

General

Flanders has been the leading manufacturer of HEPA Filters for half a century. In 1950, Flanders was one of three manufacturers who began producing HEPA Filters, primarily for the Atomic Energy Commission. Today, Flanders is the only remaining original manufacturer of HEPA Filters; and, unlike other manufacturers, our primary product is still HEPA Filters. Through the years, Flanders has maintained a reputation for supplying the highest quality HEPA Filters to the most demanding customers throughout the world.

We offer a complete line of HEPA filters in two efficiencies to meet the needs of critical applications where HEPA filtration is required. Every Flanders HEPA Filter is tested in accordance with IEST-RP-CC001.3, HEPA and ULPA Filters.

Typical applications for HEPA Filters inc include

- Hospitals
- Biomedical
- Biotechnology
- Genetic Research
- Universities
- Laboratories
- Food Processing
- Photo Processing
- Semiconductor Fabrication
- Industrial Processing Systems
- Pharmaceutical

Flanders Filters offers the most complete line of HEPA Filters available with many choices in frame materials, size, efficiency, testing criteria, temperature rating, and flow capacity.

Efficiency and Testing

Flanders individually tests and certifies each HEPA Filter to meet the customer's requirements for resistance and efficiency (penetration) at the filter's nominal rated capacity. This information appears on a test label affixed to the filter. When used with correctly selected and installed mounting frames or housings, Flanders HEPA Filters will easily pass an in-place validation test to determine the overall system efficiency.

HEPA Filters

IEST describes the performance level of Type A filters as: A filter that has been tested at rated flow in accordance with Section 9.1.1 (Mil-Std-282). The minimum filter efficiency of the encapsulated filter for this type of filter is 99.97% on 0.3 μ m particles. Each Flanders Type A HEPA filter shall have a minimum efficiency of 99.97% on 0.30 micrometer size particles when tested at rated capacity on a Q-107 Penetrometer.

Filters rated for 1000 cfm or less are challenged with an approved nearly monodispersed oil aerosol of 0.30 micrometer size. Filters rated for flows greater than 1000 cfm are tested using a polydispersed oil aerosol. By measuring the upstream and downstream concentration of these particles with a light scattering photometer, the penetration can be determined and the efficiency can be calculated.

Scan Tested HEPA Filters

IEST describes the performance level of Type C filters as: A filter that has been tested for overall penetration in accordance with Section 9.1.1 (Mil-Std-282), and, in addition, has been leak tested in accordance with Section 9.2.1, scan tested at an average air velocity 90 ± 10 linear ft./min through the filter. Each Scan-Tested HEPA filter has a minimum efficiency of 99.99% on 0.3 micrometer particles. Scan testing is in accordance with Section 6.2 of IEST-RP-CC034.1, HEPA and ULPA Filter Leak Tests. In the scan test, the filter is challenged with a high concentration of an approved oil aerosol or PSL (Polystyrene Latex Spheres). The media pack and pack-to-frame seal is scanned using a photometer or particle counter to insure that there are not any leaks greater than .01% of the upstream concentration at 100 fpm face velocity.

Higher Efficiency ULPA Filters

Flanders can provide PUREFORM[®] and Separator-Style ULPA Filters with efficiencies up to 99.9995% on 0.12 micrometer size particles. Please contact the factory for more information.

Quality Assurance

Any industry that has dangerous process or exhaust gases and/or particulates has a vital concern for the health and safety of personnel. In addition to corporate concern, the United States Government has dictated that safety equipment meet minimum safety standards. Any equipment sold to meet these minimum standards has to be manufactured using accepted Quality Control procedures.

Flanders has developed a Quality Assurance program to assure that the product or service provided meet these standards. This program addresses the entire range of Flanders' involvement, including the purchase of raw materials, the issuance of these raw materials, incorporation of these materials into a product or service, testing this product or service, and then shipping it to its destination.

