ELEKTROMET®

inteligentna technologia

MULTIFUNCTIONAL BUFFERS FOR HEAT ACCUMULATION AND HEATING DOMESTIC HOT WATER

VVS Multi 180/100

INSTALLATION AND OPERATING MANUAL GUARANTEE CARD

ELEKTROMET®
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Prior installation and commissioning of the tank, please read carefully the following Installation and Operating Manual as well as the Guarantee Terms.

Contents

The manufacturer reserves the right to any construction changes as part of the tank modernization without the need to include them in this manual.

1. Construction and intended use

The ***VVS Multi*** buffer tanks are designed to work with central heating boilers for the accumulation of heat accumulated in the circulating water with simultaneous heating of utility water.

The "tank in tank" system was used, in which hot heating water collected in the external tank washes the submerged utility water tank. In this way, it is at the same time a heat exchanger between boiler and utility water, which, in combination with the large heating surface of the tank walls and the layered arrangement of water in the tank (special design of connection stubs), allows to heat utility water in a very short time.

The utility water tank is made of steel sheet covered on the inside with high-quality high-temperature ceramic enamel from PEMCO, the world leader in the ceramic enamel industry for steel products. The tank covered with this enamel has a certificate of the National Institute of Hygiene. For additional protection against corrosion, this tank is also equipped with a magnesium anode.

The external tank filled with heating water acts as a heat buffer, especially useful for fuel boilers. It prevents frequent start-ups of the central heating boiler when rebuilding hot water supplies, which reduces fuel consumption and emissions. When using heat sources with variable capacity, it allows to accumulate excess heat that can be used later.

Directly in the internal tank it is possible to install an electric heater powered by single-phase 230V or three-phase 400V.

The VVS Multi tanks are insulated with soft polyurethane foam 5 cm thick in a skay type casing.

