

PRODUCT LINE:
Wave Guide Filter

Accepts up to 6
pre-terminated fiber optic cables

Meets MIL-461 EMC specification



WGF-461

FEATURES

- The waveguide bore diameter to length ratio have been optimized to assure high attenuation.
- Meets MIL-461 EMC specification.

DESCRIPTION

The WGF-461 was designed to meet MIL-461 EMC specifications by providing 100 dB attenuation for frequencies up to 40 GHz. It provides a means of bringing six pre-terminated fiber optic cables into a shielded enclosure while maintaining the enclosure's radio frequency isolation integrity. The filter has a removable center plug, which is surrounded by six waveguide bores. When the center plug is removed, connectorized fiber optic cables can be inserted into the peripheral cable sized slots.

Theoretical Attenuation	
GHz	dB
43	64.47
40	123.02
35	179.33
30	217

SPECIFICATIONS	
Body Thread Size	1-1/8", 18 NEF
Clearance Hole Diameter	1-5/32"
Material	Steel, Electroless Nickel Finish
Effective Length	1.5"
Overall Length	2.125"
Waveguide Bore Diameter	0.157"
Plug Bore Diameter	0.5"
Cut-Off Frequency	44.2 GHz

ACCESSORIES	
Model	Description
WCN-6	<i>Waveguide Coupling Nut</i> 1" long brass nut used to join WEB-6 or WEB-12 to WGF-461.
WEB-6	<i>Waveguide Extension Tube, Brass, 6" long, body thread size 1-1/8", 18 NEF</i> The WEB-6 provides support for fiber optic cables which must pass through walls or acoustic material in a shielded enclosure.
WEB-12	<i>Waveguide Extension Tube, Brass, 12" long, body thread size 1-1/8", 18 NEF</i> The WEB-12 provides support for fiber optic cables which must pass through walls or acoustic material in a shielded enclosure.
WET-18A	<i>Waveguide Extension Tube, Plastic, 18" long, body thread size 1-1/8", 18 NEF</i> The WET-18A has a permanently attached coupling end which is internally threaded so that it will screw onto a WGF-461.
WGN-6	<i>Waveguide Mounting Nut</i> When the WGF-461 enters a box, the WGN-6 is used to tighten the WGF-461 to the box for bonding. No washer is required or recommended. This assures proper bonding.

Installation Instructions

1. Do not unpack the waveguide assembly until you are ready to install it. This will prevent damage to the external threads on the bushing.
2. Prepare the shield room wall or the ground plane by boring mounting holes 1-5/32" (1.156") diameter in the desired location. Any adjacent holes should be no closer than 2".
3. Clean and de-burr the area around the mounting holes to insure suitable electrical contact and a tight seal with the waveguide mounting nuts.
4. Unpack the waveguide assembly taking care not to damage the threaded bushing.
5. Loosen the 1/4" cap screw which retains the plug in the bushing (approximately 2 turns).
6. Tap the end of the cap screw until the plug separates from the bushing.
7. Remove the cap screw and the washer and store in a safe place for future use.
8. Remove the plug from the bushing. The plug is fastened to one of the mounting nuts by a short cable to prevent damage to its surface after installation and also to prevent injury during subsequent removal. It is not necessary to disconnect the cable from either the mounting nut or the plug.
9. Remove the free mounting nut from the bushing.
10. Place the bushing through the mounting holes so that the cable is facing away from the mounting surface.
11. Replace the mounting nut on the opposite side of the mounting surface. Center the bushing by holding the nut and rotating the bushing until there are equal threads on both ends.
12. At this point the waveguide is in place with the plug hanging by its cable on one side. If the installation appears to be acceptable, tighten the mounting nut opposite from the plug end with a 1-1/2" socket wrench to a maximum torque of 85 foot-pounds or the maximum torque that the wall can withstand without crushing.
13. Install the fiber optic cables by inserting the connectors one at a time through the center bore of the bushing. Then push the cables into the grooves around the edges.
14. After all of the fiber optic cables have been installed (do not overfill the waveguide bores), insert the plug into the center bore taking care not to damage the cables.
15. Press the plug firmly to lock it into place.
16. Install the cap screw and washer into the plug carefully so as to not push the plug out the other side.
17. Torque the cap screw to 6 foot-pounds.

• Plug may be removed for the addition or removal of fiber optic cables and then reinstalled as required. **DO NOT HEAT OR WELD THIS FILTER. DAMAGE MAY RESULT.**