OPERATION AND INSTALLATION MANUAL

STORAGE TANKS

OKC 100 NTR
OKC 125 NTR
OKC 160 NTR

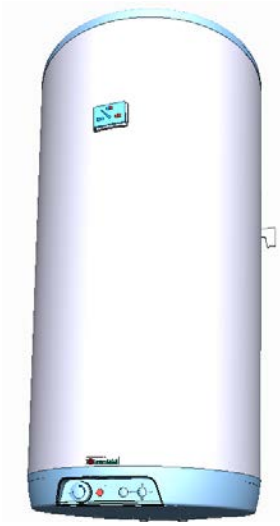
OKC 200 NTR
OKC 250 NTR
OKC 200 NTRR
OKC 250 NTRR

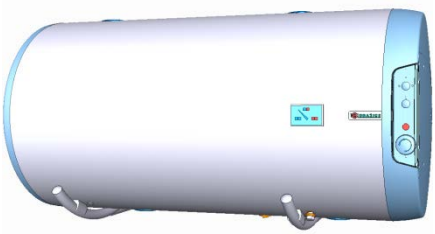
OKC 100 NTR/HV
OKC 125 NTR/HV
OKC 160 NTR/HV

OKC 80 NTR/Z
OKC 100 NTR/Z
OKC 125 NTR/Z
OKC 160 NTR/Z

OKC 200 NTR/Z

OKCV 125 NTR
OKCV 160 NTR
OKCV 180 NTR
OKCV 200 NTR





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DRAŽICE
ČLEN SKUPINY NIBE

CONTENTS

READ CAREFULLY THE BELOW INSTRUCTIONS PRIOR TO THE INSTALLATION OF THE STORAGE TANK!

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. With this guide, we will introduce you to the use, construction, maintenance and other information on storage 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 Manual

Important information for storage tank users.

Recommendations of manufacturer, observance of which will ensure trouble-free operation and long service life of the product.

CAUTION!

Important notice to be observed.

1 TECHNICAL SPECIFICATION OF PRODUCT

1.1 FUNCTION DESCRIPTION

Storage tanks of NTR and NTRR series are used for HSW water heating in conjunction with another source of heating water, most often a gas boiler, for NTRR types combination of two heating water sources (gas boiler + solar system, heat pump). Their nominal performance provides sufficient amount of hot service water (HSW) even for large flat units - premises, restaurants and similar establishments. **In case of increased hot water consumption, these tanks heat water continuously, operating similarly to flow heaters.**

Closing valves of the heat exchanger must be opened which ensures heating water flow from the hot water heating system. Together with the 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 (Figure 1, Figure 2, Figure 3 Figure 4). The time of heating using the heat exchanger depends on the temperature and flow of water in the hot water heating system. Storage tank is made in universal design - depending on the need of connecting the closing valves to the heating element from the right or left.

1.2 ADVICE FOR CUSTOMERS

1.2.1 HOT WATER CONSUMPTION

Consumption of hot water in households depends on the number of people, amount of sanitary equipment, length, diameter and insulation of piping in the flat, or on individual habits of users. The cheapest option of water heating comes at the time when the electricity rate is reduced.

Find out in what time intervals your electricity supplier provides reduced tariff and, depending on that information, select relevant volume and power input of the storage tank so that your hot water consumption covered the needs of your household.

1.2.2 ENERGY SAVING

Hot utility water reservoir is insulated by means of a first-class polyurethane foam with zero Freon content. Adjust the temperature of the storage tank's thermostat to that level only that you need to run your home. Thus you will reduce electricity consumption, as well as the amount of lime sediments on the walls of the receptacle and on the heat exchanger.

Advantages of using storage tank:

- Easy installation and connection to heating water supply,
- very fast HSW heating,
- enamelled steel tank ensures all hygienic requirements on the quality of HSW,
- built-in Mg anode increases resistance to corrosion,
- good quality polyurethane insulation ensures minimum thermal losses,
- continuously adjustable temperature of HSW up to 74°C,
- connection of multiple withdrawal points,
- the type with two heat exchangers can use two heating water supplies, or double heat transfer surface can be obtained if those are combined,
- operation control light,
- accurate check of HSW temperature,
- possibility of connecting HSW circulation.

1.2.3 EMERGENCY POWER CONSUMPTION

If no heated water is taken from the tank, a small amount of heat leaks. This loss is measured for a period of 24 hours at the temperature of 65°C in the storage tank, and at 20°C in its ambient area. The resulting value is expressed in [kWh/24h] and indicates the amount of power needed to maintain the set temperature. Data Sheet pursuant to Directive No - see Table 1..

TYPE	HEATING WATER FLOW (l/h)	PRESSURE LOSS (mbar)
OKC 100 NTR	720	33
OKC 125 NTR		46
OKC 160 NTR		46
OKC 200 NTR		46
OKC 250 NTR		46
OKC 200 NTRR		2 x 33
OKC 250 NTRR		2 x 33

Table 1

1.3 DESIGN AND GENERAL STORAGE TANK DIMENSIONS

The storage tank vessel is made of a steel plate and tested by 0.9 MPa overpressure. The inside of the receptacle is enamelled. A flange is welded onto the lower bottom of the receptacle with a flange lid screwed onto it. A sealing ring is inserted between the flange lid and the flange. Thermo wells for thermostat sensors and thermometer installation are placed in the flange lid. Anode rod is mounted on M8 nut. **The water reservoir is insulated by means of polyurethane foam.** Electric wiring is placed underneath the plastic removable cover. The temperature of water can be set using the thermostat. Heat exchanger(s) is/are welded onto the pressure tank.

Description of basic parts of the storage tank - Figure 1, Figure 2, Figure 3, Figure 4.

Storage tank dimensions - Figure 5, Figure 6, Figure 7, Figure 8, Table 2, Table 4, Table 6, Table 8

Technical description: OKC 100 NTR, OKC 125 NTR, OKC 160 NTR, OKC 200 NTR, OKC 250 NTR, OKC 200 NTRR, OKC 250 NTRR

