DEEKAX®

AIR EXHANGE EQUIPMENT
INSTALLATION AND USER MANUAL

TALTERI

DIVK-C 95 DE



QUALITY CONTROLLED

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!

DEEKAX Air Oy

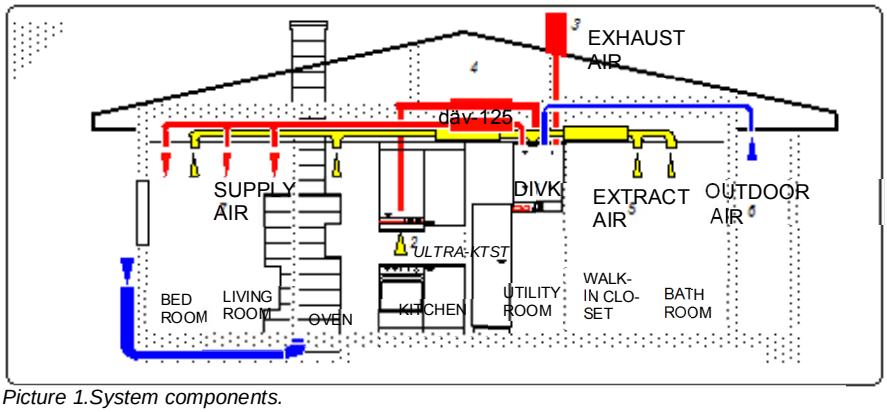
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TALTERI HEAT RECOVERY AIR VENTILATION SYSTEM (HRV)

SYSTEM COMPONENTS

Picture 1

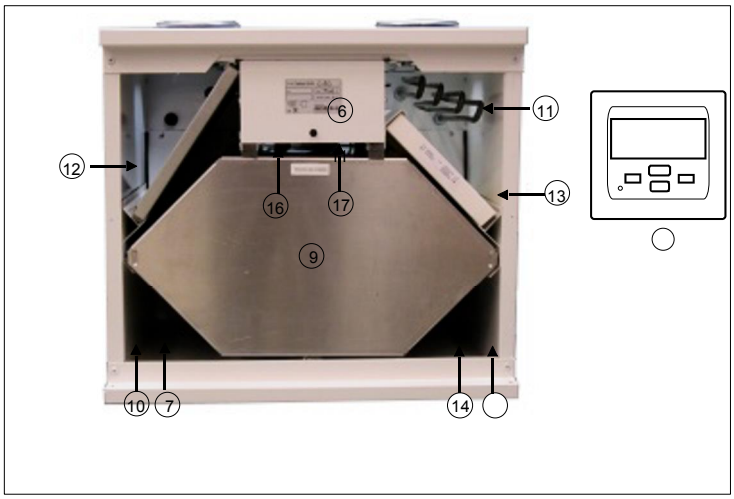
1. Heat recovery ventilator (HRV). DIVK-C 95 DE
2. Exhaust fan hood…… DX-ULTRA- KTST
3. Exhaust air outlet……DLVS-125
4. Duct silencer…… Ø125
5. Extract air to the heat recovery ventilator …… ….. Ø125
6. Fresh air intake from outdoors .Ø125
7. Fresh air supply to the rooms…Ø125



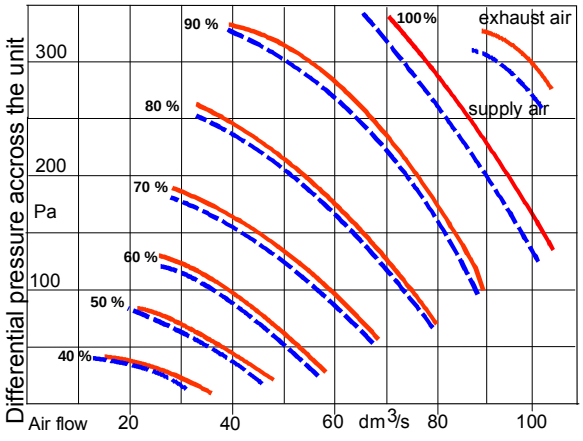
Picture 1.System components.

MACHINEPARTSAND TECHNICAL DATA

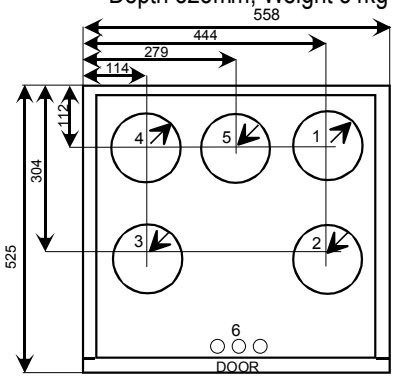
1 Exhaust air out..... Ø 125 mm
2 Outdoor air for the system..... Ø 125 mm
3 Exhaust air for the system..... Ø 125 mm
4 Interior air supply.....Ø 125 mm
5.Kitchen exhaust ……Ø 125 mm
6 Door switch
7 Supply fan, adjustable…….EC 163 W
8 Exhaust fan, adjustable.....EC 163 W
9 Heat exchanger
10 Post-heating, adjustable...500 W
11 Pre-heating, adjustable 1000 W
12 Exhaust air filter....G3
13 Supply air filter F7
14 Exhaust of condensing water
15 Operating panel
16 Manual over heat protection, pre-heating
17 Manual over heat protection, post-heating



Picture 2. Right handed(R) model of TALTERI DIVK-C 95DE.



Dimensions: Height 495mm, Widh 558mm, Depth 525mm, Weight 51kg



DUCT CONNECTIONS, HANDEDNESS RIGHT
1 EXHAUST AIR
2 OUTDOOR AIR
3 EXTRACT AIR
4 SUPPLY AIR
5 KITCHEN EXHAUST

Duct connections, handedness left
4 EXHAUST AIR
3 OUTDOOR AIR
2 EXTRACT AIR
1 SUPPLY AIR
5 KITCHEN EXHAUST

6 ELETRICAL CABLE PASS-THROUGHT

Kitchen exhaust air flows					
adjusting voltage	%	40	60	80	100
kitchen exhaust airflow rate	dm3/s	34	51	69	85
Total output	LWA	50	59	66	70

