TECHNICAL INFORMATION
HCV 300 - 400 - 500 - 700

RESIDENTIAL VENTILATION UNIT FOR WALL INSTALLATION

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HCV 300 - 400 - 500 - 700
Residential ventilation

With reservation for changes and misprints. August 2019.

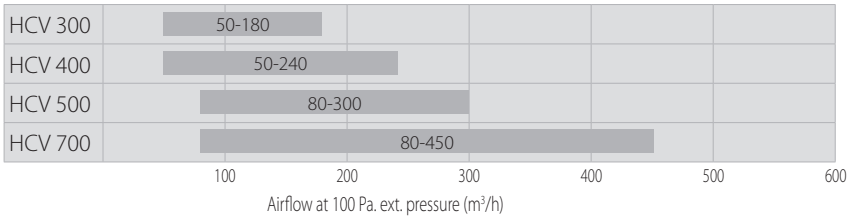
HCV 300-400-500-700 range

GENERAL DESCRIPTION

The HCV 300-400-500-700 residential ventilation units are primarily designed for 1 and 2 family houses. The units are supplied as packaged basic ventilation units complete with built-in control panel, and are delivered with all parts necessary for wall installation. A wide range of additional accessories are available.

The residential ventilation units are fitted with highly efficient counter-flow heat exchangers, which are optimised to a high efficiency level thus achieving a low power consumption (SPI value) for the entire unit.

For a quick selection you can use the selection chart below. The selection chart shows the air volumes at 100 Pa pressure loss.



Model range

The HCV residential ventilation units are vertical models designed for wall-mounting. They meet ventilation requirements of houses up to 450 m² or more, depending on national requirements and the actual pressure loss in the installation.

The HCV 300 unit is perfect for concealed installation instead of a 60x60 cm cupboard modules, e.g. in a modern utility room environment, where everything is hidden behind doors. All ducts are connected to the top of the unit. On the HCV 300 and HCV 400 it is also possible to connect the supply duct to the base if ducts are to run beneath the floor.

HCV 400 fits into a standard 60x60 cm cupboard module.

HCV 500 and HCV 700 are ideal for free wall installation with minimum 700 mm space. A standard wall rail is supplied with all units.

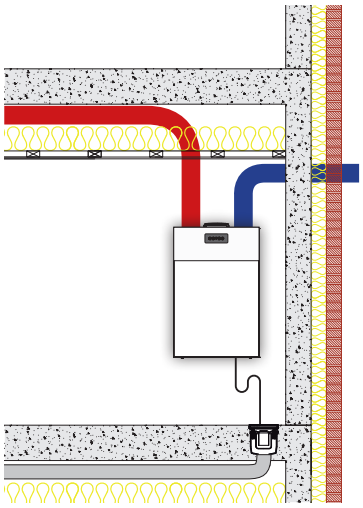
All units are equipped with easy-access filter slots behind the upper front cover. The control panel with LED light indicators is located in an opening in the front cover.

Cabinet

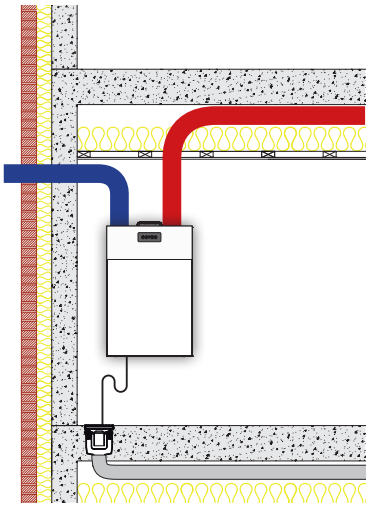
The HCV insulation is made of expanded polystyrene (EPS) components with a minimum wall thickness of 32 mm. This allows the units to be placed in rooms with temperatures as low as +12°C.

The outer surface is made of 0.8 mm Aluzink powder-coated sheet metal and painted in RAL 9016. The HCV series complies with European fire safety requirements as specified in EN 13501 class E.

The leakage rate of the unit (internal and external) is <2% as specified in EN13141-7 leakage class A1.



Left setup (A)



Right setup (B)

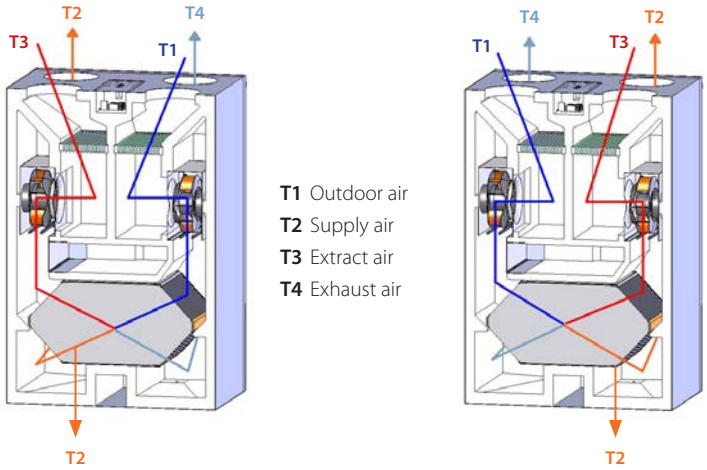
Duct connections

By default, the inside duct connections are placed on the left of the top cover plate on the unit. The unit can be electronically swapped, interchanging the duct connections, so that the inside air duct connection changes to the right hand side of the top cover plate.

This swapping functionality allows the unit to be mounted with the outside ducts connected to either the right or the left hand side of the unit, covering all installation demands with only one type unit.

Note that connecting the supply air duct at the bottom of unit is possible only on HCV 300 and 400 units.

Left setup (A) Right setup (B)



T1 Outdoor air
T2 Supply air
T3 Extract air
T4 Exhaust air

Function

The unit ventilates residential homes by extracting the inside humid air, and replacing it with fresh outside air, which has been heated with the heat energy of the extracted air. This reduces energy consumption.

The air volume can be controlled by:

- Selecting a fixed fan speed from 0-4.
- Demand mode, in which a built in RH sensor continuously adjusts the fan speed depending on any immediate demand, determined by the humidity of the extracted air.
- Week timer program - the fan speed will increase or decrease according to an hourly time schedule, or specific demand.

When very humid inside air is extracted, the humidity will condensate inside the heat exchanger, and be collected by the embedded drip tray. This water is drained from the unit through the enclosed hose and then disposed of in the nearest drainage.

Key Features

- Demand mode in which a built-in RH sensor continuously adjusts the fan speed depending on any immediate demand, determined by the quality af the extracted air.
- 10 different pre-programmed week programs and one available for customised programming. Configuration via PC Tool.
- Bypass cooling.
- Summer mode, in which the supply fan is stopped, and any open window will supply cooler outside air, lowering the room temperature.
- Fireplace mode, creating a temporary inside overpressure to enhance chimney functionality.
- High efficiency heat recovery – up to 96%.
- Available with built-in electric heating coil.
- EC fan motors with extremely low energy consumption (low SPI).
- Easy-to-install and commission solution with built-in air pressure spigots for easy calibration.
- Dantherm app – optional accessory for all models.
- Highly customisable units, by adding a high variety of internal as well as external accessories. See more in the accessory section.

Filter change

Filters

All models use 50 mm G4 cartridge filters as standard for both supply air and extract air. This will cater for the majority of air cleaning needs. The advantage of compact filters is that they have a considerably larger filter surface area than fibrous filters and small bag-filters. The filter thus works for longer and under normal conditions it will not need changing more often than twice a year, equivalent to the filter timer setting. If necessary, F7 filters (pollen filters) are available as accessories to ensure allergens do not enter the home through the ventilation system.

EC fan

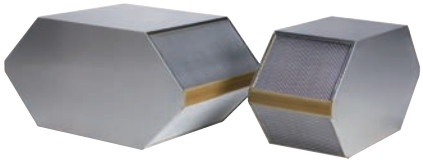
Fans

The entire HCV series uses EC (Electromagnetic Commutation) fan motor technology. I.e., use of modern motors and fan rotors which offer the very best in air technology and electrical efficiency. Thanks to the EC technology, the bearings are the only moving parts to produce resistance and therefore the lifetime of these fans is approx. 10 years. The fans are connected to the controller of the fan unit and powered by 230 V. Stepless fan speed controlled by a 0-10 volt signal.

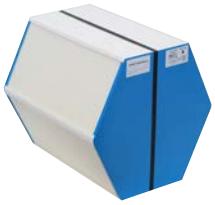
RH% demand sensor

RH% demand sensor

The residential ventilation units are fitted with a humidity sensor (RH%).
This sensor will continuously monitor the humidity of the extract air and adjust the air flow level accordingly. This operation is named demand mode. If a wireless remote control is connected, the level will be shown in the display using a 3 level icon.
Using demand mode will result in the correct level of ventilation at the lowest possible electrical power consumption. If both VOC and RH% sensors are fitted, the ventilation level is determined by the highest demand from just any one of the sensors.



