

# 2490H

## Midrange Compression Driver

### Professional Series

#### Key Features:

- ▶ 200 watts continuous program above 250 Hz
- ▶ Optimized phasing plug design for low distortion, smooth response, and wide bandwidth
- ▶ 100 mm (4 in), .08 mm (.003 in) thickness, titanium diaphragm
- ▶ 76 mm (3 in) throat exit diameter
- ▶ 100 mm (4 in) edgewound voice coil



The Model 2490H is a unique addition to JBL's family of professional quality compression drivers. The design goal was to provide very high level sound pressure at low distortion over the bandwidth of 250 Hz to above 3 kHz. Extensive computer modeling, including finite element analysis and boundary element analysis, were used to optimize the magnetic structure, phasing plug, and diaphragm. This application of advanced technology has produced a smaller, lighter weight compression driver with better performance than previous high-power midrange transducers.

A new phasing plug was developed with an optimized two slit configuration. A five-to-one compression ratio produces very low distortion and smooth, wide bandwidth response.

The new diaphragm design includes JBL's exclusive three-dimensional diamond pattern surround tuned to reduce fatigue inducing stresses in the membrane and support structure.

Precision engineering and manufacturing processes provide controlled normal and suspension resonance modes. The diaphragm and suspension use 3 mil pure titanium for high stiffness and freedom from breakup modes.

A long voice coil design using high temperature voice coil former material and adhesives enable the 2490 to handle high power levels over extended periods of time.

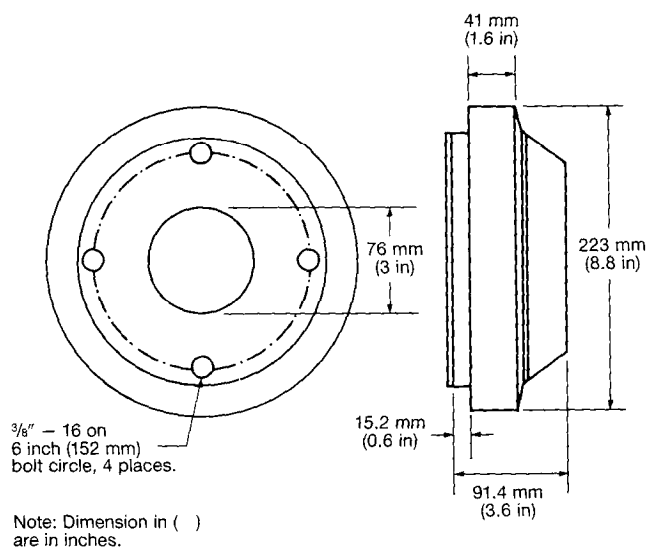
## ► 2490H Midrange Compression Driver

### Architectural Specifications:

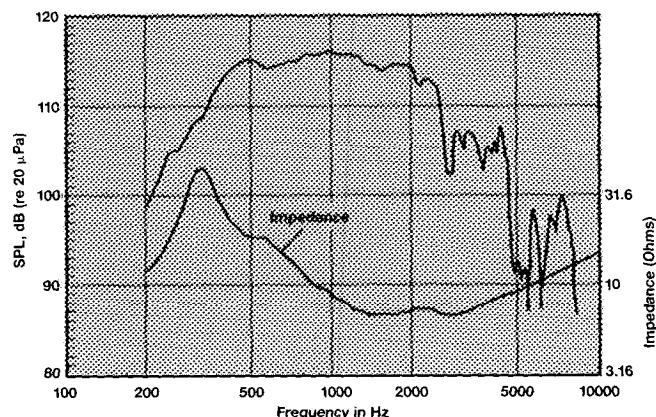
The compression driver shall consist of a ferrite magnetic structure with all magnetic assembly parts machined from cast or extruded billet stock. The phasing plug shall be assembled of concentric horns to minimize phase cancellations. The diaphragm shall be .08 mm (.003 in) pure titanium pneumatically drawn to shape. Frequency response shall be controlled through the use of a three dimensional suspension structure. The voice coil shall be edgewound aluminum ribbon of not less than 100 mm (4 in) diameter, operating in a magnetic field of not less than 1.5 T (15,000 gauss).

Performance specifications of a typical production unit shall be as follows: Measured sensitivity with a 45 mW input on a 76 mm (3 in) plane wave tube, averaged from 300 Hz to 4 kHz, shall be at least 123 dB SPL. Measured sensitivity with a 1 W input at 1 m distance on axis from the mouth of a horn with a Q of 20 averaged in the 2 kHz octave band shall be at least 114 dB SPL. As an indication of electromechanical conversion efficiency, the BI factor shall be at least 18 Tesla meters. Frequency response, measured on a terminated tube, shall be flat within  $\pm 1$  dB from 250 Hz to 2.5 kHz. Nominal impedance shall be 8 ohms and power capacity shall be at least 200 watts normal speech or music program material.

The compression driver shall be the JBL Model 2490. Other drivers will be considered for equivalency provided that submitted data from a recognized independent test laboratory verify that the above performance specifications are met.

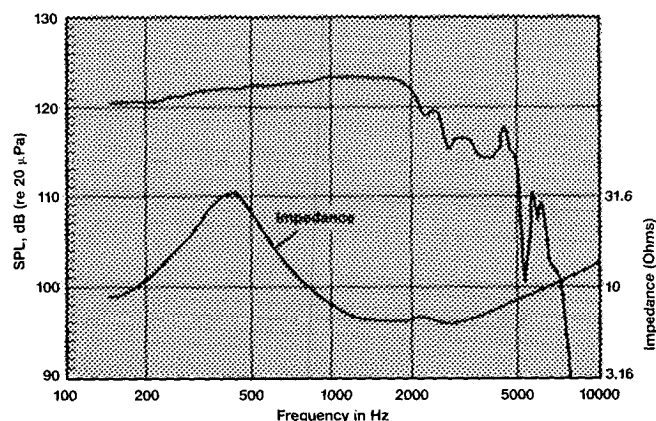


### Response on JBL 2393 Bi-Radial® Horn



Frequency response of the 2490H coupled to a JBL 2393 Bi-Radial® Horn, measured on-axis at a distance of 1 meter with a 1-watt (2.83 V rms) input in a reflection free environment, with impedance vs. frequency curve.

### Response on Plane-Wave Terminated Tube



Frequency response and impedance modulus of model 2490H coupled to a 76 mm (3 in) diameter terminated plane wave tube. This is the power response of the transducer. (0.6 V rms input).



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