

Installer manual
AG-DW10
Accessories

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1 Important information

Safety information

This manual describes installation and service procedures for implementation by specialists.

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

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Symbols



NOTE

This symbol indicates danger to machine or person.



Caution

This symbol indicates important information about what you should observe when maintaining your installation.



TIP

This symbol indicates tips on how to facilitate using the product.

Marking

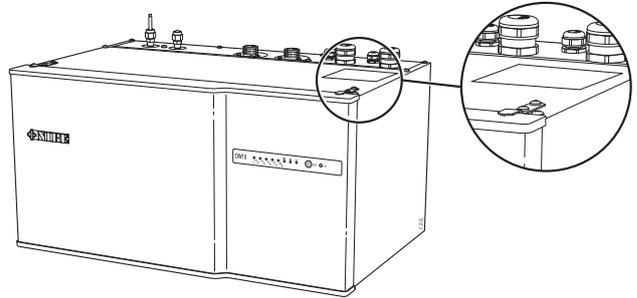
AG-DW10 is CE marked and meets IP21.

The CE marking means that NIBE ensures that the product meets all regulations that are placed on it based on relevant EU directives. The CE mark is obligatory for most products sold in the EU, regardless where they are made.

IP21 means that objects with a diameter larger than or equivalent to 12.5 mm cannot penetrate and cause damage and that the product is protected against vertically falling drops of water.

Serial number

The serial number can be found on the top on the right of AG-DW10.



Caution

You need the product's serial number for servicing and support.

Recovery

Information regarding the correct recycling of the product in accordance with the EU directive 2012/19/EU



Do not dispose of used units with normal household waste. It must be disposed of at a special waste station or dealer who provides this type of service.

Separate waste sorting of an electrical and electronic device makes it possible to prevent adverse effects on the environment and human health, which may occur from inappropriate waste sorting and this also makes it possible to reuse and recycle the material, which leads to a considerable saving of energy and resources.

To emphasize the need for waste sorting and separate handling of these units, there is a symbol of a crossed-out waste bin on the product.

Improper disposal of the product by the user results in administrative penalties in accordance with current legislation.

Environmental information

This unit contains a fluorinated greenhouse gas that is covered by the Kyoto agreement.

F-Gas Regulation (EU) No. 517/2014

The equipment contains R410A, a fluorinated greenhouse gas with a GWP value (Global Warming Potential) of 2087.50. DO not release R410A into the atmosphere.

Domestic hot water circuit

AG-DW10 is a unit in direct contact with the domestic water. It meets the European standard 98/83/EG concerning legionella cycles and raw materials in contact with domestic water and has a plate heat exchanger with double walls, which provides maximum safety of separation between the refrigerant and domestic water.

Safety precautions



NOTE

- Avoid the use and storage of flammable liquids near the climate unit.
- Never install electric equipment that does not have IPX1 protection (protection against vertical water drops), under the unit.
- Do not touch the unit with wet hands.
- The unit is designed to produce domestic hot water for households. The unit must only be used for its intended use and in accordance with these instructions.

The manufacturer assumes no liability, if safety the standards or protection preventive measures are not complied with.

Special safety measures

During installation the cooling circuit must be connected first and then the electrical circuit. Perform in reverse order when removing the unit.

During repair

- Disconnect the voltage (via the main switch) before opening the unit to check or repair the electrical parts.
- Clean after completing the work, and check that no metal residue or cable parts have been left inside the unit.
- Vent the premises during the installation and the cooling circuit test. Ensure that no refrigerant gas has leaked out during the installation, as contact with naked flames or heat sources can be toxic or dangerous.

Read before starting the installation

This heat pump complies with strict safety and function standards.

It is very important that the installer or the service technicians install or repair the system so that it works safely and efficiently.

The person who receives the unit is responsible for visually checking the refrigerant circuit, electrical cabinet, chassis and casing for possible transport damage.

Never step or stand on the pipes during installation, troubleshooting or maintenance. The load can cause breaks in the pipes and refrigerant can leak out and cause serious injury.

For a safe installation and good function the following is required:

- Read this instruction manual carefully before starting installation.
- Follow the installation and safety instructions exactly as described and shown.
- Comply with local and national electrical regulations.

- Note all the warning and safety messages indicated in this manual.
- The unit must be connected to a separate supply.

These instructions are sufficient for installation and maintenance. If assistance is required for a particular problem, contact our dealer for further information.

NIBE does not accept any responsibility for damage that occurs in the event of incorrect installation or improper maintenance.

Electrical requirements



NOTE

- The electrical discharge can cause serious personal injury or death. Only qualified electricians may handle the electrical system.
- If the unit is not used for a long time, turn the power supply on for least one hour before use, to heat up the system.

- Do not power up the unit until all pipes and wires are connected and checked to ensure proper grounding.
- Before installation ensure that the mains supply for the power supply is the same as that indicated on the climate unit's rating plate.
- Each unit must be connected with approved grounded cable.
- The electrical connections must be performed by a specially trained and qualified electrician.
- Ensure a ground connection before the unit is powered.
- Hazardous electrical voltage is used in this electrical circuit. See electrical wiring diagram and its instructions below the connection. Incorrect connections or unsuitable ground connection can cause accidents or death.
- The yellow/green cable must not be used for connections other than ground.
- Tighten the cables securely. Incorrect connections can cause overheating and fire.
- The electric cables must not come into contact with the cooling pipes and the compressor.
- Use separate cables for each type of cable.

2 Delivery and handling

Transport

Transport and store the unit in a dry environment.

Assembly

We recommend that this hot water module be installed by an authorised technician, in accordance with the supplied installation instructions.

