camfil

POSITIVE SEAL SIDE ACCESS HOUSING (PSSA) FOR CAMCARB VG FILTERS

Industrial molecular filtration solutions

Clean air solutions

POSITIVE SEAL HOUSINGS (PSSA)

INTRODUCTION

Positive Seal Side Access housings (PSSA) are specifically designed for mounting CamCarb VG filters and are used in industrial molecular filtration applications.

These duarable molecular filtration housings are for use in outdoor and/or recirculation air systems where the protection of sensitive control equipment is essential for the reliable operation of critical industrial processes.

This product combination is designed to ensure high levels of performance in those applications where the elimination of corrosive gases is essential to meet the tightest environmental conditions specified by electronic and electrical equipment manufacturers.

To achieve the highest levels of efficiency and longest possible lifetime it is essential that CamCarb VG filters are mounted in robust housings where an engineered approach has been taken to eliminate internal leaks that would otherwise degrade performance.

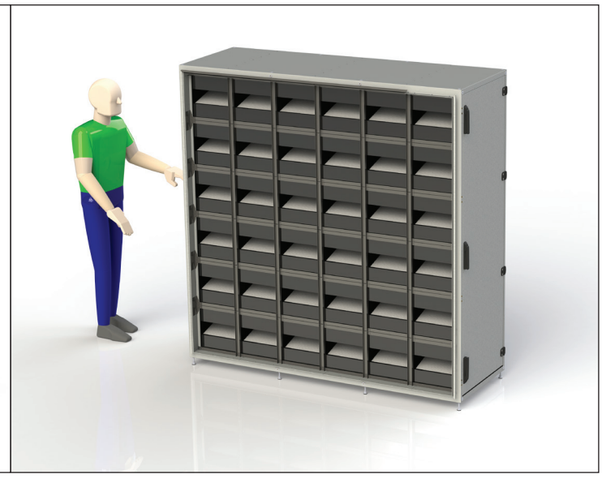
This function is provided by the PSSA housings. Each filter is held in place within the mounting frame using a unique clamping mechanism that ensures a reliable seal between the filters and the mounting frame, eliminating the internal leaks observed in competitor's equipment.

A range of standard size PSSA housings are available to suit each filter. Airflows between 1 700 and 15 300 m^3/h (1,000 and 9,000 CFM) can be accommodated.

Up to three PSSA housings can be used in series to where longer contact times are required or to allow different medias to be used to simultaneously target a range of gases.

PSSA housings are designed to ensure simple and safe installation and operation. CamCarb VG filters can be filled with a different molecular filtration medias to provide flexibility in operation and the ability to control a wide range of corrosive agents.

PSSA housings are entirely passive in operation and require minimal routine maintenance.



FEATURES	CUSTOMER BENEFITS
Positive filter clamping mechanism (no special tools required)	Very high efficiency, not compromised by internal leaks. Quick and easy filter changes.
Aluminium coated steel construction	Offers a robust protection against environmental conditions with a good finish.
Double skin with insulation	Internal temperature control and reduced risk of condensation.
May be used in multiple stages	Ability to target multiple gases utilising different media types.
Minimum maintenance and service time	Reduced maintenance cost and equipment downtime.
No requirement to handle filter media	Reduced PPE requirement for installation and maintenance.
Leakage tested housing	Contributes to tightness of overall ventilation system..

EXAMPLE INDUSTRIES	TARGET GASES
Petrochemical, oil and gas (corrosion control)	Sulphur dioxide, sulphur trioxide, hydrogen sulphide, mercaptans
Pulp and paper (corrosion control)	Hydrogen sulphide, chlorine
Waste water treatment (corrosion control or odour control)	Hydrogen sulphide, mercaptans, indoles, other organic molecules with sulphur and nitrogen atoms.
Metal refining (corrosion control)	Acidic sulphur gases

APPLICATIONS

In certain industries acidic gases, that are highly corrosive, are present in the air. If left uncontrolled, these gases can degrade, or even destroy the electronic/electrical control systems.

The control equipment will be located inside "control rooms" which themselves might be inside a larger factory space. The rooms may or may not have regular human presence; however, they will almost certainly be provided with a ventilation air system to ensure the environmental conditions specified by the equipment manufacturers are achieved.

