

Wall HK

► Assembly, installation and operating instructions

Keep these instructions in a safe place for future use!

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1 General

1.1 About these instructions

These instructions ensure the safe and efficient handling of this equipment. These instructions form an integral part of the equipment and have to be kept in the direct vicinity of the equipment and available to personnel at all times.

All personnel must have carefully read through these instructions prior to commencing all work on the equipment. A fundamental prerequisite for safe working is compliance with all the stated safety instructions and other instructions contained in this manual.

In addition all local occupational health and safety at work regulations apply, as do general safety provisions governing the use of the equipment.

Illustrations in this guide are intended to provide a basic understanding and may differ from the actual model.

Ongoing tests and further developments may result in small variations between the unit supplied and the instructions.

1.2 Explanation of Symbols

**DANGER!**

This combination of symbol and signal word indicates an immediately dangerous situation caused by electrical power, which will cause death or serious injury if not avoided.

**WARNING!**

This combination of symbol and signal word indicates a possible hazardous situation.

**IMPORTANT NOTE!**

It represents a potentially hazardous situation, which could lead to damage to property or for a measure to optimise workflows.

**IMPORTANT NOTE!**

This symbol highlights useful hints, recommendations and information for efficient and trouble-free operation.

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2 Safety

This section provides an overview of all important safety aspects to ensure optimum protection of personnel as well as safe and trouble-free operation. In addition to the safety instructions in these operating instructions, the valid safety, accident prevention and environmental protection regulations must be observed for the area of use of the unit. It is the duty of the operator to ensure that instructions relating to maintenance (e.g. relating to hygiene) are complied with.

2.1 Correct use

The units are only intended to be used for heating and cooling air in frost-free and dry rooms. Within the room, the unit needs to be connected to the building's heating/cooling/ventilation system and to the building's waste water and power network. The operating limits and limits of use described in Chapter 2.2 [▶ 6] must be observed.



IMPORTANT NOTE!

Only use the unit after completion of the complete building and system. Site heating is not deemed to be correct and proper use.

Intended use of the unit also includes adherence to these instructions.

Any use beyond or other than the stated intended use is considered as misuse.

Any modification to the unit or use of non-original spare parts will cause the expiry of the warranty and will invalidate the manufacturer's liability.

Information in accordance with UL60335-1

- ▶ This unit can be used by children aged 8 years or more and also by people with reduced physical, sensory or mental capabilities or a lack of experience and knowledge, if they are supervised or have been instructed in the safe use of the unit and the resulting dangers. Do not allow children to play with the unit. Do not allow children to clean and maintain the unit without supervision.
- ▶ The unit is not intended for operation above 2,000 m.a. s.l.
- ▶ This unit is not intended for permanent connection to the drinking water supply system. This unit is intended for permanent connection to a heating water circuit, and may not be connected using hose sets.
- ▶ The water network needs to include safety measures to prevent the danger of overpressure.
- ▶ This unit is not intended to be accessible to the general public. The water network needs to include safety measures to prevent the danger of overpressure.

2.2 Limits of operation and use

Operating limits		
Min./max. water temperature	°C/°F	40-90 / 104-194
Min./max. air intake temperature	°C/°F	6-40 / 43-104
Min./max. air humidity	%	15-75
Min. operating pressure	bar/kPa	-
Max. operating pressure	bar/kPa/psi	10/1000 / 145
Min./max. glycol content	%	25-50

Tab. 1: Operating limits

Operating voltage	24 V
Power/Current consumption	On the typeplate

Tab. 2: Operating voltage

The water used should be free of contamination, such as suspended substances and reactive substances.

Water quality		
pH value (at 20 °C/68°F)		8-9
Conductivity (at 20 °C/68°F)	µS/cm / ppm	<700 / <350
Oxygen content (O ₂)	mg/l / (lb/gal)	<0.1 / (<0.0000083)
Hardness	°dH / ppm CaCO ₃	4-8.5 / 0.224-0.476
Sulphur ions		not measurable
Sodium ions (Na ⁺)	mg/l / (lb/gal)	<100 / (<0.00083)
Iron ions (Fe ²⁺)	mg/l / (lb/gal)	<0.1 / (<0.0000083)
Manganese ions (Mn ²⁺)	mg/l / (lb/gal)	<0.05 / (<0.00000415)
Ammonia ions (NH ⁴⁺)	mg/l / (lb/gal)	<0.1 / (<0.0000083)
Chlorine ions (Cl)	mg/l / (lb/gal)	<100 / (<0.00083)
CO ₂		<50
Sulfate ions (SO ₄ ²⁻)	mg/l / (lb/gal)	<50 / (<0.000415)
Nitrite ions (NO ₂ ⁻)	mg/l / (lb/gal)	<50 / (<0.000415)
Nitrate ions (NO ₃ ⁻)	mg/l / (lb/gal)	<50 / (<0.000415)

Tab. 3: Water quality

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IMPORTANT NOTE!

Danger of frost in cooling mode!

There is a risk of the heat exchanger freezing when used in unheated rooms.

- ▶ Make sure that the unit is equipped with a frost protection sensor and/or thermostat in this case.



IMPORTANT NOTE!

Warning of misuse!

In the event of misuse, as itemised below, there is a danger of limited or failing operation of the unit. Ensure that the airflow can circulate freely.

- ▶ Never operate the unit in humid areas, such as swimming pools, wet areas etc.
- ▶ Never operate the unit in rooms with an explosive atmosphere.
- ▶ Never operate the unit in aggressive or corrosive atmospheres (e.g. sea air).
- ▶ Never operate the unit above electrical equipment (such as switch cabinets, computers or other electrical units, or contacts that are not drip-proof).
- ▶ Never use the unit as a construction site heater.
- ▶ Never operate the unit in areas with a high dust content.



IMPORTANT NOTE!

Energy losses due to misuse!

Operating the unit with open windows (or other room openings) can result in significant energy losses.

- ▶ Heating and cooling modes (particularly when operating different units) need to be coordinated with each other.

2.3 Risk from electrocution!



DANGER!

Risk of fatal injury from electrocution!

Contact with live parts will lead to fatal injury from electrocution. Damage to the insulation or individual components can lead to a fatal injury.

- ▶ Only permit qualified electricians to work on the electrical system.
- ▶ Immediately disconnect the system from the power supply and repair it in the event of damage to the insulation.
- ▶ Keep live parts away from moisture. This can cause a short circuit.
- ▶ Properly earth the unit.

2.4 Personnel requirements - Qualifications

Specialist knowledge

The installation of this product requires specialist knowledge of heating, cooling, ventilation, installation and electrical engineering. This knowledge, generally learned in vocational training in one of the fields mentioned above, is not described separately.

Damage caused by improper installation is the responsibility of the operator or installer. The installer of these units should have adequate knowledge of the following gained from specialist vocational training

- ▶ Safety and accident prevention regulations
- ▶ Guidelines and recognised technical regulations, e.g. National Electric Code (NEC) and Canadian Electric Code (CEC).

The installation, operation and maintenance of this unit must comply with the applicable laws, standards, provisions and regulations in the respective country and the current state of the art.

2.5 Personal Protective Equipment

Personal protective equipment is used to protect people from impaired safety and health when working with the unit. The applicable accident prevention regulations at the place of use apply in all cases.

Personnel have to wear personal protective equipment during maintenance and troubleshooting on and with the unit.

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3 Transport, storage and packaging

3.1 General transport instructions

Check on delivery for completeness and transport damage.

Proceed as follows in the event of visible damage:

- ▶ Do not accept delivery or only accept with reservations.
- ▶ Record any transport damage on the transportation documents or on the transport company's delivery note.
- ▶ Submit a complaint to the freight forwarder.



IMPORTANT NOTE!

Warranty claims can only be made within the applicable period for complaints. (More information is available in the T&Cs on the Kampmann website)



IMPORTANT NOTE!

2 people are needed to transport the unit. Wear personal protective clothing when transporting the unit. Only lift the unit on both sides and not by the pipes / valves.



IMPORTANT NOTE!

Material damage caused by incorrect transport!

Units being transported can drop or topple over if transported wrongly. This can cause serious material damage.

- ▶ Proceed carefully when unloading the equipment on delivery and when transporting it on site and note the symbols and instructions on the packaging.
- ▶ Only use the holding points provided.
- ▶ Only remove packaging shortly before assembling the unit.

3.2 Scope of delivery



IMPORTANT NOTE!

Check the scope of delivery!

- ▶ Check the delivery for damage.
- ▶ Check that the articles and type numbers are correct.
- ▶ Is the delivery and number of items delivered correct?

3.3 Storage

Store packaging under the following conditions:

- ▶ Do not store outdoors.
- ▶ Store in a dry and dust-free place.
- ▶ Store in a frost-free place.
- ▶ Do not expose to aggressive media.
- ▶ Protect from direct sunlight.
- ▶ Avoid mechanical vibrations and shocks.



IMPORTANT NOTE!

Under certain circumstances, packages can carry storage instructions that exceed the requirements listed here. Comply with these instructions accordingly.

3.4 Packaging

Handling packaging materials



IMPORTANT NOTE!

Dispose of packaging materials in line with the applicable statutory requirements and local regulations.



IMPORTANT NOTE!

The packaging is also use to protect the product from site dust and dirt. Only remove packaging shortly before assembling the unit.

