

KOMPAKT REGO RECU OTK

- LT** Montavimo ir eksploatavimo instrukcija 2
- EN** Installation and Operation Manual 29
- RU** Инструкция по эксплуатации и монтажу 56

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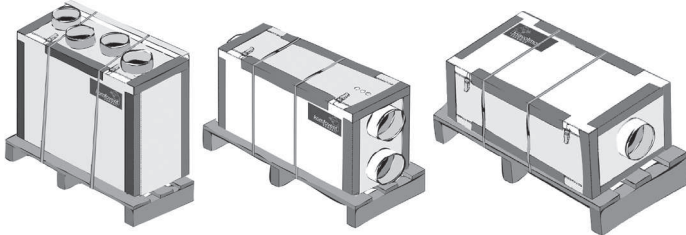
This symbol indicates that this product is not to be disposed of with your household waste, according to the WEEE Directive (2002/96/EC) and your national law. This product should be handed over to a designated collection point, or to an authorised collection site for recycling waste electrical and electronic equipment (EEE). Improper handling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time, your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, waste authority, approved WEEE scheme or your household waste disposal service.

1. TRANSPORTATION

The air handling units are ready for transit and storage (1 Picture). The unit is packed to prevent damage of the external and internal parts of the unit, dust and moisture penetration.

Corners of the air handling units are protected against the damage – protective corners are used. The entire unit is wrapped up in protective film. For transit or storage, units are mounted on timber pallets. The unit is fastened to the pallet with polypropylene packing tape over protective corners

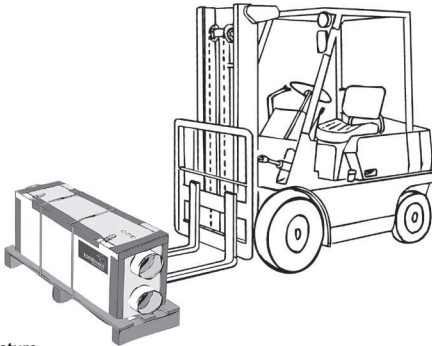
Vertical and horizontal units ready for transit and storage



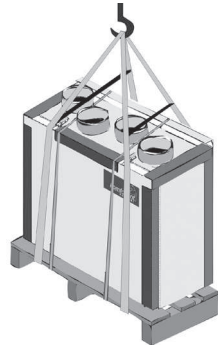
1 Picture

When unit is loaded or unloaded by crane, cargo rope is fastened in its designated places. Forklift truck or hand pallet truck can transport air handling unit as it is shown (1 a, b, c Pictures).

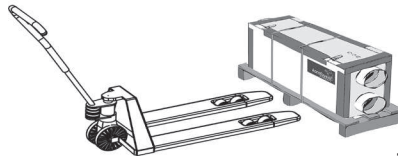
Vertical and horizontal unit transportation by forklift truck, hand pallet truck or crane



1 a Picture



1 c Picture



1 b Picture

1 a Unit is transported by forklift truck on a wooden pallet;
 1 b Unit is transported by hand pallet truck on a wooden pallet;
 1 c Unit is lifted by crane on a wooden pallet.

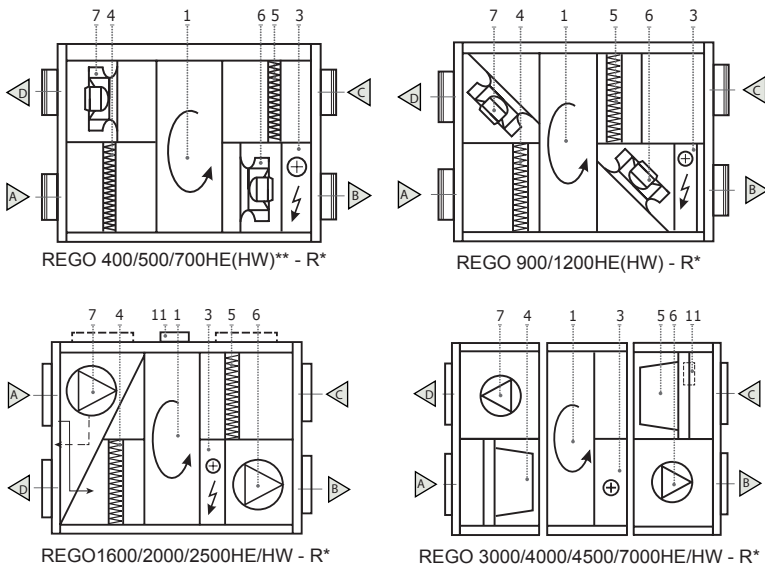
The unit should be examined upon receipt, to ensure that no visible damage has occurred during transit, and the advice note checked to ensure that all items have been received. If damage or delivery shortages are discovered, the carrier should be immediately informed. AMALVA should be notified within three days of receipt, with a written confirmation sent within seven days. AMALVA can accept no responsibility for damage by unloading from carrier or for subsequent damage on site.

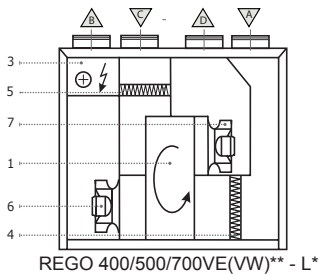
If the unit is not to be installed immediately, it should be stored in a clean, dry area. If stored externally, it should be adequately protected from the weather.

2. BRIEF DESCRIPTION OF THE UNIT

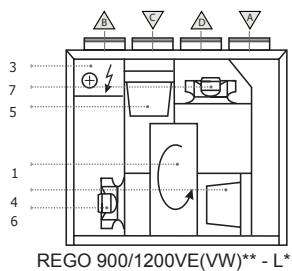
- Casings of air handling units are made of galvanized steel sheets, which are powder painted. Mineral wool is used for thermal insulation and sound attenuation. Unit cover panels are 45 mm thick.
- The air handling units are intended for ventilation of medium-sized spaces (eg. single family houses, offices, etc.), having operating ambient temperature and relative humidity. As standard, the unit is designed for indoor placement. The operating temperature range for the unit is -30°C ... 40°C, outdoor air temperature.
- The air handling unit is not to be used to transport solid particles, even not in areas where there is a risk of explosive gases.
- REGO is equipped with a rotary heat exchanger, RECU - with plate heat exchanger, which may be replaced with summer cassette, when recuperation is needless, air filters, an electric or water heater, fans and automation control system, to ensure safe and efficient operation of the unit.
- Before you open the door, the unit must be switched off and the fans must have been given time to stop (up to 3 minutes).
- The unit contains heating elements that must not be touched when they are hot.
- To maintain a good indoor climate, comply with regulations and, to avoid condensation damage, the unit must never be stopped apart from during service/maintenance or in connection with an accident.
- If the unit is placed in spaces with high humidity, condensation might occur on the surface of the unit when outdoor temperatures are very low.
- Under conditions, when the outdoor air temperature is low and humidity is high, risk of heat exchanger frosting may appear. For this reason anti-frost protection function is foreseen in the controller of the Komfovent air handling units. Depending on the type of the recovery, different methods of anti-frost protection are available: cold air by-passing, or / and supply air fan speed reducing. For extremely low outdoor air temperature the duct mounted preheater is recommended. Counter cross flow heat exchanger is the mostly sensitive for low outside air temperatures, as the risk of frosting appears in the temperature range from 0 to -5°C and below. Standard aluminium cross-flow plate heat exchanger has better features, as the risk of freezing appears only at -10°C. The lowest risk and the highest resistance to cold outside air is a competitive feature of the rotary heat exchanger, as it is not freezing even at the temperatures of -30°C if the humidity level of the air is appropriate.

