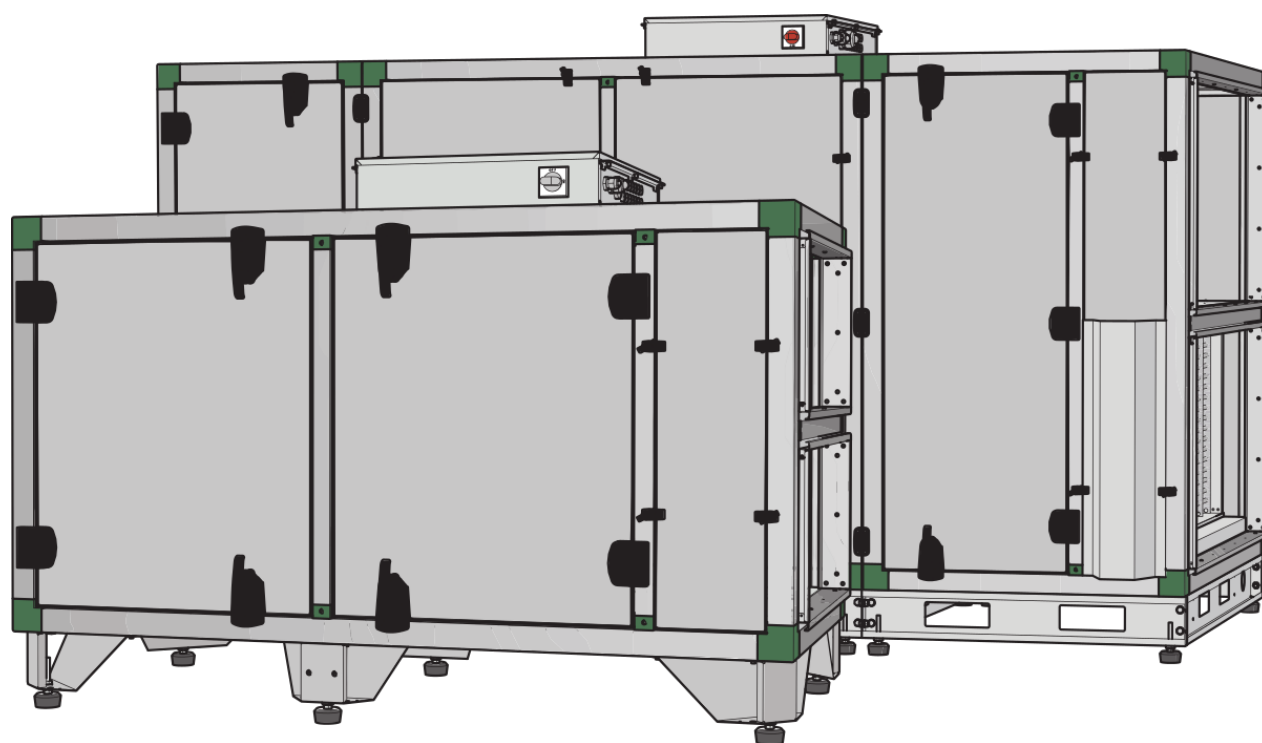


**AIR HANDLING UNIT WITH HEAT RECOVERY SYSTEM**

# AmberAir Compact 5 CX H



**Mounting and installation instructions**

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### Safety instructions and precautions

Device is manufactured in compliance with the following directives:

- Machinery Directive, 2006/42/EC;
- Low Voltage Directive, EEC 2006/95;
- Electromagnetic Compatibility Directive, 2004/108/EC;
- Ecodesign Directive, No 1253/2014.

Read this instruction very carefully before installing and using this equipment. Installation, connection and maintenance should be carried out by a qualified technician and in accordance with the local rules and legal acts. The company shall take no responsibility for the injuries suffered by the people or for the damaged property, if the safety requirements are not followed or the device is modified without the permission of the manufacturer.

#### Main safety rules

|  |   |
|--|---|
|    | <p><b>Danger</b></p> <ul style="list-style-type: none"> <li>• Before performing any electricity or maintenance tasks make sure, that the device is disconnected from the mains, that all moving parts of the device have stopped.</li> <li>• Make sure that the fans can not be entered through air ducts or branch openings.</li> <li>• If you notice liquids on electric parts or connections that bear voltage, stop the operation of the appliance.</li> <li>• Do not plug the device into the mains, that differs from the one indicated on the label or on the housing.</li> <li>• Voltage of the mains should comply with the electrotechnical parameters indicated on the label.</li> <li>• The device should be earthed in accordance with the rules of installation of electric appliances. It is forbidden to turn on and use unearthed device. Follow the requirements of the device's labels that indicate Danger.</li> </ul>    |
|    | <p><b>Warnings</b></p> <ul style="list-style-type: none"> <li>• Connection of electricity and maintenance of the device should be performed only by a qualified personnel, in accordance with the manufacturer's instructions and valid safety requirements.</li> <li>• In order to reduce the risk during installation and maintenance, suitable protective clothes should be worn.</li> <li>• Beware of sharp angles while performing installation and maintenance tasks.</li> <li>• Do not touch heating elements until they haven't cooled down.</li> <li>• Some devices are heavy, thus one should be very careful while transporting and installing. Use suitable lifting equipment.</li> <li>• While connecting electricity to the mains a circuit breaker of suitable size is necessary.</li> </ul>   |
|  | <p><b>Warning!</b></p> <ul style="list-style-type: none"> <li>• If the device is installed in a cold environment, make sure that all connections and tubes are properly isolated. Intake and discharge air ducts should be isolated in all cases.</li> <li>• Openings of the ducts should be covered during transportation and installation.</li> <li>• Make sure not to damage the heater when connecting the piping of the water heater. For tightening up, use a wrench/spanner.</li> </ul>  |
|  | <p><b>Before starting the equipment</b></p> <ul style="list-style-type: none"> <li>• make sure, that there are no strange objects inside;</li> <li>• manually check whether fans are not stuck or blocked;</li> <li>• if rotary heat exchanger is installed in the device, make sure that it is not stuck or blocked;</li> <li>• check the grounding;</li> <li>• make sure that all components and accessories are connected in accordance with the project or provided instructions.</li> </ul>  |
|  | <p><b>Danger: Fumes</b></p> <p>"Salda Antifrost" system uses dis-balancing of the air flow and it may cause negative pressure in premises. Great care should be taken when using at the same time in premises as another heating appliance what depend on the air in premises. Such appliances include gas, oil, wood or coal-fired boilers and heaters, freplaces, continuous flow or other water heaters, gas hobs, cookers or ovens which draw air in from the room and duct exhaust gases out through a chimney or extraction ducting. The heating appliance can be starved of oxygen, impairing combustion. In exceptional cases harmful gases could be drawn out of the chimney or extraction ducting back into the room. In this case we strictly recommend to turn off "Salda Antifrost" and use an external preheater for heat exchanger anti-frost protection (see "Salda Antifrost" function on the Remote controller manual).</p> |


|   |  |
|---|--|
|  <p><b>Warning - pay attention</b></p> |  <p><b>Additional information</b></p> |
|---|--|

Stick the auxiliary label on the unit (on an easily accessible place) or on the dashed place of a technical manual in order to keep the important information about the unit.


- 1 - Logo
- 2 - Internal usage code
- 3 - Brand name
- 4 - Technical data
- 5 - Units number
- 6 - Web address

**SALDA**

TITLE

|      |                                    |   |
|------|------------------------------------|---|
| (V)  | 0.084 kW; 0.021 A; 230/50 V/Hz; ~1 |  |
| (V)  | 0.085 kW; 0.021 A; 230/50 V/Hz; ~1 |   |
| (CE) | 0.085 kW; 0.021 A; 0 V/Hz; ~0      |   |
| (PE) | 0.085 kW; 0.021 A; 0 V/Hz; ~0      |   |
| (M)  | 0.005 kW; 0.021 A; 24/50 V/Hz; ~   |   |

**TOTAL:** 0.17 kW; 1.87 A;



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STICK HERE



Units tested and produced according to EC directives



AmberAir Compact units are Eurovent Certita Certification certified in AHU program.



SALDA - associated member of the Eurovent association (Europe's Industry Association for Indoor Climate (HVAC), Process Cooling, and Food Cold Chain Technologies)

**VDI 6022**

AmberAir Compact SD50+ units designed of the VDI 6022 Part 1 guideline (Hygiene requirements for ventilation and air-conditioning systems and units)



SALDA world like to inform you that based on the Commission Regulation (EU) No 1253/2014 for enforcing directive 2009/125/EC (hereinafter referred to as ErP directive), the operational area of certain AHU within the European Union is regulated by certain conditions

The AHU can only be used within the EU when it meets the requirements of the ErP directive. If certain AHU doesn't have CE mark on it, it is strictly forbidden to use it in the EU.



## Information about the product

## Description

AmberAir Compact is a compact-class ventilation unit with a heat recovery system. Its technical parameters are provided in the tables below.

| Parameter                    | Value                  |
|------------------------------|------------------------|
| Model size                   | 5-CXH SD50+ RF1B1E1C1P |
| Heat exchange type           | Counterflow            |
| Installation type            | Horizontal             |
| Service side                 | Right                  |
| Fan type                     | EC                     |
| By-pass damper               | 100%                   |
| Integrated heater            | Electrical             |
| Control type                 | Comfort MCB            |
| Filter type                  | Panel                  |
| Outdoor installation version | Indoor                 |

## Selected parameters

| Parameter                   | Unit of measurement | Value  |        |
|-----------------------------|---------------------|--------|--------|
|                             |                     | Winter | Summer |
| Airflow (supply)            | [m <sup>3</sup> /h] | 4000   | 4000   |
| Airflow (extract)           | [m <sup>3</sup> /h] | 4000   | 4000   |
| External pressure (supply)  | [Pa]                | 300    | 300    |
| External pressure (extract) | [Pa]                | 300    | 300    |
| Outdoor air temperature     | [°C]                | -16    | 32     |
| Outdoor air humidity        | [%]                 | 90     | 60     |
| Extract air temperature     | [°C]                | 20     | 23     |
| Extract air humidity        | [°C]                | 40     | 60     |

Thank you for purchasing the devices of our company!



**Not suitable for swimming pools, saunas and other similar facilities.**

## Casing

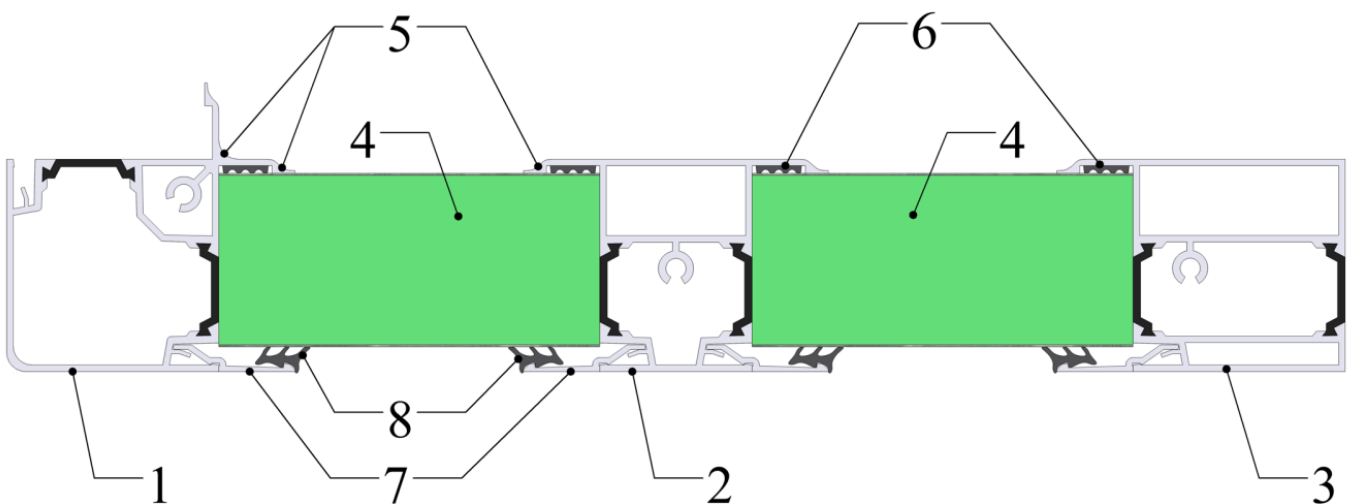
The casing of AmberAir Compact SD50+ shows exclusive tightness and thermal characteristics. More detailed information is provided in the tables below.

## EN 1886:2008 parameters

| Model Box   | SD50+                                 |
|---|---------------------------------------|
| Casing strength class                                     | D1(M)                                 |
| Casing air leakage class at - 400 Pa                      | L1(M)                                 |
| Casing air leakage class at + 700 Pa                      | L1(M)                                 |
| Filter bypass leakage class                               | F9(M)                                 |
| Thermal transmittance class                               | T2                                    |
| Thermal bridging factor class                             | TB2                                   |
| Casing profiles options                                   | Aluminium without thermal break       |
| Corners   | Plastic                               |
| Corners flammability (UL 94)                              | HB                                    |
| Thickness of double skin panel                            | 45,5 mm                               |
| Insulation material                                       | Polyurethane foam                     |
| Insulation material density                               | 45 kg/m <sup>3</sup>                  |
| Insulation material thermal conductivity                  | 0,024 W/mK                            |
| Insulation material fire reaction class (EN 13501-1:2007) | B - s2 d0                             |
| External sheet metal thickness and coating options        | 0,5 mm Zn polyester painting RAL 7040 |
| Internal sheet metal thickness and coating options        | 0,5 mm Zn                             |

AmberAir Compact SD50+ has rounded internal corners, which prevents accumulation of dust and dirt, facilitates cleaning and makes it possible to use in a hygienic unit design.

AmberAir Compact SD50+ has thermal bridging factor class TB2 - it eliminates possibilities for condensate occurrence on outer surface of the unit.



AmberAir Compact SD50+ cross-section

1 - Corner profile with thermal break strips, 2 - intermediate profile with thermal break strips, 3 - special corner profile with thermal break strips for connection between two sections, 4 - double skin polyurethane foam panel, 5 - rounded profile corners, 6 - non-porous gasket fitted in special groove, 7 - panel block aluminium profile, 8 - panel block gasket.

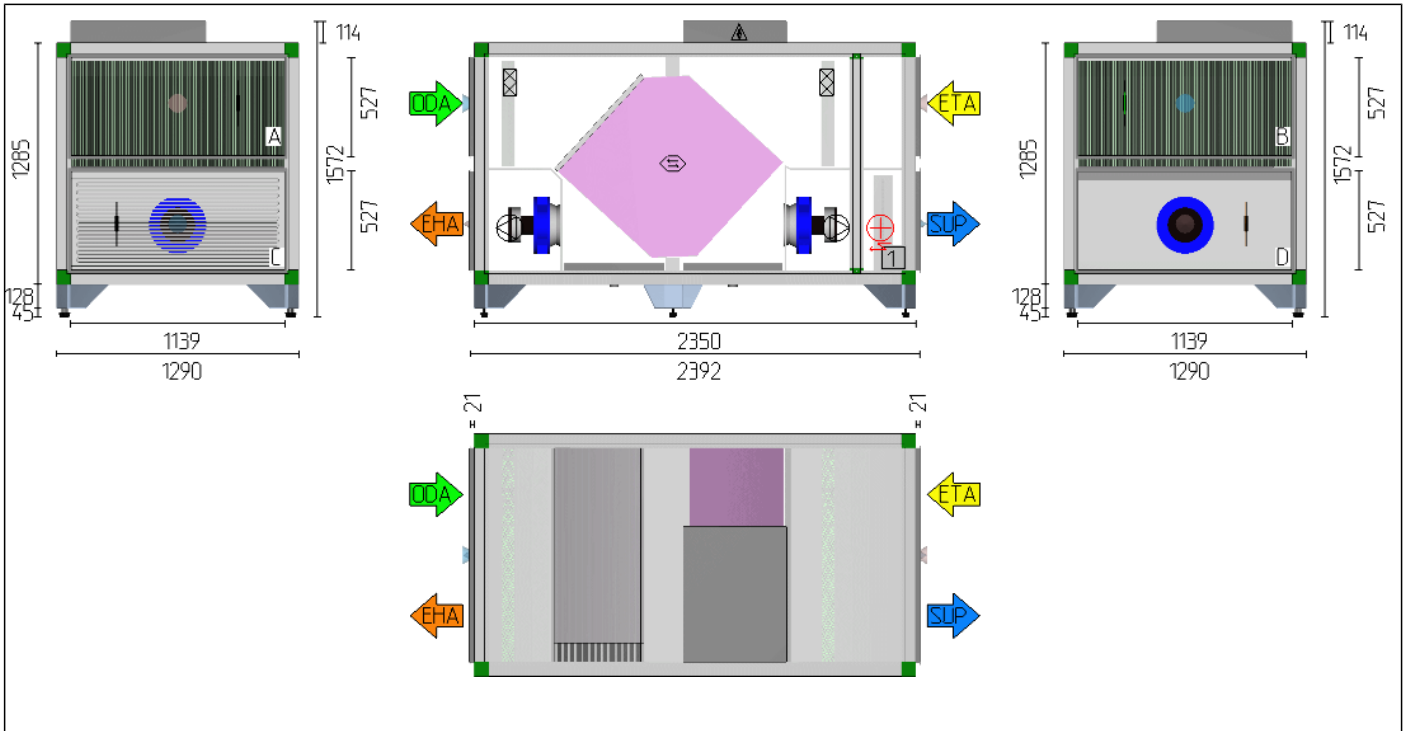
Dimensions and weight

ODA outdoor air

SUP supply air

EHA extract air

ETA exhaust air



Weight (without package and accessories)

[kg]

570

### Technical data

| General parameters                      |                         |                   |             |
|---|-------------------------|-------------------|-------------|
| Parameter                               | Unit of measurement     | Value             |             |
| Thermal input (EN 308)                  | [%]                     | 84.45             |             |
| SFPv class (clean filters)              | [ kW/m <sup>3</sup> /s] | 2.16              |             |
| SFPe class (design load)                | [ kW/m <sup>3</sup> /s] | 2.39              |             |
| Energy efficiency class (Eurovent 2016) |                         | A                 |             |
| System pressure                         | [Pa]                    | 300/300           |             |
| Maximum external leakage                | [%]                     | <1                |             |
| Maximum internal leakage                | [%]                     | <1                |             |
| Total power/current consumption         | [kW/A]                  | 12.35/17.83       |             |
| Phase/voltage/frequency                 | [f/VAC/Hz]              | 3/400/50          |             |
| Control board                           |                         | Comfort MCB       |             |
| Insulation of walls                     | [mm]                    | 45                |             |
| Fans                                    |                         |                   |             |
| Fan type                                |                         | EC                |             |
| Impeller type                           |                         | Backward curved   |             |
| Supply air fan                          |                         |                   |             |
| Phase/voltage/frequency                 | [f/VAC/Hz]              | 3/400/50          |             |
| Power/current                           | [kW/A]                  | 1.36195/4         |             |
| Speed                                   | [min <sup>-1</sup> ]    | 3004              |             |
| Control input                           | [VDC]                   | 0-10              |             |
| Protection class                        |                         | IP54              |             |
| Exhaust air fan                         |                         |                   |             |
| Phase/voltage/frequency                 | [f/VAC/Hz]              | 3/400/50          |             |
| Power/current                           | [kW/A]                  | 1.36195/4         |             |
| Speed                                   | [min <sup>-1</sup> ]    | 2960              |             |
| Control input                           | [VDC]                   | 0-10              |             |
| Protection class                        |                         | IP54              |             |
| Integrated electrical heater            |                         |                   |             |
| Phase/voltage/frequency                 | [f/VAC/Hz]              | 3/400/50          |             |
| Power/current                           | [kW/A]                  | 7.2/10.39         |             |
| Control input                           | [VDC]                   | 0-10              |             |
| Protection class                        |                         | IP30              |             |
| Filters                                 |                         |                   |             |
| Supply air filter                       |                         |                   |             |
| Class                                   |                         | F7                |             |
| Width                                   | [mm]                    | 565               |             |
| Height                                  | [mm]                    | 395               |             |
| Thickness                               | [mm]                    | 46                |             |
| Model                                   |                         | MPL 565x395x46-F7 |             |
| Exhaust air filter                      |                         |                   |             |
| Class                                   |                         | M5                |             |
| Width                                   | [mm]                    | 565               |             |
| Height                                  | [mm]                    | 395               |             |
| Thickness                               | [mm]                    | 46                |             |
| Model                                   |                         | MPL 565x395x46-M5 |             |
| Pressure losses                         |                         |                   |             |
| Assembly                                | Unit of measurement     | Supply air        | Exhaust air |
| Heat exchanger                          | [Pa]                    | 198               | 220         |
| Heater                                  | [Pa]                    | 4                 | -           |
| Filter                                  | [Pa]                    | 164               | 101         |
| Dampers                                 | [Pa]                    | 6                 | -           |
| Total                                   | [Pa]                    | 372               | 321         |

|                                      |      |     |     |
|--------------------------------------|------|-----|-----|
| Total system pressure                | [Pa] | 300 | 300 |
| Fan pressure losses                  | [Pa] | 24  | 24  |
| Stationary pressure produced by fans | [Pa] | 672 | 621 |

**Airflow diagram**

- operational limits
- - power consumption

Supply air 

Exhaust air 

**Operating conditions**

| Place of operation   | Indoors / outdoors / indoors and outdoors / outdoors with special accessories |            |
|--|---|------------|
| Operation in explosive environment                                       |   | prohibited |
| Transporting of the polluted air   |   | prohibited |
| Outdoor air temperature without preheater (Salda Antifrost** off)        | [°C]  | -5/+40*    |
| Outdoor air temperature without preheater (Salda Antifrost** on)         | [°C]  | -15/+40    |
| Outdoor air temperature with 100% by-pass***                             | [°C]  | -23/+40    |
| Outdoor air temperature with segmental by-pass***                        | [°C]  | -30/+40    |
| Outdoor air temperature limits with a selected pre-heater on an air duct | [°C]  | -40/+40    |
| Outdoor air max humidity   | [%]   | 90         |
| Temperature limits of an extracted air                                   | [°C]  | +15 / +40  |
| Extract air max humidity   | [%]   | 60         |
| Maximum room temperature for installing the unit                         | [°C]  | +40        |

\* – when relative humidity of extracted air is lower than 35 %.

\*\* – uses dis-balancing of the air flow and it may cause negative pressure in premises.

\*\*\* – depends on AHU configuration.

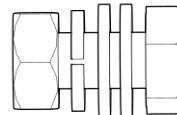
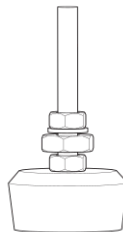
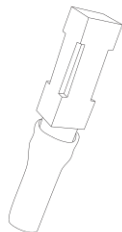
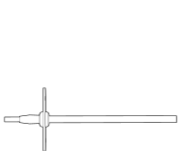
The air handling units installed outdoors shall be started only when the following obligatory conditions established by the manufacturer are met:

- Units that are stored at the site before installation shall be sealed using additional means in order to prevent the accumulation of moisture inside the unit.
- If the unit is installed and is not started for continuous operation, it must be ensured that no warm/humid air enters the unit through air ducts and that no moisture condensates inside the unit.
- If the ventilation units stand idle for a long time or are started infrequently, the system must be blown down at the maximum capacity 1/24 h to dehumidify.
- Voltage to the automatics of the unit is installed and connected; the system of water products is filled with glycol/water

In case of failure to comply with the requirements set out above, the manufacturer shall have the right not to apply the warranty in respect of the occurrence of moisture/water in damaged components.

**Standard package of components**

Standard package (without optional accessories) includes:



Supply air temperature sensor TJ  
1 pcs.

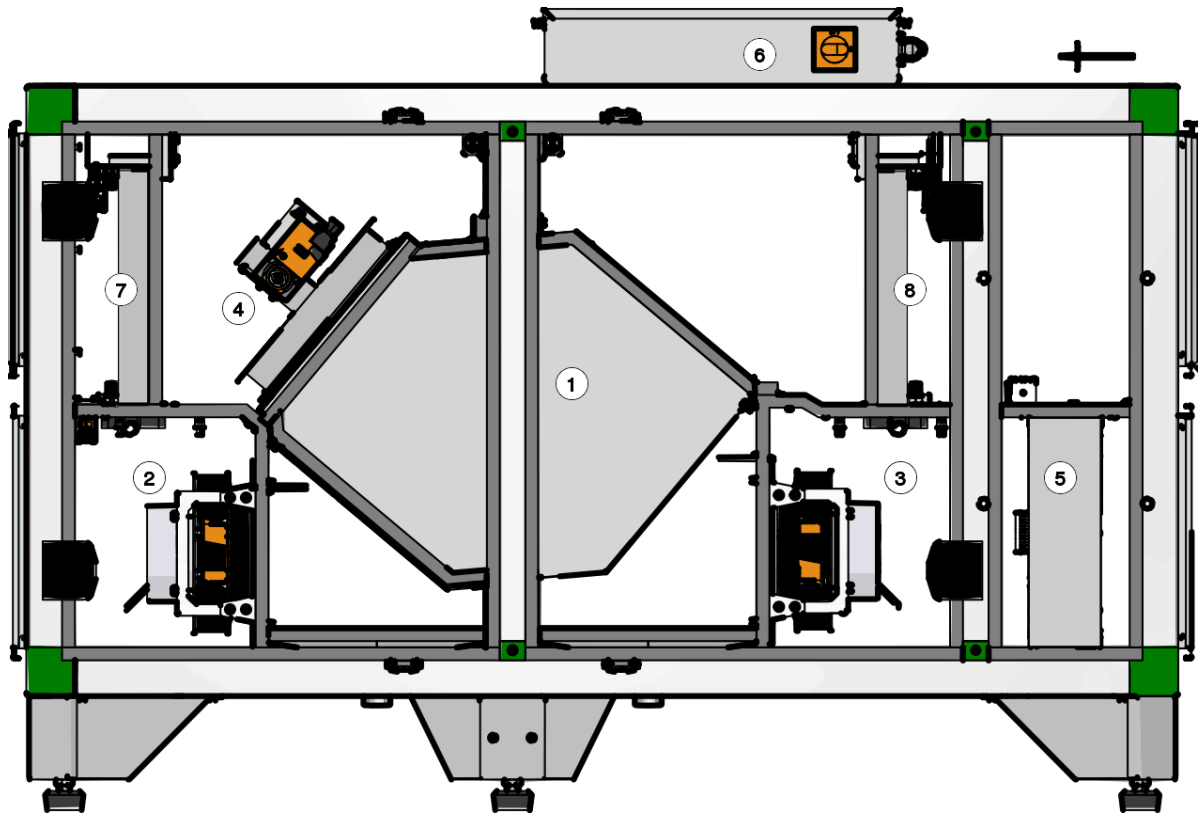
Water temperature sensor for water heater TV1  
1 pcs. (water version only)

Anti-vibration pad  
6 pcs. (Compact 1-5 CX H)  
14 pcs. (Compact 6-7 CX H)

Set of bolts for pad connection  
8 pcs. (Compact 6-7 CX H)

Set of bolts and nuts for sections connection  
12 pcs. (Compact 6-7 CX H)

## Components



1. Heat exchanger
2. Exhaust fan
3. Supply fan
4. By-pass
5. Electrical heater
6. Control board
7. Supply air filter
8. Exhaust air filter



Accessories



Stouch



WIFI



MB-Gateway



S-RCO2-F2



S-RFF-U-D-F2



S-KFF-U



S-KCO2



UG3-A40



IR24- PC



PATROL\_701



Energy meter



Push button, impulse



LF230



TF230



NFA



NM230A-TP



RMG



VVP



VXP



STP-CI



LJ/E



SSKM



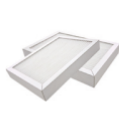
ABV



SKG-A



LSVF



MPL



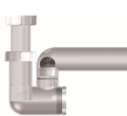
MUTE



EKA NIS



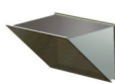
FDS-S



Condensate trap



SSP



OCR



EKS NIS



AVA



AVA-DX

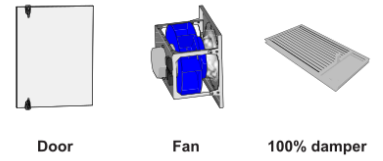


FLEX MCB

|                                 |   |                 |
|---------------------------------|---|-----------------|
| Reducer STP                     | <b>STP-CI 1133x520-630</b>              | GSFSTPCI161_355 |
| Outlet-intake cover             | <b>ABV 630</b>                          | GFDABV0630      |
| Flexible connection LJ-E        | <b>LJ-E 113.5-52</b>                    | GLJLJ/E048      |
| Dampers for rectangular ducts   | <b>SSK 1135-520</b>                     | GSKSSK755       |
| Rectangular duct silencer SSP   | <b>SSP 1135x520x1000-6. 100x80</b>      | GSOSSP216_1031  |
| Duct water cooler AVA           | <b>AVA 630</b>                          | GSIAVA008       |
| DX Duct Cooler AVA-DX           | <b>AVA-DX 630</b>                       | GSIAVA013       |
| Filter boxes                    | <b>FDS-S 113.5-52</b>                   | GFZFDS062       |
| Flange with Flexible Connection | <b>LSVF 630</b>                         | GVELSVF010      |
| Circular duct silencer AKS      | <b>AKS 630-10</b>                       | GSOAKS053       |
| Roof for AmberAir Compact       | <b>Roof for 5 CXH</b>                   | GNGPR168_1131_0 |
| Outlet-intake cover OCR         | <b>OCR 1135x520</b>                     | GNGPR168_1146_0 |
| Room CO2 sensor S-RCO2-F2       | <b>S-RCO2-F2</b>                        | ZAKKT0048       |
| Duct CO2 sensor S-KCO2          | <b>S-KCO2</b>                           | ZAKKT0049       |
| Duct RH sensor S-KFF-U          | <b>S-KFF-U</b>                          | ZAKKT0051       |
| Room RH sensor S-RFF-U-D-F2     | <b>S-RFF-U-D-F2</b>                     | ZAKKT0050       |
| Remote control panel FLEX MCB   | <b>FLEX MCB EN</b>                      | PRGPU107        |
| Remote control panel FLEX MCB   | <b>FLEX MCB EN without logo</b>         | PRGPU108        |
| Remote control panel FLEX MCB   | <b>FLEX MCB DE</b>                      | PRGPU109        |
| Remote control panel FLEX MCB   | <b>FLEX MCB DE without logo</b>         | PRGPU110        |
| Remote control panel FLEX MCB   | <b>FLEX MCB DK</b>                      | PRGPU111        |
| Remote control panel FLEX MCB   | <b>FLEX MCB DK without logo</b>         | PRGPU112        |
| Remote control panel FLEX MCB   | <b>FLEX MCB FR</b>                      | PRGPU113        |
| Remote control panel FLEX MCB   | <b>FLEX MCB FR without logo</b>         | PRGPU114        |
| Remote control panel FLEX MCB   | <b>FLEX MCB IT</b>                      | PRGPU115        |
| Remote control panel FLEX MCB   | <b>FLEX MCB IT without logo</b>         | PRGPU116        |
| Control panel Stouch            | <b>Stouch</b>                           | PRGPU051        |
| Network module MB-Gateway       | <b>MB-Gateway</b>                       | PRGPU082        |
| Wireless Router                 | <b>Wireless N Nano Router TL-WR802N</b> | PRGPU105        |
| Switch 774451_774411            | <b>Switch 774451_774411</b>             | ZEPSM001        |
| Duct smoke detector Ug3a4o      | <b>Ug3a4o</b>                           | ZAKKT0110       |
| IR presence sensor IR24-P       | <b>IR24-P</b>                           | ZAKJT019        |
| IR presence sensor IR24-PC      | <b>IR24-PC</b>                          | ZAKJT020        |
| IR presence sensor PATROL 701   | <b>Patrol 701</b>                       | ZAKJT021        |
| Actuator for damper             | <b>NM230A-TP</b>                        | ZAKP0055        |
| Actuator for damper             | <b>LF 230</b>                           | ZAKP0039        |
| Energy Analyzers                | <b>Energy Analyzer EM210 (Pulse)</b>    | ZAKKT0116       |
| Current transformer             | <b>CTD1X1205AXXX</b>                    | ZAKTR0034       |
| Energy Analyzers                | <b>Energy Analyzer (Pulse+ModBus)</b>   | ZAKKT0120       |
| Energy Analyzers                | <b>Energy Analyzer EM24 (M-Bus)</b>     | ZAKKT0117       |

