

# OPERATING and INSTALLATION MANUAL

## STATIONARY ELECTRICAL WATER TANKS

**OKCE 160 NTR / 2,2 kW**  
**OKCE 200 NTR / 2,2 kW**  
**OKCE 250 NTR / 2,2 kW**  
**OKCE 300 NTR / 2,2 kW**  
**OKCE 300 NTR / 3-6 kW**  
**OKCE 200 NTRR / 2,2 kW**  
**OKCE 250 NTRR / 2,2 kW**  
**OKCE 300 NTRR / 2,2 kW**  
**OKCE 300 NTRR / 3-6 kW**

**OKC 160 NTR / BP**  
**OKC 200 NTR / BP**  
**OKC 250 NTR / BP**  
**OKC 300 NTR / BP**  
**OKC 200 NTRR / BP**  
**OKC 250 NTRR / BP**  
**OKC 300 NTRR / BP**



Družstevní závody Dražice - strojírna s.r.o.  
Dražice 69, 294 71 Benátky nad Jizerou  
Phone.: +420 /326 370 990  
Fax: +420 / 326 370 980  
e-mail: prodej@dzd.cz



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## PRIOR TO THE INSTALLATION OF THE TANK, READ CAREFULLY THIS MANUAL!

Dear Customer,

The Works Cooperative of Dražice – Machine Plant, Ltd., would like to thank you for your decision to use a product of our brand. The present instructions will introduce you to the use, construction, maintenance and other information regarding electrical water tanks.



The manufacturer reserves the right for engineering modification of the product. The product is designed for permanent contact with drinkable water.

It is recommended to use the product in indoor environment with air temperatures from +2°C to 45°C and a relative humidity up to 80%.

Product's reliability and safety is proven by tests implemented by the Engineering Test Institute in Brno.

### Meaning of pictograms used in the Manual



**Important information for tank users.**



**Abiding by the recommendations of the manufacturer serves to ensure trouble-free operation and the long service life of the product.**



**Caution!**

**Important notice to be observed.**

# 1 PRODUCT TECHNICAL SPECIFICATION

## 1.1 FUNCTION DESCRIPTION

The construction of OKC 160 - 300 series tanks and their variety allow economic preparation of hot sanitary water (HSW) using different energy sources. Their nominal performance provides sufficient amount of hot sanitary water for flat units, premises, restaurants, and similar establishments. HSW can be heated by electric energy, different types of central heating boilers, recoverable energy sources (heat pumps, solar collectors) and combinations of those.

### **Sanitary water heating via thermal energy through heat exchanger**

Closing valves of the heat exchanger must be opened which ensures heating water flow from the hot water heating system. Together with a closing valve, it is recommended to install an air outlet valve at the inlet to the heat exchanger in order to bleed the heat exchanger as needed, in particular before the beginning of the heating season. The time it takes to heat up using the heat exchanger depends on the temperature and flow of water in the hot water heating system.

## 1.2 PRODUCT DESCRIPTION

The tank receptacle is welded of steel plate, heat exchangers of steel tube and, as a unit, enamelled to resist hot water. There is an additional protection against corrosion in the upper part of the tank and, in selected models, also in the side flange (see a list on p. 25) in form of mounted magnesium that adjusts electrical potential of the receptacle's inside, thus reducing the effects of it getting corroded. Tanks have hot and cold water outlets welded on, and a circulation opening. The receptacle is insulated with polyurethane foam of 40 - 65 mm thickness. The shell of the tank is steel plate coated with powder dye; connecting pieces are metal coated. The entire tank stands on three adjusting screws with a possibility of aligning floor unevenness in 10 mm range. Under the plastic cover on the side of the tank, there is a cleaning and revision opening ended with a flange; a heating unit of different power can be mounted in the opening. NTR and NTRR series tanks from 200 litre capacity are equipped with a 6/4" aperture for screwing in an additional heater TJ. This variant is used if the tank is connected in a solar system, or in a system with heat pump, in order to finish heating water to the desired temperature in the upper part of the tank. The tank is placed on the ground, next to the heating water source, or in its vicinity. The tank is tested with pressure of 0.9 MPa, heat exchangers with 1.5 MPa.

NTR version has one heat exchanger located in the lower part of the tank, and uses one source of heating water for heating.

The NTRR version is equipped with two exchangers for an optional combination of two heating water sources; both exchangers can be combined in a series. The NTR/BP and NTRR/BP series do not have a heating element. The tank cannot be used for flow heating of hot water in the heat exchanger.

# 1.3 DESIGN AND BASIC DIMENSIONS OF TANK

OKCE 160 NTR/2,2 kW, OKCE 200 NTR/2,2 kW, OKCE 250 NTR/2,2 kW  
 OKC 160 NTR/BP, OKC 200 NTR/BP, OKC 250 NTR/BP

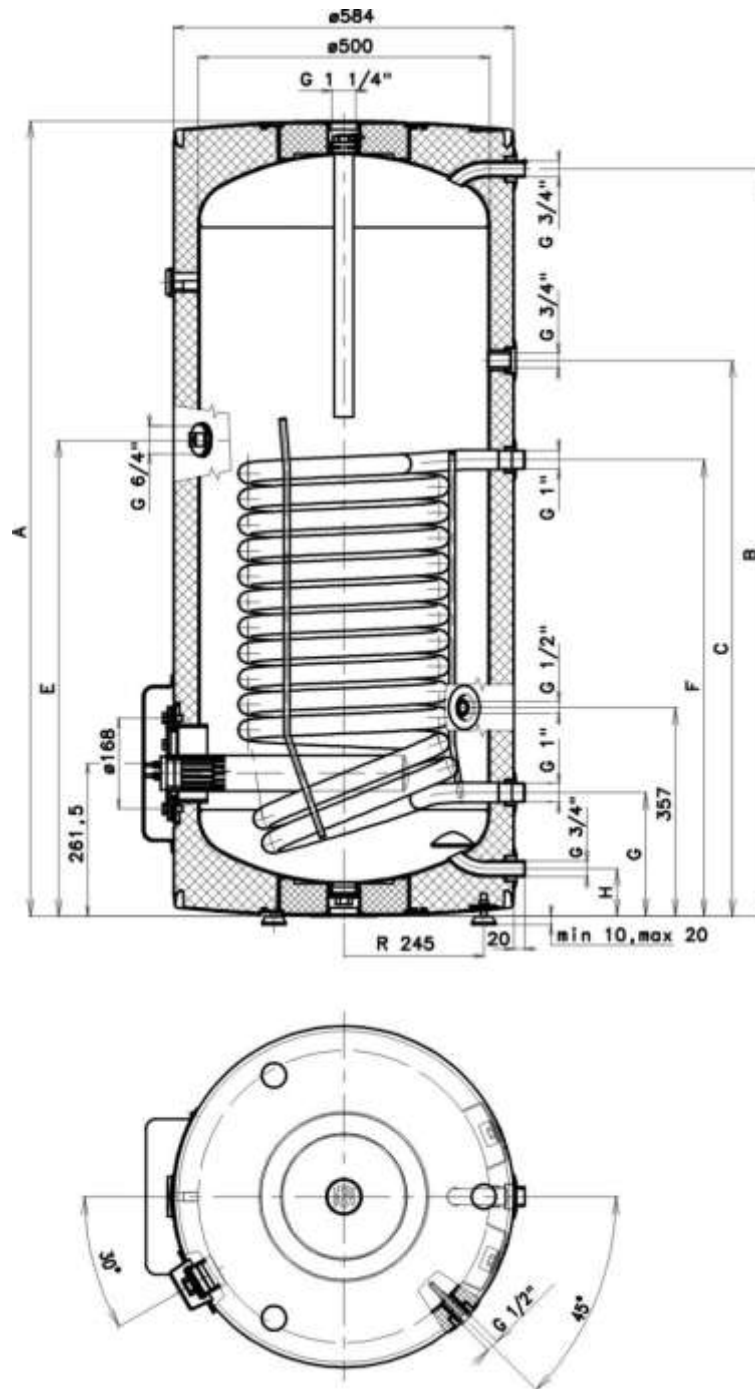


Figure 1

Type	OKCE 160 NTR/2,2 kW	OKCE 200 NTR/2,2 kW	OKCE 250 NTR/2,2 kW
	OKC 160 NTR/BP	OKC 200 NTR/BP	OKC 250 NTR/BP
A	1052	1362	1542
B	969	1282	1462
C	652	952	1062
E	-	813	813
F	782	782	782
G	212	212	212
H	82	82	82

160 l tank is not provided with a G 6/4" aperture.

