NORDcanopy

HC Ventilation Ceiling

- Modular design
- AirGrip system
- Laser welded structure
- Efficient HFK grease filters protected by utility patent
- Energy efficient LED lights
- HACCP certified

ETS NORD

HC Ventilation Ceiling

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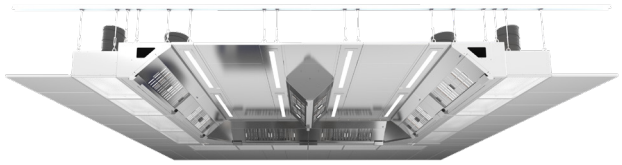

Modules Available

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Exhaust Wall Module

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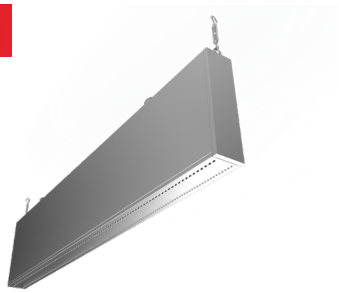

HCH
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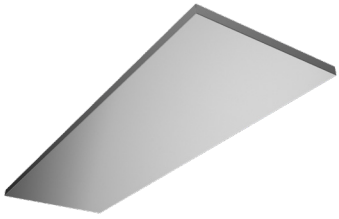

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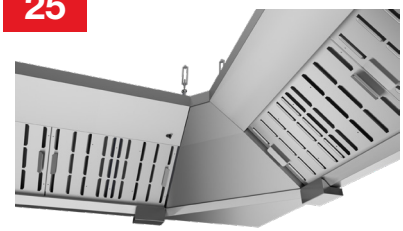
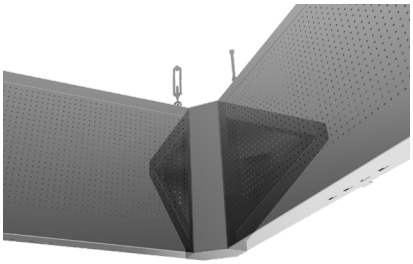
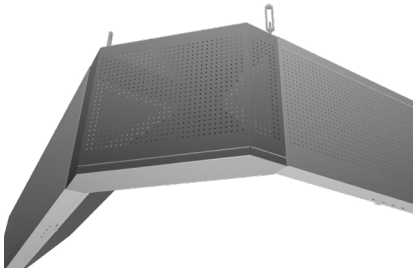


HCAS
Inner Corner Supply



HCAV
Outer Corner Supply



HC Options & Accessories

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HC Ventilation Ceiling

ETS NORD´s ventilation ceiling system combines effective grease removal with stylish design to thoroughly clean the exhaust airstream and remove excess heat from the kitchen. We at ETS NORD know that no two projects are exactly alike. Since ETS NORD kitchen ventilation solutions are modular in their construction, each ventilation ceiling can be individually designed to meet every project requirement or technical need.

The food safety of ETS NORD's canopies has been verified with the HACCP international certificate.

The system consists of a different broad selection of exhaust and supply modules, sound absorbing panels and LED-lighting options. In addition to mechanically separating grease with our highly efficient HFK grease filters, the ventilation ceiling can also include an intelligent ozone cleaning system or UV cleaning system to further reduce grease and odor. During emission treatment with ozone or UV-C lamps, grease and odor are broken down to water vapor and dry minerals, thereby providing many advantages.

NORDcanopy products are manufactured from stainless steel according to standards EN 10088-2:2024, EN 1.4301 or AISI 304 (AISI 304, surface 2K).

- Duct connections are equipped with rubber gaskets.
- Supply air modules are heat insulated to prevent condensation of steam on the inner surface of the chamber.
- The laser welded end walls of the exhaust chamber prevent the possible leakage of grease from the inside of the chamber, thereby reducing the possibility of bacteria forming in the joints.
- Easy-to-clean surfaces.
- Access to the supply chamber and the ability to clean the supply ducts is ensured through the easy-to remove front panels. Exhaust ducts can be easily reached and insulated via removable ceiling panels.
- Adjustable suspension hooks are included.

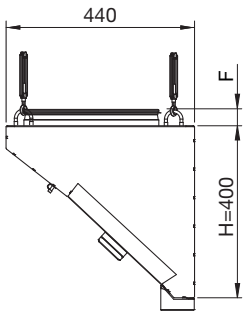
HCE Exhaust Wall Module

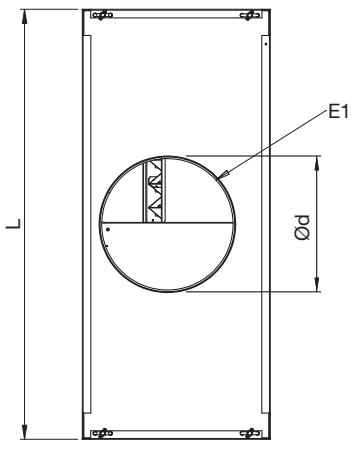
HCE is an exhaust air module with one row of HFK grease filters for installation against walls. HCE ensures a clean, hygienic and comfortable work environment by removing pollutants, excessive heat and grease from the cooking process.

HCE exhaust module has laser welded construction.

Dimensions

HCE-E1





Length L	Connections		
	Ød, mm	E1 quantity n	F
1000	250	1	43
1000	315	1	43
1500	250	1	43
1500	315	1	43
2000	250	2	43
2000	315	2	43
2500	315	2	43
2500	315	3	43

Product marking

HCE L×H E1=d×n HFK×n

Marking
- HCE - Exhaust Wall Module

Dimensions
- L - Length
- H - Height (400 mm)

Exhaust air
- E1 - Filters in one row
- Ød - Diameter of exhaust air connection
- n - Quantity of exhaust air connections

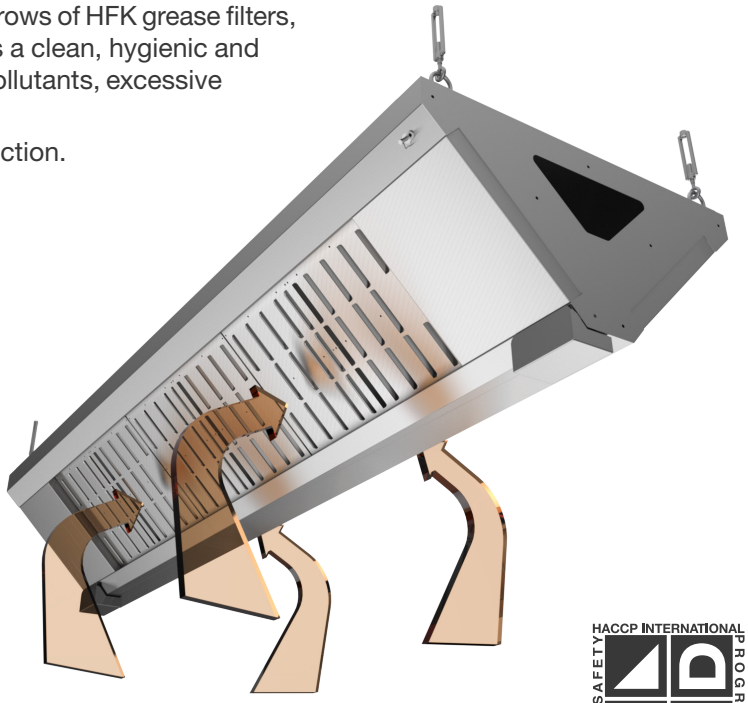
Grease filters
- HFK
- n - Grease filter quantity

Example: HCE 1500×400 E1=250×1 HFK×3

HCI Exhaust V-module

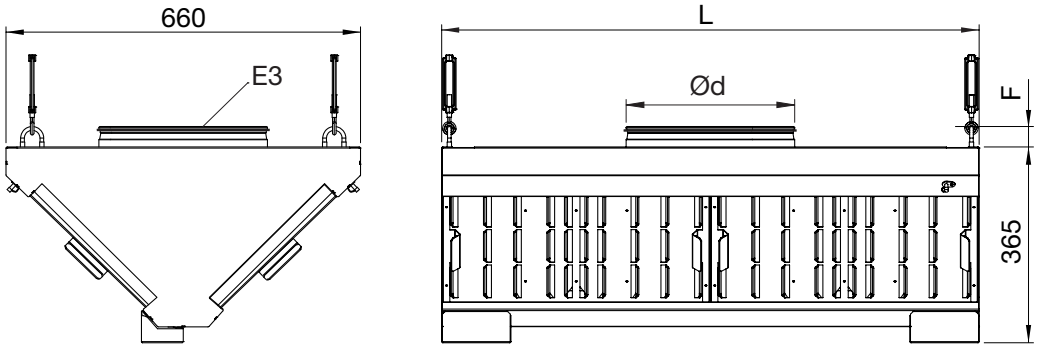
HCI is a V-shaped exhaust air module with two rows of HFK grease filters, one on each side. HCI grease module ensures a clean, hygienic and comfortable work environment by removing pollutants, excessive heat and grease from the cooking process.

HCI exhaust module has laser welded construction.



Dimensions

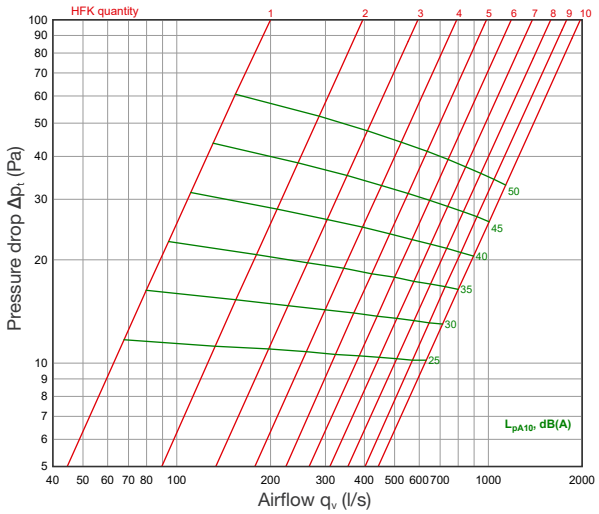
HCI-E3



Length L	Connections		
	Ød, mm	Quantity, n	F
1000	315	1	43
1000	400	1	55
1500	315	2	43
1500	400	1	55
2000	315	2	43
2000	400	2	55
2500	315	3	43
2500	400	2	55

Technical data

HFK - grease filter



Sound attenuation of HFK

$L_{wokt} = L_{pA} + K_{okt}$

HFK	Sound level correction factor K_{okt} (dB) Mean frequency of octave band (Hz)							
	63	125	250	500	1000	2000	4000	8000
K	4	3	0	1	0	-4	-15	-21

