camfil

HORIZONTAL DEEP CELL FILTERS (HDC)

PROCARB – Industrial Molecular Filtration Solutions

Clean air solutions

PROCARB HORIZONTAL DEEP CELL UNITS (HDC)

INTRODUCTION

Horizontal Deep Cell filters (HDC) are a member of the Camfil ProCarb range of molecular filtration solutions for industrial applications. They are designed to ensure high levels of performance in those applications where it is necessary to control odours and toxic and corrosive gases. They are very flexible in terms of installation and may be used in supply, recirculation or exhaust air systems.

The unique feature of the HDC range is the use of a standard size re-fillable media cell. The cells can be arranged in a single or double pass arrangement. Virtually any molecular filtration media can be used in the cells to provide flexibility in the control of single or mixed contaminants. A highly engineered approach is taken to eliminate internal leaks that would otherwise degrade performance.

A range of standard sizes are available to handle airflows in the range of 1000 to 25,000 m3/hr.

HDC housings are designed to ensure ease of installation and operation. The cells can be refurbished with new media without the need for special tools or skilled operatives.

Virtually any molecular filtration media may be selected for use in the HDC cells, depending on the contaminant(s) to be controlled.

After commissioning the filters and housings are completely passive in operation and require minimal routine maintenance.

HDC filters can be supplied with fans, ducts and discharge stacks if required.

OPTIONS:

- 316 stainless steel construction
- Galvanised steel construction
- Painted carbon steel construction
- Pre-filter section
- After-filter section
- Pressure loss gauges

View of cell insertion

FEATURES	CUSTOMER BENEFITS
100 mm deep refillable media cells	Simple to empty and re-fill without special tools or skilled operatives
Engineered approach to eliminate internal leaks	HDC filters deliver very high efficiency
Horizontal orientation of cells	Complete elimination of media settlement and channelling
Pre-and after-filters are easily incorporated	A complete filtration installation with compact footprint
May be used in multiple stages	Can be configured to control multiple contaminants
Construction in various materials	Suitable for different environments

EXAMPLE INDUSTRIES	TARGET GASES
Waste processing and re-cycling	A very wide range of organic molecules
Protection of compressor inlet at petrochemical facility	Acidic gases e.g. hydrogen sulphide, sulphur dioxide
Protection of accommodation modules on off-shore platforms	Acidic gases e.g. hydrogen sulphide, sulphur dioxide
Inlet to environmental chambers in research institutes	A wide range of atmospheric gases, particularly irritants, nitrogen dioxide, ozone, sulphur dioxide
Protection of bridge and engine room on emergency response ships	A very wide range of toxic gases

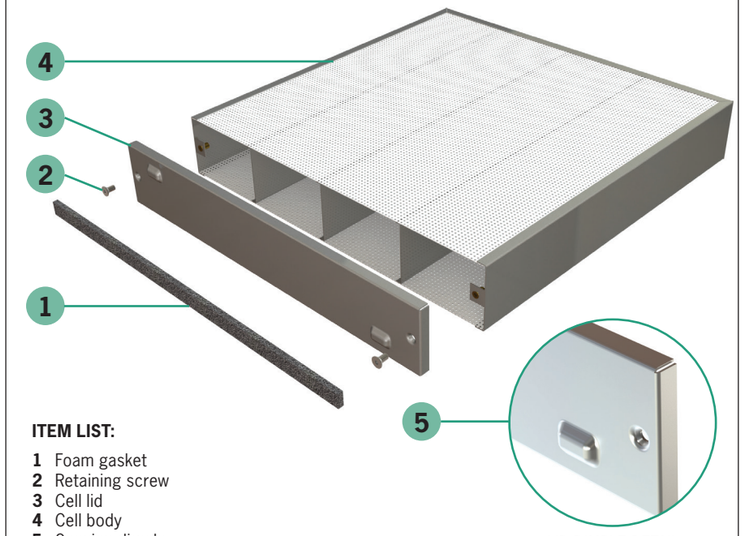
DESCRIPTION

Camfil HDC filter housings have a single skin construction from 1.5 mm sheet. Either galvanised steel, stainless still (304 or 316) or painted carbon steel will be used, depending on the environment.

The cells are constructed from 1 mm sheet and have perforated face plates. The endcap of the cell is easily removed by loosening 2 flat-head screws. Dimples are punched into the cell edges to ensure that adjacent cells consistently achieve the correct spacing and the intermediate gasket is always compressed to the optimal degree.

The cells are mounted in the housing on slide rails. The rails are fitted with a very high performance brush seal that effectively eliminates leaks between the cells and the housing. In standard configuration, HDC filters allow for side access of the cells.

