

## SHIELDING EMI/RFI WAVEGUIDE AIR VENTS



### EMI/RFI WAVEGUIDE AIR VENTS

- Available in 3.18 mm (1/8in) and 4.76 mm (3/16 in) Honeycomb Cell Geometry
- Adaptable to a Variety of Mounting Flanges and Gasket Techniques
- Brass or Steel Core Material with Tin Coating for Superior RF Performance and Corrosion Resistance
- Minimal Air Flow Resistance and Pressure Drop
- Continuous Solder-fused for Superior Strength and RF Performance

**ETS-Lindgren's EMI/RFI Waveguide Air Vents** are designed to cater to diverse customer needs, offering excellent shielding across electric field, plane wave, and microwave frequencies. Manufactured using a precise solder fusion process, both brass and steel honeycombs deliver consistent shielding effectiveness. Steel honeycomb provides superior shielding for low-frequency magnetic fields, while brass, preferred in high-humidity environments, offers a non-ferrous option suitable for applications where magnetism must be minimized.

### Product Features Versatile Mounting Methods

The sealing between vent and shield is critical for optimal shielding performance. To achieve this, ETS-Lindgren recommends the following waveguide-to-shield seals:

- **Soldering and Brazing:** Ideally, enclosures should be fabricated horizontally, enabling soldering or brazing of the waveguide vent into a lightweight (26 gauge copper or galvanized steel) frame. This provides a secure, long-lasting RF seal.
- **Welding:** For heavy wall and ceiling shielding materials, angle iron frames with welded vents are advised. To maintain integrity, the honeycomb-to-frame joint should stay below 150°C, and a skip welding technique is recommended to prevent overheating
- **Gasket Seals:** When soldering and welding are not feasible, RF gasket seals are an effective alternative. Monel or tin-coated gaskets offer excellent RF sealing. Mating surfaces should be rigid, with fasteners spaced no more than 10.16 cm (4 in) apart to ensure reliable contact and performance.

For metal duct connections to shielded walls, a dielectric spacing collar (such as rubber, canvas, or wood) prevents RF currents on the duct's surface from transferring to the shield wall, thereby preserving shielding integrity.

### Optimized Air Flow with Maximum Shielding

The honeycomb (or hex-tube) structure provides an ideal balance of high shielding performance and minimal air resistance. This uniform design maximizes open space, minimizing air turbulence for efficient airflow while maintaining strong RF protection.

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## Technical Specifications

### Performance<sup>1</sup>

<b>3/16" Steel Honeycomb</b>	
Magnetic Fields	25 dB @ 1 KHz, 120 dB @ 20kHz
Electric Fields	120 dB @ 100 KHz to 30 MHz
Plane Wave	120 dB @ 30 MHz to 1 GHz
Microwaves	120 dB @ 1 GHz to 18 GHz
<b>1/8" Steel Honeycomb</b>	
Magnetic Fields	25 dB @ 1 KHz, 120 dB @ 20kHz
Electric Fields	120 dB @ 100 KHz to 30 MHz
Plane Wave	120 dB @ 30 MHz to 1 GHz
Microwaves	120 dB @ 1 GHz to 18 GHz , 100 dB @ 40 GHz
<b>Brass Honeycomb</b>	
Magnetic Fields	25 dB @ 1 KHz, 70 dB @ 20kHz
Electric Fields	120 dB @ 100 KHz to 30 MHz
Plane Wave	120 dB @ 30 MHz to 1 GHz

### Typical Pressure Drop

<b>3/16" Hex Cell</b>	
400 ft/min	0.015 in oF Water
600 ft/min	0.025 in oF Water
800 ft/min	0.035 in oF Water
1000 ft/min	0.050 in oF Water
<b>1/8" Hex Cell</b>	
400 ft/min	0.025 in oF Water
600 ft/min	0.035 in oF Water
800 ft/min	0.045 in oF Water
1000 ft/min	0.060 in oF Water

<sup>1</sup> For applications above 40 GHz a supplemental RF labyrinth can be provided.

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