



Installation, User and Service Manual









Reversible air/water "Split Inverter" heat pump







PBS-i FS Slim

PBS-i 4.5/6/8 FS Slim

Contents


1	Safety instructions and recommendations	5
1.1	Safety	5
1.2	General instructions	6
1.3	Electrical safety	6
1.4	Refrigerant safety	7
1.5	Domestic water safety	7
1.6	Hydraulic safety	8
1.7	Recommendations for the installation	8
1.8	Recommendations for operation	8
1.9	Specific instructions for service, maintenance and breakdowns	9
1.10	Liabilities	9
2	Symbols used	10
2.1	Symbols used in the manual	10
2.2	Symbols used on the data plate	10
2.3	Symbols used on the appliance	10
3	Technical specifications	12
3.1	Homologations	12
3.1.1	Directives	12
3.1.2	Factory test	12
3.2	Technical data	12
3.2.1	Heat pump	12
3.2.2	Heat pump weight	13
3.2.3	Domestic hot water tank	14
3.2.4	Combination heaters with medium-temperature heat pump	14
3.2.5	Sensor specifications	16
3.2.6	Circulating pump	16
3.3	Dimensions and connections	18
3.3.1	Connection plate	18
3.3.2	Indoor module	19
3.3.3	AWHP 4.5 MR	20
3.3.4	AWHP 6 MR-3	20
3.3.5	AWHP 8 MR-2	21
3.4	Electrical diagram	22
4	Description of the product	24
4.1	Main components	24
4.2	Control panel description	26
4.2.1	Description of the keys	26
4.2.2	Description of the display	26
4.3	Schematic diagram	29
5	Installation	32
5.1	Installation regulations	32
5.2	Standard delivery	32
5.3	Data plate	32
5.3.1	Data plate on the indoor module	33
5.3.2	Data plate on the outdoor unit	33
5.4	Respecting the distance between the indoor module and the outdoor unit	33
5.5	Positioning the indoor unit	33
5.5.1	Choosing the location for the heat pump	33
5.5.2	Allowing sufficient space for the indoor module	34
5.5.3	Install the indoor module in a cupboard	34
5.5.4	Removing the appliance's front panel	34
5.5.5	Positioning the indoor module	35
5.5.6	Levelling the indoor module	35
5.5.7	Attaching the indoor module to the wall	35
5.6	Hydraulic connections	36
5.6.1	Special precautions for the connection of the heating circuit	36
5.6.2	Special precautions for the connection of the domestic hot water circuit	36
5.6.3	Connecting the various circuits	37
5.6.4	Fitting the condensate collector box	37
5.6.5	Setting the thermostatic mixing valve	38

5.6.6	Checking the heating circuit	38
5.7	Filling the installation	39
5.7.1	Cleaning and flushing the installation	39
5.7.2	Filling the heating circuit(s)	39
5.7.3	Fill the domestic hot water circuit	40
5.8	Putting the outdoor unit in place	40
5.8.1	Allowing sufficient space for the outdoor unit	40
5.8.2	Selecting the location of the outdoor unit	41
5.8.3	Choosing the location of a noise abatement screen	42
5.8.4	Selecting the location of the outdoor unit in cold and snowy regions	42
5.8.5	Installing the outdoor unit on the ground	43
5.9	Refrigeration connections	43
5.9.1	Preparing the refrigerant connections	43
5.9.2	Connecting the refrigerant connections pipes to the indoor unit	43
5.9.3	Connecting the refrigerant connections to the outdoor unit	45
5.9.4	Testing the leak-tightness of the refrigerant connections	46
5.9.5	Evacuation	46
5.9.6	Opening the stop valves	46
5.9.7	Adding the necessary quantity of refrigerant fluid	47
5.9.8	Checking the refrigeration circuit	47
5.10	Electrical connections	48
5.10.1	Recommendations	48
5.10.2	Recommended cable cross section	48
5.10.3	Accessing the PCBs	49
5.10.4	Routing the cables	50
5.10.5	Description of the connection terminal blocks	50
5.10.6	Connecting the cables to the PCBs	52
5.10.7	Connecting the indoor module	52
5.10.8	Electrically connecting the outdoor unit	52
5.10.9	Connecting the outdoor unit bus	54
5.10.10	Connecting the outdoor temperature sensor	54
5.10.11	Connecting the power supply for the electrical back-up	56
5.10.12	Checking the electrical connections	56
6	Commissioning	58
6.1	General	58
6.2	Commissioning procedure with smartphone	58
6.3	Commissioning procedure without smartphone	59
6.3.1	CN1 and CN2 parameters	59
6.4	Using the installation wizard on the control panel	60
6.5	Checking the minimum flow of the direct circuit	60
6.6	Setting the flow rate of the second circuit	61
6.7	Final instructions for commissioning	62
7	Settings	63
7.1	Modifying the installer parameters 	63
7.2	Installer  menu	63
7.2.1	Installer  CIRCA and CIRCB menu	63
7.2.2	Installer  CIRCA and CIRCB/ADV menu	66
7.2.3	Installer  DHW menu	66
7.2.4	Installer  DHW/ADV menu	67
7.2.5	Installer  EHC-06 and SCB-04 menu	67
7.2.6	Installer  EHC-06 and SCB-04/ADV menu	69
7.3	Setting the parameters	71
7.3.1	Language selection	71
7.3.2	Selecting the type of outdoor unit and the type of back-up (CN1 et CN2)	72
7.3.3	Setting the heating curve	73
7.3.4	Configuring the estimated electrical energy consumption function	73
7.3.5	Configuring a convection fan or underfloor cooling	74
7.3.6	Screed drying with the aid of the heat pump	75
7.3.7	Drying screed without the heat pump outdoor unit	76
7.3.8	Configuring an on/off or modulating thermostat	76
7.3.9	Configuring a thermostat with a heating/cooling control contact	76
7.3.10	Setting the parameters for using photovoltaic energy	77
7.3.11	Connecting the installation to a Smart Grid	77

7.3.12	Reducing the noise level of the outdoor unit	78
7.3.13	Detecting an additional or replacement PCB	79
7.4	COUNTERS /TIME PROG / CLOCK  menus	79
7.4.1	COUNTERS, TIME PROG, CLOCK  CNT menus	79
7.4.2	COUNTERS, TIME PROG, CLOCK  CIRCA, CIRCB and DHW menus	80
7.4.3	COUNTERS, TIME PROG, CLOCK  CLK menus	81
7.5	Description of the parameters	81
7.5.1	Running the back-up in heating mode	81
7.5.2	Operation of the switch between heating and production of domestic hot water	82
7.5.3	Running the back-up in domestic hot water mode	83
7.6	Reading out measured values 	84
7.6.1	Control system sequence	85
8	Connection and installation examples	91
8.1	Installation with one direct underfloor heating circuit	91
8.2	Installation with 2 heating circuits: one direct radiator circuit and one underfloor heating circuit	92
8.3	Installation with a direct underfloor heating circuit and a solar circuit	94
8.4	Installation with a swimming pool	95
8.4.1	Connecting a swimming pool	95
8.4.2	Configuring swimming pool heating	96
9	Operation	97
9.1	Browsing in the menus	97
9.2	Description of the PCBs	98
9.3	Start-up	98
9.4	Shutdown	98
9.4.1	Switching off the heating	98
9.4.2	Stopping domestic hot water production	99
9.4.3	Shutting down the cooling function	100
9.5	Frost Protection	100
10	Maintenance	101
10.1	Precautions to be taken before maintenance operations	101
10.2	List of inspection and maintenance operations	101
10.3	Drain the appliance on the heating circuit side	102
10.4	Draining the domestic hot water circuit	102
10.5	Clean the magnetic sieve filters	103
10.5.1	Magnetic filter annual maintenance	103
10.5.2	Full cleaning of the magnetic filter	104
10.6	Cleaning the plate heat exchanger	106
10.7	Checking the hydraulic pressure	106
10.8	Checking operation of the appliance	106
10.9	Replacing the battery in the control panel	107
11	Troubleshooting	109
11.1	Resetting the safety thermostat	109
11.2	Error messages	109
11.2.1	Error codes	109
11.2.2	Fault codes	112
11.2.3	Alarm codes	113
11.3	Accessing the error memory 	113
12	Decommissioning and disposal	115
12.1	Decommissioning procedure	115
12.2	Disposal and recycling	115
13	Appendix	116
13.1	Product fiche	116
13.2	Product fiche - Temperature Controls	116
13.3	Package fiche - Combination heaters (boilers or heat pumps)	117
13.4	Package fiche - Medium-temperature heat pumps	118

1 Safety instructions and recommendations

1.1 Safety

Operation	<p> Danger</p> <p>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.</p>
Electrical	<p>The appliance is intended to be permanently connected to the domestic water mains network.</p> <p>Before any work on the appliance, carefully read all documents that accompany the product. These documents are also available on our website. See the last page.</p> <p>Install the appliance in accordance with national rules on electrical installation. A disconnection device must be fitted to the fixed wiring in accordance with installation rules.</p> <p>If a power supply cable comes with the appliance and it turns out to be damaged, it must be replaced by the manufacturer, its after sales service or persons with similar qualifications in order to obviate any danger.</p> <p>If the appliance is not wired in the factory, carry out the wiring by following the instructions in the "Electrical connections" chapter.</p> <p>This appliance must be connected to the protective earthing.</p> <p>Earthing must comply with the prevailing installation standards.</p> <p>Earth the appliance before making any electrical connections.</p> <p>Type and calibre of the protective equipment: refer to the "Recommended cable cross-sections" chapter.</p> <p>To connect the appliance to the electricity mains, refer to the "Electrical Connections" chapter.</p> <p>In order to prevent any danger owing to the unexpected reset of the thermal circuit breaker, this appliance must not be powered through an external switch, such as a timer, or be connected to a circuit which is regularly switched on and off by the electricity provider.</p>

Domestic water	<div data-bbox="352 174 411 230"></div> Caution <ul style="list-style-type: none"> • The pressure limiter device (safety valve or safety unit) must be regularly operated in order to remove limescale deposits and ensure that it is not blocked. • A pressure limiter device must be fitted to a discharge pipe. • As water may flow out of the discharge pipe on the pressure limiter device, the pipe must be kept open to the air, in a frost-free environment, and at a continuous downward gradient. <p>To drain the domestic hot water circuit, refer to the dedicated chapter in the Maintenance section.</p>
Hydraulics	<div data-bbox="352 649 411 705"></div> Caution <p>Respect the minimum and maximum water pressure and temperature to ensure the appliance operates correctly. See chapter on Technical Specifications.</p>
Installation	<div data-bbox="352 831 411 887"></div> Important <p>Allow sufficient space around the appliance to ensure adequate accessibility to the appliance to facilitate maintenance. See "Installation" chapter.</p>

1.2 General instructions

The system must satisfy each point in the rules in force in the country that govern works and interventions in individual homes, blocks of flats or other buildings.

Only qualified professionals are authorised to work on the appliance and the heating installation. They must respect prevailing local and national regulations during fitting, installation and maintenance of the installation.

Commissioning must be performed by a qualified professional.

1.3 Electrical safety

Before making any electrical connections, earth the appliance in accordance with prevailing standards.



Danger

Danger of electric shock: the length of the conductors between the traction arrester device and the terminal blocks must be such that the active conductors are put under tension before the earth conductor.

Only qualified professionals may carry out electrical connections, always with the power off.

Separate the very low voltage cables from the 230/400 V power supply cables.

1.4 Refrigerant safety



Warning

Refrigerant fluid and pipes:

- Use only **R410A** refrigerant fluid to fill the installation.
- Use tools and pipe components especially designed for use with **R410A** refrigerant fluid.
- Use copper pipes deoxidised with phosphorus to carry the refrigerant fluid.
- Store the refrigerant connection pipes away from dust and humidity (risk of damage to the compressor).
- Do not use a load cylinder.
- Protect the heat pump components, including the insulation and structural elements. Do not overheat the pipes as brazed components may cause damage.
- Contact between the refrigerant fluid and a flame may result in emissions of toxic gases.

All work on the refrigeration circuit must be done by a qualified professional, according to prevailing codes of practice and safety in the profession (recovery of the refrigerant, brazing under nitrogen). All brazing work must be done by qualified welders.

Do not touch the refrigeration connection pipes with your bare hands while the heat pump is running. Danger of burn or frost injury.

In the event of a refrigerant leakage:

1. Switch off the appliance.
2. Open the windows.
3. Do not use a naked flame, do not smoke, do not operate electrical contacts.
4. Avoid contact with the refrigerant. Danger of frost injuries.

Locate the probable leak and seal it immediately. Use only original parts to replace a defective refrigeration component.

Use only dehydrated nitrogen for detecting leaks or for pressurised tests.

Do not allow the refrigerant fluid to escape into the atmosphere.

1.5 Domestic water safety

In accordance with safety rules, a safety valve calibrated to 0.7 MPa (7 bar) is mounted on the tank's domestic cold water inlet.

A pressure reducer (not provided) is required when the supply pressure exceeds 80% of the safety valve or safety unit calibration and must be located upstream of the appliance.

There must be no cut-off devices between the safety valve or unit and the domestic hot water tank.

The hydraulic installation must be capable of handling a minimum flow rate at all times.

Heating water and domestic water must not come into contact with each other. Domestic water must not circulate through the exchanger.

Limit temperature at the draw-off point: the maximum domestic hot water temperature at the draw-off point is subject to special regulations in the various countries in which the appliance is sold in order to protect the user. These special regulations be observed when installing the appliance.

Take precautions with the domestic hot water. Depending on the heat pump settings, the domestic hot water temperature in the tank may exceed 65 °C.

To reduce the risk of scalding, your appliance is equipped with a thermostatic mixing valve, integrated into the domestic hot water flow pipe.

1.6 Hydraulic safety

When making the hydraulic connection, it is imperative that the standards and corresponding local directives be respected.

If radiators are connected directly to the heating circuit: install a differential valve between the indoor unit and the heating circuit.

Fit drainage valves between the indoor unit and the heating circuit.

Do not add any chemical products to the heating water without first consulting a water treatment specialist. For example: antifreeze, water softeners, products to increase or reduce the pH value, chemical additives and/or inhibitors. These may cause faults in the heat pump and damage the heat exchanger.

1.7 Recommendations for the installation

Install the heat pump's indoor unit in a frost-free location.

Insulate the pipes to reduce heat losses to a minimum.

Apply refrigerant oil to the beaded parts to facilitate tightening and improve the seal.

Keep this document close to the place where the appliance is installed.

Do not make any modifications to the heat pump without the written consent of the manufacturer.

To benefit from extended warranty cover, no modifications should be made to the appliance.

Install the heat pump indoor unit and outdoor unit on a solid, stable structure able to bear its weight.

Do not install the heat pump in a place that has an atmosphere with a high salt content.

Do not install the heat pump in a place exposed to steam and combustion gases.

Do not install the heat pump in a place that may be covered in snow.

1.8 Recommendations for operation

The frost protection function does not work if the heat pump is switched off.

If the home is unoccupied for a long period and there is a risk of frost, drain the indoor unit and the heating system.

Keep the heat pump accessible at all times.

Never remove or cover the labels and data plates affixed to appliances. Labels and data plates must be legible throughout the entire lifetime of the appliance.

Immediately replace damaged or illegible instructions and warning stickers.

Give preference to the OFF or frost protection mode rather than switching off the system to leave the following functions running:

- Anti blocking of pumps
- Frost Protection

Regularly check the presence of water and pressure in the heating system.

Do not touch radiators for long periods. Depending on the heat pump settings, the temperature of the radiators may exceed 60°C.

Do not drain the installation, except in cases of absolute necessity. E.g.: several months' absence with the risk of temperatures in the building falling below freezing.

1.9 Specific instructions for service, maintenance and breakdowns

Maintenance work must be carried out by a qualified professional.

Only a qualified professional is authorised to set, correct or replace the safety devices.

Before any work, switch off the power supply to the heat pump, the indoor unit and the electrical back-up.

Wait for approx. 20-30 seconds for the outdoor unit capacitors to be discharged, and check that the lights on the outdoor unit PCBs have gone out.

Before working on the refrigeration circuit, switch off the appliance and wait a few minutes. Certain items of equipment such as the compressor and the pipes can reach temperatures in excess of 100°C and high pressures, which may cause serious injuries.

Locate and correct the cause of power cut before resetting the safety thermostat.

Only genuine spare parts may be used.

Removal and disposal of the heat pump must be carried out by a qualified professional in accordance with prevailing local and national regulations.

After maintenance or repair work, check the entire heating system to ensure that there are no leaks.

Remove the casing only to perform maintenance and repair work. Put the casing back in place after maintenance and repair work.

For heat pumps with a refrigerant fluid load of more than 5 tonnes of CO₂ equivalent, the user must have an annual leak-tightness test performed on the refrigerant equipment.

1.10 Liabilities

Tab.1

Manufacturer's liability	<p>Our products are manufactured in compliance with the requirements of the various Directives applicable. They are therefore delivered with the CE marking and any documents necessary. In the interests of the quality of our products, we strive constantly to improve them. We therefore reserve the right to modify the specifications given in this document.</p> <p>Our liability as manufacturer may not be invoked in the following cases:</p> <ul style="list-style-type: none"> • Failure to abide by the instructions on installing the appliance. • Failure to abide by the instructions on using the appliance. • Faulty or insufficient maintenance of the appliance.
Installer's liability	<p>The installer is responsible for the installation and initial commissioning of the appliance. The installer must observe the following instructions:</p> <ul style="list-style-type: none"> • Read and follow the instructions given in the manuals provided with the appliance. • Install the appliance in compliance with prevailing legislation and standards. • Carry out initial commissioning and any checks necessary. • Explain the installation to the user. • If maintenance is necessary, warn the user of the obligation to check the appliance and keep it in good working order. • Give all the instruction manuals to the user.
User's liability	<p>To guarantee optimum operation of the system, the user must abide by the following instructions:</p> <ul style="list-style-type: none"> • Read and follow the instructions given in the manuals provided with the appliance. • Call on a qualified professional to carry out installation and initial commissioning. • Get your installer to explain your installation to you. • Have the required inspections and maintenance carried out by a qualified installer. • Keep the instruction manuals in good condition close to the appliance.

2 Symbols used

2.1 Symbols used in the manual

This manual uses various danger levels to draw attention to special instructions. We do this to improve user safety, to prevent problems and to guarantee correct operation of the appliance.


Danger

Risk of dangerous situations that may result in serious personal injury.


Danger of electric shock

Risk of electric shock.


Warning

Risk of dangerous situations that may result in minor personal injury.


Caution

Risk of material damage.


Important

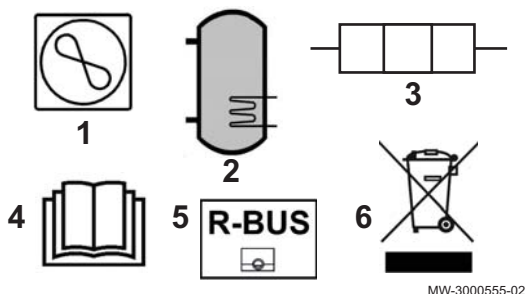
Please note: important information.


See

Reference to other manuals or pages in this manual.

2.2 Symbols used on the data plate

Fig.1 Symbols used on the data plate

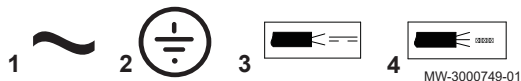


- 1 Information on the heat pump: type of refrigerant fluid, maximum operating pressure and output absorbed by the indoor module
- 2 Information on the domestic hot water tank: volume, maximum operating pressure and standby losses of the domestic hot water tank
- 3 Information on the electrical back-up: power supply and maximum output
- 4 Before installing and commissioning the appliance, carefully read the instruction manuals provided
- 5 The symbol indicates compatibility with Baxi Mago.
- 6 Dispose of used products in an appropriate recovery and recycling structure

MW-3000555-02

2.3 Symbols used on the appliance

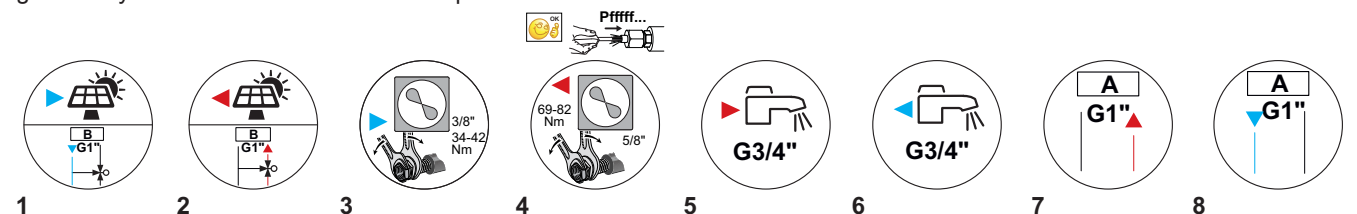
Fig.2 Symbols used on the appliance



- 1 Alternating current
- 2 Protective earthing
- 3 Sensor cable - low voltage
- 4 230 V power cord

MW-3000749-01

Fig.3 Symbols used on the connection plate label



- 1 Solar circuit flow or mixed heating circuit B return

- 2 Solar circuit return or mixed heating circuit B flow

MW-3000739-2

- 3 3/8" refrigerant fluid connection – liquid line
- 4 5/8" refrigerant fluid connection – gas line
- 5 Domestic hot water flow

- 6 Domestic cold water inlet
- 7 System A flow
- 8 System A return

3 Technical specifications

3.1 Homologations

3.1.1 Directives

This product complies with the requirements of the following European Directives and Standards:

- Pressure Equipment Directive 2014/68/EU
- Low Voltage Directive 2014/35/EU
Generic standard: EN 60335-1
Relevant standards: EN 60335-2-40, EN 60335-2-21
- Electromagnetic Compatibility Directive 2014/30/EU
Generic standards: EN 61000-6-3, EN 61000-6-1
Relevant Standard: EN 55014

This product conforms to the requirements of European Directive 2009/125/EC on the ecodesign of energy-related products.

In addition to the legal requirements and guidelines, the supplementary guidelines in this manual must also be followed.

Supplements or subsequent regulations and guidelines that are valid at the time of installation shall apply to all regulations and guidelines specified in this manual.

■ EC Declaration of Conformity

The unit complies with the standard type described in the EC declaration of conformity. It has been manufactured and commissioned in accordance with European directives.

The original declaration of conformity is available from the manufacturer.

3.1.2 Factory test

Before leaving the factory, each indoor module is tested on the following items:

- Tightness of the heating circuit
- Electrical safety
- Tightness of the refrigerant circuit
- Tightness of the domestic hot water circuit

3.2 Technical data

3.2.1 Heat pump

The specifications are valid for a new appliance with clean heat exchangers.

Maximum operating pressure: 0.3 MPa (3 bar)

Tab.2 Indoor unit technical specifications

Specifications	PBS-i 4.5/6/8 FS Slim
Operating temperature range	+7 °C to +30 °C
Bluetooth frequency band	2400 – 2483.5 MHz
Bluetooth power	+3 dBm

Tab.3 Outdoor unit conditions of use

Limit operating temperatures	AWHP 4.5 MR	AWHP 6 MR-3	AWHP 8 MR-2
Water in heating mode	+18 °C/+55 °C	+18 °C/+60 °C	+18 °C/+60 °C
Outdoor air in heating mode	-15 °C/+35 °C	-15 °C/+35 °C	-20 °C/+35 °C

Limit operating temperatures	AWHP 4.5 MR	AWHP 6 MR-3	AWHP 8 MR-2
Water in cooling mode	+7 °C / +25 °C	+7 °C / +25 °C	+7 °C / +25 °C
Outdoor air in cooling mode	+10 °C/+46 °C	+7 °C/+46 °C	+7 °C/+46 °C

Tab.4 Heating mode: outdoor air temperature +7 °C, water temperature at the outlet +35 °C. Performances in accordance with EN 14511-2.

Measurement type	Unit	PBS-i 4.5 FS Slim	PBS-i 6 FS Slim	PBS-i 8 FS Slim
Heat output	kW	4.60	5.82	7.65
Coefficient of Performance (COP)		5.11	4.22	4.55
Absorbed electrical power	kWe	0.90	1.38	1.68
Nominal water flow rate ($\Delta T = 5$ K)	m ³ /h	0.80	1.00	1.32

Tab.5 Heating mode: outdoor air temperature +2 °C, water temperature at the outlet +35 °C. Performances in accordance with EN 14511-2.

Measurement type	Unit	PBS-i 4.5 FS Slim	PBS-i 6 FS Slim	PBS-i 8 FS Slim
Heat output	kW	3.47	3.74	6.75
Coefficient of Performance (COP)		3.97	3.37	3.43
Absorbed electrical power	kWe	0.88	1.11	1.97

Tab.6 Cooling mode: outdoor air temperature +35 °C, water temperature at the outlet +18 °C. Performances in accordance with EN 14511-2.

Measurement type	Unit	PBS-i 4.5 FS Slim	PBS-i 6 FS Slim	PBS-i 8 FS Slim
Cooling output	kW	4.12	5.08	7.91
Energy efficiency ratio (EER)		4.32	4.20	4.27
Absorbed electrical power	kWe	0.95	1.21	1.85

Tab.7 Common specifications

Measurement type	Unit	PBS-i 4.5 FS Slim	PBS-i 6 FS Slim	PBS-i 8 FS Slim
Total dynamic head at nominal flow rate	kPa	65	55	30
Nominal air flow rate	m ³ /h	2680	2700	3300
Power voltage of the outdoor unit	V	230	230	230
Start-up amperage	A	5	5	5
Maximal amperage	A	12	13	17
Acoustic power - Inside ⁽¹⁾	dB(A)	30	39	39
Acoustic power - Outside	dB(A)	55	62	66
R410A refrigerant fluid load	kg	1.3	1.4	3.2
R410A refrigerant fluid load ⁽²⁾	tCO ₂ e	2.714	2.923	6.680
Refrigerant connection (Liquid - Gas)	inch	1/4 - 1/2	1/4 - 1/2	3/8 - 5/8
Max. pre-charged length	m	7	10	10
(1) Noise radiated by the envelope - Test run in accordance with the NF EN 12102 standard, temperature conditions: air 7 °C, water 55 °C (inside and outside)				
(2) The quantity of refrigerant fluid in tonnes of CO ₂ equivalent is calculated using the following formula: quantity (in kg) of refrigerant fluid x GWP/1000. The Global Warming Potential (GWP) of R410A gas is 2088.				

3.2.2 Heat pump weight

Tab.8 Indoor module

Data	Unit	PBS-i 4.5/6/8 FS Slim
Weight empty	kg	177
Total weight with water	kg	393

Tab.9 Outdoor unit

Data	Unit	AWHP 4.5 MR	AWHP 6 MR-3	AWHP 8 MR-2
Weight	kg	54	42	75

3.2.3 Domestic hot water tank

Tab.10 Technical specifications primary circuit (heating water)

Specification	Unit	Value
Maximum operating temperature with electrical back-up	°C	75
Maximum operating temperature with solar circuit option	°C	110
Minimum operating temperature	°C	7
Maximum operating pressure	MPa (bar)	0.3 (3.0)
Domestic hot water tank exchanger capacity	Litres	11.3
Exchange surface	m ²	1.9

Tab.11 Technical specifications secondary circuit (domestic water)

Specification	Unit	Value
Maximum operating temperature with electrical back-up	°C	75 °C
Maximum operating temperature with solar circuit option	°C	80 °C
Minimum operating temperature	°C	10
Maximum operating pressure	MPa (bar)	1.0 (10.0)
Water capacity	Litres	190

Tab.12 Common specifications (in accordance with the EN 16147 standard). Water set point temperature: 54 °C – Outside temperature: 7°C – Inside air temperature: 20°C

	PBS-i 4.5 FS Slim	PBS-i 6 FS Slim	PBS-i 8 FS Slim
Charging time	1 hour 40 minutes	1 hour 40 minutes	1 hour 15 minutes
Domestic hot water coefficient of performance (COP _{DHW}) - Cycle L	3.2	3.2	2.9
Domestic hot water coefficient of performance (COP _{DHW}) - Cycle M	2.8	2.7	2.5

3.2.4 Combination heaters with medium-temperature heat pump

Tab.13 Technical parameters for heat pump combination heaters (parameters declared for medium-temperature application: 55 °C)

Product name			PBS-i 4.5 FS Slim	PBS-i 6 FS Slim	PBS-i 8 FS Slim
Air-to-water heat pump			Yes	Yes	Yes
Water-to-water heat pump			No	No	No
Brine-to-water heat pump			No	No	No
Low-temperature heat pump			No	No	No
Equipped with a supplementary heater			Yes	Yes	Yes
Heat pump combination heater			Yes	Yes	Yes
Rated heat output under average conditions ⁽¹⁾	Prated	kW	3	4	6
Rated heat output under colder conditions	Prated	kW	5	4	6
Rated heat output under warmer conditions	Prated	kW	4	4	6

Product name			PBS-i 4.5 FS Slim	PBS-i 6 FS Slim	PBS-i 8 FS Slim
Declared capacity for heating for part load at an indoor temperature of 20 °C and outdoor temperature T_j					
$T_j = -7\text{ °C}$	P_{dh}	kW	2.6	3.3	5.0
$T_j = +2\text{ °C}$	P_{dh}	kW	2.7	2.1	3.0
$T_j = +7\text{ °C}$	P_{dh}	kW	3.3	2.0	3.6
$T_j = +12\text{ °C}$	P_{dh}	kW	2.6	2.7	4.4
$T_j =$ bivalent temperature	P_{dh}	kW	3.1	3.9	5.7
$T_j =$ operation limit temperature	P_{dh}	kW	3.1	3.9	5.7
Bivalent temperature	T_{biv}	°C	-10	-10	-10
Degradation coefficient ⁽²⁾	C_{dh}	—	1.0	1.0	1.0
Seasonal space heating energy efficiency under average conditions	η_s	%	125	126	126
Seasonal space heating energy efficiency under colder conditions	η_s	%	109	116	119
Seasonal space heating energy efficiency under warmer conditions	η_s	%	156	150	155
Declared coefficient of performance or primary energy ratio for part load at an indoor temperature of 20 °C and outdoor temperature T_j					
$T_j = -7\text{ °C}$	COP_d	-	1.74	1.73	2.04
$T_j = +2\text{ °C}$	COP_d	-	3.32	3.21	3.03
$T_j = +7\text{ °C}$	COP_d	-	4.38	4.63	4.60
$T_j = +12\text{ °C}$	COP_d	-	6.35	7.24	6.19
$T_j =$ bivalent temperature	COP_d	-	1.42	1.58	1.72
$T_j =$ operation limit temperature	COP_d	-	1.42	1.58	1.72
Operation limit temperature for air-to-water heat pumps	TOL	°C	-10	-10	-10
Heating water operating limit temperature	$WTOL$	°C	55	60	60
Electrical power consumption					
Off mode	P_{OFF}	kW	0.016	0.013	0.015
Thermostat-off mode	P_{TO}	kW	0.017	0.013	0.015
Stand-by	P_{SB}	kW	0.016	0.012	0.015
Crankcase heater mode	P_{CK}	kW	0.000	0.000	0.045
Supplementary heater					
Rated heat output	P_{sup}	kW	0.0	0.0	0.0
Type of energy input			Electricity	Electricity	Electricity
Other specifications					
Capacity control			Variable	Variable	Variable
Sound power level, indoors - outdoors	L_{WA}	dB	30 – 55	35 – 57	34 – 61
Annual energy consumption under average conditions	Q_{HE}	kWh	1934	2501	3568
Annual energy consumption under colder conditions	Q_{HE}	kWh	4483	3721	4621
Annual energy consumption under warmer conditions	Q_{HE}	kWh	1173	1394	2029
Rated air flow rate, outdoors for air-to-water heat pumps	—	m ³ /h	2680	2700	3300
Declared load profile			L	L	L
Daily electricity consumption	Q_{elec}	kWh	3.670	3.770	4.030
Annual electricity consumption	AEC	kWh	769	787	833
Water heating energy efficiency	η_{wh}	%	133.00	130.00	123.00

Product name			PBS-i 4.5 FS Slim	PBS-i 6 FS Slim	PBS-i 8 FS Slim
Daily fuel consumption	Q_{fuel}	kWh	0.000	0.000	0.000
Annual fuel consumption	AFC	GJ	0	0	0
(1) The rated heat output P_{rated} is equal to the design load for heating $P_{designh}$, and the rated heat output of a supplementary heater P_{sup} is equal to the supplementary capacity for heating $sup(T_j)$.					
(2) If Cdh is not determined by measurement, the default degradation coefficient is $Cdh = 0.9$.					

**See**

The back cover for contact details.

3.2.5 Sensor specifications

■ Outdoor temperature sensor specifications

Tab.14 AF60 outdoor temperature sensor

Temperature	°C	-20	-16	-12	-8	-4	0	4	8	12	16	20	24
Resistance	Ω (Ohm)	2392	2088	1811	1562	1342	1149	984	842	720	616	528	454

■ Heating flow sensor specifications

Tab.15 NTC heating flow sensor

Temperature	°C	0	10	20	25	30	40	50	60	70	80	90
Resistance	Ohm	32014	19691	12474	10000	8080	5372	3661	2535	1794	1290	941

■ Specifications of the heat pump flow and return temperature sensors

Tab.16 PT1000 temperature sensor

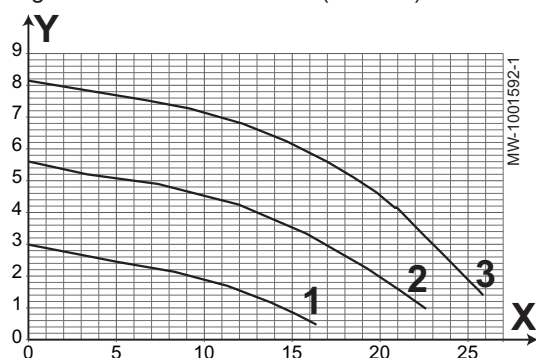
Temperature	°C	-10	0	10	20	30	40	50	60	70	80	90	100
Resistance	Ohm	961	1000	1039	1077	1117	1155	1194	1232	1271	1309	1347	1385

3.2.6 Circulating pump

**Important**The benchmark for the most efficient circulating pumps is $EEL \leq 0.20$.

■ Main circulating pump

Fig.4 Pressure available (circuit A)



The main circulating pump in the indoor module is a variable speed pump. It adapts its speed to the distribution network.

The speed of the circulating pump is controlled to reach a set point flow rate. This set point depends on the **HP069** parameter. This value is automatically configured according to the output of the outdoor unit.

- X Water flow rate (l/min)
- Y Pressure available (mCE)
- 1 Circulating pump at 60%
- 2 Circulating pump at 80%
- 3 Circulating pump at 100%

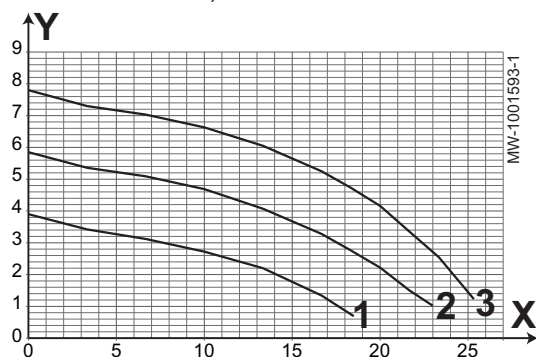
**For more information, see**

Checking the minimum flow of the direct circuit, page 60

■ Circulating pump for second circuit

The circulating pump for the second circuit is a 3-speed pump that must be set during commissioning to obtain the target flow rate in the second circuit.

