

Professional Series

Model 2445J

Compression Driver

100 watts continuous program at 500 Hz

150 watts continuous program at 1 kHz or higher

Diamond-pattern diaphragm suspension

100 mm (4 in) edgewound aluminum ribbon voice coil

100 mm (4 in) pure titanium diaphragm

49 mm (2 in) horn throat diameter



The model 2445J is a professional quality high frequency compression driver that incorporates JBL's newly developed titanium diamond diaphragm. The titanium diamond structure combines the ruggedness of phenolic and composite type diaphragms with the outstanding frequency response of aluminum and exotic metal diaphragms.

Made possible by the recent availability of a commercially pure grade of titanium that can be formed under the stringent conditions required in loudspeaker manufacturing, the new diaphragm design utilizes JBL's exclusive three-dimensional diamond pattern surround¹ which reduces membrane stresses in the diaphragm support structure. The depth of the diamond pattern is closely controlled to provide predictable frequencies for the 2nd and 3rd normal resonance modes and for the basic suspension resonance.

JBL high-frequency compression drivers utilize an anisotropic strontium ferrite magnet, manufactured using a wet-pressed forming process. The newly developed magnet material provides the highest residual flux density, maximum energy product, and most suitable coercive force for Alnico conversion to ferrite.

The driver's phasing plug, a mathematically generated design, consists of die cast concentric exponential horns, configured to minimize phase cancellations. Phasing plugs and throat exit tubes are identical to previous Alnico models. This places the acoustic centers of the drivers in precisely the same position for identical system phasing. All cast parts and tolerances are held to the same levels traditionally associated with JBL designs. Additionally, the press-fit assembly and interlocking parts assure greater resistance to mechanical shock. Diaphragm assemblies are rim centered rather than pin mounted, for instant interchangeability and ease of field service.

The use of high-temperature voice-coil former materials and adhesives has also improved the power handling and ruggedness of the new drivers. The voice coils themselves are identical to previous JBL models, so that impedance and network matching will be the same. After manufacture, the frequency response of each driver is tested for conformity to rigid performance standards.

¹U.S. Patent #4,324,312. Foreign patents pending.

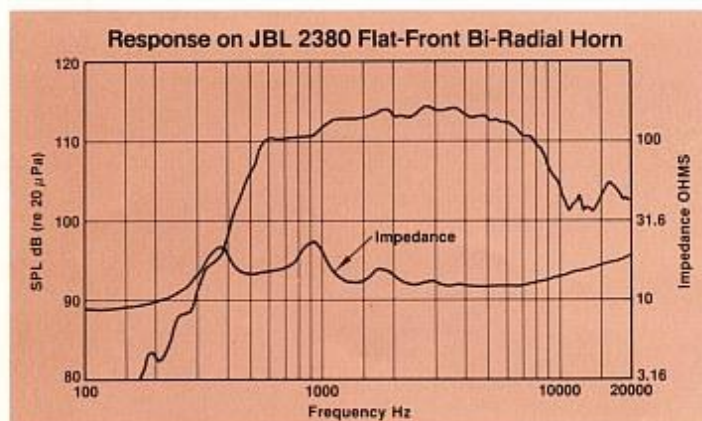
Model 2445J Compression Driver

Architectural Specifications

The compression driver shall consist of a ferrite magnetic structure with all magnetic assembly parts machined from cast or extruded billet stock. The phasing plug shall be assembled of concentric horns to minimize phase cancellations, and it shall be coupled to a tapered throat. The diaphragm shall be 0.05 mm (0.002 in) pure titanium pneumatically drawn to shape. High frequency response shall be controlled through the use of a three-dimensional suspension structure. The voice coil shall be edgewound aluminum ribbon of not less than 100 mm (4 in) in diameter, operating in a magnetic field of not less than 1.9 tesla (19,000 gauss).

Performance specifications of a typical production unit shall be as follows: Measured sensitivity with a 1 mW input on a 25 mm (1 in) terminated tube, averaged from 500 Hz to 2.5 kHz, shall be at least 118 dB SPL. Measured sensitivity with a 1 W input at 1 m distance on axis from the mouth of a horn with a Q of 6.3 averaged in the 2 kHz octave band shall be at least 111 dB SPL. As an indication of electromechanical conversion efficiency, the BI factor shall be at least 18 newtons per ampere. Frequency response, measured on a terminated tube, shall be flat within ± 1 dB from 500 Hz to 3.3 kHz, with a 6 dB/octave rolloff above that point. Nominal impedance shall be 16 ohms and power capacity shall be at least 100 watts normal speech or music program material.

