

AIR EXCHANGE EQUIPMENT INSTALLATION AND USER MANUAL

TALTERI

DIVK-C 99 CD



QUALITY TESTED

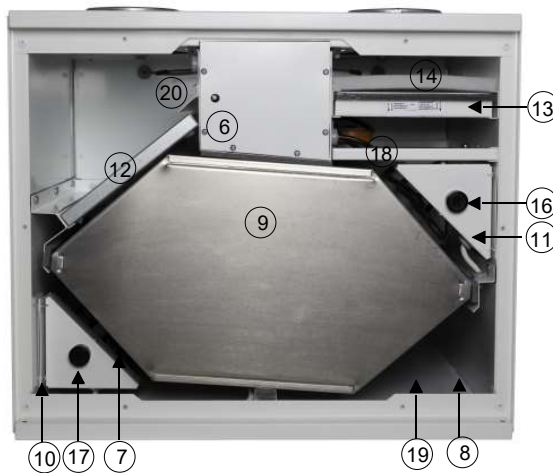
**THE QUALITY GOALS OF AIR CONDITIONING COME TRUE
WITH THE RECOVERY SYSTEM**

TALTERI removes used air from interior and brings in fresh air. Humidity and impurities are exhausted through thermal recovery unit that heats the filtered ambient air cost-effectively. The fresh warm air is channelled draught-free and noise-free into the premises in necessary quantities.

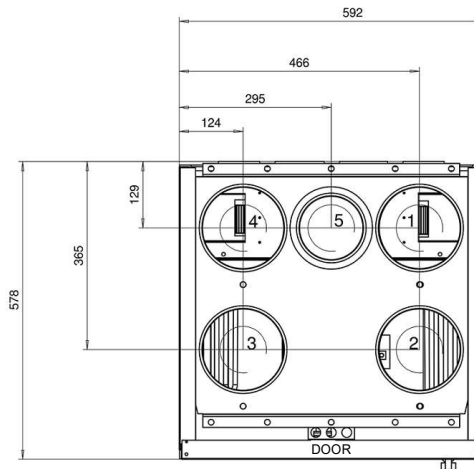
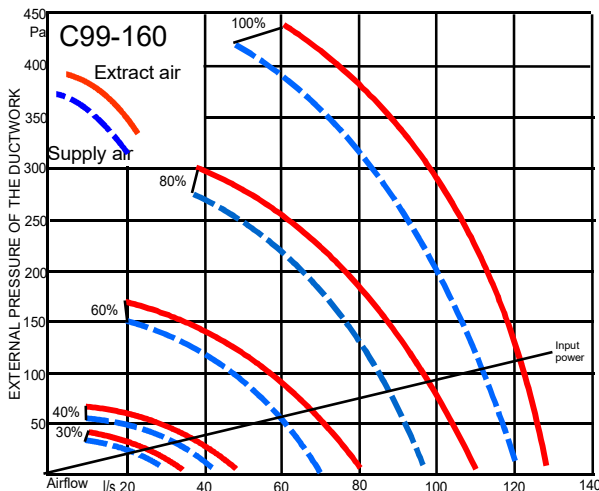
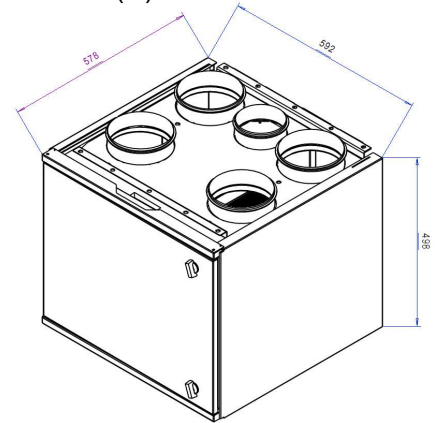
ENSURE THE QUALITY OF AIR EXCHANGE!

EQUIPMENT DETAILS AND TECHNICAL DATA

- 1 Exhaust air out..... \varnothing 125 or 160 mm
- 2 Outdoor air for the system ... \varnothing 125 or 160 mm
- 3 Extract air for the system..... \varnothing 125 or 160 mm
- 4 Supply air indoors..... \varnothing 125 or 160 mm
- 5 Kitchen exhaust \varnothing 125 mm
- 6 Door switch
- 7 Supply fan, adjustable.....EC 166 W
- 8 Extract fan, adjustable.....EC 166 W
- 9 Heat exchanger
- 10 Postheater, adjustable..... 500 W
- 11 Preheater, adjustable1000 W
- 12 Extract air filter (G4) ISO Coarse>75%
- 13 Supply air filter (F7) ISO ePM1
- 14 Supply air filter (G4) Coarse>75%
- 16 Preaheater manual overheat protection
- 17 Postheater manual overheat protection
- 18 Summer bypass appliance
- 19 Exhaust of condensing water
- 20 Humidity transmitter(optional)
- 21 Touch screen control panel for setting up or controlling the HRV unit (optional)



In the picture is shown a right handed (R) unit



DUCT OUTLETS
HANDEDNESS RIGHT(R)

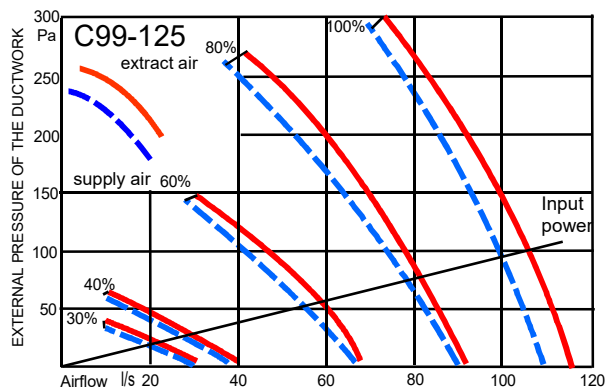
- 1 EXHAUST AIR
- 2 OUTDOOR AIR
- 3 EXTRACT AIR
- 4 SUPPLY AIR
- 5 KITCHEN EXHAUST

