



PROFESSIONAL SERIES

LAB12

Recommended for vented, sealed, and horn loaded, professional audio enclosures as a subwoofer. Also great as an automotive sub.



- | | | | |
|--------------------------------------|---|--|--|
| <input type="checkbox"/> Midrange | <input type="checkbox"/> Woofer | <input checked="" type="checkbox"/> Sealed Box | <input type="checkbox"/> Scoop Loading |
| <input type="checkbox"/> Midbass | <input checked="" type="checkbox"/> Subwoofer | <input checked="" type="checkbox"/> Vented Box | <input checked="" type="checkbox"/> Horn Loading |
| <input type="checkbox"/> Bass Guitar | | | |

SPECIFICATION

Nominal Basket Diameter	12", 305 mm
Nominal Impedance*	6 Ω
Power Rating**	
Watts	400 W
Music Program	800 W
Resonance	22 Hz
Usable Frequency Range	25 Hz – 0.1 kHz
Sensitivity***	89.2 dB
Magnet Weight	160 oz.
Gap Height	0.375", 9.5 mm
Voice Coil Diameter	2.5", 64 mm

THIELE & SMALL PARAMETERS*

Fs	22 Hz
Re	4.29 Ω
Le	1.48 mH
Qms	13.32
Qes	0.39
Qts	0.38
Vas	4.42 cu.ft., 125.2 liters
Vd	659 cc
Cms	0.35 mm/N
BL	15 T-M
Mms	146 grams
EBP	56
Xmax	13 mm
Sd	506.7 cm ²
Xlim	22 mm

MOUNTING INFORMATION

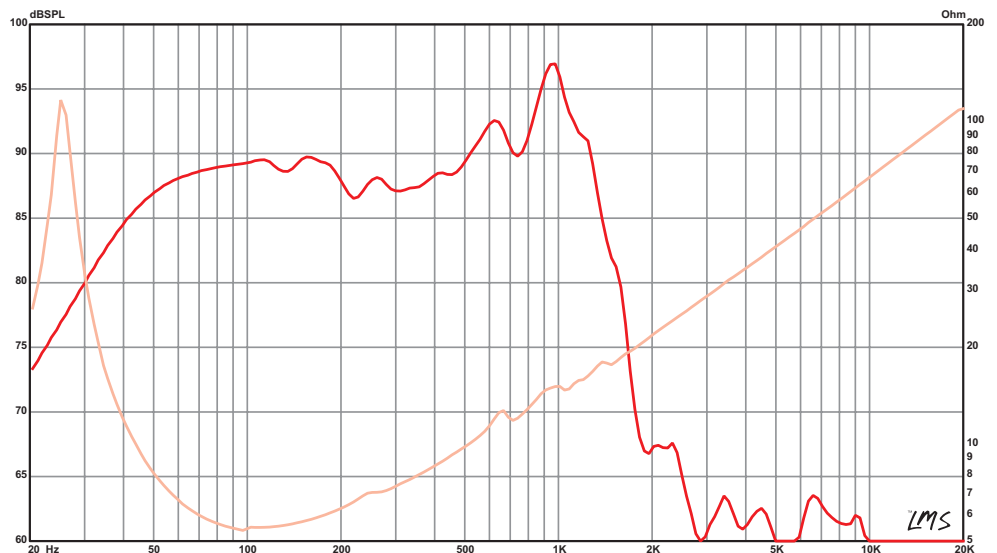
Recommended Enclosure Volume	
Sealed	22.7–28.3 liters, 0.8–1 cu.ft.
Vented	45.3–101.9 liters, 1.6–3.6 cu.ft.
Driver Volume Displaced	0.109 cu.ft., 3.09 liters
Overall Diameter	12.32", 312.9 mm
Baffle Hole Diameter	11.04", 280.4 mm
Front Sealing Gasket	Yes
Rear Sealing Gasket	N/A
Mounting Holes Diameter	0.26", 6.6 mm
Mounting Holes B.C.D.	11.77", 299 mm
Depth	6.44", 163.6 mm
Net Weight	22 lbs , 9.98 kg
Shipping Weight	23.8 lbs , 10.8 kg

MATERIALS OF CONSTRUCTION

- _____ Copper voice coil
- _____ Polyimide former
- _____ Double stacked 80 oz. ferrite magnets
- _____ Vented and extended core
- _____ 12-spoke die-cast aluminum basket
- _____ Kevlar-reinforced paper cone
- _____ Foam cone edge
- _____ Dual inverted dust caps



FREQUENCY RESPONSE & IMPEDANCE CURVE*



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MISSION STATEMENT

Eminence is dedicated to providing the best Quality, Value and Service to meet our customers' needs.

FOOTNOTES

- * Please consult www.eminence.com for specifications of models with alternative impedances.
- ** Multiple units exceed published ratings evaluated under EIA 426A specification while tested in a free-air, non-temperature-controlled environment.
- *** The average output across the usable frequency range when applying 1W/1m into the nominal impedance. i.e: 2.83V/8Ω, 4V/16Ω. Eminence response curves are measured under the following conditions: All speakers are tested at 1W/1m using a variety of test set-ups for the appropriate impedance | LMS using 0.25" supplied microphone (software calibrated) mounted 1m from wall/baffle | 2 ft. x 2 ft. baffle is built into the wall with the speaker mounted flush against a steel ring for minimum diffraction | Carver PM-120 amplifier | 2700 cu. ft. chamber with fiberglass on all six surfaces (three with custom-made wedges).
- **** BETA 8CX, 10CX, and 12CX are coaxial speakers with tweeter sold separately. Published usable frequency response contingent upon use of ASD:1001 HF Driver.
- ***** Multiple units exceeded published ratings evaluated under EIA-426A or AES specification while mounted on Eminence's H290, H290S, or H2EA horn in a non-temperature-controlled environment.
- *****The average on axis output across the entire usable frequency range when applying 1W/1m into the nominal impedance, i.e. 2.83V/8Ω, 4V/16Ω. Eminence response curves are measured under the following conditions: All speakers are tested at 1W/1m using a variety of test set-ups for the appropriate impedance | LMS using 0.25" supplied microphone (software calibrated) mounted 1m from wall/baffle | 2ft x 2ft baffle is built into the wall with horn front mounted | Carver PM-120 amplifier | 2700 cu.ft. chamber with fiberglass on all six surfaces (three with custom-made wedges).

