

GB

Operating instructions for contractors

COMFORT LARGE AREA VENTILATION

CGL 2 edu

(Translation of the original)

English | Subject to technical modifications.

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1 About this document

1. Read this document before you begin working on the appliance.
2. Follow the instructions in this document.

Failure to observe these instructions voids any warranty claim with respect to WOLF GmbH.

1.1 Scope of application of document

This document applies to: CGL 2 edu Comfort large area ventilation unit.

1.2 Target group

This document is intended for gas, plumbing, electrical and HVAC contractors.

1.3 Other applicable documents

The documents for all accessory modules and other accessories also apply where relevant.

All documents are available at www.wolf.eu/downloadcenter



1.4 Safekeeping of these documents

The operator is responsible for the safekeeping of this document.

1. Hand this document over to the operator after the installation of the system.
2. The document must be kept in a suitable location and must be available at all times.
3. The document must be included if the system is passed on to a third party.

1.5 Symbols

The following symbols are used in this document:

Symbol	Meaning
1.	Steps are numbered
✓	A necessary requirement
⇒	The outcome of an action
	Important information regarding proper use
	A reference to other relevant documents

1.6 Warnings

Warnings in the text warn you of possible risks before the start of an instruction. The warnings provide you with information on the possible severity of the risk using a pictogram and a keyword.

Symbol	Keyword	Explanation
	DANGER	This means that there is a risk of serious injury or loss of life.
	WARNING	This means that there is a potential risk of serious injury or loss of life.
	CAUTION	This means that there is a potential risk of minor to moderate injury.
	NOTE	This means that material damage may occur.

Layout of warnings

These warnings are laid out as follows:

-  **KEYWORD**
 Type and source of risk
 Explanation of the risk.
 ► Action to prevent the risk.

1.7 Air flows indoor air handling technology

After DIN 16798-3 and DIN EN 12792

Colour	Designation
	Supply air
	Extract air
	Outdoor air
	Exhaust air

2 Safety

2.1 Required qualifications

1. Ventilation systems and heat generators must only be worked on by qualified contractors.
2. In accordance with VDE 0105 Part 1, work on electrical components may only be carried out by qualified electricians.

2.2 Intended use

WOLF CGL 2 edu ventilation units are designed to heat and filter normal air. Maximum air intake temperature: +40 °C. The CGL 2 edu ventilation unit is designed to be used indoors in a frost-proof area.

Installation elevation: Maximum of 2000 m above sea level

Intended use also includes observing the operating instructions provided!

2.3 Fire protection

The appliance meets the requirements of the draft air handling unit guideline.

A contact is available for connecting to a fire alarm control panel which can be used to switch the unit off in the event of a fire.

All state building regulations, administrative regulations and air handling unit guidelines must be reviewed and complied with.

There is no guarantee that the air handling unit will continue to function in the event of a fire, e.g. removing/extracting heat and smoke.

2.4 Incorrect use

These units may not be used in wet rooms (sustained relative humidity above 70%) or in rooms with explosive atmospheres. Handling very dusty or aggressive media is not permissible. Any onsite modification or improper use of the unit is not permissible and WOLF GmbH accepts no liability for any damage caused as a result.

2.5 General safety information



DANGER

Electrical voltage

Danger of death from electrocution

- ▶ All electric work must be carried out by a qualified electrician.
-



DANGER

Rotating fan

Risk of severe to life-threatening injuries due to positive or negative pressure.

1. Wait until the fan comes to a stop.
2. Open the inspection doors carefully.
3. Notify an approved contractor.



WARNING

Component swivels downwards

Risk of injury to head and body

- ▶ Do not stand or walk directly below the component.

2.6 Handover to operator

1. Provide these instructions and the other applicable documents to the operator.
2. Instruct the operator on how to operate the system.
3. Refer the operator to the operating instructions.
4. Make the operator aware of the following:
 - Annual inspections and maintenance must be performed by specialists.
 - Wolf recommends concluding an inspection and maintenance contract with a specialist contractor.
 - Repairs must be performed by contractors.
 - Only use WOLF original spare parts.
 - Do not make any changes to the appliance or control components.
 - This guide and the other applicable documents must be kept safely in a suitable location and must be available at all times.

2.7 Declaration of Conformity

This product complies with European regulations and national requirements. (see [EU / EC Declaration of Conformity \[▶ 80\]](#))

3 Standards and regulations

3.1 Relevant standards and regulations

- Machinery Directive 2006/42/EC
- Low Voltage Directive 2014/35/EU
- EMC Directive 2014/30/EU
- ErP Directive 2009/125/EC
- DIN EN ISO 12100 Safety of machinery; general principles for design
- DIN EN ISO 13857: Safety of machinery – safety distances
- DIN EN ISO 13854 Safety of machinery – minimum clearances
- DIN EN ISO 14120 Safety of machinery; guards
- DIN EN 60204-1 Safety of machinery; electrical equipment of machines
- DIN VDE 0700-1 Safety of electrical appliances (IEC 335-1)
- DIN ISO 1940/1 Mechanical vibration - balance quality requirements
- DIN EN 60730 Automatic electrical controls
- DIN EN 61000-6/2+3 Electromagnetic Compatibility

In addition, ÖVE regulations and the local building code apply in Austria.

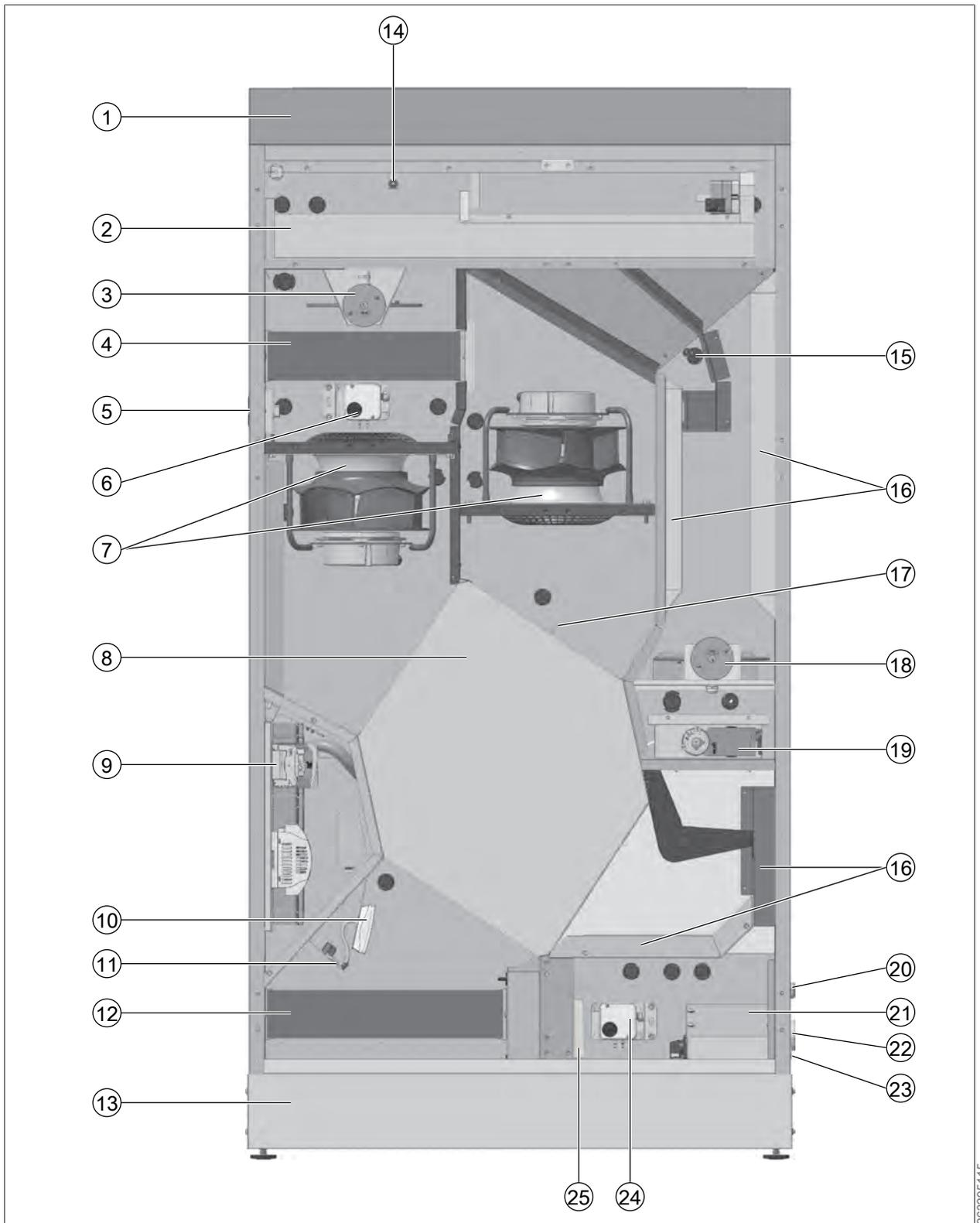
4 Product description

4.1 Introduction



Energy-efficient, powerful, whisper-quiet and compact - the CGL 2 edu from WOLF. The decentralised ventilation unit provides high-quality air to individual rooms used by many different people at once, such as offices, educational establishments and restaurants. Also ideal for retrofitting. Accessories for installation in an adjoining room are available on request.

4.2 Unit layout



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- | | |
|---|--|
| 1 Discharge module with ventilation grille (accessory) | 2 Outdoor air/Exhaust air damper with servomotor |
| 3 Electric preheater coil (accessory) | 4 Outdoor airfilter ePM1 55% (F7) |
| 5 Operating light & CO ₂ display | 6 Differential pressure switch, filter monitoring (SUP) |
| 7 Supply air-/Extract airfan | 8 Countercurrent plate heat exchanger (HR) |
| 9 Electrics control unit | 10 CO ₂ sensor |

11 Room temp. sensor	12 Extract airfilter ePM10 60% (M5)
13 Intake silencer incl. height-adjustable feet (accessory)	14 Outdoor airtemperature sensor
15 Supply airtemperature sensor	16 Acoustic elements
17 Icing sensor	18 Electric reheating coil (accessory)
19 Bypass damper with variable servomotor	20 Condensate hose design
21 Junction box with maintenance switch	22 Cable inlet for onsite cables
23 Service connection (port for BMK Touch front mounting)	24 Differential pressure switch, filter monitoring (ETA)
25 Condensate pump or condensate container (accessory):	

4.3 Benefits

- CO₂-based flow rate up to 1,100 m³/h
- Quietest appliance in its class
- Highly efficient countercurrent plate heat exchanger with efficiency of over 90%
- Optional enthalpy heat exchanger for moisture recovery
- Integral bypass as standard for cool night ventilation in summer
- Optional draught-free supply air intake through ventilation grilles at a height of 2.2 m or an on-site pipework system
- WOLF WRS-K control system with interfaces for building management system and Smartset portal
- Compliance with the highest hygiene requirements as per VDI 6022
- Optional second filter stage in supply air line
- Optional integration of electric heating elements
- Wide range of control options
- Flexible outdoor air and exhaust air connections
- Efficient acoustic elements integrated into supply air line

4.4 Control unit and programming unit

4.4.1 Control

- Flow rate adjusted based on input from integrated CO₂ sensor
- Time and holiday programs available
- Infinitely variable control of fans
- Supply air temperature control preset, can be changed to room temperature control on site if required
- Infinitely adjustable electric reheating coil with possible output limit
- Ice protection of the heat recovery via continuously controllable bypass
- Night ventilation via bypass
- Inputs: external on/off, fire alarm control panel
- Outputs: Central fault message, op. message

4.4.2 Programming unit

A BMK Touch must be selected for commissioning and in order to change settings. No programming unit needs to be permanently connected when the ventilation unit is in operation.

Two versions of the BMK Touch are available.

Version I:

Wall-mounted version for permanent mounting in room with key lock.

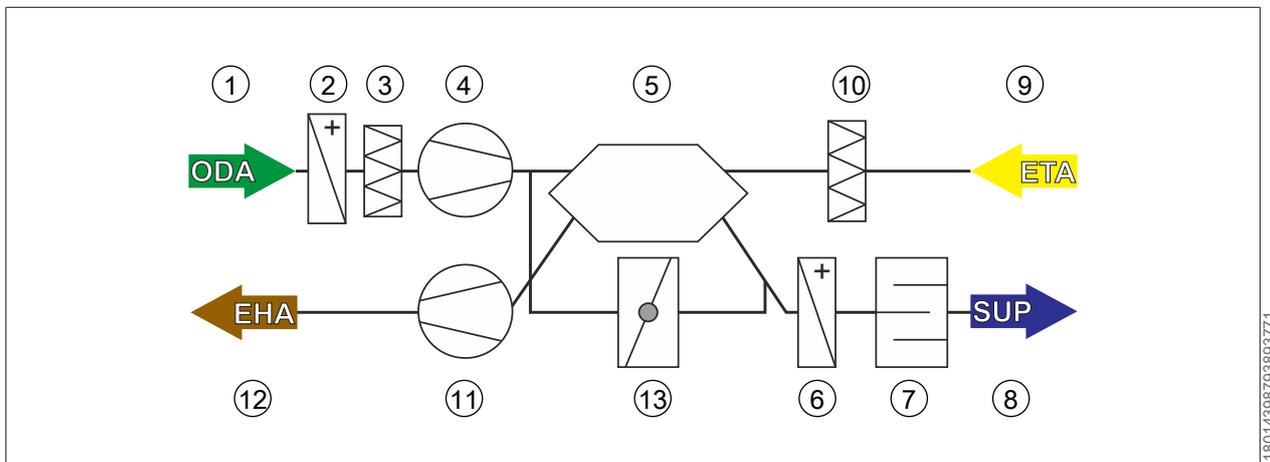
Version II:

Plug-in version, where only one programming unit is required to control any number of units. The BMK Touch can be connected to the service connection (bottom right) for commissioning and maintenance and then removed again.

The hard-wired BMK-F remote control (incl. wall bracket) can be installed permanently in the room so that changes are easy to make. All buttons can be enabled/disabled to meet customer requirements.

4.4.3 Remote access / maintenance

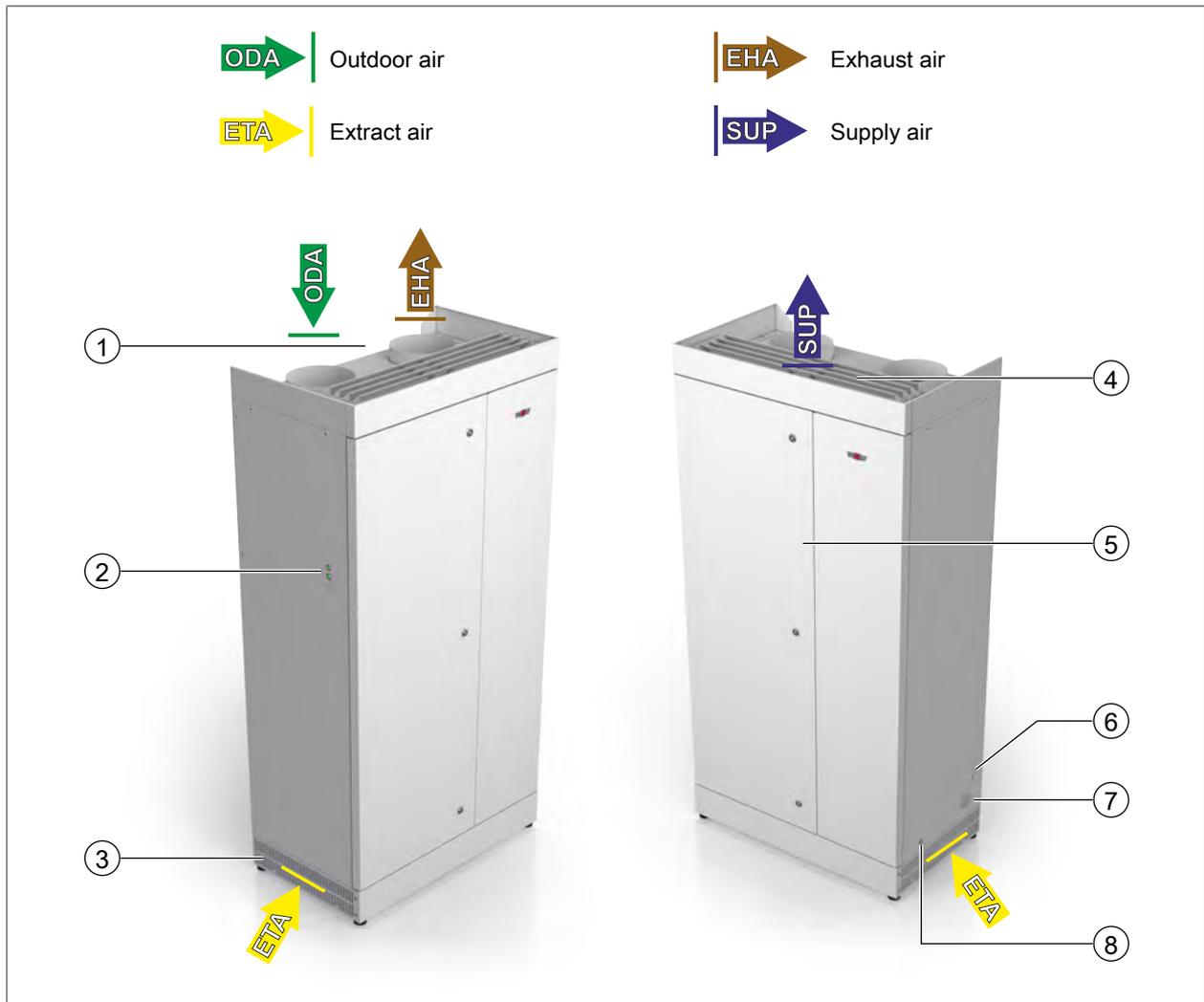
- BMS connection via Modbus RTU (standard interface), Modbus TCP (accessory) or BACnet IP (accessory) in accordance with AMEV (profile AS-B)
- Connection to WOLF portal (Smartset, up to 3 appliances can be connected using a single Link Pro)

4.5 Principle of operation

- | | |
|---|---------------------------------|
| 1 Outdoor air intake | 2 Electric preheating coil |
| 3 ePM1 55% outdoor air filter | 4 Supply air fan |
| 5 Countercurrent plate heat exchanger | 6 Electric reheating coil |
| 7 Acoustic elements | 8 Supply air discharge |
| 9 Extract air intake | 10 ePM10 60% extract air filter |
| 11 Extract air fan | 12 Exhaust air discharge |
| 13 Countercurrent plate heat exchanger bypass section | |

Fresh outdoor air (1) is drawn in through the façade by a fan (4). If necessary, this outdoor air can be pre-heated with an optional filter pre-dryer (2) and then filtered (3). This air is then conditioned in an energy-efficient manner by the countercurrent plate heat exchanger in line with the temperature setpoint using the extract air (9). When heating is required, the supply air is conditioned by an electric reheating coil (6). After flowing through the acoustic elements (7), the air is distributed in the room. The indoor air is loaded with CO₂ and aerosols. It is drawn from the room as extract air (9) by the fan (11). To protect the appliance, the extract air (9) is filtered (10) and used to heat the cooler outdoor air (1) in the countercurrent plate heat exchanger (5). The exhaust air (12) leaves the appliance after the fan (11). The countercurrent plate heat exchanger (5) is equipped with a bypass section (13). This bypass can convey the cooler outdoor air (free cooling) past the countercurrent plate heat exchanger in the summer or if the indoor heat load is very high. The appliance's control unit continuously adjusts the bypass damper. This achieves an ideal indoor environment using the lowest possible amount of energy.

4.6 Appliance casing details



1 Outdoor air (ODA) & exhaust air (EHA)

- Easily accessible regardless of blower module (accessory)
- Variable DN 250 air routing to suit different setups

2 2x status LED

- Operating status
- CO₂ status (sensor in extract air as standard)
- Signal light system (green / amber / red)

3 Intake silencer (accessory)

- Left / right side intake

4 Draught-free supply air through discharge module with ventilation grilles (accessory)

- Fins installed as standard
- Angled top discharge

5 Only 3 visible door closures

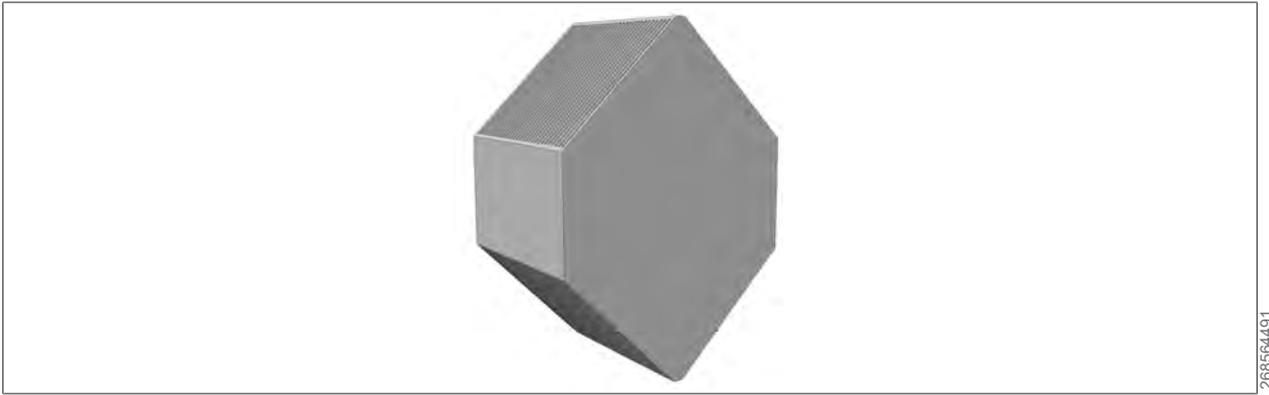
6 Condensate hose design

7 Cable inlet for onsite cables

8 Service connection

- RJ12 socket for BMK Touch front-mounting

4.7 Heat recovery



Two different heat exchanger versions are available for the CGL 2 edu:

- Version 1: Standard aluminium countercurrent plate heat exchanger for heat recovery only
- Version 2: Enthalpy plastic countercurrent plate heat exchange for heat and moisture recovery

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5 Transport and storage

5.1 Delivered condition



Package dimensions: W x L x H: 1140 x 2060 x 780 mm

A maximum of two units can be stacked on top of each other. Each unit is enclosed in a protective foil, which does not guarantee long-term protection against water ingress. The optional accessories are supplied separately and must be fitted on site.

