



Designation: **F2715–09 F2715 – 09 (Reapproved 2015)**

Standard Specification for Temporary Protective Equipotential Bond Mat To Be Used on De-Energized Equipment¹

This standard is issued under the fixed designation F2715; 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.

1. Scope

1.1 This specification covers the manufacture and testing of the temporary protective equipotential bond mat used on or around de-energized electrical equipment.

1.2 It is common practice for users of protective equipment to prepare complete instructions and regulations to govern in detail the correct use and maintenance of such equipment.

1.3 The use and maintenance of this equipment is beyond the scope of this specification.

1.4 It is recognized that the use of temporary protective equipotential bond mats requires additional equipment for installation and use, typically temporary connecting jumper assemblies.

2. Referenced Documents

2.1 *ASTM Standards:*²

[B33 Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes](#)

[D2261 Test Method for Tearing Strength of Fabrics by the Tongue \(Single Rip\) Procedure \(Constant-Rate-of-Extension Tensile Testing Machine\)](#)

2.2 *Other Standards:*

[Fed Std 191/5100 Strength and Elongation, Breaking of Woven Cloth; Grab Method](#)

[Fed Std 191/5874 Temperature, Low; Effect on Coated Cloth](#)

[Fed Std MVSS302 Flammability of Interior Materials](#)

[A-A-59551 Wire, Electrical, Copper Un-insulated](#)

3. Terminology

3.1 *Definitions:* <https://standards.iteh.ai/catalog/standards/sist/8c2f2fe-fed0-4263-9c0a-a3883dcad889/astm-f2715-092015>

3.1.1 *bonding, n*—the mechanical interconnection of conductive parts to maintain a common electrical potential.

3.1.2 *Equipotential Grounding System, n*—temporary grounding system placed in such locations and arranged in such a manner as to minimize the likelihood of workers being exposed to hazardous differences in electrical potential.

3.1.3 *carrier, n*—the main body of the equipotential bond mat on which the flat braid conductor is sewn.

4. Classification

4.1 Equipotential bond mats covered under this specification shall be designated as Type I or Type II; Style 1 or Style 2; Grid Conductor 1 to 24 and Carrier Material I or II.

4.1.1 *Type I*, capable of being cascaded (joined together).

4.1.2 *Type II*, without capability of being cascaded.

4.1.3 *Style 1*, exposed conductor termination.

4.1.4 *Style 2*, jacketed conductor termination.

¹ This specification is under the jurisdiction of ASTM Committee F18 on Electrical Protective Equipment for Workers and is the direct responsibility of Subcommittee F18.45 on Mechanical Apparatus.

Current edition approved Jan. 1, 2009; April 1, 2015. Published February 2009; May 2015. Originally approved in 2008. Last previous edition approved in 2008 as F2715-08-09. DOI: [10.1520/F2715-09](https://doi.org/10.1520/F2715-09); [10.1520/F2715-09R15](https://doi.org/10.1520/F2715-09R15).

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.

4.1.5 *Grid Conductor*; 1 to 6, in accordance with the normal flat width, or equivalent, of the flat braid conductors combination that makes up the grid conductor and perimeter conductor of the carrier, as shown in **Table 1**.

4.1.6 *Carrier material I*, slip resistant.

4.1.7 *Carrier material II*, without slip resistance.

5. Ordering Information

5.1 Orders for equipotential bond mats under this specification shall include the ASTM designation and the following information:

5.1.1 Quantity,

5.1.2 Type,

5.1.3 Style,

5.1.4 Grid Conductor,

5.1.5 Carrier Material,

5.1.6 Size, specified in length and width dimensions, noting any specific configuration requirements; rectangular, L shape, rectangular shape with access hole in middle, etc.

5.2 The listing of types, styles, grid conductors, carrier material and size is not intended to mean that all shall necessarily be available from the manufacturers; it signifies only that, if made they shall conform to the details of this specification.

6. Manufacture and Marking

6.1 Each equipotential bond mat shall be marked clearly and permanently with the name of the manufacturer or supplier, ASTM F2715, serial number, type, and style.

7. Chemical and Physical Requirements

7.1 Equipotential bond mats samples selected in accordance with Section 10 shall conform to the physical and chemical requirements as specified in this section.

7.2 *Carrier Strength*:

7.2.1 *Tensile (Grab)*—Carrier material shall be capable of a tensile (grab) of 1828 – 2037 N (411 – 458 lbf) in accordance with Fed Std 191/5100.

7.2.2 *Tongue Tear*—Carrier material shall be capable of tongue tear of 485 – 516 N (109 – 116 lbf) in accordance with Test Methods **D2261**.

7.2.3 *Cold Flexure*—Carrier material shall be capable of a low cold crack of -40° C (-40° F) in accordance with Fed Std 191/5874-1978

7.3 Flat braid conductor shall comply with A-A-59551 and Specification **B33** requirements and have the properties contained in **Table 2** or greater.

7.4 *Carrier Fire Resistance*—The flame resistance of the carrier shall be performed in accordance with Fed Std MVSS302 and shall be self extinguishing.

8. Dimensions and Permissible Variations

8.1 Equipotential bond mat size is the combination of grid spacing and perimeter dimensional configurations.

8.2 The length and width of grid spacing shall be 200 by 200 mm (8 by 8 in.), with a permissible variation of ±25 mm (±1 in).

8.3 Thread stitch spacing shall be 6 stitches or more per 25.4 mm (6 stitches or more per 1 in).

8.4 A minimum adequate area must be provided for footing surface of 0.37 m² (4 ft²) and a minimum of 0.6 m linear (2 ft) in any direction, with a permissible variation of ±25 mm (±1 in).

TABLE 1 Bond Mat Conductor Size

Grid Conductor	Grid, in.	Perimeter, in.
1	¼	¼
2	¼	½
3	¼	¾
4	½	1½
5	½	¾
6	¾	¾