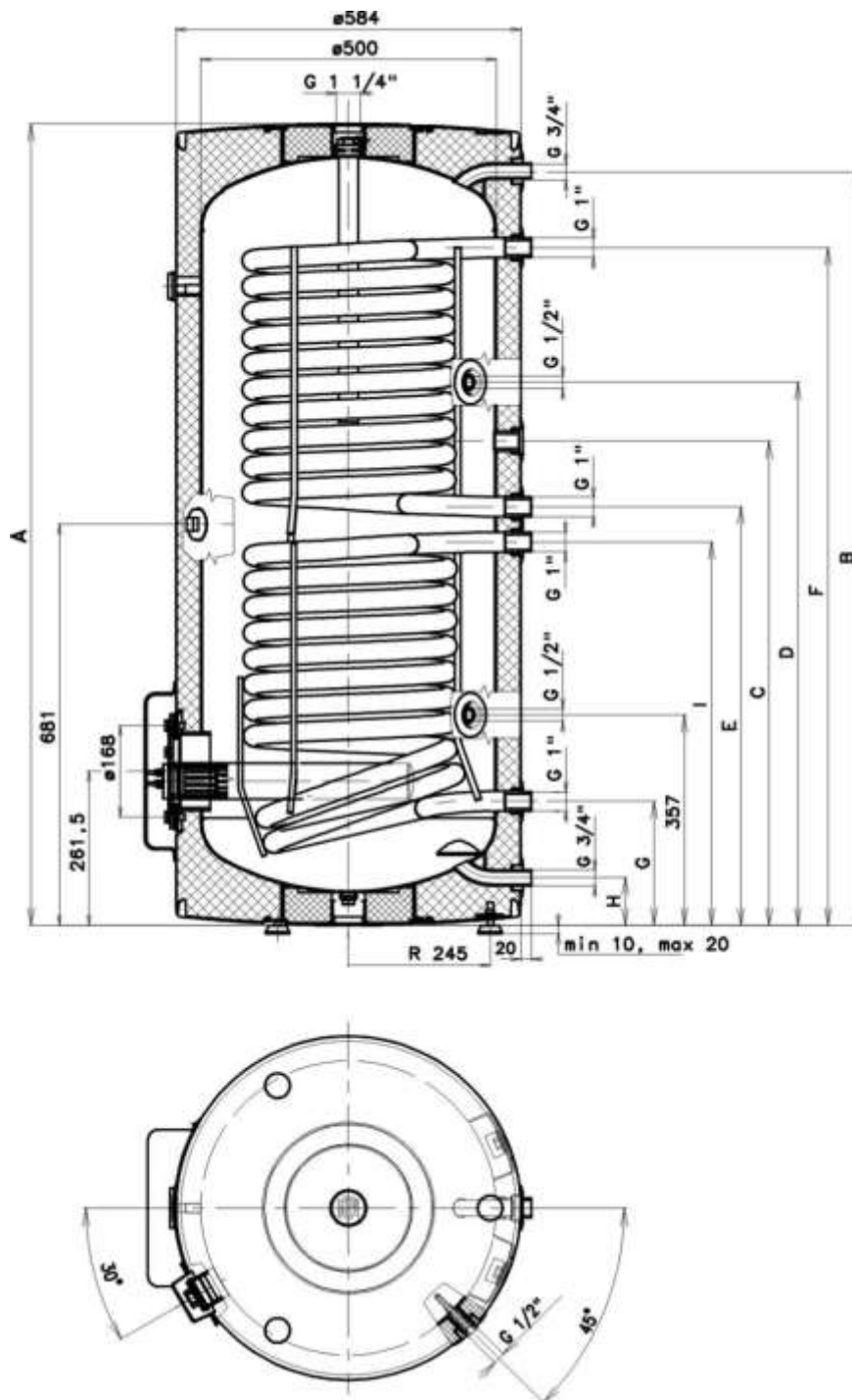


Figure 2

Type	OKCE 200 NTRR/2,2 kW	OKCE 250 NTRR/2,2 kW
	OKC 200 NTRR/BP	OKC 250 NTRR/BP
A	1362	1542
B	1282	1465
C	862	1065
D	922	1002
E	712	895
F	1152	1335
G	212	215
H	82	85
I	652	655

