

Rectangular to Circular Waveguide Transitions TE₁₁ & TE₀₁ Mode

FEATURES:

- ❖ Minimum VSWR
- ❖ Minimum Insertion Loss
- ❖ Optional Pressurized Models Available
- ❖ Efficient Conversion from TE₁₁ Mode Rectangular Waveguide to TE₁₁ or TE₀₁ Mode Circular Waveguide

APPLICATIONS:

- ❖ Radar Systems
- ❖ Test Setup



DESCRIPTION:

CRC series

Cernex's CRC series TE₀₁ mode transitions are available for operation from 18.0 to 170.0 GHz. These reciprocal devices have a standard rectangular TE₁₁ mode waveguide input and a circular TE₁₁ or TE₀₁ mode output. Because of the different frequency ranges of circular TE₁₁ or TE₀₁ mode waveguide, it is possible for a standard sized rectangular waveguide input to have one of several different circular waveguide size outputs. The CRC series circular mode waveguide features low VSWR and insertion loss. For maximum mode purity, filtering is recommended for all TE₀₁ propagation (please refer to Table 1-1).

SPECIFICATIONS FOR TE₁₁ MODE:

Model No.	Wave guide Size	Frequency Range (GHz)	Circular Waveguide Diameter, Inches (mm)	Cover flange (Brass) MIL-F-3922UG	Flange Type	Insertion Loss TE ₁₁ (dB) Max.	VSWR Max.
CRC901094	90	8.2-9.97	1.094 (27.79)	53-001 UG-39/U	Square	0.3	1.40
CRC900938	90	8.5-11.6	0.938 (23.83)	53-001 UG-39/U	Square	0.3	1.40
CRC900797	90	9.97-12.4	0.797 (20.24)	53-001 UG-39/U	Square	0.3	1.40
CRC620688	62	12.4-15.9	0.688 (17.48)	53-005 UG-1666/U	Square	0.3	1.40
CRC620594	62	13.4-18.0	0.594 (15.08)	53-005 UG-1666/U	Square	0.3	1.40
CRC620500	62	15.9-18.0	0.500 (12.70)	53-005 UG-1666/U	Square	0.3	1.40
CRC420455	42	17.5-20.5	0.455 (11.56)	54-001 UG-595/U	Square	0.3	1.40
CRC420396	42	20-24.5	0.396 (10.06)	54-001 UG-595/U	Square	0.3	1.40
CRC420328	42	24-26.5	0.328 (8.33)	54-001 UG-595/U	Square	0.3	1.40
CRC280315	28	26.5-33	0.315 (8.00)	54-003 UG-595/U	Square	0.3	1.40
CRC280250	28	33-38.5	0.250 (6.35)	54-003 UG-595/U	Square	0.3	1.40
CRC280219	28	38.5-40	0.219 (5.56)	54-003 UG-595/U	Square	0.3	1.40
CRC220250	22	33-38.5	0.250 (6.35)	67B-006 UG-383/U-M	Round	0.4	1.40
CRC220219	22	38.5-43	0.219 (5.56)	67B-006 UG-383/U-M	Round	0.4	1.40
CRC220188	22	43-50	0.188 (4.78)	67B-006 UG-383/U-M	Round	0.4	1.40

