficient.

Please use a G 5/4" to G 1/2" reducing coupler when installing an electronic anode. A space equal to the anode length (see the table below) is needed between the tank top and ceiling to install/exchange the electronic anode rod. In order to protect the tank properly and meet its warranty conditions, select an anode from the table below.

### Kit for RBC storage water heaters

Code	Anode rod length [mm]	For storage water heaters
9173	350 (200/150)	RBC 200HP
9174	500 (350/150)	RBC 300HP to RBC 500HP
9175	750 (550/200)	RBC 750HP to RBC 1000HP

## 6.6 - Commissioning

Fill the heating circuits with the appropriate fluids and air-bleed the entire system. Check all connections for leaks and verify the system pressure.

The quality of top-up and heating water is set by ČSN 07 7401:1992. **Hot water quality must meet the conditions shown in the Table of limit values for total dissolved solids in hot water, page 7 of this Manual.**

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 a proper function of all control and adjusting elements.

# 7 - Tank Insulation

## Product description

Thermal insulation is a component of tanks that prevents heat losses. Thermal insulation of hard polyurethane foam with zipped PVC layer is used.

## Warning

Insulation dismantling and installation shall be done in two or three persons. The hard-foam insulation with a PVC foil and zipper must not be dismantled/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 a lower temperature, there is a risk of damage, esp. to the zipper.

Do not use any tools for installation.

Keep away from open fire.

## Warranty on insulation

- Warranty shall become null and void if:
  - the product was used for other purposes than intended.
  
- Warranty does not cover:
  - usual wear and tear,
  - damage caused by fire, water, electricity or another 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.

## 8 - Maintenance, Replacement of Magnesium Anode Rod

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. The tanks are equipped with an anti-corrosion sacrifice magnesium anode rod. The anode rod shall be checked within 12 months after commissioning and subsequently always not later than 12 months after the last check. In locations where water contains more ferrites or calcites, it is recommended to check the anode every 6 months. If more than 1/3 of its total volume is consumed, the anode shall be replaced with a new one. Disregarded of its state, the anode rod shall be replaced with a new one within 24 months from commissioning. In case an electronic anode is used, the above described procedures are not necessary. Then only a visual check of the indication lamp is necessary every 3 months. Proper working of the Electronic Anode is described in its User's Manual.

If damage to a tank occurs due to neglected substitution of a magnesium anode rod or a non-working electronic anode, the warranty cannot be claimed.

## 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 according to the conditions described in this Manual and according to the Warranty Certificate. A Warranty Certificate is an integral part of the supply. Tank transport or storing in a horizontal position is considered a warranty violation!

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