

# 2226H/J 380 mm (15 in) Low Frequency Transducer

## Professional Series

### Key Features:

- ▶ 600 W AES continuous pink noise power capacity
- ▶ 100 mm (4 in) edgewound aluminum ribbon voice coil
- ▶ 30 Hz - 2.5 kHz response
- ▶ 97 dB sensitivity, 1 W, 1 m (3.3 ft)
- ▶ SFG magnet structure with patented\* Vented Gap Cooling™ technology



The 2226H/J low frequency transducer represents the industry-leading results of JBL's engineering research in high power transducer design. The 2226H/J signified a major advance in speaker design by incorporating JBL's patented\* Vented Gap Cooling™ technology in an improved Symmetrical Field Geometry™ (SFG) magnetic structure.

To increase power handling while reducing power compression, JBL engineers created a unique, direct voice coil-to-air heat dissipation method called Vented Gap Cooling. This process pumps air through the magnetic gap and directly over and around the voice coil to provide immediate heat transfer and reduction in operating temperature – a direct improvement in power compression.

The 2226H/J incorporates a SFG (Symmetrical Field Geometry) magnetic structure. Computer-aided magnet optimization and analysis allowed JBL engineers to optimize magnet weight, flux density and reduce distortion. This patented\* magnet structure offers much of the weight advantage of rare earth magnet structures without their higher cost.

\*JBL Patent #5,042,072.

### Specifications:

Nominal Diameter:	380 mm (15 in)
Rated Impedance:	8 ohms (H) 16 ohms (J)
Power Capacity <sup>1</sup> :	600 W AES continuous pink noise
Sensitivity <sup>2</sup> :	97 dB SPL, 1 W, 1 m (3.3 ft)
Frequency Range <sup>3</sup> :	30 Hz - 2.5 kHz
Power Compression <sup>4</sup>	
at -10 dB power (60 W):	0.7 dB
at -3 dB power (300 W):	2.5 dB
at rated power (600 W):	4.0 dB
Distortion <sup>5</sup>	
2nd harmonic:	≤1.0%
3rd harmonic:	≤1.0%
Highest Recommended Crossover:	1200 Hz
Recommended Enclosure Volume:	85-285 l (3-10 ft <sup>3</sup> )
Effective Piston Diameter:	335 mm (13.2 in)
Maximum Excursion Before Damage (p-p):	40 mm (1.6 in)
Minimum Impedance:	6.0 ohms ± 10% @ 25°C (H) 12.0 ohms ± 10% @ 25°C (J)
Voice Coil Diameter:	100 mm (4 in)
Voice Coil Material:	Edgewound aluminum ribbon
Voice Coil Winding Depth:	19.05 mm (0.75 in)
Magnetic Gap Depth:	8.1 mm (0.32 in)
Magnetic Assembly Weight:	6.8 kg (15 lb)
Bl Factor:	19.2 N/A (H) 27.1 N/A (J)
Effective Moving Mass:	0.098 kg

Positive voltage on BLACK terminal gives forward diaphragm motion.

<sup>1</sup> AES standard (50-500 Hz).

<sup>2</sup> Based upon a swept 100 Hz to 500 Hz signal, measured in half space, for an input of 2.83 V @ 8 ohms or 4.0 V @ 16 ohms.

<sup>3</sup> Frequency range is defined as the frequency extremes where the response is -10 dB from the rated sensitivity.

<sup>4</sup> Power compression is the sensitivity loss at the specified power, measured from 50 to 500 Hz, after a 5 minute AES standard (50-500 Hz) pink noise preconditioning test at the specified power.

<sup>5</sup> Distortion is measured at -10 dB power, from 100-500 Hz.

JBL continually engages in research related to produce 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.

## ▶ 2226H/J 380 mm (15 in) Low Frequency Transducer

Very high thermal power handling also requires greater mechanical integrity. An innovative cone design greatly improves cone strength and stiffness-to-weight ratio through the use of a glass fiber/paper composite cone material. The surround topology and edge damping treatment allow greater linear excursion for matched power and displacement levels. The voice coil benefits from an innovative winding technique which offers greater power handling and thermal stability. All design aspects of the surround, cone and voice coil have been carefully optimized and controlled to provide smooth and extended high frequency response.

