CONTENT:

VEX300C Ceiling units

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General

VEX300C Ceiling units

VEX300C ceiling units are very compact, making them ideal for installation above suspended ceilings, etc.

Two door variations allow for either vertical or horizontal opening, ideal for servicing requirements with different types of suspended ceilings and where there is limited space available.

The optimised design delivers ultra-low sound levels allowing units to be installed in the rooms they ventilate.

The units are available as a LEFT or RIGHT version - with two motor sizes.

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Operating conditions

In principle, EXHAUSTO VEX units are designed for use in comfort ventilation - i.e. under ordinary operating conditions.

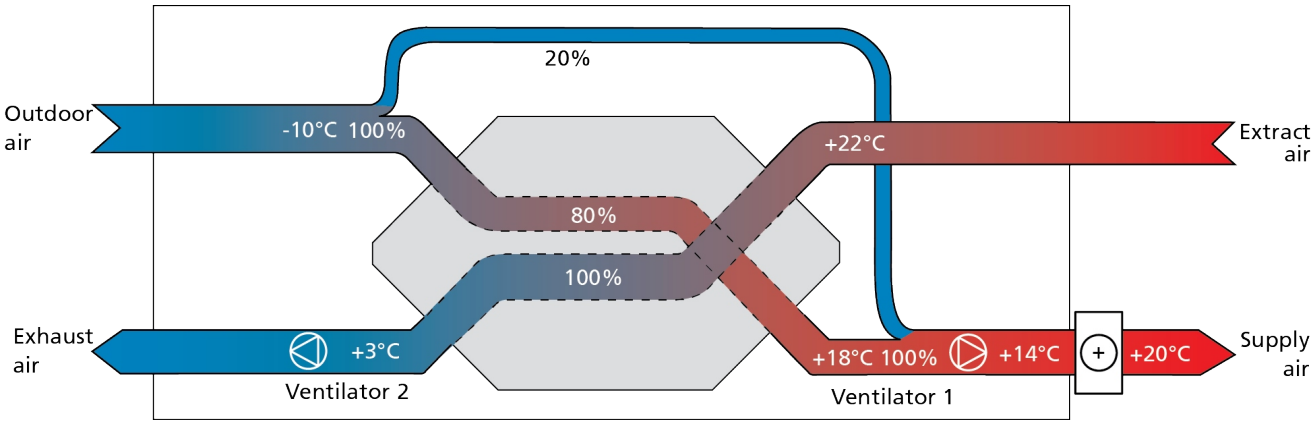
Where ventilation solutions are required for rooms with high air humidity - e.g. due to humidification, we recommend you make a test calculation with one of our calculation programs. If the calculation shows a risk of condensation after the heat exchanger, an assessment must be made whether the operating conditions can be changed, or whether the unit must be modified to allow condensate to drain off. This is particularly relevant for VEX100CF.

Contact EXHAUSTO for advice on this.

Unique frost protection

VEX320C/VEX330C de-icing bypass

The VEX320C/VEX330C is designed with 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 after 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.



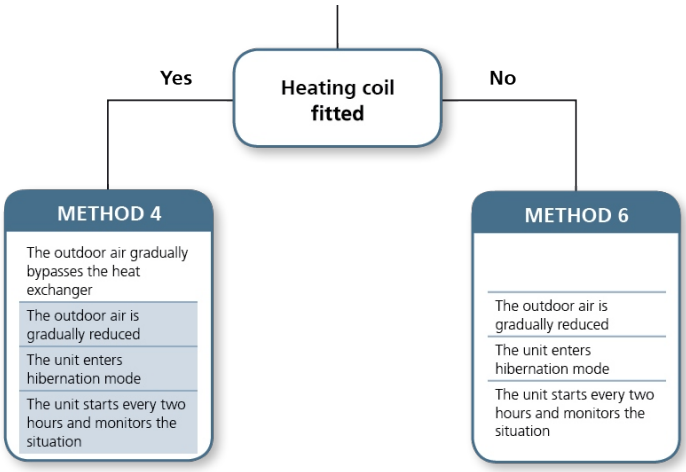
The heat exchanger has two forms of frost protection: temperature-controlled or pressure-controlled. The actual de-icing can take place in several ways, depending on whether an after heating coil has been fitted.

Which method is used when?

Frost protection method	De-icing starts when	Recommended for use in
Temperature-controlled	Temperature is below the set value, e.g. T_{ice} < 0 °C.	Residences, changing rooms, and rooms with variable humidity in the winter.
Pressure-controlled	Pressure across the heat exchanger exceeds the set value, e.g. + 45 %	Offices, schools, after-school club facilities, and rooms with low humidity in winter.

Temperature-controlled frost protection (T_{ice})

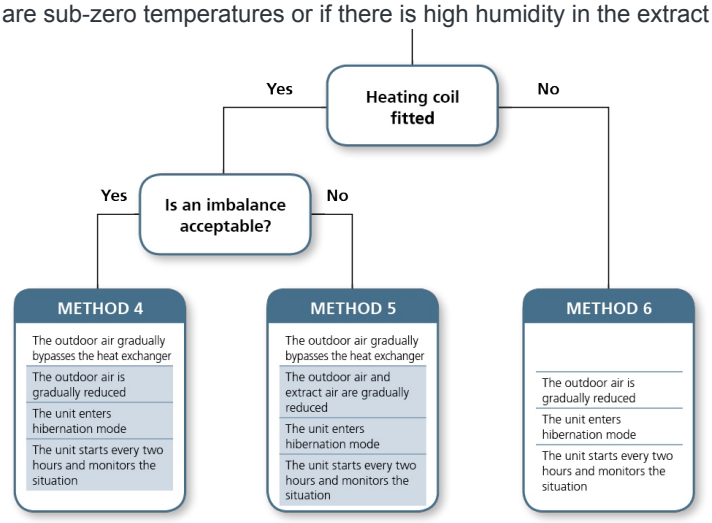
The control system has temperature-controlled frost protection as standard. It is an inexpensive solution and provides sufficient frost-protection in some situations. A temperature sensor is fitted inside the heat exchanger and if the temperature falls to a pre-set value, de-icing begins. This temperature 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.



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

Pressure-controlled frost protection (requires accessories AFC and DEP)

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 or if there is high humidity in the extract air, which frequently is not the case in winter.



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

Design

VEX300C

The compact units are designed in accordance with German hygiene standard VDI6022, which ensures units are accessible for service and the formation of mould or other bacteria that could negatively impact air quality is prevented. Read more about this standard in the section "Certificates".

CABINETS

Cabinets are made from Aluzinc® AZ185 class C4 and insulated with 50 mm mineral wool. This results in low noise emissions to the surrounding environment/installation room.

The panel design minimises the formation of thermal bridges in the unit.

MOTOR SECTIONS

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

FAN IMPELLER

VEX300C is equipped with an optimised centrifugal fan impeller with backwards curved vanes. The impeller design delivers high output with low energy consumption.

CONNECTION BOARD

The easily accessible connection box with built-in switch disconnector ensures easy access for connecting and adjusting.

PANEL FILTERS

Panel filters are easy to replace and can be ordered as Coarse 85% (M5) or ePM_1 55% (F7).

Filter size
VEX320C: 345 x 330 x 48 mm.
VEX330C: 345 x 840 x 48 mm.

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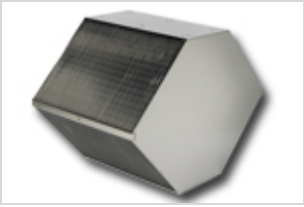
Energy

VEX300C Energy-efficient ventilation

The design of the unit has placed particular focus on smooth airflow through the unit in order to achieve the lowest possible pressure loss.

COUNTER FLOW HEAT EXCHANGER



The VEX300C 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 %
- Heat transfer area VEX320C 15.2 m^2
- Heat transfer area VEX330C: 27.6m^2
- Weight VEX320C: qty. 1 à 14.5 kg
- Weight VEX330C: 2 x 12.5 kg

EC MOTORS

The combination of modern EC motors and an optimised centrifugal impeller delivers extremely low energy consumption and greater output at the same time.

ENERGY LABELLING

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

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Certificates

VEX100/VEX100CF/VEX200/VEX300

EXHAUSTO puts great emphasis on providing accurate data. So we use a third party to measure and check our data.

EUROVENT CERTIFICATION

All data provided with the VEX100/VEX100CF/VEX200/VEX300 model has been measured.

The units have completed a major test programme in our development department and all of the capacity, efficiency and sound data is collected via testing and in real operating situations.

I følge Eurovent test/-godkendelse iht. EN1886 og EN13053 opfylder EXHAUSTO VEX-aggregater følgende krav/klasser:

Unit's stiffness:	D1(M)
Air tightness class at -400 Pa :	L1 (M)
Air tightness class at +700 Pa:	L1 (M)
Filter bypass leakage:	F9 (M)
Insulation class:	T2 (M), U1≤1,0
Thermal bridge class:	TB3 (M)

This means that a third party has checked that the data that our product calculation program produces complies with the real performance of the unit. Eurovent checks the data by selecting a unit at random and testing that unit at their own facility. If our stated data complies with the Eurovent's test results, we retain our certification. This guarantees the customer that our data is valid.

VDI6022 - GERMAN HYGIENE STANDARD

EXHAUSTO has designed its units in accordance with the German hygiene standard VDI6022.

VDI6022 requirements
The unit's design must make cleaning easy. There may not be areas that cannot physically be cleaned and voids that are inaccessible must be sealed. Plates must be deburred to ensure edges are smooth and corners must be rounded to avoid the risk of injury when cleaning.

In addition,the condensation tray must decline to the outlet, so that water cannot remain in the unit. It is important that the condensation outlet is connected to the drainage system on a horizontal surface.

All non-metallic materials (e.g. seals, filters), are tested to show that they do not promote growth of mould spores and bacteria.

Because the unit is designed in accordance with VDI6022, it is both more hygienic and easier to clean.

Ecodesign

Ecodesign - EU requirements for documentation, energy consumption and labelling of ventilation units.

GENERAL INFORMATION

We have made a compilation of extracts from the Ecodesign guidelines, read more about Ecodesign under Institute.

ECODESIGN DATA

You will find links to Ecodesign data for the individual VEX sizes under the product name and under Download, where we have located Ecodesign data under EU/ECO declarations.

NB:

We would point out that the values stated in the declarations have been calculated for a specific operating point.

If a different operating point is desired, we would refer you to our calculation programs - here you can see whether the desired unit meets the requirements for your operating point and find the associated Ecodesign data.

Cooling and heating coils

VEX300C

The following cooling and heating coils are available with the VEX300C series:

WATER HEATING COILS - HW

Non-insulated external water heating coils.

Three sizes available. The selection is dependent on after heating requirements and allows the option for the low temperature operation of the heating coil.

More information about the heating coils is found under Cooling and heating coils.

ELECTRIC HEATING COILS - HE

Non-insulated external electric heating coil.

Two sizes available. The selection is dependent on after heating requirements.

More information about the heating coils is found under Cooling and heating coils.

Cooling coil/heating coil - DX

Uninsulated external coil that can be used both as an evaporator (cooling coil) and condenser (heating coil).

Two sizes available.

More information about the DX coils is found under Cooling and heating coils.

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Accessories

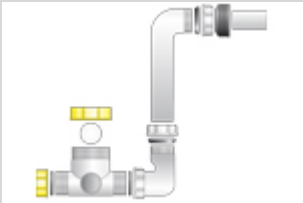
VEX300C

A wide range of accessories are available with the VEX300C range.

CLOSING DAMPER - LS

Closing damper with spring-return for indoor or outdoor fitting.

WATER TRAP



Water trap for the unit's condensation drain in dimension DN32.

SIPHONUP (negative pressure) for connection to condensation outlet from the unit.
SIPHONOP (overpressure) for connection to any cooling coil in the supply air duct.

SIPHONHE02 hot-wire is used to keep the water trap and water pipe free of ice. A thermostat is fitted to the hot wire to ensure low energy consumption.

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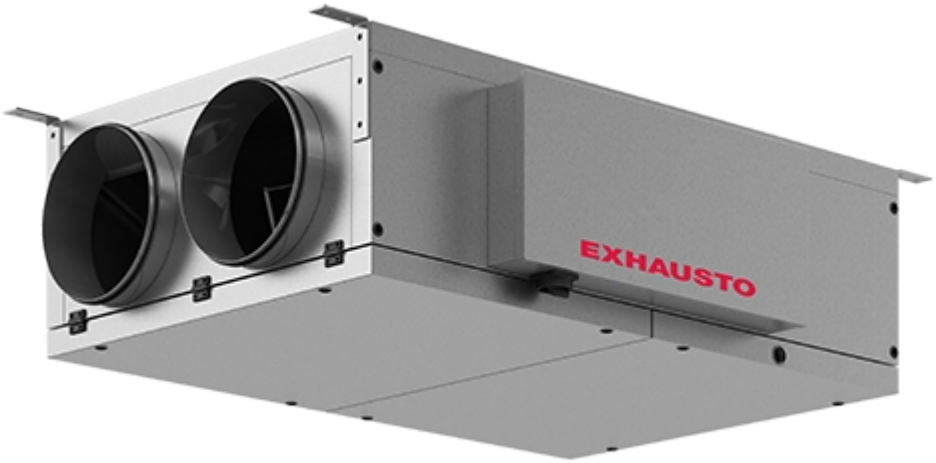
VEX320C1



Technical data

VEX320C1

Unit data	
Min. airflow	120 m³/h
Max. airflow	670 m³/h
Absorbed power	0.6 kW
Power supply	1 x 230 V + N + PE ~50 Hz
Max. phase current	3.1 A
Operational-ready unit weight	128 kg
Fluid temperature (air)	-20°C to +35°C
Ambient temperature (operating)	-20°C to +35°C

Fan data	
Max. total efficiency (A-D)	60.1 %
ECO measurement set-up (A-D)	A
Efficiency level requirements	62N (2015)
ECO efficiency level during optimal operating point	78.7N

Motor data (optimal operating point)	
EC motor	With motor controller
Absorbed power	0.17 kW
Airflow	1,005 m3/h
Total pressure	322 Pa
RPM during optimal operating point	2,555

Conditions:

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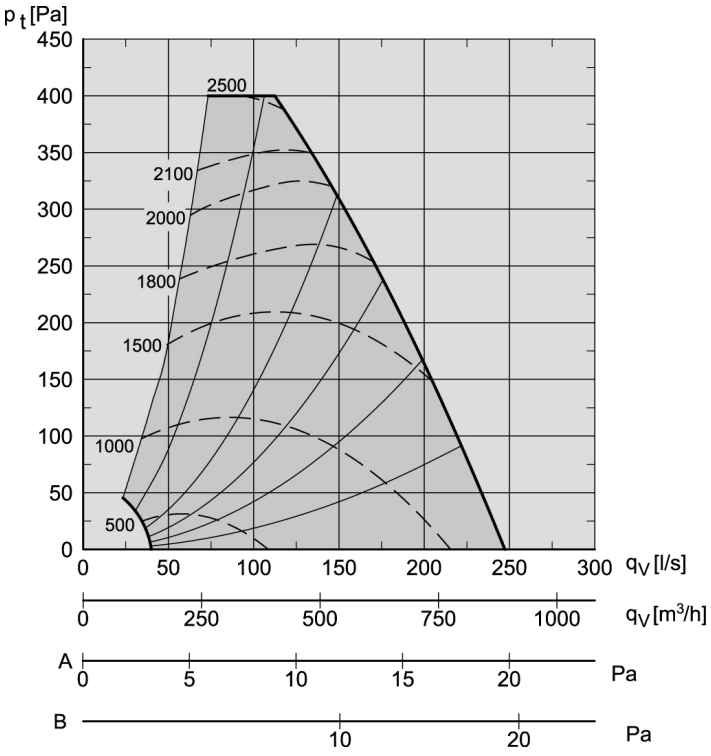
- Density = 1.2 kg/m^3
- Pressure ratio < 1,11
- other points in acc. with EC327/2011 (see product instructions)

Capacity curves

VEX320C1



Capacity curve with Coarse 85% filters (M5)

SFP curve

Operating curves

A: Pressure loss supplement with ePM_1 55% filter (F7)

B: Pressure loss supplement for heating/cooling coil

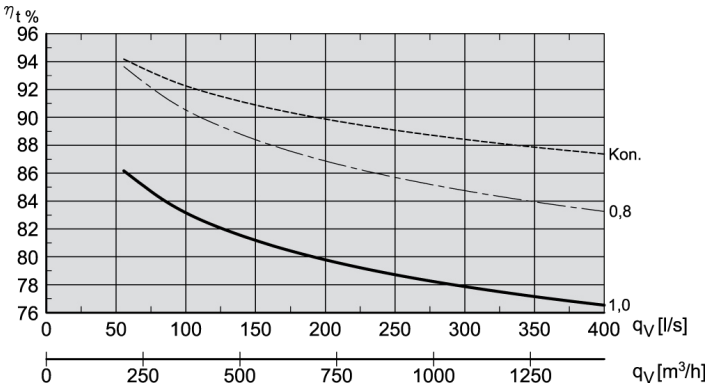
To calculate capacity data use the product selection tools Quickselect and EXselect.