The HDC housings are furnished with hinged doors and cam-actuated locking handles. In custom designs, it is possible to provide front or rear access arrangements.



ITEM LIST:

1 Foam gasket
2 Retaining screw
3 Cell lid
4 Cell body
5 Spacing dimple

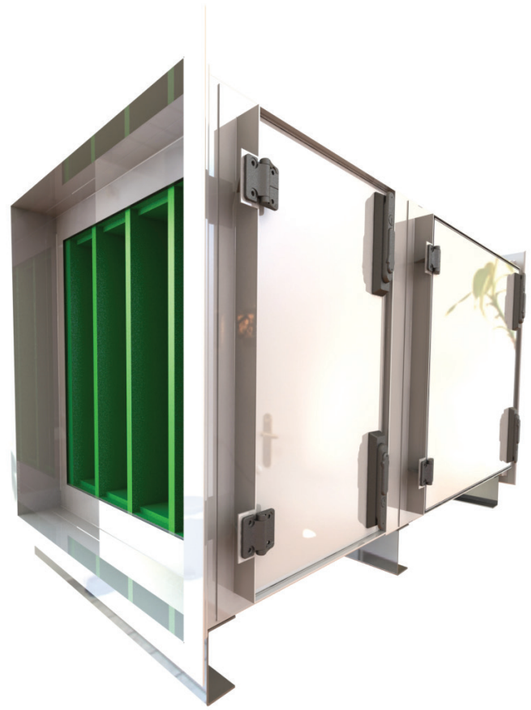
LID DIMPLE DETAIL

Illustrative view of HDC units

TYPICAL SUPPLY AIR INSTALLATION

TYPICAL EXHAUST INSTALLATION

HDC UNIT WITH PRE FILTRATION



HDC UNIT WITH PRE AND POST FILTRATION CARBON SECTION OPEN AND SINGLE CARBON CELL IN POSITON

TECHNICAL DATA

Single Pass								
	Internal Dimensions							
Model Number	Width (mm)	Height (mm)	Length (mm)	Number of cells	Volume (m^3)	Contact Time (s)	Pressure Drop (Pa)	Flow Rate (m^3h^{-1})
HDC-4-S-1100	610	700	810	4	0,141	0,5	105	1100
HDC-6-S-1600	610	1000	810	6	0,211	0,5	105	1600
HDC-8-S-2100	610	1300	810	8	0,281	0,5	105	2100
HDC-12-S-3100	610	1900	810	12	0,422	0,5	105	3100
HDC-16-S-4100	1220	1300	810	16	0,563	0,5	105	4100
HDC-20-S-5100	1220	1600	810	20	0,703	0,5	105	5100
HDC-24-S-6100	1220	1900	810	24	0,844	0,5	105	6100
HDC-36-S-9200	1830	1900	810	36	1,266	0,5	105	9200
HDC-40-S-10200	2440	1600	810	40	1,406	0,5	105	10200
HDC-48-S-12200	2440	1900	810	48	1,688	0,5	105	12200
HDC-56-S-14200	2440	2200	810	56	1,969	0,5	105	14200
HDC-60-S-15200	2440	2350	810	60	2,109	0,5	105	15200

Double Pass								
	Internal dimensions							
Model Number	Width (mm)	Height (mm)	Length (mm)	Number of cells	Volume (m^3)	Contact Time (s)	Pressure Drop (Pa)	Flow Rate (m^3h^{-1})
HDC-6-D-1600	610	550	1520	6	0,211	0,5	530	1600
HDC-8-D-2100	610	700	1520	8	0,281	0,5	530	2100
HDC-12-D-3100	610	1000	1520	12	0,422	0,5	530	3100
HDC-16-D-4100	610	1300	1520	16	0,563	0,5	530	4100
HDC-20-D-5100	610	1600	1520	20	0,703	0,5	530	5100
HDC-24-D-6100	610	1900	1520	24	0,844	0,5	530	6100
HDC-28-D-7100	1220	1150	1520	28	0,984	0,5	530	7100
HDC-32-D-8200	1220	1300	1520	32	1,125	0,5	530	8200
HDC-40-D-10200	1220	1600	1520	40	1,406	0,5	530	10200
HDC-48-D-12200	1220	1900	1520	48	1,688	0,5	530	12200
HDC-54-D-13700	1830	1450	1520	54	1,898	0,5	530	13700
HDC-60-D-15200	1830	1600	1520	60	2,109	0,5	530	15200
HDC-80-D-20300	2440	1600	1520	80	2,813	0,5	530	20300
HDC-96-D-24000	2440	1900	1520	96	3,375	0,5	530	24400

