

CMEV air handling unit

## **VEX140CFV** in vertical version

VEX100CF with built-in heating coil and counterflow heat exchanger, perhaps the most compact unit on the market.



### **PRODUCT BENEFITS**

- Compact units with counterflow heat exchanger
- Built-in electric or water heating coil
- Flexible spigot positions

### **REGLEMENTATIONS AND COMPLIANCES**

Eurovent Certification no. : 10.12.505

### **Principles of operation**

VEX100CF brings fresh, filtered air into the building and recovers heat from the exhaust air using its high-efficiency heat exchanger. The incoming air can be heated and/or cooled using a full range of heating/cooling coils.

### **Product description**

The VEX100CF range consists of the tried and tested VEX100 air handling unit, now with counterflow heat exchanger. As a result, this compact and flexible air handling unit will continue to comply with the applicable energy regulations, as VEX100CF is Erp18-compliant. This is a very flexible range of air handling units, which can be ordered as LEFT or RIGHT versions and with spigot locations in the side, top or bottom.

VEX140CF, VEX150CF and VEX160CF can be ordered as either a Horizontal or Vertical version, whereas VEX170CF can only be ordered as a Horizontal version.

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## Fields of application

New, Refurbishment, Non-residential buildings, Etablissements scolaires

## Accessories

Désignations	Variants
SIPHONUP SR1K1 SR1K3	SIPHONUP
VEX140 kit for outdoor fitting	VEX140OD
Closing damper, Ø315	LS31524
Closing damper, Ø315 OD	LS31524OD
Closing damper with spring-return, Ø 315 mm	LSR31524
Closing damper with spring-return ,Ø315 OD	LSR31524OD
Modbus communications module for analogue and digital inputs and outputs	MIO
Motion sensor for override at comfort level (MIO)	PIRB-AS
Motion sensor for override at comfort level (Modbus)	MIOPIR
HW050X08002U0UL	MIOTSRROOM
Temperature sensor for duct incl. modbus communications module	MIOTSDUCT
CO2 sensor – room (MIO)	MIOCO2ROOM
CO2 sensor duct (MIO)	MIOCO2DUCT
RH sensor, room (MIO RH-ROOM)	MIORHROOM
Touch panel 3.5	MHI2-350-TOUCH
Pressure sensor for constant pressure regulation	MPTDUCT
CO2 room sensor analogue 0–10 V (can be reprogrammed)	CO2ROOM
CO2 room sensor analogue 0–10 V	RCO2
HW050X08002U0UL	RCO21000
CO2 duct sensor analogue 0–10 V (reprogrammable)	CO2DUCT
CO2 duct sensor analogue 0–10 V	KCO2
HW050X08002U0UL	KCO21000
Air quality sensor - excl. MIO	RLQ
MIO2 module	MIO2-MODUL
Motion sensor - digital - excl. MIO	PIR
RH sensor for room - analogue 0-10 V (0-100 % RH)	RFF
Syphon heating electric heating wire, 2 metres	SIPHONHE02
Syphon water trap, overpressure	SIPHONOP
Condensation drain for VEX100CF	V100CFCONTUBE
Manual override to comfort mode excl. MIO - incl. cable	TIMERBUTTON3

## Filters

Désignations	Variants
Panel filter for VEX140/-CF – ePM1 55%	FP1402F7
Panel filter for VEX140/-CF – Coarse 85%	FP1402M5

## General data

Motor class in accordance with IEC TS 60034-30-2	IE5 (Ultra Premium Efficiency)
Voltage input	1 x 230 V
Regulation	Variable via motor control (MC)
Control signal with control system	Modbus
Control signal with third party control system	0-10 V DC
Fluid temperature (air)	-40°C....+40°C
Ambient temperature range	-30°C....+50°C

## Fan data

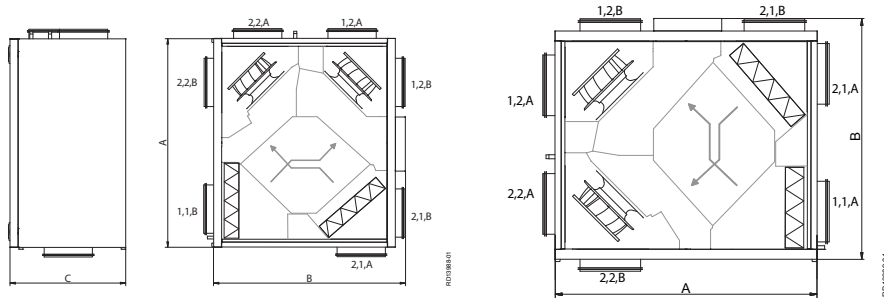
Max. Total efficiency (A-D) (%)	58,1
Efficiency level requirements	62N (2015)
ECO efficiency level during optimal operating point	76,2N
Overload protection	Built-in

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#### Dimensional data

A (mm)	1365
B (mm)	1395
C (mm)	750
Ø connection (fresh air or exhaust) (mm)	315
Ø connection (discharge or air supply) (mm)	315
Weight (kg)	220
Weight for transport	129 kg (excl. doors, heat exchanger and fan sections)



#### Airflow data

Minimum airflow	396
Max. airflow ErP (m³/h)	1800
Max. airflow (m³/h)	1920

#### Electrical datas

Frequency (Hz)	50
Max. electrical output of unit (kW)	1,6
Voltage (V)	1x230
Maximum current - unit (A)	12,5
Power consumption (kW)	0,674

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Installation



The VEX100CF range consists of the tried and tested VEX100 air handling unit, now with counterflow heat exchanger. As a result, this compact and flexible air handling unit will continue to comply with the applicable energy regulations, as VEX100CF is Erp18-compliant. This is a very flexible range of air handling units, which can be ordered as LEFT or RIGHT versions and with spigot locations in the side, top or bottom. VEX140CF, VEX150CF and VEX160CF can be ordered as either a Horizontal or Vertical version, whereas VEX170CF can only be ordered as a Horizontal version.

