

Ideal for pharmaceutical and biotech applications

The Flanders Precisionaire Channel Hood 22 is an ideal terminal filter hood for pharmaceutical and biotech cleanrooms, or wherever hoods are regularly validated for performance and leak-free operation. They may be installed in a variety of ceiling types, including tee-bar ceilings, gel-seal grid systems, and plaster ceilings. Ideally suited for Class 100 "spot" applications, they may also be used to create Class 10,000 to Class 100,000 areas by locating the appropriate number of units in the ceiling. Units may also be installed for 100% ceiling coverage to achieve cleanliness levels to Class 10.

Gel seal design assures the integrity of the filter seal.

The Pureflo Channel Hood 22 features a gel-seal design offering superior protection against bypass leakage. Invented by Flanders Precisionaire to overcome the leakage problems associated with gasketed filter seals, the gel-seal interface assures a positive seal between the replaceable HEPA/ULPA filter and the hood. Its effectiveness has been proved in thousands of applications.

Convenient roomside access and service

The Pureflo Channel Hood 22 design allows access to the filters from roomside, without disturbance to the

installed housing. Bottom-loading filters make room-side filter change-out quick and easy. Damper controls and test ports are also easily accessed from roomside by simply removing the protective grille.

Aerosol injection system offers the industry's most uniform challenge for testing installed filters.

The Pureflo Channel Hood 22 aerosol injection system (an option) has become the industry standard for ease of use and reliability in conducting in-place filter testing. Working entirely from roomside, the test technician introduces a challenge aerosol into the hood, then scan-tests the filter. Because it creates a truly uniform test challenge, the Flanders Precisionaire aerosol injection system provides the highest degree of confidence in the results of the scan test.

Available with a wide range of options, including horizontal and reverse flow.

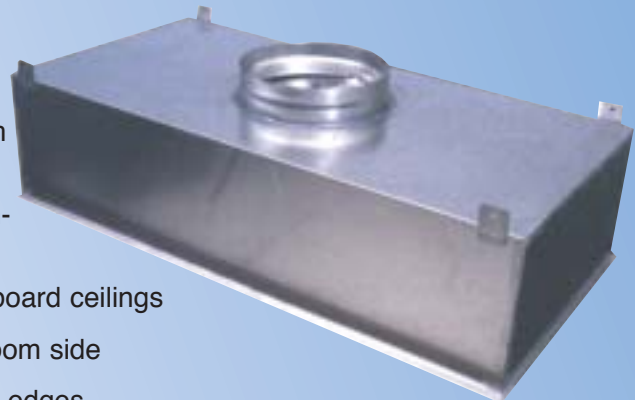
The Flanders Precisionaire Pureflo CH22 is easily adapted for horizontal or reverse (exhaust) flow applications.

