2225H/J

380 mm (15 in) LOW FREQUENCY TRANSDUCER

FEATURES:

400 W continuous program power capacity

100 mm (4 in) edgewound copper ribbon voice coil

30 Hz-2 kHz response

97 dB sensitivity, 1 W, 1 m

The JBL Model 2225H/J represents JBL's latest engineering developments in low frequency driver design. Specifically designed for both horn-loaded and vented box enclosures, it has the ruggedness to withstand high-power sound reinforcement use. The extended length of the voice coil allows increased linear travel, and carefully selected suspension elements provide an optimum balance of motor and suspension forces to produce tight, accurate transient characteristics and complete freedom from dynamic instabilities. The choice of surround material and damping treatment provides an optimum termination for the cone edge, reducing distortion and allowing a smooth high frequency response that permits higher crossover frequencies than normally specified for a 380 mm driver.

The 2225H/J incorporates a heavy cast aluminum frame to resist deformation and aid in heat dissipation. The magnetic structure features JBL's unique Symmetrical Field Geometry (SFG) design to reduce second harmonic distortion to inconsequential levels. The 100 mm (4 in) diameter voice coil benefits from new adhesive technology and an optimized coil-former construction of aluminum, plastic, and high temperature paper for increased power capac-

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ity. Extremely tight manufacturing tolerances also contribute to the high performance and linear frequency response. The driver is available as the 2225H with an impedance of 8 ohms or as the 2225J with a 16-ohm impedance.

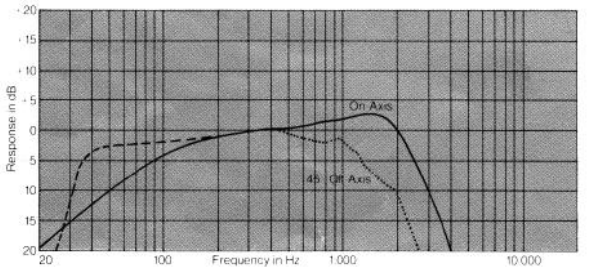
ARCHITECTURAL SPECIFICATIONS:

The low frequency transducer shall have a nominal diameter of 380 mm (15 in), overall depth not greater than 137 mm (5½ in), and weigh at least 10.1 kg (22¼ lb). The frame shall be of cast aluminum to resist deformation, and the magnetic assembly shall utilize a ferrite magnet and produce a symmetrical magnetic field at the voice coil gap. In addition, an aluminum ring encircling the pole piece shall act to reduce flux modulation. The voice coil shall be 100 mm (4 in) in diameter and shall be made of edgewound copper ribbon operating in a magnetic field of not less than 1.2 T (12,000 gauss).

Performance specifications of a typical production unit shall be as follows: Measured sensitivity (SPL at 1 m (3.3 ft) with 1 W input, swept 100 Hz–500 Hz) shall be at least 97 dB on axis. As an indication of electromechanical conversion efficiency, the Bl factor shall be at least 23 (34) newtons per ampere. The half-space reference efficiency shall be 3.5%. Usable frequency response shall extend from 30 Hz–2000 Hz. On axis response, measured at a distance of 1.8 m (6 ft) or more under free field conditions, shall be ± 3 dB from 50 Hz–1200 Hz. Acoustic loading shall further extend the low frequency response. Nominal impedance shall be 8 (16) ohms. Rated power capacity shall be at least 400 W normal program material.

The transducer shall be the JBL Model 2225H/J. Other loudspeakers will be considered for equivalency provided that submitted data from a recognized independent test laboratory verify that the above performance specifications are met.

Typical Response Curve, Enclosure Volume and Port Tuning



Frequency response contour of the 2225H/J taken in a hemispherical free-field environment, a closed box of 140 L (5 ft³) 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 dashed curve represents the response from a 160 cm² (25 in²) port with a 13 cm (5 in) long duct tuning this enclosure to 40 Hz.

IBL 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 IBL product may differ in some respect from its published description, but will always equal or exceed the original design specifications unless otherwise stated.

SPECIFICATIONS:

Nominal Diameter:	380 mm (15 in)
Rated Impedance:	
2225H:	8 ohms
2225J:	16 ohms
Power Capacity[1]:	400 W continuous program
Sensitivity[2]:	97 dB SPL, 1 W, 1 m
Frequency Range:	30 Hz–2 kHz
Highest Recommended Crossover Frequency:	1200 Hz
Recommended Enclosure Volume:	85–285 L (3–10 ft³)
Effective Piston Diameter:	337 mm (13¼ in)
Maximum Excursion Before Damage:	22 mm (⅞ in peak to peak)
Minimum Impedance:	7.3 ohms ± 10% @ 25°C (H), 13.9 ohms ± 10% @ 25°C (J)
Voice Coil Diameter:	100 mm (4 in)
Voice Coil Material:	Edgewound copper ribbon
Voice Coil Winding Depth:	16.0 mm (0.63 in)
Magnetic Gap Depth:	7.1 mm (0.28 in)
Magnetic Assembly Weight:	8.5 kg (18⅝ lb)
Flux Density:	1.2 T (12,000 gauss)
Bl Factor:	23 N/A (H), 34 N/A (J)
Effective Moving Mass:	0.105 kg
Positive voltage on black terminal gives forward diaphragm motion.	
Thiele-Small Parameters:	
f_S:	40 Hz
R_e:	6.3 ohms (H), 12.9 ohms (J)
Q_t:	0.28
Q_{ms}:	2.5
Q_{es}:	0.31
V_{as}:	170 L (6 ft³)
S_D:	0.089 m² (138 in²)
X_{max}:	5 mm (0.2 in)
V_D:	445 cm³ (27 in³)
L_e:	1.1 mH (H), 2.2 mH (J)
η_O (Half space)[3]:	3.5%
P_e (Max):	200 W Continuous sine wave
Mounting Information:	
Overall Diameter:	388 mm (15²⁷/₆₄ in)
Bolt Circle Diameter:	370 mm (14⁹/₁₆ in)
Baffle Cutout Diameter:	
Front Mount:	355 mm (13³¹/₃₂ in)
Rear Mount:	343 mm (13½ in)
Depth:	137 mm (5½ in)
Volume Displaced by Driver When Mounted in Enclosure:	6 L (0.2 ft³)
Net Weight:	10.1 kg (22¼ lb)
Shipping Weight:	11.2 kg (24¾ lb)

[1]Continuous program power is defined as 3 dB greater than continuous sine wave power and is a conservative expression of the transducer's ability to handle typical speech and music program material.

[2]The sensitivity rating of JBL low frequency loudspeakers is based on a signal swept from 100 Hz to 500 Hz, rather than the conventional 1 kHz single frequency test signal, since these drivers are usually used below 800 Hz. Therefore, usable sensitivity of the 2225H/J may be substantially greater than that of loudspeakers with higher published ratings. The half-space reference efficiency percentages will give a consistent method for comparison of E series, Professional Series, and competitive loudspeakers in low-frequency applications.

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