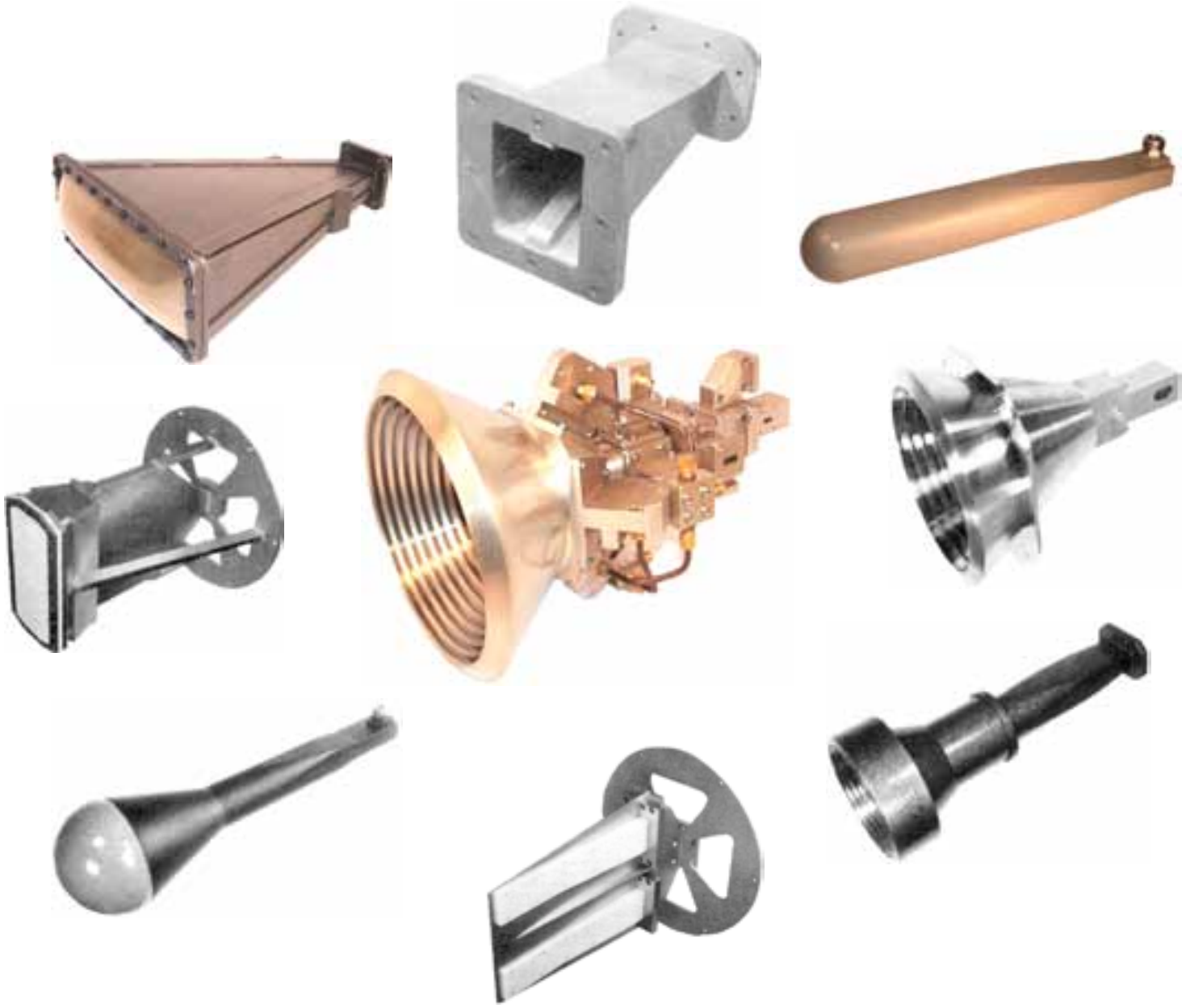
HORN ANTENNAS
390 SERIES



Microwave Engineering Corporation offers a wide range of custom-designed Horn Antenna operating from 1 to 100 GHz with a choice of waveguide or coaxial inputs. All polarizations are available; linear, dual linear, circular, and dual circular. The numbering system uses 390 for linear, 390-DL for dual linear, 390-CL for left-hand circular, 390-CR for right hand circular, 390-DC for dual circular, and MF390 for multi-frequency feed. The following pages describe typical designs. Other antennas can be readily supplied to satisfy unique requirements. Simply specify frequency bandwidth, gain, beamwidth, polarization, power, mechanical and environmental requirements. Your call or visit is invited.