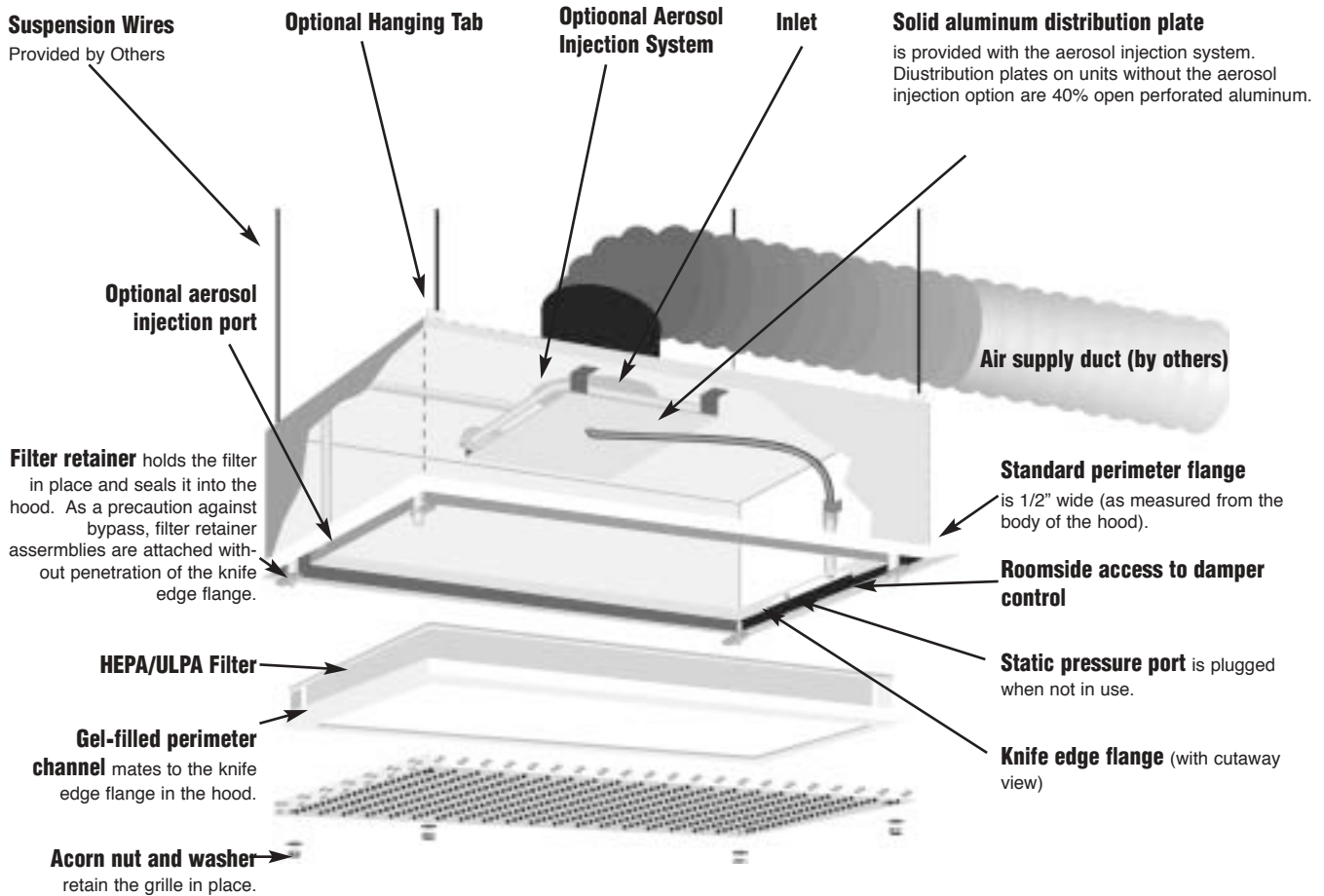
It is available with a wide range of standard options, allowing the unit to be customized to meet the requirements of almost any application.

For special requirements not included in this bulletin, please contact the factory.

Important Features

- Filters replaceable from the roomside
- Gel-seal design to prevent bypass leakage
- Heavy-duty butterfly damper adjustable from roomside
- Aerosol injection system accessible from roomside (optional)
- Designed for installation in tee-bar or gypsum board ceilings
- Heavy duty guillotine damper adjustable from room side
- Filter alignment tabs to center gel track on knife edges.





Seal welding eliminates leak paths, adds strength.

The body of the Pureflo Channel Hood 22 is continuously welded. This eliminates potential leak paths and produces a one-piece plenum of exceptional strength and durability.

Easy lay-in installation in a standard tee-bar ceiling is facilitated by a perimeter flange around the bottom of the unit. (Perimeter trim options are available when installing the hood in hard ceilings - see Options.)

Connection to the air supply is made simply by attaching flexible ducting to the top-mounted round 10 inch inlet with butterfly damper. (Other inlet sizes are available as an option.)

Incoming airflow is distributed into the plenum area of the hood by a perforated aluminum distribution plate mounted inside the unit.

Airflow is adjustable from roomside.

