476Be High-Frequency Driver

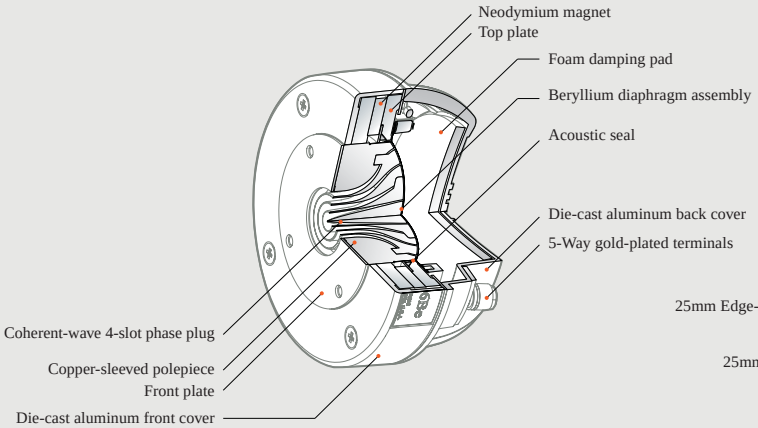
With a 100mm (4") pure-beryllium diaphragm, a 100mm (4") aluminum edge-wound voice coil and a rapid-flare, coherent-wave phase plug, the 476Be high-frequency driver delivers astonishing high-end performance with minimal distortion and power compression, even at the highest output levels.

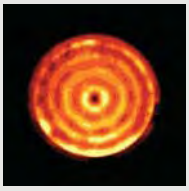
The diaphragm is formed of pure beryllium foil, manufactured with a proprietary high-temperature, pressure-forming process. This process enables the integrated JBL diamond-pattern surround to be formed as one piece with the dome. Compared to other methods, forming the diaphragm out of sheets of beryllium foil yields greater reliability and resistance to failure due to fatigue.

Pure beryllium has proven to be superior to aluminum, magnesium, titanium and other premium diaphragm materials. Because of its far greater stiffness-to-density ratio, it responds to the highest frequencies with more precise and consistent pistonic action and resists modal breakup better than any other widely used material.

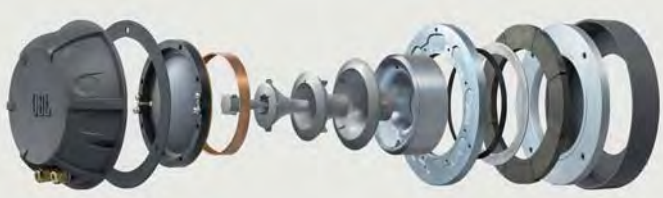
In place of a conventional copper-plated polepiece, the 476Be combines a powerful neodymium rare-earth motor structure with an innovative, high-purity copper-sleeved polepiece to maintain gap flux and significantly enhance electrical conductivity without compromising on size and weight. Better conductivity directly translates into lower coil inductance, more effective heat dissipation, reduced dynamic power compression and greater output at frequencies of 15kHz and above.

The 476Be's unique coherent-wave phasing plug is precision-die-cast of zinc to ensure dimensional and structural stability under high heat and acoustic pressure. The four-slot coherent-wave design shapes the wave output to deliver a true coincident wave front to the Bi-Radial® horn, producing exceptionally smooth frequency response and reducing secondary harmonic distortion by up to 6dB, relative to earlier designs.





The neodymium magnet assembly maintains a minimum gap-flux density of approximately 18,000 gauss



476BE High-Frequency Driver and Horn

045Be-1 Ultrahigh-Frequency Driver

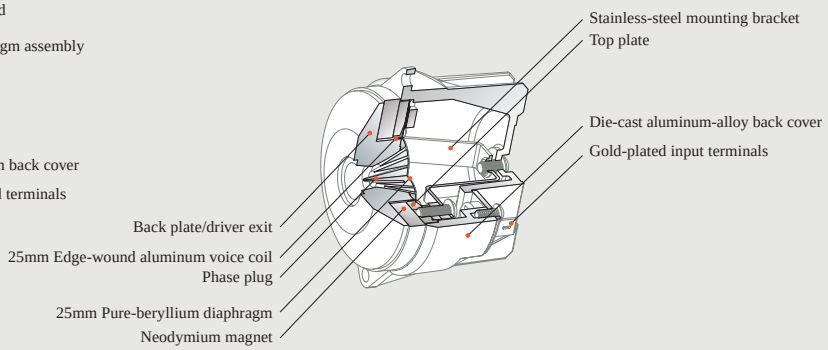
With a 25mm (1") pure-beryllium diaphragm and 50mm (2") neodymium magnet structure, the ultrahigh-frequency 045Be-1 is considerably smaller than the high-frequency 476Be.

The pure-beryllium diaphragm is less than 0.04mm thick and has a mass of only 0.1 gram. The single-layer aluminum-ribbon voice coil is wound without a former and is attached directly to the diaphragm. The driver employs the smallest annular-slit phasing plug that JBL has ever designed.

The ribbed structure of the die-cast aluminum back cover contributes to the driver's high rigidity and efficient heat dissipation. Back pressure from the diaphragm is effectively absorbed and controlled to prevent subtle internal vibration, ensuring pure resonance-free reproduction of supersonic frequencies.

The moving system's extremely low mass and high magnetic-flux density combine with the high rigidity of beryllium to produce superb response that is very smooth from above 8kHz to beyond 50kHz.

The SonoGlass Bi-Radial horn is scaled to achieve constant directivity, maintaining a coverage angle of 60 degrees in the horizontal plane and 30 degrees in the vertical plane over the frequency range from 10kHz to 50kHz.



045BE-1 Ultrahigh-Frequency Driver and Horn