

Technical Information

Vent*R* Vent*C*

Ventilation



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Vent*R* Vent*C*

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General description

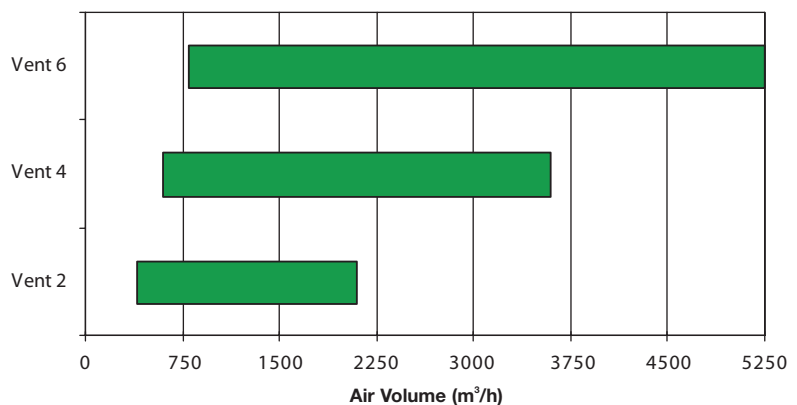


The VentC and VentR ventilation systems are a range of standard ventilation units, primarily designed for comfort ventilation, in both industrial and commercial applications. The units are supplied as packaged ventilation systems complete with control. These ventilation units are available with rotary heat exchanger (VentR) or cross flow heat exchanger (VentC).

Great importance has been put into designing these units with a low internal pressure drop; as well as a low specific energy consumption in conjunction with frequency-controlled plug fans.

All units are supplied as complete units. The biggest model can be separated into three parts, allowing easy manoeuvrability into installations with limited access.

The built-in control system is based on microprocessors and controlled via an easy-to-see control panel with 14 fields. The control system monitors all important functions of the ventilation plant, such as fans, heat exchangers, temperature, air volume, running hours, as well as other internal and external functions. Alarms for filter and function errors are shown on the display.



The selection chart shows the maximum and minimum air flow rates for the VentR/C 2 to 6.

For a quick selection you can use the technical data from section 5 in this catalogue, but we always recommend using our selection program for a more precise technical calculation.

Which heat exchanger to choose?

Rotary heat exchangers are particularly suitable for comfort ventilation where high efficiency and small dimensions are required. An advantage of the high efficiency is that an extra re-heat coil can be left out, thus reducing the installation costs. (See chapter 5: Technical data).

The cross flow heat exchangers are primarily used in places where the fresh air should not get into contact with the exhaust air. Therefore cross flow heat exchangers are especially suitable for industrial use and for ventilation of humid rooms such as changing rooms and bathrooms.

Description of units

Construction



The cabinet is designed as a load-bearing construction with double-skinned cover panels with 50 mm insulation. All internal partition walls are double-skinned panels with 30 mm insulation. The insulation is mineral wool. All internal and external cover panels are hot-dip galvanized to obtain good protection against corrosion.

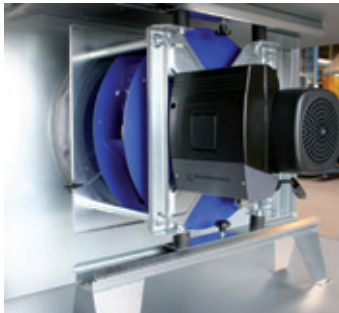
To facilitate access to the unit, the cabinet is fitted with inspection covers with strong hinges and handles.

The cabinet construction complies with class A of EN 1886.

The Vent unit is delivered in one complete unit. The Vent 6 can be separated in three parts: Fan section, filter section, and heat exchanger section. Once installed these three parts are assembled to one section by means of special fittings.

The models of the Vent range are also suitable for outdoor installation due to the sturdy construction. Outdoor installation requires a roof covering which is available as an optional extra.

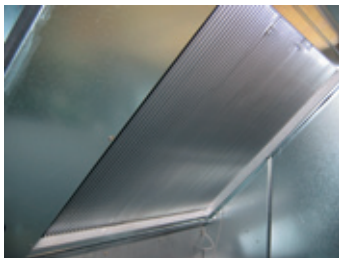
Fans



All Vent units are supplied with highly efficient plug fans with low dynamic pressure drop. The fan shaft is connected to an energy-saving frequency-convertible motor by means of a taper lock sleeve. The fan is fitted with a pressure gauge constantly monitoring the air volume and adjusting it to the required value.

The fans are balanced/calibrated at the factory and fans and motors are mounted by means of flexible straps inside the cabinet. The fans are fastened with finger screws, which can be loosened to remove the fans for inspection and cleaning.

Cross-flow heat exchangers



The VentC cross-flow heat exchanger is made of aluminium and is permanently fixed in the cabinet. Dependent on the air conditions the efficiency at nominal air volumes can be over 60%.

To utilise the possibility of free cooling in the summer, the heat exchanger has been fitted with by-pass dampers. This will allow fresh air from outside being diverted directly into the space to be cooled without being heated up in the heat exchanger. The by-pass damper is modulating and its function is controlled by the built-in control system.

A stainless steel condensate drain tray is fitted on the exhaust air side for collection of any moisture. The condensate drain is placed on the access side.



Rotary heat exchanger

The rotary heat exchanger, which is used in the VentR range, is a non-humidity transferring type (non-hygroscopic) with over 80% temperature efficiency at nominal air volumes.

A frequency-controlled motor, increasing, or decreasing the speed of the rotor dependent on the heating requirement, controls the heat output. If colder air from outside is required for cooling the room air, the rotor is stopped automatically to avoid unnecessary heating of the fresh air (free cooling).

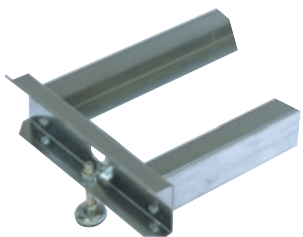
The rotary heat exchanger is supplied with a purge zone. A purge zone in the fresh air section minimizes the transfer of polluted exhaust air to the fresh air. The purge zone only functions if the static pressure on the fresh air side is different from the static pressure on the exhaust side. Therefore, a choke damper is available for setting the correct differential pressure.



Filters

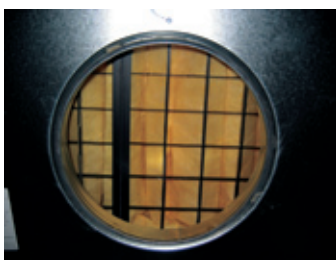
The Vent units are supplied with EU7 bag filters on the fresh air side and EU5 bag filters on the exhaust air side.

The filters are held in position with an eccentric clamping mechanism, which gives a perfect seal.



Base frame

A base frame is standard for all VENT units and is fabricated from hot-dip galvanized steel plate. To counteract any unevenness in the floor, the frames can be supplied with height-adjustable feet.



Duct connection

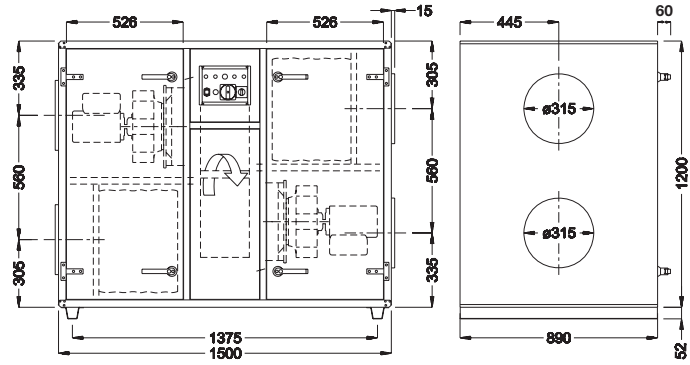
All the Vent units except the VentC6 and VentR6 are supplied with circular duct connections with a rubber sealing gasket, allowing a positive seal in the connection to the duct.

The air inlet spigots on VentC6 and VentR6 have rectangular duct connections, providing good air distribution through the filters.