Product marking

HCI L E3=d×n HFK×n

Marking
HCI - Exhaust module (island)

Dimensions
L - Length

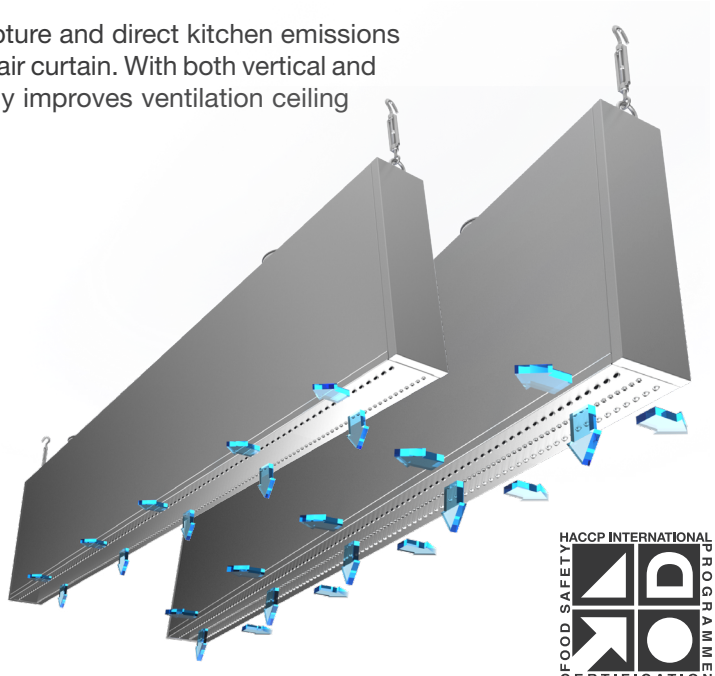
Exhaust air
E3 - exhaust air module
Ød - Diameter of exhaust air connection
n - Quantity of exhaust air connections

Grease filters
HFK
n - Grease filter quantity

Example: HCI 1500 E3=315×2 HFK×6

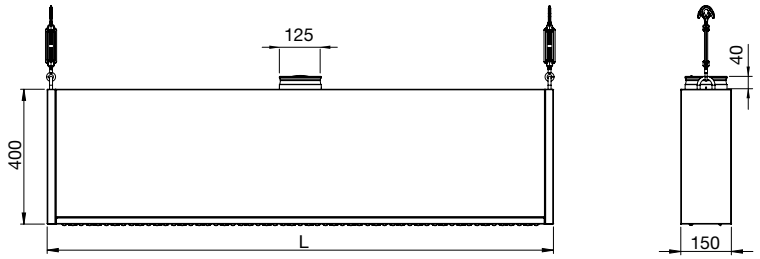
HCG AirGrip Module

HCG AirGrip module uses capillary action to capture and direct kitchen emissions toward the exhaust modules, much like that of an air curtain. With both vertical and horisontal airflow components, HCG significantly improves ventilation ceiling effectiveness.



Dimensions

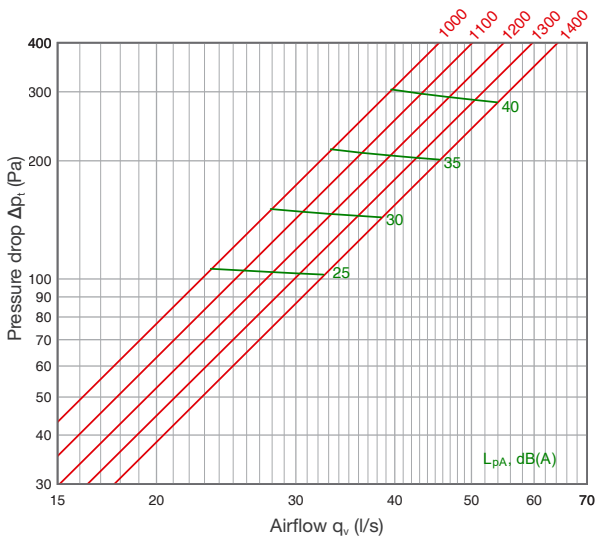
Length L	Connections quantity
1000-1500	1
1600-2500	2



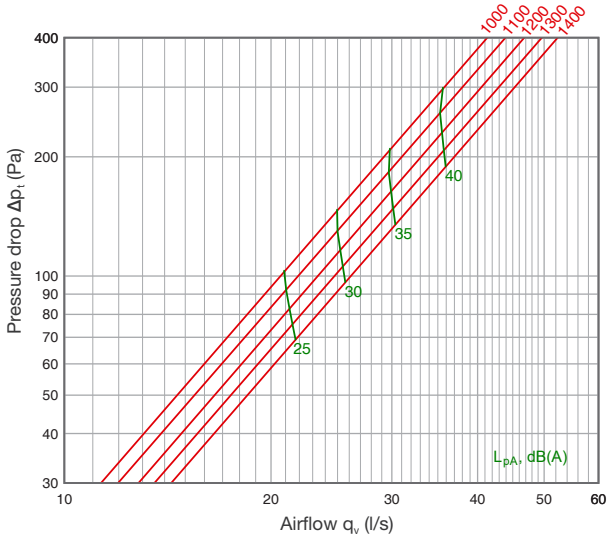
Technical data

Air adjustment plate position open or closed.

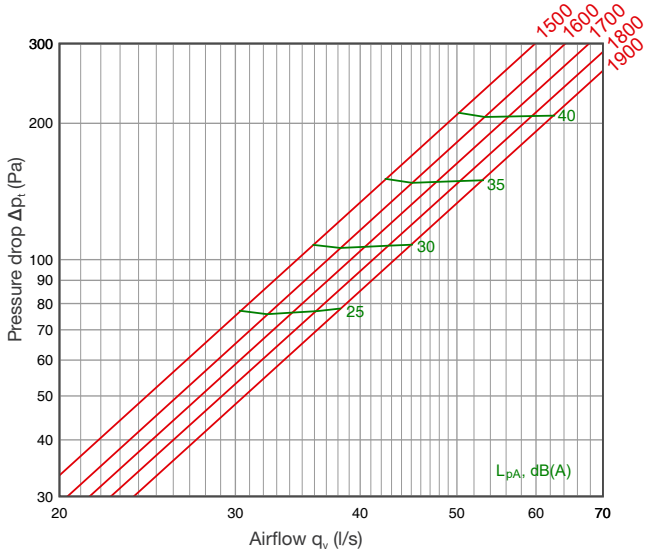
HCG L=1000...1400, air adjustment plate open



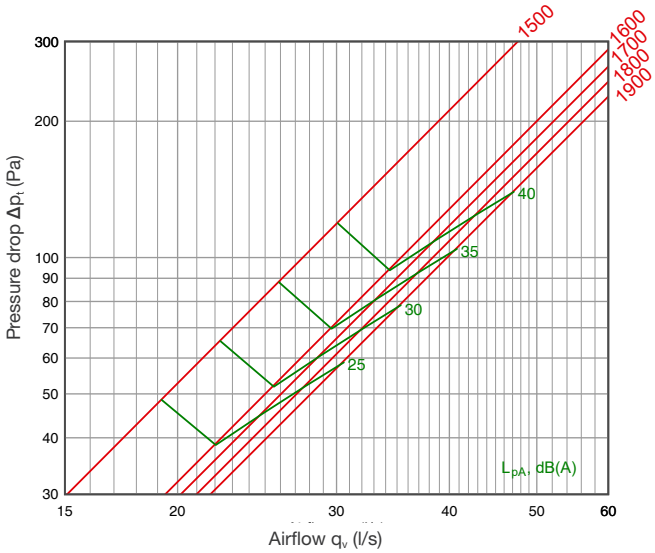
HCG L=1000...1400, air adjustment plate closed



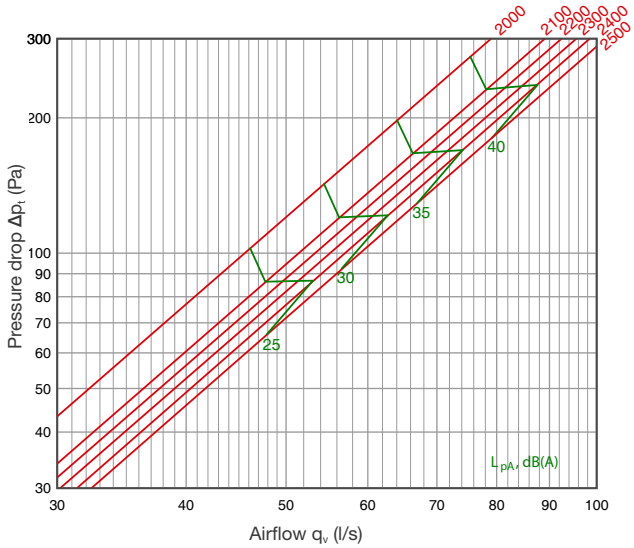
HCG L=1500...1900, air adjustment plate open



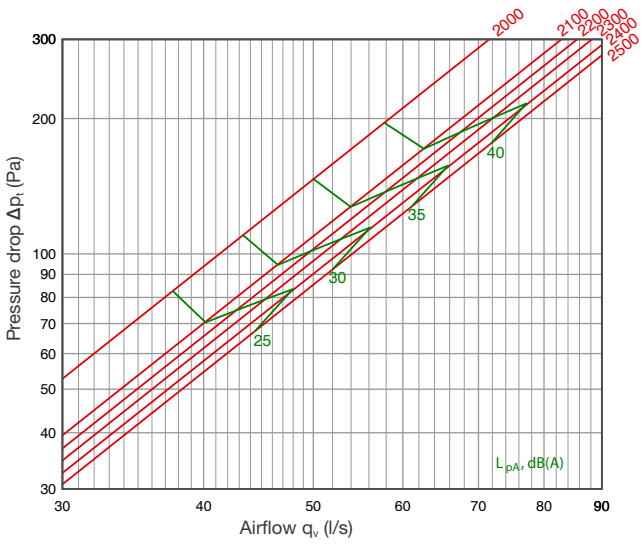
HCG L=1500...1900, air adjustment plate closed



