SELENIUM PRO

High quality compression driver with dome diaphragm in pure titanium, offers high efficiency and low distortion over the medium and high frequencies band.

It can be successfully used in studio monitors, stage boxes and sound reinforcement in small rooms, where a high performance is requested.

This performance results from the proper combination of the components.

Diaphragm type dome in pure, rigid, light and extremely thin titanium (0.025 mm). To avoid stress and distortion, the suspension has a special design.

Injected phase plug in engineering plastic, optimized to eliminate undesirable phase cancellations.

Magnetic assembly that concentrates flux in the gap, optimized using FEA (Finite Element Analysis).

Voice coil manufactured in CCAW (Copper Clad Aluminium Wire), Kapton® former, assures great stability and thermal resistance.

The moving assembly has a perfect auto-centering characteristic that turns replacement in an easy task.

Model D220Ti uses standard 1 3/8" screw - 18 threads per inches, for better fitting with Selenium horns.

SPECIFICATIONS
Nominal impedance 16   Ω
Minimum impedance @ 4,808 Hz . . . . 11.21   Ω

POWER USING CROSSOVER (12dB/oct)	ACTIVE	PASSIVE	
AES (HPF 1.5 kHz)[5]	23	--	W
AES (HPF 2 kHz)[5]	27	--	W
MUSICAL PORGRAM (HPF 1.5 kHz)[1]	46	120	W
MUSICAL PROGRAM (HPF 2 kHz)[1]	54	160	W

Sensitivity
   On horn, 2.83V@1m, on axis[2] 109   dB SPL
   On plane-wave tube, 0.0894V[3] 116   dB SPL
Frequency response @ -6 dB . . . . 1,000 to 21,000   Hz
Throat diameter . . . . 25 (1)   mm (in)
Diaphragm material . . . . Titanium
Voice coil diameter . . . . 44 (1.7)   mm (in)
Re . . . . 10.0   Ω
Flux density . . . . 1.60   T
Minimum recommended crossover (12 dB / oct) 1,500   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, 1,200 - 15,000 Hz average.
[3] The sensitivity represents the SPL in a 25 mm terminated tube, 800 - 2,000 Hz average.
[5] Test with duration of 2h with pink noise (from 6dB crest factor) and filtered a decade of often-cut.
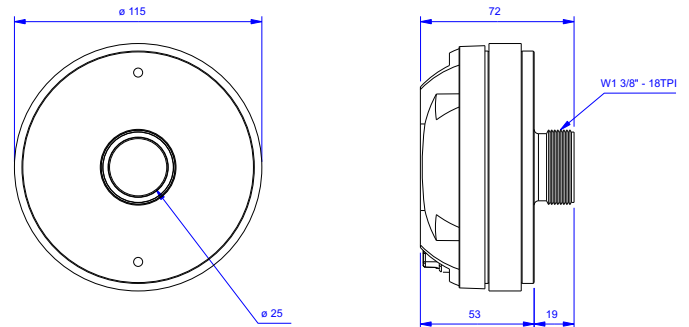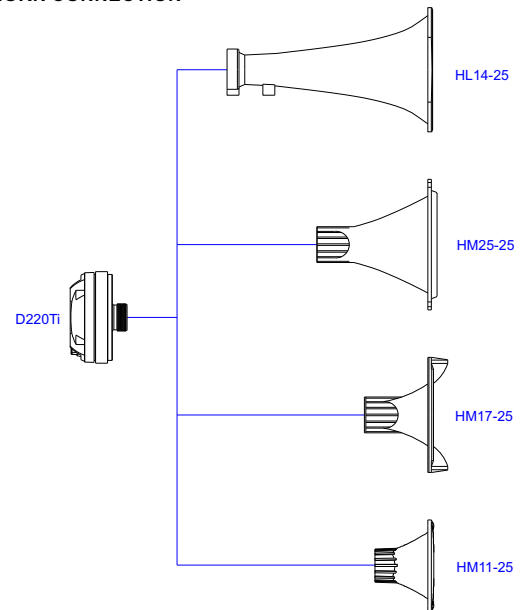
ADDITIONAL INFORMATION
Magnet material . . . . Barium ferrite
Magnet weight . . . . 675 (24)   g (oz)
Magnet diameter x depth. . . . . 115 x 15 (4.52 x 0.59)   mm (in)
Magnetic assembly weight . . . . 1,700 (3.74)   g (lb)
Housing material . . . . Plastic
Housing finish . . . . Black
Voice coil material . . . . CCAW
Voice coil former material . . . . Polyimide (Kapton®)
Voice coil winding length. . . . . 3.1 (9.84)   m (ft)
Voice coil winding depth . . . . 3.0 (0.12)   mm (in)
Wire temperature coefficient of resistance (α25) . . . . 0.00435   1/°C
Volume displaced by driver. 0.5 (0.018)   l (ft³)
Net weight . . . . 1,760 (3.88)   g (lb)
Gross weight . . . . 1,810 (3.99)   g (lb)
Carton dimensions (W x D x H) . . 12 x 13.6 x 10 (4.7 x 5.6 x 3.9)   cm (in)