Selection of installation location



NOTE

- Do not install this hot water module where there are flue gases, flammable gases or a lot of moisture, e.g. in a greenhouse.
- Do not install this hot water module where there is equipment that generates too much heat.
- Do not install this unit outdoors.
- Do not install the unit in premises where it may be subjected to water splashes (e.g. laundry rooms).



Caution

For optimum comfort, energy saving and function the unit should be positioned as recommended below.

Prevent the following:

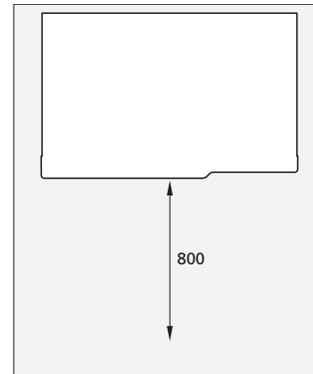
- Direct sunlight.
- Proximity to heat sources that can damage the unit's cover.
- Premises with unstable surfaces can cause vibrations, noise or water leaks.

The following is recommended:

- If the unit is to be installed with brackets, check that the surface is sufficiently stable to carry the weight of the unit. It may be necessary to build a wooden or metal frame for extra support.
- Select a suitable position to ensure good ventilation and maintenance space around the unit.
- Pipes routed indoors should be insulated to prevent condensation that can cause dripping and water damage to walls and floors.

Installation area

Leave free space of 800 mm in front of the product.



Caution

Leave free space of 250 mm above the product.

Supplied components



Water filter



Aluminium tape



Temperature sensor

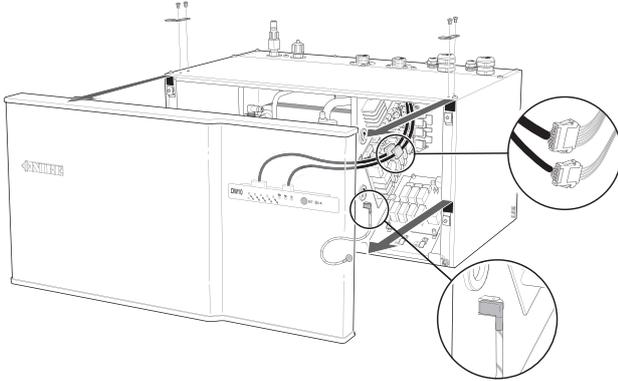


Flare nut
2 x

Removing the cover

All service and installation on AG-DW10 can be carried out from the front.

Front cover



1. Remove the screws in the top panel.
2. Push the cover upwards slightly and then pull straight out.

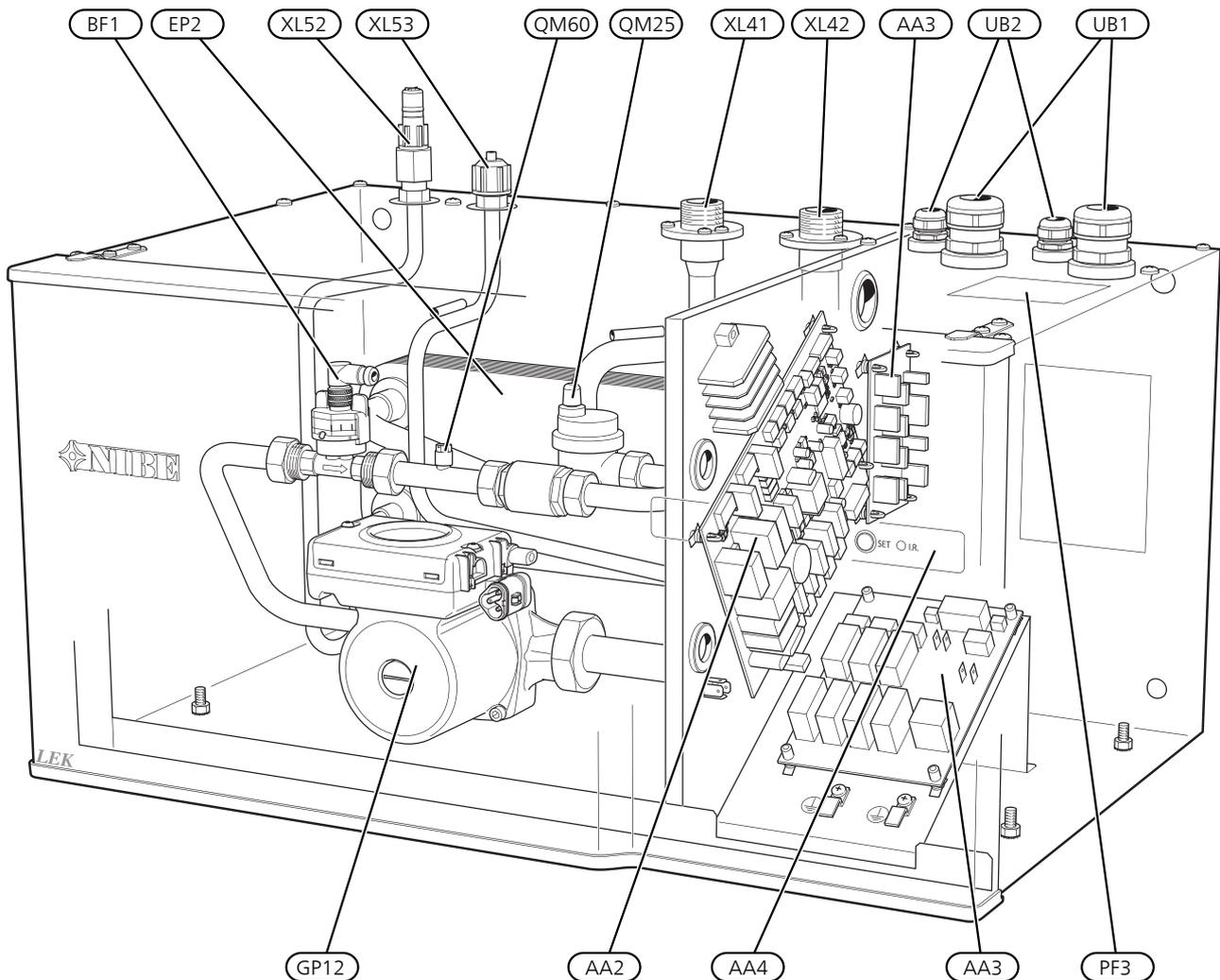


NOTE

The wiring to the display is installed in the front cover, the cover can therefore only be pulled out 30 cm. If the front cover needs to be removed completely the cables must be disconnected.