Air Handling Units Schemes

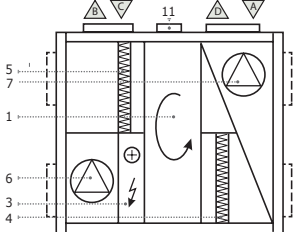




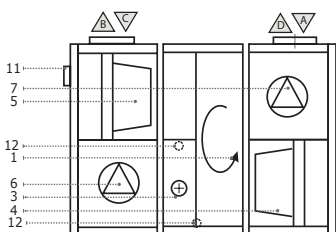
REGO 400/500/700VE(VW)** - L*



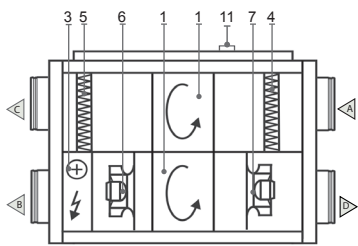
REGO 900/1200VE(VW)** - L*



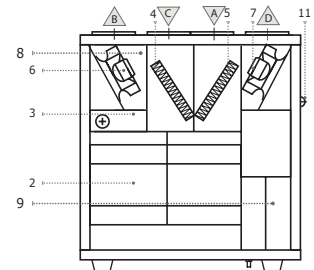
REGO 1600/2000/2500VE - L*



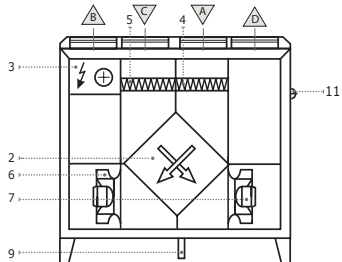
REGO 3000/4000/4500VE - L*



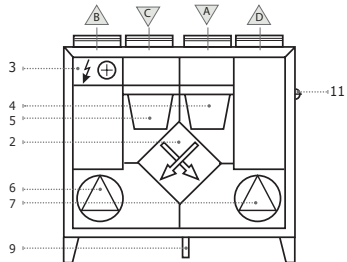
REGO 1200PE(W)*



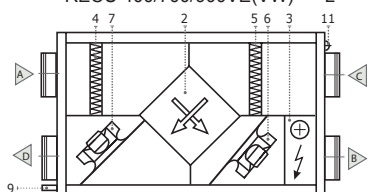
RECU 700VECF



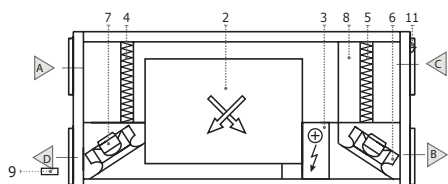
RECU 400/700/900VE(VW)** - L*



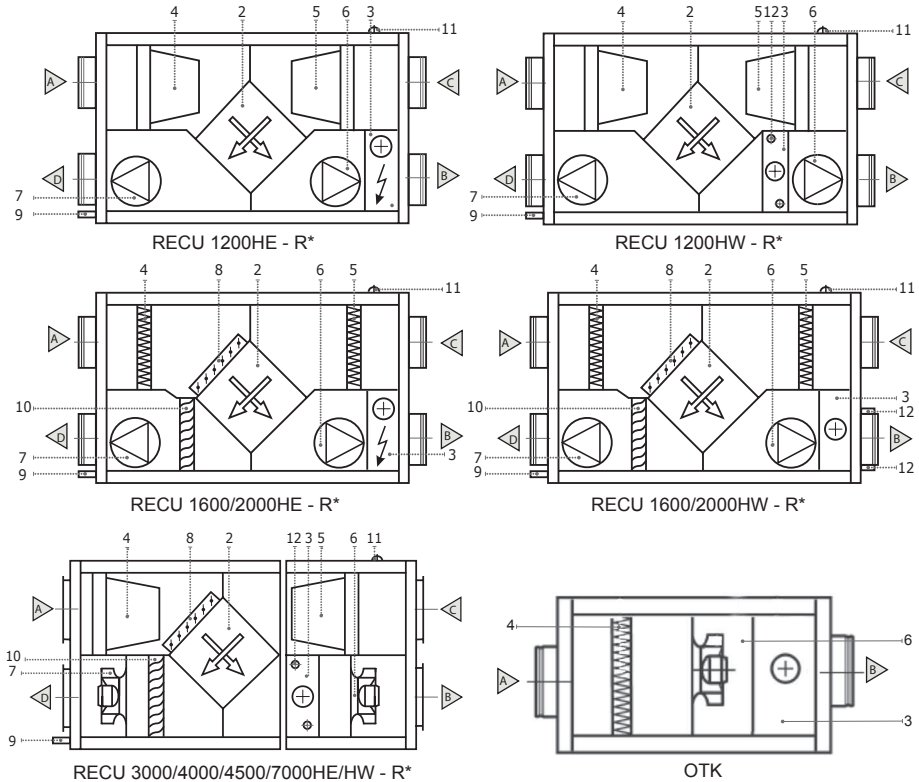
RECU 1200/1600VE(VW) - L*



RECU 400/700/900HE(W)** - R*



RECU 700HECF - R*



1. Rotary heat exchanger
2. Plate heat exchanger
3. Electric or water air heater
4. Supply air filter
5. Exhaust air filter
6. Supply fan
7. Exhaust fan
8. Air by-pass damper
9. Condensate drain
(the water trap must be installed D=28 mm)
10. Drop eliminator
11. Connection of main cable
12. Fluid connection tube

- Outdoor intake
- Supply air
- Extract indoor
- Exhaust air

* R - right inspection side.
* L - left inspection side is mirror view of the right.
** Ducted water heater.

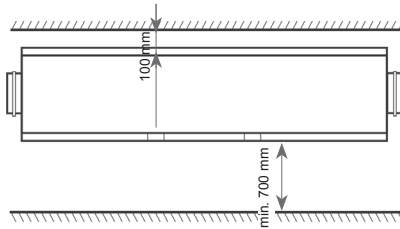
3. INSTALLATION

3. 1 Maintenance space requirements

It is recommended to install the air handling unit in a separate room or in the attic on a hard smooth surface insulated with a rubber mat. The place for the unit should be selected with allowance for minimum access to the unit for maintenance and service inspection. The minimum free space in front of the control panel should be not less than 700 mm. The free space over the top of the unit should be at least 300 mm (3.1.1 a, b Picture).

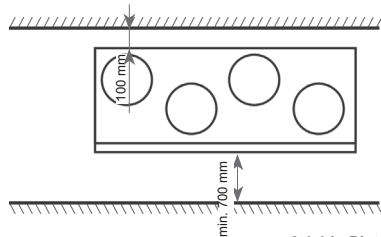
Rubber mat must be used when unit is going to be mounted on the wall.

Minimum Maintenance Space for Horizontal Units



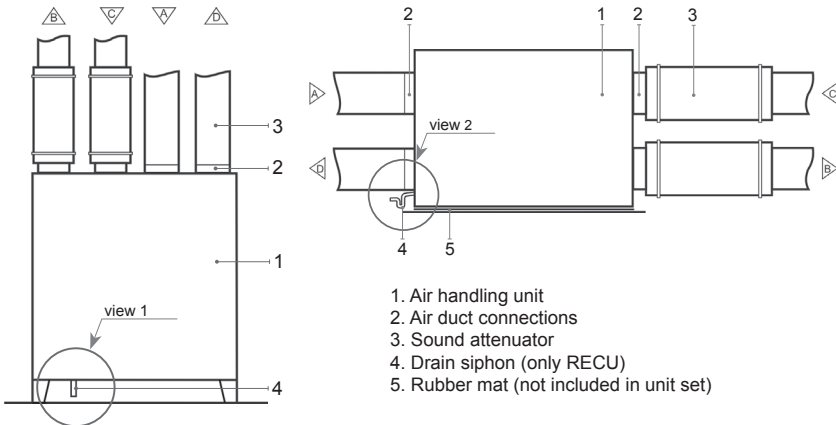
3.1.1 a Picture

Minimum Maintenance Space for Vertical Units

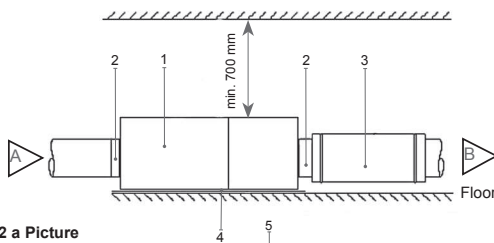


3.1.1 b Picture

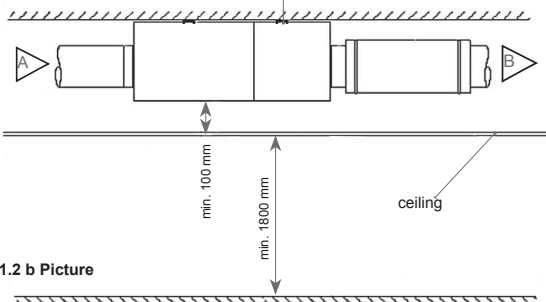
REGO RECU unit Installation Scheme



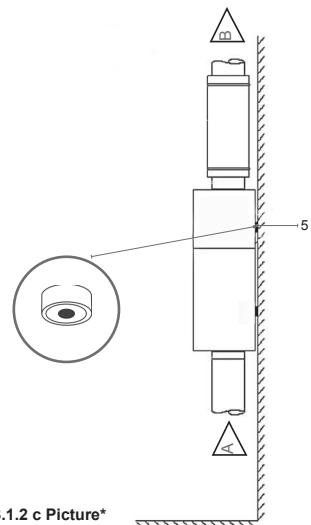
OTK Maintenance space for unit



3.1.2 a Picture



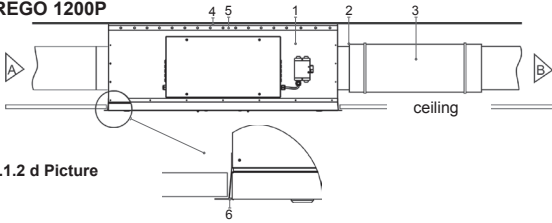
3.1.2 b Picture



3.1.2 c Picture*

* - only PE.

REGO 1200P



1. Air handling unit
2. Ducts connection
3. Sound attenuator
4. Rubber mat (not included in unit set)
5. Holder (see. 3.1.2 Picture)
6. Ceiling holder (included in unit set)

3.1.2 d Picture

Unit holder is made of 2,5 mm galvanized steel sheets according to EN 10142.

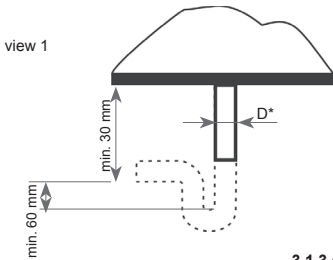
Condensate Drain Connections

All condensate drain connections must be correctly trapped. Incorrect trapping can result in flooding within the unit and consequent flooding of the immediate area. Fill the drain trap with water before starting up the unit.

All drain lines should be insulated where passing through any space where damage from condensation drip might occur. If the unit is installed in unheated premises the condensate pipe should be heat-insulated and heated with heating cable.

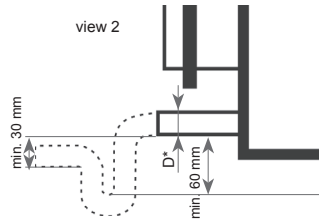
A condensate pipe and a drain trap

Drain scheme of Vertical Unit



3.1.3 a Picture

Drain scheme of Horizontal Unit



3.1.3 b Picture

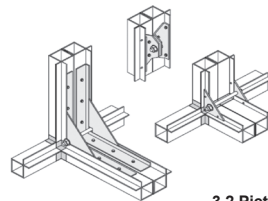
* RECU 400 - 1200, REGO 1200 - D=15 mm
RECU 1600 - 7000, REGO 1600 - 2500 - D=28 mm

3.2 Section-to-section joints

Air handling units REGO 3000, REGO 4000, REGO 4500, REGO 7000 and RECU 7000 are produced from three sections, and RECU 3000, RECU 4000, RECU 4500 from two section. Separate sections are easy to install on site. Ensure that sections or section assemblies are positioned in their proper sequence and that the unit handling and reference is correct. Sections should be accurately aligned prior to bolting together using the fixings and gaskets provided. The sealing gasket and fastening parts are available with every air handling unit.