Spare parts

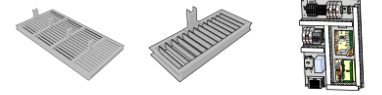
|                        |   |                    |
|------------------------|---|--------------------|
| Door                   | <b>1076</b>                                     | GPUD232_1076_0     |
| Door                   | <b>1077</b>                                     | GPUD232_1077_0     |
| Door                   | <b>1078</b>                                     | GPUD232_1078_0     |
| Fan                    | <b>RH31C-ZID.DC.CR/1144<br/>88</b>              | GPUVM224_1071_1070 |
| Control board          | <b>Comfort MCB</b>                              | GAUSM219_1016_1044 |
| Wire harness           | -   | GPYSM221_0_1204    |
| Electric heater        | <b>SVEC-7.2</b>                                 | ZESSAC018          |
| Damper actuator        | <b>LM24A-TP</b>                                 | ZAKP0049           |
| Air temperature sensor | <b>TJ1TE-NTC10K3B-4.5x9<br/>0P-2x6,0mPVC-FL</b> | PJUT0071           |
| Air temperature sensor | <b>TJ1TE-NTC10K3B-4.5x9<br/>0P-2x0,1mPVC-FL</b> | PJUT0070           |
| Panel filter           | <b>MPL 565x395x46-F7</b>                        | ZFEPF148           |
| Panel filter           | <b>MPL 565x395x46-M5</b>                        | ZFEPF147           |



Door

Fan

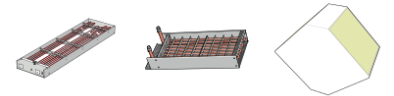
100% damper



Sectional damper

Recirculation damper

Control board



Electric heater

Water heater

Heat Exchanger



Damper actuator

Air temperature sensor

Thermostat



Wire harness

Water temperature sensor

Panel filter MPL



Pocket filter FMK

MCB

EX1



EX2

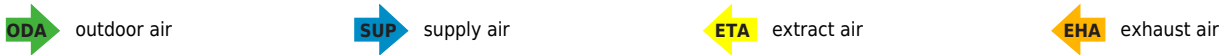
**Control**

**Device control**

Ventilation unit can be controlled using a remote control, web interface via MB-Gateway and building management system. More information about the possibilities of controlling is provided in the table below.

|                               |        |          |            |            |
|-------------------------------|--------|----------|------------|------------|
| MB-Gateway + WIFI + SALDA AIR | Stouch | FLEX MCB | MB-Gateway | BMS        |
| +                             | +      | +        | +          | Modbus RTU |

**Meaning of the symbols used in the instructions and on the device**



**Main device functions**

| Functions  | MCB |   |
|--|-----|---|
|  | E   | V |
| <b>Description of the functions MC</b>           |     |   |
| <b>Main functions</b>                            |     |   |
| Humidity reduction                               | ○   | ○ |
| Remote control connector                         | ●   | ● |
| BMS connection                                   | ●   | ● |
| Date and time settings                           | ●   | ● |
| Manual components control                        | ●   | ● |
| System modes                                     | ●   | ● |
| BOOST function                                   | ●   | ● |
| Event register (storing up to 50 entries)        | ●   | ● |
| Digital input configuration                      | ●   | ● |
| Operation indication output                      | ●   | ● |
| Alarm indication output                          | ●   | ● |
| System monitoring                                | ●   | ● |
| System mode switching from the external contact  | ○   | ○ |
| Cold/heat recovery                               | ●   | ● |
| Winter/summer mode                               | ●   | ● |
| Supply air temperature control and compensation  | ●   | ● |
| Heat exchanger frost protection                  | ●   | ● |
| Weekly schedule                                  | ●   | ● |
| Holiday schedule                                 | ●   | ● |
| Reset to factory defaults                        | ●   | ● |
| CO <sub>2</sub> level reduction function         | ○   | ○ |
| Dryness protection                               | ○   | ○ |
| Fans control according to air pressure           | ●   | ● |
| Night cooling function                           | ●   | ● |
| Fire place function                              | ●   | ● |
| Fireplace protection (NC)                        | ○   | ○ |
| Fire protection from the external contact        | ○   | ○ |
| <b>Air dampers</b>                               |     |   |
| Supply/exhaust air valves control                | ●   | ● |
| <b>Fans</b>                                      |     |   |
| Supply/exhaust air fan breakdown indication (NC) | ●   | ● |
| Protection by RPM                                | ●   | ● |
| Air flow protection by pressure                  | ●   | ● |
| <b>Sensors</b>                                   |     |   |
| Supply air temperature sensor                    | ●   | ● |

|  |    |    |
|--|----|----|
| Outdoor air sensor   | ●  | ●  |
| Extract air temperature sensor   | ●  | ●  |
| Exhaust air temperature sensor   | ●  | ●  |
| Water heater temperature sensor  | ●  | ●  |
| Water pre-heater temperature sensor  | ●  | ●  |
| Water cooler temperature sensor  | ●  | ●  |
| <b>Electric heater</b>   |    |    |
| On/off (PWM) and 0-10V control   | ●  |    |
| Automatic and Manual protection (NC)   | ●  |    |
| <b>Electrical pre-heater</b>   |    |    |
| On/off (PWM) and 0-10V control   | ●  | ●* |
| Automatic and Manual protection (NC)   | ●  | ●* |
| <b>Water heater</b>  |    |    |
| 0-10V (PWM) valve control  |    | ●  |
| Water heater protection - thermostat (NC)  |    | ○  |
| Water heater circulation pump control  |    | ●  |
| <b>Water pre-heater</b>  |    |    |
| 0-10V (PWM) valve control  | ●* | ●  |
| Water heater circulation pump control  | ●* | ●  |
| <b>Water cooler</b>  |    |    |
| 0-10V (PWM) valve control  | ●  | ●  |
| Water cooler circulation pump control  | ●  | ●  |
| Water cooler operation switching (cooling/heating)   | ○  | ○  |
| <b>Filters clogging monitoring</b>   |    |    |
| Air filter protection according to pressure relays   | ●  | ●  |
| Air filters timer  | ●  | ●  |
| <b>Fire alarm damper</b>   |    |    |
| Fire valves control (on/off)   | ●  | ●  |
| Fire valves testing  | ●  | ●  |
| <b>DX cooler</b>   |    |    |
| On/off (PWM) and 0-10V control   | ●  | ●  |
| DX cooler breakdown indication (NC)  | ●  | ●  |
| DX cooler operation switching (NO - cooling; NC - heating)   | ●  | ●  |
| <b>Recirculation</b>   |    |    |
| 3P and 0-10V (PWM) valve control   | ●  | ●  |
| Recirculation stepped motor control  | ●  | ●  |
| <b>Bypass damper</b>   |    |    |
| 3P and 0-10V (PWM) damper control  | ●  | ●  |
| Bypass damper stepped motor control  | ●  | ●  |
| <b>Remote controllers</b>  |    |    |
| S-Touch  | x  | x  |
| MB Gateway   | x  | x  |
| ○ - Required additional components: CO <sub>2</sub> and moisture sensors, switches, etc.   |    |    |
| ● - standard feature (the number of features depends on the ventilation unit in which the automatics are used); to be configured through BMS network or remote control console |    |    |
| x - Remote control consoles  |    |    |
| *The possibility to connect either a water or electrical pre-heater  |    |    |

**Installation**

**Reception of goods**

Each device is thoroughly checked before transportation. While receiving goods it is recommended to check whether devices were not damaged during transportation. If a damage to the device is noticed, immediately address the representatives of a transport company. Please inform a representative of the manufacturer, if any deviation from the order is noticed.

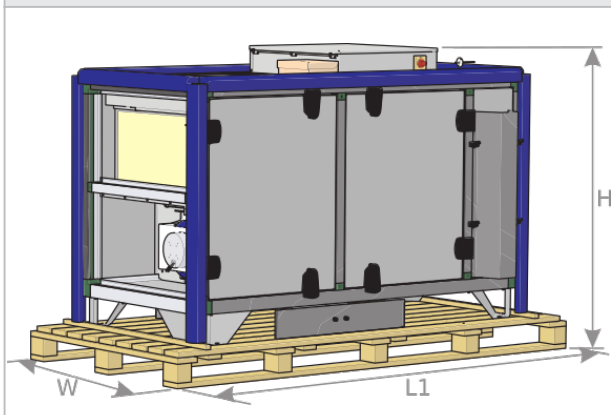
**Transportation and storage**

- All units are packed in the factory to withstand regular conditions of transportation.
- The package is only for protection purpose!
- While unloading and storing the units, use suitable lifting equipment to avoid damages and injuries. Do not lift units by holding on power supply cables, connection boxes, air extract or exhaust flanges. Avoid hits and shock overloads. Before installation units must be stored in a dry room with the relative air humidity not exceeding 70% (at +20 °C) and with the average ambient temperature ranging between +5 °C and +30 °C. The place of storage must be protected against dirt and water.
- The units must be transported to the storage or installation site using forklifts.
- The storage is not recommended for a period longer than one year. In case of storage longer than one year, before the installation it is necessary to verify whether the bearings of fans and motor rotate easily (turn the impeller by hand) and if the electric circuit insulation is not damaged or the moisture is accumulated.
- AmberAir Compact of sizes 1-5 CX H are lifted from the pallet with a forklift or slings, which are roved through the supporting legs (four corners).
- AmberAir Compact of sizes 6-7 CX H are lifted from the pallet with a forklift at the recesses at the supporting base, or with slings.

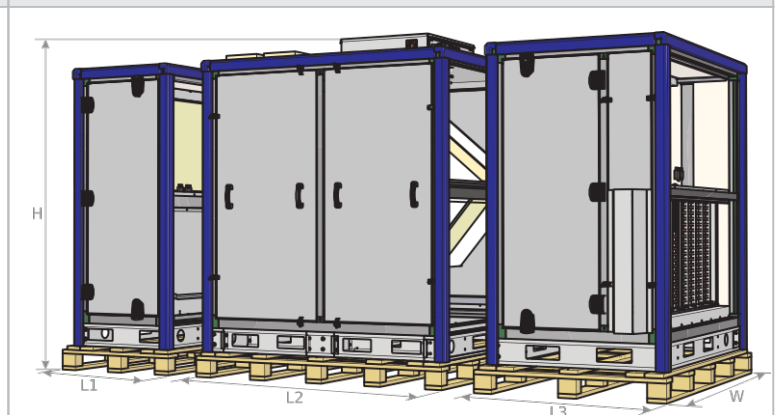


**When lifting with a forklift, protect the condensate drainage pipes. The product is heavy. Exercise caution when transporting and installing.**

Compact 1-5 CX H



Compact 6-7 CX H



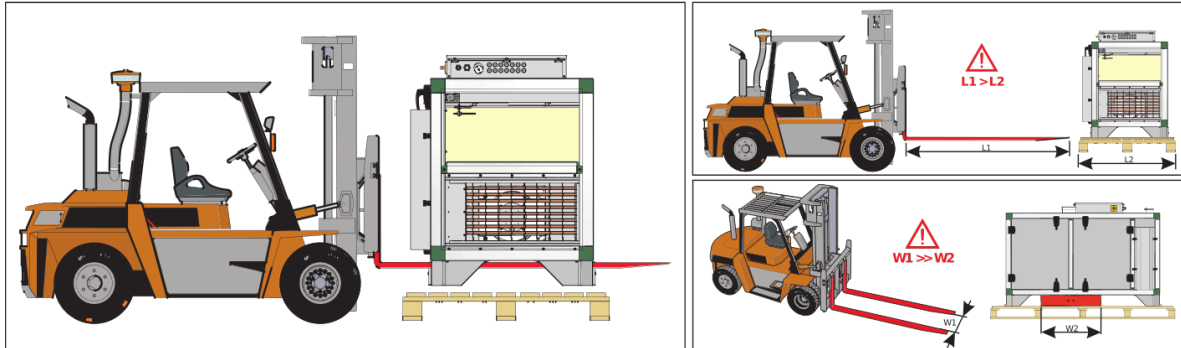
| Unit           | Dimensions, [mm] |      |      |      |      |
|----------------|------------------|------|------|------|------|
|                | H                | W    | L1   | L2   | L3   |
| Compact 1 CX H | 1345             | 1080 | 2150 | -    | -    |
| Compact 2 CX H | 1605             | 1200 | 2450 | -    | -    |
| Compact 3 CX H | 1680             | 1200 | 2450 | -    | -    |
| Compact 4 CX H | 1680             | 1370 | 2400 | -    | -    |
| Compact 5 CX H | 1680             | 1440 | 2400 | -    | -    |
| Compact 6 CX H | 1960             | 1750 | 800  | 1600 | 1050 |
| Compact 7 CX H | 1960             | 2150 | 800  | 1640 | 1080 |

The product can be lifted with a forklift or a crane using slings.

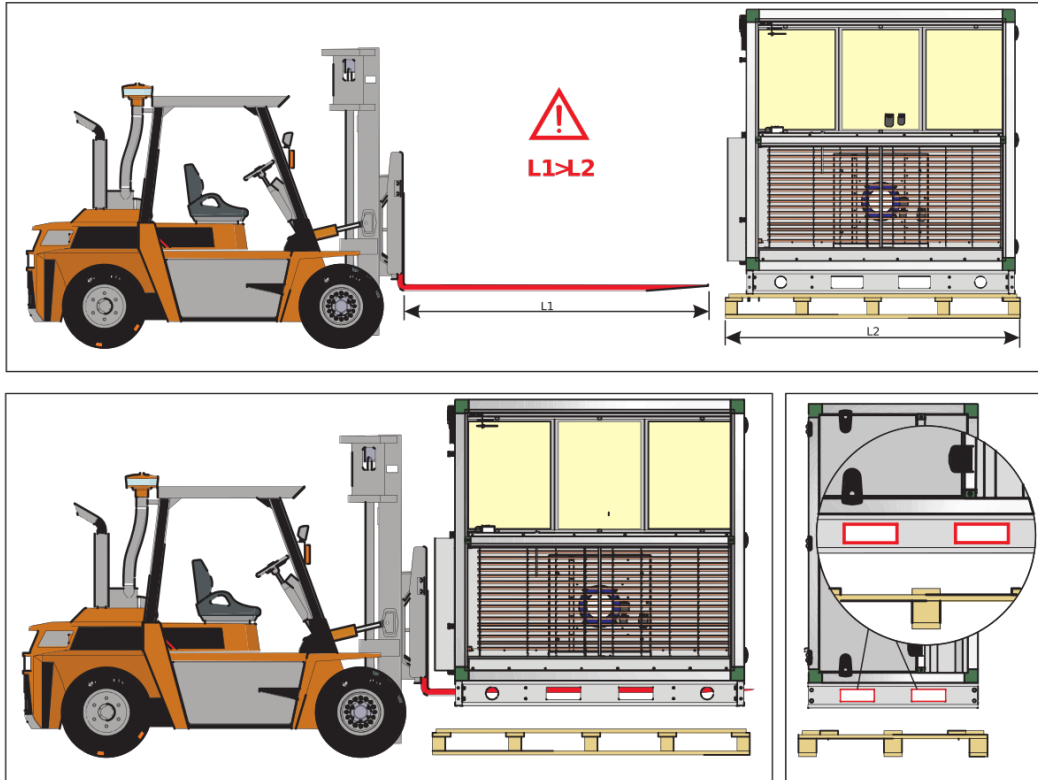
When lifting with a forklift, the length of the fork must be greater than the length or width of the product (depending on the product version). The condensate pipes must be protected against damage.

The inner legs of the product of AmberAir Compact 1-5 CX H versions are covered with protection to prevent damage of the condensate drainage pipes. Therefore, when lifting with a forklift, the width of the fork must be greater than the condensate protection width.

**AmberAir Compact 1-5 CX H lifting with a forklift**

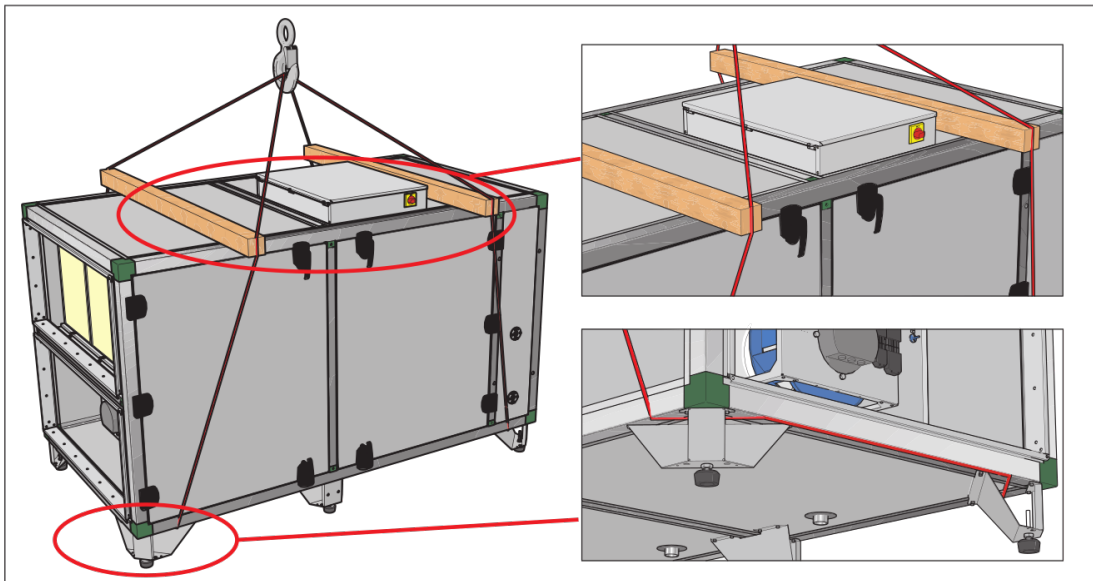


**AmberAir Compact 6-7 CX H lifting with a forklift**

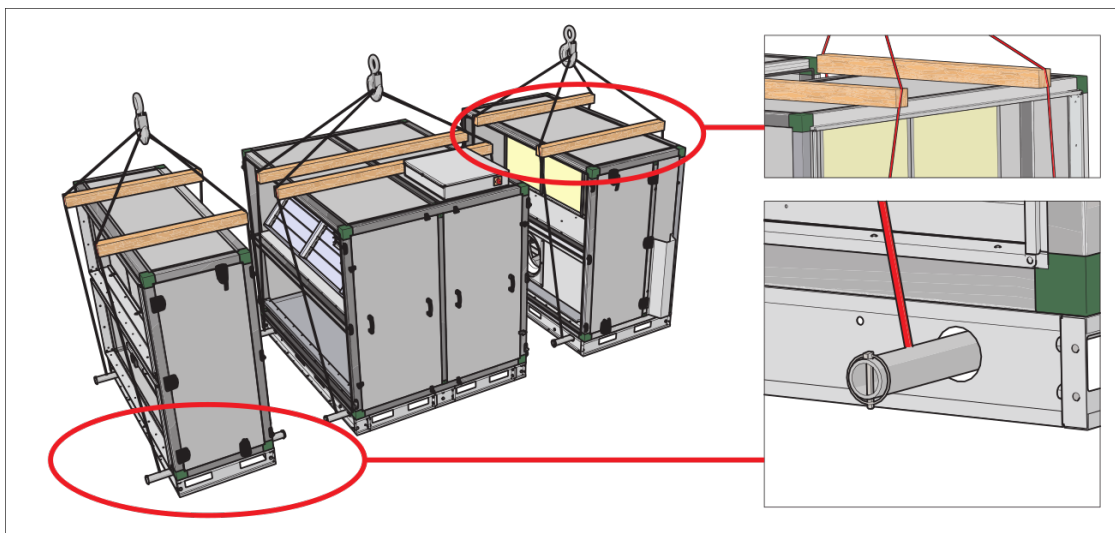


When lifting the product with slings, it is necessary to insert spacers between them in order to prevent damage to the casing of the product.

**AmberAir Compact 1-5 CX H lifting with slings**



**AmberAir Compact 6-7 CX H lifting with slings**



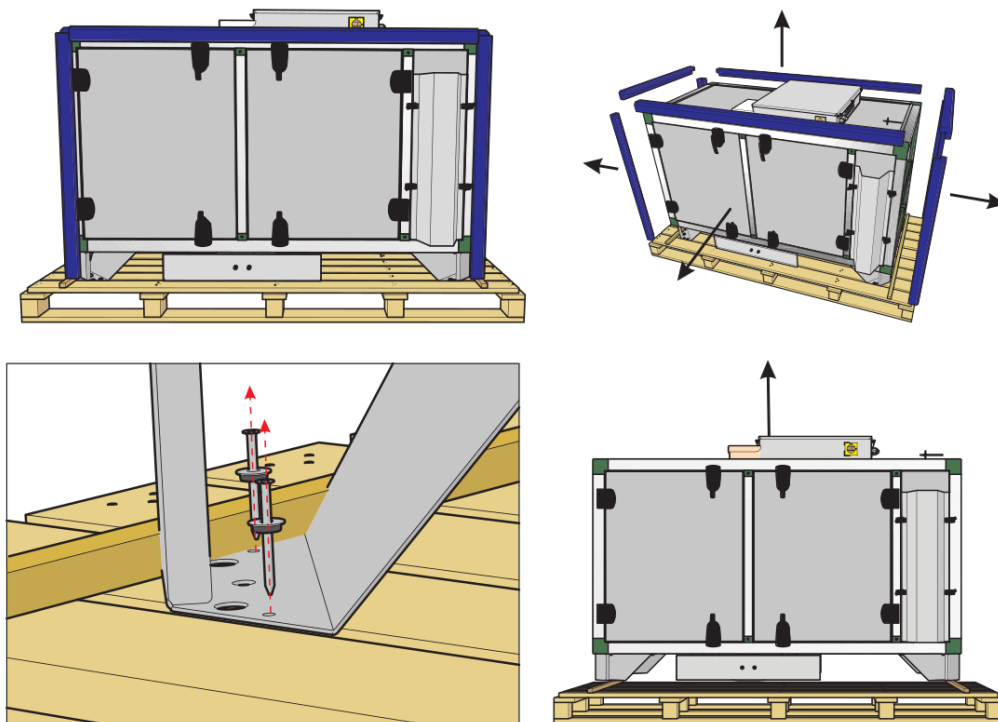
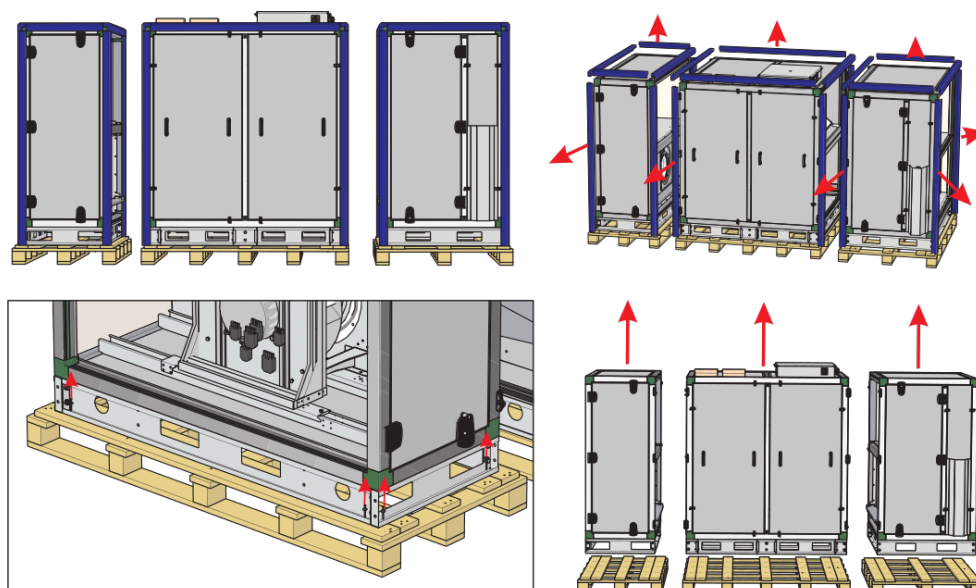


## Unpacking

- Remove the film from the unit.
- Remove the tightening packaging tapes which keep the protective profiles.
- Remove the protective profiles.
- Unscrew the wood screws which fasten the unit legs to the pallet.
- After unpacking the unit, examine it to make sure that it has not been damaged during transportation. The installation of damaged units is prohibited!
- AmberAir Compact of sizes 1-5 CX H are lifted from the pallet with a forklift or slings, which are roved through the supporting legs (four corners).
- AmberAir Compact of sizes 6-7 CX H are lifted from the pallet with a forklift at the recesses at the supporting base, or with slings.



**When lifting with a forklift, protect the condensate drainage pipes.**

*AmberAir Compact 1-5 CX H**AmberAir Compact 6-7 CX H*

### Description of the units functions

All functions indicated in this section are installed in the software of the control board. However, operation and control of the device depends on the following:

1. Selected control panel. Full functionality and configuration possibility can be assured only by MB-Gateway web interface or Ptouch control panel.
2. Connected external devices: external heaters, dampers, sensors and etc. (see the description of the acquired air handling system).
3. Internal components of the device: type of heat exchanger (plate or rotor), integrated dampers, sensors and etc. (see components of the chosen device).
4. Control board type. Different boards provide an opportunity to connect different components. (See scheme of the device board).



**Air Handling Unit uses MCB board.**



**The unit can be configured only with Ptouch remote control panel or MB-Gateway web application. The following control board functions can be fully controlled only with Ptouch remote control panel or MBGateway web application. In case of Stouch remote control panel use the description of remote control panel functions for MCB control board.**

### System modes

System modes:

- › Stand-by;
- › Building protection;
- › Economy;
- › Comfort.

**In Stand-by mode** the system is shut down for a permissible period (based on the Stand-by mode blocking function settings).

**The Building protection mode** is designed to protect premises against moisture accumulation.

The system operates at speed 1. Based on manufacturer's parameters (by default) this mode controls the temperature (the desirable one is indicated), but, if necessary, it can be switched off. Also,

if necessary, full recirculation function is activated. (ADJUSTER › USER SETTINGS › BUILDING PROTECTION MODE TEMPERATURE or USER › MENU › SETTINGS › BUILDING PROTECTION).

**Economy mode** is designed to save energy when people are absent from the premises. The system operates at speed 2. Based on manufacturer's parameters this mode controls the temperature

maintaining (the desirable one is indicated), but, if necessary, it can be switched off. Also full recirculation function is activated. (ADJUSTER › USER SETTINGS › ECONOMY MODE TEMPERATURE or USER › MENU › SETTINGS › ECONOMY MODE).

**Comfort mode** is running when people are present in the premises. The system operates at speed

3. In this mode the temperature is always maintained – it is set in the main window (ADJUSTER › VENTILATION CONTROL or USER › SET POINT).

### System control

System modes are changed by the following functions (indicated in a sequential order):

System modes are changed by the following functions (indicated in a sequential order):

- › Weekly Schedule;
- › Switching on is activated from an external contactor;
- › Manual mode selection;
- › Holiday Schedule;
- › Stand-by mode blocking.

Based on the Weekly Schedule the system decides in what mode it will be operating; however, the user may change it manually. The system informs when the next mode change is scheduled. After power loss the mode is selected based on the Weekly Schedule; however, if it is not set, the mode that was set before the power loss will be activated.

The user may change modes even when the switching on is activated from an external contactor. The only case when it is not

possible – active period of Holiday Schedule of which the system informs and which must be changed to avoid blocking. Stand-by mode can be blocked by selected parameters. If at least one of the above functions changes its mode into Stand-by mode, it must be checked whether this mode is not currently blocked. If it is blocked, the previous mode shall be activated.

The function order is provided below.

#### Start

- > Reading of input data;
- > Weekly Schedule;
- > Mode external switch;
- > User entered data;
- > Holiday Schedule;
- > Stand-by mode schedule;
- > Stand-by mode blocking;
- > Protection against Dryness;
- > Boost ventilation;
- > Air handling unit operating algorithm;
- > Protection;
- > Blocking of air handling unit operating algorithm;
- > Manual Control of Components;
- > Data entering into outputs and user environment.

#### End

### System states

This field informs a user about the existing system state. It is displayed in the main window ADJUSTER > VENTILATION CONTROL or the main window of the user environment. The table below shows possible system states.

| System state   | Description   |
|--|---|
| Stand-by mode  | System operates in Stand-by mode  |
| Building protection mode                                     | System operates in Building protection mode   |
| Economy mode   | System operates in Economy mode   |
| Comfort mode   | System operates in comfort mode   |
| Emergency run  | System operates in emergency mode (for details refer to alarms section)                                       |
| Preparing  | System is preparing for operation (pre-heating of water heaters, etc.)  |
| Opening dampers  | Dampers are opened  |
| BOOST function activated                                     | BOOST function is active  |
| Cooling heaters  | Electric heaters are cooled down prior to shutdown of fans  |
| Closing dampers  | Dampers are closed  |
| Critical alarm   | Critical failure, system is shut down (for details refer to alarms section)                                   |
| Fire alarm   | Fire protection from an external contactor is activated   |
| Heat exchanger frost protection activated                    | Heat exchanger frost protection is activated  |
| Change filters   | Warning about clogged filters (pressure switches are activated or filter timer is activated)                  |
| Room RH 3 days average is lower than 30 %. Limiting 3 speed. | Protection against dryness is activated (room 3-day humidity average is lower than 30 %; air flow is reduced) |

### Setting date and time

For smooth execution of schedules, event log and winter/summer function, it is necessary to set proper date and time in section ADJUSTER> USER SETTINGS> DATE AND TIME SET and click a button DATE AND TIME SET. It can also be indicated in user environment USER> MENU> SETTINGS> DATE AND TIME. Fast synchronization with the computer time is possible in user and adjuster environment.

