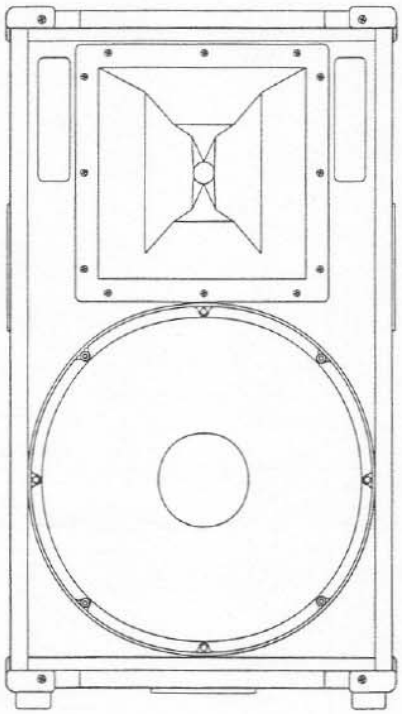
Electro-Voice®



Force®

- 15-inch two-way high-output stage system
- 200-watts continuous, 800-watts short-term power handling
- Ring-Mode Decoupling (RMD™) for improved sound quality and dynamic integrity
- High-Q 60° x 40° Constant-directivity horn with DH2010A driver
- Integral 1 3/8-inch stand mount
- Ergonomically shaped handles for ease in lifting and transportation
- Choice of paralleled 1/4-inch or Neutrik Speakon® (Force E) connectors

Description

The Electro-Voice Force® is high-peak output, high-efficiency two-way stage system. The 15-in. low-frequency/horn-loaded constant-directivity high-frequency system incorporates elements of Ring-Mode Decoupling (RMD™). RMD™ techniques substantially improve vocal fundamental intelligibility and produce an "up front" tonality capable of cutting through even difficult acoustic environments.

The Force® enclosure has a unique design that presents a very minimal frontal cross section while still maintaining substantial internal volume. A newly developed handle concept allows for extremely comfortable transportation from any orientation. The design is light weight, but very rugged and features a heavy metal grill and highly stylized corner protection.

The heart of the Force® high performance design is the combination of a high- excursion low-frequency suspension system with Electro-Voice's unique Ring-Mode Decoupling. All loudspeaker drivers exhibit mechanical resonance modes that add their own time-domain or ringing-mode colorations. These colorations limit and reduce overall system intelligibility. The Force® use of RMD™ will control several fundamental mechanical ringing modes. The result is substantially improved vocal range intelligibility and system "openness".

Power Handling

To our knowledge, Electro-Voice was the first U.S. manufacturer to develop and publish a power test closely related to real-life conditions. First, we use a random-noise input signal because it contains many frequencies simultaneously, just like real voice or instrument program. Second, our signal contains more energy at extremely high and low frequencies than typical actual program, adding an extra measure of reliability. Third, the test signal includes not only the overall "long term average" or "continuous" level—which our ears interpret as loudness—but also short-duration peaks which are many times higher than the average, just like actual program. The long-term average level stresses the speaker thermally (heat). The instantaneous peaks test mechanical reliability (cone and diaphragm excursion). Note that the sine-wave test signals sometimes used have a much less demanding peak value relative to their average level. In actual use, long-term average levels exist from several seconds on up, but we apply the long-term average for several hours, adding another extra measure of reliability.

Specifically, the Force® is designed to withstand the power test described in the ANSI/EIA RS-426-A 1980. The EIA test spectrum is applied for eight hours. To obtain the spectrum, the output of a white-noise generator (white noise is a particular type of random noise with equal energy per bandwidth in Hz) is fed to a shaping filter with 6-dB-per-octave slopes below 40 Hz and above 318 Hz. When measured with the usual constant-percentage bandwidth analyzer (one-third-octave), this shaping filter produces a spectrum whose 3-dB-down points are at 100 Hz and 1,200 Hz with a 3-dB-per-octave slope above 1,200 Hz.

