**Static Protection**

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**Workstation Kits**

### ESD Monitored Workstation Kit

**Kit Contents:**
- 1x ESD Matting (600x900mm) with 10mm stud in each corner
- 1x ESD Caution Sign (150 x 300mm self adhesive)
- 1x Earth Facility Bracket with M5 Binding Post
- 1x UK Earth Bonding Point 2x10mm Studs and built in tester
- 1x Power Supply Unit for EBP

**Matting Features:**
- Reflection breaking surface to reduce glare and improve operator comfort
- Protection against small collisions
- Prevention of sliding of delicate components thanks to excellent friction coefficient
- Heating resistance: does not melt or burn coming into contact with hot metal parts or soldering debris
- Oil resistance: this product resists most oils
- Suitable for loose laying: does not require application with adhesive
- Good resistance to scratches and excellent flexibility and comfort

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>List No.</th>
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<th>Price Each</th>
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<tbody>
<tr>
<td></td>
<td>069-0009</td>
<td>178-2466</td>
<td></td>
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</table>

### ESD Field Service Kit

A portable workstation kit designed for field service use. This compact and lightweight kit comes with its own carrying pouch and all the necessary grounding accessories to enable an engineer to work safely on site with static sensitive components.

- 1 x Fabric Band 10mm stud
- 1 x coiled earth lead 10-banana
- 1 x Straight earth lead 10-banana + croc clip
- 1 x mat 545 x 590mm

<table>
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### ESD Workstation Kit

**Matting Features:**
- Reflection breaking surface to reduce glare and improve operator comfort
- Protection against small collisions
- Prevention of sliding of delicate components thanks to excellent friction coefficient
- Heating resistance: does not melt or burn coming into contact with hot metal parts or soldering debris

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**Prototyping and Accessories**

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Static Protection & Cleanroom Products

Prototyping and Accessories

Mini Static Safe Installation Kit

A low cost static control field service kit designed for optimum safety. It provides a simple, cost-effective solution for engineers installing printed circuit boards. Designed to be shipped with individual items such as PCBs, sound cards, CPUs and memory chips.

- Comprises static dissipative mat 495 x 295mm fitted with wrist strap, safety resistor and 2 x 1.2m grounding leads
- Ready assembled and easy to use

<table>
<thead>
<tr>
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<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECP 1555</td>
<td>824-7072</td>
<td></td>
<td></td>
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</tbody>
</table>

Conductive Work Station Kit

- Prevents static damaging sensitive electronic components
- Kit contains:
  - Conductive floor and bench mats (1219 x 610mm)
  - Adjustable elasticated wrist strap
  - Coiled ground cord, 2.2MΩ terminated (2m)
  - 2 x straight ground cords, 1.1MΩ terminated (1.2m)
  - Earth reference plate
- Conforms to EN100 015-1

<table>
<thead>
<tr>
<th>Mat</th>
<th>List No.</th>
<th>Order Code</th>
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<tbody>
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<td>178-422</td>
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</tbody>
</table>

ESD Cut Matting

- Suitable for both bench and floor coverings
- 2mm thick static dissipative matting with high aesthetic qualities
- Excellent heat / chemical resistance and dissipative surface resistivity
- Static decay rate complying with accepted standards
- Durable and flexible with excellent lay flat properties.

<table>
<thead>
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<td>082-0034F</td>
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<tr>
<td>Green</td>
<td>082-0035F</td>
<td>150-3201</td>
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</tr>
</tbody>
</table>

ESD Mat

ESD rubber matting suitable for both bench and floor coverings. The 2mm thick static dissipative matting has high aesthetic qualities combined with excellent heat / chemical resistance.

<table>
<thead>
<tr>
<th>Mat</th>
<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
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</thead>
<tbody>
<tr>
<td>ECP</td>
<td>824-7072</td>
<td></td>
<td></td>
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</tbody>
</table>

ESD Floor Mat Cut & Complete Rolls

ESD rubber matting suitable for both bench and floor coverings. The 2mm thick static dissipative matting has high aesthetic qualities combined with excellent heat / chemical resistance. 600x600mm

<table>
<thead>
<tr>
<th>Mat</th>
<th>List No.</th>
<th>Order Code</th>
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<tbody>
<tr>
<td>082</td>
<td>0053</td>
<td>168-7906</td>
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</table>

Bench Mat Rolls

Vermahide: The surface resistivity is about 105 ohm per square, volume resistivity 104 ohm cm and resistance to ground 5 x 104 ohm at 50% relative humidity and 20°C. Conductive EVA

- Ideal shelf liner; flexible, tough, and fairly hard
- Low cost
- Made of a modified polyethylene; offers excellent chemical resistance
- Should not be used at solder stations
- Mats supplied with four 10mm studs

Additional Bench Mats and Workstation Kits

Rivet & Stud Assembly

A two or three part stud assembly that can be used for all grounding requirements. Ideal for use on ESD matting.
Rivet and Stud Assemblies and Tool

Pack of 10mm two-part rivet studs suitable for mounting on anti-static matting up to 5mm thickness such as the VERMAHIDE and NORASTAT matting detailed above.

- Designed to fit 10mm stud or 10mm socket to bench mats up to 3mm thick
- Simple but handy and safe

Note: Connections of elements of an ESD protected area should be made to only one common point on the conductive bottom layer to provide a reliable link between studs, i.e. on 3 layer (buried conductive layer) matting.

Floor Earthing Kit and Test Point

This kit provides a convenient way to attach earth bonding to anti-static flooring and matting. The kit includes a test point, and is supplied with mounting screws, cable and clips.

Crimp-on Studs for Mats

Choice of 4mm or 10mm studs

Universal Snap Kit

Recommended for homogeneous and multi-layer mats

- Snap is user installable
- Allows installation of snap exactly where needed
- Kit includes 10mm stud, 10mm socket, long screw, and short screw

- Allows for user preference and can be used for a range of mat thicknesses
- Includes ground label

Wrist Straps

Features:
- Snap fastener
- Strong yet flexible for long service life
- Stretch and retract memory
- Banana plug as standard; alligator clip included for alternate connection to ground
- Standard coiled wire length: 10 ft / 16 ft

Adjustable, Stainless Steel Wrist Bands

- Durable, long lasting design
- Clean-room compatible
- Fully adjustable
- No loose links
- 4mm or 10mm studs

Silver (black cord) JA67S
- Yoke: JA67Y
- Drain lead: JA67K

SPEIDEL

ESD Wrist Strap Set

- All plastic wrist band offering zero particle contamination.
- For use within most classified cleanrooms.
- Lightweight in structure
- Supplied with a 6ft grounding cord
- Available with a choice of terminations

- Choice of colours
- Replacements available separately
- Choice of 4mm or 10mm stud connectors

Adjustable Wrist Band

- Adjustable and elasticated
- Anti-allergenic - conductive plated treads
- Choice of 4mm or 10mm stud connectors

Wrist Band Sets

- Adjustable wrist-band and 2m ground cord set
- Anti-allergenic band
- In-built 1MΩ resistor
- 10mm stud to banana plug ground cord
- Crocodile clip included
- Replacements available separately
- Choice of colours

Stud Size Order Code Price Each
10mm 150-3186
4mm 150-3187

Wrist Band Set 4mm - Banana Coiled Lead

- This disposable version of the standard wrist strap and grounding cord can be used for the following applications: * Visitors * Supplied with equipment that requires installation.

