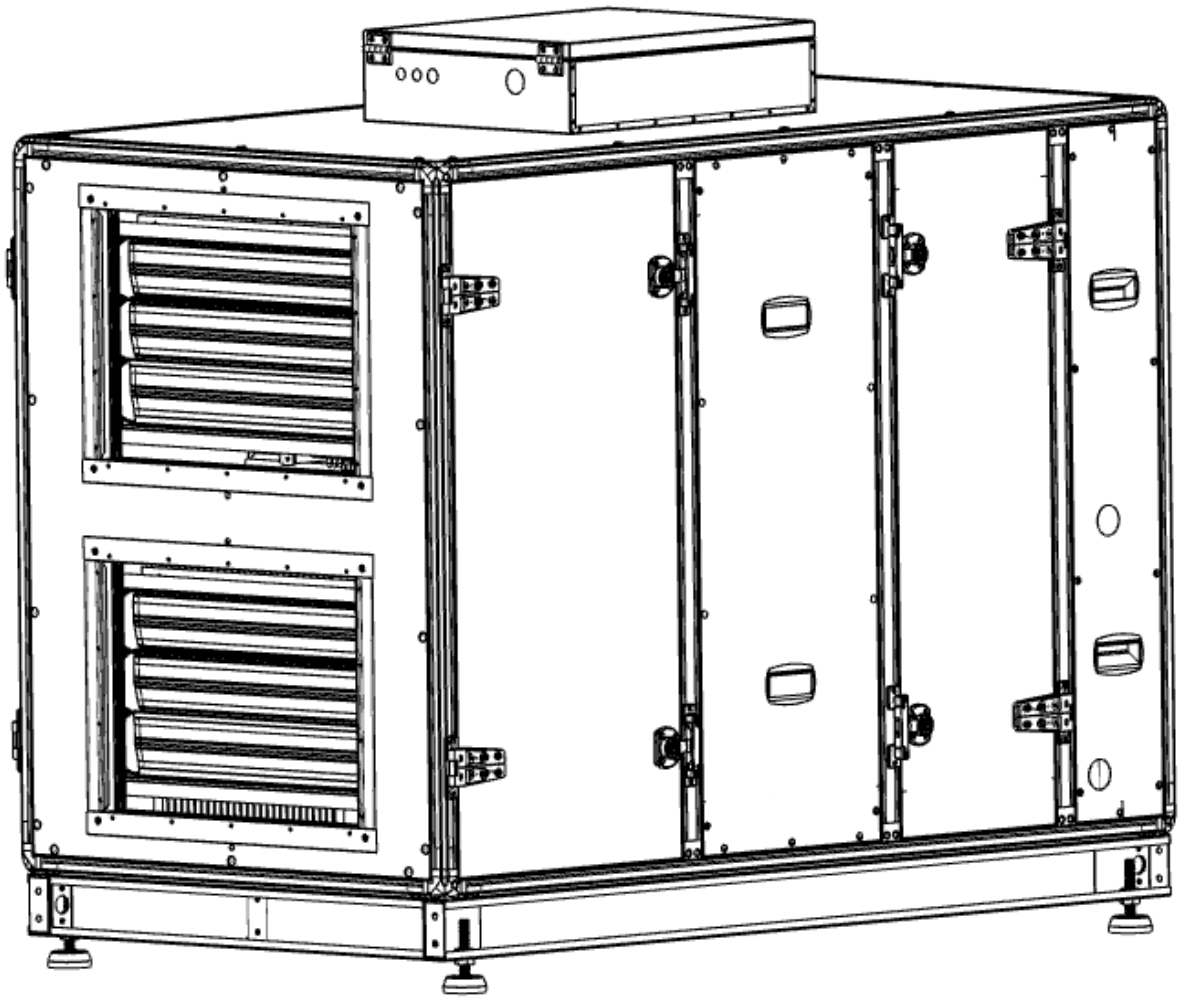
EVO-R

COMPACT AIR HANDLING UNIT WITH ROTARY HEAT RECOVERY



AERA
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CHAPTER 1

GENERAL INSTALLATION AND OPERATING INSTRIUCTIONS

1.0 Important information

To ensure safety and correct operation please read and observe the following instructions carefully before proceeding. Important information is specified in the maintenance section on filter changes and necessary cleaning and maintenance activities. The user usually carries out maintenance work. The chapter “Installation” with important installation tips and basic unit adjustments is intended for the specialized installer.

The electrical connection must be fully isolated from the supply up to the final assembly!

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
Children should be supervised to ensure that they do not play with the appliance.

The planning office provides the planning documents necessary for system calculations. Additional information can be requested ex works. Keep the installation and operating instructions as a reference at the device. After the final assembly, the document must be handed out to the operator (tenant/owner).

1.1 Warning and safety instructions

The following designations/symbols are used in this manual to specify safety-relevant information.

- DANGER - Death/serious irreversible injury

DANGER ⚠ Indicates an extremely hazardous situation which will result in death or serious irreversible injury, if the safety instruction is not followed.

- WARNING - Death/serious injury

WARNING ⚠ Indicates a hazardous situation which can result in death or serious irreversible injury, if the safety instruction is not followed.

- CAUTION - Minor or moderate injury

CAUTION ⚠ Indicates a hazardous situation which can result in minor or moderate injury, if the safety instruction is not followed.

- ATTENTION - Environmental or material damage

ATTENTION ⚠ Indicates actions that can result in damage to equipment or property.

1.2 Warranty claims – Exclusion of liability

If the preceding instructions are not observed, all warranty claims and accommodation treatment are excluded. This also applies to any liability claims extended to the manufacturer.
The use of accessories not offered or recommended by AERA is not permitted. Potential damages are not covered by warranty.

1.3 Regulations – Guidelines

If the product is installed correctly and used to its intended purpose, it conforms to all applicable CE standards at its date of manufacture. The AERA EVO-R ventilation units in this series are compliant with Eco-Design 2018.

1.4 Receipt

The delivery contains one of the following unit types:

Unit	Unit
EVO-15R	EVO-15R/SO
EVO-20R	EVO-20R/SO
EVO-30R	EVO-30R/SO
EVO-50R	EVO-50R/SO
EVO-60R	EVO-60R/SO
EVO-80R	EVO-80R/SO
EVO-95R	EVO-95R/SO
EVO-120R	EVO-120R/SO
EVO-150R	EVO-150R/SO

The scope of delivery also includes:

- Door Handles
- Fixing clamp
- Gasket (Dividable units)

Door handles are placed exhaust air fan side. (Fig. 1)

Please check delivery immediately on receipt for accuracy and damage. If damaged, please notify carrier immediately.

In case of delayed notification, any possible claim may be void.

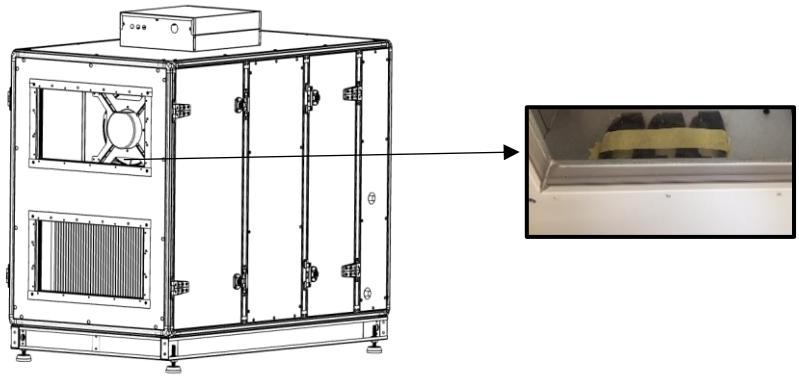


Fig. 1

1.5 Storage

When storing for a prolonged time the following steps are to be taken to avoid damaging influences:
Protection by dry, air- dustproof packing. The storage place must be water-protected, vibration-free and free of temperature variations. (Ambient temperature limit, min/max, 0°C/ +40°C) Damages due to improper transportation, storage or putting into operation are not covered by warranty.

1.6 Transport

The transport of the devices must be done with care. All manufactured devices are shipped from the factory after all tests and checks have been made before shipment.

The transport must be carried out by trained and experienced personnel and the necessary safety precautions should be taken to prevent overturning and slipping of the device. During transport of the devices it should be ensured that the weight is evenly distributed over the four corners.

DANGER **Danger due to overhead loads – risk of grave injuries or death!**

- Never stand beneath suspended loads, since there is always a risk that the lifting gear, tackle, ropes or slings are faulty or damaged.
- Make sure that equipment is firmly seated before lifting it.

WARNING **Risk of personal injury and equipment damage!**

Due to a high center of gravity, some equipment can tend to tip over and cause damage to persons and property.
- When transporting the unit, carefully observe its behavior and do not get near any possible hazardous areas.

Delivery dimensions and weights

EVO-50R/60R/80R/95R/120/150R models are shipped in 2 parts. The dimension and weight of each package can be seen below.

ATTENTION The modules of the dividable units must be transported separately. Therefore, disconnect the modules before transport the units.

MODEL	Package quantity	Package 1 Dimensions (LxWxH) (mm)	Package 1 Weight (kg)	Package 2 Dimensions (LxWxH) (mm)	Package 2 Weight (kg)
EVO-15R	1	1840x900x1525	250		
EVO-20R	1	1840x1000x1625	325		
EVO-30R	1	1840x1110x1735	390		
EVO-50R	2	750x1380x2005	210	1370x1380x2005	457
EVO-60R	2	820x1500x2125	262	1470x1500x2125	561
EVO-80R	2	910x1750x2375	400	1540x1750x2375	586
EVO-95R	2	970x1850x2475	473	1620x1850x2475	680
EVO-120R	2	1035x2000x2625	507	1690x2000x2625	755
EVO-150R	2	1080x2250x2875	550	1730x2250x2875	1030

ATTENTION Before off-loading products, please ensure that the means of transport/ lifting is suitable to accommodate to the required weight and size capacity.

- EVO-R devices are shipped on pallets. (Fig. 2)

Fig. 2

ATTENTION **The device must be transported by forklift.**

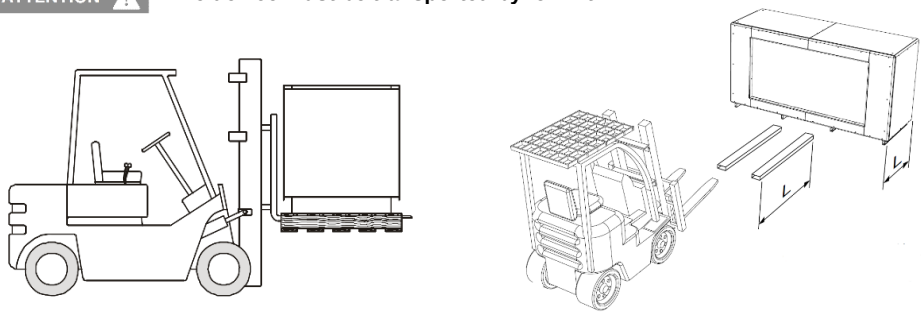


Fig. 3

- Provide a symmetrical load distribution before lifting the device
- Lift the device slowly

ATTENTION **Before transporting the device make sure that the forks of forklift truck are sufficient length that will come out from the opposite side of the device! (Fig. 3)**

ATTENTION **If the device is to be transported by crane, the transport pipe entrances on the base must be used. (Fig. 4)**

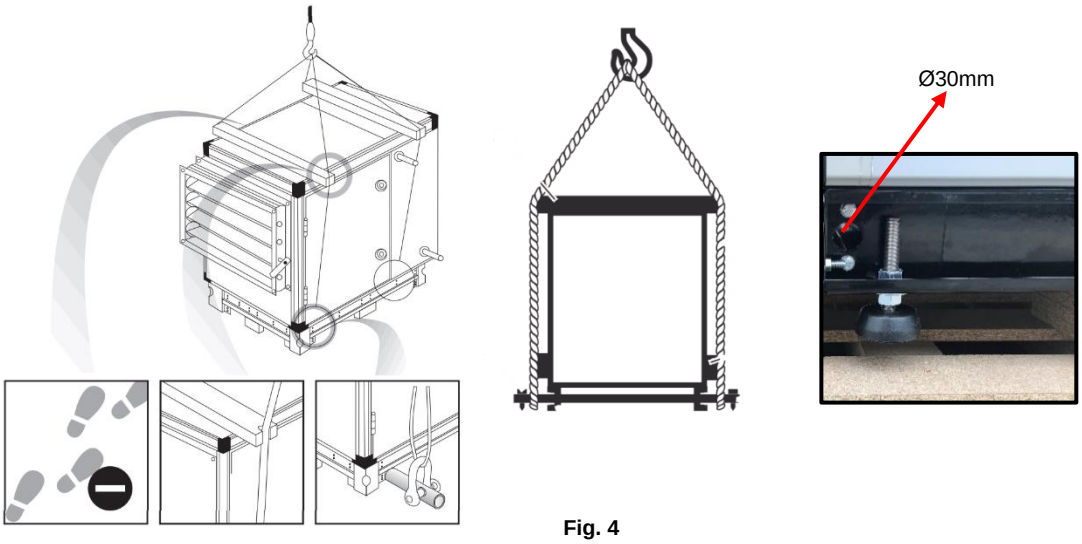


Fig. 4

- Pass the transport pipes through the holes in the base frame.
- Secure the transport pipes with screws.
- Pass the chain or rope to the end of the pipe.
- Prevent damage to the device from chains or ropes with wooden stick as shown. (Fig.4)
- Use a wooden stick to prevent the chain or ropes from damaging the device.
- Provide a symmetrical load distribution before lifting the device.
- Lift the device slowly.

DANGER **Risk of personal injury and equipment damage!**

The packages may have an eccentric center of gravity. If the packages are lifted incorrectly they can be dropped. Falling or overturned packages may cause serious injury.

While the packages are being lifted, the crane hook should be located above the center of gravity of the packages.

1.7 Intended use

EVO-R units are highly energy efficient, fully automated, quiet and plug-and-play air handling units. EVO-R devices are designed in 9 different models to correspond the need of up to 15000 m^3/ h air flow. There is an ePM1 55% class filter on the outdoor air side and an ePM10 50% class filter on the exhaust side as standard.

EVO-R devices are designed with energy efficient, low sound pressure radiating and low power consumption plug fans. Plug fans with EC motors can be driven with 3 fixed speeds (reduced-normal-boost) or steplessly with the help of an air quality sensor thanks to build in smart control system.

The EVO-R units are equipped with rotary heat exchanger. More than 80 % of the extract air heat is transferred to the outdoor air depending on working conditions. The supply air is led by the duct system to the primary (supply air needing) areas. The used air is extracted from the secondary areas. It flows back through the ducting to the ventilation unit, transfers the heat and is discharged by the exhaust air duct to the atmosphere.

The AERA EVO-R units are only intended for handling of air and performing the following jobs:

- filtering normally polluted air
- air heating and/or cooling
- heat recovery
- or combination of the above-mentioned functions.

Proper use also includes observance of the operation manual and instructions from the manufacturer of the individual components, as well as the inspection and maintenance intervals stipulated by AERA.

EVO-R devices application limits can be seen below.

	EVO-15R	**EVO-20R**	**EVO-30R**	**EVO-50R**	**EVO-60R**	**EVO-80R**	**EVO-95R**	**EVO-120R**	**EVO-150R**
Ambient Temperature (°C)	0 / 50	0 / 50	0 / 50	0 / 50	0 / 50	0 / 50	0 / 50	0 / 50	0 / 50
Ambient Temperature with e-box heater (°C)	-20 / 50	-20 / 40	-20 / 50	-20 / 50	-20 / 40	-20 / 50	-20 / 50	-20 / 40	-20 / 40
ODA/ETA Air Temperature (°C)	-20 / 50	-20 / 40	-20 / 50	-20 / 50	-20 / 40	-20 / 50	-20 / 50	-20 / 40	-20 / 40
Humidity	80% RH	80% RH	80% RH	80% RH	80% RH	80% RH	80% RH	80% RH	80% RH

ATTENTION The standard equipment permits the installation and the application in frost-free rooms > 0 °C. If the device is used at < 0 °C, it is necessary to use a heater in the device electronic box. (optionally)

ATTENTION Corrosion level of the sheet metal is C4 according to ISO 12944. The unit is durable under these conditions.

Interior: Chemical manufacturers, swimming baths and ship- and boatyards by the sea.

Exterior: Industrial areas and coastal areas with moderate salt impact.

1.8 Heat systems

The relevant applicable regulations on the combined use of heat systems, domestic ventilation and extractor hoods (Federal Association of Chimney Sweeps (ZIV) information) must be observed!

General construction-law requirements

The EVO-R units with heat recovery must only be installed and operated in rooms with heat systems which depend on room air, if their flue gas venting is monitored by specific (on-site) safety devices, which shut down the EVO-R unit when activated. We recommend speaking with the competent chimney sweep to take account of possible wishes before procuring a negative pressure monitoring system for heat systems.

1.9 Performance and technical data

Mechanical connections must be made correctly in order to obtain maximum efficiency from the device. The device's thermal efficiency, sound level and electrical performance may vary depending on the ambient and operating conditions. These conditions may affect the measurement result on site and vary from the catalogue data

MODEL	EVO-R								
	1500	2000	3000	5000	6000	8000	9500	12000	15000
Air flow (m3/h)	1400	2200	2900	4400	5500	8000	9500	12500	15000
Rated current – ventilation (A)	4,3	6,8	4,6	7,6	7,3	10,9	10,6	15,2	18,2
Rated current – after-heater (A)	6,1	8,4	13,1	-	-	-	-	-	-
Max. total rated current (A)	2,2	3,4	4,7	7,6	7,3	11	10,7	15,2	18,3
Max. total rated current with electrical after heater (A)	8,3	11,8	17,7	-	-	-	-	-	-
Power consumption – ventilation (kW)	1	1,56	3	5	4,8	7,2	7	10	12
Power consumption – after heater (kW)	4,2	5,8	9,1	-	-	-	-	-	-
Max. power consumption (kW)	1,2	1,8	3,2	5,2	5	7,4	7,4	10,4	12,4
Max. power consumption with electrical after heater (kW)	5,4	7,6	12,3	-	-	-	-	-	-
Voltage/Frequency	3~400V 50Hz	3~400V 50Hz	3~400V 50Hz	3~400V 50Hz	3~400V 50Hz	3~400V 50Hz	3~400V 50Hz	3~400V 50Hz	3~400V 50Hz
Filter class (extract/ outdoor air)	ePM10 50% / ePM1 55%	ePM10 50% / ePM1 55%	ePM10 50% / ePM1 55%	ePM10 50% / ePM1 55%	ePM10 50% / ePM1 55%	ePM10 50% / ePM1 55%	ePM10 50% / ePM1 55%	ePM10 50% / ePM1 55%	ePM10 50% / ePM1 55%
Weight (kg)	230	300	361	629	775	930	1090	1190	1500
IP Class with weather roof	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54
IP Class without weather roof	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20
Wiring diagram	Chapter 8.0	Chapter 8.1	Chapter 8.2	Chapter 8.3	Chapter 8.4	Chapter 8.5	Chapter 8.6	Chapter 8.7	Chapter 8.8

MODEL	EVO-R/SO								
	1500	2000	3000	5000	6000	8000	9500	12000	15000
Air flow (m3/h)	1400	2200	2900	4400	5500	8000	9500	12500	15000
Rated current – ventilation (A)	4,3	6,8	4,6	7,6	7,3	10,9	10,6	15,2	18,2
Rated current – after-heater (A)	6,1	8,4	13,1	-	-	-	-	-	-
Max. total rated current (A)	2,2	3,4	4,7	7,6	7,3	11	10,7	15,2	18,3
Max. total rated current with electrical after heater (A)	8,3	11,8	17,7	-	-	-	-	-	-
Power consumption – ventilation (kW)	1	1,56	3	5	4,8	7,2	7	10	12
Power consumption – after heater (kW)	4,2	5,8	9,1	-	-	-	-	-	-
Max. power consumption (kW)	1,2	1,8	3,2	5,4	5,2	7,8	7,6	10,6	12,6
Max. power consumption with electrical after heater (kW)	5,4	7,6	12,3	-	-	-	-	-	-
Voltage/Frequency	3~400V 50Hz	3~400V 50Hz	3~400V 50Hz	3~400V 50Hz	3~400V 50Hz	3~400V 50Hz	3~400V 50Hz	3~400V 50Hz	3~400V 50Hz
Filter class (extract/ outdoor air)	ePM10 50% / ePM1 55%	ePM10 50% / ePM1 55%	ePM10 50% / ePM1 55%	ePM10 50% / ePM1 55%	ePM10 50% / ePM1 55%	ePM10 50% / ePM1 55%	ePM10 50% / ePM1 55%	ePM10 50% / ePM1 55%	ePM10 50% / ePM1 55%
Weight (kg)	230	300	361	629	775	930	1090	1190	1500
IP Class with weather roof	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54
IP Class without weather roof	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20
Wiring diagram	Chapter 8.0	Chapter 8.1	Chapter 8.2	Chapter 8.3	Chapter 8.4	Chapter 8.5	Chapter 8.6	Chapter 8.7	Chapter 8.8

1.10 Disassembly and re-assembly

DANGER **Before starting any disassembly or re-assembly operation, please ensure that the product is isolated from its mains electrical supply, in order to ensure that fans cannot be run. As disassembly and re-assembly are not part of routine maintenance, these should be carried out by qualified personnel.**

Ensure the unit is voltage-free and isolated, earth and short circuit the unit, cover or shield off all electronic components.
Ensure that the hydraulic circuit is switched off**.** (If the heater-cooler coil added to the unit)

- Close all hydraulic shut-off valves. (If the heater-cooler coil added to the unit)

- Isolate all connections and ensure leak-free condition regarding oil, refrigerant (If the heater-cooler coil added to the unit)

- As the coil piping diameter is small, waste water can remain in the unit following normal evacuation. For safety reasons, use compressed air to blow through the system in order to remove all remaining water.

WARNING **Risk of personal injury and equipment damage!**

Due to a high center of gravity, some equipment can tend to tip over and cause damage to persons and property.
When transporting the unit, carefully observe its behavior and do not get near any possible hazardous areas.

1.11 Disposal

DANGER **Before starting any operation, please ensure that the product is isolated from its mains electrical supply, in order to ensure that fans cannot be run.**

Dispose of all components and filters and disused operating materials (e.g. oil, refrigerants) in an environmentally-friendly manner in accordance with the local codes, practices and environmental regulations.
An authorized appointed contractor specializing in waste processing must dispose of the unit or its individual components. This appointed contractor must ensure that:

– the components are separated according to material types

– the used operating materials are sorted and separated according to their respective properties.

CHAPTER 2

INSTALLATION

WARNING **Unit installation and connections shall only be performed by qualified licensed staff. The electrical connections must be carried out by a person who has proper professional training and experience in the relevant accident prevention regulations, as well as other generally recognized safety and occupational health codes, perform unit jobs.**

2.0 Assembly

The central ventilation units EVO-R must be mounted in a vertical position. Ensure that there is a waste water connection for cooler module (optional) in the installation area. Assembly should take place in such a way to enable preferably short ventilation ducts and their trouble-free connection to the unit. Tight bends can lead to increased pressure loss and flow noise. The unit can be turned 180° for optimal installation, so that the outdoor/exhaust air and extract/supply air inlets and outlets can be on the left or right side. There is no need for bends and long stretches of pipeline due to these features. They reduce losses and increase the degree of efficiency of the system.

Important notes:

- The ventilation ducts must not become kinked.
- The connections to the connection valves must be firm and tight.
- Flange connections must be leakproof and firm
- If necessary, vibration isolators can be used between unit and floor.
- Make sure that sufficient duct length is available before connecting the bend etc. to the device.

CAUTION **To prevent contact with moving parts the outdoor spigot should be placed on the exhaust air side in case of no duct connection. (Chapter 7.9)**

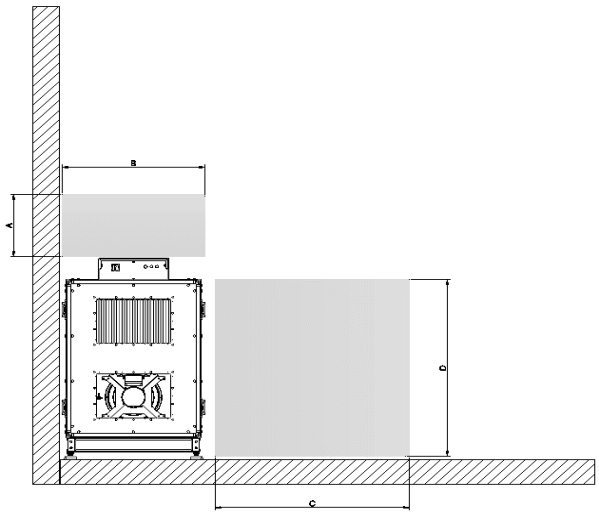
ATTENTION **Make sure that the device is placed on a flat surface before any assembly work.**

Assembly area

Observe the following criteria during installation to ensure that the device service is comfortable. (Fig. 5)

A is the minimum distance for servicing the terminal box.

B is the minimum distance for opening service cover.



MODEL	A (mm)	B (mm)	C (mm)	D (mm)
EVO-15R	600	910	1110	1145
EVO-20R	600	1010	1210	1245
EVO-30R	600	1120	1320	1355
EVO-50R	600	1390	1590	1625
EVO-60R	600	1510	1710	1745
EVO-80R	600	1760	1960	1995
EVO-95R	600	1860	2060	2095
EVO-120R	600	2010	2210	2245
EVO-150R	600	2260	2460	2495

Fig. 5

2.1 General installation information

ATTENTION Make sure that there is enough space for the device servicing. Therefore, the device must be assembled after the dimensions have been identified.

- Installation of accessories before placing unit to its final position is easier as it can be reached from both sides.
- For detailed information on installation of all accessories, please refer to chapter 7.
- For detailed information on transport of EVO-R unit, please refer to chapter 1.6.

2.1.1 Leveling of unit

EVO-R has easily adjustable feet. Make sure that the device is placed on a flat surface before any assembly work. Change the height of the feet to leveling the device. Height “H” can be maximum 90mm. (Fig. 6)

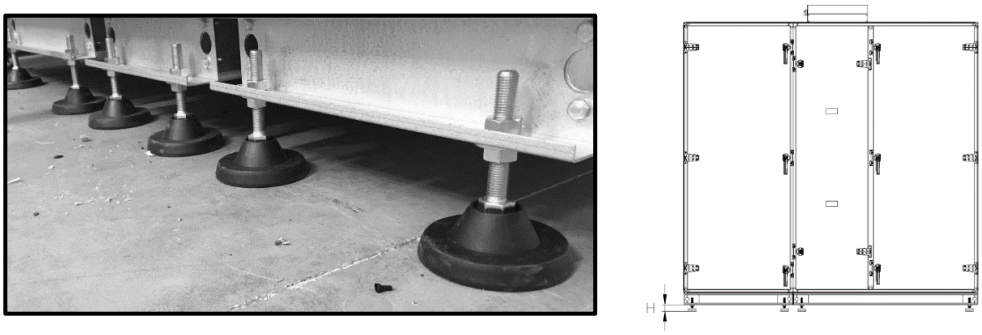


Fig. 6

2.1.2 Attachment of door handles

The door handles are packaged separately to avoid damage during the transport. Install the door handles after the unit is placed on floor and leveled.

ATTENTION **Open doors only when unit is placed on floor and leveled**

- Place the door handle and tighten the screw as shown below. (Fig. 7)

Fig. 7

2.1.3 Module assembly

DANGER **RISK OF INJURY! Make sure that the power connection is disconnected, and fan is not moving before doing any work on the device**

- Before assembling the modules, apply gasket between adjacent modules (Fig. 8)

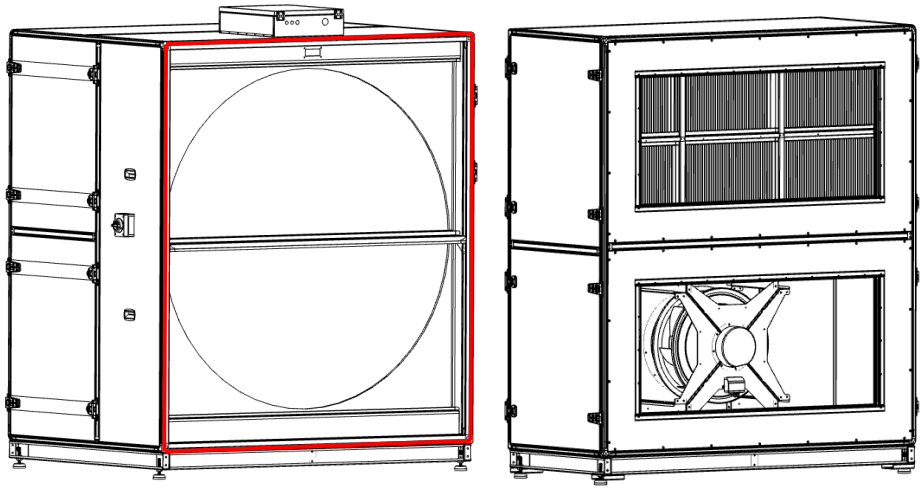


Fig. 8

- Before joining the modules for final assembly position, them as close to one another as possible. Use the unit base frame only to pull the modules together.

1. Bring modules closer together and plug the electrical connections (Fig. 9)

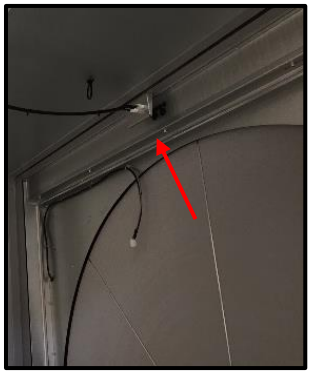


Fig. 9

2. Tighten the bolt (Fig. 10)

Fig. 10

2.1.4 Flange connection / adapter pieces

EVO-R flange connection diameters are shown below (Fig. 11)

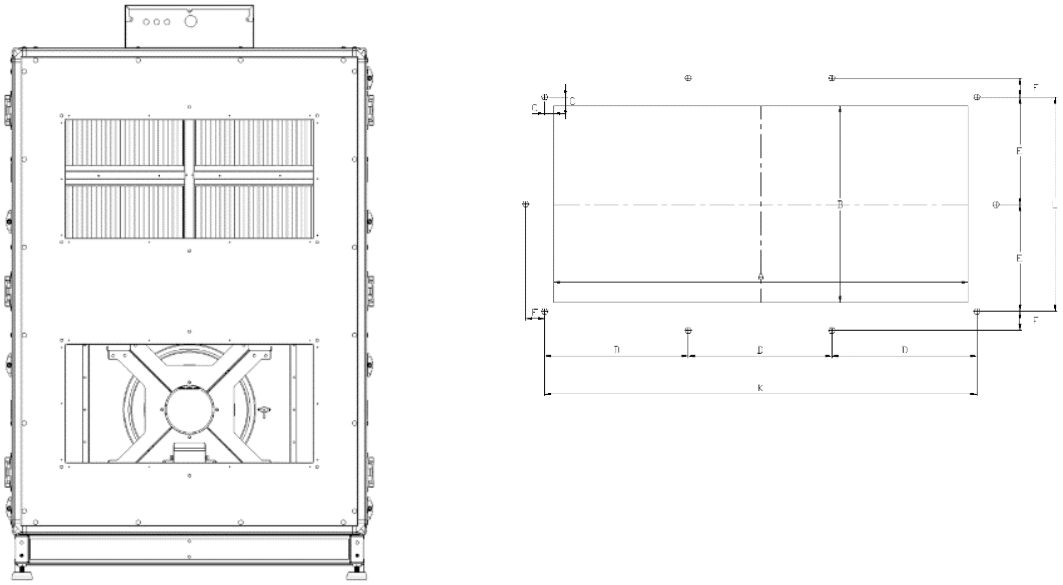


Fig. 11

Model	Dimensions (mm)									
	A	B	C	n	D	m	E	F	K	L
EVO-15R	350	310	14,14	0	-	0	-	-	378,28	338,28
EVO-20R	470	310	14,14	0	-	0	-	-	498,28	338,28
EVO-30R	580	410	14,14	1	304,1	0	-	30	608,28	438,28
EVO-50R	855	410	14,14	1	441,6	0	-	30	883,28	438,28
EVO-60R	855	410	14,14	1	441,6	0	-	30	883,28	438,28
EVO-80R	1055	410	14,14	2	361,1	0	-	30	1083,28	438,28
EVO-95R	1200	410	14,14	2	409,4	0	-	30	1228,28	438,28
EVO-120R	1475	510	14,14	2	501,1	1	269,1	30	1503,28	538,28
EVO-150R	1600	710	14,14	3	407,1	1	369,1	30	1628,28	738,28
n : number of drill hole (horizontal) (Except corner holes)										
m : number of drill hole (vertical) (Except corner holes)										
Hole/Bolt dimension : M8X16										

- Connect the spigot, duct, adapter rectangular to round and flexible duct to the device from the corners with M8x16 bolts.
- In EVO-30R/50R/60R/80R/95R/120R/150R models, after connection the bolts, attach to the clamp shown below to fixing the spigot/adapter (Fig. 12)

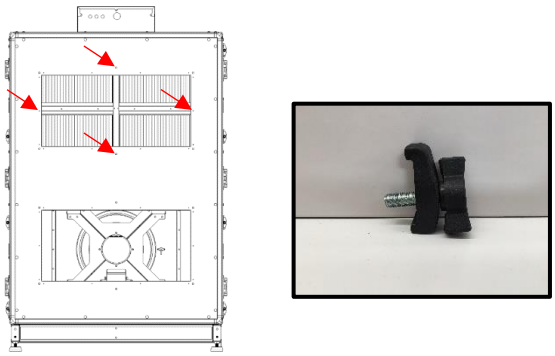


Fig. 12

- Please refer to chapter 7.13 for more information about adapters rectangular to round.

- Please refer to chapter 7.14 for more information about flexible connectors.

2.1.5 Air ducting

When designing the ductwork, use the shortest possible runs. Airtight connections and changeovers must be ensured for the best possible heat recovery. To avoid pressure losses, dirt build-up and noise, use smooth ducts (plastic or rigid ducting). If supply and extract air ductworks run through unheated rooms, insulation must be provided to reduce heat losses and condensation.

CAUTION **All fire and building regulations must be observed!**

Check two or three representative locations on inner air duct surface for contamination, corrosion and, condensation every 12 months.

Check accessible air duct sections for damage every 12 months.

2.2 Additional instruction for outdoor use

ATTENTION **If the unit is to be used in outdoor, make sure that the necessary equipment is installed.**

Necessary equipment can be seen below;

- All ductworks should be insulated sufficiently.

- Weather roof (see the chapter 7.9 for installation.)

- Outdoor spigot (see the chapter 7.11 for installation.)

- E-box heater (see the chapter 7.12 for installation.)

- Make sure that the device is installed at the proper height to prevent snow from entering the device and ducts.

- The unit must be fixed to the base with the following sheet metal parts against the wind load. (Fig. 13)

The sheet metal part allows the device to be secured to the pallet during transport. Therefore, remove these parts carefully and re-use to secure the device during installation.

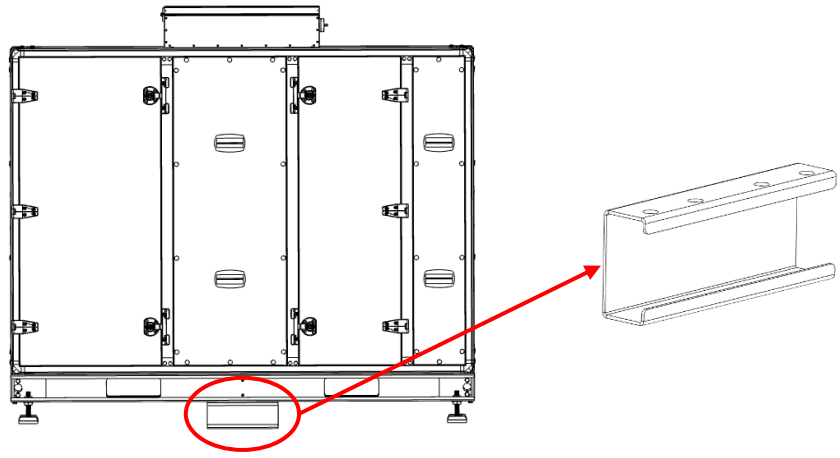


Fig. 13

2.3 Electrical Connection

DANGER **The unit must be fully isolated from the mains power supply before any maintenance and installation work or before opening the enclosure! The electrical connection must only be carried out by an authorised qualified electrician in accordance with the following wiring diagrams. The electrical connection must be fully isolated from the mains power supply until the assembly is complete!**

The unit is equipped with a main switch which can be secured against unauthorized switching with a U-lock. The relevant standards, safety regulations and the technical connection conditions of the local electricity supply companies must be observed. An all-pole mains switch / isolator, with a contact opening of at least 3 mm must be provided on site.

The surface-mounted controller with touchscreen (not scope of delivery – optional) is connected to the unit by means of connecting cable (HMI cable has two different optional lengths 10m - 20m).

ATTENTION According to EN 61000-3-2 these devices are to be classified as “professional” devices. Connection to a low voltage supply (public networks) is allowed insofar as this has been clarified with the respective energy supply company responsible.

- Please refer to chapter 7 for more information about power supply connection of accessories.

- These circuit breakers recommended from the manufacturer for the EVO-R units below.

	EVO-15R	EVO-20R	EVO-30R	EVO-50R	EVO-60R	EVO-80R	EVO-95R	EVO-120R	EVO-150R
Phase	3+1	3+1	3+1	3+1	3+1	3+1	3+1	3+1	3+1
Type	C	C	C	C	C	C	C	C	C
Circuit Breaker (A)	10	16	20	10	10	16	16	20	20

- EVO-R models RCD type can be seen below.

Model	RCD type
EVO-15R	B
EVO-20R	B
EVO-30R	B
EVO-50R	B
EVO-60R	B
EVO-80R	B
EVO-95R	B
EVO-120R	B
EVO-150R	B

RCD current must be determined by qualified electricians.

2.3.1 Power supply connection

1. Open the terminal box cover.

2. Check the thickness of the cable that you will use for power connection. (refer to chapter 8) for cable thickness and connections)

3. Loosen the marked grommet and enter the cables here. (Fig. 14)

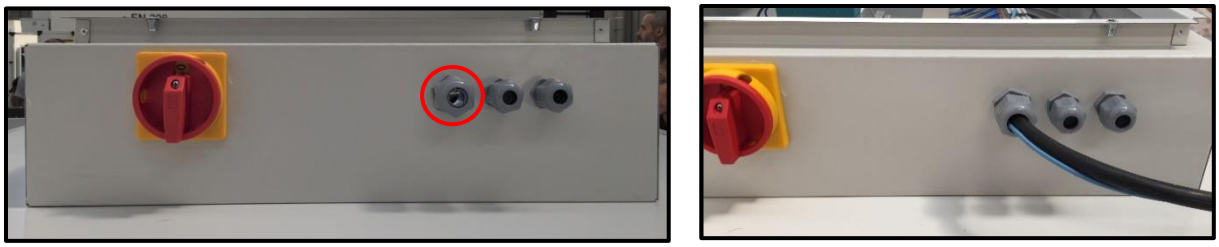


Fig. 14

4. Connect the cables to the marked terminals. Refer to the electrical diagrams for cable connections. (Fig. 15)

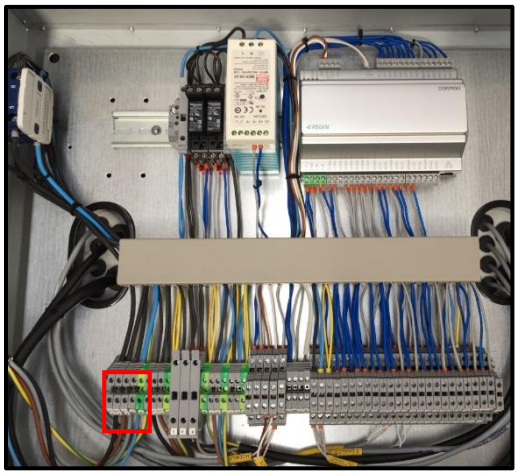


Fig. 15

2.3.2 HMI connection for E3-DSP and ED-T7 display

1. Open the terminal box cover

2. Loosen the marked grommet and enter the cables here (Fig. 16)

Fig. 16

3. Connect the HMI cable to the marked terminals in the terminal box. (Fig. 17)

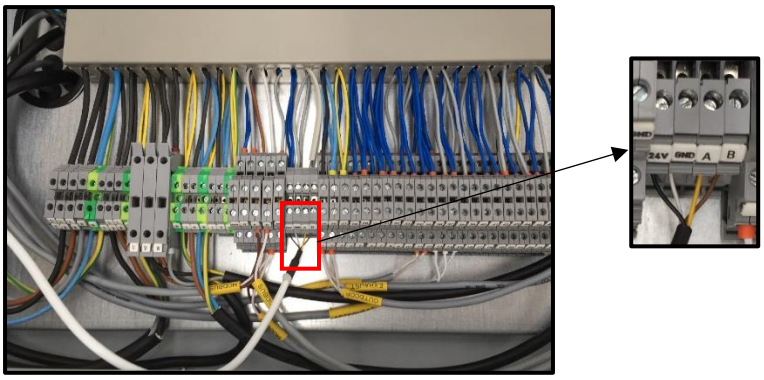


Fig. 17

4. Connect the other end of the HMI cable with the display (Fig. 18) (refer to chapter 8 for connections)

Fig. 18

2.3.3 Attachment of main switch

In EVO-50R, EVO-60R, EVO-R 8000, EVO-R 9500, EVO-R 12000, EVO-R 15000 models, the main switch must be mounted as follows.

1. Determine the service direction of the device.

2. Connect the main switch with M4x10 bolt to the panel which is suitable for the service direction of the device. (Fig. 19)

Fig. 19

2.4 Commissioning assistant

Commissioning assistant can be seen chapter 4.1

CHAPTER 3

FUNCTIONAL DESCRIPTION

3.0 Unit overview

-Non-dividable unit (EVO-15R, EVO-20R, EVO-30R)

- Sectional view of standard unit including internal accessory (Fig. 20)
- Outer view including weather roof and outdoor spigots (Fig. 21)

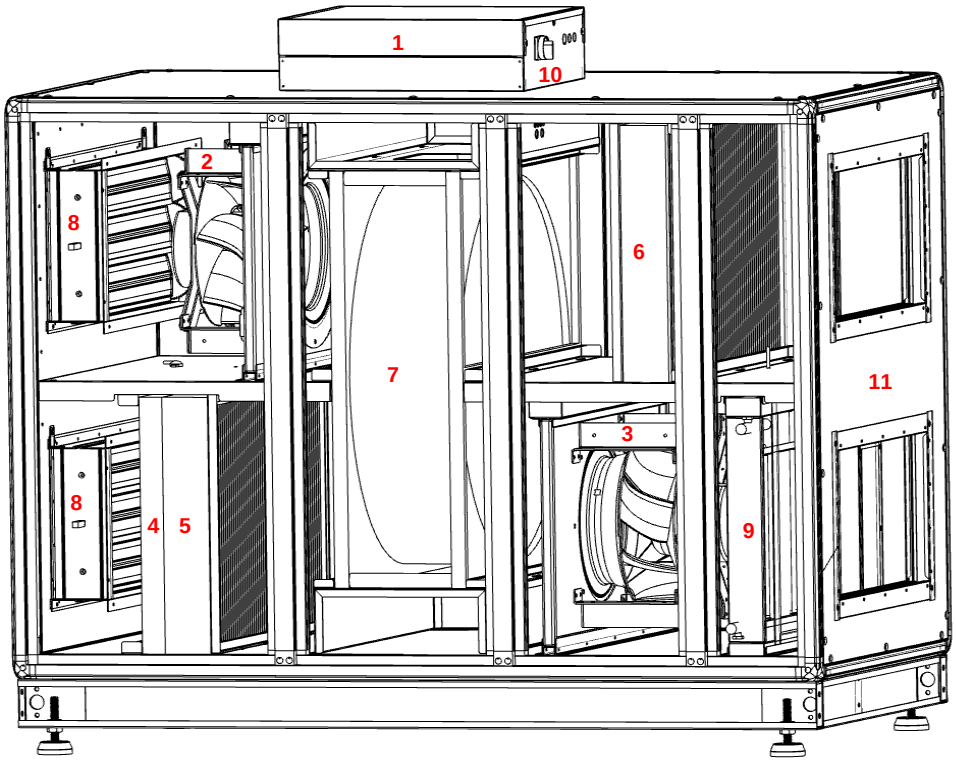


Fig. 20

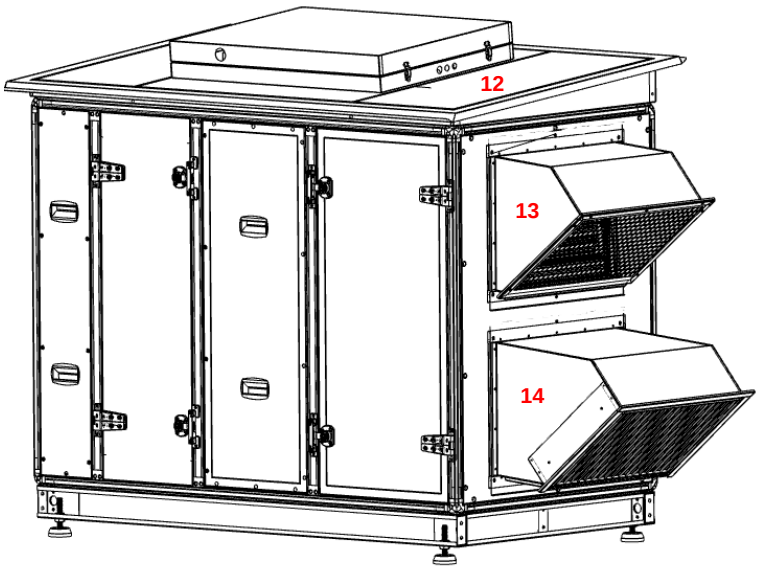


Fig. 21

1. Terminal box

2. Exhaust air fan

3. Supply air fan

4. Outdoor air pre-filter (ePM10 50%) (optional)

5. Extract air filter (ePM10 50%)

6. Outdoor air main filter (ePM1 55%)

7. Rotary heat exchanger

8. Outdoor damper (optional)

9. Water after heater or electrical after heater (optional)

10. Main switch

11. Casing

12. Weather roof (optional)

13. Exhaust air spigot (optional)

14. Outdoor air spigot (optional)

-Dividable unit (EVO-50R, EVO-60R, EVO-80R, EVO-95R, EVO-120R, EVO-150R)

- Sectional view of standard unit including internal accessory (Fig. 22)
- Outer view including weather roof and outdoor spigots (Fig. 23)

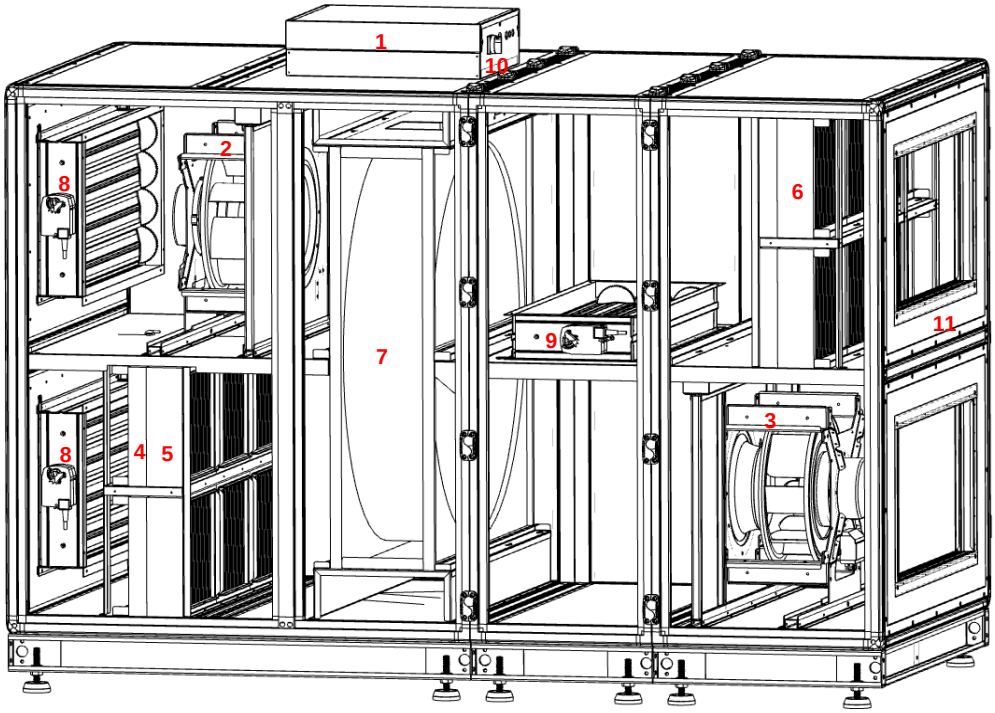


Fig. 22

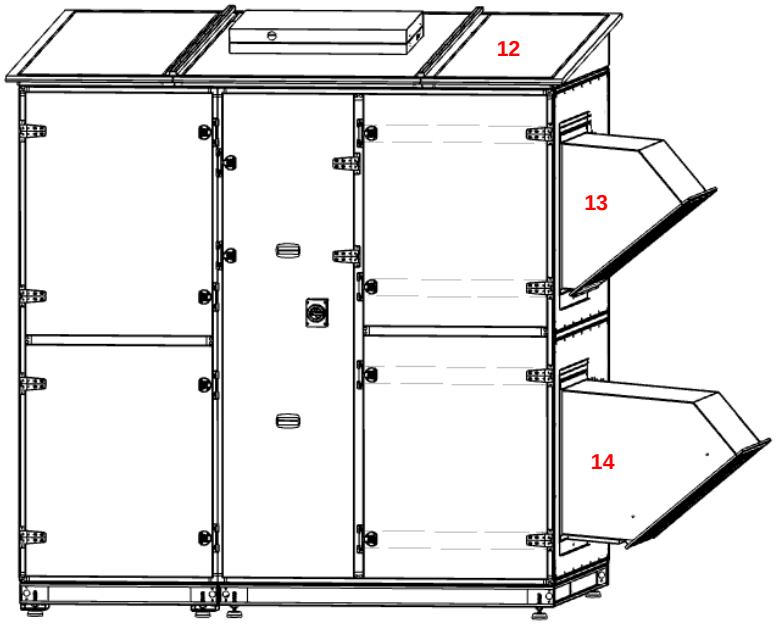


Fig. 23

1. Terminal box

2. Exhaust air fan

3. Supply air fan

4. Outdoor air pre-filter (ePM10 50%) (optional)

5. Extract air filter (ePM10 50%)

6. Outdoor air main filter (ePM1 55%)

7. Rotary heat exchanger

8. Outdoor damper (optional)

9. Recirculation damper (optional)

10. Main switch

11. Casing

12. Weather roof (optional)

13. Exhaust air spigot (optional)

14. Outdoor air spigot (optional)

3.1 Functions

3.1.1 CAP Mode

This mode is used for controlling fans with constant air pressure in air duct via pressure transmitter. If constant pressure is selected, the duct pressure setpoint can be defined for the supply air fan. Exhaust air fan follows the supply air fan with the same flow rate.

3.1.2 CRPM Mode

This mode is used for controlling fans with constant RPM (speed).

When the constant speed is selected, the speeds can be set via the menu separately for supply air fan and exhaust air fan.

3.1.3 VOD Mode

VOD mode is used for air quality of the area via air quality sensors. (CO2, FTF, VOC). This mode can also be used when multiple sensors are installed. If there are more than 3 air quality sensors, then a signal selector should be used. Signal selector chooses the biggest value of the sensor feedback voltage to run the VOD scenario.

3.1.4 Modbus / Bacnet

EVO-R units have 2 communication port on PLC, one is rs485 and other is ethernet port. rs485 port used for internal communication of pressure transmitters. Ethernet port is used for below communication to Building Management Systems (BMS)

-ModBus TCP

-Bacnet IP

CHAPTER 4
CONTROLLER

4.1 Commissioning

With the help of the commissioning assistant (wizard), the most important settings of the ventilation unit can be made (except for time / date, Timer).

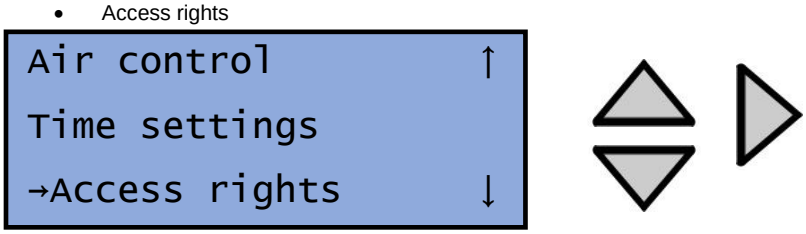
At the first start-up, the controller starts with the start-up wizard and the language selection.

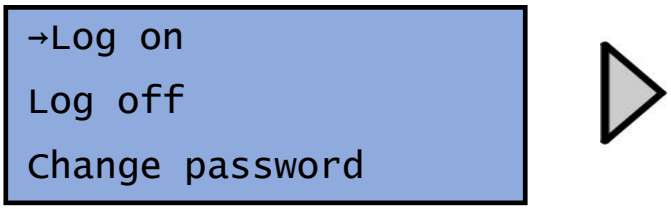
If settings are to be made later (with the exception of language, Timer, temperature and ventilation setpoints), the commissioning wizard must be called up again.