Fig.5 Pressure available (circuit B with radiators)



Variable Delta P

X Water flow rate (l/min)

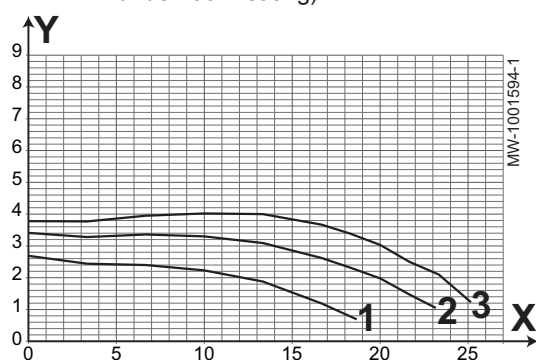
Y Pressure available (mCE)

1 Circulating pump speed set to I

2 Circulating pump speed set to II

3 Circulating pump speed set to III

Fig.6 Pressure available (circuit B with underfloor heating)



Constant Delta P

X Water flow rate (l/min)

Y Pressure available (mCE)

1 Circulating pump speed set to I

2 Circulating pump speed set to II

3 Circulating pump speed set to III



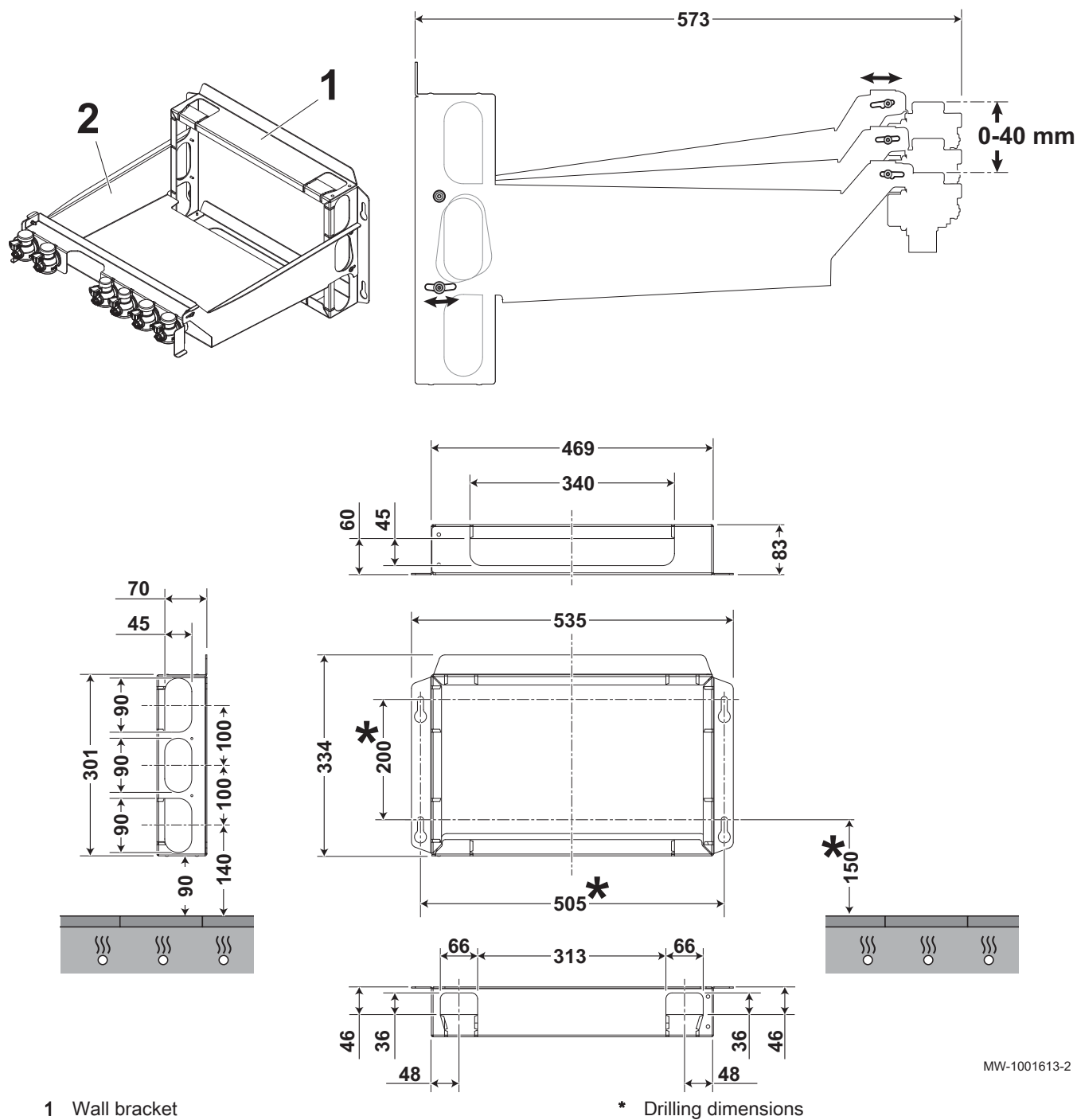
For more information, see

Setting the flow rate of the second circuit, page 61

3.3 Dimensions and connections

3.3.1 Connection plate

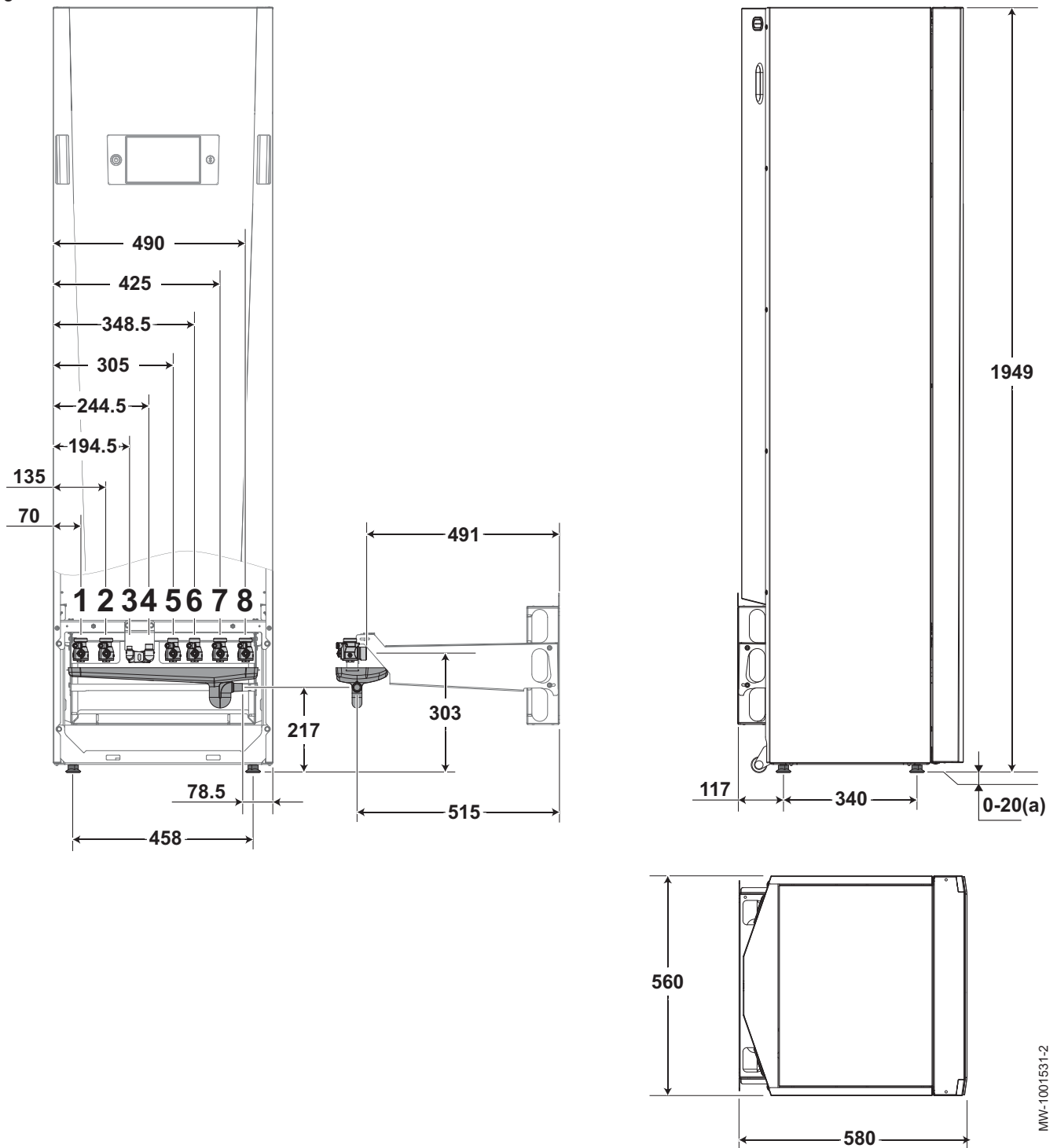
Fig.7



MW-1001613-2

3.3.2 Indoor module

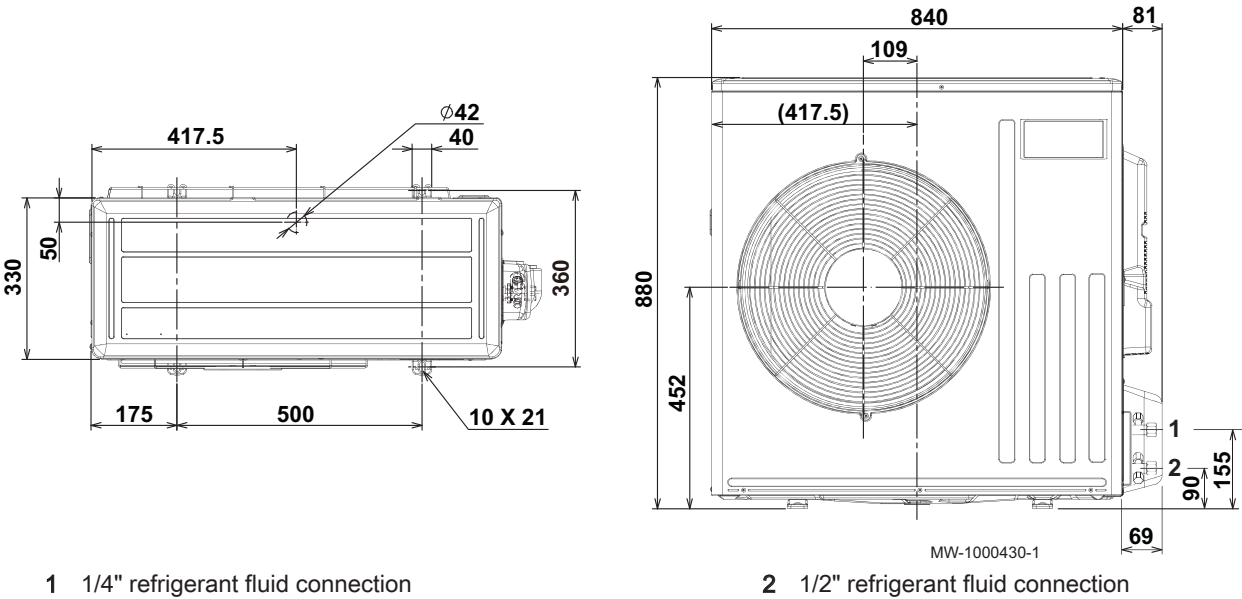
Fig.8 Dimensions and connections of the indoor module



MW-1001531-2

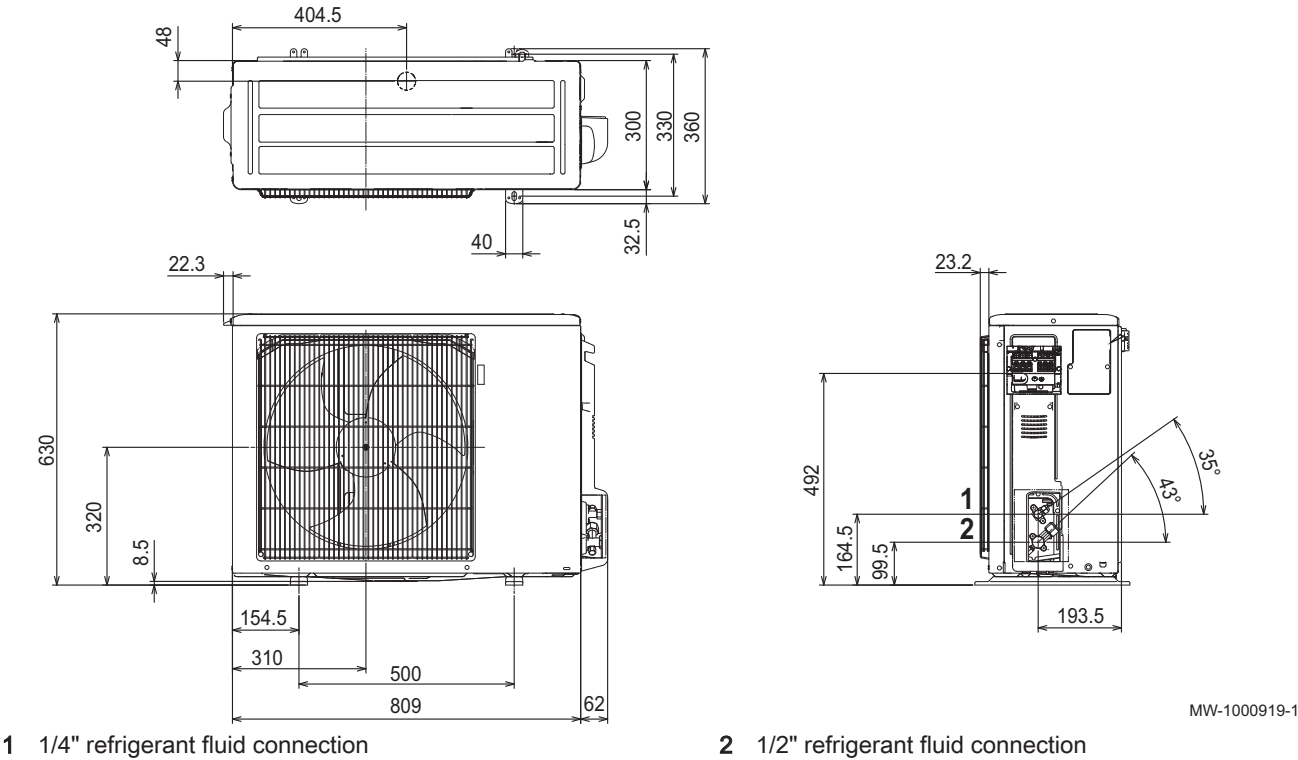
3.3.3 AWHP 4.5 MR

Fig.9



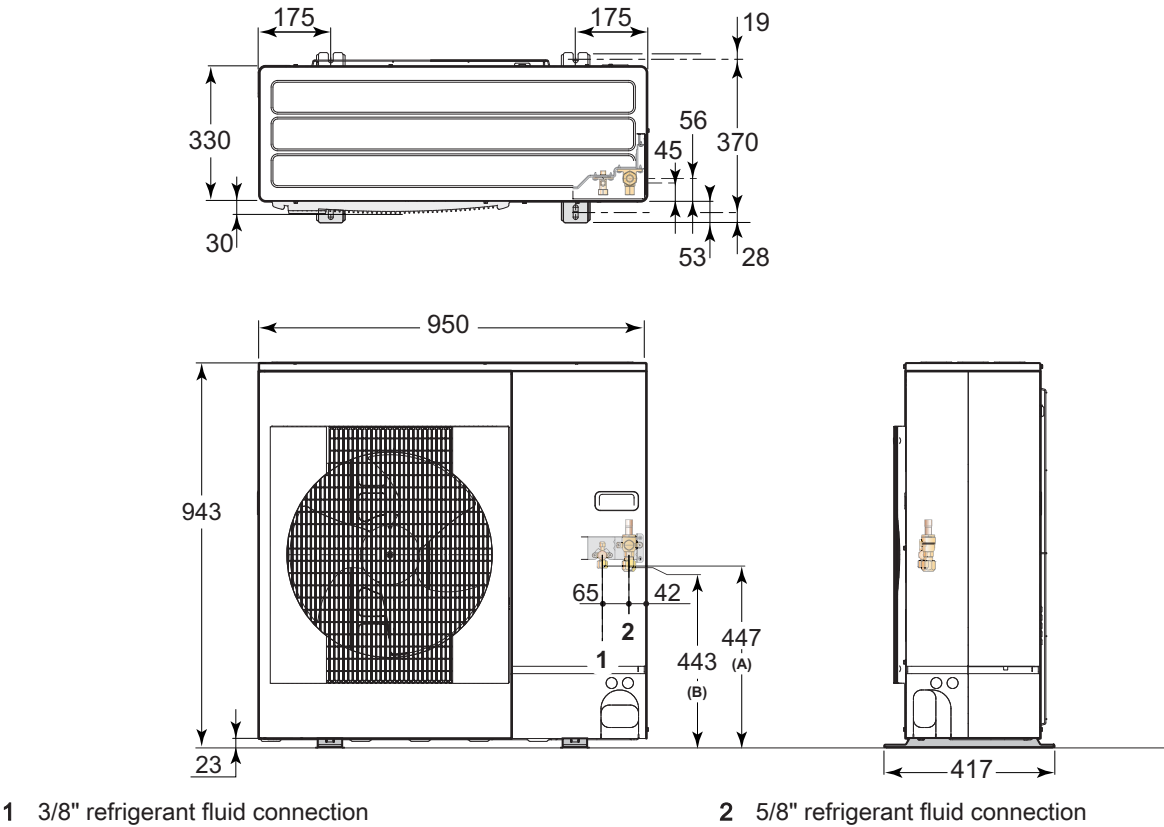
3.3.4 AWHP 6 MR-3

Fig.10



3.3.5 AWHP 8 MR-2

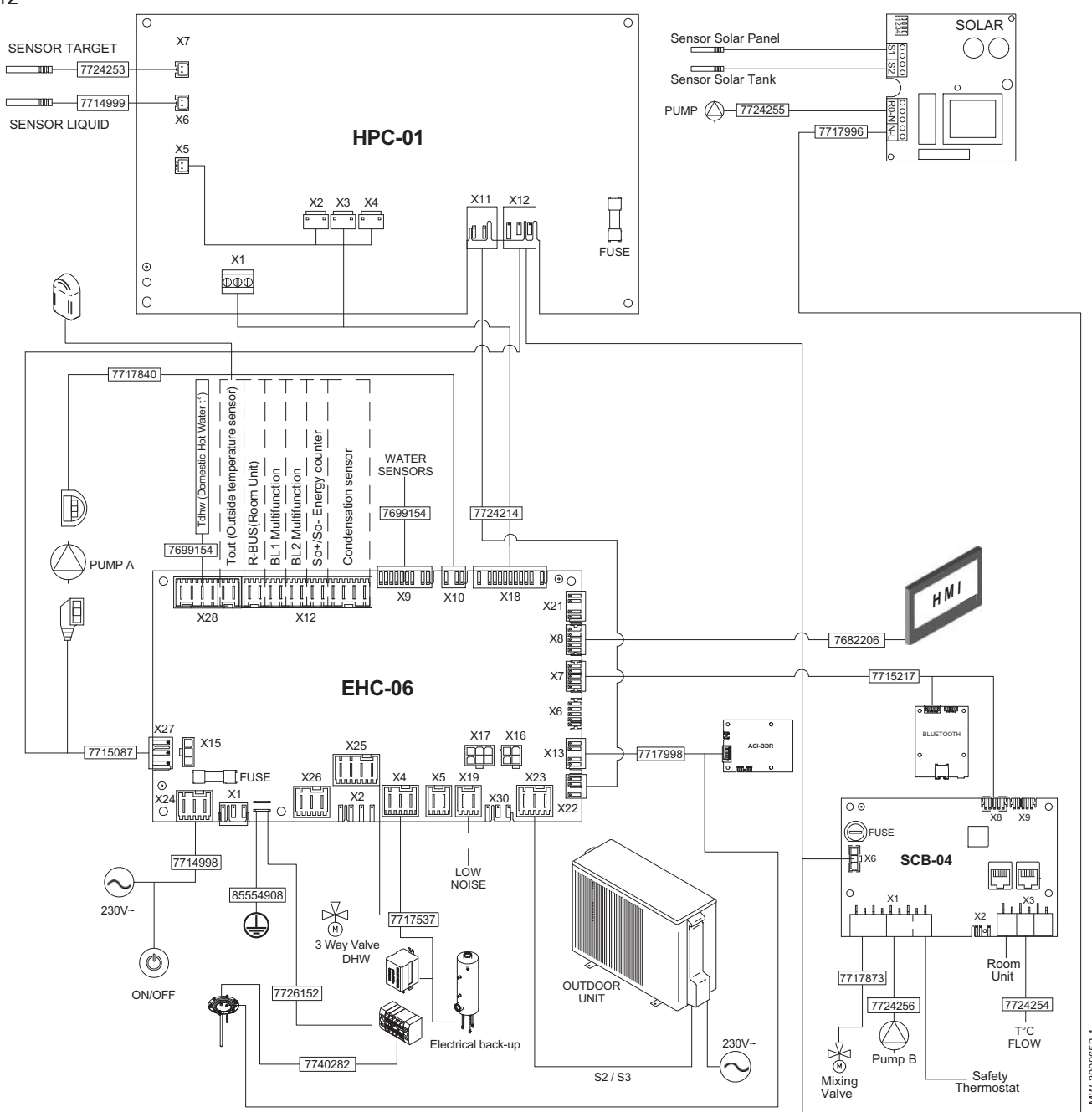
Fig.11



MW-M001442-2

3.4 Electrical diagram

Fig.12



Tab.17 Electrical diagram legend

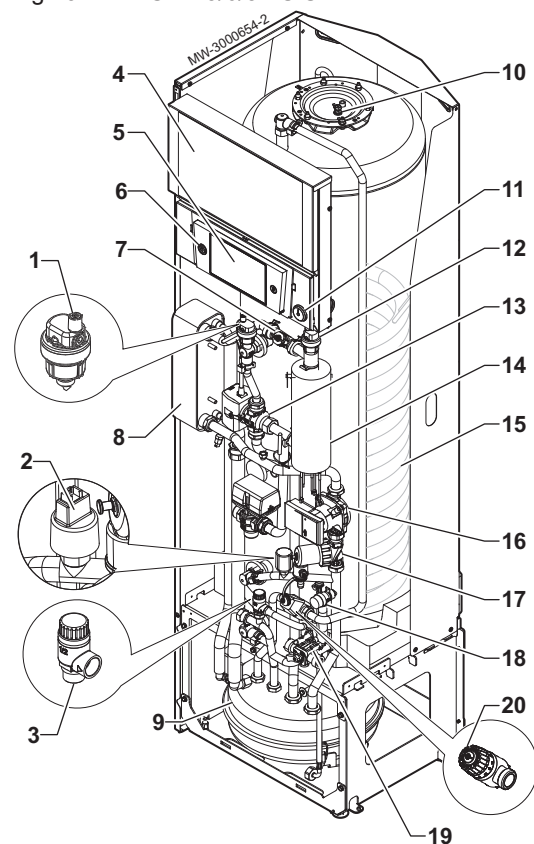
ACI-BDR	PCB for the titanium anode
BL1 Multifunction	BL1 multifunction input
BL2 Multifunction	BL2 multifunction input
BLUETOOTH	Bluetooth card
Condensation sensor	Condensation sensor
EHC-06	Heat pump control system central unit PCB
Electrical back-up	Electrical back-up
FUSE	Fuse
HMI	User interface
HPC-01	HPC-01 PCB (interface for the outdoor unit)
LOW NOISE	Optional connection cable for Silent mode
Mixing Valve	Heating circuit mixer valve
ON/OFF	On/off

OUTDOOR UNIT	Outdoor unit
PUMP A / PUMP B	Circulating pump A/Circulating pump B
R-Bus (Room unit)	Baxi Mago connected room thermostat, on/off thermostat or OpenTherm thermostat
Safety thermostat	Safety thermostat
SCB-04	PCB for controlling a second heating circuit
SENSOR LIQUID	Refrigerant fluid temperature sensor in the plate heat exchanger
SENSOR SOLAR PANEL	Solar collector temperature sensor
SENSOR SOLAR TANK	Domestic hot water tank temperature sensor
SENSOR TARGET	Water temperature sensor on the plate heat exchanger outlet
So+/So- Energy counter	Electrical energy meter
SOLAR	PCB for controlling a solar circuit (option)
S2/S3	Bus for communicating with the outdoor unit
Tdhw (Domestic Hot Water t°)	Domestic hot water temperature sensor
Tout (Outside temperature sensor)	Outdoor temperature sensor
T°C FLOW	Flow temperature sensor
WATER SENSORS	Temperature sensors
3 Way Valve DHW	Heating/domestic hot water reversing valve

4 Description of the product

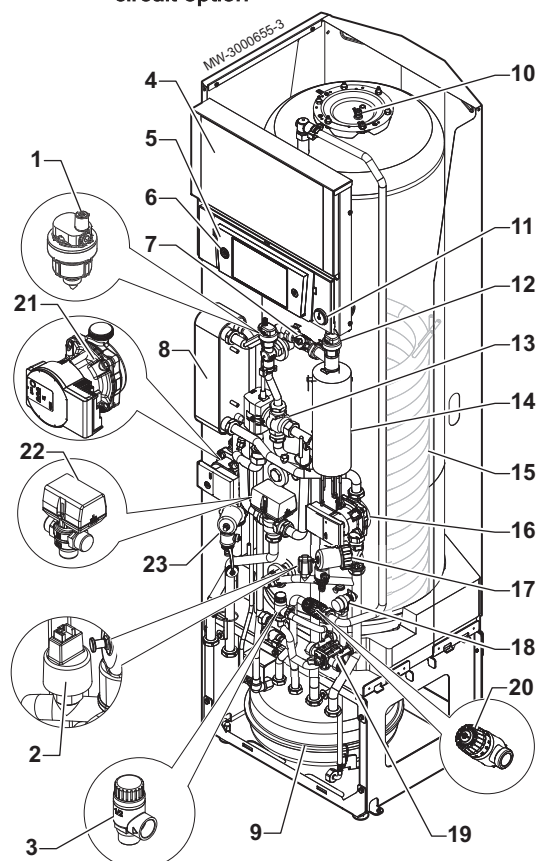
4.1 Main components

Fig.13 PBS-i 4.5/6/8 FS Slim



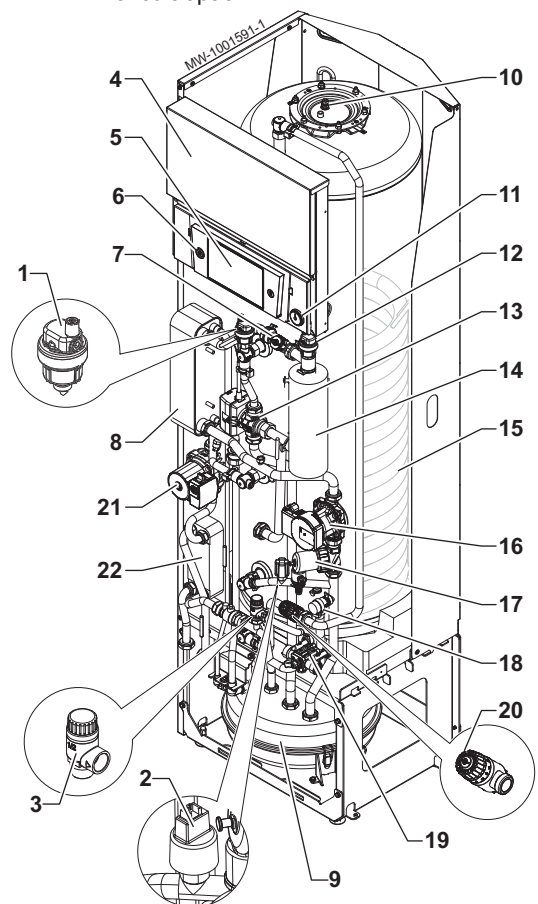
- 1 Air vent
- 2 Electronic pressure gauge
- 3 Domestic water circuit safety valve (7 bar)
- 4 Electric panel
- 5 User interface
- 6 ON/OFF button
- 7 Flow meter
- 8 Plate heat exchanger (condenser)
- 9 12 L expansion vessel
- 10 Titanium anode
- 11 Mechanical pressure gauge
- 12 Air vent
- 13 Three-way valve with reversal motor for heating/domestic hot water
- 14 3 kW electrical back-up
- 15 Heat exchanger for the production of domestic hot water in the tank (coil)
- 16 Main circulating pump
- 17 Magnetic filter
- 18 Heating circuit safety valve (3 bar)
- 19 Disconnect
- 20 Thermostatic mixing valve

Fig.14 PBS-i 4.5/6/8 FS Slim with second circuit option



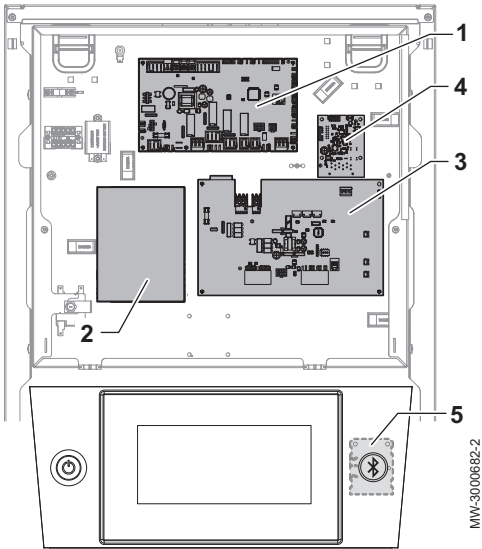
- 1 Air vent
- 2 Electronic pressure gauge
- 3 DHW circuit safety valve
- 4 Electric panel
- 5 User interface
- 6 ON/OFF button
- 7 Flow meter
- 8 Plate heat exchanger (condenser)
- 9 Expansion vessel
- 10 Titanium anode
- 11 Mechanical pressure gauge
- 12 Air vent
- 13 Three-way valve with reversal motor for heating/domestic hot water
- 14 Electrical back-up
- 15 Heat exchanger for the production of domestic hot water in the tank (coil)
- 16 Main circulating pump
- 17 Magnetic filter
- 18 Heating circuit safety valve
- 19 Disconnecter
- 20 Thermostatic mixing valve
- 21 Circulating pump on the second heating circuit
- 22 Motorised mixing valve
- 23 Magnetic filter

Fig.15 PBS-i 4.5/6/8 FS Slim with solar circuit option



- 1 Air vent
- 2 Electronic pressure gauge
- 3 DHW circuit safety valve
- 4 Electric panel
- 5 User interface
- 6 ON/OFF button
- 7 Flow meter
- 8 Plate heat exchanger (condenser)
- 9 Expansion vessel
- 10 Titanium anode
- 11 Mechanical pressure gauge
- 12 Air vent
- 13 Three-way valve with reversal motor for heating/domestic hot water
- 14 Electrical back-up
- 15 Heat exchanger for the production of domestic hot water in the tank (coil)
- 16 Main circulating pump
- 17 Magnetic filter
- 18 Heating circuit safety valve
- 19 Disconnecter
- 20 Thermostatic mixing valve
- 21 Solar circuit circulating pump
- 22 Plate heat exchanger (solar circuit)

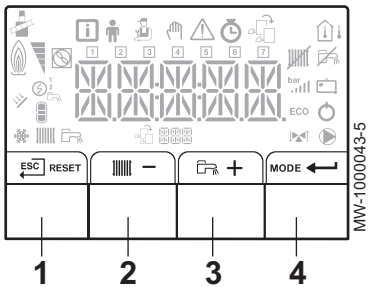
Fig.16 Position of the PCBs



- 1 EHC-06 central unit PCB: control system for the heat pump and the first heating circuit (direct zone)
- 2 Position for an optional control system PCB: manages a second heating circuit or a solar circuit
- 3 HPC-01 PCB: PCB for interface with the outdoor unit
- 4 ACI BDR PCB for the titanium anode
- 5 Position of the Bluetooth card at the rear of the control panel bracket

4.2 Control panel description

Fig.17



4.2.1 Description of the keys

- 1 : back to the previous level without saving the modifications made
RESET: manual reset
- 2 : accessing the heating parameters
— : lowering the value
- 3 : accessing the domestic hot water parameters
+ : raising the value
- 4 **MODE**: MODE display
: accessing the menu selected or confirming the value modification

4.2.2 Description of the display

■ Hydraulic back-up

- Hydraulic back-up in demand

■ Electrical back-up

- ¹ Stage 1 of the electrical back-up
- ² Stage 2 of the electrical back-up

Fig.18

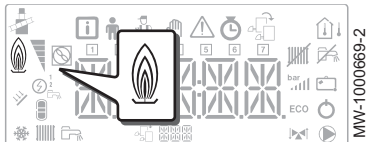


Fig.19

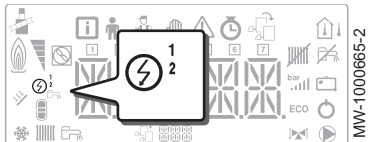
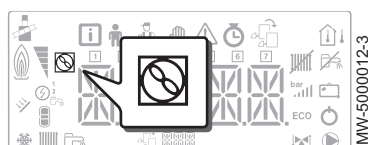


Fig.20



■ Status of the Compressor

Steady symbol: compressing running

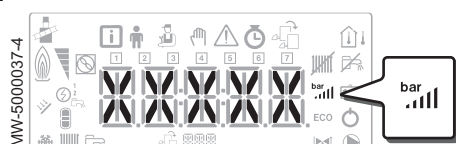
Fig.21



■ Operating modes

- Steady symbol: heating function enabled
- Flashing symbol: heating production running
- Steady symbol: domestic hot water function enabled
- Flashing symbol: domestic hot water production running
- Heating or cooling function disabled
- Domestic hot water function disabled

Fig.22



■ Hydraulic pressure in the system

The display alternates between the hydraulic pressure for the system and the measured flow temperature.

- Steady symbol: displayed when indicating the system's hydraulic pressure value
- Flashing symbol: pressure in the system too low
- XXX** Pressure value in the system (in bar) or flow temperature (in °C)

Fig.23



■ Cooling mode

- Steady symbol: cooling mode on
- Flashing symbol: cooling request pending

Fig.24



■ Menu display

- Information** menu: displays the measured values and the statuses of the appliance
- User** menu: provides access to the User level setting parameters
- Installer** menu: provides access to the Installer level setting parameters
- Manual Forcing** menu: the appliance runs at the set point displayed, the pumps operate and the three-way valves are not controlled.
- Malfunction** menu: the appliance has malfunctioned. This information is signalled by an error code and a flashing display.
- Sub-Menu **COUNTERS**
 - **TIME PROG** sub-menu: Timer programming dedicated to heating and domestic hot water production
 - Sub-Menu **CLOCK**
- PCB selection** menu: access to information on the additional PCBs connected

Fig.25

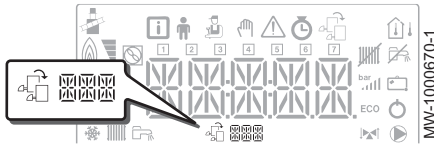


Fig.26



Fig.27

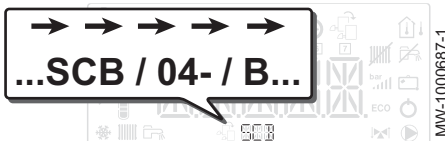


Fig.28

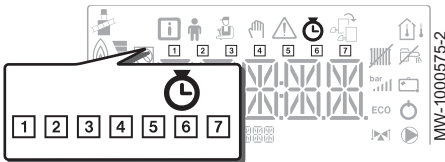


Fig.29

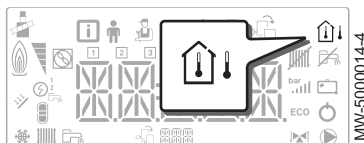


Fig.30



■ Display of PCB names

- The name of the PCB for which the parameters are displayed is scrolling across the screen on 3 characters.