The ventilation system is the vehicle for conveying acidic gases into control rooms. The sources of the corrosive gases are external to the control rooms, so the concentrations of corrosive gases are always highest in make-up or fresh air supply system.

Molecular filtration provides a very effective method of cleaning the air. Since the concentrations of gases may be high and the filter must operate with very high efficiency on a single pass basis, it is logical that a molecular filter installed in a make-up air system must be a robust device. Normally this means deploying a relatively large amount of media in the filter and ensuring leak-free operation.

Camfil PSSA housings and one or more stages of Camcarb VG 300 filters may be used for this purpose, especially when the presence of corrosive gases is considered to be moderate or intermittent.

To prevent ingress of fugitive corrosive gases, the make-up air system is used to positively pressurise the control room. However, for various reasons such as open doors/windows, construction defects etc., positive pressurisation is not always achieved.

As a precaution, many control rooms are also provided with a recirculation air system where secondary molecular filtration can be applied. Due to lower gas concentrations and multi-pass operation, these filters will be lighter duty than those installed in the make-up air system.

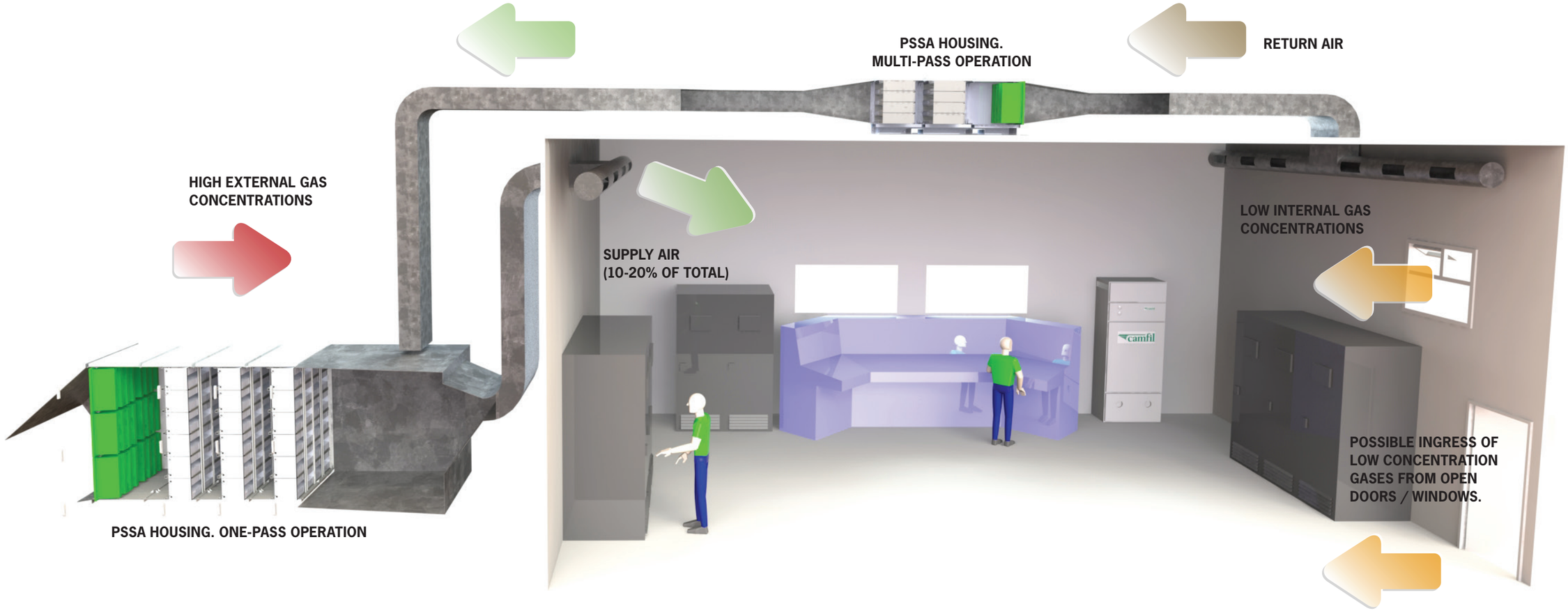
Camfil CamCarb VG 300 filters in PSSA housings are ideal for this purpose, as well. If it is not possible to install molecular filters in a recirculation mode, then a Camfil CamCleaner Molecular can be used to provide additional control of fugitive gases inside the control room.