The standard round butterfly damper is designed and manufactured by Flanders for industrial use. It allows the adjustment of the damper against higher static pressure than conventional commercial dampers. A

standard screwdriver is all that is required to adjust the damper.

Grille protects the filter and helps disperse airflow into the clean space. The grille is made of either cold rolled steel (painted white) or 304 stainless steel. Both grilles have a 40% open perforation and can be either flush mounted or extend 2 inches below the body of the hood. The grille is held in place with stainless steel acorn nuts and washers that are threaded on the ends of the filter retainer studs. The grille is easily removable from roomside.

Threaded studs simplify filter maintenance.

Filter retainers consist of aluminum tabs that are held captive on threaded studs. The studs are welded at each end of the unit without penetrating the pressure boundary, thus avoiding a potential leak path. The tabs hold the filter in place and are simply turned 90° to release the filter.

Filter pressure drop can be measured from roomside by taking a reading at the static pressure port. The port also provides a means of sampling the upstream aerosol concentration when scan testing the filter.

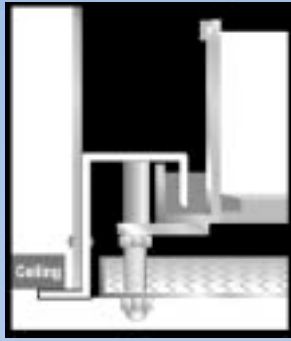


Fig. 1
2" Extended Grille

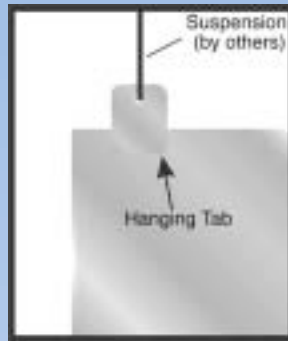


Fig. 2
Hanging tabs are side-mounted near each corner of the hood.

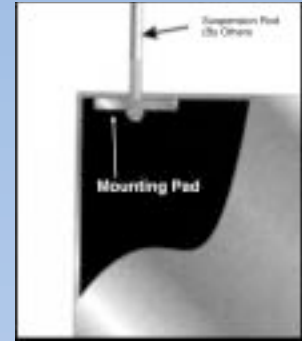


Fig. 3
Mounting pads (one at each upper corner) are located inside the hood.

The following options can be specified by including the appropriate underlined option codes in the Pureflo Channel Hood 22 style code from the component chart.

Construction options

Aluminum construction shall be from .063" Aluminum. Select **Option Code AL** for .063 inch thickness aluminum.

Stainless steel construction from mill finish, 16 gauge Type 304. Select **Option Code SS** for 16 ga. type 304 mill finish stainless steel. (Hood only. Some parts are not stainless steel)

Grill Options

Flush Mounted Grilles with 40% open perforation. Elect **Option Code CF** for cold rolled steel, painted white. Select **Option Code SF** for type 304 stainless steel.

2 inch extended grilles extend 2 inches below the hood for better airflow diffusion into the room. Select **Option Code CE** for cold rolled steel, painted white. Select **Option Code SE** for type 304 stainless steel.

Downstream 4 way diffusers (not shown) provide the maximum "throw" of air into a room space. Select option code DD for this feature.

Hinged, Removable Grille

Support options

Aluminum hanging tabs or mounting pads allow the hood to be suspended from overhead.

Select **Option Code B1** for hanging tabs. See Fig. 2. Select **Option Code B2** for mounting pads. See Fig. 3.

Trim options

A permanent perimeter trim and knife edge made with aluminum or type 304 stainless steel provides an attractive, finished appearance. (See Fig. 4.)

Select **Option Code 00** for integral 1/2 inch wide aluminum or stainless steel permanent trim. (Dependent on hood construction)

Select **Option Code C2** for standard 1/2 inch wide stainless steel permanent trim.

Select **Option Code C4** for 1-1/2 inch wide stainless steel permanent trim. This is the mandatory choice for unit with insulation on top and sides for installation into plaster ceilings.