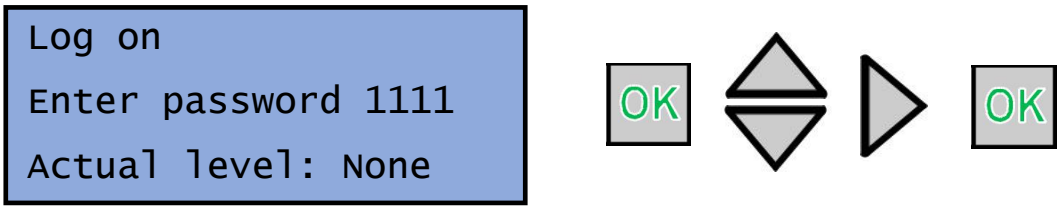
4.1.1 Calling the Commissioning Assistant (Wizard)

Step1: Log in as an Admin

- Access rights

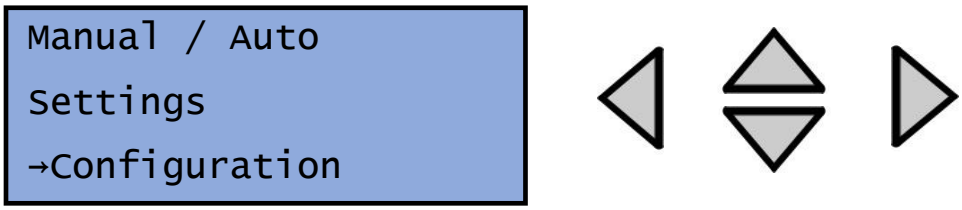




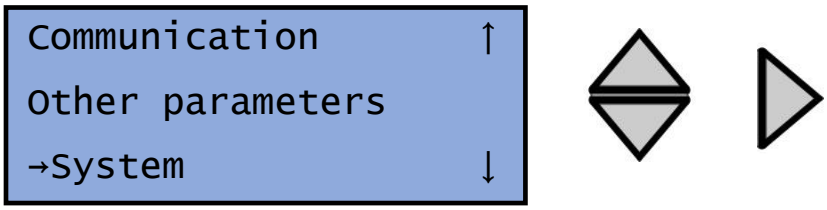


- Activate wizard

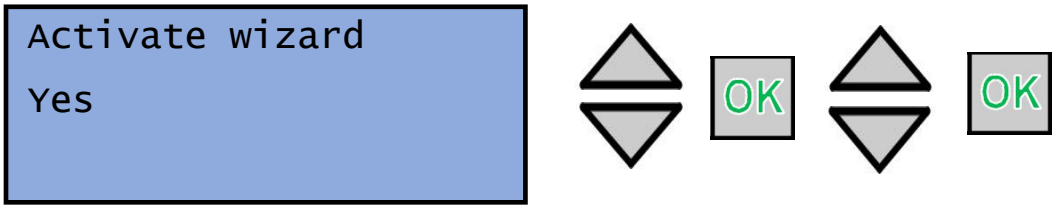
Press the “LEFT” direction button to return to the Main Menu. By selecting “Configuration”, input is entered with “RIGHT” direction button.



Press the “UP-DOWN” direction button to select “System” Menu. By pressing “RIGHT” direction button to enter System Menu.



Press the “UP-DOWN” direction button to select “Activate Wizard” Menu. By pressing “OK” button to select “YES” to activate wizard.



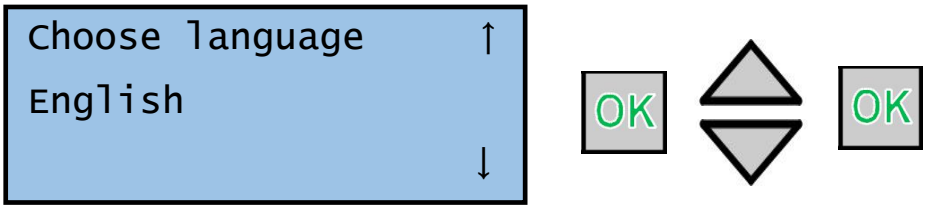
Corrigo will start again for the startup wizard to start. While the unit is in the commissioning assistant (wizard) it can not run”.

4.1.1 Language Selection

Select language for the main menu. The following languages are available:

For the commissioning assistant (wizard) only German, French, English and Turkish are available.”

- German
- French
- Finnish
- Russian
- Polish
- Hungarian
- Czech
- Lithuanian
- Estonian
- Latvian
- Slovenian
- Spanish
- Portuguese
- Italian
- Slovak
- Dutch
- Turkish
- Dutch
- Romanian
- English
- Swedish
- Norwegian
- Danish

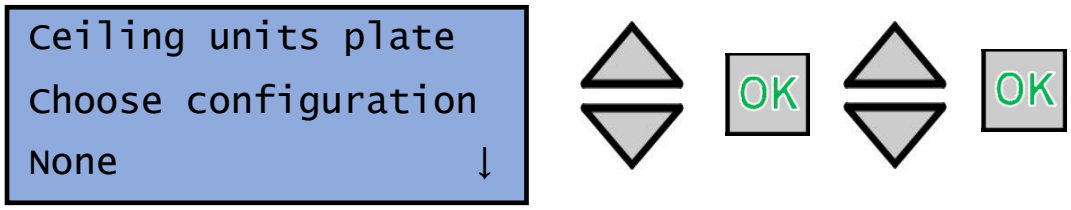


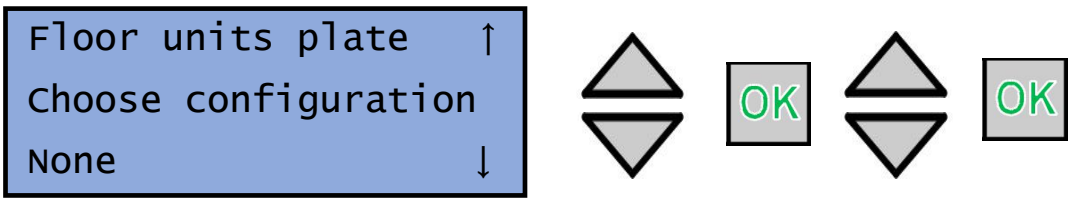
4.1.2 Device Selection

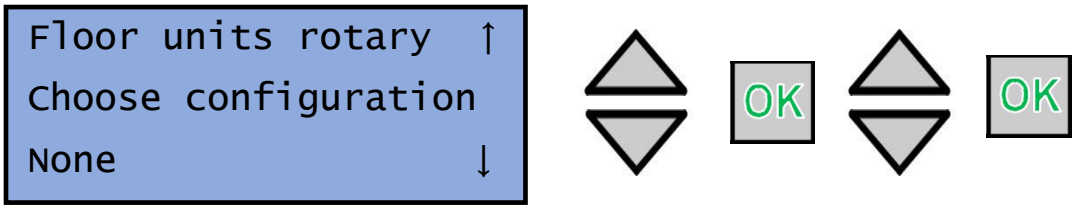
Selection of the applicable ventilation unit in 3 groups

- Ceiling unit with counter-flow exchanger for the device series AZURE
- Stand units with counter-flow exchanger for the device series EVO-C
- Stand units with rotary exchanger for the device series EVO-R

Only a single ventilation unit can be selected. In the other two groups, “None” appears automatically. The last setting is valid.



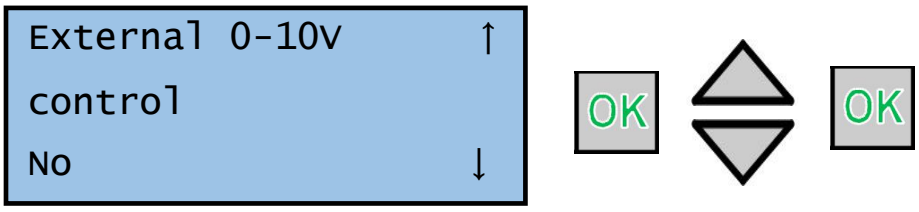




4.1.3 External 0-10v control of the fans

Selection of external 0-10 v control. This mode should be selected for VAV applications where there is another controller that regulates the airflow in the system.

Select Yes/No.



4.1.4 Temperature Control Mode

The temperature control has an influence on the existing heating and cooling registers:

- Electrical heating
- WW heating
- DX Cooling
- CW Cooling

The control function mode is defined only by the commissioning assistant (wizard).

The following temperature control modes are available:

a. Constant Supply Air
b. Outdoor Compensated Supply Air
c. Cascade Room Temp Control
d. Cascade Extract Air Control
e. Outdoor Dependent Supply or Room Temp
f. Outdoor Dependent Supply or Extract Temp
g. Outdoor Compensated Room Temp Control
h. Outdoor Compensated Extract Air Control

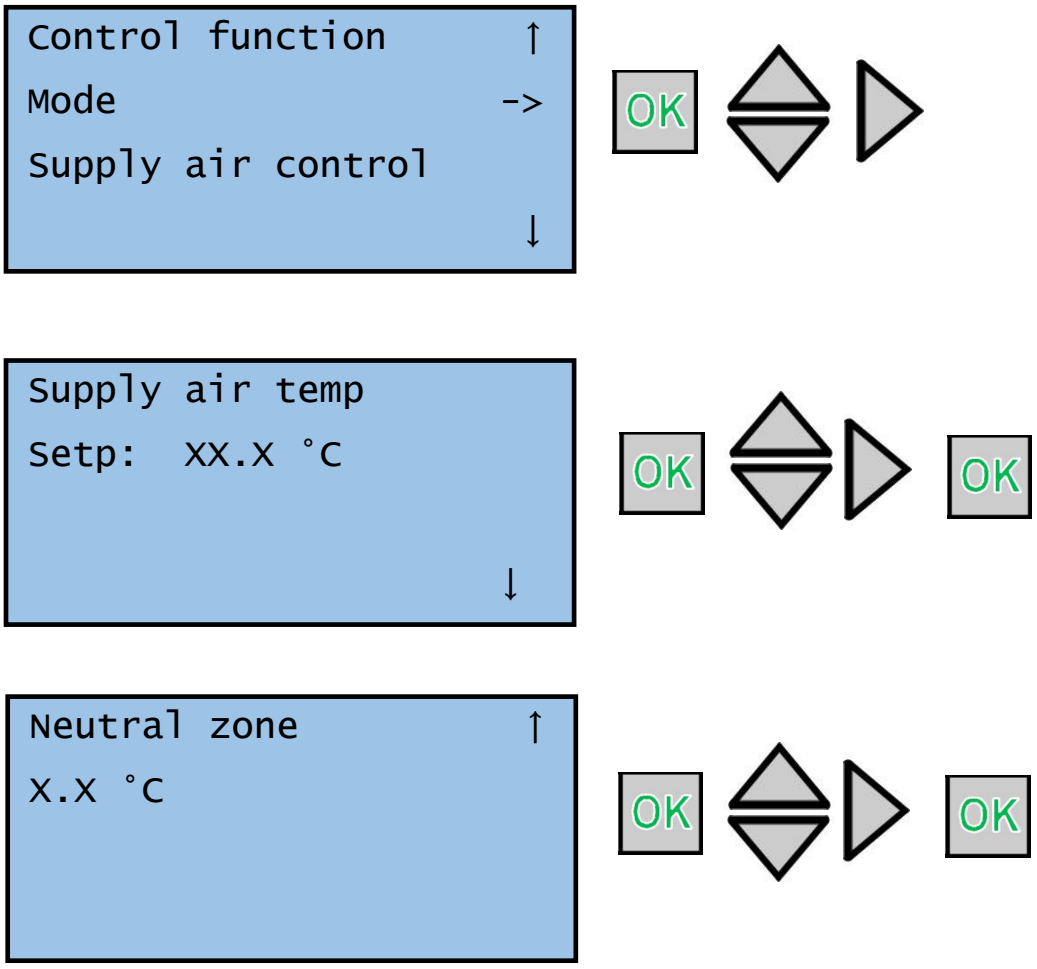
a. Constant Supply Air Temperature Control

In the Constant Supply Air control mode, the heating, heat exchanger and cooling outputs are only adjusted to the supply air sensor.

A neutral zone can be defined for the supply air setpoint.

Example: If the set point is 18 °c and the neutral zone is 2 K, the value is: heating = 17 °c (we = OK) and set point cooling = 19 °c. If the supply air temperature is in the neutral zone, “heating” and “cooling” are blocked. If the supply air temperature falls below the SetPoint-NZ/2, “heating” is active until the set point is reached. If the supply air temperature rises above the SetPoint + NZ/2, “cooling” is active until the set point is reached.

The set point is in the menu **Temperature.** (log in as User or admin).



Alarms triggered by too high or low supply air temperature are activated.

The alarm for the control deviation of the supply air temperature is active.

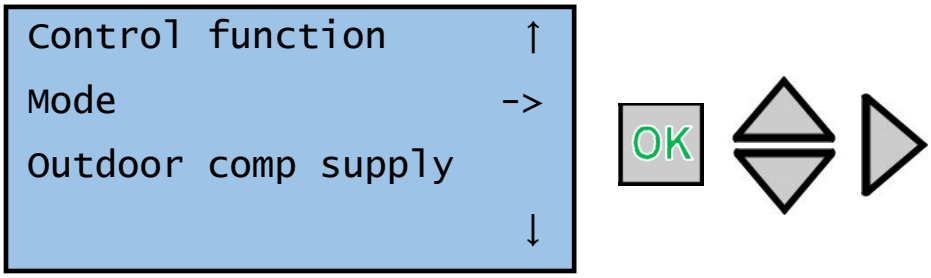
b. Outdoor Compensated Supply Air Temperature Control

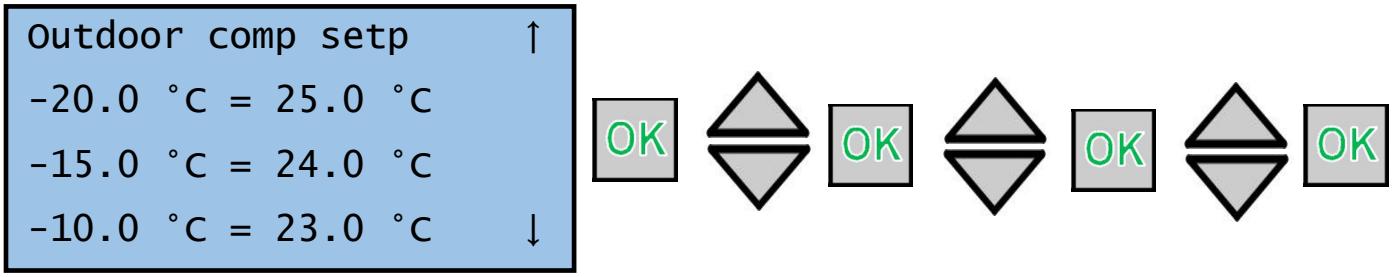
The set point of the supply air temperature can be guided to improve the adjustment to room heat losses from the outside temperature. This ensures that the cooling of room walls is compensated during the cold season.

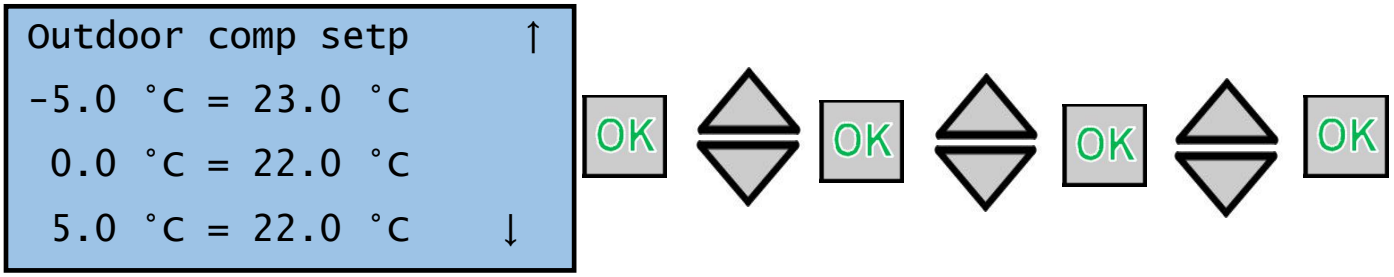
The setpoint of the supply air temperature is determined outside temperature-dependent by means of a control curve with 8 points.

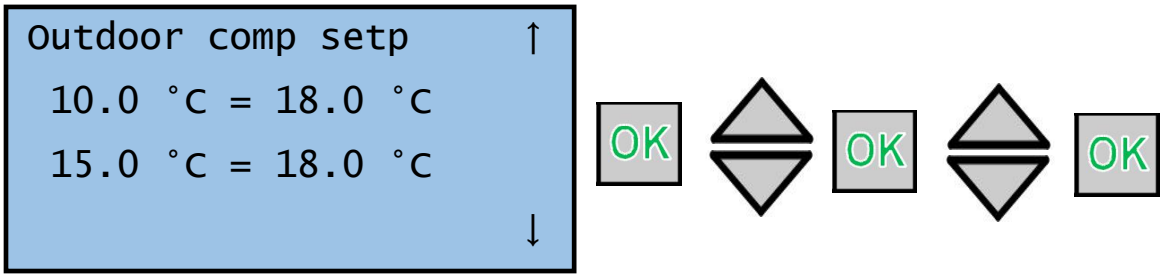
Example:

Outdoor temperature [°C]	Supply Temperature [°C]
-20	25
-15	24
-10	23
-5	23
0	22
5	20
10	18
15	18









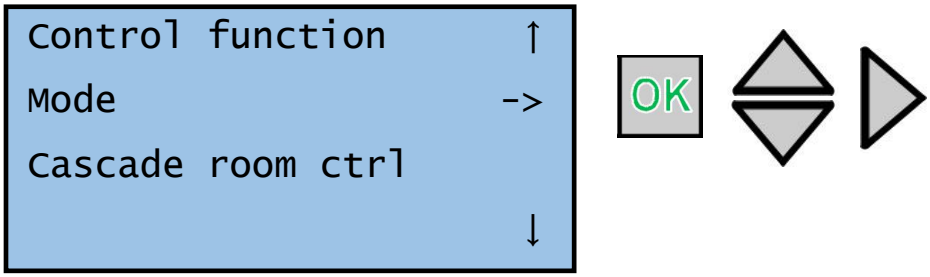
Alarms triggered by too high or low supply air temperature are activated.
The alarm for the control deviation of the supply air temperature is active.

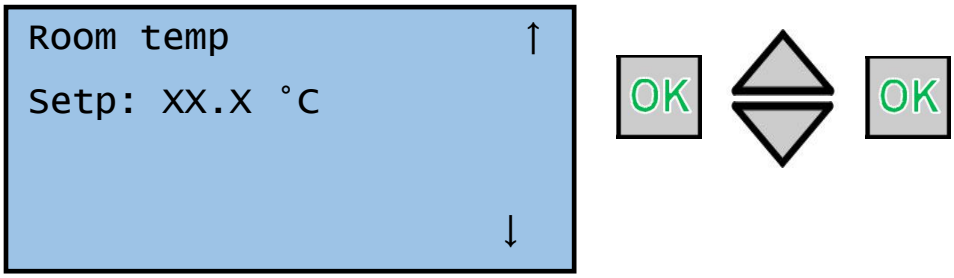
c. Cascade Room Temperature Control

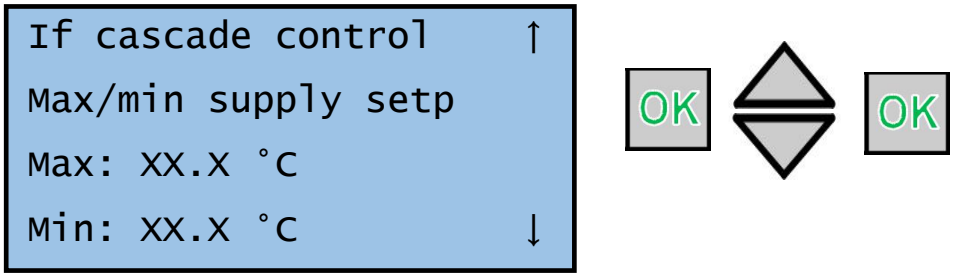
Note: Only available with KWL-FTF accessory. Connection of the analog output A2 (temperature signal) of the KWL-FTF to the analogue input AI2 at the controller.

The cascade control of the room and supply air temperature is used to maintain a constant, adjustable room temperature. The room temperature controller sets the setpoint of the supply air temperature according to the deviation of the ambient temperature from the room temperature setpoint.

The room temperature SetPoint is in the menu **Temperature** (log in as User or admin).

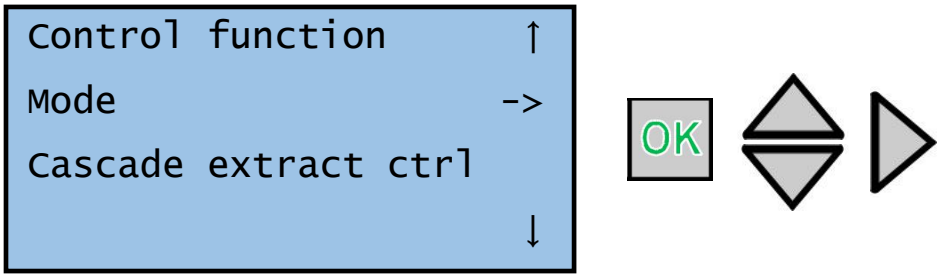


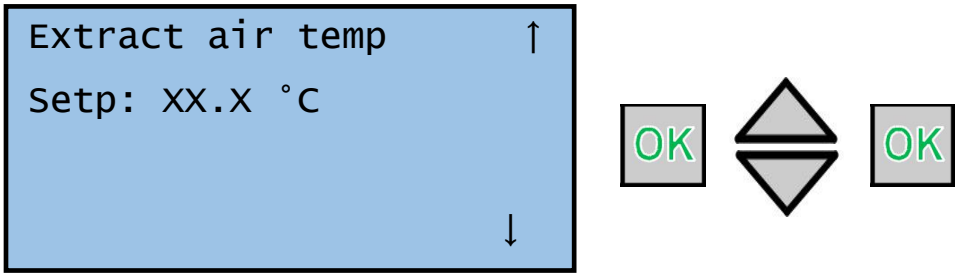




d. Cascade Extract Air Temperature Control

The cascade control of the extract air and supply air temperature is used to maintain a constant, adjustable room temperature.
The output signal of the extract air temperature control mechanism indicates the setpoint of the supply air.
The set point is in the menu **Temperature** (log in as User or admin).

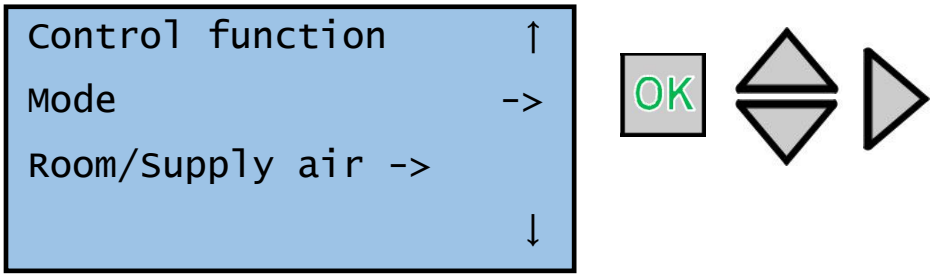


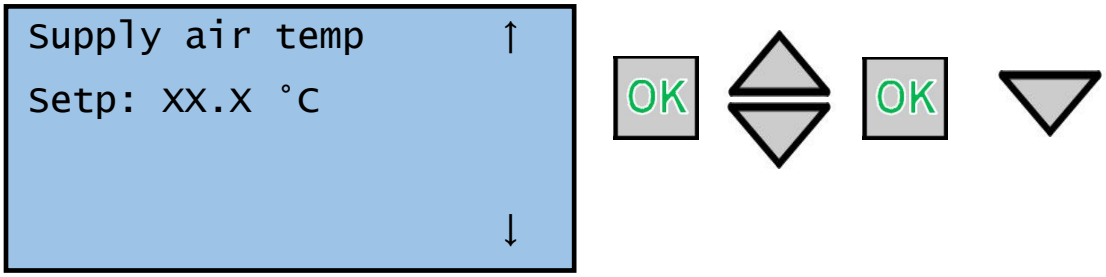


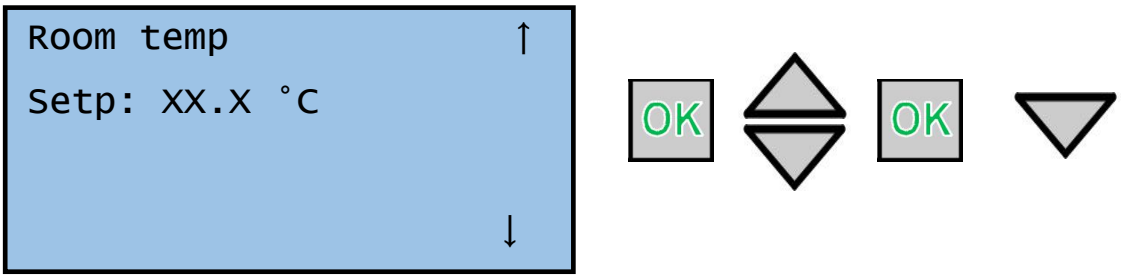
e. Outdoor Dependent Supply or Room Temperature Control

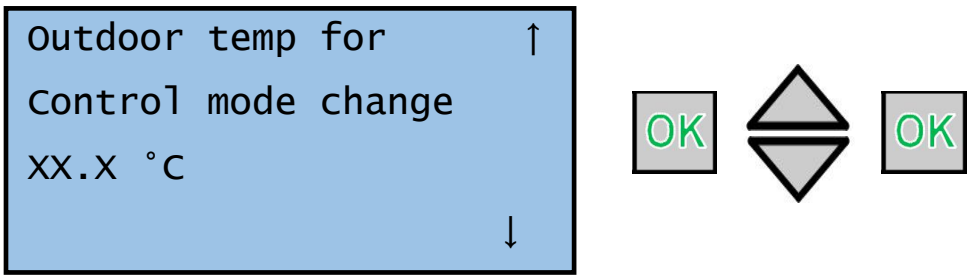
Note: Only available with KWL-FTF accessory Connection of the analog output A2 (temperature signal) of the KWL-FTF to the analogue input AI2 at the controller.

If the outside temperature is below the adjustable limit (winter), outdoor compansated supply air temperature control will be active (see b). Otherwise (summer) the Cascade Room Temp Control (see c) is active.



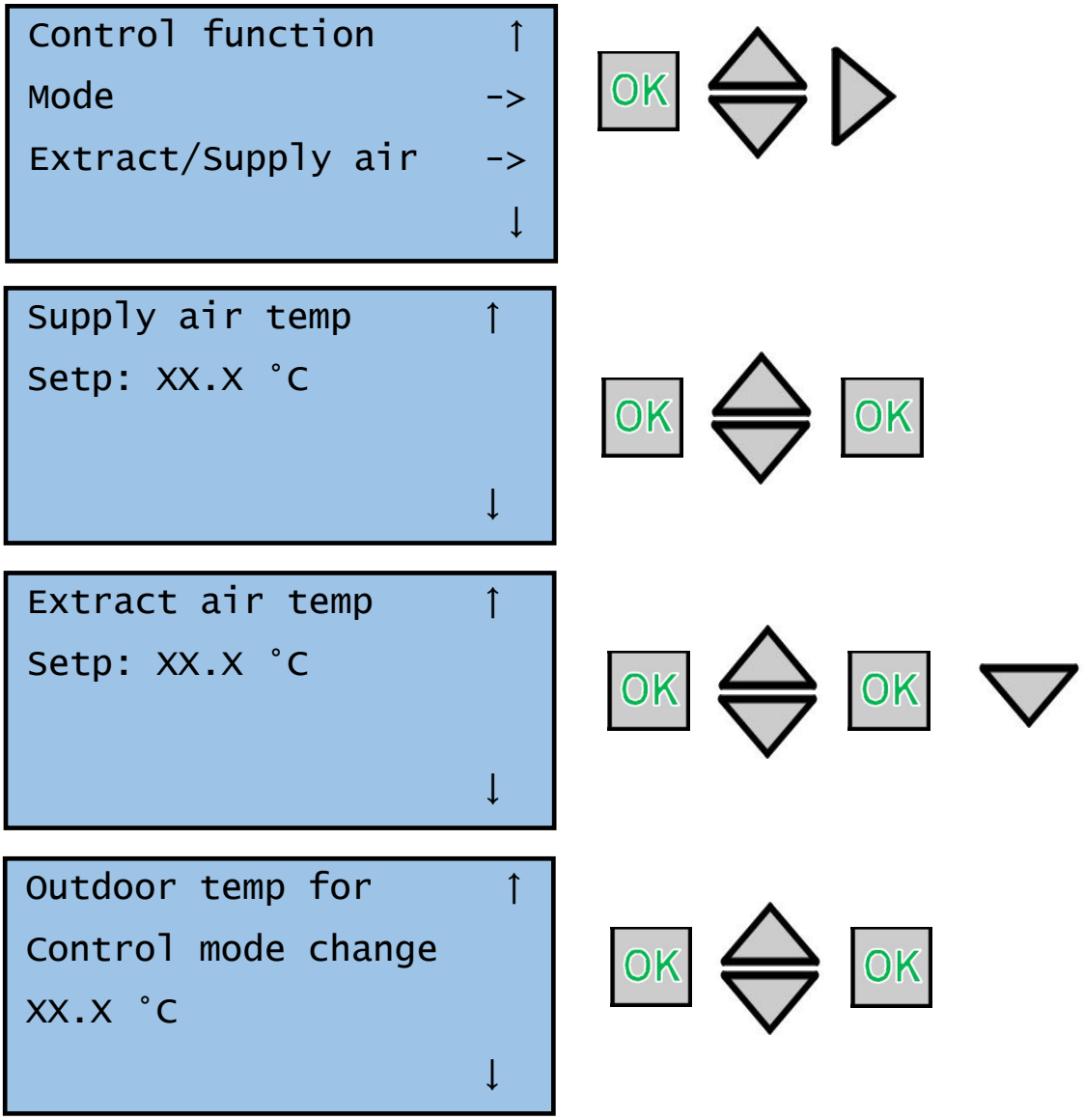






f. Outdoor Dependent Supply or Extract Air Temperature Control

If the outside temperature is below the adjustable limit (winter), outdoor compensated supply air temperature control will be active (see b). Otherwise (summer) the Cascade Extract Air Control (see d) is active.



g. Outdoor Compensated Room Temperature Control

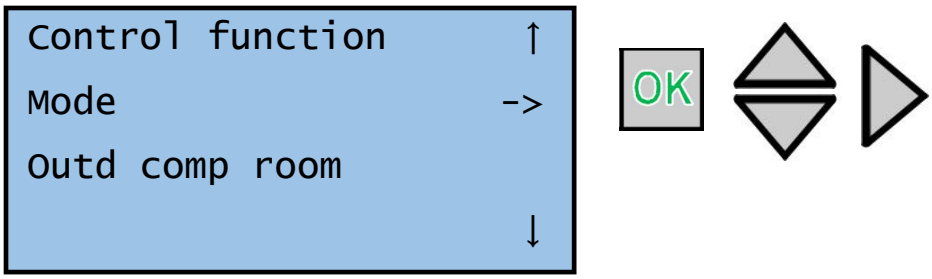
Note: Only available with KWL-FTF accessory. Connection of the analog output A2 (temperature signal) of the KWL-FTF to the analogue input AI2 at the controller.

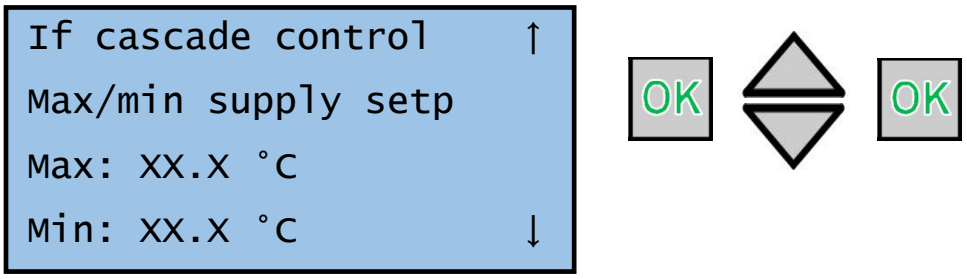
The room temperature can be adapted when the outside temperature rises. For example, at higher outside temperatures a slightly higher room temperature may be acceptable or a slightly lower in cooler weather conditions. This temperature control mode is used to conserve energy.

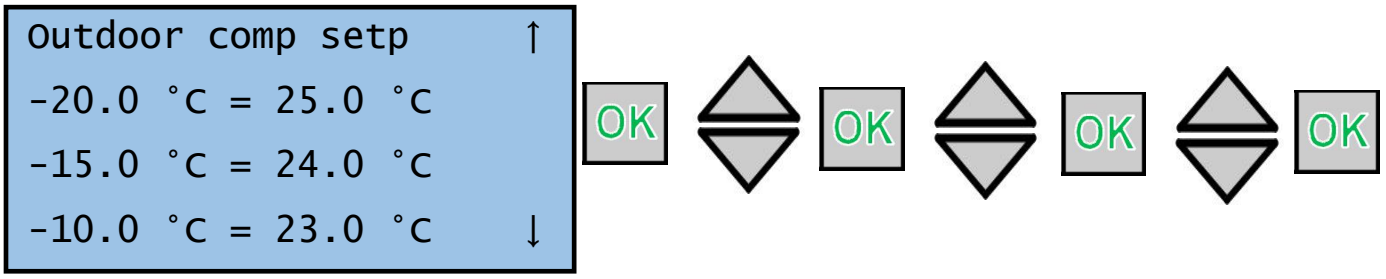
The setpoint of the room temperature is determined outside temperature-dependent by means of a control curve with 8 points.

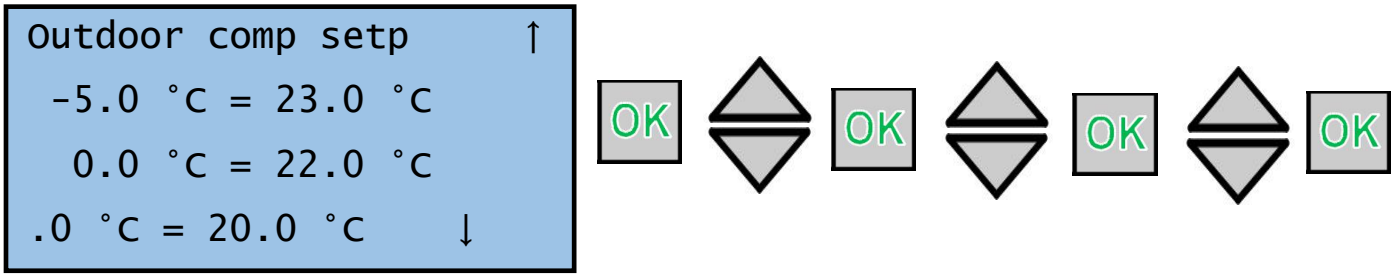
Example:

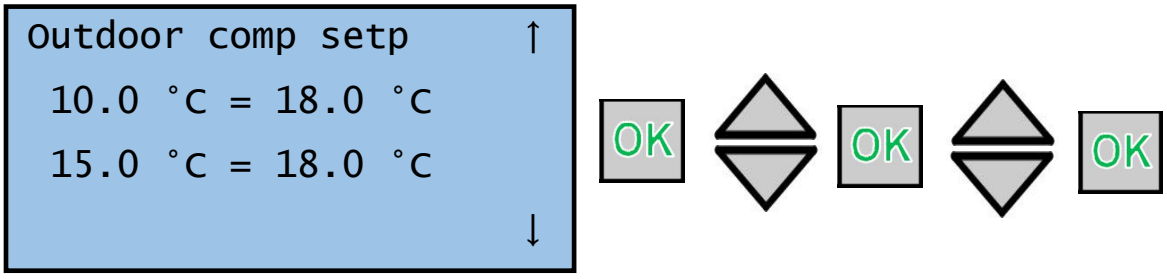
Outdoor temperature [°C]	Room Temperature [°C]
-20	18
-15	18
-10	20
-5	22
0	23
5	23
10	24
15	25





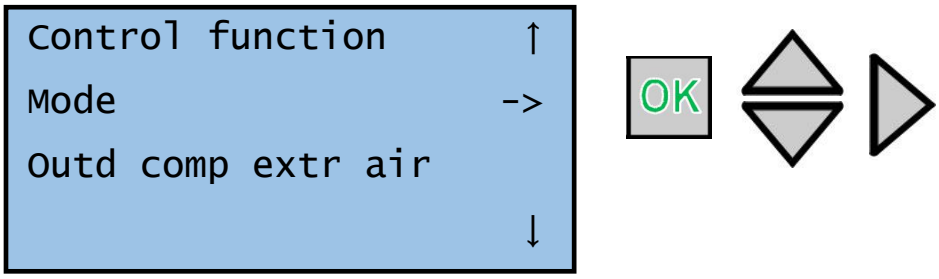


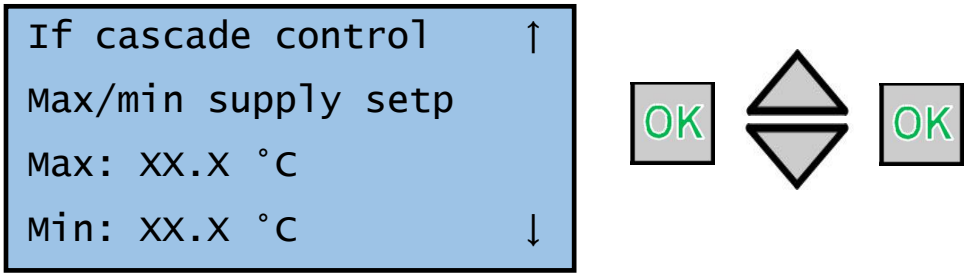


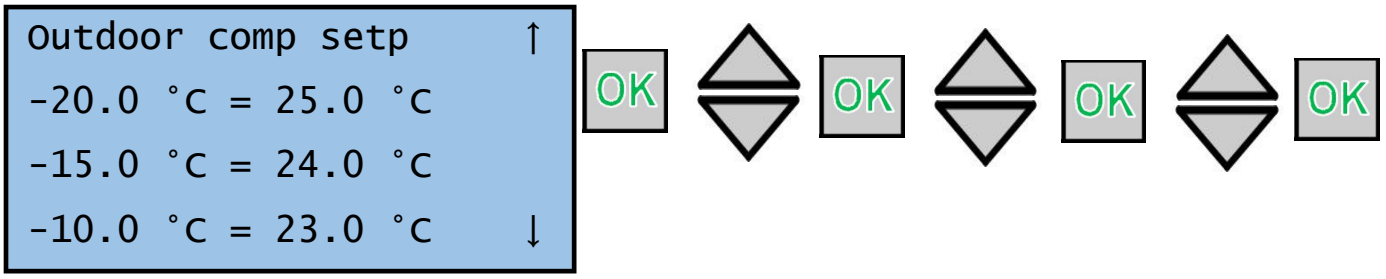


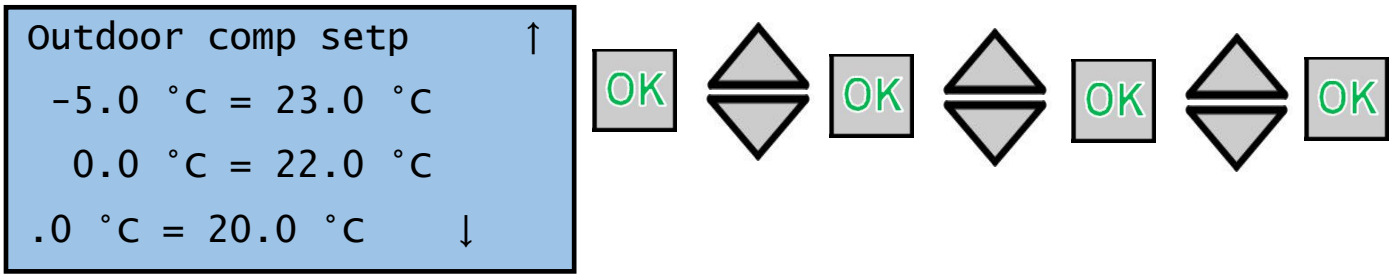
h. Outdoor Compensated Extract Air Temperature Control

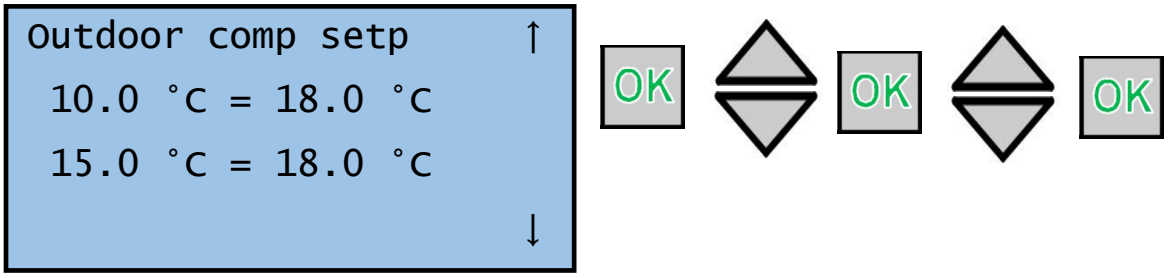
The extract air temperature can Adapted When the outside temperature rises. For example, at higher outside temperatures a slightly higher extract air temperature may be acceptable or a slightly lower in cooler weather conditions. This temperature control mode is used to conserve energy.











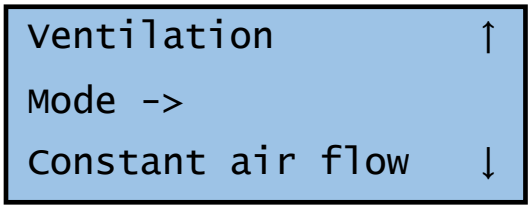
4.1.5 Ventilation Mode

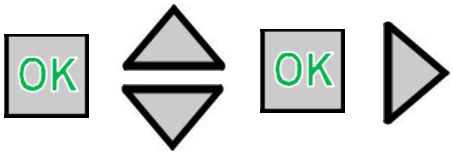
The ventilation mode is defined during commissioning. This can only be changed later using the Admin Access to commissioning wizard.

The following ventilation modes are available:

- Constant air flow
- Constant speed
- Constant pressure
- External fan Control

Note: If external fan control 0-10V is selecting in the commissioning wizard setting other modes are not available.





The ventilation mode is a mode used to determine how the device fans work. In the ventilation mode menu, press the "OK" button to select the ventilation mode selection field. Press the "RIGHT" direction button to adjust the ventilation mode control. Reduced and normal and boost air flow rates of Supply and Extract fans are set in m3 / h in constant air flow mode, % in constant RPM mode , Pa in constant pressure mode by the "Up-Down" direction buttons by pressing "OK" key. Then press to "OK" button again to confirm.

The functions that can be selected for the ventilation mode are listed below.

• Constant air flow (m3 / h)

• Constant RPM(%)

• Constant pressure (Pa)

a. Constant air flow

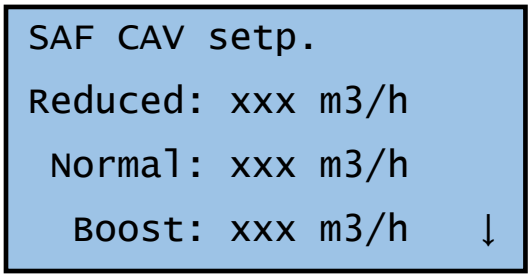
3 Ventilation levels are available:

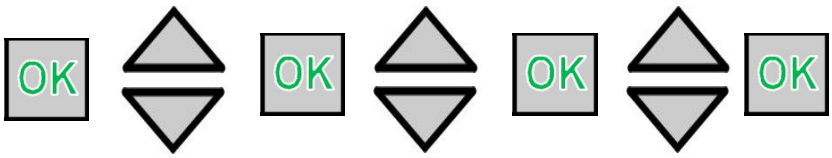
- Reduced
- Normal
- Boost

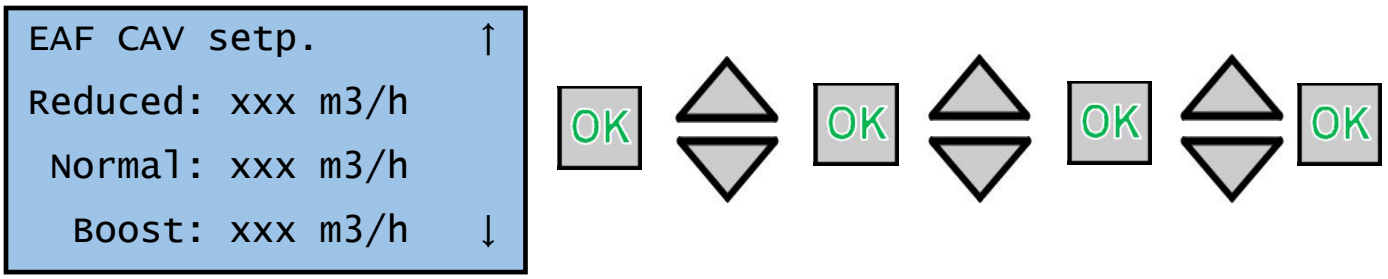
Each ventilation stage has two independent set levels: one for the Supply fan and one for the exhaust fan.

The ventilation levels are predefined during commissioning using the Commissioning wizard. Operation of the ventilation unit is not possible while the assistant is active.

When you select constant volume flow, the volume flows can be set via the menu **Air control** be set separately for SAF and EAF.







b. Constant RPM

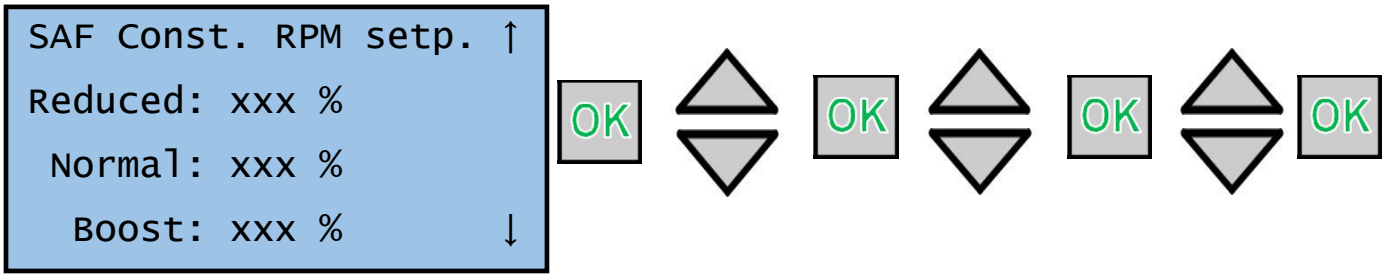
3 ventilation levels are available:

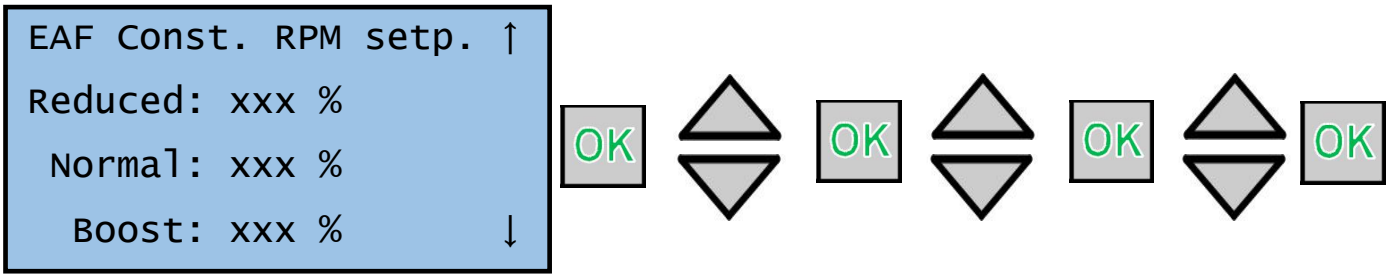
- Reduced
- Normal
- Boost

Each ventilation stage has two independent set-up levels: one for the SAF(Supply Air Fan) and one for the EAF (Exhaust Air Fan).

The ventilation levels are predefined during commissioning using the Commissioning wizard. Operation of the ventilation unit is not possible while the assistant is active.

When the constant speed is selected, the speeds can be set via the menu **Air control** be set separately for SAF and EAF.





c. Constant Pressure

Note: Additional AIR1-CAP required. The installation is possible in the supply air and the extract air duct.

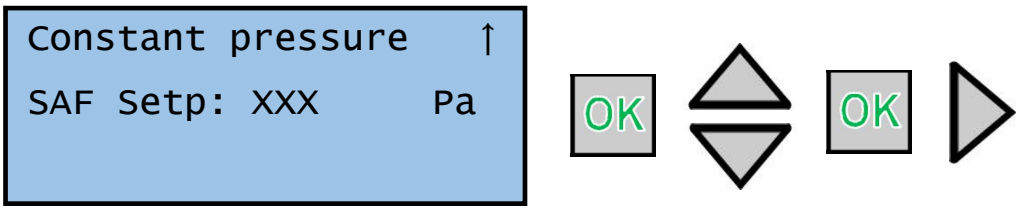
1 ventilation level is available:

- Normal

If you select a different level of ventilation (minimal, intensive) from the ventilation mode menu, The ventilation unit always runs at the set pressure setpoint.

The set point is predefined during commissioning via the commissioning assistant. Operation of the ventilation unit is not possible while the assistant is active.

If constant pressure is selected, the pressure can be set via the menu **Air control.** The channel pressure setpoint can be defined for the SAF. EAF follows the SAF with the same volume flow.



d. External Fan Control

The ventilation unit is operated according to two separate analog voltage signals (0-10 V):

- SAF: Analog input AI3
- EAF: Analog input AI4

Hints:

In this mode, there is only one (variable) ventilation level. With manual selection of any vantilation level via the ventilation mode menu, the ventilation unit always runs with the external 0-10V control signal. If “Off” is selected, the ventilation unit will not run.

In this ventilation mode, the function sensor-guided operation (ventilation on demand = VOD) is not available.

The recirculation mode via the timer and the external switching contact is still available.

Free cooling (night cooling) is still available.

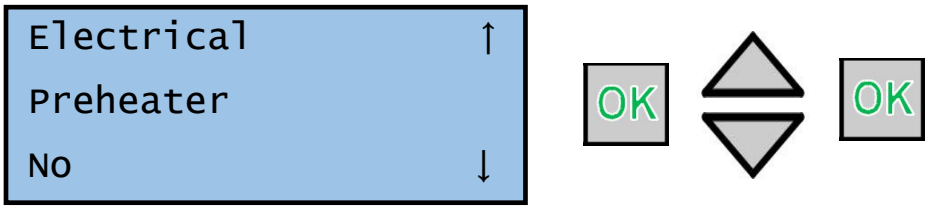
4.1.6 Electrical Preheating

Note: Standard in XC and XH series, available as accessories for RH series.

Activate/deactivate electrical preheating. By default electrical preheater is deactived.

The electric preheating is used exclusively to prevent the freezing of the heat exchanger.

Press the “OK” button in electrical preheater menu to activate or deactivate electrical prehater By pressing “UP-DOWN” direction button to select “YES-NO”.

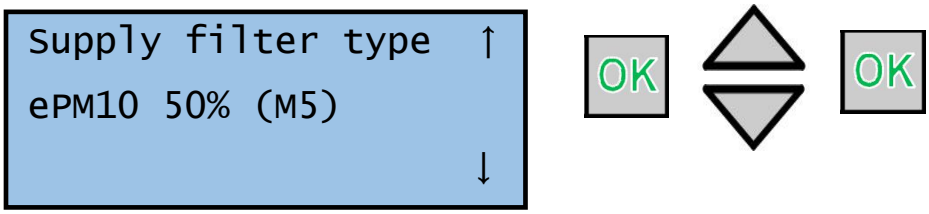


4.1.7 Supply Air filter Type

The following filter types are available:

- ePM1 55% (F7)
- ePM1 80% (F9)
- ePM10 50% (M5) + ePM1 55% (F7)
- ePM10 50% (M5) + ePM1 80% (F9)

A corresponding filter loss curve is stored for each type of filter. Regardless of the selected operating point, the control gives a filter / Maintenance alarm when the filter pressure loss becomes bigger than allowed. After changing the filter, the alarm automatically goes out.



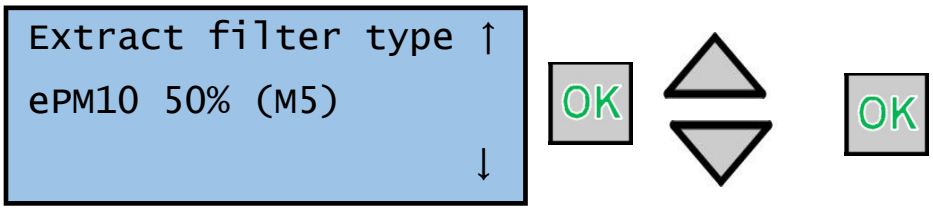
In the supply filter type menu, with the “OK” button, the supply filter type is selected with the “UP-DOWN” direction buttons and the “OK” button is pressed to confirm.

4.1.8 Extract Air Filter Type

The following filter types are available:

- ePM10 50% (M5)
- ePM1 55% (F7)

A corresponding filter loss curve is stored for each type of filter. Regardless of the selected operating point, the control gives a filter / Maintenance alarm when the filter pressure loss becomes bigger than allowed. After changing the filter, the alarm automatically goes out.



