

# FLANDERS



FOREMOST IN AIR FILTRATION

**Clean air filters  
SAVE ENERGY.**

**We make ANY SIZE  
air filter.**

**Nationwide TECHNICAL  
SUPPORT available.**

**Global Leader in**

# **Replacement Air Filters**

**FLANDERS**

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and hvac store

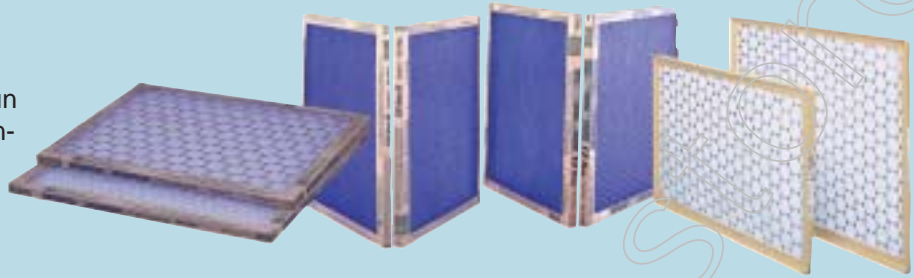
**FLANDERS**

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and hvac store

## Disposable Air Filters

The widest selection of disposable panels you will find anywhere. Spun glass and synthetic media...all standard sizes and almost any "special" size.



## Polyester Panels, Links, Sleeves

High grade polyester synthetic fiber media in a variety of styles, heat sealed onto heavy wire frames.

## Paint Booth Products

A complete line of aftermarket filter products for all styles of paintbooth...downdraft, cross-draft and work station.

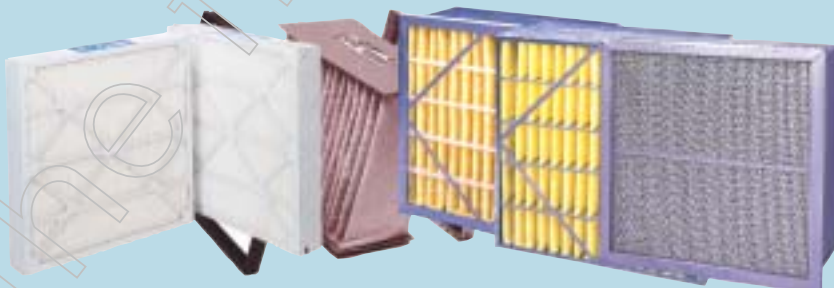
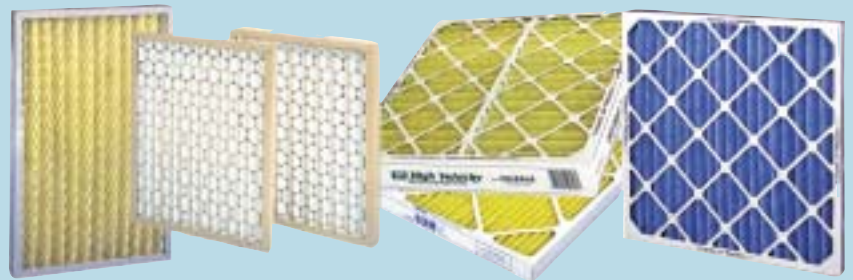


## Air Filter Media & Auto Rolls

Cut-to-fit hammock and service roll media in a variety of styles, plus bulk rolls of spun glass and synthetic media. Auto rolls in the media style of your choice, wound on the core style of your choice. Hundreds of models.

## Pleated Air Filters

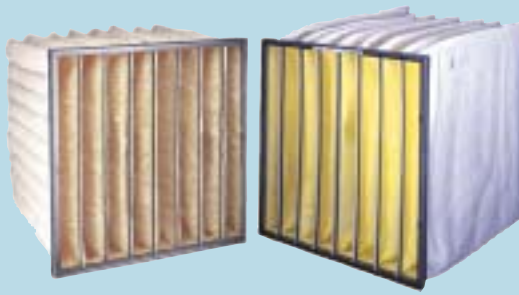
One of the largest inventories of pleated panel filters you will find anywhere. Five styles are offered in just about any size you will ever need.



## Medium & High Efficiency Rigid Type Air Filters

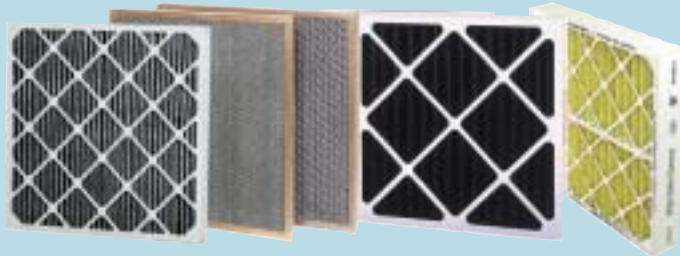
A wide variety of styles, sizes and efficiencies.





## Medium & High Efficiency Extended Surface Type Filters

Huge line of "bag" filters in all of the most popular sizes and efficiencies, plus our new XDH bag which holds up to twice as much dust as ordinary bags.



## Gas Phase and Odor Control

Pleated panel filters that have been treated with special odor adsorbing/neutralizing materials, as well as 50% & 75% fill granular carbon filters.



## Metal Washable Filters

Rugged metal filters for a variety of applications. Top quality materials and workmanship.



## HEPA Filter

For genuine HEPA grade filtration with minimum efficiency of 99.97% on 0.30 micrometer size particles. Several types, including high capacity, high temp, high velocity, minipleat panels, terminal modules and fan powered modules.



## Framing Systems and Holding Frames

Media holding frames, filter holding frames, modular filter framing systems and hard ceiling adaptor frames for Terminal Modules



## Residential/Light Commercial Air Cleaners & Filters

Fast, easy and profitable air filtration upgrades...made by one of the world's leaders in critical air filtration. Equal or superior filter media replacements for competing systems...and typically easier to install.

## Electronic Air Cleaners

Near-HEPA quality air purification for the whole house or just a room.



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**Residential/Light Commercial Air Cleaners and Filters:**

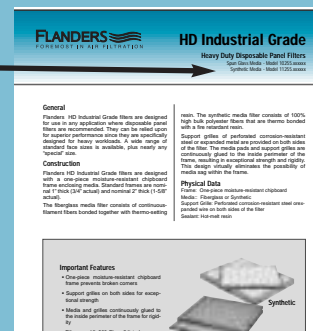
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**Model Numbers:**

Within each section in the page heading or in the body, you will see model number abbreviations to help you find these products in the separate Flanders price book. These will typically appear as a family code followed by "xxx's" which indicate dimensions or other identifying characteristic of specific products.



## Heavy Duty Disposable Panel Filters

Spun Glass Media - Model 10255.xxxxxx

Synthetic Media - Model 11255.xxxxxx

Grille Sizes - Model 10355.xxxxxx

### General

Flanders HD Industrial Grade filters are designed for use in any application where disposable panel filters are recommended. They can be relied upon for superior performance since they are specifically designed for heavy workloads. A wide range of standard face sizes is available, plus nearly any "special" size.

### Construction

Flanders HD Industrial Grade filters are designed with a one-piece moisture-resistant chipboard frame enclosing media. Standard frames are nominal 1" thick (3/4" actual) and nominal 2" thick (1-5/8" actual).

The fiberglass media filter consists of continuous-filament fibers bonded together with thermo-setting

resin. The synthetic media filter consists of 100% high bulk polyester fibers that are thermo bonded with a fire retardant resin.

Support grilles of perforated corrosion-resistant steel or expanded metal are provided on both sides of the filter. The media pads and support grilles are continuously glued to the inside perimeter of the frame, resulting in exceptional strength and rigidity. This design virtually eliminates the possibility of media sag within the frame.

### Physical Data

Frame: One-piece moisture-resistant chipboard

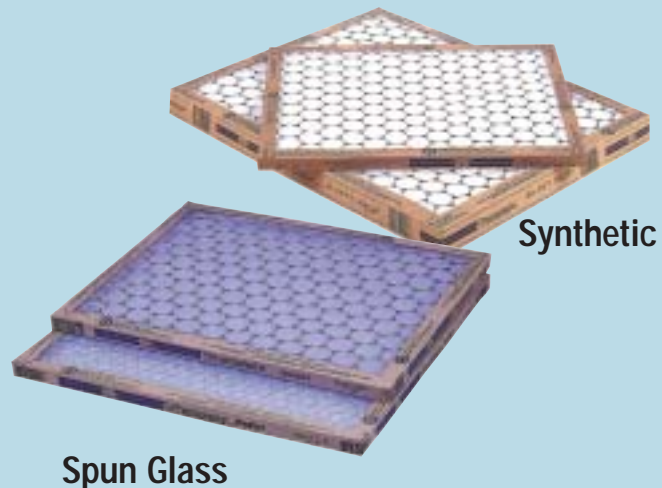
Media: Fiberglass or Synthetic

Support Grille: Perforated corrosion-resistant steel or expanded wire on both sides of the filter

Sealant: Hot-melt resin

### Important Features

- One-piece moisture-resistant chipboard frame prevents broken corners
- Support grilles on both sides for exceptional strength
- Media and grilles continuously glued to the inside perimeter of the frame for rigidity
- Filters are UL 900 Class 2 listed
- 1/2", 1", 2" depths
- Special sizes available upon request





## Standard Sizes

## Performance Data - HD Industrial Grade

Nominal Size (in.)	Actual Size H x W x D (in)	cfm @ 300 fpm	Standard Carton Qty.	Weight per Carton (lbs.)
10x10x1	9-7/8 x 9-7/8 x 3/4	208	12	3.3
10x20x1	9-7/8 x 19-7/8 x 3/4	417	12	5.2
10x24x1	9-7/8 x 23-7/8 x 3/4	500	12	6.1
10x25x1	9-7/8 x 24-7/8 x 3/4	521	12	6.5
10x30x1	9-7/8 x 29-7/8 x 3/4	625	12	7.0
12x12x1	11 -7/8 x 11 -7/8 x 3/4	300	12	4.0
12x20x1	11 -7/8 x 19-7/8 x 3/4	500	12	5.8
12x24x1	11 -7/8 x 23-7/8 x 3/4	600	12	6.7
12x25x1	11 -7/8 x 24-7/8 x 3/4	625	12	7.5
12x30x1	11 -7/8 x 29-7/8 x 3/4	749	12	8.0
14x14x1	13-7/8 x 13-7/8 x 3/4	408	12	5.2
14x20x1	13-7/8 x 19-7/8 x 3/4	583	12	6.2
14x24x1	13-7/8 x 23-7/8 x 3/4	700	12	7.3
14x25x1	13-7/8 x 24-7/8 x 3/4	729	12	7.7
14x30x1	13-7/8 x 29-7/8 x 3/4	875	12	10.5
15x20x1	14-7/8 x 19-7/8 x 3/4	625	12	6.7
15x25x1	14-7/8 x 24-7/8 x 3/4	781	12	6.8
16x16x1	15-7/8 x 15-7/8 x 3/4	533	12	6.3
16x20x1	15-3/4 x 19-1/2 x 3/4	667	12	6.9
16x24x1	15-7/8 x 23-7/8 x 3/4	800	12	8.5
16x25x1	15-3/4 x 24-5/8 x 3/4	833	12	8.3
18x20x1	17-7/8 x 19-7/8 x 3/4	750	12	8.0
18x24x1	17-7/8 x 23-7/8 x 3/4	900	12	9.0
18x25x1	17-7/8 x 24-7/8 x 3/4	938	12	9.6
19x27x1	18-7/8 x 26-7/8 x 3/4	1069	12	11.8
20x20x1	19-5/8 x 19-5/8 x 3/4	833	12	7.9
20x24x1	19-7/8 x 23-7/8 x 3/4	1000	12	9.5
20x25x1	19-5/8 x 24-5/8 x 3/4	1042	12	9.5
20x30x1	19-7/8 x 29-7/8 x 3/4	1250	12	12.5
22x22x1	21-7/8 x 21-7/8 x 3/4	1008	12	9.5
24x24x1	23-7/8 x 23-7/8 x 3/4	1200	12	11.3
24x30x1	23-7/8 x 29-7/8 x 3/4	1500	12	14.3
25x25x1	24-7/8 x 24-7/8 x 3/4	1302	12	13.5
10x10x2	9-7/8 x 9-7/8 x 1-5/8	208	12	3.9
10x20x2	9-7/8 x 19-7/8 x 1-5/8	417	12	6.6
12x24x2	11-1/2 x 23-1/2 x 1-5/8	600	12	8.0
14x20x2	13-7/8 x 19-7/8 x 1-5/8	584	12	9.1
14x25x2	13-7/8 x 24-7/8 x 1-5/8	730	12	10.5
15x20x2	14-7/8 x 19-7/8 x 1-5/8	625	12	9.6
16x20x2	15-3/4 x 19-1/2 x 1-5/8	667	12	9.6
16x24x2	15-3/4 x 23-1/2 x 1-5/8	800	12	11.6
16x25x2	15-3/4 x 24-1/2 x 1-5/8	834	12	11.6
18x24x2	17-7/8 x 23-7/8 x 1-5/8	900	12	12.8
20x20x2	19-1/2 x 19-1/2 x 1-5/8	834	12	11.9
20x24x2	19-1/2 x 23-1/2 x 1-5/8	1000	12	14.2
20x25x2	19-1/2 x 24-1/2 x 1-5/8	1042	12	14.0
24x24x2	23-1/2 x 23-1/2 x 1-5/8	1200	12	16.0
25x25x2	24-7/8 x 24-7/8 x 1-5/8	1302	12	17.2

Typical initial (clean) pressure drop at nominal cfm is 0.07 in. w.g. for 1 in. filters and 0.10 in. w.g. for 2 in. filters. Recommended final resistance is 0.50 in. w.g., but the system design may dictate a lower change out point.

## Guide Specifications

### 1.0 General

- 1.1 Disposable filters shall be Model HD Industrial Grade filters as manufactured by Flanders.
- 1.2 Filters shall be UL 900 Class 2 listed.

### 2.0 Filter Construction

- 2.1 Filters shall be constructed of fiberglass or synthetic media (as specified) enclosed in a one-piece chipboard frame.

- 2.2 Perforated corrosion-resistant steel or expanded metal support grilles shall be furnished on both entry and exit sides of the filter.
- 2.3 Media and grilles shall be continuously glued to the inside perimeter of the frame.

### 3.0 Performance

- 3.1 The manufacturer shall guarantee performance as stated in its literature within tolerances as outlined in Section 7.4 of ARI Standard 850.

## Disposable Panel Air Filters

EZ Flow - Model 10155.xxxxxx

EZFlow II - Model 10055.xxxxxx

### General

EZ Flow and EZ Flow II disposable filters are designed for protection of furnace and central air units in residential and light commercial applications. Construction of both models is identical except for the media retainer. The EZ Flow features a metal media retainer on the downstream side while the EZ Flow II has no media retainer. Instead, the media itself is adhered directly to the frame for non-metallic applications.

### Construction

The frame is made from heavy chipboard in a one-piece design that eliminates corner separation.

The filtering media is continuous filament spun glass. A resinous bonding agent provides rigidity and resistance to media compression.

**MEDIA SUPPORT** of the EZ Flow is provided by one metal retainer on the downstream side, either punched metal plate or expanded metal, depending on face size. The EZ Flow II is made to function without a retainer, by adhering the frame directly to the media which has a light skin to make it self-retaining.

**SEALING** is accomplished with a resilient hot-melt adhesive running the full perimeter of the frame on both upstream and downstream sides.

**UL MARKING** appears on the filter frame. These filters have been tested by Underwriters Laboratories Inc. and are classified as UL 900 Class 2 for flammability.

### Important Features

- One-piece frame
- UL 900 Class 2
- UPC marked
- No media retainer on EZ Flow II
- Metal media retainer on EZ Flow
- 1/2", 1" and 2" depths
- All standard sizes plus special sizes



EZ Flow II  
No Metal



EZ Flow  
Metal on Downstream Side

## Standard Sizes

## Performance Data - EZ Flow and EZ Flow II

Nominal Size (inch)	Actual Size H x W x D (in)	cfm @ 300 fpm	Standard Carton Qty.	Weight per Carton (lbs.)
10x10x1	9-7/8 x 9-7/8 x 3/4	208	12	3.3
10x20x1	9-7/8 x 19-7/8 x 3/4	417	12	5.6
10x24x1	9-7/8 x 23-7/8 x 3/4	500	12	6.1
10x25x1	9-7/8 x 24-7/8 x 3/4	521	12	6.5
10x30x1	9-7/8 x 29-7/8 x 3/4	625	12	5.8
12x12x1	11 -7/8 x 11 -7/8 x 3/4	300	12	4.0
12x20x1	11 -7/8 x 19-7/8 x 3/4	500	12	5.8
12x24x1	11 -7/8 x 23-7/8 x 3/4	600	12	6.7
12x25x1	11 -7/8 x 24-7/8 x 3/4	625	12	7.5
12x30x1	11 -7/8 x 29-7/8 x 3/4	749	12	7.8
14x14x1	13-7/8 x 13-7/8 x 3/4	408	12	5.2
14x20x1	13-7/8 x 19-7/8 x 3/4	583	12	6.2
14x24x1	13-7/8 x 23-7/8 x 3/4	700	12	7.3
14x25x1	13-7/8 x 24-7/8 x 3/4	729	12	7.7
14x30x1	13-7/8 x 29-7/8 x 3/4	875	12	10.5
15x25x1	14-7/8 x 24-7/8 x 3/4	781	12	6.8
15x20x1	14-7/8 x 19-7/8 x 3/4	625	12	6.7
15x30x1	14-7/8 x 30-1/2 x 3/4	957	12	9.8
16x16x1	15-7/8 x 15-7/8 x 3/4	533	12	6.0
16x20x1	15-3/4 x 19-1/2 x 3/4	667	12	6.9
16x22x1	15-7/8 x 22-1/8 x 3/4	742	12	8.3
16x24x1	15-7/8 x 23-7/8 x 3/4	800	12	8.5
16x25x1	15-3/4 x 24-5/8 x 3/4	833	12	8.3
18x20x1	17-7/8 x 19-7/8 x 3/4	750	12	8.0
18x24x1	17-7/8 x 23-7/8 x 3/4	900	12	9.0
18x25x1	17-7/8 x 24-7/8 x 3/4	938	12	9.6
19x27x1	18-7/8 x 26-7/8 x 3/4	1069	12	11.8
20x20x1	19-5/8 x 19-5/8 x 3/4	833	12	7.9
20x22x1	19-7/8 x 22-1/8 x 3/4	938	12	9.3
20x24x1	19-7/8 x 23-7/8 x 3/4	1000	12	9.5
20x25x1	19-5/8 x 24-5/8 x 3/4	1042	12	9.5
20x30x1	19-7/8 x 29-7/8 x 3/4	1250	12	12.5
22x22x1	21-7/8 x 21-7/8 x 3/4	1008	12	9.5
24x24x1	23-7/8 x 23-7/8 x 3/4	1200	12	11.3
24x30x1	23-7/8 x 29-7/8 x 3/4	500	12	14.3
25x25x1	24-7/8 x 24-7/8 x 3/4	1302	12	13.5
10x10x2	9-7/8 x 9-7/8 x 1-5/8	208	12	3.9
10x20x2	9-7/8 x 19-7/8 x 1-5/8	417	12	6.6
12x24x2	11-1/2 x 23-1/2 x 1-5/8	600	12	8.0
14x20x2	13-7/8 x 19-7/8 x 1-5/8	584	12	9.1
14x25x2	13-7/8 x 24-7/8 x 1-5/8	730	12	10.5
15x20x2	14-7/8 x 19-7/8 x 1-5/8	625	12	9.6
16x20x2	15-3/4 x 19-1/2 x 1-5/8	667	12	9.6
16x24x2	15-3/4 x 23-1/2 x 1-5/8	800	12	11.6
16x25x2	15-3/4 x 24-1/2 x 1-5/8	834	12	11.6
18x24x2	17-7/8 x 23-7/8 x 1-5/8	900	12	12.8
20x20x2	19-1/2 x 19-1/2 x 1-5/8	834	12	11.9
20x24x2	19-1/2 x 23-1/2 x 1-5/8	1000	12	14.2
20x25x2	19-1/2 x 24-1/2 x 1-5/8	1042	12	14.0
24x24x2	23-1/2 x 23-1/2 x 1-5/8	1200	12	16.0

**Notes:**

1. Contact your local representative or the factory for additional standard sizes. Special sizes are also available.
2. Manufacturing tolerances are +0", -1/8" on height and width.
3. Nominal cfm is calculated at 300 fpm gross face velocity.
4. Typical initial (clean) pressure drop at nominal cfm is 0.07" w.g. for 1" filters and 0.10" w.g. for 2" filters.
5. Recommended final resistance is 0.50" w.g., but the system design may dictate a lower changeout point.

### General

The Flanders Pinch Frame disposable air filter provides the user with a product of high quality and strength.

Originally designed for light commercial and industrial applications, the Flanders Pinch Frame filter is an excellent choice for use in residential furnace systems.

The filter is produced on state-of-the-art production line machinery. The result is a filter of consistently high quality at a competitive price.

### Construction

This disposable heating and air conditioning filter has a one-piece chipboard frame. This feature eliminates the problems associated with a four-piece frame, such as broken corners and exposed metal edges.

The Pinch Frame filter utilizes a heat seal to bond the frame to the filter media and metal support grid. This process permits the use of a single metal grid on the air exit side only, thus maximizing filter face area and extending service life.

The media is made of 100% nonwoven polyester synthetic fibers chemically bonded with a fire retardant resin. Because of the synthetic nature of the fiber, the media is extremely resistant to moisture and other environmental extremes.

### Physical Data

Frame: One-piece chipboard

Media: Dry resinated polyester

Support Grid: Perforated metal on air-exit side

Sealant: Hot-melt resin

Nominal Thickness: 1"

Flammability: UL 900 Class 2

### Important Features

- One-piece chipboard frame prevents broken corners and exposed metal.
- Heat-sealed frame provides unusual strength and serviceability.
- A metal grid on the air-exit side assures more open face area and longer service life.
- Resinated polyester media provides resistance to moisture.
- Filters are UL 900 Class 2 listed.





## Standard Sizes

## Performance Data - Pinch Frame

Nominal Size (inch)	Actual Size H x W x D (inches)	cfm @ 300 fpm	Standard Carton Qty.	Weight per Carton (lbs.)
10x20x1	9-7/8 x 19-7/8 x 7/8	420	12	4.0
10x24x1	9-7/8 x 23-7/8 x 7/8	500	12	5.0
10x30x1	9-7/8 x 29-7/8 x 7/8	620	12	5.5
12x20x1	11 -7/8 x 19-7/8 x 7/8	500	12	4.5
12x24x1	11 -7/8 x 23-7/8 x 7/8	600	12	5.0
12x25x1	11 -7/8 x 24-7/8 x 7/8	620	12	5.0
12x27x1	11-7/8 x 26-7/8 x 7/8	670	12	6.0
12x30x1	11 -7/8 x 29-7/8 x 7/8	750	12	6.0
14x20x1	13-7/8 x 19-7/8 x 7/8	580	12	4.5
14x24x1	13-7/8 x 23-7/8 x 7/8	700	12	5.5
14x25x1	13-7/8 x 24-5/8 x 7/8	730	12	5.5
14x30x1	13-7/8 x 29-7/8 x 7/8	870	12	6.5
15x20x1	14-7/8 x 19-5/8 x 7/8	620	12	5.0
15x30x1	14-7/8 x 29-7/8 x 7/8	940	12	6.0
16x20x1	15-5/8 x 19 5/8 x 7/8	670	12	5.5
16x25x1	15-5/8 x 24-5/8 x 7/8	830	12	6.5
16x30x1	15-7/8 x 29-7/8 x 7/8	1000	12	7.5
18x25x1	17-7/8 x 24-7/8 x 7/8	940	12	6.0
20x20x1	19-5/8 x 19-5/8 x 7/8	830	12	6.0
20x24x1	19-7/8 x 23-5/8 x 7/8	980	12	6.5
20x25x1	19-5/8 x 24-5/8 x 7/8	1040	12	7.0
20x30x1	19-7/8 x 29-7/8 x 7/8	1250	12	8.5
24x24x1	23-1/2 x 23-1/2 x 7/8	1200	12	8.0
25x25x1	24-7/8 x 24-7/8 x 7/8	1300	12	8.5

### Notes:

1. Manufacturing tolerances are +0", -1/8"
2. All sizes are packed 12 per carton

## Guide Specifications

### 1.0 General

- 1.1 Disposable filters shall be Pinch Frame filters as manufactured by Flanders..
- 1.2 Filters shall be UL 900 Class 2 listed.

### 2.0 Filter Construction

- 2.1 Filters shall be constructed of resinated polyester media and a metal air-exit grid heat sealed together in a one-piece chipboard frame.

### 3.0 Performance

- 3.1 The average arrestance of 70% shall be as determined by the ASHRAE Standard 52.1 test method.
- 3.2 The manufacturer shall guarantee performance as stated in its literature within tolerances as outlined in Section 7.4 of ARI Standard 850.

**Flanders - Foremost in Air Filtration**

Corporate Headquarters, St. Petersburg, FL

## Rugged, Heat-sealed, Construction

Flanders Ring Panel and Cube filters are made by heat sealing layers of synthetic filtering media together over an interior, corrosion-resistant steel support frame. An overcut of media outside the seal forms a built-in gasket (selvage) between the wire support frame and holding frame, which secures the filter and prevents air bypass. This special feature allows these filters to be installed without the use of retainer fasteners



## Link Panels

Flanders Ring Panel filters can be ordered as standard single panels or as link panels. A link panel is made by heat sealing individual Ring Panel filter panels end to end to achieve desired dimensions.

## Sleeve Panels

Sleeve Panels are nearly identical to the stan-

ard Ring Panel. The only major difference in construction with the Sleeve Panel is that one end is left unsealed. Therefore, the interior support frame can be removed and used over and over again, with just the soiled media thrown away. This is more economical and makes disposal easier.

## Cubes

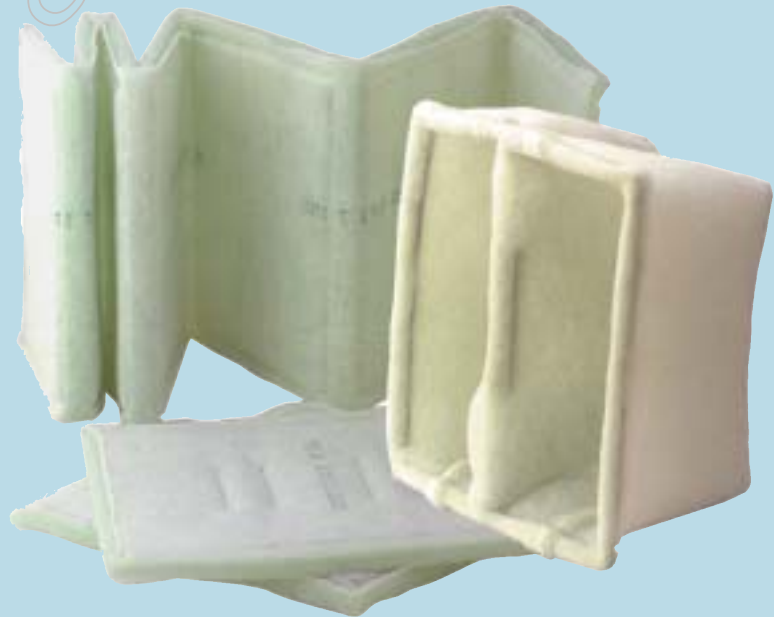
Cubes are internally supported filters similar to the Polyester Panel. The exception is greater surface area for contamination capture. Unitary, 2-pocket or 3-pocket construction is available throughout our entire product offering. Cubes are available with 13/16" thick headers for side access installations or other systems where a header is required.

## A Moisture-resistant Alternative

Because these filters are made with only metal and synthetic materials, they are an excellent alternative to paper-frame filters in high moisture areas because they are naturally moisture-resistant and will not deteriorate or warp in wet or humid conditions.

## Important Features

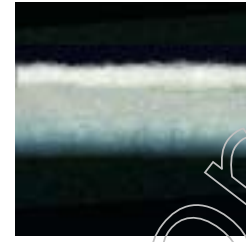
- Heat sealed construction
- Tackified, progressive density media
- 2, 3 and 4-ply combinations
- 100% moisture resistant
- 9 gage galvanized wire frame
- Merv 6-10 available
- UL 900 Class 2



## Series ST55-Polyester Panel

Models ST55R-xxxx Ring Panel and ST55L-xxxx Link

Two-ply 1" nominal media construction using a 1/2" nominal white polyester on the upstream, followed by a 1/2" nominal green super tackified polyester downstream.



## Series 225T-Polyester Panel or Cubes

Models 225RT-xxxx Ring Panel, 225LT-xxxx Link, CUBx225T-xxxxxx Cube

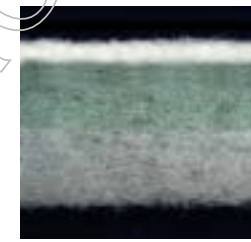
Two-ply 1" nominal media construction, using a 3/4" nominal white polyester on the up-stream, with internal tackification followed by a 1/4" dense white polyester downstream.



## Series 325T-Polyester Panel or Cubes

Models 325RT-xxxx Ring Panels and 325LT-xxxx Links  
CUBx325T-xxxxxx Cube

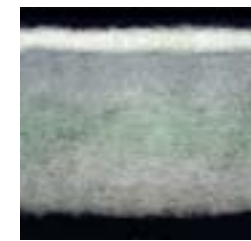
Three-ply 1-3/4" nominal media construction, using a 1-1/2" nominal white/green dual density, multidenier polyester upstream, with internal tackification followed by a 1/4" dense white polyester downstream.



## Series 425T-Polyester Panel or Cubes

Models 425RT-xxxx Ring Panels and 425LT-xxxx Links  
CUBx425T-xxxxxx Cube

Four-ply 1-3/4" nominal media construction, using a 1-1/2" nominal white/green/white tridensity, multidenier polyester upstream, with internal tackification followed by a 1/4" dense white polyester downstream.



### Use link panels for easy installation in filter tracks and eliminate air bypass!

Link panels make installation easy. Just unfold the filter and slide it into the track as one continuous, long filter. When time to replace it, the whole filter comes out easily in one piece. Plus, the sealing between links and the generous selvage eliminates air bypass.

Goes in as one piece. Comes out as one piece.

Overcut gaskets against air bypass.



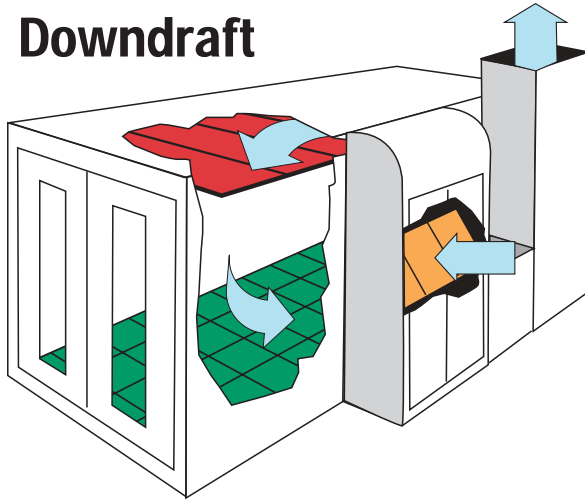
Link Panels are heat-sealed together.

Moisture resistant materials

**Flanders - Foremost in Air Filtration**

Corporate Headquarters, St. Petersburg, FL

## Downdraft

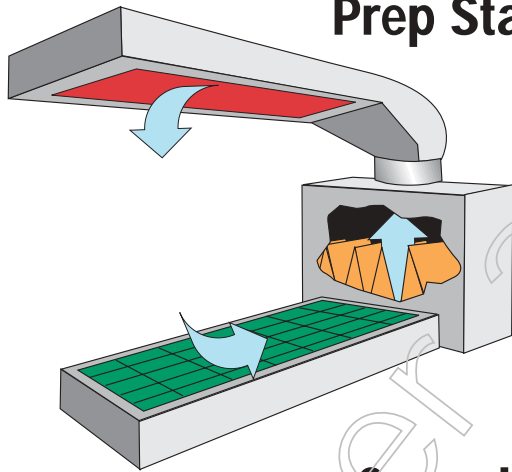


Flanders offers a wide variety of filtration products for downdraft and crossdraft paintbooths and prep stations. For the most part, filtration products required for all of these fall into three general categories which are color coded to the drawings at left which indicate their placement in each type of booth.

### Intake Filters

Air Intake filters are as important to a great paint job as the booth itself. The intake filters are the primary defense against foreign particles landing on the painting surface. Any particle larger than 10 microns can cause a defect on a paint job. Intake filters are typically either panels or pads. Intake filters in a downdraft booth and prepstations are above the painting surface. In crossdraft booths, they are typically in the door.

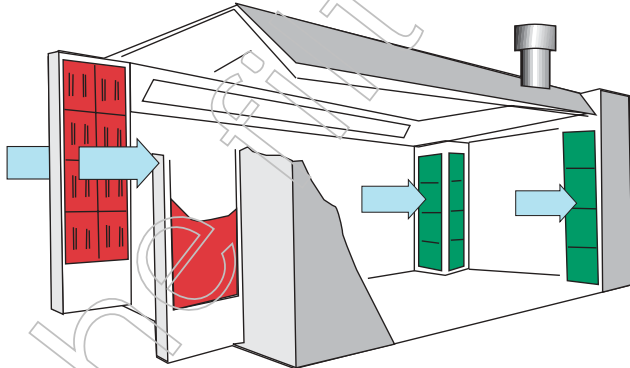
## Prep Station



### Exhaust/Paint Arrestor Filters

Exhaust filters play an important role in maintaining proper air flow balance, increasing cleanliness of exhaust stacks, reducing maintenance of the exhaust system and in controlling V.O.C. emissions. The purpose of exhaust filters is to capture overspray particles and remove them from the airstream as air is removed or recirculated back into the booth. Crossdraft and semi-downdraft booths use media pads which are placed on grids in the rear wall or lower portion of the side walls in filter housings. Downdraft booths use a long pad that is placed into a pit below the painting surface.

## Crossdraft



### Prefilters

A prefilter is designed to filter out large particles before the air reaches the intake filter. This prolongs the life of the intake filter, increases airflow in your booth and reduces maintenance costs on the intake stack and mechanical parts. The prefilter is typically found only in heated booths. Crossdraft booths will very rarely have a prefilter. In downdraft and semi-downdraft booths, the prefilter is located somewhere along the duct-work bringing air into the booth.



## SA600-G10 Diffusion Media for Air Intake

Models SA600-xxx



For downdrafts and prep stations. This filter provides the highest level of protection against paint damaging particles available today. In addition to its leading reputation in filtering ability, the SA600-G10 is able to withstand high temperature applications, up to 140 degrees Celcius! This filter does not discolor or break down in the heated booth environment. Other leading media using traditional tackifiers and PVC resins, produce a heavy discoloration and the media expands reducing the filtering ability.

Flanders' re-engineered media and manufacturing process has virtually eliminated these flaws. Using ecologically sound materials, and eliminating PVC resins, the media discoloration and media expansion have been minimized. The SA600-G10 is a 1" diffusion media, and carries the prestigious G10 mark. G10 is a European standard for test performance, and only qualified media can claim this mark of distinction. It has a high dust holding capacity for long life, and stops all particles of paint damaging size from entering a paintbooth when installed properly.

This product has a normal service life of 10 to 18 months, depending on outside air quality and usage. The filter is available in bulk rolls or cut pads for your convenience. Cut pads are cut in our facility to your booth requirements.

## SAR-1 Pad for Air Intake

Models SAR1M-xxxxx



For use as an intake blanket on crossdraft booths.

The SAR-1 media, made in Switzerland, has a 1/2" loft, and is optimally designed for efficiency and dust holding capacity. For crossdraft booths, the SAR-1 pad, sometimes referred to as a blanket, is tucked into the doors of the booth. There is usually only one large pad on each door. Oversized SAR-1 media pads can be easily trimmed.

The SAR-1 media is a premium choice for crossdraft requirements. The tackifier and heavily callendered exit side allow for excellent particle retention. The SAR-1 is a premium choice for crossdraft filtration.

## SAR-1 Panels for Air Intake

Model SAR1Pxx-xxxx



For use in crossdraft and some downdraft booths. The SAR-1 PANEL, made in Switzerland, is a premium choice for panel filtration. The SAR-1 PANEL is made from two media pads. A metal support is dielectrically heat sealed in between the two media layers providing support and rigidity.

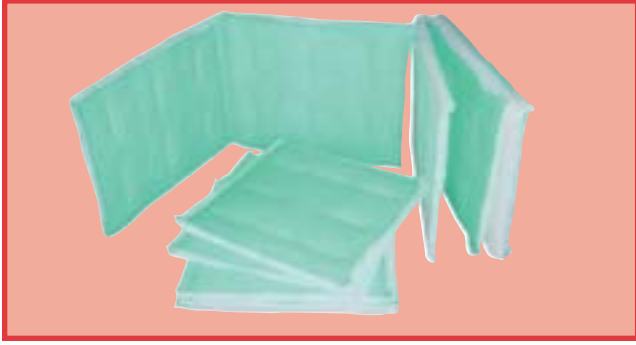
The first media layer is designed to catch large particles entering the booth. The second media layer is designed to catch the smaller particles. 100% of the fibers in the second layer are tackified to retain trapped particles. The combination of small fiber size and a callendered exit provide unsurpassed R-1 filtration.

The metal support is made from 9 gauge galvanized steel, which will not rust. The support is formed into a rectangular shape and contains two crossbars for added stability.

When choosing the correct size, measure the metal support. The metal support will be 3/8" under the listed size. For instance, a 20x20 panel's ring will measure 19-5/8 x 19-5/8. Crossdraft booths will have a series of housings that look like square or rectangular holes in the booth doors. Panel filters have extra media overlapping the metal support which act as gasketing when placing the panel filter inside the housing and create a tight seal to prevent any air bypass around the filter.

## Series ST55 Panel for Air Intake

Models ST55R-xxxx and ST55L-xxxx-xx



The SERIES ST55 PANEL, made in the USA, is an economical choice for crossdraft booths. The SERIES ST55 is made from two media pads. A metal support is dielectrically heat sealed in between the two media layers, providing support and rigidity.

The first media layer is designed to catch large particles entering the booth. The second media layer is designed to catch the smaller particles. The downstream side of the second layer is treated with a sticky non-migrating tackifier which holds trapped particles inside the filter. The metal support is made from 9 gauge galvanized steel, which will not rust. The support is formed into a rectangular shape and contains two crossbars for added stability.

When choosing the correct size, measure the metal support. The metal support will be 3/8" under the listed size. For instance, a 20x20 panel's ring will measure 19-5/8 x 19-5/8.

## Series 332 Paint Arrestor

Models 332PA-xxxx



Fiberglass with polyester for use as a paint arrestor in all types of booth. Series 332 is our highest quality fiberglass media available. Made with 18 grams of fiberglass per square foot, and a polyester exit layer, the Series 332 is more efficient and holds more paint than almost any other fiberglass products.

Series 332 comes in 200 ft. rolls and in pads for crossdraft and semi-downdraft booths. Series 332 is made from air-laid fiberglass forming a 2.5" thickness and a thin polyester layer bonded to the exit side for added efficiency.

Series 332 fibers are ideal for paint capture due to their loose weave. The paint particles collide with the fiberglass fibers and are removed from the airstream, and the fine particulate is removed by the polyester exit layer.

A grid is needed to hold the pad which is standard in most booths, or are available through Flanders customer service.

If your downdraft booth uses a pit, measure the width of the pit to find the appropriate roll, or check our booth guide. To change the media, simply, unwind the roll to the proper length, and cut a pad.

## FP3-Paint Arrestor

FP3PA-xxxx



FP3 media is an excellent choice for exhaust media in any booth. Use of this media will keep the booth exhaust system cleaner when converting from fiberglass, however some older booths do not work well with the resistance levels.

FP3 media combines three distinct layers of polyester fibers forming a funnel effect. The first layer captures large particles. The second and third layers catch the finer particles.

By utilizing an open weave on the first layer, particles do not cause the filter to quickly clog up allowing large amounts of paint to be captured without substantial increases in air pressure.

The pad sizes listed below are typical in crossdraft and semi-downdraft booths. If converting from Styrobaffle or Styrofoam, grids will be needed to hold the pads in place. If your downdraft booth uses a pit, measure the width of the pit to find the appropriate roll, or check our booth guide.

## Series 331Y PA

Models 331Y-xxx



22 gram Fiberglass Paint Arrestor for use in all booth types. Series 331Y is a high quality fiberglass media. Made with 22 grams of fiberglass per square foot, the Series 331Y is more efficient and holds more paint than many other fiberglass products. It comes in 200 ft. rolls and is also available in pads for crossdraft and semi-downdraft booths.

Series 331Y is made from air-laid fiberglass forming a 2.5" thickness. The exit side has a skin backing for added efficiency.

Series 331Y fibers are ideal for paint capture due to their loose weave. The paint particles collide with the fiberglass fibers and are removed from the airstream.

If your downdraft booth uses a pit, measure the width of the pit to find the appropriate roll, or check our booth guide. To change the media, simply, unwind the roll to the proper length, and cut a pad.

## Series 330G PA

Models 330G-xxx



15 gram Fiberglass Paint Arrestor for all booth types. Series 330G is our economy grade fiberglass media. Made with 15 grams of fiberglass per square foot, the Series 330G holds more paint than other economy fiberglass media due to its skin exit side.

Series 330G comes in 100 ft. rolls compared to many of our competitors 200-300 ft. rolls. The fiberglass is also available in pads for crossdraft and semi-downdraft booths.

Series 330G is made from air-laid fiberglass forming a 2.5" thickness. The exit side has a skin backing for added efficiency.

Series 330G fibers are ideal for paint capture due to their loose weave. The paint particles collide with the fiberglass fibers and are removed from the airstream.

If your downdraft booth uses a pit, measure the width of the pit to find the appropriate roll, or check our booth guide. To change the media, simply, unwind the roll to the proper length, and cut a pad.

## Series 225T Cube

Models CUBx225Txxxxxx



2-Ply Self Supportive Cube Filter for use as a paint arrester. 225T Cube filters are a single pocket trapezoid cube filter. A 1" dual denier polyester media is sewn into shape. The filter is then attached to a 9 gauge wire for support when installed in the filter housing.

Due to their unique design, cube filters have a larger surface area than conventional pads. The increase in surface area allows the filter to hold more contaminants thereby increasing the life of the filter.

## 325T and 425T-Cubes

Models CUBx325Txxxxxx and CUBx425Txxxx



Three and Four Stage Cube Filters for use as a paint arrester. Two products make up our premium exhaust cube product line. They are the Series



325T, which is 98% efficient, and the Series 425T which is 99% efficient. The exhaust cube filters have a larger surface area than a conventional flat pad. This increase in surface area reduces the restriction to airflow, and increases the paint holding capacity of the filter. This means better airflow and longer life.

The Series 325T is made from a polyester media supported by a 9 gauge wire frame. The dual denier media is used as an initial barrier, and a tightly woven thin media is used as a final particle barrier. This filter captures an average of 98% of overspray in weight.

The Series 425T has an added layer of media applied to the downstream side of the filter. Although the construction is the same as the Series 325T, the added layer of single denier polyester fibers gives the Series 425T a 99% efficiency rating.

## PS125-Bag

Models 125BAG-xxxxxx



Scrim-Back Polyester Media Bags for use as a secondary paint arrestor in selected booths.

Each bag is hand sewn and attached to a 9 gauge galvanized support frame, and includes a 1" header for easy placement in side access housings. Special bags may require a wire support basket, no header or frame, or loops at the end of each pocket for support.

The media is a 1" single denier polyester fiber with a scrim backing. This media has little effect on the airflow, and has a high dust holding capacity. The unique pocket design increases the surface area of the media. This increase in surface area will increase the life of the filter, and reduce the pressure drop.

If the exhaust bag is the same size as a booth's intake bags, it is common to rotate the intake bags

to the exhaust bags to reduce costs. Bag measurements are nominal in size. If a bag is 15.5" x 24.5" x 19.5", the listed size is 16" x 25" x 20". Please note this difference when measuring your exhaust bags.

## Andrea and PS125 Exhaust Filters

Models ANDREA and 125PAD-xxxx



The Andrea filter is a paper paint arrestor with a unique design. Kraft paper is pleated into an accordion-like form with holes punched in the paper at consistent intervals. A second layer of paper is attached to the back with different hole placements.

When air passes through the filter, it hits the wall of the second kraft paper layer and is diverted through the second hole. This air turbulence and laws of motion cause the paint to collect on the paper and cleaned air to pass through the filter.

The PS125 Water Wash Pads are designed specifically for use in select Spraybake brand booths. Certain models of Spraybake use a water wash system as a secondary exhaust. This water wash system requires special pads to be used to filter out particulate in the system. The fiber has a reinforced scrim backing on the downstream side to prevent fiber breakoff or migration. The water wash pads are also available in custom sizes.

*\*Our filters are not affiliated with SPRAYBAKE®. Use of the registered SPRAYBAKE® name is for comparative purposes only.*

## Series 225-Panel

Models 225RT-xxxx and 225LT-xxxx-xx

2-ply Panel and Link Filter for use as a prefilter in downdraft booths. The 2 ply panel filters are constructed using two layers of poly-synthetic fibers. These layers are designed to capture large particles in the first layer and smaller particles throughout the second layer.

A 9 gauge wire frame with two cross pieces is dielectrically heat sealed inside the filter for sup



port. The media overlaps the support, which provides a gasketing effect reducing air bypass around the filter.



A tackifier is applied in between the last two layers to stabilize any migrating particles and prevent the discharge of particles from the filter. The graduated media design produces a superior dust holding capacity that will outlast most filters on the market. Panel filters are 100% moisture resistant and will not warp or deteriorate in wet or humid conditions. By utilizing one continuous panel in a filter track, and its selvaged edge, a panel filter eliminates air bypass so common among cardboard framed filters.

When measuring the correct filter for your booth, first measure the entire filter track. This measurement should have a track height of 14-25" and a length of 14-100". The height of the 2 Ply Panel is listed as a nominal size. For instance, if a filter track measures 15.5" x 19.5", then the correct size is 16" x 20". There are hundreds of standard sizes available. Custom sizes are also available.

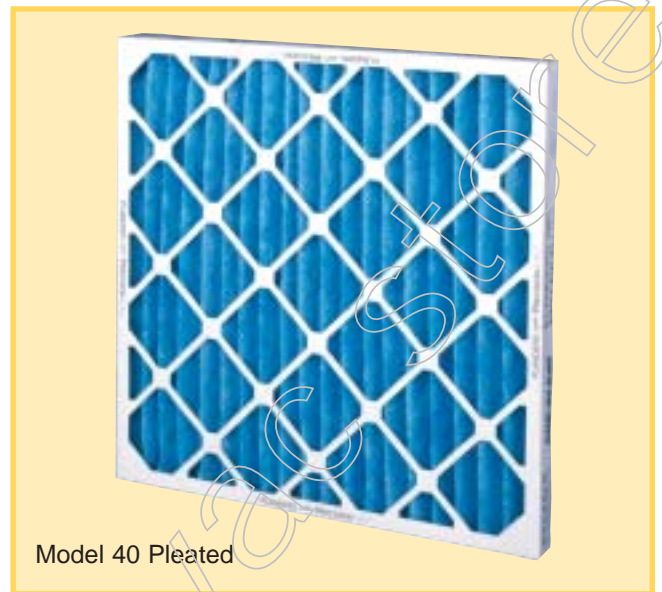
### Model 40 Standard Capacity Pleat

*Models 80055.xxxxxx*

For use as a prefilter in downdraft booths. Model 40 Pleats are designed to operate in almost every type of installation. Available in 1", 2" and 4" nominal thicknesses, these filters have an average atmospheric dust spot efficiency range of 25-30% per ASHRAE Standard 52.1 test methods. Model 40 Pleats offer greater efficiency and service life than disposable filters, pad and frame systems, or metal washable filters. The overall design of this product makes these filters the accepted choice in applications requiring high performance and extended service.

Filter frames are constructed from two pieces of die-cut, moisture-resistant carrier board. Components "telescope" into one another and provide double-wall construction and a precision fit. The frame includes diagonal and horizontal support

members bonded to the media on the air entering and leaving sides for unsurpassed frame strength, locking corners and positive media-to-frame seal reduces the possibility of air bypass.

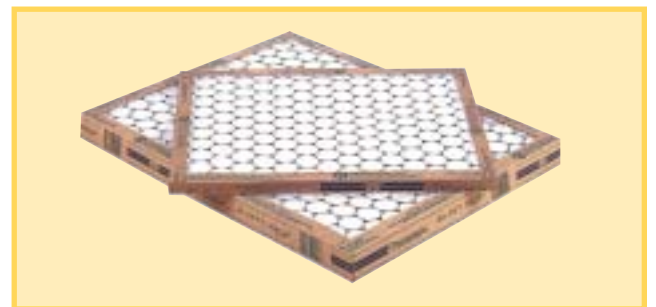


The filter is made from fully synthetic, high-loft and reinforced media. It is continuously laminated to an expanded metal grid on the air leaving side to provide pleat stability throughout the life of the filters and prevent media flutter while in operation. The unique v wedge allows for total media usage and provides maximum air flow.

