2445J COMPRESSION DRIVER



FEATURES:

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 surround[1] 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.

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

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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.

SPECIFICATIONS:

Throat Diameter:	49 mm (2 in)
Nominal Impedance:	16 Ω
Minimum Impedance:	12 Ω @ 5 kHz
DC Resistance:	8.5 Ω ± 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:	1.9T (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 (5⅛ 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)

[1]Continuous 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.
[2]Sensitivity 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.
[3]As 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.

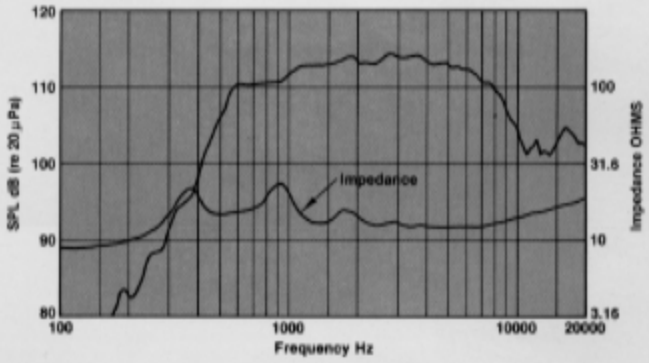
ARCHITECTURAL SPECIFICATIONS:

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 1mW 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.

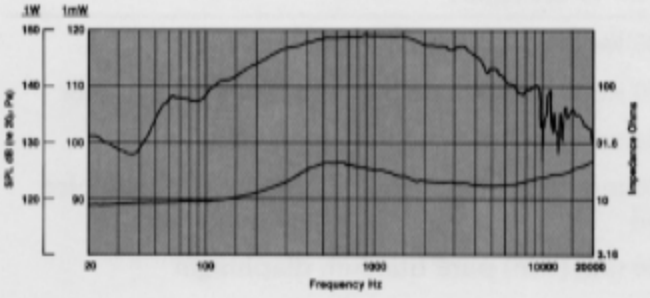
The compression driver shall be the JBL Model 2445J. Other drivers will be considered for equivalency provided that submitted data from a recognized independent test laboratory verify that the above performance specifications are met.

Response on JBL 2380 Flat-Front Bi-Radial Horn



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 annular coverage.

Response on Plane-Wave Terminated Tube



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.

JBL continuously engages in research related to product improvement. New materials, production methods, and design refinements are introduced into existing products without notice 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.

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