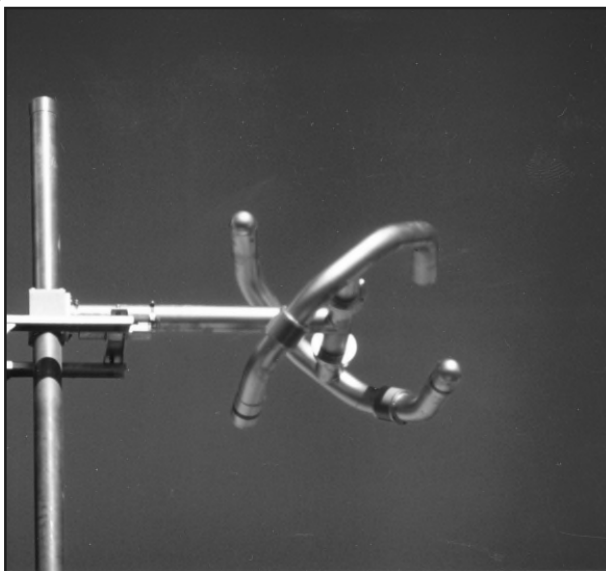


ROTOTILLER® Circularly Polarized FM Antenna



ERI antennas are unchallenged in quality and dependability. ERI is the only manufacturer to use large diameter outer conductors and a completely enclosed, pressurized, internal series feed system. The result is a simple and reliable method of coupling power to the elements. Unlike competing designs, ERI series fed antennas do not require a troublesome secondary current loop for element excitation with all the resulting disadvantages. All ERI antennas include brackets for mounting on leg, pole, or face mounting (up to 42-inch uniform cross section tower); brackets for other mounting configurations are optionally available.

ERI's original and distinctive design combines the exceptional engineering features of an internally fed, fully pressurized system with superior fabrication characterized by totally welded feed connections, rugged brass material and TIG welding. The ROTOTILLER® FM antenna's unique design consists of two series fed, bent dipole elements which form a space phased, circularly polarized radiator. The antenna's configuration and the large diameter of the radiating elements contribute to the excellent bandwidth of the antenna system, and also inhibits corona discharge.

The horizontally polarized horizontal plane azimuth pattern of the SHPX series antenna is omnidirectional within ± 2 dB when the antenna is pole or LAMBDA™ Optimized Mounting System mounted atop a tower. Side mounting the antenna on a typical tower structure will affect the azimuth pattern. ERI offers a pattern measurement service to assist in determining the effect of the mounting structure on the antenna's pattern. Using ERI's pattern optimization service, the pattern's circularity may be improved through the addition of parasitically excited elements.

Benefits

- Low VSWR, superior VSWR band width, and minimal weather related VSWR problems
- Fully pressurized, internal feed and welded feed connections
- High input power capacity
- Modular construction facilitates easy installation and repair
- Rugged brass construction and stainless steel support brackets and hardware – Corrosion resistant construction
- Radomes or deicing heaters not normally required for radial ice less than 1/2-inch; however radomes or deicing heaters are available

Characteristics

Product Line	ROTOTILLER®
Product Series	Classic Series
Frequency Range	88 - 108 MHz, Single frequency or multiplexed versions
Polarization	Circular (Clockwise)
Azimuth	± 2 dB in free space
Axial Ratio	Less than 3 dB in free space
VSWR at Input	1.07:1 or less (with field matching) 1.25:1 or less (with top pole or LAMBDA™ Mounting System) 1.50:1 or less (top mounted without field matching)

