

# 2105H

130mm (5 in)  
SPEECH RANGE  
TRANSDUCER



## FEATURES:

---

50 W continuous program

22 mm (7/8 in) edgewound copper ribbon voice coil

300 Hz-15 kHz response

94 dB SPL, 1 W, 1 m

---

JBL's Model 2105H is a unique transducer that provides high acoustical output, smooth response, and wide-angle coverage from an assembly only 130 mm (5 in) in diameter. It is well suited to in-line arrays, inconspicuous distributed-speaker ceiling installations, natural-sounding paging and talkback, concealed "surround" sound, and portable voice reinforcement systems. Peak-free response allows higher gain in sound reinforcement systems without acoustic feedback. Moreover, the 2105H has high sensitivity and full 50 W program power capacity. It can produce greater acoustic output than any other

small cone loudspeaker; more, in fact, than many 300 mm (12 in) units.

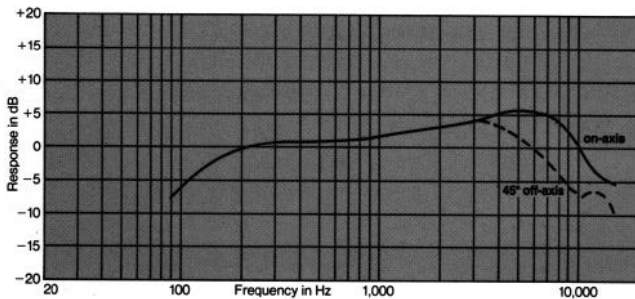
The design of the 2105H incorporates a rigid cast aluminum frame, 0.74 kg (1 5/8 lb) magnetic assembly, and viscous-damped cone termination. Wherever natural reproduction of voice frequencies is the goal, Model 2105H can be substituted for larger loudspeakers to give a significant improvement in high frequency dispersion while at the same time reducing the size and cost of mounting provisions.

## ARCHITECTURAL SPECIFICATIONS:

The transducer shall have a nominal diameter of 130 mm (5 in), overall depth not greater than 45 mm (1 3/4 in), and weigh at least 1.2 kg (2 1/2 lb). The frame shall be of cast aluminum to resist deformation. The voice coil shall be approximately 22 mm (7/8 in) in diameter and shall be made of edgewound copper ribbon operating in a magnetic field of not less than 1.35 T. The transducer shall be designed to allow mounting from either the front or the rear of the baffle board.

Performance specifications of a typical production unit shall be as follows: Measured sensitivity (SPL at 1 m with a 1 W input, swept 500-2500 Hz) shall be at least 94 dB on axis and 93 dB 45° off axis. As an indication of electromechanical conversion efficiency, the BI factor shall be at least 6.6 T·m. The half-space reference efficiency shall be 1.2 %. Usable frequency response shall extend from 300 Hz to 15 kHz. On-axis response, measured at a distance of 1.8 m (6 ft) or more under free field conditions, shall approximate a straight line rising with frequency at a rate of 1.5 dB per octave. Response shall not deviate more than 3 dB from this characteristic from 300 Hz to 8 kHz. Above 8 kHz, response shall gradually roll off, but at 12 kHz shall not be more than 3 dB down from the 500-2500 Hz reference level. Nominal impedance shall be 8 Ω. Rated power capacity shall be at least 50 W normal speech or music program material.

The transducer shall be JBL Model 2105H. 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.



Frequency response contour of Model 2105H. Measured response of a typical production unit, including all peaks and dips, does not deviate more than 3 dB from the above curve.

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.

## SPECIFICATIONS:

Nominal Diameter:	130 mm (12 in)
Rated Impedance:	8 ohms
Power Capacity <sup>1</sup> :	50 W continuous program
Sensitivity <sup>2</sup> :	94 dB SPL, 1 W, 1 m
Frequency Range:	300 Hz - 15 kHz
Recommended Enclosure Volume:	1.5 L (0.05 ft <sup>3</sup> )
Effective Piston Diameter:	89 mm (3.5 in)
Maximum Excursion:	6.4 mm (1/4 in peak to peak)
Minimum Impedance:	7.2 ohms (± 10% @ 25°C)
Voice Coil Diameter:	22 mm (7/8 in)
Voice Coil Material:	Edgewound copper ribbon
Voice Coil Winding Depth:	3.3 mm (0.128 in)
Magnetic Gap Depth:	3.6 mm (0.13 in)
Magnetic Assembly Weight:	0.74 kg (1 1/2 lb)
Flux Density:	1.35 T (13,500 gauss)
BI Factor:	6.6 N/A
Effective Moving Mass:	0.0035 kg
Positive voltage on black terminal gives forward diaphragm motion	
Thiele-Small Parameters:	
f <sub>s</sub> :	200 Hz
R <sub>e</sub> :	6.1 ohms
Q <sub>ts</sub> :	.53
Q <sub>ms</sub> :	3.0
Q <sub>es</sub> :	.65
V <sub>as</sub> :	.85L (.035 ft <sup>3</sup> )
S <sub>D</sub> :	.0062 m <sup>2</sup> (9.6 in <sup>2</sup> )
X <sub>max</sub> :	1.5 mm (.06 in)
V <sub>D</sub> :	9.2 cm <sup>3</sup> (.6 in <sup>3</sup> )
L <sub>e</sub> :	0.25 mH
η <sub>o</sub> (Half space):	1.2%
P <sub>e</sub> (Max):	25 W continuous sine wave
Mounting Information:	
Overall Diameter:	130 mm (5 1/8 in)
Bolt Circle Diameter:	119 mm (4 11/16 in)
Baffle Cutout Diameter:	
Front Mount:	108 mm (4 1/4 in)
Rear Mount:	102 mm (4 in)
Typical Volume Displaced by Driver When Mounted in Enclosure:	
Depth:	45 mm (1 3/4 in)
Net Weight:	1.2 kg (2 1/2 lb)
Shipping Weight:	1.4 kg (3 lb)

<sup>1</sup>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.

<sup>2</sup>Measured with an input swept from 500 Hz to 2500 Hz.