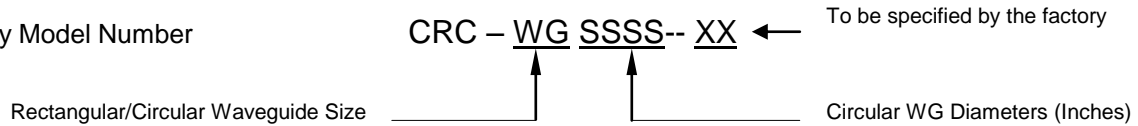
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Model No.	Wave guide Size	Frequency Range (GHz)	Circular Waveguide Diameter, Inches (mm)	Cover flange (Brass) MIL-F-3922UG	Flange Type	Insertion Loss TE ₁₁ (dB) Max.	VSWR Max.
CRC190210	19	40-43	0.210 (5.33)	67B-007 UG-383/U-M	Round	0.4	1.40
CRC190188	19	43-50	0.188 (4.78)	67B-007 UG-383/U-M	Round	0.4	1.40
CRC190165	19	50-60	0.165 (4.19)	67B-007 UG-383/U-M	Round	0.4	1.40
CRC150165	15	50-58	0.165 (4.19)	67B-008 UG-385/U-M	Round	0.5	1.40
CRC150141	15	58-68	0.141 (3.58)	67B-008 UG-385/U-M	Round	0.5	1.40
CRC150125	15	68-75	0.125 (3.18)	67B-008 UG-385/U-M	Round	0.5	1.40
CRC120136	12	60-66	0.136 (3.45)	67B-009 UG-387/U-M	Round	0.5	1.40
CRC120125	12	66-88	0.125 (3.18)	67B-009 UG-387/U-M	Round	0.5	1.40
CRC120094	12	88-90	0.094 (2.39)	67B-009 UG-387/U-M	Round	0.5	1.40
CRC100112	10	75-88	0.112 (2.84)	67B-010 UG/387/U-M	Round	0.6	1.50
CRC100094	10	88-110	0.094 (2.39)	67B-010 UG/387/U-M	Round	0.6	1.50
CRC080089	8	90-115	0.089 (2.26)	UG-387/ U-M	Round	0.8	1.50
CRC080075	8	115-140	0.075 (1.91)	UG-387/ U-M	Round	0.8	1.50
CRC060073	6	110-140	0.073 (1.85)	UG-387/ U-M	Round	-	-
CRC060059	6	140-160	0.059 (1.50)	UG-387/ U-M	Round	-	-
CRC050058	5	140-220	0.058 (1.47)	UG-387/ U-M	Round	-	-
CRC050049	5	170-260	0.049 (1.25)	UG-387/ U-M	Round	-	-

* Other frequencies are also available

HOW TO ORDER:

Specify Model Number





Rectangular to Circular Waveguide Transitions TE₁₁ & TE₀₁ Mode

Table 1-1 TE₀₁ Circular Waveguides

Standard Waveguide		MIL-W-23068 Circular Waveguide		
I.D O.D. (Inch)	Frequency (GHz)	I.D O.D. (Inch)	Frequency (GHz)	Type
1.500X1.750	11.6-16.0	1.500X1.700	11.6-16.0	WRC530D14
1.265X1.375	13.2-18.9	1.281X1.441	13.6-18.7	WRC621D14
1.106X1.250	15.9-21.9	1.094X1.224	15.9-21.9	WRC727D14
0.951X1.125	18.6-25.6	0.938X1.068	18.6-25.6	WRC849D14
0.686X0.750	25.3-34.9	0.797X0.897	21.9-30.1	WRC997D14
0.688X0.888	25.3-34.9	0.688X0.788	25.3-34.9	WRC116C14
0.634X0.750	27.3-38.0	0.594X0.674	29.3-40.4	WRC134C14
0.545X0.625	32.0-44.0	-----	-----	N/A
0.495X0.625	34.8-48.0	0.500X0.580	34.8-48.0	WRC159C14
-----	-----	0.438X0.518	39.8-54.8	WRC182C14
0.370X0.500	46.4-63.9	0.375X0.435	46.4-63.9	WRC212C14
0.353X0.438	50.0-68.0	0.328X0.388	53.1-73.1	WRC243C14
0.291X0.375	62.0-84.0	0.281X0.341	61.9-85.2	WRC283C14
0.249X0.313	69.7-95.9	0.250X0.290	69.7-95.9	WRC318C14
0.201X0.290	86.0-115.0	0.219X0.259	79.6-110.0	WRC364C14
0.186X0.250	93.0-128.0	0.188X0.228	92.6-128.0	WRC424C14
-----	-----	0.172X0.212	101.0-139.0	WRC463C14
-----	-----	0.141X0.181	124.0-171.0	WRC566C14

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