HCG L=2000...2500, air adjustment plate open



HCG L=2000...2500, air adjustment plate closed



Acoustic data

Supply air	Air adjustment plate	K-factor	Correction of sound level K_{okt} [dB] (Hz)							
			63	125	250	500	1000	2000	4000	8000
HCG 1000	Closed	2,34	0	-2	-1	-5	-4	-7	-12	-14
	Open	2,33	-3	-6	-6	-7	-6	-5	-8	-11
HCG 1100	Closed	2,57	0	-2	-1	-5	-4	-7	-12	-14
	Open	2,56	-3	-6	-6	-7	-6	-5	-8	-11
HCG 1200	Closed	2,81	0	-2	-1	-5	-4	-7	-12	-14
	Open	2,80	-3	-6	-6	-7	-6	-5	-8	-11
HCG 1300	Closed	3,04	0	-2	-1	-5	-4	-7	-12	-14
	Open	3,03	-3	-6	-5	-7	-6	-6	-9	-12
HCG 1400	Closed	3,28	0	-2	-1	-5	-4	-7	-12	-14
	Open	3,26	-3	-6	-5	-7	-6	-6	-9	-12
HCG 1500	Closed	3,45	0	-2	-1	-5	-4	-7	-12	-14
	Open	3,45	-3	-6	-5	-7	-6	-6	-9	-12

Supply air	Air adjustment plate	K-factor	Correction of sound level K_{okt} [dB] (Hz)							
			63	125	250	500	1000	2000	4000	8000
HCG 1600	Closed	3,74	-2	0	2	-1	-6	-13	-17	-21
	Open	3,73	-2	-6	-3	-6	-6	-7	-10	-13
HCG 1700	Closed	3,98	-2	0	2	-1	-6	-13	-17	-21
	Open	3,96	-2	-6	-3	-6	-6	-7	-10	-13
HCG 1800	Closed	4,21	-2	0	2	-1	-6	-13	-17	-21
	Open	4,19	-2	-6	-4	-6	-6	-6	-9	-12
HCG 1900	Closed	4,45	-2	0	2	-1	-6	-13	-17	-21
	Open	4,43	-2	-6	-4	-6	-6	-6	-9	-12
HCG 2000	Closed	4,67	-2	0	2	-1	-6	-13	-17	-21
	Open	4,66	-2	-6	-4	-6	-6	-6	-9	-12
HCG 2100	Closed	4,91	-2	0	2	-1	-6	-13	-17	-21
	Open	4,89	-3	-6	-6	-7	-6	-5	-8	-11
HCG 2200	Closed	5,15	-2	0	2	-1	-6	-13	-17	-21
	Open	5,13	-3	-6	-6	-7	-6	-5	-8	-11
HCG 2300	Closed	5,38	-2	0	2	-1	-6	-13	-17	-21
	Open	5,36	-3	-6	-5	-7	-6	-6	-9	-12
HCG 2400	Closed	5,62	-2	0	2	-1	-6	-13	-17	-21
	Open	5,59	-3	-6	-5	-7	-6	-6	-9	-12
HCG 2500	Closed	5,89	-2	0	2	-1	-6	-13	-17	-21
	Open	5,89	-3	-6	-5	-7	-6	-6	-9	-12

Product marking

HCG **L×H** **125×n**

Marking
- HCG-1 - one AirGrip module
- HCG-2 - two AirGrip modules

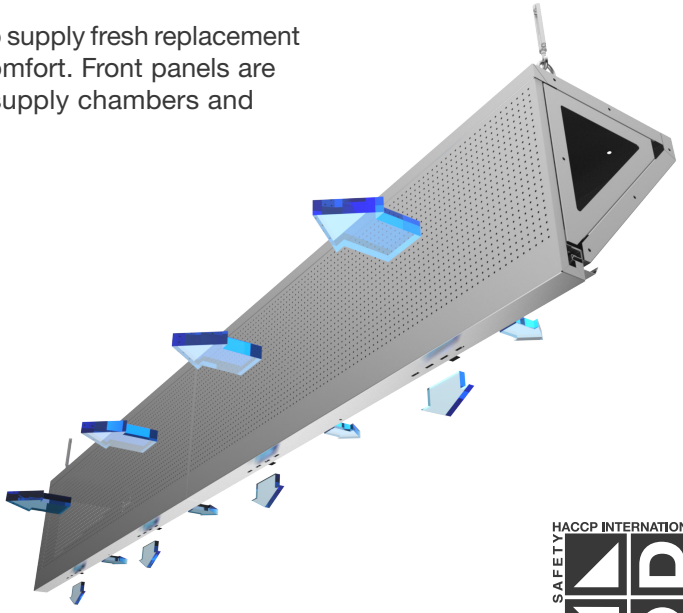
Dimensions
- L - Length
- H - Height (400 mm)

Supply air
- Diameter of supply air connection (125 mm)
- n - Quantity of supply air connections

Example: HCG 1500×400 125×1

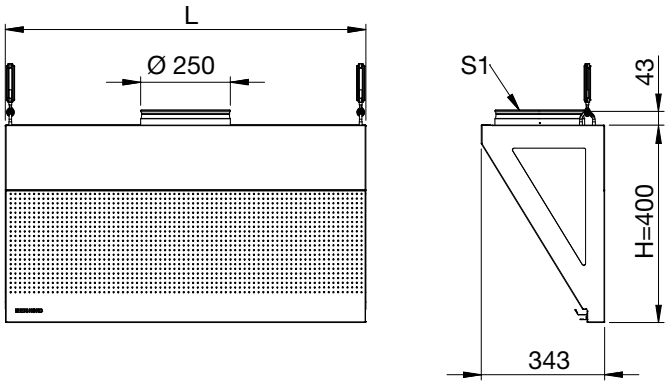
HCH Horizontal Supply Air Module

HCH is a horizontal supply air module, designed to supply fresh replacement air into the kitchen to provide ultimate worker comfort. Front panels are easily removed for accessing and cleaning its supply chambers and ducts.



Dimensions

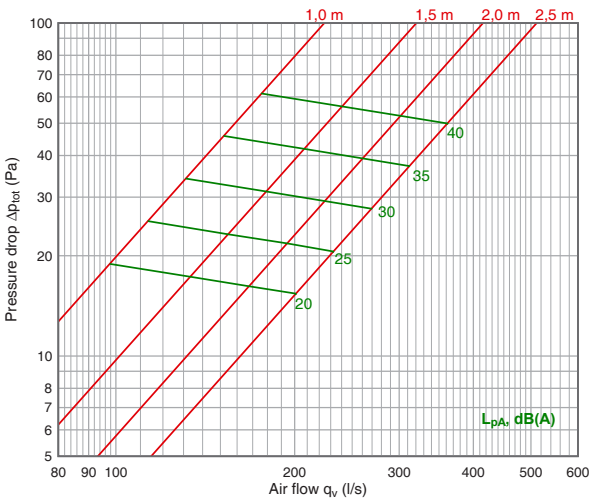
Length L	Connections quantity
1000	1 ... 2
1500	1 ... 2
2000	2 ... 3
2500	2 ... 3



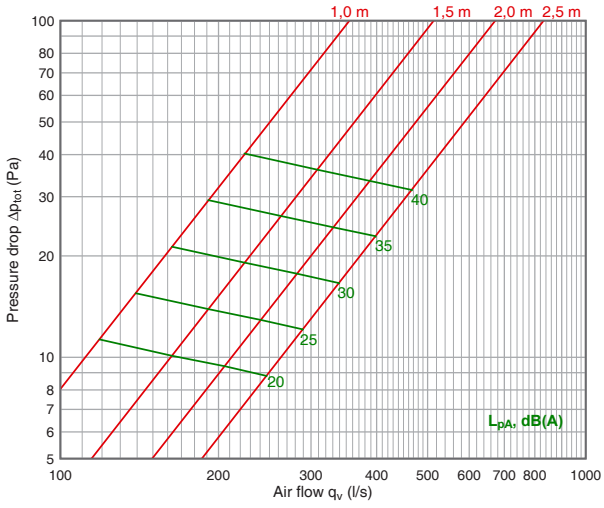
Technical data

The supply panels always contain the “AirGrip” air intake system.

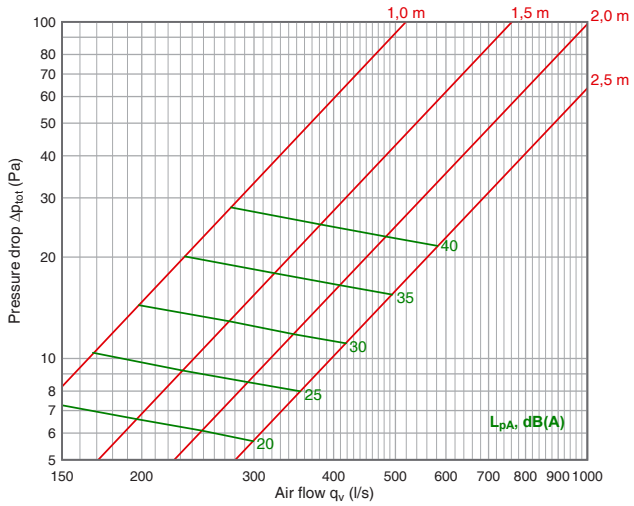
Supply air: SPx1



Supply air: SPx2



Supply air: SPx3



Acoustic data

$L_w = L_{p10A} + K_{okt}$

Supply air	Correction of sound level K_{okt} (dB) (Hz)							
	63	125	250	500	1000	2000	4000	8000
SP×1	-1	0	3	2	-1	-3	-11	-23
SP×2	0	1	5	4	-1	-8	-20	-27
SP×3	7	5	6	4	-2	-13	-21	-30
	± 4 dB	± 4 dB	± 4 dB	± 2 dB	± 2 dB	± 2 dB	± 2 dB	± 2 dB

Product marking

HCH L×H 250×n SPx1(2,3)

Marking
HCH - Supply Air Module

Dimensions
L - Length (1000, 1500, 2000, 2500, mm)
H - Height (400 mm)

Supply air
Diameter of supply air connections (250 mm)
n - Quantity of supply air connections

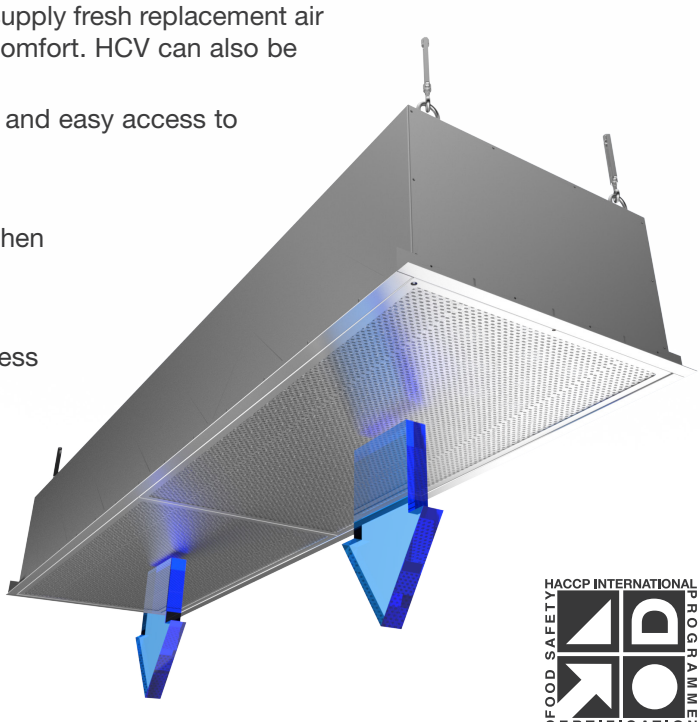
Front panel
SPx1 - Perforation pattern 1
SPx2 - Perforation pattern 2
SPx3 - Perforation pattern 3

Example: HCH 1500×400 250×1 SPx1

HCV Vertical Supply Air Module

HCV is a vertical supply air module, designed to supply fresh replacement air into the kitchen area to provide ultimate worker comfort. HCV can also be used for some exhaust applications as well.