Fan speeds %		40	50	60	70	80	90	100
Input power of fans W		25	41	66	103	154	205	285
Sound pressure level LpA in installation premises dB(A)		21	27	31	35	38	40	43
	Hz	E S	E S	E S	E S	E S	E S	E S
Weighted A-pressure levels LWA of exhaust(E) and supply(S) ducts on different octave bands	63	46 53	51 60	54 63	57 68	59 71	61 74	62 75
	125	40 52	47 59	51 63	55 66	57 70	58 73	61 76
	250	38 50	44 56	49 61	53 65	56 68	59 71	61 74
	500	39 47	46 53	50 57	54 62	58 65	60 68	63 72
	1000	35 50	41 57	45 61	48 64	51 67	54 69	56 72
	2000	28 47	34 55	39 61	44 65	47 68	50 71	53 74
	4000	17 39	25 48	31 54	36 58	41 62	45 66	48 70
	8000	4 29	12 40	20 48	26 54	33 58	38 62	43 65
Total output Lwa		38 52	44 60	49 65	53 69	56 72	59 75	61 78

Picture 3.Performance data and dimensions of DIVK-C 95 DE

AIR EXCHANGE PLAN

THE *AIR EXCHANGE PLAN INCLUDES ATLEAST:*

DRAWINGS-plans and sections (1:50) as well as installation drawings (1:20).The drawings must include at least the location of equipment and channels, measures, technical data, air flow and operational chart. For air flow measuring, the installation must be slightly under pressurized.

EQUIPMENT and QUANTITY LIST presents all work-influencing mechanical details with detailed characteristics (equipment list, noise reducers, fans etc.).

INSTALLATION MANUAL describes installation procedures for the central engine and equipment. Type approved machinery has detailed installation instructions enclosed to the air exchange plan.

WORK SPECIFICATION specifies contract limits and timetable for the working order. Drawings, lists and installation instructions define IV-work in detail and do not need to be repeated. Work specification defines necessary testings, measuring and basic adjustment with proceedings reports.

THE REQUEST FOR QUOTATION includes total pricing considering on schedule installation according to the plan payment conditions are also extremely important.

IMPLEMENTATION- AND MAINTENANCE TRAINING is unavoidable before the work is ready for handover.

Tabell 1 Table 1.Extract and outdoor airflow rates.

EXTRACT AIR FLOW	Normal operating situation	Basic operating situation
Kitchen	25 dm^3/s	8 dm^3/s
Bathroom	15 “	10 “
WC	10 “	7 ”
Clothing room	3 “	3 “
Utility room	15 “	8 “
Sauna	2 “/m^2	6 “/m^2
Hobby room	0.5 “/m^2	0.5 “/m^2
Bed rooms	0.5 “/m^2 or 6 “/person	0.5 “/m^2 6 “ /person

The airflow of the basic operating situation can be used only if it is possible to increase the airflow in the with the control valve to the level of the normal operating situation. A separate exhaust valve is required near the ceiling in the kitchen.

OUTDOOR AIR FLOW	
Living room	0.5 $dm^3/s/m^2$
Bed room	0.6 “ “ or 6 dm^3/s/person
Dining room	0.5 “ “
Hobby room	0.5 “ “
Sauna	2 “ “ at least 6 dm^3/s

To avoid damages caused by humidity the outdoor airflow has to be at least 85 % of the exhaust airflow.

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!
THE SYSTEM IS ONLY AS GOOD AS IT’S WEAKEST PART!

CHANNEL ISOLATION

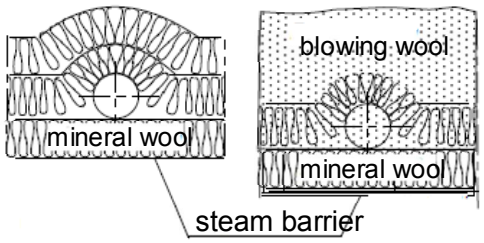
Since the channels are mounted to the upper base, it must be carefully isolated so that: humidity will not condensate on pipe surfaces, the air will not freeze before heat has been stored, the heated incoming air will not freeze before it is blown into interior.

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 8 cm of mineral wool and steam barrier plating, for instance AE-chase or AIM-mat. (Picture 4)

Minimum insulation thickness for the duct, mm

Duct size	/ dm3/s	5 C	10 C	20 C	30 C	40 C	50 C
100	20	30	30	50	60	80	100
125	40	30	40	50	60	80	100
160	80	30	40	50	60	80	100

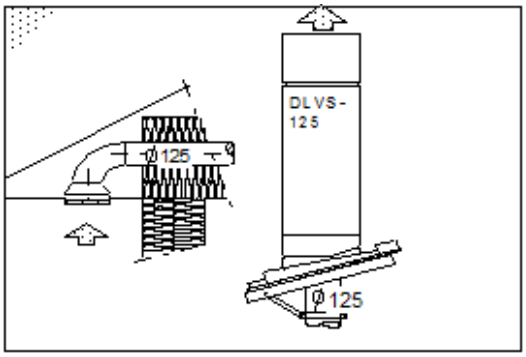


Picture 4: Channel isolation

CHANNELS OF OUTSIDE- AND EXHAUST AIR

The outside air will be obtained through a 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.(Picture 5).

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



Picture 5: Outside and exhaust air inlets.

INSTALLATION OF VENTS

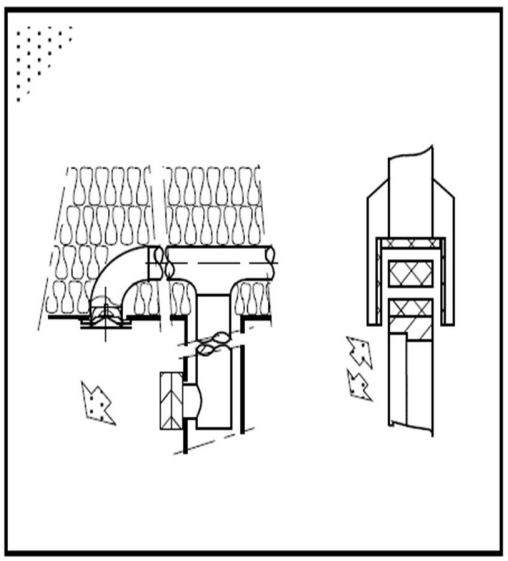
Income and outlet vents are installed according to the plan. Special attention is needed while installing income valve since a wrong vent in a wrong place and wrong mounting will affect the air draught and reduce satisfaction.

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 vents 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, picture 6. Air transfer routes in doorways and under the doors will greatly reduce the privacy.



Picture 6: Supply and transfer air vents.

TALTERI DIVK-C95 DE 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, 10mm 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. The unit can be attached also traditionally by wall attachment.

