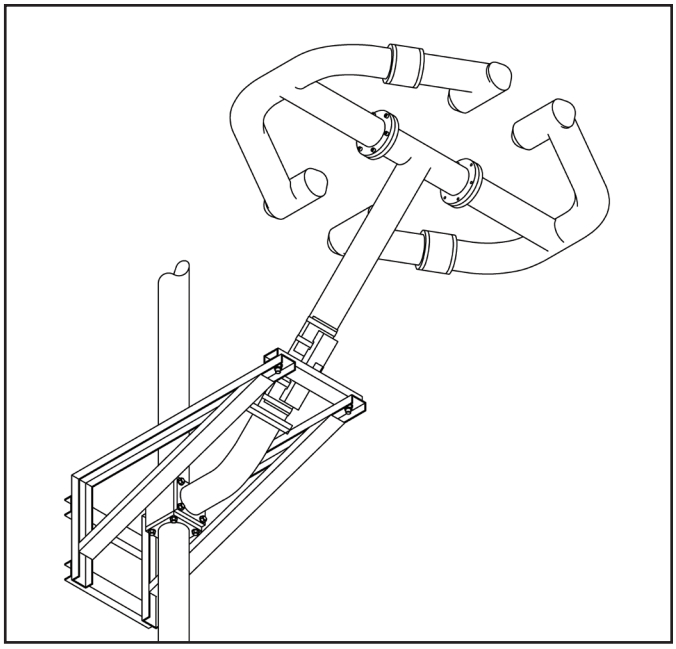
ROTOTILLER® *H Series*

Horizontally Polarized FM Antenna

Features

- Low VSWR, Superior VSWR Band Width, Minimal weather related VWSR problems
- Internal feed, Fully pressurized, Welded feed connections, Series fed radiation elements
- High input power capacity
- Modular construction facilitates easy installation and repair, Custom modifications are available
- Rugged brass construction - TIG welding, Stainless steel support brackets and hardware, Corrosion resistant construction
- Deicing heaters not normally required for ice radial less than 1/2 inch



The H series, horizontally polarized antennas will afford broadcasters all the advantages of ERI's standard internal feed and fully pressured design, plus higher antenna gains and increased omnidirectional pattern characteristics.

Horizontal polarization only allows station owners to choose between circular polarization or increased antenna gain to achieve optimum market penetration. Maximum allowable ERP is maintained while reducing the required transmitter power and minimizing cost.

The H Series antenna can also be combined with the P-300 series (vertical only) antenna to achieve custom horizontal to vertical component ratios. This technique can be useful in reducing the problems associated with multi-path in mountainous terrain. The antenna's rugged construction and resistance to the effects of radial ice make this combination unbeatable.

Both antennas are constructed of large diameter copper tubing, brass fittings and TIG welding. The antennas operate in a totally pressurized environment with all welded feed point connections. These features contribute to the superior power handling capabilities, excellent bandwidth and durability of the system. The antenna pattern is ± 2 dB when mounted on a Lambda system or on a small diameter antenna pole. Side mounting the antenna on a typical tower structure will affect the azimuth pattern. ERI offers pattern measurements and optimization to improve the circularity of the antenna system.

Characteristics

Product Line	ROTOTILLER®
Product Series	H Series
Frequency Range	88 -108 MHz, Single Frequency
Polarization	Horizontal
Azimuth	± 2 dB in free space
VSWR at Input	1.07:1 or less (with field matching) 1.25:1 or less (top pole or LAMBDA™ Mounting System) 1.50:1 or less (side mount without field matching)

NOTE: The VSWR specifications apply over a frequency ± 200 kHz from the tuning point of the antenna. Where deicing heaters are not used, this tuning point is customarily set 200 kHz above the station operating frequency to provide improved performance under icing conditions. Parasitic elements tend to reduce the VSWR bandwidth of the antenna.

