

OPERATING AND INSTALLATION MANUAL

OKC 200 NTR/HR 120
OKC 300 NTR/HR 100



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 **DRAŽICE**
NIBE GROUP MEMBER

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CAREFULLY READ THIS MANUAL BEFORE INSTALLING THE WATER HEATER!

Dear Customer,

Družstevní závody Dražice - strojírna s.r.o., 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 electrical water heaters.



The product is not intended to be controlled by

- a) people (including children) with reduced physical, sensual or mental capacities, or
- b) people with insufficient knowledge and experiences unless supervised by responsible person, or unless properly instructed by such responsible person.

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.

Made in the Czech Republic.

Meaning of pictograms used in the Manual



Important information for heater 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 PRODUCT DESCRIPTION

The hot water tank and storage tank assembly is used to store hot water and excess heat from the heat source. The source can be a heat pump, solid fuel boiler, fireplace insert, etc. polyurethane foam. The heater casing is made of powder coated steel sheet.

The tank receptacle is welded from a steel plate; the exchangers from a steel tube and, as a unit, it is entirely coated with hot water resistant enamel. For additional corrosion protection a 2 magnesium anode (OKC 300 NTR/HR 100) are mounted in the upper part of the tank to adjust the electric potential inside the tank, reducing the risk of corrosion (OKC 200 NTR/HR 120 has 1 magnesium anode only in the upper part of the vessel). The vessels have outlets of hot and cold water and a circulation opening welded to them.



The tubular heat exchanger is designed for the heating circuit only.

OKC 200 NTR/HR 120

The hot water tank has a capacity of 200 litres. The tank is equipped with a G 1½" opening with the possibility of installing additional TJ 6/4" series electric heating element for possible reheating of the water to the required temperature.

The storage tank has a capacity of 120 litres. The tank is equipped with a G 1½" opening with the possibility of installing an additional heating element of the TJ 6/4" series. The storage tank is without internal surface treatment.

The tanks are equipped with removable 80 mm thick insulation with lock. The outer surface of the tanks is coated with a protective coating.

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The hot water tank has a capacity of 300 litres. On the side of the tank there is a cleaning and inspection opening with a 110 mm flange, the spacing of the eight M8 screws is 150 mm (The TPK 150-8 series heating flange can be used as an accessory in the opening) The tank is equipped with a hole G 1½" with the possibility of installing an additional electric heating element of the TJ 6/4" series. This option is used when the tank is connected in a system with a heat pump - to reheat the water in the upper part of the tank to the desired temperature.

The storage tank has a capacity of 100 litres. The tank is equipped with a G 1½" opening with the possibility of installing an additional heating element of the TJ 6/4" series. The storage tank is without internal surface treatment.

The insulation of the tank consists of 70 mm of polyurethane foam free of Freon, the outer shell of the tank is made of plastic.

2 TANKS INSTALLATION

OKC 200 NTR/HR 120

Tanks and insulation are supplied separately, with the storage tank having stands on the bottom and top. The hot water storage tank has stands only on the bottom side and is installed above the storage tank so that a bolted connection can be secured over the tank stands (Figure 1). Adjustable feet are screwed into the bottom racks of the storage tank to balance the tank in the plane. Once the connecting screws have been tightened, the thermal insulation can be installed.



Figure 1

OKC 300 NTR/HR 100

The tank assembly is supplied assembled and fitted with non-removable PU insulation and outer plastic jacket. Adjustable feet are screwed into the lower racks of the tank assembly to balance the tanks in the plane.

The installation of the tank must be carried out in a location that can be considered suitable, i.e. the equipment must be easily accessible for any necessary maintenance, repair or eventual replacement.



There must be no space between the hot water safety valves, the heating circuit and the storage tank no shut-off valve must be located!!

The connection of the hot water tank must be in accordance with ČSN 06 0830, i.e. a safety valve is required at the cold water inlet.

Before commissioning, we recommend starting the heating circuit and cleaning any impurities trapped in the filter, after which the system is fully operational.