Heat exchanger



Enthalpy exchanger

Bypass

Heat exchanger HCV 300-500-700
Heat recovery takes place in a highly efficient counter-flow heat exchanger made of aluminium, customised by Dantherm to achieve optimum efficiency with the least possible loss of pressure in connection with the low air volumes used in housing.

Heat exchanger HCV 400 (P1)
In the HCV 400P1 heat recovery takes place in a counter-flow plastic heat exchanger. Thanks to the cube layout of this heat exchanger, the HCV 400 has a width of only 540 mm.

Heat exchanger HCV 400 (E1)
HCV 400E1 is fitted with an enthalpy exchanger that recovers both heat and humidity from the extract air and transfers it to the fresh supply air. Transferring the humidity from the extract air to the fresh supply air prevents a dry indoor climate during wintertime. In the summer, when the relative humidity of the outdoor air is high, supply air will be dehumidified when passing through the enthalpy exchanger. This makes the supply air feel comfortably cold. Because of their superb ability to recover both heat and humidity, enthalpy exchangers are known to reduce heating costs substantially.

Bypass cooling

Automatic bypass function
The HCV residential ventilation units are fitted with a bypass module that is regulated automatically and utilises the colder outdoor air to cool down the home, e.g. after a hot summer day, when the outdoor night time temperature falls below the temperature of the house. The bypass module leads all the warm exhaust air past the heat exchanger in order to achieve the best possible cooling effect. In order for the unit to automatically open the bypass module, the extract temperature (T3) must be ≥24°C*, and the outdoor air (T1) ≥15°C*. The outdoor air (T1) must also be 2°C colder than the extract temperature (T3).
**These factory settings can be adjusted from the remote control or the PC tool.*

Manual bypass function
In addition to the system providing cooling by means of the automatic bypass function, there is also a manual bypass function which can be activated by the user from any of the control interfaces whenever required. In manual bypass function, cooling is activated for six hours, provided that the outdoor temperature is min. 9°C and colder than the extract air temperature. At outdoor temperatures below 9°C, the bypass is blocked due to the risk of condensation.

Frost protection of the heat exchanger
The intelligent control system of the HCV systems ensures that the heat exchanger does not ice up. Frost protection is activated if the exhaust air temperature (T4) is < +2°C, which will usually occur when the outdoor air temperature (T1) falls below approx. –3°C.

When the exhaust temperature (T4) falls to +2°C, the system reduces the volume of supply air (T2) so that the final exhaust temperature (T4) is maintained at minimum +2°C. If it is particularly cold, the supply air volume will be turned down to 0 m^3/h for short intervals in order to keep the heat exchanger frost free. If the outdoor air (T1) is lower than -20ºC for a longer period (more than 4 minutes), the unit will be stopped for 30 minutes to prevent icing.

In areas where the outdoor temperatures are often lower than -6°C, we recommend to mount preheating. In other areas, where the outdoor temperature may fall below -10°C, preheating is a must for obtaining a balanced and reliable solution.

Calibration via PC Tool

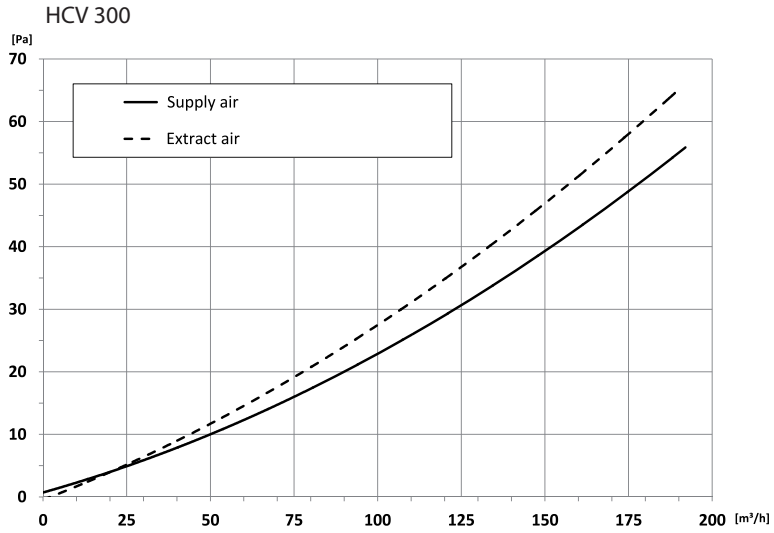
Calibration using control panel

Filter timer reset

Installation

After installation of the unit, ducts and condensate hose, the unit needs to be calibrated to the specific environment. Measurements of air volumes are carried out via built-in air pressure spigots. Appropriate initial adjustments are performed directly on the control panel or with Dantherm PC Tool.

An air flow diagram is present on the front cover, showing the pressure and air volumes the installer must use to calibrate the two air flows (see example below).



Maintenance

In general, the only regular maintenance required by the HCV residential ventilation units is to check/change the air filters twice a year when the alarm is triggered (flashing LED and acoustic alarm).

The user changes the filter by opening the filter cover, changing the filters and resetting the filter timer on the built-in control panel.

Apart from changing the air filters and cleaning the outside of the unit, any other form of service will have to be carried out by qualified personnel.

Local Dantherm partners are always available with support to solve any problem with the unit that might arise.

Removing the front cover gives access to all types of service and repair.

Embedded controller HCV 300 - 500 - 700

CONTROL

Controller

The unit's main controller measures and adjusts all parameters continuously in order to maintain a correct ventilation level at the lowest possible energy consumption.
The controller has a wide range of connections for both internal and external accessories.

For external connections, you will find:

- Wired LAN interface that supplies data communication to ModBus over TCP/IP. Ideal for connection to external building management systems (BMS/CTS).
- ModBus over RS485: For HAC accessory control or wired control (HCP 10).
- Antenna socket for the wireless remote control antenna.
- Two additional digital inputs that can be used for e.g. forced operation controlled by the hygrostat, cooker hood, fire protection or similarly.

For more on internal accessories, please see the "Accessories" chapter.

The USB connection of the controller enables professional installers to carry out all adjustments and settings using the Dantherm PC Tool. The PC Tool is also capable of displaying both live and historic data for all unit components. This is crucially important in connection with maintenance, service and troubleshooting.

The USB port offers firmware update option.

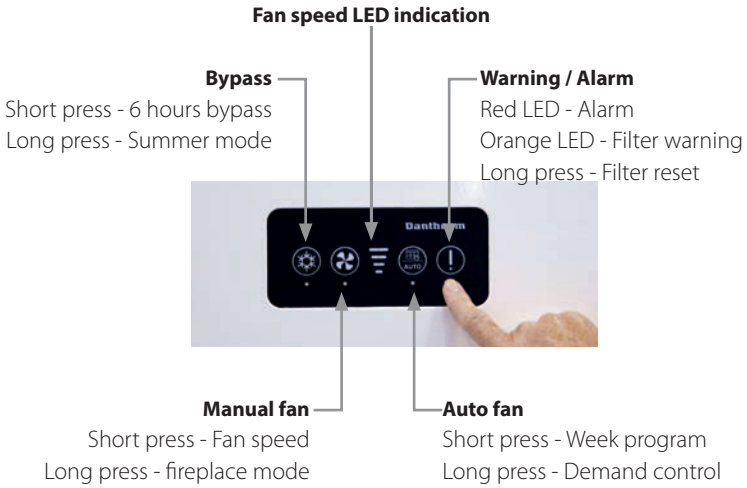
Control strategies

The HCV units are secured against incorrect and uneconomical operation for long periods of time. Several of the functions return to default after 4 hours as a means of preventing excessive energy consumption, for instance if a unit is left running at maximum fan speed or in manual bypass mode. If you switch off the installation, it will automatically restart after 4 hours to ensure proper ventilation and to keep condensation from forming in the ducts and in the unit.

In emergency situations where there is a warning message about switching off ventilation systems and closing doors and windows, the supply current to the system must be interrupted by a safety switch or similarly.

Control panel

The HCV unit has a built-in control panel with four buttons for controls, and nine LED feedback signals.



Fan control

During initial calibration, fan speed no. 3 is set on the control panel to the nominal air volume the house requires under normal usage.

The correlation between the four fan speeds on the control panel is as follows:

- Fan speed 0 = both fans stopped for 4 hours.
- Fan speed 1 = 30% lower than fan speed 2.
- Fan speed 2 = 30% lower than fan speed 3.
- Fan speed 3 = Nominal air change, set by installer during the initial calibration.
- Fan speed 4 = 30% higher than fan speed 3 (4-hour timeout).

In demand-controlled mode with integrated humidity sensor, the max. speed is step 3. In demand-controlled mode with integrated VOC sensor or CO_2 sensor connected to the HAC 2, the max. speed is step 4.

Filter control

The filter pressure is expected to increase between filter change intervals. To compensate for the reduced air volumes over time, the two fans run faster and faster until the filter alarm is triggered and the filter timer has been reset.