Prices, specifications and product cosmetics are subject to change without notice.

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**The LAB12 was specifically designed for use in a horn loaded enclosure engineered by participants of the Live Audio Board at <http://www.prosoundweb.com/lsp/>. There are five points (listed on the last page) you must consider when using these drivers, exclusively in the Live Audio Board design. The woofer is also suitable for more conventional applications, such as the designs on these pages, where extended Xmax is desired.

LAB12 Small Sealed Automotive Subwoofer Cabinet

By McJerry, Eminence Speaker LLC

Limit to 300 Watts. Typical cabin gain will give effective F3 below 30 Hz.

Box Properties

--Description--

Name:

Type: Closed Box

Shape: Prism, square

--Box Parameters--

Vb = 0.653 cu.ft

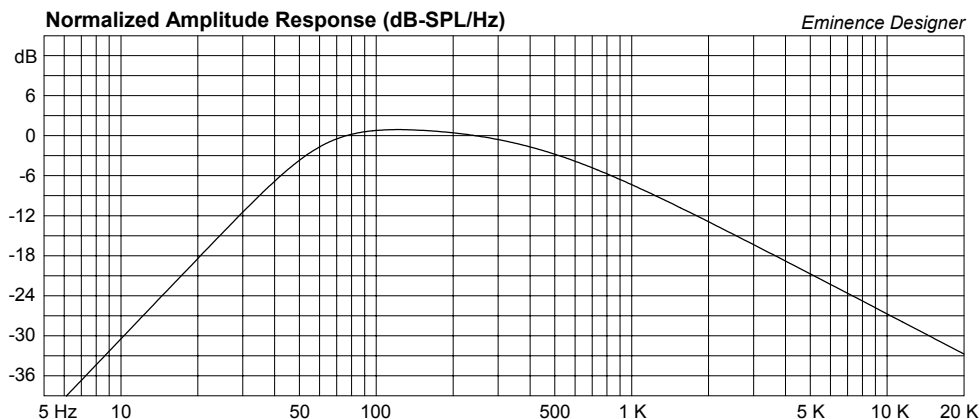
V(total) = 0.806 cu.ft

Qtc = 0.787

QL = 20

F3 = 52.89 Hz

Fill = heavy



Driver Properties

--Description--

Name: LAB 12

Type: Standard one-way driver

Company: Eminence Speaker LLC

Comment: Revised NOV 2005

Piston: Kevlar-reinforced cone.

Suspension: Foam surround.

Dust Cap: Dual inverted dust caps

Frame: Diecast aluminum basket.

Voice Coil: 2.5 inch (63.5 mm) copper

Magnet: Double-stacked 80 oz ferrite

--Configuration--

No. of Drivers = 1

--Driver Parameters--

Fs = 22 Hz

Qms = 13.32

Vas = 125.2 liters

Xmax = 13 mm

Sd = 506.7 sq.cm

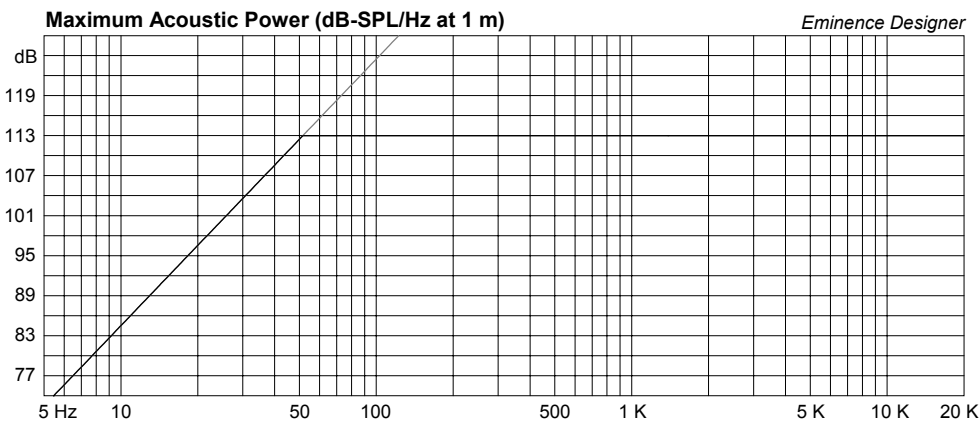
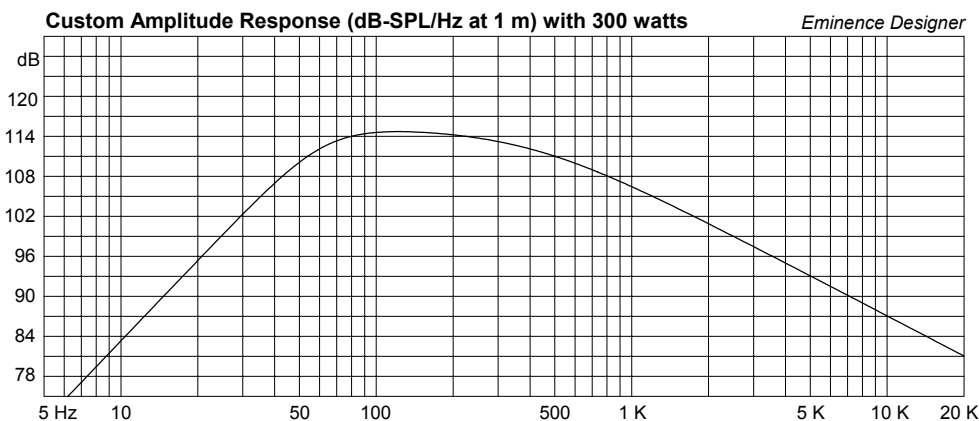
Qes = 0.39

