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Operating Manual

Domestic hot water tank
WWS 200, WWS 280, WWS 430

Accessory for heat pumps

UK

www.aitgroup.com

83035200cUK

Contents

1 About this operation manual

This operation manual is an integral part of the device.

- ► Before working on or with the device, always read the operation manual carefully and follow it for all activities at all times, especially the warnings and safety instructions.
- ► Keep the operation manual at hand at the device and hand it over to the new owner if the device changes hands.
- ► If you have any questions or if anything is unclear, ask the local partner of the manufacturer or the factory's customer service.
- ► Observe all reference documents.

1.1 Validity

This operation manual refers solely to the device identified by the nameplate (→ "Nameplate", page 5).

1.2 Reference documents

The following documents contain additional information to this operation manual:

- Heat pump guide, hydraulic integration
- Operating manual of the heat pump, the hydraulic unit or the wall-mounted controller
- Operation manual for the heating and heat pump controller
- Short description of the heat pump controller
- Operation manual for the extension board (accessory)

1.3 Symbols and markings

Identification of warnings

Symbol	Meaning
	Safety-relevant information. Warning of physical injuries.
	Safety-relevant information. Warning of physical injuries. Flammable materials / flammable (primary) refrigerant
	Safety-relevant information. Warning of physical injuries. Flammable materials / flammable (primary) refrigerant
	Safety-relevant information. Warning of physical injuries. Danger of fatal injury due to electric current.
DANGER	Indicates an imminent danger resulting in severe injuries or death.
WARNING	Indicates a potentially dangerous situation, which can result in severe injuries or death.
CAUTION	Indicates a potentially dangerous situation, which can result in moderate or minor injuries.
IMPORTANT	Indicates a potentially dangerous situation, which can result in material damage.

Symbols in the document

Symbol	Meaning
	Information for specialist
	Information for operator
✓	Prerequisite for an action
▶	Procedural instruction: Single-step instruction for action
1., 2., 3., …	Procedural instructions: Numbered step within a multi-step instruction for action. Adhere to the given sequence.
	Additional information, e.g. a note for making work easier, information on standards
→	Reference to further information elsewhere in the operating manual or in another document
•	List
	Secure connections against twisting

1.4 Contact

Addresses for purchasing accessories, for service cases or for answers to questions about the unit and this operating manual can be found on the internet and are kept up-to-date:

→ “Contact” in the heat pump operating manual

2 Safety

Only use the unit if it is in proper technical condition and only use it as intended, safely and aware of the hazards, and follow this operating manual.

2.1 Intended use

The storage tank is designed for household use and may only be used as intended.

This means as a domestic hot water tank suitable for normal drinking water in conjunction with:

- Air/water heat pumps
- Brine/water heat pumps
- Water/water heat pumps

IMPORTANT
The electrical conductivity of the domestic hot water must be > 100 µS/cm and must lie within the drinking water quality values.

► If local regulations apply, observe: laws, standards and directives.

2.2 Personnel qualifications

The unit is safe to operate when used for its intended purpose. The construction and design of the unit conform to current state-of-the-art standards, all relevant DIN/VDE regulations and all relevant safety regulations.

The operating manuals supplied with the product are intended for all users of the product.

The operation of the product via the heating and heat pump control and work on the product which is intended for end customers / operators is suitable for all age groups of persons who are able to understand the activities and the resulting consequences and can carry out the necessary activities.

Children and adults who are not experienced in handling the product and do not understand the necessary activities and the resulting consequences must be instructed and, if necessary, supervised by persons experienced in handling the product and who are responsible for safety.

Children must not play with the product.

The product may only be opened by qualified personnel.

All instructional information in this operating manual is solely directed at qualified, skilled personnel.

Only qualified, skilled personnel is able to carry out the work on the unit safety and correctly. Interference by unqualified personnel can cause life-threatening injuries and damage to property.