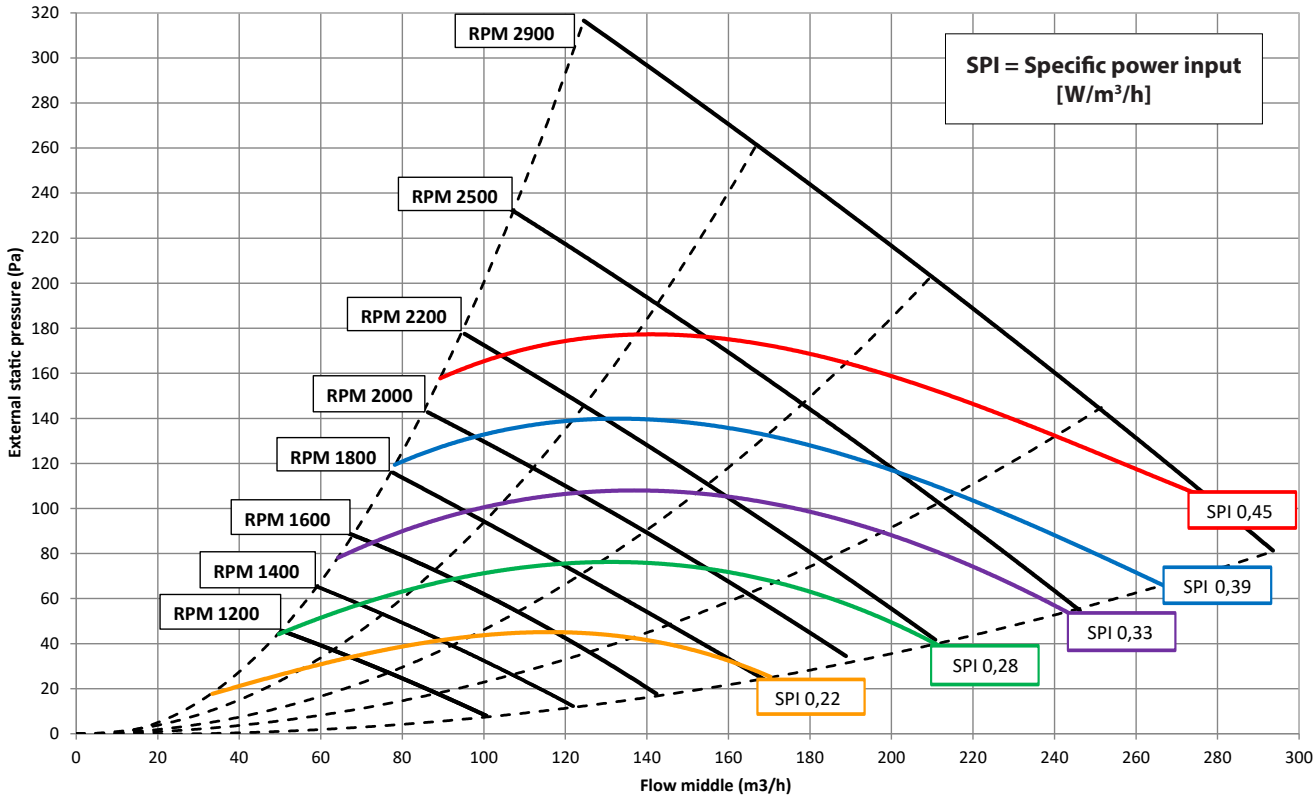
TECHNICAL DATA

HCV 300 - 400 - 500 - 700

MODEL			HCV 300	HCV 400_{P1}	HCV 400_{E1}	HCV 500	HCV 700
SPECIFICATION							
Operating range (min. - max. @100Pa)		m^3/h	50 to 180	50 to 240	50 to 240	80 to 300	80 to 450
PERFORMANCE							
Efficiency EN13141-7 dry up to	η_{SUP}	%	86	96	95	86	85
Cabinet sound pressure / cabinet sound power	LpA /LwA	dB(A)	46/51 @ 140 m^3/h; 100Pa	42/48 @ 150 m^3/h; 100Pa	42/48 @150 m^3/h; 100Pa	46/51 @ 230 m^3/h; 100Pa	53/58 @ 350 m^3/h; 100Pa
Sound power - ducts (extract/supply)	LwA	dB(A)	58/52 @ 140 m^3/h; 100Pa	56/49 @ 150 m^3/h; 100Pa	56/49 @150 m^3/h; 100Pa	61/55 @ 230 m^3/h; 100Pa	64/59 @ 350 m^3/h; 100Pa
Filters according to EN779 (extract/outdoor)	class	-	G4/G4 (F7 option)				
Installation surrounding temperature		°C	+12 to +50				
Outdoor temperature without preheater installed	t_{ODA}	°C	-12* to +50				
Outdoor temperature with preheater installed	t_{ODA}	°C	-25 to +50				
Max. absolute humidity in extract air	RH	g/kg	10				
CABINET							
Dimensions (without bracket)	WxHxD	mm	600x1000x430	540x1050x549**	540x1050x549**	700x1050x603	700x1050x750
Ducts	Ø	mm	125 - female	160 – female	160 – female	160 - female	200 - female
Weight		kg	36	39	40	49.5	70
Heat conductivity of the polystyrene insulation	λ	W/(mK)	0.031				
Heat transfer coefficient of the polystyrene insulation	U	$W/(m^2K)$	<1				
Fire classification of the polystyrene insulation	class	-	DIN 4102-1 class B2; EN 13501 class E				
Drainage hose included	Ø/length	" / m	3/4" - 1m				
Cabinet colour	RAL	-	9016				
ELECTRICAL							
Voltage		V	230				
Max. power consumption		W	170/870	170/1570	170/1570	170/1370	234/1834
Frequency		Hz	50				
IP-class	class	-	21				

* *Preheater is recommended when outdoor temperature is below -5°C, to ensure balanced ventilation*
** *+20 mm suspension bracket*

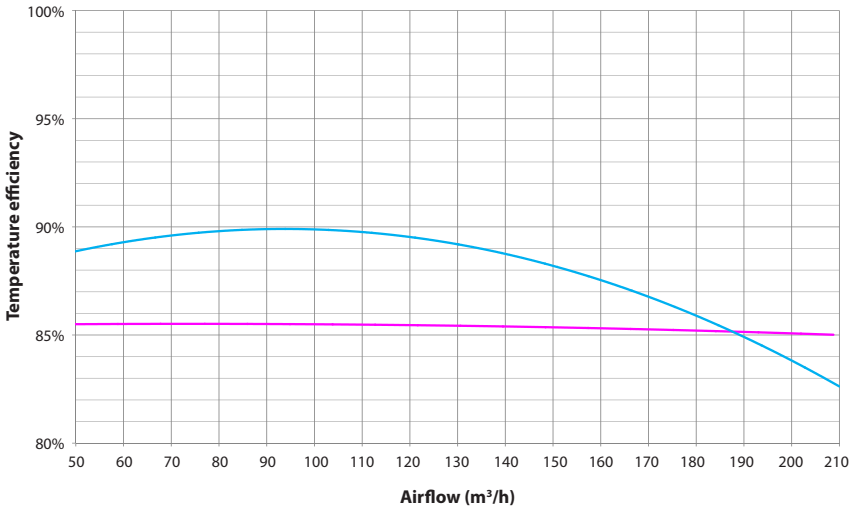
HCV 300 capacity and SPI curves



HVC 300 temperature efficiency curves

Temperature efficiency acc. to EN 13141-7 dry
Balanced flow:
Outdoor air: 7°C / RH 85%
Extract air: 20°C / RH 38%

Temperature efficiency acc. to EN 13141-7 with condensate.
Balanced flow:
Outdoor air: 2°C / RH 80%
Extract air: 20°C / RH 60%

