



Product Data Sheet Rigid Waveguide



Mega Industries provides waveguide in sizes WR90 through WR2300. Full height and reduced height configurations are available to meet your requirements. Custom sizes through WR6200 are also available on special request.

Mega Industries four-corner sprayarc argon[®] welding process is performed in precision fixtures on WR430 through WR2300 to insure the highest quality waveguide which is mechanically stable and designed for optimum electrical performance. Mega waveguide meets or exceeds EIA and Mil standards for both waveguide (RS-261A & MIL-DTL-85) and flanges (RS271-A & MIL-DTL-3922). Twist along the longitude axis is less than 1° per foot and less than 1/2° overall. Flange flatness tolerances are less than .01 per inch and less than 10° mils overall.

Waveguides are manufactured from 6061-T6 aluminum alloy; however, sizes WR90 through WR650 are also available in Copper alloys. Aluminum waveguides are given a chromate conversion treatment per MIL-C-5541, Class 1A

Catalog Numbers

Size	90	102	112	137	159	187	229	284	340	430
Flanged	530300X	520300X	510300X	500300X	490300X	480300X	470300X	420300X	410300X	400300X
Unflanged	530100X	520100X	510100X	500100X	490100X	480100X	470100X	420100X	410100X	400100X

Size	510	650	770	975	1150	1500	1800	2100	2300
Flanged	380300X	370300X	360300X	350300X	340300X	330300X	320300X	310300X	300300X
Unflanged	380100X	370100X	360100X	350100X	340100X	330100X	320100X	310100X	300100X

For 12 foot length replace X with 1, for 10 foot length replace X with 2. e.g. WR2300 12 foot length is 3003001



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Typical Specifications

Size EIA WR	Size IEC R()	Recom- mended Frequency Range (GHz)	Cut-off for TE ₁₀ Mode (GHz)	Attenuation* Max/Min***	Power Rating In Megawatts* Max/Min***	Material Alloy	Dimensions		
							Inside Width Height Inches (mm)	Outside Width Height Inches (mm)	Wall Thickness Inches (mm)
90	100	8.20-12.40	6.557	5.542	0.47	Al/Cu/Br	0.900 (22.86)	1.00 (25.40)	0.050 (1.27)
				3.83	.033		0.400 (10.16)	0.500 (12.70)	
102	-	7.00-11.00	5.785	4.27	0.68	Al/Cu/Br	1.020 (25.91)	1.148 (29.16)	0.064 (1.63)
				2.98	0.48		0.510 (12.95)	0.638 (16.21)	
112	84	7.05-10.00	5.259	3.99	0.73	Al/Cu/Br	1.122 (28.50)	1.250 (31.75)	0.064 (1.63)
				2.76	0.52		0.497 (12.62)	0.625 (15.88)	
137	70	5.85-8.20	4.301	2.91	1.12	Al/Cu/Br	1.372 (34.85)	1.500 (38.10)	0.064 (1.63)
				2.00	0.79		0.622 (15.80)	0.750 (19.05)	
159	58	4.90-7.05	3.711	2.19	1.66	Al/Cu/Br	1.590 (40.39)	1.718 (43.64)	0.064 (1.63)
				1.48	1.18		0.795 (20.19)	0.923 (23.44)	
187	48	3.95-5.85	3.152	1.79	2.15	Al/Cu/Br	1.872 (47.55)	2.000 (50.80)	0.064 (1.63)
				1.23	1.52		0.827 (21.01)	1.000 (25.40)	
229	40	3.30-4.90	2.577	1.27	3.46	Al/Cu/Br	2.290 (58.71)	2.418 (24.18)	0.064 (1.63)
				0.86	2.44		1.145 (29.08)	1.273 (32.33)	
284	32	2.60-3.95	2.078	.953	5.0	Al/Cu/Br	2.840 (72.14)	3.000 (76.20)	0.080 (2.03)
				.652	3.5		1.340 (34.04)	1.500 (38.10)	
340	26	2.10-3.30	1.736	.702	7.6	Al/Cu	3.400 (86.36)	3.560 (90.42)	0.080 (2.03)
				.475	5.4		1.700 (43.18)	1.860 (47.24)	
430	22	1.70-2.60	1.372	.494	12.2	Al/Cu	4.300 (109.92)	4.460 (113.28)	0.080 (2.03)
				.334	8.6		2.150 (54.61)	2.310 (58.67)	
510	18	1.45-2.20	1.157	.382	17.1	Al/Cu	5.100 (129.54)	5.325 (135.26)	0.125 (3.18)
				.259	12.09		2.500 (63.50)	2.800 (71.12)	
650	14	1.12-1.70	0.908	.266	27.8	Al/Cu	6.500 (165.10)	6.750 (171.45)	0.125 (3.18)
				.180	19.6		3.250 (82.55)	3.500 (88.90)	