3 TECHNICAL PARAMETERS

MODEL		OKC 200 NTR/HR 120		OKC 300 NTR/HR 100	
		HOT WATER TANK	STORAGE TANK	HOT WATER TANK	STORAGE TANK
VOLUME	l	200	120	302	100
WEIGHT WITHOUT WATER	kg	130		177	
MAXIMUM TANK PRESSURE	bar			6	
OPERATING EXCHANGER PRESSURE	bar			10	
MAX. TEMPERATURE OF HEATING WATER	°C			90	
MAX. OUTPUT OF THE TJ 6/4" SERIES ELECTRIC HEATER	kW			1 x 6	
ENERGY EFFICIENCY CLASS		C		B	
STATIC LOSSES	W	91		65	

Tabel 1

4 OPERATION AND FITTING INSTRUCTIONS

4.1 FIRST COMMISSIONING

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

Procedure:

- Check the water main and wiring; Check proper placement of thermostat sensors. The sensors must be inserted all the way in; first the thermostat and then the safety fuse;
- Open the hot water valve on the combination faucet;
- Open the cold water inlet valve to the tank.
- When the water starts flowing through the hot water valve, the filling of the tank is finished and the valve needs to be closed;
- If a flange lid leak is discovered, the flange lid bolts need to be tightened; screws has to be tightened by cross, tightening moment 15Nm
- When heating the water with thermal energy from a hot water heating system, turn off the electricity and open the valves at the inlet and outlet of heating water or bleed the exchanger. Once the operation restarts, keep flushing the tank until the cloud disappears;
- Make sure to fill in properly the warranty certificate

4.2 PLUMBING FIXTURE



Pressurized water is connected to pipes with a 1" thread in the lower part of the reservoir. For possible disconnection of the storage tank, it is necessary to mount a suitable fitting on the inputs and outputs of the service water. The safety valve is mounted on the cold water supply. Hot and cold water supply according to figure 2 and 3 on page 10 and 11.



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 mounting the safety valve onto a branch pipe. 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. Starting pressure of a safety valve must be identical to the maximum allowed tank pressure, and at least 20 % higher than the maximum pressure in the water main (Tabel 2). If the water main pressure exceeds such value, a reduction valve must be added to the system. No closing armature may be mounted between the tank and the safety valve. During 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 table below Tabel 2. 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 was as short as possible to minimize 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.

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	up to 0,48

Tabel 2

4.3 TANK CLEANING AND ANODE ROD EXCHANGE

Repetitive water heating causes limestone sediment on both the enameled tank walls and chiefly the flange lid. Lime scale settling depends on hardness of heated water, its temperature and on the volume of hot water used.



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 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 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

4.4 SPARE PARTS

- magnesium anode

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

5 IMPORTANT NOTICES

5.1 INSTALLATION NOTICE



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.

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. Screws has to be tightened by cross, tightening moment 15Nm.

