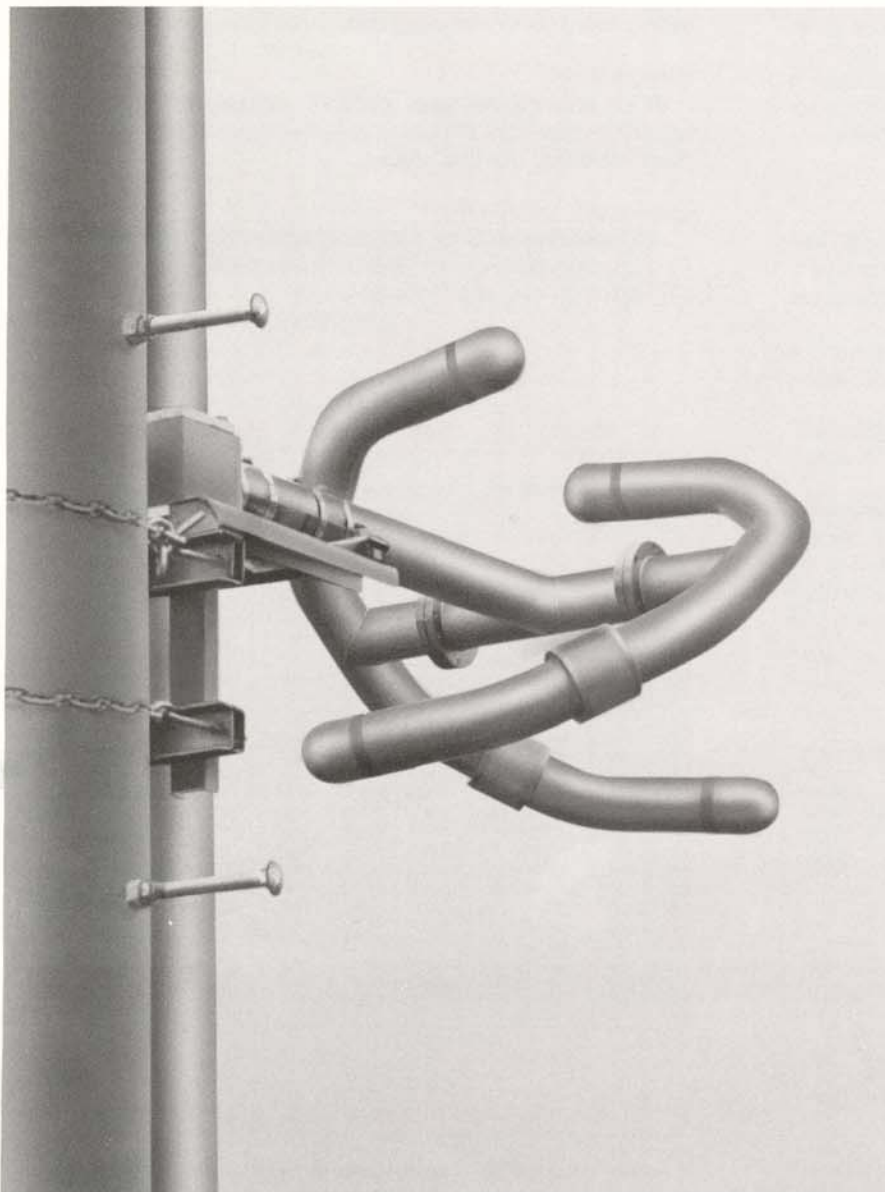


BESP



Super-Power Circularly Polarized FM Antennas

- High input power rating for maximum design flexibility
- Supports multi-station operation
- Superior bandwidth characteristics for minimal VSWR related signal loss
- Internal feed point design reduces weather related VSWR problems
- Durable, corrosion resistant construction (Brass elements, stainless steel supports)
- A variety of models available to meet virtually any requirement

You can count on years of rugged performance with the Broadcast Electronics model BESP circularly polarized FM antennas.

RADIATING ELEMENT

All BESP antennas feature a brass radiating element with an outside diameter of $3\frac{1}{8}$ inches. The feed point is internal, well shielded from the effects of weather. Each model BESP element is rated at 40 kW, with the exception of the "A" series end fed 1 and 2 bay antennas and the center fed 2 bay antennas which are rated at 32 and 39 kW respectively. The actual element ratings are limited only by the power handling capability of the $3\frac{1}{8}$ " rigid coaxial line.