* Attenuation is in dB per 100 feet in aluminum

** Peak rating – True theoretical values at 1 atm. Dry air at 20°C, no safety factor included

*** Maximum frequency / Minimum frequency



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Typical Specifications

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Size EIA WR	Size IEC R()	Recom- mended Frequency Range (GHz)	Cut-off for TE ₁₀ Mode (GHz)	Attenuation* Max/Min***	Peak Power In Megawatts* Max/Min***	Material Alloy	Dimensions		
							Inside Width Height Inches (mm)	Outside Width Height Inches (mm)	Wall Thickness Inches (mm)
770	12	.96-1.45	0.766	.206	39.1	Al	7.700 (195.58)	7.950 (201.93)	0.125 (3.18)
				.140	27.6		3.850 (97.79)	4.100 (104.14)	
975	9	.75-1.12	0.605	.145	62.6	Al	9.75 (247.65)	10.00 (254.00)	0.125 (3.18)
				0.98	44.2		4.875 (123.83)	5.125 (130.18)	
1150	8	.64-.96	0.513	.113	87.1	Al	11.500 (292.10)	11.750 (298.45)	0.125 (3.18)
				.076	61.5		5.750 (146.05)	6.000 (152.40)	
1500	6	.49-.75	0.393	.076	148	Al	15.000 (381.00)	15.250 (387.35)	0.125 (3.18)
				.051	104		7.500 (190.50)	7.750 (196.85)	
1800	5	.41-.62	0.328	.058	231	Al	18.000 (457.20)	18.376 (466.75)	0.188 (4.78)
				.039	150		9.000 (228.60)	9.376 (238.15)	
2100	4	.35-.53	0.281	.046	290	Al	21.000 (533.40)	21.376 (542.95)	0.188 (4.78)
				.031	205		10.500 (266.70)	10.876 (276.25)	
2300	3	.32-.49	0.256	.040	348	Al	23.000 (584.20)	23.376 (593.75)	0.188 (4.78)
				.027	246		11.500 (292.10)	11.876 (301.65)	

