

Static Control Smocks Grounding, Testing and Maintenance

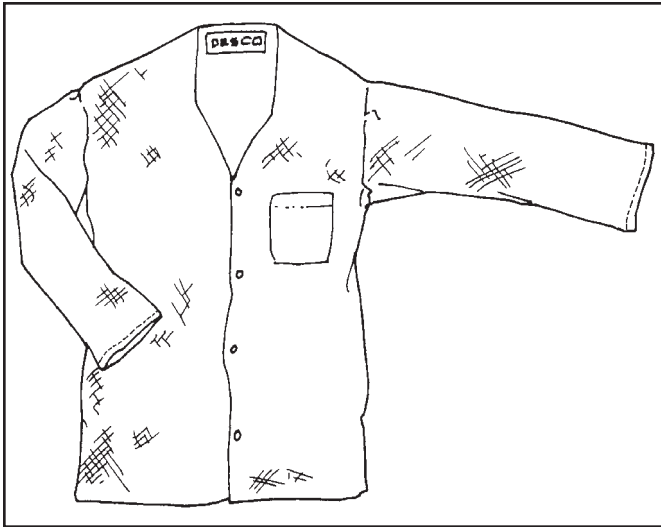


Figure 1. Desco Static Control Garment

Description

Outfitting a work force in ESD smocks is the single most powerful step to demonstrate a company's commitment to their ESD control program. The Desco ESD protective smock is designed to be antistatic, low tribocharging, and offers protection against electrostatic fields generated from clothing on the user's body. Using high quality material with minimum 9% carbon nylon monofilament, the smock creates a Faraday Cage around the torso of the wearer. Static charges generated by the wearer and wearer's clothing will be shielded from ESD susceptible products. The dissipative material becomes part of the ground path to remove static charges. The smock is jacket length and the color is blue.

The smock is constructed of a lightweight dissipative material which incorporates texturized polyester and a minimum of 9% carbon suffused nylon monofilament. The conductive nylon fibers are woven in a chain-link design throughout the material, providing continuous and consistent charge dissipation. All of the seams in the garment are designed to maintain electrical continuity from panel to panel and from sleeve to sleeve in accordance with the ESD Association Garment Standard, ESD-STM2.1.

The elastic in sleeve end is designed to provide contact of dissipative fabric with user's skin to provide path to ground.

The conductive fabric in smock is a conductor. If not grounded, the smock can become an isolated charged conductor. **Since ANSI/ESD S20.20 requires that "All conductors in the environment, including personnel, must be . . . connected and attached to a known**

ground", there is no occasion "when grounding the garment is not required" in an ESD protected area. If not grounded via a wrist strap coil cord, ground ESD garment via the person's wrist removing charges using foot grounders, to ESD protective flooring.

ESD protective economy smocks are available in the following sizes:

| Size | Blue | Chest | Sleeve |
|----------|-------|---------|---------|
| X Small | 73880 | 30"-32" | 33 3/4" |
| Small | 73881 | 34"-36" | 34" |
| Medium | 73882 | 38"-40" | 34 3/8" |
| Large | 73883 | 42"-44" | 35" |
| X Large | 73884 | 46"-48" | 35 1/2" |
| 2X Large | 73885 | 50"-52" | 35 1/2" |
| 3X Large | 73886 | 54"-56" | 37 1/2" |
| 4X Large | 73887 | 58"-60" | 36 1/2" |
| 5X Large | 73888 | 62"-64" | 36" |
| 6X Large | 73889 | 66"-68" | 36" |

Installation

Follow the directions below for proper installation and grounding of the ESD smock.

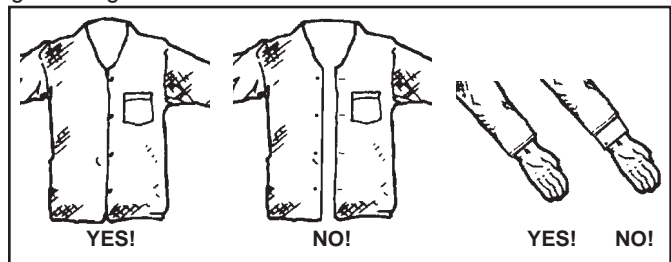


Figure 2. Proper installation of smock on wearer's body

1. Put on the smock and fasten all of the snaps on the front of the smock, making sure that clothing is not exposed outside of the smock.
2. Make sure the elastic in sleeve cuff is snug on your wrist. Place a wristband on your wrist. Connect a grounded coil cord to the wristband. (Alternatively, foot grounders and ESD protected flooring can provide path to ground.)

The user and the smock will now be properly grounded. The user needs to verify that the smock is grounded through skin contact.

NOTE: ANSI/ESD S20.20 REQUIRES THAT THE GROUND CORD SELECTED FOR GROUNDING OF PERSONNEL CONTAIN A BUILT-IN CURRENT LIMITING 1 MEGOHM RESISTOR.

