

# AIR EXCHANGE EQUIPMENT INSTALLATION AND USER MANUAL



**TALTERI**

*DIVK-C330 DEMA and DIVK-C330 DEMA VKL*



**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.*

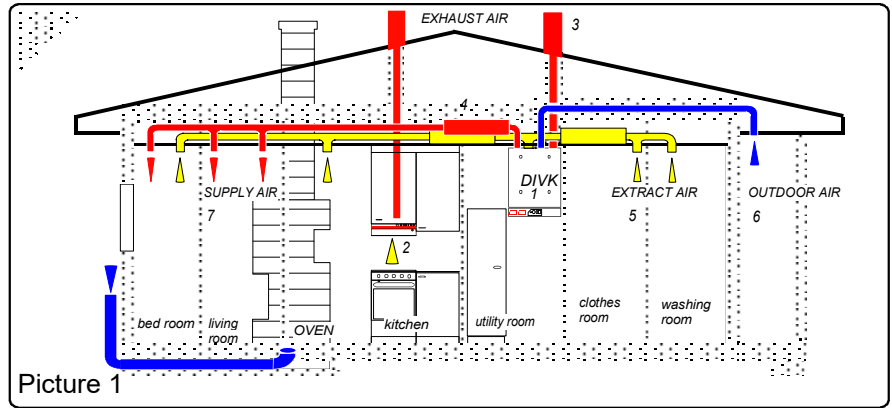
**ENSURE THE QUALITY OF AIR EXCHANGE!**

# Talteri heat recovery system

## SYSTEM COMPONENTS

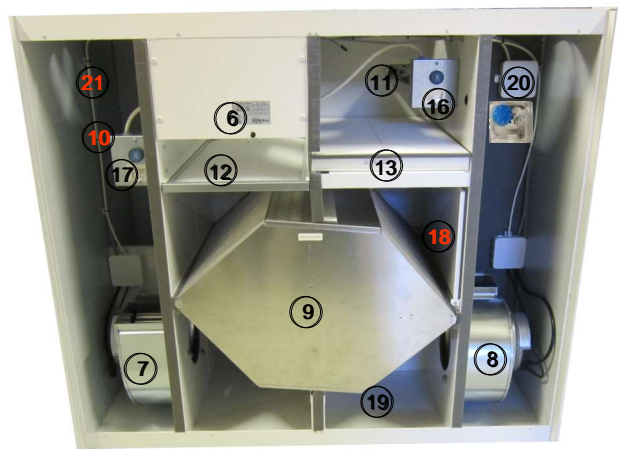
Picture 1

- 1 Air exchange unit.....DIVK-C330 DEMA
- 2 Control hood.....DX-ULTRA
- 3 Exhaust air outlet.
- 4 Channel noise deductor.....  $\phi$  250
- 5 Extract air for the system.....  $\phi$  250
- 6 Outdoor air for the system.....  $\phi$  250
- 7 Supply air to the rooms..... $\phi$  250

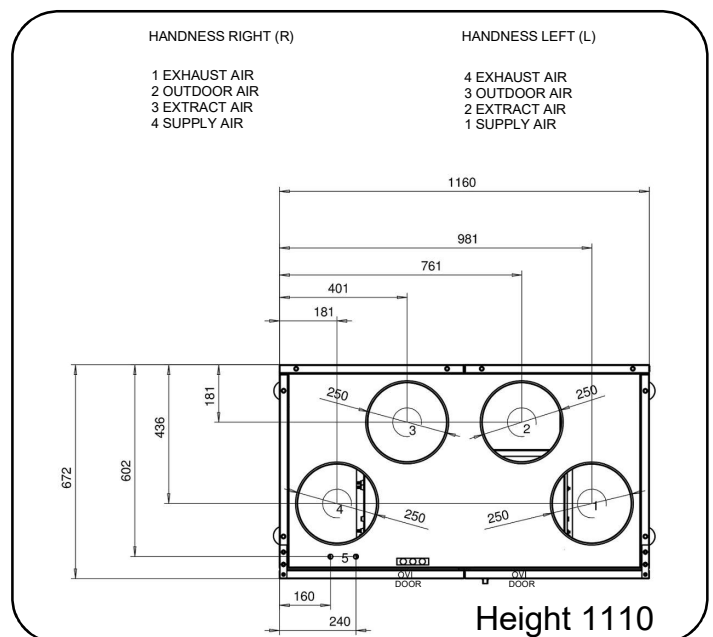
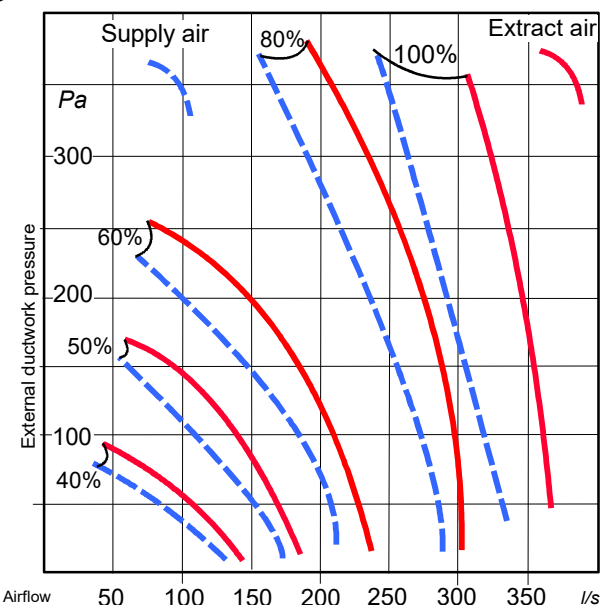