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

DRIVER x HORN CONNECTION

HL14-25

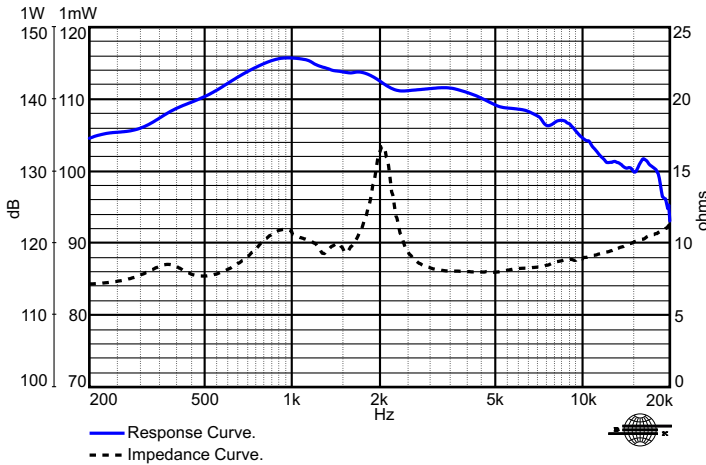HM25-25

D220Ti

HM17-25

HM11-25

ø 115

ø 25

72

W1 3/8" - 18TPI

53   19

DRIVER TITANIUM
D220Ti 16 Ohms

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

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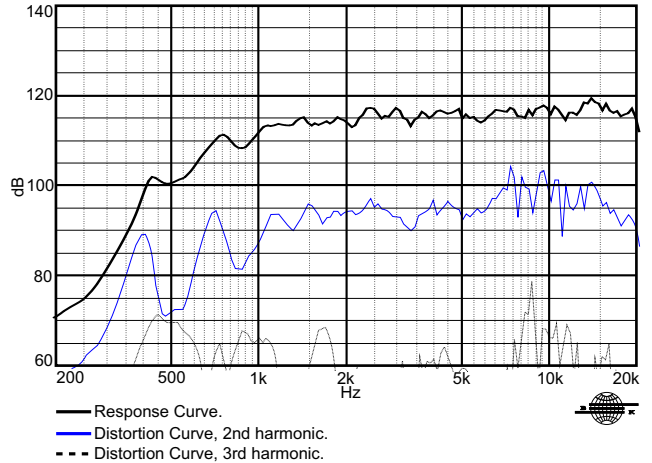
RESPONSE AND IMPEDANCE CURVES W/ PLANE-WAVE TUBE, 1 mW

— 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

— Polar Response Curve.
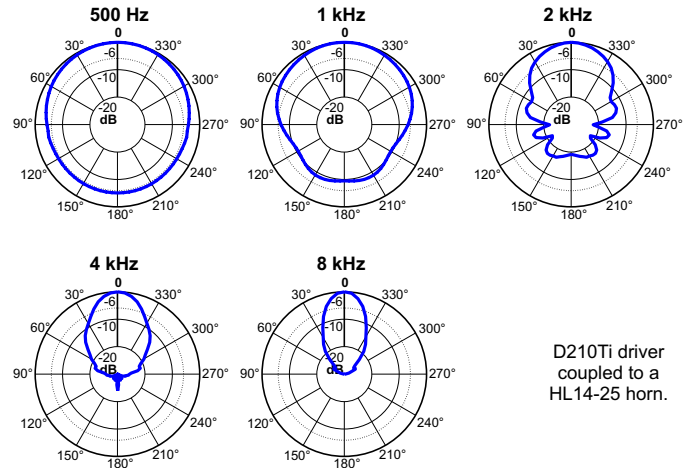
D210Ti driver coupled to a HL14-25 horn.
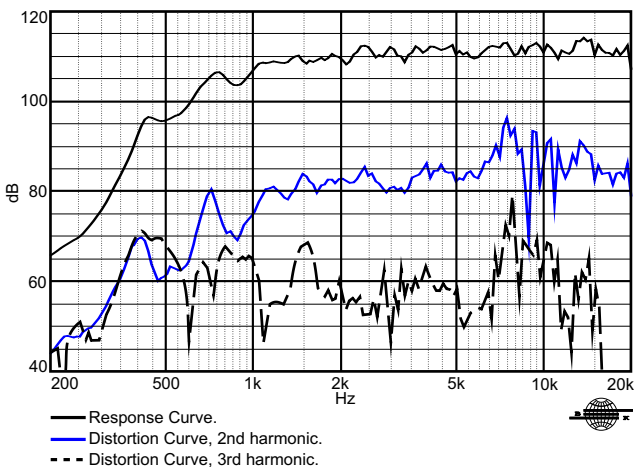
HOW TO CHOOSE THE RIGHT AMPLIFIER

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.
Ferrosound®: Ferrofluidics Corporation trademark.

Specifications subject to change without prior notice.

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