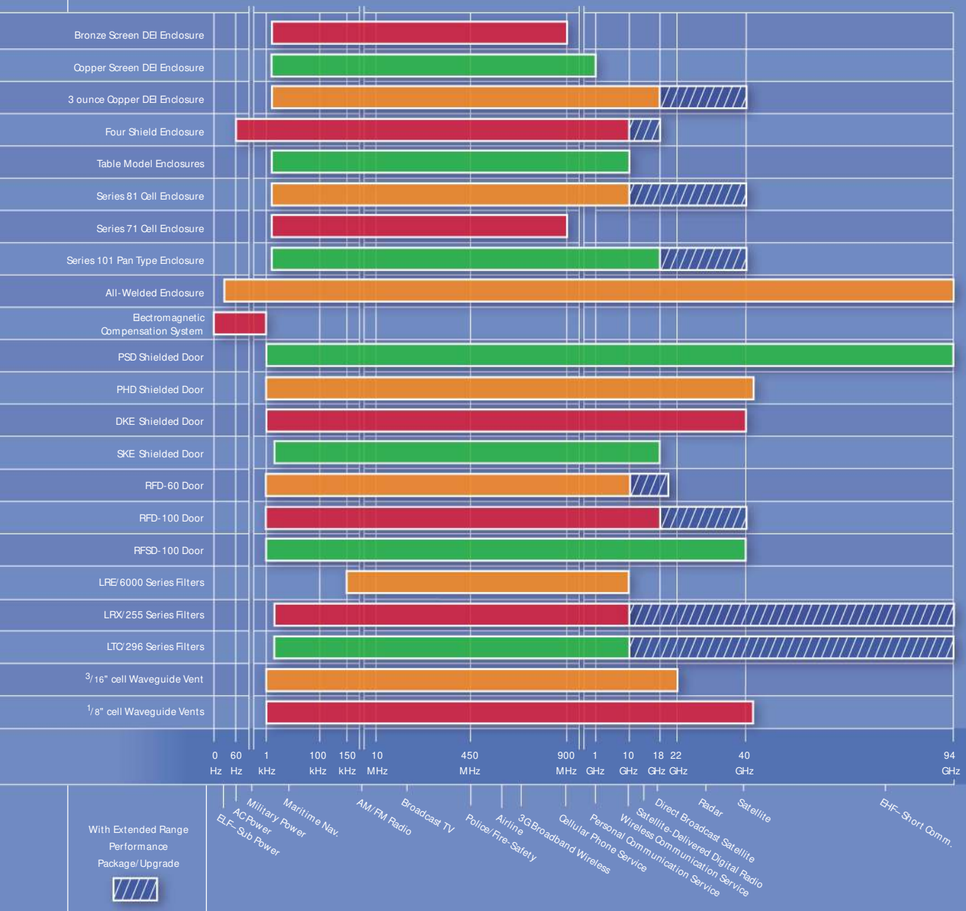
# Offering the world's broadest shielding line

ETS-Lindgren offers a variety of shielding systems and accessories that operate over a wide range of frequencies. The matrix below relates these shielding systems and critical RF components by recommended range of frequency usage.




**Note:** Shielded products indicated above typically offer 100 dB of isolation over electric, planewave, and microwave frequency ranges specified. Performance may very slightly due to room size, shape, number of imposing penetrations and methods of assembly — excludes EM Compensation System. Actual shielding effectiveness values available through our websites www.lindgrenrf.com and www.ets-lindgren.com.

# A PROVEN PRODUCT LINE

## Double Electrically Isolated (DEI) Enclosures

***Screen Enclosures***

These high performance enclosures are constructed entirely of bronze and copper screen mesh with lower panel section covered with protective wood grain paneling.

- Offers maximum performance in a "hear-through, see-through" structure
- Lighter weight screen panels allow for ease of assembly and disassembly
- Ideal for production line testing where productivity and employee safety must be closely monitored

***Solid Enclosures***

Available in a variety of solid material combinations to address the lower and higher range of requirements.