Total energy consumption is divided equally between the extraction and supply air fans.

Absorbed power with VEX: $P_1(W)$ = SFP (J/m^3) x q_v (m^3/s).

Temperature efficiency

VEX320C1



Efficiency with condensation:
Extract air = 20°C/55 RH
Outdoor air = -10°C/50 RH
Balance between supply air/extract air = 1,0

Efficiency without condensation with imbalance:
Extract air = 25°C/28 RH
Outdoor air = 5°C/50 RH
Balance between supply air/extract air = 0,8

Efficiency without condensation in acc. with EN308:
Extract air = 25°C/28 RH
Outdoor air = 5°C/50 RH
Balance between supply air/extract air = 1,0

CALCULATION

The temperature efficiency of the VEX units is shown at different airflow ratios, calculated as:

$$\frac{\text{Supply air}}{\text{Extract air}} = 0.8 \text{ and } 1.0$$

$$\eta_t = \frac{t_{2,2} - t_{2,1}}{t_{1,1} - t_{2,1}} = \text{Temperature efficiency}$$

$t_{2,1}$ = Temperature of outdoor air (fresh air)

$t_{2,2}$ = Temperature of supply air

$t_{1,1}$ = Temperature of extract air

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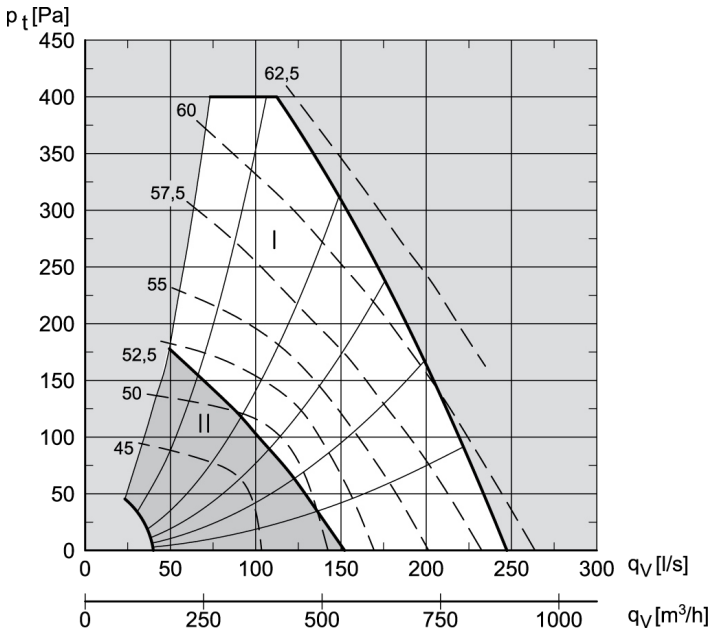
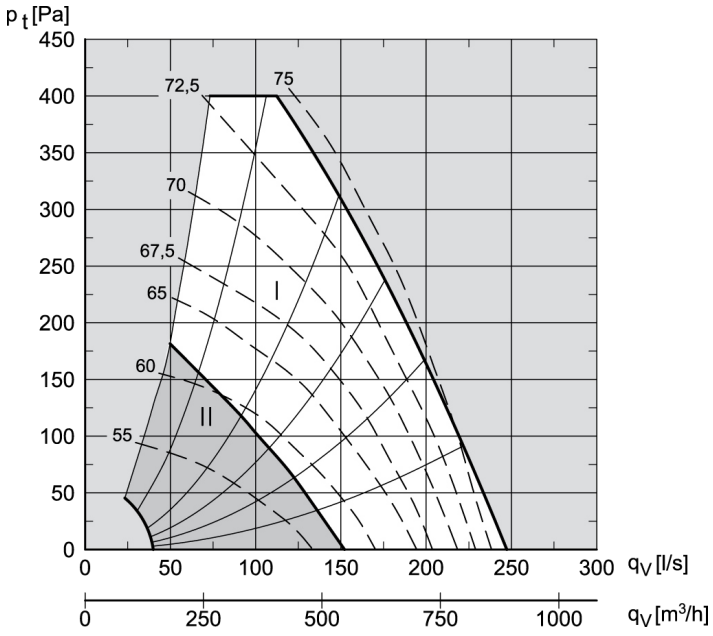
Sound data

VEX320C1

VEX320C-1 L_{WA1} - Suction side



VEX320C-1 L_{WA2} - Pressure side



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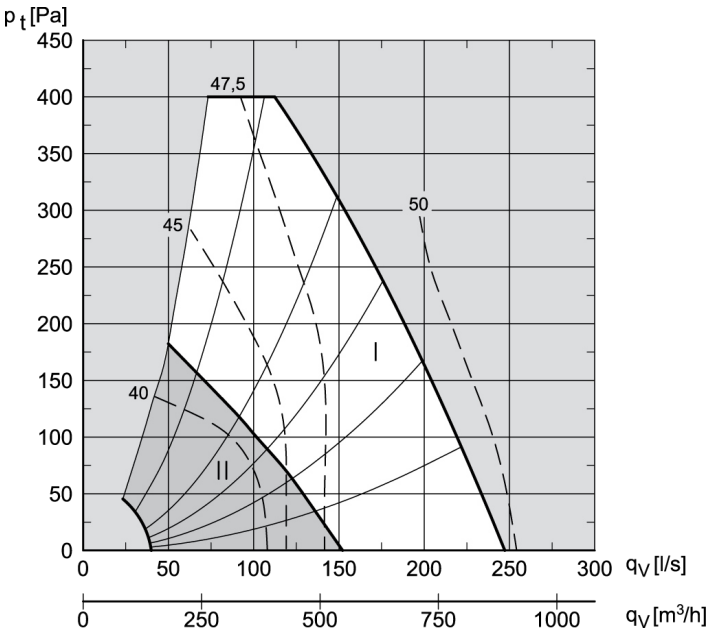
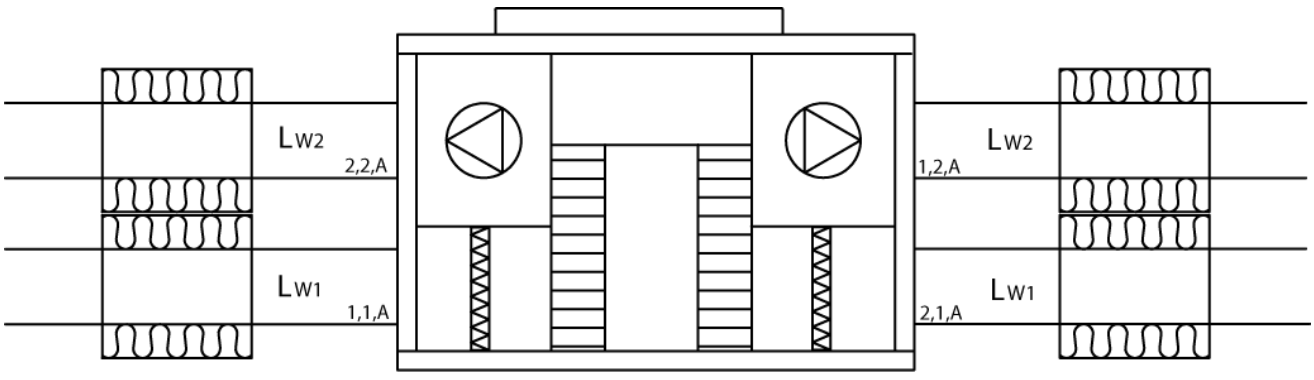
VEX320C-1 L_{WA3} - Surroundings



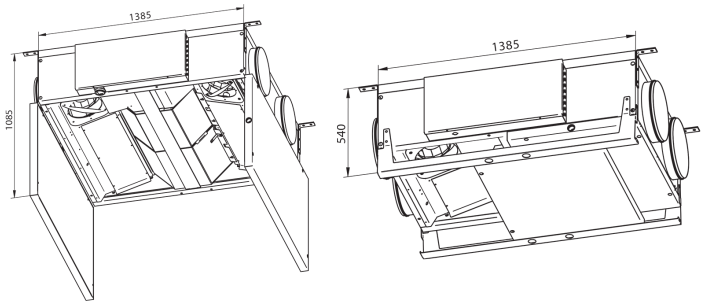
Sound output level Suction side (outdoor air/extract air): $L_{W1} = L_{WA1} + K_W$ L_{WA1} *read*	Sound output level Pressure side (supply air/exhaust air): $L_{W2} = L_{WA2} + K_W$ L_{WA2} *read*
Sound output level Surroundings: $L_{W3} = L_{WA3} + K_W$ L_{WA3} *read*	Sound output level at 1 m distance Surroundings: **Contact EXHAUSTO for specific calculation.**

		K_W(dB)							
Hz	Ranges	63	125	250	500	1K	2K	4K	8K
L_{WA1}	I	11	5	7	-6	-15	-20	-34	-39
	II	14	13	4	-6	-15	-22	-34	-31
L_{W2}	I	3	0	4	-4	-8	-8	-20	-22
	II	8	9	0	-3	-6	-9	-26	-34
L_{W3}	I	3	7	7	-6	-12	-15	-24	-29
	II	3	7	8	-9	-14	-18	-29	-35



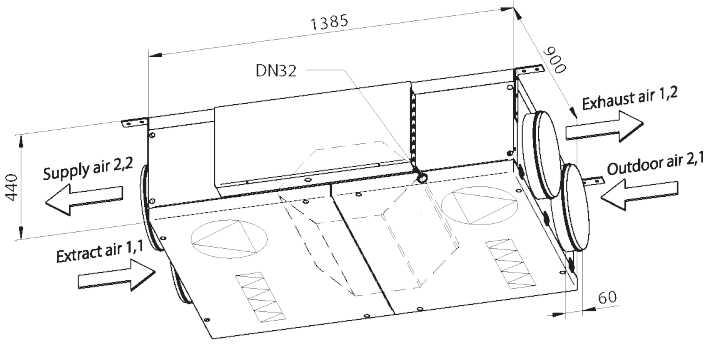
Dimensional drawings

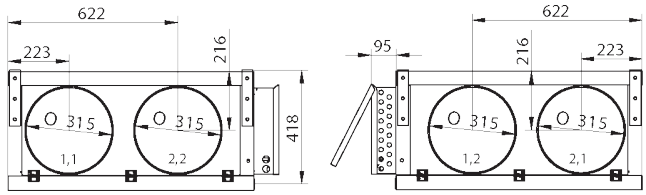
VEX320C1

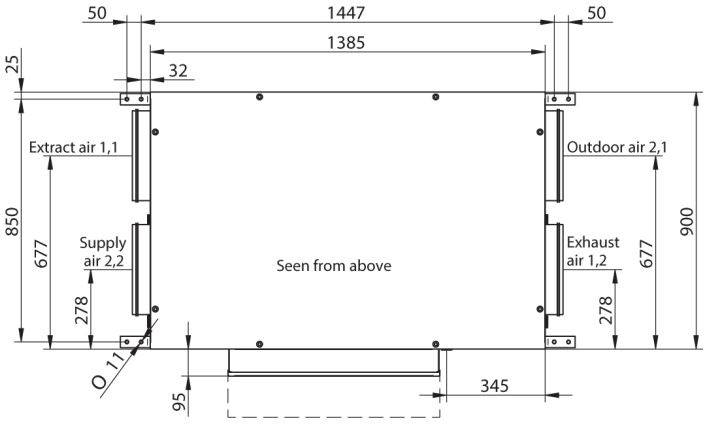


The VEX320 Ceiling with hinged or sliding door is available as a LEFT or RIGHT model.
The drawings below show the solution with a hinged door system.

VEX320C1 - LEFT







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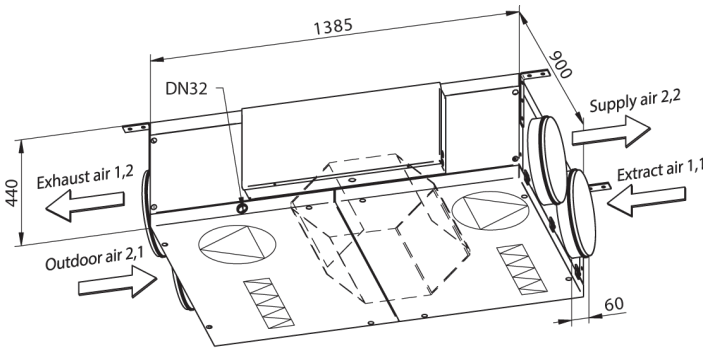
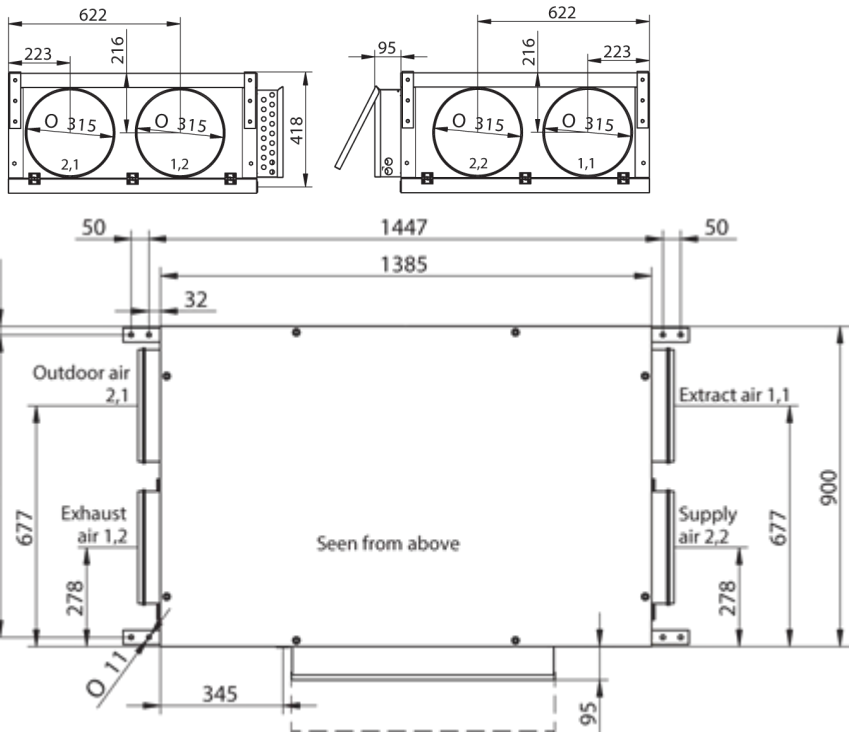
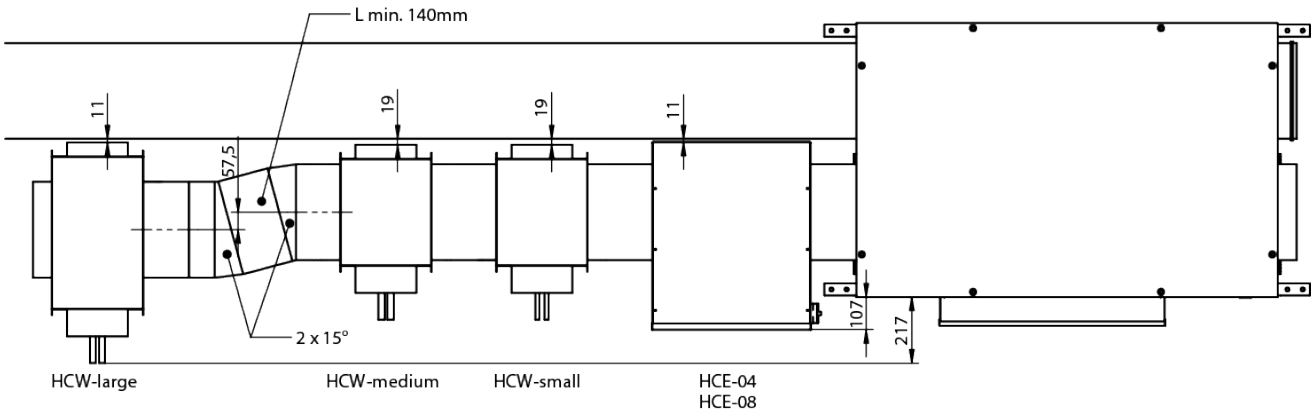
VEX320C1 - RIGHT





