



## 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

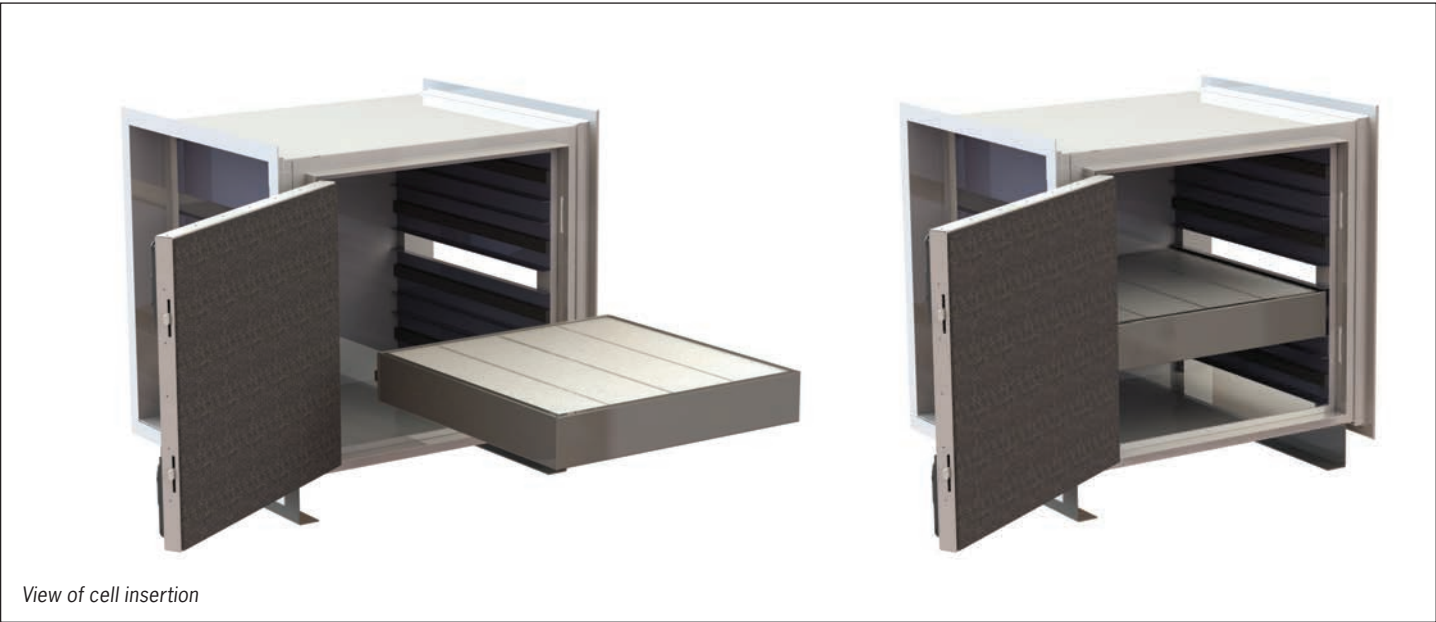
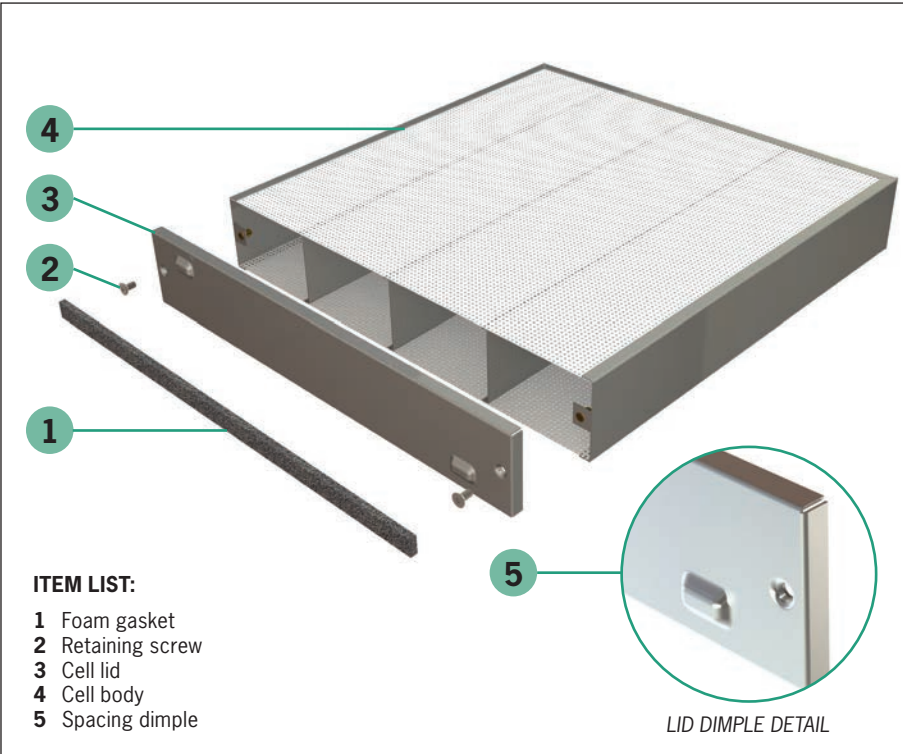
### DESCRIPTION

