

# EVM12L 12" Classic Lead Guitar Loudspeaker

- Classic lead guitar performance—full, precise overdriven tones and unrivaled clean tones
- Ideal upgrade speaker
- 200 watts long-term power capacity
- Edge-wound flat aluminum wire for maximum output and bullet proof reliability
- 100 dB sensitivity



The EVM12L loudspeaker is a 12-inch speaker designed for professional, high-level, high-quality guitar amplification systems. Used full range, the EVM12L loudspeaker's frequency response is specifically tailored for brilliant lead guitar performance and classic guitar tones. The EVM12L loudspeaker incorporates manufacturing refinements that have improved performance. Power capacity is 200 watts per EIA RS-426-A 1980. The Power-Handling section describes these ratings in detail. This improvement in the EVM12L loudspeaker's already highly regarded reliability has been made without changing its other performance characteristics in any way.

The construction of the EVM12L loudspeaker features a low-mass edgewound voice coil on a rugged laminated polyimide coil form, driven by our large, 16-lb magnetic structure. Also featured are a heavy-duty curvilinear cone and a fatigue resistant cone suspension. Both the coil and magnetic structure are vented. All of this is packaged around a robust, eight-spoke, die cast aluminum frame.

The EVM12L loudspeaker may be front- or rear-mounted without an adapter.

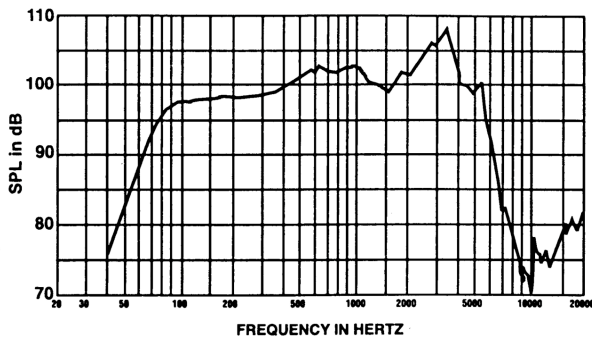
## Technical specifications

Usable Frequency Response in a Typical Vented 1.3-Cubic-Foot Enclosure (1 watt/1 meter):	80-5,000 Hz
Sound Pressure Level (1 watt/1 meter):	100 dB
Long-Term Average Power Handling Capacity (per EIA RS-426-A 1980):	200 watts
Nominal Impedance:	8 ohms
Voice Coil Diameter:	63.5 mm (2.5 in.)
Thiele-Small Driver Parameters $f_s$ (free-air resonance frequency):	55 Hz
$Q_{ES}$ (electromagnetic Q at $f_s$ ):	0.245
QMS (mechanical Q at $f_s$ ):	4.37
$Q_{TS}$ (total Q at $f_s$ ; $(Q_{ES} Q_{MS}) / (Q_{ES} + Q_{MS})$ ):	0.232
$V_{AS}$ (volume of air having same acoustic compliance as driver suspension):	82.9 liters (2.9 ft <sup>3</sup> )
$h_0$ (half-space reference efficiency):	4.3%

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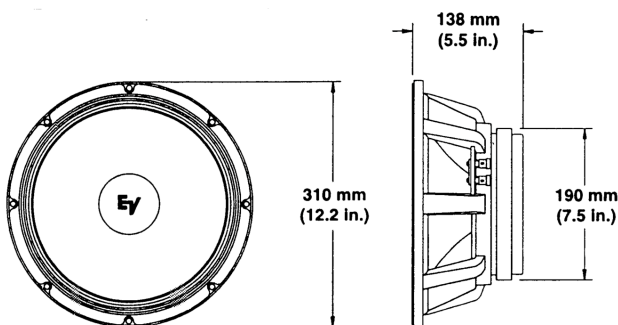
$V_D$ (peak displacement volume of diaphragm: $S_D \times X_{max}$ ):	0.165 liters (0.0059 ft <sup>3</sup> )
$S_D$ (effective diaphragm area):	0.050 m <sup>2</sup> (78 in. <sup>2</sup> )
$X_{max}$ (peak linear displacement of diaphragm):	3.3 mm (0.13 in.)
Mounting Hole Diameter (eight evenly spaced holes):	7.1 mm (0.28 in.)—letter "L" drill
Bolt Circle Diameter:	294 mm (11.56 in.)
Baffle Opening Diameter (front or rear mounting):	279 mm (11.0 in.)
Dimensions (Depth x Diameter):	138 mm (5.5 in.) x 310 mm (12.20 in.)
Net Weight:	8.6 kg (19 lb)
Shipping Weight:	10.0 kg (21.5 lb)