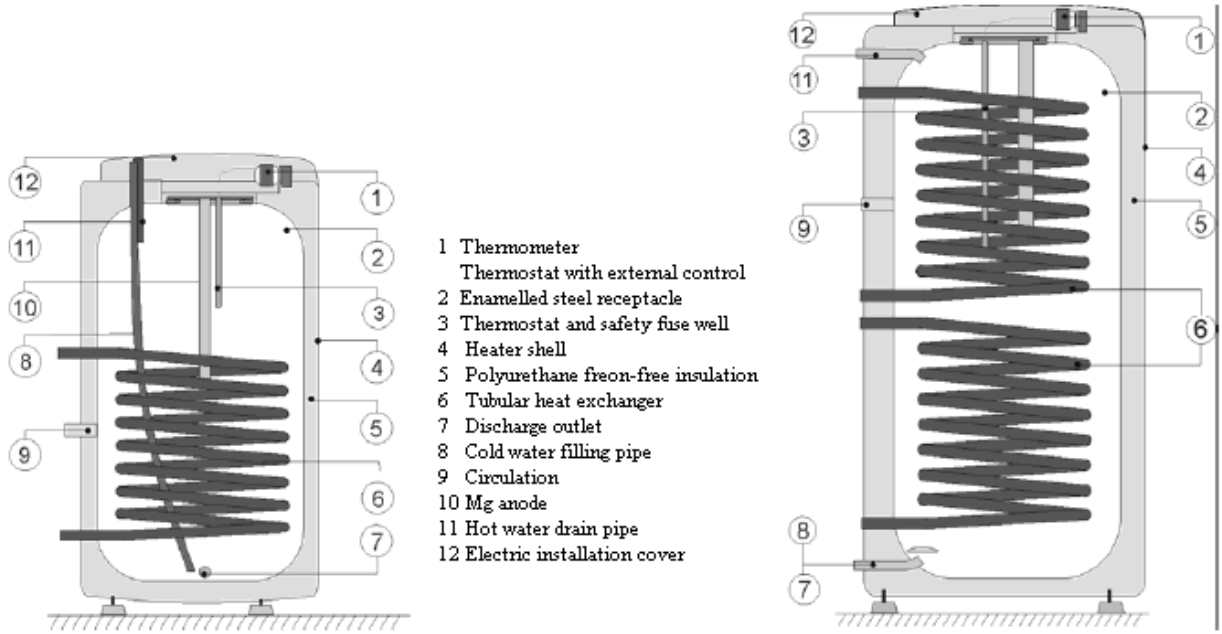


Figure 1

Technical description: OKC 100 NTR/HV, OKC 125 NTR/HV, OKC 160 NTR/HV

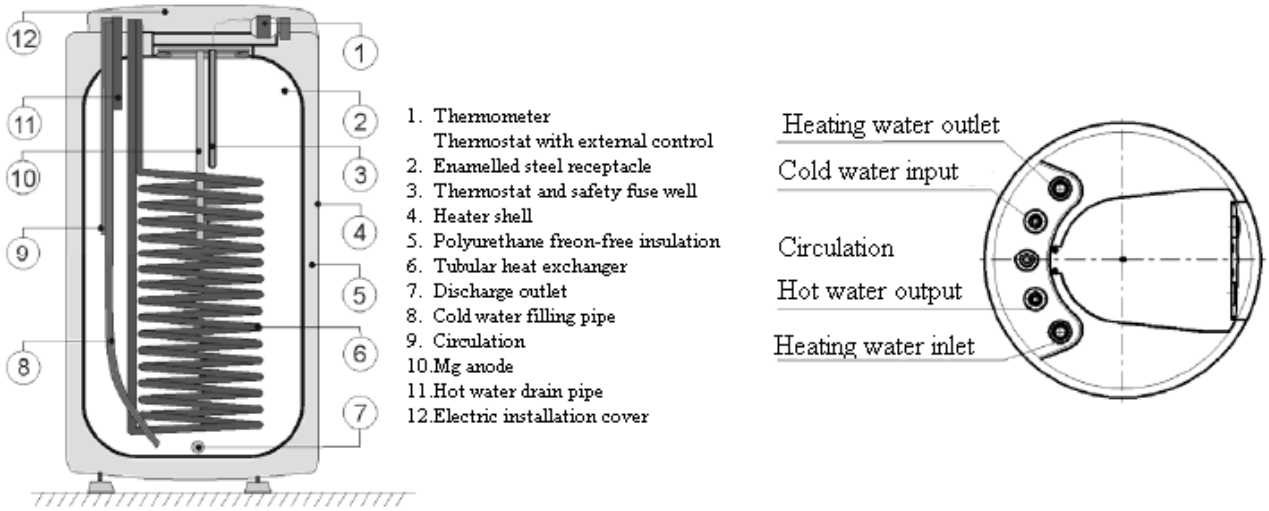


Figure 2

Technical description: OKC 80 NTR/Z, OKC 100 NTR/Z, OKC 125 NTR/Z, OKC 160 NTR/Z, OKC 200 NTR/Z

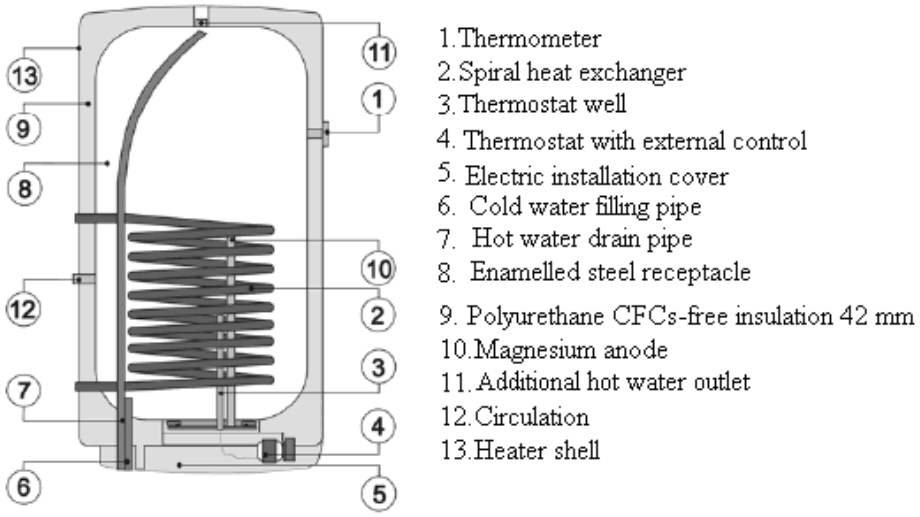
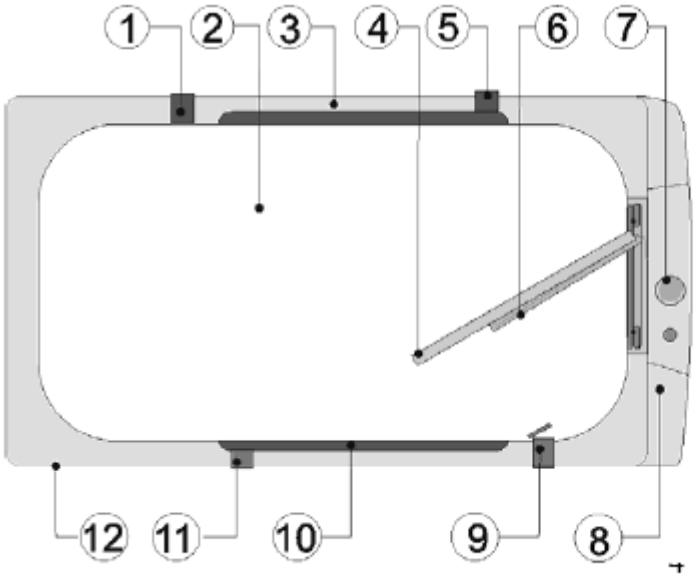


Figure 3



1 - Hot water drain pipe
2 - Enamelled steel receptacle
3 - Polyurethane insulation 4.2 mm
4 - Mg anode
5 - Hot water inlet
6 - Thermowell and safety fuse well
7 - Thermostat with external control
Safety fuse
8 - Electric installation cover
9 - Cold water filling pipe
10 - Heat exchanger
11 - Heating water outlet
12 - Heater shell

