



KAR SERIES

Precision Engineered Subwoofer

www.Arcaudio.com

KAR *EXTREME* SUBWOOFER



KAR EXTREME 10.2

KAR EXTREME 104

KAR EXTREME 12.2

KAR EXTREME 124

SPEAKER SPECIFICATIONS

	Extreme 10.2	Extreme 10.4	Extreme 12.2	Extreme 12.4	
IMP	1 or 4 ohm	2 or 8 ohm	1 or 4 ohm	2 or 8 ohm	Impedance
Re	1.8 ohm ea coil	3.6 ohm ea coil	1.8 ohm ea coil	3.6 ohm ea coil	DC Resistance
Fs	29.8Hz	28.3Hz	22.1	25.1	Resonant Frequency
Qes	0.435	0.594	0.552	0.477	Electrical "Q"
Qms	7.544	5.777	5.052	6.352	Mechanical "Q"
Qts	0.427	0.539	0.498	0.444	Total "Q"
Vas (cuft)	1.128 cuft	1.667 cuft	3.572 cuft	3.297cuft	Equivalent Volume
Xmax (mm)	15mm	15mm	16mm	16mm	One way Linear
Sd (cm2)	360 cm2	360 cm2	523 cm2	523cm2	Cone Area
SPL (dB)	87dB	87dB	87dB	87dB	1 watt @ 1 meter
RMS Power	350 watts	350 watts	400 watts	400 watts	Continuous
MAX Power	700 watts	700 watts	800 watts	800 watts	Music
Configuration	2 x 2 ohm	4 x 4 ohm	2 x 2 ohm	4 x 4 ohm	Voice Coils

ENCLOSURE RECOMMENDATIONS

	Extreme 10.2	Extreme 10.4	Extreme 12.2	Extreme 12.4
SEALED ENCLOSURES				
Optimum Sealed	1.0 cuft	1.0 cuft	1.0 cuft	1.0 cuft
Small Sealed	.50 cuft	.50 cuft	.65 cuft	.65 cuft
PORTED ENCLOSURES				
Volume	1.3 cuft	1.0 cuft	1.6 cuft	1.6 cuft
Port Frequency	35Hz	35Hz	37Hz	37Hz
Port Quantity	1	1	1	1
Port Area and Length	3"D X 9.5"L	3"D X 9.5"L	4"D X 12"L	4"D X 12"L
PHYSICAL DIMENSIONS				
Displacement	.07 cuft	.07 cuft	.09 cuft	.09 cuft
Cutout Diameter	9 1/4"	9 1/4"	11 1/8"	11 1/8"
Mounting Depth	5 1/2"	5 1/2"	6 1/2"	6 1/2"

Useful Information

Ultimately the enclosure you build determines the performance of your subwoofer. The size and vent tuning frequency, if you're using a ported box, determine the low-frequency extension and output of the subwoofer. We have designed the KAR Extreme subwoofer to perform well when used in both sealed and ported enclosures.

The acoustics of your vehicle also influence bass response. The small interior size of most cars and trucks boosts low frequencies dramatically. You will need to use a smaller enclosure than normal to achieve a flat bass response. As a rule, below 50Hz (depending on cabin size), bass response increases at about 12dB per octave as the frequency decreases. This "Cabin Gain" adds significant bass output to the subwoofer system.

We have given you two enclosure recommendations that are listed on the previous page. One sealed and one ported. The sealed enclosure design will, in most cases, give you the best sound quality and take up less space in your vehicle. The ported box design will offer more output than the sealed enclosure (about 3 - 4 dB more), but it will reduce the power handling and require more space to install. The recommended ported enclosure is not designed for "competition SPL" performance, it is designed for normal listening. It will increase the low frequencies output and increase the overall volume while still sounding good when properly tuned and installed.

A Note About Power Handling

The KAR Extreme woofers are designed to perform for years without any problems. The RMS power noted under the specifications is the recommended continuous power for long term use. All woofers make heat. It is possible to dissipate only so much of this heat. The woofer can handle as much as twice its rated RMS power for short periods. This is the MAX power rating. Continued use of this woofer at greater than the RMS power rating will result a damaged (burnt) voice coil. This damage is considered abuse and is NOT covered under the warranty.

Small Amp Myth

Under powering a woofer is fine. This woofer will suffer no damage from a 100 watt amp if it is correctly tuned. However, even a small amp that is being over driven (clipped) can destroy a sub. Use your power wisely. Clipping can be heard as a dull thud or a popping sound. If you hear any change in the tone of your subwoofer this is a danger sign. TURN IT DOWN. If you want more volume get a bigger amp or add another woofer.

The Box

A great deal of energy can also be lost in the enclosure. If you box is not strong enough the sides can flex. It take energy to flex the box. This energy is not being converted into sound. In short,

the stronger the box the less energy will be lost in flex and the louder it will be. So build it Strong.

This same thing can happen to the car body. Sound deaden, it will hit harder and sound better.