Depending on the industry and specific process, examples of corrosive gases include hydrogen sulphide, sulphur dioxide/trioxide, nitrogen dioxide, hydrogen fluoride, chlorine and ozone.

OPTIONAL ACCESSORIES:

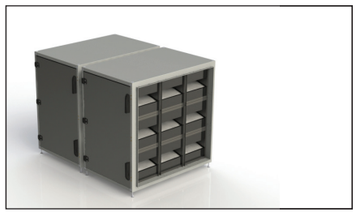
- Adjustable legs
- Stainless steel 316L construction
- Stainless steel 304 construction
- Pressure gauges
- Pre-filter mounted with PSSA housing

TYPICAL CONTROL ROOM VENTILATION SYSTEM

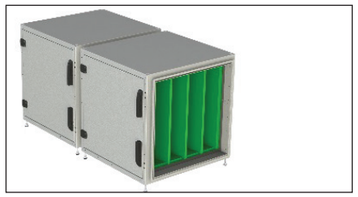


Side Access PSSA housing. Modules are loaded individually from the side and then locked into position by the clamping device.

Modules in line with slide rail



Two PSSA housings mounted in series to provide a double pass arrangement



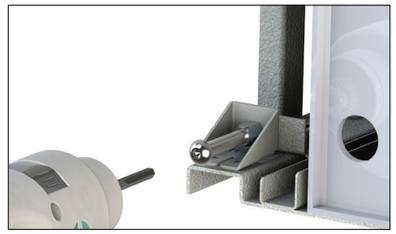
Prefilter mounted with PSSA housing

1 Install filters onto track. Ensure that the filters are seated correctly and fully within the housing.

2 The clamping mechanism can be actuated manually using an allen key or with a hex bit in a battery drill (very low speed).

3 Clamping mechanism should be advanced until filter gasket is under compression and filter is held rigidly in PSSA housing. DO NOT OVER-TIGHTEN.

Clamp mechanism open



Clamp mechanism locked

TECHNICAL DATA

Model no.	Flow Rate (m^3h^{-1}) (CFM)	Face Velocity (ms^{-1}) (FPM)	No. VG Module High	No. VG Module Wide	Internal Height (mm) (in)	Internal Width (mm) (in)
VG300-0202	1700 (1000)	1.25 (250)	2	2	600 (23.6)	600 (23.6)
VG300-0302	2600 (1530)	1.25 (250)	3	2	900 (35.4)	600 (23.6)
VG300-0402	3400 (2000)	1.25 (250)	4	2	1200 (47.2)	600 (23.6)
VG300-0303	3800 (2240)	1.25 (250)	3	3	900 (35.4)	900 (35.4)
VG300-0502	4300 (2530)	1.25 (250)	5	2	1500 (59.0)	600 (23.6)
VG300-0602	5100 (3000)	1.25 (250)	6	2	1800 (70.8)	600 (23.6)
VG300-0403	5300 (3000)	1.25 (250)	4	3	1200 (47.2)	900 (35.4)
VG300-0503	6400 (3780)	1.25 (250)	5	3	1500 (59.0)	900 (35.4)
VG300-0404	6800 (4000)	1.25 (250)	4	4	1200 (47.2)	1200 (47.2)
VG300-0603	7700 (4540)	1.25 (250)	6	3	1800 (70.8)	900 (35.4)
VG300-0504	8500 (5000)	1.25 (250)	5	4	1500 (59.0)	1200 (47.2)
VG300-0604	10200 (6000)	1.25 (250)	6	4	1800 (70.8)	1200 (47.2)
VG300-0505	10600 (6240)	1.25 (250)	5	5	1500 (59.0)	1500 (59.0)
VG300-0605	12800 (7540)	1.25 (250)	6	5	1800 (70.8)	1500 (59.0)
VG300-0606	15300 (9000)	1.25 (250)	6	6	1800 (70.8)	1800 (70.8)

