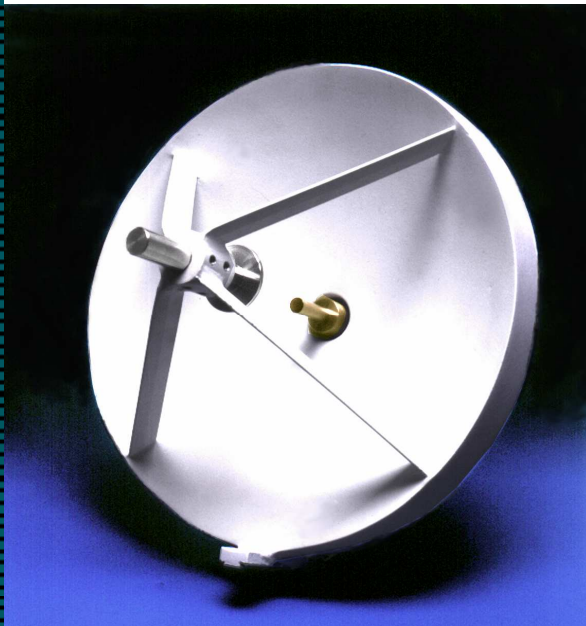


SERIES CRA

CASSEGRAIN REFLECTOR ANTENNAS



FEATURES:

- Highly efficient, low VSWR
- Wide range of sizes available
- Available for use from 18 to 220 GHz
- Polarization options offered

APPLICATIONS:

- Communication systems
- Radars and radiometers
- EW/ELINT

DESCRIPTION

Millitech offers a wide range of parabolic reflector antennas with Cassegrain feeds. Series CRA antennas are available for operation over 18 to 220 GHz with standard reflector diameters ranging from 6"/15.24 cm to 48"/121.92 cm, depending on the frequency. (see Antenna and Quasi Product Capability Chart at end) The main reflector has a highly accurate reflective surface and is constructed of either graphite epoxy or an epoxy glass composite. The subreflector is a machined aluminum hyperboloid which is rigidly supported by struts. These struts are designed to have minimal cross-section with reduced aperture blockage, and hence, produce low sidelobe levels (typically 16 dB).

The feeds are designed to obtain the best performance over the widest bandwidth possible. The gain of the antenna depends upon its diameter, illumination, and frequency of operation.

The sidelobes are determined by the edge illumination taper as well as by the subreflector blockage. Typical match into the antenna feed input is 1.5:1. For boresighting the antenna, an optional boresighted telescopic sight is provided. The antenna feed is a circular waveguide of specified diameter with an option for rectangular waveguide for linearly-polarized applications.

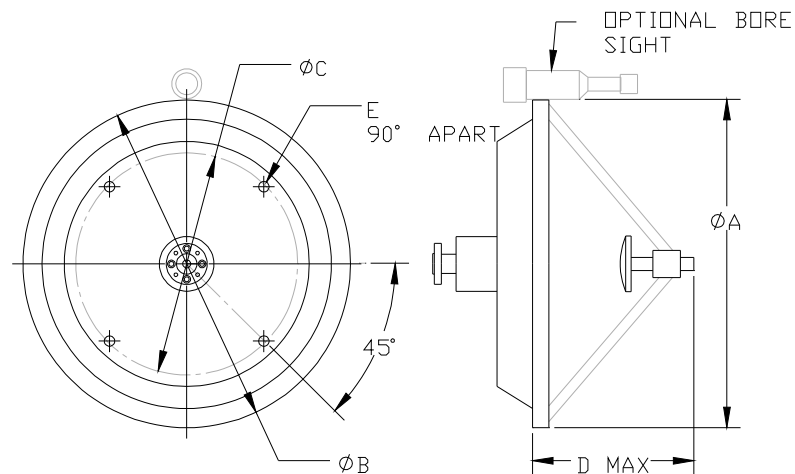
Millitech also offers polarizers (series POL) and orthomode transducers (series OMT).

