

Article Overview

An electrostatic membrane distribution box is a specialized packaging solution designed to protect sensitive three-dimensional electronic devices from electrostatic discharge (ESD) during storage and transport.

Purpose and Function

Electrostatic membrane boxes are primarily used to prevent damage to delicate electronic components such as semiconductors, memory units, CPUs, optical components, crystals, and wafers. ESD can occur when electrical charges equalize between two bodies, potentially causing short-term high voltage spikes that damage sensitive devices. These boxes provide a controlled environment that dissipates static charges safely, reducing the risk of component failure during handling, shipping, or storage .

Construction and Materials

The typical electrostatic membrane box consists of:

- o Static-dissipative outer box: Often made from polystyrene or other conductive plastics, which allows controlled discharge of electrostatic fields .
- o Elastic membrane layers: Thin, flexible polyurethane membranes are mounted on the top and bottom of the box. These membranes conform to the shape of the device, holding it securely without causing mechanical stress .
- o Transparency and durability: Some boxes use transparent polyether polyurethane membranes combined with clear polystyrene boxes (e.g., POLYREX(R) PG-33) to allow visual inspection while maintaining strength and protection . The membrane's elasticity ensures that even irregularly shaped or non-flat devices are held securely, which is particularly important for items like lenses, prisms, or test sockets that cannot easily adhere to flat-contact packaging .

Benefits

- o ESD protection: Prevents electrostatic discharge that could damage sensitive electronics .
- o Secure fit: Membranes conform to the device, minimizing movement and mechanical stress during transport .
- o Customizable: Suitable for a wide range of device shapes and sizes, including fragile or irregular components .
- o Contamination protection: Helps shield devices from dust and other environmental contaminants .

Applications



Electrostatic membrane distribution box

Electrostatic membrane boxes are widely used in the electronics and semiconductor industries, particularly for:

- o Transporting and storing ICs, wafers, and memory modules.
- o Handling optical components like lenses and prisms.
- o Shipping high-value crystals and substrates that are sensitive to both mechanical stress and ESD .

Manufacturers and Options

Several companies provide ESD membrane boxes with variations in size, membrane material, and static-dissipative properties:

- o Cryspack: Offers transparent polyurethane membranes with POLYREX(R) PG-33 boxes for irregularly shaped devices .
- o Gel-Pak: Provides black static-dissipative boxes with elastic membranes for secure storage and transport of three-dimensional devices .
- o MSE Supplies: Offers polystyrene boxes with micro-thin polyurethane membranes, suitable for delicate materials like semiconductors and optical components . These boxes can be customized for bulk orders, different sizes, or specific static-dissipative requirements, ensuring compatibility with various sensitive devices. In summary, an electrostatic membrane distribution box is an essential tool for safely storing and transporting sensitive electronic and optical components, combining static-dissipative materials with elastic membranes to provide both ESD protection and secure device handling.

Configure fuse and distribution box surface-mounted individually In addition to the high quality, the modern designs and the

Electrical distribution boxes for modular power distribution and installation. Flexible distribution solutions for

Static Dissipative (ESD Safe) Plastic Membrane Box for Delicate Materials Storage (125x100x30.6 mm)
These most popular

Membrane Boxes The SPI Membrane Boxes are constructed with thin, highly stretchable and flexible plastic membranes, both in the

Static Dissipative Membrane Box offer superior protection against electrostatic discharge. Perfect for electronics, optics, and medical

From decentralized energy, signal and data distribution to distribution boxes for smart buildings, we offer



Electrostatic membrane distribution box

Cryspak Membrane Box offers high-efficiency protection for electronic components and precision equipment. Durable, secure, and

Gel-Pak's ESD Membrane Box is an ideal solution for storing and transporting three

Protection rating IK code 16 products (16 Variants) 30 60 90 Item no. 2008840 Distribution box, 3 division units, with terminal strip,

ESD packaging should be integral to your operations if your business manufactures or assembles electronic devices

Modern automation solutions are becoming increasingly decentralised. As a result, you need distribution

Foam peanuts clinging to a cat's fur due to static electricity. The cat's fur becomes charged due to the triboelectric effect. The electric

Sealing of control cabinets and electrical distribution boxes made of plastic The groove contours of

Selhot Electric offers factory-direct IP65/IP67 waterproof distribution boxes. UV-resistant PC/ABS material, CE/TUV

I derive formulas for the electrostatic potential of a charge in or near a membrane modeled as one or more dielectric slabs lying

Modular enclosure system for individual power distribution solutions and a broad product range for signal

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