

DEMAND CONTROLLED HOME VENTILATION HCC 2

Designed to suspended ceiling installation



Dantherm®
CONTROL YOUR CLIMATE

DEMAND-CONTROLLED HOME VENTILATION

No more worrying about the indoor climate

The indoor climate must be taken seriously

A good indoor climate is all about health and wellbeing for the whole family. It is also about protecting the home against damage from moisture that can easily occur in modern, super-airtight housing if you forget to air your home regularly. The Dantherm home ventilation range is an energy efficient solution for any location.

In the past 10-15 years building regulations have become very stringent in their requirements for energy consumption in new homes. Modern houses are now so airtight that they need to be thoroughly aired every day, (preferably several times a day). If not, dust mites and mould can quickly appear in the home and the building will also be in danger of rot setting in.

Optimum air change

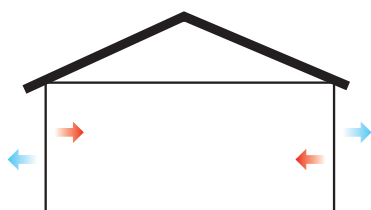
The Dantherm home ventilation range consists of mechanical ventilation solutions for private homes that meet all regulatory requirements. These solutions provide optimum energy efficiency and the required air change that ensures a healthy and pleasant indoor climate for

both the building and its occupants. A perfect solution for both new-builds and existing homes if you want to be able to forget about opening doors and windows several times a day.

50 years' experience of indoor climate control

Dantherm has put more than 50 years' experience of indoor climate solutions in office buildings, institutions and large residential developments into its home ventilation range. This means intelligent solutions that are easy to install and use. Solutions with a never-failing user-friendliness, comfort, efficiency and low energy consumption.

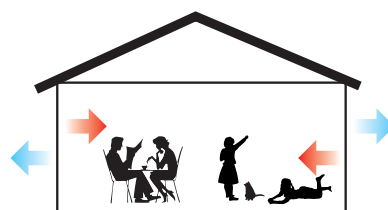
A modern family makes great demands on both interior design and indoor climate. Requirements do not become less when it comes to operation and cost. The installer values a range of products to suit all applications, ease of installation, comprehensive installation and user instructions, and easy and accurate adjustment of air volumes.



No one at home – small air intake



Many guests – max. air intake



Normal activity – normal air intake

Dantherm home ventilation systems ensure that the relative humidity (air quality) is kept at a comfortable level throughout the home – regardless of the circumstances. The built-in humidity sensor (accessory) ensures that the system adapts the air volume to current requirements – without using more energy than necessary.

HCC HOME VENTILATION WITH COUNTER-FLOW PLASTIC HEAT EXCHANGER

Energy efficient ventilation solution primarily designed for ceiling installation in smaller flats.

Dantherm has put all its expertise and experience of creating the perfect indoor climate into this first member in a brand new design, developed for installation into suspended ceilings, primarily in rental apartments or condominium buildings, in which space has high value. Designed right from the start with an eye for efficiency and simplicity – both during installation and in daily use.

Maximum effect and zero trouble

Dantherm HCC 2 is a ventilation system that is neither seen nor heard. It takes care of itself. It is energy-efficient and economical to run. It solves all indoor climate problems and ensures a pleasant environment with fresh clean air around the clock, even when the house is full of guests.

Lightweight units, integrated pressure tabs and adjustment of air volumes directly on the unit itself, make the ventilation system simple and uncomplicated for the installer. This makes Dantherm HCC 2 an extremely competitive choice both for new-builds and for installation of ventilation with heat recovery in existing apartment and condominium buildings.

Third party tests

Dantherm HCC is certified for use in passive houses by Passivhaus Institut in Darmstadt, Germany. The units are also DIBt certified by Deutsches Institut für Bautechnik in Berlin, Germany.



Energy-efficient technology

The Dantherm HCC 2 units use the latest ventilation technology. The fan motors have been chosen because of their low electricity consumption. The unit is designed with optimum airways in lightweight styrene. Together with week programs as well as demand-control*, the lowest possible specific fan power (SFP value) is achieved.