### HD Poly-T/A

*Models 11255.xxxxxx*

These are heavy duty synthetic filters for use as prefilters in downdraft booths. HD Industrial Grade filters are designed for use in any application where disposable panel filters are recommended. They

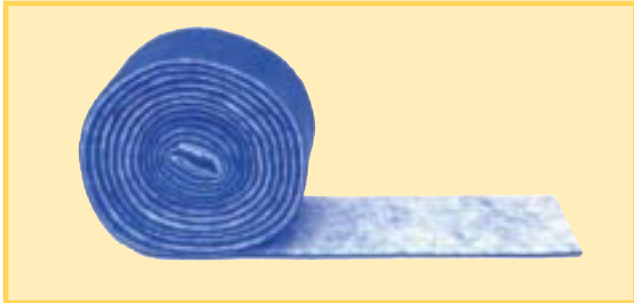


can be relied upon for superior performance since they are specifically designed for heavy work-loads. Both standard and special sizes are available. HD Industrial Grade filters are designed with a one-piece moisture-resistant chipboard frame enclosing progressive-density media. Standard frames are nominal 1" thick (3/4" actual) and nominal 2" thick (1-5/8" actual).

The filter media consists of 100% high bulk polyester fibers that are thermo-bonded with a fire retardant resin. Support grilles of expanded metal are provided on both sides of the filter. The media pads and support grilles are continuously glued to the inside perimeter of the frame, resulting in exceptional strength and rigidity. This design virtually eliminates the possibility of media sag within the frame.

### Polyester Bulk Media Rolls and Pads

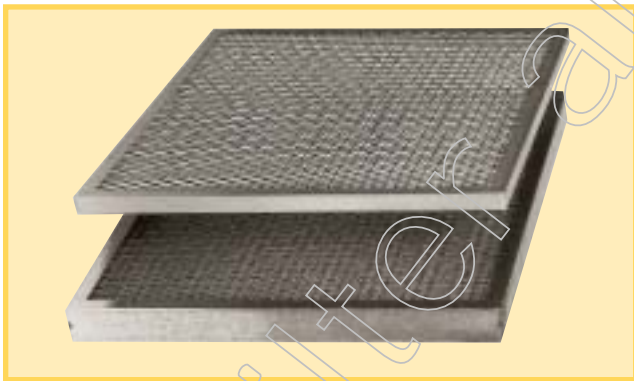
Models 1Txx for 1" and 2Txx for 2"



For use as a prefilter in downdraft booths. Polyester pads and rolls are made of a dual layer polyester media with a dry tackifier. The filter is cut into various pad sizes from the roll and placed into a metal holding frame (See Uniframe on page 79). The 1DT media is a 1" thick filter, and the 2DT media is a 2" thick filter. The media can be ordered in pre-cut pads or bulk rolls, and can easily be trimmed with scissors.

### KKM Washable

Models 51255.xxxxx



Washable permanent filter for use as a prefilter in downdraft booths. The KKM permanent filter is a heavy duty, washable, aluminum media, all metal filter.

The KKM offers large filtering area, high dust holding capacity, uniform loading and low resistance to airflow. It is recommended that the filter media be coated with dust adhesive for optimum perform-

ance.

The standard offering of KKM filters includes six of the most popular face sizes in 1" and 2" depths. Special face sizes and 1/2" depth filters are also available. For ease of installation, all filters are undercut slightly on length, width and depth.

### Precision Pak

Models PAPxxxSxxxx



High efficiency bag filter for use as a prefilter in downdraft booths and prep stations.

The Precision Pak ASHRAE bag use a fully synthetic media that provides an efficiency rating of 45-55%. The pockets are hand sewn or ultrasonically sealed and fastened to an all aluminum frame. They are designed for specific booths and prep stations that can accommodate their special size and performance properties. UL 900 Class 2 Listed.

Precision Pak bags have a large amount of media surface area. This decreases the pressure drop and increases the capacity. These bags hold substantial amounts of dirt removed from the airstream. Use of these bags will ensure a clean environment throughout the intake stack and prolonged life of the ceiling diffusion media.

Bag filters are sized nominally in their length and width. If the booth track measures 19.5" x 19.5", then the correct bag listed is 20" x 20". Bag filters also have a special depth. The depth describes the length of the pockets. This is an exact size and is usually an even number. There are many other sizes available, and custom sizes can be made to order. There are also other efficiencies ranging from 45% through 95%. For additional sizes, UL Ratings or efficiencies, please contact customer service.

## PS125-Bag

Models 125BAG-xxxxxx

Scrim-Back polyester media bags as prefilter. PS125 Bags are made from a single denier polyester media that contains a scrim backing for extra



rigidity. The PS125 Bags each contain a metal wire support and a 1" channel frame for easy placement.

Prefilter bags have an ever-changing and diverse selection of types and sizes. Call customer service at any time to help with your selection.

## PS125-Cube, PS125-Sock

Models 125SOCK-xxxx



P Series 225T Cubes are also used as an exhaust filter in several applications. The Spraybake Sock filter is made from a 1" single denier polyester media. The filter has a draw string sewn at the top, and a support loop at the bottom corner. The filter fastens to the ductwork by the drawstring. After fastening the support loop, the filter remains open and stable.

*\*Our filters are not affiliated with SPRAYBAKE®. Use of the registered SPRAYBAKE® name is for comparative purposes only.*

**Two-stage and Three-stage Paint Systems  
Paintbooth Filtration**

*Pads: FP319AxxxxPAD, Ring Panels: FP319A2020PRK,  
Cubes: FP319Axxxx, Bags: FP319Axxxxxxxx*

**FP319A Chromate Recovery System**

The Flanders FP319A-Chromate Recovery System is offered in both two-stage and three-stage configurations for aerospace overspray painting environments.

The FP319A complies with EPA (Environmental Protection Agency) Test Method 319 as it applies to the National Emissions Standards for Hazardous Air Pollutants (NESHAP). Reference 63 Fed. Reg. 59 (March 27, 1998) and 40 C.F.R. 9, 63.

The EPA Test Method 319 is a testing protocol in which potassium chloride and oleic acid are substituted for chromate paint. These chemical substances attempt to simulate dry and wet overspray characteristics of the chromate paint. This testing protocol verifies that an air filtration system (two or three-stage) has met minimum efficiency requirements, under laboratory conditions, utilizing potassium chloride and oleic acid.

The Flanders FP319A two and three-stage systems have been qualified by independent laboratory on specific chromate paints. These tests are performed in controlled environments to simulate the "real world" painting environment.

**Two-Stage**

The two-stage version of the Flanders system utilizes a proprietary synthetic media pad in combination with a proprietary synthetic media bag type filter. The two-stage system performed as shown below in testing.

**1 Dexter (A) 454-5 + (B) X-395 fuel tank coating mix-yellow** - With a conventional air gun operating at 45 psi, with spray feed rate of 105 gr/min @ 120 fpm.: Initial pressure drop was .18" w.g. running to final pressure drop at .72" w.g., average removal efficiency was measured at 99.78% efficiency, with 279 grams holding capacity on the first stage and 2600 grams holding capacity on the second stage.

**2. Deft 44GN72 green water-reducible coating (A) base + (B) activator** - With a conventional air gun operating at 45 psi, with spray feed rate of 110 gr/min @ 120 fpm.: Initial pressure drop was .10" w.g. Running to final pressure drop at .74" w.g., average removal efficiency was measured at 98.91% efficiency, with 469 grams holding capacity on the first stage and 6327 grams holding capacity on the second stage.

**Two-Stage Test Method 319 Data NESHAP\***

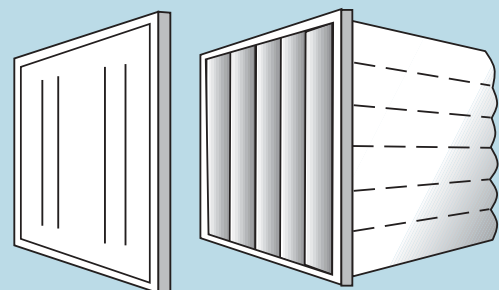
KCL	2.14 - 2.85 m	84.4%	>10%
	4.25 - 5.55 m	94.6%	>50%
	7.66 - 9.46 m	97.3%	>90%
OLEIC	1.88 - 2.83 m	85.6%	>10%
	3.69 - 4.71 m	94.4%	>50%
	5.11 - 6.29 m	97.1%	>90%

**Three-Stage Test Method 319 Data NESHAP\***

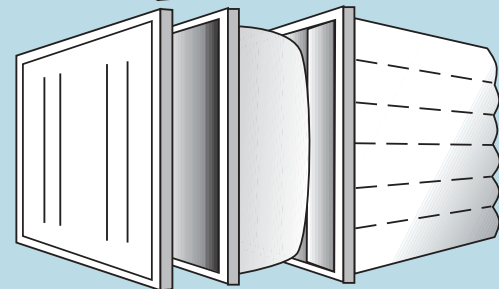
KCL	0.59 - 0.73 m	97.3%	>75%
	0.87 - 1.16 m	98.8%	>85%
	2.14 - 2.85 m	99.6%	>95%
OLEIC	0.37 - 0.47 m	89.2%	>65%
	0.94 - 1.41 m	96.8%	>80%
	1.88 - 2.83 m	99.0%	>95%

\*National Emissions Standards for Hazardous Air Pollutant minimums, as defined in Test Method 319 protocol.

**Two-stage**



**Three-stage**





**3. Courtaulds yellow fuel tank coating (A) 513X390 base + (B) 910X624 activator** - With a conventional air gun operating at 45 psi, with spray feed rate of 105 gr/min @ 120 fpm, initial pressure drop was .23" w.g. Running to final pressure drop at .82" w.g., average removal efficiency was measured at 99.35% efficiency, with 284 grams holding capacity on the first stage and 1366 grams holding capacity on the second stage.

### Three-Stage

The three-stage version of this system utilizes the same filters as the two-stage, plus a proprietary internally supported Polyester Panel filter and a proprietary pocketed cube filter.

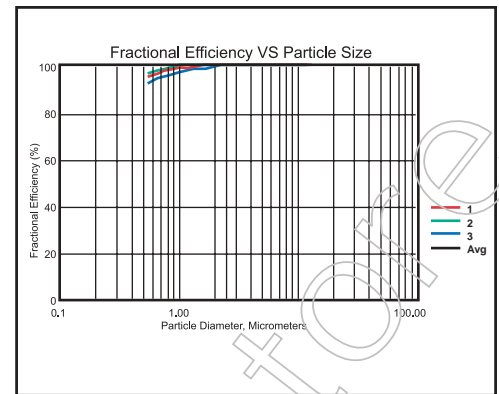
The three-stage system performed as shown below in testing.

**1. Dexter (A) 454-5 + (B) X-395 fuel tank coating mix-yellow** - With a conventional air gun operating at 45 psi, with spray feed rate of 105 gr/min @ 120 fpm, Initial pressure drop was .15" w.g. Running to final pressure drop at .70" w.g., average removal efficiency was measured at 99.97% efficiency, with 470 grams dust holding capacity on the first stage, 981 grams holding capacity on the second stage and 1140 grams holding capacity on the third stage.

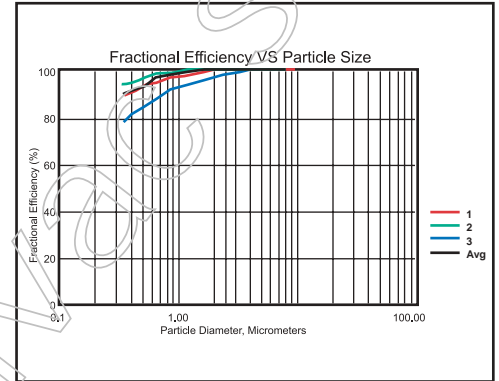
**2. Deft 44GN72 green water-reducible coating (A) base + (B) activator** - With a conventional air gun operating at 45 psi, with spray feed rate of 104 gr/min @ 120 fpm: Initial pressure drop was .15" w.g. Running to final pressure drop at .70" w.g., average removal efficiency was measured at 99.97% efficiency, with 470 grams dust holding capacity on the first stage, 981 grams holding capacity on the second stage and 1140 grams holding capacity on the third stage.

**3. Courtaulds yellow fuel tank coating (A) 513X390 base + (B) 910X624 activator** - With a conventional air gun operating at 45 psi, with spray feed rate of 93 gr/min @ 120 fpm: Initial pressure drop was .15" w.g. Running to final pressure drop at .79" w.g., average removal efficiency was measured at 99.91% efficiency, with 570 grams dust holding capacity on the first stage, 821 grams holding capacity on the second stage and 354 grams holding capacity on the third stage.

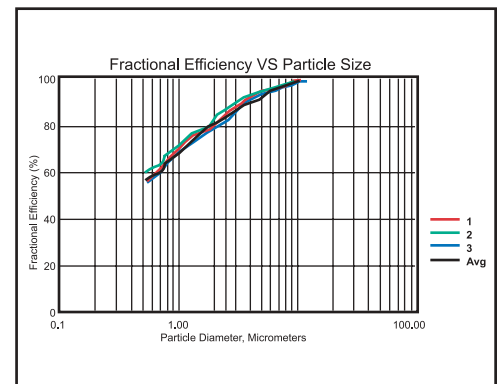
Filter ID:  
FP319A (three-stage)  
Descriptions:  
6 Pocket synthetic, yellow 15" deep  
Test Type:  
Fractional Efficiency  
Velocity:  
120 fpm  
Test Aerosol:  
KCl, neutralized



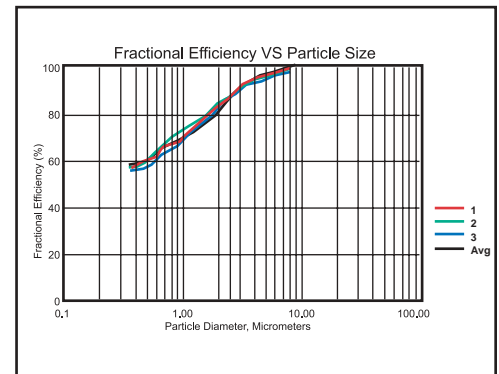
Filter ID:  
FP319A (three-stage)  
Descriptions:  
6 Pocket synthetic, yellow 15" deep  
Test Type:  
Fractional Efficiency  
Velocity:  
120 fpm  
Test Aerosol:  
Oleic Acid, neutralized



Filter ID:  
FP319A (two-stage)  
Descriptions:  
Poly Panel, 6-Pkt. bag  
Test Type:  
Fractional Efficiency  
Velocity:  
120 fpm  
Test Aerosol:  
KCl, neutralized



Filter ID:  
FP319A (two-stage)  
Descriptions:  
Poly Panel, 6-Pkt. bag  
Test Type:  
Fractional Efficiency  
Velocity:  
120 fpm  
Test Aerosol:  
Oleic Acid, neutralized



**Service Rolls**



Flanders Service Rolls air filtration media are manufactured in selected widths, prepared in roll lengths that make manageable roll sizes. In most cases, a single cut across the roll will produce a ready-to-install filter pad.

The following media are offered as service rolls:

**Spun Glass:** (Models SGxxxxKK) This is a rigid, nominal 3/8" thick, dry spun glass. It is typically used to make rigid pads for use in room unit air conditioners. It is designed for use without a frame. Since it is untreated, it will not harm the plastic frequently used in the construction of room units.

**Foam:** (Models FRxxxx) A rugged polyurethane foam that is designed for use in room unit air conditioners and in pad-holding frames. It is washable and will withstand repeated cleaning with mild soap and water. Foam service rolls are available in 1/4", 1/2", 1" and 2" media thicknesses. They are washable for repeat use.

**Aluminum:** (Models EAxx) The aluminum service roll is an expanded aluminum mesh of the type used in room unit air conditioners. It is a nominal 1/4" thick dry filter media that requires the addition of a dust adhesive for effective filtration.

**Kwik Kuts**

(Models KKxxx)



These are 15"x24" pads of filter media that can be easily cut to fit any window or wall mounted room air conditioner. They are offered in the same spun glass, foam and aluminum media described above. Also offered are 1/2" Permaire (see column at right) and plastic-backed foam.

**Hammock Rolls and Pads**

(Models HRxxxx)



Flanders hammock rolls are available in nominal 1" spun glass, 2" spun glass, and 1" polyester synthetic fiber media. Performance data on all Flanders hammock media is available upon request.

Typically, these are for Lennox type furnaces. (Lennox is a brand name. It is used here for system identification only.) Hammock rolls are 20 foot rolls of media cut in various widths. In most cases, a single cut across the roll will produce a ready-to-use filter pad. Flanders hammock rolls are packaged in a handy carton that can be used as a dispenser. Media used in all Flanders hammock rolls are UL Class 2 fire rated. The 1" spun glass is also available in pre-cut hammock pads, individually packaged in plastic

## Permaire Rolls and Pads

*Models HHxxxx*



Permaire is a unique type of air filtration media that has evolved from a natural organic fiber media to a new completely synthetic, self-supporting and completely washable media. It has all the benefits of organic media but has a longer service life, better structural integrity as well as being completely odor free. It is made of synthetic fibers and coated with a special resin, then baked together at a high temperature. The result of this process is a tough and springy, thoroughly bonded, nearly rigid air filtration media.

Describing Permaire as merely an air filtration medium is telling only half of the story. Due to its natural rigidity, a pad of Permaire cut to the proper dimensions is actually a complete filter ready to

install. It is totally self supporting. With nothing more than Permaire and a hefty pair of scissors or a razor knife, you can replace almost any size 1/2", 1" or 2" framed panel filter.

Permaire filters are passive electrostatic type products. Air running over the maze of fibers creates an electrostatic charge to catch and hold airborne contaminants. Dust particles may become charged naturally, and if so, they are held by strong electrostatic forces to the oppositely charged fiber with which they come into contact. The smaller a particle or fiber, the relatively stronger the electrostatic charges will be attained. Dirt loads throughout the filter's depth and therefore it will hold a lot more dust than other filters before requiring changing or cleaning.

Permaire is an ideal product for filter service professionals. With a roll of Permaire on your truck, you can replace almost any size panel filter. It's a perfect answer to "odd" size filters. A 10x32" special" is as close as a pair of scissors...and the same low cost as a 16x20 standard that you cut from the same roll.

## Wide selection of media types

Flanders offers a wide range of top quality air filtration media available in bulk rolls and pads. Considering the unique characteristics of each offering, the user can get maximum value for filter dollar spent with relation to the intended use.

Bulk media rolls are offered in selected slit widths with roll lengths determined by manufacturing processes. Pre-cut pads, as the name implies, are pads of filtration media cut to standard filter face sizes or to your desired custom sizes.

Spun glass is a rugged industry standard, known for low resistance while providing excellent arrestance and high dust holding capacity. They are designed to trap dirt throughout their thickness. A resinous bonding agent in the media increases rigidity and resistance to compression so the filter will not collapse in the airstream. Flashpoint is 325 degrees Fahrenheit on the treated adhesive.

## Spun Glass

**7/8" Blue Production Glass** (Models GMxx) Nominal 7/8" adhesive-treated spun glass. For residential or light industrial and commercial air filtration. Commonly used for 1" depth disposable panel air filter production and for pad and frame systems.

**Blue on White Industrial Glass** (Models Gxxx) Nominal 1" and 2" adhesive treated spun glass. For industrial and commercial air filtration with fairly heavy dirt loads. Commonly used for pad and frame systems and hammock rolls. Tinted blue on the air entering side.

**Series 330G PA Green Paint Arrestor Glass** (Models 330G-xxx) Model 330 Green glass is a 2.5" economical dry spun glass media for prep station and paint spraybooth applications.

**Series 331Y PA Yellow Paint Arrestor Glass** (Models 331Y-xxx) Model 331 is a heavy duty version of dry spun glass for prep station and paint spraybooth applications.

**4" "Railroad" Glass** Nominal 4 " spun glass for air filtration in railroad diesel engines. Manufactured according to customer specifications.

**3/8" A/C Media** (Models ACxx) Nominal 3/8 " untreated (no adhesive) blue on white spun glass. Makes rigid pads for use in room air conditioning units.

## Polyester Synthetic Fiber

Polyester Synthetic Fiber (PSF) media is extremely resilient and will withstand direct moisture. In many cases, a psf media is the ideal alternative to spun glass. It makes an excellent prefilter for high efficiency filters and offers a high arrestance and dust holding capacity.

**PSF 5DT, 1DT, 2DT** (Models 5Txx, 1Txx and 2Txx) Dry, untreated psf media in nominal 1/2 ", 1 " and 2 " thickness for a wide range of filtration applications. White and blue with blue on the air exit side.

**ST55** (Models PRELK55Gxx) Nominal 1/2 " tackified psf. Light green and white with green on the air exit side.

**Pre-T** (Models PTxx) Pre-T is an extremely rugged psf designed for repeated cleaning by washing or vacuuming. Dry, untreated. Nominal 1/2 " thickness only. Red and purple with purple on the air exit side.

**PS125** (Models PS125-xx) Nominal 1 " untreated psf which is reinforced with a scrim backing on the downstream side.

**SAR-1** (Models SAR1M-xxxxx) Nominal 1/2" or use as an intake blanket on crossdraft spraybooths.

**SA600-G10** (Models SA600-xxx) Nominal 1" diffusion media for downdraft spraybooths.

**PSF Series 225, 325, 425** (Models ENTRY225T-xx, ENTRY325T-xx, ENTRY425T-xx) Series 225 is nominal 1 " dual denier tackified media; 325 is nominal 1-1/2 " three denier tackified and 425 is nominal 1-1/2 " four denier tackified.





**Flanders - Foremost in Air Filtration**

Corporate Headquarters, St. Petersburg, FL

Flanders automatic roll replacements are furnished wound on spools or cores, ready for installation without modification or adaptors. A core selection guide is printed on the back of this sheet. Six-foot-long kraft paper leaders and trailers are secured to the ends of every roll. Each roll contains 65 linear feet of filtering media in selected widths. Rolls are wrapped in heavy plastic and packed in cartons for shipment. The following media types are available:

### Scrim-back spun glass

*(Models AESx, BLCSxx, CBSx, FSx, CRSx, CSx, AMSx, TSxx, LRSx)*

A nominal 2" thickness progressive density spun glass treated with dust-catching adhesive. The roll is backed on the downstream side with a scrim mesh. Density of the scrim is approximately 3 squares per square inch.

### Skin-back spun glass

*(Models AEx, BLCx, CBx, Fxx, CRx, Cx, AMx, Tx, LRxx)*

A nominal 2" thickness progressive density spun glass treated with dust-catching adhesive. The roll is backed on the downstream side with a spun glass "skin".

### Economy spun glass

*(Models AEECx, BLECxx, CBECx, FECx, CRECx, CECxx, AMECx, TECx, LRECx)*

A nominal 2" thickness spun glass with a very light spun glass skin on the downstream side which is reinforced with a scrim mesh. Density of the scrim is approximately 1 square per square inch. Media weight is about two-thirds that of the standard scrim-back glass.

### Polyester

*(Models AEPx, BLCpxx, CBPxx, FPx, CRPUx, CPUxx, AMPx, TPx, LRPxx)*

A nominal 1/2" thickness dry, non-woven polyester synthetic fiber medium, reinforced on the downstream side with a scrim backing. Scrim density is approximately 3 grids per square inch.

### Treated Polyester

*(Models AEPtx, BLCPTxx, CBTx, FPTx, CRPTx, CPTxx, AMPtx, TPTx, LRPTx, LAPtx)*

Same medium as the polyester described above, but treated with a dust-catching adhesive.



**L** - Designed to fit commercial "FulFlo" and Mine Safety Appliance machines. Core consists of 3" ID fiberboard tube with drive pin 2-1/2" from one end.

**F** - Designed to fit Farr "Roll Kleen". Core consists of 2-1/8" ID fiberboard tube. No drive pin, discs or cups.

**AM** - Designed to fit Airmaze "Roll-A-Maze". Core consists of 1-7/8" ID fiberboard tube with metal cup recessed 5/8" each end. A rectangular slot, 1-1/2 x 3/4", is stamped in each cup.

**T** - Designed to fit Trane Company "Roll Filter". Core consists of 2-7/16" ID fiberboard tube with metal cup in each end, recessed 1-1/2" A 1-1/2" square is stamped in each cup.

**CR** - Designed to fit Carrier series 31NA and 31NC. Core is 27/167"

**BLC** - Designed to fit BLC Industries. Consists of a 1-1/2" metal pipe with 2 drive pins that are 1-3/8" from core end, and with 11" end plates.

**AE** - Designed to fit American Air Filter "Roll-O-Matic". Core consists of 3/4" ID metal pipe with metal end plates approximately 11" diameter attached on each end.

**CB** - Designed to fit Cambridge "Autoroll". Core consists of 3/4" metal pipe, no end plates unless specified on order.

**C** - Designed to fit Continental "Conomanual" or "Conomatic". Core consists of 3" ID fiberboard tube with a drive pin 2-1/2" from one end.

Rolls To Fit:	Filter Size & Type	Size Number	Actual Size
American Air Filter Roll-O-Matic	2	2AE	23-3/4" x 65'
	3, 33	3AE, 33AE	32-3/4" x 65'
	4, 45	4AE, 45AE	44-3/4" x 65'
	5	5AE	56-3/4" x 65'
	6	6AE	68-3/4" x 65'
	21	21AE	20-1/2" x 65'
	22	22AE	22-1/4" x 65'
	25	25AE	24-7/8" x 65'
	32	32AE	31-7/8" x 65'
	39	39AE	38-1/2" x 65'
	40	40AE	39-7/8" x 65'
		81AE	81" x 65'
	BLC Industries	2	BLCSP25
3		BLCSP35	34-5/8" x 65'
34"		BLCSP39	38-5/8" x 65'
4		BLCSP47	46-5/8" x 65'
5		BLCSP59	58-5/8" x 65'
6		BLCSP71	70-5/8" x 65'
Cambridge Filter Corp. and/or Electro Air Cleaner	2	2CB	23-7/8" x 65'
	3	3CB	32-7/8" x 65'
	4	4CB	44-7/8" x 65'
	5	5CB	56-7/8" x 65'
	6	6CB	65-7/8" x 65'
	6	6HCB	68-7/8" x 65'
Farr Co. Kleen Filters	3, 30, 32	3F	33" x 65'
	4, 40, 42	4F	45" x 65'
	5, 50, 52	5F	57" x 65'
	6	6F	69" x 65'
	12	12F	9" x 65'
	18	18F	15" x 65'
	20, 22	20F	21" x 65'
	26, 28	26F	27" x 65'
	36, 38	36F	39" x 65'
	46, 48	46F	51" x 65'
Carrier Series 31NA	2, 8, 12	2CR	26-1/4" x 65'
	3, 8, 21	3CR	37-1/4" x 65'
	4, 26, 32	4CR	47-1/4" x 65'
	6, 39	6CR	61-1/4" x 65'

Rolls To Fit:	Filter Size & Type	Size Number	Actual Size
Carrier Series 31NC (Reverse Wound)	8, 10, 12	24CR	23-1/2" x 65'
	15, 18, 21	35CR	34-1/2" x 65'
	26, 32	44CR	44" x 65'
	39	58CR	58" x 65'
	48, 57	68CR	65" x 65'
Continental Air Filter (Conomauul & Conomatic)	2	22C	21-7/8" x 65'
	3	3C	31-7/8" x 65'
	4	4C	43-7/8" x 65'
	5	5C	55-7/8" x 65'
	6	6C	67-7/8" x 65'
	6	36C	35-7/8" x 65'
Air Maze (Roll A Maze)	2	2AM	20-1/2" x 65'
	3	3AM	32-1/2" x 65'
	4	4AM	44-1/2" x 65'
	5	5AM	56-1/2" x 65'
	6	6AM	68-1/2" x 65'
	Trane Company Roll Filters	RF 3, 7	3T
RF 6, 9		6T	21-3/8" x 65'
RF 8, 10, 17, 21		8T	31-3/8" x 65'
RF 12, 14, 24, 25		12T	35-3/8" x 65'
RF 31		31T	45-3/8" x 65'
RF 35		35T	54-3/8" x 65'
RF 41		41T	59-3/8" x 65'
RF 50		50T	63-3/8" x 65'
RF 63		31T (2)	45-3/8" x 65' (2)
		26T	25-3/4" x 65'
	38T	38-3/4" x 65'	
	51T	50-1/4" x 65'	
	61T	61-3/4" x 65'	
Commercial Filter Corp. (FullFlo)	3, 30	3L	33" x 65'
	4, 40	4L	45" x 65'
	5, 50	5L	57" x 65'
	6, 60	6L	69" x 65'
Mine Safety Appliances, Inc. (MSA)	20	20L	21" X 65'
	26	26L	27" X 65'
	36	36L	39" X 65'
	46	46L	51" X 65'
		56L	63" X 65'

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## Extended Surface Pleated Filters

Economy Capacity: 84355.xxxxxx Standard capacity: 80055.xxxxxx  
High Capacity: 80255.xxxxxx

### General

Flanders Pre Pleat 40 extended surface pleated filters are designed to operate in most every type of installation. Available in 1", 2", and 4" nominal thickness, these filters have an average atmospheric dust spot efficiency range of 25-30% per ASHRAE Standard 52.1 test methods. Pre Pleat 40 filters offer greater efficiency and service life than disposable filters, pad and frame systems, or metal washable filters. The overall design of this product makes these filters the accepted choice in applications requiring high performance and extended service.

These filters are suitable for variable air volume systems. Operating face velocity ranges are from 0 to 500 fpm for 1" and 2" filters, and from 0 to 625 fpm for 4" filters. Standard and High Capacity designs are offered.

Pre Pleat 40 filters are UL 900 Class 2 listed but are available with UL Class 1 listing.

### Versatility

Most heating, air conditioning, or ventilating systems can be upgraded with the use of Pre Pleat 40 filters in place of existing flat panel types.

The inherent strength of the filter allows for easy changeout as it will not collapse, warp, or bend in normal service.

Pre Pleat 40 filters are available in a wide range of sizes and will fit most commercial and industrial installations with little or no system modification. Fasteners are available to adapt the filter to existing filter banks.

### Installation Considerations

Pre Pleat 40 pleated filters are suitable as primary filters and can be installed in Type 9 Holding Frames, K-Trac Framing Modules, Surepleat Side Access Housings and similar existing hardware. They may be used as prefilters for Precision Pak, PrecisionCell and Rigid-Air filters in these framing systems and in Sureseal Side Access Housings.

### Physical Data

Media: High-loft, non-woven cotton/synthetic blend

Media Support: Diamond-shaped expanded metal

Pleat Design: V Pleat

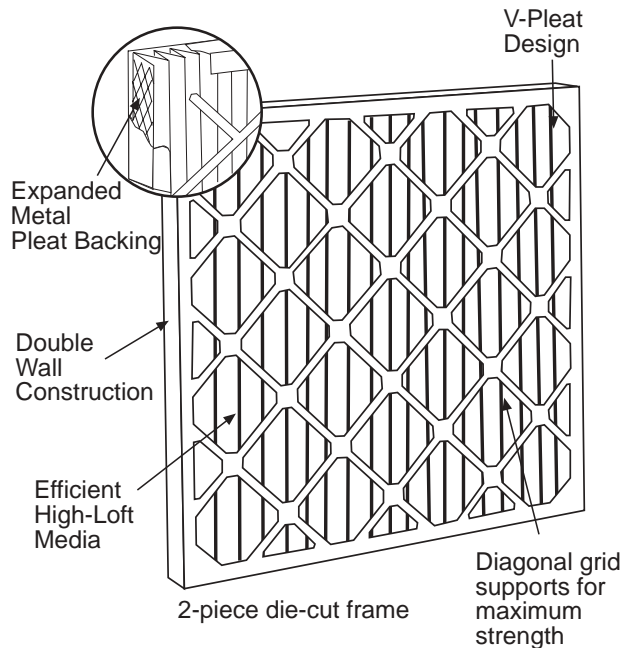
Frame: Moisture-resistant carrier board

### Important Features

- Media maximizing v-pleat design
- Expanded metal grid prevents media flutter while in operation
- Diagonal and horizontal support members provide frame strength
- Filter media pack is sealed to eliminate air bypass
- Average ASHRAE efficiency is 25-30%
- Average arrestance is 90%-92%







## Construction

Filter frames are constructed from two pieces of die-cut, moisture-resistant carrier board. Components “telescope” into one another and provide double-wall construction and a precision fit. The frame includes diagonal and horizontal support members bonded to the media on the air entering and leaving sides for unsurpassed frame strength. Locking corners and positive media-to-frame seal reduces the possibility of air bypass.

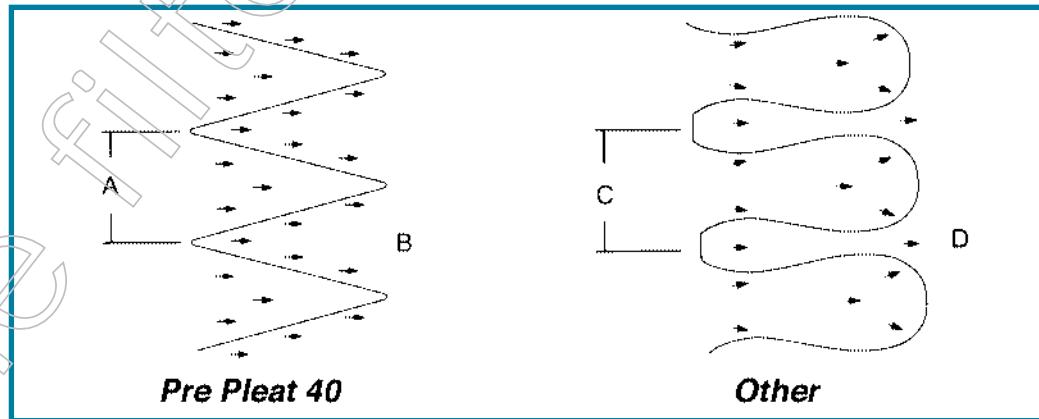
The filter media is a high-loft, reinforced, non-woven cotton/synthetic blend. It is continuously laminated to an expanded metal grid on the air leaving side to provide pleat stability throughout the life of the filters and prevent media flutter while in operation.

Flanders’ unique v-pleat wedge pleat allows for total media usage and provides maximum air flow and dust holding capacity.

## Principles of Operation

Flanders’ v-pleat design insures that the greatest media area is exposed to the air flow to promote uniform dust loading. Competitive filters cannot maintain this rigid shape and tend to flatten out, using only a portion of the media. This v-pleat design creates an air exit area (B) equal to the air entering area (A), which minimizes end losses and reduces pressure drop.

Radial wedge pleats have unequal air exit (D) and air entering (C) areas, which cause higher resistance and uneven use of media.



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## Performance Data

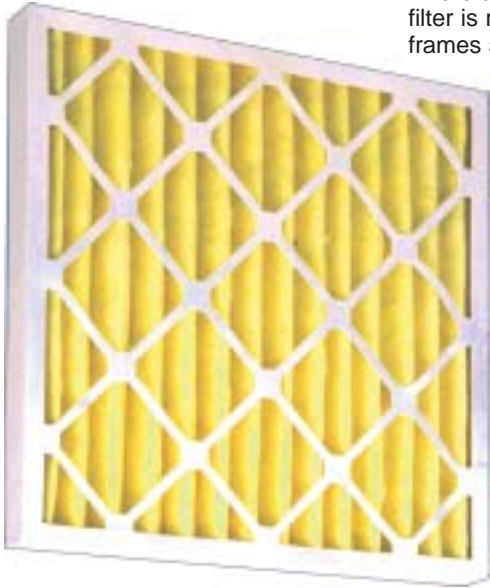
Capacities and Dimensions													
Nominal Depth (in.)	Nominal Size H x W x D (in.)	Standard Capacity						High Capacity					
		300 fpm		500 fpm		Media Area sq. ft.	Wt. Each (lbs.)	300 fpm		500 fpm		Media Area sq. ft.	Wt. Each (lbs.)
		cfm	PD	cfm	PD			cfm	PD	cfm	PD		
1	10 x 10 x 1	210	0.15	347	0.35	1.1	0.2	210	0.13	347	0.33	1.6	0.2
	10 x 20 x 1	417	0.15	694	0.35	2.2	0.3	417	0.13	694	0.33	3.2	0.4
	12 x 20 x 1	500	0.15	833	0.35	2.7	0.4	500	0.13	833	0.33	3.8	0.5
	12 x 24 x 1	600	0.15	1000	0.35	3.5	0.5	600	0.13	1000	0.33	4.5	0.6
	14 x 20 x 1	583	0.15	972	0.35	3.1	0.5	583	0.13	972	0.33	4.5	0.6
	14 x 25 x 1	729	0.15	1215	0.35	4	0.6	729	0.13	1215	0.33	5.3	0.7
	15 x 20 x 1	625	0.15	1042	0.35	3.3	0.6	625	0.13	1042	0.33	4.8	0.7
	16 x 20 x 1	667	0.15	1110	0.35	3.6	0.6	667	0.13	1110	0.33	4.8	0.7
	16 x 25 x 1	834	0.15	1390	0.35	4.6	0.7	834	0.13	1390	0.33	6.1	0.8
	20 x 20 x 1	834	0.15	1390	0.35	4.6	0.7	834	0.13	1390	0.33	6.1	0.8
	18 x 24 x 1	900	0.15	1500	0.35	4.8	0.7	900	0.13	1500	0.33	6.9	0.9
	18 x 25 x 1	945	0.15	1575	0.35	5	0.7	945	0.13	1575	0.33	7.2	0.9
	20 x 24 x 1	1000	0.15	1667	0.35	5.3	0.8	1000	0.13	1667	0.33	7.7	1.0
	20 x 25 x 1	1042	0.15	1735	0.35	5.5	0.8	1042	0.13	1735	0.33	7.6	1.0
	24 x 24 x 1	1200	0.15	2000	0.35	6.4	0.9	1200	0.13	2000	0.33	8.9	1.1
2	10 x 20 x 2	417	0.12	694	0.27	4.5	0.6	417	0.11	694	0.25	6.4	0.8
	12 x 20 x 2	500	0.12	833	0.27	5.3	0.7	500	0.11	833	0.25	7.7	0.9
	12 x 24 x 2	600	0.12	1000	0.27	5.8	0.8	600	0.11	1000	0.25	8.7	1.0
	14 x 20 x 2	583	0.12	972	0.27	6.2	0.8	583	0.11	972	0.25	8.9	1.0
	14 x 25 x 2	729	0.12	1215	0.27	7.8	1.0	729	0.11	1215	0.25	11.2	1.2
	15 x 20 x 2	625	0.12	1042	0.27	6.7	0.8	625	0.11	1042	0.25	9.6	1.0
	16 x 20 x 2	667	0.12	1110	0.27	6.6	0.9	667	0.11	1110	0.25	10	1.1
	16 x 25 x 2	834	0.12	1390	0.27	8.3	1.1	834	0.11	1390	0.25	12.4	1.3
	18 x 24 x 2	900	0.12	1500	0.27	9.6	1.2	900	0.11	1500	0.25	13.8	1.5
	18 x 25 x 2	938	0.12	1563	0.27	10	1.3	938	0.11	1563	0.25	14.4	1.6
	20 x 20 x 2	834	0.12	1390	0.27	8.3	1.1	834	0.11	1390	0.25	12.4	1.3
	20 x 24 x 2	1000	0.12	1667	0.27	10.7	1.3	1000	0.11	1667	0.25	15.3	1.6
	20 x 25 x 2	1042	0.12	1735	0.27	10.3	1.3	1042	0.11	1735	0.25	15.5	1.6
	24 x 24 x 2	1200	0.12	2000	0.27	12.3	1.5	1200	0.11	2000	0.25	17.8	1.8
	25 x 25 x 2	1300	0.12	2170	0.27	13.3	1.6	1300	0.11	2170	0.25	19.2	1.9
Depth	Nominal Size H x W x D (in.)	Standard Capacity						High Capacity					
		300 fpm		625 fpm		Media Area (sq. ft)	Weight Each (lbs.)	300 fpm		625 fpm		Media Area (sq. ft)	Weight Each (lbs.)
		cfm	PD	cfm	PD			cfm	PD	cfm	PD		
4	12 x 24 x 4	600	0.10	1250	0.30	11.6	1.5	600	0.09	1250	0.28	14	1.7
	16 x 20 x 4	667	0.10	1390	0.30	11.8	1.7	667	0.09	1390	0.28	15.5	1.8
	16 x 25 x 4	834	0.10	1735	0.30	15.0	2.0	834	0.09	1735	0.28	19.6	2.2
	18 x 24 x 4	900	0.10	1500	0.30	17.4	2.1	900	0.09	1500	0.28	21.9	2.3
	20 x 20 x 4	834	0.10	1735	0.30	15.0	2.0	834	0.09	1735	0.28	19.6	2.2
	20 x 24 x 4	1000	0.10	1667	0.30	19.3	2.3	1000	0.09	1667	0.28	24.3	2.5
	20 x 25 x 4	1042	0.10	2170	0.30	20.2	2.3	1042	0.09	2170	0.28	24	2.5
	24 x 24 x 4	1200	0.10	2500	0.30	22.3	2.5	1200	0.09	2500	0.28	28	3.0
	25 x 29 x 4	1500	0.10	3100	0.30	27.2	3.1	1500	0.09	3100	0.28	34	3.6
	28 x 30 x 4	1680	0.10	3500	0.30	31.3	3.5	1680	0.09	3500	0.28	39	4.2

**Notes:**

1. PD represents clean pressure drop in inches w.g. The recommended final pressure drop for all models is 1.0 in. w.g. System design may dictate a lower change-out point.
2. Actual filter face size for 12 x 24 and 24 x 24 filters is 5/8 in. under on height and width. Actual face size on all other sizes is 1/2 in. under on height and width.
3. Actual filter depth is 1/8 in. under for all nominal 1 in. deep filters. Actual filter depth is 1/4 in. under for all nominal 2 in. and 4 in. deep filters.
4. For capacities other than those shown, ratio the face velocities.
5. Performance tolerances conform to Section 7.4 of ARI Standard 850.
6. Performance values stated may be averages typical of the products listed. Contact factory for actual performance test reports on specific products.

# The Pre Pleat Series of Pleated Air filters

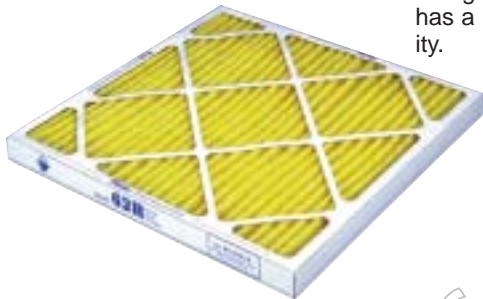
Pre Pleat Class 1 air filters are designed for applications where a UL Class 1 fire rated filter is required and metal frames are unsuitable.



Pre Pleat HT air filters are designed for applications where the temperatures reach up to 400°F.



62R high efficiency pleated air filters contain an electrostatically charged filtration media which has a higher dust holding capacity.



Pre Pleat HV air filters are designed to operate in high velocity and turbulent air applications where standard pleated filters tend to fail.



## Guide Specifications

### 1.0 General

- 1.1 Medium efficiency filters shall be Pre Pleat 40 extended surface pleated filters as manufactured by Flanders..
- 1.2 Filter sizes and capacities shall be as scheduled on the drawings.
- 1.3 Filters shall be UL 900 Class 1 or 2 listed.

### 2.0 Filter Construction

- 2.1 Filters shall be constructed of reinforced, non-woven cotton/synthetic blend media laminated to an expanded metal grid on the air leaving side and formed into v-configuration pleats.
- 2.2 Frame shall be moisture-resistant board with diagonal and horizontal support members on the

upstream and downstream sides, and shall have locking corners.

### 3.0 Performance

- 3.1 Initial and final resistances shall not exceed the scheduled values.
- 3.2 Media area must equal or exceed that of the specified filter.
- 3.3 The average atmospheric dust spot efficiency shall be 25-30% as determined by ASHRAE Standard 52.1 test methods.
- 3.4 The manufacturer shall guarantee performance as stated in the literature within tolerances as outlined in Section 7.4 of ARI Standard 850.

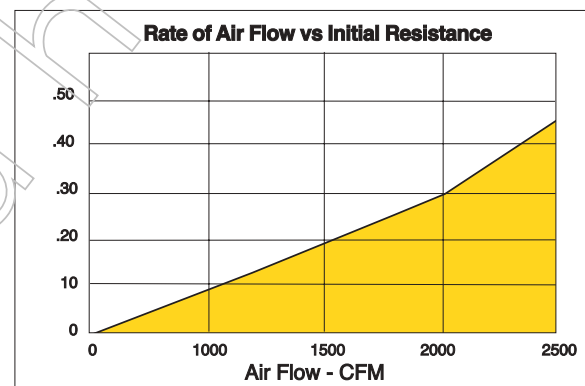
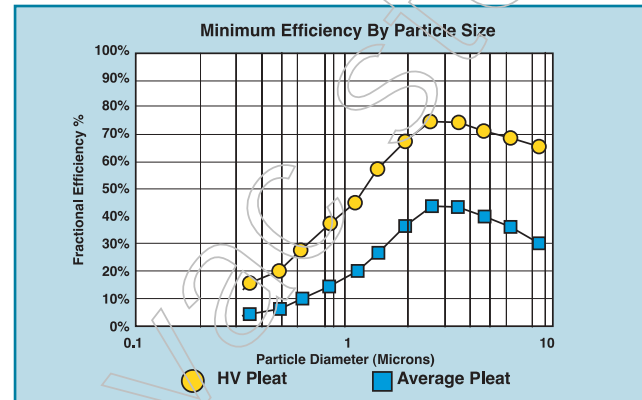
## General

The Pre Pleat HV pleated filter from Flanders is designed to operate in high velocity and turbulent air applications where standard pleated filters have a tendency to fail.

They are ideal for gas turbine and rotary machinery equipment or any area requiring a pleated filter to operate under demanding use.

## Construction

A heavy-duty die-cut moisture resistant frame encloses the media pack. The media is manufactured of 100% electrostatically charged synthetic fibers that attract and hold airborne particulate contaminants. The media is bonded to a zinc coated, 1-1/4" mesh expanded metal backing which is substantially heavier than standard metal backing. These features result in a more efficient, durable and reliable product.



## Important Features

- Moisture resistant die-cut frame
- Heavy gauge metal backing for exceptional strength
- 1", 2", 4" depths
- Special sizes available
- MERV 8 rating, per ASHRAE Standard 52.2





Nominal Depth (inch)	Nominal Size H x W x D (inch)	300 fpm		500 fpm		Media Area sq. ft.
		cfm	PD	cfm	PD	
1	10 x 10 x 1	210	0.15	347	0.38	1.6
	10 x 20 x 1	417	0.15	694	0.38	3.2
	12 x 20 x 1	500	0.15	833	0.38	3.8
	12 x 24 x 1	600	0.15	1000	0.38	4.5
	14 x 20 x 1	583	0.15	972	0.38	4.5
	14 x 25 x 1	729	0.15	1215	0.38	5.3
	15 x 20 x 1	625	0.15	1042	0.38	4.8
	16 x 20 x 1	667	0.15	1110	0.38	4.8
	16 x 25 x 1	834	0.15	1390	0.38	6.1
	20 x 20 x 1	834	0.15	1390	0.38	6.1
	18 x 24 x 1	900	0.15	1500	0.38	6.9
	18 x 25 x 1	945	0.15	1575	0.38	7.2
	20 x 24 x 1	1000	0.15	1667	0.38	7.7
	20 x 25 x 1	1042	0.15	1735	0.38	7.6
	24 x 24 x 1	1200	0.15	2000	0.38	8.9
10 x 20 x 2	417	0.13	694	0.29	6.4	
2	12 x 20 x 2	500	0.13	833	0.29	7.7
	12 x 24 x 2	600	0.13	1000	0.29	8.7
	14 x 20 x 2	583	0.13	972	0.29	8.9
	14 x 25 x 2	729	0.13	1215	0.29	11.2
	15 x 20 x 2	625	0.13	1042	0.29	9.6
	16 x 20 x 2	667	0.13	1110	0.29	10.0
	16 x 25 x 2	834	0.13	1390	0.29	12.4
	18 x 24 x 2	900	0.13	1500	0.29	13.8
	18 x 25 x 2	938	0.13	1563	0.29	14.4
	20 x 20 x 2	834	0.13	1390	0.29	12.4
	20 x 24 x 2	1000	0.13	1667	0.29	15.3
	20 x 25 x 2	1042	0.13	1735	0.29	15.5
	24 x 24 x 2	1200	0.13	2000	0.29	17.8
	25 x 25 x 2	1300	0.13	2170	0.29	19.2

Depth	Nominal Size H x W x D (inch)	300 fpm		625 fpm		Media Area (sq. ft)
		cfm	PD	cfm	PD	
4	12 x 24 x 4	600	0.10	1250	0.35	14.0
	16 x 20 x 4	667	0.10	1390	0.35	15.5
	16 x 25 x 4	834	0.10	1735	0.35	19.6
	18 x 24 x 4	900	0.10	1500	0.35	21.9
	20 x 20 x 4	834	0.10	1735	0.35	19.6
	20 x 24 x 4	1000	0.10	1667	0.35	24.3
	20 x 25 x 4	1042	0.10	2170	0.35	24.0
	24 x 24 x 4	1200	0.10	2500	0.35	28.0
	25 x 29 x 4	1500	0.10	3100	0.35	34.0
	28 x 30 x 4	1680	0.10	3500	0.35	39.0

Performance values stated may be averages typical of the products listed.  
Contact factory for actual performance test reports on specific products.