The high power handling and robust construction of the 2226H/J make it a natural for tour sound and fixed sound reinforcement use, while the low distortion and smooth response make it an ideal choice for critical high level monitoring applications.

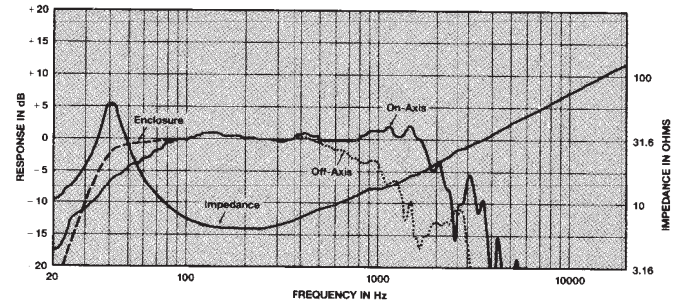
### THIELE/SMALL PARAMETERS<sup>6</sup>:

$f_s$ :	40 Hz
$R_e$ :	5.0 ohms (H) 10.0 ohms (J)
$Q_{ts}$ :	0.31
$Q_{ms}$ :	5.0
$Q_{es}$ :	0.33
$V_{as}$ :	175 l (6.2 ft <sup>3</sup> )
$S_d$ :	0.088 m <sup>2</sup> (137 in <sup>2</sup> )
$X_{max}$ :	7.6 mm (0.30 in)
$V_d$ :	689 cm <sup>3</sup> (41 in <sup>3</sup> )
$L_e$ :	1.75 mH (H) 3.5 mH (J)
$\eta_o$ (Half space) <sup>7</sup> :	3.3%
$P_e$ (Max) <sup>1</sup> :	600 W continuous pink noise
<b>MOUNTING INFORMATION:</b>	
Overall Diameter:	388 mm (15 <sup>1</sup> / <sub>4</sub> in)
Bolt Circle Diameter:	370 mm (14 <sup>9</sup> / <sub>16</sub> in)
Baffle Cutout Diameter	
Front Mount:	355 mm (14 in)
Rear Mount:	359 mm (14 <sup>9</sup> / <sub>16</sub> in)
Depth <sup>2</sup> :	137 mm (5 <sup>1</sup> / <sub>2</sub> in)
Volume Displaced by Driver:	6 l (0.2 ft <sup>3</sup> )
Net Weight:	8.7 kg (19 <sup>1</sup> / <sub>4</sub> lb)
Shipping Weight:	10.2 kg (22 <sup>1</sup> / <sub>2</sub> lb)

<sup>6</sup>Thiele/Small parameters are measured after 2 hour exercise period using a 600 W AES power test and will reflect the expected long term parameter values once the driver has been installed and operated for a short period of time.

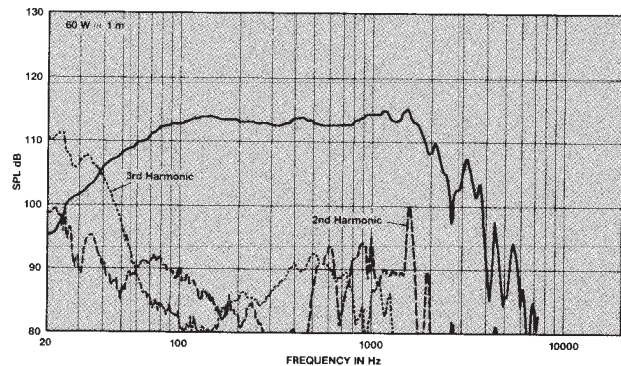
<sup>7</sup>Clearance of at least 76 mm (3 in) must be provided behind the magnet assembly and the gap vents to allow sufficient air circulation and proper cooling to take place.

### Typical response and Impedance Curves, Enclosure Volume and Port Tuning



Frequency response contour of the 2226H/J taken in a hemispherical free-field environment, a closed box of 280 l (10 ft<sup>3</sup>) internal volume enclosing the rear of the driver. Measured response of a typical production unit, including all peaks and dips, does not deviate more than 2 dB from the above curve. The dotted line represents measured 45 degree off-axis response. The dashed curve represents the response when the driver is mounted in a 140 l (5 ft<sup>3</sup>) vented enclosure tuned to 40 Hz. The impedance magnitude curve is measured in free-air.

### Distortion vs. Frequency



Distortion levels raised 20 dB, measured at 60 watts, 1 meter.



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