► Ensure that the personnel is familiar with the local regulations, especially those on safe and hazard-aware working.

- Work on the refrigerating circuit may only be carried out by qualified personnel with appropriate qualifications for refrigeration system installation.
- Work on the electrics and electronics may only be carried out by electrical technicians.
- Any other work on the system may only be carried out by qualified personnel (heating installer, plumbing installer).

Every person who carries out work on the unit must comply with the applicable accident prevention and safety regulations. This applies in particular to the wearing of personal protective clothing.

During the warranty and guarantee period, servicing and repair work may only be carried out by personnel authorised by the manufacturer.

2.3 Personal protective equipment

During transport and work on the unit, there is a risk of cuts due to the sharp edges of the unit.

► Wear cut-resistant protective gloves.

During transport and work on the unit, there is a risk of foot injuries.

► Wear safety shoes.

When working on liquid-conveying lines, there is a risk of injury to the eyes due to leakage of liquids.

► Wear safety goggles.

2.4 Residual risks

Injuries caused by high temperatures

► Before working on the unit, let it cool down.

Safety instructions and warning symbols

► Observe the safety instructions and warning symbols on the packaging and on and in the unit.

3 Disposal

When withdrawing the old unit from service, comply with the relevant local laws, guidelines, directives andstandards concerning recovery, recycling and disposal.

4 Scope of supply

Domestic hot water storage tank enamelled to DIN 4753 with smooth tube heat exchanger designed especially for heat pumps, integrated corrosion protection anode and 1 sensor for the heating and heat pump controller.

1. Check the delivery for outwardly visible signs of damage.
2. Check to make sure that the delivery is complete. Report defects or incorrect deliveries immediately.

Accessories

- EHZI 45FT Electric heating element 4,5 kW with flange

IMPORTANT
Use only original accessories from the manufacturer of the unit.

The use of the electric heating element is only allowed up to 14°dH.

Nameplate

A nameplate is attached to the outside of the unit at the factory.

The nameplate contains the following information at the very top:

- Model, item number
- Serial number

The nameplate also contains an overview of the most important technical data.

5 Storage, transport, installation

5.1 Storage

► Store unit protected against:

- Moisture/damp
- Frost
- Dust and dirt

5.2 Transport to installation location

NOTE
It must be installed in a frost-free room with short pipe lengths to the load. Please also ensure that it is installed on a dry, firm surface able to safely support its weight.

→ “Technical data, weight” overview

To avoid damage during transport, you should transport the storage tank (secured on the wooden pallet) to its final installation location using a lifting truck.

If it is not possible to transport the unit to the final installation location using a lifting truck, you can also transport the unit using a hand truck.

WARNING
Several people are required to transport the unit. Do not underestimate the weight of the tank.

→ “Technical data, weight” overview

WARNING
The unit can tip over when being removed from the wooden pallet and during transport with a hand truck or lift truck. This can result in personal injuries and damage.

► Take suitable precautions, which prevent the tipping hazard.

► Dispose of the transport and packaging material in an environmentally friendly way and in accordance with local regulations.

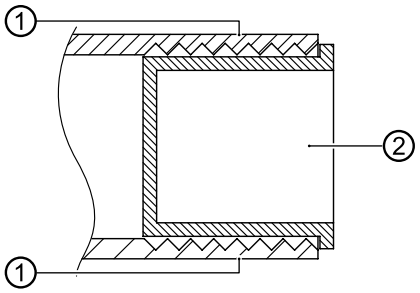
5.3 Installation

When installing the tank, ensure sufficient clearance from walls and other objects to enable the connection pipes to be fitted.

