

Regulus

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RGC 300 HP 2.5

Installation and Operation Manual
Hot Water Storage Tank
with enlarged heat exchanger for heating
RGC 300 HP 2.5

EN

RGC 300 HP 2.5

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1 - Description

RGC 300 HP 2.5 Hot Water Storage Tank (further “tank“) with one enlarged heat exchanger with G 1“F connections. The tank permits installation of an electric heating element into a G 6/4“ connection located on a flange.

Hot water storage tanks with an enlarged heat exchanger are particularly suitable for installations 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 heat sources and heating circuits, valves, non-return valves etc.

1.1 - Models

One model of 283 l volume.

1.2 - Tank protection

Enamelled inner surface of the tank and coil heat exchanger guarantee a long service life. Enamel is done according to DIN 4753-3 standard. Further qualitative improvement is reached thanks to a magnesium anode rod installed inside the tank.

1.3 - Thermal insulation

The tank comes with a non-detachable polyurethane foam insulation 50 mm thick with a grey surface made of hard plastics. RAL colour 7045.

1.4 - Packaging

These hot water tanks are delivered standing, each screwed to its separate pallet. It is forbidden to transport and/or store the tanks in a horizontal position.

2 - General Information

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

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.

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 - Operation

This tank is designed for operation in pressure circuits. Hot water is heated in the integrated hot-water heat exchanger (heating coil) inside the tank from the selected heat source. HP hot water tanks with an enlarged heat exchanger surface area are particularly suitable for DHW heating by a heat pump, however, also other heat sources can be used, e.g. a hot water boiler. An electric heating element can be installed into the tank for DHW backup heating. Due to the location of the heating element connection on the flange of the inspection hole, the hot water tank is also suitable for utilizing surplus from a PV system.

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

4 - Technical Data and Dimensions

Main Features	
Application	This hot water storage tank with an integrated heat exchanger and enamelled inner surface is intended for DHW heating. It comes fitted with non removable insulation and a magnesium anode rod that protects its inner surface from corrosion. As an option, an electronic anode rod can be installed instead of the magnesium one, for the codes see the Accessories table. If desired, an electric heating element can be installed into the hot water tank.
Working fluid	Water (tank), water, water-glycol mixture or water-glycerine mixture (max. 2:1) (heat exchanger).
Code	19856

Energy Efficiency Data (as per EC Regulation No. 812/2013)	
Energy efficiency class	C
Standing loss	86 W
Storage volume	271 l

Technical Data	
Total tank volume	283 l
Fluid volume in tank	271 l
Fluid volume in heat exchanger	12 l
Heat exchanger surface area	2.5 sqm
Max. temperature in tank	95 °C
Max. temperature in heat exchanger	110 °C
Max. pressure in tank	10 bar
Max. pressure in heat exchanger	10 bar
Tank diameter	600 mm
Tank diameter with insulation	700 mm
Tank overall height	1205 mm
Tipping height	1400 mm
Empty weight	120 kg

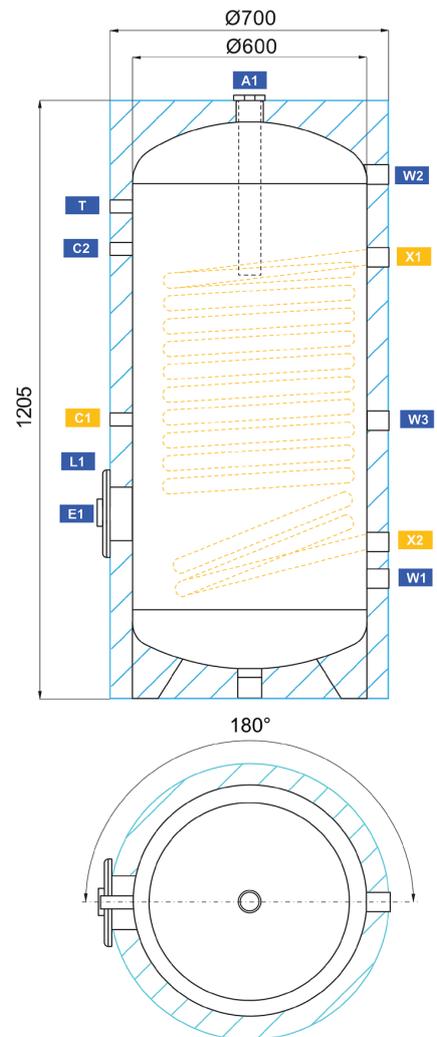
Hot water heating from 10 to 45°C at heating water inlet temperature of 60°C	
Heat exchanger	990 l/h (40 kW)

