

**PART 1 GENERAL****1.1 SECTION INCLUDES**

1. This section specifies the Ducted HEPA filter terminal module for use in cleanroom applications. The Ducted terminal module specification includes standard equipment and components that are necessary for the complete installation and proper operation.

**1.2 RELATED SECTIONS**

1. Division 13 "Cleanrooms"
2. Division 23 "HVAC "

**1.3 DESIGN REQUIREMENTS**

1. The ducted terminal module shall be designed allowing fit into a standard 2-foot by 4-foot T-bar ceiling grid system.

Model 10-DT-22-01 – 2' x 2' Ducted Filter Module

Model 10-DT-24-01 – 2' x 4' Ducted Filter Module

**1.4 SHOP DRAWINGS**

1. The Ducted terminal module supplier shall furnish shop drawings of the filter showing layout, placement, elevations, sections, and details
2. Product Data: Submit manufacturer's data sheet on each product to be used. Include: dimensions, construction details and configurations.
3. Shop Drawings: Provide scalable drawing(s) of each unit, illustrating front, side, and top views. Drawings shall include all options, special features, component dimensions, construction details and tolerances. Particular attention shall be given to installation interfaces as required by other trades (plumbing fixtures, exhaust connections, electrical requirements, etc.)

**1.5 QUALITY ASSURANCE**

1. The Ducted terminal module shall be supplied or furnished by a single manufacturer
2. The manufacturers shall have production facilities including all tools, equipment, and machinery necessary for the fabrication and installation of work specified, complete with skilled personnel.
3. Manufacturer Qualifications: Not less than 10 years experience in the actual production of specified products
4. A list of five (5) installations of comparable stature completed in the past 5 years
5. Performance: Cleanroom panel HEPA filters shall be designed to meet or exceed IEST "RP-CC001, latest Revision

**1.6 DELIVERY, STORAGE AND HANDLING**

1. Packaging: Products shall have adequate packaging to protect the finished surfaces from soiling or damage during shipping
2. Delivery: Deliver materials in manufacturer's original, unopened containers with identification labels intact

3. Storage: Store materials in such a manner as to prevent any damage or intrusion of foreign matter. Store within the building in space designated for storage. Items not properly stored will not be warranted against damage due to unsatisfactory conditions.
4. Handling: Care shall be used at all times to prevent any damage.
5. Waste disposal: Installer is responsible for removing waste resulting from the installation of the ducted terminal module. Trash container to be provided by others

### **1.7 REFERENCES**

1. IEST-RP-CC001 Latest Revision
2. IEST-RP-CC0034 Section 9

### **1.8 PROJECT SITE CONDITIONS**

Do not deliver until the following conditions have been met:

1. Windows and doors are installed, and building is secure and weather tight
2. Ceiling overhead ductwork and lighting are installed
3. All painting is completed, and floor finish is installed
4. Protective packaging should be left in place while handling and the removed only when pieces are being installed in place.

### **1.9 WARRANTY**

1. Ducted terminal module warranty: 2-years from date of shipment. Defects in material and workmanship within this time are to be replaced or repair at no additional charge to the owner

## **PART 2 PRODUCTS**

### **2.1 MANUFACTURER**

In order to define a minimum acceptable standard of quality, this specification names whose published products are acceptable

1. Acceptable Manufacturer:
  1. Filtration Group IAQ Flowstar Ducted Terminal Module as supplied by HEPAire Products Inc. 120 Terence Matthews Cres. Ottawa, ON. Telephone: 613-366-4984. Email: [info@hepaireproducts.com](mailto:info@hepaireproducts.com)

### **2.2 MATERIALS**

1. The filter frame shall be constructed from 6063-T5 extruded aluminum with a clear anodized finish. The side frames shall be joined together with black spring steel internal locks. External corner locks and riveted frame construction will not be permitted so that any contamination of the filter by metal shavings is prevented
2. All edges shall be de-burred and shaved to provide a smooth finish

3. The ducted terminal module shall have a galvanized hood sheet with a 2" high inlet collar. The hood sheet shall be permanently fastened to the extruded aluminum filter frame. The assembly shall have D-Rings fastened to the hood sheet to be used for seismic restraint.
4. The hood assembly shall contain a round perforated disk for air distribution adjustments. The disk shall be aluminum with a 50% open area. The diffuser shall be adjustable from the room side through the centre divider in the filter.
5. Filter media shall be microfiber type mini-pleated into closely spaced pleats with thermos resin separators. The media pack shall be 2" contained within a 5.88" deep frame. Formed dimple pleat media separators shall not be allowed.
6. The media pack shall be sealed on all sides with a solid UL Classified polyurethane sealant to form a leak proof seal with the frame.
7. Each filter shall be individually packaged in a cardboard carton to prevent shipping damage. The outside of the box shall contain a filter label with the manufacturer's item number, serial number, and tested filter performance.

### **2.3 PERFORMANCE**

1. Each filter shall be tested and certified to have an efficiency of not less than 99.99% per Institute of Environmental Sciences and Technologies Recommend Practice for HEPA filters Type C
2. Each filter shall be factory scan tested to a maximum allowable leak rate of 0.01% per IEST-RP-CC0034 Section 3.
3. Factory repairs shall not exceed 1% of the filter face area and individual repair shall exceed 2 square inches.
4. The clean filter static pressure drop shall be no greater than 0.52" w.g. at 100fpm
5. The filters shall be approved and listed by Underwriters Laboratories Inc, UL standard 900
6. Filter labels shall have the following information:
  - 6.1 Tested effincey, tested airflow, serial number
  - 6.2 Initial resistance at tested airflow
  - 6.3 Part Number
  - 6.4 Filter type according to IES-RP-CC-001

## **PART 3 EXECUTION**

### **3.1 INSTALLATION**

1. Install in accordance with manufacturers recommendations
2. Install equipment so as to not damage other work

**3.2 CLEANING**

1. Remove all protective packaging
2. Remove or repair damaged or defective filters

**3.3 PROTECTION**

1. Provide all necessary protective measures to prevent exposure of HEPA filters from exposure to other construction activity
2. Advise contractor of procedures and precautions for protection of HEPA filters from damage by work of other trades.