

AIR EXCHANGE EQUIPMENT INSTALLATION AND USER MANUAL



TALTERI

DIVK-C 60 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.

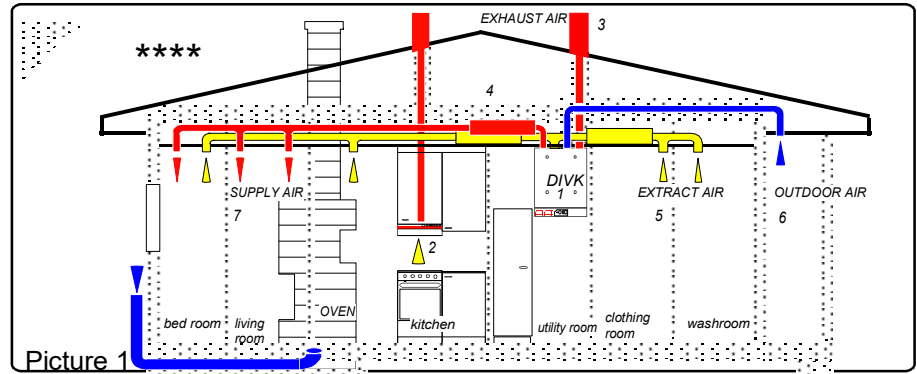
ENSURE THE QUALITY OF AIR EXCHANGE!

Talteri heat recovery system

SYSTEM COMPONENTS

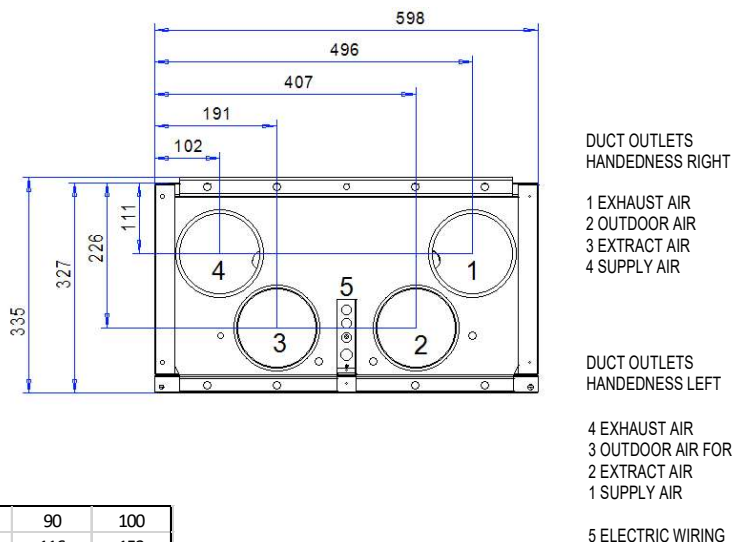
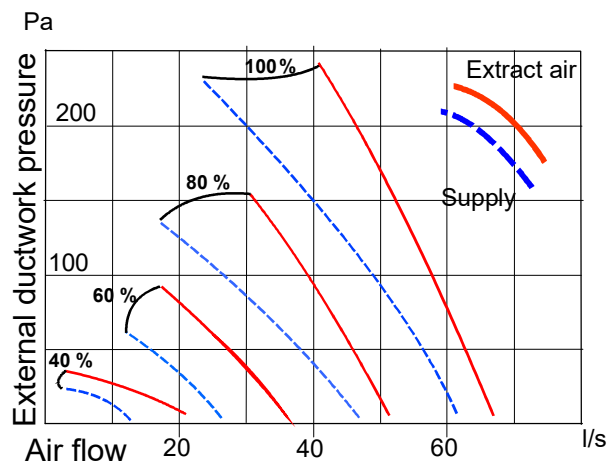
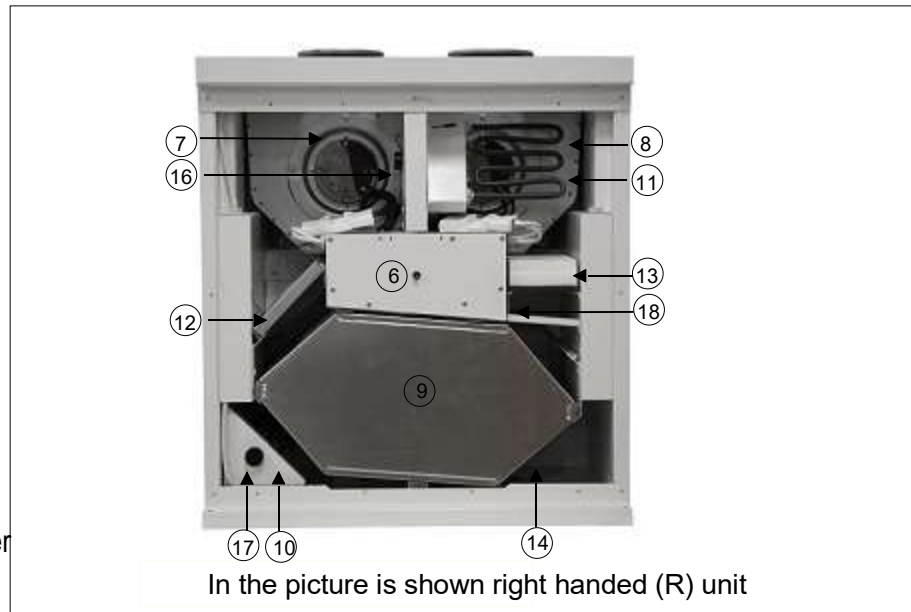
Picture 1