### Supply air temperature control and compensation

Temperature for supply air or premises temperature may be indicated. In the service environment section SERVICE > MAIN > SUPPLY AIR TEMPERATURE CONTROL you can control it based on supply or exhaust air temperature. If control by premises temperature is selected, then it is calculated what kind of air is to be supplied so that the proper room temperature is maintained. It is limited by allowable limits of supply air temperature.

The air handling unit is not designed to heat premises, therefore it is not necessary to use full capacity for low temperature differences – the compensation in percentage is provided for this purpose. This parameter indicates a percentage of the temperature difference (between the set temperature and premises temperature) to be compensated by this function. E.g. set point is 20 °C, temperature in the premises is 16 °C,

compensation is 50 %, difference between the indicated and existing temperatures is  $20-16=4$  °C. Since 50 % is compensated, then  $4*50 \%=2$  °C. When the received value is added to the set temperature we get the required supply air temperature -  $2+20=22$  °C. This temperature is not limited as it is within the supply

air temperature protection limits. In this case the system maintains the supply air temperature at 22 °C.

The closer the premises temperature is to the set temperature (20 °C), the faster the supply air temperature reaches 20 °C. It may be too hot in the premises, therefore this function both heats and cools. Preferred (compensated)

temperature is displayed in the window MONITORING (REQUIRED SUPPLY). If the displayed temperature is 0 °C, it means that temperature maintaining of supply air is switched off.

The temperature of supply air is maintained by the following components (indicated in a sequential order):

- > Fans (operate slower, if it is too hot);
- > Recirculation valve (if the ambient air temperature is favourable);
- > Water cooler;
- > DX cooler;
- > Recirculation damper and CO<sub>2</sub> (in case of favorable outdoor temperature);
- > Bypass damper or rotor (in case of favorable outdoor temperature);
- > Recirculation damper and CO<sub>2</sub> (in case of favorable outdoor temperature);
- > DX heater;
- > Water heater;
- > Water cooler/heater;
- > Electrical heater;
- > Fans (operate slower, if it is too cold).

First of all the system tries to maintain the supply air temperature by means of a heat exchanger. In case of a plate heat exchanger, the bypass damper is controlled, and in case of a rotary heat exchanger, the rotor rotating speed or interval is changed. The heat exchanger can both heat and cool - it depends on outdoor and room air temperatures. It is controlled by a PID controller whose coefficients are indicated in the adjuster environment section ADJUSTER > PID CONTROLLERS ADJUSTING > HEAT EXCHANGER CONTROL BY SUPPLY AIR TEMPERATURE. When the heat exchanger operates at full capacity and preferred temperature is not reached, the recirculation damper, then the heater or cooler etc. is activated (if necessary). Only the components configured for temperature maintaining are activated. It takes 10 s for the system to switch between the elements.

### **Fan control**

The preferred air-flow can be indicated in percentage or in 4 fixed speeds where each of them is dedicated to a relevant system mode:

- > Building protection;
- > Economy;
- > Comfort;
- > Maximum power.

Fan speed can be controlled by:

- > Percentage - speed in percentage is indicated in the adjuster environment window ADJUSTER > AIR FLOWS ADJUSTING: 0 % corresponds to 0, and 100 % - 10 V control signal voltage;
- > Pressure - the maximum system pressure is indicated, which based on speed settings in the adjuster environment ADJUSTER > AIR FLOWS ADJUSTING means 100 % air-flow;
- > Air-flow (m<sup>3</sup>/h) - K factors of supply and exhaust air and the maximum system air-flow (m<sup>3</sup>/h) are displayed, which based on speed settings in the adjuster environment ADJUSTER > AIR FLOWS ADJUSTING means 100 %.

Fans based on air-flow and pressure are controlled by PID controller and its coefficients are indicated in the adjuster environment section ADJUSTER > PID CONTROLLERS ADJUSTING > FANS SPEED CONTROL BY AIR FLOW OR PRESSURE. Every fan is controlled individually.

In the service environment window SERVICE > FANS > FANS SPEED CONTROL you can limit the minimum and maximum fan control signal voltage. Based on manufacturer set parameters, the minimum 2V voltage is indicated, which means that 0V voltage signal is sent when fans are off, and 2V voltage signal is immediately switched on when rotation is required.

#### **Fan Protection based on Rotating Speed**

If fans have TACHO outputs, the fan failure can be identified by their rotating speed. If the system sends the signal to fans to rotate and they fail to rotate, then the protection is activated, the system is shut down and alarm is displayed.

Function is switched on/off in the service environment section SERVICE > FANS > FANS PROTECTION BY RPM.

If this protection is disabled, the same inputs are used for the warning signal, i.e. if the main fan failed and reserve fan is still working, then the signal is transmitted to this input and warning is displayed about fan fault (system is not stopped).

#### **Slowing Down Air Flows based on Temperature**

If supply air temperature is more important than the air-flow, the slowing down function may be switched on. If full heating/cooling capacity is used, but the preferred temperature is not reached, air-flow starts slowing down to reach the goal.

Function is switched on/off in the service environment section SERVICE > FANS > AIR FLOW PROTECTIONS.

#### **Continuous Temperature Maintenance by Slowing Fans Down**

This function helps to save energy, when air-flow is changed. It is active, when the fans are controlled by percentage, since PID controllers do it automatically when it is controlled based on air-flow or pressure. Fast change of air-flow imbalances the temperature maintaining function, thus energy is wasted. If a user sets a higher air-flow, this function starts gradually increasing the air-flow and gradually slows down the speed of change when it approaches the set value. This way the temperature maintaining function suffers less stress and consumes less energy. If the user reduces the air-flow, the system switches off the coolers and heaters to prevent from building up of heat/cold wave and gradually changes the air-flow. Afterwards the heaters and coolers continue operating as required.

---

### **“BOOST” function**

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Boost ventilation function is used for fast ventilation of premises. It activates the maximum air-flow (speed 4). Boost ventilation has to be temporary, i.e. it must be a final condition (e.g. CO<sub>2</sub> limit, time). The reason for this limitation – protection against dryness. High air flow reduces humidity, and dry air is harmful for health.

The function is activated by pressing ON and deactivated by pressing OFF button in the BOOST section, or by means of an external contactor (FANS SPEED SWITCH), which is configured in the service environment (SERVICE > MAIN > FANS SPEED SWITCH) section.

The function is inactive when Stand-by mode is on. Time limit is indicated (ADJUSTER > USER SETTINGS > BOOST TIMER or USER > MENU > SETTINGS > BOOST TIMER). Once the function is activated, the time is set by the timer and the time is counted till its deactivation. It may be adjusted in real-time, i.e. when the function is on, in ADJUSTER > VENTILATION CONTROL or in the user environment main window.

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### **Planing**

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#### **Weekly Schedule**

A Weekly Schedule consists of 10 events. They can be added, deleted, activated and deactivated. For every event its time, mode and week day is indicated.

The system changes modes according to the Weekly Schedule only when the indicated time comes, therefore a user can always change the existing mode manually. This schedule notifies of the upcoming mode change by indicating the time remaining till the next event.

The schedule is edited in user environment USER > MENU > SCHEDULE.

#### **Holiday Schedule**

This schedule is used when the unit has to operate in uniform mode during holidays. The user interface shows when the schedule period is active as nobody can change the mode activated by this function (except for protection). In order to control the system in a normal manner, the Holiday Schedule period must be deactivated, i. e. zero values must be indicated or dates must be changed. Up to five holiday periods can be set.

The schedule is edited in the user environment USER > MENU > HOLIDAY.

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### **Winter/summer mode**

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The winter/summer function is set during the cold periods, because some parts of the system have to be protected against cold outdoor air. During winter it is recommended to leave the unit switched on, therefore it is possible to set blocking of switch-off. Water heaters must be always switched on during the entire winter.

The winter mode may be indicate

- > Manually;
- > By date;
- > Based on 3-day mean outdoor temperature, to be calculated only when the fresh air (outdoor) pre-heater is off.

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### **Protection against dryness**

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This function is designed to protect the building against dryness. If it is active, it calculates the 3-day mean humidity of exhaust air from the premises. If it drops below 30 %, the fans start operating in speed 2 in Comfort mode. A user is notified of the activated protection and limited air-flow. If the mean humidity exceeds 30 % or this function is switched off manually, the fans start operating in speed 3 in Comfort mode.

The function is switched on/off in the section ADJUSTER > USER SETTINGS > DRYNESS PROTECTION or in the window USER > MENU > SETTINGS > OTHER.

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### **Night cooling function**

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This function is designed to save energy in the morning, when a fresh night air is used to cool down the building. The function is active only in summer. If it is switched on but not active yet, activation conditions are checked:

- > System time from function start to the end (hours/minutes);
- > Time is exactly every hour since the start;
- > If STAND-BY mode is set, the unit operates in BUILDING PROTECTION mode for 5 minutes so that the actual temperature data is available. The temperature is checked after purging. If it is not suitable, the unit returns to STAND-BY mode;
- > Outdoor temperature is higher than the set outdoor temperature;
- > Exhaust air temperature is higher than the set temperature;
- > Exhaust air temperature is higher than the outdoor temperature by at least 2 °C;
- > Summer.

If all conditions are met the unit starts operating in COMFORT mode (without temperature maintaining). The main window shows that the Night cooling function is active. When it is active continuously, the deactivation conditions are checked:

- > Time does not correspond to the start/end interval;
- > Exhaust air temperature drops below the set temperature;
- > Outdoor temperature drops below the set temperature;
- > Mode other than COMFORT was switched or the unit has been shut down.

If at least one condition is met, the unit switches off the Night cooling function and it switches to the mode that was on prior to activating the function.

The function is configured in the section ADJUSTER > USER SETTINGS > NIGHT COOLING FUNCTION or in the window USER > MENU > SETTINGS >

NIGHT COOLINGS.

### ***CO<sub>2</sub> reduction function***

This function is designed to maintain a proper quality of room air. To activate it the exhaust air CO<sub>2</sub> sensor must be connected and properly configured in the service environment window SERVICE > SENSORS. When completed, the exhaust air CO<sub>2</sub> value is displayed in the section MONITORING.

In the service environment window SERVICE > MAIN > CO<sub>2</sub> REDUCTION FUNCTION you can switch on/off the function, indicate preferred CO<sub>2</sub> level and allowable limit; when it is exceeded (CO<sub>2</sub> set + allowable excess) CO<sub>2</sub> is reduced, information is displayed and air-flow is increased. When CO<sub>2</sub> reaches the set point, reduction is switched off.

### ***Filter protections***

#### **Filter Timer Settings**

The filter timer limit is set in the service environment window SERVICE > MAIN > AIR FILTERS PROTECTIONS. The maximum setting is 1 year.

### ***Made from an external system controller***

This function activates the preferred system switching on by means of external contactor; it indicates what signal will be sent to input. Possible types of signals:

- > Not used;
- > Upon pressing a button the selected system mode is activated. After receipt of the first impulse the function is activated, and after second impulse - deactivated;
- > On/off; selected system mode is activated. The mode is active until the contactor is on;
- > PIR sensor. When the sensor is activated, the selected system mode is activated. If the signal is not received for 30 minutes, the mode is activated.

Function is set in the service environment section SERVICE > MAIN > SYSTEM MODE SWITCH.

### ***Fan speed from an external system contactor***

This function is designed to activate/deactivate the boost ventilation or preferred combination of fan speeds by means of an external contactor. It is necessary to indicate a type of a signal to be sent to the input and what this function will control. Possible combinations of signal types and functions:

- > Not used;
- > On/off; selected fan speed combination is activated; the function is active until the contactor is on;
- > Upon pressing a button the selected fan speed combination is activated; upon receipt of one impulse the function is activated, and after second impulse - deactivated;
- > On/off. Boost ventilation function is controlled. It is active until the contactor is on. If this function is not shutdown, after expiry of time limit a boost ventilation is terminated by force.
- > Press a button. Boost ventilation function is controlled. After receipt of one impulse it is activated, and after second impulse - deactivated. If this function is not terminated, after expiry of time limit a boost ventilation is terminated by force.

It is also indicated whether boost ventilation will be activated or a combination of fan speeds is preferred, i.e. it is possible to indicate individually a preferred speed of the supply and exhausted air fans. Function is set in the service environment section SERVICE > MAIN > FANS SPEED SWITCH.

### ***Heat exchanger control***

#### **Cold - Heat Recuperation**

Cold-heat recovery function is designed to control a heat exchanger. Its power is controlled by:

- > Using plate heat exchanger - bypass damper. When it is closed, the heat exchanger is operating at full capacity. Its power is reduced by opening the damper.
- > Rotary heat exchanger power is controlled by changing its rotating speed or interval. When the rotor rotates at full speed, the heat exchanger is used at full capacity. The power is reduced by slowing down the rotating speed or increasing the interval.

The heat exchanger can both heat and cool - it depends on air temperature. If it is colder outside than in the premises, the heat exchanger pre-heats the outdoor air by using the room heat. If it is colder in the premises than outside, the heat exchanger cools down the outdoor air temperature by room air. Its power is reduced to the minimum when the target supply air temperature is the same as outdoor one. The higher the difference between the preferred and supply air temperatures, the higher heat exchanger power is used. When it is operating at maximum capacity, it is allowed to activate other heating/cooling components. For this function suitable heat exchanger type is indicated in the window SERVICE > HEAT EXCHANGER and PID controller coefficients - in the window ADJUSTER > PID CONTROLLERS ADJUSTING.

PID controller output limits are set for rotor or bypass damper, at which their operation starts.

- > If rotor is controlled by 0..10 V signal, at low voltages it does not rotate, the motor heats up, thus the minimum control signal output is limited. If On/Off rotary heat exchanger is used, PID percentage for activating the rotor is indicated in the window SERVICE > HEAT



**EXCHANGER.**

> If the bypass damper opens only a few percent, noise can occur, thus the minimum its opening limit is limited, which also applies when coming to the full opening. If the plate heat exchanger with a 3-way bypass damper is used, the opening time of the bypass damper is indicated in the window SERVICE > HEAT EXCHANGER.

> If a plate heat exchanger with segment valves is controlled by an external controller is used, then the type of the bypass damper "REMOTE CONTROLLER" is shown in the window "SERVICE > HEAT EXCHANGER".

> If a plate heat exchanger with segment valves connected to a controller is used, then the type of the bypass damper is shown in the window "Service > HEAT EXCHANGER" as either "2 SEGMENTS" or "3 SEGMENTS". In the case of heat recovery control, segments are closed in sequence, i.e. if heat recovery is not required, then all the segments are closed and the bypass damper is opened.

**Heat Exchanger Anti-Frost Protection**

This protection is designed to protect the heat exchanger from the formation of ice inside because ice formations can damage the structure of the heat exchanger. The protection is configured in the service environment, in the window "SERVICE > HEAT EXCHANGER".

The protection can be activated/deactivated according to the following:

- Specified outdoor air temperature
- Specified exhaust air temperature
- Specified exhaust air temperature difference compared to the calculated freezing temperature (this temperature is calculated according to the outdoor air temperature, room air temperature and humidity)
- According to the pressure switch

Possible protection measures (to be carried out one by one as specified):

- > Recirculation of outdoor and exhaust air
- > Opening of the bypass damper or control of the segment valve, or slowing-down of the rotor
- > Heating of outdoor air using a preheater
- > Suspension of the supply air flow
- > Shutting-down of the unit according to the low supply air temperature (by default, the limit is 5°C)
- > Shutting-down of the unit if there are no protection measures activated (shut-down after 5 minutes)
- > Shutting-down of the unit due to failure to reach the safe zone corresponding time interval (two cycles, by default, 60 minutes)
- > Shutting-down of the unit according to the critical outdoor air temperature (to be shut down after 60 seconds)

The protection activation conditions and protection measures can be activate selectively. The protections are active only when the outdoor air temperature drops below the set limit, i.e. the protections will respond to the pressure switch only when the outdoor air temperature drops below the permissible limit. For the anti-frost protection, the time interval after which the system switches from one protection measure to another is also specified (by default, it is 30 minutes). If at least one of the activation conditions is satisfied, the protection becomes active and a message is shown. The initial protection is recirculation, which is followed by the bypass damper or segment valve, then preheater and then, if the power is not sufficient, the supply air flow is suspended. If the protection does not help within the specified time interval (by default, 30 minutes), the system switches to the following one. The protections are switched from one to another in accordance with the sequence.

The recirculation of outdoor and exhaust air is an effective and cost-saving protection but it supplies exhaust air back to the supply air flow.

When using the bypass damper or segment valves, the supply air heater must be connected. By slightly opening the damper, the cold air flow through the heat exchanger is reduced but supply air is cooled and must be heated using the supply air heater. This protection slowly opens the bypass damper as long as the activation conditions are satisfied. When suitable conditions are reached, the damper is stopped for 5 minutes and then it is slowly closed. If the outdoor air temperature drops below the permissible level (the heating power is not sufficient), then the damper is forcedly closed according to the supply air temperature.

The bypass valve can also be with segment valves. In this case, the supply air temperature drops less than when using only the bypass damper. At the time of deicing, segments are closed one by one in sequence, i.e. only one segment can be closed at a time and the bypass damper is opened. If at least one segment is closed, then the bypass damper is opened; if all the segments are opened, then the bypass damper is closed.

For the protection with the preheater, the position of the outdoor air sensor in respect of the preheater is specified (upstream/downstream). If the sensor is upstream the preheater, then the unit is not shut down if the required outdoor air temperature is not reached. At the beginning, the outdoor air preheater is activated to the full capacity for a certain period of time, and that it begins maintaining the specified deactivation temperature (outdoor or exhaust air temperature).

If the preheater capacity is not sufficient and the supply air flow reduction is permitted, then the supply air fan is periodically shut down and the heat exchanger is deiced by heating it with exhaust air. Recirculation, the bypass damper and supply air flow suspension operate in periodic cycles. The minimum deicing time is 5 minutes, and the minimum time interval between deicing cycles changes depending on the outdoor air temperature (see the diagram), i.e. the lower the outdoor air temperature is, the shorter the time interval between deicing cycles. The exhaust air temperature and the pressure switch of the heat exchanger can extend time intervals between deicing cycles and to extend the deicing time, i.e. if the minimum time interval after a deicing cycle has elapsed and the pressure valve has not yet been activated, then its activation is awaited; otherwise, if the required conditions are not achieved within 5 minutes during deicing (the pressure valve does not reset or the exhaust air temperature does not increase), then deicing is extended. If the protections according to the pressure switch and/or according to the exhaust air temperature are not activated, then deicing cycles take place at minimum intervals.

The dependence of the minimum time interval between deicing cycles (minutes) on the outdoor air temperature.

**System monitoring**

The service and adjuster environment have the window MONITORING where you can monitor operation of the entire system, i.e. see controller input and output, CO<sub>2</sub> values, versions of connected modules, date and time, speed of fans, temperatures, pressure, etc. The amount of information depends on the system configuration. This tool is designed for preventive maintenance of the system.

### Stand-by mode blocking

This function is designed to protect the system against the impermissible unit shutdown and it is recommended to limit the unit shutdown up to 1 hour within 12 hours during the winter season. Possible function modes:

- > Always allow shutdown;
- > Block shutdown;
- > Block shutdown in winter;
- > Block shutdown in summer.

It must be indicated for how long the shutdown is permissible within 12 hours. If it is blocked and the system is shut down, the system counts and informs the user on the remaining time. This function is configured in the service environment (SERVICE > MAIN > SYSTEM BLOCKING). If the time has expired and Stand-by mode is blocked, the user is informed by the function indication.

### Air flow adjustment

Air-flows are adjusted in the adjuster environment window ADJUSTER > AIR FLOWS ADJUSTING. There are 4 of them in the system and they are dedicated to specific mode:

- > Building protection;
- > Economy;
- > Comfort;
- > Maximum power (BOOST function).

Air-flows are arranged in an ascending order, i.e. upon setting lower air-flow in COMFORT mode than in ECONOMY mode, the air-flow of the latter is reduced automatically. With respect to the system configuration, airflows are indicated in percentage, pressure or amounts of air. 100 % value of air-flow is indicated in service environment window SERVICE > FANS > FAN SPEED CONTROL.

### Manual control of components

This function manually activates/deactivates the components controlled by digital and analogue outputs. The latter ones are controlled in percentage, and digital ones - by ON/OFF. Based on manufacturer's parameters (by default) the status of all components is AUTO, which means that control is based on air handling unit operating algorithm. Components are displayed by the system configuration. Settings must be saved so they remain active after power loss.

The lowest power consumption is when the Stand-by mode is on, and position of components - AUTO. Prior to using the manual control function, it is recommended to activate the force shutdown function, which blocks the air handling unit operating algorithm.

This can be useful, if you need to check whether everything is properly connected. Moreover, in the event of failure, certain components can be activated so that the unit operates irrespective of sensors and protections. Of course, this method should be applied in exceptional cases until the failure is rectified. If the service environment window SERVICE > SENSORS displays an external (REMOTE) type of a temperature sensor, its temperature may be indicated manually. The values may be indicated via the Modbus interface.

### Changing passwords

In the service environment section SERVICE > MAIN > PASSWORD > PASSWORD CHANGING MODE > ON you can change login passwords. For this it is necessary to activate the change and after entering a preferred password (4 digits), click a button SET. To review and change the parameters without a password, just set 0.

### Restoring factory defaults

If set parameters result in incorrect operation of the system, you can always restore the factory defaults in the service environment window SERVICE > MAIN > FACTORY SETTINGS.

### Indications of functions, alrms and warnings

User about active functions, warnings or alarms is notified in the window ADJUSTER > ALARMS or USER > ALERT. Functions are displayed in the main window ADJUSTER > VENTILATION CONTROL or in the user environment window. The table below provides indications and their descriptions.

| Functions                        | Description   |
|----------------------------------|---|
| Working indication output        | Working indication output is activated                      |
| Alarm indication output          | Failure indication output is activated                      |
| System mode switch               | Switching on from an external contactor is activated        |
| Custom fans speed switch         | Selected fans speed from an external contactor is activated |
| Winter                           | Winter mode is active                                       |
| Stand-by mode blocking activated | Stand-by mode blocking is activated                         |
| Slowing down fans                | Fans are slowed down  |
| Slowing down fans by temperature | Fans are slowed down depending on supply air temperature    |



|                                  |  |
|----------------------------------|--|
| Night cooling function activated | Night cooling function is activated  |
| Hydronic pump exercise activated | Preventive maintenance of circulation pumps is activated   |
| Service stop function            | Blocking of air handling unit operating algorithm; Service activities are carried out                            |
| Holidays                         | Holiday Schedule interval is active. System mode can be changed only upon changing the Holiday Schedule interval |
| Reducing CO <sub>2</sub> level   | CO <sub>2</sub> reduction function is activated  |
| Full recirculation               | Full recirculation function is activated   |

**Display and cancellation of alarms and warnings**

The system notifies the user about the system failures by warnings that are canceled automatically and by alarms that have to be canceled manually. The latter are recommended to be canceled by a specialist prior to finding out the causes of the alarm. Information on alarms and warnings is also displayed in the main window ADJUSTER > VENTILATION CONTROL. If at least one alarm is active, the system is shut down and external failure indication is activated. Alarms and warnings can be reviewed and canceled in the window ADJUSTER > ALARMS or USER > ALERT. All possible alarms and warnings are provided in the table below.

| Indication | Alarms list  |
|------------|--|
| !01        | Warning! Rotor broken belt alarm   |
| R02        | Alarm! Fireplace protection activated  |
| !03        | Warning! Dryness protection activated  |
| !04        | Warning! Plate heat exchanger frost protection activated                     |
| R05        | Alarm! Plate heat exchanger frost protection system stopped                  |
| !06        | Warning! Plate heat exchanger frost protection (pressure relay)              |
| R07        | Alarm! Hydronic heater frost protection. System stopped                      |
| !08        | Warning! Too low supply temperature  |
| !09        | Warning! Too high supply temperature   |
| R10        | Alarm! Too low supply temperature. System stopped                            |
| R11        | Alarm! Too high supply temperature. System stopped                           |
| !12        | Warning! Change supply air filter (pressure relay)                           |
| !13        | Warning! Change extract air filter (pressure relay)                          |
| !14        | Warning! Change supply and extract filters (timeout)                         |
| R15        | Alarm! Power supply failure. Please, check F1 fuse                           |
| !16        | Warning! Supply air temperature sensor failure. Emergency run                |
| !17        | Warning! Extract air temperature sensor failure. Emergency run               |
| !18        | Warning! Exhaust air temperature sensor failure. Emergency run               |
| !19        | Warning! Fresh air temperature sensor failure. Emergency run                 |
| !20        | Warning! Hydronic heater water temperature sensor failure. Emergency run     |
| !21        | Warning! Hydronic pre-heater water temperature sensor failure. Emergency run |
| !22        | Warning! Hydronic cooler water temperature sensor failure. Emergency run     |
| !23        | Warning! Controller cabinet temperature sensor failure. Emergency run        |
| R24        | Alarm! Supply air temperature sensor failure. System stopped                 |
| R25        | Alarm! Extract air temperature sensor failure. System stopped                |
| R26        | Alarm! Exhaust air temperature sensor failure. System stopped                |
| R27        | Alarm! Fresh air temperature sensor failure. System stopped                  |
| R28        | Alarm! Hydronic heater water temperature sensor failure. System stopped      |
| R29        | Alarm! Hydronic pre-heater water temperature sensor failure. System stopped  |
| R30        | Alarm! Hydronic cooler water temperature sensor failure. System stopped      |

|     |  |
|-----|--|
| R31 | Alarm! Controller cabinet temperature sensor failure. System stopped |
| !32 | Fire damper test OK  |
| !33 | Warning! Fire damper test failed                                     |
| R34 | Alarm! Heater manual protection. System stopped!                     |
| !35 | Warning! Heater automatic protection                                 |
| R36 | Alarm! Pre-heater manual protection. System stopped!                 |
| !37 | Warning! Pre-heater automatic protection                             |
| R38 | Alarm! Supply fan failure  |
| R39 | Alarm! Extract fan failure   |
| R40 | Alarm! DX cooler failure   |
| R41 | Alarm! Fire  |
| R42 | Alarm! Supply fan pressure protection. System stopped                |
| R43 | Alarm! Extract fan pressure protection. System stopped.              |
| R44 | Alarm! Internal system error.  |
| R45 | Alarm! Heater manual protection. Boosting.                           |
| R46 | Alarm! Pre-heater manual protection. Boosting.                       |
| R47 | Alarm! Internal communication error                                  |
| !48 | Warning! DX cooler defrosting  |
| !49 | Warning! Too high 3 days extract humidity. Increasing air flow.      |
| !50 | Warning! Too high extract humidity. Boosting.                        |
| R51 | Alarm! Rotor broken belt alarm. System stopped.                      |
| !52 | Warning! Gas heater failure  |
| !53 | Warning! Gas pre-heater failure                                      |
| !54 | Warning! Too high condensation level                                 |
| !55 | Warning! Supply fan failure. Emergency run                           |
| !56 | Warning! Extract fan failure. Emergency run                          |
| !57 | Warning! Too low supply air flow for DX cooler                       |

#### **Event log(History)**

The system records 50 recent events (failures, alarms, fire damper testing results, etc.).  
 The log stores the description of events and time.  
 The event log may be reviewed in the window ADJUSTER > HISTORY or USER > MENU > HISTORY.

#### **System versions and running time**

In the section ADJUSTER > USER SETTINGS > ABOUT you may see software and configuration versions that are saved in the production line namely to every unit. Next to them the running time since the unit has been manufactured is also displayed. It is calculated when the fans are rotating.

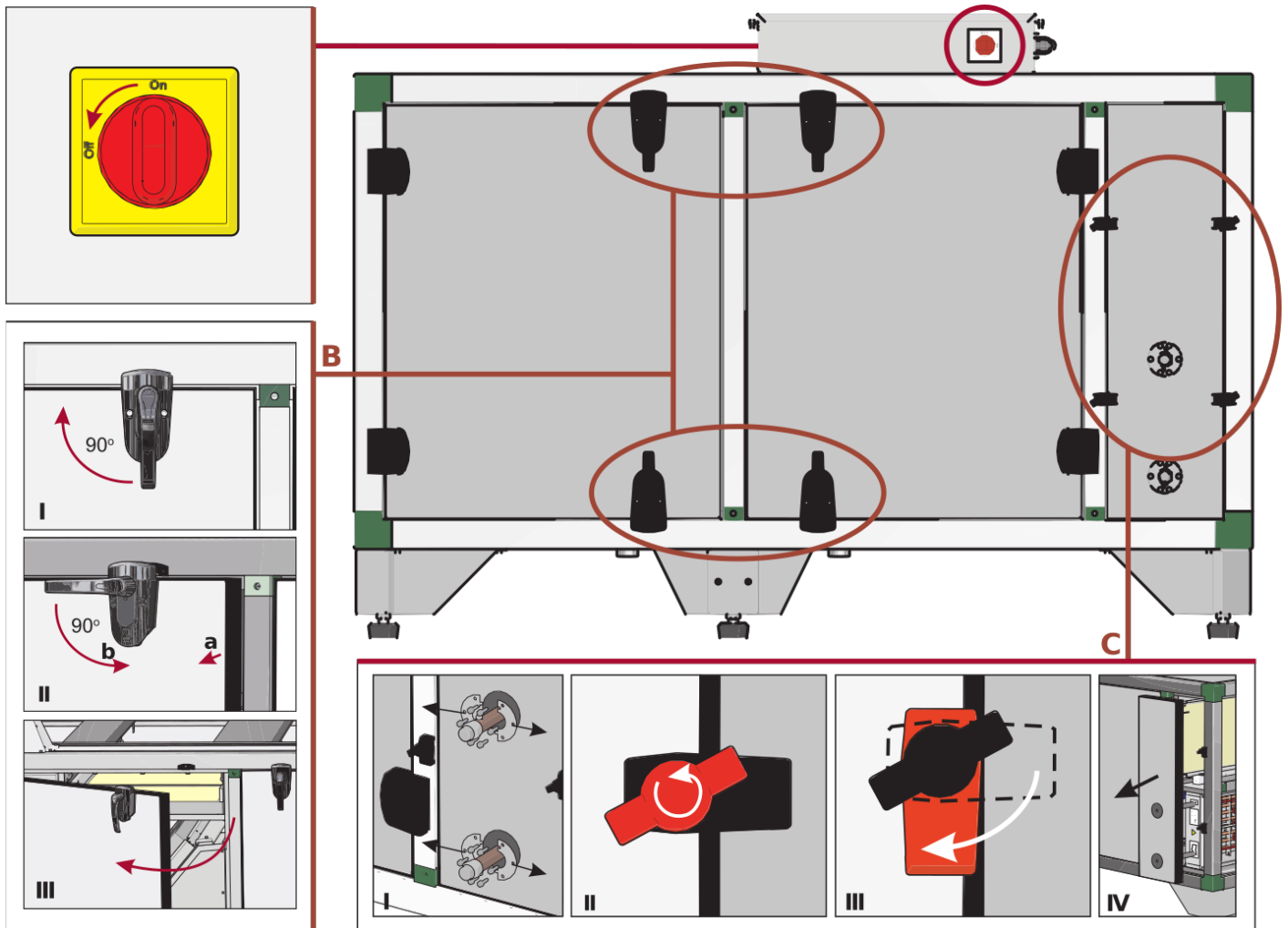
## Maintenance

## Safety instruction



It's necessary to stop the unit before opening its' doors. Disconnect the unit out of power supply and/or disconnect the main switch only after fans stop completely (approximately 2 min.). It necessary to assure, that the main switch cannot be turned on by the third persons.

