

Assembly and Installation 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.

1.2 Explanation of Symbols

Safety Information

Symbols are used in the manual to draw attention to safety information. Attention is drawn to safety information by signal words that express the severity of the hazard.



DANGER!

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



WARNING!

This combination of symbol and signal word indicates a possible dangerous situation, which can cause death or serious injury if not avoided.



CAUTION!

This combination of symbol and signal word indicates a possible dangerous situation, which can cause minor or slight injury if not avoided.



IMPORTANT NOTE!

This combination of symbol and signal word indicates a possible dangerous situation, which can cause material and environmental damage if not avoided.

Hints and recommendations



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

Special safety information

The following symbols are used in the safety information to draw attention to specific hazards:







DANGER!

This combination of symbol and signal word indicates an imminently hazardous situation caused by electric current. If this information is ignored, the situation will result in serious injury or death.

Other label

The following labels are used in this manual to highlight instructions, results, listings, references and other elements:

| Label | Explanation |
|---|--|
|  | Step-by-step instructions |
|  | Results of actions |
|  | Lists without specified sequence. Reference to sections of the manual and other applicable documents |
|  | Auflistungen ohne festgelegte Reihenfolge |
| [Button] | Operating element (e.g. button, switch), Display element (e.g. indicator light) |
| „Display“ | screen elements (e.g. buttons, assignment of function keys) |

1.3 Copyright Protection

The contents of this manual are protected by copyright. Their use is permitted when using the product. Any further use is not permitted without written permission from the manufacturer.

1.4 Customer Service

Our Customer Service team is available is available for technical information:

| | |
|---------|--|
| Address | Kampmann Heating, Cooling, Ventilation Ltd 1628 West 1st Ave Suite #221 Vancouver, BC Canada V6J 1G1 |
| Phone | +1 604 789 5779 |
| E-Mail | info@kampmann.ca |
| Website | www.kampmann.ca |

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. Additional order-related safety information is contained in the sections covering the individual phases of the product's life.

2.1 Intended Use

The fan coil is only intended to be used for heating, cooling and filtering 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 sewage, water and power network.

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

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

Check the application with the manufacturer in case of any doubt.

Information regarding EN60335-1

- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
- The equipment is not designed for operation about 2.000 m.a.s.l.
- The equipment is not designed for permanent connection to the mains water network.
- There needs to be a suitable overpressure protection mechanism fitted to the water network to which the equipment is connected.
- The unit is intended to be accessible to the general public.
- Max. operating pressure 10 bar [1000 kPa]
- Min. operating pressure 1 bar [100 kPa]



WARNING!

Warning of misuse!

Misuse of the fan coil can lead to dangerous situations.

- 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 rooms with a high dust content.
- Never operate the unit in rooms that contain high-temperature gases.
- Never operate the unit in rooms with an aggressive atmosphere.
- Never operate the unit above electrical equipment, such as switch cabinets, computers or other electrical units, or contacts that are not drip-proof.
- Never operate the unit outdoors.
- Keep windows closed during operation.
- Only operate the unit fully assembled and connected to the relevant supply networks (waste water, heating/cooling, electricity)
- Never operate the unit beyond its technical specification (↪ *Chapter 3 „Technical Data“ on page 15ff). Kapitel 3*
- Install the unit away from heaters or other heating equipment.
- Ensure that the airflow can circulate freely.
- Never place any objects on the unit.
- Never cover the unit.
- Always note the requirements for the installation site (↪ *Chapter 6.1 „Requirements Governing the Installation Site“ on page 39f).*

2.2 Fundamental Dangers

The following section lists residual risks that can be generated by the unit even when operated as intended.

Observe the following safety instructions and the safety information in the other sections of this manual to reduce the risk of injury and damage to property and avoid dangerous situations.

2.2.1 Danger from Electrical Energy

Electric current



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 electrics
- Immediate disconnect the system and repair in the event of damage to the insulation.
- Keep live parts away from moisture. This can cause a short circuit.
- Properly earth the unit.

2.3 Responsibility of the Operator

Operator

The operator is the person who operates the unit for commercial or business purposes himself or arranges for a third party to use it and bears the legal product responsibility for protection of the user, personnel or third parties during its operation.

Duties of the operator

The unit is operated in the commercial sector. The operator of the unit is therefore subject to the legal obligations concerning occupational health and safety. All electrical connections have to be made according to the national wiring regulations (NEC).

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.

The following applies in particular:

- The operator must be aware of the applicable health and safety regulations and determine in a risk assessment other hazards that may arise from the special working conditions at the site of operation. He then has to implement this in the form of operating instructions for the operation of the unit.
- The operator must regulate and specify the responsibilities for installation, operation, troubleshooting, maintenance and cleaning.
- The operator must ensure that all staff who work on the unit have read and understood these instructions. In addition, he must also train personnel and inform them of the possible dangers at regular intervals.
- It is the responsibility of the operator to provide maintenance and repair personnel with the necessary personal protective equipment and advise them of the necessity to wear it.

Furthermore, the operator is responsible for ensuring that the equipment is always in perfect condition.
The following therefore applies:

- The operator must ensure that the maintenance intervals described in this manual are adhered to.

Hygiene requirements

The operator must comply with the specifications in line with the pertinent legal standards and guidelines relating to hygiene applicable at the installation site. This includes ensuring that

- fresh and waste water are hygienically separated
- the pertinent maintenance and test intervals are complied with,
- the requirements for air ducts and diffusers are complied with,
- the predefined filter grades are complied with.

2.4 Instruction

The manufacturer offers training for users. For contact details please refer to ↗ *chapter 1.4 „Customer Service“ on page 8.*

2.5 Personnel Requirements

2.5.1 Qualifications

The various tasks described in these instructions place different demands on the qualifications of personnel entrusted with these tasks.

Only permit personnel to carry out work if they can be expected to carry out this work reliably. People with impaired reactions, possibly due to drugs, alcohol or medication, are not permitted to carry out work.

These instructions outline below the requisite qualifications personnel need to perform the various tasks:

Qualified electrician

Qualified electricians are personnel, who, on account of their professional training, knowledge and experience, as well as knowledge of the pertinent standards and regulations, are capable of properly carrying out work on electrical installations and of independently recognising and avoiding possible dangers.

Qualified electricians have been trained for the specific environment in which they work and understand the pertinent standards and regulations.

Installation personnel

Installation personnel have been trained in the assigned tasks and hazards associated with improper conduct by documented instruction by assembly personnel. This training provides installation personnel with the technical knowledge and experience, as well as knowledge of the pertinent regulations, needed to carry out the assigned tasks and independently recognise possible dangers. Installation personnel have all the necessary equipment and tools.

Caretakers/users

Caretakers/users have been instructed by the manufacturer in the tasks assigned to them and possible dangers of improper conduct. Caretakers/users are only permitted to carry out tasks that go beyond normal operation if this is specified in this manual.

2.6 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, about which specific mention is made in certain sections of this manual, during maintenance and troubleshooting on and with the unit.

Description of personal protective equipment

Personal protective equipment is explained in detail below:



Lightweight breathing protection

Lightweight breathing protection is used to protect users against harmful dust.



Goggles

Goggles are used to protect the eyes from flying parts and splashing liquid..



Protective gloves

Protective gloves are used to protect the hands against friction, abrasion, punctures or deeper injuries, as well as contact with hot surfaces.



Safety shoes

Safety shoes protect feet against crushing, falling objects and sliding on slippery surfaces.



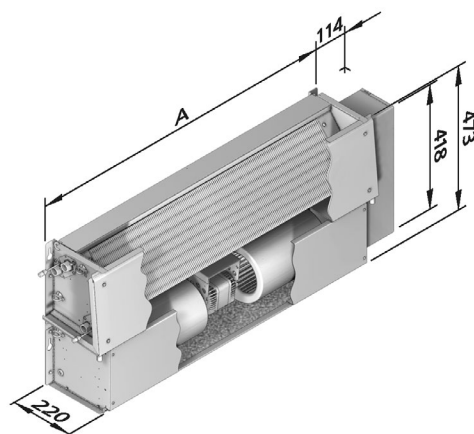
Protective clothing

Protective clothing is used to protect the clothing of personnel and also to protect personnel from external influences harmful to health.

3 Technical data

3.1 Main Dimensions

Basic unit

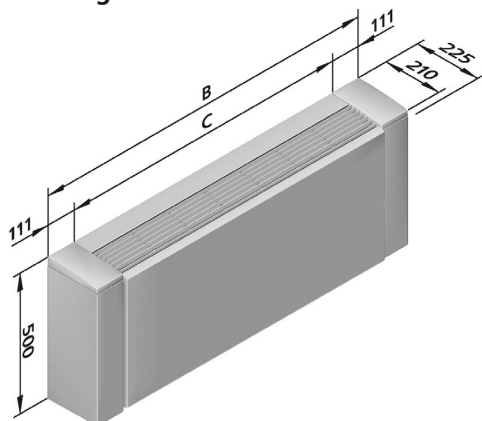


| | Mod 1 | Mod 2 | Mod 3 | Mod 4 | Mod 5 | Mod 6 | Mod 7 |
|--------|-------|-------|-------|-------|-------|-------|-------|
| A [mm] | 620 | 770 | 920 | 1070 | 1220 | 1370 | 1770 |

The basic wall-mounted and ceiling unit is identical. The different versions of heat exchanger do not affect the main dimensions.

Fig. 1: Basic unit

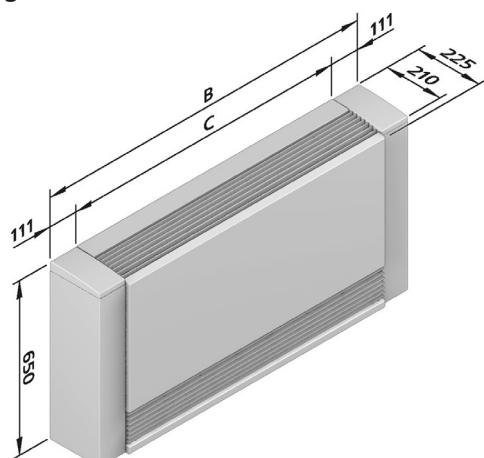
Casing, wall-mounted without intake grille



| | Mod 1 | Mod 2 | Mod 3 | Mod 4 | Mod 5 | Mod 6 | Mod 7 |
|--------|-------|-------|-------|-------|-------|-------|-------|
| B [mm] | 850 | 1000 | 1150 | 1300 | 1450 | 1600 | 2000 |
| C [mm] | 628 | 778 | 928 | 1078 | 1228 | 1378 | 1778 |

Fig. 2: Casing, wall-mounted

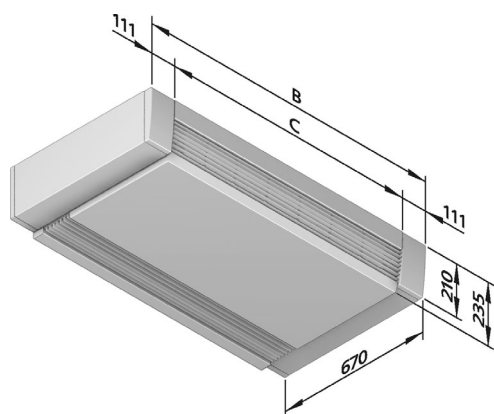
Casing, wall-mounted with intake grille



| | Mod 1 | Mod 2 | Mod 3 | Mod 5 | Mod 5 | Mod 6 | Mod 7 |
|--------|-------|-------|-------|-------|-------|-------|-------|
| B [mm] | 850 | 1000 | 1150 | 1300 | 1450 | 1600 | 2000 |
| C [mm] | 628 | 778 | 928 | 1078 | 1228 | 1378 | 1778 |

Fig. 3: Casing, wall-standing

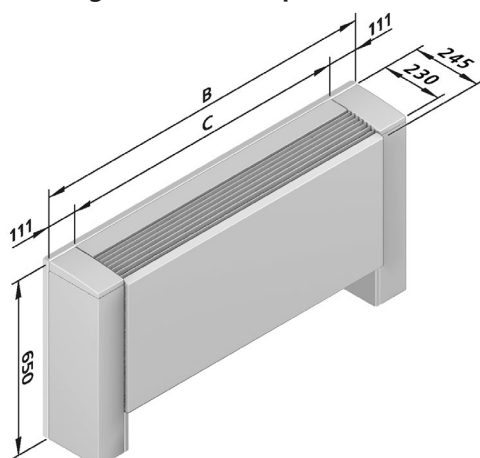
Ceiling panel with air intake grille and end panel



| | Mod 1 | Mod 2 | Mod 3 | Mod 4 | Mod 5 | Mod 6 | Mod 7 |
|--------|-------|-------|-------|-------|-------|-------|-------|
| B [mm] | 850 | 1000 | 1150 | 1300 | 1450 | 1600 | 2000 |
| C [mm] | 628 | 778 | 928 | 1078 | 1228 | 1378 | 1778 |

Fig. 4: Ceiling casing

Free-standing casing without air intake grille with rear panel

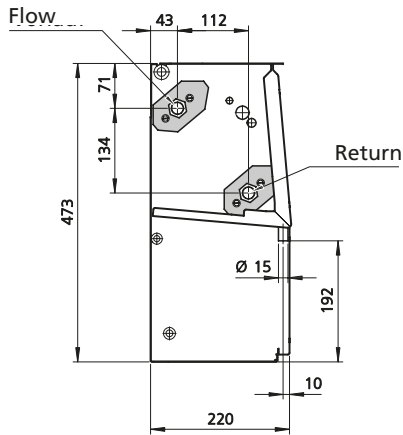


| | Mod 1 | Mod 2 | Mod 3 | Mod 4 | Mod 5 | Mod 6 | Mod 7 |
|--------|-------|-------|-------|-------|-------|-------|-------|
| B [mm] | 850 | 1000 | 1150 | 1300 | 1450 | 1600 | 2000 |
| C [mm] | 628 | 778 | 928 | 1078 | 1228 | 1378 | 1778 |

Fig. 5: Free-standing casing

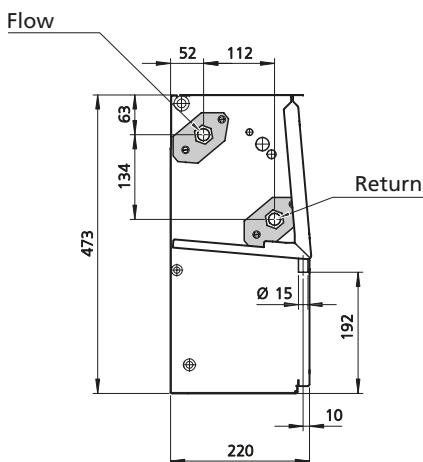
3.2 Connection Dimensions

2-pipe, 3-row

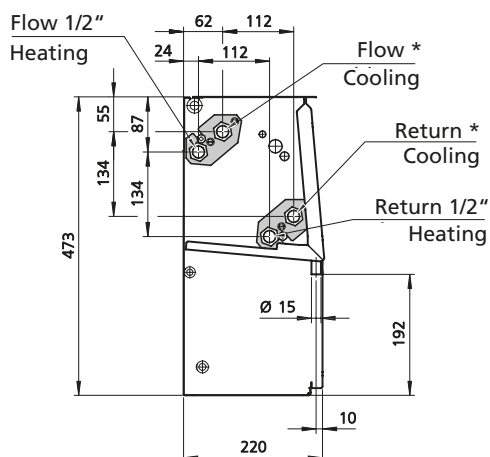


| | | Mod 1 | Mod 2 | Mod 3 | Mod 4 | Mod 5 | Mod 6 | Mod 7 |
|--|----------|---------|-------|-------|-------|-------|-------|-------|
| Condensate connection on main condensate tray | [mm] | Ø 15 | | | | | | |
| Condensate connection on pump (if condensate pump fitted) | [mm] | Ø 6 | | | | | | |
| Connector dimensions: | | | | | | | | |
| 2-pipe heat exchanger (heating or cooling) | [inches] | 1/2" | 1/2" | 1/2" | 1/2" | 3/4" | 3/4" | 3/4" |
| 4-pipe heat exchanger (Heating connection 1-row)* | [inches] | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" |
| (Cooling connection 3-row)* | [inches] | 1/2" | 1/2" | 1/2" | 1/2" | 3/4" | 3/4" | 3/4" |

2 Leiter, 4 Rohrreihen



4 Leiter, 4 Rohrreihen



IMPORTANT NOTE!

If the valve kit is pre-assembled, the flow and return can be swapped if space is tight within the casing. See Chapter 6.10 page 51f.

Abb. 6: Anschlussabmessungen

3.3 Weights

| | | Mod 1 | Mod 2 | Mod 3 | Mod 4 | Mod 5 | Mod 6 | Mod 7 |
|---------------------------------------|------|-------|-------|-------|-------|-------|-------|-------|
| Weight (basic unit without casing) | [kg] | 18,5 | 21 | 24 | 27 | 32 | 36 | 46 |
| Weight (basic unit with casing) | [kg] | 26,5 | 30 | 34 | 41 | 48 | 57 | 69 |

3.4 Connection Values

| | | Mod 1 | Mod 2 | Mod 3 | Mod 4 | Mod 5 | Mod 6 | Mod 7 |
|---|------|------------------------|-------|-------|-------|-------|-------|-------|
| Mains voltage | [V] | 115 | | | | | | |
| Mains frequency | [Hz] | 60 | | | | | | |
| Protection class | | Protection class IP 20 | | | | | | |
| Protection class | | Protection class 1 | | | | | | |
| Basic unit* | [W] | 100 | 110 | 65 | 68 | 71 | 168 | 136 |
| Max. current consumption Basic unit* | [A] | 1,5 | 1,7 | 1,0 | 1,0 | 1,1 | 2,5 | 2,1 |
| Number of motors | | 1 | 1 | 1 | 1 | 1 | 2 | 2 |
| Number of fans | | 1 | 1 | 2 | 2 | 2 | 3 | 4 |

3.5 Operating Data

| | | Mod 1 | Mod 2 | Mod 3 | Mod 4 | Mod 5 | Mod 6 | Mod 7 |
|---|-------|-----------------|-----------------|------------------|------------------|------------------|------------------|------------------|
| Air volume (min. - max.) | m³/h | 240 - 800 | 255 - 840 | 300 - 1150 | 320 - 1110 | 340 - 1170 | 560 - 1910 | 640 - 2220 |
| Max. operating temperature | [°C] | 90 | | | | | | |
| Min. cooling water temperature | [°C] | 4 | | | | | | |
| Minimum – Maximum operating Pressure | [bar] | 0 – 10 | | | | | | |
| Minimum – Maximum operating pressure | [kPa] | 0 – 1000 | | | | | | |
| Max. air intake temperature | [°C] | 40 | | | | | | |

3.6 Sound Values

| | | Mod 1 | Mod 2 | Mod 3 | Mod 4 | Mod 5 | Mod 6 | Mod 7 |
|---|------|-------|-------|-------|-------|-------|-------|-------|
| Sound pressure level $L_{p,A}$ [db(A)] | min. | <20 | <20 | 20 | 20 | 20 | <20 | 21 |
| | Max. | 52 | 52 | 44 | 44 | 44 | 53 | 47 |
| Sound power level $L_{W,A}$ [db(A)] | min. | 24 | 24 | 26 | 26 | 26 | 27 | 29 |
| | Max. | 60 | 60 | 52 | 52 | 52 | 61 | 55 |

The sound levels change depending on the fan speed.
The sound pressure levels were calculated at an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).

3.7 Limits of the Medium (LPHW and CHW)

Only use water or a water-glycol mixture with up to 50% glycol as the heating or cooling medium! Pay attention to the suitability of the components on site, such as valves, boilers etc. Use non-corrosive and non-flammable liquids as the heating and cooling medium.

Media limits

Use water or water/glycol (max. 50%) as the medium. The limits shown alongside for the medium apply to operation.