5.2 INSTALLATION REGULATIONS



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

6 DESIGN AND BASIC DIMENSIONS OF TANK

OKC 200 NTR/HR 120

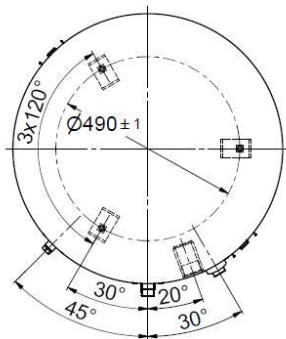
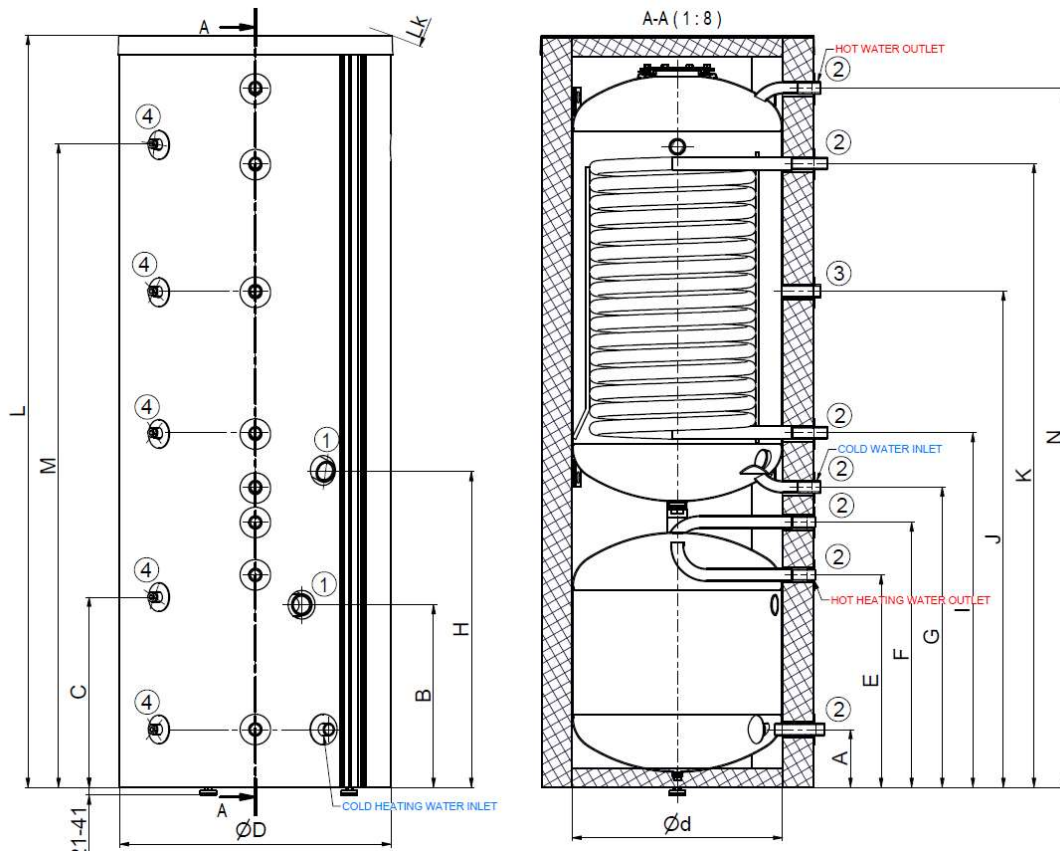


Figure 2

①	G 1 1/2" inner
②	G 1" outer
③	G 3/4" outer
④	G 1/2" inner

OKC 200 NTR/HR 120	
A	150
B	477
C	497
d	550
D	710
E	555
F	695
G	785
H	825
I	925
J	1295
K	1630
L	1965
Lk	2090
M	1680
N	1830

