NØRDIS

Domestic Hot Water Heat Exchangers

NWT-S

Floor standing

Capacity:
200 l
300 l

Installation Manual

Before operating this product, please read the instructions carefully and keep this manual for future use.

Before installing and operating the tank, please read this "Installation and Operating Instructions" and the Warranty Terms and Conditions.

Contents

The manufacturer reserves the right to make any design changes as part of the product modernisation without having to include them in this manual.

1. Construction and purpose.

NWT-S type DHW tanks are designed for heating and storing domestic hot water for the needs of apartments, single- and multi-family houses, and buildings Public utilities, industrial facilities, and other facilities, in conjunction with low-temperature water central heating boilers and, above all, heat pumps.

NWT-S DHW tanks are equipped with a spiral coil with a large exchange surface and capacity, allowing for rapid heat exchange and rapid domestic water heating. NWT-S DHW tanks are designed for installation in rooms with doors as wide as 70 cm.

The DHW tanks are made of sheet steel coated internally with a special, high-temperature ceramic enamel layer, which creates a glassy coating that protects them against corrosion. Additional anti-corrosion protection for the tanks is provided by a magnesium anode, whose operation is based on the difference in electrochemical potentials between the tank material and the anode.

The thermal insulation is made of polystyrene foam permanently bonded to the tank walls. The outer casing of the heat exchanger is made of artificial leather.

ATENTION! In the case of thermal insulation permanently attached to the pressure vessel, its removal will void the product warranty.

The DHW tanks are designed to accommodate an electric heater on a 1½" plug, specifically the NWT-S with insulated heating elements that do not draw the protective current generated by the magnesium anode used for tank corrosion protection. This increases the tank's durability and the life of the magnesium anode. The construction and dimensions of the exchangers are shown in Fig. 1-2, and their technical parameters are in Table 1-2.