Media limits

| Parameter | Unit | Value |
|-------------------------|-------|--------------|
| pH value (at 20 °C) | | 7,5 - 9 |
| Conductivity (at 20 °C) | µS/cm | < 700 |
| Oxygen content | mg/l | < 0,1 |
| Total hardness | °dH | 1 - 15 |
| Dissolved sulphur | | undetectable |
| Sodium | mg/l | < 100 |
| Iron | mg/l | < 0,1 |
| Manganese | mg/l | < 0,05 |
| Ammonium content | mg/l | < 0,1 |
| Chloride | mg/l | < 100 |
| Sulphate | mg/l | < 50 |
| Nitrite | mg/l | < 50 |
| Nitrate | mg/l | < 50 |

3.8 Operating Conditions

| Specification | Value | Unit |
|---------------------|-----------|------|
| Ambient temperature | 15 ... 40 | °C |
| Air humidity | 20 ... 60 | % |

3.9 Typeplate

| | |
|---|-------------------|
| Fan Coil Venkon EC Typ 14851UL0B624U00 | |
| Nennspannung Voltage | 115V~ 60Hz |
| Nennstrom Amperage | 2,5 A |
| Nennleistung Power | 168 W |
| max. Betriebsdruck max. operating pressure | 10 psi |
| max. Betriebstemperatur max. operating temperature | 90 °C / 194 °F |
| max. Umgebungstemperatur max. ambient temperature | 40 °C / 104 °F |
| Schutzklasse Protection class | IP20 |
| MCA | 2,75 A |
| MOP | 6 A |
| Serien-Nr. / Serial no. | KSN210033234 3318 |
| Art.Nr. / Article no. | 14851UL0B624U00 |
| ID | 1162899 |
| Kampmann GmbH Friedrich-Ebert-Str. 128-130 49811 Lingen (Ems) Germany Heating and Cooling Equipment | |

The typeplate can be found on the electric housing of the basic unit and contains the following information:

- Type
- Nominal voltage
- Maximum nominal current
- Nominal power
- Maximum operating pressure
- Maximum operating temperature
- Maximum ambient temperature
- Protection class
- MCA
- MOP
- Article number
- ID
- Serial number
- Week and year of manufacture
- Manufacturer
- Disposal instructions

Fig. 7: Example of typeplate

3.10 Wear Parts

The necessary filters can be ordered from the supplier.



We recommend keeping on filter of each type in stock.

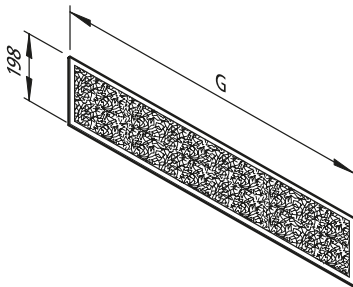


Fig. 8: Replacement filter G2

| | | Mod 1 | Mod 2 | Mod 3 | Mod 4 | Mod 5 | Mod 6 | Mod 7 |
|------------------------------------|---------------------|-------|-------|-------|-------|-------|-------|-----------|
| Dry layer filter Grade G2 (EU2) | Dimension G [mm] | 519 | 669 | 819 | 969 | 1119 | 1269 | 2x 830 |



Contact our Customer Service for technical questions, see Chapter. 1.4. page 8.

Spare parts list

| Part | Order number | | | | | | |
|---------------------------------|--|---------------|---------------|---------------|---------------|---------------|---------------|
| | Mod 1 | Mod 2 | Mod 3 | Mod 4 | Mod 5 | Mod 6 | Mod 7 |
| Replacement filter unit G2 | 14839BB0B102 | 14839BB0B202 | 14839BB0B302 | 14839BB0B402 | 14839BB0B502 | 14839BB0B602 | 14839BB0B702 |
| Side condensate tray: | | | | | | | |
| • Wall-mounted | 14834AL0W 001 | 14834AL0W 001 | 14834AL0W 001 | 14834AL0W 001 | 14834AL0W 001 | 14834AL0W 001 | 14834AL0W 001 |
| • Ceiling installation | 14834AL0D 001 | 14834AL0D 001 | 14834AL0D 001 | 14834AL0D 001 | 14834AL0D 001 | 14834AL0D 001 | 14834AL0D 001 |
| Fan unit | 000001115101 | 000001115102 | 000001115087 | 000001115103 | 000001114175 | 000001114176 | 000001114169 |
| Heat exchanger 2-pipe, 4-row | 000011480720 | 000011480722 | 000011480724 | 000011480726 | 000011480728 | 000011480730 | 000011480732 |
| Heat exchanger 4-pipe, 4-row | 000011480740 | 000011480742 | 000011480744 | 000011480746 | 000011480748 | 000011480750 | 000011480752 |
| Condensation pump | 14834BB0B002 | | | | | | |
| Valve body, 2-way valve, angled | 14833BB2B100 | 14833BB2B200 | 14833BB2B300 | 14833BB2B400 | 14833BB2B500 | 14833BB2B600 | 14833BB2B700 |
| Valve body, 4-way valve | 14833BB4B100 | 14833BB4B200 | 14833BB4B300 | 14833BB4B400 | 14833BB4B500 | 14833BB4B600 | 14833BB4B700 |
| Actuator 2-point 24 V AC/DC | 194000146906 | | | | | | |
| Control spare parts | see separate instructions for controls | | | | | | |

4 Construction and Function

4.1 Overview

- ① Cu/Al heat exchanger
- ② Rear panel and main brackets
- ③ Fan unit
- ④ Air vent
- ⑤ / ⑥ Valve kit (including electrical actuators and valves) (accessories)
- ⑦ Main condensate tray with a drain connection on both sides
- ⑧ Electrical junction box (plastic junction box with electro-mechanical model 00)
- ⑨ Filter element
- ⑩ Casing air outlet grille, RAL 9006 (accessory)
- ⑪ Casing front panel with wall connection panel, RAL 9016 (accessory)
- ⑫ Casing side mullions, RAL 9016 (accessory)
- ⑬ Casing access opening, RAL 9016 (accessory)
- ⑭ Condensate pump with float switch (accessory)
- ⑮ Side condensate tray (accessories)
- ⑯ Front panel - fan unit

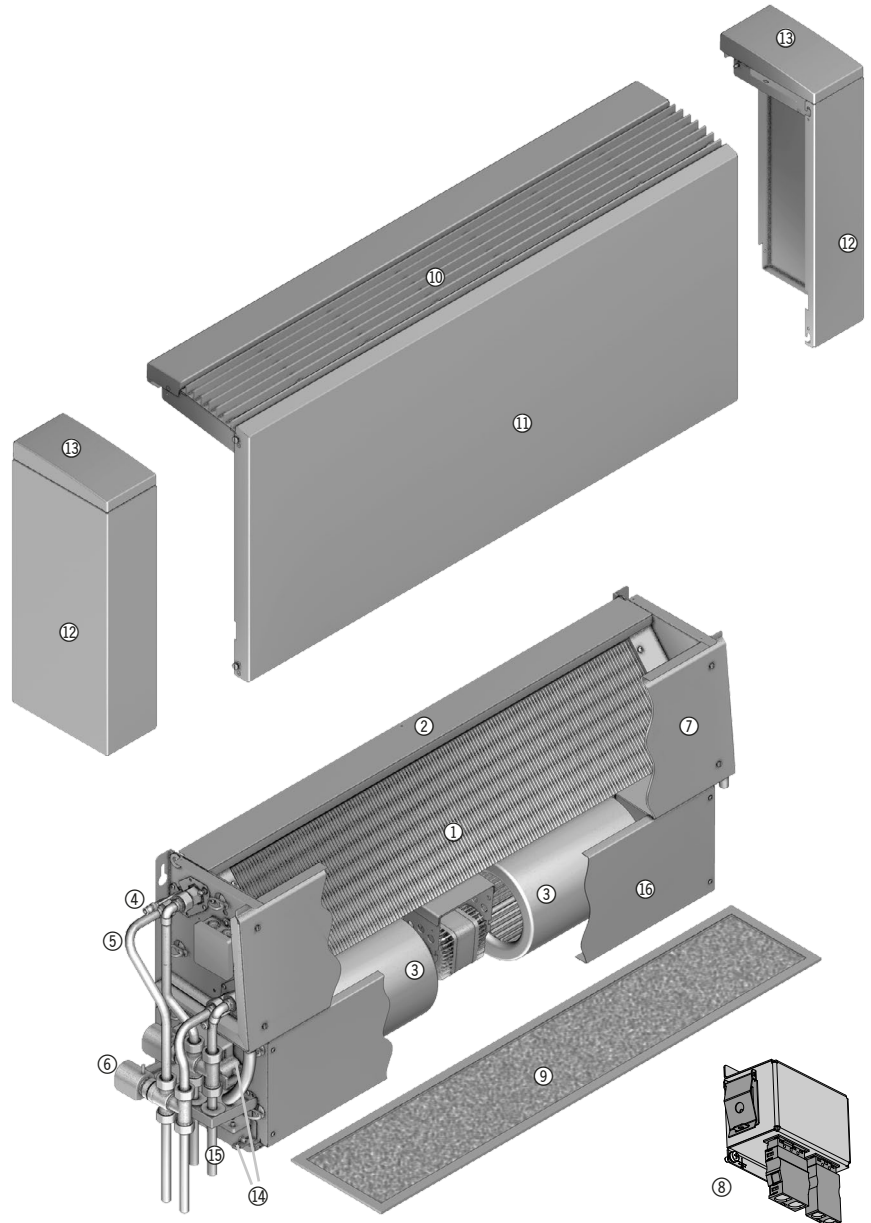


Fig. 9: Exploded view
 Recirculation air Venkon fan coil wall-mounted unit with wall casing



The unit can be supplied as a left-handed or right-handed unit (position of connections). The diagrams used in this manual relate to left-handed units. The right-handed model is a mirror-image.

4.2 Brief Description

The Venkon fan coil is a decentralised unit for heating, cooling and filtering air, including in hotels, offices and business premises. Thanks to the efficient, extremely quiet fan, the individual comfort temperature is quickly reached.

Thanks to their modular principle, the series of units offers a wide range of versions to provide the optimum solution for every application.

Installation options

1. Wall unit with wall-suspended or wall-standing casing
2. Free-standing unit with free-standing casing
3. Ceiling unit with ceiling casing
4. Suspended ceiling installation with relevant accessories

Heat exchanger

1. Version with 2-pipe system and 4 pipe rows
2. Version with 4-pipe system

Equipment

Extensive accessories with required valve kit (page 29) and accessories (page 26-28).

Control

1. Version with electro-mechanical control

4.3 Unit Components

4.3.1 Heat Exchanger

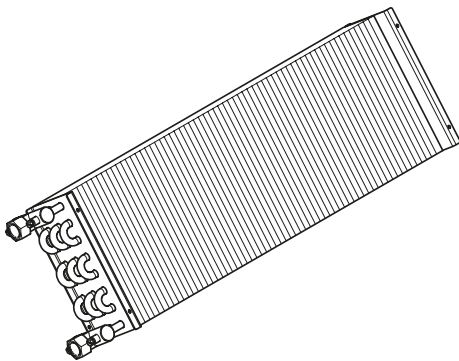


Fig. 10: Heat exchanger

In the heat exchanger, the intake secondary air is cooled or heated depending on the mode of operation. The heat exchanger is either 2-pipe or 4-pipe depending on the mode of operation. Refer to Chapter 3.2. on page 18 for the connection sizes for each module.

4.3.2 Fan Unit

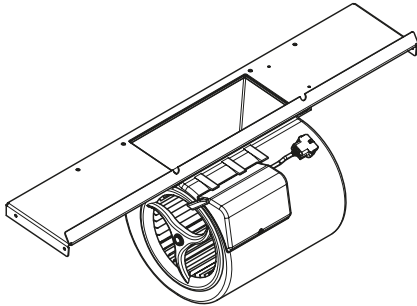


Fig. 11: Fan unit

The fan unit has one or more motors with one or more radial fans depending on the model. The radial fan draws in secondary air from the room and blows it through the heat exchanger.

4.3.3 Air Vent

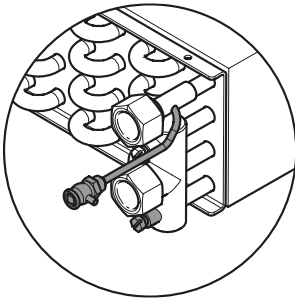


Fig. 12: Vent pipe with air valve and air vent screw

The vent screws and air valves on the vent pipes have to be open to vent the heat exchanger. Use a flat blade screwdriver or an appropriate spanner to open the vent screws. Use an appropriate Allen key to open the air valves on the vent pipes. Use a wrench underneath the air valve to prevent the air valve from tearing off if the valves are difficult to open.

4.3.4 Junction Box

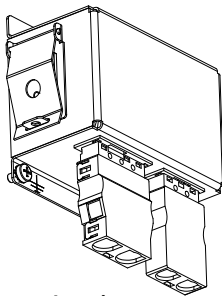


Fig. 13: Junction box

Galvanised steel junction box with rep switch and plugs for the electrical connections.

4.3.5 Main Condensate Tray

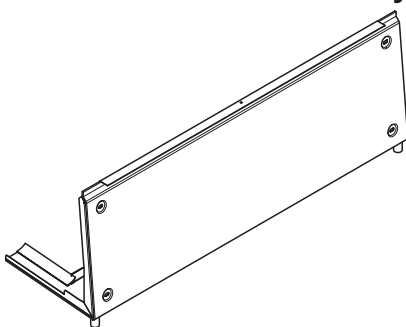
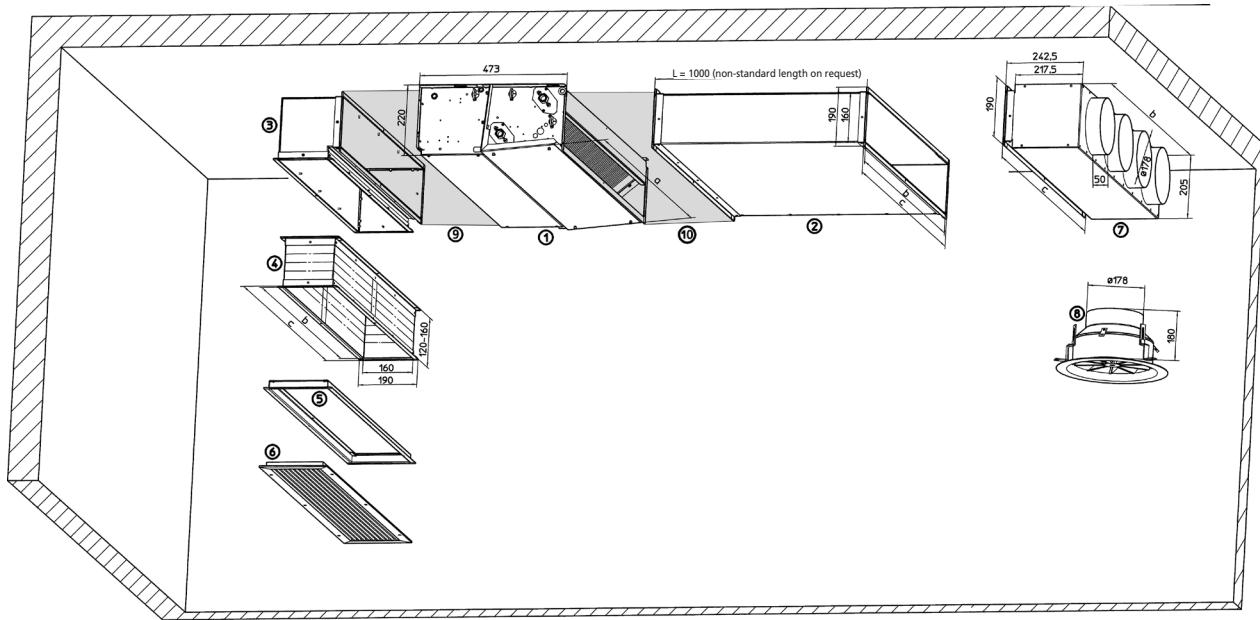


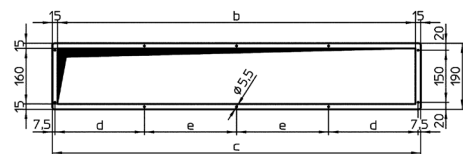
Fig. 14: Main condensate tray

The galvanised steel powder coated main condensate tray, with impermeable insulation is used to collect condensate water. The condensate water passes out of the side of the main support.

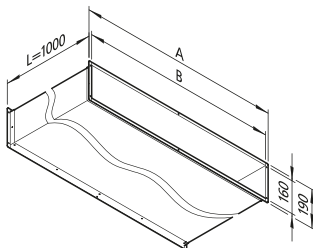
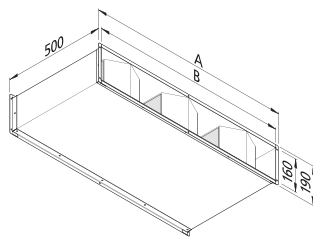
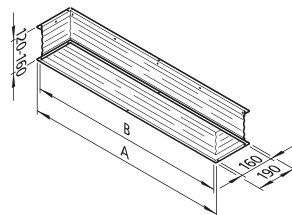
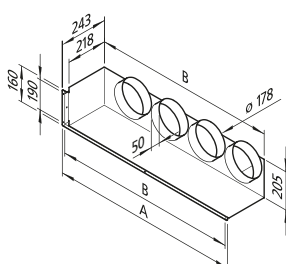
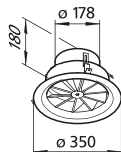
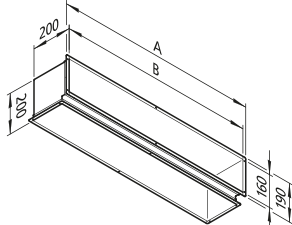


Overview of Parts:

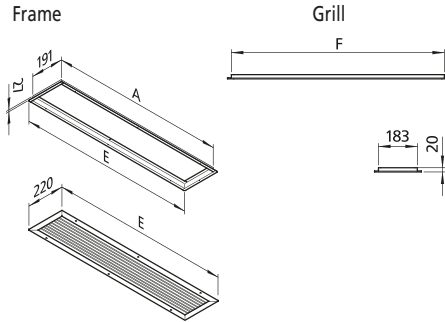
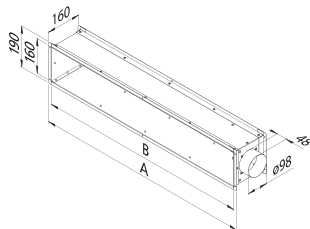
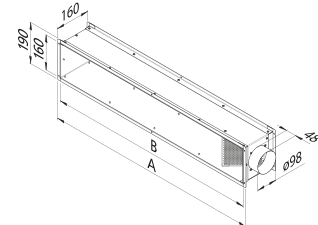
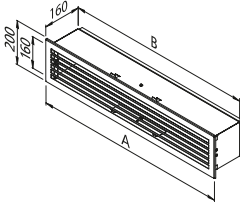
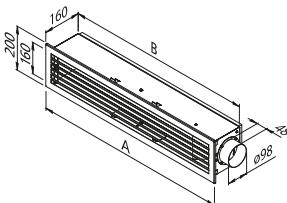
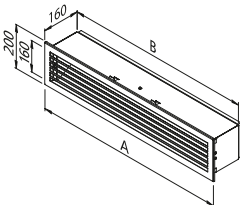
- ① Venkon fan coil recirculation air basic unit
- ② Air duct, long, type 14835BB0B*01
- ③ Air duct angled section 90°, type 14835BB0B*03
- ④ Flexible connection, type 14835BB0B*04
- ⑤ Intermediate frame (within the air intake / outlet frame)
- ⑥ Air inlet and outlet grille, type 14837BB0B*02
- ⑦ Round pipe connection unit, type 14835BB0B*05
- ⑧ Ceiling swirl diffuser, type 14837BB0B001
- ⑨ Air intake box with primary air connector, type 14835BB0B*07, (position shown in grey)
- ⑩ Air outlet box with primary air connector, type 14835BB0B*08, (position shown in grey)



| Mod | a | b | c | d | e | f | g | Number of adaptors Round pipe connection unit |
|-----|------|------|------|-------|-----|------|------|---|
| 1 | 620 | 530 | 560 | 272,5 | 0 | 590 | 553 | 2 |
| 2 | 770 | 680 | 710 | 347,5 | 0 | 740 | 703 | 3 |
| 3 | 920 | 830 | 860 | 422,5 | 0 | 890 | 853 | 3 |
| 4 | 1070 | 980 | 1010 | 497,5 | 0 | 1040 | 1003 | 4 |
| 5 | 1220 | 1130 | 1160 | 572,5 | 0 | 1190 | 1153 | 4 |
| 6 | 1370 | 1280 | 1310 | 647,5 | 0 | 1340 | 1303 | 4 |
| 7 | 1770 | 1680 | 1710 | 822,5 | 420 | 1740 | 1703 | 5 |

| Figure | Description | Dimensions [mm] | | | | | | | |
|---|---|---------------------|------------|------------|------------|-------------|--------------|--------------|--------------|
| | | Model ¹⁾ | | | | | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|  | Air duct, type 148 35BB0B* 01 Standard length 1,000 mm, Non-standard length on request Weight (net) in kg | A B | 560 530 | 710 680 | 860 830 | 1010 980 | 1160 1130 | 1310 1280 | 1710 1680 |
|  | Silencer, type 148 35BB0B* 06 Splitter silencer, Non-standard length 500 m Weight (net) in kg | A B | 560 530 | 710 680 | 860 830 | 1010 980 | 1160 1130 | 1310 1280 | 1710 1680 |
|  | Flexible connection, type 148 35BB0B* 04 With frame on both sides and flexible canvas connection for structure-borne noise decoupling and length compensation of on-site dimensional inaccuracies; install. Length: 120-160 mm Weight (net) in kg | A B | 560 530 | 710 680 | 860 830 | 1010 980 | 1160 1130 | 1310 1280 | 1710 1680 |
|  | round pipe connection unit, type 148 35BB0B* 05 For Venkon fan coil with flexible pipe connection sockets for ø 180 mm Weight (net) in kg | A B | 560 530 | 710 680 | 860 830 | 1010 980 | 1160 1130 | 1310 1280 | 1710 1680 |
| | Number of adaptors | 2 | 3 | 3 | 4 | 4 | 4 | 5 | |
|  | Ceiling swirl diffuser, type 148 37BB0B* 01 Round, coated white, for connection to a flexible pipe, ø 180 mm Weight (net) in kg | | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
|  | Air duct angled section 90°, type 148 35BB0B* 03 Short bend, e.g. with ceiling arrangement as a transition from horizontal to vertical ductwork Weight (net) in kg | A B | 560 530 | 710 680 | 860 830 | 1010 980 | 1160 1130 | 1310 1280 | 1710 1680 |

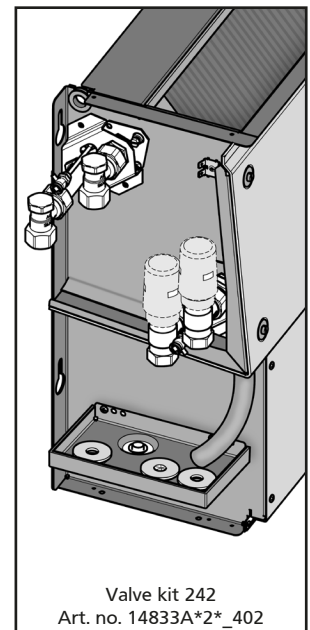
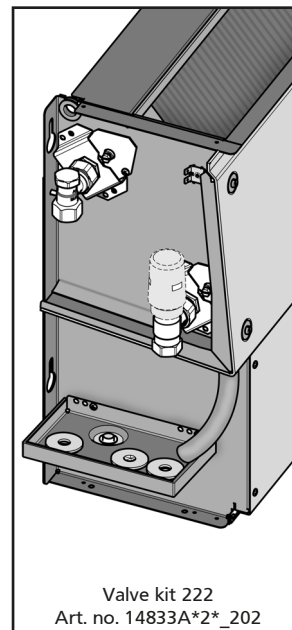
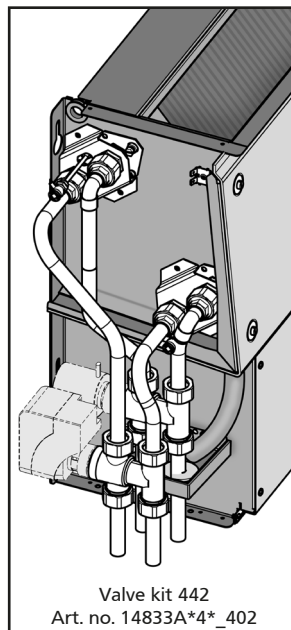
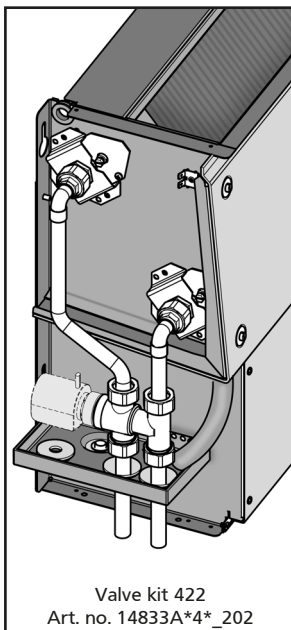
1) Insert model for *

| Figure | Description | Dimensions [mm] | | | | | | | |
|---|---|---------------------|-----|-----|------|------|------|------|------|
| | | Model ¹⁾ | | | | | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|  | Air grille, internal, with mounting frame type 148 37BB0B* 02 For air intake and outlet Height when installed H = 32 mm Colour: natural aluminium free cross-section: 65% | A | 560 | 710 | 680 | 1010 | 1160 | 1310 | 1710 |
| | E | 590 | 740 | 890 | 1040 | 1190 | 1340 | 1740 | |
| | Weight (net) in kg | F | 553 | 703 | 853 | 1003 | 1153 | 1303 | 1703 |
|  | Air intake box with primary air connector type 148 35BB0B* 07 Unit for fitting on the air intake of the Venkon fan coil, dimensions of connecting sockets DN 100 | A | 560 | 710 | 860 | 1010 | 1160 | 1310 | 1710 |
| | B | 530 | 680 | 830 | 980 | 1130 | 1280 | 1680 | |
| | Weight (net) in kg | | 4 | 4 | 5 | 6 | 6 | 7 | 9 |
|  | Air outlet box with primary air connector type 148 35BB0B* 08 Unit for fitting on the air outlet of the Venkon coil, dimensions of connecting sockets DN 100 | A | 560 | 710 | 860 | 1010 | 1160 | 1310 | 1710 |
| | B | 530 | 680 | 830 | 980 | 1130 | 1280 | 1680 | |
| | Weight (net) in kg | | 4 | 4 | 5 | 6 | 7 | 7 | 9 |
|  | Air grille for air outlet with connection box type 148 37BB0B* 03 Unit for fitting on the air outlet of the Venkon coil, dimensions of connecting sockets DN 100 | A | 620 | 770 | 920 | 1010 | 1160 | 1310 | 1710 |
| | B | 530 | 735 | 885 | 980 | 1130 | 1280 | 1680 | |
| | Weight (net) in kg | | 4 | 5 | 6 | 8 | 8 | 9 | 11 |
|  | Air grille for air outlet with connection box with primary air connection, type 148 37BB0B* 04 Unit for fitting on the air outlet of the Venkon coil, dimensions of connecting sockets DN 100 | A | 620 | 770 | 920 | 1010 | 1160 | 1310 | 1710 |
| | B | 530 | 680 | 860 | 980 | 1130 | 1280 | 1680 | |
| | Weight (net) in kg | | 5 | 5 | 6 | 8 | 8 | 9 | 11 |
|  | Air grille with air intake with integral filters type 148 37BB0B* 05 Unit for fitting on the air intake of the Venkon fan coil, dimensions of connecting sockets DN 100 | A | 620 | 770 | 920 | 1010 | 1160 | 1310 | 1710 |
| | B | 530 | 680 | 860 | 980 | 1130 | 1280 | 1680 | |
| | Weight (net) in kg | | 5 | 5 | 6 | 8 | 8 | 9 | 11 |

1) Insert model for *

4.4.2 Water Connection Accessories (Control)

| Valve kit version (pre-fitted) | | | | | | | | | |
|--|--|---------------|---|---|----------------------|---|---|---|----------------------|
| Valve kit comprising preset valves and lockable return screw connections | | | | | | | | | |
| Model | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Combinable control |
| Art. No. ¹⁾ | Model | | | | | | | | |
| 14833A*2*_202 | Valve kit-222 | Wall-mounted | | | Ceiling installation | | | | -E00 -EC1 -EC2 |
| | 2-pipe version with pre-settable 2-way valve with 2-point actuator 24 V Open/Close, pre-fitted | 14833A*2W_202 | | | 14833A*2D_202 | | | | |
| 14833A*2*_402 | Valve kit-242 4-pipe version with pre-settable 2-way valves with 2-point actuator 24 V Open/Close, pre-fitted | 14833A*2W_402 | | | 14833A*2D_402 | | | | -E00 -EC1 -EC2 |
| 14833A*4*_202 | Valve kit-422 2-pipe version with 4-way valve with 2-point actuator 24 V Open/Close, pre-fitted | 14833A*4W_202 | | | 14833A*4D_202 | | | | -E00 -EC1 -EC2 |
| 14833A*4*_402 | Valve kit-442 4-pipe version with 4-way valve with 2-point actuator 24 V Open/Close, pre-fitted | 14833A*4W_402 | | | 14833A*4D_402 | | | | -E00 -EC1 -EC2 |

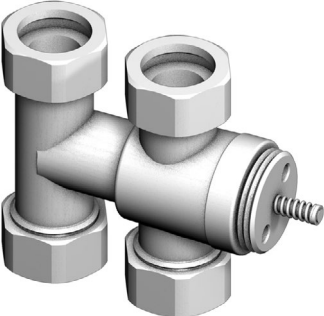

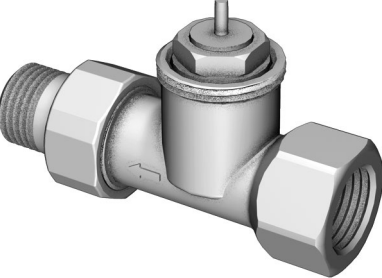




IMPORTANT NOTE!

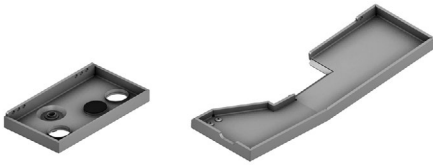
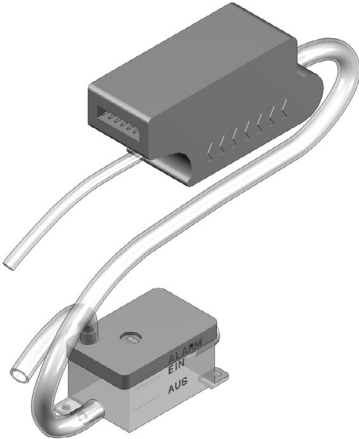
Please note that the flow/return can be provided on the top or bottom of the unit, depending on the valve kit. See Chapter 6.10 page 51f Valve Kit Dimensions.

*4-way valve cannot be pre-set or shut off.
Provide the necessary components on site for hydraulic balancing.

4.4.3 Water Connection Accessories (Valves, Actuator)


| | | |
|---|--|------------|
|  | <p>1/2" 4-way valve body (3-way valve with bypass) Type 14833B4B*00 (for Venkon fan coil models 1–4) not adjustable: KV value 2.5 Connection: 3/4" AG supplied; for installation on-site</p> | |
| | <p>1/2" 4-way valve body (3-way valve with bypass) Type 14833B4B*00 (for Venkon fan coil models 5-7) not adjustable: KV value 4.0 Connection: 3/4" AG supplied; for installation on-site (Factory-fitted as valve kit type 422/442)</p> | |
| | Max operating temperature | 110 °C |
| | Maximum operating pressure | 16 bar |
|  | <p>1/2" angled valve body, type 14833BB2B*00 (for Venkon fan coil models 1–4) Connection:: K_V-value 0.52...2.8 Connection: 1/2" fem. x 1/2" male supplied; for installation on-site</p> | |
| | <p>3/4" angled valve body, type 14833BB2B*00 (for Venkon fan coil models 5–7) Connection:: K_V-value 1.04...3.6 Connection: 3/4" fem. x 3/4" male supplied; for installation on-site (Factory-fitted as valve kit type 222/242)</p> | |
| | Max operating temperature | 120 °C |
| | Maximum operating pressure | 16 bar |
|  | <p>1/2" valve body, straight design, Type 14833BB1B*00 (for Venkon fan coil models 1–4) Connection:: K_V-Wert 0,25...1,9 Connection: 1/2" fem. x 1/2" male supplied; for installation on-site</p> | |
| | <p>3/4" valve body, straight design, Type 14833BB1B*00 (for Venkon fan coil models 5-7) Connection:: K_V-value 0.25...2.6 Connection: 3/4" fem. x 3/4" male supplied; for installation on-site</p> | |
| | Max operating temperature | 120 °C |
| | Maximum operating pressure | 10 bar |
|  | <p>Return screw connection, type 14833BB2B*00 (for Venkon fan coil models 1–4) lockable: K_V-value 1.7 Connection: 1/2" fem. x 1/2" male supplied; for installation on-site</p> | |
| | <p>Return screw connection, type 14833BB2B*00 (for Venkon fan coil models 5-7) lockable: K_V-value 4.5 Connection: 3/4" fem. x 3/4" male supplied; for installation on-site (Factory-fitted as valve kit type 222/242)</p> | |
| | Max operating temperature | 120 °C |
| | Maximum operating pressure | 10 bar |
|  | <p>Thermoelectric actuator type 194000146906, 24 V AC/DC</p> | |
| | <p>Available separately for on-site installation or factory-fitted as a valve kit type 14833A**B*00 (222,242,422,442)</p> | |
| | control type | 2-point |
| | Actuating power | 90 N |
| | Connecting cable length | 3 m |
| | Threaded connector | M30 x 1,5 |
| | Power uptake | approx. 2W |
| | Dimensions Ø x H: | 69 x 42 mm |

4.4.4 Condensate Accessories

| | | | | | | | | | | | |
|--|---|-------------------|-----|----------------|-------|----------------|---------------|--------------|------|--------------------------|--------------------------------|
|  | <p>Valve condensate tray, attached underneath the valves To collect condensate produced on the valve equipment during cooling; durable thanks to powder coated metal construction</p> <p>fitted on the left of the basic unit with water connection on left (type 14834AL*): Wall-mounted unit type 14834AL0W001 Ceiling unit type 14834AL0D001</p> <p>fitted on the right of the basic unit with water connection on right (type 14834AR*): Wall-mounted unit type 14834AR0W001 Ceiling unit type 14834AR0D001</p> | | | | | | | | | | |
|  | <p>Condensation pump For the discharge of condensate, if no natural gradient can be provided (casing required for ceiling units for cooling).</p> <p>pre-assembled type on demand supplied loose type on demand (state installation type and control configuration)</p> <table border="1" data-bbox="667 992 1474 1171"> <tr> <td>Max. pumping head</td><td>8 m</td></tr> <tr> <td>Max. flow rate</td><td>3 l/h</td></tr> <tr> <td>Supply voltage</td><td>115 V / 60 HZ</td></tr> <tr> <td>Power uptake</td><td>20 W</td></tr> <tr> <td>Condensate pressure line</td><td>DN 6 mm (hose connection) 1/4"</td></tr> </table> | Max. pumping head | 8 m | Max. flow rate | 3 l/h | Supply voltage | 115 V / 60 HZ | Power uptake | 20 W | Condensate pressure line | DN 6 mm (hose connection) 1/4" |
| Max. pumping head | 8 m | | | | | | | | | | |
| Max. flow rate | 3 l/h | | | | | | | | | | |
| Supply voltage | 115 V / 60 HZ | | | | | | | | | | |
| Power uptake | 20 W | | | | | | | | | | |
| Condensate pressure line | DN 6 mm (hose connection) 1/4" | | | | | | | | | | |

4.5 Display and Operating Elements

Units are supplied with different operating components, depending on the unit model. Please refer to the separate instructions for the control, as well as the wiring diagram and cabling diagram (chargeable).

| Recirculation air control | | |
|---|---|---|
| Mode of operation | Electro-mechanical control/ <i>KaControl</i> | |
| | Type suffix/Description | System construction |
| Stand-alone operation, without control unit | 00 Electro-mechanical basic unit, wired to terminal (select control accessories if necessary) |  |

4.6 Operating Modes

The unit provides the following ventilation functions.

Filters room air

The secondary air drawn from the room passes through the filter and is cleaned in line with the filter grade (G2/F5/F7).

Heats room air

Secondary air passes through the heat exchanger filled with LPHW. Depending on the water temperature, the secondary air is heated up and fed back into the room.

Cools room air

Secondary air passes through the heat exchanger filled with CHW. Depending on the water temperature, the secondary air is cooled and fed back into the room.

Dehumidifies room air

If secondary air with a high relative humidity is cooled at a lower water temperature, the secondary air dehumidifies on the heat exchanger. The „dried“ air is then fed back into the room.

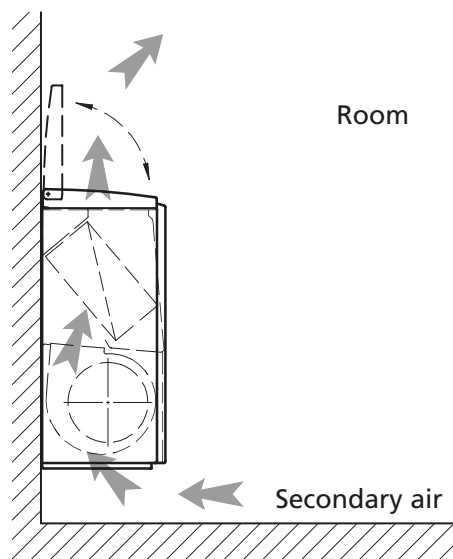


Fig. 15: Operation (diagram)

5 Transport, Packing and Storage

5.1 Safety Information for Transport

Risk of injury



WARNING!

Risk of injury from sharp edges or broken transport elements!

Improper use of parts of the fan coil to carry the equipment can lead to personal injury and material damage.

- 2 people are needed to transport the unit.
- Wear personal protective clothing when carrying the unit.
- Do not use the side panels of the casing or the accessories fitted (e.g. valve kits) to carry the unit.
- Only carry the fan coil by supporting both sides and lift it by the frame of the basic unit.
- Use suitable transport equipment to transport the unit to prevent damage to health and the equipment

Incorrect transport



IMPORTANT NOTE!

Material damage caused by incorrect transport!

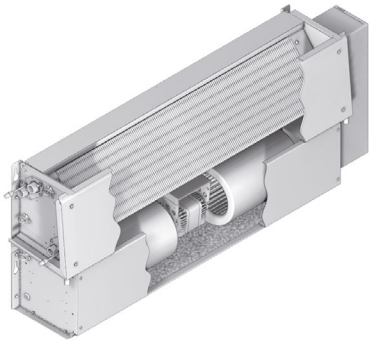
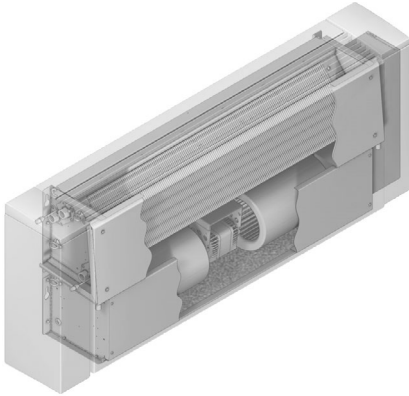
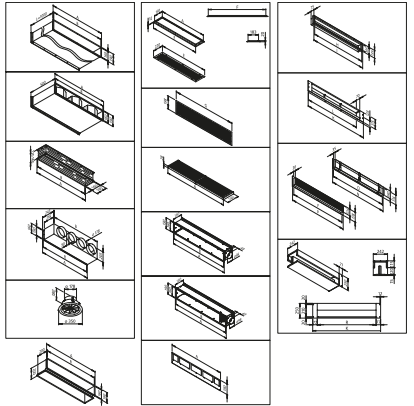
Units being transported can drop or topple over if transported wrongly. This can cause serious material damage.