VEX320C accessories - heating coils

Space demand

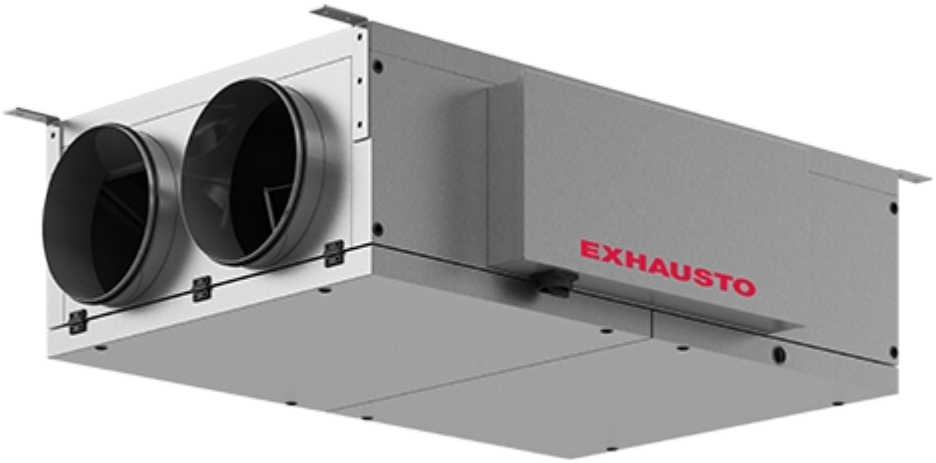


Cooling and heating coils

The following cooling and heating coils are suitable for VEX320-330

Type	Model
HE electric heating coil	HE315 - 2 sizes 3.9 kW and 7.8 kW
HW water heating coil	HW315S HW315M HW315L
DX cooling/heating coil	DX315S (for VEX320 and VEX330C1/330H1) DX315M (for VEX330C2/330H2)

VEX320C2



Technical data

VEX320C2

Unit data	
Min. airflow	120 m³/h
Max. airflow	1,220 m³/h
Absorbed power	1.2 kW
Power supply	1 x 230 V + N + PE ~ 50 Hz
Max. phase current	5.3 A
Operational-ready unit weight	131 kg
Fluid temperature (air)	-20°C to +35°C
Ambient temperature (operating)	-20°C to +35°C

Fan data	
Max. total efficiency (A-D)	60,1 %
ECO measurement set-up (A-D)	A
Efficiency level requirements	62N (2015)
ECO efficiency level during optimal operating point	73.7N

Motor data (optimal operating point)	
EC motor	With motor controller
Absorbed power	0.50 kW
Airflow	1,355 m³/h
Total pressure	733 Pa
RPM during optimal operating point	3,735

Conditions:

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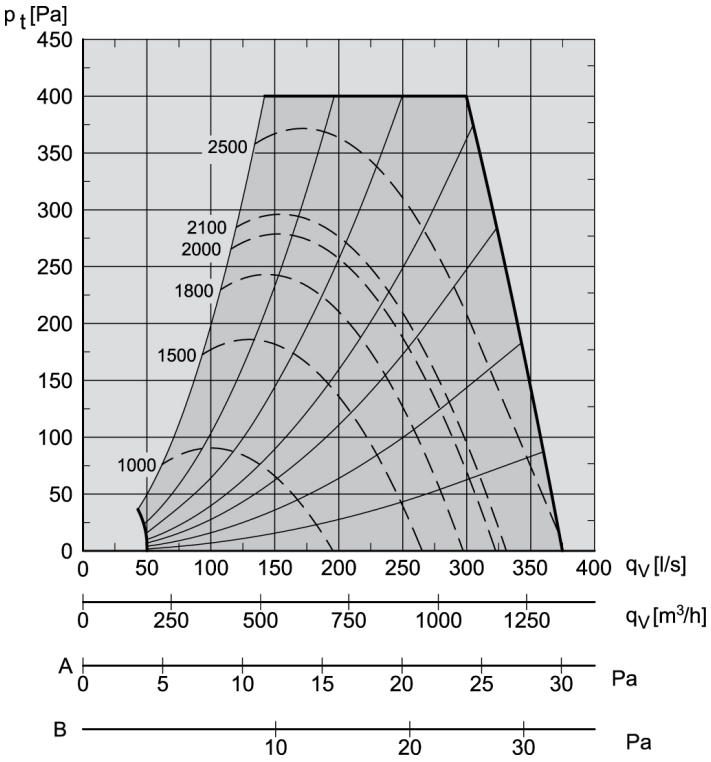
- Density = 1.2 kg/m^3
- Pressure ratio < 1,11
- other points in acc. with EC327/2011 (see product instructions)

-

Capacity curves

VEX320C2



Capacity curve with Coarse 85% filters (M5)

SFP curve

Operating curves

A: Pressure loss supplement with ePM_1 55% filter (F7)

B: Pressure loss supplement for heating/cooling coil

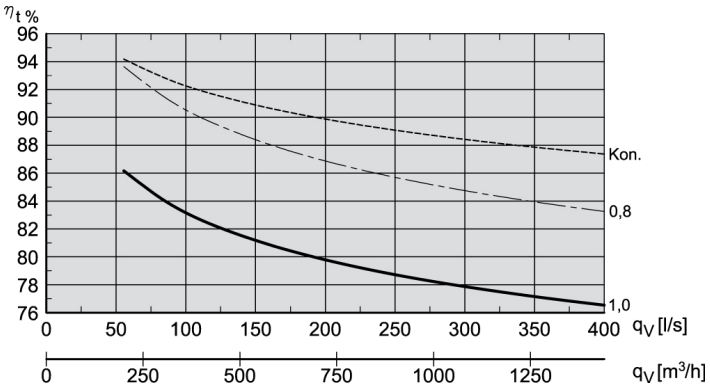
To calculate capacity data use the product selection tools Quickselect and EXselect.

Total energy consumption is divided equally between the extraction and supply air fans.

Absorbed power with VEX: $P_1(W)$ = SFP (J/m^3) x q_v (m^3/s).

Temperature efficiency

VEX320C2



Efficiency with condensation:
Extract air = 20°C/55 RH
Outdoor air = -10°C/50 RH
Balance between supply air/extract air = 1,0

Efficiency without condensation with imbalance:
Extract air = 25°C/28 RH
Outdoor air = 5°C/50 RH
Balance between supply air/extract air = 0,8

Efficiency without condensation in acc. with EN308:
Extract air = 25°C/28 RH
Outdoor air = 5°C/50 RH
Balance between supply air/extract air = 1,0

CALCULATION

The temperature efficiency of the VEX units is shown at different airflow ratios, calculated as:

$$\frac{\text{Supply air}}{\text{Extract air}} = 0.8 \text{ and } 1.0$$

$$\eta_t = \frac{t_{2,2} - t_{2,1}}{t_{1,1} - t_{2,1}} = \text{Temperature efficiency}$$

$t_{2,1}$ = Temperature of outdoor air (fresh air)

$t_{2,2}$ = Temperature of supply air

$t_{1,1}$ = Temperature of extract air

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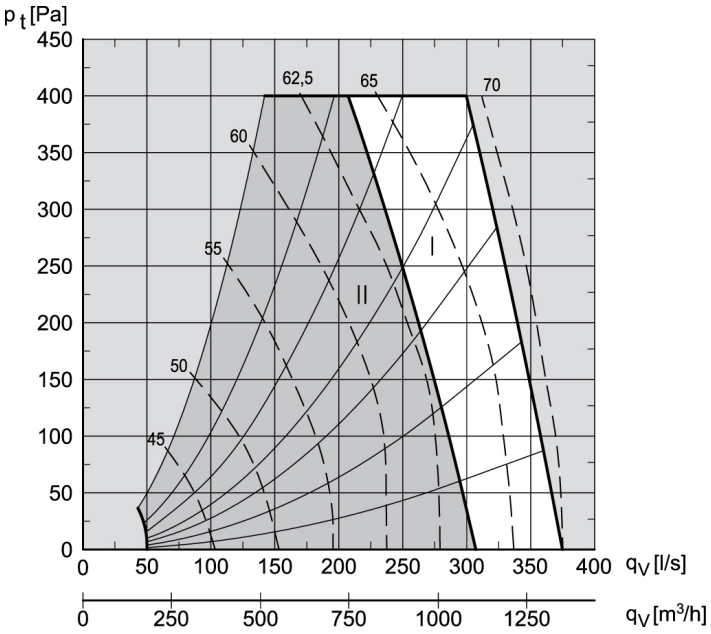
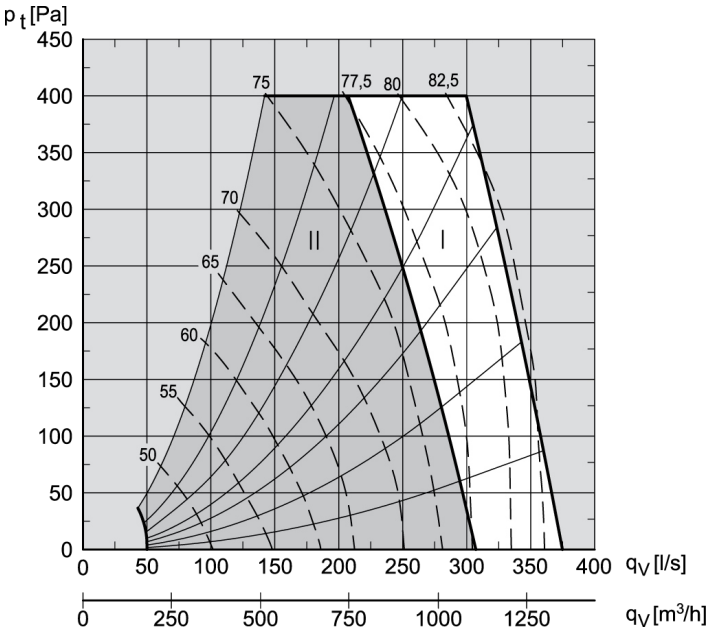
Sound data

VEX320C2

VEX320C-2 L_{WA1} - Suction sid



VEX320C-2 L_{WA2} - Pressure side



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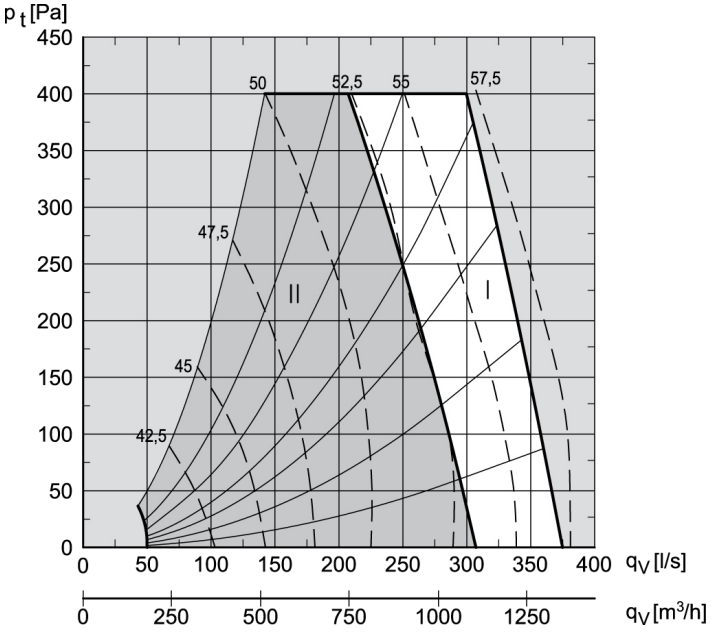
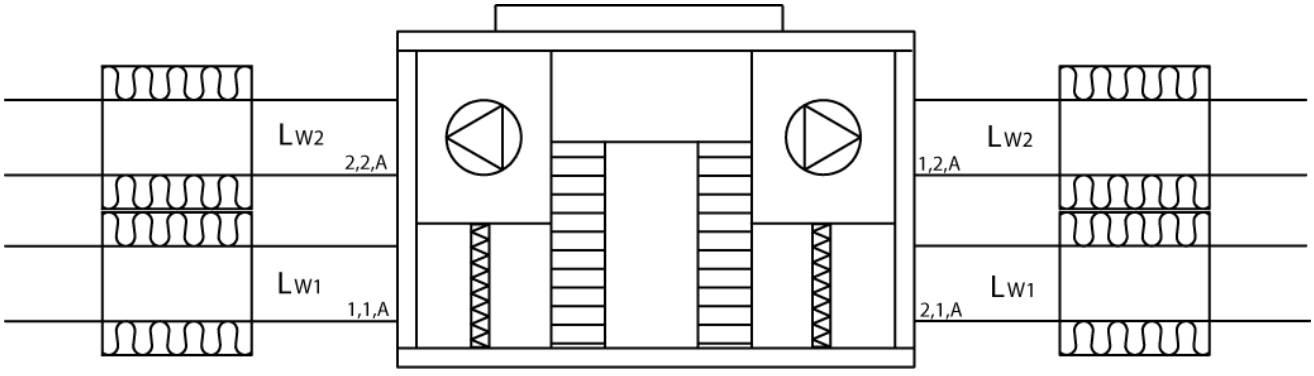
VEX320C-2 L_{WA3} - Surroundings



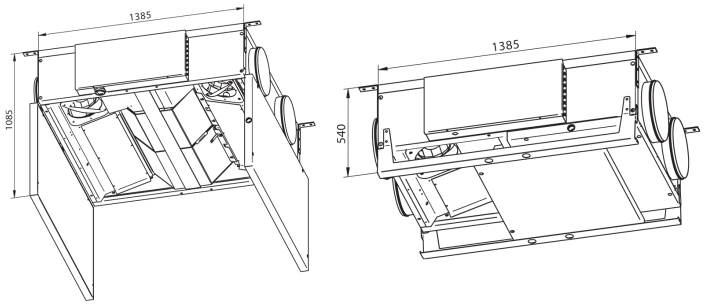
Sound output level Suction side (outdoor air/extract air): $L_{W1} = L_{WA1} + K_W$ L_{WA1} *read*	Sound output level Pressure side (supply air/exhaust air): $L_{W2} = L_{WA2} + K_W$ L_{WA2} *read*
Sound output level Surroundings: $L_{W3} = L_{WA3} + K_W$ L_{WA3} *read*	Sound output level at 1 m distance Surroundings: **Contact EXHAUSTO for specific calculation.**

		K_W(dB)							
Hz	Ranges	63	125	250	500	1K	2K	4K	8K
L_{WA1}	I	10	5	1	2	-11	-15	-26	-32
	II	11	6	6	-4	-13	-18	-29	-34
L_{W2}	I	-2	-6	-6	0	-6	-7	-15	-16
	II	2	-1	2	-4	-7	-7	-16	-16
L_{W3}	I	5	9	1	1	-8	-13	-23	-26
	II	7	8	8	-10	-13	-16	-30	-33



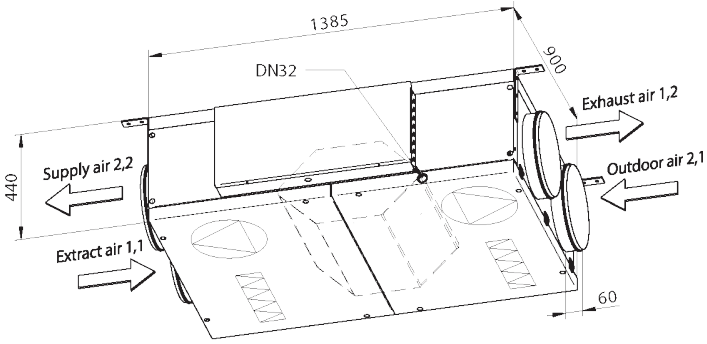
Dimensional drawings

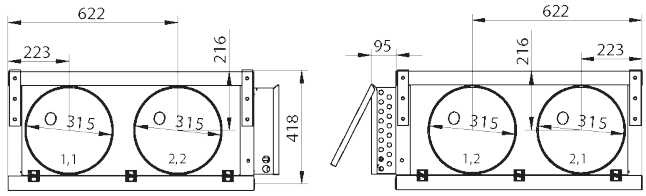
VEX320C2

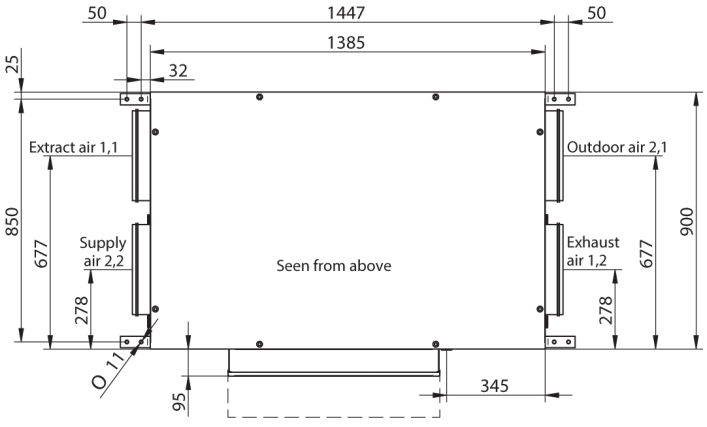


The VEX320 Ceiling with hinged or sliding door is available as a LEFT or RIGHT model.
The drawing below shows the solution with a hinged door system.