3. Disconnect the cables on the joint connector between the display and the circuit board. Disconnect the ground cable's cable terminal from the ground connection.

3 The heat pump design



Pipe connections

- XL41 Connection, domestic water line for cold water, blue marking
- XL42 Connection, domestic water line for hot water, red marking
- XL52 Connection, refrigerant
- XL53 Connection, refrigerant

Cooling components

- EP2 Heat exchanger

HVAC components

- QM60 Vent valve, manual
- QM25 Vent valve, automatic
- GP12 Pump

Electrical components

- AA2 Base card
- AA3 Input circuit board
- AA4 Display unit
- BF1 Supply temperature sensor

Miscellaneous

- PF3 Serial number plate
- UB1 Cable gland
- UB2 Cable gland

4 Pipe connections

General

Pipe installation must be carried out in accordance with current norms and directives.

Only use refrigerant pipes that are seamless, degreased, deoxidized and suitable for a pressure of at least 42 bar. The pipes must be supplied with at least 8 mm vapour-proof insulation.

AG-DW10 can be connected at the same time as other types of indoor units to the outdoor unit AG-AC10 using the special connection for AG-DW10. The pipe length for AG-DW10 must be taken into account in the calculation of the total pipe length permitted for the outdoor unit AG-AC10, see the installer manual for AG-AC10.

Permitted pipe length and height difference is the same for AG-DW10 as for normal indoor units.



Caution

AG-DW10 pipe lines must be insulated to ensure minimal possible energy loss.

Symbol key

Symbol	Meaning
	Venting valve
	Shut-off valve
	Non-return valve
	Mixing valve
	Safety valve
	Temperature sensor
	Particle filter
	Domestic hot water

System diagram

AG-DW10 is an innovative indoor unit that belongs to the NIBE™ ARIA multisplit system. AG-DW10 can produce hot water from the air/air heat pump all year round, regardless of the system's operating mode.

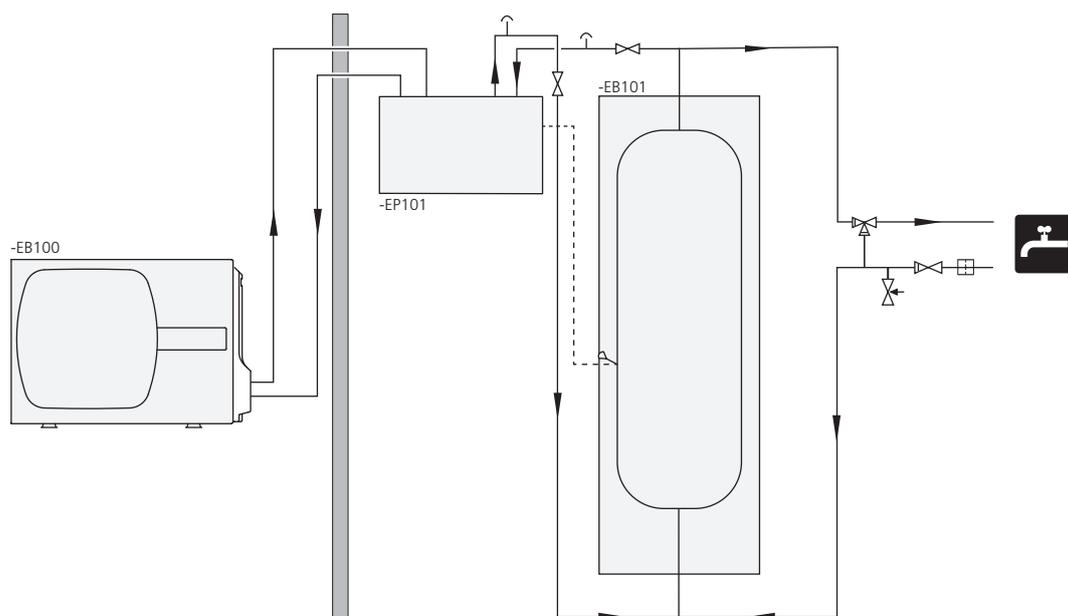
The aim of AG-DW10 is to produce domestic hot water through storage, using the energy that is produced directly from the heat pump. This is done regardless of whether the other indoor environments are being heated or cooled.

When the air/air installation cools the environments indoors, AG-DW10 recovers the heat which would otherwise be lost to the outdoor air.