DUCT OUTLETS
HANDEDNESS LEFT(L)

- 4 EXHAUST AIR
- 3 OUTDOOR AIR
- 2 EXTRACT AIR
- 1 SUPPLY AIR
- 5 KITCHEN EXHAUST

C99-160

Fan speed		20	30	40	50	60	70	80	90	100
Fan input power W		12	18	26	41	69	105	158	223	283
Sound pressure level (LpA)	I/s	16/15	25/22	38/33	52/44	68/60	83/72	98/86	112/101	122/112
to the room (sound adsorption 10m2) dB(A)		15	19	21	26	30	35	37	40	42
Sound power level in	Hz	E S	E S	E S	E S	E S	E S	E S	E S	E S
the extract(E)and the supply(S)	63	29 41	36 53	42 56	47 62	51 66	53 70	56 72	58 74	58 75
duct by octave bands, Lw(dB)	125	23 38	32 48	39 53	44 59	50 63	54 66	56 69	59 71	58 72
	250	25 33	33 41	40 47	45 53	50 57	54 61	57 64	59 67	60 68
	500	16 35	25 44	31 50	36 55	41 59	45 62	47 66	50 69	50 70
	1000	15 29	27 42	33 48	37 53	40 57	43 60	45 62	47 64	48 65
	2000	* 22	14 37	22 46	28 53	33 58	36 62	39 65	41 68	41 69
	4000	* 8	4 28	14 39	21 46	26 52	31 57	34 60	37 63	37 65
	8000	* *	* 16	4 30	12 40	19 47	23 52	27 56	30 59	30 61
Total sound power level Lwa		19 33	29 45	35 52	40 58	44 63	48 66	51 69	53 72	53 74



KITCHEN EXHAUST AIRFLOW					
Control voltage	%	40	60	80	100
Airflow	l/s	23	33	42	50
Total sound power level of the kitchen exhaust duct	Lwa	45	55	61	64

C99-125

Fan speed %		20	30	40	50	60	70	80	90	100
Fan input power W		12	16	23	35	51	113	156	221	290
Sound pressure level (LpA)	l/s	17/16	22/20	33/30	46/42	59/55	72/68	82/78	95/90	106/98
to the room (sound adsorption 10m2) dB(A)		15	18	22	27	30	35	38	39	42
Sound power level in the extract(E)and the supply(S) duct by octave bands, Lw(dB)	Hz	E S	E S	E S	E S	E S	E S	E S	E S	E S
	63	* 37	23 49	33 54	38 58	42 61	44 65	47 68	50 71	52 72
	125	23 36	31 46	41 53	46 57	50 60	53 64	56 66	58 69	59 70
	250	22 30	29 39	35 44	40 49	46 54	49 57	52 61	54 64	56 66
	500	11 29	19 40	25 45	29 50	34 54	37 57	40 61	43 63	45 65
	1000	11 24	21 38	27 45	32 50	35 54	38 57	41 59	42 62	44 63
	2000	* 18	9 34	18 44	24 51	28 56	32 59	34 62	37 64	38 66
	4000	* 4	* 25	11 37	18 45	24 50	28 54	31 58	34 61	36 64
	8000	* *	* 11	* 27	6 36	13 44	18 48	21 52	24 56	26 58
Total sound power level Lwa		15 28	23 41	30 49	35 55	39 60	43 63	45 66	48 69	49 71

TALTERI DIVK-C 99 INSTALLATION

The air exchange unit is meant for warm inner facilities. Suitable installation spots are, among others, office, dressing or household facilities and technical or warm storages. In case the temperature of the installation location is lower than room temperature, the factory settings of the appliance must be changed to obtain faultless functioning. The unit can not be installed into cold outer premises or garages.

UPPER BASE DUCT

The channelling is usually mounted to the upper base thermal insulation. The steam barrier puncture must be carefully sealed. While installing the unit to channels, steel steam barrier plate, supplied as extra, will come handy. The steam barrier plate is attached securely between the roof trusses, 10 mm smaller hole must be cut into the gasket mat and channels are installed through the plate. The steam barrier must be hermetically taped. The unit can be attached right to the steam barrier plate with four M8 thread bars at desired height. Note the measurements of the steam barrier plate during the installation process. The bolts and thread bars are purchased separately.

WALL ATTACHMENT

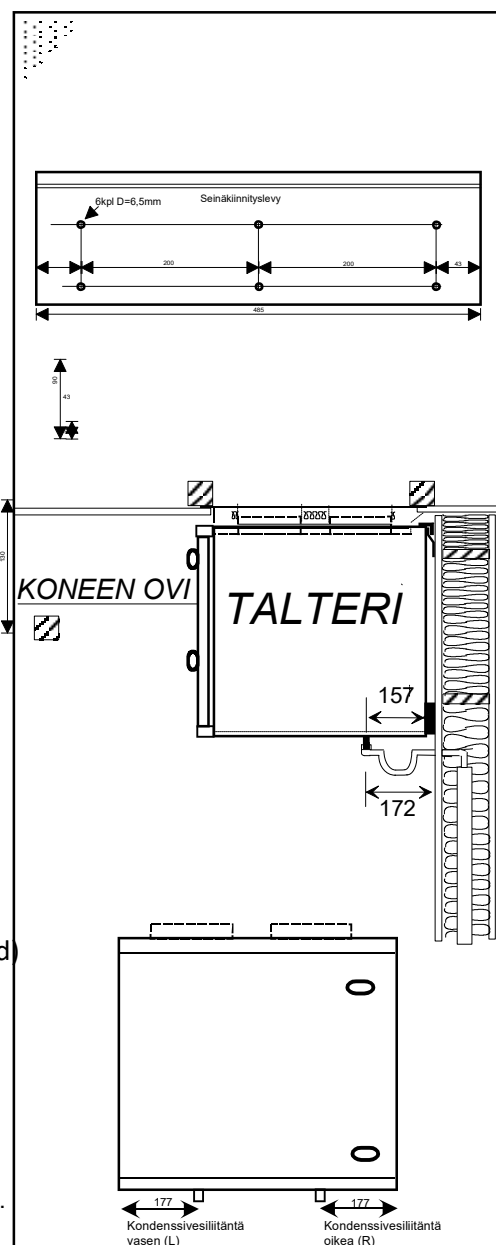
The wall mounting kit includes a ceiling mounting plate, a wall-mounting plate and 15 mm thick insulation pieces. A wall-mounting plate is installed about 25 mm below the roof surface. The wall attachment plate will be fixed to the wall and then the unit is lifted up to the attachment plate, checked into perfectly horizontal position and then drill holes for the metal screw through the mounting plate in to the bottom of the machine. Roof moldings can be put around the machine.