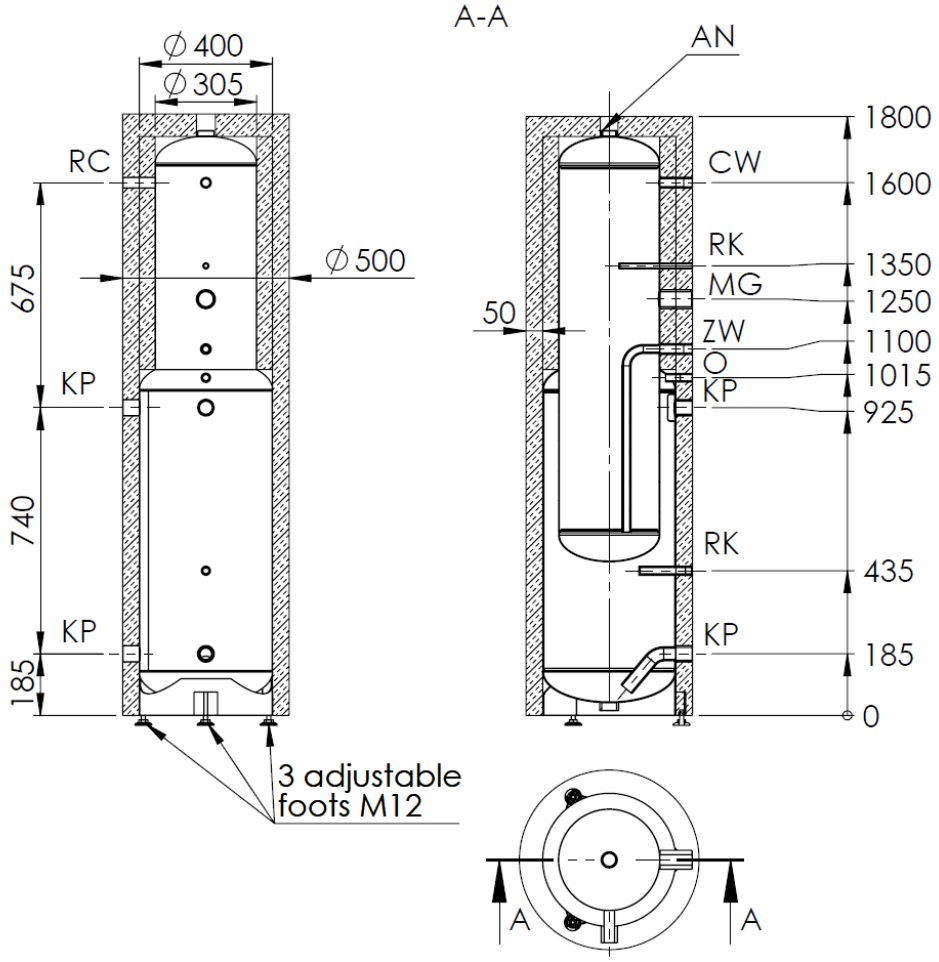


Fig. 1 **Construction and dimensions of the VVS Multi 180/100 tank**

Table 1. Technical data of the VVS Multi 180/100 buffer tanks

Parameters		unit	VVS Multi 180/100
External tank capacity		dm^3	80
Internal tank capacity		dm^3	100
Operating parameters of the external tank		max. operating pressure operating temperature p_r = 0,3 MPa; t_r = 95°C	
Operating parameters of the internal tank		max. operating pressure operating temperature p_r = 1,0 MPa; t_r = 95°C	
Thermal insulation	polyurethane foam	mm	50
magnesium anode M8x30 on a 1 ¼" plug		mm	ø30x 270
Weight		kg	~160

Table 2. Dimensions of the VVS Multi 180/100 tank connections

Connection			unit	VVS 180/100
CW	Hot utility water			Gwew ¾"
ZW	Cold utility water			Gwew ¾"
RC	Circulation			Gwew ¾"
RK	Capillary tube			$^3/_8$"
KP	Buffer connection stub			Gwew 1 ¼"
MG	Heater muff			Gwew 1 ½"
O	Venting			Gwew ½"
AN	Magnesium anode			Gwew 1 ¼"

CAUTION!
All connections have female threads.

2. Security and conditions for safe use

Tanks, especially those working in closed systems, may only be operated with an efficient safety valve with an opening pressure of max. 3,0 MPa, preferably installed on the heating water return. This valve protects the device against excessive pressure in the heating circuit (see the remark below).

Even during normal operation, water may leak temporarily from the safety valve, which indicates that the valve works properly. In such cases, it is not allowed to clog the outflow opening in any way.

On the connection supplying cold utility water to the domestic hot water tank a safety valve with a rated opening pressure of 1.0 MPa (10 bar) must be installed.

The internal tank should be connected to a water supply network in which the pressure does not exceed 1.0 MPa and is not lower than 0.3 MPa. If the pressure in the network often exceeds 0.8 MPa, it is recommended to install a pressure reducing valve or expansion vessel in front of the tank in order to limit the troublesome outflow of water from the safety valve. When the pressure in the water supply network exceeds 1.0 MPa, the installation of a pressure reducing valve is a must to avoid a continuous flow of water through the safety valve.

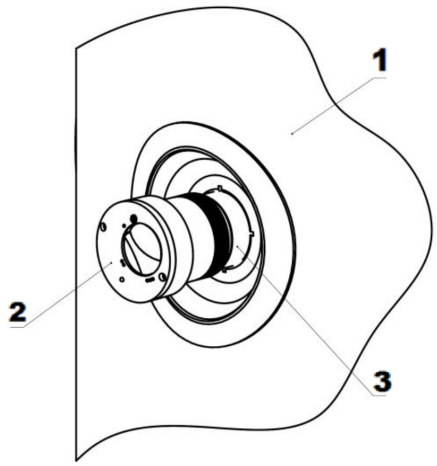
Due to the difference in operating pressures, first fill with water and connect the internal tank to the water supply system, then fill the buffer tank later (when draining, do the opposite).

1. **A safety valve must be installed on the heating water return to the tank. Mount it in accordance with the markings on the body.**
2. **<u>Do not install</u> any isolating valves between the safety valve and the tank.**
3. **The cold water supply to the internal tank must be fitted with a safety valve with an opening pressure of 1.0 MPa, which is supplied with the tank. It should be mounted so that the arrowhead on the valve body is in the direction of water flow.**
4. **Operation of the tank without a safety valve or with a failing safety valve is not permitted because it may cause a malfunction and pose a threat to human life and health.**

3. Installation of an electric heater of the EJK type

During the warranty period for the tank, only electric heaters adapted to enamelled tanks may be used, i.e. with insulated heating elements (insulated heating elements do not 'steal' the protective current generated by the magnesium anode). This is one of the **conditions of the guarantee**. The EJK heaters from ZUG ELEKTROMET meet this condition.

The installation should be carried out in accordance with the Installation and operating instructions for the electric heater.