Figure 4

OKC 100 NTR, OKC 125 NTR, OKC 160 NTR

OKC 200 NTR, OKC 250 NTR,
OKC 200 NTRR, OKC 250 NTRR

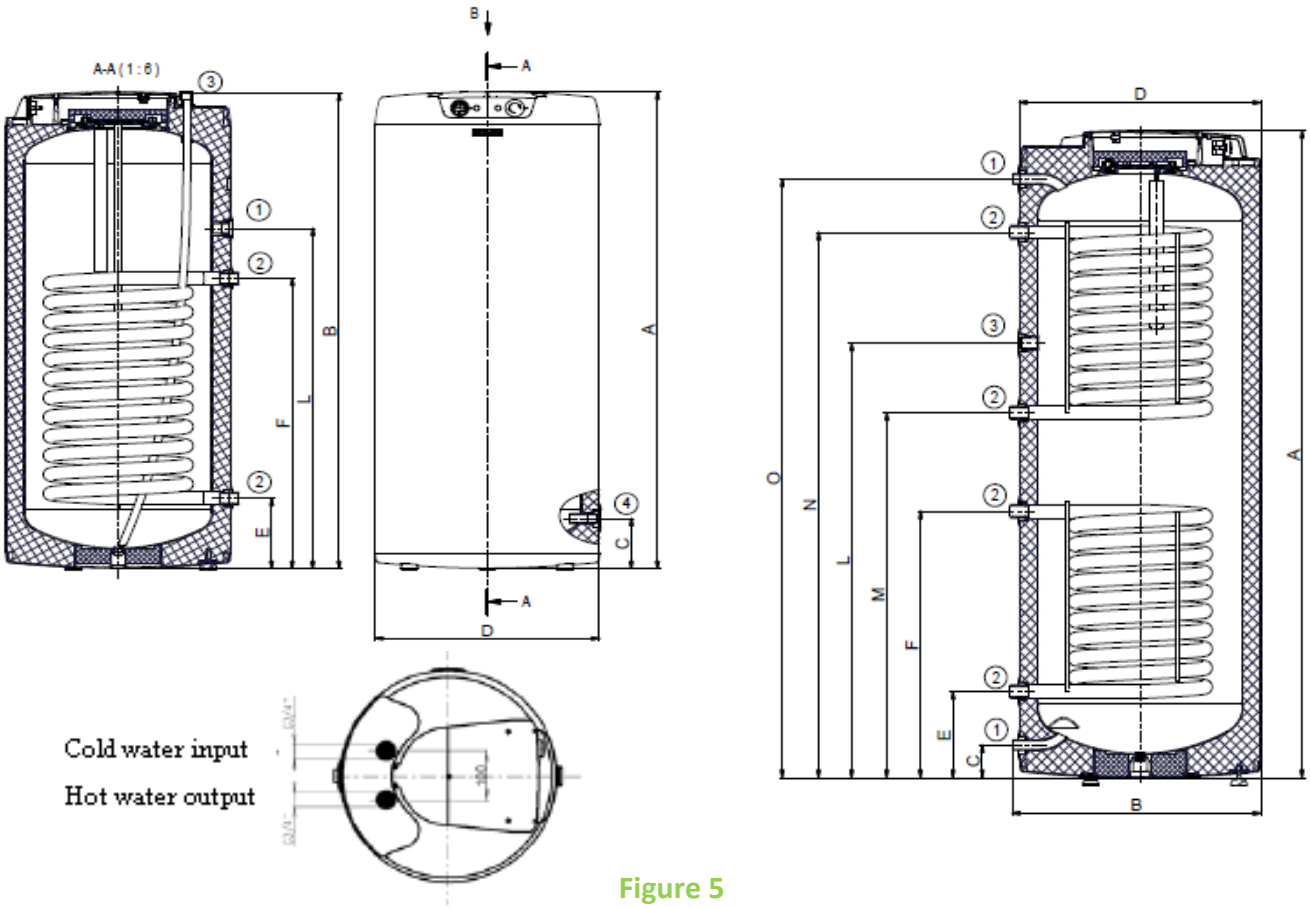


Figure 5

TYPE	OKC 100 NTR	OKC 125 NTR	OKC 160 NTR	OKC 200 NTR	OKC 200 NTRR	OKC 250 NTR	OKC 250 NTRR
A	885	1050	1236	1398	1398	1578	1578
B*	882*	1047*	1232*	603	603	603	603
C	129	129	129	80	80	80	80
D	524	524	524	585	585	585	585
E	182	182	182	210	210	210	210
F	622	752	752	780	650	780	650
L	522	622	882	950	950	1060	1060
M	-	-	-	-	710	-	890
N	-	-	-	-	1150	-	1330
O	-	-	-	1280	1280	1460	1460

* Height from the bottom storage tank's edge to the end of the water inlet and outle.

Table 2

TYPE		OKC 100 NTR	OKC 125 NTR	OKC 160 NTR	OKC 200 NTR	OKC 200 NTRR	OKC 250 NTR	OKC 250 NTRR
CAPACITY	l	87	112	148	208	200	242	234
MAX. OPERATING OVERPRESSURE IN THE TANK	MPa				0,6			
MAX. OPERATING PRESSURE IN THE EXCHANGER	MPa				1			
ELECTRIC CONNECTION OF CONTROL ELEMENTS					1 PE-N 230 V/50Hz			
EL. PROTECTION					IP 44			
MAX. TEMPERATURE OF HSW	°C				80			
RECOMMENDED HSW TEMPERATURE	°C				60			
MAX. WEIGHT OF THE STORAGE TANK WITHOUT HEATER	kg	57	69	77	95	108	107	118
EXCHANGER HEAT SURFACE	m^2	1.08	1.45	1.45	1.45	2 x 1.08	1.45	2x 1.08
RATED THERMAL OUTPUT AT HEATING WATER TEMPERATURE OF 80°C AND FLOW 720 l/h	W	24000	32000	32000	32000	2 x 24000	32000	2 x 24000
TIME OF HEATING BY EXCHANGER FROM 10°C TO 60°C	min	14	14	17	22	28 / 16	28	36 / 20
STANDING LOSS	W	42	54	75	82	82	87	87

Table 3

OKC 100 NTR/HV, OKC125 NTR/HV, OKC160 NTR/HV

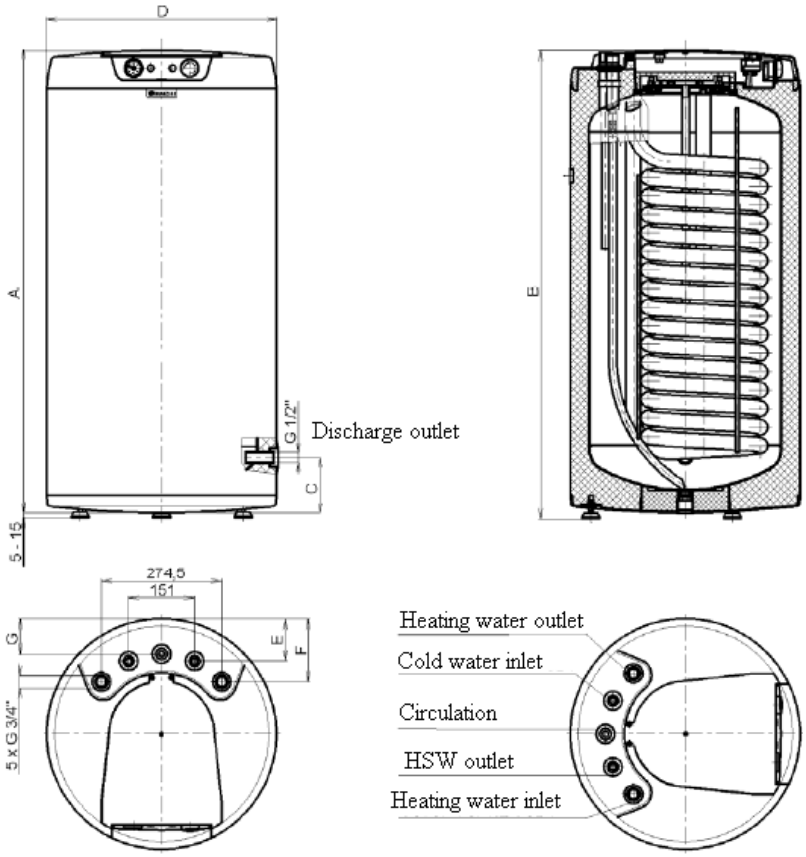


Figure 6

TYPE	OKC 100 NTR/HV	OKC 125 NTR/HV	OKC 160 NTR/HV
A	885	1049	1092
B*	881	1036	1079
C	127	127	146
D	524	524	584
E	95	95	134
F	142	142	174
G	78	78	110

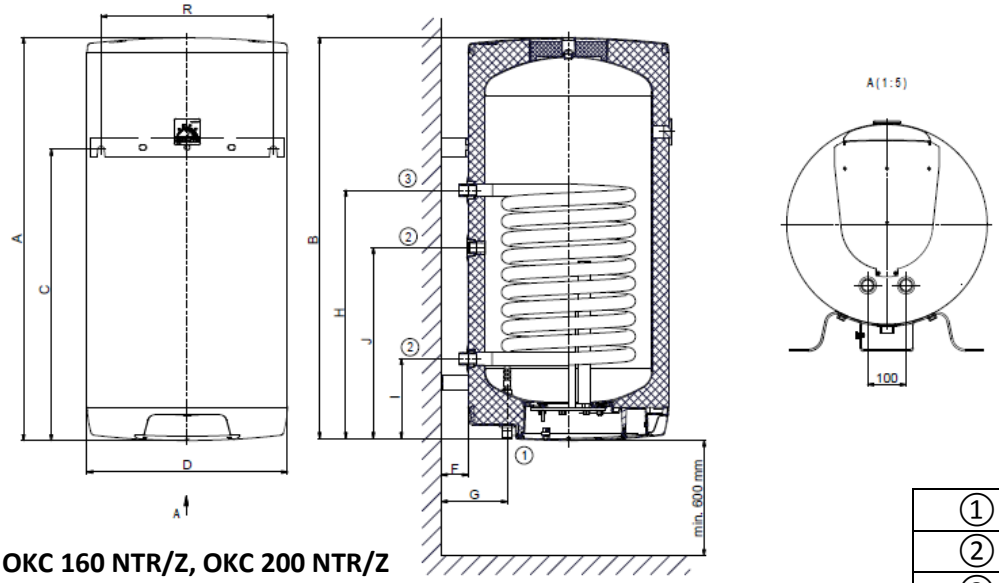
The height from the bottom edge of the storage tank to the end of the pipe inlet and outlet.