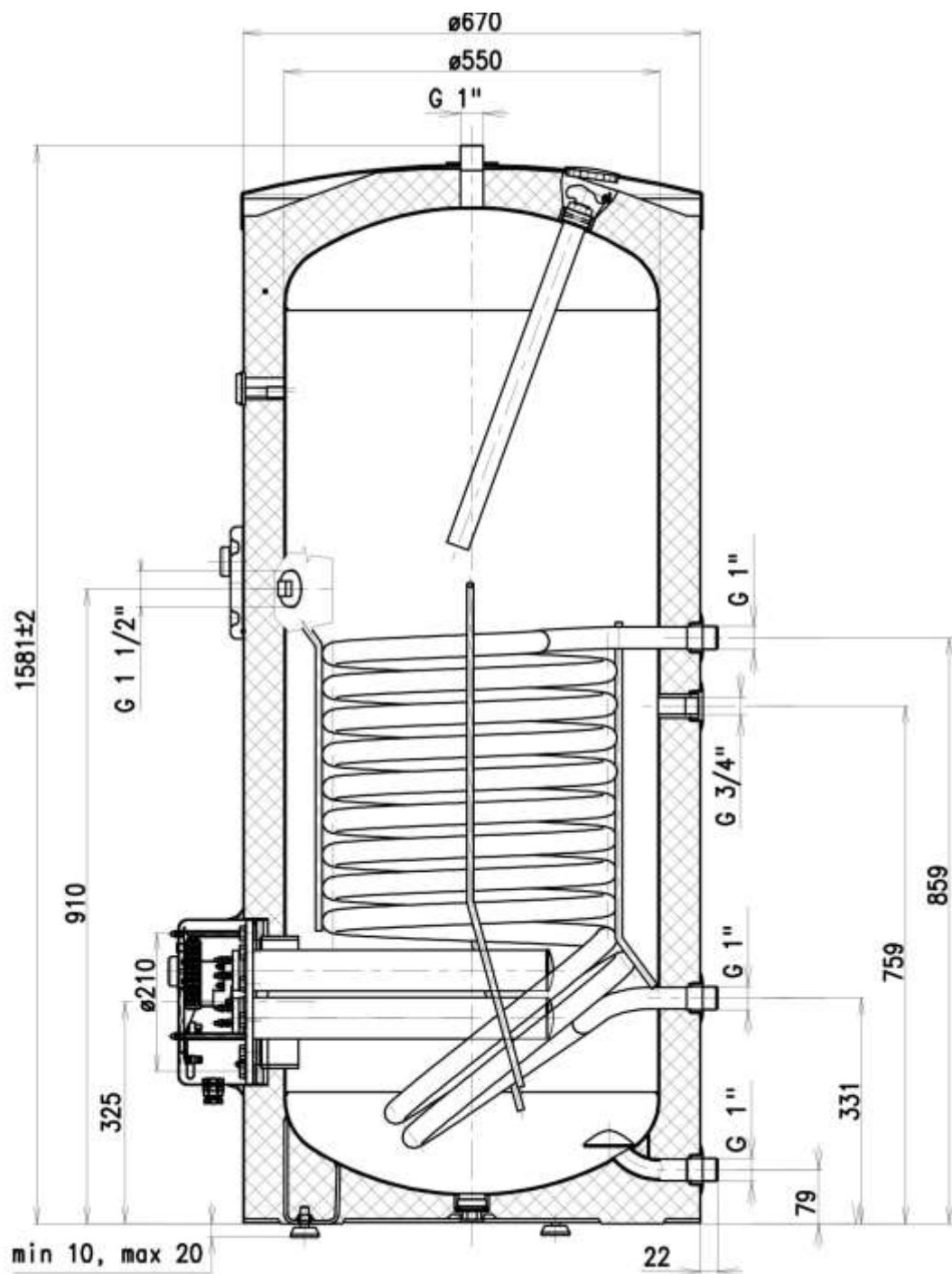


Figure 3

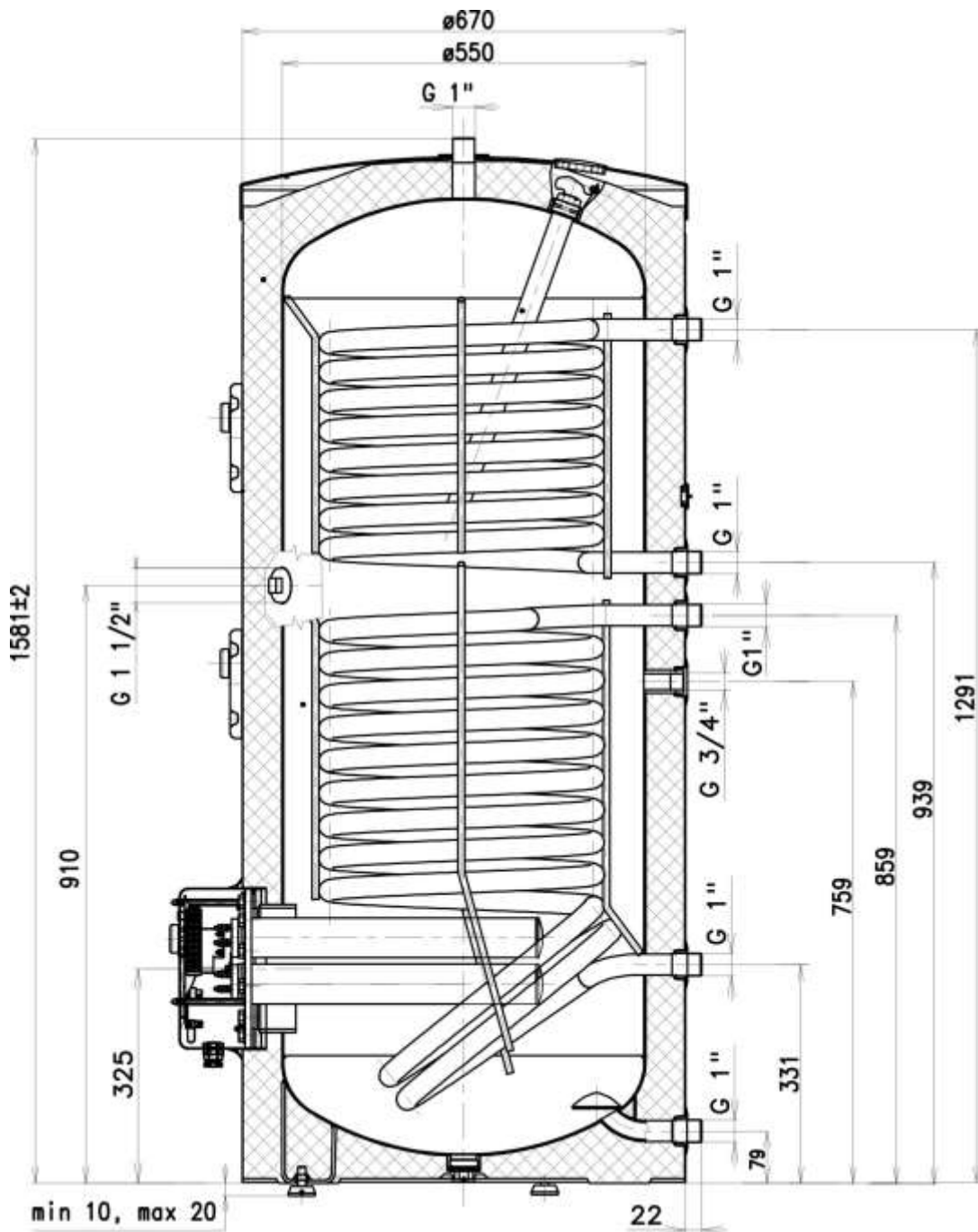


Figure 4



## 1.4 TECHNICAL PARAMETERS

MODEL	OKCE 160 NTR/2,2kW	OKC 160 NTR/BP
Capacity [l]	148	149
Weight without water [kg]	88	77
TANK OPERATING PRESSURE [MPa]	0.6	
HEAT EXCHANGER OPERATING PRESSURE [MPa]	1	
MAX TEMPERATURE OF HEATING WATER [°C]	110	
MAX TEMPERATURE OF HOT WATER [°C]	80	
Heating surface of bottom heat exchanger [m <sup>2</sup> ]	1.45	
Heating surface of upper heat exchanger [m <sup>2</sup> ]		
BOTTOM/UPPER HEAT EXCHANGER POWER AT HEATING WATER TEMPERATURE OF 80 °C AND FLOW OF 720 l/h [kW]	32	
PERMANENT BOTTOM/UPPER HEAT EXCHANGER HOT WATER POWER [l/h]	990	
TIME OF HEATING BY EXCHANGER FROM 10°C TO 60 °C [min]	17	
TIME OF HEATING BY ELECTRICITY FROM 10°C TO 60 °C [h]	4.5	
INPUT [kW]	2.2	-
ELECTRICAL CONNECTION OF CONTROL ELEMENTS	1 PE-N 230 V/50 Hz	
ELECTRICAL PROTECTION	IP 44	
STATIC LOSS [w]	75	75

Table 1

MODEL	OKCE 200 NTR/2,2kW	OKC 200 NTR/BP	OKCE 200 NTRR/2,2 kW	OKC 200 NTRR/BP
Capacity [l]	208		200	
Weight without water [kg]	95	92	106	103
TANK OPERATING PRESSURE [MPa]			0.6	
HEAT EXCHANGER OPERATING PRESSURE [MPa]			1	
MAX TEMPERATURE OF HEATING WATER [°C]			110	
MAX TEMPERATURE OF HOT WATER [°C]			80	
Heating surface of bottom heat exchanger [m <sup>2</sup> ]	1.45		1.08	
Heating surface of upper heat exchanger [m <sup>2</sup> ]	-		1.08	
BOTTOM/UPPER HEAT EXCHANGER POWER AT HEATING WATER TEMPERATURE OF 80 °C AND FLOW OF 720 l/h [kW]	32		2 x 24	
PERMANENT BOTTOM/UPPER HEAT EXCHANGER HOT WATER <sup>1</sup> POWER [l/h]	990		670/650 *1080	
TIME OF HEATING BY EXCHANGER FROM 10°C TO 60 °C [min]	22		28	16
TIME OF HEATING BY ELECTRICITY FROM 10°C TO 60 °C [h]			5.5	
INPUT <sup>2</sup> [kW]	2.2	-	2.2	-
ELECTRICAL CONNECTION OF CONTROL ELEMENTS	1 PE-N 230 V/50 Hz			
ELECTRICAL PROTECTION	IP 44			
STATIC LOSSES [W]	96	82	96	82

<sup>1</sup> Hot water 45 °C

<sup>2</sup> This information doesn't apply to NTR/BP types that don't contain a unit

\* Heat exchangers connected in a series

**Table 2**

MODEL	OKCE 250 NTR/2,2kW	OKC 250 NTR/BP	OKCE 250 NTRR/2,2 kW	OKC 250 NTRR/BP
Capacity [l]	241	242	235	234
Weight without water [kg]	106	103	116	112
TANK OPERATING PRESSURE [MPa]			0.6	
HEAT EXCHANGER OPERATING PRESSURE [MPa]			1	
MAX TEMPERATURE OF HEATING WATER [°C]			110	
MAX TEMPERATURE OF HOT WATER [°C]			80	
Heating surface of bottom heat exchanger [m <sup>2</sup> ]	1.45		1.08	
Heating surface of upper heat exchanger [m <sup>2</sup> ]	-		1.08	
BOTTOM/UPPER HEAT EXCHANGER POWER AT HEATING WATER TEMPERATURE OF 80 °C AND FLOW OF 720 l/h [kW]	32		2 x 24	
PERMANENT BOTTOM/UPPER HEAT EXCHANGER HOT WATER <sup>1</sup> POWER [l/h]	990		670/650 *1080	
TIME OF HEATING BY EXCHANGER FROM 10°C TO 60 °C [min]	28		36	20
TIME OF HEATING BY ELECTRICITY FROM 10°C TO 60 °C [h]			6.5	
INPUT <sup>2</sup> [kW]	2.2	-	2.2	-
ELECTRICAL CONNECTION OF CONTROL ELEMENTS		1 PE-N 230 V/50 Hz		
ELECTRICAL PROTECTION		IP 44		
STATIC LOSSES [W]	93	87	93	87