5.2 Delivery

CGL 2 edu ventilation units are supplied in packaging that protects them from dirt and damage. Check the unit for possible transport damage upon receipt. If there is any damage or even a suspicion of damage, indicate this on the consignment note and have it countersigned by the haulier. The recipient of the goods must notify WOLF of the relevant facts without delay.

Dispose of the transport packaging in accordance with local regulations.

5.3 Transport



NOTE

Component damage

When tilting the appliance onto its narrow side, make sure that the small door or the WOLF logo is at the top; take care to prevent damage to the LED lights!



1 WOLF logo label:

2 LED light

5.4 Storage



NOTE

Corrosion and condensation

- ▶ Remove the film from the appliances after delivery.
 - ▶ The appliance and components must be stored securely on a level horizontal surface, kept dry and protected against the weather and soiling (using suitable packaging).
 - ▶ Take care to prevent damage or impairment due to weather conditions (moisture, temperature, dust, dirt) and other factors (animals, vermin, shocks and impact).
 - ▶ Any openings in the appliance must be completely sealed and only re-opened before installation.
-

6 Installation

6.1 Outdoor air intake openings and exhaust air outlet openings

The positions and minimum clearances of the fresh air intake and exhaust air discharge openings must meet the requirements of M-LüAR, DIN EN 19798-3, AMEV-RLT Anlagenbau (particularly for public buildings).

6.2 Installation location

The installation site must be level and have a sufficient load-bearing capacity (at least 290 kg). Level the appliance horizontally. The standard unit itself does not have adjustable feet. For this reason, either an intake silencer or a universal intake module must be selected from the accessories. The installation site must be able to bear the load of the ventilation unit on a long term basis without vibrations.

There must be a drain connection for any condensate that is generated.

For rooms that don't have a drain outlet, a condensate container with float switch is available as an optional accessory.

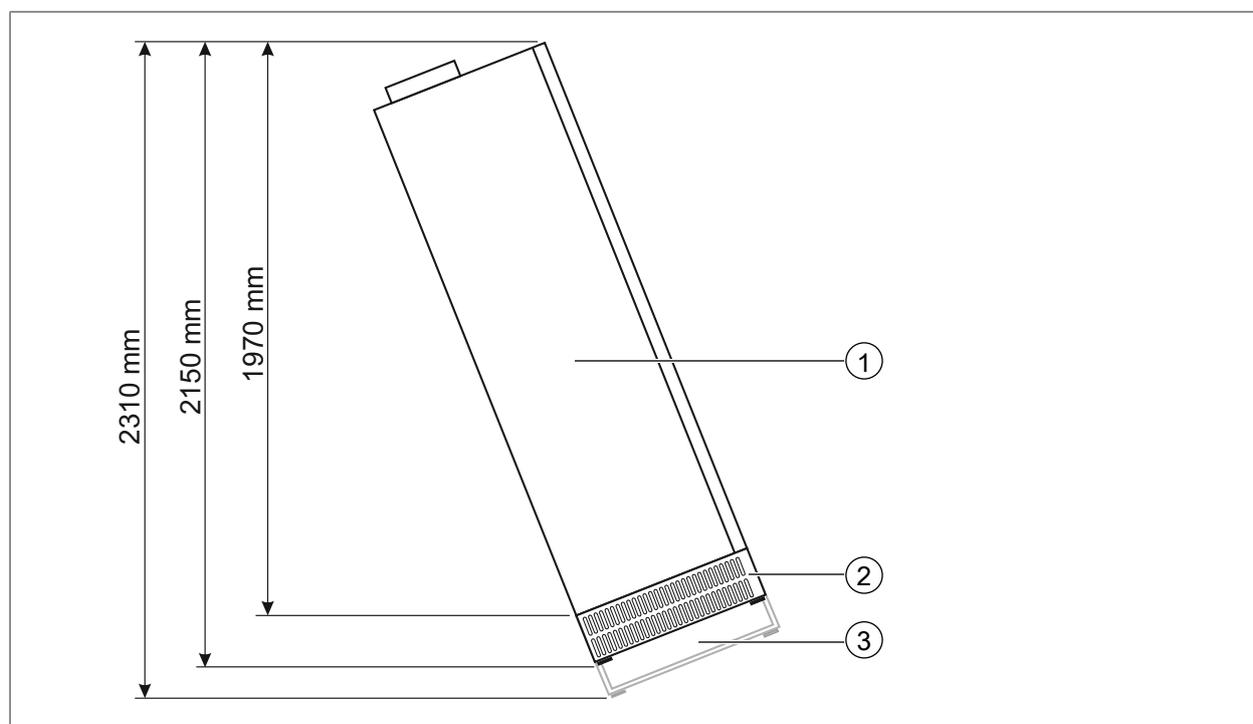
Site the unit in a room that is free from the risk of frost.

A clearance of at least 800 mm is required in front of the unit to open the inspection doors. Enough space must also be left above the unit for the air duct connections.

At least 250 mm of space must be available to the left and right of the unit. (only for the version with an intake silencer)

When using an air outlet module with a ventilation grille, the top of the unit (incl. air outlet module) must be at least 200 mm from the ceiling to provide space for the air outlet.

6.3 Wall mounting



1 CGL 2 edu

2 Intake silencer

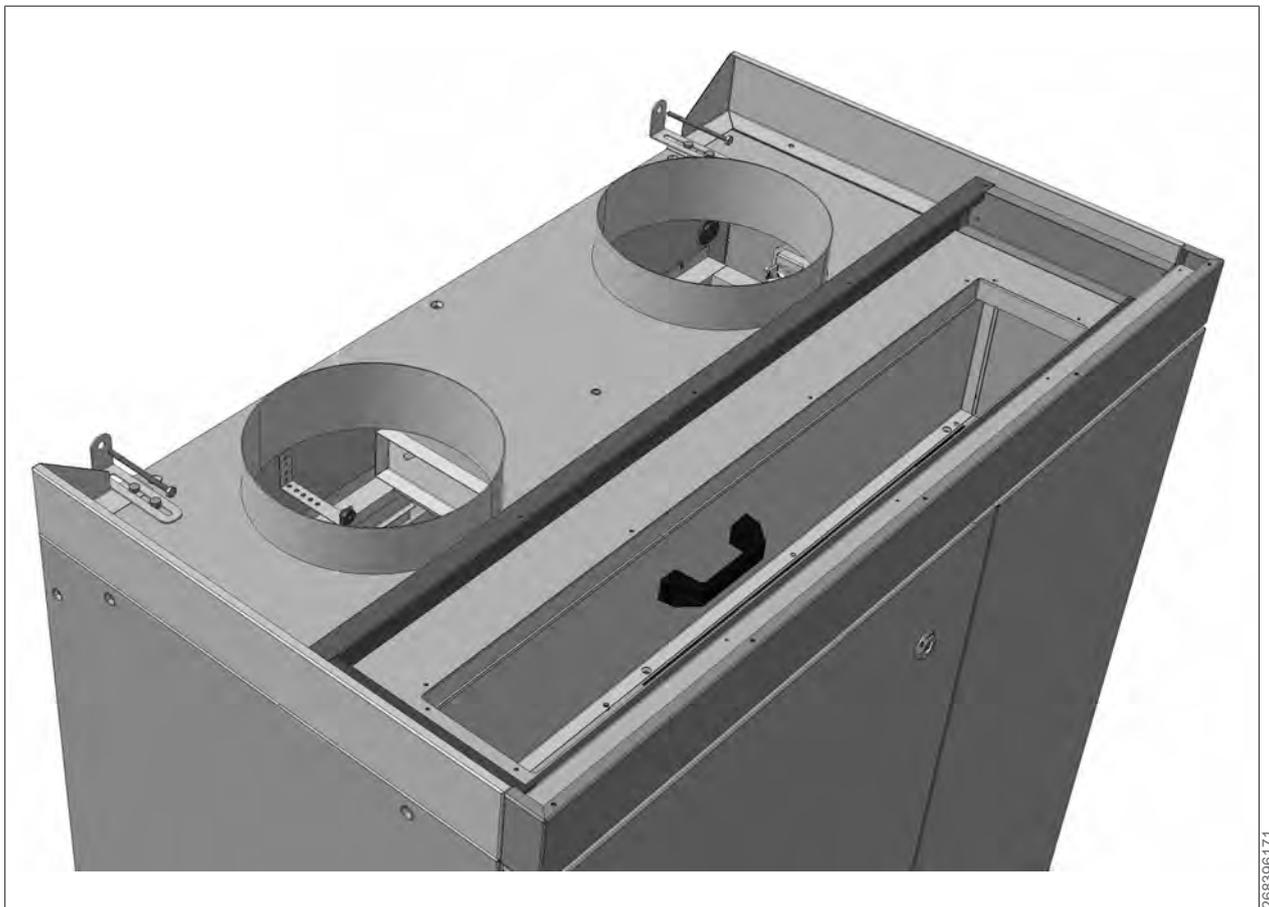
3 Universal intake module



DANGER

Improper securing of the appliance

- ▶ Push the appliance towards the wall and use the adjustable feet in the intake silencer or universal intake module to make sure that it is horizontal.
- ▶ Before mounting the wall bracket, connect the air outlet modules (accessories) to the appliance.
- ▶ Secure the unit against tipping over by attaching it to the wall with fixing brackets.



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When securing the unit against tipping, make sure that the wall is in good condition and capable of bearing the weight of the appliance.

6.4 Condensate management

The unit can be retrofitted with a condensate pump or a condensate container if it is not possible to install a free condensate drain onsite.

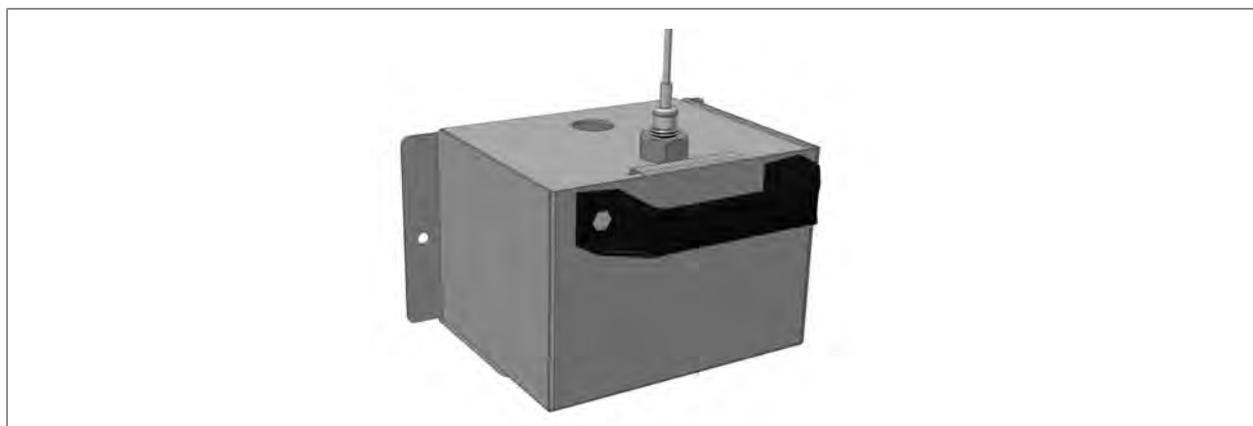
- Condensate container = part no.: 68 09 832
- Condensate pump = part no.: 68 00 122

The pump can be used to pump the condensate into a drain pipe further away or higher up. If only minimal condensation is expected considering the conditions on the air side, such as with the CGL 2 edu with enthalpy heat exchanger, the easily emptied condensate container (1.8 L capacity) is a perfect choice. Both variants are equipped with a float switch with ON/OFF and ALARM functions.

The location of the condensate container in the CGL 2 edu means that it is sealed off from the supply air and extract air. This means that the hygiene requirements of VDI 6022 are met when using the condensate container.

6.4.1 Condensate container with float switch (accessory)

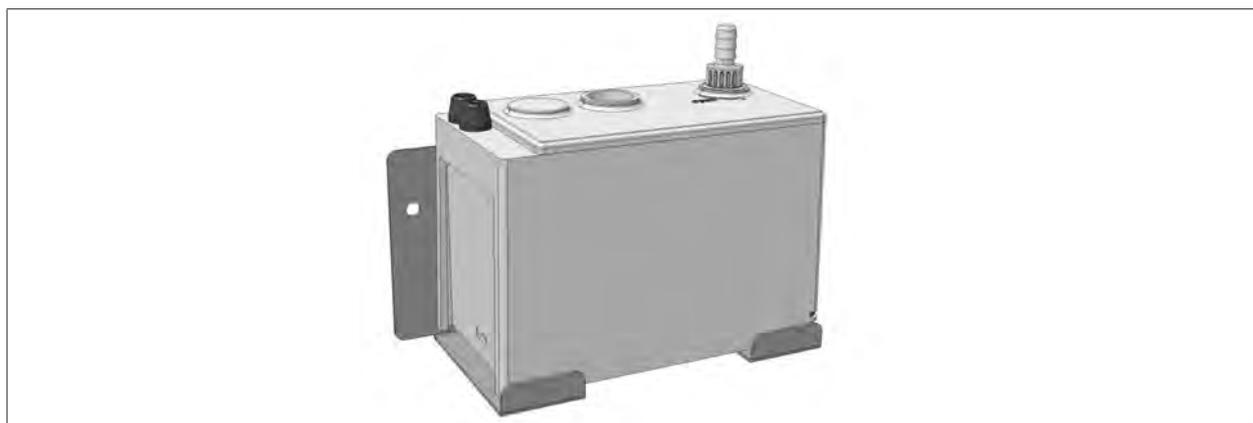
We recommend using the condensate container with float switch if the room air conditions are dry (low level of condensate).



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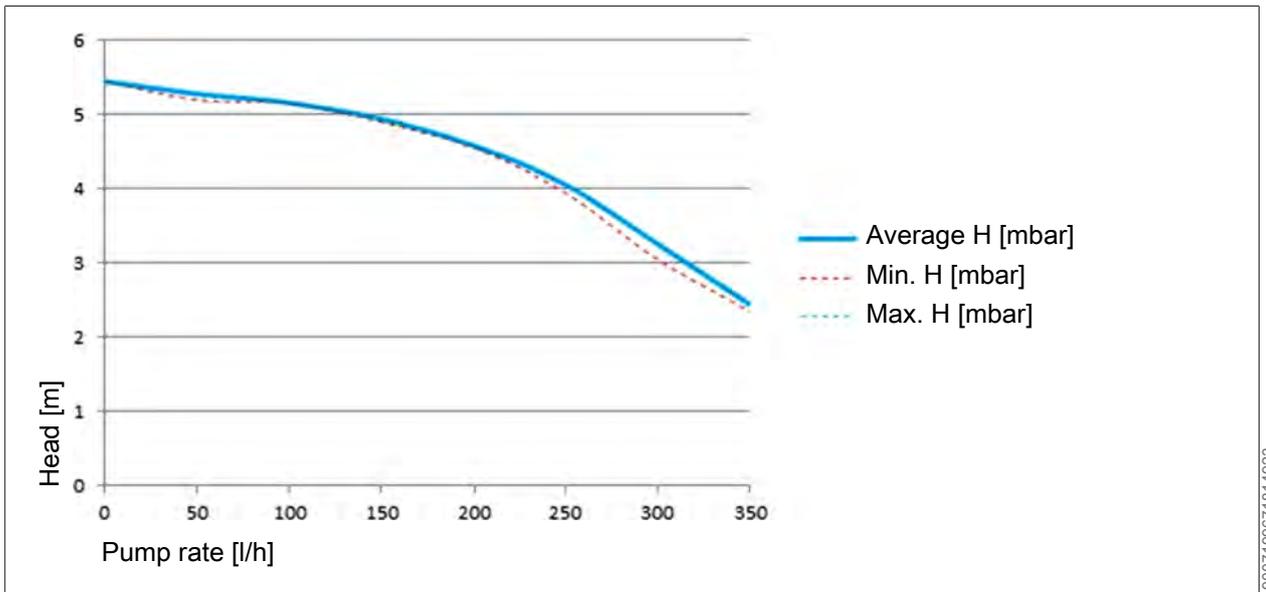
6.4.2 Condensate pump (accessory)

To prevent the condensate pan from overflowing, we recommend installing a condensate pump (accessory) if a large amount of condensate is produced.



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Capacity



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6.4.3 Installing the condensate drain



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When the appliance is delivered, the hose will be mounted as shown in the picture and closed with a plug. To ensure that the condensate can drain with one of the two variants, the hose must be set up as shown below. (See installation instructions for the condensate pump or condensate container)



The condensate can also be drained with a trap.

6.5 Connecting the power cable

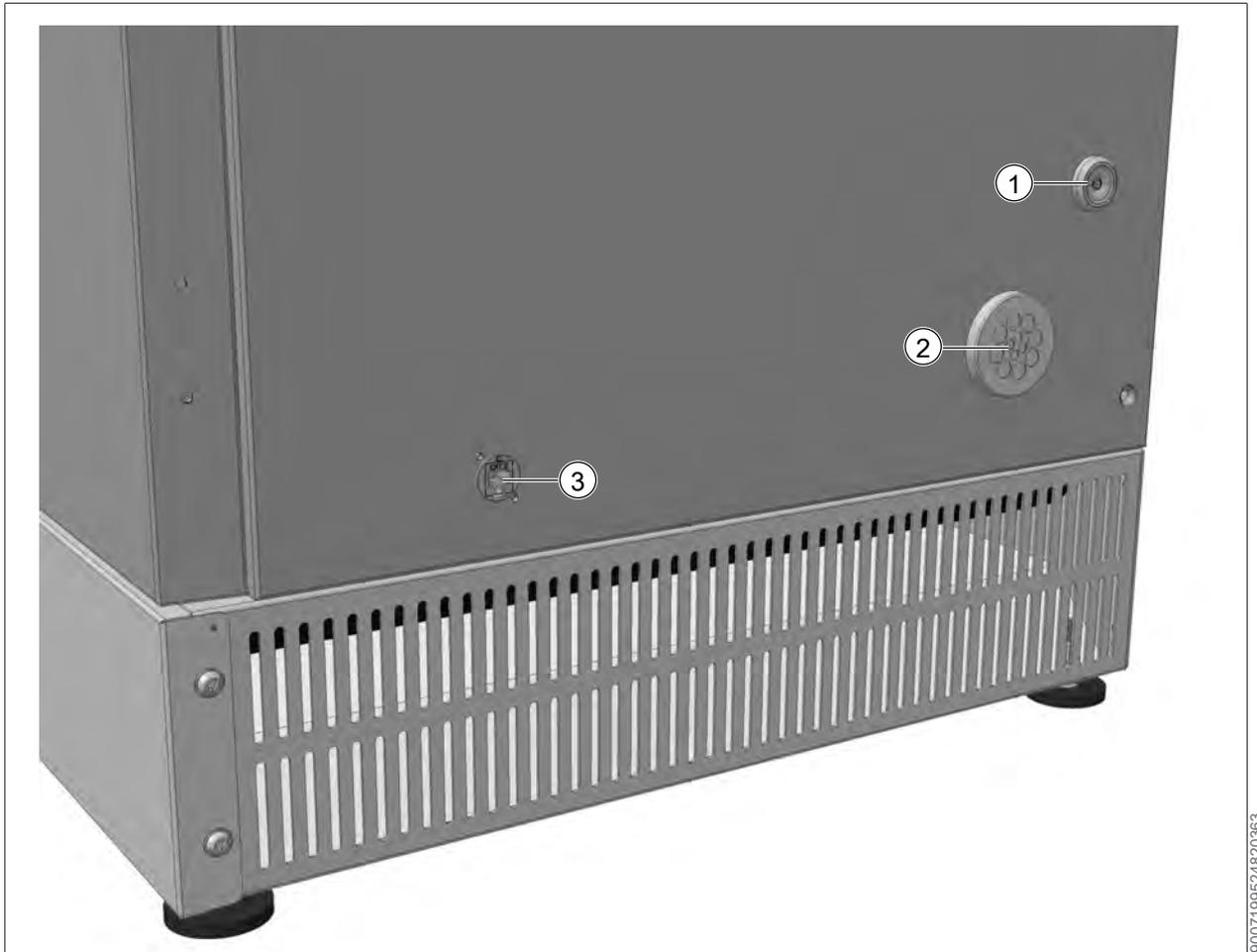
Insert the power cable firmly into the junction box at the bottom right.

- External power cable min. 3 x 1.5 mm² (cross-section and cable type must be selected based on site conditions)
- Fuse/MCB protection 230 V / 16 A

If residual current devices (RCDs) are used, their functioning must be checked according to the manufacturer's instructions by pressing the test button every six months. Use type B residual current protective devices as only these are suitable for DC residual currents. Type A residual current protective devices are not suitable.

All onsite electrical connections (power cable, accessories) according to the connection diagram (see "Reference to connection diagram")

Remove the silencer plate to improve access to the junction box for onsite connections



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- 1 Condensate hose entry
- 2 Entry for power cable and accessories (e.g. BMS connection)
- 3 Service connection for BMK Touch front mounting

7 Commissioning

7.1 Safety information - electricity



WARNING

Electrical voltage

Danger of death from electrocution

- ▶ According to EN 50110-1, only qualified electricians may carry out the installation, commissioning and maintenance of the ventilation control unit and connected accessories.
- ▶ Observe all local utility regulations and all VDE regulations.
- ▶ DIN VDE 0100 regulations regarding the installation of high voltage systems up to 1000 V.
- ▶ DIN VDE 0105-100 Operation of electrical systems.
- ▶ Observe all local utility regulations and all VDE regulations.
- ▶ Observe all local utility regulations and all VDE regulations.
- ▶ Only original WOLF accessories may be used (electric heater coils, condensate pump, servomotors, etc.).
- ▶ The unit must not be operated before all necessary safety equipment has been fitted and connected.
- ▶ Connect the intake and discharge apertures.
- ▶ Align and secure the appliance.
- ▶  [Connecting the power cable](#) [▶ 22]
- ▶ Fit the partition panel.
- ▶ Switch on the repair switch.