MOUNTING ON THE WALL

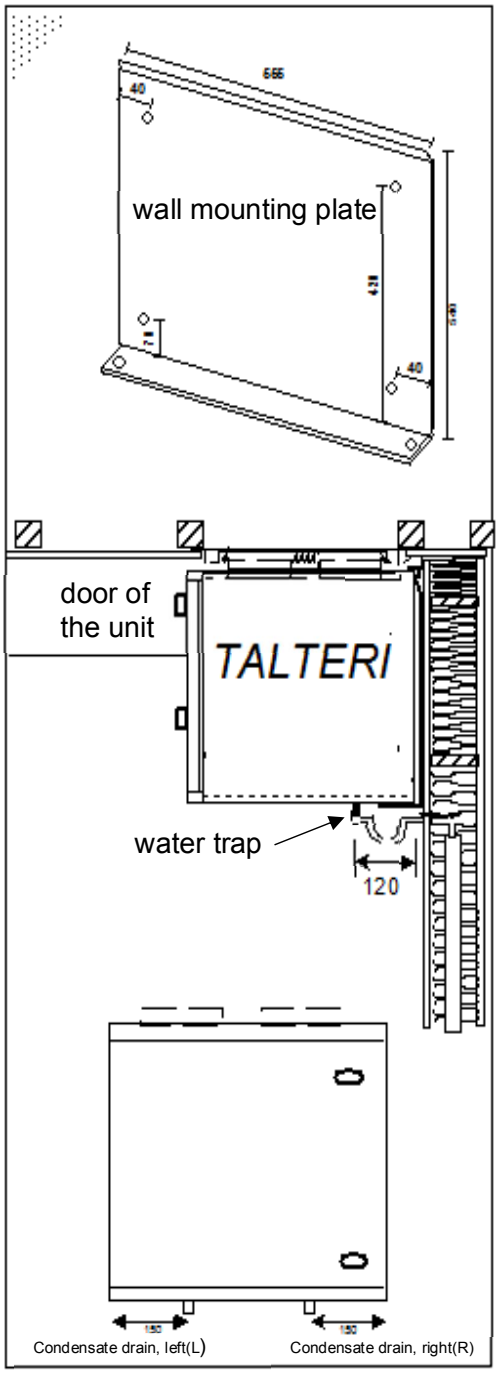
The unit can be attached to a wall with a mounting plate. First, the wall mounting plate should be fixed to the wall approximately 25 mm under the ceiling and then the unit should be lifted up to the mounting plate, checked and adjusted into a perfectly horizontal position. After that holes for the screws should be drilled though the bottom of the unit. If necessary, additional trimming can be installed on the upper edge of the unit, if necessary, to mask the gap between the unit and the ceiling.

KITCHEN EXHAUST DUCT

If applicable, duct connection number five(5), see page 6, should be connected to a duct of a kitchen exhaust fan hood. If a duct is not in use, this connection of the unit should be closed with a plug.

CONDENSATE DRAINAGE

Condensate water hose is connected to the condensate drainage outlet (3/8 female screw). You can use a diameter of 10 mm copper pipe or from a rigid hose as a condensate water hose. When installed, the hose should form a U-shape water trap (appr. 10 cm curve) and then be connected to a floor well(Picture 7). It is not allowed to connect the hose directly to a sewer.

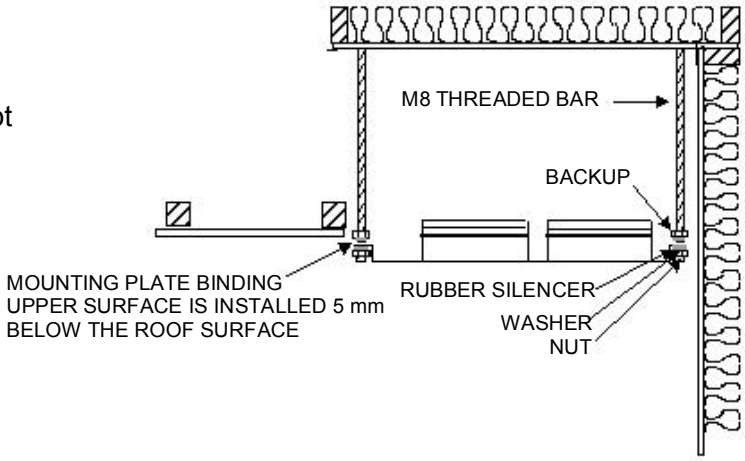


Picture 7: TALTERI DIVK.-C 95 DE installation

DIVK-C 95 INSTALLATION TO A SUSPENDED CEILING

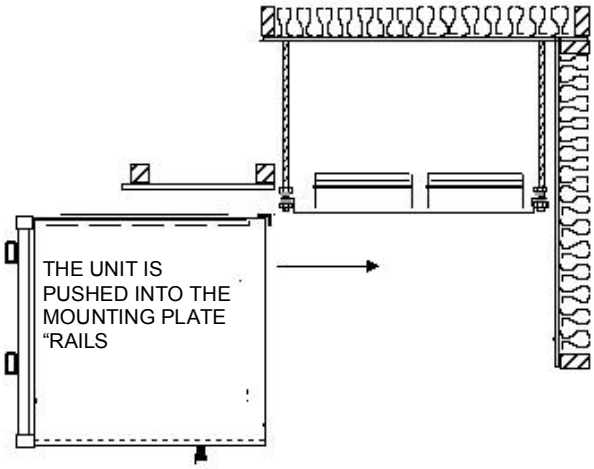
The ceiling-mounting plate is attached to the roof with M8, thread bars (not included in the delivery).



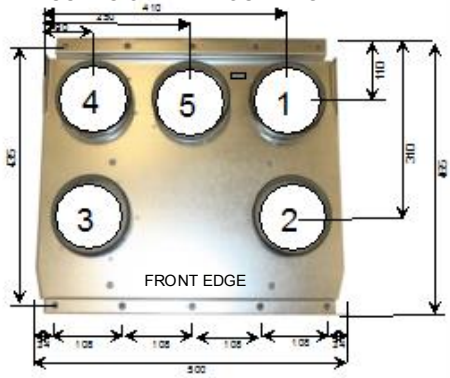


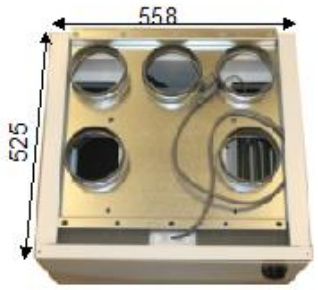
The head of the threaded bar can not reach below the bottom of the plate.