Amplifier Recommendations

The power-handling rating of the Force® is 200-watts (250 watts AES 1984) continuous. The specific tests used employ a crest factor (ratio of peak energy to continuous energy) of at least 6 dB. During extended testing, the Force™ is routinely subjected to peak levels far in excess of its continuous rating of 200 watts. Many amplifier designs are capable of producing peak power levels in excess of their ratings as well, so exact "pairing' of loudspeaker rating and amplifier ratings is not necessary. Amplifier continuous ratings of 150 watts to 300 watts are suggested. Larger amplifier ratings are recom-

Figure 1—Frequency

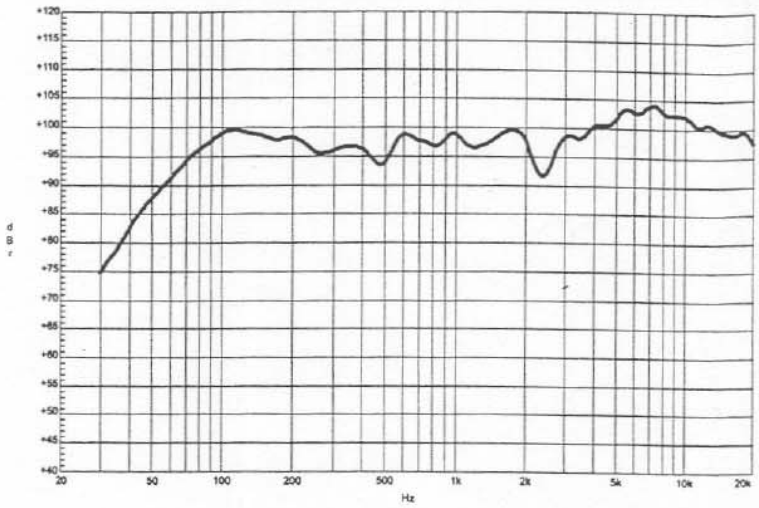
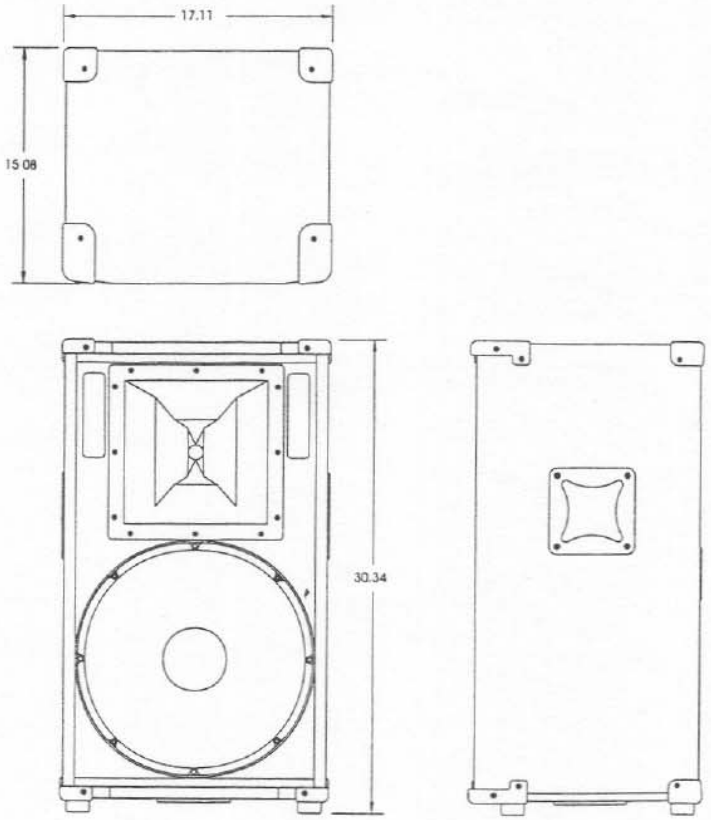


Figure 2—Dimension



Specifications

Frequency Response, Measured at 10 feet on axis (normalized to 1 watt/ 1 meter):
60 Hz-20 kHz ±3 dB

Long-Term Average Power Handling,
EIA Standard RS-426-A:
200 watts
AES (1984):
250 watts

Sound Pressure level, 1 w/1 m:
99 dB

Dispersion Angle Included by 6-dB-Down Points on Polar Responses, Indicate One-Third-Octave Bands of Pink Noise,
2,500-20,000 Hz, Horizontal:
60° (+14°, -25°)
2,500-20,000 Hz, Vertical:
40° (+12°, -0°)

Transducer Compliment,
High Frequency
DH2010A
HP64M constant directivity
Low Frequency:
15"-RMD

Enclosure Tuning:
60 Hz

Crossover frequency:
1600 Hz

Impedance:
Nominal 8 ohms
Minimum 5.3 ohms

Input connectors:
Parallel 1/4-inch phone jacks
Parallel Neutrik model NL4MP
(E-version only)

Dimensions,
Height:
76.8 cm (30.25 in.)
Wide:
42.9 cm (16.9 in.)
Depth:
38.1 cm (15 in.)

