



Standard Specification for Spray Shields for Mechanical Joints¹

This standard is issued under the fixed designation F1138; 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 U.S. 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 with an internal pressure exceeding 26.1 psi (0.18 N/mm²) 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, unless otherwise invoked by contractual requirements. Spray Shields are excluded on all suction lines with a head pressure less than 26.1 psi (0.18 N/mm²) and mechanical joints in non-flammable liquid systems in excess of 10 ft of an electrical switchboard, unless otherwise invoked by contractual requirements.²

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recom-*

mendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 ASTM Standards:³

- A176 Specification for Stainless and Heat-Resisting Chromium Steel Plate, Sheet, and Strip (Withdrawn 2015)⁴
- A276 Specification for Stainless Steel Bars and Shapes
- A580/A580M Specification for Stainless Steel Wire
- B134/B134M Specification for Brass Wire
- B164 Specification for Nickel-Copper Alloy Rod, Bar, and Wire
- B166 Specification for Nickel-Chromium-Aluminum Alloy, Nickel-Chromium-Iron Alloys, Nickel-Chromium-Cobalt-Molybdenum Alloy, Nickel-Iron-Chromium-Tungsten Alloy, and Nickel-Chromium-Molybdenum-Copper Alloy Rod, Bar, and Wire
- D1308 Test Method for Effect of Household Chemicals on Clear and Pigmented Coating Systems
- D1424 Test Method for Tearing Strength of Fabrics by Falling-Pendulum (Elmendorf-Type) Apparatus
- D1682 Test Method for Breaking Load and Elongation of Textile Fabric (Withdrawn 1992)⁴
- D1777 Test Method for Thickness of Textile Materials
- D3389 Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform Abrader)
- D3776 Test Methods for Mass Per Unit Area (Weight) of Fabric
- D3786 Test Method for Bursting Strength of Textile Fabrics—Diaphragm Bursting Strength Tester Method
- D3951 Practice for Commercial Packaging
- F501 Test Method for Aerospace Materials Response to

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 Reference IMO MSC Circ 1321, IMO MSC Circ 647, and IMO MSC Circ 851 for specific installation requirements and locations.

³ 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.

⁴ The last approved version of this historical standard is referenced on www.astm.org.