A removable perimeter trim made of type 304 stainless steel can be provided as a plaster ring for hoods that are flush mounted in hard ceilings. The trim is attached after the unit is installed in the ceiling and provides an attractive finished appearance.

Select **Option Code C3** for standard 1/2 inch wide removable trim.

Select **Option Code C5** for 1-1/2 inch wide removable trim. This is the mandatory choice for units with insulation on top and sides for installation into plaster ceilings.

Finish options

Select **Option Code 0** for non-painted finish.

Select **Option Code F** for a white powder painted finish inside and out.

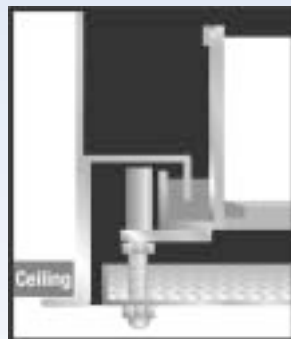


Fig. 4
Aluminum
Permanent Perimeter Trim/Knife Edge

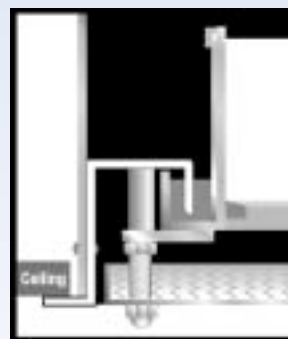


Fig. 5
Stainless Steel
Permanent Perimeter Trim/Knife edge

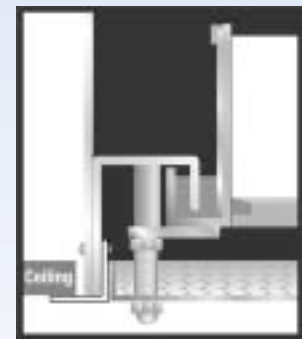
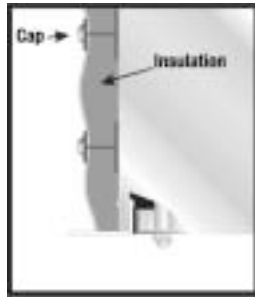


Fig. 6
Stainless Steel
Removable Perimeter Trim

Insulation Options

Two-inch-thick fiberglass insulation with aluminum foil backing controls condensation and prevents heat loss. For side by side installations in a T-bar ceiling, insulation can be on top only. If units are located individually in the ceiling, insulation can cover top and sides. If a unit with top and side insulation is to be installed in a plaster ceiling, it must also have one or the wider perimeter trim options.



Select option code 1 for insulation on top only.

Select option code 2 for insulation on top and sides.

Inlet Location Options

Top inlet with damper:	Option code T1
Top inlet without damper.	T2
Side inlet on short side of hood. Hood Height 18 Inches.	K1
Side inlet on long side of hood. Hood height 18 inches.	K2
Side inlet on short side of hood. No damper. Hood height 18 inches.	K3
Side inlet on long side of hood. No damper. Hood height 18 inches.	K4
Horizontal flow, short side down.	G
Horizontal flow, long side down.	H

Aerosol Injection System (Option Code J)

View from below with filter and grille removed

Injection tube

A large diameter injection tube allows high concentration of aerosol necessary for testing with log-scale photometer. U-shaped dispersion manifold is located above distribution plate to evenly distribute challenge aerosol.

Aerosol injection port allows the test aerosol to be injected into the system from roomside.

Solid aluminum distribution plate disperses the airflow and aerosol evenly throughout the plenum area of the hood.

Damper control allows adjustment of the butterfly damper using a standard screwdriver.

Aerosol sampling and static pressure port provides a port for sampling the concentration of the test challenge when scan testing the filter and for measuring the pressure drop across the filter.