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4 Technical data

Unit	Wall HK			
Model	1	2	3	4
Width of basic unit [mm]	815	1100	1600	1900
Casing width [mm]	965	1250	1750	2050
Weight of basic unit [kg]	15	20	32	38
Max. weight including casing [kg]	22.50	29.00	43.50	51.70
Air volume [m ³ /h]	220	364	587	767
Internal volume of 2-pipe system [l]	0.5	0.9	1.5	1.9
Internal volume of 4-pipe system heating [l]	0.1	0.2	0.3	0.4
Internal volume of 4-pipe system cooling [l]	0.4	0.7	1.2	1.5
Heat output ² [dB(A)]	0.7 - 2.91	1.18 - 4.91	1.87 - 7.82	2.45 - 10.24
Cooling output ¹ [BTU/h]	0.3 - 1.25	0.5 - 2.07	0.79 - 3.25	1.02 - 4.23
Sound power level [dB(A)]	<20 - 47	21 - 50	24 - 52	25 - 53

Unit	Wall HK			
Model	1	2	3	4
Width of basic unit [inch]	32.09	43.31	62.99	74.8
Width of casing [inch]	37.99	49.21	68.9	80.71
Weight of basic unit [pound]	33.07	44.09	70.55	83.78
Max. weight including casing [pound]	49.6	63.93	95.9	113.98
Air volume [cfm]	129	215	344	450
Internal volume of 2-pipe system [gal]	0.13	0.24	0.4	0.5
Internal volume of 4-pipe system heating [gal]	0.03	0.05	0.08	0.11
Internal volume of 4-pipe system cooling [gal]	0.11	0.18	0.32	0.4
Heat output ⁴ [BTU/h]	1970 - 9771	3330 - 16518	5299 - 26290	6941 - 34432
Cooling output ⁵ [BTU/h]	961 - 3971	1600 - 6608	1511 - 10372	3262 - 13475
Sound power level [dB(A)]	<20 - 47	21 - 50	24 - 52	25 - 53

² at LPHW 75 / 65°C, $t_{11} = 20^{\circ}\text{C}$

¹ at CHW 7/12°C, $t_{11} = 27^{\circ}\text{C}$, 50% relative humidity

⁴ at LPHW 167 / 149 °F, $t_{11} = 68^{\circ}\text{F}$

⁵ at LPHW 45 / 54 °F, $t_{11} = 81^{\circ}\text{F}$

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5 Construction and function

5.1 Overview

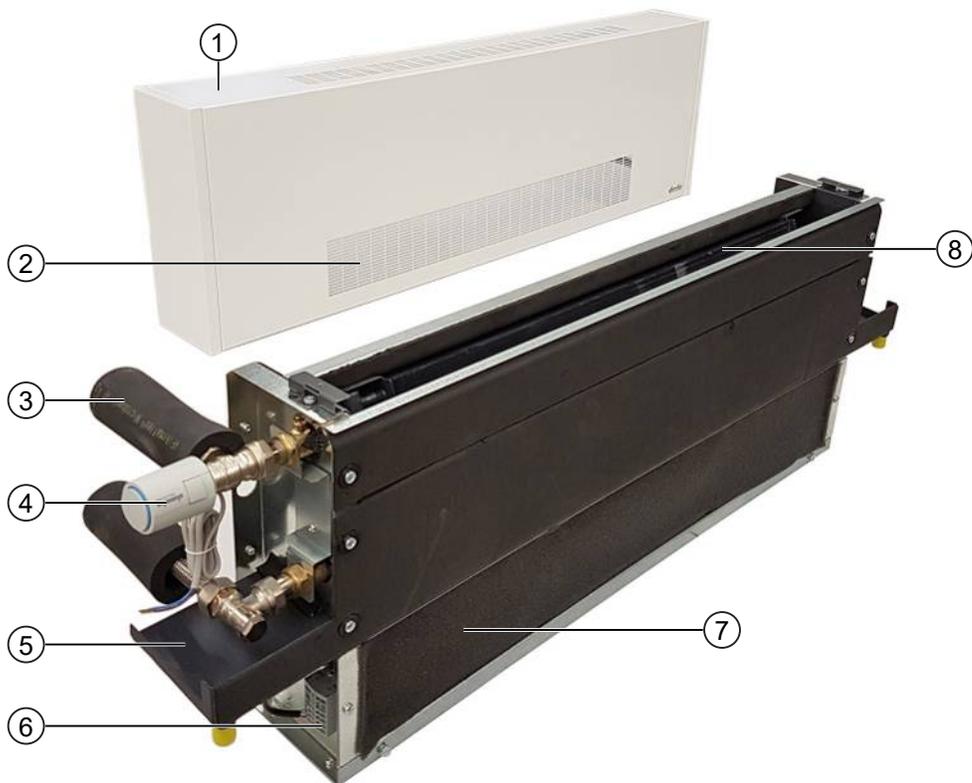


Fig. 1: Wall HK at a glance (showing top discharge)

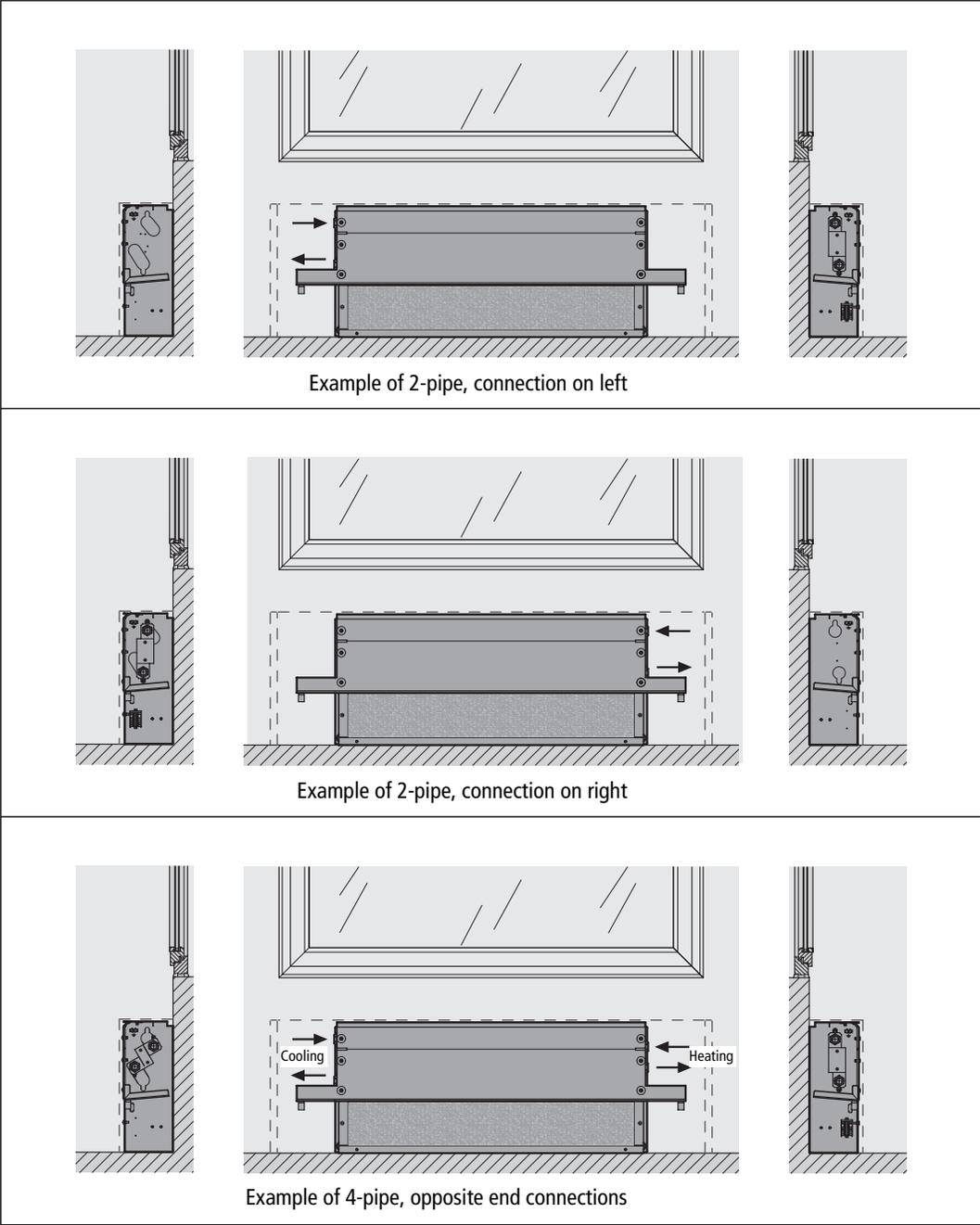
1	Casing	2	Air intake zone
3	Pipework (insulation not supplied)	4	Actuator
5	Condensation tray	6	Terminal strip
7	Filter fleece	8	Heat exchanger

5.2 Brief description

Wall HK are decentralised units for heating, cooling and filtering air, for use in hotels, offices and business premises, among others. Secondary air is drawn in filtered by the fan and passed through the copper/aluminium heat exchanger. Here the air is either heated or cooling depending on the temperature of the water in the heat exchanger. The heated or cooled air is discharged into the room through the air outlet grille.