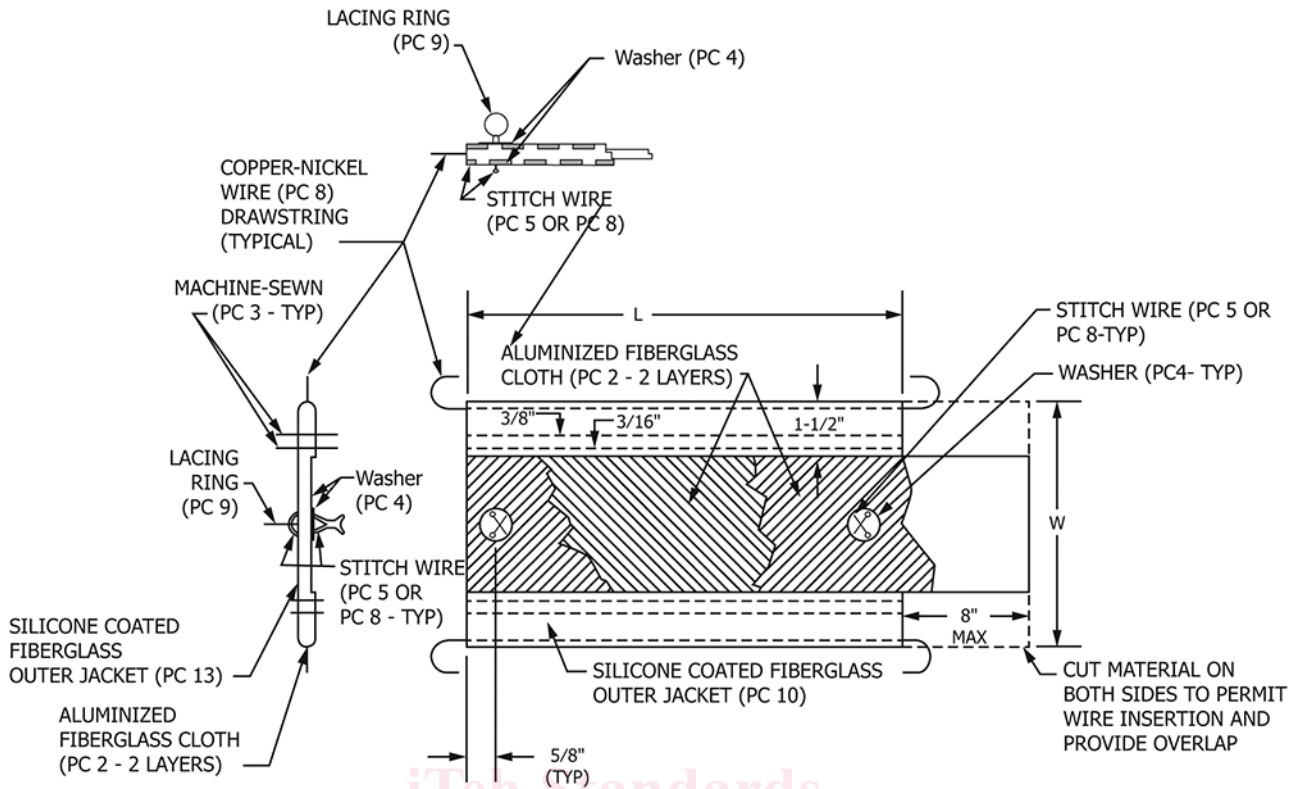


FIG. 1 Spray Shield Construction (Typical)