Flanders Precisionaire aerosol injection system provides a reliable, proven method of conducting an in-place scan test of the filter in the Pureflo Channel Hood 22

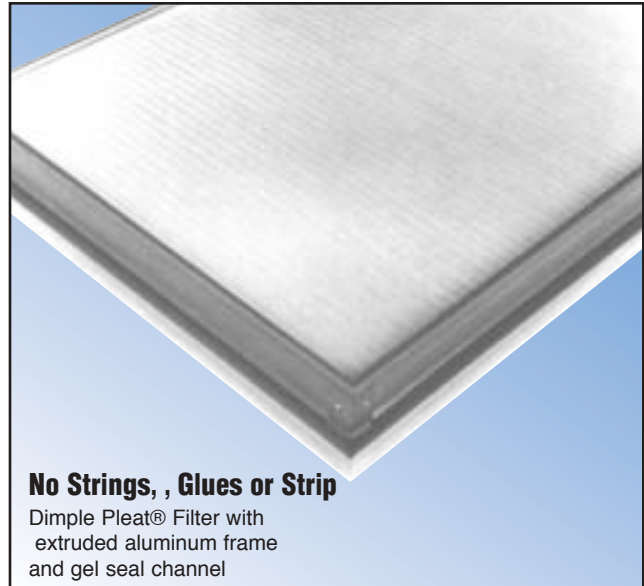
Working from roomside, the test operator simply removes a plug from the aerosol injection port and introduces the aerosol into the system. By taking a reading at the sampling port, the operator can determine when the test challenge is at the correct concentration. A scan test of the HEPA/ULPA filter can then be conducted from roomside without moving or otherwise disturbing the installed hood. The performance of the

aerosol injection system is a major factor in the reliability of the filter test. If the aerosol is unevenly concentrated in the plenum, false readings will result.

For this reason, Flanders submitted the aerosol injection system for independent laboratory testing. The test was conducted in accordance with criteria set forth in ASME N-510 1980 and determined that the injection system achieved a level of dispersion that was uniform within plus or minus 20% of the target concentration. The test report is available upon request.

The Dimple Pleat Advantage

The Channel Hood 22 is designed to accept Flanders Precisionaire's low-profile, lightweight Dimple-Pleat Filters. This unique filter utilizes a completely separatorless and self supporting media pack, requiring no glue, string or strips of media to hold adjacent folds of the media apart. Such separator materials are potential sources of offgassing or particle generation and may not meet the stringent smoke and flame requirements of UL900 Class 1. They can also block up to 10% of the filter's effective media area. The Dimple-Pleat eliminates these materials as a contamination concern while fully utilizing the filter's media content and providing a clean, streamlined appearance.

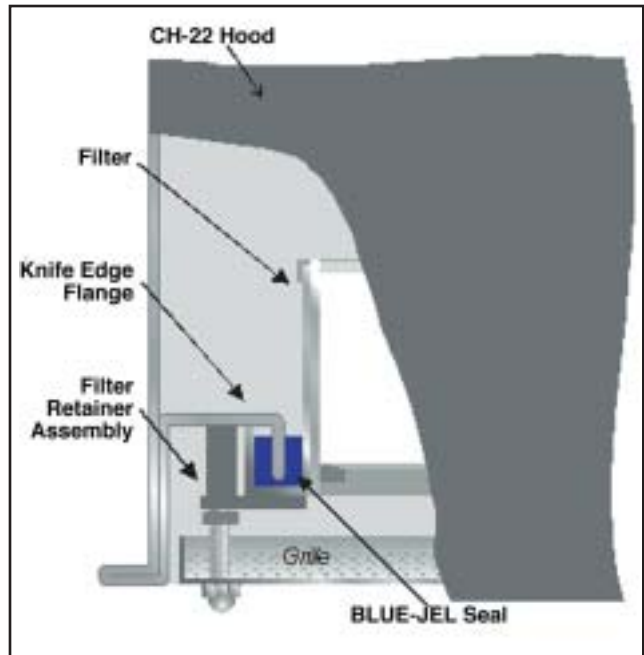


The Gel Seal Design

Dimple Pleat filters used in the Channel Hood 22 employ Flanders Precisionaire gel-seal technique.