## Cover opening



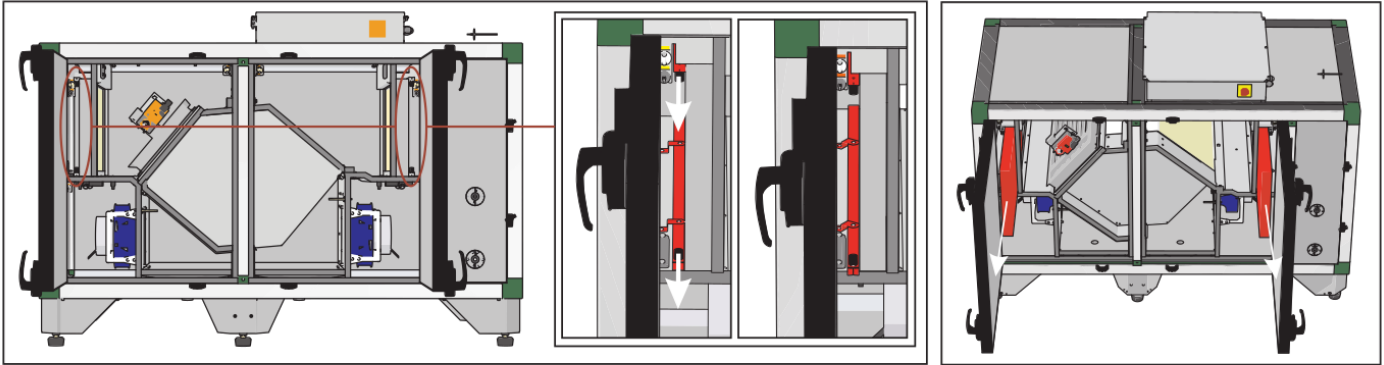
(A) Make sure, that units' switch is at off position.

(B) Turn the handles by 90 degrees (I). After pulling the doors towards yourself (II- a), return the handles to the primary position (II - b). Open the doors (III). All the doors of AmberAir Compact units can be opened accordingly.

(C) Opening of the heat exchangers' doors. If the AHU is equipped by electrical heater, then, in order to open the doors just unscrew all 4 holding handles (II, III) and take off the doors (IV). In case of water heater - unscrew pipe sealing half-rings (I) firstly.

**Filters maintenance**

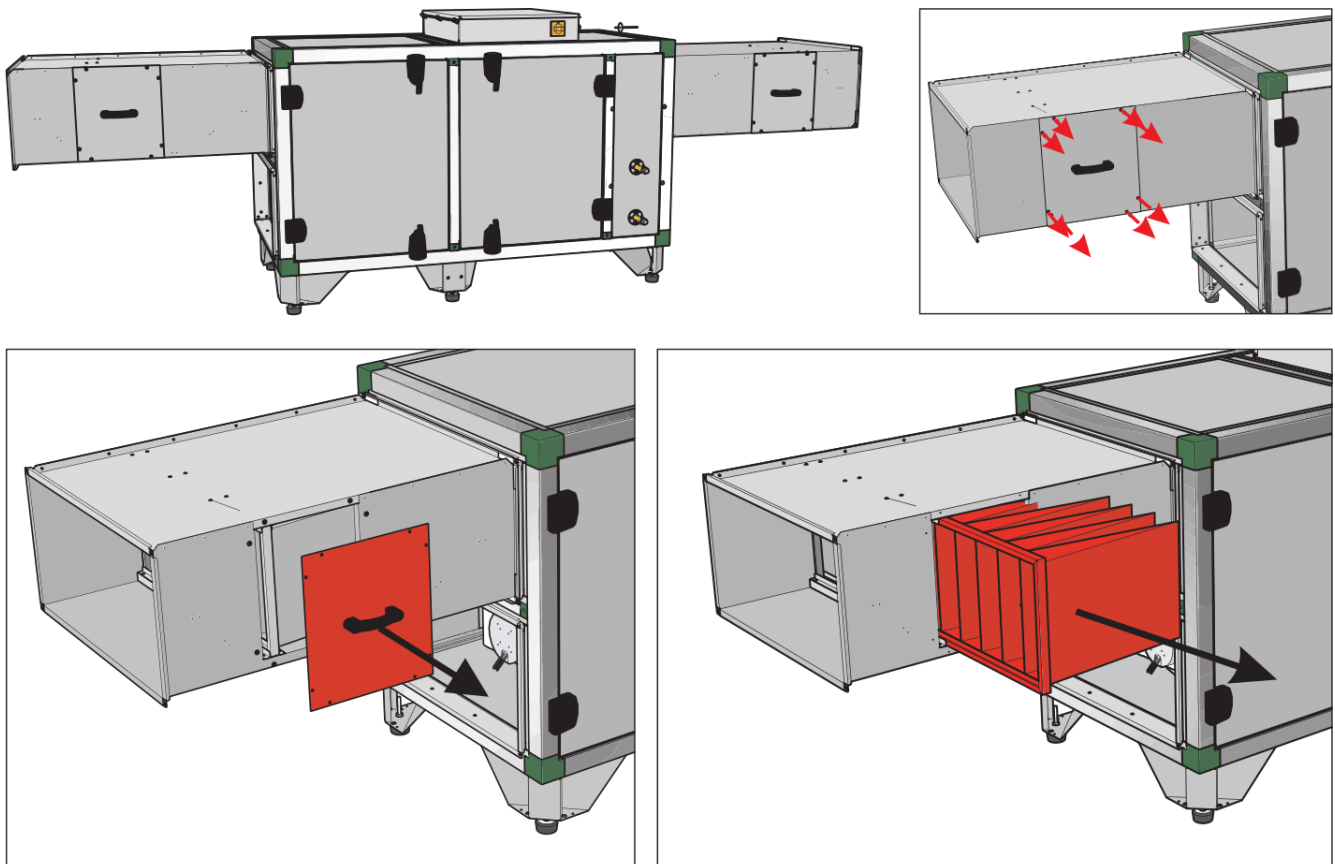
- Open the doors as described in the section “Opening the doors”.
- Holding at the holes near the arrows, pull the red-marked filter clamps. Remove the filters.
- When inserting a filter, make sure that the arrow on the filter coincides with the flow direction.




|  |  |   |   |
|--|--|---|---|
|  | <p><b>Changing filters, filters reload timer control.</b><br/> <b>Strictly prohibited to operate the unit without filters!</b></p> |  | <p><b>It is recommended to change the filters every 3 - for 4 months, or according to filter timer indication in remote control panel or BMS.</b></p> |
|--|--|---|---|

**Filter box maintenance**

- The cover is unscrewed and removed using a key.
- The filters are removed.



|   |  |
|---|--|
|  | <p><b>The filter box can be purchased as an accessory.</b></p> |
|---|--|

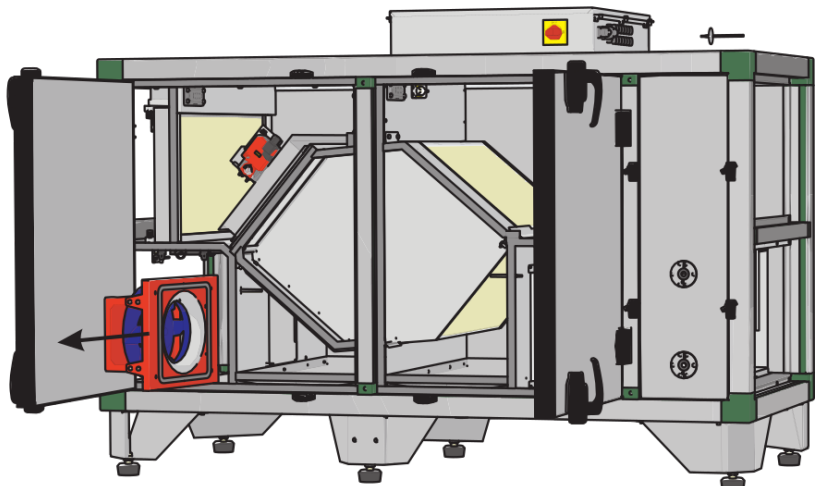
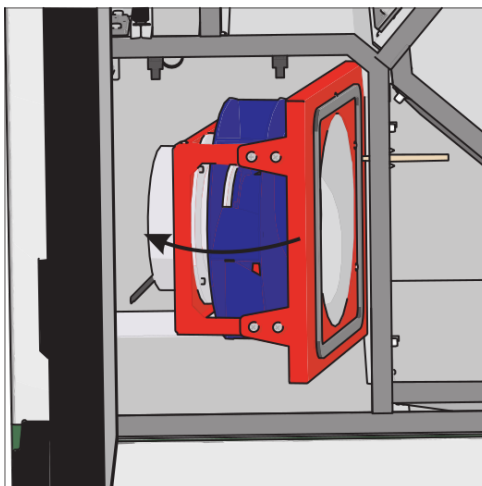
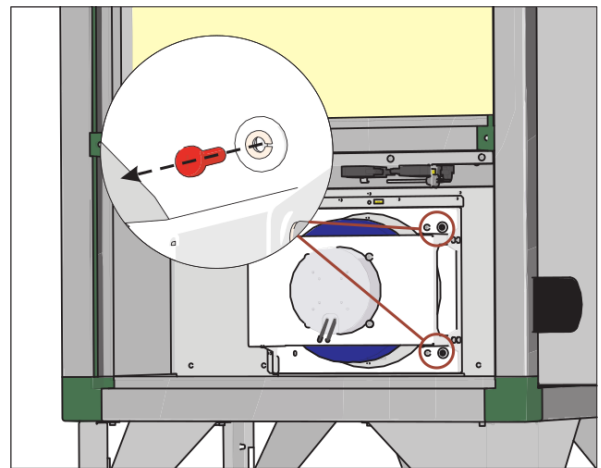
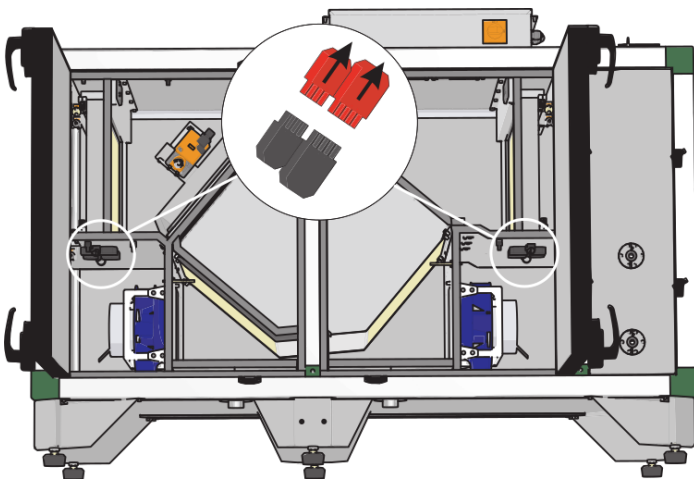
## Fans maintenance



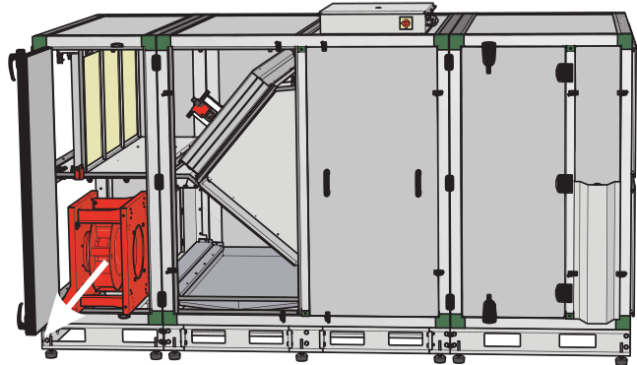
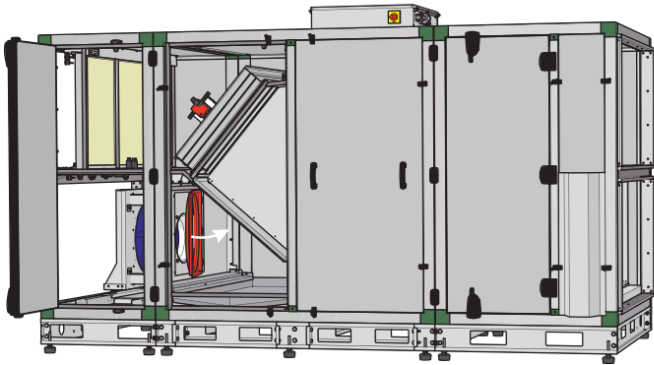
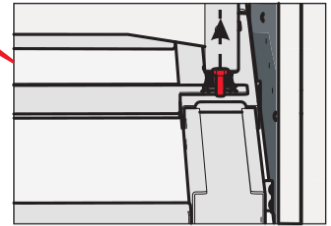
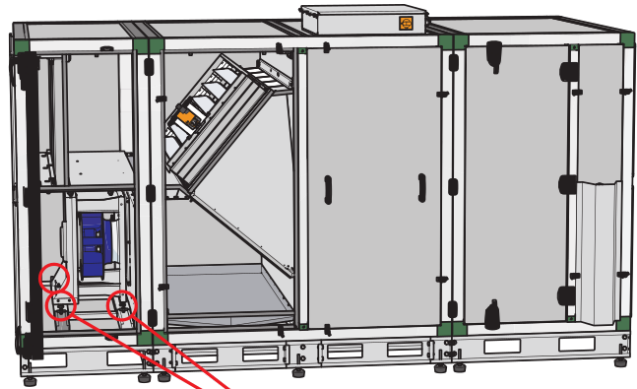
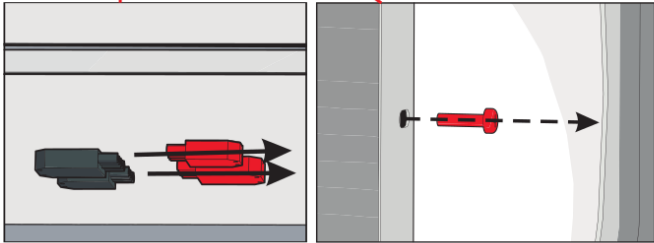
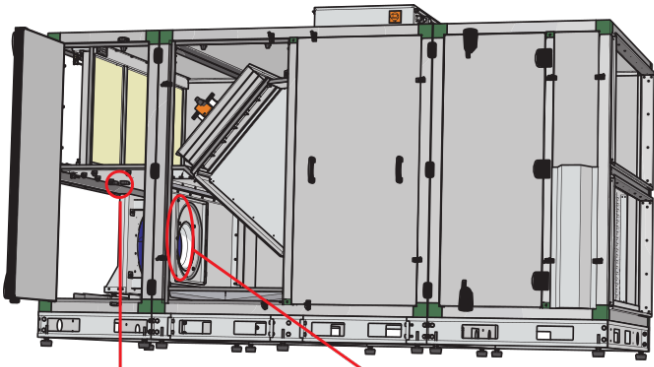
**Before starting maintenance or repair work, make sure that the unit is disconnected from the electrical network and/or that the main circuit breaker is turned off**

- Maintenance should be performed only by experienced and trained staff.
- The fan should be inspected and cleaned at least once a year.
- Be sure the fan is disconnected from power source before performing any maintenance or repair.
- Begin maintenance works only after a full stop of the fan.
- When performing technical maintenance works, follow all work safety rules.
- The structure of the motor includes high-performance bearings. They are pressurised and, therefore, do not require lubrication throughout the motor service life.
- Detach fan connections from the unit.
- Disconnect fan air pressure hose.
- Impeller should be specially checked for built-up material or dirt which may cause an imbalance. Excessive imbalance can lead to accelerated wear
- on motor bearings and vibration.
- Clean the impellers and the inside of the casing with a soft, non-soluble and non-corrosive detergent and water, with ph (6-8).
- Do not use high pressure cleaner, abrasives, sharp instruments or caustic solvents that may scratch or damage housing and impeller.
- Do not plunge the motor into any fluid while cleaning impeller.
- Make sure, that impeller's balance weights are not moved.
- Make sure the impeller is not hindered.
- Mount the fan back into the unit. Connect the fan to power supply source. Connect air pressure hose.
- If after maintenance the fan does not start or stop itself, contact the producer. Malfunction of the fan can be identified according to the pressure in the system (when pressure switches are connected). When there is a fault in fans' motor, any separate notice is shown on the control panel.
- Before starting the unit, make sure that no tools or other foreign items are left.

## AmberAir Compact 1-5 CX H



AmberAir Compact 6-7 CX H

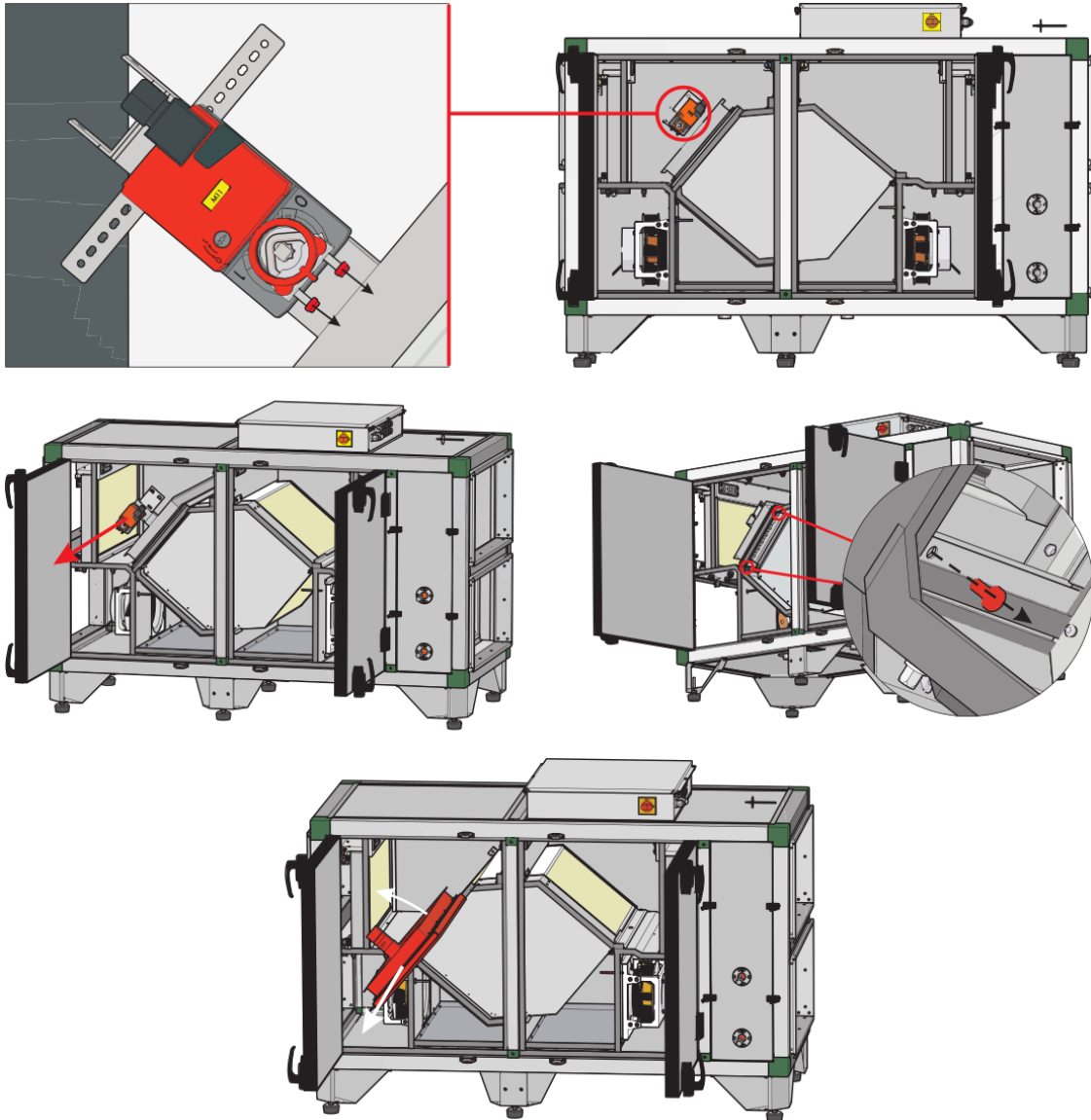


## Air damper maintenance

- Open the doors.
- Disconnect the damper wires from the automatics.
- Unscrew the drive and remove it from the axle.
- Unscrew the screw and remove the clamp.
- Remove the by-pass.

**Removal of the recirculation valve:**

- Perform the above actions for disconnecting the drive;
- Remove the damper together with the bypass assembly (follow the Heat Exchanger Maintenance Description).



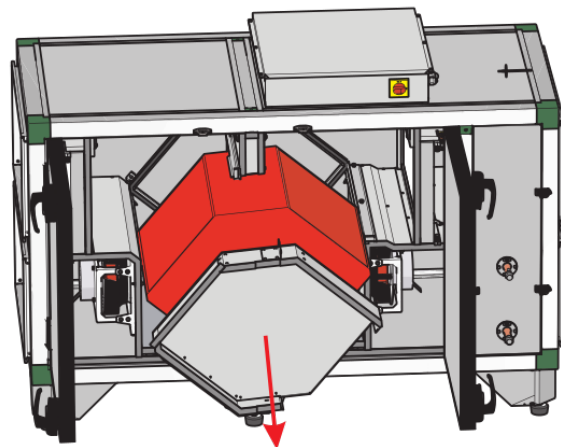
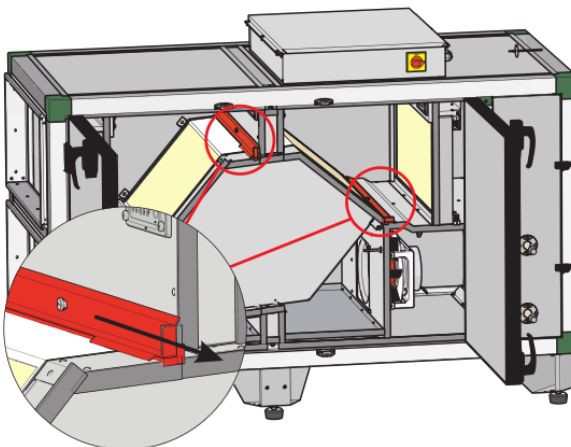
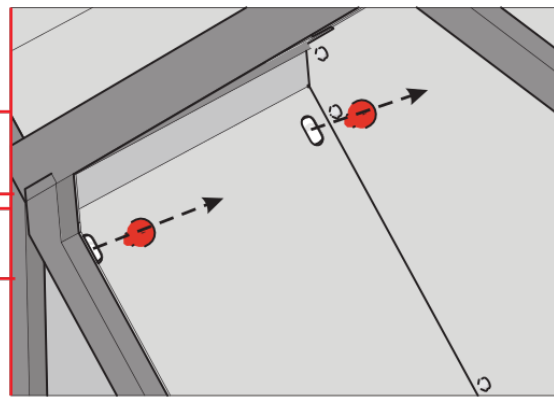
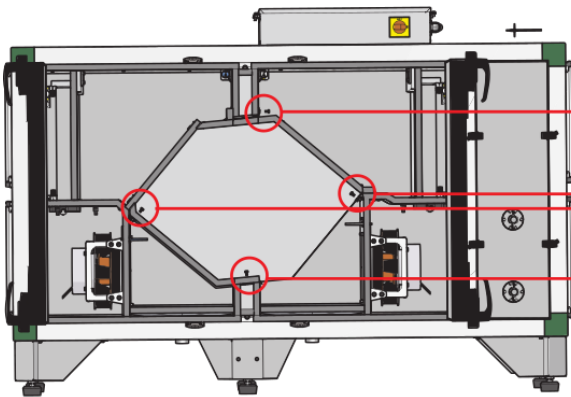
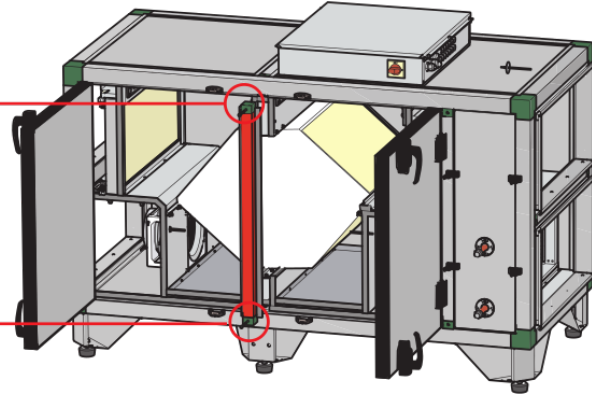
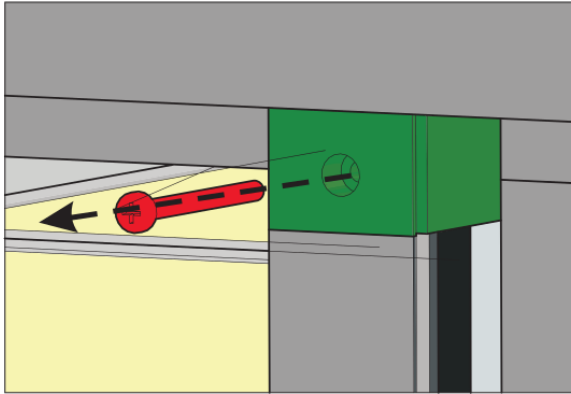


**Heat exchanger maintenance**

- Maintenance works may only be started after a full stop of the fans.
- Clean the heat exchanger once a year.
- Carefully remove the heat exchanger cartridge and immerse it in a container with soapy water (do not use soda). Then wash the cartridge with a weak hot water flow (excessively strong water flow may bend its plates). The heat exchanger may be installed into the unit only when it is completely dry.



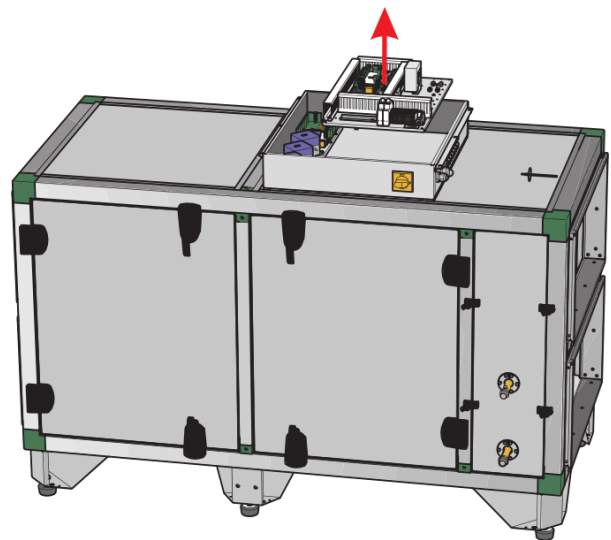
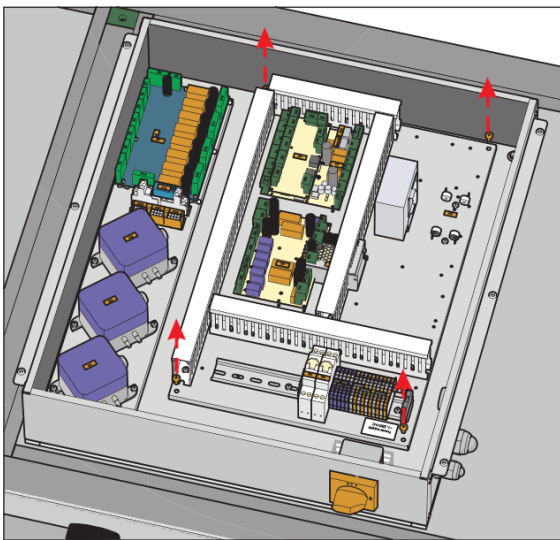
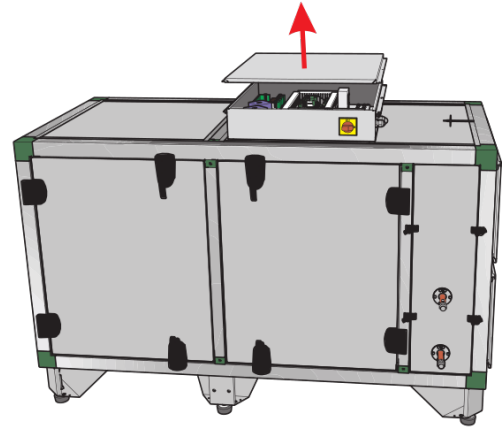
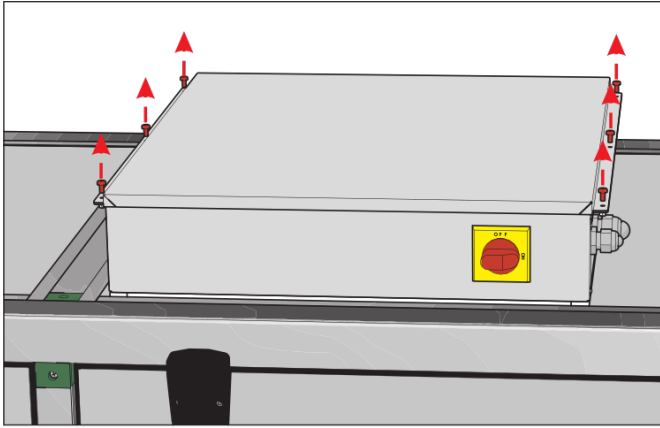
**The heat exchanger cartridge may not be removed after removing the bypass valves.**





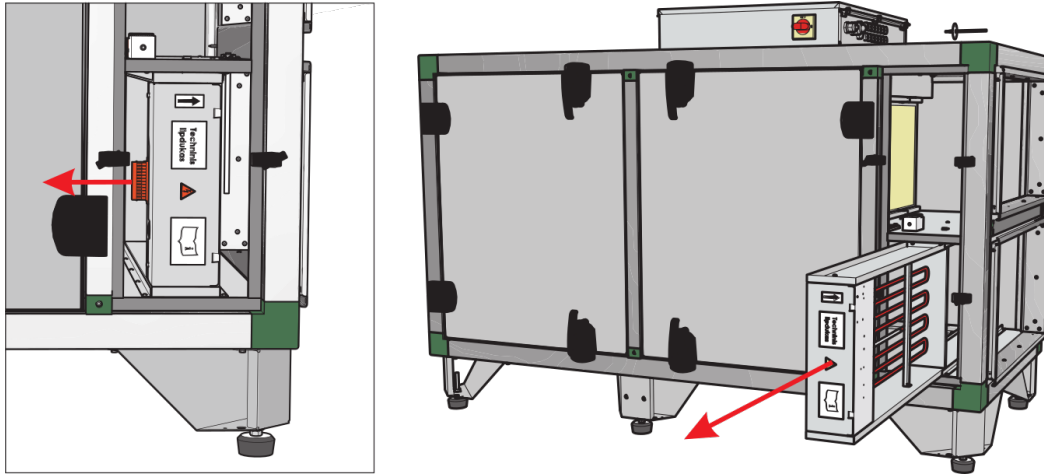
## Control board maintenance

- Turn off the main circuit breaker of the product.
- Open the doors of the product.
- Unscrew the switchboard from the automatics section.
- Disconnect the connections from the controller.
- Remove the controller.
- To reassemble, repeat the actions in the reverse order.
- To reassemble, repeat the actions in the reverse order. When connecting connectors back pay attention to the connectors' markings - they must match.