## EQUIPMENT DETAILS AND TECHNICAL DATA

- 1 Exhaust air out.....  $\phi$  250 mm
- 2 Outdoor air for the system .... $\phi$  250 mm
- 3 Extract air for the system.....  $\phi$  250mm
- 4 Interior air supply.....  $\phi$  250mm
- 6 Door switch
- 7 Supply fan, adjustable.. EC 520W
- 8 Extract fan, adjustable.... EC 520W
- 9 Heat exchanger
- 10 Postheater , adjustable, 2000W or VKL water battery
- 11 Preheater,adjustable, 2000W
- 12 Extract air filter (G4) ISO Coars>75%
- 13 Supply air filter (F7) ISO ePM1
- 15 Operating panel
- 16 Overheat protection of the preheater, manual reset
- 17 Overheat protection of the postheater, manual reset
- 18 Summer bypass appliance,motorized
- 19 Condensing water outlet
- 20 Differential pressure switch, supply
- 21 Differential pressure switch ,extract



In the picture shown right handed model(R)



EC speeds preselection is performed from the control panel maintenance menu.  
Supply and extract fans can be individually adjusted for five different speeds with fan speeds of 20-100%

# INSTALLING THE CHANNELLING

The channels for exhaust air and incoming air should be installed, if possible, in a warm space below the vapour barrier to suspended ceilings or casing. The vapour barrier remains intact and the channels do not need heat insulation. This also ensures that the airflow in the channels will not freeze due to poor heat insulation as well as there will be no condensing.

Cleansing of channels also becomes easier. The outside air and exhaust air channels are isolated under warm conditions, see the instructions.

The channels are compiled of type-approved, rubber gasket parts and winded joint channel. Disconnections will be removed for sealing and noise reasons. Connections will be secured with closing drawstrings and channels attached securely to the framework with mounting strings so it will persist also cleaning.

Measuring- and regulation equipment of airflow are installed to exhaust channels after noise deductors and inflow channels before the deductors. For cleansing, a cleansing hatch should be installed.

Remember, that a good functioning channel is: measured correctly, hermetic, carefully attached, properly isolated and with hermetic inlets!

## CHANNEL ISOLATION

Since the channels are mounted to the upper base, it must be carefully isolated so that: humidity will not condensate on pipe surfaces, the air will not freeze before heat has been stored, the heated incoming air will not freeze before it is blown into interior.

The two main rules of channel isolation are:

The warm air channels are always isolated in outer conditions with at least 10 cm of mineral wool and windscreen plating. The cold air channels are always isolated in inside premises with 10 cm of mineral wool and steam barrier plating, for instance AE-chase or AIM-mat.

Insulation examples are shown in figure 4

## CHANNELS OF OUTSIDE AND EXHAUST AIR

The outside air will be obtained through grate without an insect net. The air inlet will be situated to as clean space as possible, far from the refuse discharge, smokestack, ventilation outlet and exhaust air tube. The air inlet will be located to a height of at least 2 meters from ground on the northern side of the building, opposite side to the traffic. Due to warm summer weather, the outlet channel has to be thermally isolated in a loft space. Outgoing exhaust air will be channelled above the rooftop through well-isolated channel and by 700-900mm high isolated roof duct. (Figure 5).

Fireplaces like hearths, ovens and sauna heating systems must have a separate isolated combustion air channels with slide coping.

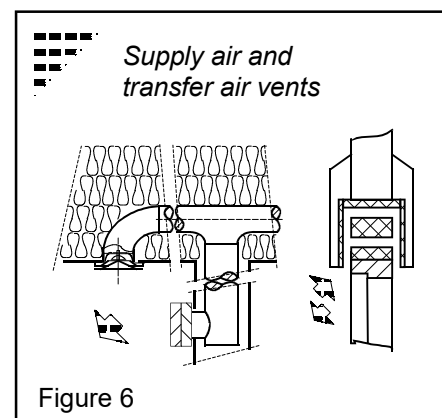
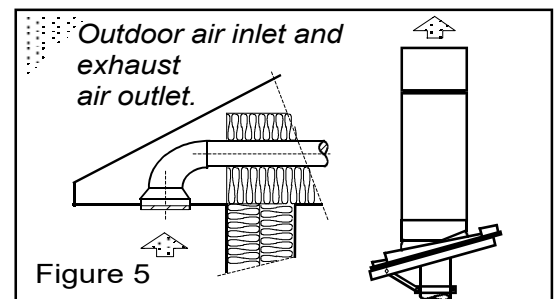
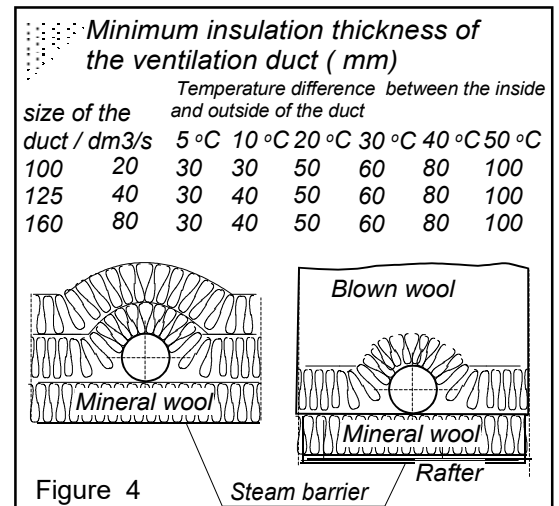
## INSTALLATION OF VENTS

Income and outlet vents are installed according to the plan. Special attention is needed while installing income vents since a wrong vent in a wrong place and wrong mounting will affect the air draught and reduce satisfaction. Steam barriers are well tightened.

In saunas, the income air is channelled above the sauna stove and outlet will be taken from underneath the sauna platform. The sauna fans are manually adjustable.

In kitchens, the outlet appliance should be the stove hood with adjustment plate of three positions and an airflow gauge. The exhaust vent is operated by the means of the adjuster. The kitchen exhaust will be attached to the air exchange unit.

In case sound isolation is needed between the separate rooms, cushioned air transfer vents are used, figure 6. Air transfer routes in doorways and under the doors will greatly reduce the privacy.



# TALTERI 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. Exhaust of condensing water proceeds through a water-sealed joint hose into a washing basin or "dry" floor well. Check the horizontal position of the unit and free flow of the condensing water.

The machine is equipped with an adjustable stand for floor mounting.