KITCHEN EXHAUST DUCT

The channel output (5) is intended for exhaust channel of the cooker hood. If the exhaust channel of the cooker hood is not in use, it must close. If the cooker hood is connected to the kitchen exhaust duct (heat recovery bypassed) all the basic ventilation holes of the cooker hood's damper must be closed and in the kitchen it is needed a separate extract air valve which is connected to the extract air duct.

CONDENSATE

Condensate drain is connected to the machine condensate connector (3/8 "external thread). Condensate can be made at a least 10 mm in the bore copper pipe or Relatively stiff hose. The water pipe Making about 10 cm in the water trap and the tube is connected to a floor drain. The water line shouldnt be connected directly to the sewer.

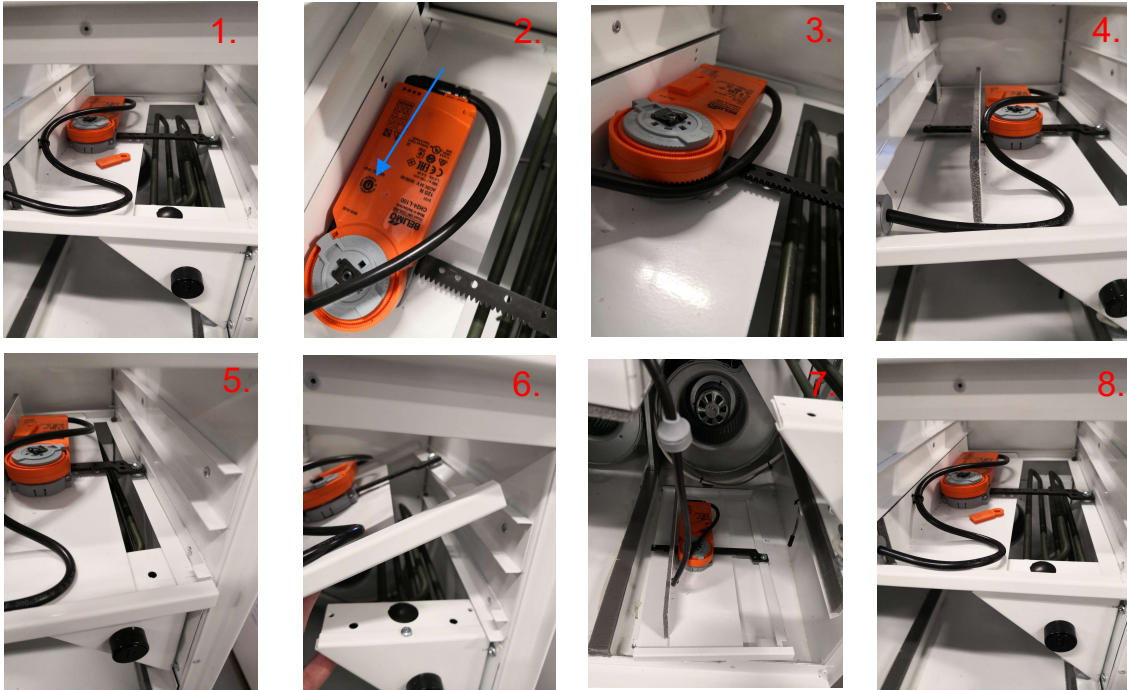


REMOVAL OF THE SUMMER BYPASS PLATE

In order to facilitate the installation of the ceiling mounting plate bolts, the summer bypass plate can be removed during installation. The heat exchanger and the filters are removed from the machine.

If the the plate is in the winter position (Figure. 1), the motor is released with the magnet.

The magnet is placed to the position shown in the figures 2 and 3. The summer bypass plate is pulled open by hand (Figure 4). Pull the plate outwards (Figure 5) and lift the outer edge above the filter brackets (Figure 6). The summer bypass plate can be placed on the bottom of the machine (Figure 7). Reassemble in the reverse order, remove the magnet from the motor, install the grommet and the motor cable as shown in the figure 8.



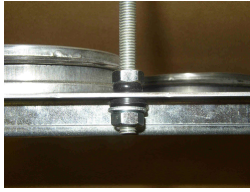
REMOVAL OF THE ELECTRICAL CONNECTION BOX

The electrical connection box can be removed, for example for maintenance or modbus termination, by removing the summer bypass plate and then loosening the thumbscrews, as shown in the figures below.