## Guide Specifications

### 1.0 General

- 1.1 High velocity Pre Pleat HV extended surface pleated filter as manufactured by Flanders.
- 1.2 Filter sizes and capacities shall be as scheduled on the drawings.

### 2.0 Filter Construction

- 2.1 Filter media shall be manufactured of 100% electrostatically charged synthetic fibers and bonded to a corrosion-resistant expanded metal backing.
- 2.2 The frame shall be moisture resistant board with diagonal and horizontal support members on the upstream and downstream sides.

### 3.0 Performance

- 3.1 Initial and final resistance shall not exceed the scheduled values.
- 3.2 Media area must be equal to that of the specified filter.
- 3.3 The minimum efficiency shall be a MERV 8 rating per ASHRAE Standard 52.2 and 50% dust spot efficiency per ASHRAE Standard 52.1.
- 3.4 The manufacturer shall guarantee performance as stated in the literature within tolerances as outlined in Section 7.4 of ARI Standard 850.

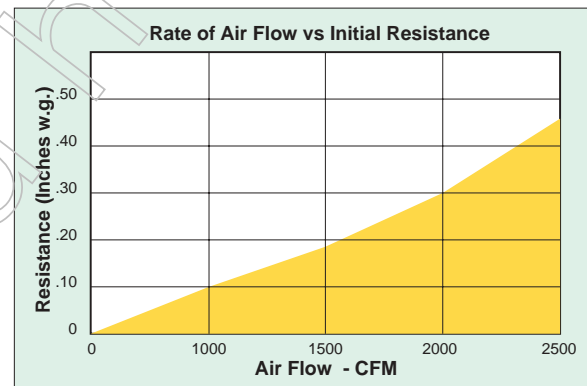
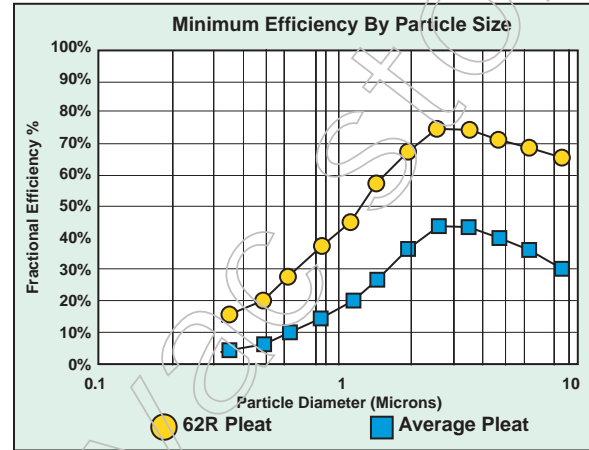
## Filtration for IAQ

Flanders Pre Pleat 62R pleated panel air filter was specifically designed to improve indoor air quality through a new level of particulate filtration. The filter takes its name from the ASHRAE Standard 62 which addresses indoor air quality. The Pre Pleat 62R is indeed state of the art.

## Electrostatically Charged Media

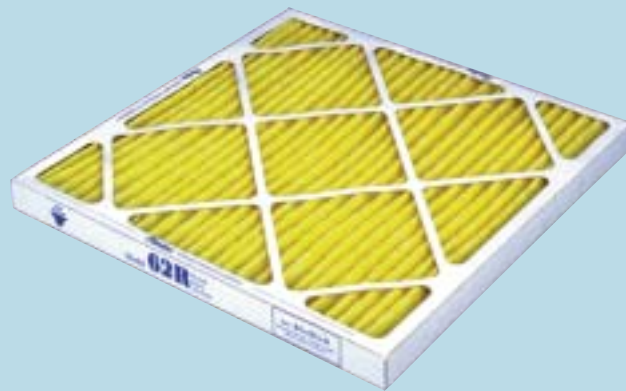
The Pre Pleat 62R features a 100% synthetic electrostatically charged filtration media, which actively attracts and holds airborne contaminants. The filter media is bonded to a corrosion resistant expanded metal backing. This combination is then folded into an accordian pleat arrangement and sealed within a moisture resistant frame.

The Pre Pleat 62R is more efficient when compared to standard pleated filters and has a high dust holding capacity that does not sacrifice airflow. Initial resistance of a 2 in. deep filter is just 0.3 in. w.g. at 500 fpm. Dust holding capacity of a 24x24x2 in. high capacity filter is 181 grams at 1 in. w.g. final resistance.



## Important Features

- MERV 8 per ASHRAE Standard 52.2
- 1 in., 2 in. or 4 in. depths
- All standard sizes plus custom sizes
- Standard and high capacity designs
- UL Class 2 listed





## Pre Pleat 62RM11 (Merv 11 (60-65% per Ashrae 52.1-1992))

**P**re Pleat 62RM11 pleated panel filter enables a significant upgrade in collection efficiency over existing MERV 8 products at the same resistance levels. From 30-35% to 60-65% average per Ashrae 52.1-1992 average dust spot efficiency at nearly the same pricing levels.

**Bi-component media:** Our next-generation ultra-high performance bi-component synthetic media contains mechanically engineered tri-lobal fibers with inhomogenous domains of positive and negative Electret charges within the bi-component fibers to equal an ultra-high performance product.

**Enhanced fibers:** Mechanically and electrostatically enhanced fibers are precisely structured into a progressive density gradient structure to enhance airflow throughput with less resistance while providing high dust holding capacity and ultra-high efficiency during operational life.

**Gradient media structure:** Proprietary "Engineered Gradient Media Structure" enables larger incoming contaminants to be trapped in the pre-filter layer thus allowing the highly charged secondary layer to attract and hold smaller particulate, thereby increasing the life of more expensive final filters downstream.

**High efficiency at low pressure drop:** This proprietary media combined with Flanders' unique V-Pleat manufacturing design equals the highest performance pleat available on the market today. The proprietary PrePleat 62RM11 can provide an initial efficiency of MERV 11, (60-65%) at a resistance of .30" wg on the high capacity model. This equals the same resistance level of our Pre-Pleat 40 62R Merv 8 Pleat.

No competitor in the marketplace can match these performance levels which are substantiated with independent testing. Flanders is the first in the marketplace with this new proprietary product.



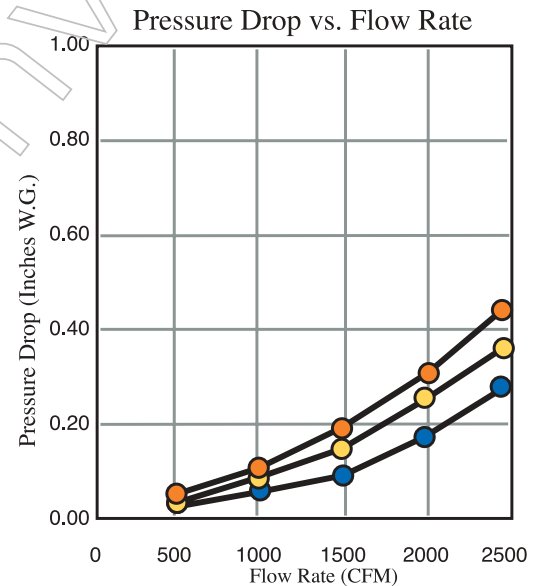
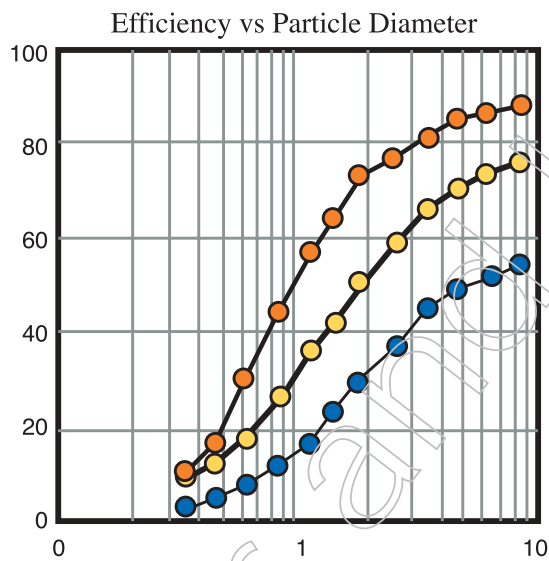
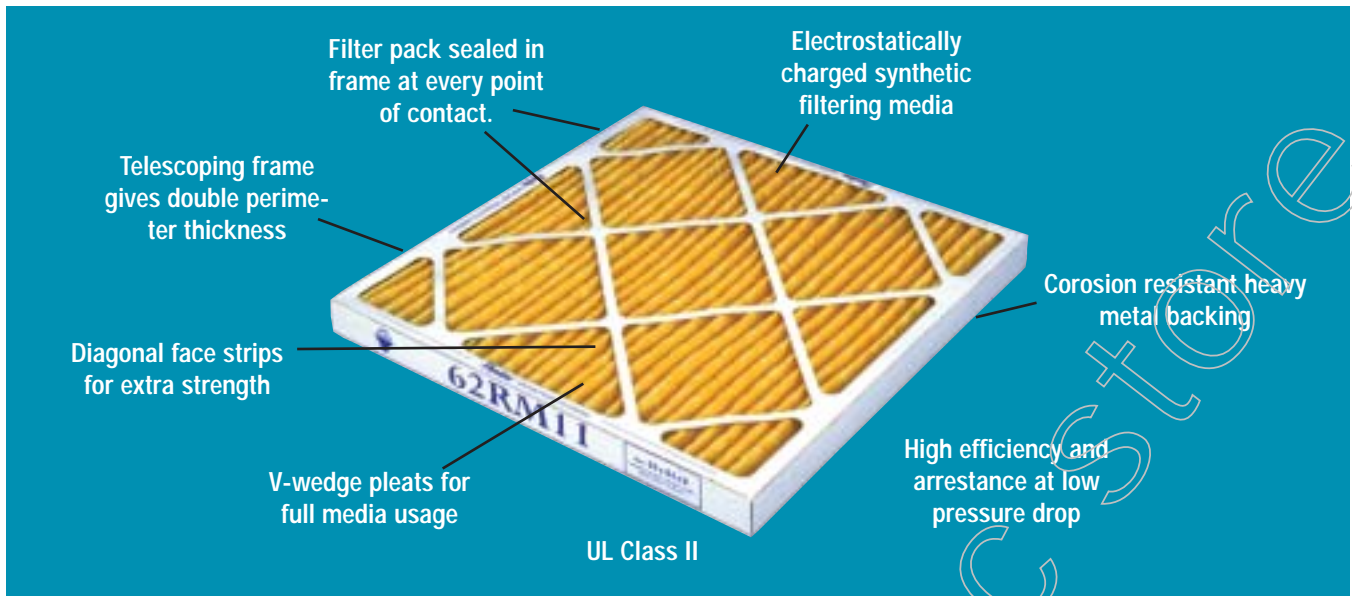
### Resistance:

Airflow resistance of a High Capacity PrePleat 62RM11 is .30" wg @ 2000 CFM (500 FPM) Standard Capacity is .34" wg @ 2000 CFM .

### Efficiency:

1.3 to 1.6 microns	63% removal efficiency
7-10 microns	90% removal efficiency

- Upgrade existing rooftop and secular systems by up to 300% in efficiency to remove incoming contaminants not previously removed.
- Upgrade existing prefilter plenums with the 62RM11 Pleat to increase the life of your more expensive final filters downstream.
- Building owners and occupants will be significantly better protected from a bioaerosol hazard than with conventional filters.
- Available by special ordering in High-Velocity design. Contact Factory for pricing



## Guide Specifications

### 1.0 General

1.1 Air filters shall be Model Pre Pleat 62RM11 panel filters, as manufactured by Flanders.

### 2.0 Filter Construction

2.1 Each filter shall consist of an electrostatically charged synthetic only media, with corrosion-resistant expanded metal backing and moisture resistant enclosing frame. The filter shall be 1", 2" or 4" nominal depth. The grid shall be 100% bonded to the media on the air exiting side to eliminate media vibration and pullaway.

2.2 The grid shall be formed to provide a uniform V-wedge shaped pleat with the open area on the air exiting side for maximum utilization of the media and low airflow resistance. The filter shall be classified for flammability by Underwriters Laboratories, Standard 900 as Class 2.

### 3.0 Performance

3.1 The filter shall have a Minimum Efficiency Reporting Value of 11 by ASHRAE Standard 52.2.

**Flanders - Foremost in Air Filtration**

Corporate Headquarters, St. Petersburg, FL



## UL 900 Class 1 Pleated Filter

Standard Capacity: 85855.XXXXXX

High Capacity: 85955.XX:XXXX

### General

This pleated air filter is designed for applications where a UL Class 1 fire rated filter is required and metal frame filters are unsuitable because of disposal problems. The Pre Pleat Class 1 pleated air filter has been tested by Underwriters Laboratories, Incorporated and found to meet the stringent performance characteristics of a Class 1 air filter for flammability, as outlined in Standard 900. Class 1 air filter units are described as "Those that, when clean, do not contribute fuel when attacked by flame and emit only negligible amounts of smoke."

### Construction

The filter consists of a nominal 50% dust spot efficiency micro-fine fiberglass filtration media that has been bonded to a corrosion-resistant expanded metal backing, and then pleated into either standard or high capacity packs. Each pack is encased and sealed within a die-cut frame which is manufactured of special mineral-filled board to resist flammability.

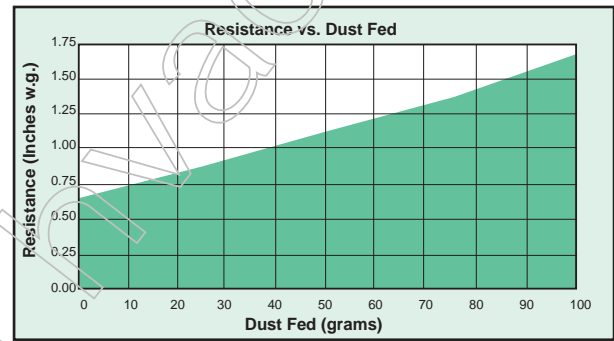
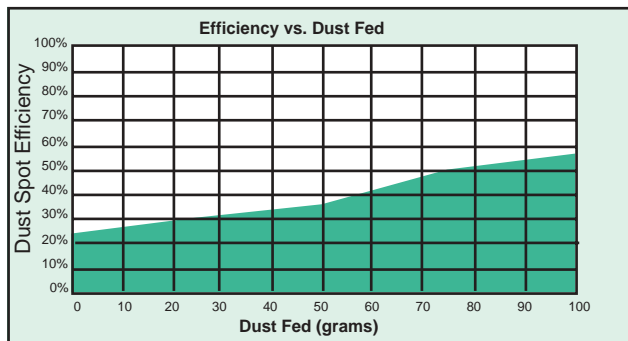
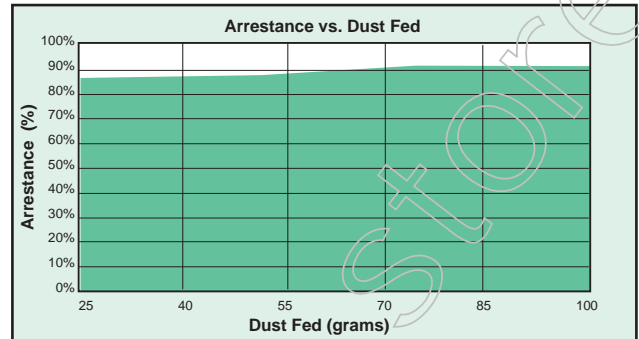
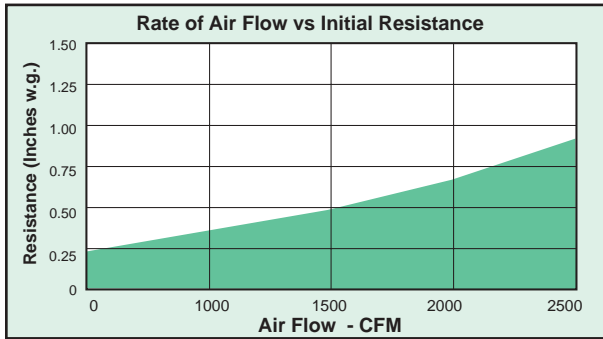
Pre Pleat Class 1 pleated air filters are offered in two inch depth in all of the most popular face sizes.

	cfm @300 fpm	cfm @ 500 fpm	St. Cap. Resistance @ 300 fpm	Std. Cap. Resistance @ 500 fpm	High Cap. Resistance @ 300 fpm	High Cap. Resistance @ 500 fpm
12x24x2	600	1000	.36	.64	.30	.50
16x20x2	667	1111	.36	.64	.30	.50
16x25x2	833	1389	.36	.64	.30	.50
20x20x2	833	1329	.36	.64	.30	.50
20x24x2	1000	1667	.36	.64	.30	.50
20x25x2	1041	1736	.36	.64	.30	.50
24x24x2	1200	2000	.36	.64	.30	.50

### Important Features

- UL 900 Class 1 for flammability
- Easily disposable
- Offered in all standard face sizes, 2" depth
- High lofted glass pleated media
- Nominal 50% ASHRAE efficiency
- MERV 8





Performance values stated may be averages typical of the products listed. Contact factory for actual performance test reports on specific products.

## Guide Specifications

### 1.0 General

- 1.1 Medium efficiency UL Class 1 fire rated pleated filters shall be Pre Pleat Class 1 as manufactured by Flanders.
- 1.2 Filter sizes and capacities shall be scheduled on the drawings.

### 2.0 Filter Construction

- 2.1 Filter media shall be manufactured of a high lofted micro-fine media with a minimum efficiency of 50% per ASHRAE Standard 52.1
- 2.2 A corrosion-resistant expanded metal wire grid shall be bonded to the media to maintain pleat integrity.

- 2.3 The die-cut frame shall be flame-resistant, mineral-filled board to meet a UL Class 1 fire rating.

### 3.0 Performance

- 3.1 Initial and final resistance shall not exceed the final values.
- 3.2 Media must meet or exceed the ratings that of the specified filter.
- 3.3 The manufacturer shall guarantee performance as stated in the literature within tolerances as outlined in Section 7.4 of ARI Standard 850.

## High Temperature Pleated Filters

Standard Capacity: 84555.xxxxxx

High Capacity: 84655.xxxxxx

### Up to 400°F

Flanders Pre Pleat HT filters are designed for increased air filtration efficiencies in an operating environment where temperatures reach 400 degrees Fahrenheit. Typical examples include air intakes for drying ovens or high temperature baking applications.

### Construction

The Pre Pleat HT high temperature pleated air filter consists of a nominal 50% dust spot efficiency micro-fine fiberglass filtration media that has been bonded to corrosion-resistant expanded metal backing, then pleated into either standard or high capacity packs.

Each pack is encased within a 24 gage corrosion-resistant metal frame with an expanded corrosion-

resistant metal face screen on the downstream side to increase pack rigidity while preventing blowouts.

Flanders Pre Pleat HT pleated air filters are offered in two inch depths in all of the most popular face sizes. They have been tested by Underwriters Laboratories, Incorporated and found to meet the stringent performance characteristics of a Class 1 air filter for flammability as outlined in Standard 900.

### Physical Data

**Frame:** 24 gage corrosion-resistant steel

**Media:** 50% Efficient micro-fine fiberglass

**Pleat Design:** V-wedge Pleat

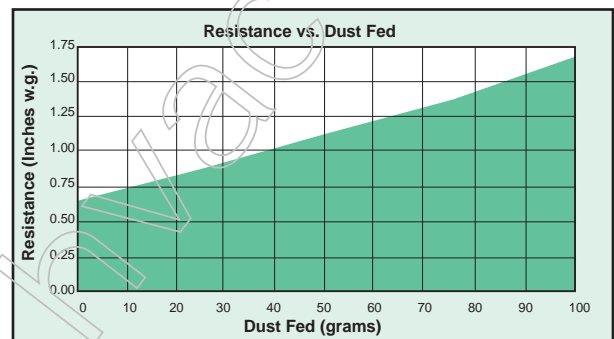
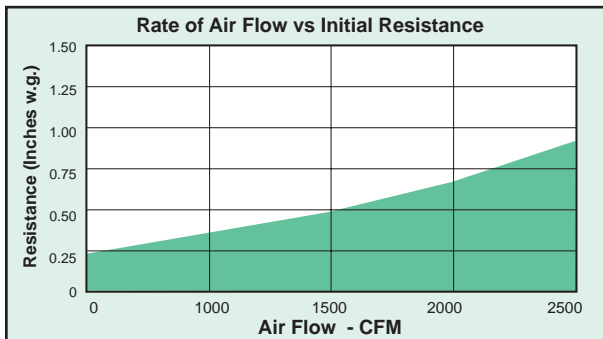
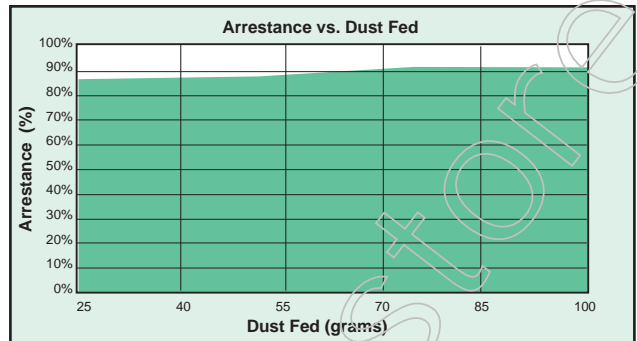
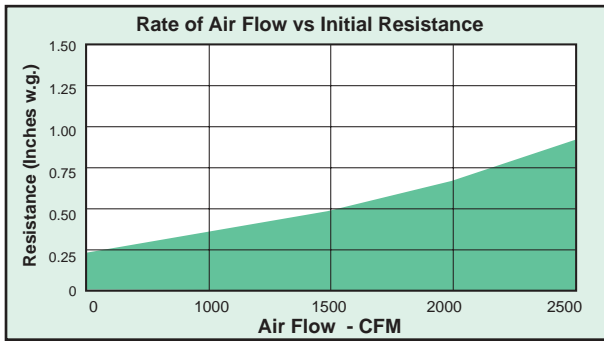
**Face Screen:** Expanded metal corrosion-resistant steel

	cfm @ 300 fpm	cfm @ 500 fpm	St. Cap. Resistance @ 300 fpm	Std. Cap. Resistance @ 500 fpm	High Cap. Resistance @ 300 fpm	High Cap. Resistance @ 500 fpm
12x24x2	600	1000	.36	.64	.30	.50
16x20x2	667	1111	.36	.64	.30	.50
16x25x2	833	1389	.36	.64	.30	.50
20x20x2	833	1329	.36	.64	.30	.50
20x24x2	1000	1667	.36	.64	.30	.50
20x25x2	1041	1736	.36	.64	.30	.50
24x24x2	1200	2000	.36	.64	.30	.50

### Important Features

- Resists temperatures up to 400° F
- Nominal 50% ASHRAE efficiency
- Rugged metal construction
- UL 900 Class 1 Fire Rated





Performance values stated may be averages typical of the products listed. Contact factory for actual performance test reports on specific products.

## Guide Specifications

### 1.0 General

- 1.1 High Temperature pleated filters shall be Pre Pleat HT as manufactured by Flanders.
- 1.2 Filter sizes and capacities shall be scheduled on the drawings.
- 1.3 Filters shall be UL Class 1 listed and be able to operate up to 400 degrees Fahrenheit.

### 2.0 Filter Construction

- 2.1 Filter media shall be manufactured of a high lofted micro-fine media with a minimum efficiency of 50% per ASHRAE Standard 52.1
- 2.2 An expanded metal wire grid shall be bonded to the media to maintain pleat integrity.

- 2.3 The filter pack shall be enclosed within a corrosion-resistant frame and furnished with an expanded metal facescreen on the downstream, air leaving side.

### 3.0 Performance

- 3.1 Initial and final resistance shall not exceed the final values.
- 3.2 Media efficiency and content must meet or exceed the ratings of the specified filter.
- 3.3 The manufacturer shall guarantee performance as stated in the literature within tolerances as outlined in Section 7.4 of ARI Standard 850.



### General

Flanders E35 extended surface pleated filters are designed to operate in most installations. Available in 1", 2", and 4" nominal thickness, these filters have an average atmospheric dust spot efficiency range of 25-30% per ASHRAE Standard 52.1 test methods. E35 filters offer greater efficiency and service life than disposable filters, pad and frame systems, or metal washable filters. The overall design of this product makes E35 filters the accepted choice in applications requiring high performance and extended service.

These filters are suitable for variable air volume systems. Operating face velocity ranges are from 0 to 500 fpm for 1" and 2" filters, and from 0 to 625 fpm for 4" filters. Each filter contains 11 pleats per lineal foot. E35 filters are UL 900 Class 2 listed.

### Versatility

Most heating, air conditioning, or ventilating systems can be upgraded with the use of E35 filters in place of existing flat panel types. The inherent strength of the filter allows for easy changeout as it will not collapse, warp, or bend in normal service.

E35 filters are available in a wide range of sizes and will fit most commercial and industrial installations with little or no system modification. Fasteners are available to adapt the E35 filter to existing filter banks.

### Installation Considerations

E35 pleated filters are suitable as primary filters and can be installed in Type 9 Holding Frames, K-Track Framing Modules, Surepleat Side Access Housings and similar existing hardware. They may be used as prefilters for Flanders Precision Pak, PrecisionCell and Rigid-Air filters in these framing systems and in Sureseal Side Access Housings.

### Construction

E35 filter frames are constructed from moisture resistant chipboard. Perforated steel support grilles on the upstream and downstream sides provide extra rigidity and strength. The entire unit is sealed to insure a positive media-to-frame bond, eliminating the possibility of air bypass. The filter media is a high loft reinforced non-woven cotton/synthetic blend. It is continuously laminated to an expanded metal grid on the air leaving side to provide pleat stability throughout the life of the filter and to prevent media flutter while in operation. The E35 V wedge pleat allows for total media usage and provides maximum airflow and dust holding capacity.

### Important Features

- V-wedge pleats minimize end losses and reduce pressure drop.
- Expanded metal grid prevents media flutter while in operation.
- Perforated steel support grilles strengthen the frame.
- Filter media pack is sealed to eliminate air bypass.
- Average ASHRAE efficiency is 25-30%.



CAPACITIES AND DIMENSIONS								
Nominal Depth	(inch)	Nominal Size HxWxD (inch)	375 fpm		500 fpm		Media Area (sq. ft)	Weight Each (lbs.)
			cfm	PD	cfm	PD		
1	E35-10201	10x20x1	420	.15	695	.35	2.4	.6
	E35-12201	12x20x1	500	.15	834	.35	2.9	.6
	E35-12241	12x24x1	600	.15	1000	.35	3.5	.5
	E35-14201	14x20x1	580	.15	975	.35	3.4	.6
	E35-14251	14x25x1	730	.15	1215	.35	4.3	.8
	E35-15201	15x20x1	625	.15	1040	.35	3.7	.6
	E35-16201	16x20x1	667	.15	1110	.35	3.6	.6
	E35-16251	16x25x1	834	.15	1390	.35	4.6	.7
	E35-18241	18x24x1	900	.15	1500	.35	5.3	.8
	E35-18251	18x25x1	940	.15	1565	.35	5.5	.8
	E35-20201	20x20x1	834	.15	1390	.35	4.6	.7
E35-20241	20x24x1	1000	.15	1667	.35	5.8	.8	
E35-20251	20x25x1	1042	.15	1735	.27	5.5	.8	
E35-24241	24x24x1	1200	.12	2000	.35	6.4	.9	
2	E35-10202	10x20x2	420	.12	695	.27	4.0	.7
	E35-12202	12x20x2	500	.12	834	.27	4.8	.8
	E35-12242	12x24x2	600	.12	1000	.27	5.8	.8
	E35-14202	14x20x2	580	.12	975	.27	5.6	.9
	E35-14252	14x25x2	730	.12	1215	.27	7.1	.9
	E35-15202	15x20x2	625	.12	1040	.27	6.0	.9
	E35-16202	16x20x2	667	.12	1110	.27	6.6	.9
	E35-16252	16x25x2	834	.12	1390	.27	8.3	1.1
	E35-18252	18x25x2	940	.12	1565	.27	9.1	1.3
	E35-20202	20x20x2	834	.12	1390	.27	8.3	1.1
E35-20252	20x25x2	1042	.12	1735	.27	10.3	1.3	
E35-24242	24x24x2	1200	.12	2000	.27	12.3	1.5	
4	E35-12244	12x24x4	600	.10	1250	.30	11.6	1.5
	E35-16204	16x20x4	667	.10	1390	.30	11.8	1.7
	E35-16254	16x25x4	834	.10	1735	.30	15.0	2.0
	E35-20204	20x20x4	834	.10	1735	.30	15.0	2.0
	E35-20254	20x25x4	1042	.10	2170	.30	20.2	2.3
	E35-24244	24x24x4	1200	.10	2500	.30	22.3	2.5
	E35-25294	25x29x4	1510	.10	2520	.30	27.7	4.0
E35-28304	28x30x4	1750	.10	2920	.30	32.1	6.0	

PD represents clean pressure drop in inches w.g. The recommended final pressure drop for all models is 1.0 inch w.g. System design may dictate a lower change-out point. Performance values stated may be averages typical of the products listed. Contact factory for actual performance test reports on specific products.

## Guide Specifications

### 1.0 General

- 1.1 Medium efficiency pleated filters shall be E35 as manufactured by Flanders.
- 1.2 Filters shall be UL 900 Class 2 listed.

### 2.0 Filter Construction

- 2.1 Filters shall be constructed of reinforced, non-woven cotton/synthetic blend media laminated to an expanded metal grid on the air leaving side and formed into V-wedge pleats.
- 2.2 Frames shall be moisture-resistant chipboard with perforated steel support grilles on the

upstream and downstream sides.

### 3.0 Performance

- 3.1 Initial and final resistances shall not exceed the scheduled values.
- 3.2 Media area must equal or exceed that of the specified filter.
- 3.3 The average efficiency shall be as determined by the ASHRAE Standard 52.1 test methods.
- 3.4 The manufacturer shall guarantee performance as stated in its literature within tolerances as outlined in Section 7.4 of ARI Standard 850.

## Extended Surface Minipleat Filters

DOP: 95%: SFV D95xxxx ASHRAE 98% SFV98xxxx  
ASHRAE 95% SFV95xxxx 85% SF85xxxx 75% SFV75xxxx

### General

Superflow-V extended surface area low pressure drop minipleat filters are designed for use in most commercial and industrial HVAC systems where medium to high efficiency filtration is required. Superflow-V filters are available in average efficiency ranges: 65%, 85%, 95% and 98% per ASHRAE Standard 52.1 test methods and 95% DOP. They may be operated at face velocities from 0 to 750 fpm. Superflow-V filters are UL 900 Class 2 listed.

### Construction

Superflow-V filters are constructed of multiple minipleat panels bonded to flame-retardant plastic panels on top and bottom to make an unusually strong assembly that is both corrosion and moisture resistant. Aerodynamic extruded vertical supports minimize air entry turbulence. Superflow-V filters are totally rigid making them ideal for variable air volume (VAV) systems, as well as applications downstream of supply fans.

### Lowest Pressure Drop

Superflow-V minipleat filters have an exceptionally low clean pressure drop unmatched by most any filter of the same efficiency. This affords low fan energy costs during much of the life of the filter system.

In addition, they are the filters of choice for packaged air conditioning systems that do not have the fan capacity of larger central systems.

### Longer Service Life

The ratio of media area to nominal face area of Superflow-V filters is an extremely high 48:1, resulting in a much longer service life than most any filter of comparable efficiency and depth. Longer service life means material and labor cost savings and less disruption of systems caused by filter change-out shutdowns. High dust holding capacity is a key benefit of a filter with increased media area.

### Physical Data

**Media:** Moisture-resistant microfine fiberglass

**Filter Pack:** Minipleat panels

**Media Support:** Adhesive

**Top and Bottom Panels:** Flame-retardant plastic

**Vertical Supports:** Aerodynamic extruded vertical supports

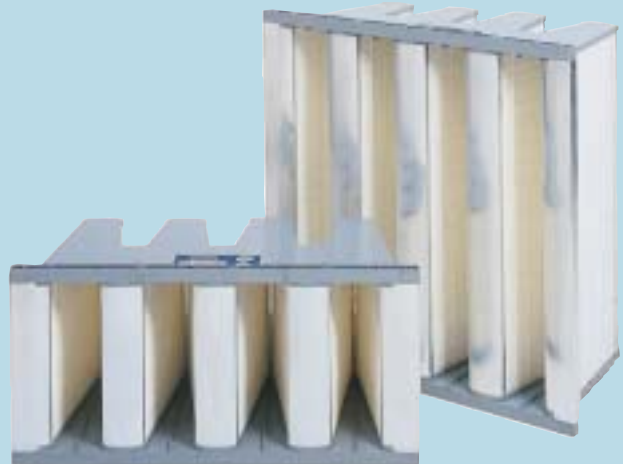
**Operating limits:** 160 °F and 100% RH continuous duty

**Actual Header Size:** Nominal size less 5/8" (e.g. a nominal 24" x 24" filter is actually 23-3/8" x 23-3/8")

**Actual Depth:** 11-1/2"

### Important Features

- Lowest clean pressure drop for energy savings and applicability to small fan systems
- Longer service life because of a very high ratio of media to nominal face area
- Aerodynamic vertical supports minimize air entry turbulence
- Minipleat panels provide rigidity for VAV systems and resistance to turbulent air flow
- May be operated from 0 to 750 fpm face velocity in either air flow direction
- Moisture resistant for humid air applications



Efficiency %	Model Number	Nominal Size HxWxD Inches	250 FPM		375 FPM		500 FPM		625 FPM		750 FPM		Media Area (Sq.Ft)	Wt. Each (Lbs.)
			CFM	PD	CFM	PD	CFM	PD	CFM	PD	CFM	PD		
95% DOP	SFVD-95A12	24 x 24 x 12	1000	0.28	1500	0.55	2000	0.75	2500	0.80	*	*	196	18
95% DOP	SFVD-95B12	20 x 24 x 12	800	0.28	1200	0.55	1600	0.75	2000	0.80	*	*	162	14
95% DOP	SFVD-95C12	12 x 24 x 12	500	0.28	750	0.55	1000	0.75	1250	0.80	*	*	98	9
98%	SFV-98A12	24 x 24 x 12	1000	0.25	1500	0.45	2000	0.60	2500	1.0	*	*	196	17
98%	SFV-98B12	20 x 24 x 12	800	0.25	1200	0.45	1600	0.60	2000	1.0	*	*	162	13
98%	SFV-98C12	12 x 24 x 12	500	0.25	750	0.45	1000	0.60	1250	1.0	*	*	98	8
95%	SFV-95A12	24 x 24 x 12	1000	0.14	1500	0.27	2000	0.36	2500	0.51	3000	0.64	196	17
95%	SFV-95B12	20 x 24 x 12	800	0.14	1200	0.27	1600	0.36	2000	0.51	2400	0.64	162	13
95%	SFV-95C12	12 x 24 x 12	500	0.14	750	0.27	1000	0.36	1250	0.51	1500	0.64	98	8
85%	SFV-85A12	24 x 24 x 12	1000	0.07	1500	0.18	2000	0.27	2500	0.40	3000	0.6	196	17
85%	SFV-85B12	20 x 24 x 12	800	0.07	1200	0.18	1600	0.27	2000	0.40	2400	0.6	162	13
85%	SFV-85C12	12 x 24 x 12	500	0.07	750	0.18	1000	0.27	1250	0.40	1500	0.6	98	8
65%	SFV-65A12	24 x 24 x 12	1000	0.05	1500	0.15	2000	0.25	2500	0.38	3000	0.52	196	17
65%	SFV-65B12	20 x 24 x 12	800	0.05	1200	0.15	1600	0.25	2000	0.38	2400	0.52	162	13
65%	SFV-65C12	12 x 24 x 12	500	0.05	750	0.15	1000	0.25	1250	0.38	1500	0.52	98	8

### Performance Data Notes:

1. PD represents clean pressure drop in inches w.g.  
The recommended final pressure drop for all models is 2.0 inch w.g. Maximum final pressure drop is 3.2 inch w.g.
2. Operation down to zero air flow is satisfactory for all models
3. Efficiency is average and is based on ASHRAE Standard 52.1 test methods for 65, 85, 95 and 98% filters. Performance values stated may be averages typical of the products listed. Contact factory for actual performance test reports on specific products.
4. Performance tolerances conform to section 7.4 of ARI Standard 850.
5. Actual filter header is 5/16 inch under on height and width. Actual depth is 11-1/2 inch

### Installation Considerations

Superflow-V filters may be installed in Flanders Type 9 Holding Frames, K-Trac Filter Framing Modules, Sureseal Side Access Housings or in similar existing hardware. Type 9 Holding Frames are riveted together to form a filter bank. K-Trac Filter Framing Modules are especially suitable for medium to large built-up filter banks. Smaller systems and systems with minimum upstream access space are best served using Sureseal Side Access Housings.

Gasketed Headers are Standard

Superflow-V filters are furnished with a peripheral header on the air entering side and with foam gaskets on the "H" dimension for the 24 x 24 model and "W" dimension on the 12 x 24 and 20 x 24 models.

## Guide Specifications

### 1.0 General

- 1.1 Medium and high efficiency extended surface low pressure drop minipleat filters shall be Superflow-V models as manufactured by Flanders.
- 1.2 Filter sizes, efficiencies and capacities shall be as scheduled on the drawings.

### 2.0 Filter Construction

- 2.1 Filters shall consist of multiple minipleat panels bonded to flame-retardant plastic panels on top and bottom and encased in a corrosion-resistant steel frame.

### 3.0 Performance

- 3.1 Initial and final resistances shall not exceed the scheduled values.
- 3.2 Media area must equal or exceed that of the specified filter.
- 3.3 The average efficiency shall be as determined by ASHRAE Standard 52.1 test methods.
- 3.4 Filters shall be UL 900 Class 2 listed.



## Fiberglass or Synthetic Media Rigid Filter

Synthetic Media PRP\*\*Sxxxx, PRP\*\*SxxxxM

Glass Media: PRP\*\*Gxxxx, PRP\*\*GxxxxM

(\* insert 55, 65, 85 or 95 for percent ASHRAE efficiency)

### General

Rigid-Air extended media surface rigid filters are designed for use in most commercial or industrial HVAC systems where medium to high efficiency filtration is required.

They feature your selection of media backed with expanded metal and pleated. The pleats are held in place by rigid pleat separators, now available in either plastic or metal styles. Rigid-Air is available in two media types: lofted fiberglass and micro-fine synthetic with average efficiency ranges of 50-55%, 60-65%, 80-85% and 90-95% per ASHRAE Standard 52.1 test methods.

These filters are especially suitable for variable air volume systems. Operating face velocity ranges are from 0 to 375 fpm for 6" deep filters, and from 0 to 675 fpm for 12" deep filters. Two frame styles are available: a single header model and a box type without header. Rigid-Air filters are UL 900 Class 2 listed. Optional Class 1 listed are available with metal inserts and fiberglass media.

### Installation Considerations

Rigid-Air filters may be installed in Type 9 Holding Frames, K-Trac Filter Framing Modules, Sureseal Side Access Housings or in similar existing hardware. Type 9 Holding Frames are riveted together

to form a bank and may be installed for upstream or downstream service. K-Track Filter Framing Modules are especially suitable for medium to large built-up filter banks. Smaller systems and systems with minimum upstream access space are best served using Sureseal Side Access Housings.

The headered version should be selected for use with the hardware listed above. If the filter is to be installed so that it protrudes upstream of the Type 9 Holding Frame, the box style filter is required.

### Physical Data

Frame: 24 ga. corrosion-resistant steel

Media: Lofted fiberglass or micro-fine synthetic

Media Supports: Expanded metal grid with metal or plastic pleat separator

Face Grid: Horizontal and diagonal metal supports

Header: 13/16" wide 26 ga. corrosion-resistant steel

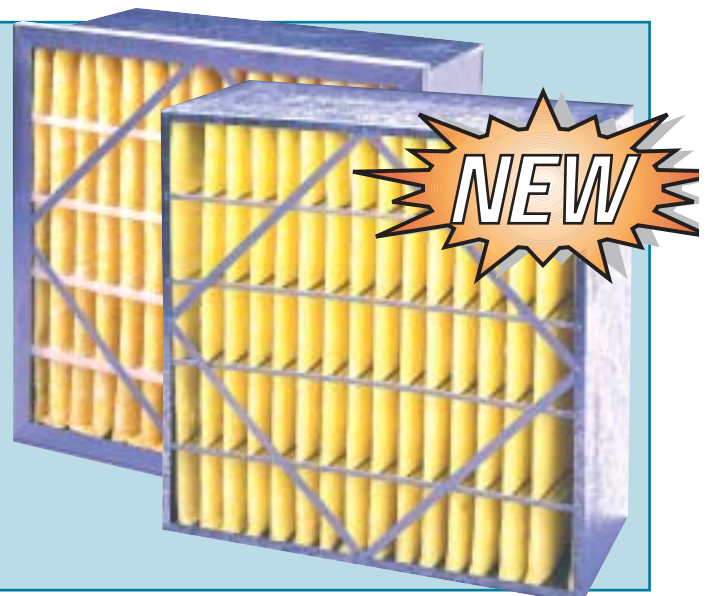
Operating Limits: 180° F 100% RH %

Actual Header or Box Filter Face Size: Nominal size less 5/8" (e.g., a nominal 24" x 24" filter is actually 23 3/8" x 23 3/8")

Actual Depth: 5-7/8" or 11-1/2"

### Important Features

- Rugged corrosion-resistant steel casing minimizes damage during shipping and handling.
- Lofted fiberglass micro-fine or synthetic media is held in position by upstream and downstream plastic or (NEW!) metal pleat supports.
- Units are available with or without header.
- Filters are completely rigid.



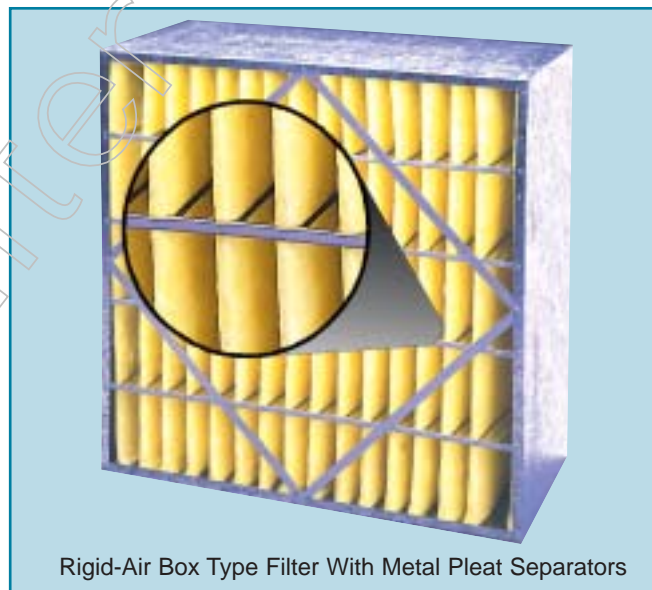
## Rigid-Air Box Type Filters

Nominal Depth (inch)	Efficiency	Nominal Size H x W x D (inch)	250 fpm		375 fpm		500 fpm		625 fpm		Media Area (sq. ft.)	Weight Each (lbs.)
			cfm	PD	cfm	PD	cfm	PD	cfm	PD		
12	90-95%	24 x 24 x 12	1000	.24	1500	.44	2000	.66	2500	.90	58	19
		24 x 12 x 12	500		750		1000		1250		28	11
	80-85%	24 x 24 x 12	1000	.20	1500	.34	2000	.51	2500	.70	58	19
		24 x 12 x 12	500		750		1000		1250		28	11
60-65%	24 x 24 x 12	1000	.13	1500	.24	2000	.36	2500	.49	58	19	
	24 x 12 x 12	500		750		1000		1250		28	11	
50-55%	24 x 24 x 12	1000	.10	1500	.20	2000	.30	2500	.41	58	19	
	24 x 12 x 12	500		750		1000		1250		28	11	
6	90-95%	24 x 24 x 6	1000	.45	1500	.72	2000	1.00	Note 3		29	10
		24 x 12 x 6	500		750		1000		Note 3		14	5
	80-85%	24 x 24 x 6	1000	.35	1500	.60	2000	.84	Note 3		29	10
		24 x 12 x 6	500		750		1000		Note 3		14	5
60-65%	24 x 24 x 6	1000	.25	1500	.42	2000	.60	Note 3		29	10	
	24 x 12 x 6	500		750		1000		Note 3		14	5	
50-55%	24 x 24 x 6	100	.13	1500	.23	2000	.35	2500	.45	29	10	
	24 x 12 x 6	500		750		1000		1250		14	5	

**Notes:**

1. PD represents clean pressure drop in inches w.g. Recommended final pressure drop for all models is 1.5 inches w.g.
2. Operation down to zero airflow is satisfactory for all models.
3. Consult factory before operating at these velocities.
4. Efficiency is average and is based on ASHRAE Standard 52.1 test methods.
5. Performance tolerances conform to Section 7.4 of ARI Standard 850.
6. Actual filter face size is 5/8" under on height and width. Actual filter depth is 5-7/8" or 11-1/2"
7. Performance values stated may be averages typical of the products listed. Contact factory for actual performance test reports on specific products.

**Rigid-Air is now available with new ALL METAL pleat supports.**



Rigid-Air Box Type Filter With Metal Pleat Separators

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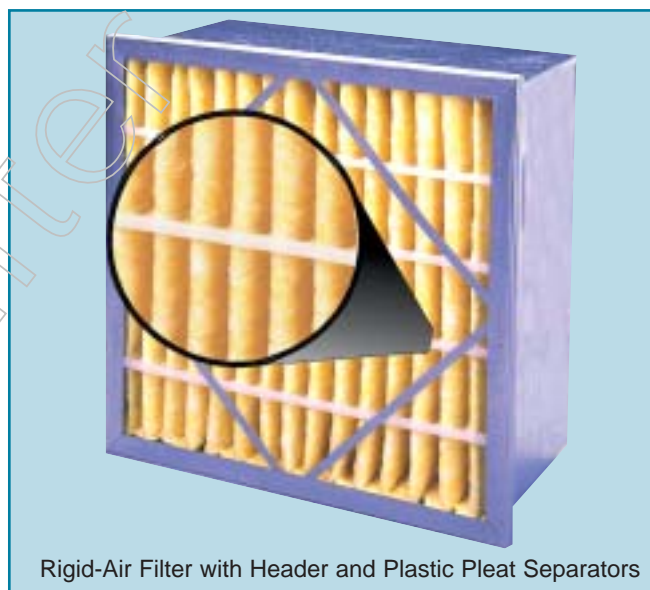
Corporate Headquarters, St. Petersburg, FL

## Rigid-Air Filters with Header

Nominal Depth (inch)	Efficiency	Nominal Size H x W x D (inch)	250 cfm		375 cfm		500 cfm		625 fpm		Media Area (sq. ft.)	Weight Each (lbs.)
			cfm	PD	cfm	PD	cfm	PD	cfm	PD		
12	90-95%	24 x 24 x 12	1000	.36	1500	.60	2000	.87	2500	1.16	50	20
		24 x 12 x 12	500		750		1000		1250		22	12
	80-85%	24 x 24 x 12	1000	.25	1500	.44	2000	.65	2500	.85	50	20
		24 x 12 x 12	500		750		1000		1250		22	12
	60-65%	24 x 24 x 12	1000	.15	1500	.27	2000	.41	2500	.56	50	20
		24 x 12 x 12	500		750		1000		1250		22	12
	50-55%	24 x 24 x 12	1000	.11	1500	.22	2000	.35	2500	.48	50	20
		24 x 12 x 12	500		750		1000		1250		22	12
6	90-95%	24 x 24 x 6	1000	.50	1500	.81	2000	1.14	Note 3		25	11
		24 x 12 x 6	500		750		1000				11	6
	80-85%	24 x 24 x 6	1000	.42	1500	.68	2000	.96	Note 3		25	11
		24 x 12 x 6	500		750		1000				11	6
	60-65%	24 x 24 x 6	1000	.27	1500	.45	2000	.64	Note 3		25	11
		24 x 12 x 6	500		750		1000				11	6
	50-55%	24 x 24 x 6	1000	.11	1500	.24	2000	.39	2500	.56	25	11
		24 x 12 x 6	500		750		1000		1250		11	6

**Notes:**

1. PD represents clean pressure drop in inches w.g. Recommended final pressure drop for all models is 1.5 inches w.g.
2. Operation down to zero airflow is satisfactory for all models.
3. Consult factory before operating at these velocities.
4. Efficiency is average and is based on ASHRAE Standard 52.1 test methods.
5. Performance tolerances conform to Section 7.4 of ANSI Standard 850.
6. Actual filter header face size is 5/8" under on height and width. Actual depth is 5-7/8" or 11-1/2"
7. Performance values stated may be averages typical of the products listed. Contact factory for actual performance test reports on specific products.