### Recommendation

As there is a risk of condensate due to the location of the airways, we often recommend the purchase of accessory V100CFCONTUBE (a condensation drain and fitting for the exhaust side).



The VEX100CF counter flow heat exchanger is made of aluminium. It is designed to ensure the ratio of heat recovery and pressure loss is at an optimum, i.e. extremely high temperature efficiency is achieved at low levels of energy consumption.

- Efficiency level without condensation: 80–85 %
- Efficiency with condensation: Up to 94 %

The combination of modern EC motors and the EXHAUSTO motor controller delivers extremely low energy consumption and with the EXstream impeller, a high output is achieved.

An energy label that states the energy class of the unit in relation to defined operating conditions is available via our product calculation programs.



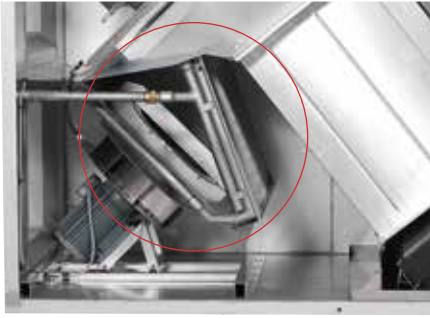
The easily accessible connection box with built-in isolator switch and control fuses ensures easy access for connection and adjustment.



The panel filters are easy to replace and can be ordered as filter class Coarse 85% (M5) or ePM<sub>1</sub> 55% (F7) in acc. with EN779.

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The VEX100CF range is supplied with an integrated heating coil, heated either by water or electricity



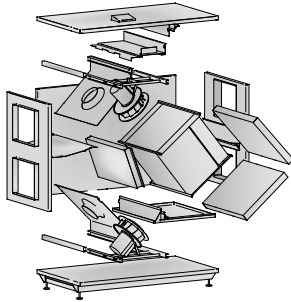
Mounting base is an accessory for VEX140-150-160 and standard on VEX170. The mounting base is equipped with feet that have an adjustable height of 130 - 160 mm.



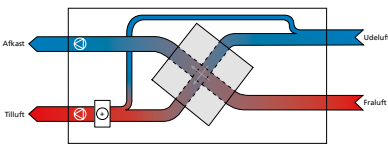
The motor sections are mounted in vibration dampers, which reduces noise in the ducts and eliminates the need to fit flexible connections between the unit and the duct system.

The motor sections can be extracted for easier servicing.

The motors are of type EC and are extremely efficient. They comply with the requirements of the Ecodesign Directive.



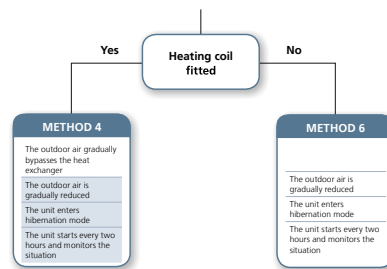
With some projects, limited space means that internal transport of the air handling unit is difficult or impossible. This is why the VEX100CF is available as a split version. It means that the air handling unit can be assembled and tested at the factory as normal – just without sealant. The air handling unit can therefore be easily taken apart at the installation site, transported as single sections, assembled, sealed and commissioned.



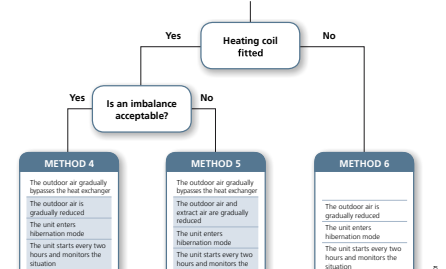
The VEX100CF is designed with a de-icing bypass. If there is a risk of icing, then a certain amount of outdoor air will bypass the heat exchanger and go directly to the after heating coil. This increases the demands on the heating coil's output. However, it avoids a costly preheating coil. The drawing below is an example of a de-icing situation, where 20% of outdoor air is directed through the bypass damper.

**Heating coil and de-icing function:**  
The de-icing situation is shown above, a heating coil is included here. This is completely necessary, in order for the de-icing function to function correctly. Without the heating coil, the de-icing process would cause the temperature of the supply air to fall, and sooner or later the VEX unit would stop because of icing

The heat exchanger has two forms of frost protection: temperature-controlled or pressure-controlled. The actual de-icing can take place in several ways, depending on whether an after heating coil has been fitted.



These steps only occur if the effect of the after heating coil is insufficient.



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The control system has temperature-controlled frost protection as standard. It is an inexpensive solution and provides sufficient frost-protection in some situations.

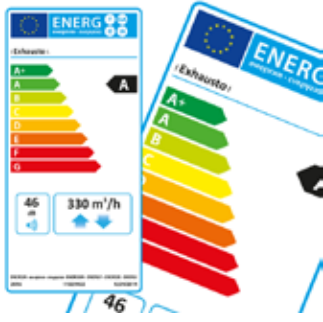
A temperature sensor is fitted inside the heat exchanger and if the temperature falls to a pre-set value, de-icing begins. This temperature level is factory set to 0 °C but it can also be changed to a new value via the control system.

Temperature-controlled frost protection triggers the de-icing process even if there is no ice in the heat exchanger.

The control system monitors the actual airflow and also the pressure drop across the heat exchanger. If ice forms in the heat exchanger, the pressure drop across the heat exchanger will increase and when it exceeds a pre-set value, de-icing begins. Pressure-controlled frost protection only starts de-icing when ice has actually formed, regardless of whether there are sub-zero temperatures.

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### Curve