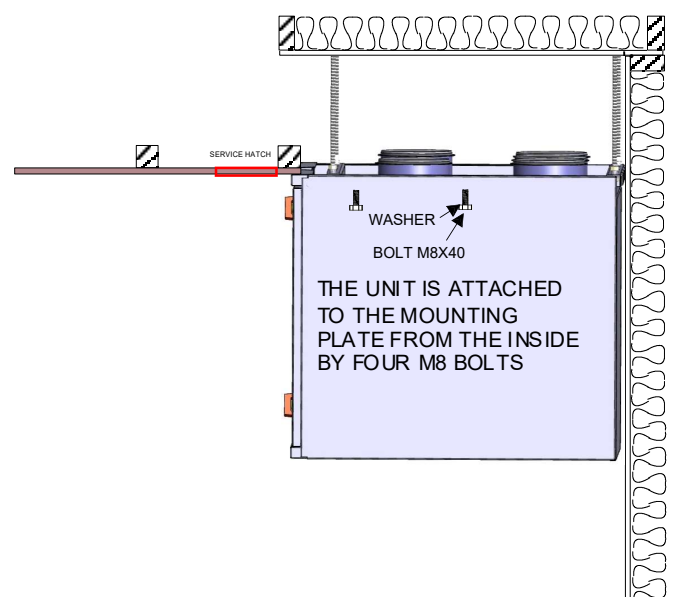
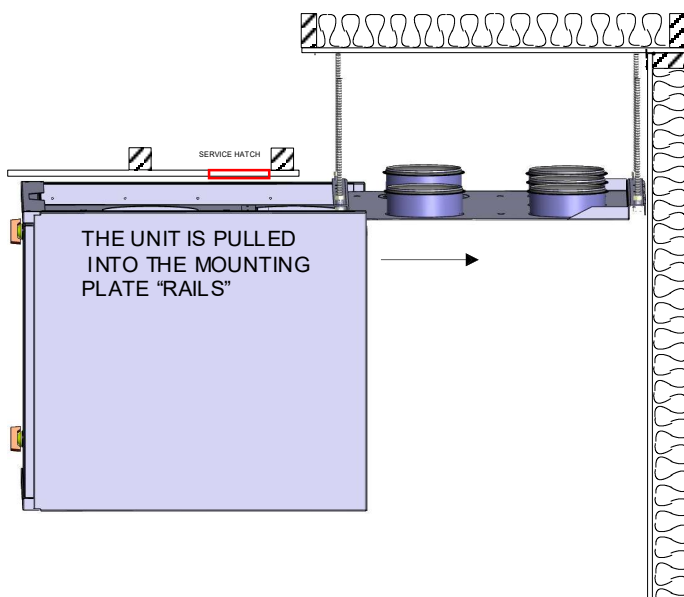
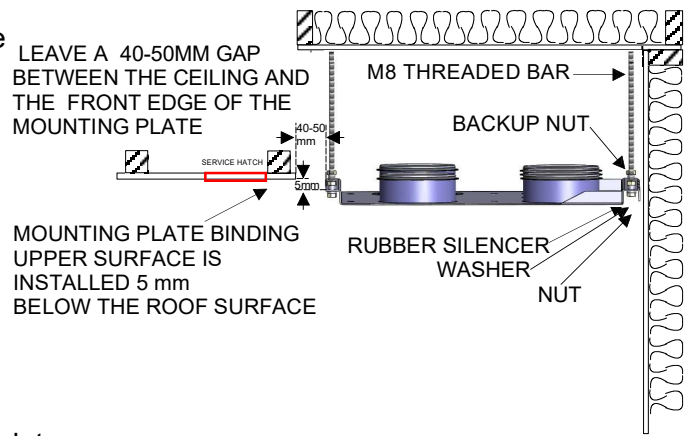
DIVK-C 99 INSTALLATION TO A SUSPENDED CEILING

The ceiling-mounting plate is attached to the roof with M8, thread bars (not included in the delivery).

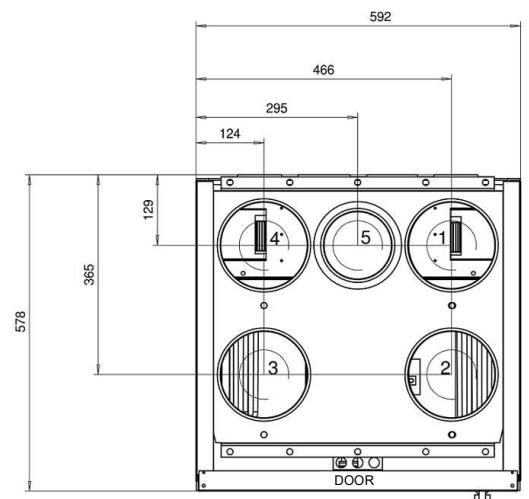
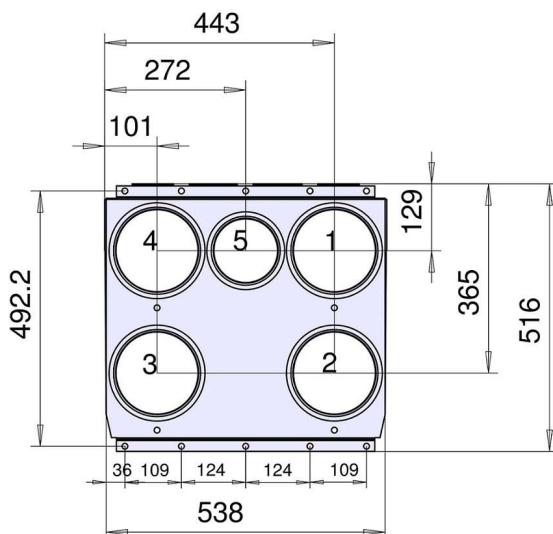


The head of the threaded bar can not reach below the bottom of the plate.

The unit will be pushed to the mounting plate and tightened with four M8 bolts against the mounting plate so that the cover seal of the unit is evenly sealed against the mounting plate, not tighter.



MEASURES OF THE MOUNTING PLATE



ELECTRICAL CONNECTIONS

Electrical connections must be done following the installation manual and wiring diagram.

ELECTRICAL CONNECTIONS CAN BE DONE ONLY BY AN ENTREPRENEUR WITH RESPECTIVE INSTALLATION RIGHTS.

