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ESD Control Selection Guide

Choose from our extensive range of grounding accessories, packaging, clothing and ESD control equipment

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ESD Control Selection Guide

INTRODUCTION

Many electronic components and assemblies used in high technology products can be damaged or degraded by the sudden exchange of static electrical charges. This Electrostatic Discharge, or ESD, is the reason industries handling susceptible electronic components must take steps to minimise ESD risk.

As industry experts, we offer an extensive selection of Electrostatic discharge control equipment for any workplace environment. Brands range from RS Pro, our high quality, professionally approved own range, to SCS, Charleswater, Menda, EMIT, Electrolube, Vermason and other market-leading brands.

WHAT IS ESD AND WHAT ARE ITS RISKS?

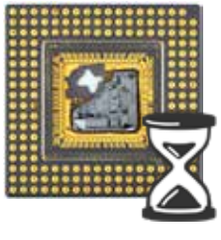
When two items are at different levels of electrostatic charge, i.e. one positively and one negatively charged, they will want to come into balance. If the items are in close enough proximity there can be a rapid, spontaneous transfer of electrostatic charge from one to the other. This is called Electrostatic Discharge or ESD.

ESD is the hidden enemy in a high-tech manufacturing environment. Modern electronic circuitry can be burned or melted when subject to an ESD event which is, in effect, a miniature lightning bolt.

Two types of risk to electronic equipment can occur:



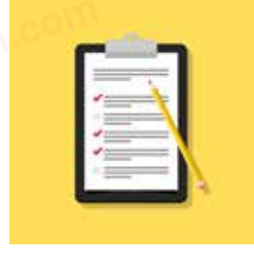
Catastrophic failure
Catastrophic failure causes a permanent fault. The ESD event may have caused a metal melt, junction breakdown or oxide failure. Normal inspection is able to detect a catastrophic failure.



Latent defect
A latent defect is linked to an ESD event that causes partial degradation. This defect may not be detected by normal inspection and the device can continue to perform as it should. The defect can then cause intermittent or permanent failure at a later time.

WHY ESD CONTROL?

As electronic technology advances, electronic circuitry gets progressively smaller. As the size of components is reduced so is the microscopic spacing of insulators and circuits within them. Their sensitivity to ESD is increased.



To protect sensitive electronic components and circuitry, ESD protection should be considered whenever and wherever you handle the items. This includes throughout the manufacturing, test, shipping, handling or operational processes, and during field service operations.



ESD STANDARDS

EN 61340 Part 5-1: Protection of electronic devices from electrostatic phenomena is the standard most companies use to build their ESD control plan.



The standard uses a Human Body Model to simulate discharges from a person and increasingly tests an electronic device at higher and higher discharges until it fails. This establishes the device's withstand voltage.

ESD SENSITIVE COMPONENTS

The electronic components in the chart below can be damaged by the electrostatic voltages shown.

ESD Class	Voltage Rating (V)	Device Names
Class 0	0 to 99	SAW, JFETS, CCDs, Precision voltage regulator diodes, OP AMP, Thin film resistors, Integrated circuits, Hybrids utilizing class 1 parts, VHSI, CSCRs.
Class 1	200 to 1,999	SAW, JFETS, CCDs, Precision voltage regulator diodes, OP AMP, Thin film resistors, Integrated circuits, Hybrids utilizing class 1 parts, VHSI, CSCRs.
Class 2	2,000 to 3,999	JFETs, Ics, VHSIC, Precision resistor networks (type RZ), Hybrids utilizing class 2 parts, Low power bipolar transistors.
Class 3	4,000 to 15,999	JFETS, OP AMPS, Ics, All other microcircuits not included in class 1 or 2, Small signal diodes, General purpose silicon rectifiers, Opto-electronic devices (LEDs, phototransformers, opto couplers), Resistor chips, Piezo electric crystals, Hybrids using Class 3 parts.

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Introduction

ESD CONTROL PLAN

How to set up an ESD control plan in your company
Any business working with ESD sensitive items should set up ESD prevention and control measures in the form of a Control plan, according to **EN 61340 Part 5-1** (see page 2).

Every company will have different processes so each will require its own plan. Steps to set up your Control plan are as follows:

1 Define what you are trying to protect
Identify any ESD susceptible items that your company handles. Treat any device that you receive in ESD packaging as a susceptible item.

2 Become familiar with the industry standards for ESD control
Read BS EN 61340-5-1 for guidance if you manufacture, process, assemble, install, package, label, service, test, inspect, transport or handle susceptible items.

3 Select a grounding/equipotential bonding system
Eliminate differences in potential in your ESD protected area by connecting ESD control elements and personnel to a protective earth, functional earth or an equipotential bonding system.

4 Determine a personnel grounding method for operators
Seated operators must use a wrist strap, however standing workers can use a foot grounding system. In some cases both grounding methods will be used.

5 Establish and identify your ESD Protected Area (EPA)
Define all departments which will be EPAs. Identify and control access using signs, floor marking and access control measures.
(See page 3 for more).

6 Select ESD control products to use in your EPA
Consider products such as work surfaces, flooring, seating, ionisation, shelving, trolleys and clothing.

7 Develop a Packaging plan for materials handling and storage
When moving ESD susceptible devices outside a protected area, what packaging will you use?

8 Use proper markings for ESD susceptible items, system or packaging



ESD
Susceptibility symbol



ESD
Protective symbol

9 Implement a Compliance Verification plan
Document the steps you will take to review, verify, analyse, evaluate and improve your ESD programme. Compliance verification records should be kept.

10 Develop a Training plan
Your training plan should specify how personnel who handle or contact ESD sensitive items will undergo training in ESD awareness and prevention.

11 Make the ESD Control plan part of your internal quality system
Your ESD control plan should include a list of ESD control items used in the EPA, the Compliance Verification plan and the Training plan.

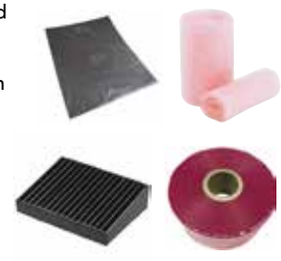
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ESD packaging and storage products protect ESD sensitive items from electrostatic fields and electrostatic discharges.



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2 ESD TESTING AND MONITORING EQUIPMENT

ESD protection systems need to be checked on a regular basis. This is an important requirement of the ESD Standard.



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3 IONISERS

Eliminate both negative and positive charges on items that cannot be grounded.



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4 ESD PERSONAL GROUNDING & ESD CLOTHING

Wrist straps and foot grounders are used to ground people in an ESD protected area.



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5 ESD MATTING

ESD matting removes electrostatic charges from conductors that are placed on the surface.



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6 ESD FIELD SERVICE

Field service kits offer the electronics field service technician a simple and effective means of creating an ESD protected area in the field.



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7 ESD FURNITURE

Equip your ESD protected area with suitable ESD safe workbenches, chairs and trolleys to minimise risk from items of furniture.



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8 ESD GROUNDING ACCESSORIES, BRUSHES AND PROBES

Earth Bonding points, cords and snaps are used to link objects and people inside an ESD protected area to ground. Brushes and other accessories aid risk free working.



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9 ESD TREATMENTS, LOTIONS AND DISPENSERS

ESD safe dispensers are dissipative and designed to protect valuable static sensitive printed circuitry.



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10 ESD LABELS & POSTERS

ESD labels and signs are required to properly mark ESD susceptible items inside of packaging and to identify the boundaries of an ESD protected area.



Labels & Posters ..... Page 51

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ESD Packaging, Storage & Stationery

INTRODUCTION

During storage and transport, ESD sensitive devices require special packaging to protect them from ESD damage.

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KEY CONSIDERATIONS

For transport outside an ESD Protected Area (EPA), protection is achieved by enveloping the device in a material with a shielding layer, such as a shielding bag. The envelope is frequently referred to as having the effect of a Faraday Cage. An ESD packaging material will also often provide mechanical protection or protection against contamination by dust or humidity (e.g. moisture barrier or shielding bubble bags).

When storing products inside an EPA (on grounded surfaces), use conductive bags or containers to store your ESD sensitive items. Conductive materials have a low electrical resistance so electrons flow easily across the surface. Charges will go to ground if bags or containers are handled by a grounded operator or are stored on a grounded surface.

GLOSSARY OF TERMS

Surface resistance/Surface resistivity

ESD control, packaging and storage products use the terms surface resistance and surface resistivity to define their properties. Both are measures of a material's ability to electrostatically shield or provide dissipation of charge.

Surface resistance, measured in ohms, expresses the ability of a material to conduct electricity between two points on the surface. Its value is dependent on current and voltage and is a measure used to evaluate static-dissipative products where lower resistance characteristics are required. Measurement of surface resistance should be carried out as defined in EN 61340-5-1 (see page 2).

Surface resistivity is a measure used to evaluate products where higher resistance characteristics are required. Measured in ohms per square, it is the resistance measured between two opposite sides of a square on the surface. It's value is not related to the size of the square.

The nature of the product will define whether resistivity (e.g. bins and boxes) or resistance (e.g. foam and film) are used.

Dissipative, Conductive, Anti-static



Based on their surface resistance, these terms define how easily electric charge can flow over the surface of a material.

Dissipative

Dissipative materials have a surface resistance of $>1 \times 10^5$ ohms and allow any static charge to be dispersed.

Conductive

Conductive materials allow an electric charge to be conducted away to a desired earth point. They have a lower surface resistance of $<1 \times 10^5$ ohms.

Anti-static

Indicates a typically conductive material designed to limit the build-up of static by removing it to earth.

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1


2

BAGS

Brand	Image	Stock No	Description	Width (mm)	Height (mm)	Closure Type	Dissipative	Conductive	Anti-Static	Static Shielding	Bubble	Moisture Barrier
RS PRO	1	182-8792	Heat Seal Static Shielding Bag, 76×127mm	76	127	Heat Seal	✓	✓	✓	✓	✗	✗
	1	182-8809	Heat Seal Static Shielding Bag, 102×152mm	102	152	Heat Seal	✓	✓	✓	✓	✗	✗
	1	182-8815	Heat Seal Static Shielding Bag, 127×203mm	127	203	Heat Seal	✓	✓	✓	✓	✗	✗
	1	287-7739	Heat Seal Static Shielding Bag, 152×203mm	152	203	Heat Seal	✓	✓	✓	✓	✗	✗
	1	182-8821	Heat Seal Static Shielding Bag, 152×254mm	152	254	Heat Seal	✓	✓	✓	✓	✗	✗
	1	182-8837	Heat Seal Static Shielding Bag, 203×254mm	203	254	Heat Seal	✓	✓	✓	✓	✗	✗
	1	287-8221	Heat Seal Static Shielding Bag, 203×305mm	203	305	Heat Seal	✓	✓	✓	✓	✗	✗
	1	182-8843	Heat Seal Static Shielding Bag, 254×305mm	254	305	Heat Seal	✓	✓	✓	✓	✗	✗
	1	287-7767	Heat Seal Static Shielding Bag, 254×356mm	254	356	Heat Seal	✓	✓	✓	✓	✗	✗
	1	415-6977	Heat Seal Static Shielding Bag, 279×381mm	279	381	Heat Seal	✓	✓	✓	✓	✗	✗
	1	387-6406	Heat Seal Static Shielding Bag, 305×406mm	305	406	Heat Seal	✓	✓	✓	✓	✗	✗
	1	290-9375	Heat Seal Static Shielding Bag, 305×457mm	305	457	Heat Seal	✓	✓	✓	✓	✗	✗
	1	387-6412	Heat Seal Static Shielding Bag, 356×457mm	356	457	Heat Seal	✓	✓	✓	✓	✗	✗
	1	415-6999	Heat Seal Static Shielding Bag, 381×457mm	381	457	Heat Seal	✓	✓	✓	✓	✗	✗
	1	415-7009	Heat Seal Static Shielding Bag, 457×457mm	457	457	Heat Seal	✓	✓	✓	✓	✗	✗
	1	287-7773	Heat Seal Static Shielding Bag, 457×610mm	457	610	Heat Seal	✓	✓	✓	✓	✗	✗
	2	431-9465	Zip-Lock Shielding Bag, 102×102mm 10pcs	102	102	Zipper	✓	✓	✓	✓	✗	✗
	2	431-9471	Zip-Lock Shielding Bag, 102×152mm 10pcs	102	152	Zipper	✓	✓	✓	✓	✗	✗
	2	431-9487	Zip-Lock Shielding Bag, 152×203mm 10pcs	152	203	Zipper	✓	✓	✓	✓	✗	✗
	2	431-9493	Zip-Lock Shielding Bag, 254×305mm 10pcs	254	305	Zipper	✓	✓	✓	✓	✗	✗
	2	431-9500	Zip-Lock Shielding Bag, 305×406mm 10pcs	305	406	Zipper	✓	✓	✓	✓	✗	✗
	2	431-9516	Zip-Lock Shielding Bag, 457×457mm 10pcs	457	457	Zipper	✓	✓	✓	✓	✗	✗
	2	431-9538	Zip-Lock Shielding Bag, 102×152mm 100pcs	102	152	Zipper	✓	✓	✓	✓	✗	✗