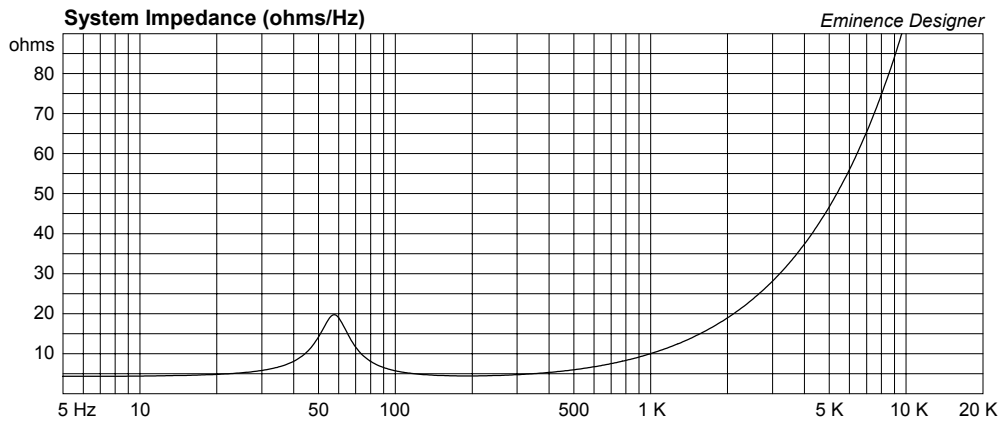
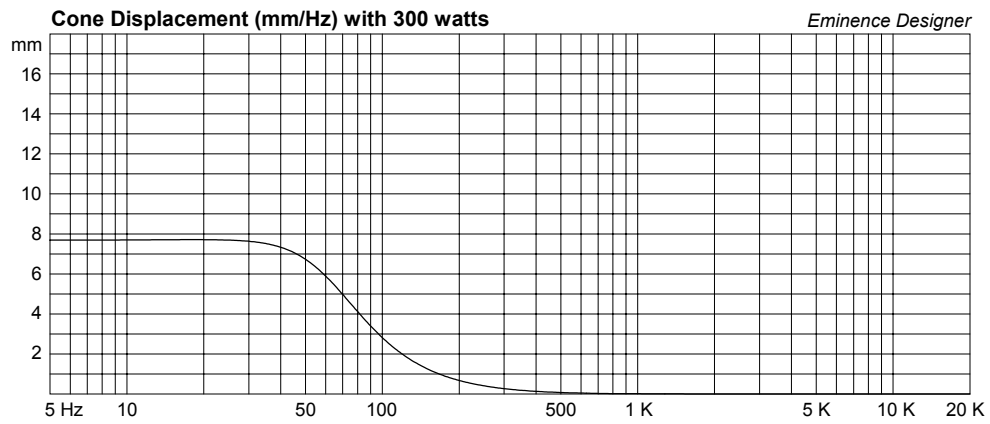
Re = 4.29 ohms

Le = 1.48 mH

Z = 6 ohms

Pe = 400 watts





LAB12 Larger Vented Subwoofer Cabinet

By McJerry, Eminence Speaker LLC

Displacement Limited to 200 Watts; F3 of 25 Hz. Must use a steep high pass filter set to 20 Hz to protect woofer from overexcursion.

Box Properties

--Description--

Name:

Type: Vented Box

Shape: Prism, square

--Box Parameters--

Vb = 3.2 cu.ft

V(total) = 3.509 cu.ft

Fb = 25 Hz

QL = 7

F3 = 25.24 Hz

Fill = minimal

--Vents--

No. of Vents = 2

Vent shape = round

Vent ends = one flush

Dv = 3 in

Lv = 16.25 in

Driver Properties

--Description--

Name: LAB 12

Type: Standard one-way driver

Company: Eminence Speaker LLC

Comment: Revised NOV 2005

Piston: Kevlar-reinforced cone.

Suspension: Foam surround.

Dust Cap: Dual inverted dust caps

Frame: Diecast aluminum basket.