Instead of a gasket, the filter has a perimeter channel filled with Blu-Jel Seal and a highly self-adhesive, self-healing silicone compound. When the filter is raised into position, a knife edge flange in the hood mates into the gel channel, effecting a leak-tight interface. A simple retainer on 4 corners is turned 90° to hold the filter in place and the design of the retainer assembly will not allow the knife edge to bottom out in the gel track of the filter.

Invented by Flanders Precisionaire to eliminate the bypass problems associated with conventional gasketed filters, the gel-seal technique provides superior leak protection for critical cleanroom installations.



Filter Coverage Required to Achieve Various Cleanliness Levels

Cleanroom Cleanliness Level	Coverage/Type of Filters Required in Total Ceiling	Number of Air Changes per Hour
Class 10 (0.12 microns)	100% VLSI ® Filters	635
Class 100 (0.5 microns)	100% HEPA filters	635
Class 1000 (0.5 microns)	20-60% HEPA Filters	125-380
Class 10,000 (0.5 microns)	5-40% HEPA Filters	30-60
Class 100,000 (0.5 microns)	5% in Remote Filter Bank	30

* Based on a ceiling height of 8.5 feet. Cleanliness levels are also dependent upon variables other than filter coverage, such as airflow velocity, filter distribution, particle generating activity, turbulent areas, and dead spots caused by sprinklers, filler panels, lights and other obstacles. This table is intended as a general guide.

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Engineered Products: 1-800-637-2803 Replacement Products: 1-800-347-2220

CH22 Pressure Drop as a Function of Air Velocity

HEPA

Air Flow CFM	E1386 - 2" Pack		E1286 - 2" Pack E0988 - 4" Pack		W/ Nozzle	No Nozzle
	W/ Nozzle	No Nozzle	W/ Nozzle	No Nozzle		
0	0.00	0.00	0.00	0.00	0.00	0.00
200	0.21	0.19	0.51	0.45	0.17	0.14
400	0.49	0.38	1.16	0.90	0.39	0.29
600	0.81	0.57	1.94	1.35	0.68	0.43
800	1.33	0.76			1.14	0.57
1000	1.76	0.95			1.53	0.71

Air Flow CFM	E1188 - 4" Pack		E0781 - 6" Pack E3188 - 6" Pack		W/ Nozzle	No Nozzle
	W/ Nozzle	No Nozzle	W/ Nozzle	No Nozzle		
0	0.00	0.00	0.00	0.00	0.00	0.00
200	0.40	0.34	0.23	0.20	0.54	0.48
400	0.94	0.68	0.51	0.40	1.22	0.96
600	1.61	1.02	0.85	0.60	2.03	1.43
800			1.38	0.80		
1000			1.83	1.00		

VLSI

Air Flow CFM	E1386 - 2" Pack		E1286 - 2" Pack E0988 - 4" Pack		W/ Nozzle	No Nozzle
	W/ Nozzle	No Nozzle	W/ Nozzle	No Nozzle		
0	0.00	0.00	0.00	0.00	0.00	0.00
200	0.27	0.24	0.64	0.58	0.20	0.18
400	0.59	0.49	1.41	1.16	0.46	0.36
600	0.98	0.73	2.32	1.74	0.78	0.54
800	1.54	0.97			1.29	0.71
1000	2.03	1.21			1.71	0.89

Air Flow CFM	E1188 - 4" Pack		E0881 - 6" Pack E3188 - 6" Pack		W/ Nozzle	No Nozzle
	W/ Nozzle	No Nozzle	W/ Nozzle	No Nozzle		
0	0.00	0.00	0.00	0.00	0.00	0.00
200	0.49	0.43	0.26	0.24	0.63	0.57
400	1.11	0.85	0.58	0.47	1.39	1.13
600	1.86	1.28	0.96	0.71	2.30	1.70
800			1.53	0.95		
1000			2.01	1.18		

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Pureflo Channel Hood 22 Component Chart

CH E0781 - H - AL22 - SF B1 C2 F 1 J K1 10

HOUSING: PUREFLO CH

HOOD SIZE: _____
 E0781-23-11/16X47-11/16 IN.
 E0881-23-11/16 IN. X 23-11/16 IN.

