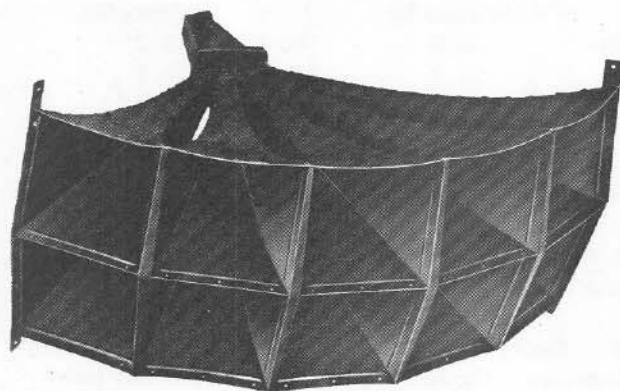




DESCRIPTION AND APPLICATIONS

The Electro-Voice Model M253 multicellular horn provides the means for extremely precise control of dispersion in very demanding sound reinforcement applications. Professional quality reproduction of voice and music is assured by smooth response and uniform dispersion that is virtually independent of frequency. Ideal for auditorium and church installation, the weatherproof Model M253 also provides exceptional performance in outdoor applications where precise dispersion and faithful reproduction are important.

The Model M253 is an assembly of carefully designed individual exponential horns arranged in two rows with five horns per row. The individual horns are terminated in an integral throat to which may be attached any driver having standard 1-3/8" -18 male threads. The entire horn assembly is treated with special damping compound to eliminate undesired vibration.

Low-frequency cut-off is 300 Hz. Above 300 Hz, distortion introduced by the M253 is substantially below 1%. Frequency response of the system above cutoff is limited only by the capability of the driver. Horizontal (120°) and vertical (60°) dispersion is effectively constant from cutoff frequency to the upper audible limits of the spectrum.

SPECIFICATIONS

Configuration: 2 rows, 5 cells per row, exponential horn assemblies, integral throat.

Low-frequency cut-off: 300 Hz

Recommended crossover frequency: 300 Hz

Theoretical cut-off frequency: 180 Hz

Air column length: 34 inches

FEATURES

- Uniform dispersion - reduces feedback
- Less than 1% distortion-faithful reproduction
- Ideal for auditorium or church
- Weatherproof

Dispersion:

Horizontal: 120°
Vertical: 60°

Sound pressure level:

	30W	60W
	(1828 Drivers)	(1829 Drivers)
	121 db	127 db
	(4' on axis, full driver power warbled between 750 and 1250 cycles per second)	

Material: Die-cast aluminum and steel

Mounting: Adjustable brackets for wall and ceiling mounting supplied. 1-3/8" -18 female threads for any standard driver

Size: 17-1/2 inches high, 30-1/2 inches wide, 36-1/2 inches deep

Net weight: 26-1/4 lb.

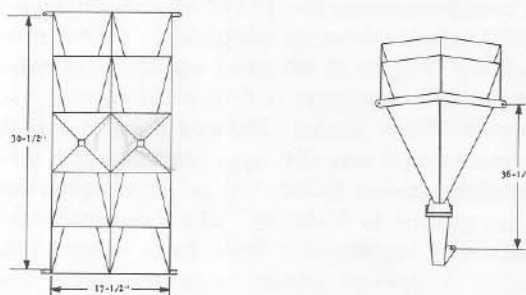


Figure 1- Dimensional Drawings

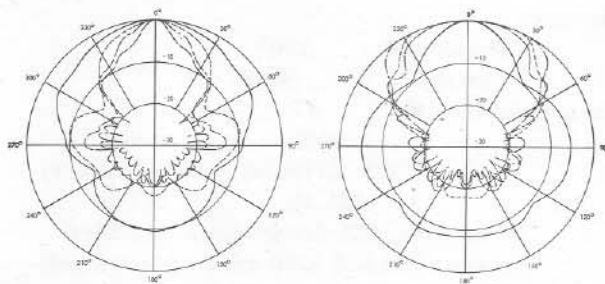
ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The horn shall be of the multicellular type, incorporating two rows with five individual exponential horns per row. The ten individual horns shall be terminated in a single integral throat having standard 1-3/8" -18 female threads for driver mounting. Theoretical cut-off frequency shall be 180 Hz, and air column length shall be 34 inches.

Low-frequency cutoff and recommended crossover frequency for the multicellular assembly shall be 300 Hz.

