HVAC Waveguide Panels
EMI/RFI Shielded HVAC Waveguide Ventilation Panels 3000 Series

MAJR PRODUCTS

HVAC Waveguide Panels

EMI/RFI Shielded HVAC Waveguide Ventilation Panels 3000 Series

MAJR's HVAC waveguide panels are designed to provide optimum EMI/RFI shielding with minimum pressure drop while ventilating air.

The special honeycomb media is designed to allow air to flow into and out of EMI/RFI shielded areas, typically through standard or custom sized ducts and secure room apertures. This honeycomb media helps facilitate the cooling of electronics and sensitive equipment as well as providing needed air circulation for manned military shelters, SCIFS and secure rooms and buildings. Our HVAC Waveguide panels can be provided in a variety of materials and configurations to meet specific requirements such as ICS / ICD 705 compliance.

HVAC Waveguide Panels special design lets air flow into and out of an EMI/RFI shielded enclosure. This feature allows for the cooling of electronics as well as air circulation for manned military shelters as well as electronic boxes and cabinets.

Integrated Security Bars / Man Bars on Recessed Frames

Advantages of integrating security bars into your waveguide panel:

- Added physical protection
- ICD/ICS – 705 Compliance
- Reduced cost vs. non-integrated
- Ease of installation

Features

- Designed to meet specific shielding, airflow, and mounting requirements.
- Available with Security Bars, also known as Man Bars.
- Available in Aluminum, Steel, Brass and Stainless Steel to meet specific attenuation and environmental requirements of MIL-STD-461 and MIL-STD 810.
- High permeability steel honeycomb available for magnetic (H-Field) shielding to 60 dB attenuation levels. (>80 dB attenuation using 1 in. thick tin plated steel honeycomb).
- Standard and custom sizes and mounting configurations available. An EMI/RFI gasket is always supplied as an integral part of the HVAC honeycomb vent panel assembly.
- Mounting via frame thru-holes or captive fasteners.
- Metal honeycomb core provides shielding to electromagnetic waves, facilitating waveguide beyond cuttoff.
- ICS / ICD 705 compliant

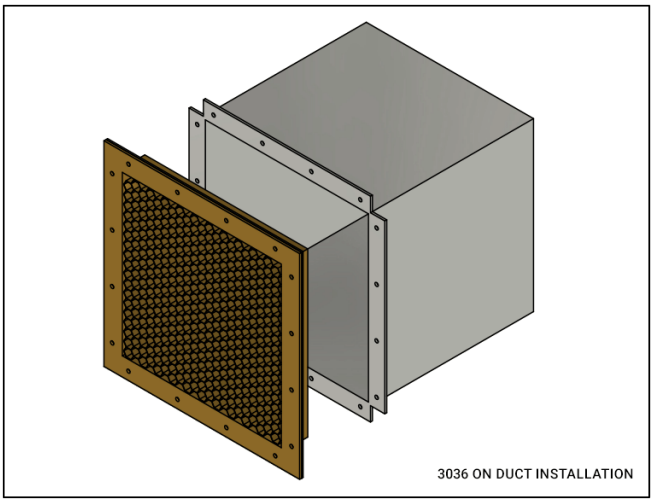
Phone: (814) 763-3211 | Fax: (814) 763-2952 | email: sales@majr.com | www.majr.com

Frame and Mounting Options

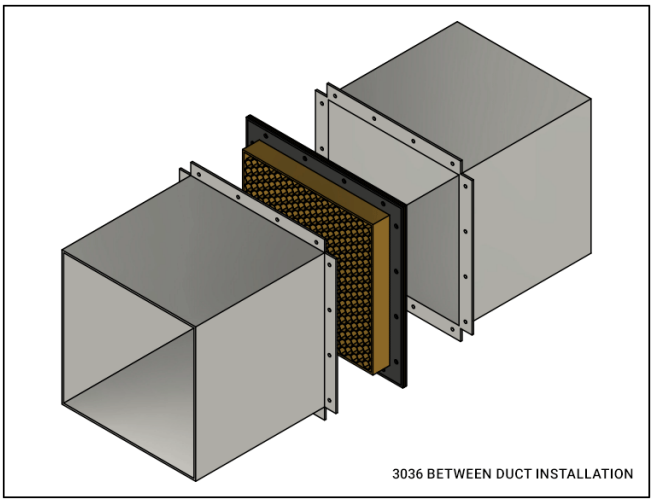
Recessed Mounting Frame (3036,3046)

This frame comes standard with a 1.0” perimeter flange and pre-installed EMI gaskets for ease of installation. This recessed design works well for “Between Duct” installations because of its larger mounting flanges. When installing “On Duct” a majority of the panel can be hidden in a secure wall or ceiling because of the angled frame design. Available in Brass and Steel, Recessed Mounting Frames can also be provided with integrated security bars.