Central unit **EHC-06** PCB: direct circuit and domestic hot water

Additional **SCB-04** PCB: second circuit

■ COUNTERS / TIME PROG / Sub-Menus CLOCK

- COUNTERS** sub-menu (CNT)
 - TIME PROG** sub-menu: Timer programming dedicated to heating and domestic hot water production (**CIRC A**, **CIRC B**, **ECS**)
 - 1 Timer program for Monday
 - 2 Timer program for Tuesday
 - 3 Timer program for Wednesday
 - 4 Timer program for Thursday
 - 5 Timer program for Friday
 - 6 Timer program for Saturday
 - 7 Timer program for Sunday
- CLOCK** sub-menu (CLK)

■ Temperature sensors

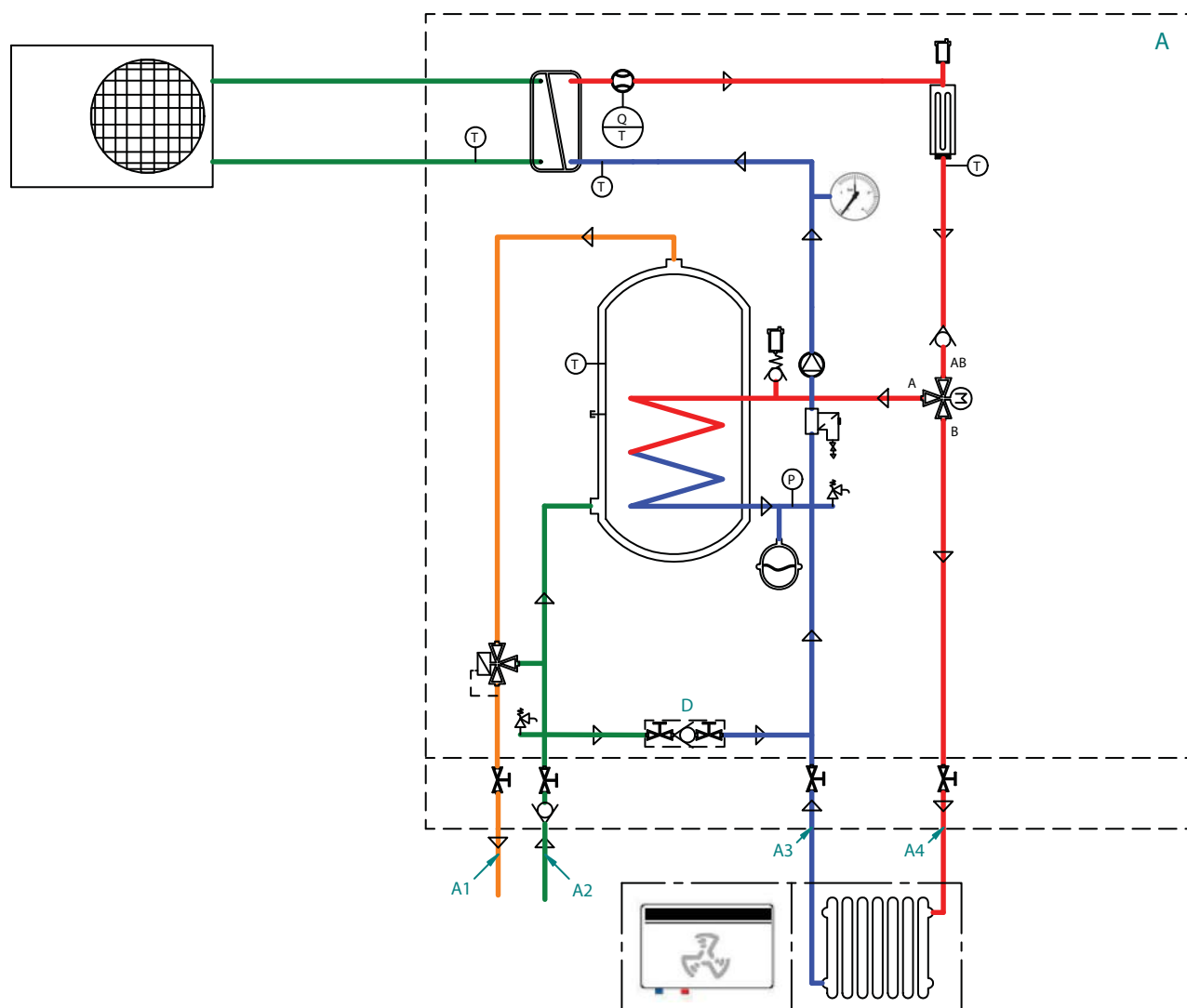
- Room temperature sensor connected:
 - fixed symbol for WINTER mode,
 - flashing symbol for SUMMER mode.
- Outside temperature sensor connected:
 - fixed symbol for WINTER mode,
 - flashing symbol for SUMMER mode.

■ Other Information

- Test Menu:** forced operation in heating and cooling mode
- Three-way valve connected
- Three-way valve closed
- Three-way valve open
- Pump running

4.3 Schematic diagram

Fig.31 Indoor module with one heating circuit

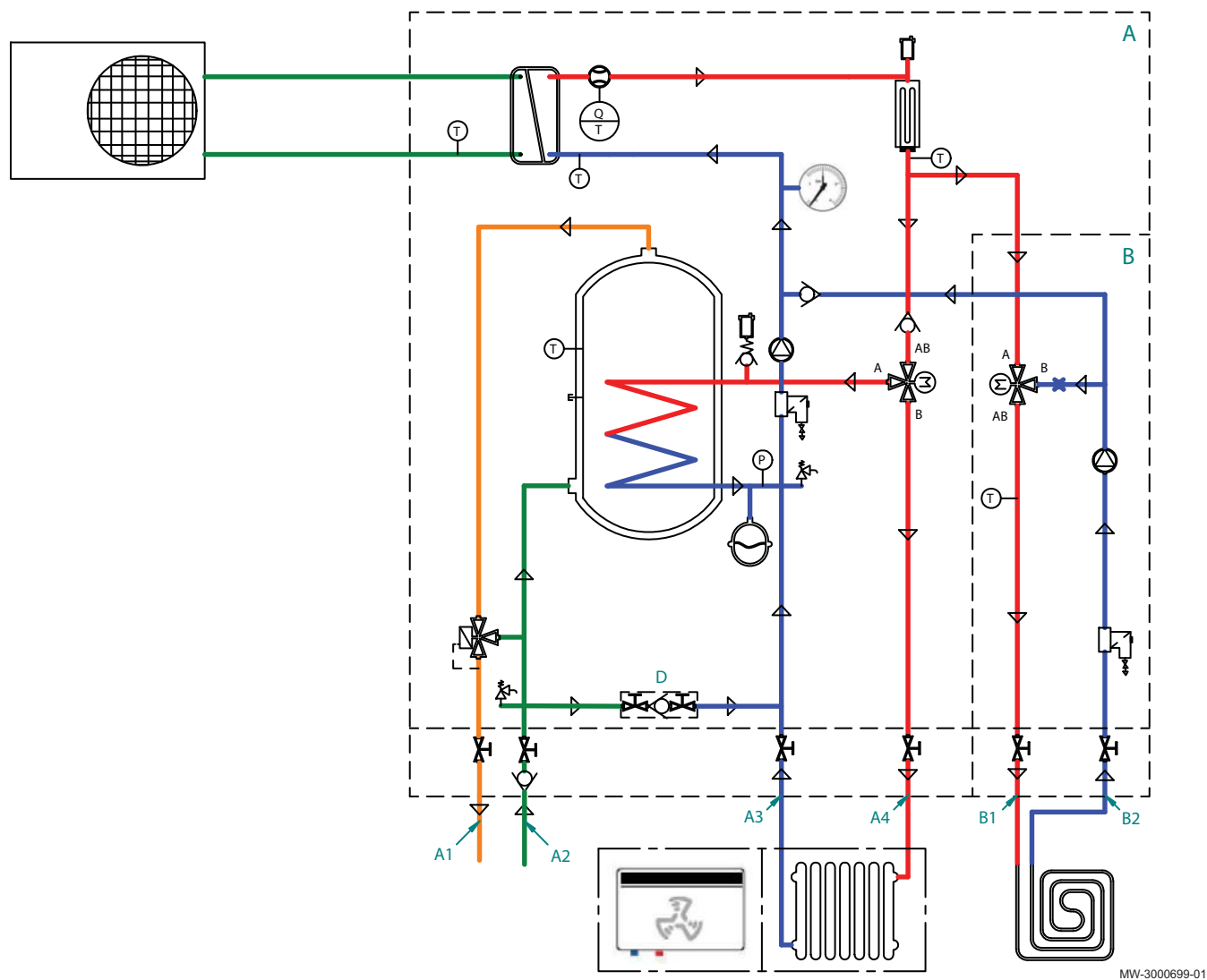


MW-3000700-01

- A1 Domestic hot water outlet
- A2 Domestic cold water inlet
- A3 Direct heating circuit A return

- A4 Direct heating circuit A flow
- D Disconnect

Fig.32 Indoor module with two heating circuits (second circuit optional)

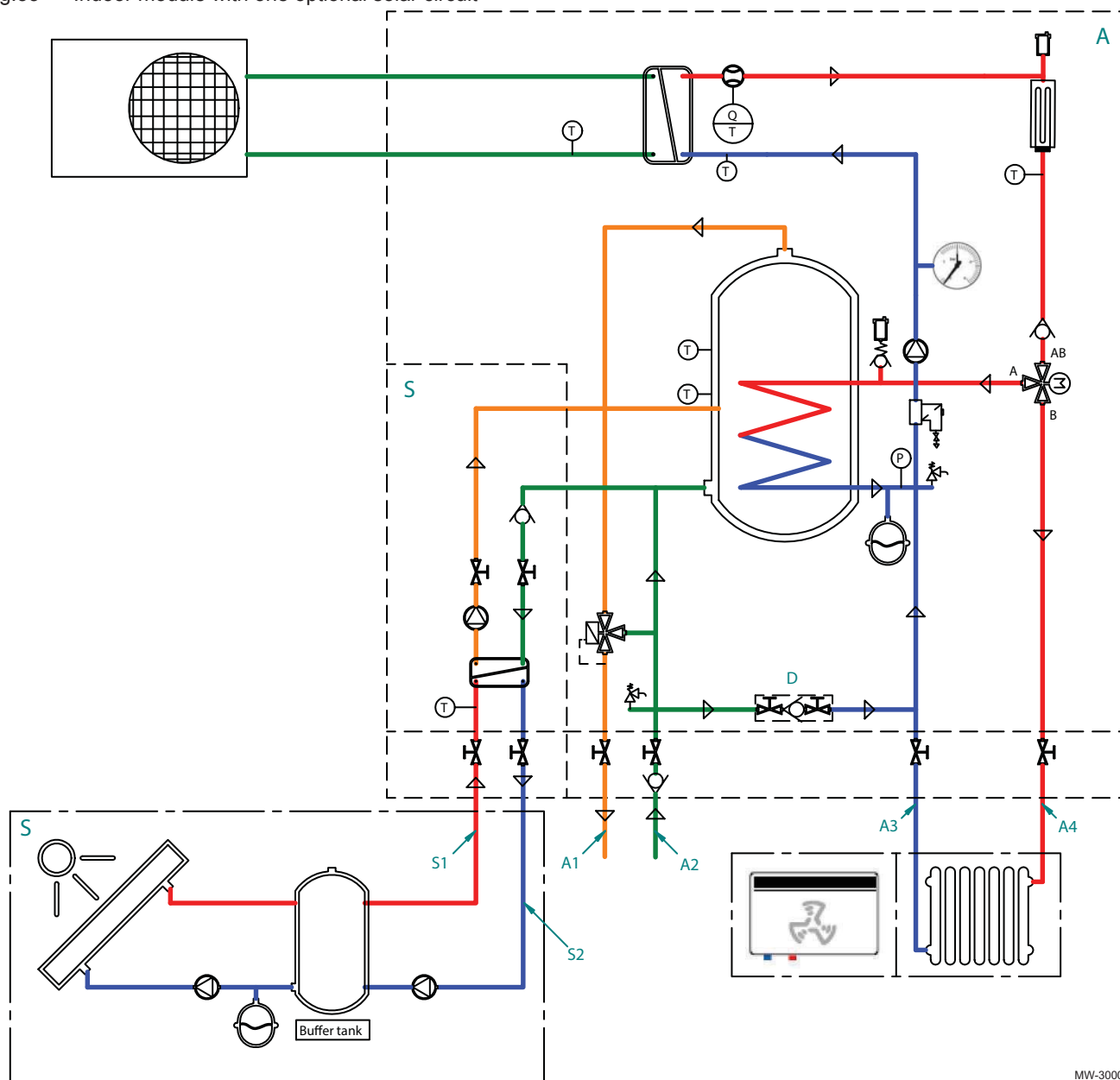


MW-3000699-01

- A1** Domestic hot water outlet
- A2** Domestic cold water inlet
- A3** Direct heating circuit A return
- A4** Direct heating circuit A flow

- B1** Mixed heating circuit B flow
- B2** Mixed heating circuit B return
- D** Disconnector

Fig.33 Indoor module with one optional solar circuit



- E** Solar circuit
- A1** Domestic hot water outlet
- A2** Domestic cold water inlet
- A3** Direct heating circuit A return
- A4** Direct heating circuit A flow

- S1** Solar circuit heating return
- S2** Solar circuit heating flow
- Buffer tank** Solar circuit buffer tank
- D** Disconnect

MW-3000698-2

5 Installation

5.1 Installation regulations


Warning

The components used for the connection to the cold water supply must comply with the prevailing standards and regulations in the country concerned.


Caution

Installation of the heat pump must be done by a qualified professional in accordance with prevailing local and national regulations.

5.2 Standard delivery

Tab.18

Package	Contents
Outdoor unit	<ul style="list-style-type: none"> • An outdoor unit • A manual
Indoor unit	<ul style="list-style-type: none"> • An indoor unit • A bag containing the product documentation: <ul style="list-style-type: none"> - an installation, user and service manual, - a list of important points to ensure successful installation, - terms of warranty. • an accessories bag containing: <ul style="list-style-type: none"> - the outdoor temperature sensor, - the key for maintenance operations on the magnetic filter, - one 5/8" nut for the refrigeration connection, - a second Bluetooth label, - an energy label, - one bag of screws, - gaskets, - cable clamps.
Connection plate	<ul style="list-style-type: none"> • A connection plate • A condensate collector box with hose • A mounting jig with instructions • One screw bag

5.3 Data plate

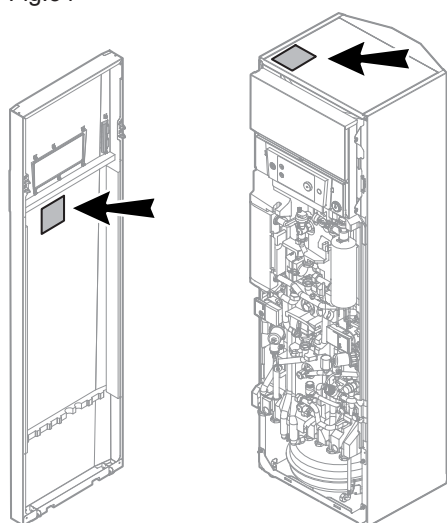
The data plates identify the product and provide the following important information.

The data plates must be accessible at all times.


Important

- Never remove or cover the data plates and labels affixed to the heat pump.
- The data plates and labels must be legible throughout the entire lifetime of the heat pump. Immediately replace damaged or illegible instructions and warning labels.

Fig.34



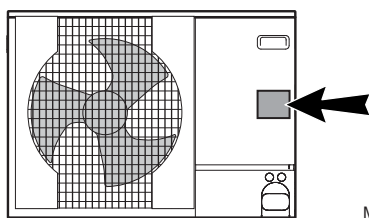
MW-3000687-3

5.3.1 Data plate on the indoor module

The data plate of the indoor module is located on the top of the appliance. A second data plate is affixed to the inside of the front panel.

5.3.2 Data plate on the outdoor unit

Fig.35



MW-6000694-1

5.4 Respecting the distance between the indoor module and the outdoor unit

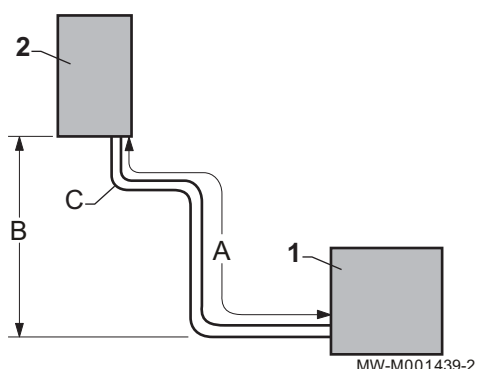
To ensure that the heat pump functions correctly, respect the minimum and maximum connection lengths between the indoor module and the outdoor unit.

1. Respect distances A, B and C between the outdoor unit 1 and the indoor module 2.

Tab.19

	A: Maximum/ minimum length	B: Maximum height difference	C: Maximum number of elbows
AWHP 4.5 MR	2 to 30 m	30 m	10
AWHP 6 MR-3	2 to 40 m	30 m	15
AWHP 8 MR-2	2 to 40 m	30 m	15

Fig.36



MW-M001439-2

2. Make one or two horizontal loops with the refrigerant connections to reduce disruption.
If the length of the refrigerant connections is less than 2 m, disruptions can occur:
 - Functional disruptions caused by a fluid overload,
 - Noise pollution caused by the circulation of the refrigerant.

5.5 Positioning the indoor unit

5.5.1 Choosing the location for the heat pump



Caution

The indoor unit must be installed in a frost-free location.

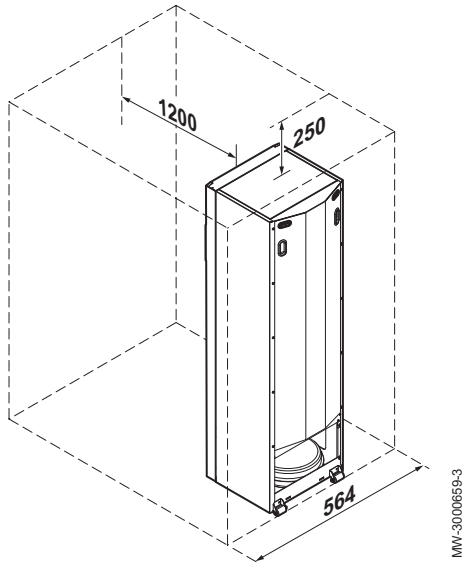
1. Decide on the ideal location, bearing in mind the space required by the heat pump and any legal directives.

2. Install the heat pump's indoor unit on a solid, stable structure capable of bearing the weight of the heat pump when full of water and fitted with its various accessories.
3. Install the indoor unit as close as possible to the draw-off points in order to minimise energy losses through the pipes.

5.5.2 Allowing sufficient space for the indoor module

Allow sufficient space around the heat pump indoor module to ensure adequate access and facilitate maintenance.

Fig.37



5.5.3 Install the indoor module in a cupboard

The indoor module can be installed in a cupboard.

Observe the overall dimensions (including hinges) of 564 x 580 mm.

5.5.4 Removing the appliance's front panel

During installation and for easier handling of the appliance, remove the front panel of the indoor module.

1. Pull the handles to unclip the top of the front panel.
2. Detach and remove the front panel.

Fig.38

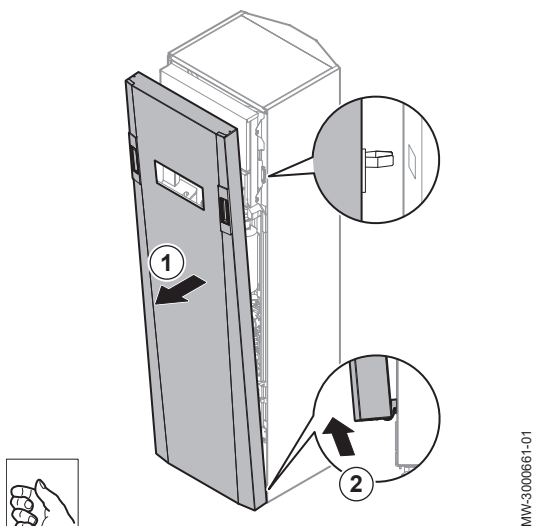
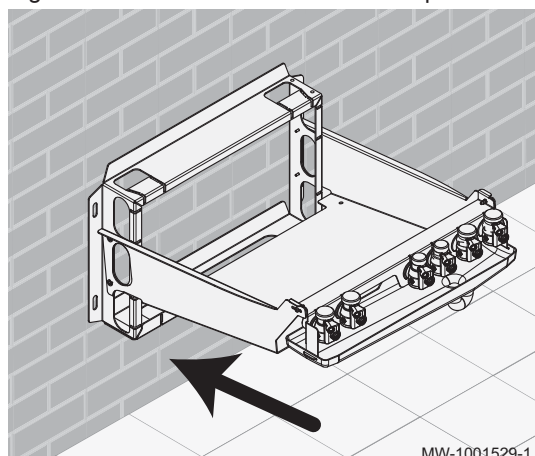


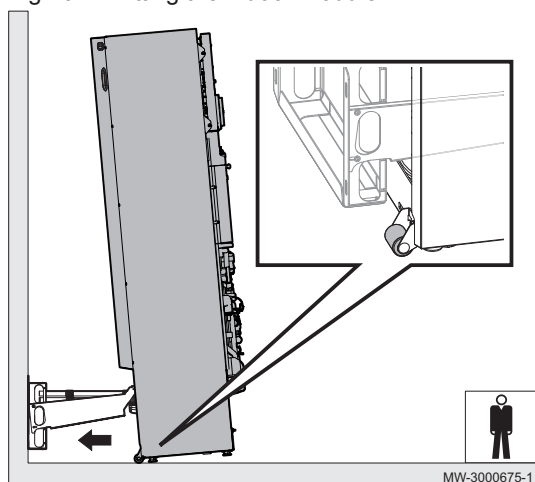
Fig.39 Installation of the connection plate



5.5.5 Positioning the indoor module

Before installing the indoor module, position the connection plate supplied separately. Follow the instructions supplied with the plate.

Fig.40 Fitting the indoor module



Fitting of the indoor module is facilitated by 2 castor wheels attached to the lower section.

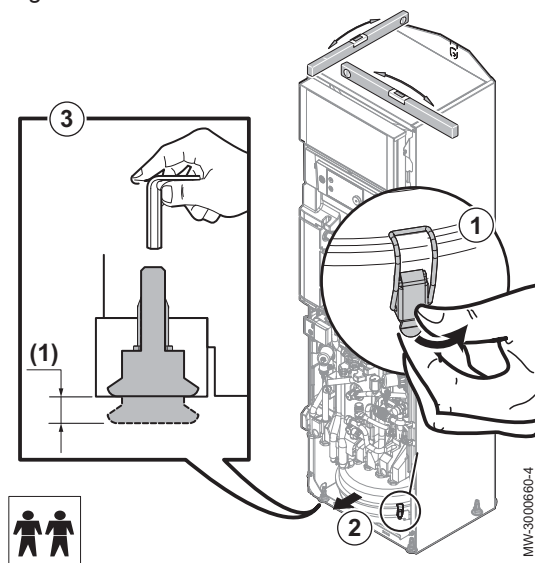
5.5.6 Levelling the indoor module

Level the indoor module using the four adjustable feet.

- (1) Adjustable feet with minimum required space of 10 mm (adjustment range: 0 to 20 mm)

1. Open the hook on the expansion vessel to access the feet at the rear of the appliance.
2. Remove the expansion vessel.
3. Unscrew the feet using an Allen key.
4. Use a spirit level to check that the appliance is completely level.
5. Refit the expansion vessel in its housing and close the hook to immobilise the vessel.

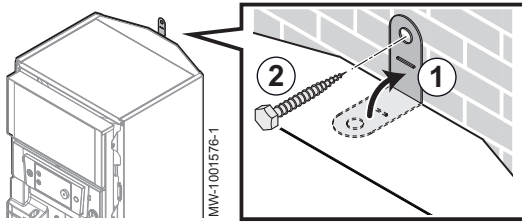
Fig.41



5.5.7 Attaching the indoor module to the wall

To prevent the indoor module from tipping over, we recommend attaching it to the wall using the attachment provided on the top of the appliance.

Fig.42



1. Detach the precut attachment in the top panel.
2. Secure the attachment against the wall using the screw and plug provided in the accessories bag.

5.6 Hydraulic connections

5.6.1 Special precautions for the connection of the heating circuit

- When making the connection, it is imperative that the standards and corresponding local directives be respected.
- If components made from composite materials are used (polyethylene connection pipes or flexible hose), we recommend components with an anti-oxygen barrier.
- Install an automatic air vent at the highest point on the heating circuit.
- If the direct circuit is connected to radiators fitted with thermostatic valves, install a differential valve to ensure flow.
- If the heating circuit is connected to underfloor heating, connect a safety thermostat (option HA255).
If the underfloor heating also includes a cooling function, connect a condensation detection sensor (option HK27).
- Check that the volume of the expansion vessel is appropriate for the volume of water in the heating circuit. To do this, refer to the DTU 65-11 and use the maximum circuit temperature in heating mode or, failing this, at a minimum of 55 °C.
If the volume of the integrated expansion vessel (12 l) is not sufficient, add an external expansion vessel on the heating circuit.

■ Volume of the expansion vessel

Tab.20 Underfloor heating type installation: maximum temperature of 40 °C

Static height	Expansion vessel inflation valve pressure	Volume of the expansion vessel depending on the volume of the installation (in litres)							
		75	100	125	150	175	200	225	250
5 m	1 bar	7	7	8	8	8	9	9	9
10 m	1.3 bar	7	8	8	9	9	10	10	11
15 m	1.8 bar	10	10	11	11	12	13	13	14

Tab.21 Radiator type installation: maximum temperature of 70 °C

Static height	Expansion vessel inflation valve pressure	Volume of the expansion vessel depending on the volume of the installation (in litres)							
		75	100	125	150	175	200	225	250
5 m	1 bar	8	9	10	11	12	13	14	15
10 m	1.3 bar	9	11	12	13	14	15	16	17
15 m	1.8 bar	12	13	15	16	18	19	21	22

5.6.2 Special precautions for the connection of the domestic hot water circuit

■ Connecting the domestic water

All the components required for connection of the domestic water circuit are built into the indoor module:

- A non-return valve in the domestic cold water circuit

- A disconnecter
- A 7 bar safety valve
- An evacuation pipe
- A thermostatic mixing valve
- Isolation and venting valves for maintenance operations

Connecting the domestic water:

- Comply with local standards and directives.
Install a water drain in the boiler room.
- Use components that comply with the applicable standards and regulations in the country concerned.

■ Temperature limit at the draw-off point

The maximum domestic hot water temperature at the draw-off point is subject to special regulations in the various countries in which the appliance is sold in order to protect the user. These special regulations must be observed when installing the appliance.

■ Water operating pressure

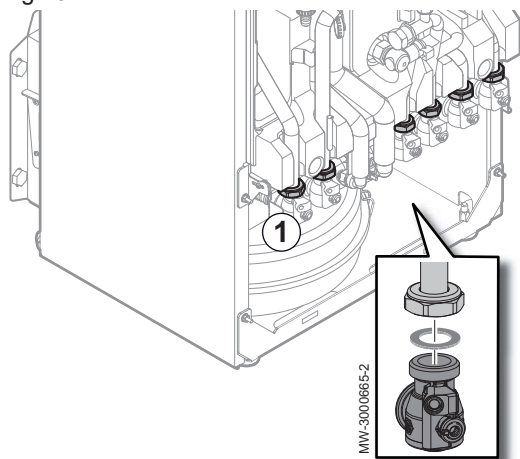
The tanks on our domestic hot water heaters can run at a maximum operating pressure of 1.0 MPa (10 bar). The recommended operating pressure is under 0.7 MPa (7 bar).

5.6.3 Connecting the various circuits

The water connections are made on the connection plate.

1. Tighten the various connectors between the indoor module and the connection plate.

Fig.43



5.6.4 Fitting the condensate collector box

The condensate collector box and the discharge hose are located in the package containing the connection plate.

1. Connect the siphon to the condensate discharge hose provided.
2. Flush the box with clean water to clear any impurities from the siphon.
3. Insert the mounting lugs in the lug recesses on the box to attach the box to the connection plate.
4. Fill the siphon.

Fig.44

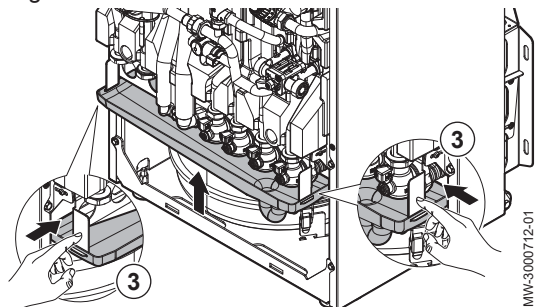
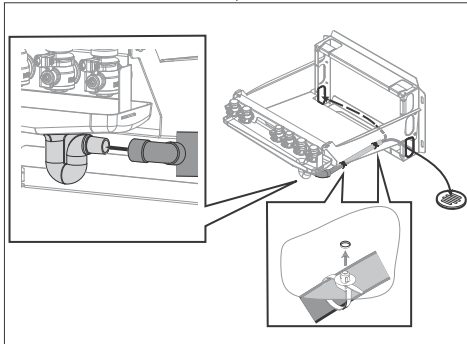
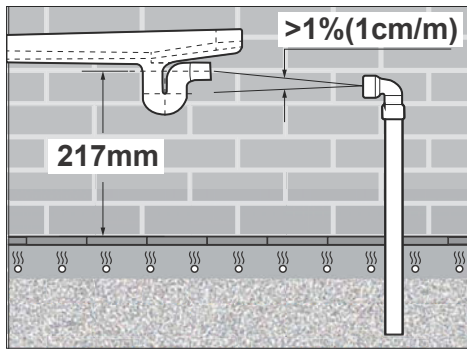
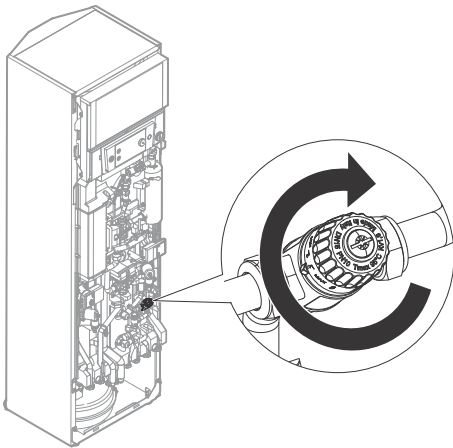


Fig.45



MW-3000737-01

5. Observe the minimum dimension for condensate outflow. If the condensate collector hose does not follow a continual downward gradient, use a lift pump.



MW-3000715-01

5.6.5 Setting the thermostatic mixing valve

A thermostatic mixing valve is integrated into the domestic hot water flow pipe to limit the risk of being scalded. It can be adjusted to between 1 and 6.

The thermostatic mixing valve is set in the factory to the MAX position (6) which corresponds to a temperature of 60 °C. Keep this setting.

5.6.6 Checking the heating circuit

1. Check the volume of the expansion vessel(s) is sufficient for the volume of water in the heating installation.
2. Check the inflation pressure of the expansion vessel(s).
3. Check that the heating circuit contains adequate water. If necessary, top up with more water.
4. Check that the water connections are properly sealed.
5. Check that the heating circuit has been correctly purged.
6. Check that the filters are not clogged. Clean them if necessary.
7. Check the level of fouling of the condensate collector box.
8. Check that the water flows correctly through the siphon.
9. Check that the valves and thermostatic radiator valves are open.
10. Check that all settings and safety devices are working correctly.

5.7 Filling the installation

5.7.1 Cleaning and flushing the installation

■ Flushing new installations and installations less than 6 months old

Before filling the heating installation, it is essential to remove any debris (copper, caulking, soldering flux) from the installation.

1. Clean the installation with a powerful universal cleaner.
2. Flush the installation with at least 3 times the volume of water contained in the central heating system (until the water runs clear and shows no impurities).

■ Flushing an existing installation

Before filling the heating installation, it is essential to remove any sludge deposits which have accumulated in the heating circuit over the years.

1. Remove any sludge from the installation.
2. Flush the installation with at least 3 times the volume of water contained in the central heating system (until the water runs clear and shows no impurities).

5.7.2 Filling the heating circuit(s)

The heating installation can be filled once it has been cleaned and flushed.



Important

Do not use glycol. The use of glycol in the heating circuit invalidates the warranty.

1. Open the valves for the heating circuits on the connection plate.
2. Open the air vents.
3. Open the disconnecter valve (to the FILL position) to start filling.
4. Monitor the pressure on the mechanical pressure gauge.



Important

The mechanical pressure gauge is located to the right of the control panel and is only used when filling the indoor module with water. After the heat pump is started on, the pressure is shown on the display.

5. When the pressure is between 1.5 and 2 bar, close the disconnecter valve to stop filling.
6. Check for any water leaks.
7. Completely vent the indoor module and the installation for optimum running.

■ Treatment of the heating water

In many cases, the heat pump and the heating system can be filled with mains water, without treating the water.

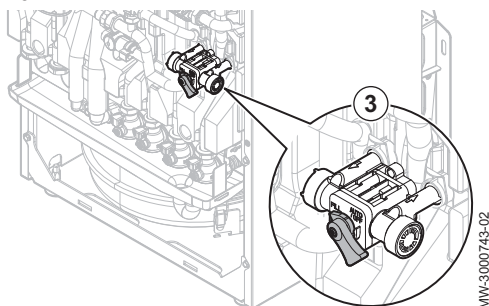


Caution

Do not add any chemical products to the heating water without first consulting a water treatment specialist. For example: antifreeze, water softeners, products to increase or reduce the pH value, chemical additives and/or inhibitors. These may cause faults in the heat pump and damage the heat exchanger.

The water in the installation must comply with following characteristics:

Fig.46



Tab.22 Heating water specifications

Specifications	Unit	Total system output
		≤ 70 kW
Hydrogen potential (pH)		7.5 - 9
Conductivity at 25°C	μS/cm	10 to 500

Specifications	Unit	Total system output
		≤ 70 kW
Chlorides	mg/litre	≤ 50
Other components	mg/litre	< 1
Total water hardness	°f	7 - 15
	°dH	4 - 8.5
	mmol/l	0.7 - 1.5

If water treatment proves necessary, Baxi recommends the following manufacturers:

- Cillit
- Climalife
- Fernox
- Permo
- Sentinel

5.7.3 Fill the domestic hot water circuit

1. Flush the domestic water circuit with at least 20 times its volume of water.
2. Turn on a hot water tap.
3. Open the valves on the connection plate.
4. Fill the domestic hot water tank via the cold water inlet pipe, leaving a hot water tap open.
5. Turn off the hot water tap when the water flow is regular, and there is no noise in the pipes.
6. Check for any water leaks.
7. Degas all of the domestic hot water pipes by repeating steps 2 to 4 for each hot water tap in the system.



Important

Carefully degas the domestic hot water tank and the distribution network in order to eliminate noises and hammering caused by trapped air moving in the pipes during draw-off.

8. Check the safety devices (particularly the safety valve or safety unit), referring to the instructions provided with those components.

■ Domestic water quality

In regions where the water is very hard ($T_h > 20$ °fH (11 °dH)), we recommend fitting a softener.

The water hardness must always be between 12 °fH (7 °dH) and 20 °fH (11 °dH) to be capable of providing effective protection against corrosion.