<sup>1</sup> Hot water 45 °C

<sup>2</sup> This information doesn't apply to NTR/BP types that don't contain a unit

\* Heat exchangers connected in a series

**Table 3**

MODEL	OKCE 300 NTR/2,2 kW	OKCE 300 NTR/3-6 kW	OKC 300 NTR/BP	OKCE 300 NTRR/2,2 kW	OKCE 300 NTRR/3-6 kW	OKC 300 NTRR/BP
Capacity [l]	294	292	296	288	285	285
Weight without water [kg]	116	122	111	150	155	148
TANK OPERATING PRESSURE [MPa]	0.6					
HEAT EXCHANGER OPERATING PRESSURE [MPa]	1					
MAX TEMPERATURE OF HEATING WATER [°C]	110					
MAX TEMPERATURE OF HOT WATER [°C]	80					
Heating surface of bottom heat exchanger [m <sup>2</sup> ]	1.08					
Heating surface of upper heat exchanger [m <sup>2</sup> ]	1.08					
BOTTOM/UPPER HEAT EXCHANGER POWER AT HEATING WATER TEMPERATURE OF 80 °C AND FLOW OF 720 l/h [kW]	35					27
PERMANENT BOTTOM/UPPER HEAT EXCHANGER HOT WATER <sup>1</sup> POWER [l/h]	1100					760
TIME OF HEATING BY EXCHANGER FROM 10°C TO 60 °C [min]	24					16
TIME OF HEATING BY ELECTRICITY FROM 10°C TO 60 °C [h]	8.5/6.3					
INPUT <sup>2</sup> [kW]	2.2	3-6	-	2.2	3-6	-
ELECTRICAL CONNECTION OF CONTROL ELEMENTS	1 PE-N 230 V/50 Hz					
ELECTRICAL PROTECTION	IP 44					
STATIC LOSSES [W]	83	83	83	83	83	83

<sup>1</sup> Hot water 45 °C

<sup>2</sup> This information doesn't apply to NTR/BP types that don't contain a unit

\* Heat exchangers connected in a series

**Table 4**

## 2 OPERATION AND FITTING INSTRUCTIONS

### 2.1 OPERATING CONDITIONS



The tank shall only be used in accordance with the conditions specified on the power plate and in instructions for electric wiring. Besides the legally recognized national regulations and standards, the conditions of connection prescribed by the local electrical and water enterprises must be observed, as well as the fitting and user manual.

The temperature at the place of the tank installation must be higher than +2°C; and the room must not freeze. The appliance has to be mounted at a convenient place; it means that the appliance must be easily available for potential necessary maintenance, repair or replacement, as the case may be.



If water is strongly calcareous we recommend that any of the common decalcifying devices (water filter) was installed with the appliance, or that the thermostat was set to the maximum operating temperature of 60°C (setting to position "60") -. For proper operation, drinkable water of adequate quality shall be used.



300 litre tanks are screwed to the bottom wooden pallet from the bottom by M12 screws. When the tank is released from a pallet and before put in service, 3 screw legs have to be mounted that are supplied as product accessories. Using three adjustable legs, vertical position of the tank can be ensured within 10 mm range.

### 2.2 ELECTRICAL INSTALLATION

Wiring for: OKCE 160 NTR/2,2 kW, OKCE 200 NTR/2,2 kW, OKCE 200 NTRR/2,2 kW, OKCE 250 NTR/2,2kW, OKCE 250 NTRR/2,2 kW, OKCE 300 NTR/2,2 kW, OKCE 300 NTRR/2,2 kW, OKCE 300 NTR/3-6 kW, OKCE 300 NTRR/3-6 kW

Water tank is equipped with universal electrical heating unit with either fixed or optional power of heating elements. A heating unit consists of a flange, to which one or three wells for ceramic heating elements and one thermowell are welded (see fig.). The unit is fixed with 8 M10 screws of 160 mm spacing, or 12 M12 screws of 210 mm spacing. In plastic cover of electrical installation is service and safety thermostat, tank operation pilot light and supply conductor bushing.

The sensors must be inserted all the way in; first the thermostat and then the safety fuse.

The performance of heating unit may be adjusted based on either required heating time or connecting possibilities of electric energy distribution in the place of use.

## 2.2.1 ELECTRIC HEATING UNIT'S TECHNICAL PARAMETERS

	Heating unit 2.2 kW		Universal heating unit 3-6 kW		
POWER kW	2.2	3	3	4	6
VOLTAGE	1 PE-N AC 230 V 50 Hz	1 PE-N AC 230 V 50 Hz	2 PE-N AC 400 V 50 Hz	3 PE-N AC 400 V 50 Hz	3 PE-N AC 400 V 50 Hz
ELECTRICAL PROTECTION	IP 44				
NUMBER OF HEATING ELEMENTS	1	3			
POWER OF ONE ELEMENT kW	2.2	2			

**Table 5**

When the tank is connected to power supply, the heating element heats water. The element is turned on and off by a thermostat. The thermostat may be set from 5°C to 74°C.



We recommend that the sanitary water temperature is set to the maximum of 60°C. This temperature ensures optimum operation of the tank since thermal losses are reduced, and electricity saved.

After reaching the set temperature, the thermostat switches off the electric circuit and thus discontinues water heating. The control light signals if the element is in operation (light is on) or if it is off (the light goes out). If the tank is out of service for longer time, the thermostat can be set to the “snowflake” symbol in winter period to avoid its freezing, or the power supply to the tank can be switched off.



Connection, repairs, and wiring inspections may only be implemented by company (person) authorised to such activity. Expert connection must be confirmed on the warranty certificate.

The tank is connected to the electrical network using a fixed mobile conductor with a switch that turns off all network poles and the circuit breaker (protector).

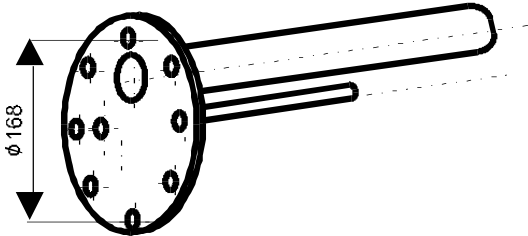
The degree of protection of electric parts of the tank is IP 44.

Follow the instructions for protection against electric shock injury advised in a standard applicable in the country of installation.

## 2.2.2 HEATING UNIT - FLANGES

OKCE 160 NTR/2,2 kW, OKCE 200 NTR/2,2 kW,  
OKCE 200 NTRR/2,2 kW, OKCE 250 NTR/2,2 kW,  
OKCE 250 NTRR/2,2 kW

Flange 2,2 kW

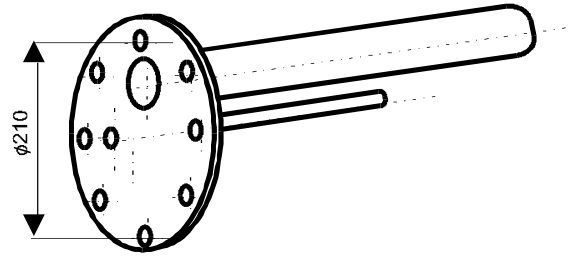


Fastening 8 x M10

Figure 1

OKCE 300 NTR/2,2 kW, OKCE 300 NTRR/2,2 kW

Flange 2,2 kW

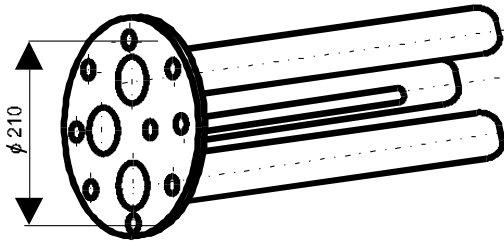


Fastening 12 x M12

Figure 6

OKCE 300 NTR/3-6 kW, OKCE 300 NTRR/3-6 kW  
scheme

Flange 3-6 kW



Fastening 12 x M12

Figure 2

Electric installation guard and wiring

Thermostat  
Operation indicator  
of the tank

Control voltage 230 V/50 Hz

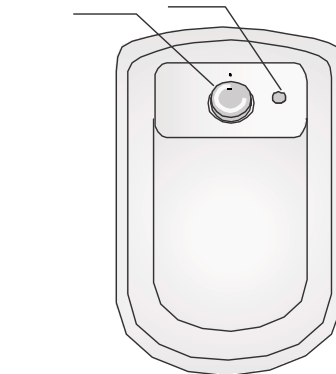
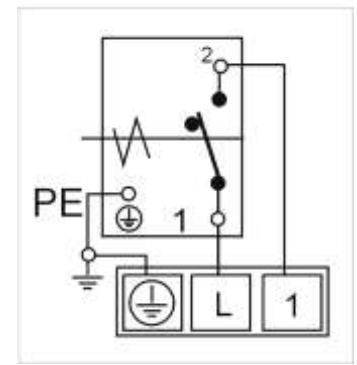