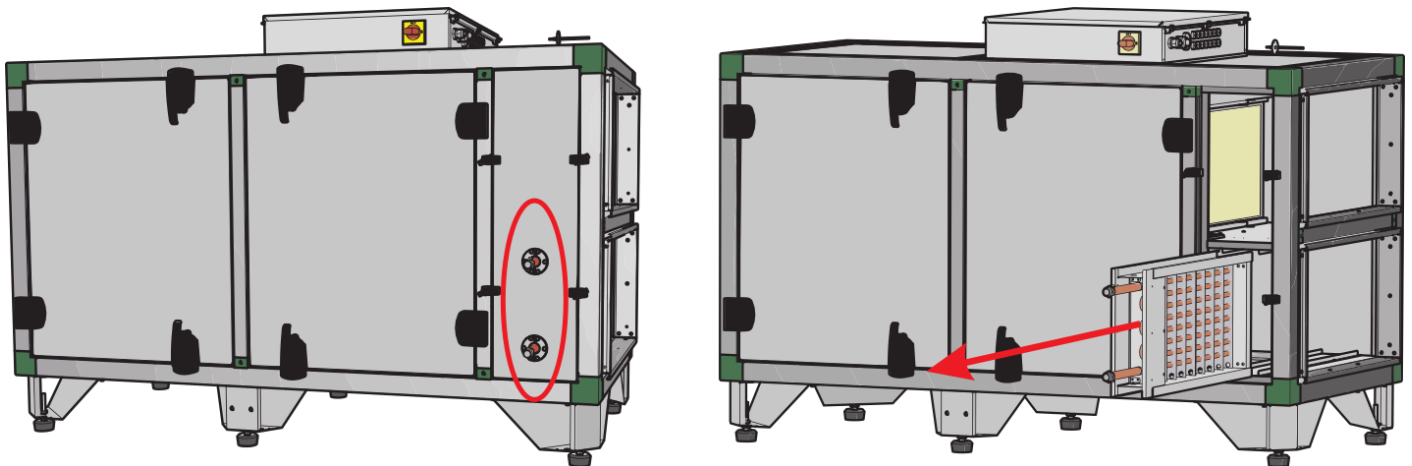


**Electric heater maintenance**

- Turn off the main circuit breaker of the product.
- Open the doors of the product.
- Disconnect the electrical heater from the harness.
- Remove the heater. Don not take heater at the heating element, but hold it at casing.
- Before installing heater back, please pay attention at the airflow direction markings.

**Water heater maintenance**

- Turn off the main circuit breaker of the product.
- Open the doors of the product.
- Disconnect the supply and return water pipelines.
- Remove the heater.



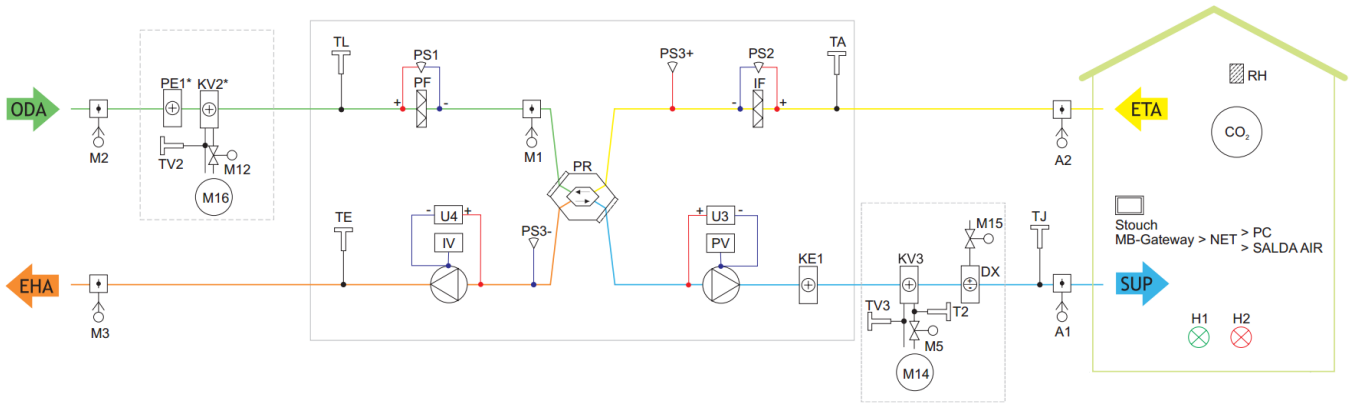
### General recommendations for the maintenance of ventilation system

In order to ensure proper functioning of the system, maintenance requirements and its periods should be followed. Otherwise the warranty shall not be valid. Some recommendations are provided in the table below, but they are just advisory, as the need of system maintenance depends on the place of the device installation, the pollution of the atmosphere, the population, the working hours and etc.

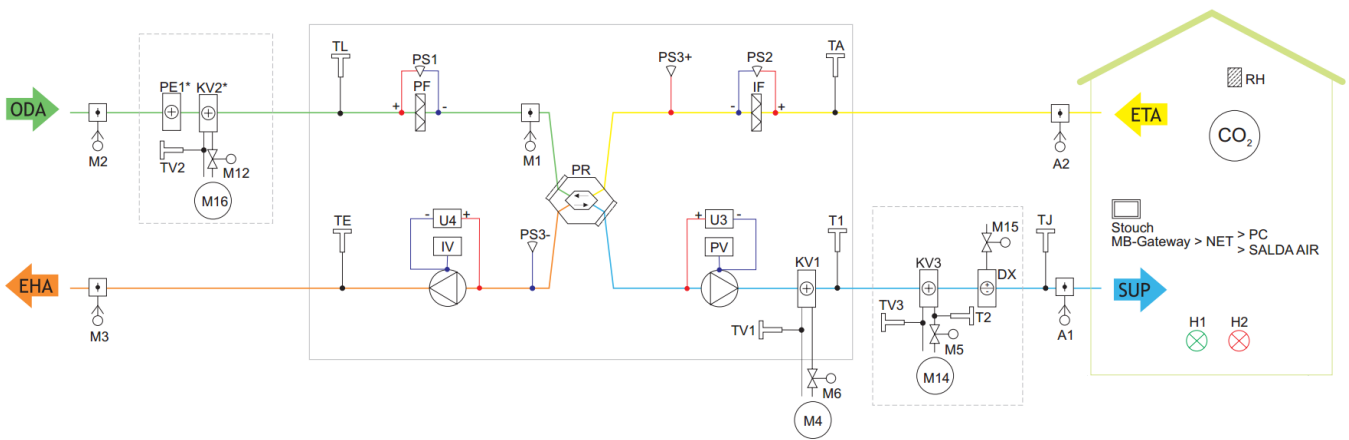
| Component                       | During start-up   | At least every 6 months  |
|---------------------------------|---|--|
| Filters                         | Check the cleanliness of the filters  | Replace filters every 3 to 4 months or according to the console indications.   |
|                                 |   | Make sure that the pressure relay is clean and clean it if necessary.  |
|                                 |   | Check for any damaged filter fastening parts.  |
| Fans                            | Check the connections and the direction of rotation   | Check cleanliness. Clean, if necessary   |
|                                 |   | Make sure that the impellers are not unbalanced.   |
|                                 |   | Make sure that the impellers do not cause noise when rotated by hand.  |
|                                 |   | Make sure that the fastening screws are not loose and free of mechanical damage.   |
|                                 |   | Check electrical connections and make sure that their are secured properly and are free of signs of corrosion.   |
| Rotor Heat exchanger            | Check the direction of rotation   | Check cleanliness and clean, if necessary  |
|                                 |   | Check the tension of a belt  |
| Plate Heat exchanger            | Check the cleanliness of the heat exchanger   | Check cleanliness and clean, if necessary  |
| Control panel                   | Check the connections   | Check the connections  |
| Electric heater                 | Check the connections   | Clean the dust, and check the electrical components and connections of the heater  |
| Water heater                    | Check the tightness   | Check cleanliness and clean, if necessary  |
|                                 |   | Check the tightness and seal the connections, if necessary   |
| Condensate discharge trap       |   | Clean  |
| Pressure sensor                 | Check the connection of electricity   | Check the operation  |
| Temperature sensor              | Check the connection of electricity   | Check the operation and tune up, if necessary  |
| Air intake and discharge system | Check the connections   | Clean  |
| Air duct system                 | Check the tightness   | Clean  |
| Dampers, diffusers, grid        | Check the tightness of connections  | Clean  |
| Switching unit (contactor)      |   | Every 3 to 4 months, visually assess the functioning of the switching unit (contactor), i.e. make sure that its casing has no signs of melting or is not thermally damaged otherwise and does not produce any unusual sounds. All the contactors in the product or in its accessories must be checked. |
| Condensate discharge assembly   | Check the condensate discharge assembly and make sure that water runs from the bath properly. | Clean  |






Mounting diagram

Electrical version

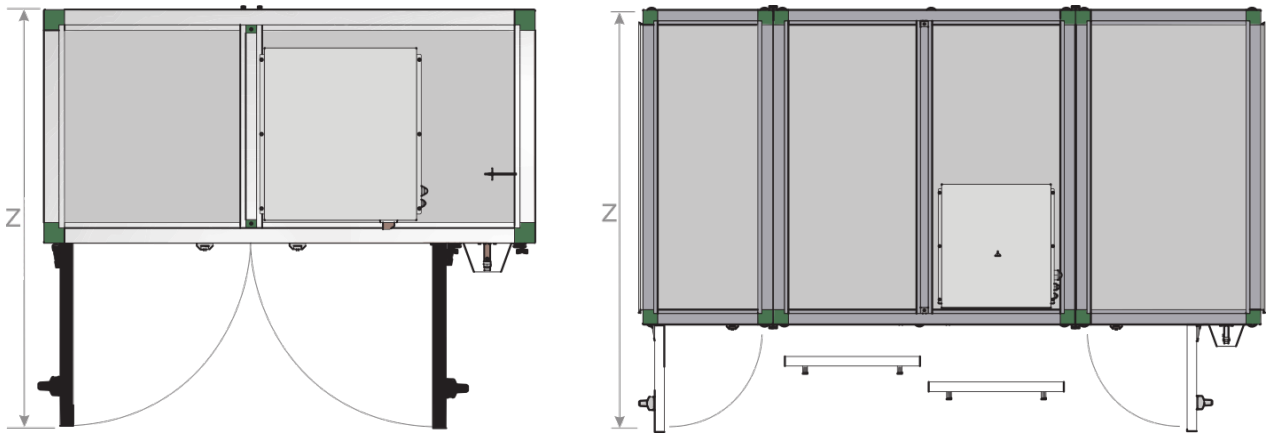


Water version



| List of component  |   |
|--|---|
| <b>PR</b>  | Plate heat exchanger  |
| <b>PV</b>  | Supply air fan  |
| <b>IF</b>  | Extract air filter  |
| <b>PF</b>  | Supply air filter   |
| <b>IV</b>  | Exhaust fan   |
| <b>KE1</b>   | Electric heater   |
| <b>PE1</b>   | Electric pre-heater (the electric and water pre-heaters may not be used at the same time) |
| <b>KV1</b>   | Water heater (the possibility of the heating switch function)                             |
| <b>KV2</b>   | Water pre-heater (the electric and water pre-heaters may not be used at the same time)    |
| <b>KV3</b>   | Water/DX cooler (the water and DX coolers may not be used at the same time)               |
| <b>M1</b>  | Actuator by-pass damper   |
| <b>M2</b>  | Supply air damper actuator  |
| <b>M3</b>  | Exhaust air damper actuator   |
| <b>M4</b>  | Water heater circulation pump   |
| <b>M5</b>  | Water cooler valve motor  |
| <b>M6</b>  | Water heater valve motor  |
| <b>M12</b>   | Water pre-heater valve motor  |
| <b>M14</b>   | Water cooler circulation pump   |
| <b>M15</b>   | DX cooler valve actuator  |
| <b>M16</b>   | Water pre-heater circulation pump   |
| <b>A1</b>  | Fire alarm damper actuator I  |
| <b>A2</b>  | Fire alarm damper actuator II   |
| <b>TJ</b>  | Supply air temperature sensor   |
| <b>TL</b>  | Outdoor air temperature sensor  |
| <b>TE</b>  | Exhaust air temperature sensor  |
| <b>TA</b>  | Extract air temperature sensor  |
| <b>DTJ</b>   | Extract air temperature and RH sensor   |
| <b>TV1</b>   | Water heater temperature sensor   |
| <b>TV2</b>   | Water preheater temperature sensor  |
| <b>TV3</b>   | Water cooler temperature sensor   |
| <b>T1</b>  | Water heater thermostat   |
| <b>T2</b>  | Cooler switching thermostat   |
| <b>PS1</b>   | Supply air filter switch (NO)   |
| <b>PS2</b>   | Extract air filter pressure switch (NO)   |
| <b>PS3</b>   | Heat converter pressure switch (NC)   |
| <b>U3</b>  | Supply air fan pressure sensor  |
| <b>U4</b>  | Extract air fan pressure sensor   |
|  <b>ODA</b> | Outdoor air   |
|  <b>SUP</b> | Supply air  |
|  <b>EHA</b> | Exhaust air   |
|  <b>ETA</b> | Extract air   |
| <b>RH</b>  | Relative humidity sensor  |
| <b>CO<sub>2</sub></b>  | CO <sub>2</sub> sensor  |
| <b>Stouch</b>  | Remote control panel  |
| <b>SALDA AIR</b>   | Mobile application  |
| <b>MB-Gateway</b>  | Network module  |
| <b>NET</b>   | Network   |
| <b>PC</b>  | Computer  |
|           | Ventilated premises   |
| <b>Galimi PCB įėjimai/išėjimai</b>   |   |
| <b>FA</b>  | Fire alarm  |
| <b>FPP</b>   | Fireplace protection  |
|  | System mode switch (START/STOP)   |
|  | Fans speed switch (BOOST)   |
| <b>H1</b>  | Operation indication output   |
| <b>H2</b>  | Alarm indication output   |

Place requirements for the equipment



Space for door opening

Z[mm]

Mounting

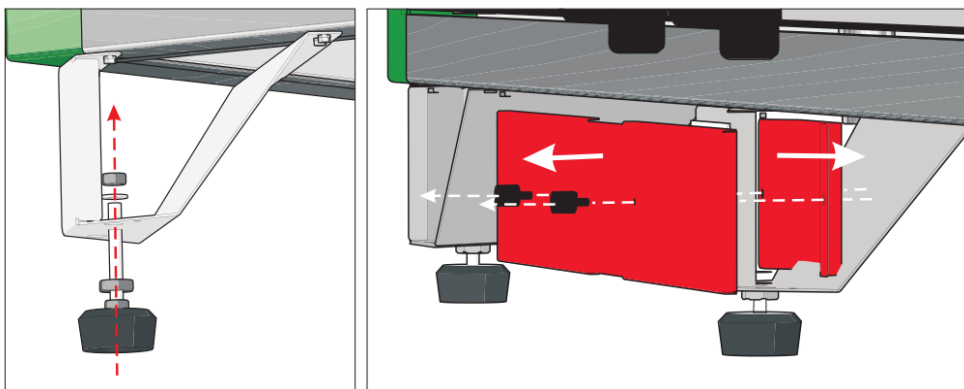
- Installation should only be performed by qualified and trained staff.
- When connecting air ducts, consider the notices indicated on the casing of the unit.
- Before connecting to the air duct system, the connection openings of ventilation unit should be closed.
- When connecting the ducts, you should pay attention to the airflow direction indicated on the device housing.
- Do not connect the bends close to connection flanges of the unit. The minimum distance of the straight air duct between the unit and the first branch of the air duct in the supply air duct must be  $1xD$ , in air exhaust duct  $3xD$ , where  $D$  is diameter of the air duct.
- It is recommended to use the accessories-holders. This will reduce vibration transmitted by the unit to the air duct system and environment.
- Enough space must be left for opening of the maintenance door and filter covers.
- If the installed ventilation unit is adherent to the wall, it may transmit noise vibrations to the premises. Though the level of noise caused by the fans is admissible, it is recommended to mount the unit at the distance of 400 mm from the nearest wall. If it is not possible, the mounting of the unit is recommended on the wall of the room where the level of noise is not important.
- Ducts are connected to the unit in such way that they could be easily disassembled and the heater could be removed from the unit when performing service or repair works.



The protective film is intended to protect the unit during transportation. It is recommended to remove the film because otherwise oxidation signs may occur.

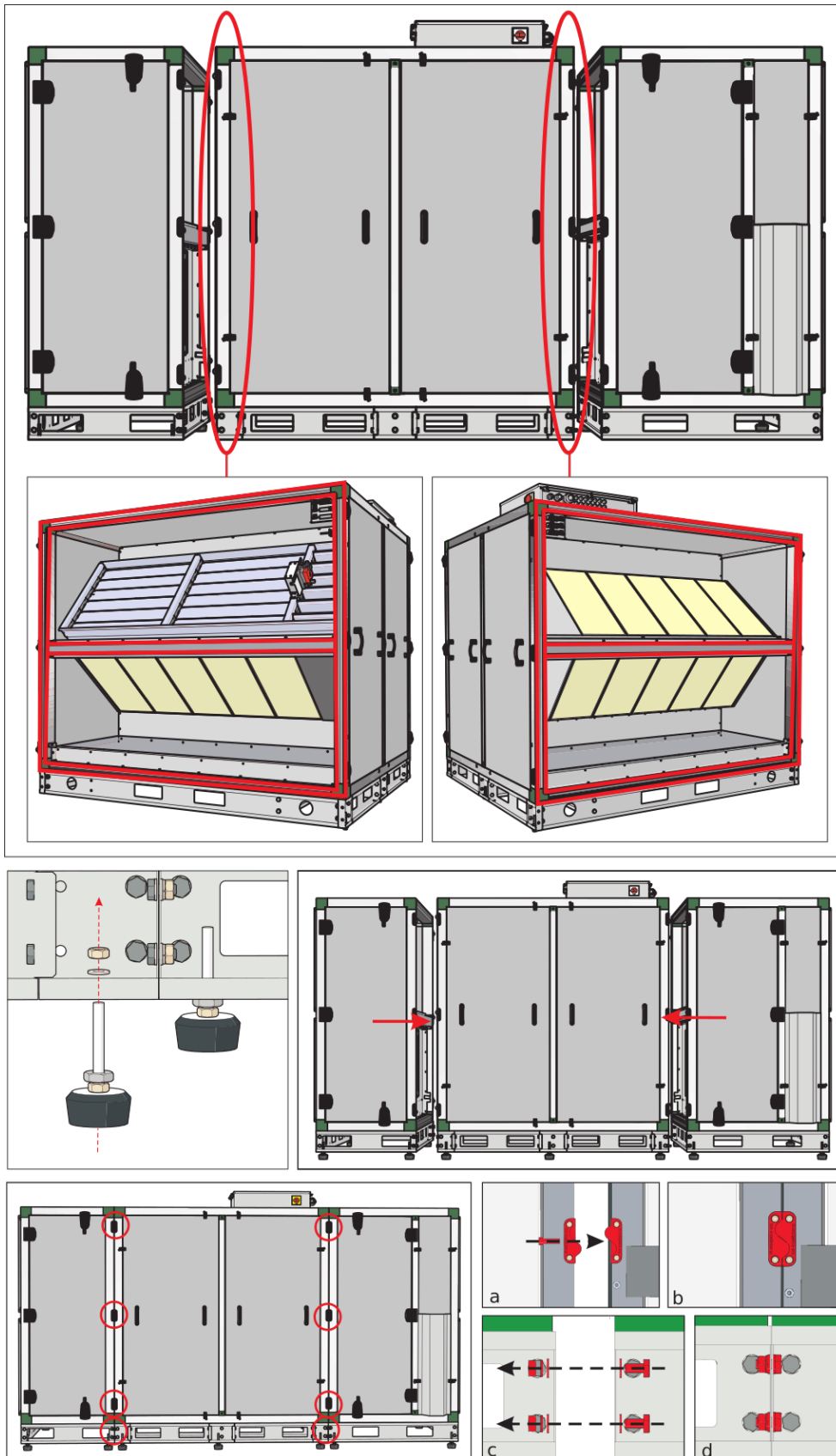
AmberAir Compact 1-5 CX H

The product should be slightly lifted and installed on the legs. The lifting methods are shown in the section "Transportation and Storage". Versions 1-5 of AmberAir Compact have drainage protection, which is removed after installing the legs. The protection is a part intended for transportation only and should not be reinstalled after mounting the drainage.



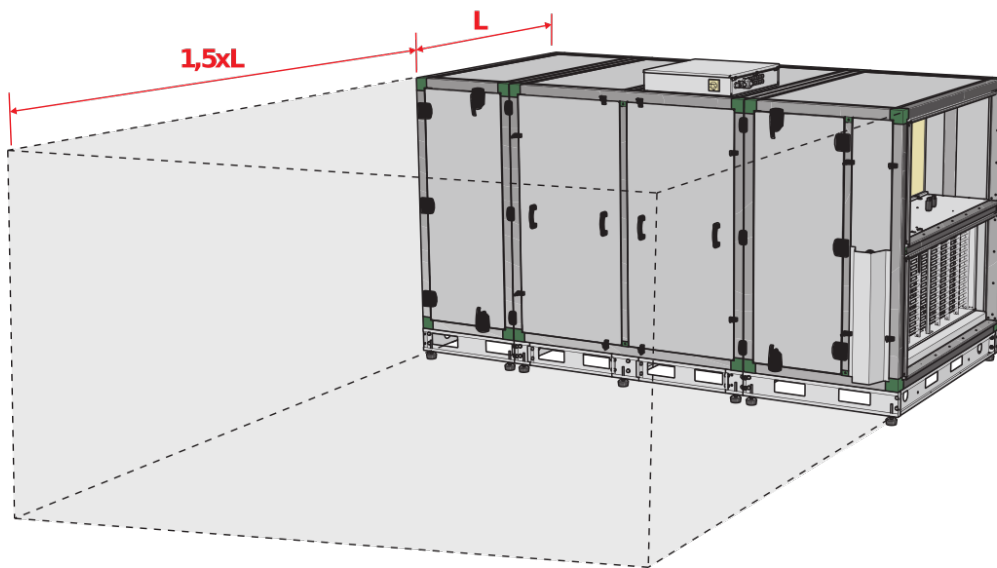
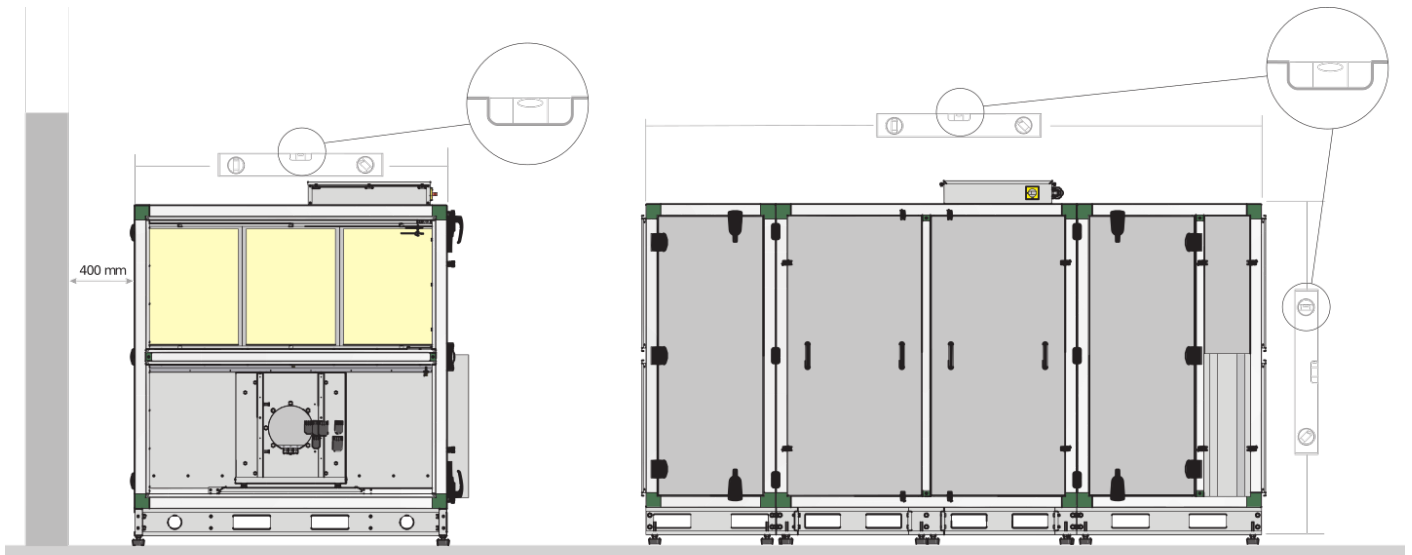
AmberAir Compact 6-7 CX H

The products shall be installed on the legs. In order to do so, the unit should be slightly lifted. The hoisting methods are shown in the section "Transportation and Storage".



### Mounting position

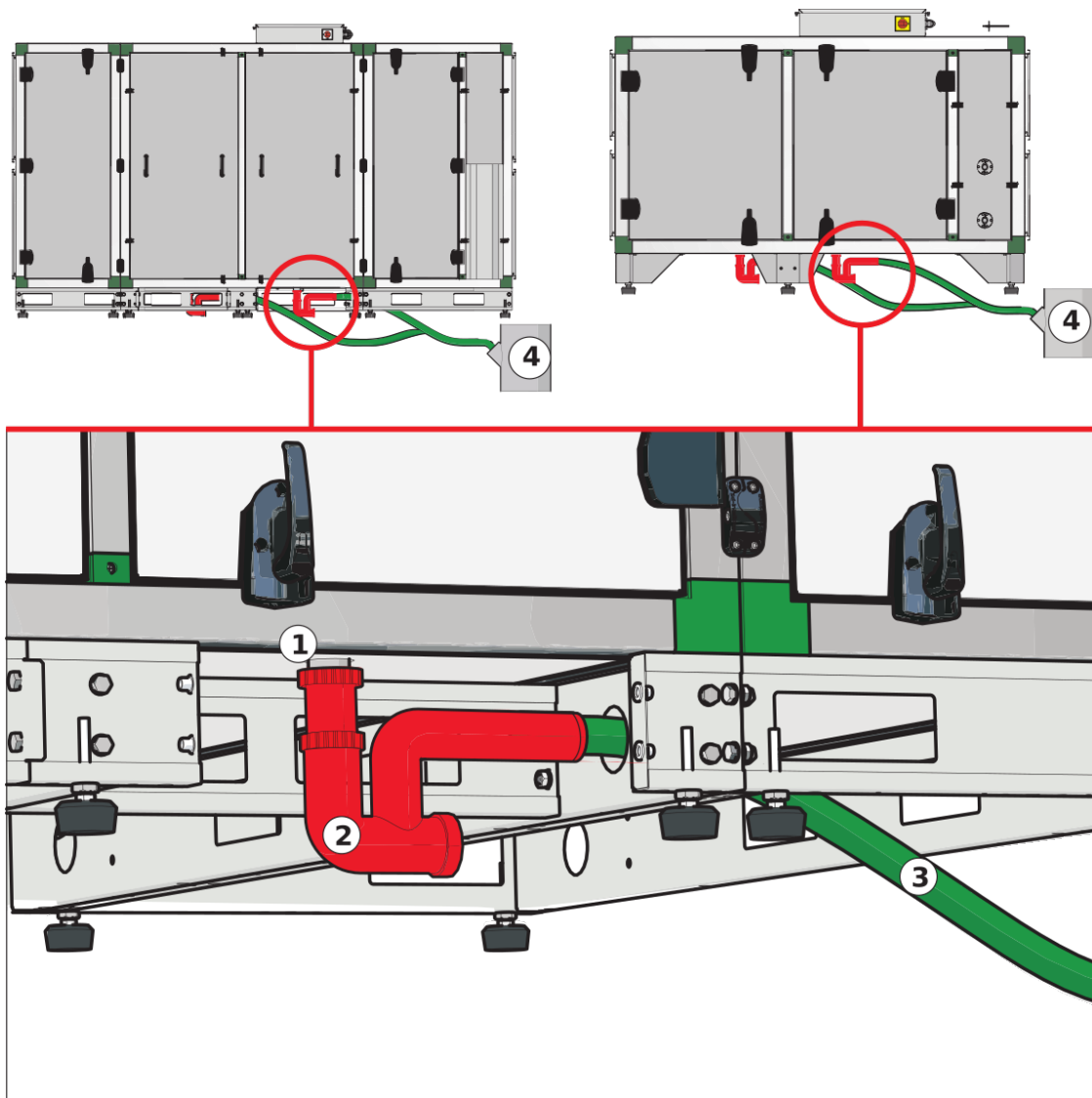
1. The installation position only in the horizontal direction.
2. Install the supporting legs.
3. AmberAir Compact of sizes 6-7 CX H are assembled from separate sections.
4. They must be adjusted without a gradient (because a gradient of 3° is aligned in the condensate drip trays).
5. Leave some space in the front so that it would be sufficient to open the doors and to remove or install a required component.