NOTE

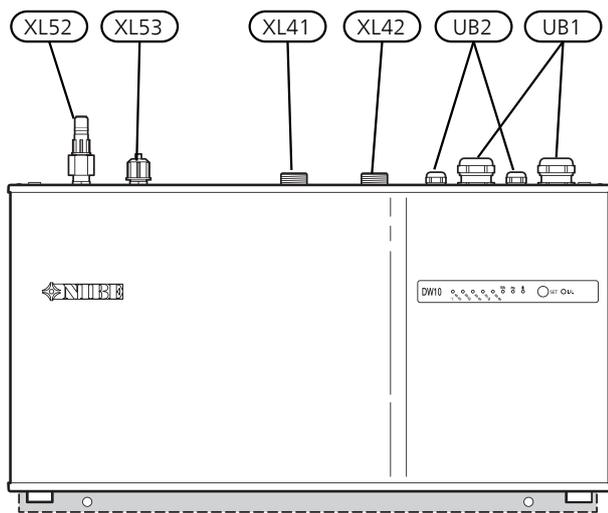
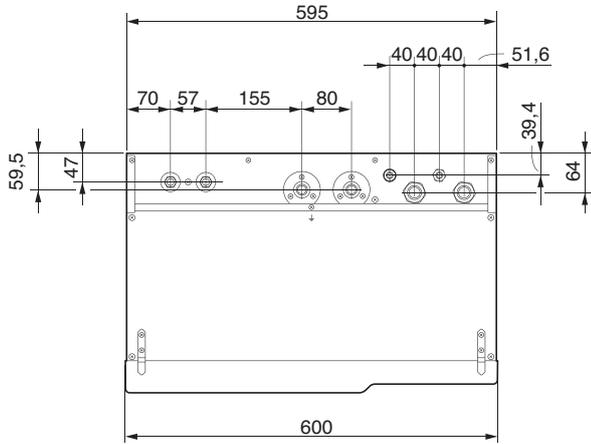
The domestic water line for the cold water is connected in parallel with water port XL41 (marked blue) and the domestic water line for hot water is connected in parallel with water port XL42 (marked red).



Caution

This is an outline diagram, differences may occur in the actual installation.

Dimensions and pipe connections



Connections

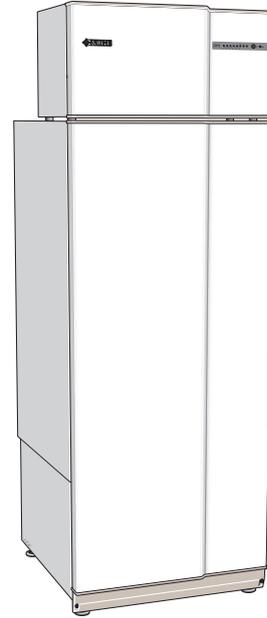
Connection	Connection
XL52	Connection of refrigerant pipe from AG-AC10 to AG-DW10 3/8" flare connection.
XL53	Connection of refrigerant pipe from AG-DW10 to the outdoor unit AG-AC10 3/8" flare connection.
XL41	Connection, domestic water line for cold water line, 3/4" connection, blue marking
XL42	Connection, domestic water line for hot water, 3/4" connection, red marking
UB1	Lead-in electrical connection to immersion heater/contacter/supply cable
UB2	Lead-in communication cable

Observe the above instructions for connecting refrigerant respectively water. Incorrect connection results in incorrect function of the unit and can cause damage to the equipment.

Mounting

Setting-up on top of the water heater

Place AG-DW10 on top of your water heater.



Wall mounting

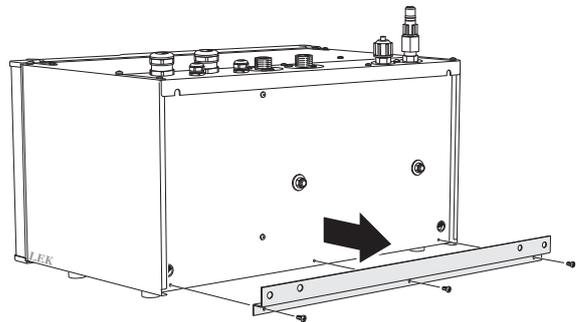
Wall mounting is used for low ceilings or when positioning AG-DW10 next to the water heater.



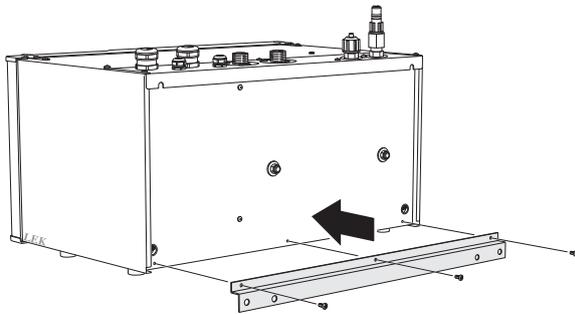
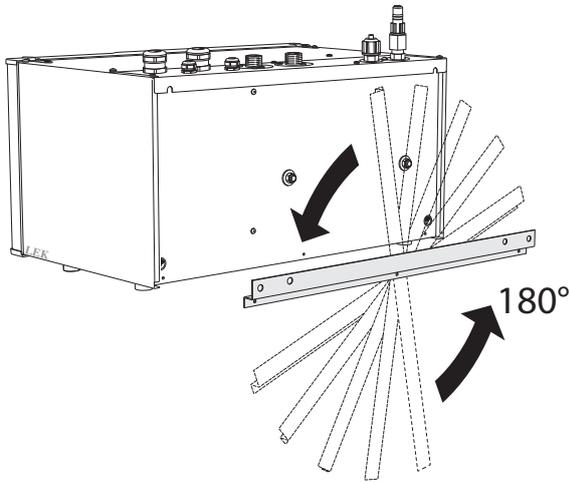
TIP

Check that the wall can withstand the weight of the product and use screws with large heads, intended for the type of wall.