- 1 Air exchange unit.....DIVK-C60 CD
- 2 Control hood.....e.g. .DX-ULTRA- PG EC
- 3 Exhaust air outlets..
- 4 Channel noise deductor..... Ø 125
- 5 Exhaust air for the system..... Ø 125
- 6 Outdoor air for the system..... Ø 125
- 7 Interior air supplies..... Ø 125



EQUIPMENT DETAILS AND TECHNICAL DATA

- 1 Exhaust air out..... Ø 125 mm
- 2 Outdoor air for the system Ø 125 mm
- 3 Exhaust air for the system..... Ø 125 mm
- 4 Interior air supply..... Ø 125 mm
- 6 Door switch
- 7 Supply fan, adjustable.. 118W
- 8 Exhaust fan, adjustable.... 118W
- 9 Heat exchanger
- 10 Afterheater, adjustable, 500w
- 11 Preheater, adjustable, 500w
- 12 Extract air filter (G4) ISO Coarse>75%
- 13 Supply air filter (F7) ISO ePM1
- 14 Exhaust of condensing water
- 16 Manual overheat protection of the preheater
- 17 Manual overheat protection of the afterheater
- 18 Summer bypass appliance



Fan speed %		40	50	60	70	80	90	100
Fan power W		16	21	34	52	77	116	152
Sound pressure level L_{pA} in the room 10m2 absorption dB(A)		20	24	28	33	36	40	43
weighted	Hz	E S	E S	E S	E S	E S	E S	E S
sound	63	35 46	42 53	47 57	51 59	55 65	57 67	59 68
pressure	125	32 42	37 49	43 53	47 56	50 61	53 64	56 66
levels for	250	35 39	41 47	46 52	51 57	54 61	57 64	60 67
exhaust(E)	500	22 42	31 47	32 54	35 60	39 65	43 68	46 71
and supply(S)	1000	28 40	34 47	39 52	41 58	44 62	46 64	49 66
channels at	2000	6 35	14 43	20 51	24 58	28 62	31 65	33 68
different	4000	* 25	5 36	12 45	17 52	22 57	25 61	29 65
octave levels	8000	* 10	* 23	4 35	9 45	14 52	18 56	21 60
Total power level L_{WA}		29 42	35 49	40 56	43 63	46 67	49 70	51 73

DIMENSIONS: height 645 mm, width 598 mm,
depth 335 mm, weight 52 Kg

TALTERI DIVK-C 60 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.