Fig. 1. Construction of NWT-200S DHW tank

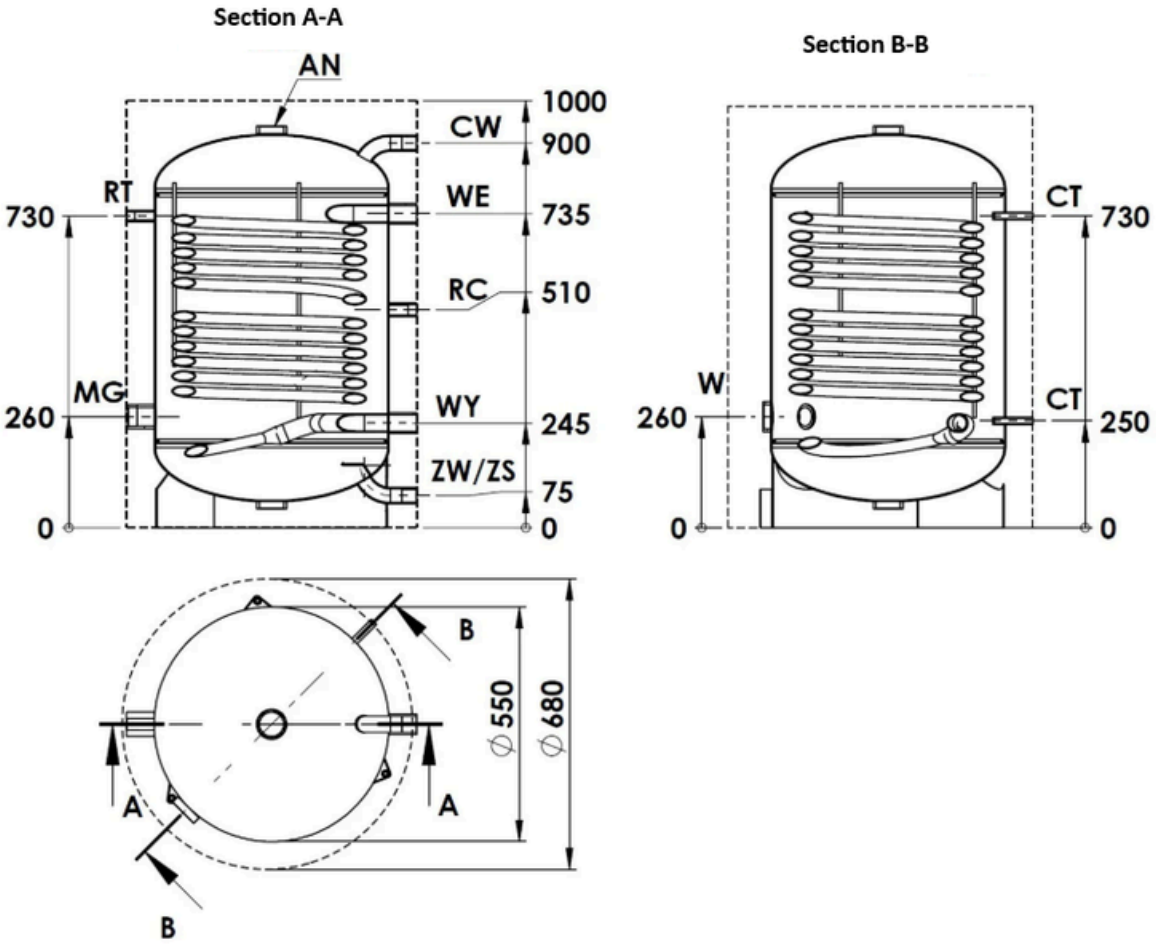


Fig. 2. Construction of NWT-300S DHW tank

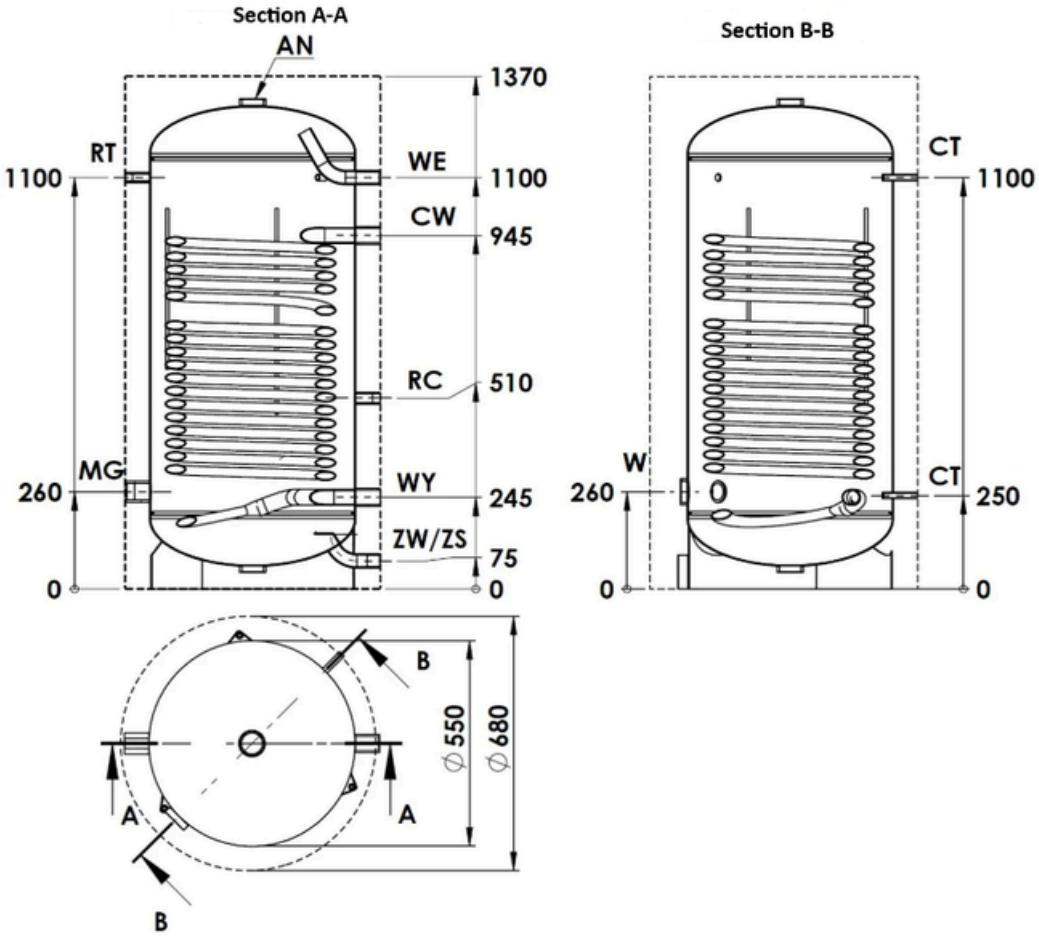


Table 1. Dimensions of the connections **NWT-S**

Type	Code	NWT-200S	NWT-300S
Hot domestic water	CW	G 1”	G 1”
Cold domestic water	ZW	G 1”	G 1”
Coil supply	WE	G 1 ¼”	G 1 ¼”
Coil return	WY	G 1 ¼”	G 1 ¼”
Circulation	RC	G ¾”	G ¾”
Temperature sensor (closed)	CT	⅜”	⅜”
Electric heater sleeve	MG	G 1 ½”	G 1 ½”
Thermometer sleeve	RT	G ½”	G ½”
Drain	ZS	G 1”	G 1”
Cleanout	W	G 2”	G 2”
Magnesium anode (1) nr kat.		703-40-330	703-40-500
Magnesium anode	AN	G 2”	G 2”

Tab.2 Technical parameters of NWT-S

Type	Unit	NWT-200S	NWT-300S
Total capacity	dm^3	180	270
Usable tank capacity	dm^3	163	245
Heat exchanger surface area	m^2	2	3
Coil capacity	dm^3	12,5	18,7
DHW efficiency* 80/10/45°C	l/h	1302	1958
70/10/45°C	l/h	929	1398
60/10/45°C	l/h	558	840
55/10/45°C	l/h	373	558
45/10/40°C	l/h	218	327
Heating power* 80/10/45°C	kW	53,0	79,7
70/10/45°C	kW	37,8	56,9
60/10/45°C	kW	22,7	34,2
55/10/45°C	kW	15,2	22,7
45/10/40°C	kW	7,6	11,4
Domestic hot water efficiency* 80/10/60°C	l/h	521	784
70/10/60°C	l/h	261	392
Heating power* 80/10/60°C	kW	30,3	45,6
70/10/60°C	kW	15,2	22,8
Standby losses **	W	47	64
Pressure loss	mbar	20	30
DHW Tank operating parameters		Maximum operating pressure and temperature p = 0,6 MPa; t = 85°C	
Heating medium parameters		Maximum operating pressure and temperature p = 1,0 MPa; t = 100°C	
Type of DHW tank		Steel covered with ceramic enamel inside	
Type of external casing		Skay type cover	
Thermal insulation		Polystyrene foam	
Thermal insulation thickness	mm	65	
Weight	kg	104	134

* 80°C, 70°C, 60°C, 55°C, 45°C – heating water temperature at the inlet to the coil
10°C – domestic water supply temperature
60°C, 45°C, 40°C – domestic hot water temperature
** in accordance with the applicable EU Commission Regulation No. 812/2013 and 814/2013

2. Protection and conditions for safe use of exchangers.