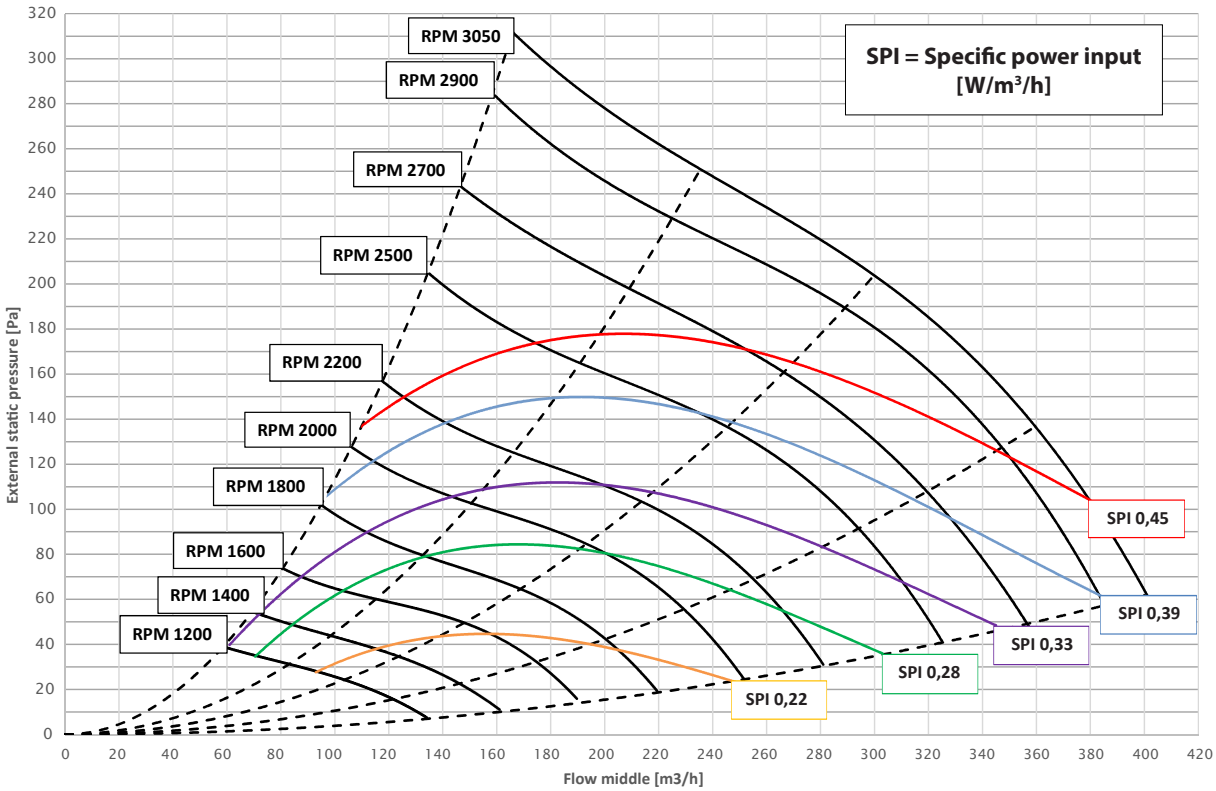


HCV 300 sound data

Air volume	Pressure	Operational point	Frequency band sound power Lw(A) dB(A)								Total sound power	Sound pressure standard room*
m³/h	Pa		63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz	Lw(A) dB(A)	Lp(A) dB(A)
140	100	Supply air	45	48	49	51	46	42	32	26	55.7	
		Extract air	47	51	60	59	48	46	39	34	62.9	
		Cabinet	22	38	46	47	44	38	25	19	51.2	46

**Standardroom = room with 10 m² floor, 2.4 m ceiling hight, mean absorption 0.2*

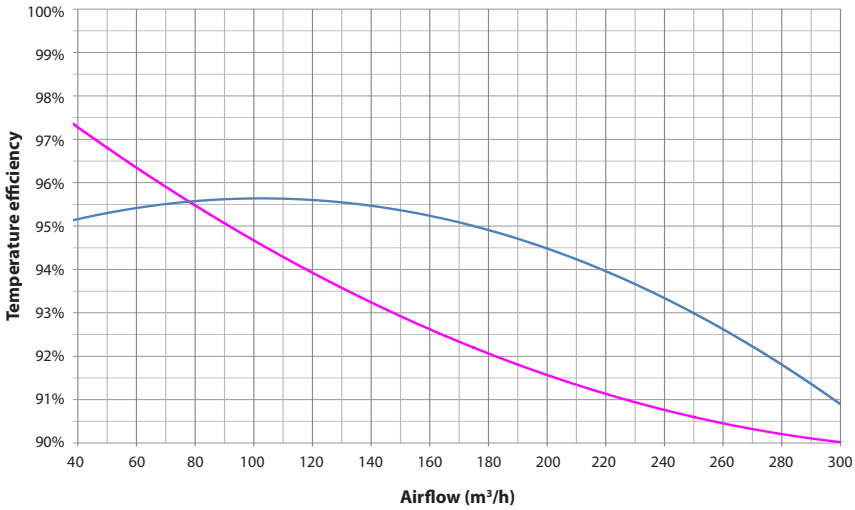
HCV 400 P1 capacity and SPI curves



HCV 400 P1 temperature efficiency curves

Temperature efficiency acc. to EN 13141-7 dry
Balanced flow:
Outdoor air: 7°C / RH 88%
Extract air: 20°C / RH 37%

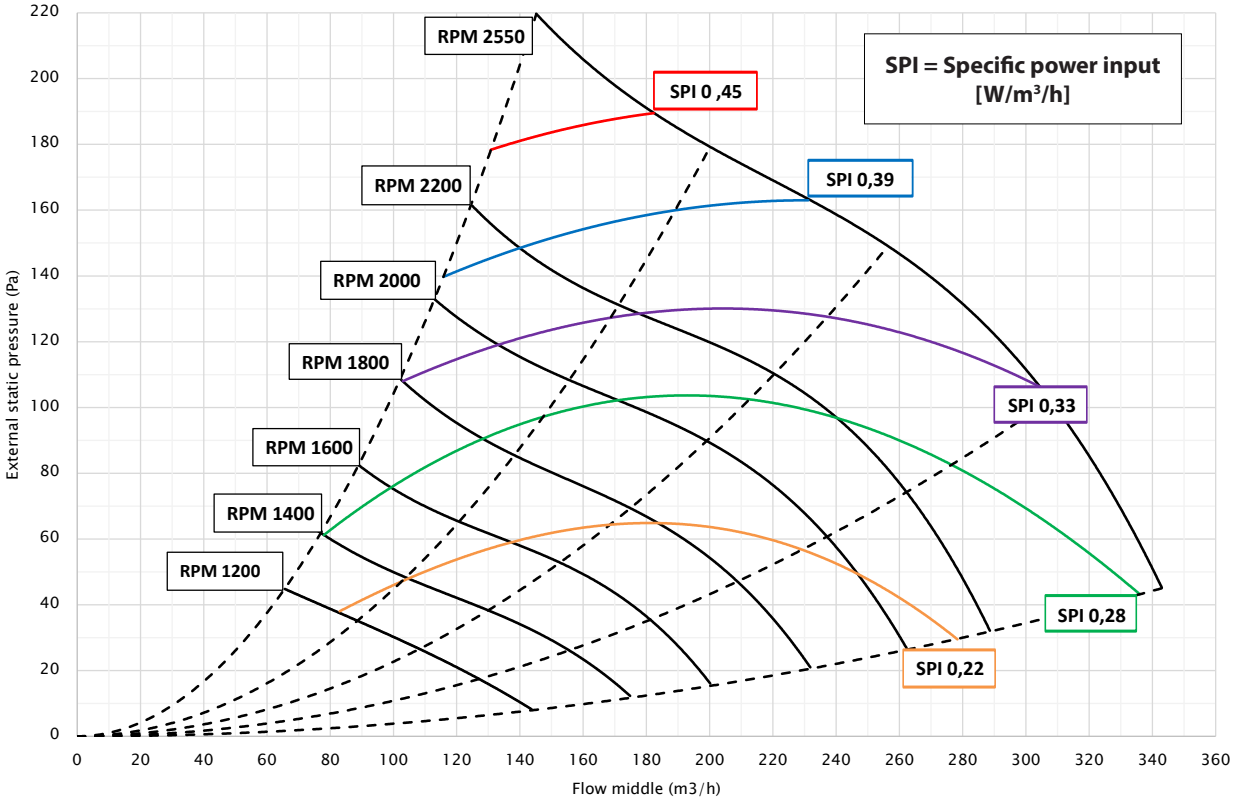
Temperature efficiency acc. to EN 13141-7 with condensate.
Balanced flow:
Outdoor air: 2°C / RH 84%
Extract air: 20°C / RH 60%



HCV 400 P1 sound data

Air volume	Pres-sure	Operational point	Frequency band sound power Lw(A) dB(A)								Total sound power	Sound pressure (1 m distance)	Sound pressure (2 m distance)
m³/h	Pa		63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	Lw(A) dB(A)	Lp(A) dB(A)	Lp(A) dB(A)
150	100	Supply air	28.8	36.9	45.4	44.8	38.0	36.2	28.0	22.9	49.1		
		Extract air	37.8	41.9	54.4	47.8	43.0	42.2	33.0	26.9	56.0		
		Cabinet										41.1	38.1
225	100	Supply air	33.8	41.9	49.4	47.8	42.0	40.2	32.0	27.9	52.9		
		Extract air	39.8	45.9	59.4	50.8	47.0	45.2	37.0	32.9	60.5		
		Cabinet										43.5	41.2
300	100	Supply air	35.8	42.9	48.4	52.8	46.0	43.2	36.0	31.9	55.4		
		Extract air	42.8	47.9	59.4	54.8	50.0	49.2	41.0	37.9	61.6		
		Cabinet										46.5	44.5