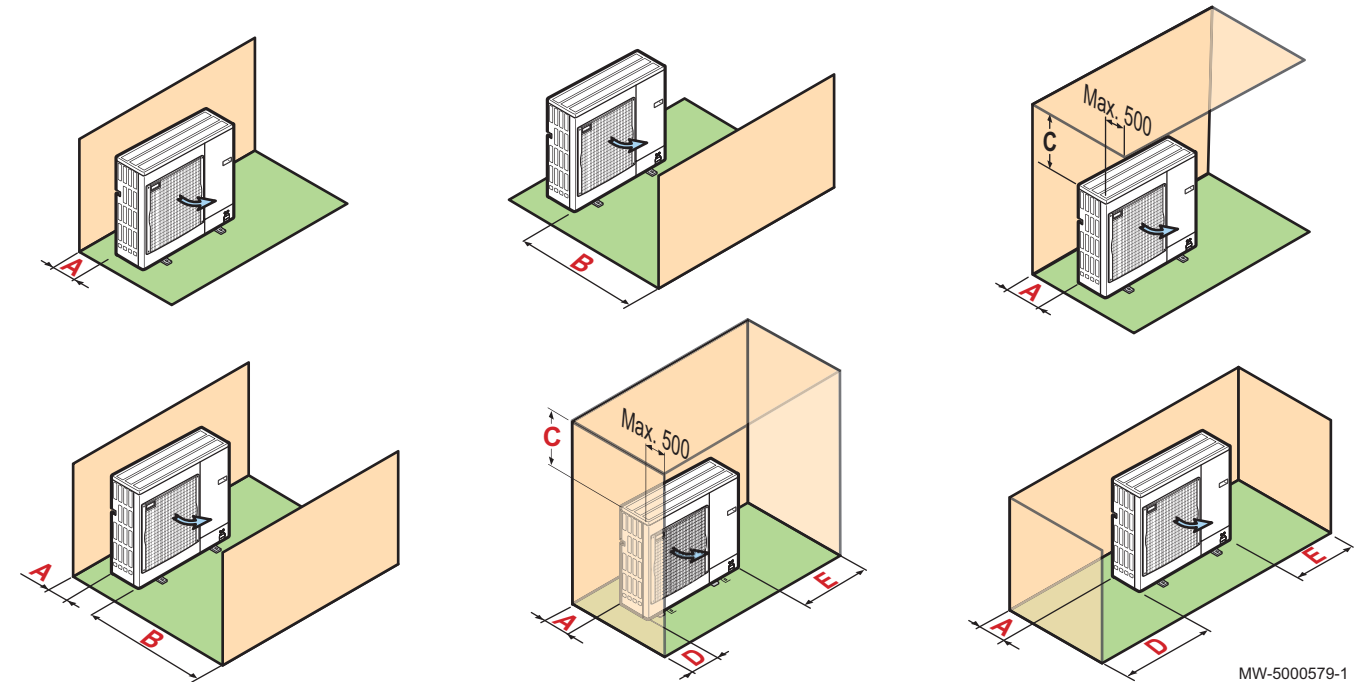
The softener does not bring about a derogation from our warranty provided that it is approved and set pursuant to the codes of practice and the recommendations given in the instructions for the softener and is regularly inspected and maintained.

5.8 Putting the outdoor unit in place

5.8.1 Allowing sufficient space for the outdoor unit

Minimum distances from the wall are necessary in order to guarantee optimum performance.

Fig.47



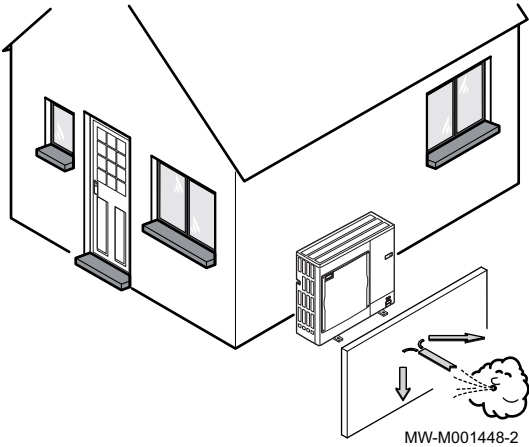
1. Respect the minimum positioning distances of the outdoor unit from the wall.

Tab.23 Minimum distances in mm

	A	B	C	D	E
AWHP 4.5 MR	100	500	1000	200	300
AWHP 6 MR-3	100	500	1000	200	300
AWHP 8 MR-2	100	500	1000	200	300

5.8.2 Selecting the location of the outdoor unit

Fig.48



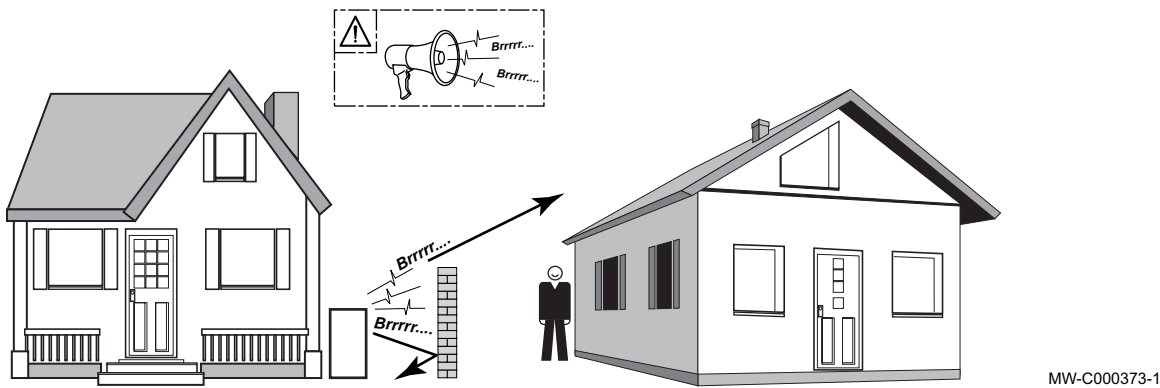
- To ensure the outdoor unit operates correctly, its location must meet certain conditions.
1. Decide on the ideal location for the outdoor unit, bearing in mind the space it requires and any legal directives and in relation to neighbours as it is a source of noise.
 2. Observe the IP24 protection rating of the outdoor unit during installation.
 3. Avoid the following locations:
 - Prevailing winds. Nothing must obstruct the free circulation of air around the outdoor unit (intake and outlet)
 - Close to sleep zones,
 - Close to a terrace,
 - Opposite a wall with windows.
 4. Ensure the support meets the following specifications:

Specifications	Examples
Flat surface that can support the weight of the outdoor unit and its accessories	<ul style="list-style-type: none">• Concrete base,• Sill,• Concrete blocks, No rigid connection to the building served to avoid the transmission of vibration
Sufficient above ground elevation (200 mm) to keep it above water, ice and snow	<ul style="list-style-type: none">• Base with a metal frame to allow condensates to be discharged correctly.• The width of the base must not exceed the width of the outdoor unit. The condensates discharge must be regularly cleaned in order to prevent any blockages

5.8.3 Choosing the location of a noise abatement screen

When the outdoor unit is too close to neighbours, a noise abatement screen can be fitted to reduce noise pollution.

Fig.49

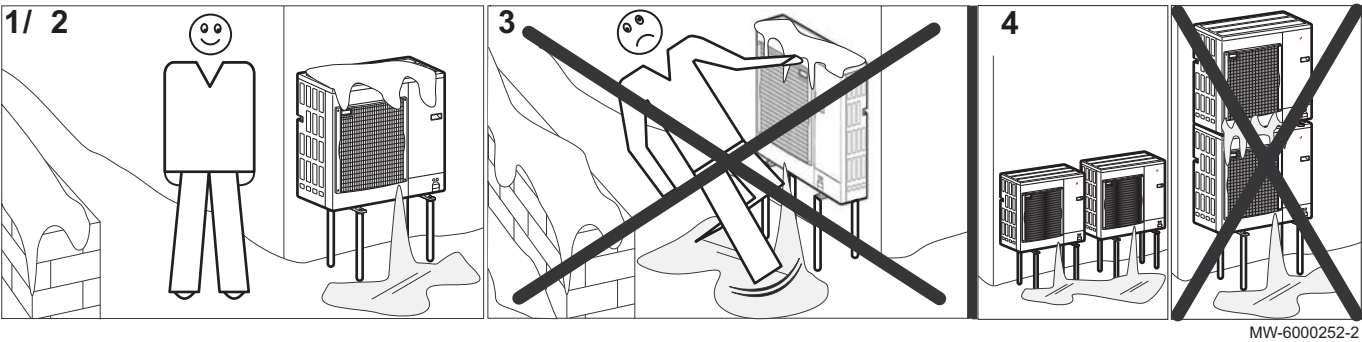


1. Locate the noise abatement screen as close as possible to the source of noise whilst allowing for the free circulation of air in the exchanger on the outdoor unit and maintenance work.
2. Respect the minimum positioning distances of the outdoor unit from the noise abatement screen.

5.8.4 Selecting the location of the outdoor unit in cold and snowy regions

Wind and snow can significantly reduce the performance of the outdoor unit, the location of the outdoor unit must meet the following conditions.

Fig.50

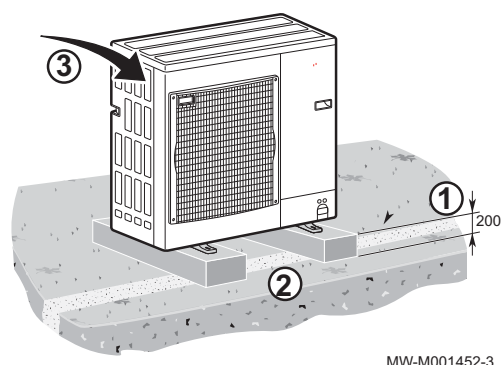


1. Install the outdoor unit sufficiently high off the ground to allow condensates to be discharged correctly.
2. Ensure the base meets the following specifications:

Specifications	Reason
Maximum width equal to the width of the outdoor unit.	
Height at least 200 mm greater then the average depth of the covering of snow.	This helps to protect the exchanger from snow and prevent the formation of ice during the defrosting operation.
Location as far as possible from the thoroughfare.	The condensates discharge may freeze, causing a potential hazard (sheet of black ice).

3. If the outdoor temperatures drop below zero, take the necessary precautions to prevent the risk of freezing in the evacuation pipes.
4. Place the outdoor units beside each other and not on top of each other to prevent the condensates from the lower unit to freeze.

Fig.51



5.9 Refrigeration connections

5.8.5 Installing the outdoor unit on the ground

When installing on the ground, a concrete base must be installed, with no rigid connection to the building served to avoid the transmission of vibrations. Position a rubber floor support.

The data plate must be accessible at all times.

1. Dig a run-off channel with a pebble bed.
2. Install a concrete base frame with a minimum height of 200 mm capable of bearing the weight of the outdoor unit.
3. Install the outdoor unit on the concrete base frame.



Danger

Only a qualified professional may carry out the installation in conformity with current legislation and standards.

To allow exchanges between the indoor module and the outdoor unit, fit 2 refrigerant connections: flow and return.

Pursuant to European Regulation 517/2014, the equipment must be installed by a certified operator whenever the refrigerant load is in excess of 5 tonnes of CO₂ equivalent or when a refrigerant connection is necessary (the case with split systems, even when fitted with a quick coupling device).

1. Install the refrigerant connection pipes between the indoor module and the outdoor unit.



Important

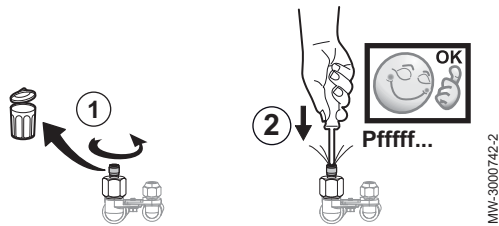
- For connection on the upper section, use the refrigerant hoses from the EH978 package.
- To avoid noise from pipes vibrating against each other on the connection plate, leave a space between the pipes during connection or insulate them with noise-damping rubber or other insulation.

2. Respect the minimum curve radii of 100 to 150 mm.
3. Adhere to the minimum and maximum distances between the indoor module and the outdoor unit.
4. Cut the pipes with a pipe cutter and deburr.
5. Angle the opening in the pipe downwards to ensure no particles can get inside, while preventing oil traps.
6. If the pipes are not connected immediately, plug them to prevent moisture from entering.

5.9.2 Connecting the refrigerant connections pipes to the indoor unit

Make the connection between the indoor unit and the refrigerant connection pipes previously installed.

Fig.52



Caution

For connection at the top, use the hose kit (2300 mm) from the package EH978.

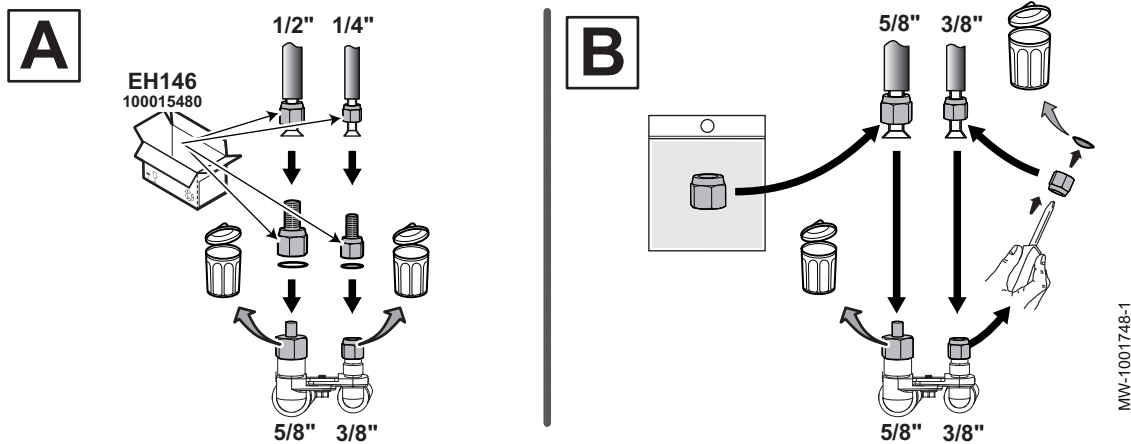
1. Unscrew the cap from the 5.8" refrigerant fluid connector and discard.
2. Check the exchanger leak-tightness. Push a screwdriver gently into the 5/8" nut.
⇒ A release noise should be heard, which is proof that the exchanger is watertight.
3. Fitting the connections.



Important

- Use the original nuts, or discard these, depending on the outdoor unit installed.
- Use the copper gaskets with the adapters from the package EH146.

Fig.53



Tab.24

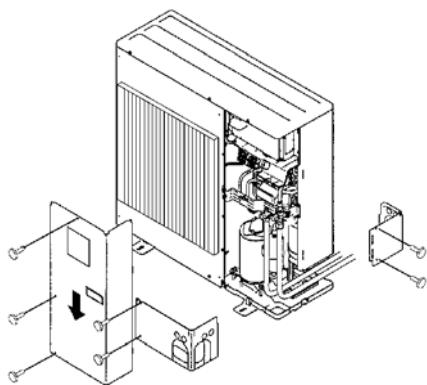
Fig. A	Fig. B
AWHP 4.5 MR AWHP 6 MR-3	AWHP 8 MR-2
<ul style="list-style-type: none">• Discard the original nuts.• Use the adapters from the package EH146.	<ul style="list-style-type: none">• Use the original 3/8" nut. Discard its seal.• Discard the original 5/8" nut and use the 5/8" nut provided in the accessories bag.

4. Bead the pipes.
5. Tighten the connections, observing the given tightening torques. Apply refrigerant oil to the beaded parts to facilitate tightening and improve the seal.

Tab.25 Tightening torque applied

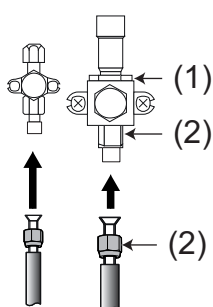
External diameter of the pipe (mm/inch)	External diameter of the cone fitting (mm)	Torque load (N.m)
6.35 - 1/4	17	14 - 18
9.52 - 3/8	22	34 - 42
12.7 - 1/2	26	49 - 61

Fig.54



MW-5000512-2

Fig.55



MW-1001302-2

5.9.3 Connecting the refrigerant connections to the outdoor unit

1. Remove the protective side panels from the outdoor unit.
2. Unscrew the nuts on the stop valves.


Caution

Keep the refrigerant connection in place on the outdoor unit with a spanner so as not to twist the internal pipe.

- (1) Do not use a spanner on this part of the valve, there is a danger of the refrigerant leaking.
 - (2) Recommended position of the spanners for tightening the nut.
3. Thread the nuts onto the pipes.
 4. Bead the pipes.
 5. Apply refrigerant oil to the beaded parts to facilitate tightening and improve the seal.
 6. Connect the pipes and tighten the nuts with a torque wrench.

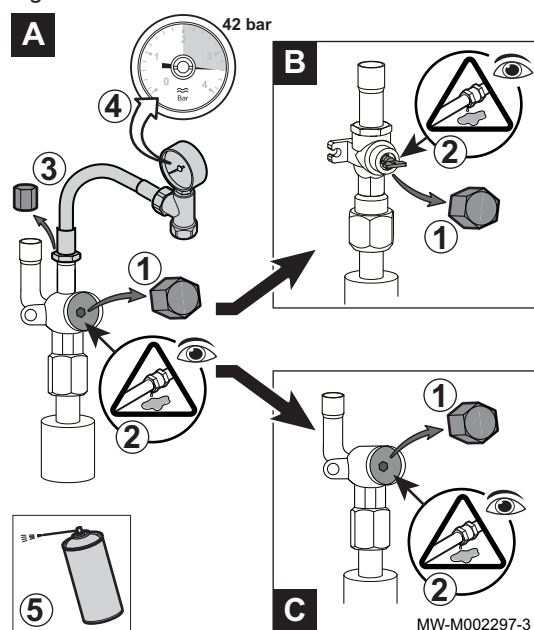

Caution

Keep the refrigerant connection in place on the outdoor unit with a spanner so as not to twist the internal pipe.

Tab.26 Torque load

External diameter of the pipe (mm/inch)	External diameter of the cone fitting (mm)	Torque load (N.m)
6.35 - 1/4	17	14 - 18
9.52 - 3/8	22	34 - 42
12.7 - 1/2	26	49 - 61

Fig.56



5.9.4 Testing the leak-tightness of the refrigerant connections

1. Remove the plugs from the stop valves **A** and **B / C**.
2. Check that **A** and **B / C** stop valves are closed.
3. Remove the plug from the service connection on **A** stop valve.
4. Connect the pressure gauge and the nitrogen bottle to the stop valve **A** then progressively build up the pressure in the refrigerant connection pipes and the indoor module to 42 bar, in 5 bar increments.
5. Check the leak-tightness of the fittings using a leak detector spray. If leaks appear, repeat the steps in order and check the leak-tightness once again.
6. Release the pressure and release the nitrogen.

5.9.5 Evacuation

Perform evacuation after checking that the refrigerant circuit is entirely free of leaks. Evacuation is necessary to remove air and moisture from the refrigerant circuit.

1. Check that the **A** and **B / C** stop valves are closed.
2. Connect the vacuum gauge and the vacuum pump to the service connection on **A** stop valve.
3. Produce a vacuum in the indoor module and the refrigerant connection pipes.
4. Check the pressure according to the recommendations table below:

Tab.27

Outdoor temperature	°C	≥ 20	10	0	- 10
Pressure to be reached	Pa (bar)	1000 (0.01)	600 (0.006)	250 (0.0025)	200 (0.002)
Evacuation time after reaching the pressure	h	1	1	2	3

5. Close the valve between the vacuum gauge / vacuum pump and **A** stop valve.
6. Disconnect the vacuum gauge and the vacuum pump after it has shut down.
7. Open the valves.

5.9.6 Opening the stop valves

Once the leak-tightness has been checked and the refrigerant circuit evacuated, open the stop valves to allow the refrigerant fluid to circulate.

Fig.57

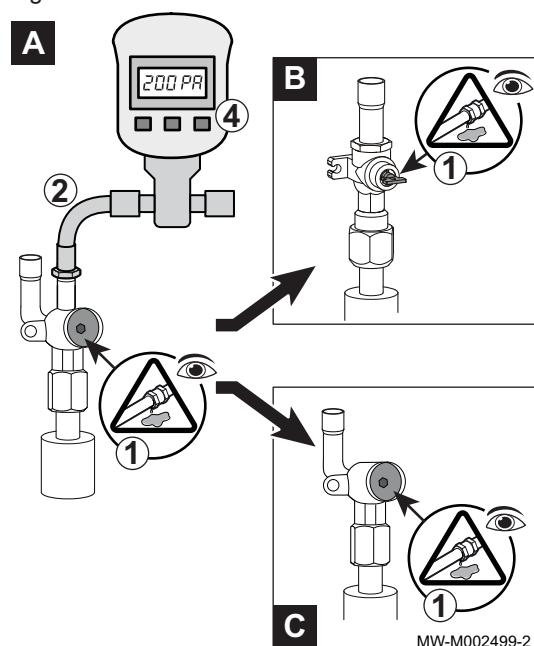
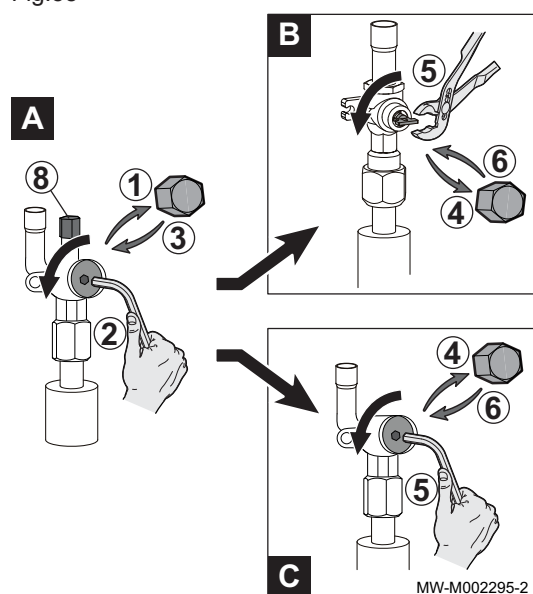


Fig.58



1. Remove the cap from the refrigerant fluid stop valve, fluid end.
2. Open valve **A** with a hexagonal spanner by turning anti-clockwise until it stops.
3. Put the cap back in place.
4. Remove the cap from refrigerant gas stop valve **B** or **C**.
5. Open the valve.

Valve B	Open the valve with pliers by turning it a quarter turn anti-clockwise.
Valve C	Open the valve with a hexagonal spanner by turning anti-clockwise until it stops.

6. Put the cap back in place.
7. Put the cap back in place on valve **A**.
8. Tighten all the caps with a torque wrench with a torque load of 20 to 25 N·m.
9. Depending on the length of the refrigerant pipes, it may be necessary to add refrigerant fluid.



For more information, see

Adding the necessary quantity of refrigerant fluid, page 47

5.9.7 Adding the necessary quantity of refrigerant fluid

If the refrigerant connection pipes exceed the lengths below, add refrigerant fluid via the refrigerant fluid stop valve using a safety loader.



Caution

Prevent oil traps.

If the pipes are not connected immediately, plug them to prevent moisture from entering.

Tab.28 Quantity of refrigerant fluid to be added

Length of refrigeration pipe	7 m	10 m	15 m	20 m	30 m	Yg/m
AWHP 4.5 MR ⁽¹⁾	0	+ 0.045 kg	+ 0.120 kg	+ 0.195 kg	+ 0.345 kg	15 ⁽²⁾

(1) The outdoor unit is pre-charged with 1300 kg of refrigerant fluid.
 (2) Calculation: $Xg = Yg/m \times (\text{pipe length (m)} - 7)$

Tab.29 Quantity of refrigerant fluid to be added

Length of refrigeration pipe	11 to 20 m	21 to 30 m	31 to 40 m	41 to 50 m	51 to 60 m	61 to 75 m
AWHP 6 MR-3	0.2 kg	0.4 kg	0.6 kg	not permitted	not permitted	not permitted
AWHP 8 MR-2	0.15 kg	0.3 kg	0.9 kg	not permitted	not permitted	not permitted

5.9.8 Checking the refrigeration circuit

1. Check the position of the outdoor unit, distance from the wall.
2. Check the tightness of the refrigerant connections.
3. Ensure that the evacuation pressure has been checked before filling.
4. Ensure that the evacuation time and the outdoor temperature have been checked during evacuation.

5.10 Electrical connections

5.10.1 Recommendations


Warning

- Only qualified professionals may carry out electrical connections, always with the power off.
- Earth the appliance before making any electrical connections.

- Make the electrical connections on the appliance in accordance with the requirements of the prevailing standards,
- Make the electrical connections on the appliance in accordance with the information given in the electrical schematics delivered with the appliance,
- Make the electrical connections on the appliance in accordance with the recommendations of these instructions.


Important

Earthing must comply with the prevailing installation standards.


Caution

- The installation must be fitted with a main switch.


Caution

Power the appliance via a circuit that includes an omnipolar switch with contact opening distance of 3 mm or more.

- Single phase models: 230 V (+6%/-10%) 50 Hz

When making electrical connections to the mains, respect the following polarities.

Tab.30

Colour of the wire	Polarity
Brown wire	Live
Blue wire	Neutral
Green/yellow wire	Earth


Caution

Secure the cable with the cable clamp provided. Be careful that you do not invert any of the wires.

5.10.2 Recommended cable cross section

The electrical characteristics of the mains power supply available must correspond to the values given on the data plate.

The cable will be carefully chosen according to the following information:

- Maximum intensity of the outdoor unit. See table below.
- Distance of the appliance from the original power supply.
- Upstream protection.
- Neutral operating conditions.


Important

The maximum current on the power supply cable of the indoor module must not exceed 6 A.

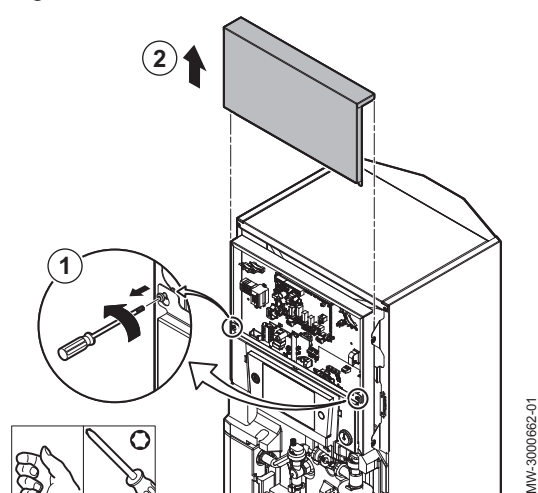
Tab.31

Appliance	Power supply type	Cable cross section (mm ²)	Circuit breaker curve C (A)	Maximum amperage (A)
Indoor module	Single phase	Cable provided (3 x 1.5)	10	-
Electrical back-up	Single phase	3 x 2.5	16	-
BUS cable ⁽¹⁾	-	2 x 0.75	-	-
AWHP 4.5 MR	Single phase	3 x 2.5	16	12
AWHP 6 MR-3	Single phase	3 x 2.5	16	13
AWHP 8 MR-2	Single phase	3 x 4	25	17

(1) Connection cable linking the outdoor unit to the indoor module

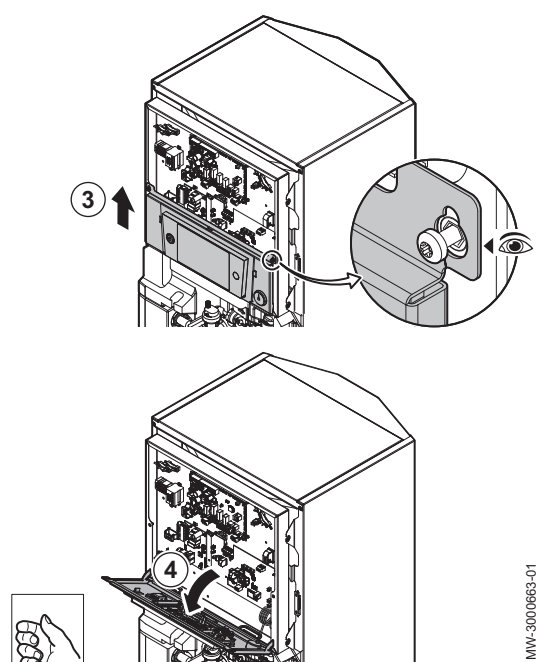
5.10.3 Accessing the PCBs

Fig.59



1. Unscrew the two screws on the protective cover for the PCBs but do not remove them.
2. Slide the cover upwards and remove it.

Fig.60



3. Lift the control panel flap slightly.
4. Tilt the control panel flap forwards.



For more information, see
Removing the appliance's front panel, page 34

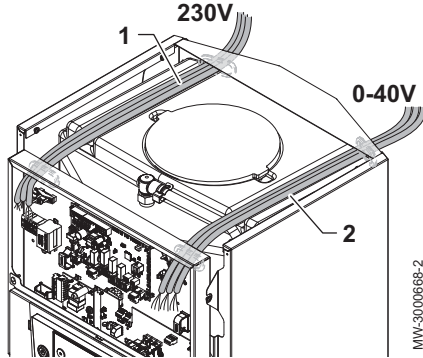
5.10.4 Routing the cables



Caution

Separate the sensor cables from the 230 V circuit cables. Secure all the cables exiting the indoor unit using the traction arrester devices supplied in the accessories bag.

Fig.61 Routing the cables

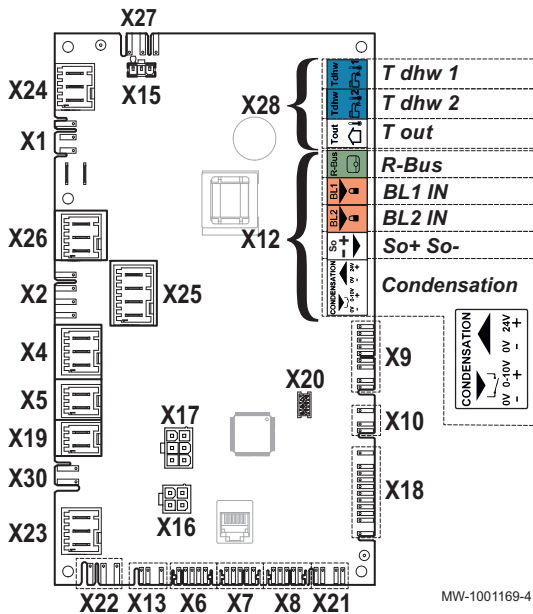


- 1 230 V circuit cables
- 2 0 - 40 V sensor cables

5.10.5 Description of the connection terminal blocks

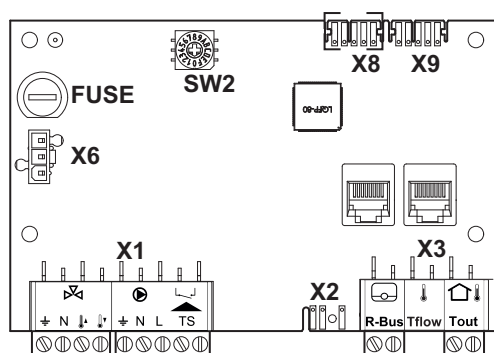
■ EHC-06 PCB terminal block

Fig.62



- X1 Not used
- X2 Not used
- X4 Electrical back-up
- X5 Not used
- X7 L-Bus to the SCB-04 PCB
- X8 Indoor module user interface
- X9 Sensors
- X10 Main circulating pump command signal
- X12 Options
 - R-Bus: Baxi Mago connected room thermostat, on/off thermostat or OpenTherm thermostat
 - BL1 IN / BL2 IN: Multifunction inputs
 - So+/So- : Electric energy meter
 - Condensation: Condensation sensor
- X13 Option ACI-BDR
- X17 Not used
- X18 Input/output for the HPC-01 PCB
- X19 Optional connection cable for Silent mode
- X22 Bus for communication with the HPC-01 PCB
- X23 Bus for communicating with the outdoor unit
- X24 230 V - 50 Hz power supply
- X25 Heating / Domestic hot water directional valve
- X26 Pump - only if connecting a buffer tank
- X27 230 V power supply for the SCB-04 PCB and the HPC-01 PCB
- X28
 - T out: Outdoor temperature sensor
 - T dhw 1/ T dhw 2 : Domestic hot water tank temperature sensor

Fig.63

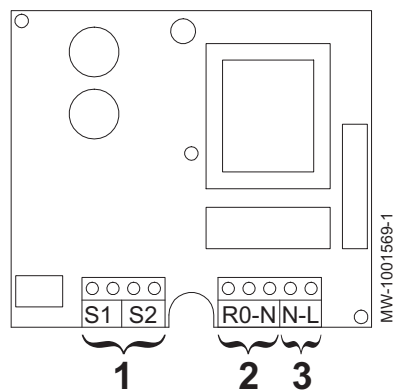


MW-3000557-03

■ Optional SCB-04 PCB terminal block

- X1** Power supply for the pump/Three-way valve/Safety valve input
- X2** PWM pump
- X6** 230 V power supply
- X3**
 - R-Bus: Baxi Mago connected room thermostat, on/off thermostat or OpenTherm thermostat
 - Tout: Do not connect anything
 - Tflow: Flow sensor
- X8** L-Bus to the EHC-06 PCB
- X9** L-Bus terminal connector

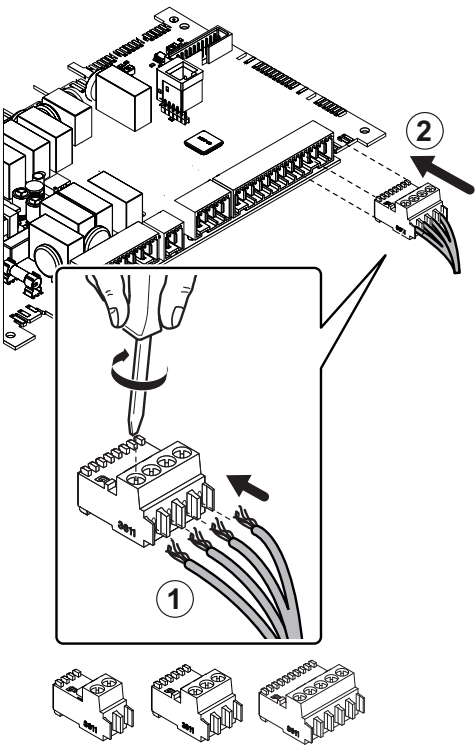
Fig.64



■ PCB terminal block for the solar option

- 1**
 - S1: solar collector temperature sensor
 - S2: domestic hot water tank temperature sensor
- 2** Solar circuit circulating pump
- 3** 230 V power supply

Fig.65



5.10.6 Connecting the cables to the PCBs

Keyed connectors are present on different terminal blocks as standard. Use these to connect the cables to the PCBs. If there are no connectors on the terminal block to be used, take the connector provided with the kit. Coloured stickers are provided with certain accessories. Use these to mark each end of the cable with the same colour before passing the cables into the cable feed-throughs.

1. Insert and screw down the wires in the corresponding connector inlets.
2. Insert the connector into the corresponding terminal block.
3. Feed the cable into the cable duct and adjust the length of the cable accordingly.
4. Lock it in position with a cable clamp or a traction arrester device.



Caution

Danger of electric shock: the length of the conductors between the traction arrester device and the terminal blocks must be such that the active conductors are put under tension before the earth conductor.

5.10.7 Connecting the indoor module

The power supply for the indoor unit is prewired in the factory.

1. Connect the standby power supply cable at the rear of the appliance to the installation's electric panel.

5.10.8 Electrically connecting the outdoor unit

■ Outdoor unit terminal block

The electrical connection of the outdoor unit must be made via a dedicated circuit. Before connecting, check that the cross-section of the cable and the circuit breaker on the electric panel are suitable.



