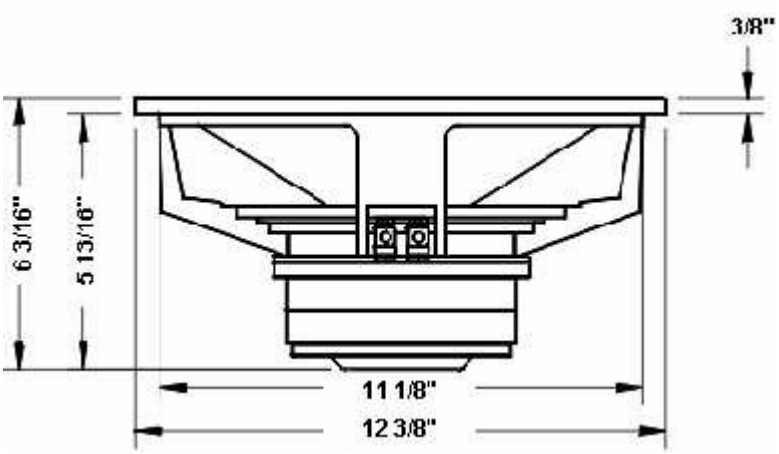
The Cast-Frame SV12 Subwoofer

Successor to the legendary DV12 subwoofer. The SV12 offers a number of significant improvements resulting in even higher output levels and less distortion than the DV12! The SV12 is the ultimate 12" subwoofer driver & like all ACI products, the SV12 is affordably priced.

- Improved suspension linearity for even lower distortion, higher output
- Nominal Diameter: 12", Impedance: 4 ohms, Range: 15-500Hz
- RMS Power: 350 watts, System Power: 500 watts, Sensitivity: 90 db
- Magnet mass: 1930 grams, BL: 8.9 Tm, Fs: 17.5 Hz
- Qms: 8.35, Qes: .41, Qts: .395
- Vas: 250 liters, Cms: 1041.67, Mms: 99 grams, Mmd: 93 grams
- Xmax (linear one way): 12.87 mm, Voice Coil Diameter: 2"
- Voice Coil Height: 31.75 mm, Air Gap Height: 9.652 mm
- Voice Coil Inductance: 1.45 mh, Voice Coil Resistance: 2.97 ohms
- 12 3/8" overall width, hole size 11 1/8" Flange depth 3/8" (1/2" with gasket)
- Overall depth from front of flange to rear of magnets: 6"

The SV12 features: custom designed, ultra-long vented pole piece, and rigid long-fiber ribbed cone with new, larger, linear sanoprene surround. New, larger, hybrid magnet structure. The super long throw of the SV12 results in exceptionally low distortion at low frequencies. The SV12 offers excellent sound quality and long term reliability!

Diagram Of the SV12:



Suggested SV12 Applications:

Sealed or aperiodic enclosures of <2.0 to 5 cubic feet, Vented fourth-order alignments, Electronically assisted higher-order alignments, Infinite baffle systems, Free-air, electronically assisted dipolar systems, Bandpass woofer systems

Box Volume	Box Resonance	QL	Q/Ripple	Port 1*	F3	F10
2.0 sealed	41Hz	7	.92	-----	32Hz	22Hz
3.0 sealed	35Hz	7	.78	-----	31Hz	20Hz
4.0 sealed	31Hz	7	.7	-----	30Hz	18Hz
4.0 vented	15Hz	7	+ .4db	4"x35"	26Hz	16Hz
7.0 vented	16Hz	7	0 db	4"x16"	20Hz	13Hz

Note: This is a small sample of suggested box alignments. Many more are shown below.

**1 All ports calculated using 4" I.D. tubing (12.57 sq. in.). This is the approx. min. area required for low turbulence.*

**2 All calculations assume a .5ohm series resistance (wiring, output impedance of driving amplifier). A greater series resistance will require a slightly larger box size to attain the same performance.*

More SV12 Alignments:

Box Volume	**Box Resonance**	**QL**	**Q/Ripple**	**Port 1***	**F3**	**F10**
1.5 sealed	46Hz	7	1.	-----	35Hz	26Hz
2.0 sealed	41Hz	7	.92	-----	32Hz	22Hz
2.5 sealed	37Hz	7	.83	-----	32Hz	21Hz
3.0 sealed	35Hz	7	.78	-----	31Hz	20Hz
3.5 sealed	33Hz	7	.74	-----	30Hz	18Hz
4.0 sealed	31Hz	7	.707	-----	30Hz	18Hz
4.5 sealed	30Hz	7	.67	-----	30Hz	17Hz
5.0 sealed	29Hz	7	.66	-----	30Hz	17Hz
5.5 sealed	28Hz	7	.64	-----	31Hz	16Hz
6.0 sealed	28Hz	7	.62	-----	31Hz	16Hz
8.0 sealed	25Hz	7	.57	-----	31Hz	16Hz
3.0 vented	22Hz	7	+ 2db	4"x18.5"	27Hz	19Hz