VEX320C2 - LEFT

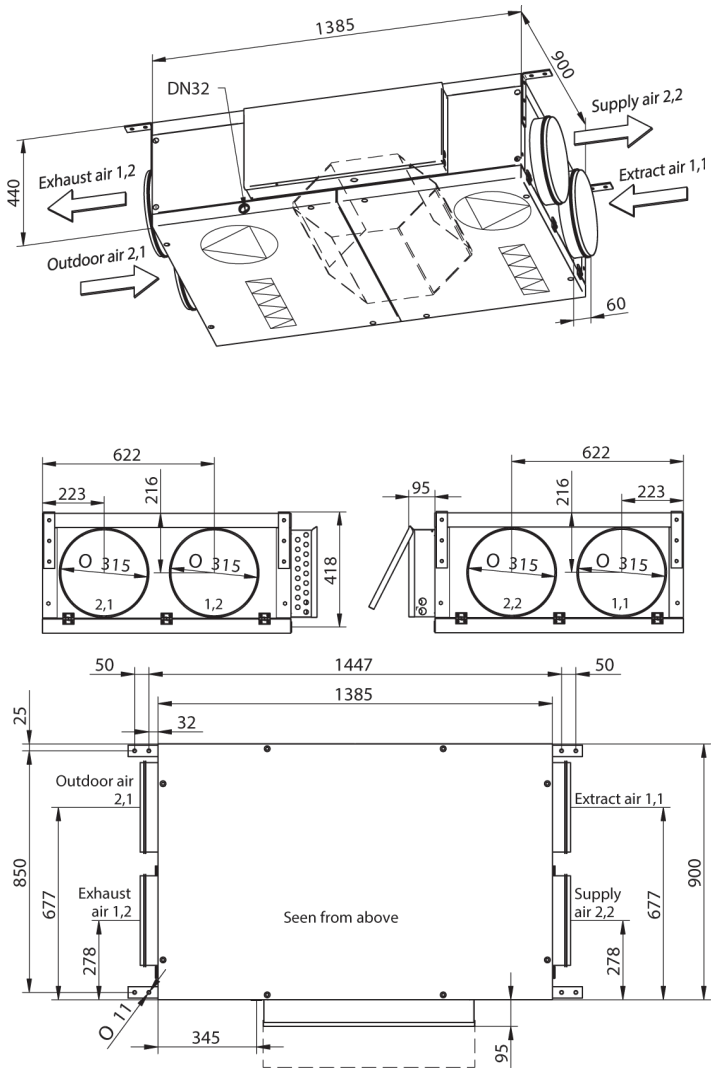






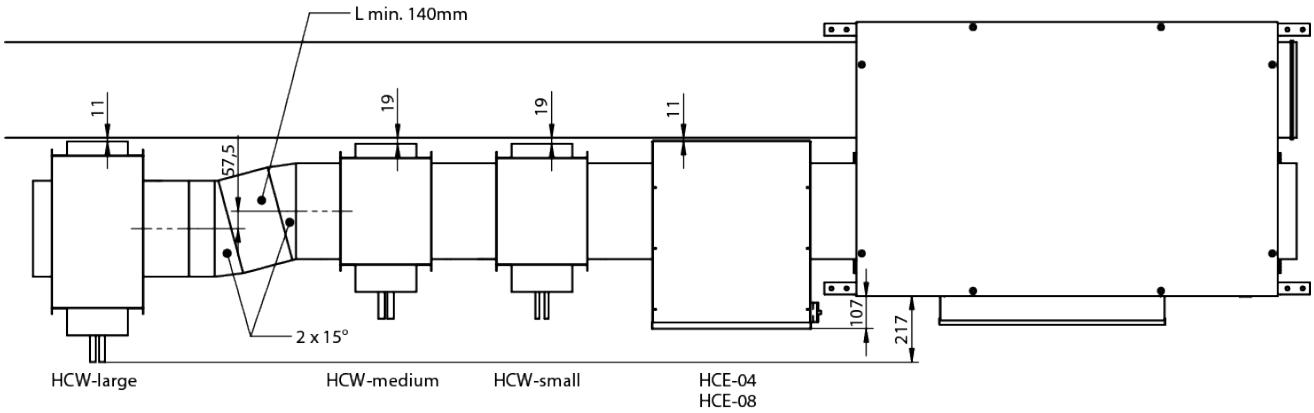
EXHAUSTO

VEX320C2 - RIGHT



VEX320C accessories - heating coils

Space demand



Cooling and heating coils

The following cooling and heating coils are suitable for VEX320-330

Type	Model
HE electric heating coil	HE315 - 2 sizes 3.9 kW and 7.8 kW
HW water heating coil	HW315S HW315M HW315L
DX cooling/heating coil	DX315S (for VEX320 and VEX330C1/330H1) DX315M (for VEX330C2/330H2)

VEX330C1

Technical data

VEX330C1

Unit data:	
Min. airflow	120 m³/h
Max. airflow	880 m³/h
Absorbed power	0.6 kW
Power supply	1 x 230 V + N + PE ~ 50 Hz
Max. phase current	3.1 A
Operational-ready unit weight	178 kg
Fluid temperature (air)	-20°C to +35°C
Ambient temperature (operating)	-20°C to +35°C

Fan data	
Max. total efficiency (A-D)	60.1%
ECO measurement set-up (A-D)	A
Efficiency level requirements	62N (2015)
ECO efficiency level during optimal operating point	78.7N

Motor data (optimal operating point)	
EC motor	With motor controller
Absorbed power	0.17 kW
Airflow	1,005 m³/h
Total pressure	322 Pa
RPM during optimal operating point	2,555

Conditions:

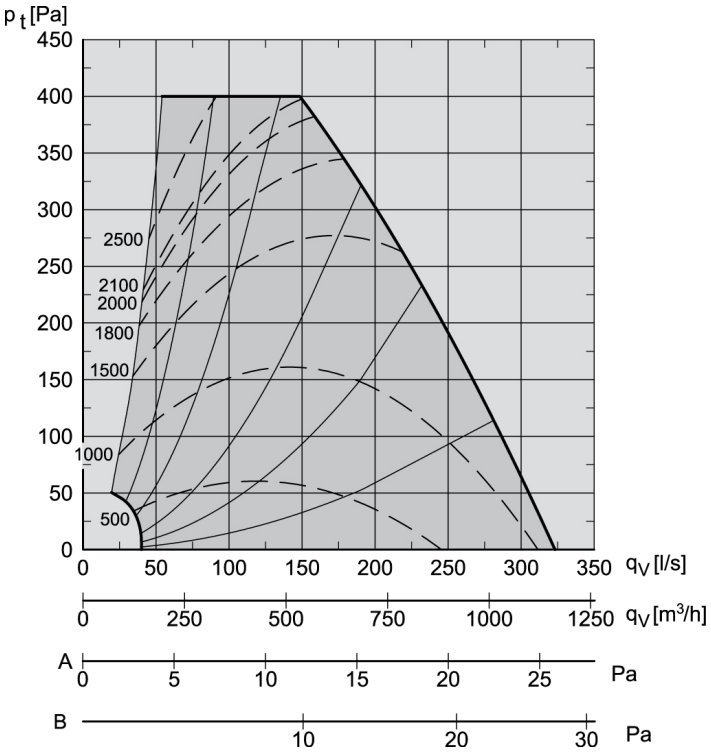
EXHAUSTO

- Density = 1.2 kg/m^3
- Pressure ratio < 1,11
- other points in acc. with EC327/2011 (see product instructions)

-

Capacity curves

VEX330C1



Capacity curve with Coarse 85% filters (M5)

SFP curve

Operating curves

A: Pressure loss supplement with ePM_1 55% filter (F7)

B: Pressure loss supplement for heating/cooling coil

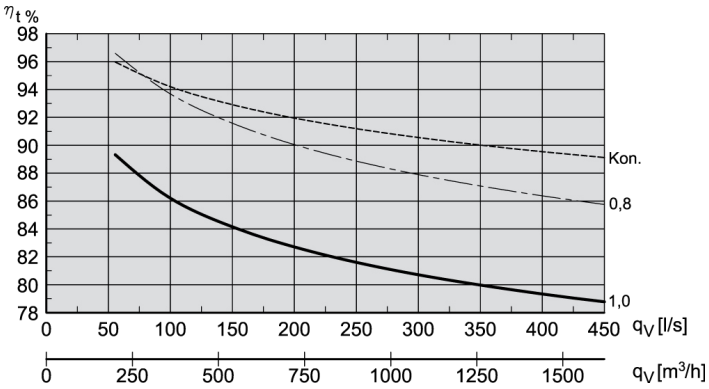
To calculate capacity data use the product selection tools Quickselect and EXselect.

Total energy consumption is divided equally between the extraction and supply air fans.

Absorbed power with VEX: $P_1(W)$ = SFP (J/m^3) x q_v (m^3/s).

Temperature efficiency

VEX330C1



Efficiency with condensation:
Extract air = 20°C/55 RH
Outdoor air = -10°C/50 RH
Balance between supply air/extract air = 1,0

Efficiency without condensation with imbalance:
Extract air = 25°C/28 RH
Outdoor air = 5°C/50 RH
Balance between supply air/extract air = 0,8

Efficiency without condensation in acc. with EN308:
Extract air = 25°C/28 RH
Outdoor air = 5°C/50 RH
Balance between supply air/extract air = 1,0

CALCULATION

The temperature efficiency of the VEX units is shown at different airflow ratios, calculated as:

$$\frac{\text{Supply air}}{\text{Extract air}} = 0.8 \text{ and } 1.0$$

$$\eta_t = \frac{t_{2,2} - t_{2,1}}{t_{1,1} - t_{2,1}} = \text{Temperature efficiency}$$

$t_{2,1}$ = Temperature of outdoor air (fresh air)

$t_{2,2}$ = Temperature of supply air

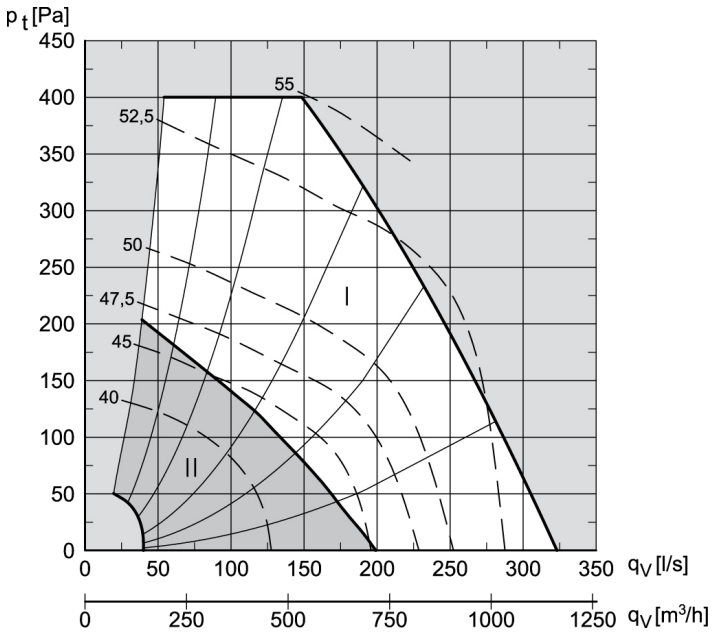
$t_{1,1}$ = Temperature of extract air

EXHAUSTO

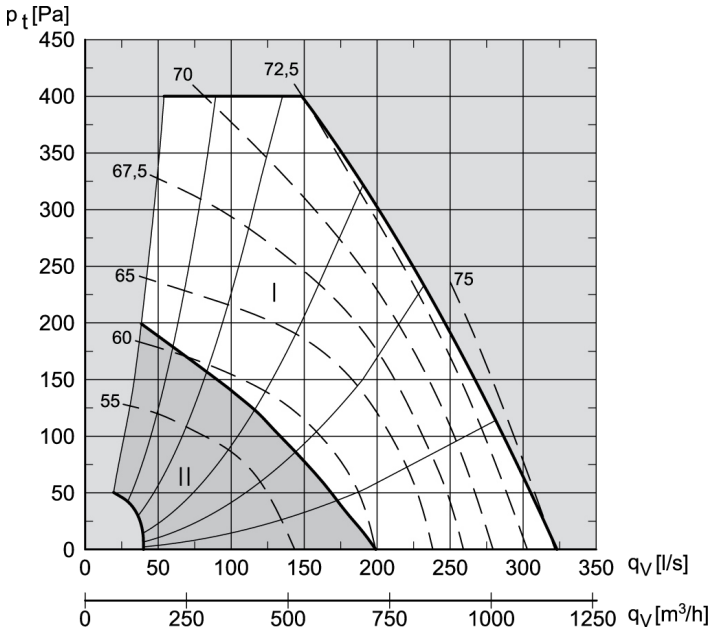
Sound data

VEX330C1

VEX330C-1 L_{WA1} - Suction side

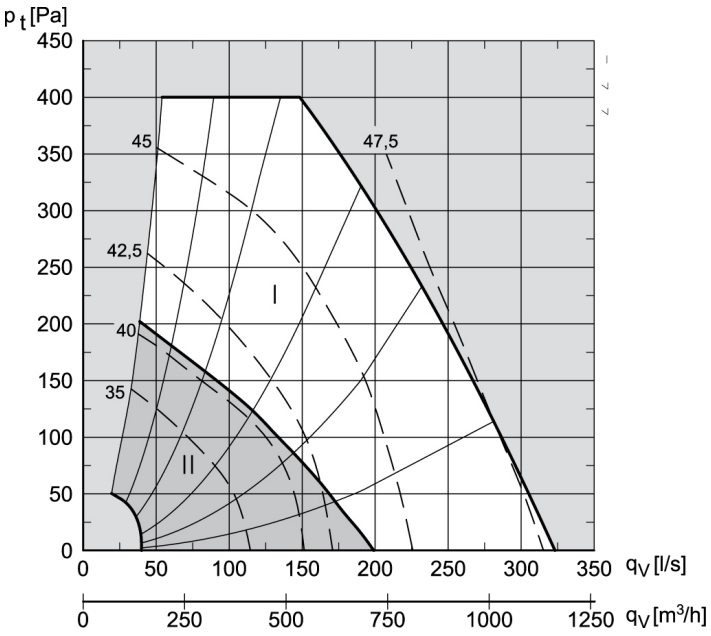


VEX330C-1 L_{WA2} - Pressure side



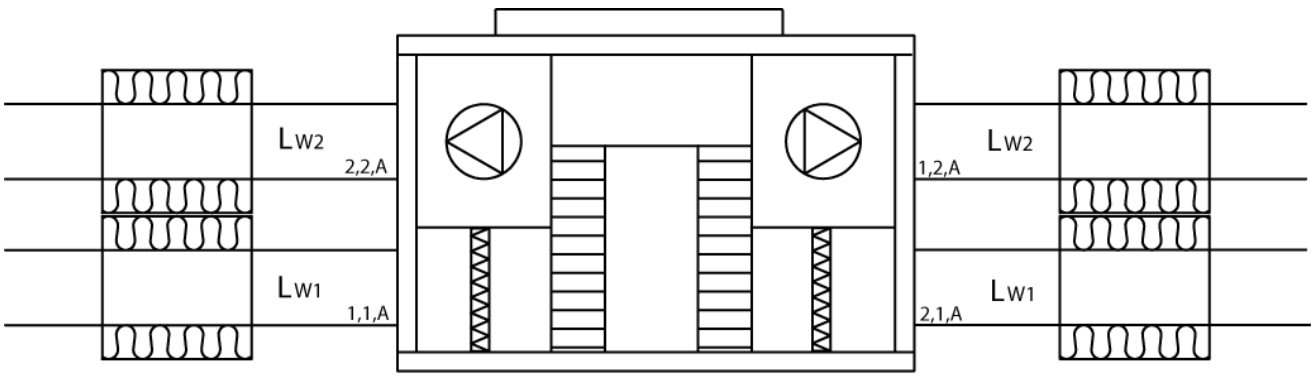
EXHAUSTO

VEX330C-1 L_{WA3} - Surroundings



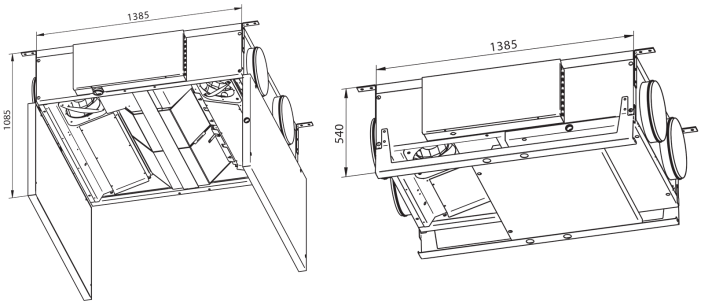
Sound output level Suction side (outdoor air/extract air): $L_{W1} = L_{WA1} + K_W$ L_{WA1} *read*	Sound output level Pressure side (supply air/exhaust air): $L_{W2} = L_{WA2} + K_W$ L_{WA2} *read*
Sound output level Surroundings: $L_{W3} = L_{WA3} + K_W$ L_{WA3} *read*	Sound output level at 1 m distance Surroundings: **Contact EXHAUSTO for specific calculation.**