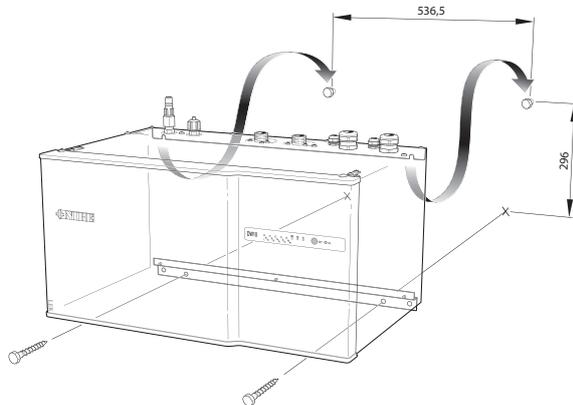
- Slacken off the screws for the moulding at the bottom on the rear of AG-DW10.



- Turn the moulding and screw the screws back in.



- Secure two screws into the wall.



- Hang AG-DW10 on the screws.
- Secure AG-DW10 at the lower edge using two screws in the wall.

Connecting the cooling circuit

- Keep all pipework as short as possible. For pipe lengths see the outdoor unit's installer manual.
- Flare the pipes for connection.
- Use the flare method to connect the pipes.
- Lubricate the contact surfaces and hand tighten, then tighten the connections using a torque wrench to obtain a good and secure connection, see installation instructions for AG-AC10.
- Check carefully that there is no risk of any leakage prior to the function test.
- The pipe lengths for AG-DW10 must be taken into account in the calculation of the total pipe length permitted for the outdoor unit. For any additional filling of refrigerant pipes 15 g/m.

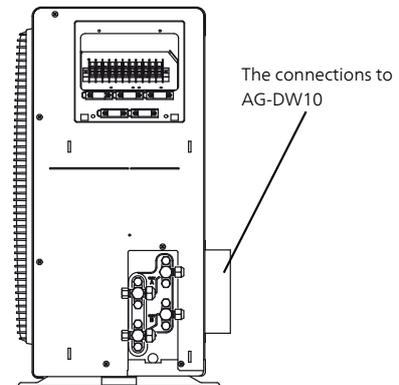
- Close AG-DW10 port's valves on the outdoor unit AG-AC10.



Caution

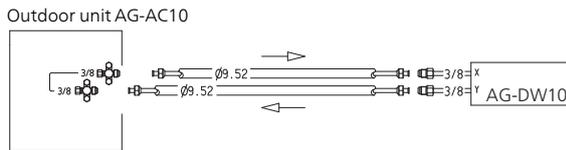
On AG-AC10-42/50 you will find connections to the AG-DW10 on the back of the outdoor unit. On other models the AG-DW10 port is marked among the other pipe fittings.

Outdoor unit
AG-AC10-42/50



- Remove the bypass from AG-DW10 port's valves and place it in a safe place, it will be needed if the unit is to be removed for any reason.

3. Connect the refrigerant pipes between AG-DW10 and the outdoor unit AG-AC10. The pipes must be equipped with durable insulation to prevent any energy loss.
 - Connect the marked port X on the outdoor unit to the marked port X on AG-DW10.
 - Connect the marked port Y on the outdoor unit to the marked port Y on AG-DW10.



4. Vacuum according to the outdoor unit's installer manual.
5. Open the AG-DW10 port's valves.

Connection of the water circuit

- Install the supplied particle filter AG-DW10 upstream of the domestic water circuit.
 - Install AG-DW10 as close to the water heater as possible, this is to prevent sharp pipe bends on the water circuit.
 - For optimum operation ensure that AG-DW10 has a water pressure of at least 3 bar.
 - Maximum permitted length for the water circuit is 10 meters.
1. Remove the front hatch from AG-DW10 and the water heater.
 2. Place AG-DW10 on top of the water heater alternatively mount AG-DW10 on the wall with the supplied brackets.



NOTE

- Check that the wall can take the weight of AG-DW10.

3. Connect the water pipes. The domestic water line for the cold water is connected in parallel with water port XL41 (marked blue) and the domestic water line for hot water is connected in parallel with water port XL42 (marked red).
4. Connect the temperature sensor, see section "Temperature sensor" on page "14".
5. Vent the circuit for the water heater, see the installer manual for the water heater.
6. Vent AG-DW10 on port XL41, see section "Vent AG-DW10" on page "16".
7. Reinstall the front panel on the water heater and AG-DW10.

5 Electrical connections

General



NOTE

Electrical installation and service must be carried out under the supervision of a qualified electrician, and in accordance with applicable electrical safety regulations.



NOTE

Always connect AG-DW10 to a mains circuit other than the one the outdoor unit is connected to.

- Voltage variation of $\pm 10\%$ is acceptable during operation.
- The lead-ins for the electric cables must be tightened.
- Equipment class 1.
- If an insulation test is to be carried out in the building, disconnect the heat pump.
- Connect the immersion heater to the block marked Electrical Heaters R1 and N. Max 1.5 kW can be supplied directly from AG-DW10 otherwise a contactor must be used.

To access the electrical panel, remove the front hatch, see section "Removing the cover" page 7.

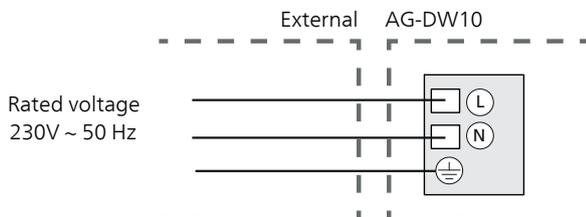
Connections

Power connection

AG-DW10 does not include an omnipolar circuit breaker on the incoming power supply. The heat pump's supply cable must be connected to a circuit breaker with at least a 3 mm breaking gap. When the building is not equipped with an earth-fault breaker, the heat pump should be equipped with a separate one. Incoming supply must be 230 V ~ 50 Hz via electrical distribution units with fuses.