Key benefits

- Low installation headroom.
- Low cabinet and duct noise
- High efficiency – up to 94%.
- Low energy consumption (SFP).
- Demand-controlled ventilation with integrated humidity sensor* and/or V.O.C. (Volatile Organic Compound) sensor.*
- 11 fixed week time programs.
- PHI and DIBt approved.
- Upright placed heat exchanger ensures sufficient drainage in all conditions.
- Initial commissioning and maintenance with MS Windows® application for installers.

Specifications	HCC 2
Air volume at 100 Pa (m3/h)	180
Heat exchanger (type)	Counter flow plastic
Efficiency acc. DIBt (%)	up to 94
Height (mm)	279
Width (mm)	600
Depth (mm)	1122
Weight (kg)	36
Duct connection (mm)	ø125
Filters	G4 (F7*)

Accessory

- Wireless remote control
- Filter type F7
- Electrical pre-heater
- Bypass damper
- RH% demand sensor
- VOC demand sensor

*Accessory



SUPERIOR INSTALLATION OPTIONS

Versatile installation setup to suit any installation conditions

Enclosure

The HCC home ventilation unit is primarily designed for new constructions or retrofitting into multiple apartment buildings. The outer dimensions and design allow easy installation into a suspended ceiling or onto a wall, even hidden inside a closet. The unit enclosure is designed to fit low headroom suspended ceilings, and yet still with easy service access. All inside air paths and insulation, is made of EPS (Polystyrene). This has a high insulation level, and good air tightness. This insulation thickness permits location

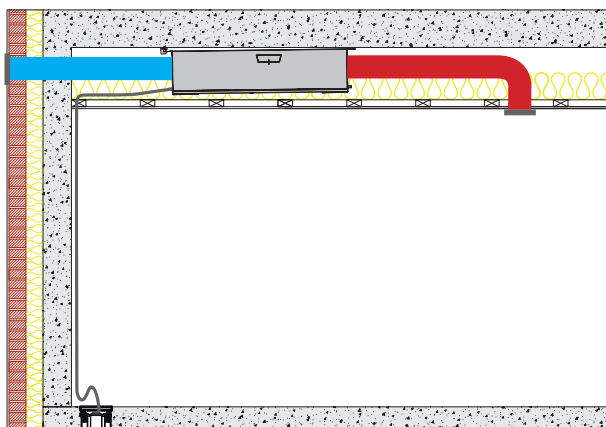
of the units in spaces with temperatures down to +12°C.

Hygienic condensate drainage

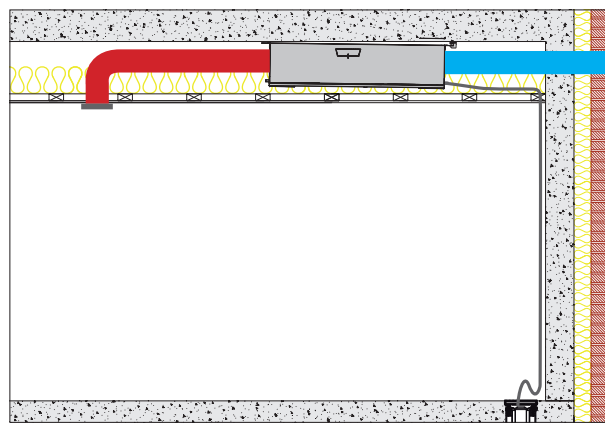
The enclosed safe mounting bracket is suitable for both wall or underneath ceiling installation. This mounting bracket tilts the unit slightly towards the drainage spigot, ensuring immediate drainage of condensate water to the hose and finally the buildings drain. This prevents mold to build up inside the drip tray and drain.