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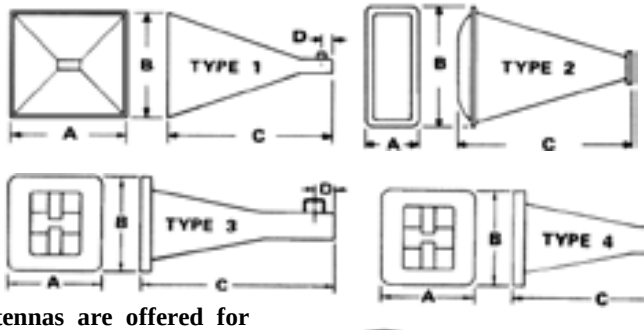
LINEARLY POLARIZED HORN ANTENNAS

- LOW VSWR
- PRESSURIZABLE
- RUGGED CONSTRUCTION
- HIGH POWER
- BROAD BAND



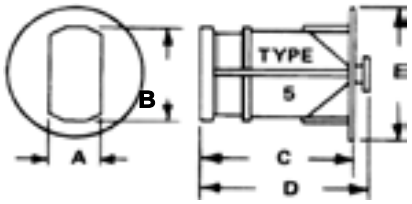
DESCRIPTION

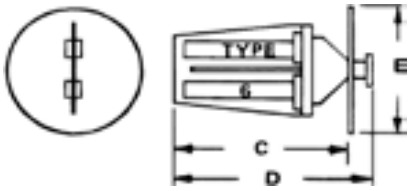
Several types of Linearly Polarized Horn Antennas are offered for bandwidths of an octave of more with a choice of waveguide or coaxial inputs

Type 1 is an octave bandwidth pyramidal horn. Type 2 is a sectoral horn pressurized to 15 psig. Type 3 and 4 are octave-plus bandwidth, ridged horns with nearly equal E and H-plane beamwidths. Type 5 is a lens-corrected horn; Type 6 is an array of 2 end-fire elements. Type 2, 5 & 6 handle 100 KW peak power when pressurized to 18 psig. All units operate from –55 to + 120°C.

Construction is aluminum with chromate conversion per MIL-C-5541, Class 3 and epoxy enamel paint.

Typical examples are listed. Other frequency bands and various input connectors may be specified.





SPECIFICATONS

MODEL NUMBER	FREQUENCY RANGE(GHz)	TYPE	INPUT	NOMINAL GAIN(dBi)	MAXIMUM VSWR	NOM. 3dB BEAMWIDTH		DIMENSIONS (INCHES)				
						E-PLANE	H-PLANE	A	B	C	D	E
RECTANGULAR WAVEGUIDE INPUT												
P390-10	14.0 –15.2	2	WR-62	19.0	1.25	33	12	2.00	6.00	11.22	-	-
P390-8	14.0 – 15.2	5	WR-62	19.0	1.4	28	11	2.70	5.35	8.18	8.7	7.5
H390-9	7.8 – 9.6	2	WR-112	17.7	1.25	33	17	2.80	7.00	8.96	-	-
H390-29	7.8- 9.6	6	WR-112	19.0	1.4	28	11	-	-	8.83	9.25	7.5
DOUBLE-RIDGE WAVEGUIDE INPUT												
R390-11	8.0 – 18.0	4	WRD750D24	10	1.2*	65-40	80-55	1.4	1.5	2.2	-	-
R397-108	6.5 – 18.0	4	WRD650D28	10	1.2*	80-50	85-55	1.6	1.5	2.5	-	-
R391-41	5.0 – 11.0	4	WRD475D24	10	1.2*	65-40	85-55	2.2	2.4	3.6	-	-
R392-13	3.5 – 8.0	4	WRD350D24	10	1.2*	65-40	80-55	2.8	3.0	4.5	-	-
R393-14	2.0 – 4.8	4	WRD200D24	10	1.2*	65-40	80-55	5.5	6.0	9.0	-	-
R394-42	0.9 – 2.0	4	WRD840U25	10	1.2*	65-40	80-55	11.0	12.0	18.0	-	-
COAXIAL INPUT												
C390-43	6.5 – 18.0	3	SMA	10	1.3*	65-40	80-55	1.6	1.5	3.5	0.6	-
C390-44	5.0 – 11.0	3	TNC	10	1.3*	65-40	80-55	2.2	2.4	5.1	0.6	-
C390-45	3.5 – 8.0	3	N	10	1.3*	65-40	80-55	2.8	3.0	5.7	0.6	-
C390-46	2.0 – 4.8	3	N	10	1.3*	65-40	80-55	5.5	6.0	11.0	0.7	-
C390-12	0.9 – 2.0	3	N	10	1.3*	65-40	80-55	11.0	12.0	21.5	1.1	-
C390-98	8.0 – 18.0	1	SMA	21	1.5*	15	15	5.0	3.5	10.5	0.6	-
C390-95	4.0 – 8.0	1	TNC	22	1.5*	15	15	11.8	8.8	25.5	1.2	-

*** Including optional protective aperture window**

ORDERING INFORMATION

(1) For coaxial input, add suffix to the C390 model number as follows:

-3 for SMA female	-T for TNC female	-N for N female
-3M for SMA male	-TM for TNC male	-NM for N male

(2) Specify power lever required.