Voice Coil: 2.5 inch (63.5 mm) copper

Magnet: Double-stacked 80 oz ferrite

--Configuration--

No. of Drivers = 1

--Driver Parameters--

Fs = 22 Hz

Qms = 13.32

Vas = 125.2 liters

Xmax = 13 mm

Sd = 506.7 sq.cm

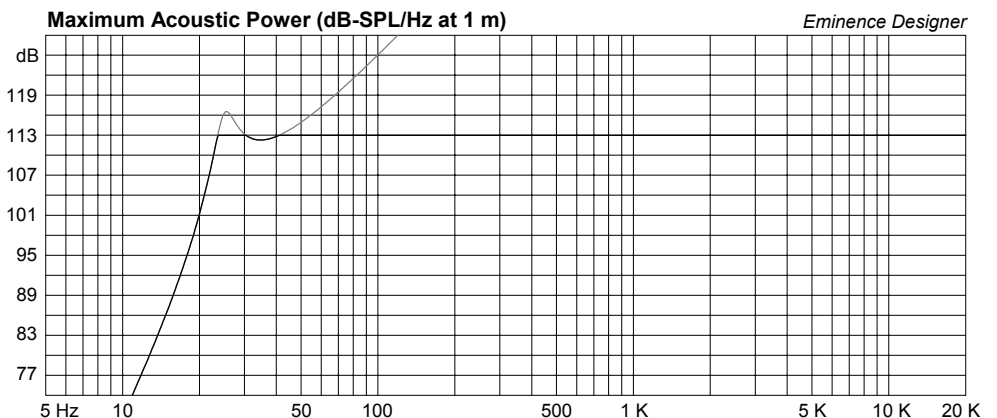
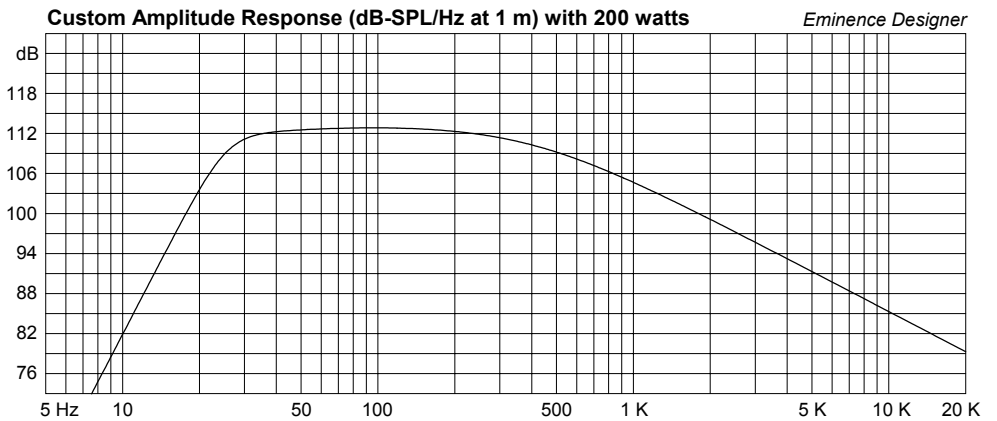
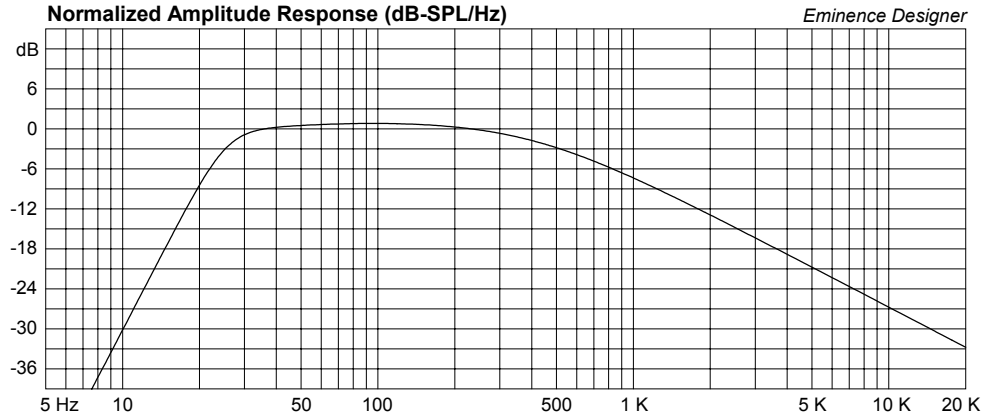
Qes = 0.39

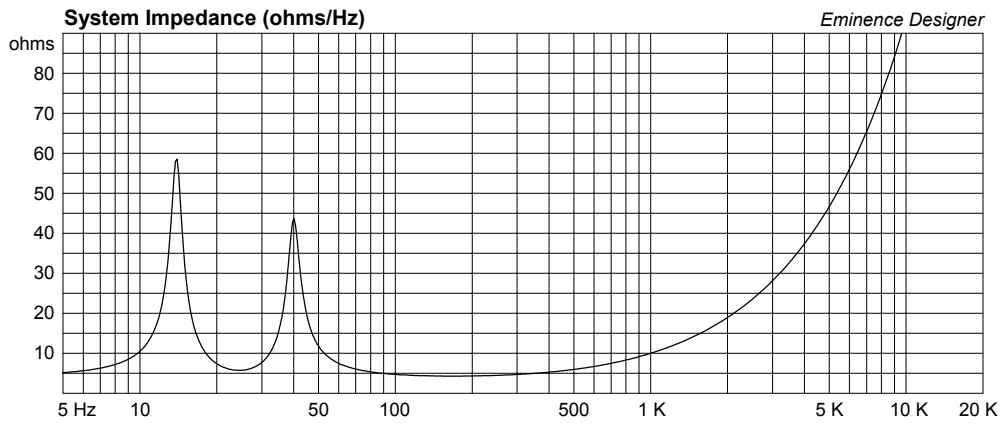
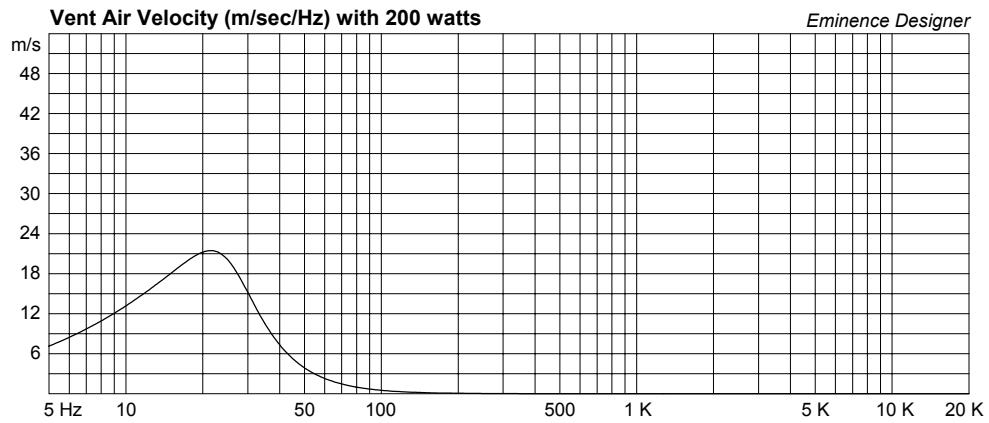
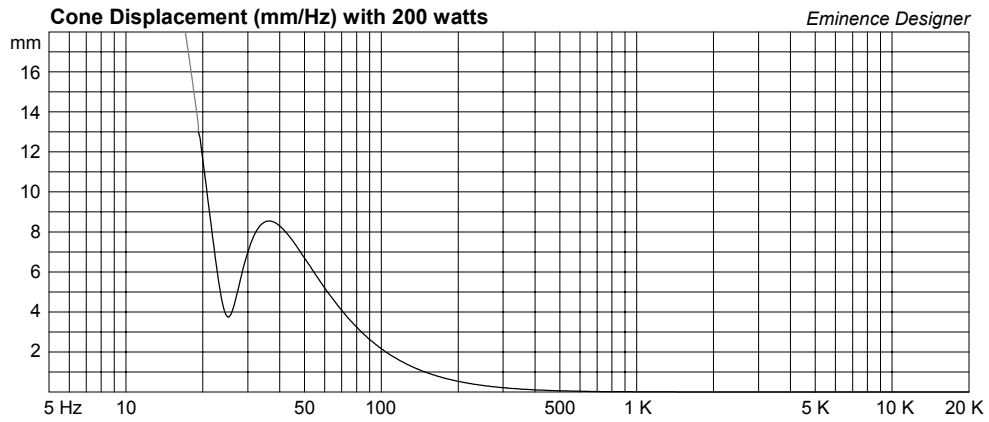
Re = 4.29 ohms

