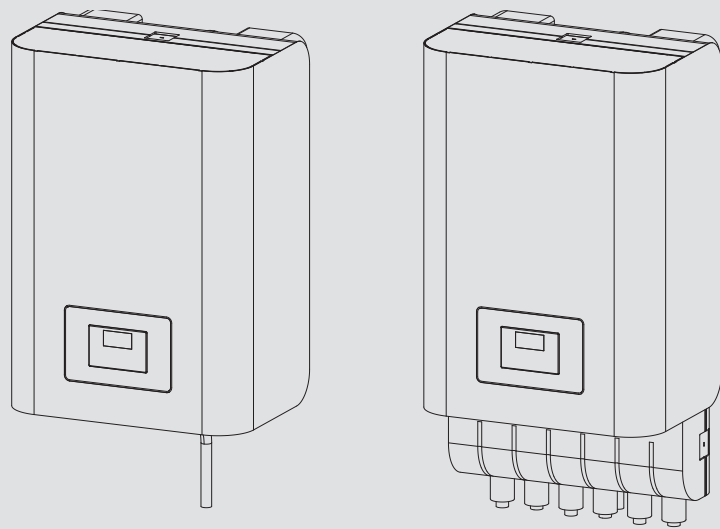


OPERATION AND INSTALLATION

Hydraulic module for heat pumps

- » HM
- » HM Trend
- » HMS
- » HMS Trend



STIEBEL ELTRON

SPECIAL INFORMATION

OPERATION

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GUARANTEE

ENVIRONMENT AND RECYCLING

SPECIAL INFORMATION

- The appliance may be used by children aged 8 and older and persons with reduced physical, sensory or mental capabilities or a lack of experience and know-how, provided that they are supervised or they have been instructed on how to use the appliance safely and have understood the resulting risks. Children must never play with the appliance. Children must never clean the appliance or perform user maintenance unless they are supervised.
- The connection to the power supply must be in the form of a permanent connection. Ensure the appliance can be separated from the power supply by an isolator that disconnects all poles with at least 3 mm contact separation.
- In the event of damage to the power cable this must always be replaced by a qualified contractor authorised by the manufacturer, using original spare parts.
- Fix the appliance in position as described in chapter "Installation / Preparations".
- Observe the minimum and maximum water inlet pressure (see chapter "Specification / Data table").
- We recommend regular inspection (to establish the current condition of the system), and maintenance by a qualified contractor if required (to return the system to its original condition).

OPERATION

1. General information

The chapters "Special Information" and "Operation" are intended for both the user and qualified contractors.

The chapter "Installation" is intended for qualified contractors.



Note
Read these instructions carefully before using the appliance and retain them for future reference. Pass on the instructions to any new user where appropriate.

1.1 Relevant documents

- WPM operating instructions
- WPM commissioning instructions
- Operating and installation instructions for the connected heat pump
- Operating and installation instructions for all other components in the system

1.2 Safety instructions

1.2.1 Structure of safety instructions



KEYWORD Type of risk
Here, possible consequences are listed that may result from failure to observe the safety instructions.
► Steps to prevent the risk are listed.

1.2.2 Symbols, type of risk

Symbol	Type of risk
	Injury
	Electrocution

1.2.3 Keywords

KEYWORD	Meaning
DANGER	Failure to observe this information will result in serious injury or death.
WARNING	Failure to observe this information may result in serious injury or death.
CAUTION	Failure to observe this information may result in non-serious or minor injury.

1.3 Other symbols in this documentation



Note
General information is identified by the adjacent symbol.
► Read these texts carefully.

Symbol	Meaning
	Material losses (appliance damage, consequential losses and environmental pollution)
	Appliance disposal

► This symbol indicates that you have to do something. The action you need to take is described step by step.

1.4 Units of measurement



Note
All measurements are given in mm unless stated otherwise.

2. Safety

2.1 Intended use

Observe the operating limits listed in chapter "Specification".

This appliance is intended for domestic use. It can be used safely by untrained persons. The appliance can also be used in a non-domestic environment, e.g. in a small business, as long as it is used in the same way.

Any other use beyond that described shall be deemed inappropriate. Observation of these instructions and of instructions for any accessories used is also part of the correct use of this appliance.

2.2 General safety instructions

- The electrical installation and installation of the heating circuit must only be carried out by a recognised, qualified contractor or by our customer support engineers.
- The qualified contractor is responsible for adherence to all currently applicable regulations during installation and commissioning.
- Operate the appliance only when fully installed and with all safety equipment fitted.
- Protect the appliance from dust and dirt ingress during building work.



WARNING Injury
The appliance may be used by children aged 8 and older and persons with reduced physical, sensory or mental capabilities or a lack of experience and know-how, provided that they are supervised or they have been instructed on how to use the appliance safely and have understood the resulting risks. Children must never play with the appliance. Children must never clean the appliance or perform user maintenance unless they are supervised.

**WARNING Injury**

► For safety reasons, only operate the appliance with the casing closed.

2.3 Test symbols

See type plate on the appliance.

3. Appliance compatibility

The appliance can be operated in conjunction with the following air | water heat pumps:

- HPA-O 3-8 CS Plus
- HPA-O 7-13 (C)(S) Premium
- WPL 13/18 E, WPL 13/18 cool
- WPL 15-25 A(C)(S)
- WPL 33 HT(S)
- WPL 07-17 ACS classic
- WPL 19-24 I, A

4. Appliance description

The appliance is a hydraulic module for air/water heat pumps installed outdoors and is installed by wall mounting inside the thermal envelope of the building. Connection to the water side of the appliance is from below. Connections are provided on the appliance for the heat pump flow, the heating system flow and for the heat exchanger for DHW heating. A further connection is intended for the drain hose from the safety valve.

The following are integrated into the appliance: a diaphragm expansion vessel with 24 litre capacity, a high efficiency [HE heating circuit pump sized in line with heating output, an electric emergency/booster heater and a WPM heat pump manager.

Particular feature of the HM(S) with ASL-HM

The ASL-HM connector block is equipped with additional connections for the heat pump return, the heating system return and the return from the heat exchanger for DHW heating. In addition, the connections are equipped with ball shut-off valves to facilitate installation.

4.1 WPM heat pump manager

The heat pump manager is responsible for the processes that control and regulate the heat pump.

5. Maintenance and care**Material losses**

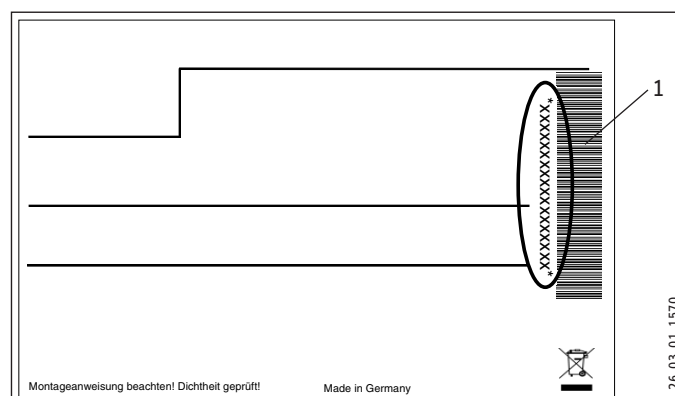
Maintenance work, such as checking the electrical safety, must only be carried out by a qualified contractor.

A damp cloth is all you need to care for the plastic parts. Never use abrasive or corrosive cleaning agents.

We recommend regular inspection (to establish the current condition of the system), and maintenance by a qualified contractor if required (to return the system to its original condition).

6. Troubleshooting

If you cannot remedy the fault, notify your qualified contractor. To facilitate and speed up your enquiry, please provide the serial number from the type plate. The type plate is located at the front top, on the right or left hand side of the casing.

Sample type plate

1 Number on the type plate

INSTALLATION


7. Safety

Only a qualified contractor should carry out installation, commissioning, maintenance and repair of the appliance.

7.1 General safety instructions

We guarantee trouble-free function and operational reliability only if original accessories and spare parts intended for the appliance are used.

7.2 Instructions, standards and regulations

 **Note**
Observe all applicable national and regional regulations and instructions.

8. Appliance description

8.1 Standard delivery

The following are delivered with the appliance:


- 4 double ended screws with rawl plugs, washers and nuts
- 3 TAF PT immersion/contact sensor
- 1 AF PT outside sensor
- Installation template

8.2 Accessories

- Connector block ASL-HM

9. Installation

9.1 General information

 **Note**
We do not recommend installing the appliance in wet rooms. Wet rooms include rooms used, for example, for washing or drying clothes.


To protect the appliance against damage it should be transported to the installation location in its original packaging.

Install the appliance in a suitable location close to the heat pump.

Ensure that the wall structure can bear the weight of the appliance before securing the appliance to the wall.

