Statshield® Smocks
Grounding, Testing and Maintenance

Made in the
United States of America

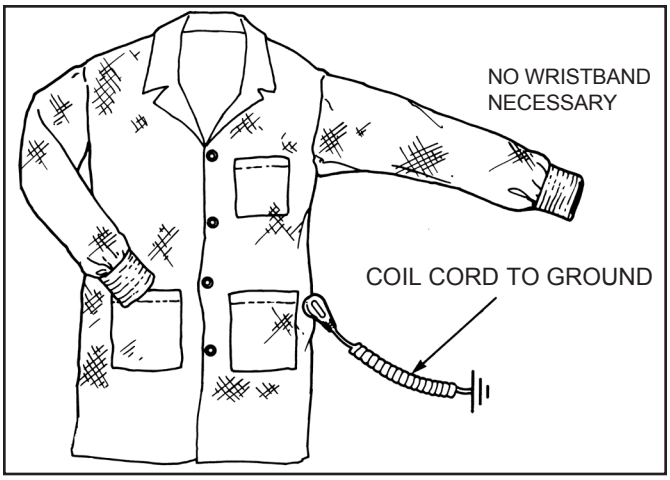

Figure 1. Desco Statshield® Premium Lab Coat with Conductive Cuffs. Also available in Jacket length.

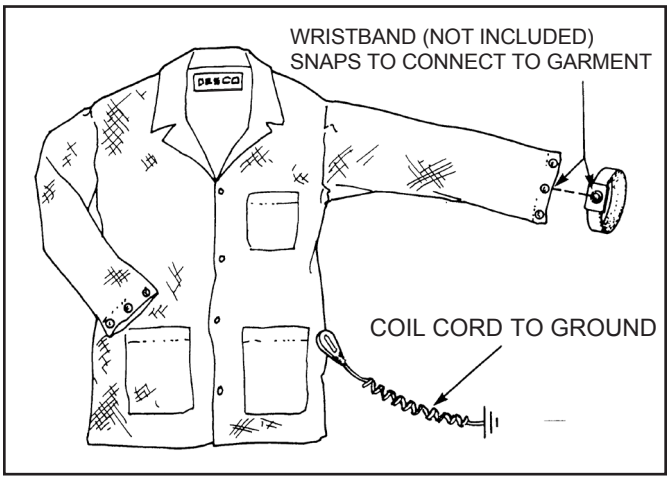

Figure 2. Desco Statshield® Premium Jacket with Snaps. Also available in Lab Coat length.

Description

Desco' Statshield® smocks smocks are designed to be antistatic, low tribocharging, and create a Faraday Cage around the torso and arms of the wearer to protect ESD susceptible items from electrostatic fields generated by clothing on the operator's clothing. Static control garments are intended to attenuate electrostatic fields that may be present on personnel clothing. Statshield® Smocks meet the requirement for Groundable Static Control Garment System per ANSI/ESD S20.20 required limit of < 3.5 x 10^7 ohm Rtg tested per ANSI/ESD STM2.1 and ESD TR53.

"While a person may be grounded using a wrist strap or other grounding methods, that does not mean that insulative clothing fabrics can dissipate a charge to that person's skin and then to ground. Personnel clothing usually is electrically separate or isolated from the body." "Groundable Static Control Garment System, Garments that are used to establish the primary ground path for a person shall provide a resistance of less than 35 megohms from the person to the groundable point of the garment."[ESD TR20.20-2008 section 5.3.13 Garments]

Statshield® smocks are constructed of a lightweight dissipative material which made from texturized polyester and a minimum of 9% carbon 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 Statshield® smocks 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.

"After verifying that the garment has electrical conductivity through all panels, the garment should be electrically bonded to the grounding system of the wearer so as not to act as a floating conductor." [ESD TR20.20-2008 section 5.3.13 Garments] The conductive fabric in smock is a conductor. If not grounded, the smock can become an isolated charged conductor. If not grounded via a wrist strap coil cord, ground the ESD garment using ESD footwear to ESD flooring.

The dissipative material becomes part of the ground path to remove static charges. Statshield® smocks are available in two lengths -- the lab coat length and the jacket length. Both lengths are available in two styles - with snaps and with conductive elastic cuffs. Smocks are available in eight colors* -- blue, white, teal, black, pink, grey and orange.

Statshield® smocks incorporate a "hip-to-cuff" grounding feature which allows for hands-free grounding with no cord attached to the operator's wrist. This feature allows connection of a ground cord to a 4mm snap stud on the hip. A seam of carbon-suffused threads provides a secure and direct electrical connection from the snap stud on the hip to conductive elastic cuffs. Statshield® smocks ground the person when used in this manner. Standard touch testing or continuous monitoring can be used to test the "hip-to-cuff" function.

