

TECHTALK DESIGN ADVICE SERIES

THE BASICS BEHIND ESD APPLICATIONS USING CABLE CARRIERS

The Basics Behind ESD Applications

Special ESD (electrostatic discharge) cable carriers are used in numerous industrial sectors. When designing a cable carrier system into an ESD application, there are two important reasons why these specialized carriers should be used: (1) to prevent ESD from seriously damaging sensitive electronic components during the manufacturing process; and (2) to curb safety concerns in applications that involve using, processing or storing hazardous (flammable) materials.



In order to protect sensitive electronic components against ESD, the cable carrier must maintain long-term conductivity. Also, most electrical apparatuses, which are used to operate a plant's pumps, lights, instrumentation, and other equipment, can often be a potential source of ignition. To prevent explosions, cables carriers that are constantly dissipating any electrical charges in a controlled manner are ideal for housing and protecting these cables.

Cable Carrier Materials and Design

Materials

The material of the cable carrier is critical to ensure it is suitable for ESD environments. Here at igus®, we developed a special material



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called 'igumid ESD', which immediately dissipates electrostatic charges in controlled manner.

igumid ESD has been tested to millions of cycles in a wide number of different applications. These cable carriers possess higher rigidity and have approximately 15 percent lower density, which makes them ideal for longer, unsupported travel lengths. The ESD Energy Chains[®] are also durable, maintenance-free and can withstand harsh environmental conditions.

igus[®] first developed its electrically conductive polymer 16 years ago. Energy Chains[®] produced in this material were then tested over 100 million cycles before being released to market in 2002. These special Energy Chains[®] meet the requirements of SEMI E78-0998, the international materials and maintenance resource for applications in a critical environment, such as semiconductor and electronic production. They also meet the guidelines set forth by the European Union's ATEX (Atmosphere Explosive) regulations, which cover equipment intended for use in potentially explosive applications.

Design

Another important factor in achieving long-term conductivity depend on the design of the cable carrier. Most cable carriers feature a pin and bore design, or a series of flexible links, which are unable to maintain long-term conductivity. As these pins and bores wear and lose contact at points, an intermittent connection occurs.

Our unique System E6 cable carriers do not rely on a pin and bore connection. Instead, they feature abrasion-resistant connector strips. These strips enable a continuous, long-term connection along the length of the carrier, which ensures conductivity is never lost. The carrier's short pitch and link design also reduces noise and vibration.

Useful Links

[Learn more: Energy Chain[®] cable carriers](#)

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