Le = 1.48 mH

Z = 6 ohms

Pe = 400 watts





LAB12 Med Vented Subwoofer Cabinet

By McJerry, Eminence Speaker LLC

Thermally Limited to 400 Watts; F3 of 33Hz. Use a steep high pass filter set to 30 Hz to protect woofer from overexcursion.

Box Properties

--Description--

Name:

Type: Vented Box

Shape: Cube

--Box Parameters--

Vb = 2.25 cu.ft

V(total) = 2.529 cu.ft

Fb = 38 Hz

QL = 7

F3 = 33.02 Hz

Fill = minimal

--Vents--

No. of Vents = 2

Vent shape = round

Vent ends = one flush

Dv = 3.5 in

Lv = 12.44 in

Driver Properties

--Description--

Name: LAB 12

Type: Standard one-way driver

Company: Eminence Speaker LLC

Comment: Revised NOV 2005

Piston: Kevlar-reinforced cone.

Suspension: Foam surround.

Dust Cap: Dual inverted dust caps

Frame: Diecast aluminum basket.

Voice Coil: 2.5 inch (63.5 mm) copper coil.

Magnet: Double-stacked 80 oz ferrite

--Configuration--

No. of Drivers = 1

--Driver Parameters--

Fs = 22 Hz

Qms = 13.32

Vas = 125.2 liters

Xmax = 13 mm

Sd = 506.7 sq.cm

Qes = 0.39

Re = 4.29 ohms

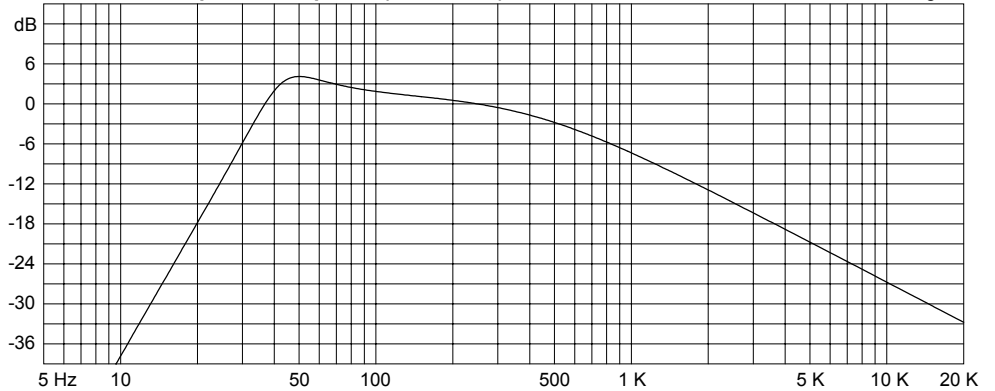
Le = 1.48 mH

Z = 6 ohms

Pe = 400 watts

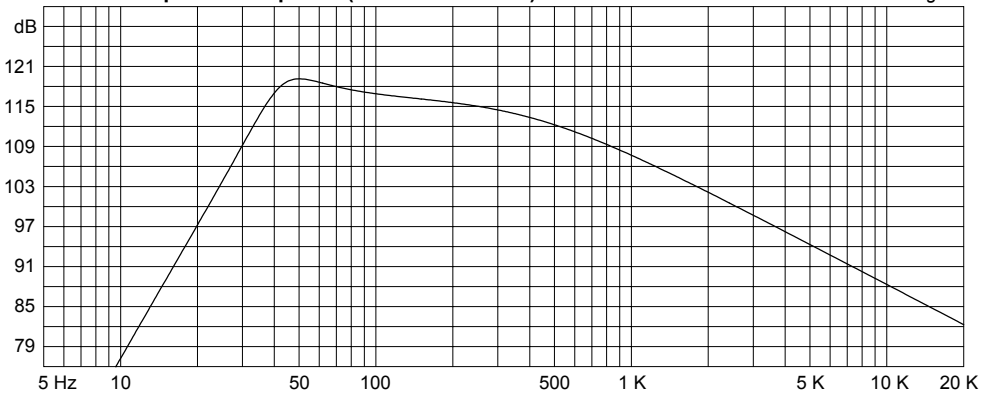
Normalized Amplitude Response (dB-SPL/Hz)