BANDWIDTH

BESP antennas offer a low VSWR of 1.07:1 or less, ± 200 kHz on any FM channel with field trimming. Without field trimming, the VSWR at the input is typically 1.2:1 or less when the antenna

is pole mounted on the top of a tower, rising slightly to 1.5:1 or less when side mounted.

The BESP's are ideal for common antenna, multi-station operation due to their superior bandwidth characteristics. Broadcast Electronics can supply all of the necessary filtering components for these types of diplex or multiplex systems. Stations having a frequency separation of at least 4 MHz can be diplexed on a common BESP antenna. (If both transmitters are operating at the 40 kW level, a minimum frequency separation of 1.2 MHz is best to avoid over-heating the filter components.) Multi-station operation may require a multiple slug tuning system.

CIRCULARITY

When a BESP antenna is pole mounted at the top of a tower, the horizontally polarized radiation pattern is omni-directional. Circularity is usually ± 2 db when the antenna is mounted on a 14" diameter steel pole. If the antenna is side mounted, the supporting structure will have a slight effect on the radiation pattern.



BESP FM Antennas

DE-ICING

The BESP antennas have been designed to function without the need for de-icers or radomes in environments where the antennas do not accumulate more than a half inch of ice at any given time. Assuming that the normal VSWR is 1.1:1 or less, a half inch of ice should not increase the VSWR beyond 1.5:1. However, if the antennas will be used in heavy icing environments, we recommend the use of optional BESP radomes or electrical element de-icers.

AVAILABLE MODELS

There are three versions of the BESP available. The "A" version uses a 3 1/8" element feed system and 3 1/8" interbay line. It is available in 3 1/8" end fed, 3 1/8" center fed, and 6 1/8" center fed models. Arrays of up to 16 bays can be assembled.

The BESP "B" version uses a 4 1/8" element feed stem and a 4 1/8" rigid interbay line. It is available in either 6 1/8" end fed or 6 1/8" center fed models in arrays of up to 16 bays.

The BESP "C" version utilizes a 4 1/8" element feed stem and a 6 1/8" rigid interbay line with 6 1/8" end feed. "C" version antennas are available in arrays of up to 6 bays.

Each BESP antenna is supplied with a six foot input transformer. The input is 50 ohm EIA with either a 3 1/8" or a 6 1/8" flange depending on the model type. All antennas are assembled at the factory and pre-tuned to the desired frequency. A thorough pressure test is also performed to ensure that the antenna is free of leaks.