Net Weight
27.5 kg (60.5 lbs)

Shipping Weight
31.1 kg (68.5 lbs)

Supporting Products
100BK speaker stand

Electro-Voice®
600 Cecil Street, Buchanan, MI 49107
616/695-6831, 616/695-1304 Fax

Part Number 535554— 9923

FORCE®

SPEAKER

SYSTEM

Our goal for Electro-Voice's new Force® speaker systems was simple: make it sound like an EV but cost a lot less. For the price of an ordinary speaker system, you get the extraordinary EV sound quality that leading artists, audio engineers and DJs all over the world prefer.

You also get the same EV five-year transferable parts, labor warranty and world-class service that usually comes on products with much higher price tags. Experience the extraordinary difference in sound... experience the new Force® from Electro-Voice.

FORCE.® — FAR BEYOND THE ORDINARY.

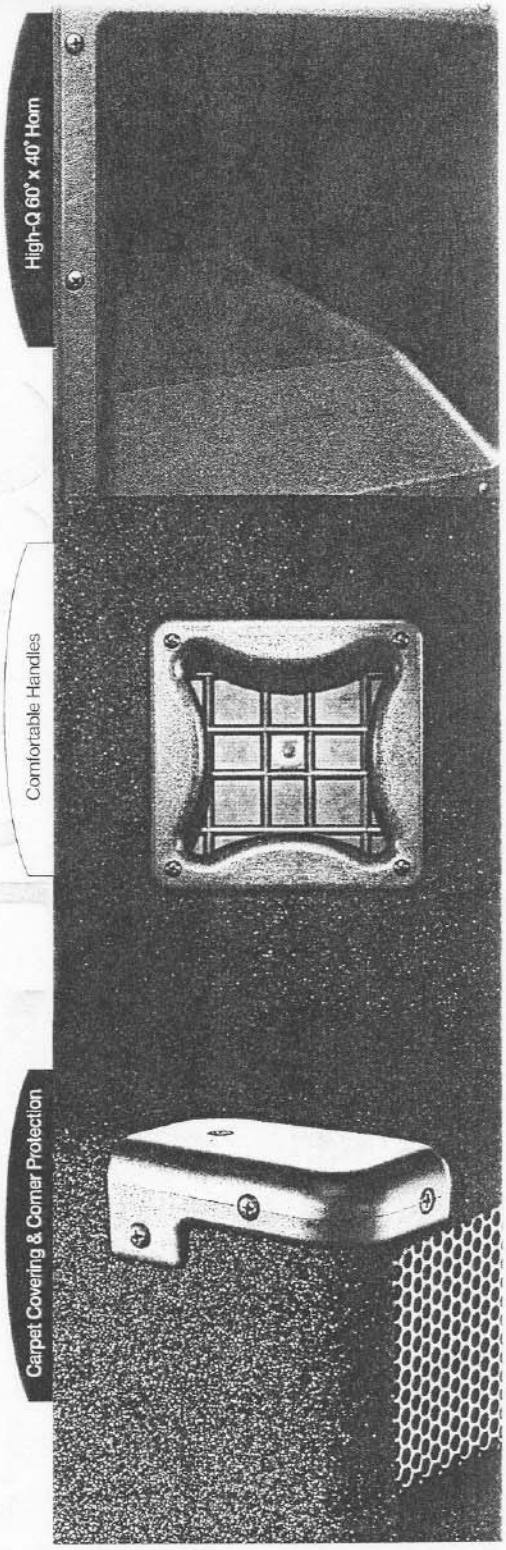
Force® 15-Inch Two-Way The Force® is an economical high-output two-way stage system that breaks new ground in performance. Compare Force® to a conventional speaker, and immediately notice that you're getting more music—more highs, more lows and midrange details that other speakers just don't reproduce. Much of this comes from EV's breakthrough Ring-Mode Decoupling (RMD®) technology inherited from famous X-Array™ concert loudspeakers. Force's High-Q 60° x 40° horn and pure titanium compression driver will project your sound with further than any competitive model. As you move further away from the speaker, you'll still be able to hear the vocals and all the nuances of the music. EV's exclusive PRO™ driver protection circuit is also included to insure that accidents won't ruin a performance. Force's powerful 15-inch woofer with 2.5-inch voice coil and precisely tuned enclosure ensure that bass response is tight and solid.