External connections of the HRV unit are connected to the connection box located on the top of the unit.

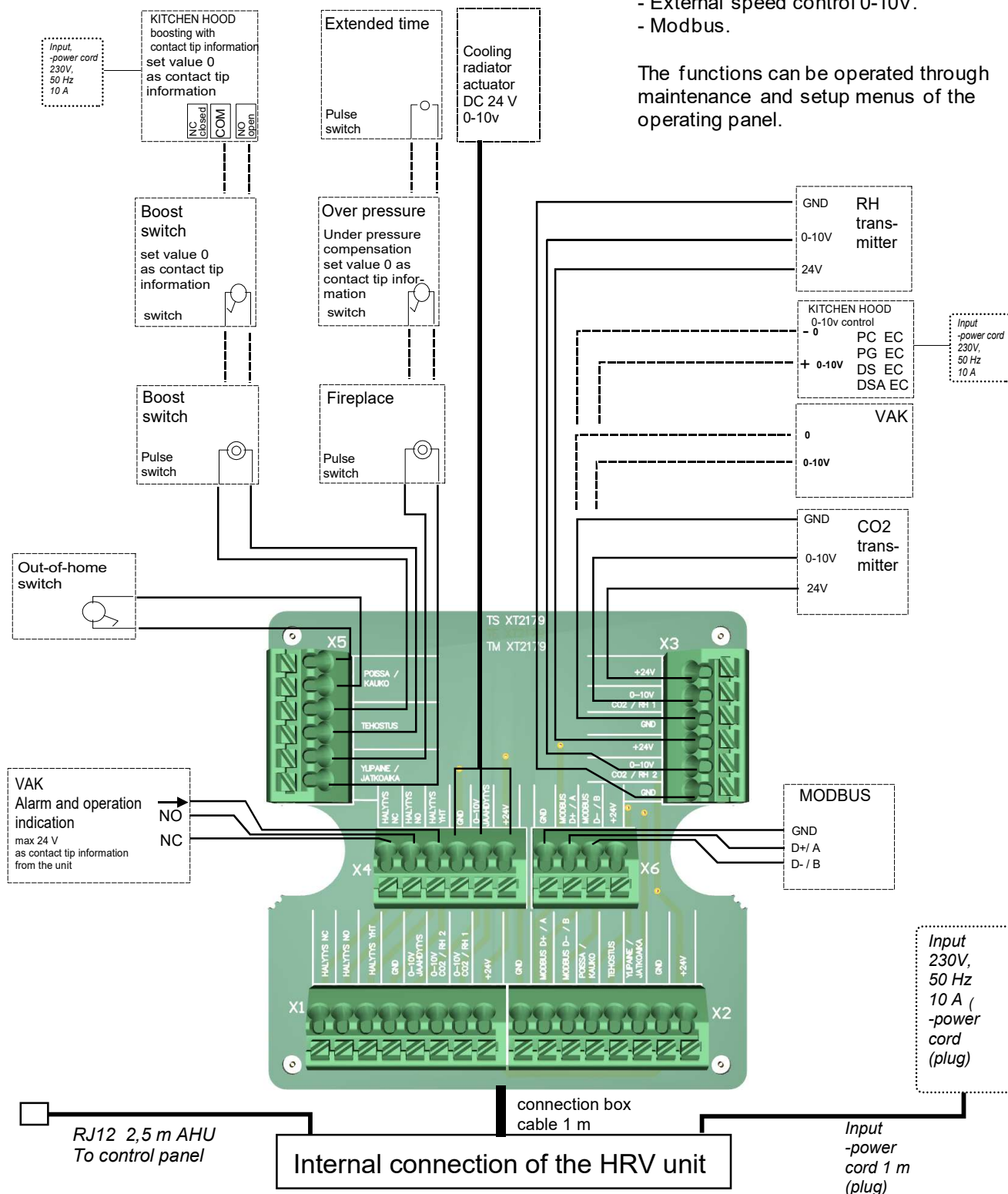
The unit is equipped with a power plug.