6 Installation and wiring

6.1 Definition of the connection side



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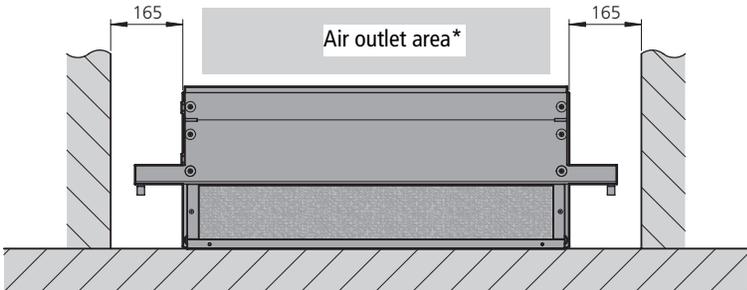
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6.2 Requirements governing the installation site

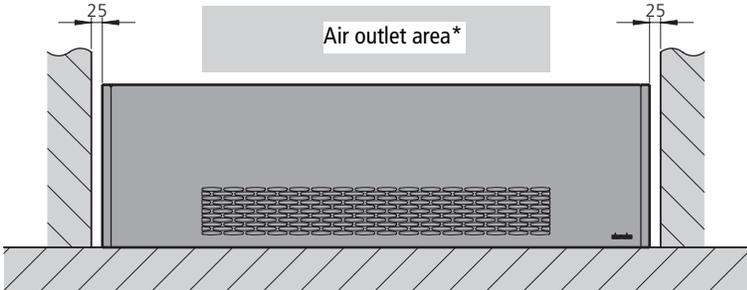
Only install and assemble the unit if the following conditions are met:

- ▶ Make sure that the unit is securely suspended/standing.
- ▶ Ensure that the airflow can circulate freely.
- ▶ Provide adequate space for appropriately sized flow and return water connections on site (Connection to the pipe network [▶ 28]).
- ▶ There is a power supply on site (Maximum electrical rating values [▶ 35]).
- ▶ If need be, provide a condensation connection with a sufficient gradient on site.

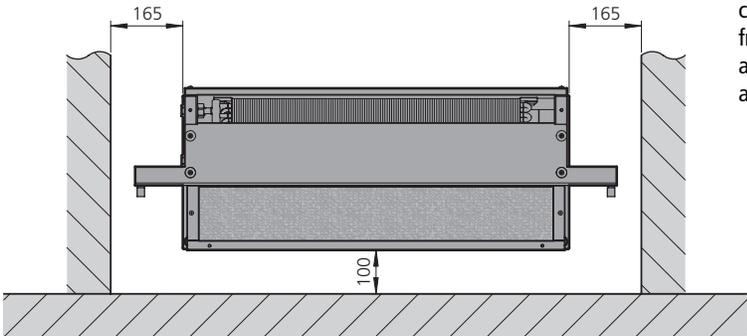
6.3 Minimum clearances



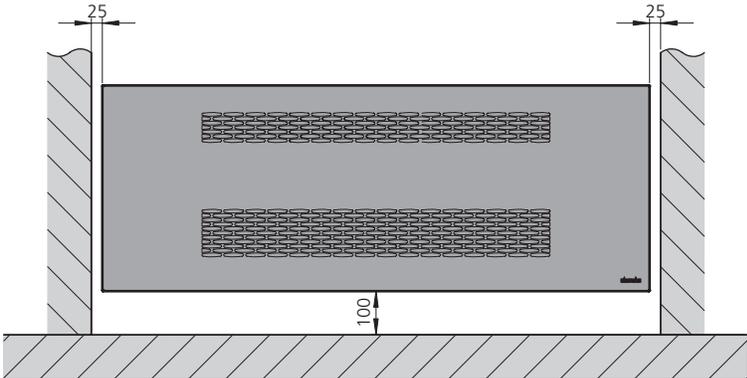
Example of basic unit, wall-standing (without casing)



Example of basic unit, wall-standing (with casing)



Example of basic unit, wall-hanging (without casing)



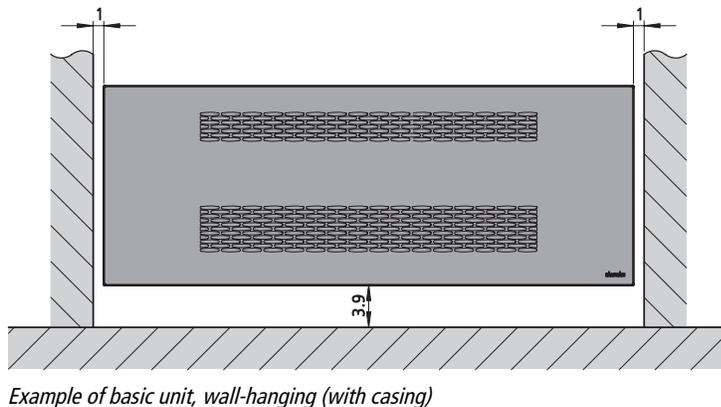
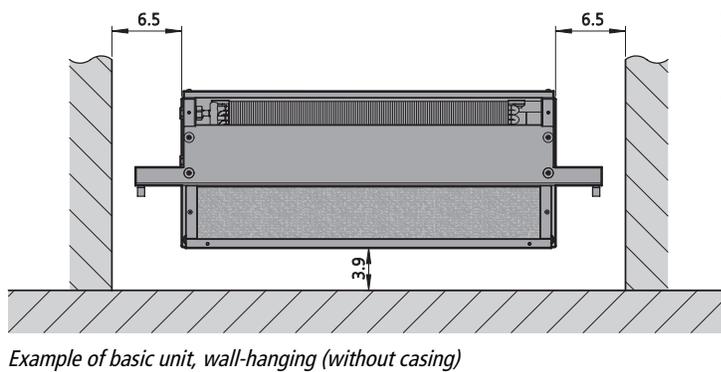
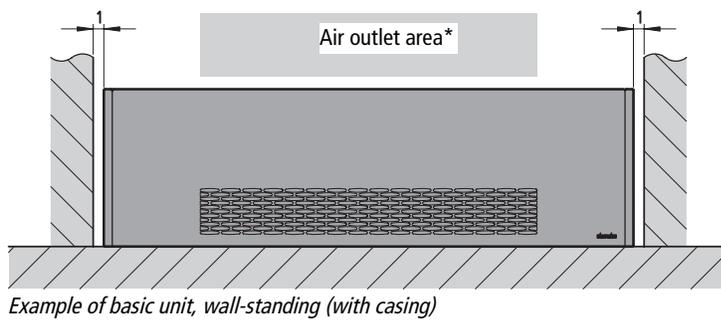
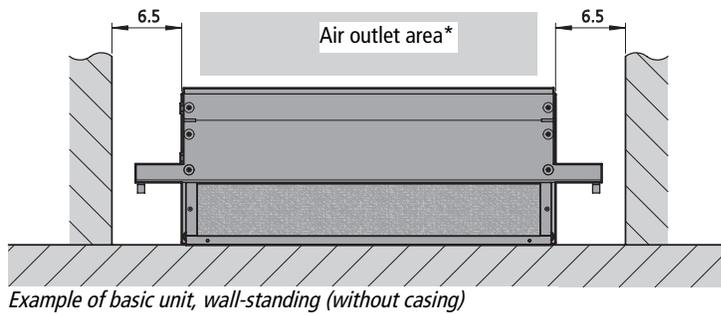
Example of basic unit, wall-hanging (with casing)

*The air outlet area needs to be completely unobstructed to guarantee the free circulation of air! There needs to be a 50 mm freely accessible clearance above the casing to remove the casing.

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Fig. 2: Minimum clearances, Wall HK (mm)



*The air outlet area needs to be completely unobstructed to guarantee the free circulation of air! There needs to be a 50 mm freely accessible clearance above the casing to remove the casing.

Fig. 3: Minimum clearances Wall HK (inch)

6.4 Installation

2 people are needed to install the unit.



CAUTION!

Risk of injury from sharp metal housing!

The inner metal of the casing can have sharp edges.

- ▶ Wear suitable protective gloves.



IMPORTANT NOTE!

Horizontal installation of units!

When installing the units, ensure that they are completely horizontal to ensure proper operation.



IMPORTANT NOTE!

Avoid draughts!

Consider the occupied zone when installing/suspending the units. Do not expose people to the direct air flow. Position the unit accordingly and adjust the air outlet if required.

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6.4.1 Installation of basic unit