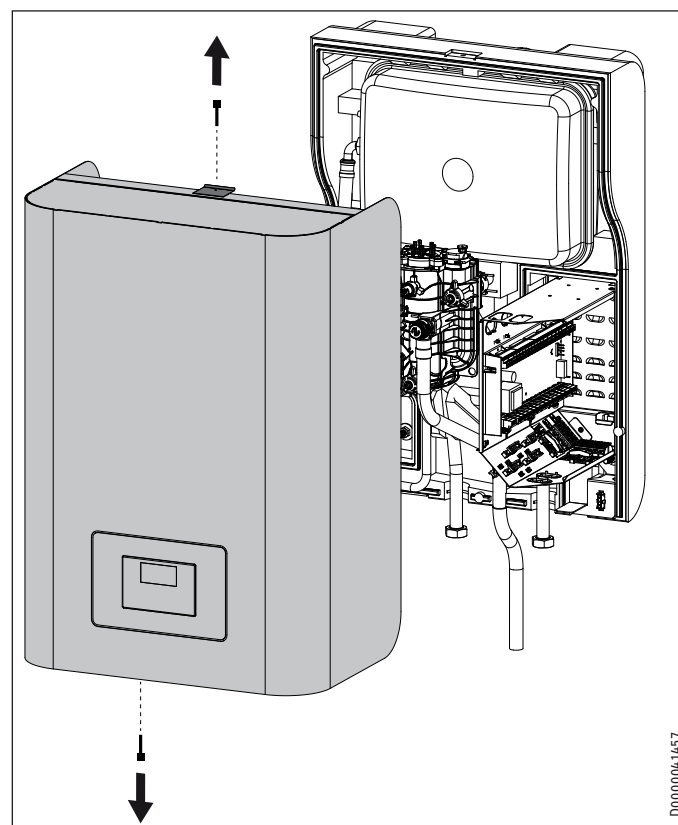
The wall on which the appliance is to be mounted must be even. Once mounted, the appliance cap must seal the appliance without gaps.

- ▶ Use spacer discs to compensate for any unevenness.

 **Material losses**
▶ Always fit the appliance cap when interrupting installation work for any length of time.

9.2 Removing the appliance cap

HM(S) | HM(S) Trend

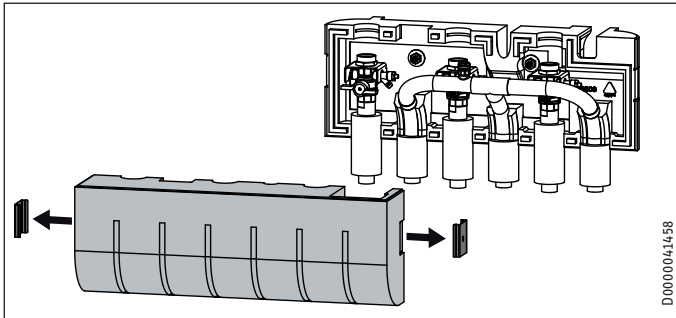


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INSTALLATION

Installation

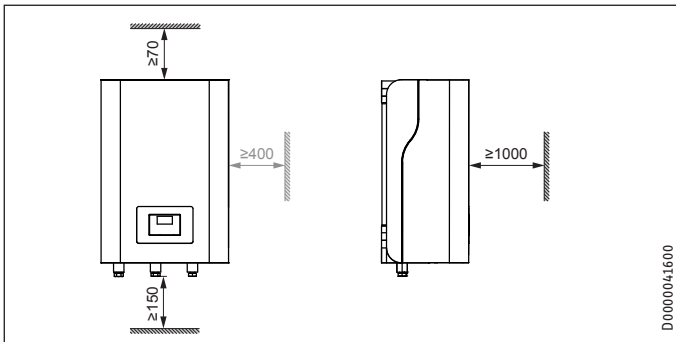
ASL-HM



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9.3 Minimum clearances

HM(S) | HM(S) Trend without ASL-HM

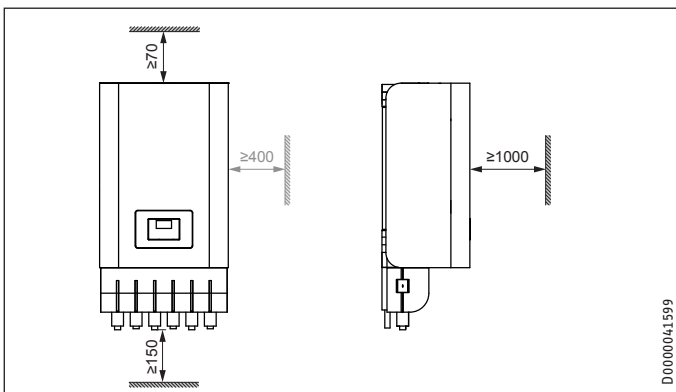


D0000041600

- ▶ Maintain the minimum clearances to enable maintenance work on the appliance.

If the appliance is not installed in a recess, we recommend leaving 400 mm clearance on the right-hand side for the electrical connection.

HM(S) | HM(S) Trend with ASL-HM



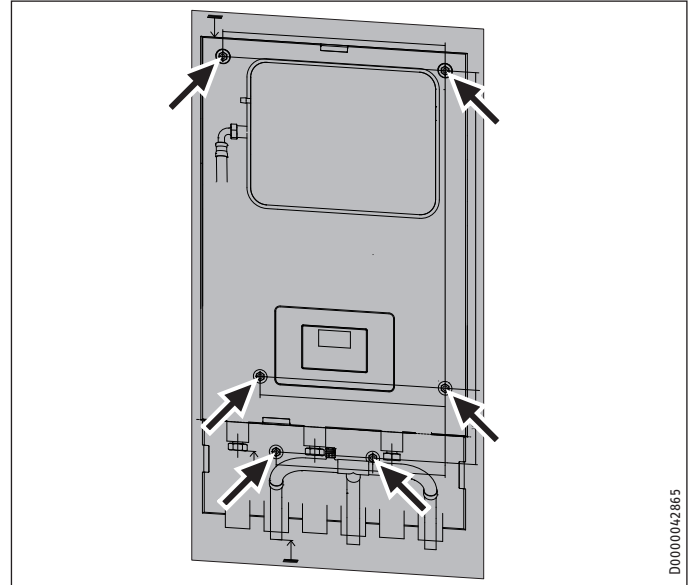
D0000041599

- ▶ Maintain the minimum clearances to enable maintenance work on the appliance.

If the appliance is not installed in a recess, we recommend leaving 400 mm clearance on the right-hand side for the electrical connection.

9.4 Wall mounting

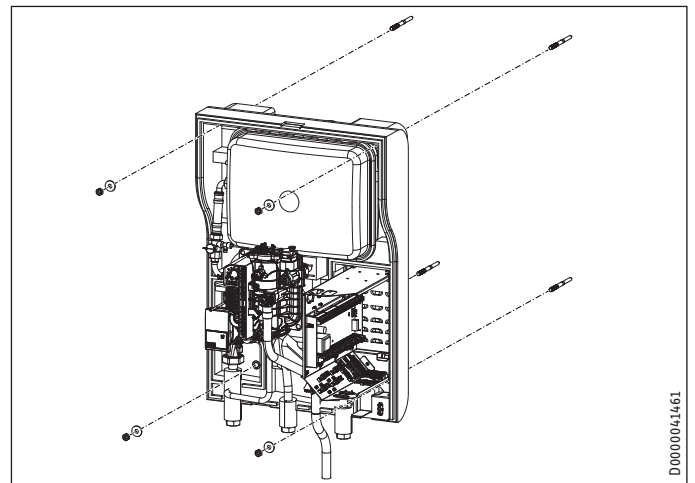
General



D0000042865

- ▶ Position the installation template horizontally at the required installation location. The installation template can be found in the cardboard box.
- ▶ Mark the holes on the wall. Please note that the bottom two holes are only required in combination with the ASL-HM.
- ▶ Drill the holes.
- ▶ Insert suitable rawl plugs into the holes.
- ▶ Turn the double ended screws into the rawl plugs.

HM(S) | HM(S) Trend without ASL-HM



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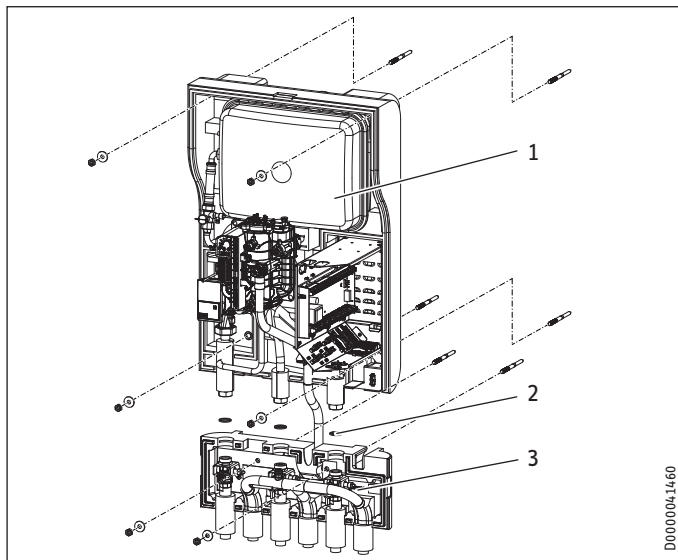
- ▶ Place the appliance onto the double ended screws, followed by the washers provided. Secure the appliance with the corresponding nuts.

INSTALLATION

Installation

HM(S) | HM(S) Trend with ASL-HM

First mount the ASL-HM connector block on the wall.



- 1 Appliance
- 2 Connector block
- 3 Gaskets

- ▶ Place the connector block onto the double ended screws, followed by the washers provided. Secure the connector block with the corresponding nuts.
- ▶ Place the appliance onto the double ended screws, followed by the washers provided. Secure the appliance with the corresponding nuts.
- ▶ Connect the appliance to the connector block. Do not forget the gaskets.