Rigid-Air Filter with Header and Plastic Pleat Separators

**Flanders - Foremost in Air Filtration**

Corporate Headquarters, St. Petersburg, FL

## Application Guidelines

Rigid-Air filters may be used wherever job requirements and available space will accommodate 6" or 12" deep filters.

Rigid-Air filters should be selected using 24" x 24" and 24" x 12" face sizes. This allows for 12" increments in height and width of the filter bank and insures that replacement cartridges will be readily available.

Rigid-Air filters should be installed with pleats vertical wherever possible. It is permissible to install 24" x 12" face size cartridges with pleats horizontal if necessary to meet the size requirements of the filter bank.

## VAV Systems

Filter banks should be sized so that the maximum rated flow at design conditions falls within the published recommended velocities. Rigid-Air filters may be applied at any capacity between zero flow and cataloged capacities.

## Hospital Applications

Rigid-Air filters may be used on the downstream side of the supply fan in hospitals if they are far enough from the fan so that the high fan discharge velocity will not affect them. Rigid-Air rigid filters can withstand adverse air flow conditions better than bag filters and are the preferred selection for these applications.

## Gasketed Headers

Rigid-Air headered filters installed in Flanders K-Trac Filter Framing Modules or Sureseal Side Access Housings require gaskets on opposite header sides to prevent air bypass.

To specify headered version Rigid-Air filters with gasketed headers, add suffix "S" or "H" to the model number. Example:

Model Number - S: Gaskets are on the sides parallel to the pleats.

Model Number - H: Gaskets are on the sides perpendicular to the pleats.

## Guide Specifications

### 1.0 General

- 1.1 Medium and high efficiency self-supporting filters shall be Rigid-Air lofted fiberglass or micro-fine synthetic media rigid filters as manufactured by Flanders.
- 1.2 Filter sizes, efficiencies and capacities shall be as scheduled on the drawings.

### 2.0 Filter Construction

- 2.1 Filters shall be constructed of lofted micro-fine fiberglass or micro-fine synthetic media laminated to a non-woven backing, bonded to an expanded metal wire grid and pleated to form the filter pack
- 2.2 The filter pack shall be strengthened on the air entering and air exiting sides with horizontal and diagonal metal support members.
- 2.3 The enclosing frame shall be assembled in a rigid manner and shall incorporate a header on

the air entering side if required by the application.

- 2.4 The filter pack shall be sealed into a 24 ga. corrosion-resistant steel casing with metal or plastic pleat separators on the upstream and downstream sides to maintain pleat configuration.

### 3.0 Performance

- 3.1 Initial and final resistances shall not exceed the scheduled values.
- 3.2 Media area must equal or exceed that of the specified filter.
- 3.3 The average efficiency shall be as determined by the ASHRAE Standard 52.1 test methods.
- 3.4 The manufacturer shall guarantee performance as stated in its literature within tolerances as outlined in Section 7.4 of ARI Standard 850.



## Extended Media Separator Type Rigid Filters

UL Class 1, Std & Hi Cap: 8\*055.xxxxxxx1, 87\*55.xxxxxx1

UL Class 2, Std & Hi Cap: 8\*055.xxxxxx, 87\*55.xxxxx

(Insert 6 for 65%, 8 for 85%, 9 for 95% ASHRAE Efficiency)

### General

PrecisionCell extended media separator type rigid filters are designed for use in most commercial or industrial HVAC systems where medium to high efficiency filtration is required. PrecisionCell filters are available in average efficiency ranges of 60-65%, 80-85% and 90-95% per ASHRAE Standard 52.1 test methods and are available in standard and high capacity versions.

These filters are suitable for variable air volume systems. Operating face velocity ranges are from 0 to 625 FPM for 12" deep filters. Three styles are available: box, single and double header. PrecisionCell filters are UL 900 Class 1 listed.

### Installation Considerations

PrecisionCell rigid filters may be installed in Flanders Type 9 Holding Frames, K-Trac Filter Framing Modules, Sureseal Side Access Housings, or in similar existing hardware.

Type 9 Holding Frames are riveted together to form a bank and may be installed for upstream or downstream service. K-Trac Filter Framing Modules are especially suitable for medium to large built-up filter banks. Smaller systems and systems with minimum upstream access space are best served using Sureseal Side Access Housings.

The single header version should be selected for use with hardware framing systems and side access housings. If the filter is installed so that it protrudes upstream of the Type 9 Holding Frame, the double header filter is required.

### Construction Options

PrecisionCell filters are designed for temperatures up to 350 degrees Fahrenheit. For high temperature or gas turbine models, see PrecisionCell GT and HT bulletins.

### Physical Data

**Frame:** 24 ga. corrosion-resistant steel

**Media:** Moisture-resistant micro-fine fiberglass

**Separators:** Hemmed corrugated aluminum

**Headers:** 13/16 " wide corrosion-resistant steel

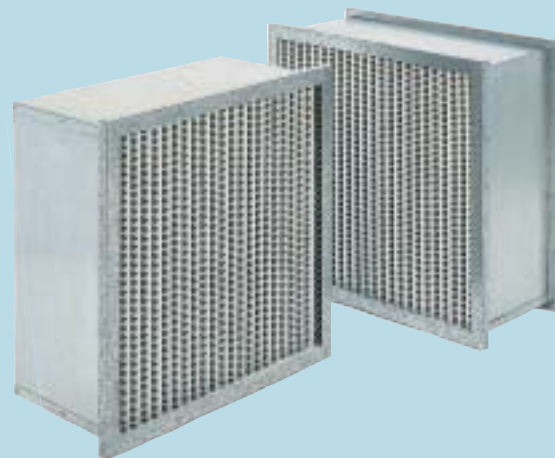
**Operating Limits:** 100% RH and 350° F

**Actual Face:** Nominal size less 5/8"

**Actual Depth:** 5-7/8" or 11-1/2"

### Important Features

- Rugged galvanized steel casing minimizes damage during shipping and handling
- Corrugated aluminum separators stabilize the moisture-resistant media pack and prevent damage in applications downstream of the supply fan.



## Performance Data

### PrecisionCell Standard Capacity Filters With Single or Double Header

Capacities and Dimensions												
Nominal Depth (inch)	Efficiency	Nominal Size H x W x D (inch)	250 fpm		375 fpm		500 fpm		625 fpm		Media Area (sq. ft.)	Weight Each (lbs.)
			cfm	PD	cfm	PD	cfm	PD	cfm	PD		
12	90-95%	24 x 24 x 12	1000	.25	1500	.40	2000	.68	2500	.78	125	18
		24 x 12 x 12	500		750		1000		1250		57	9
	80-85%	24 x 24 x 12	1000	.20	1500	.35	2000	.57	2500	.67	105	18
		24 x 12 x 12	500		750		1000		1250		47	9
	60-65%	24 x 24 x 12	1000	.15	1500	.20	2000	.42	2500	.52	105	18
		24 x 12 x 12	500		750		1000		1250		47	9
6	90-95%	24 x 24 x 6	1000	.45	1500	.65	Note 3	Note 3	Note 3	Note 3	60	11
		24 x 12 x 6	500		750						27	8
	80-85%	24 x 24 x 6	1000	.35	1500	.55	Note 3	Note 3	Note 3	Note 3	50	11
		24 x 12 x 6	500		750						22	8
	60-65%	24 x 24 x 6	1000	.15	1500	.35	Note 3	Note 3	Note 3	Note 3	50	11
		24 x 12 x 6	500		750						22	8

### Additional Standard Size PrecisionCell Filters

Capacities and Dimensions									
Nominal Depth (inch)	Nominal Size H x W x D (inch)	Nominal Capacity (cfm)	PD			Media Area (sq. ft.)		Weight Each (lbs.)	
			60-65%	80-85%	90-95%	60-65% 80-85%	90-95%	60-65% 80-85%	90-95%
12	25 x 20 x 12	1750	.30	.50	.60	90	108	16	18
	25 x 16 x 12	1400	.30	.50	.60	70	84	14	17
	24 x 20 x 12	1700	.30	.50	.60	86	103	16	18
	24 x 18 x 12	1600	.30	.50	.60	76	91	14	17
	20 x 20 x 12	1400	.30	.50	.60	70	84	14	17
	20 x 16 x 12	1100	.30	.50	.60	54	65	14	15
6	25 x 20 x 6	875	.15	.35	.45	43	52	10	10
	25 x 16 x 6	700	.15	.35	.45	33	40	10	9
	24 x 20 x 6	850	.15	.35	.45	41	49	10	10
	24 x 18 x 6	800	.15	.35	.45	36	44	10	9
	20 x 20 x 6	700	.15	.35	.45	33	40	10	10
	20 x 16 x 6	550	.15	.35	.45	26	31	10	9

1. PD represents clean pressure drop in inches w.g. The recommended final pressure drop for all models is 1.5 inches w.g.
2. Operation down to zero airflow is satisfactory for all models.
3. Consult factory before operating at these velocities.
4. Efficiency average is based on ASHRAE Standard 52.1 test methods. Performance values stated may be averages typical of the products listed. Contact factory for actual performance test reports on specific products.
5. Performance tolerances conform to Section 7.4 of ARI Standard 850
6. Actual face size is 5/8" under on height and width. Actual filter depth is 5-7/8" or 11-1/2"

**Flanders - Foremost in Air Filtration**



PrecisionCell Single Header filters are ideally suited for upstream or downstream installation in K-Trac Filter Modules. Insert the horizontal sides of the header in the gasketed 1" secondary track of the framing system.



PrecisionCell Single Header filters are recommended for through-the-frame applications. Install by loading the filters through the Type 9 frame until the header comes into contact with the gasket on the frame. Secure in place with Model P fasteners.



PrecisionCell Single Header filters are designed for use in Sureseal Side Access Filter Housings. The Sureseal unit provides space for prefilters to prolong the life of the filters. Install by sliding the header of the filter into the gasketed 1" secondary filter track.

## Application Guidelines

PrecisionCell filters may be used wherever job requirements dictate totally rigid filters and available space will allow only minimal inline depth.

PrecisionCell filters should be selected using 24" x 24" and 24" x 12" face sizes. This allows for 12" increments in height and width of the filter bank and insures that replacement cartridges will be readily available.

PrecisionCell filters should be installed with separators vertical where ever possible. It is permissible to install 24" x 12" face size cartridges with separators horizontal if necessary to meet the size requirements of the filter bank.

## Prefilters

We recommend that Prepleat 40 pleated panel filters or Precision Pak bag filters be used as prefilters for PrecisionCell installations. Where there must be long intervals between filter changes, we recommend using 65% ASHRAE rated PrecisionPak as prefilters. Refer to individual bulletins for performance data on these prefilters.

## VAV Systems

Filter banks should be sized so that the maximum rated flow at design conditions falls within the published recommended velocities. PrecisionCell filters may be applied at any capacity between zero flow and cataloged capacities.

## Hospital Applications

PrecisionCell filters are the preferred selection for hospital systems where code or good practice require that the filters be downstream of coils.

## Gasketed Headers

PrecisionCell headered filters installed in Flanders K-Trac Filter Framing Modules or Sureseal Side Access Housings require gaskets on opposite header sides to prevent air bypass.

To specify filters with gasketed headers, add suffix "S" to "H" to the model number as follows:

Model Number - S: Gaskets are on the sides parallel to the separators.

Model Number - H: Gaskets are on the sides perpendicular to the separators.

## Guide Specifications

### 1.0 General

1.1 Medium and high efficiency rigid filters shall be PrecisionCell extended media separator type rigid filters as manufactured by Flanders.

1.2 Filter sizes, efficiencies and capacities shall be as scheduled on the drawings.

### 2.0 Filter Construction

2.1 Filters shall be constructed by pleating a continuous sheet of moisture-resistant water-laid micro-fine glass media into closely spaced pleats with hemmed-edge corrugated aluminum separators.

2.2 The filter pack shall be sealed into a 24 ga. steel frame.

2.3 The enclosing frame shall be assembled in a rigid manner and shall incorporate a single or double header as required by job conditions.

2.4 Filters shall be UL 900 Class 1 listed.

### 3.0 Performance

3.1 Initial and final resistances shall not exceed the scheduled values.

3.2 Media area must equal or exceed that of the specified filter.

3.3 The average efficiency shall be as determined by the ASHRAE Standard 52.1 test methods.

3.4 The manufacturer shall guarantee performance as stated in the literature within tolerances as outlined in Section 7.4 of ARI Standard 850.



## High Temperature Rigid Filters

ASHRAE 65% 86255.xxxxxxH   ASHRAE 85% 88255.xxxxxxH  
ASHRAE 95% 89255.xxxxxxH

### General

PrecisionCell HT filters are designed for high temperature applications up to 900° F. They feature the same rugged construction as the standard PrecisionCell. The HT version is manufactured of specially selected components to meet high temperature requirements.

They are ideal for paint drying ovens or any application requiring high efficiency filtration at high temperatures. PrecisionCell HT filters are offered in two high temperature operating ranges; 750° F and 900° F and efficiency ranges of 65%, 85% and 95% per ASHRAE Standard 52.1.

### Construction

The enclosing frame is manufactured of aluminized steel, which is designed not to be negatively affected by elevated temperatures.

The media pack is protected by air entering and air leaving retainer screens. Grid strap bracing on the air entering and leaving sides maintain the rigidity and integrity of the PrecisionCell HT.

The media is designed for operation in high temperature applications and manufactured from one continuous sheet of wet-laid micro-fine fiberglass, which provides the required tensile strength and operating pressure drop for these stringent applications.

### Physical Data

**Frame:** 24 ga. aluminized steel

**Media:** Microfine fiberglass

**Separators:** Hemmed-edge corrugated aluminum

**Header Frame:** 7/8" wide aluminized steel

**Faceguards:** Aluminized steel expanded

**Cross Bracing:** 1/2" "T" strap downstream and horizontal strap upstream

### Important Features

- Continuous duty up to 900 °F
- Aluminized steel construction
- 65%, 85%, 95% efficiencies
- Faceguards and grid straps



Efficiency	Operating Limit °F	Nominal Size H x W x D (inch)	500 fpm Rating		Media Area (sq. ft.)	Weight Each (lbs)
			cfm	pd		
60-65%	750	24 x 24 x 12	2000	.35	140	26
		24 x 12 x 12	1000		69	21
	900	24 x 24 x 12	2000	.30	175	28
		24 x 12 x 12	1000		90	22
80-85%	750	24 x 24 x 12	2000	.55	140	26
		24 x 12 x 12	1000		69	21
	900	24 x 24 x 12	2000	.50	175	28
		24 x 12 x 12	1000		90	22
90-95%	750	24 x 24 x 12	2000	.60	140	26
		24 x 12 x 12	1000		69	21
	900	24 x 24 x 12	2000	.55	175	28
		24 x 12 x 12	1000		90	22

**Notes:**

1. PD represents clean pressure drop in inchw.g. The recommended final pressure drop is 2.5 inch w.g.
2. Operation down to zero velocity is satisfactory for all models.
3. Efficiencies are average and are based on ASHRAE Standard 52.1 dust spot test methods. Performance values stated may be averages typical of the products listed. Contact factory for actual performance test reports on specific products.

## Guide Specifications

**1.0 General**

- 1.1 High temperature rigid filters shall be PrecisionCell HT separator type as manufactured by Flanders.
- 1.2 Filter sizes and temperature ranges shall be as scheduled on the drawings.

**2.0 Filter Construction**

- 2.1 Filters shall be constructed by pleating a continuous sheet of wet-laid micro-fine glass media into closely spaced pleats with hemmed-edge corrugated aluminum separators.
- 2.2 The filter pack shall be sealed into a 24 ga. aluminized steel frame with fire-retardant sealant.

- 2.3 Expanded metal aluminized steel faceguards shall be installed on the air entering and air leaving sides.
- 2.4A 1/2" "T" strap shall be installed on the downstream side and 1/2" horizontal strap on the air entering side.

**3.0 Performance**

- 3.1 Initial and final resistance shall not exceed the scheduled values.
- 3.2 Media area shall equal that of the scheduled high temperature filter.
- 3.3 The manufacturer shall guarantee performance as outlined in section 7.4 of ARI Standard 800.

## Gas Turbine Rigid Filters

ASHRAE 65%: PGT65xxxxxxH

ASHRAE 95%: PGT95xxxxxxH

### General

The PrecisionCell GT features heavy-duty construction to meet the rigorous demands of gas turbine rotary machinery air filtration applications. They may also be utilized where extreme velocity or turbulence have rendered other products to be ineffective. PrecisionCell GT filters are available in ASHRAE efficiencies of 60-65% and 90-95% in either single or double header versions.

### Features

The PrecisionCell GT offers a high dust holding capacity for increased service life, eliminating costly downtime and maintenance associated with filter change out. The media is manufactured of a wet-laid, moisture resistant, dual layer micro-fine fiberglass for high tensile strength and long service life. The heavy gauge hemmed-edge corrugated aluminum separators offer increased pack rigidity with optimal pleat spacing.

The heavy duty corrosion-resistant steel frame and expanded metal faceguards on both the air entering and air leaving sides protect the media pack. Retainer straps on both sides prevent filter collapse and maintain rigidity in high-pressure drop situations and blow back from turbine surges.

### Physical Data

**Frame:** Heavy duty corrosion-resistant steel

**Media:** Dual layer wet-laid micro-fine fiberglass

**Separators:** Hemmed-edge corrugated aluminum

**Media Sealant:** Lofted glass mat

**Headers:** 13/16" wide aluminized steel

**Faceguards:** Galvanized steel expanded

**Gridstraps:** 1/2" aluminized steel "T" strap downstream and horizontal strap upstream

### Important Features

- Dual layer media for increased service life
- Faceguards and grid straps



Nominal Depth (inch)	Efficiency	Nominal Size HxWxD (inch)	250 fpm		375 fpm		500 fpm		625 fpm		Media Area (sq.ft.)	Weight Each (lbs.)
			cfm	pd	cfm	pd	cfm	pd	cfm	pd		
12	65%	24x24x12	1000	.15	1500	.25	2000	.35	2500	.40	140	26
		24x12x12	500		750		1000		1250		69	21
12	95%	24x24x12	1000	.25	1500	.45	2000	.65	2500	.78	140	30
		24x12x12	500		750		100		1250		69	25

**Notes:**

1. PD represents clean pressure drop in inchw.g. The recommended final pressure drop is 2.5 inch w.g.
2. Operation down to zero velocity is satisfactory for all models.
3. Performance tolerances conform to section 7.4 of ARI Standard 850.
4. Performance values stated may be averages typical of the products listed. Contact factory for actual performance test reports on specific products.

## Guide Specifications

**1.0 General**

- 1.1 Medium and high efficiency gas turbine rigid filters shall be PrecisionCell GT extended media separator type filters as manufactured by Flanders.
- 1.2 Filter sizes, efficiencies and capacities shall be as scheduled on the drawings.

**2.0 Filter Construction**

- 2.1 Filters shall be constructed by pleating a continuous sheet of moisture-resistant dual layer, wet-laid micro-fine glass media into closely spaced pleats with hemmed-edge corrugated aluminum separators.
- 2.2 The filter pack shall be compression sealed into a 24 ga. corrosion-resistant steel frame.
- 2.3 The enclosing frame shall be assembled in a rigid manner and shall incorporate a single or double header as required by job conditions.

- 2.4 corrosion-resistant steel expanded metal face-guards shall be installed on the air entering and leaving sides.
- 2.5 1/2" corrosion-resistant steel "T" straps shall be installed on the air leaving side and horizontal strap on air entering side.
- 2.6 Filters shall be UL 900 Class 1 listed.

**3.0 Performance**

- 3.1 Initial and final resistance shall not exceed the scheduled values.
- 3.2 Media area must equal or exceed that of the specified filter.
- 3.3 The average efficiency shall be as determined by the ASHRAE Standard 52.1 test methods.
- 3.4 The manufacturer shall guarantee performance as stated in the literature within tolerances as outlined in section 7.4 of ARI Standard 800.



## Extended Surface Mini Pleat

ASHRAE 65%: 86655.04xxxx

ASHRAE 85%: 88655.04xxxx

ASHRAE 95%: 89655.04xxxx

### General

PrecisionCell II extended surface minipleat rigid filters are a nominal four inches deep. They are designed for use in most commercial and industrial HVAC systems where medium to high efficiency filtration is required. They are available in average efficiency ranges of 60-65%, 80-85% and 90-95% per ASHRAE Standard 52.1 atmospheric dust spot test methods.

PrecisionCell II filters are especially suitable for variable air volume systems and are designed to operate at face velocities up to 625 fpm. Two styles are available: standard box style and an optional headered (top and bottom) version that are manufactured with a header for use with existing side access housings (see Optional Model). PrecisionCell II filters are UL 900 Class 2 listed.

### Optional Model

Optional headered version PrecisionCell II filters are the same size and have the same functional design as the standard model. The filter is built with a metal-reinforced header on the top and bottom of the filter near the air entering side. The header allows the filter to fit over the standing flanges of the primary filter channel in existing side access housings. Headered PrecisionCell II filters are furnished with a 1/2" wide polyfoam gasket on their vertical sides to provide a filter-to-filter seal.

### In-Line Space-Saving Design

PrecisionCell II filters dramatically reduce in-line space requirements when compared to 12" to 36" deep filters. Their nominal 4" depth makes a convenient "fit" for most installations. High efficiency filtration, that is often required for acceptable Indoor Air Quality, may now be selected by the design engineer without having to compromise space.

### Installation Considerations

PrecisionCell II filters may be installed in Flanders Type 9 Holding Frames and Surepleat Side Access Housings or similar existing hardware. Type 9 Holding Frames are riveted together to form a bank and may be installed for upstream or downstream service. Smaller systems and systems with minimum upstream access space are best served using Surepleat Side Access Housings.

### Physical Data

**Frame:** Double-wall, moisture-resistant beverage board

**Media:** Water-laid microfine fiberglass with a water-repellent binder

**Media Support:** Adhesive-bead pleat separators

**Face Grid:** Horizontal and diagonal supports bonded to the media pack

**Operating Limits:** 160° F and 100% RH

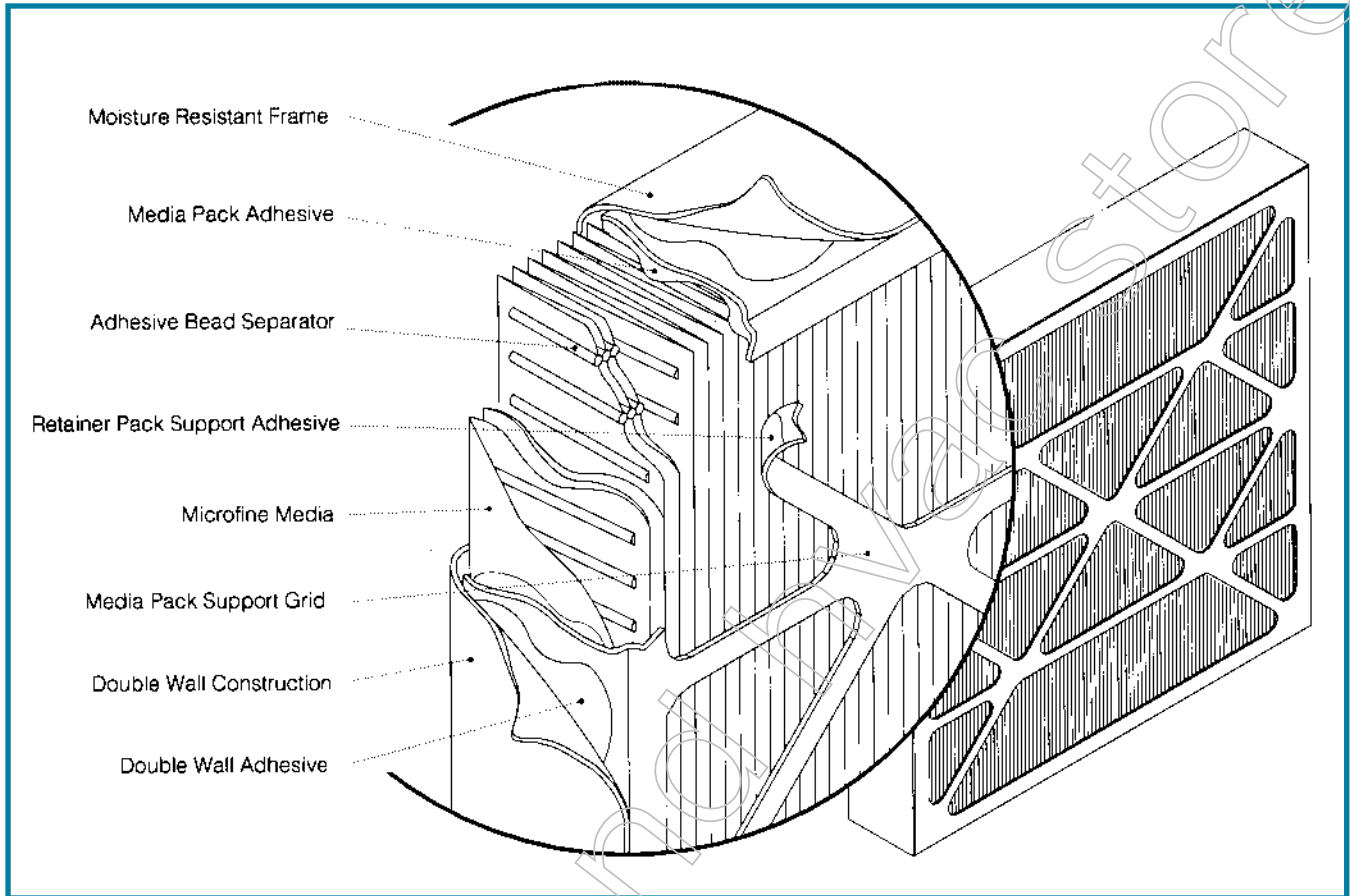
### Important Features

- Available in nominal 65%, 85%, and 95% ASHRAE efficiencies
- Space-saving 4" thickness for installation flexibility
- Rugged moisture-resistant bonded frame and unitized pack for rigidity
- Cartridge design is ideal for VAV systems or turbulent flow conditions
- Lightweight and easy to store and handle



## Construction

In the Flanders tradition of state-of-the-art technology, PrecisionCell II filters are built with a minipleat media pack to achieve a rugged, compact lightweight, high efficiency filter.



## Surepleat Side Access Housings

Use a Surepleat Side Access Housing as a convenient and space-saving method of installing PrecisionCell II filters. SP2/4 housings have two gasketed extruded aluminum tracks to accept 2" pleated prefilters and 4" PrecisionCell II final filters.

The adjacent photo shows a Surepleat Side Access Housing with 2" Prepleat 40 pleated pre-filters and PrecisionCell II final filters.



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## Prefilters

Prefilters are always a wise choice for the protection of minipleat filters no matter what the efficiency or brand. The closely-spaced pleats are subject to face-loading (bridging) by lint and coarse particles, thus reducing their usual long life. A minimum 25-30% ASHRAE efficiency pleated panel filter such as the Flanders Prepleat 40 is recommended.

## Save In-Line Space

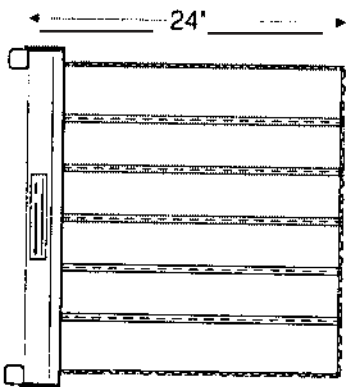
Compare the airway lengths of 22" PrecisionPak bag filters and 12" Rigid-Air filter to a 4" PrecisionCell filter when they are installed with 2" prefilters.

## VAV Systems

Filter banks should be sized so that the face velocity at maximum design conditions is 625 fpm or less. PrecisionCell II filters may be applied at any capacity between 0 and 625 fpm. Operating a filter bank at reduced flow will greatly increase expected filter life.

## Save Storage Space and Shipping Costs

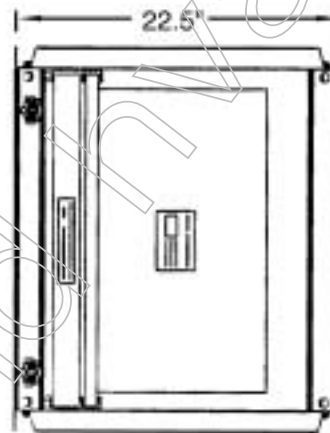
Using the 24" x 24" size as an example, a carton of four PrecisionCell II 4" filters has a volume of 5.3 cubic feet and a weight of 26 lbs. Compare this to four 12" deep rigid separator-type filters packed in four cartons with a total volume of 16 cubic feet and total weight of 80 lbs.



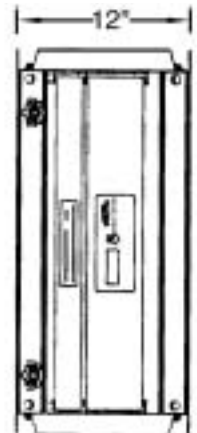
Type 9 Frame with PrecisionPak and PrePleat 40



Type 9 Frame with PrecisionCell II and PrePleat 40



Sureseal Housing with 12" Rigid-Air and PrePleat 40



Surepleat Housing with PrecisionCell II and PrePleat 40

## Application Guidelines

PrecisionCell II filters should be selected for new installations with 24" H x 24" W and 24" H x 12" W face sizes. These are the most widely used and stocked sizes. This allows for 12" increments in height and width of the filter bank and insures that replacement cartridges will be readily available.

PrecisionCell II filters should be installed with the pleats vertical wherever possible. It is permissible to install 24" H x 12" W face size filters with pleats horizontal if necessary to meet the size requirements of the filter bank.

## HEPA Prefilters

PrecisionCell II filters are ideal as prefilters for Alpha Cell HEPA filters. Their light weight and 4" depth make them an excellent choice for installation in the optional Prefilter Frame Assembly for the Alpha Cell HEPA Filter Holding Frame or in Surelock Side Access HEPA Housings.

Specify the Surelock housing with an optional 4" wide prefilter track for the PrecisionCell II filters, in lieu of the 2" wide prefilter track for pleated panel filters. We recommend the selection of 80-85% PrecisionCell II filters as HEPA prefilters.

Capacities and Dimensions													
	Nominal Size H x W x D (inch) Note 3	125 fpm		250 fpm		375 fpm		500 fpm		625 fpm		Media Area (sq. ft.)	Weight Each (lbs.)
		cfm	PD	cfm	PD	cfm	PD	cfm	PD	cfm	PD		
90-95%	24 x 24 x 4	500	.11	1000	.26	1500	.42	2000	.68	2500	.95	120	6.5
	24 x 12 x 4	250	.11	500	.26	750	.42	1000	.68	1250	.95	60	3.5
80-85%	24 x 24 x 4	500	.08	1000	.21	1500	.36	2000	.58	2500	.80	120	6.5
	24 x 12 x 4	250	.08	500	.21	750	.36	1000	.58	1250	.80	60	3.5
60-65%	24 x 24 x 4	500	.06	1000	.13	1500	.25	2000	.40	2500	.58	120	6.5
	24 x 12 x 4	250	.06	500	.13	750	.25	1000	.40	1250	.58	60	3.5

### Other Standard Size PrecisionCell II Filters

Nominal Size H x W x D (inch) Note 3	Nominal Capacity (cfm)	Pressure Drop			Media Area (sq. ft.)	Weight Each (lbs.)
		60-65%	80-85%	90-95%		
20 x 20 x 4	1400				84	4.0
20 x 16 x 4	1100	.40	.58	.68	66	3.5
24 x 20 x 4	1850				105	5.5
24 x 18 x 4	1500	.40	.58	.68	93	5.0
25 x 20 x 4	1750				105	6.0
25 x 16 x 4	1400	.40	.58	.68	84	4.0

#### Notes

1. PD represents clean pressure drop in inches w.g. Recommended final pressure drop for all models is 1.5 inch w.g.
2. Operation down to zero air flow is satisfactory for all models.
3. Actual filter face size of 24" x 24" and 24" x 12" is 5/8" undercut on height and width. All other sizes are 1/2" undercut on height and width. Actual filter depth is 3-3/4"
4. Efficiency is average and is based on ASHRAE Standard 52.1 test methods.
5. Performance tolerances conform to Section 7.4 of ARI Standard 850.
6. PrecisionCell II 24" x 12" filters are available with notches on the 24" horizontal sides. Contact factory.
7. Performance values stated may be averages typical of the products listed. Contact factory for actual performance test reports on specific products.

### Guide Specifications

#### 1.0 General

- 1.1 Medium and high efficiency extended surface filters shall be PrecisionCell II minipleat panel filters as manufactured by Flanders.
- 1.2 Filter sizes, efficiencies and capacities shall be as scheduled on the drawings.
- 1.3 Filters shall be UL 900 Class 2 listed.

#### 2.0 Filter Construction

- 2.1 The filter pack shall be constructed of water-laid microfibre fiberglass media containing a water-repellent binder formed into closely-spaced pleats held in position by adhesive bead separators.
- 2.2 The filter pack shall be strengthened on the air entering and air exit sides with horizontal and

diagonal support members.

- 2.3 The enclosing frame shall be double-wall water-resistant beverage board sealed between the walls and to the filter pack with adhesive.

#### 3.0 Performance

- 3.1 Initial and final resistances shall not exceed the scheduled values.
- 3.2 Media area must equal or exceed that of the specified filter
- 3.3 The average efficiency shall be as determined by ASHRAE Standard 52.1 test methods.
- 3.4 The manufacturer shall guarantee performance as stated in the literature within tolerances as outlined in Section 7.4 of ARI Standard 850.



## Medium-High Efficiency Replacement Filters

ASHRAE 30%: EA-30xx    ASHRAE 55%: EA-55xx  
ASHRAE 85%: EA-85xx    ASHRAE 95%: EA-95xx

### General

EA Series Replacement Air Filters are pre-formed, extended surface deep-pleated cartridges for use with existing hardware in commercial and industrial HVAC systems. EA Series filters are available in average efficiency ranges of 25-30%, 50-55%, 80-85% and 90-95% when tested according to ASHRAE Standard 52.1 methods. EA Series filters are UL 900 listed Class 2.

### Construction

EA filter media is a non-woven cotton and synthetic blend (25% efficient) or moisture-resistant micro-fine lofted glass fiber (55%, 85% or 95% efficient). The media is reinforced with a non-woven remay backing and formed into a "pack" which is then hot-melt bonded top and bottom to 1/16" thick stiff moisture-resistant fiberboard panels. Alignment of the pleats in the media pack is carefully controlled during the bonding operation to facilitate insertion of the cartridge into the wire media retainer during installation. The completed filter is folded before being boxed to minimize shipping and storage volume.

### Application

EA Series cartridge filters are designed to be used only in existing hardware as pictured below. This hardware consists of metal holding frames, sealer frames and wire basket-type retainers that may be used in either front or rear-loading built-up filter banks or side access housings.

EA Cartridge Disposable Replacement Air Filters are fully interchangeable with other manufacturers' cartridge filters and hardware. Units of one efficiency may be replaced in the same system hardware with similar size and depth units of another efficiency. When upgrading efficiencies, be sure to check the capability of the fan to overcome the increased pressure drop.

### Physical Data

**Media:** Non-woven cotton and synthetic blend or moisture-resistant micro-fine lofted glass fiber reinforced with remay backing

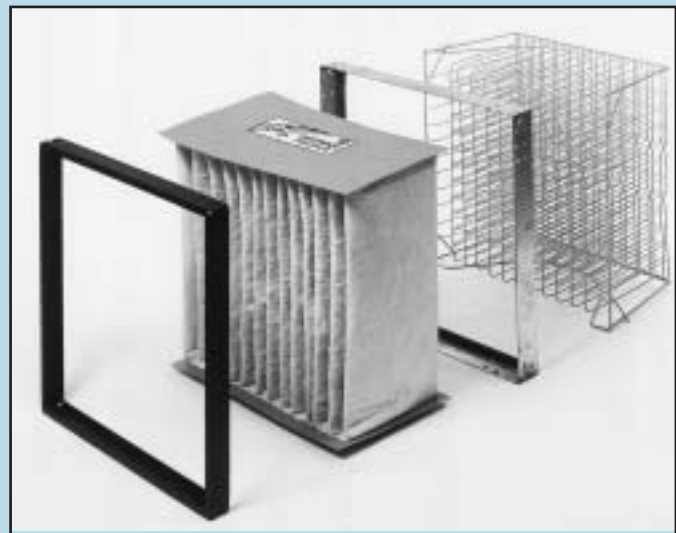
**Panels:** Top and bottom; 1/16" thick fiber board

**Adhesive:** Hot-melt thermoplastic

**Operating Limits:** 180 degrees Fahrenheit

### Important Features

- Fully interchangeable with other manufacturers' hardware.
- Heavy-duty fiberboard side panels.
- Filters are UL 900 Class 2 listed.



Efficiency %	Model Number	Actual HxWxD (inch)	Cfm Capacity		Pressure Drop (inch w.g.)		Media Area (sq. ft.)	Wt per Carton (lbs.)	Quantity per Carton
			Low	High	Low cfm	High cfm			
25-30	EA-30C8	12 x 24 x 8	600	1000	.10	.20	14.5	15	20
	EA-30K8	16 x 20 x 8	750	1250	.10	.20	15.8	12	10
	EA-30D8	20 x 20 x 8	900	1500	.10	.20	19.8	14	10
	EA-30H8	20 x 25 x 8	950	1750	.10	.20	25.6	19	10
	EA-30A8	24 x 24 x 8	1000	2000	.10	.20	29.0	18	10
	EA-30C12	12 x 24 x 12	800	1200	.10	.20	21.0	25	20
EA-30A12	24 x 24 x 12	1500	2500	.10	.20	42.0	26	10	
50-55	EA-55C8	12 x 24 x 8	550	800	.12	.30	14.5	11	10
	EA-55K8	16 x 20 x 8	600	1000	.12	.30	15.8	7	5
	EA-55D8	20 x 20 x 8	700	1100	.12	.30	19.8	8	5
	EA-55H8	20 x 25 x 8	800	1250	.12	.30	25.6	10	5
	EA-55A8	24 x 24 x 8	900	1500	.12	.30	29.0	11	5
	EA-55C12	12 x 24 x 12	600	1000	.12	.30	21.0	15	10
EA-55A12	24 x 24 x 12	1000	2000	.12	.30	42.0	14	5	
80-85	EA-85C8	12 x 24 x 8	400	600	.25	.45	14.5	10	10
	EA-85K8	16 x 20 x 8	400	700	.25	.45	15.8	6	5
	EA-85D8	20 x 20 x 8	400	800	.25	.45	19.8	7	5
	EA-85H8	20 x 25 x 8	500	1000	.25	.45	25.6	9	5
	EA-85A8	24 x 24 x 8	600	1200	.25	.45	29.0	10	5
	EA-85C12	12 x 24 x 12	600	1000	.25	.45	21.0	14	10
EA-85A12	24 x 24 x 12	1000	2000	.25	.45	42.0	14	5	
90-95	EA-95C8	12 x 24 x 8	350	500	.30	.55	14.5	10	10
	EA-95K8	16 x 20 x 8	400	600	.30	.55	15.8	6	5
	EA-95D8	20 x 20 x 8	400	800	.30	.55	19.8	8	5
	EA-95H8	20 x 25 x 8	450	850	.30	.55	25.6	10	5
	EA-95A8	24 x 24 x 8	500	1000	.30	.55	29.0	11	5
	EA-95C12	12 x 24 x 12	450	750	.30	.55	21.0	14	10
EA-95A12	24 x 24 x 12	900	1500	.30	.55	42.0	14	5	

1. Efficiency is average when tested per ASHRAE Standard 52.1 methods.
2. Listed pressure drop is for a clean filter. Recommended final pressure drop is 1.0 inch w.g. for all models.
3. Performance tolerances conform to Section 7.4 of ARI Standard 850.
4. Special sizes are not available.
5. EA cartridge hardware is not available.
6. Performance values stated may be averages typical of the products listed. Contact factory for actual performance test reports on specific products.

## Guide Specifications

### 1.0 General

- 1.1 Filters shall be Model EA Series replacement filters as manufactured by Flanders.
- 1.2 Filters shall be UL 900 Class 2 listed.

### 2.0 Filter Construction

- 2.1 Filters with an efficiency of 25%-30% shall be constructed of a non-woven cotton and synthetic blend bonded to 1/16" thick moisture-resistant fiberboard panels.

- 2.2 Filters with an efficiency of 50-55% , 80-85% and 90-95% shall be constructed of lofted synthetic media with moisture-resistant fiberboard panels.

### 3.0 Performance

- 3.1 The manufacturer shall guarantee performance as stated in its literature within tolerances as outlined in Section 7.4 ARI Standard 850.

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## Extended Surface Bag Filters

Synthetic Class 1: PAPxx\*\*Sxxxxx1 Synthetic Class 2: PAPxx\*\*Sxxxx  
Glass Class 1: PAPxx\*\*Gxxxxx1 Glass Class 2: PAPxx\*\*Gxxxx  
(\* insert 50, 65, 85 or 95 for ASHRAE efficiency)

### General

Precision Pak extended surface bag filters are designed for use in most commercial or industrial HVAC systems where medium to high efficiency filtration is required. Precision Pak filters are available in two media types: lofted fiberglass and micro-fine synthetic media with average efficiency ranges of 55%, 65%, 85%, and 95% per ASHRAE Standard 52.1 test methods. Operating face velocities up to 625 fpm are available for all models. Precision Pak filters in depths up to 22" are suited for variable air volume systems. Filters with greater depth are not recommended.

Precision Pak filters are UL 900 Class 2 listed as a standard and are also available in UL Class 1.

### Installation Considerations

Precision Pak bag filters may be installed in Flanders Type 9 Holding Frames, K-Trac Filter Framing Modules, Sureseal Side Access Housings, or in similar existing hardware.

Type 9 Holding Frames are riveted together to form a bank and may be installed for upstream or downstream service. K-Trac Filter Framing Modules are especially suitable for medium to large built-up filter banks. Smaller systems and systems with minimum upstream access space are best served using Sureseal Side Access Housings.

### Physical Data

Media: Lofted fiberglass or micro-fine synthetic

Media Backer: Non-woven polyester

Pocket Sealant: Thermoplastic resin

Pocket Retainer: 26 ga. corrosion-resistant steel

Header: 11/26" wide 26 ga. corrosion-resistant steel

Operating Limits: 100% RH and 190° F

Actual Header Face Size: Nominal size less 5/8" (e.g., a nominal 24" x 24" filter header is actually 23-3/8" x 23-3/8")

### Important Features

- Low initial pressure drop provides longer life.
- Adjustable-width stitched pockets provide aerodynamics for optimal inflation.
- Wide range of cartridge depths, efficiencies and operating capacities are available.
- Edges have an overlock stitch.
- Available in lofted fiberglass or synthetic media.
- 100% stake-through pocket retainers
- UL 900 Class 1 or 2 available



85% Synthetic Media										
Nominal Depth (inch)	Number of Pockets	Nom. Width (inch)	Nom. Height (inch)	Media Area (sq. ft)	375 fpm		500 fpm		625 fpm	
					cfm	PD	cfm	PD	cfm	PD
15	12	24	24	65	1500	0.30	2000	0.44	2500	0.59
15	6	12	24	33	750	0.30	1000	0.44	1250	0.59
22	6	24	24	48	1500	0.32	2000	0.47	2500	0.63
22	3	12	24	24	750	0.32	1000	0.47	1250	0.63
22	8	24	24	64	1500	0.24	2000	0.36	2500	0.51
22	4	12	24	32	750	0.24	1000	0.36	1250	0.51
22	10	24	24	79	1500	0.22	2000	0.34	2500	0.48
22	5	12	24	40	750	0.22	1000	0.34	1250	0.48
30	6	24	24	65	1500	0.30	2000	0.42	2500	0.57
30	3	12	24	33	750	0.30	1000	0.42	1250	0.57
30	8	24	24	87	1500	0.22	2000	0.33	2500	0.46
30	4	12	24	43	750	0.22	1000	0.33	1250	0.46
30	10	24	24	108	1500	0.20	2000	0.31	2500	0.43
30	5	12	24	54	750	0.20	1000	0.31	1250	0.43
36	6	24	24	78	1500	0.27	2000	0.38	2500	0.51
36	3	12	24	39	750	0.27	1000	0.38	1250	0.51
36	8	24	24	104	1500	0.20	2000	0.30	2500	0.41
36	4	12	24	52	750	0.20	1000	0.30	1250	0.41
95% Synthetic Media										
Nominal Depth (inch)	Number of Pockets	Nom. Width (inch)	Nom. Height (inch)	Media Area (sq. ft)	375 fpm		500 fpm		625 fpm	
					cfm	PD	cfm	PD	cfm	PD
15	12	24	24	65	1500	0.40	2000	0.55	2500	0.75
15	6	12	24	33	750	0.40	1000	0.55	1250	0.75
22	6	24	24	48	1500	0.42	2000	0.60	2500	0.79
22	3	12	24	24	750	0.42	1000	0.60	1250	0.79
22	8	24	24	64	1500	0.36	2000	0.51	2500	0.67
22	4	12	24	32	750	0.36	1000	0.51	1250	0.67
22	10	24	24	79	1500	0.34	2000	0.48	2500	0.64
22	5	12	24	40	750	0.34	1000	0.48	1250	0.64
30	6	24	24	65	1500	0.36	2000	0.52	2500	0.73
30	3	12	24	33	750	0.36	1000	0.52	1250	0.73
30	8	24	24	87	1500	0.25	2000	0.37	2500	0.52
30	4	12	24	43	750	0.25	1000	0.37	1250	0.52
30	10	24	24	108	1500	0.24	2000	0.35	2500	0.49
30	5	12	24	54	750	0.24	1000	0.35	1250	0.49
36	6	24	24	78	1500	0.32	2000	0.47	2500	0.66
36	3	12	24	39	750	0.32	1000	0.47	1250	0.66
36	8	24	24	104	1500	0.23	2000	0.33	2500	0.47
36	4	12	24	52	750	0.23	1000	0.33	1250	0.47

Performance values stated may be averages typical of the products listed. Contact factory for actual performance test reports on specific products.

#### How to Select a Precision Pak Filter

- Determine the ASHRAE efficiency desired.
- Determine the face velocity needed to fit the system
- Select the shortest depth possible with a pressure drop that is acceptable
- Select the most economical filter based on the number of pockets per 24" x 24" size.



**CAPACITIES AND DIMENSIONS**

55% Synthetic Media										
Nominal Depth (inch)	Number of Pockets	Nom. Width (inch)	Nom. Height (inch)	Media Area (sq. ft)	375 fpm		500 fpm		625 fpm	
					cfm	PD	cfm	PD	cfm	PD
15	12	24	24	65	1500	0.18	2000	0.28	2500	0.35
15	6	12	24	33	750	0.18	1000	0.28	1250	0.35
22	6	24	24	48	1500	0.19	2000	0.30	2500	0.37
22	3	12	24	24	750	0.19	1000	0.30	1250	0.37
22	8	24	24	64	1500	0.16	2000	0.25	2500	0.33
22	4	12	24	32	750	0.16	1000	0.25	1250	0.33
22	10	24	24	79	1500	0.15	2000	0.24	2500	0.31
22	5	12	24	40	750	0.15	1000	0.24	1250	0.31
30	6	24	24	65	1500	0.16	2000	0.26	2500	0.35
30	3	12	24	33	750	0.16	1000	0.26	1250	0.35
30	8	24	24	87	1500	0.14	2000	0.21	2500	0.31
30	4	12	24	43	750	0.14	1000	0.21	1250	0.31
30	10	24	24	108	1500	0.14	2000	0.20	2500	0.29
30	5	12	24	54	750	0.14	1000	0.20	1250	0.29
36	6	24	24	78	1500	0.15	2000	0.24	2500	0.32
36	3	12	24	39	750	0.15	1000	0.24	1250	0.32
36	8	24	24	104	1500	0.14	2000	0.20	2500	0.29
36	4	12	24	52	750	0.14	1000	0.20	1250	0.29

65% Synthetic Media										
Nominal Depth (inch)	Number of Pockets	Nom. Width (inch)	Nom. Height (inch)	Media Area (sq. ft)	375 fpm		500 fpm		625 fpm	
					cfm	PD	cfm	PD	cfm	PD
15	12	24	24	65	1500	0.18	2000	0.28	2500	0.39
15	6	12	24	33	750	0.18	1000	0.28	1250	0.39
22	6	24	24	48	1500	0.19	2000	0.30	2500	0.41
22	3	12	24	24	750	0.19	1000	0.30	1250	0.41
22	8	24	24	64	1500	0.16	2000	0.25	2500	0.37
22	4	12	24	32	750	0.16	1000	0.25	1250	0.37
22	10	24	24	79	1500	0.15	2000	0.24	2500	0.34
22	5	12	24	40	750	0.15	1000	0.24	1250	0.34
30	6	24	24	65	1500	0.18	2000	0.29	2500	0.39
30	3	12	24	33	750	0.18	1000	0.29	1250	0.39
30	8	24	24	87	1500	0.15	2000	0.23	2500	0.34
30	4	12	24	43	750	0.15	1000	0.23	1250	0.34
30	10	24	24	108	1500	0.14	2000	0.22	2500	0.32
30	5	12	24	54	750	0.14	1000	0.22	1250	0.32
36	6	24	24	78	1500	0.18	2000	0.26	2500	0.36
36	3	12	24	39	750	0.18	1000	0.26	1250	0.36
36	8	24	24	104	1500	0.14	2000	0.22	2500	0.31
36	4	12	24	52	750	0.14	1000	0.22	1250	0.31

Notes:

1. PD represents clean pressure drop in inches w.g. for synthetic media filters. Add 10% for fiberglass media Precision Pak.
2. The recommended final pressure drop for all models is 1.0 inch w.g.
3. Gross media area is approximately 7% more than the net area listed.
4. Performance values stated may be averages typical of the products listed. Contact factory for actual performance test reports on specific products.