Incorrect installation will result in air leakage, air blow marks to the unit casings and unacceptable noise. Section connection scheme is shown in 3.2 Picture.

Section Connection Scheme



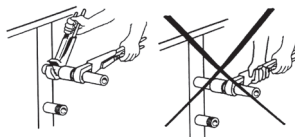
3.2 Picture

3.3 Heating coil connection*

Pipe work should be connected in accordance with good engineering practice. All pipe work must be adequately supported to ensure that no additional load is stressing the unit.

Mounting the pipes on the heating coil, tight the pipes with spanners. As shown in 3.3 Picture.

Fitting Pipes Connection



3.3 Picture

The pipe work should be done in order to ensure the space for maintenance and service work. When carrying out the installation of heater pipes, make sure that hot water supply is completely disconnected. Before start-up of the air handling unit, the heater system should be filled in with water. Glycol is used in the air handling units with coil heat exchanger. Never pour glycol down a drain; collect it in a receptacle and leave it at a recycling centre or the like. Glycol is highly dangerous to consume and can cause fatal poisoning or damage the kidneys. Contact a doctor! Avoid breathing glycol vapour in confined spaces. If you get glycol in your eyes, flush them thoroughly with water (for about 5 minutes).

**If water heater build in.*



When operating air handling unit in the temperatures lower than 0°C, it is necessary to use glycol additionally or assure the reversible heating agent temperature more than 25°C.



It is important to maintain air heaters and coolers cleanliness; that is to change filters installed in the air handling unit on time. If the air heater or cooler gets dirty, to perform periodical cleaning.

Ductwork

The air flows in/out air handling unit through ductwork. We recommend using galvanized steel (Zn 275 gr/m²) ductwork, to ensure easy cleaning and durability. It is necessary to use the ductwork system with low air flow rate and small pressure drop to have necessary air volume and low sound level and save the energy. The appropriate sound attenuators will reduce the noise level of the fans in the premises.

All ductwork should be insulated with 50–100 mm thickness insulation to avoid the condensation.

Note: temperature sensor B1 has to be mounted in the supply air duct under electric heater (see the functional diagram in Control System Electrical Installation and Operation Manual). It is necessary to leave space in straight air duct for sensor mounting and guarantee the space for maintenance and service work. Minimal space between the unit and B1 sensor is the space of double air duct diameter.



Ductwork, steelwork and any other services should not be supported off the unit.



In duct system, for units with electric air heater, use air closing damper without spring return mechanism.

FINAL INSPECTION

After installation of the unit, a thorough inspection should be carried out. This should include inspecting the inside of the unit and removing debris and tools, which may have been left behind by on site contractors. Replace any panels, which may have been removed and close all access doors, ensuring that the door sealing gaskets have not been damaged.

4. MAINTENANCE

It is recommended to carry out routine maintenance of the air handling unit REGO/RECU/OTK, 3 – 4 times per year. REGO 1200P use the key to open the door. Do not release the door to swing freely, but open it slowly at a 90 degree angle. Be careful while opening, because clogged filters might fall out.

Besides preventive maintenance inspection, the following operations should be performed:

- 1. Rotary heat exchanger check.** Inspection of the rotary heat exchanger is performed once per year. Free rotation of the rotary heat exchanger, continuity of the rotating belt, absence of damages of the rotor drums and the seal gasket are checked. It is necessary to check the stretch of belt. Free belt will slide and the efficiency of rotary heat exchanger will fall down. To reach maximal efficiency, rotor must turn at least 8 times per minute. Polluted heat exchanger will decrease efficiency. Clean heat exchanger with an air blast or wash with tepid water. Check out water falling on the electric motor.
- 2. Plate heat exchanger check.** Inspection and dedusting of the plate heat exchanger is performed once per year (it is removed from the unit and blown with an air blast or washed with tepid water).

Note: plate heat exchanger may be replaced with summer cassette, when recuperation is needless.

- 3. Fans check (once per year).** Polluted fans decrease efficiency.



Before performing any inspection work, check whether the unit is switched off from the electric power supply.

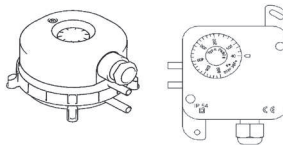
Fans should be carefully cleaned with textile or soft brush. Do not use water. Do not break balance. Check if direction of fan turns is right, because wrong direction of turns gives only 30% rating. Check if fan freely rotates and is not mechanically damaged, if impeller does not touch suction nozzles, fan does not spread noise, the pressure tubes are connected to the nozzle (if it is required), mounting bolts are screwed.

The rubber couplings connecting the motor base and the unit should be visually inspected for signs of wear and replaced as necessary.

Any unusual noise or vibration when the fan is running should be immediately investigated, as this usually an indication of wear or imbalance in the fan system.

4. **Air heater check.** Recommended to perform periodical inspection and cleaning of heater. Check the plates of water air heater. The air heater is cleaned with Hoover from supply air side or with air blast from exhaust air side. If it is very dirty, wash with tepid water, which will not make corrosion of aluminium. Check if position of return water temperature sensor is right. Check if electric air heater is properly fixed, wires connections are not damaged and heating elements are not bent. They can be damaged or bent due to uneven heat or uneven and turbulent air direction. Check if electric air heater is clear of unnecessary things and heating elements are not clogged, because this can cause unpleasant smell or in the worst case – dust can start burning. Heating elements can be cleaned with Hoover or wet textile.
5. **Air damper check (if it is required).** Not fully opened outside air damper rises up the pressure in the system. Water air heater can freeze if outside air damper does not fully close in not working air handling unit. Mounting and running of air damper should be checked and regulated.
6. **Air filter clogging check.** Change air filters when air filter clogging is indicated. We recommend to change filters at least twice per year: before and after heating season, or more*.
Filters are one time used. We do not recommend cleaning them. Stop the air handling unit before changing filters.

Pressure sensor



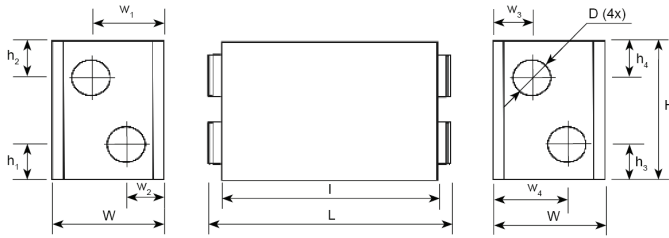
4 Picture

7. **Pressure sensor setting, which indicates impurity of filters.** Pressure sensor is set according to EN 13779:2007 standard: 100 Pa for small systems, 150 Pa for big systems. Remove cover from the pressure sensor and turn the cursor to proper position. The indicator will turn on when filters will be clogged.
 - One of pressure sensors shown in 4 Picture can be mounted in the air handling unit.
 - Close the door after pressure sensor regulating process. Be sure that sensor does not indicate impurity of clear filters.
 - Pressure sensors in the air handling units up to size 900 are regulated and set in factory.

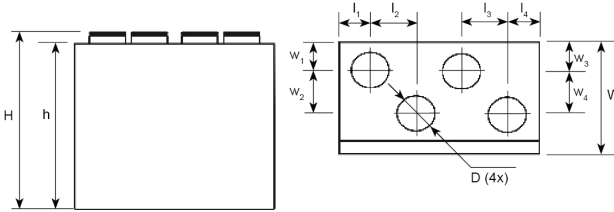
* Clogged filters unbalance ventilation system, air handling unit uses more power.

5. TECHNICAL INFORMATION

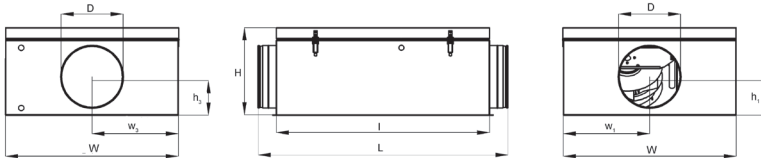
REGO RECU Horizontal units



REGO RECU Vertical units



OTK



Type	Parameters	Dimensions			Weight	Supply voltage	Operating current	Heater capacity		Fans input power	Ducts connection D
		Width, W	Length, L/l (L ₁ , L ₂ , L ₃) ¹	Height, H/h				Hot water	Electric		
REGO											
400HE-EC	510	790/640	585	50	1~ 230	6,2		1	2*105	160	
400HW-EC	510	790/640	585	50	1~ 230	2,3	2,65		2*105	160	
500HE-AC	635	1080/930	700	90	1~ 230	5,8		1	2*139	200	
500HW-AC	635	1080/930	700	90	1~ 230	2,0	3,0		2*139	200	
500HE-EC	635	1080/930	700	90	1~ 230	6,9		1	2*155	200	
500HW-EC	635	1080/930	700	90	1~ 230	3,0	3,0		2*155	200	
500VE-AC	635	1060	1015/940	140	1~ 230	5,8		1	2*139	250	
500VW-AC	635	1060	1015/940	140	1~ 230	2,0	3,0		2*139	250	
500VE-EC	635	1060	1015/940	140	1~ 230	6,9		1	2*155	250	
500VW-EC	635	1060	1015/940	140	1~ 230	3,0	3,0		2*155	250	
700HE-AC	635	1080/930	700	90	1~ 230	10,8		2	2*240	250	
700HW-AC	635	1080/930	700	90	1~ 230	2,8	4,5		2*240	250	
700HE-EC	635	1080/930	700	90	1~ 230	11,5		2	2*164	250	
700HW-EC	635	1080/930	700	90	1~ 230	3,2	4,5		2*164	250	
700VE-AC	635	1060	1015/940	140	1~ 230	10,8		2	2*240	250	
700VW-AC	635	1060	1015/940	140	1~ 230	2,8	3,6		2*240	250	
700VE-EC	635	1060	1015/940	140	1~ 230	11,5		2	2*164	250	