Nominal horizontal dispersion shall be 120° , and nominal vertical dispersion shall be 60° . Dispersion shall be essentially constant for all usable frequencies above 300 Hz. Sound pressure level measured at 4' on major axis (between 750 and 1250 cycles per second) shall be at least 121 db with Electro-Voice 1828 series driver, and at least 127 db with Electro-Voice 1829 series driver.

The multicellular horn shall be 17-1/2" high, 30-1/2" wide and depth, including throat, shall be 36-1/2". Material shall be die-cast aluminum and steel. The entire horn assembly shall be treated with suitable damping material. Net weight shall be 26-1/4 lbs. Adjustable mounting brackets shall be furnished, by means of which the multicellular horn may be mounted on ceiling or wall and adjusted for best position. The Electro-Voice Model M253 is specified.



Vertical Horizontal
 ——— 300 cps ——— 3000 cps
 - - - 1000 cps - - - 7000 cps
 Figure 2-Polar Patterns

CONSTANT LOUDNESS CONTOUR

The accompanying figures indicate the distance at which a sound pressure level of 90 db will be experienced when half power is supplied to a theoretically perfect driver of 60 watts capacity attached to the M253 in essentially free field conditions. (The Electro-Voice Model 1829 was used in actual measurements and actually approximates the required performance.) Unlike the polar pattern, the graphs are plotted in distance. The constant loudness contour is measured at 3000 Hz to assure full articulation of speech anywhere on or inside the contour lines. This does not mean that there will be no sound outside the contour line, it means only that loudness will be below 90 db. Since dispersion patterns for the M253 are extremely stable with respect to frequency, nominal dispersion angles of 120° horizontal and 60° vertical can be used effectively in planning most installations. Nominal values are based on loudness "balance" of all frequencies at various angles. This is a subjective measurement and may vary with individual

applications.

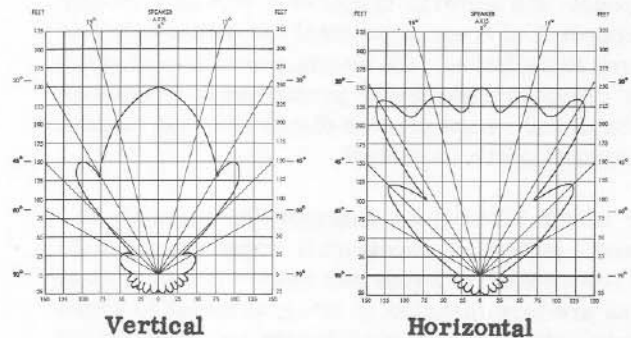
Although a 90 db reference level has been selected some other sound level may be required. The following table gives the conversion factor for several other levels. For sound level

of	multiply	of	divide
	distance by		distance by
60 db	32.0	100 db	3.2
70 db	10.0	110 db	10.0
80 db	3.2	120 db	32.0

For sound pressure level of 90 db at full rated power multiply distance shown by 1.4.

Two useful formulas can help you to use these charts and specifications:

1. Every time you double amplifier power into a driver, the sound pressure level at any point will be increased 3 decibels. Conversely, if amplifier power into the speaker is cut in half, (from 30 watts to 15 watts, for example) the sound pressure level will be reduced by 3 db.
2. Every time you double the distance from the listener to the speaker, the sound pressure level at the listener will be reduced by 6 decibels. This is equivalent to having only 1/4 the amount of power available at the more distant position.



Vertical Horizontal
 Fig. 3-90db Loudness Contours at 3.0 kc-30w.

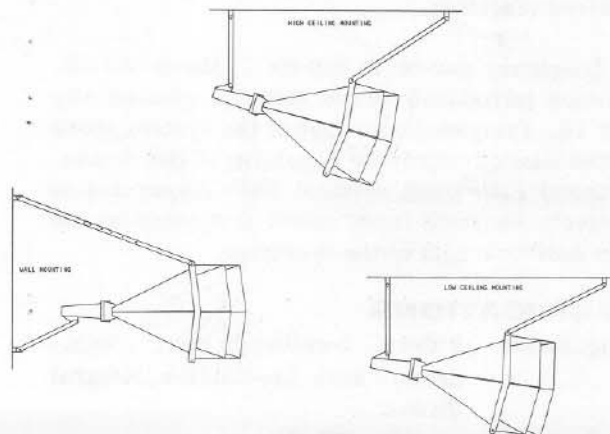


Figure 4-Mounting Diagrams