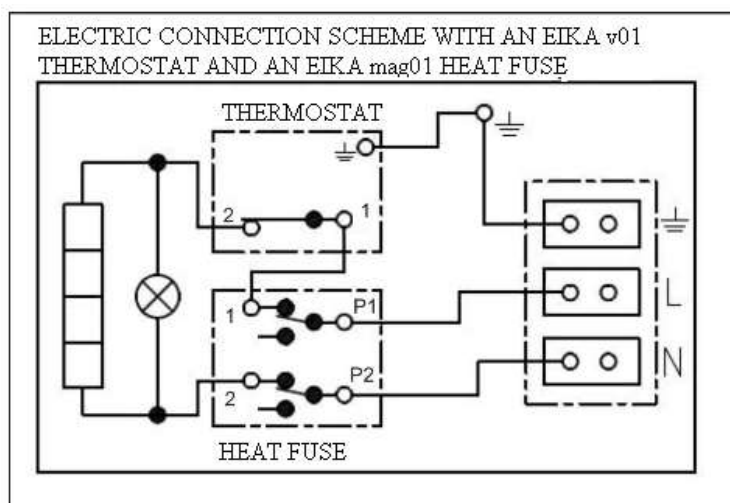
Figure 8



## 2.2.3 WIRING SCHEME

**Notice:** Factory connection must not be changed!  
**Heating unit 2.2 kW**

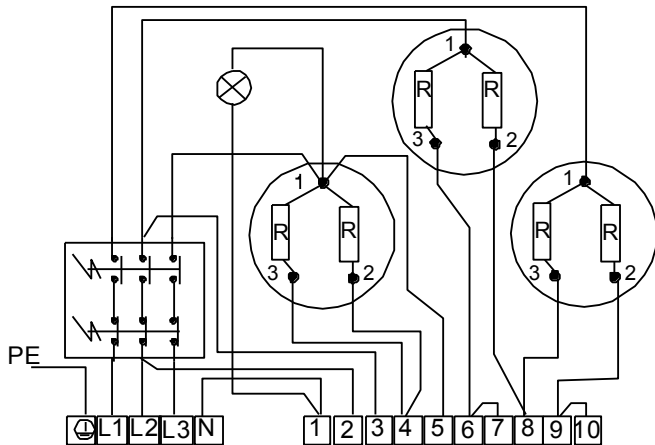
Figure 9



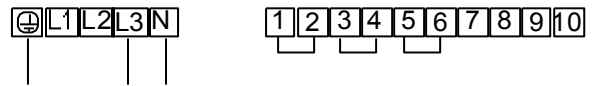
## Heating unit 3-6 kW

The 3-6 kW heating unit allows 4 universal types of connection based on either the required time of heating, or possibilities of electric network in the place of use. To achieve the chosen performance of the heating unit, connect the inlet conductor to the terminal board L1-L2-L3-N and interconnect the terminals on the terminal board 1 – 10 according to the below schemes:

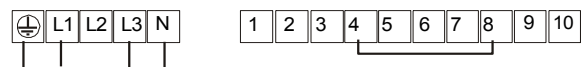
R = 1 kW



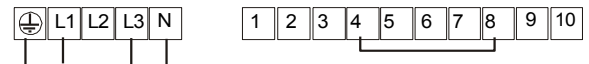
3 kW 1 PE - N AC 230 V / 50 Hz



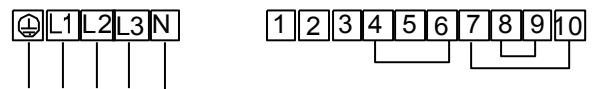
3 kW 2 PE - N AC 400 V / 50 Hz



4 kW 3 PE - N AC 400 V / 50 Hz



6 kW 3 PE - N AC 400 V / 50 Hz



## 2.3 PLUMBING FIXTURE



Power water connects to pipes with 3/4" thread. Blue - cold water supply, red – hot water outlet. For potential disconnection of the tank, utility water inlets and outlets must be provided with Js 3/4" screw coupling. The safety valve is mounted on the cold water inlet identified with a blue ring.



Every hot utility water pressure tank shall be equipped with membrane spring loaded with safety valve. Nominal clearance of safety valves is defined by standard. Safety valve shall be easily accessible, fitted as close as possible to the tank. The inlet pipes must have at least the same clearance as the safety valve. Safety valve is placed high enough to secure dripping water drain by gravity. We recommend that safety valve is mounted on a branch. Easier exchange without the necessity of draining water from the tank. Safety valves with fixed pressure settings from the manufacturer are used for the assembly. The starting pressure of the safety valve must be identical to the maximum allowed pressure of the tank, and at least 20 % higher than the maximum pressure in the water main (Table



6). If the water main pressure exceeds that value, reduction valve must be added to the system. **No closing armature may be mounted between the tank and the safety valve.** During the assembly, follow the guide provided by the safety equipment manufacturer.



It is necessary to check the safety valve each time before putting it into operation. It is checked by manual moving of the membrane from the seat, turning the make-and-break device button always in the direction of the arrow. After being turned, the button must click back into a notch. Proper function of the make-and-break device results in water draining through the safety valve outlet pipe. In regular operation, such a check needs to be carried out at least once a month, and after each shutdown of the tank longer than 5 days. Water may be dripping off the drain pipe of the safety valve; the pipe must be open into the air, pointed down; environment temperatures must not drop below zero. When draining the tank, use the recommended drain valve. First of all, close water inlet in the tank.

Find necessary pressure values in the below Table 6. For proper safety valve operation, a backflow valve shall be mounted on the inlet pipes, preventing spontaneous heater draining of the tank and hot water penetration back into the water main. We recommend that the hot water distribution from the tank is as short as possible in order to reduce heat losses. At least one demountable joint must be mounted between the tank and every supply pipe.

Adequate piping and fittings with sufficiently dimensioned maximum temperature and pressure values must be used.

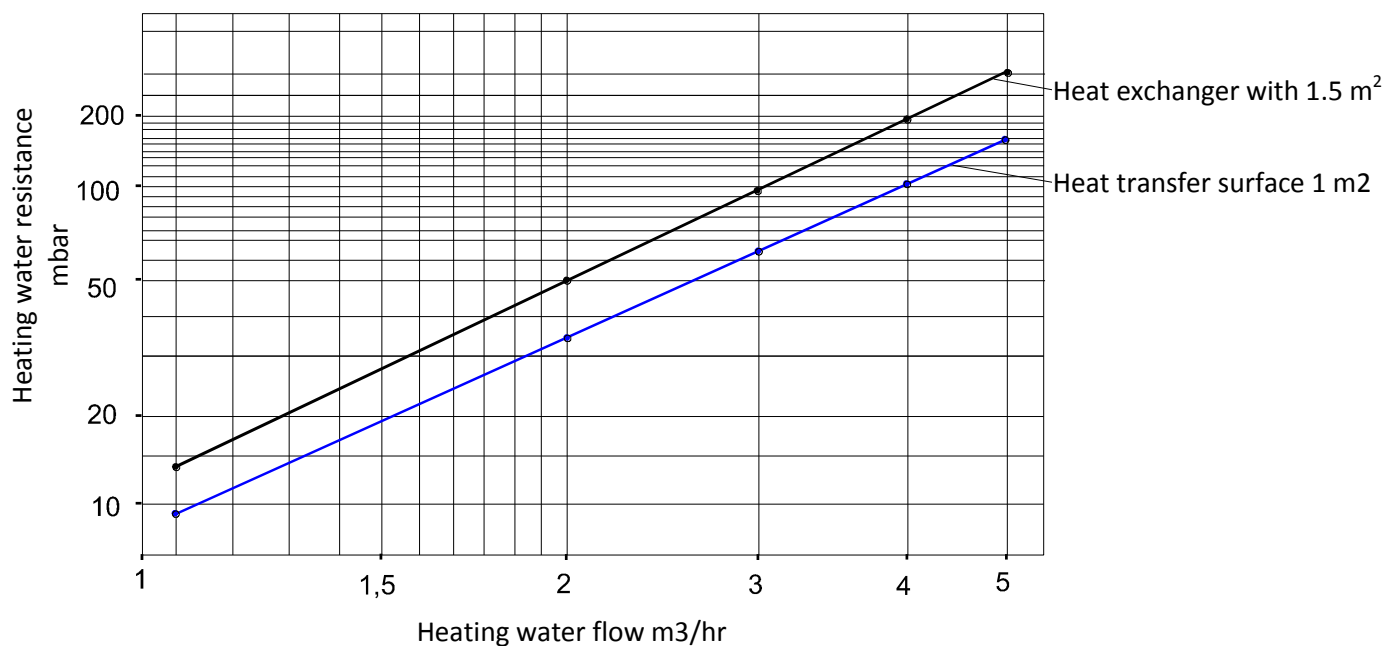
**Tanks must be provided with discharge valve** mounted on the cold sanitary water inlet to the tank for potential disassembly or repair.

