

self-contained systems

Self-Contained Air Filtration Systems for Hazardous Contaminant Removal



Shown with optional dual doors.

Complete systems for hazardous contaminant removal



Top left: Workers are protected during filter service by containment process of changing filters within a bag.

Top right: Dual bagging rings facilitate old bag removal and new bag

Bottom left: Standard Absolute filter captures viruses and bacteria, and is up to 99.999 @ efficient on 0.3 micron size particles.

Bottom right: High capacity Absolutes are available for increased airflow, longer life and energy savings. Contact factory for more information.

Camfil Farr Self-Contained Isolation Systems can provide a complete solution to applications where hazardous airborne contaminants may present risk to facility personnel or visitors. These systems can be custom designed to remove airborne particulate, gaseous contaminants, or a combination thereof.

Typical applications include hospital isolation rooms/wards and Intensive Care Units (ICUs). Camfil Farr Self-Contained Isolation Systems are ideal for the control of airborne pathogens, viral contaminants and infectious organisms.

In applications where individuals may come into the proximity of individuals with mycobacterium tuberculosis the Centers for Disease Control (CDC) has specified certain air quality control parameters. For new projects, or renovations, a minimum of 12 air changes per hour of clean air are required. For existing systems the minimum air change requirement is 6 air changes per hour. In both cases the Guideline is specific to the protection of employees and visitors to the facility. Camfil Farr Self-Contained Isolation Systems can assist your facility in meeting or exceeding these guidelines. For a copy of these guidelines contact your local Camfil Farr Representative or Camfil Farr.

Available in various customizable configurations, each unit is reviewed by our engineering team and tested as a complete system to ensure suitability to task. Mechanical components are matched to filtration stages to assure deliverance of rated airflow.

Optional components such as magnehelic gages, test ports, dampers and control mechanisms are available.

Camfil Farr has the ability to supply the system and the filters. Component compatibility and overall system quality are assured from a single-source manufacturer.



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Self-Contained Systems	3409 - 0606
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Camfil Farr Self-Contained Systems are shipped to service the application's requirements. Standard components usually include a bag-in/bag-out primary filter section (usually a HEPA filter), a bag-in/bag-out prefilter section (containing ASHRAE grade filters), blower and motor (with adjustable V-belt drive with belt guard cover), flexible connection to blower inlet, vibration isolators, and outlet transition.

Completely factory assembled and tested Camfil Farr SC units minimize installation difficulties.

Standard Options

Acoustically Lined Compartments

The SC unit may be ordered with totally enclosed and insulated enclosures. The blower and motor assembly are protected from weather elements and lined with insulation for noise attenuation.

Air Intake Isolation Damper

Allows control of airflow through unit, and serves as isolation damper during filter change out.

Direct Driver Blower Assembly

A direct drive blower assembly may be substituted for the standard belt drive blower assembly. Consult factory for additional blower options.

Inlet Transition

Simplifies ductwork connection, necessary if an isolation damper is to be installed upstream of the housing.

Insulated Components

Units may be insulated for sound attenuation.

Lifting Lugs

Camfil Farr can provide lifting lugs for unit transport and support during installation. The lugs are of 1/4" thick 304 stainless steel and have a pre-drilled 1-1/2" hole. Common lifting lug locations include the top or side of the housing.

Mobile Base with Swivel Casters

Allows unit to be moved as one assembly from location to location.

Mounting Bases

Custom mounting bases are available. These may be ordered with seismic qualifications, to match castors or application requirements, or to match a roof curb.

No Loss Stack (exhaust)

Often specified in installations where units are not connected to downstream ductwork but are typically exhausted directly to atmosphere.

Plenums

Camfil Farr can manufacture all components required for complete system integrity. Matching plenums of the same construction as the SC unit are available to mate with existing equipment or ductwork. Transitions are also available to mate to equipment offsets.

Pressure Gages

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

Starter/Safety Switch

Electrical starter/safety switch for connection of power supply (by others).

