



TECHNICAL BULLETIN NUMBER 209



SHIELDED WINDOWS

CUSTOM-ENGINEERED SHIELDING PRODUCTS

METEX has been a pioneer in EMI/RFI gasketing and shielding products for more than five decades. In fact, METEX developed the very first EMI/RFI gasket to help MIT solve a severe interference problem for the earliest high-power, high-frequency airborne radar.

That pioneering spirit is still alive today—with a complete line of military and commercial-grade EMI/RFI shielding solutions.

As communications and information technologies expand, the need to provide EMI/RFI solutions becomes more critical than ever before.

Superior EMI/RFI Shielding with Enhanced Optical Clarity and High Resolution

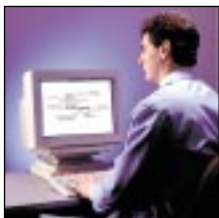
Electronic equipment with various types of indicative performance or viewing devices, such as digital read-outs or displays, may require protection from radiated electrical energy (EMI/RFI). Typical applications include EMI/RFI shielding for electronic displays and enclosures used in medical, avionic, telecommunication, military and industrial equipment.

These unique windows are designed to enhance clarity in viewing while, at the same time, introduce a high degree of shielding to prevent equipment damage due to impinging radiated electrical energy. Transmittance, conductivity, and image quality can be adjusted or tuned to fit the needs of specific applications.

Metex offers a wide range of custom-shielded optical windows for displays requiring EMI radiation or susceptibility shielding to meet military, TEMPEST or NSA specifications. Our Shielded Windows have been designed into commercial and military equipment to provide highly effective electromagnetic shielding while providing exceptional optical clarity and resolution.

A Wide Range of Substrates to Meet Any Optical Requirement

Windows can be produced in glass, plastic or combinations of both. The most commonly used substrates in the manufacture of these windows include Acrylic, polycarbonate, glass, and Mylar (other substrates are available for specialized applications). Metex shielded windows can also be manufactured with one or more layers of substrates homogeneously imbedded in a clear or colored acrylic substrate and bonded with our optical laminating methods.



Complete support—
from technical review to
design and application
assistance



World-class EMI/RFI
manufacturing capabilities



Superior Performance in Shielded Windows with Knitted Wire Mesh

Knitted wire mesh is used for many EMI/RFI shielding applications. Metex wire-mesh shielded windows:

- Perform well on all types of electronic displays.
- Are especially suited where high light transmission and high shielding are required.

Optical windows vary in shielding effectiveness depending on their size, substrate, laminate and gasketing. Shielding effectiveness is determined by the size of the wire openings, electrical contact between intersecting wires and the materials and techniques employed to terminate the wire at the frame edge.

Metex offers a range of optical quality windows in standard and custom sizes. The optical, mechanical and thermal properties of windows must be considered based on the intended use.

ITO Coated Shielded Windows

ITO (Indium Tin Oxide) coated windows offer a combination of high light transmission, neutral color and low electrical resistance. They are available either laminated or unlaminated and permit direct electrical contact to its coated surface.

- ITO coated shielded windows are ideal for electronic displays requiring moderate shielding effectiveness with high quality optical properties.

Features

Windows are constructed using a full-lamination process that results in the wire mesh being completely encased. This permits operation under severe environmental conditions.

- Different wire mesh patterns and alloys allow for a selection of performance characteristics.
- The substrate can be supplied in materials and colors.
- Windows may be mounted directly to the equipment interface via a conductive gasket or fastener.
- Polycarbonate frame designs available.

In addition, Metex windows are fully laminated to reduce losses from reflection and dispersion. We use abrasion and scratch resistant hard coating laminates optically matched specifically to the application along with anti glare /antireflection laminates to control surface reflections.

Typical Applications

- ❑ Medical Electronic Devices
- ❑ Cathode Ray Tubes (CRTs)
- ❑ Military Equipment
- ❑ Transportation Equipment
- ❑ Light Emitting Diodes (LEDs)
- ❑ Electronic Enclosures
- ❑ Architectural Windows
- ❑ Liquid Crystal Displays (LCDs)
- ❑ Commercial Electronics
- ❑ GTEM



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