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SHP-H Model - Super High Power

Electrical Specifications

Type Number	Number of Bays	Power Gain	dB Gain	Input Type	Feed Configuration	Input Power Rating *kW*	Bay to Bay Spacing
SHP-H-1AE	1	0.9140	-0.3910	3 1/8 inch 50 Ohm Female	End	32	Full Wave
SHP-H-2AE	2	1.9810	2.9690	3 1/8 inch 50 Ohm Female	End	32	Full Wave
SHP-H-2AC	2	1.9810	2.9690	3 1/8 inch 50 Ohm Female	Center	39	Full Wave
SHP-H-2AC6	2	1.9810	2.9690	6 1/8 inch 50 Ohm Female	Center	64	Full Wave
SHP-H-3AE	3	3.1000	4.9140	3 1/8 inch 50 Ohm Female	End	32	Full Wave
SHP-H-3AC	3	3.1000	4.9140	3 1/8 inch 50 Ohm Female	Off Center	39	Full Wave
SHP-H-3AC6	3	3.1000	4.9140	6 1/8 inch 50 Ohm Female	Off Center	64	Full Wave
SHP-H-4AE	4	4.2460	6.2800	3 1/8 inch 50 Ohm Female	End	32	Full Wave
SHP-H-4AC	4	4.2460	6.2800	3 1/8 inch 50 Ohm Female	Center	39	Full Wave
SHP-H-4AC6	4	4.2460	6.2800	6 1/8 inch 50 Ohm Female	Center	64	Full Wave
SHP-H-5AE	5	5.4080	7.3310	3 1/8 inch 50 Ohm Female	End	32	Full Wave
SHP-H-5AC	5	5.4080	7.3310	3 1/8 inch 50 Ohm Female	Off Center	39	Full Wave
SHP-H-5AC6	5	5.4080	7.3310	6 1/8 inch 50 Ohm Female	Off Center	64	Full Wave
SHP-H-6AC	6	6.5810	8.1830	3 1/8 inch 50 Ohm Female	Center	39	Full Wave
SHP-H-6AC6	6	6.5810	8.1830	6 1/8 inch 50 Ohm Female	Center	64	Full Wave
SHP-H-7AC	7	7.7610	8.8990	3 1/8 inch 50 Ohm Female	Off Center	39	Full Wave
SHP-H-7AC6	7	7.7610	8.8990	6 1/8 inch 50 Ohm Female	Off Center	64	Full Wave
SHP-H-8AC	8	8.9470	9.5170	3 1/8 inch 50 Ohm Female	Center	39	Full Wave
SHP-H-8AC6	8	8.9470	9.5170	6 1/8 inch 50 Ohm Female	Center	64	Full Wave
SHP-H-9AC	9	10.1370	10.0590	3 1/8 inch 50 Ohm Female	Off Center	39	Full Wave
SHP-H-9AC6	9	10.1370	10.0590	6 1/8 inch 50 Ohm Female	Off Center	64	Full Wave
SHP-H-10AC	10	11.3300	10.5420	3 1/8 inch 50 Ohm Female	Center	39	Full Wave
SHP-H-10AC6	10	11.3300	10.5420	6 1/8 inch 50 Ohm Female	Center	64	Full Wave
SHP-H-11AC	11	12.5270	10.9780	3 1/8 inch 50 Ohm Female	Off Center	39	Full Wave
SHP-H-11AC6	11	12.5270	10.9780	6 1/8 inch 50 Ohm Female	Off Center	64	Full Wave
SHP-H-12AC	12	13.7250	11.3750	3 1/8 inch 50 Ohm Female	Center	39	Full Wave
SHP-H-12AC6	12	13.7250	11.3750	6 1/8 inch 50 Ohm Female	Center	64	Full Wave
SHP-H-1BE	1	0.9140	-0.3910	6 1/8 inch 50 Ohm Female	End	40	Full Wave
SHP-H-2BC	2	1.9810	2.9690	6 1/8 inch 50 Ohm Female	Center	80	Full Wave
SHP-H-4BC	4	4.2460	6.2800	6 1/8 inch 50 Ohm Female	Center	112	Full Wave
SHP-H-6BC	6	6.5810	8.1830	6 1/8 inch 50 Ohm Female	Center	112	Full Wave
SHP-H-8BC	8	8.9470	9.5170	6 1/8 inch 50 Ohm Female	Center	112	Full Wave
SHP-H-4CE	4	4.2460	6.2800	6 1/8 inch 50 Ohm Female	End	120	Full Wave
SHP-H-6CE	6	6.5810	8.1830	6 1/8 inch 50 Ohm Female	End	120	Full Wave