		K_W(dB)							
Hz	Ranges	63	125	250	500	1K	2K	4K	8K
L_{WA1}	I	18	8	5	-6	-10	-16	-28	-35
	II	17	11	3	-4	-10	-19	-28	-23
L_{W2}	I	3	-1	2	-4	-7	-6	-19	-22
	II	7	8	-1	-4	-5	-9	-26	-33
L_{W3}	I	6	8	7	-9	-12	-15	-25	-32
	II	10	14	0	-9	-18	-22	-27	-28



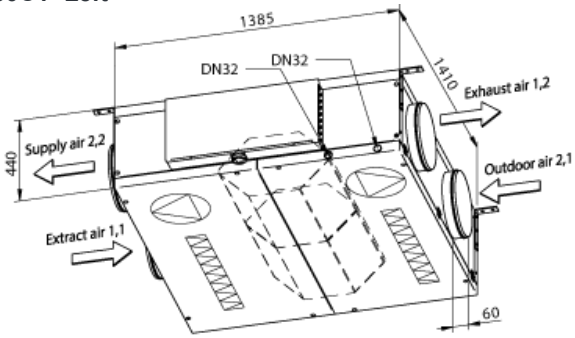
Dimensional drawings

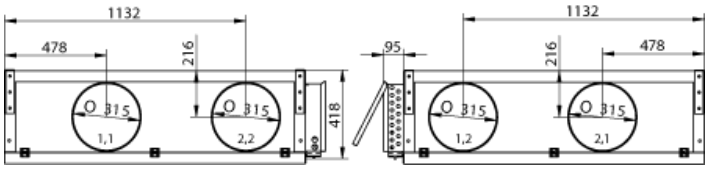
VEX330C1

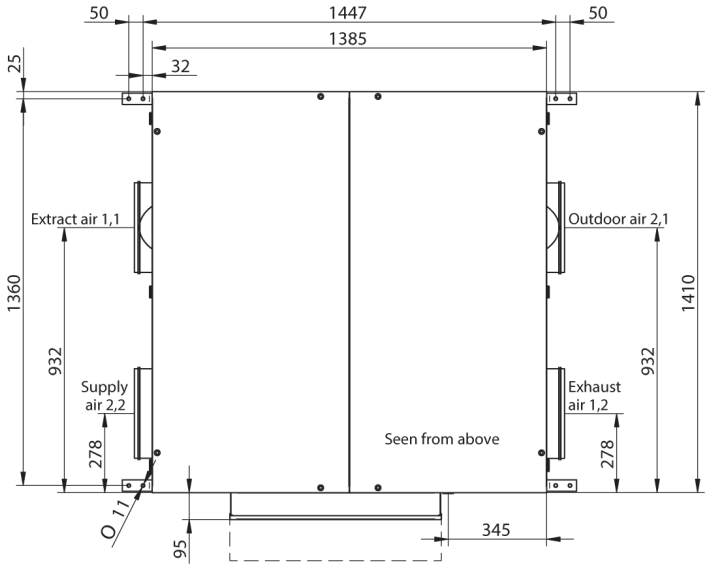


The VEX330 Ceiling unit with hinged or sliding door is available as a LEFT or RIGHT model.
The drawing below shows the solution with a hinged door system.

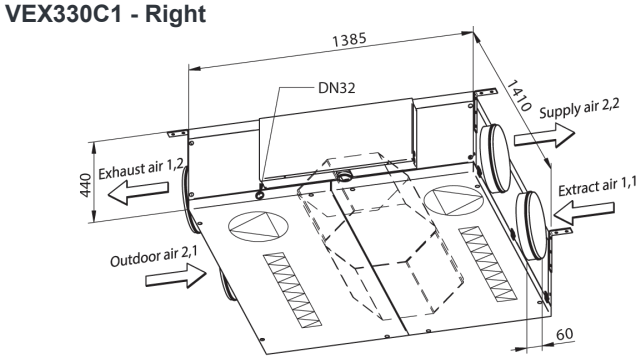
VEX330C1- Left

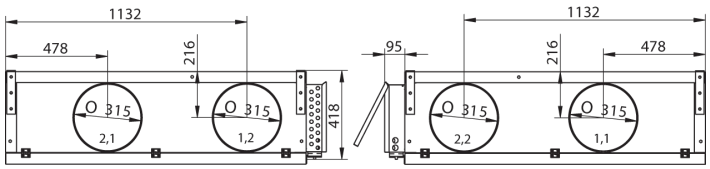


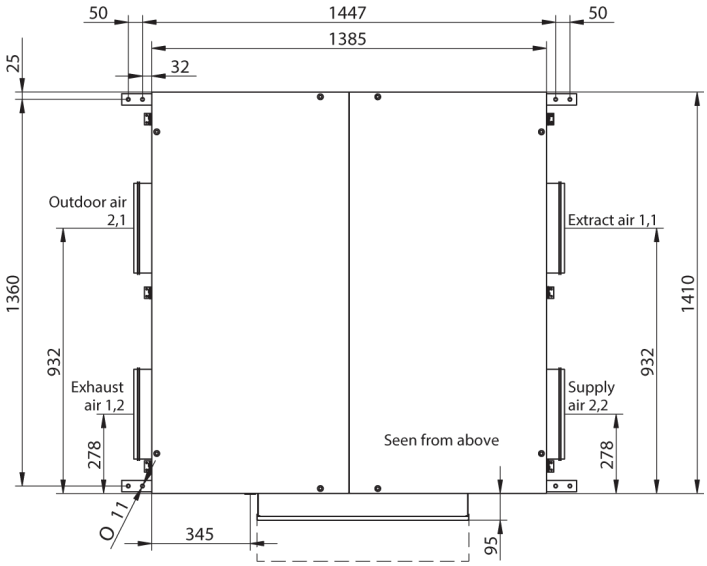




VEX330C1 - Right



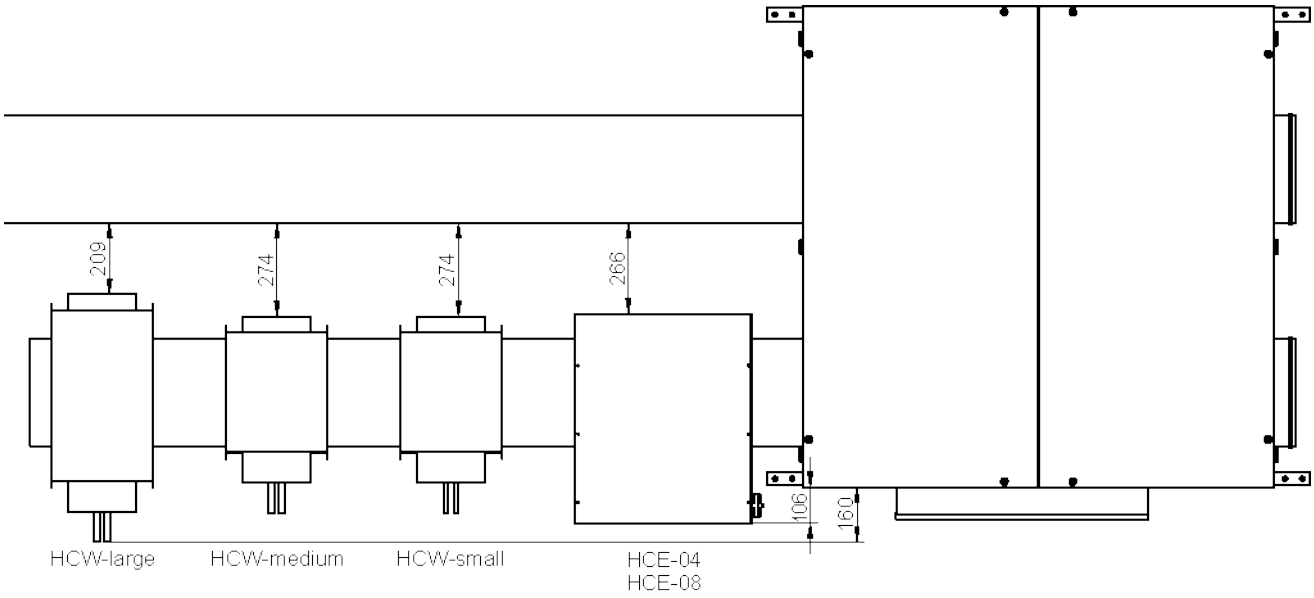




VEX330C accessories - heating coils

Space demand

EXHAUSTO


209
274
274
266
106
160
HCW-large
HCW-medium
HCW-small
HCE-04
HCE-08

Cooling and heating coils

The following cooling and heating coils are suitable for VEX320-330

Type	Model
HE electric heating coil	HE315 - 2 sizes 3.9 kW and 7.8 kW
HW water heating coil	HW315S HW315M HW315L
DX cooling/heating coil	DX315S (for VEX320 and VEX330C1/330H1) DX315M (for VEX330C2/330H2)

VEX330C2

Technical data

VEX330C2

Unit data:	
Min. airflow	120 m³/h
Max. airflow	1,490 m³/h
Absorbed power	1.2 kW
Power supply	1 x 230 V + N + PE ~ 50 Hz
Max. phase current	5.3 A
Operational-ready unit weight	181 kg
Fluid temperature (air)	-20°C to +35°C
Ambient temperature (operating)	-20°C to +35°C

Fan data	
Max. total efficiency (A-D)	60.1 %
ECO measurement set-up (A-D)	A
Efficiency level requirements	62N (2015)
ECO efficiency level during optimal operating point	73.7N

Motor data (optimal operating point)	
EC motor	With motor controller
Absorbed power	0.50 kW
Airflow	1,355 m³/h
Total pressure	733 Pa
RPM during optimal operating point	3,735

Conditions:

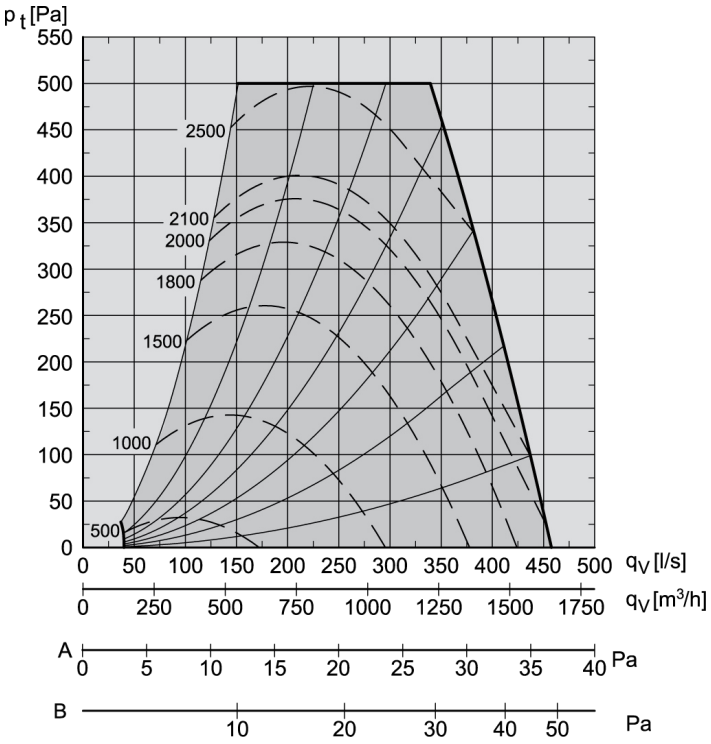
EXHAUSTO

- Density = 1.2 kg/m3
- Pressure ratio < 1,11
- other points in acc. with EC327/2011 (see product instructions)

-

Capacity curves

VEX330C2



Capacity curve with Coarse 85% filters (M5)

SFP curve

Operating curves

A: Pressure loss supplement with ePM_1 55% filter (F7)

B: Pressure loss supplement for heating/cooling coil

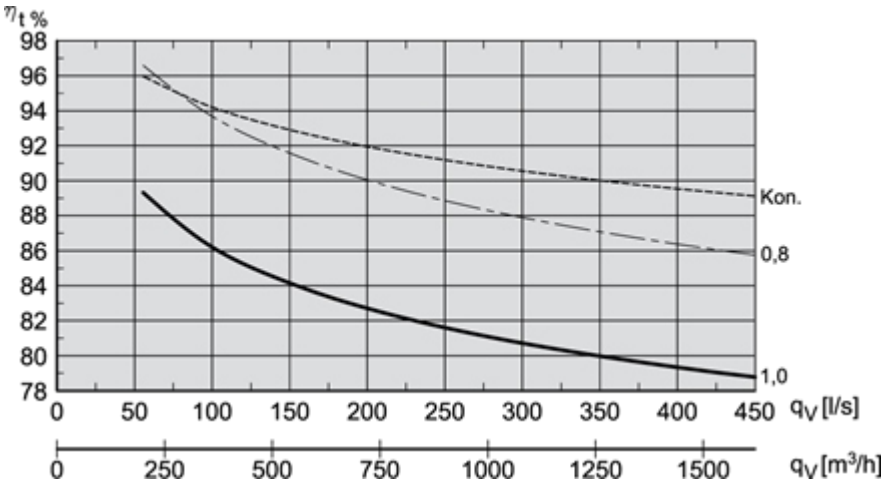
To calculate capacity data use the product selection tools Quickselect and EXselect.

Total energy consumption is divided equally between the extraction and supply air fans.

Absorbed power with VEX: $P_1(W)$ = SFP (J/m^3) x q_v (m^3/s).