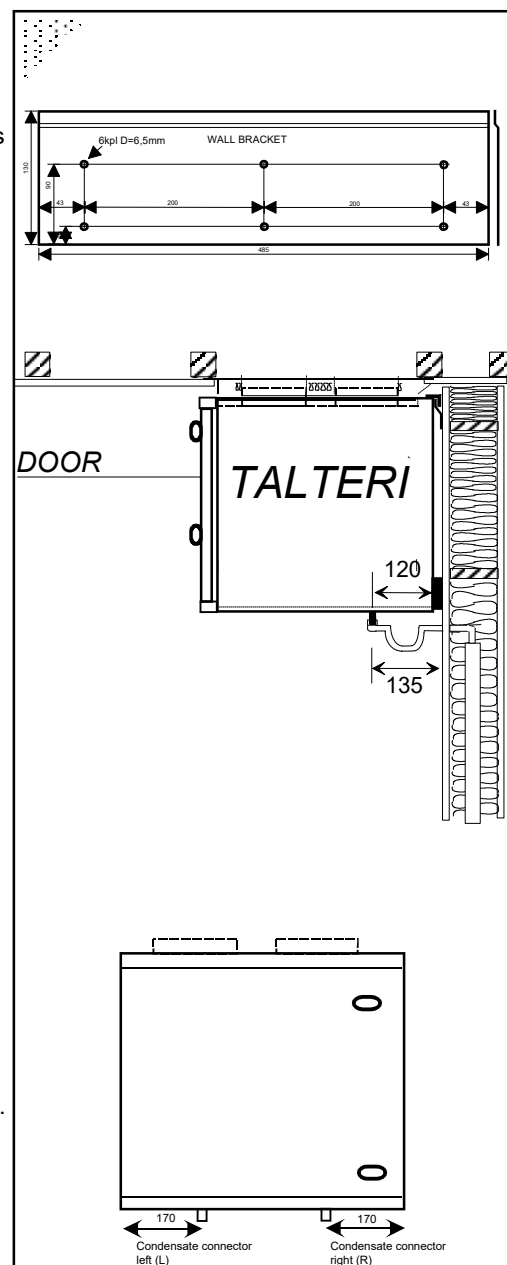
WALL MOUNTING

The wall mounting kit includes a ceiling mounting plate, a wall mounting plate and 15mm thick insulation pieces. The roof mounting plate is attached to the machine and the insulation pieces are glued to the rear wall and bottom of the machine.

The wall mounting plate is installed about 25 mm below the ceiling surface. The wall mounting plate will be fixed to the wall and then the unit lifted upto the mounting plate and the horizontal plane of the machine is checked. Ceiling moldings can be put around the machine.

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.



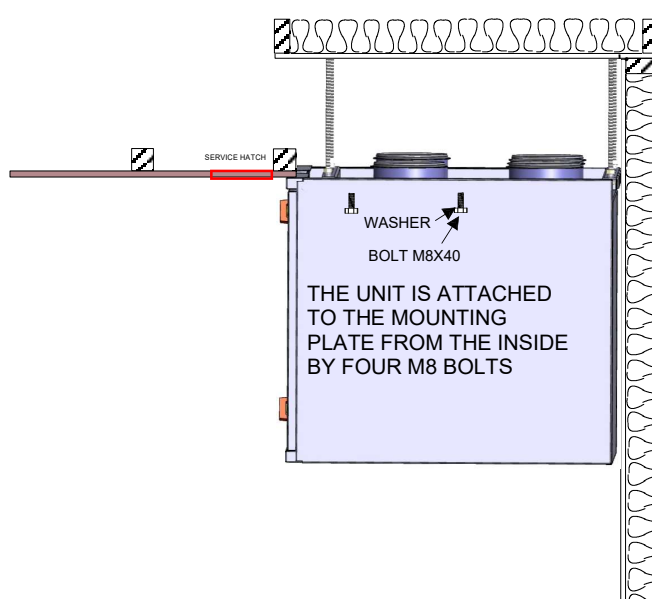
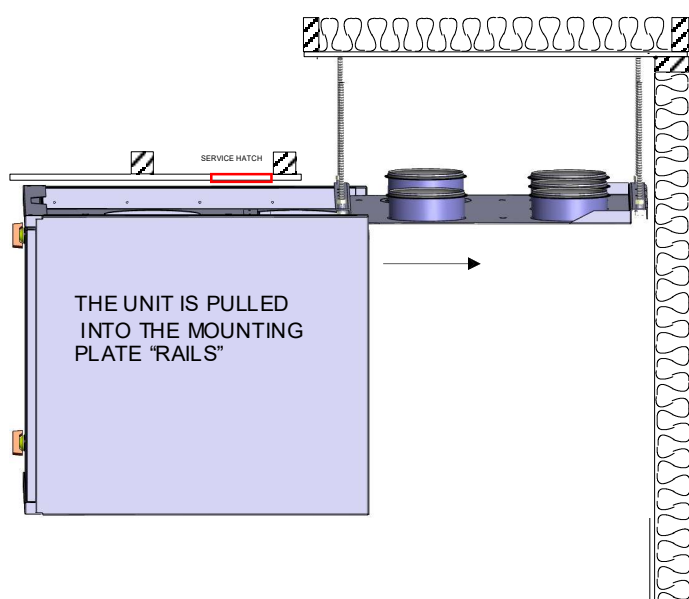
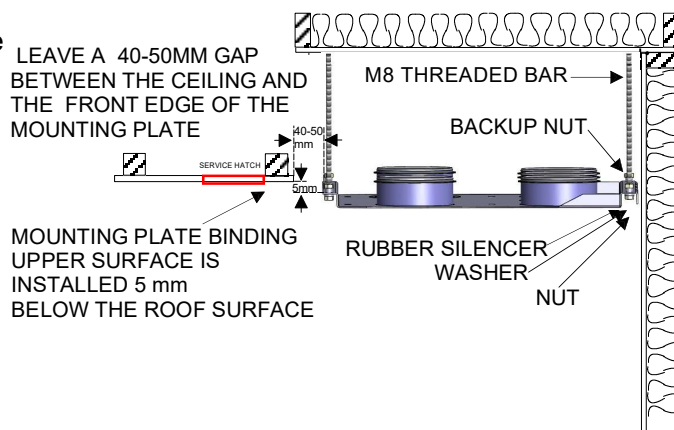
DIVK-C 60 INSTALLATION TO A SUSPENDED CEILING