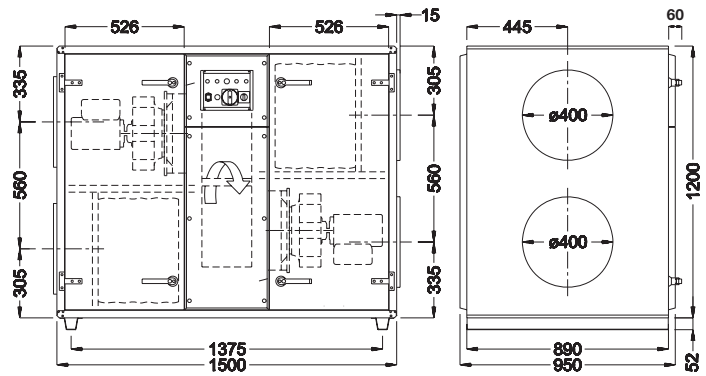
The exhaust air spigots on VentC6 and VentR6 are circular and fitted with nipple and rubber sealing.

Dimensions and weights

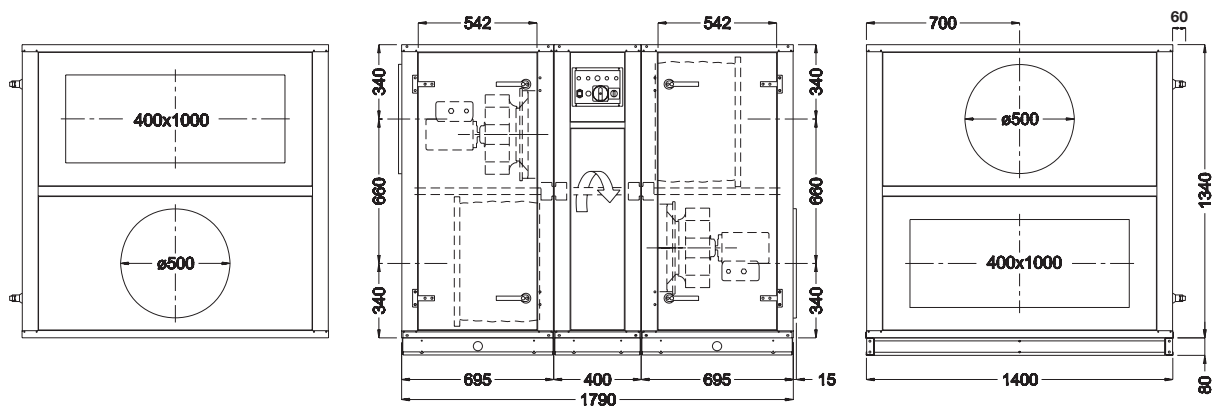
VentR2



VentR4



VentR6

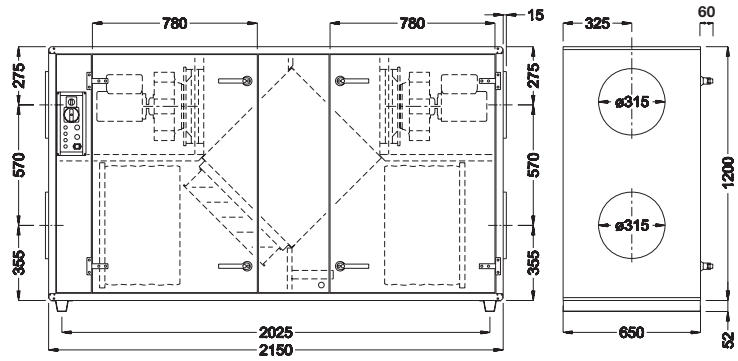


Weight:

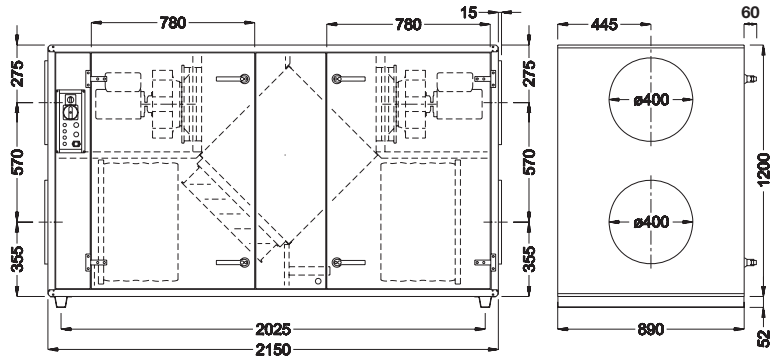
Vent	kg
R2	260
R4	280
R6	490

All dimensions are in mm.

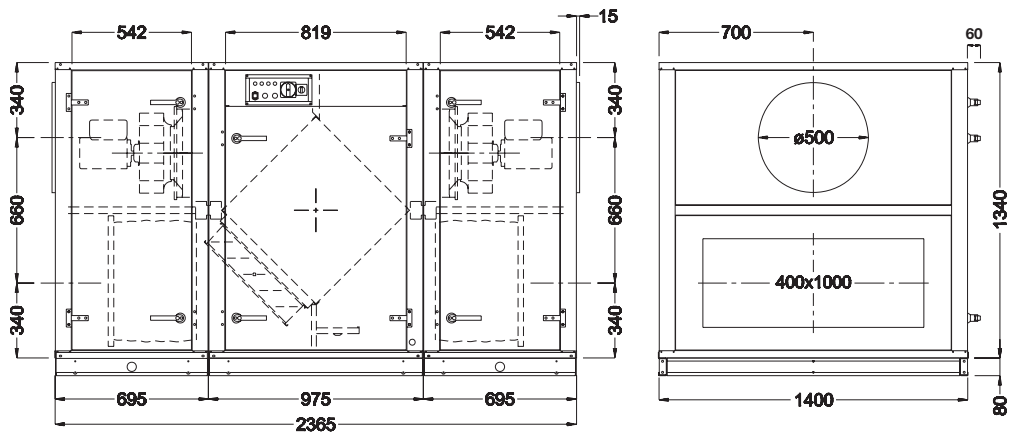
VentC2



VentC4



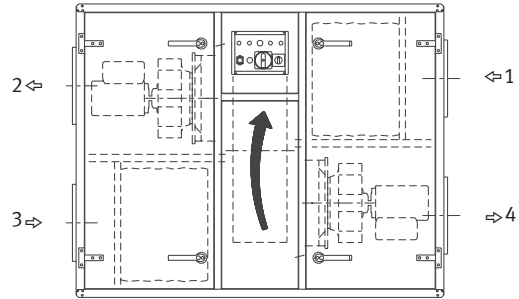
VentC6



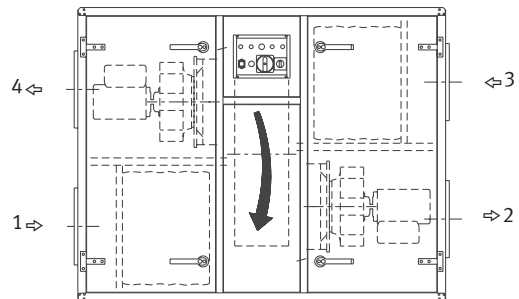
Weight:

Vent	kg
C2	280
C4	330
C6	550

Variants

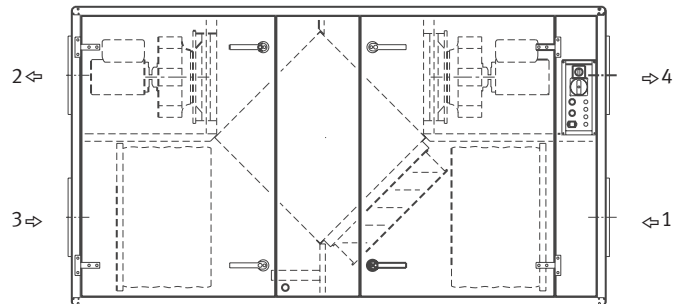


VentR right-handed *

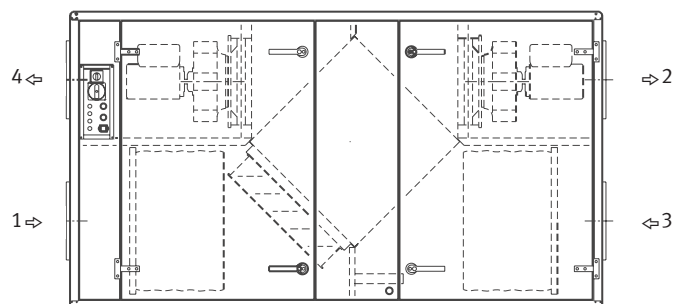


* VentR unit has to be converted by software to right hand.