- Choice of colours
- Replacements available separately
- Choice of 4mm or 10mm stud connectors

Stud Size Order Code Price Each
10mm 150-3186
4mm 150-3187
Wriststraps - continued

## Jewel™ Adjustable Wrist Band Sets

Attractive, highly visible matching wristband and ground cord sets, featuring:
- 1.8m, high reliability ground cords
- In-built 1MΩ resistance
- Adjustable, extra wide, soft elastic band - silver impregnated for improved conductivity
- Unique patented adjustment design eliminates exposed conductive "tail" of band
- Medical grade 300 series stainless steel used for all metal parts
- Non-shedding, non-sloughing band material
- Designed to satisfy wrist strap requirements of IEC 61340-5

### Adjustable Wrist Band

- Adjustable and elasticated
- Non-allergenic - no stainless steel fibres
- No exposed conductive surfaces
- Choice of 4mm or 10mm stud connectors
- Flame retardant to UL 94 V-0
- BT approved

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<tr>
<td>4mm</td>
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<td>1+ 15+ 25+ 50+</td>
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<tr>
<td>10mm</td>
<td>ECP1401/1/1M4</td>
<td>824-706E</td>
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</table>

### Disposable Wrist Strap

- Disposable version of the standard wrist strap and grounding cord
- Ideal for provision to visitors or with equipment that requires installation

<table>
<thead>
<tr>
<th>Mfrs. List No.</th>
<th>Order Code</th>
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<tbody>
<tr>
<td>066-0052</td>
<td>150-3189</td>
<td>1+ 25+ 100+ 250+</td>
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</tbody>
</table>

## Wrist Band and Coiled Ground Cord Sets

- Adjustable wristband and 3m coiled ground cord
- High visibility design
- Anti-allergenic
- Integral safety resistor: 1.1, 2.2 or 4.4MΩ available (4.4MΩ suitable for high voltage areas)
- Choice of terminations

<table>
<thead>
<tr>
<th>Integral</th>
<th>Mfrs. List No.</th>
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<th>Price Each</th>
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<tbody>
<tr>
<td>4mm stud to 10mm stud</td>
<td>ECP1401/1/11M1</td>
<td>829-483E</td>
<td>1+ 10+ 25+ 50+</td>
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<tr>
<td>2.2MΩ</td>
<td>ECP1401/1/11M2</td>
<td>829-484E</td>
<td></td>
</tr>
<tr>
<td>4.4MΩ</td>
<td>ECP1401/1/11M3</td>
<td>829-485E</td>
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## Disposable Heel Grounder Pk 50

Disposable heel grounders come with easy peel strips to attach to the sole of your footwear to provide full ESD protection to the user. Ideal for Visitors.

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<thead>
<tr>
<th>Mfrs. List No.</th>
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<th>Price Each</th>
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<tr>
<td>066-0005F</td>
<td>150-783250</td>
<td>1+ 10+ 25+</td>
</tr>
</tbody>
</table>

## Heel / Toe Grounders

- Use with high heeled shoes
- Conforms to IEC 61340-5-1
- Uses same high-quality materials as heel grounders
- Adjustable, elastic straps for comfortable fit
- Two styles a) small or b) large toe cup
- With or without 1MΩ encapsulated resistor
- Sold in pairs

**NB.** Should be used with conductive flooring/matting

### Non Conductive Foot Grounders

- Case for low static charge in environments with high static build-up
- Highly visible design
- Anti-allergenic
- Adjustable, elastic straps for comfortable fit
- Two styles a) small or b) large toe cup
- With or without 1MΩ encapsulated resistor

**NB.** Should be used with conductive flooring/matting

### Conductive Foot Grounders

- For use in high static charge environments
- Contains conductive heel for constant ESD safety
- Adjustable, elastic straps for comfortable fit
- Two styles a) small or b) large toe cup

**NB.** Should be used with conductive flooring/matting
Disposable Heel Grounders and Dispenser

- Yellow polyester braid with conductive band
- Comfortable to wear
- Fitting instructions included
- Supplied on perforated strips in packs of 50

Heel Grounder

- Resistant to >10^7 ohms
- Highly visible dispenser
- Free standing, or wall mounted
- Treated with anti-static coating
- Printed with user instructions and ESD logo

Heel Grounder with Clip

- Hardwearing heel grounders designed to ensure long-term ESD protection to all personnel
- Each Heel Grounder has a built in 1M resistor

Toe Grounder - D Ring

- Common Point Ground Wire: 10mm male snap, 10mm female snap, and banana receptacle joined by 2.5mm wire to a 10mm female snap
- Grounding Connecting Cord: 10mm female snap, with 1 megohm resistor, joined in series to the conductor with another 10mm female snap on the other end
- Antistatic Stud Fix Adapter: Brass insert assembled to 10mm Female snap, with 1 megohm resistor, joined in series to the conductor with another 10mm female snap on the other end
- Fully Insulated Crocodile Clip: Moulded plastic shroud with 10mm male snap

Heel Grounders

- Foot grounders, with either 2-layer or 3-layer construction. Conform with IEC 61340-5-1.
- The 2-layer grounder features:
  - Patented, reversible rubber cup
  - Snap-lock fastener
  - Sewn-in 1M2 resistor
- The 3-layer grounder is ideal for clean-room environments, and features:
  - Non-marking, dissipative rubber cup
  - Velcro® fastening
  - High visibility design

NB. Should be used with conductive flooring/mattting

Quick Release Heel Strap, Two Ply

- Durable two-ply dissipative/conductive PVC nitrile rubber cup
- Non-marking interior
- Non-snagging fasteners
- Easy adjustment
- Integral 1M2 resistor
- Fray resistant earth strap
- Compliant with BS EN 100015-5-1:1998 when used in conjunction with a conductive or static dissipative floor

Disposable Heel Grounder & Dispenser

- Disposable heel grounders with easy peel strips
- Attach to the sole of footwear to provide full ESD protection to the user
- Ideal for Visitors

Ground Cords and Mat Links

- Common Point Ground Wire: 10mm male snap, 10mm female snap, and banana receptacle joined by 2.5mm wire to a 10mm female snap
- Grounding Connecting Cord: 10mm female snap, with 1 megohm resistor, joined in series to the conductor with another 10mm female snap on the other end
- Antistatic Stud Fix Adapter: Brass insert assembled to 10mm Female snap, with 1 megohm resistor, joined in series to the conductor with another 10mm female snap on the other end
- Fully Insulated Crocodile Clip: Moulded plastic shroud with 10mm male snap

Prototyping and Accessories

- 1089
- Static Protection & Cleanroom Products

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Earth Bonding Cords, Points & Plugs - continued

Coiled Grounding Lead
- These coiled grounding leads are polyurethane coated and include a 1 MΩ resistor.
- They provide high quality strain relief and will stretch to approximately 6ft in length.
- Meets EOS/ESD S.1 Standard.

Straight Earth Lead
- Special conductive wire.
- Each straight cord contains 10 special conductive wires.
- Outer covered with Non-conductive PU.
- Length: 10ft (both product codes).
- Diameter of cord: 2.4 mm.
- Resistivity: 1M Ω +/- 10%.
- Low profile cone prevents cord becoming detached.
- Suitable for use with all types of ESD Matting.

Earth Bonding Cords
- 7 end tinsel conductors with terylene packing.
- 0.6m relaxed, 3m extended.
- High visibility yellow.
- Moulded stress relief.
- Choice of integral safety resistor and terminations.
- Crocodile clip available separately.

Coiled Ground Cords
- 10mm stud to 10mm stud.
- 10mm stud to 4mm plug.
- 4mm stud to 4mm plug.

Earth Bonding Point Cord for Mats and Wrist Straps, 4m
- Ideal for use with static dissipative mats.
- 1M Ω embedded resistor.
- 10mm socket attachment to bench mat.
- 2 x 4mm sockets for wrist strap connection.
- 4mm plug termination.
- Crocodile clip and 10mm press stud adapter supplied.
- Conforms to IEC 61340-5-1.

Earth Bonding Point Single 10mm
- Used for connecting wrist straps and earth leads to mains earth. Manufactured to meet Industry standards including EN100 015/1.

Earth Bonding Point Adaptors
- (A) Insulated banana plug-to-crocodile clip.
- (B) Insulated, stackable 10mm male/female stud-to-banana socket.
- (C) Un-insulated, stackable 10mm male/female stud-to-banana socket.

Earth Facility Bracket
- Grounding point.
- MS ring binding post, or 10mm stud earthing point.
- 2m earth lead, MS ring terminated.
- Spare MS ring terminal supplied.
- Conforms to IEC 61340-5-1.
Slim Profile, Earth Bonding Point Bars

- Pre-mounted screws with retaining washers
- Fitted with 1MΩ, 1 Watt resistors
- Made of ABS with ultrasonically welded back cover
- Printed to show in-built resistor diagram

This slim Earth Bonding Point bar is designed to provide an ESD wrist strap bonding point at the workbench. It is slimmer than any EBP, and this feature allows fitting underneath bench tops with narrow edges.

