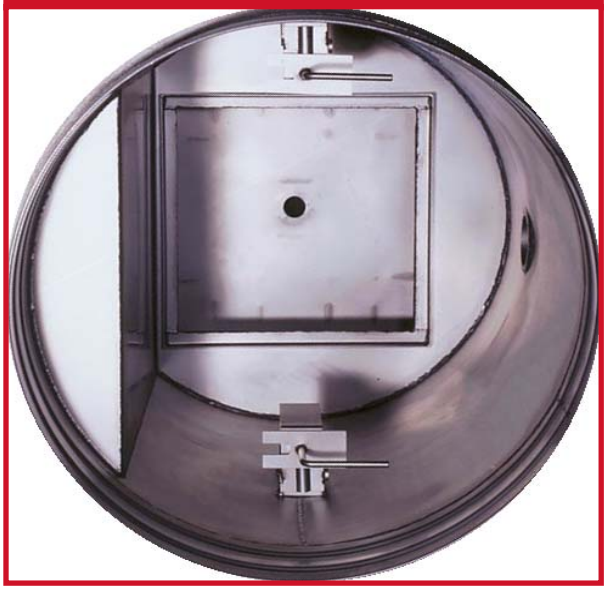
fb-r round housings

Round Bag-in/Bag-Out Top Service Housing

Bag-in/bag-out round housing for particulate and gaseous contaminant removal



FB-R internal component view including air baffle plate, filter mounting flange, filter seal/release clamps, and air outlet.

Camfil Farr FB-R Series Housings are designed for use in critical processes where hazardous airborne materials must be prevented from escaping to the atmosphere. Air filters may be replaced from the topside (unit may be mounted vertically or horizontally) of the unit using a control barrier to protect change-out personnel from contaminants within the housing or contaminants captured by the filters.

The Camfil Farr FB-R Series Housing minimizes exposure to harmful contaminants during filter service through the use of a PVC bag enclosure system. The entire filter changing process isolates personnel from the hazardous materials.

Although the Camfil Farr FB-R Housing is available in a basic configuration, various options specific to the application are available.

These housings are typically used in facilities that incorporate hazardous materials in their processes. These contaminants may include biomedical, radiological, carcinogenic or other materials of concern. Some specific applications include:

- Chemical manufacturing facilities
- Food processing
- Genetic research and biotechnology facilities
- Industrial processes exhaust
- Microelectronic and semiconductor facilities
- Nuclear power plants
- Pharmaceutical facilities
- Radioisotope handling facilities
- University research laboratories
- US Department of Energy Facilities
- Veterinary research and animal disease laboratories
- Specific United States Government and military facilities.

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Standard FB-R Components

Camfil Farr FB-R Series Housings are typically applied in low air volume ventilation systems, and incorporate either a HEPA filter, or a gaseous adsorber.

Connections to the unit are typically through a round inlet and round outlet, with flange dimensions supplied by the user. Various types of sanitary type fittings are available.

Units may be installed in a horizontal or vertical position. A unique baffle plate directs the air through the filter.

Spring-loaded stainless steel filter clamps secure the filter in position during operation. Two clamps are used for a 12” by 12” filter and four clamps are used for a 24” by 24” filter.

The door of the housing is secured by swing away latches. The complete latch swings away from the housing opening so filter access is not restricted. The door is then completely removed for the change process. A silicone sealing gasket assures a leak-free seal after each change.

The access opening includes a ribbed bagging ring assembly for attachment of an 8-mil changing bag of poly vinyl chloride (PVC) construction. Two ribs are included as required to facilitate the filter changing process. The bagging ring is continuously welded and hemmed to prevent damage to the bag. Components for change include the replacement filter, a new PVC bag, a security strap to secure the bag to the bagging ring, and a cinching strap to supplement the security strap for additional safety.

FB-R Options

Static Pressure Taps

Static pressure taps for evaluation of pressure drop across air filter, may be installed on the inlet and outlet of the housing. Ports are ¼” FIPS stainless steel half-couplings, and shipped with brass plugs, for field connection of magnehelic gages or pneumatic sensor controls.