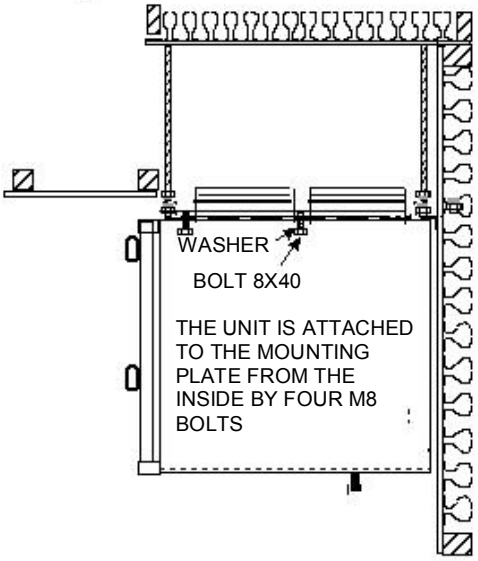
The unit will be pushed to the mounting plate and tightened with four M8 bolts against the plate.



MEASURES OF THE MOUNTING PLATE







ELECTRICAL CONNECTIONS

Electrical connections must be done following the installation manual and wiring scheme.
ELECTRICAL CONNECTIONS CAN BE DONE ONLY BY AN ENTREPRENEUR WITH RESPECTIVE INSTALLATION RIGHTS.



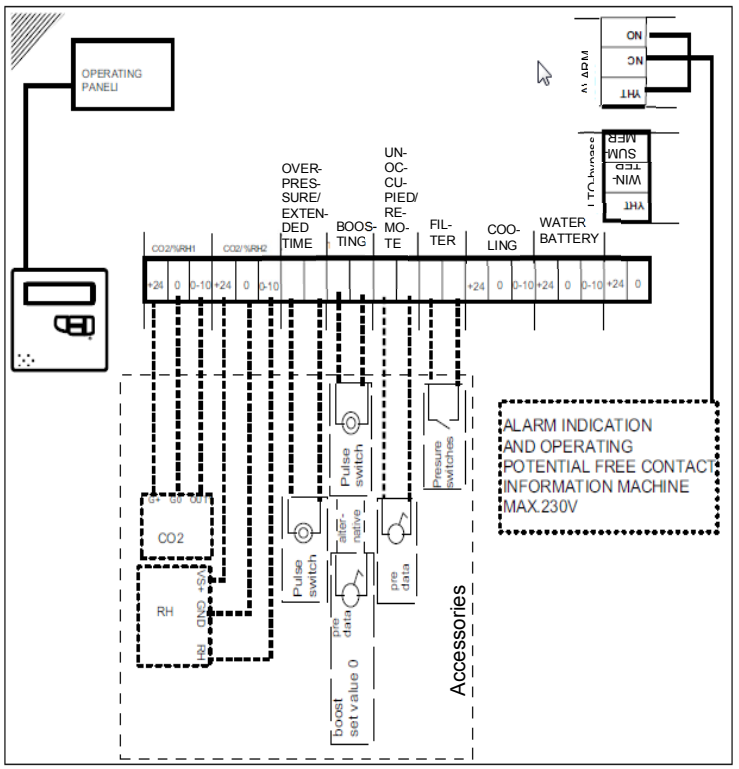
Picture 8.Operator panel bezel removal

Electrical connection box can be opened by removing the screws from the both sides of the box. Circuit board can removed from the electrical connection box by removing the screw located at the front of the summer bypass plate

The unit is equipped with a power plug.
The operating panel is connected to the control board by modular connector.
The following can be connected as accessories:

- Carbon dioxide transmitter
- Humidity transmitter
- Separate Overload or Extended Period 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
- Outside pre-heating

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



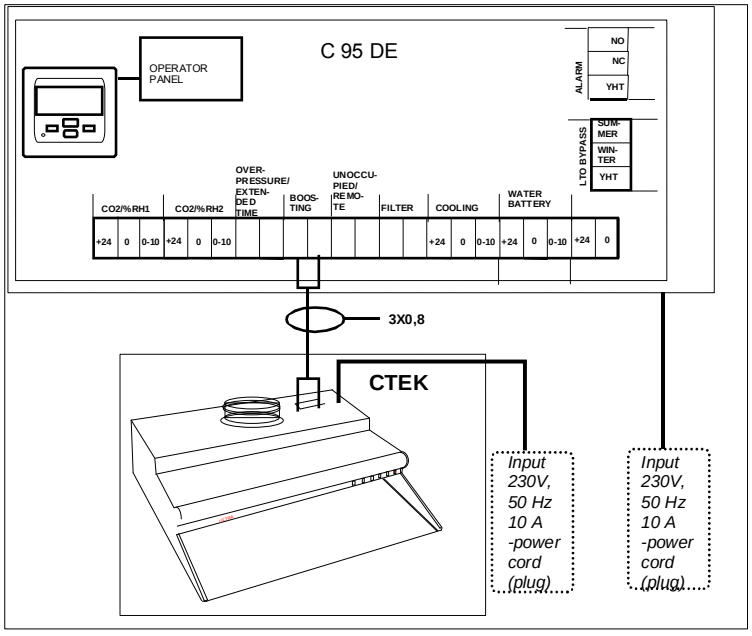
Picture 9.Electrical connections.

BOOSTING CONTROL WITH A KITCHEN HOOD FAN

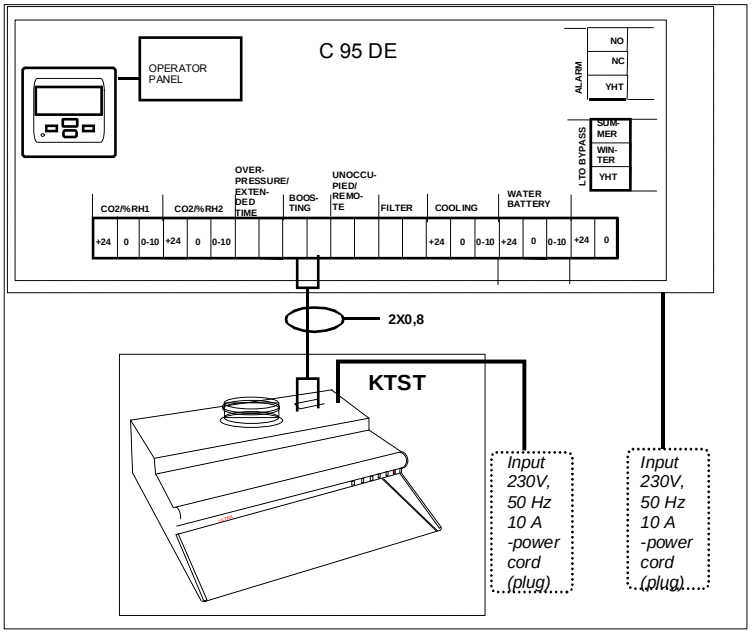
Boosting control of DIVK-C 95 DE with Ultra KTST kitchen hood fan.
When the operating panel of the unit is in use and the barrier plate of the kitchen hood fan is open, the fan speed of the unit increases.
Boosting time value should be to 0 through the service menu.
The level of the boosting can also be set through the service menu.