6 Mounting

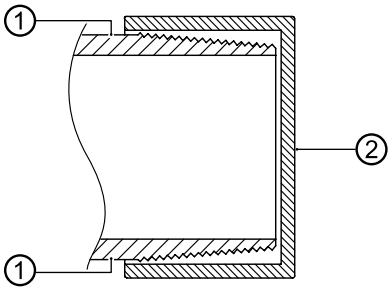
With our domestic-hot-water tanks, the following plastic protective components can be deployed on and in the connections:

- Plastic plugs (Protect the threads and must be removed during installation. For connections which are not required. They must be replaced with pressure-resistant plugs):



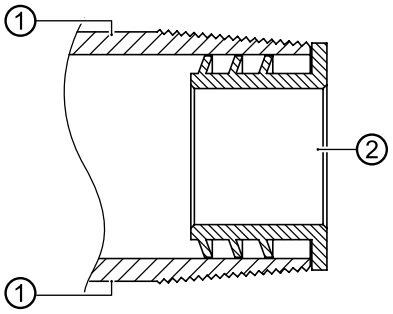
1 Connecting piece
2 Plastic plug

- Plastic caps (Protect the threads and must be removed during installation. For connections which are not required. They must be replaced with pressure-resistant caps):



1 Connecting piece
2 Plastic sleeve

- Plastic tube sleeves **for conical external threads on drinking water connections** (Protect internally enamelled nozzles and may not be removed. These sleeves must remain in the tank during operation):



1 Connecting piece
2 Plastic tube sleeve

NOTE
To level out pressure fluctuations or water hammer in the cold water network and to avoid unnecessary water loss, we recommend installation of a suitable expansion vessel with flow fittings.

CAUTION
Do not exceed the operating pressures specified on the rating plate. If necessary, install a pressure reducer.

NOTE
Close off any connections not required with appropriate plugs.

→ For position of the connections: dimensioned drawing for the respective model.

IMPORTANT
Always integrate the tank in the system according to the connection instructions.

→ “Connection instruction domestic hot water tank", page 14.

Use the safety valve according to the respective current standards, guidelines and directives and according to the maximum allowae operating pressures of the storage tank and components.

The safety discharge of the safety valve must be discharged into the drain via a funnel-shaped odour trap according to the respective current standards, guidelines and directives!

Water can drip from the safety valve!

6.1 Installation of the sensor

1. Insert the sensor for the heating and heat pump controller included in the scope of supply into the sensor pocket of the tank.

→ For position: dimensioned drawing for respective model.

Insertion depth from upper edge of the pocket:

WWS 200	500 mm
WWS 280	550 mm
WWS 430	450 mm

2. Lay the sensor cable to the heating and heat pump controller.
3. Connect the sensor cable to the heating and heat pump controller.

→ Operating manual of the heat pump, the hydraulic unit or the wall-mounted controller

4. Set the domestic hot water temperature on the heating and heat pump controller.

→ Operation manual for the heating and heat pump controller

7 Commissioning

1. Flush and fill the domestic hot water circuit and heat exchanger before commissioning.

Quality of the flushing water:

→ Operating manual of the heat pump or the hydraulic unit

2. Flush and fill the domestic hot water circuit and the storage tank.
3. Check the safety valve is working properly (and if applicable the pressure reducer)
4. Make sure that the earth cable of the protective anode(s) is connected to the storage tank.

8 Insulation of the connections and the storage tank

NOTE
Insulate in accordance with applicable local standards and guidelines/directives.

1. Check all hydraulic connections for leaks. Perform leak test.
2. Insulate all connections and pipes.

9 Maintenance

NOTE
We recommend that you sign a maintenance agreement with an accredited heating company and having the tank cleaned / maintained annually.

The functional safety of the safety valve and the pressure reducer, if integrated in the system (to be provided on site) must be checked at regular intervals.

IMPORTANT
Have the magnesium anode checked and if necessary renewed by the customer service for the first time after 2 years and then at appropriate intervals. Renew anode if protective current lower than 0.3 mA. After replacing the anode, re-install earthing cable between anode and storage tank jacket.

9.1 Draining

The storage tank is drained via the drain valve.