9.5 Hydraulic connection



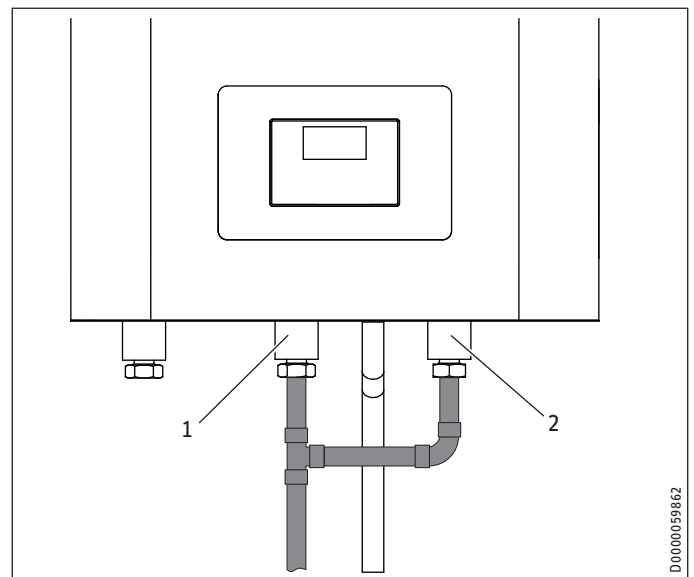
Material losses

The heating system to which the appliance is connected must be installed by a qualified contractor in accordance with the water installation drawings that are part of the technical guides.



Material losses

For appliances with connector block or when fitting additional shut-off devices, install a further safety valve in an accessible location on the heat generator itself or in the flow line in close proximity to the heat generator. There must be no shut-off valve between the heat generator and the safety valve.



- 1 Heating flow
- 2 Heat exchanger flow



Note

If the appliance is used without a DHW cylinder, install a tee.

- ▶ Link connections “Heating flow” and “Heat exchanger flow” with a tee.

- ▶ Insulate the pipes with insulating material. To prevent air from entering, ensure that the pipes are sealed up to the apertures in the casing.

INSTALLATION

Installation

9.6 Filling the system

9.6.1 General information

! Material losses
Never switch on the power before filling the system.

! Material losses
High flow rates or water hammer can damage the appliance.
► Fill the appliance at a low flow rate.

In the delivered condition, the diverter valve of the MFG is positioned at the centre, enabling the heating and DHW circuits to be filled evenly. If power is switched on, the diverter valve automatically moves into the central heating position.

If you intend filling or draining the system later, first place the diverter valve into its centre position.

For this, enable controller parameter DRAIN HYD in the DIAGNOSIS / RELAY TEST SYSTEM menu.

9.6.2 Determine the fill pressure

The diaphragm expansion vessel installed in the appliance has a volume of 24 litres. The pre-charge pressure P₀ is 1.5 bar.

If the height difference Δh between the highest point of the heating system and the diaphragm expansion vessel is no more than 13 m, the diaphragm expansion vessel can be used without any changes being required.

► Fill the heating system at a pressure of at least 1.8 bar (P₀ + 0.3 bar). Observe the safety valve's response pressure of 3 bar.

If the height difference between the highest point of the heating system and the diaphragm expansion vessel is more than 13 m, the pre-charge pressure needs to be adapted.

► Calculate the pre-charge pressure:

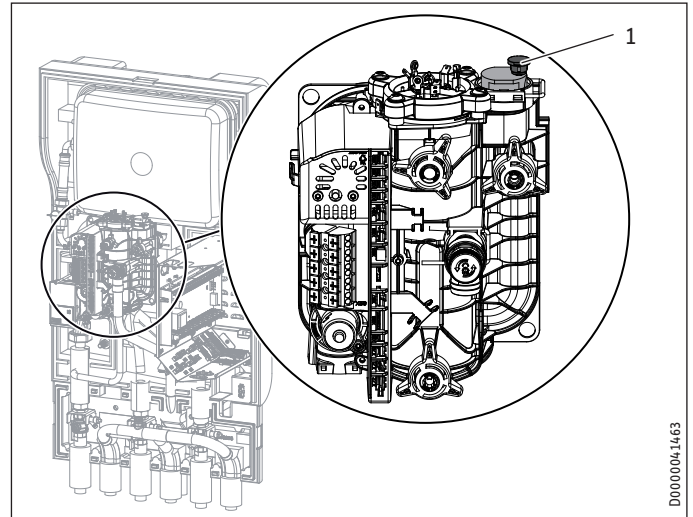
$$P_0 = \frac{\Delta h}{10} + 0,2 \text{ bar}$$

D0000081230

- Note that the heating system fill pressure increases accordingly.
- Check whether a further external diaphragm expansion vessel needs to be installed.
- Fill the heating system at the appropriate pressure (P₀ + 0.3 bar). Observe the safety valve's response pressure of 3 bar.

9.7 Venting the appliance

Multifunction assembly (MFG)

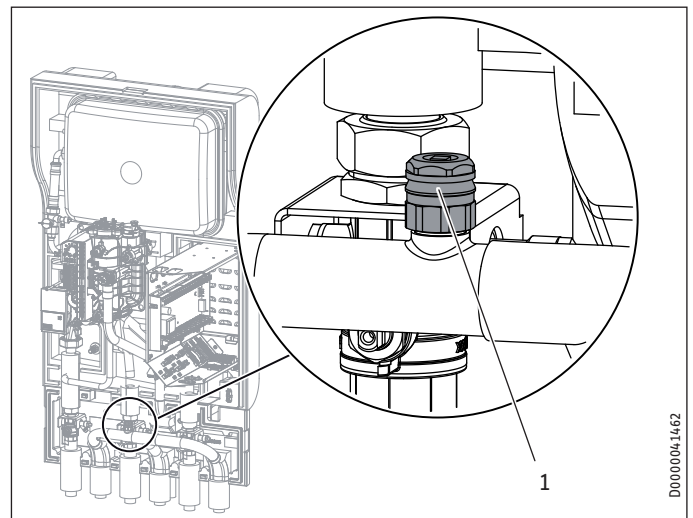


1 Air vent valve

- Vent the pipework by pulling up the red cap on the air vent valve.
- Close the air vent valve after the venting process.

9.7.1 HM(S) | HM(S) Trend with ASL-HM

Heating circuit



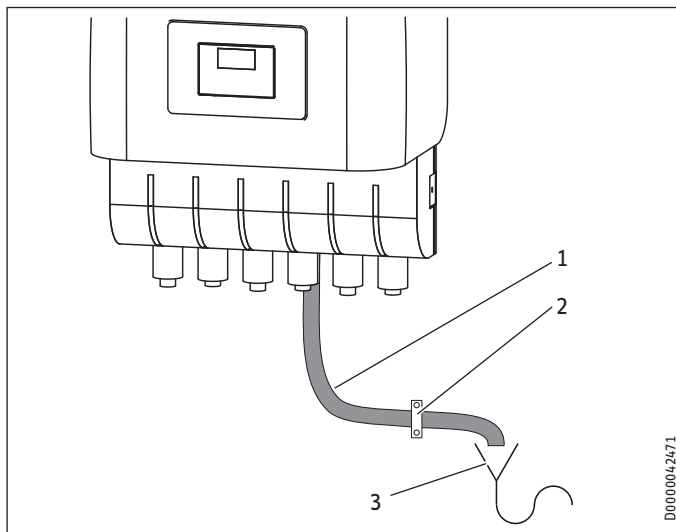
1 Air vent valve

- Vent the heating circuit at the ASL-HM connector block.

INSTALLATION

Power supply

9.8 Safety valve



- 1 Drain hose
- 2 Fixing
- 3 Drain

- ▶ Size the discharge outlet so that water can drain off unimpeded when the safety valve is fully opened.
- ▶ Ensure that the drain hose of the safety valve is open to the outside.
- ▶ Install the drain hose of the safety valve with a constant fall to the drain. When installing the drain, never kink the drain hose.
- ▶ Secure the drain hose by suitable means, to prevent any hose movement in the event of water being discharged.

10. Power supply



WARNING Electrocutation
Carry out all electrical connection and installation work in accordance with national and regional regulations.



WARNING Electrocutation
The connection to the power supply must be in the form of a permanent connection. Ensure the appliance can be separated from the power supply by an isolator that disconnects all poles with at least 3 mm contact separation. This requirement can be met with contactors, circuit breakers, fuses/MCBs, etc.



WARNING Electrocutation
▶ Before working on the appliance, isolate it from the power supply at the control panel.



Note
The specified voltage must match the mains voltage. Observe the type plate.



Note
Observe the operating and installation instructions of the heat pump manager and the heat pump.

The connection must only be carried out by a qualified contractor and in accordance with these instructions.

- ▶ Use cables with the relevant cross-sections. Observe the applicable national and regional regulations.

MCB/fuse rating	Assignment	Cable cross-section
B 16 A	Electric emergency/booster heater (DHC) Three-phase	2.5 mm ² for routing through a wall. 1.5 mm ² with only two live cores and routing on a wall or in an electrical conduit on a wall.
B 16 A	Electric emergency/booster heater (DHC) 1 phase	2.5 mm ² for routing through a wall. 1.5 mm ² when routing multi-core cables on a wall or in an electrical conduit on a wall.
B 16 A	Control	1.5 mm ²

Electrical data is provided in chapter "Specification / Data table".



Material losses
Provide separate fuses/MCBs for the two power circuits, i.e. for the compressor and the electric emergency/booster heater circuits.

Route the electrical cables into the appliance from below, along the channel provided.

- ▶ Then route the electrical cables through the strain relief fittings.
- ▶ Check the function of the strain relief fittings.

