

BH-800-LR / MR-102-LR

Bent Bass Horn Reproducer

Horn Loaded Mid-Bass Reproducer



Applications

These sound reproducers are designed to provide high level sound of up to + 125 dB SPL covering the frequency range from the deepest bass up to the fundamentals of voice and most instruments. Ideal applications include live concert sound reinforcement, motion picture and performing arts theaters, and discotheque installations.

EAW professional sound reproducers are designed with portability paramount. Their high strength-to-weight ratio makes them the products of choice among discriminating traveling companies where ease of set-up and tear-down are important considerations. Complete road hardware includes skids, handles, steel corner reinforcements, scuff-resistant black polyurethane finish, and Tee nuts for the attachment of user selected casters.

Description

BH-800-LR Bass Horn

This bent horn reproducer was designed to eliminate the compromises in performance that plague most of the folded or straight designs currently favored by competitors. Using a specially developed proprietary thin laminated birch hardwood, EAW developed a horn with a complex expansion characteristic in two dimensions to achieve a truly exponential flare rate in the critical throat region. This throat is constructed as a sub-assembly and all voids are filled with a set-in-place polyurethane foam that provides maximum wall stiffness while damping any incipient resonances in the structure.

The horn portion of the reproducer uses a very low flare rate of 44 Hz and exceptionally large mouth (effectively the entire frontal area of the cabinet) for excellent deep bass response. The horn is constructed of 18 plies-to-the -inch crossgrained -laminated Baltic birch hardwood with the highest stiffness -to-weight ratio of any wood product available. The resulting product sets a new standard for smooth, deep bass response at high sound pressure levels. The BH -800-LR will outperform direct radiating and scoop-type horns in the range below 250 Hz and exhibits higher conversion efficiency and lower effective frequency response.

MR- 102-LR Mid-Bass Reproducer

This exponential horn provides high output at low distortion throughout the critical mid band that contains fundamental voice energy, and is typically the weakest link in previous horn loaded systems.

The MR- 102-LR is an exponential horn with a 175 Hz cut-off frequency at the lower limit and a maximum operating frequency of 1,600 Hz.

A proprietary center displacement plug maintains the exponential expansion rate throughout the throat region. This plug allows a proper throat cross-section to optimize the smoothness of response over the full frequency bandwidth of the horn. A side benefit of this design is that the plug reduces throat size with a corresponding increase in efficiency. The plug also blocks any spurious high-frequency spikes from the driver's dust cap from entering the horn.



Frequency response of the MR-102-LR is driver dependent, and although the horn exhibits a useful passband of 175 to 1,600 Hz, crossover points of 200 and 1,200 Hz are suggested for best combination of efficiency (typically 3 to 6 dB better than most horn -loaded systems), low distortion, and headroom. The use of the MR-102-LR eases the load on the midrange compression driver by raising the system crossover frequency from the 600-800 Hz range to 1,200 Hz, where the mid-range unit experiences less diaphragm travel. Mid-range diaphragm replacement is dramatically reduced, and frequently eliminated altogether, in systems where the MR -102LR is used as the mid-bass component.

Driver Complement

EAW reproducers are normally supplied, and function most effectively, with the EAW/RCF drivers designed for them. Each EAW product is designed as an integrated system, and the selection of values and dimensions for cone materials, dust cap, adhesives and damping materials, voice coil and magnet structure are carefully calculated to produce the best overall performance of the system.

The LF-301-R driver used in the MR-102-LR has been specially tailored with damping compounds to reduce break-up modes above piston range and to permit optimally smooth response to over 1,200 Hz. This damping eliminates the high-Q spikes present in most popular 12" drivers, and makes the MR-102-LR much smoother in the transition region than other mid/bass cone systems.

The LF-440-R driver used in the BH-800-LR uses an 18" diameter curvilinear cone supported by a treated linen sur-

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round. Its free air resonance is comfortably below the lowest frequency it is called upon to reproduce, and its thermal design is correspondingly conservative, allowing a continuous sine wave power rating of 150 watts continuous, and 300 watts on program.

Both drivers share a massive magnetic structure that generates a 14,500 Gauss field in the air gap, and a unique bifilar wound voice coil minimizes non-linearity at the maximum excursion. Both drivers share a moderately high electrical efficiency that allows 107 dB SPL power output at one meter distance with one watt input.

These drivers are not merely upgraded PA drivers but are engineered from the frame upward to perform reliably at high SPLs in their respective applications. They are virtually indestructible, and their field failure record is essentially zero when operated within their ratings.

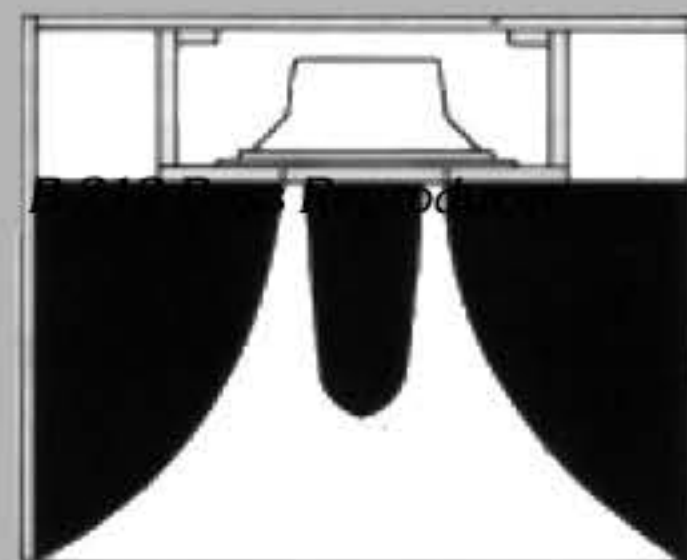
Specifications

| | BH-800-LR | MR-102-LR |
|--|---|--------------|
| When loaded with EAW driver | LF-440-R | LF-301-R |
| Nominal frequency range | 50-300 Hz | 150-1,500 Hz |
| Suggested operating range | 50-250 Hz | 200-1,200 Hz |
| Acoustical output at one meter, one watt input | 107 dB SPL | 107 dB SPL |
| Power handling capacity | | |
| Continuous sine wave | 150 w RMS | 150 w RMS |
| Program | 300 w RMS | 300 w RMS |
| Dispersion | | |
| Horizontal | 1000 | 900 |
| Vertical | 500 | 400 |
| Horn flare rate | 44 Hz | 175 Hz |
| Cabinet material | 18 plies per inch, cross-grained-laminated birch hardwood; all voids filled with high damping factor polyurethane foam. | |
| Cabinet finish | Catalyzed black polyurethane | |
| Cabinet hardware | Recessed carrying handles, steel corners and feet, Tee nuts to mount users choice of casters, perforated steel - protective grilles over drivers. | |
| Input connectors | | |
| Standard | Dual 1/4 " phone jacks, banana plugs | |
| Optional | Heavy duty J-bones type barrier strips, or blank panel to accept users choice of terminals | |
| Cabinet dimensions | 1.5mH x 0.75mW x 0.75mD (60 1/2"H x 29 3/4"W x 29 3/4"D) | |
| Weight, with driver (lbs.) | 91 kg (200 lbs.) 50 kg (110 lbs.) | |





Driver complement for MR-102-LR and BH-800-LR

Cross-section of MR-102-LR, top view



Cross-section of BH-800-LR, side view



 Shows location of true exponential horn throat
 Shows location of anti-resonance foam filler



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