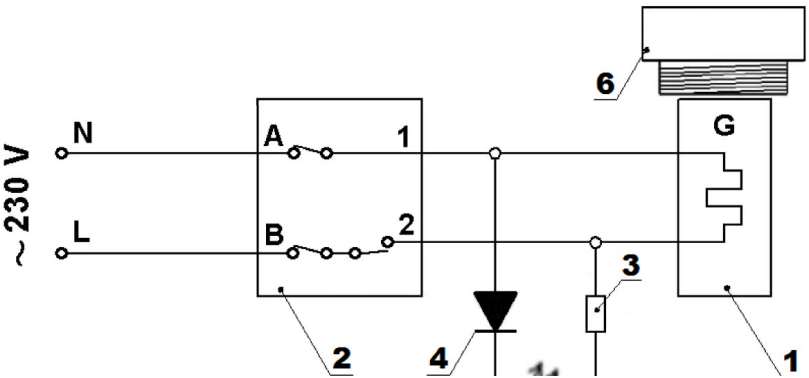
1 – tank enclosure
2 – EJK electric heater
3 –MG 1 ½" connection

Fig. 3 **Installation of electric heater**

During the warranty period for the tank, only heaters with insulated heating elements, e.g. the type EJK from ZUG ELEKTROMET, should be used.

Among the EJK electric heaters manufactured by ZUG ELEKTROMET, one can install 230 V single-phase heaters with 1.5 and 2.0 kW power and three-phase 400 V heaters with 3.0; 4.5 and 6.0 kW power.

The tank with a single-phase heater should be connected to the electric network through a plug-in socket with a grounding pin 230V/16A. Connection of the tank to the electric network is signalled by lighting up the green lamp, and switching on the heater by lighting the lamp up red. Electrical diagrams are shown in Figs. 4 and 5.



1 - heating element

2 - temperature regulator
+ temperature limiter
3 - resistor
4 - rectifying diode
5 - red LED
6 - metal head

Fig. 4 **Electrical diagram of the tank with a 1-phase electric heater**

Connection to the tank installation with a 3-phase electric heater in accordance with the electric diagram (Fig. 5) should be made by a qualified specialist.

1 - heating element
2 - temperature regulator
+ temperature limiter
3 - resistor
4 - metal head
LS1 - green indicator light
LS2 - red indicator light

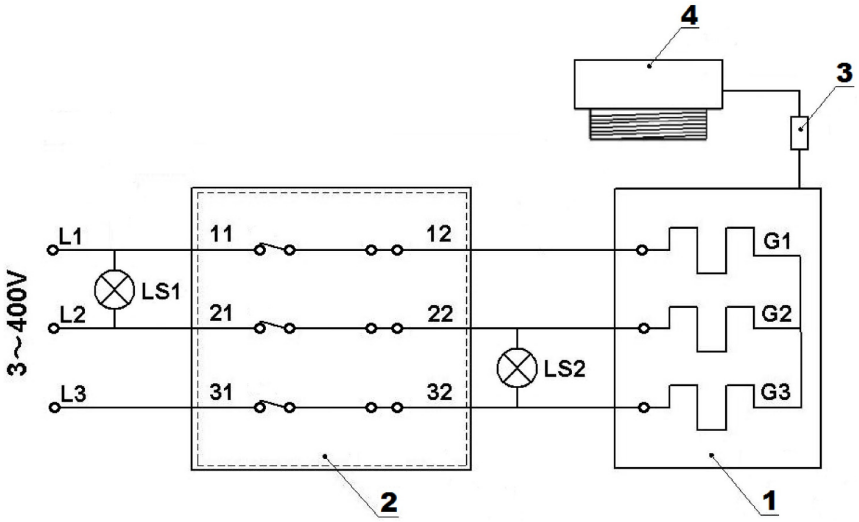


Fig. 5 **Electrical diagram of the tank with a 3-phase electric heater**

Do not insert the plug into an electrical outlet without making sure that the tank is filled with water.

4. Operation and use

1. Periodically, at least once a month and before each start-up after being taken out of service, check the correct functioning of the safety valve (according to the valve manufacturer's instructions).
2. A temporary low water outflow from the safety valve while the water in the internal tank is heating up is normal and means the safety valve is working properly.

Constant water leakage from the safety valve outlet opening indicates a faulty valve or high pressure in the plumbing. The outlet opening must not be blocked in any way.