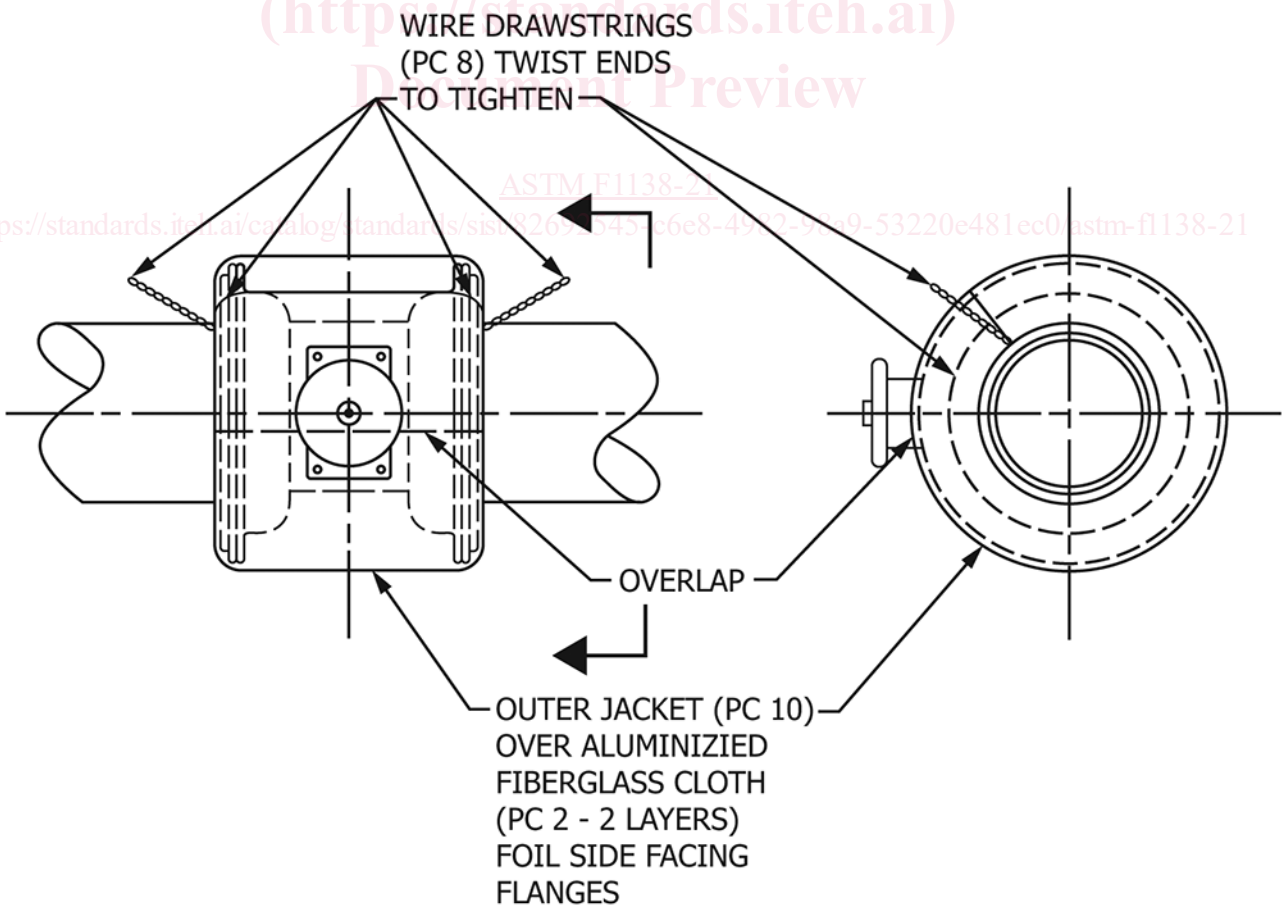


FIG. 2 Installation of Butterfly Valve Shield

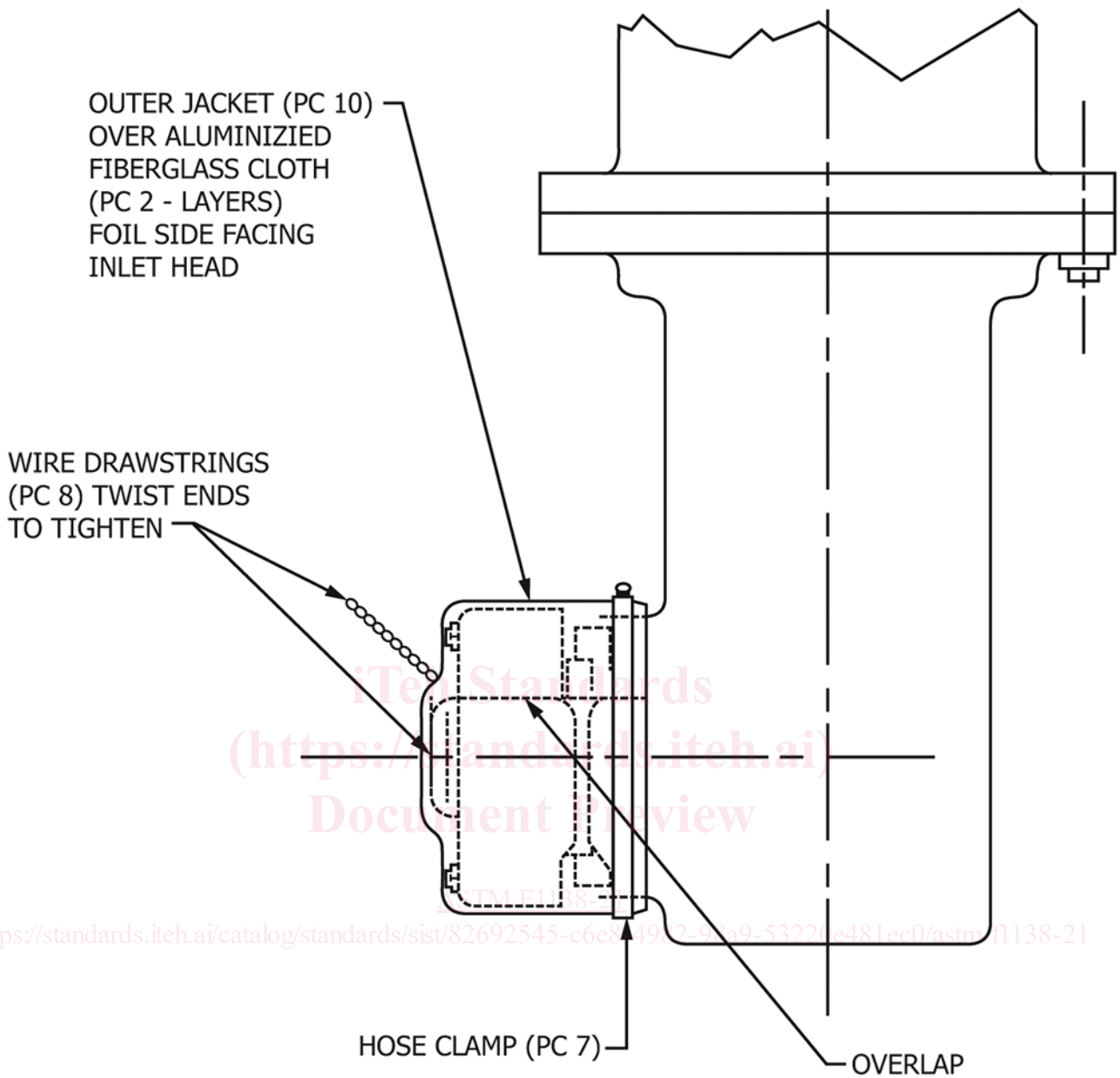


FIG. 3 Spray Shield for Pump Inlet Head

Flame, with Vertical Test Specimen (for Aerospace Vehicles Standard Conditions) (Withdrawn 1998)⁴

2.2 American Association of Textile Chemists and Colorists Standards:⁵

AATCC-22 Water Repellency, Spray Test

AATCC-35 Water Resistance, Rain Test

AATCC-127 Water Resistance, Hydrostatic Pressure Test

2.3 Military Standards:⁶

MIL-C-20079 Cloth, Glass, Tape, Textile Glass and Thread, Glass

MIL-PRF-20696 Cloth, Waterproof, Weather Resistant

2.4 Federal Standard:⁶

WW-C-440 Clamps, Hose (Low Pressure)

2.5 IMO Standards:⁷

IMO SOLAS 1974 as amended through 2014, Chapter II-2 Regulation 4