### Drainage

- After installing the air handling unit, the condensate drainage system should be connected: connect the siphon (2) (shown at the bottom of the picture) to the condensate trap (1) of the heat recovery unit.
- Two siphons are used at each AmberAir Compact CX H product because two condensate drip trays are installed at each of those units.
- The siphon (2) is connected with the sewage system via a pipe (3), which can be made either of metal, plastic or rubber. It should have a gradient of at least 3° (a metre of the pipe should descent by 55 mm)!
- Prior to starting the recovery unit, the system should be filled with 0.5 litre or more water (the siphon (2) should always be filled up) and make sure that water goes to the sewage system (4)! Otherwise, the room may be flooded when operating the recovery unit!
- The condensate drainage system should be operated in a room with an ambient temperature not below 0 °C! If it may drop below 0 °C, the system must be protected with thermal insulation with additional installation of a heating cable and thermostat.
- The siphon (2) should not necessarily be downstream the recovery unit but below it.
- The legs of AmberAir Compact products of sizes 1-5 CX H are fitted with condensate pipe protection to prevent it from damage when lifted by a forklift. When connecting the condensate drainage system, this protection should be removed (it is a component intended for transportation only).



Before every heating season the condensate tube shall be filled with water as indicated during the first startup!

### Connection of air ducts

- Connected air ducts must be straight and have their own fixing.
- Make sure that the fans can not be entered through air duct heads. If it is possible to enter the fan, protective grid should be installed. You can choose it in our website.
- Do not reduce the diameter of the piping near air inlet or exhaust ducts. If you want to reduce the speed of air in the system, drop of pressure and noise level, you can increase the diameter.
- In order to reduce the level of the noise in the air supply system, install silencers (see chapter on their installation).
- In order to reduce air loss in the system, the air ducts and profile parts should be of class C and higher. Their catalog can be found in our website.
- If air handling unit is installed in heated premises, outdoor and exhaust air ducts must be insulated in order to avoid heat losses and condensing. If AHU is installed outdoors, it's recommended to insulate all the air ducts.
- It is recommended to maintain a distance of up to 8 meters between air intake and air exhaust ducts. Air supplying system should be installed further from potential air pollution sources.
- Use holders while installing air ducts next to the ventilation equipment. They suppress vibration and assure a firm installation of various system parts. Necessary holders can be found in our catalog or website.
- A common mistake is that air ducts are attached to improper airflow connection. On the ventilation equipment there are signs, indicating the air duct to be connected. Before starting the system carefully check whether the work was performed properly.

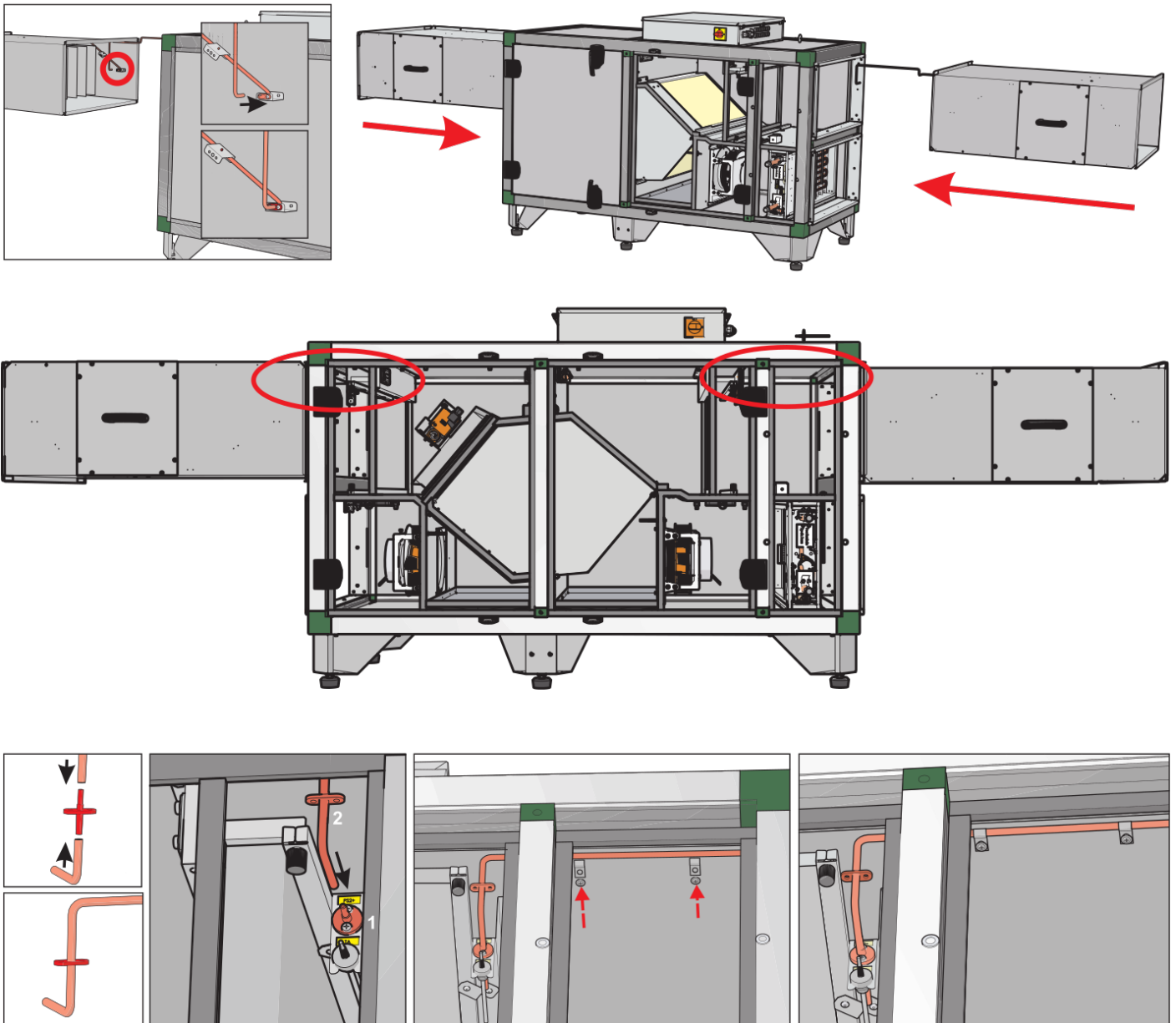
## Filter box mounting

**Box preparation**

The filter box is being connected to the flange of the unit as a part of air duct system. C-profile must be used for the connection.

The connection additionally can be strengthened by screwing the flanges' corners with the screws. Filter box must be mounted according to the air duct installation rules, and have their own fixing.

- The filter box can be connected to the pressure relays that indicates a filter pollution.
- Nozzles are used to connect hoses connect to each other. The nozzles are added in the package.
- The hose is supplied at its maximum length. Cut off required length of it.
- Take off hose from nozzle 1 and attach to nozzle 2 (such switch must be performed next to outside and extract air flanges).
- Fasten the hose with the brackets. The brackets are added to the package.

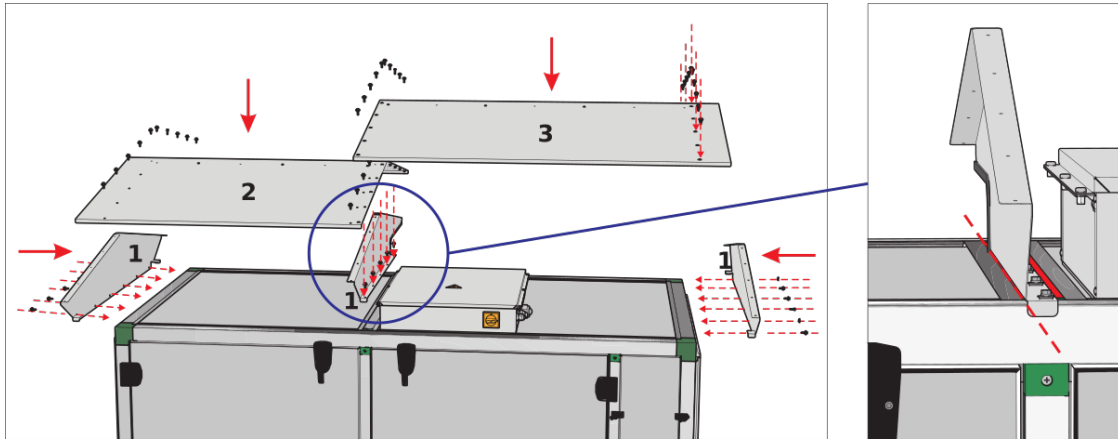


The filter box is available as an accessory.

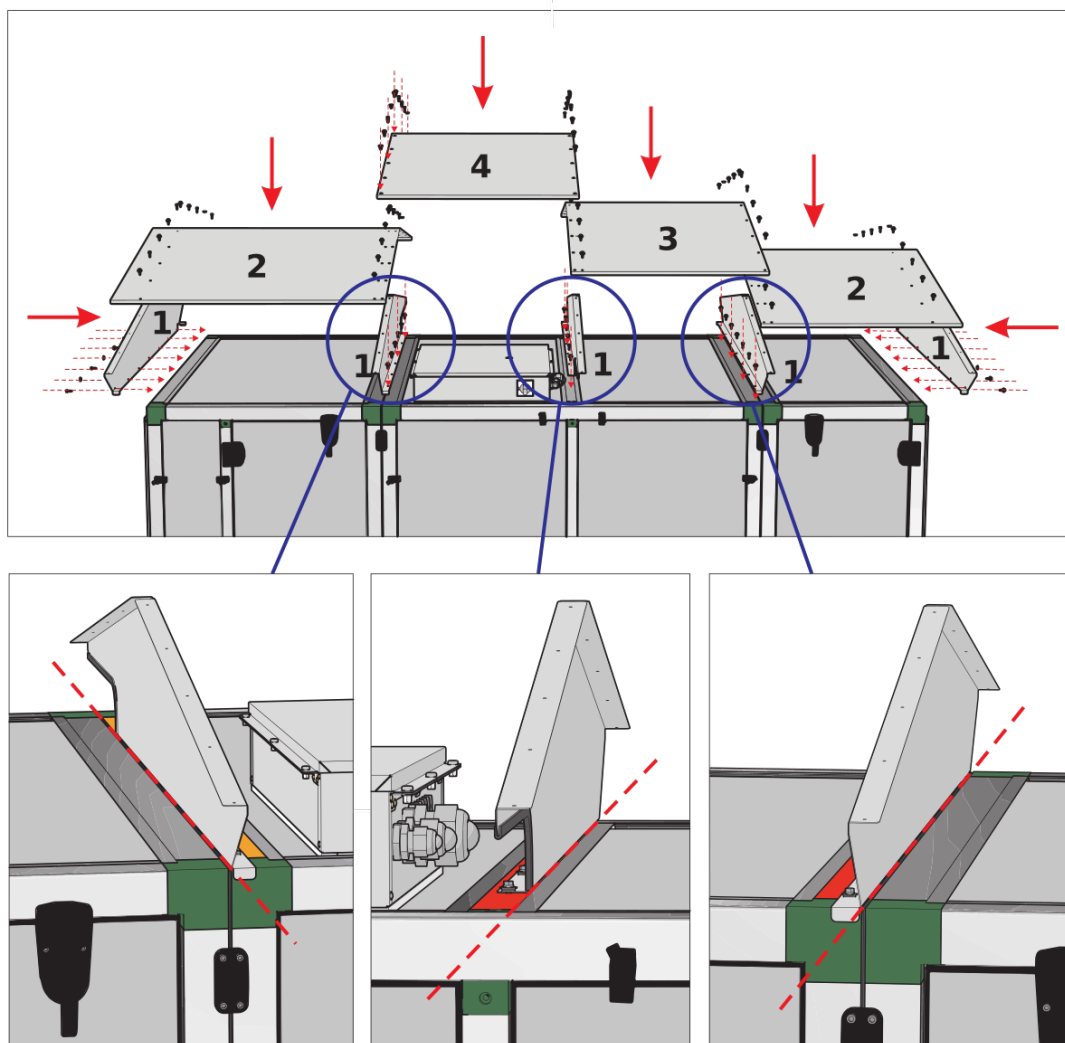
**Roof mounting**

- The roof must be mounted in a sequence as shown in the pictures below.
- Necessarily check out the AHU version, because the mounting sequence depends on it.
- Pay attention to the internal holders' mounting to the units' casing.

**AmberAir Compact 1-5 CX H**



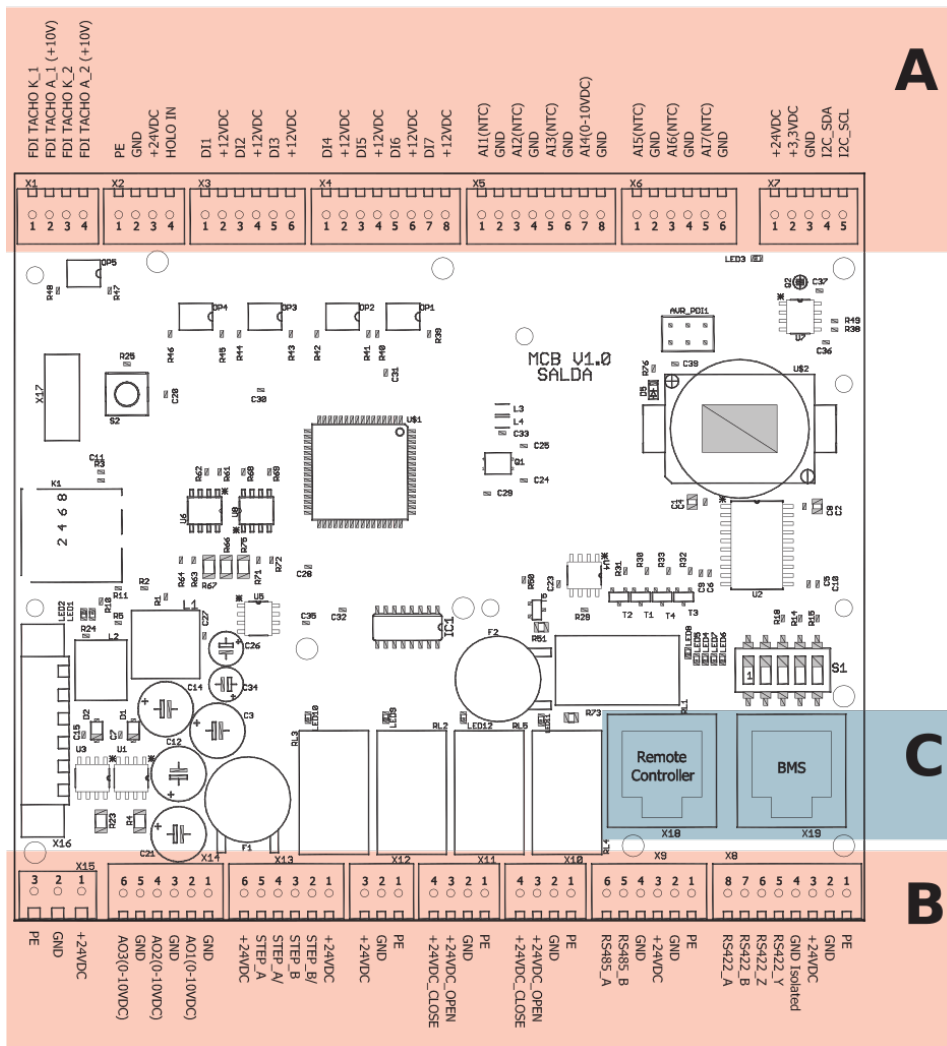
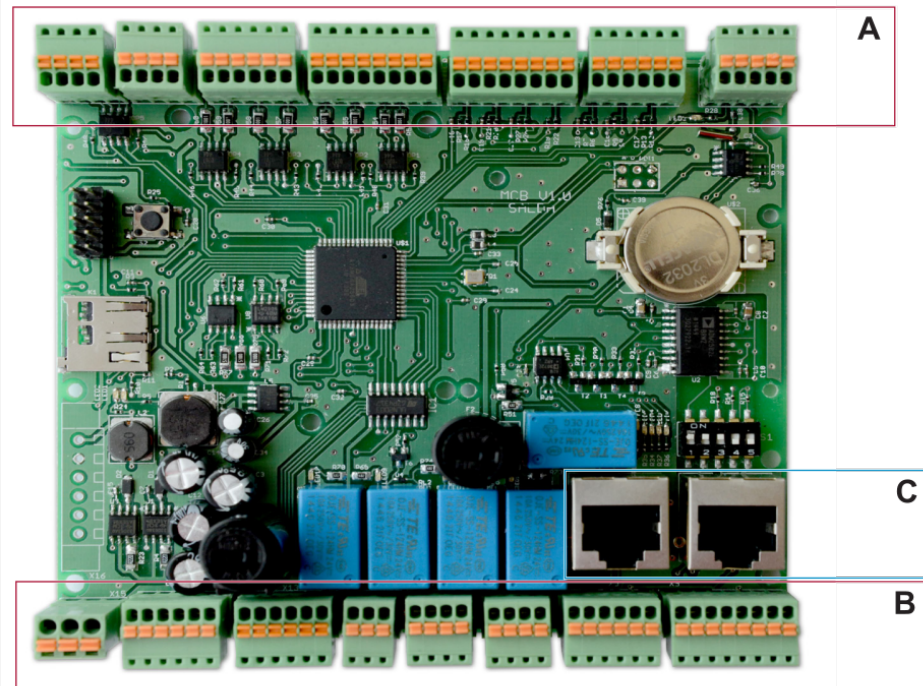
**AmberAir Compact 6-7 CX H**



Roof can be included as an accessory.

Connection of accessories

Arrangement of controller connections in MCB

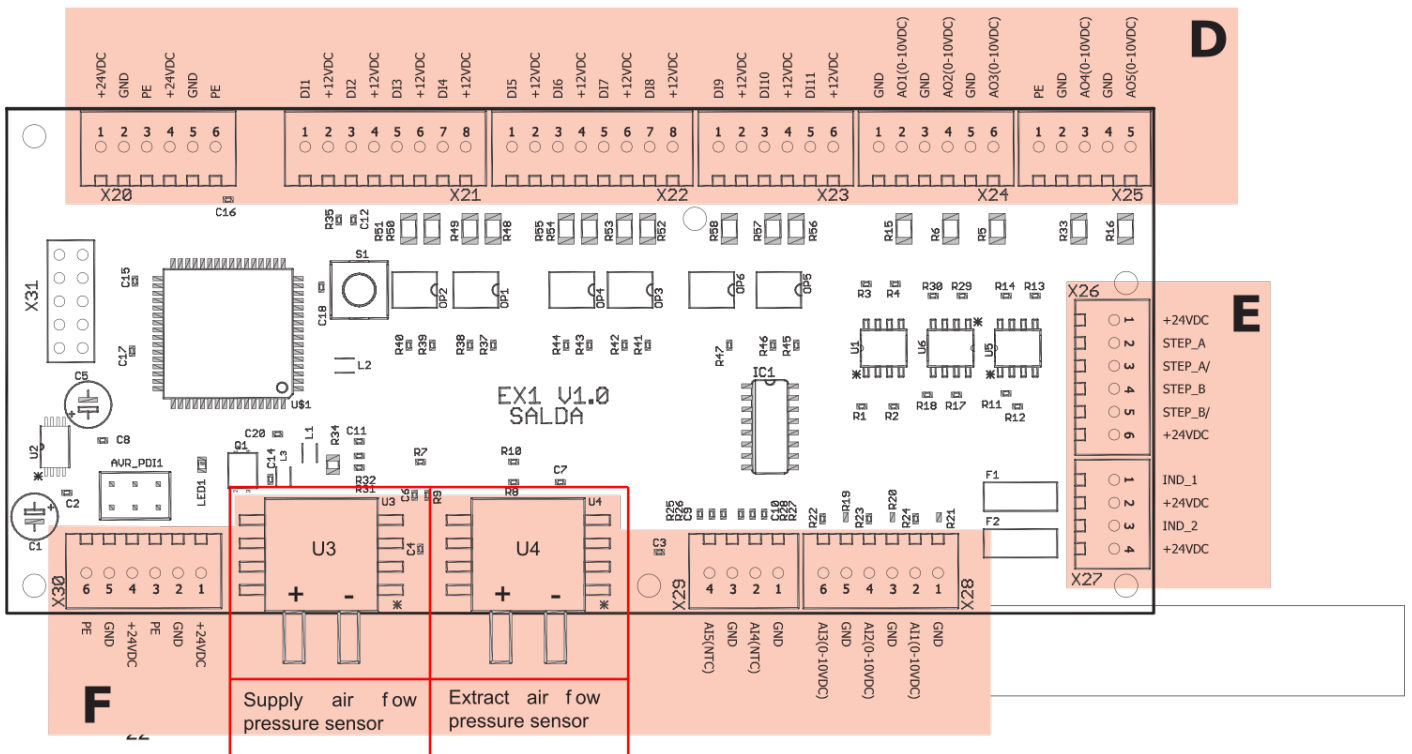
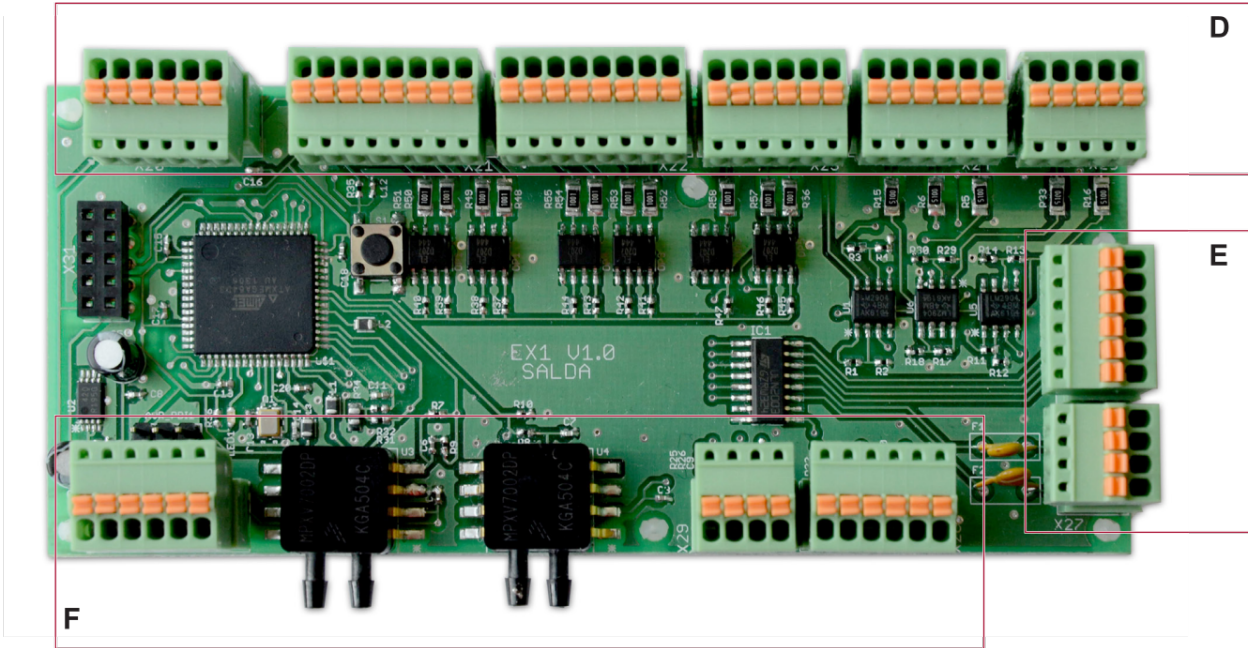


|            |             |                         | A  |
|------------|-------------|-------------------------|--|
| Connector  | Contact No. | Contact name            | Dunctional block name  |
| <b>MCB</b> |             |                         |  |
| X1         | 1           | MCB FDI TACHO K_1(GND)  | Supply fan speed RPM   |
|            | 2           | MCB FDI TACHO A_1(+10V) |  |
|            | 3           | MCB FDI TACHO K_2(GND)  | Extract fan speed RPM  |
|            | 4           | MCB FDI TACHO A_2(+10V) |  |
| X2         | 1           | PE                      | Rotor speed RPM  |
|            | 2           | GND                     |  |
|            | 3           | +24VDC                  |  |
|            | 4           | MCB HOLO                |  |
| X3         | 1           | MCB DI1                 | Heater automatic protection (NC)                                     |
|            | 2           | +12VDC                  | Heater manual protection / Water heater protection - thermostat (NC) |
|            | 3           | MCB DI2                 |  |
|            | 4           | +12VDC                  |  |
|            | 5           | MCB DI3                 | Supply air fan failure (NC)  |
|            | 6           | +12VDC                  |  |
| X4         | 1           | MCB DI4                 | Fire protection input (NC)   |
|            | 2           | +12VDC                  | By-pass closed (NC)  |
|            | 3           | MCB DI5                 |  |
|            | 4           | +12VDC                  |  |
|            | 5           | MCB DI6                 | Rotor alarm (NC) / Heat exchanger pressure relay (NC).               |
|            | 6           | +12VDC                  |  |
|            | 7           | MCB DI7                 | Extract air fan failure (NC)   |
|            | 8           | +12VDC                  |  |
| X5         | 1           | MCB AI1 (NTC)           | Supply air temperature sensor  |
|            | 2           | GND                     | Outdoor air temperature sensor                                       |
|            | 3           | MCB AI2 (NTC)           |  |
|            | 4           | GND                     |  |
|            | 5           | MCB AI3 (NTC)           | Exhaust air temperature sensor                                       |
|            | 6           | GND                     | Heat exchanger pressure transmitter                                  |
|            | 7           | MCB AI4 (0-10V)         |  |
|            | 8           | GND                     |  |
| X6         | 1           | MCB AI5 (NTC)           | Extract air temperature sensor                                       |
|            | 2           | GND                     | Reserved   |
|            | 3           | MCB AI6 (NTC)           |  |
|            | 4           | GND                     |  |
|            | 5           | MCB AI7 (NTC)           | Hydraulic heater water temperature sensor                            |
|            | 6           | GND                     |  |
| X7         | 1           | +24VDC                  | Connection with EX2-X47  |
|            | 2           | +3,3VDC                 |  |
|            | 3           | GND                     |  |
|            | 4           | I2C_SDA                 |  |
|            | 5           | I2C_SCL                 |  |

| <b>B</b>   |             |                         |   |
|------------|-------------|-------------------------|---|
| Connector  | Contact No. | Contact name            | Functional block name   |
| <b>MCB</b> |             |                         |   |
| X8         | 1           | PE                      | BMS connection (RS485; RS422)   |
|            | 2           | GND                     |   |
|            | 3           | +24VDC                  |   |
|            | 4           | GND isolated            |   |
|            | 5           | RS422_Y                 |   |
|            | 6           | RS422_Z                 |   |
|            | 7           | RS422_B                 |   |
|            | 8           | RS422_A                 |   |
| X9         | 1           | PE                      | Remote Control connection (RS485)   |
|            | 2           | GND                     |   |
|            | 3           | +24VDC                  |   |
|            | 4           | GND                     |   |
|            | 5           | RS485_B                 |   |
|            | 6           | RS485_A                 |   |
| X10        | 1           | MCB PE                  | Recirculation actuator control 3P   |
|            | 2           | MCB GND                 |   |
|            | 3           | MCB RECIRC_+24VDC_OPEN  |   |
|            | 4           | MCB RECIRC_+24VDC_CLOSE |   |
| X11        | 1           | MCB PE                  | By-pass actuator control 3P   |
|            | 2           | MCB GND                 |   |
|            | 3           | MCB BYPASS_+24VDC_OPEN  |   |
|            | 4           | MCB BYPASS_+24VDC_CLOSE |   |
| X12        | 1           | PE                      | 24VDC Power supply for water heater actuator                                |
|            | 2           | GND                     |   |
|            | 3           | +24VDC                  |   |
| X13        | 1           | +24VDC                  | By-pass step motor control  |
|            | 2           | STEP_B/                 |   |
|            | 3           | STEP_B                  |   |
|            | 4           | STEP_A/                 |   |
|            | 5           | STEP_A                  |   |
|            | 6           | +24VDC                  |   |
| X14        | 1           | GND                     | Supply air fan control (output 0-10VDC)                                     |
|            | 2           | MCB AO1(0-10VDC)        |   |
|            | 3           | GND                     | Extract air fan control (output 0-10VDC)                                    |
|            | 4           | MCB AO2(0-10VDC)        |   |
|            | 5           | GND                     | Electric/Water heater control (output 0-10VDC)                              |
|            | 6           | MCB AO3(0-10VDC)        |   |
| X15        | 1           | +24VDC                  | MCB Power supply 24VDC  |
|            | 2           | GND                     |   |
|            | 3           | PE                      |   |
| <b>C</b>   |             |                         |   |
| Connector  | Contact No. | Contact name            | Functional block name   |
| <b>MCB</b> |             |                         |   |
| X18        |             |                         | Remote Control connection (RS485)   |
| X19        |             |                         | BMS connection (galvanically isolated RS485 or RS422, configurable via SL1) |



