

OSHA Training Toolbox Talk: Basic Electrical Safety – Things to Know About Double Insulated Tools

[Reference 1910 Subpart S / 1926 Subpart K]

In a previous toolbox talk we discussed why we should never use a tool or extension cord when the grounding pin on the plug has been damaged or removed. However, you are probably aware that not all tools are made with a grounding pin on the plug; instead it may have only two prongs on the plug, with one being a little wider than the other (refer to the handout for an example). But that does not necessarily mean the tool is unsafe to use, it could be a double insulated tool.

As we discussed before, many hand tools and other pieces of equipment that are equipped with electrical cords are manufactured with casings or housings made from metal or other materials that conduct electricity. And if one of the insulated conductor wires encased within the power cord becomes loose inside the tool or equipment, it could touch the casing or housing and cause it to become energized. Subsequently, anyone who then touches that energized tool or equipment's casing or housing could be electrocuted.

But a double insulated tool is made differently. It does not have a casing or housing made from conductive material. Instead it is made of plastic or some other material that does not conduct electricity. This extra layer of electrical insulation provided by the non-conductive casing or housing negates the need for a grounding wire and prong on the power cord.

You can tell if the tool you are using is a double-insulated variety. Just look at the manufacturer's data plate or sticker affixed to the tool, and if it is double insulated and you may see the words "Double Insulated" printed there. Or you may see the international symbol for a double insulated tool on the label; it is a "square-within-a-square" symbol (refer to handout for an example). And in many cases you may see both the wording and the box-in-box symbol displayed on the label.

But don't think for a minute that using a double insulated tool means you are always going to be protected from electrocution. That is because any breach in the tool's plastic casing or housing creates a potential pathway for electricity to travel through and make contact with your skin. Such conditions can occur if the tool casing or housing is cracked, which can happen if the tool is dropped onto a hard surface. A breach can also occur if any screws or other fasteners that hold the casing or housing parts together become loose and allow them to separate.

So always inspect your tools and equipment to make sure their casings and housings are free of damage and secured tightly in place. And if you do happen to come across any tool or equipment with a casing or housing that is damaged or loose, do not use it! Also do not use make-shift fixes such as wrapping the tool casing or housing with electrical tape. Instead, take that tool out of service right away and turn it in to your supervisor or a safety representative.

Does anyone have a question about how to determine if a tool is double insulated, and what damage to look that could create a safety hazard? Thank you for attending, and please sign your name on the training certification form so you get credit for attending today's OSHA training toolbox talk.

ILLUSTRATIONS



Polarized plug for a double insulated tool



Plug with ground pin for a grounded tool

Symbol for "Double Insulated" tool (square inside a square)

