

ND-10

High frequency compression driver



DESCRIPTION

The D.A.S. ND-10 is a 1.5" diameter exit Neodymium high frequency compression driver with 4" diameter voice coil.

A pure titanium diaphragm is utilized, avoiding dome fracture due to mechanical fatigue, common in other diaphragm materials.

The magnetic circuitry makes use of a rare-earth Neodymium magnet. This allows for greatly reduced component weight and easing of mounting requirements. Significant reduction is also achieved in flux modulation induced distortion. The high grade of Neodymium used guarantees negligible magnetic strength loss at the highest operating temperatures.

The copper-clad aluminium voice coil is edge-wound and thermal bonded to a Kapton former, which ensures resistance to high temperatures.

The 4-slit phase plug has been computer designed for coherent sound pressure summing at the throat. Manufactured out of aluminium, it acts as a heat sink for the voice coil, minimizing power compression and increasing power handling. Additionally, the 1.5" exit allows for direct coupling from the phase plug exit to the horn, greatly decreasing throat distortion at high drive levels.

The diaphragm assembly can be replaced easily and positioned accurately in the field through the use of precision centering pins.

Low tolerance precision CNC machining of critical parts provides the foundation for improved high frequency response design. However, as with all high frequency compression drivers, passive or active circuitry will be needed to provide horn EQ compensation for the high frequency roll-off.

FEATURES

- » 250 W program HF compression driver
- » 4" pure titanium diaphragm
- » 1.5" exit
- » Neodymium magnetic structure
- » Self-centering precision diaphragm assembly

SPECIFICATIONS

AES RMS (Average) Power Handling^F:	50 W, from 500 Hz up, 125 W, from 1 kHz up
Program Power Handling^G:	100 W, from 500 Hz up, 250 W, from 1 kHz up
Peak Power Handling^G:	200 W, from 500 Hz up, 500 W, from 1 kHz up
Sensitivity^H:	111dB SPL, 1W(4V)/1m with BP-92 horn 117 dB SPL ^{SPWL} , 1mW on plane-wave tube
Nominal Impedance^I:	16 Ω
Minimum Impedance:	10.5 Ω, at 4 kHz
Nominal Frequency Range:	500 Hz - 20 kHz
Minimum Recommended X-over Frequency:	500 Hz
Nominal Voice Coil Resistance:	8 Ω
Exit Throat Diameter:	38.6 mm (1.52 in)
Diaphragm Material and Thickness:	Pure titanium / 0.05 mm (0.0019 in)
Voice Coil Material:	Edge-wound, aluminium, copper-clad
Voice Coil Diameter:	100 mm (3.95 in)
Voice Coil Former Material:	Kapton [®]
Phase Plug:	4-slit, aluminium
Magnetics:	Advanced sintering rare-earth Nd-Fe-B
Flux Density:	1.9 T
Input Connection:	Push terminals, 4 mm diameter
Polarity:	Positive voltage to red terminal moves diaphragm away from phase plug
Mounting:	Bolt on, 4 equally spaced M6 threaded holes on 114 mm circle
Dimensions (H x D):	168 x 69 mm (6.6 x 2.7 in)
Weight:	4.1 kg (8.9 lbs)
Shipping Weight:	4.6 kg (10.1 lbs)

^F As per AES2-1984 (ANSI S4.26-1964), re. the minimum impedance, based on a 2 hour test continuously applying 6 dB crest factor pink noise high-pass filtered above the indicated frequency (12 dB/oct) and below 22 kHz (brick wall filter). The 500 Hz+ rating is mechanically limited. The 1 kHz+ rating shows thermal handling of a unit coupled to a BP-92 aluminium horn, with temperature rise of 35°C, infra-red probe.

^G Conventionally 3 dB higher than the average measure.

^H Corresponds to the signal crests for the test described in ^F.

^I IEC average 1k to 8k Hz, on-axis. Horn Di is 10.5 dB, averaged in the 800-12.5k Hz band. ^{SPWL} Measured on a standard 1.5 in diameter plane wave tube and referred to a 1 in tube. IEC average, 1 kHz octave band.

^N As per industry convention. However, a rating that complied with IEC 268-5 would be 12 ohm.



Horn responses

Frequency Response

Figure 1 shows the on-axis frequency response at 1 m of a unit coupled to a BP-92 horn radiating to an anechoic environment and driven by a 4 V swept sine signal.

Impedance

Figure 2 shows impedance with frequency of unit coupled to a BP-92 horn.

Distortion

Figure 3 shows the Second Harmonic Distortion (grey) and Third Harmonic Distortion (dotted) curves for unit coupled to a BP-92 horn at 11.4V.