Arrangement of controller connections in EX1

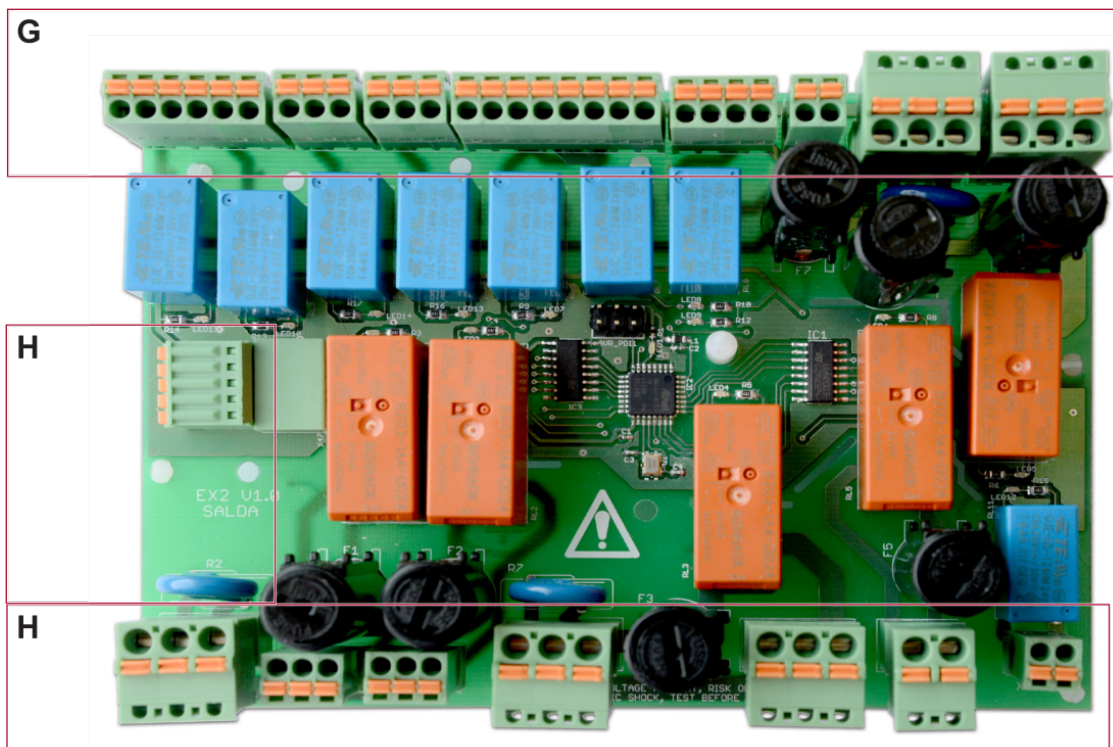


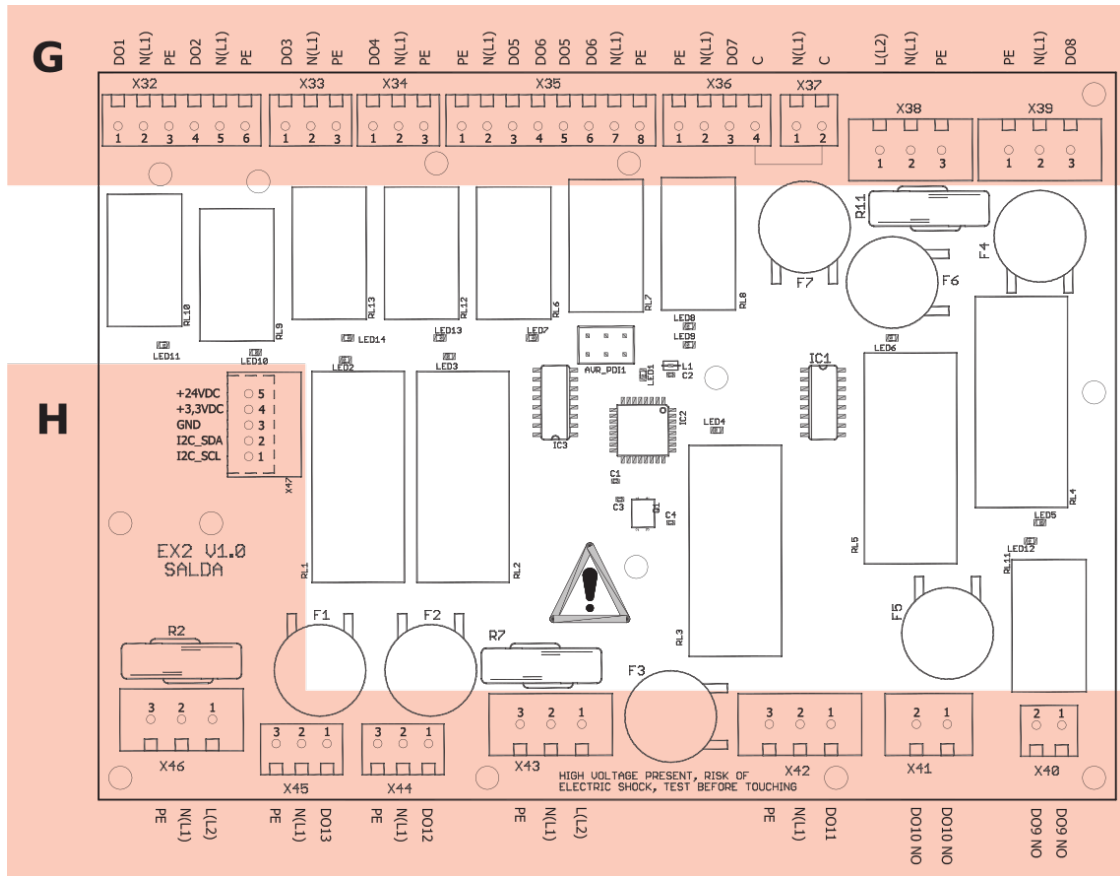


| E          |             |              |   |
|------------|-------------|--------------|---|
| Connector  | Contact No. | Contact name | Functional block name   |
| <b>MCB</b> |             |              |   |
| X20        | 1           | +24VDC       | 24VDC Power supply for water preheater actuator                       |
|            | 2           | GND          |   |
|            | 3           | PE           |   |
|            | 4           | +24VDC       | 24VDC Power supply for water cooler actuator                          |
|            | 5           | GND          |   |
|            | 6           | PE           |   |
| X21        | 1           | DI1          | Electric Preheater automatic protection (NC) / DX cooler deicing      |
|            | 2           | +12VDC       |   |
|            | 3           | DI2          | Electric Preheater manual protection (NC)                             |
|            | 4           | +12VDC       |   |
|            | 5           | DI3          | System mode switch (Start/Stop)                                       |
|            | 6           | +12VDC       |   |
|            | 7           | DI4          | Fans speed switch (Boost)   |
|            | 8           | +12VDC       |   |
| X22        | 1           | DI5          | DX cooler failure (NC)  |
|            | 2           | +12VDC       |   |
|            | 3           | DI6          | Supply air filter pressure switch (NO)                                |
|            | 4           | +12VDC       |   |
|            | 5           | DI7          | Extract air filter pressure switch (NO)                               |
|            | 6           | +12VDC       |   |
|            | 5           | DI8          | Fire place protection (NC)  |
|            | 6           | +12VDC       |   |
| X23        | 1           | DI9          | Fire damper opened (NC)   |
|            | 2           | +12VDC       |   |
|            | 3           | DI10         | Fire damper closed (NC)   |
|            | 4           | +12VDC       |   |
|            | 5           | DI11         | Recirculation damper closed (NC)                                      |
|            | 6           | +12VDC       |   |
| X24        | 1           | GND          | Electric/Water preheater control (0-10VDC) (output 0-10VDC)           |
|            | 2           | AO1(0-10VDC) |   |
|            | 3           | GND          | DX cooler control (output 0-10VDC)                                    |
|            | 4           | AO2(0-10VDC) |   |
|            | 5           | GND          | Water cooler control (output 0-10VDC)                                 |
|            | 6           | AO3(0-10VDC) |   |
| X25        | 1           | PE           | Recirculation actuator control (output 0-10VDC)<br>(išvestis 0-10VDC) |
|            | 2           | GND          |   |
|            | 3           | AO4(0-10VDC) |   |
|            | 4           | GND          | Rotor control / By-pass actuator control (output 0-10VDC)             |
|            | 5           | AO5(0-10VDC) |   |
| D          |             |              |   |
| Connector  | Contact No. | Contact name | Functional block name   |
| <b>EX1</b> |             |              |   |
| X26        | 1           | +24VDC       | Recirculation step motor control                                      |
|            | 2           | STEP_A       |   |
|            | 3           | STEP_A/      |   |
|            | 4           | STEP_B       |   |
|            | 5           | STEP_B/      |   |
|            | 6           | +24VDC       |   |
| X27        | 1           | IND_1        | Working indication output (START).<br>24VDC; max 50mA, 1.2W.          |
|            | 2           | +24VDC       |   |
|            | 3           | IND_2        | Alarm indication output (STOP).<br>24VDC; max 50mA, 1.2W.             |
|            | 4           | +24VDC       |   |

| F          |             |              |  |
|------------|-------------|--------------|--|
| Connector  | Contact No. | Contact name | Dunctional block name                                  |
| <b>EX1</b> |             |              |  |
| X28        | 1           | GND          | Supply/Extract air co <sub>2</sub> /RH (input 0-10VDC) |
|            | 2           | AI1 (0-10V)  |  |
|            | 3           | GND          | Supply/Extract air co <sub>2</sub> /RH (input 0-10VDC) |
|            | 4           | AI2 (0-10V)  |  |
|            | 5           | GND          | Reserved (input 0-10VDC)                               |
|            | 6           | AI3 (0-10V)  |  |
| X29        | 1           | GND          | Water cooler temperature sensor                        |
|            | 2           | AI4 (NTC)    |  |
|            | 3           | GND          | Hydraulic preheater water temperature                  |
|            | 4           | AI5 (NTC)    |  |
| X30        | 1           | +24VDC       | 24VDC Power supply for Air quality transmitter I       |
|            | 2           | GND          |  |
|            | 3           | PE           |  |
|            | 4           | +24VDC       | 24VDC Power supply for Air quality transmitter II      |
|            | 5           | GND          |  |
|            | 6           | PE           |  |
| U3         |             | SUP_PRESS    | Current supply air flow pressure (Pa)                  |
| U4         |             | EXT_PRESS    | Current extract air flow pressure (Pa)                 |

**Arrangement of controller connections in EX2**





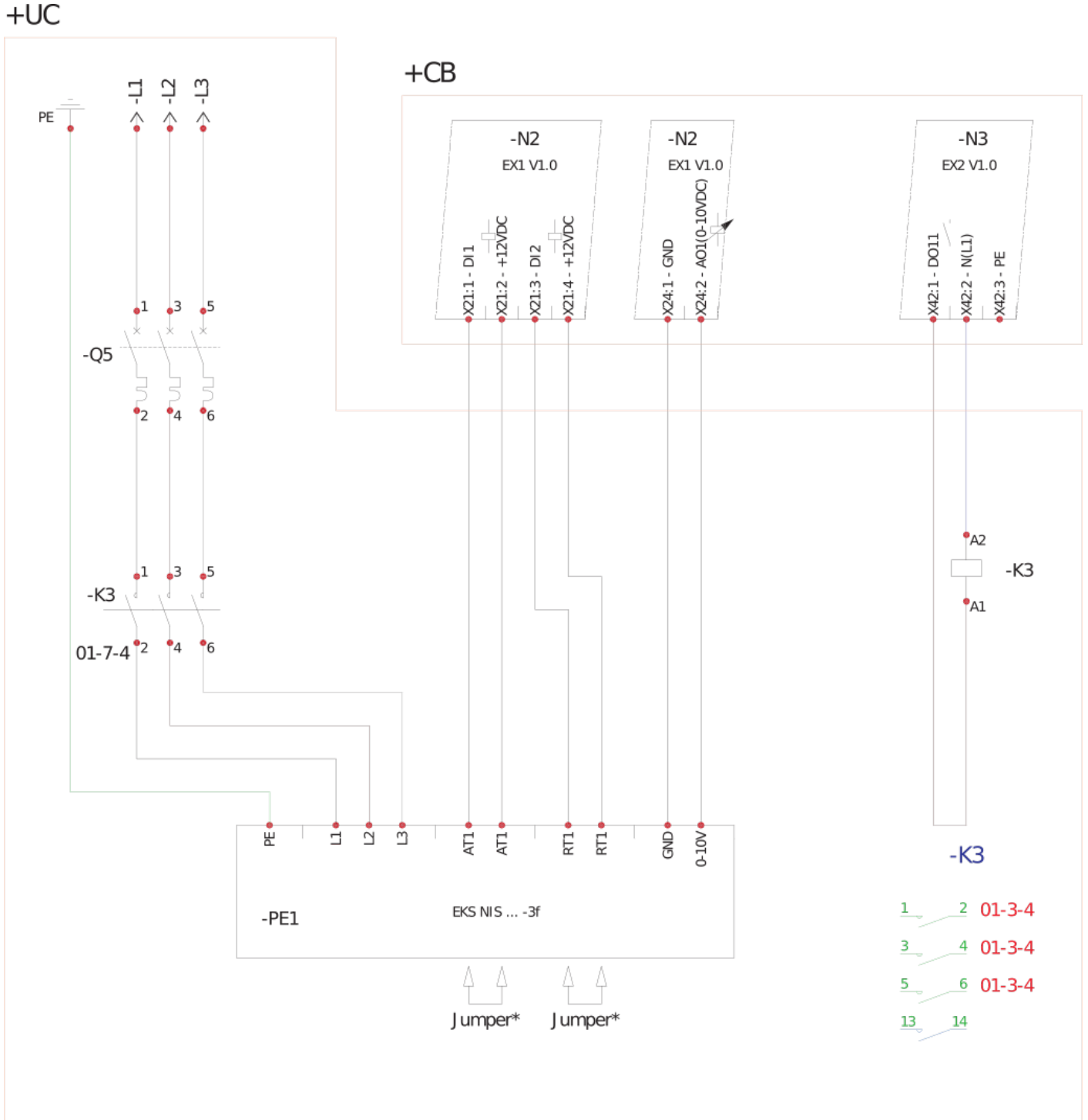
| G          |             |              |   |
|------------|-------------|--------------|---|
| Connector  | Contact No. | Contact name | Dunctional block name   |
| <b>EX2</b> |             |              |   |
| X32        | 1           | DO1          | Power supply for Fire damper actuator 1, max 100 mA               |
|            | 2           | N(L1)        |   |
|            | 3           | PE           |   |
|            | 4           | DO2          | Power supply for Fire damper actuator 2, max 100 mA               |
|            | 5           | N(L1)        |   |
|            | 6           | PE           |   |
| X33        | 1           | DO3          | Water cooler circulation pump                                     |
|            | 2           | N(L1)        |   |
|            | 3           | PE           |   |
| X34        | 1           | DO4          | Control box heater control or Control box ventilation fan control |
|            | 2           | N(L1)        |   |
|            | 3           | PE           |   |
| X35        | 1           | PE           | Supply/extract air damper control<br>DO5 (Open)<br>DO6 (Close)    |
|            | 2           | N(L1)        |   |
|            | 3           | DO5          |   |
|            | 4           | DO6          |   |
|            | 5           | DO5          |   |
|            | 6           | DO6          |   |
|            | 7           | N(L1)        |   |
|            | 8           | PE           |   |

| X36        | 1           | PE            | Rotor motor control                                     |
|------------|-------------|---------------|---|
|            | 2           | N(L1)         |   |
|            | 3           | DO7           |   |
|            | 4           | C - capacitor |   |
| X37        | 1           | N(L1)         |   |
|            | 2           | C - capacitor |   |
| X38        | 1           | N(L2)         | 230VAC Power supply for X32, X33, X34, X35, X36 and X39 |
|            | 2           | N(L1)         |   |
|            | 3           | PE            |   |
| X39        | 1           | PE            | Electric/Water Heater power line/circulation pump       |
|            | 2           | N(L1)         |   |
|            | 3           | DO8           |   |
| <b>H</b>   |             |               |   |
| Connector  | Contact No. | Contact name  | Dunctional block name                                   |
| <b>EX2</b> |             |               |   |
| X40        | 1           | DO9 NO        | DX cooler reverse (NO-cooling; NC-heating)              |
|            | 2           | DO9 NO        |   |
| X41        | 1           | DO10 NO       | DX cooler power line                                    |
|            | 2           | DO10 NO       |   |
| X42        | 1           | DO11          | Preheater power line/circulation pump                   |
|            | 2           | N(L1)         |   |
|            | 3           | PE            |   |
| X43        | 1           | L (L2)        | 230VAC Power supply for X42                             |
|            | 2           | N (L1)        |   |
|            | 3           | PE            |   |
| X44        | 1           | DO12          | Extract fans power line (IV vent. Max 3,5 A)            |
|            | 2           | N(L1)         |   |
|            | 3           | PE            |   |
| X45        | 1           | DO13          | Supply fans power line (PV vent. Max 3,5 A)             |
|            | 2           | N(L1)         |   |
|            | 3           | PE            |   |
| X46        | 1           | N(L2)         | 230VAC Power supply for X44 and X45                     |
|            | 2           | N(L1)         |   |
|            | 3           | PE            |   |
| X47        | 1           | +24VDC        | Connection with MCB-X7                                  |
|            | 2           | +3,3VDC       |   |
|            | 3           | GND           |   |
|            | 4           | I2C_SDA       |   |
|            | 5           | I2C_SCL       |   |

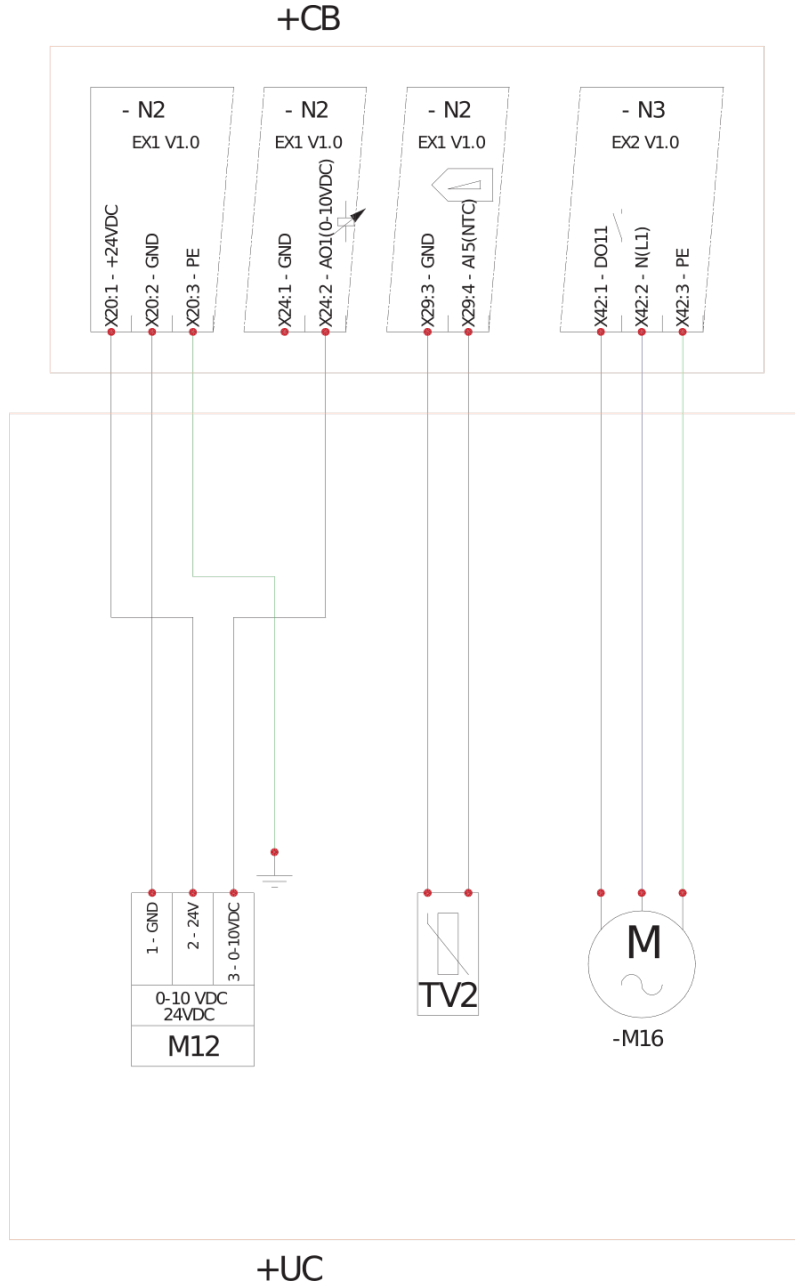
**Abbreviation in electrical circuit diagrams**

| <b>Abbreviation</b> | <b>Explanation</b>                                   |
|---------------------|--|
| CB                  | Control board  |
| UC                  | Components to be connected by the user               |
| N1                  | MCB control board                                    |
| N2                  | EX1 control board                                    |
| N3                  | EX2 control board                                    |
| Q5                  | Electrical pre-heater power supply circuit breaker   |
| K3                  | Electrical pre-heater contact                        |
| PE1                 | Electric pre-heater                                  |
| A1                  | Fire alarm damper actuator I (supply air)            |
| A2                  | Fire alarm damper actuator I (exhaust air)           |
| K5                  | Fire alarm damper I open                             |
| K6                  | Fire alarm damper I closed                           |
| K7                  | Fire alarm damper II open                            |
| K8                  | Fire alarm damper II closed                          |
| M2                  | Supply air damper                                    |
| M3                  | Exhaust air damper                                   |
| FA                  | Fire alarm   |
| FPP                 | Fireplace protection                                 |
| START               | Operation indicator                                  |
| START               | Warning indicator                                    |
| System mode switch  | System mode switch (START/STOP)                      |
| Fan speed switch    | Fan speed switch (BOOST)                             |
| M4                  | Water heater circulation pump                        |
| M6                  | Water heating indicator output 0-10VDC               |
| T1                  | Water heater protection thermostat                   |
| T2                  | Cooling switching thermostat                         |
| TV                  | Water heater temperature sensor                      |
| M12                 | Water heater control output 0-10VDC                  |
| TV2                 | Water heater temperature sensor                      |
| M16                 | Water heater circulation pump                        |
| TV3                 | Water cooler temperature sensor                      |
| M13                 | Water cooler control output 0-10VDC                  |
| M14                 | Water cooler circulation pump                        |
| M15                 | DX cooler control output 0-10VDC                     |
| K4                  | DX cooler error                                      |
| X40 [1:2]           | DX cooler reserve mode (NO - cooling / NC - heating) |
| X41 [1:2]           | DX cooler power supply                               |
| Transmitter1        | Exhaust air RH sensor                                |
| Transmitter2        | Exhaust air CO <sub>2</sub> sensor                   |

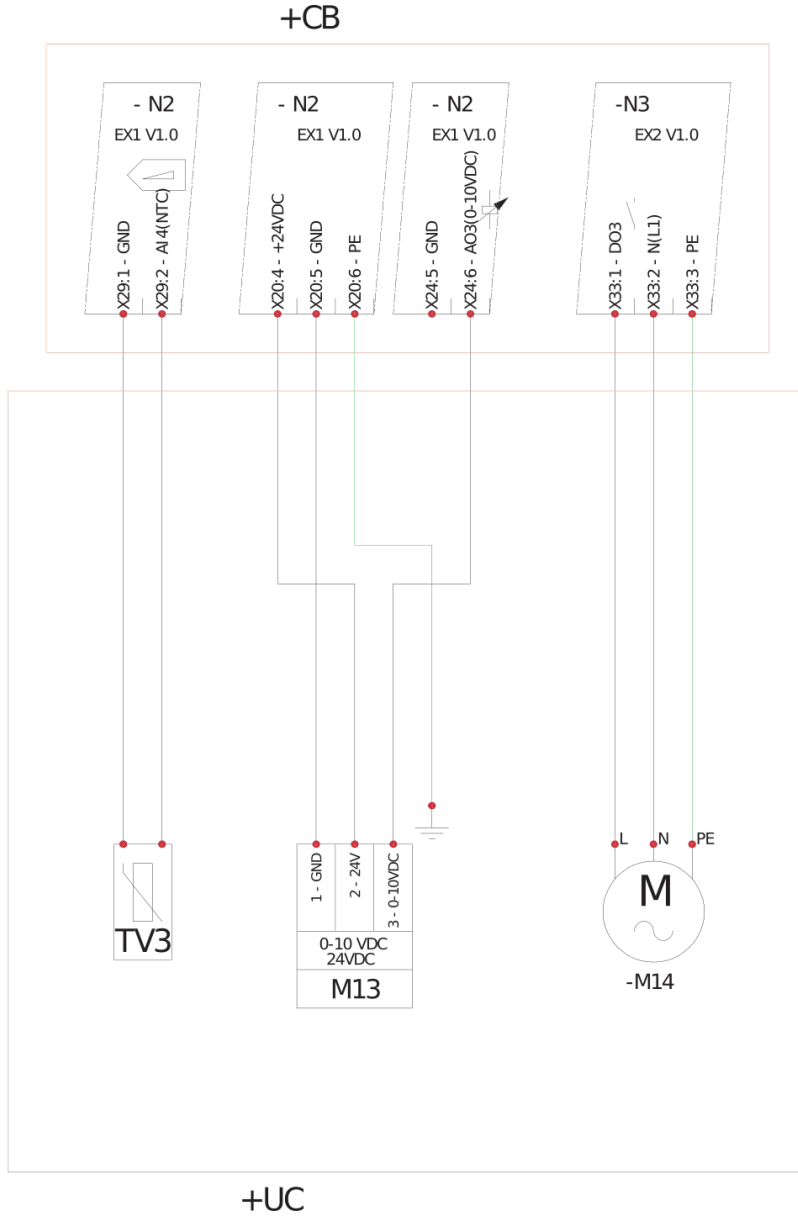
Electrical external pre-heater



External water pre-heater

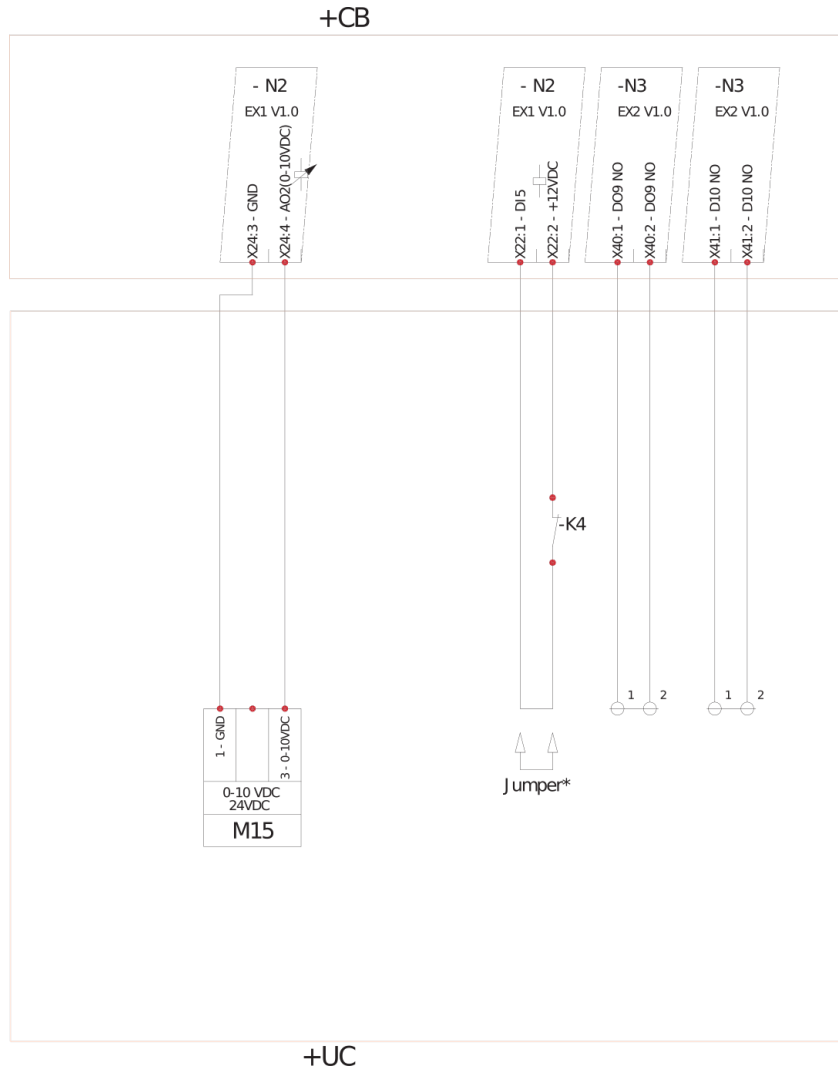


External water cooler

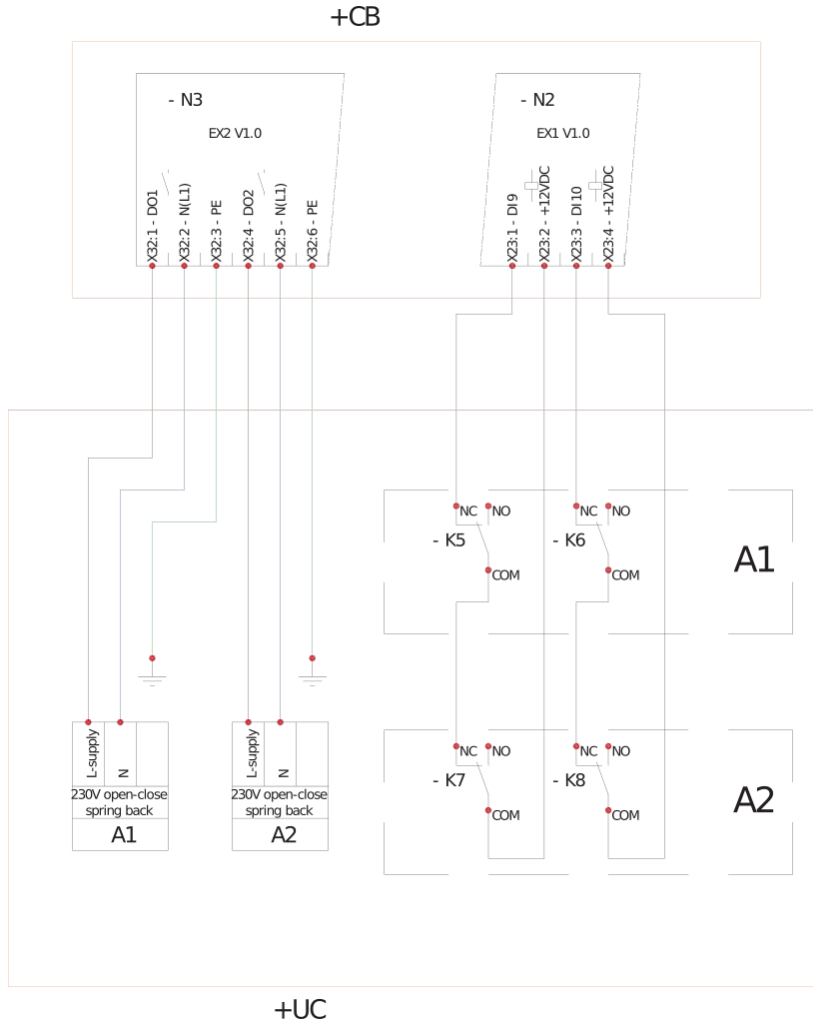




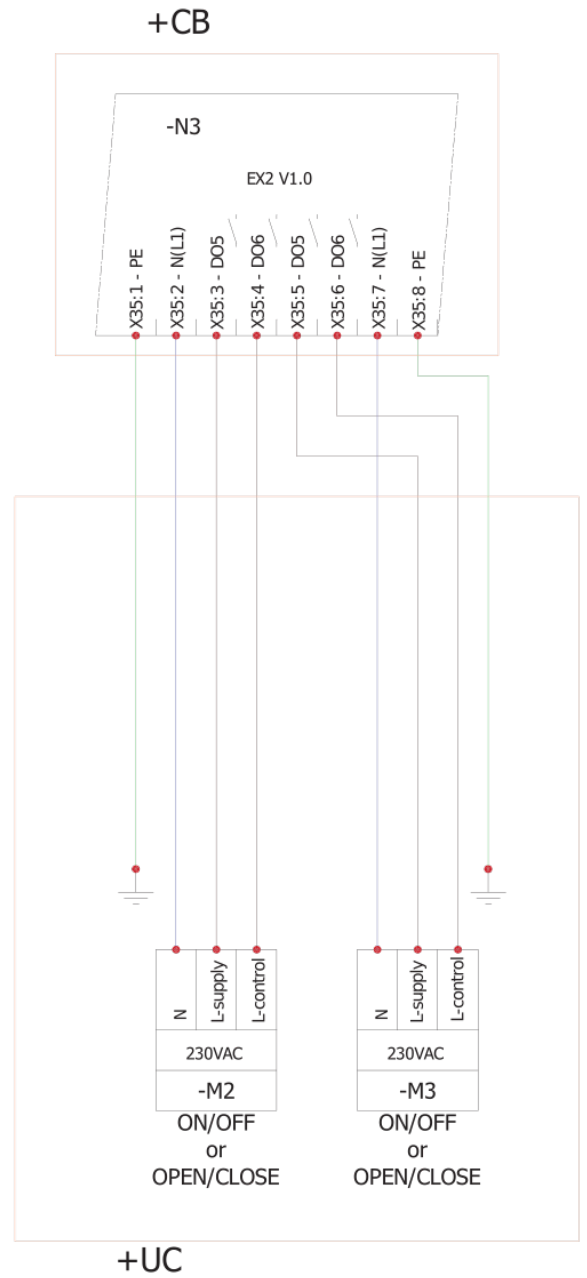
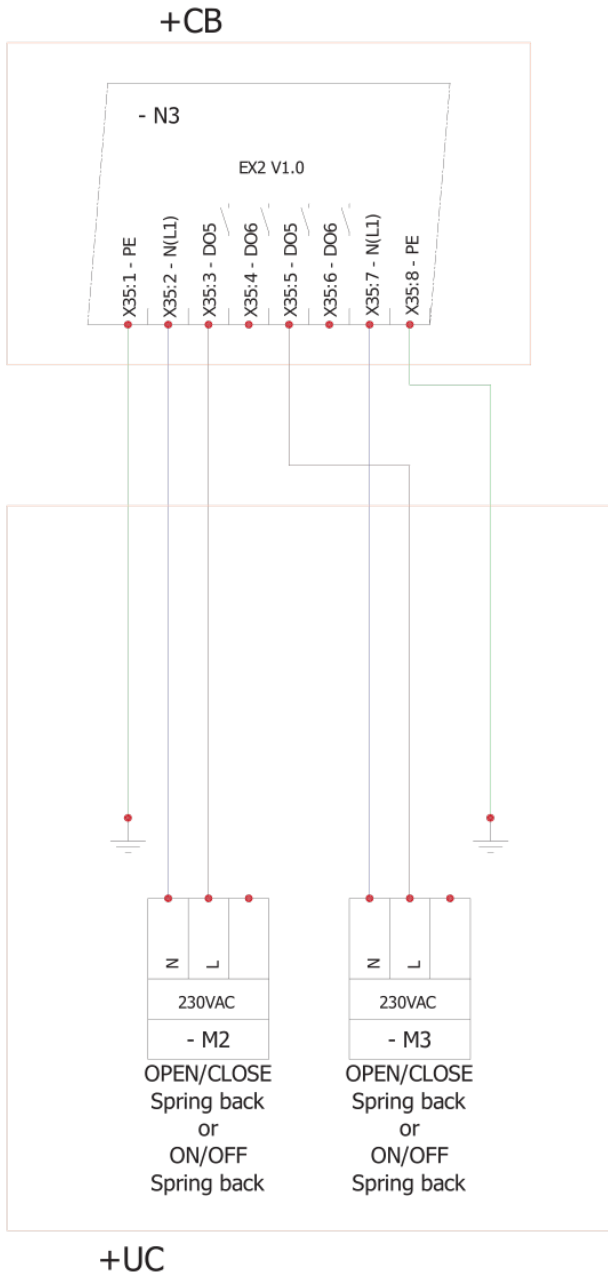
External DX cooler