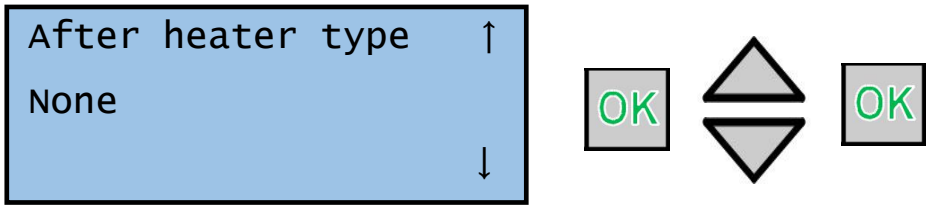
In the extract filter type menu, with the “OK” button, the extract filter type is selected with the “UP-DOWN” direction buttons and the “OK” button is pressed to confirm.

4.1.9 After Heater Type

Selection of the optionally available heater types. The following selection is available:

- No
- Water (WW heating register)
- Electrical (electrical heating register)

In the after heater type menu, with the “OK” button, the after heater type is selected with the “UP-DOWN” direction buttons and the “OK” button is pressed to confirm.

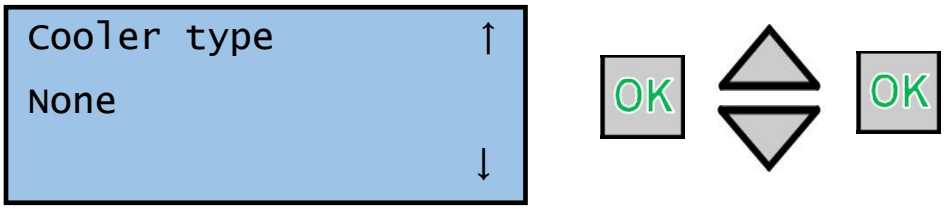


4.1.10 Cooler

Selection of the available cooler types. The following selection is available:

- None
- Water (CW cooling register)
- DX (DX cooling register)

In the cooler type menu, with the “OK” button, the cooler type is selected with the “UP-DOWN” direction buttons and the “OK” button is pressed to confirm.

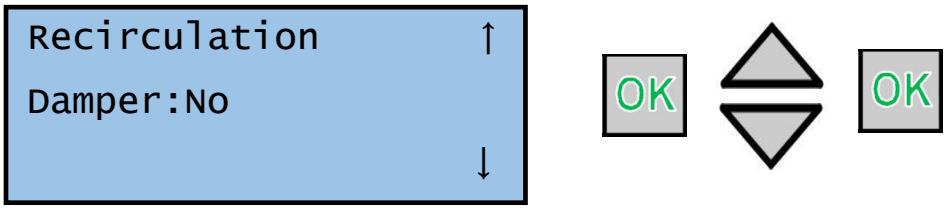


4.1.11 Recirculation damper

Note: Not available for XC series units and not available for RH series units up to EVO-50R.

Select Yes/No.

In the recirculation damper menu, with the “OK” button, the recirculation damper is selected with the “UP-DOWN” direction buttons and the “OK” button is pressed to confirm.

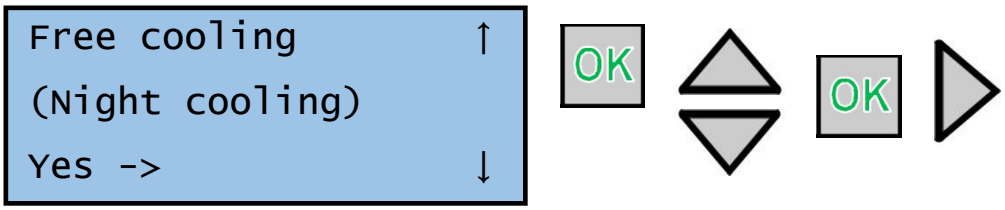


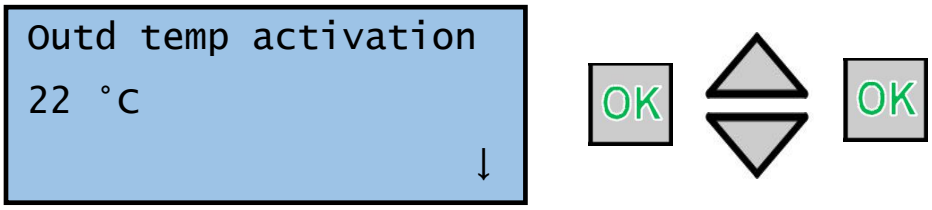
4.1.12 Bypass / Free cooling (night cooling)

Select Yes/No.

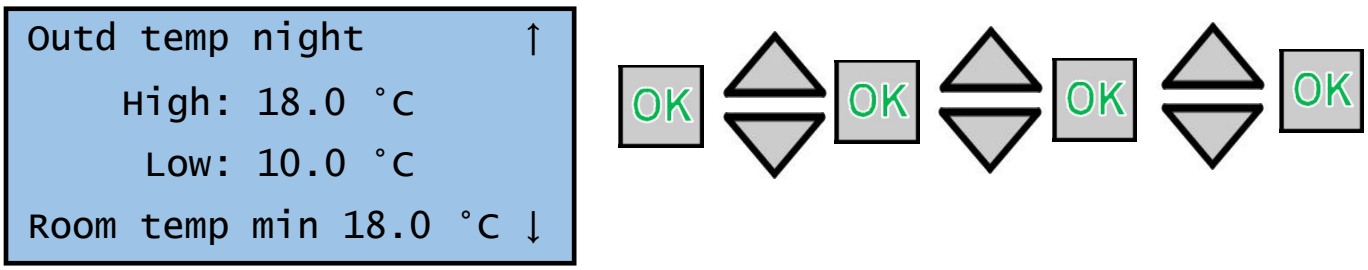
Settings:

- Outside temperature activation
- Outside temperature night High
- Outside temperature night Low
- Room temperature Minimum
- Hour for Start and stop free cooling
- Time to block heat output after free cooling
- The ODA sensor is always placed in the intakte channel. So the setting must be always “yes”.

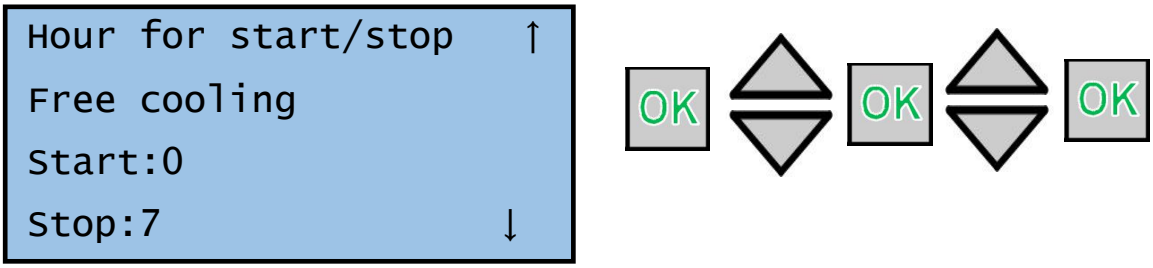




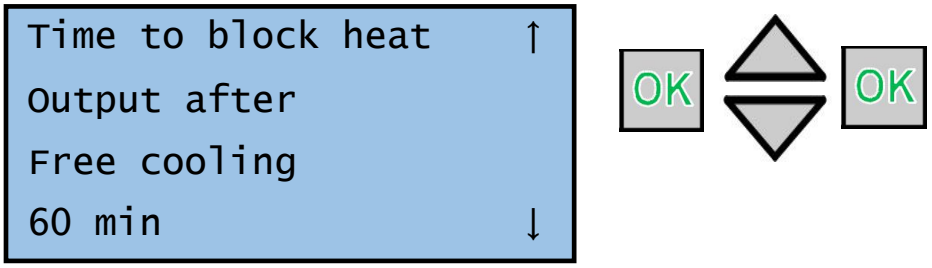
In the outdoor temperature activation menu, press OK key to set the outdoor temperature activation set value for free cooling and press OK button to select the temperature.



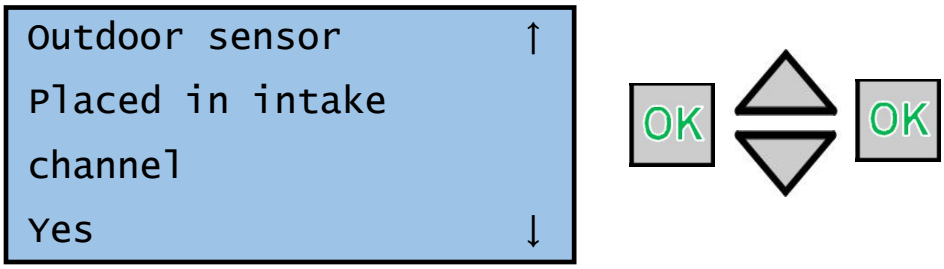
The Outdoor temperature night menu is entered with the “OK” button. The high and low limits of the free cooling outdoor air temperature are set by the “UP-DOWN” direction buttons. Press the “OK” button. If the outside temperature is higher than the set High value or the outside air temperature is below the set Low value or if the Room temperature falls below the set value and below, the free cooling function stops.



Free cooling is used to set the start and end time. Start and end times, OK key is pressed, “UP-DOWN” buttons are set, and then press “OK” button. Free cooling is started if all operating conditions have occurred within the set times.

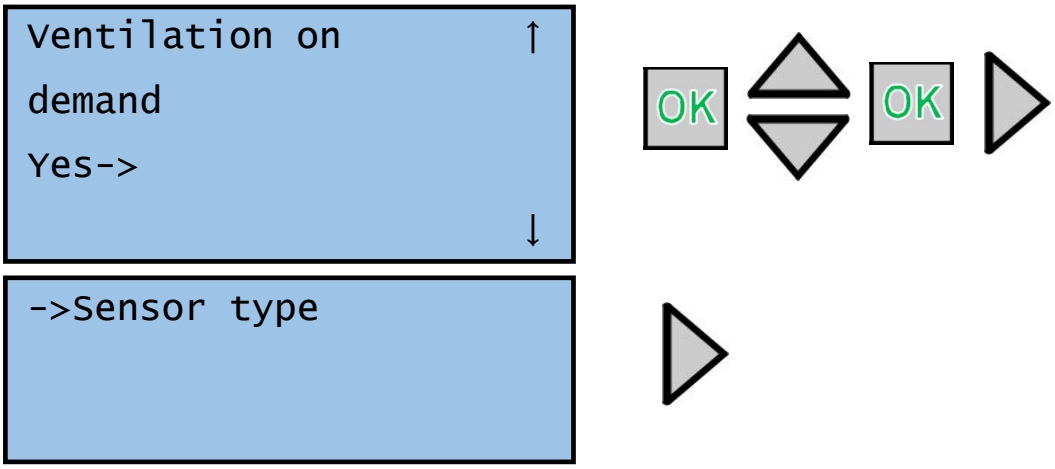


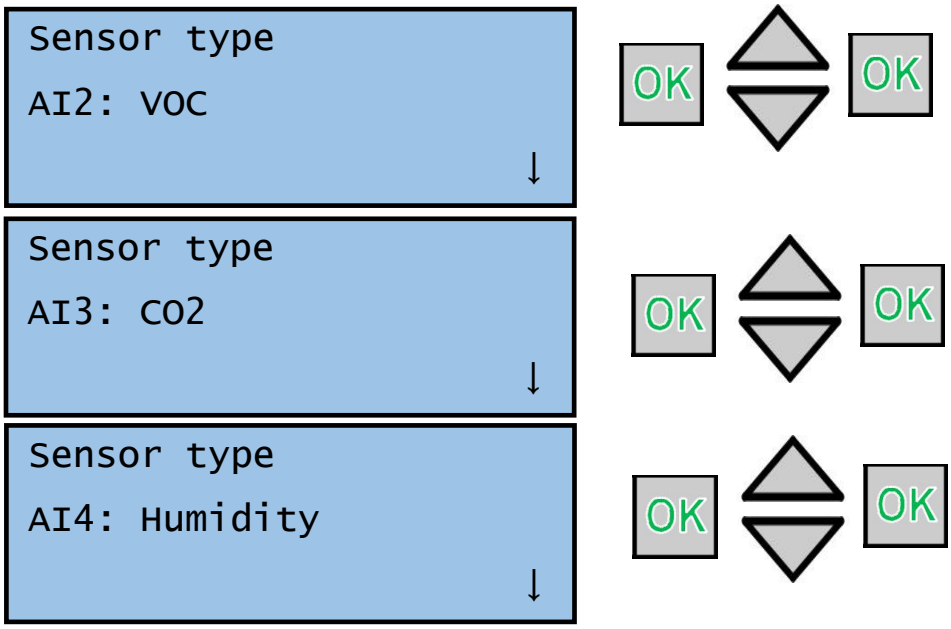
It is used to prevent heating outputs after free cooling. It is a function used for energy efficiency. After the free cooling, press OK button in the time to block heat output after freecooling menu, press the “UP-DOWN” buttons to set the heating outputs to be blocked for a few minutes and press the OK button to confirm.



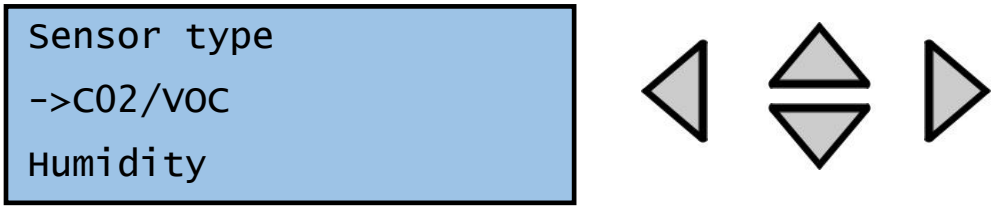
All units have an ODA temperature sensor as a standard. In the outdoor sensor placed in intake channel menu is entered with “OK” button. With the “UP-DOWN” direction buttons, it is selected as YES and “OK” button is pressed to confirm.

4.1.13 Ventilation on demand (VOD)



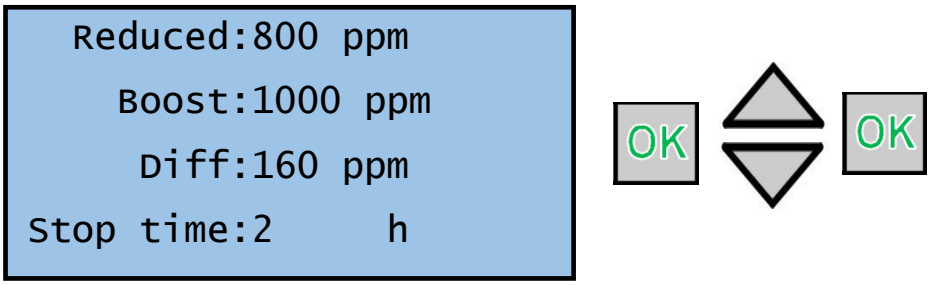


In the ventilation on demand menu is selected by “YES” button. With the “UP-DOWN” direction buttons, it is selected as YES and then press “RIGHT” direction button to select the type of sensor that connected to inputs AI2, AI3, AI4. After the selection of sensor types, press the “LEFT” direction button to go back Sensor type settings.



In the sensor type menu is entered by “RIGHT” direction button. With the “OK” button Reduced and boost and difference and stop time can set by the “UP-DOWN” direction buttons and press “OK” to confirm.

- To perform sensor settings:
  - Reduced: Activation of the ventilation level minimal from this sensor value.
  - Boost: Activation of the ventilation level intensive from this sensor value.
  - Diff: hysteresis
  - Stop time: As soon as the ventilation unit is on the ventilation level for more than time set, sensor-controlled ventilation is terminated. 0 hours means that the sensor-guided operation is never terminated due to a high sensor requirement.

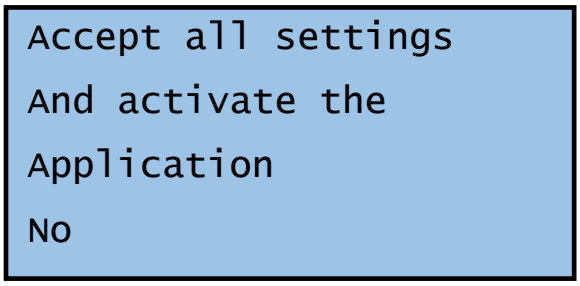


Press “OK “ button to enter the selected air quality sensor, reduced ventilation requirement, boost ventilation requirement, difference and stop time set values. Then press the “UP-DOWN” keys to set the desired values and press “OK” to confirm.

Notes:
To use this function, you must have at least one air quality sensor selected.
The sensor-controlled operation is only activated via Timer.
Up to 3 different or identical sensors can be connected to a ventilation unit with 3 free analog inputs. The highest ventilation requirement is the leader.
If a room temperature sensor is use at analogue input AI2. (KWL-FTF Temperature 0-10V Sensor) Only the analogue inputs AI3 and AI4 for air quality sensors are available.
If more than 3 sensors are to be connected The signal converter with 6 analogue inputs and an analogue output available. Only the same type of sensors can be connected to one AIR1-SK.

4.1.14 Leaving the commissioning assistant

By selecting “Yes” at “accept all settings menu” the controller will restart to start the desired application.



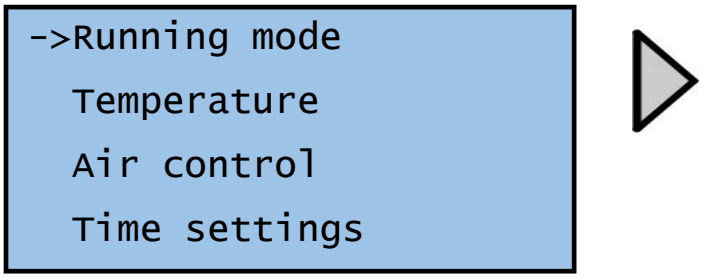
The device can now be put into operation. Necessary settings after traversing the commissioning wizard:
Time/Date/ Timer See chapter 4.2.2.a

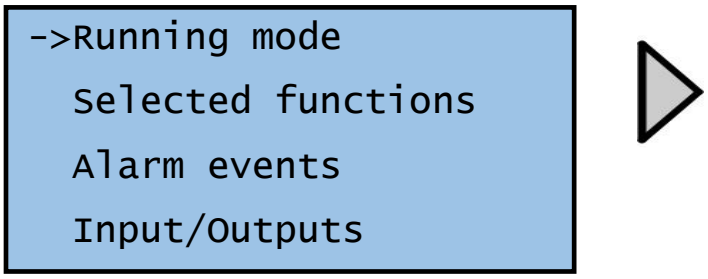
4.2 Running Modes

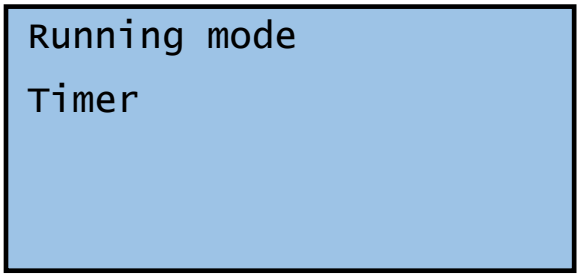
The following operating modes are available:

- Manual operation
- Timer (incl. optional sensor operated operation)

In addition, manual operation via switching contacts is possible.







The following running modes are available:

- Timer
- Manual reduced run
- Manual normal run
- Manual boost run
- Off

4.2.1 Manual operation

Selection of

- Manual Reduced
- Manual Normal
- Manual Boost
- Off

When selected, the ventilation unit will run with the set target values for the respective level.

The device is in standby mode immediately after switching on the main switch.

Hint:

Constant pressure ventilation mode: In this mode, there is only one ventilation level. If you select any ventilation level manually using the menu **Ventilation Mode** the ventilation unit always runs at the set pressure setpoint.

Hint:

AIR1-BE Touch: The ventilation unit returns to automatic mode after an adjustable time "return to timer after" has elapsed. This also applies to the manual selection of "Off".

If a permanent manual operation is desired, the adjustable time "return to timer after" must be set to zero.

4.2.2 Timers

The device runs only after the set time intervals of the Timers.

For the use of the Timers must be in the menu mode **Timers** be set.

If Timers is selected and no switching contacts are active, the device runs only according to the Timer settings.

If there are several timers active at the same time, the function with the highest priority is active. No active Timers means that the device is not running.

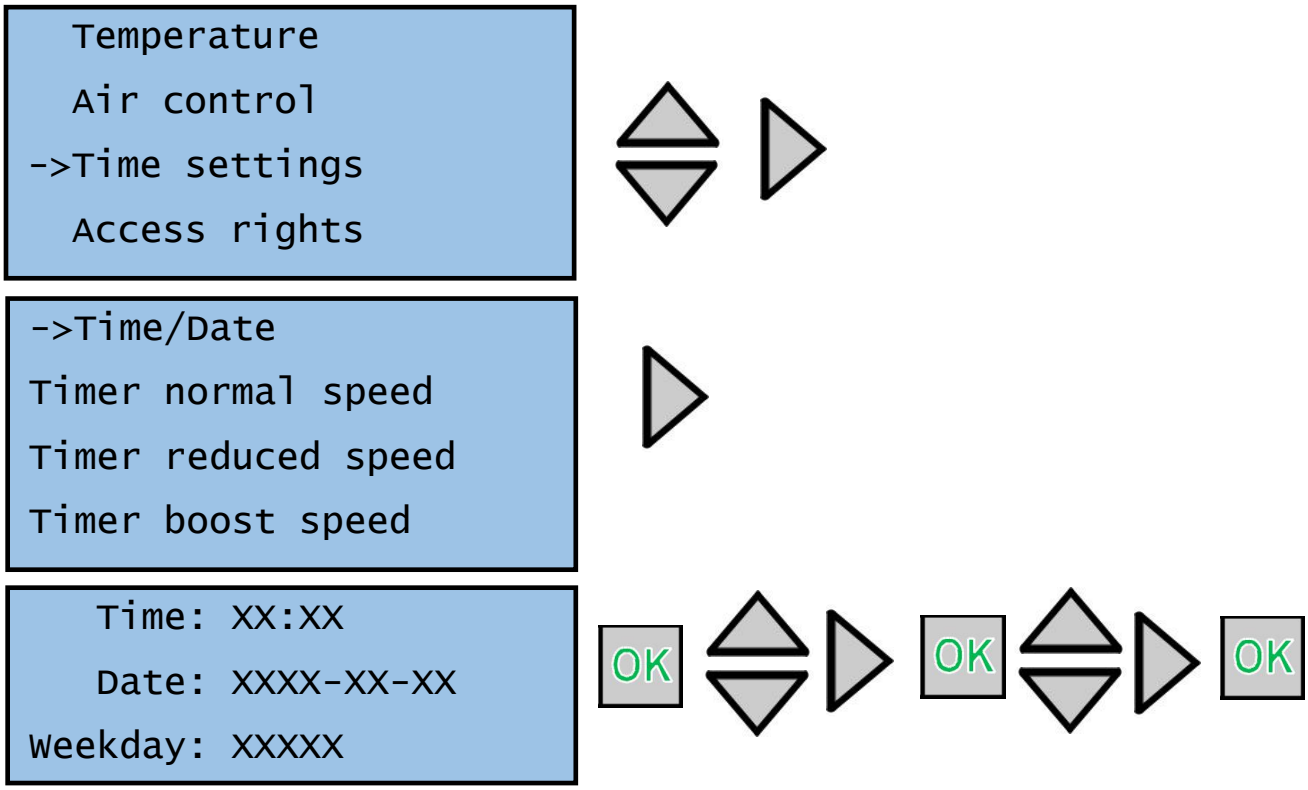
Manual operation and switching contacts blocks the Timers operation.

The switching contacts over control the Timers permanently.

When using an AIR1-BE Touch, the unit will change after manual operation (non-switching contacts) back after an adjustable time to Timers operation.

a. Time/Date Set

To set Time and Date, you must first log in as User or Administrator. Then click Time Settings with the “RIGHT” direction button. After that you will enter the “Time/Date” menu with the “RIGHT” direction button. In the “Time/Date menu using "UP-DOWN" direction buttons to set the time and date then click “OK” button to confirm.



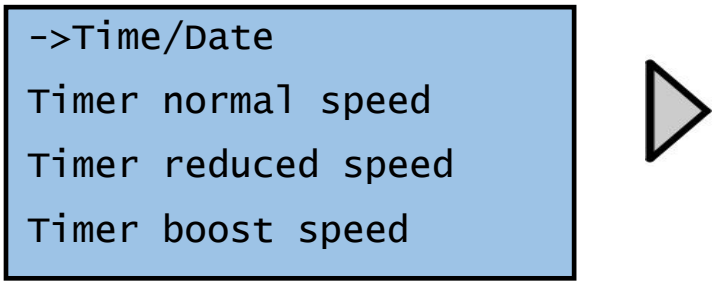
b. Day/Week Program

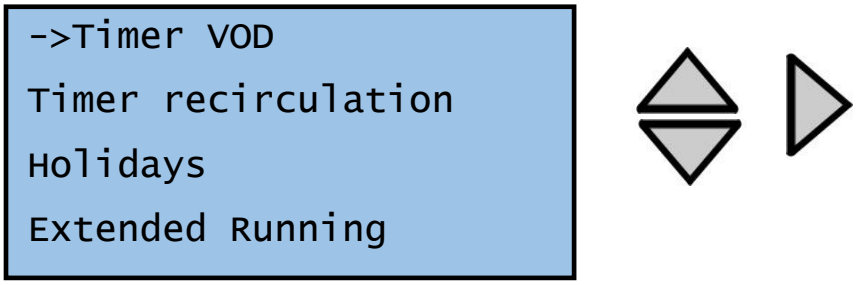
The Timers has an adjustable weekly program with two operating intervals for each ventilation level on each weekday.
Special feature of AIR1-BE Touch: Four operating intervals for each level on each weekday.
The following ventilation levels/functions are available:

- Timer reduced speed
- Timer normal speed
- Timer Boost speed
- Timer VOD (Accessories required, sensor operated operation)
- Timer Recirculation (accessories required, not available on XC equipment)

At times when no ventilation levels/function is selected, the device does not run (standby).
Setting the weekly program:

- Login as user or admin
- Call Up the Timer settings menu
- Call up the desired Timer
- Set Timer for all days





Priorities Hours (Highest Up):

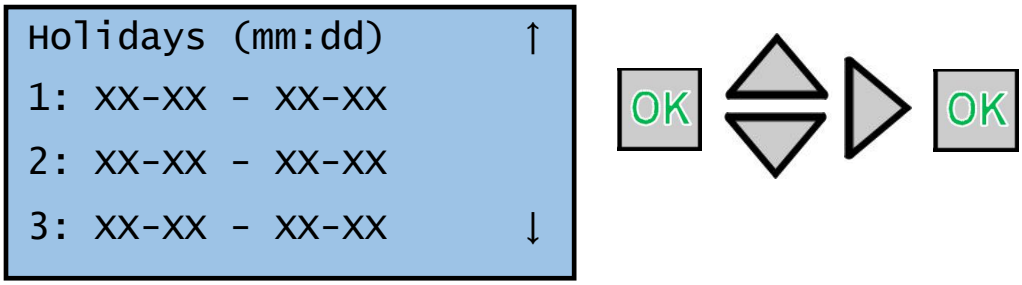
- Timer boost speed
- Timer normal speed
- Timer VOD
- Timer reduced speed
- Timer recirculation

If the timers overlap, for example, a boost speed time and normal speed timer programmed at the same time, the timer operation with the higher priority will run and the ventilation unit will run in the boost speed ventilation level.
Special feature with simultaneous programming of timer recirculation and timer VOD: Sensor based recirculation activation:
If the timer VOD and timer recirculation are active at the same time and no air quality sensor reaches the upper sensor limit (boost speed ventilation), the unit is in recirculation mode.
When a connected sensor reaches the upper sensor limit, the recirculation mode stops and the unit runs on Ventilation on demand mode (VOD).
If the sensor signal drops to the lower sensor limit, the ventilation unit switches back to recirculation mode.
Recirculation mode does not work if timer reduced speed , timer normal speed or timer boost speed are in operation at the same time because it has a lower priority.

c. Holiday

The Timer settings has a programmable holiday calendar with up to 24 holiday periods per year.
Setting the holiday calendar:

- Login as user or admin
- Calling the Timer settings menu
- Holiday Day according to “setting of the Days/Week programs” program. The ventilation unit always runs during all holiday periods (max. 24) with the settings of the holiday day.
- Visit Holiday Calendar
- Define vacation periods

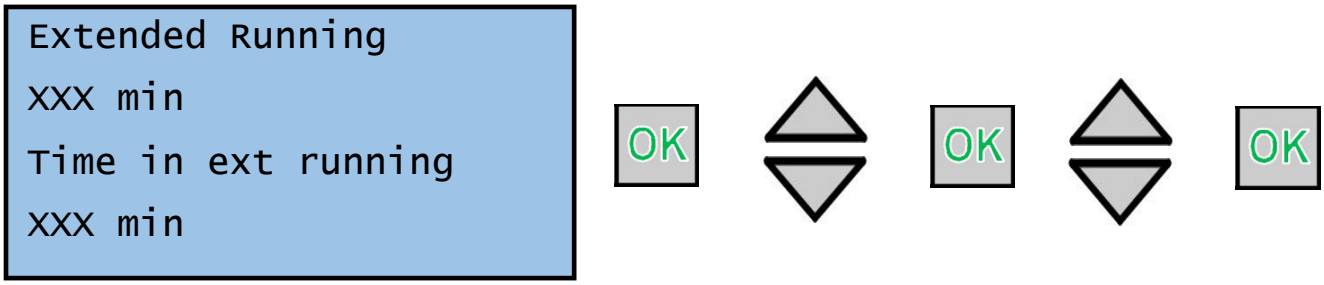


d. Extended running

The switching contacts for the levels Minimal, Normal, Intensive, Recirculation have a follow-up function.
The ventilation unit runs for the set time after the last closing of a switch contact. Thus, a button function is also possible, so that the device is always operated for the set overrun time with a single push of a button (closing a switch contact).
If the extended run time is set to 0, the ventilation unit only runs as long as the corresponding switch contact is closed.

Setting the extended running time:

- Login as user or admin
- Call up the Time settings menu
- Call up the Extended running
- Set the desired extended running time.



4.2.3 Ventilation on demand (VOD)

Operation of the ventilation unit according to one or more air quality sensors. The sensor with the highest ventilation requirement determines the ventilation.

The sensor-guided operation can only be operated via the Timer VOD can be started.

In order to use the sensor-controlled operation (VOD = Ventilation On Demand), it must first have been activated in the commissioning wizard.

An air quality sensor (external accessory) must also be connected.

The following sensors can be used:

- KWL-CO2 Art. Nr. 4272
- KWL-VOC Art. Nr. 4274
- KWL-FTF Art. Nr. 4273
- AIR1-CO2 K Nr.7124

Connection of air quality sensors:

The power supply (24 VDC) is connected according to the wiring diagram (Refer to chapter 8)

The signal cables are connected according to the wiring diagram (Refer to chapter 8) via the analog inputs AI2, AI3 and AI4

When connecting to note:

• If a room temperature sensor is used on analog input AI2, only the analog inputs AI3 and AI4 for air quality sensors are available.

• Up to 3 different type of sensors can be connected to a ventilation unit with 3 free analogue inputs. The highest ventilation requirement is always leading.

• If more than 3 sensors are to be connected, the AIR1-SK is available as an accessory. The module has 6 analog inputs and one analog output. At the inputs of a AIR1-SK, only sensors of the same type may be connected.

• If several sensors are connected, the current-carrying capacity of the internal power supply unit must be considered.

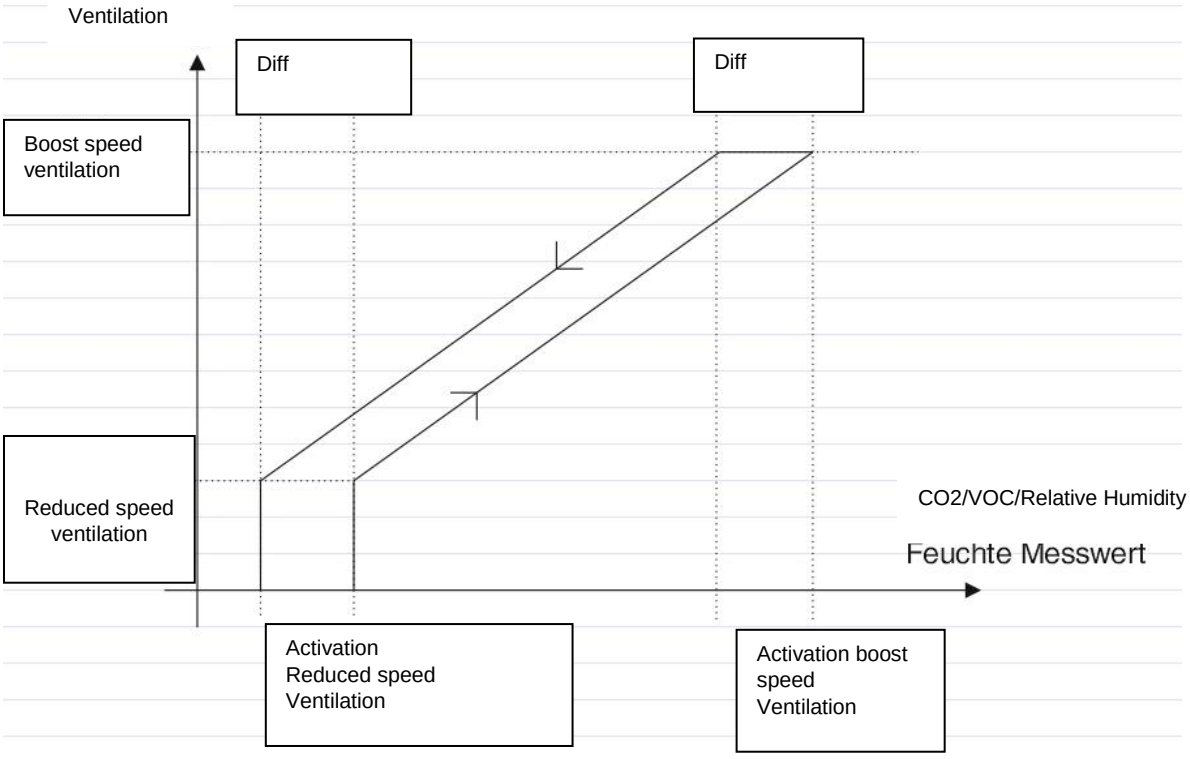
The maximum total current must not exceed ..... mA.

TYPE	MODEL	POWER SUPPLY
AZURE	500	60W
AZURE	700	60W
AZURE	1400	60W
AZURE	2200	60W
AZURE	3200	60W
EVO-C	10	60W
EVO-C	15	60W
EVO-C	25	60W
EVO-C	35	60W
EVO-C	45	60W
EVO-C	55	75W
EVO-C	70	75W
EVO-C	85	75W
EVO-R	15	60W
EVO-R	20	60W
EVO-R	30	60W
EVO-R	50	60W
EVO-R	60	75W
EVO-R	80	75W
EVO-R	95	75W
EVO-R	120	75W
EVO-R	150	75W

Calculation basis: KWL-CO2 = 200 mA, KWL-FTF = 30 mA, KWL-VOC = 40 mA. AIR1-CO2 K=200mA

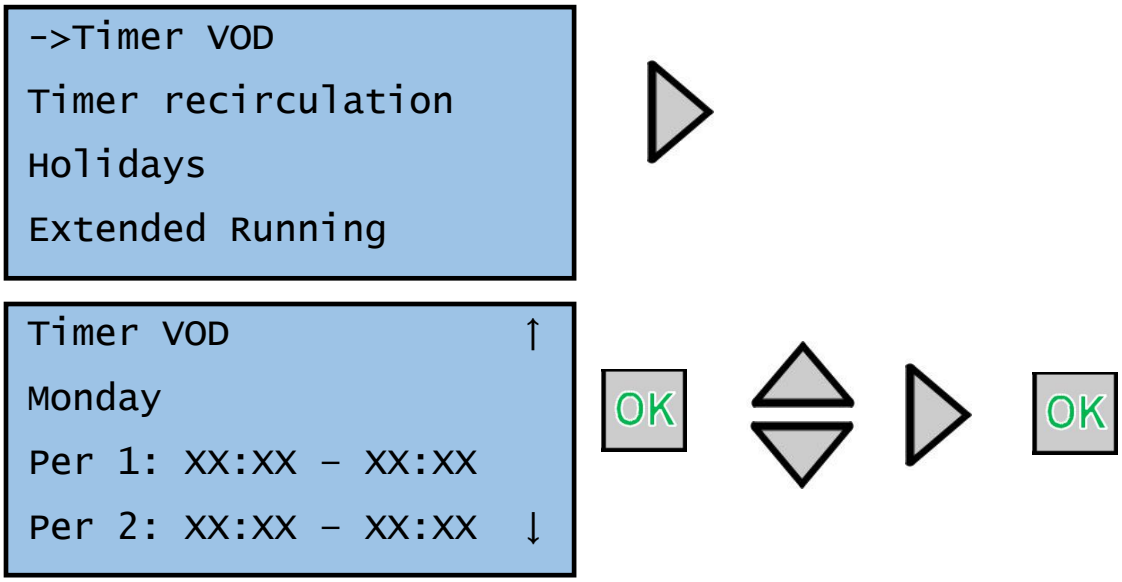
Settings for the sensor-controlled operation:

The settings are made in the commissioning wizard.



- Reduced: Activation of the ventilation level -reduced- from this sensor value.
- Boost: Activation of the ventilation level -boost- from this sensor value.
- diff: hysteresis

VOD Stop time: As soon as the ventilation unit has been operated in boost speed for more than 2 hours on the ventilation stage, the sensor-controlled ventilation for the set stop time is terminated. 0 hours means that the VOD mode is never terminated due to a high sensor requirement.



4.3 Functions

4.3.1 Recirculation damper

In recirculation mode, the extract air is 100% returned to the supply air.

During recirculation mode, a separate temperature setpoint and a fan offset are available.

To use the recirculation mode, it must first have been activated in the commissioning wizard (see chapter 1 commissioning).

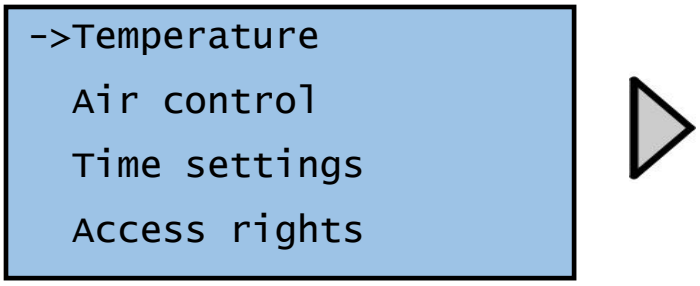
Settings for the recirculation mode:

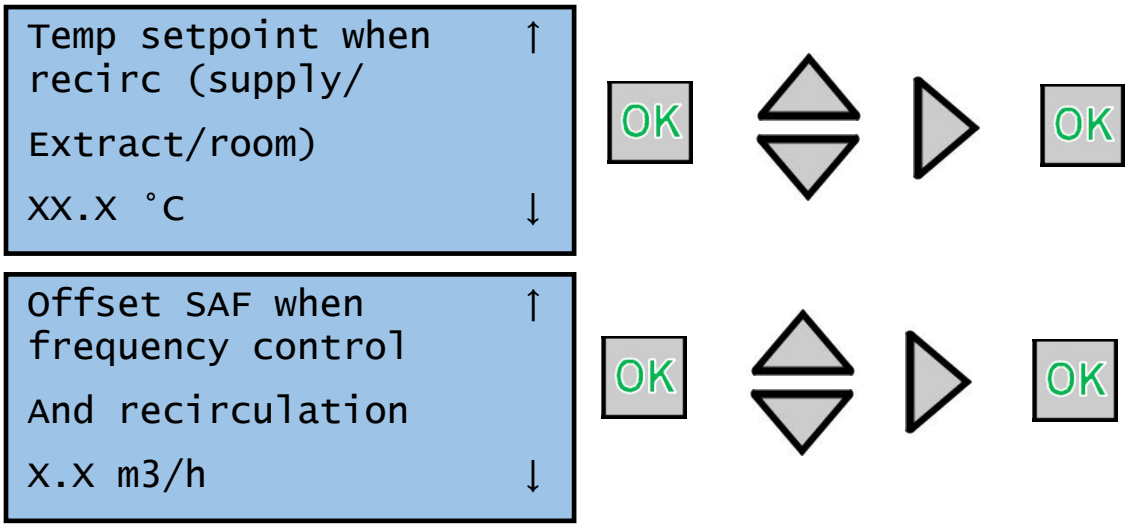
• Log in as admin

• Call up the Temperature menu

• Set setpoint (temperature) for recirculating air

• Set supply air fan offset





The recirculating air can be started as follows:

• via the recirculation timer

• via the external switching contact DI8

Recirculation stop function:

If the timer VOD and the circulating air timer are active at the same time and no air quality sensor reaches the upper sensor limit (boost speed ventilation), the unit is in recirculation mode.

When a connected sensor reaches the upper sensor limit, the recirculation mode stops and the unit enters sensor-guided mode (VOD).

If the sensor signal drops to the lower sensor limit, the ventilation unit switches back to recirculation mode.

Note:

Recirculation mode does not work if timer reduced, timer normal or timer boost speed are in operation at the same time because it has a lower priority.

4.3.2 Bypass / Free Cooling (Night Cooling)

In order to use the free cooling system, it must be activated in the commissioning assistant (wizard).

In order for the free night cooling to be active, the following conditions must be met:

- The unit has been in operation within the last 4 days.
- The outside temperature was above the set limit (XX°c) during operation.
- It is between XX:XX and XX:XX am (adjustable).
- The following Timer are turned off: Timer VOD, Timer Normal Speed, Timer Boost Speed, Timer recirculation.
- A Timer will be turned on over the next 24 hours.

Stop conditions for the free cooling:

- The outside temperature is above the set maximum value (e.g.18 ° C) or below the set minimum value (e.g.10 °C).
- The room temperature/exhaust air temperature is below the set stop (e.g. 18 °c).
- One of the following Timer is switched on: Timer VOD, Timer normal speed, Timer boost speed, Timer recirculation.
- It's after e.g. 07:00 am.

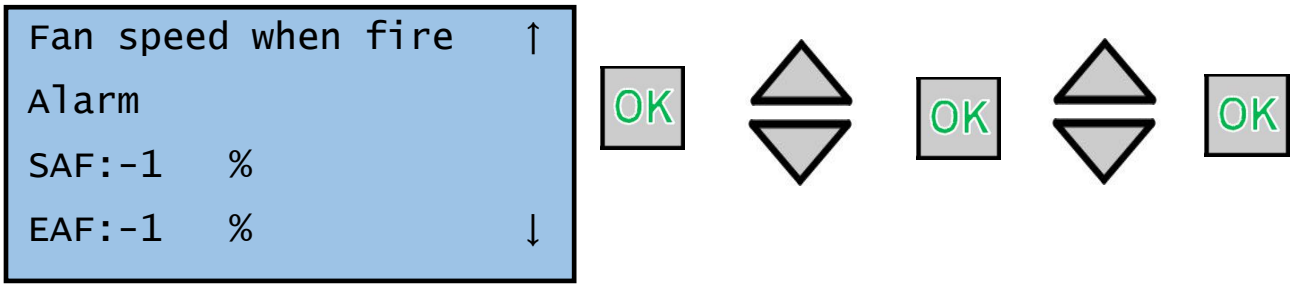
4.3.3 Emergency Operation/Fire mode

When the potential-free switching contact DI2 is closed, the device goes into emergency mode/fire modes.

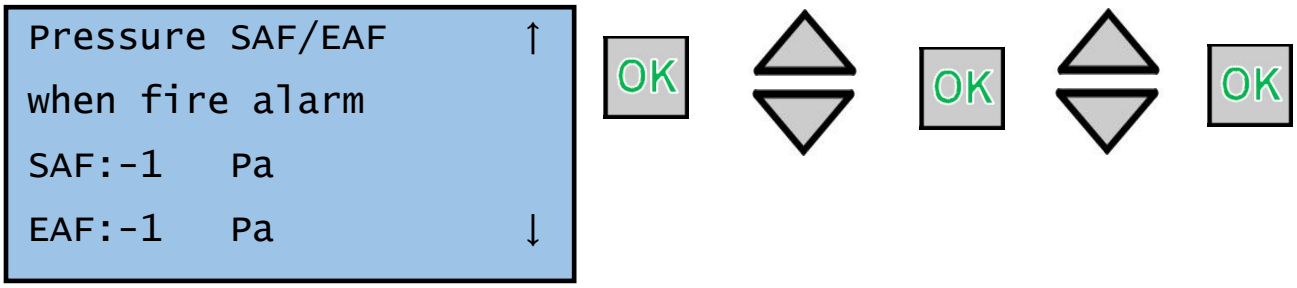
To access the settings: Log in as admin.

The Emergency/Fire mode settings are located in the Configuration menu: Fire function

- Operation when alarm (stopped, only EAF, only SAF, normal run, continuous run)
- Fan speed when fire alarm SAF, EAF



- Pressure SAF/EAF when fire alarm (-1 means no change compared to previous operation)



Note:

A pre-set fan speed for use during fires can be set. “-1” will deactivate this function. The fire mode is activated by closing the switching contact DI2.

4.3.4 Exchanger Deicing

All AIR1 ventilation units have a multi-stage heat exchanger frost protection.

1st Stage

EVO-C and AZURE: Activation and control of the preheating as soon as the outside air is lower than -4 °c **and** exhaust air is less than 0 °c. The preheating remains active until an exhaust temperature of + 4 °c has been reached. If the pre-heating is running for more than 3 minutes to 100%, the second stage of icing protection is changed.

EVO-R: Activation and control of the preheating as soon as the outside air is lower than-8 °c **and** exhaust air is less than 0 °c. The preheating remains active until an exhaust temperature of + 4 °c has been reached. If the pre-heating is running for more than 3 minutes to 100%, the second stage of icing protection is activated.

2nd Stage

Reduction of the volume flow to 50% (pressure to 25%) after the pre-heating was controlled for 3 minutes to 100% power. If the pre-heating is running for more than 5 minutes to 100%, the third and final stage of icing protection is activated.

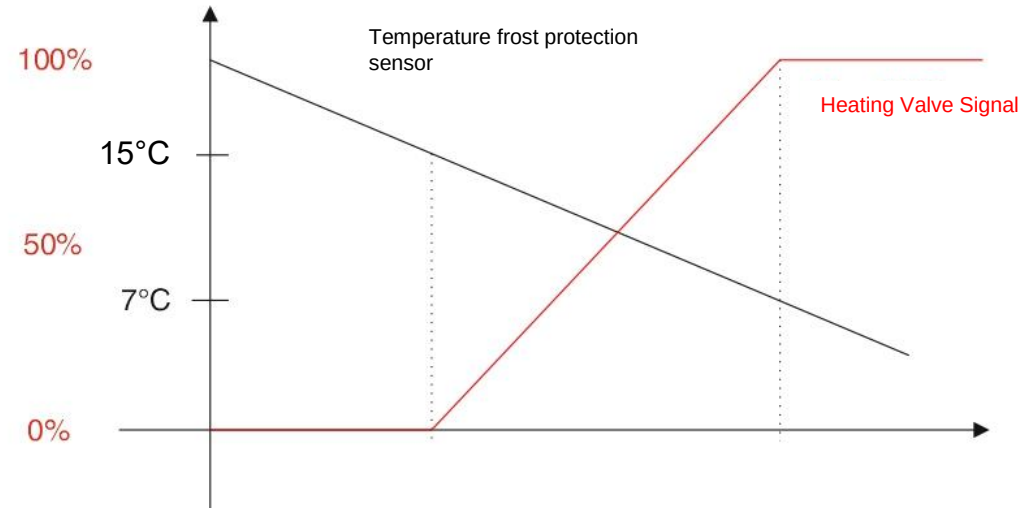
3rd Stage

Switch off the ventilation unit (closing the outside flaps).

Restarting the ventilation units

An automatic restarting of the ventilation unit takes place only after either outside air is greater than-3 °c or exhaust air is larger than + 4 °c.

4.3.5 Frost Protection WW Heating Coil



Start Frost Protection:

- Under 15 °C: Valve is opened linearly with T-Frost protection probe, pump on
- Under 7 °C: switch off ventilation, close the outside air flaps, open valve 100%

End Frost Protection:

- Temperature frost protection sensor above + 15 ° C

4.3.6 Filter monitoring

Dynamic filter monitoring is used for checking the filter status. Based on the chosen filter type and the working point, maximum allowed filter pressure drop is calculated. If the pressure drop over the filter is greater than the allowed pressure drop at that working point, a filter alarm is triggered.

4.4 Priorities

If several ventilation requirements are active at the same time, the ventilation unit runs with the respective ventilation level, which has the highest priority. This means, for example, that the external switching contact overrides all other ventilation requirements.

Priority list (highest up):

- External switching contact
- Fire/Emergency Contact
- Manual operation with HMI or via building control systems (Bacnet, Modbus)
- External switching Contact Boost Speed
- External switching Contact Normal Speed
- External switching Contact Reduced Speed
- External switching Contact Circulation Air
- Timer Boost Speed
- Timer Normal Speed
- Timer VOD Speed
- Timer Reduced Speed
- Timer Recirculation
- Free Cooling (Night Cooling)

4.5 User Level/access rights

Depending on the current operating level, different menus are activated.

The following operating levels are available:

- No rights
- User Password 3333
- Service, Password 2222
- Admin, Password 1111

The operating level can be located in the main **Access** Be changed. After a preset time of 5 minutes after the last key press, all operating levels are automatically logged out to “no rights”.

All passwords can be changed in the access rights menu under the change password.

If the passwords are lost, a current master password can be requested (AERA customer service).

View the following menus Only with operating level at least

- Operating mode- No rights
- Temperature-No rights
- Fan control– No rights
- Timer – No rights
- Selected Functions (Pure display menu)-No rights
- Alarms (Pure display menu)-No rights
- Manual / Auto -- Service
- Configuration-Service

- Settings-Service
- Commissioning assistant (Wizard) Log in as Admin.

Active intervention in the following menus only with operator level at least:

- Operating mode- No rights
- Temperature-User
- Fan control-User
- Timer– User
- Alarms-User to acknowledge, Admin to block
- Manual / Auto -- Service
- Configuration-Service
- Settings-Service

Commissioning assistant (Wizard) – Log in as Admin

4.6 Alarm

Subdivision A, B, C alarms

- A alarms has no delay time and stops unit immediately. Must be acknowledged to go out. (a receipt is required (login as user)).
- B alarms has delay time and unit runs. Must be acknowledged to go out. a receipt is required (login as user).
- C alarms has no delay and stops fans immediately. Goes out automatically as soon as the reason for the alarm has disappeared.

Alarm List:

No.	Alarm	Priority	Fan stop	Solution
1	Supply air fan (SAF) out of operation	B	No	Check SAF cable connection.
2	Exhaust air fan (EAF) out of operation	B	No	Check EAF cable connection.
3	P1-Heater out of operation (WW after heating)	B	No	Check P1 heater cable connection.
4	P1 Cooler out of operation	B	No	Check P1 Cooler cable connection.
5	P1-Exchanger out of service	B	No	Check P1 Exchanger cable connection.
6	Filter guard 1	B	No	Change filter with the new one.
7	Flow switch 1	B	No	N/A
10	Fire alarm	A	Yes	Check fire alarm cable connection.
11	External power switch	C	Yes	N/A
12	External alarm	B	No	Check external alarm cable connection.
13	Supply air control error (max. difference between setpoint and supply air 10k)	B	No	Check heaters and coolers running or not.
15	High supply air temperature (30 °c)	B	No	Check supply air set temperature and heaters.
16	Low supply air temperature (10 °c)	B	No	Check supply air temperature and heater.
19	High room temperature (30 °c)	B	No	Check set point.
20	Low room temperature (10 °c)	B	No	Check setpoint.
21	High exhaust air temperature (30 °c)	B	No	Check set point.
22	Low exhaust air temperature (10 °c)	B	No	Check setpoint.
23	Electrical heater overtemperature	A	Yes	Check electrical heaters limit termostats and cable connection.
25	Low frost protection sensor temperature	A	Yes	Check hot coil water feeding temperature.
26	Low efficiency	B	No	
27	Outdoor air sensor fault	B	Yes	Check outdoor sensor cable connection.
29	Heat exchanger rotation sentinel fault	B	No	Check rotary exchanger running.
33	Supply fan external operation	C	No	Check running mode.
34	Exhaust fan External operation	C	No	Check running mode.
35	Ventilation manual operation	C	No	Check running mode.
36	Manual operation supply air control	C	No	Check running mode.
37	Manual operation supply air fan mode	C	No	Check running mode.
38	Manual operation frequency control supply air	C	No	Check running mode.
39	Manual operation exhaust fan mode	C	No	Check running mode.
40	Manual operation frequency control exhaust Air	C	No	Check running mode.
41	Manual operation Heating valve	C	No	Check running mode.
42	Manual Operation Heat exchanger	C	No	Check running mode.
43	Manual Operation cooler valve	C	No	Check running mode.
44	Manual Operation P1 Heaters (WW after heating)	C	No	Check running mode.
45	Manual Operation P1-exchanger	C	No	Check running mode.
46	Manual Operation P1 Cooler	C	No	Check running mode.
48	Internal Battery failure	A	No	Contact with AERA Support for new battery.
49	Supply air temperature sensor alarm	B	Yes	Check outdoor sensor cable connection.
50	Exhaust air temperature sensor alarm	B	Yes	Check outdoor sensor cable connection.
57	Defrost temperature sensor alarm	B	Yes	Check outdoor sensor cable connection.
58	Frost protection temperature sensor alarm	B	Yes	Check outdoor sensor cable connection.
77	Alarm Frequency Inverter SAF	A	No	Check mains cable connection of SAF.
78	Alarm Frequency converter EAF	A	No	Check mains cable connection of EAF.
79	Communication error frequency converter SAF	C	No	Check communication cable connection of SAF.
80	Communication error frequency converter EAF	C	No	Check communication cable connection of EAF.
81	Communication error expansion unit 1	C	No	Check communication cable connection of expansion unit 1.
82	Communication error expansion unit 2	C	No	Check communication cable connection of expansion unit 2.
83	Alarm Frequency Inverter SAF	C	No	SAF Modbus internal alarm.
84	Alarm Frequency Inverter EAF	C	No	EAF Modbus internal alarm.
85	Manual-operated output	C	No	Check running mode.
88	Restart after voltage return	B	Yes	N/A.
90	Filter guard 2	B	No	Change filter with the new one.
119	Communication error expansion unit 3	C	No	Check communication cable connection of expansion unit 3.
120	Communication error expansion unit 4	C	No	Check communication cable connection of

				expansion unit 4.
124	Communication error expansion unit 5	C	No	Check communication cable connection of expansion unit 5.
125	Communication error expansion unit 6	C	No	Check communication cable connection of expansion unit 6.