Eminence Designer



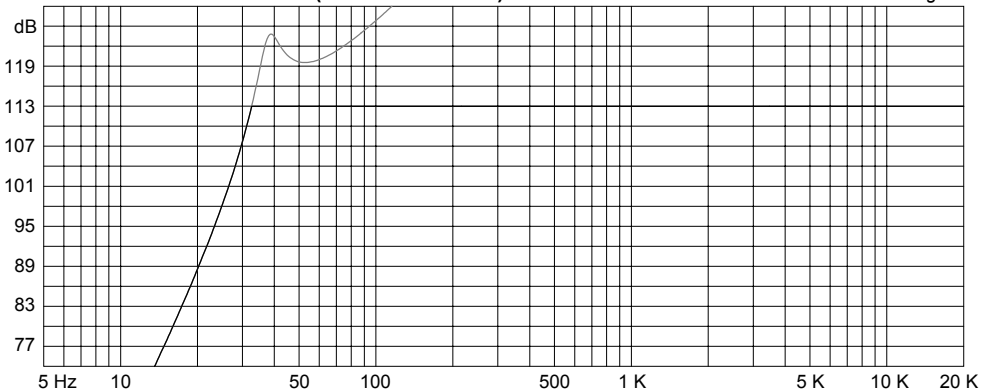
Custom Amplitude Response (dB-SPL/Hz at 1 m) with 400 watts

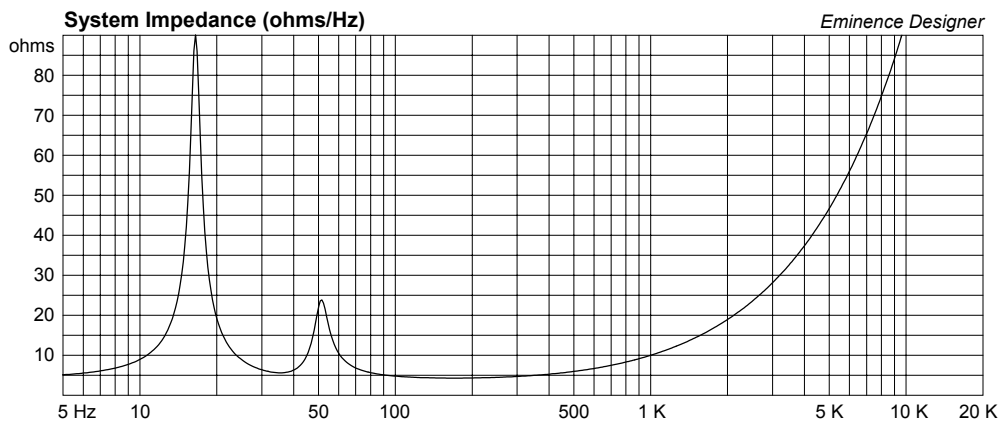
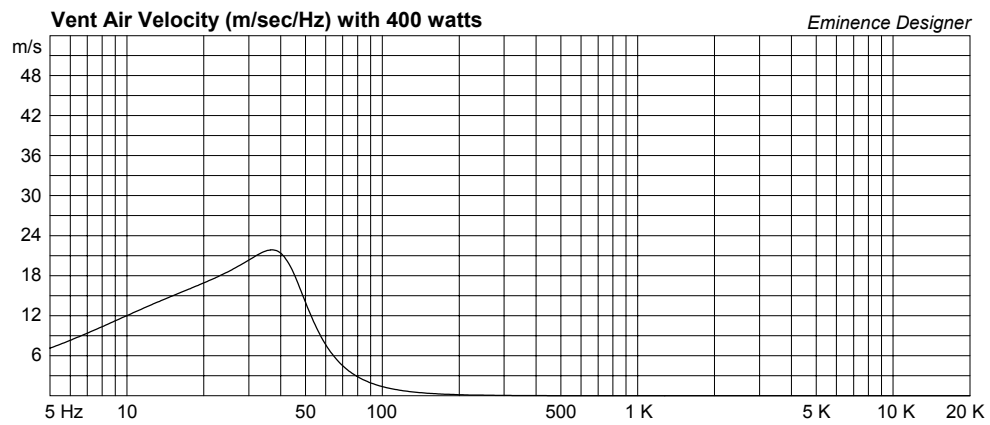
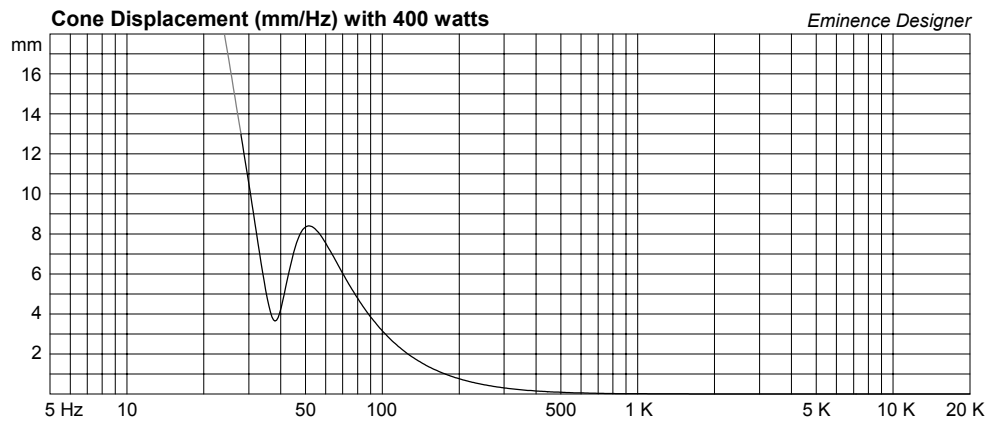
Eminence Designer



Maximum Acoustic Power (dB-SPL/Hz at 1 m)

Eminence Designer





LAB12 Small Sub or Bass Guitar Extreme Bottom End

By McJerry, Eminence Speaker LLC

Thermally Limited to 400 Watts; F3 of 40 Hz. Use a steep high pass filter set to 30 Hz to protect woofer from overexcursion.