Temperature efficiency

VEX330C2



Efficiency with condensation:
Extract air = 20°C/55 RH
Outdoor air = -10°C/50 RH
Balance between supply air/extract air = 1,0

Efficiency without condensation with imbalance:
Extract air = 25°C/28 RH
Outdoor air = 5°C/50 RH
Balance between supply air/extract air = 0,8

Efficiency without condensation in acc. with EN308:
Extract air = 25°C/28 RH
Outdoor air = 5°C/50 RH
Balance between supply air/extract air = 1,0

CALCULATION

The temperature efficiency of the VEX units is shown at different airflow ratios, calculated as:

$$\frac{\text{Supply air}}{\text{Extract air}} = 0.8 \text{ and } 1.0$$

$$\eta_t = \frac{t_{2,2} - t_{2,1}}{t_{1,1} - t_{2,1}} = \text{Temperature efficiency}$$

$t_{2,1}$ = Temperature of outdoor air (fresh air)

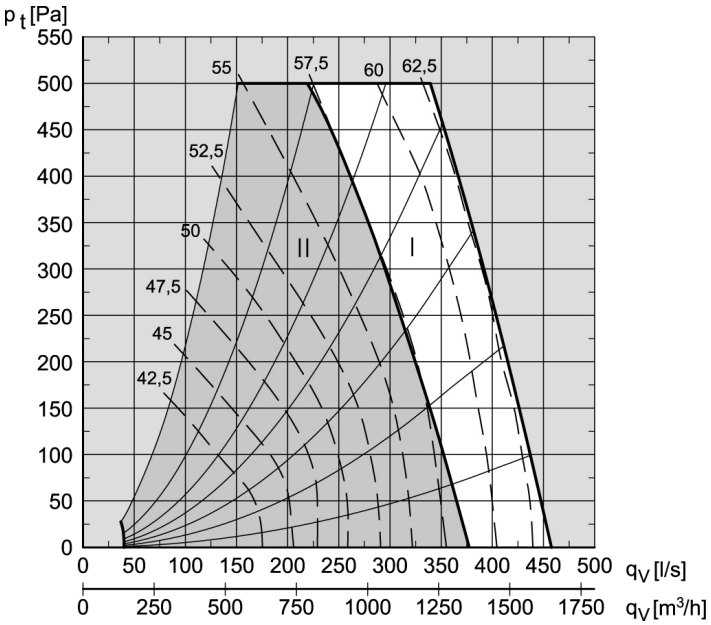
$t_{2,2}$ = Temperature of supply air

$t_{1,1}$ = Temperature of extract air

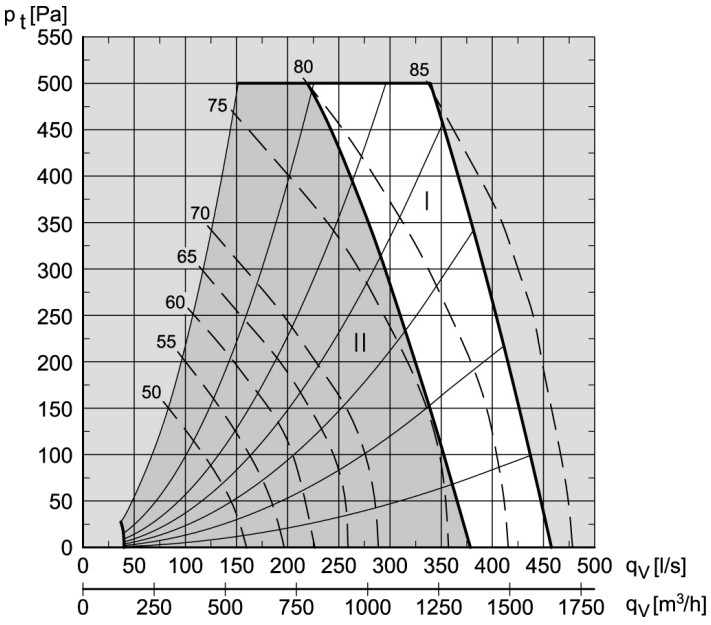
Sound data

VEX330C2

VEX330C-2 L_{WA1} - Suction side

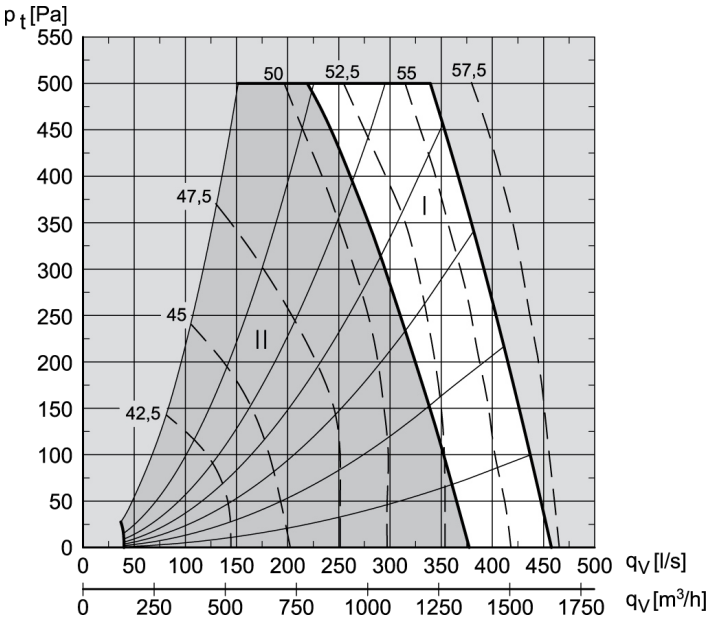


VEX330C-2 L_{WA2} - Pressure side



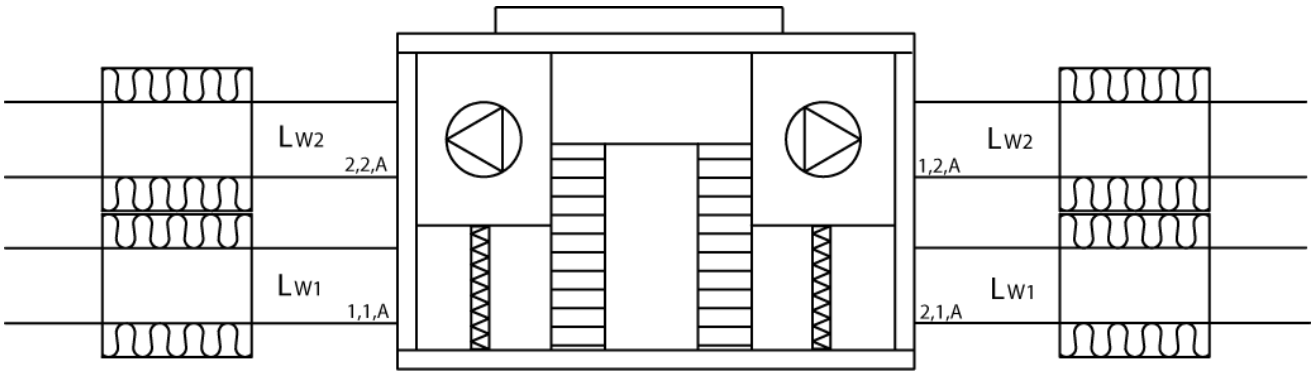
EXHAUSTO

VEX330C-2 L_{WA3} - Surroundings



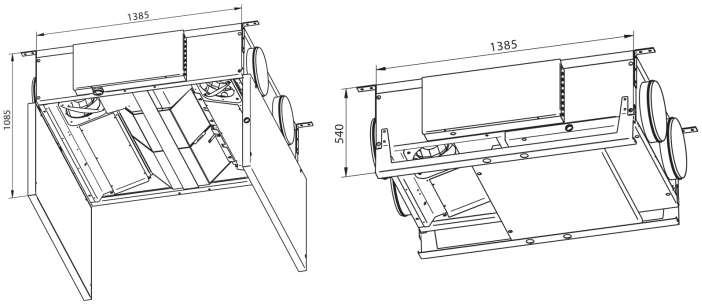
Sound output level Suction side (outdoor air/extract air): $L_{W1} = L_{WA1} + K_W$ L_{WA1} *read*	Sound output level Pressure side (supply air/exhaust air): $L_{W2} = L_{WA2} + K_W$ L_{WA2} *read*
Sound output level Surroundings: $L_{W3} = L_{WA3} + K_W$ L_{WA3} *read*	Sound output level at 1 m distance Surroundings: **Contact EXHAUSTO for specific calculation.**

		K_W(dB)							
Hz	Ranges	63	125	250	500	1K	2K	4K	8K
L_{WA1}	I	14	7	-1	-1	-6	-11	-22	-26
	II	15	9	3	-3	-7	-12	-22	-22
L_{W2}	I	-1	-4	-4	-3	-6	-6	-13	-13
	II	2	2	0	-5	-7	-6	-14	-14
L_{W3}	I	8	11	2	-2	-8	-12	-20	-25
	II	9	10	5	-7	-9	-13	-26	-30



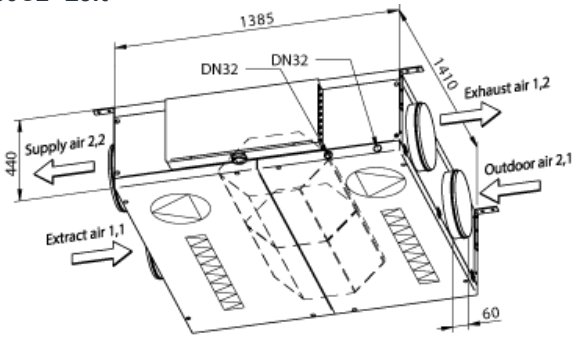
Dimensional drawings

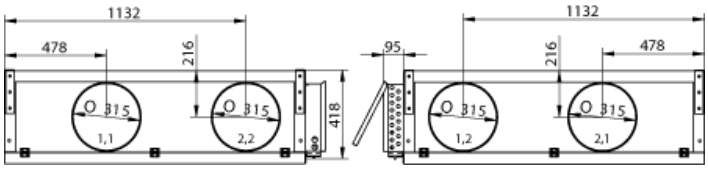
VEX330C2

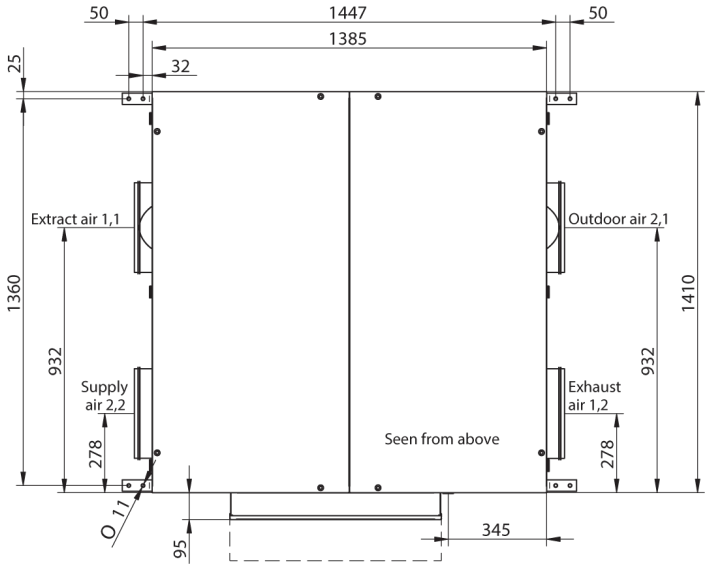


The VEX330 Ceiling unit with hinged or sliding door is available as a LEFT or RIGHT model.
The drawing below shows the solution with a hinged door system.

VEX330C2- Left

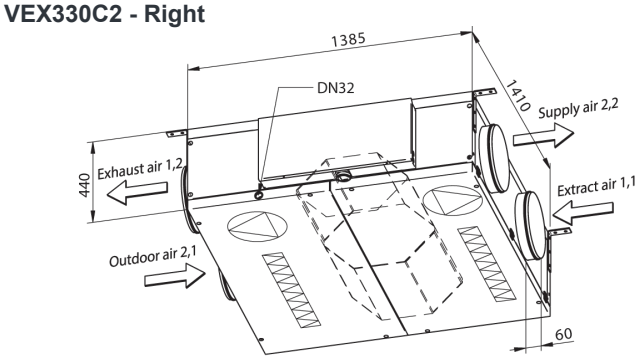


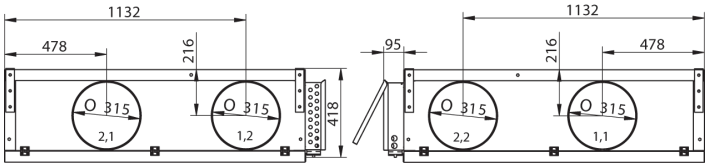


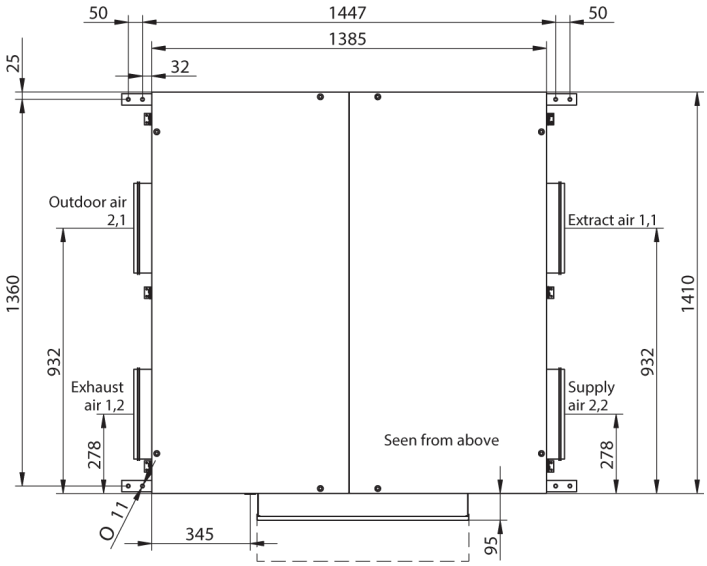


EXHAUSTO

VEX330C2 - Right



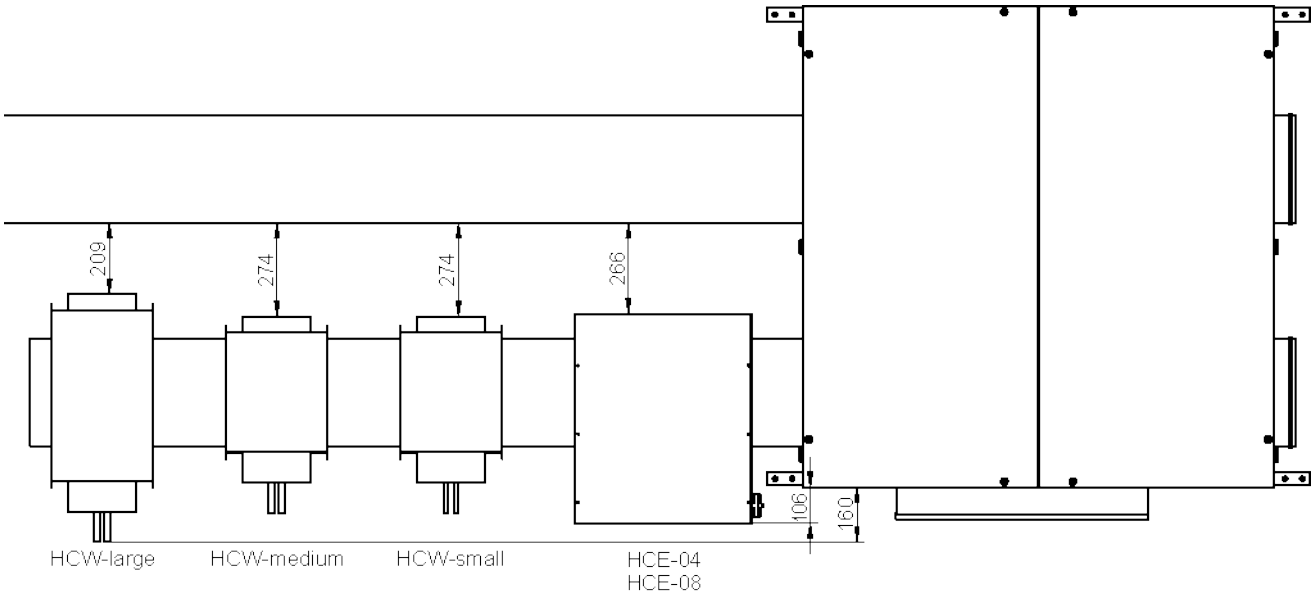




VEX330C accessories - heating coils

Space demand

EXHAUSTO


209
274
274
266
106
160
HCW-large
HCW-medium
HCW-small
HCE-04
HCE-08

Cooling and heating coils

The following cooling and heating coils are suitable for VEX320-330

Type	Model
HE electric heating coil	HE315 - 2 sizes 3.9 kW and 7.8 kW
HW water heating coil	HW315S HW315M HW315L
DX cooling/heating coil	DX315S (for VEX320 and VEX330C1/330H1) DX315M (for VEX330C2/330H2)

VEX320C/VEX330C EXact2 control system

General

EXact2 control system

Behind the simple operating panel, the advanced EXact2 control system ensures optimum operating economy. The control system is easily matched to the daily rhythms of the user location, e.g. school, office or home.

EXact2 control system features

- Simple operation
- Three user modes, two with access codes (technician and specialist)
- Several indoor climate levels and a built-in weekly timer allows on-demand ventilation
- See more selected functions in the function overview.

EXHAUSTO

HMI control panel

EXact2

The control panel has two security modes – locked or opened. If set to locked mode, the control panel can only be used for normal, daily use. More advanced options are not available.

In opened mode, the technician or specialist has access to more advanced menus and functions. The control panel requires an access code to be operated in open mode.

USER MENU

The user menu is for daily operations. It shows visual symbols to indicate the unit's status and provide information. The interface allows the user to temporarily change the temperature and ventilation level.

SPECIALIST MENU

The very useful help texts displayed in the yellow area minimise the need for manuals and instructions. Help texts are available in both technician and specialist modes.

Alarms are shown by a bell in the display. You can click on from here to get information about the specific alarm.

EXHAUSTO

Display icons

Display information is much easier to understand because of the simple graphical elements.

Temperature/ventilation level
Temperature and ventilation levels can easily and quickly be changed temporarily. Set points are shown together with visual symbols in the display.

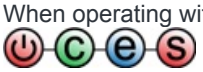
Alarm/warning
The EXact2 control system will generate a warning symbol if it detects operational disturbances. The display will show an alarm bell if more serious disturbances have been detected.

External stop
If the ventilation system has been stopped by an external start/stop signal, this symbol will appear in the display.

