**SELENIUM**
LOUDSPEAKERS

The D250-X is a cost-effective compression driver with a light-weight and strong phenolic diaphragm designed for medium band (voice) reproduction in indoor sound systems and small PA systems.

The 1" (25 mm) exit fits all Selenium horns with a 25 model number ending (HL14-25, HC23-25, and so on).

Its high density magnetic assembly.

The voice coil is made of high temperature wire wound on Kapton® former to withstand high operating temperatures.

Its precisely engineered diaphragm structure and alignment mechanism allows for easy, reliable and cost effective repair in case of diaphragm failure.

DRIVER x HORN CONNECTION
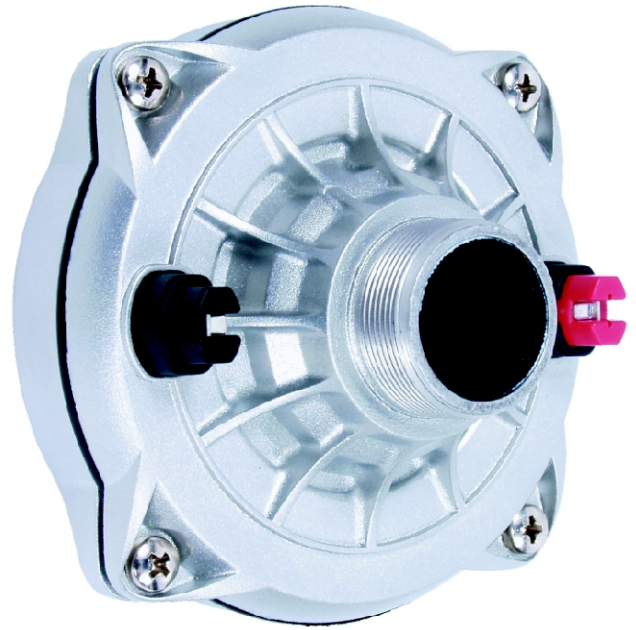
SPECIFICATIONS
Nominal impedance. 8   Ω
Minimum impedance @ 615 Hz. . . . . 7.2   Ω

POWER USING CROSSOVER (12dB/oct)	ACTIVE	PASSIVE	
AES (HPF 500 Hz)[5].	40	--	W
AES (HPF 1 kHz)[5].	43	--	W
MUSICAL PORGRAM (HPF 500 Hz)[1]	80	150	W
MUSICAL PROGRAM (HPF 1kHz)[1]	86	200	W

Sensitivity
On horn, 2.83V@1m, on axis[2] 107   dB SPL
On plane-wave tube, 0.0894V[3] 116   dB SPL
Frequency response @ -10 dB . . . . 400 to 9,000   Hz
Throat diameter . . . . 25 (1)   mm (in)
Diaphragm material . . . . Phenolic
Voice coil diameter . . . . 51 (2)   mm (in)
Re . . . . 6.0   Ω
Flux density . . . . 1.10   T
Minimum recommended crossover (12 dB / oct). 500   Hz

[1] Power handling specifications refer to normal speech and/or music program material, reproduced by an amplifier producing no more than 5% distortion. Power is calculated as true RMS voltage squared divided by the nominal impedance of the loudspeaker. This voltage is measured at the input of the recommended passive crossover when placed between the power amplifier and loudspeaker.
Musical Program= 2 x W RMS.
[2] Measured with HL14-25 horn, 1,000 - 3,500 Hz average.
[3] The sensitivity represents the SPL in a 25 mm terminated tube, 600 - 1,500 Hz average.
[5] Test with duration of 2h with pink noise (from 6dB crest factor) and filtered a decade of often-cut.

ADDITIONAL INFORMATION
Magnet material . . . . Barium ferrite
Magnet weight . . . . 332 (11.7)   g (oz)
Magnet diameter x depth . . . . 102 x 12 (4.02 x 0.47)   mm (in)
Magnetic assembly weight . . . . 978 (2.15)   g (lb)
Housing material . . . . Aluminum
Housing finish . . . . Silver epoxy
Magnetic assembly steel finish . . . . Zinc-plated
Voice coil material. . . . . Copper
Voice coil former material . . . . Polyimide (Kapton®)
Voice coil winding length. . . . . 5.7 (18.70)   m (ft)
Voice coil winding depth . . . . 3.0 (0.12)   mm (in)
Wire temperature coefficient of resistance (α25). . . . . 0.00404   1/°C
Volume displaced by driver. 0.5 (0.018)   l (ft³)
Net weight . . . . 1,290 (2.84)   g (lb)
Gross weight . . . . 1,360 (2.99)   g (lb)
Carton dimensions (W x D x H) . . 41 x 30.5 x 10 (16.1 x12 x 4)   cm (in)