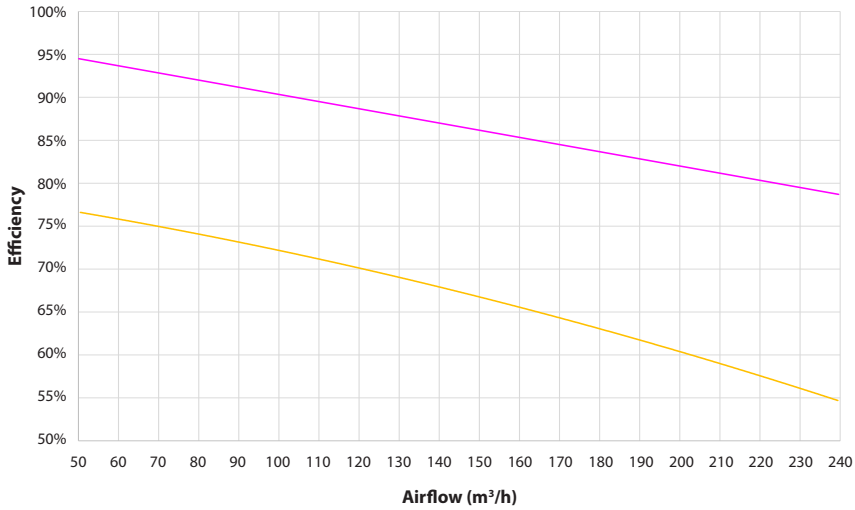
HCV 400$_{E1}$ capacity and SPI curves



HCV 400$_{E1}$ efficiency curves

Temperature efficiency
acc. to EN 13141-7 dry
Balanced flow:
Outdoor air: 7°C / RH 70%
Extract air: 20°C / RH 38%

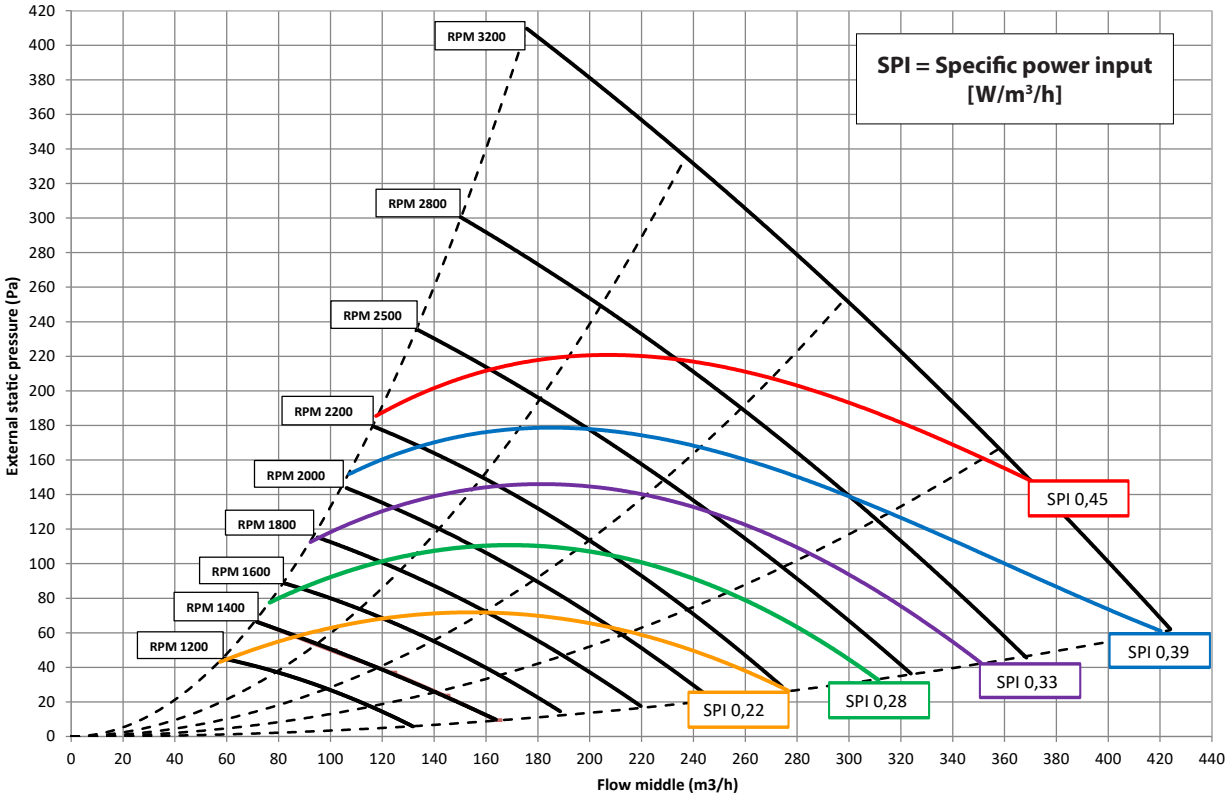
Humidity efficiency
acc. to EN 13141-7 wet
Balanced flow:
Outdoor air: 2°C / RH 88%
Extract air: 20°C / RH 60%



HCV 400$_{E1}$ sound data

Air volume	Pres-sure	Operational point	Frequency band sound power Lw(A) dB(A)								Total sound power	Sound pressure (1 m distance)	Sound pressure (2 m distance)
m³/h	Pa		63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	Lw(A) dB(A)	Lp(A) dB(A)	Lp(A) dB(A)
100	80	Supply air	25.8	37.9	43.4	39.8	33.0	29.2	20.0	15.9	46.1		
		Extract air	36.8	43.9	47.4	43.8	36.0	32.2	20.0	16.9	50.6		
		Cabinet										33.7	32.8
150	100	Supply air	28.8	38.9	48.4	43.8	38.0	34.2	26.0	20.9	50.5		
		Extract air	39.8	44.9	57.4	49.8	41.0	38.2	28.0	20.9	58.5		
		Cabinet										40.7	39
240	200	Supply air	36.8	41.9	49.4	49.8	45.0	41.2	34.0	30.9	54.0		
		Extract air	41.8	45.9	61.4	54.8	49.0	48.2	40.0	36.9	62.8		
		Cabinet										48.6	46.5

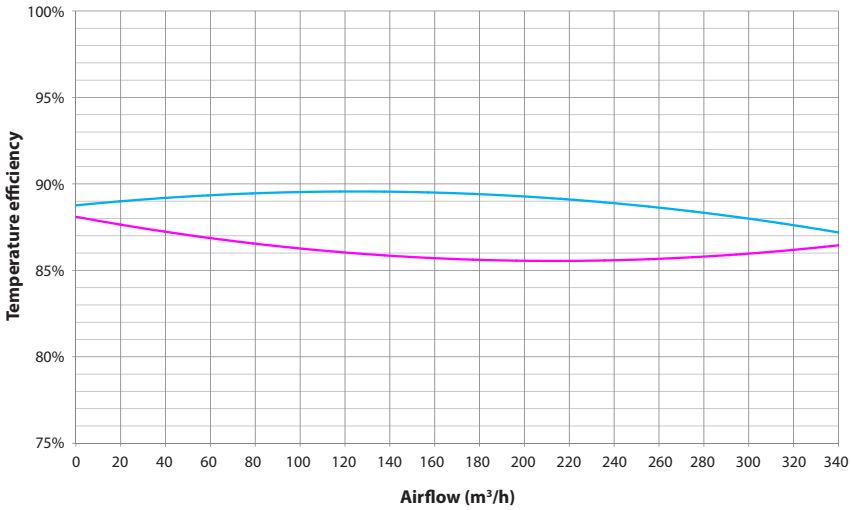
HCV 500 capacity and SPI curves



HCV 500 temperature efficiency curves

Temperature efficiency acc. to EN 13141-7 dry
Balanced flow:
Outdoor air: 7°C / RH 88%
Extract air: 20°C / RH 38%

Temperature efficiency acc. to EN 13141-7 with condensate.
Balanced flow:
Outdoor air: 2°C / RH 87%
Extract air: 20°C / RH 60%