IMO MSC Circ 647 Guidelines to Minimize Leakages From Flammable Liquid Systems

IMO MSC Circ 851 Guidelines on Engine Room Oil Fuel Systems

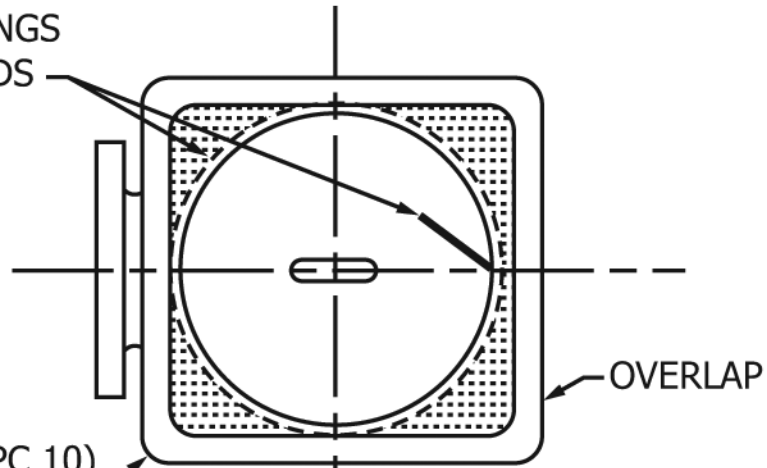
IMO MSC Circ 1321 Guidelines For Measures to Prevent Fires in Engine-Rooms and Cargo Pump-Rooms

⁵ Available from American Association of Textile Chemists and Colorists (AATCC), P.O. Box 12215, Research Triangle Park, NC 27709-2215, <http://www.aatcc.org>.

⁶ Available from U.S. Government Printing Office, Superintendent of Documents, 732 N. Capitol St., NW, Washington, DC 20401-0001, <http://www.access.gpo.gov>.

⁷ Available from International Maritime Organization (IMO), 4, Albert Embankment, London SE1 7SR, United Kingdom, <http://www.imo.org>.

