2012H Maximum Output 250 mm Midrange/Mid-Bass Transducer

Professional Series

Key Features:

- 300 W AES continuous pink noise power capacity
- 76 mm (3 in) edgewound aluminum ribbon voice coil
- 75 Hz - 7 kHz response
- 100 dB sensitivity, 1 W, 1 m (3.3 ft)
- New magnet structure with enhanced distortion-reduction characteristics
- Flat impedance curve for constant power transfer



The JBL Model 2012H Maximum Output transducer is specifically designed to provide smooth, low-distortion midrange output for the highest quality sound reinforcement applications. It is suitable for use in both direct radiator and horn-loaded applications. It is especially well-suited for use in high-powered, multi-way systems for concert and theatrical use, and for high output stage monitor and studio monitor applications. Because of its relatively high resonance and very low Q_{ts} values, the 2012H can be mounted in small enclosures while maintaining smooth, peak-free response.

The 2012H has been designed with a combination of flat power response with rising on-axis response, and an optimization of the critical interplay between efficiency, sensitivity, power handling and low dynamic power compression.

The 2012H is built around an enhanced motor structure that provides dramatic performance benefits for professional users. JBL's traditional SFG (Symmetrical Field Geometry) motor structures use an aluminum shorting ring at the base of the pole piece to reduce second order harmonic distortion along with saturated undercut pole tips to reduce third order harmonic distortion. The 2012H employs a new magnetic structure with a copper sleeve symmetrically positioned on the pole piece above and below the top plate. This copper sleeve is located on the outside of the pole piece throughout the entire length of the coil. It functions as a "shorting ring", and provides significant reductions in both second and third order harmonic distortion with a single design element. The top of the plate is much thicker than traditional drivers, providing much better heat dissipation for the voice coil.

Due to this innovative new magnet structure design, the 2012H exhibits extremely low midband distortion. It features a very smooth, gradually rising response over the transducer's target operating range from 100 Hz to 1600 Hz. Even at extremely high power levels, over this frequency interval the values of second and third order harmonic distortion do not rise above a value of 3%. Distortion in the critical lower midrange region from 100 to 500 Hz is below 1%.

A hallmark of the 2012H is its enhanced dynamic compression characteristics. Power compression in all loudspeakers results from the increase in voice coil temperature and the consequent rise in DC resistance. Power compression at high operating levels can rob music of its essential dynamics. While most manufacturers of professional transducers do not present performance data on power compression, JBL routinely tests for and presents this data. Professional users who are concerned with performance under long-term periods of continuous usage at or near rated power will find that the 2012H exhibits only 3.4 dB of compression at full rated power, and only 0.6 dB of compression at 10 dB below full rated power.

Each of these engineering principles combine to result in a maximum output, low distortion midrange/mid-bass device that has nearly a pure resistive minimum-phase impedance characteristic through its useable range and in the area of crossover. The flat impedance curve results in constant power being delivered to the transducer at all frequencies, with the final result being a low distortion speaker with an extended range of flat power response.

Like all JBL loudspeakers, the 2012H is built to traditional JBL standards of precision. It will continue to deliver superior performance over extended periods of time without special care or attention.

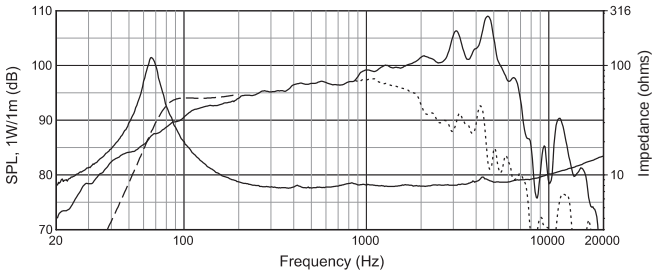
2012H Maximum Output 250 mm Midrange/Mid-Bass Transducer

Specifications:

Nominal Diameter:	250 mm (10 in)
Rated Impedance:	8 ohms
Power Capacity[1]:	300 W
Sensitivity[2]:	100 dB SPL, 1 W, 1 m (3.3 ft)
Frequency Range[3]:	75 Hz - 7 kHz
Power Compression[4]:	
at -10 dB power (30 W):	0.6 dB
at -3 dB power (150 W):	2.0 dB
at rated power (300 W):	3.4 dB
Distortion[5]:	
2nd harmonic:	<1%
3rd harmonic:	<1%
Highest Recommended Crossover:	5.5 kHz
Recommended Enclosure Volume:	10 - 30 liters (0.35 - 1.05 ft³)
Effective Piston Diameter:	199 mm (7.8 in)
Maximum Excursion Before Damage:	16 mm (0.65 in)
Minimum Impedance:	7 ohms ± 10% @ 25° C
Voice Coil Diameter:	76 mm (3 in)
Voice Coil Material:	Edgewound Aluminum Ribbon
Voice Coil Winding Depth:	20.3 mm (0.8 in)
Magnetic Gap Depth:	12.6 mm (0.5 in)
Magnetic Assembly Weight::	7.7 kg (17 lb)
Bl Factor:	15.5 tesla meters
Flux Density:	1.0 tesla
Effective Moving Mass:	30 g
Polarity:	EIA (Positive voltage to RED terminal gives forward cone motion)
THIELE/SMALL PARAMETERS[6]:	
f_s:	61 Hz
R_e:	4.7 ohms
Q_{ts}:	.21
Q_{ms}:	4
Q_{es}:	.22
V_{as}:	31 l
S_d:	0.031 m² (48.05 in²)
X_{max} (10 % THD):	5 mm (0.20 in)
V_d:	155 cm³ (9.46 in³)
L_e:	N/A (purely resistive at 1 kHz)
η_0 (half-space):	3.1%
P_e (Max)[1]:	300 W continuous pink noise
MOUNTING INFORMATION:	
Overall Diameter:	237 mm (9.33 in) square 261 mm (10.25 in) round
Bolt Circle Diameter:	245 mm (9.63 in)
Baffle Cutout Diameter:	
Front Mount:	229 mm (9.0 in)
Rear Mount:	222 mm (8.75 in)
Depth:	117 mm (4.6 in)
Volume Displaced by Driver:	2.15 liters (0.076 ft³)
Net Weight:	8.6 kg (19 lb)
Shipping Weight:	9.1 kg (20 lb)

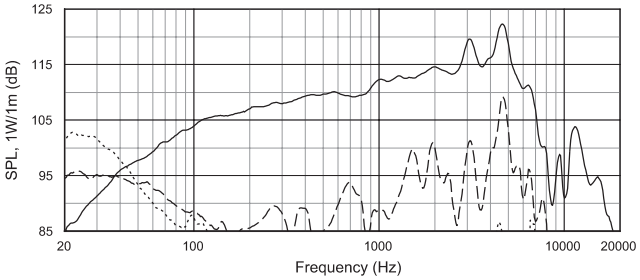
[1]AES standard (100 Hz - 1000 Hz pink noise)
[2]Sensitivity is based on a swept 500 - 2500 Hz signal for an input of 2.83 V @ 8 ohms.
[3]Frequency range is defined as the frequency extremes over which the response is -10 dB relative to the rated sensitivity.
[4]Power compression is the sensitivity loss at the specified power, measured from 100 to 1000 Hz, after a 5 minute AES standard pink noise preconditioning test at the specified power.
[5]Distortion is measured at -10 dB rated power, from 100 to 500 Hz.
[6]Thiele/Small parameters are measured after 2 hour exercise period using a 300 W AES power test and reflect the expected long-term parameters once the driver has been installed and operated for a short period of time.

TYPICAL RESPONSE and IMPEDANCE CURVES



Frequency response contour of the 2012H taken in a hemispherical free-field environment, a closed box of 280 liters (10 ft³) internal volume enclosing the rear of the driver. Input signal is 2.83V @ 1 meter. 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 8.5 liter (0.3 ft³) enclosure tuned to 75 Hz. The impedance magnitude curve is measured in the 280 liter (10 ft³) sealed enclosure.

DISTORTION vs. FREQUENCY



Distortion measurements taken with an input of 15.5V @ 1 meter (30 watts at 8 ohms). Distortion levels shown have been raised by 20 dB. The dashed line shows 2nd harmonic and the dotted line shows the 3rd harmonic. Note lack of 3rd harmonic at high frequencies.

JBL continually engages in research related to product improvement. Some 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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