Weather Caps

Although Camfil Farr housings are weatherproof, an optional weather cap of the same construction materials as the SC unit, may be included to prevent water accumulation on the top of the components. Standard weather caps guard against weather intrusion.

Camfil Farr Filters		
Filter	Available Efficiencies	Bulletin #
30/30®	MERV 7 ^a	1002
Riga-Flo®	MERV 9 to 14 ^a	1303
Aeropac®	MERV 11 to 14 ^a	1602
Durafil®	MERV 11 to 14 ^a	1515
Absolute XS	95 to 99.999 @ 0.3 micron ^b	1801
Absolute XH		1801H
Filtra 2000®		1823

^a Rated in accordance with ASHRAE Standard 52.2. May be used in prefilter section.

^b Rated and tested in accordance with applicable IEST Recommended Practice. Typical primary filter in system.

Specifications

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1.0 General

1.0 – Units shall be self-contained bag-in/bag-out including primary filter section, prefilter section and blower assembly. Air filters shall be manufactured by the same manufacturer as the unit.

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

2.0 Construction

2.0 – Filter housing shall be side-access bag-in/bag-out type manufactured from 14-gauge and 11-gauge T-304 stainless steel. Housing design and filter arrangement shall allow air to enter and exit the housing without changing directions. The housing shall accommodate standard size filters that do not require any special attachments or devices to function properly in the housing. 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, (duct connection flanges and filter sealing surfaces), shall be ground smooth and flush with adjacent base metals. All welded joints and seams shall be wire brushed to remove heat discoloration.

2.1 – Primary and prefilter housing sections shall have 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.

2.2 – Ancillary hardware including filter clamping mechanism, door handles, door studs and labels shall be 300 series stainless steel. The threaded pivot blocks in the filter clamping mechanisms shall be of brass construction. Filter access door knobs shall be cast aluminum and designed to prevent galling of threads.

2.3 – A filter clamping mechanism shall be operated by means of a standard wrench from outside the housing. The mechanism penetration through the housing wall shall be sealed airtight. The clamping mechanism shall be on the clean side of the filter and be removable. The mechanism shall include two pressure channel assemblies with eight springs per filter and exert a minimum filter sealing force of 1,400 pounds per full width filter and 1050 pounds per half width filter. The force shall be applied as an even, uniform load along at least 80% of the top and bottom of each filter outer frame. Multi-wide housing shall be equipped with a filter removal rod to pull the filters to the change-out position. The removal rod shall operate from the inside the of filter change out bag.

2.4 – 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 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.

2.5 – Blower assembly shall include motor and be sized to produce approximately 4" static pressure at design flow. Blower motor shall be (direct, belt) drive.

2.6 – Prefilters shall be 2" deep medium efficiency ASHRAE pleated panels consisting of cotton and synthetic media, media support grid, and enclosing frame.

2.61 – 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 sealing gasket. 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 poured-in-place seamless sealing gasket 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 Program¹, including the basic requirements of ASME NQA-1. The filter housing shall be factory tested for filter fit, flatness of filter sealing surface 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° F 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.

3.7 - The prefilter shall have a Minimum Efficiency Reporting Value of MERV 7 when evaluated under the guidelines of ASHRAE Standard 52.2-1999. It shall have an average dust spot efficiency of 25-30% when evaluated under ASHRAE Standard 52.1-1992. Initial resistance to airflow shall not exceed 0.28" w.g. at an airflow of 500 fpm. The filter shall be classified by Underwriters Laboratories as UL Class 2.

Note 1 (to specifying engineer): Camfil Farr manufacturers all of it's 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.