SPEED CONTROL WITH A KITCHEN HOOD FAN

Speed control of HRV DIVK-C 95 DE with three speed Ultra CTEK kitchen hood fan.
The fan speed modes are changed through the service menu.
Different speed settings correspond to different kinds of air exchange demands. Thus:
Speed 1 corresponds to ”Unoccupied” mode
Speed 2 corresponds to speed ”Normal” mode
Speed 5 corresponds to speed ”Boost” mode
Speed 3 is set when speed should be higher than at the "Normal" mode
Speed 4 is set when speed should be lower than at the "Boost" mode
The speed 3 and 4 are active during the freezing protection or if the fan speed difference is changed +/-
The boosting time is set to a value 0 through the service menu.
The boosting level is set to a value 4 through the service menu.
The operator panel of the HRV unit is in use only when adjusting the settings or during a maintenance service inspection

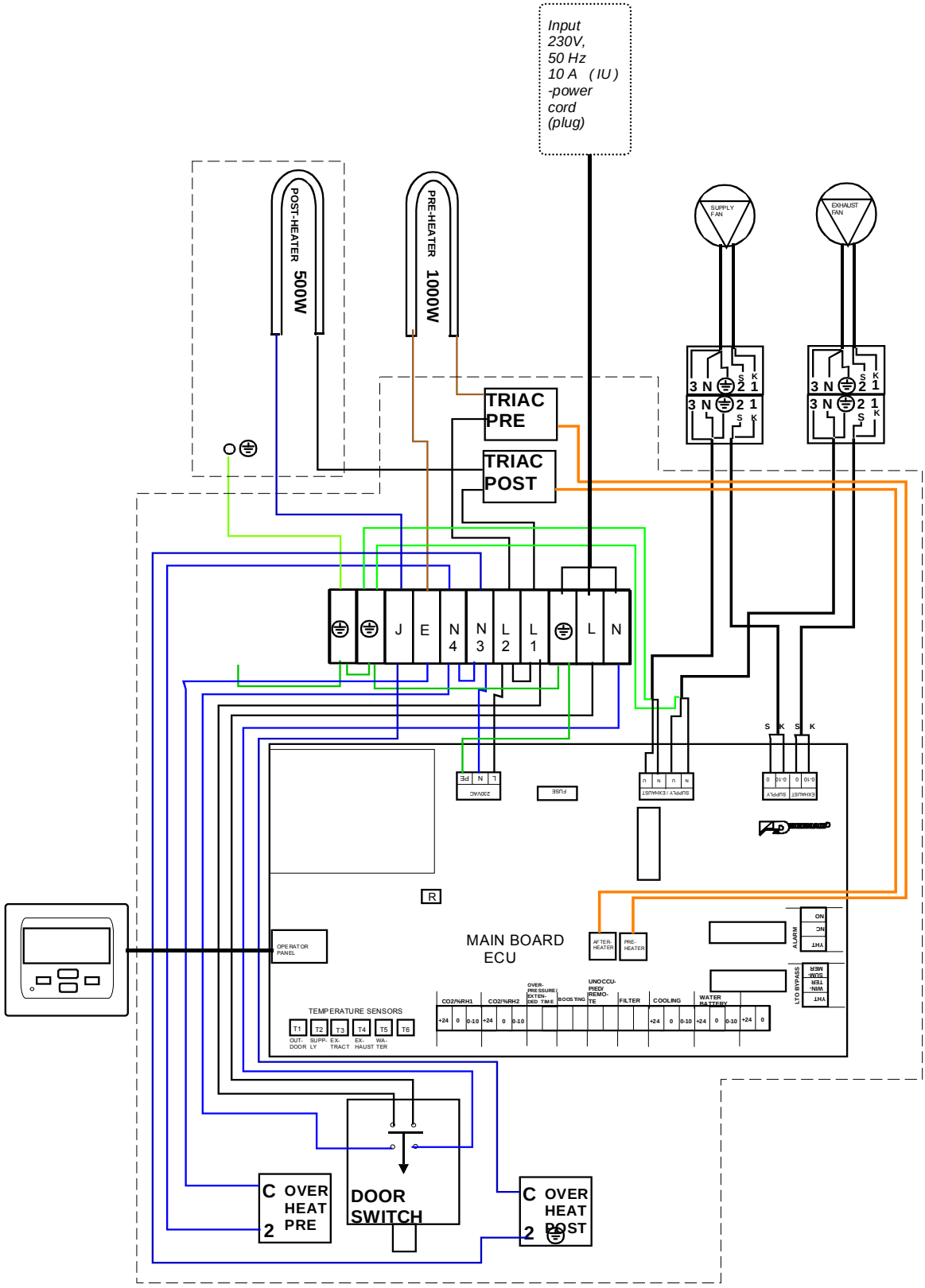


Picture 10. Boosting control with a kitchen hood fan.



Picture 11.Speed control with a kitchen hood fan.

C 95 DE



Picture 12 Electrical circuit diagram of DIVK-C 95 DE.

INTRODUCTION OF THE AIR EXCHANGE

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
- Post-heating 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 channeling 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 counter pressure 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 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 picture3.
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.

POST-HEATING AND SUMMER BYPASS OF INLET AIR

The unit is equipped with 500W electrical battery operated by the means of TRIAC-adjuster for post-heating 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 summer 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 Ito-exchanger turns into water, flows down to the condensing basin and from there, through the hose and water trap, into the open drain.
During low temperature period (winter time) freezing of water is prevented with dual-functional freezing protection, which first switches the pre-heater on, and, when the temperature rises over the set limit value, switches the pre-heater off.
If a heating power of the pre-heater is not sufficient and, therefore, the exhaust air temperature decreases under the limit of “WASTE AIR COLD”, the supply fan speed will be also gradually decreased until the “WASTE AIR COLD” temperature limit value is reached

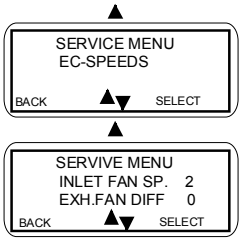
PRE-SELECTION OF FAN SPEEDS
Pre-selection of fan speeds can be set for each fan individually within the range of 20-100% via the service menu on the control panel.

Running speed difference of inlet and outlet of air fans:
0: fans are working with the same speed.

-1: inlet air fan runs 1 step faster than the outlet air fan.

1: outlet air fan runs 1 step faster than the inlet air fan.