MOUNTING INFORMATION
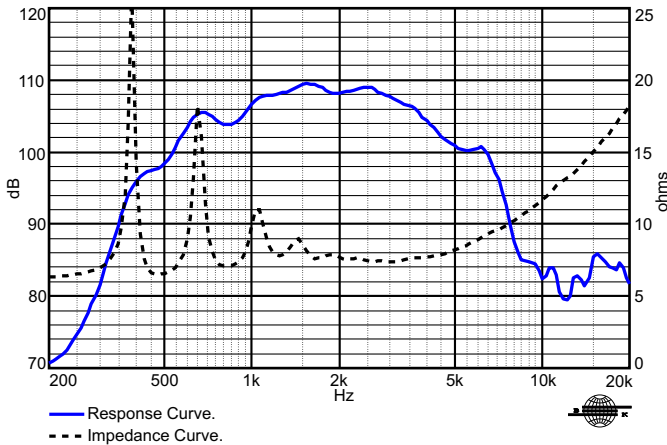Horn connection . . . . Screw-on 1 ³/₈" - 18 TPI
Connectors . . . . Push terminals
Polarity . . . . Positive voltage applied to the positive terminal (red) gives diaphragm motion toward the throat
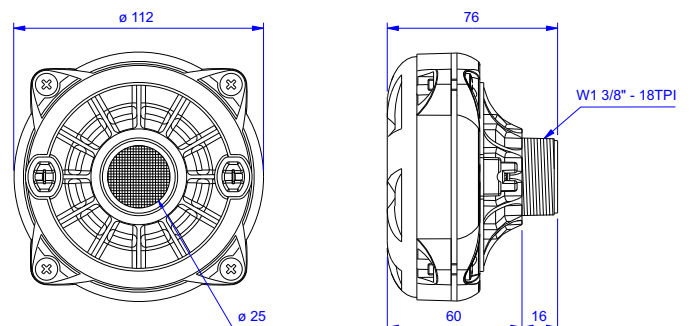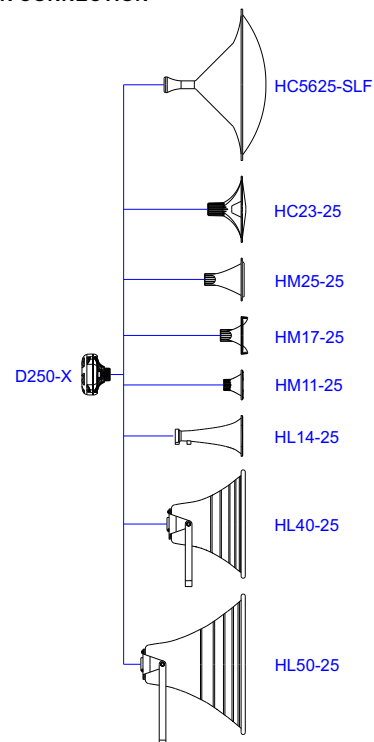
Dimensions in mm.

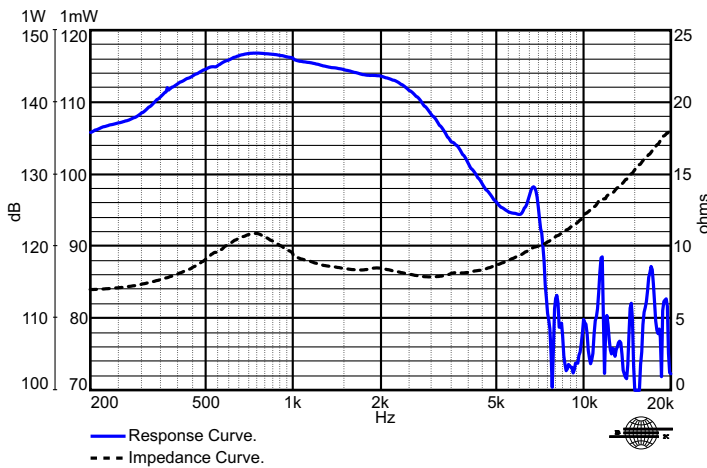## RESPONSE AND IMPEDANCE CURVES W/ HL14-25 HORN INSIDE AN ANECHOIC CHAMBER, 1 W / 1 m