Box Properties

--Description--

Name:

Type: Vented Box

Shape: Prism, square

--Box Parameters--

Vb = 1.4 cu.ft

V(total) = 1.66 cu.ft

Fb = 44 Hz

QL = 7

F3 = 39.32 Hz

Fill = minimal

--Vents--

No. of Vents = 2

Vent shape = round

Vent ends = one flush

Dv = 3 in

Lv = 11.05 in

Driver Properties

--Description--

Name: LAB 12

Type: Standard one-way driver

Company: Eminence Speaker LLC

Comment: Revised NOV 2005

Piston: Kevlar-reinforced cone.

Suspension: Foam surround.

Dust Cap: Dual inverted dust caps

Frame: Diecast aluminum basket.

Voice Coil: 2.5 inch (63.5 mm) copper

Magnet: Double-stacked 80 oz ferrite

--Configuration--

No. of Drivers = 1

--Driver Parameters--

Fs = 22 Hz

Qms = 13.32

Vas = 125.2 liters

Xmax = 13 mm

Sd = 506.7 sq.cm

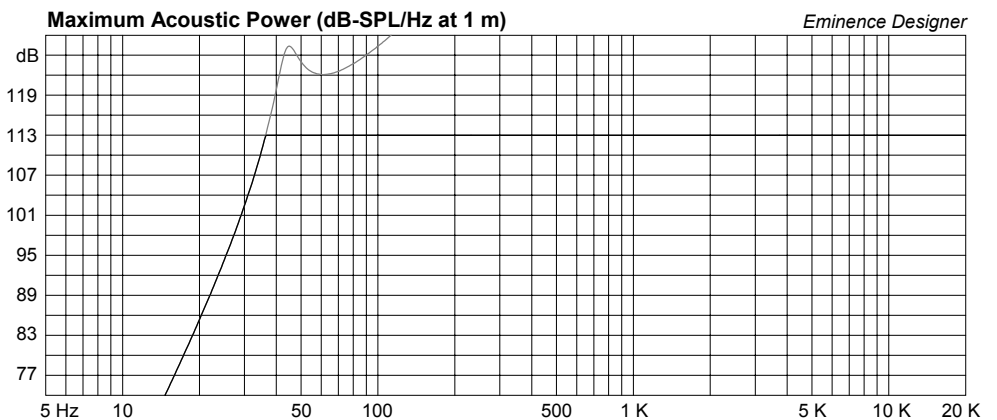
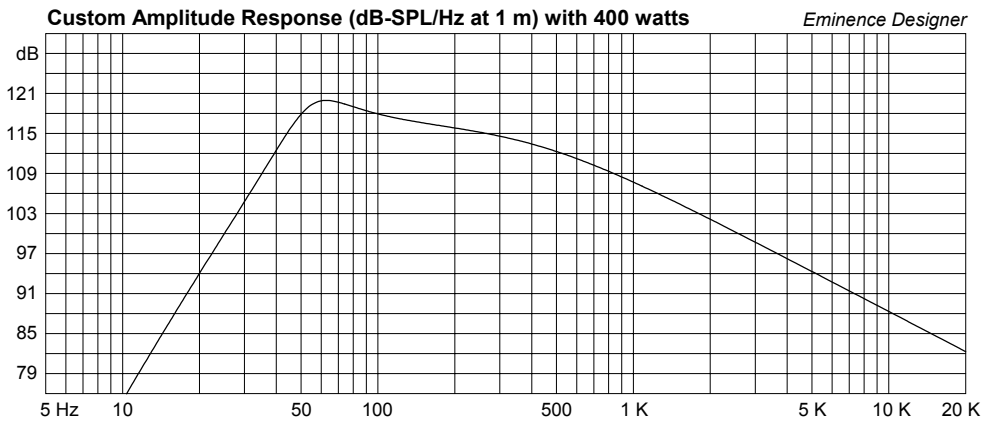
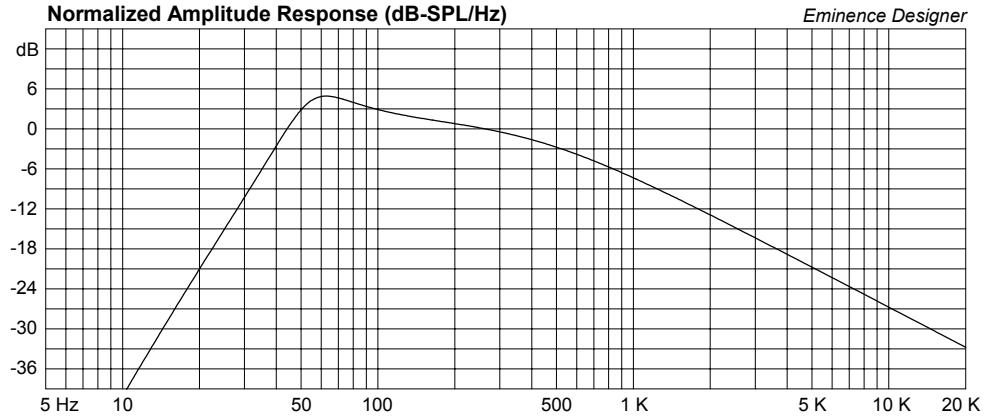
Qes = 0.39

