

# FC100

## Compound Diffraction Horn



COMMERCIAL

### General Product Description

The Electro-Voice FC100 consists of two horn sections for use with 1828C or 1829 model drivers to form a wide-range, integrated system.

The folded construction of the rear horn coupled with the smaller dimensions of the front horn, present a 1,000 Hz acoustic crossover. This separation of frequencies provides a more extended frequency response and cleaner sound.

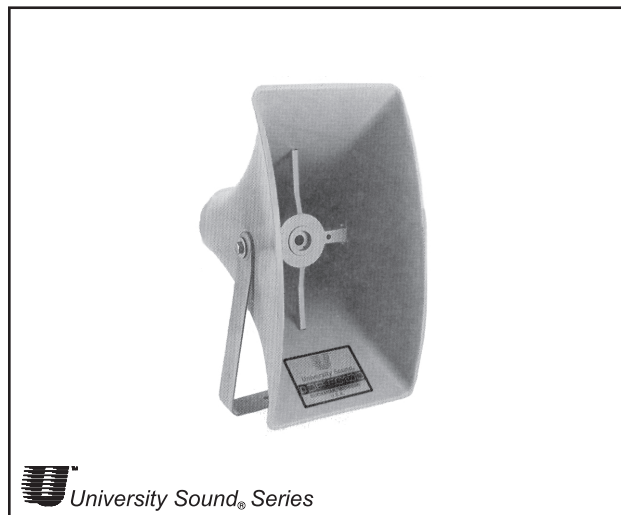
The 150 degree horizontal by 110 degree vertical dispersion pattern is beneficial in many applications requiring a wide coverage pattern. Furthermore, excellent loading is maintained to a low-frequency cutoff of 260 Hz.

### Architects' and Engineers' Specifications

The horn shall be the compound diffraction type with outer housing of fiberglass, a zinc diecast front horn and phenolic-constructed inner horns.

The low-frequency horn will be 52.0 cm (20.5 in.) high by 26.5 cm (10.5 in.) wide and 51.0 cm (20.0 in.) deep, not including a driver. Net weight (less driver) shall not exceed 4.9 kg (10.8 lb).

A separate high-frequency horn shall be provided, capable of individual rotation. The acoustical crossover shall be 1,000 Hz.



The loudspeaker shall be capable of satisfactory mechanical performance in the temperature range from -40°C (-40°F) to +71 °C (+161 °F) not subject to sunlight embrittlement and resistant to damage from weather, moisture, and fungus.

A steel swivel bracket capable of either vertical or horizontal installations and a variety of adjustments is provided. The Electro-Voice FC100 is specified.

### Specifications:

#### Horizontal Beamwidth:

150° @ 2 kHz (see Figure 2)



#### Vertical Beamwidth:

110° @ 2 kHz (see Figure 2)



#### Directivity Factor $R_{\theta}$ (Q):

5.2 @ 2 kHz

#### Usable Low-Frequency Limit:

260 Hz

#### Construction:

Large fiberglass compression molding with gray finish, front horn of gray diecast zinc and phenolic compression-molded inner horns with steel "U" bracket.

#### Mechanical Construction of Driver:

Threaded metal throats to accept a screw-in compound driver with a throat opening of 0.7 inch to 1.0 inch diameter and a standard 1 3/8-inch thread.

#### Dimensions:

Height: ..... 52.0 cm (20.5 in.)  
 Width: ..... 26.5 cm (10.5 in.)  
 Depth: ..... 50.0 cm (20.0 in.)

**Net Weight:** ..... 4.9 kg (10.8 lb)

**Shipping Weight:** ..... 5.4 kg (11.8 lb)

#### Recommended Horns:

1828C	1828T
1829B	1829BT

# Electro-Voice®

## Polar Response

The directional characteristics of the FC100, with driver attached, were measured by running a set of horizontal/vertical polar responses, in a large anechoic chamber, at each one-third-octave center frequency. The test signal was one-third-octave, pseudo-random pink noise centered at the indicated frequencies. The measurement microphone was placed 6.1 m (20 ft.) from the horn mouth, while rotation was about the waveguide geometric apexes. These axes of rotation are quite close to the apparent (acoustic) apexes across the frequency range of measurement. Errors attributable to the slight differences between the geometric and acoustic apexes are reduced to an inconsequential level by the relatively long, 20-foot measuring distance. The horn was suspended freely with no baffle. The polar plots shown in Figure 1 display the results of these tests. The center frequency is noted on each plot. The wider plot on each chart is the horizontal polar (—) and the narrower plot is the vertical polar (---).