VentC left-handed



VentC right-handed



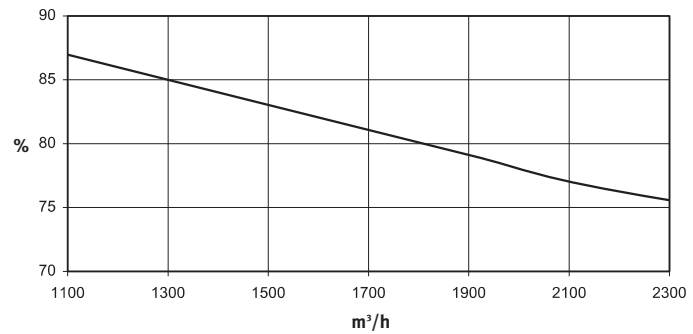
1=Fresh air 2=Supply air
3=Return air 4=Exhaust

Technical data

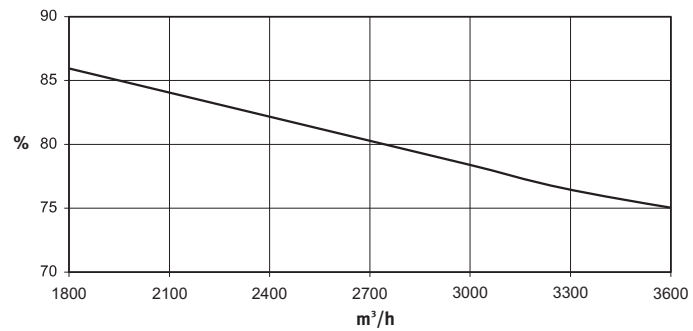
VentR temperature efficiency

The temperature efficiencies of the VentR rotary exchangers are shown in the diagrams below. The efficiencies indicated are for identical quantities of fresh air and exhaust air.

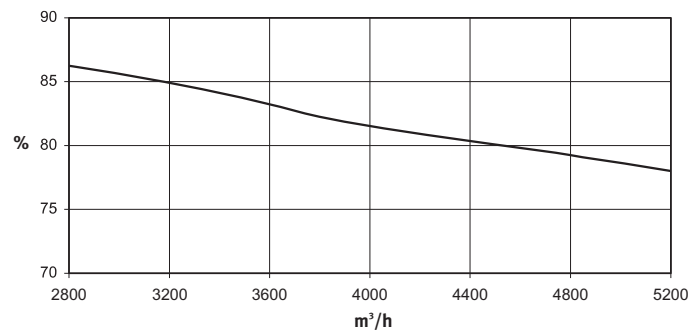
VentR2



VentR4



VentR6

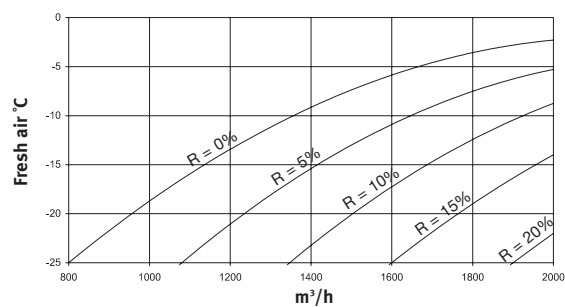


Technical data

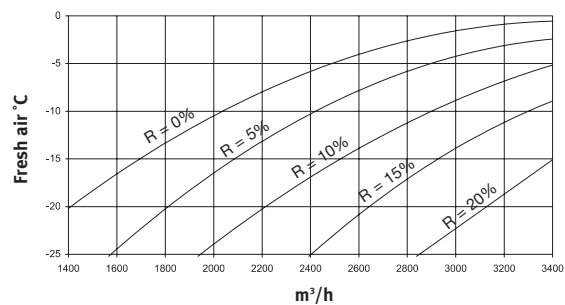
VentR fresh air reduction

Owing to the high efficiency of the rotary exchangers in the VentR units, it is not necessary to fit a re-heating coil if the room to be ventilated has an additional heat source. If, at low outside temperatures, the supply air temperature should drop to below the value set on the display, the fresh air volume will be gradually reduced until the chosen minimum supply air temperature has been reached. The exhaust air volume, however, remains constant. The diagrams below show from what outside temperatures the reduction takes place and the size of the reduction in relation to the outside temperature. The conditions are calculated on the basis of exhaust air temperatures of 23°C and supply air temperatures of 18°C.

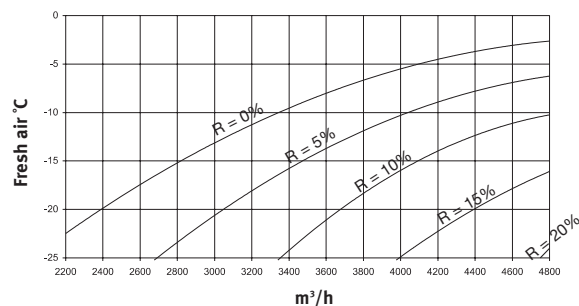
VentR2



VentR4



VentR6



R = Reduction of fresh air quantity.

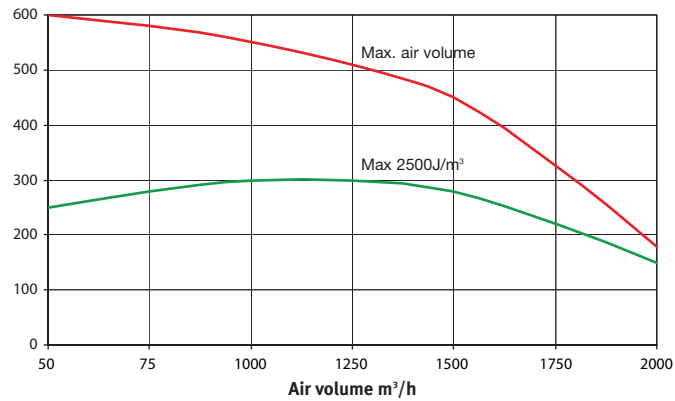
Technical data

VentR air volume

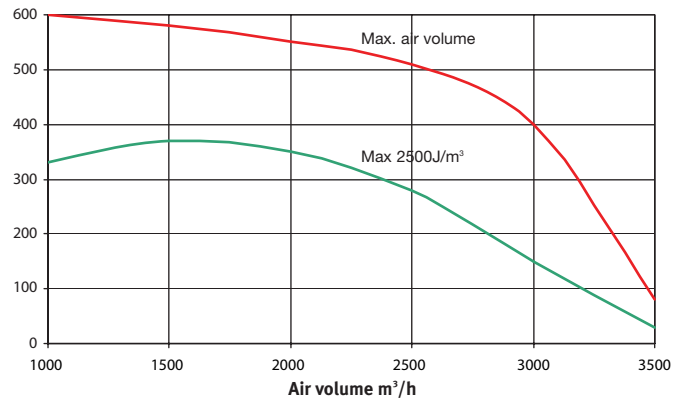
The diagrams are showing the max. air volume of the unit (red line) and the max. air volume at a specific fan performance (SFP value) of 2500 J/m³ (green line).

For exact technical data of the VentR units, as SFP value, noise level and all the extra components, please use our selection program which can be downloaded from our homepage.