Parameters Type	Dimensions			Weight kg	Supply voltage V	Operating current A	Heater capacity		Fans input power W	Ducts con- nection D mm
	Width, W mm	Length, L/l (L ₁ , L ₂ , L ₃) ¹ mm	Height, H/h mm				Hot water kW ²	Elec- tric kW		
700VW-EC	635	1060	1015/940	140	1~ 230	3,2	3,6		2*164	250
900HE-AC	795	1550/1400	795	165	3~ 400 ³	6,6		3	2*310	250
900HW-AC ⁴	795	1550/1400	795	165	3~ 400 ³	2,7	2,95		2*310	250
900HE-EC	795	1550/1400	795	165	3~ 400 ³	10,2		3	2*395	250
900HW-EC ⁴	795	1550/1400	795	165	3~ 400 ³	6,1	2,95		2*395	250
900VE-AC	795	1250	1345/1270	175	3~ 400 ³	6,6		3	2*310	250
900VW-AC	795	1250	1345/1270	175	3~ 400 ³	2,7	2,95		2*310	250
900VE-EC	795	1250	1345/1270	175	3~ 400 ³	10,2		3	2*395	250
900VW-EC	795	1250	1345/1270	175	3~ 400 ³	6,1	2,95		2*395	250
1200HE-EC	795	1550/1400	795	170	3~ 400 ³	12,3		4,5	2*405	315
1200HW-EC ⁴	795	1550/1400	795	170	3~ 400 ³	6,1	4,7		2*405	315
1200VE-EC	795	1250	1345/1270	180	3~ 400 ³	12,3		4,5	2*405	250
1200VW-EC ⁴	795	1250	1345/1270	180	3~ 400 ³	6,1	4,7		2*405	250
1200 PE-EC	1000	1340/1270	470	120	3~ 400	8,7		4,0	2x425	315
1200 PW-EC	1000	1340/1270	470	120	230	6,1	7,0		2x425	315
1600HE-EC	900	1565/1500	990	275	3~ 400 ³	12,4		4,5	2*420	300*400
1600HW-EC ⁴	900	1565/1500	990	275	1~ 230	6,4	8,5		2*420	300*400
1600VE-EC	900	1500	1020/990	275	3~ 400 ³	12,4		4,5	2*420	300*400
1600VW-EC ⁴	900	1500	1020/990	275	1~ 230	6,4	8,5		2*420	300*400
2000HE-EC	900	1565/1500	990	285	3~ 400 ³	17,4		7,5	2*480	300*400
2000HW-EC ⁴	900	1565/1500	990	285	1~ 230	7,0	10		2*480	300*400
2000VE-EC	900	1500	1020/990	285	3~ 400 ³	17,4		7,5	2*480	300*400
2000VW-EC ⁴	900	1500	1020/990	285	1~ 230	7,0	10		2*480	300*400
2500HE-EC	900	1565/1500	990	290	3~ 400 ³	17,1		7,5	2*670	300*400
2500HW-EC ⁴	900	1565/1500	990	290	1~ 230	6,7	13		2*670	300*400
2500VE-EC	900	1500	1020/990	290	3~ 400 ³	17,1		7,5	2*670	300*400
2500VW-EC ⁴	900	1500	1020/990	290	1~ 230	6,7	13		2*670	300*400
3000HE-EC	1150	1860/1800 (615,570,615)	1215	440	3~ 400 ³	16,8		9	2*990	600*500
3000HW-EC	1150	1860/1800 (615,570,615)	1215	440	3~ 400 ³	4,2	12		2*990	600*500
3000VE-EC	1150	1800 (615,570,615)	1245/1215	440	3~ 400	16,8		9	2*990	400*400
3000VW-EC	1150	1800 (615,570,615)	1245/1215	440	3~ 400	4,2	12		2*990	400*400
4000HE-EC	1150	1860/1800 (615,570,615)	1215	450	3~ 400 ³	25,5		15	2*1000	600*500
4000HW-EC	1150	1860/1800 (615,570,615)	1215	450	3~ 400 ³	4,2	20		2*1000	600*500
4000VE-EC	1150	1800 (615,570,615)	1245/1215	450	3~ 400	25,5		15	2*996	400*400
4000VW-EC	1150	1800 (615,570,615)	1245/1215	450	3~ 400	4,2	20		2*996	400*400
4500VE-EC	1150	1800 (615,570,615)	1245/1215	450	3~ 400	27,3		15	2*1700	400*400
4500VW-EC	1150	1800 (615,570,615)	1245/1215	450	3~ 400	6,0	20		2*1700	400*400
4500HE-EC	1150	1800 (615,570,615)	1245/1215	450	3~ 400	27,3		15	2*1700	600*500
4500HW-EC	1150	1800 (615,570,615)	1245/1215	465	3~ 400	6,0	20		2*1700	600*500
7000HW-EC	1150	2105/1930	1520	820	3~ 400	10	29		2*2730	1200*600
RECU										
400HE-AC	390	1150/1000	600	55	1~ 230	10,1		2	2*135	200
400HW-AC	390	1150/1000	600	55	1~ 230	2,0	2,65		2*135	200
400HE-EC	390	1150/1000	600	55	1~ 230	10,7		2	2*105	200
400HW-EC	390	1150/1000	600	55	1~ 230	2,0	2,65		2*105	200

Parameters Type	Dimensions			Weight kg	Supply voltage V	Operating current A	Heater capacity		Fans input power W	Ducts con- nection D mm
	Width, W mm	Length, L/l (L ₁ , L ₂ , L ₃) ¹ mm	Height, H/h mm				Hot water kW ²	Elec- tric kW		
400VE-AC	390	900	945/780	62	1~ 230	10,1		2	2*135	160
400VW-AC	390	900	945/780	62	1~ 230	2,0	2,65		2*135	160
400VE-EC	390	900	945/780	62	1~ 230	10,7		2	2*105	160
400VW-EC	390	900	945/780	62	1~ 230	2,0	2,65		2*105	160
700HE-AC	490	1320/1170	600	75	1~ 230	12,9		2,5	2*240	250
700HW-AC	490	1320/1170	600	75	1~ 230	4,5	4,47		2*240	250
700HE-EC	490	1320/1170	600	75	1~ 230	13,7		2,5	2*164	250
700HW-EC	490	1320/1170	600	75	1~ 230	3,1	4,47		2*164	250
700VE-AC	490	1000	1115/950	85	1~ 230	12,9		2,5	2*240	200
700VW-AC	490	1000	1115/950	85	1~ 230	4,5	3,64		2*240	200
700VE-EC	490	1000	1115/950	85	1~ 230	13,7		2,5	2*164	200
700VW-EC	490	1000	1115/950	85	1~ 230	3,1	3,64		2*164	200
700HECF-EC	490	1540/1500	700	100	1~ 230	11,5		2	2*164	250
700HWCF-EC	490	1540/1500	700	100	1~ 230	3,6	4,5		2*164	250
700VECF-EC	490	1020	1130/1150	95	1~ 230	11,5		2	2*164	200
700WVCF-EC	490	1020	1130/1150	95	1~ 230	3,6	4,5		2*164	200
900HE-EC	490	1320/1170	600	78	3~ 400	9,3		4,5	2*170	250
900HE-AC	490	1320/1170	600	78	3~ 400	10,3		4,5	2*235	250
900HW-EC	490	1320/1170	600	78	1~ 230	4,5	4,9		2*170	250
900HW-AC	490	1320/1170	600	78	1~ 230	5,5	4,9		2*235	250
900VE-EC	490	1000	1115/950	90	3~ 400	9,3		4,5	2*170	200
900VE-AC	490	1000	1115/950	90	3~ 400	10,3		4,5	2*235	200
900VW-EC	490	1000	1115/950	90	3~ 400	4,5	4,9		2*170	200
900VW-AC	490	1000	1115/950	90	3~ 400	5,5	4,9		2*235	200
1200HE-EC	700	1820/1670	860	195	3~ 400	14,3		6	2*409	315
1200HW-EC	700	1820/1670	860	200	1~ 230	5,6	10		2*405	315
1200VE-EC	700	1360	1535/1300	225	3~ 400	14,3		6	2*405	250
1200VW-EC	700	1360	1535/1300	225	1~ 230	5,6	10		2*405	250
1600HE-EC	700	2050/1900	900	320	3~ 400	23,2		12	2*420	359
1600HW-EC	700	2050/1900	900	330	1~ 230	6,3	20		2*420	355
1600VE-EC	700	1470	1510/1310	300	3~ 400	23,2		12	2*420	315
1600VW-EC	700	1470	1510/1310	315	1~ 230	6,3	20		2*420	315
2000HE-EC	700	2050/1900	900	325	3~ 400	32,1		18	2*480	359
2000HW-EC	700	2050/1900	900	330	1~ 230	6,4	20		2*480	355
3000HE-EC	790	2715/2655 (1770,885)	1365	530	3~ 400	29,7		18	2*990	600*500
3000HW-EC	790	2715/2655 (1770,885)	1365	540	3~ 400	4,1	20		2*990	600*500
4000HE-EC	790	2860/2800 (1770, 1030)	1365	605	3~ 400	38,4		24	2*1000	600*500
4000HW-EC	790	2860/2800 (1770, 1030)	1365	615	3~ 400	4,1	40		2*1000	600*500
4500HE-EC	790	2860/2800 (1770, 1030)	1365	605	3~ 400	40,2		24	2*1700	600*500
4500HW-EC	790	2860/2800 (1770, 1030)	1365	625	3~ 400	5,9	40		2*1700	600*500
7000HW	1500	2615/2640	1520	810	3~ 400	9,6	36		2*2730	1200*600
OTK										
700PE/3	440	1000/850	350	32,5	1x230	13,8		3	165	200
700PE/6	440	1000/850	350	32,5	3x400	9,4		6	165	200