*Fabric lots vary slightly in color.

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Statshield® smocks are available in the following styles and sizes:

LAB COATS WITH SNAPS

	Blue	White	Teal	Chest	Sleeve
X Small	73600	73620	73640	30"-32"	33 3/8"
Small	73601	73621	73641	34"-36"	34"
Medium	73602	73622	73642	38"-40"	34 3/8"
Large	73603	73623	73643	42"-44"	35"
X Large	73604	73624	73644	46"-48"	35 1/2"
2X Large	73605	73625	73645	50"-52"	35 1/2"
3X Large	73606	73626	73646	54"-56"	37 1/2"
4X Large	73607	73627	73647	58"-60"	36 1/2"
5X Large	73608	73628	73648	62"-64"	36"
6X Large	73609	73629	73649	66"-68"	36"

LAB COATS WITH CUFFS

	Blue	White	Teal	Chest	Sleeve
X Small	73610	73630	73650	30"-32"	33 3/4"
Small	73611	73631	73651	34"-36"	34"
Medium	73612	73632	73652	38"-40"	34 3/8"
Large	73613	73633	73653	42"-44"	35"
X Large	73614	73634	73654	46"-48"	35 1/2"
2X Large	73615	73635	73655	50"-52"	35 1/2"
3X Large	73616	73636	73656	54"-56"	37 1/2"
4X Large	73617	73637	73657	58"-60"	36 1/2"
5X Large	73618	73638	73658	62"-64"	36"
6X Large	73619	73639	73659	66"-68"	36"

JACKETS WITH SNAPS

	Blue	White	Teal	Pink	Grey	Chest	Sleeve
X Small	73699	73820	73840	74210	73890	30"-32"	33 3/8"
Small	73700	73821	73841	74211	73891	34"-36"	34"
Medium	73710	73822	73842	74212	73892	38"-40"	34 3/8"
Large	73720	73823	73843	74213	73893	42"-44"	35"
X Large	73730	73824	73844	74214	73894	46"-48"	35 1/2"
2X Large	73740	73825	73845	74215	73895	50"-52"	35 1/2"
3X Large	73741	73826	73846	74216	73896	54"-56"	37 1/2"
4X Large	73742	73827	73847	74217	73897	58"-60"	36 1/2"
5X Large	73743	73828	73848	74218	73898	62"-64"	36"
6X Large	73744	73829	73849	74219	73899	66"-68"	36"

JACKETS WITH CUFFS

	Blue	White	Teal	Black	Pink	Grey	Orange	Chest	Sleeve
X Small	73749	73830	73850	73860	74200	73775	73910	30"-32"	33 3/4"
Small	73750	73831	73851	73861	74201	73776	73911	34"-36"	34"
Medium	73755	73832	73852	73862	74202	73777	73912	38"-40"	34 3/8"
Large	73760	73833	73853	73863	74203	73778	73913	42"-44"	35"
X Large	73765	73834	73854	73864	74204	73779	73914	46"-48"	35 1/2"
2X Large	73770	73835	73855	73865	74205	73780	73915	50"-52"	35 1/2"
3X Large	73771	73836	73856	73866	74206	73781	73916	54"-56"	37 1/2"
4X Large	73772	73837	73857	73867	74207	73782	73917	58"-60"	36 1/2"
5X Large	73773	73838	73858	73868	74208	73783	73918	62"-64"	36"
6X Large	73774	73839	73859	73869	74209	73784	73919	66"-68"	36"

Note: Blue, Black, Grey, Pink and Orange Jackets with Cuffs contain a Badge Holder Tab and Two Sleeve Pen Pockets.

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Installation

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

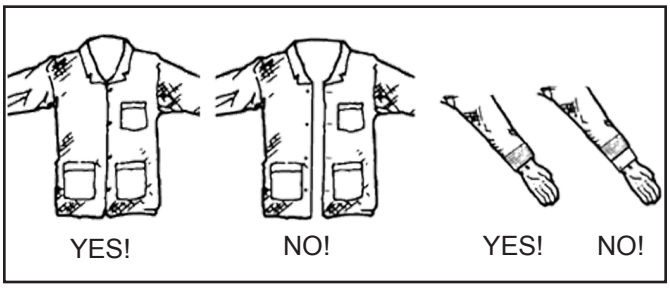

Figure 3. Proper installation of smock wearer's body

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. Throughout use, it is essential that conductive cuff (or the wristband) be in contact with operator's skin; the conductive cuff (or the wristband) should never be allowed to be pulled up and over shirt sleeve.
3. Install a coil cord to the snap stud located above the left hand hip pocket. Connect the other end of the coil cord to a verified ground point or continuous monitor.