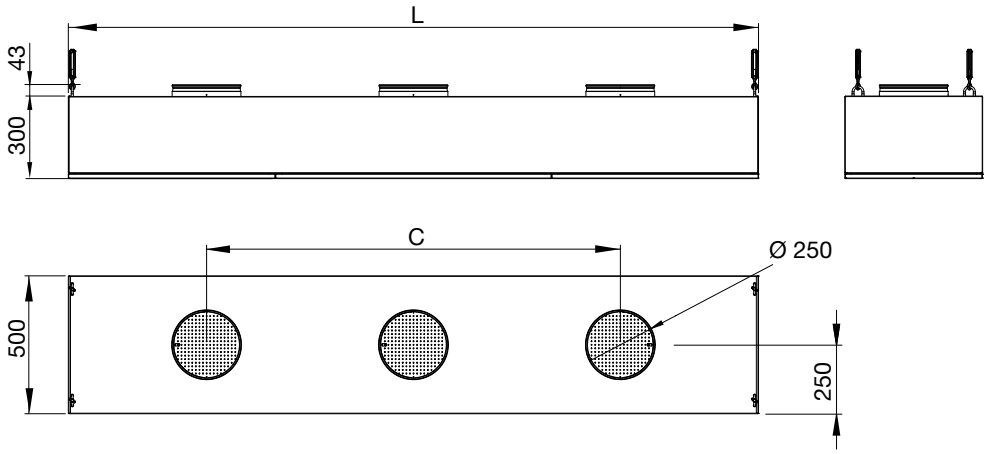
Its panels can be removed for cleaning purposes and easy access to supply ducts.



- Even and draft-free air distribution in the kitchen
- Easy to clean surfaces
- Easily removable front panels
- The frame is manufactured from 1 mm stainless steel (AISI 304, surface 2K)
- Supply air duct connections are Ø 250 mm and equipped with rubber seals and integrated dampers

Dimensions

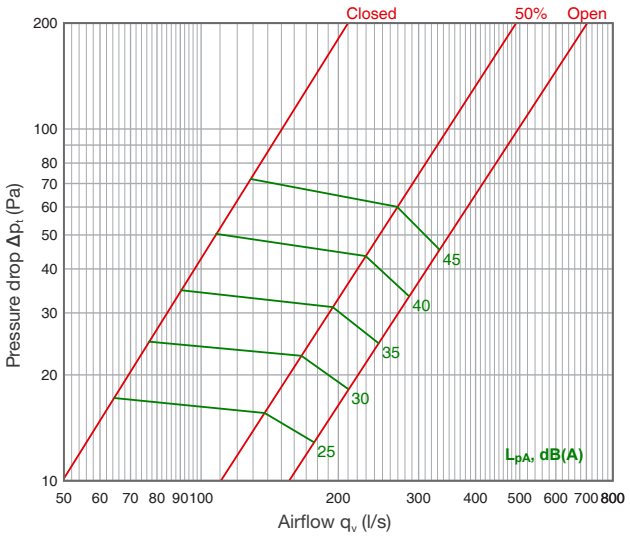
Length L	Connections quantity	C
1000	1	-
1500	2	750
2000	2	1000
2500	3	1500