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BAGS

Brand	Image	Stock No	Description	Width (mm)	Height (mm)	Closure Type	Dissipative	Conductive	Anti-Static	Static Shielding	Bubble	Moisture Barrier
	1	431-9544	Zip-Lock Shielding Bag, 152×203mm 100pcs	152	203	Zipper	✓	✓	✓	✓	✗	✗
	1	431-9550	Zip-Lock Shielding Bag, 254×305mm 100pcs	254	305	Zipper	✓	✓	✓	✓	✗	✗
	1	431-9566	Zip-Lock Shielding Bag, 305×406mm 100pcs	305	406	Zipper	✓	✓	✓	✓	✗	✗
	1	431-9572	Zip-Lock Shielding Bag, 457×457mm 100pcs	457	457	Zipper	✓	✓	✓	✓	✗	✗
	2	815-3492	Shielding Bubble Bag, 255×125mm, 5pcs	255	125	Flap	✓	✓	✓	✓	✓	✗
	2	815-3480	Shielding Bubble Bag, 255×305mm, 5pcs	255	305	Flap	✓	✓	✓	✓	✓	✗
	2	815-3499	Shielding Bubble Bag, 255×355mm, 5pcs	255	355	Flap	✓	✓	✓	✓	✓	✗
	2	815-3486	Shielding Bubble Bag, 305×405mm, 5pcs	305	405	Flap	✓	✓	✓	✓	✓	✗
	2	815-3483	Shielding Bubble Bag, 505×405mm, 5pcs	505	405	Flap	✓	✓	✓	✓	✓	✗
RS PRO	3	122-9158	Dissipative Clear Zip Bag, 75×125mm	75	125	Zipper	✓	✓	✓	✓	✗	✗
	3	122-9154	Dissipative Clear Zip Bag, 100×150mm	100	150	Zipper	✓	✓	✓	✓	✗	✗
	3	122-9155	Dissipative Clear Zip Bag, 150×200mm	150	200	Zipper	✓	✓	✓	✓	✗	✗
	3	122-9156	Dissipative Clear Zip Bag, 200×250mm	200	250	Zipper	✓	✓	✓	✓	✗	✗
	3	122-9157	Dissipative Clear Zip Bag, 250×300mm	250	300	Zipper	✓	✓	✓	✓	✗	✗
	4	287-7852	Antistatic Pink Bag, 75×125mm	125	75	Heat Seal	✗	✗	✓	✗	✗	✗
	4	287-7868	Antistatic Pink Bag, 100×155mm	155	100	Heat Seal	✗	✗	✓	✗	✗	✗
	4	287-7874	Antistatic Pink Bag, 152×203mm	203	152	Heat Seal	✗	✗	✓	✗	✗	✗
	4	287-7880	Antistatic Pink Bag, 152×229mm	229	152	Heat Seal	✗	✗	✓	✗	✗	✗
	4	484-9073	Antistatic Pink Bag, 155×254mm	254	155	Heat Seal	✗	✗	✓	✗	✗	✗
	4	287-7919	Antistatic Pink Bag, 205×255mm	255	205	Heat Seal	✗	✗	✓	✗	✗	✗
	4	287-7903	Antistatic Pink Bag, 205×305mm	205	305	Heat Seal	✗	✗	✓	✗	✗	✗
	4	287-7925	Antistatic Pink Bag, 254×356mm	356	254	Heat Seal	✗	✗	✓	✗	✗	✗
	4	287-7931	Antistatic Pink Bag, 305×406mm	406	305	Heat Seal	✗	✗	✓	✗	✗	✗

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BAGS

Brand	Image	Stock No	Description	Width (mm)	Height (mm)	Closure Type	Dissipative	Conductive	Anti-Static	Static Shielding	Bubble	Moisture Barrier
RS PRO	1	356-2343	Antistatic Bubble Bag, 100×135mm	135	100	Self Sealing	✗	✗	✓	✗	✓	✗
	1	356-2359	Antistatic Bubble Bag, 130×185mm	185	130	Self Sealing	✗	✗	✓	✗	✓	✗
	1	356-2365	Antistatic Bubble Bag, 180×235mm	235	180	Self Sealing	✗	✗	✓	✗	✓	✗
	1	356-2371	Antistatic Bubble Bag, 230×285mm	285	230	Self Sealing	✗	✗	✓	✗	✓	✗
	1	356-2393	Antistatic Bubble Bag, 305×435mm	435	305	Self Sealing	✗	✗	✓	✗	✓	✗
	1	356-2400	Antistatic Bubble Bag, 380×435mm	435	380	Self Sealing	✗	✗	✓	✗	✓	✗
	2	397-4291	Antistatic Gusseted Bag, 300/500×650mm	300 (depth 500)	650	Heat Seal	✗	✗	✓	✗	✗	✗
	2	356-2179	Antistatic Gusseted Bag, 460/610×630mm	460, (depth 610)	630	Heat Seal	✗	✗	✓	✗	✗	✗
	2	356-2191	Antistatic Gusseted Bag, 460/750×1080mm	460, (depth 750)	1080	Heat Seal	✗	✗	✓	✗	✗	✗
	2	397-4308	Antistatic Gusseted Bag, 750/1000×1200mm	750, (depth 1000)	1200	Heat Seal	✗	✗	✓	✗	✗	✗
	3	550-072	Black Conductive Bag, 127×203mm	203	127	Heat Seal	✗	✓	✗	✗	✗	✗
	3	550-088	Black Conductive Bag, 203×254mm	254	203	Heat Seal	✗	✓	✗	✗	✗	✗
	3	550-094	Black Conductive Bag, 252×305mm	305	252	Heat Seal	✗	✓	✗	✗	✗	✗
	3	550-101	Black Conductive Bag, 305×406mm	406	305	Heat Seal	✗	✓	✗	✗	✗	✗
	3	550-117	Black Conductive Bag, 406×508mm	508	406	Heat Seal	✗	✓	✗	✗	✗	✗
SCS	4	918-5591	Zip Static Shield Bag, 150×200mm	152	203	Open Top	✓	✓	✓	✓	✗	✗
	4	918-5608	Static Shield Bag, 355×405mm	355	405	Open Top	✓	✓	✓	✓	✗	✗
	5	918-5602	Moisture Barrier Bag, 254×305mm	254	305	Open Top	✓	✓	✓	✓	✗	✓
	5	918-5614	Barrier Bag, 254×610mm	255	610	Open Top	✓	✓	✓	✓	✗	✗
Vermason	6	738-9767	Statshield Moisture Barrier Bag, 255×760mm	255	760	Heat Seal	✓	✓	✓	✓	✗	✓
	6	738-9763	Statshield Moisture Barrier Bag, 255×610mm	254	610	Heat Seal	✓	✓	✓	✓	✗	✓

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BINS & BOXES

Brand	Image	Stock No	Description	Width (mm)	Length (mm)	Height (mm)	Surface Resistivity Range (Ω)	Material	Dissipative	Conductive	Anti-Static
	1	815-7003	Conductive Component Box and Lid	12	15	16	1×10^4 – $<1 \times 10^5$	Thermoplastic	✗	✓	✗
	2	217-9883	SMT Storage Box	28	28	28	1×10^2 – $<1 \times 10^5$	Polypropylene	✗	✓	✗
	2	550-864	Conductive Storage Box XXXS	40	40	13.5	1×10^2 – $<1 \times 10^5$	Carbon, Polypropylene	✗	✓	✗
	2	550-870	Conductive Storage Box XXS	55	77	19	1×10^2 – $<1 \times 10^5$	Carbon, Polypropylene	✗	✓	✗
	2	287-8091	Conductive Storage Box XS	64	89	16	1×10^2 – $<1 \times 10^5$	Carbon, Polypropylene	✗	✓	✗
	2	550-886	Conductive Storage Box S	86	111	17	1×10^2 – $<1 \times 10^5$	Carbon, Polypropylene	✗	✓	✗
	2	217-9221	Conductive Storage Box M	106	140	38	1×10^2 – $<1 \times 10^5$	Carbon, Polypropylene	✗	✓	✗
	2	420-1386	Conductive Storage Box L	126	229	23	1×10^2 – $<1 \times 10^5$	Carbon, Polypropylene	✗	✓	✗
	2	287-8108	Conductive Storage Box XL	127	229	32	1×10^2 – $<1 \times 10^5$	Carbon, Polypropylene	✗	✓	✗
	2	820-810	Conductive Storage Box XXL	130	232	33	1×10^2 – $<1 \times 10^5$	Carbon, Polypropylene	✗	✓	✗
	2	420-1409	Conductive Storage Box XXXL	126	229	42	1×10^2 – $<1 \times 10^5$	Carbon, Polypropylene	✗	✓	✗
RS PRO	3	550-319	Storage Bin S	100	90	50	$< 10^3$	Carbon, Polypropylene	✓	✓	✓
	3	550-325	Storage Bin M	100	165	75	$< 10^3$	Carbon, Polypropylene	✓	✓	✓
	3	550-331	Storage Bin L	240	150	130	$< 10^3$	Carbon, Polypropylene	✓	✓	✓
	4	121-8486	TC4 Storage Bin	205	350	132	$< 10^3$	Carbon, Polypropylene	✓	✓	✓
	4	121-8487	TC5 Storage Bin	205	350	182	$< 10^3$	Carbon, Polypropylene	✓	✓	✓
	4	121-8488	TC6 Storage Bin	420	375	182	$< 10^3$	Carbon, Polypropylene	✓	✓	✓
	5	233-496	Dissipative Transit Box XS	127	175	38	1×10^5 – $<1 \times 10^{11}$	Conductive B Flute cardboard	✗	✓	✗
	5	233-503	Dissipative Transit Box S	191	229	64	1×10^5 – $<1 \times 10^{11}$	Conductive B Flute cardboard	✗	✓	✗
	5	539-227	Dissipative Transit Box M	216	267	64	1×10^5 – $<1 \times 10^{11}$	Conductive B Flute cardboard	✗	✓	✗
	5	287-8237	Dissipative Transit Box L	267	318	64	1×10^5 – $<1 \times 10^{11}$	Carbon, Polypropylene	✗	✓	✗
	5	233-519	Dissipative Transit Box XL	394	521	64	1×10^5 – $<1 \times 10^{11}$	Conductive B Flute cardboard	✗	✓	✗
	5	539-233	Dissipative Transit Box XXL	318	394	64	1×10^5 – $<1 \times 10^{11}$	Conductive B Flute cardboard	✗	✓	✗

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BINS & BOXES

Brand	Image	Stock No	Description	Width (mm)	Length (mm)	Height (mm)	Surface Resistivity Range (Ω)	Material	Dissipative	Conductive	Anti-Static
CHARLESWATER	1	877-2548	Circuit Board Box	267	318	64	$1 \times 10^5 - <1 \times 10^{11}$	Fibreboard	✗	✓	✗
	2	877-2542	Circuit Board Box with Foam	267	318	64	$1 \times 10^5 - <1 \times 10^{11}$	Fibreboard, Foam	✗	✓	✗
MENDA	3	719-9891	ESD Dissipative Tool Box	191	368	127	$1 \times 10^5 - <1 \times 10^{11}$	Polypropylene	✓	✗	✗
	4	774-0465	Plastic Carousel Bin S	125	50	133	$1 \times 10^4 - <1 \times 10^{10}$	Plastic, Polypropylene	✓	✗	✗
	4	774-0474	Plastic Carousel Bin M	125	75	173	$1 \times 10^4 - <1 \times 10^{10}$	Plastic, Polypropylene	✓	✗	✗
	4	774-0477	Plastic Carousel Bin L	125	101	228	$1 \times 10^4 - <1 \times 10^{10}$	Plastic, Polypropylene	✓	✗	✗
raaco	4	774-0471	Plastic Carousel Bin XL	125	126	300	$1 \times 10^4 - <1 \times 10^{10}$	Plastic, Polypropylene	✓	✗	✗
	5	253-9566	Conductive Transit Case	260	338	57	$1 \times 10^4 - <1 \times 10^{10}$	Polypropylene	✓	✗	✗
	6	236-5286	Conductive Toolbox	215	426	170	$1 \times 10^4 - <1 \times 10^{10}$	Polypropylene	✓	✗	✗
	7	236-4823	15-Section Service Box	225	320	47	$1 \times 10^4 - <1 \times 10^9$	Velostat	✓	✗	✓
	7	236-4839	32-Section Service Box	225	320	47	$1 \times 10^4 - <1 \times 10^{10}$	Polypropylene, Velostat	✓	✗	✗