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.

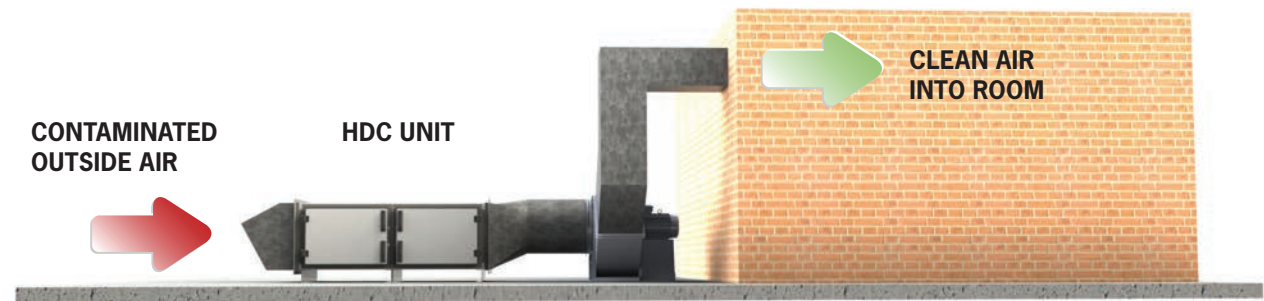


| FEATURES                                        | CUSTOMER BENEFITS                                                       |
|-------------------------------------------------|-------------------------------------------------------------------------|
| 100 mm deep refillable media cells              | 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                                     |

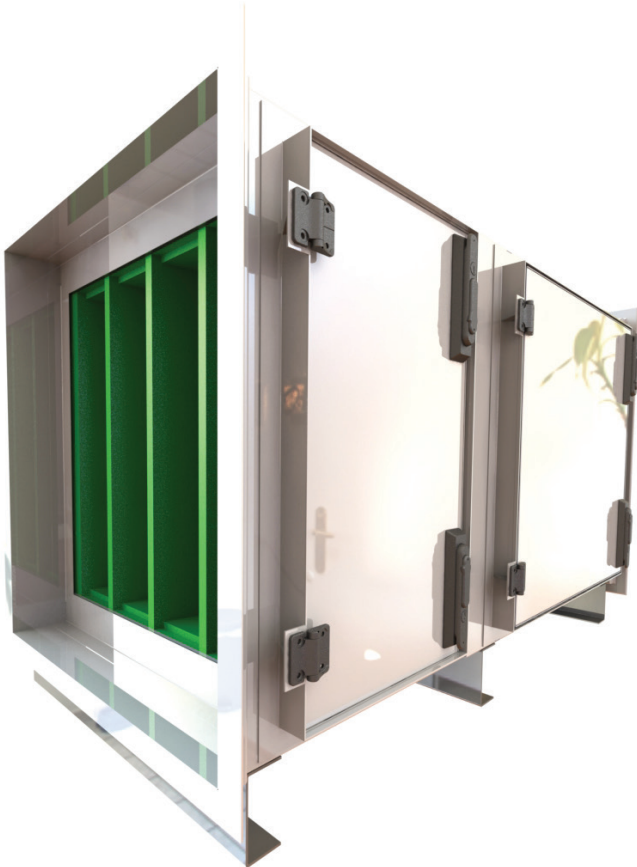
| EXAMPLE INDUSTRIES                                               | TARGET GASES                                                                                        |
|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| 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                                                                    |