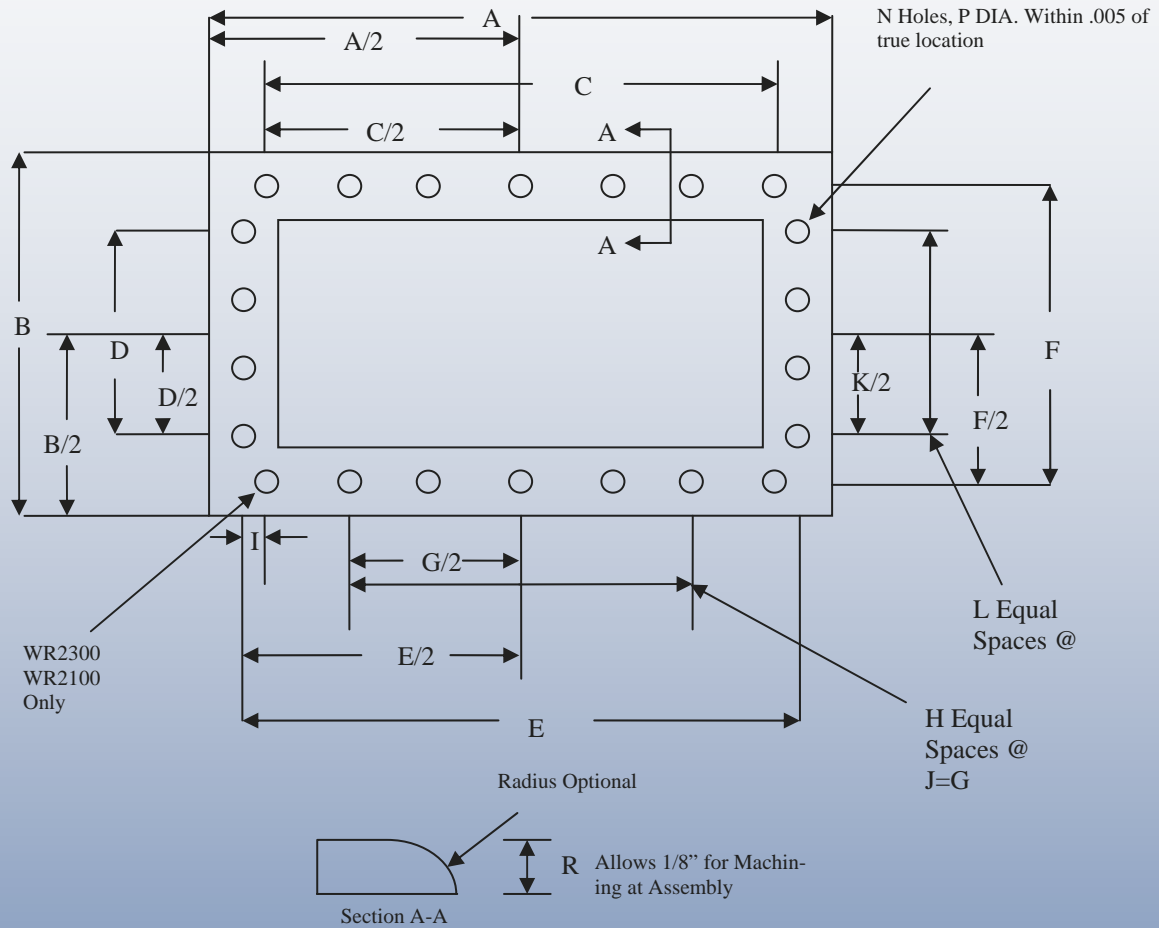
* Attenuation is in dB per 100 feet in aluminum

** Peak rating – True theoretical values at 1 atm. Dry air at 20°C, no safety factor included

*** Maximum frequency / Minimum frequency



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Flange Bolt Hole Pattern



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Size	WR2300	WR2100	WR1800	WR1500	WR1150	WR975	WR770	WR650
Cat. No.	3028001	3128001	3228001	3328001	3428001	3528001	3628001	3728001
A	26.63 (676.28)	24.63 (625.48)	21.50 (546.10)	18.50 (469.90)	15.00 (381.00)	13.25 (336.55)	11.22 (284.94)	8.69 (220.65)
B	15.13 (384.18)	14.13 (358.78)	12.50 (317.50)	11.00 (279.40)	9.25 (234.95)	8.38 (212.85)	7.38 (187.45)	5.44 (138.10)
C	23.40 (594.23)	21.40 (543.43)	18.40 (467.23)	15.39 (390.91)	11.89 (302.01)	10.01 (254.25)	7.96 (202.18)	6.76 (171.70)
D	11.90 (302.13)	10.90 (276.73)	9.40 (238.63)	7.89 (200.41)	6.14 (155.96)	5.13 (130.30)	4.11 (104.39)	3.51 (89.15)
E	25.50 (647.70)	23.50 (596.90)	20.00 (508.00)	17.00 (431.80)	13.50 (342.90)	11.75 (298.45)	9.70 (246.38)	7.87 (200.00)
F	14.00 (355.60)	13.00 (330.20)	11.00 (279.40)	9.50 (241.30)	7.75 (196.85)	6.88 (174.63)	5.85 (148.59)	4.62 (117.40)
G	20.06 (509.55)	18.28 (464.24)	16.00 (406.40)	14.00 (355.60)	10.00 (254.00)	8.00 (203.20)	8.00 (203.20)	4.75 (120.60)
H	9	7	8	7	5	4	4	2
I	0.489 (12.421)	0.439 (11.151)	-	-	-	-	-	-
J	2.23 (56.62)	2.61 (66.32)	2.00 (50.80)	2.00 (50.80)	2.00 (50.80)	2.00 (50.80)	2.00 (50.80)	2.37 (60.30)
K	9.30 (236.27)	7.80 (198.12)	9.06 (230.20)	6.00 (152.40)	5.81 (147.68)	6.00 (152.40)	2.00 (50.80)	2.50 (63.45)
L	5	3	5	3	3	3	1	1
M	1.86 (47.24)	2.60 (66.04)	1.81 (46.05)	2.00 (50.80)	1.94 (49.23)	2.00 (50.80)	2.00 (50.80)	2.50 (63.45)
N	36	28	30	24	20	18	14	10
P	0.53 (13.49)	0.53 (13.49)	0.41 (10.31)	0.41 (10.31)	0.41 (10.31)	0.41 (10.31)	0.41 (10.31)	0.33 (8.26)
R	0.75 (19.05)	0.75 (19.05)	0.625 (15.88)	0.625 (15.88)	0.625 (15.88)	0.625 (15.88)	0.5 (12.70)	0.5 (12.70)
Weight (lbs.)	8.3	7.9	6.1	5	3.7	3.2	1.8	1.5