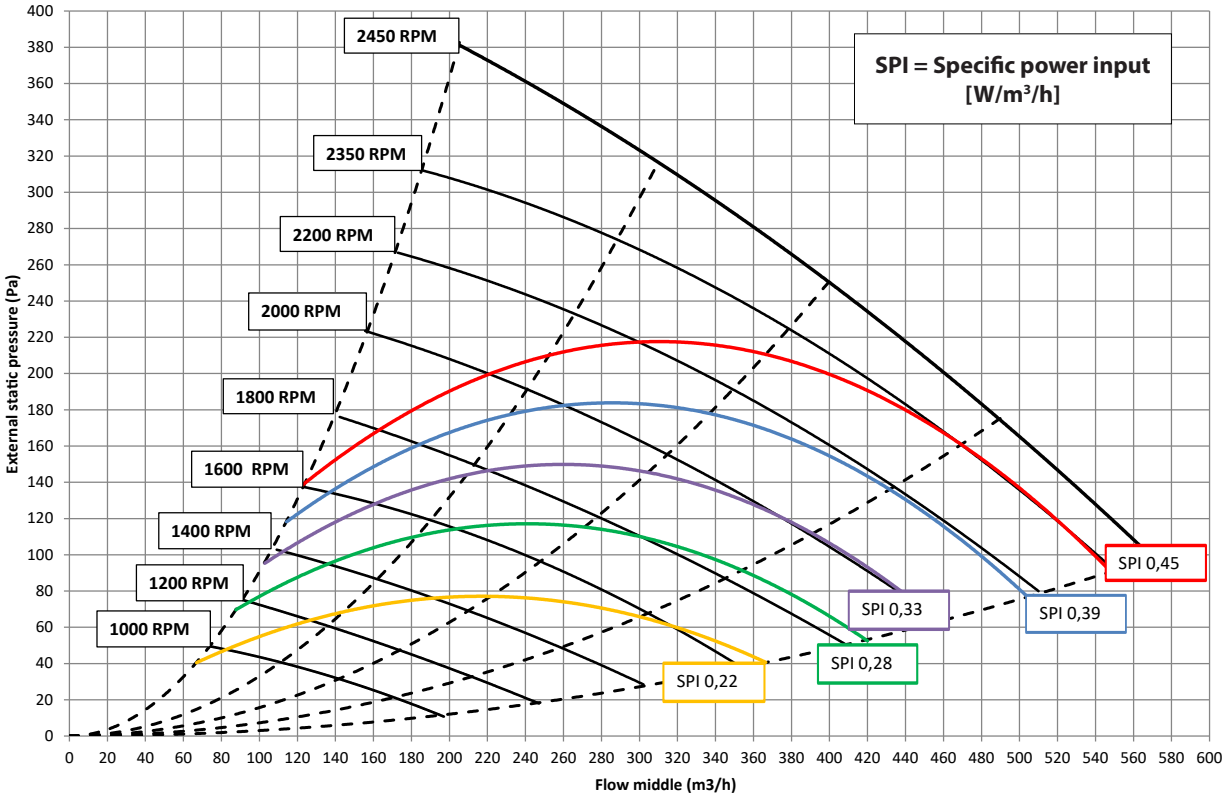


HCV 500 sound data

Air volume	Pres-sure	Operational point	Frequency band sound power Lw(A) dB(A)								Total sound power	Sound pressure standard room*
m³/h	Pa		63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz	Lw(A) dB(A)	Lp(A) dB(A)
230	100	Supply air	41	44	52	49	42	37	29	22	55	
		Extract air	49	50	59	54	46	44	37	27	61	
		Cabinet	30	41	46	48	42	37	25	19	51	46

**Standardroom = room with 10 m² floor, 2.4 m ceiling hight, mean absorption 0.2*

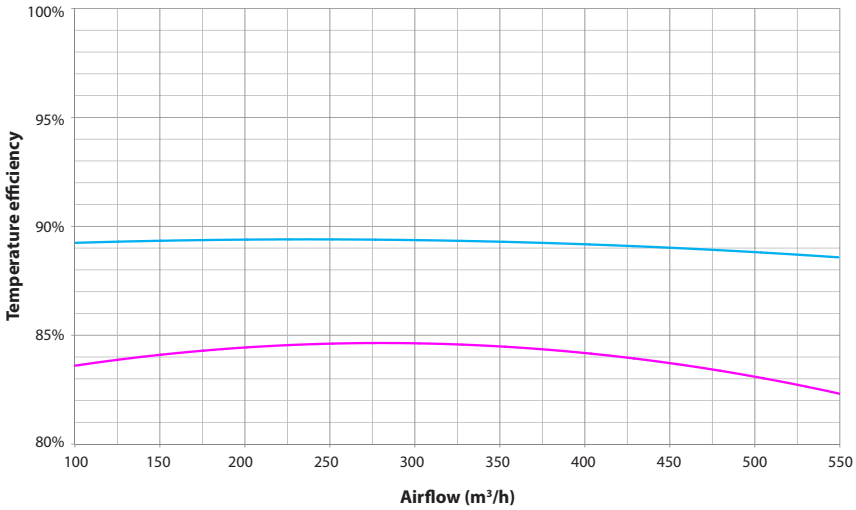
HCV 700 capacity and SPI curves



HCV 700 temperature efficiency curves

Temperature efficiency acc. to EN 13141-7 dry
Balanced flow:
Outdoor air: 7°C / RH 85%
Extract air: 20°C / RH 37%

Temperature efficiency acc. to EN 13141-7 with condensate.
Balanced flow:
Outdoor air: 2°C / RH 87%
Extract air: 20°C / RH 60%



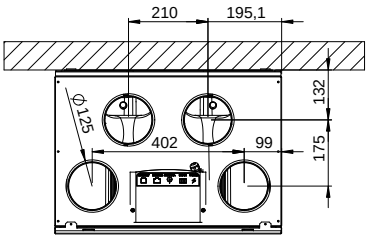
HCV 700 sound data

Air volume	Pres-sure	Operational point	Frequency band sound power Lw(A) dB(A)								Total sound power	Sound pressure standard room*
m³/h	Pa		63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz	Lw(A) dB(A)	Lp(A) dB(A)
350	100	Supply air	54	55	64	57	53	45	35	27	65.5	
		Extract air	63	62	68	63	56	52	44	34	71.1	
		Cabinet	36	45	55	52	50	43	28	20	57.8	53

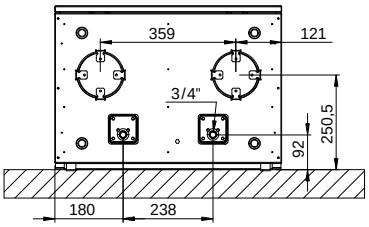
**Standardroom = room with 10 m² floor, 2.4 m ceiling hight, mean absorption 0.2*

HCV 300 dimensions

On the HCV 300 it is possible to connect the supply duct to the bottom if the ducts are to run beneath the floor.



Top view



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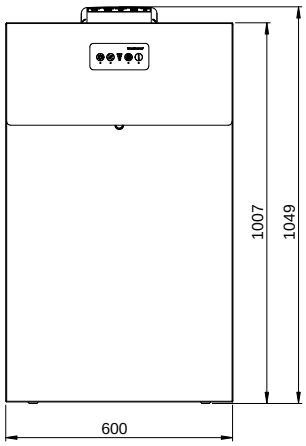
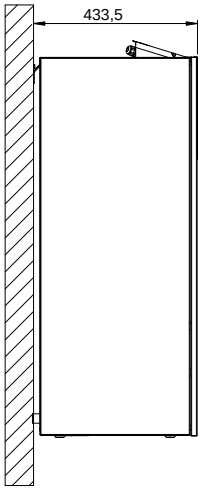
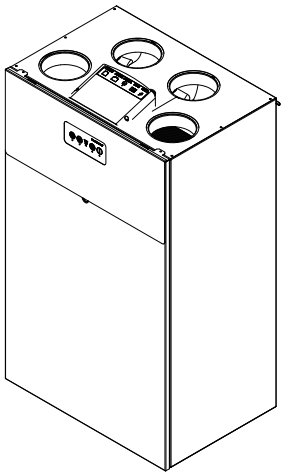
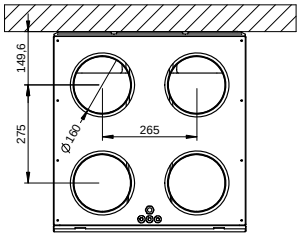




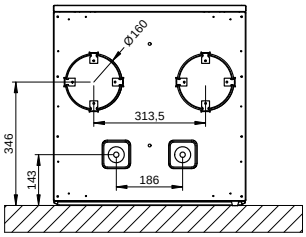


HCV 400 dimensions

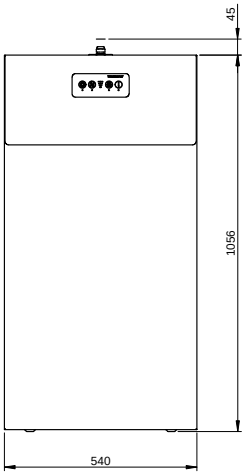
On the HCV 400 it is possible to connect the supply duct to the bottom if the ducts are to run beneath the floor.