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

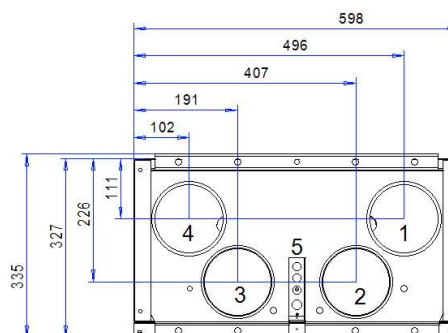
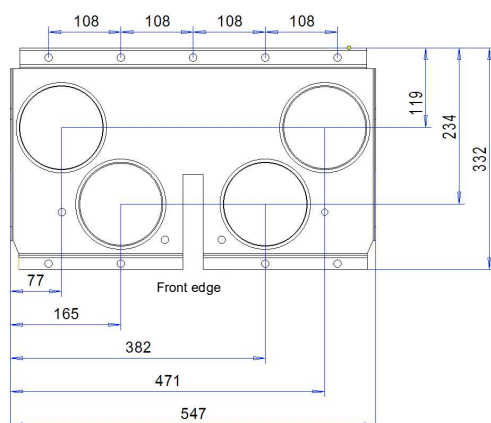


The head of the threaded bar can not reach below the bottom of the plate.

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



DUCT OUTLETS
HANDEDNESS RIGHT

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

DUCT OUTLETS
HANDEDNESS LEFT

- 4 EXHAUST AIR
- 3 OUTDOOR AIR FOR
- 2 EXTRACT AIR
- 1 SUPPLY AIR

5 ELECTRICAL WIRING

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.