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SHP-H Model - Super High Power

Mechanical Specifications

Type Number	Weight				C_aA_a			
	Antenna		Antenna & ½ in. radial ice		Antenna		Antenna & ½ in. radial ice	
	lbm	*kg*	*lbm*	*kg*	*ft²*	*m²*	*ft²*	*m²*
SHP-H-1AE	114.00	51.71	194.63	88.28	6.52	0.61	8.99	0.84
SHP-H-2AE	225.00	102.06	383.65	174.02	13.36	1.24	18.35	1.70
SHP-H-2AC	250.00	113.40	417.07	189.18	14.03	1.30	19.13	1.78
SHP-H-2AC6	301.00	136.53	482.37	218.80	16.16	1.50	21.23	1.97
SHP-H-3AE	336.00	152.41	572.67	259.76	20.20	1.88	27.71	2.57
SHP-H-4AE	447.00	202.76	761.70	345.50	27.05	2.51	37.07	3.44
SHP-H-4AC	472.00	214.10	795.11	360.66	27.72	2.58	37.69	3.50
SHP-H-4AC6	523.00	237.23	860.41	390.28	29.85	2.77	39.79	3.70
SHP-H-5AE	558.00	253.10	950.72	431.24	33.89	3.15	46.42	4.31
SHP-H-5AC	583.00	264.44	984.13	446.39	34.56	3.21	47.04	4.37
SHP-H-5AC6	634.00	287.58	1049.43	476.01	36.69	3.41	49.14	4.57
SHP-H-6AE	669.00	303.45	1139.74	516.98	40.74	3.78	55.78	5.18
SHP-H-6AC	694.00	314.79	1173.16	532.14	41.41	3.85	56.25	5.23
SHP-H-6AC6	745.00	337.93	1238.45	561.75	43.53	4.04	58.35	5.42
SHP-H-7AE	780.00	353.80	1328.76	602.72	47.58	4.42	65.14	6.05
SHP-H-7AC	805.00	365.14	1362.18	617.87	48.25	4.48	65.61	6.10
SHP-H-7AC6	856.00	388.28	1427.47	647.49	50.37	4.68	67.71	6.29
SHP-H-8AE	891.00	404.15	1517.78	688.45	54.42	5.06	74.49	6.92
SHP-H-8AC	916.00	415.49	1551.20	703.61	55.02	5.11	74.81	6.95
SHP-H-8AC6	967.00	438.62	1616.50	733.23	57.22	5.32	76.91	7.15
SHP-H-9AC	1002.00	454.50	1706.81	774.20	61.27	5.69	83.69	7.78
SHP-H-9AC6	1027.00	465.84	1740.23	789.35	61.87	5.75	84.01	7.80
SHP-H-10AC	1138.00	516.19	1929.24	875.09	68.78	6.39	93.37	8.67
SHP-H-10AC6	1189.00	539.32	1994.54	904.71	70.91	6.59	95.47	8.87
SHP-H-11AC	1214.00	550.66	2027.96	919.87	71.51	6.64	95.79	8.90
SHP-H-11AC6	1325.00	601.01	2216.97	1005.60	78.42	7.29	105.15	9.77
SHP-H-12AC	1360.00	616.89	2307.29	1046.57	82.47	7.66	111.92	10.40
SHP-H-12AC6	1411.00	640.02	2372.58	1076.18	84.60	7.86	114.03	10.59
SHP-H-1BE	159.00	72.12	256.03	116.13	8.90	0.83	11.28	1.05
SHP-H-2BC	336.00	152.41	531.49	241.08	17.91	1.66	22.88	2.13
SHP-H-4BC	612.00	277.60	980.84	444.90	33.97	3.16	43.71	4.06
SHP-H-6BC	888.00	402.79	1430.20	648.73	50.03	4.65	64.55	6.00
SHP-H-8BC	1164.00	527.98	1879.56	852.55	66.09	6.14	85.38	7.93
SHP-H-4CE	820.00	371.95	1246.58	565.44	43.86	4.07	53.73	4.99
SHP-H-6CE	1230.00	557.92	1862.77	844.94	65.14	6.05	79.79	7.41