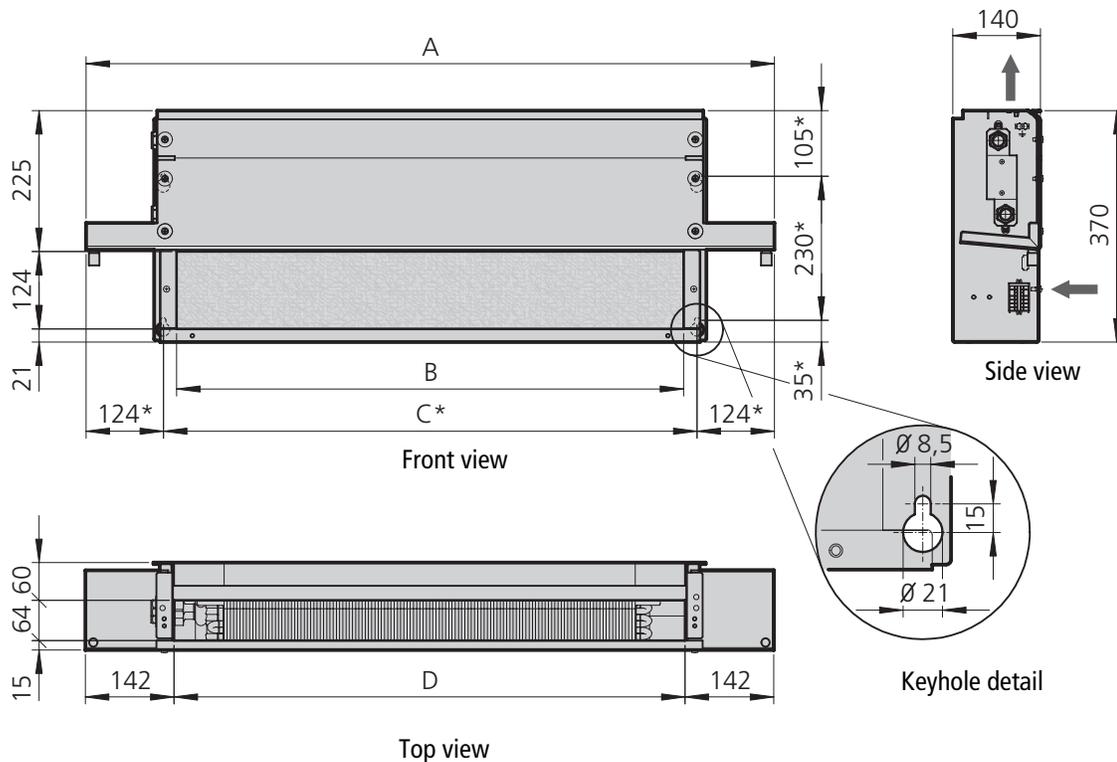


Fig. 4: 321 Dimensions of basic unit and mounting points* [mm]

A [mm]	B [mm]	C [mm]	D [mm]
815	531	567	531
1100	816	852	816
1600	1316	1352	1316
1900	1616	1652	1616

Tab. 4: Table of dimensions [mm]

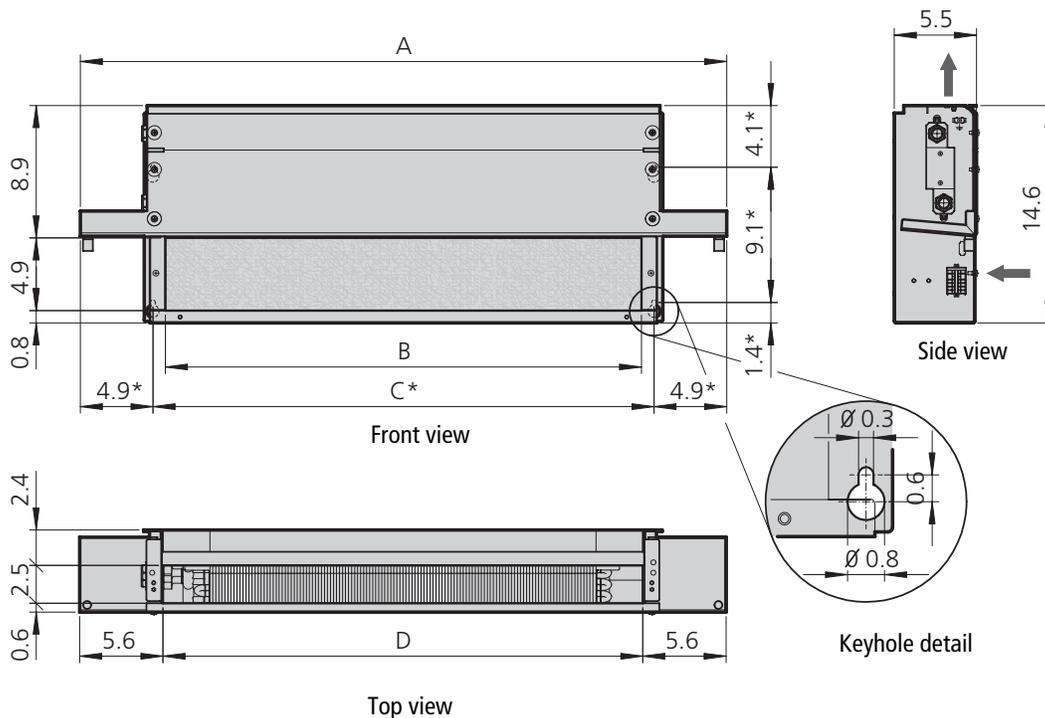


Fig. 5: Dimensions of basic unit and mounting points* [inch]

A [inch]	B [inch]	C [inch]	D [inch]
32.1	20.9	22.3	20.9
43.3	32.1	33.5	32.1
63	51.8	53.2	51.8
74.8	63.6	65	63.6

Tab. 5: Table of dimensions [inch]

Note the Venkon minimum clearances when installing the basic units!

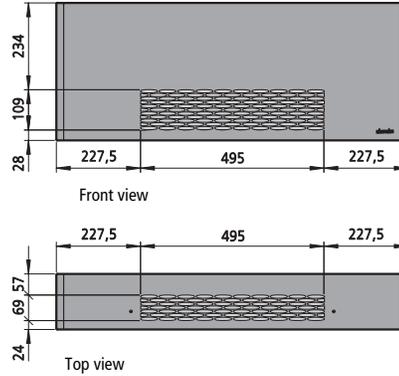
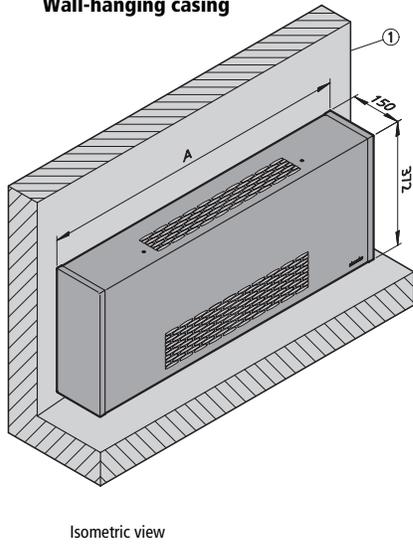
- ▶ Highlight the dimensions and clearances of the key holes on the wall or ceiling as per the table, drill the holes and use appropriate fixing materials to install the basic unit.
- ▶ Align the basic unit for correct operation. Install the basic unit with a gradient on the condensation discharge side should condensation be produced.
- ▶ Once the basic unit has been aligned, prevent the fixing material from coming loose.

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6.4.2 Installation of casing

Wall-hanging casing



In-wall casing

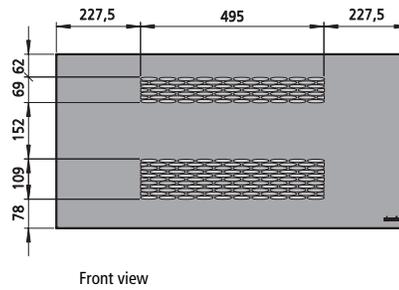
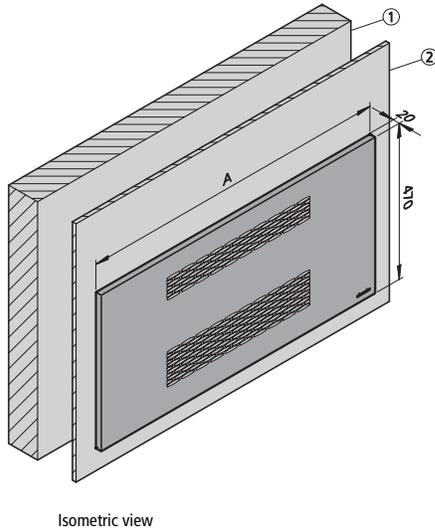
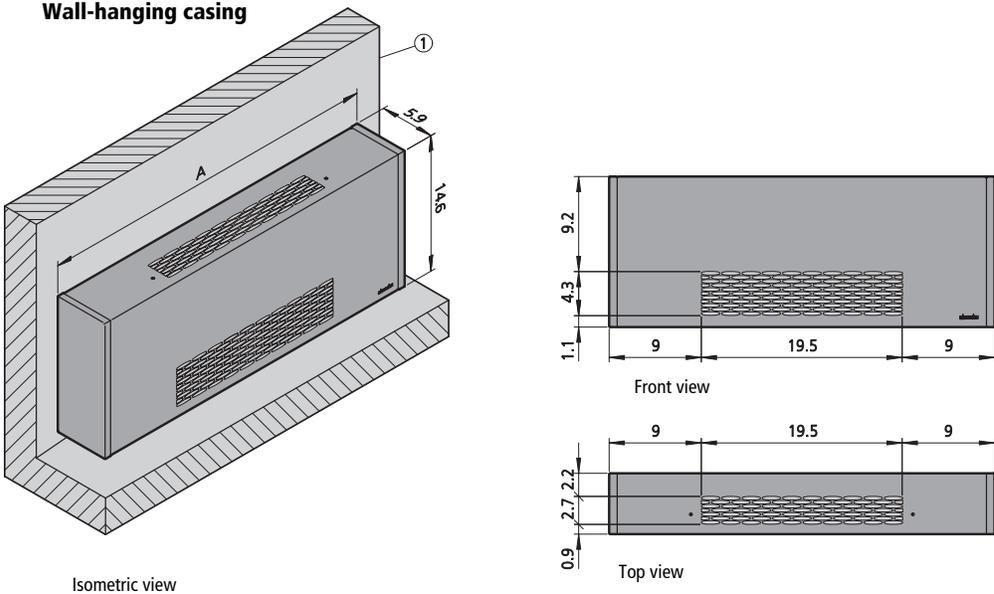


Fig. 6: Dimensions of casing [mm]

Model	A [mm]
1	965
2	1250
3	1750
4	2050

Tab. 6: Dimensions of casing [mm]