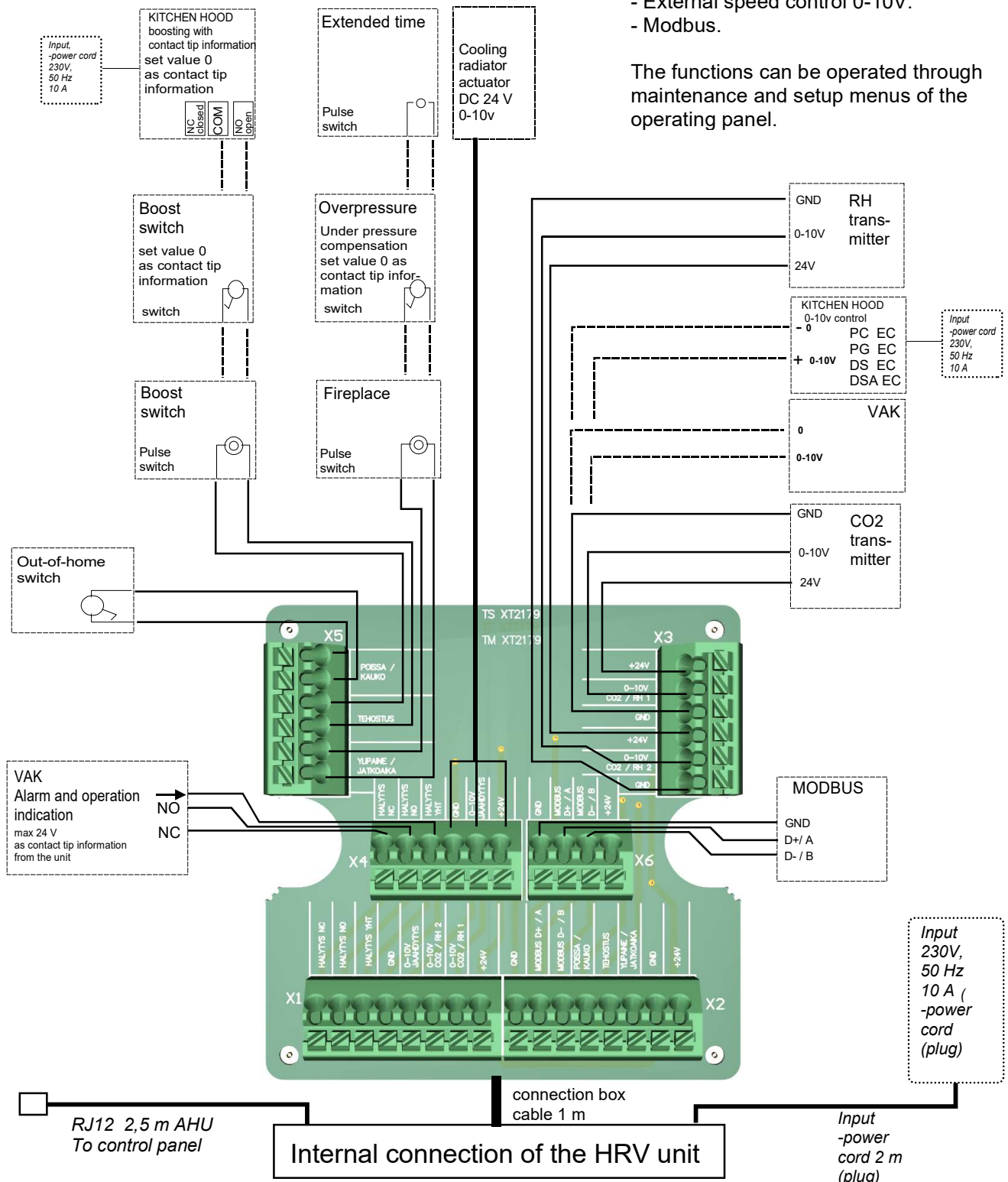
The unit is equipped with a power plug.