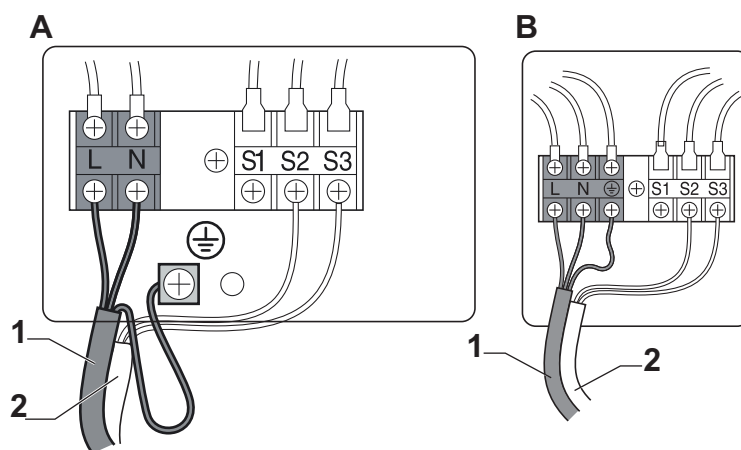
Danger

- Do not connect anything to S1.
- The earth wire must be 10 mm longer than the N and L wires.

Tab.32 Electrical connection diagram

A	B
AWHP 4.5 MR	AWHP 6 MR-3 AWHP 8 MR-2

Fig.66



1 Power supply

2 Communication bus

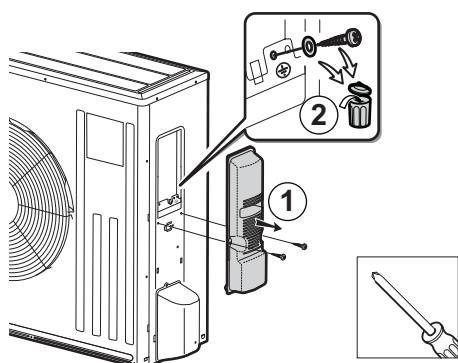
MW-6000807-01

■ Connecting the AWHP 4.5 MR unit

The electrical connection of the outdoor unit must be made via a dedicated circuit. Before connecting, check that the cross-section of the cable and the circuit breaker on the electric panel are suitable.

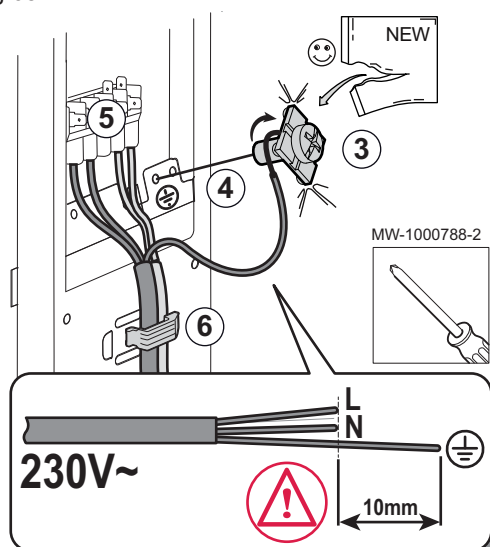
1. Remove the service panel.
2. Remove the earth connection present on the appliance and discard.

Fig.67



MW-6000808-01

Fig.68



3. Place the stripped part of the earth wire (⊕) on the screw with the square washer provided.



Danger

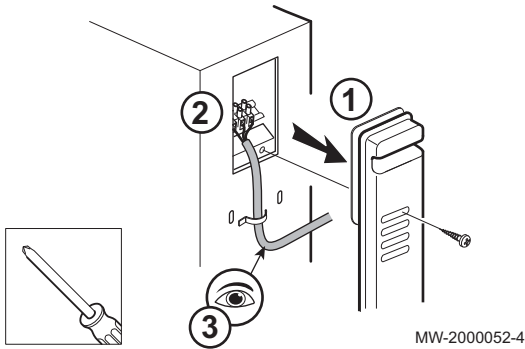
The earth wire must be 10 mm longer than the N and L wires.

4. Secure the screw with the earth wire on the chassis. Ensure that the earth wire is correctly placed under the washer, in contact with the chassis.
5. Connect the other wires to the appropriate terminals.
6. Feed the cable into the cable duct and adjust the length of the cable accordingly. Lock it in position using the traction arrester device.
7. Put the service panel back in place.

■ Connecting the AWHP 6 MR-3 unit

The electrical connection of the outdoor unit must be made via a dedicated circuit. Before connecting, check that the cross-section of the cable and the circuit breaker on the electric panel are suitable.

Fig.69



1. Remove the service panel.
2. Connect the cables to the appropriate terminals.

**Danger**

The earth wire must be 10 mm longer than the **N** and **L** wires.

3. Feed the cable into the cable duct and adjust the length of the cable accordingly. Lock it in position using the traction arrester device.
4. Put the service panel back in place.

■ Connecting the AWHP 8 MR-2 unit

The electrical connection of the outdoor unit must be made via a dedicated circuit. Before connecting, check that the cross-section of the cable and the circuit breaker on the electric panel are suitable.

1. Remove the service panel from the outdoor unit.
2. Connect the cables to the appropriate terminals.

**Danger**

The earth wire must be 10 mm longer than the **N** and **L** wires.

3. Feed the cable into the cable duct and adjust the length of the cable accordingly. Lock it in position with a cable clamp.
4. Put the service panel back in place.

Fig.70

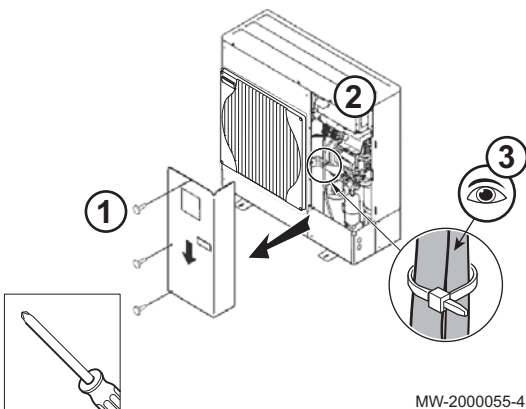
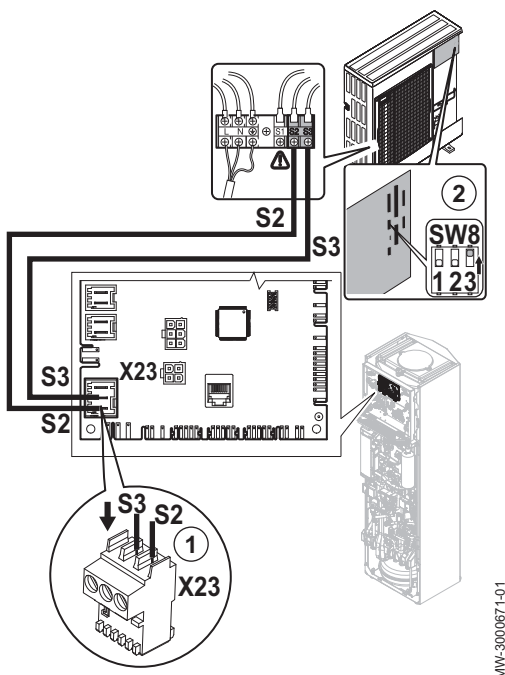


Fig.71



5.10.9 Connecting the outdoor unit bus

1. Connect the outdoor unit bus between the S2 and S3 terminals on the **X23** connector in the indoor module's **EHC-06** central unit PCB.
2. Position the **SW8-3** switch (except with the AWHP 4.5 MR) for the outdoor unit PCB to **ON**.

**Danger**

Do not connect anything to S1.

3. Put the service panel back in place.

5.10.10 Connecting the outdoor temperature sensor

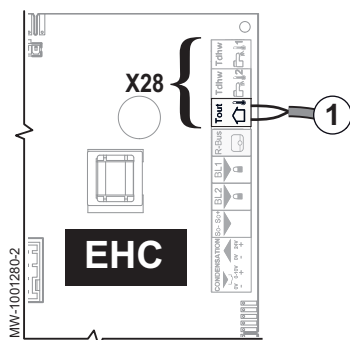
The connection of an outdoor temperature sensor is mandatory to ensure the correct operation of the appliance.

■ Connecting the outdoor temperature sensor

To connect the outdoor temperature sensor, use a cable with a minimum cross section of $2 \times 0.35 \text{ mm}^2$ and a length $< 30 \text{ m}$.

1. Connect the outdoor sensor to the **Tout** input on the **X28** connector on the indoor unit's **EHC-06** central unit PCB.

Fig.72

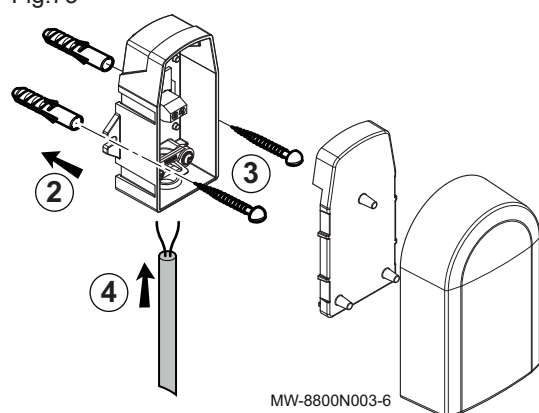


■ Fitting the outdoor sensor

Plugs diameter 4 mm/drill diameter 6 mm

1. Choose a recommended location for the outdoor sensor.
2. Put the 2 plugs in place, delivered with the sensor.
3. Secure the sensor using the screws provided (diameter 4 mm).
4. Connect the cable to the outdoor temperature sensor.

Fig.73

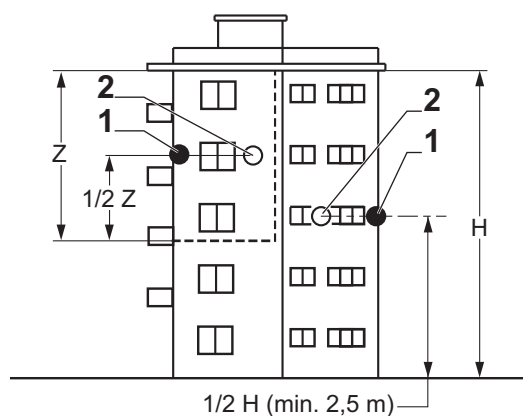


■ Recommended positions

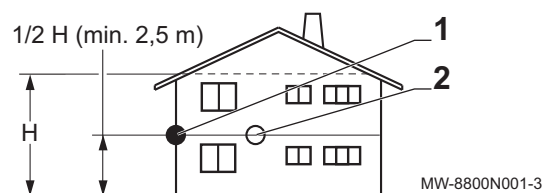
Place the outside sensor in a position that covers the following characteristics:

- On a façade of the area to be heated, on the north if possible.
- Half way up the wall of the area to be heated.
- Under the influence of changes in the weather.
- Protected from direct sunlight.
- Easy to access.

Fig.74



- 1 Optimum location
2 Possible position



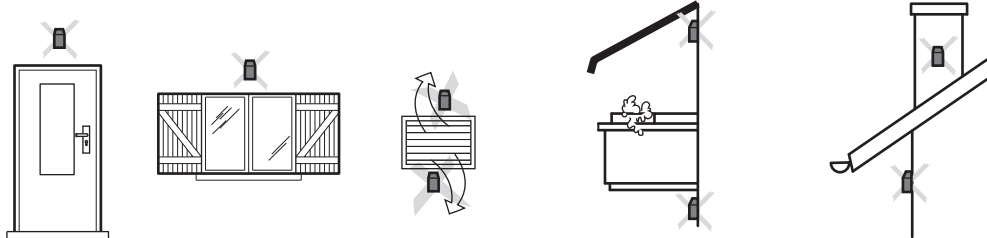
- H Inhabited height controlled by the sensor
Z Inhabited area controlled by the sensor

■ Positions to be avoided

Avoid placing the outside sensor in a position with the following characteristics:

- Masked by part of the building (balcony, roof, etc.).
- Close to a disruptive heat source (sun, chimney, ventilation grid, etc.).

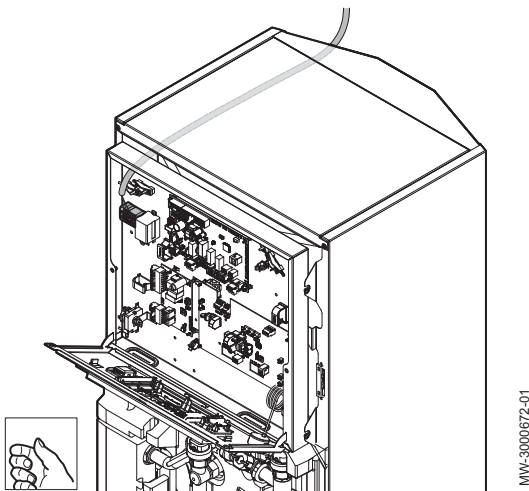
Fig.75



MW-3000014-2

5.10.11 Connecting the power supply for the electrical back-up

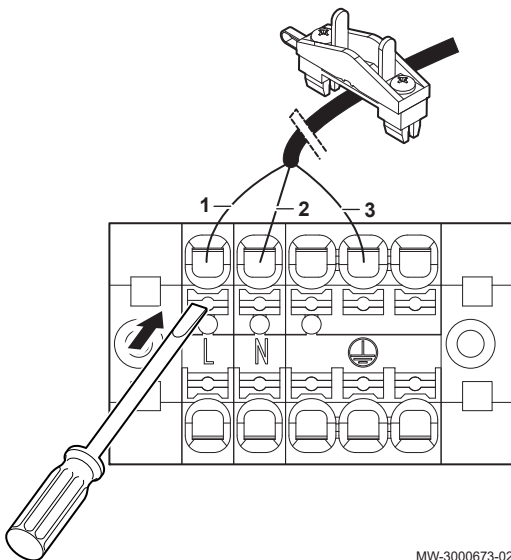
Fig.76



MW-3000672-01

1. Feed the electrical back-up power supply cable into the cable duct reserved for the 230 V circuit cables.

Fig.77



MW-3000673-02

2. Connect the cable to the terminal block as shown in the figure. Press the push-button to allow the wire to be correctly inserted in the connector and locked.

- | | |
|---|----------|
| 1 | Live (L) |
| 2 | Neutral |
| 3 | Earth |

5.10.12 Checking the electrical connections

1. Check the mains electricity connection to the following components:
 - Outdoor unit
 - Indoor unit
 - Electrical back-up

2. Check that the BUS cable is correctly positioned between the indoor unit and the outdoor unit, and that it is separate from the power supply cables.
3. Check the conformity of the circuit breakers used:
 - Outdoor unit circuit breaker
 - Indoor unit circuit breaker
 - Electrical back-up circuit breaker
4. Check the positioning and connection of the sensors:
 - Room temperature sensor (if present)
 - Outdoor temperature sensor
 - Flow sensor for the second circuit (if present)
5. Check the connection of the circulating pump(s).
6. Check that the wires and terminals are properly tightened or connected to the terminal blocks.
7. Check the separation of the power and safety extra-low voltage cables.
8. Check the connection of the underfloor heating safety thermostat (if used).
9. Check that traction arrester devices are used for all cables exiting the appliance.

6 Commissioning

6.1 General

The heat pump is commissioned:

- When it is used for the first time;
- After a prolonged shut-down;
- After any event that may require complete reinstallation.

Commissioning of the heat pump allows the user to review the various settings and checks to be made to start up the heat pump in complete safety.

6.2 Commissioning procedure with smartphone



Caution

Commissioning must only be performed by a qualified professional.

We have created a smartphone application to help you commission and configure the parameters for the heating installation.

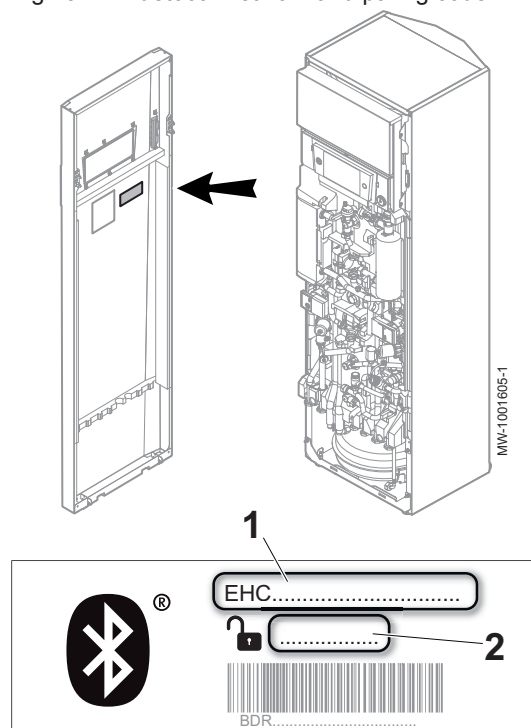
1. Download the application **Baxi START** on **Google Play** or on the **App Store**.
2. Follow the application's instructions on the smartphone for commissioning and configuring the heating installation.

Fig.78



MW-1001606-1

Fig.79 Bluetooth network and pairing code



To establish a Bluetooth connection between the smartphone and the heat pump, use the information indicated on the label located in the front panel, to the right of the data plate.

- 1 Network name
- 2 Pairing code

Once the procedure is complete, your installation is fully configured.

6.3 Commissioning procedure without smartphone



Caution

Initial commissioning must be performed by a qualified professional.

1. Refit all the panels, fascias and covers on the indoor module and outdoor unit.
2. Arm the circuit breakers on the electric panel:
 - Outdoor unit circuit breaker
 - Indoor module circuit breaker
 - Electrical back-up circuit breaker
3. Activate the on/off switch on the indoor module.
 - ⇒ When switching on for the first time, the control panel displays the **CNF** menu which enables the type of outdoor unit present in the installation to be set.

Fig.80

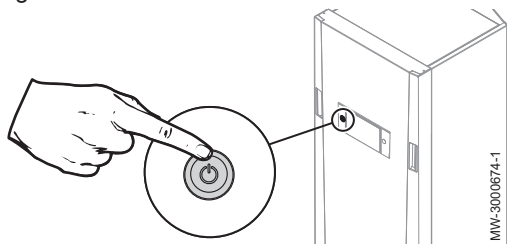


Fig.81

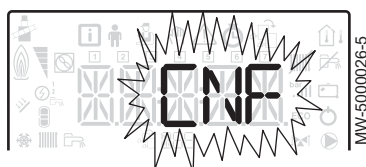



Fig.82



4. Go into the **CNF** menu by pressing the  key.

5. Set the **CN1** and **CN2** parameters. The values are available on the data plate of the indoor module. They are also shown in the table below.
The **CN1** and **CN2** parameters are used to indicate to the system the type of outdoor unit and back-up present on the installation. They can be used to preconfigure the parameters based on the installation configuration.
6. The heat pump begins the vent cycle.

Points to check:

- After commissioning, domestic hot water production takes priority. Keep this operating mode to increase the temperature and check that the heat pump is operating correctly.
- At the end of the vent cycle, if the heat pump does not start, check the flow temperature on the control panel. The flow temperature must be above 10 °C to enable the outdoor unit to start. This protects the condenser during defrosting.
If the flow temperature is below 10 °C, the back-ups start instead of the outdoor unit. The outdoor unit takes over when the flow temperature reaches 20 °C.

6.3.1 CN1 and CN2 parameters

The CN1 and CN2 parameters are used to configure the heat pump based on the output of the installed outdoor unit.

Tab.33 Value of the **CN1** and **CN2** parameters

Output of the outdoor unit	CN1	CN2
4.5 kW	1	1
6 kW	2	1
8 kW	3	1

6.4 Using the installation wizard on the control panel

Fig.83

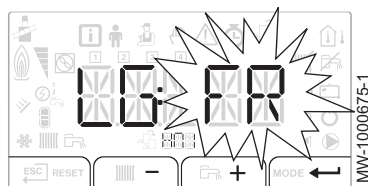


Fig.84

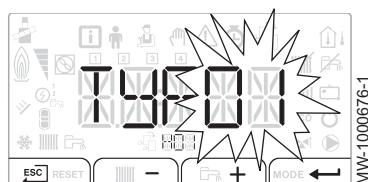
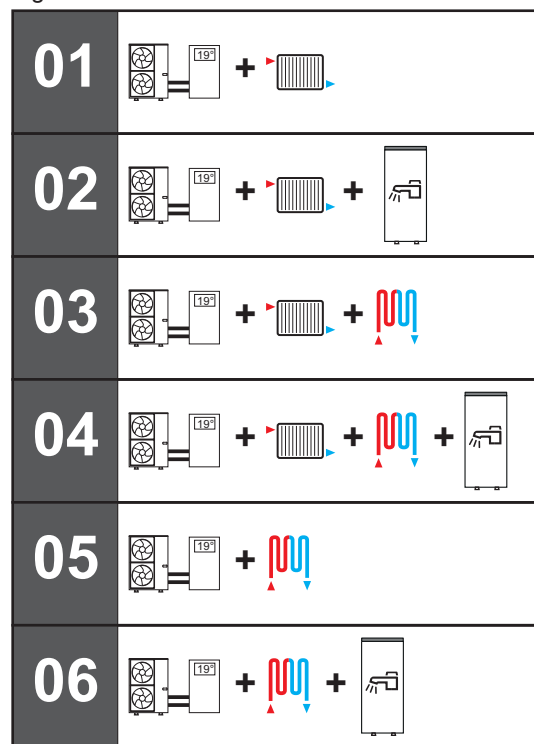


Fig.85



MW-10001142-2

When the control panel is first powered up, the installation wizard launches automatically.

1. Select the desired language by pressing the **+** or **-** key.
2. Confirm the selection by pressing the **←** key.

3. Select the number corresponding to the installation type by pressing the **+** or **-** key. Selecting the installation type enables automatic configuration of the parameters required for the control panel to operate correctly (gradient, maximum circuit temperature, etc.). For a configuration which differs from those proposed here, press the **ESC** key on the control panel and configure the parameters manually.

Installation type	No.
One direct heating circuit	01
One direct heating circuit and one domestic hot water tank	02
One direct heating circuit and one underfloor heating circuit with mixing valve	03
One direct heating circuit and one domestic hot water tank and one underfloor heating circuit with mixing valve	04
One direct underfloor heating circuit	05
One direct underfloor heating circuit and one domestic hot water tank	06

4. Confirm the selection by pressing the **←** key.
5. Set the heating curve.
⇒ The main parameters are set.
6. Apply the required settings based on the additional options connected.

6.5 Checking the minimum flow of the direct circuit

Heating installations must be able to guarantee a minimum flow rate at all times. If the flow rate is too low, the heat pump may shut itself down for its own protection; the heating, cooling and domestic hot water functions are then no longer guaranteed.


For installations with underfloor heating, check that the collector valves open. No other setting to be made.

For an installation with radiators, set the flow rate as per the procedure below.

1. Where applicable, put the second circuit in frost protection mode to switch off the heating demand.
2. Close the thermostatic valves of all the radiators in circuit A.

3. Check the water flow rate in the circuit during heating operation.

Tab.34 Accessing the parameter

Access	Signal	Description
Information  \ EHC-06 menu	Water flow rate (AM056)	Water flow rate in the system in l/min

4. Set the differential pressure valves so as to obtain a flow rate between the threshold flow rate and the target flow rate.

Tab.35 Water flow rate

	Unit	AWHP 4.5 MR	AWHP 6 MR-3	AWHP 8 MR-2
Threshold flow rate	l/min	7	7	9
Target flow rate	l/min	12	17	23

**Important**

If the flow rate drops below the threshold, the **Flow rate warning** warning message appears on the home screen.

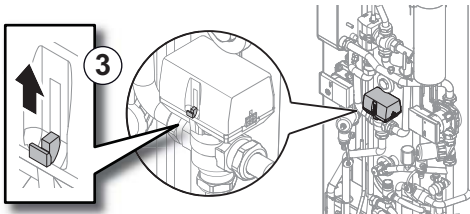
**For more information, see**

Main circulating pump, page 16

6.6 Setting the flow rate of the second circuit


Heating installations must be able to guarantee a minimum flow rate at all times. If the flow rate is too low, the heat pump may shut itself down for its own protection; the heating, cooling and domestic hot water functions are then no longer guaranteed.

1. Set circuit A to frost protection mode to shut down the heating demand.
⇒ The circulating pump for circuit A is shut down. If necessary, disconnect the power supply of the pump to ensure it shuts down.
2. Create a heating demand on circuit B.
3. Check that the mixing valve is fully open by pushing the white tab fully upwards.
4. Check the water flow rate of the second circuit. If necessary, open the disconnector valve (position FILL) to adjust the pressure and flow rate.



MW-3000714-2

Tab.36 Accessing the parameter

Access	Signal	Description
Information  \ EHC-06 menu	Water flow rate (AM056)	Water flow rate in the system

5. Set the circulating pump so as to obtain an optimal flow rate.

Tab.37 Water flow rate

	Unit	AWHP 4.5 MR	AWHP 6 MR-3	AWHP 8 MR-2
Optimal flow rate	l/min	9-10	9-12	12-17

**Important**

If the flow rate drops below the threshold, the **Flow rate warning** warning message appears on the home screen.

**For more information, see**

Circulating pump for second circuit, page 17

6.7 Final instructions for commissioning

1. Check that the following installation components are switched on correctly:
 - Circulating pumps
 - Outdoor unit
 - Heating back-ups
2. Check the flow rate in the installation. It must be above the minimum threshold.
3. Check the thermostatic mixing valve setting.
4. Shut down the heat pump and carry out the following operations:
 - After about 10 minutes, vent the air in the heating system.
 - Check the hydraulic pressure on the user interface. If necessary, top up the water level in the heating system.
 - Check the fouling level of the filter(s) present both in the heat pump and on the installation. If necessary, clean the filter(s).
5. Restart the heat pump.
6. Explain how the system works to the users.
7. Hand over all manuals to the user.

7 Settings

7.1 Modifying the installer parameters



Caution

Altering the factory settings may impair operation of the appliance.

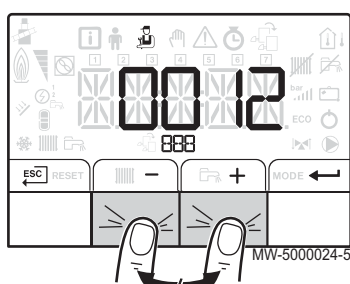
The parameters in the **Installer** menu may only be changed by a qualified professional.

1. Go to the **Installer**  menu.

Fig.86



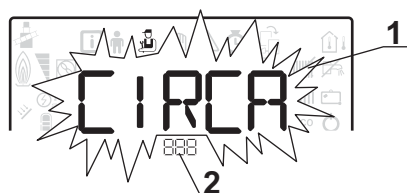
Fig.87



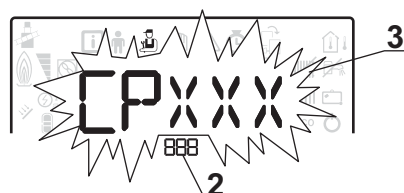
2. Access the **Installer** menu by entering the code **0 0 1 2** by pressing the **+** and **-** keys.
3. Confirm access by pressing the **←** key.
4. Select the desired sub-menu by pressing the **+** or **-** key.
5. Confirm the selection by pressing the **←** key.
6. Select the required parameter by pressing the **+** and **-** keys to scroll through the list of adjustable parameters.
7. Confirm the selection by pressing the **←** key.
8. Modify the value of the parameter using the **+** and **-** keys.
9. Confirm the new value of the parameter by pressing the **←** key.
10. Go back to the main display by pressing the **ESC** key.

7.2 Installer menu

Fig.88



- 1 Sub-menu available
- 2 Name of the PCB or circuit



- 3 Setting parameters

MW-1000753-1

Tab.38 List of Installer  sub-menus



Important

Only the parameters used by the device are described in this manual.

Sub-menu	Description	Name of the PCB or circuit
CIRCA	Main heating circuit	EHC-06
CIRCB	Additional heating circuit B	SCB-04
ECS	Domestic hot water circuit	EHC-06
EHC-06	EHC-06 central unit PCB	EHC-06
SCB-04	Additional PCB for circuit B	SCB-04

7.2.1 Installer CIRCA and CIRCB menu

CP : Circuits Parameters = Heating circuit parameters

Tab.39

Parameter	Description	Factory setting CIRCA	Factory setting CIRCB
CP000	Maximum Flow Temperature setpoint zone For circuit A: Can be set from 7 °C to 100 °C	Electrical back-up: 75	50
CP020	Type of circuit A, connected to the EHC-06 PCB: <ul style="list-style-type: none"> • 0 = heating circuit deactivated • 1 = radiators. Cooling not possible. • 2 = underfloor heating. Cooling possible. • 3 = not available • 4 = not used • 5 = convection fan. Cooling possible. Type of circuit B, connected to the SCB-04 PCB: <ul style="list-style-type: none"> • 0 = heating circuit deactivated • 1 = radiators. Cooling not possible. • 2 = underfloor heating with mixing valve. Cooling possible. • 3 =Swimming pool • 4 = not used • 5 = convection fan. Cooling possible. • 6 and above = not used 	2	2
CP030	Bandwidth of mixing valve zone where modulation takes place. Can be set from 4 °C to 16 °C	not available	12
CP040	Pump post runtime of the zone Can be set from 0 Min to 20 Min	3	4
CP050	Shift between calculated setpoint and mixing valve circuit setpoint Can be set from 0 °C to 16 °C	not available	4
CP060	Wished room zone temperature on holiday period Can be set from 5 °C to 20 °C	6	6
CP070	Max Room Temperature limit of the circuit in reduced mode, that allows switching to comfort mode Can be set from 5 °C to 30 °C	16	16
CP210	Comfort footpoint of the temperature of heat curve of the circuit <ul style="list-style-type: none"> • can be set from 16 to 90 °C • set to 15 = the curve base temperature is set automatically and is the same as the room set point temperature 	15	15
CP220	Reduced footpoint of the temperature of heat curve of the circuit <ul style="list-style-type: none"> • can be set from 6 to 90 °C • set to 15 = the curve base temperature is set automatically and is the same as the room set point temperature 	15	15
CP230	Heating curve temperature gradient of the zone Can be set from 0 to 4	1.5	0.7
CP240	Adjustment of the influence of the zone room unit Can be set from 0 to 10	3	3
CP270	Cooling flow temperature setpoint for the underfloor cooling Can be set from 11 °C to 23 °C	18	18
CP280	Cooling flow temperature setpoint for the fan convector Can be set from 7 °C to 23 °C	7	20
CP340	Type of reduced night mode, stop or maintain heating of circuit <ul style="list-style-type: none"> • 0 = Stop heat demand • 1 = Continue heat demand 	1	0
CP370	Holiday Domestic Hot Water Temperature Setpoint of zone	not available	10
CP380	Antilegionellosis Domestic Hot Water Temperature Setpoint of zone	not available	65
CP390	Start-up time for the anti-legionella function on the DHW circuit	not available	18

Parameter	Description	Factory setting CIRCA	Factory setting CIRCB
CP400	Duration of the function Antilegionellosis	not available	60
CP420	Trip differential for DHW production	not available	6
CP430	Used to force DHW tank loading according to the primary temperature	not available	0
CP440	Prevents the cooling of the Tank at the start	not available	0
CP460	Choice of DHW Priority 0:TOTAL 1:RELATIVE 2:NONE <ul style="list-style-type: none"> • 0: Total • 1: Relative • 2: None 	not available	0
CP470	Setting of the screed drying program of the zone 0 = deactivated Can be set from 1 to 30 days	0	0
CP480	Setting of the start temperature of the screed drying program of the zone Can be set from 20 °C to 50 °C	20	20
CP490	Setting of the stop temperature of the screed drying program of the zone Can be set from 20 to 50 °C	20	20
CP500	Enable/Disable Flow temperature sensor of the zone <ul style="list-style-type: none"> • 0 = Off • 1 = On Do not modify this setting	not available	0
CP560	Configuration of the Domestic Hot Water Antilegionella Protection of the zone	not available	0
CP600	Heat demand setpoint during process heat of zone	not available	60
CP610	Hysteresis switched on for process heat per zone	not available	6
CP620	Hysteresis switched off for process heat per zone	not available	6
CP630	Startday of the function antilegionella of the zone	not available	6
CP640	OpenTherm Logic level contact of the zone <ul style="list-style-type: none"> • 0 = contact open for heating demand • 1 = contact closed for heating demand 	1	1
CP650	The cooling is stopped when the room temperature setpoint is above this value Can be set from 20 °C to 30 °C	29	29
CP690	Reversed OpenTherm contact in cooling mode for heat demand per zone <ul style="list-style-type: none"> • 0 =No • 1 =Yes 	0	0
CP700	Offset for calorifier sensor per zone	not available	0
CP710	Increase primary temperature setpoint for heating DHW calorifier of the zone	not available	20
CP720	Increase Primary Temperature setpoint for process heat calorifier of the zone	not available	20
CP750	Maximum zone preheat time Can be set from 0 Min to 240 Min	0	0

Parameter	Description	Factory setting CIRCA	Factory setting CIRCB
CP780	Selection of the control strategy for the zone <ul style="list-style-type: none"> • 0 =Automatic • 1 =Room Temp. based • 2 =Outdoor Temp. based • 3 =Outdoor & room based 	0	0
ADV	ADV advanced parameters	not available	not available

7.2.2 Installer CIRCA and CIRCB\ADV menu

Tab.40

ADV	Description of the ADV advanced parameters	Factory setting CIRCB
CP330	The time needed by the valve to be fully opened Can be set from 0 Sec to 240 Sec Do not modify this setting	60
CP520	Power setpoint per zone Can be set from 0 % to 100 % Do not modify this setting	100
CP530	Pulse Width Modulation pump speed per zone Can be set from 20 % to 100 % Do not modify this setting	100
CP730	Selection of heat up speed of the zone <ul style="list-style-type: none"> • 0 = Extra Slow • 1 = Slowest • 2 = Slower • 3 = Normal • 4 = Faster • 5 = Fastest Do not modify this setting	2
CP740	Selection of cool down speed of the zone <ul style="list-style-type: none"> • 0 =Slowest • 1 =Slower • 2 =Normal • 3 =Faster • 4 =Fastest Do not modify this setting	2
CP770	The zone is after a Buffer tank <ul style="list-style-type: none"> • 0 =No • 1 =Yes Do not modify this setting	1

7.2.3 Installer DHW menu

A domestic hot water sensor must be connected to the EHC-06 PCB to display these parameters.

DP : Direct Hot Water Parameters = Domestic hot water tank parameters


Tab.41

Parameter	Description	Factory setting
DP051	ECO mode: use of the heat pump only. Comfort mode: use of the heat pump and backup energy sources <ul style="list-style-type: none"> • 0 = ECO (Only HP) • 1 = Comfort (HP+Boiler) 	0
DP120	Hysteresis temperature relative to the DHW temperature setpoint Can be set from 0 °C to 40 °C	8
DP213	Post run time of the DHW pump/3 way valve after DHW production Can be set from 0 Min to 99 Min	3
ADV	ADV advanced parameters	

7.2.4 Installer DHWADV menu

A domestic hot water sensor must be connected to the EHC-06 PCB to display these parameters.