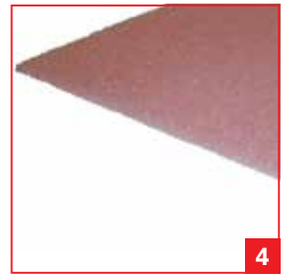
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RS PRO

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FOAM, FILM & WRAP

Brand	Image	Stock No	Description	Type	Width (mm)	Length (m)	Thickness (mm)	Volume Resistance (Ω)	Surface Resistance (Ω)	Tensile Strength (N/cm²)	Colour	Dissipative	Conductive	Anti-Static	Static Shielding
RS PRO	1	815-3512	Low Density Conductive Foam S	Foam, Low density	305	0.3	6	<1 × 10^3	1 × 10^2 – ≤ 1 × 10^5	7	Black	✗	✓	✗	✓
	1	815-3474	Low Density Conductive Foam L	Foam, Low density	1000	1	6	<1 × 10^3	1 × 10^2 – ≤ 1 × 10^5	7	Black	✗	✓	✗	✓
	2	798-9310	Low Density Antistatic Foam	Foam, Low density	1500	1	6	n/a	1 × 10^5 – < 1 × 10^{11}	7	Pink	✓	✗	✓	✗
	3	815-3509	High Density Conductive Foam S	Foam, High density	305	0.3	6	<1 × 10^3	1 × 10^2 – ≤ 1 × 10^5	7	Black	✗	✓	✗	✓
	4	815-3503	High Density Conductive Foam L	Foam, High density	1000	1	6	<1 × 10^3	1 × 10^2 – ≤ 1 × 10^5	7	Black	✗	✓	✗	✓
	5	798-9326	High Density Antistatic Foam	Foam, High density	800	1	6	n/a	1 × 10^7 – <1 × 10^{11}	7	Pink	✓	✗	✓	✗
	6	815-7012	Dissipative Stretch Film	Stretch Film	300	0.5	0.025	Not tested	10^{10}	Not tested	Pink	✓	✗	✓	✗
	7	628-1772	Antistatic Large-bubble Roll S	Bubble Wrap	500	25	12	Not tested	10^{10}	Not tested	Pink	✓	✗	✓	✗
	7	628-1693	Antistatic Large-bubble Roll M	Bubble Wrap	750	25	12	Not tested	10^{10}	Not tested	Pink	✓	✗	✓	✗
	7	628-1564	Antistatic Large-bubble Roll L	Bubble Wrap	1500	25	12	Not tested	10^{10}	Not tested	Pink	✓	✗	✓	✗
	7	356-2315	Antistatic Small-bubble Roll S	Bubble Wrap	500	50	4	Not tested	10^{10}	Not tested	Pink	✓	✗	✓	✗
	7	639-1920	Antistatic Small-bubble Roll M	Bubble Wrap	750	50	4	Not tested	10^{10}	Not tested	Pink	✓	✗	✓	✗
	7	356-2157	Antistatic Small-bubble Roll L	Bubble Wrap	1500	50	4	Not tested	10^{10}	Not tested	Pink	✓	✗	✓	✗

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RS PRO

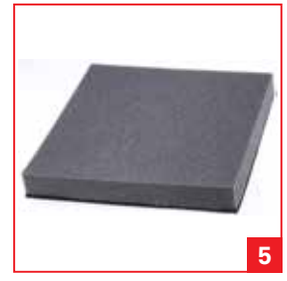
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FOAM, FILM & WRAP

Brand	Image	Stock No	Description	Type	Width (mm)	Length (m)	Thickness (mm)	Volume Resistance (Ω)	Surface Resistance (Ω)	Tensile Strength (N/cm²)	Colour	Dissipative	Conductive	Anti-Static	Static Shielding
RS PRO	1	125-2348	Gusseted Shroud S	Gusseted Shroud	1250	1.85	80	10^{11}	$<10^{11}$	1,000 to 1,100	Pink	✓	✗	✓	✗
	1	125-2349	Gusseted Shroud M	Gusseted Shroud	1250	1.6	80	10^{11}	$<10^{11}$	1,000 to 1,100	Pink	✓	✗	✓	✗
	1	125-2350	Gusseted Shroud L	Gusseted Shroud	579	0.7	80	10^{11}	$<10^{11}$	1,000 to 1,100	Pink	✓	✗	✓	✗
	2	125-2399	Black Dissipative ESD Strapping S	Strap	25.4	0.5	0.5	10^{11}	$<10^{11}$	14,023.5	Black	✓	✗	✗	✗
	2	125-2398	Black Dissipative ESD Strapping L	Strap	25.4	0.9	0.5	10^{11}	$<10^{11}$	14,023.5	Black	✓	✗	✗	✗
	3	125-2358	Black Tubing S	Tube	76	152	100	10^{5}	$<10^{5}$	1,000 to 1,300	Black	✗	✓	✗	✗
	3	125-2359	Black Tubing L	Tube	102	152	100	10^{5}	$<10^{5}$	1,000 to 1,300	Black	✗	✓	✗	✗
	4	125-2351	Pink Tubing (100mm)	Tube	100	250	90	10^{11}	$<10^{11}$	1,000 to 1,200	Pink	✓	✗	✓	✗
	4	125-2352	Pink Tubing (150mm)	Tube	150	250	90	10^{11}	$<10^{11}$	1,000 to 1,200	Pink	✓	✗	✓	✗
	4	125-2353	Pink Tubing (200mm)	Tube	200	250	90	10^{11}	$<10^{11}$	1,000 to 1,200	Pink	✓	✗	✓	✗
	4	125-2354	Pink Tubing (250mm)	Tube	250	250	90	10^{11}	$<10^{11}$	1,000 to 1,200	Pink	✓	✗	✓	✗
	4	125-2355	Pink Tubing (300mm)	Tube	300	250	90	10^{11}	$<10^{11}$	1,000 to 1,200	Pink	✓	✗	✓	✗
	4	125-2356	Pink Tubing (400mm)	Tube	400	250	90	10^{11}	$<10^{11}$	1,000 to 1,200	Pink	✓	✗	✓	✗
	4	125-2357	Pink Tubing (500mm)	Tube	500	250	90	10^{11}	$<10^{11}$	1,000 to 1,200	Pink	✓	✗	✓	✗
ideal-tek	5	787-0323	Replacement foam for PCSA-1	Foam, Cushioning	220	0.2	41	10^{4}	$10^{3} - 10^{5}$	Not tested	Black/Grey	✗	✓	✗	✗
	5	787-0320	Replacement foam for PCSA-2	Foam, Cushioning	220	0.5	40	10^{4}	$10^{3} - 10^{5}$	Not tested	Black/Grey	✗	✓	✗	✗
	5	787-0332	Replacement foam for PCSA-4	Foam, Cushioning	350	0.5	42	10^{4}	$10^{3} - 10^{5}$	Not tested	Black/Grey	✗	✓	✗	✗

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TAPE

Brand	Image	Stock No	Description	Usage Type	Length (m)	Width (mm)	Text/Logo On Tape	Material	Dissipative	Conductive	Anti-Static	Cleanroom	EN 61340-5-1
RS PRO	1	443-9799	Polyprop adhesive grid tape 12mm	Packaging	36	12	Logo	PP	✓	✗	✗	✗	✓
	1	443-9812	Polyprop adhesive grid tape 18mm	Packaging	36	18	Logo	PP	✓	✗	✗	✗	✓
	1	443-9828	Polyprop adhesive grid tape 24mm	Packaging	36	24	Logo	PP	✓	✗	✗	✗	✓
	1	443-9834	Polyprop adhesive grid tape 48mm	Packaging	36	48	Logo	PP	✓	✗	✗	✗	✓
	2	733-980	PVC antistatic packaging tape	Packaging	66	50	Attention	PVC	✗	✗	✓	✗	✓
	2	125-2397	Packing tape in 3 Languages	Packaging	66	50	Attention	PVC	✗	✗	✓	✗	✓
	3	125-2361	Black dissipative cover tape	Packaging	500	35	Blank	Polyethylene	✓	✗	✗	✗	✓
	3	125-2360	Black dissipative cover tape	Packaging	1000	35	Blank	Polyethylene	✓	✗	✗	✗	✓
	4	340-7533	EPA floor marking tape	Floor	66	50	ESD Protected Area	PVC	✗	✗	✓	✗	✓
Vermason	5	877-2517	Clear ESD Tape 12mm M	Packaging	33	12	Blank	Plastic, Rubber	✗	✗	✓	✗	✓
	5	877-2510	Clear ESD Tape 18mm M	Packaging	33	18	Blank	Plastic, Rubber	✗	✗	✓	✗	✓
	5	877-2514	Clear ESD Tape 24mm M	Packaging	33	24	Blank	Plastic, Rubber	✗	✗	✓	✗	✓
	5	877-2523	Clear ESD Tape 12mm L	Packaging	66	12	Blank	Plastic, Rubber	✗	✗	✓	✗	✓
	5	877-2526	Clear ESD Tape 18mm L	Packaging	66	18	Blank	Plastic, Rubber	✗	✗	✓	✗	✓
	5	877-2520	Clear ESD Tape 24mm L	Packaging	66	24	Blank	Plastic, Rubber	✗	✗	✓	✗	✓
	5	877-2539	Clear ESD Tape 48mm L	Packaging	66	48	Blank	Plastic, Rubber	✗	✗	✓	✗	✓
	6	877-2497	Clear ESD Symbol tape 12mm	Packaging	66	12	Antistatic Tape	Plastic, Rubber	✗	✗	✓	✗	✓
	6	877-2491	Clear ESD Symbol tape 18mm	Packaging	66	18	Antistatic Tape	Plastic, Rubber	✗	✗	✓	✗	✓
	6	877-2501	Clear ESD Symbol tape 24mm	Packaging	66	24	Antistatic Tape	Plastic, Rubber	✗	✗	✓	✗	✓
	6	877-2504	Clear ESD Symbol tape 48 mm	Packaging	66	48	Antistatic Tape	Plastic, Rubber	✗	✗	✓	✗	✓

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TAPE

Brand	Image	Stock No	Description	Usage Type	Length (m)	Width (mm)	Text/Logo On Tape	Material	Dissipative	Conductive	Anti-Static	Cleanroom
Vermason	1	877-2508	Clear ESD Yellow stripe Tape 12mm	Packaging	66	12	Antistatic Tape	Plastic, Rubber	✗	✗	✓	✗
	1	832-5376	Clear ESD Yellow stripe Tape 18mm	Packaging	66	18	Antistatic Tape	Plastic, Rubber	✗	✗	✓	✗
	1	832-5385	Clear ESD Yellow stripe Tape 24mm	Packaging	66	24	Antistatic Tape	Plastic, Rubber	✗	✗	✓	✗
	1	832-5388	Clear ESD Yellow stripe Tape 48mm	Packaging	66	48	Antistatic Tape	Plastic, Rubber	✗	✗	✓	✗
	2	877-2494	High Temperature Masking Tape	Masking	55	12	Blank	Paper	✗	✗	✓	✗
	2	832-5382	ESD High Temp. Masking Tape 18mm	Masking	55	18	Blank	Paper	✗	✗	✓	✗
	2	832-5391	ESD High Temp. Masking Tape 24mm	Masking	55	24	Blank	Rubber	✗	✗	✓	✗
	2	832-5394	ESD High Temp. Masking Tape 48mm	Masking	55	48	Blank	Rubber	✗	✗	✓	✗
	3	877-2481	Shielding Grid Tape 24mm	EMI Shielding	36	24	ESD Symbol	Plastic, Rubber	✗	✓	✗	✗
	3	877-2485	Shielding Grid Tape 48mm	EMI Shielding	36	48	ESD Symbol	Plastic, Rubber	✗	✓	✗	✗
Hi-bond tapes	4	468-419	Hi-Bond Low-Stat Polyimide Tape 12mm	Masking	33	12	Blank	Polyamide	✗	✗	✓	✓
	4	468-415	Hi-Bond Low-Stat Polyimide Tape 19mm	Masking	33	19	Blank	Polyamide	✗	✗	✓	✓
	4	468-447	Hi-Bond Low-Stat Polyimide Tape 25mm	Masking	33	25	Blank	Polyamide	✗	✗	✓	✓

TAPE DISPENSER

Brand	Image	Stock No	Description	For Use With	Tape Width	Type
Vermason	5	877-2532	ESD Tape Dispenser	76mm Core Tape	50 mm	Tabletop