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Antennas

ROTOTILLER®

Circularly Polarized FM Antenna

MP Model - Medium Power

Electrical Specifications

Type Number	Number of Bays	Power Gain	dB Gain	Input Type	Feed Configuration	Input Power Rating kW	Bay to Bay Spacing
MP-1E	1	0.4611	-3.3623	3 1/8 inch 50 Ohm Female	End	12.0	Full Wave
MP-2E	2	0.9971	-0.0128	3 1/8 inch 50 Ohm Female	End	18.0	Full Wave
MP-2C	2	0.9971	-0.0128	3 1/8 inch 50 Ohm Female	Center	18.0	Full Wave
MP-3E	3	1.5588	1.9278	3 1/8 inch 50 Ohm Female	End	18.0	Full Wave
MP-3C	3	1.5588	1.9278	3 1/8 inch 50 Ohm Female	Off Center	18.0	Full Wave
MP-4E	4	2.1332	3.2903	3 1/8 inch 50 Ohm Female	End	18.0	Full Wave
MP-4C	4	2.1332	3.2903	3 1/8 inch 50 Ohm Female	Center	18.0	Full Wave
MP-5E	5	2.7154	4.3384	3 1/8 inch 50 Ohm Female	End	18.0	Full Wave
MP-5C	5	2.7154	4.3384	3 1/8 inch 50 Ohm Female	Off Center	18.0	Full Wave
MP-6C	6	3.3028	5.1888	3 1/8 inch 50 Ohm Female	Center	18.0	Full Wave
MP-7C	7	3.8935	5.9034	3 1/8 inch 50 Ohm Female	Off Center	18.0	Full Wave
MP-8C	8	4.4872	6.5197	3 1/8 inch 50 Ohm Female	Center	18.0	Full Wave
MP-9C	9	5.0826	7.0608	3 1/8 inch 50 Ohm Female	Off Center	18.0	Full Wave
MP-10C	10	5.6800	7.5435	3 1/8 inch 50 Ohm Female	Center	18.0	Full Wave
MP-11C	11	6.2783	7.9785	3 1/8 inch 50 Ohm Female	Off Center	18.0	Full Wave
MP-12C	12	6.8781	8.3747	3 1/8 inch 50 Ohm Female	Center	18.0	Full Wave
MP-2E-HW	2	0.7020	-1.5366	3 1/8 inch 50 Ohm Female	End	18.0	Half Wave
MP-2C-HW	2	0.7020	-1.5366	3 1/8 inch 50 Ohm Female	Center	18.0	Half Wave
MP-3E-HW	3	1.0120	0.0518	3 1/8 inch 50 Ohm Female	End	18.0	Half Wave
MP-3C-HW	3	1.0120	0.0518	3 1/8 inch 50 Ohm Female	Off Center	18.0	Half Wave
MP-4E-HW	4	1.3070	1.1628	3 1/8 inch 50 Ohm Female	End	18.0	Half Wave
MP-4C-HW	4	1.3070	1.1628	3 1/8 inch 50 Ohm Female	Center	18.0	Half Wave
MP-5E-HW	5	1.6120	2.0737	3 1/8 inch 50 Ohm Female	End	18.0	Half Wave
MP-5C-HW	5	1.6120	2.0737	3 1/8 inch 50 Ohm Female	Off Center	18.0	Half Wave
MP-6C-HW	6	1.9130	2.8171	3 1/8 inch 50 Ohm Female	Center	18.0	Half Wave
MP-7C-HW	7	2.2170	3.4577	3 1/8 inch 50 Ohm Female	Off Center	18.0	Half Wave
MP-8C-HW	8	2.5190	4.0123	3 1/8 inch 50 Ohm Female	Center	18.0	Half Wave
MP-9C-HW	9	2.8230	4.5071	3 1/8 inch 50 Ohm Female	Off Center	18.0	Half Wave
MP-10C-HW	10	3.1260	4.9499	3 1/8 inch 50 Ohm Female	Center	18.0	Half Wave
MP-11C-HW	11	3.4290	5.3517	3 1/8 inch 50 Ohm Female	Off Center	18.0	Half Wave
MP-12C-HW	12	3.7320	5.7194	3 1/8 inch 50 Ohm Female	Center	18.0	Half Wave

