

vertical containment module

Wall Mount or Freestanding Bag-In/Bag-Out System for Containment of Hazardous Compounds



Potent compounds are isolated, protecting the HVAC system, people and the environment.

The Camfil Farr Vertical Containment Module addresses the concerns of the pharmaceutical industry and may be used in other applications where containment of hazardous or potent compounds is judicious and the convenience of service from within the conditioned space is an advantage. The Camfil Farr Vertical Containment Module:

- Ensures localized control of potent compounds eliminating the contamination of downstream ductwork.
- Ensures that the facility meets internally established limits for occupational exposure protecting facility workers. Facilities are also able to meet the requirements of Control Banding or Risk Based Exposure Control as defined by NIOSH/CDC.
- Is available with all containment-level components, including prefilter section, final filter section, test sections and isolation dampers.
- Includes aerosol injection and test ports to test filters to industry established recommended standards for filter testing.
- Is constructed of 304/304L stainless steel with optional #3 or #4 finish on room side components for a pleasing room side appearance (also available in 316/316L stainless steel).
- Is pressure decay tested to 10" w.g. to ensure that assembled components will not leak under normal operating conditions. The module is visually inspected at the factory and tested for filter fit before shipment.



Camfil Farr	Product sheet
Vertical BIBO	3411 - 1205
Camfil Farr - clean air solutions	

Bubble-tight dampers may be used to isolate containment system during filter service and changeout.

Available with magnehelic or photohelic gauges to measure and monitor filter pressure drop. Gauges may be installed to measure a single filter or across the entire system

Top cover panel for access to isolation damper.

Filter and filter sealing surface can be scan tested to ensure filter integrity and leak free performance.

HEPA filter section includes integrated bag-in/bag-out to isolate contaminated filter and ensure protection of personnel and environment. Potent compounds are contained within the housing and within the filter minimizing risk and exposure during filter change.

Filter sealing surface and pressure boundaries are factory tested to $\pm 10''$ w.g. Maximum allowable leak rate is not allowed to exceed 0.0005 cfm per cubic foot of housing volume.

Available with optional prefilter section, to increase the life of the final filter. 2", 4", 6" or 12" deep prefilters may be applied dependent upon your application.

For localized collection and control of contaminants, the unit is available with integral inlet grille. In-line ducted systems are also available.

Constructed of 304/304L stainless steel or optional 316/316L stainless steel for highly corrosive environments.

Contact factory for additional design options or custom arrangements to suit your application.

Prefilter Section

Camfil Farr freestanding/wall mount modules incorporate a prefilter section that can accommodate 2", 4", 6" or 12" deep prefilters to extend the life of the final filters. Access to the prefilters is through the roomside module access panel and then through a dedicated prefilter section door so final filters remain undisturbed during prefilter service. Prefilters may be from MERV 7 (30%) to MERV 14 (95%) per ASHRAE Standard 52.2.

Final Filter Section

The final filter section typically incorporates a gel-seal HEPA filter (99.97% at 0.3 microns) installed against a filter section knife-edge to ensure that all of the air seen by the system will be treated by the filter. The module uses standard 24" x 24" x 12" HEPA filters. Other efficiencies are available to 99.9995% at most penetrating particle size (MPPS). Filter change is accomplished through a bag-in/bag-out (BIBO) procedure. Each final filter section incorporates a translucent 8-mil thick poly vinyl chloride bag which completely encompasses the final filters during change.

Test Sections

Most installations will require an in-place filter scan test efficiency evaluation to ensure that the system is performing to requirements. The Camfil Farr Freestanding Containment Module may include either a Downstream Test Section which allows an overall filter efficiency test or Camfil Farr's Accurate Scan Testing Module which allows for filter, and filter seal testing for pinpointing leaks. All testing is accomplished without exposing the service personnel to contaminants contained by the housing. Camfil Farr also offers an option that allows an overall efficiency test from within the room when space, budget or specification applies.

Ports

Camfil Farr freestanding/wall mount modules are available with an Upstream Test Section or Test Shroud for Aerosol Injection/Mixing. Accurate Scan Test Sections are available for filter scanning and Downstream Test Section for overall efficiency downstream sampling.

Isolation Damper

Dampers allow isolation of components during filter change or decontamination processes. The Camfil Farr freestanding BIBO module is available with low-leakage isolation damper or positive seal bubble-tight damper. Dampers may also include automatic actuators to allow control of airflow from a remote location or building management systems.