ELECTRICAL SPECIFICATIONS

Performance Parameter	Range	Remarks
Frequency range (GHz)	18 to 220	Practical range for waveguide feeds.
Standard reflector diameters (in)*	6, 10, 12, 18, 24, 36, 48	Other diameters available (e.g. 13, 15).
Beamwidth (degrees) (nom)	0.1 to 8.0	Beamwidth depends on frequency and diameter selected.
Gain (dBi) (nom)	26 to 62	Depending on the frequency and diameter selected.
Sidelobes (dB) (typ)	16	Typical value for standard product. Blockage by subreflector determines sidelobe level.
VSWR (typ)	1.5:1	Return loss 14 dB typical.

* Larger, non-standard reflector diameters are available. Please consult Millitech for details.

OUTLINE DRAWINGS*



*The outlines shown may not reflect the latest information. Please contact Millitech for current outline drawings.

MECHANICAL SPECIFICATIONS

A Reflector diameter (in/mm)	6.0/152	10.0/254	12.0/305	18.0/457	24.0/610	36.0/914	48.0/1219
B Housing diameter (in/mm)	6.0/152	10.0/254	12.0/305	18.8/478	24.8/630	36.8/935	49.2/1250
C (in/mm)	4.0/102	7.0/178	10.0/254	10.0/254	16.5/419	24.0/610	36.0/914
D (in/mm)	3.6/91	5.1/130	5.4/137	6.9/175	7.8/198	9.5/241	14/356
E (in/mm)	.190-24UNC.	.375-16UNC.	.375-16UNC.	.375-16UNC.	.375-16UNC.	.375-16UNC.	.500-13UNC.

HOW TO ORDER

Specify Model Number CRA-XX-ABBCCD
XX = Waveguide Band WR – number
A = Flange Type R – round (WR-28 through WR-05 only) S – square (WR-42 and WR-28 only) P – pin contact (WR-08 through WR-05 only)
BBB = Circular Waveguide Diameter (in) See Waveguide Sizes Table (next page) Specify ØØØ for rectangular waveguide
CC = Reflector Diameter (in/cm) 06 – 6/15.24 10 – 10/25.4 12 – 12/30.48 13 – 13/33.02 15 – 15/38.10 18 – 18/45.72 24 – 24/60.96 36 – 36/91.44 48 – 48/121.92
D = Material E – epoxy glass laminate G – graphite epoxy laminate

CIRCULAR WAVEGUIDE SIZES

Rectangular Waveguide Band	Circular Diameter Size	Frequency Range (GHz)*	Circular Waveguide Diameter (in/mm)	Specify When Ordering
K	Large	17.5-20.5	0.455/11.56	455
	Medium	20.0-24.5	0.396/10.06	396
	Small	24.0-26.5	0.328/8.33	328
Ka	Large	26.5-33.0	0.315/8.00	315
	Medium	33.0-38.5	0.250/6.35	250
	Small	38.5-40.0	0.219/5.56	219
Q	Large	33.0-38.5	0.250/6.35	250
	Medium	38.5-43.0	0.219/5.56	219
	Small	43.0-50.0	0.188/4.78	188
U	Large	40.0-43.0	0.210/5.33	210
	Medium	43.0-50.0	0.188/4.78	188
	Small	50.0-60.0	0.165/4.19	165
V	Large	50.0-58.0	0.165/4.19	165
	Medium	58.0-68.0	0.141/3.58	141
	Small	68.0-75.0	0.125/3.18	125
E	Large	60.0-66.0	0.136/3.45	136
	Medium	66.0-82.0	0.125/3.18	125
	Small	82.0-90.0	0.094/2.39	094
W	Large	75.0-88.0	0.112/2.84	112
	Small	88.0-110.0	0.094/2.39	094
F	Large	90.0-115.0	0.089/2.26	089
	Small	115.0-140.0	0.075/1.91	075
D	Large	110.0-140.0	0.073/1.85	073
	Small	140.0-160.0	0.059/1.50	059
G	Large	140.0-180.0	0.058/1.47	058
	Small	180.0-220.0	0.045/1.14	045

*If the required frequencies fall within two waveguide diameter sizes, the larger one should be selected.