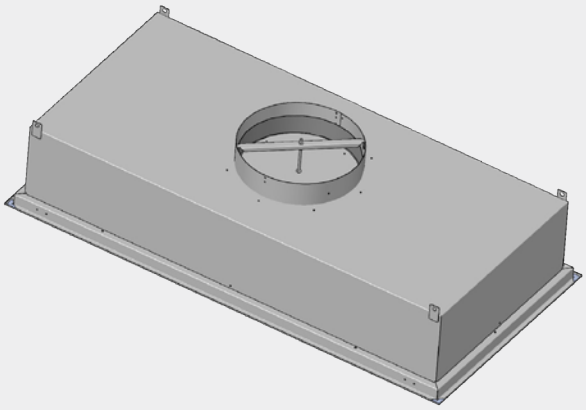
Flowstar CED - Critical Environment Diffuser



SPECIFICATIONS

- Ducted room side terminal module for gasket T-grid or hard ceilings with sheet rock frame
- HEPA 99.99% 0.3µm or ULPA 99.9995% 0.12µm
- 2.0", 3.0" and 4.0" media pack
- Anodized extruded aluminum frame with galvanized hood sheet and inlet collar
- Hinged removal face screen with safety cables and 1/4" turn fasteners
- Ideal for use in critical environments
  - Health Care
  - Biotechnology
  - Pharmaceutical
  - Aerospace
  - Pharmacy
  - USP 797 Compliance
- Available options
  - Split Butterfly Damper
  - Fixed Flow Diffuser
  - Downstream Gasket
  - 2" Foil Back Insulation
  - Grille Materials
  - Pack Depths

ADVANTAGES

- Room side serviceable diffuser with HEPA or ULPA gel seal filters
- Constructed of extruded aluminum with a clear anodized finish that is completely sealed with a two component polyurethane.
- Filter alignment tab positions the filter on the integral knife edge during installation
- Filter retention tabs are spring loaded and rotate 180° to simply load and secure the filter without any tools
- Filters are gel seal and available in 99.99% at 0.3 micron up to 99.9995% at most penetrating particle size (MPPS)
- The filter media is a wet laid micro fiberglass that is precision pleated utilizing Filtration Group's Sentinel Pleat Technology
- Cavity to seal mitered corners with polyurethane ensuring leak free assembly
- Retention bolt installation does not penetrate pressure boundary
- Retention tab stop ensures filter will not bottom out on knife edge and keeps retention tab horizontal
- Thumb nut grooved for quick positioning of filter for a proper fit
- Flexibility in multiple screen materials and pack depths to meet application specific requirements
- Flowstar CED is an optimized unit relative to air flow characteristics, laminarity, pressure drop and ease of installation and certification at install

PERFORMANCE DATA

AIR FLOW RATE (CFM)*

NOMINAL SIZE* (INCHES)	40 FPM	65 FPM	90 FPM	100 FPM
24 X 24	94	153	212	235
24 X 36	158	257	356	395

*Air Flow Rate based on effective filter face area (ft2) x velocity (fpm)

AIR FLOW RATE (CFM)*

NOMINAL SIZE* (INCHES)	40 FPM	65 FPM	90 FPM	100 FPM
24 X 48	222	361	500	555
24 X 60	286	465	644	715

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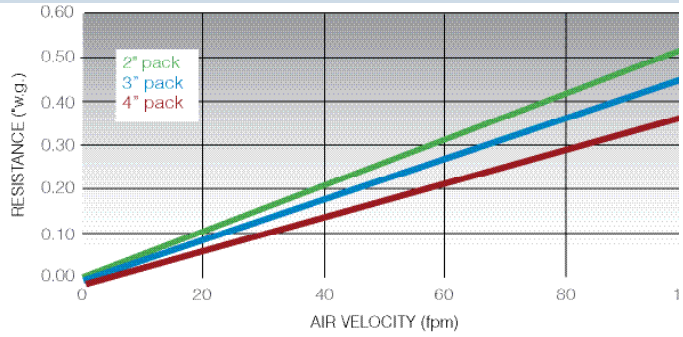
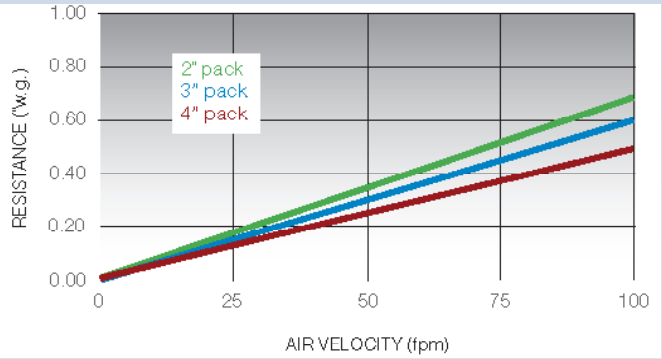
HEPA, 99.99% EFFICIENCY – Based on 0.3 Micron



ULPA, 99.9995% EFFICIENCY – Based on MPPS



ENGINEERING SPECIFICATIONS

1.0 Scope

1.1 This specification covers room side serviceable HEPA ceiling diffusers for use in clean room ceiling systems. Filters shall be 99.99% HEPA manufactured by Filtration Group. Refer to schedules for sizes and model numbers.