CHAPTER 5

DIMENSIONS

PERFORMANCE CURVE

5.0 Dimensions

-Non-dividable unit (EVO-15R, EVO-20R, EVO-30R) (Fig. 24-25)

MODEL	A	B	C	Cmin	Cmax	D	E	F	K	L	M	N	U	V	X	Y	Z
	Dimensions (mm) (Fig. 24)																
EVO-15R	1295	990	155	135	180	1700	760	910	205	360	415	520	378	338	350	310	100
EVO-20R	1400	1090	155	135	180	1700	860	1010	205	360	415	520	498	338	470	310	100
EVO-30R	1500	1200	155	135	180	1700	970	1120	205	360	415	520	608	438	580	410	100

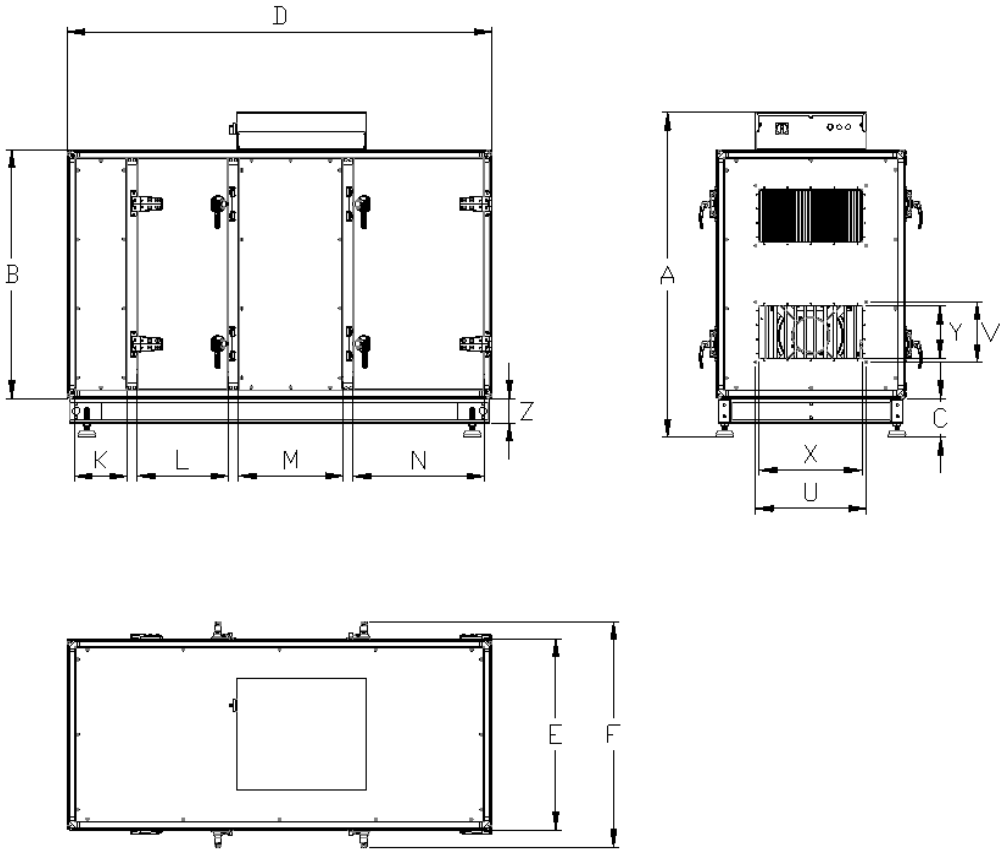


Fig. 24

MODEL	AA	BB	CC	DD	EE	FF	GG	HH
	Dimensions (mm) (Fig. 25)							
EVO-15R	655	568	472	143,5	150	463,2	263,4	380
EVO-20R	640	568	472	193,5	150	514,2	286,4	430
EVO-30R	655	568	472	250	150	573,2	313,4	485

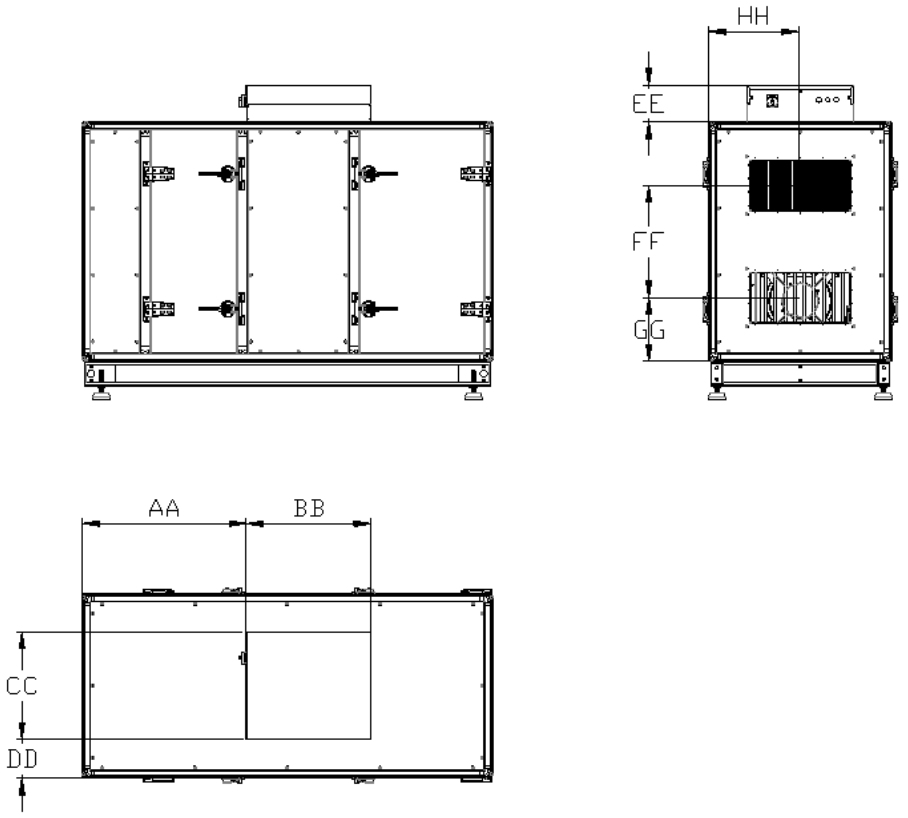


Fig. 25

-Dividable unit (EVO-50R, EVO-60R, EVO-80R, EVO-95R, EVO-120R, EVO-150R) (Fig. 26)

MODEL	A	B	C	C min	C max	D	E	F	G	K	M	P
	Dimensions (mm) (Fig. 26)											
EVO-50R	1775	1470	155	135	180	1845	1240	1390	1421	610	1230	555
EVO-60R	1895	1590	155	135	180	2015	1360	1510	1541	680	1330	625
EVO-80R	2145	1840	155	135	180	2185	1610	1760	1791	770	1400	755
EVO-95R	2245	1940	155	135	180	2315	1710	1860	1891	830	1480	775
EVO-120R	2400	2090	155	135	180	2450	1860	2010	2041	895	1550	840
EVO-150R	2645	2340	155	135	180	2535	2110	2260	2291	940	1590	890

MODEL	R	S	U	V	X	Y	Z	Number of modules	Module 1	Module 2
	Dimensions (mm) (Fig. 26)									
EVO-50R	440	690	883	438	855	410	100	2	555	1130
EVO-60R	480	748	883	438	855	410	100	2	625	1228
EVO-80R	555	715	1083	438	1055	410	100	2	755	1270
EVO-95R	605	775	1228	438	1200	410	100	2	775	1380
EVO-120R	605	845	1503	538	1475	510	100	2	840	1450
EVO-150R	620	870	1628	738	1600	710	100	2	890	1490

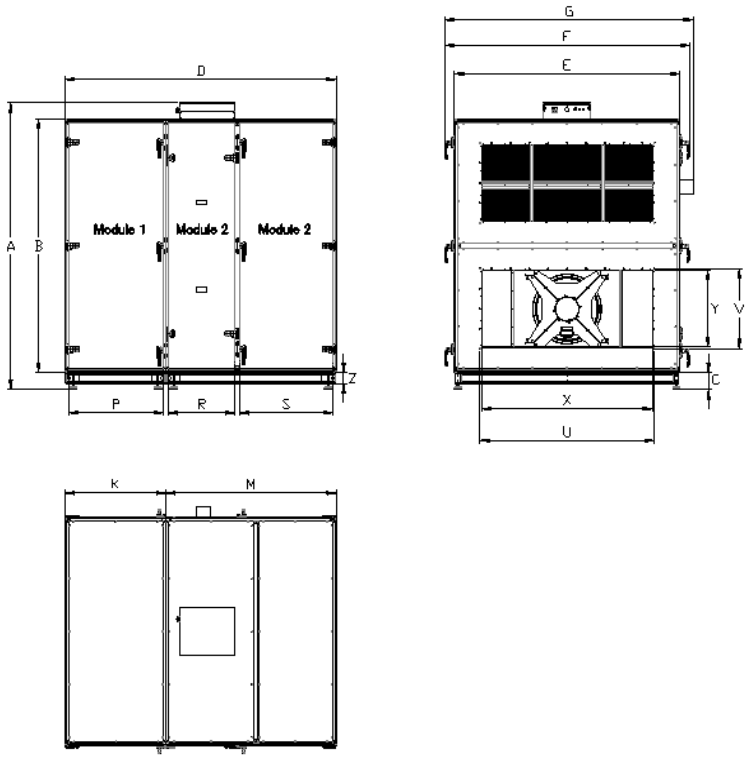


Fig. 26

MODEL	AA	BB	CC	DD	EE	FF	GG	HH	JJ	KK	LL	MM
	Dimensions (mm) (Fig. 27)											
EVO-50R	150	40	568	625	472	385	620	725	372,5	59,6	130,4	106
EVO-60R	150	100	568	660	472	445	680	785	402,5	179,6	130,4	106
EVO-80R	150	85	568	755	472	569,5	805	910	465	429,6	130,4	106
EVO-95R	150	100	568	810	472	629	855	960	490,5	529,6	130,4	106
EVO-120R	150	95	568	885	472	696,5	930	1035	527,5	679,6	130,4	106
EVO-150R	150	100	568	920	472	820	1055	1160	589,5	929,6	130,4	106

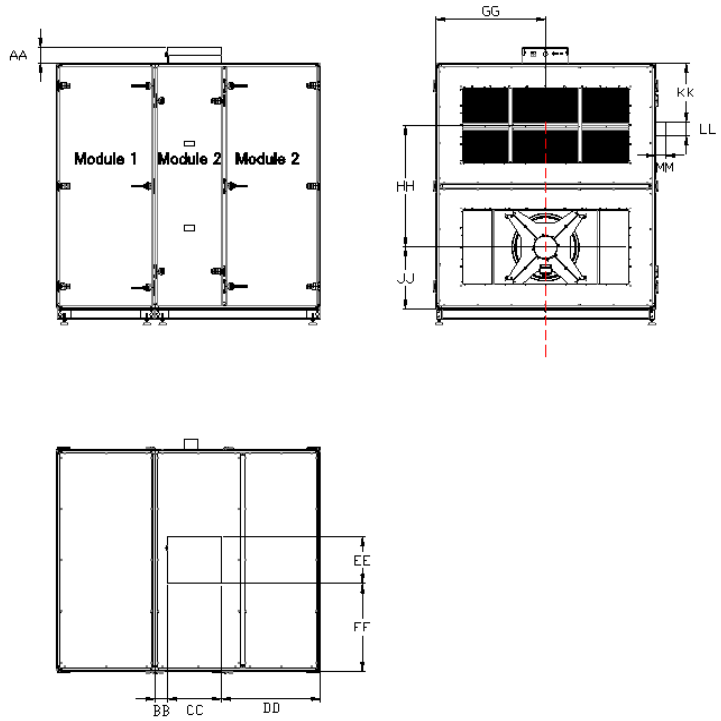
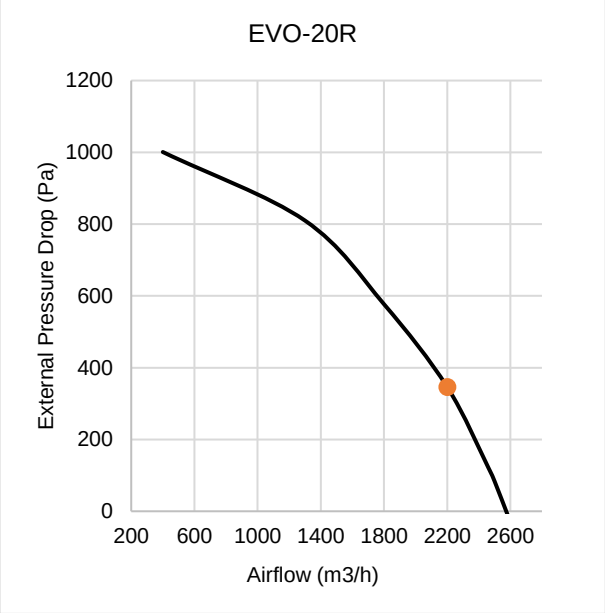
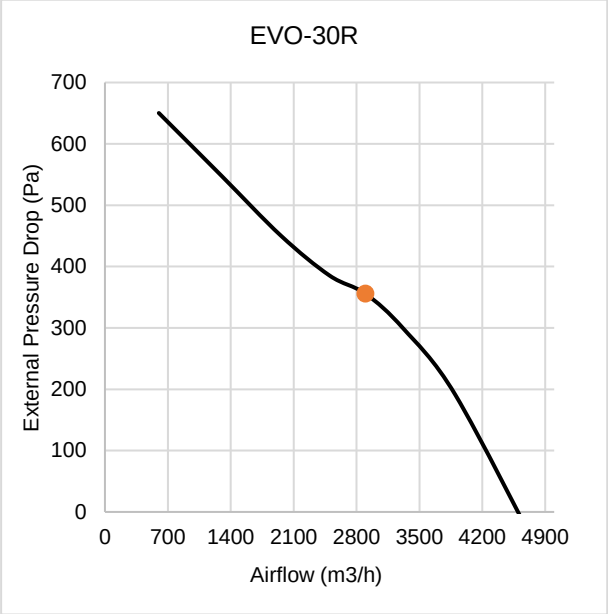


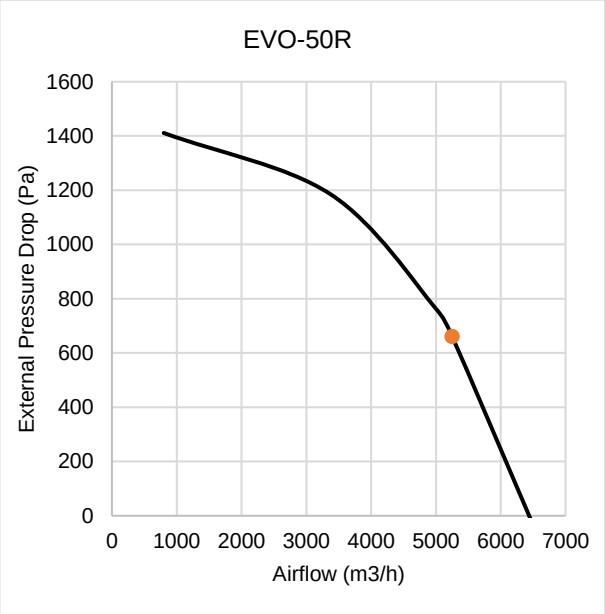
Fig. 27

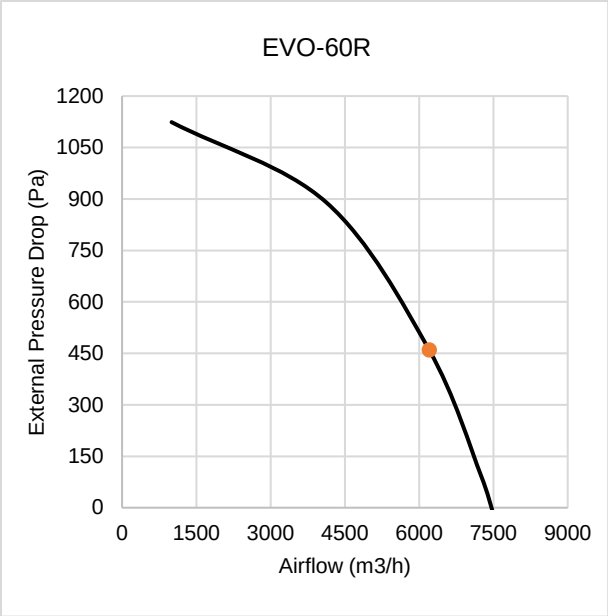
5.1 Performance curve

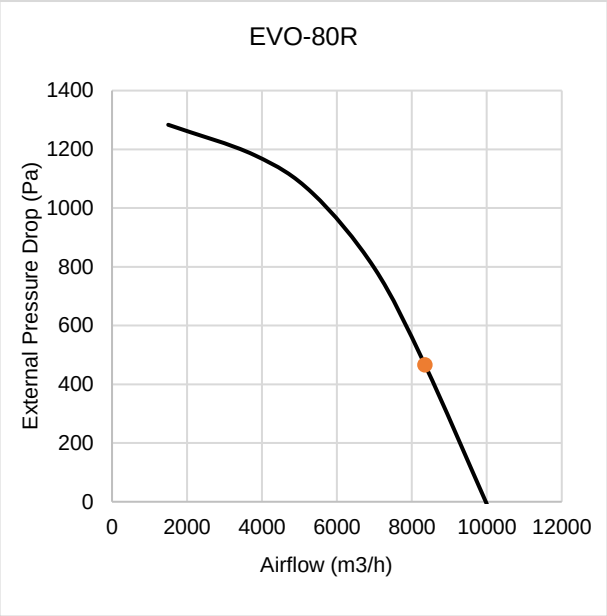
Maximum Ecodesign point

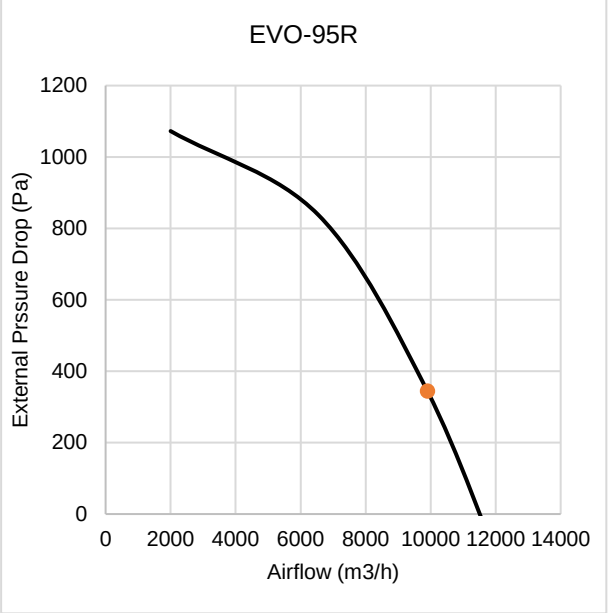


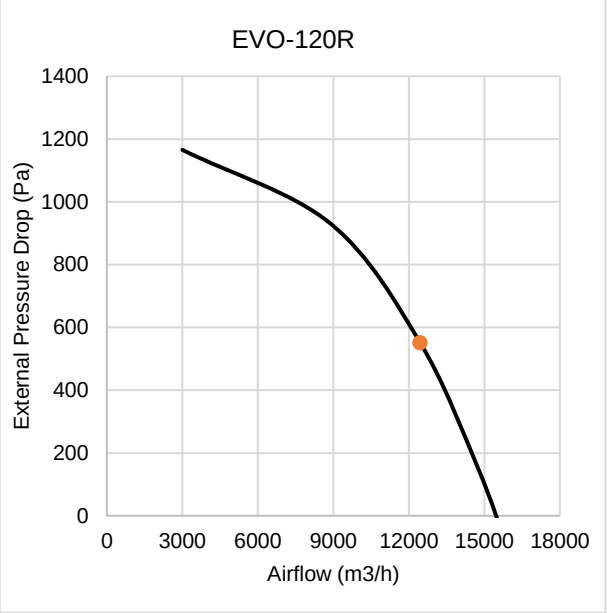


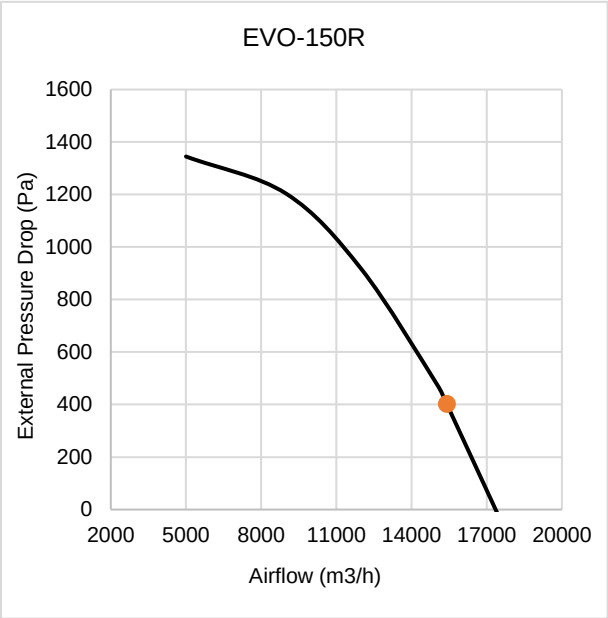



EVO-60R
External Pressure Drop (Pa)
1200
1050
900
750
600
450
300
150
0
0
1500
3000
4500
6000
7500
9000
Airflow (m3/h)


EVO-80R
External Pressure Drop (Pa)
1400
1200
1000
800
600
400
200
0
0
2000
4000
6000
8000
10000
12000
Airflow (m3/h)


EVO-95R
External Prssure Drop (Pa)
1200
1000
800
600
400
200
0
0
2000
4000
6000
8000
10000
12000
14000
Airflow (m3/h)


EVO-120R
External Pressure Drop (Pa)
1400
1200
1000
800
600
400
200
0
0
3000
6000
9000
12000
15000
18000
Airflow (m3/h)


EVO-150R
External Pressure Drop (Pa)
1600
1400
1200
1000
800
600
400
200
0
2000
5000
8000
11000
14000
17000
20000
Airflow (m3/h)

CHAPTER 6

SERVICE AND MAINTENANCE

6.0 Service and maintenance

The filter change is usually carried out by the user. Additional cleaning and maintenance work must only be carried out by qualified personnel.

DANGER **The EVO-R unit must be fully isolated from the power supply and secured against reactivation with the main isolator switch located on top of the unit before any cleaning and maintenance work.**
Danger of electric shock, moving parts (fan) and hot surfaces.

6.1 Service and maintenance of rotary heat exchanger

DANGER **Make sure that the power connection is disconnected before doing any work on the device.**
Danger of electric shock; moving parts (fan) and hot surfaces.

- High weight! Two people are required for dismantling! (EVO-15R, EVO-20R)
- Use forklift to transport the heat exchanger on the EVO-30R, EVO-50R, EVO-60R, EVO-80R, EVO-95R, EVO-120R, EVO-150R models.

Unit	Rotary heat exchanger weight (kg)
EVO-15R	38
EVO-20R	45
EVO-30R	51
EVO-50R	76
EVO-60R	104
EVO-80R	136
EVO-95R	152
EVO-120R	177
EVO-150R	218

1. Unscrew the screws of the rotary heat exchanger service cover and open (Fig. 28)

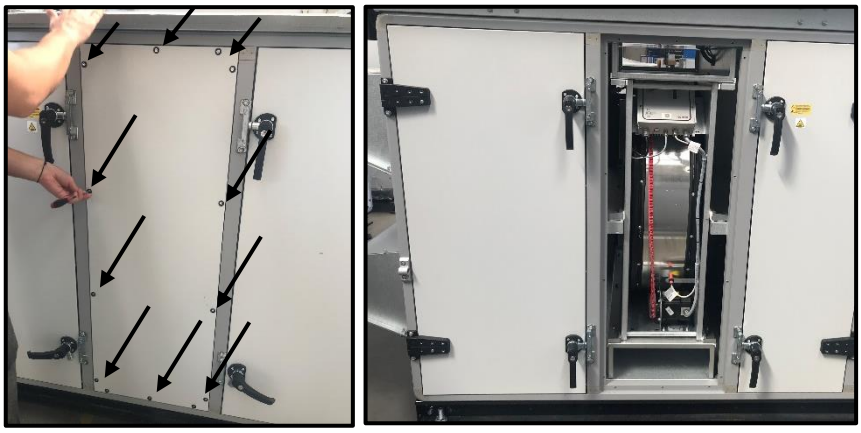


Fig. 28

2. It is recommended to remove the exhaust fan to disconnect rotary heat exchanger electrical connections easily. (Refer to chapter 6.3 for fan service)

3. Unplug the electrical connections on the varimax drive unit (Fig. 29)

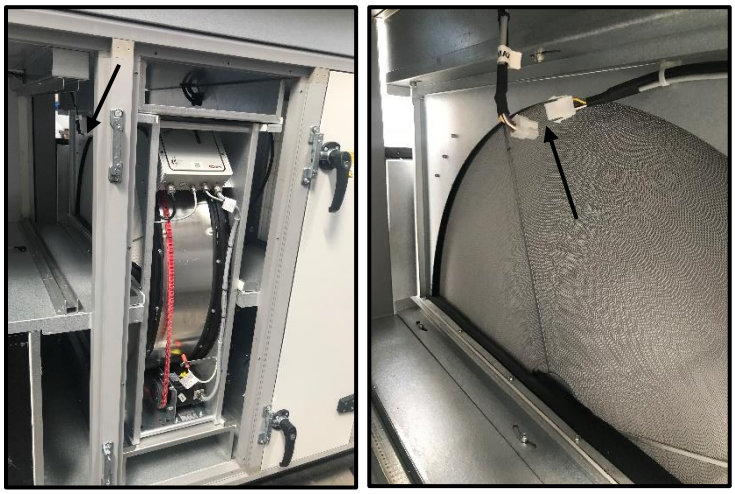


Fig. 29

4. Pull lock-bars for unlock heat exchanger (Fig. 30)

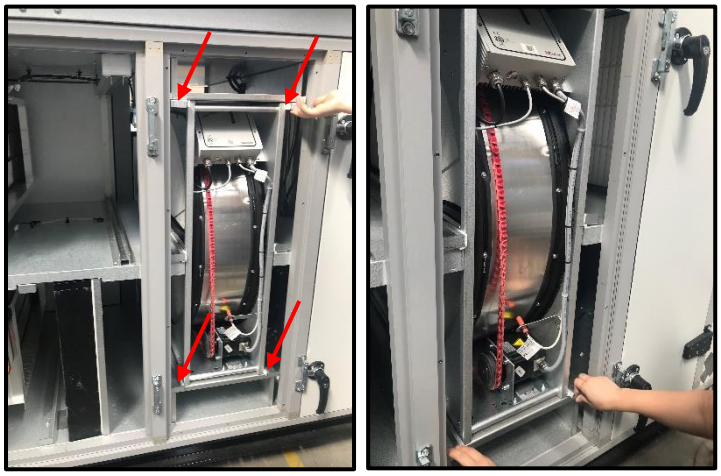


Fig. 30

5. Remove the rotary heat exchanger carefully (Fig. 31)

Fig. 31

Maintenance and cleaning

The rotary heat exchanger must be regularly checked for contamination and damage every 6 months.

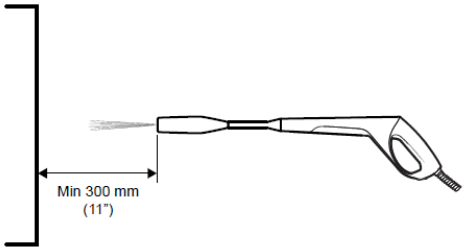
The following must be checked:

- Tension of drive belt
- Quality of bearings (assess by bearing noise)
- Condition of casing

The cleaning process consists of three steps. First, rinse the heat exchanger with water using a high-pressure cleaner to remove dust, particles, deposits etc. Then, use detergent to clean the heat exchanger. As a third step, remove the detergent with water. Make sure that the nozzle of the high-pressure cleaner is adjusted to a plain jet.

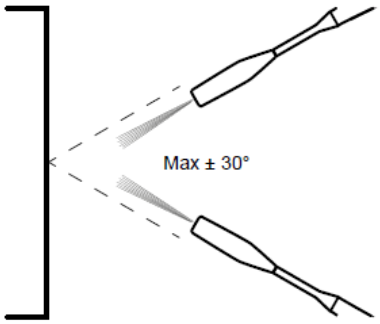
Rotary Heat Exchanger Cleaning Procedure:

1. Place the nozzle at a distance of approximate 300 mm (11”) from the heat exchanger.



2. Have the nozzle adjusted to plane jet.

3. Vary the spray angle between + 30 and - 30 degrees from the openings at a distance of 300 mm (11.81”) from the entrance



4. Spray the whole wheel. Don’t forget to rotate the wheel in order to clean the parts hidden behind the framework.

5. Let the heat exchanger air-dry.

6. Spray the heat exchanger with detergent (YES/Fairy) with a low-pressure sprayer.

7. Repeat point 1-5 in order to remove all detergent.

Allow heat exchanger to dry before installation!

6.2 Filter change

DANGER **Make sure that the power connection is disconnected before doing any work on the device. Danger of electric shock; moving parts (fan) and hot surfaces.**

The filters must be regularly checked for contamination, damage and odours every 3 months. If the filters are damp or mouldy, they must be exchanged immediately.

1. Unlock the lock and turn the handles counter clock-wise direction for opening doors. (Fig. 32)

Fig. 32

2. Pull lock-bars for unlock filters (Fig. 33)

Fig. 33

3. Remove filter from slides (Fig. 34)

Fig. 34

The EVO-R compact unit is equipped with ePM1 55% class filter on the outdoor air side and ePM10 50% class filter on the extract air side as standard.

Outside/extract air filter:

Filter Type	Ref. no.
EVO-15R Extract air filter	2211
EVO-15R Outdoor air filter	2236
EVO-20R Extract air filter	2212
EVO-20R Outdoor air filter	2237
EVO-30R Extract air filter	2213
EVO-30R Outdoor air filter	2238
EVO-50R Extract air filter	2214
EVO-50R Outdoor air filter	2239
EVO-60R Extract air filter	2215
EVO-60R Outdoor air filter	2240
EVO-80R Extract air filter	2216
EVO-80R Outdoor air filter	2241
EVO-95R Extract air filter	2217
EVO-95R Outdoor air filter	2261
EVO-120R Extract air filter	2218
EVO-120R Outdoor air filter	2264
EVO-150R Extract air filter	2219
EVO-150R Outdoor air filter	2271

- The filter's direction of air flow must be taken into account!

- Refer to chapter 7.4 for more information about accessories filter.

6.3 Service and maintenance of the fan

DANGER **RISK OF INJURY! Make sure that the power connection is disconnected, and fan is not moving before doing any work on the device.**

Danger of electric shock; moving parts (fan) and hot surface.

Be careful during service and maintenance as the fans are heavy.

The fan must be regularly checked for contamination, damage and corrosion every 6 months.

- Regular inspection with cleaning, is necessary to prevent imbalance due to ingress of dirt.

- Clean the fans housing.

- Watch out for vibration free motion.

- Maintenance interval in accordance with the degree of contamination of the impeller!

- Fan can be cleaned with a moist cloth. Do not use any aggressive, paint solvent cleaning agents when cleaning. Never use a high-pressure cleaner or water-spray for cleaning - particularly when the ventilator is running.

- If water enters the motor; dry off the motor winding before using it again.

WARNING **RISK OF INJURY!** Wet cleaning under voltage may lead to an electric shock

1. Unlock the lock and turn the handles counter clock-wise direction for opening doors. (Fig. 35)

Fig. 35

2. Unplug the power connector on the fan (Fig. 36)

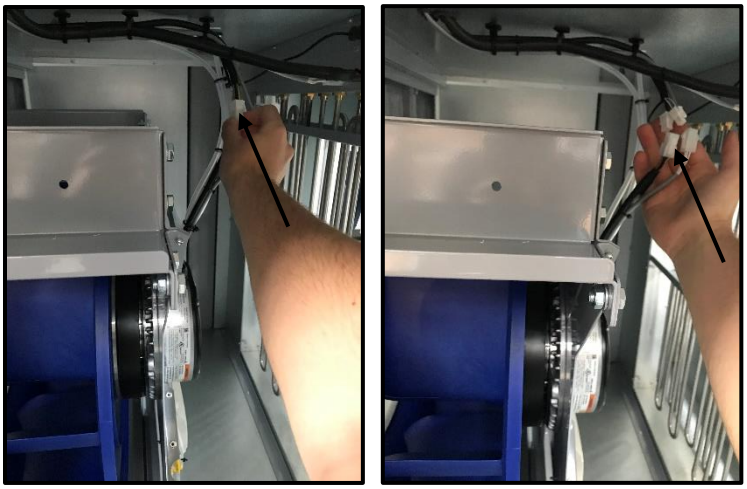


Fig. 36

3. Remove the fan pressure hoses as shown (Fig. 37)

Fig. 37

4. Remove the fan slowly and carefully (Fig. 38)

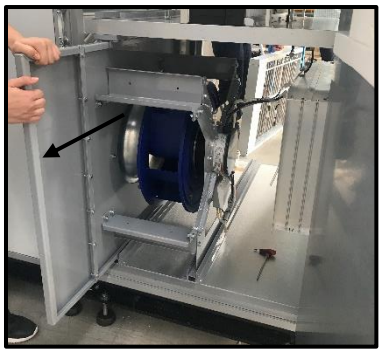


Fig. 38

Be careful to electrical connections when installing the fans back into

6.7 Cleaning of housing

DANGER **RISK OF INJURY! Make sure that the power connection is disconnected, and fan is not moving before doing any work on the device.**

WARNING Danger of electric shock; moving parts (fan) and hot surface

- The unit housing must be regularly checked for contamination, damage and corrosion every 12 months.

- Use a wet cloth to clean the housing.

CHAPTER 7

Installation, service and maintenance of accessories

7.1 Accessory list

EVO-15R	
Accessories	**Ref. no.**
Outdoor air filter ePM10 50%	2192
Outdoor air filter ePM1 80%	2347
Electrical pre heater	1262
Electrical after heater	3605
Water after heater	3805
Cooling coil water Left	3958
Cooling coil water Right	4283
Cooling coil DX Left	4416
Cooling coil DX Right	5001
Outdoor/Exhaust damper	6006
Adapter rectangular to round	4367
Flexible duct connector	4372
Unit outdoor roof	6382
Outdoor roof cooling module CW/DX	6467
Outdoor air spigot	6484
Exhaust air spigot	6643
E3-DSP Display	6186
ED-T7 Display	6187
CAP-Modus (Pressure transmitter)	6756
E-box heater	7064
Signal converter	6019
Hydraulic Kit	8318
Siphon for cooling module	7169
HMI cable (10m)	7073
HMI cable (20m)	7121
CO2 duct sensor	7124
CO2 room sensor	4272
FTF room sensor	4273
VOC room sensor	4274

EVO-20R	
Accessories	**Ref. no.**
Outdoor air filter ePM10 50%	2193
Outdoor air filter ePM1 80%	2384
Electrical pre heater	1710
Electrical after heater	3616
Water after heater	3806
Cooling coil water Left	3959
Cooling coil water Right	4285
Cooling coil DX Left	4417
Cooling coil DX Right	5025
Outdoor/Exhaust damper	6007
Adapter rectangular to round	4368
Flexible duct connector	4373
Unit outdoor roof	6431
Outdoor roof cooling module CW/DX	6468
Outdoor air spigot	6539
Exhaust air spigot	6646
E3-DSP Display	6186
ED-T7 Display	6187
CAP-Modus (Pressure transmitter)	6756
E-box heater	7064
Signal converter	6019
Hydraulic Kit	8318
Siphon for cooling module	7169
HMI cable (10m)	7073
HMI cable (20m)	7121
CO2 duct sensor	7124
CO2 room sensor	4272
FTF room sensor	4273
VOC room sensor	4274

EVO-30R	
Accessories	**Ref. no.**
Outdoor air filter ePM10 50%	2194
Outdoor air filter ePM1 80%	2425
Electrical pre heater	1711
Electrical after heater	3617
Water after heater	3824
Cooling coil water Left	3967
Cooling coil water Right	4286
Cooling coil DX Left	4422
Cooling coil DX Right	5028
Outdoor/Exhaust damper	6009
Adapter rectangular to round	4369
Flexible duct connector	4374
Unit outdoor roof	6432
Outdoor roof cooling module CW/DX	6469
Outdoor air spigot	6487
Exhaust air spigot	6647
E3-DSP Display	6186
ED-T7 Display	6187
CAP-Modus (Pressure transmitter)	6756
E-box heater	7064
Signal converter	6019
Hydraulic Kit	8318
Siphon for cooling module	7169
HMI cable (10m)	7073
HMI cable (20m)	7121
CO2 duct sensor	7124
CO2 room sensor	4272
FTF room sensor	4273
VOC room sensor	4274

EVO-50R	
Accessories	**Ref. no.**
Outdoor air filter ePM10 50%	2196
Outdoor air filter ePM1 80%	2446
Electrical pre heater	1791
Electrical after heater	3618
Water after heater	3825
Cooling coil water Left	3971
Cooling coil water Right	4287
Cooling coil DX Left	4424
Cooling coil DX Right	5046
Outdoor/Exhaust damper	6010
Recirculation damper	6040
Adapter rectangular to round	4370
Flexible duct connector	4375
Unit outdoor roof	6433
Unit outdoor roof with recirculation module	6439
Outdoor roof heater module (electrical after heater + Water after heater)	6445
Outdoor roof cooling module CW/DX	6470
Outdoor air spigot	6496
Exhaust air spigot	6648
E3-DSP Display	6186
ED-T7 Display	6187
CAP-Modus (Pressure transmitter)	6756
E-box heater	7064
Signal converter	6019
Hydraulic Kit	8318
Siphon for cooling module	7169
HMI cable (10m)	7073
HMI cable (20m)	7121
CO2 duct sensor	7124
CO2 room sensor	4272
FTF room sensor	4273
VOC room sensor	4274

EVO-60R	
Accessories	**Ref. no.**
Outdoor air filter ePM10 50%	2220
Outdoor air filter ePM1 80%	2451
Electrical pre heater	1792
Electrical after heater	3625
Water after heater	3826
Cooling coil water Left	3976
Cooling coil water Right	4288
Cooling coil DX Left	4425
Cooling coil DX Right	5239
Outdoor/Exhaust damper	6010
Recirculation damper	6160
Adapter rectangular to round	4370
Flexible duct connector	4375
Unit outdoor roof	6434
Unit outdoor roof with recirculation module	6440
Outdoor roof heater module (electrical after heater + Water after heater)	6446
Outdoor roof cooling module CW/DX	6471
Outdoor air spigot	6496
Exhaust air spigot	6648
E3-DSP Display	6186
ED-T7 Display	6187
CAP-Modus (Pressure transmitter)	6756
E-box heater	7064
Signal converter	6019
Hydraulic Kit	8318
Siphon for cooling module	7169
HMI cable (10m)	7073
HMI cable (20m)	7121
CO2 duct sensor	7124
CO2 room sensor	4272
FTF room sensor	4273
VOC room sensor	4274

EVO-80R	
Accessories	**Ref. no.**
Outdoor air filter ePM10 50%	2199
Outdoor air filter ePM1 80%	2460
Electrical pre heater	1819
Electrical after heater	3626
Water after heater	3827
Cooling coil water Left	3983
Cooling coil water Right	4382
Cooling coil DX Left	4426
Cooling coil DX Right	5240
Outdoor/Exhaust damper	6012
Recirculation damper	6184
Flexible duct connector	4376
Unit outdoor roof	6435
Unit outdoor roof with recirculation module	6441
Outdoor roof heater module (electrical after heater + Water after heater)	6447
Outdoor roof cooling module CW/DX	6472
Outdoor air spigot	6497
Exhaust air spigot	6841
E3-DSP Display	6186
ED-T7 Display	6187
CAP-Modus (Pressure transmitter)	6756
E-box heater	7064
Signal converter	6019
Hydraulic Kit	8318
Siphon for cooling module	7169
HMI cable (10m)	7073
HMI cable (20m)	7121
CO2 duct sensor	7124
CO2 room sensor	4272
FTF room sensor	4273
VOC room sensor	4274

EVO-95R	
Accessories	**Ref. no.**
Outdoor air filter ePM10 50%	2200
Outdoor air filter ePM1 80%	2463
Electrical pre heater	1830
Electrical after heater	3627
Water after heater	3830
Cooling coil water Left	3984
Cooling coil water Right	4383
Cooling coil DX Left	4864
Cooling coil DX Right	5280
Outdoor/Exhaust damper	6013
Recirculation damper	6185
Flexible duct connector	4377
Unit outdoor roof	6436
Unit outdoor roof with recirculation module	6442
Outdoor roof heater module (electrical after heater + Water after heater)	6448
Outdoor roof cooling module CW/DX	6473
Outdoor air spigot	6499
Exhaust air spigot	6864
E3-DSP Display	6186
ED-T7 Display	6187
CAP-Modus (Pressure transmitter)	6756
E-box heater	7064
Signal converter	6019
Hydraulic Kit	8318
Siphon for cooling module	7169
HMI cable (10m)	7073
HMI cable (20m)	7121
CO2 duct sensor	7124
CO2 room sensor	4272
FTF room sensor	4273
VOC room sensor	4274

EVO-120R	
Accessories	**Ref. no.**
Outdoor air filter ePM10 50%	2201
Outdoor air filter ePM1 80%	2471
Electrical pre heater	1871
Electrical after heater	3628
Water after heater	3831
Cooling coil water Left	4183
Cooling coil water Right	4389
Cooling coil DX Left	4865
Cooling coil DX Right	5281
Outdoor/Exhaust damper	6020
Recirculation damper	6170
Flexible duct connector	4378
Unit outdoor roof	6437
Unit outdoor roof with recirculation module	6443
Outdoor roof heater module (electrical after heater + Water after heater)	6449
Outdoor roof cooling module CW/DX	6474
Outdoor air spigot	6611
Exhaust air spigot	6865
E3-DSP Display	6186
ED-T7 Display	6187
CAP-Modus (Pressure transmitter)	6756
E-box heater	7064
Signal converter	6019
Hydraulic Kit	8318
Siphon for cooling module	7169
HMI cable (10m)	7073
HMI cable (20m)	7121
CO2 duct sensor	7124
CO2 room sensor	4272
FTF room sensor	4273
VOC room sensor	4274

EVO-150R	
Accessories	**Ref. no.**
Outdoor air filter ePM10 50%	2202
Outdoor air filter ePM1 80%	2479
Electrical pre heater	1883
Electrical after heater	3642
Water after heater	3833
Cooling coil water Left	4184
Cooling coil water Right	4391
Cooling coil DX Left	4866
Cooling coil DX Right	5282
Outdoor/Exhaust damper	6021
Recirculation damper	6182
Flexible duct connector	4379
Unit outdoor roof	6438
Unit outdoor roof with recirculation module	6444
Outdoor roof heater module (electrical after heater + Water after heater)	6450
Outdoor roof cooling module CW/DX	6482
Outdoor air spigot	6612
Exhaust air spigot	6866
E3-DSP Display	6186
ED-T7 Display	6187
CAP-Modus (Pressure transmitter)	6756
E-box heater	7064
Signal converter	6019
Hydraulic Kit	8318
Siphon for cooling module	7169
HMI cable (10m)	7073
HMI cable (20m)	7121
CO2 duct sensor	7124
CO2 room sensor	4272
FTF room sensor	4273
VOC room sensor	4274

7.1 Water after heater

7.1.1 Functional description of water after heater

Water after heater is used for increasing the supply air temperature depending on the room set temperature. Frost protection mechanism is available as standard to prevent the temperature of the supply water from reaching freezing conditions in extreme cold climates.

- EVO-15R/ 20R/ 30R water after heater capacities and weights can be seen below.

EVO-R Water after heater			
Model	**Heater capacity 60/40°C (Fluid inlet/ outlet temperature)**	**Weight (kg)**	**Manifold Diameter (inch)**
EVO-15R	7,6	4,59	1/2
EVO-20R	11,6	5,75	1/2
EVO-30R	14,9	7,01	1/2

- EVO-50R/ 60R/ 80R/ 95R/ 120R/ 150R water after heater capacities, weights and dimensions can be seen below. (Fig. 39)

Model	Heater capacity 60/40°C (Fluid inlet/ outlet temperature)	Weight (kg)
EVO-50R	24,1 kW	100
EVO-60R	30,5 kW	115
EVO-80R	45,2 kW	140
EVO-95R	53,7 kW	155
EVO-120R	67,1 kW	170
EVO-150R	80,5 kW	190

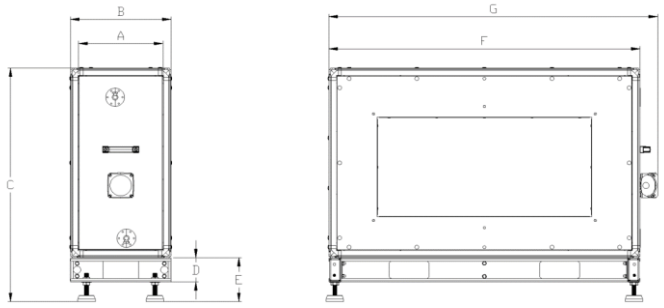


Fig. 39

	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	Coil outlet pipe diameter (inch)
EVO-50R	300	400	935	100	155	1240	1310	1/2
EVO-60R	300	400	985	100	155	1360	1430	3/4
EVO-80R	300	400	1105	100	155	1610	1680	3/4
EVO-95R	300	400	1155	100	155	1710	1780	1
EVO-120R	300	400	1235	100	155	1860	1930	1
EVO-150R	300	400	1355	100	155	2110	2180	1 1/4

7.1.2 Installation of water after heater

DANGER **Make sure that the power connection is disconnected before doing any work on the device.**

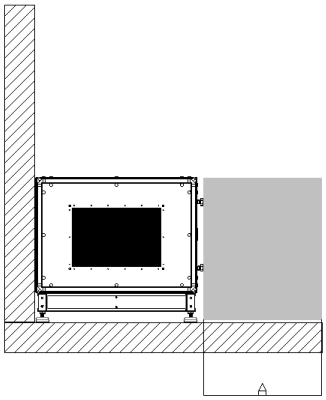
WARNING Danger of electric shock; moving parts (fan) and hot surfaces.

- After install the accessory, refer to chapter 4.1 for the commissioning.
- Hot water coil inlet - outlet pipes should be insulated.
- Inlet and outlet pipe of coil depend on service/installation/connection side.
- Make sure that the outdoor dampers are install for frost protection.

Assembly area

Observe the following criteria during installation to ensure that the module service is comfortable. (Fig. 40)

A is the minimum distance for servicing the water after heater.



MODEL	A (mm)
EVO-50R	1440
EVO-60R	1560
EVO-80R	1810
EVO-95R	1910
EVO-120R	2060
EVO-150R	2310

Fig. 40

a. EVO-15R/ 20R/ 30R units

1. Remove the service panel (Fig. 41)

Fig. 41

2. Remove the sheet metal and rock wool on the service panel. (Fig. 42)

Fig. 42

3. Place the water after heater in the unit and attach the temperature sensor on the water outlet pipe with the metal cable tie. Connect the temperature sensor and frost sensor cable connector each other. (metal cable tie and sensor are included in scope of water after heater delivery) (Fig. 43)

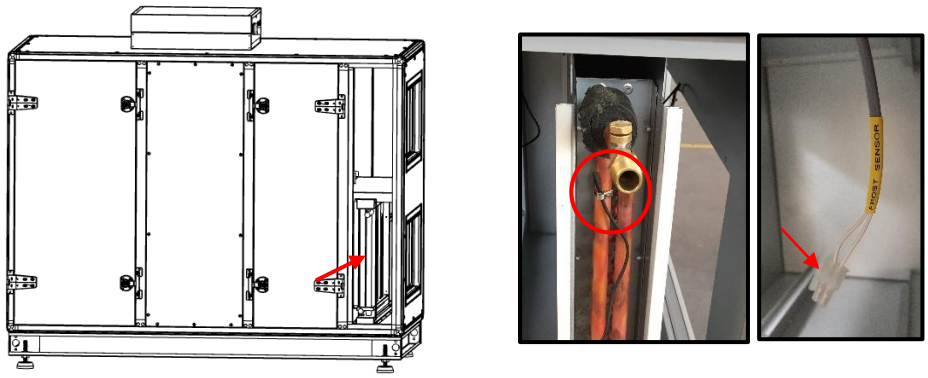


Fig. 43

4. Place sheet metal parts on the panel as shown below (sheet metal parts are included in scope of water after heater delivery) (Fig. 44)

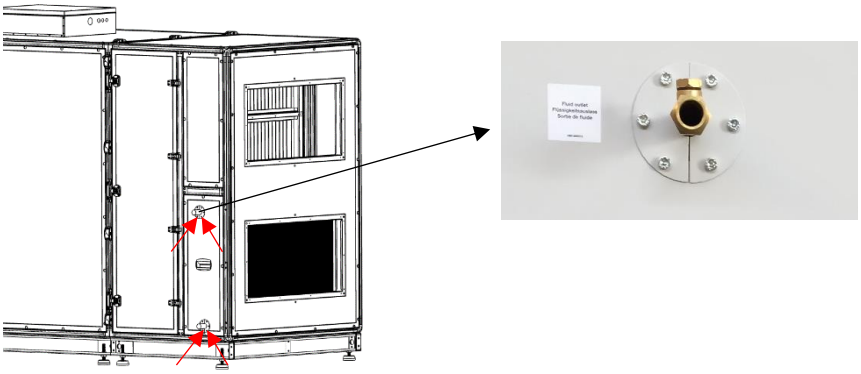


Fig. 44

b. EVO-50R/ 60R/ 80R/ 95R/ 120R/ 150R units

1. Apply sealing strip to the surface where the module will be connected with the device (Fig. 45)

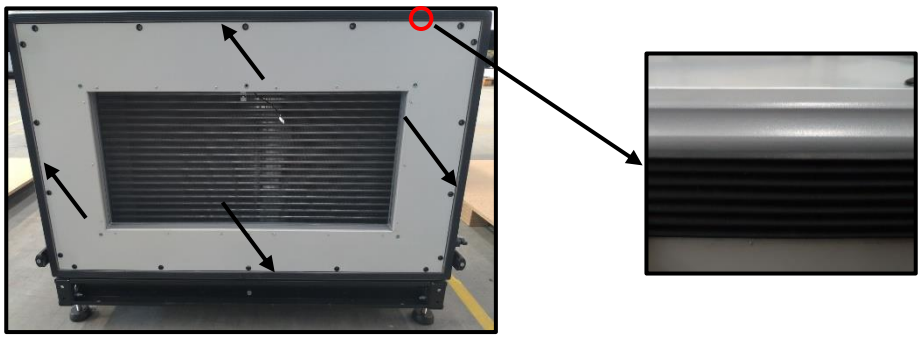


Fig. 45

2. Remove the temperature sensor from the unit supply line. Bring the module and device closer together. Connect the device connector and the water after heater module connector each other (Fig. 46)

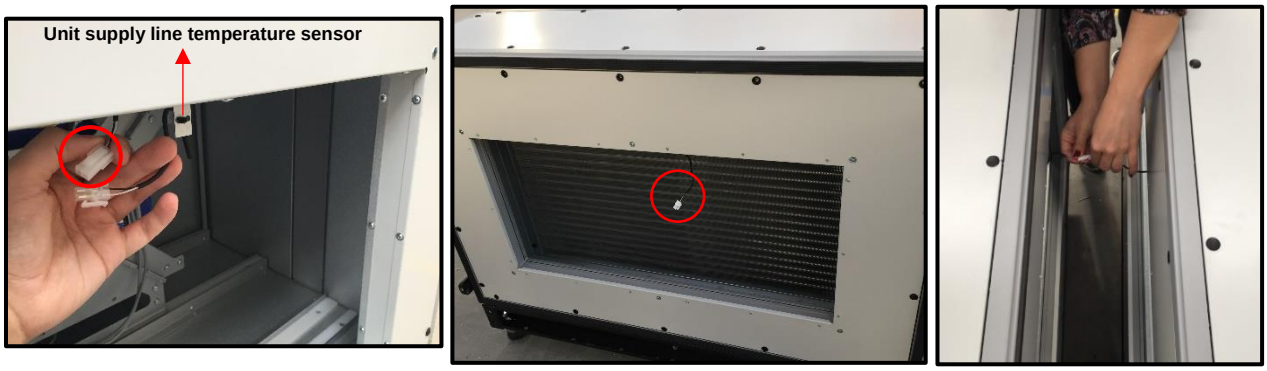


Fig. 46

3. Connect the temperature sensor that you removed from the unit to the supply line of the water after heater with the connection cable and fix the sheet metal with cable tie. (Fig. 47)

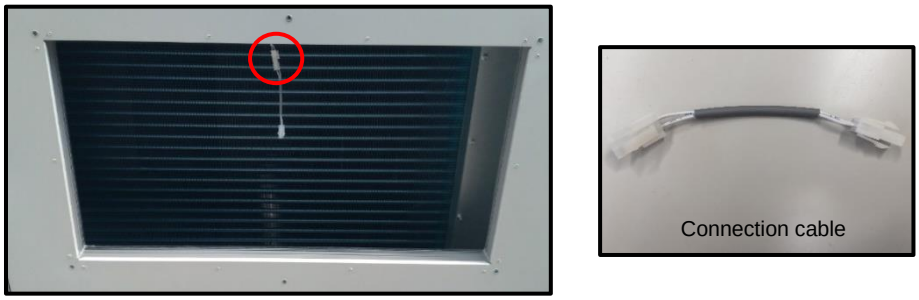


Fig. 47

4. Tighten the bolt. (Fig. 48)

Fig. 48

5. Open the terminal box cover. Check the thickness of the cable that you will use for signal connection. (refer to chapter 8 for cable thickness and connections)

- Connect the cables to the terminals and close the terminal box cover. Refer to the electrical diagrams (chapter 8) for cable connections (Fig. 49)

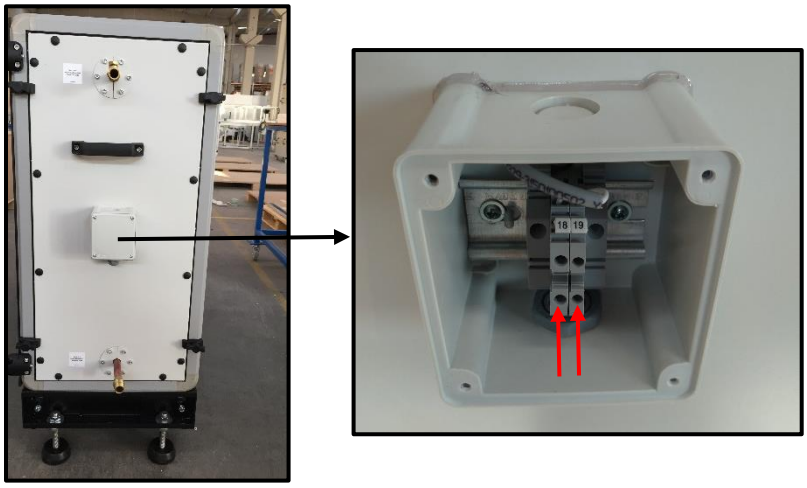


Fig. 49

- Connect other end of the cable coming from the water after heater terminal box, to the appropriate terminal in the unit terminal box. (Refer to chapter 8 for appropriate terminal connections)

6. Install the water after heater coil pipe connections (Use contra tightening method to prevent any damage to the piping system)

7.1.3 Service and maintenance of water after heater

DANGER **RISK OF INJURY! Make sure that the power connection is disconnected, and fan is not moving before doing any work on the device**

CAUTION Make sure there is no hot water connection before doing any work on the device.