DP : Direct Hot Water Parameters = Domestic hot water tank parameters

Tab.42 List of **ADV** parameters in the sub-menu of the Installer  menu

ADV	Description of the ADV advanced parameters	Factory setting
DP004	Legionella mode protection calorifier <ul style="list-style-type: none"> • 0 =Disabled • 1 = on: the domestic hot water tank is superheated to 65 °C for 20 minutes once a week. • 2 = automatic: the domestic hot water tank is remotely controlled. 	0
DP046	Maximum domestic hot water temperature Can be set from 10 °C to 70 °C	70
DP047	Maximum duration of the domestic hot water production Can be set from 1 to 10 hours	3 (4.5 kW - 6 kW - 8 kW) 2 (11 kW - 16 kW)
DP048	Minimum heating duration between two periods of domestic hot water production Can be set from 0 to 10 hours	2
DP055	Enable/disable the TAS protection of the DHW tank Can be set from 0 to 1	0
DP090	Delay time for starting the backup energy source for DHW Can be set from 0 Min to 120 Min	90
DP160	Setpoint for DHW anti legionella Can be set from 60 °C to 90 °C Do not modify this setting	65

7.2.5 Installer EHC-06 and SCB-04 menu

AP : Appliance Parameters = Appliance parameters

Tab.43

Parameter	Description	Factory setting EHC-06	Factory setting SCB-04
AP001	BL input function selection BL1 : <ul style="list-style-type: none"> • 1 = Full blocking of the installation – frost protection not guaranteed • 2 = Partial blocking of the installation – installation frost protection • 3 = User reset locking • 4 = Backup relieved • 5 = Generator relieved • 6 = Gen.&Backup relieved • 7 = High, Low Tariff • 8 = Photovoltaic HP Only • 9 = PV HP And backup • 10 = Smart Grid ready • 11 = heating/cooling 	2	not available
AP028	Configuration of the cooling mode <ul style="list-style-type: none"> • 0 = Off • 1 = Active cooling on • 2 = Free cooling on, not used 	0	not available
AP006	Appliance will report low water pressure below this value Can be set from 0 bar to 6 bar	0.3	not available
AP010	Select the type of service notification <ul style="list-style-type: none"> • 0 = None • 1 = Custom notification • 2 = ABC notification, 	0	not available
AP011	Hours powered to raise a service notification Can be set from 0 Hours to 65534 Hours	8700	not available
AP056	Enable outdoor sensor	not available	1
AP058	Warning message indicating that pressure is low Can be set from 0 bar to 2 bar	0.8	not available
AP063	Maximum central heating flow temperature setpoint Can be set from 20 °C to 75 °C	Electrical back-up: 75	not available
AP073	Outdoor temperature: upper limit for heating	22	22
AP075	Temperature variance from set outdoor upper temp. limit in which the generator will not heat or cool Can be set from 0 to 10 °C	4	4
AP079	Inertia of the building used for heat up speed Can be set from 0 to 10 <ul style="list-style-type: none"> • 0 = 10 hours for a building with low thermal inertia, • 3 = 22 hours for a building with normal thermal inertia, • 10 = 50 hours for a building with high thermal inertia. Modification of the factory setting is only useful in exceptional cases.	3	3
AP080	Outside temperature below which the antifreeze protection is activated: <ul style="list-style-type: none"> • can be set from -29 to 20 °C • set to -30 °C = function deactivated 	3	3
AP091	Outdoor sensor type 0 = Auto	0	0
AP098	BL1 input contact configuration <ul style="list-style-type: none"> • 0 = input active on Open contact • 1 = input active on Closed contact 	0	not available
AP099	BL2 input contact configuration <ul style="list-style-type: none"> • 0 = input active on Open contact • 1 = input active on Closed contact 	0	not available

Parameter	Description	Factory setting EHC-06	Factory setting SCB-04
AP100	BL2 input function selection <ul style="list-style-type: none"> • 1 = Full blocking of the installation – frost protection not guaranteed • 2 = Partial blocking of the installation – installation frost protection • 3 = User reset locking • 4 = Backup relieved • 5 = Generator relieved • 6 = Gen.&Backup relieved • 7 = High, Low Tariff • 8 = Photovoltaic HP Only • 9 = PV HP And backup • 10 = Smart Grid ready • 11 = Heating Cooling 	2	not available
CNF	Reset factory parameters	not available	See the data plate

HP : Heat-pump Parameters = Heat pump parameters

Tab.44

Parameter	Description	Factory setting EHC-06
HP000	Outdoor bivalent temperature Above the bivalent temperature, the backup energy source is not allowed to operate	5
PP015	Central heating pump post run time Post-circulation of the heating pump: <ul style="list-style-type: none"> • can be set from 0 to 98 minutes • set to 99 = runs continuously 	3
ADV	ADV advanced parameters	not available
AD	Auto detect	available
CNF	Reset factory parameters	See the data plate.

7.2.6 Installer EHC-06 and SCB-04\ADV menu

AP : Appliance Parameters = Appliance parameters

ADV	Description of the ADV advanced parameters	Factory setting EHC-06	Factory setting SCB-04
AP006	Appliance will report low water pressure below this value Can be set from 0 bar to 6 bar	0.3	not available
AP009	Number of heat generator operating hours for raising a service notification Can be set from 0 to 65534 hours	4000	not available
AP010	Service: <ul style="list-style-type: none"> • 0 =None • 1 =Custom notification • 2 = ABC notification 	0	not available
AP011	Hours powered to raise a service notification Can be set from 0 to 65534 hours	8700	not available
AP026	Flow temperature setpoint for manual heat demand Can be set from 7 to 80°C Set point used when manual mode is active (AP002 = 1)	40	not available
AP058	Warning message indicating that pressure is low Can be set from 0 bar to 2 bar	0.8	not available

ADV	Description of the ADV advanced parameters	Factory setting EHC-06	Factory setting SCB-04
AP072	Humidity sensor configuration <ul style="list-style-type: none"> • 0 =No • 1 =OnOff • 2 =0-10V sensor 	0	
AP101	De-air cycle settings <ul style="list-style-type: none"> • 0 =No deair at power up • 1 =Always deair at pwr • 2 =Deair only at 1 pwr 	1	not available
AP102	Configuration of the boiler pump as zone pump or system pump (feed lowloss header) <ul style="list-style-type: none"> • 0 =No • 1 =Yes 	1	not available

HP : Heat-pump Parameters = Heat pump parameters

Tab.45

ADV parameter	Description of the ADV advanced parameters	Factory setting EHC-06
HP003	Minimum flow temperature of the heat pump in cooling mode Can be set from 5 °C to 30 °C	5
HP010	Minimum flow rate Can be set from 0 l/min to 90 l/min	5 for 4.5 kW 5 for 6 kW 8 for 8 kW
HP011	Flow rate that triggers a warning message indicating that flow rate becomes insufficient Can be set from 0 l/min to 95 l/min	7 for 4.5 kW 7 for 6 kW 9 for 8 kW
HP030	Delay time for starting the backup energy source for the heating circuits Can be set from 0 Min to 600 Min	20
HP031	Delay time for stopping the backup energy source for the heating circuits Can be set from 0 Min to 600 Min 0 = auto mode: use parameters HP047 to HP050	4
HP033	Value of the pulse coming from the electrical counter Can be set from 0 Wh to 1000 Wh	1
HP047	Delay for starting the backup when the outdoor temp. is equal to the parameter Max.Outdoor T. backup Can be set from 1 to 10 minutes Value accepted when HP031 = 0	8
HP048	Delay for starting the backup when the outdoor temp. is equal to the parameter Max.Outdoor T. backup Can be set from 0 to 60 minutes Value accepted when HP031 = 0	30
HP049	Minimum outdoor temperature related to the parameter Delay Min.Outdoor T. Can be set from -30 to 0 °C Value accepted when HP031 = 0	-10
HP050	Maximum outdoor temperature related to the parameter Delay Max.Outdoor T. Can be set from -30 to +20 °C Value accepted when HP031 = 0	15
HP051	Minimum operating temperature for the heat pump Can be set from -20 to +5 °C	-15 °C for 4.5 kW -15 °C for 6 kW -20 °C for 8 kW
HP058	Enabling heat pump silent mode <ul style="list-style-type: none"> • 0 =No • 1 =Yes Requires a specific option. Not available for AWHP 4.5 MR.	0

ADV parameter	Description of the ADV advanced parameters	Factory setting EHC-06
HP069	Nominal flow rate setpoint for central heating Can be set from 0 to 100 l/min	12 for 4.5 kW 17 for 6 kW 23 for 8 kW
HP079	Maximum offset applied to the cooling setpoint when a 0-10V humidity sensor is used Can be set from 0 to 15 °C	5
HP086	Activation of hydraulic management mode for the configuration with a low-loss header, or for a buffer tank connected as a low-loss header • 0 =No • 1 =Yes	0
HP087	Temperature hysteresis to start or stop heating the buffer tank Can be set from 0 to 30 °C	3
HP091	Heating setpoint temperature offset when photovoltaic energy is available Can be set from 0 to 30 °C	0
HP092	Domestic hot water setpoint temperature offset when photovoltaic energy is available Can be set from 0 to 30 °C	0
HP094	Start time of the heat pump low noise function Can be set from 00:00 to 23:59 Value accepted when HP058 = 1	22:00
HP095	End time of the heat pump low noise function Can be set from 00:00 to 23:59. Value accepted when HP058 = 1	06:00
HP108	Activation time delays for the back-ups between stage 1 and stage 2 (electrical back-up) in central heating mode	4
PP016	Maximum central heating pump speed (%) Maximum pump speed in heating mode Can be set from 20 to 100%	100%
PP018	Minimum central heating pump speed (%) Minimum pump speed in heating mode Can be set from 20 to 100%	30%
AD	Auto detect	available
CNF	Reset factory parameters	See the data plate
ADV	ADV advanced parameters	not available

7.3 Setting the parameters

7.3.1 Language selection

1. Access the **User** menu.
2. Select the **HMI** sub-menu.
3. Select the **AP103** parameter corresponding to language selection by pressing the **+** or **-** keys.
4. Confirm by pressing the **←** key.

Fig.89

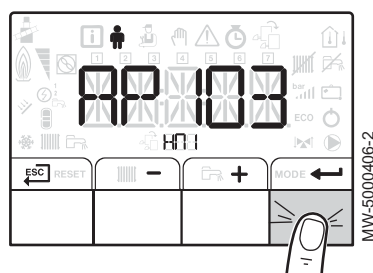


Fig.90

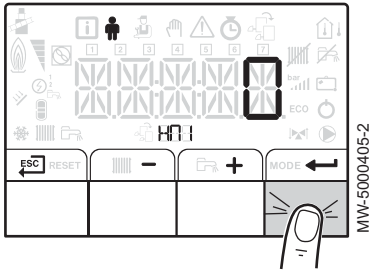
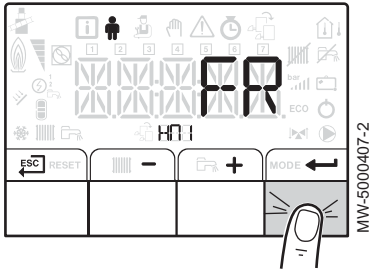



Fig.91



5. Access the languages available by pressing the ← key.

- 6. Select the language by pressing the + or – keys until the desired language is displayed.
- 7. Confirm by pressing the ← key.
- 8. Go back to the main display by pressing the  key.

7.3.2 Selecting the type of outdoor unit and the type of back-up (CN1 et CN2)

The configuration numbers must be reset if the EHC–06 PCB is replaced or if there is a setting error. To reset the configuration numbers:


- 1. Go to the **Installer**  menu.
- 2. Access the **Installer** menu: enter the code **0012** by pressing the + and – keys.
- 3. Confirm access by pressing the ← key.
- 4. Access the **EHC–06** PCB parameters by pressing the + or – key.
- 5. Select the **CNF** menu (control panel reset) by pressing the + or – keys.
- 6. Confirm by pressing the ← key.
- 7. Enter the values corresponding to the type of outdoor unit and the type of back-up by pressing on the + or – key.

Fig.92

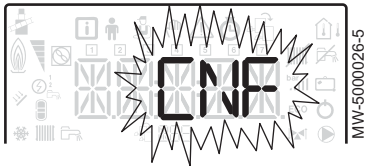




Fig.93



 **Important**
The CN1 and CN2 values are indicated on the appliance's data plate.

- 8. Confirm the selection by pressing the ← key.
- 9. Go back to the main display by pressing the  key.

■ CN1 and CN2 parameters

The **CN1** and **CN2** parameters are used to configure the heat pump based on the type of back-up and the output of the outdoor unit installed.

Tab.47 Value of the **CN1** and **CN2** parameters with an electrical back-up

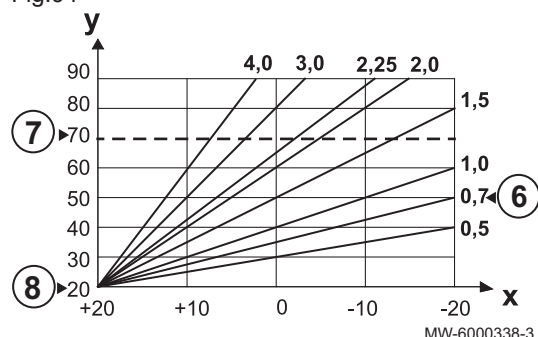
Output of the outdoor unit	CN1	CN2
4.5 kW	17	1
6 kW	7	1
8 kW	8	1


7.3.3 Setting the heating curve

The heating base point temperature is used to impose a minimum operating temperature on the heating circuit.

The minimum operating temperature may be constant if the circuit gradient is zero.

Fig.94



1. Go to the **Installer**  menu.
2. Access the **Installer** menu by entering the code **0012** by pressing the **+** and **-** keys.
3. Confirm access by pressing the **↵** key.
4. Select the desired circuit or PCB by pressing the **+** or **-** key.

Circuit	PCB
A	EHC-06
B	SCB-04

5. Confirm the selection by pressing the **↵** key.
6. Set the heating gradient using the **CP230** parameter.
7. If necessary, set the maximum flow set point using the **CP000** parameter.
8. If necessary, set the curve base temperature in daytime mode using the **CP210** parameter.
9. If necessary, set the curve base temperature in night mode using the **CP220** parameter.
10. Go back to the main display by pressing the **ESC** key.

7.3.4 Configuring the estimated electrical energy consumption function


Tab.48

Connections	The electrical energy meter is connected to the S0+/S0- input on the EHC-06 PCB. Do not install meters for the electrical back-ups.
Energy meter specifications	<ul style="list-style-type: none"> • Minimum power supply voltage range: 24 V +/-10 % • Minimum admissible intensity: 20 mA • Minimum pulse time: 25 ms • Maximum frequency: 20 Hz • Pulse weight: between 1 and 1000 Wh <p>If the meter pulse weight is given in number of pulses/kWh, the pulse weight must be between the following numbers: 1, 2, 4, 5, 8, 10, 20, 25, 40, 50, 100, 125, 200, 250, 500 or 1000.</p>

Energy metering provides information on:

- electrical energy consumption,
- the production of thermal energy for heating, domestic hot water and cooling modes.

The thermal energy from the electrical back-up is also factored in to provide the full tally of restored thermal energy.

1. Go to the **Installer**  menu.
2. Access the **Installer** menu: enter the code **0012** by pressing the **+** and **-** keys.
3. Confirm access by pressing the **↵** key.
4. Select **EHC-06** by pressing the **+** or **-** key.
5. Confirm access by pressing the **↵** key.

6. Configure the **HP033** parameters according to the type of energy meter installed. By default, the pulse weight is set to 1 Wh, the setting range of the **HP033** parameter goes from 0 (no metering) to 1000 Wh. If the pulse weight is in kWh, use the following table.

Tab.49 If the pulse weight is given in kWh

Any numbers other than those stated in the table will not work.

Number of pulses per kWh	Value to be configured for the HP033 parameter
1000	1
500	2
250	4
200	5
125	8
100	10
50	20
40	25
25	40
20	50
10	100
8	125
5	200
4	250
2	500
1	1000

7. Configure the **HP034** and **HP035** parameters.

Tab.50

Situation	Configuration
If an electrical back-up is fitted	Set the HP034 and HP035 parameters according to the configuration of the electrical back-up stages output.

7.3.5 Configuring a convection fan or underfloor cooling

This function is only available when the type of circuit selected is underfloor heating or a convection fan: **CP020** parameter set to 2 or 5.



Important

The heating should be activated in order for cooling to function.


1. Go to the **Installer**  menu.
2. Access the **Installer** menu by entering the code **0012** by pressing the **+** and **-** keys.
3. Confirm access by pressing the **←** key.
4. Access the **EHC-06** PCB parameters by pressing the **+** or **-** key.
5. Select the **AP028** parameter corresponding to cooling by pressing the **+** or **-** keys.
6. Confirm by pressing the **←** key.
7. Select value 1 by pressing the **+** key to activate the cooling function.

Fig.95

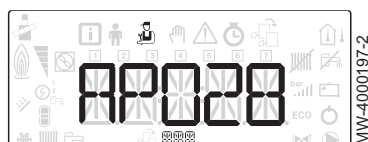
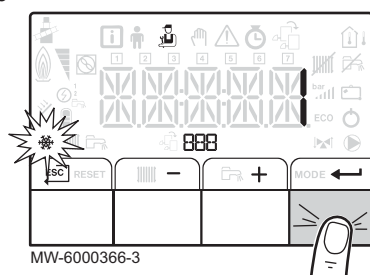


Fig.96



8. Confirm by pressing the **←** key.
9. Go back to the main display by pressing **ESC**.
10. Program the desired cooling hours in the **⌚** menu, circuit A or B, **TP.C** sub-menu.
11. Go back to the main display by pressing **ESC**.
12. If necessary, force cooling or configure cooling temperatures in the **User** **👤** menu, circuits A and B:

Tab.51

Parameter	Description
AP015	Cooling is forced, regardless of the outdoor temperature
AP016	Activating/deactivating heating: deactivating heating also deactivates cooling
CP270	Set point for the flow temperature in the mixing valve circuit in cooling mode
CP280	Set point for the flow temperature on the fan circuit in cooling mode

13. Check the setting for the **CP690** parameters depending on the thermostat or room sensor used.

7.3.6 Screed drying with the aid of the heat pump

The screed drying program reduces the drying time of a freshly poured screed floor.

- The settings for these temperatures must follow the screed layer's recommendations.
- Activation of this function via the **CP470** parameter (setting other than **0**) forces the permanent display of the screed drying function and deactivates all other control system functions.
- When the screed drying function is active on one circuit, all other circuits and the domestic hot water circuit continue to run.
- It is possible to use the screed drying function on circuits A and B. The parameter settings must be made on the PCB that controls the circuit concerned.

Screed drying curve

- 1 Number of days
- 2 Heating set point temperature (°C)
- 3 Screed drying start temperature
- 4 Screed drying stop temperature
- 5 Start of the screed drying function
- 6 Number of days on which the screed drying function is activated
- 7 End of the screed drying function, back to normal running

Example



Important

Every day at midnight, the screed drying start temperature set point is recalculated and the remaining number of days on which the screed drying function is running decreases.

- Go to the **Installer** **🔧** menu.
- Access the **Installer** menu by entering the code **0012** by pressing the **+** and **-** keys.
- Confirm access by pressing the **←** key.
- Select the desired circuit or PCB by pressing the **+** or **-** key.

Circuit	PCB
A	EHC-06
B	SCB-04

Fig.97

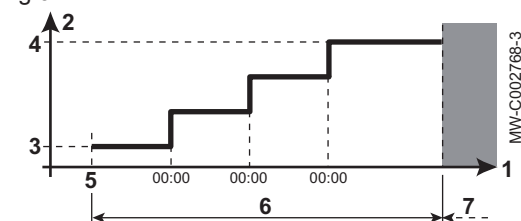
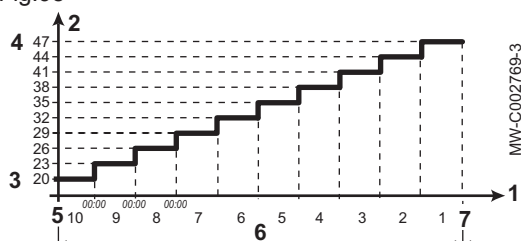


Fig.98

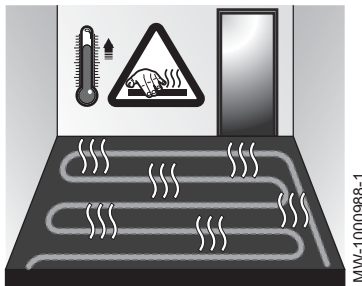


5. Configure the following parameters

Tab.52 Screed drying management parameter

Parameter	Description
CP470	Number of days of screed drying
CP480	Circuit screed drying start temperature setting
CP490	Circuit screed drying programme stop temperature setting

Fig.99



7.3.7 Drying screed without the heat pump outdoor unit

The indoor module can be used for drying screed using the electrical back-up. It is not necessary to connect the outdoor unit.

1. Switch on the indoor module and activate the screed drying function.
2. Adjust the parameters for screed drying.
 - ⇒ If the outdoor unit is not connected, the back-ups will start automatically.

7.3.8 Configuring an on/off or modulating thermostat

The on/off or modulating thermostat is connected to the **R-Bus** terminals on the **EHC-06** PCB or the optional **SCB-04** PCB.

The PCBs are delivered with a bridge on the **R-Bus** terminals.

The **R-Bus** input can be configured to add the flexibility of using several types of on/off thermostat or OT.

Tab.53 Control parameter for the OT input on the R-Bus terminals

Parameter	Description
CP640	Configuration of the contact direction of the OT input for heating mode.
CP690	Reversal of the direction of the logic in cooling mode compared to heating mode

Tab.54 Default settings for the CP640 and CP690 parameters

Value of the CP640 parameter	Value of the CP690 parameter	Heating if the OT contact is	Cooling if the OT contact is
1 (Default value)	0 (Default value)	closed	closed
0	0	open	open
1	1	closed	open
0	1	open	closed

7.3.9 Configuring a thermostat with a heating/cooling control contact

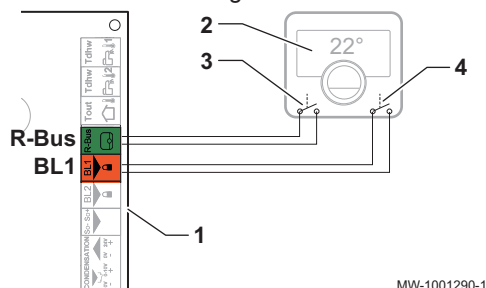
The AC thermostat (air conditioning) is always connected to the **R-Bus** and **BL1** terminals on the **EHC-06** PCB.

The AC thermostat is not compatible with the SCB-04 PCB, which is used to control a second heating circuit.

Priority will be given to the AC thermostat input over the other Summer/Winter modes (Auto/Manual).

The PCBs are delivered with a bridge on the R-BUS terminals.

Fig.100 Connection diagram



1. Connect the AC thermostat to the EHC-06 PCB.

- 1 EHC-06 PCB
- 2 Room thermostat
- 3 ON/OFF output
- 4 "Heating/cooling contact" output

2. Connect the "heating/cooling" thermostat control contact to the **BL1** input on the **EHC-06** PCB for the heat pump.
3. Connect the "On/Off" thermostat contact to the **R-Bus** input on the **EHC-06** PCB for the heat pump.
4. In the Installer/**EHC-06** menu, configure the **BL1** input to "Heating/Cooling", by setting the **AP001** parameter to 11.
5. In the Installer/**EHC-06** menu, set the contact direction of the **BL1** input with the **AP098** parameter.
6. In the Installer/**CIRCA0** menu, set the contact direction of the **R-Bus** input with the **CP640** parameter.

Tab.55

Value of the parameter CP640	Value of the parameter AP098	Blocking input status BL1	Operating mode for the heat pump	If R-Bus contact open	If R-Bus contact closed
1 (default value)	1 (default value)	Open	Cooling	No cooling demand	Cooling demand
1 (default value)	1 (default value)	Closed	Heating	No heating demand	Heating demand
1	0	Open	Heating	No heating demand	Heating demand
1	0	Closed	Cooling	No cooling demand	Cooling demand
0	1	Open	Cooling	Cooling demand	No cooling demand
0	1	Closed	Heating	Heating demand	No heating demand
0	0	Open	Heating	Heating demand	No heating demand
0	0	Closed	Cooling	Cooling demand	No cooling demand

7.3.10 Setting the parameters for using photovoltaic energy

When lower cost electrical energy is available, such as photovoltaic energy, the heating circuit and domestic hot water tank (if present) can be overheated. Underfloor cooling cannot be supplied with power in this way.

1. Activate overheating authorisation for the heating circuit or the domestic hot water tank by adjusting the **AP001** parameter or the **AP100** parameter.

Parameter	Description
AP001 or AP100	Electrical back-up: 9 (Photovoltaic with electrical back-up)

2. Connect a dry contact to the **BL1** or **BL2** input.
3. Set the offset for the heating set point temperature when the Photovoltaic function is active (**HP091** parameter).
4. Set the offset for the domestic hot water set point temperature when the Photovoltaic function is active (**HP092** parameter).

7.3.11 Connecting the installation to a Smart Grid

The heat pump can receive and manage control signals from the "smart" energy distribution network (**Smart Grid Ready**). Based on the signals received by the terminals of the **BL1 IN** and **BL2 IN** multifunction inputs, the heat pump shuts down or voluntarily overheats the heating installation in order to optimise electricity consumption.

Tab.56 Operation of the heat pump in a **Smart Grid**

BL1 IN input	BL2 IN input	Operating
Inactive	Inactive	Normal: The heat pump and the electrical back-up operate normally
Active	Inactive	Shutdown: The heat pump and the electrical back-up are shut down
Inactive	Active	Economy: The heat pump voluntarily overheats the system without the electrical back-up
Active	Active	Super Economy: The heat pump voluntarily overheats the system with the electrical back-up

Overheating is activated depending on whether the dry contact on inputs BL1 and BL2 is open or closed, and the AP098 and AP099 parameters which control the activation of functions depending on whether the contacts are open or closed.

1. Connect the **Smart Grid** signal inputs to the **BL1 IN** and **BL2 IN** inputs on the EHC-06PCB. **Smart Grid** signals come from dry contacts.
Germany: Connect the **SG1** and **SG2** terminals respectively from the electricity meter to the **BL1 IN** and **BL2 IN** inputs on the EHC-06 power circuit board.
2. Set the **AP001** and **AP100** parameters to 10.
⇒ The heat pump is ready to receive and manage **Smart Grid** signals.
3. Choose the contact directions of the **BL1 IN** and **BL2 IN** multifunction inputs by setting the **AP098** and **AP099** parameters.

Tab.57

Parameter	Description
AP098	Configuration of the BL1 contact direction <ul style="list-style-type: none"> • 0 = input active on open contact • 1 = input active on close contact
AP099	Configuration of the BL2 contact direction <ul style="list-style-type: none"> • 0 = input active on open contact • 1 = input active on close contact

4. Configure the temperature offsets for the voluntary overheating by configuring the **HP091** and **HP092** parameters.

Tab.58

Parameter	Description
HP091	Heating set point temperature offset when the Photovoltaic function is running
HP092	Domestic hot water set point temperature offset when the Photovoltaic function is running

7.3.12 Reducing the noise level of the outdoor unit

Silent mode is used to reduce the noise level on the outdoor unit during a given time range, particularly at night. This mode gives temporary precedence to silent running rather than temperature control.



Important

- Silent mode only operates if the silent running kit is connected to the outdoor unit.
This function is not compatible with the AWHP 4.5 MRoutdoor unit.

Silent mode is managed by the following parameters which can be found in the Installer menu, **EHC-06, ADV**:

Tab.59

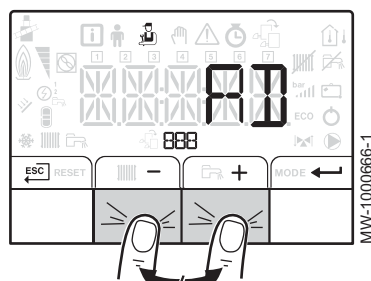
Parameter	Description
HP058	Enabling heat pump silent mode
HP094	Start time of the heat pump low noise function
HP095	End time of the heat pump low noise function

7.3.13 Detecting an additional or replacement PCB

The automatic detection function is used if a control PCB has been removed, replaced or added.

1. Go to the **Installer** menu.
2. Access the **Installer** menu by entering the code **0012** by pressing the **+** and **-** keys.
3. Confirm access by pressing the **←** key.
4. Select the **EHC-06** main PCB by pressing the **+** or **-** key.
5. Confirm the selection by pressing the **←** key.
6. Select the auto detection parameter by pressing the **+** or **-** keys.
7. Confirm auto detection by pressing the **←** key.
⇒ The automatic detection function is running.

Fig.101



7.4 COUNTERS /TIME PROG / CLOCK menus ⌚

Tab.60 List of sub-menus ⌚

Sub-menu	Description
CNT	COUNTERS
CIRCA	Timer programming for the main heating circuit
CIRCB	Timer programming for the additional heating circuit B
DHW	Timer programming for the domestic hot water circuit
CLK	Setting the clock and the date

7.4.1 COUNTERS, TIME PROG, CLOCK ⌚\CNT menus

Tab.61 Choosing the menu

Counters	Selection
Circuit A counters	Choose the EHC-06 menu
Circuit B counters	Choose the SCB-04 menu
Counters connected to the operation of the heat pump	Choose the EHC-06 menu

Tab.62 Available counters

Parameter	Description	Unit	EHC-06	SCB-04
AC001	Number of hours that the appliance has been on mains power	hours	X	X
AC005	Energy consumed for central heating	kWh	X	
AC006	Energy consumed for domestic hot water	Wh	X	
AC007	Energy consumed for cooling	Wh	X	

Parameter	Description	Unit	EHC-06	SCB-04
AC008	Thermal energy delivered for central heating	kWh	X	
AC009	Thermal energy delivered for domestic hot water	kWh	X	
AC010	Thermal energy delivered for cooling	kWh	X	
AC013	Seasonal COP		X	
AC026	Counter that shows the number of pump running hours	hours	X	
AC027	Counter that shows the number of pump starts	-	X	
AC028	Number of operating hours of the first electrical backup stage	hours	X	
AC030	Number of starts of the first electrical backup stage	-	X	
DC002	Numbers of Domestic Hot Water diverting valve cycles	-	X	
DC003	Number of hours during which the diverting valve is in DHW position	hours	X	
DC004	Number of compressor start-ups during domestic hot water production		X	
DC005	Number of compressor start-ups		X	
PC003	Number of compressor operating hours	hours	X	
CODE	Enter the installer code to access the following parameters.		X	
AC002	Number of hours that the appliance has been producing energy since last service	hours	X	
AC003	Number of hours since the previous servicing of the appliance	hours	X	
AC004	Number of heat generator starts since the previous servicing.		X	
AC013	Seasonal coefficient of performance		X	
SERVICE	Resetting the maintenance service CLR: the AC002 , AC003 , and AC004 counters are reset to zero.		X	

7.4.2 COUNTERS, TIME PROG, CLOCK ⌚/CIRCA, CIRCB and DHW menus

Tab.63

Menu	Description
CIRCA	<ul style="list-style-type: none"> • TP.H: Timer programming for heating 06:00 - 23:00 ON 23:00 - 06:00 OFF • TP.C: Timer programming for cooling 14:00 - 23:00 ON 23:00 - 14:00 OFF
CIRCB	<ul style="list-style-type: none"> • TP.H: Timer programming for heating 06:00 - 23:00 ON 23:00 - 06:00 OFF • TP.C: Timer programming for cooling 14:00 - 23:00 ON 23:00 - 14:00 OFF
DHW	Timer programming for domestic hot water 06:00 - 23:00 ON 23:00 - 06:00 OFF

7.4.3 COUNTERS, TIME PROG, CLOCK CLK menus

Tab.64

CLK parameter	Unit	HMI
HOURS	Can be set from 0 to 23	available
MINUTE	Can be set from 0 to 59	available
DATE	Can be set from 1 to 31	available
MONTH	Can be set from 1 to 12	available
YEAR	Can be set from 2000 to 2100	available

7.5 Description of the parameters

7.5.1 Running the back-up in heating mode

■ Start-up conditions for the back-up



Important

- If the **AP001** and **AP100** parameters are configured to 4, 6 or 8 and the corresponding **BL** input is active, the back-ups will be deactivated and will only start up for safety reasons and to enable defrosting.
- If the **HP030** and **HP031** parameters are set to 0, the activation and deactivation time delays on the back-up are set according to the outdoor temperature.

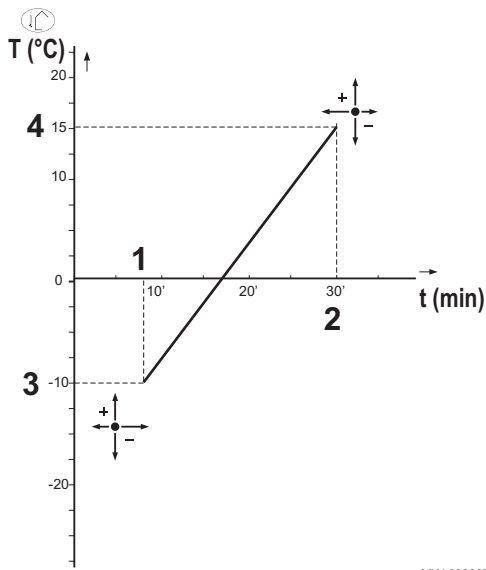
In heating mode, the back-up is managed by the following parameters:

Tab.65 Parameter for heating production

Parameter	Description
AP016	Activate or deactivate processing of the heating demand for central heating
HP030	Start-up time delay for the next back-up generator in central heating mode (t1).
HP031	Shutdown time delay for the next generator in central heating mode (t2).
AP001	Selection of the BL blocking function when a signal is applied at the input (BL1).
AP100	BL2 input function configuration.

The time delay curve for tripping the back-up is defined by the **HP047**, **HP048**, **HP049** and **HP050** parameters. In the example, the lower the outdoor temperature, the quicker the back-up will be activated.

Fig.102



MW-6000377-4

t Time (minutes)
T Outdoor temperature (°C)

- 1 **HP047**: Minimum duration of the time delay for tripping the back-up
- 2 **HP048**: Maximum duration of the time delay for tripping the back-up
- 3 **HP049**: Minimum outdoor temperature for the time delay for tripping the back-up
- 4 **HP050**: Maximum outdoor temperature for the time delay for tripping the back-up

■ Back-up operation if an error occurs on the outdoor unit

In case of an error on the outdoor unit, the electrical back-up starts immediately to guarantee heating comfort.

■ Back-up operation if defrosting the outdoor unit

When the outdoor unit is undergoing defrosting, the control unit ensures full protection of the system by starting up the back-ups if necessary.

Additional protection is provided if the water temperature falls too sharply. In this case, the outdoor unit is shut down.

■ Operating principle when the outside temperature falls below the operating threshold of the outdoor unit

If the outside temperature is below the minimum operating temperature of the outdoor unit as defined by the parameter **HP051**, the outdoor unit is not permitted to operate.

7.5.2 Operation of the switch between heating and production of domestic hot water

The system does not allow the simultaneous production of heating and domestic hot water.


The switch logic between domestic hot water mode and heating mode operates as follows:

■ Operating description

Tab.68 Behaviour of the electrical back-up

Value of the parameter DP051	Operating description
0	The system gives priority to the heat pump during domestic hot water production. Recourse to the electrical back-up is only taken if the DP090 time delay has elapsed in domestic hot water mode, unless hybrid mode is activated. In that case, hybrid logic takes over.
1	Domestic hot water production mode gives priority to comfort by accelerating domestic hot water production by simultaneously using the heat pump and the electrical back-up. In this mode, there is no maximum time for domestic hot water production as the use of the back-ups helps to ensure domestic hot water comfort more quickly.

7.6 Reading out measured values

The measured values are available in the **Information ** menu of the different PCBs.



Certain parameters are displayed:

- according to certain system configurations,
- according to the options, circuits or sensors actually connected.