PERFORMANCE DATA

SELF-CONTAINED SYSTEMS

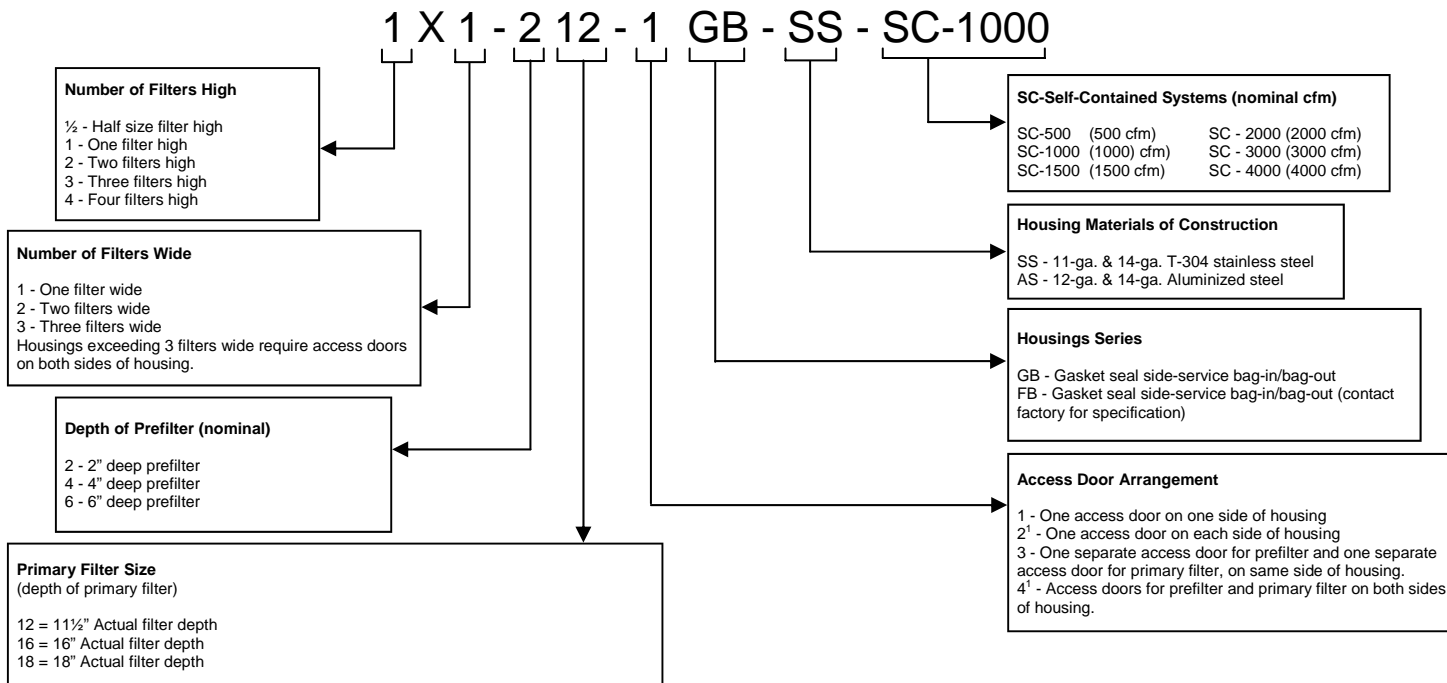
Standard Model Number	Number of Prefilters	Prefilter Size (nominal, inches)	Number of Primary Filters ²	Primary Filter ² Dimensions	Rated Airflow
½ X 1 -212-1GB-SS-SC-500	1	12 X 24 X 2	1	12 X 24 X 12	500
1 X 1 -212-1GB-SS-SC-1000		24 X 24 X 2		24 X 24 X 12	1000
1 X 1 -212-1GB-SS-SC-1500					1500
1 X 2 -212-1GB-SS-SC-2000	2	24 X 24 X 2	2	24 X 24 X 12	2000
1 X 2 -212-1GB-SS-SC-3000					3000
1 X 2 -212-1GB-SS-SC-4000					4000

Data Notes:

¹ Units with access doors on both sides of housing requires that filters be changed from both sides of the housing. Fan selection based upon 4" total static pressure at design airflow.

² High Capacity V-Style HEPA filters are also available for increased airflow requirements. Consult factory for options as selection may dictate fan change or modification. Additional filter options available, consult factory.

MODEL NUMBER INFORMATION



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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