- 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 position lifting equipment on the basic unit and/or basic units with front panelling. Do not lift by the side panels. Protect the edges when lifting with a harness! Ensure that the weight is evenly distributed.
- Only remove packaging shortly before assembling the unit.

5.2 Scope of Delivery

Delivery condition

The entire unit is packaged separately depending on the model ordered. Air-side accessories are delivered separately on a pallet.

| Basic unit | Basic unit + casing | Air-side accessories |
|---|--|---|
|  |  |  |
| Weight (see Chapter 3.3) | Weight (see Chapter 3.3) | Weight (see Chapter 4.4) |

Delivery (depending on model ordered)

- Basic unit
- Casing (pre-assembled)
- Valve kit (pre-assembled), condensate accessories pre-fitted, if applicable
- Fixing material
- Wiring diagrams
- Operating instructions
- Air-side accessories, supplied separately

5.3 Transport Inspection

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.
- Lodge a complaint with the freight forwarder.



Lodge a complaint about all defects and faults as soon as they are detected. Claims for damages can only be made within the applicable period for complaints.

5.4 Packaging

Packaging information

The individual items are packaged in accordance with the transport conditions expected.

The packaging is intended to protect the individual components from damage during transit, corrosion and other damage before they are assembled. Therefore do not destroy the packaging and only remove shortly before installation.

Handling packaging materials

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



IMPORTANT NOTE!

Environmental hazard from incorrect disposal!

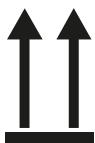
Packaging materials are valuable raw materials and, in many cases, can be reused or sensibly reconditioned and reused. Incorrect disposal of packaging materials can present a hazard to the environment.

- Dispose of packaging materials in an environmentally-friendly manner.
- Note the locally applicable regulations governing disposal. You may wish to consider contracting a specialist company to dispose of the materials.

5.5 Symbols on the Packaging

The packaging carries the following symbols.
Always note the symbols when transporting the equipment.

Top



The arrows point to the top of the package. Make sure that they always point upwards, otherwise the contents can be damaged.

Protect from moisture



Protect the packaging from moisture and keep dry.

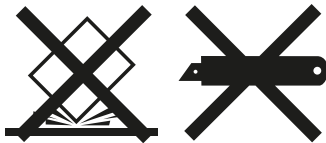
Fragile



This indicates packaging with breakable or sensitive contents.

Treat the package with care, do not drop and do not expose it to knocks or bumps

Protect from scratches



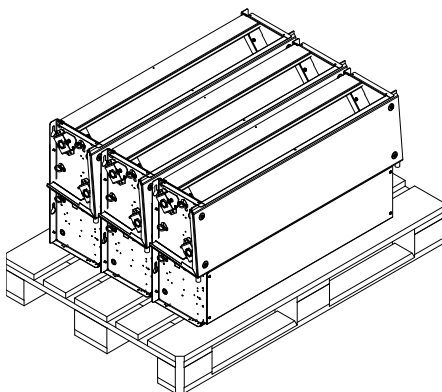
Avoid damaging the cardboard! Do not use sharp objects to open the box! Avoid scratching the contents!

5.6 Transport of Pallets

A forklift/pallet truck can be used to transport items fixed onto pallets under the following conditions:

- The forklift/pallet truck has to be designed to lift the weight of the items.
- The items have to be securely fixed to the pallet.
- The forklift driver has to be qualified to drive trucks with a seat or platform in line with locally applicable regulations.

Transport



1. ➤ Drive the forks of the forklift/pallet truck between or under the beams of the transport pallet.
2. ➤ Drive the forks until they protrude on the opposite side.
3. ➤ Make sure that the load cannot tip when the centre-of-gravity of the transport pallet is off-centre.
4. ➤ Lift the pallet with the packaging and begin to transport.

The basic units of basic unit models 1 - 3 are packed on a pallet as shown on the diagram at the side, wrapped in cling film and transported unboxed.

5.7 Storage

Storing packaging

Store packaging under the following conditions:

- Do not store outdoors.
- Store in a dry and dust-free place.
- Do not expose to aggressive media.
- Protect from direct sunlight.
- Avoid mechanical vibrations and shocks.
- Storage temperature 15 to 35 °C.
- Relative air humidity: max. 60 %.



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

6 Installation and Connection

6.1 Requirements Governing the Installation Site

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

- The installation site is level and can bear the weight of the unit (↪ Chapter 3 „Technical Data“ on page 15 ff).
- The load-proof and vibration-free position of the unit is guaranteed (possibly call in the services of an architect or structural engineer, also in connection with openings to be made through walls and ceilings).
- Comply with the minimum clearances from the unit to the wall/ceiling/floor (see page 39 f).
- Ensure that the airflow can circulate freely.
- Make sure that drilling positions for installing the unit are free from electrical wiring or pipes.
- Provide for adequate space for floor and return water connections on site (↪ Chapter 3 „Technical Data“ on page 15 ff.)
- Ensure that the unit can be installed without mechanical torsion or tension when installed.
- Ensure that the unit can be installed without mechanical torsion or tension when installed. There is a power supply on site (↪ Chapter 3 „Technical Data“ on page 15 ff.).

6.2 Minimum Clearances

The following minimum clearances have to be allowed for when installing the basic unit:

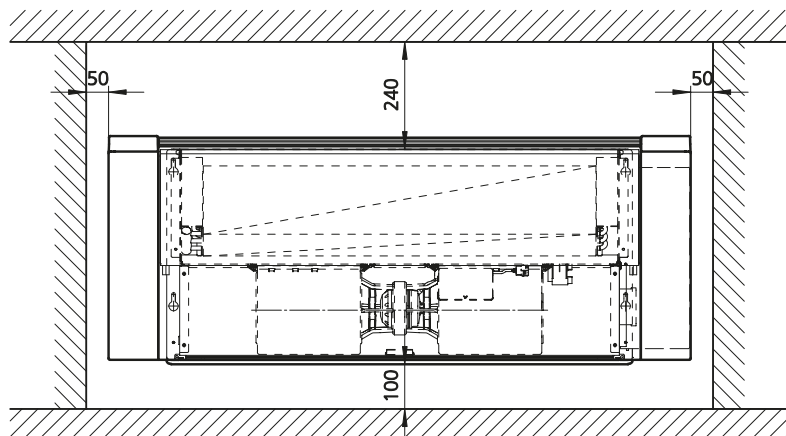
| model | Minimum distance to resistance on site [mm] | | |
|--|---|-----|-------|
| | left/right | up | below |
| mode basic unit wall-mounted without casing | 165 | 150 | 100 |
| mode basic unit wall-standing without casing | 165 | 150 | 143 |
| mode basic unit free-standing without casing | 165 | 150 | 140 |
| mode basic unit ceiling without casing | 165 | - | 160 |
| mode basic unit wall-mounted with casing | 50 | 200 | 100 |
| mode basic unit wall-standing with casing | 50 | 200 | 0 |
| mode basic unit free-standing with casin | 50 | 200 | 0 |
| mode basic unit ceiling with casing | 50 | - | 0 |



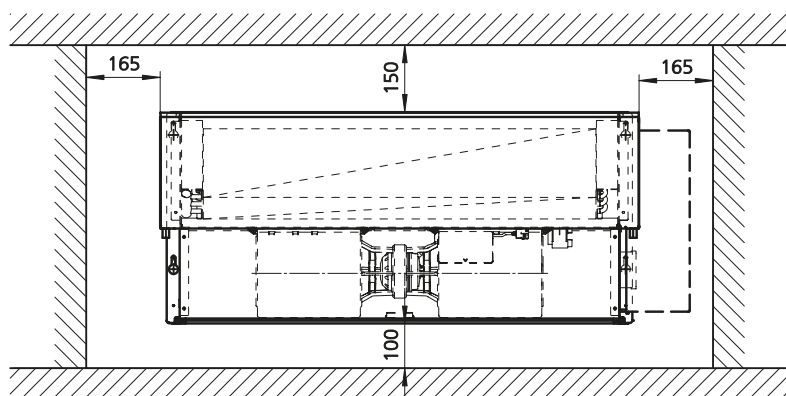
Provide adequate inspection openings for all arrangements in order to ensure access to the unit and all water-side and electrical connections.

¹⁾The clearance is provided by fitting the side panels on units with free-standing casing.

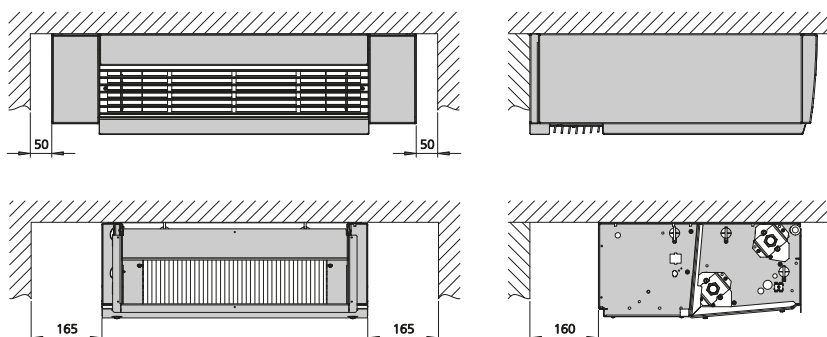
Fig. 16: Minimum clearances



The figure shows a wall-mounted unit with casing indicated. The same minimum clearances also apply to under-ceiling and free-standing units.



The figure shows a wall-mounted unit with control box indicated. The same minimum clearances also apply to under-ceiling basic units.



The figure shows a under-ceiling unit with casing (top view) and without casing (lower view) indicated.

Installation (General)

Fig. 17: Definition of the connection side



- Water connection, left
- Water connection, right



- Water connection, left
- Water connection, right

Personnel: ■ Installation personnel

Protective equipment: ■ Safety shoes
■ Protective gloves

Special tools: ■ Pallet truck



CAUTION!

Risk of injury from sharp metal housing!

The inner metal of the casing can have sharp edges.

- Wear suitable protective gloves.



2 people are needed to install the unit.

The definition of the connection side is determined looking towards the fan coil's air outlet.

The media connections are as standard on the left side, with the electrical connections on the right side.

The fan coil can be used with and without casing. When a fan coil is ordered with casing, the front panel is factory-fitted, with the side panels being supplied separately (see Fig. 18). It is not necessary to remove the front panel to install the electrics and hydraulics, as all the necessary connections are at the side. The side mullions are fitted once the basic unit has been fixed in place and the electrical and hydraulic connections made.

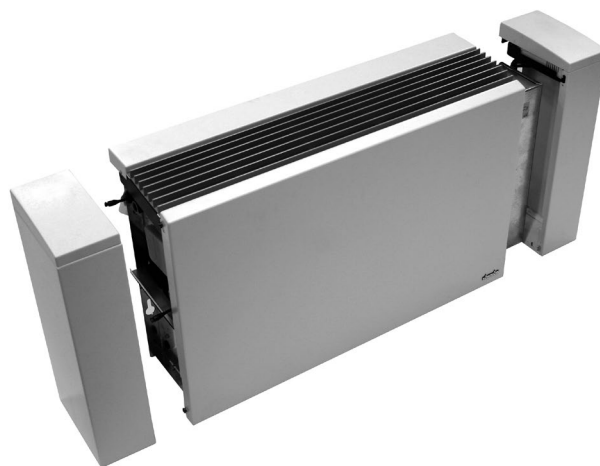


Fig. 18: Delivery of unit with casing0

6.4 Installing the Basic Unit

Basic unit dimensions and spacing of keyholes (per size)

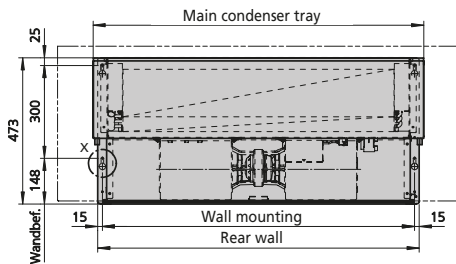


Fig. 19: Spacing of keyholes in the basic unit

| | Mod 1 | Mod 2 | Mod 3 | Mod 4 | Mod 5 | Mod 6 | Mod 7 |
|---|-------|-------|-------|-------|-------|-------|-------|
| Main condensate tray [mm] | 620 | 770 | 920 | 1070 | 1220 | 1370 | 1770 |
| Rear wall [mm] | 590 | 740 | 890 | 1040 | 1190 | 1340 | 1640 |
| Wall mounting [mm] (Spacing between the suspension points) | 560 | 710 | 860 | 1010 | 1160 | 1310 | 1610 |
| Number of motors | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| Number of fans | 1 | 1 | 2 | 2 | 2 | 2 | 4 |

Detail X

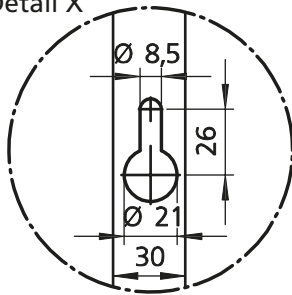


Fig. 20: Detail of a dimensioned keyhole

Select fixing material (e.g. bolts and dowels) on site.

6.4.1 Wall-mounted Basic Unit

Allow for minimum clearances to any on-site resistance when installing (see Chapter 6.2).

Keyholes are provided at the top and bottom of the rear panel for installation of the basic unit (Fig. 19).

Mark drill holes (spacing of keyholes) on the wall as per Fig. 19 and adjacent table and then drill holes.

Fit fixing material to the wall.

Suspend basic unit on the 4 keyholes.

Level the unit for perfect operation. In the event of condensate, fit the unit with a 1.5% gradient towards the condensate discharge side.

Once the basic unit has been aligned, prevent the fixing material from coming loose.



Provide for sound isolation between the fan coil and the adjacent building if required.

6.4.2 Ceiling Basic Unit

Allow for minimum clearances to any on-site resistance when installing (see *Chapter 6.2*).

Keyholes are provided at the top and bottom of the rear panel for installation of the basic unit (Fig. 19).

Mark drill holes (spacing of keyholes) on the ceiling as per Fig. 19 and adjacent table and then drill holes.

Use suitable fixing material depending on the type of ceiling mounting.

Fit fixing material into the ceiling.

Suspend basic unit on the 4 keyholes.

Level the unit for perfect operation. In the event of condensate, fit the unit with a 1.5% gradient towards the condensate discharge side.

Once the basic unit has been aligned, prevent the fixing material from coming loose.



Provide for sound isolation between the fan coil and the adjacent building if required.



Cam locks can be used on site for simple height levelling.

6.4.3 Free-standing Basic Unit

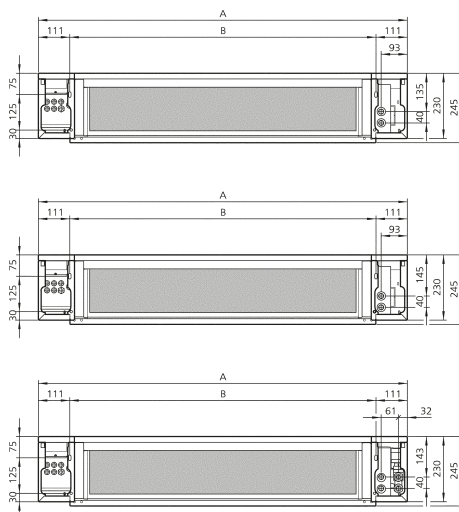


Fig. 21: Dimensions for floor fixings and connections

| Mod | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------|-----|------|------|------|------|------|------|
| A | 850 | 1000 | 1150 | 1300 | 1450 | 1600 | 2000 |
| B | 628 | 778 | 928 | 1078 | 1228 | 1378 | 1778 |

Allow for minimum clearances to any on-site resistance when installing (see *Chapter 6.2*).

2 standing brackets are factory-fitted on the basic unit. Use suitable fixing material to fix them and the basic unit to the floor. The 4 key holes on the rear panel of the base unit are unused.

Mark drill holes (spacing of longitudinal holes) on the floor as per Fig. 21 and adjacent table and then drill holes.

Use suitable fixing material depending on the floor covering.

Fit fixing material into the floor.

Align for correct and proper operation of the basic unit (note condensate drain if necessary).

Once the basic unit has been aligned, prevent the fixing material from coming loose.



Provide for sound isolation between the fan coil and the adjacent building if required.

6.5 Installing the Casing

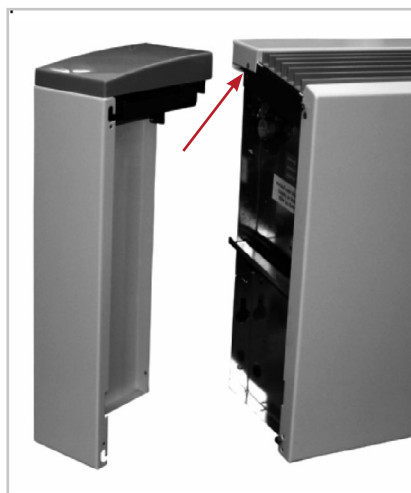


Fig. 22: Loosen screw



Fig. 23: Suspend side mullions

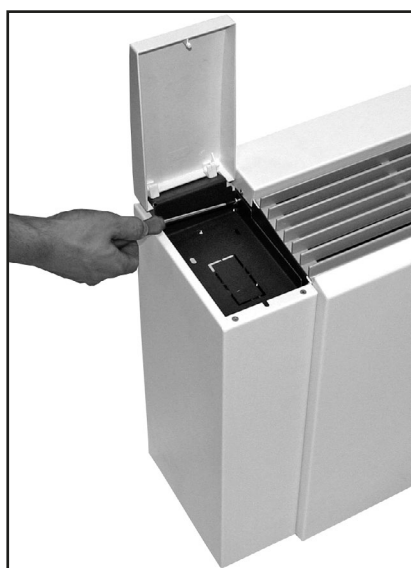


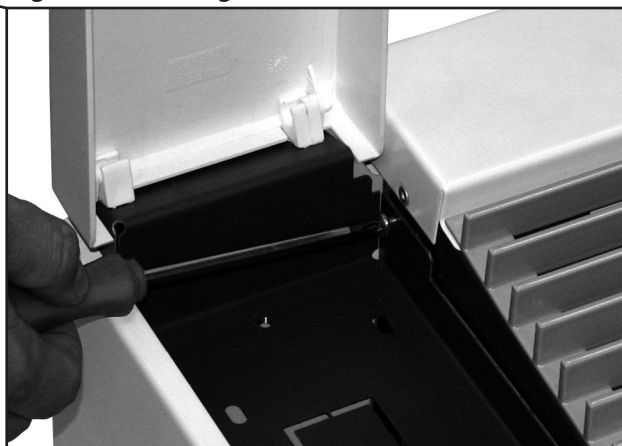
Fig. 24: Screw on side mullions

The following instructions apply to all casings (wall, ceiling, free-standing):

Fit the side mullions (only with units with optional casing) after assembly and installation of the fan coil. The screws (one per side) are factory-fitted on the basic unit casing (Fig. 22).

- Loosen factory-fitted screws from the casing
- Suspend side mullions by their guides into the brackets on the basic unit (Fig. 23).
- Screw side mullions to the basic unit casing (Fig. 24).

Fig. 25: Detail: Tighten screw



6.6 Changing the Air Outlet Direction

The air outlet direction can be changed, although the unit is factory-configured to blow air into the room. The outlet air grille can be moved around 180 degrees if a vertical air outlet is required.

- Use a Philips screwdriver to loosen and remove the screws (Fig. 26).
- Turn the air outlet grille by 180 degrees so that the discharge direction points vertically upwards (Fig. 27).
- Fit the two screws into the drill holes provided.