The unit can be mounted on the wall using the angle lists. Fasten first M8 screws on the finished spiral rivet holes on the side of the machine. If the machine is mounted on the wall notice the weight of the machine and vibration reduction.

Check the horizontal position of the unit and free flow of the condensing water.

## Condensing.

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.

## 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.***

*The control panel is connected to the control card with a modular 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.

## Spring return damper motor connection

The damper motor closes

- the machine stopped
- the machine in standby mode
- the machine alarm

max.  
8A  
250V

HALYTS

ON  
ON  
LHA

M  
230 V

tip extract fan information  
max. 2A 250V  
tip supply fan information  
max. 2A 250V

COM  
NC  
COM  
NC

## GENERAL ALARM

NO

- machine running

NC

- machine off  
- alarm temperatures  
- alarm sensors  
- over-temperature alarm  
- machine in standby mode

max.  
8A  
250V

ALARM

ON  
ON  
LHA

VAK  
NO NC

↑ ↑ ↓



Operator panel

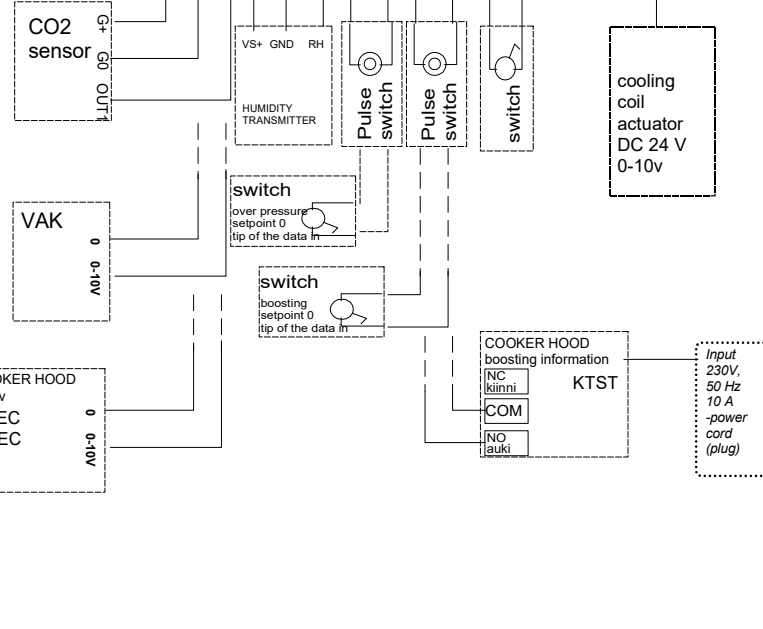
MODBUS  
0  
A/D+  
B/D-  
max.  
8A  
250V  
alarm  
NO  
NC  
YHT  
summer  
bypass  
SUM-  
MER  
WIN-  
TER  
YHT

MODBUS

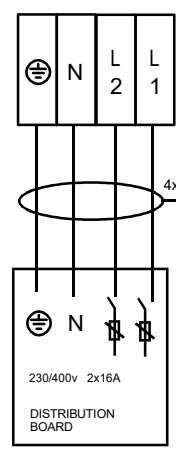
VAK  
ALARM INDICATION  
AND OPERATING  
POTENTIAL FREE CONTACT  
INFORMATION MACHINE  
OR CONTROL OF  
SPRING RETURN DAMPER  
MOTOR

sensor 1			sensor 2			Overpressure/ extended time		boosting		away/ remote		filter		cooling		water radiator		
CO2/%RH1			CO2/%RH2															
+24	0	0-10	+24	0	0-10									+24	0	0-10	+24	0