- It is recommended to check the water after heater for contamination every 6 months.
- The water after heater must be inspected regularly for dirt and dust deposits. If there are dirt and dust deposits on the water after heater, these can be removed, using the water.
- The cleaning can be made with cold water. Household cleaners are allowed.
- Do not bend the fins!
- When cleaning take care that the water after heater is not damaged, neither mechanically nor chemically.

Allow water after heater to dry before installation!

1. Remove the sheet metal parts shown below. (Fig. 50)

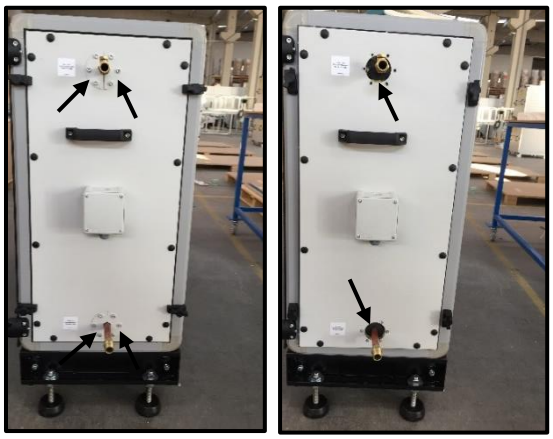


Fig. 50

2. Loosen the bolts to remove the service panel.

ATTENTION **Disconnect the frost sensor connection before removing the service panel completely.**

- Remove the service panel to reach the sensor connection (Fig. 51)
- Disconnect the frost sensor connection (Fig. 51)
- Remove the panel completely (Fig. 51)
-Remove the water after heater (Fig. 51)

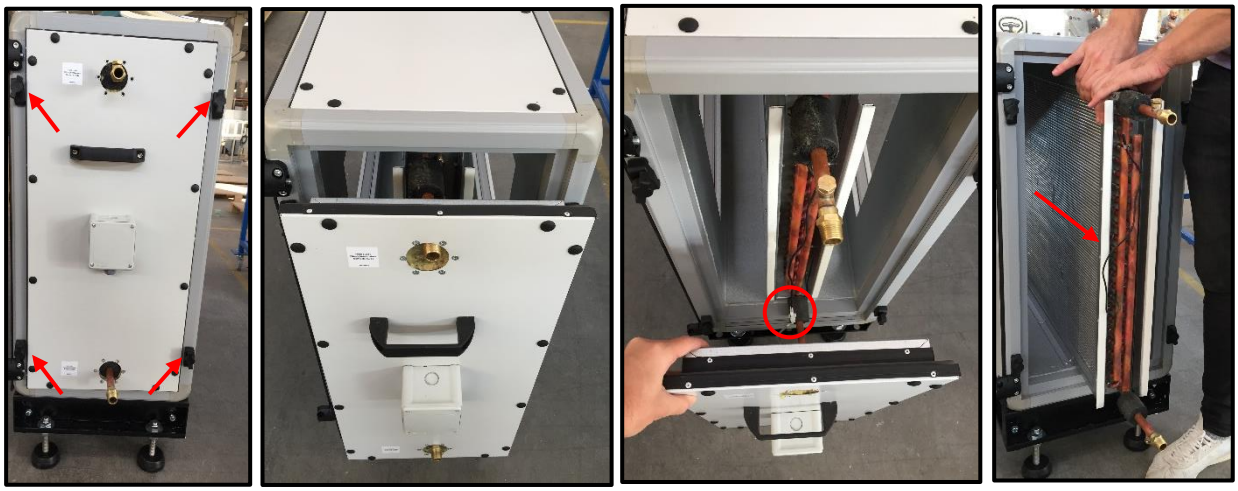


Fig. 51

7.2 Electrical after heater

7.2.1 Functional description of electrical after heater

Electrical after heater is used for increasing the supply air temperature depending on the room set temperature.

- EVO-15R/ 20R/ 30R electrical after heater capacities and weights can be seen below.

Model	Heater capacity (kW)	Weight (kg)
EVO-15R	4,2	8
EVO-20R	5,8	10
EVO-30R	9,1	15

- EVO-50R/ 60R/ 80R/ 95R/ 120R/ 150R electrical after heater capacities, weights and dimensions can be seen below. (Fig. 52)

Model	Heater capacity (kW)	Weight (kg)
EVO-50R	15,6	100
EVO-60R	18,1	115
EVO-80R	22,2	140
EVO-95R	29,2	155
EVO-120R	38,9	170
EVO-150R	44	190

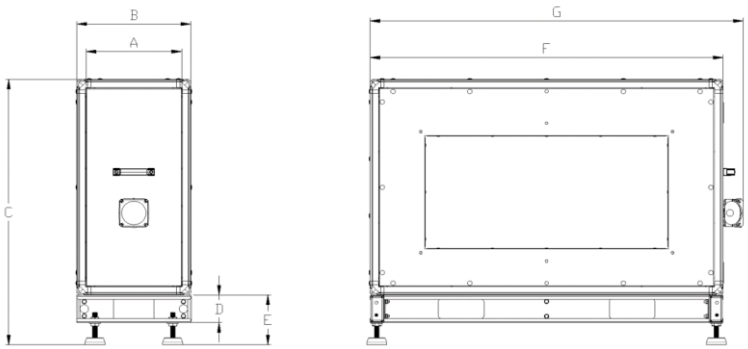


Fig. 52

	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
EVO-50R	300	400	935	100	155	1240	1310
EVO-60R	300	400	985	100	155	1360	1430
EVO-80R	300	400	1105	100	155	1610	1680
EVO-95R	300	400	1155	100	155	1710	1780
EVO-120R	300	400	1235	100	155	1860	1930
EVO-150R	300	400	1355	100	155	2110	2180

7.2.2 Installation of electrical after heater

DANGER **RISK OF INJURY! Make sure that the power connection is disconnected, and fan is not moving before doing any work on the device.**

WARNING Danger of electric shock; moving parts (fan) and hot surface.

After install the accessory, refer to chapter 4.1 for the commissioning.

a. EVO-15R/ 20R/ 30R

1. Remove the service panel (Fig. 53)

Fig. 53

2. Place the electrical after heater (Fig. 54)

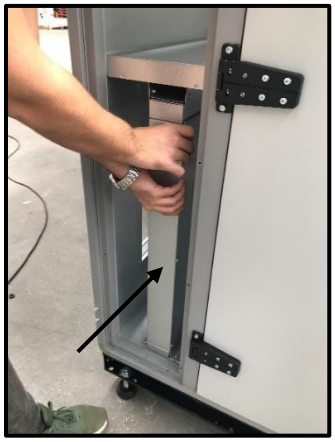


Fig. 54

3. Plug the electrical connections on the electrical heater (Fig. 55)

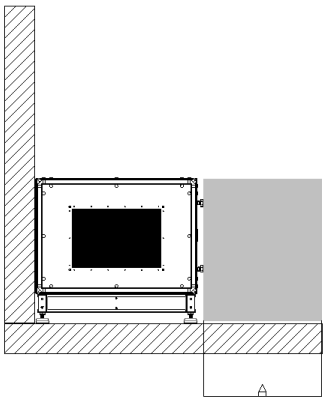
Fig. 55

b. EVO-50R/ 60R/ 80R/ 95R/ 120R/ 150R

Assembly area

Observe the following criteria during installation to ensure that the module service is comfortable. (Fig. 56)

A is the minimum distance for servicing the cooling coil.



MODEL	A (mm)
EVO-50R	1440
EVO-60R	1560
EVO-80R	1810
EVO-95R	1910
EVO-120R	2060
EVO-150R	2310

Fig. 56

1. Apply sealing strip to the surface where the module will be connected with the device (Fig. 57)

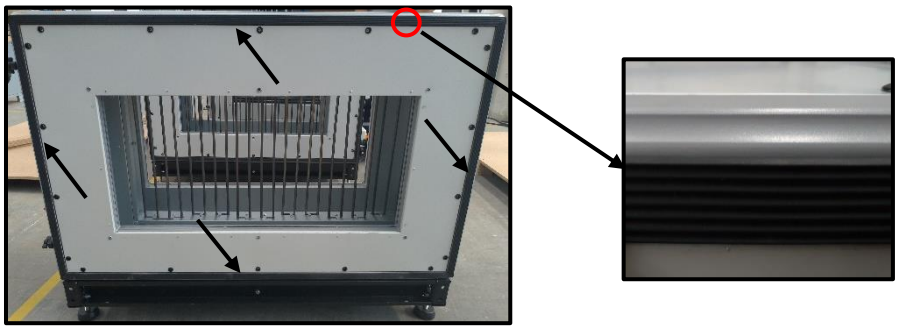


Fig. 57

2. Remove the temperature sensor from the unit outdoor line. Bring the module and device closer together. Connect the device connector and the water after heater module connector each other. (Fig. 58)

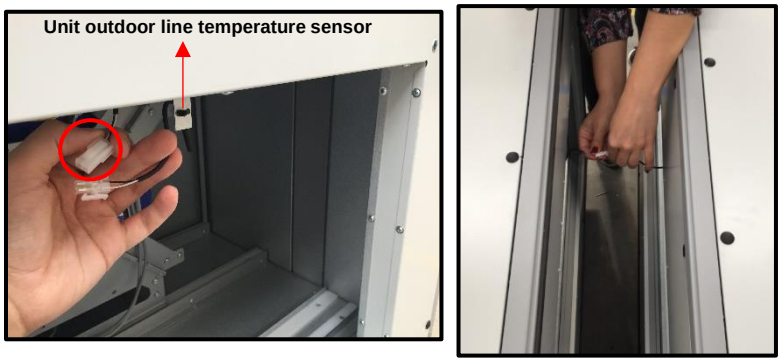


Fig. 58

3. Connect the temperature sensor that you removed from the unit to the supply line of the electrical after heater with the connection cable and fix the sheet metal with cable tie. (Fig. 59)

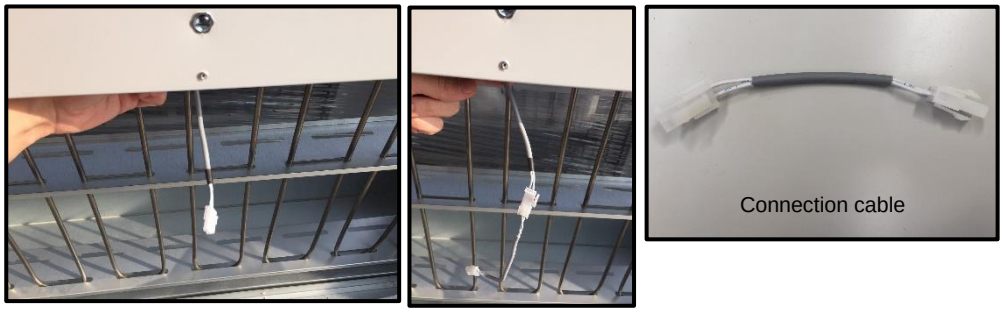


Fig. 59

4. Tighten the bolt. (Fig. 60)

Fig. 60

4. Open the main switch cover. Check the thickness of the cable that you will use for power connection. (refer to chapter 8 for cable thickness and connections) (Fig. 61)

Fig. 61

5. Connect the cables to the terminals and close the main switch cover. Refer to chapter 8 for cable connections. (Fig. 62)

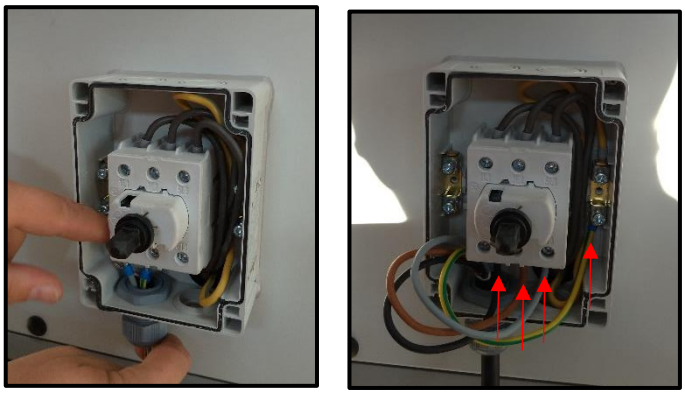


Fig. 62

6. Open the terminal box cover. Check the thickness of the cable that you will use for signal connection. (refer to chapter 8 for cable thickness and connections) (Fig. 63)

Fig. 63

7. Connect the cables to the terminals and close the terminal box cover. Refer to the electrical diagrams for cable connections. (Fig. 64)

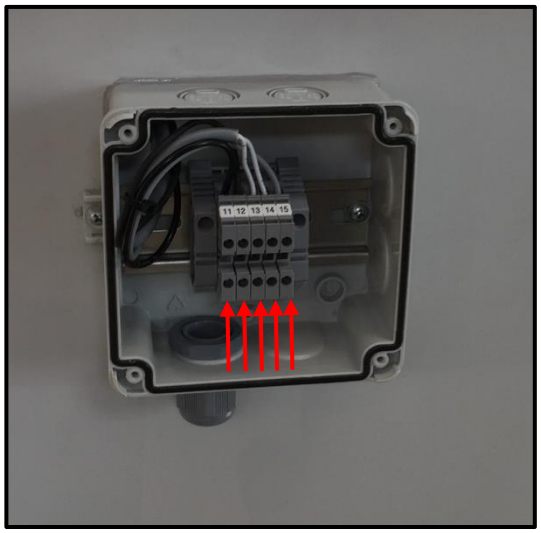


Fig. 64

8. Connect other end of the cable coming from the electrical after heater terminal box, to the appropriate terminal in the unit terminal box. (Refer to chapter 8 for appropriate terminal connections)

7.2.3 Service and maintenance of electrical after heater

It is recommended to check the electrical after heater for contamination and damage every 6 months. If there are dirt and dust on the electrical after heater, these can be removed, using air.

- When cleaning take care that the electrical after heater is not damaged.

- Loosen the bolts to remove the electrical heater**.** (Fig. 65)

Fig. 65

Reset function

DANGER **RISK OF INJURY! Make sure that the power connection is disconnected, and fan is not moving before doing any work on the device**

WARNING Danger of electric shock; moving parts (fan) and hot surface. Wait for 3 minutes before doing maintenance

The manual RESET takes place by pressing the reset lever, which is located directly on the electrical after-heater.

a. EVO-15R/ 20R/ 30R

1. Unlock the lock and turn the handles counter clock-wise direction for opening doors. (Fig. 66)

Fig. 66

2. For a manual RESET, push the reset lever upward. (Fig. 67)

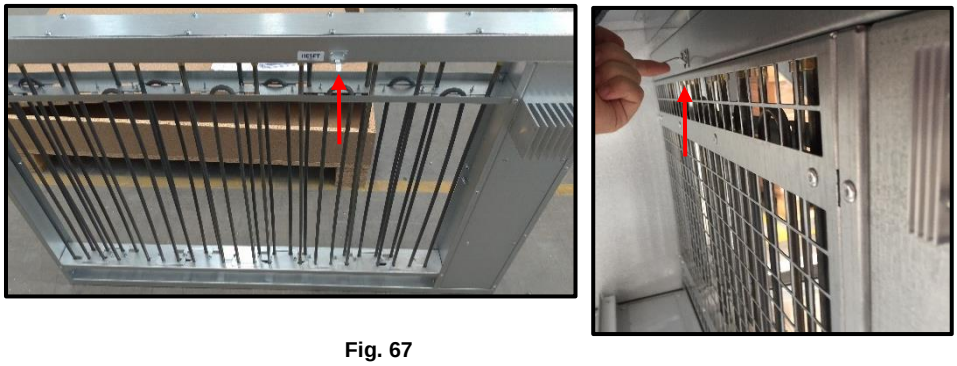


Fig. 67

b. EVO-50R/ 60R/ 80R/ 95R/ 120R/ 150R

- Loosen the bolts, remove the electrical heater until you reach the reset button and push the reset lever upward for manual reset. (Fig. 68)

Fig. 68

Manual reset: Manual reset temperature is 90 ºC. When the safety temperature limiters reach the 90 ºC, safety temperature limiter is triggered, and preheater will be disconnected from the power supply.

ATTENTION **If the manual reset is active, there is most likely a problem with the heater. Manual reset is only to be pushed if problem is identified and solved.**

Automatically reset: Automatically reset temperature is 70 ºC. When the safety temperature limiters reach the 70 ºC, safety temperature limiter is triggered, and preheater will be disconnected from the power supply. When the temperature falls below 70ºC, the electrical heater will automatically switch on.

7.3 Electrical pre heater

7.3.1 Functional description of electrical pre heater

Electrical pre heater is used for increasing the outdoor air temperature. A pre-heater prevents the rotary heat exchanger from freezing! It is controlled by steplessly in order to decrease the energy consumptions.

The pre-heater is equipped with two safety temperature limiters, the STL (auto reset = trigger temp. +70 °C) and (manual reset = trigger temp. +90 °C) are connected in series. Once a safety temperature limiter is triggered, the preheater will be disconnected from the power supply and an error will be displayed on the controller.

- Preheater enabling/disabling

Enabling/disabling of the preheater by the user/installer is possible (Refer to chapter 4.1 for commissioning)

The preheater only works if the supply air fan is operating and there are no errors. If the unit is switched to standby or unit-off mode, the preheater will switch off immediately. The supply air fan stops 90 seconds after the pre-heater is stopped.

- Electrical pre heater capacities, weights and dimensions can be seen below. (Fig. 69)

Model	Heater capacity (kW)	Weight (kg)
EVO-15R	4,2	65
EVO-20R	5,8	70
EVO-30R	9,1	80
EVO-50R	15,6	100
EVO-60R	18,1	115
EVO-80R	22	140
EVO-95R	22	155
EVO-120R	22	170
EVO-150R	22	190

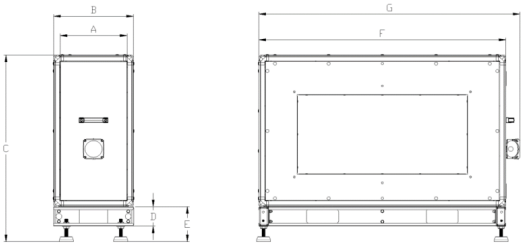


Fig. 69

	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
EVO-15R	300	400	675	100	155	760	830
EVO-20R	300	400	735	100	155	860	930
EVO-30R	300	400	830	100	155	970	1040
EVO-50R	300	400	935	100	155	1240	1310
EVO-60R	300	400	985	100	155	1360	1430
EVO-80R	300	400	1105	100	155	1610	1680
EVO-95R	300	400	1155	100	155	1710	1780
EVO-120R	300	400	1235	100	155	1860	1930
EVO-150R	300	400	1355	100	155	2110	2180

7.3.2 Installation of electrical pre heater

DANGER **RISK OF INJURY! Make sure that the power connection is disconnected, and fan is not moving before doing any work on the device.**

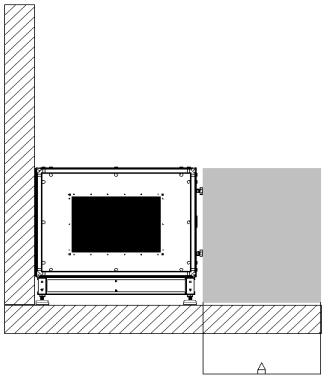
WARNING Danger of electric shock; moving parts (fan) and hot surface.

After install the accessory, refer to chapter 4.1 for the commissioning.

Assembly area

Observe the following criteria during installation to ensure that the module service is comfortable. (Fig. 70)

A is the minimum distance for servicing the cooling coil.



MODEL	A (mm)
EVO-15R	960
EVO-20R	1060
EVO-30R	1170
EVO-50R	1440
EVO-60R	1560
EVO-80R	1810
EVO-95R	1910
EVO-120R	2060
EVO-150R	2310

Fig. 70

1. Apply sealing strip to the surface where the module will be connected with the device (Fig. 71)

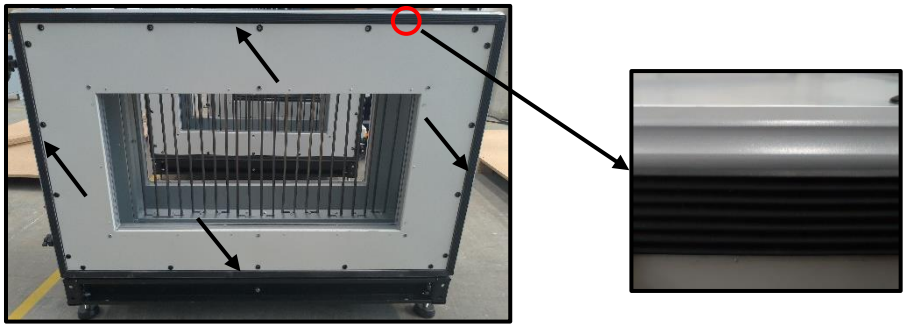


Fig. 71

2. Remove the temperature sensor from the unit outdoor line. Bring the module and device closer together and tighten the bolt. (Fig. 72)

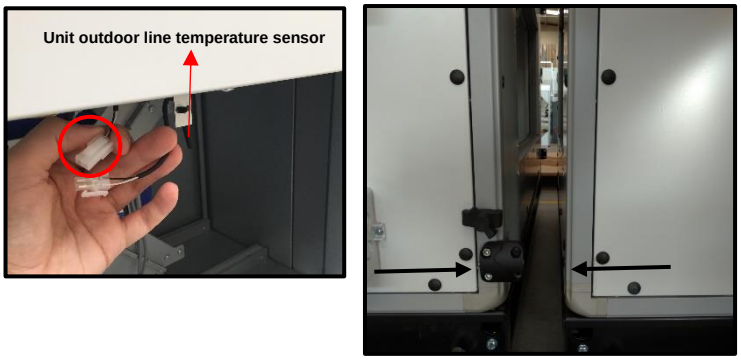


Fig. 72

3. Open the main switch cover. Check the thickness of the cable that you will use for power connection. (refer to chapter 8 for cable thickness and connections) (Fig. 73)

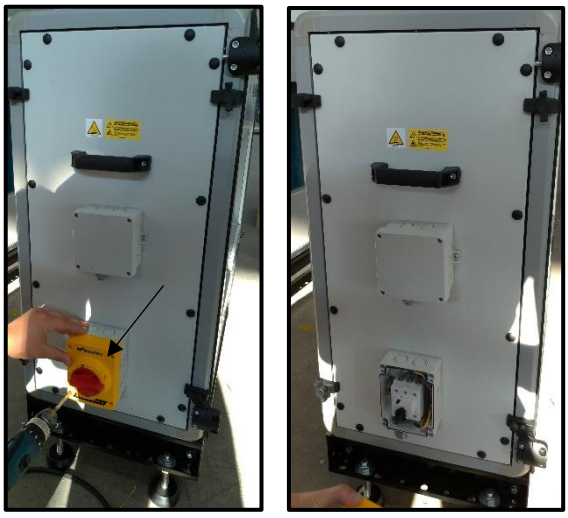


Fig. 73

5. Connect the cables to the terminals and close the main switch cover. Refer to chapter 8 for cable connections. (Fig. 74)

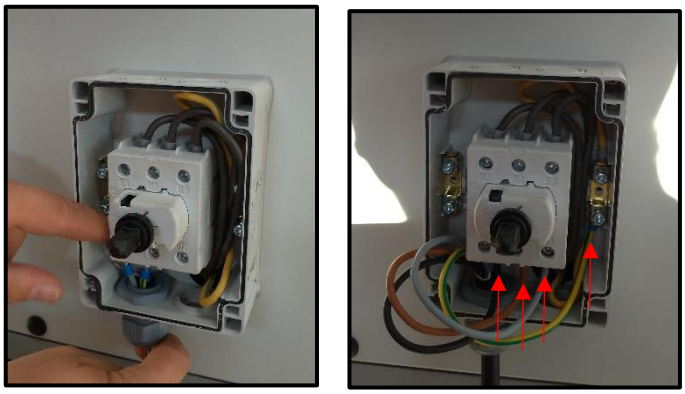


Fig. 74

6. Open the terminal box cover. Check the thickness of the cable that you will use for signal connection. (Refer to chapter 8 for cable thickness and connections) (Fig. 75)

Fig. 75

7. Connect the cables to the terminals and close the terminal box cover. Refer to chapter 8 for cable connections. (Fig. 76)

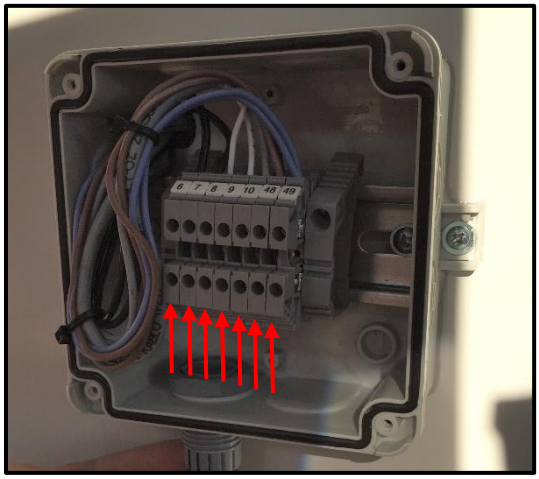


Fig. 76

8. Connect other end of the cable coming from the electrical pre heater terminal box, to the appropriate terminal in the unit terminal box. Refer to the electrical diagrams (chapter 8) for cable connections.

7.3.3 Service and maintenance of electrical pre heater

It is recommended to check the electrical after heater for contamination and damage every 6 months. If there are dirt and dust on the electrical after heater, these can be removed, using air.

- When cleaning take care that the electrical after heater is not damaged.

- Loosen the bolts to remove the electrical heater. **Disconnect the sensor connection before removing the electrical heater.** (Fig. 77)

Fig. 77

Reset function

DANGER **RISK OF INJURY! Make sure that the power connection is disconnected, and fan is not moving before doing any work on the device**

WARNING Danger of electric shock; moving parts (fan) and hot surface. Wait for 3 minutes before doing maintenance

The manual RESET takes place by pressing the reset lever, which is located directly on the electrical after-heater.

- Loosen the bolts, remove the electrical heater until you reach the reset button and push the reset lever upward for manual reset. (Fig. 78)

Fig. 78

Manual reset: Manual reset temperature is 90 ºC. When the safety temperature limiters reach the 90 ºC, safety temperature limiter is triggered, and preheater will be disconnected from the power supply.

ATTENTION **If the manual reset is active, there is most likely a problem with the heater. Manual reset is only to be pushed if problem is identified and solved.**

Automatically reset: Automatically reset temperature is 70 ºC. When the safety temperature limiters reach the 70 ºC, safety temperature limiter is triggered, and preheater will be disconnected from the power supply. When the temperature falls below 70ºC, the electrical heater will automatically switch on.

7.4 Outdoor air pre filter ePm10 50%

7.4.1 Functional description of outdoor air pre filter

The ePm10 50% is pre-filter. It is used to prevent the contamination on the fine filter.

7.4.2 Installation of outdoor air pre filter

DANGER **RISK OF INJURY! Make sure that the power connection is disconnected, and fan is not moving before doing any work on the device.**

WARNING Danger of electric shock; moving parts (fan) and hot surface.

After install the accessory, refer to chapter 4.1 for the commissioning.

1. Remove the filter lock. (Fig. 79)

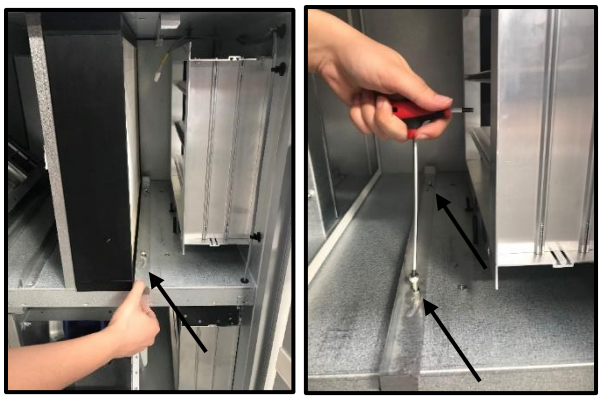


Fig. 79

2. Place the filter lock as shown below (Fig. 80)

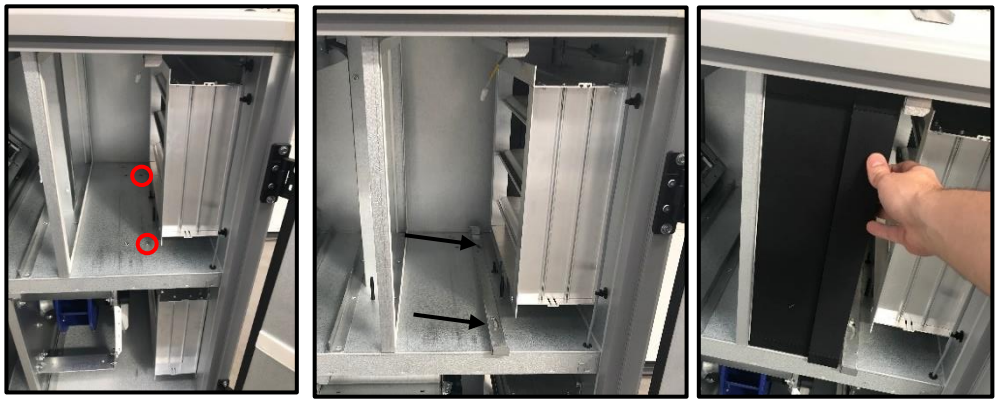


Fig. 80

7.4.3 Service and maintenance of outdoor air pre filter

The filters must be regularly checked for contamination, damage and odours every 3 months. If the filters are damp or mouldy, they must be exchanged immediately.

7.5 Recirculation damper

7.5.1 Functional description of recirculation damper

The air taken from the indoor is recirculated and then blown back into the indoor after heating or cooling.
When the unit is in recirculation air mode the outdoor dampers close automatically. For this reason, make sure that the outdoor dampers are installed to use recirculation damper.

- Recirculation damper module dimensions and weight can be seen below. (Fig. 81)

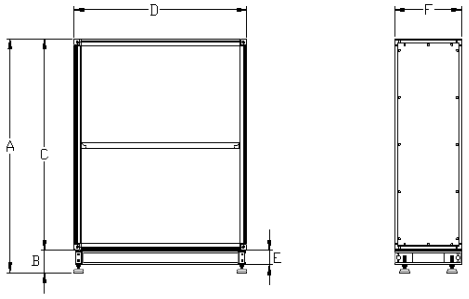


Fig. 81

	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	Weight (kg)
EVO-50R	1625	155	1470	1240	100	480	85
EVO-60R	1745	155	1590	1360	100	480	100
EVO-80R	1995	155	1840	1610	100	480	130
EVO-95R	2095	155	1940	1710	100	480	150
EVO-120R	2245	155	2090	1860	100	480	190
EVO-150R	2495	155	2340	2110	100	480	230

7.5.2 Installation of recirculation damper

DANGER **Make sure that the power connection is disconnected before doing any work on the device.**

- Make sure that outdoor dampers (optional) are install before installing the recirculation damper.

After install the accessory, refer to chapter 4.1 for the commissioning.

1. Apply sealing strip to the surface where the module will be connected with the unit fan module (Fig. 82)

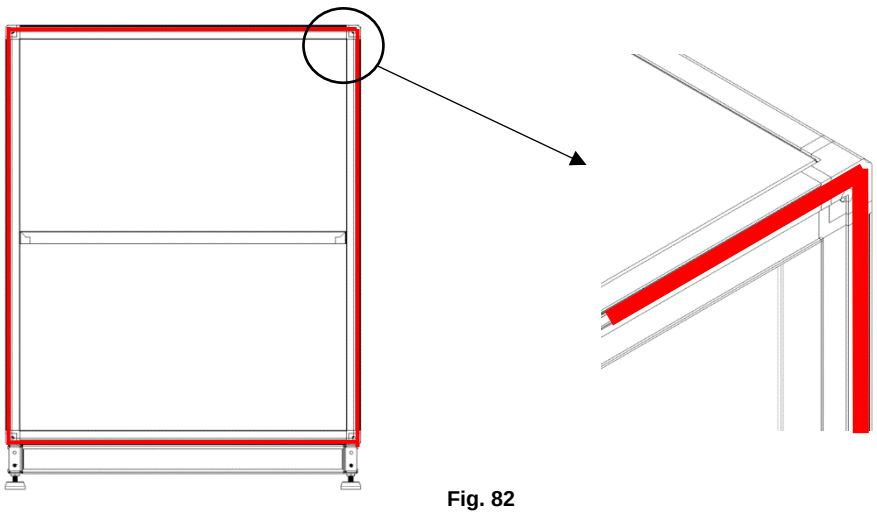


Fig. 82

2. Bring modules closer together (Fig. 83)

Fig. 83

3. To connect the connecting cables to the rotor module, pull the cable from the cable duct to a sufficient length. (Fig. 84)

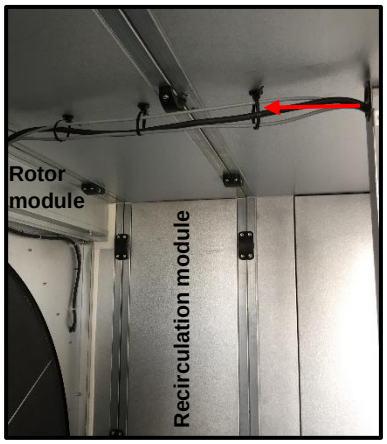


Fig. 84

4. Fasten the cables with cable tie and plug the electrical connections (Fig. 85)

Fig. 85

5. Plug the electrical connections (Fig. 86)

Fig. 86

6. Tighten the bolt (Fig. 87)

Fig. 87

7.5.3 Service and maintenance of recirculation damper

The recirculation damper and actuator must be regularly checked for contamination every 6 months.

7.6 Outdoor damper

7.6.1 Functional description of outdoor damper

The outdoor/exhaust dampers prevent the air entering into the device when the device is not operating.

Outdoor dampers open 30 seconds before the fan operates automatically. The outdoor and exhaust air dampers are connected to one digital output.

- Outdoor/exhaust dampers have tightness class 2.
- Outdoor-exhaust damper dimensions and weights can be seen below (Fig. 88)

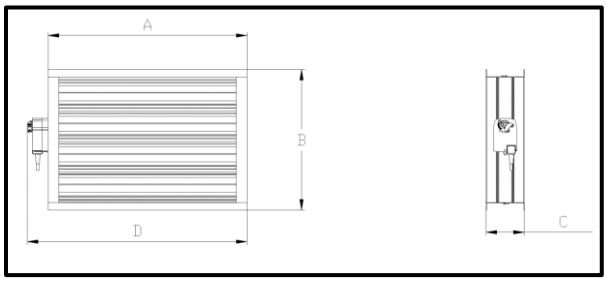


Fig. 88

	A (mm)	B (mm)	C (mm)	D (mm)
EVO-15R	410	360	120	480
EVO-20R	530	360	120	600
EVO-30R	640	460	120	710
EVO-50R	915	460	120	985
EVO-60R	915	460	120	985
EVO-80R	1115	460	120	1185
EVO-95R	1260	460	120	1330
EVO-120R	1535	560	120	1605
EVO-150R	1660	760	120	1735

	Weight (kg)
EVO-15R	3
EVO-20R	4
EVO-30R	5
EVO-50R	6,6
EVO-60R	6,6
EVO-80R	7,8
EVO-95R	8,6
EVO-120R	10
EVO-150R	13

7.6.2 Installation of outdoor damper

DANGER **Make sure that the power connection is disconnected before doing any work on the device.**

- Before the damper installation, remove the filter and fan.
- Install the damper before positioning the unit for easy access from both service side.

After install the accessory, refer to chapter 4.1 for the commissioning.

1. Unlock the lock and turn the handles counter clock-wise direction for opening doors. (Fig. 89)

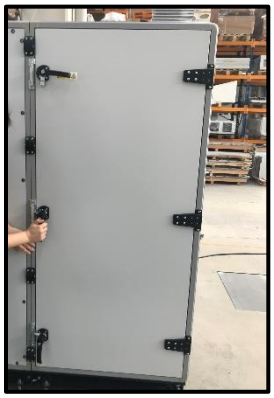


Fig. 89

2. Pull lock-bars and place the damper (Fig. 90)

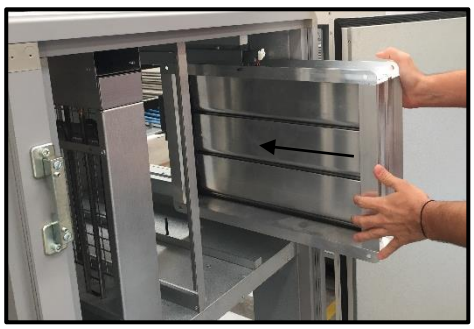


Fig. 90

3. Push the lock-bars to fix the damper (Fig. 91)

Fig. 91

4. Place the sheet metal part shown below and connect the bolts (Fig. 92)

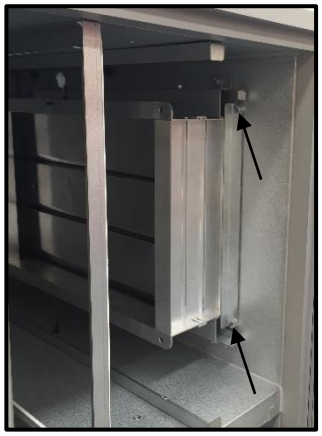


Fig. 92

5. Plug the damper electrical connections (Fig. 93)

Fig. 93

7.6.3 Service and maintenance of outdoor damper

The outdoor dampers and actuators must be regularly checked for contamination every 6 months.

7.7 Cooling coil DX

7.7.1 Functional description of DX coil

Cooling coils can not be integrated inside the unit as they are external accessories. Externally module cooling coils are used for such purposes as lowering the blowing temperature and dehumidifying the air in the units. It can be driven either proportionally or by on / off method.

- Cooling coil DX capacities and weights can be seen below. (Refer to selection software for DX coil's cooling fluid options)
- The cooling coil capacity values are calculated for the following parameters.

Fluid: R410A

Evaporation temperature: 6°C

Condensation temperature: 46°C

Super heating: 5°C

Sub cooling: 3°C

Model	Cooling capacity (kW)	Weight (kg)
EVO-15R	5,9	150
EVO-20R	9,1	165
EVO-30R	11,9	180
EVO-50R	20,1	210
EVO-60R	25	225
EVO-80R	36,8	250
EVO-95R	43,3	265
EVO-120R	62,5	270
EVO-150R	70	290

- DX cooling coil module dimensions can be seen below. (Fig. 94)

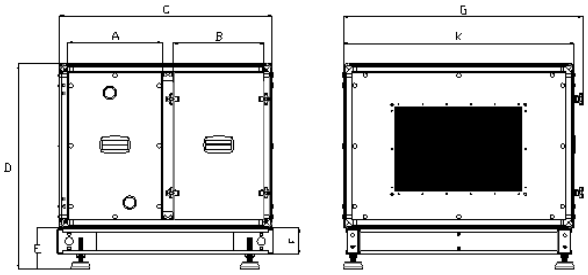


Fig. 94

	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	K (mm)
EVO-15R	500	350	1000	675	155	100	820	760
EVO-20R	500	350	1000	735	155	100	920	860
EVO-30R	500	350	1000	830	155	100	1030	970
EVO-50R	500	450	1100	935	155	100	1300	1240
EVO-60R	500	450	1100	985	155	100	1420	1360
EVO-80R	500	450	1100	1105	155	100	1670	1610
EVO-95R	500	450	1100	1155	155	100	1770	1710
EVO-120R	500	450	1100	1235	155	100	1920	1860
EVO-150R	500	450	1100	1355	155	100	2170	2110

7.7.2 Installation of DX coil

DANGER **RISK OF INJURY! Make sure that the power connection is disconnected, and fan is not moving before doing any work on the device**

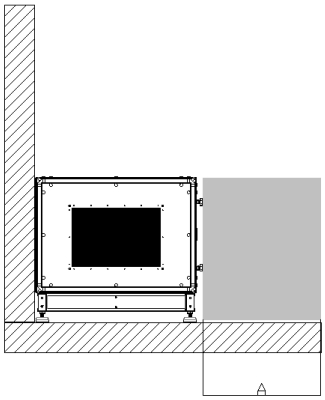
- DX coil inlet - outlet pipes should be insulated.
- Refer to the electrical diagrams for DX coil signal connections.

After install the accessory, refer to chapter 4.1 for the commissioning.

Assembly area

Observe the following criteria during installation to ensure that the module service is comfortable. (Fig. 95)

A is the minimum distance for servicing the cooling coil.



MODEL	A (mm)
EVO-15R	960
EVO-20R	1060
EVO-30R	1170
EVO-50R	1440
EVO-60R	1560
EVO-80R	1810
EVO-95R	1910
EVO-120R	2060
EVO-150R	2310

Fig. 95

1. Apply sealing strip to the surface where the module will be connected with the device (Fig. 96)

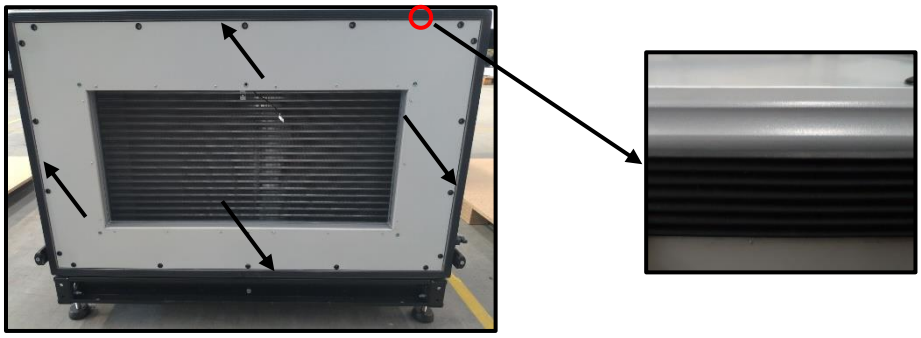


Fig. 96

2. Bring the module and device (or heater module) closer together to connect the sensor connection of the DX coil module.

a. Remove the temperature sensor connection from the unit supply line (if the heater module is not available) or heating module. If the cooling module is to be connected directly to the device, connect the device connector and the cooling module connector each other (Fig. 97)

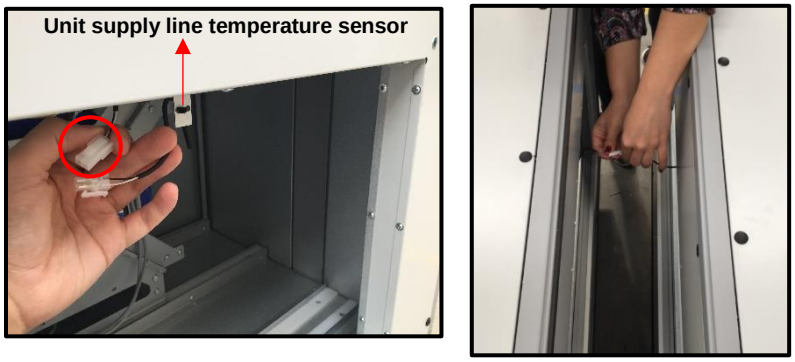


Fig. 97

b. If the DX cooling module is to be connected after the electrical/water heater, use the connection cable shown below to connect the heater module connector and the cooler module connector each other. (Fig. 98)

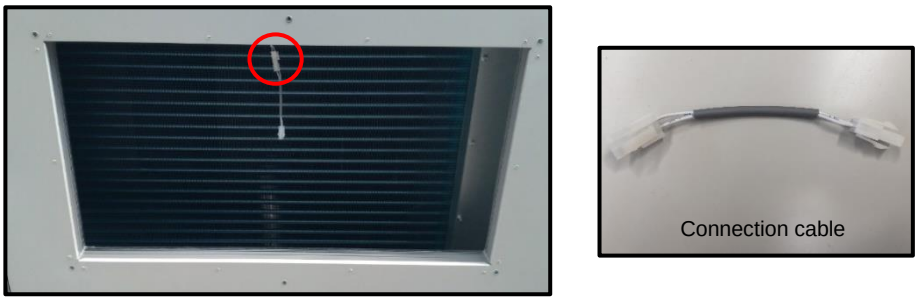


Fig. 98

3. Tighten the bolt. (Fig. 99)

Fig. 99

4. Fit the elbow pipe to the pipe under the condensation pan. Make sure it is water tight by turning connection part on the pipe (Fig. 100)

Fig. 100

5. Install the DX coil pipe connections (Use contra tightening method to prevent any damage to the piping system)

7.7.3 Service and maintenance of DX coil

DANGER ⚠ **RISK OF INJURY! Make sure that the power connection is disconnected, and fan is not moving before doing any work on the device**

- It is recommended to clean condensate tray every 6 months.

1. Unlock the lock and turn the handles counter clock-wise direction for opening doors (Fig. 101)

Fig. 101

2. Clean condensate tray with a cloth (Fig. 102)

Fig. 102

- It is recommended to check the DX coil for contamination every 6 months.
- The DX coil must be inspected regularly for dirt and dust deposits. If there are dirt and dust deposits on the DX coil, these can be removed, using the water.
- The cleaning can be made with cold water. Household cleaners are allowed.
- Do not bend the fins!

- When cleaning take care that the DX coil is not damaged, neither mechanically nor chemically.

Allow DX coil to dry before installation!

1. Remove the sheet metal parts. (Fig. 103)

Fig. 103

2. Remove the service panel carefully (Fig. 104)

Fig. 104

3. Remove the DX coil carefully (Fig. 105)

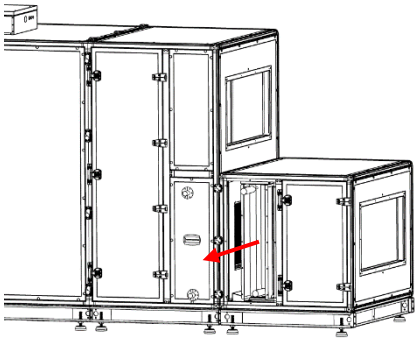


Fig. 105

7.8 Cooling coil water

7.8.1 Functional description of cooling coil water

Cooling coils can not be integrated inside the unit as they are external accessories. Externally module cooling coils (accessory-not included in scope of delivery) are used for such purposes as lowering the blowing temperature and dehumidifying the air in the units. It can be driven either proportionally or by on / off method.

- Cooling coil water capacities and weights can be seen below.

Model	Cooling capacity 7/12°C (Fluid inlet/outlet temperature)	Weight (kg)
EVO-15R	6 kW	150
EVO-20R	9,5 kW	165
EVO-30R	12,9 kW	180
EVO-50R	19,2 kW	210
EVO-60R	23,8 kW	225
EVO-80R	38,8 kW	250
EVO-95R	46,5 kW	265
EVO-120R	60,8 kW	270
EVO-150R	69,3 kW	290

- Cooling coil water module dimensions can be seen below. (Fig. 106)

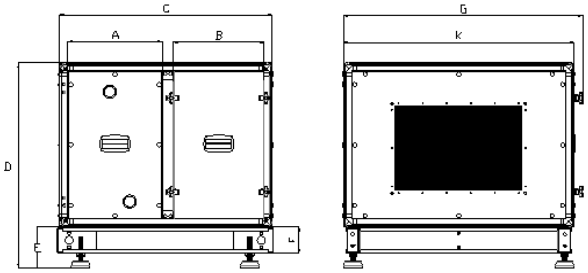


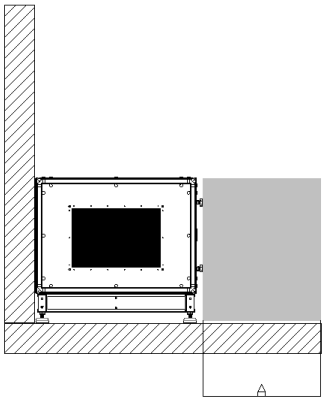
Fig. 106

	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	K (mm)	Coil inlet/outlet pipe diameter (inch)
EVO-15R	500	350	1000	675	155	100	820	760	1/2
EVO-20R	500	350	1000	735	155	100	920	860	3/4
EVO-30R	500	350	1000	830	155	100	1030	970	1
EVO-50R	500	450	1100	935	155	100	1300	1240	1 1/4
EVO-60R	500	450	1100	985	155	100	1420	1360	1 1/4
EVO-80R	500	450	1100	1105	155	100	1670	1610	1 1/2
EVO-95R	500	450	1100	1155	155	100	1770	1710	2
EVO-120R	500	450	1100	1235	155	100	1920	1860	2
EVO-150R	500	450	1100	1355	155	100	2170	2110	2

Assembly area

Observe the following criteria during installation to ensure that the module service is comfortable. (Fig.107)

A is the minimum distance for servicing the cooling coil.



MODEL	A (mm)
EVO-15R	960
EVO-20R	1060
EVO-30R	1170
EVO-50R	1440
EVO-60R	1560
EVO-80R	1810
EVO-95R	1910
EVO-120R	2060
EVO-150R	2310

Fig. 107

7.8.2 Installation of cooling coil water

DANGER **RISK OF INJURY! Make sure that the power connection is disconnected, and fan is not moving before doing any work on the device**

- Cooling coil inlet - outlet pipes should be insulated.
- Refer to the electrical diagrams for cooling coil signal connections.
- Danger of electric shock; moving parts (fan) and hot surfaces.

After install the accessory, refer to chapter 4.1 for the commissioning.