Table 4

TYPE		OKC 100 NTR/HV	OKC 125 NTR/HV	OKC 160 NTR/HV
CAPACITY	l	87	113	144
MAX. OPERATING OVERPRESSURE IN THE TANK	MPa		0,6	
MAX. OPERATING OVERPRESSURE IN THE EXCHANGER	MPa		1	
ELECTRIC CONNECTION OF CONTROL ELEMENTRS			1 PE-N 230V/50Hz	
IP PROTECTION			IP 44	
MAX. HOT WATER TEMPERATURE	°C		80	
RECOMMENDED HSW TEMPERATURE	°C		60	
MAX. WEIGHT OF THE STORAGE TANK WITHOUT WATER	kg	56	70	78
EXCHANGER HEAT SURFACE	m^2	1.08	1.45	1.45
RATED THERMAL OUTPUT AT HEATING WATER TEMPERATURE OF 80°C AND FLOW 720 l/h	W	24000	32000	32000
TIME OF HEATING BY EXCHANGER FROM 10°C TO 60°C	min	14	14	17
STANDING LOSS	W	42	65	65

Table 5

OKC 80 NTR/Z, OKC 100 NTR/Z, OKC 125 NTR/Z



①	3/4" vnější
②	1" vnější
③	3/4" vnitřní

OKC 160 NTR/Z, OKC 200 NTR/Z

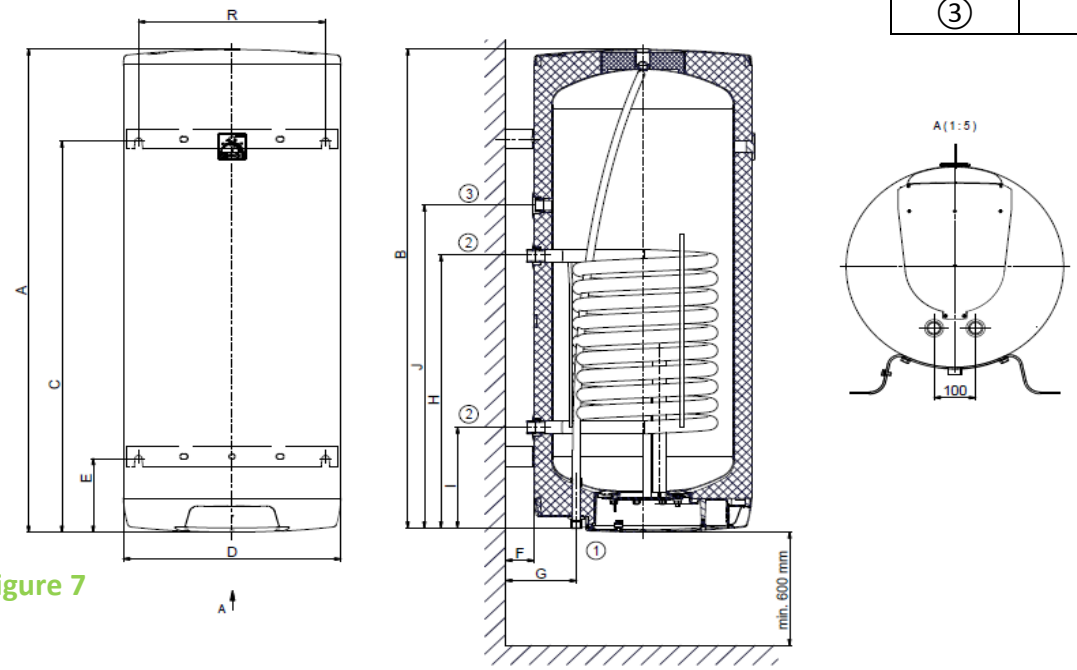


Figure 7

Type	OKC 80 NTR/Z	OKC 100 NTR/Z	OKC 125 NTR/Z	OKC 160 NTR/Z	OKC 200 NTR/Z
A	745	890	1053	1240	1287
B*	742	887	1047	1229	1277
C	610	760	760	1004	795
D	524	524	524	524	584
E	-	-	-	189	195
F	70	70	70	70	70
G	172	172	172	172	172
H	498	648	648	700	678
I	208	208	208	258	238
J	-	438	498	828	888
R	450	450	450	450	450

Table 6

TYPE		OKC 80 NTR/Z	OKC 100 NTR/Z	OKC 125 NTR/Z	OKC 160 NTR/Z	OKC 200 NTR/Z
CAPACITY	l	76	95	120	148	196
MAX. OPERATING OVERPRESSURE IN THE TANK	MPa			0,6		
MAX. OPERATING PRESSURE IN THE EXCHANGER	MPa			1		
ELECTRIC CONNECTION OF CONTROL ELEMENTS				1 PE-N 230V/50Hz		
EL. PROTECTION				IP 45		
MAX. TEMPERATURE OF HSW	°C			80		
RECOMMENDED HSW TEMPERATURE	°C			60		
HEIGHT	mm	736	881	1046	1235	1287
DIAMETER	mm	524	524	524	524	584
MAX. WEIGHT OF THE STORAGE TANK WITHOUT HEATER	kg	39	56	62	70	87
EXCHANGER HEAT SURFACE	m^2	0.41	1.08	1.08	1.08	1.08
RATED THERMAL OUTPUT AT HEATING WATER TEMPERATURE OF 80°C AND FLOW 720 l/h	W	9000	24000	24000	24000	24000
TIME OF HEATING BY EXCHANGER FROM 10°C TO 60°C	min	32	14	17	23	28
STANDING LOSS	W	40	47	57	67	72

Table 7

OKCV 125 NTR, OKCV 160 NTR, OKCV 180 NTR, OKCV 200 NTR

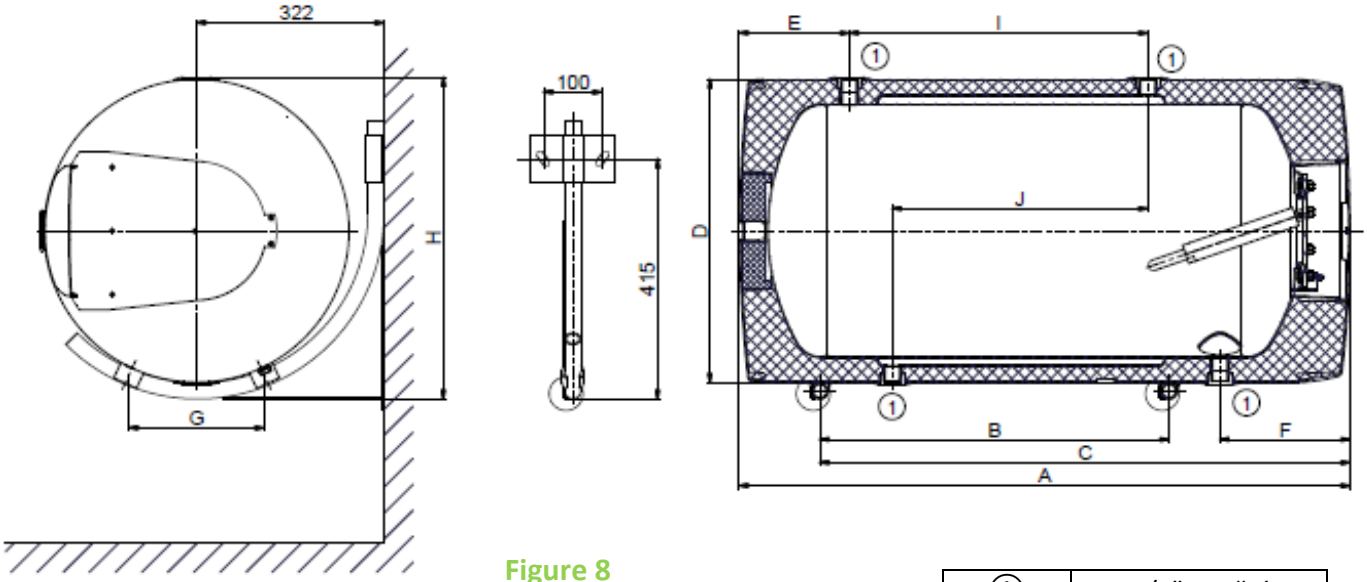


Figure 8

①	3/4" vnitřní

TYPE	OKCV 125 NTR	OKCV 160 NTR	OKCV 180 NTR	OKCV 200 NTR
A	1050	1235	1187	1287
B	600	700	600	600
C	911	1011	936	936
D	524	524	584	584
E	190	237	258	258
F	224	224	246	246
G	232	232	256	256
H	556	556	618	618
I	513	649	570	670
J	439	439	439	439