H07RN-F or similar cable to be used for connection of power supply.

1x230V

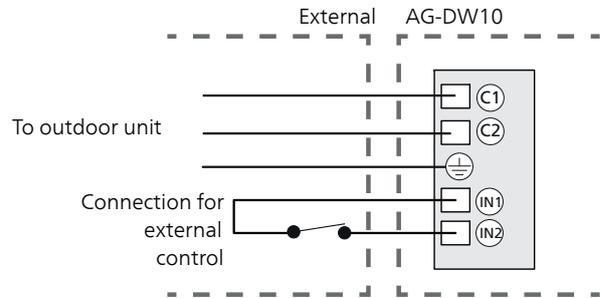


Connection to outdoor unit



NOTE

H05VVC4V5-K 2x0.75 or similar screened cable must be used.



Connecting to the water heater



NOTE

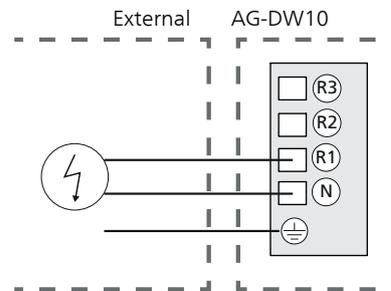
Max. 1.5 kW can be supplied directly from AG-DW10. Otherwise, the external contactor must be used.



NOTE

The water heater thermostat should be set to maximum.

1x230V, max 1.5 kW immersion heater

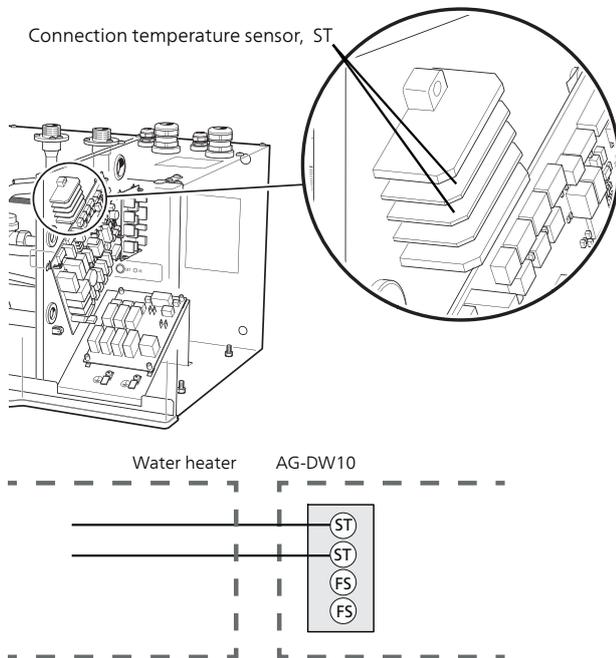


Installation with external contactor

Immersion heater above 1.5 kW or connection with 2 or 3 phase requires installation with contactor. Control voltage 1x230V taken from AG-DW10 from output R1 and N.

Temperature sensor

1. Measure 1/3 part from the bottom of the tank on the water heater and make holes in the insulation with a knife.
2. Clean the surface of the tank thoroughly.
3. Secure the supplied temperature sensor on the tank with the supplied aluminium tape.
4. Reinsert the cut-out insulation and secure the cut-out insulation again.
5. The temperature sensor cord should be relieved on the inside of the water heater's side.
6. Connect the temperature sensor to the terminal in AG-DW10 as illustrated. The back of the terminal is marked ST where the temperature sensor is to be connected.



Settings

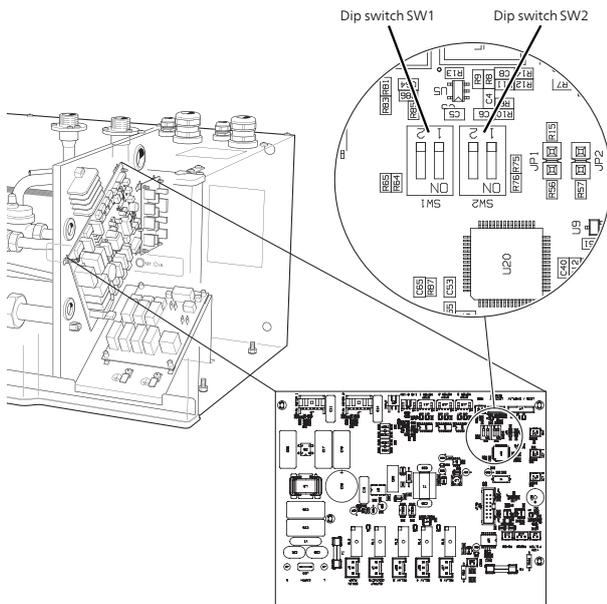


NOTE

Cut the current with the circuit breaker before carrying out any settings or servicing.

Dip switch

The immersion heater with max 1.5 kW must be connected with AG-DW10.



Check that the factory setting is set as below:

Dip switch SW1	Dip switch SW2

6 Commissioning and adjusting

Vent AG-DW10



NOTE

Vent the water circuit at the highest point.

To extract the air in the system, follow the steps below:

1. Keep the hot water valve closed and carefully open the cold water valve. When the water that exits the vent valve is no longer mixed with air, close the valve.
2. Repeat the same procedure for the hot water side.
3. Open both valves.

AG-DW10 is equipped with an automatic vent valve (QM25), which takes care of any continuous air. In order for it to work correctly, turn the black cap on the valve slightly.

Start-up and inspection

When AG-DW10 is connected to the power supply the red LED lights (standby).

ON/OFF

To turn AG-DW10 on, hold the button (**SET**) in for three seconds. Release the button when the red LED goes out and the green LEDs for the different water temperatures light up.