1. Apply sealing strip to the surface where the module will be connected with the device (Fig. 108)

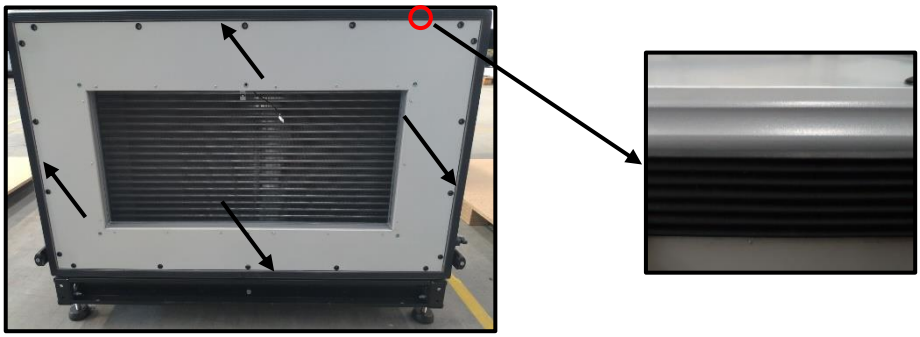


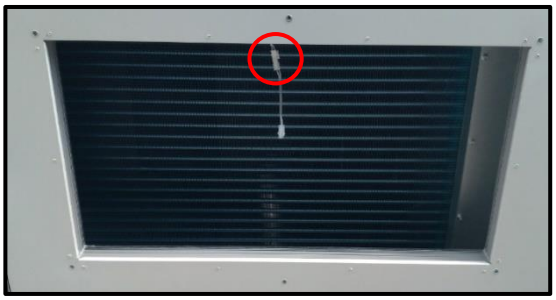
Fig. 108

2. Bring the module and device (or heater module) closer together to connect the sensor connection of the water after heater module.

a. Remove the temperature sensor connection from the unit supply line (if the heater module is not available) or heating module. If the cooling module is to be connected directly to the device, connect the device connector and the cooling module connector each other (Fig. 109)

Fig. 109

b. If the water cooling module is to be connected after the electrical/water heater, use the connection cable shown below to connect the heater module connector and the cooler module connector each other. (Fig. 110)



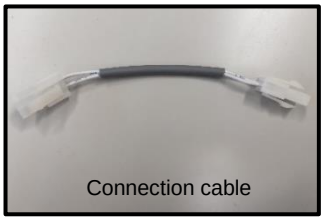


Fig. 110

3. Tighten the bolt. (Fig. 111)

Fig. 111

4. Fit the elbow pipe to the pipe under the condensation pan. Make sure it is water tight by turning connection part on the pipe (Fig. 112)

Fig. 112

5. Install the water coil pipe connections (Use contra tightening method to prevent any damage to the piping system)

7.8.3 Service and maintenance of cooling coil water

DANGER **RISK OF INJURY! Make sure that the power connection is disconnected, and fan is not moving before doing any work on the device**

- It is recommended to clean condensate tray every 6 months.

1. Unlock the lock and turn the handles counter clock-wise direction for opening doors (Fig. 113)

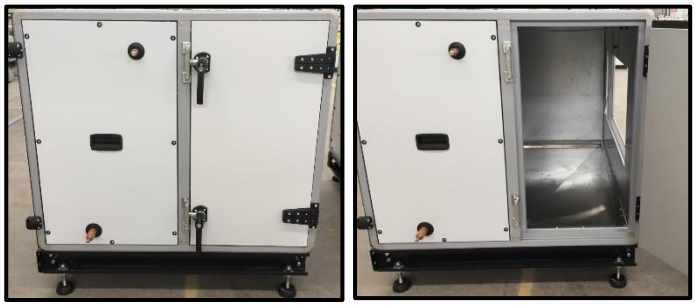


Fig. 113

2. Clean condensate tray with a cloth (Fig. 114)

Fig. 114

It is recommended to check the cooling coil for soiling every 6 months.

The cooling coil must be inspected regularly for dirt and dust deposits. If there are dirt and dust deposits on the cooling coil, these can be removed, using the water.

- The cleaning can be made with cold water. Household cleaners are allowed.

Do not bend the fins!

When cleaning take care that the cooling coil is not damaged, neither mechanically nor chemically.

Allow cooling coil to dry before installation!

1. Remove the sheet metal parts. (Fig. 115)

Fig. 115

2. Remove the service panel carefully (Fig. 116)

Fig. 116

3. Remove the coil carefully (Fig. 117)

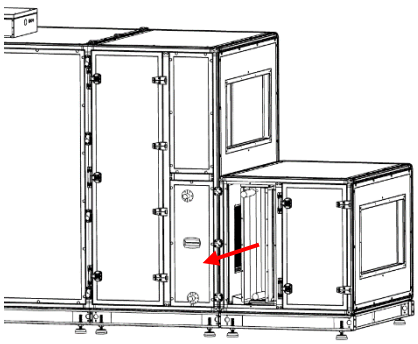


Fig. 117

7.9 Weather roof

7.9.1 Functional description of weather roof

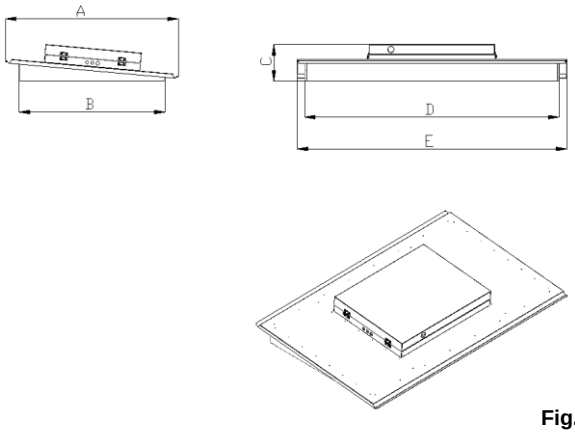
If the device is to be installed the outdoors, it is necessary to use a weather roof. Weather roof protects the device against weather conditions such as rain and snow.

- Weather roof delivery includes all sheet metal parts, sealing, screws and silicone
- Weather roofs are shipped on pallets (Fig. 118)

Fig.118

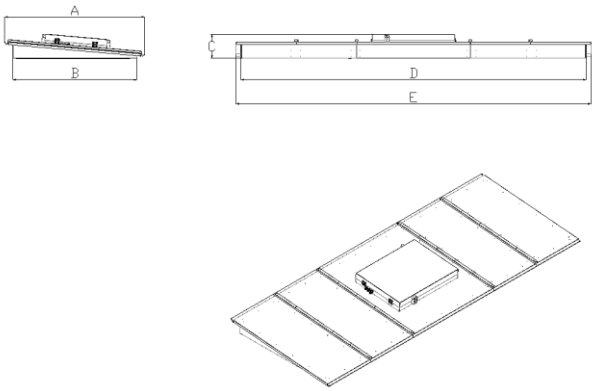
- Weather roof dimensions can be seen below.

Non-dividable unit weather roof (EVO-15R/ 20R/ 30R) (Fig. 119)
Dividable unit weather roof (EVO-50R/ 60R/ 80R/ 95R/ 120R/ 150R) (Fig. 120)
Dividable unit weather roof with recirculation damper (EVO-50R/ 60R/ 80R/ 95R/ 120R/ 150R) (Fig. 121)



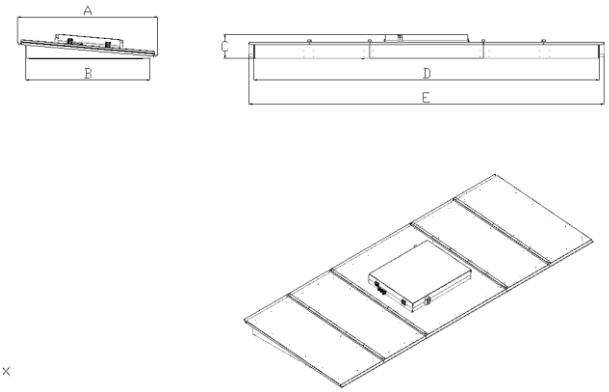
Non-dividable unit weather roof					
	A (mm)	**B (mm)**	**C (mm)**	**D (mm)**	**E (mm)**
EVO-15R	910	760	230	1700	1800
EVO-20R	1010	860	240	1700	1800
EVO-30R	1120	970	240	1700	1800

Fig. 119



Dividable unit weather roof					
	A (mm)	**B (mm)**	**C (mm)**	**D (mm)**	**E (mm)**
EVO-50R	1390	1240	250	1850	1950
EVO-60R	1510	1360	250	2000	2100
EVO-80R	1760	1610	260	2250	2350
EVO-95R	1860	1710	270	2800	2900
EVO-120R	2010	1860	280	3000	3100
EVO-150R	2260	2110	290	3150	3250

Fig. 120



Dividable unit weather roof with recirculation damper					
	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
EVO-50R	1390	1240	250	2330	2430
EVO-60R	1510	1360	250	2480	2580
EVO-80R	1760	1610	260	2730	2830
EVO-95R	1860	1710	270	3280	3380
EVO-120R	2010	1860	280	3480	3580
EVO-150R	2260	2110	290	3630	3730

Fig. 121

- Weather roof weights and unit IP class with weather roof can be seen below.

	Weight (kg)	Unit IP Class with weather roof
EVO-15R	50	IP 54
EVO-20R	65	IP 54
EVO-30R	70	IP 54
EVO-50R	85	IP 54
EVO-60R	100	IP 54
EVO-80R	115	IP 54
EVO-95R	130	IP 54
EVO-120R	160	IP 54
EVO-150R	190	IP 54

7.9.2 Installation of weather roof

DANGER **RISK OF INJURY! Make sure that the power connection is disconnected, and fan is not moving before doing any work on the device**

- Make sure that the weather roof inclination is in the service direction for easy service to terminal box.

7.8.2.1 Installation of EVO-15R-20R-30R weather roof

1. Make sure that the unit modules are assembled correctly.

2. Apply the gasket on the top of the unit (Fig. 122)

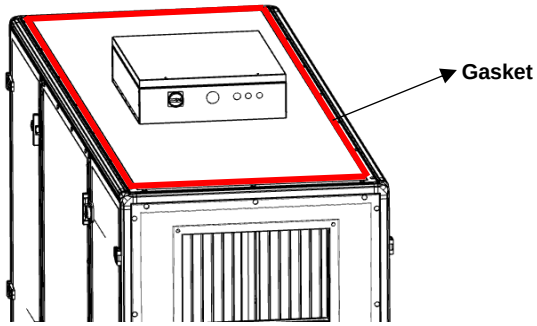


Fig. 122

3. Place the frame assembly on the unit. Make sure that these parts are at the same level with the unit's vertical panels (Fig. 123)

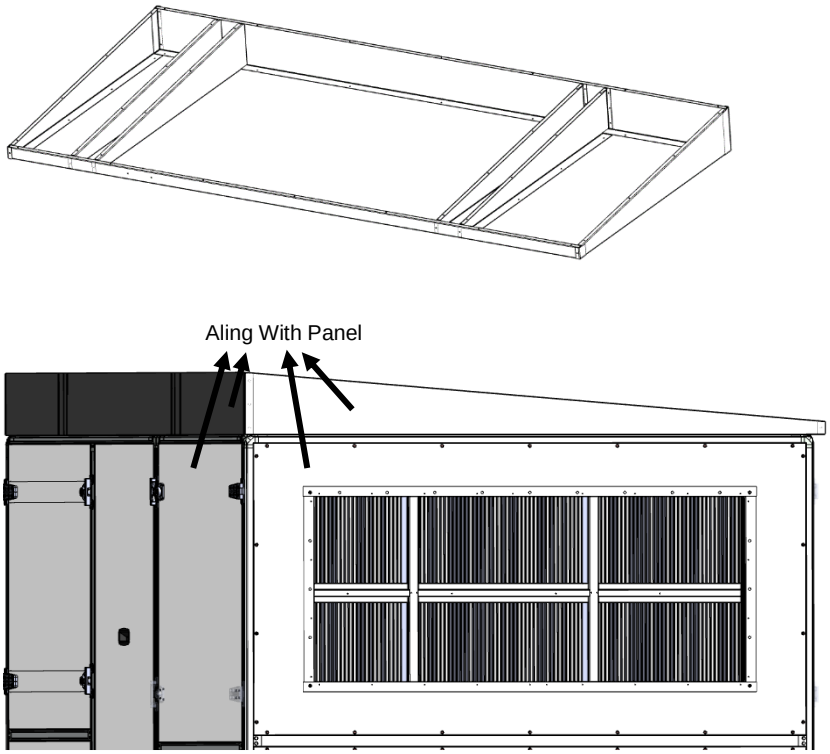


Fig. 123

4. Place the weather roof top sheets to top of the assembly, and screw in the opened holes (Fig. 124)

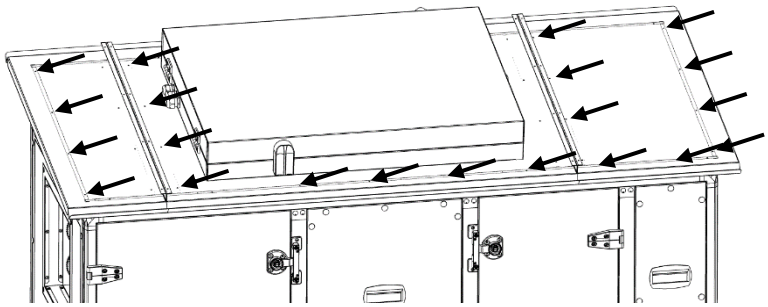


Fig. 124

5. Place weather roof sealing pieces on the assembly, and screw in the holes that as shown (Fig. 120)

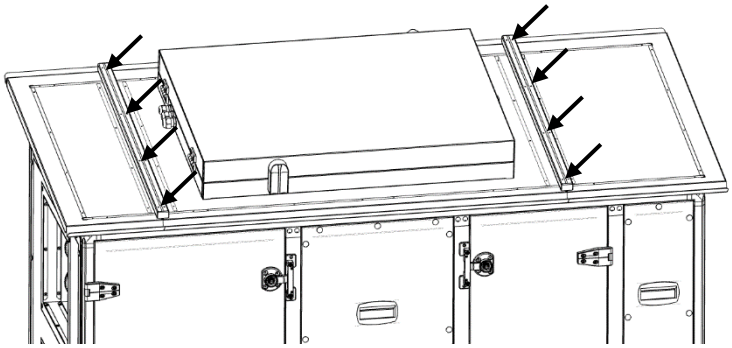


Fig. 125

6. Apply the silicone to edge of the electrical box (Fig. 126)

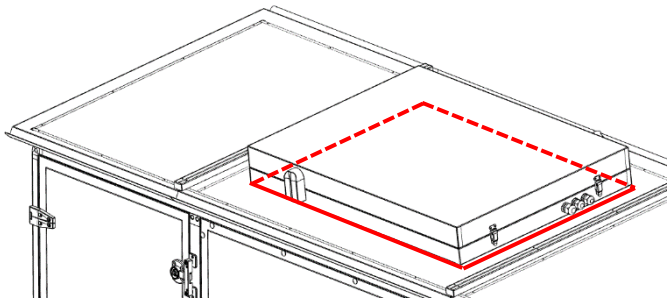


Fig. 126

7.9.2.2 Installation of EVO-50R-60R-80R-95R-120R-150R weather roof

1. Make sure that the unit modules are assembled correctly.

2. Apply the gasket on the top of the unit (Fig. 127)

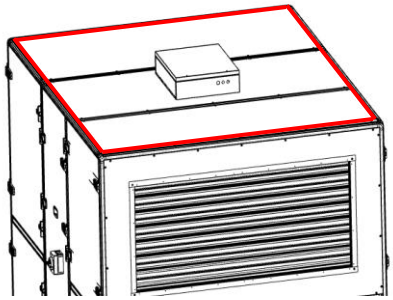


Fig. 127

3. Place the weather roof base frames according to the labels (Fig. 128)

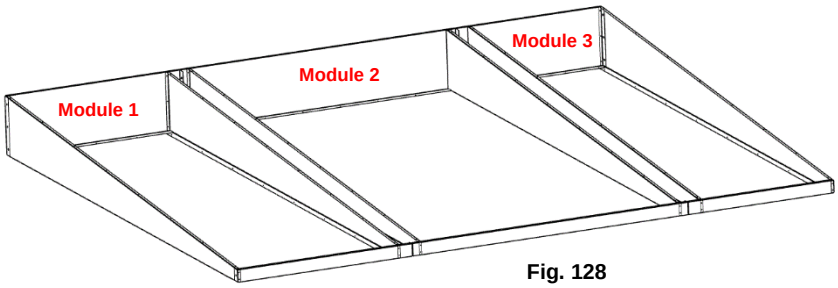


Fig. 128

4. Fix the weather roof base frames to each other using bolts (Fig. 129)

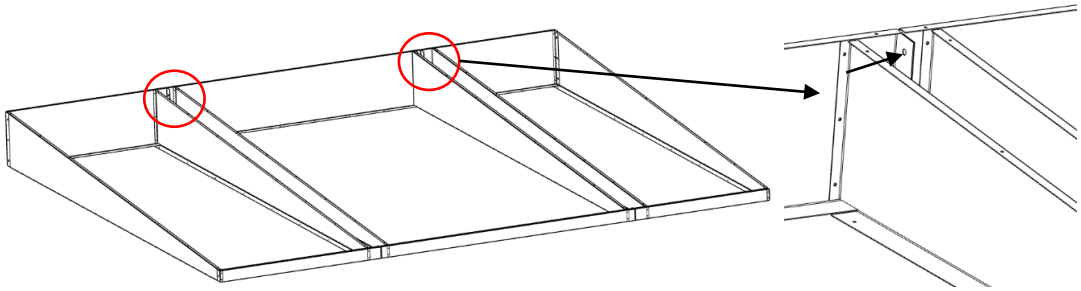


Fig. 129

5. Place the frame assembly on the unit. Make sure that these parts are at the same level with the unit's vertical panels (Fig. 130)

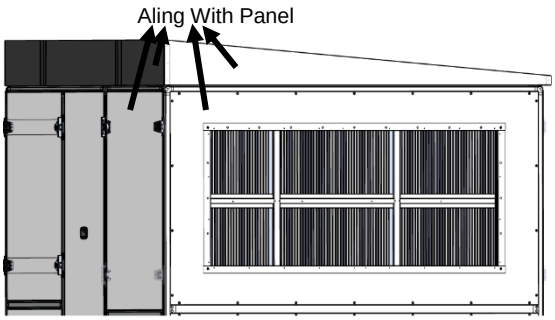


Fig. 130

6. Mount the weather roof assembly to unit with screws from the all holes that as shown (Fig. 131)

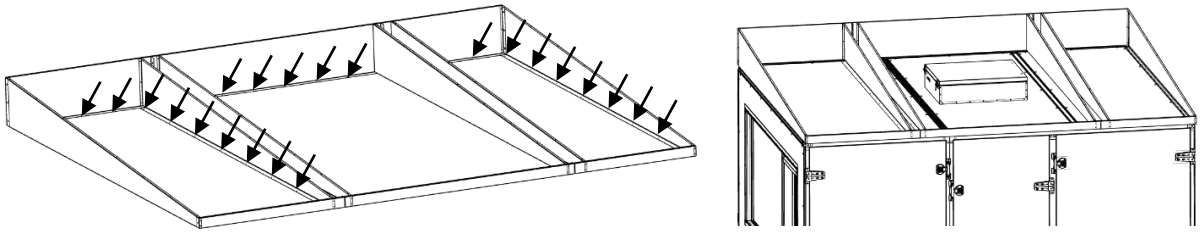


Fig. 131

7. Place the weather roof top sheets to top of the assembly, and screw in the opened holes (Fig. 132).

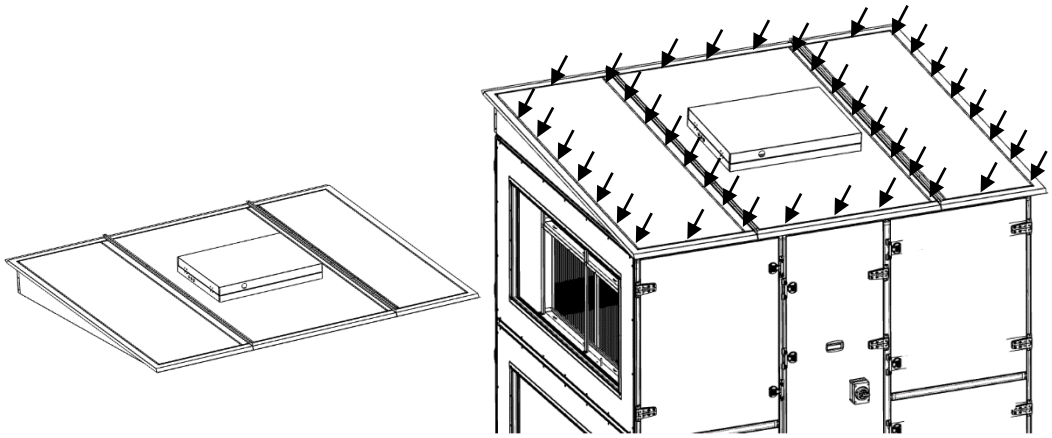


Fig. 132

8. Apply the silicone to edge of the electrical box and connection areas (Fig. 133)

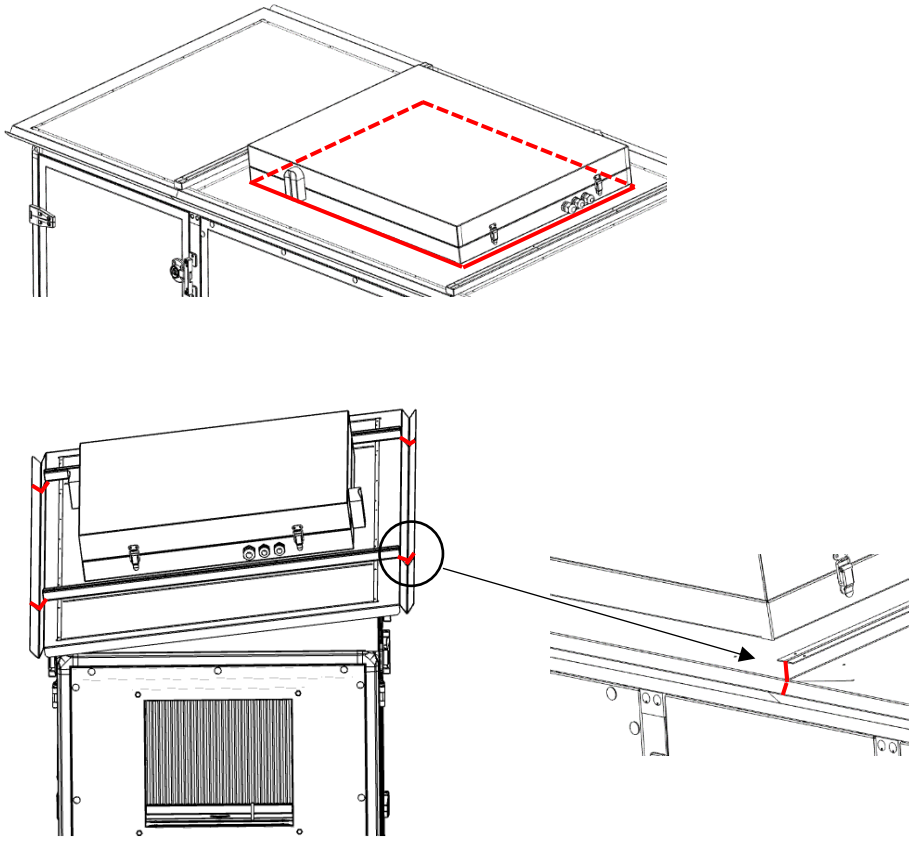


Fig. 133

9. Place weather roof sealing pieces on the assembly, and screw in the holes that as shown (Fig. 134)

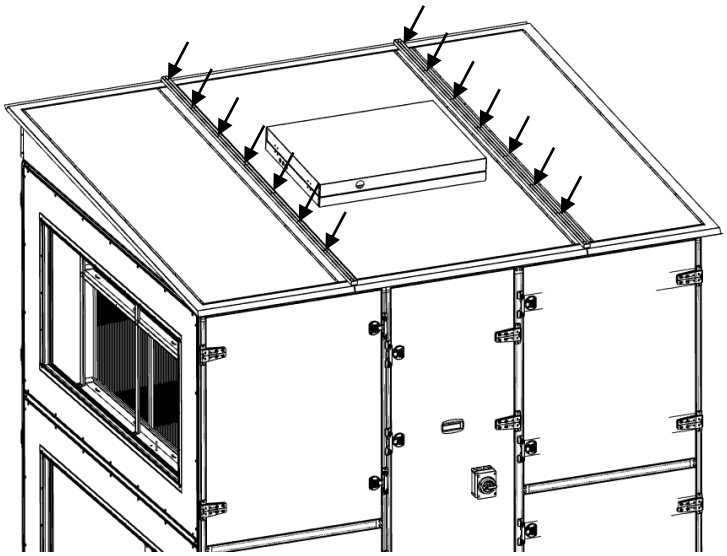


Fig. 134

- There are two hole for main switch cable on the EVO-45R-55R-70R-85R weather roof. (Fig. 135) Remove the sheet metal part from the hole in the service direction so that the main switch cable passes through it.

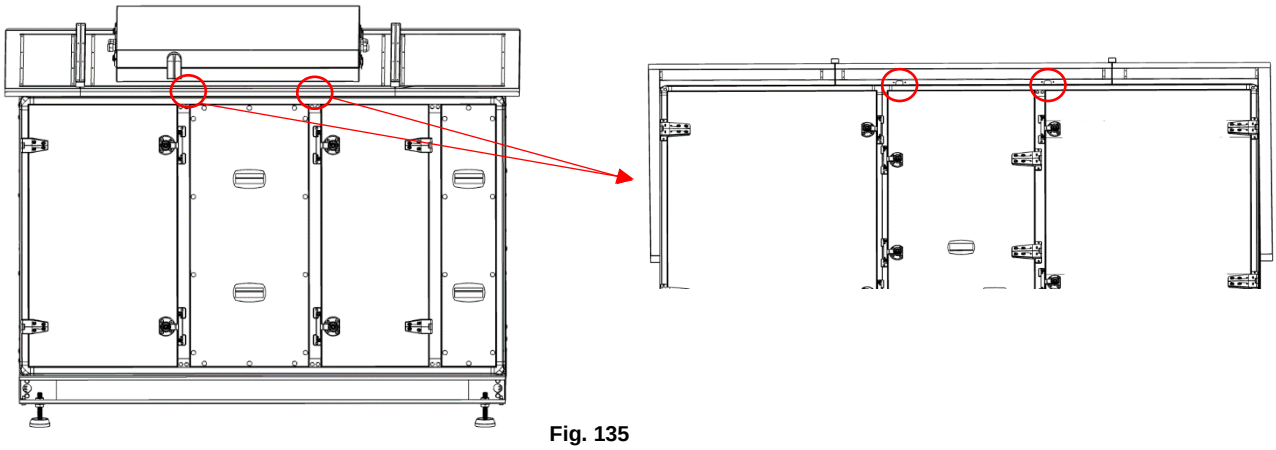


Fig. 135

7.9.3 Service and maintenance of weather roof

It is recommended to check the weather roof for damage every 6 months.

7.10 Module weather roof

7.10.1 Functional description of module weather roof

If the cooling coil module is to be installed the outdoors, it is necessary to use a weather roof. Weather roof protects the module against weather conditions such as rain and snow.

- Weather roof delivery includes all sheet metal parts, sealing, screws and silicone
- DX/water cooling module weather roof dimensions can be seen below. (Fig. 136)
- Electrical/water after heating module weather roof dimensions can be seen below. (Fig. 137)

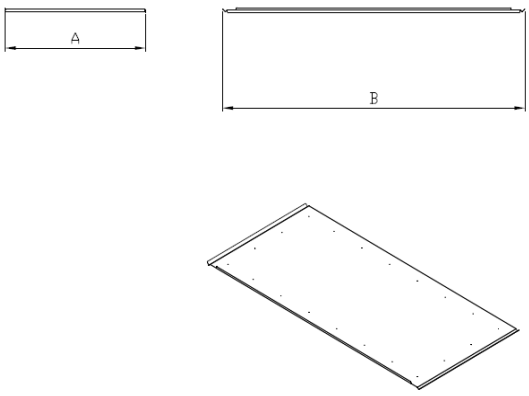
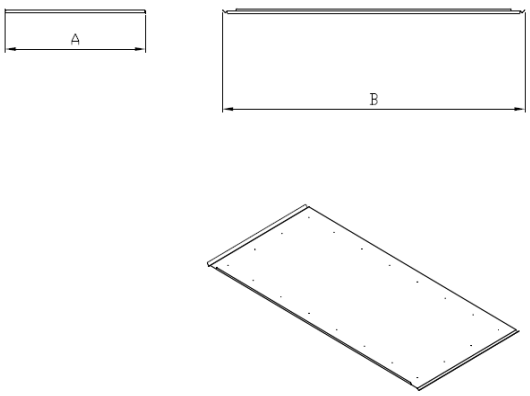


Fig. 136

DX/water cooling module weather roof		
	A (mm)	B (mm)
EVO-15R	1070	830
EVO-20R	1070	930
EVO-30R	1070	1040
EVO-50R	1170	1310
EVO-60R	1170	1430
EVO-80R	1170	1680
EVO-95R	1170	1780
EVO-120R	1170	1930
EVO-150R	1170	2180



Electrical/water after heating module weather roof		
	A (mm)	B (mm)
EVO-50R	470	1310
EVO-60R	470	1430
EVO-80R	470	1680
EVO-95R	470	1780
EVO-120R	470	1930
EVO-150R	470	2180

Fig. 137

- DX/water cooling module weather roof weights and module IP class with weather roof can be seen below.

	Weight (kg)	Module IP Class with weather roof
EVO-15R	12	IP 54
EVO-20R	14	IP 54
EVO-30R	17	IP 54
EVO-50R	21	IP 54
EVO-60R	25	IP 54
EVO-80R	29	IP 54
EVO-95R	34	IP 54
EVO-120R	40	IP 54
EVO-150R	45	IP 54

- Electrical/water after heating module weather roof weights and module IP class with weather roof can be seen below.

	Weight (kg)	Module IP Class with weather roof
EVO-50R	10	IP 54
EVO-60R	13	IP 54
EVO-80R	16	IP 54
EVO-95R	17	IP 54
EVO-120R	19	IP 54
EVO-150R	21	IP 54

7.10.2 Installation of module weather roof

DANGER **RISK OF INJURY! Make sure that the power connection is disconnected, and fan is not moving before doing any work on the device**

- Apply the gasket on the top of the module (Fig. 138)
- Place the weather roof on the module, and screw (4,8x19) in the all holes that as shown below. (Fig. 139)

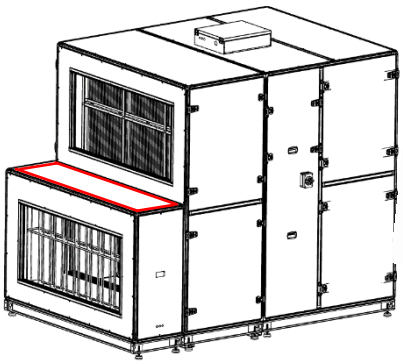


Fig. 138

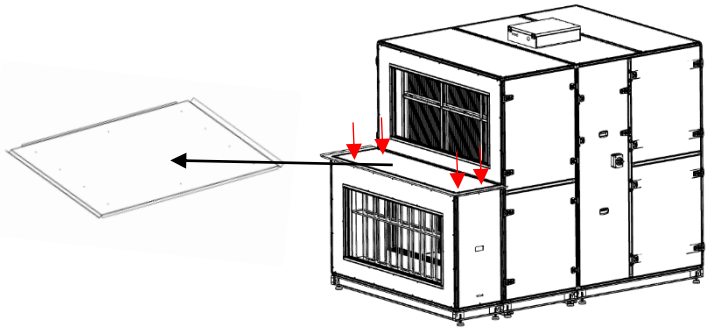


Fig. 139

7.10.3 Service and maintenance of module weather roof

It is recommended to check the weather roof for damage every 6 months.

7.11 Outdoor – exhaust air spigot

7.11.1 Functional description of outdoor – exhaust air spigot

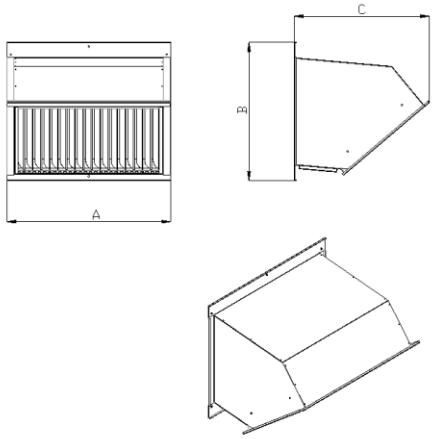
Outdoor and exhaust spigots are used to prevent entering the bird, waste etc. into the device. Outdoor spigot has droplet eliminator. Thus, water droplets are prevented from entering the device.

- Please refer to chapter 2.1.4 for more information about connection diameters

- Please refer to chapter 7.13 for more information about adapters rectangular to round

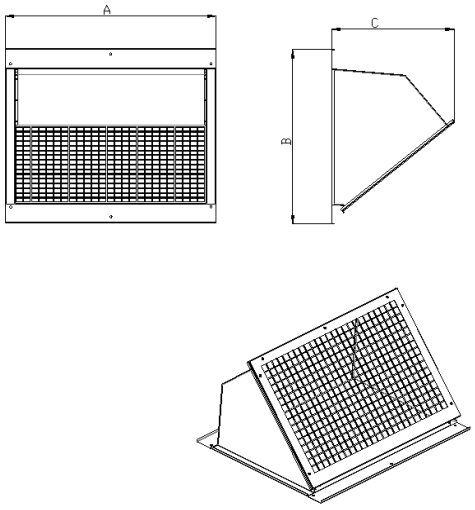
- Please refer to chapter 7.14 for more information about flexible connectors

Outdoor and exhaust spigot dimensions and weights can be seen below



Outdoor spigot (Fig. 140)				
	A (mm)	B (mm)	C (mm)	Weight (kg)
EVO-15R	410	370	530	17
EVO-20R	530	370	530	19
EVO-30R	640	430	530	20
EVO-50R	915	530	530	25
EVO-60R	915	530	530	25
EVO-80R	1115	530	530	28
EVO-95R	1260	530	530	30
EVO-120R	1535	630	530	35
EVO-150R	1660	630	530	40

Fig. 140



Exhaust spigot (Fig. 141)				
	A (mm)	B (mm)	C (mm)	Weight (kg)
EVO-15R	410	370	375	8
EVO-20R	530	370	375	9
EVO-30R	640	430	375	10
EVO-50R	915	530	375	15
EVO-60R	915	530	375	15
EVO-80R	1115	530	375	18
EVO-95R	1260	530	375	20
EVO-120R	1535	630	375	25
EVO-150R	1660	630	375	30

Fig. 141

7.11.2 Installation of outdoor – exhaust air spigot

DANGER **RISK OF INJURY! Make sure that the power connection is disconnected, and fan is not moving before doing any work on the device**

ATTENTION Short circuit between outdoor air and exhaust air has to be avoided.

1. Apply sealing strip on the sealing surface of the spigot (Fig. 142)

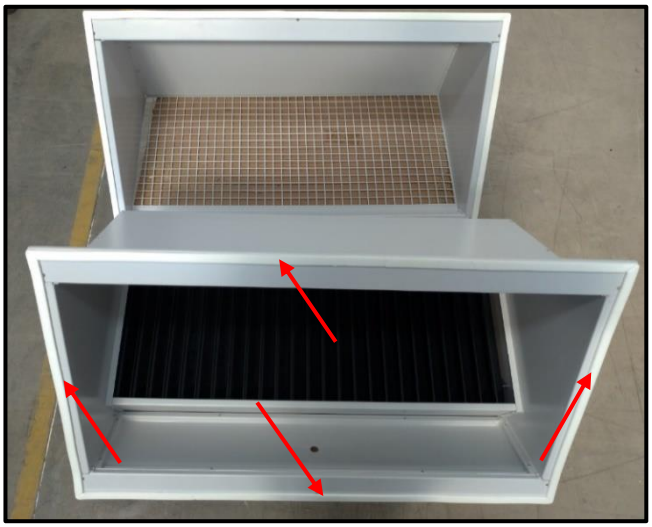


Fig. 142

2. Connect the spigot to the device from the corners with M8x16 bolts. (Fig. 143)

- In EVO-30R/50R/60R/80R/95R/120R/150R models, after connection the bolts, attach to the clamp shown below to fixing the spigot. (refer to chapter 2.1.4 for more information about clamp holes quantity)

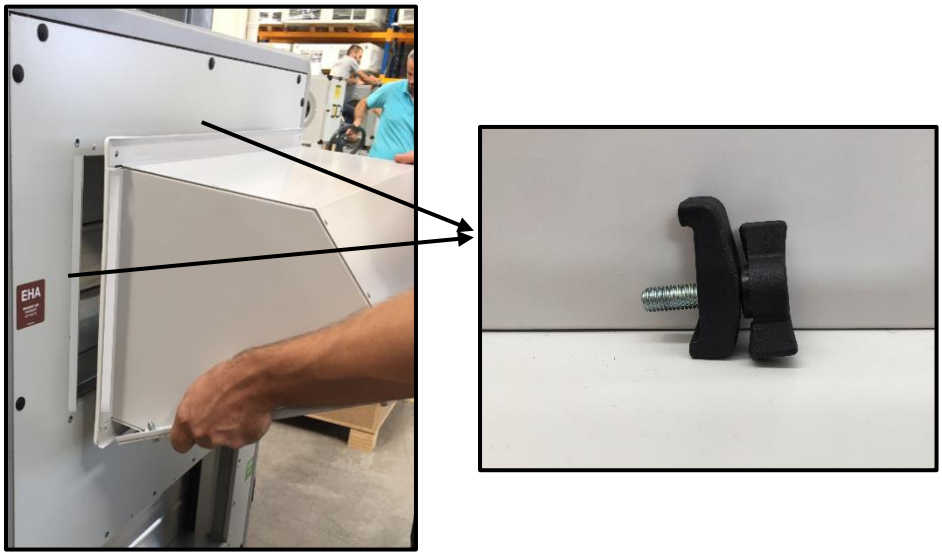


Fig. 143

7.11.3 Service and maintenance of outdoor – exhaust air spigot

It is recommended to check the spigots for damage every 6 months. (Outdoor air spigot has droplet eliminator. Make sure that droplet eliminator parts properly installed)

7.12 E-box heater

7.12.1 Functional description of e-box heater

E-box heater prevent the temperature of the e-box from reaching freezing conditions in extreme cold climates.

The heater has its own thermostat. E-box heater is activated when the e-box temperature falls below 0°C.

	EVO-15R	EVO-20R	EVO-30R	EVO-50R	EVO-60R	EVO-80R	EVO-95R	EVO-120R	EVO-150R
Ambient Temperature (°C)	0 / 50	0 / 50	0 / 50	0 / 50	0 / 50	0 / 50	0 / 50	0 / 50	0 / 50
Ambient Temperature with e-box heater (°C)	-20 / 50	-20 / 40	-20 / 50	-20 / 50	-20 / 40	-20 / 50	-20 / 50	-20 / 40	-20 / 40

7.12.2 Installation of e-box heater

DANGER **RISK OF INJURY! Make sure that the power connection is disconnected, and fan is not moving before doing any work on the device**

WARNING Danger of electric shock!

After install the accessory, refer to chapter 4.1 for the commissioning.

1. Open the e-box cover

2. Mount the e-box heater on the rail shown in the illustration (Fig. 144)

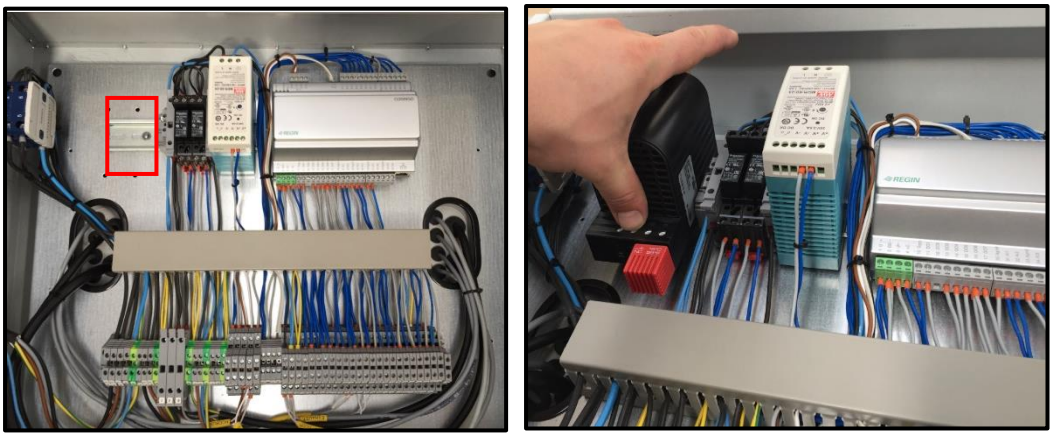


Fig. 144

3. Connect the e-box heater cable with the heater (Fig. 145)

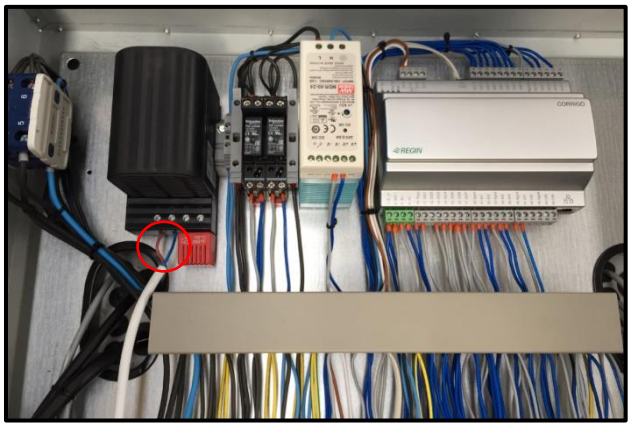


Fig. 145

4. Connect the other end of the cable to the marked terminals in the terminal box (refer to chapter 8 for connections) (Fig. 146)

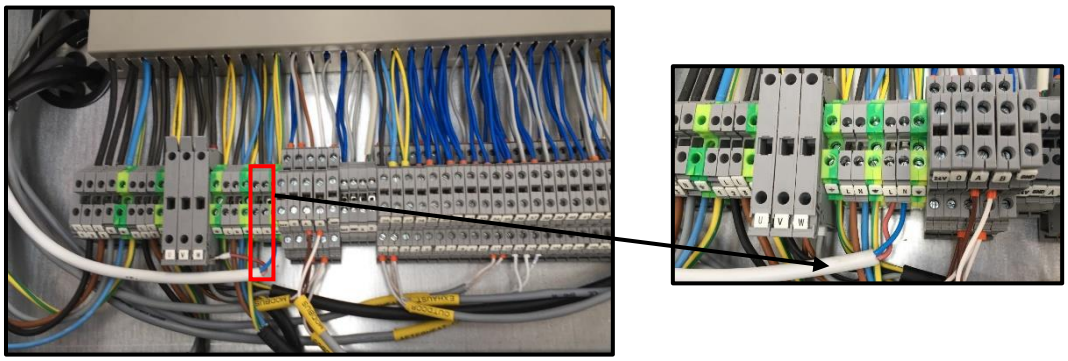


Fig. 146

7.13 Adapter rectangular-round

7.13.1 Functional description of adapter rectangular-round

If a round duct is to be connected to the device, the adapter rectangular to round duct must be used.

7.13.2 Installation of adapter rectangular-round

DANGER **RISK OF INJURY! Make sure that the power connection is disconnected, and fan is not moving before doing any work on the device**

Make sure that a gasket is applied between the adapter and the device (Fig. 156)

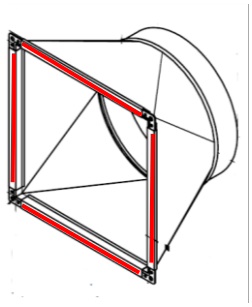


Fig. 156

- Connect the adapter to the outlets of the device with the M8X16 bolt (Fig. 157)

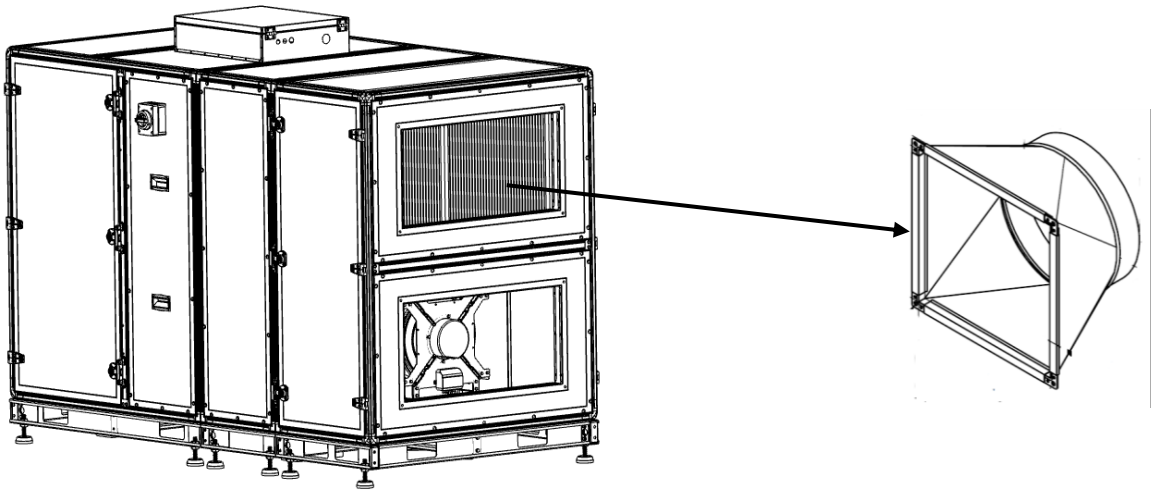


Fig. 157

7.13.3 Service and maintenance of adapter rectangular-round

- Check two or three representative locations on inner air duct surface for contamination, corrosion and, condensation every 12 months.
- Check accessible air duct sections for damage every 12 months.

7.14 Flexible connection

7.14.1 Functional description of flexible connection

Flexible connections prevent vibration transmissions from unit to air duct.

7.14.2 Installation of flexible connection

DANGER **RISK OF INJURY! Make sure that the power connection is disconnected, and fan is not moving before doing any work on the device**

- Connect the flexible connections to the outlets of the device with the M8X16 bolt.

7.14.3 Service and maintenance of flexible connection

Check two or three representative locations on inner air duct surface for contamination, corrosion and, condensation every 12 months.

Check accessible air duct sections for damage every 12 months.

7.15 CAP-modus (Pressure transmitter)

7.15.1 Functional description of CAP-modus

This mode is used for controlling fans with constant air pressure in air duct via pressure transmitter. If constant pressure is selected, the duct pressure setpoint can be defined for the supply air fan. Exhaust air fan follows the supply air fan with the same flow rate.

7.15.2 Installation of CAP-modus

DANGER **Make sure that the power connection is disconnected before doing any work on the device.**

After install the accessory, refer to chapter 4.1 for the commissioning.

1. To operate the device in CAP mode, mount the pressure transmitter modus in the duct.

2. Make the electrical connections between the pressure transmitter modus and the device electrical box. (refer chapter 8 for electrical connections)

7.16 CO2 duct sensors

7.16.1 Functional description of CO2 duct sensors

CO2 sensors measure the amount of CO2 in the extract air duct. Sensor works 0-2000rpm range

7.16.2 Installation of CO2 duct sensors

DANGER **Make sure that the power connection is disconnected before doing any work on the device.**

After install the accessory, refer to chapter 4.1 for the commissioning.

1. Mount the CO2 sensor in a duct.

2. Make the electrical connections between the CO2 sensor and device electrical box. (refer chapter 8 for electrical connections)

7.17 CO2 room sensors

7.17.1 Functional description of CO2 room sensors

CO2 sensors measure the amount of CO2 in the room or environment. Sensor works 0-2000rpm range

7.17.2 Installation of CO2 room sensors

DANGER **Make sure that the power connection is disconnected before doing any work on the device.**

After install the accessory, refer to chapter 4.1 for the commissioning.

1. Mount the CO2 sensor in a suitable place in the room.

2. Make the electrical connections between the CO2 sensor and device electrical box. (refer chapter 8 for electrical connections)

7.18 VOC room sensors

7.18.1 Functional description of VOC room sensors

VOC sensors measure the amount of organic compounds that are vapor at room temperature in the room or environment.

7.18.2 Installation of VOC room sensors

DANGER **Make sure that the power connection is disconnected before doing any work on the device.**

After install the accessory, refer to chapter 4.1 for the commissioning.

1. Mount the VOC sensor in a suitable place in the room.

2. Make the electrical connections between the VOC sensor and device electrical box. (refer chapter 8 for electrical connections)

7.19 FTF room sensors

7.19.1 Functional description of FTF room sensors

FTF sensors measure the temperature and humidity in the room or environment.

7.19.2 Installation of FTF room sensors

DANGER **Make sure that the power connection is disconnected before doing any work on the device.**

After install the accessory, refer to chapter 4.1 for the commissioning.

1. Mount the FTF sensor in a suitable place in the room.

2. Make the electrical connections between the FTF sensor and device electrical box. (refer chapter 8 for electrical connections)

7.20 Signal converter

7.20.1 Functional description of signal converter

Standard PLC has 3 analog input. If there are more than 3 sensors signal converter should be used. Signal converter has 6 analog inputs (Up to 6 sensors can be connected) The module selects the highest input among the sensors that connected and gives the value to the PLC as one input.

- If several sensors are connected, the current-carrying capacity of the internal power supply unit must be considered.

7.20.2 Installation of signal converter

DANGER **Make sure that the power connection is disconnected before doing any work on the device.**

After install the accessory, refer to chapter 4.1 for the commissioning.

1. Mount the signal converter suitable place preferably close to sensors.
2. Make the electrical connections between the signal converter and device electrical box. (refer chapter 8 for electrical connections)

7.21 Siphon for cooling module

7.21.1 Functional description of siphon

To ensure the constant water flow, not to allow too much air to enter the drainage, and to prevent water entering into the system, the condensate outlets should be used with siphon.

ATTENTION Existing drainage systems shall not be connected directly to the sewage system.

7.21.2 Installation of siphon

DANGER **Make sure that the power connection is disconnected before doing any work on the device.**

ATTENTION The drainage pipe route must not rise above the siphon!

ATTENTION Use the pipe adapter 32/40mm for siphon – condensation outlet pipe connection. Siphon delivery does not contain condensation pipe adapter 32/40mm.

1. Connect the adapter to the siphon (Fig. 167)

Fig. 167

2. Connect the siphon to the condensation outlet pipe (Fig. 168)

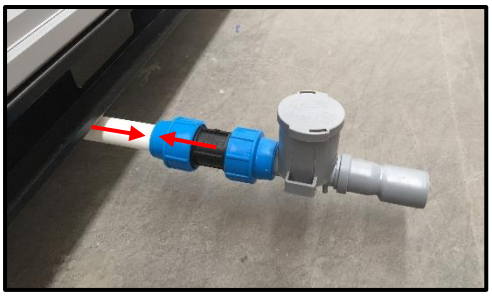


Fig. 168

7.21.3 Service and maintenance of siphon

It is recommended to check the siphon pipes for any contamination and damage every 6 months.