Attention! If fans work in the 0 mode (running with the same speed), there are 5 speed values available for choosing. If fans run on different speeds (mode -1 and 1), there are only 4 basic speed values available.



Factory default settings
1. 20%
2. 40%
3. 60%
4. 80%
5. 100%

EXH. FAN DIFF 0

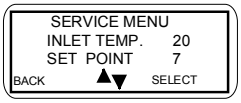
FREEZING PROTECTION LIMIT VALUES
The temperature readings for pre-heater and for "WASTE AIR COLD" function are based the temperature of exhaust air.

The pre-heater can be switched on from the maintenance menu on the control panel.
The temperature setting of the thermostat can be selected during installation of the unit from the maintenance menu. Available temperature values lie within interval from 0 to 10 Cº. Chosen temperature value should be 2-5 Cº higher than "WASTE AIR COLD" temperature setting.

The "WASTE AIR COLD" value is recommended to be set to at least 5Cº if a pre-heater is not in use. If the pre-heater is in use, the "WASTE AIR COLD" value should be set to 2-5Cº lower than the limit value of the pre-heater. The limit value of pre-heater can be adjusted within the range of -10..+10Cº.



Factory default setting
NOT IN USE



Factory default setting
7 c

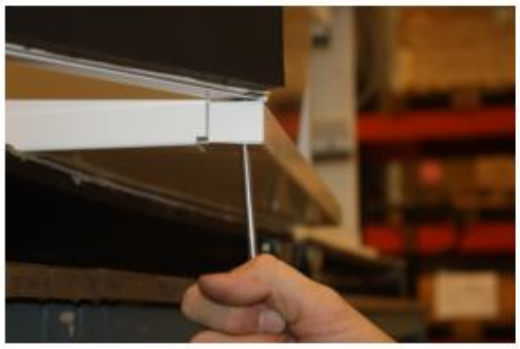


Factory default setting
5 c

ALL THE CHANGES MADE IN THE SERVICE MENU SHOULD BE SAVED. Refer to the user manual of the operating panel.

CHANGING HANDEDNESS OF THE DOOR

The handedness of the door can be changed by pushing the pintle (located on the top or bottom of the unit) with, for example, a narrow headed screwdriver.





REMOVAL OF THE FANS

The fan can be removed for cleaning or replacement. To do that, the heat exchanger core and the filters should be removed. Cover plate located at the front of the fan should be removed by loosening the fastening screws(2 pcs.).Electricity connectors of the fans should be disconnected. Then the fan can be finally removed from the case by unscrewing its mounting plate from the case.



Fastening screws of the cover plate of the fan.

OVERHEATING PROTECTORS

The overheating protection is activated in case the barrier temperature has risen to +90 C (for instance, in case of power failure).Reset the overheating mode by pressing the switch under the threaded contact protection.



Overheating protector of the pre-heater.

Overheating protector of the post-heater.

SUMMER BYPASS PLATE

Summer bypass plate is located under the exhaust air filter.



Summer bypass plate in the summer position



Summer bypass plate in the winter position

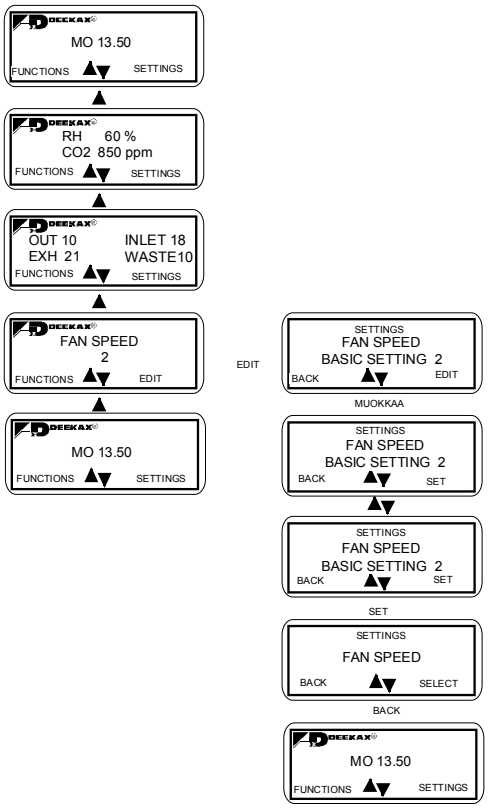
OPERATING PANEL
USER INSTRUCTIONS

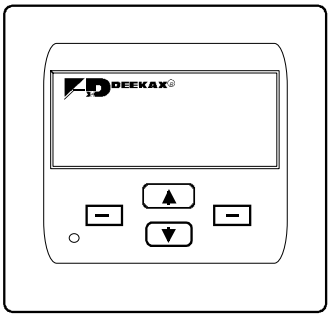
MAIN DISPLAY AND ADJUSTMENT OF BLOWING SPEED

CLOCK
THE DISPLAY ALSO
SHOWS POSSIBLE
INCREASED EFFICIENCY AND
MALFUNCTIONS

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

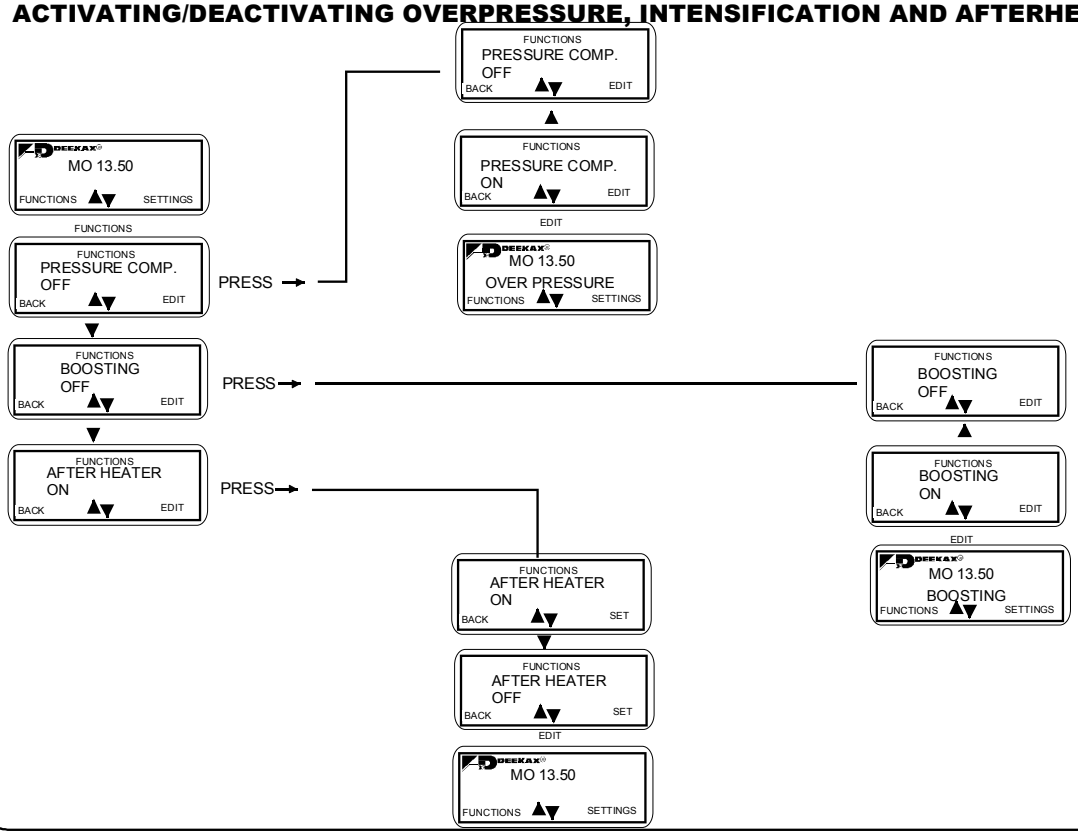
TEMPERATURE DISPLAY FOR
TEMPERATURE OFOUTSIDE AIR,
INCOME AIR, OUTLET AIR AND
EXHAUST AIR
ACCURACY OF TEMPERATURE
SENSORS +2c