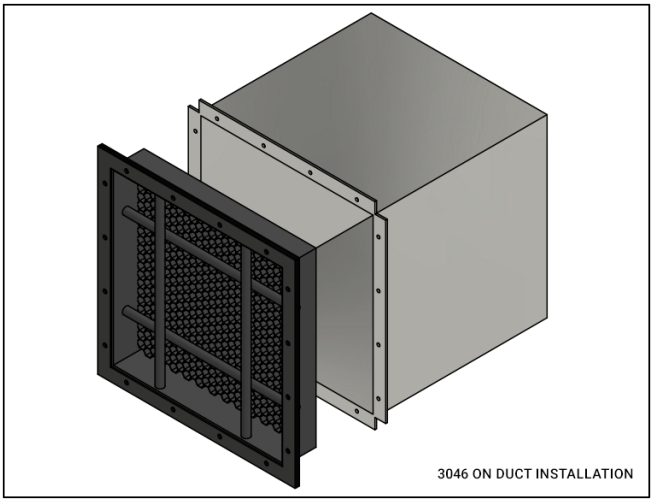
Recessed Installation



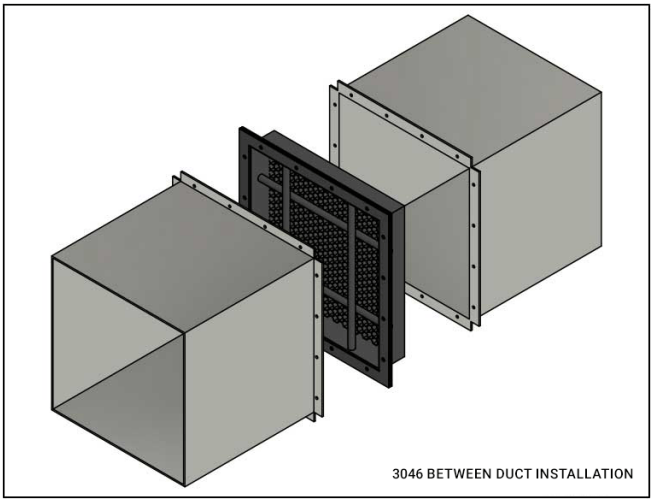
3036 ON DUCT INSTALLATION



3036 BETWEEN DUCT INSTALLATION



3046 ON DUCT INSTALLATION

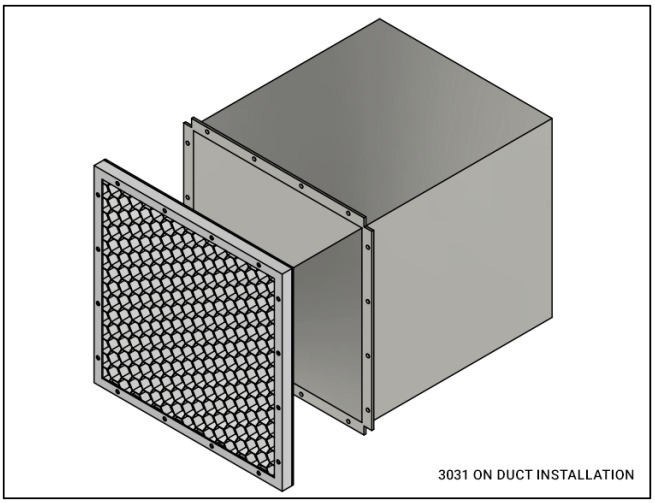


3046 BETWEEN DUCT INSTALLATION

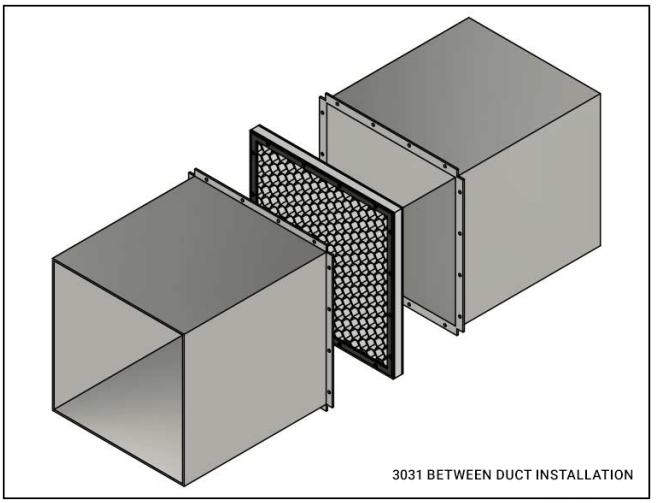
Surface Mounting Frame (3031)

This “C” channel frame comes standard with a 0.5” mounting flange and pre-installed EMI gaskets. Often used for “Between Duct” installations with high airflow requirements, it’s usually provided as an Aluminum panel for maximum airflow