

**JBL**

# 8140H 200 mm (8 in) Co-Motional™ Coaxial Loudspeaker

## Industrial Series

### Key Features:

- ▶ 283 g (10 oz) nominal magnet weight
- ▶ 25 mm (1 in) voice coil diameter
- ▶ 97 dB sensitivity
- ▶ 40 W continuous program power capacity
- ▶ 30 Hz – 20 kHz frequency range



JBL Industrial Series loudspeakers are designed for a variety of distributed sound applications including noise masking, paging, and music reproduction. The speakers offer wide dispersion, excellent power capacity, and unmatched intelligibility. Additionally, the speakers may be ordered in a wide range of configurations to match the requirements of virtually any installation.

Each speaker features a rugged frame fabricated of heavy-gauge steel as well as a cold-formed back plate that improves magnetic circuit performance. Kapton voice coil forms are utilized for improved power handling and reliability. The unique 8140H Co-Motional™ coaxial loudspeaker features a high frequency tweeter cone which is directly attached to the low frequency woofer cone, thereby eliminating the diffraction problems normally associated with post or strap mounted co-axial type designs.

Built to traditional JBL standards of quality and precision, the loudspeakers are subjected to stringent environmental tests to ensure that the materials and adhesives will stand up to long-term use under even the most adverse conditions.

Optional accessories, other configurations, and ordering information is provided in the Industrial Series catalog.

### Specifications:

Nominal Diameter:	200 mm (8 in)
Rated Impedance:	8 ohms
Power Capacity <sup>1</sup> :	40 W continuous program
Sensitivity <sup>2</sup> :	97 dB SPL, 1 W, 1 m
Frequency Range:	30 Hz – 20 kHz
Frequency Response (± 4 dB):	100 Hz – 10 kHz
Effective Piston Diameter LF:	163 mm (6.4 in)
HF:	64 mm (2.5 in)
Maximum Excursion Before Damage:	6 mm (¼ in) peak to peak
Minimum Impedance:	8 ohms ± 10% @ 25°C
HF Crossover Frequency:	2.5 kHz
HF Drive Element:	Piezo Ceramic
LF Voice Coil Diameter:	25 mm (1 in)
LF Voice Coil Material:	Round copper wire (two layers)
Voice Coil Winding Depth:	6.9 mm (0.270 in)
Magnetic Gap Depth:	6.4 mm (0.250 in)
Magnetic Assembly Weight:	0.8 kg (1¾ lb)
Flux Density:	1.1 T (11,000 gauss)
BI Factor:	6.3 N/A
Effective Moving Mass:	10.1 g

Positive voltage on left terminal gives forward diaphragm motion (as viewed from the rear of the transducer, terminals at top).

<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> Sensitivity is based on a swept 500 Hz to 2.5 kHz signal for an input of 2.83 V @ 8 ohms.

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.

**Please note:** the 8140H is bulk-packed in quantities of 16. It must therefore be ordered in multiples of 16.

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## THIELE-SMALL PARAMETERS:

$f_s$ :	95 Hz
$R_e$ :	7.2 ohms
$Q_{ts}$ :	0.86
$Q_{ms}$ :	4.0
$Q_{es}$ :	1.09
$V_{as}$ :	17 l (0.61 ft <sup>3</sup> )
$S_D$ :	0.021 m <sup>2</sup> (32 in <sup>2</sup> )
$X_{max}$ :	2.5 mm (0.1 in)
$V_D$ :	52.5 cm <sup>3</sup> (3.2 in <sup>3</sup> )
$L_e$ :	0.3 mH
$\eta_0$ (Half space):	1.3%
$P_e$ (Max):	20 W continuous sine wave

## MOUNTING INFORMATION:

Overall Diameter:	210 mm (8.25 in)
Bolt Circle Diameter:	194 mm (7.62 in)
Baffle Cutout Diameter	
Front Mount:	184 mm (7.25 in)
Rear Mount:	184 mm (7.25 in)
Depth:	74 mm (2.90 in)
Net Weight:	1 kg (2.2 lb)

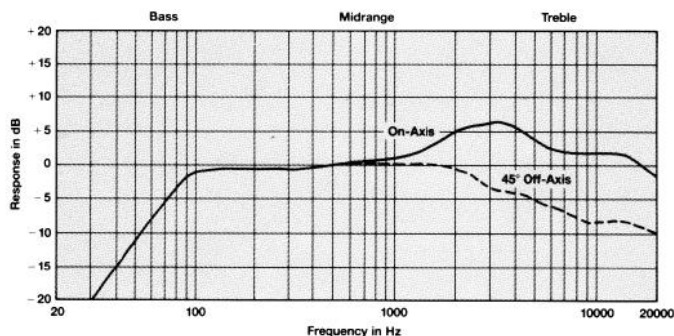
## Architectural Specifications:

The loudspeaker shall have a nominal diameter of 200 mm (8 in), overall depth not greater than 74 mm (2.9 in) and weigh at least 1 kg (2.2 lb). The magnetic assembly shall utilize a ferrite magnet with a nominal weight of 283 g (10 oz). The voice coil shall be 25 mm (1 in) in diameter and shall be made of two layers of round copper wire operating in a magnetic field of not less than 1.1 T (11,000 gauss). High frequencies shall be reproduced by a 64 mm (2½ in) piezo-electric transducer attached directly to the low frequency cone.

Performance specifications of a typical production unit shall be as follows:

Measured sensitivity (SLP at 1 m (3.3 ft) with 1 W input, swept 500 Hz – 2.5 kHz) shall be at least 97 dB on axis and 95 dB 45 degrees off axis. As an indication of electromechanical conversion efficiency, the Bl product shall be 6.3 newtons per ampere. The half-space reference efficiency shall be 1.3%. Usable frequency response shall extend from 30 Hz to 20 kHz. On-axis response, measured at a distance of 1.8 m (6 ft) or more under hemispherical free-field conditions, shall be ± 4 dB from 100 Hz to 10 kHz. Acoustic loading shall further extend the low frequency response. Nominal impedance shall be 8 ohms. Rated power capacity shall be at least 40 W normal program material.

The transducer shall be the JBL Model 8140H. 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 the 8140H taken in a hemispherical free-field environment. Measured response of a typical production unit, including all peaks and dips, does not deviate more than 4 dB from the above curve. Additional acoustic loading will further extend bass response.



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