To turn off the unit, hold the button (**SET**) in for five seconds. Release the button when the green LED goes out and the red LED lights. In OFF mode, the unit only uses the immersion heater to heat hot water.

If the unit is to be serviced, switch off the unit at the circuit breaker.

Temperature settings

Quickly press the (**SET**) button repeatedly until the green LED for the desired water temperature interval lights, see the user manual for more information.

7 Control

Operating status

Booster Mode

The immersion heater allows you to heat the cold water to the desired temperature quickly, even if the heat pump is switched off for maintenance. When the heat pump cannot run or when the heat pump has been in operation for 120 minutes, and the desired water temperature is not reached, the immersion heater is permitted to run.

Factory setting: Booster Mode on.

To deactivate:

1. Press and hold the button (**SET**) for about 7 seconds until the red, blue and yellow LEDs light. This means you have successfully entered the configuration menu.



Caution

If no action is taken within 5 seconds you are returned to the original menu.

2. Quickly press (**SET**) until the blue LED flashes.
3. Wait a few seconds until all green LEDs light, then press (**SET**) once more. Three chirps in succession confirm the setting.

Super Booster Mode

When Super Booster Mode is activated, the installed immersion heater is permitted to run to reach the desired water temperature. During the Super Booster Mode the desired hot water temperature automatic increases by 5°C. When the water temperature has been reached, the Super Booster Mode turns off.

Factory setting: Super Booster Mode off.

To activate:

1. Press and hold the button (**SET**) for about 3 seconds until the blue LED lights.
2. Release the button and Super Booster Mode is activated.

Periodic increase

To prevent bacterial growth in AG-DW10 the temperature of the hot water is increased, at regular intervals.

Factory setting always has periodic increase on.

Default values

Here you can reset all settings to factory values.

To make a factory reset:

1. Press and hold the button (**SET**) for about 7 seconds until the red, blue and yellow LEDs light.



Caution

If no action is taken within 5 seconds you are returned to the original menu.

2. Quickly press (**SET**) until a blue, yellow and red LED flashes.
3. Wait a few seconds until all green LEDs light, then press (**SET**) once more. Three chirps in succession confirm the setting.

8 Disturbances in comfort

In most cases, the heat pump notes a malfunction (malfunctions can lead to disturbance in comfort) and indicates this with an alarm.

Troubleshooting

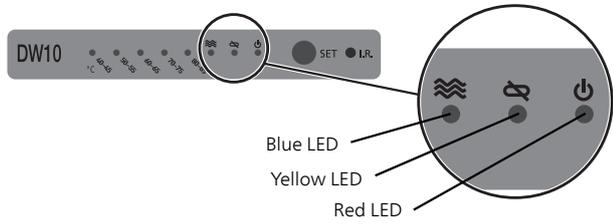
NOTE
Work behind covers secured by screws may only be carried out by, or under the supervision of, a qualified installation engineer.

NOTE
In the event of action to rectify malfunctions that require work within screwed hatches, the incoming supply electricity must be isolated at the safety switch.

Basic actions

- Start by checking the following possible fault sources:
- That the hot water module is running or that the supply cable to AG-DW10 is connected.
 - Group and main fuses of the accommodation.
 - The property's earth circuit breaker.