3. In the event of a break in the use of the tank during the winter and the fear that the water in the tank may freeze, it must be drained by unscrewing the safety valve.
4. The magnesium anode is worn during operation and therefore its condition should be checked periodically, at least once a year, and replaced with a new one after 18 months at the latest. The appropriate magnesium anode can be purchased at the point of sale or from the tank manufacturer.
The anode is located in the upper end of the inner tank and to check its condition or replace it with a new one:
- cut off the cold water supply, unscrew the hot water tap for a moment, and then close the hot water outflow from the tank,
- remove the upper cover of the tank housing,
- remove the insulation element covering the plug with the anode attached,
- unscrew the plug together with the anode,
- install the new anode in the reverse order paying attention to the tightness of the connections.

The magnesium anode plays an important role in anticorrosion protection of the enamelled tank, and its regular control, timely replacement with a new one and correct assembly are conditions to maintain the guarantee covering the tank.
Replaced worn anodes and certification of their replacement together with proof of anode purchase, should be kept available for inspection by the manufacturer's service in the event of a tank failure.

5. Periodically, depending on the hardness of the water, remove accumulated sediment and loose scale.
6. At least once a week, heat the water in the internal tank for a few hours to 70ºC.
Constant maintenance of the 60ºC outlet temperature eliminates the risk of Legionella bacteria contamination of the domestic hot water system.

Waste Electrical and Electronic Equipment (WEEE)

This device **cannot** be perceived as household waste. By ensuring correct recycling, you help safe natural environment. To obtain detailed information regarding recycling of this product, contact a waste recycling service provider or the store in which the product has been purchased.

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DEKLARACJA ZGODNOŚCI
(DECLARATION OF CONFORMITY)

Pan **Wojciech Jurkiewicz**
(Mr) ……
(Imię, Nazwisko / Surname, Name)

reprezentujący firmę **ZUG "ELEKTROMET"** Gołuszowice 53 48-100 Głubczyce
(legal representative of) ……
(Nazwa i adres producenta / Manufacturer's Name and Address)

DEKLARUJE / DECLARES

z pełną odpowiedzialnością, że wyrób:
(with all responsibility, that the product):

Wielofunkcyjne bufory do akumulacji ciepła i podgrzewania wody użytkowej typu:
Multifunctional buffers for heat accumulation and heating domestic hot water of type:
VVS Multi 180/100

……
(nazwa, typ lub model / name, type or model)

został zaprojektowany, wyprodukowany i wprowadzony na rynek zgodnie z następującymi dyrektywami:
(has been designed, manufactured and placed on the market in conformity with directives):

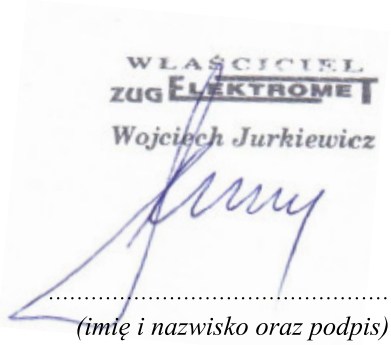
-Dyrektywa Urządzeń Ciśnieniowych (PED): 2014/68/UE
-Pressure Equipment Directive (PED): 2014/68/EU

-Dyrektywa Ekoprojektu: 2009/125/WE
- Ecodesign Directive 2009/125/EC

-Rozporządzenie Komisji (UE) nr 814/2013
-Commission Regulation (EU) No. 814/2013

-Rozporządzenie Parlamentu Europejskiego I rady (UE) 2017/1369
-Regulation of the European Parliamenrt and of the council (EU) 2017/1369

-Rozporządzenie Komisji (UE) nr 812/2013
-Comission Regulation (EU) No. 812/2013



Gołuszowice, 19. czerwiec. 2019r.
……
(miejsce i data wystawienia)
(place and date)

……
(imię i nazwisko oraz podpis)
(Name, Surname and Signature)

GUARANTEE CARD

NOTES:

• Guarantor gives guarantee on products which were bought, mounted and used on the territory of Poland

KJ Nr 1

Quality control .....

Manufacturing date .....

GUARANTEE TICKET 1	GUARANTEE TICKET 2	GUARANTEE TICKET 3	GUARANTEE TICKET 4	GUARANTEE TICKET 5
Product type	Product type	Product type	Product type	Product type
Serial number	Serial number	Serial number	Serial number	Serial number
Date of sale:	Date of sale:	Date of sale:	Date of sale:	Date of sale:
Stamp and signature of the seller	Stamp and signature of the seller	Stamp and signature of the seller	Stamp and signature of the seller	Stamp and signature of the seller