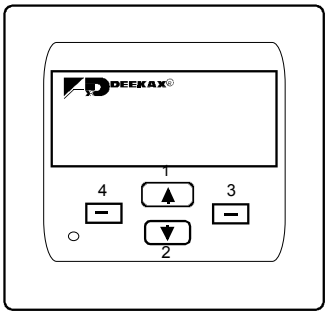


LED OPERATION	REASON
BLINGIN RED	SENSOR FAULT RETURN WATER GOLD
RED	INCOMING AIR GOLD INCOMING AIR HOT
BLINGIN YELLOW	FILTER PRESSURE- CAP SWITCH MAINTENANCE INTERVAL REMINDER WASTE AIR COLD
YELLOW	OUT-OF-HOUSE SWITCH OVERPRESSURE ACTIVATED INTENSIFICATION ACTIVATE co2/RH INTENSIFICATION ACTIVATE WASTE AIR COLD
BLINGIN GREEN	PRE-HEATING ACTIVATE
GREEN	AFTERHEATING OR AFTERCOOLING ACTIVATED

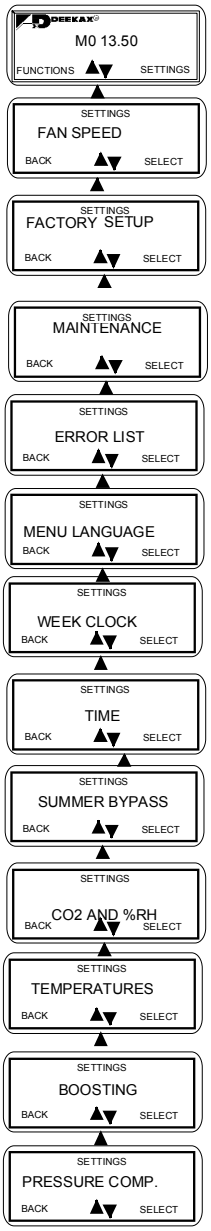
ACTIVATING/DEACTIVATING OVERPRESSURE, INTENSIFICATION AND AFTERHEATING



SETUP MENU



KEYBOARD
1. The push button can be uded to browse menu upwards and chnage setting values.
2. The push button can be uded to browse menu upwards and chnage setting values.
3. Function selection and recording switch.
4. Return to previoius or main manu.



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

Operating the summer bypass. 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...20c
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

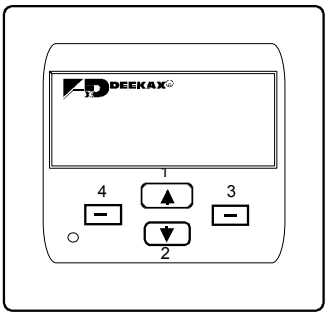
%RH transmitter ON/OFF switching. Setting of RH upper limit. Set value 30...80%, 5% steps
Regulating amplitude 5...20min

Regulation of inlet air afterheating set value 1 5...30c

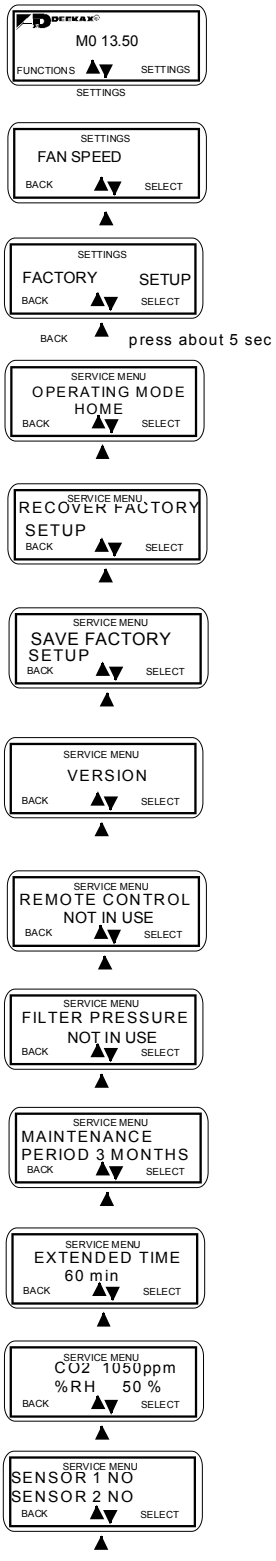
Set value of intensification duration 0 and 5...120min. In 0 position different switch

Set value of overpressure duration time (hearth switch) 5...30min

MAINTENANCE MENU



KEYBOARD
1. The push button can be used to browse menu upwards and change setting values.
2. The push button can be used to browse menu upwards and change setting values.
3. Function selection and recording switch.
4. Return to previoius or main manu.