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Antennas

ROTOTILLER® Circularly Polarized FM Antenna

MP Model - Medium Power Mechanical Specifications

Type Number	Weight								C.A.							
	Antenna		Antenna & ½ in. radial ice		Antenna & radome		Antenna, radome, ½ in. radial ice		Antenna		Antenna & ½ in. radial ice		Antenna with radome		Antenna, radome, & ½ in. radial ice	
	lbm	kg	lbm	kg	lbm	kg	lbm	kg	ft²	m²	ft²	m²	ft²	m²	ft²	m²
MP-1E	84.00	38.10	144.00	65.32	149.00	67.59	244.00	110.58	3.69	0.34	4.99	0.46	6.91	0.64	8.19	0.76
MP-2C	199.00	90.26	326.00	147.87	330.00	149.69	526.00	238.59	7.96	0.74	10.65	0.99	14.34	1.33	16.89	1.57
MP-2E	167.00	75.75	285.00	129.27	292.00	132.45	475.00	215.46	7.47	.069	10.08	0.94	13.62	1.27	16.11	1.50
MP-3C	281.00	127.46	467.00	211.83	472.00	214.10	757.00	343.37	11.74	1.09	15.74	1.46	21.05	1.96	24.80	2.30
MP-3E	249.00	112.95	426.00	193.23	434.00	196.86	706.00	320.24	11.26	1.05	15.17	1.41	20.33	1.89	24.02	2.23
MP-4C	364.00	165.11	608.00	275.78	615.00	278.96	988.00	448.15	15.53	1.44	20.83	1.94	27.76	2.58	32.71	3.04
MP-4E	332.00	144.24	567.00	238.59	577.00	224.07	937.00	389.18	15.05	1.40	20.27	1.88	27.04	2.51	31.93	2.97
MP-5C	447.00	202.76	749.00	339.74	758.00	343.82	1219.00	552.93	19.32	1.80	25.92	2.41	34.47	3.20	40.63	3.77
MP-5E	415.00	188.24	708.00	321.14	720.00	326.59	1168.00	529.80	18.83	1.75	25.36	2.36	33.75	3.14	39.84	3.70
MP-6C	530.00	240.40	890.00	403.70	901.00	408.69	1450.00	657.71	23.10	2.15	31.02	2.88	41.19	3.83	48.54	4.51
MP-7C	612.00	277.60	1031.00	467.65	1043.00	473.10	1681.00	762.49	26.89	2.50	36.11	3.35	47.90	4.45	56.45	5.24
MP-8C	695.00	315.25	1172.00	531.61	1186.00	539.96	1912.00	867.27	30.68	2.85	41.20	3.83	54.61	5.07	64.36	5.98
MP-9C	778.00	352.90	1313.00	595.57	1329.00	602.82	2143.00	972.05	34.47	3.20	46.29	4.30	61.32	5.70	72.27	6.71
MP-10C	861.00	390.54	1454.00	659.52	1472.00	667.69	2374.00	1076.83	38.25	3.55	51.38	4.77	68.03	6.32	80.18	7.45
MP-11C	943.00	427.74	1595.00	723.48	1614.00	732.10	2605.00	1181.61	42.04	3.91	56.48	5.25	74.74	6.94	88.09	8.18
MP-12C	1026.00	465.39	1736.00	787.44	1757.00	796.96	2836.00	1286.39	45.83	4.26	61.57	5.72	81.45	7.57	96.00	8.92
MP-2C-HW	184.00	83.46	300.00	136.08	315.00	142.89	500.00	226.80	7.02	0.62	9.33	0.87	13.41	1.25	15.65	1.45
MP-2E-HW	152.00	68.95	259.00	117.48	277.00	125.65	449.00	203.66	6.53	0.61	8.84	0.82	12.68	1.18	14.87	1.38
MP-3C-HW	251.00	113.85	415.00	188.24	442.00	200.48	705.00	319.78	9.87	0.92	13.26	1.23	19.18	1.78	22.33	2.07
MP-3E-HW	219.00	99.34	374.00	169.64	404.00	183.25	654.00	296.65	9.38	0.87	12.70	1.18	18.45	1.71	21.54	2.00
MP-4C-HW	319.00	144.70	530.00	240.40	570.00	258.55	910.00	412.77	12.72	1.18	17.12	1.59	24.95	2.32	29.00	2.69
MP-4E-HW	287.00	130.18	489.00	221.81	532.00	241.31	859.00	389.64	12.23	1.14	16.55	1.54	24.23	2.25	28.22	2.62
MP-5C-HW	387.00	175.54	645.00	292.57	698.00	316.61	1115.00	505.76	15.57	1.45	20.97	1.95	30.72	2.85	35.68	3.31
MP-5E-HW	355.00	155.58	604.00	259.00	660.00	255.37	1064.00	447.24	15.08	1.57	20.41	2.09	30.00	2.76	34.89	3.34
MP-6C-HW	455.00	206.39	759.00	344.28	826.00	374.67	1320.00	598.74	18.42	1.71	24.83	2.31	36.50	3.39	42.35	3.94
MP-7C-HW	522.00	236.78	874.00	396.44	953.00	432.27	1525.00	691.73	21.27	1.98	28.68	2.66	42.27	3.93	49.02	4.55
MP-8C-HW	590.00	267.52	989.00	448.60	1081.00	490.33	1730.00	784.71	24.12	2.24	32.54	3.02	48.04	4.46	55.70	5.17
MP-9C-HW	658.00	298.46	1104.00	500.77	1209.00	548.39	1935.00	877.70	26.97	2.51	36.39	3.38	53.82	5.00	62.37	5.79
MP-10C-HW	726.00	329.31	1219.00	552.93	1337.00	606.45	2140.00	970.69	29.82	2.77	40.25	3.74	59.59	5.54	69.04	6.41
MP-11C-HW	793.00	359.70	1334.00	605.09	1464.00	664.06	2344.00	1063.22	32.66	3.03	44.10	4.10	65.36	6.07	75.72	7.03
MP-12C-HW	861.00	390.54	1449.00	657.26	1592.00	722.12	2549.00	1156.21	35.51	3.30	47.96	4.45	71.14	6.61	82.39	7.65

Notes:

(1) Antenna weight and wind load are approximate values for a typical structure assuming no top load. Final design loads will vary for specific projects and should be verified by an ERI representative.

(2) Wind loads are calculated in accordance with the ANSI/TIA/EIA 222-F standard. Weight and effective wind area (CaC) includes antenna, inner transmission feed and typical support mast and mounting brackets with no ice.

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