Heat exchangers must only be operated with a functional safety valve with an opening pressure of 0.6 MPa installed on the cold water supply line. This valve protects the device against excessive pressure in the water supply network or excessive pressure increases resulting from heating the water in the tank.

Even during normal operation of the heat exchanger, water may temporarily escape from the safety valve while the water is heating, indicating that the valve is functioning properly. In such cases, the discharge opening **should not be blocked in any way.**

All types of exchangers should be operated with an installed thermometer with a measuring range of 0 ÷ 120°C, and exchangers with a capacity of more than 250 liters should also be equipped with pressure gauges with a measuring range of 0 ÷ 1 MPa.

1. A safety valve, supplied with the heat exchanger, must be installed on the cold water inlet to the heat exchanger. It should be installed so that the arrowhead on the valve body aligns with the water flow direction.
2. No shut-off valves should be installed between the safety valve and the heat exchanger.
3. Operating the heat exchanger without a safety valve or with a faulty safety valve is prohibited, as it may cause malfunction and poses a threat to human life and health.

To extend the tank's lifespan and ensure trouble-free operation of the safety valve, the manufacturer recommends using mechanical filtration systems (e.g., string filters) that capture solid contaminants (such as sand, rust, or silt) installed in the cold water inlet directly upstream of the safety valve. Installation and subsequent operation of filters should be based on the documentation included with the filtration systems.

3. Installation

Installation and any repairs to the exchanger, both electrical and water, should only be carried out by qualified professionals.

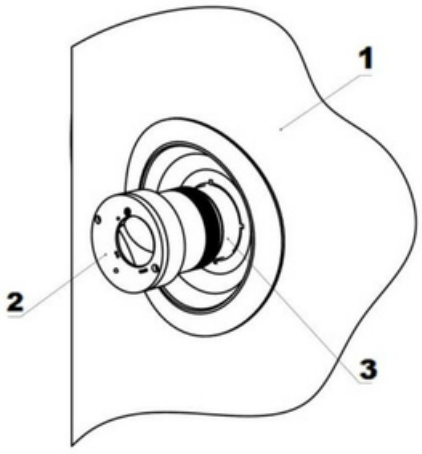
3.1. Connecting the DHW tank to the water supply network, central heating system and solar collector.