Earth Bonding Point Bars

- Common grounding point
- Tough ABS construction
- Screw fixed to underside of bench tops
- 3mm earth cord, M5 ring terminated
- 2 termination options
- Conforms to IEC 61340-5

Terminations

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<td>433-147</td>
<td>1+ 10+ 50+</td>
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Earth Bonding Point Plugs

- Safe and convenient to use
- Utilises mains earth as ‘ground’
- 1MΩ resistor in all stud connectors, except 936-868
- Insulated live and neutral pins
- Choice of terminations
- Conforms to IEC 61340-5-1

Terminations

<table>
<thead>
<tr>
<th>Mfrs. List No.</th>
<th>Order Code</th>
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<tbody>
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<td>J6301101mm</td>
<td>936-868</td>
<td>1+ 10+ 50+</td>
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</table>

75mm Width Floor Marking Tape, 33m Roll

- For boundary marking ESD protected areas
- Highly visible
- Adheres to carpets or solid floors
- Hard wearing
- Supplied on 33m rolls, 75mm width

Terminations

<table>
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<td>C3000</td>
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ESD Caution Labels

- Used for labelling all static sensitive devices on both intimate & proximity packaging.
- Legend reads: ATTENTION Observe precautions for handling, Electrostatic sensitive devices.

Label Size

<table>
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<th>Mfrs. List No.</th>
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<tr>
<td>1x38</td>
<td>055-0003</td>
<td>1+ 10+ 50+</td>
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Antistatic Tape 12mm

A non charging polypropylene self adhesive tape, suitable for general use within an ESD Area.

Width

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<th>Mfrs. List No.</th>
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ESD Grid Tape

- Designed to be used in an ESD sensitive environment.
- Ensures reliable protection for any sensitive device that might be damaged by normal insulating tapes.

Width

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<td>1+ 10+ 25+</td>
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</table>
Labels & Tapes - continued

ESD High Temperature Masking Tape
- Provides excellent electrostatic dissipation when used as a PCB wave solder mask.
- Provides clean and safe removal after processing.
- Supplied in 33m rolls.
- Available in 6 different widths.

Antistatic Cellulose Tape with Symbols
- 2.4 mil (0.06 mm) total thickness.
- Cellulose film resistance 10E10 - 10E11 ohms per IEC 61340-2-3.
- Rubber based adhesive absorbs moisture.
- Adhesive surface resistance 10E10 - 10E11 ohms.
- Temperature Range -10°C - 71°C (meets MIL-B-81705 of 100°C for 10 min max).
- Symbols printed in between film and adhesive; will not rub off.

Antistatic Cellulose Tape & Yellow Stripe
- 2.4 mil (0.06 mm) total thickness.
- Cellulose film resistance 10E10 - 10E11 ohms per IEC 61340-2-3.
- Rubber based adhesive absorbs moisture.
- Adhesive surface resistance 10E10 - 10E11 ohms.
- Temperature Range -10°C - 71°C.
- Symbols printed in between film and adhesive; will not rub off.

ESD High Temp Masking Tape
- Used in applications masking PCB gold features for wave soldering.
- Temperature Range: -36°C to 135°C (-32°F to +275°F).
- Waterproof.
- 7 mil 0.007” (0.18 mm) total thickness.
- Adhesive surface 1.2 x 10E11 ohms.
- Film resistance < x 10E11 ohms tested per ANSI/ESD S11.11 at 50% RH.
- Non-corrosive.
- Tensile: 3.93 kg/cm.
- Adhesion to Steel: 155.04 g/cm².
- Elongation: 8%.
- Adhesive Mass: Natural Rubber.
- Adhesive: Non-Staining.

ESD Cellulose Tape
- 2.4 mil (0.06 mm) total thickness.
- Cellulose film resistance 10E10 - 10E11 ohms.
- Rubber based adhesive absorbs moisture.
- Adhesive surface resistance 10E10 - 10E11 ohms.
- Temperature Range -10°C - 71°C (14°F - 160°F).

ESD Tape Dispenser
- Use with Wescorp and other brand antistatic tapes.
- Groundable housing and hardware.
- Stainless steel construction.
- Two separate spools turn independently.
- Heavy weighted design.
- Grounding jack.

Packing Tape - 66m Roll
- Self adhesive.
- Highly visible, 50mm width.
- Printed in Yellow with Black writing.
- Reading: observe precautions for handling, Electrostatic Sensitive device.
- PVC tape for secondary packaging.

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<table>
<thead>
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<tr>
<td>9mm</td>
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<tr>
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<tr>
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<tr>
<td>24mm x 65.8m</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25+</td>
</tr>
</tbody>
</table>

---

Rubber based adhesive absorbs moisture.
Cellulose film resistance 10E10 - 10E11 ohms.
2.4 mil (0.06 mm) total thickness.
Adhesive surface resistance 10E10 - 10E11 ohms.
Caution Signs

- Printed black text on yellow background
- Various sizes available
- Industry standard design

Read: ATTENTION Observe precautions for handling, Electrostatic sensitive devices.

Caution Labels (Reel of 1000)

- 1000 labels per roll
- Suitable for labelling all static sensitive devices on both intimate & proximity packaging.

Packing Tape 66m Roll

- Self adhesive
- Highly visible, 50mm width
- PVC tape for secondary packaging

Wrist Strap Tester

The Vermason 225220 Wrist Strap Tester is a battery-operated demand wrist strap tester. When the wearer of a wrist strap plugs in their coiled cord and touches the metallic surface of the Wrist Strap Tester, a path for current flow is completed from the wearer’s skin, through the wrist strap. This action will cause the green test good LED to light as long as the resistance of the circuit path is between 800k ohms and 10 megohms.

Wristband and Footwear Test Station

- Complete test station, for wristband and footwear testing
- The test station is designed to measure both high and low fall pass conditions
- A battery condition indicator is included to advise of battery replacement
- Testing is achieved by placing the jack plug into the socket and wearing the wristband
- A footplate is provided for the testing of all ESD safe footwear

Continuous Monitor

- Multi-Mount Continuous Monitor continuously monitors the integrity of one operator and one working surface
- This monitor will provide virtually instantaneous notification of static control equipment failures, eliminating the need of periodic testing and costly record keeping
- Highly cost effective as it is designed to monitor any conventional single wire wrist strap and ground cord system
- Small package and mounting tabs with holes make it highly suitable to install on most equipment or work bench surface
- Optional mounting is available using the provided adhesive-backed Velcro® strips. Using either mounting method makes the Multi-Mount Monitor suitable for most any machinery or workbench even in hard to reach locations.

Wrist Strap List No.

- Order Code
- Price Each

<table>
<thead>
<tr>
<th>Style</th>
<th>Mftrs. List No.</th>
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<td></td>
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<tr>
<td>C</td>
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<td>179-7910</td>
<td></td>
</tr>
</tbody>
</table>

EPA Warning, Self-adhesive

- Order Code
- Price Each

<table>
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<tr>
<th>Size</th>
<th>EPA Warning, Self-adhesive</th>
<th>Order Code</th>
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<tr>
<td>150 x 300mm</td>
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</table>

Testing is achieved by placing the jack plug into the socket and wearing the wristband

Mftrs. List No. J2418 = 254-400
J2412 = 179-864
J2421 = 179-864
J2423 = 492-1306

Continuous Monitor

- Multi-Mount Continuous Monitor continuously monitors the integrity of one operator and one working surface
- This monitor will provide virtually instantaneous notification of static control equipment failures, eliminating the need of periodic testing and costly record keeping
- Highly cost effective as it is designed to monitor any conventional single wire wrist strap and ground cord system
- Small package and mounting tabs with holes make it highly suitable to install on most any equipment or work bench surface
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Mftrs. List No.