HOME: ovepressure activated
OFFICE:continuation time activated

Return to default settings

(NOTE! VLK unit's post-heating function must be switched on from the service menu)

Recording must be done always after the maintenance set values have been changed

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

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

CO2 and humidity percentage setting

CO_2 and/or RH sensors activation



Inlet air heating temperature 30...40c



Inlet air cooling temperature 10...15c



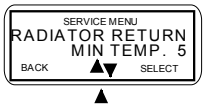
Freeze-alert settings 0-10c



Anti-freeze appliance's control



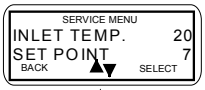
Pre-heating activation



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



Afterheating selection ELECTRICITY or WATER



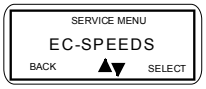
Regulation of Inlet Air and Pre-heating value
The value of pre-heating should be regulated to be approx 5c higher than the limit of cold exhaust air



Overpressure duration specification 5...20min
Overpressure limit regulation 1...4 (inlet air impeller higher than outlet air impeller)



Intensification time settings 5...120min
Intensification limit settings 1...4 (the air impellers higher than basic speed)



Speed control of the fans.
There are five fan speed modes which can be adjusted individually within the range of 20-100%.



Running speed difference of inlet and outlet air impellers
0 Air impellers working simultaneously
-1 Inlet air impeller runs 1 step faster than the outlet air impeller
1 outlet air impeller runs 1 step faster than the inlet air impeller
ATTENTION! If air impellers run on different speed, appliance has 4 basic speeds

OPERATING PANEL USER INSTRUCTIONS

1. Operating panel

The appliance is operated by the means of the operating panel that has four buttons and alphanumeric display with 2x16 indicator lights.
The operation is directed according to settings inserted by the user or installer/manufacturer through the operating panel as well as according to temperature sensors and set periods.
The operating panel returns from processing state to basic state 30 seconds after the last button pressing. The return time from normal position is 10 seconds. The background lights of the operating panel will turn off.
Restoring factory settings function on the operating panel -end-users settings will be restored to default factory settings.
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 (user settings and maintenance menu) to default settings.
The user can use four different selections on the operating panel: weekday and time, blowing speeds, temperatures and air quality values in case there are sensors for these functions.

2. Operating card

The operating card manages the unit-s functions according to user-selections and measuring data received from the sensors. The operating card has additionally two transmitter inputs for %RH or CO_2 connections, 4 switch data inputs and five-speed outputs for two EC air impellers. The operation pane is connected with the operation card by four-polar modular connector.

3. Controlling of the air impellers

3.1. Speed controlling in default state

Inlet and outlet impellers have 5 speeds. The suitable ones can be selected from service menu of the control panel within the range of 20-100% depending on the working conditions. Impeller speeds are selectable by the user. The speeds are set to factory defaults in the maintenance menu and the unit starts with factory speeds.

3.2. Overpressurization

Overpressurization state selectable from the outer switch or operation panel. Outlet impeller is set on minimum, 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_2/%RH intensification has no impact. Intensification is activated also according to external data.

3.4. CO_2- and %RH- intensification

CO_2 - transmitter or data given by the transmitter is the basis for air exchange intensification in regulating intervals. The CO_2 maximum limits are set from the panel by the user (250-1500ppm, 50ppm steps). CO_2 measuring values can be seen on the operating panel. The air exchange is periodically intensificated by data of %RH - transmitter or transmitters. The maximum limits of relative humidity are set from the panel by the user (30-80%, 5% steps). %RH measuring values can be seen on the operating panel. The card has two transmitter inputs that can be chosen separately for CO_2 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_2- and % RH intensification.

3.5. Out-of-house function
The -out-of-house- function can be selected from the external switch, 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 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. Post-heating
The thermostat leads the post-heater 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 15 - 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 (Not in use)
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 post-heater 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 (0-10 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 freezing the water battery

The lower temperature limit for the return water can be set by adjusting value of the ”RADIATOR RETURN MIN TEMP” setting in the service menu of the VKL-units. If the return water temperature slides below the limit, a textual alert and red indication light are displayed on the operator panel.

5.6 Alarms to the remote control room

Should any of the following issues occur, general alarm signals are sent from the HRV potential free relay to the remote control room. Issues that can trigger an alarm: Inlet air too hot or cold, danger of freezing water battery, overheating protectors or if the unit 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

For producing good indoor climate continuously, the air exchange systems require regular maintenance.

The metallic grease filter of stove hood must be kept clean at all times for fire safety reasons. Cleansing with hot water or in a dishwasher once a month is absolutely unavoidable. 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. The coarse filter-s plastic lasts washing temperature of up to +40C.

The final filter F7 can be vacuumed once, after that it needs to be replaced.

During summer time, when room temperature rises, the summer bypass plate can be set to Summer position, ensuring inflow of fresh and clean external air (see the page 12).

LTO-exchanger 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 transmission 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.

MALFUNCTIONS AND FAULT ALERTS

NO SUCTION BY OUTLET AIR IMPELLERS AND / OR INLET AIR IMPELLERS DO NOT BLOW AIR.

IS / ARE ???	*IF NOT !!!*
The air conditioner switched on	Switch on the air exchange
The conditioner adjuster in position 2	Try working with position 3-4. Check the normal functioning mode
Air exchange unit's fuse in the electrical chart undamaged	Replace the fuse or turn it on
The impellers in the right position and pre-set	Ask the installer, check the records
The filters and Ito-elements clean	Clean according to the instructions
The external air grate clogged	Clean the grate Remove the insect-net
The external air too cold and the unit is set on just chilly	Freezing cover has stopped the inlet impeller

INLET AIR IS COLD

IS / ARE ???	*IF NOT !!!*
The post-heating of the inlet air turned on	Turn the post-heating on or set the inlet air index value higher
The heat recovery unit frozen	Check, turn on the fusion phase
Post-heating resistance overheat protection working	Open and reset the protection

CHECKING THE FUNCTIONING OF OUTLET AND INLET IMPELLERS

Stop the machine, open the door fastened with four star dogs.
In winter, you should let the machine to cool for a moment.
Use the machine on slow speeds, state the speed changes.
DO NOT TOUCH THE IMPELLER WINGS WHEN THEY ARE MOVING*!!*

The performance of inlet impeller is decreased or stopped by the freeze-alert thermostat when the temperature of the exhaust air reduces below set value (5c).
The inlet impeller starts again when the temperature of the exhaust air rises above the set value.

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.

During harsh frosts in winter, the equipment must be used on lower speed so the post-heating will last and there will be no draught. 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 post-heating. The functionality can be proved by comparing the temperature of inlet air to the set value of the inlet air post-heating.
heating of resistance can also be stated by careful checking from the open machine running on slow speed.

The overheat protection has been activated in case the barrier 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 (see page 12).
Ask a qualified electrician to check the wiring.

PLEASE REFER TO DEEKAX MAINTENANCE SERVICE FOR ANY FURTHER INFORMATION OR ASSISTANCE