Table 8

TYPE		OKCV 125 NTR	OKC 160 NTR	OKCV 180 NTR	OKCV 200 NTR
CAPACITY	l	123	151	173	200
MAX. OPERATING OVERPRESSURE IN THE TANK	MPa		0,6		
MAX. OPERATING PRESSURE IN THE EXCHANGER	MPa		0,4		
ELECTRIC CONNECTION OF CONTROL ELEMENTS			1 PE-N 230 V/50Hz		
EL. PROTECTION			IP 44		
MAX. TEMPERATURE OF HSW	°C		80		
RECOMMENDED HSW TEMPERATURE	°C		60		
MAX. WEIGHT OF THE STORAGE TANK WITHOUT HEATER	kg	55	65	76	80
EXCHANGER HEAT SURFACE	m^2	0.7	0.7	0.75	0.75
RATED THERMAL OUTPUT AT HEATING WATER TEMPERATURE OF 80°C AND FLOW 720 l/h	W	15000	16800	18000	18000
TIME OF HEATING BY EXCHANGER FROM 10°C TO 60°C	min	37	35	38	43
RATED THERMAL OUTPUT AT HEATING WATER TEMPERATURE OF 80°C AND FLOW 310 l/h	W	8000	10260	11000	11000
TIME OF HEATING BY EXCHANGER FROM 10°C TO 60°C	min	70	60	63	72
STANDING LOSS	W	70	77	98	93

Table 9

2 OPERATION AND FITTING INSTRUCTIONS

2.1 OPERATING CONDITIONS

The tank shall only be used in accordance with the conditions specified on the performance plate and in instructions for electric wiring. Besides legally acknowledged national regulations and standards, also conditions for connection defined in local electric and water works have to be adhered to, as well as the installation and operation manual. The room, in which the appliance will be operated, must be frost-free. 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.

We would like to emphasise that the storage tank must not be connected to power supply if work involving flammable liquids (petrol, spot remover) or gases, etc., is performed nearby.

If water is strongly calcareous we recommend that any of the common decalcifying devices was installed with the appliance, or the thermostat to be set to minimum operation temperature of 60°C. For proper operation, drinkable water of adequate quality shall be used. To avoid potential sediments we recommend that the device was installed together with a water filter.

2.2 WALL MOUNTING

Prior to mounting, check the loading capacity of the wall and, depending on the type of masonry, choose a suitable anchorage material, or reinforce the wall, if needed. The NTR/Z series storage tank shall only be mounted in vertical position so that the lower edge of the storage tank was placed at least 600 mm above the floor. The OKCV NTR series storage tank shall only be mounted in horizontal position so that, from the front view, the right edge of the storage tank was placed at least 600 mm from the opposite wall. In storage tanks, elbows have to be attached to the heating water inlet and outlet and, by turning them, determined the mounting either from the right or from the left (**Chyba! Nenalezen zdroj odkazů.**). With regard to various types of carrying masonry and broad assortment of special anchorage material available at the market, we do not provide storage tanks with this material. The anchorage system has to be selected individually, depending on the conditions. We recommend an authorised company perform mounting on the wall and anchorage, or discuss the anchorage with a professional.

If the hot storage tank is mounted in a **tight, small space**, or in an intermediate ceiling, etc., you have to make sure that the connecting side of the appliance (connections to water supply, area for electric plugging) remained accessible and no heat accumulation occurs. Free space of up to **600 mm** under the bottom edge of the storage tank has to be available .

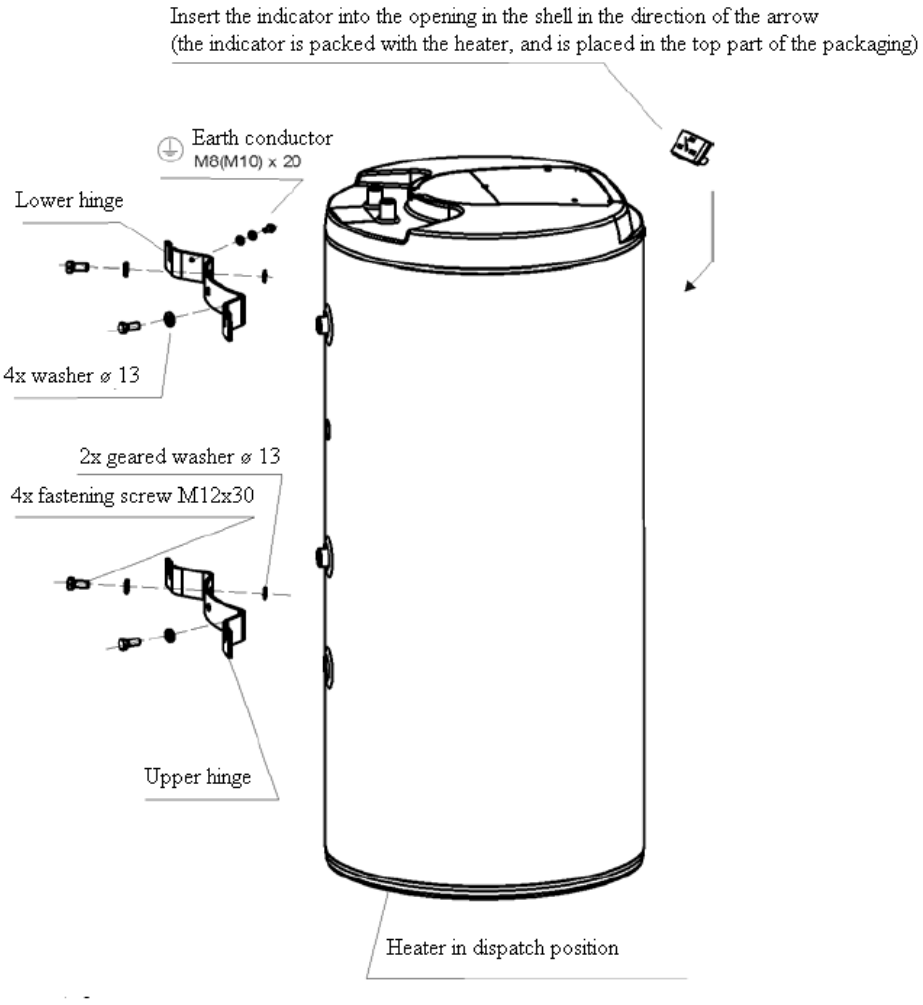


Figure 9

2.3 PLUMBING FIXTURE

For potential disconnection of the storage tank, the service water inlets and outlets must be provided with screw coupling Js 3/4“ (Figure 11, Figure 12, Figure 13). If the hot service water (HSW) distribution is equipped with circulation circuit, the reverse pipe is connected to the inlet identified as CIRCULATION. The 100, 125, 160 NTR and 100, 125, 160 NTR / HV types are equipped with a discharge outlet. In 200 and 250 NTR(R) types, the HSW inlet has to be provided with a “T” fixture with a drain valve. For operation, the storage tank must be equipped with a safety valve. Safety valve is mounted on the cold water inlet identified with a blue ring.

Each hot service water pressure storage tank must have a safety valve with a membrane spring. The safety valve must be easily accessible, as close to the storage tank as possible. The input pipes must have at least the same clearance as the safety valve. The safety valve is placed high enough to secure dripping water drain by gravity. We recommend mounting the safety valve onto a branch pipe. This allows easier exchange without having to drain the water from the storage tank. Safety valves with fixed pressure settings from the manufacturer are used for the assembly. Starting pressure of a safety valve must be identical to the maximum allowed storage tank pressure, and at least 20% higher than the maximum pressure in the water main - see Table 10. If the water main pressure exceeds such value, a

reduction valve must be added to the system. No stop valves can be put between the storage tank and the safety valve. During the assembly, follow the guide provided by the safety equipment manufacturer.

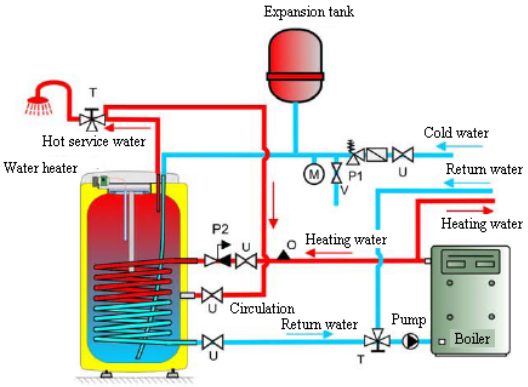
It is necessary to check the safety valve each time before putting it into operation. It is checked by manual moving of the membrane from the seat, turning the make-and-break device button always in the direction of the arrow. After being turned, the button must click back into a notch. Proper function of the make-and-break device results in water draining through the safety valve outlet pipe. In common operation, such a check needs to be implemented at least once a month, and after each storage tank shutdown for more than 5 days. Water can drip from the safety valve through the drain pipe; the pipe must be freely open to the atmosphere, placed vertically and shall be in an environment free of temperatures below freezing. When draining the storage tank, use a drain valve. You must first close the water supply to the storage tank.

