

2204H

300 mm (12 in)
LOW FREQUENCY
LOUDSPEAKER



FEATURES:

- 350 W continuous pink noise power capacity
- 100 mm (4 in) edgewound copper ribbon voice coil
- 35 Hz-4 kHz response
- 95 dB sensitivity, 1 W, 1 m (3.3 ft)

The JBL Model 2204H represents JBL's latest engineering developments in low frequency driver design. Specifically designed for direct-radiator vented-box applications, 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 2204H is a highly efficient, low frequency loudspeaker. Compared to other loudspeakers having similar sensitivity, its frequency response is unusually linear, varying only ± 3 dB from 70 Hz to 2 kHz. Its performance characteristics make it well suited for use as a small stage monitor loudspeaker or as a low frequency driver in installations where mounting space is restricted.

A tough, double roll compliance increases power handling and reliability. This unique cone termination is completely passive so that sound quality

remains virtually unchanged during sustained high power inputs. The cone, voice coil, and spider are assembled with state-of-the-art high-temperature adhesives, resulting in an exceptionally strong bond and greater structural integrity.

The magnetic assembly of the 2204H incorporates JBL's unique Symmetrical Field Geometry (SFG), which reduces second harmonic distortion to inconsequential levels. Each component is precisely machined to concentrate a maximum amount of magnetic energy in the voice coil gap.

The combination of this powerful magnetic structure, a rugged cone assembly and 100 mm diameter edgewound copper ribbon voice coil enable the 2204H to achieve its 350 W continuous pink noise power capacity, exceptional sensitivity, and smooth acoustic output.

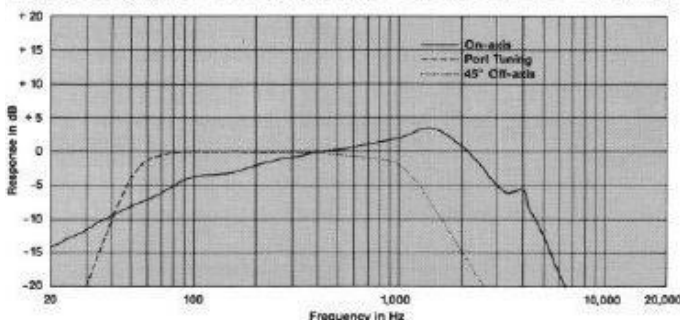
ARCHITECTURAL SPECIFICATIONS:

The low frequency transducer shall have a nominal diameter of 300 mm (12 in), overall depth not greater than 121 mm (4 7/8 in), and weigh at least 9.4 kg (20 1/2 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 95 dB on axis. As an indication of electromechanical conversion efficiency, the BI factor shall be at least 15 newtons per ampere. The half-space reference efficiency shall be 1.8%. Usable frequency response shall extend from 35 Hz to 4 kHz. On-axis response, measured at a distance of 1.8 m (6 ft) or more under free-field conditions, shall be ± 3 dB from 70 Hz to 2 kHz. Acoustic loading shall further extend the low frequency response. Nominal impedance shall be 8 ohms. Rated power capacity shall be at least 350 watts pink noise (50 Hz to 500 Hz) per AES standard.

The transducer shall be the JBL Model 2204H. 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 of the 2204H in a closed box of 57 L (2 ft³) internal volume. 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 with a 160 cm² (25 in²) port, 26 cm (10 in) long, tuning the enclosure to 50 Hz.

SPECIFICATIONS:

Nominal Diameter:	300 mm (12 in)
Rated Impedance:	8 ohms
Power Capacity ¹ :	350 W continuous pink noise
Sensitivity ² :	95 dB SPL, 1 W, 1 m
Frequency Range:	35 Hz - 4 kHz
Highest Recommended Crossover Frequency:	1200 Hz
Recommended Enclosure Volume:	28-170 L (1-6 ft ³)
Effective Piston Diameter:	260 mm (10.25 in)
Maximum Excursion Before Damage:	22 mm (7/8 in) peak to peak
Minimum Impedance:	7.0 ohms $\pm 10\%$ @ 25°C
Voice Coil Diameter:	100 mm (4 in)
Voice Coil Material:	Edgewound copper ribbon
Voice Coil Winding Depth:	19.0 mm (0.750 in)
Magnetic Gap Depth:	71 mm (2.8 in)
Magnetic Assembly Weight:	8.5 kg (18 1/2 lb)
Flux Density:	1.2 T (12,000 gauss)
BI Factor:	15 N/A
Effective Moving Mass:	0.057 kg
Positive voltage on black terminal gives forward diaphragm motion	
THIELE-SMALL PARAMETERS:	
f_s :	45 Hz
R_e :	6.2 ohms
Q_{ts} :	0.35
Q_{ms} :	1.7
Q_{es} :	0.44
V_{as} :	89 L (3.1 ft ³)
S_D :	0.053 m ² (82.5 in ²)
X_{max} :	7.0 mm (0.275 in)
V_D :	370 cm ³ (22.7 in ³)
L_e :	0.7 mH
η_0 (Half space):	1.8%
P_0 (Max) ¹ :	350 W continuous pink noise
MOUNTING INFORMATION:	
Overall Diameter:	311 mm (12 1/4 in)
Bolt Circle Diameter:	294 mm (11 5/8 in)
Baffle Cutout Diameter Front Mount or Rear Mount:	280 mm (11 1/8 in)
Typical Volume Displaced by Driver When Mounted in Enclosure:	4 L (0.15 ft ³)
Depth:	121 mm (4 7/8 in)
Net Weight:	9.4 kg (20 1/2 lb)
Shipping Weight:	9.9 kg (21 1/2 lb)

¹AES standard (50 Hz to 500 Hz).

²The 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 2204H 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.

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.