Type	Parameters	Dimensions			Weight	Supply voltage	Operating current	Heater capacity		Fans input power	Ducts connection D
		Width, W	Length, L/l (L ₁ , L ₂ , L ₃) ¹	Height, H/h				Hot water	Electric		
700PE/9		440	1000/850	350	32,5	3x400	13,8		9	165	200
1200PE/9		690	1000/850	350	45,5	3x400	14,3		9	290	250
1200PE/15		690	1000/850	350	45,5	3x400	23,0		15	290	250
2000PE/15		1000	960/865	350	72,5	3x400	24,2		15	2x290	700x250
2000PE/22,5		1000	960/865	350	72,5	3x400	35,1		22,5	2x290	700x250
1200PW		690	1000/850	350	45,5	1x230	1,8	15		290	250
2000PW		1000	960/865	350	72,5	1x230	3	30		2x290	700x250
3000PW		1005	1220/1150	545	120	3x400	2,2	45		990	600x400
4000PW		1005	1220/1150	545	120	3x400	2,3	45		990	600x400

Parameters with nominal air volume, $t_{\text{outside}} = -23^{\circ}\text{C}$, $t_{\text{inside}} = 22^{\circ}\text{C}$.

¹ (L₁, L₂) – sectional unit.

² parameters of hot water 80-60°C, connection REGO – 1/2", REGO 4000HW/W and RECU 1".

³ 3- 230V is available as an option.

⁴ Air heater and cooler combined in one water coil.

RECU 400 + 900, REGO 400 + 1200 - Ducted DH water heater.

Dimensions of Ductwork Connection

Type	Parameter	w ₁	w ₂	w ₃	w ₄	l ₁	l ₂	l ₃	l ₄	h ₁	h ₂	h ₃	h ₄
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
REGO													
400HE(W)		310	150	310	150	-	-	-	-	160	205	160	205
500/700HE(W)		390	245	245	390	-	-	-	-	220	175	175	220
500/700VE(W)		220	195	220	195	145	250	250	145	-	-	-	-
900HE(W)		500	300	300	500	-	-	-	-	245	200	200	245
900VE(W)		265	265	265	265	170	285	285	170	-	-	-	-
1200HE(W)		500	300	300	500	-	-	-	-	245	200	200	245
1200VE(W)		265	265	265	265	170	285	285	170	-	-	-	-
1200P		235	235	235	235	-	-	-	-	240	310	240	310
1600/2000/2500HE(W)		655	245	245	655	-	-	-	-	260	260	260	260
1600/2000/2500VE(W)		230	400	230	400	275	0	275	0	-	-	-	-
3000/4000/4500VE(W)		275	550	275	550	275	0	275	0	-	-	-	-
3000/4000/4500HE(W)		395	395	395	395	-	-	-	-	350	350	350	350
7000HE(W)		750	750	750	750	-	-	-	-	405	405	405	405
OTK													
700		220	-	220	-	-	-	-	-	154	-	154	-
1200		345	-	345	-	-	-	-	-	154	-	154	-
2000		496	-	496	-	-	-	-	-	154	-	154	-
3000		503	-	353	-	-	-	-	-	250	-	250	-
4000		643	-	573	-	-	-	-	-	250	-	250	-

Filters

Unit	Type	Overall dimensions			Supply	Exhaust
		Type	Width	Height	Length	Length
REGO	400	PF5/PF7*	410	200	46	46
REGO	500/700	PF5/PF7*	540	260	46	46
REGO	900/1200V	BF5/BF7*	592	287	360	360
REGO	900/1200H	PF5/PF7*	700	325	96	96

Unit	Type	Overall dimensions			Supply	Exhaust
		Type	Width	Height	Length	Length
REGO	1200P	PF5/PF7*	410	420	46	46
REGO	1600/2000/2500V	PF5/PF7*	800	450	46	46
REGO	1600/2000/2500H	PF5/PF7*	800	450	46	46
REGO	3000/4000/4500	BF5/BF7*	892	490	300	300
REGO	7000	BF5x2/BF7*x2	592	592	635	635
RECU	400	PF5/PF7*	300	195	46	46
RECU	700/900	PF5/PF7*	400	235	46	46
RECU	700CF	PF5/PF7*	390	300	46	46
RECU	1200/1600	BF5/BF7*	592	287	360	360
RECU	1600H/2000	PF5/PF7*	610	350	96	96
RECU	3000/4000/4500	BF5/BF7*	592	592	300	300
RECU	7000	BF5x2/BF7*x2	592	592	635	635
OTK	700PE	PF5	345	287	46	-
OTK	1200PE	PF5	558	287	46	-
OTK	2000PE	PF5	858	287	46	-
OTK	1200PW	PF5	558	287	46	-
OTK	2000PW	PF5	858	287	46	-
OTK	3000,4000PW	PF5x2/PF7*x2	450	480	96	-
Supply/Exhaust air						
REGO RECU						
PF5	Panel, class M5 (EN779)		PF7	Panel, class F7 (EN779)		
BF5	Bag filter, class M5 (EN779)		BF7	Bag filter, class F7 (EN779)		

* - F7 class filter is available as an option

6. ELECTRICAL INSTALLATION MANUAL

Installation works can be performed only by the specialists that have required qualification. During installation following requirements must be fulfilled.



It is recommended to lay control cables separately from power cables, or use shielded cables. In such case it is necessary to earth cable shielding!

6.1. Air Handling Units Sections Connection

After unit parts have been connected together (see unit installation instruction), unit sections connecting cables and wires are connected.



Connector connection is performed strictly according to numeration given in wiring diagram, or adequate markings (see unit electric scheme).



When disconnecting unit sections, do not pull by connecting wires and cables!

6.2. Electric Power Supply Connection

If the air handling unit voltage is ~230V; 50 Hz it is necessary to install the socket with grounding of corresponding capacity (see electric diagram unit). If the voltage is ~400V; 50 Hz, the cable of electrical power supply is connected to the main switch, which is located on the unit's outside wall. It is necessary to connect earthing! Types of cables of connection of electrical power supply are specified in 6.2 Table:

6.2 Table

Electrical Power Supply Cable Types

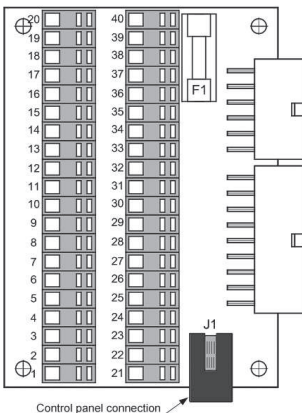
Air Handling Unit Type	Cable type
REGO-400HE-EC; REGO-400HW-EC; REGO-500H(V)E(W)-AC; REGO-700H(V)E(W)-AC; REGO-500H(V)E(W)-EC; REGO-700H(V)E(W)-EC; REGO-900H(V)W-AC; REGO-900H(V)W-EC; REGO-1200H(V)W-EC; REGO-1200PW-EC; REGO-1600H(V)W-EC; REGO-2000H(V)W-EC; REGO-2500H(V)W-EC; RECU-400H(V)E(W)-EC; RECU-700H(V)E(W)-EC; RECU-700H(V)E(W)-AC; RECU-700H(V)E(W)-EC; RECU-900H(V)W-AC; RECU-900H(V)W-EC; RECU-1200H(V)W-EC; RECU-1600H(V)W-EC; RECU-2000HW-EC; OTK 1200PW; OTK 2000PW	3 x 1,5 mm ² (Cu)
OTK 700PE3	3 x 2,5 mm ² (Cu)
REGO-900H(V)E-AC; REGO-900HE-EC; REGO-1200H(V)E-EC; REGO-1200PE-EC; REGO-1600H(V)E-EC; REGO-3000H(V)W-EC; REGO-4000H(V)W-EC; REGO-4500H(V)W-EC; REGO-7000HW-EC; RECU-900H(V)E-AC; RECU-900H(V)E-EC; RECU-3000HW-EC; RECU-4000HW-EC; RECU-4500HW-EC; RECU-7000HW-EC OTK 700PE6; OTK 3000PW; OTK-4000PW-EC	5 x 1,5 mm ² (Cu)
REGO-2000H(V)E-EC; REGO-2500H(V)E-EC; REGO-3000H(V)E-EC RECU-1200H(V)E-EC OTK 700PE9; OTK 1200PE9	5 x 2,5 mm ² (Cu)
RECU-1600H(V)E-EC OTK 1200PE15; OTK 2000PE15	5 x 4,0 mm ² (Cu)
RECU-3000HE-EC; REGO-4000H(V)E-EC; REGO-4500H(V)E-EC	5 x 6,0 mm ² (Cu)
RECU-2000HE-EC; RECU-4000HE-EC; RECU-4500HE-EC OTK 2000PE22.5	5 x 10,0 mm ² (Cu)

- ⚠ Air handling units designed for 400V AC supply voltage must be connected to the stationary installation by solid cable. All units must be connected through circuit breaker with max. 30mA current leakage protection.
- ⚠ Before connecting unit to the electrical power supply, it is necessary to check whether earthing has been installed properly.