The compression driver shall be the JBL Model 2445J. Other drivers will be considered for equivalency provided that submitted data from a recognized independent test laboratory verify that the above performance specifications are met.



Frequency response of the 2445J coupled to a JBL 2380 Flat-Front Bi-Radial horn, measured on-axis at a distance of 1 meter with a 1-watt (4.0 V RMS) input in a reflection-free environment, with impedance vs. frequency curve. A horn with a pure exponential flare, such as typical radial horn designs, will exhibit greater high frequency output on-axis at the expense of lost angular coverage.

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 will always equal or exceed the original design specifications unless otherwise stated.

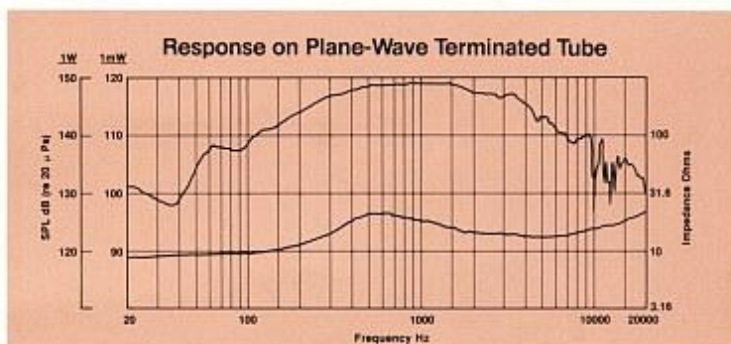
Specifications

Throat Diameter	49 mm	2 in
Nominal Impedance	16 Ω	
Minimum Impedance	12 Ω @ 5 kHz	
DC Resistance	8.5 Ω \pm 10% @ 25°C	
Power Capacity ¹	100 W continuous program above 500 Hz 150 W continuous program above 1 kHz	
Sensitivity	111 dB SPL, 1 W @ 1 m on-axis on horn ² 118 dB SPL, 1 mW on plane-wave tube ³	
Nominal Efficiency	30% (500 Hz to 2.5 kHz)	
Frequency Range	500 Hz to 20 kHz	
Recommended Crossover	500 Hz or higher, 12 dB/octave minimum	
Diaphragm	0.05 mm (0.002 in) pure titanium	
Voice Coil Diameter	100 mm	4 in
Voice Coil Material	Edgewound aluminum ribbon	
Flux Density	1.9 T (19,000 gauss)	
BI Factor	18 N/A	
Positive voltage to black terminal gives diaphragm motion toward the phasing plug		
Dimensions	235 mm (9¼ in) diameter 131 mm (5¼ in) depth	
Mounting	Four ¼-20 threaded holes, 90° apart on 101.6 mm (4 in) diameter	
Net Weight	13.8 kg	30½ lb
Shipping Weight	14.5 kg	32 lb

¹Continuous program is defined as 3 dB greater than continuous pink noise and is a conservative expression of the transducer's ability to handle normal speech and music program material. Continuous pink noise power ratings are tested with pink noise input having a 6 dB crest factor, with a high-pass filter set at the specified lower limiting frequency for two hours duration.

²Sensitivity measured with 1 W input at 1 m distance on axis from the mouth of a horn with a Q of 6.3 averaged in the 2 kHz octave band.

³As specified by recognized standards organizations, sensitivity is measured with the driver coupled to a terminated tube. The JBL sensitivity rating represents the SPL in a 25 mm (1 in) terminated tube, using a 1 mW input signal (0.126 V into 16 Ω) swept from 500 Hz to 2.5 kHz. The sensitivity rating with a 1 W input would be 30 dB greater.



Frequency response and impedance modulus of Model 2445J coupled to a 49 mm (2 in) diameter terminated plane-wave tube, with sensitivity referenced to a 25 mm (1 in) tube. This is the power response of the transducer, and is the frequency response that will be obtained on a true full-range constant directivity horn design, such as JBL's 2360 series of Constant Coverage Bi-Radial Horns.



Professional Division

JBL Incorporated
8500 Balboa Boulevard, P.O. Box 2200, Northridge, California 91329 U.S.A.

JBL/harman international

61242 SS2445/3-83 P656 Printed in U.S.A.