## Application Guidelines

Precision Pak filters should be selected using 24" x 12" face sizes. This allows for 12" increments in height and width of the filter bank and insures that replacement filters will be readily available.

Precision Pak filters should be installed with pockets vertical wherever possible. It is acceptable to install 24" x 12" face size filters with pockets horizontal if necessary to meet the size requirements of the filter banks.

## Gasketed Headers

Precision Pak filters installed in Flanders K-Trac Filter Framing Modules or Sureseal Side Access

Housings require polyfoamgaskets on opposite header sides to prevent air bypass. To specify Precision Pak filters with gasketed headers, add suffix "S" or "H" to the model number.

## Prefilters

Properly selected bag filters without prefilters will generally require changeout annually in typical HVAC applications. Because of the frequent maintenance expense and increase in fan kW input using prefilters, they are often recommended with 85% and 95% efficient Precision Pak final filters. However, the energy cost to operate a prefilter seldom warrants their use with 55% or 65% filters.

## Guide Specifications

### 1.0 General

- 1.1 Medium and high efficiency self-supporting filters shall be Precision Pak extended surface type as manufactured by Flanders.
- 1.2 Filter sizes, efficiencies and capacities shall be as scheduled on the drawings.

### 2.0 Filter Construction

- 2.1 Filters shall be constructed of lofted fiberglass or micro-fine synthetic media encased in a thin non-woven polyester backer mat.
- 2.2 Open area on the filter face for air passage shall be not less than 90%.
- 2.3 Flexible internal support stitching shall maintain individual pockets in a controlled form under all rated air flow conditions. Stitchings shall be sealed with thermoplastic sealant. Edges shall be finished with overlock stitch to prevent air unravelling.

- 2.4 Pockets shall be 100% stake-through crimped to prevent media pull-out
- 2.5 Pockets shall be bonded to corrosion-resistant steel casings and assembled into a corrosion-resistant steel header.
- 2.6 Filters shall be UL 900 Class 2 or Class 1 listed.

### 3.0 Performance

- 3.1 Initial and final resistances shall not exceed the scheduled values.
- 3.2 Media area must equal or exceed that of the specified filter.
- 3.3 The average efficiency shall be as determined by the ASHRAE Standard 52.1 test methods.
- 3.4 The manufacturer shall guarantee performance as stated in its literature within tolerances as outlined in Section 7.4 of ARI Standard 850.

*High Dust Holding Capacity  
Extended Surface Bag Filter*

*Models XDHxx\*\*Sxxxx  
(\*\* insert 50, 65, 85 or 95 for ASHRAE efficiency)*

## General

Precision Pak XDH high dust holding capacity extended surface bag filters are designed for use in most commercial or industrial HVAC systems where medium to high efficiency filtration is required. Precision Pak XDH filters are available in micro-fine polyolefin synthetic media with average efficiency ranges of 75%, 85% and 95% per ASHRAE Standard 52.1 test methods. Operating face velocities up to 625 fpm are available for all models. Precision Pak XDH filters in depths of 12" and 22" are suited for variable air volume systems. Filters with greater depth are not recommended. Precision Pak XDH filters are UL 900 Class 2 listed.

## Kimberly-Clark Media

Precision Pak XDH bag filters use Kimberly-Clark brand polyolefin synthetic media. The media is thermally bonded without binders and consists of non-woven continuous hydrophobic (water repellent) fibers that resist water and most chemicals. In addition, the media is gradient density, dual stage and electrostatically enhanced for extra high dust holding (XDH) capability. Further, the media is

non-shedding and performs exceptionally well in high velocity and turbulent applications.

## Extra High Dust Holding

A typical XDH bag filter was tested for ASHRAE synthetic dust holding capacity against similar filters with fiberglass and meltblown synthetic media. Results showed that the XDH filter held approximately 110% more dust by weight than the others when run to the same final resistance. This characteristic makes it an excellent choice for very dusty areas and for those systems where long service life and reduced maintenance are key concerns.

## Physical Data

Media: Kimberly-Clark INTREPID™

Media Backer: Non-woven polyester

Pleat Sealant: Thermoplastic resin

Pleat Retainer: 26 ga. galvanized steel

Header: 7/8" wide 26 ga. galvanized steel

Operating Limits: 100% RH and 190° F

Actual Header Face Size: Nominal size less 5/8" (e.g., a nominal 24" x 24" filter header is actually 23-3/8" x 23-3/8")

## Important Features

- INTREPID™ by Kimberly-Clark
- Extra high dust holding capacity
- Dual stage gradient density electrostatic media
- Low initial pressure drop provides long life
- Wide range of depths and face sizes
- Linear stitching for optimum pocket form
- Three ASHRAE efficiencies: 75%, 85% and 95%



85% XDH Synthetic Media Filters										
Nominal Depth (inch)	Number of Pockets	Nom. Width (inch)	Nom. Height (inch)	Media Area (sq. ft)	375 fpm		500 fpm		625 fpm	
					cfm	pd	cfm	pd	cfm	pd
12	12	24	24	52	1500	0.26	2000	0.36	2500	0.58
12	6	12	24	26	750	0.26	1000	0.36	1250	0.58
22	6	24	24	48	1500	0.24	2000	0.34	2500	0.46
22	3	12	24	24	750	0.24	1000	0.34	1250	0.46
22	8	24	24	64	1500	0.21	2000	0.30	2500	0.40
22	4	12	24	32	750	0.21	1000	0.30	1250	0.40
22	10	24	24	79	1500	0.20	2000	0.28	2500	0.38
22	5	12	24	40	750	0.20	1000	0.28	1250	0.38
26	6	24	24	56	1500	0.23	2000	0.33	2500	0.44
26	3	12	24	28	750	0.23	1000	0.33	1250	0.44
26	8	24	24	75	1500	0.20	2000	0.29	2500	0.39
26	4	12	24	38	750	0.20	1000	0.29	1250	0.39
26	10	24	24	94	1500	0.17	2000	0.26	2500	0.36
26	5	12	24	47	750	0.17	1000	0.26	1250	0.36
30	6	24	24	65	1500	0.22	2000	0.32	2500	0.42
30	3	12	24	33	750	0.22	1000	0.32	1250	0.42
30	8	24	24	87	1500	0.18	2000	0.28	2500	0.38
30	4	12	24	43	750	0.18	1000	0.28	1250	0.38
30	10	24	24	108	1500	0.14	2000	0.24	2500	0.34
30	5	12	24	54	750	0.14	1000	0.24	1250	0.34

95% XDH Synthetic Media Filters										
Nominal Depth (inch)	Number of Pockets	Nom. Width (inch)	Nom. Height (inch)	Media Area (sq. ft)	375 fpm		500 fpm		625 fpm	
					cfm	pd	cfm	pd	cfm	pd
12	12	24	24	52	1500	0.40	2000	0.58	2500	0.74
12	6	12	24	26	750	0.40	1000	0.58	1250	0.74
22	6	24	24	48	1500	0.34	2000	0.46	2500	0.62
22	3	12	24	24	750	0.34	1000	0.46	1250	0.62
22	8	24	24	64	1500	0.30	2000	0.42	2500	0.56
22	4	12	24	32	750	0.30	1000	0.42	1250	0.56
22	10	24	24	79	1500	0.26	2000	0.38	2500	0.50
22	5	12	24	40	750	0.26	1000	0.38	1250	0.50
26	6	24	24	56	1500	0.30	2000	0.42	2500	0.56
26	3	12	24	28	750	0.30	1000	0.42	1250	0.56
26	8	24	24	75	1500	0.27	2000	0.38	2500	0.52
26	4	12	24	38	750	0.27	1000	0.38	1250	0.52
26	10	24	24	94	1500	0.24	2000	0.35	2500	0.47
26	5	12	24	47	750	0.24	1000	0.35	1250	0.47
30	6	24	24	65	1500	0.26	2000	0.38	2500	0.50
30	3	12	24	33	750	0.26	1000	0.38	1250	0.50
30	8	24	24	87	1500	0.24	2000	0.34	2500	0.46
30	4	12	24	43	750	0.24	1000	0.34	1250	0.46
30	10	24	24	108	1500	0.22	2000	0.32	2500	0.44
30	5	12	24	54	750	0.22	1000	0.32	1250	0.44

Performance values stated may be averages typical of the products listed. Contact factory for actual performance test reports on specific products.

**How to Select a Precision Pak XDH Filter:**

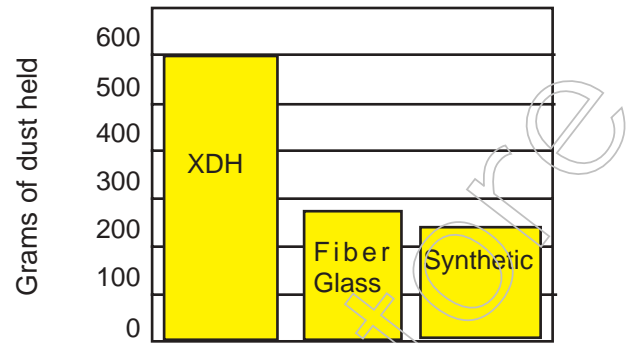
- Determine the ASHRAE efficiency desired.
- Determine the face velocity needed to fit the system.
- Select the shortest depth possible with a pressure drop that is acceptable.
- Select the most economical filter based on the number of pockets per 24" x 24" size.



## Installation Considerations

Precision Pak bag filters may be installed in Flanders Type 9 Holding Frames, K-Trac Filter Framing Modules, Sureseal Side Access Housing or in similar existing hardware.

Type 9 Holding Frames are riveted together to form a bank and may be installed for upstream or downstream service. K-Trac Filter Framing Modules are especially suitable for medium to large built-up filter banks. Smaller systems and systems with minimum upstream access space are best served using Sureseal Side Access Housings.



Comparison of XDH to fiberglass and synthetic filters with the same media content.

## Performance Data

75% XDH Synthetic Media Filters										
Nominal Depth (inch)	Number of Pockets	Nom. Width (inch)	Nom Height (inch)	Media Area (sq. ft)	375 fpm		500 fpm		625 fpm	
					cfm	PD	cfm	PD	cfm	PD
12	12	24	24	52	1500	0.25	2000	0.34	2000	0.56
	6	12	24	26	750	0.25	1000	0.34	1250	0.56
22	6	24	24	48	1500	0.23	2000	0.32	2000	0.44
	3	12	24	24	750	0.23	1000	0.32	1250	0.44
22	8	24	24	64	1500	0.20	2000	0.28	2000	0.38
	4	12	24	32	750	0.20	1000	0.28	1250	0.38
22	10	24	24	79	1500	0.19	2000	0.26	2000	0.36
	5	12	24	40	750	0.19	1000	0.26	1250	0.36
26	6	24	24	56	1500	0.22	2000	0.31	2000	0.42
	3	12	24	28	750	0.22	1000	0.31	1250	0.42
26	8	24	24	75	1500	0.19	2000	0.27	2000	0.37
	4	12	24	38	750	0.19	1000	0.27	1250	0.37
26	10	24	24	94	1500	0.16	2000	0.24	2000	0.34
	5	12	24	47	750	0.16	1000	0.24	1250	0.34
30	6	24	24	65	1500	0.21	2000	0.30	2000	0.40
	3	12	24	33	750	0.21	1000	0.30	1250	0.40
30	8	24	24	87	1500	0.17	2000	0.26	2000	0.36
	4	12	24	43	750	0.17	1000	0.26	1250	0.36
30	10	24	24	108	1500	0.13	2000	0.22	2000	0.32
	5	12	24	54	750	0.13	1000	0.22	1250	0.32

1. PD represents clean pressure drop in inches w.g.
2. The recommended final pressure drop for all models is 1.0 inch w.g.
3. Filters in all standard depths may be operated down to zero air flow on VAV systems.
4. Gross media area is approximately 7% more than the net media area listed.
5. Performance values stated may be averages typical of the products listed. Contact factory for actual performance test reports on specific products.

## Application Guidelines

Precision Pak XDH filters should be selected using 24" x 12" and 24" x 24" face sizes. This allows for 12" increments in height and width of the filter bank and insures that replacement filters will be readily available.

Precision Pak XDH filters should be installed with pockets vertical wherever possible. It is acceptable to install 24" x 12" face size filters with pockets horizontal if necessary to meet the size requirements of the filter banks.

## VAV Systems

VAV systems can be designed using the full range depth of Precision Pak XDH filters. Filter banks should be sized so that the maximum rated flow at design conditions falls within the published recommended velocities. Precision Pak XDH filters in all standard depths can be applied at any capacity between zero flow and catalog-rated capacities.

## Gasketed Headers

Precision Pak XDH filters installed in Flanders K-Trac Filter Framing Modules or Sureseal Side Access Housings require polyfoam gaskets on opposite header sides to prevent air bypass.

To specify Precision Pak XDH filters with gasketed headers, add suffix "S" or "H" to the model number. Use "S" gaskets on the sides parallel to the pockets and "H" for gaskets on sides perpendicular to the pockets.

## Prefilters

Properly selected bag filters without prefilters will generally require changeout annually in typical HVAC applications. Because of the frequent maintenance expense and increase in fan kW input using prefilters, they are seldom recommended on lower efficiency final filters. However, prefilters are often used on 85% and 95% efficiency applications.

## Guide Specifications

### 1.0 General

- 1.1 Medium and high efficiency self-supporting filters shall be Precision Pak XDH extended surface type as manufactured by Flanders.
- 1.2 Filter sizes, efficiencies and capacities shall be as scheduled on the drawings.

### 2.0 Filter Construction

- 2.1 Filters shall be constructed of polyolefin micro-fine synthetic media encased in a thin non-woven polyester backer mat.
- 2.2 Open area on the filter face for air passage shall be not less than 90%.
- 2.3 Flexible internal support stitching shall maintain individual pockets in a controlled form under all rated air flow conditions. Stitching shall be sealed with thermoplastic resin. Edges shall be finished with a four-thread overlock stitch to prevent air bypass.

- 2.4 Pockets shall be bonded to galvanized steel casings and assembled into a galvanized steel header with reverse-hemmed edges for safety.
- 2.5 Headers shall be gasketed with polyfoam on vertical sides to prevent leakage when installed in framing modules or Side Access Housings.
- 2.6 Filters shall be UL 900 Class 2 listed.

### 3.0 Performance

- 3.1 Initial and final resistances shall not exceed the scheduled values.
- 3.2 Media area must equal or exceed that of the specified filter.
- 3.3 The average efficiency shall be as determined by the ASHRAE Standard 52.1 test methods.
- 3.4 The manufacturer shall guarantee performance as stated in its literature within tolerances as outlined in Section 7.4 of ARI Standard 850.

**Moisture/Oil Mist Separators**

MS Models: MS-xxxxx  
MSG Models: MSG-xxxxx

**General**

Flanders models MS and MSG Moisture Separators are designed for use in air handling systems requiring collection of water droplets or oil mist. Water droplets in outside air are usually fog. In supply air, water droplets may occur as carry over from cooling coils and evaporative media or unevaporated moisture downstream of humidifiers. Oil mist in return air is most often found in production machine shops.

**Application**

The optimum face velocity for MS and MSG Moisture Separators is 500 fpm, and at this point they are 98% efficient on 20 micrometer liquid droplets. Performance is relatively unchanged in the recommended range of 450 fpm to 550 fpm. Above 550 fpm captured liquid may be re-entrained in the airstream.

The system designer must recognize that moisture separators will also act as low efficiency particulate prefilters and that the separator bank pressure drop will increase over time. System static pressure calculations for fan selection should include an allowance of at least 0.50 inch w.g. final static pressure for dirty wet moisture separators.

Models MS and MSG Moisture Separators are meant to be installed with their pleats vertical so that collected liquid will drain easily to the bottom of the frame and out through five 3/8" diameter holes. The top of the frame has an arrow to guide the installer as to the proper air flow direction and position for proper drainage

**Installation Considerations**

In a mixed air (outside air/return air) system, place the Moisture Separators in the outside air duct if possible. Otherwise, place them as the first filtration stage ahead of the particulate filters.

Moisture Separators may be installed in built-up banks using Flanders Type 9 Holding Frames or in Flanders Side Access Housings specially equipped with drain tubes. When built-up banks are used, field-fabricated water drain pans should be installed between each horizontal row of frames.

For banks four or five separators wide, locate 3/4" I.D. downspouts at each end. For banks six separators wide or wider, locate downspouts at each end and proportionately along the width of the bank, one for every six separators or a fraction thereof. Example: a six separator wide bank would have downspouts at both ends and one in the middle; an eight separator wide bank would have downspouts at both ends and two more proportionately spaced along the width of the bank. If not individually trapped, the downspouts should be manifolded to a 1" I.D. or larger collector with a trap of a depth exceeding the negative pressure expected in the plenum where the separator bank is located.

Sureseal two-stage Side Access Housings may be special-ordered with the 2" tracks fitted with drain tubes to hold both Moisture Separators and particulate final filters. If the 2" tracks are to be used for 2" prefilters, a Surepleat single-stage Side Access Housing with drain tube should be selected and located upstream of the particulate filter housing.

**Important Features**

- Efficiency of 98% on 20 micrometer liquid droplets at 500 fpm
- Corrosion-resistant construction
- Nominal 2" thick for application flexibility
- Models for both built-up banks and side access housings



## Construction

Moisture separators are constructed much like permanent metal washable filters. The nominal two inch thick media pack consists of 15 individual layers of pleated and flat aluminum wire mesh.

Air entering and exiting support grids are expanded metal, and the media enclosing frame is 16 ga. galvanized steel with five 3/8" diameter holes in the bottom for drainage.

### Performance Data Capacities and Dimensions

Model Number			Recommended Range of Face Velocities (FPM)										
For Built-up Banks	For Side Access Housings (Note 1)	Nominal Size HxWxD inches (Note 2)	375		450		500		550		625		Weight Each (lbs)
MS24242	MSG-24242	24x24x2	1500	.14	1800	.20	2000	.22	2200	.28	2500	.34	15
MS-12242	MSG-12242	12x24x2	750	.14	900	.20	1000	.22	1100	.28	1250	.34	9
MS-24122	MSG-24122	24x12x2	750	.14	900	.20	1000	.22	1100	.28	1250	.34	9

#### Notes

1. Model MSG separators for use in side access housings with drain tube option are furnished with neoprene gaskets on vertical sides to prevent moisture bypass.
2. Actual separator size is 5/8" under on both height and width. Actual depth is 1-7/8"
3. For maximum capture of liquid droplets, operate separators in the 500 fpm + 10% range.
4. Pd= Pressure Drop, in w.g.
5. Special sizes are available. Contact your local representative or the factory.
6. Performance values stated may be averages typical of the products listed. Contact factory for actual performance test reports on specific products.

### Guide Specifications

#### 1.0 General

- 1.1 Moisture separators shall be Models MS or MSG as manufactured by Flanders.
- 1.2 Separator sizes and capacities shall be as scheduled on the drawings.

#### 2.0 Filter Construction

- 2.1 Enclosing frame shall be nominal 2" thick 16 ga. galvanized steel with five 3/8" drain holes in the bottom.
- 2.2 The media pack shall consist of 15 individual layers of pleated and flat aluminum wire mesh.
- 2.3 The face grids on the entry and exit sides shall be expanded metal.
- 2.4 Arrow on top of frame shall indicate placement of separator as to air flow and drainage position.
- 2.5 Model MSG separators for use in side access housings with drain tube option shall have neoprene gaskets on vertical frame sides to prevent liquid by-pass.

#### 3.0 Performance

- 3.1 Separators shall have a minimum efficiency of 98% on 20 micrometer water or oil droplets when operated at 500 fpm gross face velocity.
- 3.2 Initial resistance shall not exceed the scheduled values.

#### 4.0 Installation

- 4.1 The installing contractor shall construct filter banks or provide housings with drain tubes in accordance with the separator manufacturer's recommendations.
- 4.2 Drain tubes and/or drain manifold shall be trapped before running the piping to an open drain.



**Washable Permanent Filters**

Galvanized frame: 50055.xxxxxx

Aluminum Frame: 51255.xxxxxx

**General**

Flanders Model KKM is a heavy duty, washable, aluminum media, all metal filter. KKM is suitable for all residential and commercial applications.

The KKM offers large filtering area, high dust holding capacity, uniform loading and low resistance to air flow. It is recommended that the filter media be coated with dust adhesive for optimum performance.

**Construction**

The KKM filter has a rugged galvanized steel frame that encloses the bonded expanded aluminum mesh media. The corners are mitered and the frame is secured with pop rivet(s). The KKM has drain holes in three corners.

The bonded aluminum media is slit and expanded to several different size openings. This design allows contaminants to be trapped throughout the entire filter depth and not just at the surface. The media is retained within the frame by expanded galvanized steel.

An all-aluminum version of the KKM is also offered, which has an aluminum frame and is constructed with expanded aluminum retainers.

The standard offering of KKM filters includes six of the most popular face sizes in 1" and 2" depths. Special face sizes and 1/2" depth filters are also available. For ease of installation, all filters are undercut slightly on length, width and depth.

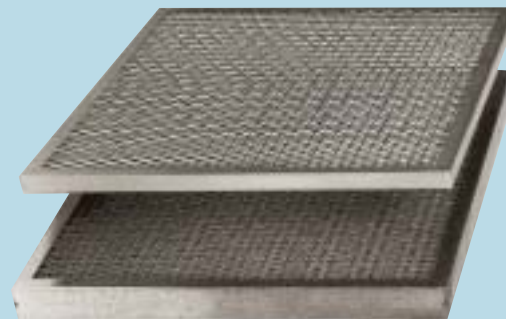
**Filter Coating and Cleaning**

The KKM performs best as an impingement type filter. Optimum performance requires use of a dust adhesive on the media. Flanders offers Filter Boost.

Wash with a mild detergent and rinse to remove collected dust.

**Features**

- Heavy duty, steel frame construction
- Expanded steel retainers
- Bonded expanded aluminum media
- All aluminum version available
- Washable and reusable
- Standard and special sizes are available



## Standard KKM with Steel Frame

Nominal Size H x W x D	Actual Size H x W x D	Quantity per Carton	Carton Weight (lbs)
10 x 20 x 1	9-3/4 x 19-3/4 x 7/8	1	1.7
15 x 20 x 1	14-3/4 x 19-3/4 x 7/8	1	2.5
16 x 20 x 1	15-5/8 x 19-5/8 x 7/8	1	2.7
16 x 25 x 1	15-5/8 x 24-5/8 x 7/8	1	3.3
20 x 20 x 1	19-5/8 x 19-5/8 x 7/8	1	3.3
20 x 25 x 1	19-5/8 x 24-5/8 x 7/8	1	4.0
10 x 20 x 2	9-3/4 x 19-3/4 x 1-7/8	1	2.4
16 x 20 x 2	15-5/8 x 19-5/8 x 1-7/8	1	3.9
16 x 25 x 2	15-5/8 x 24-5/8 x 1-7/8	1	4.2
20 x 20 x 2	19-5/8 x 19-5/8 x 1-7/8	1	4.8
20 x 25 x 2	19-5/8 x 24-5/8 x 1-7/8	1	4.8
24 x 24 x 2	23-5/8 x 23-5/8 x 1-7/8	1	5.8

## Guide Specifications

### 1.0 General

1.1 Washable air filters shall be KKM Air Filters as supplied by Flanders.

### 2.0 Filter Construction

2.1 Frame shall be galvanized steel with mitered corners and secured with pop rivet(s).  
Frame shall have drain holes in three corners.

2.2 Washable filter media shall be multiple layers of slit and expanded aluminum bonded together.

2.3 Media retainer shall be expanded, galvanized steel.

**Flanders - Foremost in Air Filtration**

Corporate Headquarters, St. Petersburg, FL

## General

Flanders Alpha 95 Filters are designed for use in HVAC applications requiring cleaner air than is possible with ASHRAE - rated filters, but where HEPA - filtered air is not required. The filters are rated at 95% efficiency on 0.30 micrometer particles by the DOP test method. The Alpha 95 filter is approximately 99% efficient by the ASHRAE 52.1 dust spot test methods. However, it is not rated by these methods because the standard applies to filters no greater than 98% efficient.

Alpha 95 Filters are 97% efficient on nebulized staphylococcus aerosols and are used to remove biological contaminants. Alpha 95 Filters are identical in design and construction to the Alpha Cell HEPA Filters except that the media is 95% efficient on 0.30 micrometer particles.

## Installation Considerations

Alpha 95 Filters should be installed in Flanders leak tight Alpha HEPA frames or Surelock Side Access HEPA Housings on the positive-pressure side of the system fan to prevent air bypass. Sureaire diffuser sections, air mixing baffles or long transitions should be used if the bank is close to the fan.

Installation of Flanders 80-85% ASHRAE efficiency prefilters upstream of the fan is recommended to ensure economical Alpha 95 Filter life.

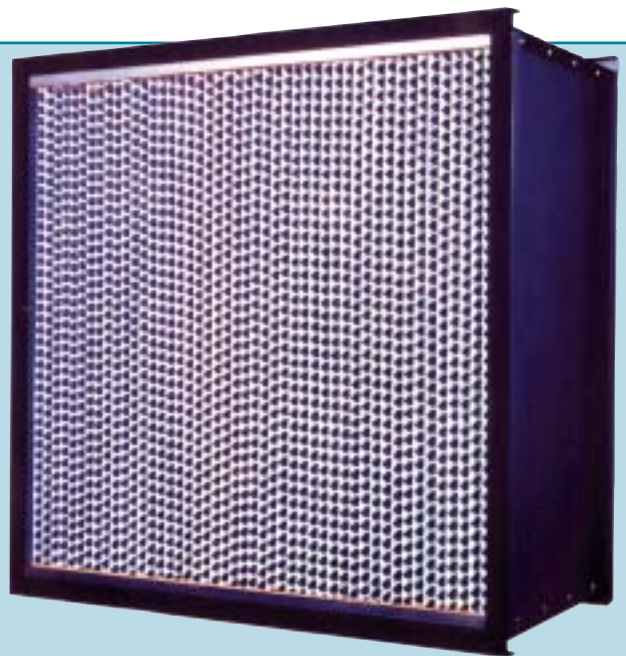
Standard Alpha 95 Filters have 1.7 times the cfm capacity of standard Alpha Cell 99.97% DOP HEPA Filters at the same clean pressure drop. They are normally rated at 500 fpm so that filter banks with 95% DOP filters can be sized the same as ASHRAE-rated filter banks.

Typical applications for Alpha 95 Filters include:

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

## Important Features

- Minimum efficiency is 95% on 0.30 micrometer particles.
- Manufactured in a variety of wood and metal frame types.
- Available with a media pack with aluminum separators or with a separatorless pack.
- Available in a variety of sizes with either a gasket seal or gel seal.



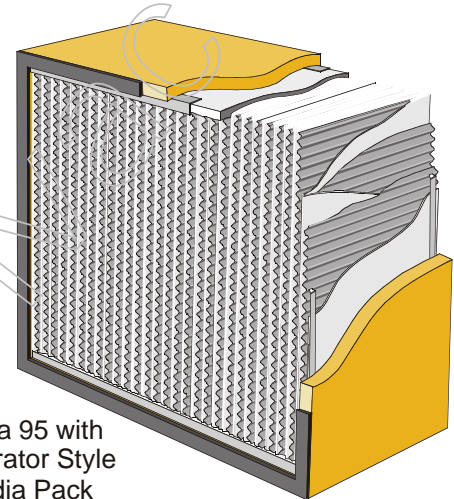
Alpha 95 Filter Dimensions and Capacities						
Filter Depth (inches)	Filter Size and Frame Depth Designator	Actual Face Size (Inches)	CFM Capacity at Clean Pressure Drop, Inches w.g.			Weight (lbs)
			.90	1.45	1.90	
11-1/2	GG-F	24x24	1375	2000	2560	38
	GC-F	24x12	650	920	1180	26
	YY-F	23-3/8x23-3/8	1350	1900	2450	37
	YUF	23-3/8x11-3/8	610	865	1150	25
	GN-F	24x30	1750	2550	3250	45
	CC-F	12x12	290	430	550	14

## Construction

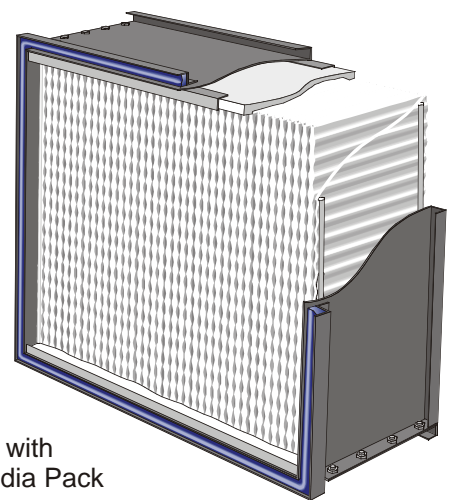
Flanders manufactures both conventional Separator Style and Pureform Separatorless 95 DOP Filters. To make a Separator Style filter, the media is folded over corrugated aluminum separators with hemmed edges to separate the pleats in the filter pack. Flanders manufactures its own filter media, enabling it to develop a unique manufacturing process for the production of Pureform Separatorless 95 DOP Filters. In one manufacturing operation, Flanders produces a self-supporting and self-separating Pureform Media Pack.

The Pureform Filter offers many advantages over conventional Separator Style 95% DOP Filters:

- Increased usable media area affords longer service life and higher dust holding capacity
- Maximum utilization of the media
- Can handle some harsh environments which may attack aluminum separators
- Media pack can be incinerated
- Media is 28 mils, significantly thicker than conventional media used in Separator Style 95 DOP Filters (15 mil)
- 11" deep PUREFORM Pack has 261 sq. ft. of media as compared to 175 sq. ft. for a conventional Separator Style filter.
- Ideal for heavy loading applications such as oil mist.



Alpha 95 with Separator Style Media Pack



Alpha 95 with Pureform Media Pack



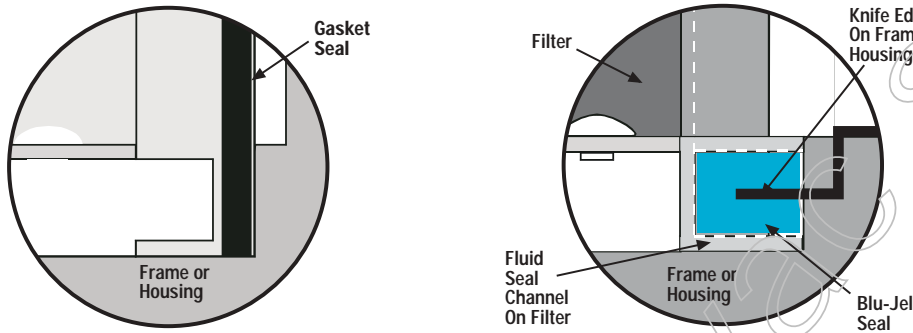
## Frame Materials

Alpha 95 Filters are available in a variety of wood and metal frame materials such as particle board, plywood, galvanized steel and stainless steel.

## Gasket and Fluid Seal

The standard gasket seal is 0.75" x 0.25" neoprene for installation on either the upstream, downstream or both sides of the filter.

The standard Fluid Seal is Flanders Blu-Jel® Seal which is a two - part silicone material suitable for temperatures up to 390°F.



## Faceguards (Optional)

Faceguards are used to protect the filter media from mechanical damage. The typical faceguard material is expanded aluminized steel. Galvanized 4 x 4 mesh welded wire and Type 304 stainless steel faceguards are also available.

## UL Listings

Alpha 95 Filters are either UL900 Class 1 or Class 2 listed depending on materials of construction.

## Holding Frames and Housings



*Alpha Frame*



*Surelock HEPA Housing*

Alpha Frames are designed for Alpha 95 filters in built-up filter banks. Each filter is secured in the frame with four bolt-type fasteners that either compress the gasket or press the knife edge into the gel in the filter channel to maintain a leak-tight seal.

Surelock HEPA Filter Housings are recommended for side-access applications. The filters are sealed in place with either spring-loaded swing arm assemblies or a locking mechanism. The swing arm assemblies or locking mechanism either compress the gasket or press the knife edge into the gel in the filter channel to maintain a leak-tight seal.

# ALPHA 95 COMPONENT CHART

0 - 00J - W - 07 - 00 - IL - 12 - 00 - GG - F

## Hardware

0 = None  
T = Extractor Clips

## Efficiency

00J = 95% DOP

## Capacity/Pack Style

C = SEPARATOR  
D = 4 in. PUREFORM  
F = 8 in. PUREFORM  
W = 11 in. PUREFORM

## Frame Material

02 = 16 GA 409 STAINLESS  
03 = 16 GA 304 STAINLESS  
04 = 3/4 in. FIRE RETARDANT PLYWOOD  
05 = FABRICATED ALUMINUM  
07 = 3/4 in. FIRE RETARDANT PARTICLE BOARD  
08 = 16 GA. GALVANNEAL  
11 = 3/4 in. NON FIRE RETARDANT PARTICLE BOARD

## Frame Style

00 = BOX  
03 = DOUBLE-TURNED FLANGE  
05 = 3/4 in. DEEP CHANNEL  
08 = DOUBLE-TURNED FLANGE, ONE SIDE

## Sealant Material

IL = POLYURETHANE FOAM  
IU = URETHANE

## Gasket Material

0 = NONE  
1 = NEOPRENE  
5 = BLUE JEL

## Gasket Location

0 = NONE  
1 = UPSTREAM  
2 = DOWNSTREAM  
3 = BOTH SIDES

## Faceguard Material

0 = NONE  
1 = GALVANIZED 4X4 MESH  
G = ALUMINIZED EXPANDED METAL  
2 = 17 GA. SS 4X4 MESH  
5 = 22 GA. SS 4X4 MESH

## Faceguard Location

0 = NONE  
1 = UPSTREAM  
2 = DOWNSTREAM  
3 = BOTH SIDES

## Filter Depth

D = 5-7/8"  
F = 11-1/2"

## Filter Face Size (H x W)

B = 8"    N = 30"    R = 6"  
C = 12"    F = 36"    S = 72"  
E = 18"    H = 42"    U = 11-3/8"  
G = 24"    Q = 48"    Y = 23-3/8"

## Odd Size Designator

Odd size designators are an Alpha Numeric description. The first two digits specify the height whole number with an alpha designator specifying the height fraction. The second two digits specify the width whole number with an alpha designator specifying the width fraction. And the last alpha designator specifies the depth. If the height or width is less than 10 inches, use a 0 in front of the dimension.

A = 0"    F = 5/16"    L = 5/8"  
B = 1-1/16"    G = 3/8"    M = 11/16"  
C = 1/8"    H = 7/16"    N = 3/4"  
D = 3/16"    J = 1/2"    P = 13/16"  
E = 1/4"    K = 9/16"    Q = 7/8"  
R = 15/16"

## Guide Specifications

### 1.0 General

- 1.1 Alpha 95 filters shall be extended media (separator type) (Pureform separatorless type) filters as manufactured by Flanders.
- 1.2 Filter sizes, capacities and construction options shall be as scheduled on the drawings.
- 1.3 Filters shall be (UL 900 Class 1)( UL 900 Class 2) listed.

### 2.0 Filter Construction

- 2.1 The filter pack shall be constructed by pleating a continuous sheet of non-woven water-resistant fiberglass media around hemmed-edge corrugated aluminum separators. The filter pack shall be constructed by pleating a continuous sheet of formed, corrugated medium so that the pack is self-supporting without the use of spacers of any kind, including separators, tape strings, adhesives or strips of media.

- 2.2 The filter pack shall be sealed into a (galvaneal) (409 stainless steel) (304 stainless steel) (particleboard) (fire retardant particleboard) (fire retardant plywood) frame with a fire retardant (polyurethane foam) ( solid urethane) sealant. (Steel frames shall be 16 ga.) (Wood frames shall be 3/4" thick.)

- 2.3(A 40-durometer closed-cell neoprene gasket) (Silicone gel in a channel) shall be provided on one or more sides to seal the filter in the mounting device.

### 3.0 Performance

- 3.1 Initial and final resistances shall not exceed the scheduled values.
- 3.2 The rated minimum efficiency of 95% on 0.3 micrometer size particles shall be as determined by the DOP Test Method

## General

Flanders offers a complete line of Alpha Cell HEPA Filters in two efficiencies to meet the needs of critical applications where HEPA filtration is required. Individual testing, rigid quality control and modern assembly methods are used to ensure conformance to specifications. Alpha Cell HEPA and ULPA Filters are either UL 900 Class 1 or Class 2 listed.

## Testing

Flanders individually tests and certifies each Alpha Cell HEPA Filter to meet the customer's requirements for resistance and efficiency (penetration) at the filters 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 Alpha Cell HEPA Filters will easily pass an in-place validation test to determine the overall system efficiency.

## HEPA FILTERS

Each Alpha Cell HEPA Filter has 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 monodis-

persed 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

Each Scan Tested Alpha Cell HEPA filter has a minimum efficiency of 99.99% on 0.30 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 ensure that there are no 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.

### Typical applications for Alpha Cell Filters include:

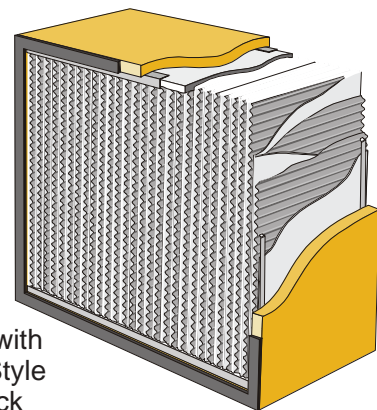
- Hospitals
- Biomedical
- Pharmaceutical
- Biotechnology
- Genetic Research
- Universities
- Laboratories
- Food Processing
- Photo Processing
- Semiconductor Fabrication
- Industrial Processing Systems



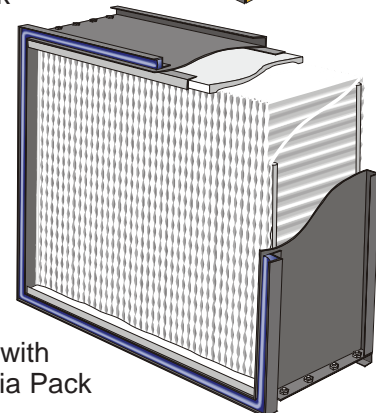
Alpha Cell HEPA Filter Dimensions and Capacities						
CFM Dimensions and Capacities						
Frame Depth (Inches)	Filter Size and Frame Depth Designator	Actual Face Size (inches)	CFM Capacity at Clean Pressure Drop, inches w.g.			Weight (LB.)
			.65	1.0	1.35	
11-1/2	CG-F	24x24	650	1000	1300	38
	GC-F	24x12	300	455	590	26
	YY-F	23-3/8 x 23-3/8	615	945	1235	37
	YU-F	23-3/8 x 11-3/8	275	425	550	25
	GN-F	24x30	830	1275	1655	45
	CC-F	12x12	135	205	265	14
5-7/8	GG-D	24x24	325	500	650	20
	GC-D	24x12	145	225	295	12
	BB-D	8x8	25	35	45	6
	CC-D	12x12	70	105	135	9
	YY-D	23-3/8 x 23-3/8	305	470	610	18
	YU-D	23-3/8x11-3/8	270	415	540	23
	GN-D	24x30	410	635	825	26
	GP-D	24x36	505	775	1010	33
	GQ-D	24x48	680	1045	1360	39
	GR-D	24x60	860	1320	1715	32
	GS-D	24x72	1035	1590	2055	46
	NN-D	30x30	525	810	1055	26
	NP-D	30x36	640	985	1280	30
	NQ-D	30x48	865	1330	1730	37
	NR-D	30x60	1090	1680	2185	44
NS-D	30x72	1315	2025	2630	52	
PP-D	36x36	790	1215	1580	33	
PQ-D	36x48	1050	1620	2105	41	
PR-D	36x60	1315	2025	2630	49	
PS-D	36x72	1580	2430	3160	59	

Flanders manufactures both conventional Separator Style and Pureform Separatorless HEPA Filters. To make a Separator Style filter, the media is folded over corrugated aluminum separators with hemmed edges to separate the pleats in the filter pack. Flanders manufactures its own filter media, enabling it to develop a unique manufacturing process for the production of Pureform Separatorless HEPA Filters. In one manufacturing operation, Flanders produces a self-supporting and self-separating Pureform Media Pack. The Pureform Filter offers many advantages over conventional Separator Style HEPA Filters:

- More usable media area for longer service life because of higher dust holding capacity
- Reduced cost of ownership because of longer service life
- Maximum utilization of the media
- Can handle some harsh environments which may attack aluminum separators
- Media pack can be incinerated
- Media is 28 mils thick, which is significantly thicker than conventional 15 mil media used in Separator Style HEPA Filters



Alpha Cell with Separator Style Media Pack



Alpha Cell with Pureform Media Pack

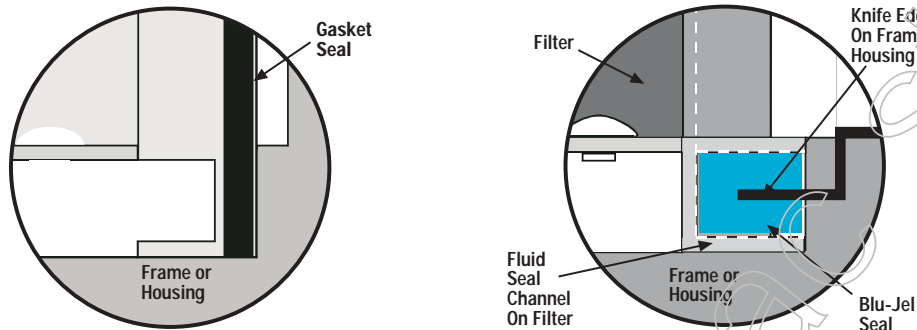


## Frame Materials

AlphaCell Filters are available in a variety of wood and metal frame materials such as particle board, plywood, galvanized steel and stainless steel.

## Gasket and Fluid Seal

The standard gasket seal is 0.75" x 0.25" neoprene for installation on either the upstream, downstream or both sides of the filter. The standard Fluid Seal is Flanders Blu-Jel® Seal which is a two-part silicone material suitable for temperatures up to 390°F.



## Faceguards (Optional)

Faceguards are used to protect the filter media from mechanical damage. The typical faceguard material is expanded aluminized steel. Galvanized 4 x 4 mesh welded wire and Type 304 stainless steel faceguards are also available.

## UL Listings

Alpha Cell Filters are either UL900 Class 1 or Class 2 listed depending on materials of construction.

## Holding Frames and Housings



*Alpha Frame, B1 Frame, A-4 Frame*



*Surelock HEPA Housing*

Alpha Frames are designed for Alpha 95 filters in built-up filter banks. Each filter is secured in the frame with four bolt-type fasteners that either compress the gasket or press the knife edge into the gel in the filter channel to maintain a leak-tight seal.

Surelock HEPA Filter Housings are recommended for side-access applications. The filters are sealed in place with either spring-loaded swing arm assemblies or a locking mechanism. The swing arm assemblies or locking mechanism either compress the gasket or press the knife edge into the gel in the filter channel to maintain a leak-tight seal.

# ALPHA CELL COMPONENT CHART

0 - 007 - F - 07 - 00 - IU - 12 - 00 - GG - F

## Hardware

0 = None  
T = Extractor Clips

## Efficiency

00J = 95% DOP

## Capacity/Pack Style

C = SEPARATOR  
D = 4 in. PUREFORM  
F = 8 in. PUREFORM  
W = 11 in. PUREFORM

## Frame Material

02 = 16 GA 409 STAINLESS  
03 = 16 GA 304 STAINLESS  
04 = 3/4 in. FIRE RETARDANT PLYWOOD  
05 = FABRICATED ALUMINUM  
07 = 3/4 in. FIRE RETARDANT PARTICLE BOARD  
08 = 16 GA. GALVANNEAL  
11 = 3/4 in. NON FIRE RETARDANT PARTICLE BOARD

## Frame Style

00 = BOX  
03 = DOUBLE-TURNED FLANGE  
05 = 3/4 in. DEEP CHANNEL  
08 = DOUBLE-TURNED FLANGE, ONE SIDE

## Sealant Material

IL = POLYURETHANE FOAM  
IU = URETHANE

## Gasket Material

0 = NONE  
1 = NEOPRENE  
5 = BLUE JEL

## Gasket Location

0 = NONE  
1 = UPSTREAM  
2 = DOWNSTREAM  
3 = BOTH SIDES

## Filter Depth

D = 5-7/8"  
F = 11-1/2"

## Filter Face Size (H x W)

B = 8" N = 30" R = 6"  
C = 12" P = 36" S = 72"  
E = 18" H = 42" U = 11-3/8"  
G = 24" Q = 48" Y = 23-3/8"

## Odd Size Designator

Odd size designators are an Alpha Numeric description. The first two digits specify the height whole number with an alpha designator specifying the height fraction. The second two digits specify the width whole number with an alpha designator specifying the width fraction. And the last alpha designator specifies the depth. If the height or width is less than 10 inches, use a 0 in front of the dimension.

A = 0" F = 5/16" L = 5/8"  
B = 1-1/16" G = 3/8" M = 11/16"  
C = 1/8" H = 7/16" N = 3/4"  
D = 3/16" J = 1/2" P = 13/16"  
E = 1/4" K = 9/16" Q = 7/8"  
R = 15/16"

## Faceguard Material

0 = NONE  
1 = GALVANIZED 4X4 MESH  
G = ALUMINIZED EXPANDED METAL  
2 = 17 GA. SS 4X4 MESH  
5 = 22 GA. SS 4X4 MESH

## Faceguard Location

0 = NONE  
1 = UPSTREAM  
2 = DOWNSTREAM  
3 = BOTH SIDES

## Guide Specifications

### 1.0 General

- Alpha Cell HEPA filters shall be extended media (separator type) (Pureform separatorless type) filters as manufactured by Flanders.
- Filter sizes, capacities and construction options shall be as scheduled on the drawings.
- Filters shall be (UL 900 Class 1)( UL 900 Class 2) listed.

### 2.0 Filter Construction

- The filter pack shall be constructed by pleating a continuous sheet of non-woven water-resistant fiberglass media around hemmed-edge corrugated aluminum separators. The filter pack shall be constructed by pleating a continuous sheet of formed, corrugated medium so that the pack is self-supporting without the use of spacers of any kind, including separators, tape strings, adhesives or strips of media.
- The filter pack shall be sealed into a (galvaneal) 409 stainless steel) (304 stainless steel) (particle board) (fire-retardant particleboard) (fire-retardant plywood) frame with a fire retardant (polyurethane foam) ( solid urethane) sealant. (Steel frames shall be 16 ga.)(Wood frames shall be 3/4" thick.)
- (A 40-durometer closed-cell neoprene gasket)

(Silicone jel in a channel) shall be provided on one or more sides to seal the filter in the mounting device.