Required pressures - Figure 10. We recommend that the hot water distribution from the storage tank was as short as possible to minimise heat losses.

SAFETY VALVE STARTING PRESSURE [MPa]	ADMISSIBLE OPERATING OVER-PRESSURE OF STORAGE TANK [MPa]	MAXIMUM PRESSURE IN COLD WATER PIPES [MPa]
0.6	0.6	up to 0.48
0.7	0.7	up to 0.56
1	1	do 0.8

Table 10

OKC 100 NTR, OKC125 NTR,OKC 160 NTR
OKC 80 NTR/Z, OKC 100 NTR/Z, OKC 125 NTR/Z, OKC 160 NTR/Z



U - Closing valve
P1 - Safety valve with backflow flap
P2 - Safety valve for heating circuit
V - Drain valve
M - Manometer
T - Three-way valve
O - Air outlet valve

* Use of expansion tank is not a prerequisite of correct connection but just a possible design variant

OKC 200 NTR, OKC 250 NTR

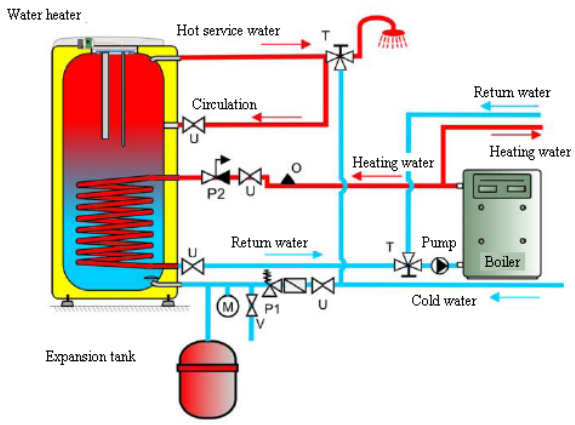
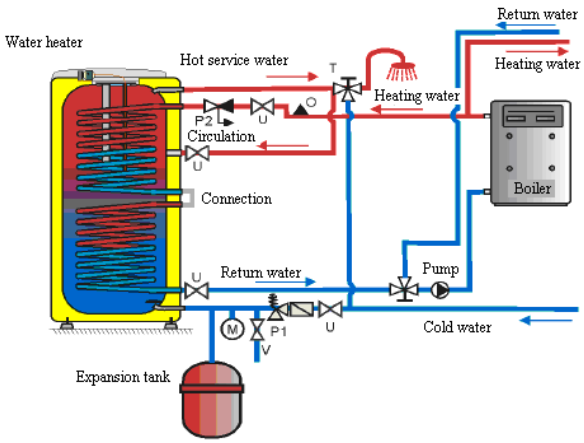


Figure 10

OKC 200 NTRR, OKC 250 NTRR

Exchangers combined in a series



U - Closing valve
P1 - Safety valve with backflow flap
P2 - Safety valve for heating circuit
V - Drain valve
M - Manometer
T - Three-way valve
O - Air outlet valve

* Use of expansion tank is not a prerequisite of correct connection but just a possible design variant

OKC 200 NTRR, OKC 250 NTRR

Two heating water sources

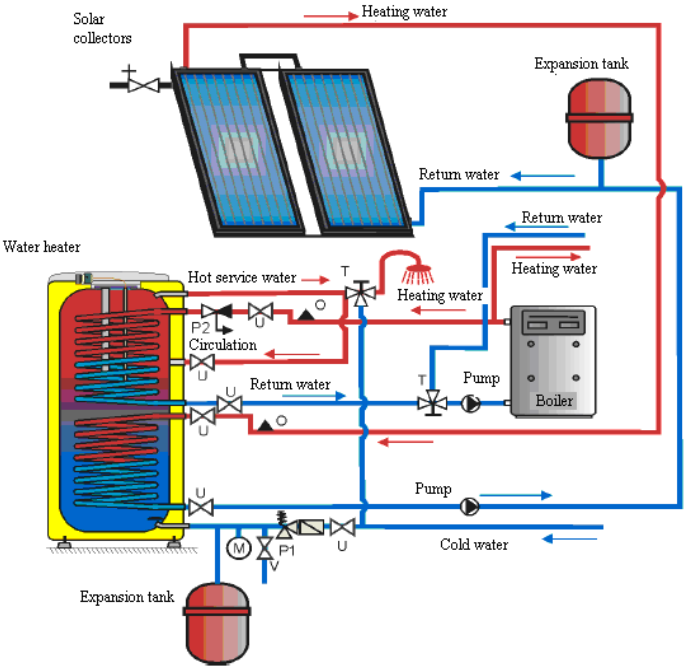
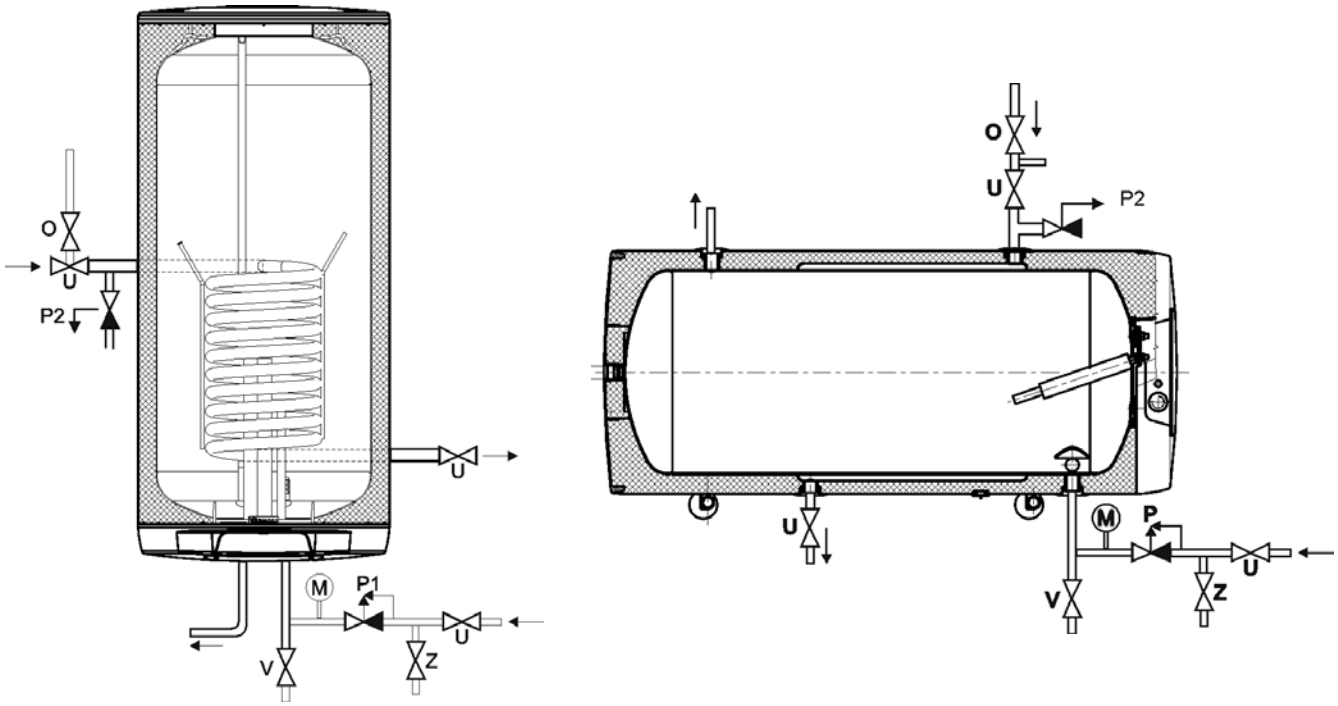


Figure 11



0 - Air outlet valve
U – Shut-off valve
P1 - Safety valve with backflow flap
P2 - Safety valve for heating circuit
M - Manometer
Z – Test valve
V - Drain valve