Tab.69 Choosing the menu

Counters	Selection
Measured values on circuit A	Choose the EHC-06 menu
Measured values on circuit B	Choose the SCB-04 menu
Measured values connected to the operation of the heat pump	Choose the EHC-06 menu

Tab.70 Values available (X) in the sub-menus EHC-06, SCB-04

Parameter	Description	Unit	EHC-06	SCB-04
AM002	"Silent mode" status		X	
AM010	The current pump speed	%	X	
AM012	Current main status of the appliance.  See Control system sequence chapter		X	X
AM014	Current sub status of the appliance.  See Control system sequence chapter		X	X
AM015	Is the pump running?		X	
AM016	Flow temperature of appliance.	°C	X	
AM019	Water pressure of the primary circuit.	bar	X	
AM027	Instantaneous outside temperature	°C	X	X
AM056	Water flow rate in the system	l/min	X	
AM091	Seasonal mode active (summer / winter) • 0: Winter • 1: Frost protection • 2: Summer neutral band • 3: Summer		X	X
AM101	Internal system flow temperature setpoint		X	
CM040	Measure Zone Flow Temperature or DHW temperature	°C		X
CM060	Current Pump speed of zone	%		X
DM001	Domestic Hot Water tank temperature (bottom sensor)	°C	X	

Parameter	Description	Unit	EHC-06	SCB-04
DM006	Domestic Hot Water tank temperature (top sensor)		X	
DM029	Domestic Hot Water temperature setpoint	°C	X	
HM001	Heat pump flow temperature	°C	X	
HM002	Heat pump return temperature	°C	X	
HM033	Heat pump flow temperature setpoint in cooling mode	°C	X	
HM046	Heat pump voltage temperature setpoint (0-5V signal)	V	X	
Fxx.xx	Software version for the selected PCB		X	X
Pxx.xx	Parameter version for the selected PCB		X	X

Tab.71 Values available (X) in the HMI sub-menu

Parameter	Description	EHC-06	SCB-04
Fxx.xx	HMI software version	X	X
Pxx.xx	HMI parameter version	X	X

7.6.1 Control system sequence

Tab.72 List of statuses and sub-statuses

Status Appliance: AM012 parameter	Appliance sub status: AM014 parameter
0	<ul style="list-style-type: none"> • 00= total system shut-down
1= heating / cooling / domestic hot water demand	Heat Demand <ul style="list-style-type: none"> • 00 = off The set point is reached. The compressor can start up whenever necessary. • 01= anti-short cycle The heating set point has been reached. The compressor is not authorised to restart. • 02= reversal valve switch to heating position • 03= power supply to the hybrid pump • 04= pending start-up conditions on the heat pump and the back-ups • 62= three-way valve switch to domestic hot water position

Status Appliance: AM012 parameter	Appliance sub status: AM014 parameter
3= operating in heating mode	<ul style="list-style-type: none"> • 30= normal operation The compressor or the back-ups are running. • 31= internal set point limited If the heating set point on the heat pump differs from the system set point. • 60= pump post-operation Heat pump and back-up shut-down, system pump operation. • 65= compressor bypass The back-ups are operating. • 66= the temperature exceeds the compressor's maximum operating temperature The compressor has stopped. The back-ups are operating. • 67= the outside temperature is lower than the compressor's maximum operating temperature The compressor has stopped. The back-ups are operating. • 68= the hybrid function requests compressor shut-down The compressor has stopped. The back-ups are operating. • 69= defrosting running The compressor is running. • 70= defrosting conditions not met The compressor has stopped. The back-ups are operating. • 71= defrosting running The compressor and the back-ups are running. • 88 = BL-Back-up limited Back-ups shed • 89 = BL-Heat pump limited Compressor shed • 90 = BL-Heat pump & back-up limited Compressor and back-ups shed • 91 = BL-Off-peak rate Off-peak cost • 92 = PV-with Heat pump Photovoltaic powered by compressor only • 93 = PV-with Heat pump & back-up Photovoltaic powered by compressor and back-ups • 94 = BL-Smart Grid Smart Grid Ready function

Status Appliance: AM012 parameter	Appliance sub status: AM014 parameter
4= operating in domestic hot water mode	<ul style="list-style-type: none"> • 30= normal operation The compressor or the back-ups are running. • 31= internal set point limited If the heating set point on the heat pump differs from the system set point. • 60= pump post-operation Heat pump and back-up shut-down, system pump operation. • 65= compressor bypass The back-ups are operating. • 66= the temperature exceeds the compressor's maximum operating temperature The compressor has stopped. The back-ups are operating. • 67= the outside temperature is lower than the compressor's maximum operating temperature The compressor has stopped. The back-ups are operating. • 68= the hybrid function requests compressor shut-down The compressor has stopped. The back-ups are operating. • 69= defrosting running The compressor is running. • 70= defrosting conditions not met The compressor has stopped. The back-ups are operating. • 71= defrosting running The compressor and the back-ups are running. • 88 = BL-Back-up limited Back-ups shed • 89 = BL-Heat pump limited Compressor shed • 90 = BL-Heat pump & back-up limited Compressor and back-ups shed • 91 = BL-Off-peak rate Off-peak cost • 92 = PV-with Heat pump Photovoltaic powered by compressor only • 93 = PV-with Heat pump & back-up Photovoltaic powered by compressor and back-ups • 94 = BL-Smart Grid Smart Grid Ready function
6	Pump Post Run <ul style="list-style-type: none"> • 60= pump post-operation Heat pump and back-up shut-down, system pump post-operation.
7	Cooling Active <ul style="list-style-type: none"> • 30= normal operation Cooling is active. • 75= compressor shut-down owing to the condensation detector • 78= correction of the temperature set point Increase in the cooling set point owing to the condensation detector. • 82= temperature lower than the minimum cooling temperature Compressor shut-down.

Status Appliance: AM012 parameter	Appliance sub status: AM014 parameter
8= controlled compressor shut-down	<p>Controlled Stop</p> <ul style="list-style-type: none"> • 00= off: the heating or cooling set point has been reached • 01= anti-short cycle The heating set point has been reached. The compressor is not authorised to restart. • 60= pump post-operation Heat pump and back-up shut-down, system pump post-operation. • 67= the outside temperature is lower than the compressor's maximum operating temperature The compressor has stopped. The back-ups are operating. • 68= the hybrid function requests compressor shut-down The compressor has stopped. The back-ups are operating. • 75= compressor shut-down owing to the condensation detector • 76= compressor shut-down owing to the flow rate • 79= compressor and back-up bypass in heating / domestic hot water mode • 80= compressor and back-up bypass in cooling mode • 82= temperature lower than the minimum cooling temperature Compressor shut-down.
9	<p>Blocking Mode</p> <ul style="list-style-type: none"> • 30= normal operation. The compressor or the back-ups are running. • 31= internal set point limited If the heating set point on the heat pump differs from the system set point. • 60= pump post-operation Heat pump and back-up shut-down, system pump running. • 65= compressor bypass The back-ups are operating. • 66= the temperature exceeds the compressor's maximum operating temperature The compressor has stopped. The back-ups are operating. • 67= the outside temperature is lower than the compressor's maximum operating temperature The compressor has stopped. The back-ups are operating. • 68= the hybrid function requests compressor shut-down The compressor has stopped. The back-ups are operating. • 69= defrosting running The compressor is running. • 70= defrosting conditions not met The compressor has stopped. The back-ups are operating. • 71= defrosting running. The compressor and the back-ups are running. • 88 = BL-Back-up limited Back-ups shed • 89 = BL-Heat pump limited Compressor shed • 90 = BL-Heat pump & back-up limited Compressor and back-ups shed • 91 = BL-Off-peak rate Off-peak cost • 92 = PV-with Heat pump Photovoltaic powered by compressor only • 93 = PV-with Heat pump & back-up Photovoltaic powered by compressor and back-ups • 94 = BL-Smart Grid Smart Grid Ready function
10	Locking Mode
11	Load test min

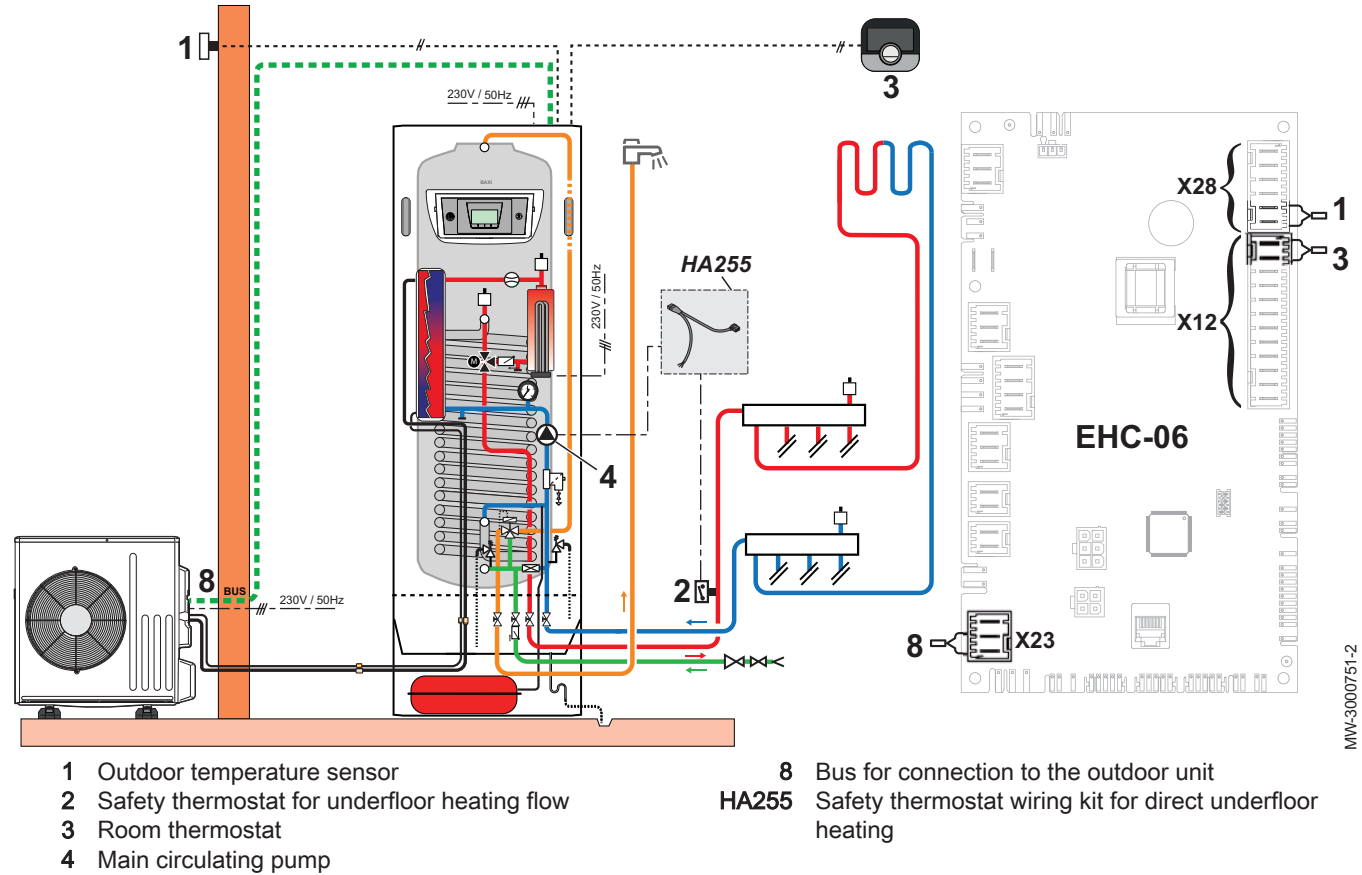
Status Appliance: AM012 parameter	Appliance sub status: AM014 parameter
12	<p>Load test CH max</p> <ul style="list-style-type: none"> • 30= normal operation. The compressor or the back-ups are running. • 31= internal set point limited If the heating set point on the heat pump differs from the system set point. • 60= pump post-operation Heat pump and back-up shut-down, system pump post-operation. • 65= compressor bypass and back-ups running • 66= the temperature exceeds the compressor's maximum operating temperature The compressor has stopped. The back-ups are operating. • 67= the outside temperature is lower than the compressor's maximum operating temperature The compressor has stopped. The back-ups are operating. • 68= the hybrid function requests compressor shut-down The compressor has stopped. The back-ups are operating. • 69= defrosting running The compressor is running. • 70= defrosting conditions not provided The compressor has stopped. The back-ups are operating. • 71= defrosting running. The compressor and the back-ups are running.

Status Appliance: AM012 parameter	Appliance sub status: AM014 parameter
16	<p>Frost protection</p> <ul style="list-style-type: none"> • 30= normal operation The compressor or the back-ups are running. • 31= internal set point limited If the heating set point on the heat pump differs from the system set point. • 60= pump post-operation Heat pump and back-up shut-down, system pump post-operation. • 65= compressor bypass and back-ups running • 66= the temperature exceeds the compressor's maximum operating temperature The compressor has stopped. The back-ups are operating. • 67= the outside temperature is lower than the compressor's maximum operating temperature The compressor has stopped. The back-ups are operating. • 68= the hybrid function requests compressor shut-down The compressor has stopped. The back-ups are operating. • 69= defrosting running The compressor is running. • 70= defrosting conditions not met The compressor has stopped. The back-ups are operating. • 71= defrosting running. The compressor and the back-ups are running.
17	<p>DeAiration</p> <ul style="list-style-type: none"> • 30= normal operation The compressor or the back-ups are running. • 31= internal set point limited If the heating set point on the heat pump differs from the system set point. • 60= pump post-operation Heat pump and back-up shut-down. • 65= compressor bypass and back-ups running • 66= the temperature exceeds the compressor's maximum operating temperature The compressor has stopped. The back-ups are operating. • 67= the outside temperature is lower than the compressor's maximum operating temperature The compressor has stopped. The back-ups are operating. • 68= the hybrid function requests compressor shut-down The compressor has stopped. The back-ups are operating. • 69= defrosting running The compressor is running. • 70= defrosting conditions not met The compressor has stopped. The back-ups are operating. • 71= defrosting running. The compressor and the back-ups are running.

8 Connection and installation examples

8.1 Installation with one direct underfloor heating circuit

Fig.104



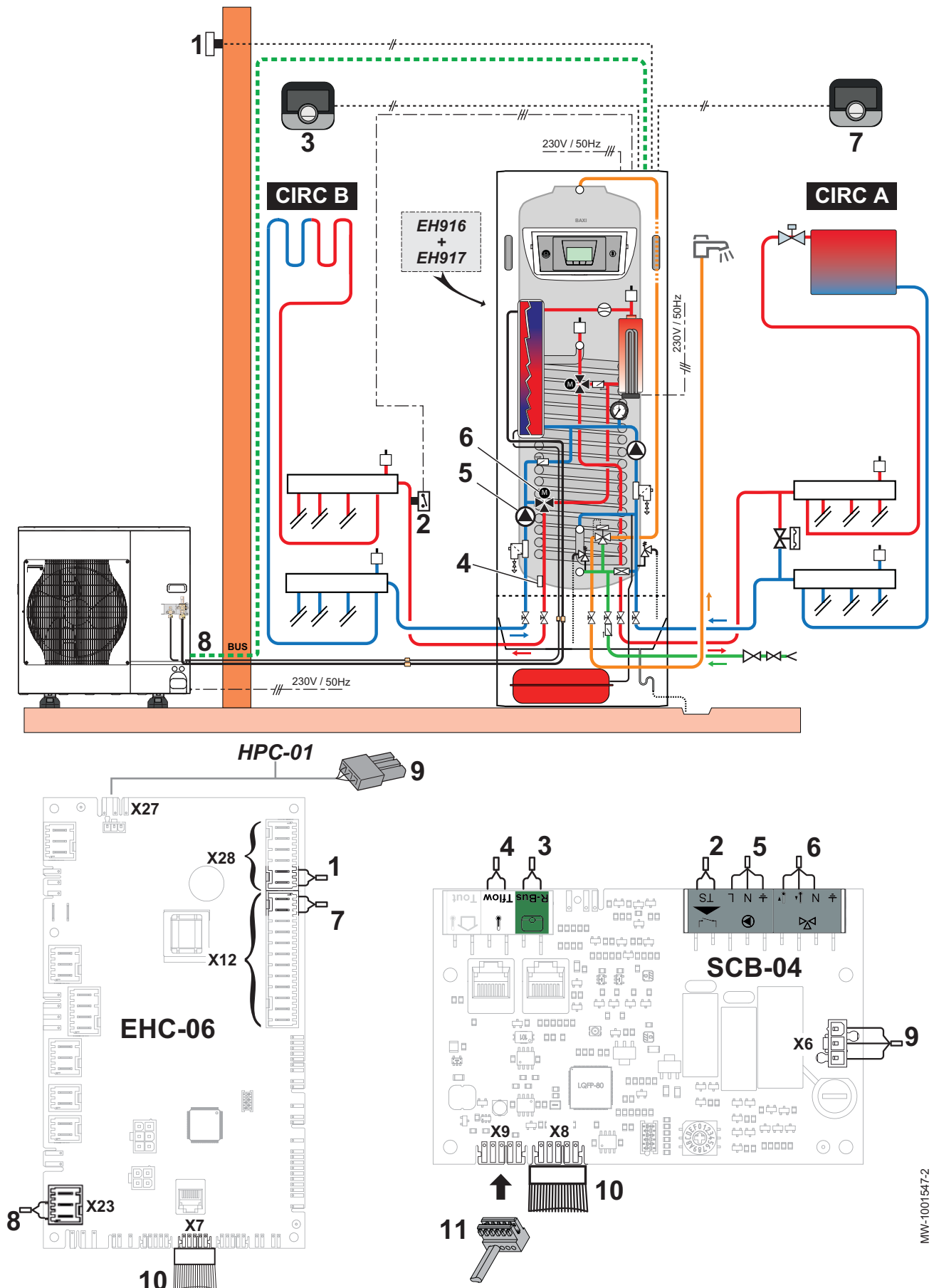
- 1. Connect the accessories and options to the **EHC-06** PCB, respecting the 230-400 V and 0-40 V cable feed-throughs.
- 2. On initial start-up, or after a reset of the factory parameters, set the CN1 and CN2 parameters according to the output of the outdoor unit.
- 3. Select the number corresponding to the installation type by pressing the **+** or **-** key.

Installation type	No.
1 direct underfloor heating + 1 domestic hot water tank	06

- ⇒ Selecting the installation type enables automatic configuration of the parameters required for the control panel to operate correctly (gradient, maximum circuit temperature, etc.).
- 4. Confirm the selection by pressing the **←** key.
 - ⇒ The main parameters are set.

8.2 Installation with 2 heating circuits: one direct radiator circuit and one underfloor heating circuit


Fig.105



- | | |
|--|---|
| <ul style="list-style-type: none"> 1 Outdoor temperature sensor 2 Safety thermostat for underfloor heating flow 3 Circuit B room thermostat 4 Flow sensor on circuit B 5 Circulating pump for circuit B 6 Circuit B three-way valve 7 Circuit A room thermostat 8 Bus for connection to the outdoor unit | <ul style="list-style-type: none"> 9 230 V power supply from the EHC-06 PCB 10 Communication connecting the EHC-06 and SCB-04 PCBs 11 BUS terminal connector, supplied with the SCB-04 kit <p>EH916 Second circuit control system PCB kit</p> <p>EH917 Hydraulic kit for second circuit</p> |
|--|---|

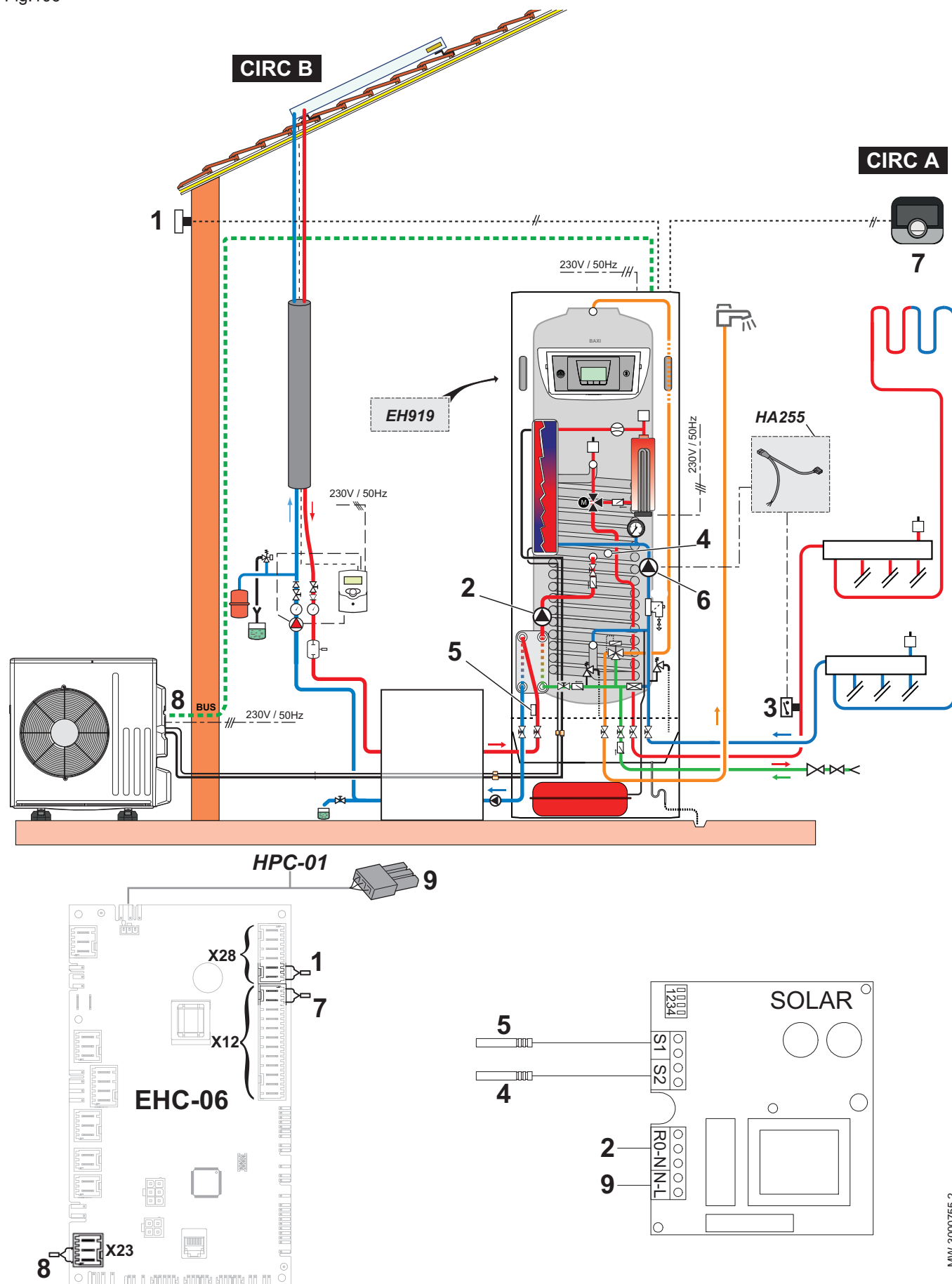
1. Connect the accessories and options to the **EHC-06** PCB, respecting the 230-400 V and 0-40 V cable feed-throughs.
2. Connect the accessories and options to the **SCB-04** PCB, respecting the 230-400 V and 0-40 V cable feed-throughs.
3. On initial start-up, or after a reset of the factory parameters, set the CN1 and CN2 parameters according to the output of the outdoor unit.
4. Select the number corresponding to the installation type by pressing the **+** or **-** key.

Installation type	No.
1 direct heating circuit + 1 underfloor heating circuit + 1 domestic hot water tank	04

- ⇒ Selecting the installation type enables automatic configuration of the parameters required for the control panel to operate correctly (gradient, maximum circuit temperature, etc.).
5. Activating hydraulic management for a system with low-loss header:
Installer menu  \ **EHC-06** \ **ADV**, set the parameter HP086 to 1.
 6. Confirm the selection by pressing the **←** key.
⇒ The main parameters are set.

8.3 Installation with a direct underfloor heating circuit and a solar circuit

Fig.106



- 1 Outdoor temperature sensor
- 2 Solar circuit circulating pump
- 3 Safety thermostat for underfloor heating flow
- 4 Domestic hot water sensor (S2)
- 5 Solar circuit flow sensor (S1)
- 6 Circulating pump for circuit A

- 7 Circuit A room thermostat
- 8 Bus for connection to the outdoor unit
- 9 230 V power supply from the EHC-06 PCB
- EH919 Solar circuit kit
- HA255 Safety thermostat wiring kit for direct underfloor heating

Fig.107 Differential temperature regulator for the solar circuit option

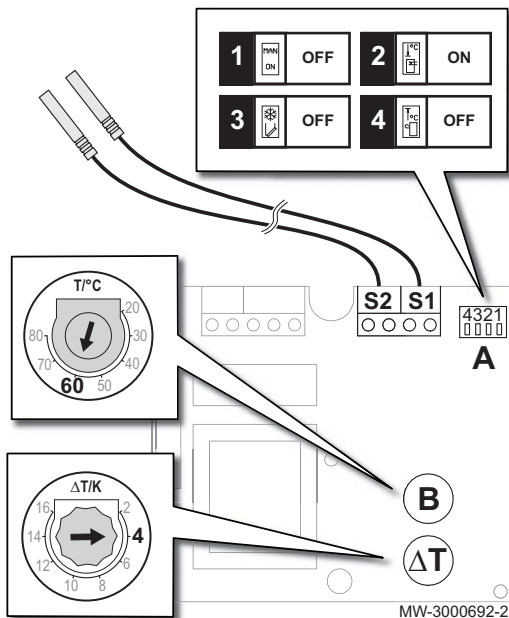
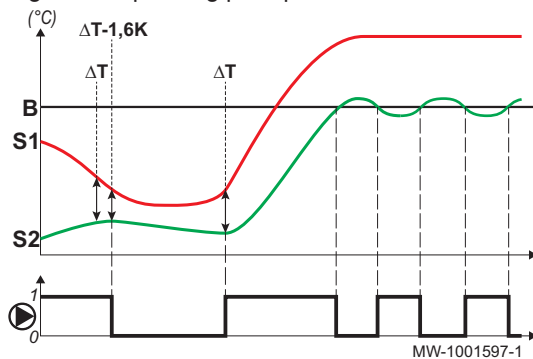


Fig.108 Operating principle



8.4 Installation with a swimming pool

8.4.1 Connecting a swimming pool

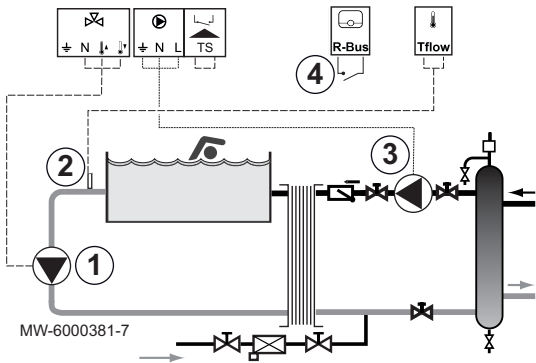
To control swimming pool heating, you will need the optional **SCB-04** printed circuit board and a swimming pool thermostat. A low-loss header will also be required to ensure the heat pump operates correctly with a swimming pool.



The swimming pool is not heated when the contact is open (factory setting). Only the frost protection function is still running.

- The thermostat contact is open when the swimming pool temperature is higher than the thermostat set point.
- When the contact is closed, the swimming pool is heated.


The electrical connection of a swimming pool is made to the optional SCB-04 PCB.

Fig.109




1. Connect the swimming pool secondary pump to the  terminal block.
2. Connect the swimming pool temperature sensor to the TFlow terminal block.
3. Connect the swimming pool primary pump to the  terminal block.
4. Connect the swimming pool heating cut-off control to the R-Bus terminal block.

8.4.2 Configuring swimming pool heating

1. Go to the **Installer**  menu.
2. Access the **Installer** menu by entering the code **0012** by pressing the **+** and **-** keys.
3. Confirm access by pressing the **←** key.
4. Access the circuit B and SCB-04 PCB parameters by pressing the **+** or **-** key.
5. Confirm the selection by pressing the **←** key.
6. Configure the following parameters:

Tab.73 Heating configuration for a swimming pool

Parameter	Description	Value to be set
CP020	Circuit type	3
CP540	Swimming pool water temperature set point	26 °C

 **Important**

Back-up operation follows the same logic as heating mode. If necessary, it is possible to block operation of the back-ups with the **BL** inputs.

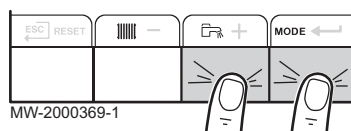
9 Operation



For more information, see
Control panel description, page 26

9.1 Browsing in the menus

Fig.110



Press any key to turn on the backlight for the control panel screen.

If no key is pressed within 3 minutes, the control panel backlight will go out.

Press the 2 right-hand keys together to access the different menus:

Tab.74 Menus available

	Information menu
	User menu
	Installer menu The installer must enter the code 0012 using the + and - keys.
	Manual Forcing menu
	Malfunction menu
	COUNTERS sub-menu TIME PROG sub-menu CLOCK sub-menu
	PCB selection menu Important The icon is displayed only if an optional PCB has been installed.



Important
The different menus are only accessible when the icons flash.

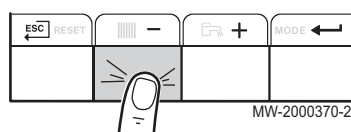
Fig.111



Press the **+** key to:

- access the next menu,
- access the next sub-menu,
- access the next parameter,
- increase the value.

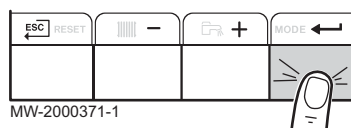
Fig.112



Press the **-** key to:

- access the previous menu,
- access the previous sub-menu,
- access the previous parameter
- decrease the value.

Fig.113



Press the confirmation key to confirm:

- a menu,
- a sub-menu,
- a parameter,
- a value.

When the temperature is displayed, briefly pressing the back key will return to the time display.

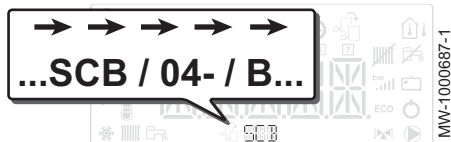
9.2 Description of the PCBs

Fig.114 PCB controlling the heat pump



MW-3000725-01

Fig.115 Management of a second circuit



MW-1000687-1

When commissioning the heat pump, the PCB displayed in the main menu is **EHC-06**. The name of the PCB scrolls along the bottom of the screen: **EHC-06**.

Only the installer can access the parameters and settings for each PCB.

In order to control an installation that has an additional circuit, it will be necessary to install the **SCB-04** PCB. The name of the PCB scrolls along the bottom of the screen: **SCB-04**.



Important

Given that numerous settings can be made on the two PCBs, depending on the circuit concerned, the name of the PCB will be represented by **BBB** in the rest of the manual.

9.3 Start-up

1. Switch on the outdoor unit and the indoor module.
2. The heat pump begins its start-up cycle.
 - ⇒ If the start-up cycle runs normally, an automatic venting cycle is initiated. Otherwise, an error message is displayed.

9.4 Shutdown

9.4.1 Switching off the heating



Important

Heating mode can be managed via the **TIME PROG** sub-menu dedicated to timer programming.

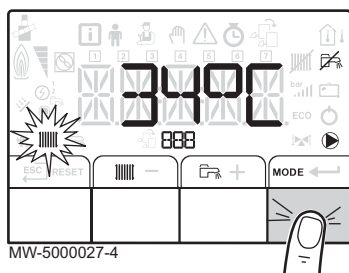


Important

If the heating function is shut off, then the cooling will also be shut off.

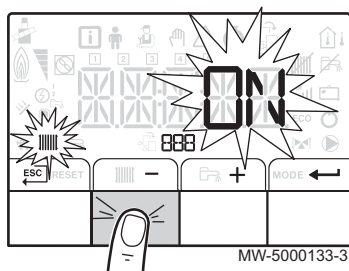
1. Go to stop mode by pressing the **MODE** key.

Fig.116



MW-5000027-4

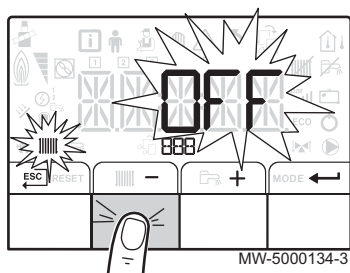
Fig.117



MW-5000133-3

2. Select the heating mode by pressing the **-** key.
3. Confirm by pressing the **←** key.

Fig.118



4. Select the heating shut-down pressing the **-** key.

⇒ The screen displays: **OFF**.

- The frost protection function continues to run.
- The heating and cooling have been shut down.

i Important

Press the **+** key to restart the appliance: the screen will display **ON**.

5. Confirm by pressing the **←** key.

6. Go back to the main display by pressing the **ESC** key.

i Important

The display disappears after a few seconds of inactivity.

9.4.2 Stopping domestic hot water production

i Important

Domestic hot water production can be managed via the TIME PROG sub-menu dedicated to timer programming.

1. Go to stop mode by pressing the **MODE** key.

Fig.119

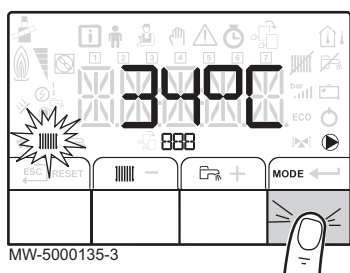
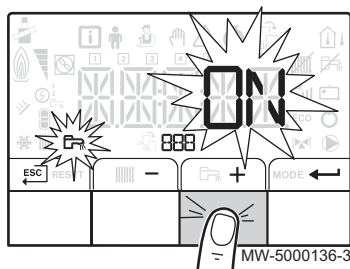


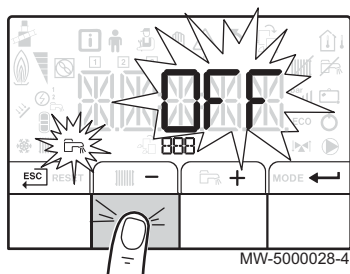
Fig.120



2. Select domestic hot water production mode pressing the **+** key.

3. Confirm by pressing the **←** key.

Fig.121



4. Select domestic hot water production shut-down by pressing the **-** key.

⇒ The screen displays: **OFF**.

- The frost protection function continues to run.
- Production of domestic hot water has been shut down.

i Important

Press the **+** key to restart the appliance: the screen will display **ON**.

5. Confirm by pressing the **←** key.

6. Go back to the main display by pressing the **ESC** key.









i Important

The display disappears after a few seconds of inactivity.

9.4.3 Shutting down the cooling function

**Important**

If the heating function is shut off, then the cooling will also be shut off.

1. Access the  menu.
2. Confirm access by pressing the  key.
3. Select **CIRCA** or **CIRCB** by pressing the  or  key.
4. Confirm the selection by pressing the  key.
5. Select **TP.C** by pressing the  or  keys.
6. Confirm the selection by pressing the  key.
7. Modify the timer program to stop cooling.

9.5 Frost Protection

If the temperature of the heating water in the heat pump falls too much, the integrated protection device switches itself on. This device functions as follows:

- If the water temperature is lower than 5°C, the circulating pump starts up.
- If the water temperature is lower than 3°C, the back-up starts up.
- If the water temperature is higher than 10°C, the back-up shuts down and the circulating pump continues to run for a short time.

The radiator valves in rooms where there is a risk of frost must be fully open.

10 Maintenance

10.1 Precautions to be taken before maintenance operations


Important

Servicing shall be performed only as recommended by the manufacturer.

An annual inspection with a leak-tightness check in accordance with prevailing standards is obligatory.

Maintenance operations are important for the following reasons:

- To guarantee optimum performance.
- To extend the life of the equipment.
- To provide an installation which offers the user optimum comfort over time.


Caution

Only qualified professionals are authorised to carry out maintenance work on the heat pump and the heating system.


Caution

Before working on the refrigeration circuit, switch off the appliance and wait a few minutes. Certain items of equipment such as the compressor and the pipes can reach temperatures in excess of 100°C and high pressures, which may cause serious injuries.


Danger of electric shock

Before any work, switch off the mains electricity to the heat pump and the electrical back-up if present.