Fig. 26: Loosen bolts

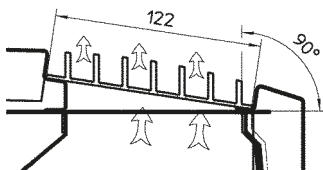


Fig. 27: Vertical air discharge direction

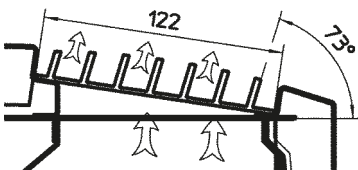


Fig. 28 Room-side air discharge direction

6.7 Installing Accessories

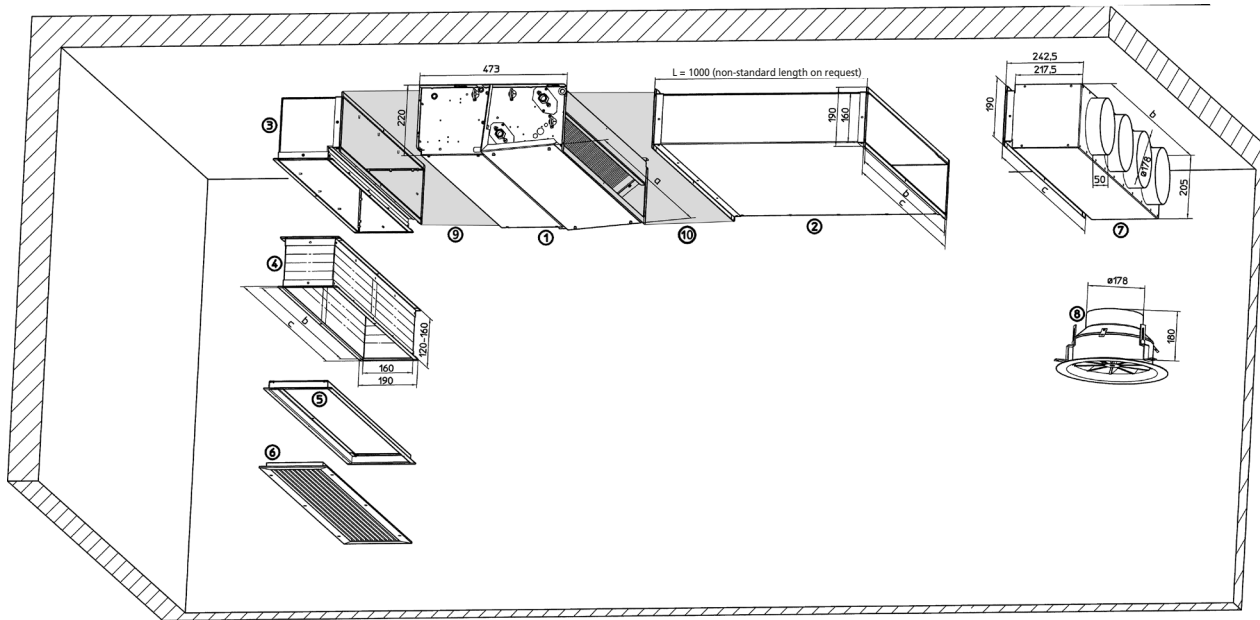


Fig. 29: Sheet steel accessories

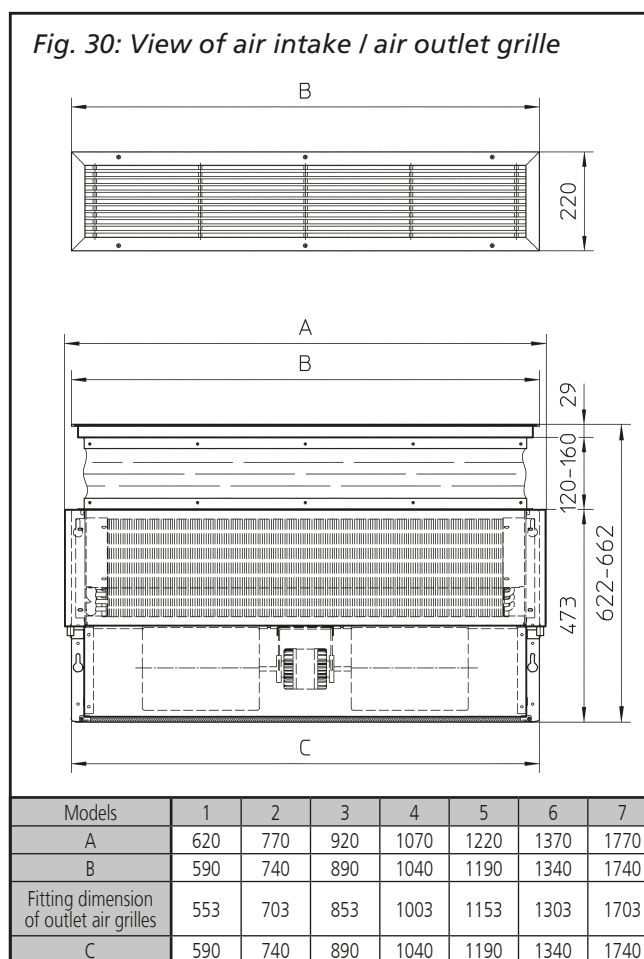
Description of parts

- ① Venkon fan coil recirculation air basic unit
- ② Air duct, long, type 14835BB0B*01
- ③ Air duct angled section 90°, type 14835BB0B*03
Short bend, e.g. with ceiling arrangement as a transition from horizontal to vertical ductwork
- ④ Flexible connection, type 14835BB0B*04
With frame on both sides and flexible canvas connection for structure-borne noise decoupling and length compensation of on-site dimensional inaccuracies. Installed length varies from 120 - 160 mm.
- ⑤ Intermediate frame (contained in the air intake / outlet frame)
- ⑥ Air inlet and outlet grille, type 14837BB0B*02
Linear grille for installation in a suspended ceiling or casing, droplet profile, natural aluminium anodised, airflow-optimised, with ZU-frame, free area approx. 68% with intermediate frame
- ⑦ Round pipe connection unit, type 14835BB0B*05
Flexible pipe connections for 180 mm
- ⑧ Ceiling swirl diffuser, type 14837BB0B001
Round, white, for connection to a 180 mm flexible tube
- ⑨ Air intake box with primary air connector, type 14835BB0B*07, (position shown in grey)
- ⑩ Air outlet box with primary air connector, type 14835BB0B*08, (position shown in grey)

Caution: Reduced air volume and thus also reduced heating and/or cooling output is possible with the use of air-side ductwork accessories!

Installation in customer casing

Fig. 30: View of air intake / air outlet grille



Caution: Provide adequate inspection openings and air openings needed for operation when using customer's own casings.

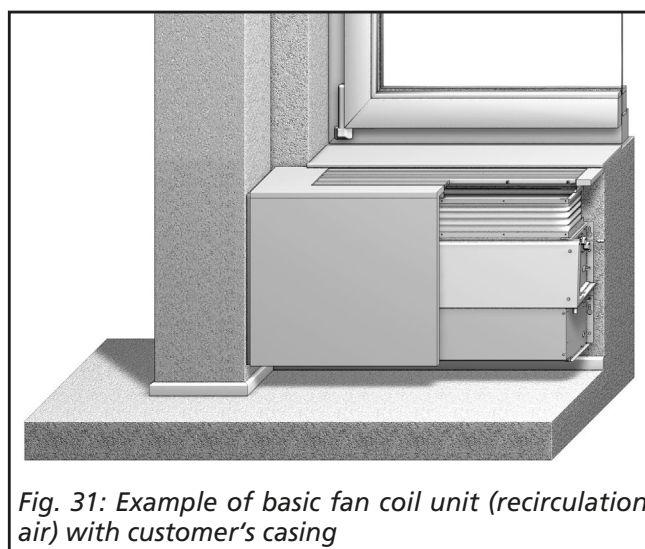


Fig. 31: Example of basic fan coil unit (recirculation air) with customer's casing

6.8 Hydraulic Connection

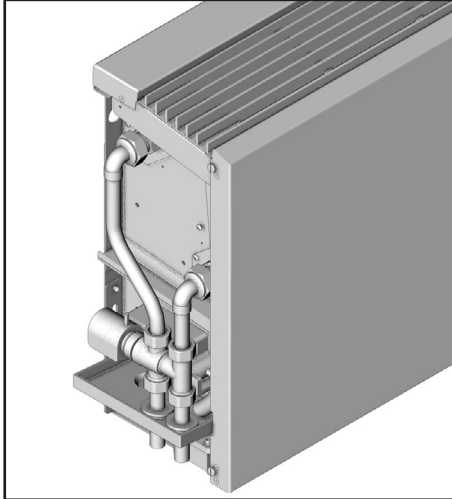


Fig. 32: 2-pipe system:

Design for the use of units operated with CHW:

- The dimensions of the system may need to be modified. The water volume is generally higher than with heating networks. The normal temperature spread is around 6 K.
- Hydraulic shortcomings by the design, choice of distributor system and poor hydraulic balancing are much more noticeable than with hot water systems and are difficult to detect and correct.
- The effective outputs have to be precisely tailored to actual conditions of use. Take into consideration the possible rise in temperature of the cooling medium, particularly along long lengths of pipework. (For example: Temperature at the generator 6/12 °C, temperature at the consumer 8/14 °C, therefore loss of output)
- Check the suitability of all components (such as circulation pumps etc.) for the use of CHW, noting the minimum temperatures.
- The addition of anti-freeze has an adverse effect, for instance it reduces cooling output at the generator and consumer by impairing heat transfer / higher pressure losses in the pipework by the lower viscosity of the cooling medium; the consequence is higher pump capacity:

Design: Note the following points in the design:

- Fit end-to-end, vapour-impermeable insulation on all water-carrying components (pipes, valves, fittings) right up to the unit (ensuring that the insulation goes as far as the disc under the valves and ensuring that the insulation is adhered by the condensate tray to the drip plate).
- Select suitable pipe brackets for cooling mode (chilled clamps)
- Install and check safety-related components (e.g. expansion tanks, relief and overflow valves)
- Allow adequate space for the air flow (air inlet and outlet)
- Position cooling unit to fit in with fittings and interior architecture
- Make sure that any condensate produced can drain away freely; check the free area of the condensate drain connection/run condensate line along a gradient, without bends or restrictions, to the on-site waste water line
- Size dimension of condensate line appropriately
- Protect traps (if fitted) in the condensate line from drying out (possibly by the use of a ball trap)
- Use condensate pumps, noting the maximum delivery height, if there is no natural gradient

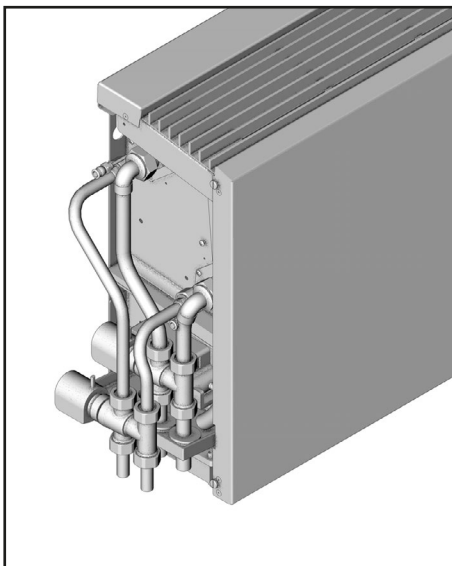


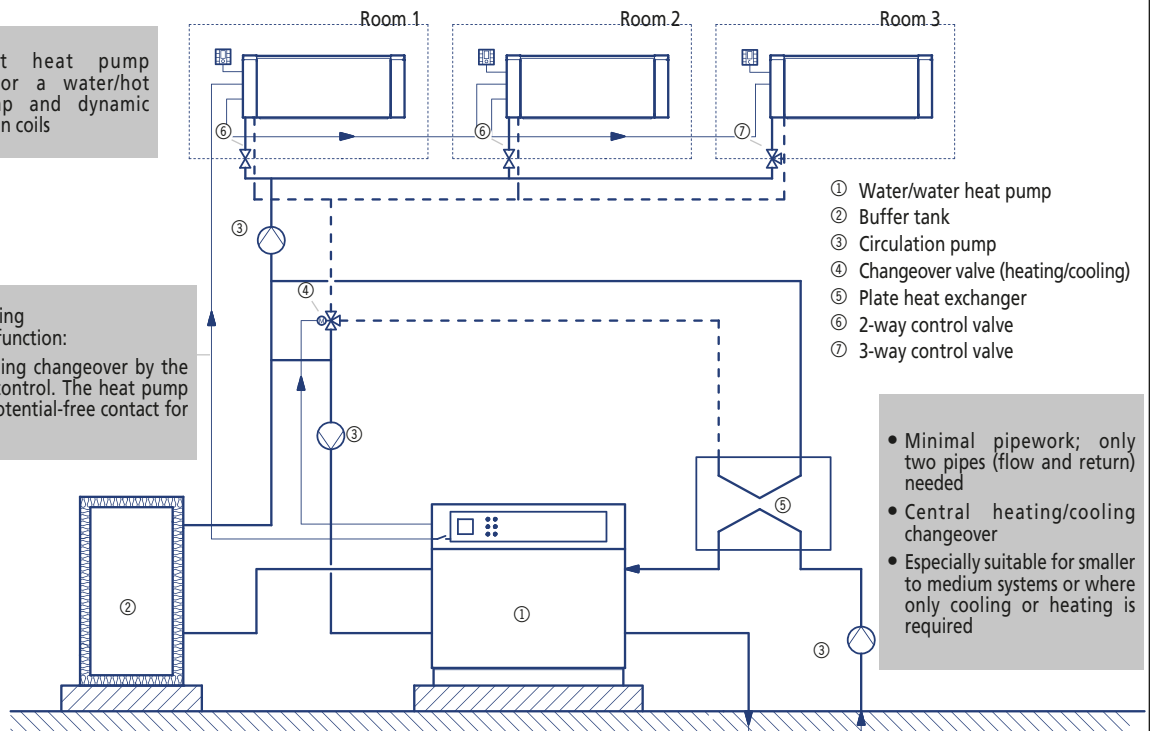
Fig. 33: 4-pipe system:

2-pipe system (heating or cooling)

Monovalent heat pump operation or a water/hot water pump and dynamic cooling by fan coils

Heating/cooling change overfunction:

Heating/cooling changeover by the heat pump control. The heat pump provides a potential-free contact for the fan coils.

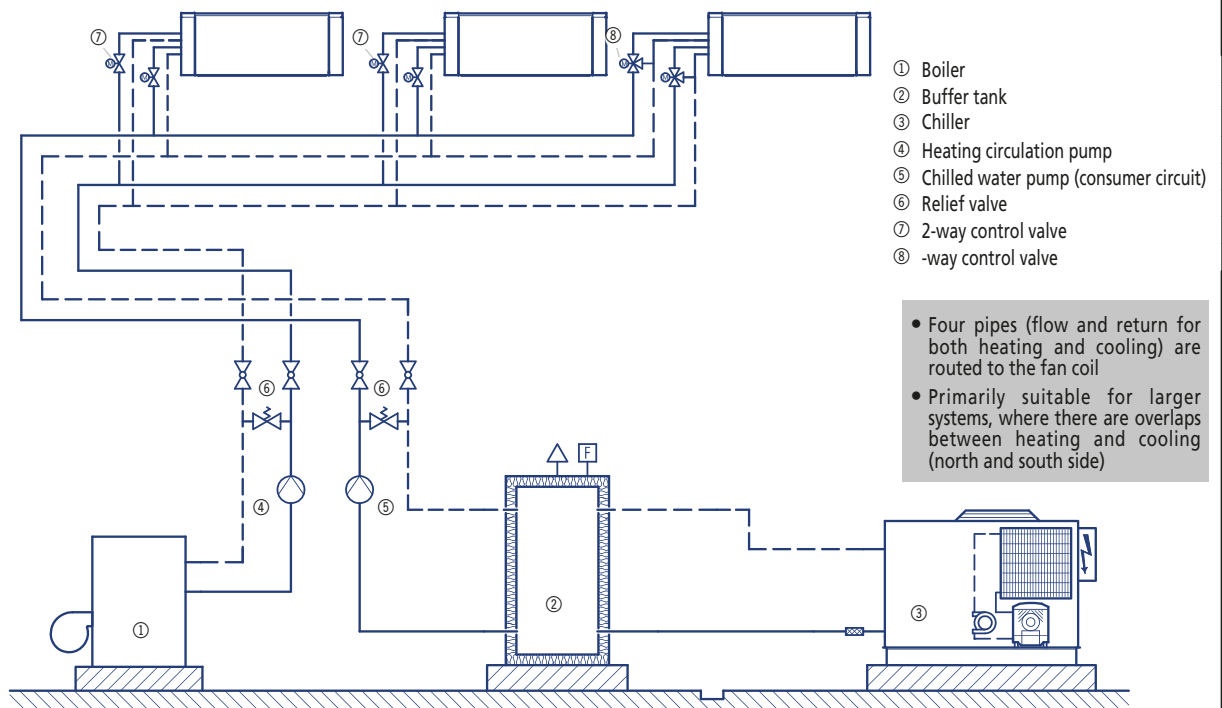


- ① Water/water heat pump
- ② Buffer tank
- ③ Circulation pump
- ④ Changeover valve (heating/cooling)
- ⑤ Plate heat exchanger
- ⑥ 2-way control valve
- ⑦ 3-way control valve

- Minimal pipework; only two pipes (flow and return) needed
- Central heating/cooling changeover
- Especially suitable for smaller to medium systems or where only cooling or heating is required

Fig. 34: Design example

4-pipe system (heating and cooling)



- ① Boiler
- ② Buffer tank
- ③ Chiller
- ④ Heating circulation pump
- ⑤ Chilled water pump (consumer circuit)
- ⑥ Relief valve
- ⑦ 2-way control valve
- ⑧ 3-way control valve

- Four pipes (flow and return for both heating and cooling) are routed to the fan coil
- Primarily suitable for larger systems, where there are overlaps between heating and cooling (north and south side)

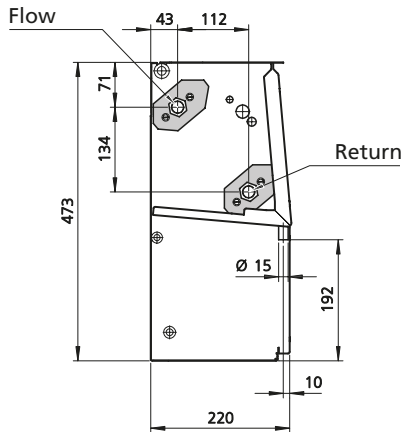
Fig. 35: Design example



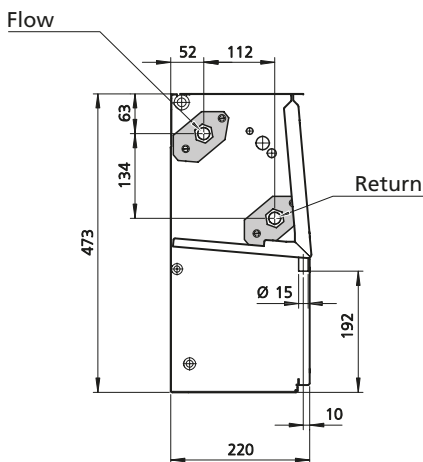
Please note the relevant standards and directives relating to the hydraulic installation (e.g. on-site hydraulic balancing and shut-off devices).