### Frequency Response:

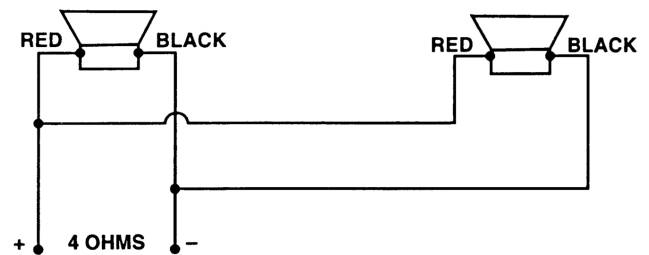


Frequency Response in Typical Enclosure (1.3 ft<sup>3</sup>), 1 Watt/1 Meter

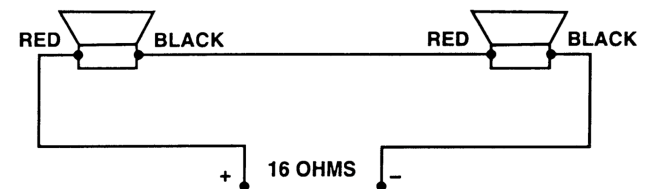
### Dimensions:



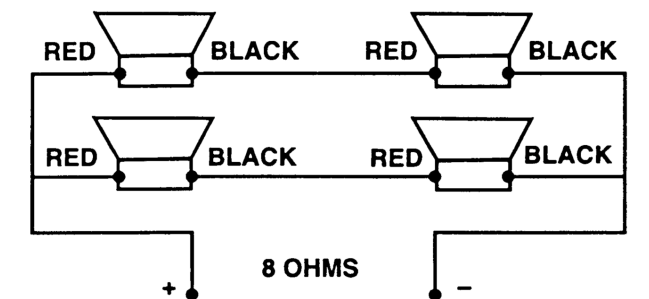
### Wiring:



Connection of two EVM12L speakers in parallel (net impedance is 4 ohms)



Connection of two EVM12L speakers in series (net impedance is 16 ohms)



Connection of four EVM12L speakers in series/parallel (net impedance is 8 ohms)

## System overview

### RECOMMENDED ENCLOSURES

#### Typical Enclosures

The EVM12L loudspeaker will often be used to replace inferior speakers in existing enclosures. Mechanical and electrical characteristics are such that the superior efficiency, sound quality and reliability of the EVM12L loudspeaker will be realized in virtually any sealed, vented (bass reflex) or open-backed enclosure. Open-backed enclosures have been used for electric guitars from the very beginning. Generally, they offer very good performance in many situations. The sound is often characterized as being open and having a full mid-bass response. Although these enclosures are often referred to as *warm sounding*, they do not have an especially tight or solid low-end response. The EVM12L loudspeaker's performance in this type of enclosure is considered world-class for many music styles.

Sealed enclosures are also very commonly used for guitar—for some very good reasons. Like open-backed enclosures, sealed enclosures are very easy to design and build. The EVM12L loudspeaker performs very well in virtually any possible sealed enclosure, from 0.9 to 3.0 ft<sup>3</sup> (internal volume). The enclosure size makes very little difference within this range. EVM12L loudspeaker performance in sealed enclosures is tight and punchy. The low end is fast and solid. The overall performance is very focused.

**Vented Enclosures**

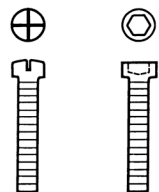
The most extended and contoured low-frequency performance with the least amount of distortion is typically realized in properly designed vented enclosures. In such designs, the vent, or port, actually reproduces the lowest octave or so of bass response. The vent is driven to full acoustic output by a relatively small motion of the speaker cone itself, acting through the air contained within the enclosure. The excursion of the EVM12L loudspeaker at these frequencies is much reduced compared to sealed or open-backed enclosures, directly reducing harmonic distortion.

**INSTALLATION**

The EVM12L loudspeaker may be front- or rear-mounted, although front mounting is preferred because of convenience. It is important that recommended baffle openings and mounting hole locations be followed.

**Front Mounting**

Front mounting requires a 279-mm (11.0-in.) diameter cutout and a 294-mm (11.56-in.) bolt circle. Mark the baffle opening and screw locations on the blank panel first. Drill the screw holes before cutting the large baffle opening. If 1/4-20 screws are used, four screws are sufficient for secure mounting of the speaker. T-nuts are recommended for simple, secure mounting. If T-nuts are used, the holes should be 7.1-mm (0.281-in.) diameter (letter “L” drill). Apply glue to the flanges of 1/4-20 long shank T-nuts before driving into the rear of the holes. Length of the 1/4-20 screws should be 1/2-inch plus the panel thickness when using T-nuts. The screws must be fillister head or internal hex drive machine screws to seat down in the recess of the speaker frame gasket. Screws should be tightened evenly and securely. Maximum torque possible with a proper size screwdriver should be sufficient.