The DHW tank should always be connected vertically to a water supply system where the pressure does not exceed 0.6 MPa and is not lower than 0.1 MPa. If the pressure in the system frequently exceeds 0.4 MPa, it is recommended to install a pressure-reducing valve or expansion tank upstream of the DHW tank to limit troublesome water outflow from the safety valve. When the pressure in the water supply system exceeds 0.6 MPa, installing a pressure-reducing valve is necessary to prevent continuous water outflow through the safety valve. The DHW tank coil can be supplied by a low-temperature water boiler operating in an open system or a low-temperature central heating boiler operating in a closed system, i.e., with an expansion tank. Due to the large exchange surface of the spiral coil, the DHW tank is primarily designed for use with a heat pump.

3.2 Installing a heater with an electric heater.

During the tank warranty period, only electric heaters designed for enameled tanks, i.e., those with insulated heating elements (insulated heating elements do not "steal" the protective current generated by the magnesium anode), may be used. This is one of the warranty conditions for the heater. NORDIS NWT-S heaters meet this requirement.

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



1 – DHW tank housing
2 – electric heater
3 – MG 1 ½" connector

Fig. 3 Installing an electric heater

Among the electrical heaters, a single-phase 230 V heater with a power of 1.5, 2.0 or 3.0 kW or a three-phase 400 V heater with a power of 3.0 or 4.5 kW is installed in the heaters.

A single-phase water heater with an electric element should be connected to the mains via a 230V/16A grounded socket. The heater's connection to the mains is indicated by a green light, and the heater's activation is indicated by a red light. The heater's wiring diagrams are shown in Figures 4 and 5.

1 - heating element
2 - temperature controller +temperature limiter

3 - resistor
4 - rectifier diode
5 - red light-emitting diode
6 - metal head

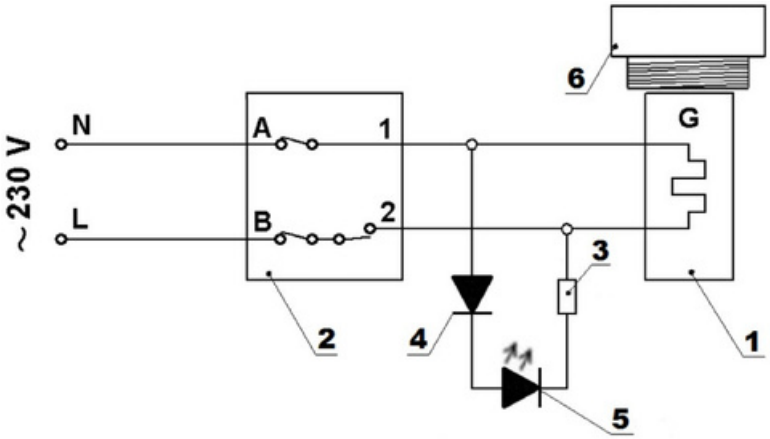


Fig. 4. Electrical diagram of a heater with a 1-phase electric heater

The connection of a heater with a 3-phase electric heater to the installation in accordance with the wiring diagram (Fig. 5) should be performed by a specialist with appropriate qualifications.

1-heating element
2-temperature controller + temperature limiter
3-resistor
4-metal head LS-LED diode - signaling