→ For position: dimensioned drawing for respective model.

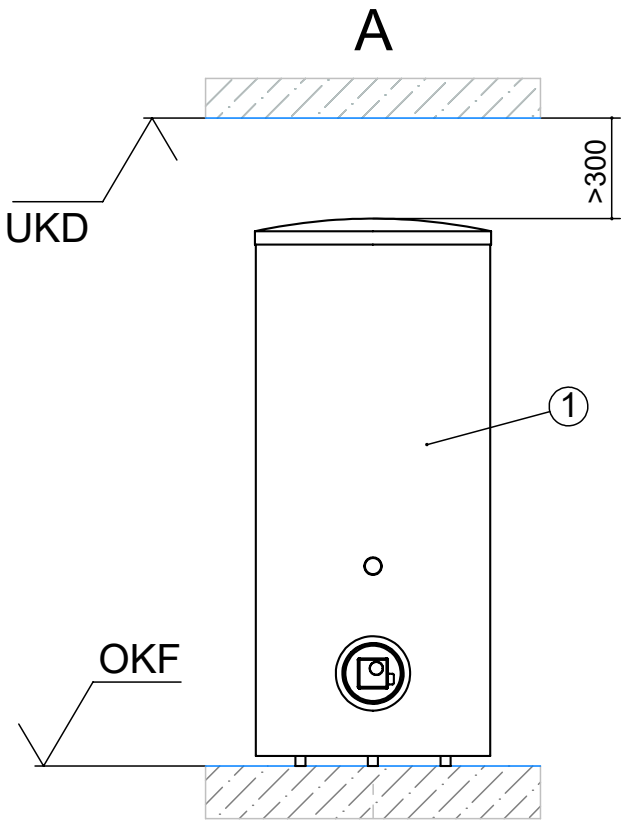
Shut-off valves must remain closed during draining. The connection at the hot water outlet should be open to the atmosphere.