In-wall casing

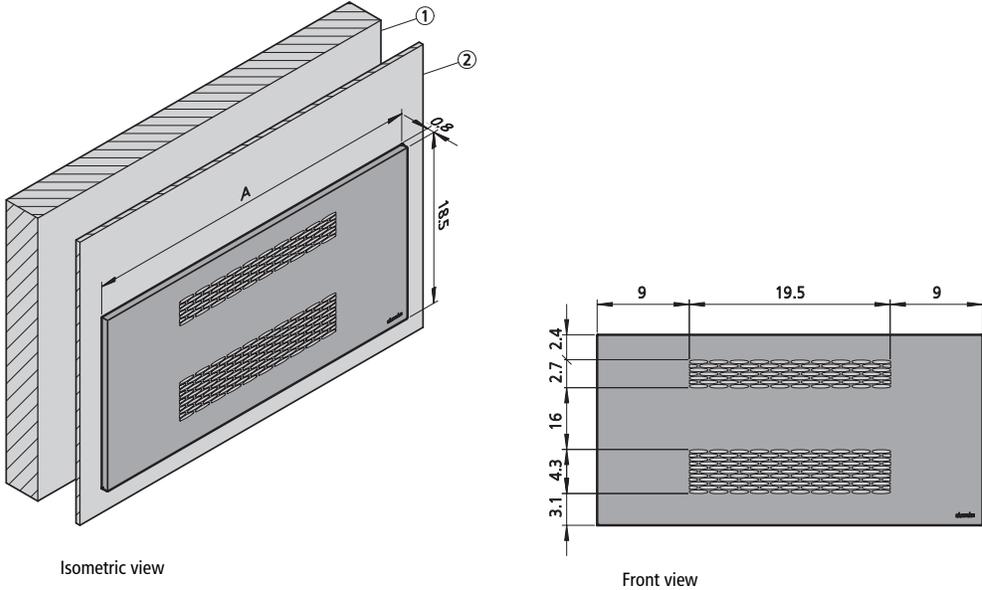


Fig. 7: Dimensions of casing [inch]

Model	A [inch]
1	38
2	49.2
3	68.9
4	80.7

Tab. 7: Dimensions of casing [inch]

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General information on casings

- ▶ Casings are factory-fitted as standard.
- ▶ Always remove the casing ahead of maintenance work or when modifying the air outlet direction.



Dismantle the casing (wall-mounted).

- ▶ Unscrew the screws on the left and right side of the air outlet.



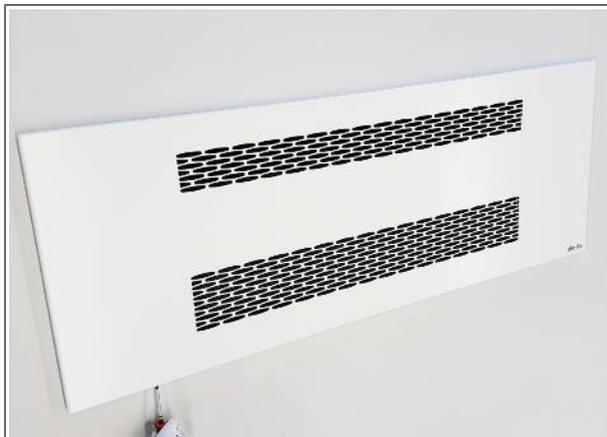
Remove the casing (wall-mounted).

- ▶ First remove the casing upwards and then away from the basic unit.



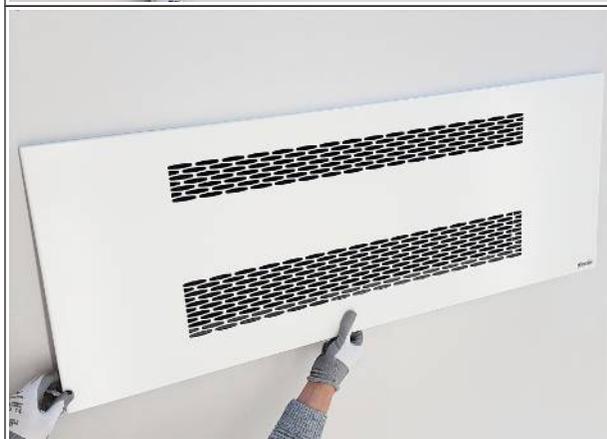
Fixing the casing in the recess (wall-mounted).

- ▶ Following the completion of maintenance and/or modification work, suspend the casing on the basic unit in the recesses so that the casing is once again fixed in place and cannot slip.



Dismantle the casing (recessed in the wall).

- ▶ Loosen 2 screws (left and right) in the underside of the casing and unscrew from the retaining rail.



Remove the casing (recessed in the wall).

- ▶ Push the casing upwards where it was previously screwed in place to loosen it from its fixing.
- ▶ Remove the casing.



Adjust the casing (recessed in the wall) to the depth of the wall recess.

The retaining rails for the casing (recessed in the wall) can be moved by 20 mm as required to obtain an exact recess depth:

- ▶ To do so, loosen the self-locking screws on the left and right.
- ▶ Push the retaining rails to the required positions.
- ▶ Tighten the self-locking screws.



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6.4.3 Alteration of the air outlet direction



Fig. 8: A) Front air discharge direction



Fig. 9: B) Top air discharge direction

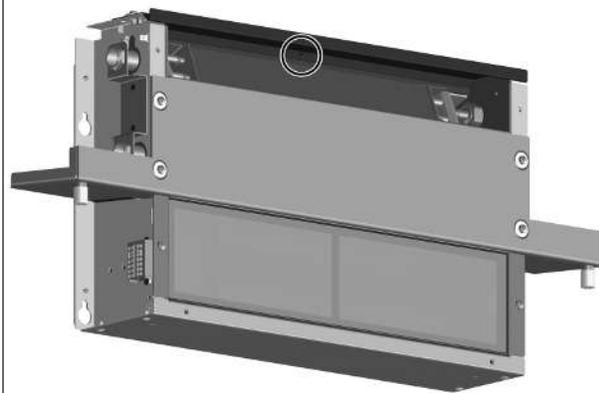


Fig. 10: Discharge adjustment plate secured by a metal screw

If the unit is supplied without casing, the air outlet direction can be changed by altering the discharge adjustment plate:

- A) Front air discharge direction
- B) Top air discharge direction

Note: When altering the discharge adjustment plate for "front air outlet", unscrew the middle metal screw(s) (one screw for models 1 and 2, two screws for models 3 and 4). They prevent the discharge adjustment plate from bending when the basic unit is raised.

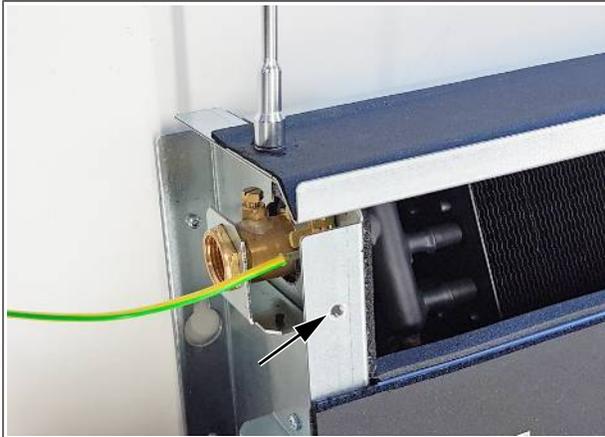


Fig. 11: Loosening the screws in the discharge adjustment plate

- ▶ Loosen the flat-headed screws on the left and right to alter the discharge adjustment plate (the example shows alteration from front air outlet to top air outlet).
- ▶ Loosen the middle metal screw(s).
- ▶ Move the discharge adjustment plate and replace the flat-headed screws in their respective places (see arrow).

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6.5 Installation

Hydraulic connection

Note the following points when connecting the hydraulic side:

- ▶ Install and test safety components (expansion vessels, pressure relief valves and overflow valves).
- ▶ Route condensation lines with a sufficient cross-section without bends and narrow sections with a gradient to the in situ waste water pipe.
- ▶ Allow adequate space for the air flow (air inlet and outlet).

Observe the following additional points for cooling operation:

- ▶ Install continuous, vapor diffusion-tight insulation on all water-bearing components (piping, valves, connections), in each case up to the unit.
- ▶ Select suitable pipe hangers (cold clamps) for cooling operation.
- ▶ Sufficiently dimension the diameter of the condensate pipe.
- ▶ Protect siphons (if any) in the condensate pipe from drying out.

6.5.1 Connection to the pipe network

The flow and return connections are located as standard on the left side of the unit, seen from the front panel. The connections on the 4-pipe unit are opposite end.

Route the pipes so that no mechanical stresses are transferred to the heat exchanger and to ensure that the unit can be accessed with ease for maintenance and repair work. Proceed as follows when connecting up the unit's hydraulic pipework:

- ▶ Shut off the heating/cooling medium and prevent it from being opened accidentally before connecting to on-site pipework and making the hydraulic connections on the basic unit, as there is a danger of scalding from escaping heating medium!
- ▶ With cooling units there is a danger to the user from cold temperatures and a danger to the environment from the use of glycol. Take appropriate safety measures.
- ▶ Remove protective caps from the flow and return.
- ▶ With cooling mode, route pipes and any valves directly over the side condensate tray to drain any condensate produced on the pipes during cooling mode into the tray.
- ▶ Seal and tighten the connections. Prevent the connection nuts from shearing and twisting.
- ▶ When connecting the unit to the on-site pipework, make sure that you use a suitable tool to hold the unit's water connections in place!
- ▶ Make sure that the pipes can be vented.
- ▶ Use suitable insulating material, and impermeable insulating material for cooling units.
- ▶ Tighten all threaded connections once the pipes have been fitted and check that they are not under any tension.