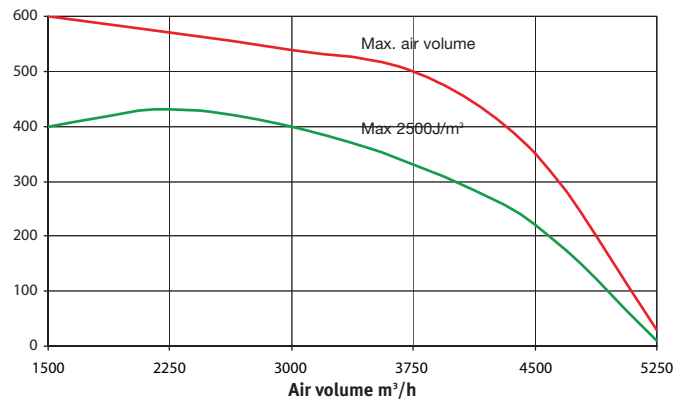
VentR2



VentR4



VentR6

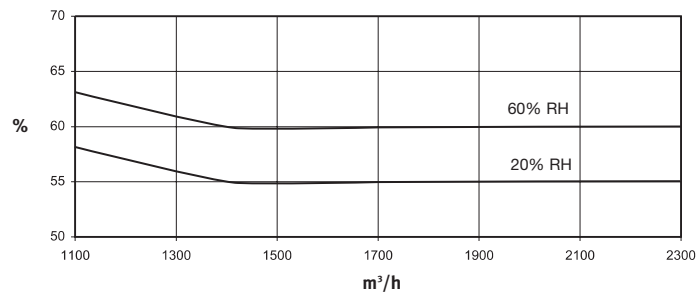


Technical data

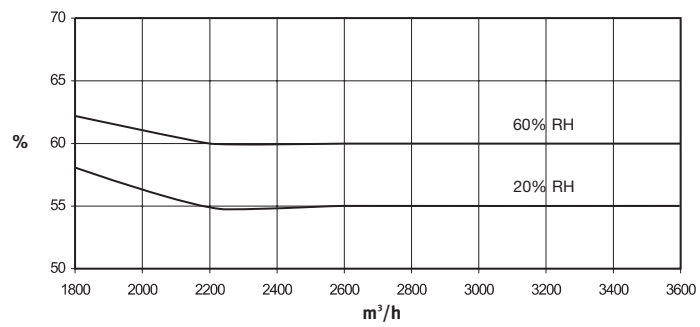
VentC temperature efficiency

The temperature efficiencies of the VentC cross flow heat exchangers are shown in the diagrams below. The efficiencies depend on the humidity of the outlet air and are indicated for dry operation (20% RH) as well as wet operation (60% RH). The efficiencies indicated are for identical quantities of fresh air and exhaust air.

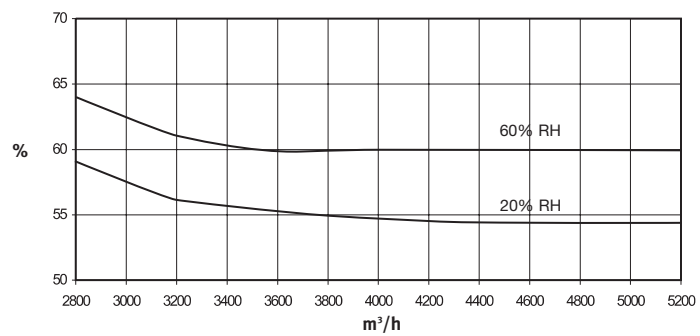
VentC2



VentC4



VentC6



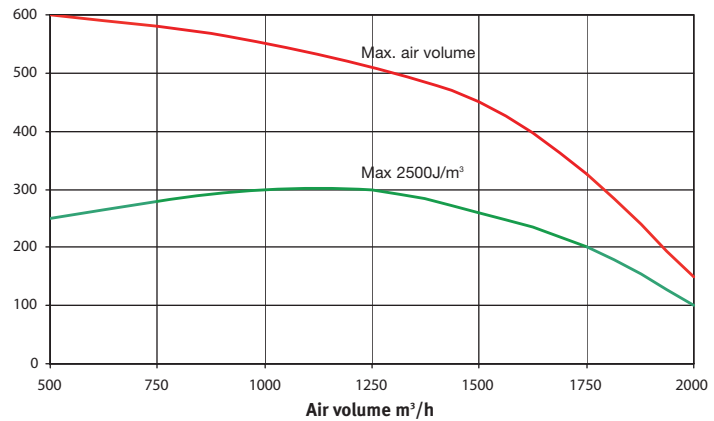
Technical data

VentC air volume

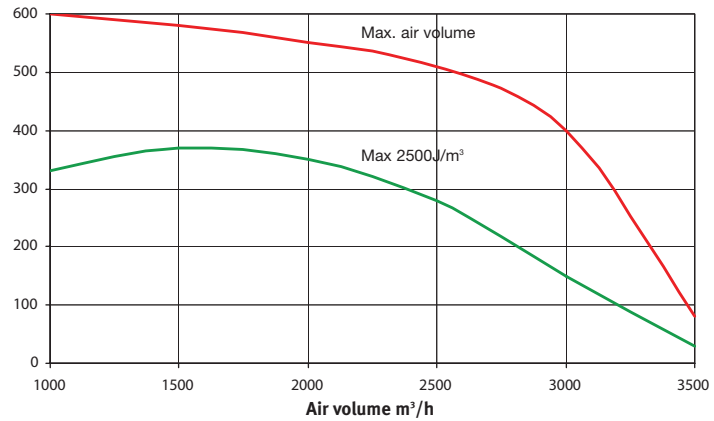
The diagrams are showing the max. air volume of the unit (red line) and the max. air volume at a specific fan performance (SFP value) of 2500 J/m³ (green line).

For exact technical data of the VentC units, as SFP value, noise level and all the extra components, please use our selection program which can be downloaded from our homepage.

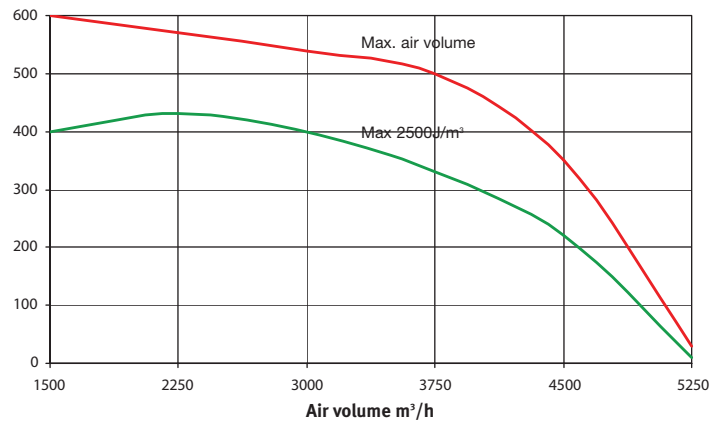
VentC2



VentC4



VentC6



Technical data

All wires are pre-connected inside the units which are tested at the factory. Power supply is via permanent electrical connection.

External functional parts such as damper motor and valve motor for water heating are connected to 24V in the Vent unit. Electrical heating coils require separate power supply of 3 x 400V.

VentR2

Electrical connection, standard:	400V-2P-N / 50 Hz, 10A
Electrical connection, alternative:	230V-1P-N / 50 Hz, 10A
Fan motor:	230V-1P-N / 50 Hz, 0,55 kW
Rotor motor:	230V-1P-N / 50 Hz, 0,1 kW

VentR4

Electrical connection, standard:	400V-2P-N / 50 Hz, 10A
Electrical connection, alternative:	230V-1P-N / 50 Hz, 20A
Fan motor:	230V-1P-N / 50 Hz, 1,1 kW
Rotor motor:	230V-1P-N / 50 Hz, 0,1 kW

VentR6

Electrical connection, standard:	400V-2P-N / 50 Hz, 16A
Electrical connection, alternative:	230V-1P-N / 50 Hz, 25A
Fan motor:	230V-1P-N / 50 Hz, 1,4 kW
Rotor motor:	230V-1P-N / 50 Hz, 0,1 kW

VentC2

Electrical connection, standard:	400V-2P-N / 50 Hz, 10A
Electrical connection, alternative:	230V-1P-N / 50 Hz, 10A
Fan motor:	230V-1P-N / 50 Hz, 0,55 kW

VentC4

Electrical connection, standard:	400V-2P-N / 50 Hz, 10A
Electrical connection, alternative:	230V-1P-N / 50 Hz, 20A
Fan motor:	230V-1P-N / 50 Hz, 1,1 kW

VentC6

Electrical connection, standard:	400V-2P-N / 50 Hz, 16A
Electrical connection, alternative:	230V-1P-N / 50 Hz, 25A
Fan motor:	230V-1P-N / 50 Hz, 1,4 kW

Earth leakage circuit breaker

If an earth leakage circuit breaker (ELCB) is used as additional protection, it must be of the type that trips out when earth fault currents with DC content (pulsating DC) occur. The earth leakage circuit breakers are marked with the following symbol:





Control system

All the Vent units are delivered complete with all necessary cables and micro-processor controls. Only the control panel and external components, if any, (see Accessories) are to be connected to the Vent unit.