WIRE DRAWSTRINGS
(PC 8) TWIST ENDS
TO TIGHTEN



OUTER JACKET (PC 10)
OVER ALUMINIZED
FIBERGLASS CLOTH
(PC 2 - 2 LAYERS)
FOIL SIDE FACING
STRAINER

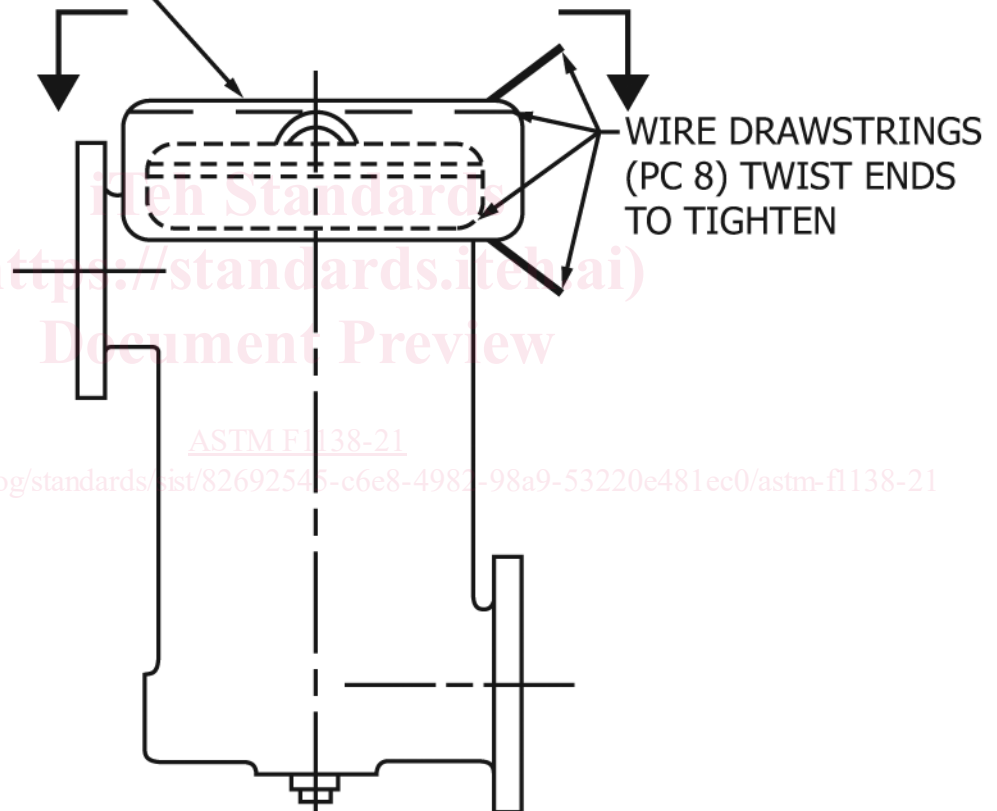


FIG. 4 Spray Shield for Simplex Strainer

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).
- 3.4 Type of lacing hardware required (see 4.1.1).

4. Materials and Manufacture

4.1 Optional lacing hooks, lacing rings, and lacing washers (see Fig. 7) shall be constructed of stainless steel in accordance with Specifications A176, A276, or A580/A580M.

