

# EXTENDED RANGE 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 extended range series are short: Only slightly longer than the height of the magnetic gap. They are 3 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.

Light cones contribute to the low moving mass and high sensitivity that characterize the extended range series.

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.

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

The short voice coils used in this series produce controlled linear excursion that is useful in musical instrument applications where low acoustic loading may cause other loudspeakers to be less reliable.

## **Extended Range Series features:**

- 3 inch diameter edge wound copper voice coils for high sensitivity and response to 2.5 kHz.
- Light cones for exceptional transient capability.
- 96 ounce (6 pound) ceramic magnet in an 18 pound magnet assembly.



**ER-1580C**

*The ER-1580C is a 15 inch cone transducer which has found applications both as a low frequency component in sound reinforcement systems and in musical instrument amplification. It's extended high frequency response allows a smooth transition through the crossover region of small reinforcements systems and provides brightness and clarity in musical instrument applications.*



**ER-1880C**

*The ER-1880C is an 18 inch conetransducer which is used as the low frequency component in both two-way and three way reinforcement systems. It provides solid low frequency support in small to medium sized cabinets. Due to it's extended range, it also is has been valuable for bass guitar where transient capability is important.*

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# Specifications

## ER-1580C

**Diameter:** 380 mm (15 inches)  
**Nominal Impedance:** 8 ohms  
**Frequency Range:** 50 Hz to 2.5 kHz @ -10 dB  
**Highest Crossover Frequency:** 1.2 kHz  
**Power Capacity:** 400 watts, continuous  
**Sensitivity:** 100 dB (@ 2.83v @ 1 m)  
**Voice Coil Diameter:** 76 mm (3 inches)  
**Voice Coil Material:** edgewound copper  
**Winding Length:** 13 mm (0.51 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:** 8.4 kg (18 lb 7oz)  
**B1 Product (B\*1):** 21.8 Tesla Meters  
**Effective Piston Diameter:** 0.317 m (12 1/2 in.)  
**Total Moving Mass (M<sub>ms</sub>):** 68 grams  
**Mechanical Compliance (C<sub>ms</sub>):** 440 μM/N

### Small Signal Parameters:

F<sub>s</sub> 30 Hz  
 Q<sub>ts</sub> 0.15  
 Q<sub>ms</sub> 6.65  
 Q<sub>es</sub> 0.152  
 V<sub>as</sub> 390 L, (13.8 feet<sup>3</sup>)  
 R<sub>e</sub> 5.8 ohms  
 η<sub>0</sub> 6.0 %  
 L<sub>e</sub> 0.9 mH

### Large Signal Parameters:

S<sub>d</sub> .079 meters<sup>2</sup>, (123 in.<sup>2</sup>)  
 x<sub>max</sub> 2.3 mm (.09 in.)  
 V<sub>d</sub> 182cm<sup>3</sup>, (11.0 in.<sup>3</sup>)

### Mounting Information:

Diameter: 389 mm (15 5/16 in.)  
 Bolt Circle: 365 mm (14 3/8 in.)  
 Baffle Cutout:  
     Front mount 355 mm, (14 in.)  
     Rear mount 352.4 mm, (13 7/8 in.)  
 Overall Depth: 157 mm (6 3/16 in.)  
 Net Weight: 10.6 kg (23 lbs. 5.5 oz.)  
 Shipping Weight: 11.6 kg (25 lbs. 25 9 1/2 oz.)