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CABINETS

Brand	Image	Stock No	Description	Cabinet Height (mm)	Cabinet Width (mm)	Cabinet Depth (mm)	Drawer Height (mm)	Drawer Width (mm)	Drawer Depth (mm)	Compartments per Insert	Drawers per Cabinet	Type
RS PRO	1	909-6987	ESD Drawers S	290	310	180	62	92	170	1	12	ESD Cabinet
	1	909-6978	ESD Drawers M	290	310	180	40	69	170	1	24	ESD Cabinet
	2	909-6984	ESD Drawers L	550	310	180	62	92	170	1	24	ESD Cabinet
	2	909-6980	ESD Drawers XL	550	310	180	40	69	170	1	48	ESD Cabinet
raaco	3	774-0459	ESD Turntable for 1200 Cabinet	1760	680	n/a	1760	680	680	1	12	Turntable Storage
	4	774-0480	ESD Bin Carousel	1600	655	n/a	1600	655	655	1	288	Turntable Storage
	5	051-9217	18 Drawer Storage Cabinet	420	307	146	60	91	154	1	18	Cabinet
	6	051-9201	36 Drawer Storage Cabinet	420	307	146	41	67	153	1	36	Cabinet
	6	816-271	48 Drawer Storage Cabinet	555	307	146	41	67	153	1	48	Cabinet
	7	252-0203	45 Drawer Storage Cabinet	417	306	150	52	35	135	1	45	Cabinet
	8	252-0196	24 Drawer Storage Cabinet	555	306	150	87	135	57	1	24	Cabinet
	6	252-0180	60 Drawer Storage Cabinet	552	306	150	52	135	35	1	60	Cabinet
	9	183-7465	6 Drawer Storage Cabinet	435	357	255	57	320	240	1	6	Cabinet

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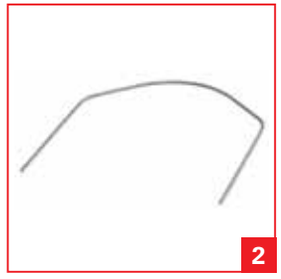


DRAWERS & INSERTS

Brand	Image	Stock No	Description	Cabinet Height (mm)	Cabinet Width (mm)	Cabinet Depth (mm)	Drawer Height (mm)	Drawer Width (mm)	Drawer Depth (mm)	Compartments per Insert	Drawers per Cabinet	Type
RS PRO	1	575-728	18 Compartment Drawer	n/a	n/a	n/a	20	250	275	18	18	Drawer
	1	575-734	36 Compartment Drawer	n/a	n/a	n/a	20	275	250	36	36	Drawer
	2	484-9607	Antistatic drawer dividers L	n/a	n/a	n/a	87	49	2	24	n/a	Divider
	2	484-9613	Antistatic drawer dividers S	n/a	n/a	n/a	64	31	1	48	n/a	Divider
raaco	3	774-0443	Cabinet Drawer S	n/a	n/a	n/a	41	55	153	1	n/a	Drawer
	3	774-0452	Cabinet Drawer M	n/a	n/a	n/a	41	67	153	1	n/a	Drawer
	3	774-0455	Cabinet Drawer L	n/a	n/a	n/a	50	91	154	1	n/a	Drawer
	4	774-0468	Cabinet Drawer XL	n/a	n/a	n/a	57	320	240	1	n/a	Drawer
	4	252-0225	Antistatic drawer dividers	n/a	n/a	n/a	n/a	31	n/a	1	n/a	Divider
	5	774-0483	ESD Drawer Insert S	n/a	n/a	n/a	47	39	55	1	n/a	Insert
	5	774-0487	ESD Drawer Insert M	n/a	n/a	n/a	47	55	79	1	n/a	Insert
	5	774-0496	ESD Drawer Insert L	n/a	n/a	n/a	47	79	109	1	n/a	Insert
	6	183-7487	16 Tray Cabinet Insert Pack	n/a	n/a	n/a	315	220	47	1	n/a	Insert
	6	183-7471	32 Tray Cabinet Insert Pack	n/a	n/a	n/a	315	220	47	1	n/a	Insert

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WALL PANELS, RACKS, POSTS & KITS

Brand	Image	Stock No	Description	Type	Height (mm)	Width (mm)	Depth (mm)	Conductive
RS PRO	1	121-2704	SMD Reel Rack with 10 Dividers	Rack	155	390	250	✗
	2	121-2705	Divider for SMD Reel Rack	Divider	250	155	n/a	✗
	3	121-2707	Surface Mount Reel Rack	Rack	110	400	250	✗
	4	121-2708	SMD Reel Container	Rack	178	330	560	✗
	5	287-8079	L-shaped PCB rack S	Rack	275	210	95	✓
	5	287-8085	L-shaped PCB rack L	Rack	350	210	130	✓
	6	550-016	Conductive PCB holder	Holder	14	353	254	✓
	7	406-9788	Antistatic conductive PCB holder kit	Holder	15	354	255	✓
raaco	8	519-223	Antistatic table top	Kit	388	500	305	✗

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OFFICE SUPPLIES & STATIONERY

Brand	Image	Stock No	Description	Quantity Included	Height (mm)	Type	Width (mm)	Depth (mm)	Dissipative	Conductive	Anti-Static
RS PRO	1	121-2703	ESD Self-Stick Notes	50	76	Sticky Notes	102	n/a	✓	✗	✗
	2	733-946	A4 Static dissipative ring binder	1	320	Ring Blinder	Spine 40	Ring 25	✓	✗	✗
	3	443-9840	A4 antistatic ESD-safe clear binder	5	315	Clear Binder	235	4	✗	✗	✓
	4	733-952	A4 Static dissipative document sleeve	100	297	Document Sleeve	220	n/a	✗	✗	✓
	5	815-7006	14L Conductive Waste Bin	1	320	Waste Bin	285	n/a	✗	✓	✓
	6	125-2403	40L Conductive Waste Bin	1	530	Waste Bin	330	530	✗	✓	✗
	7	125-2404	Pink Waste bags	10	750	Waste Bag	330	530	✗	✗	✓
	8	815-7000	Dissipative Polyethylene Refuse Sacks	500	450	Refuse Sack	600	n/a	✓	✗	✗
MENDA	9	121-2702	Drinking cup	1	195	Cup	n/a	n/a	✗	✓	✗

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ESD Testing & Monitoring Equipment

INTRODUCTION

Test your systems regularly to be confident they are providing the ESD protection you need. Various testing methods are described in the ESD standard EN 61340 Part 5-1: Protection of electronic devices from electrostatic phenomena. The standard also specifies acceptable values.

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Testers and Auditors..... Page 22



KEY CONSIDERATIONS

Our testing and monitoring range consists of three equipment types. Test meters comprise a group of units for testing the integrity of ESD control products, from Surface Resistivity testers to Wristband testers.

Continuous monitors eliminate time spent carrying out frequent integrity checks, as ESD integrity is monitored continuously through the day. Testers and auditors covers products used to confirm the accuracy of test meters.

Testing and monitoring can be viewed as two distinct families: personnel testing and EPA (ESD Protected Area) testing.

The personnel testing family offers a choice of wrist strap and/or footwear testers or test stations, for testing personnel grounding systems before entering an EPA. Other testers are designed for use inside the EPA to test resistances in-situ. This helps reduce queues at the test station at the beginning of a shift. They can also be used to monitor personnel grounding on a continuous basis (continuous monitors).

The EPA testing family consist of equipment to measure electrical resistance and electrostatic fields. Resistance meters are used to qualify an EPA whereas electrostatic field meters help locate electrostatic charges, identify insulative materials or serve to balance ionisers.

GLOSSARY OF TERMS

Test point
ESD testing and monitoring equipment is specifically designed to evaluate one or more of the physical test points on personnel, work stations, equipment and/or surfaces. A test point may be a person's wrist, ankle, foot, work surface ancillary equipment (Ioniser etc) or earth bonding point etc.

Each of these can be tested to ensure conformance with expected readings and to ensure continuance of personnel, equipment and component safety.

Parking station
A feature of an ESD monitor which allows a worker to 'park' or store their wrist strap to the monitor when temporarily leaving the work station. Parking of the wrist strap has to be achieved within a pre-determined time to avoid an activating an alarm

Supervisor monitoring
A feature of some ESD testing & monitoring equipment whereby a secondary jack point exists for use by a second worker or for supervisory monitoring.

EOS detection
Some ESD testing and monitoring equipment has the capability to detect overvoltage conditions which can lead to electrostatic overstress (EOS) and an electrostatic discharge event.

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ESD TEST METERS

Brand	Image	Stock No	Description	Equipment Type	Test Point	Power Source	Width (mm)	Height (mm)	Depth (mm)
RS PRO	1	776-8315	AC Outlet Analyser with UK Plug	Tester	Wrist	Mains, UK	51	76	51
	2	122-9143	Wrist strap Tester, 9V battery	Tester	Wrist	Battery	70	90	30
	3	126-8850	Low Resistance Tester	Tester	Chair, Floor, Surface, Wrist	Battery	50	120	20
	2	253-0727	Portable easy to use wrist band tester	Tester	Wrist	Battery, Mains	70	115	26
	4	733-996	Wrist band/heel grounder test station	Tester	Wrist & Foot	Battery	70	115	26
	2	418-0879	RSCAL(2530727) WBT-02 wristband tester	Tester	Wrist	Battery, Mains	70	115	n/a
	4	418-0885	RSCAL(733996), wristband test station	Tester	Wrist & Foot	Battery	70	115	26
	5	877-2488	Wrist Strap & Footwear Tester+Footplate	Tester	Wrist & Foot	Mains, EU/UK	143	90	n/a
	6	776-8318	Analogue Surface Resistance Meter	Analogue Surface Resistance Test Kit	Surface	Battery	305	89	241
	7	821-1264	Surface Resistivity Tester	Resistivity Tester	Surface	Battery	230	305	75

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ESD TEST METERS

Brand	Image	Stock No	Description	Equipment Type	Test Point	Power Source	Width (mm)	Height (mm)	Depth (mm)
EMIT	1	776-8321	Digital Static Field Meter	Tester	Surface	Battery	70	126	24
	2	776-8324	Ionisation Test Kit	Tester	Surface	Battery	70	126	24
CHARLESWATER	3	685-8745	Combo wrist strap footwear tester	Tester	Wrist & Foot	Battery, Mains	140	80	40
	3	685-8754	Combo wriststrap footwear tester w/stand	Tester	Wrist & Foot	Battery, Mains	140	80	40
	3	685-8757	Calibration unit, for combo tester	Calibrator	Wrist & Foot	Not Required	110	80	25
Vermason	4	877-2536	Surface Resistance Meter Kit	Meter	Surface	Battery	100	210	40
	5	877-2551	ESD Survey Kit UK	Survey Kit	Surface, ioniser,	Mains, UK	350	230	n/a
	5	877-2554	ESD Survey Kit, Europe	Survey Kit	Surface, ioniser,	Mains, EU/UK	350	560	230

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ESD CONTINUOUS MONITORS

Brand	Image	Stock No	Description	Supply Voltage (V)	Terminal Type	Number of Operators	Number of Worksurfaces	Supervisor Monitoring	Parking Station	Charge Detection	EOS Detection	Width (mm)	Length (mm)	Height (mm)
RS PRO	1	126-8852	Earth Bonding Point Integrity Monitor	220 ac	Banana	n/a						76	51	51
	2	126-8851	Body Voltage Monitor	5 dc	Banana	1	1	✓	✗	✗	✓	69	61	30
	3	877-2472	Multi Mount Continuous Monitor, 220V	24 ac	10 Snap, 4 Banana jack	1	1	✗	✓	✗	✗	52.8	98.3	22.9
	4	877-2475	ESD AC Adapter	For Multi Mount Continuous Monitor (877-2472)										
SCS	5	918-5618	Work Station Monitor	100 - 120 ac	Snap	1	1	✗	✗	✗	✗	79	165	35
	5	126-8845	Iron Man Plus Monitor	100 - 240 ac	Jack	1	1	✗	✗	✓	✓	61	66	22
EMIT	6	685-8763	Dual operator continuous monitor, 220V	220 ac	Phone	2	2	✓	✓	✗	✗	280	130	74
	7	685-8767	Zero volt continuous monitor, dual wire	100 - 240 ac	10 Snap, Phone, Push In, Screw	2	2	✓	✓	✗	✗	119	142	66
Vermason	8	685-8751	Workstation continuous mini monitor 220V	220 ac	10 Snap, 4 Snap	1	1	✗	✓	✗	✗	53	70	18
	9	685-8760	AC adaptor, monitor, IEC input, 220V	220 ac	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

ESD TESTERS AND AUDITORS

Brand	Image	Stock No	Description	Test Type	Width (mm)	Height (mm)	Depth (mm)	Weight (kg)	Battery Type (V)
RS PRO	10	763-0945	Wrist Band Tester Calibration Unit	Heel, Wrist	61	40	96	0.1	9
	10	761-0711	Calibration Unit 763-0945 - Calibrated Version	Heel, Wrist	61	40	96	0.1	9

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Ionisers

INTRODUCTION

An ioniser creates great numbers of positively and negatively charged ions. Fans help the ions flow over the work area. Ionisation can neutralise static charges on an insulator in a matter of seconds, thereby reducing their potential to cause ESD damage.