Danger of electric shock

Check the discharge from the capacitors of the outdoor unit.

10.2 List of inspection and maintenance operations

Tab.75 Checking the operation of the installation

Check
Heat pump and back-up in heating mode
Heat pump in cooling mode
Heat pump in convection fan mode
User interface
Fault history
Operating time and number of start-ups for back-ups
Operating time and number of start-ups for compressor

Tab.76 Tightness tests

Check
Leak-tightness of the heating circuit
Leak-tightness of the DHW circuit
Leak-tightness of the refrigerant circuit (use a sniffer leak detector)

Tab.77 Inspecting the safety devices

Check	Operations to be carried out
Heating circuit safety valve	Actuate the safety valve to check that it is operating correctly.
Expansion vessel	Check and adjust the inflation pressure. France: according to DTU65.11.

Tab.78 Other inspection and maintenance operations

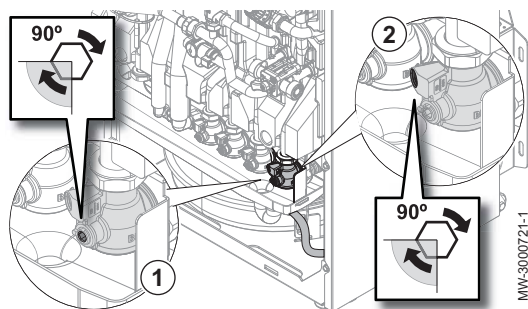
Check	Operations to be carried out
Electrical connections	Replace any faulty parts and cables.
Screws and nuts	Check all screws and nuts (cover, support, etc.).
Insulation	Replace any damaged sections of insulation
Filters	Clean the filters.
Flow rate in heating mode	Check the flow rate on the various heating circuits.
Flow rate in domestic hot water mode	Check the flow rate in domestic hot water mode. Target flow rate: <ul style="list-style-type: none"> • AWHP 4.5 MR: 14 l/min • AWHP 6 MR-3: 14 l/min • AWHP 8 MR-2: 18 l/min
Hydraulic pressure	Recommended hydraulic pressure: 1.5 bar to 2 bar
Plate heat exchanger for the solar option	Clean the solar circuit plate heat exchanger.
Outdoor unit evaporator	Clean the outdoor unit's evaporator.
Condensate collector box	Check the water level in the box. In case of stagnation, clear the siphon or check the lift pump is operational.
Casing	Clean the outside of the appliance using a damp cloth and a mild detergent.

**For more information, see**

Clean the magnetic sieve filters, page 103
Checking the minimum flow of the direct circuit, page 60
Setting the flow rate of the second circuit, page 61
Cleaning the plate heat exchanger, page 106

10.3 Drain the appliance on the heating circuit side

The heating does not usually need to be drained. However, it may be necessary in certain cases, for example prolonged inactivity with a risk of frost in the building.



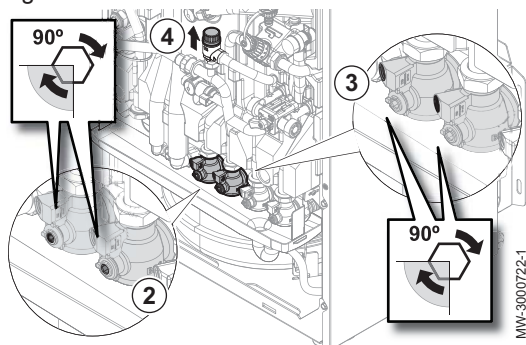
1. Close the drain valve on the heating circuit by turning the Allen key a quarter turn.
2. Open the bleed screw.
3. Check that the water flows into the condensate collector box.
4. Await the complete drainage of the heating circuit.
5. Close the screw and the drain valve.

10.4 Draining the domestic hot water circuit

The domestic hot water circuit must be drained to enable the tank to be descaled, or if the appliance is to be stored in a location affected by frost.

1. Close the installation's water inlet valve by turning it a quarter-turn with the Allen key.

Fig.122



2. Close the drain valves on the domestic water circuit by turning the Allen key a quarter turn.
3. Open the bleed screws.
4. Await the complete drainage of the water circuit.
This may be a long operation. To reduce the waiting time, keep the safety valve open.
5. When no more water flows out, close the bleed screws and the drain valves.

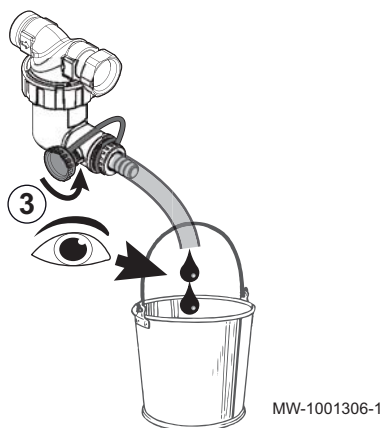
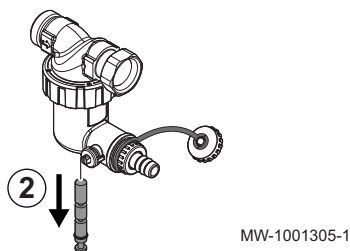
10.5 Clean the magnetic sieve filters

The magnetic filters on the heating circuit return and the second heating circuit return (if present) prevent the plate heat exchanger from becoming clogged.

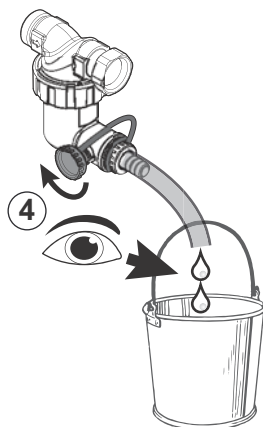
The magnetic filters must be cleaned every year to ensure that water is able to flow correctly within the installation.

10.5.1 Magnetic filter annual maintenance

1. Switch off the appliance and close the valves for the heating circuits on the plate.
2. Remove the magnet from the filter.
⇒ The magnetic particles stuck inside the filter will drop to the bottom and be ejected via the vent.

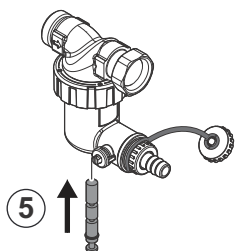


3. Connect a pipe to the filter valve, then open the valve by a quarter turn.



MW-1001307-1

4. Once the water running out of the pipe is clear, re-close the valve. If necessary, open and close the valve several times to create surges, and clean the filter better.



MW-1001308-1

5. Refit the magnet. Pushing it in fully.



MW-1001309-02

6. Check the pressure in the installation. If the pressure is less than 1.5 bar, top up the water.
7. Open the valves on the connection plate.
8. Power the appliance back on.
9. Check the pressure in the installation. If the pressure is less than 1.5 bar, top up the water.
10. Activate the heating and check the flow rate in the installation. If the flow rate is too low, clean the filter fully.



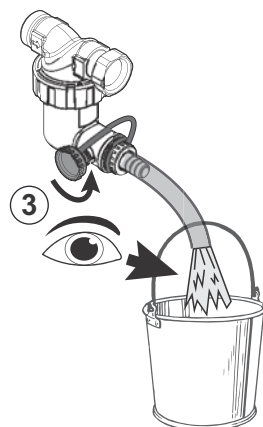
For more information, see

Checking the minimum flow of the direct circuit, page 60
Setting the flow rate of the second circuit, page 61

10.5.2 Full cleaning of the magnetic filter

If the flow rate in the installation is too low, fully clean the magnetic filter. This operation requires the appliance to be fully drained.

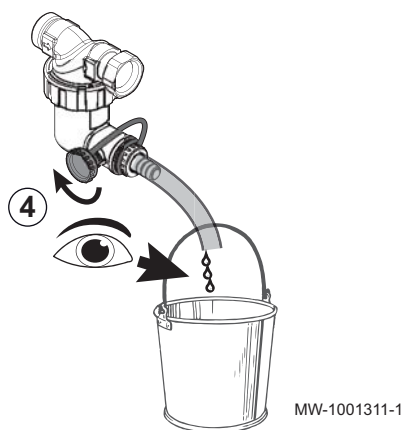
1. Power off the appliance.
2. Hydraulically isolate the appliance using the valves on the connection plate.
3. Drain the appliance: connect a drain pipe to the filter nipple, then open the valve on the filter tap by a quarter turn.



MW-1001310-1

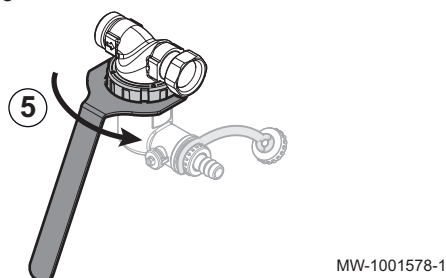
Fig.123

Fig.124



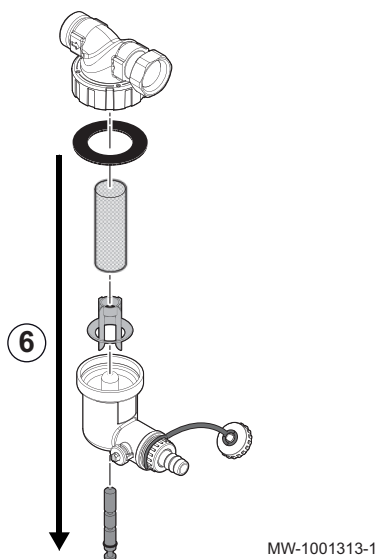
4. Once water stops running out of the pipe, close the valve on the filter.

Fig.125



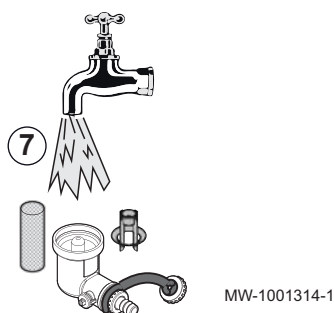
5. Unscrew the sludge container using the handling tool provide in the accessories bag.

Fig.126



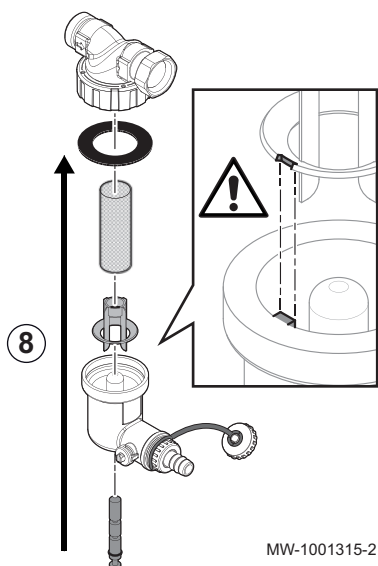
6. Disassemble the different parts of the mud pot.
⇒ The magnetic particles stuck inside the filter will drop to the bottom.

Fig.127



7. Clean the different parts with clean water.

Fig.128



MW-1001315-2

8. Refit the sludge collector.

**Caution**

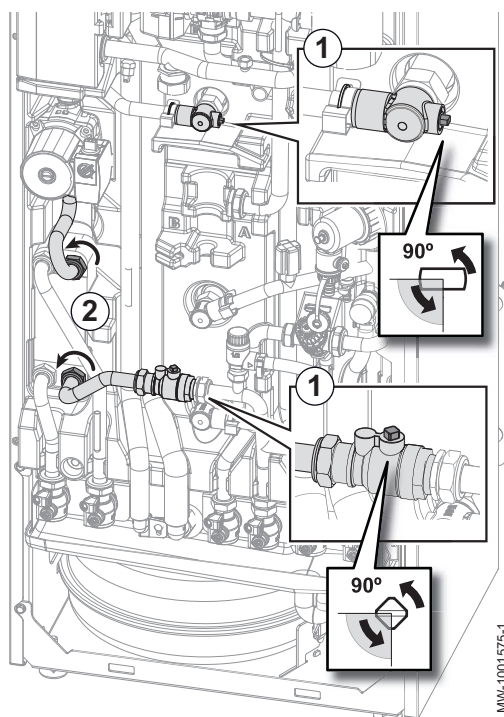
Risk of breakage.

- Observe the keyway of the plastic part: align the notch with the pin.
- Check that the seal is correctly positioned before tightening with the key.

9. Open the stop valves and reactivate the water supply to the appliance.
10. Re-commission the appliance.

10.6 Cleaning the plate heat exchanger

It is important that the plate heat exchanger is cleaned regularly to ensure the heat exchanger remains in good working order and to continues to provide the required performance.



MW-1001575-1

1. Isolate the exchanger by closing the two valves.
2. Unscrew the plate heat exchanger on the domestic hot water circuit side.
3. Clean the plate heat exchanger.

10.7 Checking the hydraulic pressure

If the hydraulic pressure of your heating system installation is too low or too high, malfunctions and faults may appear.

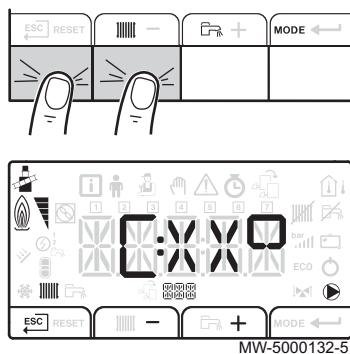
Recommended hydraulic pressure: from 1.5 bar to 2 bar.

1. Check the hydraulic pressure shown alternately on the control panel.
2. If the hydraulic pressure is too low, top up the water.

10.8 Checking operation of the appliance

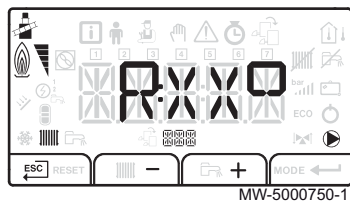
You can force the heating or cooling mode for the heat pump and back-up in order to check that they are working correctly.

Fig.129



1. Access the Test menu by pressing the two keys on the left simultaneously.
⇒ The test screen in heating mode appears: **XX** represents the flow temperature.

Fig.130



2. Switch from **C:XX** heating to **R:XX** cooling mode using the **−** and **+** keys.
3. Exit the Test menu and go back to the main display by pressing the **ESC** key.

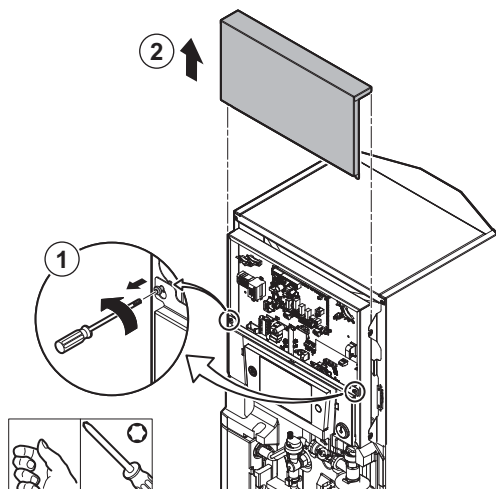
10.9 Replacing the battery in the control panel

If the indoor module is switched off, the control panel battery takes over to keep the correct time.

The battery must be replaced when the time is no longer saved.

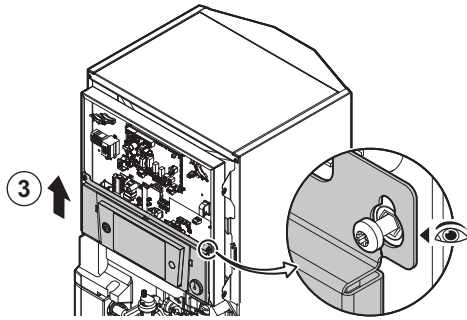
To replace the battery, remove the appliance's front panel to allow access to the interior of the control panel.

Fig.131

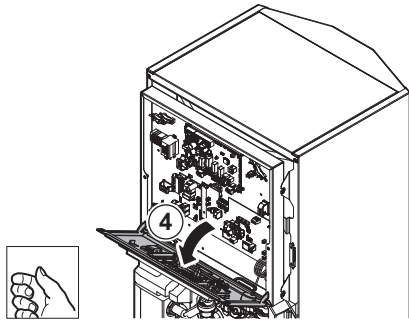


1. Unscrew the two screws on the protective cover for the PCBs but do not remove them.
2. Slide the cover upwards and remove it.

Fig.132

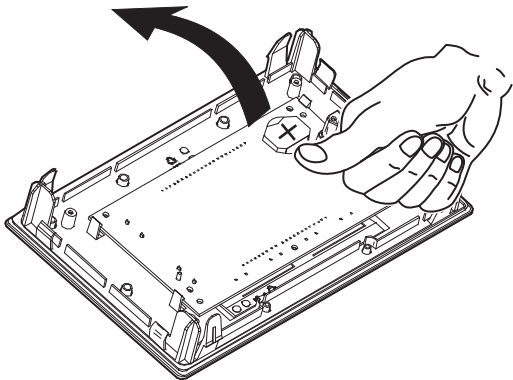


3. Lift the control panel flap slightly.
4. Tilt the control panel flap forwards.



MW-3000663-01

Fig.133 Remove the battery



MW-3000475-01

5. Remove the battery located in back plate of the control panel by pushing it gently forwards.
6. Insert a new battery.



Important

Battery type:

- CR2032, 3V
- Do not use rechargeable batteries
- Do not discard used batteries in the dustbin. Take them to an appropriate collection place.

7. Re-assemble everything.

11 Troubleshooting

11.1 Resetting the safety thermostat



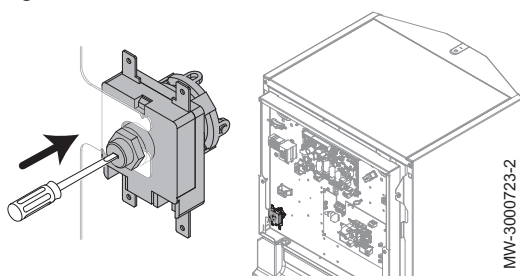
Danger

Before carrying out any work on the indoor module, cut the power supply to the indoor module and the electrical back-up.

If you suspect that the safety thermostat was triggered:

1. Cut off the power supply to the indoor module and the electrical back-up immersion heaters by lowering the circuit breakers on the distribution board.
2. Locate and correct the cause of power cut before resetting the safety thermostat.
3. Remove the front panel of the indoor module and the protective cap.
4. If the safety thermostat has been triggered, use a flat-headed screwdriver to press the reset button on the thermostat. If not, look for an alternative cause for the power to the immersion heater having been cut.
5. Replace the front panel of the indoor module and the protective cap.
6. Switch the mains supply to the indoor module and the electrical back-up immersion heater back on.

Fig.134



11.2 Error messages

Fig.135

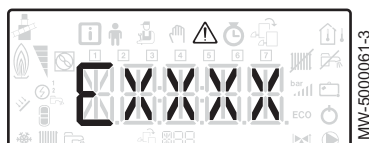
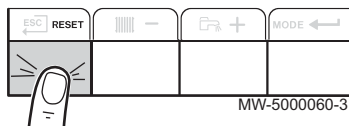


Fig.136



The message appears when a fault code is detected. After resolving the problem, pressing the **RESET** key resets the appliance's functions and thus eradicates the fault.

If several faults occur, they are displayed one after the other.

1. Reset the control panel by pressing the **RESET** key for 3 seconds, when an error message is displayed.
2. Display the current operating status by briefly pressing the key.

11.2.1 Error codes

An error code is a temporary status, resulting from the detection of a heat pump anomaly. The control panel attempts automatic restart of the heat pump until it switches on.

When one of the following codes is displayed and the heat pump cannot restart automatically, contact a maintenance technician.

Tab.79 List of temporary error codes

Error code	Message	Description
H00.17	DHW sensor Closed	Domestic Hot Water tank temperature sensor is either shorted or measures a temperature above range <ul style="list-style-type: none"> • Check the wiring between the central unit PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H00.32	TOutside Open	Outside temperature sensor is either removed or measures a temperature below range <ul style="list-style-type: none"> • Check the wiring between the central unit PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H00.33	TOutside Closed	Outside temperature sensor is either shorted or measures a temperature above range <ul style="list-style-type: none"> • Check the wiring between the central unit PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H00.34	TOutside Missing	Outside temperature sensor was expected but not detected <ul style="list-style-type: none"> • Check the wiring between the central unit PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H00.47	HP flow sensor removed or below range	Heat pump flow temperature sensor is either removed or measures a temperature below range <ul style="list-style-type: none"> • Check the wiring between the central unit PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H00.48	THp Flow Closed	Heat pump flow temperature sensor is either shorted or measures a temperature above range <ul style="list-style-type: none"> • Check the wiring between the central unit PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H00.51	THp Return Open	Heat pump return temperature sensor is either removed or measures a temperature below range
H00.52	THp Return Closed	Heat pump return temperature sensor is either shorted or measures a temperature above range <ul style="list-style-type: none"> • Check the wiring between the central unit PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H00.57	T DHW Top Open	Domestic Hot Water top temperature sensor is either removed or measures a temperature below range <ul style="list-style-type: none"> • Check the wiring between the central unit PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H00.58	T DHW Top Closed	Domestic Hot Water top temperature sensor is either shorted or measures a temperature above range <ul style="list-style-type: none"> • Check the wiring between the central unit PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.

Error code	Message	Description
H02.02	Wait Config Number	Waiting For Configuration Number Waiting for configuration parameters to be entered <ul style="list-style-type: none"> • Configure CN1 / CN2 depending on the output of the outdoor unit installed (CNF menu). Central unit PCB replaced: heat pump not configured
H02.03	Conf Error	Configuration Error The configuration parameters entered are incorrect. <ul style="list-style-type: none"> • Configure CN1 / CN2 depending on the output of the outdoor unit installed (CNF menu).
H02.04	Parameter Error	Parameter Error <ul style="list-style-type: none"> • Restore the factory settings. • If the error is still present: change the central unit PCB.
H02.05	CSU CU mismatch	CSU does not match CU type <ul style="list-style-type: none"> • Software change (software number or version parameter inconsistent with the memory).
H02.07	Water Press Error	Water Pressure Error active <ul style="list-style-type: none"> • Check the hydraulic pressure in the heating circuit. • Check the wiring between the central unit PCB and the pressure sensor. • Check the connection of the pressure sensor.
H02.09	Partial block	Partial blocking of the device recognized BL input on the central unit PCB terminal block open <ul style="list-style-type: none"> • Check the contact on the BL input. • Check the wiring. • Check the AP001 and AP100. parameters.
H02.10	Full Block	Full blocking of the device recognized BL input on the central unit PCB terminal block open <ul style="list-style-type: none"> • Check the contact on the BL. input. • Check the wiring. • Check the AP001 and AP100. parameters.
H02.23	System flow error	System water flow error active Flow problem Insufficient flow: open a radiator valve. The circuit is clogged: <ul style="list-style-type: none"> • Check that the filters are not obstructed and clean them if necessary. • Clean and flush the installation, No circulation: <ul style="list-style-type: none"> • Check that the valves and thermostatic valves are open, • Check that the circulating pump is working, • Check the wiring, • Check the pump supply: if the pump does not work, replace it. Too much air: completely vent the indoor module and the installation for optimum running. Incorrect wiring: check the electrical connections. Flow meter: <ul style="list-style-type: none"> • Check the electrical connections and the direction of the flow meter (arrow to the right). • Replace the flow meter if necessary
H02.25	ACI error	Titan Active System short circuited or on an open circuit <ul style="list-style-type: none"> • Check the connection cable. • Check that the anode has not short-circuited and is not broken.

Error code	Message	Description
H02.36	Funct device lost	Functional device has been disconnected No communication between the central unit PCB and the additional circuit PCB <ul style="list-style-type: none"> • Check the connection of the supply cable between the PCBs. • Check the connection of the BUS cable between the PCBs. • Run automatic detection.
H02.37	Uncritic device lost	Uncritical device has been disconnected No communication between the central unit PCB and the additional circuit PCB <ul style="list-style-type: none"> • Check the connection of the supply cable between the PCBs. • Check the connection of the BUS cable and the PCBs. • Run automatic detection.
H02.60	Unsupported function	The zone doesn't support the selected function
H06.01	HP Unit Failure	Heat Pump Unit Failure occurred Heat pump outdoor unit fault <ul style="list-style-type: none"> • Check the wiring between the central unit PCB and the communication bus on the outdoor unit. • Check the connection of the communication cable between the central unit PCB and the interface PCB. • Check the connection of the supply cable between the central unit PCB and the interface PCB. • Check the connection of the outdoor unit supply cable.

11.2.2 Fault codes

If a fault code is still present after several automatic start-up attempts, the heat pump switches to error mode.

The heat pump will only resume normal operation once the causes of the fault have been eliminated by the installer.

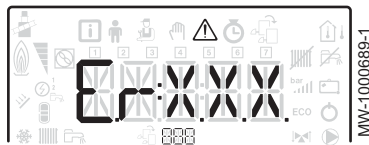
As a result of:


- a manual reset,
- a maintenance message reset.

Tab.80 List of fault codes

Error code	Message	Description
E00.00	TFlow Open	Flow temperature sensor is either removed or measures a temperature below range
E00.01	Flow temp sensor shorted or above range	Flow temperature sensor is either shorted or measures a temperature above range

Fig.139



3. Select the PCB by pressing the **+** or **-** key. The  icon appears. Confirm the PCB selection by pressing the **←** key: the PCB name appears.

**Important**

The **Er:xxx** parameter flashes. **000** corresponds to the number of stored errors.

4. Go to the error details by pressing the **←** key.
5. Scroll through the errors by pressing the **+** or **-** key. When this menu opens, the row of the error in the memory appears briefly. The PCB name appears. Go back to the error list by pressing the **ESC** key.

**Important**

The errors are stored from the most recent to the oldest.

Fig.140



6. Go back to the **Er:xxx** display by pressing the **ESC** key. Press the **+** key: the **CLR** parameter flashes after the errors. **000** corresponds to the PCB selected.
⇒ Clear the error memory by pressing the **←** key.
7. Exit the Malfunctions menu by pressing the **ESC** key.

12 Decommissioning and disposal

12.1 Decommissioning procedure

To decommission the heat pump temporarily or permanently:

1. Switch off the heat pump.
2. Shut off the electrical power supply to the heat pump: outdoor unit and indoor module.
3. Shut off the supply to the electrical back-up if an electrical back-up is present.
4. Drain the central heating system.

12.2 Disposal and recycling

Fig.141



Warning

Removal and disposal of the heat pump must be carried out by a qualified professional in accordance with prevailing local and national regulations.

1. Switch off the heat pump.
2. Cut the mains supply to the heat pump.
3. Recover the refrigerant in accordance with prevailing regulations



Important

Do not allow the refrigerant to escape into the atmosphere.

4. Disconnect the refrigerant connections.
5. Close the water mains.
6. Drain the installation.
7. Dismantle all hydraulic connections.
8. Dismantle the heat pump.
9. Scrap or recycle the heat pump in accordance with prevailing local and national regulations.

13 Appendix

13.1 Product fiche

Tab.82 Product fiche for heat pump combination heaters

		PBS-i 4.5 FS Slim	PBS-i 6 FS Slim	PBS-i 8 FS Slim
Space heating - Temperature application		Medium	Medium	Medium
Water heating - Declared load profile		L	L	L
Seasonal space heating energy efficiency class under average climate conditions		A ⁺⁺	A ⁺⁺	A ⁺⁺
Water heating energy efficiency class under average climate conditions		A ⁺	A ⁺	A ⁺
Rated heat output under average climate conditions (<i>Prated or Psup</i>)	kW	3	4	6
Space heating - Annual energy consumption under average climate conditions	kWh GJ ⁽¹⁾	1934	2501	3568
Water heating - Annual energy consumption under average climate conditions	kWh GJ ⁽¹⁾	769	787	833
Seasonal space heating energy efficiency under average climate conditions	%	125	126	126
Water heating energy efficiency under average climate conditions	%	133.00	130.00	123.00
Sound power level L _{WA} indoors ⁽²⁾	dB	30	35	34
Ability to off-peak hours functioning ⁽²⁾		No	No	No
Rated heat output, under colder - warmer climate conditions	kW	5 – 4	4 – 4	6 – 6
Space heating - Annual energy consumption, under colder - warmer climate conditions	kWh GJ ⁽¹⁾	4483 – 1173	3721 – 1394	4621 – 2029
Water heating - Annual energy consumption, under colder - warmer climate conditions	kWh ⁽³⁾ GJ ⁽⁴⁾	1111 – 567	943 – 664	976 – 675
Seasonal space heating energy efficiency, under colder - warmer climate conditions	%	109 – 156	116 – 150	119 – 155
Water heating energy efficiency, under colder - warmer climate conditions	%	92.00 – 181.00	109.00 – 154.00	105.00 – 152.00
Sound power level L _{WA} outdoors	dB	55	57	61
(1) For gas heat pumps only (2) If applicable. (3) Electricity (4) Fuel				



See

For specific precautions on assembly, installation and maintenance: see the "Safety Instructions" chapter

13.2 Product fiche - Temperature Controls

Tab.83 Product fiche for the Temperature controls

		MK2
Class		II
Contribution to space heating energy efficiency	%	2

13.3 Package fiche - Combination heaters (boilers or heat pumps)

Fig.142 Package fiche for combination heaters (boilers or heat pumps) indicating the water heating energy efficiency of the package

Water heating energy efficiency of combination heater ①

‘I’ %

Declared load profile:

Solar contribution Auxiliary electricity

from fiche of solar device ②

(1.1 x ‘I’ - 10%) x ‘II’ - ‘III’ - ‘I’ = + %

Water heating energy efficiency of package under average climate ③

Water heating energy efficiency class of package under average climate

		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		G	F	E	D	C	B	A	A⁺	A⁺⁺	A⁺⁺⁺
<input type="checkbox"/> M	<27%	≥27%	≥30%	≥33%	≥36%	≥39%	≥65%	≥100%	≥130%	≥163%	
<input type="checkbox"/> L	<27%	≥27%	≥30%	≥34%	≥37%	≥50%	≥75%	≥115%	≥150%	≥188%	
<input type="checkbox"/> XL	<27%	≥27%	≥30%	≥35%	≥38%	≥55%	≥80%	≥123%	≥160%	≥200%	
<input type="checkbox"/> XXL	<28%	≥28%	≥32%	≥36%	≥40%	≥60%	≥85%	≥131%	≥170%	≥213%	

Water heating energy efficiency under colder and warmer climate conditions

Colder: ③ ②

- 0.2 x %

Warmer: ③ ②

+ 0.4 x %

The energy efficiency of the package of products provided for in this fiche may not correspond to its actual energy efficiency once installed in a building, as this efficiency is influenced by further factors such as heat loss in the distribution system and the dimensioning of the products in relation to building size and characteristics.

AD-3000747-01

- I The value of the water heating energy efficiency of the combination heater, expressed in %.
- II The value of the mathematical expression $(220 \cdot Q_{ref})/Q_{nonsol}$, where Q_{ref} is taken from Regulation EU 811/2013, Annex VII Table 15 and Q_{nonsol} from the product fiche of the solar device for the declared load profile M, L, XL or XXL of the combination heater.
- III The value of the mathematical expression $(Q_{aux} \cdot 2,5)/(220 \cdot Q_{ref})$, expressed in %, where Q_{aux} is taken from the product fiche of the solar device and Q_{ref} from Regulation EU 811/2013, Annex VII Table 15 for the declared load profile M, L, XL or XXL.

13.4 Package fiche - Medium-temperature heat pumps



Important

'Medium-temperature application' means an application where the heat pump space heater or heat pump combination heater delivers its declared capacity for heating at an indoor heat exchanger outlet temperature of 55 °C.

Fig.143 Package fiche for medium-temperature heat pumps indicating the space heating energy efficiency of the package

Seasonal space heating energy efficiency of heat pump		①
[] %		
Temperature control	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Class I = 1%, Class II = 2%, Class III = 1.5%, Class IV = 2%, Class V = 3%, Class VI = 4%, Class VII = 3.5%, Class VIII = 5% </div>	②
from fiche of temperature control		+ [] %
Supplementary boiler	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Seasonal space heating energy efficiency (in %) </div>	③
from fiche of boiler	$([] - 'I') \times 'II' = \pm [] \%$	
Solar contribution	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Tank rating ⁽¹⁾ A* = 0.95, A = 0.91, B = 0.86, C = 0.83, D - G = 0.81 </div>	④
from fiche of solar device		+ [] %
<div style="display: flex; justify-content: space-between; margin-bottom: 5px;"> <div style="border: 1px solid black; padding: 5px; width: 20%;">Collector size (in m²)</div> <div style="border: 1px solid black; padding: 5px; width: 20%;">Tank volume (in m³)</div> <div style="border: 1px solid black; padding: 5px; width: 20%;">Collector efficiency (in %)</div> </div> $('III' \times [] + 'IV' \times []) \times 0.45 \times ([] / 100) \times [] = + [] \%$		
(1) If tank rating is above A, use 0.95		
Seasonal space heating energy efficiency of package under average climate		⑤
[] %		
Seasonal space heating energy efficiency class of package under average climate		
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <input type="checkbox"/> G <30% </div> <div style="text-align: center;"> <input type="checkbox"/> F ≥30% </div> <div style="text-align: center;"> <input type="checkbox"/> E ≥34% </div> <div style="text-align: center;"> <input type="checkbox"/> D ≥36% </div> <div style="text-align: center;"> <input type="checkbox"/> C ≥75% </div> <div style="text-align: center;"> <input type="checkbox"/> B ≥82% </div> <div style="text-align: center;"> <input type="checkbox"/> A ≥90% </div> <div style="text-align: center;"> <input type="checkbox"/> A* ≥98% </div> <div style="text-align: center;"> <input type="checkbox"/> A** ≥125% </div> <div style="text-align: center;"> <input type="checkbox"/> A*** ≥150% </div> </div>		
Seasonal space heating energy efficiency under colder and warmer climate conditions		
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> ⑤ Colder: [] - 'V' = [] % </div> <div style="text-align: center;"> ⑤ Warmer: [] + 'VI' = [] % </div> </div>		

The energy efficiency of the package of products provided for in this fiche may not correspond to its actual energy efficiency once installed in a building, as this efficiency is influenced by further factors such as heat loss in the distribution system and the dimensioning of the products in relation to building size and characteristics.

AD-3000745-01

- I The value of the seasonal space heating energy efficiency of the preferential space heater, expressed in %.
- II The factor for weighting the heat output of preferential and supplementary heaters of a package as set out in the following table.
- III The value of the mathematical expression: $294 / (11 \cdot \text{Prated})$, whereby "Prated" is related to the preferential space heater.

- IV** The value of the mathematical expression $115/(11 \cdot \text{Prated})$, whereby "Prated" is related to the preferential space heater.
- V** The value of the difference between the seasonal space heating energy efficiencies under average and colder climate conditions, expressed in %.
- VI** The value of the difference between the seasonal space heating energy efficiencies under warmer and average climate conditions, expressed in %.

Tab.84 Weighting of medium temperature heat pumps

Prated / (Prated + Psup)⁽¹⁾⁽²⁾	II, package without hot water storage tank	II, package with hot water storage tank
0	1.00	1.00
0.1	0.70	0.63
0.2	0.45	0.30
0.3	0.25	0.15
0.4	0.15	0.06
0.5	0.05	0.02
0.6	0.02	0
≥ 0.7	0	0
(1) The intermediate values are calculated by linear interpolation between the two adjacent values.		
(2) Prated is related to the preferential space heater or combination heater.		

Tab.85 Package efficiency

		AWHP 4.5 MR	AWHP 6 MR-3	AWHP 8 MR-2
Seasonal space heating energy efficiency	%	134	125	129
Temperature control	%	+ 2	+ 2	+ 2
Seasonal space heating energy efficiency of package	%	136	127	131

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BAXI

36061 BASSANO DEL GRAPPA (VI) - ITALY
Via Trozzetti, 20
Servizio clienti: Tel +39 0424 517800 - Fax +39 0424 38089
www.baxi.it