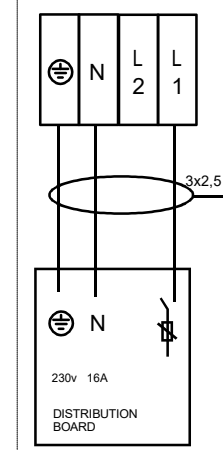
## ACCESSORIES



## DIVK-C 330 DE



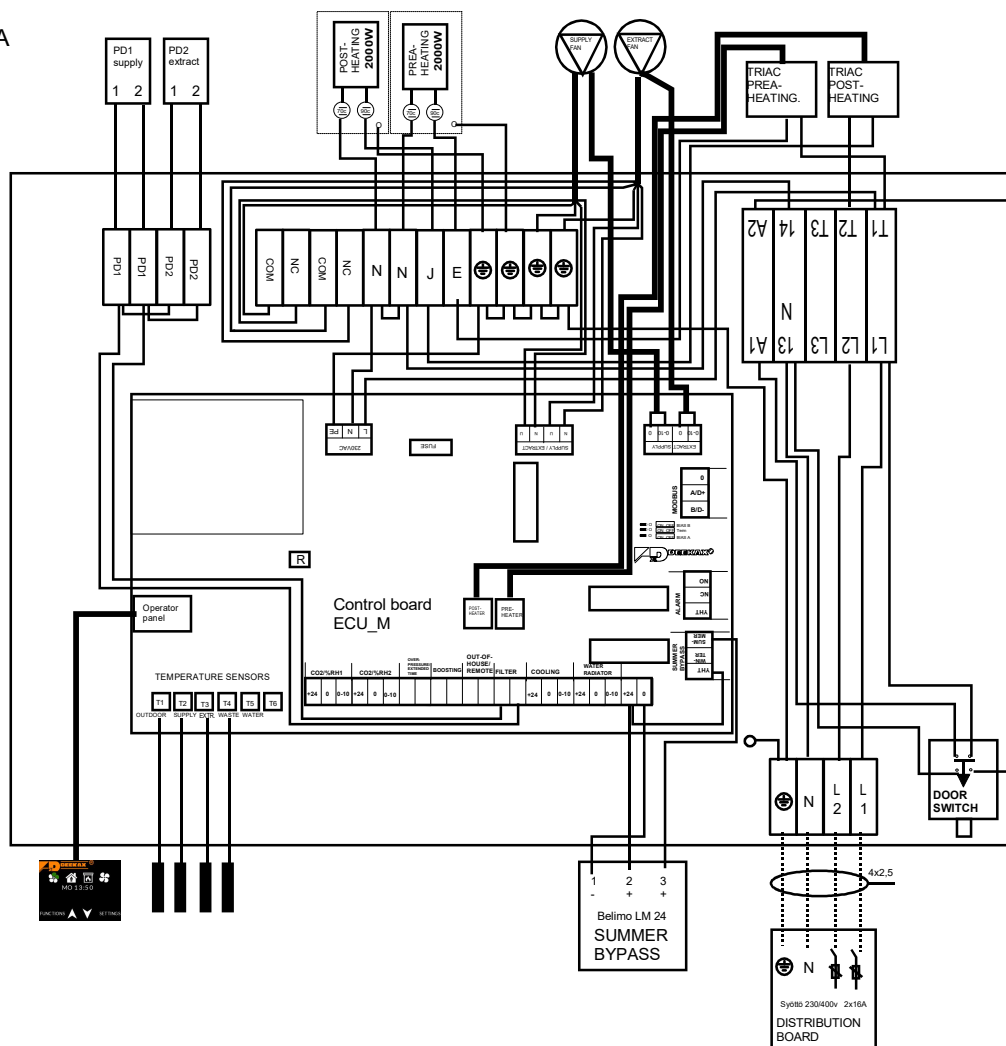
## DIVK-C 330 DE VKL



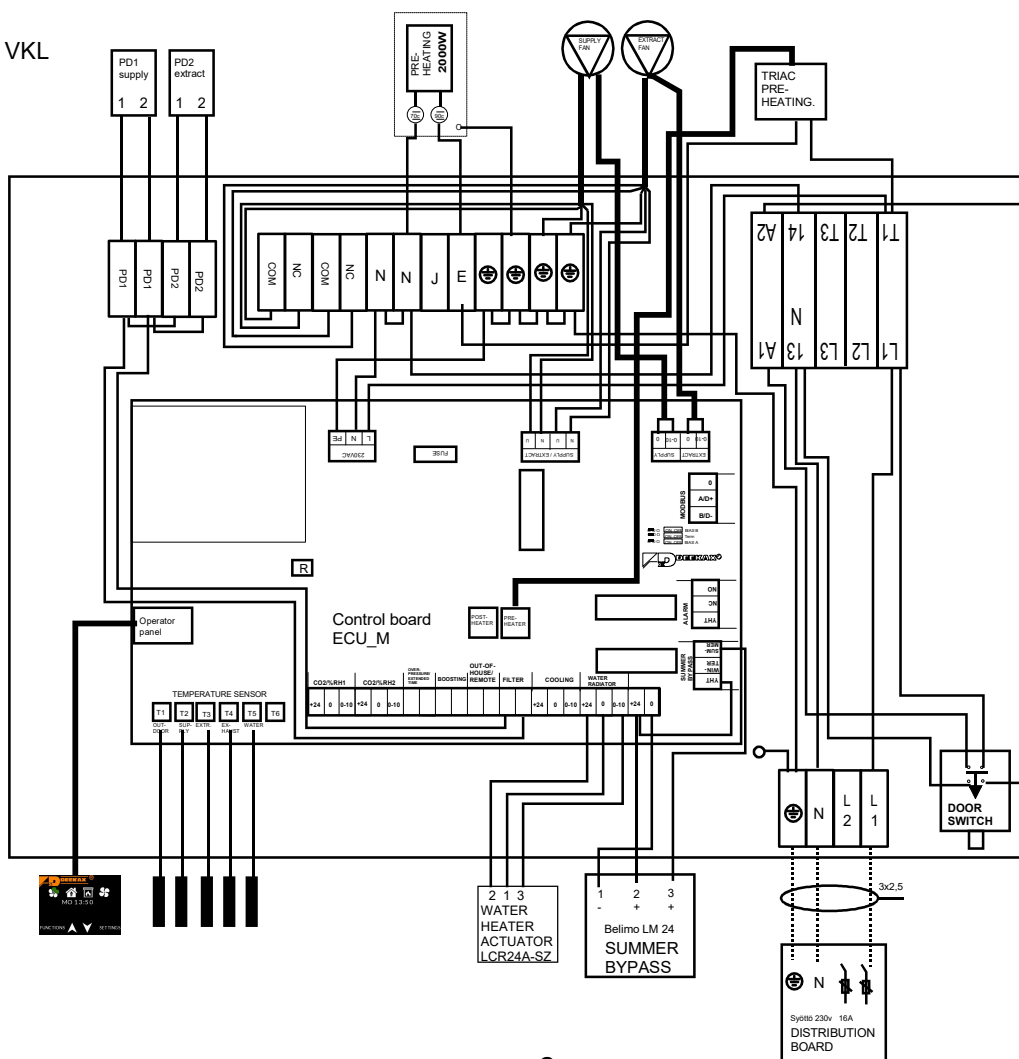
The fan speed of Talteri ventilation unit can be controlled with Ultra PC EC, PG EC, DS-600EC, DS-600 EC and DSA-900 EC cooker hood or 0-10 V voltage signal from Control panel.  
The voltage signal connected to CO2/%RH1 terminal.  
Sensor 1(EXT) can be operated through maintenance menu of the operating panel.

The boosting of Talteri ventilation unit can controlled with Ultra KTST cooker hood.  
There is a control panel and when the closing damper of the cooker hood is open the fan speed is enhanced.  
Maintenance menu is used to set boost 0, there can be operated the quantity of boost too.