INSTALLATION

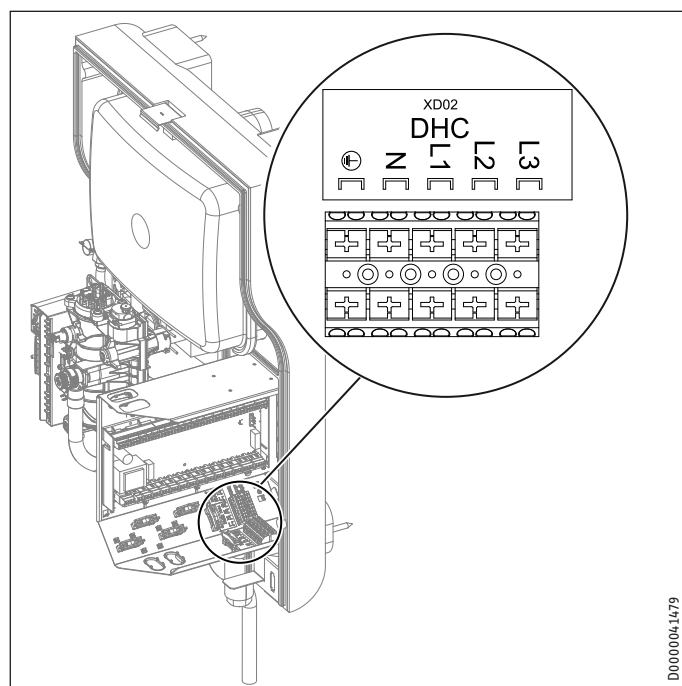
Power supply

10.1 Electric emergency/booster heater

General

Appliance function	Effect of the electric emergency/booster heater
Mono energetic operation	If the heat pump undershoots the dual mode point, the electric emergency/booster heater safeguards both the heating operation and the delivery of high DHW temperatures.
Emergency mode	Should the heat pump suffer a fault that prevents its continued operation, the heating output will be covered by the electric emergency/booster heater.

Electrical connection 3 phase HM | HM Trend



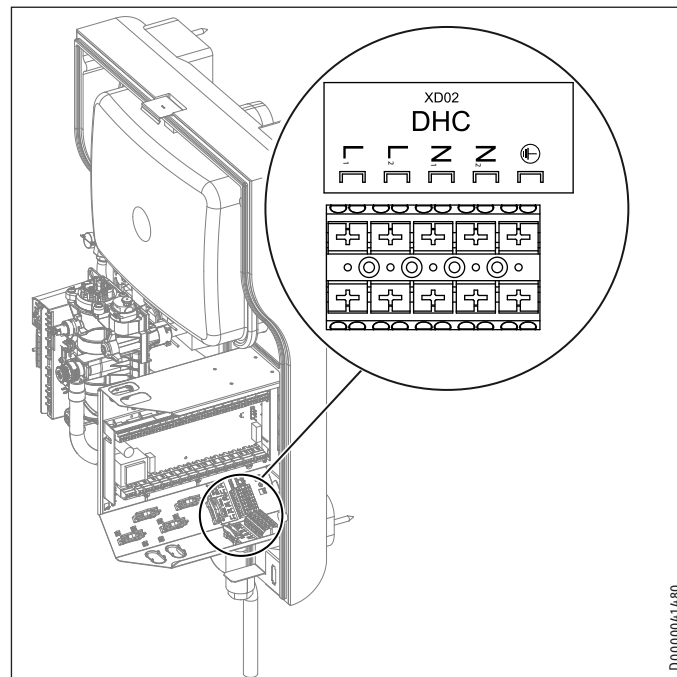
D0000041479

XD02 Electric emergency/booster heater (DHC)

L1, L2, L3, N, PE

Connected load	Terminal assignment			
2.9 kW	L1		N	PE
5.9 kW	L1	L2	N	PE
8.8 kW	L1	L2	L3	N PE

Power connection 1 phase only HM (S) | HM (S) Trend



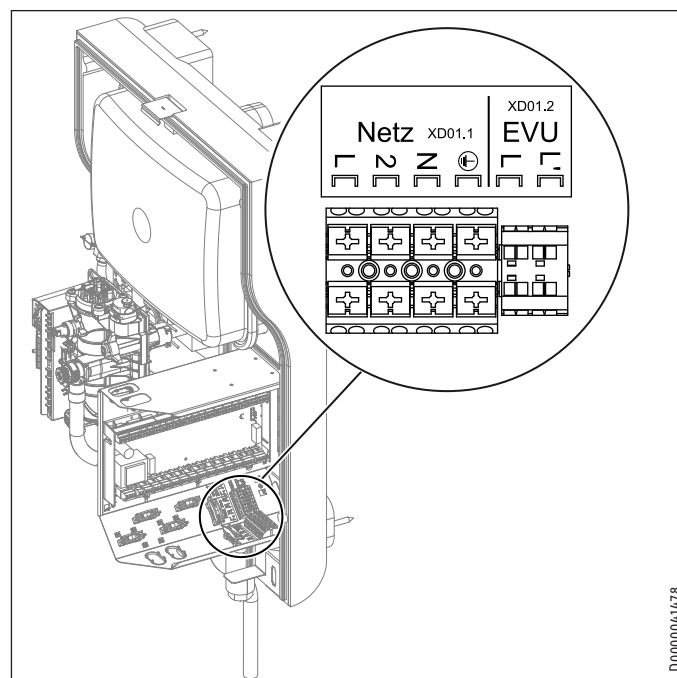
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XD02 Electric emergency/booster heater (DHC)

L1, L2, N1, N2, PE

Connected Load	Terminal assignment		
2.9 kW	L1	N1	PE
2.9 kW		L2	N2 PE
5.9 kW	L1	L2	N1 N2 PE

10.2 Control voltage



D0000041478

XD01.1 Power supply (Netz)

L, 2, N, PE

XD01.2 Power supply utility (EVU)

L, L'

INSTALLATION

Power supply

10.3 WPM heat pump manager

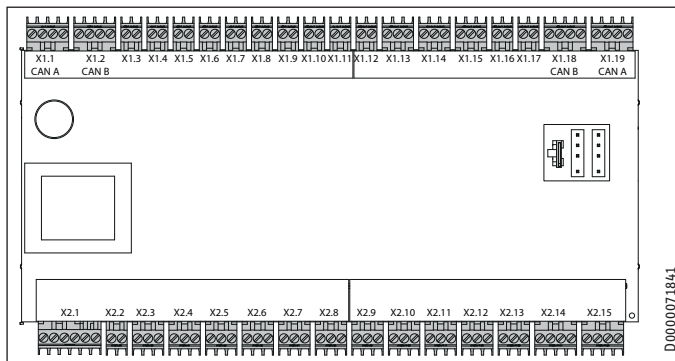


WARNING Electrocutation

Only components that operate with safety extra low voltage (SELV) and that ensure secure separation from the mains voltage supply may be connected to the low voltage terminals of the appliance.

Connecting other components can make parts of the appliance and connected components live.

► Only use components which have been approved by us.



Safety extra low voltage

X1.1	+	+	CAN (connection for heat pump and WPE heat pump extension)
CAN A	-	-	
	L	L	
	H	H	
X1.2	+	+	CAN (connection for FET remote control and ISG Internet Service Gateway)
CAN B	-	-	
	L	L	
	H	H	
X1.3	Signal	1	Outside temperature sensor
	Earth	2	
X1.4	Signal	1	Buffer sensor (heating circuit sensor 1)
	Earth	2	
X1.5	Signal	1	Flow sensor
	Earth	2	
X1.6	Signal	1	Heating circuit sensor 2
	Earth	2	
X1.7	Signal	1	Heating circuit sensor 3
	Earth	2	
X1.8	Signal	1	DHW cylinder sensor
	Earth	2	
X1.9	Signal	1	Source sensor
	Earth	2	
X1.10	Signal	1	2nd heat generator (2.WE)
	Earth	2	
X1.11	Signal	1	Cooling flow
	Earth	2	
X1.12	Signal	1	DHW circulation sensor
	Earth	2	
X1.13	Signal	1	FE7 remote control / telephone remote switch / heating curve optimisation / SG Ready
	Earth	2	
	Signal	3	
X1.14	Constant 12 V	+	Analogue input 0-10 V
	Input	IN	
	GND	⊥	
X1.15	Constant 12 V	+	Analogue input 0-10 V
	Input	IN	
	GND	⊥	
X1.16	Signal	1	PWM output 1
	Earth	2	
X1.17	Signal	1	PWM output 2
	Earth	2	

Safety extra low voltage

X1.18	+	+	CAN (connection for FET remote control and ISG Internet Service Gateway)
CAN B	-	-	
	L	L	
	H	H	
X1.19	+	+	CAN (connection for heat pump and WPE heat pump extension)
CAN A	-	-	
	L	L	
	H	H	

Mains voltage

X2.1	L	L	Power supply
	L	L	
	N	N	
	N	N	
	PE	⊕	
	PE	⊕	
X2.2	L' (power supply utility input)	L'	L' (power supply utility input)
	L* (pumps L)	L* (pumps L)	L* (pumps L)
X2.3	L	L	Heating circuit pump 1
	N	N	
	PE	⊕ PE	
X2.4	L	L	Heating circuit pump 2
	N	N	
	PE	⊕ PE	
X2.5	L	L	Heating circuit pump 3
	N	N	
	PE	⊕ PE	
X2.6	L	L	Buffer charging pump 1
	N	N	
	PE	⊕ PE	
X2.7	L	L	Buffer charging pump 2
	N	N	
	PE	⊕ PE	
X2.8	L	L	DHW charging pump
	N	N	
	PE	⊕ PE	
X2.9	L	L	Source pump / defrost
	N	N	
	PE	⊕ PE	
X2.10	L	L	Fault output
	N	N	
	PE	⊕ PE	
X2.11	L	L	DHW circulation pump / 2nd heat source DHW
	N	N	
	PE	⊕ PE	
X2.12	L	L	2nd heat source heating
	N	N	
	PE	⊕ PE	
X2.13	L	L	Cooling
	N	N	
	PE	⊕ PE	
X2.14	Mixer OPEN	▲	Mixer, heating circuit 2
	N	N	(X2.14.1 Mixer OPEN
	PE	⊕ PE	X2.14.2 Mixer CLOSE)
	Mixer CLOSE	▼	
X2.15	Mixer OPEN	▲	Mixer, heating circuit 3
	N	N	(X2.15.1 Mixer OPEN
	PE	⊕ PE	X2.15.2 Mixer CLOSE)
	Mixer CLOSE	▼	



Note

For every appliance fault, output X2.10 issues a 230 V signal.