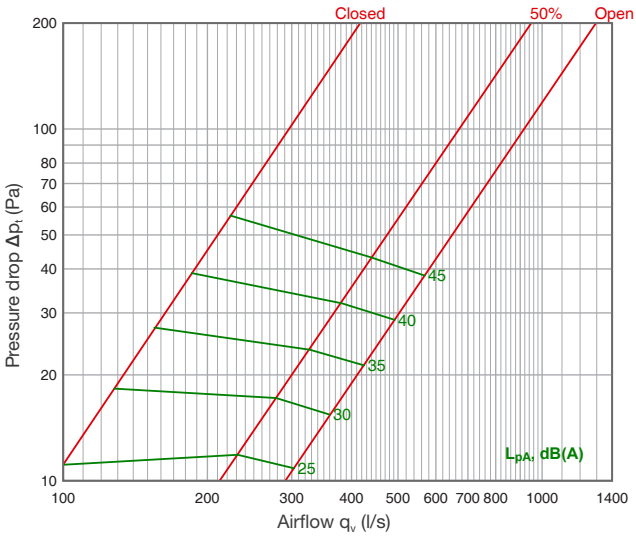
Technical data

Supply air

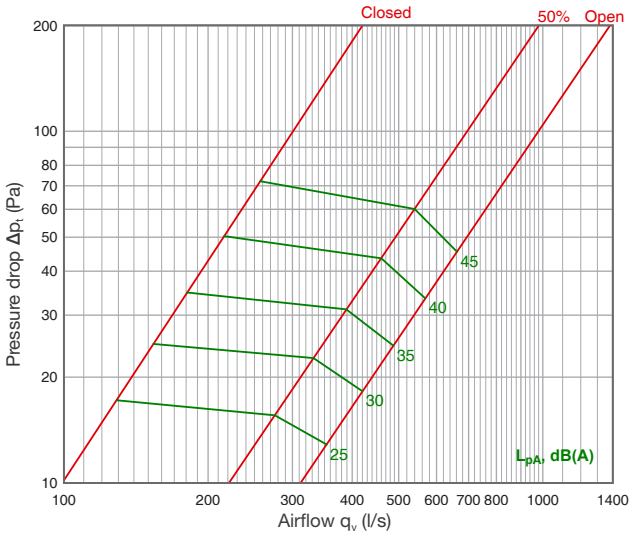
HCV 1000



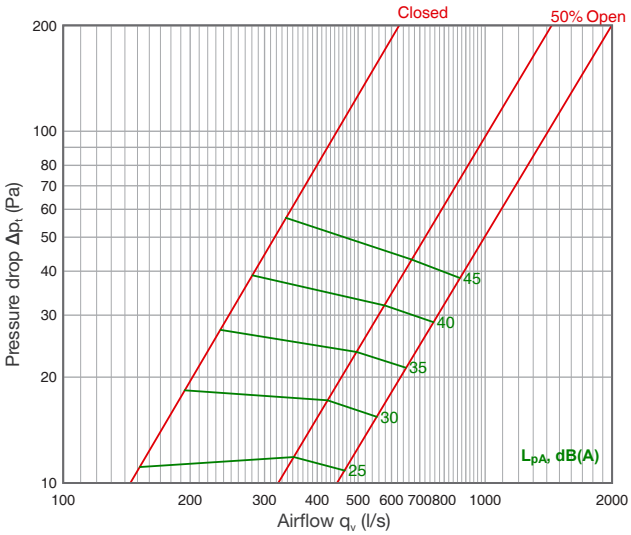
HCV 1500



HCV 2000

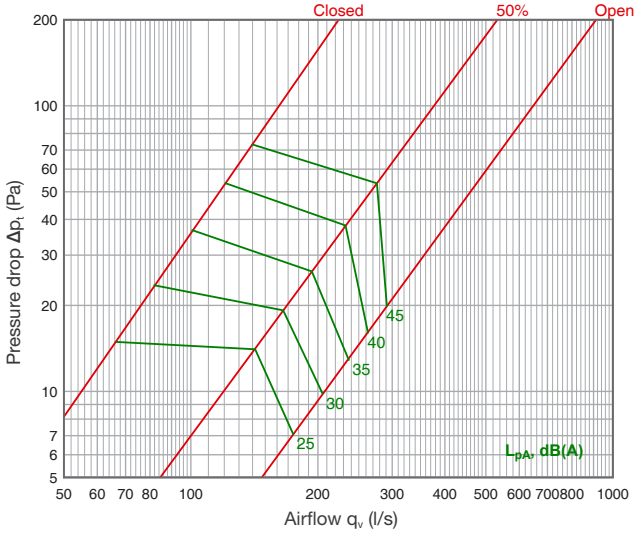


HCV 2500

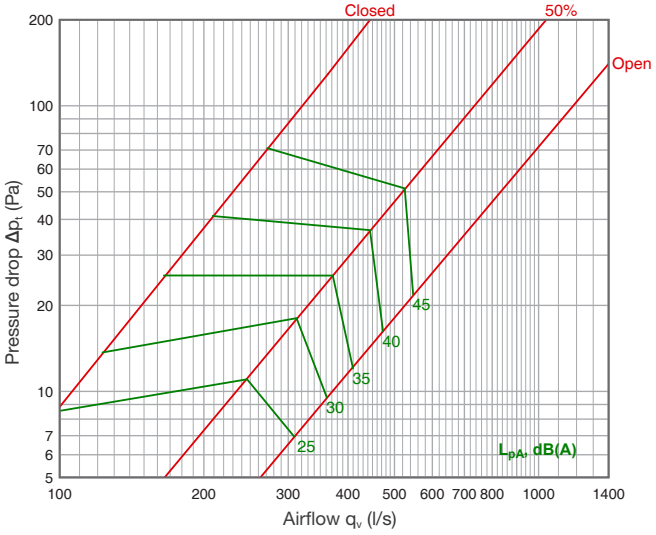


Exhaust air

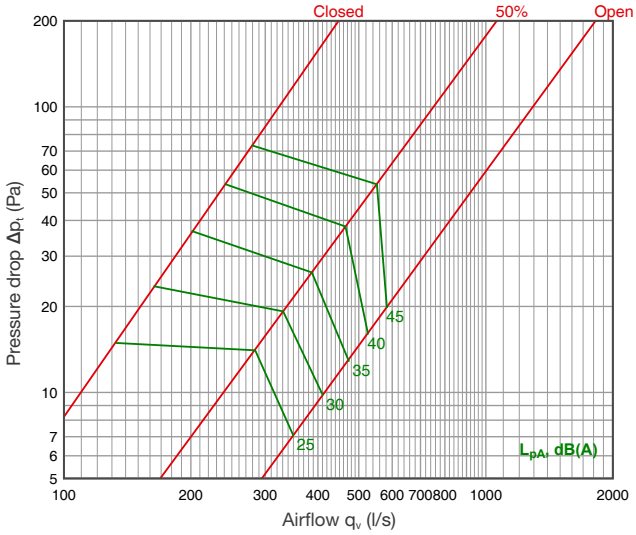
HCV 1000



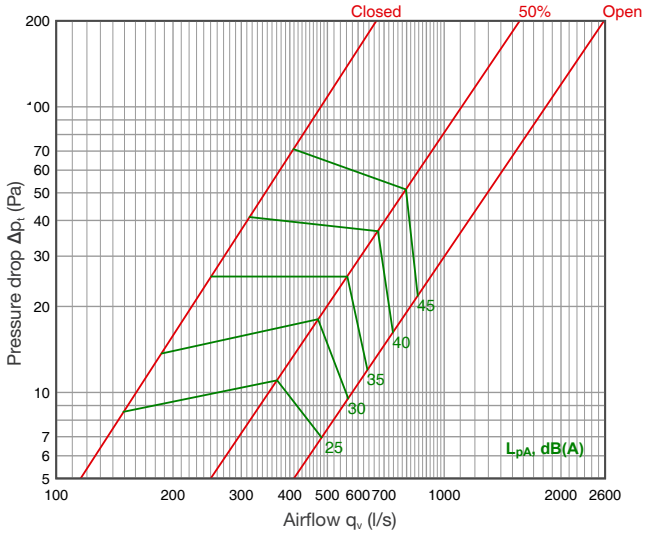
HCV 1500



HCV 2000



HCV 2500



Acoustic data

Supply air, $L_w = L_{wA} + K_{okt}$

Product	Sound level correction factor K_{okt} (dB) Mean frequency of octave band (Hz)								
	Position	63	125	250	500	1k	2k	4k	8k
HCV 1000	Open	-0,6	-0,9	-3,6	-6,6	-5,6	-8,5	-13,6	-15,9
	50%	-1,3	0,1	-3,0	-5,9	-6,0	-8,4	-12,6	-15,3
	Close	-11,1	-6,2	-3,8	-0,9	-8,6	-13,2	-16,6	-14,8
HCV 1500	Open	4,0	2,2	-1,3	-6,5	-6,5	-9,9	-13,6	-17,1
	50%	3,6	2,3	-1,7	-5,2	-6,4	-10,1	-12,5	-16,3
	Close	-8,3	-7,3	-4,3	-4,0	-8,4	-12,5	-16,7	-15,8
HCV 2000	Open	-12,3	3,8	-0,8	-6,4	-6,8	-10,7	-13,6	-18,2
	50%	4,4	3,8	-0,5	-4,8	-6,6	-12,3	-12,4	-17,3
	Close	-7,6	-8,4	-4,8	-7,1	-8,2	-11,7	-16,9	-17
HCV 2500	Open	-13,2	4,3	-0,2	-6,3	-6,9	-11,4	-13,6	-19,3
	50%	5,2	4,9	-0,1	-4,5	-6,8	-12,1	-12,2	-18,2
	Close	-6,7	-9,5	-5,3	-9,6	-7,9	-11,1	-17,1	-17,2

Exhaust air, $L_w = L_{wA} + K_{okt}$

Product	Sound level correction factor K_{okt} (dB) Mean frequency of octave band (Hz)								
	Position	63	125	250	500	1k	2k	4k	8k
HCV 1000	Open	-11,5	-11,1	-14,2	-10,7	-5,3	-9,0	-15,1	-17,7
	50%	-4,6	-3,7	-5,7	-6,6	-6,7	-7,4	-9,3	-12,4
	Close	-11,3	-9,5	-7,7	-5,6	-8,1	-9,8	-10,7	-12,1
HCV 1500	Open	-3,9	-6,4	-10,4	-11,9	-13,2	-12,2	-15,9	-22,5
	50%	2,6	-0,3	-3,0	-6,0	-6,9	-8,9	-10,1	-13,3
	Close	-18,9	-16,1	-13	-14,3	-15,8	-16,2	-11,7	-11,1
HCV 2000	Open	0,5	-4,7	-8,4	-12,5	-14,1	-14,3	-16,2	-23,2
	50%	4,8	1,3	-1,6	-5,7	-7,2	-9,3	-11,3	-14,2
	Close	-20,4	-18,5	-15,2	-16,5	-17,2	-17,9	-12,4	-10
HCV 2500	Open	3,4	-3,4	-6,7	-12,9	-14,7	-15,1	-16,4	-24,1
	50%	6,9	3,4	-0,3	-5,3	-7,5	-9,4	-11,6	-15,1
	Close	-22,7	-19,9	-17,3	-17,6	-18,3	-18,5	-12,9	-8,9

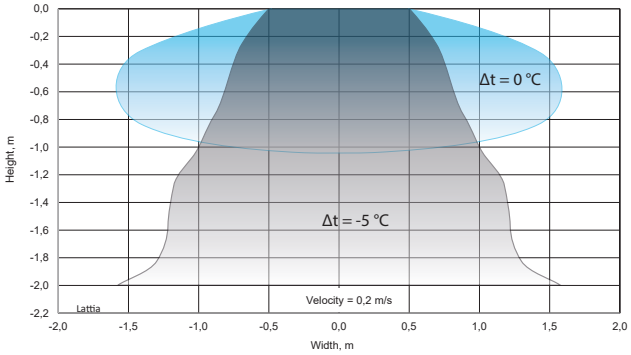
Sound attenuation

Product	Sound attenuation D_{okt} (dB)							
	63	125	250	500	1k	2k	4k	8k
HCV 1000	11	6	3	3	1	1	1	1
HCV 1500	12	7	3	4	2	1	1	2
HCV 2000	13	8	4	4	2	1	1	2
HCV 2500	14	9	4	5	3	1	1	3

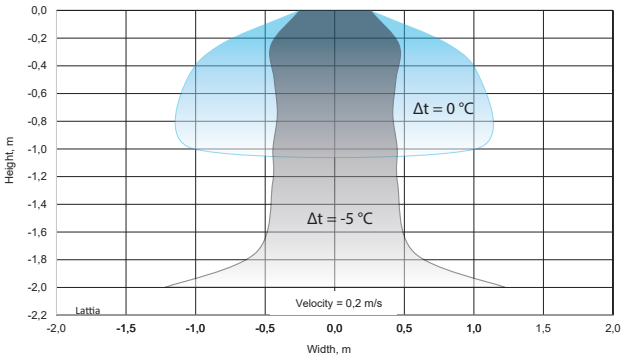
Airflow pattern

HCV 1000x500, temperature difference (50% open)

From the long side

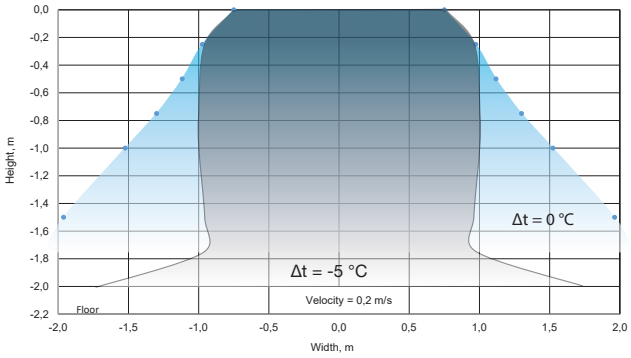


From the short side



HCV 1500x500, temperature difference

From the long side



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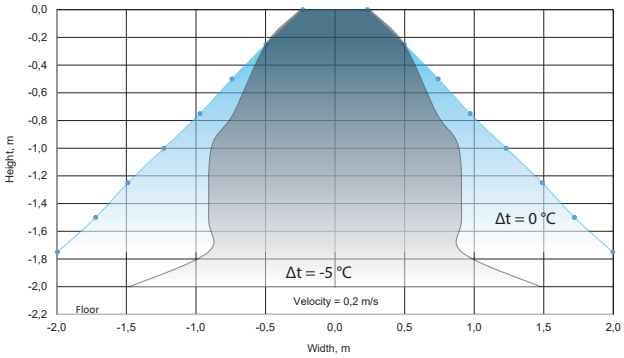


Product marking

HCV L 250×n

Marking
HCV - Vertical Supply Air Module

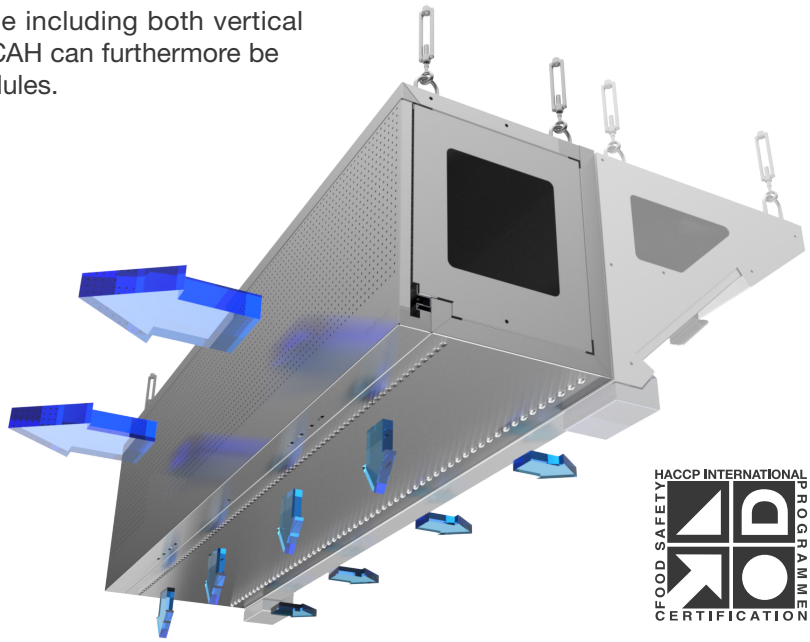
Length L
1000, 1500, 2000, 2500 mm

Duct connection
Diameter of air connection (250 mm)
n - Quantity of air connections

Example: HCV 1500 250×2

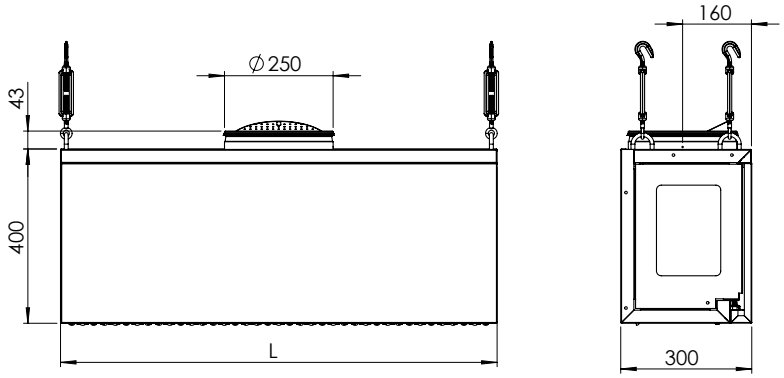
HCAH Horizontal Supply Module

HCAH is a horizontal supply air module including both vertical and horizontal “AirGrip” functionality. HCAH can furthermore be installed back-to-back with exhaust modules.



