



# 2446H/J Compression Driver

## Professional Series

### Key Features:

- ▶ 100 watts continuous program at 500 Hz
- ▶ 150 watts continuous program at 1 kHz and higher
- ▶ Coherent Wave phasing plug design for increased high-frequency output
- ▶ 100 mm (4 in) pure titanium diaphragm with radial-rib topology and patented three-dimensional diamond pattern suspension
- ▶ 100 mm (4 in) edgewound aluminum voice coil
- ▶ 49 mm (2 in) throat exit diameter



The model 2446H/J is a professional quality high-frequency compression driver that incorporates JBL's newly-developed Coherent Wave phasing plug as well as a pure titanium diaphragm with radial ribs and patented three-dimensional diamond pattern suspension.

The Coherent Wave phasing plug assembly consists of four die-cast annular aperture structures of constant path length to provide m-phase combining of diaphragm output at the driver's exit. This optimized configuration allows coherent summation of acoustical power up to much higher frequencies than afforded by earlier designs.

The diaphragm design includes JBL's exclusive three-dimensional diamond pattern surround<sup>1</sup> which reduces membrane stresses in the diaphragm support structure and extends diaphragm life. The depth of the diamond pattern is closely controlled during the manufacturing process to provide predictable frequencies for the 2nd and 3rd normal resonance modes and for the basic suspension resonance mode. The diaphragm also incorporates a series of embossed radial reinforcing ribs that increase diaphragm stiffness. This diaphragm, when combined with the Coherent Wave phasing plug, increases the 2446H/J's output in the 5 kHz to 20 kHz range.

### Specifications:

|   |  |
|---|--|
| Throat Diameter:  | 49 mm (2 in)   |
| Nominal Impedance:  | 2446H 8 ohms<br>2446J 16 ohms  |
| Minimum Impedance:  | 6 ohms (H), 12 ohms (J) @ 5 kHz  |
| DC Resistance:  | 4.3 ohms (H), 8.5 ohms (J) ± 10% @ 25°C  |
| Power Capacity <sup>1</sup> :   | 100 W continuous program above 500 Hz<br>150 W continuous program above 1 kHz                          |
| Sensitivity:  | 111 dB SPL, 1 W @ 1 m on-axis on horn <sup>2</sup><br>118 dB SPL, 1 mW on plane-wave tube <sup>3</sup> |
| 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)   |
| BL Factor:  | 12.7 (H) N/A<br>18 (J) N/A   |
| Positive voltage to black terminal gives diaphragm motion toward the phasing plug |  |
| Dimensions:   | 235 mm (9¼ in) diameter<br>131 mm (5 1/16 in) depth  |
| Mounting:   | Four ¼-20 threaded holes, 90° apart on 101.6 mm (4 in) diameter  |
| Net Weight:   | 13.8 kg (30½ lb)   |

<sup>1</sup>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.

<sup>2</sup>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.

<sup>3</sup>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 ohms) swept from 500 Hz to 2.5 kHz. The sensitivity with a 1 W input would be 30 dB greater.

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.

## ▶ 2446H/J Compression Driver

High temperature voice coil former materials and adhesives enable the 2446H/J to handle extremely high power levels over extended periods of time. 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 JBL's rigid performance standards.

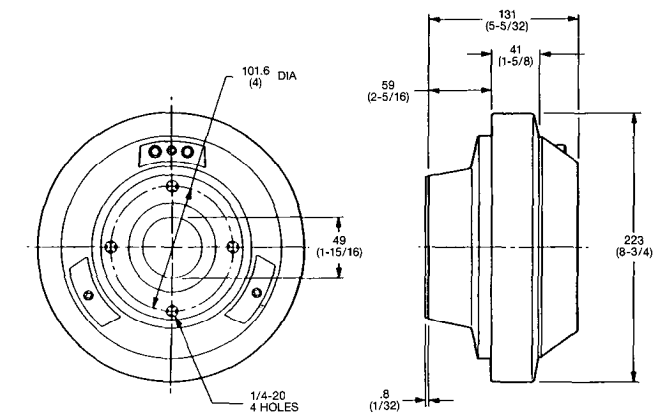
The model 2446H/J is ruggedly constructed to withstand the rigors of both fixed and transportable commercial applications. All cast parts and machined tolerances are held to the same levels traditionally associated with JBL designs. The JBL manufacturing process also permits the use of rim centered rather than pin mounted diaphragms, for instant interchangeability and ease of field service.

### Architectural Specifications:

The compression driver shall consist of a ferrite magnet structure with all magnetic assembly parts machined from cast or extruded billet stock. The phasing plug shall be assembled of concentric horns of equal path length to eliminate case 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 and embossed with radial reinforcing ribs to increase stiffness. 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) diameter, operating in a magnetic field of not less than 1.9 tesla (19,000 gauss).

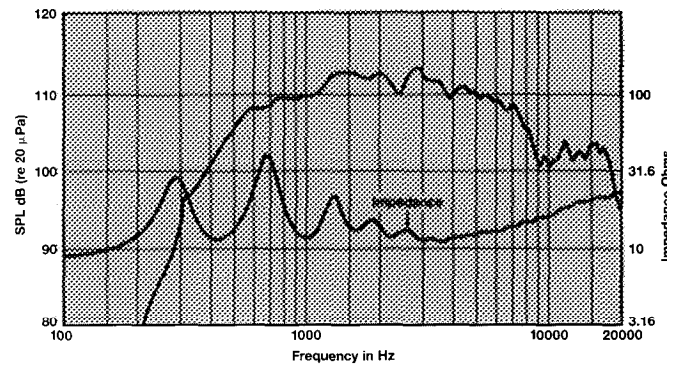
Performance specifications for a typical production unit shall be as follows: Measured sensitivity with a 1 mW input on a 25 mm (1 in) terminated tube, averaged from 500 Hz to 2.5 kHz, shall be at least 118 dB SPL. Measured sensitivity with a 1 W input at a 1 m distance on axis from the mouth of a horn 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  $\pm 1$  dB from 500 Hz to 3.3 kHz, with 6 dB/octave roll-off above that point. Nominal impedance shall be 8 [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 2446H[J]. 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.



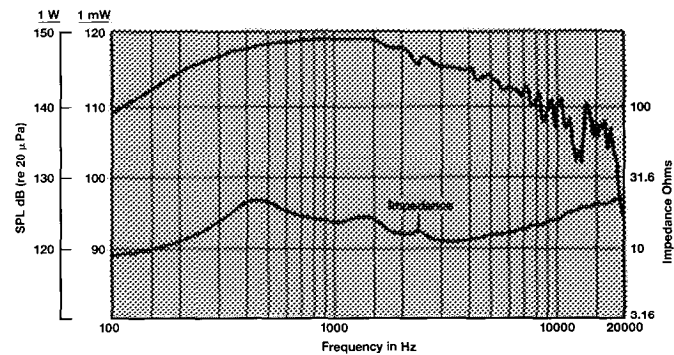
NOTE: DIMENSIONS IN ( ) ARE IN INCHES.

Response on JBL 2380A Flat-Front Bi-Radial® Horn



Frequency response of the 2446J coupled to a JBL 2380A 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 lose angular coverage.

Response on Plane Wave Terminated Tube



Frequency response and impedance modulus of Model 2446J coupled to as 49 mm (2 in) tube, with sensitivity referred 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.



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