Using Insulated Hand Tools to Avoid Arc Flash Incidents – Quick Tips



Insulated hand tools play a role in creating a safe workplace for employees who are working near energized circuits

Whether they're high in the sky working on power lines, elbow-deep in a generator, or re-wiring a critical piece of control equipment on the factory floor, electrical workers need tools that are designed and engineered for maximum safety.

Because insulated tools and energized environments go hand-in-hand, there are some key points to keep in mind when buying, using and retesting such tools. Here's a look at some of the most important:

Buying and Using Insulated Hand Tools

Used to protect workers working live or close to live parts against arc flash, arc blasts and electrocution, insulated tools are rated at 1,000 volts AC (and 1,500 volts DC), but are subjected to 10,000 volts during the product testing process (as mandated by ASTM F1505). Hand tools covered by ASTM F1505 include screwdrivers, wrenches, pliers, nippers, strippers, cable cutting tools, cable scissors, knives and tweezers.

Complying both with the National Fire Protection (NFPA) 70E® and the International Electrotechnical Commission (IEC) 60900 standards, insulated tool sets are individually tested and certified by the manufacturer for specific working conditions.

When purchasing insulated hand tools, safety directors should seek out those that comply with IEC, ASTM, and/or the Deutsches Institut fur Normung (DIN) standards. While these groups do not test the individual tools for compliance (manufacturers do their own testing), they do set the insulation performance requirements for the tools.

The Verband der Elektrotechnik, Elektronik und Informationstechnik (VDE), the association of German electro technicians, is an independent agency that tests a sample of each tool to ensure compliance.

To increase tool life and ensure that the insulated hand tools provide

protection for users, be sure to:

- Keep tools clean and dry
- Inspect insulation before each use
- If you doubt the integrity of the insulation, destroy the tool or have it retested
- Follow the manufacturer’s temperature recommendations for use
- Have a qualified person inspect and recertify tools annually for safe use
- Use other personal protective equipment as necessary

Retesting Hand Tools

Although there aren’t specific requirements for retesting insulated hand tools, in compliance with 29 CFR 1910.335(a)(1)(ii), protective equipment must be maintained in a safe, reliable condition. Most manufacturers suggest inspecting the insulation before each use and having a qualified person perform an annual inspection and certification. To aid in the inspection process, some manufacturers offer two-layer insulation that will change color when the insulation has been breached.

When using insulated tools, make sure workers always follow the manufacturer’s recommendation. Although insulated hand tools are tested and certified to 1,000 volts AC, the testing agencies do not recommend using them on energized circuits, for example, and most insulating tools are designed only for protection from accidental contact with energized circuits

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