The quality assurance program at Flanders is continually audited by both the Federal Government as well as specific entities such as NASA to ensure compliance. An uncontrolled copy of the program manual is available with each request for Quality Assurance information. Like any dynamic document, the program is continually being revised to include recent issues of standards and specifications in order that Flanders may use the latest state-of-the-art methods in providing its products and services.

Notes:

1. As part of our continuing program to improve the design and quality of all our products, we reserve the right to make such changes without notice or obligation.
2. Flanders, through its limited warranty, guarantees that the products described herein will meet all specifications agreed to by the buyer and the seller.

Round Filters

Round HEPA filters are available with Flanders' PUREFORM® filter element and with Separator-style elements.

Frames are made of galvaneal steel, aluminum and Type 304 and Type 409 stainless steel, and are available for both gasket or fluid seal applications. Round filters are also manufactured for high temperature applications.



Round HEPA filter

Nipple-Connected Filters

Nipple-connected Nuclear Grade filters are available with one (N1) or two (N2) pipe connections, and with separatorless PUREFORM® or Separator-style filter elements. Frame materials are Type 304 or Type 409 stainless steel and 3/4-inch fire-retardant plywood.



Nipple Connected HEPA Filter

Suggested Specifications for HEPA Filters

Fill in the parentheses in the Suggested Specifications text with a selection from the indicated category. Refer to the Model Number Designating Code for each filter type for a listing of possible choices.

The filters shall be (specify the entire model number) as manufactured by Flanders Filters, Inc., Washington, N.C.

The filter media shall be all-glass microfiber with a wet-strength, water-repellent binder and shall be produced by the filter manufacturer.

To Specify the PUREFORM® Pack Style:

The filter shall have a (specify Pack Style). The filter pack shall be constructed without the use of spacers of any kind—including separators, tape strings or strips of medium— by pleating a continuous sheet of formed, corrugated medium back and forth upon itself so that it is self-supporting.

To Specify the Separator-Type Pack Style:

The filter shall have a pleated pack with corrugated aluminum separators. The filter pack shall be constructed by pleating a continuous flat sheet of medium back and forth over corrugated aluminum spacers whose edges have been hemmed to resist tearing of the medium at the fold.

The filter pack shall be permanently bonded to a (specify the Frame Material) integral frame with (specify the Sealant). The perimeter of the filter face shall be designed with (specify the Frame Style). (Specify Location of Gasket or fluid Seal) to seal the filter to its mounting frame in service.

A label or a stamp indicating compliance by the manufacturer with the requirements of (specify UL Qualification) shall be attached to the each filter.*

*UL labels/stamps are optional and are applied to the filter only when specified by the buyer.

To Specify HEPA Filters

Each filter shall be tested for resistance to airflow and penetration in accordance with Mil-Std-282 at the nominal rated capacity listed herein. The penetration shall not exceed 0.03%. HEPA filters shall be tested per the requirements of IEST-RP-CC001.3, HEPA and ULPA Filters.

To Specify Scan-Tested HEPA Filters

Each filter shall have a minimum efficiency of 99.99% and shall be scan tested per Section 9.2 of IEST-RP-CC001.3. The scan test shall consist of the filter being challenged with a high concentration of DOP and PSL Spheres

(Polystyrene Latex Spheres) and by using a particle

counter, the media pack and the pack to frame seal shall be scanned to insure that there are no leaks greater than .01% of the upstream concentration at 100 fpm face

velocity.

Each filter and filter carton shall bear identical labels indicating the filter model number, testing, the serial number and the resistance and penetration readings taken for the filter on the manufacturer's Q107 Penetrometer. In addition, the manufacturer shall provide a filter test and certification of compliance report for the buyer's record when required. All filters shall be packaged one filter per carton. Each filter shall be encased by a flanged, tight-fitting linerboard sleeve that fits within the carton, leaving a dead-air space on the four sides of the filter.

Environmental Conditions

Heat Resistance

In high-temperature applications, the filter media will exhibit loss of strength after the binder burns off. (This normally occurs in the 300°-325°F range.) The filter media becomes significantly weaker when the binder burns off; therefore, Flanders recommends only separator-style filters be used in high-temperature applications.