- Order Code
- Price Each

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<thead>
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<tr>
<td>222605</td>
<td></td>
<td>197-1946</td>
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INTELLIGENT ONLINE BUYING SYSTEM PROVIDING
Complete cost control, reduced administration time, visibility of your spend, flexibility and personalisation to your company’s needs.

farnell.com/ibuy
Wriststrap & Footwear Test Stations

**Dimensions:**
- **Tester:** L = 146mm, W = 91mm, D = 33mm
- **Wall Plate:** L = 300mm, W = 600mm, D = 3mm

- **Tester:** L = 146mm, W = 91mm, D = 33mm
- **Wall Plate:** L = 300mm, W = 600mm, D = 3mm
- **Foot Plate:** L = 400mm, W = 250mm

- Comprises a digital test unit controlled by a programmable IC
- Tests the efficiency of a wrist strap system while being worn, by measuring the resistance in the circuit including the body of the operator
- The instrument will indicate whether the resistance is in the ranges specified in EN 61340-5-1 using Annex A test method A.1.

**Tester Calibration Unit**

The Vermason High Speed High Accuracy Tester Calibration Unit is designed to simplify the process of calibrating Vermason personnel testers. This unit allows the user to quickly and easily verify whether a tester is operating within specifications. The Tester Calibration Unit is a passive device and requires no power source.

- **Resistance Ranges:**
  - **Pass High:** 33 Mohm
  - **Fail Low:** 715 kohm
  - **Fail High:** 37 Mohm
  - **Low Mid:** 9.5 Mohm
  - **High Mid:** 10.5 Mohm

- **Battery Life:** approximately 3,000 tests (3 seconds per test)
- **Dimensions:** L = 96mm, W = 61mm, D = 40mm

**Smartlogger, ESD Data Logger EU**

The EMIT SmartLog X3™ is designed for fast, frequent, and accurate testing of ESD personnel grounding items. By touching the electrode button once the SmartLog X3™ tests the resistance path limits of the worn wrist strap and both worn ESD footwear independently within one second. Test results are electronically stored in the SmartLog X3™ and can easily be downloaded to a PC for logging records and evaluation. This product can be used as one of the tools to fulfill the ANSI/ESD S20.20 section 7.3 Compliance Verification Plan.

- **Dimensions:** 128 x 63 x 25mm
- **Weight:** 182 grams
- **Test Voltage:** Nominal 9 volt
- **Powered by:** 9V PP3 alkaline battery
- **Temperature:** 4°C to 55°C
- **Resolution:** 1 decade
- **Accuracy:** ±1 decade

**Analogue Surface Resistance Test Kit**

The Vermason Analogue Surface Resistance Test Kit is a portable battery-powered instrument designed to measure resistance point-to-point (Rp-s) and surface to ground (Rg). The meter is equipped with an automatic test voltage selector. The test voltage will switch from 10V to 100V should the measured resistance exceed 10E5 ohms.

- **D = 33mm**

**Ionisation Equipment**

**Ioniser - Bench Top**

Provides superior static charge decay rates over a targeted area. Small, quiet, lightweight and easy to position.

**Surface Resistance Meter**

- Designed to measure both surface resistance and resistance to ground
- The meter will test conductive, static dissipative and insulative surfaces
- Decade changeover ±1 decade on a logarithmic scale
- Resolution 1 decade
- Accuracy ±1 decade
- Temperature 4°C to 55°C
- Powered by 9V PP3 alkaline battery
- Test Voltage Nominal 9 volt
- Weight 182 grams
- Dimensions 128 x 63 x 25mm

**Humidity Indicator Cards**

Humidity Indicator Cards (HIC’s) are printed with moisture sensitive spots which respond to various levels of humidity with a visible color change from blue to pink. The humidity inside dry packed barrier bags can be monitored by including an HIC inside. When the bag is opened, the card can be examined for proper dryness inside the bag. This indicates that the barrier bag and desiccant functioned correctly.

- **Materials:** Rollover paper impregnated with baltous chloride
- **Card Size:** 2” x 3” inches
- **Typ 51015HIC125 indicates 5, 10, 15%**
- **Typ 51060HIC126 indicates 5, 10, 60%**
- **Packed in 125 cards in an air tight can.**
- **Complies with IEC/IEC6156-603**

**Overhead Ionisers**

The Chargebuster® overhead ionizers are steady state DC ionizers designed for use in ESD sensitive work areas: calibration, test, final assembly, or repair procedures. The specially designed 3-speed fan modules create better coverage, consistent offset voltage (±10 Volts), and superior discharge times (<3 seconds) tested per ANSI/ESD STM 2.1.
Hand-Held Ioniser

Neutralises positive and negative charges
Convenient, pistol grip action
400mm range
Reliable, piezo-electric operation
Requires no power supply, batteries or re-charges
50,000 trigger operations min.
Unique ‘ion indicator’ test device included
Ideal for field-service, prototyping and production use

Bench-top Ioniser

A compact and lightweight dual steady state DC auto-balancing ioniser, for use on a benchtop or mounted on a wall.

- Three speed fan
- Auto-balancing ion output
- Ozone output less than 0.05 ppm
- ‘Auto-balancing ion output’ adjusts to maintain ion concentration
- ‘Clean-Me’ indicator - flashes when cleaning is needed
- Visual/audible alarm - indicates when maintenance is needed
- Integrated tilt adjustable stand

Hand-to-hand ionisers

- Automatically optimizes the performance and will automatically shut down and alarm if or when supply voltage drops to the ionizer. The ionizers can be used with 110V or 220V power.

Clothing

ESD Standard Lab Coat - White

- Manufactured from static dissipative material for use in ESD protected areas (65% polyester, 33% cotton and 2% conductive filament)
- They are lightweight and comfortable, being printed with the ESD symbol on the left sleeve
- Press stud fastenings down the front of the lab coat and 2 adjustable press stud closures on the sleeves
- Machine washable up to 60°C

The first online technical portal for design engineers

Log on, research, refine and design

Gloves

ESD Dotted Palm Grip Gloves

- Assembly glove offering good ESD properties and superior grip
- 100% Polyester with conductive thread
- PVC embossed palm

ESD PU Palm Coated Glove Med

An excellent low cost assembly glove offering good ESD properties as well as superior grip.

dyCLEAN™ PVC Clean Room Gloves

Made of high quality vinyl, cleaned and packed in a cleanroom environment. These gloves are applicable in cleanrooms for microelectronics process, without the risk of contamination.

- No Powder / particles contaminates the surface of the vinyl gloves. Hence little particulate debris in the cleanroom.
- Low ionic contamination
- These vinyl gloves actually prevent static build-up - inherently anti-static.
- Ambidextrous design makes the issuing of gloves to the production floor easier.

dyCLEAN™ Latex Gloves

Made of pure latex of highest quality compounded in-house from formulation and process consistency. These gloves offer superior resistance to dilute acids and alkalis, abrasive force and tearing. With a provision of elasticity, these gloves provide optimal tactile sensitivity, long-term comfort and dexterity. Plus, these class 100 gloves show significantly low extraction level. Applicable to class 100 or better cleanrooms where critical applications are not carried out. Ideal for the disk-drive and related industries (HGA, HAS etc).

ESD Gloves, Latex

- For use in clean rooms and other ESD sensitive environments
- Gloves are DI wash processed and finished
- Packed in double-poly bags of 100 to ensure product quality.
Gloves - continued

ESD Gloves, Vinyl
- Extra low particle count properties
- DI wash processed and finished
- Packed in double-poly bags of 100 to ensure product quality.
- Supplied in 12" lengths.