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KEY CONSIDERATIONS

Bench top ionisers benefit from the ability to be moved easily between workstations. However, care should be taken to ensure that items normally on the bench will not obstruct the flow of ionised air.

Overhead ionisation was established to solve the problem of items on a bench blocking the flow of ionised air. In addition, the downward airflow is more consistent over the entire bench. Overhead ionisers are ideal for areas where bench space is limited.

Forced air ionisers use compressed air or nitrogen to neutralise static charges in localised areas – they are a quick point-and-shoot option.

The main advantage of this type is the ability to provide a strong air blast to help dislodge contamination, while the ionisation in the air stream eliminates the static attraction of the particles at the same time.

GLOSSARY OF TERMS

Offset voltage
A preset output voltage that enables a balanced amount of positive and negative ions to be created and emitted by the ioniser.

Air flow
Some ionisers need airflow to operate properly. These will either require an available airflow or may incorporate a fan to provide airflow. Compressed gas ionisers require a gas source and filtration compatible with use in an ESD protected area.

Minimum/Maximum air pressure
These values refer to the settings that should be made on the pressure regulator that feeds the ioniser from a clean air or nitrogen supply.

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IONISERS

Brand	Image	Stock No	Description	Type	Depth (mm)	Width (mm)	Height (mm)	Supply Voltage (V ac)	Offset Voltage (V)	Number of Fans	Air Flow (cfm)	Fan Speed	Plug Type
RS PRO	1	340-7511	Zero stat gun with ion detector	Ionized Air Gun	114	165	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	2	877-2466	Benchtop Ioniser	Bench Top	80	150	240	220	3 → 25	1	50 – 100	Variable	Type F - Schuko plug (NS)
	3	877-2469	Overhead Ioniser S	Overhead	610	165	89	220	10 → 25	2	100 – 200	Variable	Type F - Schuko plug (NS)
	3	877-2463	Overhead Ioniser L	Overhead	940	165	89	220	10 → 25	3	150 – 300	Variable	Type F - Schuko plug (NS)
SCS	4	126-8843	Benchtop Air Ionizer with Power Source	Bench Top	104	181	219	100 – 240	15	1	112	Variable	NS
	5	918-5595	Benchtop Air Ioniser Euro Version	Bench Top	114	216	229	100 – 240	15	1	112	Variable	NS
	6	126-8844	Overhead Air Ionizer with Power Source	Overhead	172	1080	120	100 – 240	15	3	100 – 200	Variable	NS
EMIT	7	818-8108	Mini Zero Volt Ioniser	Bench Top	40	90	140	24	5 → 25	2	33 – 51	Variable	Euro Plug, UK, USA
	7	684-2920	Bench top zero volt ioniser	Bench Top	79	152	241	220	3 → 25	1	50 – 100	Variable	Type F - Schuko plug (NS)
	8	121-2700	OH Ioniser with light S	Overhead	566	168	99	220	10 → 20	2	100 – 200	Variable	Type F - Schuko plug (NS)
	8	121-2701	OH Ioniser with light L	Overhead	947	168	99	220	10 → 20	3	150 – 300	Variable	Type F - Schuko plug (NS)
	8	684-2942	Chargebuster overhead ioniser	Overhead	89	940	165	220	10 → 20	3	150 – 300	Variable	Type F - Schuko plug (NS)
	8	684-2954	Zero volt overhead ioniser	Overhead	88	1066	165	220	0 – 5	3	195 – 300	Variable	Type F - Schuko plug (NS)

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IONISING AIR GUNS

Brand	Image	Stock No	Description	Type	Power Source	Activation Type	Voltage (V ac)	Hose Length (m)	Minimum Air Pressure (PSI)	Maximum Air Pressure (PSI)
SCS	1	918-5611	Ionised Air Gun	Ionized Air Gun	Mains - Power Adapter to be purchased separatley	Hand trigger	230	2.1	20	65
EMIT	2	684-2958	Ion python controller, hand gun	Hand Gun	Mains - Power Cord to be purchased separatley	Hand trigger	220	2.1	30	100
	3	684-2967	Ion python controller, air nozzle	Fixed Nozzle	Mains - Power Cord to be purchased separatley	Foot switch	220	1.5	30	100

IONISATION ACCESSORIES

Brand	Image	Stock No	Description	Accessory Type	Suitable For
EMIT	4	761-7141	Ionizer Mounting Arm	Ionizer Mounting Arm	MIT 50670 (RS 6842920)
SCS	5	918-5605	ESD Power Adapter	Adaptor	n/a

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ESD Personal Grounding & ESD Clothing

INTRODUCTION

People are the primary source of electrostatic charges. As it is impractical to prevent the generation of these charges it is necessary to ground personnel who work within an EPA.

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KEY CONSIDERATIONS

For people who work mainly sitting down, grounding is best achieved with the use of a wristband connected to an extendible coiled cord, also known as wrist strap. It, in turn, is connected to an earth bonding point (EBP) or continuous monitor.

ESD gloves allow any charges to travel to ground through the wearer. They protect the hands from sharp edges and they protect components and assemblies from body oils and perspiration.

Foot grounders or conductive shoes are used for earthing mobile personnel. This personnel grounding method can only function when used in conjunction with suitable ESD flooring.

Garments are used to control electronic charges generated by personnel working in EPAs. They form a conductive grid around the upper body so that any electrostatic fields are held within the garment.

GLOSSARY OF TERMS

Lead resistance
A resistor embedded within a wrist strap allows any static charge to discharge completely over time, typically less than 1 second. A 1MOhm resistor is often used, with higher values being embedded when voltages encountered may be higher

Non marking
Non-floor marking characteristic of a heel or shoe grounder.

Single wire / Dual wire
Dual wire wrist strap provides redundancy. If one dual wire wrist strap conductor is severed, the operator retains a reliable path-to-ground through the other wire.

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WRIST STRAPS

Brand	Image	Stock No	Description	Termination stud size (mm)	Wrist Strap Size	Re-usable / Disposable	Single Wire / Dual Wire
RS PRO	1	923-7911	Disposable Wrist Strap	n/a	Adjustable	Disposable	Not applicable
	2	392-163	Malestud fully adj fabric wristband	10	Adjustable	Reusable	Single Wire
	2	798-9290	Stud Adjustable Fabric Wrist Strap	4	Adjustable	Reusable	Single Wire
	3	798-9294	Stud Antiallergenic Wrist Strap	4	Adjustable	Reusable	Single Wire
	2	552-876	Stud large fixed fabric wrist band	10	Large	Reusable	Single Wire
	2	552-882	Stud small fixed fabric wrist band	10	Small	Reusable	Single Wire
	2	798-9278	Stud Adjustable Tab Free WristStrap	10	Adjustable	Reusable	Single Wire
	2	253-6769	Anti allergenic fabric wrist band	10	Adjustable	Reusable	Single Wire
	4	787-3108	Adjustable Metal Wrist Band	10	Adjustable	Reusable	Single Wire
	4	663-229	Male press stud adj metal wristband	10	Adjustable	Reusable	Single Wire
SCS	5	838-0777	Adjustable Thermoplastic Wrist Strap (4mm Stud)	4	Adjustable	Reusable	Single Wire
	5	838-0789	Adjustable Thermoplastic Wrist Strap (3.4mm Stud)	3.4	Adjustable	Reusable	Single Wire
	6	838-0733	Adjustable Elastic Nylon Wrist Strap (3.4mm Stud)	3.4	Adjustable	Reusable	Dual Wire
	7	838-0727	Metal Wrist Strap (5mm Stud)	5	Large	Reusable	Single Wire
	7	838-0723	Metal Wrist Strap (4mm Stud)	4	Medium	Reusable	Single Wire

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WRIST STRAPS & CORDS

Brand	Image	Stock No	Description	Termination stud size (mm)	Wrist Strap Size	Re-usable / Disposable	Single Wire / Dual Wire
RS PRO	1	287-7379	Stud-banana adj fabric band cordset	10	Adjustable	Reusable	Single Wire
	1	798-9288	Stud-Banana Fabric Wrist Strap+Cord	4	Adjustable	Reusable	Single Wire
	1	798-9297	Stud Adjustable Wrist Strap+Cord	4 – 10	Adjustable	Reusable	Single Wire
	1	287-7385	Stud-stud adj fabric band/cord set	10	Adjustable	Reusable	Single Wire
	2	798-9275	Stud-Banana Mini Wrist Strap+Cord	10	Adjustable	Reusable	Single Wire
	3	287-7414	Stud-banana adj wrist band/cord set	10	Adjustable	Reusable	Single Wire
	3	287-7420	Stud-stud adj wrist band/cord set	10	Adjustable	Reusable	Single Wire
	4	798-9281	Stud-Stud Metal Wrist Strap+Cord	4 – 10	Adjustable	Reusable	Single Wire
	5	798-9284	Stud-Banana Wrist Strap & Cord Set	4	Adjustable	Reusable	Single Wire
	6	798-9272	Stud-Banana Mini Wrist Strap+Cord	4	Adjustable	Reusable	Single Wire
	6	787-3101	Stud-Stud Adjustable Wrist Band	10	Adjustable	Reusable	Single Wire
SCS	7	838-1174	Press Stud Anti-Static Wrist Strap	4	Adjustable	Reusable	Single Wire
	8	838-0786	Press Stud Anti-Static Wrist Strap	4	Adjustable	Reusable	Single Wire
	8	838-1300	Press Stud Anti-Static Wrist Strap	4	Adjustable	Reusable	Single Wire
Vermason	9	685-8782	Grounding Wrist Strap & Cord Set	4	Adjustable	Reusable	Dual Wire

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CORDS

Brand	Image	Stock No	Description	Cord Type	Stud Size (mm)	Cord Length (m)	Lead Resistance (MΩ)	Termination Type
RS PRO	1	287-7470	Grounding connection cord	Connecting	10	0.1	1	Press Stud - Press Stud
	2	129-4975	Connecting cord with wire	Connecting	10	0.1	0	Press Stud - Press Stud
	3	123-5613	Grounding Cord for Turntable	Connecting	5	1.0	0	Press Stud - Ring Terminal
	4	273-6717	Stud-stud cord	Connecting	10	1.8	1	Press Stud - Press Stud
	5	552-898	Stud-banana cord	Connecting	10	1.8	2	Press Stud - Banana Plug/Croc Clip
	4	291-9489	Stud - stud cord	Connecting	10	1.8	2	Press Stud - Press Stud
	5	287-7391	Stud-banana cord	Connecting	10	3.6	2	Press Stud - Banana Plug/Croc Clip
	5	273-6701	Stud-banana cord	Connecting	10	1.8	1	Press Stud - Banana Plug/Croc Clip
	4	552-905	Stud - stud cord	Connecting	10	1.8	4	Press Stud - Press Stud
	6	129-4874	Grounding connection cord L	Connecting	10	2.0	1	Press Stud - Press Stud
	6	129-4969	Grounding connection cord M	Connecting	10	1.0	1	Press Stud - Press Stud
	7	798-9335	Low Profile Ground Cord	Low Profile	10	4.5	1	Press Stud - Ring Terminal
	8	798-9304	Stud-Banana Coiled Cord	Connecting	4	2.0	1	Banana plug
	9	129-4931	Earthing Wire Stud-banana	Connecting	10	1.0	1	Press Stud - Banana Socket
	9	287-7486	Earthing Wire Stud-banana	Connecting	10	4.5	1	Press Stud - Banana Socket
	10	122-9153	EPA Ground Earth Bonding Cord	Connecting	10	4.0	1	Banana Plug
	4	798-9307	Stud Coiled Cord	Connecting	4	1.0	1	Press Stud
SCS	11	838-1253	Floor Ground Cord Male	Low Profile	10	4.6	1	10mm Stud - Ring Terminal
	11	838-0767	Cord No Resistor	Standard	10	3.0	0	10mm Stud - 10mm Stud
	12	838-1316	Grounding System for Wrist Strap/Mat	Standard	10	4.6	1	10mm Stud - Ring Terminal
	13	838-1313	Wrist Strap Grounding System	Standard	n/a	3.0	1	2 × Banana Plug
	14	838-1310	Press Stud Anti-Static Wrist Strap	Connecting	4	1.5	1	Banana Plug/Croc Clip

