millitech®

Millimeter-Wave Technology & Solutions

Rectangular Waveguide Specifications and MIL-Specification Cross Reference

Frequency GHz	EIA Waveguide	Frequency Band	TE_{10} Mode Cutoff, GHz	Inside Waveguide Dimensions, Inches (mm)	Flange Type and Descriptive Interface Standards			
					Size/Type	Connective Hole Type	MIL-Spec Flange MIL.F-3922	UG-XXX/U Equivalent (Referenece)
18-26.5	WR-42	K	14.08	0.420 x 0.170 (10.7 x 4.3)	.875/SQ 1.125/RD	CLR. HOLES THD. HOLES	/54-001 /67B-004	UG-595/U
26.5-40	WR-28	Ka	21.10	0.280 x 0.140 (7.11 x 3.56)	.750/SQ 1.125/RD	CLR. HOLES THD. HOLES	/54-003 /67B-005	UG-599/U UG-381/U
33-50	WR-22	Q	26.35	0.224 x 0.112 (5.7 x 2.8)	1.125/RD	THD. HOLES	/67B-006	UG-383/U
40-60	WR-19	U	31.41	0.188 x 0.094 (4.8 x 2.4)	1.125/RD	THD. HOLES	/67B-007	UG-383/U-M
50-75	WR-15	V	39.90	0.148 x 0.074 (3.8 x 1.9)	.750/RD	THD. HOLES	/67B-008	UG-385/U
60-90	WR-12	E	48.40	0.122 x 0.061 (3.1 x 1.5)	.750/RD	THD. HOLES	/67B-009	UG-387/U
75-110	WR-10	W	59.05	0.100 x 0.050 (2.54 x 1.27)	.750/RD	THD. HOLES	/67B-010	UG-387/U-M
90-140	WR-08	F	73.84	0.08 x 0.040 (2.32 x 1.02)	.750/RD .375/RD	THD. HOLES PIN CONTACT	/67B-M08 /74-001	UG-387/U-M
110-170	WR-06	D	90.85	0.065 x 0.0325 (1.7 x 0.83)	.750/RD .375/RD	THD. HOLES PIN CONTACT	/67B-M06 /74-002	UG-387/U-M
140-220	WR-05	G	115.75	0.051 x 0.0255 (1.30 x 0.648)	.750/RD .375/RD	THD. HOLES PIN CONTACT	/67B-M05 /74-003	UG-387/U-M
170-260	WR-04	---	137.52	0.043 x 0.0215 (1.1 x 0.55)	.750/RD .375/RD	THD. HOLES PIN CONTACT	/67B-M04 /74-004	UG-387/U-M
220-325	WR-03	---	173.28	0.034 x 0.017 (0.86 x 0.43)	.750/RD .375/RD	THD. HOLES PIN CONTACT	/67B-M03 /74-005	UG-387/U-M
325-400	WR-2.8	---	211.00	0.028 x 0.014 (0.71 x 0.355)	.750/RD .375/RD	THD. HOLES PIN CONTACT	--- ---	UG-387/U-M
400-500	WR-2.2	---	268.00	0.022 x 0.011 (0.56 x 0.28)	.750/RD .375/RD	THD. HOLES PIN CONTACT	--- ---	UG-387/U-M

Millitech, LLC
29 Industrial Drive East
Northampton, MA 01060
USA
Phone
(413) 582-9620
Fax
(413)-582-9622
Email
info@millitech.com
Website
www.millitech.com

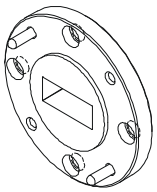
Rev01 C 022201

dominant mode **(TE_{10})** propagation formula:

$$\lambda g = \frac{\lambda}{\sqrt{1-(\frac{\lambda}{2a})^2}} = \frac{1}{\sqrt{(\frac{f}{c})^2-(\frac{1}{2a})^2}}$$

where λg = dominant mode waveguide wavelength;
λ = free space wavelength;
f = frequency (Hz);
c = velocity of propagation in free space;
a = inside side dimension of rectangular waveguide.

cutoff frequency = $\frac{c}{2a}$



Round Flange
Click here for hole positioning dimensions

Square Flange
Click here for hole positioning dimensions