6.9 Connection to Pipework (for units with or without customer's valves)

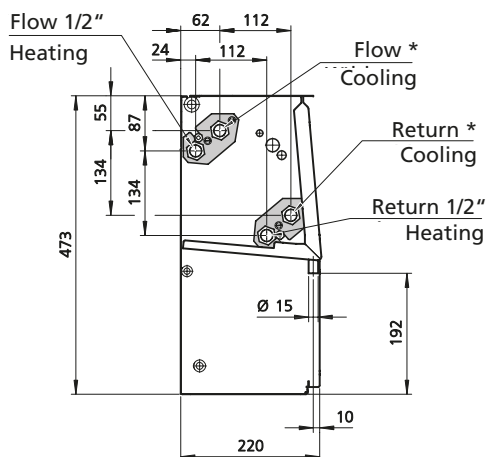
Fig. 36: Dimensions of pipe connections



2-pipe, 3-row



2-pipe, 4-row



4-pipe, 4-row

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

Route the pipes so that no mechanical stresses are transferred to the heat exchanger and that the unit can be accessed with ease for maintenance and repair work. Proceed as follows when hydraulically connecting up the Venkon fan coil:

- 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 the cold 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 valves directly over the side condensate tray (accessory) to drain any condensate produced on the pipes during cooling mode into the tray.
- Seal and screw in connections, holding the nut to prevent it from shearing off 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 (impermeable for cooling units)
- Tighten all threaded connectors once the pipes have been fitted and check that they are not under any tension.

IMPORTANT NOTE!

If the valve kit is pre-assembled, the flow and return can be swapped if space is tight. See Chapter 6.10 page 51f Valve Kit Dimensions.

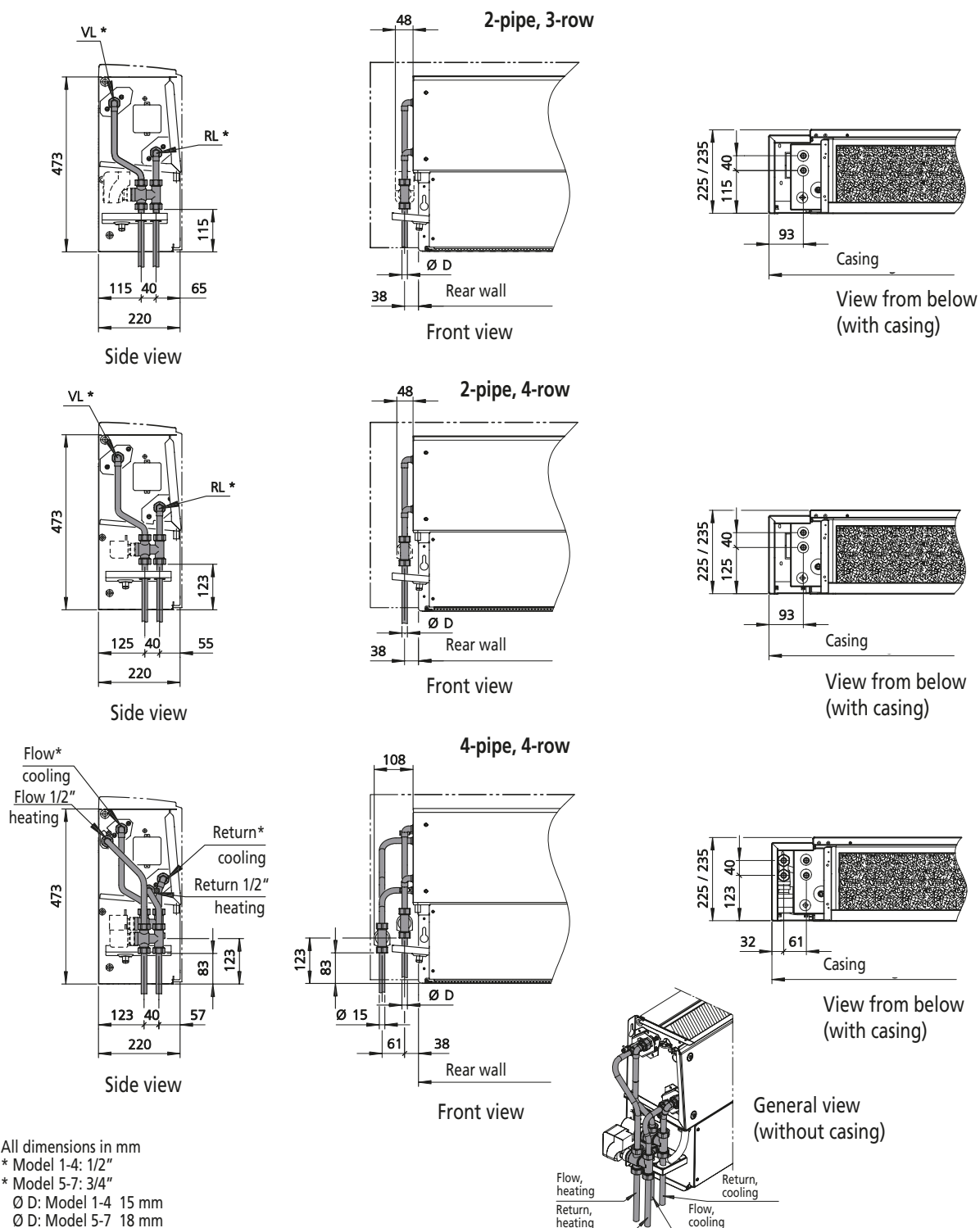
IMPORTANT NOTE!

Use a suitable tool to hold the union nut on the heat exchanger in place during installation! Ensure that the connections are not under any mechanical tension when fitted!



We recommend the use of the valve kit when using Kampmann casings. Consider the equipment under the casing.

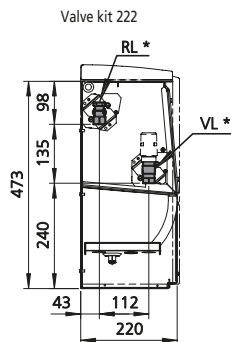
6.10 Valve Kit Dimensions Valve kit 422/442



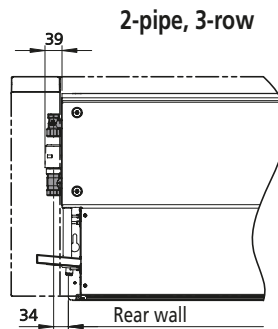
The valve kits are factory-fitted and checked for leak-tightness. The pipes are pre-assembled above the side condensate tray (optional accessory) and can be connected by the contractor. Suitable connecting pipes are provided separately.

6.10 Valve Kit Dimensions

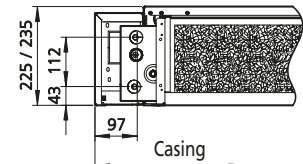
Valve kit 222/242



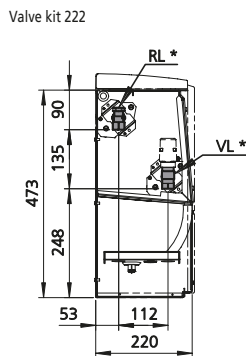
Left side view



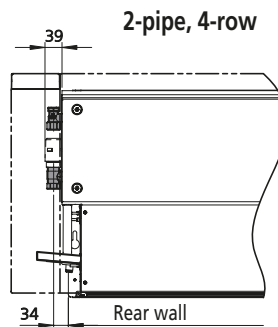
Front view



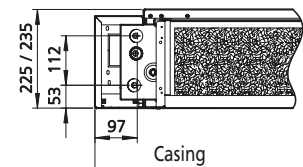
View from below
(with casing)



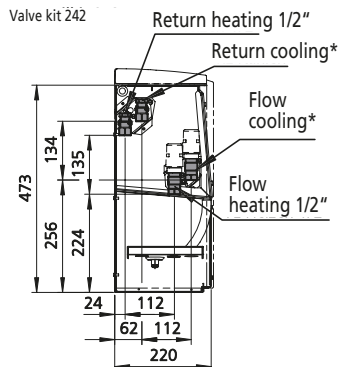
Left side view



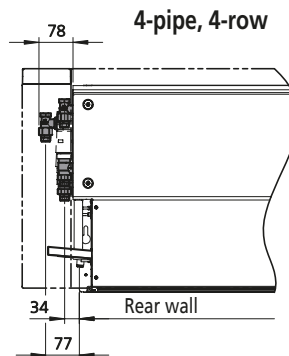
Front view



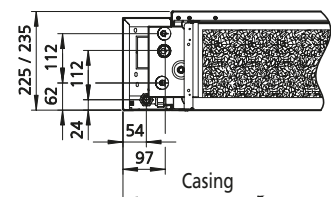
View from below
(with casing)



Left side view

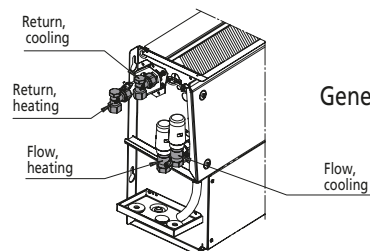


Front view



View from below
(with casing)

All dimensions in mm
* Model 1-4: 1/2"
* Model 5-7: 3/4"



General view



The valve kits are factory-fitted and checked for leak-tightness.

6.11 Condensate Drain

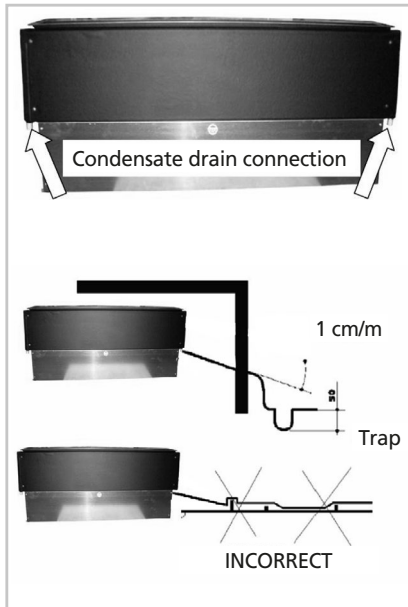


Fig. 38: Correct drainage of condensate

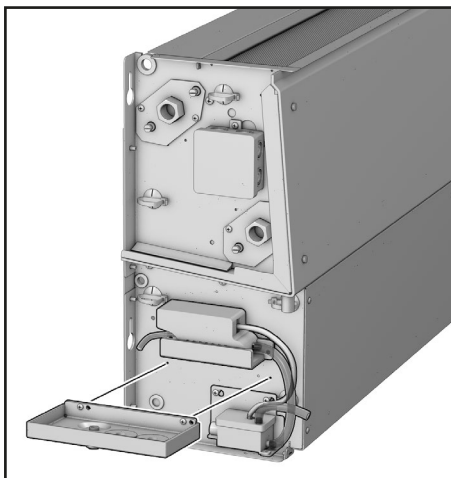


Fig. 39: Use 2 screws to fit valve condensate tray

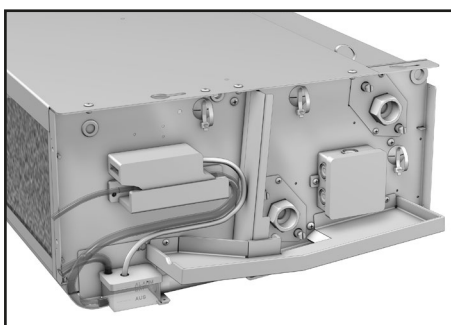


Fig. 40: Valve condensate tray with ceiling model

Function of main condensate tray

If the basic unit is used to cool room air, condensate can be produced during operation. The condensate is collected by the tray under the heat exchanger and can be drained through one of the two condensate drain connectors.

Fit valve condensate tray (accessory)

The valve condensate tray is already factory-fitted when ordered. Should it be necessary to retrofit it, for example when servicing, use the two metal screws to fit the tray to the valve side of the basic unit (see. Fig. 39).

Refer to chapter 6.12 when using a side condensate tray.



IMPORTANT NOTE!

When using a side condensate tray, provide for a condensate drain on site

On-site condensate drainage

It is essential that a condensate drain is fitted to a condensate drain connector of the fan coil unit (outlet size 15 mm) and appropriately fixed. (Refer to Chapter 6.4 on page 42f Installing Basic Unit With Gradient) Ensure that the gradient is at least 1 cm/m (in accordance with DIN EN 12056: formerly DIN 1986-100), without restrictions and without any rising sections) to ensure that the condensate drains from the basic unit. 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, as the suction effect of the fan on the condensate drain connector could otherwise cause odours.

Consider the use of water vapour-impermeable insulation depending on the pipe material used for the condensate drain.

You will need a condensate pump (optional accessories) 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.



Depending on the model of valve kit, the condensate pump is fixed above or below the main condensate tray with wall-mounted units.

6.12 Sealing the Pipework to the Valve Condensate Tray (Accessory)



Fig. 41: Fix insulation through the openings of the condensate tray

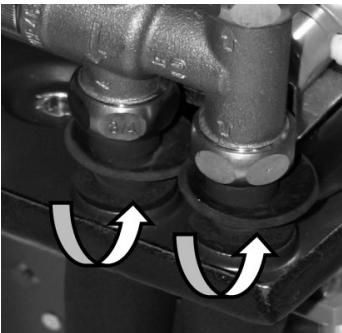


Fig. 42: Glue the insulation with rubber pipe cuffs

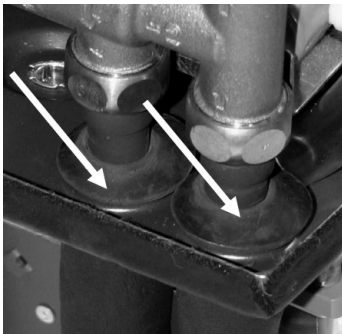


Fig. 43: Press the rubber tube cuffs onto the insulation

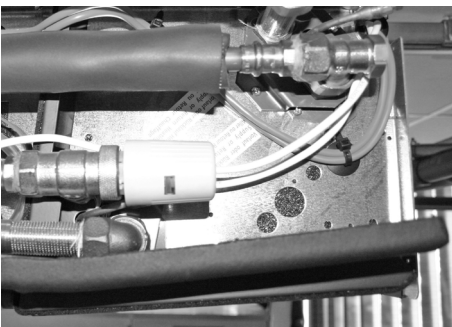


Fig. 44: Insulating with ceiling units

Proceed as follows when using the optional valve condensate tray to catch condensation from the valves:

- Wall-mounted: Push the impermeable insulation from below through the condensate opening on the pipe as far as the upper edge (see Fig. 41).
- Glue the drip ring with insulation and the stem of the condensate tray and press the rubber pipe cuffs onto the insulation (see Fig. 42).
- Press the rubber pipe cuffs onto the insulation (see fig. 43).
- If the insulation is not leak-proof and/or if the insulation is not connected to the condensate tray and the drip ring, there is a danger of condensate escaping and entering the room.

- Continue the insulation as far as the valves with ceiling units.
- When space is tight, e.g. with 4-pipe units (see Fig. 44), only continue and stick the insulation as far as the valve condensate tray).

IMPORTANT NOTE!



Do not bend the valve condensate tray fitted at the side.

Check the free condensate drain with water at latest when commissioning the unit.

6.13 Condensate Pump



Fig. 45: Position of condensate pump on wall-mounted unit

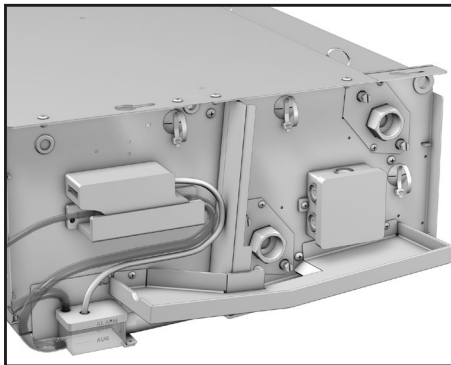


Fig. 46: Position of condensate pump on ceiling unit

The water is drawn off by the condensate pump and discharged along a hose (supplied loose) connected on the pressure side. Depending on conditions on site, the water can be discharged into drainage lines, possibly with a trap connection.

A float switch monitors the water level and switches the pump off if it is exceeded. The condensate is drained off. In the event of a fault with the condensate drain, the water level will continue to rise until the float switch triggers an alarm contact. The contact can be analysed by external signalling devices.

We would recommend automatically terminating cooling operation, possibly with a shut-off valve, if the alarm contact is triggered to prevent the condensate tray from overflowing.

Condensate drain (accessory)

- Drainage of condensate from the condensate pump has to be provided along a natural gradient with an adequate cross-section (minimum 1/2"). Increase the cross-section of the line with longer condensate lines.
- Check whether the condensate line needs to be insulated to prevent the build-up of condensate along the line.
- Do not use a rigid transition to the on-site condensate drain, as this lengthens the pump's pressure hose. We would recommend free overflow into a trap.
- Refer to chapter 6.11 on page 53 for further information on condensate drainage.

Installation of the condensate pump (accessory)

Cabling

The condensate pump needs a separate power supply (230 V/50 Hz). We would generally advise against connecting it via the room thermostat, as residual condensate could be produced after it has been switched off. Additional wires are needed to analyse the alarm contact.

Use the following types of cable:

Mains supply: NYM-J , 1.5 mm²

Alarm contact The cable for the alarm contact depends on the kind of alarm analysis used (e.g. shielded cable).



Carry out an initial service on the condensate pump and float switch directly after commissioning.

6.14 Connecting the Condensate Pump

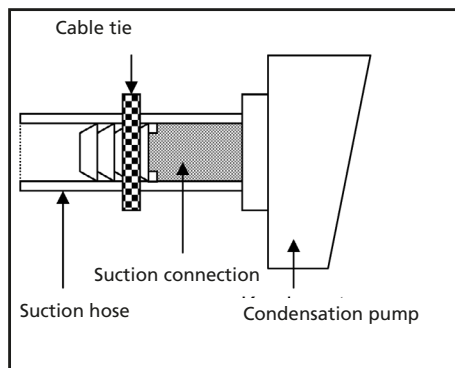


Fig. 47: Fix the suction hose in place

- Push the suction hose as far as the stop and fix in place with a cable tie to prevent the pump from running dry (Fig. 47).
- Supply power and wire alarm contact (separate cable with plug) as per the wiring diagram.
- Connect the hose to the condensate drain (separate). Direction of flow: refer to the arrow on the side of the housing

| Technical data on the condensate pump | | |
|---------------------------------------|-------|-----------------------------|
| Mains voltage | [V] | AC 115 |
| Mains frequency | [Hz] | 60 |
| Safety shut-off | [A] | 8 A resistiv (5 A induktiv) |
| Flow rate | [l/h] | max. 14 |
| Delivery height | [m] | 8 |
| Suction height | [m] | 1 |
| Switched by „Hall effect“ | | |
| Integrated thermal cut-out | | |

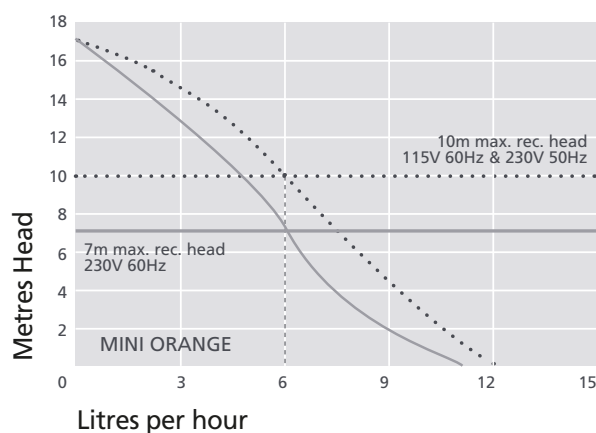


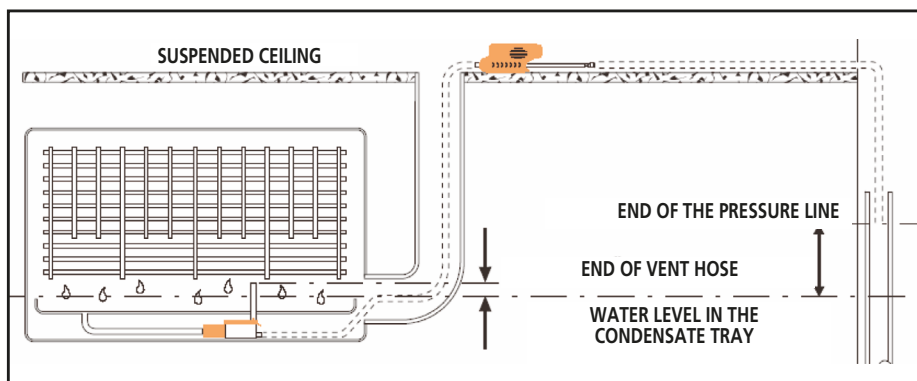
Fig. 24: Condensate pump characteristic line



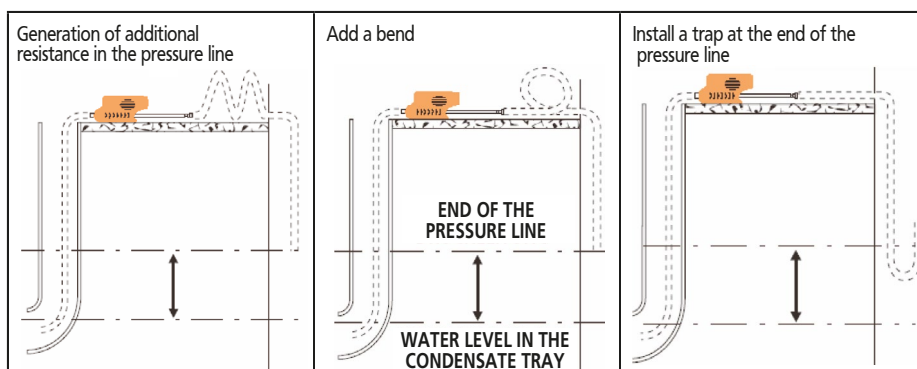
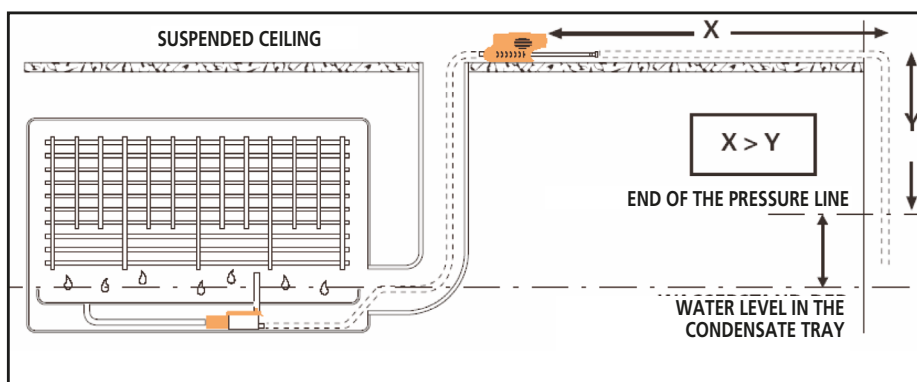
Information on routing the pressure line and operating the condensate pump:

If the condensate pump is noisy at irregular intervals after installation, there may be air in the suction line. Air is produced by the „lever effect“, which can lead to permanent damage to the pump. Below are a few suggestions for preventing the „lever effect“.

