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Installation and Operation Manual
HOT WATER STORAGE TANK
RGC 120H

EN

CE

RGC 120H

CONTENTS

1 - Description

RGC 120H Hot Water Storage Tank (further “tank“) with one enamelled heat exchanger (e.g. for connecting a gas boiler), permitting installation of an electric heating element.
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

The tank is available in volume of 120 l.

1.2 - The tank is available in volume of 120 l.

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

1.3 - Thermal insulation

The tanks come in an ecologic polyurethane foam insulation 30 mm thick with a metal mantle, white painted.

1.4 - Connection points on the tank - all are located on the top

2 tappings with G 3/4“ M, to heat exchanger circuit
2 tappings with G 3/4“ M, for cold water inlet and hot water outlet
1 tapping with G 3/8“ M, for temperature sensor (thermometer capillary inserted)
1 tapping with G 3/4“ M for recirculation
1 tapping with G 5/4“ F, for a magnesium anode rod
1 tapping with G 6/4“ M, for an el. heating element

1.5 - Packaging

Tanks are delivered standing, each screwed to its pallet, packed in a cardboard box. 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 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.

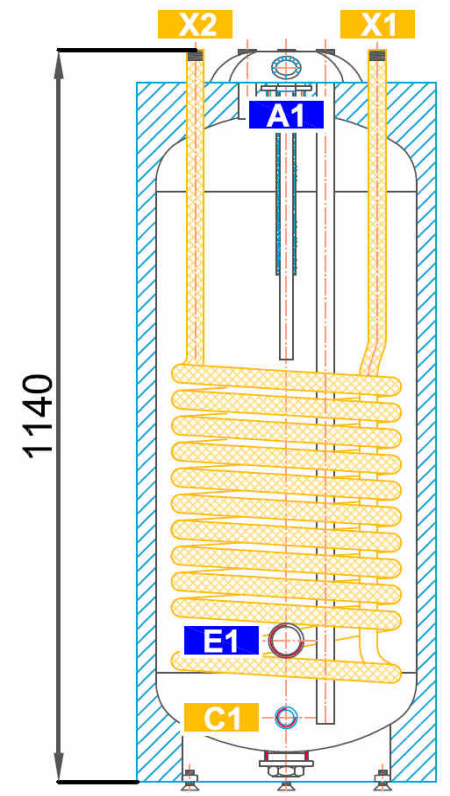
Using the tank for other purposes than stated above is forbidden and the manufacturer accepts no responsibility for damage caused by improper or wrong use.

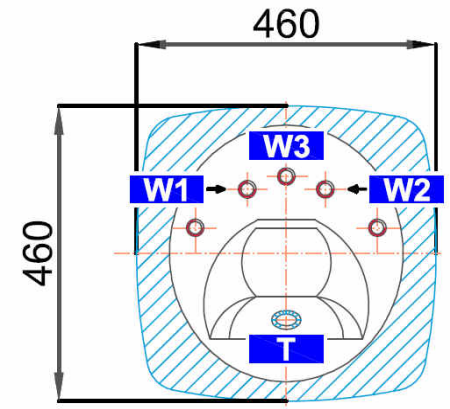
3 - Technical Data and Dimensions

RGC 120 H

Dimensions

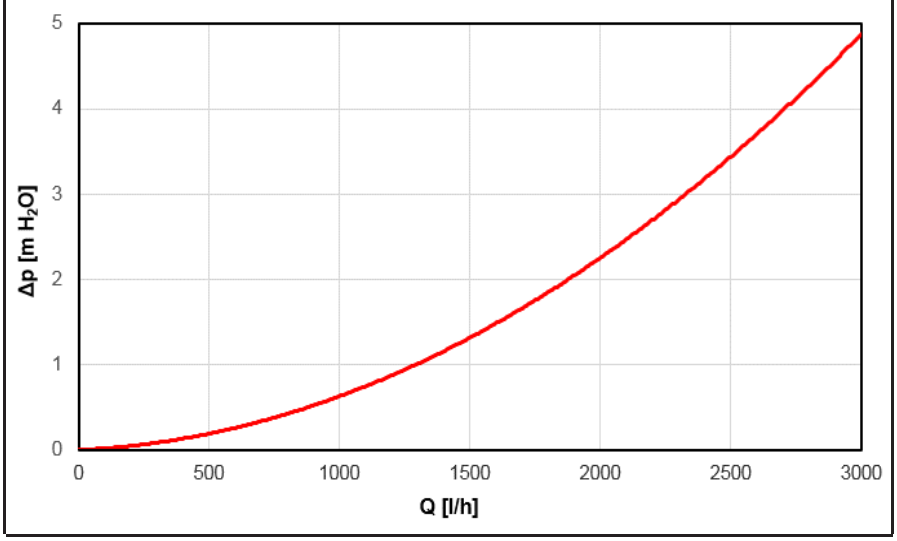
Tipping height 1205 mm.