# DIVK-C330 DEMA CIRCUIT DIAGRAM



# DIVK-C330 DEMA VKL CIRCUIT DIAGRAM

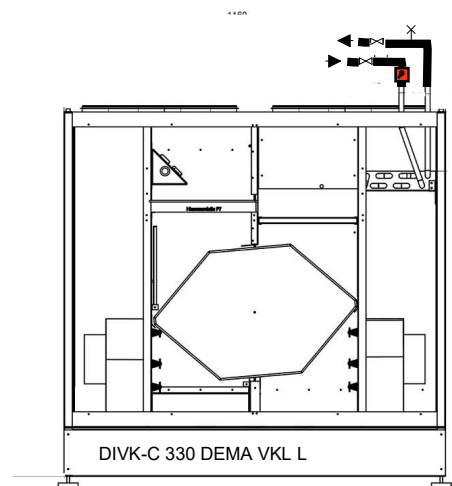
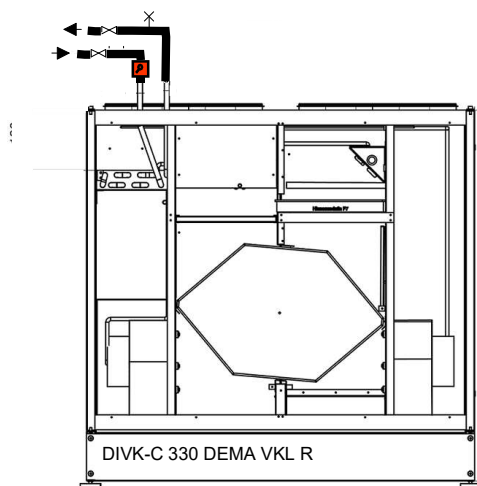


## Water heater (VKL) Talteri installation is equipped with a note

- Plays a will need to take into account the water used in temperatures and verify the design heating power.
- The heating coil is connected to a 15 mm copper or similar plastic tube
- Future Machine of water must be pre-adjusted after the boiler going water heating coil is connected to the actuator, which controls water flow to the radiator
- Radiator return water pipe installed in the top of the vent valve
- Both the supply and return pipes are fitted with shut-off valves
- A safety device in case of power failure will be open-air duct of the horizontal part install a spring-loaded shut-off damper (control may be the tip of data in the machine), or spring closing damper, which prevents the wind pressure of air flowing to happen freeze through the machine and water heater. Damper axle must be in an upright position

### Water heater power

coming water	return water	water flow	air flow	rise of the temperature	total power
70 c	50 c	0,11 l/s	300 l/s	5/30	9,0 kW
70 c	50 c	0,07 l/s	150 l/s	5/39	6,1 kW
50 c	35 c	0,09 l/s	300 l/s	5/21	5,8 kW
50 c	35 c	0,06l/s	150 l/s	5/27	4,0 kW
35 c	26 c	0,11 l/s	300 l/s	5/17	4,1 kW
35 c	26 c	0,07 l/s	150 l/s	5/20	2,7 kW



# INTRODUCTION OF THE 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 10-25% 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 DIVK-330 DEMA unit is equipped with 2000W electrical battery operated by the means of triac-adjuster or a water battery (VKL) 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 heat recovery 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 pool and from there along the hose through the water trap to the open drain. In frosty weather the freezing of condensate water is prevented by a dual-acting antifreeze function, which first turns the preheater on and later switches it off when the temperature rises above the set value. If the power of the preheater is not sufficient and the waste air temperature drops below the "waste air cold" limit, the supply fan power is incrementally reduced until the "waste air cold" limit value is reached.

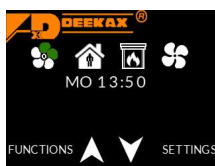
**THE SUMMER BYPASS OF THE UNIT MUST BE IN THE WINTER POSITION WHEN THE AIR FLOWS ARE BEING ADJUSTED**



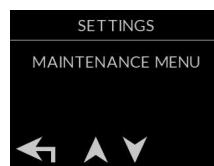
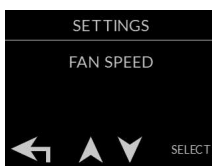
# INTRODUCTION OF THE AHU CONTROL PANEL

Settings are applied via the service menu

## SERVICE MENU



SETTINGS

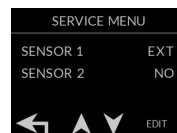


Note: swipe right at the top of the screen

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 inlet fan.

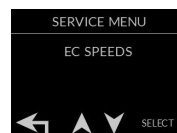


External control fan speeds

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

## FAN SPEED PRESELECTION

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



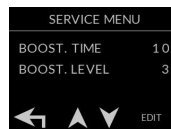
## DEFAULT SETTINGS

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

## BOOSTING FROM THE COOKER HOOD WITH CONTACT TIP INFORMATION.

Intensification time settings 0 and 5...120 min. In 0 position with different switch pre-data.

Intensification limit settings 1...4 (the air impellers higher than basic speed)

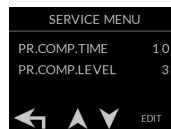


Factory setting  
10 min  
3

## SEPARATE FIREPLACE SWITCH OR PRESSURE COMPENSATION

Overpressure duration specification 0 and 5...20 min. In 0 position with different switch pre-data.

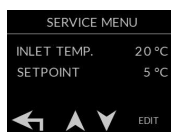
Overpressure limit regulation 1...4 (inlet air impeller higher than outlet air impeller)



Factory setting  
10 min  
1

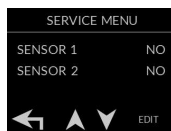
## REGULATION of the INLET AIR TEMPERATURE

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



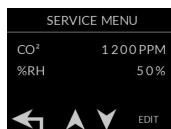
Factory setting  
17 °C

## CO<sub>2</sub> AND/or RH SENSORS ACTIVATION



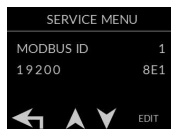
## CO<sub>2</sub> AND HUMIDITY PERCENTAGE SETTING