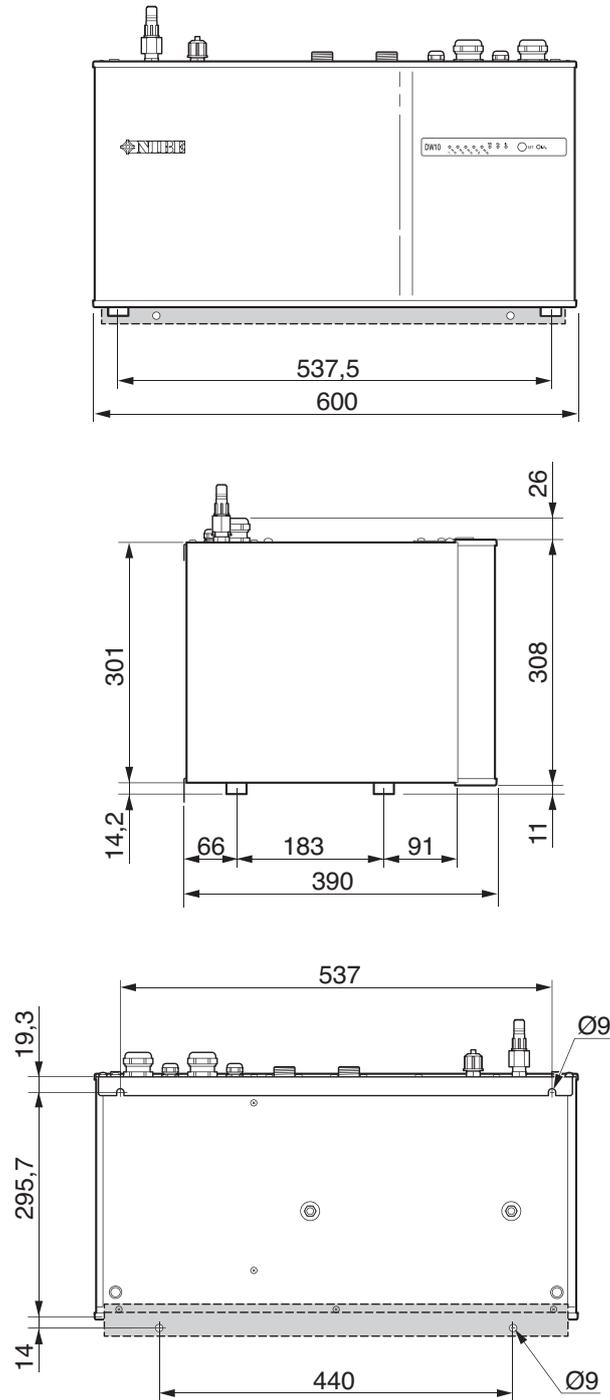
Fault codes



Symbol explanation LEDs: ○ = Off ◐ = Flashes ● = Lit			
Blue LED	Yellow LED	Red LED	Cause
○	○	◐	Fault with the outdoor unit.
◐	◐	◐	Communication error with the outdoor unit.
◐	◐	○	Temperature sensor defective or not connected on outgoing refrigerant circuit.
○	◐	◐	Temperature sensor defective or not connected on incoming water circuit.
◐	○	○	Temperature sensor defective or not connected on outgoing water circuit.
◐	○	◐	Circulation pump fault or lack of water flow.
◐	○	●	Check the dip-switch SW1 setting.

9 Technical data

Dimensions

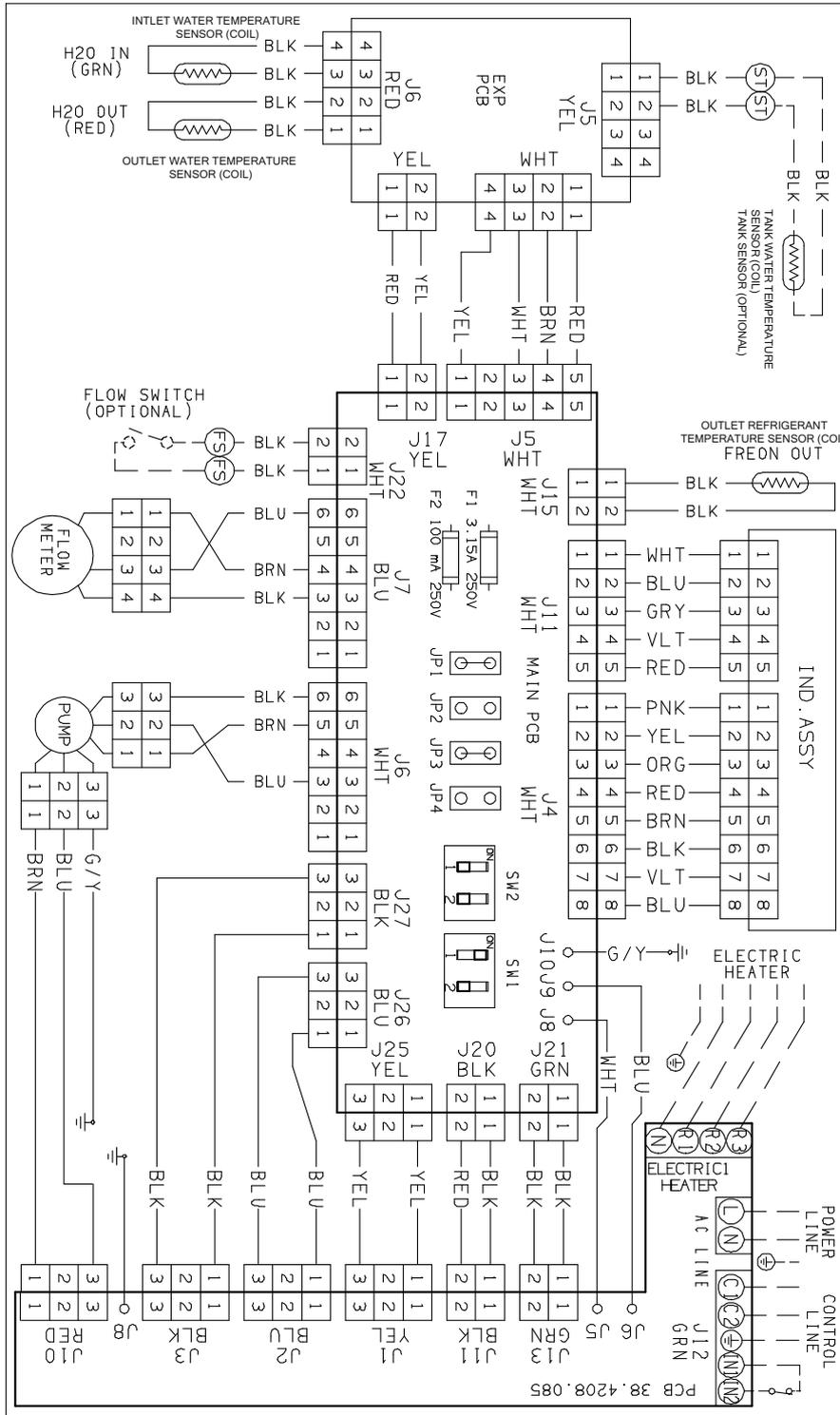


Technical specifications

		AG-DW10
Output data		
Max. current	W	1,570
Electrical data		
Rated voltage		230 V ~ 50 Hz
Fuse	A	10
Pipe connections		
Water connection (XL41, XL42)	inches	¾" G - ¾" G
Pipe connection (refrigerant) (XL52, XL53)	mm (inches)	9.52 (3/8")
Refrigerant circuit		
Type of refrigerant		R410A
Filling amount and additional filling		see installer manual for the outdoor unit AG-AC10
Water heater		
Max. pressure in the water heater	(bar)	10
Recommended volume	l	300
Installation environment		
Min/max ambient temperature	°C	5/35
Min/max relative humidity	%	0/95
Miscellaneous		
Weight	kg	19.5
Width		600
Depth		390
Height		345
Part No.		069 148

Electrical circuit diagram

37-3159-407-02



ELECTRIC WIRING DIAGRAM

10 Item register

Item register

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