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<td>150-1207</td>
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<tr>
<td>509-0021</td>
<td>150-1208</td>
<td>1+ 10+ 25+</td>
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</table>

ESD Gloves, Striped
- 100% polyester with a conductive carbon line every 10mm
- Dust-free
- Improved grip
- Washable

<table>
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<td>150-3230</td>
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<td>109-0916</td>
<td>150-3231</td>
<td>1+ 10+ 25+</td>
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</table>

ESD Gloves, Polyurethane Finger Tip
- These gloves have a polyurethane coated finger tip to provide anti-slip grip. (Avoids finger prints).
- Can be laundered for re-use.
- Supplied in white
- Super-conductive threads for static safety

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<td>130-8421</td>
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ESD Gloves

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<tr>
<th>Handling gloves:</th>
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<tbody>
<tr>
<td>Knit nylon with conductive yarn</td>
</tr>
<tr>
<td>K &gt; 10^8 &lt; 10^14</td>
</tr>
<tr>
<td>Washable in warm soapy water.</td>
</tr>
<tr>
<td>Do not use bleach.</td>
</tr>
<tr>
<td>Coated palm improves grip</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Assembly gloves:</th>
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<tbody>
<tr>
<td>Knit polyester with 7% conductive yarn</td>
</tr>
<tr>
<td>5mm between each conductive yarn</td>
</tr>
<tr>
<td>Carefully made tips to maintain tactile feel</td>
</tr>
<tr>
<td>PU coated palm improves grip</td>
</tr>
<tr>
<td>Suitable for use in clean rooms</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Features and Benefits:</th>
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<tbody>
<tr>
<td>Lightweight one size fits all ESD Booties with elastic opening</td>
</tr>
<tr>
<td>Comfortable for users; stock only one item</td>
</tr>
<tr>
<td>Solid 150 pairs per box. Provides outstanding value</td>
</tr>
<tr>
<td>Low sloughing fabric Classroom compatible for most applications</td>
</tr>
<tr>
<td>Designed not to scratch or mark flooring. No offsetting maintenance costs</td>
</tr>
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</table>

Disposable Conductive Booties

| Disposable ESD Booties designed to be worn by personnel grounded via a Person/footwear / flooring system per EN61340-5-1 Table 2. For standing operations, personnel shall be grounded via a wrist strap system or by a flooring/footwear system. (EN 61340-5-1 clause 5.3.2). Vermason 211045 Disposable ESD Bootie is to be worn with grounding tab placed in the person’s shoe under their foot with grounding tab portion at bottom of the Bootie in contact with ESD flooring. Booties are to be worn on both feet, and while worn should be tested per IEC 61340-5-1 Clause A.2 using a footwear tester (with lower limit of 50 kilohms and 35 megohms upper limit). |

510106

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<table>
<thead>
<tr>
<th>Price Per Pair</th>
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</thead>
<tbody>
<tr>
<td>1+ 5+ 10+ 25+</td>
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Cleaning Products

Anti-Static Cleaning Wipes

- Heavy duty cellulose tissues
- Saturated in anti-static alcohol based cleaning solution
- Convenient, re-closable pop-up dispenser
- Cleans surfaces and eliminates static
- Ideal for computer screens, mats, work surfaces, keyboards, offices and manufacturing environments
- Removes dust grease, grime, fingerprints and solder flux

Topical Antistat Spray, 1L

Reztore™ Topical Antistat Spray is a topical antistatic solution for use on dissipative and non-ESD surfaces. After Reztore™ Topical Antistat has been applied and the surface dried, an antistatic and protective static dissipative coating is left behind. The static dissipative coating will allow charges to drain off when grounded. The antistatic properties will reducetriboelectric voltage to under 300 volts. Reztore™ Topical Antistat does not leave behind any harmful irritants or residues.

Surface & Mat Cleaner, 1L

Reztore™ Surface & Mat Cleaner is a non-ionic liquid cleaner used to remove dust, grease, grime, fingerprints, and solder flux from all surfaces used in a static sensitive environment. Surfaces include but are not limited to: rubber, vinyl and polyethylene table and floor mats, field service kits, laminated table tops, tote boxes, epoxy, painted surfaces, plexiglass, glass, metal, 3-ring binders, computer screens, computer keyboards, shelving, push carts, conveyor belts, etc.

ESD Polycellulose Wipes

- Superabsorbent, non-woven, cleanroom wipe, with extremely low particulate generation and ultra-purity.
- Soft but tough, will not scratch surfaces when used wither wet or dry.
- Low in soluble extractables and metallic ions while able to absorb four times its own weight.
- Ideal as a general purpose cleanroom wipe.
- Ultralow particle generation and chemical extractables.
- Excellent tensile, tear and bursting strengths.
- Manufactured using advanced hydro-entanglement technology.
- Cleanroom packed and double bagged in quantities of 300.

Clean Room Wipes

Bemcot Series
This non-woven fabric was developed in 1974. It is produced by a wet spinning process. This entire manufacturing process is a continuous one, from the beginning when the fabric is spun, until the end when the fabric is wound ready for transport. The total process is called “Wet Spunbound Process” and named this non-woven fabric “Bemliese”. There is no similar process anywhere else in the world, and “Bemliese” has a unique composition, structure and properties. Bemcot is the world’s first binder free, long fibre cellulosic non woven fabric. It causes little fluff and virtually eliminates fibre fall off. Bemcot is essential where true cleanliness is required.

Bemcot PS-2 (DYC-101-01-09, 149-3987)
Class 5000 applications and where absorbency and scratches are critical. Applicable for spill control, machine wipe down, general lab maintenance, cleaning PCB, silk screen cleaning, PCB solder paste cleaning, etc.

Bemcot M1 (DYC-101-01-03, 152-1272)
General Purpose Clean Room Wipe

Bemcot M3 (DYC-101-01-05, 152-1274)
Smaller version of M3 (above).

Doo-Jee, Ultracean Wipers (DYC100-10-Ultracean-99, 1493989)
- Used in a class 10 cleanroom or manufacturing process of
- Semiconductor industrial fields
- Suits for optics and aerospace applications
- Suits for using in sterilized room of pharmaceutical
- Department
- Suits for cleaning ultra clean operational equipment

Doo-Jee, ESD Wiper (DYC-100-WW-50095, 152-1274)
For use in static protected areas.
Cleaning Products - continued

ESD Safe Spray Bottle

Conductive brush used for cleaning PCB's and other parts within an ESD area.

Soft brushes - Flat Profile

- 100mm width K3050 268-081
- 150mm width K3061 354-7875

Hard brushes - Round Profile

- 6mm width K3001 354-7863

EPA Waste Bins

- Made of black conductive polypropylene
- Washable
- Made of black conductive polypropylene
- E9 to 1010; T<sec
- Intrinsically clean, suitable for use in clean rooms

ESD Waste Bin

- General conductive plastic waste bins for use in assembly area or office
- Waste bin size 12 litres
- 290mm diameter x 275mm high

Conductive Brushes

- Round and flat profile brushes
- Black brushes
- Suitable for cleaning delicate items
- Hard brushes for scrubbing PCB assemblies

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Order Code</th>
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<tr>
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<td>168-78810</td>
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</table>
Vacuum Cleaners

ESD Safe Vacuum Cleaner
- Made entirely of conductive impact resistant polypropylene
- High suction power: 1500 mbar, can blow too
- Kit includes 1.3m hose, two nozzles and a carrying strap
- 1200cm² dust bag retains particles ≥3 microns
- Size: 315 x 130 x 185mm, weight: 2.1kg
- 240 Vac

Norton ESD Safe Vacuum Cleaner

Omega Vacuum Cleaners
- The Omega Vac is made from a high-impact Diamond ABS Polymer for more durability and longer life
- Conductive construction provides maximum static protection to safeguard the operator and sensitive electronic components
- All included accessories are also statically conductive for maximum static protection
- It also features field replaceable latches and an economical by-pass motor ideal for the recycle industry
- Accessories included:
  - Self storage compartment
  - Toner proof hose
  - Flexible goose neck hose
  - Crevice tool and crevice tool brush

Express Vacuum Cleaners
- Great for detail cleaning of hard to reach places
- Portable: One of the lightest vacuums around
- Convenient: Easy to operate. Replacement cartridge filters install with a snap and without mess
- Powerful: Built-in new motor makes the Express as powerful as most of the larger service vacuums
- Safe: Comes with ESD safe hose and utensils. Grounded from the tip of the hose through to the end of the power cord

Production/Handling Equipment

ESD Tacky Mats
- Moisture, dirt, debris, oil, dust etc. from shoes stick to disposable entrance mats.
- Each mat consists of a stack of 30 numbered peel-off sheets.
- Old layer is peeled off when soiled to reveal new clean layer.
- Mats made from low density polyethylene.
- Water-based, acrylic-rubber compound adhesive
- Available in blue or white and supplied in packs of 4