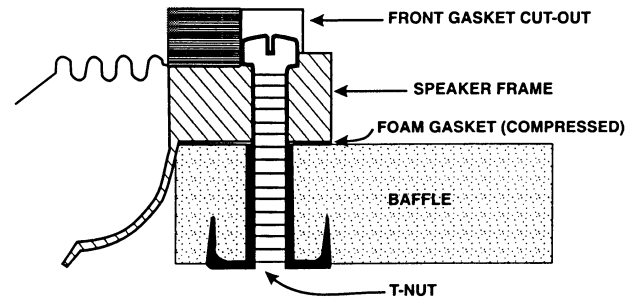


Fillister-head screw (left) and internal hex-drive machine screw (right) for front mounting (not to scale)



**Caution!**

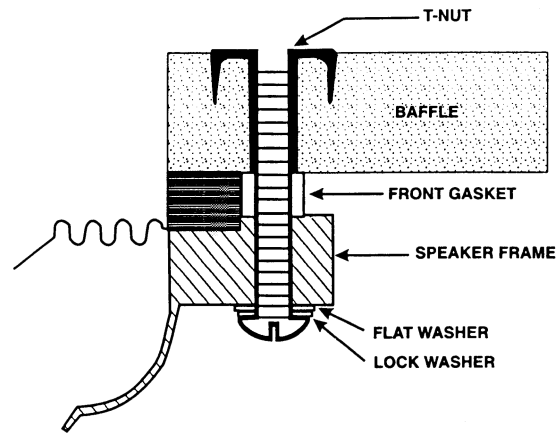
When front mounting, the screw head must fit down into the front gasket cutout.



Front mounting detail (Not to scale)

**Rear Mounting**

Rear mounting requires the same diameter cutout and screw circle as front mounting. Other comments regarding the use of T-nuts apply to rear mounting as well. Screw length should be 3/4-inch plus panel thickness if using T-nuts—longer for standard hex nuts. If hex nuts are used, a second nut should be tightened against the first nut to prevent loosening during operation. A lock washer and flat washer are recommended between the screw head and frame.



Rear mounting detail (Not to scale)

Screws should be tightened evenly, but not excessively. Maximum torque possible with a proper size screwdriver should be sufficient. Do not use adhesive-back gasket segments for rear mounting. Normal fasteners up to 6 mm (1/4 in.) will fit through the eight holes in the frame.

**Custom Enclosures**

If a cabinet is to be constructed from scratch, 3/4-inch solid and jointed or marine plywood is recommended. After construction, be certain interior is completely free of metal filings, wood chips, etc.

### Electrical Connections

Use no. 18 or larger stranded wire to connect the loudspeaker to the input panel connector.

### POWER-HANDLING

In musical instrument systems, unlike sound reinforcement systems, it is advisable to use speakers that are rated for at least as much power as your amplifier output rating. It is also widely known that heavily overdriven tube amplifiers are usually capable of double their rated output power, and sometimes more. In this situation, the user would be wise to use speakers having a combined rating of two times the amplifier output. The new EVM12L loudspeaker has a long-term rms power rating of 200 watts. This assures that the speaker has more than enough thermal headroom to be confidently used with virtually any guitar amplifier currently available. To our knowledge, Electro-Voice was the first U.S. manufacturer to develop and publish a power test closely related to real-life conditions.

Specifically, the EVM12L loudspeaker is designed to withstand the power test described in EIA RS-426-A 1980. The EIA test spectrum is applied for eight hours. This shaped signal is sent to a power amplifier with the continuous power set at 200 watts into the 6 ohms EIA equivalent impedance (35.0 volts true rms). Amplifier clipping sets instantaneous peaks at 6 dB above the continuous power, or 800 watts peak (70.0 volts peak). This procedure provides a rigorous test of both thermal and mechanical failure modes.

## Ordering information

### EVM12L 12" Classic Lead Guitar Loudspeaker

12" 200W premium guitar speaker, 8 ohms, black  
Order number **EVM12L-CL8-LB**

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#### Represented by:

##### Germany:

Bosch Sicherheitssysteme GmbH  
Robert-Bosch-Ring 5  
85630 Grasbrunn  
Germany

Bosch Security Systems, Inc.  
12000 Portland Avenue South  
Burnsville MN 55337  
USA

[www.electrovoice.com](http://www.electrovoice.com)