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

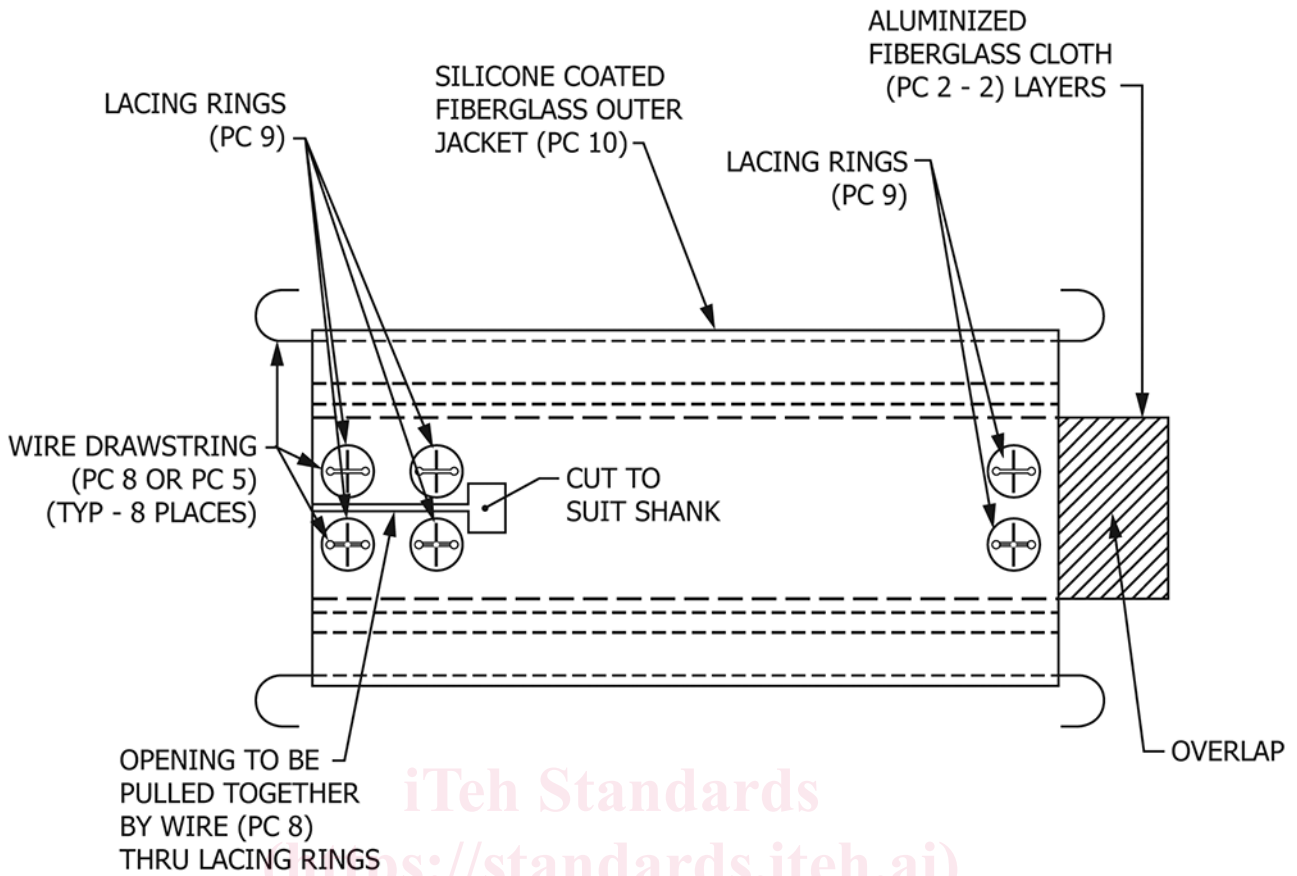


FIG. 5 Spray Shield for Butterfly Valve

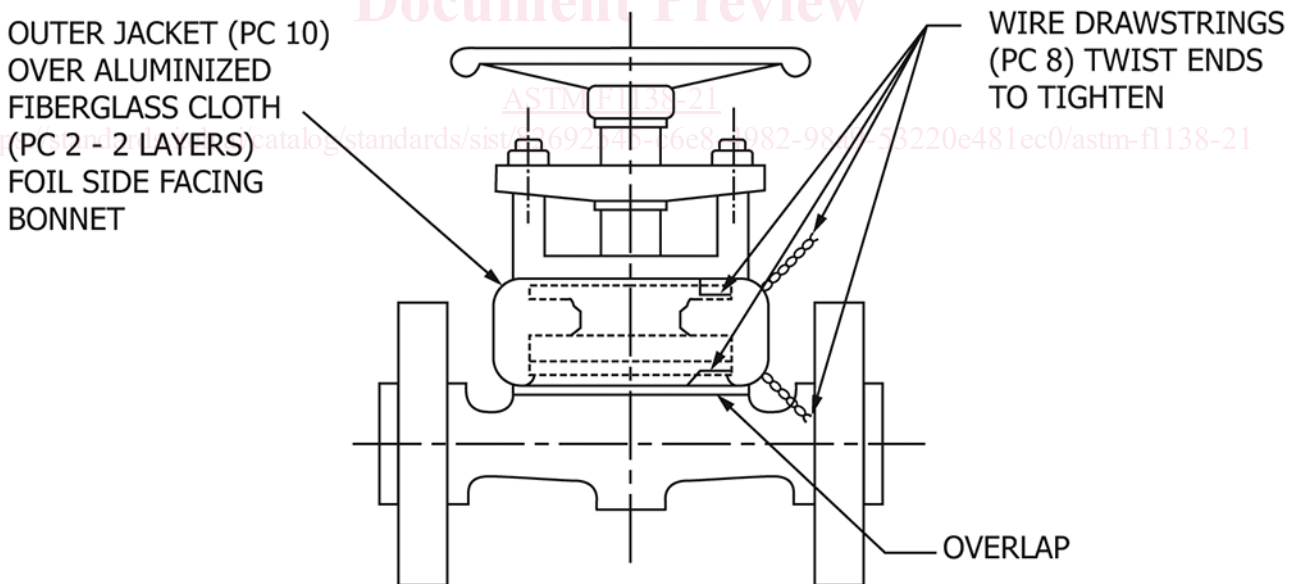


FIG. 6 Spray Shield for Valve Bonnet

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 A580/A580M.

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.