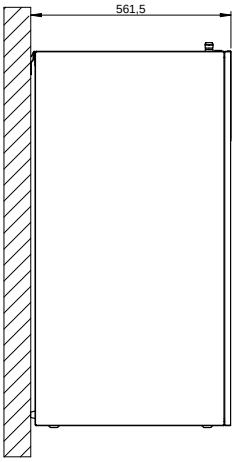


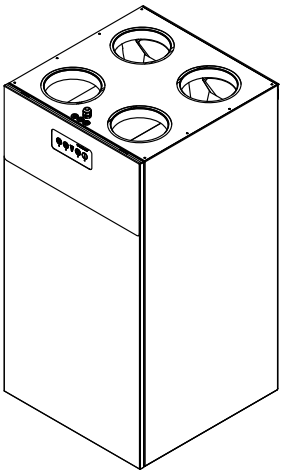
Top view



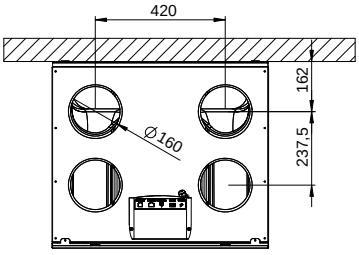
Bottom view



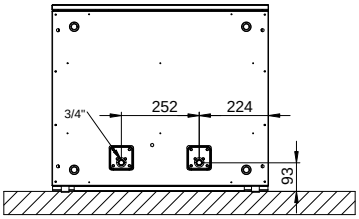




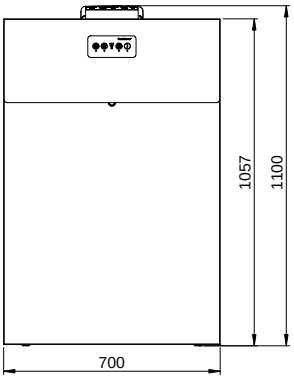
HCV 500 dimensions

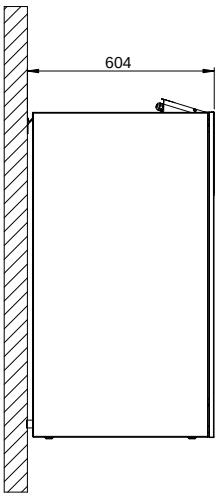


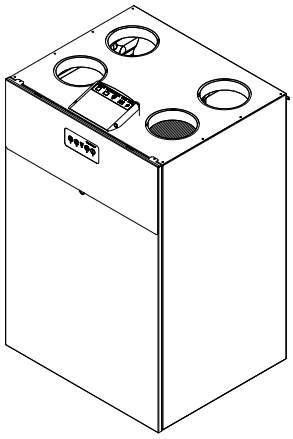
Top view



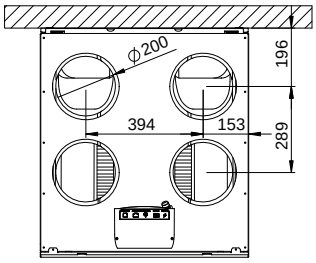
Bottom view



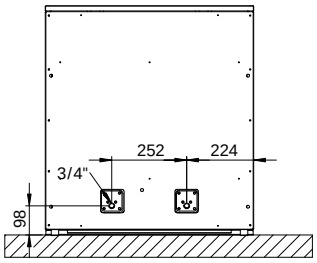




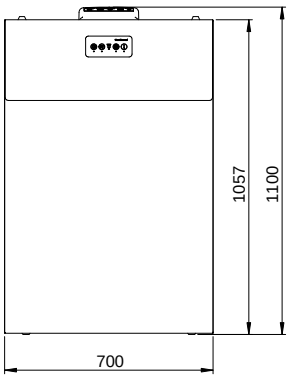
HCV 700 dimensions

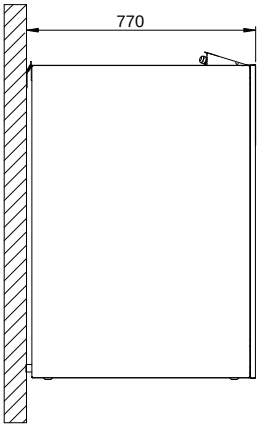


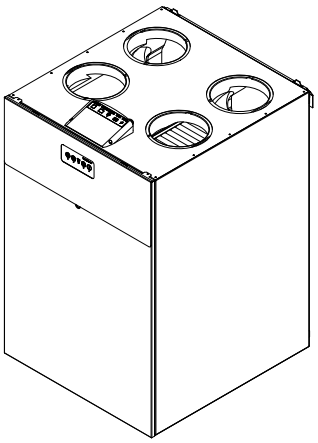
Top view



Bottom view







Wireless remote control

ACCESSORIES

Wireless remote control

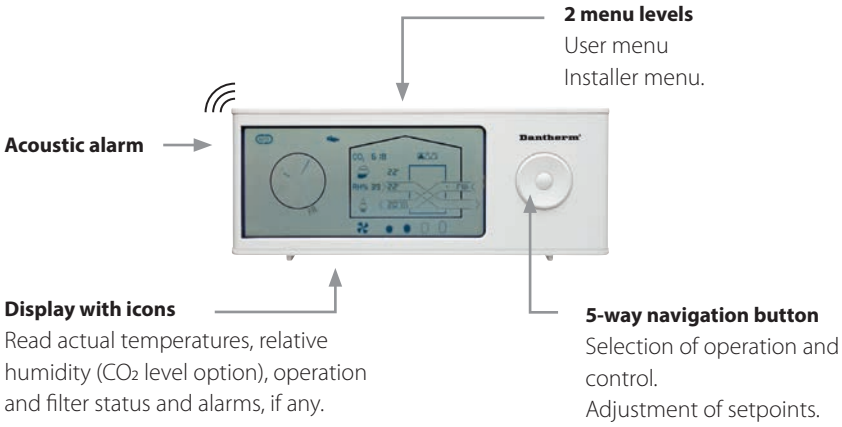
Dantherm offers a wireless remote control, which can be mounted on the wall or placed on a shelf. The remote control is designed for the user, but also includes a special installer menu, allowing the installer to do extensive settings without the use of the PC Tool.

The user features are:

- Select fan speed in manual mode.
- Select demand mode.
- Select week mode, as well as selecting week program 1-11.
- Manually activated by-pass.
- Enable fireplace boost mode. 7 minutes with overpressure inside the house for easy ignition of a fireplace.
- Enable/disable away mode – the unit decreases permanently to fan speed 1
  Enable/disable night mode – the unit decreases to fan speed 1
  The hour for enable/disable can be adjusted.
- Adjust filter timer duration.
- Reset filter timer after filter exchange.
- Reading air temperatures in the duct connections, including the remote controls embedded temperature sensor.
- Setting time and date.

The remote control has a visual/acoustic alarm that will sound when the filter needs to be inspected or replaced. This ensures correct maintenance even when the unit is set to demand mode and your attention is not at the remote control.

The wireless remote control uses 2 AAA alkaline batteries. Battery lifetime of up to 2 years is possible, as the display and remote shifts to hibernation mode after 2 minutes without user interaction. In addition, the remote is shut down at night.



Wired control

Dantherm app

Hygrostat

Power supply

CO_2 sensor

Wired control (HCP 10)
This wired control comes with a white plastic frame and a metal frame for fastening into a standard junction box as well as a 6 m communication cable. Alternatively, Dantherm can supply a box for fixing to the wall in an appropriate place.

The HCP 10 wired control gives the user the following possibilities :

- Manual control of air change (step 0-4).
- Control of air change with week program.
- Demand controlled air change (when RH and VOC sensors are connected).
- Enable summer mode (only extract air).
- Enable manual bypass.
- Enable fireplace mode.
- Reading and resetting of alarms, including filter alarm.

The installer can use the wired HCP 10 to adjust air volumes during commissioning.

Dantherm app
The Dantherm app, which is available for iOS and Android via the App store and Google play, offers a user-friendly and intuitive way to control the residential ventilation unit. The app is connected to the wifi router of the house.

- Demand control operation.
- Manual operation.
- Week program operation.
- Night operation.
- Manual bypass cooling.
- Summer cooling.
- Fireplace mode.
- Alarms.
- Settings menu.

Hygrostat, Sauter HSC 120 F001
The hygrostat is connected to the accesory control (HAC 2). Ideal for high-humidity rooms requiring an increased air change, for instance bathrooms.

Power supply 230VAC – 24VDC, for duct control
Power supply to be mounted in the accessory control (HAC 2) if the ventilation unit controls duct dampers.

CO_2 sensor
The CO_2 sensor is connected to the accessory control (HAC 2) if the air change has to be controlled in accordance with the CO_2 level in a given room.

USB cable, 3 m

USB cable, 3 m
USB cable to be used in connection with software updates of HCV units and the Dantherm PC Tool (HPT 1).

Dantherm PC Tool
The Dantherm PC Tool has an installer menu, where the installer can adjust the unit, connect extra accessories, adjust various user settings, read and reset alarms, if any.

It also has a user menu, where the user can read and adjust various settings, such as week programs, set points, alarms and historical data about temperatures and air quality (accessory).

Dantherm PC Tool

Fire Protection Controller (FPC)
The Fire Protection Controller (FPC) is a unit that controls a fire damper for fire and smoke protection purposes. The unit has been designed for Belimo or similar fire damper actuators fitted with spring-return and position feedback. The fire damper actuator is connected directly to the FPC, and then controlled via the ventilation system. Each FPC is to be addressed individually. Up to four FPCs can be connected to one ventilation unit.

The FPC is fitted with LED lamps indicating the damper position and status, and a digital input socket for surveillance if so required in your installation, for instance for a thermostat or a smoke detector.

Fire Protection Controller (FPC)

VOC air quality demand sensor
The unit can be fitted with a VOC air quality sensor. This sensor will continuously monitor the level of artificial as well as natural organic fumes in the air.

Examples of included fumes:
- Natural fumes, e.g. formaldehyde from building materials.
- Chemical fumes from sprays, e.g. hair spray or perfumes.
- Indoor pollution e.g. from smoking and printing with laser printer.
- Fumes from fire-retardant substances in carpets, paint and furniture.

VOC air quality demand sensor

Using the VOC sensor in demand mode will result in the correct level of ventilation with the lowest possible power consumption. If a wireless remote control or App is connected, the actual VOC level will be shown in the display using a 3 level icon.