### 3.0 Performance

- Initial and final resistances shall not exceed the scheduled values.
- Alpha Cell HEPA Filters shall have a minimum efficiency of 99.97% on 0.30 micrometer particles when tested at rated capacity on a Q-107 Penetrometer Each filter shall be challenged with an approved nearly monodispersed oil aerosol of 0.30 micrometer size. Measure the upstream and down stream concentration of these particles with a light scattering photometer, determine the penetration and calculate the efficiency.
- Alpha Cell Scan Tested HEPA Filters shall have a minimum efficiency of 99.99% on 0.30 micrometer particles. Scan Testing shall be in accordance with Section 6.2 of IEST-RP-CC034.1. The scan test shall consist of challenging the filter with a high concentration of an approved oil aerosol or PSL Spheres. Utilizing a photometer or 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

## High Capacity Design

The Alpha 2000 High Capacity HEPA filter is available in a nominal 12" depth configuration. It is designed for optimum performance and low operating costs in both new and replacement systems. With 40% more media area than the standard capacity Alpha Cell filter, the Alpha 2000 saves space, energy, and material and labor costs.

## Save Space

Alpha 2000 HEPA filters operate at 500 fpm (2000 cfm for a 24" x 24" size) at 1.45 inch w.g. clean pressure drop versus conventional Alpha Cell filters that operate at 250 fpm and 1.0 inch w.g. clean pressure drop.

## Construction

A popular construction option consists of 16 ga. galvaneal frames and moisture-resistant microfine wet-laid fiberglass media folded over hemmed-edge low amplitude corrugated aluminum separators. The filter pack is bonded to the frame by a fire-

retardant urethane elastomer to provide a rigid leak-free assembly.

## Save Energy

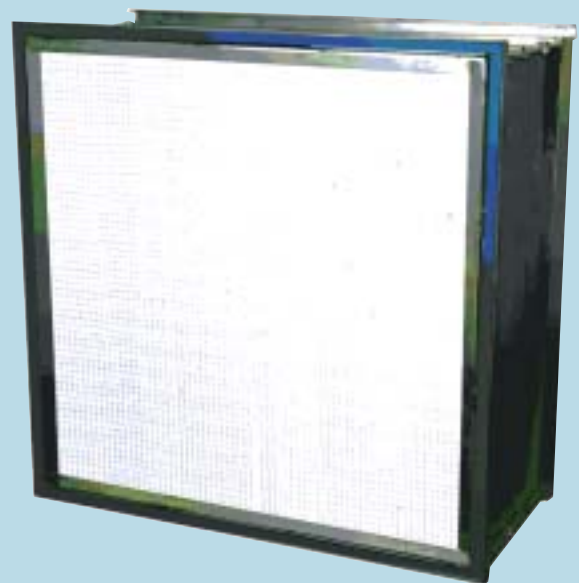
Alpha 2000 filters in a conventional HEPA filter bank impose a lighter load on the fan when operated at conventional 250 fpm velocities during the life of the filters. The Alpha 2000 99.97% and 99.99% high capacity 24" X 24" X 12" filter has a clean pressure drop of 1.1 inch w.g. at 1500 cfm, compared to standard Alpha Cell filters with a clean pressure drop of 1.50 inch w.g. at the same air flow.

## Save Replacement Material and Labor Costs

Savings are significant with high capacity Alpha 2000 filters. They operate at lower velocities and provide life cycles up to three times the life of standard capacity filters. Savings are achieved in replacement materials and labor costs as a result of fewer filters.

## Important Features

- Efficiencies are 99.97% and 99.99% on 0.30 and 99.9995% on 0.12 micrometer particles.
- High capacity Alpha 2000 filters can reduce the filter bank size
- Corrugated aluminum separators stabilize the moisture-resistant media pack (separator style)
- Available as a separatorless media filter with a self-supporting media pack (\*Pureform)
- Available in a variety of frame materials in gasket or fluid seal design.



Alpha 2000 HEPA Filter Dimensions and Capacities						
Filter Depth (inches)	Filter Size and Frame Depth Designator	Actual Face Size (Inches)	CFM Capacity at Clean Pressure Drop, Inches w.g.			Weight (lbs)
			.90	1.45	1.90	
11-1/2	CG-F	24x24	1375	2000	2560	38
	GC-F	24x12	650	920	1180	26
	YY-F	23-3/8x23-3/8	1350	1900	2450	37
	YUF	23-3/8x11-3/8	610	865	1150	25
	GN-F	24x30	1750	2550	3250	45
	CC-F	12x12	290	430	550	14

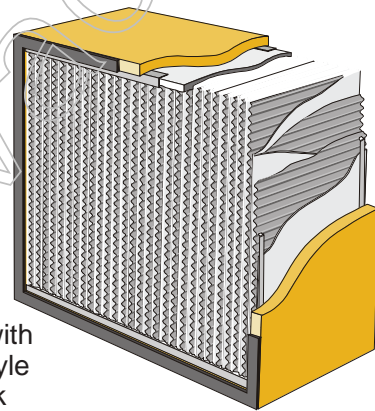
NOTE: The pressure drop for fluid seal (Separator or Pureform) and scan tested Pureform filters will be approximately 15% higher.

## Separator or Separatorless

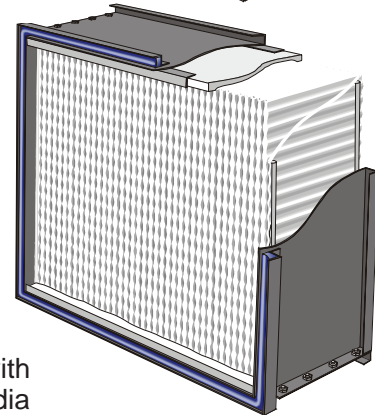
Flanders manufactures both conventional Separator Style and Pureform Separatorless HEPA Filters. To make a Separator Style filter, the media is folded over corrugated aluminum separators with hemmed edges to separate the pleats in the filter pack. Flanders manufactures its own filter media, enabling it to develop a unique manufacturing process for the production of Pureform Separatorless HEPA Filters. In one manufacturing operation, Flanders produces a self-supporting and self-separating Pureform Media Pack.

The Pureform Filter offers many advantages over conventional Separator Style HEPA Filters:

- More usable media area for longer service life because of higher dust holding capacity
- Reduced cost of ownership because of longer service life
- Maximum utilization of the media
- Can handle some harsh environments which may attack aluminum separators
- Media pack can be incinerated
- Media is 28 mils thick, which is significantly thicker than conventional 15 mil media used in Separator Style HEPA Filters



Alpha 2000 with  
Separator Style  
Media Pack



Alpha 2000 with  
Pureform Media  
Pack

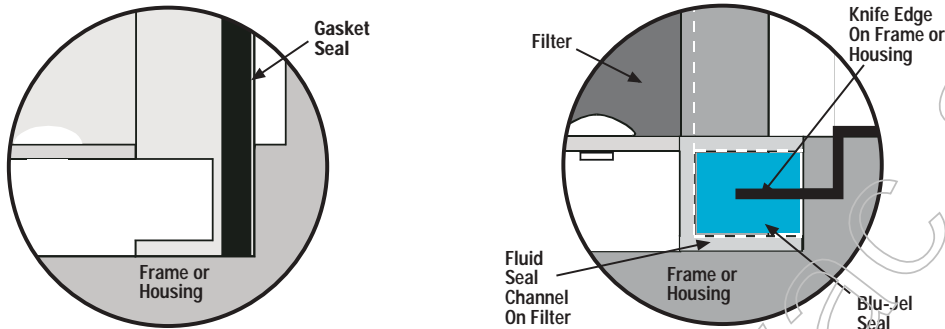


## Frame Materials

Alpha 2000 Filters are available in a variety of wood and metal frame materials such as particle board, plywood, galvanized steel and stainless steel.

## Gasket and Fluid Seal

The standard gasket seal is 0.75" x 0.25" neoprene for installation on either the upstream, downstream or both sides of the filter. The standard Fluid Seal is Flanders Blu-Jel® Seal which is a two - part silicone material suitable for temperatures up to 390°F.



## Faceguards (Optional)

Faceguards are used to protect the filter media from mechanical damage. The typical faceguard material is expanded aluminized steel. Galvanized 4 x 4 mesh welded wire and Type 304 stainless steel are also available.

## UL Listings

Alpha 2000 Filters are either UL900 Class 1 or Class 2 listed depending on materials of construction.

## Holding Frames and Housings



*Alpha Frame, B1 Frame, A-4 Frame*

*Surelock HEPA Housing*

Alpha Frames are designed for Alpha 2000 filters in built-up filter banks. Each filter is secured in the frame with four bolt-type fasteners that either compress the gasket or press the knife edge into the gel in the filter channel to maintain a leak-tight seal.

Surelock HEPA Filter Housings are recommended for side-access applications. The filters are sealed in place with either spring-loaded swing arm assemblies or a locking mechanism. The swing arm assemblies or locking mechanism either compress the gasket or press the knife edge into the gel in the filter channel to maintain a leak-tight seal.

# ALPHA 2000 COMPONENT CHART

0 - 007 - W - 07 - 00 - IU - 12 - 00 - GG - F

## Hardware

0 = None  
T = Extractor Clips

## Efficiency

007 = 99.97% DOP (PUREFORM)  
011 = 99.97% DOP (SEPARATOR STYLE)  
99.99% on .30 micrometers = SU Sealant

## Capacity/Pack Style

H = SEPARATOR  
W = 11 in. PUREFORM

## Frame Material

02 = 16 GA 409 STAINLESS  
03 = 16 GA 304 STAINLESS  
04 = 3/4 in. FIRE RETARDANT PLYWOOD  
05 = FABRICATED ALUMINUM  
07 - 3/4 in. FIRE RETARDANT PARTICLE BOARD  
08 = 16 GA. GALVANNEAL  
11 = 3/4 in. NON FIRE RETARDANT PARTICLE BOARD

## Frame Style

00 = BOX  
03 = DOUBLE-TURNED FLANGE  
05 = 3/4 in. DEEP CHANNEL  
08 = DOUBLE-TURNED FLANGE, ONE SIDE

## Sealant Material

IL = POLYURETHANE FOAM  
IU = URETHANE  
SU = URETHANE SCAN TESTED = (99.99% on 0.30 micrometers)

## Gasket Material

0 = NONE  
1 = NEOPRENE  
5 = BLUE JEL

## Gasket Location

0 = NONE  
1 = UPSTREAM  
2 = DOWNSTREAM  
3 = BOTH SIDES

## Filter Depth

D = 5-7/8"  
F = 11-1/2"

## Filter Face Size (H x W)

B = 8" N = 30" R = 6"  
C = 12" P = 36" S = 72"  
E = 18" H = 42" U = 11-3/8"  
G = 24" Q = 48" Y = 23-3/8"

## Odd Size Designator

Odd size designators are an Alpha Numeric description. The first two digits specify the height whole number with an alpha designator specifying the height fraction. The second two digits specify the width whole number with an alpha designator specifying the width fraction. And the last alpha designator specifies the depth. If the height or width is less than 10 inches, use a 0 in front of the dimension.

A = 0" F = 5/16" L = 5/8"  
B = 1-1/16" G = 3/8" M = 11/16"  
C = 1/8" H = 7/16" N = 3/4"  
D = 3/16" J = 1/2" P = 13/16"  
E = 1/4" K = 9/16" Q = 7/8"  
R = 15/16"

## Faceguard Material

0 = NONE  
1 = GALVANIZED 4X4 MESH  
G = ALUMINIZED EXPANDED METAL  
2 = 17 GA. SS 4X4 MESH  
5 = 22 GA. SS 4X4 MESH

## Faceguard Location

0 = NONE  
1 = UPSTREAM  
2 = DOWNSTREAM  
3 = BOTH SIDES

## Guide Specifications

### 1.0 General

- 1.1 Alpha Cell HEPA filters shall be extended media (separator type) (Pureform separatorless type) filters as manufactured by Flanders.
- 1.2 Filter sizes, capacities and construction options shall be as scheduled on the drawings.
- 1.3 Filters shall be (UL 900 Class 1)( UL 900 Class 2) listed.

### 2.0 Filter Construction

- 2.1 The filter pack shall be constructed by pleating a continuous sheet of non-woven water-resistant fiberglass media around hemmed-edge corrugated aluminum separators. (or) The filter pack shall be constructed by pleating a continuous sheet of formed, corrugated medium so that the pack is self-supporting without the use of spacers of any kind, including separators, tape strings, adhesives or strips of media.
- 2.2 The filter pack shall be sealed into a (galvaneal 409 stainless steel) (304 stainless steel) (particle board) (fire-retardant particleboard) (fire-retardant plywood) frame with a fire retardant (polyurethane foam) (solid urethane) sealant. (Steel frames shall be 16 ga.)(Wood frames shall be 3/4" thick.)
- 2.3 (A 40-durometer closed-cell neoprene gasket)

(Silicone jel in a channel) shall be provided on one or more sides to seal the filter in the mounting device.

### 3.0 Performance

- 3.1 Initial and final resistances shall not exceed the scheduled values.
- 3.2 Alpha Cell HEPA Filters shall have a minimum efficiency of 99.97% on 0.30 micrometer particles when tested at rated capacity on a Q-107 Penetrometer Each filter shall be challenged with an approved nearly monodispersed oil aerosol of 0.30 micrometer size. Measure the upstream and down stream concentration of these particles with a light scattering photometer, determine the penetration and calculate the efficiency.
- 3.3 Alpha Cell Scan Tested HEPA Filters shall have a minimum efficiency of 99.99% on 0.30 micrometer particles. Scan Testing shall be in accordance with Section 6.2 of IEST-RP-CC034.1. The scan test shall consist of challenging the filter with a high concentration of an approved oil aerosol or PSL Spheres. Utilizing a photometer or 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

### General

Flanders manufactures metal-frame separator-style HEPA filters for applications with high-temperature requirements up to 1,000°F (540°C) for exhaust air only and 500°F (260°C) for supply air. High-temperature filters are available with either a gasket or fluid seal. Filters with Blu-Jel® Fluid Seal have a maximum service temperature of 390°F (199°C)

### HEPA Filters

Each HEPA filter has a minimum efficiency of 99.97% on 0.30 micrometer size particles when tested at rated capacity on a Q-107 Penetrometer. Each filter is challenged with an approved nearly monodispersed oil aerosol of 0.30 micrometer size and 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

Each Scan Tested HEPA filter has a minimum efficiency of 99.99% on 0.30 micrometer particles. Scan testing is in accordance with Section 6.2 of IEST-RP-CC034.1, HEPA and ULPA Filters 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 no leaks greater than .01% of the upstream concentration at 100 fpm face velocity. Scan testing is only available for the 500°F model.

### Sealant Types

Two types of sealants for high-temperature HEPA filters are offered.

#### Silicone Sealant

This is a high temperature (RTV) silastic-sealant silicone compound rated for continuous service up to 500°F(260°C). NOTE: This high-temperature sealant is not UL 586 approved.

#### Glass Pack Sealant For Exhaust Air Only

The glass pack seal is rated for continuous service up to 1,000°F(540°C) in exhaust air applications only. It is a mat of submicron glass fibers that creates a seal when compressed between the filter pack and filter frame. The glass packing is not an adhesive seal but a mechanical seal that functions much as the glass fiber medium of the filter itself.

NOTE: Due to the possibility that the glass pack may shed glass fibers, the glass pack sealant should be used for exhaust systems only.



### Alpha HT Filter Dimensions and Capacities

CFM CAPACITIES AND DIMENSIONS						
Filter Depth (Inches)	Filter Size and Frame Depth Designator	Actual Face Size (Inches)	CFM Capacity at Clean Pressure Drop, Inches w.g.			Weight (Lb.)
			.65	1.0	1.35	
11-1/2	GG-F	24x24	650	1000	1300	38
	GC-F	24x12	300	455	590	26
	YY-F	23-3/8x23-3/8	615	945	1235	37
	YU-F	23-3/8x11-3/8	275	425	550	25
	GN-F	24x30	830	1275	1655	45
	CC-F	12x12	135	205	265	14

# ALPHA HT COMPONENT CHART

0 - 007 - C - 02 - 03 - IE - 32 - 00 - GG - F

## Hardware

0 = None  
T = Extractor Clips

## Efficiency

007 = 99.97% DOP (PUREFORM)  
99.99% on .30 micrometers = SU Sealant

## Capacity/Pack Style

C = SEPARATOR

## Frame Material

02 = 16 GA 409 STAINLESS  
03 = 16 GA 304 STAINLESS

## Frame Style

03 = DOUBLE-TURNED FLANGE  
05 = 3/4 in. DEEP CHANNEL

## Sealant Material

IE = HIGH TEMPERATURE SILICONE  
IG = CERAMIC AND GLASS MAT  
SE = HIGH TEMPERATURE SILICONE SCAN TESTED (99.99% on 0.30 micrometers)

## Gasket Material

0 = NONE  
3 = SILICONE SPONGE  
4 = WOVEN GLASS  
5 = BLU JEL

## Gasket Location

0 = NONE  
1 = UPSTREAM  
2 = DOWNSTREAM  
3 - BOTH SIDES

## Filter Depth

D = 5-7/8"  
F = 11-1/2"

## Filter Face Size (H x W)

B = 8"	N = 30"	R = 6"
C = 12"	P = 36"	S = 72"
E = 18"	H = 42"	U = 11-3/8"
G = 24"	Q = 48"	V = 23-3/8"

## Odd Size Designator

Odd size designators are an Alpha Numeric description. The first two digits specify the height whole number with an alpha designator specifying the height fraction. The second two digits specify the width whole number with an alpha designator specifying the width fraction. And the last alpha designator specifies the depth. If the height or width is less than 10 inches, use a 0 in front of the dimension.

A = 0"	F = 5/16"	L = 5/8"
B = 1-1/16"	G = 3/8"	M = 11/16"
C = 1/8"	H = 7/16"	N = 3/4"
D = 3/16"	J = 1/2"	P = 13/16"
E = 1/4"	K = 9/16"	Q = 7/8"
		R = 15/16"

## Faceguard Material

0 = NONE  
G = ALUMINIZED EXPANDED METAL  
5 = 22 GA. SS 4X4 MESH

## Faceguard Location

0 = NONE  
1 = UPSTREAM  
2 = DOWNSTREAM  
3 = BOTH SIDES

## Guide Specifications

### 1.0 General

- 1.1 High temperature separator style HEPA filters shall be Alpha HT models as manufactured by Flanders.
- 1.2 Filter sizes, capacities and construction options shall be as scheduled on the drawings.

### 2.0 Filter Construction

- 2.1 The filter pack shall be constructed by pleating a continuous sheet of non-woven water-resistant fiberglass media around hemmed-edge corrugated aluminum separators.
- 2.2 The filter pack shall be sealed into a (409 stainless steel) (304 stainless steel) frame with a high temperature silicone sealant rated for 500°F or a glass pack sealant rated for 1,000°F in exhaust applications.
- 2.3 (A chlorastic silicone gasket) (a woven glass gasket) shall be provided to seal the filter in the mounting device (Gasket Seal). A silicone gel shall be provided in a channel on one side to seal the filter in the mounting device. filters with silicone gel have a maximum service temperature of 390°F (Gel Seal)

### 3.0 Performance

- 3.1 Initial and final resistances shall not exceed the scheduled values.
- 3.2 Alpha HT HEPA Filters shall have a minimum efficiency of 99.97% on 0.30 micrometer particles when tested at rated capacity on a Q-107 Penetrometer. Each filter shall be challenged with an approved nearly monodispersed oil aerosol of 0.30 micrometer size. Measure the upstream and downstream concentration of these particles with a light scattering photometer, determine the penetration and calculate the efficiency.
- 3.3 Alpha HT Scan Tested HEPA Filters shall have a minimum efficiency of 99.99% on 0.30 micrometer particles. Scan Testing shall be in accordance with Section 6.2 of IEST-RP-CC034.1. The scan test shall consist of challenging the filter with a high concentration of an approved oil aerosol or PSL Spheres. Utilizing a photometer or particle counter, the media pack and the pack-to-frame seal shall be scanned to insure that there are no leak greater than .01% of the upstream concentration at 100 fpm face velocity.



## High Velocity HEPA Filter

20 Gauge Galvaneal: SF2K-8-G\*-\*\* 0.063" Aluminum: SF2K-5-G\*-\*\*

20 Gauge 304 Stainless: SF2K-3-G\*-\*\*

(Where \* indicates gasket location and \*\* designates size. See price book)

### General

Flanders Superflow 2K is a V-bed HEPA filter (99.99% at 0.30 micrometer) specifically designed for high airflow applications requiring HEPA efficiency at an ultra low pressure drop. The Superflow 2K can be incorporated into systems with air velocities of 500 fpm and a pressure drop of 1.0 inch w.g.

### Product Design

The Superflow 2K filters are manufactured with wet laid microfibre fiberglass media. The media is formed into a minipleat utilizing a hot melt separator and arranged in a V-bed configuration. There are 10 individual minipleat packs that are sealed on all four sides to the frame with a two component polyurethane.

The frame is constructed of 16 ga. galvaneal steel and consists of vertical support struts of the same material. Vertical supports are attached to the frame body without the use of mechanical fasteners. The vertical supports act as the sealing surface of the mini pleat packs.

### Features and Benefits

The product offers the following advantages over conventional HEPA filters.

- **Longer Life** – Gasket seal Superflow 2K filters have 290 sq. ft. of media compared to 140 sq. ft. for traditional HEPA filters. The greater media area provides a longer time period between filter replacements.
- **Improved Efficiency** – The significant quantity of media translates into an extremely low media velocity. Therefore a minimum overall efficiency of 99.99% at 0.30  $\mu\text{m}$  is easily assured. Traditional HEPA filters have an overall efficiency of 99.97% at 0.30  $\mu\text{m}$ .
- **Lower Operating Cost** – The typical HEPA filter pressure drop can range from 1.4 inch w.g. to 1.8 inch w.g. at the rated flow. The pressure drop of the Superflow 2K is 1.0 inch w.g. at the rated flow.

### Product Options

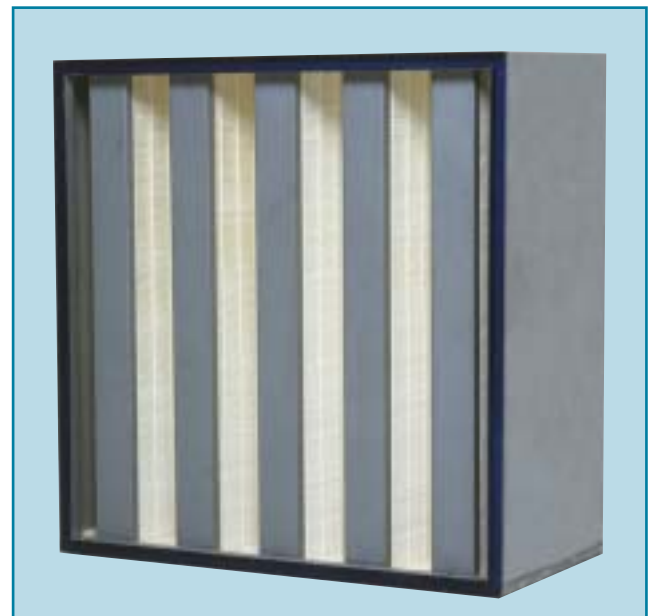
The Superflow 2K filters are available in aluminum or stainless steel frames and with gasket seal or gel seal design.

#### Gasket Seal

The filter gasket is 1/4" x 3/4" black neoprene attached to the frame with an adhesive and the gasket joints are dovetailed to ensure no penetration of particulate due to the gasket. The filter is designed for installation into Flanders front load B-1 holding frame, Surelock C Gasket Seal Housing and Surelock-B Side Access Housing.

#### Gel Seal

The filter gasket is Flanders Blu Jel filled into a channel around the perimeter of the frame. The gel seal design provides the highest degree of sealing integrity between the filter and holding device. The filter is designed for installation into Flanders front load A-4 holding frame or Surelock-C Jel Seal Housings.



## Superflow 2K Performance

The Superflow 2K filters offer HEPA efficiency at an ultra low pressure drop for HVAC systems supplying air to critical areas.

Figure 1 illustrates the Superflow 2K pressure drop as a function of air flow rate for gasket seal and gel seal designs.

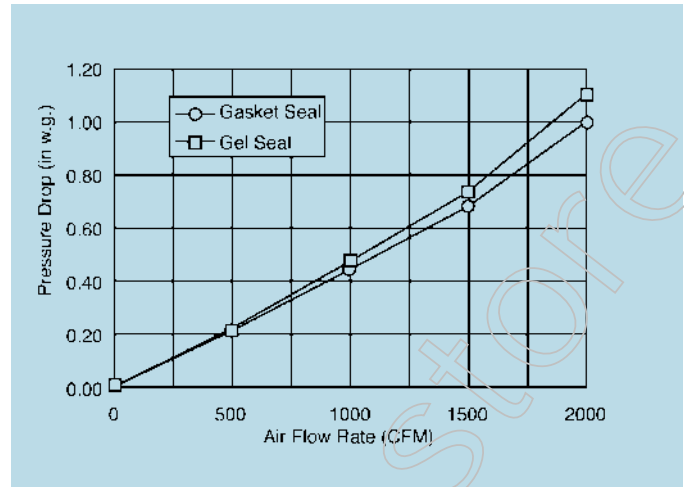
## Superflow 2K Selection

All products have a rated overall efficiency of 99.99% at 0.30 µm and a maximum pressure drop of 1.0 inch w.g. at the rated flow. Specify the following:

Material Types: 8 = Galvanized  
5 = Aluminum  
3 = Stainless Steel

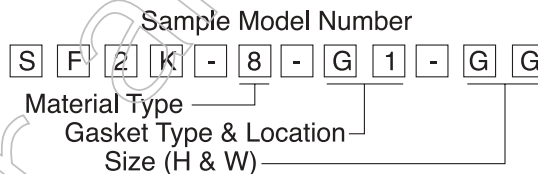
Gasket Types: G = Neoprene F = Blu Jel

Gasket Locations: 1 = Upstream 2 = Downstream



Model Number	Nominal Size	Actual Size	Media Area	Rated Flow
SF2K-(*)-G(location)-GG	24" x 24" x 12"	24" x 24" x 11-1/2"	290 sq. ft.	2000 cfm
SF2K-(*)-G(location)-CG	12" x 24" x 12"	12" x 24" x 11-1/2"	140 sq. ft.	900 cfm
SF2K-(*)-G(location)-YY	24" x 24" x 12"	23-3/8" x 23-3/8" x 11-1/2"	280 sq. ft.	1900 cfm
SF2K-(*)-G(location)-UY	12" x 24" x 12"	11-3/8" x 23-3/8" x 11-1/2"	135 sq. ft.	855 cfm
SF2K-(*)-F(location)-GG	24" x 24" x 12"	24" x 24" x 11-1/2"	270 sq. ft.	1760 cfm
SF2K-(*)-F(location)-CG	12" x 24" x 12"	12" x 24" x 11-1/2"	130 sq. ft.	790 cfm
SF2K-(*)-F(location)-YY	24" x 24" x 12"	23-3/8" x 23-3/8" x 11-1/2"	260 sq. ft.	1670 cfm
SF2K-(*)-F(location)-UY	12" x 24" x 12"	11-3/8" x 23-3/8" x 11-1/2"	125 sq. ft.	750 cfm

\* Insert Material Type



## Guide Specifications

### 1.0 General

- 1.1 HEPA filters shall be Flanders Superflow 2K as manufactured by Flanders.
- 1.2 Filter sizes, efficiencies and capacities shall be as specified on the drawings.

### 2.0 Construction

- 2.1 Filters shall be constructed with ten 1" pleated media packs arranged in a V-bank configuration. The media packs shall be formed by pleating wet laid micro-fiberglass media with continuous beads of a nonvolatile adhesive spaced 1-1/4" apart.

- 2.2 The filter frame shall be 20 ga. galvaneal steel and shall consist of eight C-channel supports attached without the use of mechanical fasteners. The media packs shall be sealed around the entire periphery to the frame with a two component polyurethane.

### 3.0 Performance

- 3.1 The minimum filter efficiency shall be 99.99% at 0.30 µm when tested with polydisperse DOP aerosol at the rated air flow.
- 3.2 The maximum pressure drop shall be 1.0" w.g. at the rated air flow.

### General

Alpha Panel Minipleat HEPA/ULPA filters are available in two particle size efficiencies: 99.99% on 0.3  $\mu\text{m}$  and 99.99% on 0.12  $\mu\text{m}$ . They are offered in a complete range of standard sizes to meet the needs of critical applications where HEPA/ULPA filtration is required. Individual testing under rigid quality control and modern assembly methods ensures conformance to specifications.

### Construction

Filter media is manufactured of moisture resistant microfibre fiberglass that is formed into closely-spaced pleats held firmly in place with polyurethane sealant bead separators. The 2.1" (53 mm) separatorless minipleat panel is urethane sealed into a clearcoat-anodized extruded aluminum frame. Media dividers are furnished on all filters over 36" width. Filters over 24" height are also furnished with media dividers and pleats that are parallel to the width.

Alpha Panel HEPA/ULPA filters can be furnished with 0.25" thick x 0.75" wide closed cell neoprene gaskets as an option on either side or both sides of the face flanges.

### Testing

Each Alpha Panel HEPA/ULPA filter is scan tested after assembly with automated laser equipment to ensure that it has attained a particle size efficiency of at least 99.99% on 0.30  $\mu\text{m}$  or 99.99% on 0.12  $\mu\text{m}$ . This performance meets the requirements of the Institute of Environmental Sciences and Technology (IEST) RP-1 for Type C or F filters. Efficiency and pressure drop are certified on each filter identification label.

### Installation

Alpha Panel HEPA/ULPA filters are used in applications and equipment that require ultraclean air. These may range from the fabrication of microelectronics, semi-conductors and medical devices to aerospace, biotech and pharmaceutical manufacturing.

The standard face velocity range of 70 to 110 fpm makes them ideal for unidirectional (laminar flow) applications in clean benches, ceiling grids, fan powered filter units, and horizontal flow wall modules.

Filters of standard construction may be operated at up to 150 fpm face velocity and to a final static pressure drop of 2.0 inch w. g. As with all HEPA and ULPA filters, high efficiency ASHRAE-rated pre-filters are recommended.

### Physical Data

**Media:** Moisture-resistant microfibre fiberglass

**Filter pack:** 2.1" (53 mm) separatorless minipleat

**Media sealant:** Urethane

**Pleat stabilizers:** Polyurethane bead separator

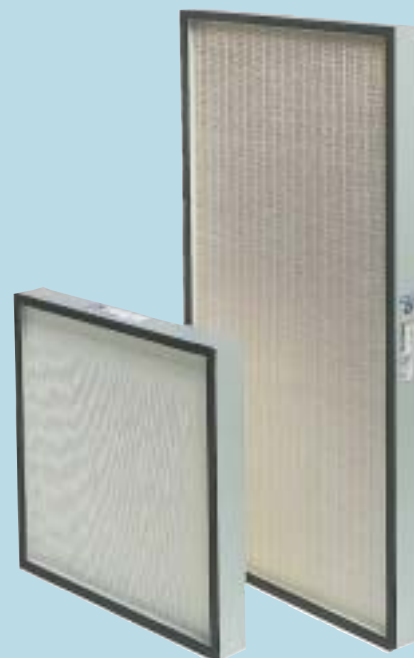
**Frames:** Clearcoat-anodized extruded aluminum

**Media dividers:** Extruded aluminum channel

**Gaskets:** Closed cell neoprene

### Important Features

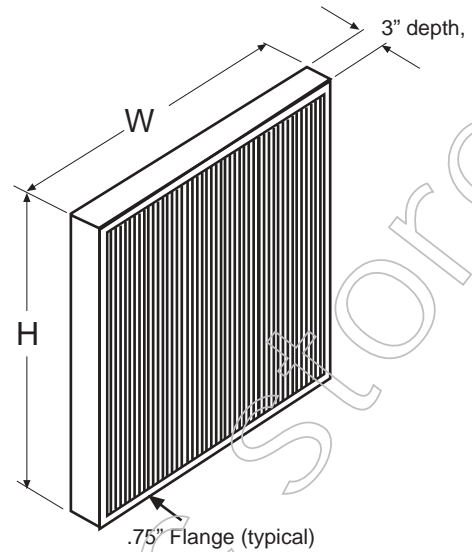
- Minipleat separatorless filter pack
- Thin and lightweight easy-to-handle units
- Rugged 3" deep clearcoat-anodized extruded aluminum frame
- Available in many standard sizes



## Performance Data - Capacities and Dimensions

Particle Size Efficiency	Model Number	Actual Dimensions (inch)		Cfm Capacity at Gross Face Velocity, fpm		
		H	W	70	90	110
99.99% on 0.30 Fm	AP493-2424*	24	24	280	360	440
	AP493-2448*	24	48	560	720	880
	Clean Filter Resistance (inch)				.35	.45
99.99% on 0.12 Fm	AP591-2424*	24	24	280	360	440
	AP591-2448*	24	48	560	720	880
	Clean Filter Resistance (inch)				.50	.65

\*Insert gasket designator: D, U, B or N. See Note 5.



### Drawing Notes:

- Physical Data
  - Media: Moisture-resistant fiberglass
  - Filter Construction: 2.1" (53 mm) thick separatorless minipleat
  - Filter Frame: Clearcoat-anodized extruded aluminum
  - Media Divider: Extruded aluminum channel
- Add 0.25" to the 3" depth for each gasket.
- Media dividers are furnished on air filters over 36" in width. Filters over 24" in height are also furnished with media dividers and media pleats that are parallel to the width.

### Performance Data Notes:

- Filters are scan-tested for leaks after assembly and are certified to be 99.99% on 0.30 Fm or 99.99% on .012 Fm particles. Performance meets the requirements of IEST RP-1 for Type C or F filters.
- Dimensional tolerances are +0" -.13" on height and width, +0.6" on depth and +.13" on diagonal dimensions.
- Maximum operating conditions: 200 degrees F, 100% RH.
- Filters are designed to UL 900 Class 2 requirements.
- Gasket location: Suffix D denotes a downstream gasket. Use suffix U for upstream, B for both upstream and downstream gasketing and N if no gaskets are required.

## Guide Specifications

### 1.0 General

- Minipleat HEPA/ULPA filters shall be Alpha Panel Model AP493 or AP591 as manufactured by Flanders.
- Filter sizes and capacities shall be as scheduled on the drawings.
- Filter construction shall meet UL 900 Class 2 requirements.

### 2.0 Construction

- The filter pack shall be 2.1" (53 mm) thick and shall consist of moisture-resistant microfibre fiberglass containing a water-repellant binder. The media shall be formed into closely spaced pleats and stabilized with polyurethane bead separators.
- The filter pack shall be urethane sealed in a clearcoat-anodized extruded aluminum frame 3" deep.

- Extruded aluminum media dividers shall be provided on filters over 36" wide and 24" in height.
- Furnish 0.25" thick x 0.75" wide closed cell neoprene gaskets on the face flanges when required.

### 3.0 Performance

- Particle size efficiency shall be certified to be not less than 99.99% on 0.30 micron or 99.99% on 0.12 micron. Each filter is scan tested with automated laser equipment. Filters shall meet the requirements of IEST RP-1 for Type C or F filters.
- Initial resistance shall not exceed the scheduled values.
- Filters shall be capable of operating up to 150 fpm face velocity.



**Terminal HEPA/ULPA Filter Modules**

99.99% on .3 microns, Models: PF†-493-xxx-\*

99.9995% on .12 microns, Models: PF†591-xxx-\*

(Where † is pack depth designator and • is collar diameter. See price book.)

**General**

Flanders Pureflo Terminal HEPA/ULPA Filter Modules are lightweight low profile ducted units. The mini-pleat filter packs are designed to provide unidirectional airflow from tee-bar ceilings. Pureflo modules are available in two sizes: nominal 24" x 24" and 24" x 48" with either 10" or 12" diameter inlet collars. They are available in two particle size efficiencies: 99.99% on .0.30 µm and 99.9995% on 0.12 µm and in three filter pack depths: 53, 70 and 100 mm

**Installation and Application Considerations**

Pureflo Terminal HEPA/ULPA Filter Modules are recommended for use in ultraclean applications. They are ideal for fabrication of microelectronics, semiconductors, and medical devices; and in aerospace, biotech and pharmaceutical production.

Selection of the PF70 or PF100 models will help reduce operating costs because of their lower resistance and longer service life.

Clips on the module's top four corners are to be used to secure seismic restraint wires. Polyfoam gasket should be applied to the tee-bar surface on which the module will rest.

The standard face velocity range of 70 to 110 fpm is easily adjusted from the room side by a screwdriver operated damper. Static pressure and challenge aerosol measurements can be taken from a separate room side port. Standard construction allows the modules to be operated at a pressure drop of 2.0 inches w.g.

**Construction**

The heart of the Pureflo module is a state-of-the-art minipleat filter pack sealed in an anodized extruded aluminum casing forming the sides of the module. The extruded aluminum center divider holds ports for in-room damper adjustment and measurement of the challenge aerosol. The one piece hood/inlet collar is made of aluminum and the inlet collar is dimpled to secure the flex duct retaining strap. A 20 ga. expanded steel white powder-coated face grille protects the media pack. Each module is scan-tested after assembly to meet or exceed IEST RP-1 requirements for a Type C or F filter.

**Options**

Pureflo Modules are available with either nominal 10" or 12" diameter inlet collars. One inch thick vinyl-backed fiberglass insulation on the top and sides of the module is also available.

**Physical Data**

**Media:** Water-resistant micro-fine fiberglass

**Filter Construction:** Separatorless minipleat

**Sealant:** Polyurethane

**Filter Frame:** Clearcoat-anodized extruded aluminum

**Top:** One-piece aluminum with dimpled inlet collar

**Damper:** Perforated aluminum, 14 ga.

**Protective Grille:** White powdercoat 20 ga. steel

**Center Divider:** Extruded aluminum rectangular tube

**Important Features**

- Scan-tested after assembly to meet or exceed IEST RP-1 requirements for Type C and F filters
- Mini-pleat separatorless filter pack for a lightweight and low profile design
- Choice of three filter pack depths: 53, 70 and 100 mm (2.10, 2.76, and 3.96 inches)
- In-room air flow damper adjustment and challenge aerosol ports
- One-piece aluminum hood/inlet collar



Particle Size Efficiency %	Model Number	Actual Length L (inches)	Cfm Capacity at Gross Face Velocity, Fpm								
			PF53			PF70			PF100		
			70	90	110	70	90	110	70	90	110
99.99 on 0.30 µm	PF†-493-2424-*	23-5/8	280	360	440	280	360	440	280	360	440
	PF†-493-2448-*	47-5/8	560	720	880	560	720	880	560	720	880
	Clean Filter Filter Resistance(inchw.g)		.40	.50	.60	.33	.42	.50	.23	.30	.37
99.9995 on 0.12 µm	PF†-591-2424-*	23-5/8	280	360	440	280	360	440	280	360	440
	PF†-591-2448-*	47-5/8	560	720	880	560	720	880	560	720	880
	Clean Filter Resistance("w.g)		.55	.70	.85	.45	.58	.70	.33	.42	.50

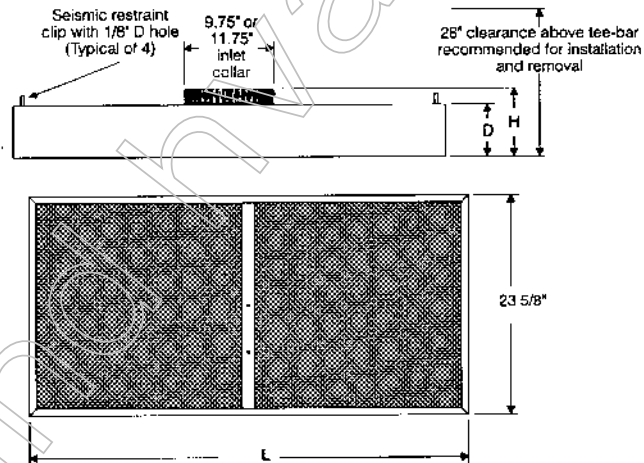
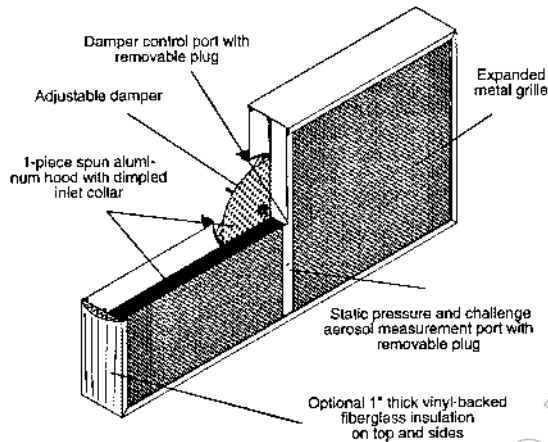
† Insert filter pack depth in mm: 53, 70, or 100

### Physical Data Notes:

- \*Insert suffix 10 (nominal 10" collar) or 12 (nominal 12" collar). Add "G" to suffix to designate the insulation option.
- Tolerances: L and W: +0, -1/8" D: + - 1/8"
- Maximum operating conditions: 200 ° F, 100%RH
- Modules are designed to UL 900 Class 2 requirements.

- Installed weight:

PF53P	F70P	F100
2424:	20lbs.	25lbs.
2448:	35lbs.	40lbs.
27lbs.	43lbs.	
- D = 5 3/4" (PF 53)  
D = 7 3/4" (PF 70, PF 100)  
H = D + 2"



## Guide Specifications

### 1.0 General

- Terminal filter HEPA/ULPA Modules shall be Pureflo Model PF as manufactured by Flanders and shall be scan tested for leaks after assembly.
- Module sizes, filter pack depth, efficiencies and capacities shall be as scheduled on the drawings.

### 2.0 Module Construction

- The module filter pack shall be constructed of water-laid microfibre fiberglass media containing a water-repellent binder. The media shall be formed into closely-spaced pleats held in position by adhesive bead separators.
- The filter pack shall be polyurethane-sealed into a clear coat-anodized extruded aluminum frame and rectangular tube section center divider.
- Module top/inlet collar shall be one-piece aluminum.

- The protective face grille shall be 20 ga. expanded steel finished in white powder coat paint.
- Provide an airflow damper adjustable from the room side and accessible through a port with a removable plug located in the center divider.
- Provide a separate port in the center divider that is open to the inlet side of the filter for measurement of static pressure and challenge aerosol concentration. The port shall be fitted with a removable plug.

### 3.0 Performance

- Initial and final resistances shall not exceed the scheduled values.
- The airflow damper shall be capable of regulating the module face velocity from 70 fpm to 110 fpm.
- Performance shall meet the requirements of IEST RP - 1 for Type C or F filters.

## Fan-Powered Terminal Filter Modules

Standard: PF-FPM\*-xxxx-STD Room Side: PF-FPM\*-xxxx-RSR  
(Where \* is efficiency designator of 493 for 99.99% efficient on .3 micron particles and 591 is 99.9995% efficient on .12 micron particles.)

### General

Pureflo-FPM Fan-Powered Terminal HEPA/ULPA Filter Modules are lightweight unitized low profile units consisting of a fan/motor assembly and a minipleat HEPA/ULPA filter pack, designed to provide unidirectional vertical airflow from tee-bar ceilings. The modules are available in two sizes: nominal 24" x 24" and 24" x 48"; and in two types: a standard replaceable unit and a room side replaceable (RSR) unit. Module efficiencies are 99.99% on 0.3 micron particles or 99.9995% on 0.12 micron particles.

### Options

- Nominal 10" or 12" duct collars for conditioned air
- UL Class 1 dimple pleat HEPA filter
- 25-30% efficient pleated prefilter
- Power cord for 115V modules
- 220V 50/60 Hz fan motor
- 277V 60 Hz fan motor
- Integral dual polarity DC air ionizing bar
- Neoprene Gasketed RSR filter pack
- Power indicator light

### Application and Installation Considerations

Pureflo-FPM modules are recommended for use in clean-room applications for fabrication of microelectronics, semiconductors, and medical devices.

The filters in standard modules are table-top replaceable with the entire unit removed from the ceiling. The filters in room side replaceable (RSR) modules have an integral extruded channel filled with cleanroom quality sealing gel. The filters are clamped into the fan plenum against a continuous knife edge that is embedded into the gel for a

leakproof seal. Removal of the filter does not disturb the enclosure. Neoprene gasketed filters are available as an option. Modules include threaded inserts with 1/4" eyebolts at each top corner for the attachment of seismic restraint wires. Polyfoam gasket material should be applied to the tee-bar surfaces on which the modules rest.

### Performance

Pureflo-FPM modules produce HEPA or ULPA filtered air at a velocity of 90 fpm + 15 fpm six inches below the filter face. When using the solid state speed control, the sound level 30 inch from the filter face is approximately 53 dbA (nc45) at a 90 fpm average face velocity and an ambient sound level of 25 dbA.

### Construction

**HEPA filter:** Separatorless minipleat with water-resistant microfibre fiberglass media 2.1" (53 mm) on STD models, and 2.76" (70 mm) on RSR models.

**Fan Housing:** Mil finish .063" aluminum

**Protective Grille:** Expanded 20 ga. steel, white powder-coated

**Prefilter:** Washable 20 ppi foam (pleated prefilter optional)

**Integral Fan/Motor Assembly:** Backward-curved fan with sealed bearings, direct-driven by a 115 volt single phase 1/3 HP PSC continuous duty thermally protected motor.

**Speed Control:** A solid state speed control is also standard on all voltages

### Important Features

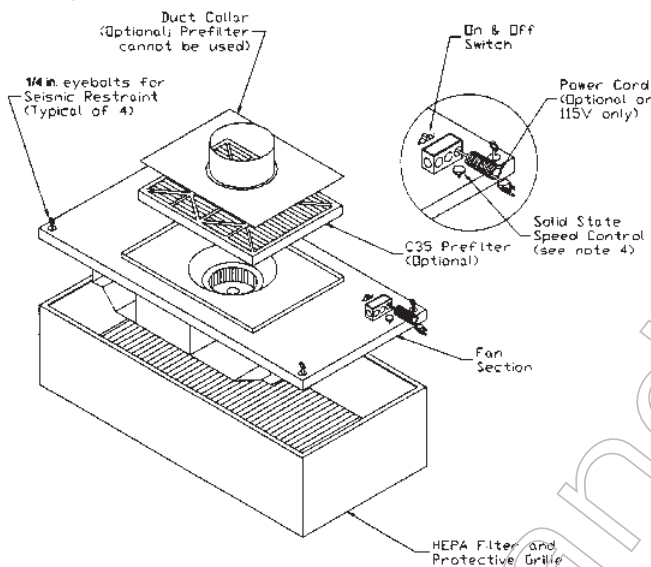
- Extremely quiet fan/motor assembly
- HEPA/ULPA filters are replaceable
- Filters are scan-tested after assembly to meet or exceed IEST RP-1 requirements for Type C and F filters
- Minipleat separatorless filter pack for a lightweight and low profile design
- UL listed as a complete unit



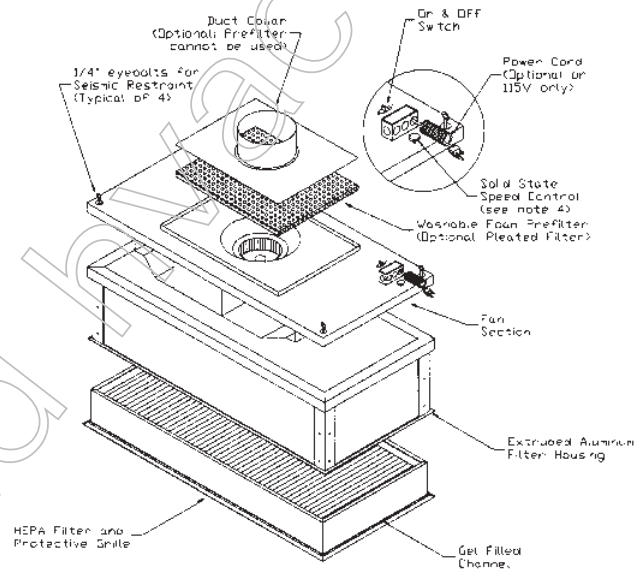
Room Side Replaceable Module Model Number	Standard Replaceable Module Model Number	Particle Size Efficiency, %	Length in inches		Nominal Air Qty., Cfm (Note 1)	Typical 115V Running Amps	Sensible Heat Output, BtuH	Max. Avail. Static Press. for Prefilter, inch w.g. (Note 4)
			Module Top	Module Bottom				
PF-FPM-493-2424-RSR	PF-FPM-493-2424-STD	99.99	23.87	23.63	360	1.68	659	0.86
PF-FPM-493-2448-RSR	PF-FPM-493-2448-STD	0.3 Fm	47.87	47.63	720	2.04	800	0.72
PF-FPM-591-2424-RSR	PF-FPM-591-2424-STD	99.9995	23.87	23.63	360	1.89	742	0.76
PF-FPM-591-2448-RSR	PF-FPM-591-2448-STD	0.12Fm	47.87	47.63	720	2.11	828	0.57

**Performance Data Notes:**

1. Nominal air quantity based on 90 fpm velocity and the module's gross face area.
2. All fan motors are 1/3 hp single phase; 1570 rpm at 115, 230 and 227V 60Hz, and 1310 rpm at 230V 50Hz. Full load amps: 2.4 at 115V; .94 at 230V and 277V, 60Hz.
3. Based at 80% of nominal air quantity.
4. Weights: 24x48: Std.= 66 lbs, RSR = 92 lbs.