FLOW DIRECTION: _____
 - VERTICAL FLOW
 H - HORIZONTAL - LONG SIDE DOWN
 G - HORIZONTAL - SHORT SIDE DOWN

MATERIAL: _____
 AL= .063 IN. ALUMINUM FABRICATED
 SS=16 GAUGE 304 STAINLESS STEEL

GRILLES: _____
 00 NONE
 SF - 22 GA. FLUSH STAINLESS STEEL
 SE-22 GA. 2 IN. EXTENDED STAINLESS STEEL
 CF - FLUSH COLD ROLLED STEEL PAINTED WHITE
 CE - 2 IN. EXTENDED, COLD ROLLED STEEL PAINTED WHITE
 DD DOWNSTREAM DIFFUSER

HANGING TABS: _____
 00 NONE
 B1 - ALUMINUM HANGING TABS
 B2 - MOUNTING PADS

INLET:
 08 - 8 IN. INLET
 10 - 10 IN. INLET
 12 - 12 IN. INLET
 14 - 14 IN INLET
 08x08 - 8 in. sq. inlet
 10x10 - 10 in sq. inlet
 12x12 - 12 in. q. Inlet
 14x14 - 14 in. sq. inlet

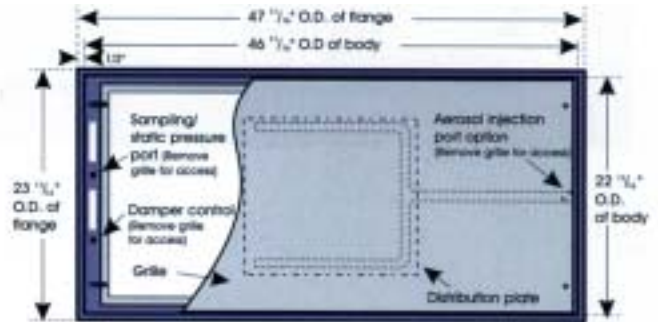
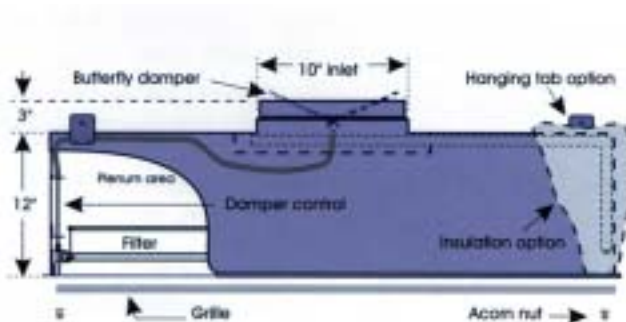
INLET LOCATION;
 T1 - TOP WITH DAMPER
 T2 - TOP NO DAMPER
 K1 - SIDE INLET - SHORT SIDE
 K2 - SIDE INLET - LONG SIDE
 K3 - SIDE INLET - SHORT SIDE - NO DAMPER
 K4 - SIDE INLET - LONG SIDE - NO DAMPER

AEROSOL: 0 - NONE
 J - AEROSOL INJECTION SYSTEM

INSULATION: 0 - NONE
 1 - TOP ONLY
 2 - TOP & SIDES

FINISH: 0 - NONE
 F - PAINTED WHITE

TRIM:
 00 - 1/2 IN. FLANGE (SAME MATERIAL AS HOOD)
 C2 - 1/2 IN. PERMANENT STAINLESS STEEL
 C3 - 1/2 IN. REMOVABLE STAINLESS STEEL
 C4 - 1-1/2 IN. PERMANENT STAINLESS STEEL
 C5 - 1-1/2 IN. REMOVABLE STAINLESS STEEL



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Guide Specifications

1.0 General

- 1.1 Ducted Terminal Hoods shall be Pureflo Channel Hood 22 as manufactured by Flanders Precisionaire
- 1.2 Hood sizes, efficiencies, capacities and construction options shall be as scheduled or noted on the drawings.