Pressure Gages

Camfil Farr can provide factory-mounted differential pressure gauges to evaluate the resistance across an individual filter or any combination of internal components. Gauge connections include copper tubing and brass fittings. Stainless steel tubing and fittings are also available.

Pressure Taps (static)

Static pressure taps are available to facilitate the connection of gages or other ancillary equipment. For on-site application of gages, taps include a removable brass plug.

Pressure Gage & Gage Guardian

Camfil Farr recommends a HEPA filter gage guardian module (photos below) to prevent any potential contamination during maintenance of the photohelic or magnehelic gage.

SPECIFICATIONS

1.0 – General

1.1 - Housing shall be Camfil Farr bag-in/bag-out FB-series side-access, fluid seal housing. The housing shall be adequately reinforced to withstand a negative or positive pressure of 15" water gage. Housing design and filter arrangement shall allow air to enter and exit housing without changing direction. The housing shall accommodate standard size filters that do not require any special attachments or devices to function properly in the housing. The housing shall accommodate fluid seal filters which require a penetrating knife edge installed on all filter sealing surfaces. The knife edge shall insert into the fluid filled perimeter channel located on the face of the filter. By engaging the filter seal/release mechanism the filter shall move (push) the fluid filled channel to the sealed position. For removal of the air filters the filter seal/release mechanism shall remove (pull) the filter free of the blade type knife edge.

1.2 – Sizes shall be noted on enclosed drawings or other supporting materials.

2.0 – Construction

2.1 – Housing shall be constructed of 14 gauge and 11 gauge T-304 stainless steel metal. All pressure retaining joints and seams shall be continuously welded with no porosities. Joints and seams requiring intermittent welds, such as reinforcement members, shall be intermittently welded. Housing shall be free of burrs and sharp edges. All weld joints and seams that are a portion of any gasket setting surface, and duct connection flanges, shall be ground smooth and flush with adjacent base metals. All welded joints and seams shall be wire brushed to remove heat discoloration. The housing shall be reinforced to withstand a positive or negative pressure of 15" w.g. The upstream and downstream ductwork connections shall have 1 1/2" outward-turned flanges.

2.2 - Each tier of the housing shall have a filter access port that is sealed by a gasketed filter access door. The filter access door gasket shall be silicone and shall be replaceable, if necessary.

2.3 – Ancillary hardware including filter seal/release mechanism, door handles, door studs and labels shall be 300 series stainless steel. Filter access door knobs shall be cast aluminum and designed to prevent galling of threads.

Camfil Farr has a policy of uninterrupted research, development and product improvement. We reserve the right to change designs and specifications without notice.

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3.0 – Performance

3.1 - All welding procedures, welders, and welder operators shall be qualified in accordance with ASME Boiler and Pressure Vessel Code, Section IX. All production welds shall be visually inspected by qualified personnel, per Camfil Farr standard procedure number CFW-10001, Visual Inspection of Welds, which incorporates the workmanship acceptance criteria described in Section 5 & 6 of AWS D9.1-1990, Specification for Welding of Sheet Metal.

3.2 - The filter housing shall be manufactured under a Camfil Farr Quality Assurance Program (see Note 1 below). The filter housing shall be factory tested for filter fit, alignment of filter sealing knife edge and operation of filter clamping mechanism. The filter sealing surface and the complete assembly pressure boundary shall be leak tested by the pressure decay method as defined in ASME N510-1995 Reaffirmed., Testing of Nuclear Air Cleaning Systems, paragraphs 6 and 7. The filter sealing surface shall be tested at +10" water gage and have a maximum leak rate of 0.0005 cfm per cubic foot of housing volume. The overall system pressure boundary shall be leak tested at +15" water gage and have a maximum leak rate of 0.0005 cfm per cubic foot of housing volume.

Unit shall be Camfil Farr Vertical Bag-in/Bag-out.

Note 1 (to specifying engineer): Camfil Farr manufacturers all of its containment products using more than one Quality Assurance Program. Our product-wide Quality Assurance Program is a stringent process that ensures the equipment is produced in conformance with our understanding of the intended application. However, this product-wide program does not address all the items specified in ASME-NQA-1. If this product must be manufactured under an ASME NQA-1 Quality Assurance Program, please add the following to this statement "including the basic requirements of ASME NQA-1."

Please contact the factory if specific clarifications are required.