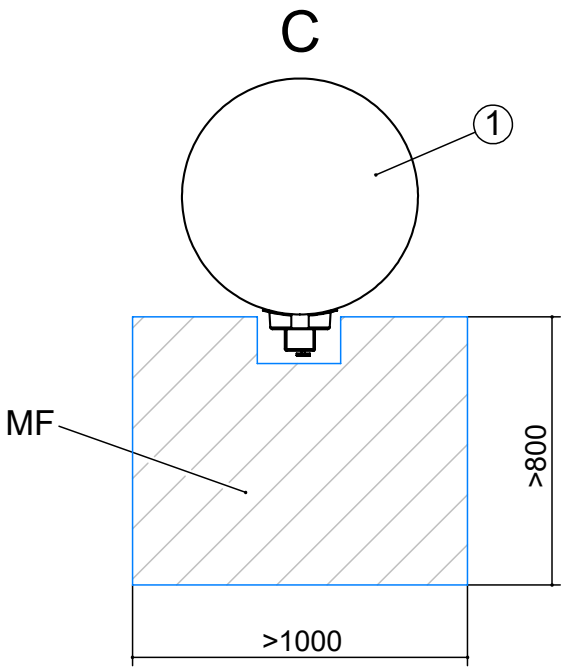
Technical Data

WWS 200 – WWS 280

Tank name		WWS200	WWS280
Domestic hot water tank | Solar domestic hot water tank	• yes – no	• | –	• | –
Domestic hot water reservoir			
Energy efficiency class according to ErP	…	B	B
Standing loss according to ErP (at 65°C)	W	53	61
Total tank volume according to ErP	l	193.8	282.5
Nominal capacity	l	180	258
Max. operating pressure	bar	10	10
Test pressure	bar	13	13
Operating temperature minimum | maximum	°C	– | 95	– | 95
Corrosion protection according to	…	DIN 4753	DIN 4753
Enamelled surface	• yes – no	•	•
Heating water circuit heat exchanger			
Capacity	l	13.8	24.5
Pressure loss | at flow rate	bar | l/h	0.025 | 1000	0.018 | 1500
Max. operating pressure	bar	10	10
Test pressure	bar	13	13
Operating temperature minimum | maximum	°C	– | 110	– | 110
Maximum heating output of the heat pump at heat source max.	kW	8.7	14.4
Solar circuit heat exchanger			
Capacity	l	–	–
Pressure loss | at flow rate	bar | l/h	– | –	– | –
Max. operating pressure	bar	–	–
Test pressure	bar	–	–
Operating temperature minimum | maximum	°C	–	–
Installation location			
Room temperature minimum | maximum	°C	20 | 65	20 | 65
Relative humidity maximum (non-condensing)	%	60	60
General unit data			
Tightening torque cleaning flange	N/m	30	30
Tests	…	SVGW / SEV	SVGW / SEV
Insulation			
Material: Rigid foam | soft foam	• yes – no	• | –	• | –
Insulation thickness	mm	60	67
as per DIN 4753	• yes – no	•	•
Sheet metal jacket ı Foil jacket	• yes – no	• | –	• | –
for further details see dimensional drawing | Manufacturer: ait deutschland GmbH | Index: a		813652a	813653a

Tank name		WWS430
Domestic hot water tank | Solar domestic hot water tank	• yes – no	• | –
Domestic hot water reservoir		
Energy efficiency class according to ErP	…	B
Standing loss according to ErP (at 65°C)	W	70
Total tank volume according to ErP	l	437.5
Nominal capacity	l	405
Max. operating pressure	bar	10
Test pressure	bar	13
Operating temperature minimum | maximum	°C	– | 95
Corrosion protection according to	…	DIN 4753
Enamelled surface	• yes – no	•
Heating water circuit heat exchanger		
Capacity	l	32.5
Pressure loss | at flow rate	bar | l/h	0.045 | 2000
Max. operating pressure	bar	10
Test pressure	bar	13
Operating temperature minimum | maximum	°C	– | 110
Maximum heating output of the heat pump at heat source max.	kW	20
Solar circuit heat exchanger		
Capacity	l	–
Pressure loss | at flow rate	bar | l/h	– | –
Max. operating pressure	bar	–
Test pressure	bar	–
Operating temperature minimum | maximum	°C	–
Installation location		
Room temperature minimum | maximum	°C	20 | 65
Relative humidity maximum (non-condensing)	%	60
General unit data		
Tightening torque cleaning flange	N/m	30
Tests	…	SVGW / SEV
Insulation		
Material: Rigid foam | soft foam	• yes – no	• | –
Insulation thickness	mm	60
as per DIN 4753	• yes – no	•
Sheet metal jacket ı Foil jacket	• yes – no	– | •
for further details see dimensional drawing | Manufacturer: ait deutschland GmbH | Index: a		813654a