In the case of temporary faults, the output switches the signal through for a specific time.

In the case of faults that result in a permanent appliance shutdown, the output switches through permanently.

INSTALLATION

Power supply

10.4 Sensor installation

10.4.1 Return temperature measuring

- ▶ Connect an additional return sensor in combination with the following heat pump types:
 - HPA-O 3-8 CS Plus (only in combination with a buffer cylinder)
 - HPA-O 7-13 (C)(S) Premium (only in combination with a buffer cylinder)
 - WPL 13 E/cool
 - WPL 18 E/cool
 - WPL 15-25 A(C)(S) (only in combination with a buffer cylinder)
 - WPL 07-17 ACS classic (only in combination with a buffer cylinder)
 - WPL 19-24 I, A (only in combination with a buffer cylinder)



Note

- ▶ For heat metering with the WPL 07-17 ACS classic / HPA-O 3-8 CS Plus in conjunction with the HM(S) (Trend) hydraulic module, observe the section "Heat metering with the WPL 07-17 ACS classic / HPA-O 3-8 CS Plus".

For systems without a buffer cylinder

- ▶ Fit the sensor in the heating circuit return as a contact sensor and if necessary, downstream of any overflow valve installed.

For systems with a buffer cylinder

- ▶ Fit the sensor as a return temperature sensor in the buffer cylinder.

Installation:

The electrical connection is made at terminal X1.4.

- ▶ When installing a sensor, observe the commissioning instructions for the heat pump manager (see chapter "Connecting external components").

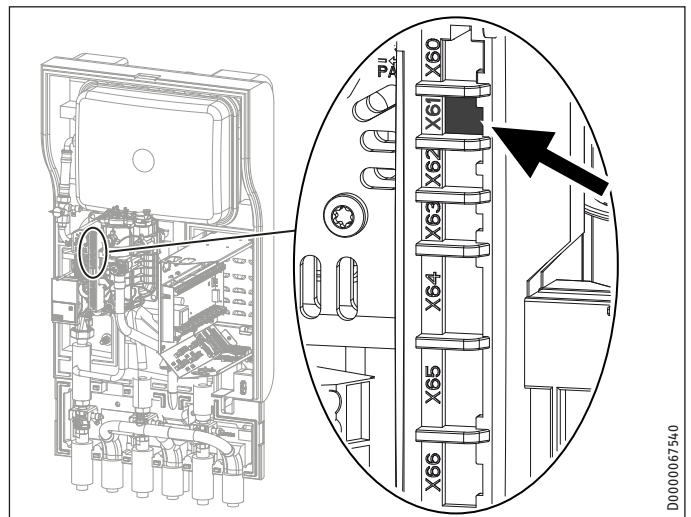
10.4.2 Heat metering with the WPL 07-17 ACS classic / HPA-O 3-8 CS Plus



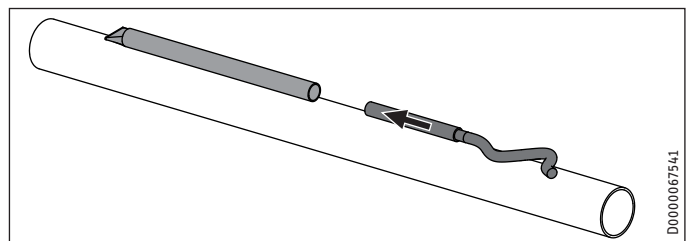
Note

- ▶ Install the following immersion sensor for the heat pump, in addition to the sensor described in chapter "Return temperature measuring".

- ▶ Use the immersion sensor connected to terminal X61 for heat metering.



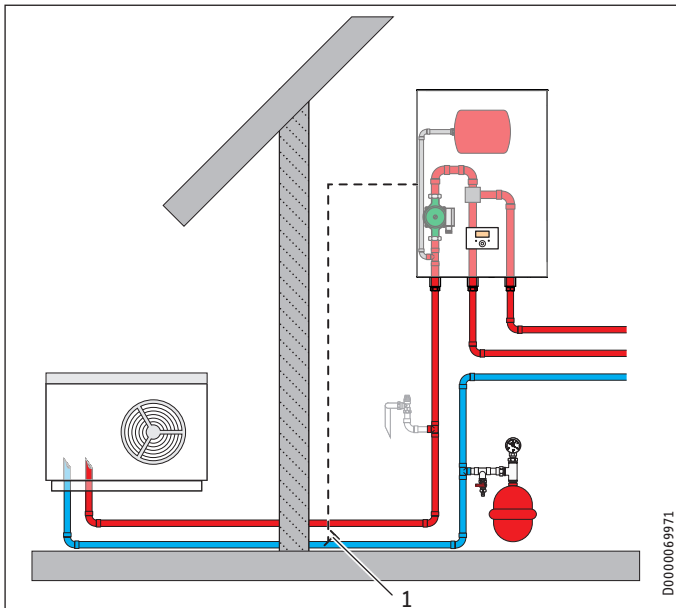
- ▶ If required, extend the sensor lead. Use a cable with a minimum diameter of 0.34 mm².



INSTALLATION

Power supply

If no ASL-HM connector block is used:



1 Immersion sensor

- ▶ Solder the sensor well provided onto the common return from the DHW and heating system in the building to the heat pump.
- ▶ Insert the immersion sensor into the sensor well.
- ▶ Insulate the pipe in accordance with national and regional regulations.

If an ASL-HM connector block is used:

- ▶ Insert the immersion sensor into the sensor well prefitted in the ASL-HM.

10.4.3 TAF PT immersion/contact sensor

- ▶ When installing a sensor, observe the commissioning instructions for the heat pump manager (see chapter “Connecting external components”).

10.4.4 Outside temperature sensor AF PT

- ▶ When installing a sensor, observe the commissioning instructions for the heat pump manager (see chapter “Connecting external components”).

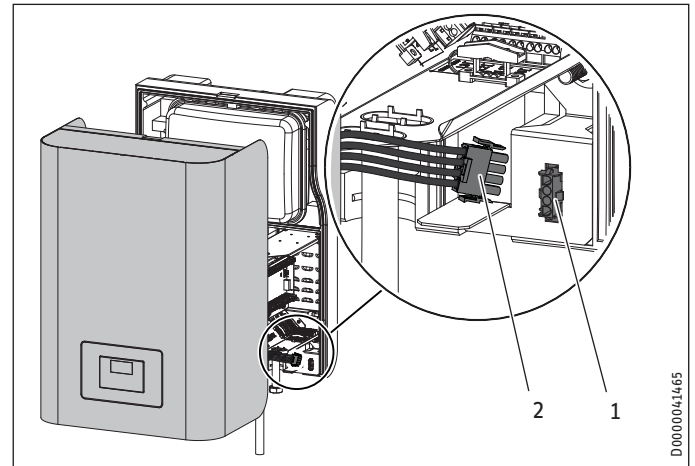
10.5 Connecting external components

- ▶ When installing external components, observe the commissioning instructions for the heat pump manager (see chapter “Connecting external components”).

10.6 Fitting the appliance cap

- ▶ Fit the appliance cap in reverse order to the instructions provided in chapter “Removing the appliance cap”.

Cable with connector



1 Connection

2 Connector from the programming unit

- ▶ Fit the connector from the programming unit in the control panel.



Material losses

Take care not to pinch the power cable of the programming unit when fitting the appliance cover.

- ▶ Arrange the power cable in a loop again and secure it with the multi-use cable tie provided.

11. Commissioning

- ! Material losses**
To prevent the temperature falling below the dew point, the casing must be closed during operation and undamaged.

A contractor must commission the appliance, make all the settings at the commissioning level of the heat pump manager, and instruct the user.

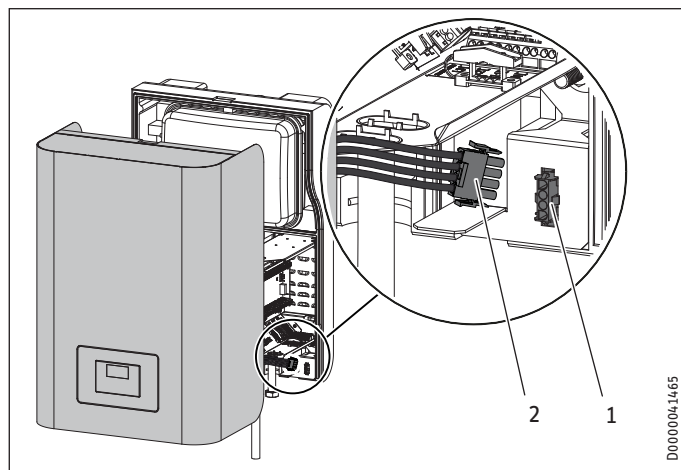
Commissioning must be carried out in accordance with these operating and installation instructions and the operating and installation instructions of all components belonging to the heat pump system. Our customer support can assist with commissioning, which is a chargeable service.