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 (CaAc) includes antenna, inner transmission feed and typical support mast and mounting brackets with no ice.

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Mounting Notes

The base price of ERI FM antennas include brackets for mounting on a tower leg or pole, up to 15-inches in diameter, or for face mounting on a uniform cross section tower section up to 42-inch face. Optional, standard fiberglass and steel anti-rotation brackets are available for uniform cross section tower faces up to 42-inches, center to center. For uniform tower faces greater than 42-inches steel anti-rotation brackets are generally used. Fiberglass anti-rotation brackets for face sizes larger than 42-inches may be available as a special order item. Please contact ERI with those requirements. Standard FM antenna mounting brackets and anti-rotation brackets assume that the tower face is unobstructed. If conduits, transmission lines, or other appurtenances are mounted on the tower face(s) they could interfere with standard bracket designs and may require an optional, extra cost, brackets to accommodate the obstruction. Contact ERI with details for further information. Brackets for mounting on tapered tower legs are available at additional cost. Contact ERI with tower details. Anti-rotation brackets (one per bay) required for leg mounting if leg O.D. is:

Anti-rotation brackets (per bay) required for:
Angle leg members
SHPX, SHP, SHP-H, MPX, MP, 300, and 350 Series: No
Radomes - Leg sizes 3-inches (76 mm) or less

Utilize the ERI Advantage

Combine an ERI antenna with an ERI Mounting Structure, Pattern Measurement and Installation. Assure yourself of the best antenna/tower interaction. ERI's Pattern Measurement service will provide the crucial answers concerning the relationship between the antenna mounting orientation and antenna pattern.

ERI Mounting Sections are designed to achieve optimum antenna performance while reducing weight and wind loads. Only ERI can offer you an antenna/tower/installation package that will achieve your highest expectations in a demanding FM market. Contact Electronics Research for complete electrical and mechanical specifications.

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Ordering Information

Type Number Definition

SHP-H - a b c d - e	
a	Number of Bays
b	Interbay Line Size: A = 3 1/8 inch, B = 4 1/8 inch, C = 6 1/8 inch
c	Input Feed Configuration: E = End Fed, C = Center fed for even number of bays, off center fed for odd number of bays
d	RF Input Size: Blank = 3 1/8 inch, 6 = 6 1/8 inch
e	Design Note 1: Blank = Omnidirectional, DA = Directional Azimuth Pattern
Example:	SHP-H-2AC
Description:	ERI Model SHP-H ROTOTILLER® FM Antenna, two bay, 3 1/8 inch interbay line, center fed.

Options*

- Anti-Rotation Brackets
- Quarter wave stub
- Beam tilt (center fed antennas only)
- First null fill (center fed antennas only)
- Second null fill (center fed antennas only)
- Radomes
- 600 W/ 220 V Deicers
- 300 W/ 220 V Deicers Stem heaters
- Teflon coating
- Export packing

* Options available at additional cost.

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