Using EV's stringent test standards, the Force® has 200 watts continuous, 800 watts short-term capacity to give your music real power.

Force® Sub Dual 15-Inch Manifold Technology Woofer System The compact, powerful Force® Sub makes it easy and affordable to add room shaking lows to your sound system and really get the crowd moving. Thanks to its unique double slot-loaded quasi-bandpass enclosure and built-in low-pass electronic filtering, the Force® Sub can be paralleled on a single amplifier channel for instant bass improvement. One high-quality power amplifier such as EV's Q44 will deliver excellent results, eliminating the expense of additional amps and a crossover. The Force® Sub's two 15-inch woofers use Manifold Technology™ that helps them move more air with less cone excursion. The Force® Sub is light and compact compared to other dual 15-inch systems. The enclosure has vault-like construction with strong internal bracing for loss-free bass. A 30-inch steel pole is included for elevating the two-way system without a speaker stand. The Force® Sub blends perfectly with the two-way system to create a wide-bandwidth sound system with real sonic muscle. Once you hear the Force® full-range system with the Sub, you'll have to have it.

RMD® Ring-Mode Decoupling

RMD® removes mechanical and acoustic resonances in the enclosure and components so that only pure audio remains.



Specifications

Specifications	Force®	Force® Sub
Frequency Response	60–20,000 Hz	47–125 Hz
Power Handling		
EIA RS-426A	200 watts	300 watts
AES (1984)	250 watts	350 watts
Short-term	800 watts	1,200 watts
Dispersion	60° x 40°	Omnidirectional
Sensitivity	99 dB	97 dB
Impedance (Nominal/Minimum)	8 ohms/5.3 ohms	8 ohms / 6.8 ohms
Connectors (standard/E version)	1/4-inch/Speakon®	1/4-inch/Speakon®
Dimensions		
(Inches)	30.25 x 16.9 x 15	23.5 x 20.5 x 23.5
(Centimeters)	76.8 x 42.9 x 38.1	59.7 x 52 x 59.7
Net Weight	60.5 lb (27.5 kg)	89.5 lb (40.6 kg)

EVERYWHERE™

USA 600 Cecil Street, Buchanan, MI 49107, Phone:616/695-6831, 800/234-6831, FAX: 616-695-1304, www.electrovoice.com
Canada 705 Progress Avenue, Unit 10, Scarborough, Ontario, Canada, M1H2X1, Phone: 416-431-4975, FAX: 416-431-4588
Switzerland Kettenstrasse 11, CH-2563 IPSACH, Switzerland, Phone: 011-41/32-331-6833, FAX: 011-41/32-331-1221
Germany Hirschberger Ring 45, D94302, Straubing, Germany, Phone: 011-49/9421-7060, FAX: 011-49/9421-706265
France Parc de Courcerin, Allee Lech Walesa, Lognes, f-77185 Marne La Vallee, France, Phone: 011-33/1-6480-0090, FAX: 011-33/1-6006-5103
Australia Unit 23, Slough Business Estate, Silverwater N.S.W. 2128, Australia, Phone: 011-61/2-9648-3455, FAX: 011-61/2-9648-5585
Hong Kong Unit E & F, 21/F, Luk Hop Industrial Bldg., 8 Luk Hop St., San Po Kong, Kowloon, Hong Kong, Phone: 011-852-2351-3628, FAX: 011-852-2351-3329
Japan 2-5-60 Izumi, Suginami-ku, Tokyo, Japan 168, Phone: 011-81-3-3325-7900, FAX: 011-81-3-3325-7789

nly pure

nains.

5103

-852-2351-3329

Specifications

Specifications	Force®	Force® Sub
Frequency Response	60-20,000 Hz	47-125 Hz
Power Handling		
EIA RS-426A	200 watts	300 watts
AES (1984)	250 watts	350 watts
Short-term	800 watts	1,200 watts
Dispersion	60° x 40°	Omnidirectional
Sensitivity	99 dB	97 dB
Impedance (Nominal/Minimum)	8 ohms/5.3 ohms	8 ohms / 6.8 ohm
Connectors (standard/E version)	1/4-inch/Speakon®	1/4-inch/Speako
Dimensions		
(Inches)	30.25 x 16.9 x 15	23.5 x 20.5 x 23.5
(Centimeters)	76.8 x 42.9 x 38.1	59.7 x 52 x 59.7
Net Weight	60.5 lb (27.5 kg)	89.5 lb (40.6 kg)