A heat pump system can comprise many different components. A sound knowledge of the system function is therefore essential.

Where this appliance is intended for commercial use, the rules of the relevant Health & Safety at Work Act may be applied during commissioning. For further details, check with your local supervisory body; in Germany for example, this is the TÜV.

11.1 Check before commissioning the heat pump manager

- ! Material losses**
When removing the appliance cap, pull the connection plug of the programming unit out of the control panel.



- 1 Connection
- 2 Connector from the programming unit

- ! Material losses**
Take care not to pinch the power cable of the programming unit when fitting the appliance cap.
▶ Arrange the power cable in a loop and secure it with the multi-use cable tie provided.

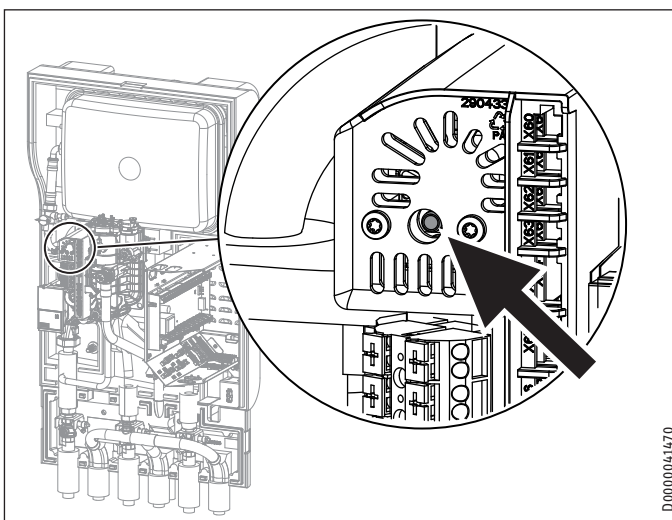
- ! Material losses**
Observe the maximum system temperature in underfloor heating systems.

- ▶ Check whether the heating system is charged to the correct pressure.
- ▶ Have you closed the air vent valve of the multi-function assembly (MFG) again after venting?
- ▶ Have you placed and connected the outside temperature sensor and the return sensor correctly?
- ▶ Check whether further sensors are correctly positioned and connected.
- ▶ Check whether the power supply is connected correctly.
- ▶ Check whether the signal cable to the heat pump (bus cable) is correctly connected.

11.1.1 High limit safety cut-out

At ambient temperatures below $-15\text{ }^{\circ}\text{C}$ the high limit safety cut-out of the multi-function assembly may respond.

- ▶ Check whether the high limit safety cut-out has tripped.



- ▶ Reset the high limit safety cut-out by pressing the reset button.

11.2 Appliance handover

Explain the function of the appliance to users and familiarise them with its operation.

- Note**
Hand over these operating and installation instructions to the user for safe-keeping. Always carefully observe all information in these instructions. They provide information on safety, operation, installation and maintenance of the appliance.

12. Troubleshooting



WARNING Electrocutation

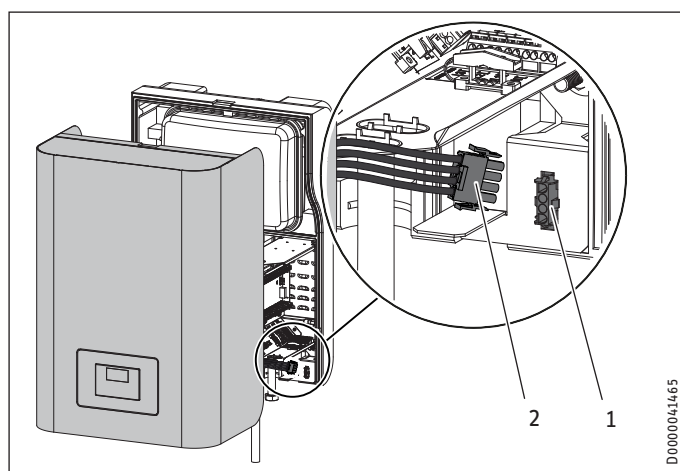
- ▶ Isolate the appliance from the power supply when carrying out any work.



Material losses

When removing the appliance cap, pull the connection plug of the programming unit out of the control panel. Proceed as follows:

- ▶ Pull the appliance cap forward by approx. 5 cm.
- ▶ Pull off the connector.
- ▶ Remove the appliance cover.



- 1 Connection
- 2 Connector from the programming unit



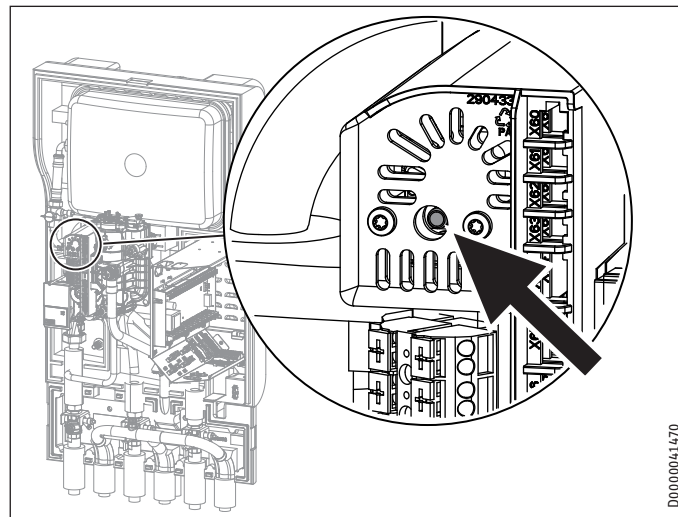
Material losses

Take care not to pinch the power cable of the programming unit when fitting the appliance cover.

- ▶ Arrange the power cable in a loop again and secure it with the multi-use cable tie provided.

12.1 Resetting the high limit safety cut-out

If the heating water temperature exceeds 90 °C, the electric emergency/booster heater shuts down.



- ▶ Remove the cause of the fault.
- ▶ Reset the high limit safety cut-out by pressing the reset button. To do so, use a pointed object.
- ▶ Check whether the heating water is being circulated at a sufficiently high flow rate.

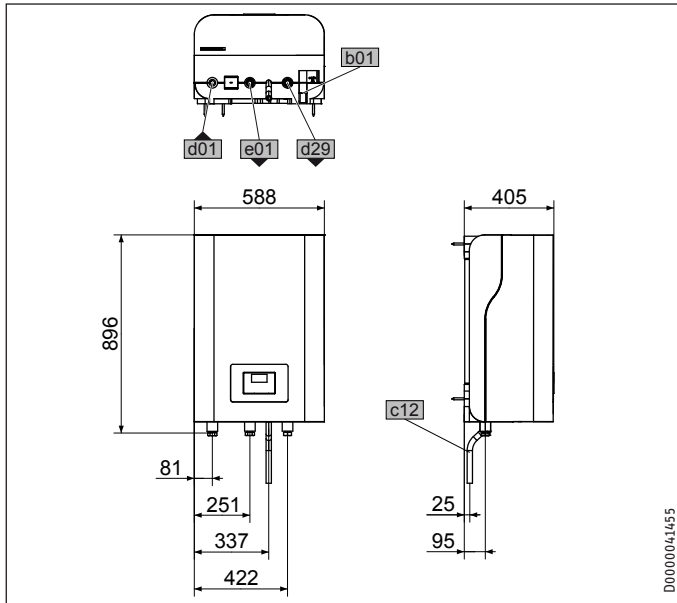
13. Maintenance

We recommend a regular inspection (to establish the current condition of the system), and maintenance if required (to return the system to its original condition).

14. Specification

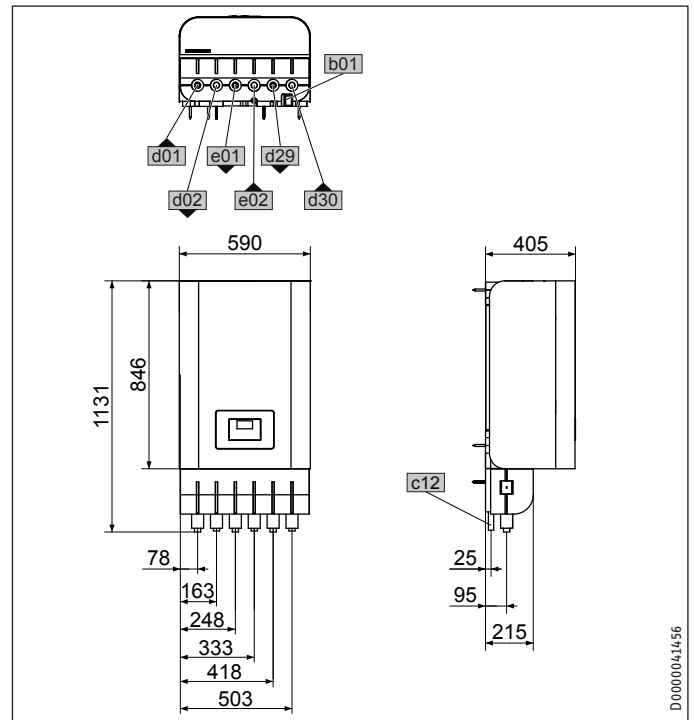
14.1 Dimensions and connections

HM(S) | HM(S) Trend without ASL-HM



b01	Entry electrical cables		
c12	Safety valve drain		
d01	Heat pump flow	Female thread	G 1
d29	Heat exchanger flow	Female thread	G 1
e01	Heating flow	Female thread	G 1