- 30% lighter than traditional solid wood core panel construction
- Offers > 120 dB of attenuation over a broad frequency range
- Tongue and groove interlocking panel design allows for easy assembly and disassembly
- Resilient clamping system requires no periodic maintenance

## Portable Test Boxes

Built to the same reliable shielding standards as our full-size enclosures, these smaller test boxes provide effective shielding in a compact, easy-to-use design.

- Constructed in both screen and solid materials
- Available in bench top, rack-mounted, and mechanized in-line versions for automated testing
- Manufactured in both standard and custom sizes
- Interior of test boxes can be supplemented with broadband and microwave absorber materials

## Series 81 Cell Type Shielded Room

Offers a cost-effective, yet reliable shielding system delivering 100 dB of attenuation over a broad frequency range.

- Most commonly specified enclosure for NSA 65-6, CID 09.12, and NSA 94-106
- 28 gauge laminated steel design for lasting performance and durability
- Panel construction has inherent sound reduction capability

## Series 71 Screen Room

The Series 71 Copper Screen Room features a double layer of copper screen mesh upper panel section, and a laminated steel panel lower section.

- Mesh design provides "hear-through, see-through" convenience
- Recommended for wireless product testing applications
- Screen construction method permits air passage without facility HVAC connections

## Series 101 Pan Type Enclosures

The pan design features a rigid but lightweight single-skin shielding system, bolted together along the flanged edges of panel sections.

- Can be assembled from either interior/exterior side of room
- The 2 mm galvanized steel modular pan sections are machine fabricated to precise tolerances
- Panels do not require intermediate clamping members
- Panels can be provided with a powder-coated finish

## All-Welded Enclosures

Considered by the industry to be the most reliable and highest performing shielding system, our pre-engineered welded enclosures support the shielding requirements from 30 Hz through 94 GHz.

- All-welded design also provides physical security to meet DIAM 50-3
- Ideal for larger equipment testing complexes and government facilities
- Superior structural strength and rigidity to meet the more physically demanding test environments

***Portable Welded Enclosures***

These enclosures are ideal for many military and commercial applications in which the shielded environment can be transported by forklift, truck, and air transport methods to alternative locations.

- Welded design may be moved or relocated for future use to protect initial shielding investment
- Can be equipped with base platform, rollers, and lifting hooks
- Available up to a maximum size of 10' W x 40' L

## Electromagnetic Compensation Systems

Our revolutionary active-feedback Electronic Magnetic Field Cancellation (EMFC) system protects instrumentation from AC/DC magnetic field interference.

- The highest-performing three-axis magnetic field compensation system available within the industry
- Provides real time compensation of environmental magnetic field fluctuations caused by moving vehicles, trains, elevators, AC power, and other sources
- Ideal for MRI equipment, scanning/transmission electron microscopy, and E-Beam applications

# Proven solutions that last

To ensure compliance with today's EMI/RFI requirements, you need a shielding systems provider who offers a wide range of products and technical expertise. ETS-Lindgren is the proven leader with more than 25,000 enclosures installed worldwide, addressing some of the most demanding industrial, medical, and governmental shielding challenges in such applications and specifications as:

## Applications:

- EMC Product Compliance Testing
- Instrumentation Repair and Calibration
- Production and Quality Product Line Testing
- Cellular and Paging Service Centers
- High Voltage Test Labs
- Secure Computer Rooms
- Wireless Product Testing
- Dilution Refrigeration
- Magnetic Resonance Imaging (MRI)
- Medical Equipment and Instrumentation
- Biomedical Engineering Labs
- Embassies and Consulates

## Specifications:

- ANSI C63.4
- CID 09.12
- CISPR 16-1
- DIAM 50-3/DCID 1/21
- ENV 50140
- FCC Part 15, 16 & 18
- EN 61000-4-3
- IEC 61000-4-21
- IEEE 299
- MIL-STD-220A
- MIL-STD-285
- MIL-STD-461E
- MIL-STD-188-125
- NSA 65-5
- NSA 65-6/NSA 94-106
- NSA 73-2A
- SAE J1113/29
- UL 1283



## EMI/RFI Doors

Offering the broadest selection of standard and custom sized equipment and personnel doors to meet a variety of operational, security, and egress requirements.

