
TOA PROFESSIONAL SOUND SYSTEM

COMPRESSION DRIVER

HFD-220-8/16



DESCRIPTION

The TOA HFD-220-8/16 compression driver, in 8-ohm and 16-ohm versions, is designed for use in high-level applications where sound systems of the highest quality are required. With a throat diameter of 2 in. (49mm), the TOA HFD-220-8/16 is intended for use with the TOA LE Series constant directivity horns, and it will provide highly efficient sound reproduction and a smooth frequency response from 800Hz to 15kHz. The voice coil of the TOA HFD-220-8/16 compression driver consists of a 1.76 in. (44.6mm) edge-wound, copper-clad aluminum ribbon coupled to a 50-micron hard duralumin diaphragm. The diaphragm voice coil assembly can be replaced in the field without having to disassemble the entire driver. The diaphragm voice coil employs self-aligning dowels to center it perfectly in the voice coil gap. The gap has a flux density of 19,000 gauss, generated by a 2.4 lbs. (1.1 kg) ferrite magnet. A machined phasing plug with two acoustic slots serves as the pole piece, providing the proper phase relationship between the sound emanating from the center and that coming from the edge of the diaphragm/voice coil assembly.

FEATURES

1. Smooth frequency response from 800Hz to 15kHz.
2. Highly efficient sound pressure level of 110dB/W/m with LE-940 horn.
3. High power capacity: 30 watts continuous pink noise (800Hz to 20kHz, test duration: 24 hours).
4. Throat diameter of 2 in. (49mm).
5. Edge-wound, copper-clad aluminum ribbon voice coil.
6. 50-micron duralumin diaphragm.
7. Diaphragm voice coil can be easily replaced in the field.

SPECIFICATIONS

Power Handling Capacity	30 watts RMS band-limited pink noise (800Hz to 20kHz)
Continuous Program	90 watts
Nominal Impedance	8 ohms (HFD-220-8) 16 ohms (HFD-220-16)
Frequency Response	800Hz to 15kHz
Pressure Sensitivity	110dB/W/m: LE-940 horn 112dB/W/m: LE-640 horn 114dB/W/m: LE-420 horn 108dB/W/m: LE-M124 horn 105dB/W/m: LE-M94 horn 112dB/W/m: LE-M64 horn 114dB/W/m: LE-M42 horn
Recommended Crossover Frequency	800Hz or higher
Throat Diameter	2" (49mm)
Polarity	Positive voltage to +terminal produces negative acoustic pressure in the throat
Recommended Horn	LE-940, LE-640, LE-420 LE-M124, LE-M94, LE-M64, LE-M42
Magnet	2.4 lbs. (1.1 kg) Ferrite Flux density: 19,000 gauss
Diaphragm	Heat-treated 50-micron duralumin
Voice Coil	1.76" (44.6mm) dia., edge-wound copper-clad aluminum ribbon
Finish	Black NEW-ALKONE paint
Dimensions	5.98" (152mm) dia. 7.01" (178mm) depth
Net Weight	10.6 lbs. (4.8kg)
Mounting Data	Four studs [0.24" (6mm) dia.] equally spaced on a 4" (101.6mm) dia. circle

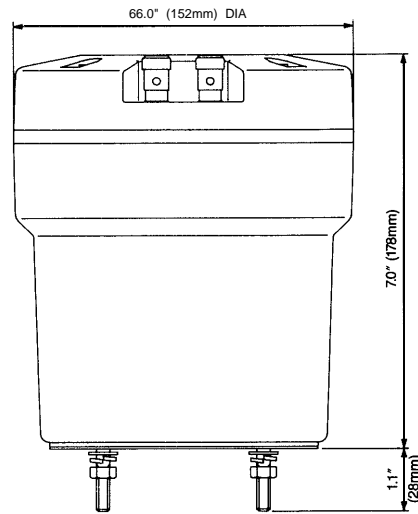
Notes:

- Measurement conditions:
The above electrical and acoustic data are measured in conjunction with TOA's LE-M94 horn.
 - Duration of power handling test is 24 hours.
- *Specifications are subject to change without notice.

ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The compression driver shall be the TOA HFD-220-8/16, in 8-ohm or 16-ohm versions, or an approved equivalent. Power handling capacity shall be 90 watts of continuous program, 30 watts RMS band-limited pink noise (800Hz to 20kHz), with a smooth frequency response from 800Hz to 15kHz. Pressure sensitivity with the LE-940 horn shall be 110dB/W/m, when measured at a referred 1-meter distance on an axis from the mouth of the LE-940 with 1-watt input pink noise, band limited from 800Hz to 5kHz, and the recommended crossover frequency shall be 800Hz or higher. Nominal impedance shall be 8 ohms for the HFD-220-8 and 16 ohms for the HFD-220-16. The unit's throat diameter shall be 2 in. (49mm). The voice coil shall consist of a 1.76in. (44.6mm) edge-wound, copper-clad aluminum ribbon coupled to a 50-micron hard duralumin diaphragm. The diaphragm voice coil assembly shall be replaceable in the field without requiring special tools or skills. The diaphragm voice coil shall employ self-aligning dowels to center it perfectly in the voice coil gap. The gap shall have a flux density of 19,000 gauss generated by a 2.4 lbs. (1.1 kg) ferrite magnet. A machined phasing plug with three acoustic slots shall serve as the pole piece, providing the proper phase relationship between the sound emanating from the center and that coming from the edge of the diaphragm/voice coil assembly. The driver shall be 598 in. (152mm) in diameter by 7.01 in. (178mm) in depth, shall weigh 10.6 lbs. (4.8kg), and shall have a black NEW-ALKONE paint finish. Mounting shall be effected by four 6mm studs, equally spaced on a 4in. (101.6mm) diameter circle.

APPEARANCE AND DIMENSIONAL DIAGRAM



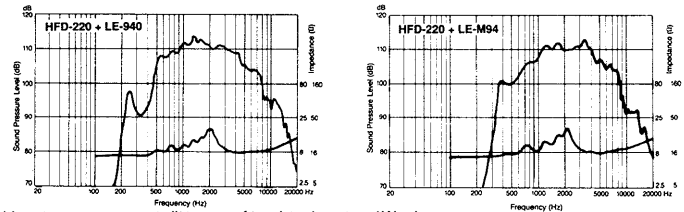
EQUALIZATION

When using the HFD-220-8/16 driver in combination with the LE Series constant directivity horn and the TOA "SAORI" integrated sound processor, set the long delay type horn equalizer (IS-110DL4, IS-110DL2) built into the digital channel divider module of the "SAORI" as shown in the table below.

	LE-940	LE-640	LE-420	LE-M124	LE-M94	LE-M64	LE-M42
HFD-220-8/16	TYPE 6	TYPE 6	TYPE 7	TYPE 8	TYPE 8	TYPE 8	TYPE 9

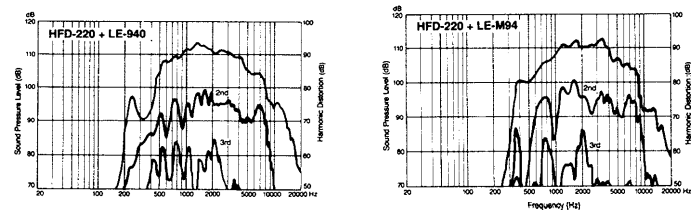
CHARACTERISTIC DIAGRAMS

• Frequency Response and Impedance



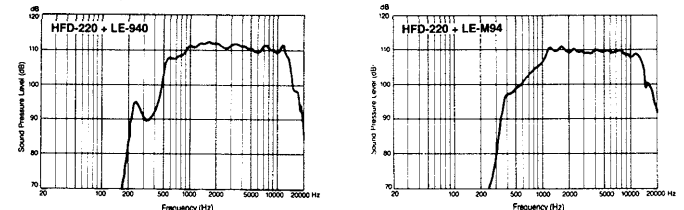
*4-meter measurement distance referred to 1 meter, 1W, sine wave.

• Harmonic Distortion



*4-meter measurement distance referred to 1 meter, 1W, sine wave.

• Frequency Response with Horn EQ



*4-meter measurement distance referred to 1 meter, 1W, sine wave, with Horn EQ Type 6 (LE-940), Type 8 (LE-M94)



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