When assembling the security equipment, follow the standard.

SAFETY VALVE START-UP PRESSURE [MPa]	ACCEPTABLE OPERATING OVER- PRESSURE OF WATER TANK [MPa]	MAXIMUM PRESSURE IN COLD WATER PIPES [MPa]
0.6	0.6	<b>up to 0.48</b>
0.7	0.7	<b>up to 0.56</b>
1	1	<b>up to 0.8</b>

**Table 6**

## 2.4 PRESSURE LOSSES



Type	Pressure loss (mbar) tHV = 60 °C				
	Amount of heating water in m <sup>3</sup> /hr				
	1	2	3	4	5
Heat exchanger 1 m <sup>2</sup>	7	27	61	109	170
Heat exchanger 1.5 m <sup>2</sup>	12	50	108	192	300

**Table 7**

## 2.5 EXAMPLES OF CONNECTING TANKS

**Connecting a tank to heating system**

The tank is placed on the floor next to the heating source or in its proximity. The heating circuit is connected to marked tank exchanger inputs and outputs, and bleeder valve is installed at the highest point. It is necessary to install a filter into the circuit in order to protect pumps, three-way valve, backflow flaps and the exchanger from sedimentation. It is recommended to flush the heating circuit before the assembly. All wiring connections must be properly insulated from heat.

If the system is to work with primary heating of HSW (hot sanitary water) by means of a three-way valve, follow the fitting instructions of the three-way valve manufacturer.

### Connecting a tank to HSW system

Cold water shall be connected to an inlet marked with a blue ring and writing "HSW INLET". Hot water is connected to outlet marked with red circle or inscription "HSW OUTLET". If the hot service water (HSW) distribution is equipped with circulation circuit, it shall be connected to the outlet marked with "CIRCULATION". "T" plumbing with discharge valve has to be mounted on HSW inlet in order to drain the tank. Each independently closing tank must be on the hot water inlet provided with a closure, test tap, safety valve with backflow flap and manometer.