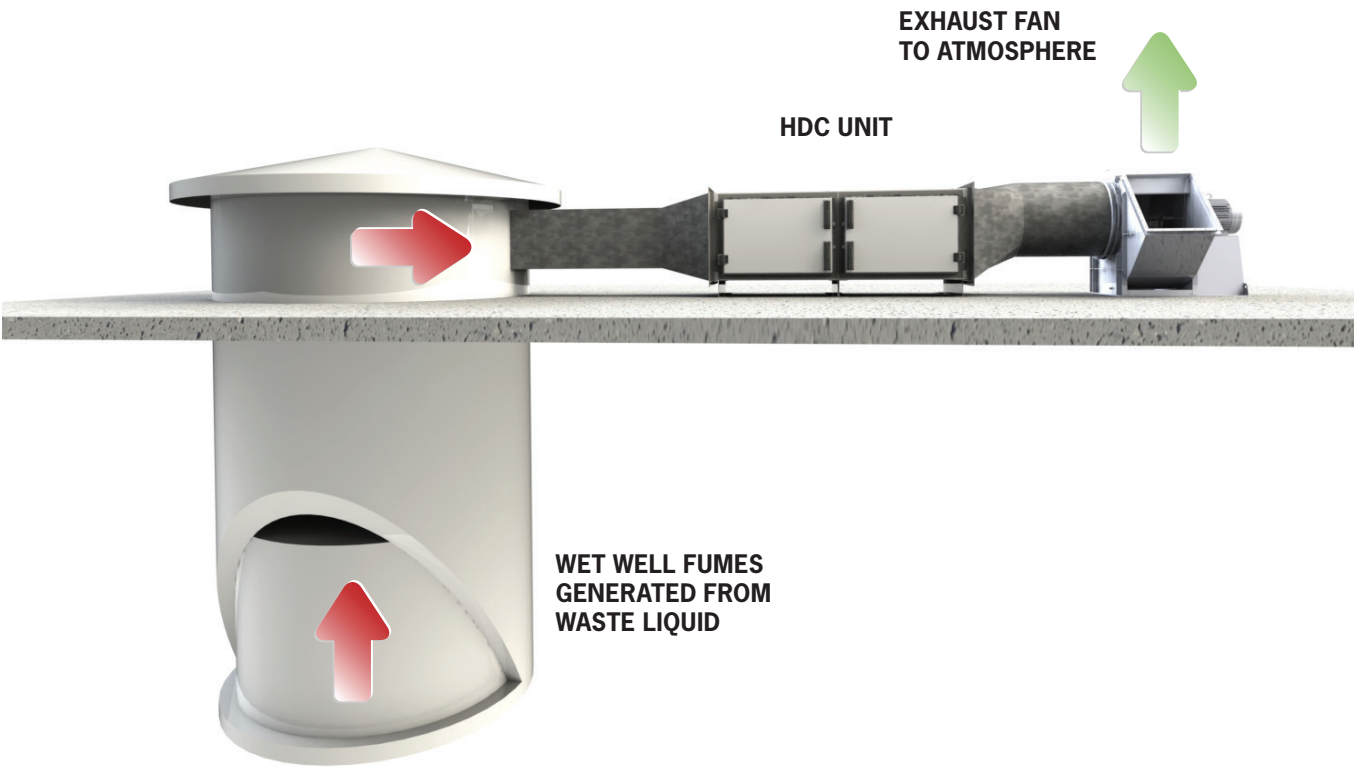
TYPICAL SUPPLY AIR INSTALLATION



HDC UNIT WITH  
PRE FILTRATION



TYPICAL EXHAUST INSTALLATION



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 (m³) | Contact Time (s) | Pressure Drop (Pa) | Flow Rate (m³h⁻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 (m³) | Contact Time (s) | Pressure Drop (Pa) | Flow Rate (m³h⁻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             |

