FG™
Indoor Air Quality

PHARMA–REPLACEABLE TERMINAL MODULE

FLOWSTAR

PRODUCT OVERVIEW

- Laminar flow HEPA diffuser 0.063" aluminum construction fully welded and pressure tested to 4 "w.g. for production validation
- Split butterfly volume control damper
- 304 stainless steel face 40% open area
- Intergal knife edge for gel seal filters
- Media pack depths of 2", 3" and 4" available
- Ideal for use in critical environments
  – Health Care
  – Pharmaceutical
  – Biotechnologies
  – USP 797 Compliance

WHY FLOWSTAR PHARMA-REPLACEABLE TERMINAL MODULE?

- Room-side serviceable diffuser with HEPA or ULPA gel seal filters
- Constructed of aluminum or stainless steel that is fully welded to create a leak free pressure boundry
- Filter alignment tab positions the filter on the integral knife edge during installation
- Filter retention tabs rotate 180° to simply load and secure the filter without tools
- Filters are gel seal and available in 99.99% at 0.3µm 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
- Unit designed so that the knife edge will not bottom out in gel track
- Aerosol injection manifold permits individual integrity test
- Volume dampers room-side adjustable with face screen open
- Test aerosol concentration and static pressure ports room-side
- Flexibility in multiple screen materials and pack depths to meet application specific requirements
- Pharma RTM is an optimized unit relative to air flow characteristics, laminarity, pressure drop and ease of installation and certification at install
- Filters are individually tested in accordance with IEST-RP-CC001 and IEST-RP-CC034 latest revision

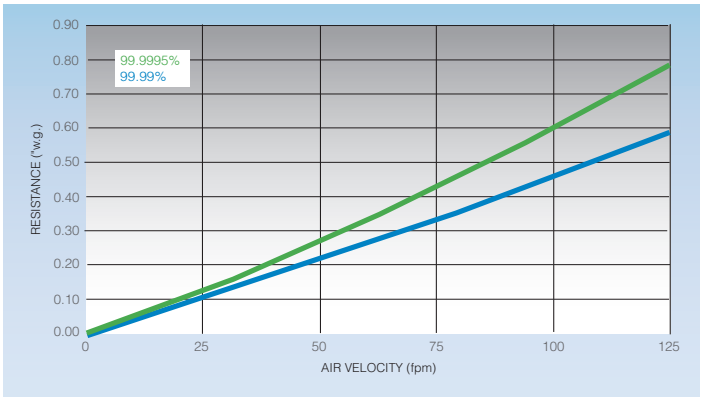
FLOWSTAR PHARMA–REPLACEABLE TERMINAL MODULE

MODULE SIZE*	
ORDER CODE	**DESCRIPTION**
P-RTM1	23 5/8 X 23 5/8 (5/8 TRIM FLANGE)
P-RTM2	23 5/8 X 47 5/8 (5/8 TRIM FLANGE)
P-RTM3	25 3/8 X 25 3/8 (1 1/2 TRIM FLANGE)
P-RTM4	25 3/8 X 49 3/8 (1 1/2 TRIM FLANGE)

Please see price list for order information.

*All dimensions are in inches. Modules are manufactured in 0.063 aluminum (also available in stainless steel), have a perforated 304 SS removable screen with 4 cap-nuts. Filter is not included.

INITIAL RESISTANCE VS. FACE VELOCITY



AVAILABLE OPTIONS

- 304 or 316 stainless steel hood body
- Guillotine or fixed slide plate damper
- Aerosol injection system
- Aerosol Dispersion Quick Disconnect
- Hinged removable face with 1/4 turn fastener
- 2" foil back insulation
- Hanging tabs
- Plaster ceiling and T-grid installation
- Removable Stainless Steel Trim
- Heavy Duty Butterfly Damper
- Extended Stainless Steel Grill

Please contact us for additional options. Specifications & drawings available upon request.

ENGINEERING SPECIFICATIONS

1.0 Scope

1.1 This specification covers ceiling modules with room side replaceable HEPA filters for use in clean room or cleans space applications. Filters shall be Pharma Replaceable Terminal Modules manufactured by Filtration Group. The size of the units shall be nominal 2' x 2' and 2' x 4' as scheduled.

2.0 Physical Characteristics

2.1 The hood body shall be manufactured from 16 GA 304 (316) stainless steel and all straight seams of the plenum shall be continuously welded. The inlet collar may be intermittently welded and caulked to the plenum. The size of the inlet collar shall be per the schedule.

2.2 The hood body shall have a flush mounted removable downstream screen of 22 gauge perforated T304 (316) stainless steel with 40% open area. The downstream screen is attached to the hood by stainless steel acorn nuts and washers connected to bolts in each corner.

2.3 The hood body shall be equipped with hanging tabs for attachment of seismic restraints or wire hangers at each corner.

2.4 The hood shall include a split butterfly damper, operable from the room side by means of a screwdriver operated flexible cable.

2.5 The unit shall be manufactured with ½" 304 (316) stainless steel pipe aerosol injection system accessible from the room side after removal of the downstream screen. The aerosol injection system shall have a baffle system to ensure adequate dispersion and uniformity of the aerosol on the upstream side of the filter. There shall be a room side accessible aerosol sample port to validate the upstream challenge concentration.

2.6 Units for hard plaster ceilings shall include a 1-1/2" 16GA 304 (316) stainless steel flange that is attached to the hood body by the manufacturer.

2.7 The filter shall be kept securely in place inside the hood with filter retainers, one per corner.

2.8 The replacement filter frame shall be manufactured from anodized extruded aluminum and the sides of the frame shall be joined together so that any contamination of the filter by metal shavings is prevented. Sharp edges and riveted corners where the edges are joined together will not be accepted.

2.9 The filter shall have a downstream gel trough filled with a two component polyurethane gel. Filter bypass is prevented from the housing knife edge to gel seal.

2.10 Filter media shall be micro glass fiber type mini-pleated into closely spaced pleats with glue bead or thermos plastic resin separators. The media pack shall be 2" contained within a 2-7/8" deep frame.

2.11 The media pack shall be sealed on all sides with a solid UL-classified polyurethane sealant and form a completely leak proof seal with the frame.

3.0 Filter Characteristics

3.1 Each hood body shall be water bubble tested while pressurized to 4" w.g. Any detected leaks shall be factory repaired and the unit retested to ensure no bypass leakage.

3.2 Each filter shall be tested and certified to have an efficiency of not less than 99.99% per the Institute of Environmental Sciences and Technologies Recommend Practice for HEPA and ULPA filters Type C (IEST RP CC 001.5)

3.3 Each filter shall be factory scan tested to a maximum allowable leak rate of 0.01% per IEST RP CC 0034 Section 9.

3.4 The clean filter static pressure drop shall be no greater than 0.52 in w.g. when tested at a filter face velocity of 100 fpm.

3.5 The filters shall be approved and listed by Underwriters Laboratories Inc, UL Standard 900

3.6 Filter labels shall have the following information:
- Tested efficiency • Tested air flow • Serial number
- Initial resistance at tested air flow • Part number
- Filter type according to IES-RP-CC-001

4.0 Quality System

4.1 Manufacturer shall provide documentation from an external certification body that the manufacturing location is ISO 9001 registered company. ASME NQA 1 is an allowable alternative to a registered ISO quality system.

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

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

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