CHAPTER 8

WIRING DIAGRAM OVERVIEW

8.0 EVO-15R wiring diagram

EVO-15R unit wiring diagram (Fig. 169)
EVO-15R control panel wiring diagram (Fig. 170)
EVO-15R accessories wiring diagram (Fig. 171)

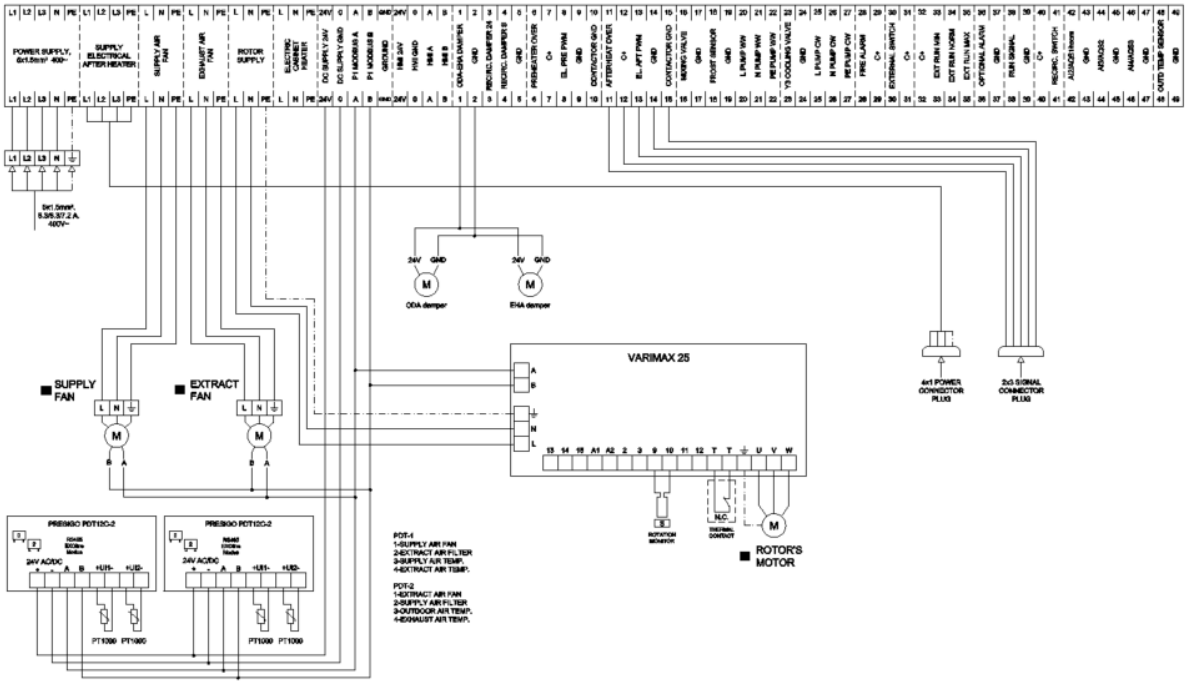


Fig. 169

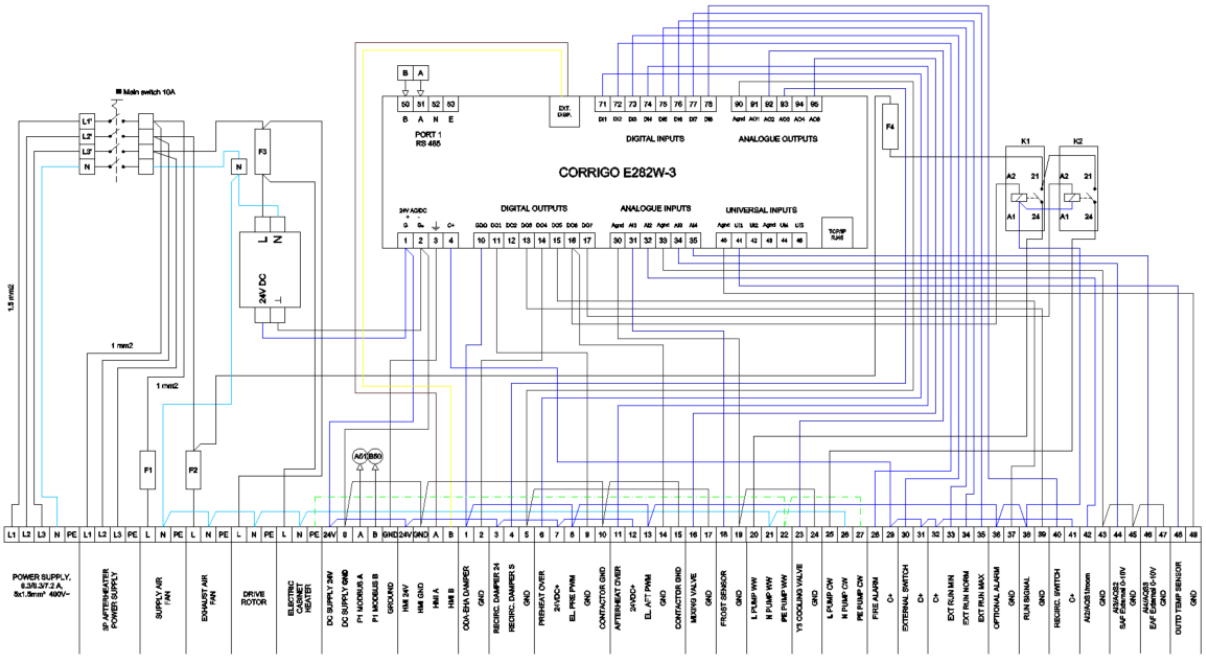


Fig. 170

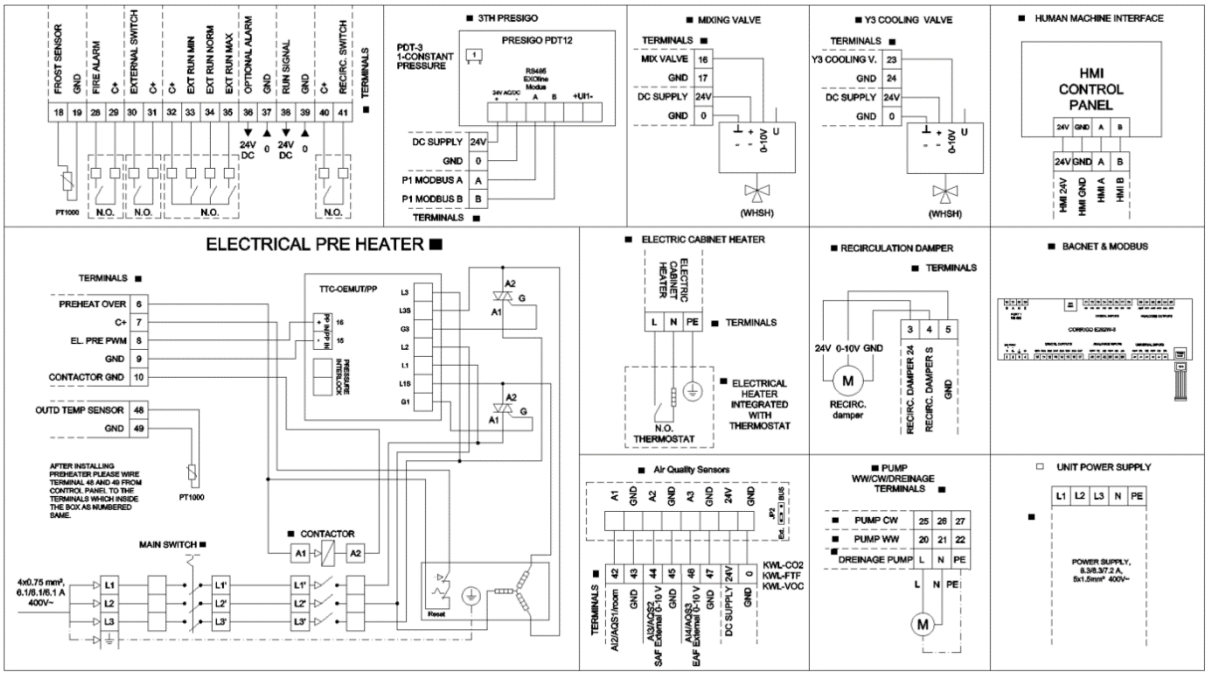


Fig. 171

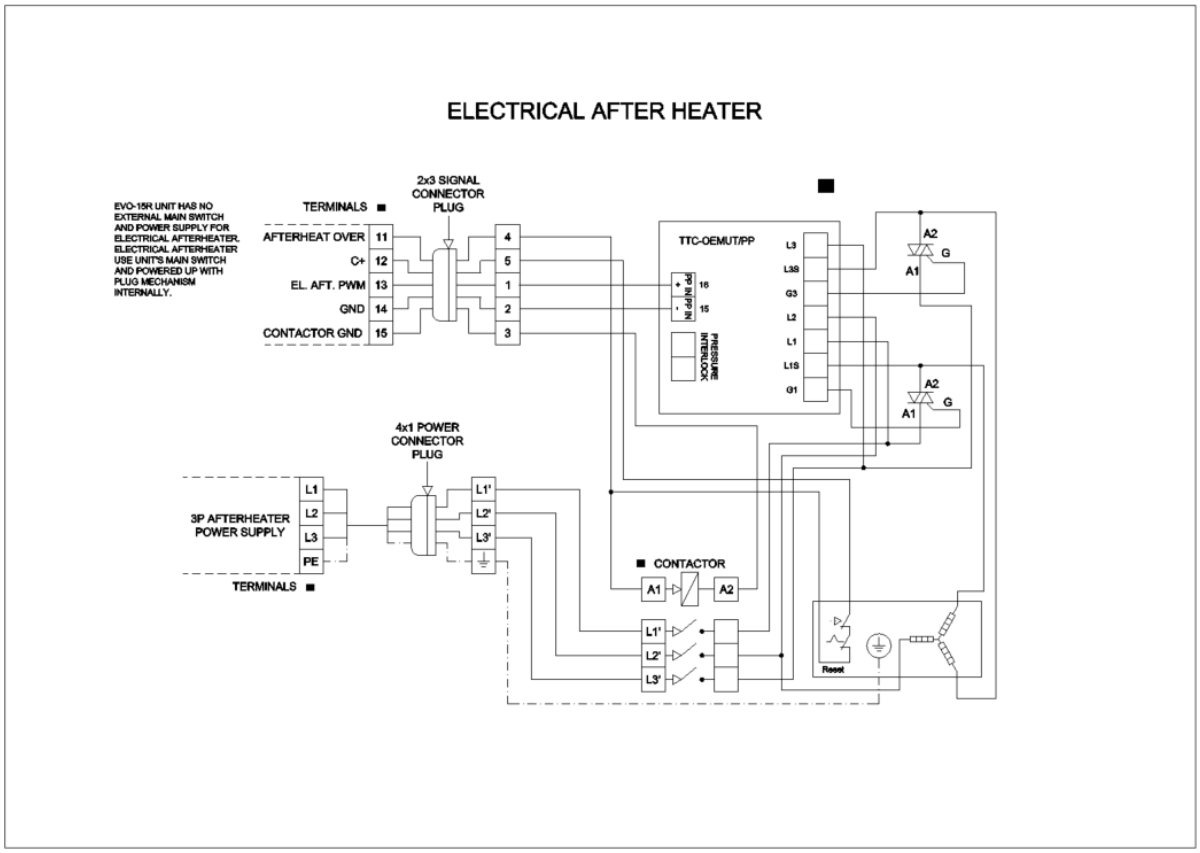

ELECTRICAL AFTER HEATER
EVO-15R UNIT HAS NO EXTERNAL MAIN SWITCH AND POWER SUPPLY FOR ELECTRICAL AFTERHEATER. ELECTRICAL AFTERHEATER USE UNIT'S MAIN SWITCH AND POWERED UP WITH PLUG MECHANISM INTERNALLY.
TERMINALS
AFTERHEAT OVER
C+
EL. AFT. PWM
GND
CONTACTOR GND
11
12
13
14
15
2x3 SIGNAL CONNECTOR PLUG
4
5
1
2
3
TTC-OEMUT/PP
NPN/PNP
16
15
PRESSURE INTERLOCK
L3
L3S
G3
L2
L1
L1S
G1
A2
G
A1
A2
G
A1
4x1 POWER CONNECTOR PLUG
3P AFTERHEATER POWER SUPPLY
L1
L2
L3
PE
TERMINALS
L1'
L2'
L3'
CONTACTOR
A1
A2
L1'
L2'
L3'
Reset

Fig. 171

8.1 EVO-20R wiring diagram

EVO-20R unit wiring diagram (Fig. 172)

EVO-20R control panel wiring diagram (Fig. 173)

EVO-20R accessories wiring diagram (Fig. 174)

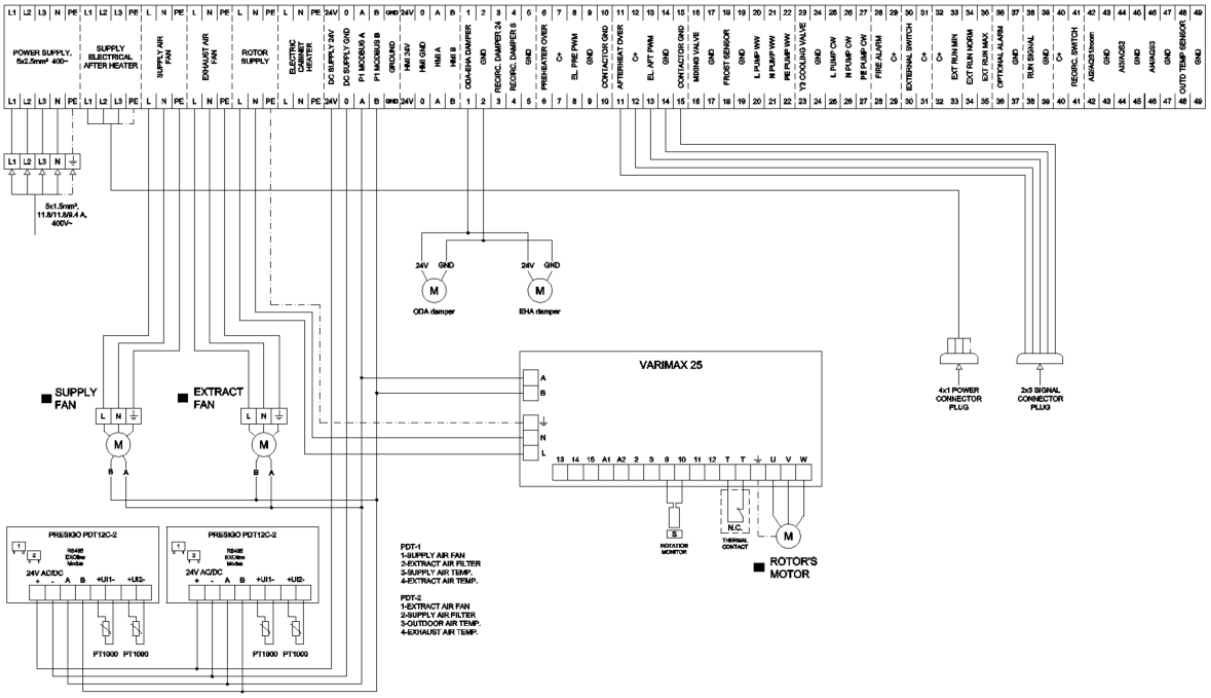


Fig. 172

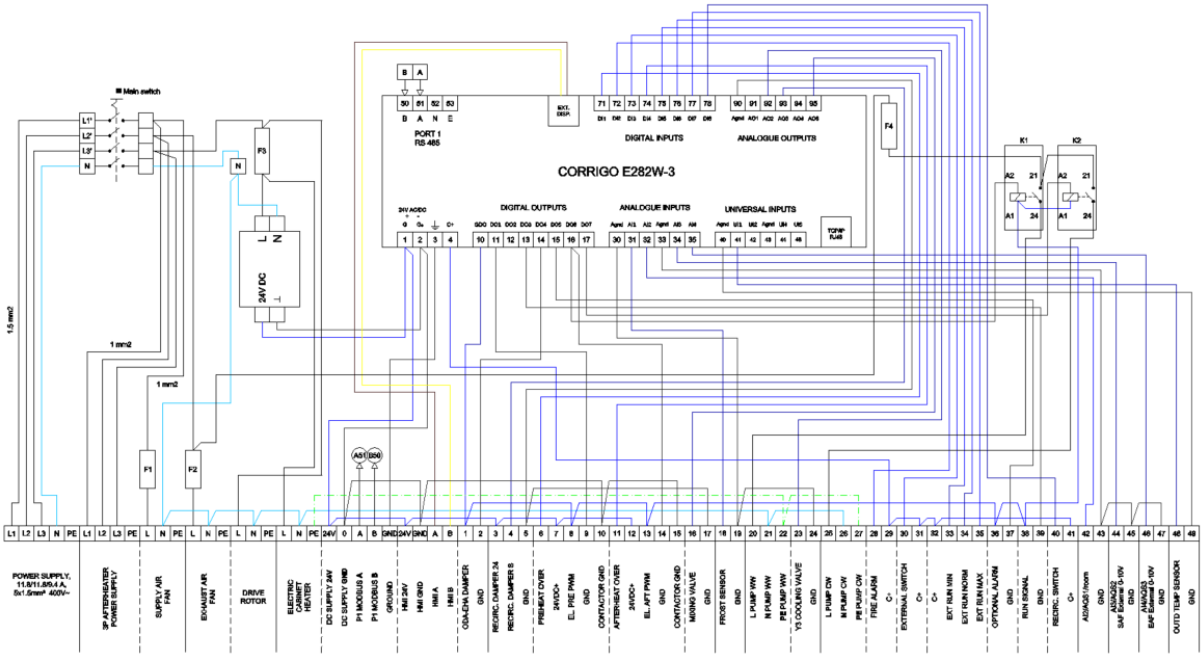


Fig. 173

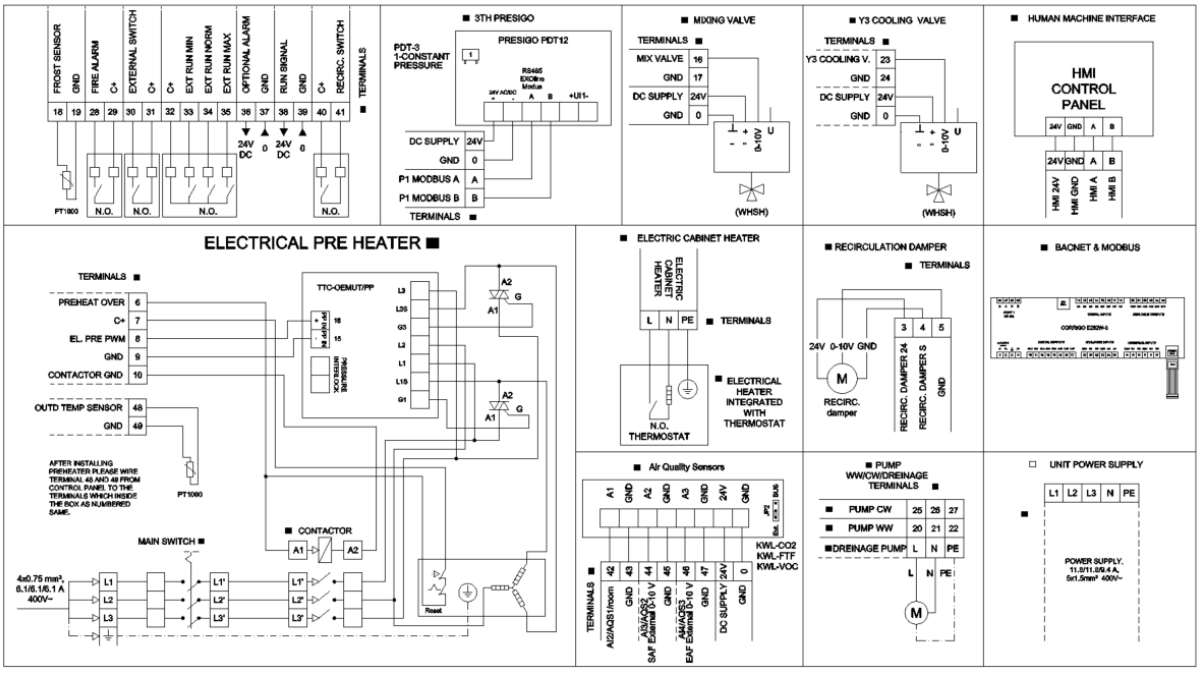


Fig. 174

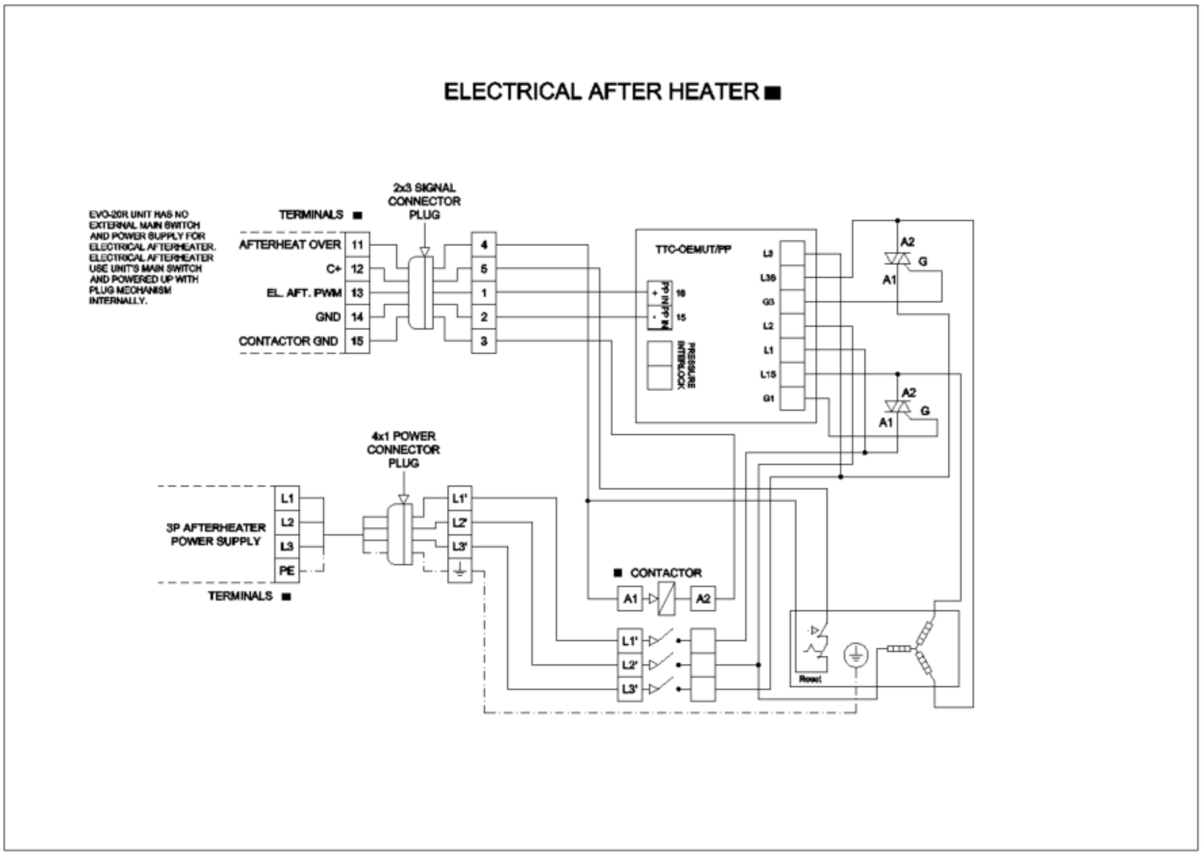

ELECTRICAL AFTER HEATER ■
EVO-20R UNIT HAS NO EXTERNAL MAIN SWITCH AND POWER SUPPLY FOR ELECTRICAL AFTERHEATER. ELECTRICAL AFTERHEATER USE UNIT'S MAIN SWITCH AND POWERED UP WITH PLUG MECHANISM INTERNALLY.
TERMINALS ■
2x3 SIGNAL CONNECTOR PLUG
AFTERHEAT OVER
11
C+
12
EL. AFT. PWM
13
GND
14
CONTACTOR GND
15
4
5
1
2
3
TTC-OEMUT/PP
PRESSURE INTERLOCK
L3
L3S
G3
L2
L1
L1S
G1
A2
G
A1
4x1 POWER CONNECTOR PLUG
3P AFTERHEATER POWER SUPPLY
L1
L2
L3
PE
TERMINALS ■
L1'
L2'
L3'
■ CONTACTOR
A1
A2
Reset

Fig. 174

8.2 EVO-30R wiring diagram

EVO-30R unit wiring diagram (Fig. 175)

EVO-30R control panel wiring diagram (Fig. 176)

EVO-30R accessories wiring diagram (Fig. 177)

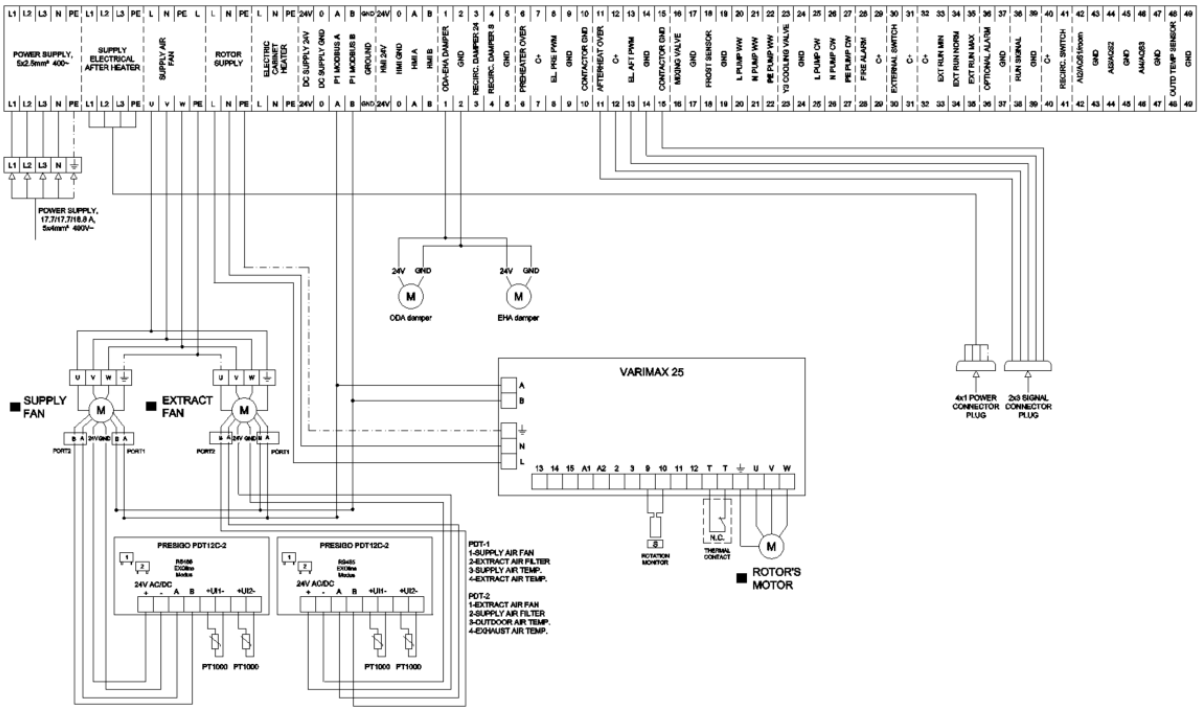


Fig. 175

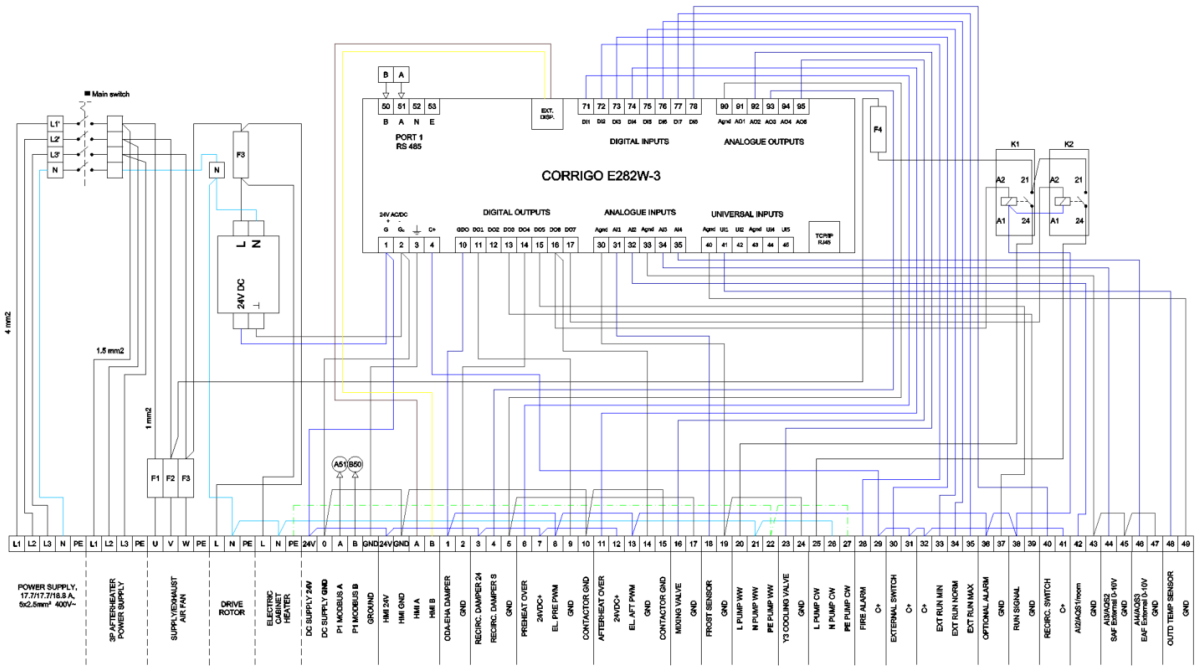


Fig. 176

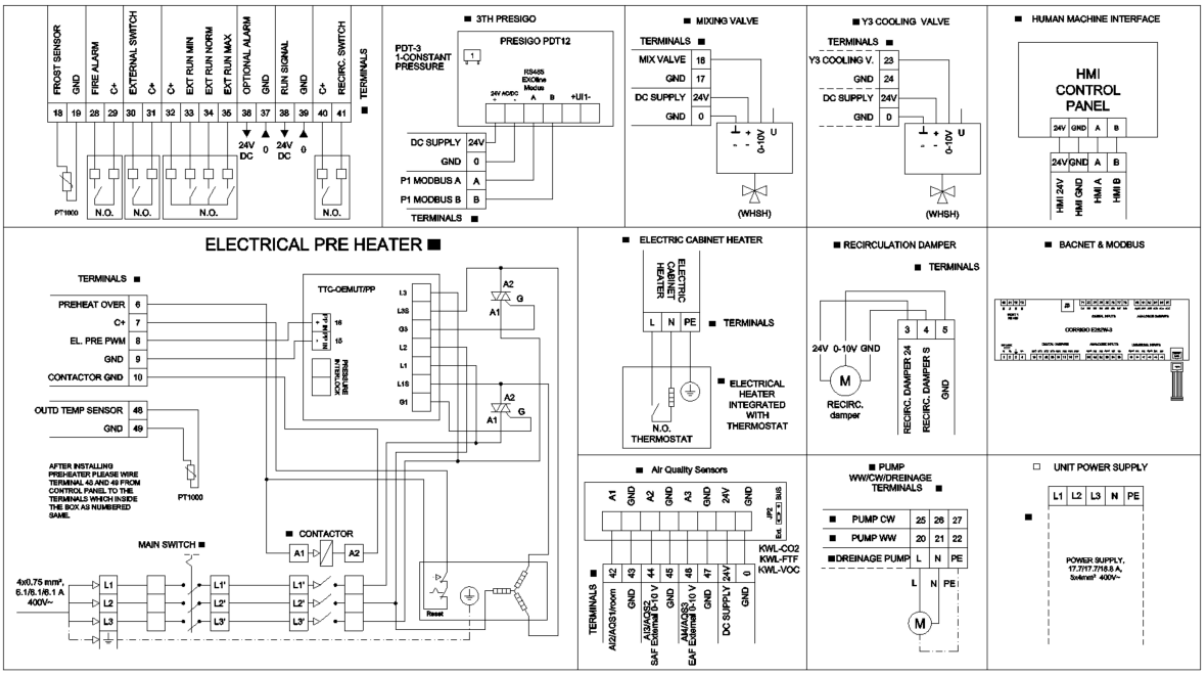


Fig. 177

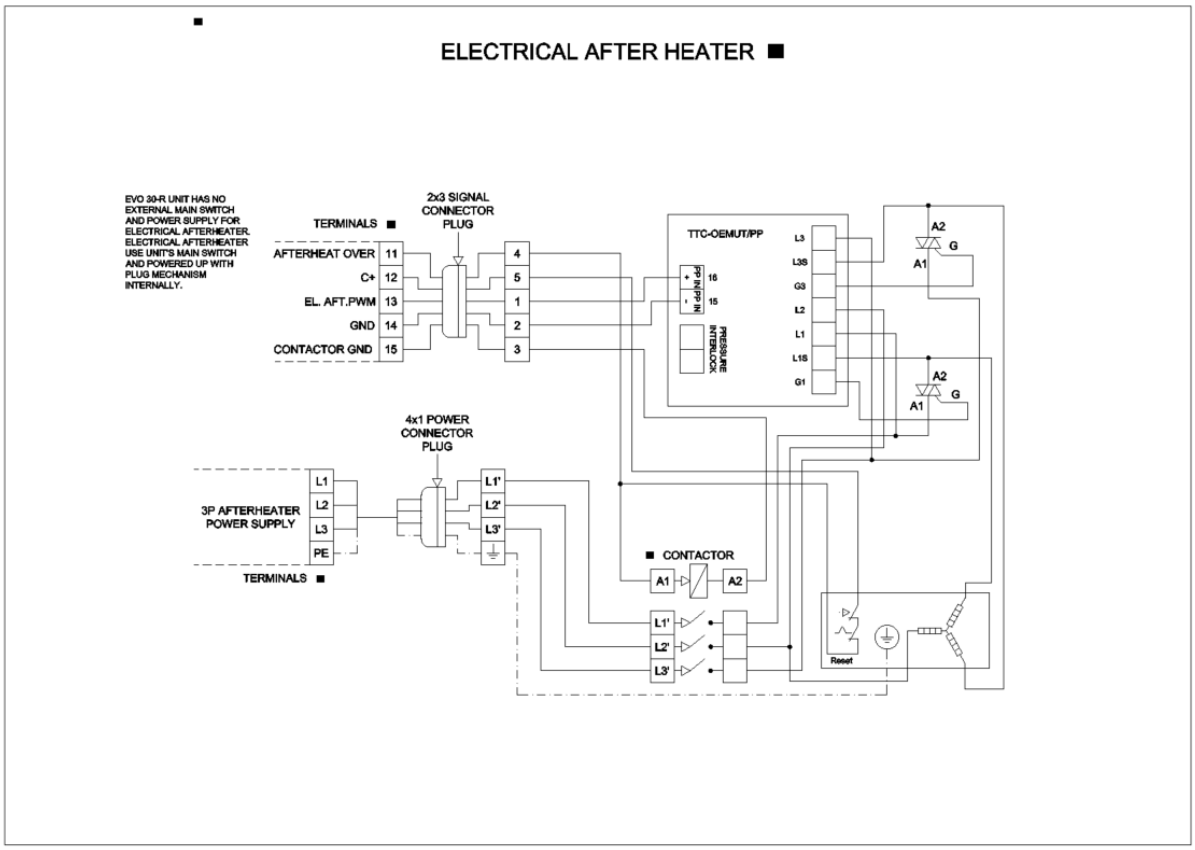

ELECTRICAL AFTER HEATER ■
EVO 30-R UNIT HAS NO EXTERNAL MAIN SWITCH AND POWER SUPPLY FOR ELECTRICAL AFTERHEATER. ELECTRICAL AFTERHEATER USE UNIT'S MAIN SWITCH AND POWERED UP WITH PLUG MECHANISM INTERNALLY.
TERMINALS ■
AFTERHEAT OVER 11
C+ 12
EL. AFT.PWM 13
GND 14
CONTACTOR GND 15
2x3 SIGNAL CONNECTOR PLUG
4
5
1
2
3
TTC-OEMUT/PP
+ 16
- 15
PRESSURE INTERLOCK
L3
L3S
G3
L2
L1
L1S
G1
A2
G
A1
A2
G
A1
4x1 POWER CONNECTOR PLUG
L1'
L2'
L3'
3P AFTERHEATER POWER SUPPLY
L1
L2
L3
PE
TERMINALS ■
■ CONTACTOR
A1
A2
L1'
L2'
L3'
Reset

Fig. 177

8.3 EVO-50R wiring diagram

EVO-50R unit wiring diagram (Fig. 178)

EVO-50R control panel wiring diagram (Fig. 179)

EVO-50R accessories wiring diagram (Fig. 180)

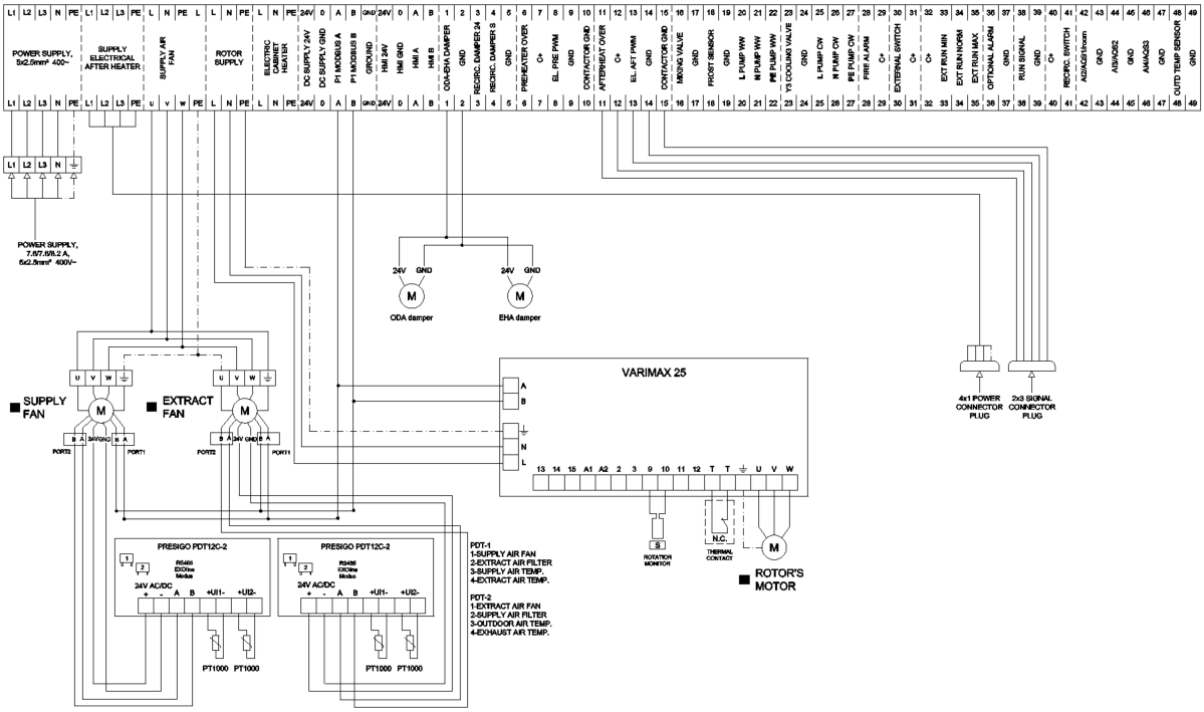


Fig. 178

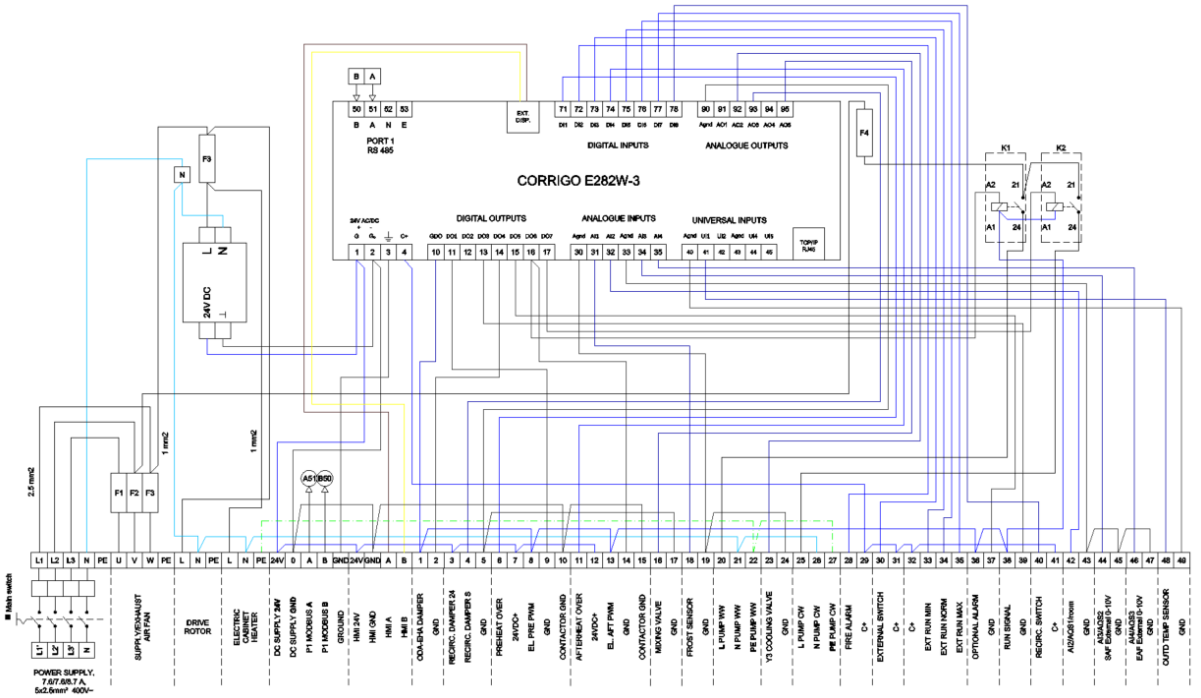


Fig. 179

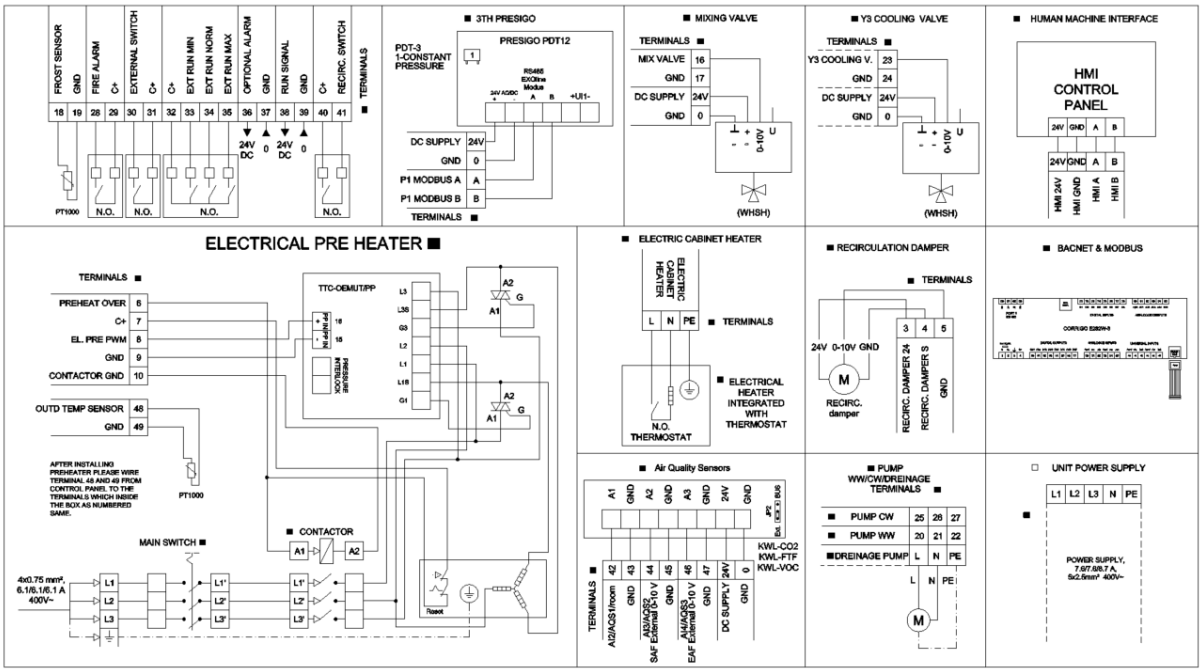


Fig. 180

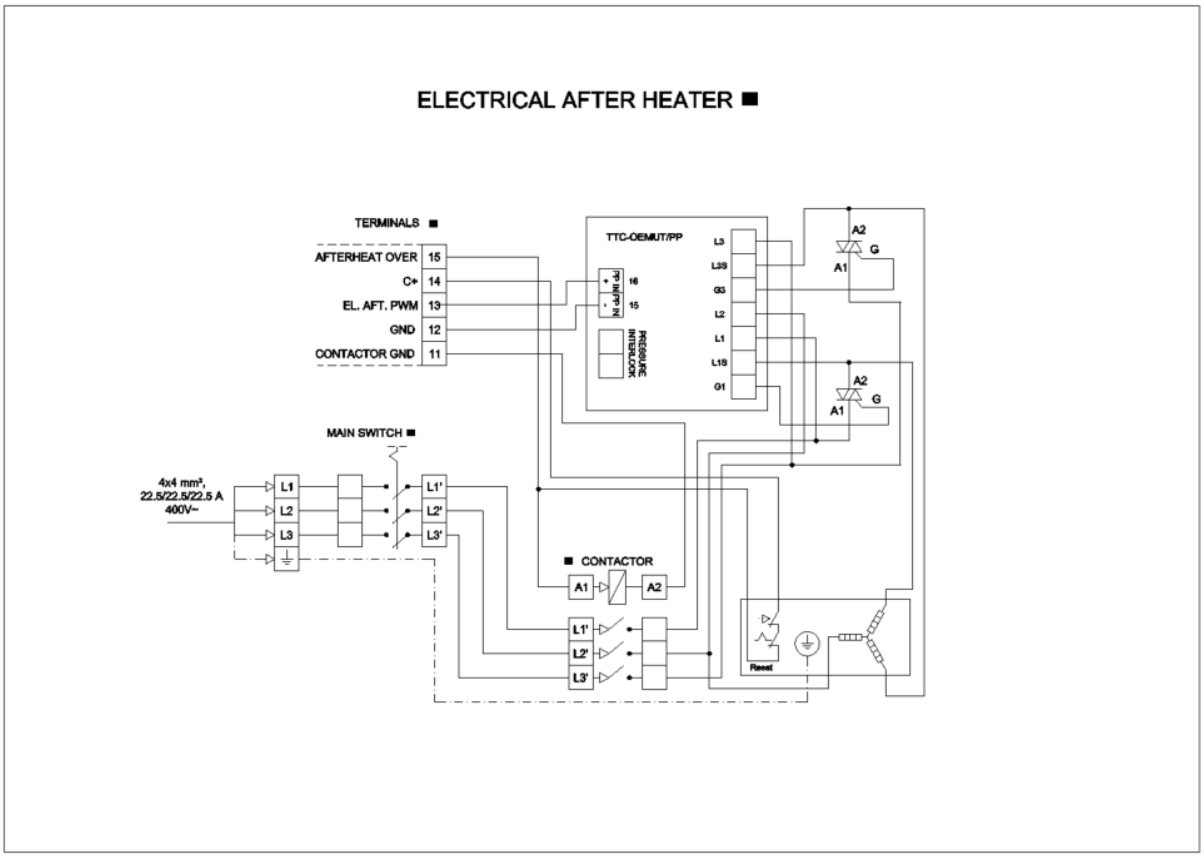

ELECTRICAL AFTER HEATER ■
TERMINALS ■
AFTERHEAT OVER 15
C+ 14
EL. AFT. PWM 13
GND 12
CONTACTOR GND 11
TTC-OEMUT/PP
PP + INPP IN
16
15
PRESSURE INTERLOCK
L3
L3S
G3
L2
L1
L1S
G1
A2
G
A1
A2
G
A1
MAIN SWITCH ■
4x4 mm²,
22.5/22.5/22.5 A
400V~
L1
L2
L3
L1'
L2'
L3'
■ CONTACTOR
A1
A2
L1'
L2'
L3'
Reset

Fig. 180

8.4 EVO-60R wiring diagram

EVO-60R unit wiring diagram (Fig. 181)

EVO-60R control panel wiring diagram (Fig. 182)

EVO-60R accessories wiring diagram (Fig. 183)

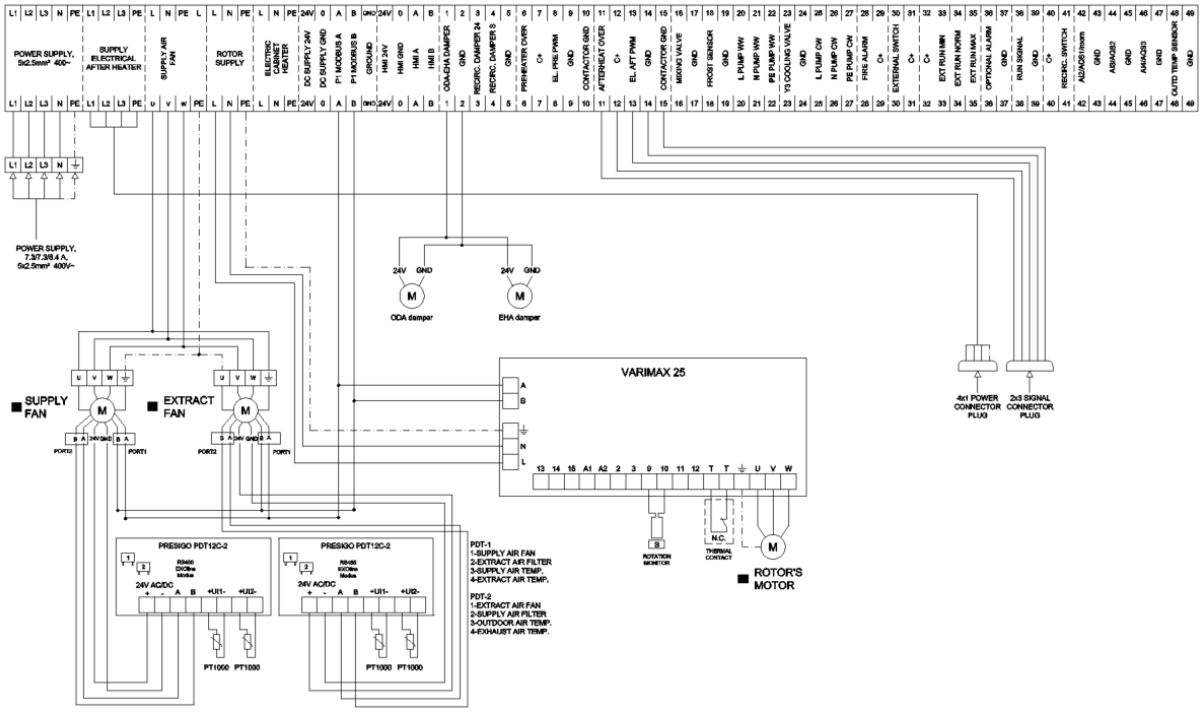


Fig. 181

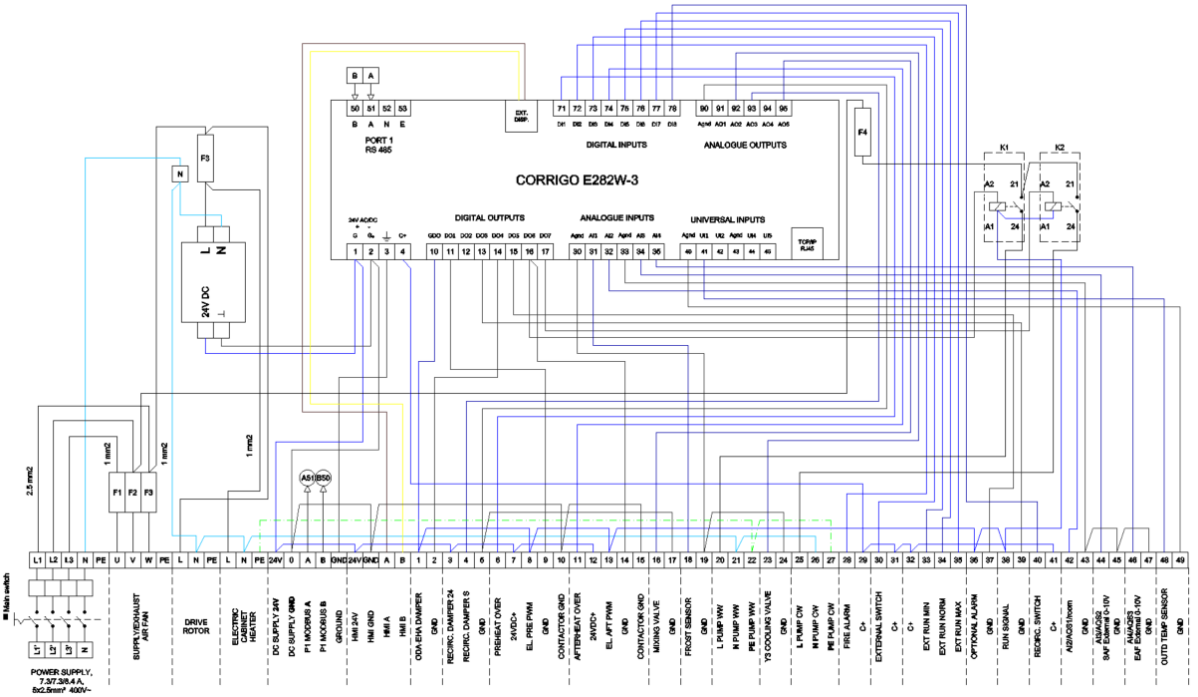


Fig. 182

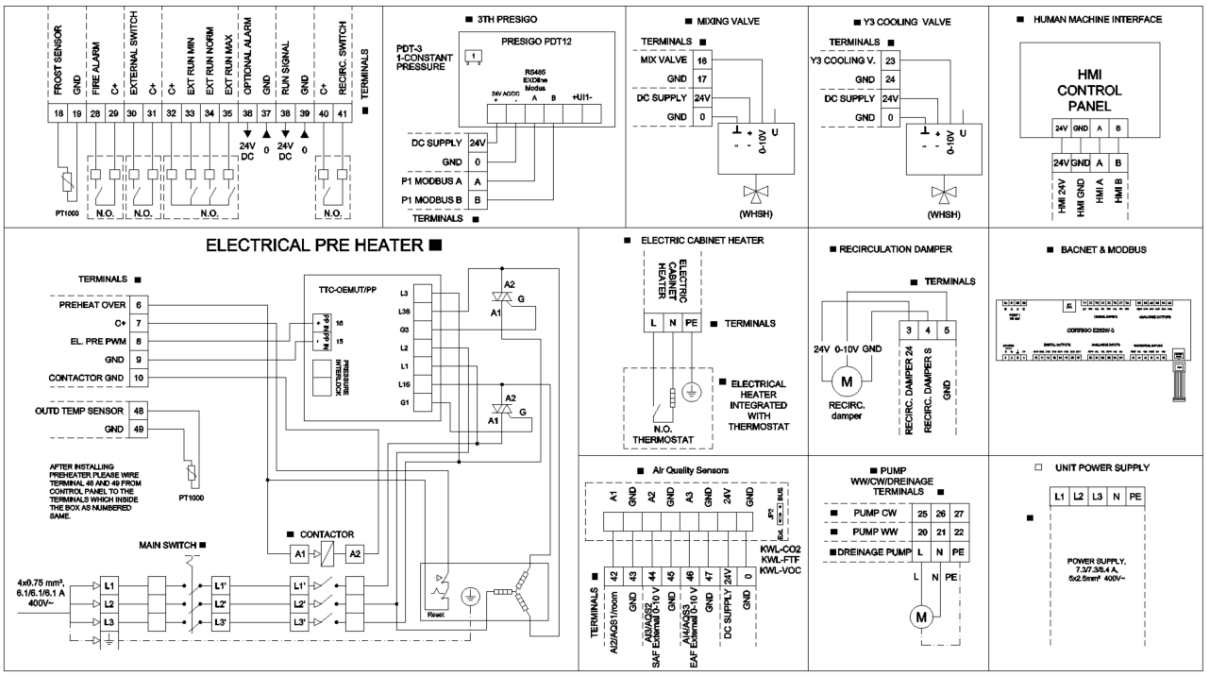


Fig. 183

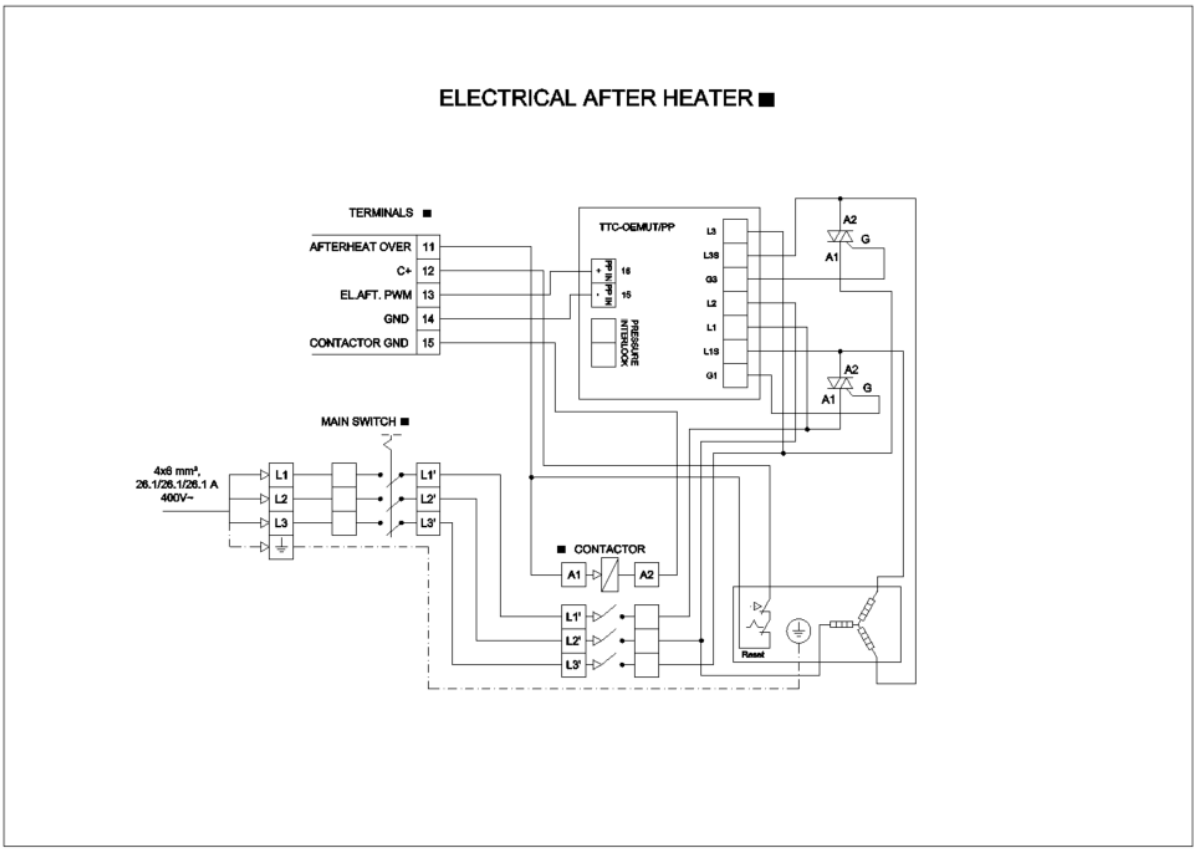

ELECTRICAL AFTER HEATER ■
TERMINALS ■
AFTERHEAT OVER 11
C+ 12
EL.AFT. PWM 13
GND 14
CONTACTOR GND 15
TTC-OEMUT/PP
PP IN/PP IN
16
15
PRESSURE INTERLOCK
L3
L3S
G3
L2
L1
L1S
G1
A2
G
A1
A2
G
A1
MAIN SWITCH ■
4x6 mm²,
26.1/26.1/26.1 A
400V~
L1
L2
L3
L1'
L2'
L3'
■ CONTACTOR
A1
A2
L1'
L2'
L3'
Reset