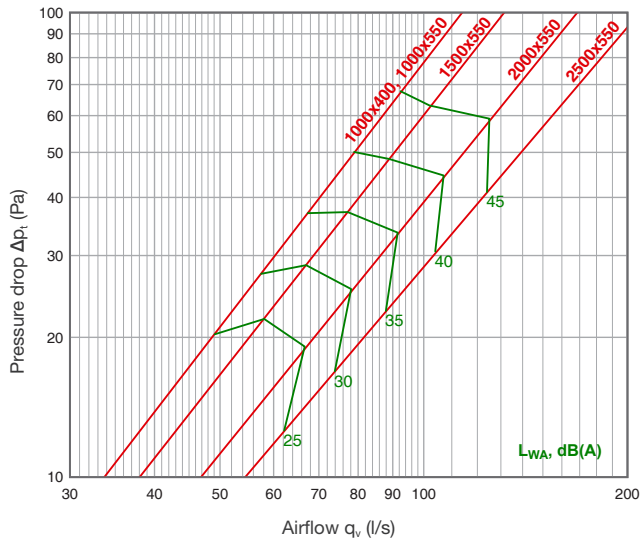
Dimensions

Length L	Connections quantity
1000-1400	2
1500-1900	3
2000-2500	4

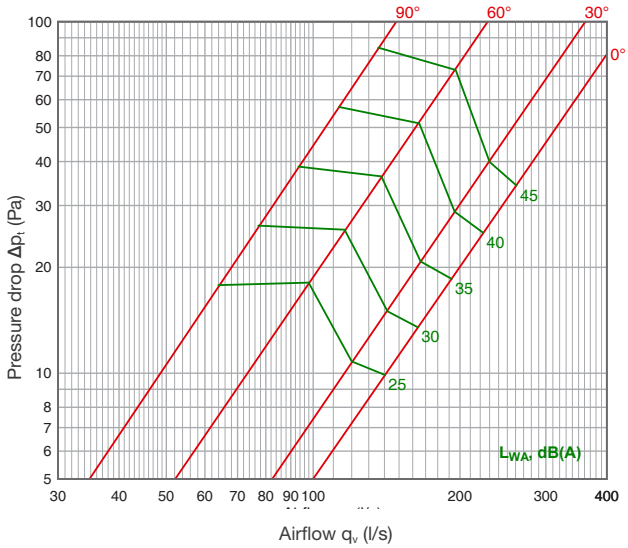


Technical data

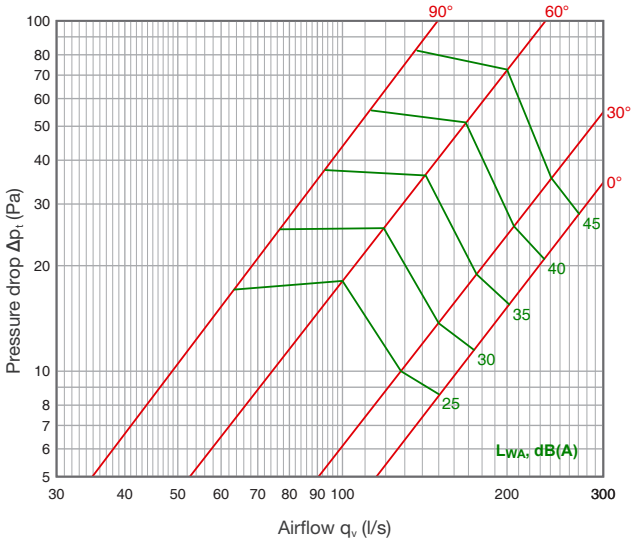
HCAH SPx0



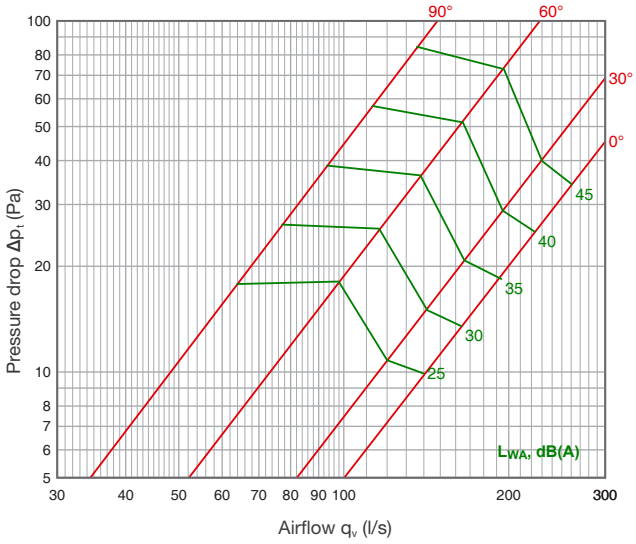
HCAH 1000x400



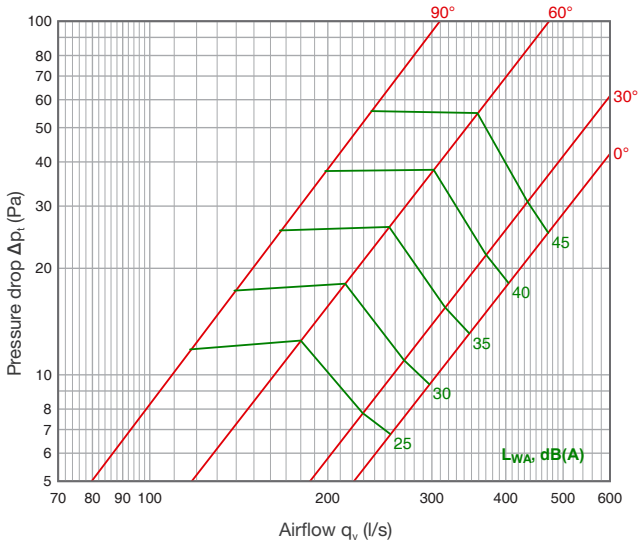
HCAH 1500x550



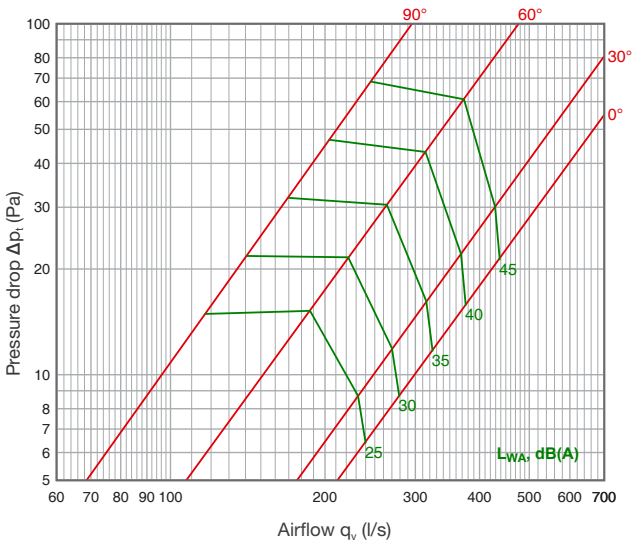
HCAH 1000x550



HCAH 2000x550



HCAH 2500x550



Acoustic data

$L_w = L_{wA} + K_{okt}$

Product	Front panel	Position	K-factor	Sound level correction factor K_{okt} (dB) Mean frequency of octave band (Hz)							
				63	125	250	500	1k	2k	4k	8k
HCAH 1000x400	SPx0	0°	10,3	-2	-2	-3	-8	-3	-2	-13	-21
	SPx3	90°	15,5	-4	0	7	3	-6	-13	-17	-20
		60°	25,4	1	4	6	1	-1	-9	-16	-22
		30°	48,9	3	5	8	2	-2	-12	-19	-22
		0°	62,5	1	6	8	2	-3	-12	-20	-22
HCAH 1000x550	SPx0	0°	11,3	-2	-3	-3	-6	-2	-2	-14	-22
	SPx3	90°	15,4	-4	1	7	4	-7	-14	-17	-20
		60°	24,6	7	9	8	3	-5	-11	-17	-22
		30°	44,5	2	5	6	2	-2	-11	-18	-22
		0°	62,9	3	6	7	3	-2	-11	-19	-23
HCAH 1500x550	SPx0	0°	13	-1	-2	-2	-3	0	-3	-16	-23
	SPx3	90°	15,6	-4	1	7	4	-6	-14	-17	-21
		60°	25,3	5	8	8	3	-5	-12	-17	-22
		30°	52,5	2	6	7	2	-2	-12	-19	-23
		0°	86,9	2	6	7	3	-3	-12	-21	-26

Product	Front panel	Position	K-factor	Sound level correction factor K_{okt} (dB) Mean frequency of octave band (Hz)							
				63	125	250	500	1k	2k	4k	8k
HCAH 2000x550	SPx0	0°	16,1	-1	-1	0	-3	0	-4	-14	-22
	SPx3	90°	33,6	-2	3	7	3	-8	-15	-19	-22
		60°	53,3	5	9	8	2	-4	-12	-18	-23
		30°	102	3	7	7	2	-3	-12	-19	-24
		0°	144	3	8	7	3	-3	-13	-21	-25
HCAH 2500x550	SPx0	0°	18,9	0	2	4	3	-2	-9	-18	-23
	SPx3	90°	30,8	-1	3	6	4	-6	-13	-17	-22
		60°	51,7	7	9	7	3	-5	-11	-18	-23
		30°	99,6	4	8	6	3	-2	-11	-20	-24
		0°	142	2	7	6	3	-2	-10	-20	-25

Product marking

HCAH L×H 250×n SP×1(2,3)

Marking
HCAH - Horizontal Supply Module

Dimensions
L - Length (1000....2500 mm)
H - Height (400 mm)

Supply air
Diameter of supply air connection (250 mm)
n - Quantity of supply air connections

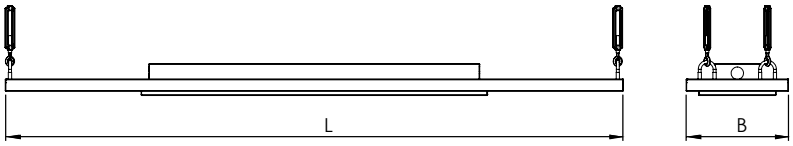
Front panel
SPx0 - No Perforation, only “AirGrip” supply air curtain system
SPx1 - Perforation pattern 1
SPx2 - Perforation pattern 2
SPx3 - Perforation pattern 3

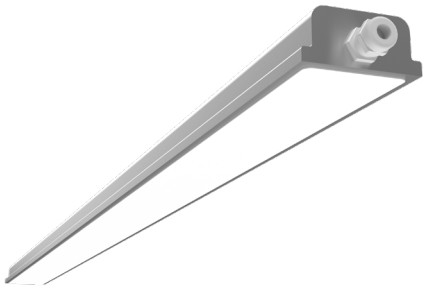
Example: HCAH 1500x400 250x1 SPx1

HCL LED Light Module

Professional kitchens require functional lighting to ensure that employees have a safe and effective work environment. ETS NORD professional kitchen canopies use the next generation of energy-efficient LED luminaries, which can save as much as 50% more energy compared to old technologies.