All necessary functions such as air volume, temperature and other control functions as well as safety and alarm functions are automatically controlled by the built-in control system.

In the VentC range, the control panel is located beneath the fresh air filter and in the VentR range, the control panel is located above the rotary heat exchanger. All internal and external components are connected to this control panel.

Display and supply air sensors, which are standard equipment, are connected to the Vent control system by means of a plug. Water heating coil and frost thermostats, which are available as extra accessories, are also plug-connected. All other external accessories are connected direct to the Vent unit's control panel.

The communication module, which is available as an extra accessory, can be connected to the Vent unit by means of a plug, or it can be connected direct to the control display.

A manual contact on the Vent unit allows the unit to be started manually, immediately after the electrical installation has been carried out – even without any prior programming. Neither the display nor the communication module needs to be connected. The unit will then function in accordance with the factory-set program.

Control panel

The control panel is built into a sturdy aluminium cabinet, which can be fitted on the wall by means of a DIN-rail. The display is fitted with a standard 10m cable. A 25m extension lead is available as extra accessory.

The display, which has 14 lines, shows four main menus with full text. When activating a main menu all sub-menus with their full text will show up. In this way it is possible to see exactly which main menu you are working in and, due to the comprehensive text, all the necessary settings can be made even without any previous knowledge.

The control system of the Vent units is split into three levels, of which two – the factory level and the engineer level – are accessible solely by using a special code. Only the user level is freely accessible.

The integrated programme clock (integral programme timer) has 20 steps for pre-programming/setting required air volume, temperature, hour, and day details. The weekday can be set as individual days, a working week, a weekend and full week (7 days).



Temperature control

General

The Vent control system maintains the required temperature at a constant level by means of the by-pass (VentC) or the rotor speed of the rotary heat exchanger (VentR) as well as after heating coil and cooling coil, if such coils are fitted.

Additional after heating coil

If the heat recovery of the heat exchanger is not high enough at low outdoor temperatures, the after heating coil, if fitted, will receive a 2-10 V signal from the control system. Furthermore the control system will send a start signal to a circulation pump, if it is mounted.

Free cooling

If the heat recovery of the heat exchanger is too high, and the outdoor temperature is lower than the room temperature, the by-pass will open up slowly (VentC) or the rotor speed of the rotary heat exchanger will decrease slowly (VentR).

Cold recovery with extra cooling

If the outdoor temperature is higher than the room air temperature and therefore no free cooling possible, the by-pass closes again (VentC) or the rotor speed of the rotary heat exchanger (VentR) increases. A 2-10V signal will be sent to a water cooling coil, or an ON/OFF signal to a compressor to start the external mechanical cooling.

Three ways of adjusting the temperature

Generally there is a choice between three different temperature functions. These functions are chosen in the configuration menu, which is only accessible by using a code.

Combined control of supply and room air temperature

The desired temperature is controlled by the supply air sensor or the return air sensor dependent on the outdoor temperature. In the winter season (outside air temperature under 15°C) the control system functions as a supply air temperature control. In the summer season (outside air temperature over 15°C) the control system functions as a room air temperature control.

This kind of control is recommended in locations with separate heat sources, such as radiators. The advantage is that the temperature control in winter does not change over to free cooling if the room temperature is high – thus working against the heat source. Another advantage is that this kind of control allows free cooling in summer.

Control of room air temperature

The built in return air sensor measures the room air temperature and adjusts it according to the actual and required temperatures.

Control of supply air temperature

The supply air sensor mounted in the supply duct measures the supply air temperature and adjusts it according to the actual and required air temperatures.

Other methods of temperature control

Beyond the above-mentioned general systems of temperature control Dantherm offers several extra temperature functions:

Minimum/maximum supply air temperature

If a room air temperature control is chosen, the desired minimum supply air temperature can be set. The maximum supply air temperature is pre-programmed at 40°C and cannot be changed.

The VentR units are fitted with very efficient heat recuperators and therefore it is not necessary to fit additional after heating coils, if the room to be ventilated has an extra heat source. On cold days, the supply air temperature may fall below the preset temperature shown on the display. In that case the amount of fresh air will be gradually lowered until the preset minimum supply air temperature is reached. The amount of return air remains constant, however. This function can be switched on or off on the control panel. The diagrams in chapter 5 Technical data VentR show how much the amount of fresh air is reduced compared to the outdoor temperature.

Night cooling in summer

If cold outside air is required for room cooling in summer, this function can be chosen on the display. If the room air temperature falls to 2°C below the preset temperature, the Vent unit stops automatically. A separate room air sensor is required for the correct use of this function.

Override of the preset temperature

The preset air temperature can be overridden by means of an external 2-10V control signal which is connected direct to the control circuit board.

Control of the air volume

General

The preset air volume is monitored by a pressure transmitter and is adjusted by means of a frequency converter. In this way it is possible to obtain any specific air volume falling within the technical possibilities of the built-in fan (see diagram).

	Min. m ³ /h	Max. m ³ /h *
Vent2	400	2200
Vent4	600	3500
Vent6	800	5200

* only possible without automatic filter test.

Three ways of controlling the air volume

Generally, there is a choice between three different air-adjusting functions. These functions are chosen in the configuration menu, which is only accessible by using a code.

Constant air volume

It is possible to pre-programme any air volume in each of the 20 steps of the programme timer. The pre-programmed air volume will be kept constant and the actual air volume is shown on the display.

Forced air volume

The pre-programmed air volume can be overridden by means of a 2-10V control signal. Two different sensors are available for this function: CO₂ sensor and humidity sensor (see under Accessories).

If the required value, which is pre-set on the display, cannot be achieved within the normal air volume, the air volume must be increased slowly. Once the required value is achieved, the air volume falls again slowly to the starting point.

Humidity is controlled by the outside air and not automatically. Therefore this kind of dehumidification can only be used in cases where the humidity content of the room air is higher than the humidity content of the outside air, as for instance in shower rooms and changing rooms.

Variable air volume control

It is possible to maintain a constant pressure in the duct system by means of a pressure sensor (see Accessories). The desired value is set on the display. The built-in pressure sensor is then only used for reading the actual air volume.

Other methods of adjusting the air volume

Compensation for dirty filter

Dirty filters will normally increase the pressure drop and result in reduced air volumes. It is possible to set the reduced air volume by means of a frequency converter thus allowing the unit to work with a constant air volume no matter how dirty the filters are.

Additional control functions

In addition to the control functions for temperature and air volume described above Dantherm offers the following useful functions.

Manual operation

Temperature, air volume and length of manual operation can be entered into a separate point of the menu. Pressing the button “Manual” on the display activates manual operation, and the manual operation then overrides the pre-programmed values. After the programmed period for manual operation has expired, the unit switches automatically back to the actual timer programme.

P.I.R. sensor

The values, which are preset in the timer programme, can be overridden by means of a P.I.R. sensor. When a person enters the room, the unit switches over to manual operation and this can be programmed into the matching menu point on the display. When no more movements are registered and after the programmed time limit has expired, the control returns to normal running mode.

Filter guard

Filters are constantly monitored. The desired differential pressure drop through filters can be pre-set in a separate menu. When exceeding the set pressure loss, a “dirty filter” alarm will appear on the display.

Electronic filter monitoring is not possible in VAV operation where only mechanical filter guards can be used.

Purge zone in VentR units

The purge zone in VentR units minimises the risk of dirt in the air ducts of the rotary exchanger. If heat recovery is not required, the rotary heat exchanger stops and this standstill may lead to air ducts on the return air side getting dirty. Therefore the rotary heat exchanger turns round at full speed for a short while at fixed intervals.

Cooling

If installation of a cooling plant is required, the control system of the unit can send a 2-10V signal or an ON/OFF signal to the external cooling plant. See section about “Temperature control”.

Control of circulation pump

In addition to controlling the water heating coil, the ON/OFF signal from the Vent control system can also be used to control a circulation pump.