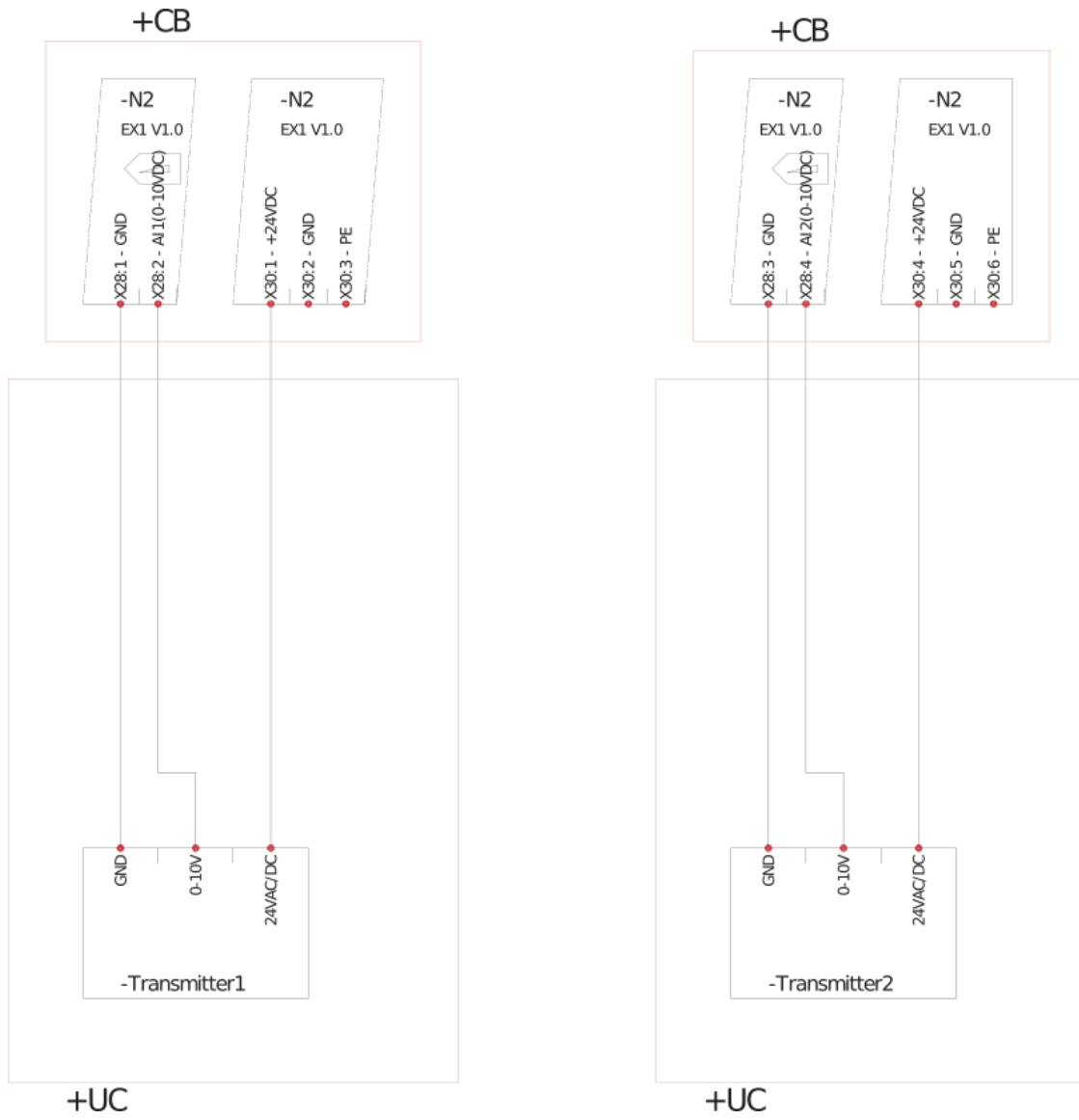
Fire protection connection



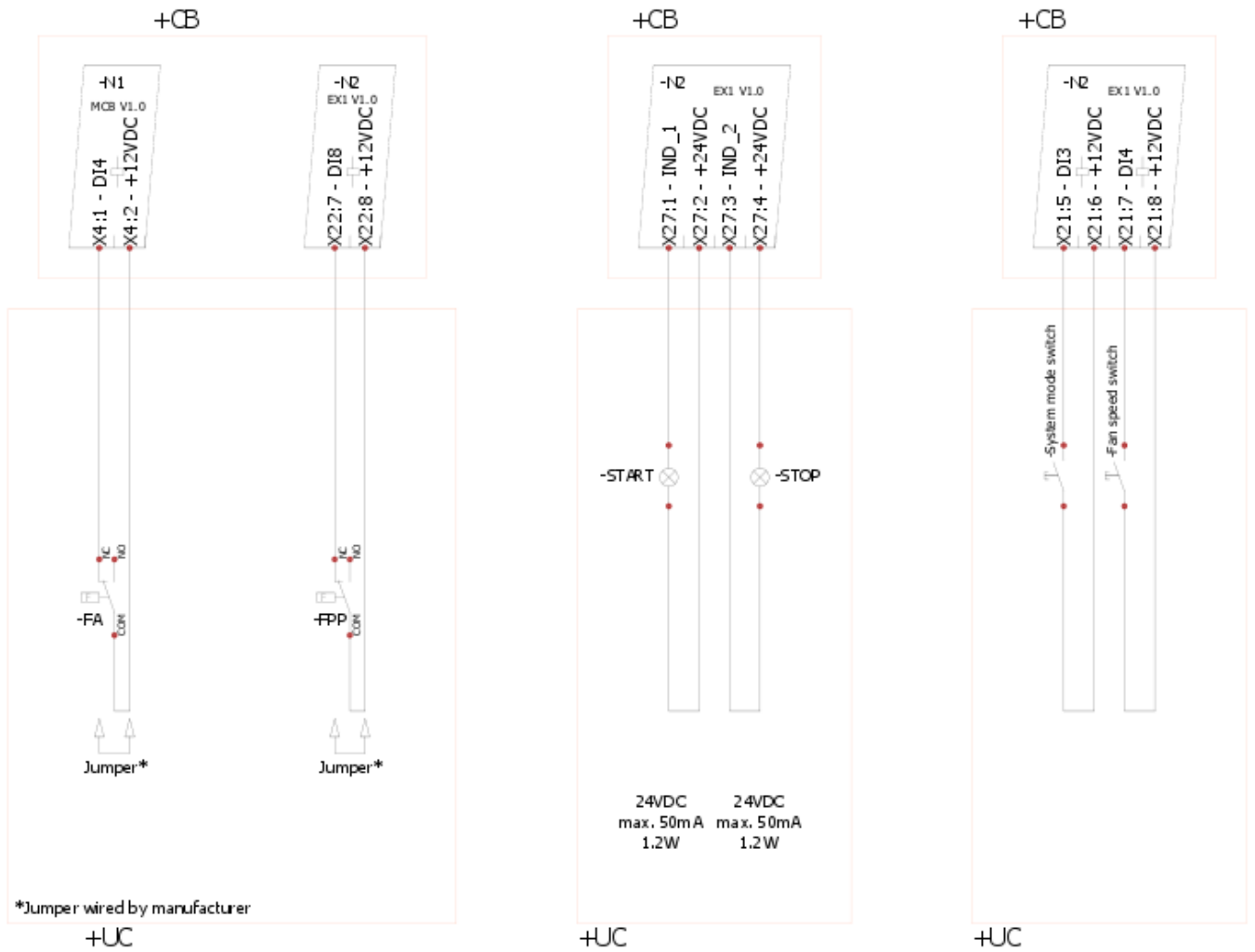
Motorised air dampers



CO<sub>2</sub> arba RH sensors



Unit status indication / mode change / fire alarm inlet / fireplace function input



\*The jumpers are installed by the manufacturer (see on the automatics switchboard).

\*All the external electrical connections must be made in accordance with effective legal acts and safety requirements.

\*The configuration and control of accessories is presented in the section "Functions" of this Certificate.

### Connection of the unit to electric network

- Supply voltage to the unit must be connected by a qualified specialist following the manufacturer's instructions and effective safety instructions.
  - The unit's power network voltage must correspond to electrotechnical parameters of the unit indicated in the technical decal.
  - The unit's voltage, power and other technical parameters are provided in the unit's technical decal (on the unit casing). The unit must be connected to the voltage plug socket of the grounded power network in compliance with the effective requirements.
  - The unit must be earthed according to the rules on installing electrical equipment.
  - It is prohibited to use extension wires (cables) and power network plug socket distribution devices.
- Prior to carrying out any ventilation unit installation and connection activities (until its hand-over to the customer), the unit must be disconnected from the power network.
- After installation of the ventilation unit, the power network plug socket must be accessible at any time and disconnection from the power network is performed through the two-pole circuit breaker (by disconnecting phase pole and neutral).
  - The unit must be thoroughly checked against damages (execution, control, measurement nodes) during transportation before it is connected to the power network.
  - The power cable can be replaced only by a qualified specialist upon the evaluation of the rated power and current.



**The manufacturer does not assume any liability for personal injuries and property damage due to nonconformance with the provided instructions.**

### Start-up recommendations

#### System protection

The control automatics of the unit have integrated protection against a short circuit of those assemblies. The controllers have the following protectors:

MCB

F1, F2 - 1A(5x20) MCB protection;

EX2

to change depending on the product



**To ensure safe maintenance of the unit, it is necessary to remove the plug from the power network.**

### Recommendations before the start of the unit (before the final user)

Prior to start-up the system must be thoroughly cleaned. Check whether:

- operation systems and unit elements as well as automation and automation devices were not damaged during installation,
- all electrical devices are connected to power supply and fit for service,
- all necessary automation elements are installed and connected to power supply and MCB, EX1, EX2 terminal blocks,
- cable connection to MCB, EX1, EX2 terminal blocks comply with the existing power connection diagrams,
- all electrical equipment protection elements are properly connected (if they are additionally used),
- cables and wires correspond to all applicable safety and functional requirements, diameters, etc.,
- earthing and protection systems are properly installed,
- condition of all seals and sealing surfaces is proper.

**Possible faults and troubleshooting**

| <b>Failure</b>  | <b>Cause</b>   | <b>Explanation / corrective actions</b>   |
|---|--|---|
| Unit is not operating   | No supply voltage  | Check whether the device is connected to the plug socket<br>Switch on only if the unit condition has been evaluated by a qualified electrician. If the system failed, the failure MUST BE rectified prior to switching it on. |
|   | Two-pole protection device is off or a current leakage relay is active (if installed by the installer) |   |
| Air supply heater or pre-heater is not operating or malfunctioning (if installed) | Too low air flow in air ducts activates automatic protection   | Check if air filters are not clogged Check if fans are rotating<br>Possible heater or unit failure. MUST address the servicing staff for failure detection and its elimination.   |
|   | Manual protection is activated   |   |
| Too low air flow at rated fan speed   | Clogged supply and/or extract air filter(s)  | Filter replacement needed   |
| Filters are clogged and no message is shown on the remote control                 | Wrong time in filter timers or their switch is broken, or its pressure is set improperly.              | Shorten filter timer time till the message of clogged filters or replace the pressure switch of the filters, or set their proper pressure.  |

Improvements and changes to this manual necessitated by typographical errors, inaccuracies of current information, or improvements to programs and/or equipment, may be made by the manufacturer at any time and without notice. Such changes will, however, be incorporated into new editions of this manual. All illustrations are for illustrative purposes only and may not accurately depict the actual device.



## Declaration of conformity

Manufacturer:

**SALDA UAB**  
**Ragainės g. 100**  
**LT-78109 Šiauliai, Lithuania**  
**Tel.: +370 41 540415**  
**www.salda.lt**

Hereby confirms that the following products - Air handling units:

**AmberAir Compact SD50+\*; AmberAir Compact CD50\***

(where by „\*“ indicates possible unit design size and modification)

Provided it was delivered and installed in the facility in accordance with the included installation instructions, comply with all applicable requirements in the following directives:

**Machinery Directive 2006/42/EC**  
**EMC Directive 2014/30/EU**  
**Ecodesign Directive 2009/125/EC**

The following harmonized standards are applied in applicable parts:

LST EN ISO 12100:2011 - Safety of machinery - General principles for design - Risk assessment and risk reduction.  
LST EN 60204-1:2006 - Safety of machinery - Electrical equipment of machines - Part 1: General requirements.  
LST EN 60335-1:2012 - Household and similar electrical appliances. Safety. Part 1: General requirements.  
LST EN 60529:1999 - Degrees of protection provided by enclosures (IP code).  
LST EN 61000-6-2:2005 - Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments.  
LST EN 61000-6-3:2007 - Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments.

Should any alterations be made in the products, this declaration will no longer apply.

**Notified body:** VšĮ Technikos priežiūros tarnyba, Naugarduko g. 41, LT - 03227 Vilnius, Lithuania, identification number 1399.

**Quality:** Salda UAB activities are in line with the international quality management system standard ISO 9001:2015.

Data 2017-02-07

A handwritten signature in black ink, consisting of a stylized, cursive script that appears to be the name "Darius Buožinis".

Darius Buožinis  
Director product development

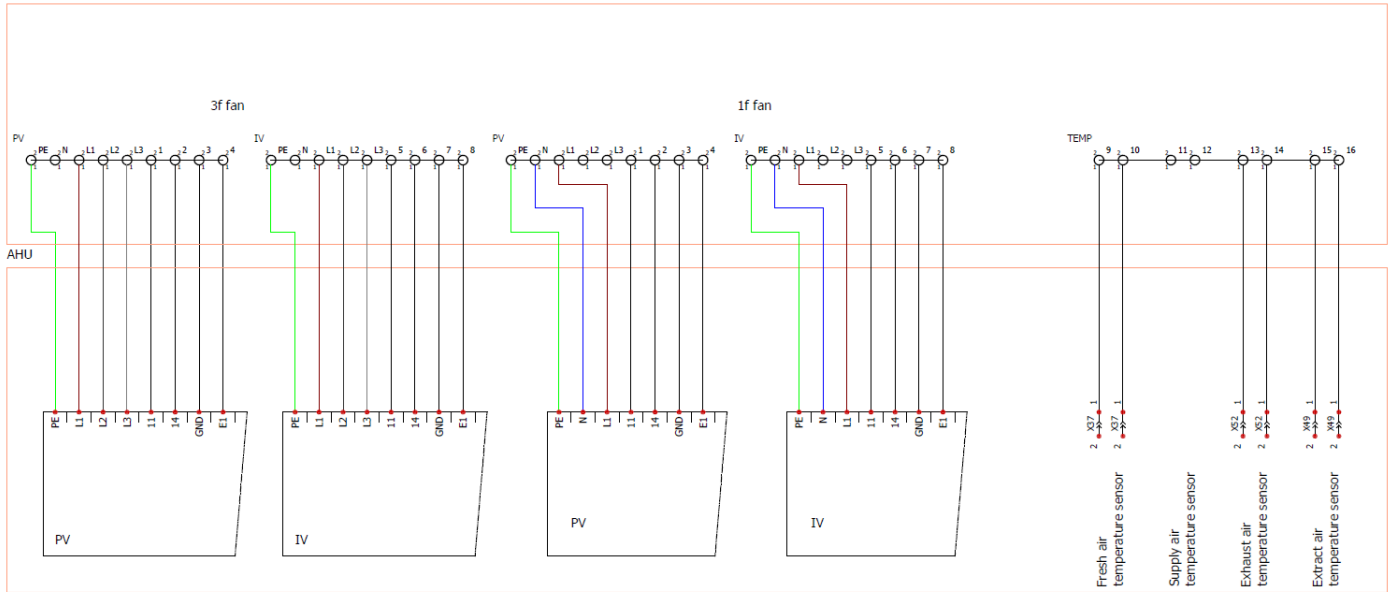
SALDA UAB, Ragainės g. 100, LT-78109 Šiauliai; tlf.: +370 41 540415, fax: +370 41 540417; e-mail: office@salda.lt  
Company code: LT244114580, VAT code: LT441145811, Beneficiary's bank: "Swedbank" AB, LT, Acc. No: LT467300010000065770,  
Swift: HABALT22, Bank code: 73000, Correspondent bank: Deutsche bank AG, Frankfurt, Swift: DEUTDEFF, BLZ 500 700 10



Amber Air Compact CX Pre-wiring connections

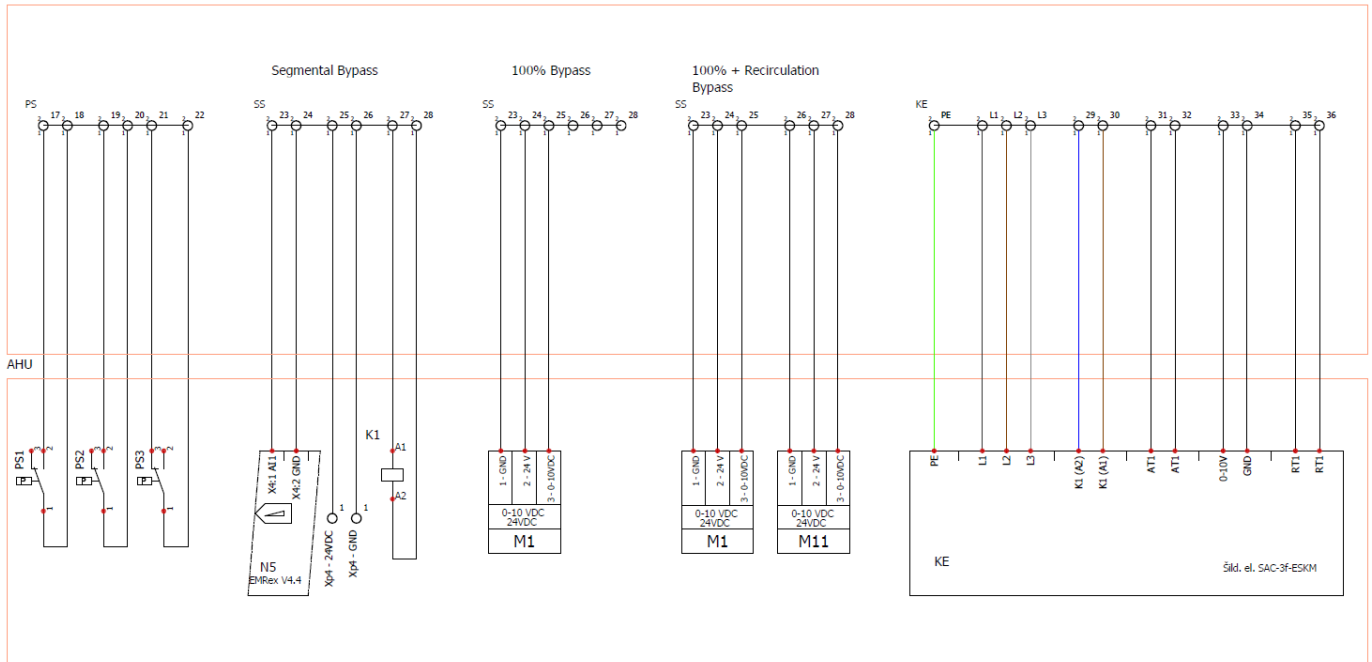
Electrical heater

Control box



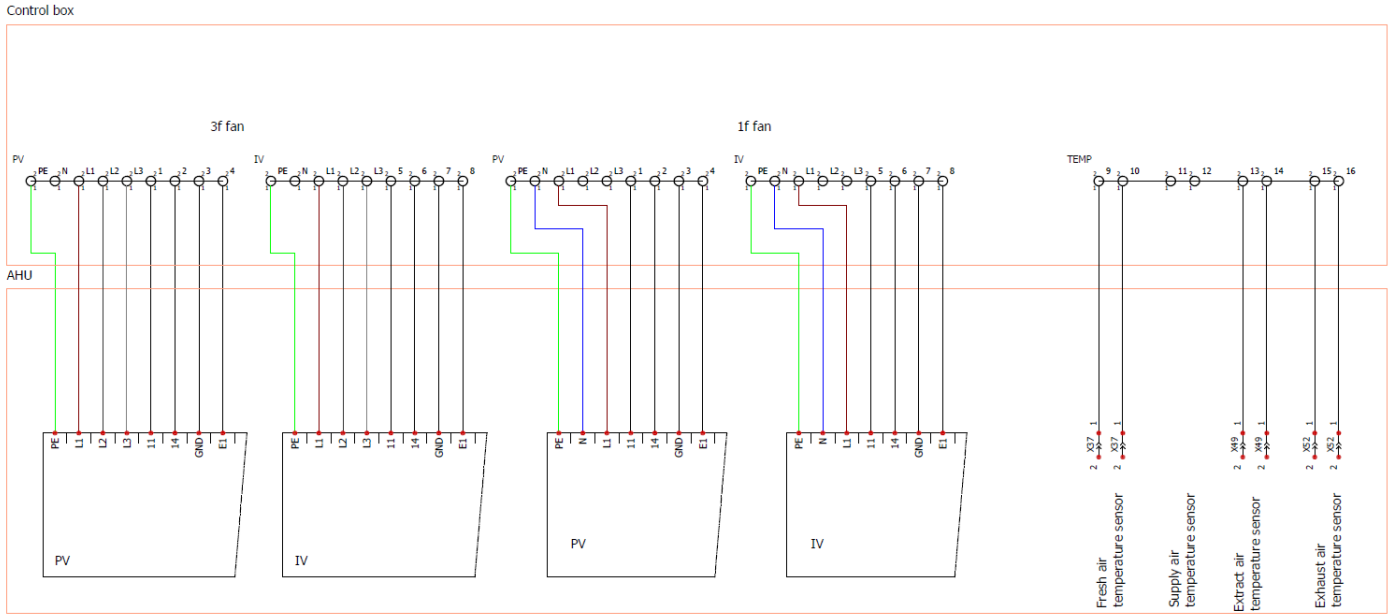
PV - supply fan terminal block;  
 IV - exhaust fan terminal block;  
 KE - heater terminal block;  
 TEMP - temperature sensors terminal block;  
 PS - pressure sensors terminal block;  
 SS - valves terminal block.

Control box

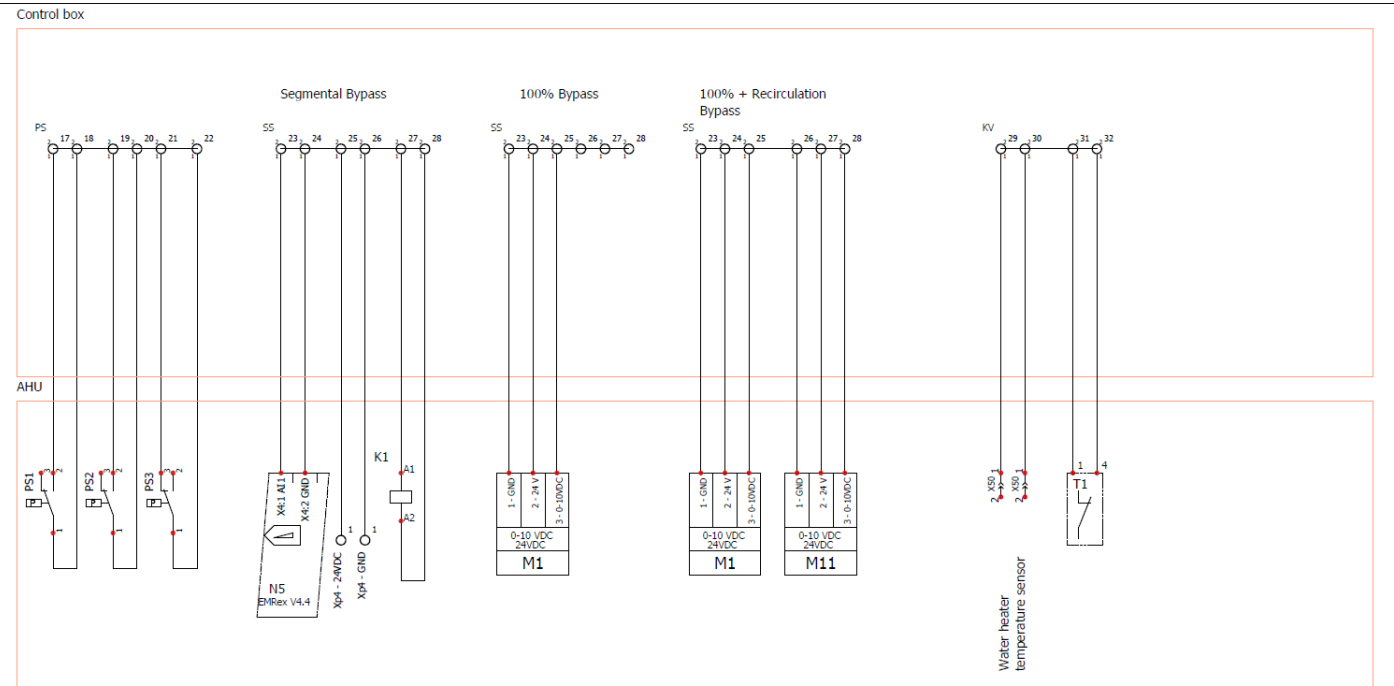


PV - supply fan terminal block;  
 IV - exhaust fan terminal block;  
 KE - heater terminal block;  
 TEMP - temperature sensors terminal block;  
 PS - pressure sensors terminal block;  
 SS - valves terminal block.

Water heater



PV - supply fan terminal block;  
 IV - exhaust fan terminal block;  
 KV - heater sensor terminal block;  
 TEMP - temperature sensors terminal block;  
 PS - pressure sensors terminal block;  
 SS - valves terminal block.



PV - supply fan terminal block;  
 IV - exhaust fan terminal block;  
 KV - heater sensor terminal block;  
 TEMP - temperature sensors terminal block;  
 PS - pressure sensors terminal block;  
 SS - valves terminal block.

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|   | Manual protection is activated   | Possible heater or unit failure. MUST address the servicing staff for failure detection and its elimination.  |
| Too low air flow at rated fan speed   | Clogged supply and/or extract air filter(s)  | Filter replacement needed   |
| Filters are clogged and no message is shown on the remote control                 | Wrong time in filter timers or their switch is broken, or its pressure is set improperly.              | Shorten filter timer time till the message of clogged filters or replace the pressure switch of the filters, or set their proper pressure.                        |

---

**Waranty**

---

1. All equipment manufactured in our factory is checked in operating conditions and tested before delivery. Test protocol is supplied together with the unit. The equipment is shipped in good working order and condition to the direct client. The unit is warranted for the period of two years from the invoice date.
2. If equipment is found to have been damaged during transportation, a claim should be made against carrier, as we assume no responsibility for such damage.
3. This warranty does not apply:
  - 3.1. when transportation, storage, installation and maintenance instructions of the unit are violated;
  - 3.2. when the equipment is improperly maintained, mounted - inadequate maintenance;
  - 3.3. when the equipment without our knowledge and permission has been upgraded or unskilled repairs were made;
  - 3.4. when the unit was used not for its original purpose.
4. This warranty does not apply at these malfunction cases:
  - 4.1. mechanical damage;
  - 4.2. damage caused by entering outside objects, materials, liquids;
  - 4.3. damage caused by natural disaster, accident (voltage change in the electricity network, lightning, etc..).
5. The company assumes no liability for its products either directly or indirectly damage, if the damage is caused by failure to comply with installation and mounting regulations, deliberate or careless users or third-party behavior.

These conditions are readily discernable when the equipment is returned to our factory for inspection.

If the direct client determines that equipment is found to be faulty, or a breakdown occurred, he should inform the manufacturer within five working days and deliver the equipment to manufacturer. Delivery costs should be covered by customer.