LED light fixtures are integrated into ceiling modules, protected by an aluminum and plastic glass casing. The size and number of light fixtures are determined by the size of the ventilation ceiling, to ensure there is enough light output for the entire workspace. Our integrated LED and DALI luminaries have two color temperature options - colder 4000K and warmer 3000K. It is also possible to choose between regular LED and DALI2 (dimmable) luminaries.





LED luminaries, IP66

Module length L, (mm)	Module width B, (mm)	Luminaries	Lighting length (mm)	Energy use (W)	Color temperature (K)	Color rendering index (Ra)	Flux (lm)
1000 ≤ L <1300	250-500	LED-4000-600	600	17	4000	90	2907
1000 ≤ L <1300	250-500	LED-3000-600	600	17	3000	90	2907
1400 ≤ L <2500	250-500	LED-4000-1200	1200	34	4000	90	6498
1400 ≤ L <2500	250-500	LED-3000-1200	1200	34	3000	90	6498

DALI2 LED luminaries, IP66

Module length L, (mm)	Module width B, (mm)	Luminaries	Lighting length (mm)	Energy use (W)	Color temperature (K)	Color rendering index (Ra)	Flux (lm)
1000 ≤ L <1300	250-500	DALI2-4000-600	600	20	4000	90	3000
1000 ≤ L <1300	250-500	DALI2-3000-600	600	20	3000	90	3000
1400 ≤ L <2500	250-500	DALI2-4000-1200	1200	37	4000	90	6000
1400 ≤ L <2500	250-500	DALI2-3000-1200	1200	37	3000	90	6000

Product marking

HCL L×B LED/DALI

Marking
HCL - LED Light Module

Dimensions
L - Length (1000-2500 mm)
B - Width (250-500 mm)

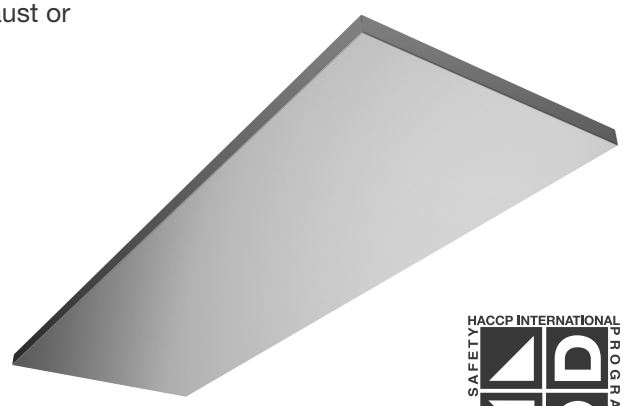
Lighting
LED-4000-600 - L=600, 17W, 4000K
LED-4000-1200 - L=1200, 34W, 4000K
LED-3000-600 - L=600, 17W, 3000K
LED-3000-1200 - L=1200, 34W, 3000K
DALI2-4000-600 - L=600, 20W, 4000K
DALI2-4000-1200 - L=1200, 37W, 4000K
DALI2-3000-600 - L=600, 20W, 3000K
DALI2-3000-1200 - L=1200, 37W, 3000K

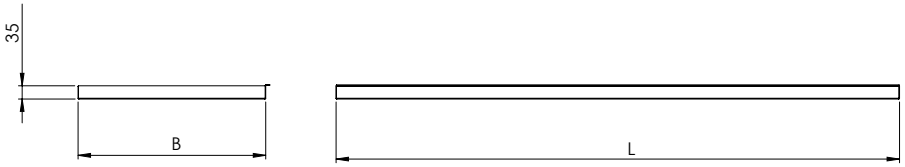
Example:

HCL 1500×250 LED-4000-1200
HCL 1000x250 DALI2-3000-600

HCF Ceiling Panel

HCF is a ceiling panel that fills in the areas without exhaust or supply modules.





Product marking

HCF L×B

Marking
HCF - Ceiling Panel

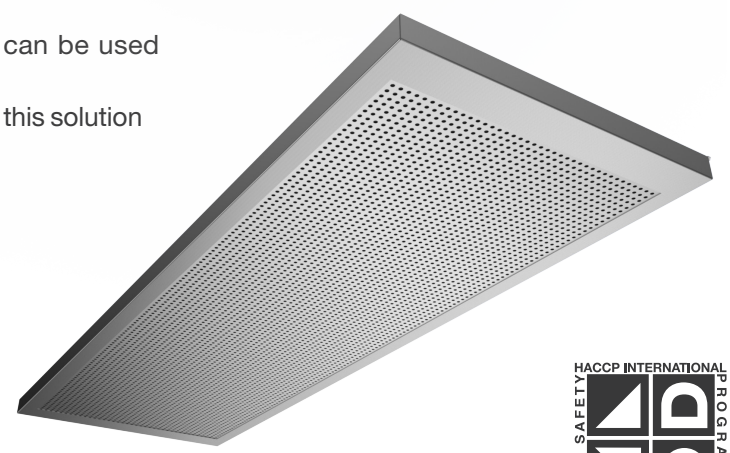
Dimensions
L - Length (1000, 1500, 2000, 2500 mm)
B - Width (250-500 mm)

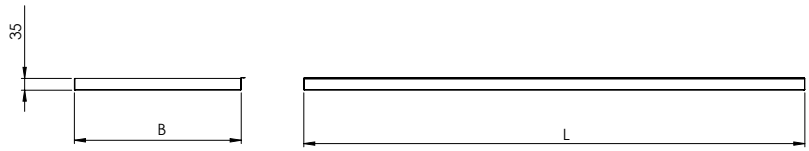
Example: HCF 1000×500

HCM Noise Absorbing Ceiling Panel

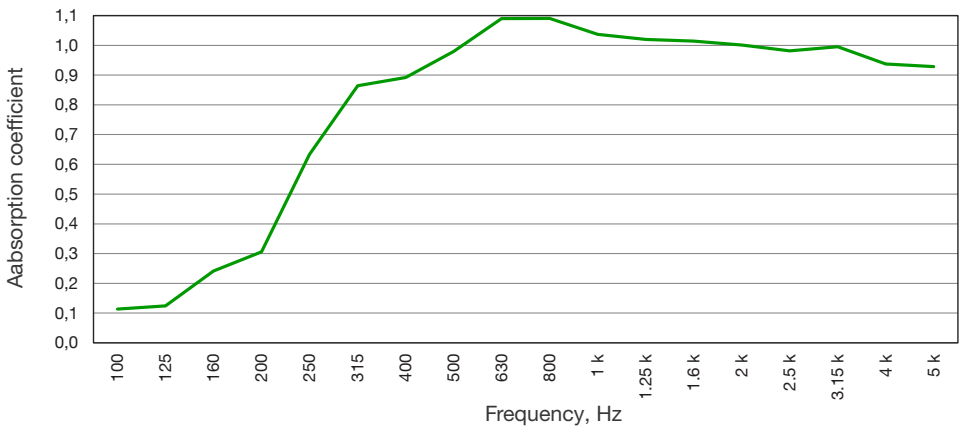
HCM is a noise absorbing ceiling panel that can be used instead of regular ceiling panel.

In standard tests measuring the absorption level, this solution has reached the highest level.





Acustic performance



Product marking

HCM **L×B**

Marking
HCM - Noise Absorbing Ceiling Panel

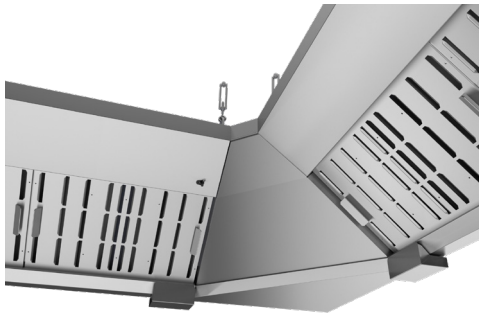
Dimensions
L - Length (1000, 1500, 2000, 2500 mm)
B - Width (250-500 mm)

Example: HCM 1000×500

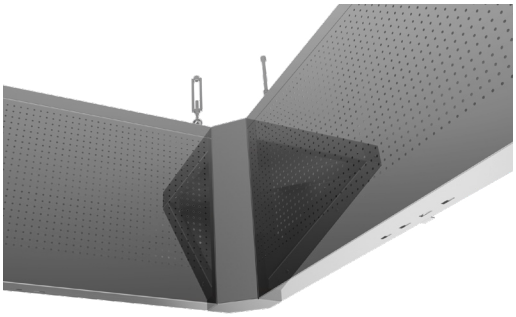
Exhaust and Supply Corner Elements

Corner connection elements enable to combine the chambers in a 90 degree angle for both inner and outer corner types. Solutions are compatible with HCE exhaust and HCH supply module.

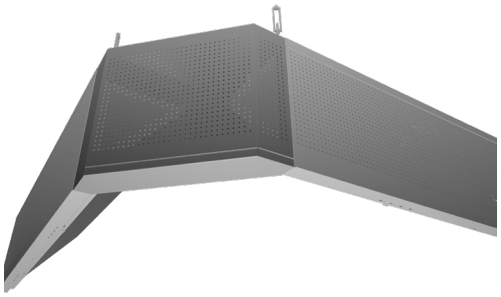
HCAE
Inner Corner Exhaust



HCAS
Inner Corner Supply



HCAV
Outer Corner Supply



Product marking

HCAE H

Marking
- HCAE - Inner Corner Exhaust
- HCAS - Inner Corner Supply
- HCAV - Outer Corner Supply

Dimension H
- H - Height (400 mm)

Example: HCAE 400

OZ/EOZ Ozonator

ETS NORDs OZ and EOZ are ozone cleaning systems that are intended to be used together with ETS NORD professional kitchen canopies or ventilation ceilings. The devices are designed for the exhaust air systems of professional kitchens with high requirements to minimize grease and odour. Using the Control Panel with versatile features **(to be ordered separately)**, the use and monitoring of the integrated ozone cleaning system is effortless.