TAPPINGS		
pos.	connection	height [mm]
DHW heating		
W1	G 3/4" M	1140
W2	G 3/4" M	1140
W3	G 3/4" M	1140
El. heating elements		
E1	G 6/4" M	220
Control and safety		
C1	G 3/4" M	100
T	G 1/2" F	1115
Solar thermal system		
X1	G 3/4" M	1140
X2	G 3/4" M	1140
Anode rod		
A1	G 5/4" F	1090

Heat exchanger pressure drop



RGC 120 H

Main features	
Application	water heating through heat exchanger and by el. heating elem. (optional)
Description	inner surface and heat exchanger enamelled, tank is insulated
Working fluid	water (tank), water, water/glycol mixture (max. 1:1) or water-glycerine mixture (max. 2:1) (heat exchanger)
Code	**10 493**

Energy Efficiency Data (as per EC Regulation No. 813/2013)	
	RGC 120 H
Energy efficiency class	**C**
Standing loss	**69 W**
Storage volume	**114 l**

Technical data	
Total volume	120 l
Heat exchanger volume	6 l
Max. working pressure in tank	6 bar
Max. working pressure in HE	10 bar
Max. temperature in tank	100 °C
Max. temperature in HE	100 °C
Heat exchanger surface area	1.2 sqm

Ambient conditions	
Ambient temperature	2 to 45 °C
Max. relative humidity	80%

Hot water heating from 10 to 45°C at heating water temp. of 60°C	
Heat exchanger	1020 l/h (41,5 kW)

Dimensions, weight	
Tank height	1140 mm
Tank diameter	Ø 400 mm
Tank dimensions w. insulation	Ø 460 mm
Tipping height	1205 mm
Empty weight	62 kg

Materials	
Tank	S235JR, inner side enamelled
Heat exchanger	S235JR+N, outer surface enamel
Outer mantle	S235JR, outer surface coated
Insulation	PU foam

Accessories	
El. heating element	models ETT-A, D, F, G, M
Heating elem. max. length / output	383 mm / 4,5 kW
Electronic anode rod	code 9 176

Spare parts	
Magnesium anode rod, l = 500 mm	code 448

4 - Operation

This tank is designed for operation in closed pressure circuits. Hot water is heated in the integrated hot-water heat exchangers (heating coils) inside the tank from several possible heat sources like various kinds of heating boilers, renewable energy sources (heat pumps). An electric heating element can be installed into the tank for DHW auxiliary 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

Tapping	Example: with a gas boiler
A1 - upper flange, G 5/4“	magnesium anode rod
T - thermometer, G 1/2“	thermometer
E1 - G 6/4“	plug
W2 - 4	cold water inlet
X1 - 5	outlet to boiler
X2 - 1	inlet from boiler
W3 - 3	recirculation
W1 - 2	hot water outlet
C1 - G 3/4“	plug