Fig. 183

8.5 EVO-80R wiring diagram

EVO-80R unit wiring diagram (Fig. 184)

EVO-80R control panel wiring diagram (Fig. 185)

EVO-80R accessories wiring diagram (Fig. 186)

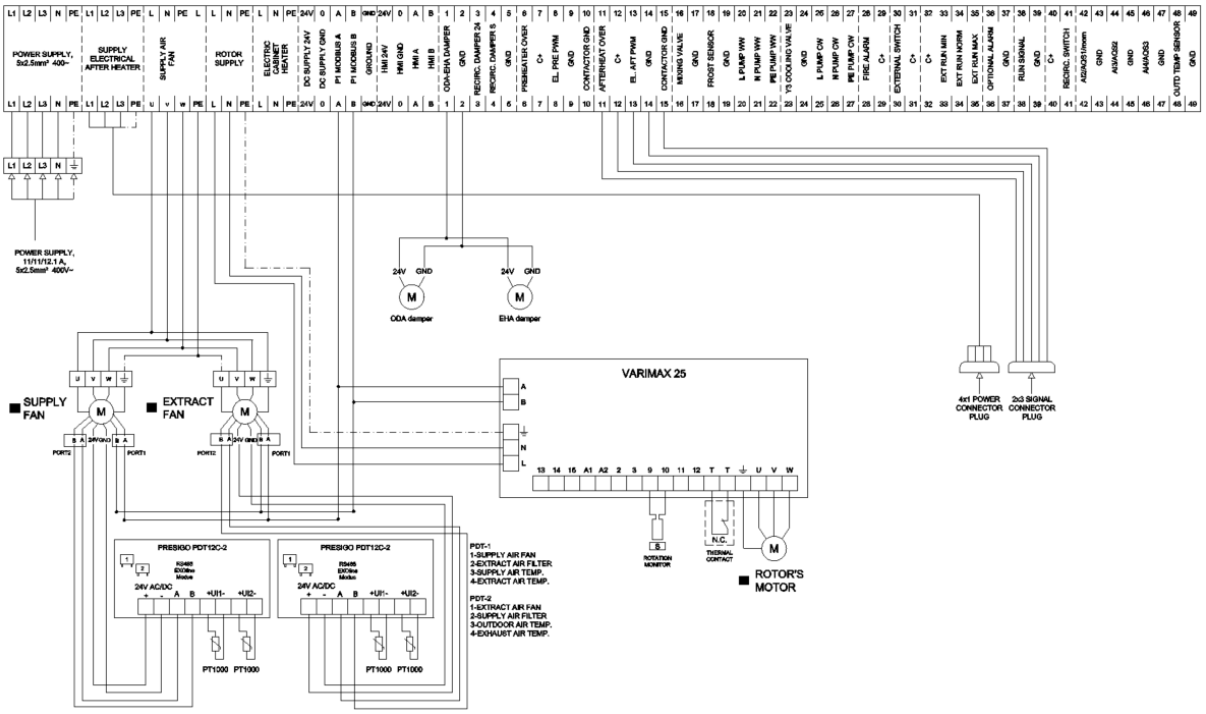


Fig. 184

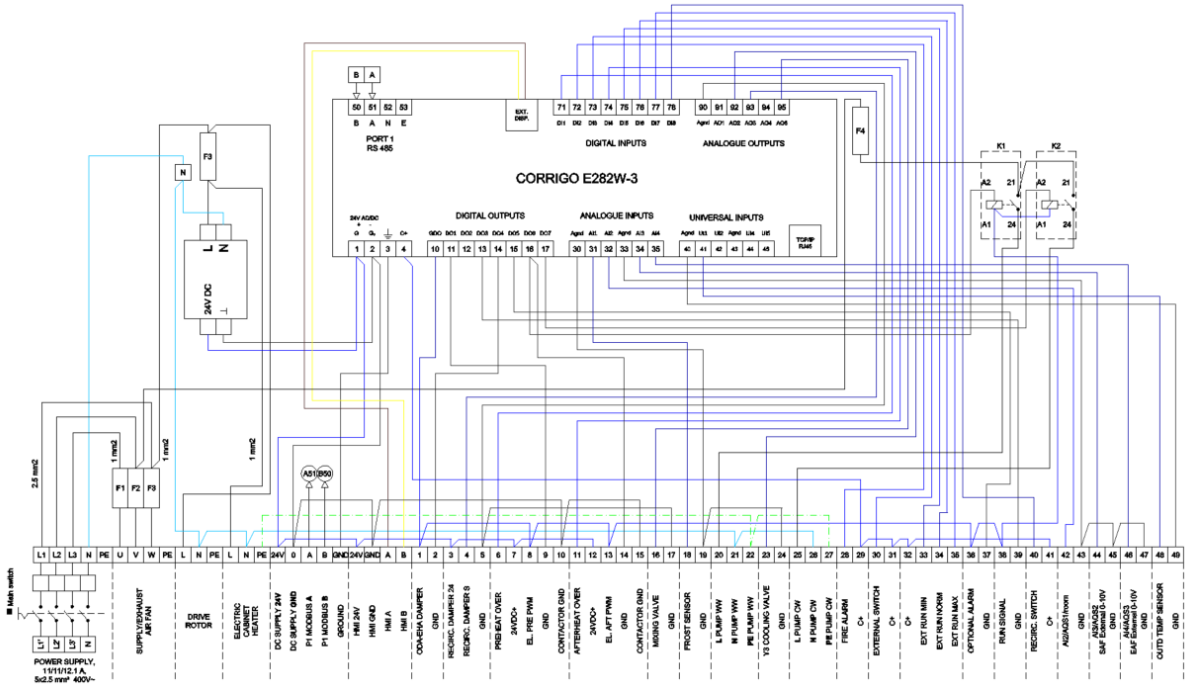


Fig. 185

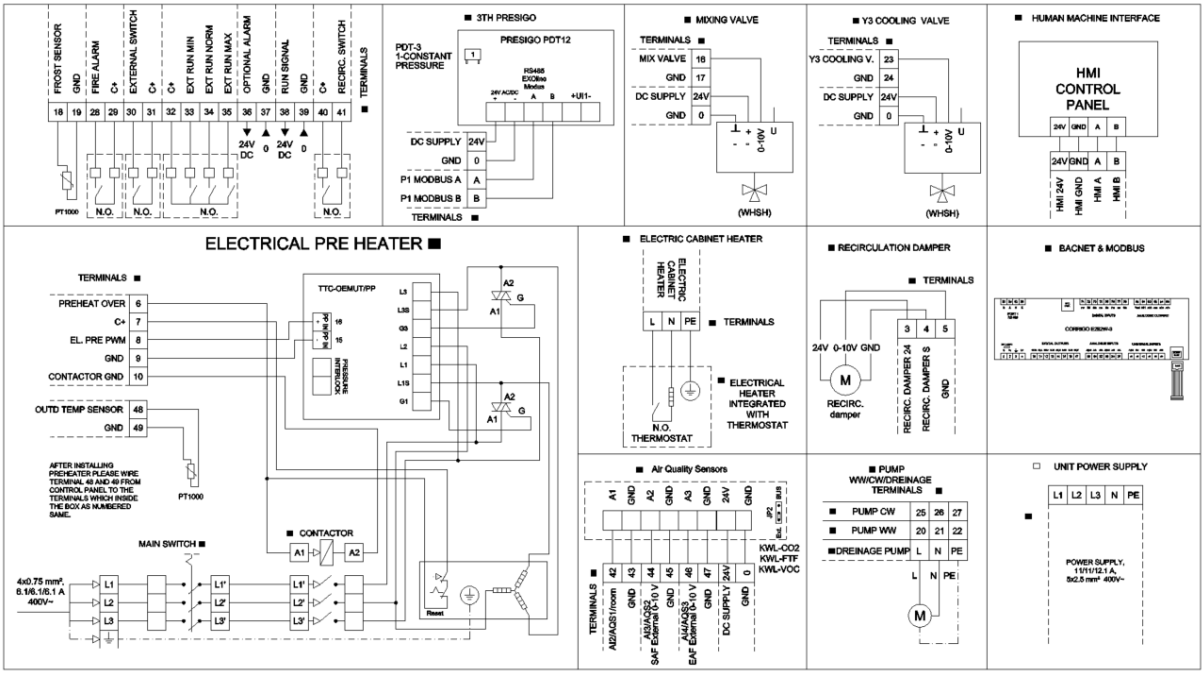


Fig. 186

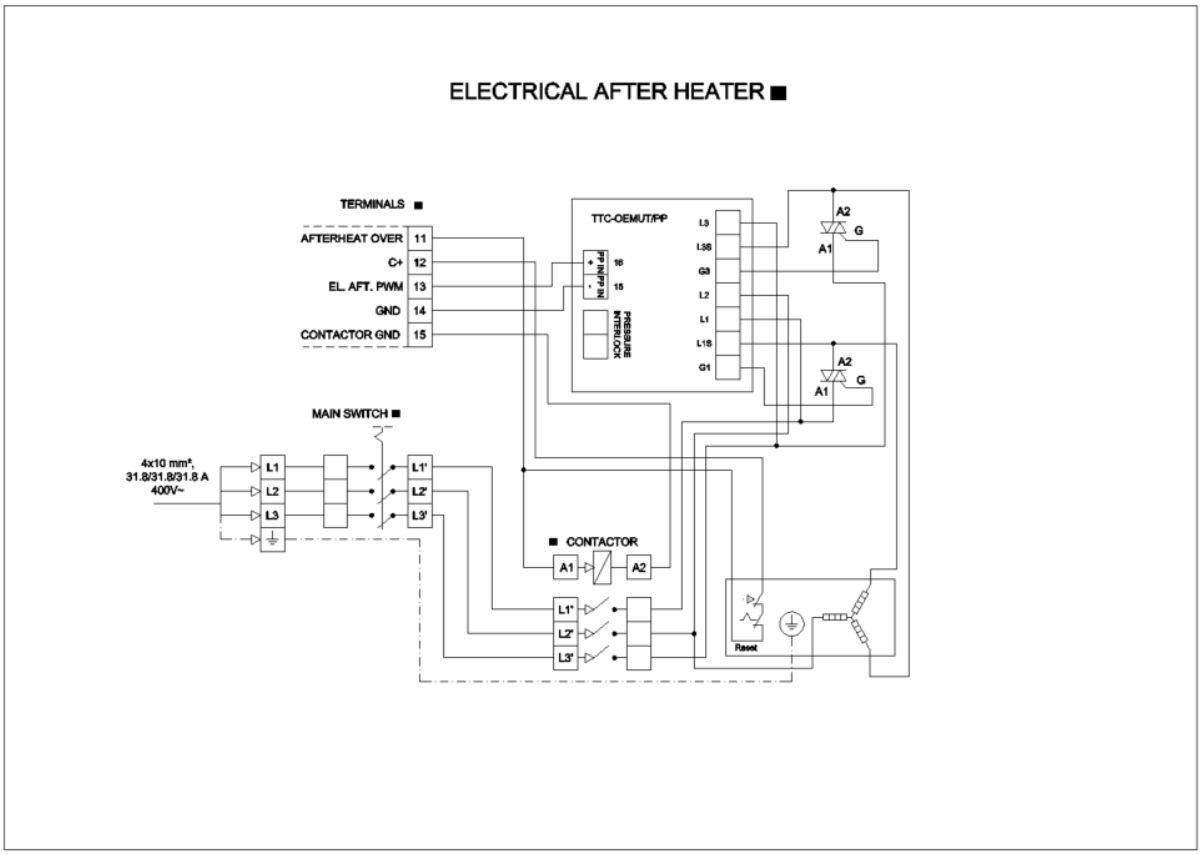

ELECTRICAL AFTER HEATER ■
TERMINALS ■
AFTERHEAT OVER 11
C+ 12
EL. AFT. PWM 13
GND 14
CONTACTOR GND 15
TTC-OEMUT/PP
PP IN/PP IN
PRESSURE INTERLOCK
L3
L3S
G3
L2
L1
L1S
G1
A2
G
A1
MAIN SWITCH ■
4x10 mm²,
31.8/31.8/31.8 A
400V~
L1
L2
L3
L1'
L2'
L3'
■ CONTACTOR
A1
A2
Reset

Fig. 186

8.6 EVO-95R wiring diagram

EVO-95R unit wiring diagram (Fig. 187)

EVO-95R control panel wiring diagram (Fig. 188)

EVO-95R accessories wiring diagram (Fig. 189)

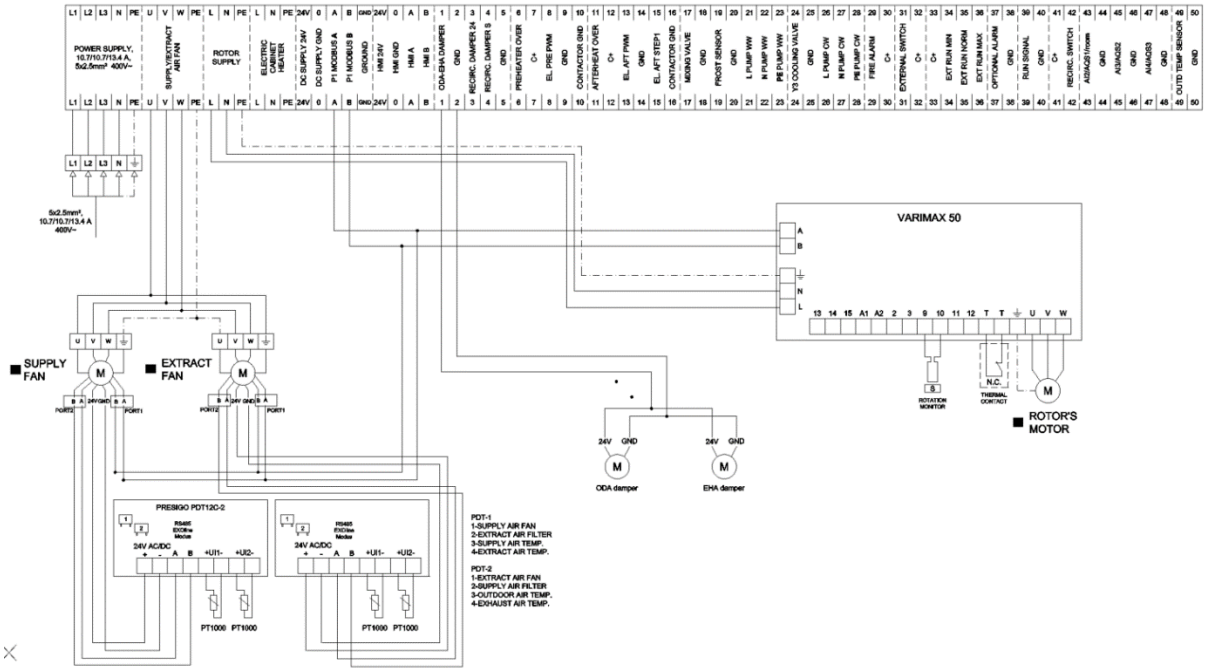


Fig. 187

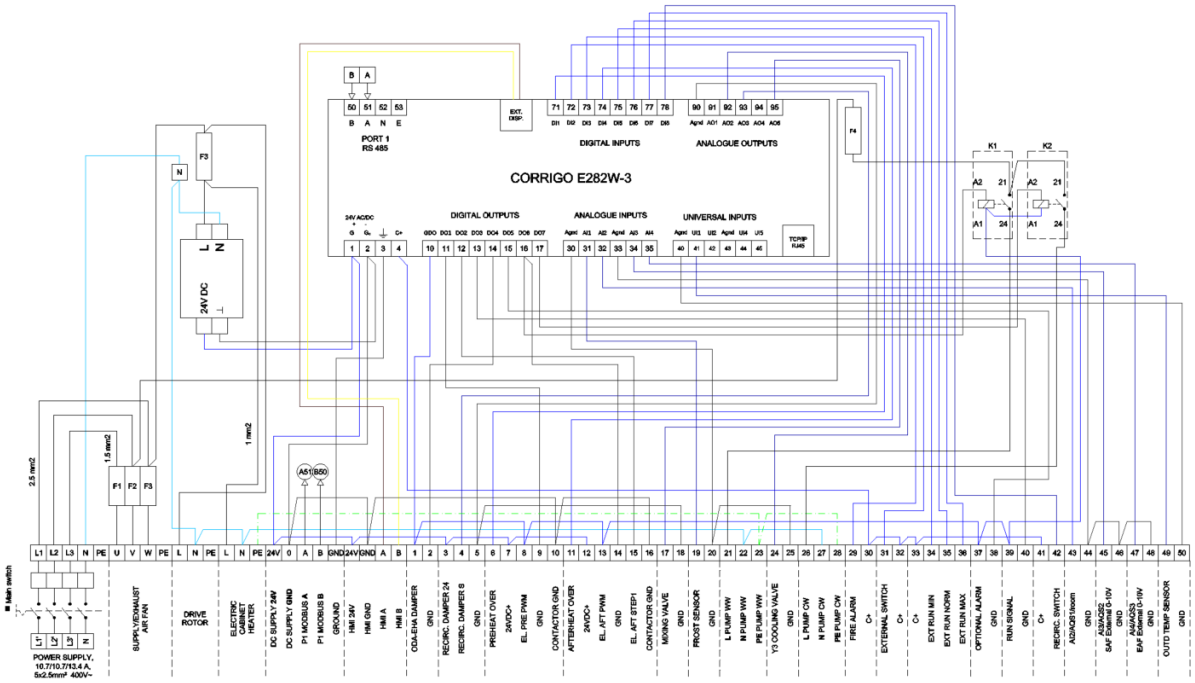


Fig. 188

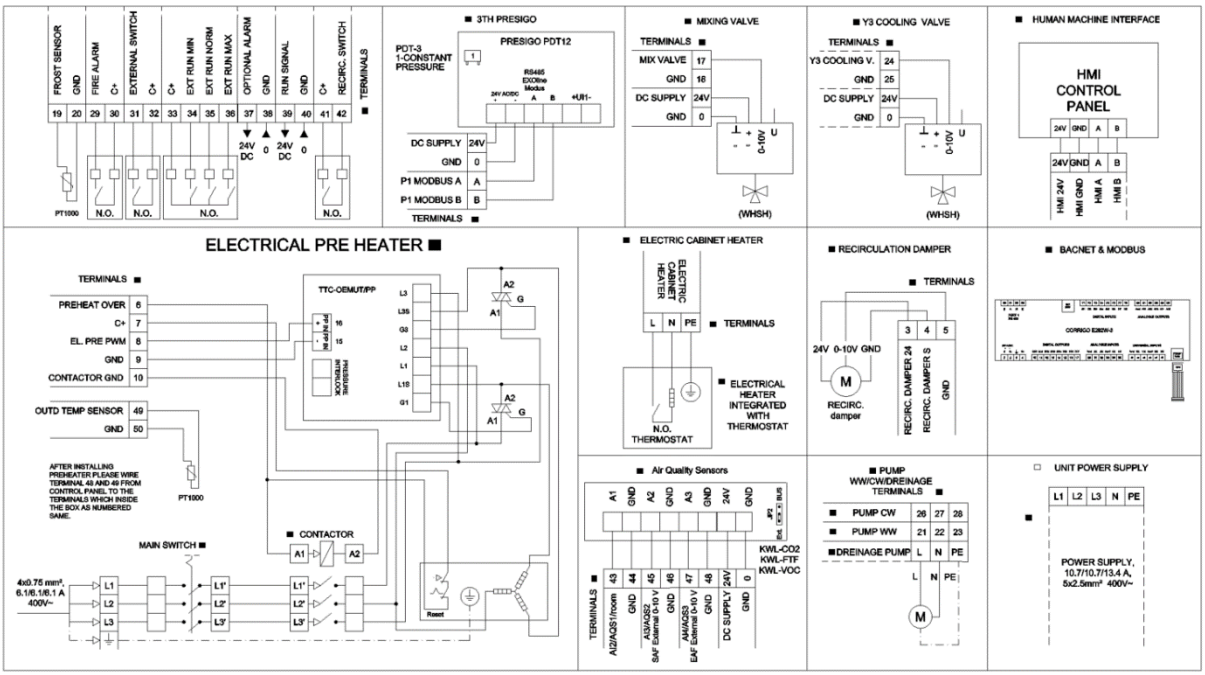


Fig. 189

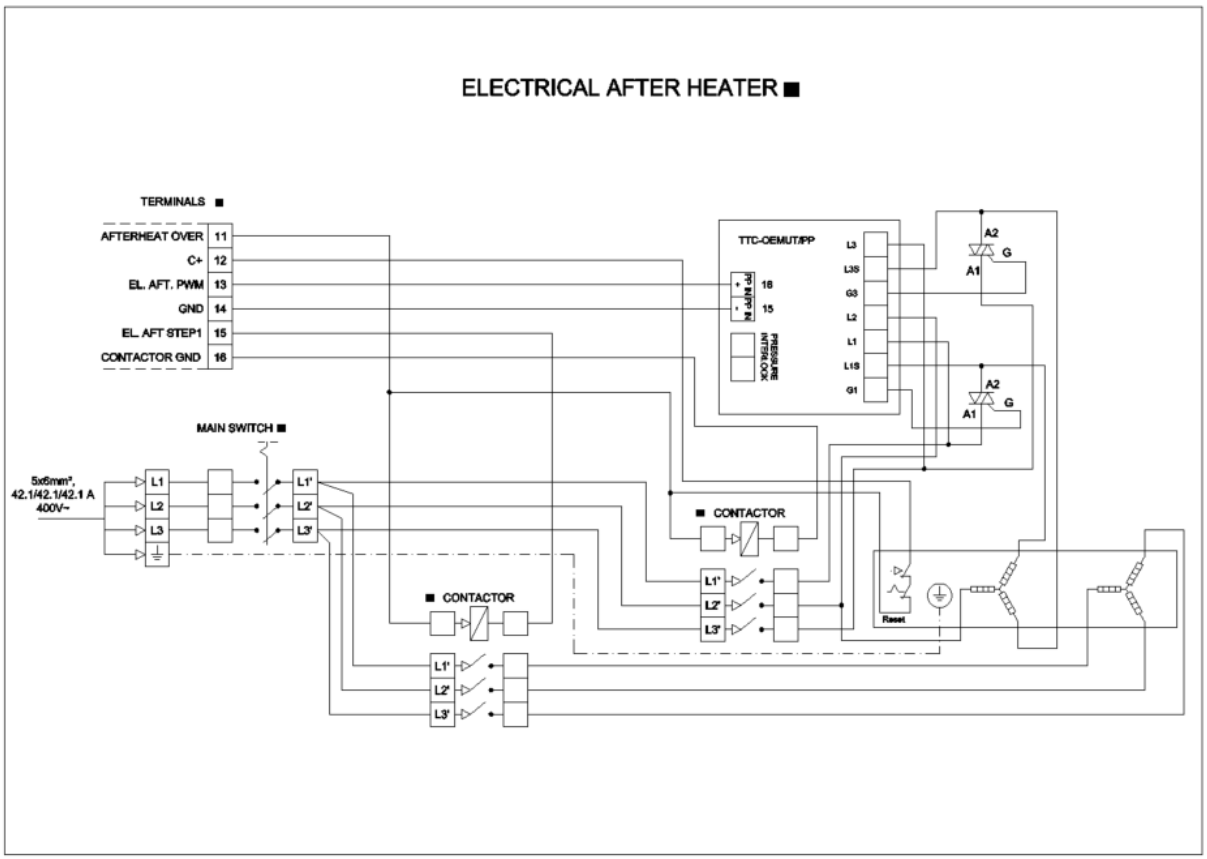

ELECTRICAL AFTER HEATER ■
TERMINALS ■
AFTERHEAT OVER 11
C+ 12
EL. AFT. PWM 13
GND 14
EL. AFT STEP1 15
CONTACTOR GND 16
MAIN SWITCH ■
5x6mm², 42.1/42.1/42.1 A 400V~
L1
L2
L3
L1'
L2'
L3'
■ CONTACTOR
■ CONTACTOR
TTC-OEMUT/PP
PWM IN
16
15
PRESSURE INTERLOCK
L3
L3S
G3
L2
L1
L1S
G1
A2
G
A1
A2
G
A1
Reset

Fig. 189

8.7 EVO-120R wiring diagram

EVO-120R unit wiring diagram (Fig. 190)

EVO-120R control panel wiring diagram (Fig. 191)

EVO-120R accessories wiring diagram (Fig. 192)

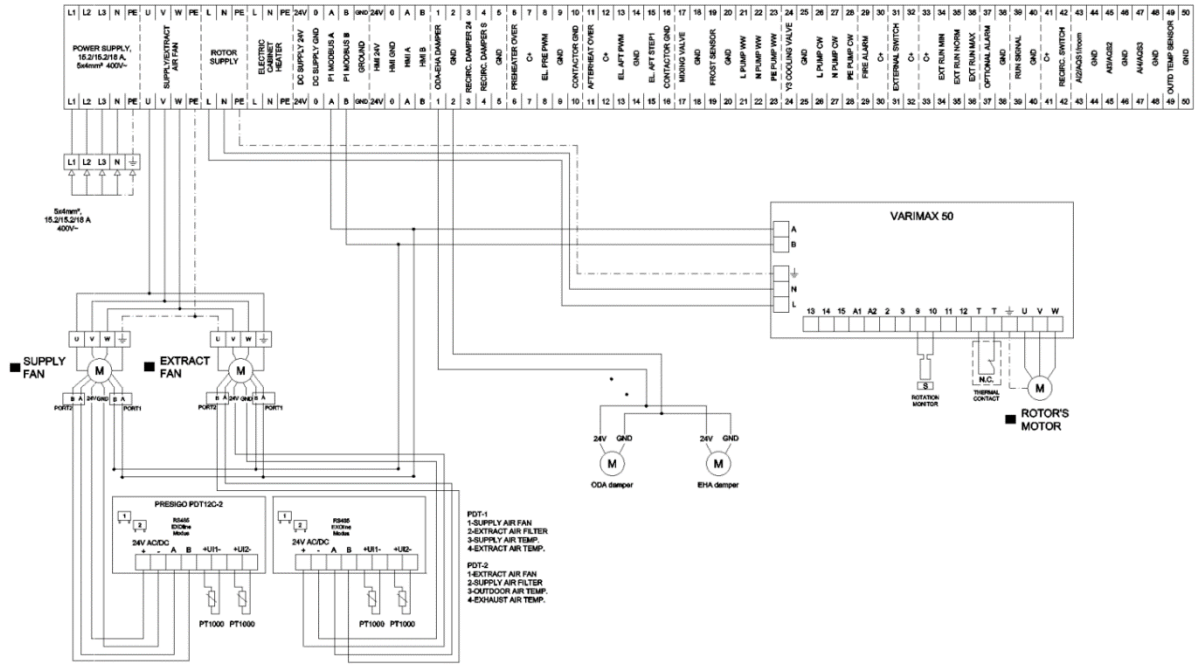


Fig. 190

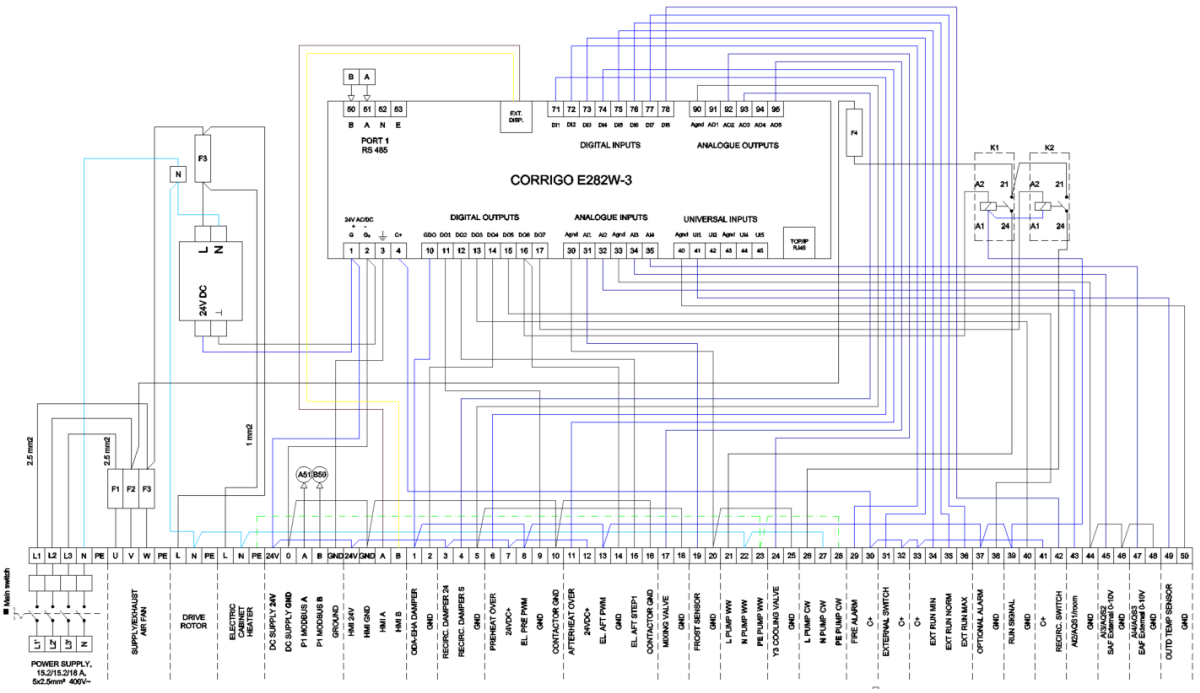


Fig. 191

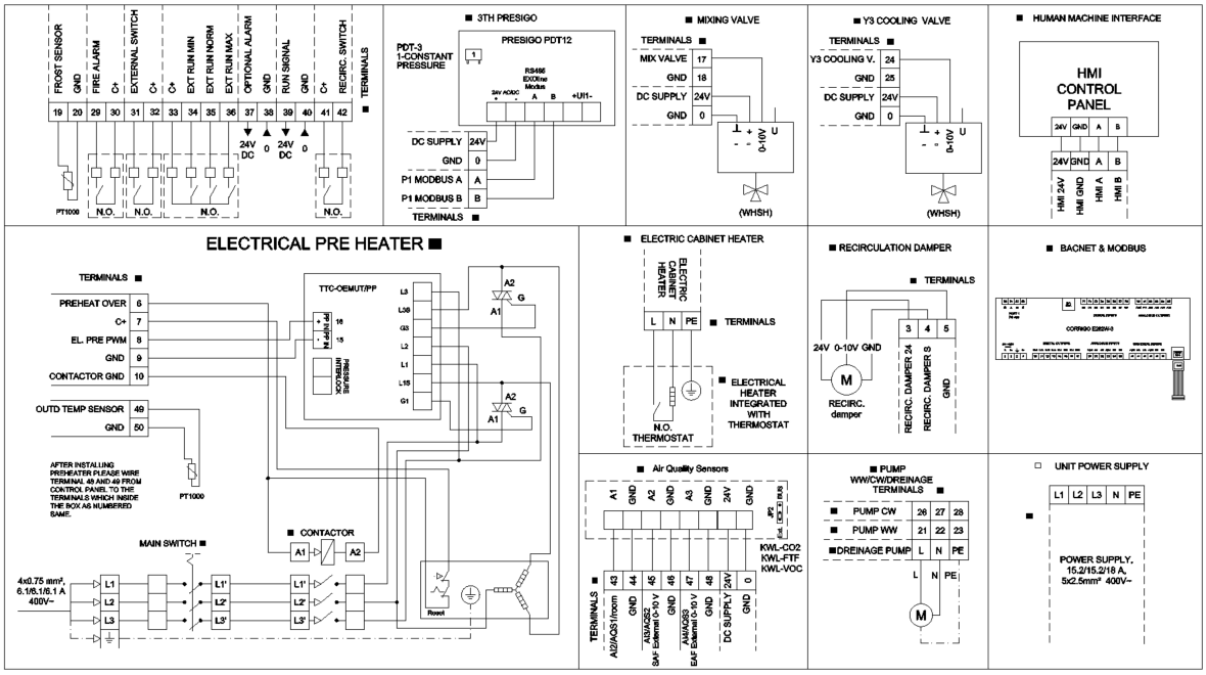


Fig. 192

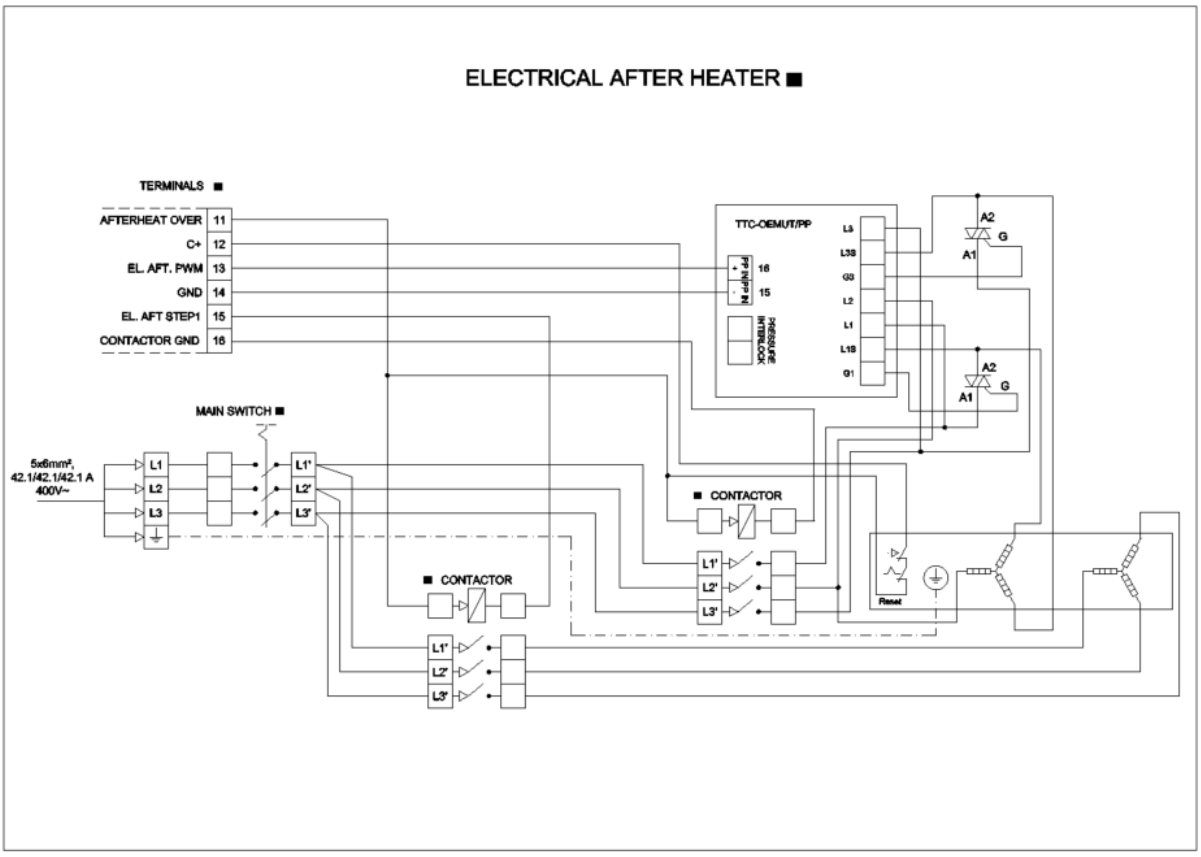

ELECTRICAL AFTER HEATER ■
TERMINALS ■
AFTERHEAT OVER 11
C+ 12
EL. AFT. PWM 13
GND 14
EL. AFT STEP1 15
CONTACTOR GND 16
TTC-OEMUT/PP
PUMP M
16
15
PRESSURE INTERLOCK
L3
L3S
G3
L2
L1
L1S
G1
A2
G
A1
MAIN SWITCH ■
5x6mm², 42.1/42.1/42.1 A 400V~
L1
L2
L3
L1'
L2'
L3'
■ CONTACTOR
■ CONTACTOR
Reset

Fig. 192

8.8 EVO-150R wiring diagram

EVO-150R unit wiring diagram (Fig. 193)

EVO-150R control panel wiring diagram (Fig. 194)

EVO-150R accessories wiring diagram (Fig. 195)

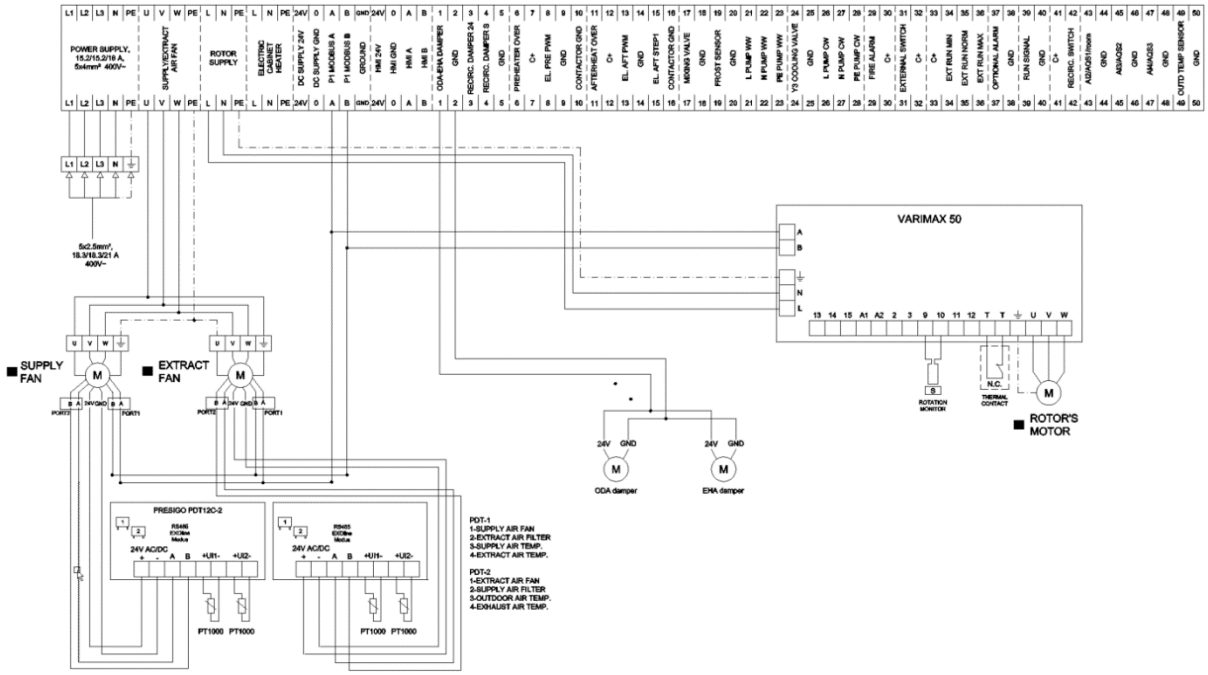


Fig. 193

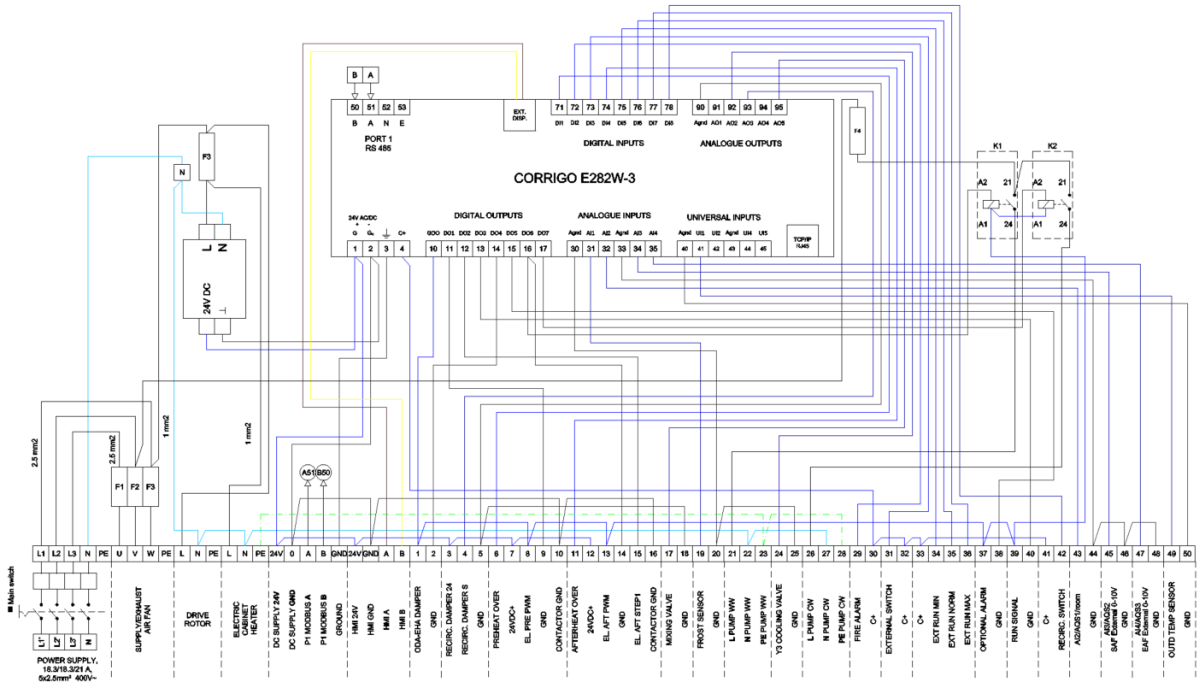


Fig. 194

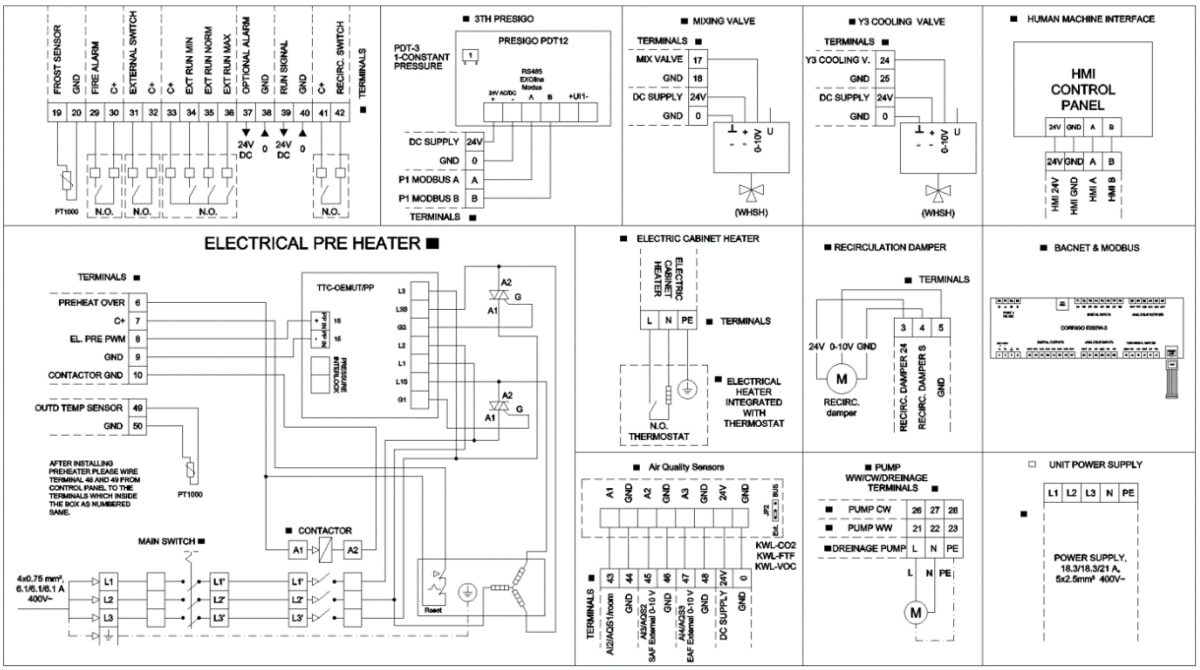


Fig. 195

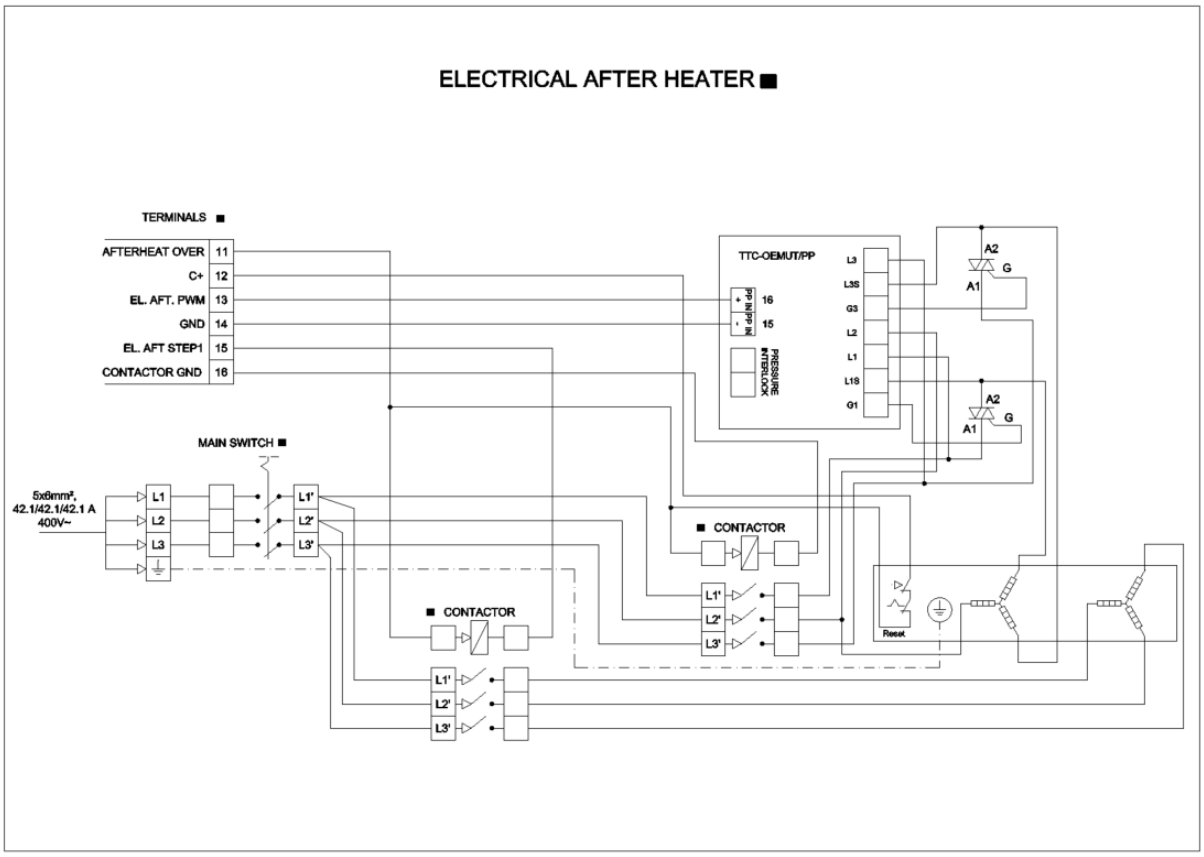
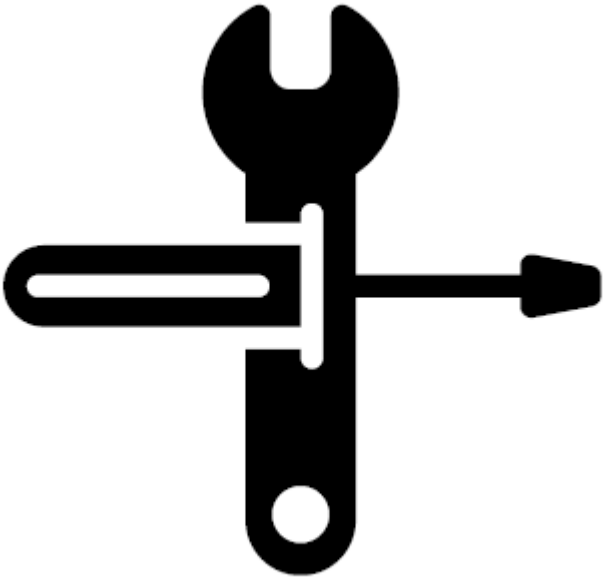

ELECTRICAL AFTER HEATER ■
TERMINALS ■
AFTERHEAT OVER 11
C+ 12
EL. AFT. PWM 13
GND 14
EL. AFT STEP1 15
CONTACTOR GND 16
TTC-OEMUT/PP
PP IN
16
15
PRESSURE INTERLOCK
L3
L3S
G3
L2
L1
L1S
G1
A2
G
A1
MAIN SWITCH ■
5x6mm²,
42.1/42.1/42.1 A
400V~
L1
L2
L3
L1'
L2'
L3'
■ CONTACTOR
■ CONTACTOR
Reset

Fig. 195



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