Note: set the sensor on in the settings menu



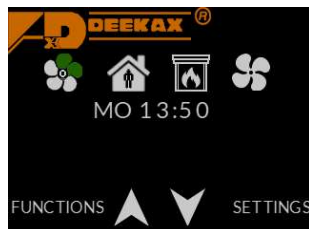
## MODBUS MENU

Check the separate Modbus manual



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

## OPERATING PANEL USER INSTRUCTION



### 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.

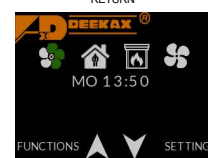
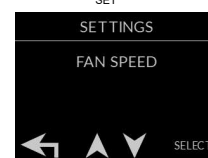
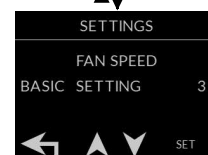
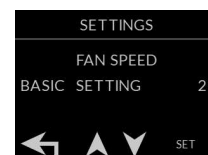
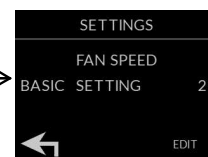
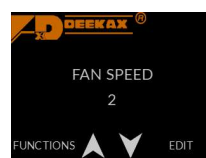
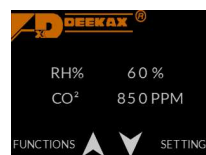
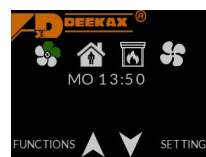
### MAIN DISPLAY AND ADJUSTMENT OF BLOWING SPEED

CLOCK  
THE DISPLAY ALSO  
SHOWS POSSIBLE  
INCREASED EFFICIENCY AND  
MALFUNCTIONS

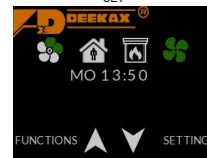
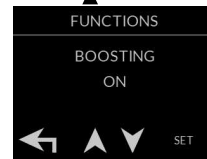
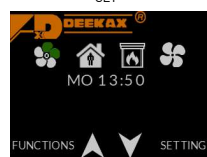
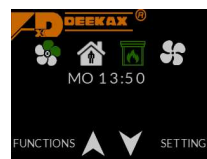
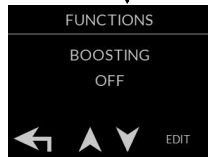
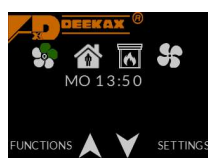
HUMIDITY AND CARBON  
DIOXIDE VALUE  
IF SENSORS ARE INSTALLED  
(accessory equipment)

TEMPERATURE DISPLAY FOR  
TEMPERATURE OF OUTSIDE AIR,  
INCOME AIR, OUTLET AIR AND  
EXHAUST AIR  
ACCURACY OF TEMPERATURE  
SENSORS  $\pm 2^{\circ}\text{C}$

LED OPERATION	REASON
BLINKING RED	SENSOR FAULT RETURN WATER GOLD
RED	INCOMING AIR GOLD INCOMING AIR HOT
BLINKING YELLOW	FILTER PRESSURE- CAP SWITCH MAINTENANCE INTERVAL REMINDER
YELLOW	OUT-OF-HOUSE SWITCH OVERPRESSURE ACTIVATED INTENSIFICATION ACTIVATE CO2/RH INTENSIFICATION ACTIVATE
BLINKING GREEN	PRE-HEATING ACTIVATE
GREEN	AFTERHEATING OR AFTERCOOLING ACTIVATED



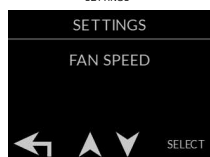
### ACTIVATING/DEACTIVATING OVERPRESSURE or (EXT.TIME), INTENSIFICATION AND AFTERHEATING



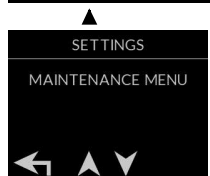
## SETUP MENU



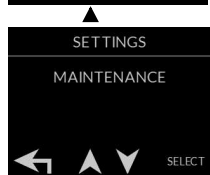
SETTINGS



Fan speed adjustment 1....5



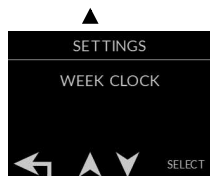
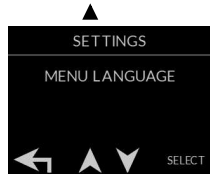
Maintenance interval and reset



Display sensor and overheating faults, temperature deviations, filter exchange and starts Fault list reset



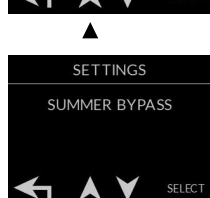
Selecting language suomi, svenska, english or eesti



Air exchange can be reduced/increased during selected time periods. 5 different periods can be programmed. Each time period can be set for one or several weekdays. In office-mode, the unit stops for the period out of selection and display reads standby.



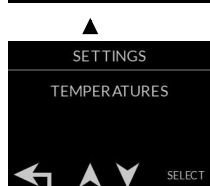
Weekday and clock selection



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. During 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.



CO<sub>2</sub> transmitter ON/OFF switching. Setting of CO<sub>2</sub> 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 the inlet air afterheating set value 5...30 °C



### Touch screen buttons:



Fan speed adjustment 1....5



Out-of-house mode



Fireplace switch (pressure compensation)



Boosting



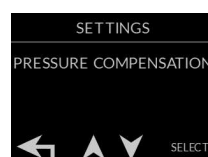
The button can be used to browse menu upwards and change settings.



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



Return previous or main menu.



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

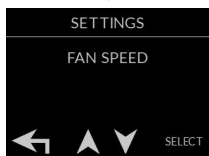


Set value of intensification duration 0 and 5...120 min. In 0 position different switch pre-data.