2.0 Construction

2.1 The diffuser shall be constructed of extruded aluminum alloy 6063-T5 with a clear anodized finish. The extrusion shall have a minimum wall thickness of 0.062" and a maximum depth of 7-5/16"" with minimum 19/32" wide flanges for a gasket seal T-bar ceiling system.

2.2 The diffuser frame shall be joined together with black spring steel internal corner locks. External corner locks and riveted frame construction will not be permitted. Corners shall be sealed on the inside with two component polyurethane.

2.3 The diffuser shall have a galvanized hood sheet with a 2" high inlet collar (inlet size as scheduled). The hood sheet shall be permanently fastened to the extruded aluminum filter body. The assembly shall be equipped with D-Rings fastened to the hood sheet to be used for seismic restraint.

2.4 The hood sheet assembly shall contain a round perforated disk for air distribution adjustments to the unit. The perforated disk material shall be 0.050" thick aluminum with a 50% open area. The diffuser shall be adjustable from the room side through the center divider in the filter. The diffuser shall be mounted to the inlet collar center and travel on a threaded rod. The disc shall be designed so that it can not contact the media pack.

2.5 The diffuser shall have an integral knife edge to seal the filter on the downstream side. There shall be a cavity on the upstream side of the knife edge to seal the miter joints with two component polyurethane. The extrusion shall incorporate a means to install a ½" hex head bolt without penetrating the pressure boundary. A minimum of four (4) bolts shall be installed during factory assembly. The bolts shall hold a spring loaded tab that rotates 180º to seal the filter. A grooved nut shall be used to retain the tabs so that no tools are required to perform filter changes. An integral alignment tab shall be incorporated to guide the filter into the correct position during filter installation. The design shall ensure the knife edge cannot bottom out in the filter gel channel.

2.6 The diffuser filter shall contain a hinged perforated white grille with maximum 40% open area. The grille shall be hinged one side and retained with ¼ turn fasteners on the opposite side. The grille shall include safety chains and be removable.

2.7 The diffuser filter shall have an overall height of 2-7/8" and have a media pack depth of 2.0". The replaceable filter shall have an downstream gel track that is 5/8" wide x 3/4" deep. The gel track shall be filled with a two component polyurethane gel.

2.8 Filter labels shall have the following information:
• Tested efficiency • Tested air flow • Serial number
• Initial resistance at tested air flow • Part number

2.9 The filter media shall be a wet laid micro fiberglass with a water repellent binder. The media shall be pleated to 2.0" pack depth with a thermo plastic resin separator. Formed dimpled media separators shall not be allowed. The pleated media pack shall be secured to the filter frame on all four sides with two component polyurethane.

3.0 Performance Characteristics

3.1 Each individual filter shall be factory tested for pressure drop and efficiency at the volumetric air flow determined from the effective filter face area at a velocity of 100 fpm. The maximum allowable pressure drop shall be 0.52"w.g.. The minimum filter efficiency shall be 99.99% at 0.3 micron.

3.2 The filters shall be factory leak scan tested to a maximum allowable penetration of 0.01% of the upstream challenge. Factory repairs shall not exceed 1% of the filter face area and no individual repair may exceed 2 in^2 ($13cm^2$).

3.3 Factory acceptance test data shall be included with the filter shipment. The test data shall include the filter serial number, test air flow, measured efficiency and pressure drop.

3.4 All factory tests and construction shall be in accordance with IEST Recommended Practice CC001 latest revision for HEPA and ULPA Filters

3.5 The filters shall be UL Standard 900 Classified

4.0 Packaging

4.1 Each filter shall be individually packaged in a clear poly bag and installed into a cardboard carton of sufficient strength to prevent shipping damage. The outside of the box shall bear a filter label with the manufacturer's item number, serial number and tested filter performance. Palletized filters shall stretch wrapped with full length corner posts to prevent shifting during transit.

5.0 Quality System

5.2 If requested manufacturer shall make available a copy of their Corporate Quality Manual.

5.3 If requested the manufacturer shall make available printed performance test results by a letter of compliance.