Mirroring all duct connections

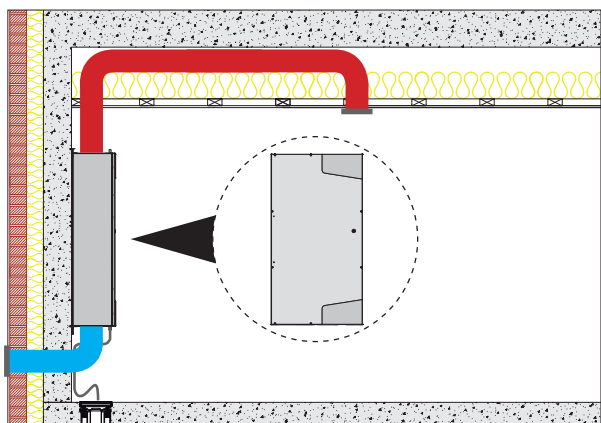
The unit can be electronically reversed, meaning that both air flows will be reversed. This allows the same unit type, to be mounted with the inside/outside ducts connected to either the right or the left hand side of the unit. Electrical connections can be connected from either the left or the right.



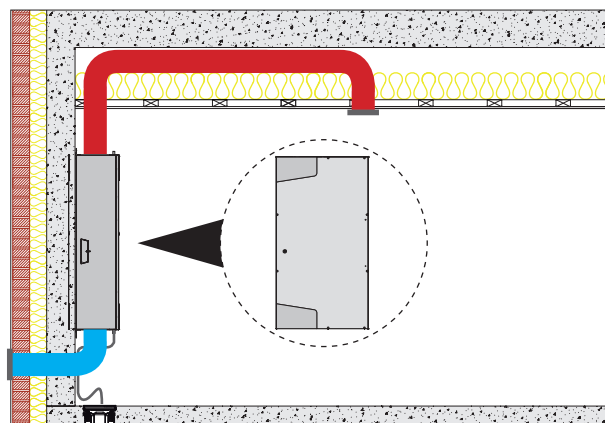
HCC built into suspended ceiling, fan direction - Mode A



HCC built into suspended ceiling, fan direction - Mode B



HCC on wall and fan direction - Mode A. Filter covers on the right



HCC on wall and fan direction - Mode B. Filter covers on the left

EASY OPERATION

With Dantherm PC-Tool or wireless remote control

Remote control*

With an optional wireless remote control the user gets access to:

- ▶ Automatic demand control*
- ▶ Manual operation
- ▶ Weekly program operation
- ▶ Away operation
- ▶ Night operation
- ▶ Fireplace operation

The remote control also offers a number of helpful options for the installer i.e.:

- ▶ Activate installer mode
- ▶ Change setting for automatic demand mode*
- ▶ Adjust set points for heating, cooling and bypass*
- ▶ Read fans speed settings

PC-tool

Dantherm has developed an advanced PC-tool application for MS Windows computers. This tool has two levels of usage.

- ▶ The basic level can be accessed directly when starting the application.
- ▶ The advanced installer level needs a four-digit pin code to access.

This insures that only dedicated installers are able to make setup changes, that could change the energy consumption or security.

User interactions:

- ▶ Select manual, week or demand operation
- ▶ Make a custom week program
- ▶ Reset filter timer
- ▶ Read any actual or historical alarms
- ▶ Set the clock
- ▶ Adjust any demand sensor sensitivity*
- ▶ Set a custom week program

Additional installer interactions:

- ▶ Initial calibration of air flows
- ▶ Extensive parameters setup
- ▶ Reading and logging of operation data as well as alarms
- ▶ LAN settings for BMS
- ▶ Forced selftest of pre-heater and bypass.

Embedded controller

HCC has a new developed controller embedded. This controller measures and adjusts all parameters continuously in order to maintain a correct ventilation level, with the lowest possible energy consumption. The controller has a wide variety of connections, both for internal accessories as well as for external.

The firmware is upgradeable through a USB connection on the front, and all internal components are monitored continuously. If any malfunction arises, the controller shuts

down and indicates a specific error code for easy correction.

Installation/Commissioning

After installation of the unit, air ducts and condensate hose, the unit needs to be calibrated to the specific environment. Measurement of air volumes is done via built in air pressure ports, and appropriate initial adjustments are performed through the Dantherm PC-Tool, connected to the HCC via a USB connection.