Configure the settings with the BMK Touch programming unit as described in the “Control unit quick guide”.

7.2 Fans



NOTE

Risk of motor overload

- ▶ Use tools to tightly seal the doors before commissioning (unit tightness).
- ▶ Carry out air flow rate tests with the doors closed. (Flow rate calculation)

7.3 Swapping out the fan

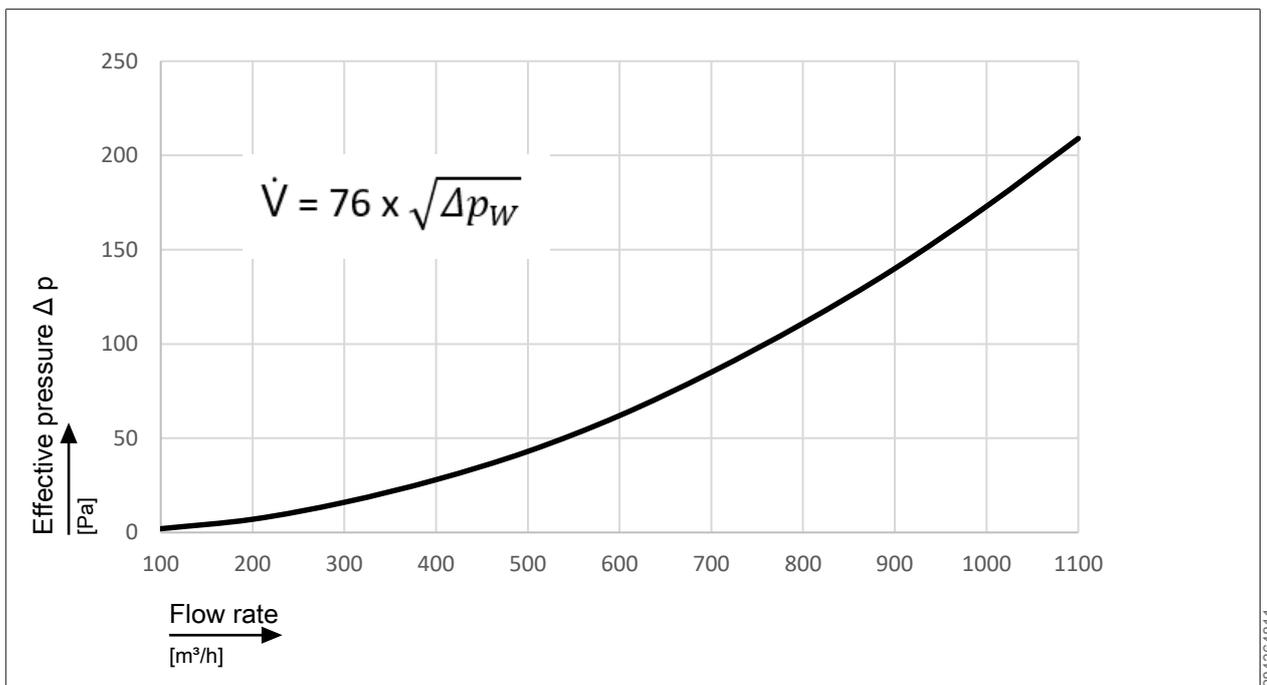
After the replacement fan has been installed and correctly connected, reassign/set it to the predefined (WOLF-specific) Modbus address (see [Maintenance - details \[▶ 35\]](#)). If this is not done, the network scan will not work correctly. If another fan is replaced, there would also be a risk of bus conflicts.

7.4 Flow rate calculation

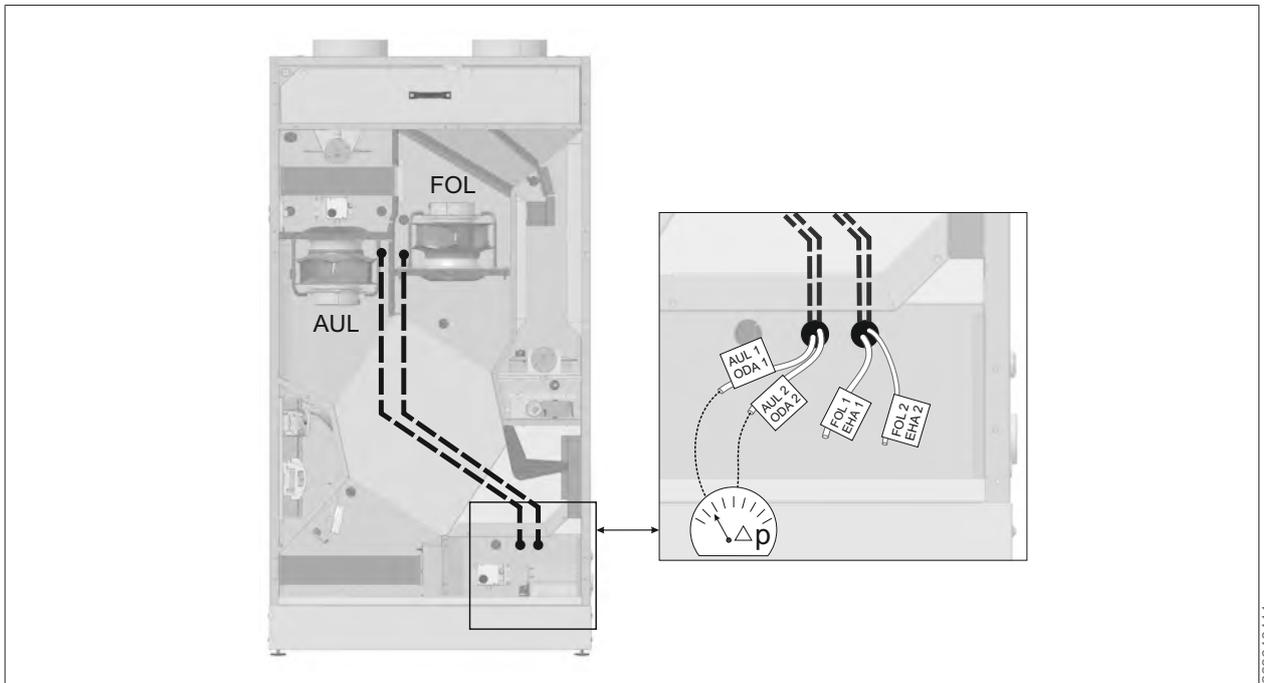
The flow rate is calculated using the effective pressure method. This involves comparing the static pressure upstream of the inlet nozzle with the static pressure in the inlet nozzle of the fan.

Calculate the flow rate on the basis of the effective pressure Δp_w (differential pressure of the two static pressures) using the listed equations.

The fans used for the CGL 2 edu have a k value of 76.



Δp	Pa	2	7	16	28	43	62	85	111	140	173	209
V	m ³ /h	100	200	300	400	500	600	700	800	900	1000	1100



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7.5 Preheater (accessory) / reheater (accessory)



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NOTE

Risk of motor overload

- Use tools to tightly seal the doors before commissioning (unit tightness).



NOTE

Risk of overheating

- When an electric heater is installed, the ventilation unit may not be operated at a flow rate of less than 300 m³/h.

Follow the relevant safety regulations for electric heating coils. The electric heating coil must be protected from moisture and water.

The preheater coil or reheater coil must be reconfigured after they have been connected (see Miscellaneous - details).

7.6 BMK-F

The remote control must be reconfigured after it has been installed and connected (see Miscellaneous - details).

8 Operation

8.1 BMK-Touch programming unit



- | | |
|---|---|
| 1 Displays the currently valid set temperature | 2 Displaying and acknowledging active fault messages |
| 3 Quick access to increase set temperature | 4 Quick access to reduce set temperature |
| 5 LED bar | 6 Displays the set control type and control temperature |
| 7 Displays the current time | 8 Displays the current date |
| 9 Displays the operating mode / system status / fan status / operating status | 10 Quick access - peak ventilation |
| 11 Quick access - fan setpoint correction | 12 Quick access - activate utilisation time extension |
| 13 Activate/deactivate (on/standby) the system | 14 Access to the main menu |
| 15 Displays the active special operating modes | |

LED bar:

Flashes red if there is a new fault message

Solid red if an alarm is active but has already been viewed

Solid orange if air filters are moderately contaminated

Solid green to indicate that parameters have been changed

8.1.1 Displays operating mode



Manual mode

The system uses the values that were specified for manual mode with the programming unit. If there is an additional BMS connection, the setpoints can be adjusted using offsets.



7-day program

The system uses the times and setpoints specified in the 7-day program. If there is an additional BMS connection, the setpoints can be adjusted using offsets.



BMS mode

The system uses the setpoints specified using the BMS. The system is started and shut down via the BMS.

8.1.2 Display system status



Standby

System switched off using the Enter button on the BMK. Only safety functions are active, such as frost protection, weather-compensated heating circuit pump startup and anti-seizing protection.



Off via remote control

System switched off via remote control. All special functions (night ventilation, backup mode heating/cooling, utilisation time extension, air quality control, hygrostat function) and all safety functions are active.



Off via external enabling

System switched off via external enabling. All special functions (night ventilation, backup mode heating/cooling, utilisation time extension, air quality control, hygrostat function) and all safety functions are active.



System in use

8.1.3 Operating status display



Heating mode active

8.1.4 Displays the set control type and control temperature

Subject to the type of control, either the current room temperature (room supply air cascade), the supply air temperature (supply air control) or the extract air temperature (extract room/extract air cascade) are displayed.



Room temperature



Supply air temperature



Extract air temperature

8.1.5 Menu structure, programming level 1

Main menu

[Standard screen > Main menu](#)



INFO

If no settings are changed for more than 2 minutes, the standard screen will reappear automatically.

Overview:

- Default setting [↔ Standard settings \[▶ 29\]](#)
- Displays [↔ Displays \[▶ 29\]](#)
- Time program [↔ Time program \[▶ 30\]](#)
- Contractor [↔ Contractor \[▶ 30\]](#)
- Language [↔ Language \[▶ 30\]](#)
- BMK emulator

Standard settings

[Standard screen > Main menu > Default settings](#)

- Operating mode
- Air quality control
- Manual mode - extract air flow rate setpoint
- Manual mode - temperature setpoint
- Manual mode - supply air flow rate setpoint
- Manual mode - fan in manual mode
- Night vent.

Displays

[Standard screen > Main menu > Displays](#)

- Sensors
 - Outside temperature
 - Supply air temperature
 - Room temperature
 - Exhaust air temp.
 - CO₂ content
 - Air quality status
- Operating data
 - Temp. control
 - Air quality control
 - Energy monitoring - exhaust air fan
 - Energy monitoring - supply air fan
 - Energy monitoring overview
- System configuration
- Components
 - Fan
 - El. heating coil
 - Air dampers

- Filter
- Heat recovery
- External Enable
- Software
- Runtime
 - System
 - Fan
 - Filter pre-dryer
 - El. heating coil
 - Last filter test

Time program

Standard screen > Main menu > Time program

- Day program see: [☞ Day program \[▶ 30\]](#)
- 7-day program see: [☞ 7-day program \[▶ 31\]](#)
- Holiday program see: [☞ Holiday program \[▶ 31\]](#)
- Setpoints see: [☞ Setpoints \[▶ 31\]](#)

Contractor

Standard screen > Main menu > Heating contractor

Password: 1234 [☞ Menu structure, programming level 2 \(heating contractor\) \[▶ 31\]](#)

Language

Standard screen > Main menu > Language

8.1.6 Time program - details

Standard screen > Main menu > Time program

This screen is used to configure settings related to time programs, date and time.

Day program

In all, there are 4 adjustable day programs available:

Factory setting:

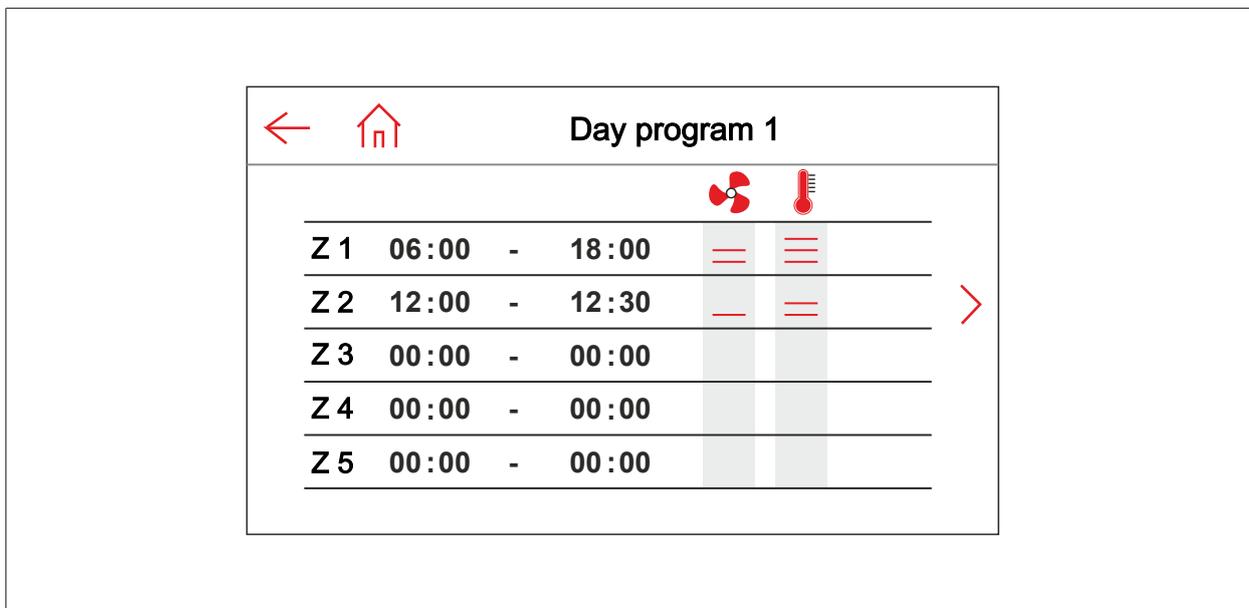
- Day program 1 = 7 am - 4 pm
- Day program 2 = 6 am - 2 pm
- Day program 3 = 11 am - 2 pm and 5 pm - 10 pm
- Day program 4 = 12 am - 11:59 pm

A day program can be split into a max. of 5 day sections (Z1 - Z5), to each of which a start and end time (resolution 1 min) can be assigned. The 5 day sections can also overlap (see example), i.e. if one time lies in two or more sections, the setpoints of the highest time section take priority.

4 adjustable values (bars) can be defined as setpoints for fan/fan stage/fan speed, temperature and fresh air proportion.

Example:

When the settings are configured as shown below, the system will run from 06:00 h until 12:00 h using the settings of Z1. From 12:00 h to 12:30 h with the settings of Z2 and from 12:30 h until 18:00 h with the settings of Z1 again.



7-day program

Individual programs are assigned to the individual days of the week via the 7-day program. If no program is assigned to a specific day of the week, then the system will remain switched off for the whole day.

Holiday program

In the holiday program, 5 fixed periods (comprising a date and time) can be defined. Corresponding setpoints can be assigned to these periods.

Setpoints

This area is used to set the bars used in the day programs and to assign the setpoints for temperature, fan speed, pressure, flow rate and fresh air proportion.



INFO

If a setpoint generator is present, it will only be active if bars are activated in day program 4.

8.1.7 Menu structure, programming level 2 (heating contractor)

[Standard screen](#) > [Main menu](#) > [Heating contractor](#)

Alarm management

[Standard screen](#) > [Main menu](#) > [Heating contractor](#) > [Alarm management](#)

[Alarm management - details](#) [▶ 35]

- Alarm memory
 - Reset alarm history
- Filter monitor
 - Time
 - Interval
 - Fan speed during filter test
 - Alarm delay, filter monitor
 - Start filter test
- General information
 - Enable remote alarm reset see: [Remote alarm reset](#) [▶ 55]

Heat generation

[Standard screen > Main menu > Heating contractor > Heat generation](#)

[Heat generation - details \[▶ 35\]](#)

- Output limit of electric heating coil

Maintenance

[Standard screen > Main menu > Heating contractor > Maintenance](#)

- Hours run [Hours run \[▶ 35\]](#)
 - System
 - fan
 - Electric heater
 - Electric pre-heating coil
 - Reset hours of operation
- Sensor adjustment [Sensor adjustment \[▶ 36\]](#)
 - Supply air temperature
 - Outside temperature
 - Exhaust air temp.
 - Air quality CO₂
 - Room temperature
- Digital inputs [Digital inputs \[▶ 36\]](#)
 - HLSC, elec. heater bank
 - Remote switch - On/Off
 - Fire alarm system
 - Filter pre-dryer high limit safety cut-out
 - Filter ODA/SUP 1
 - Filter ODA/SUP 2
 - Extract air filter ETA 1
 - Condensate pump fault
- Manual mode [Manual mode \[▶ 36\]](#)
 - Outdoor/supply air damper
 - Heat recovery
 - Op. message
 - Central fault
 - Air quality - LED outlet 1
 - Air quality - LED outlet 2
- Fieldbus

Utilisation time extension

[Standard screen > Main menu > Heating contractor > Utilisation time extension](#)

[Utilisation time extension - details \[▶ 42\]](#)

- Setback mode
- Extension time

Compensation

[Standard screen > Main menu > Heating contractor > Compensation](#)

[Compensation - details \[▶ 38\]](#)

- Summer:
- Winter:
- Start at outside temp.
- End at outside temp.

Night vent.

[Standard screen](#) > [Main menu](#) > [Heating contractor](#) > [Night ventilation](#)

 [Night ventilation - details](#) [▶ 36]

- Enable
- Start value, room temperature
- Start value, differential
- Delta outside temp/room temp
- Delta outside temp/room temp Differential
- Enable from outside temperature
- Fan speed supply air
- Night vent. interval
- Night ventilation disabled October-April

Peak ventilation

[Standard screen](#) > [Main menu](#) > [Heating contractor](#) > [Peak ventilation](#)

 [Peak ventilation - details](#) [▶ 42]

- Duration
- Fan speed supply air

Air quality

[Standard screen](#) > [Main menu](#) > [Heating contractor](#) > [Air quality](#)

 [Air quality - details](#) [▶ 37]

- Control range, start (CO₂)
- Control range, end (CO₂)
- Max speed
- Automatic start with poor air quality

Limits

[Standard screen](#) > [Main menu](#) > [Heating contractor](#) > [Limits](#)

 [Limits - details](#) [▶ 37]

- Setpoint limit, maximum
- Setpoint limit, minimum
- Supply air limit, max. temperature
- Supply air limit, minimum temperature
- Min. speed, supply fan
- Max. speed, supply fan

Air dampers

[Standard screen](#) > [Main menu](#) > [Heating contractor](#) > [Air dampers](#)

 [Air dampers - details](#) [▶ 38]

- Start delay for fan
- Stop delay air dampers

Temp. control

[Standard screen > Main menu > Heating contractor > Temperature control](#)

[☞ Temperature control - details \[▶ 40\]](#)

- Control type
- Setpoint deviation, offset, heating
- Setpoint deviation, offset, cooling
- Enable access to outside temp
- Enable acc. to outside temp - offset, heating
- Enable acc. to outside temp - offset, cooling
- Speed reduction - enable
- Speed reduction - delay
- GLT outside temperature
- Supply air minimum limit - enable
- Supply air minimum limit - delay
- Supply air minimum limit - restart interval
- Interlock between heating/cooling

Ice guard

[Standard screen > Main menu > Heating contractor > Ice guard](#)

[☞ Ice guard - details \[▶ 42\]](#)

- Exhaust air temperature limit
- Limit, outside temperature
- Enable winter start HR
- Enable defrost function

BMK Touch addressing

[Standard screen > Main menu > Heating contractor > BMK Touch addressing](#)

- Front mounting
- Wall mounting

BMK emulator

[Standard screen > Main menu > Heating contractor > BMK emulator](#)

Other...

[Standard screen > Main menu > Heating contractor > Other...](#)

[☞ Miscellaneous - details \[▶ 43\]](#)

- Interface BMS card
- BMS2 interface
- Transfer rate
- Address:
- BMK Touch key lock active
- New password
- Stop bit
- Parity
- Order number:
- BMK-F remote control available?
- Electric heating coil present?

- Filter pre-dryer present?
- Save customer settings
- Load customer settings
- Controller reconfiguration

8.1.8 Alarm management - details

General information

If a WOLF portal connection or an interface to the BMS connection has been configured, a reset of pending fault messages can be enabled via this interface.

Parameter	Setting range	Factory setting
Enable remote alarm reset	No / Yes	No

Filter monitor

Filters are monitored for contamination.

For systems with variable speed or multi-stage fans, the fan is switched to a predefined speed or stage for 30 s at a time that can be freely selected. A message is displayed (Filter contaminated) if the contact opens during this period. After 30 s, the system will continue to run in control mode. If the system is stopped at that time, the filter test will be carried out when the system starts again unless a special operating mode is enabled.

Parameter	Setting range	Factory setting
Interval	1 - 365 days	7 days
Time	0:00 - 23:59 h	5:00 h
Fan speed	20 - 100%	70%
Alarm delay, filter monitor	0 - 30 s	5 s
Start filter test	Yes / no	No

Alarm memory

The last 10 alarm messages are saved in a list in the order of their occurrence. These are displayed with the date and time of their occurrence. At the end of the alarm list, the alarm memory can be reset.

8.1.9 Heat generation - details

In situations such as retrofitting into an existing circuit, the output of the reheater coil can be limited continuously via the BMS if various consumers need to be excluded from simultaneous activity.

Parameter	Setting range	Factory setting
Output limit of electric heating coil	0 - 100%	100%

8.1.10 Maintenance - details

[Standard screen](#) > [Main menu](#) > [Heating contractor](#) > [Maintenance](#)

Settings and displays to assist in servicing the system.

Hours run

The number of operating hours for the entire system is recorded. A service message is triggered when a set limit has been exceeded. All hours run can be reset.

Sensor adjustment

Here, sensor corrections can be carried out.

Digital inputs

Here, all digital inputs (faults, operating messages) are displayed with their current status (contact closed or contact open).

Manual mode

✓ System is switched off

Here, every drive can be activated manually.

As a safety precaution, the parameters for activating the electric heating coil or the direct evaporator are only shown when the fan runs (in the case of single stage fans, this must receive a control signal of at least 2 V).