Accessory control HAC 2
One or more of the following functions can be connected to the accessory control:
- After heating coils for water or electricity.
- Geothermal preheating/precooling coils.
- 24 VDC duct damper outlet.
- Stop function input.
- Fire/smoke detector input.
- External CO_2 sensor for demand control.
- External hygrostat.
- Filter alarm output.
- General alarm output.

HAC 2 comes with a 3 m cable.

Accessory control HAC 2

Built-in electric heating coil

Circular electric duct heater, 0-10 V

Circular electric duct heater, direct control

Built-in electric heating coil

The electric heating coil protects the heat exchanger against icing up at low temperatures and ensures balanced ventilation down to approx. -15°C. The heating coil can be mounted inside the cabinet. It is powered and controlled by the embedded controller, so no accessory control is needed.

Circular electric duct heater for reheating of supply air

The electric duct heater is designed for installation in the supply air duct. The duct heater is provided with duct connections with a rubber sealing gasket. The duct heater is not suitable for outdoor installation. The control current is connected to the accessory control HAC 2. Connection to supply voltage 230V is made separately. The duct heater is controlled by a stepless regulation via the accessory control HAC 2.

Circular electric duct heater, direct control by the built-in thermostat

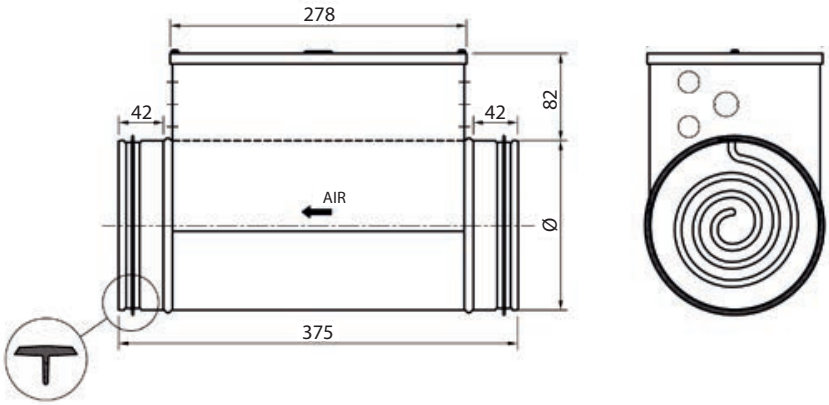
This duct heater is controlled by the built-in thermostat.

Both heaters are supplied with a duct sensor.

Capacity, dimensions and weight

The duct heaters are un-finned and therefore the resulting air pressure loss is negligible.

		HCV 300	HCV 400/500	HCV 700
Air volume	m^3/h	180	300	450
Heat output	kW	0.9	1.2	1.8
Temperature rise	°C	16.8	14.2	13.4
Power consumption, 1x230V	A	4.1	5.5	8.2
Duct connection	Ø mm	125	160	250
Weight	Kg	3.0	3.5	5.0



Water heating coil

Servo motor

2-way water valve

230/24 V AC trafo

Water heating coils

The water heating coil kit includes 2RR, 2-way water valve, 0-10V servo motor, 230/24VAC trafo, duct sensor and tube sensor for frost protection. It is controlled by the accessory control HAC 2.

HCV 300		Max. capacity						Supply air temperature 21°C					
(CWW 125-2-2.5)		80°C/60°C			60°C/40°C			80°C/60°C			60°C/40°C		
Air volume	m³/h	85	150	215	85	150	215	85	150	215	85	150	215
Air temp. out*	°C	40	36	34	28	25	23	21	21	21	21	21	21
Pressure loss	Pa	11	28	51	11	28	51	11	28	51	11	28	51
Capacity	kW	0.7	1.1	1.4	0.4	0.5	0.6	0.2	0.3	0.5	0.2	0.3	0.5
Water flow	L/h	36	36	72	36	36	36	9	10	23	17	22	28
Pressure loss, max.	KPa	0.5	0.5	1	0.5	0.5	0.5	0.2	0.2	0.4	0.3	0.4	0.5

HCV 400/500/ 700		Max. capacity						Supply air temperature 21°C					
(CWW 160-2-2.5)**		80°C/60°C			60°C/40°C			80°C/60°C			60°C/40°C		
Air volume	m³/h	145	250	355	145	250	355	145	250	355	145	250	355
Air temp. out*	°C	47	43	40	33	31	29	21	21	21	21	21	21
Pressure loss	Pa	6	15	27	6	15	27	6	15	27	6	15	27
Capacity	kW	1.6	2.4	3.0	0.9	1.3	1.7	0.3	0.5	0.7	0.3	0.5	0.7
Water flow	L/h	72	108	144	36	72	72	14	24	35	12	28	30
Pressure loss, max.	KPa	1	3	4	0.5	1	2	0.2	0.4	0.5	0.1	0.4	0.5

HCV 700		Max. capacity				Supply air temperature 21°C			
(CWW 250-2-2.5)***		80°C/60°C		60°C/40°C		80°C/60°C		60°C/40°C	
Air volume	m³/h	360	630	360	630	360	630	360	630
Air temp. out*	°C	44	40	31	29	21	21	21	21
Pressure loss	Pa	10	25	10	25	10	25	10	25
Capacity	kW	3.6	5.3	2.0	3.0	0.74	1.29	0.74	1.28
Water flow	L/h	144	252	108	144	30	61	40	61
Pressure loss. max.	KPa	1	3	1	2	0.5	1.0	0.7	1.0

* *Air in 15°C*

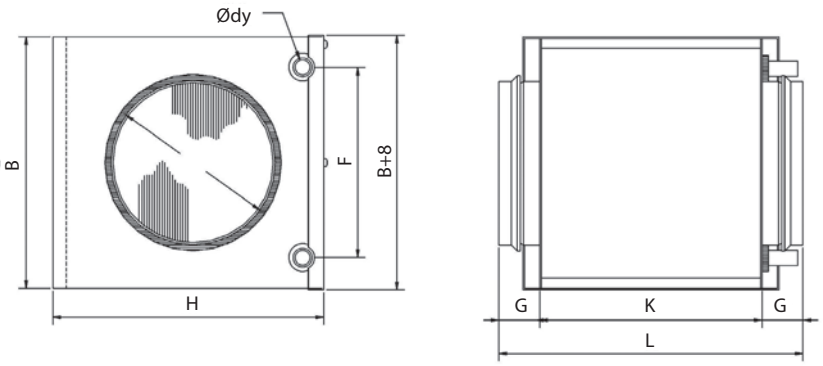
** *Please note that this heater coil has 160 mm duct connections, so 2 pcs of Ø160/200 mmm duct reduction parts are needed for installation with a HCV 700 (Ø200)*

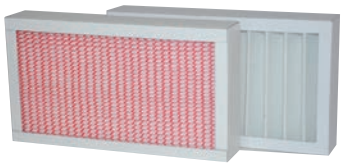
*** *Please note that this heater coil has 250 mm duct connections, so 2 pcs of Ø200/250 mmm duct reduction parts are needed for installation with a HCV 700 (Ø200)*

Water heating coils (continued)

Dimensions and weight

	Ød	B	H	Ødy	F	G	K	L	Weight
	mm								Kg
HCV 300 (CWW 125-2-2.5)	125	238	180	10	137	40	276	356	3.5
HCV 400/500 (CWW 160-2-2.5)	160	313	255	10	212	40	276	356	5.4
HCV 700 (CWW 250-2-2.5)	250	398	330	10	250	40	276	356	7.7





Panel filters

Panel filters

Panel filters are supplied as a set with either two G4 filters or one G4 filter and one F7 filter. G4 is standard. F7 filters can be used on the supply air as a pollen filter.

HCV 400 Silencer Box

HCV 400 Silencer Box

The HCV 400 Silencer Box reduces fan and airflow noise before it is carried into the duct system.

The Silencer Box is made of aluzink painted in colour RAL 9016. It includes circular sound attenuators made of perforated aluminium surrounded with glass wool insulation and a PE vapour barrier. The ends of the sound attenuators are fitted with coupling connections and can be mounted directly on top of the HCV 400 residential ventilation unit.

ABOUT THE DANTHERM GROUP

Control your climate

The Dantherm Group is a leading provider of climate control products and solutions. The group companies have more than 60 years of experience in designing and manufacturing high-quality and energy-efficient equipment for heating, cooling, drying and ventilation for a wide range of mobile and fixed applications.

Every year, Dantherm Group uses significant resources on product development to stay in the forefront and is constantly adapting the products to changing market demands and legislation.

The Dantherm Group has a number of strong brands with well-established market positions in the mobile, pool, commercial/industrial and residential markets.

Dantherm Group customers benefit from our comprehensive knowledge base and the experience and expertise that we have gained from more than three million climate control products and solutions sold worldwide.

Global reach

The Dantherm Group is headquartered in Skive, Denmark and has companies in Norway, Sweden, United Kingdom, Germany, France, Switzerland, Italy, Spain, Poland, Russia, China and United Arab Emirates and a global distribution network.

In 2016 the Dantherm Group was acquired by the Swedish equity fund Procuritas Capital Investors V LP – a strong owner with the ambition to continue the development and growth of the company.

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