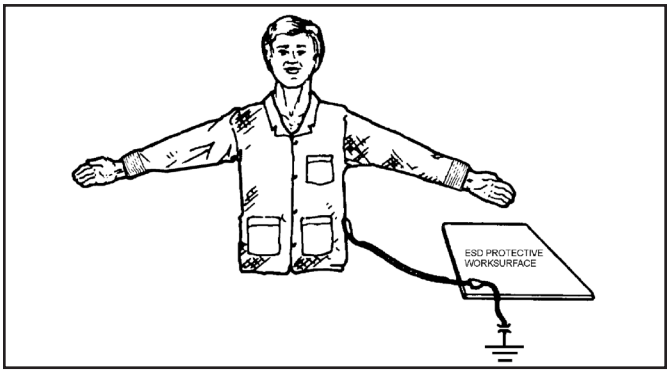

Figure 4. Grounding the smock

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

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.

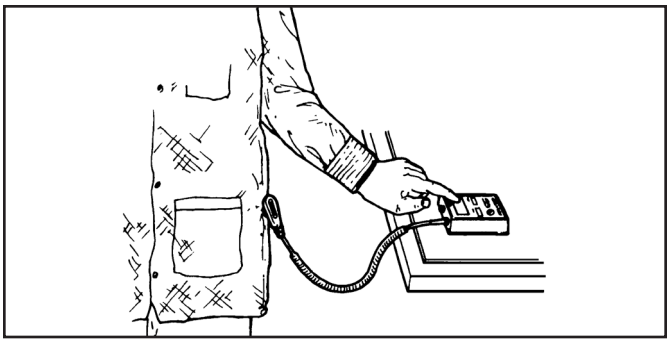

Figure 5. Testing and monitoring of smock and ground cord assembly

Grounding Integrity Testing

For daily testing or continuous monitoring of the grounding integrity of Statshield® smocks and ground cords, we recommend testing the smock while worn and the use of a 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 Meter Kit Item #19787. Place the two five-pound electrodes on different panels to test. Unless properly grounded, the smocks can hold a charge and become a possible source for discharge to ESD sensitive items. For additional information, refer to ANSI/ESD S20.20, ESD TR20.20, ESD TR53 and the Garment Standard, ANSI/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 6. Testers

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Maintenance

Statshield® smocks must be laundered periodically for proper operation. Desco recommends Woolite. Liquid detergents are better than dry because there is less caking and frictional wear. Use only non-ionic softeners and detergents when laundering. Launder Statshield® smocks in cool or warm water, tumble dry with low heat or hang dry. DO NOT USE BLEACH OR FABRIC SOFTENER.

Launder Statshield® smocks by hand or with a washing machine. Use a standard household machine on gentle cycle or use an industrial machine if "Pony" (typically under 200 pound loads) machines are used. It is not recommended to launder these Statshield® smocks in heavy industrial laundry machines because it will lead to premature wear; degrading the ESD properties. Statshield® smocks should be tumbled dry using low heat.

The carbon-suffused mono-filament nylon is sensitive to heat and should not be exposed to laundering heat in excess of 120°F. Under normal wearing and recommended washing conditions, Desco Statshield® 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*	2.2 oz per square yard
Fabric Content	Texturized polyester and a minimum of 9% carbon mono-filament nylon.
Carbon Mono-filament	Conductive at 1 x 10^4 ohms, nonflaking and non-sloughing.
Surface Resistance	1 x 10^5 < 1 x 10^7 ohms, per ANSI/ESD STM2.1 and ESD TR53 of Fabrics
Glass Transition Temp	250°F
Flash Point	1040°F

*Fabric lots vary slightly in color and weight.

LIMITED WARRANTY

Desco expressly warrants that for a period of two (2) years from the date of purchase or (100) one hundred wash cycles, whichever occurs first, Desco Statshield® ESD Smocks will be free of defects in material (parts) and workmanship (labor). Within the warranty period, a credit for purchase of replacement Desco Statshield® ESD Smocks, or, at our option, the Statshield® ESD Smock will be repaired or replaced free of charge. If product credit is issued, the amount will be calculated by multiplying the unused portion of the expected two year or 100 wash cycle life times the original unit purchase price. Call Customer Service at 909-627-8178 for a Return Material Authorization (RMA) and proper shipping instructions. You should include a copy of your original packing slip, invoice, or other proof of purchase date. Any unit under warranty should be shipped prepaid to the Desco factory. Warranty repairs will take approximately two weeks.

If your unit is out of warranty, call Customer Service at 909-627-8178 (Chino, CA) or 781-821-8370 (Canton, MA) for a Return Material Authorization (RMA) and proper shipping instructions and address. Desco will quote repair charges necessary to bring your unit up to factory standards.

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.

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