

GEL SEAL HEPA FILTER:

SECTION 234133 – HIGH-EFFICENCY PARTICULATE FILTRATION

PART 1 – GENERAL

* 1. RELATED DOCUMENTS

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division \*\* Specifications Sections, apply to this section
   1. SUMMARY
2. Sections Includes:
   1. Gel Seal HEPA Filter
3. Related Sections:
   1. CODES AND STANDARDS
4. UL 900, Underwriters Laboratories Standard for Air Filter Units
5. ASHRAE 52.2, Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size
6. IEST-RP-CC-001, Institute of Environmental Sciences HEPA and ULPA Filters
7. IEST-RP-CC006, Institute of Environmental Sciences Recommended Practices for Testing Clean Rooms
8. IES-RP-CC034, Institute of Environmental Sciences Recommended Practices for HEPA and ULPA Filter Leak Tests
   1. SUBMITTALS
9. Product Data: For each type of produce indicated, include the following:
   1. Data Sheet: Indicate materials of construction, mounting details and performance data including initial resistance.
   2. Source quality-control reports.

PART 2 - PRODUCTS

2.1 HIGH-EFFICENCY PARTICULATE FILTRATION

1. Gel Seal HEPA Filter
2. Manufacturers: Subject to compliance with requirements and performance listed in section 2.2 Source Quality Control, products by one of following manufacturer is acceptable
   1. Titus (Basis of Design)
   2. Camfil
3. Air filters shall be high-efficiency individually tested and certified panel filters consisting of aluminum enclosing frame, low-outgassing sealant, continuous glue bead separators and micro glass media filter pack.
4. Air Filters are to be HEPA, Type J per IEST RP-CC-001.
5. Filter shall be manufactured in a Class 10,000 (M5.5, ISO Class 7) cleanroom and tested in a Class 100 (M3.5, ISO Class 5) clean space.
6. Sizes shall be as noted on drawings or other supporting materials.
7. Construction
   1. Filter media shall be one continuous pleating of micro glass fiber media formed into a uniform pack depth of 53mm.
   2. Pleat spacing shall be by continuous glue bead separators to prevent media-to-media contact and promote uniform airflow through the media pack.
   3. The media pack shall be completely encapsulated in a polyurethane sealant creating a rigid self-supporting pack. The sealant shall be low out gassing, fire-retardant and self-extinguishing.
   4. The enclosing frame, of anodized aluminum profiles, shall be joined together with secure internal corner clips to form a rugged and durable enclosure. Overall dimensional tolerance shall be within +0, -1/8”, and square within 1/4”.
   5. Filter frame shall have an integral gel channel that is filled with a cleanroom grade low outgassing polyurethane based gel.
   6. Filters shall be listed per Underwriters Laboratories as UL 900.
8. Performance
   1. Filters efficiency is to be 99.99% at 0.3 micron when tested at 100 fpm useable face velocity.
   2. Filters shall be tested in accordance with IEST-RP-CC-034.
   3. The filter shall be identified on a label indicating minimum efficiency, tested airflow and pressure drop.
   4. The unit shall be bar code serialized for individual unit identification.
   5. Source Quality Control
9. The manufacturer shall provide published performance data for rated for the square panel diffuser
   1. The diffuser shall be tested in accordance with IEST-RP-CC-034
   2. Initial resistance and efficiency to be determined at 100fpm usable face velocity

PART 3 – EXECUTION

3.1 EXAMINATION

1. Examine areas where filters are to be installed for compliance with requirements for installation tolerances and other conditions affecting performance of equipment.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

1. Materials shall be delivered in their original unopened packages and shipped in enclosed trailers. Extreme care shall be exercised in handling components to prevent damage.
2. Materials shall be stored in such as manner as to prevent damage or intrusion of foreign matter. Materials stored longer than 1 week shall be in a controlled environment (70 plus or minus 10 degrees F, 50 percent relative humidity). The filters shall be separately packaged. Each filter module shall be wrapped in a protective polyethylene bag and packaged in an individual carton. Filters shall not be unpackaged until they are ready for inspection, testing and installation. In all handling operations, care should be taken to prevent:
   1. Dropping of cartons, vibration, excessive movement, rough handling.
   2. Storage of filter media in the outdoors is prohibited. Reject any material stored in that fashion.
3. Immediately, prior to installation, visually inspect filter media and frame for any visible damage. Filters with damaged casings or damaged seals at the media-casing interface may not be installed.
4. Install filters in position to prevent passage of unfiltered air.
5. Do not operate fan system until filters (temporary or permanent) are in place. Replace temporary filters used during construction and testing with new, clean filters.
6. Coordinate filter installations with duct and air-handling-unit installations.

3.3 FIELD QUALITY CONTROL

1. Tests and Inspections:
   1. Test for leakage of unfiltered air while system is operating.
2. Air filter will be considered defective if it does not pass tests and inspections.
3. Prepare test and inspection reports. Provide copies to the Engineer and the Owner
4. After installation, verify diffusers air patterns is as indicated on drawings, or as directed before starting air balance.

3.4 CLEANING

1. After completing system installation and testing, adjusting, and balancing of air-handling and air-distribution systems, and clean filter housings.

END OF SECTION 234133