Building an Enclosure

It is recommended that you use 3/4" MDF (Medium Density Fiberboard) to build an enclosure. Glue all your joints with yellow glue and secure then with screws or nails.

Make sure the enclosure will fit and that you have adequate room to get it in and out of the vehicle.

Calculating Enclosure Volume

It is difficult to give exact box dimensions that are universal for all cars and trucks. It is for this reason that you must be able to calculate the space in which you have available in order to achieve the proper air volume required.

Calculating External Volume

1) To calculate box volume, measure the outside Width x Height x Depth of the enclosure.

Example $12" \times 14" \times 9" = 1512$ cubic inches.

2) Next you must convert cubic inches into cubic feet. To do this, you must divide the cubic inch total by 1728 .

Example $1512 \text{ cu in} \div 1728 = .875$ Cubic feet.

Calculating Internal Volume

1) To calculate the internal (net) volume of the above box you must first multiply the thickness of the wood you are using by Two (2).

Example: $\frac{3}{4}" \times 2 = 1 \frac{1}{2}"$

2) Next subtract 1.5" from each of the outside measurements of the box. Width $12" - 1.5" = 10.5"$. Height $14" - 1.5" = 12.5"$. Depth $9" - 1.5" = 7.5"$

3) Multiply the new totals (H x W x D)

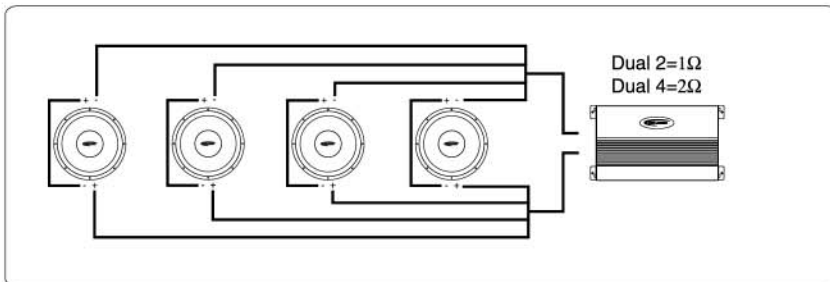
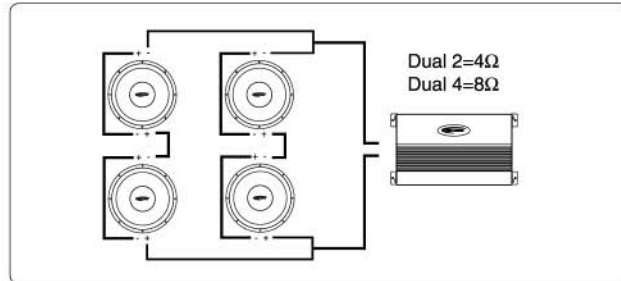
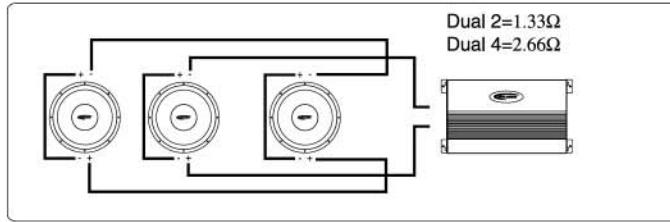
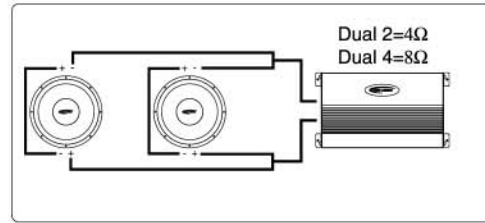
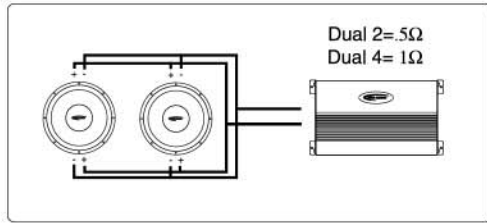
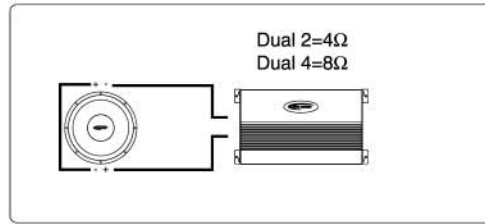
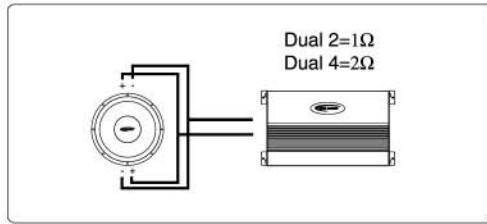
Example: $10.5" \times 12.5" \times 7.5" = 984.375$ cubic inches.

4) Next you must convert cubic inches into cubic feet. To do this, you must divide the cubic inch total by 1728.

Example $984.375 \div 1728 = .5696$ cubic feet.

For additional information call ARC Audio Tech support at:

209-543-8706



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