



Standard Test Method for Determining the Protective Performance of an Arc Protective Blanket for Electric Arc Hazards¹

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1. Scope

1.1 This test method is used to evaluate the ability of the arc protective blankets to withstand the effects of arc flash and arc blast in a configuration in which the blanket is hung or anchored near energized equipment. Specifically, this test method is used to determine the arc protective blanket's (1) resistance to breakopen, (2) mechanical strength, and (3) ability to self-extinguish flames following a controlled arc exposure.

1.2 This method is used to determine the performance of arc protective blankets in terms of: maximum arc current level expressed in kA and BTP (BTP) expressed as the product of arc current in kA and arc duration in number of cycles to cause breakopen (kA*cycles). Cycles are on the basis of 60 Hz.

1.3 Blanket test specimens used in this test method are test size blankets of 152 ± 5 cm (60 ± 2 in.) by 122 ± 5 cm (48 ± 2 in.). The test specimen size is for testing purposes only. Commercially available arc protective blankets either larger or smaller than the test specimen size are covered by this standard.

1.4 The arc protective blankets described in this test method are made of flame-resistant materials and are available in varying sizes and configurations based on the application.

1.5 This test method shall be used to measure and describe the properties of materials, products, or assemblies in response to incident thermal (convective and radiant) and pressure energies generated by an electric arc under controlled laboratory conditions.

1.6 The values stated in SI units shall be regarded as standard. The values given in parentheses are mathematical conversion to inch-pound or other units commonly used for arc testing.

1.7 This standard shall not be used to describe or appraise the fire hazard or fire risk of materials, products, or assemblies

under actual fire conditions. However, results of this test may be used as elements of a fire assessment, which takes into account all of the factors, which are pertinent to an assessment of the fire hazard of a particular end use.

1.8 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* For specific precautions, see Section 7.

2. Referenced Documents

2.1 *ASTM Standards:*²

[D4391 Terminology Relating to The Burning Behavior of Textiles](#)

[F819 Terminology Relating to Electrical Protective Equipment for Workers](#)

3. Terminology

3.1 *Definitions:*

3.1.1 *arc, n*—conductive path in air for the electric current caused by ionization of air between two electrodes.

3.1.2 *arc induced fragmentation, n*—molten metal fragments or other fragments emitted from an electric arc.

3.1.3 *arc protective blanket, n*—a flat assembly of fabric(s) with locations for attachment used to protect workers from the effects of arc flash and arc blast.

3.1.4 *arc protective blanket maximum arc current I_{max} , n*—maximum value of RMS arc current that blanket can withstand without breakopen for no less than ten cycles of 60 Hz.

3.1.4.1 *Discussion*—Standard values of the maximum arc current for this test method are 15 kA, 25 kA, or 40 kA.

3.1.5 *arc protective blanket breakopen threshold performance (BTP), n*—the product of the arc current I , kA and arc duration in cycles required for breakopen to occur at this same arc current level.

¹ This test method is under the jurisdiction of ASTM Committee F18 on Electrical Protective Equipment for Workers and is the direct responsibility of Subcommittee F18.65 on Wearing Apparel.

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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.