An air performance graph is adhered to the front cover, showing the pressure and air volumes the installer must use to determine the correct fan speeds.

Operating accessories

Both demand sensors, as well as the bypass and pre-heater, are direct connected to, and controlled by the embedded controller. Any operation state of the accessory is continuously detected by the controller. In addition to that, the unit can stepless set the amount of preheat needed in any situation for permanent operation also at low temperatures.

*Accessory

Superior wireless remote control (accessory).



Initial fan calibration with laptop

MAXIMIZED COMFORT

High daily comfort and low lifetime cost for the user

Sound Level

Living with ventilation should be as stressless as possible. Dantherm has developed the HCC with low noise performance as a key element, to be able to offer highest comfort for the user. The sound from the enclosure is as low as 35dB that equals low whispering. If hiding the unit with an additional service entry door, this value is even lower. If the duct system is well designed with silencers, there should be virtually no sound at all from the ventilation system.

Demand Control*

Dantherm HCC home ventilation can be fitted with RH% and/or VOC demand-controlled automation, that needn't be touched once the system has been installed. The VOC sensor continuously monitors the level of artificial or natural organic chemicals of the extract air, and adjusts the air flow level accordingly. Automatic demand control is based on a range of average considerations that guarantees a comfortable indoor climate in all conditions. The RH% sensor will seek to keep the relative humidity at a comfortable level regardless of activity levels in the home, and the VOC sensor reduces any arti-

ficial or natural organic chemicals to a specified maximum level. The PC-tool has options to adjust individual default settings if special requirements arise for both sensors.

Summer cooling mode

HCC units has a Summer cooling mode. This will stop the supply fan, and keep extract fan running. Colder outside air will then flow through any open window. The result is reduced room temperature, with only half the energy consumption. When Summer mode is active it will automatically disable, when the outside air temperature is below 14°C., yet enabled once again, when above 14°C. Summer mode depends on manual window opening/closing.

Bypass damper*

Automatic cooling takes place on units with a bypass damper module. This function will automatically open for direct outside colder air supply, as long as the outside temperature is above 15°C and the room temperature indoors is 24°C or above. These set-points are changeable. No user interaction is required.

Filter change

HCC 2 is default delivered with a G4 type filter, and F7 is available as accessory. The incoming air is filtered, and depending on the local pollution level, the filter needs to be checked and replaced as necessary. An alarm will sound every six months, time interval is changeable.

Professional maintenance

Dantherm recommends to let an installer check the heat exchanger and water drip tray every second year, in order to reduce any risk of bacterial pollution from dirt and dust. No other regular maintenance is required.

*Accessory



BUILDING INTEGRATION

High level of intelligent integration and external maintenance support options

Building Management Systems

Building **M**anagement **S**ystems (B.M.S.) are often an integrated part of any continued building operation service. All connected electrical devices in more flats in a building, can be monitored and controlled from one central control room, in order to have low energy consumption and/or high comfort for the residents. For this purpose the Dantherm HCC unit offers a data connection point over TCP/IP interface, carrying ModBus protocol data.

Dantherm issues upon request, a protocol data sheet. Having that data sheet, it is easy for a qualified B.M.S. system programmer, to interface any B.M.S. system to the HCC unit.

KNX

In many high end condominiums the well known KNX intelligent building system is present. The Dantherm HCC unit offers a TCP ModBus that can be routed through any external TCP ModBus to KNX converter box, where the data conversion takes place. This control setup is to be designed and implemented by the local KNX system programmer, based on the protocol data sheet from Dantherm.