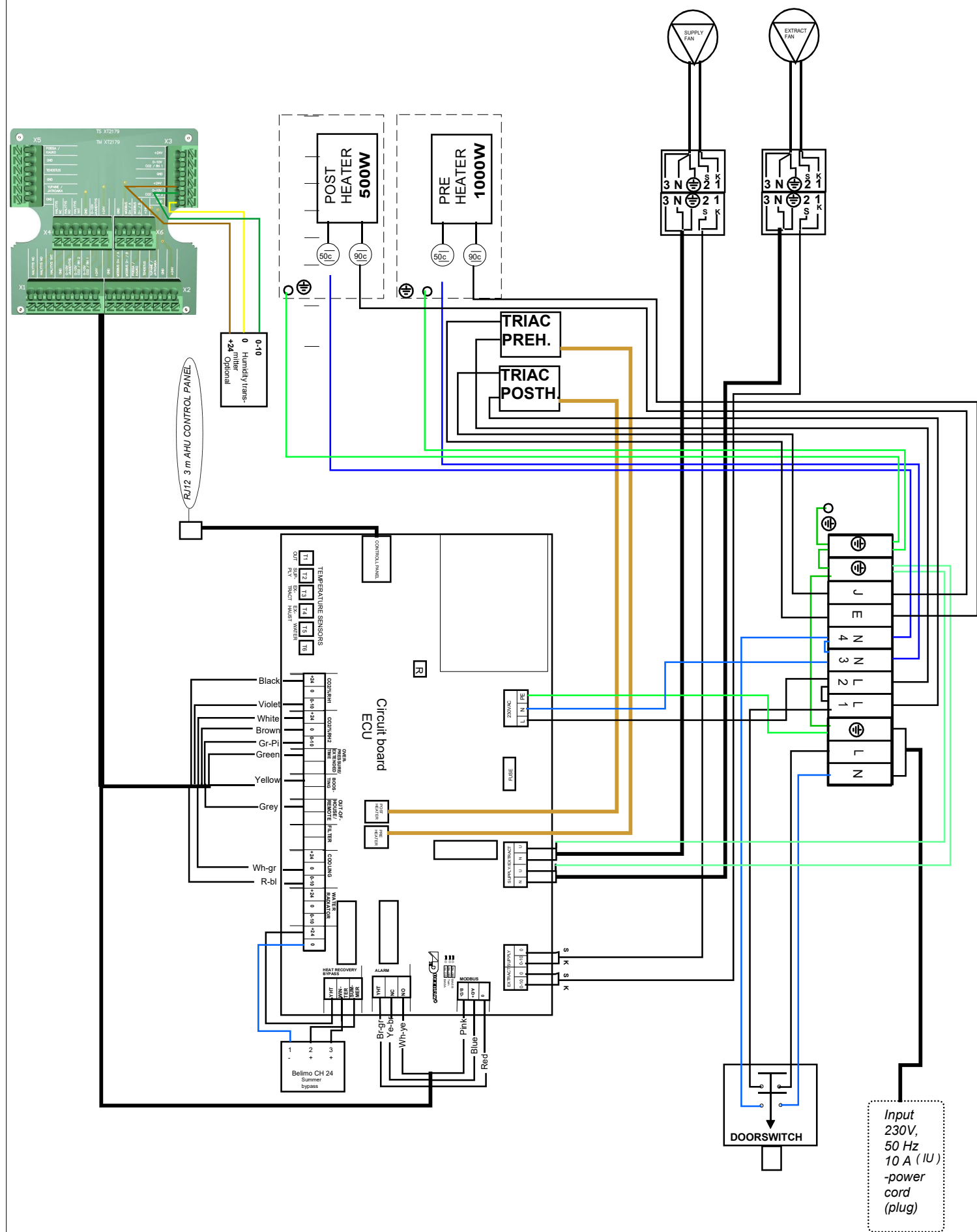
The unit is set up and the set value changes are made via a separate AHU control panel. The control panel is connected to the cable above the unit with the RJ12 connector.

The following can be connected as accessories:

- Carbon dioxide transmitter;
- Humidity transmitter;
- Separate Over pressure or Extended time switch (pulse switch);
- Separate Boost switch (pulse switch); or setting off as pre-data (for instance, sauna oven, stove hood);
- Remote control or out-of-home switches (pre-data);
- Differential pressure switches for filters;
- External speed control 0-10V.
- Modbus.

The functions can be operated through maintenance and setup menus of the operating panel.







INTRODUCTION OF THE AIR EXCHANGE SYSTEM

BEFORE OPERATING YOUR AIR EXCHANGE SYSTEM, MAKE SURE THAT:

- There are no loose objects within the unit or the air impeller;
- The coverings of construction-time are removed from the outlet- and exhaust air holes;
- All isolations and steam barriers are in order;
- The heat transfer and fans are in their places;
- The condensing water outlet is installed and the water is drained out;
- The air impellers and their adjusters are in working order;
- Afterheating is regulated and working.

USAGE DURING INSTALLING

The air exchange unit should be started as soon as installation permits.

Efficient air exchange promotes drying of the constructions and prevents damage.

In case channelling has not been completed, fans and adjustments are missing, filter paper must be used in place of fans to keep the channels clean and provide sufficient counterpressure for preventing overload. The unit must be used with full power and check the drainage of the condensing water.

The appliance, filters and heat exchangers must be cleaned and the system adjusted after the construction works are completed.

BASIC ADJUSTMENT OF AIRFLOW

The unit alone can not produce good interior air in case the channels and fans are installed carelessly and main adjustments are not made.

Regulate the inlet and outlet fans to the planned positions and start the unit

at design power speed. Measure the airflow in outside- and exhaust air channels.

The outlet must be 5-10% higher than inlet. Check the pressure level of the channels by checking from the fans and adjust it accordingly to obtain the pressure level for vents; adjust and lock the pattern. Draw measuring- and adjustment records!

USAGE AND CORRECT LEVEL OF AIR EXCHANGE

The air exchange level is regulated by changing the working speed of the air impeller from the operating panel. Airflow of different adjustable positions can be seen from table 2.

Adjustable position 1 is for basic air exchange for an empty house. Adjustable position 2 and 3 are normal working positions. Adjustable position 4 and 5 are efficiency positions (i.e. for saunas). The correct usage positions will be found by experience; observing the purity of the air or sultriness when coming in from outside, observing moisture on the windows or drying of the sauna.

AFTERHEATING AND SUMMER BYPASS OF INLET AIR

The unit is equipped with 500 W electrical battery operated by the means of triac-adjuster operated by the operating device for afterheating the heat recovered inlet air.

The temperature of inlet air is usually regulated to +17°C.

The temperature may be adjusted to higher during winter so there would be no draught like feeling. In case of severe frost and efficiency mode the heating power might turn out insufficient – in such circumstances, the air exchange should be reduced.

The overheating protection launched during malfunctioning must be annulled manually.

During summertime, the HR-exchanger element on the bypass plate will be closed so the exhaust air will not warm up the inlet air.

CONDENSING WATER AND FREEZING PREVENTION

As the extract air cools in the heat exchanger, the moisture condenses into water, which flows into the condensate tank and from there along the hose through the water trap to the open drain. In cold weather, freezing of the water in the heat exchanger is prevented by a double-function anti-freeze function, which first switches the preheater on and switches it off when the temperature rises above the set value.