"A" Model, 3 1/8" Interbay Line, 3 1/8" Element Stem

| MODEL | STOCK NO. | POWER GAIN ¹ | | FEMALE 50 OHM INPUT | POWER ² INPUT CAPABILITY | CALCULATED WT. [LBS] | CALCU- ³ LATED WIND-LOAD [LBS] |
|------------|--------------|-------------------------|---------|---------------------|-------------------------------------|----------------------|---|
| | | POWER | dB | | | | |
| BESP-1AE | 809-1501-020 | 0.4611 | -3.3623 | 3 1/8" | 32 kW | 114 | 137 |
| BESP-2AE | 809-1502-020 | 0.9971 | -0.0128 | 3 1/8" | 32 kW | 225 | 304 |
| BESP-2AC | 809-1502-040 | 0.9971 | -0.0128 | 3 1/8" | 39 kW | 250 | 319 |
| BESP-2AC6 | 809-1502-080 | 0.9971 | -0.0128 | 6 1/8" | 64 kW | 301 | 421 |
| BESP-3AE | 809-1503-020 | 1.5588 | 1.9278 | 3 1/8" | 32 kW | 336 | 470 |
| BESP-3AC | 809-1503-050 | 1.5588 | 1.9278 | 3 1/8" | 39 kW | 361 | 485 |
| BESP-4AE | 809-1504-020 | 2.1332 | 3.2903 | 3 1/8" | 32 kW | 447 | 637 |
| BESP-4AC | 809-1504-040 | 2.1332 | 3.2903 | 3 1/8" | 39 kW | 472 | 652 |
| BESP-4AC6 | 809-1504-080 | 2.1332 | 3.2903 | 6 1/8" | 64 kW | 523 | 758 |
| BESP-5AE | 809-1505-020 | 2.7154 | 4.3384 | 3 1/8" | 32 kW | 558 | 804 |
| BESP-5AC | 809-1505-050 | 2.7154 | 4.3384 | 3 1/8" | 39 kW | 583 | 819 |
| BESP-5AC6 | 809-1505-090 | 2.7154 | 4.3384 | 6 1/8" | 64 kW | 634 | 925 |
| BESP-6AE | 809-1506-020 | 3.3028 | 5.1888 | 3 1/8" | 32 kW | 669 | 971 |
| BESP-6AC | 809-1506-040 | 3.3028 | 5.1888 | 3 1/8" | 39 kW | 694 | 986 |
| BESP-6AC6 | 809-1506-080 | 3.3028 | 5.1888 | 6 1/8" | 64 kW | 745 | 1096 |
| BESP-7AE | 809-1507-020 | 3.8935 | 5.9034 | 3 1/8" | 32 kW | 780 | 1138 |
| BESP-7AC | 809-1507-050 | 3.8935 | 5.9034 | 3 1/8" | 39 kW | 805 | 1153 |
| BESP-8AE | 809-1508-020 | 4.4872 | 6.5197 | 3 1/8" | 32 kW | 891 | 1305 |
| BESP-8AC | 809-1508-040 | 4.4872 | 6.5197 | 3 1/8" | 39 kW | 916 | 1320 |
| BESP-8AC6 | 809-1508-080 | 4.4872 | 6.5197 | 6 1/8" | 64 kW | 967 | 1433 |
| BESP-9AC | 809-1509-050 | 5.0826 | 7.0608 | 3 1/8" | 39 kW | 1027 | 1600 |
| BESP-10AC | 809-1510-040 | 5.6800 | 7.5435 | 3 1/8" | 39 kW | 1138 | 1653 |
| BESP-10AC6 | 809-1510-080 | 5.6800 | 7.5435 | 6 1/8" | 64 kW | 1189 | 1770 |
| BESP-11AC | 809-1511-040 | 6.2783 | 7.9785 | 3 1/8" | 39 kW | 1300 | 1922 |
| BESP-12AC | 809-1512-040 | 6.8781 | 8.3747 | 3 1/8" | 39 kW | 1360 | 1987 |
| BESP-12AC6 | 809-1512-080 | 6.8781 | 8.3747 | 6 1/8" | 64 kW | 1411 | 2108 |
| BESP-13AC | 809-1513-050 | 7.4785 | 8.7301 | 3 1/8" | 39 kW | 1471 | 2154 |
| BESP-13AC6 | 809-1514-040 | 8.0800 | 9.0741 | 3 1/8" | 39 kW | 1582 | 2321 |
| BESP-14AC6 | 809-1514-080 | 8.0800 | 9.0741 | 6 1/8" | 64 kW | 1633 | 2442 |
| BESP-15AC | 809-1515-050 | 8.6818 | 9.3861 | 3 1/8" | 39 kW | 1693 | 2488 |
| BESP-16AC | 809-1516-040 | 9.2846 | 9.6776 | 3 1/8" | 39 kW | 1804 | 2655 |
| BESP-16AC6 | 809-1516-080 | 9.2846 | 9.6776 | 6 1/8" | 64 kW | 1855 | 2766 |

MOUNTING

Stainless steel mounting brackets and associated hardware are supplied with each antenna for mounting on standard poles or towers. Brackets for mounting on tapered towers are also available.

DIMENSIONS

BESP antenna elements are approximately 47 1/2 inches long and 30 inches high. Weight is approximately 57 pounds per element including the line block.

OPTIONAL EQUIPMENT

- DC shorting stub for additional lightning protection
- Mounting brackets for special tower configurations
- Radomes and electrical de-icers

"B" Model, 4 1/8" Interbay Line, 4 1/8" Element Stem

| MODEL | STOCK NO. | POWER GAIN ¹ | | FEMALE 50 OHM INPUT | POWER ² INPUT CAPABILITY | CALCULATED WT. [LBS] | CALCU- ³ LATED WIND-LOAD [LBS] |
|-----------|--------------|-------------------------|---------|---------------------|-------------------------------------|----------------------|---|
| | | POWER | dB | | | | |
| BESP-1BE | 809-1601-060 | 0.4611 | -3.3623 | 6 1/8" | 40 kW | 159 | 201 |
| BESP-2BE | 809-1602-060 | 0.9971 | -0.0128 | 6 1/8" | 56 kW | 297 | 407 |
| BESP-2BC | 809-1602-080 | 0.9971 | -0.0128 | 6 1/8" | 80 kW | 336 | 468 |
| BESP-3BE | 809-1603-090 | 1.5888 | 1.9278 | 6 1/8" | 56 kW | 435 | 613 |
| BESP-3BC | 809-1602-060 | 1.5888 | 1.9278 | 6 1/8" | 112 kW | 474 | 674 |
| BESP-4BE | 809-1604-080 | 2.1332 | 3.2903 | 6 1/8" | 56 kW | 573 | 818 |
| BESP-4BC | 809-1603-060 | 2.1332 | 3.2903 | 6 1/8" | 112 kW | 612 | 879 |
| BESP-5BE | 809-1605-060 | 2.7154 | 4.3384 | 6 1/8" | 56 kW | 711 | 1024 |
| BESP-5BC | 809-1605-090 | 2.7154 | 4.3384 | 6 1/8" | 112 kW | 750 | 1085 |
| BESP-6BE | 809-1606-060 | 3.3028 | 5.1888 | 6 1/8" | 56 kW | 849 | 1229 |
| BESP-6BC | 809-1606-080 | 3.3028 | 5.1888 | 6 1/8" | 112 kW | 888 | 1290 |
| BESP-7BE | 809-1607-060 | 3.8935 | 5.9034 | 6 1/8" | 56 kW | 987 | 1435 |
| BESP-7BC | 809-1607-090 | 3.8935 | 5.9034 | 6 1/8" | 112 kW | 1026 | 1469 |
| BESP-8BE | 809-1608-060 | 4.4872 | 6.5197 | 6 1/8" | 56 kW | 1125 | 1641 |
| BESP-8BC | 809-1608-080 | 4.4872 | 6.5197 | 6 1/8" | 112 kW | 1164 | 1702 |
| BESP-9BC | 809-1609-090 | 5.0826 | 7.0608 | 6 1/8" | 112 kW | 1302 | 1908 |
| BESP-10BC | 809-1610-080 | 5.6800 | 7.5435 | 6 1/8" | 112 kW | 1440 | 2113 |
| BESP-11BC | 809-1611-090 | 6.2783 | 7.9785 | 6 1/8" | 112 kW | 1578 | 2319 |
| BESP-12BC | 809-1612-080 | 6.8781 | 8.3747 | 6 1/8" | 112 kW | 1716 | 2524 |
| BESP-13BC | 809-1613-090 | 7.4785 | 8.7831 | 6 1/8" | 112 kW | 1854 | 2730 |
| BESP-14BC | 809-1614-080 | 8.0800 | 9.0741 | 6 1/8" | 112 kW | 1992 | 2936 |
| BESP-15BC | 809-1615-090 | 8.6818 | 9.3861 | 6 1/8" | 112 kW | 2130 | 3142 |
| BESP-16BC | 809-1616-080 | 9.2846 | 9.6776 | 6 1/8" | 112 kW | 2268 | 3348 |

"C" Model, 6 1/8" Interbay Line, 4 1/8" Element Stem

| MODEL | STOCK NO. | POWER GAIN ¹ | | FEMALE 50 OHM INPUT | POWER ² INPUT CAPABILITY | CALCULATED WT. [LBS] | CALCU- ³ LATED WIND-LOAD [LBS] |
|----------|--------------|-------------------------|---------|---------------------|-------------------------------------|----------------------|---|
| | | POWER | dB | | | | |
| BESP-1CE | 809-1701-060 | 0.4611 | -3.3623 | 6 1/8" | 40 kW | 205 | 260 |
| BESP-2CE | 809-1702-060 | 0.9971 | -0.0128 | 6 1/8" | 80 kW | 410 | 520 |
| BESP-3CE | 809-1703-060 | 1.5888 | 1.9278 | 6 1/8" | 120 kW | 615 | 780 |
| BESP-4CE | 809-1704-060 | 2.1332 | 3.2903 | 6 1/8" | 120 kW | 820 | 1040 |
| BESP-5CE | 809-1705-060 | 2.7154 | 4.3384 | 6 1/8" | 120 kW | 1025 | 1300 |
| BESP-6CE | 809-1706-060 | 3.3028 | 5.1888 | 6 1/8" | 120 kW | 1230 | 1560 |

FOOTNOTES - (Apply to all models)

1. Horizontal and vertical power gain are the same. 2. Power input capability to 2,000 ft. above mean sea level. Derating required above 2,000 ft. 3. Windload based on 50/33 PSF. 112 m.p.h. actual wind velocity. NOTE: Brackets included in weight and windload calculations.



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