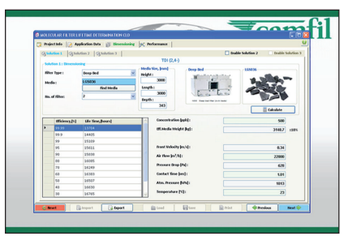
Pressure drop values are calculated with LGS036
Flow rates based on 0.5 second contact time
Pressure drop is for the entire unit, excluding pre / post filters

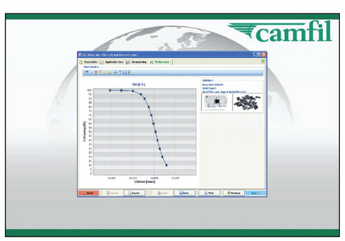
SPECIALISED SOFTWARE

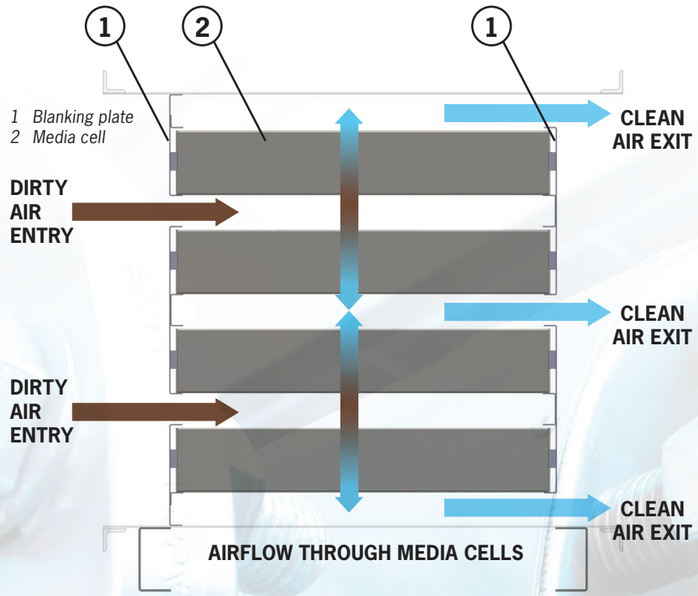
The lifetime of a HDC filter installation can be simulated using the unique Camfil Carbon Lifetime Determination (CLD) software for molecular filtration. The purpose of this software is to provide "best estimates" of the performance of molecular filtration products under selectable conditions that approximate real applications. Predicting the performance of molecular filters in the real world is a complex issue.

This software takes account of the key factors that affect the performance of molecular filters; the gas/vapour to be controlled, concentration, type of adsorbent, amount of adsorbent (contact time), and temperature.

The software has been developed using adsorption theory, many years application knowledge, field measurements and results of extensive product testing in Camfil's unique molecular filtration test laboratory.







Illustrative image of airflow through single pass unit
The cells are arranged to enable air to flow horizontally through the unit forcing it to change direction to pass vertically though the cells through a system of baffles. These baffles ensure that the air cannot bypass the media cells, providing a highly efficient unit.

SERVICING

HDC filters and housing are passive in operation and require very little routine maintenance.

The molecular filtration media will need to be replaced when it is exhausted.

Access to the cells is through the side door(s), which is secured via cam actuated locking handles. The cells are easily removed from the housing via the side rails.

HDC cells are easily refilled. Two screws in the end cap are loosened and the end–cap removed. Spent media is poured out into suitable containers prior to disposal. New media is filled back into the cells from 25 kg sacks.

The waste media should be disposed of in accordance with all site, local and national regulatory requirements.

Pre- and after-filters (if fitted) are also easily accessed for servicing through hinged side doors.

HDC UNIT WITH PRE AND POST FILTRATION

Camfil – a global leader in air filters and clean air solutions.

For more than half a century, Camfil has been helping people breathe cleaner air. As a leading manufacturer of premium clean air solutions, we provide commercial and industrial systems for air filtration and air pollution control that improve worker and equipment productivity, minimize energy use, and benefit human health and the environment.

We firmly believe that the best solutions for our customers are the best solutions for our planet, too. That's why every step of the way – from design to delivery and across the product life cycle – we consider the impact of what we do on people and on the world around us. Through a fresh approach to problem-solving, innovative design, precise process control and a strong customer focus we aim to conserve more, use less and find better ways – so we can all breathe easier.

The Camfil Group is headquartered in Stockholm, Sweden, and has 29 manufacturing sites, six R&D centres, local sales offices in 30 countries, and about 4,500 employees and growing. We proudly serve and support customers in a wide variety of industries and in communities across the world. To discover how Camfil can help you to protect people, processes and the environment, visit us at www.camfil.com.

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