Testing Ports

Testing ports are available to perform an overall efficiency evaluation of the air filter. A challenge injection port is installed on the inlet. The challenge is dispersed by an air baffle plate for complete mixing. The sampling port is on the outlet flange connection. Connections are ⅜” FIPS and include brass plugs.

Housing Drain

A ½” FIPS drain, with a positive shut-off ball valve and brass plug may be included for those applications where moisture removal may be required.

High Temperature Design

Construction component options are available to allow operation to 450° F (230° C).

Low Leak Test

Standard units are leak tested using the pressure decay method to ensure that leakage is less than 0.0005 cfm per cubic foot of housing volume at 10” w.g. A low leak test is available to meet requirements as listed in the Nuclear Air Cleaning Handbook (0.2% of the housing volume per hour at a pressure of 10” w.g.).

Legs

The Camfil Farr FB-R Housing is available with legs for free-standing applications

High-Pressure Option

The standard FB-R Housing is capable of withstanding 15” w.g. positive or negative pressure. Camfil Farr has manufactured round housings capable of withstanding up to 88” w.g. positive or negative pressure. Please consult our factory for assistance in meeting your specific design pressure requirements.

Metal Door Jacket

A stainless steel door pocket is available for storage of installation, maintenance, operation and spare parts manuals.

1.0 General

1.0 – Units shall be round bag-in/bag-out filter housing. Units shall be capable of mounting in horizontal or vertical position.

1.2 – Dimensions and cfm performance shall be as noted on drawings or other supporting documents.

2.0 Construction

2.1 – Filter housing section shall be top-access bag-in/bag-out round configuration type manufactured from 14-gauge and 11-gauge T-304 stainless steel. 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 shall be ground smooth and flush with adjacent base metals. All welded joints and seams shall be wire brushed to remove heat discoloration.

2.2 – Housing shall include a bagging ring around the filter access port that is sealed by a gasketed filter access door. The filter access door gasket shall be silicone and shall be replaceable. The bagging ring shall have two (2) continuous formed raised ridges to secure the PVC change-out bag. The bagging ring shall be hemmed on the outer edge to prevent the change-out bag from tearing.

2.3 – Ancillary hardware including filter clamping 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.

2.4 – The filter spring loaded clamping mechanism that shall be operated through the use of a handle. The user shall pull, and swing-away clamps at each of the four corners of the filter. When closed the clamps shall apply an even, uniform load on each filter outer frame.

2.5 – One Camfil Farr manufactured PVC change-out bag shall be furnished with each filter access port. Change-out bags shall be 8-mil. thick with a yellow translucent, non-sticking, matte finish. It shall include a 1/4" diameter elastic shock cord hemmed into the opening of the bag so when stretched around the housing bagging ring flange, a secure fit is created. The bag shall include three integral glove ports to assist in filter change-out. One nylon security strap and one cinching strap shall be included per filter access port to prevent the bag from sliding off the bagging flange during the change-out process. Design of components shall be such that all change-out operations shall be within the bag so there is a barrier between the worker and the filter at all times.

2.6 – Primary air filters shall be HEPA grade (standard, high) capacity air filters with waterproof micro glass fiber media, corrugated aluminum separators, urethane sealant, enclosing frame and gel-filled channel. The filter enclosing frame shall be of 16-gauge steel, with a zinc aluminum alloy finish, and shall be bonded to the media pack to form a rugged and durable enclosure. The filter shall be assembled without the use of fasteners to ensure no frame penetrations. Overall dimensional tolerance shall be correct within -1/8”, +0”, and square within 1/8”. A gel-filled channel shall be included on the upstream side of the enclosing frame to form a positive seal upon installation.

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 published Quality Assurance Program[1], including the basic requirements of ASME NQA-1. The filter housing shall be factory tested for filter fit 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.
3.3 - Manufacturer shall provide evidence of facility certification to ISO 9001:2000.
3.4 - The housing shall be capable of withstanding a negative or positive pressure of 15" w.g.
3.5 - Filter bags shall be capable of operating to temperature extremes of 0° to 150° F.
3.6 - The primary filter shall be (standard, high) capacity and have a tested efficiency of (99.97%, 99.99%, 99.999%)* when evaluated according to IEST Recommended Practice. Initial resistance to airflow shall not exceed (1.0”, 1.35”) w.g. at (1100, 2000) cfm.

