



Designation: F 1040 – 87 (Reapproved 1993)

Standard Specification for Filter Units, Air Conditioning: Viscous-Impingement and Dry Types, Replaceable¹

This standard is issued under the fixed designation F 1040; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This specification covers throw-away, flat panel-type filter units for use in air conditioning, heating, and ventilating systems. This specification also includes panel-type filters with pleated media.

1.2 The values stated in inch-pound units are to be regarded as the standard.

2. Referenced Documents

2.1 ASTM Standards:

D 3951 Practice for Commercial Packaging²

2.2 ASHRAE Standard:

52 Method of Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter³

2.3 Federal Standard:

Fed. Std. No. 123 Military Standard for Marking for Shipment and Storage⁴

2.4 Military Standard:

MIL-STD-129 Marking for Shipment and Storage⁴

2.5 UL Standard:

UL900 Test Performance of Air Filter Units⁵

3. Descriptions of Term Specific to This Standard

3.1 *net face area*—the net upstream area of the medium exposed to air flow measured in the plane or planes of the media, excluding sealing flanges, framing supports, etc.

4. Classification

4.1 The filters are furnished in two types as follows:

4.1.1 *Type 1*—Throw-away frames and media, and

4.1.2 *Type 2*—Permanent frames with replaceable media.

4.2 The filters are furnished in three grades as follows:

4.2.1 *Grade A*—Standard dust-holding capacity,

4.2.2 *Grade B*—High dust-holding capacity, and

4.2.3 *Grade C*—High arrestance.

5. Ordering Information

5.1 Contracts or orders for the units under this specification shall include the following information:

5.1.1 Quantity,

5.1.2 Material for media frame for Type 2 filter, (see section 6.4.4),

5.1.3 Size, (See 7.1),

5.1.4 Certification of the filter units by the producer or supplier, if required, (see Section 10).

6. Materials and Manufacture

6.1 Filters shall be the manufacturer's standard commercial product with any added features needed to comply with the specified requirements.

7. Physical Properties

7.1 The filter units shall be the flat panel type, with or without pleated media. They shall be designed and fabricated for disposal when, because of accumulated dust loading, the dust-load limit is reached. In Type 2 filters, the media frames shall be permanent and the media pad *only* shall be disposable. The filter media shall be dry or adhesive-coated in accordance with the manufacturer's recommendations.

7.2 *Filter Construction*—Filters shall be constructed with 90° corners. Frame edges shall be parallel to within 1/16 in. Media pad reinforcement in the form of grilles, retaining grids, fabric netting, or the equivalent shall be installed on both faces of the filter in accordance with the manufacturer's recommendations. The media shall be attached to the frame of Type 1 filters, and supported in the frame of Type 2 filters, in such a manner that the media pad will not slump or otherwise be permanently displaced under the conditions of maximum air velocity (350 ft/min (1.78 m/s)) and filter resistance specified herein.

7.2.1 *Filter Media*—Filter media shall be suitable for the intended use and shall be composed of natural, synthetic, or inorganic fibers, or any combination of such fibers. The media shall be nontoxic. The media shall be suitable for continuous

¹ This specification is under the jurisdiction of ASTM Committee D22 on Sampling and Analysis of atmospheres and is the direct responsibility of Subcommittee D22.09 on ISO TAG for ISO/TC 146..

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² *Annual Book of ASTM Standards*, Vol 15.09.

³ Available from ASHRAE Inc., 1791 Tullie Circle, N.E., Atlanta, GA 30329.

⁴ Available from Naval Publications and Forms Center, 5801 Tabor Ave., Philadelphia, PA 19120.

⁵ Available from Underwriters Laboratories, 333 Pfingster Road, Northbrook, IL 60062.