— Response Curve.
- - - Impedance Curve.
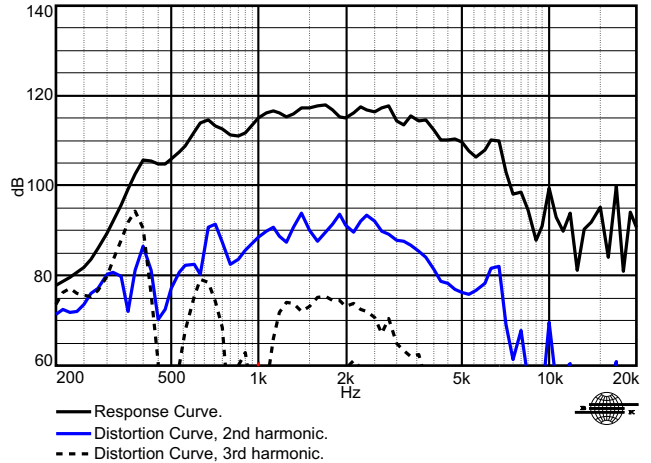
RESPONSE AND IMPEDANCE CURVES W/ PLANE-WAVE TUBE, 1 mW

— Response Curve.
- - - Impedance Curve.

Frequency response and impedance curves measured with 25 mm terminated plane-wave tube.

HARMONIC DISTORTION CURVES W/ HL14-25 HORN, 1 W / 1 m.

— Response Curve.
— Distortion Curve, 2nd harmonic.
- - - Distortion Curve, 3rd harmonic.

HARMONIC DISTORTION CURVES W/ HL14-25 HORN, 5 W / 1 m.

— Response Curve.
— Distortion Curve, 2nd harmonic.
- - - Distortion Curve, 3rd harmonic.

POLAR RESPONSE CURVES

500 Hz **1 kHz** **2 kHz**

4 kHz **8 kHz**
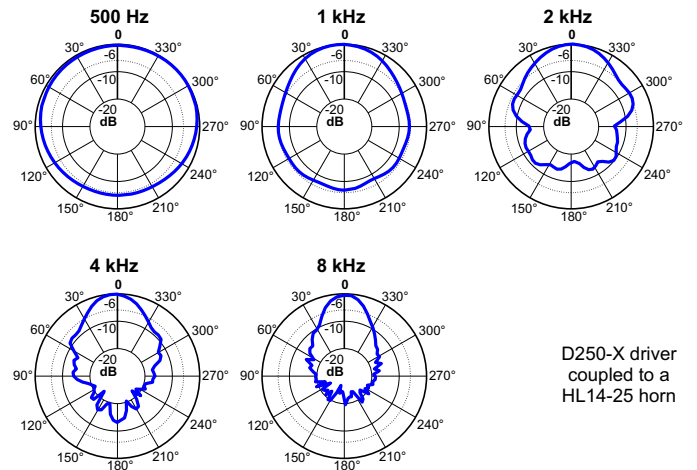
D250-X driver coupled to a HL14-25 horn

—— Polar Response Curve.
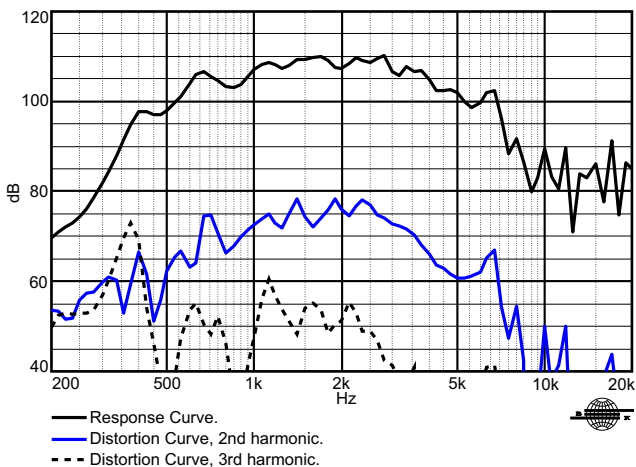
HOW TO CHOOSE THE RIGHT AMPLIFIER

The power amplifier must be able to supply twice the RMS driver power. This 3 dB headroom is necessary to handle the peaks that are common to musical programs. When the amplifier clips those peaks, high distortion arises and this may damage the transducer due to excessive heat. The use of compressors is a good practice to reduce music dynamics to safe levels.

FINDING VOICE COIL TEMPERATURE

It is very important to avoid maximum voice coil temperature. Since moving coil resistance (R_E) varies with temperature according to a well known law, we can calculate the temperature inside the voice coil by measuring the voice coil DC resistance:

$$T_B = T_A + \left(\frac{R_B}{R_A} - 1 \right)\left(T_A - 25 + \frac{1}{\alpha_{25}} \right)$$

T_A, T_B = voice coil temperatures in °C.
R_A, R_B = voice coil resistances at temperatures T_A and T_B, respectively.
α_{25} = voice coil wire temperature coefficient at 25 °C.

Kapton® : Du Pont trademark.