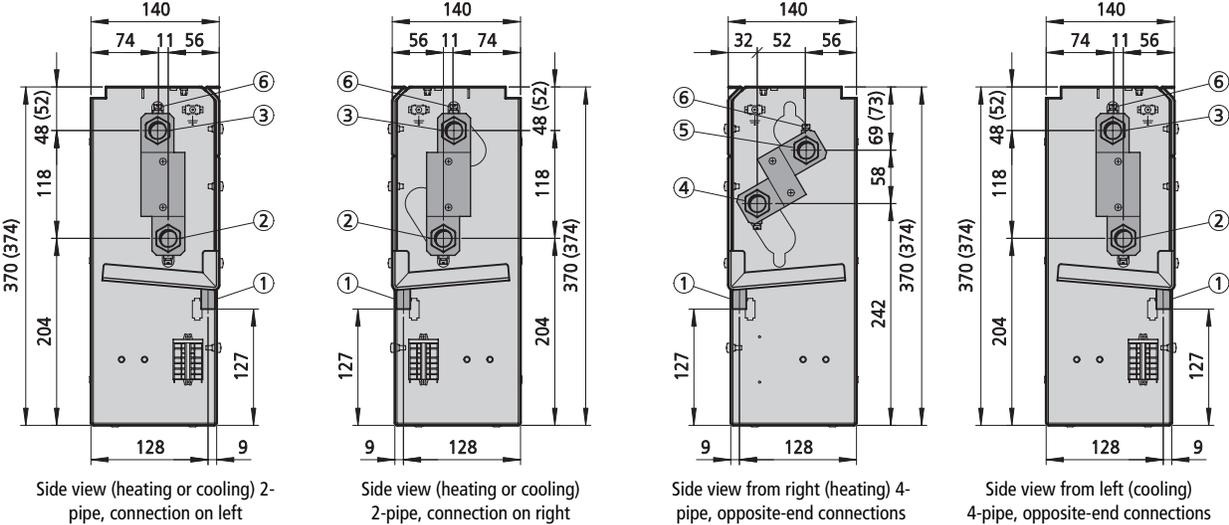


Fig. 12: Dimensions of water connection [mm]

1	Drain connection on condensate tray Ø15	2	Cooling return, with 2-pipe heating or cooling 1/2"
3	Cooling flow, with 2-pipe heating or cooling 1/2"	4	Heating return 1/2"
5	Heating flow 1/2"	6	Air vent
Dimensions in brackets = basic unit front discharge			

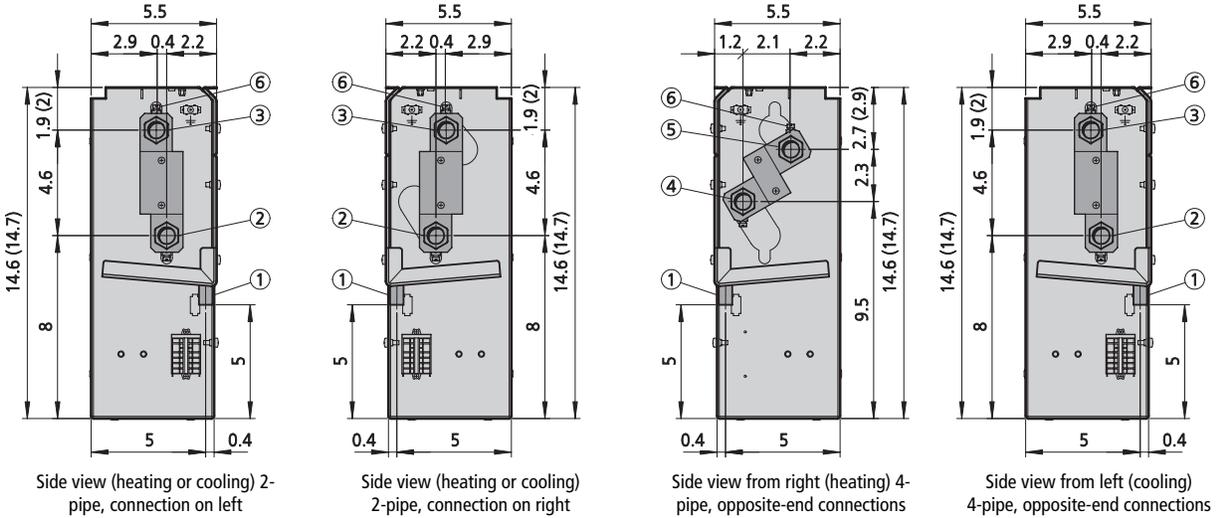


Fig. 13: Dimensions of water connection [inch]

1	Drain connection on condensate tray Ø 0.6	2	Cooling return, with 2-pipe heating or cooling 1/2"
3	Cooling flow, with 2-pipe heating or cooling 1/2"	4	Heating return 1/2"
5	Heating flow 1/2"	6	Air vent
Dimensions in brackets = basic unit front discharge			

Wall HK

Assembly, installation and operating instructions

Provide a service hatch.

Provide the following service hatch dimensions for maintenance and inspection of basic unit with casing by others.

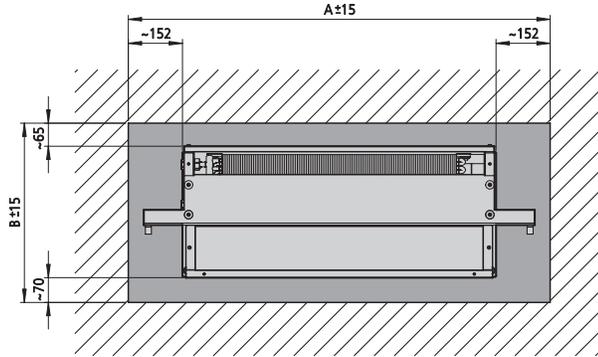


Fig. 14: Dimensions of service hatch [mm]

Model	Ceiling opening dimension $A \pm 15$ [mm]
1	925
2	1225
3	1675
4	2025

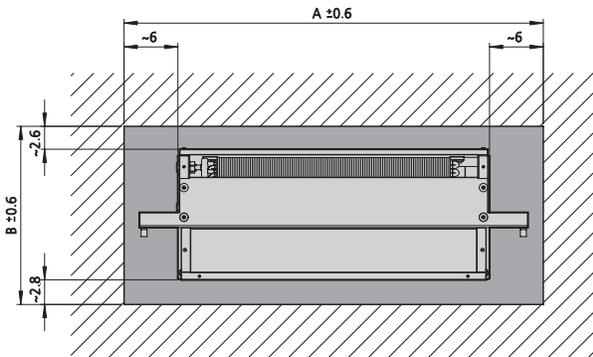


Fig. 15: Dimensions of service hatch [inch]

Model	Ceiling opening dimension $A \pm 0.6$ [inch]
1	36.4
2	48.2
3	65.9
4	79.7

6.5.2 Insulating the pipework



Slide impermeable insulation (by others) along the pipe through the wall opening as far as the straight valve so that the insulation only ends above the condensate tray.

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Assembly, installation and operating instructions

6.5.3 Connection, on-site pipework

Dimensions; space for wall connection pipework (simplified view) [mm]

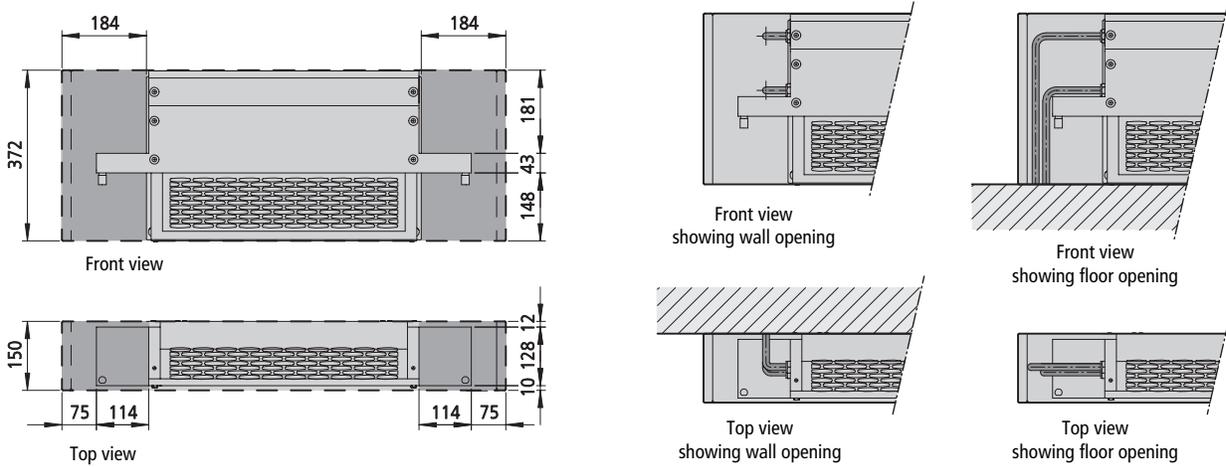
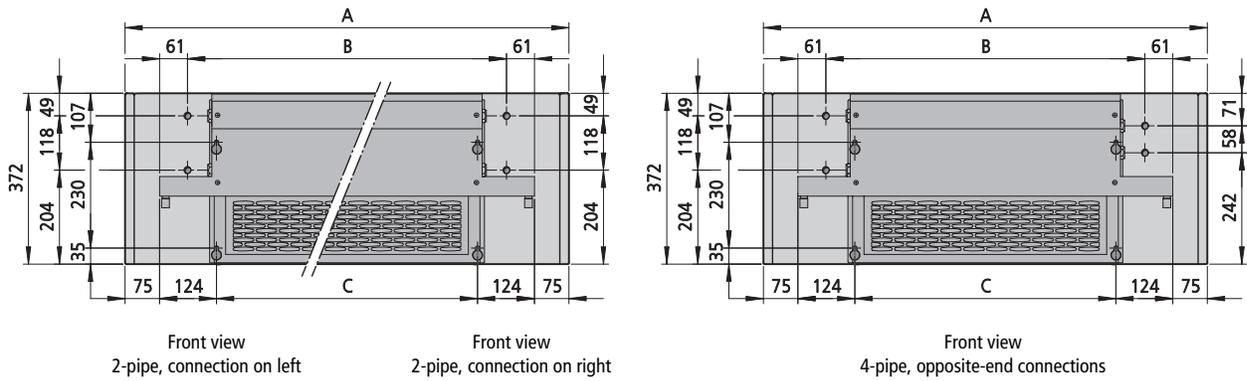