ESD Chair
- Specifically designed for use in the electronics and electrical industrials.
- Pass European standard: En 61340-5-1:2001 (ESD protective item requirements).
- Adjustable gas lift seat height (430 - 570mm)
- Cushioned hardwearing upholstered seat and back rest.
- Fixed height steel foot ring

Cable Strap
- 19mm x 510mm
- 19mm x 510mm

INTELLIGENT ONLINE BUYING SYSTEM PROVIDING
Complete cost control, reduced administration time, visibility of your spend, flexibility and personalised to your company’s needs.
farnell.com/ibuy

 Prototyping and Accessories 6 Static Protection & Cleanroom Products
ESD Ultra Slim Magnifying Lamp

- Suitable for use in EPA, Electrostatic Protected Areas (IEC 61340-5-1 and ANSI/ESD 20.20)
- Powerful 28w Daylight™ energy saving tube (150w equiv.)
- 17.5cm/7” precision optical white glass lens to see more of your work (1.75X, 3 diopter)
- New head-joint to smoothly direct the light exactly where you need it
- Flicker-free electronic ballast, work for longer in optimal comfort
- High quality metal arm for optimal flexibility and durability
- Solid lamp stem and sturdy metal clamp for your workstation
- 13cm/5” precision optical white glass lens available separately (2.25X, 5 diopter)
- 4cm/1.5” precision optical white glass swing arm lens included (4.0X, 12 diopter)
- Solid lamp stem and sturdy metal clamp for your workstation
- 17.5cm/7” precision optical white glass lens to see more of your work (1.75X, 3 diopter)

ESD Tool Box

Black ESD toolbox provided with a full length inner tray.
- 330 x 135 x 108mm

ESD Clear Binder, A4, Blue spine

ESD Clear binder, A4 in size. Binder has blue spine and transparent front and back.

ESD Document Wallets, Pk 100 A3 & A4

Multi punched clear permanently antistatic document wallets, are supplied in packs of 100. For use within static controlled environments. A3 & A4 in size.

Dissipative Ring Binders

- Designed to replace high charging insulative regular binders for use within ESD protected areas. Unprotected documents could hold electrostatic charges that may cause damage to electrostatic sensitive devices
- Conventional dual fold spine construction with a D-ring mechanism.
- Rp-p 1x10E5 <=Rs <1x10E11 ohms meets EN 61340-5-1 Table 4 tested per IEC 61340-5-1

Static Dissipative Document Wallets

- Will not generate static charge
- Durable, anti-static LDPE construction
- Non-stick – ideal for photocopying
- A4 size
- Printed with ESD logo
- Universal fit, 11 hole spine (wallets only)
- Rp<10^12, T<25
- Conforms with IEC 61340-5-1

ESD Safe Water Bottles

- Static dissipative, general purpose water bottles
- Non-greasy
- Humidity independent

Static Protection & Cleanroom Products

Prototyping and Accessories

ESD Clear Binder, A4 in size. Binder has blue spine and transparent front and back.
**Wash Bottle**
- LDPE bottle and swan-neck spout made with E9 and durAstatic™ technology
- Permanently static dissipative for use in an EPA
- $R_{df} < 5 \times 10^{12}$Ω, $1000 \times < 6$ sec
- No volatile additives to rub off or be dissolved by contents
- Simply squeeze bottle to dispense contents
- Many uses, e.g. at soldering stations to dispense water for wetting sponges

**ESD Safe Solvent Dispensers**
- Average surface resistivity of 10-9 to 10-10 ohms per square
- Do not react with any solvents such as TCE or alcohol
- Three sizes available

**Fingertip Pump Dispensers**
- Antistatic, low tribocharging conductive or dissipative bottles
- One handed operation
- Non-corrosive, stainless steel pump
- Precision valve - prevents contamination and spills
- Non-corrosive, stainless steel pump
- One-handed operation
- Precision valve - prevents contamination and spills
- Prevents spillage when not in use
- Cleaning fluids from returning into the dispenser

**Clean Room Swabs**
- Micro-stick, round
- Micro-stick, 45° round
- Cotton Swab

**Cotton Swabs**
- Made from very pure and high quality cotton fibres
- Wide variety of head sizes ranging from regular to very sharp slim head designed for most disk drive applications
- Extremely low in N.V.R, particulate emission and ionic contamination
- Micro-Sticks
- The head is made from micro-porous polyurethane foam, and attached to a strong polystyrene stem mechanically without adhesive
- Extremely soft with ultra-low particle generation

**ESD Flux Dispensers**
- Average surface resistivity of 10-9 to 10-10 ohms per square
- Do not react with any solvents such as TCE or alcohol
- All bottles are 2 oz size

**ESD Flux Dispensers**

<table>
<thead>
<tr>
<th>Flux Dispensers</th>
<th>Mfrs. No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 Gauge</td>
<td>146-0001</td>
<td>150-3213</td>
<td>1+</td>
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<tr>
<td>20 Gauge</td>
<td>146-0010</td>
<td>150-3214</td>
<td>10+</td>
</tr>
<tr>
<td>With Pen Tip</td>
<td>146-0017</td>
<td>150-3215</td>
<td>25+</td>
</tr>
<tr>
<td>With Brush Tip</td>
<td>146-0016</td>
<td>150-3216</td>
<td></td>
</tr>
</tbody>
</table>

**Packaging Materials**

**Biodegradable ESD Bags**

- Static dissipative
- Biodegradable/Compostability
- No Harmful Residues
- Ageing of Components
- Disposable

Offering the same level of protection as standard static dissipative bags, our new and exclusive environmentally-friendly packaging uses patented technology to fully biodegrade without releasing any harmful chemicals into the environment!

**Dimensions (W x H)**
- Price Per Pack
- *Dimensions (W x H)*
- *Price Per Pack*

**Pink Antistatic Bags**
- Low density polyethylene
- Static Decay = 0.05 seconds
- Heat sealable
- Open top or re-sealable
- MIL Spec 81705-B

**Dimensions (W x H)**
- Price Per Pack
- *Dimensions (W x H)*
- *Price Per Pack*
### Pink Antistatic Bags - continued

**Re-Sealable**

<table>
<thead>
<tr>
<th>Dimensions (W x H)</th>
<th>Price Per Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>152 x 254</td>
<td>6 x 10 150-3176</td>
</tr>
<tr>
<td>203 x 254</td>
<td>8 x 10 150-3177</td>
</tr>
<tr>
<td>203 x 305</td>
<td>8 x 12 150-3178</td>
</tr>
<tr>
<td>254 x 305</td>
<td>10 x 12 150-3179</td>
</tr>
<tr>
<td>254 x 356</td>
<td>10 x 14 150-3180</td>
</tr>
</tbody>
</table>

### Bag, Antistatic Pink

Pink antistatic bags are a low cost product which can be used to package non-sensitive components within a static controlled environment. The bags are made from 300 gauge polyethylene and can be heat sealed or sealed with our range of ESD caution labels. Printed with ESD caution warning.

#### Transparent Reclosable Bag

- **Surface resistivity**: 10⁹ to 10¹³ ohms/square
- **Thickness**: 20 gauge (50µm)
- **Dimensions (typ.)**: 85 x 120mm
- **Charge decay**: 2s for 5kV charge
- **Surface resistivity**: < 10⁵ Ω/sq.
- **Will not discharge batteries**
- **Excellent heat sealability**
- **Fully recyclable**
- **Conforms with IEC 61349-5-1**

<table>
<thead>
<tr>
<th>Size</th>
<th>List No.</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>168-7822</td>
<td>8x10 mm</td>
<td>001-0014F 168-7824</td>
</tr>
<tr>
<td>168-7830</td>
<td>135 x 100</td>
<td>004-0012F 168-7832</td>
</tr>
</tbody>
</table>

### Bag, Antistatic Bubble

Pink antistatic bubble bags provide excellent physical protection and are very economical for use as secondary packaging. These bags are supplied with a self adhesive strip in packs of 10

#### Bag, Conductive Black (100-Pack)

Black conductive bags made from monolayer flat tubing. Economical opaque bags offering medium level static protection. This product can be heat sealed. Delivered in packs of 100.