Materials	
Tank	S235JR, inner surface enamelled (DIN 4753-3)
Heat exchanger	S235JR+N, outer surface enamelled (DIN 4753-3)
Insulation	PU foam (hard)
Outer surface of the insulation	hard plastics – RAL 7045

Accessories	
El. heating element	models ETT-A, D, F, M, N, P
Heating element max. length	470 mm
Electronic anode rod	code 9176

Spare parts (magnesium anode rods)	
Mg anode (A1), G 5/4"	code 464

Dimensions			
pos.	description	connection	height [mm]
DHW heating			
W1	Cold water	G 1" F	181
W2	Hot water	G 1" F	1054
W3	Recirculation	G 1" F	758
Auxiliary heat source			
E1	Electric heating element	G 6/4" F	318
Control and safety			
C1	Temperature sensor	G 1/2" F	613
C2	Temperature sensor	G 1/2" F	868
T	Thermometer	G 1/2" F	973
Heat sources			
X1	Inlet to heat source	G 1" F	846
X2	Return to heat source	G 1" F	258
Other			
L1	Flange	8 x M10	318
A1	Magnesium anode rod	G 5/4" F	1205



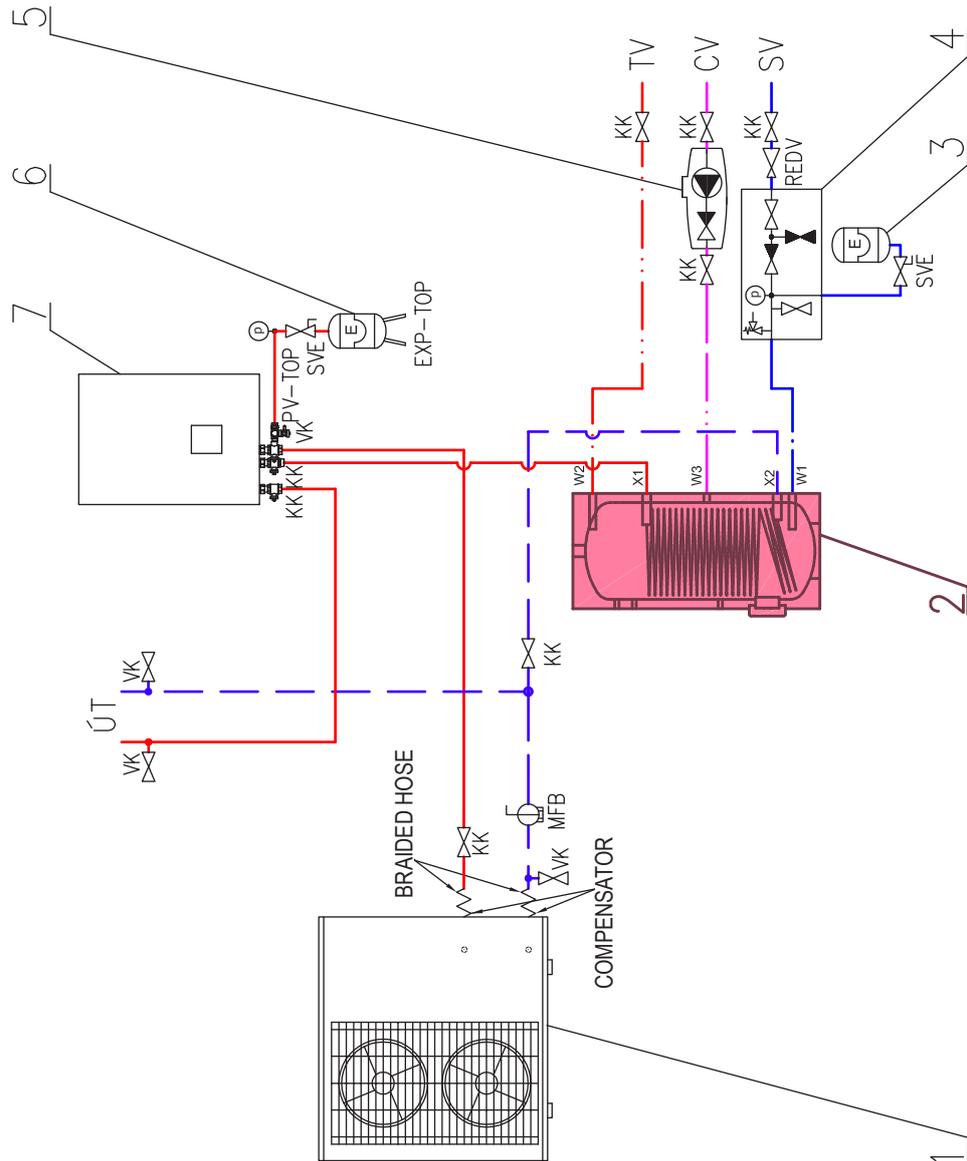
5 - Typical Layout Example with Hot Water Storage Tank