Figure 12

Storage tanks must be provided with a discharge valve mounted on the cold service water inlet to the storage tank for potential disassembly or repair. **When assembling the security equipment, follow Standards.**

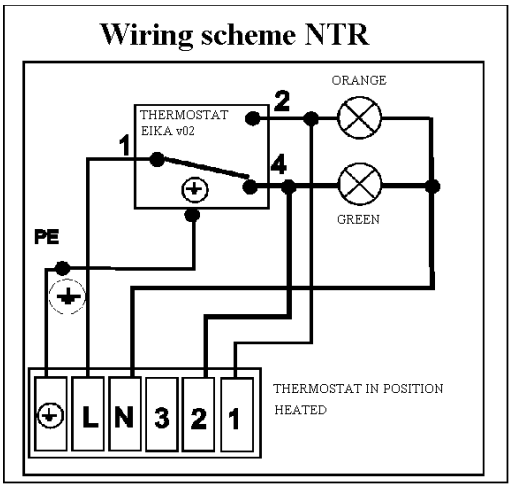
2.4 ELECTRIC WIRING

2.4.1 ELECTRIC INSTALLATION GENERAL INFORMATION

- Check the insertion of the thermostat sensor in the thermowell, the so-called insertion all the way.
- The storage tank can be connected to any hot water heating boiler up to the power output of 50 kW.
- Electrically, the storage tank is powered directly by boiler with 230 V/50 Hz control voltage.
- To adjust the distance from the wall, connect the wire of the external protective bonding!
- Elastic cable CYSY 4C x 0.75 can be used for interconnection.
- Connecting terminals are identified on the terminal board of the storage tank.

2.4.2 METHODS OF ELECTRONIC THERMOSTAT CONNECTION

Electric connection to storage tanks of the below types: OKC 100 NTR, OKC 125 NTR, OKC 160 NTR, OKC 200 NTR, OKC 200 NTRR, OKC 250 NTRR, OKC 100 NTR/HV, OKC125 NTR/HV, OKC160 NTR/HV



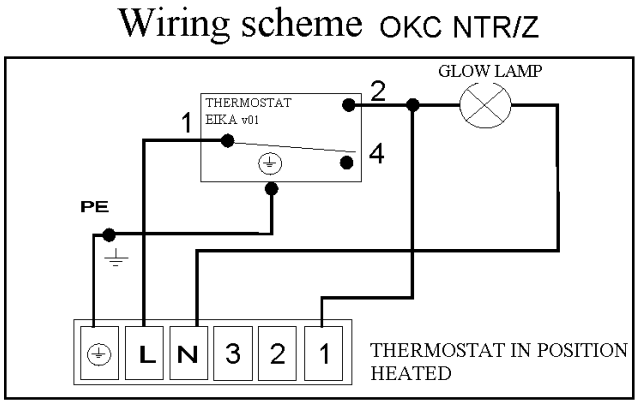
- there is voltage on connecting terminal 2 when storage tank is heated

- there is voltage on connecting terminal 1 when storage tank is not heated

Figure13

Touch thermometer is installed on the control panel to control the temperature of water, additionally there is a capillary thermostat to set the desired water temperature and two signal lights: “green” – storage tank heated, and “orange” – heating in process.

Electric connection to storage tanks of the below types: OKC 80 NTR/Z, OKC 100 NTR/Z, OKC 125 NTR/Z, OKC 160 NTR/Z, OKC 200 NTR/Z, OKCV 125 NTR, OKCV 160 NTR, OKCV 180 NTR, OKCV 200 NTR



- there is voltage on connecting terminal 1 when storage tank is not heated

Figure14

The touch panel features control of the capillary thermostat to set the desired temperature of water, and the orange control lamp is on when the heater is heating.

2.5 CONNECTION OF STORAGE TANK TO HOT WATER HEATING SYSTEM

It is recommended to install stop valves on the heating water inlet and outlet (for possible dismantling of the storage tank). The valves have to be as close to the storage tank as possible to avoid higher thermal losses.

The heating circuit is connected to marked inputs and outputs of the storage tank exchanger; the deaerating valve is mounted in the highest place. It is necessary to install a filter into the circuit in order to protect the pumps, the three-way valve, and 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 works with priority heating of HSW using a three-way valve, always follow the installation instructions of the three-way valve's manufacturer.

2.6 FIRST STORAGE TANK COMMISSIONING

After connecting the storage tank to the water supply, the hot water heating system, the electric network, and after testing its safety valve (based on the valve manual attached), the storage tank may be put into operation. Before opening the power supply, the tank must be filled with water. The process of first heating must be executed by licensed professional who has to check it. Both the hot water outlet pipe and safety armature parts may be hot.

During the heating process the pressurised connection water that increases its volume due to heating must drip off the safety valve. In non-pressurised connection water drips off the overflow combination faucet. When heating is finished, the set temperature and the actual temperature of consumed water should be roughly equal. After connecting the storage tank to the water main and electrical power system, and after checking the safety valve (following the instructions attached to the valve), the storage tank can be put into operation.

Procedure of putting the storage tank into operation:

1. Check both water and electric installation; for combined storage tanks, check also the installation to the hot water heating system. Check proper placement of thermostat sensors; The sensors in the thermo well have to be inserted all the way.
2. Open the hot water valve on the combination faucet.
3. Open the cold water inlet valve to the storage tank.
4. As soon as the water starts running through the hot water valve, the storage tank is filled and the valve can be closed.
5. In case of a leakage (flange lid), we recommend fastening the flange lid bolts.
6. Screw down the electric installation guard.
7. When heating service water with electric energy from the hot water heating system, open the heating water inlet and outlet valves, possibly de-aerate the heat exchanger.
8. When commencing operation, flush the storage tank until the cloudiness in the water is gone.
9. Make sure to fill in properly the warranty certificate.

2.7 PUTTING OUT OF SERVICE, DISCHARGE

If the hot storage tank is put out of service for a longer time, or if it is not going to be used it has to be drained and disconnected from the electric supply network on all poles. The switch for the supply lead or the fuse cut-outs have to be shut off.

At places with permanent risk of frost the hot storage tank must be drained before the cold season starts if the appliance remains out of service for several days and if the power supply is disconnected.

Drainage of service water shall be performed after closing the shut-off valve in the cold water supply piping (through the discharge valve for safety valve combination), and with simultaneous opening of all hot water valves of connected fittings. **Hot water may outflow during the drainage**! If there is a risk of frost it has to be considered that not only the water in the hot storage tank and in the hot water piping may get frozen but also the water in the entire cold water supply piping. It is therefore advisable to drain all fittings and piping that

carry water, up to the part where the house water meter is installed (connection of the house to water main) which is not jeopardised by frost. When the tank is to be used again, it has to be filled with water and one needs to make sure that the water **flowing out at the hot water valves did not contain any bubbles**.

2.8 INSPECTION, MAINTENANCE & CARE FOR THE APPLIANCE

During the heating process the water that increases its volume during the heating must drip off the safety valve outlet (in non-pressurised connection this water drips off the combination faucet valve). In full heating (about 65°C) the volumetric water gain is approx. 3% of the tank capacity. The function of the safety valve has to be checked regularly (based on the information contained in the attached safety valve manual). In common operation, such a check needs to be implemented at least once a month, and after each storage tank shutdown that exceeds 5 days.

Caution! In doing so, the cold water supply pipe and the connection fitting of the tank may get heated! If the hot storage tank does not work, or if hot water is not withdrawn, no water shall drip off the safety valve. If water drips, then the pressure in the supply piping is either too high, or the safety valve is defective. Please call a specialised plumber immediately!

If water contains too many minerals, an expert has to come to remove the scale that forms inside the tank, as well as free sediments. Repetitive water heating causes limestone sediment on both the 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 tank from scale and eventual replacement of the 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 the company in charge of service affairs clean and exchange the anode.

When discharging water from the storage tank, the combination faucet valve for hot water must be open in order to avoid creating under pressure that would prevent water discharge. This has to be performed after one or two years of operation. The cleaning is carried out through the hole in the flange by: draining the boiler, dismantling the flange lid and cleaning the tank. A new sealing has to be used for re-fitting. Since the inside of the vessel has special enamel, the surface of which must not get in contact with a scale removing agent – do not work with a lime pump. Remove the lime layer with a timber and suck it off, or wipe it off with a clout. After that, the appliance must be rinsed thoroughly and the heating process is checked the same as during the initial putting in operation. Do not use any abrasive cleaning agents or dye thinners to clean the outer shell of the storage tank (such as cellulose thinner, trichlor, and the like). For cleaning use a wet clout and add a few drops of liquid cleaning agent for household applications.