If open/close dampers are used, the fan activation parameters will only be displayed when the dampers are open.

Fieldbus - details

The supply air and extract air fans are connected to the control unit via Modbus so that the energy use of the components can be monitored. The communication status of the fans is displayed. A unique bus address can be assigned to a replacement fan.

Replacing and connecting the fan

1. Carry out a network scan.

⇒ The Modbus address is set to the factory setting of the fan manufacturer. Facilitates communication with the new replacement fan

2. Assign/set a new address for the fan: supply air fan (aMVxZU) = 11; extract air fan (aMVxAB) = 21

Parameter	Setting range	Factory setting
Supply air fan address (aMVxZU)	1 - 254	11
Extract air fan address (aMVxAB)	1 - 254	21
Enable network scan	Yes / no	no

8.1.11 Night ventilation - details

[Standard screen](#) > [Main menu](#) > [Heating contractor](#) > [Night ventilation](#)

✓ Outside and room temperature sensor installed.

Night ventilation can be activated via a parameter. In summer, cooling energy is saved with night ventilation by pre-cooling rooms at night (system switched off via manual mode, time program or BMS) with cool outdoor air for the following day. This function is active when the outside temperature exceeds an adjustable temperature (minimum outside temperature).

Night ventilation is activated if, under the above conditions, the room temperature exceeds an adjustable temperature (start value, room temperature), and the outside temperature < room temperature - delta outside temperature / room temperature (adjustable):

If the outdoor temperature sensor is installed in the appliance and no outdoor temperature is transmitted via the BMS, the appliance will switch on regardless of the outdoor temperature (since a comparison is not possible when the fans are switched off). Night ventilation will be disabled when the outside temperature falls below the set limit. The appliance will be switched on after the set interval has elapsed. Between the months of October and April, the start-up independent of the outside temperature can be deactivated.

- Outside/exhaust air damper open, mixed air damper closed

- Fans ON (with adjustable speed or stage)

Night ventilation remains active, until the room temperature < start value room temperature - differential room temperature or outside temperature \geq room temperature - (delta outside temperature / room temperature - differential delta outside temperature / room temperature).

Parameter	Setting range	Factory setting
Enable	Yes / no	Yes
Start value, room temperature	5 - 50 °C	22 °C
Differential	1 - 10 K	2 K
Delta outside temp. /room temp.	2 - 20 K	5 K
Enable from outside temp.	10 - 20 °C	15 °C
Fan speed supply air	20 - 100%	69%
Fan speed extract air	20 - 100%	76%
Night ventilation disabled October-April	Yes / no	Yes
Interval	0 - 9 hours	2 hrs

8.1.12 Air quality - details

[Standard screen](#) > [Main menu](#) > [Heating contractor](#) > [Air quality](#)

Air quality control can be activated in the standard settings. An air quality sensor (VOC or CO₂ sensor) then determines the air quality of the room air or the extract air. A drop in air quality results in an increase in the fan speed or in the selection of a higher fan stage. The fresh air proportion is increased by a constant opening of the outside air and exhaust air damper (if installed). As soon as the selected air quality limit (air quality start) is exceeded, the speed and the fresh air proportion increase up to the maximum set speed and the maximum selected fresh air proportion (air quality, maximum). The values for start and maximum are adjustable. When the actual air quality < "Air quality, start", the system returns to standard operation (time program or manual mode). A parameter can be configured to switch on the system starts when the air quality is poor.



INFO

Regular ventilation

Regularly ventilating the rooms or flushing the appliance with fresh air will increase the accuracy of the CO₂ sensor. We recommend opening all windows once a week for 15 - 20 minutes at a time or switching on the appliance when the room is unoccupied.

Parameter	Setting range	Factory setting
Control range, start (CO ₂)	0 - 2000 ppm	700 ppm
Control range, end (CO ₂)	0 - 2000 ppm	1000 ppm
Max speed	20 - 100%	76%
Automatic start with poor air quality	Yes / no	Yes

8.1.13 Limits - details

[Standard screen](#) > [Main menu](#) > [Heating contractor](#) > [Limits](#)

Limits can be defined for the temperature and speed of the air conditioning system via the following parameters.

Parameter	Setting range	Factory setting
Setpoint limit, maximum	22–70°C	28°C */29°C **
Setpoint limit, minimum	14–20°C */10°C **	16°C*/10°C **
Supply air limit, max. temperature	22–70°C	42°C
Supply air limit, minimum temperature	14–20°C	16°C*/10°C **
Min. speed, supply fan	1–100%	25%/35% ***
Max. speed, supply fan	1–100%	100%
Min. speed, extract fan	1–100%	25%/35% ***
Max. speed, extract fan	1–100%	100%

* In systems without room setpoint generator

** In systems with room setpoint generator

*** In systems with multi-stage or variable electric heating coils

8.1.14 Air dampers - details

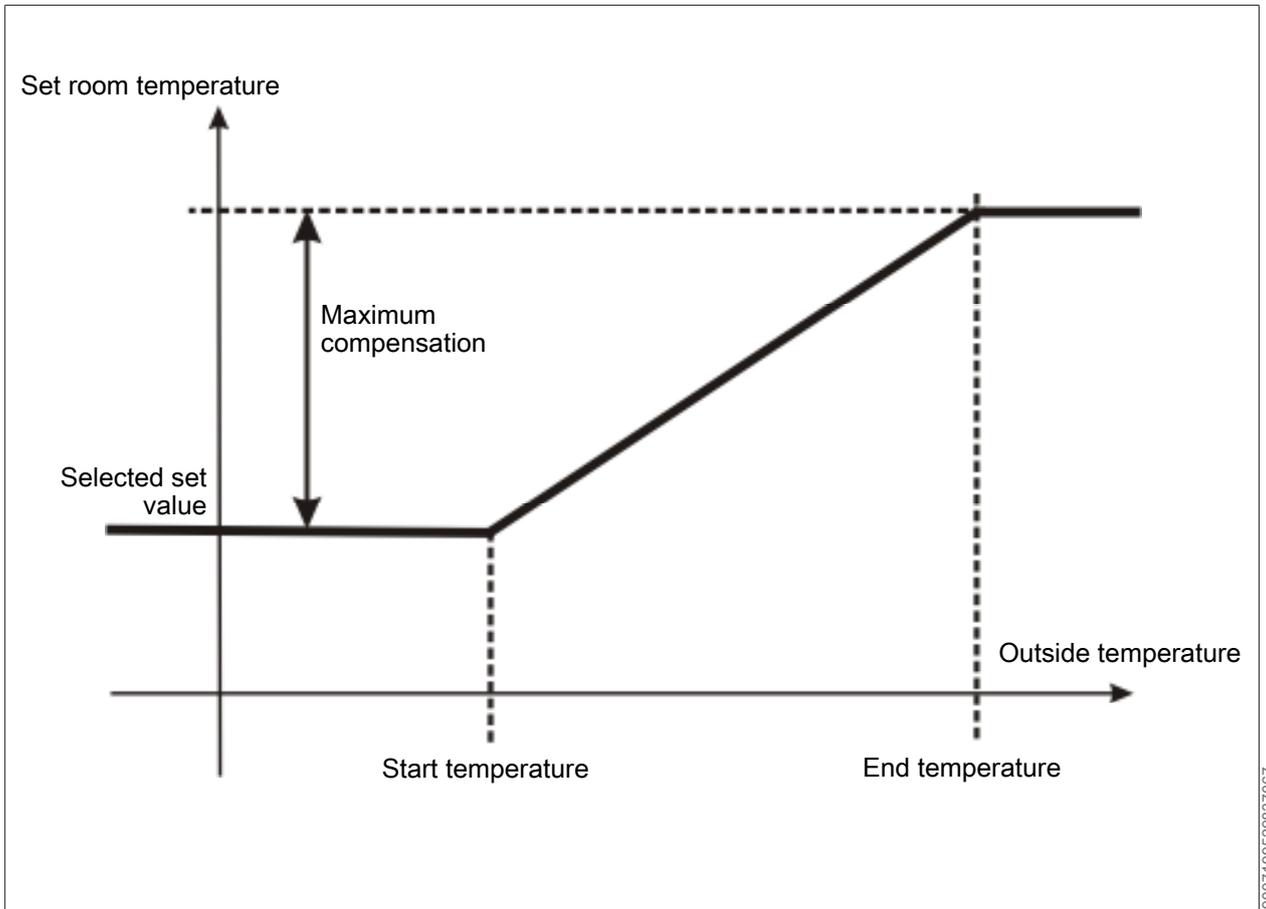
[Standard screen](#) > [Main menu](#) > [Heating contractor](#) > [Air dampers](#)

Parameter	Setting range	Factory setting
Start delay for fan	0 - 180 s	120 s
Stop delay air dampers	0 - 5 min.	0 min.

8.1.15 Compensation - details

[Standard screen](#) > [Main menu](#) > [Heating contractor](#) > [Compensation](#)

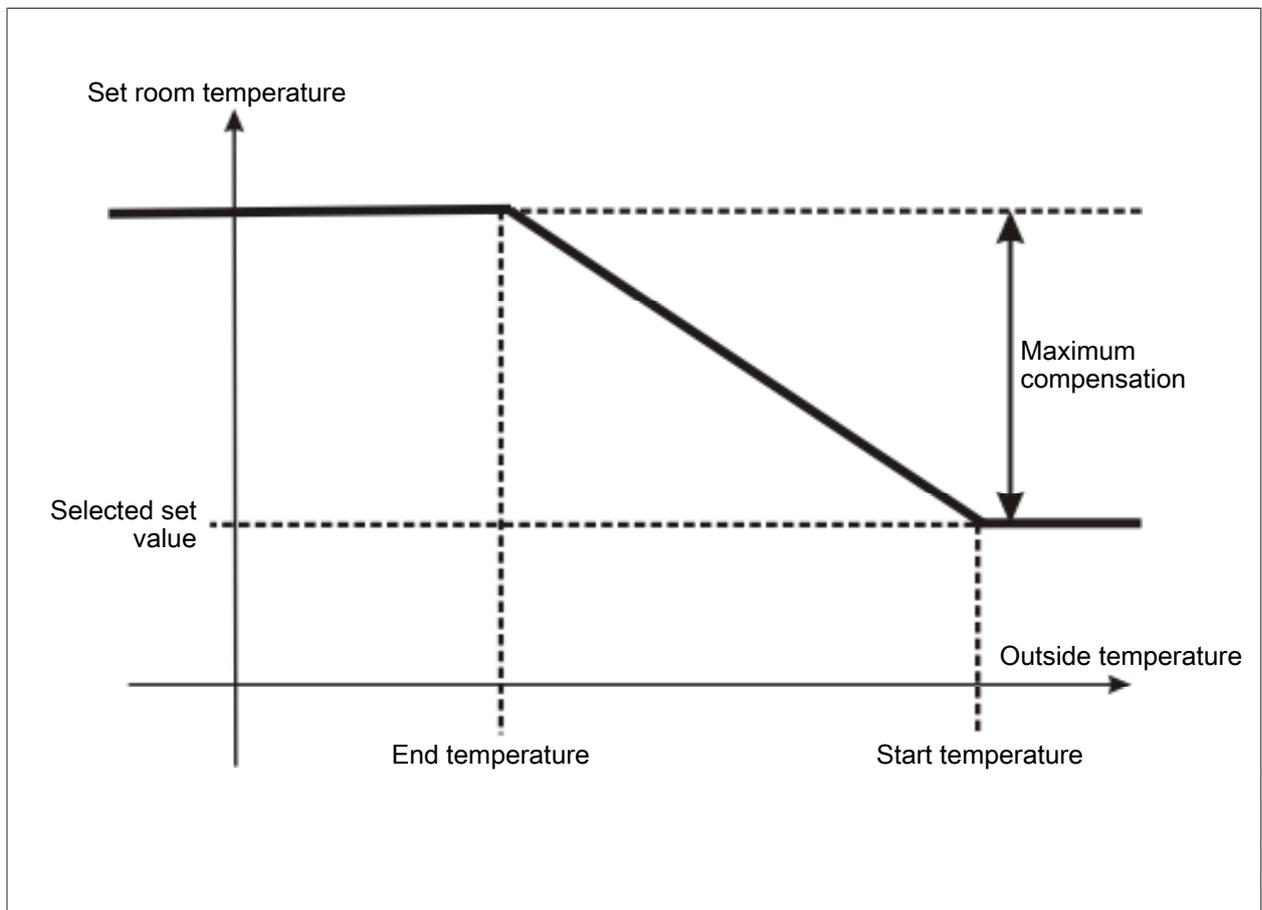
In cooling mode, the set room temperature is adjusted subject to outside temperature. In other words, at high outside temperatures, the room temperature is raised in accordance with these parameters. This prevents extreme temperature differentials between the room temperature and the outside temperature. This reduces the energy expended on cooling. When using a supply air temperature control unit, a reduction in the set temperature based on the outside temperature can be set to compensate for external heat loads.



If “Summer” = 0, this function is disabled (no compensation).

Parameter	Setting range	Factory setting
Summer	-4 - 4 K	0 K
Start at outside temp.	2 - 42 °C	24 °C
End at outside temp.	2 - 42 °C	36 °C

In heating mode, the set room temperature is adjusted subject to outside temperature. This increases the set room temperature when outside temperatures are very low.



If "Winter" = 0, this function is disabled (no compensation).

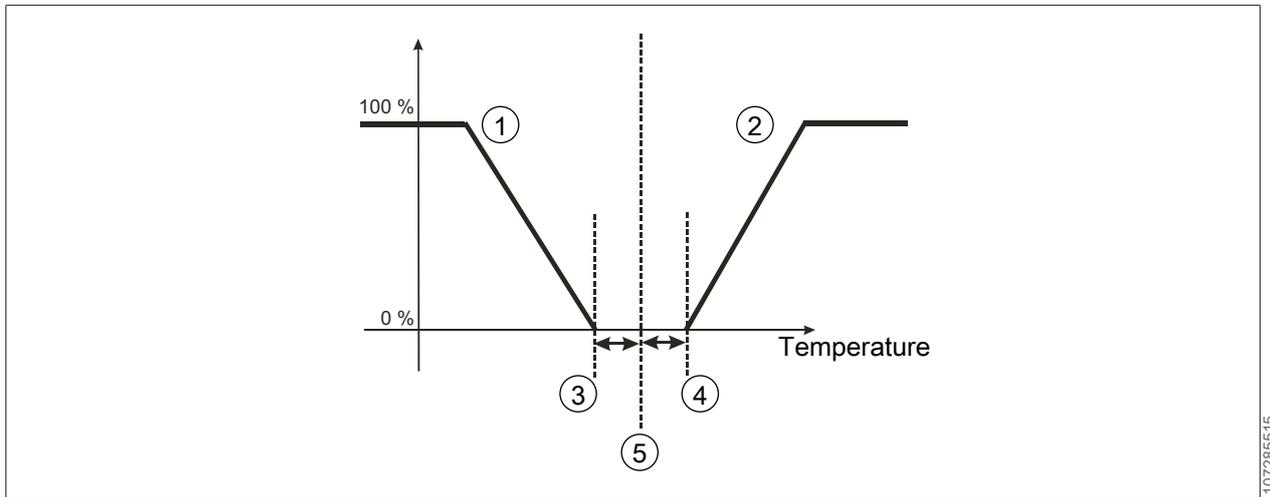
Parameter	Setting range	Factory setting
Winter	-4 - 4 K	0 K
Start at outside temp.	-15 - 15 °C	5 °C
End at outside temp.	-15 - 15 °C	-15 °C

8.1.16 Temperature control - details

[Standard screen](#) > [Main menu](#) > [Heating contractor](#) > [Temperature control](#)

Temperature control

Temperature control either utilises a supply air temperature control with a fixed setpoint for the supply air or room temperature control as room/(or extract air) supply air cascade. The supply air temperature setpoint for the room (or extract air) supply air cascade is determined using the deviation between the room setpoint and the actual room or extract air value. Minimum and maximum limit of the supply air are being maintained. A dead zone exists between the heating and cooling sequence. ON offset, heating and ON offset, cooling can be adjusted.



- 1 Heating
- 2 Cooling
- 3 Offset, heating
- 4 Offset, cooling
- 5 Setpoint

Weather-compensated enabling

In addition, the heating or cooling operation can be blocked subject to outside temperature. For example, if the outside temperature exceeds the total comprising the set room temperature and offset, heating (adjustable), then heating mode will be stopped. This means that the heating circuit pump or electric heating coil are switched off, the mixer closes and heat source demands are switched off.

Speed reduction:

If the supply air temperature does not achieve the minimum supply air limit within the set time or delay despite being at 100% heat output, the fan speed will be steadily reduced down to the set minimum speed. Any previously selected imbalance between supply and extract air will be maintained (e.g. through the heat recovery ice guard).

Outside temperature via BMS

If a BMS is installed, the outside temperature is recorded and made available. The captured value of the outside temperature sensor is primarily used. If the option “Outside temperature BMS” is enabled, the value specified via the BMS is adopted. There is no longer any need to connect an outside temperature sensor. If a value outside the valid value range is transmitted or the transmitted value does not change by at least 0.1 K within a day, an alarm is generated. As long as this alarm is active, the outside temperature is no longer taken into account for control mode.

Shutdown due to supply air minimum limit

If this function is enabled, the appliance will switch off after the set delay if the set minimum supply air temperature is not reached despite “speed reduction” and 100% heating demand. The appliance will be switched on after the set interval has elapsed.

Parameter	Setting range	Factory setting
Control type	Room supply air cascade / extract-supply air cascade / supply air control	Subject to order
Setpoint deviation, offset, heating	0–20 K	0 K
Setpoint deviation, offset, cooling	0–20 K	2 K
Interlock between heating/cooling	0–99 min	0 min
Offset, heating	-20 - 20 K	5 K
Offset, cooling	-20 - 20 K	5 K

Parameter	Setting range	Factory setting
Speed reduction enabling	Yes/no	Yes
Shutdown due to supply air minimum limit	Yes / no	Yes
Delay for	0–30 min	5 min
Outside temperature BMS enable	Yes/no	No
Interval restart	1 - 9 hours	2 hrs

8.1.17 Utilisation time extension - details

[Standard screen](#) > [Main menu](#) > [Heating contractor](#) > [Utilisation time extension](#)

The extension of utilisation time can be activated either in the standard settings or via the BMK-F remote control. When the extension of utilisation time is activated, the system runs for at least the time set. The extension time can be selected at the remote control, if the extension of utilisation time is activated via the BMK-F remote control. If the extension of utilisation time is activated whilst the system is shut down, it will start for the selected time. The setpoints last active will become active again.

Setback mode makes the stop times in the time program overlap subject to outside temperature. It can be enabled or disabled.

This function counteracts any formation of ice on the external units as moisture rising through the duct is permanently removed from the appliance.

This function will be active when it is enabled and when the outside temperature lies below the set limit.

During this time, the fans will run at the set minimum speed and the fresh air damper will be switched to minimum fresh air proportion. Special operating modes that increase the speed or fresh air proportion (air quality control, etc.) remain disabled during setback mode.

Parameter	Setting range	Factory setting
Extension time	5–720 min	30 min
Enable setback mode	Yes/no	No
Outside temperature limit for setback mode	-20–30°C	0°C

8.1.18 Peak ventilation - details

[Standard screen](#) > [Main menu](#) > [Heating contractor](#) > [Peak ventilation](#)

The peak ventilation can be activated either in the standard settings or via the BMK-F remote control. When peak ventilation is active, the fan speed is increased to a programmed value. The “Runtime” parameter will only be valid if the activation took place at the programming unit. The time can be selected at the remote control, if the activation was made at the BMK-F remote control.

Parameter	Setting range	Factory setting
Duration	5–300 min	20 min
Fan speed supply air	20 - 100%	69%
Fan speed extract air	20 - 100%	76%

8.1.19 Ice guard - details

[Standard screen](#) > [Main menu](#) > [Heating contractor](#) > [Ice guard](#)

In heat recovery systems using countercurrent plate heat exchangers or in run-around coil systems, a temperature sensor is fitted in the exhaust air path and is used to recognise if the system is icing up. Heat recovery control will be reduced if the exhaust air temperature falls below the set limit. Where an imbalance between the supply and extract air can be accepted (negative pressure generated inside the room), the supply air fan speed will initially be reduced to the maximum permissible imbalance. When flow rate imbalance is active, the entire air flow can still be routed via heat recovery, even when outside temperatures are relatively low.

All functions in the “Ice guard” menu only become active if the outside temperature is less than the outside temperature limit.



INFO

Air flow rate imbalance should be enabled only in consideration of local conditions (e.g. smoke extraction in open fireplaces).

Winter start HR

When winter start HR is enabled, the heat recovery system is preheated by first switching on the extract air fan for an adjustable period.

Defrost function HR

When enabling the defrost function, the heat recovery will be fully defrosted by letting the extract air fan run on for an adjustable period after shutdown.

Parameter	Setting range	Factory setting
Exhaust air temperature limit	-10 - 10 °C	3 °C
Limit, outside temperature	-20 - 10 °C	-3 °C
Enable air volume imbalance	Yes / no	no
Max. air volume imbalance	-30 - 0%	-30%
Enable winter start HR	Yes / no	no
Lead time winter start HR	0 - 10 min	2 min
Enable defrost function	Yes / no	no
Run-on time, defrost function	0 - 60 min	20 min
Extract air fan speed in Winter start/defrost function	0 - 100%	35%

8.1.20 Miscellaneous - details

[Standard screen](#) > [Main menu](#) > [Heating contractor](#) > [Other...](#)

User settings and interfaces can be adjusted and additional sensors can be configured later.

Password

The password for the contractor parameters can be matched to individual customer requirements.

BMK Touch / BMK key lock

If this parameter is set to “YES”, the key lock is enabled after 2 minutes if no actions are performed. Pressing and holding down the menu symbol on the BMK-Touch (for approx. 3 seconds) or the Esc key on the BMK cancels the key lock temporarily. To disable the key lock permanently, set this parameter to “NO”.

BMK-F key lock

Individual keys can be locked to restrict the function range of the remote control unit.



INFO

When using the BMK Touch, this can be done by selecting the emulator in the Contractor level.

BMS interfaces configuration

The BMS2 interface is set to Modbus RTU by default.