### *Pneumatic Sliding Door (PSD)*

- Arc sprayed contact surface requires no RF gaskets or contact fingers

- Control panel allows for semi- or fully-automatic sliding door operation
- Flush threshold design allows for easy equipment and personnel access
- Pneumatic logic system allows compliance with warning, operational, or safety requirements

### *Pneumatic Hinged Door (PHD)*

- Easily operated, requires no more than 2 lbs. (.9 kg) of force to open or close
- Unique arc sprayed metal-to-metal sealing surface requires no contact fingers or RF gaskets
- Door mounted push button opens, closes, and seals the door automatically
- Equipped with interior emergency panic bar hardware

### *Double Knife Edge Door (DKE)*

- Employs four rows of fingerstock around the perimeter for superior performance
- Heavy-duty hinges with thrust bearings allow for smooth operation and sag-free mounting
- Precision machined three-point latching system with heavy duty cam latch strikes
- Bronze double knife edge is soldered continuously on for longevity

### *Single Knife Edge Door (SKE)*

- Equipped with reliable two-point cam latching hardware
- Recessed contact mechanism (RCM) with concealed beryllium contact fingers
- Available in semi- and fully-automatic closing mechanisms

### *RFD-60 and RFD-100 Swing Door*

- Parallel patented closing mechanism creates a positive seal
- Available in manual and semi-automatic configurations
- 120 dB of attenuation from 1 kHz to 10 GHz

### *RFSD-100 Sliding Door*

- Available in manual or pneumatic designs with card access system
- Integrated ramp system allows smooth access into the room
- Large SRFSD-100 Series sliding doors can be made up to 23' x 23' (7 m x 7 m)

*Note: RFD-60 and RFD-100 Series provide 120 dB of attenuation from 1 kHz to 10 GHz. Door surfaces for the RFD-100 Series can be supplemented with ferrite and absorber materials.*

## Power and Signal Line Filters

EMI/RFI facility power and signal line filters are designed to meet MIL-F-15733, MIL-STD-220A, and UL-1283 requirements.

- Power filters available for 50/60 Hz or 400 Hz applications with power factor correction coils to meet domestic and international standards
- LRE/6000 Series power filters are designed for 100 dB of insertion loss at 150 kHz to 10 GHz
- LRX/255 Series power filters are offered in single and multiple circuit designs — meeting or exceeding 100 dB of insertion loss from 14 kHz to 10 GHz
- LTC/296 Series signal filters are low pass filters, and are offered with a variety of pass bands to accommodate various signals and data rates

## Waveguide Air Vents

Our proprietary solder-fusion construction provides superior strength and shielding performance.

- Allows air to pass virtually unrestricted
- Available in 1/8" and 3/16" honeycomb core material

## About ETS-Lindgren

ETS-Lindgren is the world's largest and most experienced supplier of shielding solutions for electromagnetic and radio frequency interference (EMI/RFI).

We have installed over 25,000 successful shielded enclosures within a variety of industrial, governmental, and medical environments around the world.

Call upon ETS-Lindgren for our unequalled understanding of both practical and theoretical shielding principles. ETS-Lindgren is highly skilled at applying these principles with a breadth and depth of technical expertise in architectural, mechanical, structural, acoustical, and security related areas.

Because controlling electromagnetic energy is our core business, you can be assured of our commitment to the highest quality and product reliability that stand the test of time.

Our products, materials, and workmanship are backed by a comprehensive warranty and a commitment to customer satisfaction.

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# HIGH PERFORMANCE EMI/RFI SHIELDING SOLUTIONS

ETS•LINDGREN™
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