**Standard Replaceable Module**



**Room Side Replaceable Module**

**Guide Specifications**

**1.0 General**

- 1.1 Fan-Powered Terminal HEPA/ULPA Filter Modules shall be Pureflo-FPM as manufactured by Flanders.
- 1.2 Modules shall be UL listed as a complete unit.
- 1.3 Module sizes, electrical characteristics, efficiencies, capacities, and options shall be as scheduled on the drawings.

**2.0 Module Construction**

- 2.1 Filters shall be the separatorless minipleat type scan-tested after assembly to meet IEST RP-1 requirements. The filter's protective grille shall be expanded 20 ga. steel white powdercoat painted.
- 2.2 Filters for STD models shall be 2.1" (53 mm), and shall be sealed into an anodized aluminum frame. Filters for RSR models shall be 2.76" (70 mm) and shall incorporate an extruded aluminum frame

with a gel and knife edge seal design

- 2.3 Fan housing shall be mill finish .063" aluminum.
- 2.4 The integral fan/motor assembly shall consist of a backward-curved centrifugal fan with sealed bearings, direct-driven by a single phase 1/3 hp PSC continuous duty thermally protected motor.
- 2.5 Motor speed shall be controlled by a solid state speed controller.

**3.0 Performance**

- 3.1 Modules shall produce HEPA or ULPA filtered air at a velocity of 90 fpm + 15 fpm 6" below the filter face.
- 3.2 Using the solid state speed control, the sound level 30" from the filter face shall be approximately 53 dbA at 90 fpm average face velocity and less than 25 dbA ambient sound level.



## Activated Carbon Adsorbers

Models FCP\*XXXX

(Where \* indicates carbon type model of 201, 202, 204, 301, 302, 304. See price book.)

### FCP Series – Activated Carbon Filled Nonwoven Media Adsorbers

The Flanders FCP Series adsorbers are designed for removal of malodorous compounds at low concentration levels. Utilizing the latest technology in fine mesh activated carbon, the product provides high removal efficiency of nuisance odors.

#### Product Design

FCP Series filters are pleated activated carbon filled nonwoven media sealed within a moisture resistant beverage board frame. The uniqueness of the product is the filter media. The polyester media is filled with fine mesh activated carbon through the depth of the media. The ultrapure carbon is thermally bonded to the polyester fibers providing superior product design and offering the following advantages.

- Maximum Carbon Surface Area
  - Optimizes Efficiency and Available Capacity
- Exceptional Adhesion of Granules
  - Precludes Carbon Dusting
- Consistent Carbon Distribution
  - Reduces Channeling
- Minimizes Pressure Loss

### FCP Performance

The FCP products offer exceptional performance in efficiency and capacity compared with products manufactured from carbon slurry media or carbon/polyester pads. Figure 1 on the reverse side illustrates that the FCP efficiency is at least 30% better than a carbon slurry pleat. The minimum capacity is six times greater as shown in the table below.

#### Options

The FCP Series is available in standard capacity and high capacity models in 2" and 4" depths.

##### 200 Series - Standard Capacity

The filter media has a carbon mass loading of 7 oz. per sq. yd. of material.

##### 300 Series - High Capacity

The filter media has a carbon mass loading of 14 oz. per sq. yd. of material.

The FCP Series is available with three contaminant specific activated carbon products.

- 201 or 301 - Removal of VOC's
- 202 or 302 - Removal of Acid Gases
- 204 or 304 - Removal of Alkaline Gases

This table illustrates the differences in overall capacity of three carbon products.

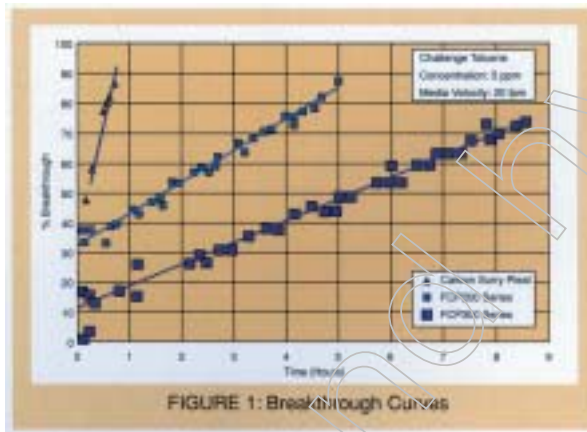
Product	Capacity to 75% Breakthrough
Carbon Slurry	1.6 grams
FCP 200 Series	25 grams
FCP 300 Series	63 grams



## FCP Selection

Model Number	Nominal Size (inches)	Actual Size (inches)	Media Area (sq. ft.)	Rated Flow (cfm)	Initial Resistance (inch w.g.)
FCP201-24242	24 x 24 x 2	23-3/8 x 23-3/8 x 1-3/4	20	2000	.55
FCP201-12242	12 x 24 x 2	11-3/8 x 23-3/8 x 1-3/4	10	1000	.55
FCP301-24242	24 x 24 x 2	23-3/8 x 23-3/8 x 1-3/4	20	2000	.65
FCP301-12242	12 x 24 x 2	11-3/8 x 23-3/8 x 1-3/4	10	1000	.65
FCP201-24244	24 x 24 x 4	23-3/8 x 23-3/8 x 3-3/4	44	2000	.40
FCP201-12244	12 x 24 x 4	11-3/8 x 23-3/8 x 3-3/4	21	1000	.40
FCP301-24244	24 x 24 x 4	23-3/8 x 23-3/8 x 3-3/4	44	2000	.50
FCP301-12244	12 x 24 x 4	11-3/8 x 23-3/8 x 3-3/4	21	1000	.50

Performance values stated may be averages typical of the products listed.  
Contact factory for actual performance test reports on specific products.



### Guide Specifications

#### 1.0 General

- 1.1 Activated carbon filters shall be FCP Carbon adsorbers as manufactured by Flanders.
- 1.2 Model numbers, sizes and capacities shall be as specified on the drawings.

#### 2.0 Construction

- 2.1 Filters shall be constructed of a carbon filled polyester nonwoven media. Carbon granules shall be thermally bonded to polyester fibers to prevent release of carbon particulate into the air stream.

- 2.2 The carbon granules shall be 30 x 50 US Mesh with a carbon tetrachloride rating of 90%.
- 2.3 The carbon media shall be pleated without the use of a support structure and sealed within a 22 point moisture resistant beverage board frame.

#### 3.0 Performance

- 3.1 The pressure drop and carbon content shall be as specified on the drawings.
- 3.2 The filter shall be capable of removing toluene at an efficiency of 90% at inlet concentration of 10 ppm and a filter face velocity of 500 fpm

## Improves IAQ through odor abatement and better particulate air filtration

Many strong odors in living spaces come from materials that are either strong acids or strong bases. For example, sauerkraut smells up the house because it is highly acidic. And the “ammonia” smell of urine is highly alkaline...a strong base. The Flanders PH Odor Control Pleat is specifically designed to bring both types of odor molecules...acid or base...into a more neutral, PH balanced, odor free state.

The secret of this filter’s odor effectiveness is sodium bicarbonate. It is basically an industrial version of the baking soda you put in the fridge to remove odors. The media fibers of the PH Odor Control Pleat are coated with this material.

And it is sodium bicarbonate’s natural ability to neutralize both acids and bases...balance their PH...that makes the PH Odor Control filter effective as a wide spectrum odor neutralizer.

## Bonus...better particulate filtration

Fractional efficiency tests on the sodium bicarbonate treated filter medium showed it to perform better on particulates as well as on acid and alkaline odors. Treatment caused no change in pressure drop.

Examples of applications that might benefit from such a filter include family residences, hotel rooms, nursing facilities, athletic clubs and other areas with odors that come from strong acids or strong bases.

## Construction

Cotton and polyester pleat media is prepared by immersion in a special sodium bicarbonate slurry, then dried. Media is adhered to galvanized expanded metal and deep pleated. Pleated pack is encased and sealed within a moisture resistant kraft board frame. This filter is offered in 1”, 2” and 4” depths in all of the most popular face sizes, plus special sizes.

## Key Features

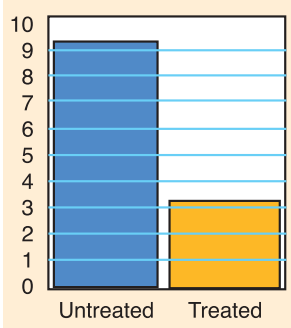
- Removes both acid and base type odors
- Works by reaching PH balance
- Tested technology
- With sodium bicarbonate (baking soda)
- Odor removal PLUS better particulate filtration
- Works on pet odor, cooking odor, body odor and more



# Sensory testing

## Body Odor

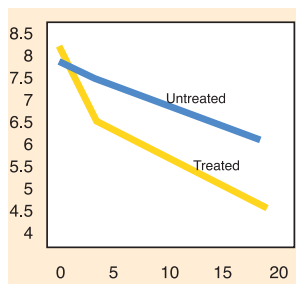
Odor level testing was conducted in jars set up specially for headspace odor testing. Sensory evaluation was run 20 hours after the jars had been set up to allow for adequate equilibration. 20 panelists participated in headspace odor level testing. The malodor in the headspace was isovaleric acid vapor (Synthetic Sweat Odor)



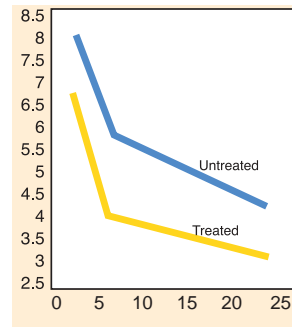
that had passed through the filter material. Untreated filter media was tested vs filter media treated with baking soda. The chart shows the average odor levels reported by panelists. A 1 to 10 scale was used, where 1 is no malodor and 10 is extreme malodor. The difference in scores was statistically significant at the 99% confidence level.

## Strong Food Odor

Deodorization testing was run in sensory rooms. In each room, a malodor source consisting of 100 grams of sauerkraut was placed behind a 20"x20" box fan which recirculated the air. Attached to the outlet of each fan was a 20"x20" filter. A filter treated with baking soda was attached to one and an untreated filter attached to the other. The graph here illustrates results as rated by 20 panelists. Levels of odor were rated on a 1 to 10 scale. Initially (after 1 hour), both rooms showed a high level of malodor. As time passed, the room with the baking soda treated filter generated lower odor scores. The 18 hour score is statistically significant at the 90% confidence level.



## Urine Odor

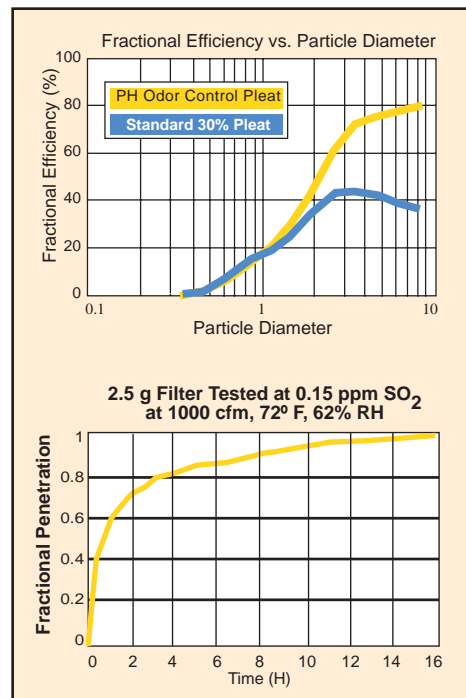


Cat urine was tested using the same apparatus and method as the sauerkraut test. The odor source was a 6"x6" carpet swatch that had been sprayed with 0.70 grams of cat urine. The chart at left shows the perceived odor levels in the rooms. The differences in score for hours

1 and 5 are statistically significant at the 90% confidence level.

## Media specification

The filter media shall be manufactured using fine grain sodium bicarbonate (baking soda) at a rate of 2 grams per square foot of media. The baking soda will be uniform through the thickness of the media. A majority of individual media fibers will be coated with the fine-grained baking soda. The sodium bicarbonate coating will be adhered to the fibers. Proof of fiber coating and uniformity through the media is to be given in the form of electron microscopic photographs. The media will have a minimum SO<sub>2</sub> efficiency of 40% at one hour when tested at the National Ambient Air Quality Standard (NAAQS) at 1000 cfm.





## General

The Model C Disposable Carbon air filter is an easy-to-install partial-bypass carbon type air purifier for light duty IAQ applications in home and commercial recirculated air systems. The filter uses premium grade granular virgin coconut shell carbon to remove odors by the adsorption process rather than masking them with air fresheners. Odors are controlled by surface adsorption on the carbon, which has over one million square feet of surface area per square foot of filter face area. Typical household applications are the removal of odors from bathrooms, cooking, smoking and entertaining. Commercial applications may include restaurants, schools, medical offices, beauty salons, health clubs, and offices.

## Construction

A laminated cellulose honeycomb material forms the base structure of the filter. The honeycomb provides for the exposure of a great amount of surface area for full utilization of the carbon. Each individual honeycomb cell is filled with granular activated carbon to either the 50% or 75% level. The 75% fill filter has a longer life than the 50% fill filter, but its airway pressure drop is greater.

The carbon is retained within the honeycomb cells by a non-woven nylon mesh on both sides of the filter. The honeycomb is given additional strength by a moisture-resistant die-cut beverage board frame (standard sizes) or U-channel beverage board (special sizes). Each order is individually sealed in plastic to retain the carbon efficiency prior to installation.

## Service Life

It is difficult to predict the life of any carbon filter. It is a function of the concentration level of dust and gaseous contamination for each specific application. Even though sensitivity varies with the individual, the human nose is still the best indicator of the need to change a carbon filter.

## Physical Data

**Frame:** Moisture-resistant die-cut beverage board

**Honeycomb:** Laminated cellulose paper

**Mesh Grid:** Non-woven nylon

**Activated Carbon:** Granular virgin coconut shell base

## Important Features

- Low static pressure partial-bypass type odor adsorber
- Premium virgin coconut shell activated carbon
- Completely disposable product
- Controls odors in many light duty applications



Standard Size Capacities and Dimensions				
Actual Depth (inch)	Actual HxW (inch)	Nominal cfm at 300 fpm	Carbon weight (lbs.) per filter	
			C50	C75
3/4	11-1/2 x 23-1/2	600	2.00	2.75
	15-1/2 x 19-1/2	660	2.25	3.00
	15-1/2 x 24-1/2	830	2.75	3.75
	19-1/2 x 19-1/2	830	2.75	3.75
	19-1/2 x 24-1/2	1040	3.25	4.75
	23-1/2 x 23-1/2	1200	4.00	5.50
1-3/4	11-1/2 x 23-1/2	600	4.00	5.50
	15-1/2 x 19-1/2	660	4.50	6.00
	15-1/2 x 24-1/2	830	5.50	7.50
	19-1/2 x 19-1/2	830	5.50	7.50
	19-1/2 x 24-1/2	1040	6.50	9.50
	23-1/2 x 23-1/2	1200	8.00	11.00

## Installation

The Model C carbon filter can be installed with, or in some cases, instead of an existing dust filter. If the filter track is 2" thick, it is often possible to slide in a 1" prefilter and a 1" carbon filter.

Built-up filter banks with holding frames are particularly easy to retrofit using Model P fasteners. Model C carbon filters are ideal for use in the prefilter track of the two-stage Sureseal filter housing.

### Notes:

1. Special size Model C filters are available. Contact your local representative or the factory.
2. Recommended maximum rated velocity is 500 fpm.
3. Pressure drop for clean Model C filters at 300 fpm face velocity is:  
 C50-1inch, .30 w.g.    C50-2 inch, .25 w.g.  
 C75-1inch, .35 w.g.    C75-2 inch, .30 w.g.

## Guide Specifications

### 1.0 General

1.1 Disposable carbon air filters shall be Model C as manufactured by Flanders.

### 2.0 Filter Construction

2.1 Filters shall be constructed of laminated cellulose paper honeycomb whose cells are partially filled with granular virgin coconut shell base activated carbon.

2.2 Fill level shall be 50% or 75% as specified.

2.3 Carbon shall be retained by a non-woven nylon mesh.

2.4 Filter frame shall be die-cut or U-Channel moisture-resistant beverage board.

2.5 Each order shall be sealed in plastic to retain carbon efficiency prior to installation.

### 3.0 Carbon Fill

3.1 The minimum pounds of carbon per square foot of filter face area shall be not less than:

C50-1" 0.80, C50-2" 1.75

C75-1" 1.13, C75-2" 2.50

### General

Flanders Superflow-VC Disposable Activated Carbon Adsorbers are designed for gaseous contamination control in both new and existing HVAC systems. Superflow-VC Adsorbers have total-detention capability with all air passing through the carbon beds. These adsorbers can help mitigate Indoor Air Quality problems in buildings where the air must be cleansed of gaseous contaminants. They are also useful in a variety of other applications such as the protection of light industrial processes and works of art.

### Construction

Superflow-VC Adsorbers consist of eight activated carbon-filled panels arranged in a V configuration and sealed with non-volatile adhesive into top and bottom injection molded ABS plastic end plates. The sealant completely eliminates bypass within the cell. The end plates incorporate a single header to position the cell in holding frames or side access housings.

Extruded aluminum vertical struts close off the panel edges in front and are aerodynamically designed to minimize airflow restriction and turbulence. Vertical steel rods on the downstream side provide rigidity and minimize twisting and racking.

The activated carbon panels are constructed of one" (25 mm) thick moisture-resistant corrugated kraft honeycomb grids. The honeycomb is filled with granular activated carbon held in place by fine

mesh nylon screens glued to the grid. The screens act as a secondary prefilter and also as an afterfilter. The activated carbon media is premium HVAC grade virgin coconut shell granules with a minimum carbon tetrachloride (CTC) activity of 60% per ASTM D-3467. Granules are 4 x 8 US mesh size with a minimum apparent density of 0.49 g/mL. The minimum hardness is 97 per ASTM D-3802 and the minimum surface area is 1100 m<sup>2</sup>/g by the N2 BET test method.

### Physical Data

**Top and bottom end plates:** High strength ABS plastic

**Vertical struts:** Aerodynamically-designed extruded aluminum

**Vertical supports:** Steel rods on downstream side

**Carbon panels:** Eight one inch (25 mm) moisture resistant corrugated kraft honeycomb grids filled with granular activated carbon media contained by fine mesh nylon screens on both air entering and leaving sides

**Panel sealant:** Non-volatile type applied along the entire periphery of the panel to eliminate air bypass

**Activated carbon media:** Virgin coconut shell base, 4 x 8 US mesh size, minimum 60% CTC activity

**Operating limits:** 150°F (65°C) and 95% RH, non-condensing

### Features and Benefits

- Total detention multi-panel design combines high adsorption efficiency with low pressure drop
- Entire cell is disposable so installation is clean, quick and easy
- Installation flexibility: adsorbers are suitable for both initial and retrofit applications and in front or side access arrangements.
- Gaseous contamination control can be applied to most HVAC air systems
- Impregnated carbons are available for control of difficult contaminants: H<sub>2</sub>S, acid gases, formaldehyde, ammonia, aldehydes and amines



## Application Considerations

Superflow-VC Adsorbers in HVAC airstreams can remove many gaseous contaminants thus mitigating their effects on people and processes. They are especially useful in controlling common contaminants that cause poor indoor air quality (IAQ) in commercial and industrial buildings such as office buildings and hospitals. Typical applications and controlled contaminants are:

<i>Airports</i>	<i>SOx and NOx</i>
<i>Blueprint facilities</i>	<i>Ammonia</i>
<i>Food processing</i>	<i>Amines</i>
<i>Loading docks</i>	<i>Diesel fumes</i>
<i>Museums</i>	<i>Aldehydes and acid gases</i>
<i>Office buildings</i>	<i>VOCs and aldehydes</i>
<i>Research facilities</i>	<i>Animal odors</i>

Light duty IAQ applications can usually be handled by Superflow-VC units selected at 500 fpm (2.54 m/s) face velocity with a 0.030 second residence time. Medium and heavy duty applications include airports, engine exhaust, some industrial processes and situations requiring impregnated carbon. For these applications, adsorbers should be selected at greatly reduced face velocities for a longer residence time.

## Residence Time

Residence time is the period, usually a fraction of a second, that the contaminant molecule is within the boundaries of the media bed depth and is exposed to adsorption capture and (for chemisorption) chemical change. The efficiency of an adsorber is a function of the bed residence time for a given contaminant and set of environmental conditions. The longer the residence time, the greater the efficiency. Residence time is computed as: (bed area exposed to airflow x bed depth) / airflow rate.

## Installation

Superflow-VC Adsorbers are not position sensitive. Airflow may be through the header side face or the opposite side face. The cell may be turned so that the panels are vertical or horizontal. Wherever possible, adsorbers should be installed with panels vertical and air entering the header side face.

Frames and housings used for 12" (305 mm) deep particulate filters are well-suited for Superflow-VC adsorbers. In new construction, built up banks of Flanders Type 9 Holding Frames and Clips or

Flanders K-Trac Framing Modules holding prefilters and adsorbers are often chosen where 30 inches (760 mm) of upstream service access space is available. Flanders Sureseal Side Access Housings are most often used for small systems and for systems where in-line service access space is limited.

Type 9 Holding Frames include gaskets on the flange against which the adsorber header seals. For side access housing applications, gaskets are applied to the side of the adsorber header to achieve an adsorber-to-adsorber and adsorber-to-door seals.

## Carbon Type and Typical Applications

(Weights are per 24 x 24 adsorber)

- TS 201- Virgin coconut shell- VOC (volatile organic compounds) Carbon weight = 25 lb/11.4 kg
- TS 202- Impregnated for control of acid and malodorous gas absorption Carbon weight = 29 lb/13.1 kg
- TS 204- Impregnated for control of ammonia and light organic amines adsorption Carbon weight = 28 lb/12.6 kg
- TS 205- Impregnated for control of aldehydes Carbon weight = 29 lb/13.1 kg
- TS 209- Impregnated for universal adsorption of both acid and alkaline gases and vapors Carbon weight= 32 lb/14.9 kg

*Refer to Superflow-VC Drawing for construction details.*

### Model Number Development

<b>SFVC</b>	<b>TS201</b>	<b>242412</b>
Superflow VC	Carbon Type	Nominal Size

### **SFVC-TS201-242412**

Represents a Superflow VC Carbon Adsorber with Type 201 carbon, nominal 24" x 24" x 12" (610 mm x 610 mm x 305 mm) with polyfoam gasket material shipped loose.



## Adsorber Protection

Particulate contamination must be considered when utilizing gas/vapor phase adsorbers. As a minimum, a Flanders prefilter with an efficiency of 25-30% per ASHRAE Std. 52.1 should be installed on the upstream side of the Superflow-VC adsorber in order to extend the service life by significantly reducing dirt build-up. Even higher efficiency pre-filtration should be considered when system design allows for additional space and static pressure.

## Packaging

Each Superflow-VC Adsorber is individually sealed in a polyethylene bag prior to placement in a heavy duty shipping carton. The bag protects the adsorber from being expended prematurely and also facilitates clean and easy jobsite changeouts. The spent adsorber can be placed in the plastic bag and then in the carton for disposal.

## Disposal

Routine disposal is usually permitted if spent adsorbers with Superflow-VC 201 media have been used for normal IAQ applications. Spent adsorbers filled with impregnated carbon and those used in industrial applications may need special handling. Local environmental authorities should be consulted prior to disposal.

## Physical Data:

**Top and bottom end plates:** High strength ABS plastic

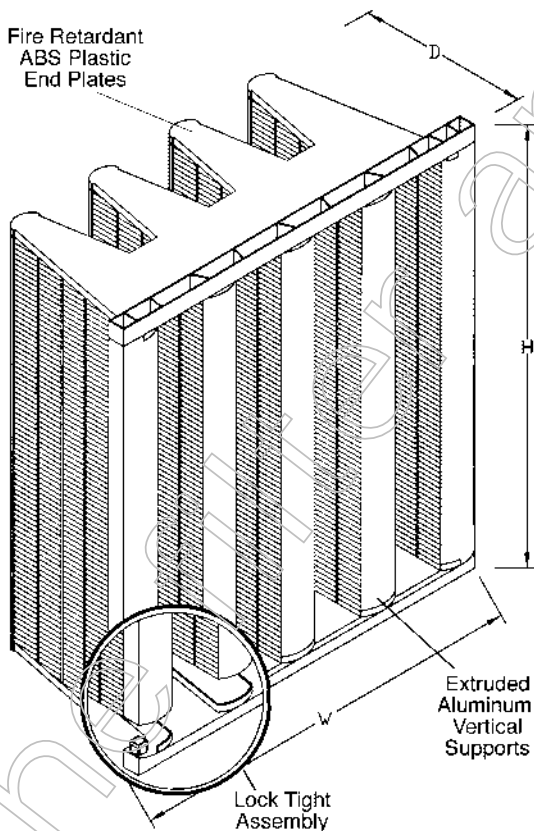
**Vertical Struts:** Aerodynamically designed extruded aluminum

**Vertical Supports:** Steel rods on the downstream side

**Carbon Panels:** Eight 1" (25 mm) moisture-resistant corrugated kraft honeycomb grids filled with granular carbon media contained by fine mesh nylon screen

**Panel Sealant:** Non-volatile type, applied along the entire panel periphery

**Activated Carbon Media:** Virgin coconut shell base, 4 x 8 US mesh size, minimum 60% CTC activity



## Superflow-VC Performance Data

Adsorber Model Number (See Note 1)	Nominal Size H x W x D inch (See Note 2)	ADSORBER FACE VELOCITY, fpm												Cell Weight lb
		125			250			375			500			
		cfm	PD	Res	cfm	PD	Res	cfm	PD	Res	cfm	PD	Res	
SFVC-242412	24 x 24 x 12	500	0.10	0.11	1000	0.20	0.050	1500	0.33	0.040	2000	0.50	0.030	34
SFVC-122412		250	0.10	0.11	500	0.20	0.050	750	0.33	0.040	1000	0.50	0.030	17
Adsorber Model Number (See Note 1)	Nominal Size H x W x D mm. (See Note 2)	ADSORBER FACE VELOCITY, m/s												Cell Weight kg
		0.64			1.27			1.90			2.54			
		m <sup>3</sup> /s	PD	Res	m <sup>3</sup> /s	PD	Res	m <sup>3</sup> /s	PD	Res	m <sup>3</sup> /s	PD	Res	
SFVC-242412	610x610x305	0.24	0.02	0.11	0.47	0.05	0.050	0.71	0.08	0.040	0.94	0.12	0.033	15.5
SFVC-122412	305x610x305	0.12	0.02	0.11	0.24	0.05	0.050	0.35	0.08	0.040	0.47	0.12	0.033	7.7

### Notes:

- \*Insert Superflow-VC carbon type model number.
- Actual size of adsorber header is 0.625" (16 mm) under on face height and width; actual adsorber depth is 11.5" (290 mm).
- "PD" represents clean pressure drop in inch w.g. or kPa.
- "Res" represents residence time in seconds.

### Superflow-VC Carbon Weight Per Cell

Adsorber Size Designator	Superflow-VC Carbon Type									
	201		202		204		205		209	
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
242412	25	11.4	29	13.1	28	12.6	29	13.1	33	14.9
122412	13	5.9	14	6.3	14	6.3	14	6.3	16	7.2

## Guide Specifications

### 1.0 Products

- Activated carbon adsorbers shall be total-detention type Superflow-VC models as manufactured by Flanders.
- Model numbers and capacities of the adsorbers, particulate prefilters and holding frames or housings shall be as specified or as shown on the drawings.

### 2.0 Construction

- Adsorbers shall be constructed of multiple carbon-filled panels arranged in a V configuration. Panels shall be 1" (25 mm) thick moisture-resistant corrugated kraft honeycomb sealed to top and bottom end plates with non-volatile adhesive.
- Panels shall be completely filled with 4 x 8 US mesh size activated carbon held in place by nylon screens.
- Top and bottom end plates shall be injection-molded high strength ABS plastic with integral headers.

- The cell shall be assembled with aerodynamically designed vertical front struts and vertical steel rod supports on the downstream side.
- Each adsorber shall be sealed in a polyethylene bag before being placed in its shipping carton.

### 3.0 Performance

- Activated carbon media shall be virgin coconut shell base, minimum 60% CTC activity by the ASTM D-3467 test method, minimum apparent density of 0.49 g/mL, minimum hardness of 97 by the ASTM D-3802 method and a minimum surface area of 1100m<sup>2</sup>/g by the N<sub>2</sub> BET method.
- The SFVC201-242412 model shall contain no less than 25 lb (11.4 kg) of activated carbon. At 2000 cfm (0.94 m<sup>3</sup>/s) it shall have an airway resistance no greater than 0.50 inch w.g. (0.12 kPa) and a residence time no less than 0.030 seconds.

**Vaporclean**

The Flanders Vaporclean vapor phase adsorbers are designed for removal of molecular contaminants at low concentration levels while utilizing the proven technology of dry processed carbon composite media, (DPCC). The adsorbers provide high efficiency removal of multiple contaminants for applications within museums, archive storage facilities, airports and semiconductor fabrication facilities.

**Technical Description**

The carbon media is manufactured with a dry processed carbon composite of ultrafine 30 x 50 mesh activated carbon with a minimum carbon tetrachloride activity of 90% per ASTM D-3467. The high efficiency carbon granules are thermally bonded to polyester nonwoven bicomponent fibers. The pleated media pack is contained within a 24 ga galvanized steel casing and bonded with a polyimide hot melt adhesive to maintain rigidity and eliminate air bypass. Pleat spacing and alignment is maintained with high impact polystyrene plastic separators installed on both air entering and leaving sides.

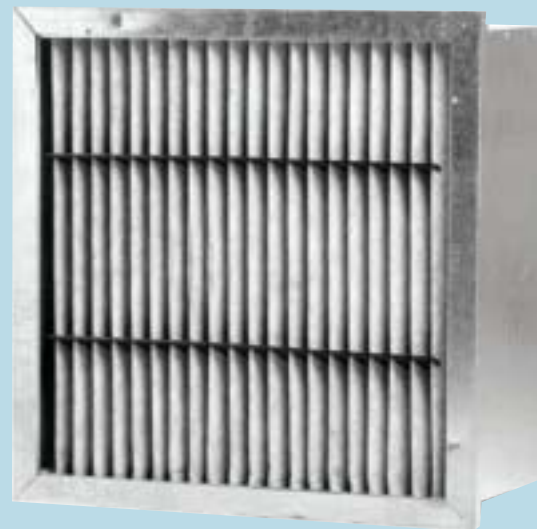
**Product Options**

The Vaporclean adsorbers are available with five contaminant specific dry processed carbon composites.

DPCC Grade	Application
1501	Effective removal of gas mixtures consisting of aldehyde, acid gases and hydrocarbons.
1076	Effective removal of ozone, hydrocarbons & volatile organic compounds.
1073	Effective removal of acid gases such as SO <sub>2</sub> and NO <sub>2</sub> .
1075	Effective removal of hydrogen sulfide, H <sub>2</sub> S.
1090	Effective removal of alkaline gases such as ammonia and other light organic ammine compounds.

**Important Features**

- Maximized carbon surface area
- Increased efficiency and capacity
- Low initial static pressure
- Consistent carbon distribution



## Vaporclean Performance

The pressure drop of the Vaporclean is 0.35 inch w.g. at a face velocity of 500 fpm. The initial efficiency of the adsorber under the following conditions shall be met.

Contaminant	Challenge Concentration	Efficiency	Capacity @ 50% Efficiency
Toluene	25 ppm	>90%	560 grams
SO <sub>2</sub>	30 ppm	>90%	60 grams
NO <sub>2</sub>	5 ppm	>70%	100 grams
Formaldehyde	500 ppb	>80%	4 grams

## Contaminant Matching

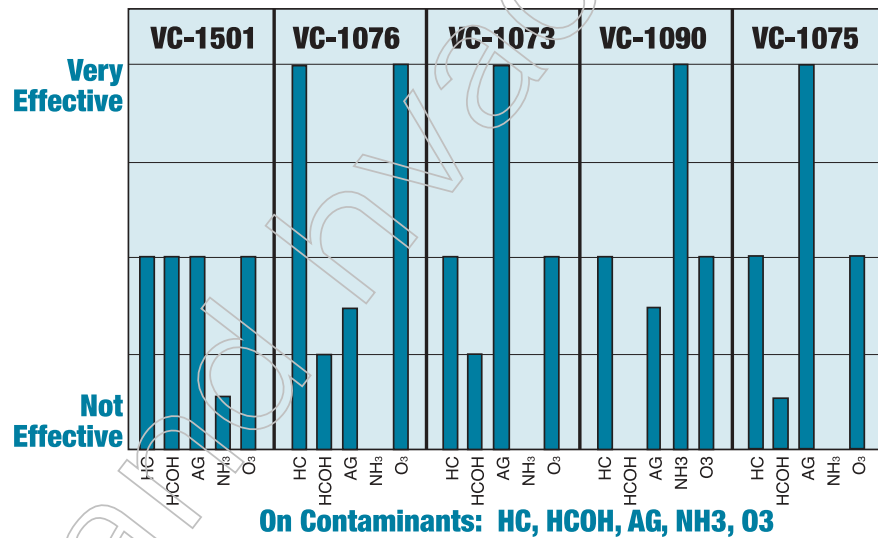
Match the Vaporclean media type to the contaminant of concern.

HC  
Hydrocarbons  
HCOH Formaldehyde  
AG  
Gases  
NH<sub>3</sub>  
Ammonia  
O<sub>3</sub>

Application Media  
Animal Odors1090  
Diesel Exhaust  
Cooking Odors  
Museums 1073  
Sewer Odors1075

Acid  
Ozone  
1501  
1501

**Relative Effectiveness of Different Vaporclean Adsorbers on Different Contaminants**



## Sample Model Number

VC	1501	16	01	2424	GD
Vaporclean	Media type	24 ga	Frame Style	Size	Gasket

VC-1501-16-01-2424-GD

Represents a Vaporclean, 24 ga galvanized steel frame, single header style, gasketed downstream, with 1501 media. Actual filter size is 23-3/8 x 23-3/8 x 11-1/2"

### NOTE:

1. The 16-01 indicates a header style filter and 16-00 indicates a box style filter. Other frame materials, frame styles and sizes are available. Consult the factory.
2. Maximum operating temperature is 120°F.
3. Frame Style: 01 for Single Header or 00 for Box Style
4. Gasket: 00 for not gasket or GU for gasket upstream or GD for gasket downstream



**High Mass and Zero Dust Bonded Carbon Panels**

Models HMZD-\* -xxxxxxx-xx

(Where \* represents carbon type: 201, 202, 204, 205, 209, 225 See price book for complete model designation)

**General**

HMZD carbon panels are available from 3/8" to 3" depths, and are easily installed in any existing side or front access housing without the usual clean up caused by carbon dusting. Bonded panels do not need to be refilled, thus eliminating the labor associated with transporting trays. A high initial efficiency can be maintained with replacement panels which are composed of 100% virgin carbon as opposed to reactivated carbon.

**Providing Clean Air**

Indoor air quality problems found within museums, schools, airports, semiconductor manufacturing plants, waste water treatment facilities and hospitals can be solved by using HMZD carbon panels. They offer a carbon solution for the removal of most specific contaminants.

**Carbon Selection**

HMZD carbon panels can be manufactured from virgin carbon, where contaminant removal is accomplished by physical adsorption or from impregnated virgin carbon where contaminant removal by chemical mechanisms are required.

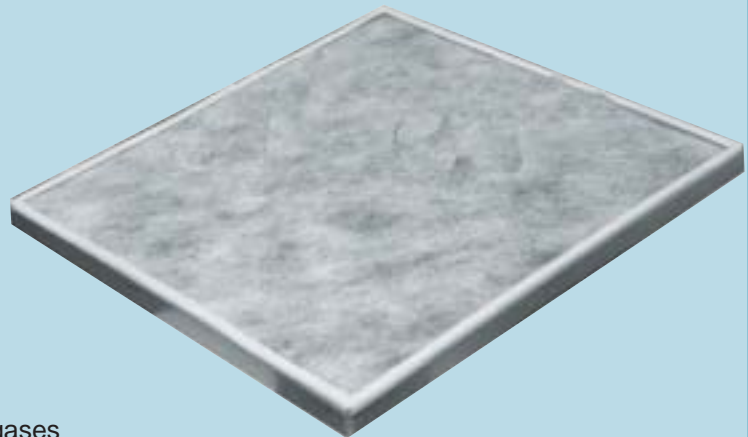
**HMZD Carbon Types and Applications:**

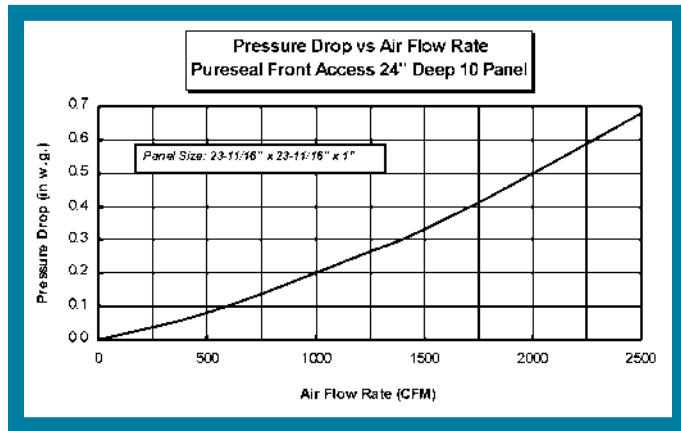
- 201- Impregnate is virgin coconut shell carbon for general removal of VOC's
- 202- Caustic impregnated for removal of acid gases
- 204- Acid impregnated for removal of alkaline gases
- 205- Chromate impregnated for removal of amines
- 209- Universal impregnate for removal of acid and alkaline gases.

**Carbon Usages**

Activated carbon is highly effective on many gas phase contaminants:

- |                      |                      |
|----------------------|----------------------|
| • Adhesives          | • Fish odors         |
| • Alcohols           | • Kitchen odors      |
| • Animal odors       | • Stale odors        |
| • Asphalt fumes      | • Vinegar            |
| • Auto exhaust       | • Liquor odors       |
| • Body odors         | • Mold               |
| • Charred Materials  | • Moth balls         |
| • Sour milks         | • Onion odors        |
| • Turpentine         | • Ozone              |
| • Waste products     | • Paint fumes        |
| • Cleaning odors     | • Sewer odors        |
| • Cosmetics          | • Tobacco smoke      |
| • Jet engine exhaust | • Vinyl chloride     |
| • Fertilizers        | • Many process gases |

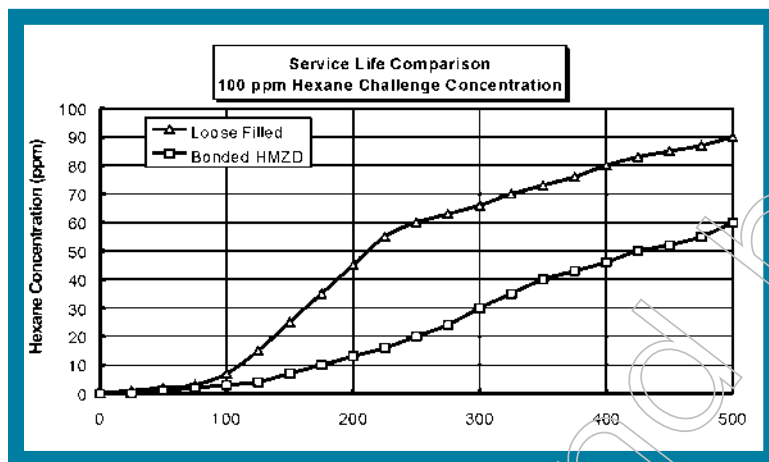




## Pressure Drop

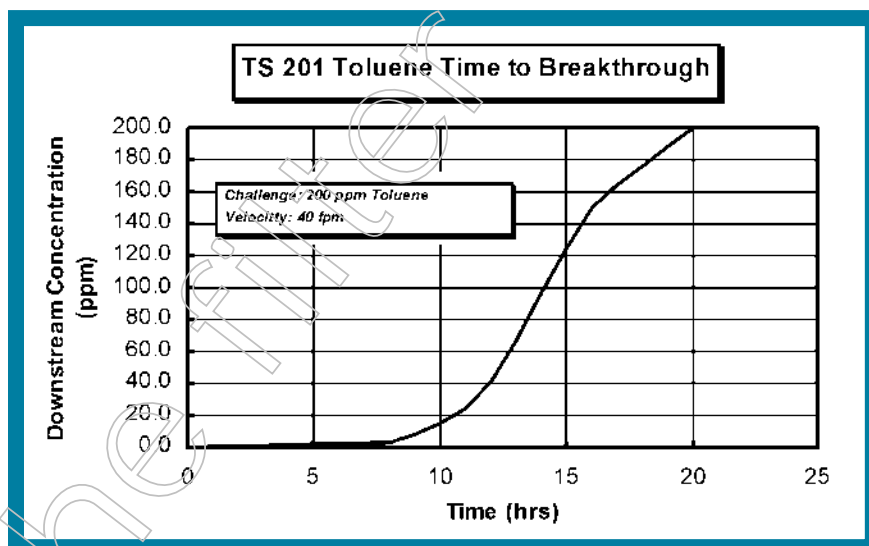
HMZD Panels can be incorporated into V shaped configurations with minimal pressure drop and impact on the system.

Please note that the breakthrough test was based on continuous 100 ppm Hexane challenge concentration. Testing conducted at an independent lab on virgin coconut shell carbon.



## Efficiency

HMZD panels perform better than loose filled systems due to increased density of carbon and elimination of air bypass



## Carbon Selection

In general, contaminants with a boiling point greater than 100 C can be effectively removed with carbon type 201.

Contaminants with a boiling point below 100 C require other available types of impregnated carbon such as type 202, 204, 205, 209.

## Clean Air is Only a Block Away

Flanders, through innovative technology, has resolved the problems associated with loose filled activated carbon trays by introducing HMZD bonded carbon panels.

HMZD stands for High Mass and Zero Dust. High Mass refers to the greater density of activated carbon installed in each panel, and Zero Dust means the filters will not release carbon dust into the air stream. The panels are fabricated from 100% virgin coconut shell activated carbon with a minimum 60% CTC activity. The premium grade carbon is bonded together during a sintering process to form a rigid block and framed to provide clean air.

HMZD bonded panels are replaced right at the air handling unit with the same quality 100% virgin carbon as the initial installation. Standard loose filled tray systems are typically replaced with regenerated carbon minimizing adsorption performance.

## Cleaning the Air

The uniform air velocity through the bed eliminates high velocity zones and bed fluidization. Bed fluidization is a major cause of continuous dusting in loose granular system designs. HMZD bonded panels are non-dusting, therefore eliminating the need for downstream after filters.

## Superior Performance

HMZD panels provide superior adsorption performance because there is no settling within the carbon bed. The carbon granules are bonded together to provide a uniform density of sorbent media across the panel eliminating air bypass and stratification zones for high efficiency and extended service life. The panel design creates uniform air flow distribution and uniform residence time ensuring maximum removal efficiencies.



## Guide Specifications

### 1.0 General

1.1 Molecular contamination control filters shall be Flanders High Mass and Zero Dust (HMZD) bonded carbon panels. Panels shall be self-supported bonded granular carbon and be sized to fit into the selected Flanders Pureseal front or side access housing as well as competitive carbon systems. Model numbers shall be as per schedule for application specific requirements.

### 2.0 References

2.1 ASTM test method D 3467-88, Standard Method for Carbon Tetrachloride Activated, American Society for Testing and Materials, Philadelphia, 1988.

### 3.0 Construction

3.1 The granular carbon shall be bonded together in a briquette form so that the panel contains no loose carbon; loose filled tray type systems are not permitted.

3.2 Panels shall be covered on both sides with a white spun bonded polyester scrim and framed in a galvanized (or stainless steel) channel; plastic frames are not permitted. A black poly-butyl (or silicone) gasket shall be affixed to one side of the panel frame for front access designs.

3.3 The bonded carbon configuration shall not settle, shall not particulate and shall not allow channeling through the bed.

3.4 The bonded panels shall be self-supporting and when installed in the housing shall provide a continuous seal around its periphery.

### 4.0 Packaging

4.1 The panels shall be individually sealed into a polyethylene bag prior to being boxed. Filters shall be stacked on pallets and stretch wrapped.

### 5.0 Carbon Material

5.1 The panels shall be composed of virgin coconut shell granular activated carbon with a minimum carbon tetrachloride (CTC) activity of 60% per ASTM D-3437. The granular carbon shall be 4x8 US mesh size with an apparent density of 0.49 g/ml minimum. The minimum hardness shall be 97 per ASTM D 3802. The minimum surface area shall be 1100 m<sup>2</sup>/g (N2BET Method) and the moisture content shall not exceed 5%.

5.2 The carbon shall be Flanders Tech Sorb TS (carbon type model number) as designed for the removal of (contaminant). The contaminant removal capacity shall be (x%) by weight as (challenge).

Tech Sorb #	Capacity	Challenge
201	24%	butane
202	20%	hydrogen sulfide
204	10%	ammonia
205	5%	formaldehyde
209	12%	hydrogen sulfide

The mass of carbon in the filter shall be (x)grams/ft<sup>2</sup>

Tech Sorb #	1"	3/4"	5/8"	7/16"
201	2.6	1.9	1.6	1.1
202	2.9	2.2	1.8	1.3
204	3.7	2.8	2.3	1.6
205	3.0	2.2	1.9	1.3
209	2.8	2.1	1.8	1.2



### General Applications

Techsorb chemical media is specifically formulated to control application specific nuisance and harmful vapors. It is supplied in bulk form and may be incorporated into Flanders gas phase media trays.

Considering the wide range of applications and that contaminants are rarely singular in nature, Flanders will provide application assistance that may be required. When dealing with gaseous contamination control, particulate control or contaminant capture effectiveness, Flanders has a proven track record to support your requirements.

### Shelf Life

Techsorb chemical media is a very active material that readily reacts with many airborne constituents. Therefore, only the containers actually required for the application should be opened. As shipped in sealed containers, Techsorb has a shelf life of 18-24 months.

### Media Types and Applications

**Techsorb TS-101** is a dry, activated alumina medium, designed to be used in applications for the removal of gaseous vapors such as hydrogen sulfide, mercaptans, sulfur dioxide and other malodorous and corrosive contaminants.

Techsorb TS-101 has been used extensively in applications ranging from Indoor Air Quality to Corrosion Control and from Toxic Contaminants Control to Industrial Odor Control. Within this broad range of applications, it has been used to control formaldehyde odors in autopsy wards and funeral homes; odors from convalescent facilities, allowing the reuse of ventilation air; in shopping malls to prevent the cross contamination of food odors and clothing shops; industrial computer rooms for the prevention of electronics corrosion due to the highly reactive sulfides; in pharmaceutical facilities and pet stores for the control of fugitive odor emissions.

Techsorb TS-201 is a dry, granular, activated carbon chemical medium, designed to be used in air filter service for the removal of gaseous vapors such as volatile organic compounds (VOC's). Typical VOCs controlled include benzene, ethylbenzene, toluene and xylene. Other organics con-

trolled include organo-sulfides such as dimethyl sulfide and methyl mercaptan in pulp and paper mill communities.

Techsorb TS-201 has been used extensively in applications ranging from Indoor Air Quality to Industrial Odor Control. The primary application is for the control of volatile organic gases found in indoor environments associated with renovation activities, new materials of construction and particleboard furnishings. This material is also ideal for controlling odors associated with cleaning solvents, hobby materials and automobile exhaust fumes. Electronic office equipment odors such as ozone and VOC's are readily removed using TS-201 chemical media.

**Techsorb TS-202** is a dry, granular, activated carbon chemical medium, designed to be used in air filter service for the removal of acid gases and vapors such as hydrogen sulfide, mercaptans, sulfur dioxide and other malodorous and corrosive contaminants such as HCl and ClO<sub>2</sub>.

Techsorb TS-202 has been used extensively in applications ranging from Corrosion Control to Industrial Odor Control. The primary application is for the control of corrosive gases within heavy industries such as Pulp and Paper, Sewage Treatment, Primary Metals, Chemical manufacturing as well as oil and gas processing. Additionally, it is used in Sewage Treatment and rendering Facilities for the control of malodorous exhaust emissions, either alone or as a polishing filter system to wet scrubbers.

**Techsorb TS-204** is a dry, granular, activated carbon chemical medium, designed to be used in air filter service for the removal of alkaline gases and vapors such as ammonia and light organic amines. Applications include odor control associated with animal storage areas and process protection within the semiconductor industry.

*(Continued on following page.)*

TECHSORB TS-204 has been used extensively in applications ranging from Odor Control to Process Protection. The primary applications are for odor control associated with ammonia and low molecular weight amines typical of animal confined space areas, decaying fish, sugar beet processing, ammonia cleaning solutions and blue printing. Process protection applications within the semiconductor industry include removal of fugitive amines that are known to alter the photolithography process.