To connect via Modbus TCP, select BMS2 > Modbus TCP.

To connect via BACnet, select BMS2 > Bacnet-Pro.

If an interface is installed at the factory, the corresponding bus system will also be preconfigured. When the unit is commissioned, make any necessary changes to the transfer rate and the protocol settings (stop bit, parity). For additional information about the relevant data points and settings, please refer to the instructions for the interface in question.

WOLF portal connection configuration

To connect to the WOLF portal, select BMS2 > WOLF portal.

If multiple KLM controllers (max. 3) are connected via one WOLF Link pro, the controller addresses must be customised. Each KLM controller must have a unique address.

Optional entry of WOLF order number

The order number of the appliance can optionally be entered. This allows additional information to be called up if the unit is connected to the portal. The order number can be found on the type plate of the relevant unit.

Reconfiguration

Accessories can be reconfigured if needed.

If an electric heating coil is added in the outdoor air, select Filter pre-dryer > Yes.

If an electric heating coil is added in the supply air, select Electric heating coil > Yes.

If a BMK-F is added, select Remote control present > Yes.

Save/load parameter set

Customer-specific parameter settings can be saved (e.g. the condition of the system when commissioned) and reloaded when required. It is also possible to restore the factory settings.



INFO

It is not possible to load settings if the controller has been reconfigured because the internal data memory is cleared during reconfiguration.

Parameter overview

Parameter	Setting range	Factory setting
New password	0 - 9999	1234
Wolf order number	Can be freely configured	0000000000-00000
BMS2 interface	not configured / Wolf Portal / Modbus RTU / BACnet-Pro / Modbus TCP	Modbus RTU

Parameter	Setting range	Factory setting
Transfer rate	1200/2400/4800/9600/19200/ 38400	4800 9600 ¹⁾ 19200 ²⁾
BMS-Address	1 - 200	1
Stop bit	1 - 2	1 ¹⁾ 2 ²⁾
Parity	None/Even/Odd	None
Remote control present	Yes / no	no
Filter pre-dryer	Yes / no	no
El. heating coil	Yes / no	No

¹⁾ Factory setting for WOLF Portal

²⁾ Factory setting for Modbus RTU, Modbus TCP, BACnet-Pro

8.1.21 Specifications

BMK-Touch programming unit

Type	LCD TFT
Resolution	480 x 272 pixels
Display size	4.3"
Touchscreen	Resistive
Power supply	Mat. part no. 6660706, 6660707: via 6-pole RJ12 connector Mat. no. 6660708, 6660709: External supply 18/30 VDC, : DC voltage only
Maximum power consumption	3 W
Maximum distance to KLM	500 m with AWG22 twisted pair cable
IP rating	Mat. no. 6660706, 6660707: IP65 Mat. no. 6660708, 6660709: IP30
Operating conditions	-20–60°C, 85% rel. humidity, non-condensing
Storage conditions	-30–70°C, 85% rel. humidity, non-condensing

8.1.22 Fault messages

The LED bar (BMK Touch)/alarm key (BMK) flashes red to indicate that alarms are present.

ID	Alarm message	Effects	Cause	Remedy
AL16	High limit safety cut-out, electric heater bank	Air handling unit shuts down after a delay.	Electric heating coil temperature too high	Check heating coil; acknowledge fault message.
AL19	Fire alarm system responded	Depending on parameter setting, air handling unit shuts down or message only	FAS has responded	Acknowledge fault message.
AL20	Supply air temp sensor faulty or not connected	Air handling appliance shuts down.	Sensor defective or connection issues.	Check sensor and lead; acknowledge fault.
AL22	Room temperature sensor faulty or not connected	Night ventilation, backup mode heating/cooling functions and deactivation of air handling appliance if room temperature control is disabled.	Sensor defective or connection issues.	Check line. Test sensor. Acknowledge fault message if the air handling appliance is deactivated.
AL26	Outside temperature sensor faulty or not connected	Preheating program, night ventilation, backup mode heating/cooling, natural cooling control, energy optimised The functions of heat recovery control, set temperature compensation and enthalpy-controlled increase in fresh air proportion are deactivated for dehumidification.	Sensor defective or connection issues.	Check line. Test sensor.
AL28	Icing-up temp sensor faulty or not connected	Heat recovery switched off or does not control	Sensor defective or connection issues.	Check line. Test sensor.
AL57	Remote control not connected or databus fault	Remote control disabled	Remote control defective; no power supply or bus cable defective.	Check remote control and its wiring
AL59	System service required	Display only	Component hours run exceeded	Service relevant components; reset hours run or increase limit for next maintenance.
AL80	BMS outside temperature implausible	Preheating program, night ventilation, backup mode heating/cooling, natural cooling control, energy optimised control of mixed air damper, control of heat recovery, set temperature compensation and enthalpy-controlled	Value outside the valid entry range or no value change for more than 24 hours	Check the BMS connection, addressing and logic.

ID	Alarm message	Effects	Cause	Remedy
		increase in fresh air proportion functions deactivated for dehumidification.		
AL103	Supply air fan (aM-VxZU) data bus fault	The system shuts down	Bus connection to fan faulty;	Check bus connection; acknowledge fault message.
AL107	Extract air fan (aM-VxAB) data bus fault	The system shuts down	Bus connection to fan faulty;	Check bus connection. Acknowledge fault message.
AL111	Supply air fan fault (aMVxZU)	The system shuts down	Fault detected by motor electronics;	Check motor; acknowledge fault message.
AL115	Extract air fan fault (aMVxAB)	The system shuts down	Fault detected by motor electronics;	Check motor; acknowledge fault message.
AL119	Condensate pump fault	Air handling appliance deactivated.	Condensate pump is defective.	Check condensate pump, replace if necessary.

8.2 BMK-F remote control

8.2.1 Overview



ON/OFF key The system can be switched on and off with the ON / OFF key. When the system is shut down, the indication “OFF” will be shown on the display instead of the set temperature. Special operating modes (back-up mode etc.) remain active.

Manual/auto key The manual / auto key enables a changeover between manual mode and automatic mode. Manual mode means operation with the values selected in the standard settings without a time limit. Automatic mode means operation with the selec-

ted values from the selected time program and the corresponding set values. Subject to the currently active operating mode, the auto symbol for automatic mode or for manual mode will be displayed.

Speed key

Pressing the speed key allows a change to the fan stage (up to 3 stages). In the case of variable speed fans, the speed is also defaulted in stages (slow – medium – fast). The speeds corresponding to these 3 stages can be adjusted at the BMK programming unit as parameters (standard settings).

The selected speed remains active until a correction is made, either manually or by the time program.

Fresh air key

With the fresh air key, the fresh air proportion can be changed (except whilst air quality control, natural cooling and mixed air damper control with modulating reduction are active). After pressing this key, the current fresh air proportion is displayed in % on the large display. Keys “Increase values” or “Reduce values” enable the fresh air proportion to be changed. The system automatically returns to the standard display if no entry is made for 2 s. The selected fresh air proportion remains active until a correction is made, either manually or by the time program.

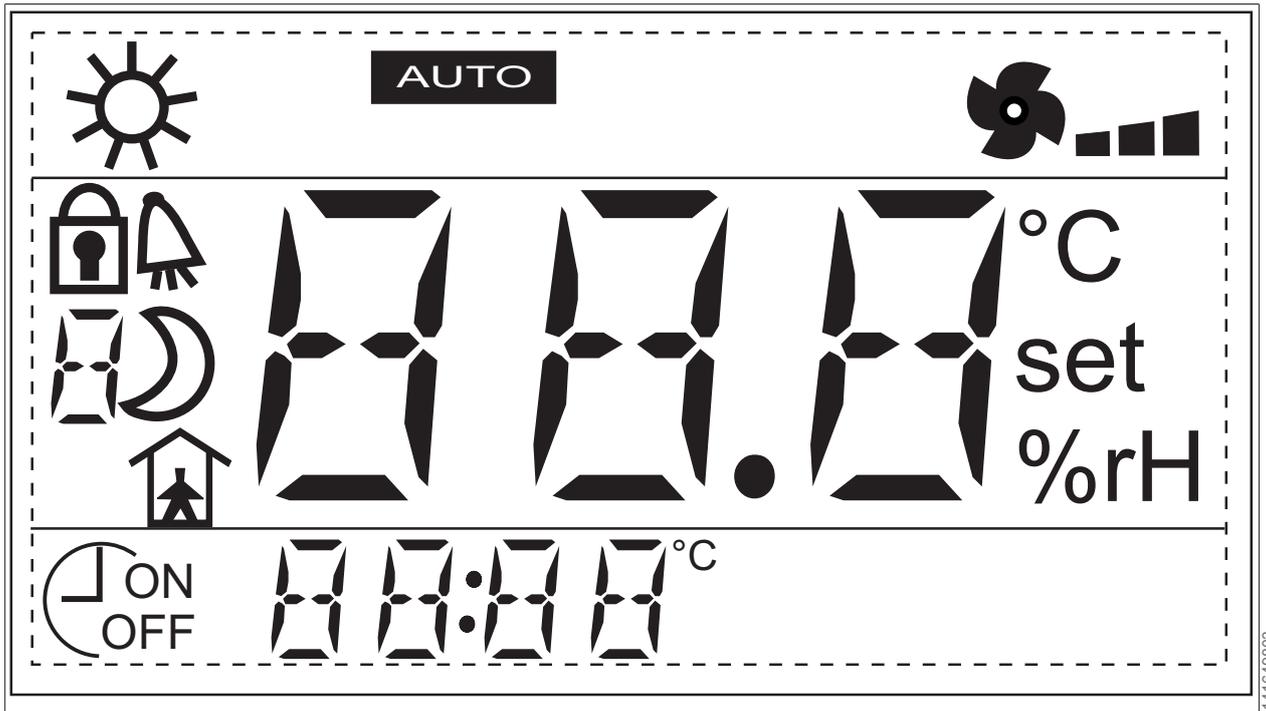
Extension of utilisation time key

This key can be used to activate an extension of utilisation time. During the extension of utilisation time, the system operates with the operating data from the last used time program. After activation, the clock symbol will be superimposed. Pressing this key several times determines the duration of the extension of utilisation time. The small display shows the duration in hours together with the “HR” indication. With each push, the duration increases by one hour (up to 9 h).

Intermittent ventilation key

Pressing this key activates peak ventilation. Active peak ventilation is indicated in the standard display by a flashing house symbol. During peak ventilation, the system operates with a programmed fresh air proportion and fan speed or fan stage. Peak ventilation can only be activated during a time program. As for the extension of utilisation time, the peak ventilation runtime can be selected as follows: After pressing the key, the clock symbol will be superimposed. Pressing this key several times determines the duration of peak ventilation. The small display shows the duration. With each push, the duration increases by 1 / 4 hour (up to 3 3 / 4 h). Peak ventilation ends after expiry of the time or when another operating mode is activated.

8.2.2 Standard display BMK- F



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 Manual mode active

 Time program active

 Fan stages

 Ext. utilisation time active



 Duration, ext. utilisation time / peak ventilation

 Peak ventilation active

 Fault

 Key lock active

 Current set temperature

8.3 BMS / Wolf portal interfaces

8.3.1 Interface configuration

Standard screen > Main menu > Heating contractor > Other

1. Select parameter BMS2 interface.
2. Select Modbus RTU, Wolf Portal, BACnet-Pro or Modbus TCP.

The following protocol settings are set automatically and can be adjusted if required.

Parameter	Setting range	Factory setting
Transfer rate	1200 / 2400 / 4800 / 9600 / 19200 bit/s	19200 bit/s for "Mod- bus RTU", "BACnet-Pro", "Modbus TCP" 9600 bit/s for "Wolf Portal"
BMS address	1 - 200	1
Stop bit	1 - 2	1 for "WOLF Portal" 2 for "Modbus RTU", "BACnet-Pro", "Modbus TCP"
Parity	none / even / odd	None

8.3.2 Read access

Via the ModBus interface, it is possible to gain read and write access to the air conditioning control unit.

With read access, actual and setpoints can be checked, subject to operating mode, via a Modbus network. The values can be selected with function code 1 (read coils) or function code 3 (read holding register).

8.3.3 Operating data read access

The following data is available for read access:

Description	Unit	Factor	Type	Index
Central fault	-	-	Coil	1
External system enable	-	-	Coil	2
System status	-	-	Coil	5
Operating status	-	-	Coil	117
Outdoor/supply air damper (open/closed servomotor)	-	-	Coil	63
Exhaust/extract air damper (open/closed servomotor)	-	-	Coil	64
Filter pre-dryer ²⁾	-	-	Coil	150
Supply air temperature	° C	0.1	Register	1
Outside temperature	° C	0.1	Register	2
Room temperature	° C	0.1	Register	3
Current setpoint, supply air temperature	° C	0.1	Register	10
Current setpoint, temperature	° C	0.1	Register	11
Icing-up sensor	° C	0.1	Register	27
Heating actuating signal	%	0.1	Register	28

Description	Unit	Factor	Type	Index
Actuating signal, HR	%	0.1	Register	30
Operating mode	-	-	Register	5007
Air quality (CO ₂)	ppm	0.1	Register	5002

Values with a factor = 0.1 have one decimal place. Multiply the transferred value by the factor 0.1.

Example: Transferred value for supply air temperature = 243 → actual value = 24.3 °C.

For values with a factor = 1, the transferred value equals the actual value (no decimal place).

Example: Transferred value for fresh air proportion = 45 → actual value = 45%.

For values with a factor = 10, the transferred value needs to be multiplied by 10.

Example: Transferred value for supply air flow rate = 125 → actual value = 1250 m³/h

Codes

Parameter	Value	Meaning
Current setpoint, fan stage	0	Fans Off
	1	Fans on (single stage and variable fans) Fans stage 1 on (multi-stage fans)
	2	Fans stage 2 On
	3	Fans stage 3 On
Operating mode	0	Manual mode
	1	7-day program
	2	BMS mode
System status	0	Standby
	1	Ready for operation
Operating status	0	System not in use
	1	System in use

8.3.4 Special operating modes

Any special operating modes which are enabled will be transferred as described below. Function descriptions of the special operating modes can be found in the WRS-K installation and operating instructions.

Description	Type	Index
Holiday program	Coil	6
Filter test	Coil	7
Night vent.	Coil	9
Backup mode	Coil	10
Utilisation time extension	Coil	11
Peak ventilation	Coil	12
Air quality control	Coil	15
Run-on	Coil	17
HR-Ice guard	Coil	101
Speed reduction	Coil	102

Description	Type	Index
Setback mode	Coil	112
Winter start HR	Coil	113
Supply air minimum limit	Coil	178

Codes

Value	Meaning
0	Special operating mode not enabled
1	Special operating mode enabled



INFO

Several special operating modes can be enabled at the same time.

8.3.5 Alarms

Any enabled alarms will be transferred as described below. Descriptions of the causes and possible solutions can be found in the WRS-K installation and operating instructions.

ID	Description	Type	Index
AL16	High limit safety cut-out, electric heater bank	Coil	34
AL19	Alarm, fire alarm system	Coil	37
AL20	Supply air temp sensor faulty or not connected	Coil	38
AL26	Outside temperature sensor faulty or not connected	Coil	44
AL50	Supply air fan fault	Coil	48
AL51	Extract air fan fault	Coil	49
AL57	Remote control not connected or databus fault	Coil	51
AL59	Maintenance required	Coil	52
AL84	Outside/supply air filter 1 contaminated ²⁾	Coil	166
AL85	Outside/supply air filter 2 contaminated ²⁾	Coil	167
AL119	Condensate pump fault	Coil	193
AL136	Air quality sensor faulty or not connected	Coil	95

Codes

Value	Meaning
0	Alarm disabled
1	Alarm enabled



INFO

Several alarms can be enabled at the same time. An alarm remains enabled until it is acknowledged at the BMK programming unit.

8.3.6 Write access

With write access, setpoints can be specified or adjusted, subject to operating mode, via a Modbus network. In addition, the system can be switched on or off and the operating mode specified.

For safety reasons, all variables that are available for BMS write access are monitored regarding their min./max. limits. If a value outside the valid value range is sent, the value is rejected and the original value is retained.

These values can be written with function code 6 (write single register) or function code 16 (write multiple registers).

8.3.7 Operating data write access

The following data is available for write access:

Description	Unit	Factor	Type	Index
BMS temperature setpoint	°C	0.1	Register	15
BMS supply air fan speed setpoint	%	0.1	Register	16
BMS extract air fan speed setpoint	%	0.1	Register	17
Fan mode setpoint (stage or ON/OFF)	-	-	Register	5015
Set temperature, offset	K	0.1	Register	18
Offset set speed, supply air fan	%	0.1	Register	19
Extract air fan speed setpoint offset	%	0.1	Register	20
Operating mode	-	-	Register	5007
Outside temperature from BMS	°C	0.1	Register	37
Maximum output - electric heating coil	%	1	Register	5056
BMS alarm reset*	-	-	Coil	90

* Must be enabled using a Contractor parameter, see [Alarm management - details \[▶ 35\]](#)

Values with a factor = 0.1 are transferred with a decimal place. The required value equals the specified value times 0.1.

Example: Desired value for set temperature = 24.3 °C → value to be specified = 243.

For values with a factor = 1, the value to be specified equals the required value (no decimal place).

Example: Desired value for set fresh air proportion = 45% → value to be specified = 45.

For values with a factor = 10, the required value equals the value to be specified multiplied by 10.

Example: Desired value for set flow rate, supply air = 1300 m³/h → value to be specified = 130.



INFO

Subject to the implementation of the Modbus connection, it may be necessary to add the value of 1 to the index.

8.3.8 Manual mode/7-day program

In manual mode or with a 7-day program enabled, the setpoints can be adjusted via the offset variables. The system runs as specified by manual mode or the 7-day program.

The following variables are effective:



INFO

Any adjustment of the setpoints is always relative to the setpoints selected for manual mode or the 7-day program! For systems with active setpoint generators, the set temperature cannot be adjusted via the interface.

Systems with BMK-F remote control:

Adjusting the set temperature:

If the set value is adjusted via the ModBus interface after the set value has been altered via the remote control, the ModBus interface switches the system to the value set for manual mode or the 7-day program plus offset.

Example:

Manual mode setpoint = 21 °C, setpoint adjusted to 23 °C via BMK-F.

If an offset = -1 K is now specified, a new setpoint of 20 °C (21 °C - 1 K) will be activated.

Adjusting the set speed/pressure/flow rate:

The setpoints for speed, pressure or flow rate can be adjusted in 3 stages using the remote control (see WRS-K installation and operating instructions). Here, the setpoint is altered according to the values specified in the standard settings for supply air and extract air.

If a setpoint is adjusted via the ModBus interface for supply air or extract air after changing a setpoint using the remote control, the ModBus interface for supply air and extract air switches the system to the values set for manual mode or the 7-day program plus offset.

Example:

Speed setpoint for supply air in manual mode = 50%, speed setpoint for extract air in manual mode = 45%, speed setpoints changed to 60% (supply air) and 55% (extract air) via BMK-F.

If an offset of 30% is then specified for the supply air speed but no offset is set for the extract air fan, new setpoints of 80% (50% + 30%) for the supply air fan and 45% (= setpoint for manual mode) for the extract air fan will be enabled.

8.3.9 BMS mode

In BMS mode, all setpoints are specified via the Modbus interface. The system is also switched on and off via the Modbus interface.

The following variables are effective:

“BMS fan mode setpoint” is used to switch on the fans. This activates the system with the setpoints specified via the Modbus interface:

Systems with BMK-F remote control:

Set temperature:

If the setpoint has been altered using the remote control and the value of the temperature setpoint is changed, a new setpoint will be adopted via the ModBus interface.

Speed / pressure / flow rate setpoint:

If the setpoint has been altered using the remote control and the value in question is changed, a new setpoint specification will be adopted via the ModBus interface. As soon as a new setpoint is specified for supply air or extract air, the supply air and extract air setpoints that were specified via the Modbus interface will be activated.

If the setpoint for the supply air speed or supply air pressure is set to 0, the setpoint for the extract air speed is also set to 0.

8.3.10 outside temperature specification via BMS

If the option "Outside temperature BMS" is enabled via the contractor menu, the outside temperature value can be specified via the BMS.

See [☞ Temperature control - details \[▶ 40\]](#)

8.3.11 Remote alarm reset

If the option is enabled via the contractor menu, an alarm reset can be performed using the Modbus RTU interface.

See [☞ Alarm management - details \[▶ 35\]](#)



INFO

Fault messages

The root cause of any fault message must be determined immediately.

8.3.12 Output limit of electric heating coil

The output limit can be continuously adjusted if necessary. The reheater coil will be set no higher than the set value.

To avoid a memory fault due to a large number of write operations, this parameter is stored in the non-volatile memory of the controller. In order to prevent a malfunction after a power failure (value would be 0% afterwards), the value is written to an auxiliary variable in the non-volatile memory of the controller every hour. This value will be applied after power is restored as long as no new value is sent.

8.3.13 Specifications

Modbus RTU interface

Protocol	Modbus slave RTU, 8 data bits, stop bits ¹⁾ , parity ¹⁾
Maximum baud rate	19200
Power supply	Via KLM controller
Cable	AWG 20/22 screened
Maximum cable length	1000 m

¹⁾ Adjustable

9 Maintenance

9.1 General information about maintenance



DANGER

Risk of electrical voltage even when the ON/OFF switch is set to OFF

Danger of death from electrocution

1. Do not touch the EC fans for five minutes after disconnecting the power across all poles.
 2. Use a rubber mat if working on the appliance when it is electrically charged.
-



DANGER

Cut injuries by rotating parts

Danger of severe to fatal injuries from rotating fans or moving dampers.