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

Example:
with a gas boiler

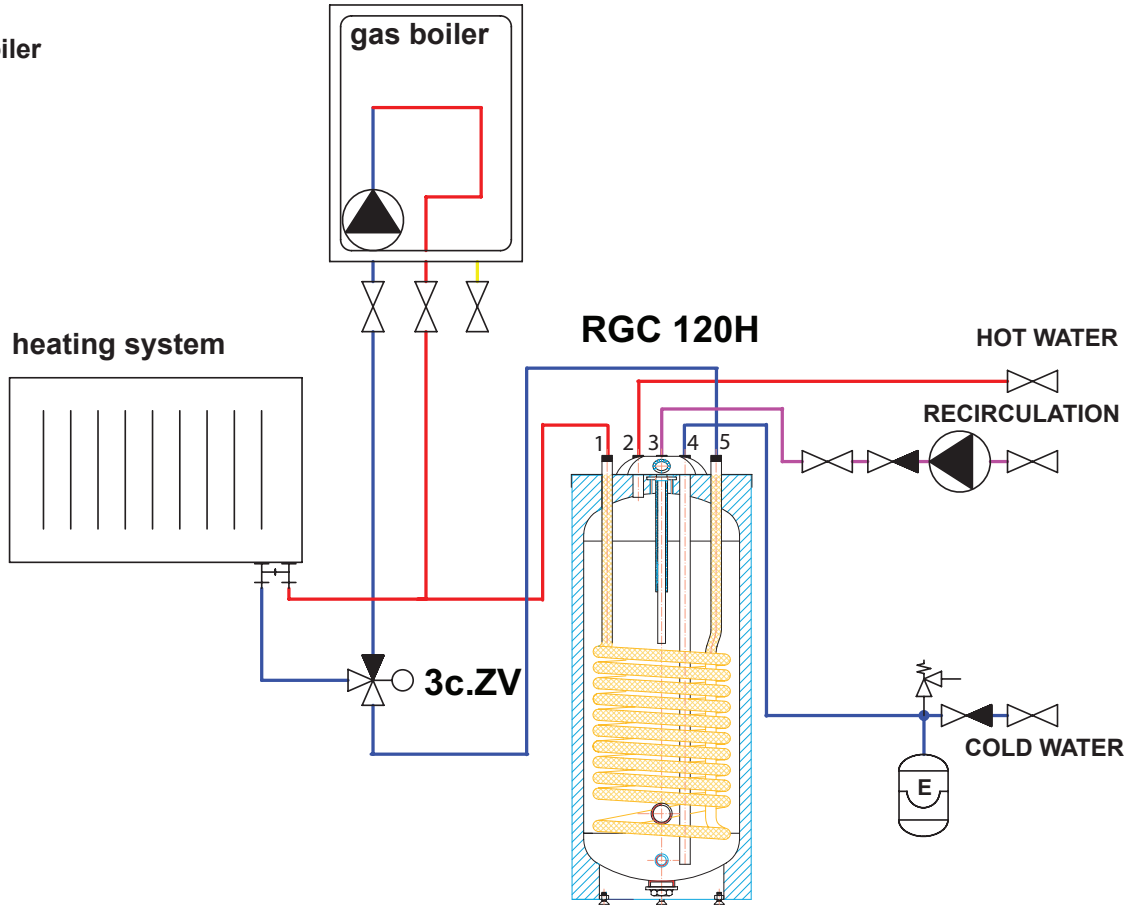


Table of limit values for total dissolved solids in hot water

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 inlets to and outlets from the heat exchanger with G 5/4” couplers.

6.2 - Connection to a solar thermal system

The G 6/4“ side tapping is designed to accommodate an electric heating element. The hot water storage tank can be equipped with an el. heating element depending on the tank diameter and the heating element length. It can be controlled either directly (thermostat-equipped elements), or by a heating system controller.

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

The installation may be done by qualified staff only.

6.3 - Connection to water mains

DHW piping shall be done according to valid rules. G 3/4” 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 o fat least 5 l volume should be installed at the cold water inlet as well.

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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.

Kit for RGC 120H hot water storage tanks

Code	El. anode rod length [mm]	For hot water storage tanks
9176	600 (350/250)	RGC 120H

Should an electronic anode rod or an el. heating element be installed, it is necessary to make a connection between the metal tank casing and the PE line.

6.5 - Commissioning

Fill the heating circuits with the appropriate fluids and air-bleed the entire system.
Fill the tank with cold water, following this procedure:

- open the shut-off valve at the tank inlet
- open a hot water tap, as soon as water starts flowing out, tank filling is finished, close the tap
- check all connections for leaks, check the system pressure

Hot water quality must meet the conditions shown in the Table of limit values for total dissolved solids in hot water, page 6 of this Manual.

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 - 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 tank 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 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 (code 448) shall be replaced with a new one within 18 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!

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