and reduced cost but is also available in Steel and Brass when higher shielding is required.

Surface Installation



3031 ON DUCT INSTALLATION

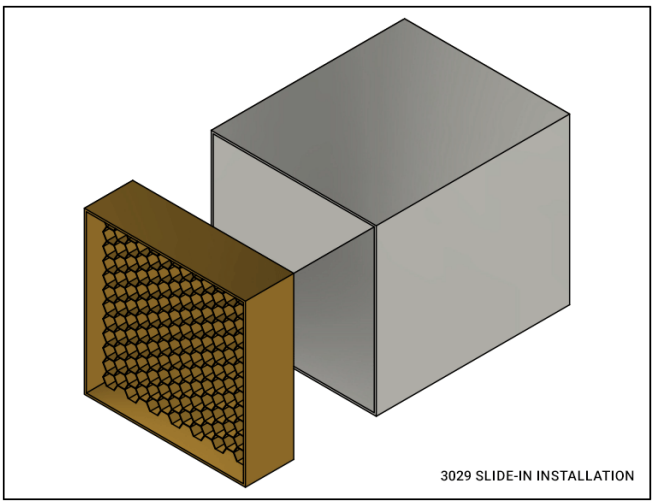


3031 BETWEEN DUCT INSTALLATION

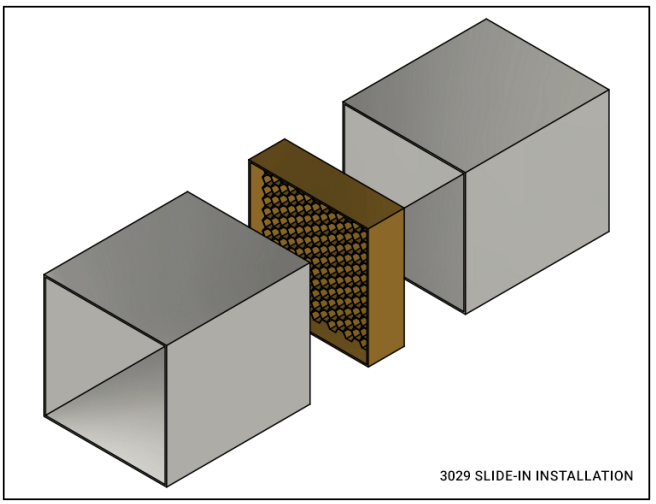
Slide-In Mounting Frame (3029)

This thin frame is designed to fit and slide into existing ductwork without the need to mount to a flanged surface, it does not come with installed EMI gaskets and will require additional installation steps such as soldering to ensure shielding performance. Only available in Steel.

