

LOW FREQUENCY TRANSDUCERS



Professional Audio Systems loudspeaker products offer the system designer the expertise gained from over 20 years of transducer development and manufacturing.

The voice coils used in the Low Frequency series are long: Nearly twice the height of the magnetic gap. They are 4 inches in diameter and edge wound with copper ribbon wire which is insulated with Kapton. This is chemically bonded to a Kapton former using a patented technique which creates exceptional adhesion between the wire and the former even under the extreme temperatures generated by high power levels.

The low frequency series transducers use the same rugged cast aluminum frame as their 3 inch coil counterparts. Since these frames are deeper than most 4 inch coil loudspeakers, they require special, deeper cones. This and Kevlar reinforcement add to the strength of the cone and result in the ability to produce much higher SPL for a given level of distortion.

The top and back plates of the magnet assembly are blanchard ground for the most intimate contact between components. The vented center pole is undercut to focus the magnetic field into the voice coil gap. This improves linearity by reducing flux leakage outside of this gap. The result is lower distortion and higher sensitivity.

Surround and suspension components are chosen for their centering ability and contribute to the long term reliability of these loudspeakers.

Long voice coils are used for high excursion capability and extend low frequency response.

Low Frequency Series Features:

- 4 inch edge wound copper voice coils for high power capability.
- Kevlar reinforced cones form a more rigid piston.
- 96 ounce (6 pound) ceramic magnet in a 20 pound magnet assembly.



HL-2580C

The HL-2580C is a 4 inch voice coil 15 inch transducer intended for use as the low frequency component in high level two and three way reinforcement or playback systems. It is optimized for response to 40 Hz and below in small to medium sized cabinets (2.5 to 6 ft³). It's deep kevlar reinforced cone and medium moving mass combine to produce the high sensitivity required for these applications.



HL-2880C

The HL-2880C is a 4 inch voice coil 18 inch transducer intended for use as the low frequency component in high level three-way reinforcement or playback systems. It is optimized for response to 35 Hz and below in small to medium sized cabinets (3.5 to 7 ft³). It's kevlar reinforced cone has an included angle of 90° making it deeper and more rigid than any competitive 18 inch driver available.

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Specifications

HL-2580C

Diameter: 380 mm (15 inches)
Nominal Impedance: 8 ohms
Frequency Range: 30 to 1.5 kHz @ -10 dB
Highest Crossover Frequency: 1.2 kHz
Power Capacity: 500 watts, continuous
Sensitivity: 99 dB (@ 2.83v @ 1 m)
Voice Coil Diameter: 100 mm (4 inches)
Voice Coil Material: edgewound copper
Winding Length: 19.5 mm (0.768 inches)
Former Material: Kapton
Magnetic Gap Length: 10.5 mm (0.4125 in.)
Magnet Weight: 2.7 kg (5 lb 15 oz)
Magnet Assembly Weight: 9.7 kg (21 lb 7oz)
B1 Product (B¹): 24.5 Tesla Meters
Effective Piston Diameter: 0.317 m (12.5 in.)
Total Moving Mass (M_{ms}): 112 grams
Mechanical Compliance (C_{ms}): 185 μM/N

Small Signal Parameters:

F_c 35 Hz
 Q_{ts} 0.24
 Q_{ms} 9.4
 Q_{es} 0.245
 V_{as} 164 L, (5.8 feet³)
 R_e 5.9 ohms
 η_0 2.8 %
 L_e 1.7 mH

Large Signal Parameters:

S_d .079 meters², (123 in.²)
 x_{max} 6.4 mm (.25 in.)
 V_d 500 cm³, (31 in.³)

Mounting Information:

Diameter: 389 mm (15 5/16 in.)
Bolt Circle: 365 mm (14 3/8 in.)
Baffle Cutout:
 Front mount 355.6mm, (14 in.)
 Rear mount 352.4 mm, (13 7/8 in.)
Overall Depth: 165 mm (6 1/2 in.)
Net Weight: 11.7 kg (25 lbs. 11 oz.)
Shipping Weight: 13 kg (28 lbs. 11 1/2 oz.)

