

Professional Series

Key Features:

- ▶ 800 watt continuous pink noise power
- ▶ 100 mm (4") edgewound aluminum ribbon voice coil
- ▶ 25 Hz to 1.6 kHz response
- ▶ 99 dB sensitivity, 1 W at 1 m
- ▶ New magnet structure with patented Super Vented Gap™ (SVG) cooling¹
- ▶ Extremely high output capability with low distortion

The JBL 2242H low frequency transducer incorporates JBL's ongoing developments in improved thermal dissipation and linearity at both high and low cone excursions. To increase power handling while minimizing power compression, JBL's engineers have developed a patented voice-coil-to-air heat dissipation method known as 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 of operating temperature - a direct improvement in power compression.¹

The 2242H is built around a completely new motor structure with a pole piece extending both above and below the top plate to improve gap flux symmetry and increase thermal conductivity from the voice coil to the pole piece. In addition to the benefits of JBL's Symmetrical Field Geometry™, the 2242H also incorporates a copper shorting ring that is imbedded in the pole piece at the precise center of the gap and is in close proximity to the voice coil. The copper ring acts like a shorted secondary turn in a transformer, with the voice coil acting as the primary winding. The benefits of this are a reduction in third harmonic distortion and a reduction of the voice coil's inductance, which improves the transducer's transient response.

¹U.S. Patent #5,042,072. Foreign patents pending



The 2242H can produce peak instantaneous outputs of 134 dB above 100 Hz measured at one meter, greater than any other JBL low frequency transducer. The new voice coil-magnet circuitry is referred to as Super Vented Gap™ technology.

The 2242H is intended for use in applications where large amounts of low distortion low frequency acoustical power is required, along with excellent mid-bass transient behavior. A typical application is as a subwoofer for cinemas, with extension down to 25 Hz. The total peak-to-peak excursion of the moving system is 18 mm, within 10% linearity.

The 2242H carries a power rating of 800 watts, as compared with the 600 watt rating of its predecessors. This is accomplished through the use of a voice coil with one-third more surface area than in the earlier designs, allowing the 2242H to dissipate heat more effectively to the surrounding metal parts. The higher power rating, reduced power compression, and increased efficiency give the 2242H a net continuous output capability that is 3 dB greater than that of the 2241H.

Careful attention has been paid to the design of the moving system. The cone used in the 2242H is reinforced with fiberglass for added strength. The inner suspension is a JBL design whose stress-strain curve has been chosen to produce better control of cone motion at the highest excursions.

▶ 2242H Maximum Output 460 mm SVG™ Transducer

Specifications:

Nominal Diameter: 460 mm (18")
Rated Impedance: 8 ohms
Power Capacity ¹ : 800 watts
Sensitivity ² : 99 dB, 1W, 1 m (3.3 ft)
Frequency Range ³ : 25 Hz - 1.6 kHz
Power Compression ⁴
d -10 dB power (80 W): 0.6 dB
@ -3 dB power (400W): 2 dB
@ rated power (800 W): 3.3 dB
Distortion ⁵
2nd harmonic: < 1.0%
3rd harmonic: < 1.0%
Highest Recommended Crossover: 1 kHz
Recommended Enclosure volume: 140 - 340 l (5 - 12 ft ³)
Effective Piston diameter: 397 mm (15.6 in)
Maximum Excursion
Before Damage (peak to peak): 50 mm (2 in)
Minimum Impedance: 6.6 ohms
Voice Coil Diameter: 100 mm (4 in)
Voice Coil Material: Edgewound Aluminum Ribbon
Voice Coil Winding Depth: 25 mm (1 in)
Magnetic Gap Depth: 12.7 mm (0.5 in)
Magnetic Assembly Weight: 10.4 kg (23 lb)
Bl factor: 23.7 newton/ampere
Effective Moving Mass: 158 g
Polarity: EIA (Positive voltage to RED terminal gives forward cone motion)
THIELE-SMALL PARAMETERS⁶:
fs: 35 Hz
Re: 4.7 ohms
Q _{es} : 0.28
Q _{ms} : 5
Q _{es} : 0.29
V _{as} : 283 l (10 ft ³)
S _D : 0.124 m ² (192 in ²)
X _{max} : 9 mm (0.35 in)
V _D : 1114 cm ³ (GS in ³)
Le: 1.25 mH
η ₀ (half-space): 4%
Pe (Max) ⁷ : 800 W, continuous pink noise
MOUNTING INFORMATION:
Overall Diameter: 464 mm (18.27 in)
Bolt Circle Diameter: 441 mm (17.38)
Baffle Cutout Diameter
Front Mount: 427 mm (16.81 in)
Rear Mount: 428 mm (16.85 in)
Dent ⁸ : 203 mm (8 in)
Volume Displaced by Driver: 9 l (0.32 ft ³)
Net Weight: 13.2 kg (29 lb)
Shipping Weight: 15 kg (33 lb)

¹AES standard (50 - 500 Hz)

²Sensitivity is based on a 100 - 1000 Hz pink noise signal for an input of 2.83 V @ 8 ohms.

³Frequency range is defined as the frequency extremes over which the response is -10 dB relative to rated sensitivity

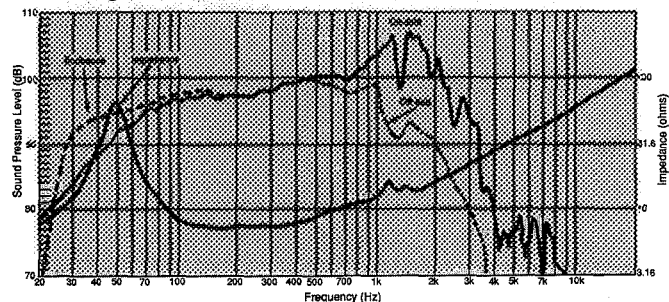
⁴Power compression is the sensitivity loss at the specified power, measured from 50 to 500 Hz, after a 5 minute AES standard pink noise preconditioning test at the specified power.

⁵Distortion is measured at -10 dB rating power, from 100 to 500 Hz.

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

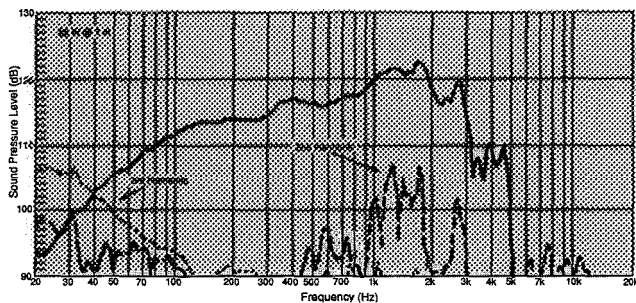
⁷Clearance of at least 76 mm (3 in) must be provided behind the magnet assembly and the gap vents to allow sufficient air circulation and proper cooling to take place.

Typical Response and Impedance Curves, Enclosure Volume and Port Tuning



Frequency response contour of the 2242H taken in a hemispherical free-field environment, a closed box of 280 l (10 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 dotted line represents measured 45 degree off-axis response. The dashed curve represents the response when the driver is mounted in a 225 l (8 ft³) vented enclosure tuned to 30 Hz. The impedance magnitude curve is measured in free-air.

Distortion vs. Frequency



Distortion levels raised 30 dB, measured at 80 watts, 1 meter.

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.



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