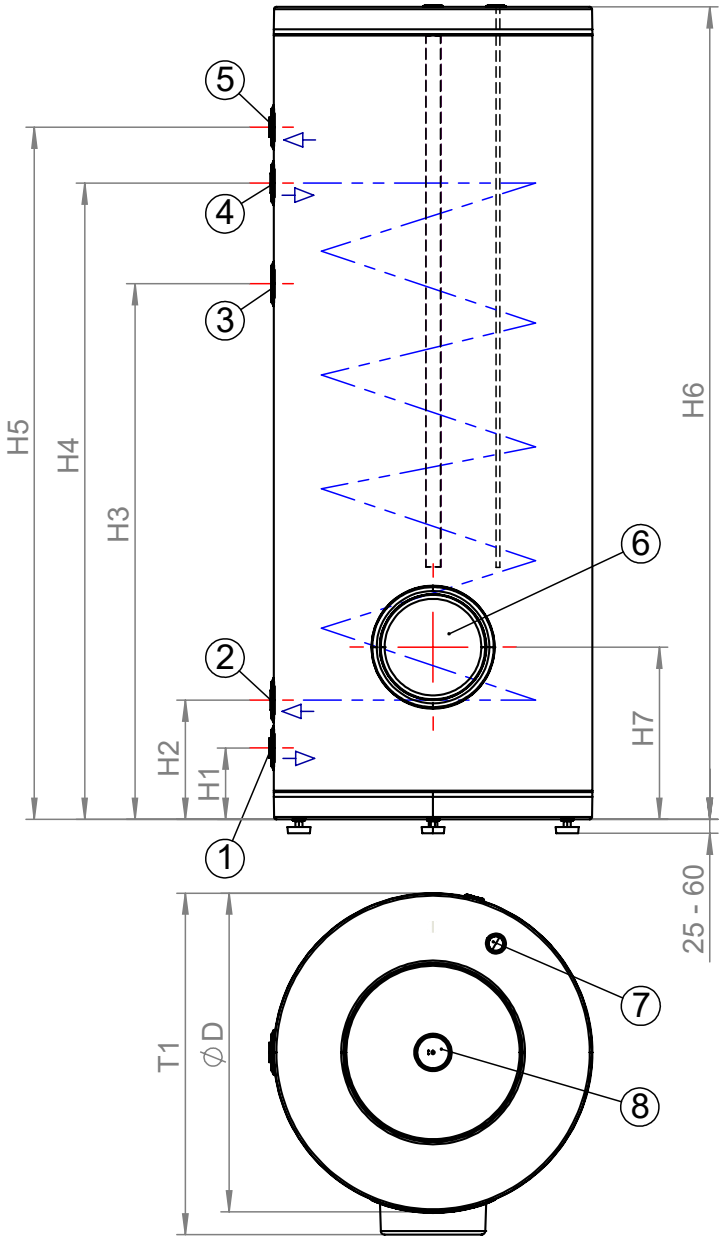
Keys: UK819397b

All dimensions in mm.

Pos.	Name
A	Front view
C	Top view
OKF	Oberkante Fertigfussboden
UKD	Lower edge ceiling
MF	Minimum area to ensure ability to operate and service
1	Storage tank