Box Volume	Box Resonance	QL	Q/Ripple	Port 1*	F3	F10
4.0 vented	21Hz	7	+ 1.3db	4"x16.4"	24Hz	17Hz
4.0 vented	15Hz	7	+ .4 db	4"x35"	26Hz	16Hz
4.5 vented	15Hz	7	0 db	4"x31"	25Hz	15Hz
5.0 vented	15Hz	7	0 db	4"x27.3"	24Hz	14Hz
6.0 vented	15Hz	7	0 db	4"x22.3"	22Hz	13Hz
6.5 vented	15Hz	7	0 db	4"x20.3"	22Hz	12Hz
7.0 vented	16Hz	7	0 db	4"x16"	20Hz	13Hz

This is a sample of possible box alignments. Choose the box size and response characteristics to match your requirements.

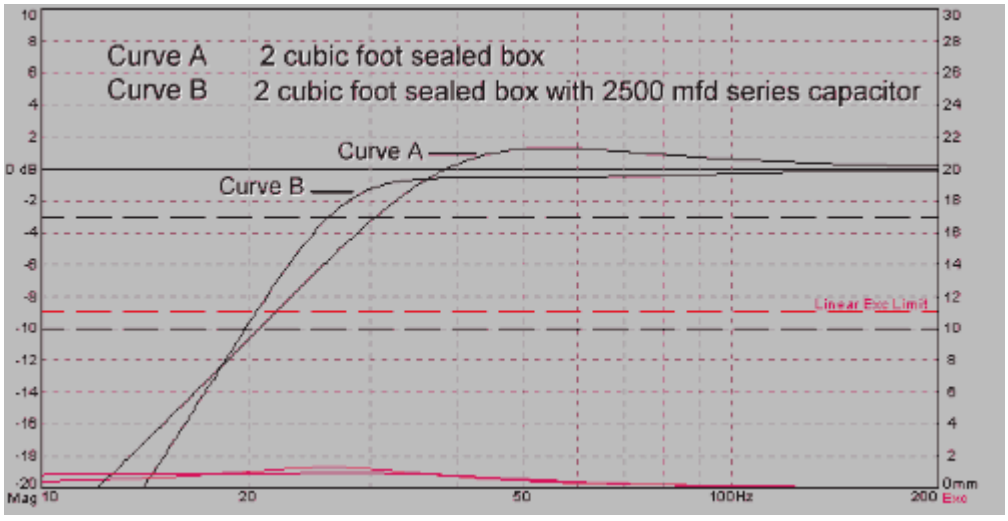
**1 All ports calculated using 4" I.D. tubing (12.57 sq. in.). This is the approx. min. area required for low turbulence.*

**2 All calculations assume a .5ohm series resistance (wiring, output impedance of driving amplifier). A greater series resistance will require a slightly larger box size to attain the same performance.*

A Third-Order Sealed System:

A 3rd order sealed system modifies the system response with the use of a series capacitor. In this manner, it is sometimes possible to achieve a desired response characteristic from a cabinet that is smaller than optimum for a sealed box response. The capacitor is inserted in the positive input to the woofer and is usually very large in value.

- The capacitor must be non-polarized
- The capacitor must be rated for at least 100 volts
- Generally you will need to parallel a group of capacitors to reach the desired value. Example; To reach 2000 mfd. use four 500 mfd. capacitors in parallel.



This example features an SV12 woofer in a two cubic foot enclosure. Note that the use of the series capacitor results in some loss of system efficiency. However, the curve now extends significantly lower in frequency without the peaking of the unassisted box.

Additional SV12 build information:

Voice Coil
High purity 26gauge, round copper wire with ultra-high temperature coating
Epoxy adhesive used to bond wire to former
New Apical former increases power handling
Nomex collar material further improves power handling

Magnet Structure
Magnets used are “top of the line” US made Strontium Ferrite
Controlled consistency and high strength are assured from batch to batch
Back and Front Plates are black coated for better heat transfer, higher power handling

Adhesives
The strongest adhesives available are used throughout the construction of these woofers
Structural adhesives bonding the magnet structure are stronger than the magnets themselves
Epoxies used on the voice coil assembly are many times stronger than needed
Shock and shear strength are the highest possible
The added cost of these adhesives are not deemed necessary by the competition

Manufacturing tolerances
The use of CNC machined steel plates allows us to narrow voice coil gap tolerances which vastly improves performance
Both heat and magnetic transfer are improved exponentially with each halving of the air gap tolerance
Our extra long coils dictate precise centering of the voice coil in the gap. Precision stainless steel and Teflon fixtures insure tolerances that are nearly twice as precise as that of the competition

Distortion
The use of extended pole pieces and massive magnets improves voice coil linearity and excursion capability. Distortion is thus lowered and total output is increased

Surround
The SV-12 now uses an improved Synthetic rubber, (Sanoprene), surround to increase travel and lower distortion. This “large roll” allows more output and deeper bass.

Spider
Flat, Rubber / resin impregnated cotton