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.

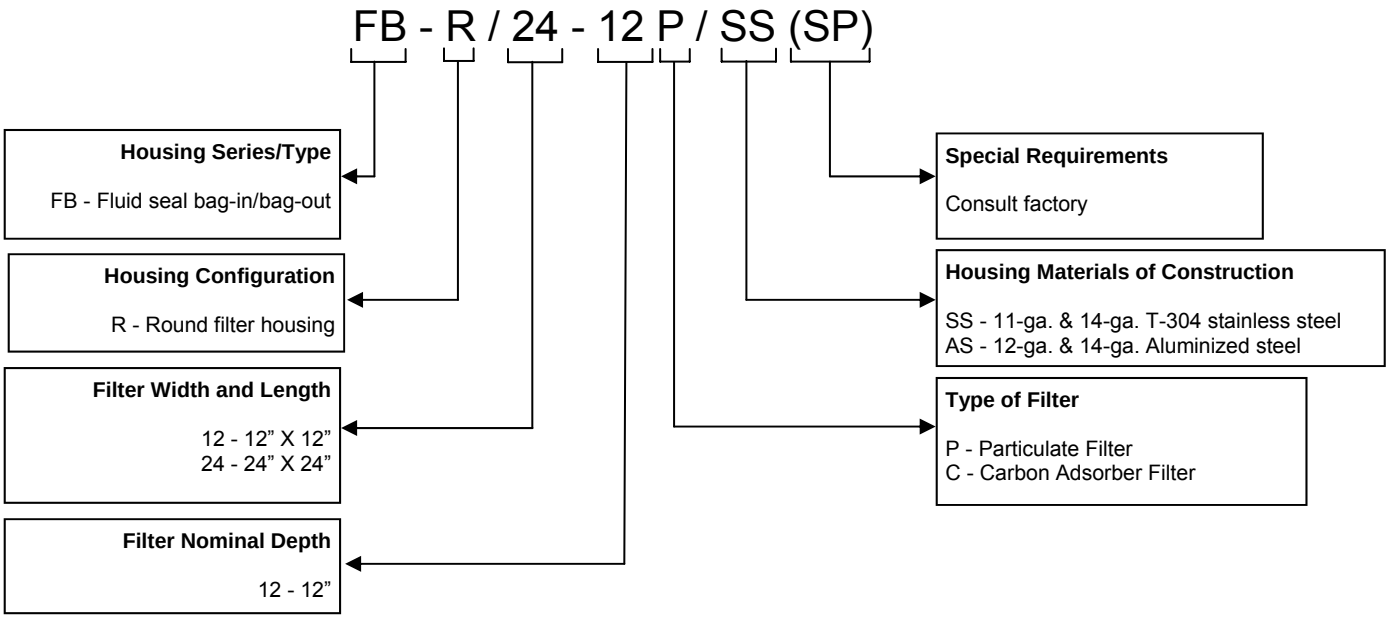
Items in parenthesis ( ) require selection.

PERFORMANCE DATA

FB-R ROUND HOUSINGS

Standard Model Number	Primary Filter Dimensions (inches)	Adsorber Size (inches)	Rated Airflow (cfm)	Actual Dimensions (inches)		Weight (pounds)
				Height	Diameter	
FB-R -12 - 12P - SS	12 X 12 X11½	12 X 12 X 12¼	250	29	18¼	150
FB-R -24 - 12P - SS	24 X 24 X 11½	24 X 24 X 12¼	1000	29	36¼	245
FB-R - 24 - 16C - SS	N/A	24 X 24 X 16¾	1000	32	36¼	265
FB-R -24 - 18C - SS	N/A	24 X 24 X 18¾	1250	32	36¼	265

MODEL NUMBER INFORMATION



Data notes:

Camfil Farr FB-R Housings require fluid seal HEPA filters.

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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Certified Quality System
ISO 9001:2000