## ER-1880C

**Diameter:** 460 mm (18 inches)  
**Nominal Impedance:** 8 ohms  
**Frequency Range:** 30 Hz to 2.5 kHz @ -10 dB  
**Highest Crossover Frequency:** 500 Hz  
**Power Capacity:** 400 watts, continuous  
**Sensitivity:** 99 dB (@ 2.83v @ 1 m)  
**Voice Coil Diameter:** 76 mm (3 inches)  
**Voice Coil Material:** edgewound copper  
**Winding Length:** 13 mm (0.51 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:** 8.4 kg (18 lb 7oz)  
**B1 Product (B\*1):** 20.3 Tesla Meters  
**Effective Piston Diameter:** 0.381 m (15 in.)  
**Total Moving Mass (M<sub>ms</sub>):** 132 grams  
**Mechanical Compliance (C<sub>ms</sub>):** 141 μM/N

### Small Signal Parameters:

F<sub>s</sub> 37 Hz  
 Q<sub>ts</sub> 0.41  
 Q<sub>ms</sub> 10.4  
 Q<sub>es</sub> 0.42  
 V<sub>as</sub> 260 L, (9.2 feet<sup>3</sup>)  
 R<sub>e</sub> 5.7 ohms  
 η<sub>0</sub> 3.0 %  
 L<sub>e</sub> 0.9 mH

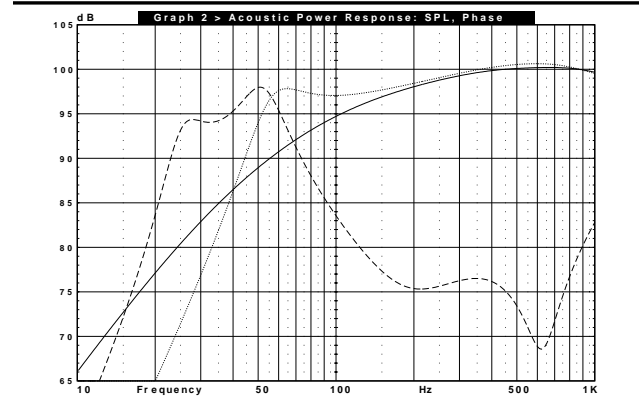
### Large Signal Parameters:

S<sub>d</sub> 0.114 meters<sup>2</sup>, (176.7 in.<sup>2</sup>)  
 x<sub>max</sub> 2.5 mm (0.1 in.)  
 V<sub>d</sub> 285 cm<sup>3</sup>, (17.7 in.<sup>3</sup>)

### Mounting Information:

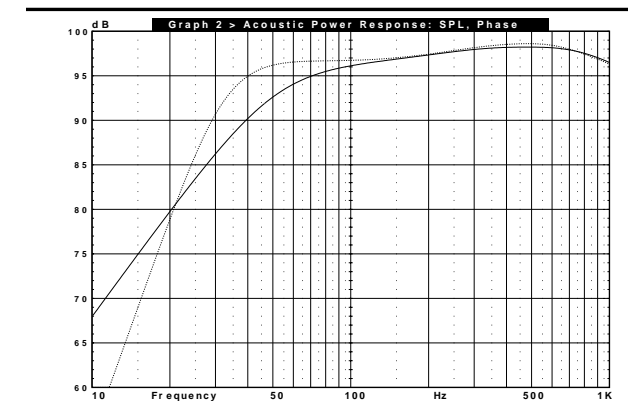
Diameter: 470 mm (18 1/2 in.)  
 Bolt Circle: 441 mm (17 3/8 in.)  
 Baffle Cutout:  
     Front mount 425 mm, (16 3/4 in.)  
     Rear mount 413 mm, (16 1/4 in.)  
 Overall Depth: 222 mm (16 3/4 in.)  
 Net Weight: 11.2 kg (24 lbs. 9 oz.)  
 Shipping Weight: 14.1 kg (31 lbs. 1 oz.)

— DGL Entry:11, Name:ER-1580C, 2 FT3 SEALED  
 --- DGL Entry:12, Name:ER-1580C, 2 FT3 VENTED, 50HZ  
 - - - DGL Entry:13, Name:ER-1580C, 6thBP/BES MED 14.6 FT3



**ER1580C Loudspeaker Enclosure Analysis Graph**

— DGL Entry:18, Name:ER-1880C, 5.6 FT3 SEALED  
 --- DGL Entry:19, Name:ER-1880C, 5.4 FT3 VENTED, 32HZ



**ER1880C 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.*