Data subject to change without notice

CIRCULARLY POLARIZED HORN ANTENNAS

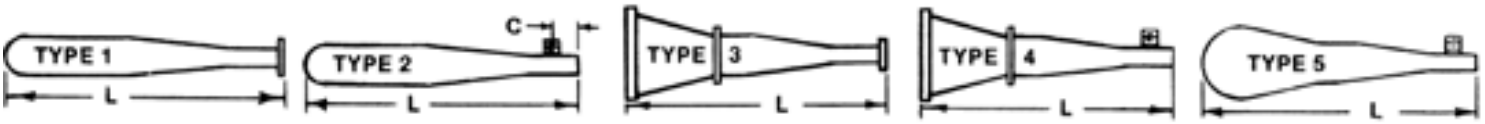
- **LOW VSWR**
- **HIGH POWER**
- **BROAD BAND (OCTAVE OR MORE)**

DESCRIPTION

MEC's Circularly Polarized Horn Antennas offer frequency coverage of an octave or more with symmetrical E and H-Plane beamwidths. Standard gain units (9 dBi) have a nominal beamwidth of 60° and incorporate a hemispherical fiberglass radome. High gain units (15dBi) have a conical flare to increase the gain 6 dB, hence the nominal beamwidth is 30°. All types are pressurized to 15 psig.

All units offer lower VSWR, high power handling and are suitable for military airborne applications.

Narrow band units with improved VSWR and axial ratio can be supplied. Broader bandwidths and other lengths available on request.



SPECIFICATIONS

MODEL NUMBER	FREQUENCY RANGE (GHz)	TYPE	GAIN ABOVE C.P. ISOTROPIC (dBi, NOMINAL)	CW POWER (W)	MAXIMUM AXIAL RATIO (dB)	Maximum VSWR	DIMENSIONS (INCHES)		
							LENGTH	C	DIAMETER
C390()-158	8.0-16.0	4	11	100	5	2.0	6.0	.30	2.1
R390()-1	8.0-16.0	1	9	100	4	1.4	4.80	-	1.06
C390()-34	8.0-16.0	2	9	100	4	1.4	4.80	.39	1.06
R390()-36	8.0-16.0	3	15	100	5	1.4	7.50	-	3.0
C390()-39	8.0-16.0	4	15	100	5	1.4	7.50	.39	3.0
C390()-26	5.925-6.425	2	9	2	1	1.3	7.64	.39	1.5
R391()-30	5.4-10.4	1	9	200	4	1.4	7.7	-	1.5
C390()-4	5.4-10.4	2	9	200	4	1.4	7.64	.39	1.5
R391()-31	5.4-10.4	1	9	200	4	1.4	10.16	-	1.5
C390()-2	5.4-10.4	2	9	200	4	1.4	10.16	.39	1.5
R391()-32	5.4-10.4	1	9	200	4	1.4	23.88	-	1.5
C390()-6	5.4-10.4	2	9	200	4	1.4	23.88	.39	1.5
R391()-37	5.4-10.4	3	15	200	5	1.4	11.19	-	4.0
C390()-5	5.4-10.4	4	15	200	5	1.4	11.19	.455	4.0
C390()-27	5.4-10.4	5	15	200	5	1.4	13.86	.455	3.75
R392()-33	4.0-8.0	1	9	300	4	1.4	10.50	-	2.0
C390()-15	4.0-8.0	2	9	300	4	1.4	10.50	.60	2.0
R392()-38	4.0-8.0	3	15	300	5	1.4	14.50	-	5.0
C390()40	4.0-8.0	4	15	300	5	1.4	14.50	.60	5.0
C390()-35	2.0-5.0	2	9	400	5	1.8	17.90	.64	3.75

For R390, R391, and R392 double-ridge flange inputs and C390 input types see Page 2.
SMA connector 50W max.,
TNC 200W max.

ORDERING INFORMATION

To specify right-hand or left-hand circular polarization, insert "CR" or "CL" in model number parenthesis.