Fig. 16: Space for water connection pipework [mm]

Drilling template, Wall HK: Suspension points and positions of pipe connection opening through the wall [mm]



Model	A (Casing width) [mm]	B (Position of pipe connections) [mm]	C (Suspension points) [mm]
1	965	694	567
2	1250	979	852
3	1750	1479	1352
4	2050	1779	1652

Dimensions; space for water connection pipework (simplified view) [inch]

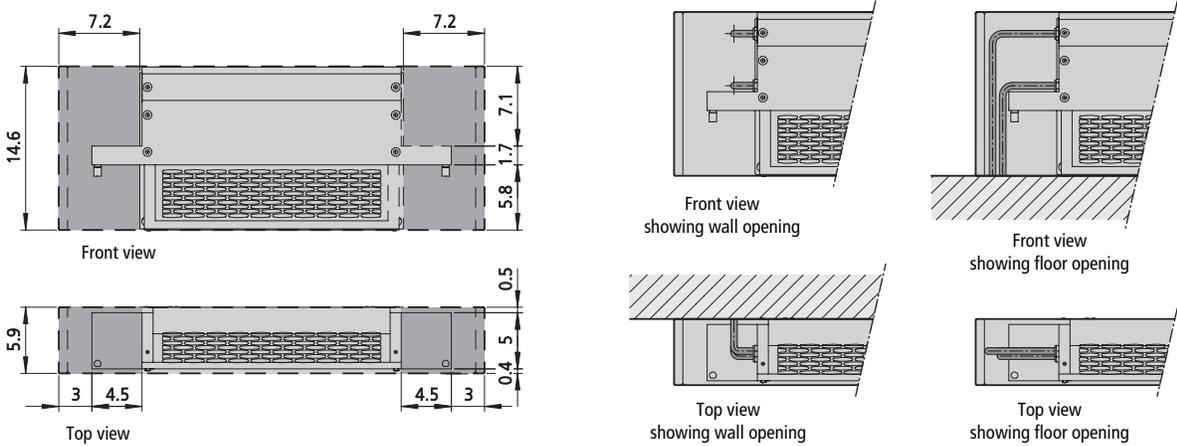
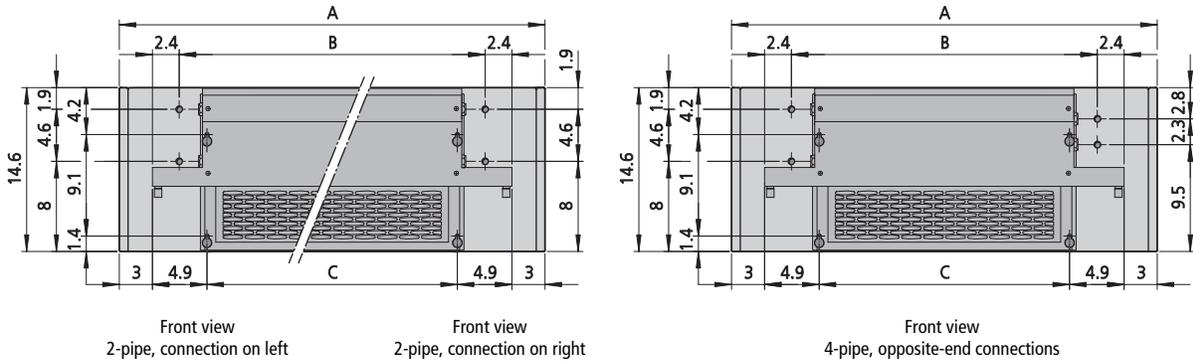


Fig. 17: Space for water connection pipework [inch]

Drilling template, Wall HK: Suspension points and positions of pipe connection opening through the wall [inch]



Model	A (Casing width) [inch]	B (Position of pipe connections) [inch]	C (Suspension points) [inch]
1	38	27.3	22.3
2	49.2	38.5	33.5
3	68.9	58.2	53.2
4	80.7	70	65

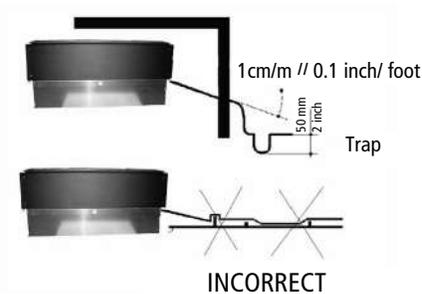
Wall HK

Assembly, installation and operating instructions

6.5.4 Condensation connection

6.5.4.1 Condensation drain with natural gradient

A condensate drain needs to be connected and appropriately fixed to a condensate drain connection on the unit (15 mm drain). Ensure that the gradient is at least 1 cm/m (0.1 inch/foot), without restrictions and without rising sections of pipe to ensure that condensate drains from the basic unit (in accordance with DIN EN 12056; formerly: DIN 1986-100). Take into account all applicable regulations, such as the use of a ball trap, when connecting the condensate line to the sewer system. Protect the trap from drying out. The suction effect of the fan on the condensate drain connection could otherwise produce troublesome odours. Consider using water vapour-impermeable insulation depending on the pipe material used for the condensate drain. You will need a condensate pump (optional accessory) should a natural gradient be impossible on site. This is used to pump the condensate into higher collection or discharge equipment. When delivered, the condensate pump and float switch is factory-fitted to the unit.



7 Electrical connection



IMPORTANT NOTE!

Condensation formation in the cooling unit!

In the event of on-site valve control, the cooling valve must be closed when the fans are switched off.

7.1 Maximum electrical rating values

Wall HK, electromechanical version (*24)

Model	Number of fans	Nominal voltage [V DC]	Nominal power [W]	Nominal current [A]	Ri analogue input [kΩ]	Protection rating	Protection class
1	1 x 380	24	12	0.46	100	IP00	II
2	1 x 630	24	18	0.74	100	IP00	II
3	1 x 630. 1 x 380	24	29	1.21	50	IP00	II
4	1 x 630. 1 x 680	24	36	1.50	50	IP00	II

Tab. 8: Maximum electrical rating values Wall HK

7.2 Electromechanical control

7.2.1 Connection (*24)



Fig. 18: Terminal strip

Voltage supply and activation

The connection terminal strip is located on the main bracket of the basic unit. All models require a power supply 24 V DC and can be controlled via a control input 0-10 V DC. Select the internal resistance of the control input for the respective model according to the table "Electrical rating values" [▶ 35].

Terminal assignment:

- ▶ 24 V: Power supply
- ▶ GND: Power supply
- ▶ Uc: 0 – 10 V DC control input
- ▶ VH: Valve, heating
- ▶ VK: Cooling valve

Note these points in the following wiring diagrams for Wall HK with electromechanical control:

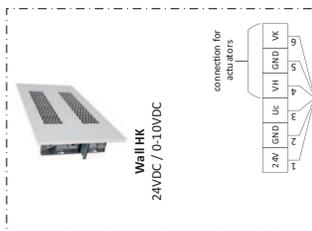
- ▶ Comply with the details on cable types and cabling with due consideration of NEC and CEC.
- ▶ Without *: NYM-J. The requisite number of wires, including PE conductor, is stated on the cable. Cross-sections are not stated, as the cable length is involved in the calculation of the cross-section.
- ▶ With *: J-Y(ST)Y 0.8mm. Lay separately from power lines.
- ▶ If other types of cables are used, they must be at least equivalent.
- ▶ The terminals on the unit are suitable for a maximum wire cross-section of AWG14.
- ▶ Note the electrical data [▶ 35] when rating the in-situ mains power supply and fuse.

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7.2.2 Cabling, Wall HK (*24), control by DDC/BMS

Wall HK, UL-version
control 0-10VDC via BMS-system



* shielded cable (e. g. J-(STY, 0,8 mm), laid separately from power lines
W1: power supply, control signal for fan and actuator

6
W1



8 Pre-commissioning checks

During initial commissioning, it must be ensured that all necessary requirements are met so that the appliance can function safely and as intended.