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TOE & HEEL STRAPS

Brand	Image	Stock No	Description	Attachment Type	Resistance (Ω)	Type	Non Marking	Reusable/Disposable	Elastic/Non Elastic
RS PRO	1	466-8559	Nylon disposable heel grounder for shoe	Adhesive	10^5	Heel Grounder	✓	Disposable	Non-Elastic
	2	363-2931	Antistatic heel grounder with adj strap	Quick Lok	10^7	Heel Grounder	✗	Reusable	Non-Elastic
	2	340-7606	Non-marking heel grounder with adj strap	Hook & Loop	10^7	Heel Grounder	✗	Reusable	Non-Elastic
	3	287-7565	Blue antistatic heel grounder	Elasticated Hook & Loop	10^7	Heel Grounder	✗	Reusable	Non-Elastic
	3	217-9265	Dayglow antistatic heel grounder	Hook & Loop	10^7	Heel Grounder	✗	Reusable	Non-Elastic
	4	126-8846	stat-a-REST Foot Ground S	n/a	1×10^8	Foot Grounder	✓	Reusable	Non-Elastic
	4	126-8847	stat-a-REST Foot Ground M	n/a	1×10^8	Foot Grounder	✓	Reusable	Non-Elastic
	4	126-8848	stat-a-REST Foot Ground L	n/a	1×10^8	Foot Grounder	✓	Reusable	Non-Elastic
	4	126-8849	stat-a-REST Foot Ground XL	n/a	1×10^8	Foot Grounder	✓	Reusable	Non-Elastic
	5	122-9150	Disposable Heel Grounder	Adhesive	$5 \times 10^4 - 8 \times 10^5$	Foot Grounder	✓	Disposable	Non-Elastic
	6	122-9151	ESD Dispenser for Disposable Heel Grounders	For use with 122-9150					
SCS	7	838-1192	Economy Heel Grounder (ESD)	Hook & Loop	$<1 \times 10^8$	Heel Grounder	✓	Reusable	Non-Elastic
	7	838-0711	Shoe Grounder with 1 Megohm Resistor	Hook & Loop	$<1 \times 10^8$	Heel Grounder	✓	Reusable	Non-Elastic
	7	838-1180	Heel Grounder Cup Style 1 Meg Resistor	Hook & Loop	$<1 \times 10^8$	Heel Grounder	✓	Reusable	Non-Elastic
	7	838-1209	Heel Grounder High Visibility	D Ring	$<1 \times 10^8$	Heel Grounder	✓	Reusable	Non-Elastic
	8	838-1237	Toe Grounder	Hook & Loop	$<1 \times 10^8$	Toe Grounder	✓	Reusable	Non-Elastic

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LAB COATS AND SHIRTS

Image	Brand	Description	Closure Type	Gender	Reusable/ Disposable	Dissipative	Conductive	Anti-Static	Size				
									S	M	L	XL	XXL
	RS PRO	ESD Unisex Lab Coat, white	Button	Unisex	Reusable	✓	✕	✕	789-8084	789-8087	789-8081	789-8090	789-8093
	RS PRO	ESD Mens Lab Coat, white	Button	Men	Reusable	✓	✕	✕		327-3037	327-3043	327-3065	
	RS PRO	ESD Mens Polo Shirt, blue	Snaps	Men	Reusable	✓	✕	✕		810-2826	810-2820	810-2839	
	RS PRO	Static Dissipative Unisex Polo Shirt, blue	Button	Unisex	Reusable	✕	✕	✓			443-9727		

SECURITY IDENTIFICATION BADGES & ACCESSORIES

Image	Brand	Description	Breakaway Neck Strap	Conductive	Dissipative	Includes	Length	Material	Type	Width	Stock No.
	RS PRO	Black Polypropylene Rigid Plastic Badge Holder	No	Yes	No	Clip Holder	90 mm	55 mm	Polypropylene Rigid Plastic	Badge Holder	815-7019

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GLOVES

Brand	Image	Description	Material	Latex Free	Reusable/Disposable	Size			
						S	M	L	XL
RS PRO	1	Super grip surface gloves, 1 pair	PET	✓	Reusable		356-2208	356-2214	356-2220
	1	PVC smooth palm surface gloves, 1 pair	PET	✓	Reusable		356-2236	356-2258	
	2	Antistatic finger cot x100	Latex	✕	Disposable	266-1786	266-2868	266-2874	266-2896
	2	Antistatic finger cot x720	Latex	✕	Disposable	241-8144	241-8403	241-8425	266-2903
	2	ESD Pink Powder Free Fingercots x720	Latex	✕	Reusable	829-5168	829-5177	829-5170	829-5174
Ansell	3	HyFlex ESD Nitrile Foam Coated Glove, 1 pair	Nitrile, Nylon	✓	Reusable		806-4706	806-4715	806-4718

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SAFETY SHOES & BOOTS

Brand	Image	Description	Series	Safety Rating	Anti Static	Water Resistant	Penetration Resistant	UK 3 / EU 35	UK 3.5 / EU 36	UK 4 / EU 37	UK 5 / EU 38	UK 6 / EU 39	UK 6.5 / EU 40	UK 7 / EU 41	UK 8 / EU 42	UK 9 / EU 43	UK 10 / EU 44	UK 10.5 / EU 45	UK 11 / EU 46	UK 12 / EU 47	UK 13 / EU 48
uvex	1	Black Safety Trainer	Uvex 1	S1	✓	✓	✗	130-4493	130-4494	130-4495	130-4496	130-4497	130-4498	130-4499	130-4500	130-4501	130-4502	130-4503	130-4504	130-4505	
	2	Black/Yellow Safety Trainer	Uvex 1	S2	✓	✓	✗	130-4530	130-4531	130-4532	130-4533	130-4534	130-4535	130-4536	130-4537	130-4538	130-4539	130-4540	130-4541	130-4542	
	3	Blue/Grey Safety Trainer	Uvex 1	S1	✓	✗	✗		130-4506	130-4507	130-4508	130-4509	130-4510	130-4511	130-4512	130-4513	130-4514	130-4515	130-4516	130-4517	
	4	Black/Orange Leather Safety Shoe	Uvex 2	S3	✓	✓	✓				127-8512	127-8513		127-8514	127-8515	127-8516	127-8517		127-8518	127-8519	127-8520
	5	Blue/Grey Safety Boot	Uvex 1	S1	✓	✗	✗		130-4518	130-4519	130-4520	130-4521	130-4522	130-4523	130-4524	130-4525	130-4526	130-4527	130-4528	130-4529	
	6	Black/Orange Leather Safety Boot	Uvex 2	S3	✓	✓	✓				127-8521	127-8522		127-8523	127-8524	127-8525	127-8526		127-8527	127-8528	127-8529
Dickies	7	Grey/Blue Safety Shoe	Liberty	SP1	✓	✗	✓					161-2625		161-2626	161-2627	161-2628	161-2629		161-2630	161-2631	
	8	Grey/Blue Safety Boot	Liberty	SP1	✓	✗	✓					161-2632		161-2633	161-2634	161-2635	161-2636		161-2637	161-2638	
Jallatte	9	Black ESD Safety Trainers	J-NUDE	S1P	✓	✗	✓	914-0794	914-0804	914-0807	914-0801	914-0810	914-0813	914-0817	914-0826	914-0829	914-0823	914-0832	914-0835	914-0839	
	10	Black Safety Shoes	J-NUDE	S1P	✓	✗	✓	914-0756	914-0750	914-0769	914-0762	914-0766	914-0775	914-0778	914-0772	914-0781	914-0784	914-0788	914-0797	914-0790	
	11	Black Safety Shoes	J&J	S3	✓	✓	✓					913-4519	913-4528	913-4521	913-4525	913-4534	913-4537	913-4531	913-4540	913-4543	

OVER SHOE COVERS

Brand	Image	Stock No	Description	Quantity Per Package	Material	Anti-Slip Sole
RS PRO	12	340-7656	ESD safe low cost groundable bootie	50	Polypropylene	✓

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ESD Matting

INTRODUCTION

ESD protective matting aids in the prevention of damage to ESD sensitive items and assemblies from Electrostatic Discharge. There are two different types of matting available: ESD working surface matting and ESD floor matting.

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KEY CONSIDERATIONS

For electronics manufacturing, the ESD Standard recommends a resistance to ground (RG) for working surface matting of 1×10^4 to less than 1×10^9 ohms. The bench mat needs to be grounded using a ground wire from the surface connecting to the common point ground which in return is linked to ground, preferably equipment ground. Best practice is that ground connections use firm fitting connecting devices such as metallic crimps, snaps and banana plugs to connect to designated ground points. The use of alligator clips is not recommended.

ESD floor matting is an integral part of a flooring / footwear system which is a personnel grounding alternative for standing or mobile workers. Any static charges will quickly and effectively drain through the foot grounders or shoes and ESD floor to Ground. The ESD Standard requires the resistance of the person/footwear/flooring to be less than $3{,}5 \times 10^7$ ohms (resistance in series of operator plus footwear plus floor). It is therefore recommended to use conductive flooring (RG < 1×10^6 ohms) as the resistance can increase with dirt.

GLOSSARY OF TERMS

Buried layer
Refers to a mat comprising 3-layers where a conductive layer is sandwiched between two static-dissipative layers. Buried layer is also known as 3-layer.

2-layer
This describes an ESD-safe mat that consists of a surface dissipative layer and a lower conductive layer.

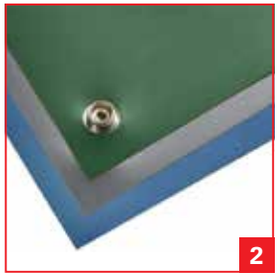
Table runner
A long bench or floor mat. Can be in excess of 15 metres.

Dissipative
Dissipative materials have a surface resistance of >1×10^5 ohms and allow any static charge to be dispersed.

Conductive
Conductive materials allow an electric charge to be conducted away to a desired earth point. They have a lower surface resistance of <1×10^5 ohms.

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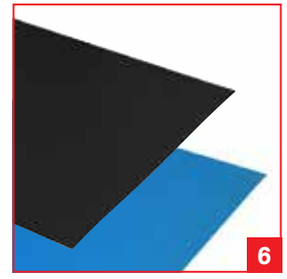


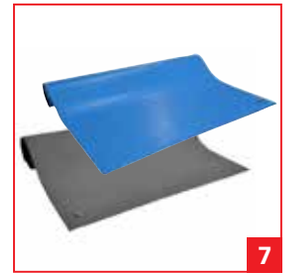












MATTING

Brand	Image	Stock No	Description	Length (cm)	Width (cm)	Thickness (mm)	Colour	Use Type	Number of Material Layers	Work Surface Resistance (Ω)
RS PRO	1	787-2111	Buried Layer Workstation Mat kit	240	120	3	Blue	Bench, Floor	3	$1 \times 10^6 - 1 \times 10^8$
	2	787-2102	Buried Layer Matting M	120	60	3	Blue	Bench	3	$1 \times 10^6 - 1 \times 10^8$
	2	787-2118	Buried Layer Matting L	300	120	3	Blue	Bench, Floor	3	$1 \times 10^6 - 1 \times 10^8$
	3	815-7016	Dissipative/Conductive Work station Mats	120	120	2	Beige	Bench, Floor	2	$1 \times 10^6 - 1 \times 10^8$
	4	466-1643	3-Layer Vinyl Mat M Blue	120	60	3.2	Blue	Bench	3	$1 \times 10^6 - 1 \times 10^8$
	4	466-1659	3-Layer Vinyl Mat M Grey	120	60	3.2	Grey	Floor	3	$1 \times 10^6 - 1 \times 10^8$
	4	466-1665	3-Layer Vinyl Mat L Blue	180	120	3.2	Blue	Bench	3	$1 \times 10^6 - 1 \times 10^8$
	4	466-1671	3-Layer Vinyl Mat L Grey	180	120	3.2	Grey	Bench	3	$1 \times 10^6 - 1 \times 10^8$
	4	787-2114	Workstation Conductive Mat Kit	120	60	1.5	Black	Bench	1	$1 \times 10^6 - 1 \times 10^8$
	5	122-9146	ESD Safe Mat S	90	60	1	Grey	Bench	2	$<1 \times 10^9$
	5	122-9147	ESD Safe Mat M	120	60	1	Grey	Bench	2	$<1 \times 10^9$
	6	122-9144	Dissipative Mat Blue	120	120	1.5	Blue	Bench	2	$<1 \times 10^5$ (Bottom), $1 \times 10^6 - <1 \times 10^9$ (Top)
	6	122-9145	Dissipative Mat Grey	120	120	1.5	Grey	Bench, Floor	2	$<1 \times 10^5$ (Bottom), $1 \times 10^6 - <1 \times 10^9$ (Top)
	7	121-2713	Table Runner Blue S	1520	60	1.8	Blue	Floor	2	$<10^9$
	7	121-2717	Table Runner Blue L	1520	120	1.8	Blue	Bench, Floor	2	$<10^9$
	7	121-2712	Table Runner Grey S	1520	60	1.5	Grey	Bench	2	$<10^9$
	7	121-2714	Table Runner Grey M	1520	90	1.8	Grey	Bench, Floor	2	$<10^9$
	7	121-2716	Table Runner Grey L	1520	120	1.8	Grey	Bench, Floor	2	$<10^9$

