Designation: F 1138 – 98 (Reapproved 2003)

An American National Standard

Standard Specification for Spray Shields for Mechanical Joints[1]

This standard is issued under the fixed designation F 1138; 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 describes the manufacturing requirements for spray shield stock and the fabrication and installation requirements for spray shields made from that stock.

1.1.1 Sections 2-14 address the manufacturing requirements for the spray shield stock. Annex A1 addresses the fabrication and installation requirements for the spray shields.

1.1.2 Fig. 1 shows the typical construction of a spray shield. Figs. 2-6 show methods of installation of a spray shield on various mechanical joints.

1.2 The shields are intended for use around mechanical joints (flanged, bolted unions, and so forth) in liquid piping systems to prevent the impingement of flammable liquid on hot surfaces or fluids onto electrical switchboards and components resulting from a leak in the mechanical joint.

1.3 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

2. Referenced Documents

2.1 *ASTM Standards:* [2]

A 176 Specification for Stainless and Heat-Resisting Chromium Steel Plate, Sheet, and Strip

A 276 Specification for Stainless Steel Bars and Shapes

A 580 Specification for Stainless Steel Wire

B 134 Specification for Brass Wire

B 164 Specification for Nickel-Copper Alloy Rod, Bar, and Wire

B 166 Specification for Nickel-Chromium-Iron Alloys (UNS N 06600, N 06601, and N 06690) and Nickel–Chromium–Cobalt–Molybdenum Alloy (UNS N 06617) Rod, Bar, and Wire

D 1388 Test Method for Stiffness of Fabrics

D 1424 Test Method for Tearing Strength of Fabrics by Falling-Pendulum Type (Elmendorf) Apparatus

D 1682 Test Methods for Breaking Load and Elongation of Textile Fabrics[3]

D 1777 Method for Measuring Thickness of Textile Materials

D 3389 Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform, Double-Head Abrader)

D 3776 Test Methods for Mass Per Unit Area (Weight) of Fabric

D 3786 Test Method for Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics: Diaphragm Bursting Strength Tester Method

D 3951 Practice for Commercial Packaging

F 501 Test Method for Aerospace Materials Response to Flame, With Vertical Test Specimen (For Aerospace Vehicles Standard Conditions)

2.2 *American Association of Textile Chemists and Colorists Standards:*

AATCC-22 Water Repellency, Spray Test[4]

AATCC-35 Water Resistance, Rain Test[4]

AATCC-127 Water Resistance, Hydrostatic Pressure Test[4]

2.3 *Military Standards:*

MIL-C-20079 Cloth, Glass, Tape, Textile Glass and Thread, Glass[5]

MIL-C-20696 Cloth, Coated, Nylon Waterproof[5]

2.4 *Federal Standard:*

WW-C-440 Clamps, Hose (Low Pressure)[5]

3. Ordering Information

3.1 ASTM designation and year of issue,

3.2 Length and width required (see 7.1), and

3.3 Type of stainless steel (see 4.1).

[1] This specification is under the jurisdiction of ASTM Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.07 on General Requirements.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Withdrawn.

[4] Available from American Association of Textile Chemists and Colorists (AATCC), One Davis Dr., P.O. Box 12215, Research Triangle Park, NC 27709-2215.