6.3. External Elements Connection

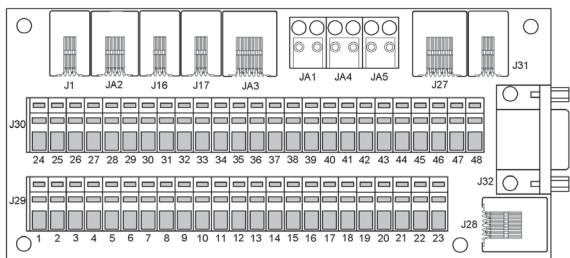
In the air handling unit it is provided connection board 6.3 a picture or 6.3 b picture (depending on the unit type), all external elements are connected to connection board. External elements connection diagram is given in the 6.3 c picture or 6.3 d picture.

Connection Board P3



6.3 a Picture

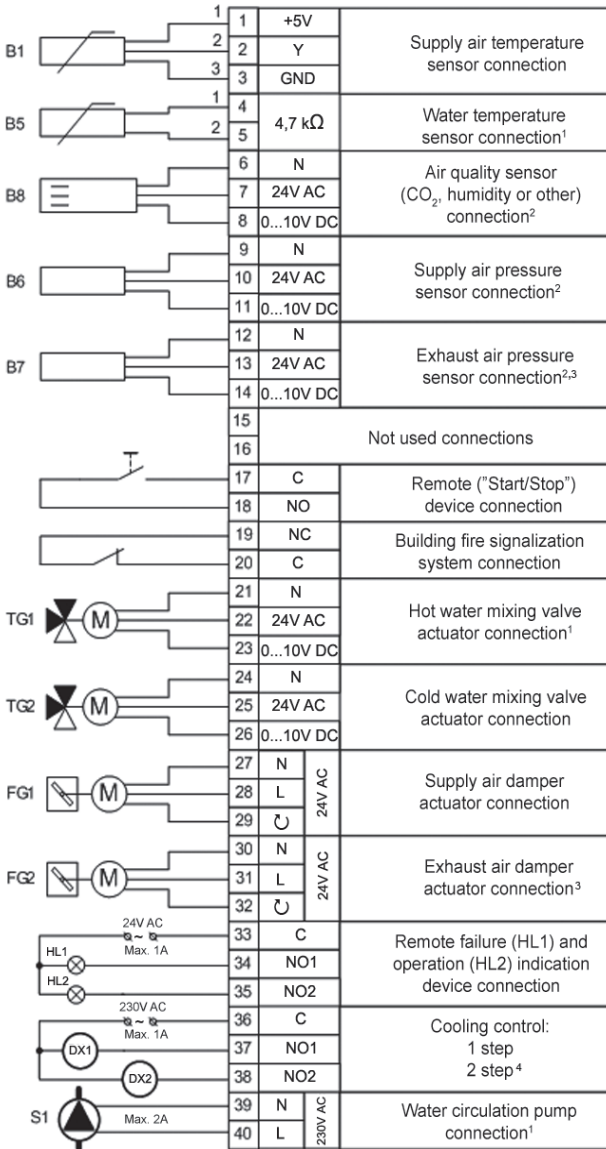
Connection Board C3-P1



6.3 b Picture

6.3 c Picture

P3 Control System External Elements Connection Diagram



Control contact. Do not connect voltage!

Normally closed contact. Do not connect voltage!

¹ used only in the units with water heater.

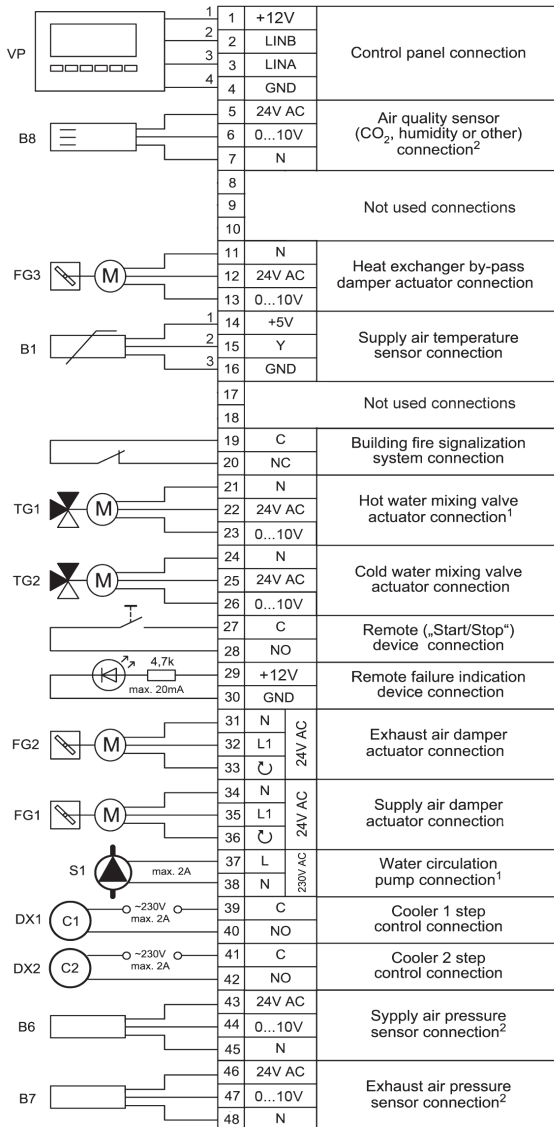
² additional ordered function, only with EC fans.

³ In OTK unit is not used.

⁴ In units with AC fans is not used.

6.3 d Picture

C3-P1 Control System External Elements Connection Diagram



Normally closed contact. Do not connect voltage!

Control contact. Do not connect voltage!

¹ used only in the units with water heater.

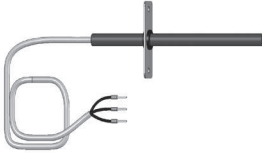
² additional ordered function, only with EC fans.

6.4. Temperature Sensors Installation

Supply air temperature sensor B1 (6.4 a Picture) is mounted in the air duct in a projected place for it; after electric heater or cooler section (if provided). The minimal distance from the air vent of the unit up to the sensor should be not less than double diameter of the circular connection or a diagonal of rectangular connection.

Water temperature sensor B5 (6.4 b Picture) is mounted on the return water pipe by screwing it into the provided hole. It is recommended that the sensor would be thermo insulated!

Supply air temperature sensor B1



6.4 a Picture

Return water temperature sensor B5



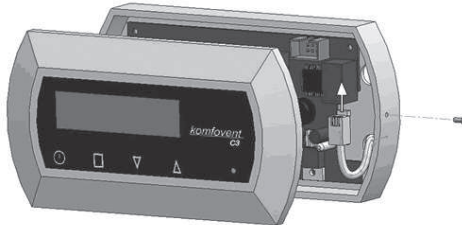
6.4 b Picture

6.5. Control Panel Installation

1. Control panel must be installed in the room under given following conditions:
 - 1.1. ambient temperature range 0°C ... 40°C;
 - 1.2. relative humidity limits 20% ... 80%;
 - 1.3. protection must be ensured from accidentally vertically falling water drops (IP X2).
2. Installation height must be not less than 0,6 m from the ground.
3. Control panel connection is projected through the hole in its backside.
4. Control panel is fixed after screwing two holes on the fastening surface.

Control panel is connected to the connection box terminals (see 6.3 a Picture) to the provided terminals (6.3 b Picture). The length of the cable between the control panel and the unit should not exceed 150 m. Cable type is specified in unit wiring diagram.

Control Panel Connection



6.5 Picture



When closing the panel window, do not bend the springs inside as this may inhibit the functions of the panel buttons! Disconnect power supply prior to connecting the control panel!



Control panel connection and other cable thicknesses are specified in the wiring diagram!

7. OPERATION MANUAL

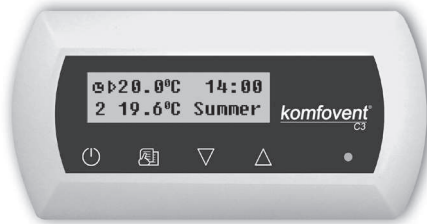
7.1. Unit Control

Air handling units control system ensures control of the physical processes that are taking place inside the air handling unit. Control system consists of:

- controller board;
- fuses, power and intermediate control boards, which are installed inside the unit;
- control panel, which can be installed in the convenient place for the user;
- air damper actuators;
- pressure and temperature sensors.

Control panel (7.1 Picture) is designed for remote air handling unit control, setting and display of controller parameters. Control panel LCD display with backlight allows monitoring various parameters and text messages. Controller light signals indicate unit operation modes and failures. Air temperature, ventilation intensity, operation modes and other parameters are set by the touch sensitive buttons.

General View of the Control Panel



7.1 Picture

Touch sensitive buttons located on the panel mean:



start up and shut down of the air handling unit / return to previous menu window;



entry to parameters change menu / set parameters confirmation;



navigation in the menu / parameters value change.

7.2. Switching on the Unit

After connecting the unit to the electrical power supply, on the control panel LCD displays start-up window, this is shown in the Picture 7.3.

Unit is switched on (off) by touching and holding  button for 4 seconds till sound confirms the action. After switching on, unit will start operating after short delay (about 60 seconds), until air dampers open up, and fans start running. Unit operation is indicated in the control panel by ventilation intensity and LED signals (see further).