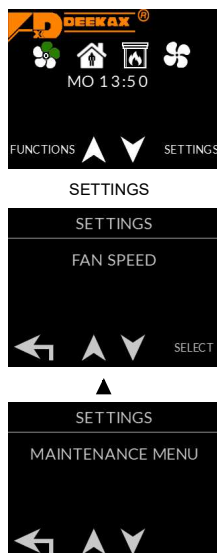
If the preheater power is not sufficient and the exhaust air temperature falls below the "exhaust air cold" limit value, the input fan power is reduced step by step until the limit value is reached.

THE SUMMER BYPASS OF THE HEAT RECOVERY UNIT MUST BE IN THE WINTER POSITION WHILE THE AIRFLOWS ARE BEING ADJUSTED.

INTRODUCTION OF THE AHU CONTROL PANEL

Settings are applied via the service menu

SERVICE MENU



NOTE! SWIPE RIGHT AT THE TOP OF THE SCREEN

Touch screen buttons:



Fan speed adjustment 1....5



Out-of-house mode



Fireplace switch
(pressure compensation)



Boosting



The button can be used to browse the menu upwards and change settings.



The button can be used to browse the menu downwards and change setting value.



Return to the previous or main menu.

INTRODUCTION OF THE AHU CONTROL PANEL

SPEED CONTROL WITH A COOKER HOOD (0-10V)

0-10V external control (0-10V hood, remote monitoring) select the deployment
SENSOR 1 "EXT" or SENSOR 2 "EXT"

External control controls the basic speed, replaces the fan speed set in the menu.
Out-of-home, overpressure and boost are in use normally.

The main screen shows the fan speed at REMOTE CONTROL and below of it is the speed of the supply fan.

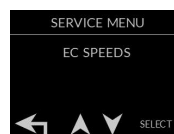


External control fan speeds

0-2V fan 0
2-5V fan 2
5-7V fan 3
7-9V fan 4
9-10V fan 5

FAN SPEED PRIORITY

Fan speed preselection is performed from the control panel service menu.
Inlet and outlet fans can be individually adjusted for five different speeds with fan speeds of 20-100%

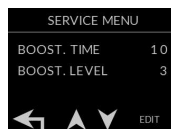


DEFAULT SETTINGS

1. 30 %
2. 40 %
3. 60 %
4. 80 %
5. 100 %

BOOSTING FROM THE COOKER HOOD WITH CONTACT TIP INFORMATION.

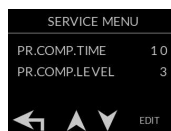
Boosting time settings 0 and 5...120 min. In 0 position with different pre-data.
Boosting level settings 1...4 (the air impellers higher than basic speed), can be adjusted also from the settings menu.



Factory setting
10 min
3

SEPARATE FIREPLACE SWITCH OR PRESSURE COMPENSATION

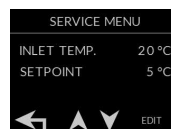
Overpressure duration specification 0 and 5...20 min. In 0 position with different pre-data.
Overpressure limit regulation 1...4 (inlet air impeller higher than outlet air impeller)



Factory setting
10 min
1

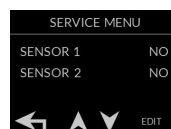
REGULATION of the INLET AIR TEMPERATURE

Inlet air temperature range 5...30 °C,
can be adjusted via SETTINGS menu



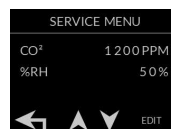
Factory setting
17 °C

CO₂ AND/or RH SENSORS ACTIVATION



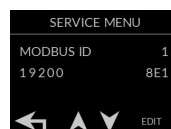
CO₂ AND HUMIDY PERCENTAGE SETTING

Note: set the sensor on in the settings menu



MODBUS MENU

Check the separate Modbus manual



THE CHANGES OF THE SERVICE MENU SETTINGS ALWAYS HAVE TO BE SAVED



THRESHOLDS FOR FREEZING PROTECTION

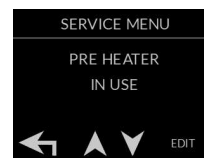
The preheater and freezing protection are enabled, changes are only if needed.

Temperature measurements of the preheater and WASTE AIR COLD are measured from the waste air temperature

The preheater is switched on from the service menu.

The limit value of the preheater can be changed from the service menu if necessary. The adjustment range is 0 - +10 °C. The limit value of the preheater must be approx. 5 °C higher than the WASTE AIR COLD limit.

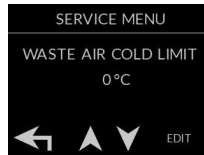
It is recommended to use value a minimum of 5 °C for the WASTE AIR COLD limit, if the preheater is not in use. When the preheater is in use, the set value is about 5 °C lower than the limit value of the preheater. The adjustment range is -10 ... + 10 °C



*Factory setting
IN USE*



*Factory setting
5 °C*



*Factory setting
0 °C*



CHANGES OF THE SERVICE MENU SETTINGS ALWAYS HAVE TO BE SAVED

SETTINGS ARE APPLIED VIA THE SETTINGS MENU OF THE CONTROL PANEL

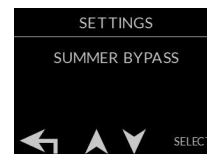
The summer bypass plate control. The user of the unit can set the bypass plate manually to SUMMER/WINTER or AUTOMATIC mode.

In summer mode the bypass plate is activated

In the automatic mode, the plate works according to outside temperature.

Set value 15...20 °C

The automatic mode has adjustment amplitude of approx 2 hours



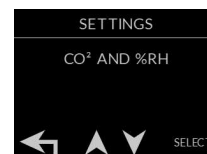
CO₂ transmitter ON/OFF switching. Setting of CO₂ upper limit.

Set value 250...1500ppm, 50ppm steps

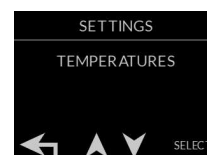
%RH transmitter ON/OFF switching.