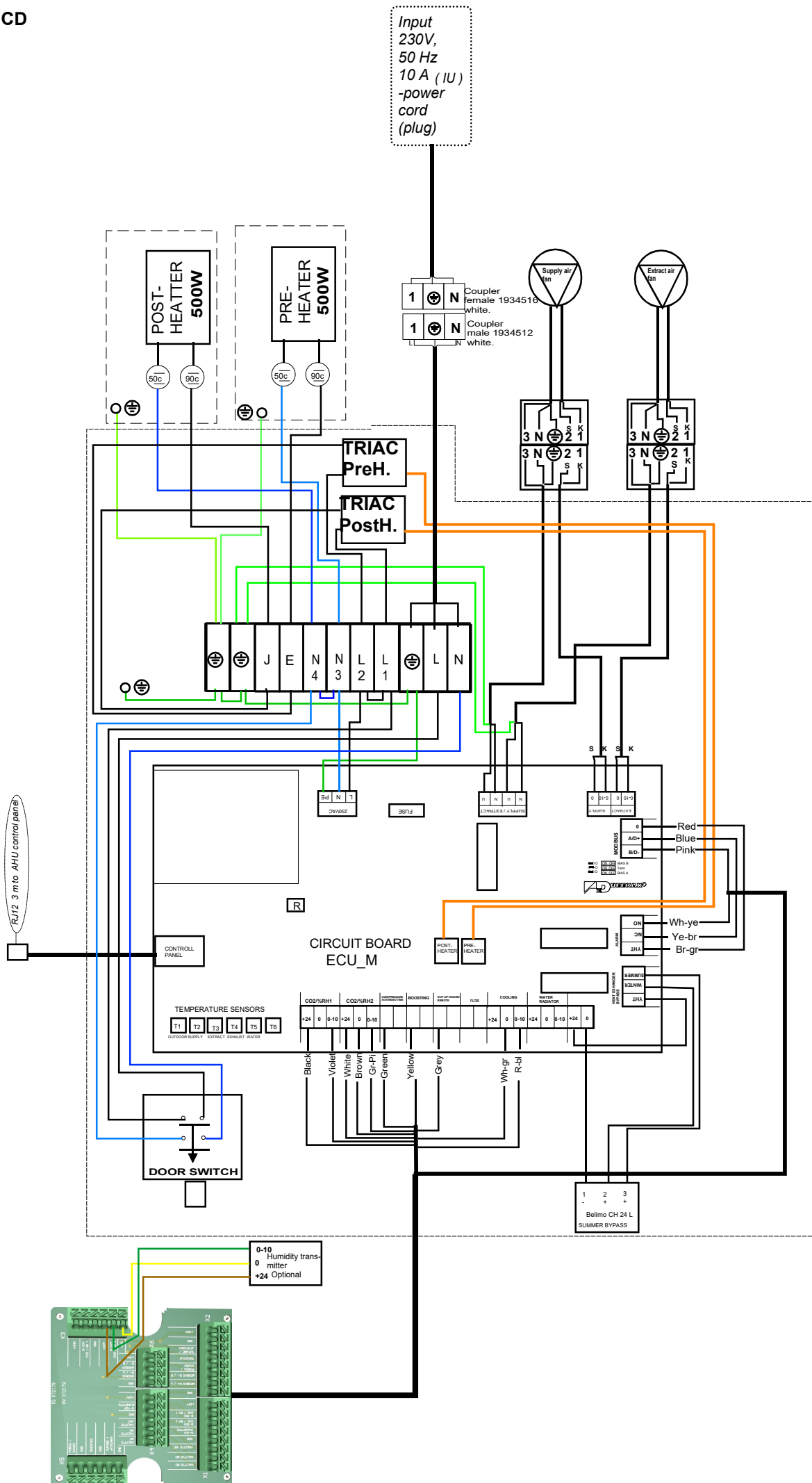
The unit is set up and the set value changes are made via a separate AHU control panel. The control panel is connected to the cable above the unit with the RJ12 connector.

The following can be connected as accessories:

- Carbon dioxide transmitter;
- Humidity transmitter;
- Separate Overpressure 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 ear 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 of 20-30 Pa for fans; 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 500W electrical heater operated by the means of triac controller for afterheating of the heat recovered inlet air.

The temperature of inlet air is usually regulated to +16C. 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 bypass plate will be opened so the exhaust air will not warm up the inlet air.

CONDENSING WATER AND FREEZING PREVENTION

When outlet air freezes, the humidity in the heat exchanger cell turns into water, flows down to the condensing basin and from there, through the hose and water-lock, into the open drain.

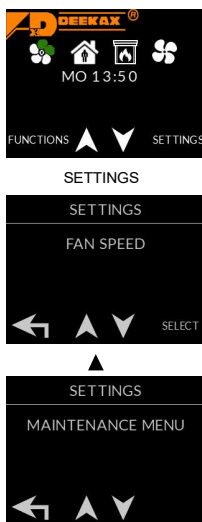
In the frosty weather the freezing of water is prevented by a dual-acting antifreeze function which first turns on the preheater and switches it off when the temperature rises above the set value. If the power of the preheater is insufficient and the waste air temperature drops below the "waste air cold" limit, the supply fan power is dropped by increments until the limit value is reached.

THE SUMMER BYPASS OF THE HEAT RECOVERY UNIT MUST BE IN THE WINTER POSITION WHEN 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.