Humidity and Water Resistance

HEPA filter media will tolerate high humidity and some direct wetting, but not excessive amounts of moisture, either from airborne droplets or condensation, can plug the filter and result in failure by over-pressure.

Wood frames are unsuitable for high-moisture conditions, because wood expands or warps when wet, and it supports biological growth under humid conditions. Metal frame filters are more suitable for moisture-laden atmospheres. Because aluminum separators can corrode in some environments and slough particles downstream of the filter, separatorless PUREFORM® filters are also recommended for moist conditions, except in high-temperature or caustic applications.

Chemical Resistance

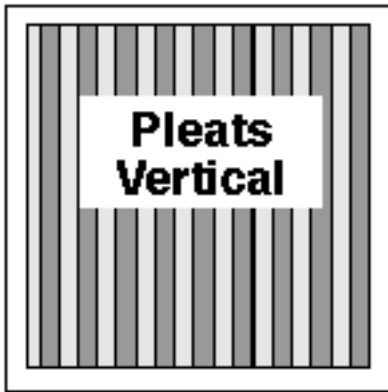
All materials used in the filter have good resistance to most organic solvents and are resistant to many weak organic and inorganic alkalies and acids. Exposure to acids such as HF and those with NOx radicals occurs in nuclear systems fairly often and with varying degrees of impact (HF attacks glass). Information about the potential effects of humidity, various chemical agents, heated air, and the inter-relationship of the construction materials must be determined by the user through testing.

Packaging and Palletizing

The successful delivery of undamaged HEPA filters depends largely upon good packaging. Shipping damage is minimized by encasing each filter in a tight-fitting linerboard sleeve that is flanged outward at its top and bottom. This creates a 1 1/2-inch dead-air space around the filter to absorb impact. Flanders packages all filters 24" x 12" x 5 7/8" and larger in this manner. All filter carton material is tested for strength and certified to meet all construction requirements of the applicable freight classification. Additionally, all HEPA filters are palletized for shipment in groups of cartoned filters stacked side-by-side and stretch-wrapped to the pallet with vertical corner braces.

Installation Note

HEPA filters should be installed with the pleats aligned with the vertical axis when the airflow is horizontal. This prevents sagging and potential tearing of the medium as the filter becomes loaded with dust in service.



Flanders Precisionaire

Foremost in Air Filtration

Engineered Products: 1-800-837-2803

Replacement Products: 1-800-347-2220

Receipt and Storage Requirements

HEPA filters should be stored in their original cartons in an environmentally controlled room. HEPA filters should be oriented vertically with their pleats vertical, and be stacked no more than three cartons (slightly over 6 ft.) high unless intermediate bracing or flooring is provided to prevent the weight of the upper tier from bearing on the lower tier. Unless there is obvious damage to the cartons, HEPA filters should not be opened prior to use or removed from shipping pallets or skids until immediately ready for installation.

While in storage, items should be checked periodically to ensure that they are not exposed to detrimental conditions. Storage areas should be uncluttered and permit easy access to items without the necessity of moving other items to get to them. An item-control procedure is suggested for the storage area to ensure that items are not removed from the area without proper authority and to prevent improper or rejected items from being installed in the system. Materials and components should be moved a minimum number of times (receipt inspection, storage and release for installation only) and handled in a manner that does not damage the item or its packaging. If wrappings or cartons are removed for receiving inspection, they should be replaced and positively sealed immediately upon completion of the inspection. Receiving and storage personnel shall be informed of the necessity of proper handling of all components, especially the HEPA filters.

Shelf Life Information

Flanders recommends the filter be stored in its original carton to prevent it from being exposed to ultraviolet rays and possible damage to the filter media. The filter should be stored in a controlled area, 0-120°F, and should not be exposed to ozone depleting sources.

If these parameters are satisfied and storage requirements as detailed are maintained, the filter shelf life should be three (3) years from gasket cure date or three (3) years from manufacturing date for fluid seal filters.

REPRESENTED BY: