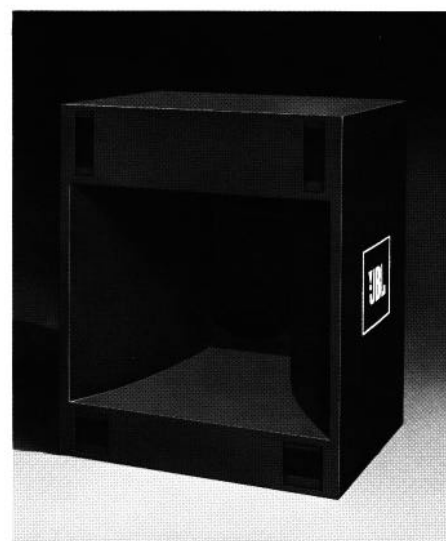
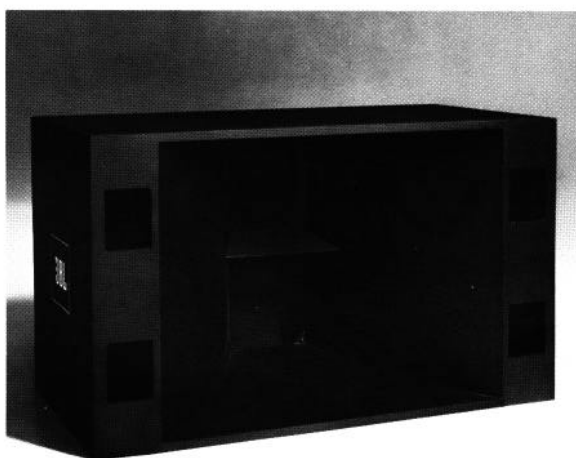
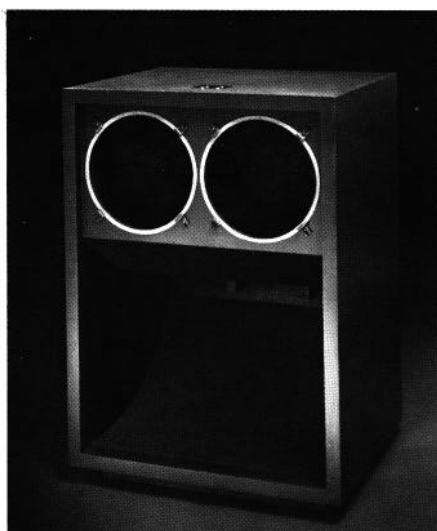


Professional Series Low Frequency Enclosures

Smooth, extended low frequency response
High acoustic power output
Single or multiple driver models
Coverage patterns to suit most applications
Designed to match JBL high frequency
horn/driver combinations



JBL low frequency enclosures are designed for sound reproduction or reinforcement in theaters, arenas, discotheques, or other similar applications where high sound power output and smooth low frequency response are required. All are ruggedly constructed of dense, high quality stock and braced to eliminate resonances. The baffle panels accept 380 mm (15 in) drivers and are fitted with $\frac{1}{4}$ -20 threaded T-nuts to

facilitate loudspeaker mounting. MA15 loudspeaker mounting kits are supplied with all front mounting enclosures.

JBL

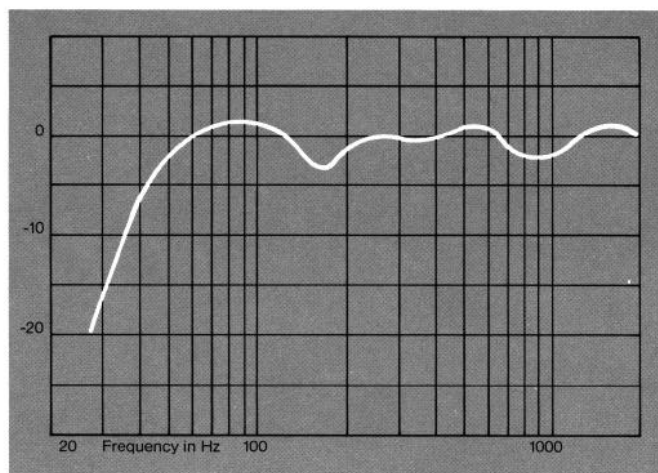
Rear Loading Horns

JBL rear loading horns perform best in relatively short throw applications (75 feet or less) where strong response to the lowest musical frequencies is more important than high directivity or ultimate efficiency. Rear loading horns utilize the back waves of the loudspeaker to energize a long, compactly folded horn. These back waves are coupled to the unrestricted radiation of the loudspeaker's front waves. The acoustic loading effect of the horn reduces nonlinear distortion and boosts low frequency efficiency dramatically. Above 150 Hz, the enclosure design allows the loudspeaker to effectively uncouple from the horn and operate as a simple direct radiator, with its back wave attenuated by the horn. The upper frequency limit is essentially that of the loudspeaker used (a JBL 2205 or E140 is recommended). Phase inversion of the rear waves, due to the propagation time through the horn length, further augments response in the lowest operating ranges.

NOTE: Below the lowest usable frequency given for each model, the excursion limiting load presented by the horn is reduced. To avoid excessive cone excursion and possible damage, power input at these very low frequencies should be restricted.

Model 4520 Dual Driver Horn

Thirteen-foot folded horn provides maximum loading to 42 Hz, usable response to 30 Hz. Net weight, less drivers, 98 kg (215 lb). 1276 mm x 908 mm x 756 mm deep (50% in x 35% in x 29% in deep).

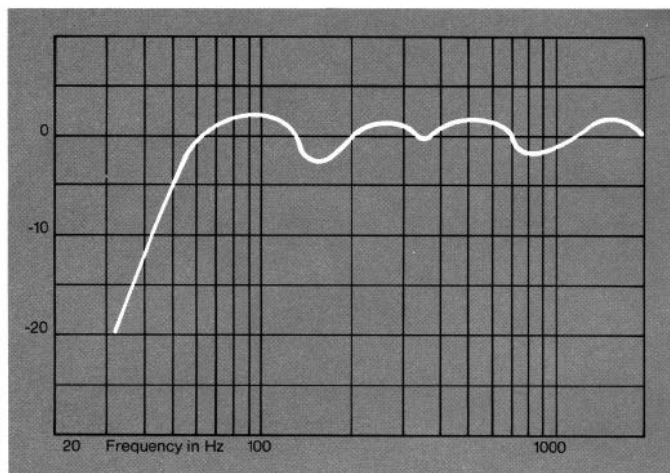


Frequency response curve of the 4520 taken with two 2205 loudspeakers installed. Measured response of a typical production unit, including all peaks and dips, does not deviate more than 2 dB from the above curve.

Model 4530 Single Driver Horn

Seven-foot folded horn provides maximum loading to 50 Hz with usable response to 40 Hz. Net weight, less driver, 54 kg (120 lb). 1213 mm x 603 mm x 603 mm deep (47% in x 23% in x 23% in deep).





Frequency response curve of the 4530 taken with one 2205 loudspeaker installed. Measured response of a typical production unit, including all peaks and dips, does not deviate more than 2 dB from the above curve.

Front Loading Horns

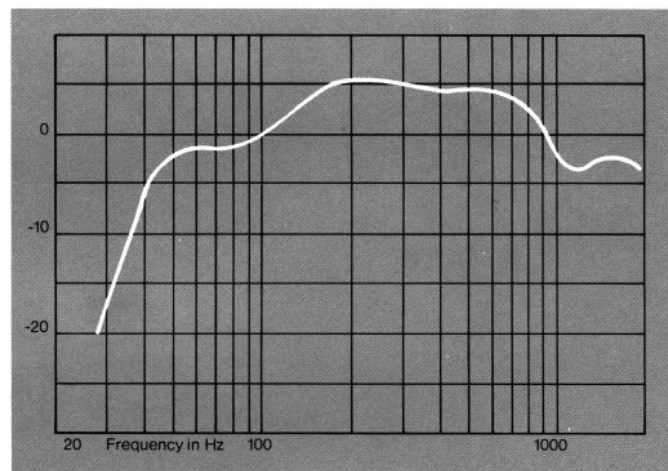
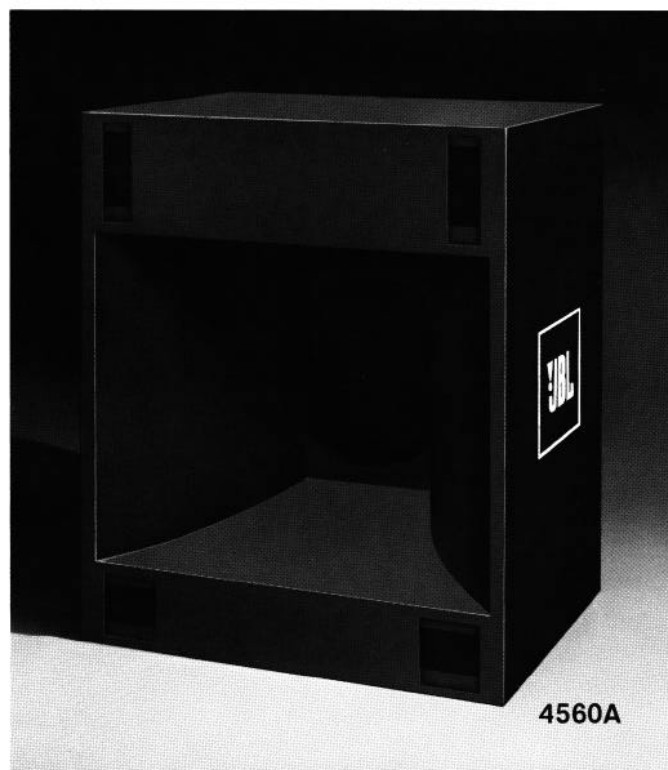
JBL front loading horns furnish the best pattern control and highest conversion efficiency obtainable from low frequency cone transducers. They are ideal for use in large halls, outdoor environments, and other similar applications in which long throw and maximum efficiency are prime considerations.

Within their optimum operating frequency range, the front loading horns add 6 dB to the on-axis sensitivity of the loudspeaker. This allows a reduction in the number of loudspeakers needed and the amplifier power required compared to direct radiating systems of equal capability. Below the cutoff frequency (determined by horn size and geometry), the increased directivity and efficiency of horn loading are progressively lost. Usable response, however, is maintained to an octave or more below cutoff due to the action of the vented rear chamber.

The front loading horns may be used with the JBL 2220, 2205, E140, or E145. The lower resonances and longer excursion capabilities of the 2205, E140, and E145 enable these loudspeakers to provide somewhat better deep bass response compared to the 2220 at the expense of some midrange sensitivity. There is, however, the possibility of their cones striking the horn throat on extreme outward excursions. Therefore, power input at very low frequencies should be somewhat more conservative than normally specified for these loudspeakers.

Model 4560A Single Driver Horn

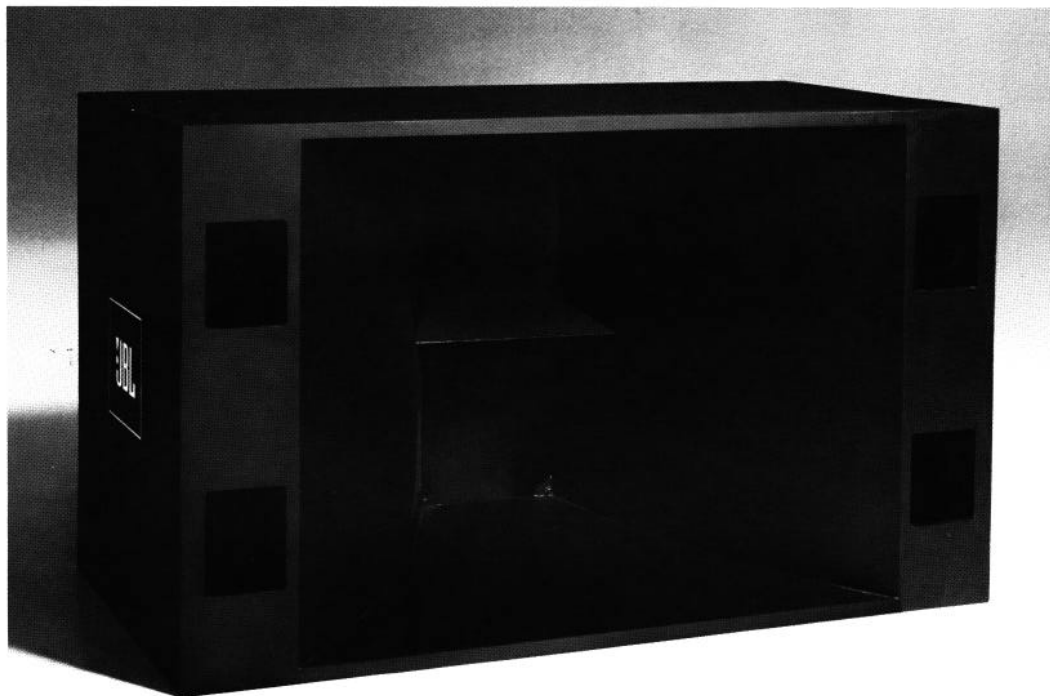
Directional horn for a single 380 mm (15 in) driver. Horn and vented rear reflex chamber give usable response to 45 Hz with maximum loading above 200 Hz. Dispersion pattern is 90 degrees horizontal x 60 degrees vertical at 800 Hz. Net weight, less driver, is 41 kg (91 lb). 914 mm x 762 mm x 606 mm deep (36 in x 30 in x 23 7/8 in deep).



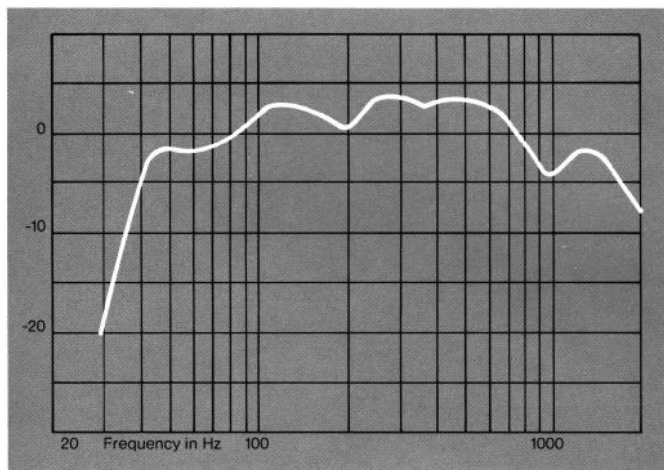
Frequency response curve of the 4560A taken with one E145 loudspeaker installed. Measured response of a typical production unit, including all peaks and dips, does not deviate more than 2 dB from the above curve.

Model 4550A Dual Driver Horn

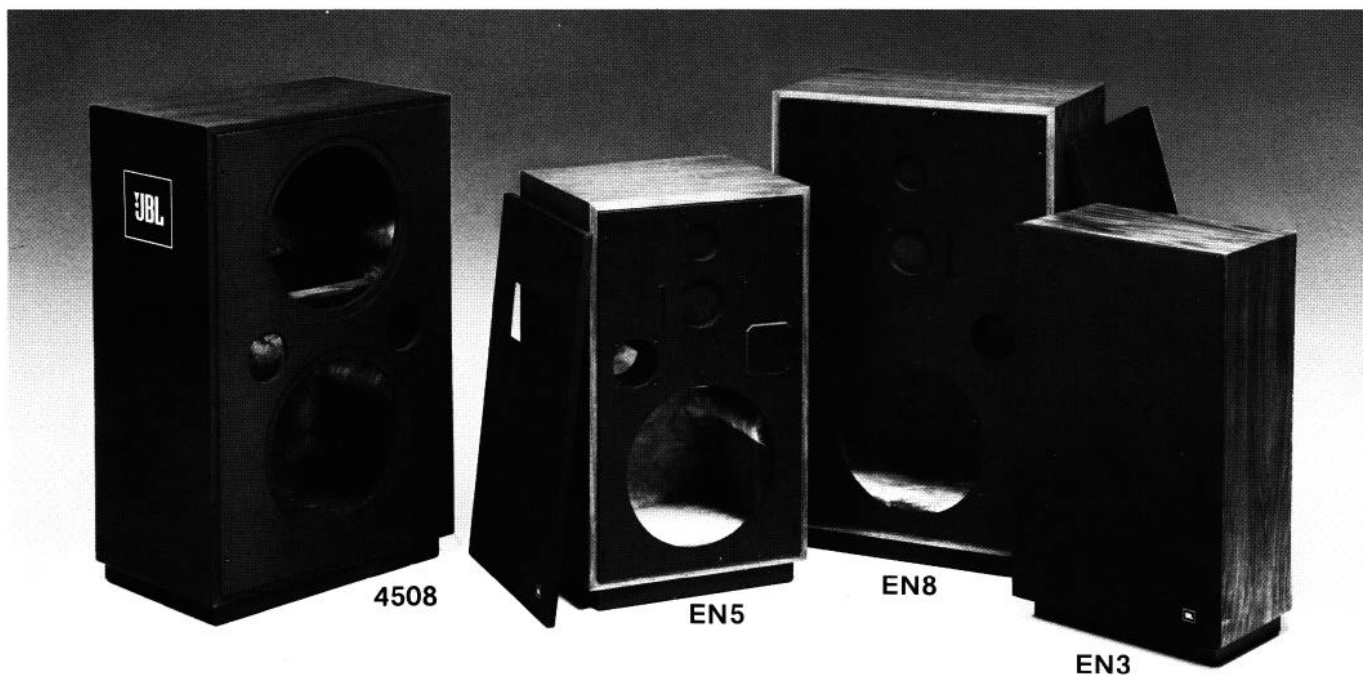
Directional horn for two 380 mm (15 in) drivers. Loads effectively above 100 Hz, with usable response to 40 Hz. Dispersion pattern at 800 Hz is 75 degrees horizontal x 30 degrees vertical. Net weight, less drivers, is 88 kg (195 lb). 914 mm x 1524 mm x 825 mm deep (36 in x 60 in x 32½ in deep).



4550A



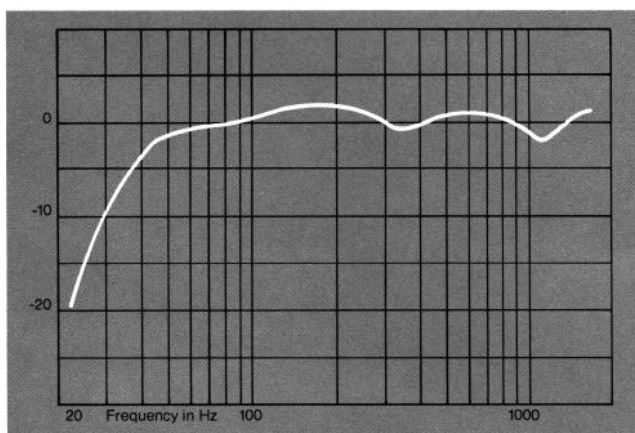
Frequency response curve of the 4550A taken with two E145 loudspeakers installed. Measured response of a typical production unit, including all peaks and dips, does not deviate more than 2 dB from the above curve.



Direct Radiating Enclosures

Model 4508 Bass Reflex Dual Driver

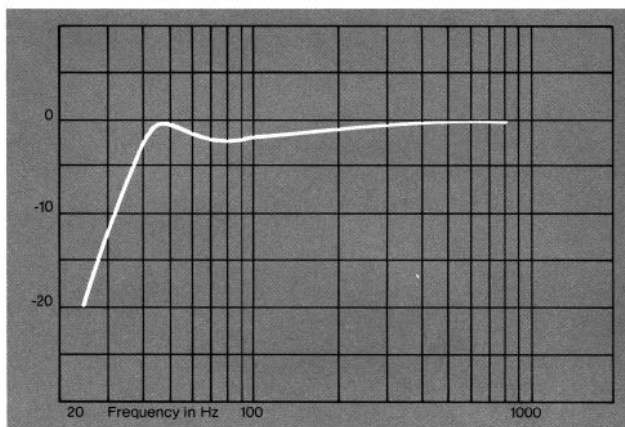
The 4508 is a slim-profile, vented enclosure that offers outstanding low frequency reproduction in a very compact package. Frequency response is uniform to 45 Hz with usable response to 35 Hz. Net weight, less drivers, is 49 kg (108½ lb). 1060 mm x 667 mm x 464 mm deep (41¾ in x 26½ in x 18¾ in deep).



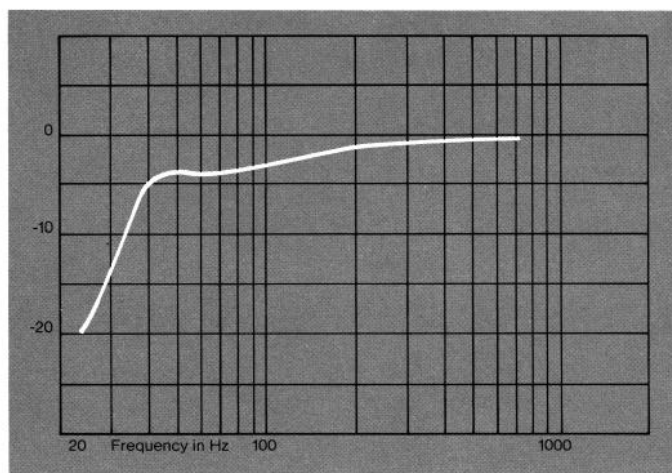
Frequency response curve of the 4508 taken with two E145 loudspeakers installed. Measured response of a typical production unit, including all peaks and dips, does not deviate more than 2 dB from the above curve.

Models EN3, EN5, and EN8 Multipurpose Enclosures

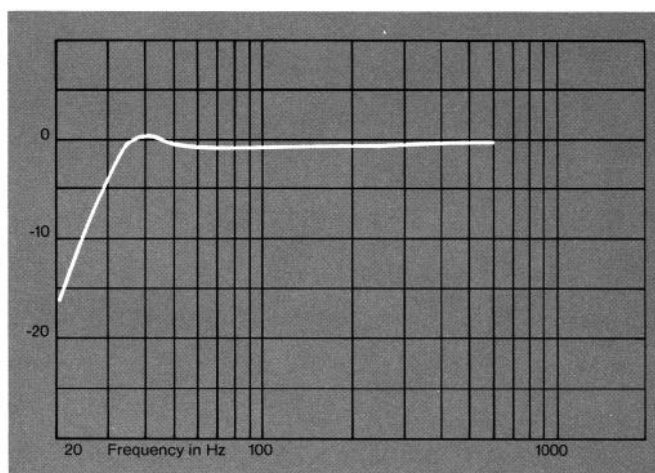
JBL multipurpose enclosures are designed to allow convenient construction of custom low frequency and full range sound systems. Specific component and porting recommendations are listed in Table 1. Each enclosure is constructed from rugged 19 mm (¾ in) stock and features hand-fitted, heat-cured joints. Enclosure veneers are of furniture-quality black walnut and have a hand-rubbed, oiled finish. The enclosures are available in 85, 140, and 225 litre sizes (3, 5, and 8 cubic feet).



Frequency response curve of the EN3 taken with one 2203 loudspeaker installed. Measured response of a typical production unit, including all peaks and dips, does not deviate more than 2 dB from the above curve.



Frequency response curve of the EN5 taken with one 2205 loud-speaker installed. Measured response of a typical production unit, including all peaks and dips, does not deviate more than 2 dB from the above curve.



Frequency response curve of the EN8 taken with one 2231 loud-speaker installed. Measured response of a typical production unit, including all peaks and dips, does not deviate more than 2 dB from the above curve.

Table 1.

Recommended Components	Low Frequency	High Frequency	Ultra-High Frequency	Dimensions
EN3 (85 litre)	2202 or 2203 ¹	2307, 2311, or 2312 horns with 2308 lens	2402, 2405, or 2403	845 mm x 489 mm x 318 mm deep 33¼ in x 19¼ in x 12½ in deep
EN5 (140 litre)	2205, 2220, E130 or E140 ² 2231 ³	2307, 2311, or 2312 horns with 2308 lens	2402, 2405, or 2403	883 mm x 521 mm x 464 mm deep 34¾ in x 20½ in x 18¼ in deep
EN8 (225 litre)	2231 ⁴ (Subwoofer)	N/A	N/A	1060 mm x 667 mm x 464 mm deep 41¾ in x 26½ in x 18¼ in deep

1. Use 4" duct in port.

2. Use 2" duct—cover 4" duct.

3. Use 4" duct—cover 2" duct.

4. Mount 4" duct in both holes.

Crossover Frequencies

The recommended crossover frequency of all JBL low frequency horns is 800 Hz or lower. The exact crossover point chosen will depend principally on the performance characteristics of the high frequency components used in the system.

JBL manufactures a complete line of high frequency transducers as well as dividing networks, power amplifiers, and other accessories designed to complement the performance of the equipment described herein. Contact JBL or your JBL Professional Products dealer for complete details.

JBL continually engages in research related to product improvement. New materials, production methods, and design refinements are introduced into existing products without notice as a routine expression of that philosophy. For this reason, any current JBL product may differ in some respect from its published description but is always warranted to equal or exceed the original design specifications unless otherwise stated.



Professional Division

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