1. Secure the unit isolator to prevent restarting.
 2. Only open the inspection doors after the fans have come to a complete stop.
-



WARNING

Component swivels downwards

Risk of injury to head and body

- ▶ Do not stand or walk directly below the component.
-

9.2 Decommissioning

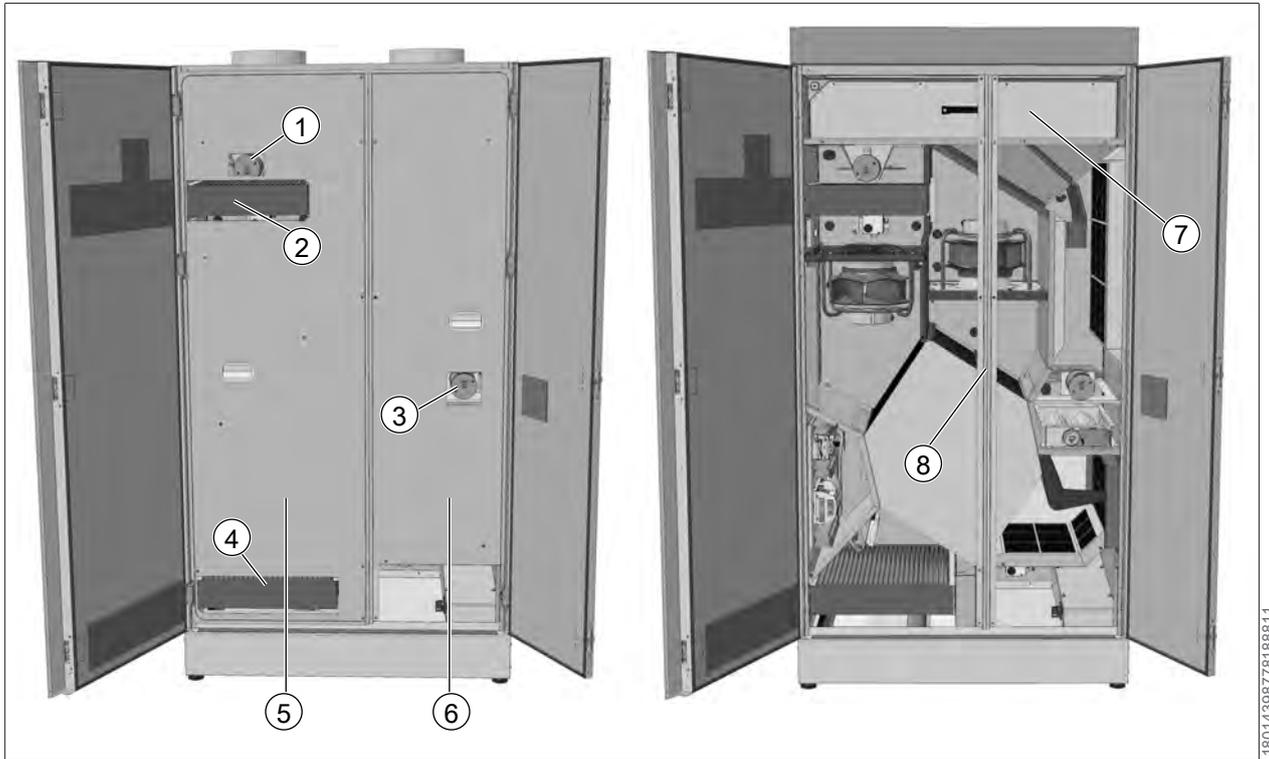


DANGER

Electrical voltage

Even with the mains isolator switched off, the power supply terminals will still be 'live'

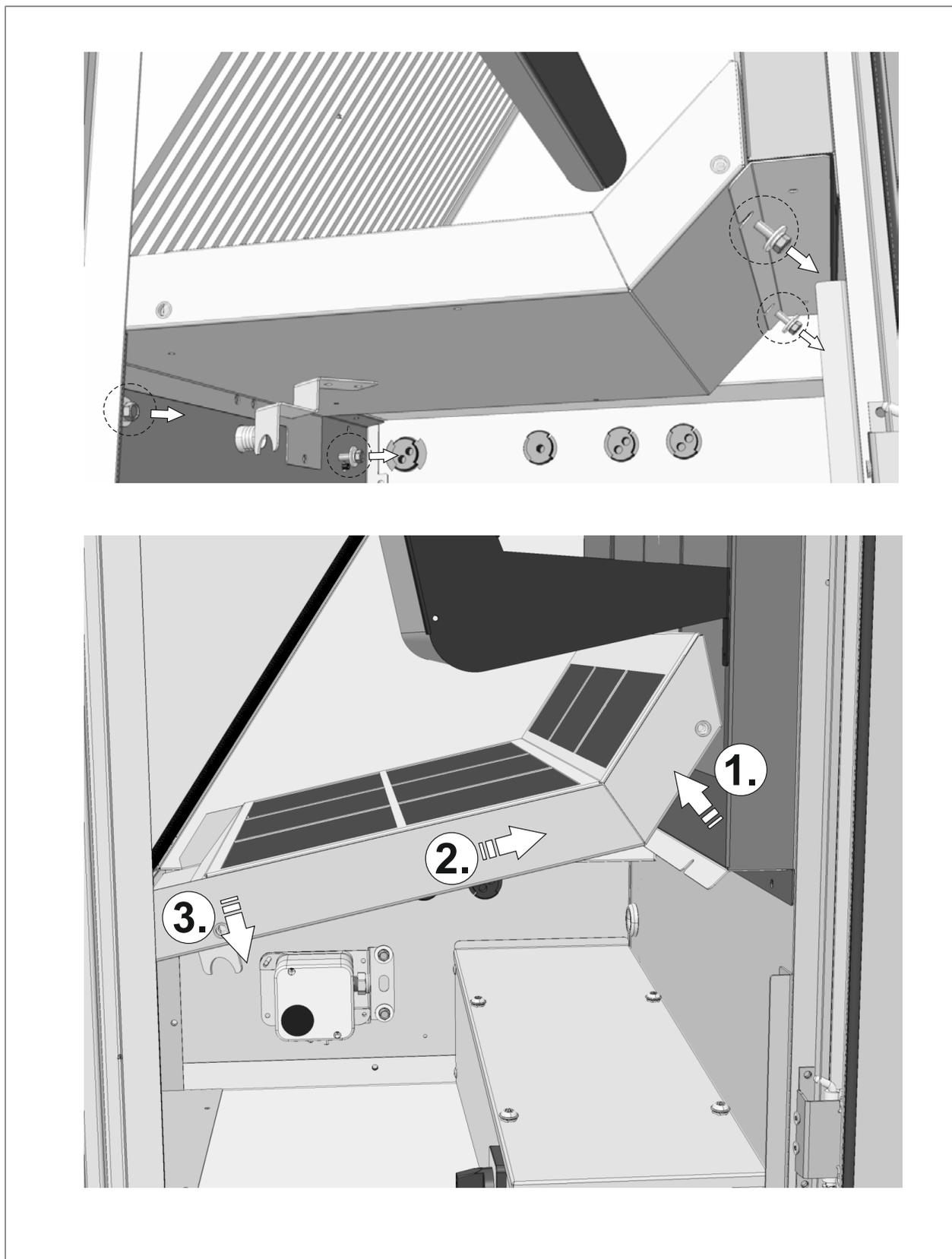
1. Turn off the main switch/repair switch of the appliance.
 - ⇒ Appliance is de-energised after 5 minutes
 - ⇒ Fans come to standstill after 2 minutes
2. Maintenance: remove left and right bulkhead plate
3. Extensive work on exhaust air fan: Remove middle strut



- | | |
|---|---|
| 1 Preheating coil high limit safety cut-out (STB) | 2 Outdoor air filter |
| 3 Reheater coil high limit safety cut-out (STB) | 4 Extract air filter |
| 5 Remove left partition panel 10 x M6 countersunk screw | 6 Remove right partition panel 5 x M6 countersunk screw |
| 7 Remove inspection cover 5 x M6 countersunk screw | 8 Remove intermediate bar 2 x M6 countersunk screw |

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9.3 Commissioning/accessibility of junction box



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9.4 Hygiene checklist

Regularly check that the ventilation unit is functioning correctly. Replace the air filters in the unit at least once a year.

Wear a suitable dust mask when handling the air filters. Dispose of the air filters in accordance with local regulations.

Activity	Action, if required	1	3	6	12	24
		Months				
Hygiene inspection						X
Outdoor air intakes						
Check for soiling, damage and corrosion	Clean and repair					X
Structural units/appliance housing						
Check for soiling, damage and corrosion on the air side	Clean and repair					X
Check casing for contamination, damage and corrosion	Clean and repair					X
Air vents						
Check air vents, integral perforated plates, wire mesh or sieves for soiling, damage and corrosion (spot check)	Clean or replace					X
Spot check filter	Replace					X
Spot-check indoor air vents and extract air intakes for solid deposits	Clean					X
Air filters						
Check for impermissible soiling, damage (leaks, damp patches) and odours	Replace affected air filters (never operate the system without filters)		X			
Longest filter replacement interval						X
Air ducts						
Check accessible air duct sections for damage	Repair					X
Check inner air duct surface for contamination, corrosion and condensation at two or three representative points	Inspect the duct network at further points and decide whether cleaning is necessary (not only the visible areas)					X
Fan						
Check for soiling, damage and corrosion	Clean and repair					X
Heat exchanger (including heat recovery)						
Visual inspection of air/air plate heat exchanger for contamination, damage and corrosion	Visual inspection					X
	Clean, remove if necessary					X
Heating coil: Check for contamination, damage, corrosion and tightness	Clean and repair					X
Check condensate pan for contamination, corrosion, damage and leaks (at the beginning of winter)	Clean and repair		X			

Activity	Action, if required	1	3	6	12	24
		Months				
Check the function of the drain and trap	Clean and repair		X			
Check the function of the condensate pump at the beginning of winter (manually fill condensate pan and check it is working properly)	Clean or replace					X
Clean the float switch at the beginning of winter	Clean and repair					X

9.5 Fan motor unit

1. Motor and bearing are maintenance-free
2. If necessary, clean the impeller with a soapy solution.



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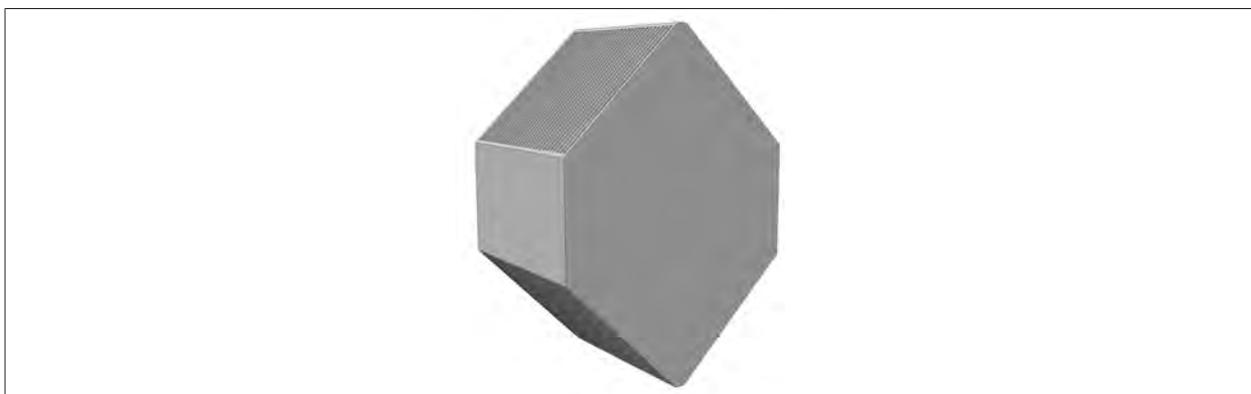


NOTE

Central fault message

- ▶ Check that the test lead is seated firmly at the test connector on the inlet nozzle.

9.6 Countercurrent plate heat exchanger (CC-PHE)



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**NOTE****Mechanical faults**

Cleaning methods that use high pressure (e.g. steam jet / high pressure washer) carry a risk of mechanically destroying the countercurrent plate heat exchanger

1. Vacuum, taking care not to bend the fins.
2. Clean using water or soapy water (non-pressurised).

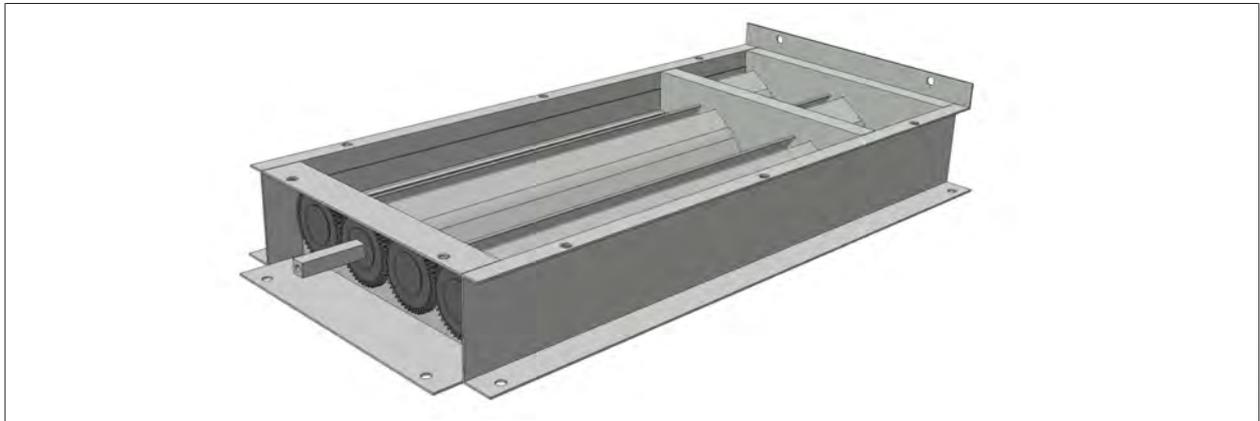
9.7 Electric preheating coil / electric reheating coil (accessory)**NOTE****Mechanical destruction of the electric heater coil**

Cleaning methods that use high pressure carry a risk of mechanically destroying the electric heater coil.

1. Vacuum, taking care not to damage the heating coils.
2. Blow off using compressed air at max. 1 bar.

9.8 Bypass damper and outdoor air/exhaust damper

1. Check the dampers for ease of movement.
2. Never lubricate the dampers. This could destroy the plastic used and compromise the damper function.
3. To clean, wipe down with a soapy solution; otherwise maintenance-free.



9.9 Compact filter

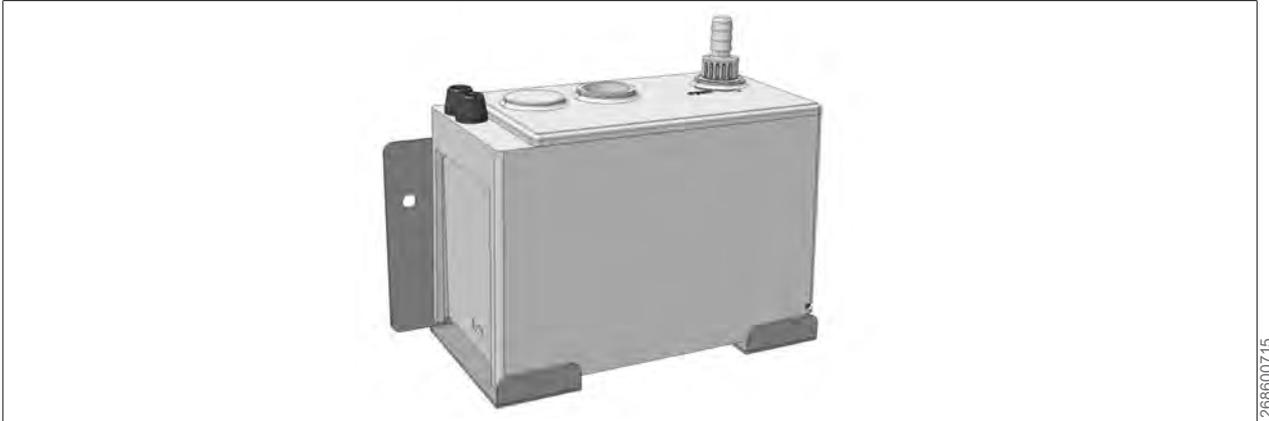
The compact filters are not renewable.

1. Replace when dirty or no later than after 12 months.
2. To change the compact filters, pull them out once the left inspection doors have been opened (see "Spare parts").



9.10 Condensate pump (accessory)

1. Check the condensate pump for contamination at regular intervals.
2. Check the float switch for easy movement and clean it, if necessary. (see also the special condensate pump instructions)



9.11 Condensate container with float switch (accessory)

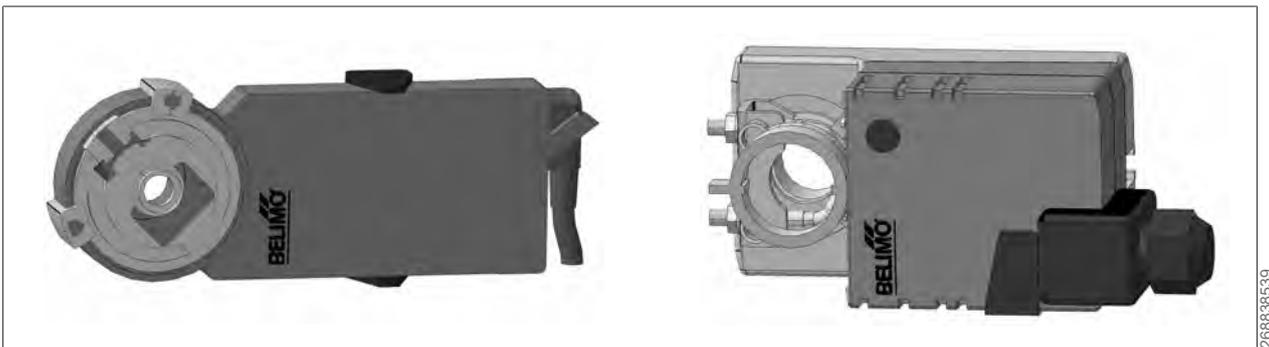
1. When the container is full (capacity: 1.8 litres), empty it by hand and return it.
2. Check the condensate container and float switch for soiling at regular intervals.
3. Check the float switch for easy movement and clean it, if necessary.



9.12 Servomotor of the outdoor air/exhaust air damper and bypass damper

The motor requires no maintenance.

- ▶ At regular intervals, check that the connection from the servomotor to the damper linkage is firmly seated.

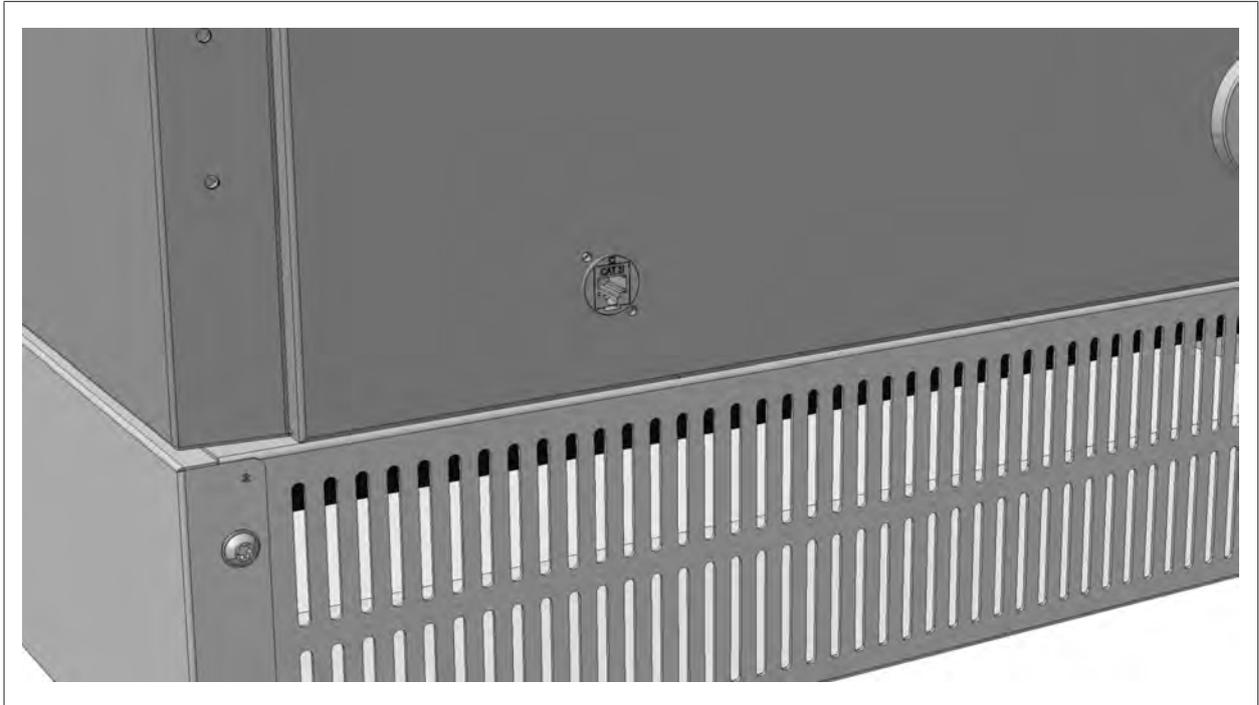


9.13 Duct connections (onsite)

The appliance connectors are round.

1. Connect the round ducts directly to the pipe connectors.
2. Insulate the ducts in accordance with applicable regulations and industry standards.