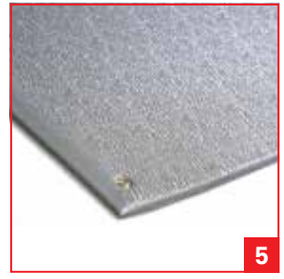
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MATTING

Brand	Image	Stock No	Description	Length (cm)	Width (cm)	Thickness (mm)	Colour	Use Type	Number of Material Layers	Work Surface Resistance (Ω)
RS PRO	1	787-3114	Bench Mat	120	60	2	Black	Bench, Floor	1	10^6
	2	787-3111	Conductive Rubber Mat Grey	120	60	2	Grey	Bench	2	10^8
	2	787-3139	Conductive Rubber Mat Green	120	60	2	Green	Bench	2	10^8
	3	340-7640	Lightweight Field Service Mat	3.80	50	2	Red	Bench, Floor	2	$<10^8$
	4	798-9266	Dissipative 3-Layer Work Mat	5.80	45	9.5	Blue	Table	3	$10^6 - 10^9$
	1	787-3136	Conductive Bench Floor Mat	120	69	2	Black	Table	1	10^8
	5	787-3123	Anti-Fatigue Mat	90	60	9	Grey	Table	1	$1 \times 10^9 - 1 \times 10^{10}$
	1	787-3120	Black ESD Floor Mat	120	60	3	Black	Table	1	10^4
COBA europe	6	185-8406	Static Dissipative Mat M	150	90	9	Grey	Table	1	$1 \times 10^9 - 1 \times 10^{10}$
	6	185-8399	Static Dissipative Mat L	1830	90	9	Grey	Table	1	$1 \times 10^9 - 1 \times 10^{10}$
SCS	7	838-1231	Dissipative Vinyl 3-Layer Mat	9.10	60.9	3.4	Blue	Table	3	$<10^9$
	8	838-0701	Dissipative Table Mat Blue	120	60	3.5	Blue	Bench	3	$<10^9$
	8	838-1338	Dissipative Table Mat Grey	120	60	3.5	Grey	Bench	3	$<10^9$
Vermason	9	738-9754	Statfree Bench Mat M	90	60	2	Blue	Bench	2	$1\times10^6 \leq - \leq 1\times10^8$
	9	738-9757	Statfree Bench Mat L	120	60	2	Blue	Floor	2	$1\times10^6 \leq - \leq 1\times10^8$
	9	738-9751	Statfree Bench Mat XXL	1000	122	2	Blue	Floor	2	$1\times10^6 \leq - \leq 1\times10^8$

All products comply with EN 61340-5-1
Images representative of range

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ESD Field Service

INTRODUCTION

It is essential to create an ESD Protected Area when Service Engineers undertake on-site repairs and maintenance.

Contents

Field Kits.....Page 38
Vacuums & Accessories.....Page 38

KEY CONSIDERATIONS

Utilising equipotential bonding and a common point ground system for connecting static control elements including operator, worksurface and equipment, field service kits are manufactured from low charging materials that limit charge generation. When properly connected, the field service kit mat will share the charge from conductive objects when they are placed on the surface.

Vacuums are designed for precise removal and collection of dry dust particles and debris from electrostatic sensitive devices.

GLOSSARY OF TERMS

Development board kit
This is a product designed to create a working space acting as a temporary ESD Protected Area.

(ESD) Safe vacuum
A vacuum cleaner with hose and accessories designed of a conductive or dissipative material to enable electrostatic charge to be removed via the supply earth connection.



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FIELD KITS

Brand	Image	Stock No	Description	Mat Length (mm)	Mat Width (mm)	Mat Thickness (mm)	Cord Length (m)	Mat Resistance (Ω)
RS PRO	1	681-1235	Antistatic lightweight field service kit	380	510	0.75	4	$1 \times 10^6 - 1 \times 10^{10}$
RS PRO	2	681-1231	Antistatic heavy duty field service kit	590	550	0.75	4	$1 \times 10^6 - 1 \times 10^8$
RS PRO	3	123-5614	Development Board ESD Benchtop Kit - UK	298	450	2	2.4	$<1 \times 10^5$
RS PRO	3	123-5615	Development Board ESD Benchtop Kit - EU	299	450	3	2.4	$<1 \times 10^5$
SCS	4	918-5598	Field Service Kit with Adjustable Strap	559	610	0.48	1.5	$1 \times 10^6 - 1 \times 10^9$
ESD SYSTEMS.com	5	220-9940	Conductive Workstation Kit	Floor mat:1200, Bench mat: 750	Floor mat:1500, Bench mat: 1220	Floor mat:2.5, Bench mat: 2	4	$1 \times 10^6 - 1 \times 10^9$
ESD SYSTEMS.com	6	252-4621	Workbench Kit RSKN118	1200	600	2	4	$1 \times 10^6 - 1 \times 10^8$

VACUUMS & ACCESSORIES

Image	Brand	Stock No	Description	Supply Voltage (V ac)	Type
	SCS	103-4052	Safe Vacuum	220/240	Vacuum
	SCS	838-1228 103-4053	Type 2 Filter for 497ABF Vacuum	n/a	Filter

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ESD Furniture

INTRODUCTION

Furnish your ESD Protected Area (EPA) with static dissipative workbenches, chairs and other equipment to help protect sensitive equipment and assemblies and minimise risk due to static build up.

Contents

Workbenches.....Page 40
Chairs.....Page 40
Trolleys and Carts.....Page 40

KEY CONSIDERATIONS

Chairs and workbenches explicitly designed for use in the electronics industry will prevent the build up of static by dissipating it safely to earth. ESD-safe seating will often have castors constructed of a dissipative or conductive material, enabling charge to be safely removed.

Take this into account when selecting suitable furniture for your ESD protected area, as well as the weight and size of items you will be handling or transporting.

ESD-safe trolleys should be used to transport sensitive components and our models conform to EN 61340 Part 5-1: Protection of electronic devices from electrostatic phenomena (see page 2).

As static can build up anywhere on a work bench, all working surfaces of a bench should be static dissipative. That way electronics assemblies and tools can be placed anywhere without risk. If tools are placed on a non-ESD dissipative surface, attract static, and used to work on an electronics assembly, the chances of damage will rise.



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WORKBENCHES

Brand	Image	Stock No	Description	Material	Maximum Load (kg)	Width (mm)	Length (mm)	Bench Height (mm)
RS PRO	1	125-2405	Classic Workbench	Steel	300	700	1500	650 – 950
	2	125-2406	Classic Workbench with shelf and overhead light	Steel	300	700	1500	650 – 950
	3	125-2407	Classic Workbench with shelf, overhead light, power panel and drawer	Steel	300	700	1500	650 – 950
	4	125-2408	UK 4-Socket power supply for workbench above	Aluminium	n/a	n/a	n/a	n/a
	4	125-2409	EU 4-Socket power supply for workbench above	Aluminium	n/a	n/a	n/a	n/a

CHAIRS

Brand	Image	Stock No	Description	Back Adjustable	Colour	Height Adjustable	Minimum Seat Height (cm)	Maximum Seat Height (cm)	Seat Material	Weight Capacity (kg)	Wheeled
RS PRO	5	125-2401	Lab Stool	✗	Black	✓	43	63	Polyurethane	4	✓
	6	125-2400	Fabric Lab Stool	✓	Grey	✓	43	63	Fabric	7.5	✓

TROLLEYS AND CARTS

Brand	Image	Stock No	Description	Brakes	Frame Material	Load Capacity (kg)	Overall Height (mm)	Platform Length (mm)	Platform Width (mm)	Wheel Diameter (mm)	Wheel Features	Wheel Material	Wheel Type
RS PRO	7	125-2402	2 Level Metal Trolley	✓	Metal	200	1030	760	460	75	Braked, Swivel	Rubber	Castor

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ESD Grounding Accessories, Brushes and Probes

INTRODUCTION

Within an EPA, all surfaces, objects, people and ESD sensitive devices are kept at the same electrical potential. This is achieved by linking all objects and people to ground using earth bonding accessories.

Contents

Grounding Accessories ..... Page 42
Brushes..... Page 45
Probes ..... Page 46

KEY CONSIDERATIONS

Earth bonding point plugs or bars should be installed at each workstation and should be connected directly to a verified electrical system ground or to a verified grounding bus which is connected to the protective earth ground. Only one groundable point should be installed on a working surface. Both surfaces and wrist straps can be grounded via an Earth bonding point plug or bar.

Straight cords are used to connect fixed elements in an EPA to ground.

Various studs, snaps and kits are available to create earth grounding points on bench and floor mats which connect ground cords. The connectors must be riveted through all layers of a mat.

GLOSSARY OF TERMS

ESD brush
A brush consisting of dissipative bristle material designed to absorb any generated static and remove it to earth via the conductive material of the handle.

ESD probe
For manipulating components, these are often made of nylon or wood. Both materials absorb moisture allowing them to be safely used in an ESD environment.



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GROUNDING ACCESSORIES

Brand	Image	Stock No	Description	Stud Size (mm)	Accessory Type	Plug Type / Termination
RS PRO	1	129-4947	ESD Adapter - 10 mm Stud to 4 mm Banana Socket	10	Adapter	n/a
	2	250-4144	ESD Crocodile Clip with Stud	10	Crocodile Clip	n/a
	3	298-3957	ESD Earth Bonding Box with Stud x 3	10	Earth Bonding Box	Ring Terminal
	4	392-135	ESD Earth Bonding Box with Stud, 4 mm Socket x 2	10	Earth Bonding Box	Ring Terminal
	5	298-3941	ESD Earth Bonding Box with Stud, 4 mm Socket x 2	10	Earth Bonding Box	Ring Terminal
	5	298-3935	ESD Earth Bonding Box with 4 mm Socket x 3	n/a	Earth Bonding Box	Ring Terminal
	6	287-7492	ESD Earth Bonding Bracket with Stud x 3	10	Earth Bonding Bracket	Ring Terminal
	7	298-3963	ESD Earth Bonding Bracket with Grounding Post x 1	n/a	Earth Bonding Bracket	Ring Terminal
	8	298-3913	ESD Earth Bonding Bracket with Stud, 4 mm Stud x 2	10	Earth Bonding Bracket	Ring Terminal
	8	287-7509	ESD Earth Bonding Bracket with 4 mm Banana Stud x 3	n/a	Earth Bonding Bracket	Ring Terminal

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GROUNDING ACCESSORIES

Brand	Image	Stock No	Description	Stud Size (mm)	Accessory Type	Plug Type / Termination
RS PRO	1	392-157	ESD Earth Bonding Plug with Stud	10	Earth Bonding Plug	UK
	2	298-3878	ESD Earth Bonding Plug with Stud x 3	10	Earth Bonding Plug	UK
	1	287-7537	ESD Earth Bonding Plug with Stud	10	Earth Bonding Plug	UK
	3	287-7559	ESD Earth Bonding Plug with Studs	10	Earth Bonding Plug	European
	4	298-3884	ESD Earth Bonding Plug with Grounding Post x 2	n/a	Earth Bonding Plug	UK
	3	287-7543	ESD Earth Bonding Plug with Studs	10	Earth Bonding Plug	European
	3	122-9159	ESD Earth Bonding Plug with Studs	n/a	Earth Bonding Plug	European Schuko
	5	298-3890	ESD Earth Bonding Plug with Stud, Banana Socket x 2	10	Earth Bonding Plug	UK
	6	186-5476	ESD Earth Bonding Plug with Stud x 3	10	Earthing Sheet	n/a
	6	190-1285	ESD Earth Bonding Plug with 1 × 6mm, 2 × 10mm connectors	n/a	n/a	n/a
	7	291-9467	ESD Earth Stud Installation Tool	n/a	Earth Stud Installation Tool	n/a
	8	539-205	ESD Earth Stud Kit with Studs & Post	10	Earth Stud Kit	n/a
	9	287-7571	ESD Earthing Plate with Stud x 5	10	Earthing Plate	n/a
	10	287-7486	ESD Earthing Wire Stud with Stud	10	ESD Turntable	n/a
	10	121-2709	ESD Dissipative Turntable - 318mm	n/a	Female Snap	n/a
	10	121-2710	ESD Dissipative Turntable - 394mm	n/a	Rack Bonding Point	n/a
	11	264-0414	ESD Female Snap with 10 mm Snap	n/a	Snaps & Studs	n/a