HL-2880C

Diameter: 460 mm (18 inches)
Nominal Impedance: 8 ohms
Frequency Range: 30 to 1. kHz @ -10 dB
Highest Crossover Frequency: 500 Hz
Power Capacity: 500 watts, continuous
Sensitivity: 99 dB (@ 2.83v @ 1 m)
Voice Coil Diameter: 100 mm (4 inches)
Voice Coil Material: edgewound copper
Winding Length: 19.5 mm (0.768 inches)
Former Material: Kapton
Magnetic Gap Length: 10.5 mm (0.4125 in.)
Magnet Weight: 2.7 kg (5 lb 15 oz)
Magnet Assembly Weight: 9.7 kg (21 lb 7oz)
B1 Product (B¹): 23.8 Tesla Meters
Effective Piston Diameter: 0.374 m (14.75 in.)
Total Moving Mass (M_{ms}): 147 grams
Mechanical Compliance (C_{ms}): 114 μM/N

Small Signal Parameters:

F_c 38 Hz
 Q_{ts} 0.34
 Q_{ms} 12.5
 Q_{es} 0.35
 V_{as} 200 L, (7 feet³)
 R_e 5.5 ohms
 η_0 3.2 %
 L_e 1.7 mH

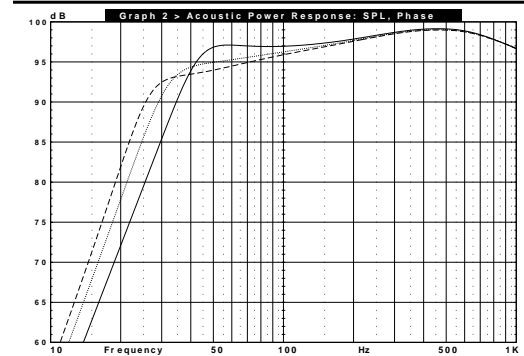
Large Signal Parameters:

S_d 0.110 meters², (170.5 in.²)
 x_{max} 6.4 mm (.252 in.)
 V_d 700 cm³, (43 in.³)

Mounting Information:

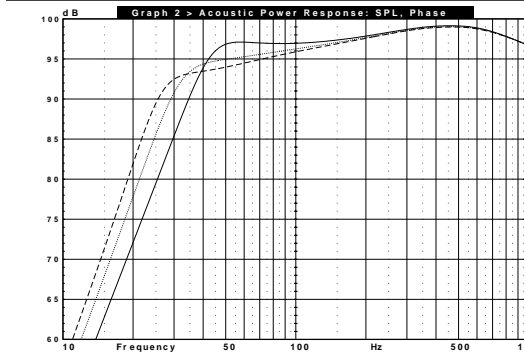
Diameter: 470 mm (18 1/2 in.)
Bolt Circle: 441 mm (17 3/8 in.)
Baffle Cutout:
 Front mount 425 mm, (16 3/4 in.)
 Rear mount 413 mm, (16 1/4 in.)
Overall Depth: 2.3 mm (8 in.)
Net Weight: 12.5 kg (27 lbs. 8 1/2 oz.)
Shipping Weight: 15.4 kg (33 lbs. 13 1/2 oz.)

- DGL Entry: 4, Name:HL-2880C, 3.5 FT3 VENTED, 40HZ
 - DGL Entry: 5, Name:HL-2880C, 4.4 FT3 VENTED, 32HZ
 - DGL Entry:10, Name:HL-2880C, 5.5 FT3 VENTED, 28HZ



HL-2580C Loudspeaker Enclosure Analysis Graph

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 - DGL Entry: 5, Name:HL-2880C, 4.4 FT3 VENTED, 32HZ
 - DGL Entry:10, Name:HL-2880C, 5.5 FT3 VENTED, 28HZ



HL-2880C Loudspeaker Enclosure Analysis Graph

**Power testing is done for eight hours using band-limited pink noise at a voltage which corresponds to the rated power of the system into its minimum impedance. Since music and voices have peaks that are much higher than the average level, the noise source used has a crest factor (peak to RMS ratio) of 6 dB.*