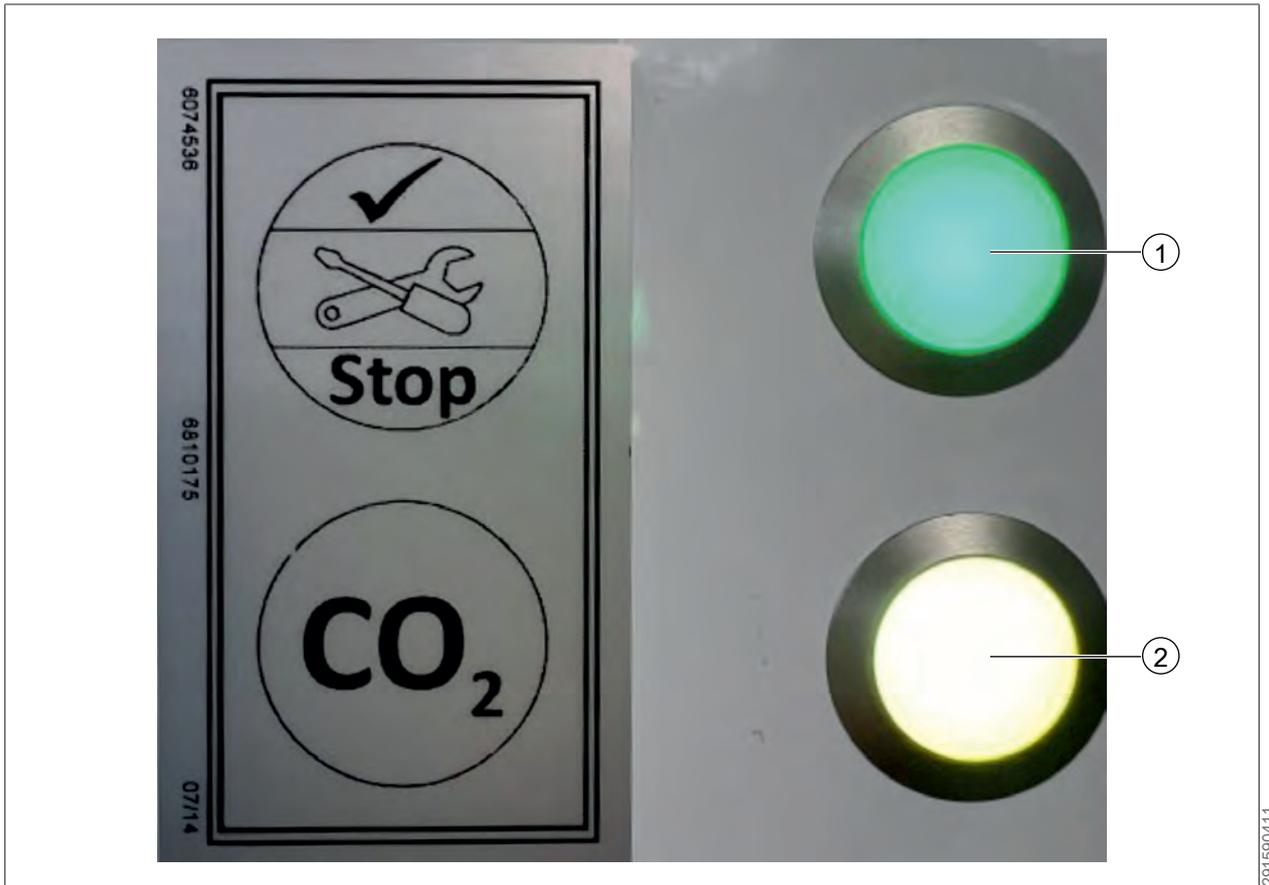
9.14 Service connection for BMK Touch



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Connection for BMK Touch front-mounted programming unit for temporary operation (programming unit is only plugged in when an operation is carried out, e.g. during maintenance)

9.15 Operating light and CO2 light



1 Operating light

2 CO2 light

Operating light:

- Red Unit not in operation due to a fault
- Yellow Unit in operation - warning message (e.g. filter change)
- Green No fault

CO2 light (indicates CO2 level):

- Red > 2000 ppm
- Yellow > 1000 ppm to ≤ 2000 ppm
- Green ≤ 1000 ppm

10 Recycling and disposal



DANGER

Electrical voltage

Danger of death from electrocution

► The heat generator may only be disconnected from the mains power by a contractor.

- When the appliance reaches the end of its service life, it may only be dismantled by qualified personnel.
- Before starting to dismantle the appliance, disconnect the power supply.
- Power cables must be removed by qualified electricians.
- Sort and dispose of metal and plastic parts according to material types and in compliance with local regulations.
- Dispose of electrical and electronic components as electrical waste.



Do not dispose of as household waste!

- In accordance with the Waste Disposal Act, the following components must be disposed of or recycled in an environmentally compatible manner by means of appropriate collection points:
 - Old appliance
 - Wearing parts
 - Defective components
 - Electrical or electronic waste
 - Environmentally hazardous liquids and oils

Environmentally compatible means separated by material groups to ensure the greatest possible recyclability of the basic materials with the minimum environmental impact.

1. Dispose of packaging made of cardboard, recyclable plastics and synthetic filler materials in an environmentally compatible manner through appropriate recycling systems or a recycling centre.
2. Please observe the applicable national and local regulations

11 Specifications

11.1 General

	Unit	CGL 2 edu		
Nominal flow rate	m ³ /h	350 - 1000		
Maximum flow rate	m ³ /h	1100		
Flow rate at 35 dB(A) sound pressure level*	m ³ /h	930		
Flow rate	m ³ /h	600	800	1000
Sound pressure level* (including intake silencer and exhaust module with ventilation grilles, 0 Pa ext. pressure)	dB(A)	28	32	37
Power consumption (including intake silencer and exhaust module with ventilation grilles, 0 Pa ext. pressure)	W	110	197	340
Outdoor air filter as per ISO 16890		ISO ePM1 55%		
Extract air filter as per ISO 16890		ISO ePM10 60%		
Optional 2nd filter stage in supply air as per ISO 16890		ISO ePM1 80%		
Electrical connections				
Mains voltage	VAC	230 (50/60 Hz)		
Max. power and current consumption per fan	W / A	280 / 1.25		
Max. power and current consumption per heating coil	W / A	1000 / 4.5		
Max. power and current consumption	W / A	2800 / 12.0		
Dimensions				
Height (including intake silencer and exhaust module)	mm	2133		
Width	mm	1070		
Depth	mm	620		
Air duct connection		DN250		
Weight of standard unit (including intake silencer and discharge module with ventilation grilles)	kg	283		
Colour of the casing	RAL	9016 (traffic white)		

* Determined by TÜV Süd Industrie Service GmbH at a distance of 1 m as per DIN EN ISO 11203

11.2 Heat recovery data with aluminium plate heat exchanger

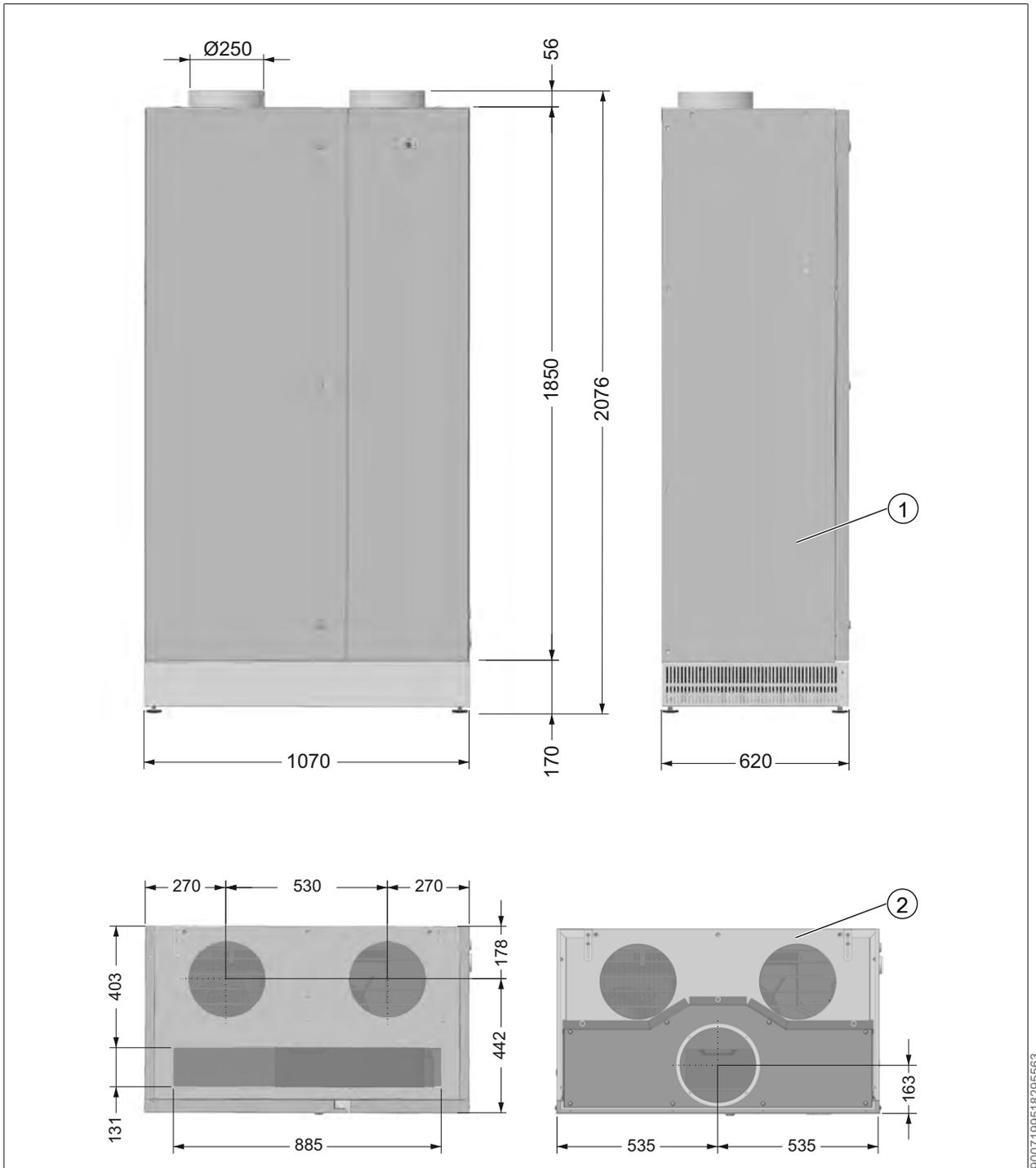
	Unit	CGL 2 edu		
Flow rate	m ³ /h	600	800	1000
Temperature Outdoor air	°C	-5	-5	-5
Temperature Extract air	°C	22	22	22
Rel. humidity Extract air	%	40	40	40
Temperature Supply air	°C	18.7	18.4	18.1
Rel. humidity Supply air	%	17	17	17
Heat recovery rate	%	88.0	86.6	85.5
Heat recovery rate as per EN 308	%	85.8	84.4	83.6
Heating output	kW	4.78	6.27	7.75
Temperature Exhaust air	°C	4.8	5.0	5.2
Rel. humidity Exhaust air	%	75	74	74

11.3 Heat recovery data with enthalpy plate heat exchanger

	Unit	CGL 2 edu enthalpy		
Flow rate	m ³ /h	600	800	1000
Temperature Outdoor air	°C	-5	-5	-5
Temperature Extract air	°C	22	22	22
Rel. humidity Extract air	%	40	40	40
Temperature Supply air	°C	16.2	15.3	14.7
Rel. humidity Supply air	%	46	47	47
Heat recovery rate	%	78.6	75.3	72.9
Heat recovery rate as per EN 308	%	78.7	75.5	73.1
Return humidity coefficient	%	71.0	65.7	61.5
Heating output	kW	5.8	7.4	8.9
Temperature Exhaust air	°C	0.8	1.7	2.3
Rel. humidity Exhaust air	%	87	87	87

11.4 Dimensioning

11.4.1 Standard unit



(1) Figure incl. Intake silencer

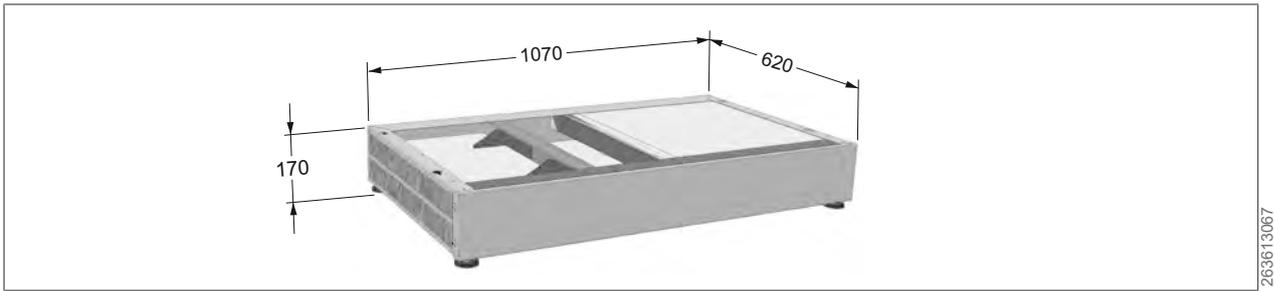
(2) Figure incl. Discharge module with supply air connection

11.4.2 Intake and discharge modules

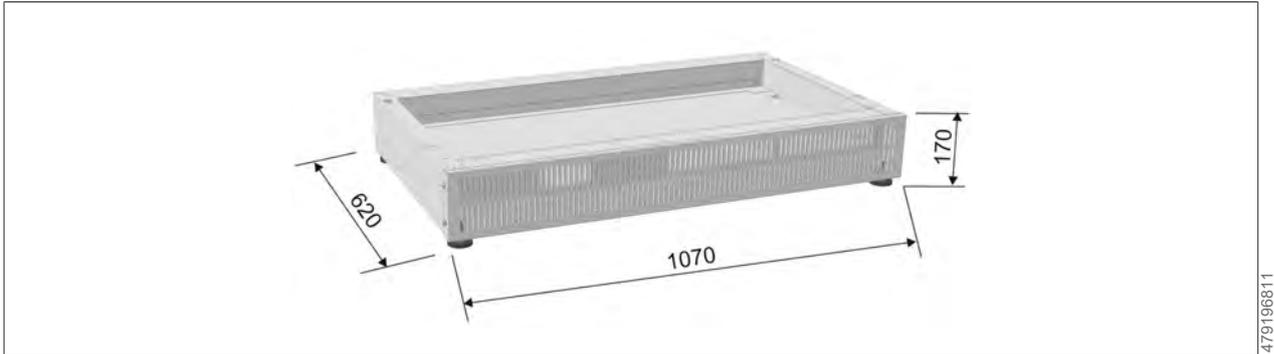
Select for functional total device on Intake module and on Discharge module.

Intake modules

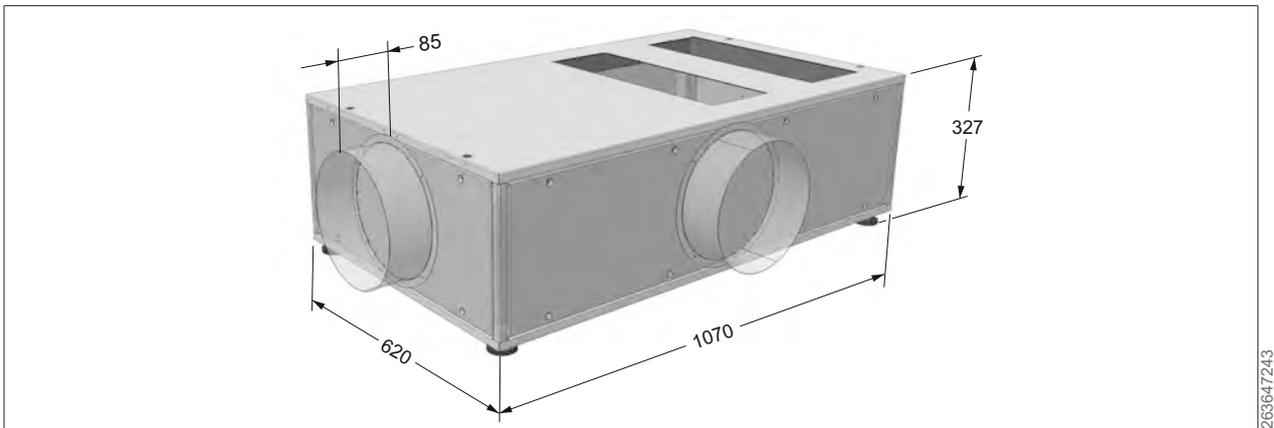
Intake silencer



Front intake module

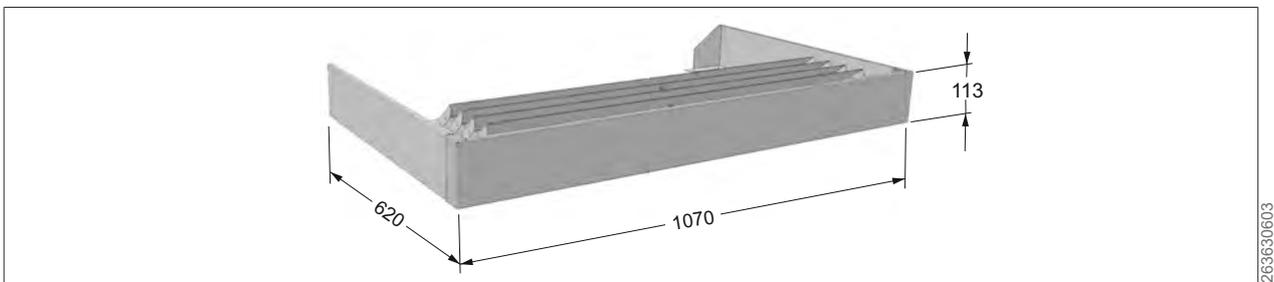


Universal intake module

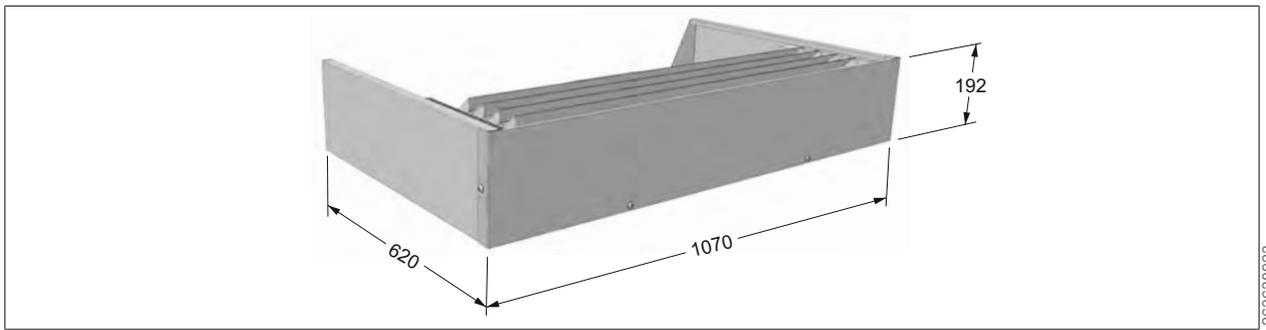


Discharge modules

Discharge module with ventilation grille

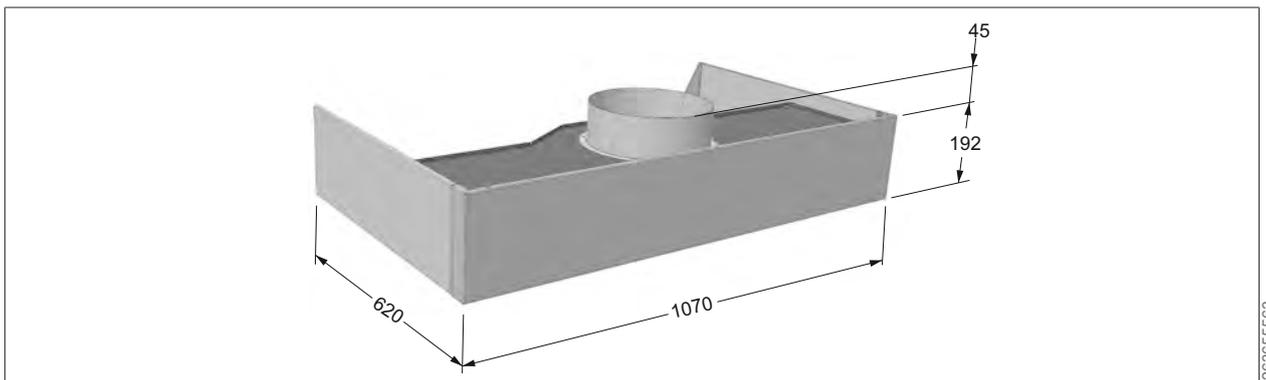


Discharge module with ventilation grilles and 2nd filter stage



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**Discharge module with supply air connection
discharge module with supply air connection and 2nd filter stage**



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12 Appendix

12.1 Connection diagram

Wiring colours

Main circuit	Black
Neutral conductor	Light blue
Earth conductor	Green/yellow
Control circuit for AC	Red/red-white
Control circuit for DC	Dark blue / dark blue / white
Floating contact (external voltage)	Orange

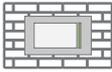
Before commissioning the control panel, note the following:

- Make all connections in accordance with the local power supply regulations.
- Check that all connecting screws, contact screws and unassigned contacts are firmly seated. (May become loose during transport.)
- Compare mains voltage with control panel supply voltage.
- Cable length for sensors/servomotors, 24-V control cables: max. 50 m. Do not route together with 230/400-V cables; alternatively, use shielded cables.
- Listed cable cross-sections are minimum cross-sections for copper cables without taking into account the cable length and onsite conditions.
- Cable types must be selected according to the type of routing.
- If a residual current device (RCD) is used, only type B RCDs may be used (300 mA trip current is recommended). Type A RCDs may not be used!