### Example of group connection of tanks by Tichellman method for equal HSW withdrawal of from all tanks

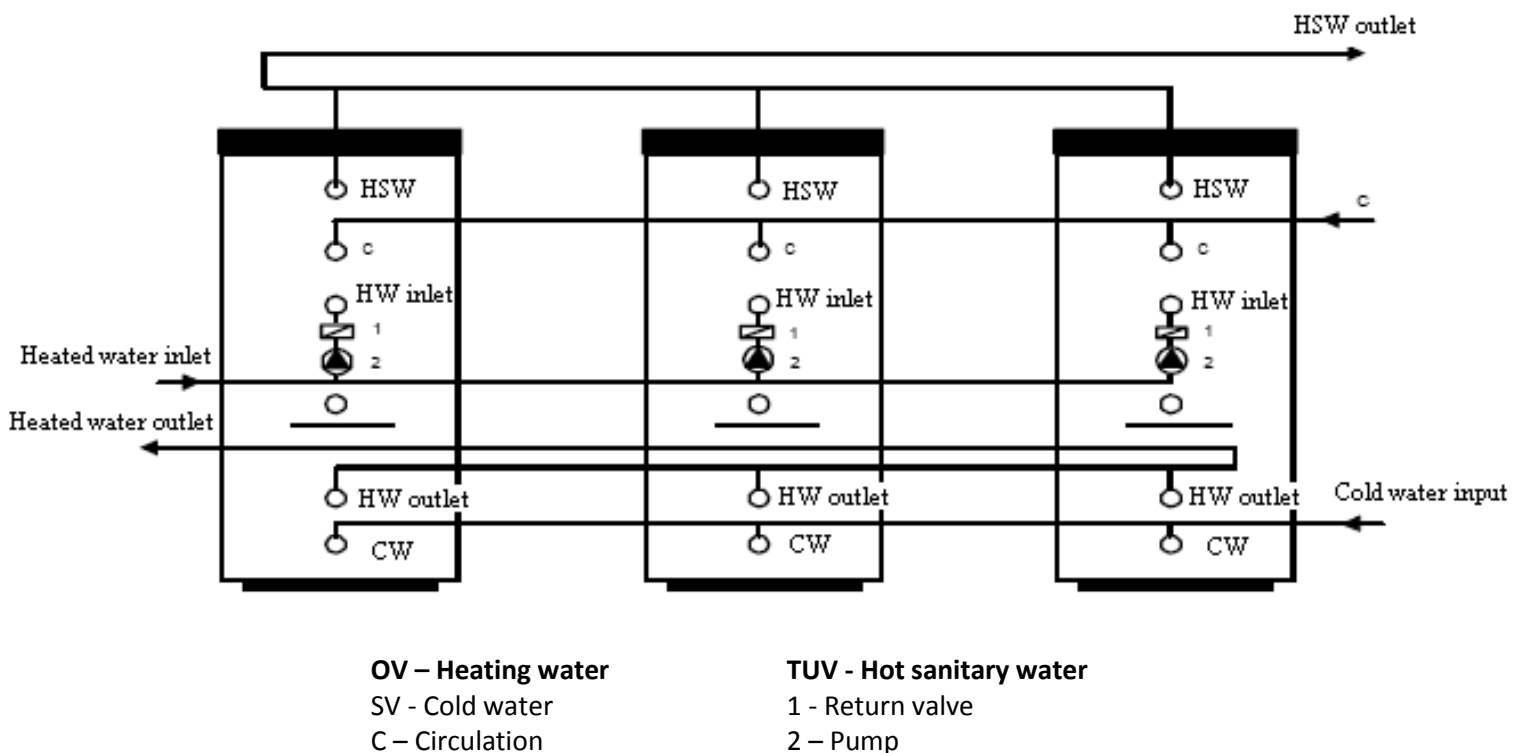


Figure 10

heated by gas boiler with two pumps

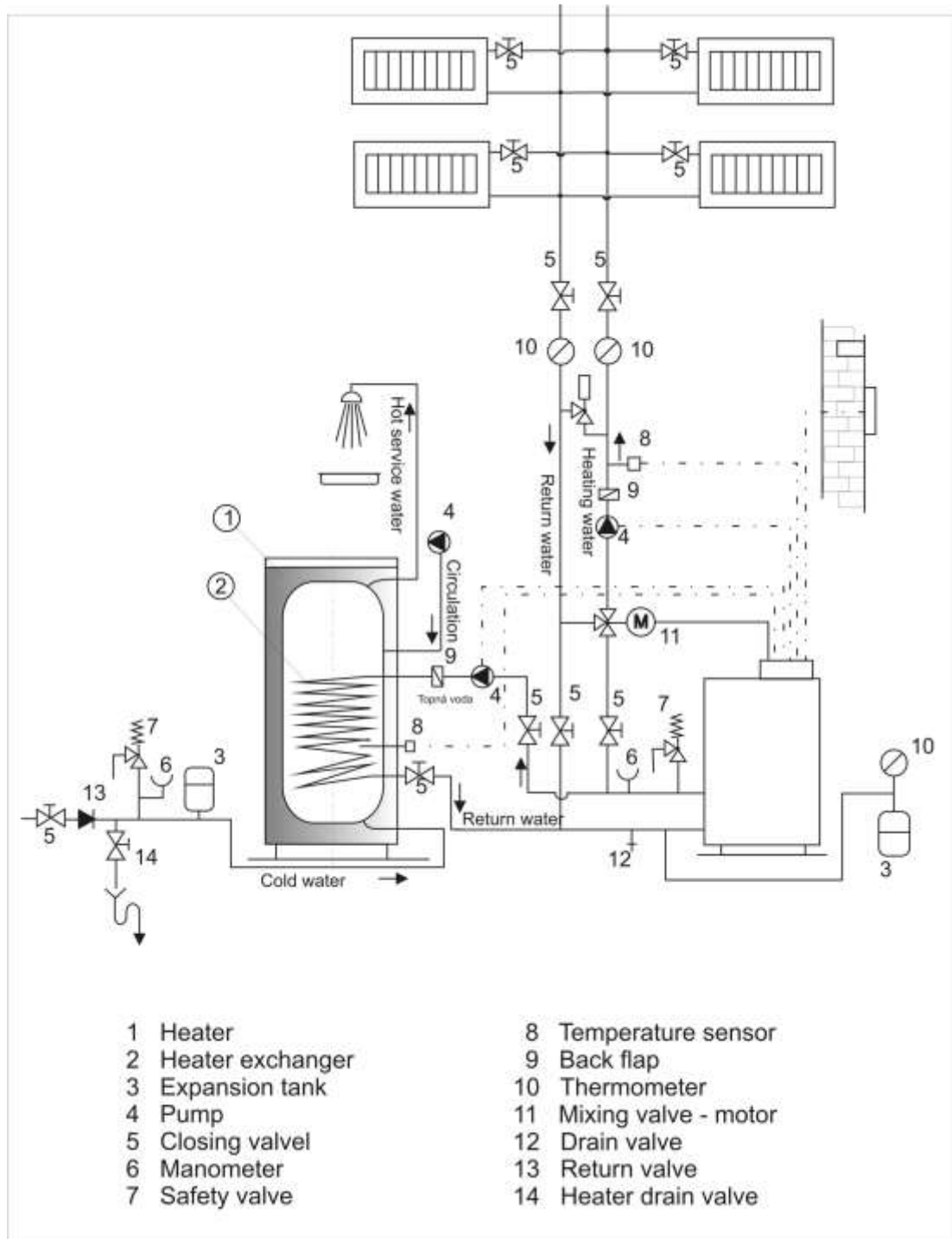


Figure 11

heated by gas boiler and solar collectors, controlled by three-way valve

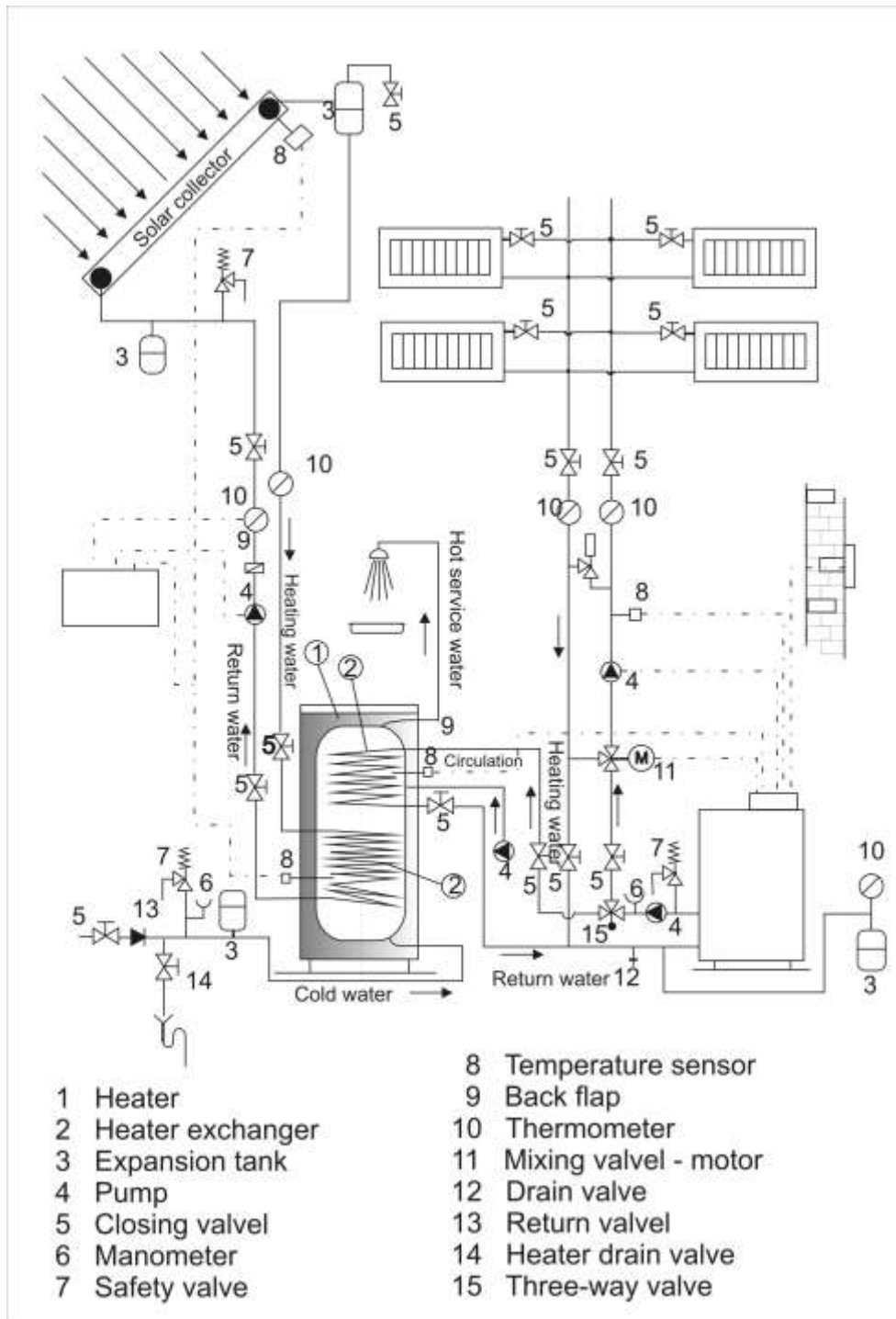


Figure 12

## 2.6 FIRST COMMISSIONING

Once the tank is connected to water supply system and power supply, and safety valve tested (accordingly with the manual attached to the valve), the tank can be put in operation.

Procedure:

- a) Check the water main and wiring; Check proper placement of thermostat sensors. The sensors in the well must be inserted all the way in; first the operating and then the safety thermostat;
- b) Open the hot water valve on the combination faucet;
- c) open the cold water inlet valve to the tank;
- d) once water starts draining through the hot water valve, filling of the tank is completed and the valve must be closed;
- e) If a flange lid leak is discovered, the flange lid bolts need to be tightened;
- f) Fasten the electric installation cover;
- g) When hot service water is heated by **electric energy**, switch on the power supply (in combined tanks, the valve on the heating water inlet to the heating insert must be closed);
- h) when sanitary water is heated with **electric energy** from hot water heating system, turn off electricity and open the valves on the heating water inlet and outlet, possibly de-aerate the exchanger.
- i) once the operation restarts, keep flushing the tank until the cloud disappears;
- j) Make sure to fill in properly the warranty certificate.

## 2.7 HSW (HOT SANITARY WATER) TEMPERATURE CONTROL

### 2.7.1 HSW TEMPERATURE CONTROL FOR 300 LITRE TANKS

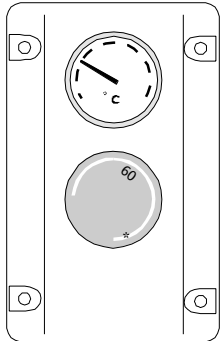
- the panel is part of the tank

Each tank has a separate HSW temperature control for each heat exchanger. The temperature of water can be set between 5-74°C.

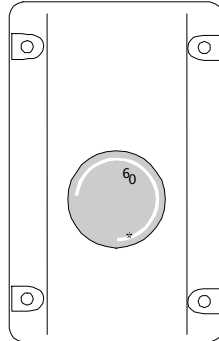
A vertical double thermowell is welded onto the tank shell for the controller sensors, for each exchanger. If an external temperature control is used, the thermowell is adapted for 7 and 10 mm diameter probes. The probes can be shifted vertically for proper adjustment of the entire system.