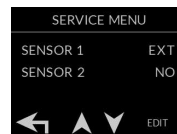
INTRODUCTION OF THE AHU CONTROL PANEL

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.

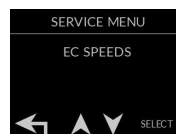


External control fan speeds

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%

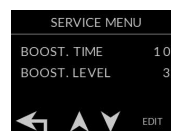


DEFAULT SETTINGS

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

BOOSTING FROM THE COOKER HOOD WITH CONTACT TIP INFORMATION.

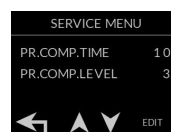
Boosting time settings 0 and 5...120 min. In 0 position with different pre-data
Boosting level settings 1...4 (the air impellers higher than basic speed), can be adjusted also from the settings menu.



Factory setting
10 min
3

SEPARATE FIREPLACE SWITCH OR PRESSURE COMPENSATION

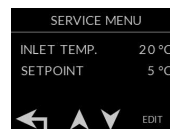
Overpressure duration specification 0 and 5...20 min. In 0 position with different pre-data
Overpressure limit regulation 1...4 (inlet air impeller higher than outlet air impeller)



Factory setting
10 min
1

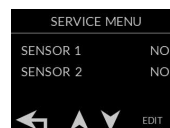
REGULATION of the INLET AIR TEMPERATURE

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



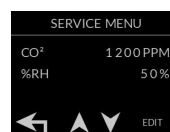
Factory setting
17 °C

CO₂ AND/or RH SENSORS ACTIVATION



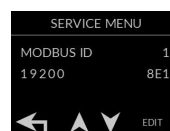
CO₂ AND HUMIDY PERCENTAGE SETTING

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.

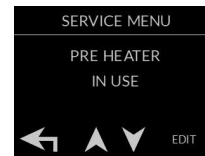
Temperature measurements of the preheater and WASTE AIR COLD are measured from the waste air temperature

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

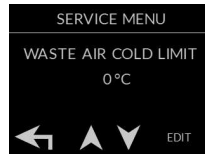
CHANGES OF THE SERVICE MENU SETTINGS ALWAYS HAVE TO BE SAVED



*Factory setting
IN USE*



*Factory setting
5 °C*



*Factory setting
0 °C*



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

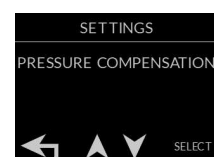
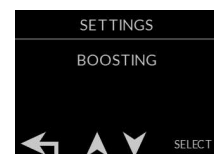
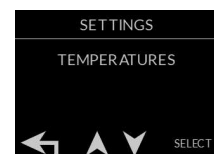
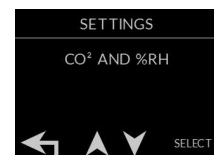
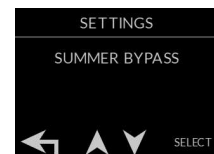
Regulating amplitude 5...20min

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.



REMOVING THE FAN

The fans can be removed for cleaning or replacement.

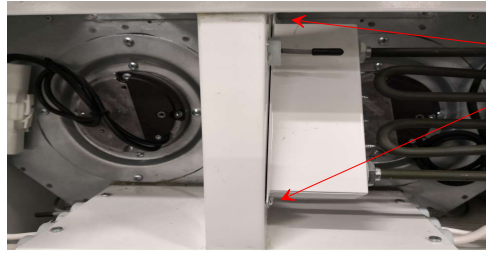
Before removing the fans, the heat recovery ventilation unit must be disconnected from the power supply.

When removing the extract air fan, remove first the pre-heater housing by unscrewing the upper fastening screw and removing the lower lower fastening screw (see the picture).

When removing the supply airfan, move first the reset button of the overheat protection aside by removing the metal plate.

Unplug the fan plug connector.

Remove the fastening screws of the fan and pull the fan out of the machine.



The fastening screws of the preheater

REMOVING OF THE ELECTRICAL HOUSING

The electrical housing can be removed for the necessary maintenance, the external controls or the modbus termination by removing the bypass damper and then unscrewing the electrical housing screws.

The screws of the bypass damper.



The screws of the electrical housing.



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 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 not sufficient, 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 Ito-element may freeze over and the anti-freeze protection series 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.