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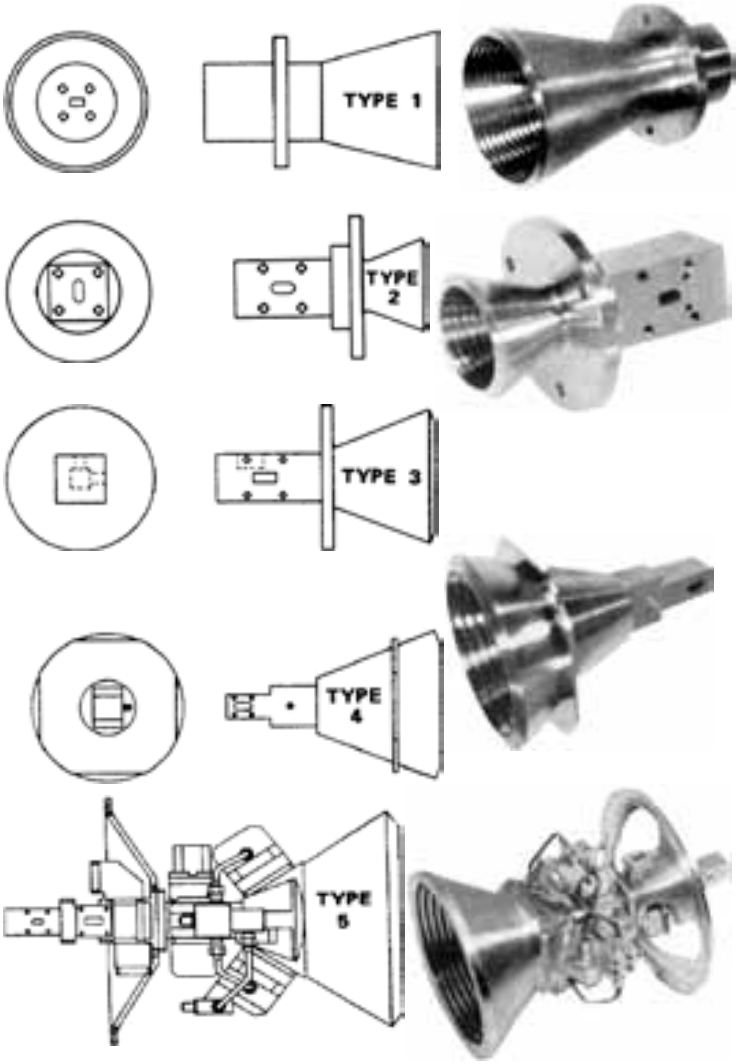
CORRUGATED CONICAL HORN ANTENNAS

- BROAD BAND/MULTI-FREQUENCY
- SYMMETRICAL CONSTANT WIDTH BEAMS
- POLARIZATION FLEXIBILITY



DESCRIPTION

A wide flare corrugated conical horn produces nearly constant and equal E and H-plane beamwidths over broad frequency bands. Beamwidths can be 20 to 70 degrees. It also features very low side and cross polarized lobes and low internal losses.

A narrow flare corrugated conical horn produces frequency dependent, equal E and H-plane beamwidths over an octave beamwidth. Beamwidths can be 7 to 40 degrees.

The corrugations in these horns modify wall impedance to excite a hybrid mode (HE_{11}) and produce an aperture field nearly identical in all planes. Due to circular symmetry these horns will support any polarization.

Listed are five typical designs depicting what can be accomplished with this type of horn. Type 1 is linearly polarized with a step transition to rectangular waveguide input. Type 2 incorporates an orthomode transducer for dual polarization operation. Type 3 is a linearly polarized narrow flare horn which can operate over an octave band. Type 4 is a dual-frequency unit employing a separate orthogonal input for each frequency.

Type 5 is a space-qualified multi-frequency horn operating with dual linear polarizations in narrowband channels at widely separated frequencies. Beams from all ports have nearly equal 10 dB widths, which are ideal for secondary aperture illumination in multi-channel systems. All frequencies and polarizations are isolated from each other and insertion loss is low.

SPECIFICATIONS

MODEL NUMBER	FREQUENCY (GHz)	TYPE	INPUT	POLARIZATION	NOMINAL GAIN (dBi)	NOMINAL 3dB B.W. DEGREES	MAXIMUM VSWR	DIMENSION (INCHES)	
								LENGTH	APERTURE DIAMETER
A390-17	32 ± 8	1	WR-28	LINEAR	23	12	1.3	4.4	2.67
A390-DL-17	37.0 ± 1.0	2	WR-28	DUAL LINEAR	17	24	1.2	2.5	1.22
MF390-107	54 ± 4 90 ± 2	3	WR-19 WR-12	LINEAR LINEAR	20 25	17 9	1.2 1.2	3.75	1.20
MF390-18	6.6 ± 0.1 10.7 ± 0.1	4	SMA WR-90	LINEAR LINEAR	17 20	25 16	1.2 1.2	9.0	6.29
MF390-DL-21	6.6 ± 0.1 10.7 ± 0.1 18.0 ± 0.1 21.0 ± 0.1 37.0 ± 0.1	5	SMA SMA WR-42 WR-42 WR-28	DUAL LINEAR DUAL LINEAR DUAL LINEAR DUAL LINEAR DUAL LINEAR	17 18 15 14 17	26 25 33 38 24	1.5 1.3 1.2 1.2 1.2	10.0	6.13

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