WWS 200 / WWS 280

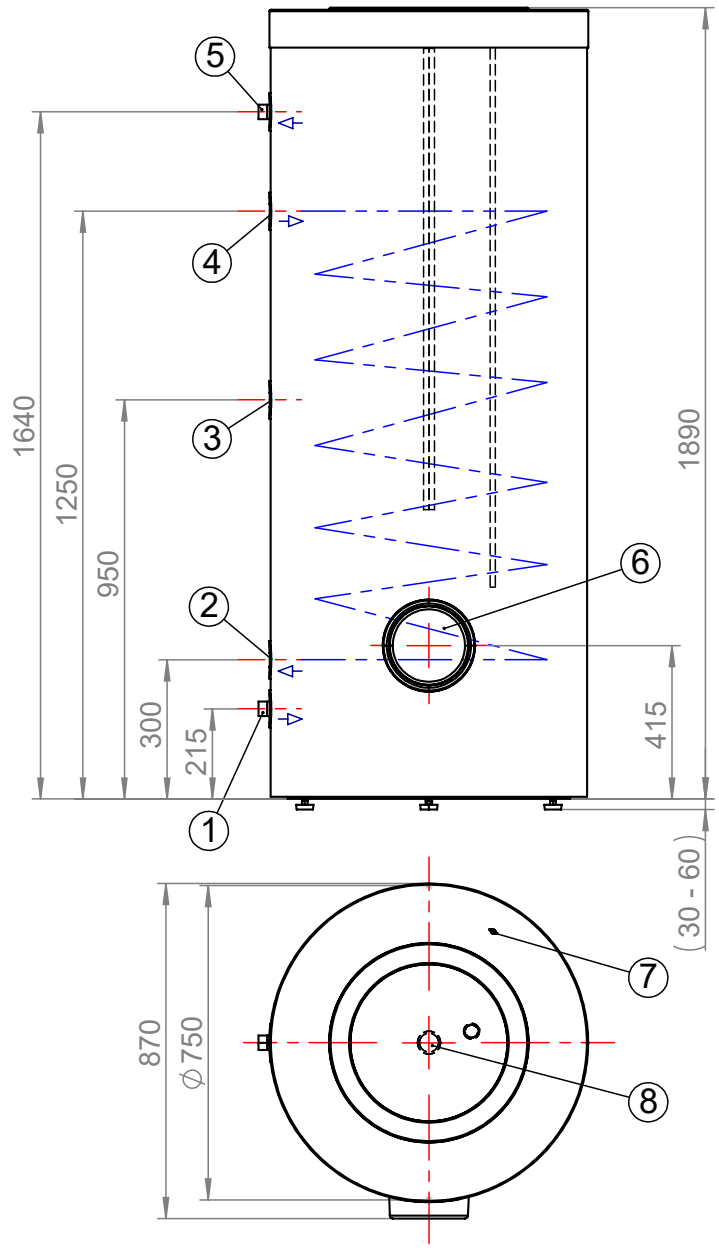
Dimensonal drawings



Keys: UK819541b
All dimensions in mm.

Name	Nominal volume	Net weight	Tilted height	Smooth tube heat exchanger Hot water circuit	H1	H2	H3	H4	H5	H6	H7	Ø D	T1
WWS 200	180 litres	96 kg	1550	2,18 m²	130	210	955	1135	1235	1455	270	570	685
WWS 280	258 litres	157 kg	1630	3,60 m²	140	240	940	1040	1250	1485	350	670	775

Pos.	Name	WWS 200 Dim.	WWS 280 Dim.
1	Domestic cold water / Draining	R 1"	R 1"
2	Heating water, return	R 1"	R 1¼" Internal thread
3	Circulation	Rp ¾" Internal thread	Rp ¾" Internal thread
4	Heating water, flow	R 1"	R 1¼" Internal thread
5	Domestic hot water	R 1"	R 1"
6	Cleaning flange	DN 120	DN 120
7	Sensor pocket	Ø internal 9	Ø internal 9
8	Protective anode	Ø 26	Ø 26

