

JBL 1400 Project Array System

JBL's professionally inspired audiophile-grade speaker system offers much for discriminating engineers.

There probably is not a speaker manufacturer in the world that has as much experience in pro audio as JBL. Since the mid-1930s, Lansing Sound was a leader in motion picture sound – a company that later became James B. Lansing Sound and, ultimately, JBL. Name changes were due to brand conflicts along the way, but all of the products were duly inspired by Mr. Lansing, himself.

Much of the fundamental compression driver design parameters in early Western Electric Altec and Lansing products are still valid today, with efficiencies as high as 25 percent (compared to 1 percent or less for almost all direct radiators). Basically, compression drivers never need more than a few watts of drive power, even at high playback levels. Consequently, they are always operating in their linear range and do not contribute a whole lot to dynamic distortion and listening fatigue. The 1400, the flagship model of JBL's Project Array System line, is an excellent example of such an efficient, high-quality speaker.

Features

The 1400 Array (\$5,750 list, each) uses an updated version of the classic JBL LE14, a 14-inch woofer with a four-inch edge-wound voice coil. The felt paper cone is heavily treated with Aquaplas (a very effective dampening material) on both the front and back sides, making the diaphragm assembly very stiff and totally inert. As a result, the lower mid-band distortion of this driver is extremely low, working from 750 Hz and below. A three-inch Aquaplas treated aluminum-dome compression driver, mounted in a vertical constant-directivity horn, works in the critical mid-band range between 750 Hz and 8 kHz. A one-inch, pure titanium compression driver, mounted in a much smaller horizontal constant-directivity horn, goes from 8 kHz all the way out to 40 kHz! These crossover frequencies work out great, with a very wide mid-band spectrum (almost 3.5 octaves), beautifully serviced by one driver/horn assembly.

The woofer enclosure is constructed of medium-density fiberboard; the baffle and back are one-inch thick and the sides are one and a half-inches thick. The side panels for each enclosure are milled to give a curved outer surface. As a result, the panels

are much thicker in the middle than at the edges, and the internal cross-section of the enclosure is a trapezoid. The variable wall thickness and non-rectangular internal dimensions contribute to good resonance damping as well as minimal internal standing wave buildup. The tops of the enclosures are very securely joined to the main body to provide a solid mounting reference for the horn module.

The horn is compression-molded from SonoGlass under high temperature and pressure, resulting in a form that is very dense and inert. The horn housing is molded in a structural foam material that provides a smooth acoustic shell for the horn/driver combination and conceals the mechanical internal components.

The crossover is 4th-order with low-loss air-core inductors and audiophile-grade polypropylene-dielectric capacitors. Impedance is 8 ohms with sensitivity rated at 89 dB (2.83V/1m).

In Use

With the system's usable response from 30 Hz out to 40 kHz, low inter-modulation distortion, and headroom galore, it's a piece of cake to drive the 1400 Array; it is on my very short list of the best speakers I have had the pleasure of working with.

Some of the toughest instruments to reproduce over loudspeakers in my opinion are brass, which is something that the arrays eat for lunch. It only makes sense that horns are best reproduced by horns, right?

The Arrays are very smooth and uncolored unlike most compression driver-based speaker systems. They sound excellent at low levels all the way up to levels that can do damage to the listener.

Summary

Marketed as a high-end consumer product, the 1400 Array by JBL is beautifully finished in high-gloss rosewood. The pro audio industry would be well served by a painted flat-black version with a subsequent cost reduction.

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