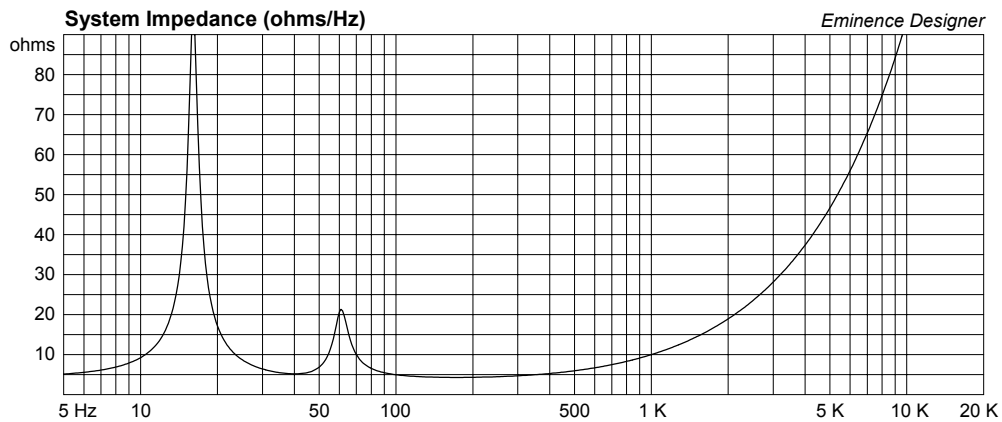
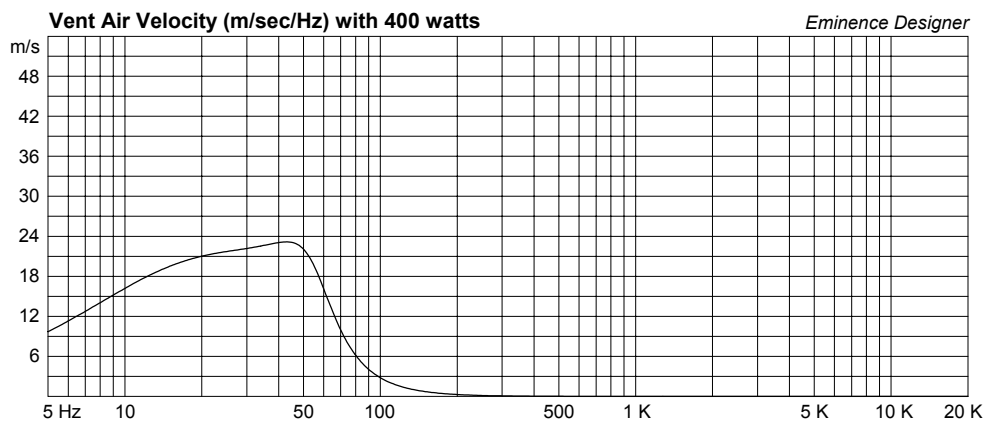
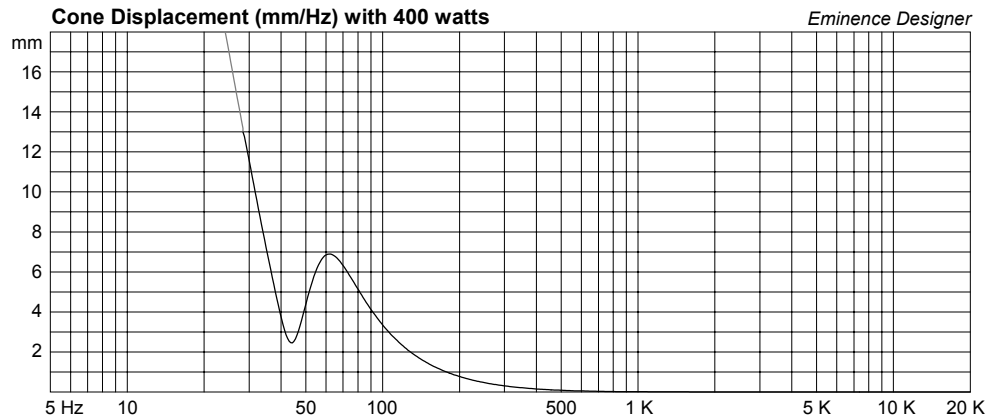
Re = 4.29 ohms

Le = 1.48 mH

Z = 6 ohms

Pe = 400 watts





The LABHorn design has five points that you must consider when using them:

1. You can't hear the driver distort when you push them too hard. Therefore, most people don't know when to turn them down. They push them until they break. It takes a while to get used to the extra clean sound of this cabinet and learn how hard you can push it.
2. They were designed to be used in groups of 4 to 6 cabinets to get the desired SPL at very low frequencies (below 45Hz). Many people are running them as singles and trying to EQ the bottom end to get more low bass output. This pushes the drivers past their safe operating range very quickly. If you need a lot of very low bass, use more cabinets.
3. When one driver quits working, the other driver will fail too because they both fire into a common high pressure cavity. The user needs to look upon the drivers as a single (more expensive) driver. You always need to use two, so buy two.
4. Air leaks will kill the driver. The driver has a VERY loose suspension and requires that the small chamber behind it be absolutely air tight.
5. You must use a high pass filter set to 35 Hz and that has a slope of at least 24dB per octave to realize the real potential of the design. Many people are using huge power on these cabinets everyday, but they are the ones who run steep high pass filters on them.