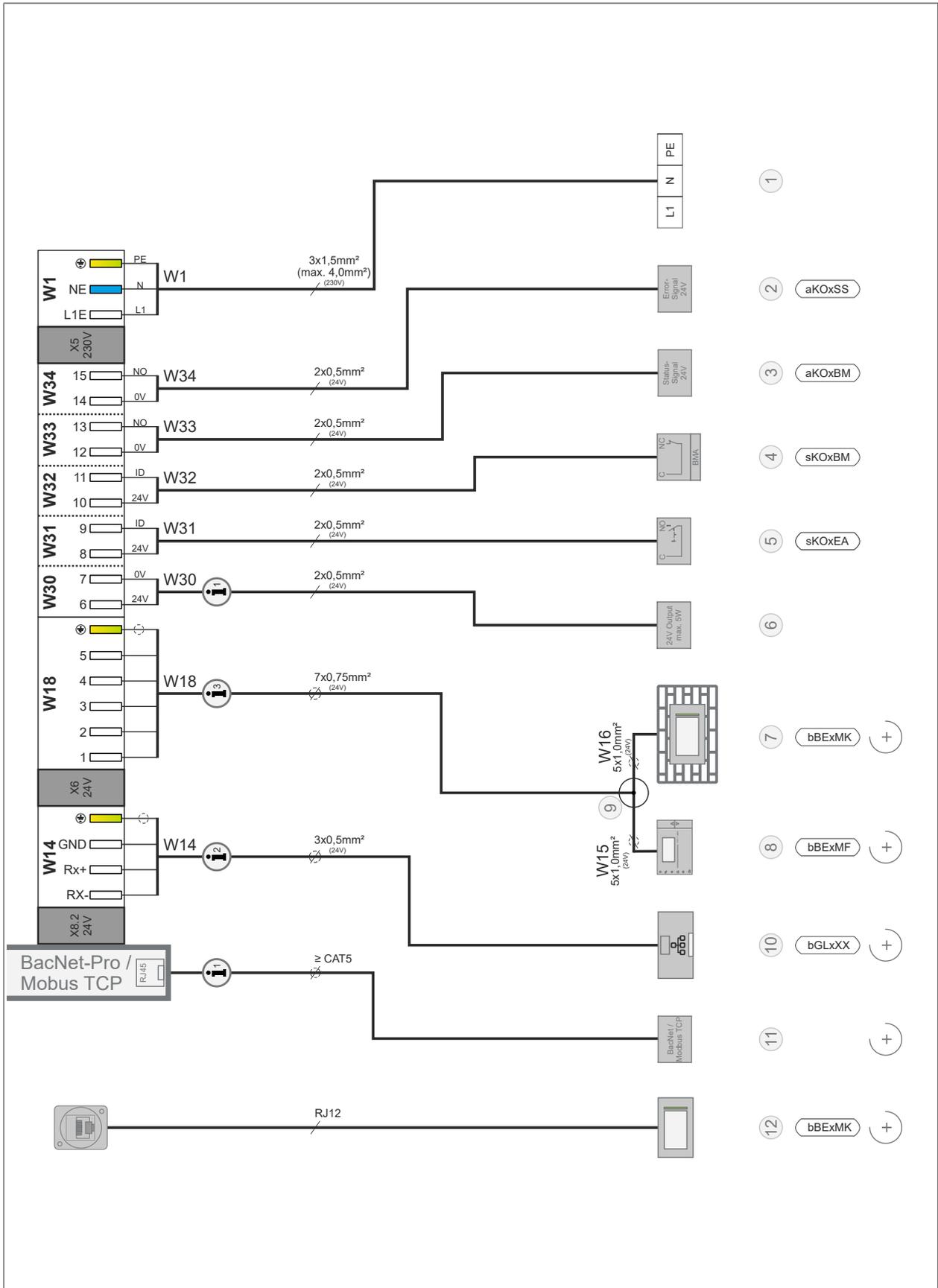
12.2 General symbols

Symbol	Designation	Comments
	Symbol for accessories	These components can be bought from Wolf at a later time and connected to the ventilation unit
	Shielded cable	
3 x 1.0 mm ² / (24V)	Cable designation: 3 = number of conductors 1.0 = wire cross-section (24) = voltage	
	Detailed connection:	Detailed connection instructions are provided on a separate page for components with this marking
FeBeSy	Field device naming system:	Internal WOLF designations of field devices

12.3 Component key

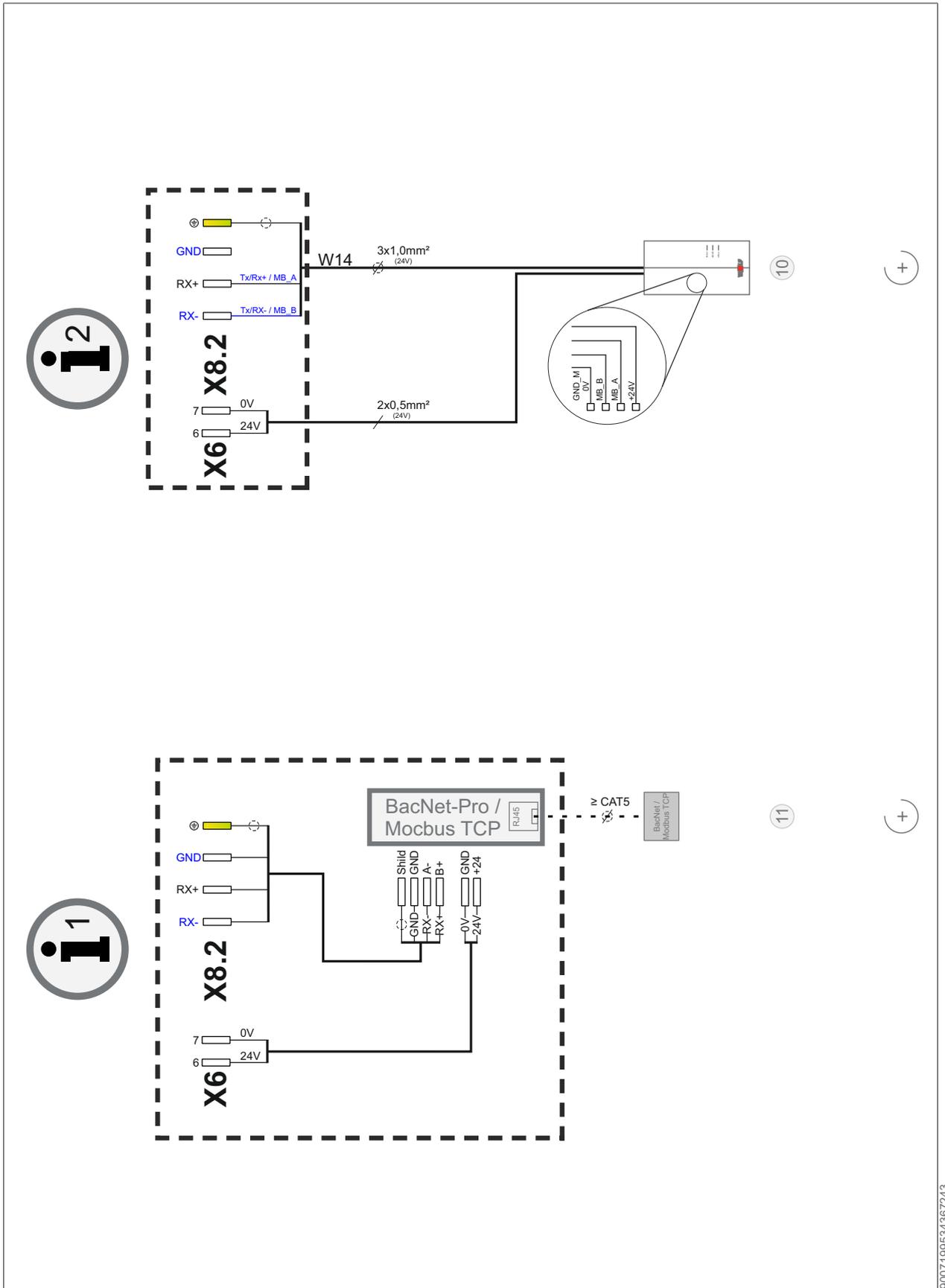
No.	FeBeSy	Symbol	Designation	Comments
①			Single phase voltage feed: 1/N/PE/230 VAC	
②	aKOxSS		Collective fault (potential-free contact) max. 2 A @ 24 V	
③	aKOxSS		Operating message (24 V / DC) : System on: NO= 24V System off: NO= 0 V	
④	sKOxBM		Fire alarm system contact (BMA) Appliance can be switched off with priority via the fire alarm system. Remove bypass if component is present	
⑤	sKOxEA		On-site contact additionally ON Remove bypass if component is present	
⑥			Voltage output 24 V, max. 5 W Required for BacNet Pro and Link Pro, for example	
⑦	bBExMK		Wall-mounted Touch programming unit (loose)	Accessories
⑧	bBExMF		BMK-F remote control unit	Accessories
⑨			Terminal box (socket) BMK-F is connected in parallel using onsite terminals	Onsite
⑩	bGLxXX		Connection for Modbus interface card (standard), BacNet Pro (i ¹ accessory), Modbus TCP (i ¹ accessory), and WOLF-Link-Pro (i ² accessory). : only one of the four connections can be used. They cannot be used simultaneously.	Accessories
⑪			Connection for BacNet or Modbus-TCP : Only available in conjunction with the BacNet Pro/Modbus TCP interface.	Accessories
⑫	bBExMK		Front-mounted Touch programming unit (loose) : Connection for programming unit with RJ12 connector for temporary operation (programming unit is only plugged in when an operation is carried out, e.g. during maintenance)	Accessories

12.4 Layout of terminal strips

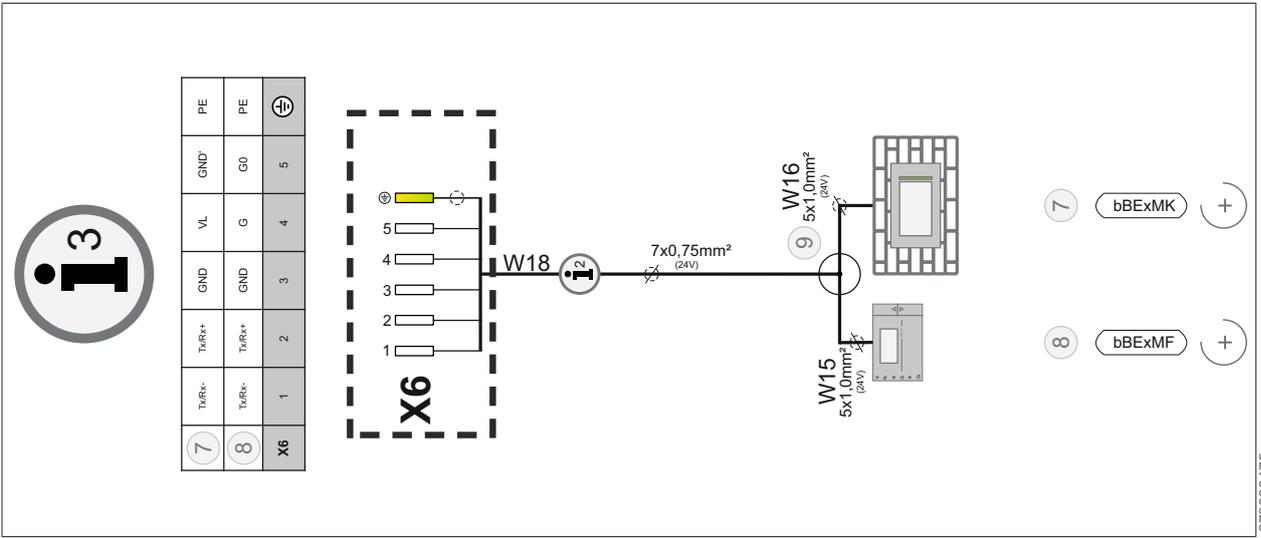


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12.5 Connections of terminal strips



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12.6 Overview of cables for onsite wiring

Listed cable cross-sections are minimum cross-sections for copper cables without taking into account the cable length and onsite conditions. Cable types must be selected according to the type of routing. Do not route cables for sensors, valves, servomotors (24 V) together with 230/400 V cables; alternatively, use shielded cables.

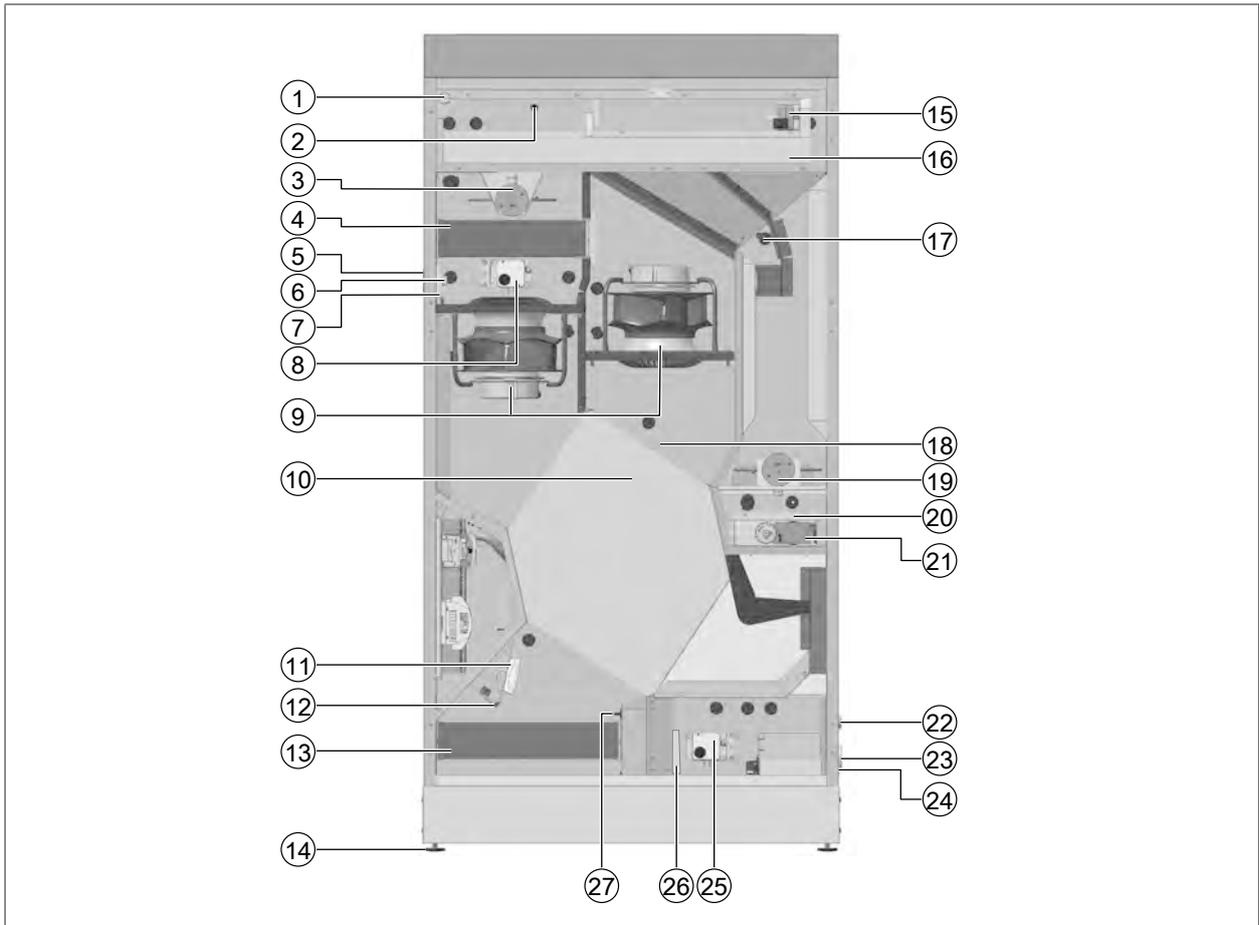


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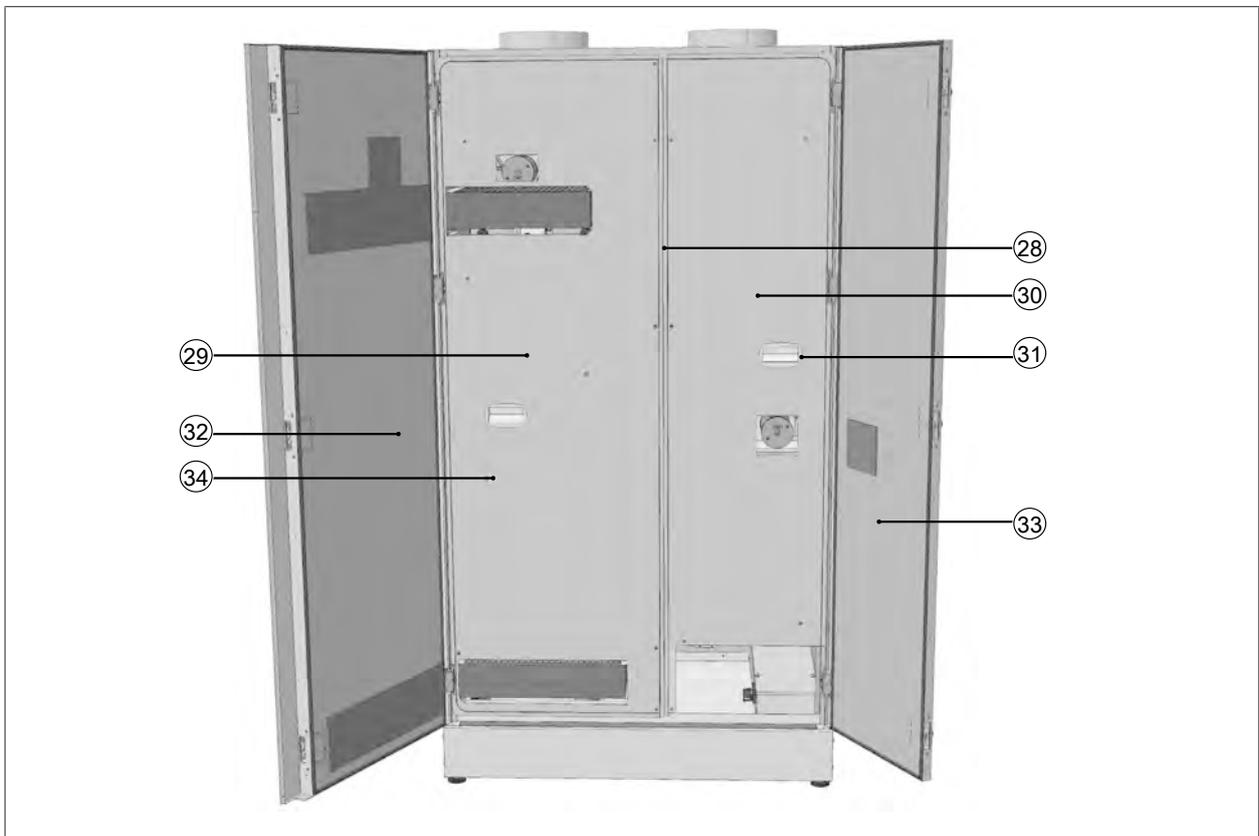
The number of cable cores indicated applies at 24 V without green-yellow cores.

Designation	Source	Name of component	All conductors	Cross-section [mm]	Voltage	No.
W1	X5	Supply onsite	3	1.5 (max 4.0)	230 V	①
W14	X8.2	Modbus connection	3	0.5	24 V + shielding	⑩
W15	X6	BMK-F	5	1.0	24 V + shielding	⑧
W16	X6	BMK wall	5	1.0	0.75	⑦
W18	X6	BMK	7	0.5	24 V + shielding	⑨
W30	X6	24-V voltage output, max. 5 W	2	0.5	24 V	⑥
W31	X6	Additional customer-supplied contact ON	2	0.5	24 V	⑤
W32	X6	Fire alarm	2	0.5	24 V	④
W33	X6	Op. message	2	0.5	24 V	③
W34	X6	Central fault message	2	0.5	24 V	②
-	BacNet-Pro / Modbus TCP	BacNet Pro interface / Modbus TCP interface		≥CAT5		⑪
-	RJ12	RJ12 connection for BMK Touch Front programming unit		RJ12		⑫

12.7 Spare parts



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Item	Description	Part no.	Item	Description	Part no.
1	Cable entry	2748779	19	Electric reheating coil (optional)	2982631

Item	Description	Part no.	Item	Description	Part no.
	Insert (1x)	2748781	20	Bypass damper	2578050
	Seal ring	2748780	21	Bypass servomotor	2269611
2	Outdoor airtemperature sensor	2747482	22	Cable entry for condensate hose	2745299
3	Electric preheater coil (optional)	2982631	23	Cable entry for onsite cables	2745494
4	Outdoor airfilter	1670499	24	Service connection	2748757
5	LED light (cable harness)	2748718	25	Differential pressure switch, filter monitoring (ETA)	6806449
6	Cable entry	2748779	26	Condensate pump (optional)	6800122
	Insert (2x)	2748482		Condensate container (optional)	6809832
	Seal ring	2748780	27	Connection nipple for measuring hose	2039021
7	LED cover	6809858	28	ZSB TV bracket	6809984
8	Differential pressure switch, filter monitoring (ODA)	6806449	29	Partition panel, left	6809865
9	Fan	2139810	30	Partition panel, right	6809871
10	Countercurrent plate heat exchanger	2982958	31	Grip mould	2483011
	Countercurrent plate heat exchanger (enthalpy)	2982964	32	Inspection door, left	6809902
11	CO ₂ sensor	6806447	33	Inspection door, right	6809914
12	Room temp. sensor	2747482	34	Countersunk M6 screw	3491029
13	Extract airfilter	1670498		Wall-mounting bracket	6809081
14	Adjustable foot	2095100		Corrugated hose	2071395
15	Servomotor	6808013		BMK Touch wall mounting	6660708
16	Outdoor air-/Exhaust airdamper	2578049		BMK Touch front-mounting (including data cable)	6220154
17	Supply airtemperature sensor	2747482		BMK-F	2744751
18	Ice-up sensor	2747482			

13 EU / EC Declaration of Conformity

Number: 6810806
 Manufacturer: **WOLF GmbH**
 Address: Industriestraße 1, 84048 Mainburg, Germany
 Product: Ventilation unit
 Product type: CGL 2 edu
 Serial no.: see type plate on appliance

We, WOLF GmbH, D-84048 Mainburg, Germany, hereby declare that the product complies with the following directives and regulations:

- Machinery Directive 2006/42/EC
- Directive 2014/30/EU Electromagnetic Compatibility
- Directive 2011/65/EU Restriction on the use of certain hazardous substances in electrical and electronic equipment (RoHS)
- 2009/125/EC Ecodesign Directive
- Commission Regulation (EU) No. 327/2011 Fans
- Commission Regulation (EU) No. 2019/1781 Electric Motors
- Commission Regulation (EU) No. 1253/2014 Ventilation Systems

Person responsible for documentation

Roland Klum

Industriestraße 1, 84048 Mainburg

The product conforms to the requirements specified in the following documents:

- EN ISO 14120:2015
- EN ISO 12100:2010
- EN ISO 13857:2019
- EN ISO 13854:2019
- EN 60204-1:2018
- EN 60730-1:2016 + A1:2019
- EN IEC 61000-6-2:2019
- EN IEC 61000-6-3:2021
- EN IEC 61000-3-2:2019
- EN IEC 61000-3-3:2013 + A1:2019

This product is identified as follows:



Mainburg, 07/11/2022

Gerdewan Jacobs
 Technical Director

Jörn Friedrichs
 Head of Development



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Please send suggestions and corrections to feedback@wolf.eu