**Exchanger control panels:**

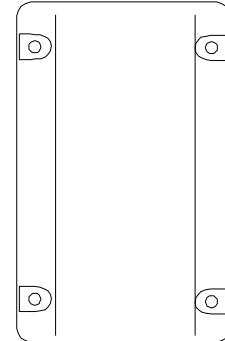
NTRR top exchanger control panel:  
Capillary thermostat and thermometer



NTR & NTR lower exchanger control panel:  
capillary thermostat



Cover panel if external HSW temperature control is used



**2.7.2 HSW TEMPERATURE CONTROL FOR 160-250 LITRE TANKS**

OKCE 160 NTR/2,2 kW, OKCE 200 NTR/2,2 kW, OKCE 250 NTR/2,2 kW, OKC 160 NTR/BP, OKC 200 NTR/BP, OKC 250 NTR/BP  
OKCE 200 NTRR/2,2 kW, OKCE 250 NTRR/2,2 kW, OKC 200 NTRR/BP, OKC 250 NTRR/BP

Each tank has a separate HSW temperature control for each heat exchanger. Water temperature can be set within the range of 5 – 75 °C.

For regulator sensors there are wells with inner thread in the tank's receptacle.

**Thermoregulation boxes KR230V, KR24V aren't part of the tank; they can be purchased as accessories.**

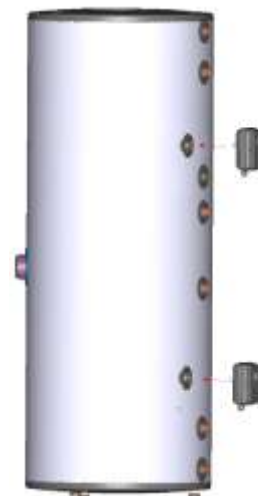
Thermoregulation exchanger boxes:

Box KR230V(24V) – to control the bottom and upper heat exchanger NTR, NTRR:  
capillary thermostat

**Mounting thermoregulation box on tank:**  
- mounting on the back side in tank's wells  
- by number of exchangers - 1 or 2 thermoregulation boxes



Name	Voltage	EL.protection
<b>KR 24V</b>	24 V	IP 24
<b>KR 230 V</b>	230 V	IP 24



Wiring diagram:

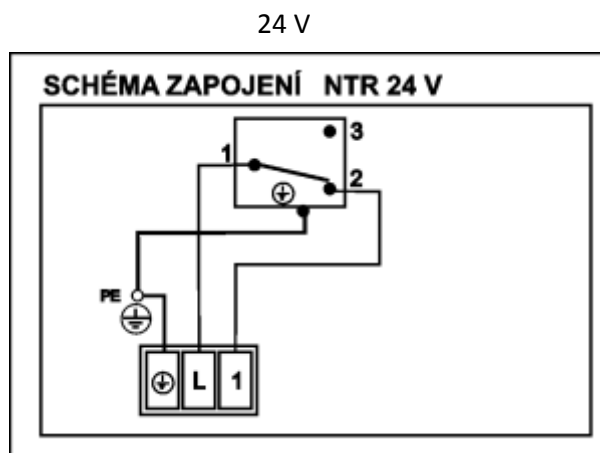
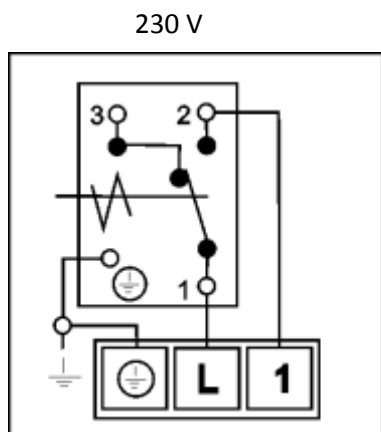


Schéma zapojení NTR 24 V – Wiring diagram NTR 24 V

## 2.8 CLEANING OF TANK AND EXCHANGE OF ANODE ROD

Repetitive water heating causes limestone sediment on both the enamelled tank walls and chiefly the flange lid. The sedimentation depends on the hardness of water heated, its temperature, and amount of hot water consumed.



We recommend checking and cleaning the vessel from scale and eventual replacement anode rod after two years of operation.

The anode life is theoretically calculated for two years of operation; however, it changes with water hardness and chemical composition in the place of use. Based on such an inspection, the next term of anode rod exchange may be determined. Have a company in charge of service affairs deal with the cleaning and exchanging of the anode. When draining water from the tank, the combination faucet valve for hot water must be open, preventing the occurrence of under-pressure in the tank receptacle which would stop water from draining.



**To prevent the occurrence of bacteria (e.g. Legionella pneumophila) within stack heating it is recommended, if absolutely necessary, to increase the temperature of hot service water (HSW) periodically for a transitional period of time to at least 70°C. It is also possible to make use of another way of disinfecting HSW.**

### PROCEDURE OF EXCHANGING ANODE ROD IN UPPER HEATER PART

1. Turn off control voltage to the tank
2. Drain water from 1/5 tank.  
PROCEDURE: Close water inlet in the tank  
Open the hot water valve on the combination faucet.  
Open the drain tap of the tank
3. Anode is screwed in under the plastic cover in the upper lid of the tank
4. Unscrew the anode using adequate wrench
5. Pull the anode out and follow reversed steps to install a new one



6. During the fitting, make sure the grounding cable (300-500l) is connected properly; this is the condition of the anode's proper functioning

7. Fill the tank with water

#### **PROCEDURE OF EXCHANGING ANODE ROD IN SIDE FLANGE**

1. Turn off control voltage to the tank

2. Drain water from the tank.

PROCEDURE: Close water inlet in the tank

Open the hot water valve on the combination faucet.

Open the drain tap of the tank

3. One anode is screwed in under the plastic cover in the upper lid of the tank, and the other one is screwed in on the side flange

4. Unscrew the anode using adequate wrench

5. Pull the anode out and follow reversed steps to install a new one

6. Fill the tank with water

#### **List of heaters with anode in side flange:**

OKC 200 NTR/BP

OKC 200 NTRR/BP

OKC 250 NTR/BP

OKC 250 NTRR/BP

OKC 300 NTR/BP

OKC 300 NTRR/BP

OKC 300 NTR/2,2 kW (3-6 kW, 5-9 kW, 8-12 kW)

OKC 300 NTRR/2,2 kW (3-6 kW, 5-9 kW, 8-12 kW)

## **2.9 SPARE PARTS**

- |                               |                         |                                     |
|-------------------------------|-------------------------|-------------------------------------|
| - flange lid                  | - flange lid seal       | - insulation flange lid             |
| - thermostat and thermal fuse | -magnesium anode        | - control button for the thermostat |
| - control lights with wires   | - temperature indicator | - set of M12 (or M10) bolts         |

When ordering spare parts always state the name of the part, the type and type number from the tank's plate.

## **3 IMPORTANT NOTICES**

### **3.1 INSTALLATION REGULATIONS**



Without a proof issued by a professional company about performed electrical and plumbing fixture the warranty shall be void.

It is necessary to check the protective magnesium anode periodically and replace it if necessary.

No closing armature may be mounted between the tank and the safety valve.

If the overpressure in the eater main exceeds 0.48 MPa, a reduction valve must be mounted before the safety valve.

All outlets of hot water must be equipped with combination faucets.

Prior to the first filling the tank with water we recommend that the receptacle's flange connection nuts are tightened.

It is not allowed to handle the thermostat, aside from temperature resetting with a control button.

All electric installation handling, setting, and regulation feature exchange, may only be implemented by a service company.

The thermal fuse must not be turned off! If thermostat fails, the thermal fuse interrupts electric power supply to the heating element if the water temperature in the tank exceeds 95°C.

As an exception, the thermal fuse may also switch off due to water overheating caused by overheating the hot water heating system boiler (in combined tank).

We recommend that the tank is only operated on one energy source.



**Both the electric and water installation must follow and meet the requirements and regulations relevant in the country of use!**

## 3.2 DISPOSAL OF PCKAGING MATERIAL AND NON-FUNCTIONING PRODUCT

A service fee for providing return and recovery of packaging material has been paid for the packaging in which the product was delivered. The service fee was paid pursuant to Act No 477/2001 Coll., as amended, at EKO-KOM a.s. The client number of the company is F06020274. Take the water tank packages to a waste disposal place determined by the municipality. When the operation terminates, disassemble and transport the discarded and unserviceable heater to a waste recycling centre (collecting yard), or contact the manufacturer.



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