Slide-In Installation

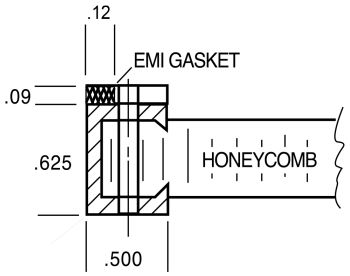


3029 SLIDE-IN INSTALLATION

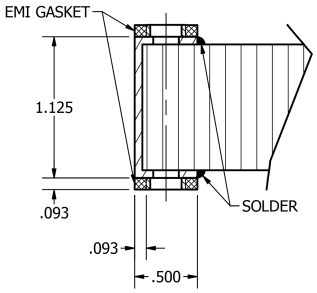


3029 SLIDE-IN INSTALLATION

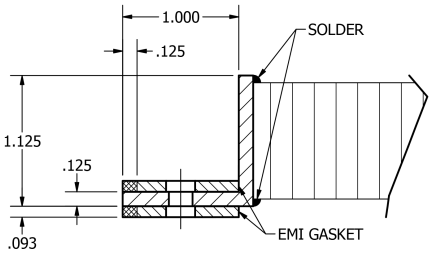
Standard Mounting Frame Profiles



ALUMINUM SURFACE MOUNTING FRAME



STEEL & BRASS SURFACE MOUNTING FRAME



STEEL & BRASS RECESSED MOUNTING FRAME

Shielding Effectiveness vs Frequency — Table 1

Shielding Effectiveness dB

Field	Aluminum Non-hexavalent Chromate Finish | Material Code – 90 | 0.5" thick x .125" cell Frequency					
	1 MHz	100 MHz	500 MHz	1 GHz	10 GHz	18 GHz
E	60	50	50	—	—	—
PW	—	—	—	45	40	40

Field	Aluminum – Tin Plate | Material Code – 42 | 0.5" thick x .125" cell Frequency					
	1 MHz	100 MHz	500 MHz	1 GHz	10 GHz	18 GHz
E	100	90	85	—	—	—
PW	—	—	—	80	70	60

Field	Brass | Material Code – 43 | 1.0" thick x .125" cell Frequency					
	1 MHz	100 MHz	500 MHz	1 GHz	10 GHz	18 GHz
E	75	95	110	—	—	—
PW	—	—	—	105	85	85

Shielding Effectiveness vs Frequency — Table 1 (continued)

Shielding Effectiveness dB

Field	Brass | Material Code – 43 | 1.0" thick x .188" cell Frequency					
	1 MHz	100 MHz	500 MHz	1 GHz	10 GHz	18 GHz
E	70	80	80	—	—	—
PW	—	—	—	85	75	65

Field	Brass | Material Code – 43 | 0.5" thick x .125" cell Frequency					
	1 MHz	100 MHz	500 MHz	1 GHz	10 GHz	18 GHz
E	60	80	80	—	—	—
PW	—	—	—	80	75	70

Field	Steel – Tin Plate | Material Code – 44 | 1.0" thick x .125" cell Frequency							
	10 kHz	100 kHz	1 MHz	100 MHz	500 MHz	1 GHz	10 GHz	18 GHz
H	40	55	—	—	—	—	—	—
E	—	—	75	100	120	—	—	—
PW	—	—	—	—	—	120	120	115

Field	Steel – Tin Plate | Material Code – 44 | 1.0" thick x .188 cell Frequency							
	10 kHz	100 kHz	1 MHz	100 MHz	500 MHz	1 GHz	10 GHz	18 GHz
H	40	55	—	—	—	—	—	—
E	—	—	75	100	100	—	—	—
PW	—	—	—	—	—	110	110	110

Shielding Effectiveness vs Frequency — Table 1 (continued)

Shielding Effectiveness dB

Field	(Corrosion Resistant) Painted Steel with Brass Frame | Material Code – 39 | 1.0" thick x .125" cell Frequency							
	10 kHz	100 kHz	1 MHz	100 MHz	500 MHz	1 GHz	10 GHz	18 GHz
H	40	55	—	—	—	—	—	—
E	—	—	75	110	110	—	—	—
PW	—	—	—	—	—	110	95	85

The data in Table shows shielding characteristics for standard MAJR shielded vents. Note that the data indicated is tested under laboratory conditions per MIL-STD 285. This data is for comparison between shielded vent panel configurations and is not to be stated as a pass/fail specification for a manufactured EMI/RFI waveguide vent panel.

Yellow chromate (-32) finish available upon request. Tin Plated Steel (-44) data reflects a steel honeycomb and steel frame construction. Not all mounting frame options are available in steel.

Design Data: Airflow