OKC 300 NTR/HR 100

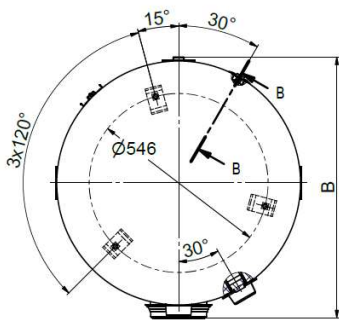
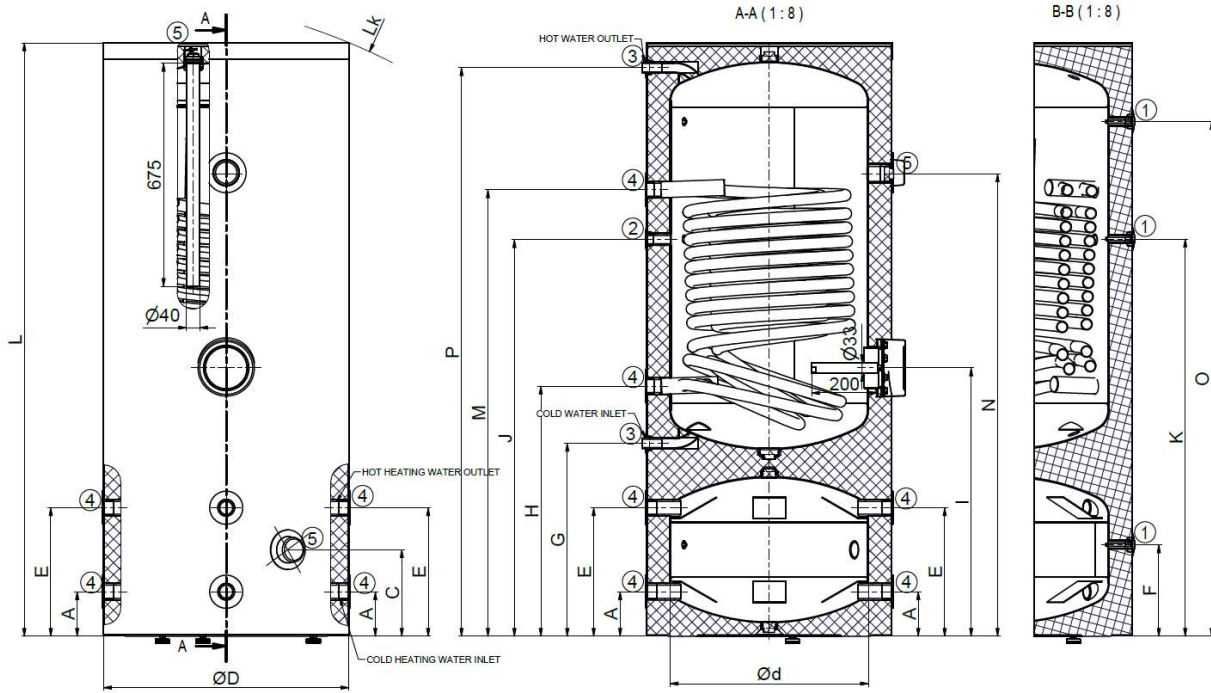


Figure 3

①	1/2" inner
②	3/4" inner
③	1" outer
④	1 1/4" inner
⑤	1 1/2" inner

OKC 300 NTR/HR 100	
A	135
B	795
C	260
d	600
D	740
E	390
F	275
G	585
H	755
I	810
J	1200
K	1205
L	1785
Lk	1940
M	1350
N	1400
O	1555
P	1720

Thermal insulation NEODUL LB PP

Insulation NEODUL of 80 mm thickness. It consists of an upper cover, flange cover and hole caps.

We recommend that the insulation was fitted at room temperature.

At temperatures significantly below 20 °C the insulation shrinks. This disables its easy fitting.

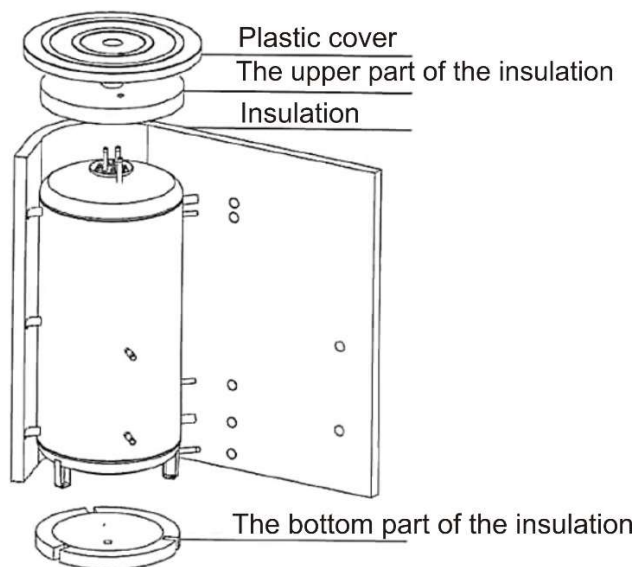


Figure 4

7 DISPOSAL OF PACKAGING 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 center (collecting yard), or contact the manufacturer.



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