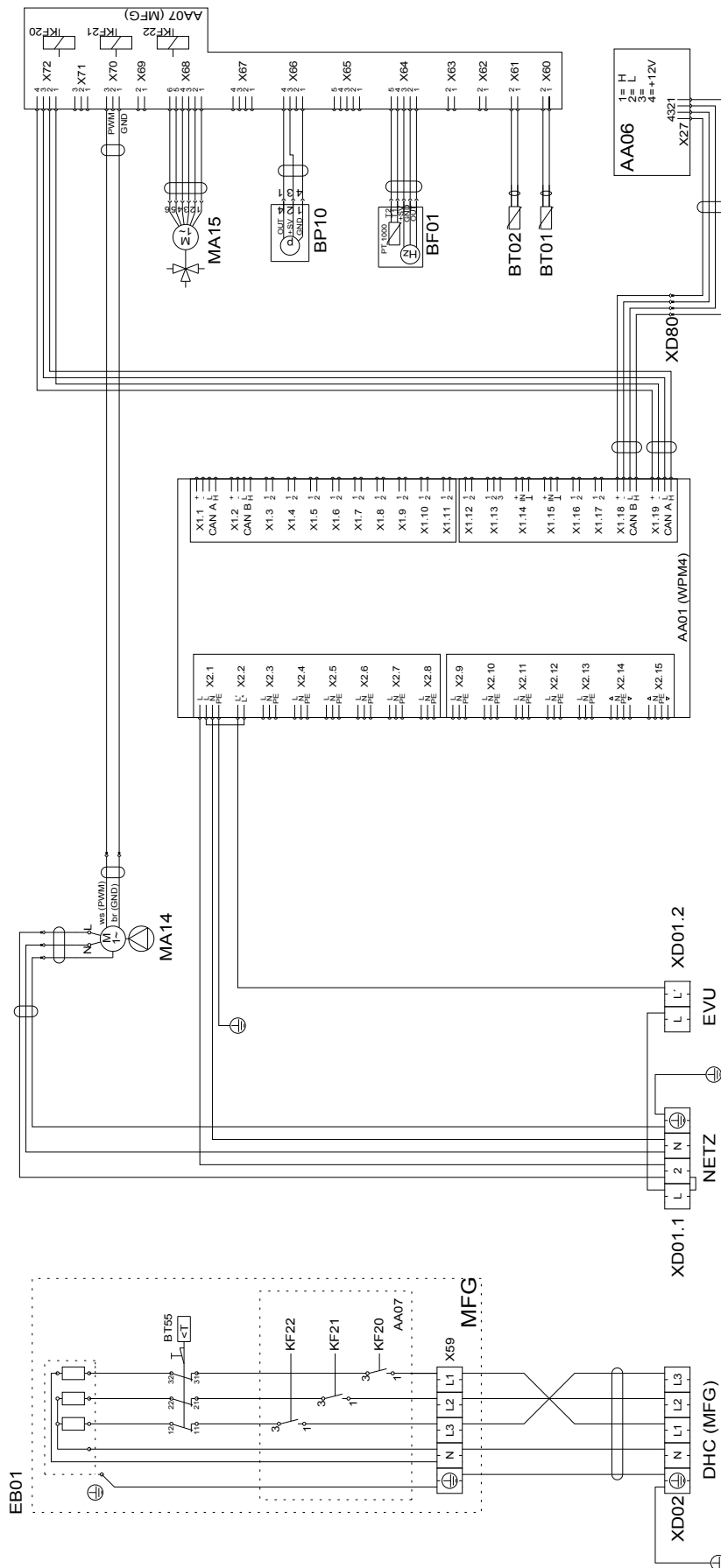
HM(S) | HM(S) Trend with ASL-HM



b01	Entry electrical cables		
c12	Safety valve drain		
d01	Heat pump flow	Diameter	mm 28
d02	Heat pump return	Diameter	mm 28
d29	Heat exchanger flow	Diameter	mm 28
d30	Heat exchanger return	Diameter	mm 28
e01	Heating flow	Diameter	mm 28
e02	Heating return	Diameter	mm 28