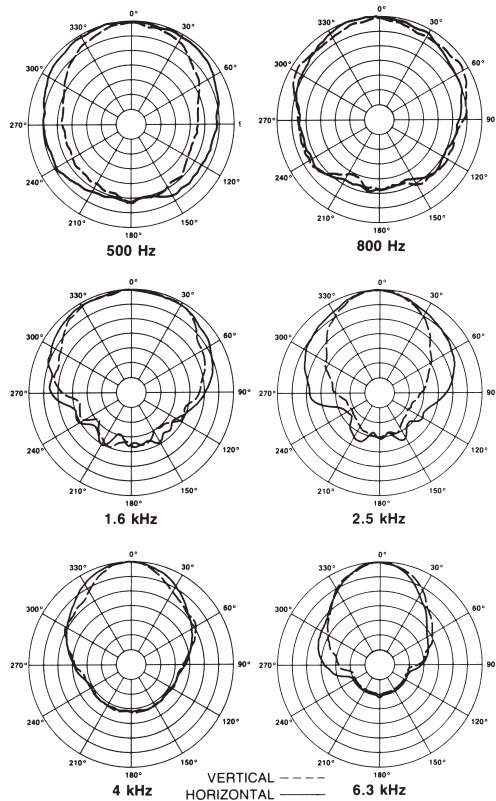


Figure 1.  
FC100 Polar Response

## Beamwidth

A plot of the FC100's 6-dB-down total included beamwidth angle is shown in Figure 2 for each one-third-octave center frequency.

## Directivity

The axial directivity factor  $R_\theta$  (formerly Q) of the FC100 horn was computed at each one-third-octave center frequency from the horizontal/vertical polars and is displayed in Figure 3.

## Installation

As shipped, the "U" bracket is in position for vertical mounting. For horizontal dispersion, or for mounts where bracket mounting holes must be vertical, move bracket to the rear mounting position. The horn can be mounted in a variety of horizontal and vertical configurations by using adjustments of the swivel connections (bracket to horn).

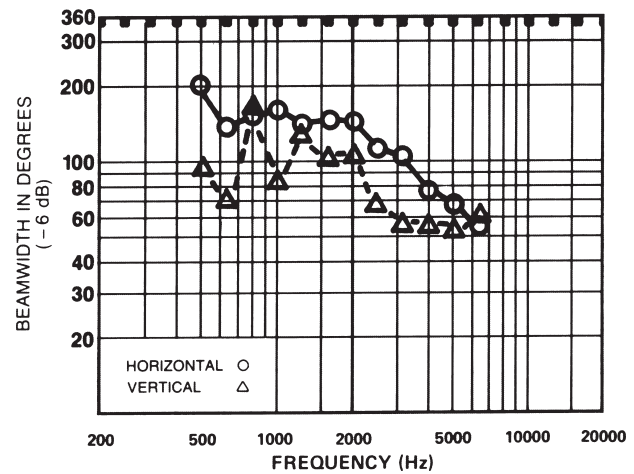


Figure 2.  
FC100 Beamwidth vs. Frequency

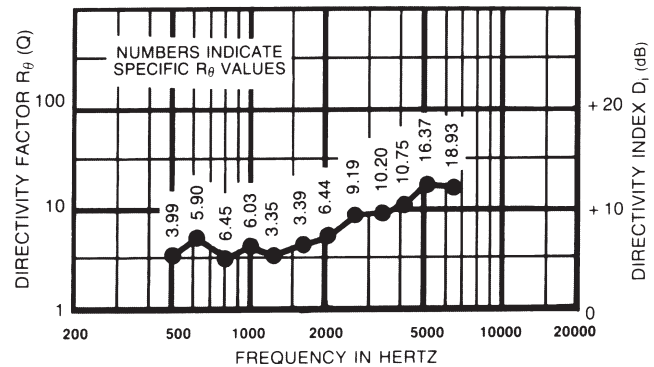


Figure 3.  
FC100 Directivity Factor and Directivity Index vs. Frequency

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