2.9 MOST FREQUENT FUNCTION FAILURES AND THEIR CAUSES

Potential failures – Table 11

FAILURE SYMPTOM	LED	SOLUTION
Temperature of water is not corresponding with the set value		• defective thermostat
Water is constantly dripping off the safety valve	• LED is not on	• input pressure is too high • faulty safety valve

Table 11

Do not try to repair the failure yourselves. Seek either expert or service help. It does not take much for an expert to remove the defect. When making a repair appointment, report the type and serial number you find on the performance plate of your storage tank.

3. OPERATION OF THERMOSTAT

3.1 OPERATING MODES

3.1.1 SERVICING

Service devices of storage tanks of 80 to 250 l capacity are located under the transparent guard of the control panel.

PANEL OF OKC NTR / Z & OKCV NTR STORAGE TANKS of 80 up to 200 l capacity

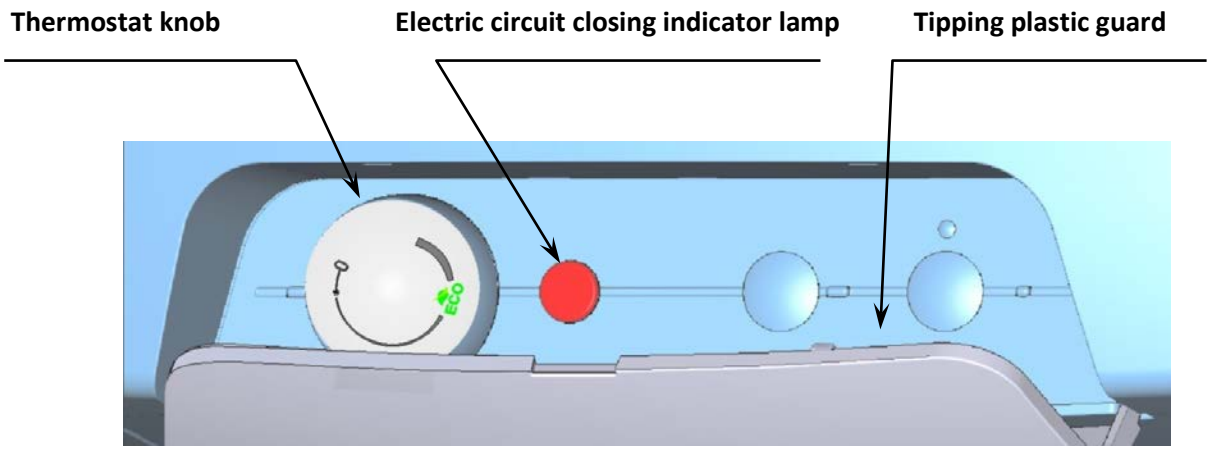


Figure 15

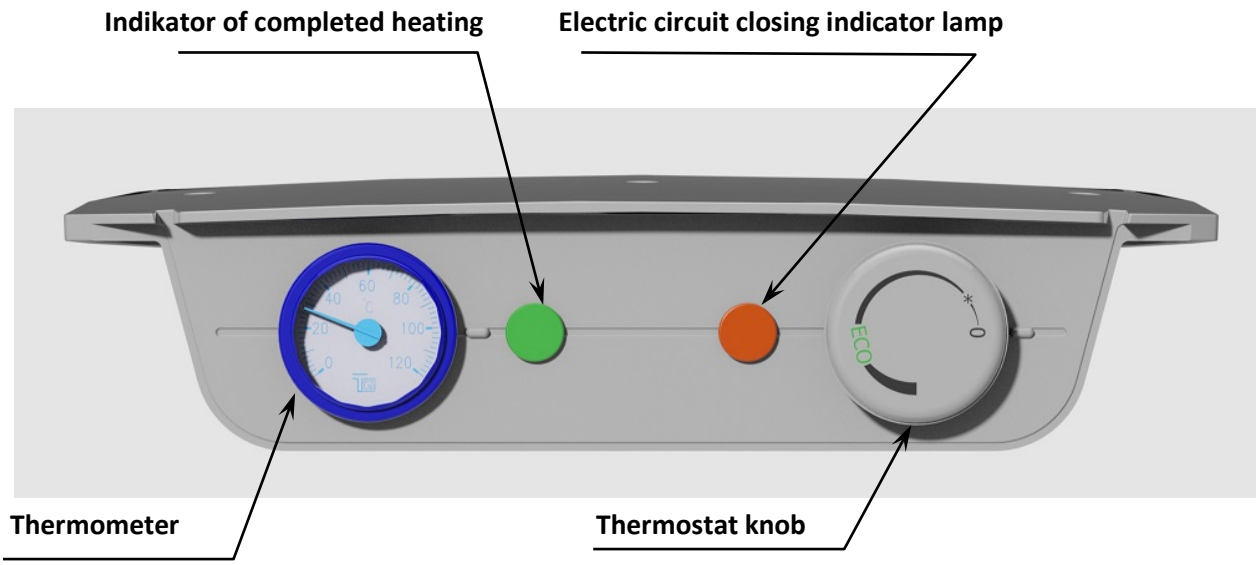


Figure 16

3.1.2 TEMPEATURE SETTING

Water temperature is set by turning the thermostat knob. The desired symbol is adjusted against the fixed point on the control panel - Figure 17.

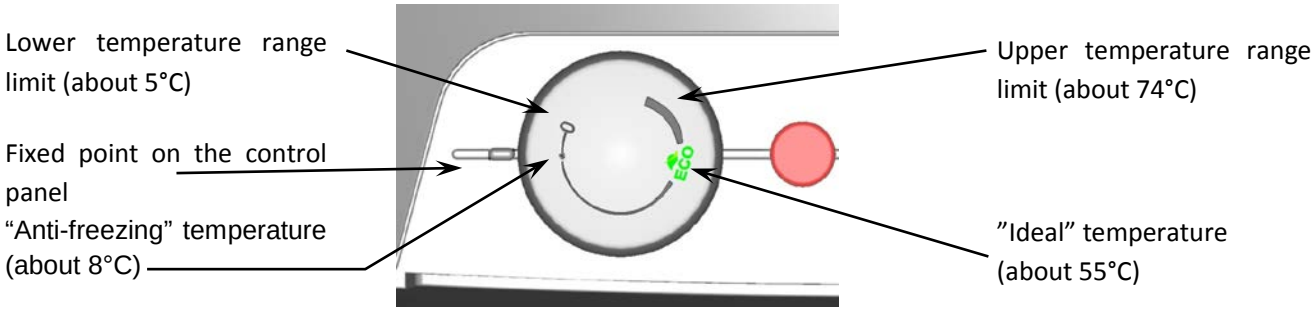


Figure 17

Adjusting the thermostat selector at the left backstop does not mean permanent shutoff of the heating element. When the storage tank is in use without blocking the daily rate, we do not recommend the temperature to be set above 55°C. The maximum value to select is “**ECO**“.

4 IMPORTANT NOTICES

4.1 INSTALLATION REGULATIONS

- Check and exchange the Mg anode regularly.
- **No stop valves can be put between the storage tank and the safety valve.**
- If the overpressure in the eater main exceeds 0.6 MPa, a reduction valve must be mounted before the safety valve.
- All outlets of hot water must be equipped with a combination faucet.
- Before filling the storage tank with water for the first time, it is recommended to fasten the flange connection nuts of the tank.
- 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.

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

4.2 DISPOSAL OF PACKAGING MATERIAL AND FUNCTIONLESS PRODUCT

A service fee for providing return and recovery of packaging material has been paid for the packaging in which the storage tank 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 boiler packages to a waste disposal place determined by the town. When the operation terminates, disassemble and transport the discarded and unserviceable storage tank to a waste recycling centre (collecting yard), or contact the manufacturer.

5 PRODUCT ACCESSORIES

G3/4" safety valve is packed with the product and the OKC 100, 125 NTR and OKC 100, 125, 160 NTR/ HV types are additionally equipped with a discharge valve. The OKC NTR/Z and OKCV NTR types packaging include suspension elements and thermometer.

It is in your own interest to check the completeness of the accessories.

30-9-2015