SPECIALISED SOFTWARE

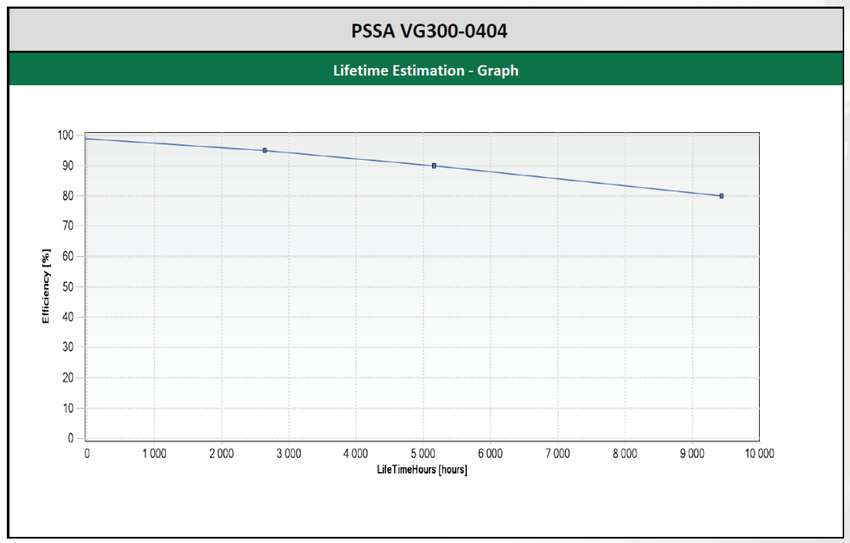
The lifetime of a CamCarb VG filter installation can be simulated using the unique Camfil Carbon Lifetime Determination (CLD) software for molecular filtration.

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.



Graph for illustration only. Contact Camfil for lifetime estimation for your contaminant, application and concentrations.

DESCRIPTION

Camfil PSSA housings are robustly constructed to reflect the industrial environment where they are used. An outer frame is clad with double skinned and insulated body panels. Material options are available depending on the application.

Hinged doors on the sides of the housing allow access for loading / removing the Camcarb VG modules. The doors are sealed using a joint-less pour-on polyurethane gasket for leak-tightness. The door closure handles incorporate a cam mechanism to ensure effective compression of the door seal.

The principal feature of PSSA housings is the inclusion of a unique positive clamping mechanism that ensures an effective seal is achieved between the Camcarb VG filters and the internal framework in the housing. This eliminates internal bypasses, which are a common feature in competitor equipment.

The clamps operate via a lead actuating screw, securing the cells into position. On units greater than 1200 mm (48 inches) wide, access doors are provided on both sides of the housing.

Pre- and after-filters are fitted in dedicated chambers upstream and downstream of the molecular media beds. The particle filters are access through service doors on the side of the housing. Pre- and after-filters are held in the frame work by a robust clamping mechanism. This ensures elimination of internal leaks.

Optional differential pressure loss gauges will be mounted on the side of the housing.

The filters are provided with external inlet and outlet flanges to facilitate connection of ductwork using industry standard connections.

The shell of the unit is 50 mm (2 inches) thick, filled with mineral wool insulation material.

- Leakage classification carried out to EN 15727, 1886.
- Housing test Class C
- Leak factor Class L1
- Mechanical strength D1
- Filter bypass F9

SERVICING

CamCarb VG filters and PSSA housings are passive in operation and require very little routine maintenance. Pre- and after-filters must be replaced when the differential pressure drop reaches the upper limiting value.

The filters are accessed through hinged doors on the side of the filter chambers. Used filters are removed from the housing and should be transferred directly to plastic bags prior to disposal. New Camfil filters should then be fitted in the housing framework.

The molecular filtration media will need to be replaced when it is exhausted. The VG modules allow easy refill of the media via removable ports on the side of the cells. Access to the cells is through the side door(s) secured with cam actuated locking handles.

The cells are easily removed from the housing via a clamping mechanism. Release the handle an slide the module out.

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

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 30 manufacturing sites, six R&D centers, local sales offices in 30 countries, and about 4,800 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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