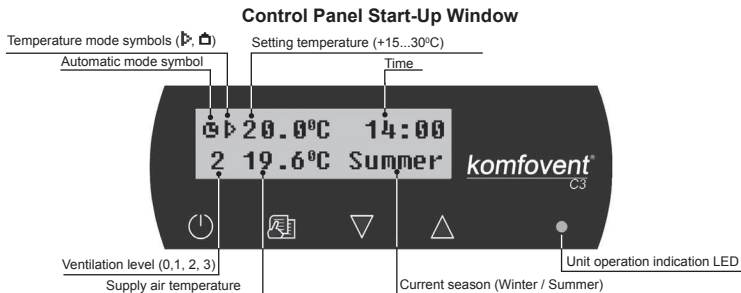


Do not switch on the unit without connected earthing! Make sure, whether all unit sections are tightly interconnected.

7.3. Control Panel Indication

Data is presented to the user on the control panel LCD display by numbers and text messages, also by two colour LED signals.

Controller display start-up window is shown in the 7.3 Picture.



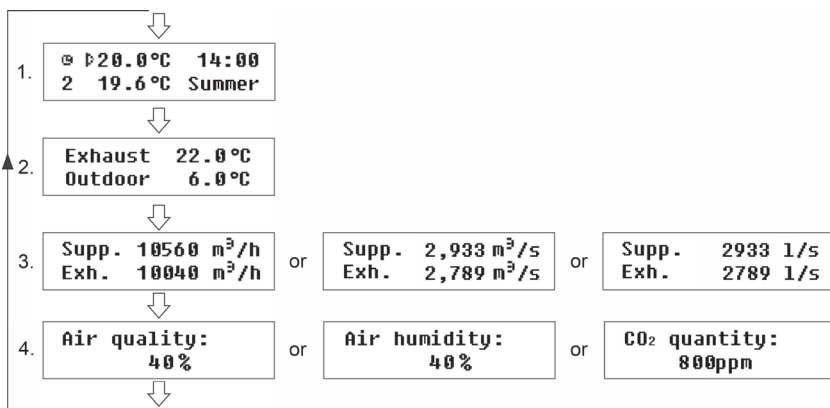
7.3 Picture

Light Diode Indication:

1. No LED signal indication on the panel – **unit has been switched off.**
2. LED shines steady green and text message is shown – **unit is switched on.**
3. Automatic mode symbol is shown on the panel, while green LED shines – **unit is operating in automatic mode according to weekly schedule.**
4. LED blinks red and green and text message is shown – see 7.9 chapter.
5. LED shines steady red and text message is shown – **emergency unit shut down** (see 7.9 chapter).
6. Nothing is showing on the control panel - **unit does not have electric power supply.**

7.4. Parameters Review

Main parameters are shown in the start-up window (7.3. Picture). To view other parameters (temperature value or air flow indication) touch ▽, △ buttons till corresponding window appears:







*Exhaust air temperature and flow are not displayed for OTK units


- ⚠ The 3rd window is provided only in the units with EC fans. There is possibility to change air flow indication from m³/h to m³/s or l/s. All you need to do is to press ⏏ button while being in an air flow indication window and holding this button go "up" and "down" with ▽, △ buttons till you select the right measures.vienetus.
- ⚠ The 4th window is provided only in the units with EC fans. Depending on the type of mounted air quality sensor, the 4th window may appear in one of three ways. It appears when air quality function is activated (see Air quality function setting).

7.5. Quick Ventilation Level Switchover








Three ventilation levels are projected in the unit. Each of them has its intensity (more detailed settings see in the next chapter). There is possibility to switch ventilation level quickly from start-up window (7.3 Picture).

To increase ventilation intensity: touch and hold  and at the same moment increase ventilation intensity by touching  button.

To decrease ventilation intensity: touch and hold  and at same moment decrease ventilation intensity by touching  button.

 If ventilation intensity is changed using quick switchover and unit is operating according to weekly schedule, operation mode automatically is changed to manual mode.

7.6. Unit Programmable Settings

By soft touching  button the parameters menu is entered. Menu window is selected by buttons ,  (see further description). When menu window is selected, touch  for selecting desirable parameters and select the value with , . To confirm the changes touch .


To return to previous menu or to start-up window touch  button.

Note: If touch sensitive buttons are inactive for 1 minute, start-up window is shown.

1. Unit operation modes setting

Two unit operation modes are possible: manual and automatic. In manual mode unit operates continuously by set ventilation intensity. In automatic mode unit works according to weekly schedule (see further weekly schedule setting).

Mode :
→Manual Auto


Note: If automatic operating mode is selected, there is a symbol  in the start-up window.


2. Air volume control setting

Supply and exhaust air volumes control modes have been projected in the unit:




- Constant air volume (CAV) control mode - unit supplies and exhausts constant air volume preset by the user, independent of the processing changes in the ventilation system;
- Variable air volume (VAV) control mode - unit supplies and exhausts air volume correspondingly to the ventilation requirements in different premises. In case of frequently changing ventilation demands this air volumes maintenance mode signally reduces unit exploitation costs.

Air volume :
→CAV VAV

 Menu window for air volume control setting is provided only in the units having air flow maintenance function. Only with EC fans.

 If air handling unit is provided with variable air volume control function, primary control mode calibration (look further) is essential, otherwise after choosing VAV mode unit will not operate.

Variable air volume control mode calibration:

1. Before activating the device you should adjust air distribution and exhaust devices in ventilation system, open all valves for variable air flow in a way enabling air supply to all ventilated premises.
2. Switch on the unit and by choosing menu window for air volume control setting (see above) actuate constant air volume maintenance mode.
3. After choosing the CAV mode and being at the same menu window touch both  and  buttons at the same moment. After this, calibration will start for 3 minutes and during this time unit will start working on maximum ventilation intensity and there will be displayed „Wait...“ on the control panel. During calibration process all buttons are inactive, except  which allows to shut down the unit and stop the calibration.
4. After finishing the calibration process, air handling unit further will operate in the previously settled mode.

3. Setting ventilation level

Three ventilation levels have been projected in the unit: 1, 2 and 3. Each of these levels may be set for manual or automatic operation mode. To set ventilation level in manual mode, select menu window:

Ventilation: 2
Supp. 50% Exh. 40%

Note: In the air handling units provided with the air flow maintenance function for each of three ventilation intensity levels maintained air flow can be adjusted and set separately for supply and exhaust air. It can be set from 20 up to 120% by 1% steps.



Air handling unit is designed and calculated to operate on maximum 100% intensity with exceptions when intensity might be set more than 100%.

4. Exhaust air flow correction

Set air flow intensity (or maintained air volume) for 1-99 minutes period can be corrected from -50% till +50% from set value.

Example: after reducing exhaust air flow intensity, for some time overpressure will be caused (sometimes needed to start the fireplace or such).

Exh.correction:
Off -50% 30min.

“On” - correction function on.

“Off” - function off.

Note: After this function has been activated unit will work for the set time period with present exhaust correction. After time period is over this function turns off automatically.



This function is not provided in the units with AC fans.

5. Setting temperature maintenance mode

Several temperature maintenance options are provided in the air handling unit: supply air maintenance, room (exhaust) air maintenance, automatic.

T.control: Auto
→Supply Room





After selecting “Auto”, when cooling is needed, unit will work in the room temperature maintenance mode. If the outside temperature will be few degrees lower than set value, control automatically will switch to supply air maintenance mode.

6. Setting temperature value

Air handling unit maintains preset temperature by the user: supply air or room, depending on which control has been selected (see temperature control mode setting).

Setting temp.:
▷ 20.0°C

Note: If before that supply air temperature maintenance mode was set, in the start-up and temperature value setting window symbol  is indicated; if room temperature maintenance - .

7. Setpoint sliding

The setpoint can be shifted from -9 to +9°C from the temperature set value at specified by user time period. To set setpoint sliding select menu window:

Setpoint sliding
0°C 00:00 00:00

8. Air quality function setting

To set the air quality (AQ) function select menu window:

“AQ” function:
On VOC1 40%

“On” - AQ function on.

“Off” - function off.

After function is activated, the type of sensor, which is connected to the unit, is selected:

“VOC1” (Volatile Organic Compound) – air quality sensor having signal-dependent linear relationship, the maximum value of output signal corresponds to the highest air quality.

“VOC2” – air quality sensor having inverse relationship, the maximum value of output signal corresponds to lowest air quality.

RH – relative humidity sensor.

CO₂ – carbon dioxide sensor.

Depending on the sensor type, the value of AQ function is set, according to it the intensity of the unit is regulated. If actual air quality value varies from the setpoint then ventilation intensity will increase otherwise – decrease.

For instance, if the humidity maintaining system is designed in the device, and there is additional relative humidity (RH) sensor, then by setting 65% in the air quality window, and by regulating the intensity of ventilation automatically, humidity of 65% will be maintained, i.e. if humidity increases, ventilation intensity will be increased as well, and if humidity reduces, the device will switch back to the previous mode.

AQ Function:
On RH 65%



This function is not provided in the units with AC fans.

9. Season setting

For the air handling unit operating in most economical mode, summer and winter seasons have been provided.

- By setting “Winter” season, unit cooling function is blocked.
- By setting “Summer” season, unit heating function is blocked.
- By setting “Auto”, automatic season selection will take place. Depending on the heating and cooling demand, the season is selected automatically.

To set season select menu window:

Season: Auto
→Summer Winter

Note: If air temperature during summer season is insufficient, air handling unit can be preset and for “Winter” season mode, its energy expenditures will be minimal.

10. Day and time setting

For the unit proper operation in automatic mode according to preset weekly schedule the day of the week and time should be set:

Day / Time
Mo 00:00

Days notation:

Mo – Monday

Tu – Tuesday

We – Wednesday

Th – Thursday

Fr – Friday

Sa – Saturday

Su – Sunday

11. Weekly schedule setting

Two ways for weekly schedule setting have been projected:

- “1-5/6,7” - simplified schedule setting option: one schedule for all work days and the other for weekend operation;
- “1-7” - weekly schedule setting option: different operation schedule for each day.