De-icing
If the built-in de-icing function is in operation, this symbol will appear in the display.

Manual operation
The EXact control system can be operated in manual mode. When operating in manual mode, the hand symbol will appear in the display.

Weekly plan
When operating with the weekly plan activated, the clock symbol will appear in the display.



Override
When temperature and ventilation level set points are changed, the override symbol will appear in the display while the settings are overridden by the next change in the weekly plan.

BMS
BMS-controlled operation.

AUX
Externally-controlled operation.

Summer/winter
The Exact2 control system automatically changes from summer time to winter time. The symbol indicates either summer time or winter time.

Service
Service display connected.

Disconnect
No communication on the external BUS or communication between the VEX and HMI is disconnected.

External communication

Web server

The EXact2 control system is supplied as standard without Web server. Purchase of the Web server gives access to the following additional features:

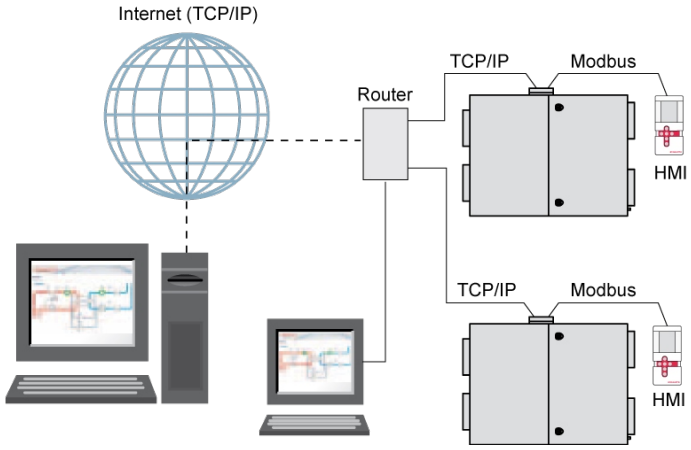
1. The unit can be monitored and configured using a local PC.
2. The unit can be connected to a local area network (LAN) and controlled by a PC connected to the LAN.
3. The unit can be connected to the internet and controlled by external PCs.

The only requirement is that the connected PC has a browser The Web server is password protected.

The Web server user interface is designed in the same logical fashion as the control panel. Uniformity makes the system easy to use. The overview display is configured and ready to monitor the ventilation system. The Web server can send an email in the event of an alarm, log data, etc.

Connection to BMS unit

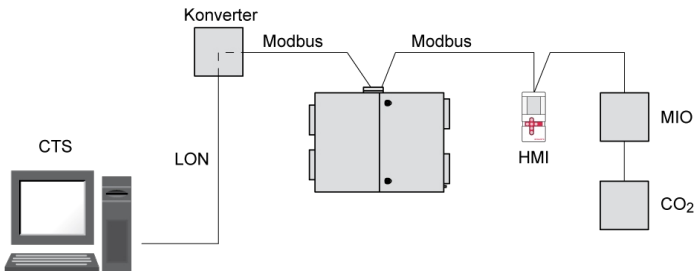
As standard, the Web server can communicate with Modbus RTU RS485, BACnet MSTP or BACnet IP. Thus, a BMS unit that uses one of these communication platforms can be easily connected to the unit.



Converting to other protocols

Via the Web server, the units can be connected to other BMS units with other protocols via a converter (gateway). If the converter has been purchased, the following options are available:

1. MLON - Module for converting to LON
2. MTCP - Module for converting to Modbus TCP/IP



Try the EXact2 control system online

Try out the EXact2 control system online and control a VEX340 unit installed at EXHAUSTO in Langeskov.

This unit is free-standing and without duct system connections.

The control system is accessible at http://exact.exhausto.dk:8340/

For technician mode use the following:

User name: VEX340
Access code: 1111

NB Only one user can be logged in at a time.

Unit function overview

VEX320C/VEX330C

Function/component	Description	+Standard - Accessory
Filter monitor - timer	Time-based filter monitoring. The number of operating days before filter replacement can be set.	+
Filter monitor - pressure (MPTF)	Pressure sensors for monitoring the pressure drop across the filters – alarm for a fall more than the value set and "Early Warnings"	-
Bypass	In the case of modulating bypass of extract air, the heat recovery is reduced to maintain the desired supply air temperature in spring, summer and autumn.	+
Temperature sensors	1) In the extract air spigot to measure/control room temperature	+
	2) In the exhaust air spigot to measure exhaust air temperature	+
	3) In the outdoor air spigot for outdoor air temperature compensation and night-time cooling	+
	4) In the supply air spigot to measure/control supply air temperature	+
	5) Duct temperature sensor	-
	6) Room temperature sensor	-
Overheating protection	If there is a danger of the motors or frequency converters overheating the unit will shut off – manual reset.	+
Fire alarm	Fire thermostats (40/50/70 °C), smoke detector and other fire detection switches can be connected. In the case of a tripped fire alarm, the unit's functions are adjustable.	-
Closing damper, outdoor air (requirement for water heating coil)	The damper is fitted in the outdoor air duct – it shuts when the unit stops – available with a spring-return motor	- (+)
Closing damper, exhaust air	The damper is fitted in the exhaust air duct – it shuts when the unit stops – available with a spring-return motor	-
Regulating temperature	Regulation of the supply air temperature	+
	Regulation of the room temperature	+

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Function/component	Description	+Standard - Accessory
Compensation functions	Outdoor air temperature compensation	+
	Airflow reduction	+
	Outdoor airflow compensation	+
	Summertime compensation	+
	CO_2 compensation	+
	Humidity compensation	+
Night-time cooling	The unit can be set to start at night to cool the building	+
Control panel	Panel for operating unit in user, technician and specialist mode	+
Weekly timer	For setting the times required for changes between indoor air quality levels	+
Web server	Web server with control and monitoring option	-
	Modbus RTU RS485, BACnet MSTP, BACnet IP	
Bus communication (requires Web server)	Modbus TCP/IP	-
	LONWORKS®	-
Cooling recovery	On-demand cold recovery	+
Frost protection - Tice	Temperature based automatic function for frost protection of counter flow heat exchanger	+
Frost protection - pressure (DEP)	Pressure-based automatic energy-saving function for frost protection of counter flow heat exchanger(requires accessory: AFC)	-
Constant pressure regulation	Possible for both extract and supply air	-
Motion sensor (PIR)	For automatic control of indoor air quality level	-
Airflow measurement	Airflow is shown in the control panel/Web server AFC is necessary with air regulation methods: 2. Constant airflow 3. Constant pressure regulated extract air with set supply air 4. Constant pressure regulated supply air with set extract air 5. Constant pressure regulated extract air with slave-controlled supply air 6. Constant pressure regulated supply air with slave-controlled extract air	-
Indoor climate levels	Timer-controlled (comfort, standby, economy, off)	+
	Manual	+
Alarm log	Displays the last 100 alarms	+
Alarm relay	Relay for external alarm (potential-free)	+

Heating coils function overview

EXact2

HCW - External water heating coil

Function/component	Description
Temperature sensors	1) In the supply air duct to measure/control supply air temperature
	2) On the return pipe from the water heating coil to keep the heating coil warm and protect it from icing
	3) To protect icing of the external pipe for the heating coil (accessory)
	4) Temperature sensor on water heating coil supply pipe
Modulating motor valve	Valve for variably regulating the flow of water to the heating coil, depending on the heat requirement
Circulation pump control	1) Control the circulation pump for the water heating coil
	2) Heat retention function (keeps heating coil free of ice)
	3) Built-in control to run the circulation pump during periods when heating is not required

HCE - External heating coil

Function/component	Description
Temperature sensors	In the supply air duct to measure/control supply air temperature
Overheating protection	1) TSA70 is located on the circuit board, trips at 70°C and has manual reset on the HMI
	2) TSA80 is situated in the airflow, trips at 80°C and has manual reset
	3) TSA90 is located in the airflow, trips at 90°C and has manual reset on the HMI

MXHP - Control module for external cool/heat pump units

Function/component	Description
Temperature sensors	In the supply air duct to measure supply air temperature
Control	Control of external cool/heat pump units via • start/stop indicator • cool/warm indictor • on-demand regulation 0-10 V (10-0 V)

EXHAUSTO

Cooling function overview

EXact2

CCW - External cooling coil

Function/component	Description
Temperature sensors	1) In the supply air duct to measure supply air temperature
	2) In the supply water pipe for the cooling coil
Modulating motor valve	Valve for variably regulating the flow of water to the cooling coil, depending on the cooling requirement
Circulation pump control	1) Control the circulation pump for the cooling coil
	2) Built-in motion control of the circulation pump for periods that do not require cooling

MXCU - Control module for external cooling units

Function/component	Description
Temperature sensors	In the supply air duct to measure supply air temperature
Control	Control of external cooling unit via • start/stop indicator • on-demand regulation 0-10 V (10-0 V)

MXHP - Control module for external cool/heat pump units

Function/component	Description
Temperature sensors	In the supply air duct to measure supply air temperature
Control	Control of external cool/heat pump units via • start/stop indicator • cool/warm indictor • on-demand regulation 0-10 V (10-0 V)

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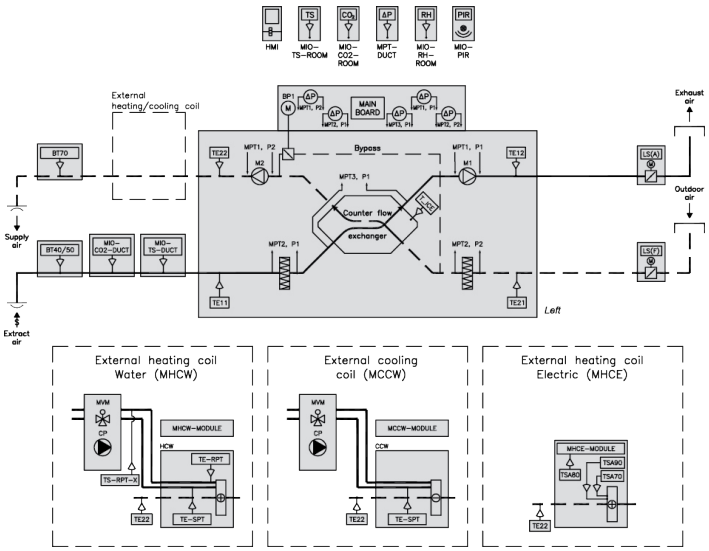
Simplified diagram

VEX320C/VEX330C

The simplified drawings show components that can be included in a VEX320C/VEX330C air handling unit.



With EXact2, HCW can either be connected directly to the main PCB or via the MHCW module as shown here. If the distance between the unit and the HCW is less than 10m, the connection can be made directly on the main PCB.

Standard and accessory components

The VEX320C/VEX330C is supplied with a range of components fitted in the unit or for fitting in the duct system and in the appropriate room. The table below shows standard and accessory components for VEX320C/VEX330C. Accessories must be ordered separately.

Abbreviation	Designation	+ = Standard - = Accessory
BP1	Damper, bypass	+
BP2	Damper, bypass	+
BT40-70	Safety-limit thermostat, stepless setting	-
MC1	Motor control 1 (extract air)	+
MC2	Motor control 2 (supply air)	+
HMI	Control panel	+
LS	Closing damper, exhaust air	-
LS	Closing damper, outdoor air (required and supplied with water heating coil)	- (+)
LSR	Closing damper, exhaust/outdoor air (spring return)	-
M1	Fan motor 1	+
M2	Fan motor 2	+
MCCW	Cooling coil, (Cooling Coil Water), control system	-
MHCE	Electric heating coil (Heating Coil Electric), control system	-
MHCW	Water heating coil (Heating Coil Water), control system	-
MIO-CO2-DUCT	CO2 sensor, duct	-
MIO-CO2-ROOM	CO2 sensor, room	-
MIO-PIR	PIR sensor	-
MIO-RH-ROOM	Humidity sensor (RH)	-
MIO-TS-DUCT	Temperature sensor, extract air duct (external)	-
MIO-TS-ROOM	Temperature sensor, room	-
MPT-DUCT	Pressure sensor for constant pressure regulation	-
MPT1, P1, AFC	Airflow control, extract air	-
MPT1, P2, AFC	Filter monitor, extract air	-
MPT2, P1, MTPF	Airflow control, supply air	-
MPT2, P2, MTPF	Filter monitor, outdoor air	-
MPT3, P1, DEP	Ice detection	-
MVM	Motor valve, water heating coil (HCW)	-
MXHP	Control module for external cool/heat pump units	-
MXCU	Control module for external cooling units	-
SUM ALARM	Alarm relay	+
TE11	Temperature sensor, extract air – spigot 1.1	+
TE12	Temperature sensor, exhaust air– spigot 1.2	+
TE21	Temperature sensor, outdoor air – spigot 2.1	+
TE22	Temperature sensor, supply air – spigot 2.2	+
TE-RPT	Temperature sensor, return pipe from water heating coil (HCW)	+
TE-SPT	Temperature sensor, supply	+
TS-RPT-X	Temperature sensor, return, external piping (HCW)	-
TSA 60/70/120	Overheating thermostat, 60, 70 and 120 °C	-

Cable dimensioning

VEX320C/VEX330C

The electrician installing the unit is responsible for ensuring that all sizes used are compatible with current legislation and regulations.

Maximum short circuit current and fuse rating:
Maximum short circuit current (Icu), in accordance with EN60947.2 is 10 kA
Max fuse rating (VEX) is 13 A gG/gL
Maximum fuse rating (HE04) is 16 A gG/gL
Maximum fuse rating (HE08) is 16 A gG/gL

Equalising connections
Equalising connections must be established between the VEX and the type of HCE (electric after heating).

Fitting of earth leak circuit breakers
If earth leak circuit breakers are fitted, they must be a certain type and meet the following standards:

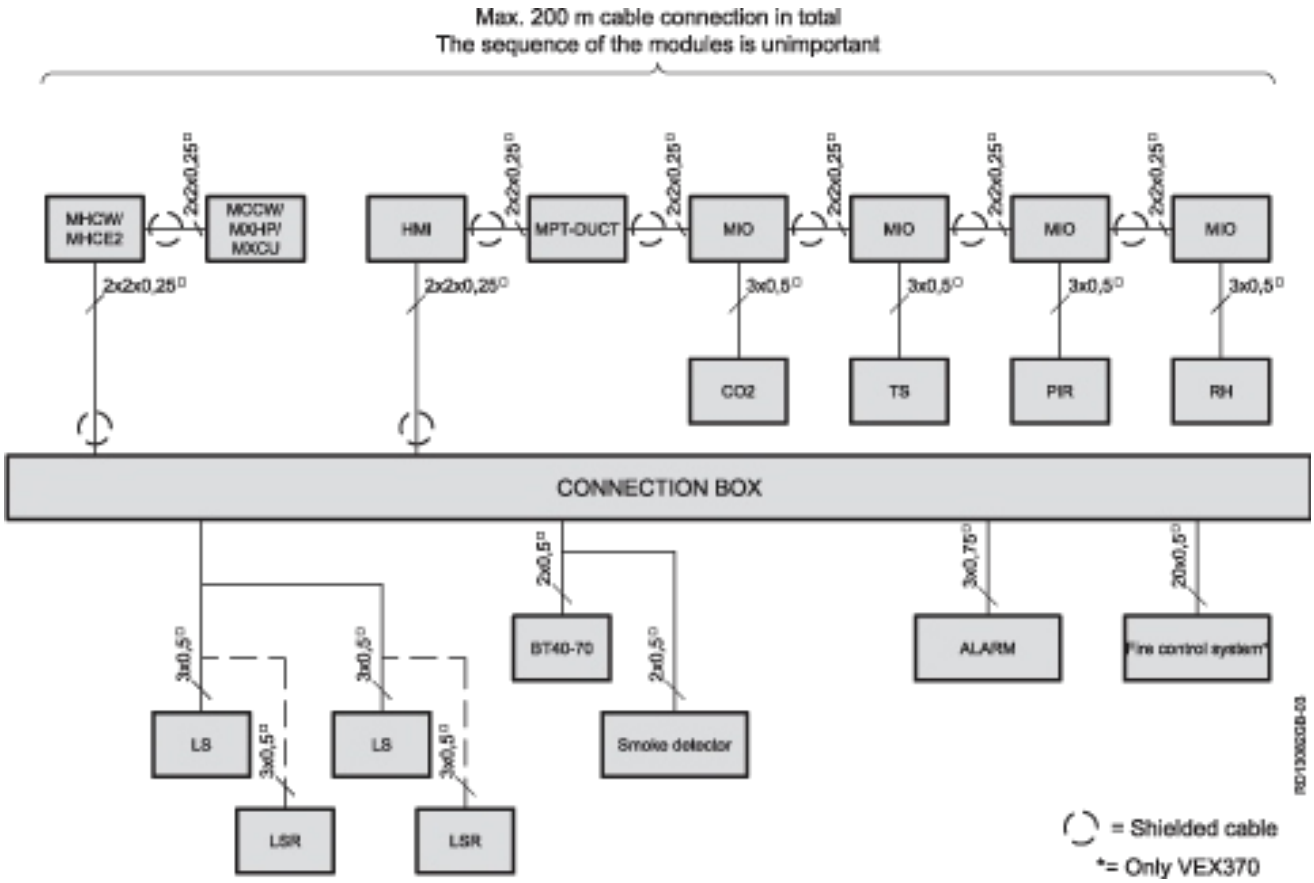
a) FI type A breaker that in accordance with EN 61008 breaks the circuit when a vagrant current with DC content (pulsating DC) is registered.

b) Cutout time must be max. 0.3 s.