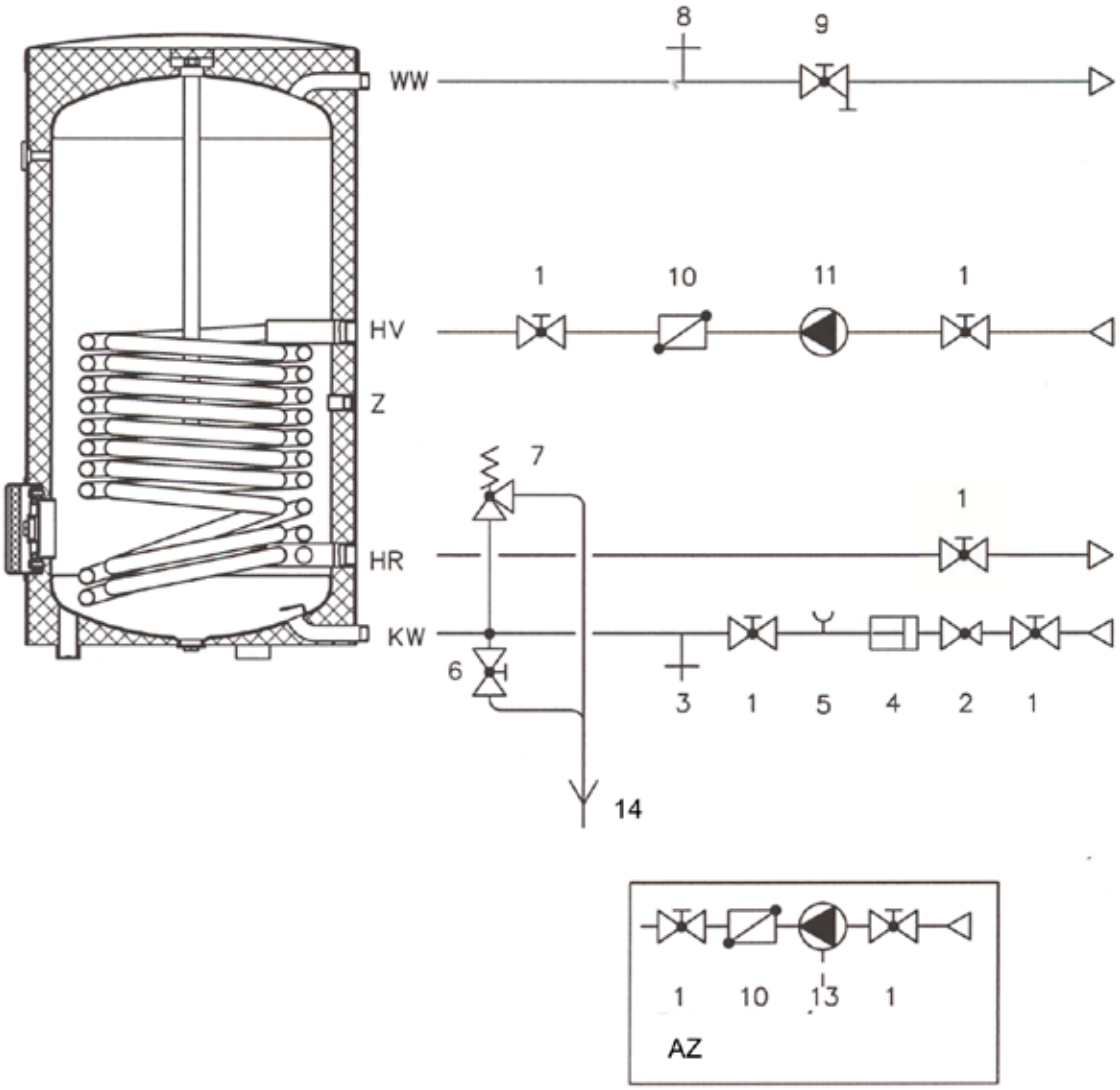


Keys: UK819542b
All dimensions in mm.

Nominal volume	Net weight	Tilted height	Smooth tube heat exchanger
405 litres	195 kg	2050	5,0 m²

Pos.	Name	Dim.
1	Domestic cold water / Draining	R 1"
2	Heating water, return	Rp 1 ¼" Internal thread
3	Circulation	Rp ¾" Internal thread
4	Heating water, flow	Rp 1 ¼" Internal thread
5	Domestic hot water	R 1"
6	Cleaning flange	DN 120
7	Sensor pocket	Ø internal 9
8	Protective anode	Ø 26

Connection instruction domestic hot water tank



Keys: UK830032b

Pos.	Name
1	Shut-off valve
2	Pressure reducing valve
3	Test valve
4	Backflow preventer
5	Pressure gauge connection socket
6	Drain valve
7	Safety valve
8	Ventilation
9	Shut-off valve with draining
10	Check valve
11	Storage tank charge pump
13	Circulation pump
14	Cold water connection (to DIN 1988)

WW	Hot water
KW	Cold water
Z	Circulation
HV	Heating, flow
HR	Heating, return
AZ	Circulation connection (only if absolutely necessary)

NOTE

The positions of the individual connections illustrated here may differ from the positions of the connections on your tank.
Therefore, for the actual positions of the connections, please refer to the dimensioned diagram for the respective tank type or rather always note and follow the allocation of the connections indicated by the stickers on the tank.

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