[5] Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

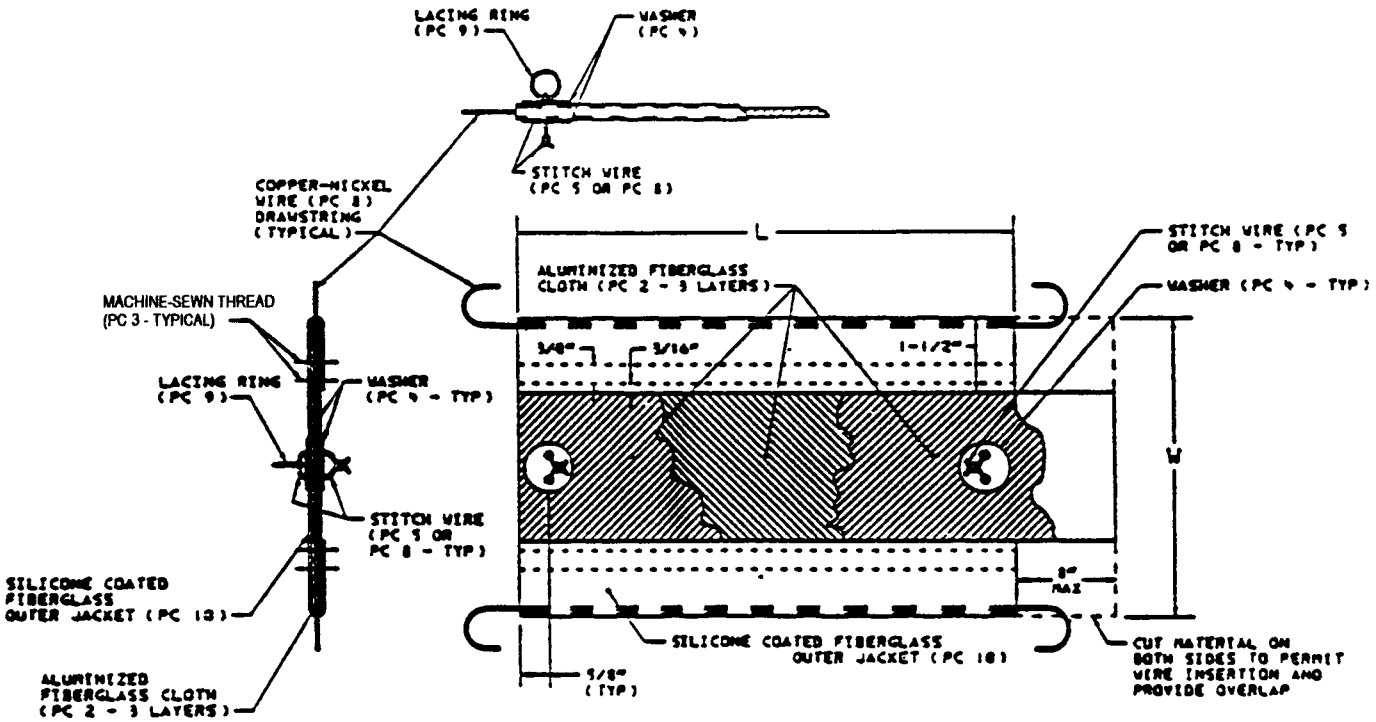

FIG. 1 Spray Shield Construction (Typical)

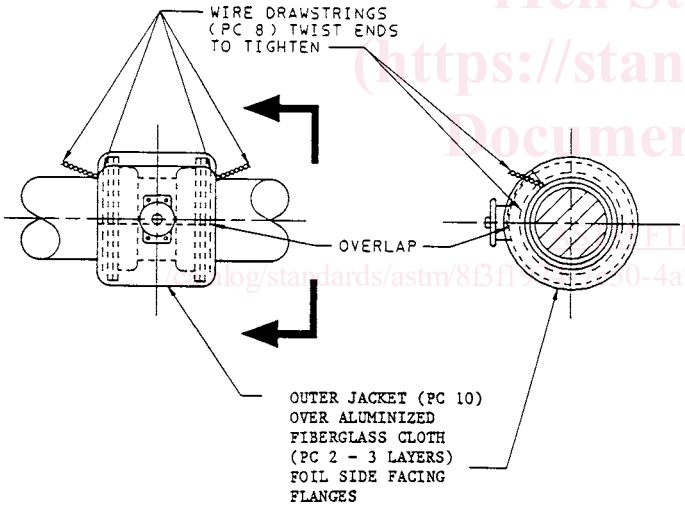

FIG. 2 Installation of Butterfly Valve Shield

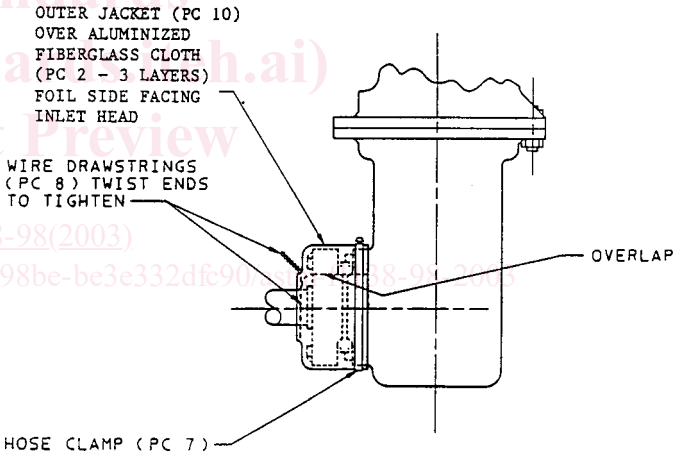

FIG. 3 Spray Shield for Pump Inlet Head

3.4 Type of lacing hardware required (see 4.1.1).

4. Materials and Manufacture

4.1 Lacing hooks, lacing rings, and lacing washers (see Fig. 7) shall be constructed of stainless steel in accordance with Specifications A 176, A 276, or A 580.

4.1.1 Lacing rings may be used instead of lacing hooks where practicable or preferable (see 3.3).

4.1.2 Lacing washers for fastening hooks or rings shall be two-hole washers.

4.2 Stitch wire (Piece 5 in Table 1) shall be constructed of stainless steel in accordance with Specification A 580.

4.3 The aluminized glass cloth, thread, and the protective outer jacket shall be constructed of material as specified in Table 1 and Table 2.

5. Physical and Mechanical Properties

5.1 The physical and mechanical properties for the aluminized glass cloth, thread, and protective outer jacket shall be as specified in Table 1 and Table 2.

6. Requirements

6.1 If lacing hooks or rings are of the type that fasten by stitching, the hooks or rings shall be attached to the backup washers using a wire stitch machine and wire (Pieces 5 or 8 in Table 1).

6.2 Lacing anchor/self-locking washer-type systems shall not be used on spray shields.

7. Dimensions and Permissible Variations

7.1 The material for shields shall be standardized as given in Table 3 tolerances to be +¼ in. (6 mm) and –0 in. for width.