Setting of RH upper limit. Set value 30...80%, 5% steps

Regulating amplitude 5...20min

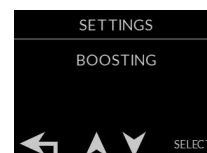


Regulation of inlet air afterheating set value 5...30 °C

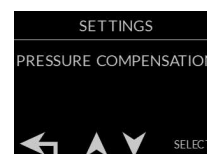


Set value of boosting duration 0 and 5...120 min.

In 0 position with different pre-data.



Set value of overpressure duration time (fireplace switch) 0 and 5...30 min. In 0 position with different pre-data.



INTEGRATED HUMIDITY TRANSMITTER (optional)

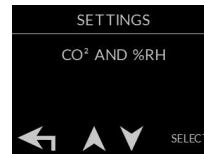
If the unit is equipped with a factory-fitted extract air humidity transmitter. The fan speed is automatically enhanced when the humidity exceeds the limit value.



The humidity transmitter is active when SENSOR 2 RH is selected in the service menu

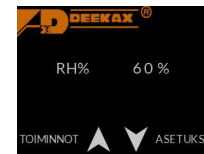


The limit value, the adjustment interval and ON/OFF can be selected in the SETTINGS menu under CO₂ and %RH



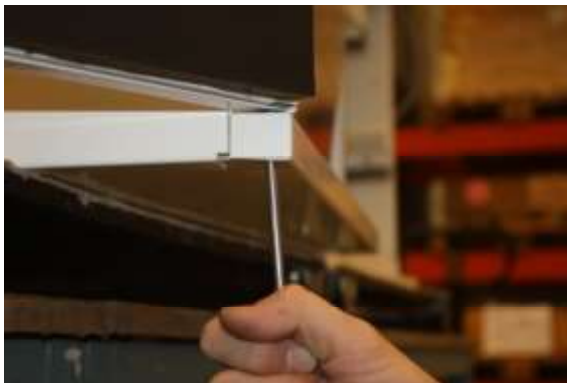
The humidity transmitter also has an on / off switch

The humidity percentage is displayed on the main menu screen.



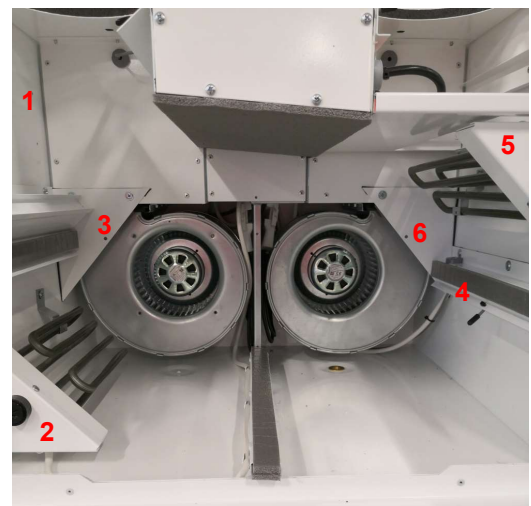
DOOR REVERSAL EXCHANGE

Door reversal can be changed by pushing the hinge pin e.g with narrow tip screwdriver from the machine below or from above
.Note! if the hand of the door is turned so that hinged side is on the supply air filter side note that the door has room to turn 180 degrees.



REMOVING THE FAN

The fans can be removed for cleaning or replacement. Before removing the fans, remove the HR cell and filters. When removing supply fan, remove side support (1) of the HR cell and the heater element case (2) from the side wall and the cover plate (3) in the front of fan. When removing the extract fan remove side support of the heat recovery cell (4) and the heating element case(5) from the side wall of the HRV and the cover plate (6) in the front of fan. Unplug the fan plug connector. The fan is pulled out of the machine.





MAINTENANCE OF TALTERI

For producing good indoor climate continuously, the air exchange systems require regular maintenance. The metallic grease filter of stove hood must always be kept clean for fire safety reasons. Cleansing with hot water or dishwasher once a month is necessary. Substances suitable for machine washing may darken the aluminium parts of the filter.

The inlet and outlet filters of Talteri must be cleansed at least twice a year.

In summertime the summer cassette plate will be set to summer mode when the external air should come in fresh and clean.

The heat recovery cell will be pulled out of the unit and washed thoroughly in autumn just before the heating season begins –the heat recovery will then be at its best. Check the condition of sealing and push the heat recovery cell back to its place.

The inner painted walls of the unit are easy to clean. Check the condition of sealing, clean the outlet hose of condensing water and make sure the water flows freely and without any obstructions.

The impellers, air exchange adjusters and thermostats are components that do not require regular maintenance. Electrical works can be carried out only by a qualified electrician.

During the frosty period the heat recovery cell is defrozen by using the preheater. The power of the preheater is mainly adequate to keep the heat recovery cell defrozen. In extreme conditions, if the power of the preheater is inadequate, the supply fan power will be reduced or stopped by the freezing protection thermostat when the exhaust air temperature drops below the set value (0°C). The supply fan starts when the exhaust air temperature rises above the set value.

Under extreme conditions (humidity /harsh cold) the heat recovery element may freeze over and the anti-freeze protection defreezing cycles are not able to defrost it. If such a case occurs, the machine has to be stopped, opened and the cold flow stopped and the ice given the necessary time to melt. Check the drainage of condensing water! In case the water-lock dries out and makes pulping noise, you can pour a drop or two of cooking oil.

In really cold weather, the head recovery unit heats the preheated inlet air with afterheating. The functionality can be proved by comparing the temperature of inlet air to the set value of the inlet air afterheating.

The overheat protection has been activated in case the temperature has risen +90 °C (for instance, in case of power failure). Reset the overheat temperature by pressing the switch under the threaded contact protection.

The channels must be checked if the impeller works but the air exchange is inadequate or the temperature changes in the channels between the interior and the machine. Temperature changes and humidity concentration in channels must be prevented by improving the isolation.