Structural tests

- ▶ Remove air outlet protection from the outlet air area.
- ▶ Remove protective film from the intake area.
- ▶ Check that the unit is securely standing and fixed.
- ▶ Check the horizontal installation/suspension of the unit.
- ▶ Check the completeness and correct seating of all filters (dirt side).
- ▶ Check whether all components are properly fitted.
- ▶ Check whether all air ducts are mechanically fixed in place.
- ▶ Check whether all dirt, such as packaging or site dirt, has been removed.

Electrical tests

- ▶ Check whether all lines have been properly laid.
- ▶ Check whether all lines have the necessary cross-section.
- ▶ Are all wires connected in accordance with the electric wiring diagrams?
- ▶ Is the earth wire connected and wired throughout?
- ▶ Check whether the fault signal contacts of the EC fans have been correctly connected (break contacts in series with multiple units).
- ▶ Check all external electrical connections and terminal connections are fixed in place and tighten if necessary.

Water-side checks

- ▶ Check whether all supply and drainage lines have been properly connected.
- ▶ Fill pipes and unit with water and bleed.
- ▶ Check whether all bleed screws are closed.
- ▶ Check leak tightness (pressure test and visual inspection).
- ▶ Check whether the parts carrying water have been flushed through.
- ▶ Check whether any shut-off valves fitted on site are open.
- ▶ Check whether any electrically actuated shut-off valves have been properly connected.
- ▶ Check whether all valves and actuators are working properly (note permitted mounting position).

Wall HK

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Air-side checks

- ▶ Check whether there is unimpeded flow at the air inlet and outlet.
- ▶ Check whether the air inlet filter is fitted and dirt-free.

Condensation water connection

- ▶ Check whether the condensation tray is free of building rubble.
- ▶ Check the condensation drain and operation of the alarm signal on the condensation pump.
- ▶ Check whether the cooling valve switches off in the event of an alarm signal.
- ▶ Check whether the unit is connected leak-free to the on-site condensation connection.
- ▶ Check whether the waste water lines are clean and have a sufficient gradient.
- ▶ Check whether the condensation pump has a working power supply.

Once all checks have been completed, initial commissioning can be carried out in line with Chapter 9 "Operation".

9 Maintenance

9.1 Securing against reconnection



DANGER!

Risk of death by unauthorised or uncontrolled restart!

Unauthorised or uncontrolled restarting of the equipment can result in serious injury or death.

- ▶ Before restarting, ensure that all safety devices are fitted and working properly and that there is no hazard to humans.

Always follow the procedure described below to prevent accidental restart:

1. de-energise.
2. Prevent accidental re-connection.
3. Check that the equipment is de-energised.
4. Cover and cordon off adjacent live parts.



WARNING!

Risk of injury from rotating parts!

The fan impeller can cause severe injuries.

- ▶ Switch off the unit and prevent it from reconnection before commencing any work on moving components of the fan. Wait until all parts have come to a standstill.

9.2 Maintenance Schedule:

The sections below describe maintenance work needed for the proper and trouble-free operation of the equipment.

If there are signs of increased wear during regular checks, shorten the required maintenance intervals to the actual wear and tear. Contact the manufacturer with any questions about maintenance work and intervals.

Interval	Maintenance task	Personnel
As required	Regular visual checks and acoustic checks for damage, dirt and function.	User
quarterly	Check filter for dirt, clean and change filter when needed.	User
every six months	Clean unit components (heat exchanger, condensate tray, condensate pump, float switch).	User
every six months	Check water-side connections, valves and fittings for dirt, leak-tightness and function.	User
every six months	Check the electrical wiring.	Qualified personnel
every six months	Clean components/surfaces that come into contact with air.	Qualified personnel
quarterly	Check the heat exchanger for dirt, damage, corrosion and leak-tightness. Carefully vacuum the heat exchanger if dirty.	User
quarterly	Check the condensation tray, float switch and drain connection for dirt, damage and leak-tightness. Remove any condensation deposits that have accumulated.	User

Wall HK

Assembly, installation and operating instructions

9.3 Maintenance work

9.3.1 Replacing the filter.



CAUTION!

Risk of injury from sharp metal housing!

The inner metal of the casing can have sharp edges.

- ▶ Wear suitable protective gloves.



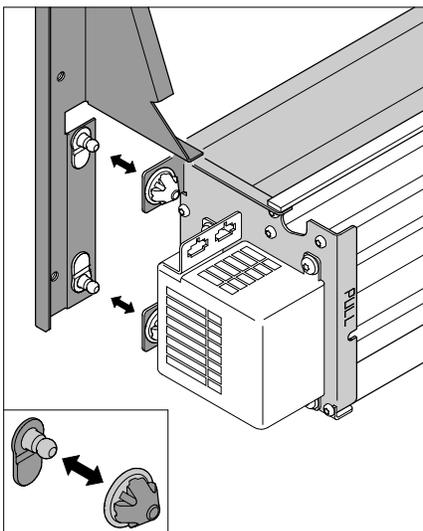
Pull the filter from the Velcro strip, remove any dirt or change the filter if necessary.

9.3.2 Visual checks

Remove the casing prior to visual inspections!

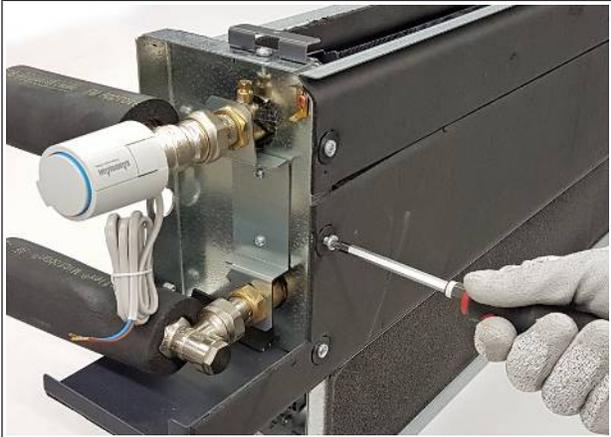
Remove the casing before all visual inspections and maintenance work to access the basic unit.

To clean the heat exchanger, simply remove the tangential fan from the snaplock connection and re-insert it after cleaning.



Check the heat exchanger for soiling and carefully vacuum if necessary. Avoid damage to the pipework and fins.

9.3.3 Cleaning the condensate tray

	<p>Use a Phillips screwdriver to unscrew the 4 fixing screws.</p>
	<p>Remove the condensate tray from the basic unit.</p>
	<p>Clean the condensate tray.</p>

9.3.4 Clean the inside of the unit

Check all elements that come into contact with air (internal surfaces of the unit, outlet elements etc.) for dirt or deposits during maintenance and use a commercially available product to remove.

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Assembly, installation and operating instructions

10 Faults

The following chapter describes possible causes of faults and the work needed to rectify them. Should faults occur frequently, shorten the maintenance intervals in line with the actual loading on the unit.

Contact the manufacturer with any faults that cannot be rectified using the following information.

Behaviour in the event of faults

The following applies:

1. Immediately switch off the unit with faults that pose an immediate danger to persons or property!
2. Determine the cause of the fault!
3. Switch off the unit and prevent it from being reconnected if rectifying the fault requires work in the hazard area. Immediately advise a supervisor on site about the fault.
4. Either rectify the fault yourself or have it repaired by authorised personnel, depending on the nature of the fault.

The Fault table [▶ 42] provides information on who is authorised to rectify and remedy faults.

10.1 Fault table

Fault	Possible cause	Remedy
No function.	No power supply.	Check voltage, switch on repair switch.
		Replace fuse.
System water leakage	Heat exchanger defect.	Replace heat exchanger if necessary.
	Hydraulic connection not correct.	Check flow and return, retighten if necessary.
Water leakage condensate	Drains of the condensate tray clogged.	Clean condensate drains and check for sufficient slope.
	Cold water pipe not properly insulated.	Check insulation.
	Condensate drain not properly installed.	Check the function of the condensate pump. Check condensate drain, clean if necessary.
	Air-conducting accessory components not properly insulated.	Check insulation.
Unit not heating or cooling sufficiently (LPHW/ CHW)	Fan is not switched on.	Switch on fan at controller.
	Air volume is too low.	Set a higher speed.
	Filter is dirty.	Replace filter.
	No heating or cooling medium.	Switch on heating and/or cooling system, switch on circulation pump, vent unit/system.
	Valves not operating.	Replace faulty valves.
	Water volume too low.	Check pump output, check hydraulics.
	Setpoint temperature on the controller set too low/high.	Adjust temperature setting on the controller.
	Operating unit with integral sensor and/or external sensor is exposed to direct sunlight or positioned over a heat source.	Place operating unit with integral sensor and/or external sensor in a suitable position.
	Air cannot blow out or in freely.	Remove obstacles at the air outlet/air inlet.
	Heat exchanger dirty.	Clean heat exchanger.
	Air in the heat exchanger.	Vent heat exchanger.
Unit too loud	Fan speed too high.	Set a lower fan speed, if possible.
	Air intake / air discharge opening is obstructed.	Free air routes.
	Filter dirty.	Replace filter.
	Rotating parts unbalanced	Clean and/or replace impeller. Make sure that no balancing brackets are removed during cleaning.
	Fan dirty.	Clean dirt from fan.
	dirty.	Clean dirt from the .

10.2 Start-up after rectification of fault

After correction of the fault, carry out the following steps for recommissioning:

1. Make sure that all maintenance covers and access openings are sealed.
2. Switch off the unit.
3. Acknowledge the fault on the controller, if necessary.

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11 Certificates

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