Function

Ozone (O_3) is a very effective oxidant, and when mixed into the kitchen's exhaust air brakes down grease and odour particles to water vapor, carbon dioxide and dry minerals.

Note! For best results with odour and grease reduction, the reaction time for ozone within a kitchen exhaust system should be at least two seconds. However, longer exposure can further improve results. This time should be considered during the design phase of the kitchen exhaust system.

Benefits obtained with ozone cleaning:

- Effective grease reduction
- Significantly improved fire safety
- Enables the use of heat recovery
- Effectively reduces odors
- Effective at killing bacteria
- Low maintenance costs

Without ozone cleaning system

With ozone cleaning system

OZ Ozone Unit

For more information about the ozone cleaning system, read the product data sheets on the ETS NORD webpage: www.etsnord.com/products/oz-ozone-unit/

EtherNet/IP™

Modbus

BACnet®

OZ 4.x - Osonaator

EOZ Ozone Generator

EOZ Ozone Generator can be installed to the HC Ventilation Ceiling's exhaust duct system. EOZ chassis contains one or more ozone modules and may be installed in any convenient location and orientation, as long as easy access for service is ensured.

For more information about the EOZ ozone generator, read the product data sheets on the ETS NORD webpage: www.etsnord.com/products/eoz-ozone-generator/

EOZ - Väline osoonigeneraator

UV Cleaning System

ETS NORD's UV cleaning system utilizes ultraviolet light to significantly reduce grease and odor particles from the exhaust chambers and extraction ducts of commercial kitchens. UV cleaning is optionally available with many ETS NORD commercial kitchen canopies.

The UV cleaning system consists of the following components:

- UV lamp
- Integrated control panel
- LCD control panel (hereinafter LCD panel)
- Remote monitoring device*

*Allows connecting the UV Cleaning System to the internet, enabling remote monitoring and control.

Function

The HFK grease filters inside ETS NORD canopies have a capture efficiency of 97% of 10µm particles. To further clean the extraction airstream from other contaminants entering the extraction ducts, a UV cleaning system is integrated into the canopy to further eliminate residual particles and improve fire safety.

The removal of grease in the airstream takes place by photolytic oxidation, which is a combination of photolysis and ozonolysis. UV-C lamps are used to generate ultraviolet radiation at both 185 nm and 254 nm wavelengths. At 254 nm the process of photodegradation takes place as a result of the ultraviolet radiation, breaking down organic molecules (in this case grease particles, vapors and bacteria) into minerals and water vapor under the influence of photons. At 185 nm ozone is produced which traverses through the exhaust system, further cleaning the airstream and increasing the overall efficiency of the system. Any residual ozone exiting the system to the outdoors is quickly converted to oxygen and no environmentally-harmful compounds whatsoever are generated during the entire process.

Depending on the size of the kitchen canopy, 1-4 lamps per canopy are installed, which ensures efficient cleaning of the extracted air.

Benefits obtained with UV cleaning:

- Effective grease reduction.
- Significantly improved fire safety.
- Reduced odors.
- Possibility to connect kitchen exhaust to plate (cross-flow) heat exchangers.
- Reduction of time and effort needed to clean the exhaust ventilation system, resulting in reduced maintenance costs.
- Improved hygiene - a healthier and safer working environment.

The operation of the UV lamps is overseen by a Control Unit integrated inside the supply air chamber of the canopy, which can be monitored and controlled with an LCD panel. The Control Units of several UV cleaning stems can be interconnected and controlled from a single LCD panel.

UV cleaning system features

Safety:

- The system will shut down if grease filters are removed or not correctly fitted.
- The system will shut down if the pressure in the extraction chamber drops below 20 Pa.
- Electronics are protected by thermal protection and type C circuit breaker.
- HACCP International certificate for food safety under preparation.
- UV-C safety certificate.
- CE certified.

HACCP INTERNATIONAL FOOD SAFETY PROGRAMMEN CERTIFICATION

Redundancy:

- UV lamps are powered separately, so the failure of one lamp does not affect the others.
- Each canopy operates independently, even when the main canopy and panel are switched off.

Compatibility with building automation:

- Modbus, I/O and LAN connectivity are included as standard.
- Data flow with building automation - alarm notification, operating mode, maintenance notification, fan connection, ATS.
- Remote monitoring IoT (Internet of Things) from the local area network or Internet.
- Timer clock configuration option.

For more detailed information and instructions about the UV cleaning system, please visit the ETS NORD website.

Dimensioning Guide

The choice and number of UV lamps depends upon several factors including the size of the canopy, the volume of extraction air, and the cooking equipment used. Please consult with ETS NORD kitchen specialists when selecting a UV canopy.

NB! In the case of ETS NORD canopy, all electronics are integrated into the physical canopy. The UV cleaning system must be installed by a qualified technician and the canopy must be marked accordingly.

Maintenance

After 10,000 operating hours efficiency of the lamps decreases, it is advised to change all UV lamps in the system. UV lamps are hazardous waste that must be disposed of according to 2012/19/EU WEEE directives.

The lamps should be inspected once a week, and if dirt is visible, wipe the glass surface of the lamp gently with a damp cloth. For more heavily soiled lamps, use isopropyl alcohol.

HFK Grease Filter

HFK is a high efficiency grease filter designed for use in ventilation hoods of commercial kitchens or other food production facilities. They are positioned in the hood exhaust plenum above cooking appliances (stoves, grills, etc.) and separate grease and other particles out from the exhaust air stream.

The ETS NORD HFK grease filter is protected by utility patent no. 01310.

- High efficiency captures 97% of 10 micron particles
- Functions well even with variable air volume systems.
- Low pressure drop provides energy-efficient operation.
- Flame resistance class A according to DIN 18869-5.
- Easy to maintain.
- Grease particle separation is measured according to VDI 2052 standard.
- The HFK grease filter is certified according to UL 1046 requirements.

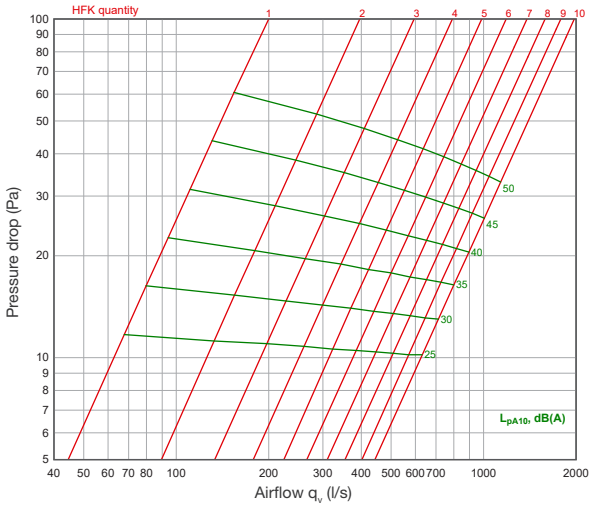
Material and design

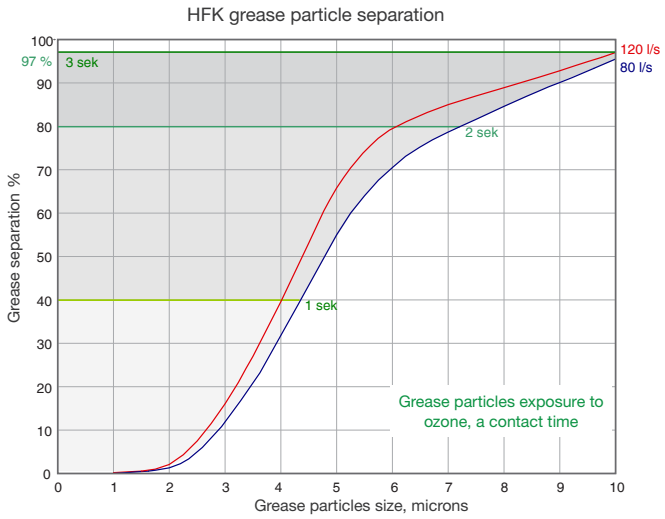
HFK filters are manufactured from AISI 304 stainless steel. They are assembled with rivets to ensure their durability through many years of use in challenging kitchen environments.

Operation

The greasy effluent from cooking appliances is pulled through the openings in the front panel of the filter. Our patented double-triangular cross-section within the chamber causes a high speed centrifugal swirling of the air. The rapid change of trajectory of the grease particles causes them to collide with the filter surfaces, resulting in their effective separation from the air stream. The grease then drains from the filter down and into the grease collection channel of the hood. The filtered air continues on into the kitchen exhaust system through the top and bottom orifices of the filter.

The optimal operating conditions of the HFK Grease Filter are under a pressure drop from 12-48 Pa with an airflow through each filter from 70-130 l/s, ensuring an energy efficient operation.





Sound attenuation of HFK

$L_{wokt} = L_{pA} + K_{okt}$

HFK	Sound level correction factor K_{okt} (dB) Mean frequency of octave band (Hz)							
	63	125	250	500	1000	2000	4000	8000
K	4	3	0	1	0	-4	-15	-21

FET Filter Removal Tool

With the ETS NORD “Helping Hand” filter tool, professional kitchen operators can safely and easily service their UV cover plates, blind and grease filters. Helping Hand allows UV cover plates, blind and grease filters to be removed and replaced without the cumbersome need to climb on, or reach over the kitchen equipment. The daily filter washing process is significantly simplified, thus ensuring its completion by the responsible staff. The tools angle is fully adjustable, thereby enhancing ergonomic comfort. The standard length of the handle is 1250 mm

ETS NORD

ETS NORD AS

Address: Peterburi tee 53
11415 Tallinn
Estonia

Phone: +372 680 7360

info@etsnord.ee
www.etsnord.ee

ETS NORD Finland

Address: Pakkasraitti 4
04360 Tuusula
Finland

Phone: +358 40 184 2842

info@etsnord.fi
www.etsnord.fi

ETS NORD Sweden

Address: Järsjögatan 7
692 35 Kumla
Sweden

Phone: +46 19 554 20 50

Address: Pinjegatan 5
213 63 Malmö
Sweden

Phone: +46 40 94 68 70

Address: Förrådsvägen 5
151 58 Södertälje
Sweden

Phone: +46 8 550 301 40

info@etsnord.se
www.etsnord.se

ETS NORD International

info@etsnord.com
www.etsnord.com

Let's move the air ***together!***