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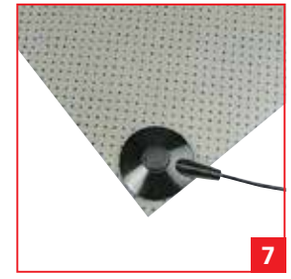












GROUNDING ACCESSORIES

Brand	Image	Stock No	Description	Stud Size (mm)	Accessory Type	Plug Type / Termination
RS PRO	1	392-141	ESD Rack Bonding Point with Stud	10	Universal Snap Kit	n/a
	2	291-9596	ESD Snap with Stud	10	Adapter	Euro Plug, UK
	3	287-7701	ESD Snap with 10 mm Socket	n/a	Earth Bonding Plug	European Schuko
	4	122-9148	ESD Snap with 10 mm Socket	n/a	Earth Bonding Plug	European Schuko
SCS	5	918-5605	ESD Power Adapter	n/a	ESD Bench Top Turntable	n/a
Vermason	6	823-3655	ESD Bench Top Turntable	n/a	n/a	n/a
ESD SYSTEMS.com	7	449-4459	ESD Earthing Sheet with 10 mm Snap	n/a	n/a	n/a

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BRUSHES

Brand	Image	Stock No	Description	Bristle Material	Bristle Length (mm)	Bristle Width (mm)	Handle Material	Handle Shape	Handle Length (mm)	Dissipative	Conductive	Anti-Static
RS PRO	1	287-8170	Antistatic Circular Brush	Conductive Nylon and Pig Hair	12	6	Conductive Plastic	Round	140	✗	✓	✗
	2	125-0302	Conductive PP Brush	Nylon	20	50	Polypropylene	Flat	144	✓	✓	✗
	3	287-8186	Antistatic Toothbrush	Dissipative Plastic	20	18	Conductive Plastic	Flat	225	✓	✓	✗
	4	287-8209	Antistatic Nail Brush	Dissipative Plastic	20	40	Conductive Plastic	Curved	70	✓	✓	✗
MENDA	5	719-9854	Dissipative Brush Flat S	Nylon	19	0.4	Conductive Carbon Loaded Polypropylene	Flat	150	✓	✓	✗
	8	719-9857	Dissipative Brush Flat M	Nylon	22	0.4	Conductive Carbon Loaded Polypropylene	Flat	168	✓	✓	✗
	6	719-9851	Dissipative Brush Flat L	Nylon	19	0.4	Conductive Carbon Loaded Polypropylene	Flat	178	✓	✓	✗
	7	719-9845	Dissipative Brush Round	Horses Hair, Synthetic	6	0.4	Conductive Carbon Loaded Polypropylene	Round	155	✓	✓	✗
	9	719-9860	Dissipative Brush Curved	Nylon	22	0.4	Conductive Carbon Loaded Polypropylene	Curved	100	✓	✓	✗
BERNSTEIN	10	834-8139	ESD Brush	Natural	15	6	Conductive Handle	Round	150	✓	✓	✓
	11	834-8133	ESD Brush	Natural	18	20	Conductive Handle	Flat	150	✓	✓	✓

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PROBES

Brand	Image	Stock No	Description	Probe Type	Material	Length (mm)	Dissipative	Conductive	Anti-Static
CHARLES WATER	1	877-2558	Stainless Steel Probe Kit	Needle Point	Stainless Steel	108	✗	✓	✗
MENDA	2	719-9832	ESD nylon probe	Point Blade	Nylon	152	✗	✗	✓
	3	719-9848	ESD nylon probe	Point Screw Driver	Nylon	177	✗	✗	✓
	4	719-9839	ESD nylon probe	Fork Blade	Nylon	171	✗	✗	✓
	5	719-9835	ESD nylon probe	Spudger	Nylon	139	✗	✗	✓
	6	719-9841	ESD nylon probe	Point Blade	Wood	177	✗	✗	✓

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ESD Treatments, Lotions & Dispensers

INTRODUCTION

Regular insulative items (e.g. a plastic cup) hold charges and cannot be grounded; therefore, the charge cannot dissipate in a controlled way. This could lead to static damage of nearby sensitive components as there can be a rapid, spontaneous transfer of electrostatic charge.

To protect ESD sensitive items, insulative items should be replaced with dissipative or conductive materials, conductors need to be grounded.

Contents

Treatments & Lotions.....Page 48
Dispensers .....Page 49



KEY CONSIDERATIONS

Operators working with soldering irons or performing cleaning tasks at their ESD workstation will be using water or some sort of cleaning agent. ESD dissipative dispensers have ESD properties embedded in the bottle and are safe to use inside an EPA.

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TREATMENTS & LOTIONS

Brand	Image	Stock No	Description	Dispenser Type	Capacity (ML)	Dissipative	Conductive	Anti-Static
RS PRO	1	265-5848	Anti-static foam cleaner	Spray	200	✗	✗	✓
	2	514-486	Anti-static hand pump spray	Spray	240	✗	✗	✓
ELECTROLUBE THE SOLUTIONS PEOPLE	3	192-1469	Antistatic foam cleanser	Spray	400	✗	✗	✓
	4	313-4421	Antistatic foaming cleaner	Spray	300	✗	✗	✓
	5	155-8184	Anti-static spray	Spray	250	✗	✗	✓
	6	432-5836	Antistatic glass & screen cleaner	Spray	250	✗	✗	✓
	7	432-5870	Antistatic pure cotton wipes	Wipe	n/a	✗	✗	✓
	3	448-184	Antistatic Foam Cleanser	Spray	400	✗	✗	✓
CRC	8	131-6168	Antistatik 100	Spray	200	✓	✗	✓
Jelt	9	703-9305	Visugel cleaner	Spray	50	✗	✗	✓
Ambersil	10	780-5269	Ambersil anti-static spray	Spray	400	✓	✗	✓
Chemtronics	11	329-2735	Plastnglas antistatic foam spray	Spray	400	✗	✗	✓
AF	12	434-8801	Antistatic foaming cleaner	Spray	300	✗	✗	✓

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DISPENSERS

Brand	Image	Stock No	Description	Bottle Material	Dissipative	Conductive	Anti-Static
RS PRO	1	798-9329	Anti-splash pump dispenser	HDPE	✓	✗	✗
	2	798-9323	Anti-splash pump dispenser	HDPE	✓	✗	✗
	3	798-9332	Anti-splash pump dispenser	Bottle	✓	✗	✗
CHARLESWATER	4	877-2545	Take Along Locking Bottle	Bottle	✗	✗	✗
MENDA	5	136-7193	Blue Flux dispenser Needle Tip	Bottle	✓	✗	✗
	6	761-7157	Dissipative flux dispenser, 60ml, 20 GA	Bottle	✓	✗	✗
	7	761-7169	Blue dissipative bottle, 180ml one-touch	Bottle	✓	✗	✗
	7	761-7163	Blue dissipative bottle,180ml pure-touch	Bottle	✓	✗	✗
	8	719-9949	Black conductive bottle, 170ml one-touch	Spray	✗	✓	✗
	9	761-7175	Blue dissipative bottle,180ml take-along	Bottle	✓	✗	✗

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ESD Labels & Posters

INTRODUCTION

The ESD Standard requires all electrostatic discharge sensitive devices and assemblies to be labelled with the 'susceptibility' symbol. It also stipulates that ESD protective packaging be labelled with the 'protection' symbol.

Part of a successful ESD Control Programme is the definition of the EPA which can be achieved by using signs, posters and floor marking tape.

Contents

Labels & Posters.....Page 51



KEY CONSIDERATIONS

The best known ESD cautionary symbol consists of a yellow hand in the act of reaching, deleted by a bar; all within a black triangle.



ESD
Susceptibility symbol

The 'susceptibility' symbol is intended to identify devices and assemblies that are susceptible to ESD. ESD labels using the 'susceptibility logo are used as follows:

- on individual components and related documents to state: 'this device is static sensitive; do not touch without appropriate precautions'
- on assemblies and related documents to state: 'includes static sensitive components; take appropriate precautions'
- as part of a sign identifying an area where sensitive devices are handled; to warn all who approach it that precautions are required

ESD labels using the 'protection' symbol should appear on ESD protective products such as shielding bags and boxes as well as on portable items such as field service mats, trolleys and garments.



ESD
Protective symbol

The letter underneath indicates the primary function of the item:

- C – conductive
- D – dissipative
- L – low charging
- S – shielding

Every EPA needs to be identified as such. Signs and posters are designed to attract attention and deliver a clear message to personnel and visitors.

GLOSSARY OF TERMS

Humidity card
Humidity indicator cards are printed with moisture sensitive spots which respond to various levels of humidity with a visible colour change from blue to pink. The humidity inside dry an ESD bag can be monitored using a humidity card.

Paper label, Vinyl label
Labels that conform to BS EN61340-5-1: Protection of electronic devices from electrostatic phenomena.

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LABELS & POSTERS

Brand	Image	Stock No	Description	Text Message	Quantity	Material	Width (mm)	Height (mm)	Self Adhesive
RS PRO	1	211-1231	ESD logo label	n/a - logo only	1	Paper	12	12	✓
	1	211-1247	ESD logo label	n/a - logo only	1	Paper	5	5	✓
	1	125-2362	Logo Label	n/a - logo only	1000	Paper	25	25	✓
	1	125-2363	Logo Label	n/a - logo only	1000	Paper	50	50	✓
	2	364-3638	Self adhesive label	Observe Precautions For Handling Electrostatic Discharge Sensitive Devices	1	Vinyl	50	100	✓
	2	364-3650	Self-adhesive poster	Attention ESD Protected Area Observe Precautions For Handling Electrostatic Discharge Sensitive Device	1	Vinyl	600	300	✓
	2	211-1196	Rigid poster	Attention ESD Protected Area Observe Precautions For Handling Electrostatic Discharge Sensitive Devices	1	Rigid Plastic	150	300	✗
	3	251-4012	Self-adhesive poster	Attention You Are Now Leaving This Esd Protected Area	1	Vinyl	600	300	✓
	2	211-1180	Self adhesive poster	Attention ESD Protected Area Observe Precautions For Handling Electrostatic Discharge Sensitive Device	1	Vinyl	150	300	✓
	1	364-3565	Paper label	Attention ESD Protected Area Observe Precautions For Handling Electrostatic Discharge Sensitive Devices	1000	Paper	10	25	✓
	4	211-1253	PWarning poster	ESD Warning	5	Paper	420	610	✗
	5	211-1203	Rigid poster	Attention ESD Protected Area Observe Precautions For Handling Electrostatic Discharge Sensitive Devices	1	Rigid Plastic	300	600	✗

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LABELS & POSTERS

Brand	Image	Stock No	Description	Text Message	Quantity	Material	Width (mm)	Height (mm)	Self Adhesive
RS PRO	1	364-3571	Paper label	Attention	1000	Paper	16	38	✓
	1	364-3593	Self adhesive label	Attention ESD Protected Area Observe Precautions For Handling Electrostatic Discharge Sensitive Device	100	Vinyl	25	45	✓
	2	364-3622	Label	Earth	100	Vinyl	150	300	✓
	1	364-3587	Paper label	Attention ESD Protected Area Observe Precautions For Handling Electrostatic Discharge Sensitive Device	1000	Paper	25	45	✓
	1	211-1225	Paper label	Attention ESD Protected Area Observe Precautions For Handling Electrostatic Discharge Sensitive Device	1000	Paper	37	76	✓
	1	550-549	Paper label	Attention Observe Precautions For Handling Electrostatic Sensitive Device	1000	Vinyl	13	45	✓
	3	364-3616	Label	Earth Grounding Point	1000	Vinyl	36	36	✓
SCS	4	838-1054	Military Label	Attention-Observe Precautions For Handling Electrostatic Sensitive Devices	500	Gloss Paper (Face), Kraft (Liner)	50	50	✓
	5	838-1105	Humidity Card	Humidity Indicator	100	Blotting Paper Impregnated With Cobaltous Chloride	50	76	✗
	5	838-1102	Humidity Card	Humidity Indicator	125	Blotting Paper Impregnated With Cobaltous Chloride	50	76	✗
	5	838-1111	Humidity Card	Humidity Indicator	200	Blotting Paper Impregnated With Cobaltous Chloride	39	120	✗

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