A leak current of up to 100 mA can be generated.

Cable plan - accessories

Connection box

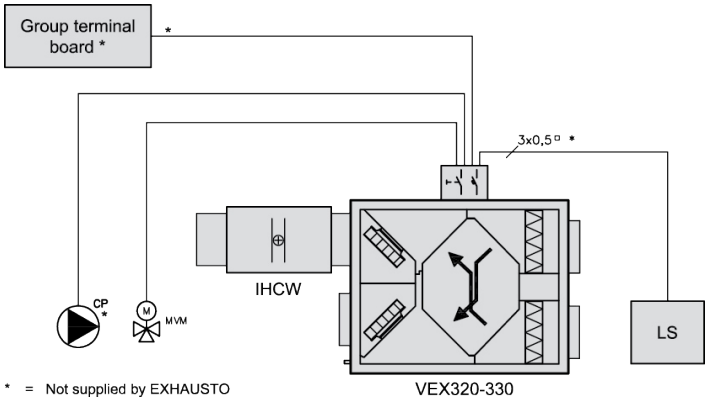


Abbreviation	Designation
ALARM	Alarm relay
BT40-70	Safety-limit thermostat, stepless setting
HMI	Control panel
LS	Closing damper, exhaust air
LS	Closing damper, outdoor air (required and supplied with water heating coil)
LSR	Closing damper, exhaust/outdoor air (spring return)
MCCW	Cooling coil, (Cooling Coil Water), control system
MHCE	Electric heating coil (Heating Coil Electric), control system
MHCW	Water heating coil (Heating Coil Water), control system
MIO-CO2	CO2 sensor
MIO-PIR	PIR sensor
MIO-RH	Humidity sensor (RH)
MIO-TS	Temperature sensor
MPT-DUCT	Pressure sensor for constant pressure regulation
MXHP	Control module for external cool/heat pump units
MXCU	Control module for external cooling units
Smoke detector	Smoke detector

Cable plan - coils

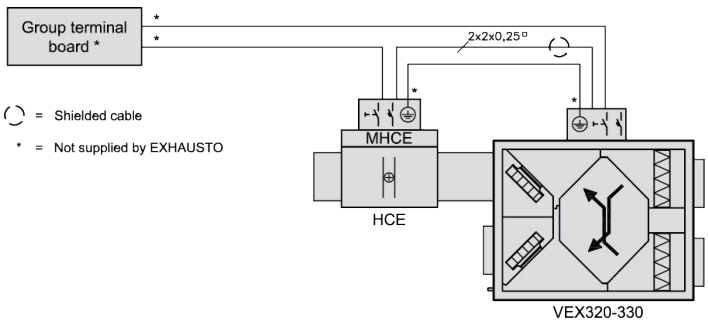
VEX320C/VEX330C

With external after heating coil - Water (HCW)/Cooling coil (CCW)



Model	Voltage (V)	Power consumption (A) (max. phase current)
VEX320C1	1 x 230 V + N + PE ~ 50	3.1
VEX320C2	1 x 230 V + N + PE ~ 50	5.3
VEX330C1	1 x 230 V + N + PE ~ 50	3.1
VEX330C2	1 x 230 V + N + PE ~ 50	5.3

With external after heating coil – Electric (HCE)



Model	Voltage (V)	Power consumption (A) (max. phase current)
VEX320C1	1 x 230 V + N + PE ~ 50 Hz	3.1
VEX320C2	1 x 230 V + N + PE ~ 50 Hz	5.3
VEX330C1	1 x 230 V + N + PE ~ 50 Hz	3.1
VEX330C2	1 x 230 V + N + PE ~ 50 Hz	5.3

Model	Output (kW)	Voltage (V)	Power consumption (A) (max. phase current)
HE31504BUE	3.9	3 x 400 V + PE ~ 50 Hz	5.7
HE31508BUE	7.8	3 x 400 V + PE ~ 50 Hz	11.3

Technical data

EXact2

AHUC MAIN BOARD	
2 x LS (Closing damper, exhaust/outdoor air)	Power supply 24 VDC
	ON/OFF 24 VDC
	Max. power consumption 0.3 A
FIRE (fire thermostat/smoke detector)	Max. 4 A breaking current
START/STOP	Digital input
ALARM	Change-over relay, max 8 A @ 30 VDC or 250 VAC resistive load

MHCW (control for after heating coil, water) **MCCW (control for cooling coil)** **MXCU (control for external cooling unit)**	
Communication	Modbus RTU RS-485
MVM (motor valve) power supply	24 VAC
MVM (motor valve) control signal	0-10 VDC (or 10-0 V)
Relay contact for the circulation pump	250 V, max. 5 A cos φ 0.97

MHCE (control for after heating coil, electric)	
Communication	Modbus RTU RS-485
Number power steps	Up to 4
Modulating power step	1 step
Supply voltage	3 x 400 V + N + PE

For third-party control system

VEX320C/VEX330C

Freedom to choose!

VEX320C/VEX330C can be used with other third-party control systems. This means the unit can be integrated to a control system from another supplier. Designed for quick and easy integration.

A typical VEX320C/VEX330C solution connected to a third-party control system:

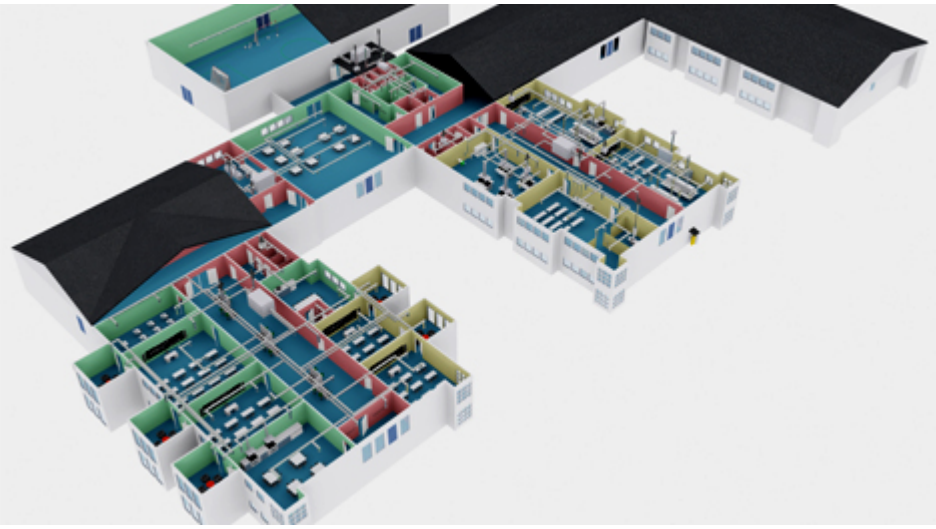
- Air handling unit with counter flow heat exchanger
- Compact unit
- Built-in double bypass with 24 V motor
- Free-moving B-impeller
- Filter class Coarse 85% (M5) or ePM_1 55% (F7)
- EC motors class IE5
- EC motor control 0-10 V (MC)
- Airflow measurement points on fans (hoses not supplied)
- Cables for MC and bypass damper run to terminal board.

Accessories

- External water heating coil (HW)
- External electric heating coil (HE)
- External cooling/heating coil (DX)

EXHAUSTO

Control system accessories



MIO module

MIO - Modbus communication module

MIO-MODULE

Is used for connection the CO_2- moisture- and motion sensor for example, or the TIMERBUTTON for the EXact2 control.

How many sensors can be connected per MIO-module?

The sensors emit a 0 -10 V signal (CO_2- or moisture sensor for example):
1 sensor per MIO-module

Sensors which emit an ON/OFF signal (such as a PIR sensor or TIMERBUTTON):
4 Sensors in parallel connection per MIO-module.

Connect to VEX via modbus.

MIO (Modbus input, output)	
Analogue input	0-10 V DC
Analogue output	0-10 V DC
Digital input	24 V DC
Digital output	open collector 1 A
Relay output	250 V max. 8 A, AC1
Temperature in	NTC 10 kΩ @ 25 °C

EXHAUSTO

PIR sensors

PIR Control system accessories

For direct override

MIO-PIR

Motion sensor including Modbus communication module (MIO-module).

Overrides the air handling unit if there is movement in premises where it is installed. 4 PIR sensors can be connected for each MIO-module.

Cut-out delay 10 min.

PIRB-AS

Motion sensor with Modbus communication, which can be connected directly to the external bus of the air handling unit, without the use of an MIO-module.

Overrides the air handling unit if there is movement in premises where it is installed.

Cut-out delay Adjustable 10/30/60/120 min.

For individual zone control

PIR

Motion sensor can be connected to an M-module, or be used for autonomous control of ventilation.

Digital ON/OFF signal.

PIR-sensor	
Length, height, width	66 mm x 44 mm x 66 mm
Detection area	Angle of coverage: 100°, Reach: ca. 5 m
Output	Relay: 2A/30V DC
Weight	56 grammes
Temperature range	0 - 40°C
Supply voltage	24VAC (18 - 26V DC)
Power consumption	Type: 500mW, Max: 1W
IP	20

RH sensors

RH humidity sensors

For direct override

MIO-RH-ROOM

Humidity sensor for room incl. Modbus communication module (MIO module).

Overrides the unit with humidity load.

For independent zone control

RFF

Humidity sensor for room fitting for autonomous control of ventilation.

IP: 30

RFF	
Power supply	24 VAC, 15–36 VDC
Control signal, analogue output	0–10 VDC
Measurement range	0–100% RH
Tolerance	+/- 3% @ 20°C

EXHAUSTO

CO2 sensor

CO_2 Control system accessories

For direct override

MIO-CO2-DUCT

CO_2sensor for duct mounting including Modbus communication module (MIO-module).

Overrides the unit in case of CO_2 overload.

MIO CO2 ROOM

CO_2sensor for room mounting including Modbus communication module (MIO-module).

Overrides the unit in case of CO_2overload.

Can be re-programmed and comes with different limit values, also with regards to combined CO_2 and temperature control. (at extra cost)

CO2-DUCT/CO2-ROOM	
Supply	24V AC/DC
Control signal, analogue output	0-10 V DC
Measuring range	0-2000 ppm
Accuracy	+/- 20 ppm @ 25 °C

For individual zone control

CO2-DUCT

CO_2-sensor for duct mounting, for control of dampers by autonomous control of the ventilation.

Analogue 0 - 10 V (0 - 2000 ppm)

Can be re-programmed and supplied with different limit values. Specified when ordering (at extra cost)

EXHAUSTO

CO2 ROOM

CO_2-sensor for room mounting, for control of dampers by autonomous control of the ventilation.

Analogue 0 - 10 V (0 - 2000 ppm)
IP: 30

Can be re-programmed and supplied with different limit values, also with combined CO_2 and temperature control. Specified when ordering (at extra cost)

KCO2

CO_2-sensor for duct mounting,for control of dampers by autonomous control of the ventilation.

Analogue 0 - 10 V (0 - 2000 ppm)
IP: 65

KCO21000

CO_2-sensor for duct mounting,for control of dampers by autonomous control of the ventilation.

Analogue 0 - 10 V (0 - 1000 ppm)
IP: 65

RCO2

CO_2-sensor for room mounting, for control of dampers by autonomous control of the ventilation.

Analogue 0 - 10 V (0 - 2000 ppm)
IP: 30

RCO21000

CO_2-sensor for room mounting, for control of dampers by autonomous control of the ventilation.

Analogue 0 - 10 V (0 - 1000 ppm)
IP: 30

KCO2/RCO2/KCO21000/RCO21000	
Supply	24V AC/DC
Controlsignal, analogue output	0-10VDC
Accuracy	+/- 100 ppm

TS sensor

TS Temperature sensors

For direct override

MIO-TS-DUCT

Temperature sensor for room mounting incl. Modbus communication module (MIO-module).

Oversteers air handling unit by temperature changes.

MIO-TS-ROOM

Temperature sensor for room mounting including Modbus communication module (MIO-module).

Oversteers air handling unit by temperature changes.

TS ROOME / TS DUCTE	
Sensor	NTC 10 kΩ @ 25 °C

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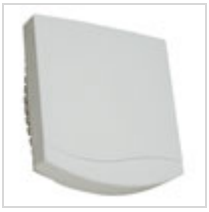
RLQ sensor

RLQ-air quality sensor

For individual zone control

RLQ



Air quality sensor for room mounting and autonomous control of ventilation.

IP: 30

RLQ	
Supply	24V AC/DC
Control signal, analogue output	0 - 10V DC
Measuring range	0 - 100% VOC
Accuracy	+/- 20%

VOC = Volatile organic compounds

EXHAUSTO

TIMERBUTTON

TIMERBUTTON control system accessory

For direct override.

TIMERBUTTON / TIMERBUTTONEU

Manual override for comfort ventilation ex. MIO-module.

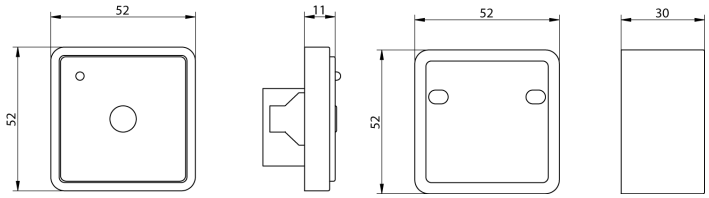
Can be set for 4 different time intervals:
- 30 min
- 60 min
- 120 min
- 240 min

Digital ON/OFF

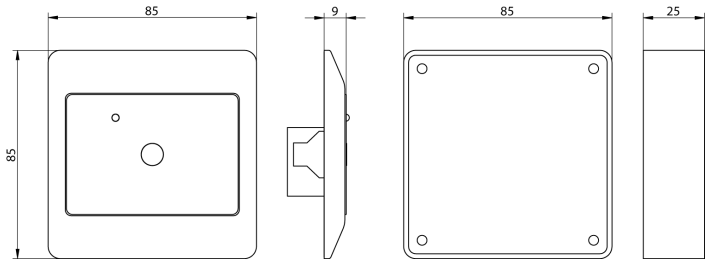
TIMERBUTTON	
Operation range, temperature	5 - 40°C
Moisture	5 - 70% RH
Relay output	Max. 48V/5A
Colour	White
Supply voltage	24V AC/DC
Power consumption	Max. 20mA
IP	20

Dimensional sketches

TIMERBUTTON



TIMERBUTTONEU



EXHAUSTO

Pressure control

MPT-DUCT control system accessory

For direct override

MPT DUCT

Pressure sensor for constant pressure regulation with Modbus communication. Can be connected directly to the external bus of the air handling unit, without the use of an MIO-module.

For constant pressure regulation of both the supply air and the extract air ducts, 2 MPT-DUCT are required.

If VAV is used on a duct string, MPTDUCT must be used.

MPT-DUCT	
Supply via Modbus	24V DC
Measuring range	0 - 1250 Pa
Adjustable area in control unit	0 - 1000 Pa
IP	54

EXHAUSTO

HMI control panel

HMI

For control of the air handling unit

HMI

For operation of VEX air handling units with the EXact. With a colour display and small help texts, which explain the functions related to the individual steps.

HMI	
Dimensions H x W x L	148 x 67 x 28
Surrounding temperature	0°C - 50°C
Protection class	IP20
Communication	Modbus RTU

EXHAUSTO

EXHAUSTO

Your ventilation expert and professional business partner

At EXHAUSTO we never compromise on quality, and since we are experts in ventilation with many years of specialised experience, you can be assured of not just the best ventilation solution but also a competent business partner.

EXHAUSTO develops and manufactures high-quality products and systems for comfort ventilation in all areas of use – from offices, shops, schools and institutions to industrial buildings, hotels and hospitals. With a focus on high efficiency ratings and an energy consumption which sets new industry standards, EXHAUSTO is one of the absolute leaders of the field.

www.exhausto.com

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