

Subject **Arc Flash/Conductivity/Hot Work**

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Arc Flash (AF) Rated Products

Arc flash rated products have the ability to resist heat that is generated from an electrical arc flash. With the potential for extreme heat generation and exploding molten metal in an arc flash, it is important when working at height under such conditions to use fall protection systems that can resist AF exposure and perform in a fall situation. AF designated products have been tested to the applicable standards and are proven to have the ability to resist heat and maintain the required level of strength and performance.

Materials that Capital Safety uses to resist heat and pass the arc flash testing include heavy duty nylon, Kevlar® or Nomex® / Kevlar® blends.

Testing of Arc Flash Products

There is a recognized standard for arc flash that includes fall protection equipment. The ASTM F887-11 standard calls out specific testing requirements for fall protection equipment. There are two steps in meeting the arc flash standard. In summary, according to ASTM F887-11, the equipment is exposed to a 40 cal/cm² arc. Immediately after being exposed to this blast of electrical energy and heat, the product must not ignite, melt or drip, and have no greater than 5 seconds of after-flame. If the initial requirements (ignition, melt, flame out) are met, the product is next tested to the ANSI Z359 Fall Protection Code standard. This includes static and dynamic testing in an accredited lab to ensure strength and performance levels of the applicable product are maintained even after exposure to AF energy. If the products pass all tests, they can be marked as compliant with ASTM and ANSI requirements.

Arc Flash vs. Conductivity

Arc flash and conductivity are separate and totally different safety concerns as it relates to your fall protection equipment. As noted above, an arc flash designation deals with a products ability to resist intense heat and energy. Conductivity is the degree to which an item conducts electricity. Some items are highly conductive and allow electricity to easily flow or pass through. This would include metals like silver and copper.

Items that are nonconductive (in other words these items act as an insulator) include plastics and rubber. These materials help resist the flow of electricity.

Conductivity can also be affected by wet or dirty equipment, which will increase the ability of electricity to flow.

If you have any questions on how this will affect you directly please contact our Technical Services Department for assistance.



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If working near energized lines for example, you may be concerned about your fall protection equipment conducting electricity should it come in contact with an energized source. Common methods used to reduce conductivity concerns include coating hardware with a nonconductive PVC material, insulating the metal hardware away from the person using a leather pad or similar insulating material and elimination of the metal hardware (example: replacing the metal dorsal d-ring with a web loop for choke off of the lanyard or connector). These methods reduce the risk of incidental contact with energized sources but may not eliminate all risk.

Hot Work

When performing Hot Work (welding, cutting, grinding, heating or other activities that produce heat or when working around heat sources which could damage fall protection systems) at elevated heights, appropriate products should be used to assure the users safety.

Some arc flash rated products (including those made of Kevlar® or Nomex® Kevlar® blend) can be used for Hot Work. Products designated for Hot Work may not be rated for arc flash use however, therefore check with the manufacturer. Materials that Capital Safety uses in Hot Work products include Modacrylic, Kevlar® or Nomex® / Kevlar® blend.

Hot Work products are designed to resist limited contact with hot materials such as weld slag, sparks and other hot materials.

Capital Safety makes harnesses, lanyards and self retracting devices for arc flash and hot work. In many cases these products are not interchangeable between these applications. Similar limitations exist for products designed to control conductivity. Please review the instructions for use supplied with the products, or contact customer service for details on specific models and limitations.

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