Example
- With a heat pump

KEY

- 1 - Regulus heat pump (RTC, CTC)
- 2 - RGC 300 HP 2.5 hot water storage tank
- 3 - DHW expansion vessel
- 4 - safety kit for HW storage tank
- 5 - pump station for DHW recirculation - CSE TV ZV
- 6 - heating system expansion vessel
- 7 - RegulusBOX indoor unit

- SV - cold water
- TV - hot water
- CV - hot water recirculation
- ÚT - central heating (heating system)
- KK - ball valve
- ZV - check valve
- AOV - automatic air vent valve
- PTR - pressure temperature relief valve
- REDV - pressure reducing valve (optional)
- VK - drain valve
- SVE - expansion vessel service valve
- PV-ÚT - safety valve for heating system
- MFB - Magnet Filterball



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 the heat source to the heat exchanger inlet and outlet X1 and X2 using G 1" fittings.

6.2 - Installation of an electric heating element

The G 6/4" side connection marked E1 is designed to accommodate an electric heating element. The hot water storage tank can be equipped with an el. heating element max. 470 mm long. It can be power-supplied either directly (thermostat-equipped elements), or via a controller for the entire heating system. Electric heating elements shall be installed by an authorized person only.

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

6.3 - Connection to water mains

DHW piping shall be done according to valid rules. Connect the tank to a cold water inlet and DHW outlet using fittings. Install a safety kit at the inlet to the tank that meets the requirements of EN 12 828, e.g. code 18678. 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 of 12 l volume should be installed at the cold water inlet as well.

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

Install a PTR valve at the DHW outlet from the tank, e.g. code 17240 with the connection kit 17525. A suitable anti-scald valve shall be installed at the hot-water outlet from the tank that prevents too hot water from entering the taps.

Install a drain valve at the lowest point of the tank. Complete DHW piping shall be properly insulated.

6.4 - Electronic anode rod installation

A so called electronic anode rod can be used instead of the magnesium one. Its principle advantage is that it does not need to be taken out for check. Just a visual check of the electronic anode is sufficient.

The magnesium anode rod needs to be removed from the hot water tank to install the electronic anode rod. There must be sufficient space above the tank to insert the electronic anode rod. The code of the kit with electronic anode rod is 9173, the anode rod is 350 mm long.

6.5 - Commissioning

Ground the tank before commissioning.

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

Fill the hot water storage tank with cold water using the following procedure:

- open the shut-off valve at the inlet to the tank;
- open the hot water valve of the mixing tap, as soon as the water starts to flow out of the mixing tap, the filling is complete, close the tap
- check the system pressure and connections for leaks.

Set the heating controller in compliance with the documentation and manufacturer's recommendations. Check regularly a proper function of all control and adjusting elements.

Hot water quality must meet the conditions shown in the Table of limit values for total dissolved solids in hot water.

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

7 - Maintenance, Replacement of Magnesium Anode Bar

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 tank connections for leaks.

The tanks come equipped with an anti-corrosion sacrifice magnesium anode rod as standard; it protects its inner parts against corrosion. 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 rod every 6 months. If more than 1/3 of its total volume is consumed, the anode rod shall be replaced with a new one. Disregarded of its state, the magnesium anode rod shall be replaced with a new one within 24 months from commissioning. In case an electronic anode rod is used, the above described procedures are not necessary. Then only a visual check of its indication lamp is necessary every 3 months. The indication of proper working of the electronic anode rod is described in its Manual.

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

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 Centre. 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. Tank transport or storing in a horizontal position is considered warranty violation!