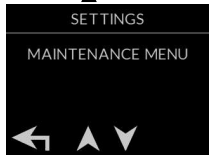
## MAINTENANCE MENU



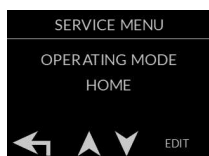
SETTINGS



SETTINGS



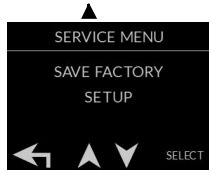
SWIPE RIGHT AT THE TOP OF THE SCREEN



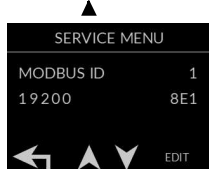
HOME overpressure activated  
OFFICE continuation time activated



Return to default settings.  
Note VLK's units post-heating fuction must be switched on from the service menu



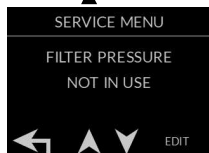
Changes of the SERVICE MENU settings always have to be saved



Modbus



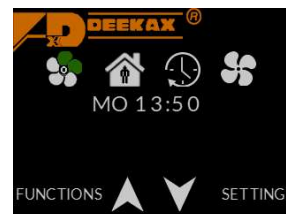
Startup with remote control or separate switch;  
"remote control ON" the unit operates only if pre-data is switched on  
OR  
Out-of-house mode  
"Remote control off" the unit operates on minimum speed with pre-data switched on



Usable if the differential-pressure switch is present



Maintenance interval reminder settings 0-12 months



### Touch screen buttons:



Fan speed adjustment 1....5



Out-of-house mode



Extended time  
(office mode)



Boosting



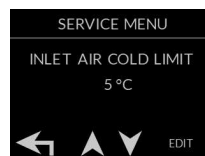
The button can be used to browse menu upwards and change settings.



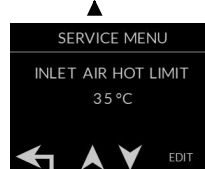
The button can be used to browse menu downwards and change setting value.



Return previous or main menu.



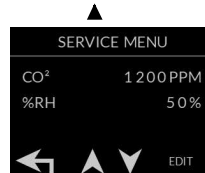
Inlet air cooling temperature -10...15 °C



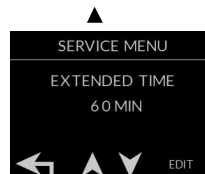
Inlet air heating temperature 30...40 °C



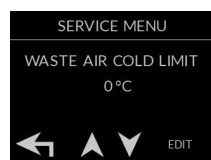
CO<sub>2</sub> and/or RH sensors activation  
The external control 0-10 V activation



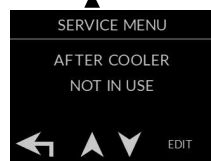
CO<sub>2</sub> and humidity percentage setting



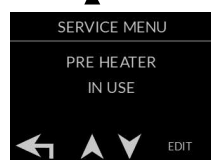
Office-mode continuation time setting  
30...120 min. Usable with a separate pulse-switch if the weekly clock is used in office-mode.



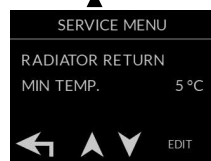
Freeze-alert settings -10...10 °C



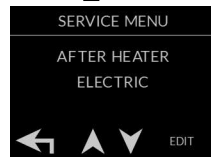
Anti-freeze appliance's control



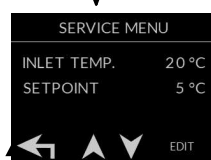
Pre-heating activation



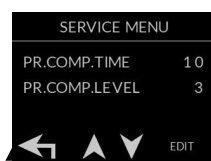
Regulation of VKL-appliance's water battery backup-sensor  
Set values 0 and 5...10 °C, 0 – deactivated



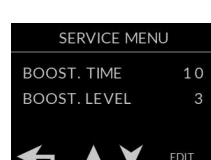
Afterheating selection  
ELECTRICITY or WATER



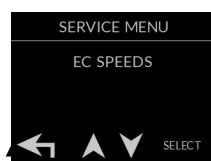
Regulation of Inlet Air and Pre-heating value  
The value of pre-heating should be regulated to be approx 5 c higher than the limit of cold exhaust air



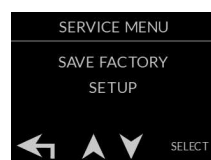
Overpressure duration specification 0 and 5...20min. In 0 position with different switch pre-data.  
Overpressure limit regulation 1...4 (inlet air impeller higher than outlet air impeller)



Intensification time settings 5...120min. In 0 position with different switch pre-data.  
Intensification limit settings 1...4 (the air impellers higher than basic speed)



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



The changes of the service menu settings always have to be saved

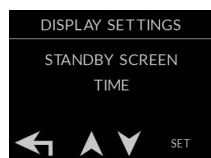
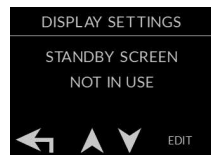
## BACKLIGHT BRIGHTNESS AND STANDBY SCREEN



Press and hold the FUNCTIONS for about 5 seconds



Adjustment of backlight



Options : not in use, time and temperatures

## OPERATIONAL DESCRIPTION

### 1. Operating panel

The operation is directed according to settings inserted by the user or installer/manufacture through the operating panel as well as according to temperature sensors and set periods.

The operating panel returns from processing state to basic state 2 minutes after the last button pressing. The return time from normal position is 2 minutes.

Maintenance menu – for setting suitable parameters for the installation. Maintenance menu is hidden from the end-user. “Restoring factory settings” option is also present in the maintenance menu that can be used for turning all settings to default settings.

The user can use four different selections on the operating panel: weekday and time with the shortcut icons, blowing speeds, temperatures and air quality values in case there are sensors for these functions.

### 2. Operating card

The controller card controls the operation of the device user's choices and measurement data from the sensors Received by. The controller card is

in addition to two transmitter inputs Which can be connected% RH or CO<sub>2</sub> transmitter. The card has an additional 4 pcs switch data inputs and two

EC - a five-speed fan outputs. The control panel is connected to the controller card, a modular six-pole.

### 3. Controlling of the air impellers

#### 3.1. Speed controlling in default state

The supply and exhaust air controlled 5 speed. Maintenance menu can be selected fans (20-100%) are suitable for speeds of the subject. The fan speeds are individually user selectable. At speeds in the service menu is the default setting which the machine starts.