<table>
<thead>
<tr>
<th>Size</th>
<th>Mftrs. List No.</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>127x76</td>
<td>006-0011F</td>
<td>168-7801</td>
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<td>100x102</td>
<td>006-0012F</td>
<td>168-7800</td>
</tr>
<tr>
<td>152x152</td>
<td>006-0013F</td>
<td>168-7804</td>
</tr>
<tr>
<td>254x254</td>
<td>006-0014F</td>
<td>168-7806</td>
</tr>
<tr>
<td>200x305</td>
<td>006-0021F</td>
<td>168-7826</td>
</tr>
<tr>
<td>254x355.6</td>
<td>006-0027</td>
<td>168-7814</td>
</tr>
</tbody>
</table>

#### Conductive Bags

- **70 micron ‘Vermasafe’ polyethylene**
- **High puncture resistance**
- **Excellent heat sealability**
- **Surface resistivity:< 10¹²/sq.**
- **Fully recyclable**
- **Conforms to IEC 61349-5-1**

<table>
<thead>
<tr>
<th>Order Multiple=100</th>
<th>Dimensions (W x H)</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>inches</td>
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<tr>
<td>75 x 100</td>
<td>3 x 4</td>
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<tr>
<td>100 x 100</td>
<td>4 x 4</td>
<td>522-739</td>
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<tr>
<td>100 x 150</td>
<td>4 x 6</td>
<td>522-740</td>
</tr>
<tr>
<td>100 x 305</td>
<td>4 x 12</td>
<td>522-752</td>
</tr>
<tr>
<td>150 x 200</td>
<td>6 x 6</td>
<td>522-764</td>
</tr>
<tr>
<td>100 x 250</td>
<td>6 x 10</td>
<td>522-776</td>
</tr>
<tr>
<td>200 x 250</td>
<td>8 x 10</td>
<td>522-788</td>
</tr>
<tr>
<td>200 x 305</td>
<td>8 x 12</td>
<td>522-808</td>
</tr>
<tr>
<td>250 x 355</td>
<td>10 x 14</td>
<td>522-818</td>
</tr>
<tr>
<td>305 x 405</td>
<td>12 x 16</td>
<td>522-820</td>
</tr>
<tr>
<td>405 x 455</td>
<td>16 x 18</td>
<td>522-831</td>
</tr>
<tr>
<td>455 x 510</td>
<td>18 x 20</td>
<td>522-843</td>
</tr>
</tbody>
</table>

#### Moisture Barrier Bag

This bag combines static shielding with physical protection. Transparent static shielding bag film is laminated to an antistatic polyethylene bubble wrap. Standard static shielding film NZD 707 forms a Faraday cage around your product while the inner layer of antistatic bubble wrap provides excellent physical protection. Both of these materials are qualified to Military Standard 881705C.

<table>
<thead>
<tr>
<th>100 Per Pack</th>
<th>Dimensions (W x H)</th>
<th>Price Per Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>inches</td>
<td>Order Code</td>
</tr>
<tr>
<td>102 x 152</td>
<td>4 x 6</td>
<td>150-3164</td>
</tr>
<tr>
<td>152 x 254</td>
<td>6 x 10</td>
<td>150-3165</td>
</tr>
<tr>
<td>200 x 254</td>
<td>8 x 10</td>
<td>150-3166</td>
</tr>
<tr>
<td>254 x 305</td>
<td>10 x 12</td>
<td>150-3167</td>
</tr>
<tr>
<td>350 x 457</td>
<td>14 x 18</td>
<td>150-3168</td>
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<tr>
<td>457 x 457</td>
<td>18 x 18</td>
<td>150-3171</td>
</tr>
<tr>
<td>599 x 610</td>
<td>22 x 24</td>
<td>150-3142</td>
</tr>
</tbody>
</table>

#### Self-Seal Bubble Bags

- **Self-sealing adhesive closure**
- **Transparent for easy product indentification**
- **Will not discharge batteries**
- **Surface resistivity:< 10¹²/sq.**
- **Charge decay:< 2s for 5kV charge**

<table>
<thead>
<tr>
<th>Mftrs. List No.</th>
<th>A5882595-886 = 595-988 A5885956-989 = 595-998 A5886166-000 = 596-000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x H)</td>
<td>Dimensions (W x H)</td>
</tr>
<tr>
<td>mm</td>
<td>inches</td>
</tr>
<tr>
<td>130 x 185</td>
<td>5 x 7½</td>
</tr>
<tr>
<td>180 x 235</td>
<td>7 x 9¼</td>
</tr>
<tr>
<td>230 x 285</td>
<td>9 x 11½</td>
</tr>
</tbody>
</table>

---

**ACROBASIS**

**Vermason**
Bag, Open Top

Shielding bags offer excellent ‘Faraday cage’ protection against damaging static charges. These bags are transparent to ensure that the content can be easily identified without removal. Available in open top or gripseal version from stock in a vast range of sizes.

### Metalised Shielding Bags

- Buried aluminium layer
- Static Decay = 0.03 seconds
- Heat sealable

<table>
<thead>
<tr>
<th>Dimensions (W x H)</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>5x7, 127x190mm</td>
<td>010-0006F</td>
<td>186-7830</td>
<td>50+</td>
</tr>
<tr>
<td>10x12, 254x305mm</td>
<td>010-0020F</td>
<td>186-7840</td>
<td>10+</td>
</tr>
<tr>
<td>10x12, 305x406mm</td>
<td>010-0021F</td>
<td>186-7850</td>
<td>10+</td>
</tr>
<tr>
<td>15x12, 305x457mm</td>
<td>010-0022F</td>
<td>186-7860</td>
<td>10+</td>
</tr>
<tr>
<td>15x12, 406x457mm</td>
<td>010-0023F</td>
<td>186-7870</td>
<td>10+</td>
</tr>
<tr>
<td>15x12, 457x508mm</td>
<td>010-0024F</td>
<td>186-7880</td>
<td>10+</td>
</tr>
</tbody>
</table>

**Testable Transparent Shielding Bags**

With Optional Resealable Closure

- Re-useable
- Metallic outer layer provides ‘Faraday cage’ protection
- Conductive, anti-abrasive coating
- Recommended for regular testing
- Strong polyester middle layer
- Static dissipative polyethylene inner layer
- Meets EN1100 015-1, EIA-541 and MIL-M-38510
- Surface resistivity $10^{11}$ to $10^{12}$Ω/sq.

**Inner surface resistivity <10^{12}$Ω/sq.**

<table>
<thead>
<tr>
<th>Dimensions (W x H)</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>76 x 127</td>
<td>3 x 5</td>
<td>150-3124</td>
<td>50+</td>
</tr>
<tr>
<td>102 x 152</td>
<td>4 x 6</td>
<td>150-3125</td>
<td>50+</td>
</tr>
<tr>
<td>127 x 203</td>
<td>5 x 8</td>
<td>150-3126</td>
<td>50+</td>
</tr>
<tr>
<td>127 x 260.4</td>
<td>5 x 26</td>
<td>150-3127</td>
<td>50+</td>
</tr>
<tr>
<td>152 x 254</td>
<td>6 x 8</td>
<td>150-3128</td>
<td>50+</td>
</tr>
<tr>
<td>152 x 254</td>
<td>6 x 10</td>
<td>150-3129</td>
<td>50+</td>
</tr>
<tr>
<td>203 x 254</td>
<td>8 x 10</td>
<td>150-3130</td>
<td>50+</td>
</tr>
<tr>
<td>254 x 305</td>
<td>10 x 12</td>
<td>150-3131</td>
<td>50+</td>
</tr>
<tr>
<td>305 x 406</td>
<td>12 x 16</td>
<td>150-3132</td>
<td>50+</td>
</tr>
<tr>
<td>406 x 457</td>
<td>16 x 18</td>
<td>150-3133</td>
<td>50+</td>
</tr>
<tr>
<td>457 x 610</td>
<td>18 x 24</td>
<td>150-3135</td>
<td>50+</td>
</tr>
</tbody>
</table>

**Metalised Bubble Shielding Bags**

- Combines ‘Faraday Cage’ and mechanical protection
- Inner layer is amine-free anti-static film
- Middle layer is anti-static bubble, H = 5mm
- Outer layer is buried-metal shielding film
- Not labelled or printed
- Re-usable
- Flap can be folded back to enclose contents

**ESD Moisture Barrier Bags**

- Thickness 3.6 mm
- Static Decay = 0.05 seconds
- Impulse heat seal or vacuum seal
- Light Transmission 0.1%
- Layer 1: Static dissipative layer
- Layer 2: Aluminised polyester film
- Layer 3: 2.6mm polyolefin ultra seal
- Layer 4: Static dissipative layer

**Moisture Barrier Bags**

- Outer layer: static dissipative barrier
- Middle layer: metallised polyester
- Inner layer: static dissipative polyethylene
- Rs: $<10^{12}$Ω
- MVTR: 0.008g/sqm/24hrs
- Static decay: <0.1sec (5000-50Volts)

Static dissipative, high barrier bags suitable for vacuum packaging and/or nitrogen flushing. Meets the requirements of MIL-B-81750C Type 1 and EIA 583 Class 1.