Schedule:
→1-5/6,7 1-7



There is one operation schedule with two setting options.

After selecting program for each day of the week “1-7” schedule setting window is introduced:

Mo	00:00	00:00
N1	→0	1 2 3

Each day of the week has 3 events: N1, N2, N3. Settings start from Monday (Mo). When the event of the day is selected, event start and end time is set and ventilation intensity level (0, 1, 2, 3) is assigned.

Before selecting work days and weekend operation mode schedule “1-5/6,7” menu window is introduced:

1-5	00:00	00:00
N1	→0	1 2 3

After event (N1, N2, N3) is selected for work days “1-5”, each event start and end time and ventilation intensity is set the same way. The same way three unit operating events are set for the weekend:

6, 7	00:00	00:00
N1	→0	1 2 3

Note: Every event start and end time is set from 0:00 to 23:59 h.

For instance:

Monday:

N1 from 00:00 to 07:00 2 ventilation level
 N2 from 10:00 to 20:00 1 ventilation level
 N3 from 20:00 to 23:59 3 ventilation level



12. Language setting

Language selection menu has been projected on the control panel. To set language the last menu window should be selected:

Language :
English







13. Menu locking

The PIN code is provided to lock entering to the parameters setting menu. If the menu is locked, only main parameters can be reviewed also the unit may be switched on or off.

To enter the PIN code, touch  +  and hold for 4 seconds till corresponding window appears:

PIN:
000

To enter the PIN code follow these steps:

1. Touch  or  to enter the first digit.
2. Touch  to go to the second digit.
3. Repeat the steps above to enter the second and the third digits.
4. After third digit is entered touch  to confirm the code.
5. Touch  and  and hold for 4 seconds to save the code into controller memory.



The menu can be unlocked only with the PIN code. If the code is forgotten, contact local service team.

7.7. Other Control Functions

1. Remote unit control

Unit is provided with remote control possibility using external device (button, timer, other sensor), which is connected to the contacts 17, 18 (see chapter 6.3c Picture) or 27, 28 (see chapter 6.3d Picture).

This function can perform one of two operations:

- remote unit switching on and off;
- remote unit intensity control (additional ordered function).

1.1. Remote unit switching on or off

If the unit is not operating according to programmed week schedule, by connecting (short-circuit) contacts 17, 18 (see chapter 6.3 c Picture) or 27, 28 (see chapter 6.3 d Picture) unit will be switched on and will operate with the intensity set in the menu window „Ventilation“ (see page 50); by disconnecting contacts unit operation will return to previous mode.

If unit is operating in auto mode with chosen intensity, to switch it off by remote switch contacts 17, 18 (see chapter 6.3 c Picture) or 27, 28 (see chapter 6.3 d Picture) must be connected (short-circuit).



Remote unit switching on and off is available only when auto mode is set!

1.2. Remote unit intensity control (OVR)*

If this function is ordered in advance, unit intensity will be controlled by contacts mentioned above.

If contacts 17, 18 (see chapter 6.3 c Picture) or 27, 28 (see chapter 6.3 d Picture), are interconnected, the fourth level of intensity will be activated, after disconnecting – unit will return to previous mode. Adjusting intensity of the fourth level for supply and exhaust fans is performed in the „Ventilation“ window, only when this function is activated, i.e. when these contacts are short-circuited.



Remote unit intensity control has the highest priority and operates in every mode, even the unit is switched off.

Note: This function is provided only for the units with EC fans.

2. Ventilation correction in the winter

In wintertime, when heating power is not enough and supply air temperature is below setting value, ventilation intensity automatically is decreasing in one level. If there is not enough, one more level (up to minimum) till set supply air temperature will be maintained.

3. Pump control

Units with water heater are designed with water circulation pump control. In winter pump operates continually, in summer season it is off. When outdoor temperature is lower than 5°C, pump is automatically turned on. Pump is connected to the connection box contacts (see 6.3. chapter).

4. Cooling energy recovery

In summer when room temperature is lower than temperature outside, units with either plate heat exchanger or rotary heat exchanger automatically operate with activated function of cooling energy recovery. This function is not provided for OTK units

5. Remote unit operation and failure indication

If the information about unit operation mode is requested (when unit is operating and when is not) indication device (for ex. bulb) must be connected to the contacts 33, 35 (see chapter 6.3 c Picture). In the connection board (see chapter 6.3.) are provided contacts 33, 34 (see chapter 6.3 c Picture) or 29, 30 (see chapter 6.3 d Picture), which are intended for connection of unit's emergency stop indicating device.

6. Summer night cooling*

If the room temperature (exhaust air) in summertime is 5°C higher than the setpoint and outside temperature is between 12°C and the setpoint, the ventilation level is automatically switched to the third intensity level at 00:15 am. The unit will operate in the third intensity level until 06:00 am or when outside air cools down (warms up) too much or the room temperature equals the setpoint. The air is being cooled only by fans, without heat or coolness recovery and additional air heating or cooling. When function is switched off the unit continues operating in the previous mode.



Function starts operating automatically if only the unit operates in the first or second ventilation intensity level. Function stops operating, when the ventilation intensity level is being changed.

* - additional ordered function.

7.8. Unit PC control

This is additionally ordered function and for it implementation special network module “Ping” is provided. Connection diagrams and installation requirements of network module are given in the “Ping” module installation manual.

After connecting units through special network modules to computer network or Internet and given an IP address, Ventilation Control System visualization program allows the operator from his computer not only to monitor, but also to control air handling units operation: to turn on/off, change ventilation intensity and etc. It also allows indicating failures. Detailed unit computer control description is given in the computer program using instruction.

7.9. Troubleshooting

If the unit is not working:

- Make sure if the unit is connected to the electrical power supply.
- Check if the unit main switch is on (if designed).
- Check all control block fuses. If needed, change failed fuses with the new ones that are the same electrical parameters as old ones (fuses types are shown in wiring diagrams).
- Check if there is not failure indication on the control panel. If there is indication, it needs to be eliminated first. To eliminate failure use 7.9 Table, which describes failures.
- If nothing is indicating on control panel, check whether cable connecting control panel with the unit is not damaged.

7.9 Table

Failures indicated on the control panel, possible reasons and it elimination

Message	LED	Possible Failure Cause	Failure Elimination
Change supply air filter	Red and green blinking	Supply air filter is clogged.	After unit is off, it is necessary to change filter.
Change exhaust air filter	Red and green blinking	Exhaust air filter is clogged.	After unit is off, it is necessary to change filter.
Low supply air temperature	Red light	Supply air temperature dropped lower allowable level.	Check program settings, unit heat exchanger and heater operation.
Supply air overheating	Red light	Supply air temperature is higher allowable level.	Check program settings, unit heat exchanger and heater operation.
Supply air fan overheating	Red light	Supply air fan motor overheated due to excessive load.	Check if air filters are inserted, if the unit doors are closed, if unit ventilation system has been installed correctly.
Exhaust air fan overheating	Red light	Exhaust air fan overheated due to excessive load.	Check if air filters are inserted, if the unit doors are closed, if unit ventilation system has been installed correctly.
Heater off	Red and green blinking	Heater is disconnected due to low air flow.	When heater cools down, protection restores automatically. It is recommended to increase ventilation intensity level.
Electric heater overheating	Red light	Electric heater overheating protection is on.	To restore protection, it is possible only after pressing "RESET" button, which is located on the heater.
Return water low temperature	Red light	Return water temperature in water heater dropped lower allowable level.	Check circulation pump and heating system condition, heating valve actuator performance.
Frost possibility	Red light	Temperature of the air passing through plate heat exchanger, dropped lower allowable level.	Check by-pass damper condition and actuator performance. It is recommended to decrease ventilation level.
Rotor stopping	Red light	The belt is broken, or failure of the rotor motor.	Check rotor drive and rotation sensor condition.
Fire alarm	Red light	Received fire alarm signal from the building fire system.	When fire alarm signal disappears, unit needs to be restarted from control panel.
B1 sensor failure	Red light	Supply air temperature sensor is not connected or broken down.	It is necessary to check sensor connections or change the sensor.
B2 sensor failure	Red light	Exhaust air temperature sensor is not connected or broken down.	It is necessary to check sensor connections or change the sensor.


B3 sensor failure	Red light	Outdoor temperature sensor is not connected or broken down.	It is necessary to check sensor connections or change the sensor.
B4 sensor failure	Red light	Plate heat exchanger temperature sensor is not connected or broken down.	It is necessary to check sensor connections or change the sensor.



It is possible to restore emergency overheating protection with button "RESET", only if before heater overheating cause has been clarified and eliminated.



If the unit has been stopped and there is red light diode signal on the controller, and text message is shown meaning failure, failure needs to be eliminated!

After failure has been eliminated and power supply connected, text message appears about previous failure. If there are no more failures, unit is switched on by pressing  button; unit continues operating by preset mode. However if the failure has not been eliminated, unit either starts operating and after some time it stops again, or it does not operate and failure message is indicated.

8. SAFETY REQUIREMENTS



- To avoid accidents and/or unit damage, only a trained technician must carry out the connection.
- The appropriate Personal Protective Equipment (PPE) attire is worn relative to the operation being carried out.
- Electrical equipment is rated, connected and earthed in accordance with CE regulations.



Before performing any jobs inside the unit make sure that the unit is stopped and disconnected from the electrical power supply.



- Earth must be installed according EN61557, BS 7671.
- The unit should be installed according to Installation and Maintenance Manual.
- Before starting the unit, check correct position of air filters.
- Service maintenance should be carried out only in conformity with the instructions specified herein below.



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