Alarm function

If the unit stops because of a failure, an alarm will appear on the display stating the reason for the failure and a red light diode flashes. If it is a less serious failure, such as a filter failure, the unit will continue and only a yellow light diode will indicate the alarm.

Previous alarms are saved in the memory with reason and date being shown on the display.

Communication

For connecting the Vent unit to a master control system, two different communication modules can be offered:

STIO module

This communication module can be connected to every BMS system as it operates with standard digital and analog in- and outlets. The following parameters can be set or read:

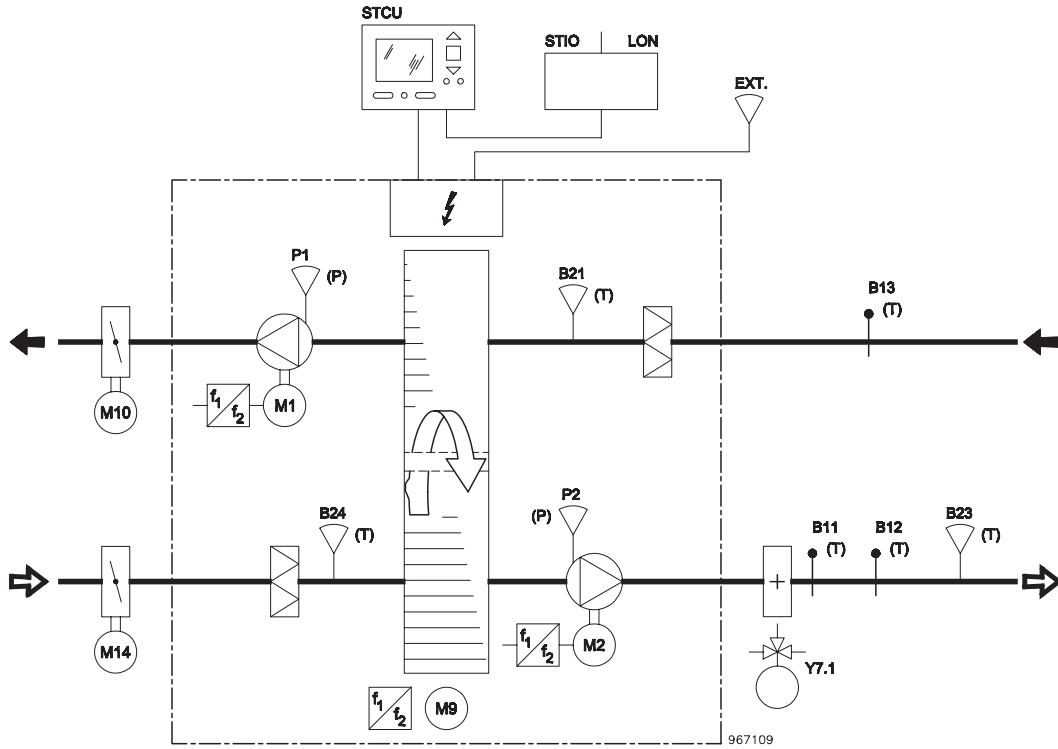
Parameter	
Night cooling/summer	Set
Temperature control method	Set
Air humidity	Set
Running mode AUTO / 0 / MAN	Read
Reheat running	Read
Fresh air filter failure	Read
Critical failure on unit	Read
Rotary heat exchanger failure	Read
Min. supply air temperature	Read
Fresh air volume	Read/Set
Air temperature	Read/Set
CO2 or duct pressure at VAV control	Read/Set

LON Works module

With this communication module the Vent unit becomes a node in the LON network. The communication takes place with network variables (SNVT). The following parameters can be set or read:

Parameter	
Time/Date	Set
Running time in override mode	Set
Temperature in override mode	Set
Air volume in override mode	Set
Night cooling/summer	Set
Fresh air reduction	Set
Temperature control method	Set
Temperature override	Set
Override mode (Extended operation)	Set
Running mode AUTO / 0 / MAN	Set
Running hours	Read
Reheat demand	Read
Preheat demand	Read
Cooling demand	Read
Damper setting	Read
Energy recovery	Read
Return air temperature	Read
Outdoor temperature	Read
Fresh/Return air filter failure	Read
Preheat failure	Read
Reheat failure	Read
Supply/Exhaust fire failure	Read
Supply/Exhaust fan failure	Read
Supply/Exhaust flow failure	Read
Supply/Return/Outdoor sensor failure	Read
Rotary heat exchanger failure	Read
Min. supply air temperature	Read/Set
Air humidity	Read/Set
CO2 or duct pressure at VAV control	Read/Set
Fresh/Return air volume	Read/Set
Air temperature	Read/Set

Flow diagram VentR



- B11 Frost thermostat water heating coil*
- B12 Fire thermostat supply air*
- B13 Fire thermostat return air*
- B21 Temperature sensor return air
- B23 Temperature sensor supply air duct
- B24 Temperature sensor supply air

- EXT. External sensor
External air quality sensor*
External person sensor*
External humidity sensor*
External pressure sensor for VAV control*

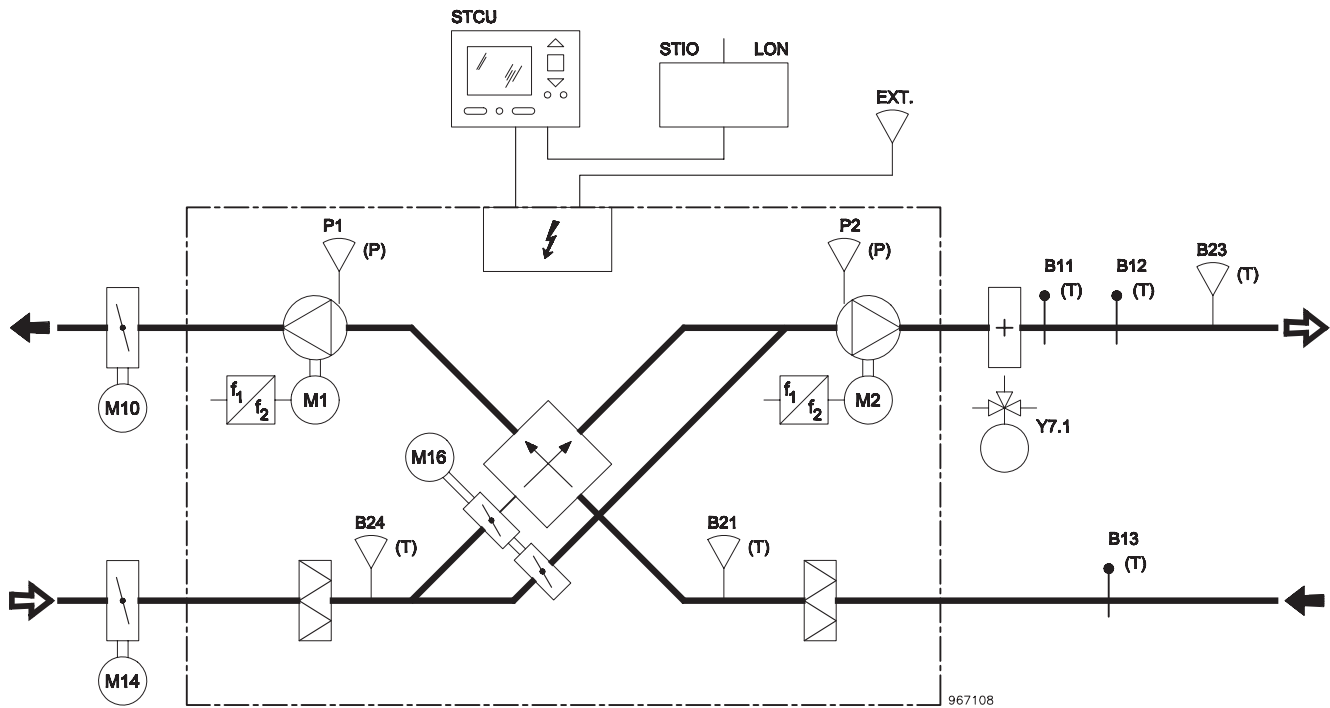
- M1 Fan motor with frequency converter (f1/f2), return air
- M2 Fan motor with frequency converter (f1/f2), supply air
- M9 Motor for rotary heat exchanger, with frequency converter (f1/f2)
- M10 Motor for multi-leaf damper, return air*
- M14 Motor for multi-leaf damper, supply air*