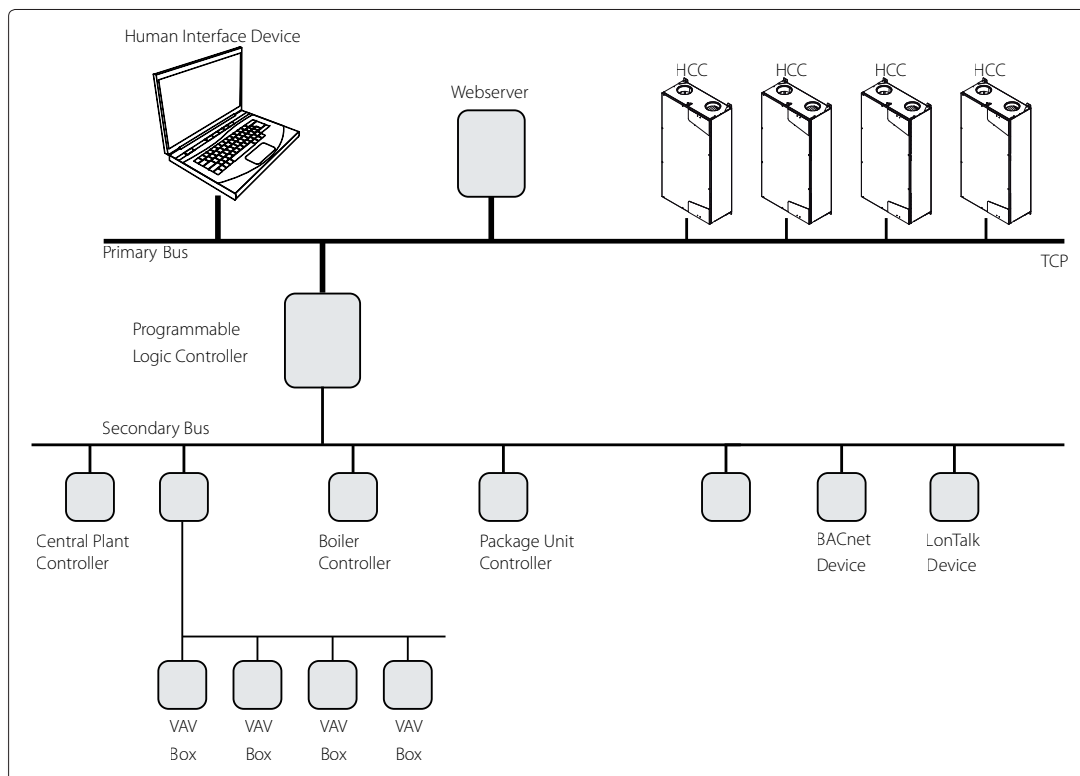
KNX module example.

Advantages

By adding an external control option over TCP ModBus from any external intelligent system to HCC, you add value for the user, as well as picking up filter warnings and operation error alarms to any centrally placed maintenance responsible.

The ModBus offers the following main options:

- ▶ Set HCC 2 operation mode
- ▶ Set fan-speed in manual mode
- ▶ Set actual week program 1-11
- ▶ Filter alarm time in months
- ▶ Remaining filter time in days
- ▶ Reset filter timer
- ▶ Read alarm
- ▶ Reset alarm
- and much more.



Example of a building management system schematics with HCC units

ELECTRONICS COOLING

DEHUMIDIFICATION

VENTILATION

MOBILE HEATING AND COOLING

Dantherm is a market-leading supplier of energy-efficient climate control solutions for customers across the globe. Our subsidiaries in Norway, Sweden, Germany, the UK, the US and China and our representative office in Russia unite approx. 600 employees. We operate in the following four main business areas:

Electronics cooling:

Climate control for electronics and battery cooling in radio base stations and other Telecom infrastructure. Telecom customers include network suppliers and network operators.

Dehumidification:

Mobile and stationary dehumidifiers for drying buildings and for use in private pools and wellness centres.

Ventilation:

Large ventilation systems used in swimming pools and buildings such as shopping centres and cinemas requiring frequent air change. The range also includes domestic ventilation products based on high-performance heat exchangers.

Mobile heating and cooling:

Products for heating or cooling of tents and equipment used by the armed forces and aid organisations. The customers are primarily the armed forces in NATO countries as well as tent and container manufacturers.

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