#### 3.2. Overpressurization

Overpressurization state selectable from the outer switch or operation panel. Outlet impeller runs at basic speed, inlet impeller is set to value of the maintenance menu. The intensifications have no impact at this point. The duration of overpressurization in minutes is selectable by the user. New push from the switch launches overpressurization from the beginning. Overpressurization can be shut down also from operating panel. Anti-freeze is deactivated when overpressurization is switched on.

#### 3.3. Intensification

Intensification of air exchange can be activated from the operating panel or stove hood. Activation from the panel sets the durability of intensification in minutes (5...120min). Maintenance menu is used to set the quantity and default time. In this case, CO<sub>2</sub>/%RH intensification has no impact. Intensification is activated also according to external data.

#### 3.4. CO<sub>2</sub>- and %RH- intensification

CO<sub>2</sub> – transmitter or data given by the transmitter is the basis for air exchange intensification in regulating intervals.

The CO<sub>2</sub> maximum limits are set from the panel by the user (250...1500ppm, 50ppm steps). CO<sub>2</sub> measuring values can be seen on the operating panel. The air exchange is periodically intensified by data of %RH – transmitter or transmitters. The maximum limits of relative humidity are set from the panel by the user (30...80%, 1% steps). %RH measuring values can be seen on the operating panel. The card has two transmitter inputs that can be chosen separately for CO<sub>2</sub> or %RH activation and deactivation. Regulation interval is a parameter set through the maintenance menu that determines how often the impeller speed can change in intensification mode. Set value 5...20 minutes by 1 minute. The regulation interval is same for both CO<sub>2</sub>- and % RH intensification.

#### 3.5. Out-of-house function

The “out-of-house” function can be selected from the external switch or from the operating panel. The impellers are set on minimum speed. However, previously set intensification or overpressurization will be completed before the impeller speed is reduced or stopped altogether.

#### 3.6. Weekly clock

The program selectable by the user enables to reduce/increase air exchange during selected periods of time. 5 different time periods can be programmed at the same time. Each time period can be set with one or several weekdays.

### **3.7. Office mode**

The installer can select the office mode from the maintenance menu – this is useful in case the air exchange system is installed into an office where activities take place mostly during daytime. The speeds are controlled by the weekly clock.

The mode is equipped with continuation switch that enables persons who remain in the office for longer to prolong the functioning of the appliance by set interval. Intensification and out-of-house mode functions are not usable in the office mode. Remote control mode can also be selected from the maintenance menu that enables to switch the unit on and off by the mean of pre-programmed data and weekly clock functions are deactivated.

## **4. Setting the temperature**

Temperature is measured from four different sources: temperature outside, inlet temperature, outlet temperature and exhaust air temperature. The temperatures are displayed on the operating panel. The precision of measurement is +/- 1 degree.

### **4.1. Afterheating**

The thermostat leads the afterheater located in the inlet channel. The heater can be electrical or water heater and is selected by the installer from the maintenance menu. The heater keeps inlet air at the exact temperature selected by the user. The desired temperature can be set from the operating panel. Set values are between 5 – 30 degrees.

### **4.2. Preheating**

Preheater is an electric heater located in the outlet channel. The preheater's thermostat is driven based on the temperature of exhaust air. Preheating is meant for prevent freezing of the recovered heat. The temperature setting of the thermostat can be selected by the installer from the maintenance menu with limitations of 0 – 10 degrees.

### **4.3. Summer cassette function**

The unit is equipped with summer cassette for heat exchange during summertime. The user can select the function manually or let the functioning be determined automatically according to the temperature outside. During the Summer-mode, the bypass plate of the cassette is activated.

The automatic functioning can be set with external temperature between 15 – 20 degrees.

## **5. Alarms and reminders**

### **5.1. Activation of overheat protection**

Information on activation of overheats protection connected to electrical afterheater and preheater is received from the heater. In case the protection launches, the impellers are automatically set on minimum speed, red indicator light blinks on the operating panel and the display informs about malfunctioning.

### **5.2. Inlet air too cold**

Inlet air minimum temperature must be set from the maintenance menu. When the air temperature is lower than set, the information will be displayed on operating panel and red indication light is turned on. The inlet impeller is stopped and the speed of outlet impeller is reduced to minimum. These actions prevent the water-circulation battery from freezing.

### **5.3. Income air too hot**

Maximum limit of income air temperature must be set from the maintenance menu. When the air temperature exceeds the set limits, respective information will be displayed on operating panel and red indication light is turned on. The inlet impeller is stopped and the speed of outlet impeller decreased to minimum.

### **5.4. Exhaust air too cold**

The exhaust air temperature minimum limits must be set from the maintenance menu (-10 ... 10 degrees). When the air temperature is lower, warning is displayed on the operating panel and red indication light is turned on. The temperature is attempted to keep above the set value by reducing the speed of inlet air impeller (see also preheating) by regulating it one-step at a time. In case the air temperature does not rise over the alarm limit even when the impeller is completely stopped, the red indication light starts to blink and freezing alert is displayed. In case the temperature is restored to normal, normal functioning will be also restored by increasing the impeller speed one-step at a time.

### **5.5. Danger of water battery freezing**

In VKL machines can be set the temperature of the water radiator from the service menu "radiator return min temp" and when the value falls down, a notification is displayed and the red indicator lights up in the control panel. The inlet fan is stopped.

### **5.6. Alarms for remote monitoring**

General alerts may be taken into the remote control from potentially free relay. Alarms are obtained inlet air hot or cold, danger of water battery freezing, overheat protectors and if the machine is stopped.

### **5.7. Maintenance interval reminder**

When the maintenance interval is complete, the respective information is displayed on the operating panel and the indication light blinks green. The user can reset the reminder after the filters have been changed. The maintenance interval counter is reset and the new alert will be transmitted after the period has been completed again. The maintenance interval can be set between 3 – 12 months.

### **5.8. Filter-dirty notice**

Differential pressure switch can be installed to the equipment that measures dirtiness of the inlet air filter by monitoring its differential pressure. When the switch runs, the display transmits the necessity of filter-change and the indication light blinks yellow. Differential pressure switch is taken into use through the maintenance menu and it deactivates maintenance interval reminder

## 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.

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. 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.