

# MENDA

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## ***Menda ESD Safe Brushes for ESD Control***

*All portions of the brush should be conductive or dissipative*

In an ESD protected area (EPA) a worker should use dissipative or conductive brushes when working on ESD sensitive products or assemblies. All portions of the brush, both handle and fibers need to be conductive or dissipative. For ESD control purposes, per the ESD Association ADV1.0 Glossary conductive is less than  $1 \times 10^4$  ohms (10,000 ohms) and static dissipative is  $1 \times 10^4$  to less than  $1 \times 10^{11}$  ohms (10,000 to less than 100,000,000,000 ohms). The resistance range is able to remove electrostatic charges to ground when grounded.

Insulators or non-conductors, material greater than  $1 \times 10^{11}$  ohms, are to be removed from the EPA since they cannot be grounded. An ESD brush is grounded by being held by the grounded worker. Also, the ESD brush will be grounded when in contact with a grounded worksurface or bench mat.

When a regular brush is being held by a worker and wiping it upon a product or assembly tribocharging occurs due to the contact and separation of the brush fibers on the product. Per the ESD Handbook ESD TR20.20 section 2.4 Sources of Static Electricity includes "Brushes (camel/pig hair and synthetic bristles)." Even if the worker is grounded the electrostatic charge will remain on the brush fibers and/or handle being a threat to discharge possibly damaging ESD sensitive products. All portions of the ESD brush are to be conductive or dissipative.

Most man-made synthetic materials are high charging and generate a substantial electrostatic charge. Per the ESD Handbook ESD TR20.20 section 2.4 "It should be understood that any object, item, material or person could be a source of static electricity in the work environment. Removal of unnecessary nonconductors, replacing nonconductive materials with dissipative or conductive materials and grounding all conductors are the principle methods of controlling static electricity in the workplace, regardless of the activity." Brushes whose job is intimate contact with products may be critical to change from high charging insulative materials to conductive and/or dissipative materials.

Often in an EPA products are cleaned off by brushing or by blowing using a compressed gas. For any handtool used in the EPA, the handle of the tool cannot be made from an insulative material as that will block the path-to-ground to the hand of the grounded worker. Charges on the tool can discharge and possibly cause damage to ESD sensitive products. There have been numerous examples in industry where brushing a circuit board after soldering with insulative nylon brushes have caused product failures.

ESD control advises removing all insulators (non-conductors) and grounding all conductors in an EPA; this can be accomplished by switching from regular brushes to [Menda Tools ESD protective brushes](#). Dissipative fibers should be selected, instead of conductive fibers, if the product or assembly made be holding a charge and Charged Device Model (CDM) failures are a concern.

**About Menda:** The MENDA brand name has been synonymous with innovation and quality since 1947. MENDA is famous for its high performance line of "dish type" liquid dispenser pumps and bottles. These pumps and bottles are now widely used in beauty, industrial electronics assembly, cleanroom and medical applications. The MENDA brand name is recognized around the world as the standard for finger touch liquid dispensing a small amount of liquid into its top dish. When Desco Industries, Inc. acquired MENDA in September of 2000 our vision was to make MENDA the specialty tools division. MENDA is no longer just a dispenser pump and bottle company. The MENDA product offering now includes specialty tools for the workstation.

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