INSTALLATION
Specification

14.2 Wiring diagram HM | HM Trend



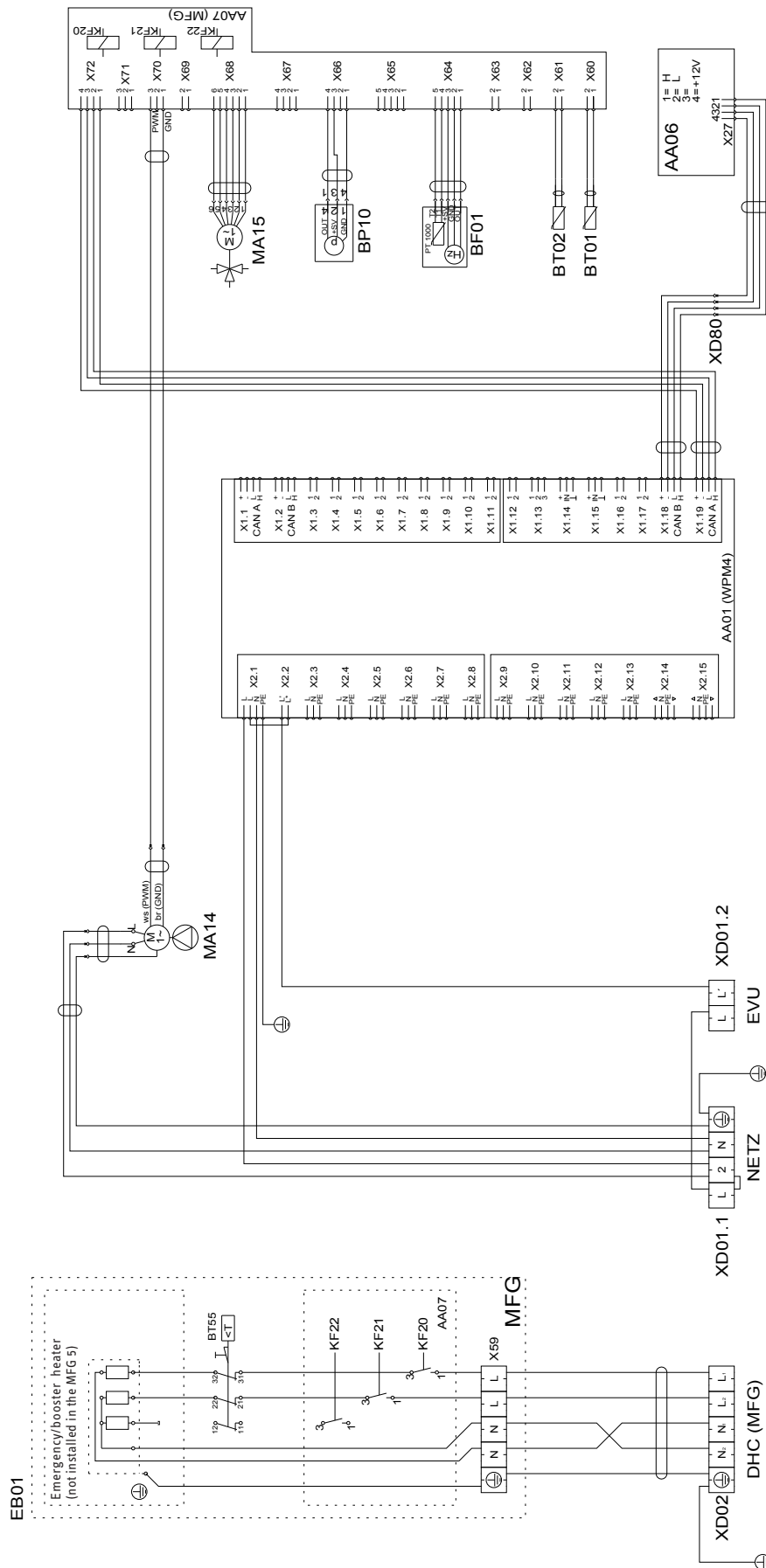
INSTALLATION

Specification

AA01	WPM heat pump manager	AA07-X60	Connector, temperature sensor, heat pump flow BT01
AA06	Programming unit	AA07-X61	Connector, temperature sensor, heat pump return BT02
AA07	PCB, booster heater MFG	AA07-X62	Not assigned – connector, temperature sensor, heat pump return
EB01	Booster heater MFG	AA07-X63	Not assigned – connector, temperature sensor, DHW cylinder, internal
BF01	Flow rate and temperature, heating circuit	AA07-X64	Connector, temperature and flow rate, heating circuit, BF01
BP10	Pressure sensor, heating circuit	AA07-X65	Not assigned
BT01	Temperature sensor, heat pump flow	AA07-X66	Rast 2.5 connector (heating system pressure) BP01
BT02	Temperature sensor, heat pump return	AA07-X67	Not assigned
BT55	High limit safety cut-out MFG (manual reset)	AA07-X68	Connector, switching, motor, diverter valve central heating / DHW
MA14	Motor, buffer charging pump (PWM/1-10V)	AA07-X69	Not assigned
MA15	Motor, diverter valve, heating/DHW	AA07-X70	Connector, switching, pump, heating circuit PWM/1-10V
KF20	Relay, booster heater MFG	AA07-X71	Not assigned
KF21	Relay, booster heater MFG	AA07-X72	Connector, CAN bus
KF22	Relay, booster heater MFG	EB01-X59	Terminal, MFG
XD01.1	Terminal, power supply		
XD01.2	Terminal, power-OFF contact		
XD02	Terminal, MFG power supply		
XD80	Plug-in connector (CAN bus)		
AA01	extra low voltage		
AA01-X1.1	Connector, CAN A (WP connection)		
AA01-X1.2	Connector, CAN B (FET/ISG connection)		
AA01-X1.3	Connector, outside temperature sensor		
AA01-X1.4	Connector, buffer temperature sensor BT06		
AA01-X1.5	Connector, flow temperature sensor		
AA01-X1.6	Connector, heating circuit temperature sensor 2		
AA01-X1.7	Connector, heating circuit temperature sensor 3		
AA01-X1.8	Connector, DHW cylinder sensor BT20		
AA01-X1.9	Connector, source sensor		
AA01-X1.10	Connector, heat source 2		
AA01-X1.11	Connector, flow, cooling		
AA01-X1.12	Connector, DHW circulation sensor		
AA01-X1.13	Connector, remote control FE7		
AA01-X1.14	Connector, analogue input 0-10 V		
AA01-X1.15	Connector, analogue input 0-10 V		
AA01-X1.16	Connector, PWM output 1		
AA01-X1.17	Connector, PWM output 2		
AA01-X1.18	Connector, CAN B (FET/ISG connection)		
AA01-X1.19	Connector, CAN A (MFG)		
AA01	Control voltage		
AA01-X2.1	Connector, power supply		
AA01-X2.2	Connector, power-OFF contact		
AA01-X2.3	Connector, heating circuit pump 1		
AA01-X2.4	Connector, heating circuit pump 2		
AA01-X2.5	Connector, heating circuit pump 3		
AA01-X2.6	Connector, buffer charging pump 1		
AA01-X2.7	Connector, buffer charging pump 2		
AA01-X2.8	Connector, DHW charging pump		
AA01-X2.9	Connector, source pump/defrost		
AA01-X2.10	Connector, fault output		
AA01-X2.11	Connector, DHW circulation pump / HS 2 – DHW		
AA01-X2.12	Connector, HS 2 – heating		
AA01-X2.13	Connector, cooling		
AA01-X2.14	Connector, mixer, heating circuit 2 (X2.14.1 Mixer OPEN/X2.14.2 Mixer CLOSE)		
AA01-X2.15	Connector, mixer, heating circuit 3 (X2.15.1 Mixer OPEN/X2.15.2 Mixer CLOSE)		
AA06-X27	Terminal, programming unit		

INSTALLATION Specification

14.3 Wiring diagram HMS | HMS Trend



D0000081112

INSTALLATION

Specification

AA01	WPM heat pump manager	AA07-X60	Connector, temperature sensor, heat pump flow BT01
AA06	Programming unit	AA07-X61	Connector, temperature sensor, heat pump return BT02
AA07	PCB, booster heater MFG	AA07-X62	Not assigned – connector, temperature sensor, heat pump return
EB01	Booster heater MFG	AA07-X63	Not assigned – connector, temperature sensor, DHW cylinder, internal
BF01	Flow rate and temperature, heating circuit	AA07-X64	Connector, temperature and flow rate, heating circuit, BF01
BP10	Pressure sensor, heating circuit	AA07-X65	Not assigned
BT01	Temperature sensor, heat pump flow	AA07-X66	Rast 2.5 connector (heating system pressure) BP01
BT02	Temperature sensor, heat pump return	AA07-X67	Not assigned
BT55	High limit safety cut-out MFG (manual reset)	AA07-X68	Connector, switching, motor, diverter valve central heating / DHW
MA14	Motor, buffer charging pump (PWM/1-10V)	AA07-X69	Not assigned
MA15	Motor, diverter valve, heating/DHW	AA07-X70	Connector, switching, pump, heating circuit PWM/1-10V
KF20	Relay, booster heater MFG	AA07-X71	Not assigned
KF21	Relay, booster heater MFG	AA07-X72	Connector, CAN bus
KF22	Relay, booster heater MFG	EB01-X59	Terminal, MFG
XD01.1	Terminal, power supply		
XD01.2	Terminal, power-OFF contact		
XD02	Terminal, MFG power supply		
XD80	Plug-in connector (CAN bus)		
AA01	extra low voltage		
AA01-X1.1	Connector, CAN A (WP connection)		
AA01-X1.2	Connector, CAN B (FET/ISG connection)		
AA01-X1.3	Connector, outside temperature sensor		
AA01-X1.4	Connector, buffer temperature sensor BT06		
AA01-X1.5	Connector, flow temperature sensor		
AA01-X1.6	Connector, heating circuit temperature sensor 2		
AA01-X1.7	Connector, heating circuit temperature sensor 3		
AA01-X1.8	Connector, DHW cylinder sensor BT20		
AA01-X1.9	Connector, source sensor		
AA01-X1.10	Connector, heat source 2		
AA01-X1.11	Connector, flow, cooling		
AA01-X1.12	Connector, DHW circulation sensor		
AA01-X1.13	Connector, remote control FE7		
AA01-X1.14	Connector, analogue input 0-10 V		
AA01-X1.15	Connector, analogue input 0-10 V		
AA01-X1.16	Connector, PWM output 1		
AA01-X1.17	Connector, PWM output 2		
AA01-X1.18	Connector, CAN B (FET/ISG connection)		
AA01-X1.19	Connector, CAN A (MFG)		
AA01	Control voltage		
AA01-X2.1	Connector, power supply		
AA01-X2.2	Connector, power-OFF contact		
AA01-X2.3	Connector, heating circuit pump 1		
AA01-X2.4	Connector, heating circuit pump 2		
AA01-X2.5	Connector, heating circuit pump 3		
AA01-X2.6	Connector, buffer charging pump 1		
AA01-X2.7	Connector, buffer charging pump 2		
AA01-X2.8	Connector, DHW charging pump		
AA01-X2.9	Connector, source pump/defrost		
AA01-X2.10	Connector, fault output		
AA01-X2.11	Connector, DHW circulation pump / HS 2 – DHW		
AA01-X2.12	Connector, HS 2 – heating		
AA01-X2.13	Connector, cooling		
AA01-X2.14	Connector, mixer, heating circuit 2 (X2.14.1 Mixer OPEN/X2.14.2 Mixer CLOSE)		
AA01-X2.15	Connector, mixer, heating circuit 3 (X2.15.1 Mixer OPEN/X2.15.2 Mixer CLOSE)		
AA06-X27	Terminal, programming unit		

INSTALLATION Specification

14.4 Data table

		HM	HM Trend	HMS	HMS Trend
		233010	232805	233827	233826
Power consumption					
Power consumption, emergency/booster heater	kW	8.8	8.8	5.9	5.9
Application limits					
Max. permissible pressure	MPa	0.3	0.3	0.3	0.3
Min. application limit on the heating side	°C	7	7	7	7
Max. cooling application limit on the heating side	°C	70	70	70	70
Hydraulic data					
External available pressure differential at 1.5 m³/h	hPa	661	661	661	661
External available pressure differential at 2.5 m³/h	hPa	300	300	300	300
External available pressure differential at 2 m³/h	hPa	468	468	468	468
Electrical data					
Frequency	Hz	50	50	50	50
Rated voltage, control unit	V	230	230	230	230
Rated voltage, emergency/booster heater	V	400	400	230	230
Control unit phases		1/N/PE	1/N/PE	1/N/PE	1/N/PE
Emergency/booster heater phases		3/N/PE	3/N/PE	2/N/PE	2/N/PE
Control unit fuse protection	A	1 x B 16	1 x B 16	1 x B 16	1 x B 16
Fuse protection, emergency/booster heater	A	3 x B 16	3 x B 16	2 x B 16	2 x B 16
Power consumption, circulation pump	W	3-76	3-76	3-76	3-76
Versions					
Circulation pump type		Yonos PARA 25/7.5, highly efficient circulation pump	Yonos PARA 25/7.5, highly efficient circulation pump	Yonos PARA 25/7.5, highly efficient circulation pump	Yonos PARA 25/7.5, highly efficient circulation pump
IP rating		IP20	IP20	IP20	IP20
Dimensions					
Height	mm	896	896	896	896
Height incl. connector block	mm	1131	1131	1131	1131
Width	mm	590	590	590	590
Depth	mm	405	405	405	405
Weights					
Weight	kg	45	27	45	27
Connections					
Connection		G 1	G 1	G 1	G 1
Heating water quality requirements					
Water hardness	°dH	≤3	≤3	≤3	≤3
pH value (with aluminium fittings)		8.0-8.5	8.0-8.5	8.0-8.5	8.0-8.5
pH value (without aluminium fittings)		8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0
Conductivity (softening)	µS/cm	<1000	<1000	<1000	<1000
Conductivity (desalination)	µS/cm	20-100	20-100	20-100	20-100
Chloride	mg/l	<30	<30	<30	<30
Oxygen 8-12 weeks after filling (softening)	mg/l	<0.02	<0.02	<0.02	<0.02
Oxygen 8-12 weeks after filling (desalination)	mg/l	<0.1	<0.1	<0.1	<0.1
Values					
Expansion vessel volume	l	24	24	24	24

Guarantee

The guarantee conditions of our German companies do not apply to appliances acquired outside of Germany. In countries where our subsidiaries sell our products a guarantee can only be issued by those subsidiaries. Such guarantee is only granted if the subsidiary has issued its own terms of guarantee. No other guarantee will be granted.

We shall not provide any guarantee for appliances acquired in countries where we have no subsidiary to sell our products. This will not affect warranties issued by any importers.

Environment and recycling

We would ask you to help protect the environment. After use, dispose of the various materials in accordance with national regulations.

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Stand 9375