Plane wave tube (PWT) responses

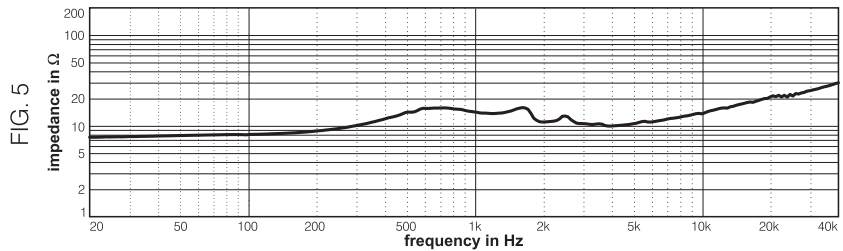
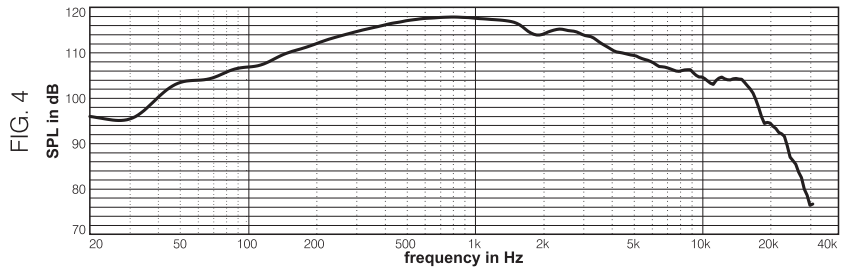
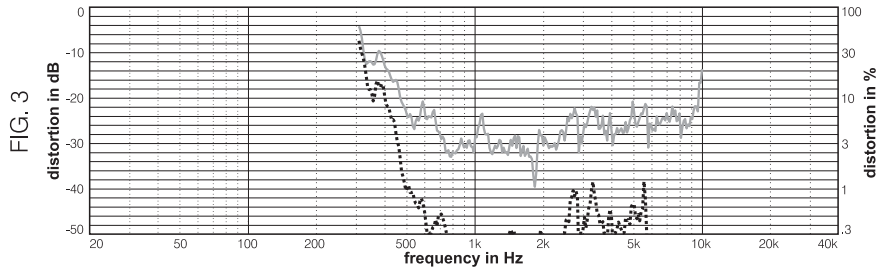
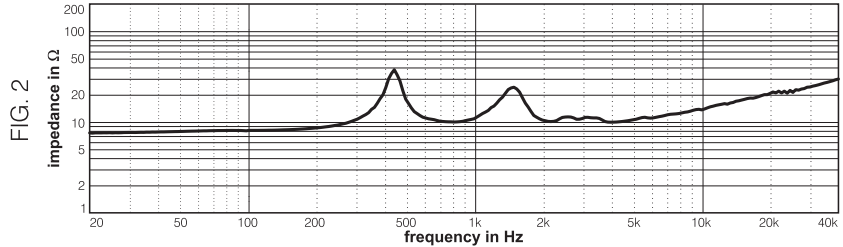
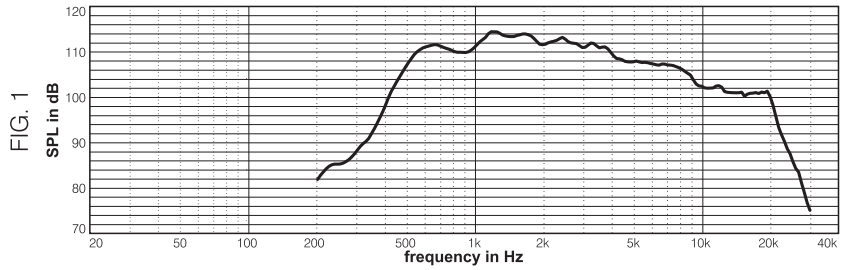
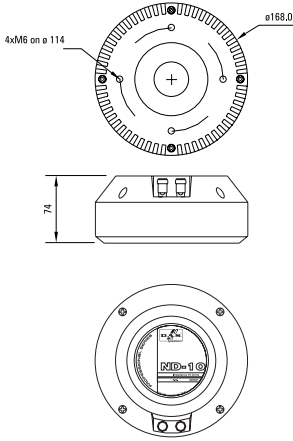
Frequency Response

Figure 4 shows the frequency response of a unit coupled to a 44 mm plane-wave tube, and referred to a 25 mm tube and driven by a 1 mW (0.126V) swept sine signal. This represents the power response of the device.

Impedance

Figure 5 shows impedance with frequency of a unit coupled to a 44 mm plane-wave tube.

NOTES. 1.Frequency responses : one-third octave smoothed for correlation with human hearing. Horn response referred to 1m. 2.In practice, cable and connector impedance need to be added. 3.Harmonic distortion components are not plotted beyond 20 kHz. Product improvement through research and development is a continuous process at D.A.S. Audio. All specifications subject to change without notice.



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TECH10-01
09/2002