**ESD and Moisture Barrier Bags**

- Price Each

**Bag, Open Top**

- Shielding bags offer excellent ‘Faraday cage’ protection against damaging static charges. These bags are transparent to ensure that the content can be easily identified without removal. Available in open top or gripseal version from stock in a vast range of sizes.

### Metalised Shielding Bags

- Buried aluminium layer
- Static Decay = 0.03 seconds
- Heat sealable

<table>
<thead>
<tr>
<th>Dimensions (W x H)</th>
<th>Mfrs. List No.</th>
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<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>5x7, 127x190mm</td>
<td>010-0006F</td>
<td>186-7830</td>
<td>50+</td>
</tr>
<tr>
<td>10x12, 254x305mm</td>
<td>010-0020F</td>
<td>186-7840</td>
<td>10+</td>
</tr>
<tr>
<td>10x12, 305x406mm</td>
<td>010-0021F</td>
<td>186-7850</td>
<td>10+</td>
</tr>
<tr>
<td>15x12, 305x457mm</td>
<td>010-0022F</td>
<td>186-7860</td>
<td>10+</td>
</tr>
<tr>
<td>15x12, 406x457mm</td>
<td>010-0023F</td>
<td>186-7870</td>
<td>10+</td>
</tr>
</tbody>
</table>

**Testable Transparent Shielding Bags**

With Optional Resealable Closure

- Re-useable
- Metallic outer layer provides ‘Faraday cage’ protection
- Conductive, anti-abrasive coating
- Recommended for regular testing
- Strong polyester middle layer
- Static dissipative polyethylene inner layer
- Meets EN1100 015-1, EIA-541 and MIL-M-38510
- Surface resistivity $10^{11}$ to $10^{12}$Ω/sq.

**Inner surface resistivity <10^{12}$Ω/sq.**

<table>
<thead>
<tr>
<th>Dimensions (W x H)</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>76 x 127</td>
<td>3 x 5</td>
<td>150-3124</td>
<td>50+</td>
</tr>
<tr>
<td>102 x 152</td>
<td>4 x 6</td>
<td>150-3125</td>
<td>50+</td>
</tr>
<tr>
<td>127 x 203</td>
<td>5 x 8</td>
<td>150-3126</td>
<td>50+</td>
</tr>
<tr>
<td>127 x 260.4</td>
<td>5 x 26</td>
<td>150-3127</td>
<td>50+</td>
</tr>
<tr>
<td>152 x 254</td>
<td>6 x 8</td>
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</tr>
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<td>203 x 254</td>
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<td>305 x 406</td>
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<tr>
<td>406 x 457</td>
<td>16 x 18</td>
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<td>50+</td>
</tr>
<tr>
<td>457 x 610</td>
<td>18 x 24</td>
<td>150-3135</td>
<td>50+</td>
</tr>
</tbody>
</table>

**Metalised Bubble Shielding Bags**

- Combines ‘Faraday Cage’ and mechanical protection
- Inner layer is amine-free anti-static film
- Middle layer is anti-static bubble, H = 5mm
- Outer layer is buried-metal shielding film
- Not labelled or printed
- Re-usable
- Flap can be folded back to enclose contents

**ESD Moisture Barrier Bags**

- Thickness 3.6 mm
- Static Decay = 0.05 seconds
- Impulse heat seal or vacuum seal
- Light Transmission 0.1%
- Layer 1: Static dissipative layer
- Layer 2: Aluminised polyester film
- Layer 3: 2.6mm polyolefin ultra seal
- Layer 4: Static dissipative layer

**Moisture Barrier Bags**

- Outer layer: static dissipative barrier
- Middle layer: metallised polyester
- Inner layer: static dissipative polyethylene
- Rs: $<10^{12}$Ω
- MVTR: 0.008g/sqm/24hrs
- Static decay: <0.1sec (5000-50Volts)

Static dissipative, high barrier bags suitable for vacuum packaging and/or nitrogen flushing. Meets the requirements of MIL-B-81750C Type 1 and EIA 583 Class 1.

**ESD and Moisture Barrier Bags**

- Price Each
Packaging Materials - continued

Heat Sealer

Heat Sealer which is safe and easy to use. Lightweight and has an adjustable timer to suit various materials, includes spares kit. Seals up to 200mm, 300mm, 400mm width.

Desiccant Sachets and Humidity Indicator Cards

Desiccant Sachets
- Absorbent is activated clay - inert and environmentally sound
- Packed in tough, woven, non-leaching HDPE sachets
- Meets MIL-D-3464, DIN 55473A and B, Afnor 00321
- Available in ½ unit and 1 unit sizes in packs of 100

For use in conjunction with moisture barrier bags whenever moisture control is a critical factor in the packaging of electrostatic sensitive devices.

Humidity Indicator Cards
- Meets EIA 583
- 6-spot, 10-60% relative humidity
- Packed in tough, woven, non-leaching HDPE sachets
- Meets MIL-D-3464, DIN 55473A and B, Afnor 00321
- Available in ½ unit and 1 unit sizes in packs of 100

Desiccant Clay
- Meets MIL-D-3464, DIN 55473A and B, Afnor 00321
- Available in ½ unit and 1 unit sizes in packs of 100

Conductive Printed Circuit Board Cartons

Cardboard sleeve and slider cartons lined with 6mm thick low density conductive foam conforming to EN100 015-1. A carton provides excellent protection for transporting PCB's. Ranges include sizes for single, double and extended double Eurocards.

Conductive PCB Racks

- Moulded of a static dissipative thermostatic compound based on polypropylene copolymer with carbon black, and reinforced with mica flake
- Designed to protect CMOS loaded boards in storage
- Open carrying handles

Chip Boxes

Pre-Assembled

Static shielding and physical protection for shipping ICs, SIMM's, DIMM's and other sensitive semiconductors. Made in "E" flute material, Constat coated both sides, printed with ESD logo, and supplied fully assembled with high density conductive foam.

Conductive Box

A rigid ESD safe box made from Polypropylene. Each box is manufactured with a strong hinge and a secure fastening to ensure the protection of the component inside.

Transit Boxes

Pre-Assembled

- Larger versions of "Component Boxes" (above)
- Conductive coated "B" flute cardboard
- Suitable for larger components, pcbs and assemblies
- Printed with static warning sign
- Conforms to EN100 015-1

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Component Boxes

Pre-Assembled

- Strong yet lightweight
- Surface resistivity <10^9 Ω/sq
- Conductive coated, ‘E’ flute cardboard
- Pink anti-static foam lined
- Ideal for small components
- Conforms to EN100 015-1

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High Density Conductive Foam

Carbon impregnated high density polyurethane foam ideal for pin insertion. It provides both ESD and mechanical protection by retaining devices securely by their pins.

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Conductive Foam Matting

- Low density, 6mm thickness
  - Ideal for cushioning purposes
- High density, 6mm thickness
  - Excellent IC leads retention properties
- 175-847 size fits conductive storage boxes

Volume resistance <10^9 Ω/sq
Surface resistivity <5x10^4 Ω/sq

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End Plugs

End Plug, 3.8
End Plug, 0.3 DIP Tube
End Plug, 0.3 SOIC Tube
End Plug TO-220 Tube

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