

# Fall Protection Solutions for Electric Arc and Flashover



## Technical Brief

An arc occurs when flowing current leaves its intended conductor, traveling through air to another conductor or to the ground. The resulting electrical energy produces a flashover that can cause fire, damage to property, severe burns, and even death to individuals within close proximity. Circumstances that can create arc situations include electrical equipment malfunction and failure (spontaneous arc) and failure to take proper precautions when working on energized circuits (inadvertent arc).

Arc flashes can produce blast pressure high enough (upwards of 2,000 lbs. per square foot) to knock down humans and propel objects. Temperatures from an arc can reach 35,000° F. The resulting sound blast decibel level can rival that of a gunshot.\*

### ARC FLASH RATED DESIGNATION FOR FALL PROTECTION PPE

Fall protection equipment for workers facing arc flash hazards must reflect specific needs. Arc flash (AF) rated designation for personal protective equipment (PPE) requires that products resist high heat and maintain necessary structural integrity.

Fall protection PPE is guided by non-regulatory **ASTM** (American Society for Testing and Materials) F887-11 Standard for Personal Climbing Equipment and the **ANSI** (American National Standards Institute) Z359 Fall Protection Code. In order for fall protection to be certified to ASTM F887, the harness or lanyard must self-extinguish within five seconds after being subjected to an arc flash of 40 cal/cm<sup>2</sup> and cannot melt or drip. Following the arc flash test, the harness must maintain its integrity after undergoing the ANSI Z359 dynamic drop test using a 282 lb. test torso.

**OSHA** (Occupational Safety and Health Administration) has established guidelines for electrically safe work conditions.

**OSHA's 29 CFR Parts 1910.269 for Electric Power Generation, Transmission, and Distribution; Electrical Protective Equipment** ruling created in 1986 has recently been revised for consistency with corresponding general industry and construction standards.

#### Changes include:

- Improved fall protection for individuals working from aerial lifts and on overhead line structures.
- Personal fall arrest equipment must be capable of passing a drop test after exposure to electric arc.
- Approach-distance requirements from energized lines and equipment for unprotected workers.
- Shared safety-related information among employers, employees and contractors.

### 29 CFR Parts 1910.269 and Subpart V were published on July 10, 2014.

April 1, 2015 is the compliance deadline for certain fall protection products, minimum approach distances and arc flash provisions.\*\*

### FALL PROTECTION SOLUTIONS

MSA introduces EVOTECH® and Workman® Arc Flash Full Body Harnesses. Durable, lightweight and comfortable with ASTM F887 rating, these harnesses protect workers during a fall after arc flash exposure at 40 cal/cm<sup>2</sup>. Made from 100% Kevlar fire-resistant webbing, the EVOTECH Harness is self-extinguishing. The Workman Harness' nylon webbing provides added protection at an economical price. Both harnesses meet revised OSHA 1910.269 (effective 4/1/15).

\* *Understanding Arc Flash, Workplace Safety Awareness Council*

\*\* [www.osha.gov](http://www.osha.gov)

MSA offers a full line of products that provide protection from arc flash hazards; to learn more, visit [MSAsafety.com/ArcFlash](http://MSAsafety.com/ArcFlash) or call 1-800-672-9010.

**Note:** This bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.



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