Dimensions Inches (mm)



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Size	WR430	WR340	WR284	WR187	WR159	WR137	WR112	WR90
Cat. No.	4028001	3128001	3228001	3328001	3428001	3528001	3628001	3728001
A	6.34 (161.11)	5.44 (138.18)	4.50 (114.30)	3.50 (88.90)	3.19 (81.03)	2.69 (68.33)	2.50 (63.50)	2.09 (53.09)
B	4.19 (106.35)	3.75 (95.25)	3.00 (76.20)	2.50 (63.50)	2.44 (61.98)	1.94 (49.28)	1.75 (44.45)	1.59 (40.39)
C	4.47 (113.54)	2.69 (68.28)	3.20 (81.15)	1.13 (28.58)	1.00 (25.40)	0.88 (22.23)	0.80 (20.37)	0.58 (14.71)
D	2.32 (58.93)	1.34 (34.09)	1.16 (29.36)	0.88 (22.35)	0.75 (19.05)	0.63 (15.88)	0.60 (15.29)	0.63 (15.88)
E	5.59 (141.99)	4.69 (119.08)	3.83 (97.23)	2.83 (71.83)	2.55 (64.67)	2.19 (55.58)	1.91 (48.41)	1.66 (42.06)
F	3.44 (87.38)	3.00 (76.20)	2.33 (59.13)	1.83 (46.43)	1.75 (44.45)	1.44 (36.53)	1.28 (32.54)	1.16 (29.36)
G	3.57 (90.78)	2.69 (68.28)	2.56 (65.07)	1.13 (28.58)	1.00 (25.40)	0.88 (22.23)	0.75 (19.05)	0.58 (14.73)
H	2	2	2	1	1	1	1	1
I	-	-	-	-	-	-	-	-
J	1.787 (45.39)	1.344 (34.14)	1.281 (32.54)	1.125 (28.58)	1 (25.40)	0.875 (22.23)	0.75 (19.05)	0.58 (14.73)
K	1.876 (47.65)	1.342 (34.09)	1.156 (29.36)	0.875 (22.23)	0.75 (19.05)	0.625 (15.88)	0.625 (15.88)	0.625 (15.88)
L	1	1	1	1	1	1	1	1
M	1.876 (47.65)	1.342 (34.09)	1.156 (29.36)	0.875 (22.23)	0.75 (19.05)	0.625 (15.88)	0.625 (15.88)	0.6254 (15.89)
N	10	10	10	8	8	8	8	8
P	0.266 (6.76)	0.266 (6.76)	0.259 (6.58)	0.259 (6.58)	0.259 (6.58)	0.198 (5.03)	0.17 (4.32)	0.147 (3.73)
R	0.5 (12.70)	0.5 (12.70)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)
Weight (lbs.)	0.8							

Dimensions Inches (mm)