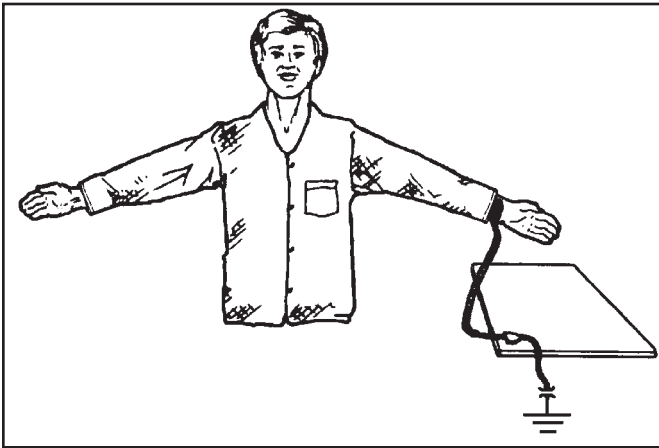


Figure 3. Grounding the smock

Heat Sealed Patches

It is possible to heat seal patches to our smocks. The patch should be small and the smock should be tested before and after application.

Grounding Integrity Testing

For daily testing or monitoring of the grounding integrity of Desco ESD protective smocks and ground cords, we recommend the use of standard wrist strap testers or single-wire workstation continuous monitors.

Panel to panel conductivity is essential so as not to leave portions of the smock as isolated charged conductors. Panel to panel conductivity is easy to test using our Surface Resistance/ Resistivity Test Kit Item #19770, by placing 5 pound electrodes on different panels. Unless properly grounded, the smocks can hold a charge and become a possible source for discharge to ESD susceptible products. For additional information, refer to ANSI/ESD S20.20 and the ESD Association Garment Standard, ESD-STM2.1.

Desco has several testers available for this purpose. For more information ask for specification drawings or operating instruction manuals by item number.

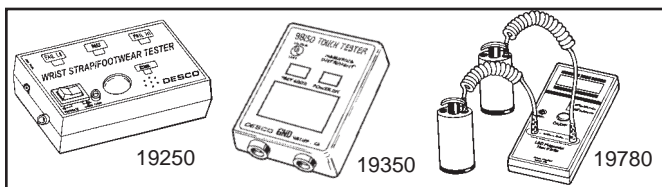


Figure 4. Testers

Maintenance

For proper operation, the ESD protective smock must be laundered periodically. Launder garment in cool or warm water, tumble dry with low heat or hang dry. **DO NOT BLEACH.** The carbon-suffused mono-filament nylon is sensitive to heat and should not be exposed to laundering heat in excess of 120°F. Use only non-ionic softeners and detergents when laundering. Under normal wearing and recommended washing conditions, Desco ESD protective smocks will maintain their usefulness and effectiveness for a minimum of 100 washings. Some other ESD smocks have as little as 1% suffused carbon and lose their ESD protective qualities after a few washings.

Specifications

| | |
|-------------------------------|--|
| Fabric Weight | 2.3 oz per square yard |
| Fabric Content | Texturized polyester and minimum 9% carbon mono-filament nylon. |
| Carbon Mono-filament | Conductive at 10 ⁴ ohms, non-flaking and non-sloughing. |
| Surface Resistivity of Fabric | 10 ⁵ - 10 ⁶ ohms, per ESD-STM2.1 |
| Static Decay Rate | 5000 volts to 500 volts in less than 0.1 seconds, per FTMS-101C |
| Glass Transition Temp | 250°F |
| Flash Point | 1040°F |

Note: Material sample swatches are available upon request. Fabric lots vary slightly in color and weight. If you have any question please don't hesitate to request a sample material from our Customer Service Team.

Limited Warranty

Desco expressly warrants that for a period of one (1) year from the date of purchase or (100) one-hundred wash cycles, whichever occurs first, Desco garments will be free of defects in material (parts) and workmanship (labor). Within the warranty period, a garment will be replaced at Desco's option, free of charge. Call Customer Service at 909-627-8178 (Chino, CA) or (781) 821-8370 (Canton, MA) for Return Material Authorization (RMA) and proper shipping instructions and address. Include a copy of your original packing slip, invoice, or other proof of date of purchase. Any garment under warranty should be shipped prepaid to the Desco factory. Warranty replacements will take approximately two weeks.

Warranty Exclusions

THE FOREGOING EXPRESS WARRANTY IS MADE IN LIEU OF ALL OTHER PRODUCT WARRANTIES, EXPRESSED AND IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH ARE SPECIFICALLY DISCLAIMED. The express warranty will not apply to defects or damage due to accidents, neglect, misuse, alterations, operator error, or failure to properly maintain, clean or repair products.

Limit of Liability

In no event will Desco or any seller be responsible or liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the product. Before using, users shall determine the suitability of the product for their intended use, and users assume all risk and liability whatsoever in connection therewith.