- Do not allow the end of the pressure line to be lower than the water level in the condensate tray. The pressure hose can then be inserted into a larger tube.



- ✓ More horizontal than vertical line length in the pressure pipe



Refer to chapter 8 „Maintenance“ for maintenance instructions for the condensate pump.

6.15 Electrical Wiring

Personnel:

- Installation personnel
- Qualified electrician

Protective protective equipment:

- Safety shoes
- Protective gloves
- Workwear



Only allow qualified electricians to perform electrical work.

Further connections, for instance to building control systems or external controllers, may be necessary. Refer to the manufacturer's literature in this respect

- Wire the unit in accordance with the enclosed wiring diagram.
- Only wire the unit in accordance with the national wiring regulations (NEC).
- Only connect the unit to fixed cables.
- Only connect Class 2 or SELV circuits to the 4-pole terminal (control signals).



Important note: Provide an all-pole mains separator in the wiring on site that can be reliably secured to avoid the system being reconnected (e.g. a lockable switch with a contact opening of at least 3 mm up to a rated voltage of 480 V).

No protective measures are indicated in the Kampmann wiring diagrams. These must be provided additionally when installing the system and when connecting the units in accordance with the national wiring regulations (NFPA70) and the regulations of each of the respective energy supply companies.

Cabling

Ask a qualified electrical to determine the type of cable and cross-sections. The cable cross sections are basically dependent on the safety of the cable length and the wiring capacity of the electric motors on site .

6.16 Controls Overview

Kampmann fan coil units come in a series of different versions.

The fan coil components are connected via a terminal strip. This is located in a terminal box, mounted on the opposite side to the water connection on the basic unit (see Fig. 48).

- The fan coil unit is available as a wall-mounted, ceiling or free-standing unit in conjunction with a controller.
- Wire the unit as per the wiring diagram, which is different for each version.

| Model | Control option | Connection | Wiring diagram (CAD no.) |
|---|----------------|-----------------------|--------------------------|
| electromechanical without motor fault alert | E00 | On-site control (BMS) | 12396 |

7 Operation and Commissioning



IMPORTANT NOTE!

Refer to the separate instructions for operation using the Kampmann room controller.

7.1 Pre-Commissioning Checks



Check before initial commissioning whether all necessary conditions have been met so that the unit can function safely and properly.



Kampmann GmbH can also perform a functional check (optional). For contact details please refer to chapter 1.4 „Customer Service“ on page 8.

- *Structural tests:*
 - Is the fan coil mechanically secure and fixed securely in place?
 - Are any casings secured mechanically?
 - Are all fan coil components properly installed? Operating the unit without a main condensate tray or front panel fan unit is not permitted and can result in serious personal injury!
- *Electrical tests:*
 - Is all cabling laid in accordance with the applicable regulations?
 - Are all wires connected in accordance with the wiring diagrams?
 - Is the earth wire connected and wired throughout?
- *Water-side test:*
 - Is the flow and return pipework properly connected?
 - Are the valves correctly fitted? (Note the permitted installation position of the actuators!)
 - Are all valves and actuators working correctly?
 - Are the shut-off valves on-site open?
- *Condensate drain (only with units with a cooling function)*
 - Is the unit installed with a 1.5% gradient towards the condensate discharge side.
 - Clean the condensate trays before initial commissioning and remove dirt and site dust.
 - Check condensate drain with water

- *Check filter:*
 - Check the filter to ensure that it is clean prior to initial start-up and replace if dirty.
- *Water-side check:*
 - Are all the air passages on the ducts and adapters the correct size?
 - Has an adequate thickness of impermeable insulation been fitted?
 - Have shut-off valves been fitted if the unit is to be operated with idle times and the penetration of cold air prevented/minimised?



IMPORTANT NOTE!

Check the unit for any dirt (packaging waste, dirt from site etc.) and remove it, if necessary. Then vent the heat exchanger.

7.2 Venting the Heat Exchanger

- Open all (on-site) shut-off devices and valves.
- Hold a receptacle in place to catch any water that escapes and protect the environment from spraying water.
- Then open the vent screw(s).
- Close the vent screw when no more air and only water escapes.



IMPORTANT NOTE!

- Vent all other connecting lines on site.
- Top up the water level if necessary.
- Repeat this work depending on the type and design of the hydraulic network on site.

7.3 Switching On

- Switch on the mains voltage.
- Start up the Venkon fan coil unit using the control unit connected.
- Check the fan speeds by switching the stage selector.
- Check the correct operation of the heating or cooling valves by altering the room temperature setpoint. Take into account the different response times depending on the controller.
- Add water to the condensate tray - the pump should automatically switch on and off again.



Loud noises can occur with initial suction!

- Test the condensate alarm: Add water until the external device (warning alert, shut-down mechanism) is triggered.

8 Maintenance

8.1 Securing Against Reconnection



WARNING!

Risk of death by unauthorised or uncontrolled restart!

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

Secure against reconnection

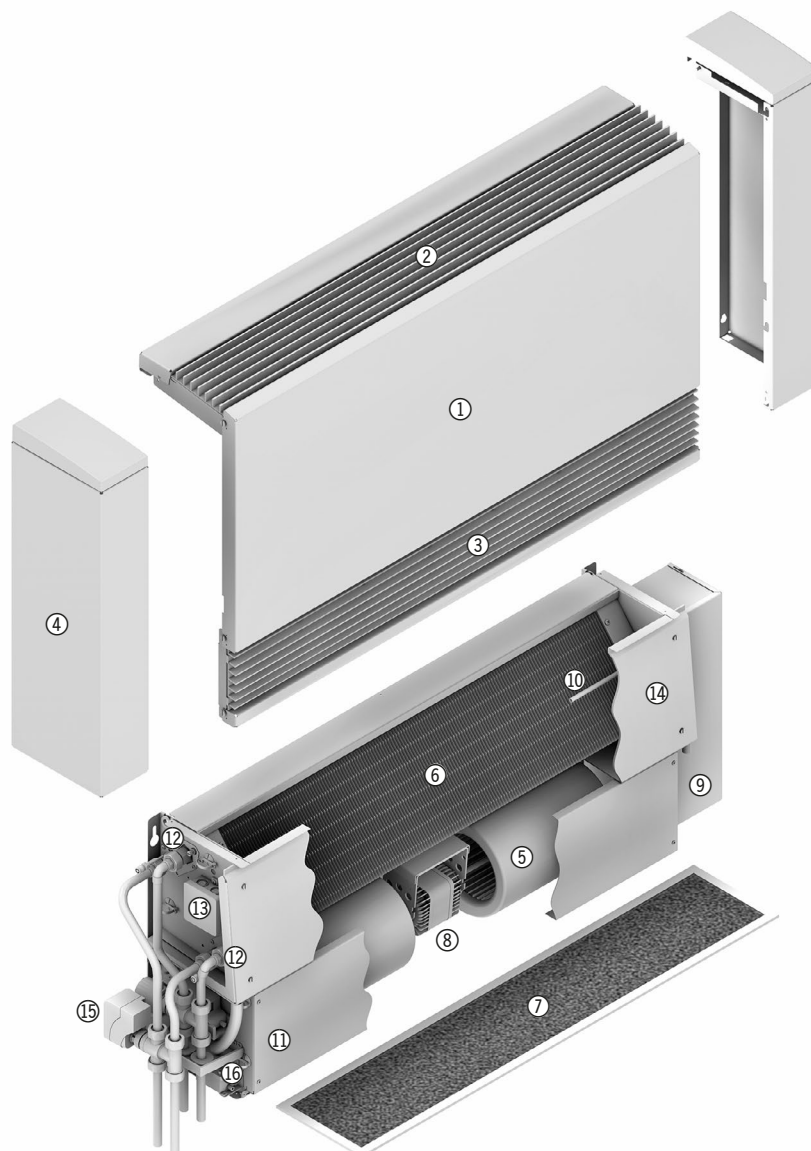
1. ➤ Switch off the unit.
2. ➤ Switch off the energy supply.
3. ➤ Position a sign on the isolating switch from the supply network indicating that work is being performed in the hazard area and prohibiting the unit being switched on. Provide the following information on the sign:
 - Switched off on (date):
 - Switched off at (time):
 - Switched off by (person):
 - Important note: Do not switch on!
 - Important note: Only switch on once you have ensured that there is no danger to personnel..

8.2 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, adjust the required maintenance intervals to the actual wear and test. Contact the manufacturer with any questions about maintenance work and intervals (👉 *Chapter 1.4 „Customer Service“ on page 8*).

| Interval | Maintenance task | Personnel |
|------------------|---|------------------|
| as required | Display on room control unit - first read the separate instructions for the room control unit | Caretakers/users |
| | Regular visual inspection of the fixing and examination of damage | Caretakers/users |
| quarterly | Visually inspect the filter and replace if necessary (👉 <i>Chapter 8.3.1. „Changing the Filter“ on page 67</i>) | Caretakers/users |
| every six months | Clean the inside of the unit (👉 <i>Chapter 8.3.3 „Cleaning Work on the Basic Unit“ on page 72</i>) | Caretakers/users |
| every six months | Water-side connections, valves, threaded connections (👉 <i>Chapter 8.3.2 „Cleaning the Condensate Pump“ on page 75</i>) | Caretakers/users |
| every six months | Vent the heat exchanger (👉 <i>Chapter 8.3.4 „Cleaning the Condensate Pump“ on page 75</i>) | Caretakers/users |
| every six months | Check the electrical connections (👉 <i>Chapter 8.3.4 „Visual Inspections“ on page 70</i>) | Caretakers/users |
| every six months | Clean the outlet grille, remove deposits from the airflow (👉 <i>Chapter 8.3.4 „Other Maintenance Work“ on page 75</i>) | Caretakers/users |
| every six months | Check antifreeze (if necessary) (👉 <i>Chapter 8.3.4 „Other Maintenance Work“ on page 75</i>) | Caretakers/users |
| every six months | Maintain the condensate pump (👉 <i>Chapter 8.3.3 „Cleaning the Condensate Pump“ on page 75</i>) | Caretakers/users |

Fig. 50: Overview of Components
Venkon EC



- ① Casing extension, powder coated, traffic white, RAL 9016
- ② Air outlet, powder coated, RAL 9006
- ③ Air intake grille, powder coated, RAL 9006
- ④ Side mullions for the casing, powder coated, RAL 9016
- ⑤ Radial fans
- ⑥ Copper/aluminium heat exchanger
- ⑦ G2 (EU2) dry layer filter (design for standard unit)
- ⑧ Fan unit
- ⑨ Electrical junction box
- ⑩ Supply air temperature sensor (mixed air only)
- ⑪ Condensate pump with float switch (accessory)
- ⑫ Flow and return connections with vent/drain in each case
- ⑬ Terminal box for actuator
- ⑭ Main condensate tray with a drain connector on both sides
- ⑮ Valve kit with pipe connection, valve, actuator (accessories)
- ⑯ Side condensate tray (accessories)

8.3 Maintenance Work

Personnel:

■ Caretakers/users

Protective protective
equipment:

■ Protective gloves
■ Goggles
■ Lightweight breathing protection



The following safety instructions apply to all relevant maintenance work (pages 67- 75).



CAUTION!

Risk of injury from sharp metal housing!

The inner metal of the casing can have sharp edges.

- Wear suitable protective gloves.



WARNING!

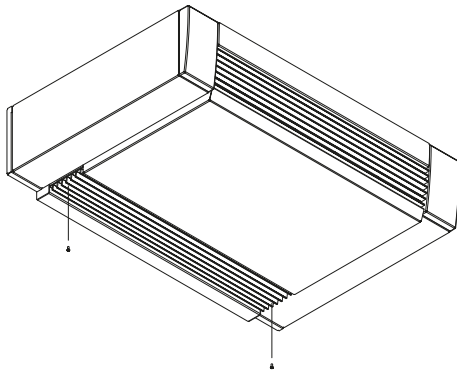
Risk of injury from rotating parts

The fan impeller can cause severe injuries.

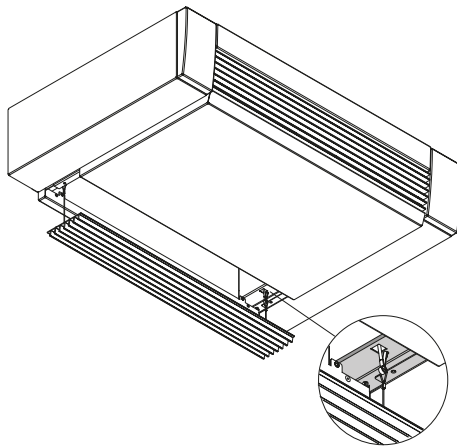
- Switch off the unit and prevent it from reconnection before commencing any work on moving components of the fan.
Wait until all parts have come to a standstill.

8.3.1 Changing Filters

Fig. 51: Removing the filter from the recirculation air ceiling fan coil

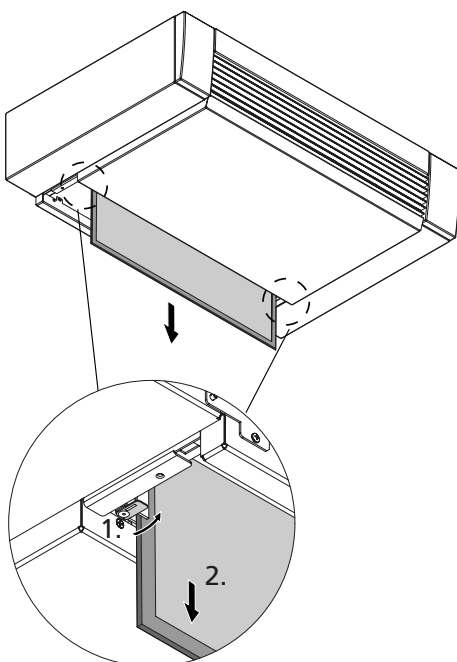


1. ➔ Loosen screws in the air intake grille.



2. ➔ Remove safety cables at the air intake grille from the unit; loosen the carabiner from the bracket to do so.

3. ➔ Remove the air intake grille.



4. ➔ Use a screwdriver to turn the quarter-turns on the basic unit by 90°.

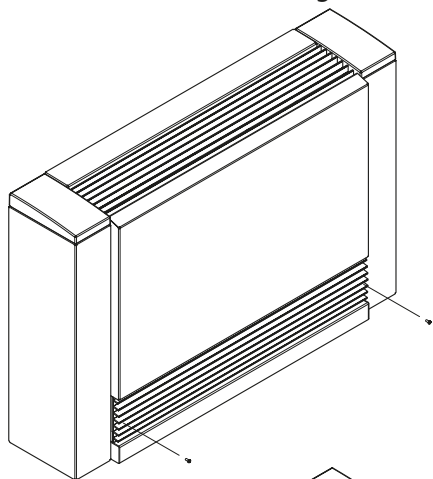
5. ➔ Evenly pull the G2 filter out of the filter rails.

6. ➔ Insert a new filter and use the quarter-turns to secure in place.

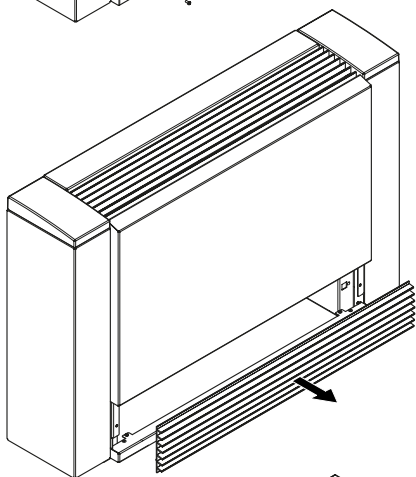
7. ➔ Hang safety cables from the air intake grille into the brackets.

8. ➔ Use the screws to fix air intake grille onto the brackets.

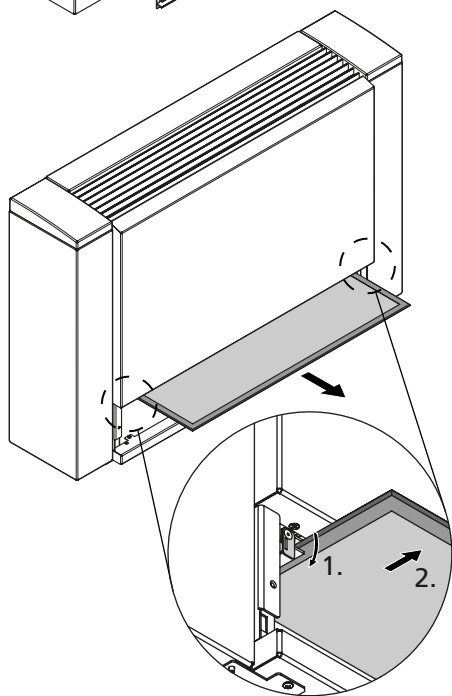
Fig. 52: Removing filter from wall-mounted recirculation air fan coil with air intake grille



1. ➤ Loosen screws in the air intake grille.



2. ➤ Remove the air intake grille.