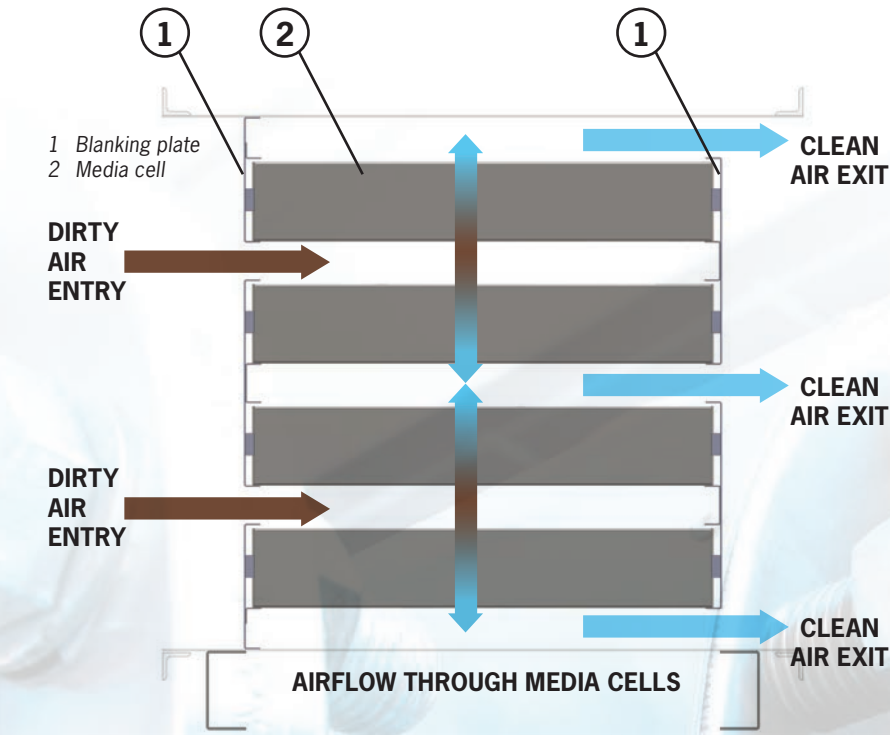
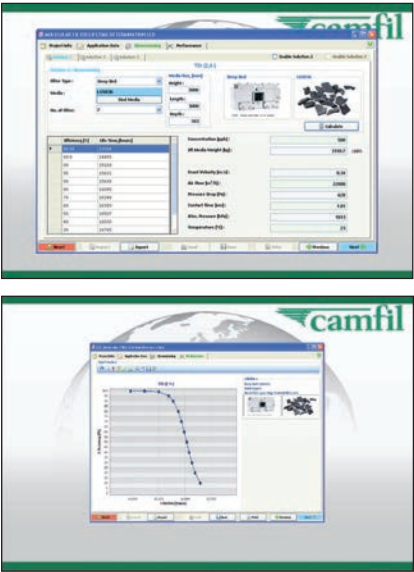
Pressure drop values are calculated with LGS036  
Flow rates based on 0.5 second contact time  
Pressure drop is for the entire unit, excluding pre / post filters

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 through 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.

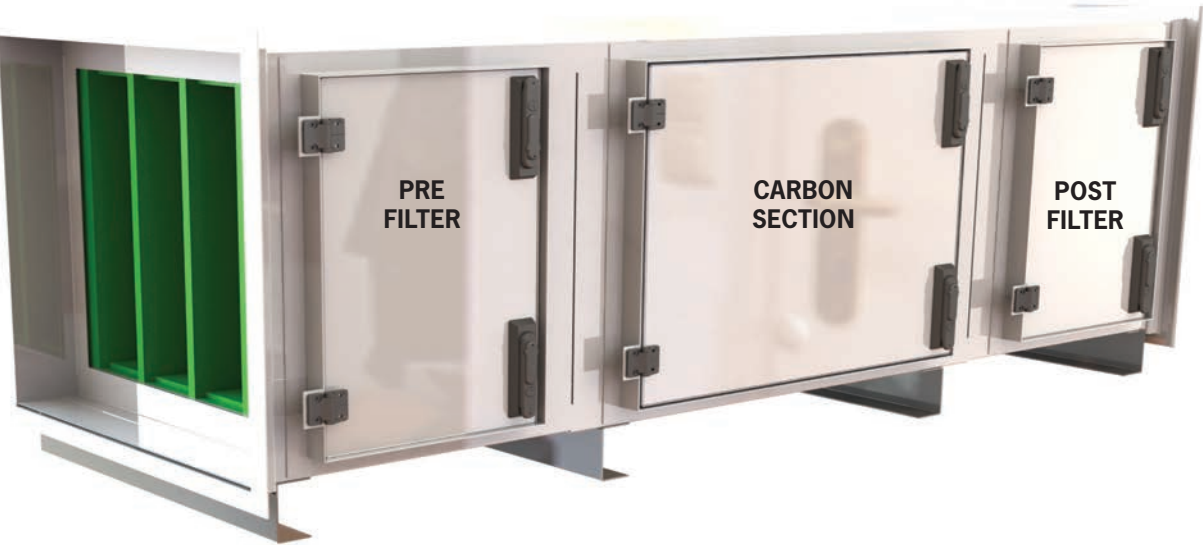
Access to the cells is through the side door(s), which is secured via cam actuated locking handles. The cells are easily removed from the housing via the side rails.

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](http://www.camfil.com).

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