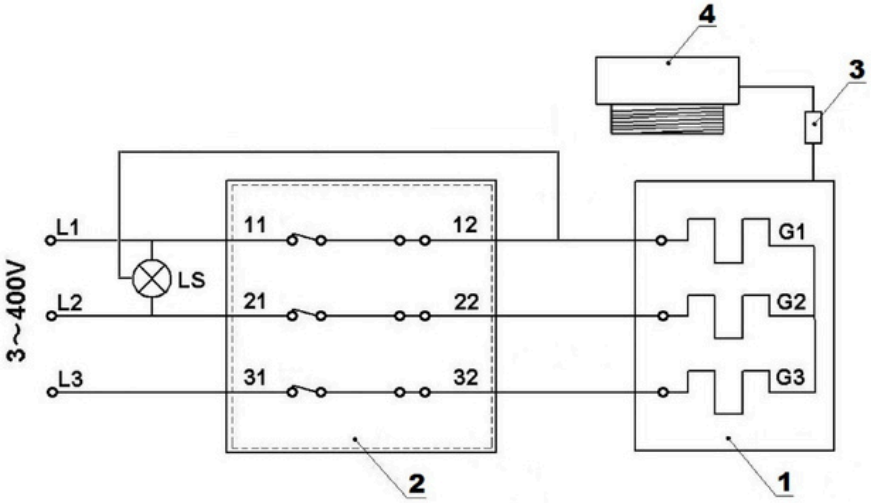


Fig. 5. Electrical diagram of a heater with a 3-phase electric heater.

Do not plug the power cord into an electrical outlet without first ensuring the tank is filled with water.

4. Operation and service.

1. Periodically, at least once a month and before each start-up after shutdown, check the correct operation of the safety valve (according to the valve manufacturer's instructions).
2. A momentary, small flow of water from the safety valve while the water in the exchanger is heating is normal and indicates that the safety valve is operating correctly.

A constant leak from the safety valve outlet indicates a valve malfunction or excessive pressure in the water supply system.
Do not obstruct the outlet in any way.

3. If the DHW tank is not used during the winter and there is a risk that the water in the DHW tank may freeze, drain it by opening the safety valve.
4. The magnesium anode wears out during use, so periodically, at least once a year, its condition should be checked and replaced with a new one after 18 months. A suitable magnesium anode can be purchased at a retail outlet or from the DHW tank manufacturer.
The anode is located in the upper bottom of the DHW tank tank. To check its condition or replace it with a new one, proceed as follows:
- Shut off the cold domestic water supply, briefly open the hot domestic water tap and then close the hot water outlet from the DHW tank,
- Remove the top cover of the DHW tank housing,
- Unscrew the plug along with the anode,
- Install the new anode in reverse order, ensuring the connections are tight.

The magnesium anode plays an important role in protecting the enameled tank from corrosion, and its regular inspection and replacement is necessary to maintain the tank's warranty.

Replaced worn-out anodes and their replacement (anode purchase) certificates should be retained for inspection by the manufacturer's service department in the event of a tank failure.

5. Periodically, depending on the water hardness, remove accumulated sediment and loose scale.

5. Warranty terms

1. The warranty for the tank (i.e., the enameled steel body of the exchanger) is 60 months.
2. The warranty for the remaining parts of the tank is 24 months.
3. The warranty period runs from the date of sale of the product to the user, as specified in the warranty card and confirmed by the purchase document (invoice) issued by the seller.
4. The guarantor guarantees the efficient operation of the exchanger provided that it is installed and used in accordance with this instruction manual.
5. During the warranty period, the user is entitled to free repairs of any damage to the DHW tank caused by the manufacturer. Such damage will be repaired within 14 days of the report date.
6. The user loses the right to warranty repairs in the event of:

- improper use of the device,
- repairs and modifications to the device performed by unauthorized persons,
- improper installation and operation of the device not in accordance with this manual,
- operation of the exchanger without a safety valve or with a faulty safety valve,
- negligence of maintenance, i.e., failure to replace the magnesium anode every 18 months (no proof of purchase: receipt, invoice, etc.),
- using an electric heater with uninsulated heating elements,
- dismantling the thermal insulation permanently attached to the pressure tank.

7. The guarantor may refuse to perform repairs if:

- installation access to the device is not provided; to replace the heater it is necessary to dismantle other devices, partition walls, etc.,
- the tank is permanently connected to the water supply system using non-detachable connections.

8. Each service request is preceded by an initial assessment to determine whether the fault described by the customer exists and whether the user has not been at fault due to improper use of the device.
9. In the event of a service call for an event not covered by the warranty, i.e. AFTER THE WARRANTY PERIOD EXPIRES, the costs of the service visit and the ordered repair are borne by the customer.
10. In the event of any irregularities in the operation of the exchanger, notify the manufacturer's service by phone at +37037373248, or by email at service@nordis-ac.com or at the point of purchase. DO NOT DISASSEMBLE THE DEVICE.
11. The method of repairing the device is determined by the manufacturer.
12. The warranty covers DHW tanks purchased and installed exclusively in the territory of the Republic of Lithuania.
13. In matters not regulated by the above terms, the provisions of the Civil Code apply.

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More information about
NØRDIS heating and
cooling solutions

www.nordis-ac.com