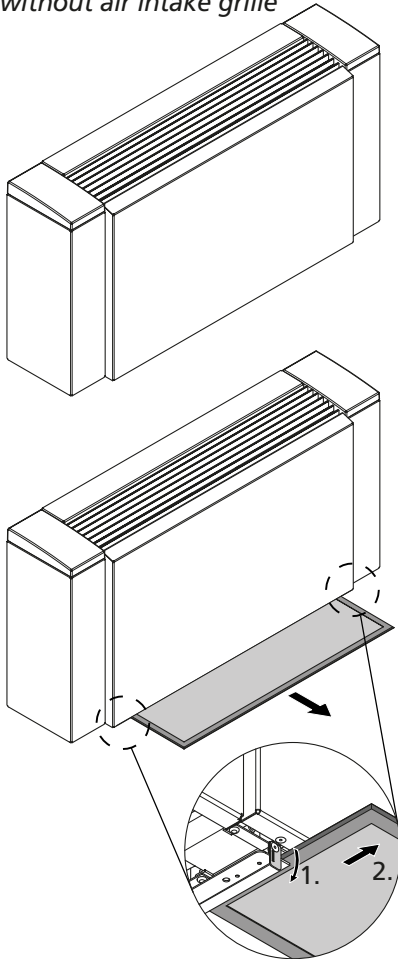
3. ➤ Use a screwdriver to turn the quarter-turns on the basic unit by 90°.

4. ➤ Evenly pull the G2 filter out of the filter rails.

5. ➤ Insert a new filter and use the quarter-turns to secure in place.

6. ➤ Use the screws to fix air intake grille onto the brackets.

Fig. 53: Removing filter from wall-mounted recirculation air fan coil without air intake grille



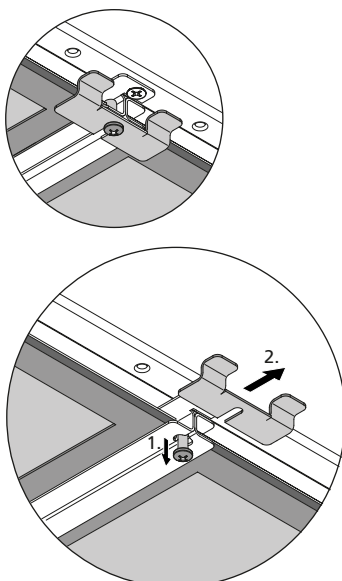
The G2 filter is located in a slot underneath the basic unit and can be accessed without removing the casing.

1. ➔ Use a screwdriver to turn the quarter-turns on the basic unit by 90°.
2. ➔ Evenly pull the G2 filter out of the filter rails.
3. ➔ Insert a new filter and use the quarter-turns to secure in place.



Fig. 51 and 52 are not needed for units without casing.

Fig. 54: Loosen filter fixing



Two filters are used in model 7 basic unit. They are adjusted with a filter fixing centrally on the basic unit. This has to be removed to pull out the filter.

1. ➔ Use a screwdriver to unscrew the tapping screw until the filter fixing can be moved.
2. ➔ Remove the filter fixing.
3. ➔ Evenly pull the G2 filter out of the filter rails.

8.3.2 Visual Inspections

Fig. 55: Loosen tapping crew in the side panel



The following components have to be visually inspected:

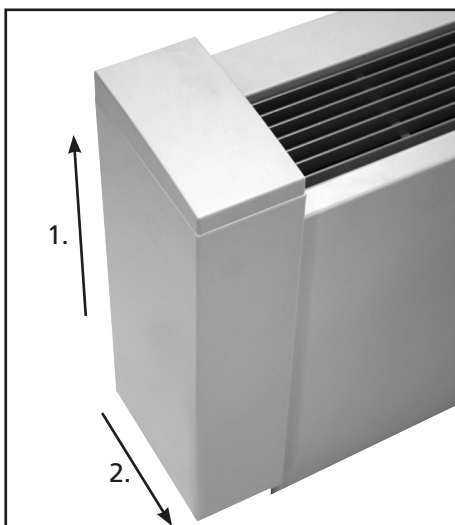
- Water connections
- Electrical connections

The components to be inspected are located under the left and right side panels. The side panels for the respective casing have to be removed to perform visual inspections.

Perform the following on both side panels:

1. ➤ Open the control opening on the side panel
2. ➤ Use a screwdriver to loosen tapping screw.

Fig. 56: Remove side panel



3. ➤ Carefully lift side panel by approx. 2 cm.
4. ➤ Move side panel away from the unit towards the room.

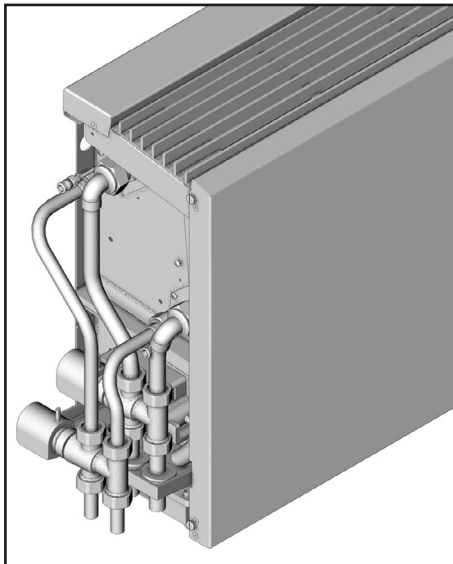
Fig. 57: Separate cable connectors



5. ➤ If a control (optional accessory) is integrated in the casing, manually disconnect the cable links from the reverse polarity protected plug.

Carry out a visual inspection once the side panels have been removed:

Fig. 58: Water connection (e.g. 4-pipe)



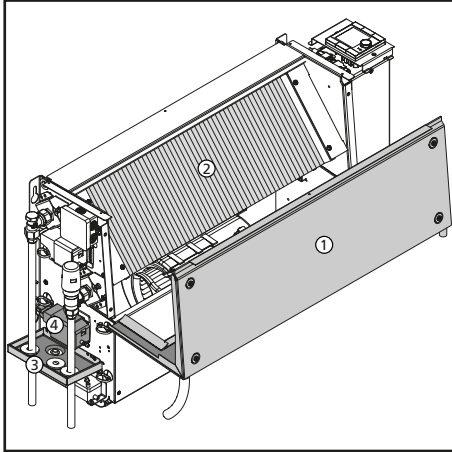
1. ➔ Check water connections and lines for leaks.

2. ➔ Check the electrical wiring.

Inform Customer Service if you uncover leaks or damaged wiring (➔ *Chapter 1.4 „Customer Service“ on page 8*).

8.3.3 Cleaning Work on the Basic Unit

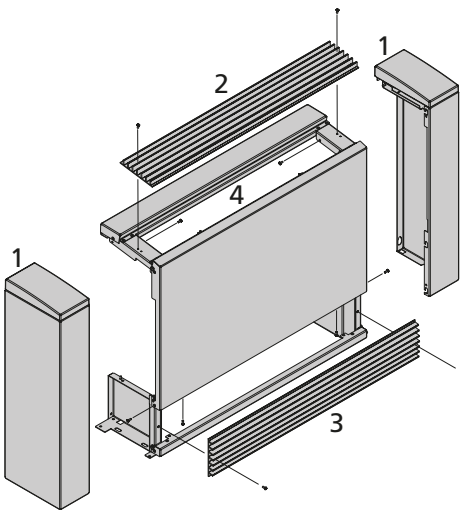
Fig. 60: Components to be cleaned



The following components fitted to the basic unit must be cleaned:

- ① Main condensate tray
- ② Heat exchanger
- ③ Valve condensate tray
- ④ Condensate pump

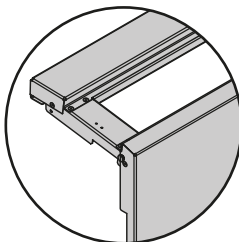
Fig. 61: Dismantling the casing



The casing has to be removed to access the individual components to clean the above.

1. ➔ Remove side panels (see Chapter 8.3.2. „Visual Inspections“).
2. ➔ Remove outlet grille; use a Phillips screwdriver to unscrew the tapping screws on the left and right in the middle of the outlet grille and remove the outlet grille.
3. ➔ Remove air intake grille (see Chapter 8.3.1. „Replacing Filter“).
4. ➔ Unscrew all the relevant screws (Fig. 61). After these screws have been loosened, the front panel is still connected to the window sill by two gusset plates (Fig. 62). Manually remove these metal joining plates upwards.

Fig. 62: Front panel connected to window sill



Important note: On the ceiling model, a rear panel is located on the underside of the casing, which does not have to be touched when removing the casing sections..

The components to be cleaned are now freely accessible.



These instructions relate to all casing configurations. Once you have cleaned the various components, fit the casing panels in the reverse order to the above instructions.

Cleaning the main condensate tray

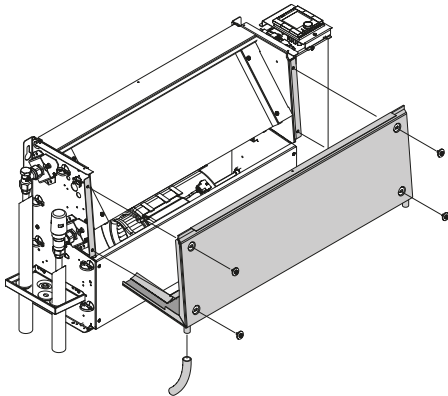


Fig. 63: Loosen the main condensate tray

1. Use a suitable screwdriver to loosen the screws and remove screws and washers.
2. Use both hands to evenly pull out the main condensate tray towards the room.
3. Remove the drain hose.
4. Use a cloth or rag that will absorb moisture and dirt to clean the condensate tray and outlet, if needed.



IMPORTANT NOTE!

Do not use agents that can damage the protective layer on the condensate tray!

Cleaning the heat exchanger

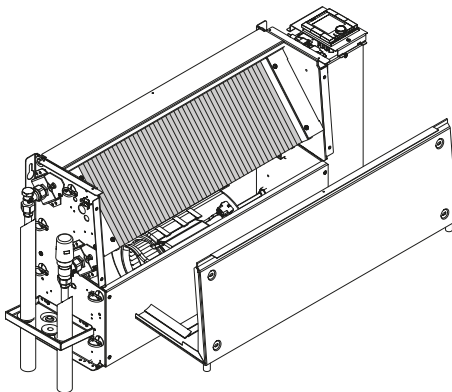


Fig. 64: Heat exchanger

The heat exchanger can be cleaned once the condensate tray has been dismantled. Dusty and oily deposits on the fins of the heat exchanger restrict the air flow and heat transfer. Only a clean heat exchanger will produce its full heat output in the long term. Therefore, check the heat exchanger at regular intervals (at least every six months) before the start of the heating and cooling season. If there are signs of increased dirt during regular checks, adjust the required maintenance intervals to the actual wear and tear.

1. Carefully use compressed air to blow the heat exchanger until all deposits of dust and dirt have been removed from the fins.

Caution: Fins bend easily!



IMPORTANT NOTE!

When draining, some water can remain in the heat exchanger. Therefore, protect the heat exchanger from frost once used!

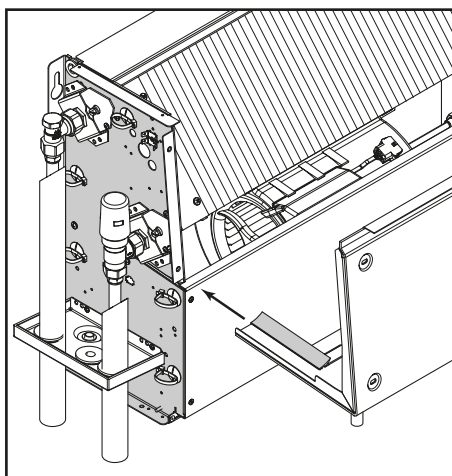


Fig. 65: Sealing profile on the main condensate tray



The cleaning work on the main condensate tray and heat exchanger applies to all models of the unit. Once you have cleaned the various components, fit the main condensate tray in reverse order to the above instructions.

When inserting the main condensate tray, make sure that the sealing profile is flush with the left and right of each main bracket and is not damaged! Check that water is draining away freely after fitting!

Cleaning the valve condensate tray

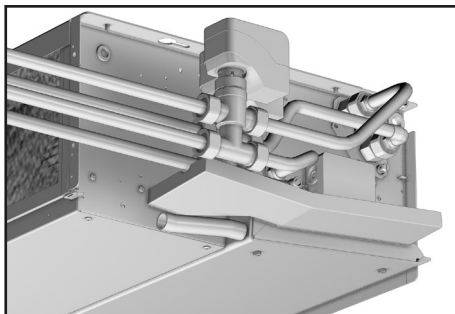


Fig. 66: Valve condensate tray
(ceiling model)

The valve condensate trays under the valves are easily accessible (Fig. 66, 67).

1. ➔ Remove any condensate deposits in the valve condensate tray.
2. ➔ Check that the seals are intact on the pipe openings of the valve condensate tray and on the medium lines.

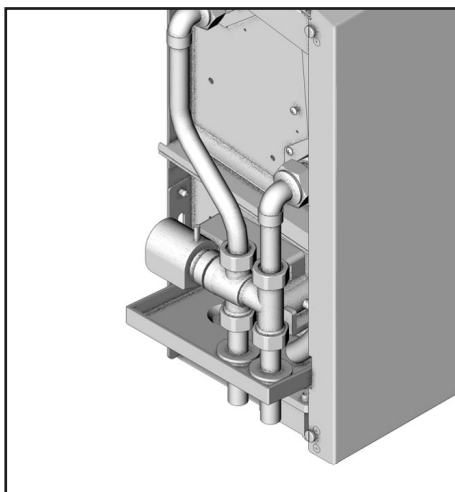


Fig. 67: Valve condensate tray
(wall-mounted model)

Cleaning the condensate pump

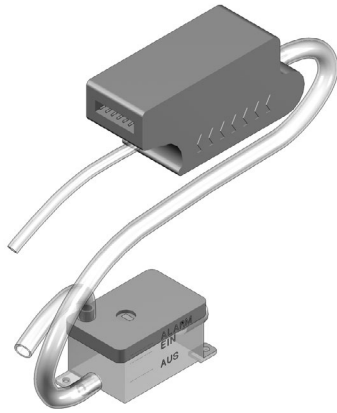
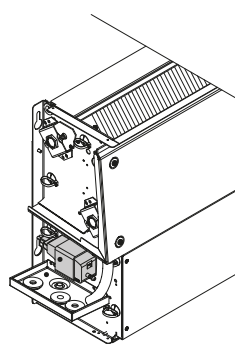
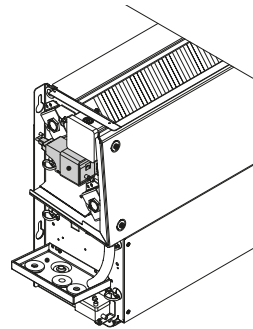


Fig. 68: Condensate pump with float switch

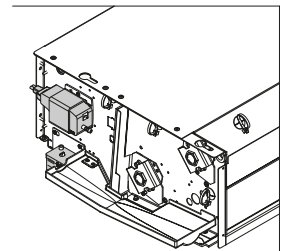
The condensate pump with float switch is located on the water connection side of the basic unit on all models. Its location depends on the valve kit used on the wall-mounted version.



Wall-mounted unit,
4-way valve kit



Wall-mounted unit,
2-way valve kit



Ceiling model

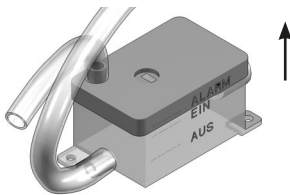


Fig. 69: Opening the cover

1. Open the cover of the float switch, clean the float switch and close the cover again.



IMPORTANT NOTE!

Check that the condensate pump and float switch is working properly after cleaning!

8.3.4 Other Maintenance Work

- Check the water-side connections, valves and fittings.
- Vent heat exchanger.
- Check the electrical wiring.
- Clean the outlet grille and remove dirt from the airflow.
- Check the antifreeze, if used.

9 Faults

The follow 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 ↗ *Chapter 1.4 „Customer Service“ on page 8.*

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 (↗ Chapter 9.2 „Fault Tables“ on page 77) provides information on how to rectify and remedy faults.

9.1 Fault Table

Only permit authorised personnel to rectify operational faults. The table below shows possible faults and the action needed to rectify them.

| Fault | Possible cause | Actions | Personnel |
|--|---|--|---------------------|
| Fan is not running | Unit switched off | Switch on the unit by the control | Qualified personnel |
| | No power supply | Check power supply and connect | |
| | Electrical cable not connected or incorrectly connected | Check electrical wiring and correct if necessary | |
| | No demand by controller, therefore fans switch off | Change controller settings, if required | |
| Unit too loud | Speed too high | Set lower fan speed | User/Caretaker |
| | Air intake or air outlet openings blocked | Free air intake and outlet grilles | |
| | Filter dirty | Replace filter | |
| Unit not heating and cooling sufficiently (LPHW/CHW) | Fan not switched on | Switch on fan at controller | User/Caretaker |
| | Air volume too low | Set higher fan speed | |
| | Filter dirty | Replace filter | |
| | No heating or cooling medium | Switch on heating and/or cooling system, switch on circulation pump, vent unit(s)/system | Qualified personnel |
| | Valves do not work | Replace faulty valves | |
| | Water volume too low | Check pump output, check hydraulics | |
| | Setpoint temperature on controller set too low/high | Adjust temperature setting on controller | |
| | Control unit with integrated sensor and/or external sensor is exposed to direct sunlight or positioned over a heat source | Position control unit with integrated sensor and/or external sensor in a suitable location | |
| Water escaping from unit | Condensate drain not properly installed | Check correct operation of condensate pump, check and clean condensate drain (if fitted) | Qualified personnel |
| | Chilled water line incorrectly insulated | Check insulation | |
| | Condensate drain outlets blocked | Clean condensate drains and check for adequate gradient | |
| | Hydraulic connection not properly done | Check flow and return and tighten, if necessary | |
| Condensate pump is not running properly | See separate instructions for the condensate pump | | Qualified personnel |

9.2 Start-up After Rectification of Fault

After correction of the fault, carry out the following steps to re-start:

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

10 Dismantling and Disposal

After the unit has come to the end of its service life, it must be dismantled and disposed of in an environmentally friendly manner.

10.1 Safety Information for Dismantling and Disposal

Incorrect Dismantling



WARNING!

Risk of injury due to improper dismantling!

Stored residual energy, angular components, points and edges on and in the unit or on the tool required can cause injury.

- Make sure that you have enough space before starting work.
- Handle open sharp-edged components carefully.
- Make sure that the workplace is clean and tidy. Components and tools stacked loosely or spread around tools represent a source of accidents.
- Dismantle the components carefully. Note the heavy net weight of some components. Use lifting gear if necessary.
- Secure components to ensure that they do not fall or topple.
- Contact the manufacturer if in doubt.

10.2 Dismantling

Before commencing:

- Switch off the unit and prevent it from being switched on again accidentally.
- Physically disconnect the entire power supply from the unit and discharge residual energy.
- Remove operating and auxiliary materials and dispose of properly.

Then clean assemblies and components properly and dismantle in compliance with applicable local safety and environmental regulations.

10.3 Disposal

Recycle dismantled components if no return or disposal agreement has been concluded:

- Scrap metals.
- Recycle plastics.
- Sort and dispose of other components.



IMPORTANT NOTE!

Environmental hazard from incorrect disposal!

Incorrect disposal can present a hazard to the environment.

- Electrical scrap, electronic components, lubricants and other auxiliary materials represent hazardous waste and should only be disposed of by authorised specialist companies.
- If in doubt, seek information on environmentally responsible disposal at the local municipal authority or specialist disposal company.

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I580 08/18 CA SAP-Nr. 1307409

Kampmann GmbH
Friedrich-Ebert-Str. 128-130
49811 Lingen (Ems)
Germany

T + 49 591 7108-660
F + 49 591 7108-173
E export@kampmann.de
W Kampmann.de

Kampmann Heating, Cooling, Ventilation Ltd.
600 - 890 West Pender Street
Vancouver BC, V6C 1J9

T +1 604 362 1080
F +1 604 687 1327
E info@kampmann.ca
W Kampmann.ca



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