2.0 Hood construction

- 2.1 The hood shall be constructed of .063 in. Aluminum or 16 gauge Type 304 stainless steel with all straight seams of the module continuously welded. All other joints and the seams shall be intermittently welded and/or sealed with RTV sealant.
- 2.2 Select one of the following:
 - 2.2.1 the hood shall be sized for lay-in installation into a 1-1/2 inch gasketed Tee Grid system having 24 inch x 48 inch and 24 inch x 24 inch grid dimensions. The perimeter flange and knife edge shall be constructed of the same material as the hood.
 - 2.2.2 The hood shall be designed for lay-in installation into a 1-1/2 inch gasketed Tee Grid System having 24 inch x 48 inch and 24 inch x 24 inch grid dimensions. The perimeter flange and knife edge shall be constructed of Type 304 stainless steel and shall be riveted and sealed into the hood.
 - 2.2.3 the hood shall be designed for flush installation into a hard ceiling. A separate stainless steel 1/2 inch or 1-1/2 inch wide perimeter flange shall be provided and after the hoods are installed in the ceiling, the perimeter flange shall be provided and after the hoods are installed in the ceiling, the perimeter flange shall be riveted and sealed to the hood to provide a clean appearance.
- 2.3 Select one of the following:
 - 2.3.1 The hood shall have a top or side mounted 8 inch, 10 inch, 12 inch or 14 inch round inlet with a butterfly damper adjustable from roomside by means of a screwdriver inserted into a slot to turn a rotary flexible shaft mechanism. The closed damper shall be capable of being opened against 3 inch w.g. static pressure.
 - 2.3.2 The hood shall have a top or side mounted 8 inch x 8 inch, 10 inch x 10 inch, 12 inch x 12 inch, or 14 inch x 14 inch square inlet with a quarter turn

opposed blade damper adjustable from roomside by means of a screwdriver inserted into a slot to turn a rotary flexible shaft mechanism.

- 2.4 a perforated distribution plate shall be mounted beneath the inlet to diffuse air evenly into the plenum.
- 2.5 A 40% open perforated grille fabricated of 22 gauge cold-rolled steel and painted white or type 304 stainless steel shall be flush mounted extend 2 in. below the perimeter flange of the hood. The grille shall be easily removed from roomside by removing four (4) acorn nuts and washers.
- 2.6 The hood shall have a static pressure port for measuring resistance across the filter and for measuring the upstream aerosol concentration when leak testing. The static pressure port shall not be located in the filter.
- 2.7 The filter shall be sealed in the hood by a gel-seal. The filter shall have a perimeter channel filled with Flanders Blu-Jel silicone sealant. When the filter is positioned in the hood, the knife edge in the hood shall penetrate the gel and form a leaktight seal. The filter is held in place with four (4) retainers that are turned 90° the knife-edge shall not bottom out in the gel track of the filter.
- 2.8 The hood shall be provided with 2 inch thick foil back insulation on either the top or the entire exterior of the module. The insulation shall be tested in accordance with ASTM-E84 and UL 723 to meet a rating of 25 flame spread, 50 fuel contained and 50 smoke developed.
- 2.9 The hood shall be suspended by 2 inch x 2 inch x .063 inch aluminum hanging tabs with 5/16 inch holes or by 2 inch x 2 inch x 1/8 inch aluminum mounting pads with 7/16 inch diameter holes mounted on the top corners of the module.
- 2.10 The hood shall be equipped with an aerosol dispersion nozzle to inject a challenge aerosol upstream of the filter when testing the filters for leaks. The inlet connection shall be a plug with a 1/2 inch full coupling located in the knife edge of the module and not in the filter. The challenge aerosol shall be released through an aerosol dispersion apparatus located upstream of a solid distribution plate.

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Replacement Products: 1-800-347-2220

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