**Techisorb TS-205** is a dry, granular, activated carbon chemical medium, designed to be used in air filter service for the removal of gaseous vapors such as formaldehyde, acrolein, acetaldehyde and glutaraldehyde.

TECHSORB TS-205 has been used extensively in Odor Control applications. The primary applications are for odor and contamination control associated with aldehydes and acrolein. Formaldehyde is a

suspected human carcinogen. It is often found as a by-product of formaldehyde resins in particleboard furniture, a decomposition product of poorly mixed urea formaldehyde foam insulation and as a volatile ingredient in permanent press clothing, drapery and carpeting. Acrolein is a by-product of combustion processes such as cooking. Acetaldehyde is a constituent of vehicle emissions. Glutaraldehyde is used as a sterilizing agent for medical instruments that are not readily autoclaved.

**Techisorb TS-209** is a dry, granular, activated carbon chemical medium, designed to be used in air filter service for the removal of gaseous vapors.

TECHSORB TS-209 has been used extensively in applications associated with mixed contaminants, such as those found in the semiconductor industry. It has been found effective for the control of condensable organics, chlorine, hydrogen sulfide, hydrogen cyanide, sulfur dioxide and ammonia.

Media Designator	Contaminant Removal Capacity (Note 1)	Contaminant	Bulk Density (lbs/ft <sup>3</sup> )
TS-101	10%	H <sub>2</sub> S	50
TS-201	60-70%	toluene	30
TS-202	18-23%	H <sub>2</sub> S	35
TS-204	10%	ammonia	34
TS-205	5-10%	formaldehyde	36
TS-209	12-18%	H <sub>2</sub> S	34

## Notes

1. Contaminant removal capacity is determined by passing a moist (85% r.h.) stream of air containing 1% by volume challenge gas through a one-inch diameter tube with a 9-inch deep bed of closely packed pellets at a rate of 1450 cc/minute and monitoring a 50 ppm breakthrough. The results are reported as grams of challenge gas adsorbed per gram of media.
2. Particle Size is 4x8, U.S. Mesh, ASTM D-2862

### General

Flanders Type 9 Holding Frames are used to construct built-up filter banks for upstream or downstream access using ASHRAE rated filters. Type 9 frames will accommodate 1", 2" or 4" panel filters including metal washable filters. They are also suitable for bag filters, self-supporting rigid filters and disposable type carbon elements. A filter-to-frame seal is effected by a factory-installed gasket and positive-sealing fasteners.

### Options

The standard frame is nominal 3" deep and constructed of 16 ga. galvanized steel. Type 304 stainless steel is an available option. Frames are also available in nominal 2", 4", and 6" depth. Actual depth is 1/8" under nominal size.

### Installation Consideration

Type 9 Frames can be assembled with pop rivets or nuts and bolts. Prior to assembly, all sides should be caulked with a non-hardening compound to prevent air bypass. Filter banks three frames high or higher should be strengthened with 3" wide 16 ga. stiffeners between each vertical row.

### Fasteners

Flanders offers several types of fasteners for use with Type 9 Frames. Refer to the Fastener Selection Chart on the reverse side of this sheet to select the appropriate fastener.

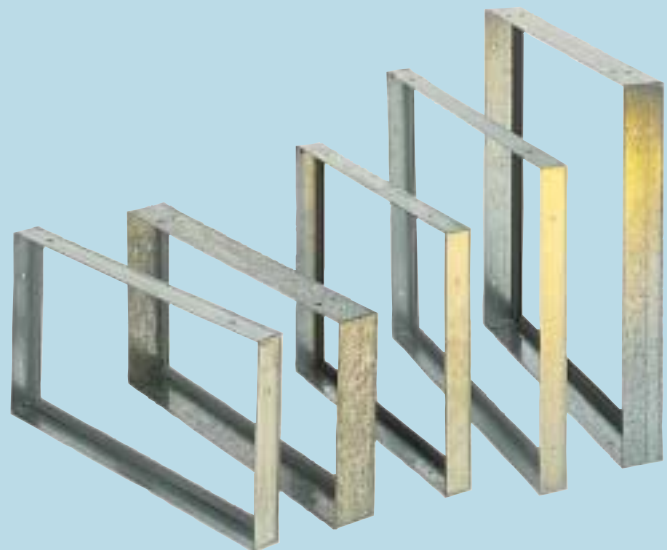
### Guide Specifications

- 1.0 Filter holding frames shall be Type 9 as manufactured by Flanders.
- 1.1 Frames shall be manufactured of 16 ga. galvanized steel and furnished with factory-installed gasketing.
- 1.2 In-line depth shall be 3" in order to effect a rigid and secure filter bank assembly. Filter fasteners shall be selected to meet the requirements of the specified filters. Fasteners shall not require the use of tools to secure the filter.

Standard 3 inch Holding Frames

Model Number	Dimensions, Inches		
	H	W	D
9HF-12243R	12	24	2-7/8
9HF-16203R	16	20	2-7/8
9HF-16253R	16	25	2-7/8
9HF-20203R	20	20	2-7/8
9HF-20243R	20	24	2-7/8
9HF-20253R	20	25	2-7/8
9HF-24243R	24	24	2-7/8

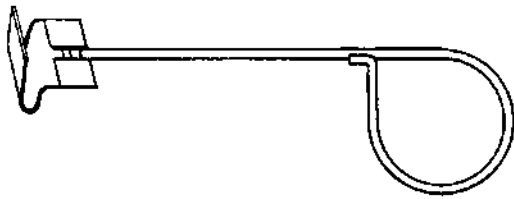
- Note:
1. Tolerances are +0 inch and -1/16 inch
  2. Special sizes are available upon request



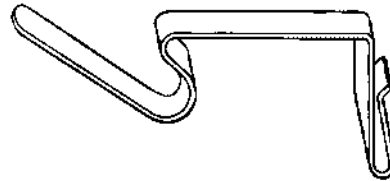
## Fastener Selection Chart

Model Number	Length (inch)	Filter Usage	Number Per Frame	
			Upstream Service	Downstream Service
P-1	1	1" panel filter, Precision Pak, PrecisionCell, or Rigid-Air	2	4
P-2	2	2" panel filter	2	4
P-3	3	2" panel prefilter with Precision Pak, PrecisionCell, or Rigid-Air	2	Not Recommended
P-4	4	4" panel filter, PrecisionCell II	2	4
P-5	5	4" panel prefilter with Precision Pak bag, PrecisionCell, or Rigid-Air	2	Not Recommended
P-6	6	6" PrecisionCell or Rigid-Air	2	4
P-12	12	12" PrecisionCell, or Rigid-Air	2	4
C-2	2	2" panel prefilter with PrecisionCell or Rigid-Air	4	Not Used
C-4	4	4" panel prefilter with PrecisionCell or Rigid-Air	4	Not Used
C-12	12	12" PrecisionCell or Rigid-Air	2	

**Model P Fastener**



**Model C-2 and C-4 Fastener**



**Model C-12 Spring Loaded Fastener**





## General

Uni-Frames are designed for retaining air filter media pads in applications that require additional media support.

The frame is fabricated of 26 gauge corrosion-resistant steel channel with each corner of the frame mitered for squareness. Filter pads are supported on the downstream side with a corrosion-resistant steel expanded metal lathe grid. The expanded metal lathe backing is spot welded to the air exit side to prevent vibration. Retainer bars for the upstream side are available as an option.

### Standard Sizes

Nominal Size	Actual Size (inches)
24 x 24 x 1	23-1/2 x 23-1/2 x 7/8
20 x 25 x 1	19-1/2 x 24-1/2 x 7/8
20 x 20 x 1	19-1/2 x 19-1/2 x 7/8
16 x 25 x 1	15-1/2 x 24-1/2 x 7/8
16 x 20 x 1	15-1/2 x 19-1/2 x 7/8
24 x 24 x 2	23-1/2 x 23-1/2 x 1-7/8
20 x 25 x 2	19-1/2 x 24-1/2 x 1-7/8
20 x 20 x 2	19-1/2 x 19-1/2 x 1-7/8
16 x 25 x 2	15-1/2 x 24-1/2 x 1-7/8
16 x 20 x 2	15-1/2 x 19-1/2 x 1-7/8

## Installation

Typical applications include roof top units, spray booths, residential units, unit ventilators and other applications not suited for ordinary fiberglass throwaway filters because of airflow velocity or environmental considerations

### Guide Specifications

#### 1.0 General

1.1 Permanent pad holding frames shall be Uni-Frame as manufactured by Flanders.

#### 2.0 Construction

2.1 Frames shall be constructed of 26 ga. corrosion-resistant steel.

2.2 Corners shall be mitered in order to eliminate snagging of the media pad.

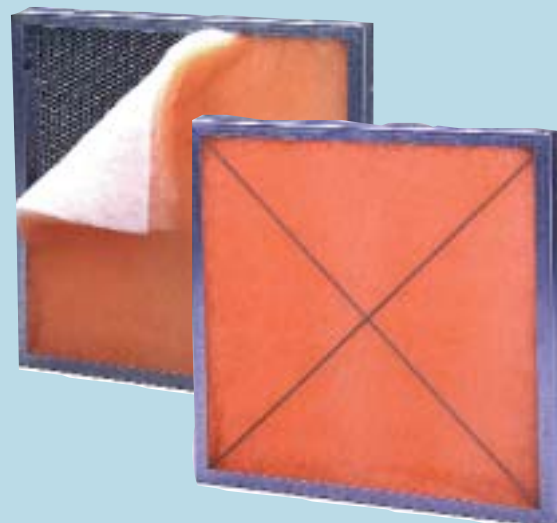
2.3 The media shall be supported on the downstream side by an expanded metal lathe backing which is welded in place.

#### 3.0 Installation

3.1 Install frames in accordance with the manufacturer's specified recommendation.

## Important Features

- 26 ga. corrosion-resistant steel construction
- Metal lathe support backing
- Mitered corners to ensure squareness and eliminate snagging of media



## Modular Filter Framing System

See model number development method on next page.

### General

K-Trac Filter Framing Modules are used for ASHRAE rated filters 2" to 36" in depth. K-Trac Modules are complete factory-designed units which replace multiple field-erected holding frames. They also provide inherent structural strength and leak-proof assembly that is sometimes lacking in frame-type installations.

K-Trac framing members are factory-cut to length, pre-drilled and gasketed for easy and quick assembly. Simple tools and light labor are all that are required. Filters are easily inserted or removed and require no clips or fasteners. Filters are angled into the upper track, then set into the lower track.

### Versatility

K-Trac Filter Framing Modules are available in sizes up to a nominal 12 ft. high and 14 ft. wide for upstream or downstream service. Modules may be joined for larger banks. The 2" prefilter track accepts disposable or pleated prefilters for single-stage applications.

The primary filter track accommodates Precision Pak bag filters, Superflow V, or Rigid-Air filters, or other filters having nominal 1" thick headers.

### Construction

K-Trac framing members are constructed of Type 6063-T5 mill-finish extruded aluminum. Clear anodizing is available as an option. Prefilter and primary filter tracks are factory-gasketed at the top and bottom with polypropylene pile air seals.

Side-to-side gasketing is furnished on the filter headers with every change. Side gaskets are compressed by a positive-sealing spring-loaded compression bar actuated by a sealing lever. The compression bar is retracted when loading or unloading filter elements.

Modules 8 ft. wide include one vertical support for the upstream side. Wider modules are furnished with vertical supports on the upstream and downstream sides. Sealing levers are located on the left side of each horizontal row when facing in the direction of air flow unless specified otherwise.

### Important Features

- Provides substantial savings in field assembly
- Filters are tightly sealed to eliminate air bypass
- Filters can be replaced quickly and easily
- Modules are factory-engineered with built-in stiffening
- Construction is corrosion-resistant aluminum



Height Code	Overall Height (in)	Face Velocity (fpm)	Height Code Overall Height (inch) Width Code											
			15W	20W	25W	30W	35W	40W	45W	50W	55W	60W	65W	70W
			Overall Width (inch)											
			36-1/26	48-1/16	59-7/16	71-7/16	82-13/16	94-13/16	106-13/16	118-13/16	129-9/16	141-9/16	152-15/16	164-15/16
10H	24-1/2	375	2250	3000	3750	4500	5250	6000	6750	75	82.5	90	9750	10500
		500	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000
		625	3750	5000	6250	7500	8750	10000	11250	12500	13750	15000	16250	17500
15H	36-15/16	375	3000	4500	5250	6750	7500	9000	9750	11250	12000	13500	14250	15750
		500	4000	6000	7000	9000	10000	12000	13000	15000	16000	18000	19000	21000
		625	5000	7500	8750	11250	12500	15000	16250	18750	20000	22500	23750	28250
20H	48-13/16	375	4500	6000	7500	9000	10500	12000	13500	15000	16500	18000	19500	21000
		500	6000	8000	10000	12000	14000	16000	18000	20000	22000	24000	26000	28000
		625	7500	10000	12500	15000	17500	20000	22500	25000	27500	30000	32500	35000
25H	61-1/4	375	5250	7500	9000	11250	12750	15000	16500	18750	20250	22500	24000	26250
		500	7000	10000	12000	15000	17000	20000	22000	25000	27000	30000	32000	35000
		625	8750	12500	15000	18750	21250	25000	27500	31250	33750	37500	40000	43750
30H	73-1/8	375	6750	9000	11250	13500	15750	18000	20250	22500	24750	27000	29250	31500
		500	9000	12000	15000	18000	21000	24000	27000	30000	33000	36000	39000	42000
		625	11250	15000	18750	22500	27250	30000	33750	37500	41250	45000	48750	52500
35H	85-9/16	375	7500	10500	12750	15750	18000	21000	23250	26250	28500	31500	33750	36750
		500	10000	14000	17000	21000	24000	28000	31000	35000	38000	42000	45000	48500
		625	12500	17500	21250	26250	30000	35000	38750	43750	47500	52500	56250	61250
40H	97-7/16	375	9000	12000	15000	18000	21000	24000	27000	30000	33000	36000	39000	42000
		500	12000	16000	20000	24000	28000	32000	36000	40000	44000	48000	52000	56000
		625	15000	20000	25000	30000	35000	40000	45000	50000	55000	60000	65000	70000
45H	109-7/8	375	9750	13500	16500	20250	23250	27000	30000	33750	36750	40500	43500	47250
		500	13000	18000	22000	27000	31000	36000	40000	45000	49000	54000	58000	63000
		625	16250	22500	27500	33750	38750	45000	50000	56250	61250	67500	72500	78750
50H	121-3/4	375	11250	15000	18750	22500	27250	30000	33750	37500	41250	45000	48750	52500
		500	15000	20000	25000	30000	35000	40000	45000	50000	55000	60000	65000	70000
		625	18750	25000	31250	37500	43750	50000	56250	62500	68750	75000	81250	87500
55H	134-3/16	375	12000	16500	20250	24750	28500	33000	36750	41250	45000	49500	53250	57750
		500	16000	22000	27000	33000	38000	44000	49000	55000	60000	66000	71000	77000
		625	20000	27500	33750	41250	47500	55000	61250	68750	75000	82500	88750	96250
60H	146-1/16	375	13500	18000	22500	27000	31500	36000	40500	45000	49500	54000	58500	63000
		500	18000	24000	30000	36000	42000	48000	54000	60000	66000	72000	78000	84000
		625	22500	30000	37500	45000	52500	60000	67500	75000	82500	90000	97500	105000

1. Height and Width Code: The first numeral represents the number of 24" x 24" filters high or wide. If 24" x 12" filters are also used in the height or width, the second numeral is "5".
2. Dimensions are based on using nominal size 24" x 24" and 24" x 12" filters. Select filters from capacity charts for Precision Pak bag filters or single-headered PrecisionCell or Rigid-Air filters.
3. Sizes using 24" x 12" filters in both height and width require a 12" x 12" blankoff; for example, a KT- 15H35W has a 20 sq. ft. available, not 21 sq. ft.
4. For capacities other than those shown, ratio the face velocities.

### Model Number Development:



- Height and Width Code: The first numeral represents the number of 24" x 24" filters high or wide. If 24" x 12" filters are also used in the height or width, the second numeral is "5".
- Service Location: U (upstream) or D (downstream).
- Lever Location: L (left side) or R (right side) when facing in the direction of airflow (air directed at your back).
- For special features or sizes: Use Suffix "X" and describe them.

**KT-20H35W-ULX**

This example represents a K-Trac module, 2 filters high and 3-1/2 filters wide, upstream service and left side levers. The letter X indicates that special features are required.

## How the K-Trac Works



Quick and easy assembly with a ratchet wrench



Assembled module



Installing filters and prefilters



Spring-loaded sealing levers actuate pressure bars on both the prefilter and primary filter.



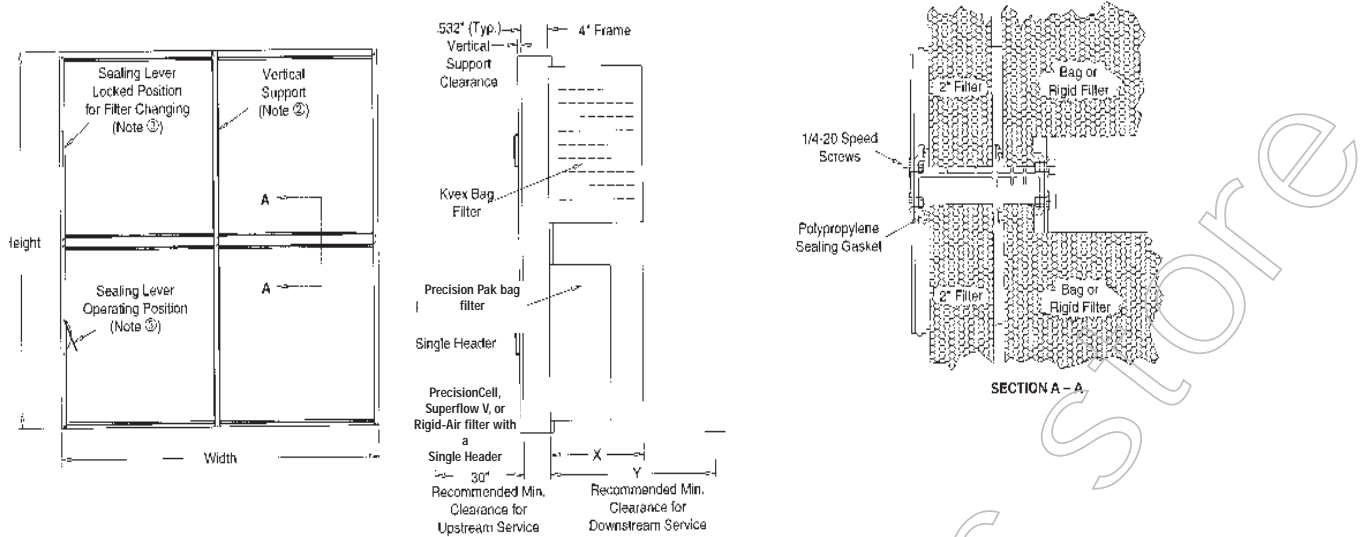
Filters with poly-foam side gasket

## Filter Usage and Module Weight

Height Code	Filters Weight (lbs.)	Width Code											
		15W	20W	25W	30W	35W	40W	45W	50W	55W	60W	65W	70W
10H	Filters Weight	1A-1C	2A	2A-1C	3A	3A-1C	4A	4A-1C	5A	5A-1C	6A	6A-1C	7A
	Weight	10	13	15	17	19	22	24	26	28	31	33	35
15H	Filters Weight	1A-2C	2A-2C	2A-3C	3A-3C	3A-4C	4A-4C	4A-5C	5A-5C	5A-6C	6A-6C	6A-7C	7A-7C
	Weight	18	22	26	30	34	38	42	46	50	54	58	62
20H	Filters Weight	2A-2C	4A	4A-2C	6A	6A-2C	8A	8A-2C	10A	10A-2C	12A	12A-2C	14A
	Weight	19	23	27	31	35	39	43	47	51	55	59	63
25H	Filters Weight	2A-3C	4A-2C	4A-4C	6A-3C	6A-5C	8A-4C	8A-6C	10A-5C	10A-7C	12A-6C	12A-8C	14A-7C
	Weight	26	32	38	44	49	55	61	67	72	78	84	90
30H	Filters Weight	3A-3C	6A	6A-3C	9A	9A-3C	12A	12A-3C	15A	15A-3C	18A	18A-3C	21A
	Weight	28	34	39	45	51	57	62	68	74	79	85	91
35H	Filters Weight	3A-4C	6A-2C	6A-5C	9A-3C	9A-6C	12A-4C	12A-7C	15A-5C	15A-8C	18A-6C	18A-9C	21A-7C
	Weight	35	43	50	58	65	73	80	88	95	102	110	117
40H	Filters Weight	4A-4C	8A	8A-4C	12A	12A-4C	16A	16A-4C	20A	20A-4C	24A	24A-4C	28A
	Weight	37	44	52	59	66	74	81	89	96	104	111	119
45H	Filters Weight	4A-5C	8A-2C	8A-6C	12A-3C	12A-7C	16A-4C	16A-8C	20A-5C	20A-9C	24A-6C	24A-10C	28A-7C
	Weight	44	53	62	72	81	90	99	108	118	127	136	145
50H	Filters Weight	5A-5C	10A	10A-5C	15A	15A-5C	20A	20A-5C	25A	25A-5C	30A	30A-5C	35A
	Weight	45	55	64	73	82	91	101	110	119	128	137	147
55H	Filters Weight	5A-6C	10A-2C	10A-7C	15A-3C	15A-8C	20A-4C	20A-9C	25A-5C	25A-10C	30A-6C	30A-11C	35A-7C
	Weight	53	64	75	86	97	107	118	129	140	151	162	173
60H	Filters Weight	6A-6C	12A	12A-6C	18A	18A-6C	24A	24A-6C	30A	30A-6C	36A	36A-6C	42A
	Weight	54	65	76	87	98	109	120	131	142	153	164	175

- A= 24" x 24" face size filter. C = 24" x 12" face size filter.
- Weight does not include filters. Add approximately 6 lbs. per Precision Pak bag filter, 20 lbs. per PrecisionCell filter, 17 lbs. per Superflow V filter, and 17 lbs. per Rigid-Air filter.





### Drawing Notes

1. Framing members of extruded aluminum are factory-cut to exact length, pre-drilled and gasketed.
2. One vertical support for the center of the upstream side will be furnished on modules nominal 8 ft. wide. Wider modules will be furnished with vertical supports on both the upstream and downstream sides.
3. Sealing levers are located at the end of each horizontal row on the left when facing the module on the upstream side unless specified on the right or on the downstream side.
4. The largest single module is 12 ft. high by 14 ft. wide. Modules may be combined to form larger banks.

### Installation of Final Filters:

1. Install gasketed filters with pleats vertical wherever possible.
2. Place sealing lever in locked position and hold filter on the downstream side of the module.
3. Insert the top of the filter into the upper narrow track until it clears the lower flange.
4. Drop the filter into the bottom narrow track. Fill the row with filters, moving them to the side opposite the sealing lever.
5. Unlock the lever to seal the row airtight.

## Guide Specifications

### 1.0 Framing Modules

- 1.1 Filter framing modules shall be K-Trac as manufactured by Flanders.

### 2.0 Construction

- 2.1 Extruded aluminum framing members shall be Type 6063-T5, with an average thickness of .095". They shall be cut to size and drilled for simple speed screw assembly into modules of the sizes noted in the schedules and plans.
- 2.2 Both prefilter and final filter tracks shall be permanently gasketed to eliminate air bypass.
- 2.3 Where required, vertical support members shall be furnished to support horizontal members.

- 2.4 The prefilter track shall be separate to allow removal and insertion of prefilters without disturbing the final filters.

- 2.5 Each horizontal row of prefilters and final filters shall include factory-installed positive-sealing bars to permit easy changeout of filters. Gasket on filters must be compressed during operation.

- 2.6 Modules shall be complete with speed-screws necessary for field assembly.

### 3.0 Features

- 3.1 Model number and capacities shall be as specified and/or shown on the drawings.
- 3.2 Provide options as specified.

## General

Flanders Perma Frame is used to mount ducted or fan-powered terminal modules in a hard ceiling application such as sheet rock or plasterboard.

The Perma Frame is ideal for biotech facilities that require frequent wash-down of the cleanroom as well as isolation hospital rooms where HEPA type filtration is frequently required.

## Construction

Perma Frames are manufactured of 18 gage steel and are welded on all exposed corners to guarantee a smooth cleanable surface. They are finished with a white powdercoat paint as standard. Pre-drilled mounting holes are furnished on the vertical flanges to facilitate an easy and level installation.

## Model Number Development



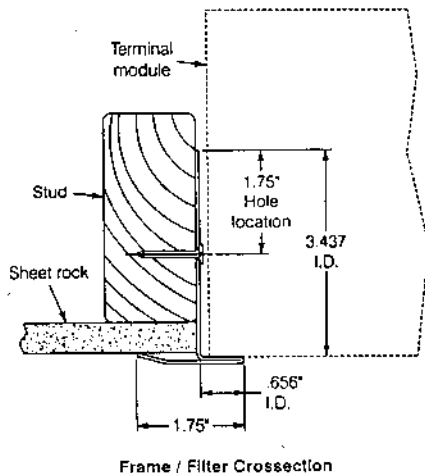
- Special Features: Use "SS" as a suffix for stainless steel construction. Frames are furnished with a white powdercoat as a standard.

## Important Features

- Heavy duty construction
- Powder coated washable surface
- Welded corners
- Requires no gasketing



# Construction Details



## Dimensional Data

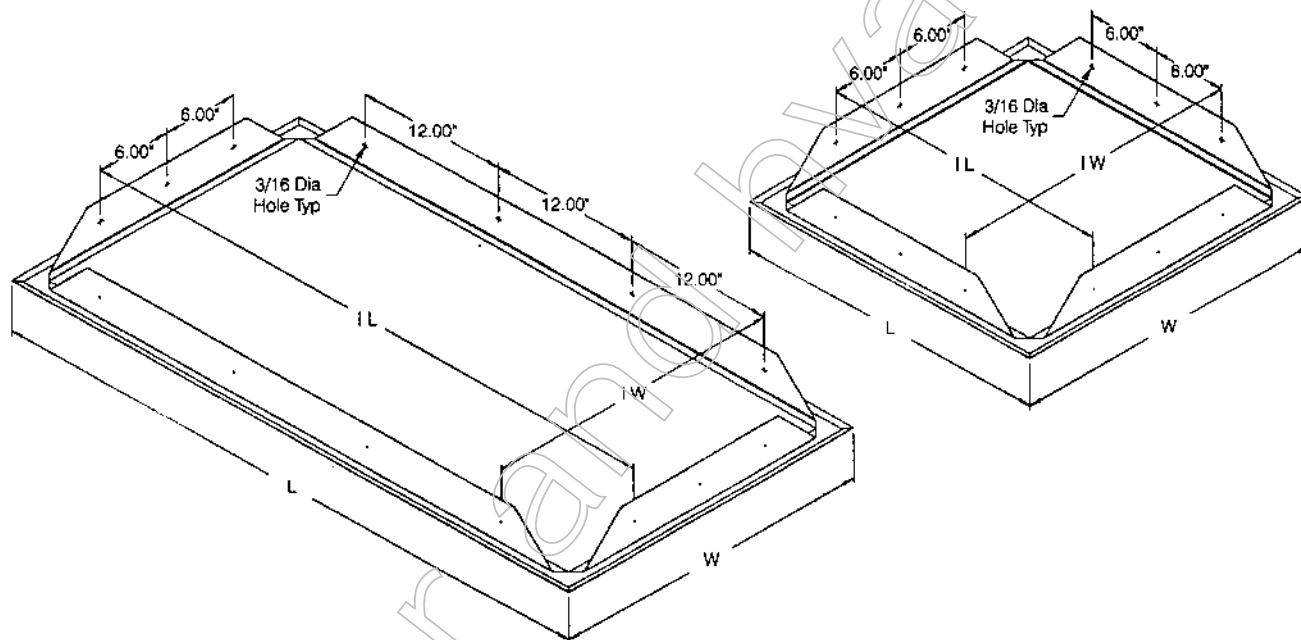
Model Number	Actual Dimensions (inches)				Weight (lbs)
	L	W	IL	IW	
HCFA 2424	26	26	24	4	4
HCFA 2448	50	26	48	6	6

### Drawing Notes:

Construction-18 ga. cold rolled steel or 304 stainless steel.

IL- inside length

IW- inside width



## Guide Specifications

### 1.0 General

1.1 Sheet rock adaptor frame for ceiling mounted terminal modules shall be Perma Frame as manufactured by Flanders.

### 2.0 Frame Construction

2.1 Frames shall be constructed of 18 gauge steel and welded flush on all exposed corners.

2.2 They shall be painted with a white powder coat paint.

2.3 The mounting flanges and alignment holes shall be predrilled for precise installation.

2.4 The resting flange shall accommodate standard size terminal modules.

*For Space Gard® , Air Bear®, Honeywell® Air Cleaners\*  
See model numbers in chart on next page.*

## Media for high efficiency air cleaners

For over 50 years, Flanders air filters have been protecting cleanrooms, hospital operating rooms and other critical environments. Now, homes and businesses can benefit from their superior craftsmanship in a new line of Flanders filters.

### Construction

Models 500AB, 600SG and replacement cartridges for selected Honeywell® air cleaners are made with a blend of polypropylene and polyethylene electrostatic filtration media which is adhered to an expanded metal backing. This combination is deep pleated and encased in a moisture resistant kraft board frame and offers a MERV 8 rating.

Models 550AB and 650SG cartridges are similar to our industrial grade PrecisionCell II air filter, with perfectly spaced mini-pleats of wet laid glass microfiber media and a moisture resistant kraft board frame. This provides high efficiency filtration and a longer filter life and a MERV 10 rating.

Model 650SG media inserts consist of the same media as the 550AB and 650SG cartridges but are provided in a convenient, easy to store package. They are pleated to the proper depth with fastener strips secured to each outside pleat.

## Installation

### Air Bear® replacements

Models 500AB and 550AB cartridges are designed for use with the Trion Air Bear® air cleaner housings. Simply install in place of the Trion cartridge. No alterations or equipment are required.

### Space Gard® replacements

The Model 650 insert installs in Space Gard® models 2200 and 2250 air cleaner housings by using the existing pleat separators and media holding assembly. An easy-to-follow assembly guide is printed on the package back.

Model 600SG and 650SG cartridges are also designed for use in Space Gard® models 2200 and 2250 air cleaner housings. Designed to replace the traditional collapsible media pack, Models 600SG and 650SG provide all of the benefits of the original, but with considerably less effort to install.

### Honeywell® replacements

The Honeywell® replacement cartridges are designed for use in Honeywell models 203719, 203720, 203721 and 203722. They offer the benefit of superior performance and easy installation.

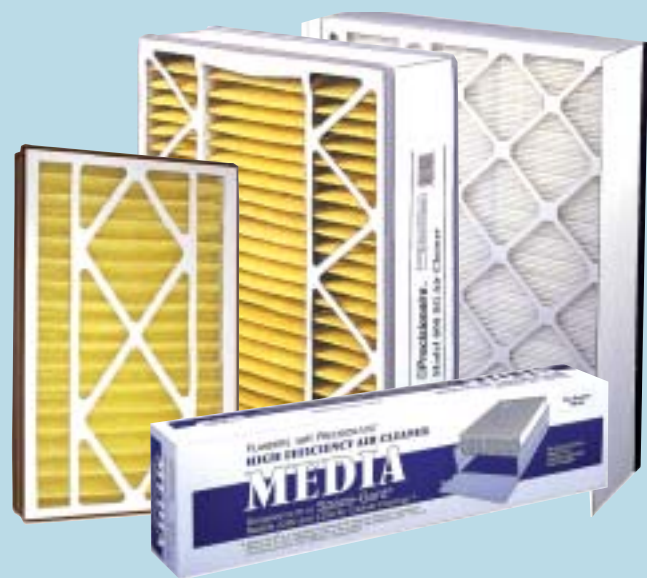
## Important Features

- Equal or superior performance to original replacements
- Replacements for several models
- Electrostatic Poly blend models offer a MERV 8 rating
- Mini-pleat models and 650SG Inserts offer a MERV 10 rating

*\*Air Bear® is a registered trademark of Trion, Incorporated. Reference to their mark is for system identification only.*

*\*Space Gard® is a registered trademark of Research Products Corporation. Reference to their mark is for system identification only.*

*\*Honeywell® is a registered trademark of Honeywell Inc. Reference to their mark is for system identification only.*





Replacement for:	FP Refill(s)	MERV	Media	Frame	FP Model
Flanders 500	500AB Cartridge	8	Electrostatic Poly Blend	Water resistant kraft board	82655.052025
	550AB Cartridge	10	Wet laid glass microfiber-mini pleat	Water resistant kraft board	82955.052025
Research Products Corporation Space Gard® 2200 and 2500	600SG Cartridge	8	Electrostatic Poly Blend	Water resistant kraft board	82655.062025
	650SG Cartridge	10	Wet laid glass microfiber-mini pleat	Water resistant kraft board	82955.062025
	650SG Inserts	10	Wet laid glass microfiber	Insert Only	82455.062025
Trion, Inc. Air Bear®	500AB Cartridge	8	Electrostatic Poly Blend	Water resistant kraft board	82655.052025
	550AB Cartridge	10	Wet laid glass microfiber-mini pleat	Water resistant kraft board	82955.052025
Honeywell® 203719 203720 203721 203722	See FP Model	8	Electrostatic Poly Blend	Water resistant kraft board	82655.051625
					82655.0452025
					82655.0452020
					82655.04512520

### Performance Data - Wet Laid Glass Media

Initial Resistance @ 300 fpm	Efficiency by Particle Size	
	Microns	Efficiency
Cartridge .18 inch w.g.	.3	30%
	.5	62%
Insert .12 inch w.g.	.7	72%
	1	78%
	2	90%
	3	94%
	5	98%
	10	100%

### Performance Data - Poly Blend Media

Initial Resistance @ 300 fpm	Efficiency by Particle Size	
	Microns	Efficiency
.12 inch w.g.	0.35	16%
	0.62	28%
	0.84	38%
	1.14	47%
	1.88	68%
	3.46	75%
	4.69	71%
	6.20	69%
8.37	66%	

\*Air Bear® is a registered trademark of Trion, Incorporated. Reference to their mark is for system identification only.

\*Space Gard® is a registered trademark of Research Products Corporation. Reference to their mark is for system identification only.

\*Honeywell® is a registered trademark of Honeywell Inc. Reference to their mark is for system identification only.

Performance values stated may be averages typical of the products listed. Contact factory for actual performance test reports on specific products.

*Products described here are competing products from Flanders®. Reference to competing brands are for system identification only.*

## Flanders - Foremost in Air Filtration

Corporate Headquarters, St. Petersburg, FL

### General

The Model 500AB air cleaner housing is designed for use with the Model 500AB or 550AB cartridge in an HVAC system. Both of these cartridges feature deep pleated media whose area is several times the face area of the housing.

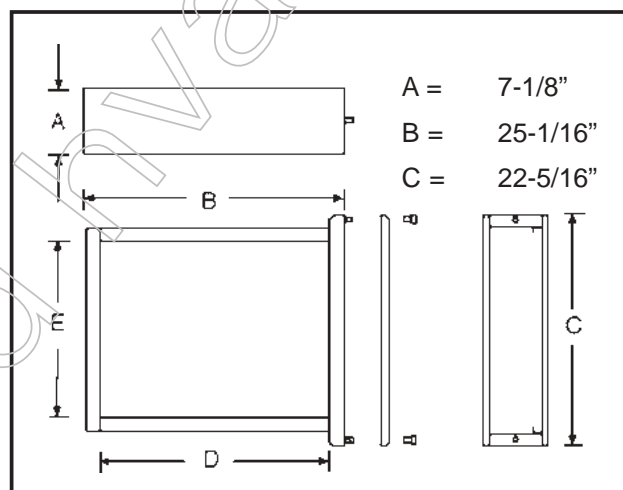
With the advent of modern air tight buildings, many of us spend our indoor hours in air that can literally make us feel sick with the recirculation of dirt, dust pollen, animal dander, and other particulates. It is for this reason that state-of-the-art air filtration is essential. Flanders Model 500AB air cleaners offer a solution you can trust, backed by nearly 50 years of filtration manufacturing experience.

The non-woven media inserts capture a wide range of airborne particles as small as 1 micron (1/25,000 of an inch in diameter). These airborne particles include grease and soot (5 microns), dust (10 microns), pollen and mold (100 microns) which are commonly found in homes. This type of filtration not only provides cleaner air but keeps these particles from building up on cooling and heating equipment.

### Construction

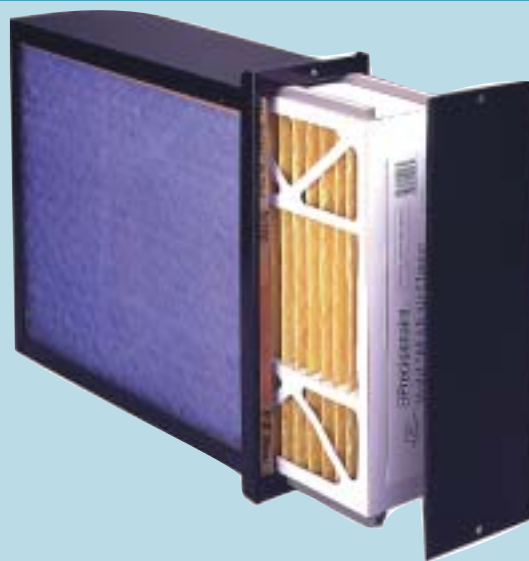
The Model 500AB air cleaner housing has a built-in prefilter track. Using a prefilter can greatly increase the useful life of a high efficiency filter such as the 500AB or 550AB cartridges. The Model 500AB air cleaner housing takes a standard 20 x 25 x 1 disposable panel filter as a prefilter.

### Dimensions



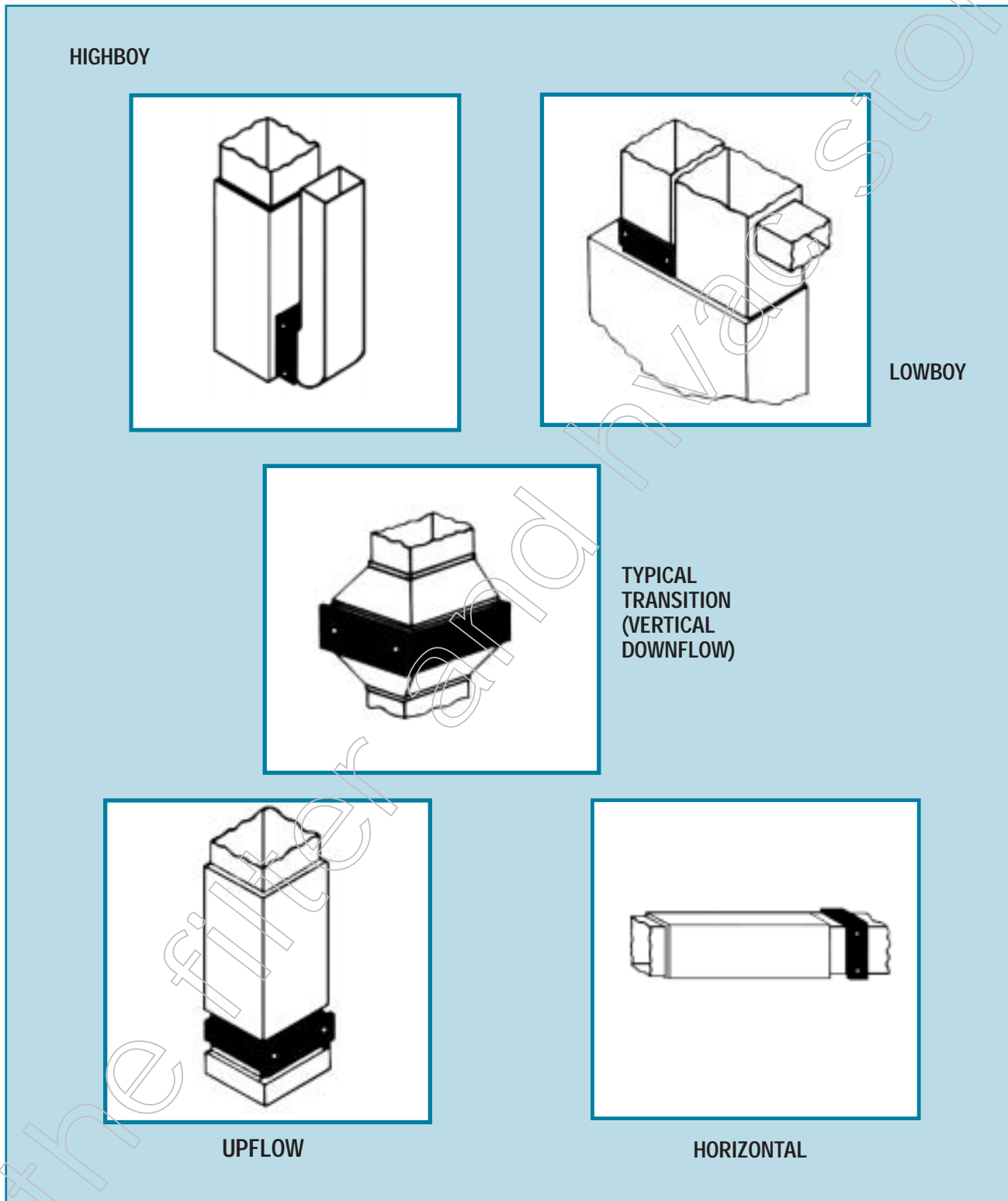
### Important Features

- Allows better filtration and less maintenance
- Rugged metal construction
- Prefilter track for particulate or gas/vapor control
- Easy and affordable way to upgrade residential filtration



## Versatile Installation

The Model 500AB air cleaner housing can be installed in a variety of configurations; Highboy, Lowboy, Horizontal, Upflow or Vertical Downflow.



**Flanders - Foremost in Air Filtration**

Corporate Headquarters, St. Petersburg, FL

## General

Airia 350 delivers high quality air filtration right into the living space. This compact unit is filled with the latest developments in air filtration, from high efficiency HEPA technology to state-of-the art odor control. It will purify the air in a 25'x25' room 4 times an hour - quietly and efficiently. All of this in a footprint of under 2 square feet.

## Construction

The Airia 350 features four stages of filtration, contained in a tastefully designed cabinet that has a rich, wood grain finish.

- 1st stage: Spun glass panel
- 2nd stage: Arm and Hammer Odor Control
- 3rd stage: TechSorb™ Activated Carbon
- 4th stage: HEPA type

## Physical Data

- Rated capacity 350 CFM
- Electrical input 120 VAC, 1Ph, 60 Hz
- Power Consumption 100 watts
- Weight 55 lbs.
- Controls On-off-variable speed, solid state
- Cabinet Wood, vinyl laminated

## Important Features

- Super quiet operation
- Operates for pennies a day.
- 4 stage filtration removes particles, odors.
- Moves 350 cubic feet of air every minute.
- Built-in casters for easy moving.
- Easy to service





## General

The Airia line of electronic air cleaners delivers high, instantaneous filtering efficiency in a reliable, permanent package that is built to last the life of an air handling system. Airflow resistance is low and constant. Operation costs only pennies per day.

Airia 1000 and 2000 are designed for easy duct-mounted installation with today's higher efficiency central forced air systems. They feature a powder coated galvanized steel cabinet, permanent all aluminum collector cell, odor control filter and state of the art PWM power supply. These simple, rugged and reliable air cleaners deliver 3 comprehensive stages of air cleaning:

- 1st stage pleated prefilter preconditions the air
- 2nd stage electronic cell collects airborne particles
- 3rd stage Arm and Hammer® post filter removes odors.

Airia whole house air cleaners feature a reliable, built-in airflow sensor to cycle on and off with the central system fan.

The unit is very easy to clean. Just lift off the access door, remove collector cells to tub or sink wash. Let dry and re-install.

## Physical Data

**Cabinet** is one-piece epoxy coated steel

**Cells** are aluminum and can be removed for washing

**Post filter** shipped with unit is patented Arm and Hammer odor control filter

**Electronics** are dependable high-frequency.

**Air flow sensor** cycles unit on and off with the system fan.

**LED** operation indicators

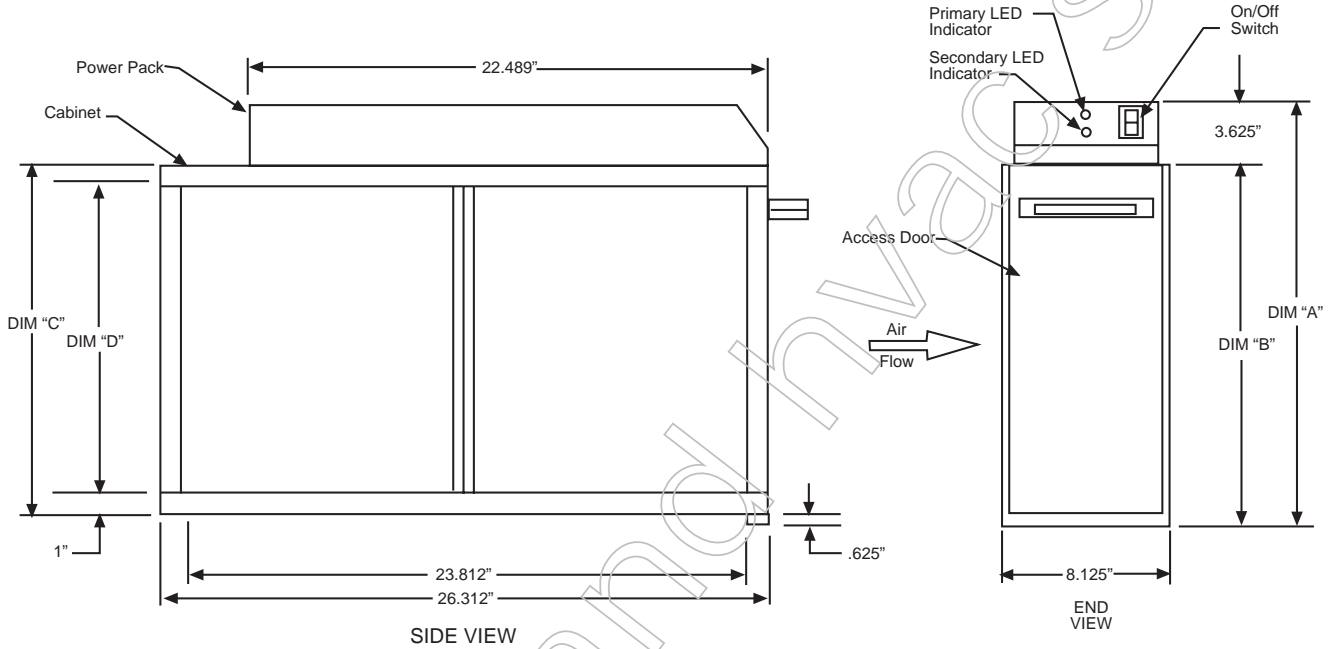
**On-off switch** for convenient servicing.

## Important features:

- High efficiency electronic air cleaning
- Durable one-piece steel cabinet, epoxy coated
- Permanent washable aluminum collector cells
- Dependable high frequency electronics, LED indicators, convenient on-off switch for servicing
- High, instantaneous collection efficiency
- Low and constant resistance to airflow
- Operates for pennies per day
- Patented Arm and Hammer odor control filter
- Electronic sensor cycles unit on/off with system fan
- Easy to install
- Easy to clean



Model	DIM "A" (inches)	DIM "B" (inches)	DIM "C" (inches)	DIM "D" (inches)
AIRIA 1400	19.960	16.335	15.762	13.762
AIRIA 2000	23.960	20.335	19.762	17.762



## Specifications

Rated Capacity  
 Electrical Input  
 Power Consumption  
 Resistance to Airflow  
 Unit Weight  
 Prefilter  
 Main Collector  
 Odor Control  
 Finish  
 Mounting Options  
 On/Off Operation

### Airia 1400 (16x25)

1400 CFM  
 120 Vac, 1 Ph, 60 Hz  
 40 watts  
 0.2" w.g. @ 1400 CFM  
 40 lbs.  
 Disposable pleat  
 2-stage electronic  
 Arm and Hammer® Pleat  
 Epoxy Powder Coated  
 Vertical or Horizontal  
 Electronic Thermister

### Airia 2000 (20x25)

2000 CFM  
 120 Vac, 1 Ph, 60 Hz  
 48 watts  
 0.2" w.g. @ 2000 CFM  
 45 lbs.  
 Disposable pleat  
 2-stage electronic  
 Arm and Hammer® Pleat  
 Epoxy Powder Coated  
 Vertical or Horizontal  
 Electronic Thermister



# FLANDERS

FOREMOST IN AIR FILTRATION



### Manufacturing Locations:

Bartow	FL
Terrell	TX
Stafford	TX
San Diego	CA
Salt Lake City	UT
Momence	IL
Auburn	PA
Washington	NC
Bath	NC
Smithfield	NC
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