- P1 Pressure transmitter, return air fan
- P2 Pressure transmitter, supply air fan

- STCU Control display
- STIO Communication module*
- LON LON module*
- Y7.1 3-way valve with actuator motor for heating coil*

* Accessory

Flow diagram VentC



- | | |
|------|--|
| B11 | Frost thermostat water heating coil* |
| B12 | Fire thermostat supply air* |
| B13 | Fire thermostat return air* |
| B21 | Temperature sensor return air |
| B23 | Temperature sensor supply air duct |
| B24 | Temperature sensor supply air |
| EXT. | External sensor
External air quality sensor*
External person sensor*
External humidity sensor*
External pressure sensor for VAV control* |
| M1 | Fan motor with frequency converter (f1/f2), return air |
| M2 | Fan motor with frequency converter (f1/f2), supply air |
| M10 | Motor for multi-leaf damper, return air |
| M14 | Motor for multi-leaf damper, supply air |
| M16 | Motor for damper, by-pass |
| P1 | Pressure transmitter, return air fan |
| P2 | Pressure transmitter, supply air fan |
| STCU | Control display |
| STIO | Communication module* |
| LON | LON module* |
| Y7.1 | 3-way valve with actuator motor for heating coil* |

* Accessory

Accessories - the unit

In order to supply as complete a unit as possible various accessories are offered. In addition to those mentioned below, sound absorbers and cooling coils are also available. These parts, however, are tailor-made on the customer's request and are therefore not mentioned in the accessory programme. If such parts are required, please contact your Dantherm dealer.

Reheat coils for electricity

The electric reheat coils are designed for installation in the supply air duct. The heating coil is provided with duct connections with a rubber sealing gasket for fitting onto the duct connections of the Vent unit.

The heating coils are not suitable for outdoor installation.

The heating coil is controlled by the Vent control system and is supplied ready-mounted with cables and LIMIT and OT thermostats. The coils are connected to the control current of the Vent unit by means of cable and plug supplied with the coil. Connection to main current is made separately. If the OT thermostat switches off the unit, an alarm will appear on the control display.



Capacity

		Vent2	Vent4	Vent6
Heat output	KW	7,5	12	17
Temperature rise*	K	13,2	13,3	12,1
Running current 3 x 400V	A	10,9	17,3	24,5
Running current 3 x 230V	A	18,9	30,1	42,7

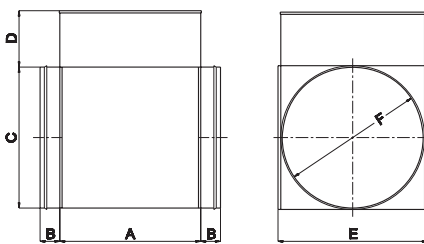
* At nominal air volumes 1700/2700/4200 m³/h

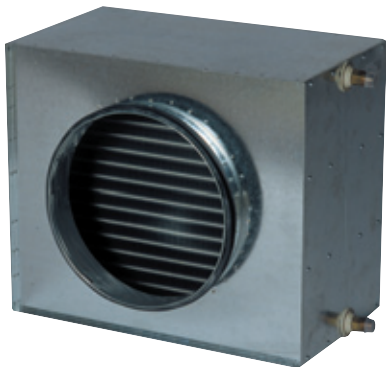
Pressure loss

The re-heating coils for electricity are un-finned and therefore the resulting air pressure drop is negligible.

Dimensions and weights

Vent	A	B	C	D	E	F	Kg
2	278	42	314	71	315	314	19
4	500	70	400	200	440	400	25
6	500	70	500	200	540	500	35





Reheat coil for water

The reheat coil is designed for installation in the supply air duct. The heating coils are provided with duct connections with a rubber sealing gasket for fitting onto the duct connection of the Vent unit. The heating coils are fabricated from copper tubing with aluminium fins and threaded steel headers. The coil housing is made of hot-dip galvanized steel plate.

The water heating coils are complete with frost thermostat. They are connected to the control current of the Vent unit by means of cable and plug supplied with the coil. If the frost thermostat switches the unit off, an alarm will appear on the control display.

Capacity:

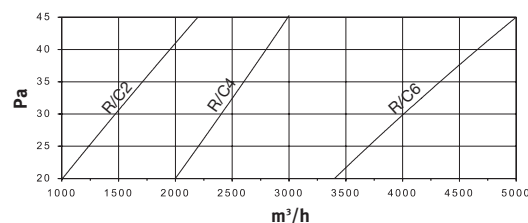
		Max. capacity				Supply air temp. 21°C			
		80/60°C		82/71°C		80/60°C		82/71°C	
Vent C/R2									
Air volume	m ³ /h	1100	2000	1100	2000	1100	2000	1100	2000
Air temp. out*	°C	42,2	35,2	47,1	39,3	21,0	21,0	21,0	21,0
Heat output	KW	12,0	17,1	13,8	19,9	4,1	7,5	4,1	7,5
Water flow	L/h	504	720	1080	1548	144	288	288	576
Resistance	KPa	3	5	10	19	1	1	1	2

		Max. capacity				Supply air temp. 21°C			
		80/60°C		82/71°C		80/60°C		82/71°C	
Vent C/R4									
Air volume	m ³ /h	2250	3150	2250	3150	2250	3150	2250	3150
Air temp. out*	°C	40,2	36,3	44,8	40,5	21,0	21,0	21,0	21,0
Heat output	KW	23,1	28,1	26,5	32,5	8,4	11,7	8,4	11,7
Water flow	L/h	972	1188	2052	2520	360	504	648	900
Resistance	KPa	4	6	16	23	1	1	1	2

		Max. capacity				Supply air temp. 21°C			
		80/60°C		82/71°C		80/60°C		82/71°C	
Vent C/R6									
Air volume	m ³ /h	2800	4900	2800	4900	2800	4900	2800	4900
Air temp. out*	°C	43,0	36,6	47,7	40,3	21,0	21,0	21,0	21,0
Heat output	KW	31,4	43,8	35,8	50,4	10,4	18,3	10,4	18,3
Water flow	L/h	1332	1872	2772	3924	432	756	792	1404
Resistance	KPa	5	9	17	32	1	1	1	2

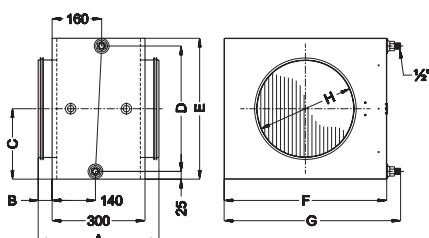
* Air temperature in 10°C

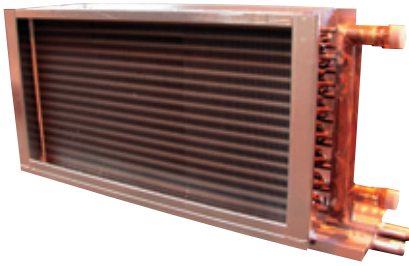
Pressure loss



Dimensions and weights

Vent	A	B	C	D	E	F	G	H	Kg
2	390	45	227	405	455	525	570	315	23
4	410	55	240	430	480	650	695	400	28
6	410	55	352	655	705	775	820	500	34





Cooling coils

Cooling coils for cold water or direct expansion are available as 3 or 4 RR coils. These coils can be ordered with or without an eliminator plate and are ready for duct mounting. They are dimensioned to match the standard cooling needs. If a different cooling capacity or dimension is needed, please contact your Dantherm dealer for calculation of such a coil.

Capacities for DX coils

3RR Air in 27°C / 60% - Air out 17°C

Vent	m ³ /h	Pa	KW*
2	900	23	4,9
4	1700	36	10,6
6	2700	31	16,9

4RR Air in 27°C / 60% - Air out 17°C

Vent	m ³ /h	Pa	KW*
2	1700	104	10,6
4	2700	113	16,9
6	4600	111	28,7

* Evap. Temp. +7°C R407c

Capacities for cold water coils

3RR Air in 27°C / 60% - Air out 17°C

Vent	m ³ /h	Pa	KW*	1/s	kPa
2	1000	29	6,3	0,26	7,8
4	1700	36	9,3	0,37	2,8
6	2700	31	17,0	0,68	16,8

4RR Air in 27°C / 60% - Air out 17°C

Vent	m ³ /h	Pa	KW*	1/s	kPa
2	1700	106	10,7	0,43	12,5
4	2700	114	17,0	0,68	10,5
6	4500	108	28,3	1,13	23,0

* Water temp. +6/12°C

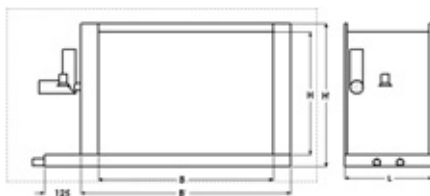
Dimensions and weight

3RR

Vent	H	H`	B	B`	L	kg
2	300	372	550	670	300	11
4	420	492	600	720	300	16
6	480	552	900	1020	300	21

4RR

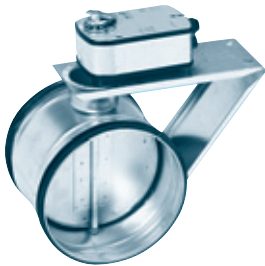
Vent	H	H`	B	B`	L	kg
2	300	372	550	670	330	14
4	420	492	600	720	330	18
6	480	552	900	1020	330	27





Motor valve with actuator for LPHW coils

Depending on the water volume, a range of two or three way valves can be supplied together with actuator for controlling the LPHW heating coils. These valves are controlled by a 2-10 V signal from the Vent control. The actuator will be connected directly to the terminal strip on the heating coil.

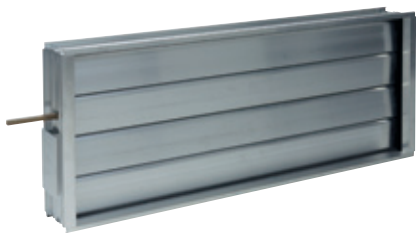


Shut off damper

These dampers are used as shut-off dampers when the VENT unit is not in use, thus preventing cold outside air getting into the building. The damper is prepared for building into a duct and can be fitted with an on/off actuator.

Flue gas damper

This damper is used in cases where a flue gas damper is specified. This damper fulfills the requirements for air tightness class 4. The flue gas damper is prepared for building into a duct and can be fitted with an on/off spring-return actuator.



Square multi-leaf damper

This multi-leaf damper can be used directly on the air inlet ducts of the Vent6 unit as a shut-off damper. This multi-leaf damper can be fitted with an on/off or an on/off spring-return actuator.

LS rail for Vent6 duct connection

The air inlet ducts on the Vent6 can be fitted with a frame with LS rails to facilitate connection to ducts.



Adjustable feet for frame

To counteract any unevenness in the floor, the frame can be fitted with height – adjustable feet.

Roof cover

If the VENT units are to be placed outdoors, they are supplied with a roof cover of hot-dip galvanized steel sheet. The roof cover is supplied in one piece and is fitted to the unit using machine screws, supplied.



Accessories - control system

Accessories - control system

In most cases the standard functions built into the control system are sufficient. If further functions are required, a range of accessories are available, further increasing the many options of the control system.



STIO communication module

The STIO is a module for linking the Vent protocol to a master control system. It is insertion between unit and control panel. Using the communication module it is possible to opt out the normal control panel, if required. For an exact technical description of the communication module you are referred to the section "Control Systems".



LON Works communication module

With this communication module the Vent unit becomes a node in the LON network. The communication takes place with network variables (SNVT). It is insertion between unit and control panel. Using the communication module it is possible to opt out the normal control panel, if required. For an exact technical description of the communication module you are referred to the section "Control Systems".



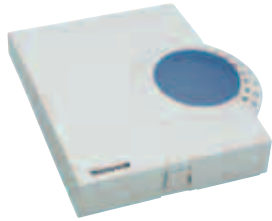
Temperature setting potentiometer

If there is the need for an easy temperature setting, without using the control panel, a temperature setting potentiometer can be connected to the Vent control. With this potentiometer it is possible to change the temperature set point for the Vent unit with a simple dial, without entering the control program of the unit.



Pressostat for control of de-icing the heat exchanger

This pressostat controls the by-pass damper, allowing cold ambient air to be led through the by-pass and past the heat exchanger, while frozen condensate is melting.



Air quality sensor

By means of an air quality sensor it is possible to override the air volume, which is preset on the control panel. If the actual air quality of the room air exceeds the pre-set value, the air volume will be gradually increased by means of an ungraduated control. At the same time it is shown on the control panel display that the pre-set air volume is overridden. This sensor is prepared for wall mounting.



Humidity sensor

It is possible to override the pre-set air volume by means of a humidity sensor. If the relative humidity of the room air exceeds the pre-set value, the air volume will be gradually increased by means of an ungraduated control. At the same time it is shown on the control panel display that the pre-set air volume is overridden.

This humidity sensor is prepared for wall mounting, and not suitable for use in aggressive environments such as chlorine-laden swimming pool air.



Pressure sensor

The pressure in the supply air and exhaust air ducts can be kept at a constant level by means of a pressure sensor. The pressure sensor takes over control of the two fan motors and overrides the two sensors, which are built into the unit. The latter are used to show the unit's actual air volume on the control panel display. This sensor is prepared for duct mounting.



P.I.R. sensor

The values, which are preset in the time programme, can be overridden by means of a P.I.R. sensor. When a person enters the room, a sub-menu will automatically appear on the control, where information about required air volume, temperature, and running time can be entered. When no more movements are registered and the overridden programmed time limit has expired, the control returns to normal running mode. This sensor is prepared for wall mounting.



Room air sensor

It is possible to obtain free cooling in the summer, when the ventilation unit is not normally in use (see also section about "Control – summer /night cooling). In case you want to utilize this possibility in the nighttime, a room air sensor is required for correct control of the plant. This room air sensor replaces the exhaust air sensor, which is mounted in the unit. This sensor is prepared for wall mounting.



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HEAD OFFICE

Dantherm Air Handling Holding A/S
 Marienlystvej 65
 DK-7800 Skive
 Tel.: +45 9614 3700
 Fax: +45 9614 3800
 E-mail: dantherm.dk@dantherm.com
www.dantherm-air-handling.com

COMPANIES

DENMARK

Dantherm Air Handling A/S
 Marienlystvej 65
 DK-7800 Skive
 Tel.: +45 9614 3700
 Fax: +45 9614 3800
 E-mail: dantherm.dk@dantherm.com
www.dantherm-air-handling.com

NORWAY

Dantherm Air Handling AS
 Løkkeåsvæien 26
 N-3138 Skallestad
 Tel: +47 33 35 16 00
 Fax: +47 33 38 51 91
 E-mail: dantherm.no@dantherm.com
www.dantherm-air-handling.com

CHINA

Dantherm Air Handling (Suzhou) Co., Ltd.
 Bldg. # 9, No. 855 Zhu Jiang Rd.
 Suzhou New District, Jiangsu
 215219 Suzhou
 China
 Tel.: +86 512 6667 8500
 Fax: +86 512 6667 8501
 E-mail: dantherm.cn@dantherm.com
www.dantherm-air-handling.com



ENGLAND

Dantherm Air Handling Ltd.
 12 Windmill Business Park
 Windmill Road
 Clevedon
 North Somerset BS21 6SR
 United Kingdom
 Tel.: +44 (0) 1275 876851
 Fax: +44 (0) 1275 343086
 E-mail: dantherm.co.uk@dantherm.com
www.dantherm-air-handling.com

USA

Dantherm Air Handling Inc.
 4260 Orchard Park Blvd,
 Spartanburg
 South Carolina 29303-4400
 USA
 Tel.: +1 864 595 9800
 Fax: +1 864 595 9810
 E-mail: dantherm.usa@dantherm.com
www.dantherm-air-handling.com

SWEDEN

Dantherm Air Handling AB
 Virkesgatan 5
 SE-614 31 Söderköping
 Tel.: +46 (0) 121-130 40
 Fax: +46 (0) 121-133 70
 E-mail: infose@dantherm.com
www.dantherm-air-handling.se