



Precision Engineered Subwoofer

ARC Series Subwoofers

(MADE IN THE USA)

Owners Manual for-

Arc10D2 V3
Arc10D4 V3
Arc12D2 V3
Arc12D4 V3



WWW.ARCAUDIO.COM

Recommended Enclosures

Arc Series 10

Arc Series 12

Sealed-
Volume -
(Gross)

Optimum
.65 cuft

Max.
.8 cuft

Optimum
1.0 cuft

Max.
1.25 cuft

Ported-

Volume-
(Gross)

1.25 cuft

.9 cuft

2.0 cuft

1.3 cuft

Port -(Single)
Dimensions

3" (Round port)
23" (Length)

3" (Round port)
14" (Length)

3" (Round port)
13" (Length)

3" (Round port)
10" (Length)

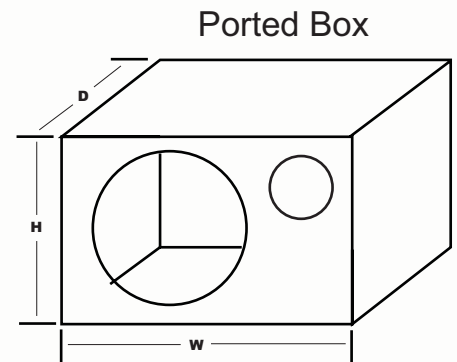
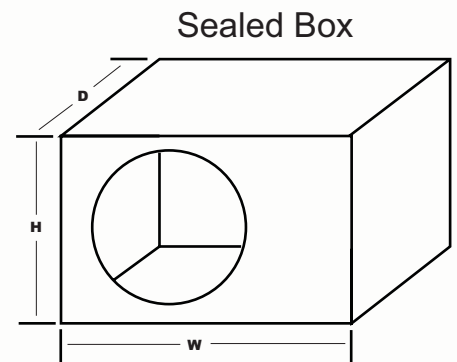
Tuning Freq.

26Hz

38Hz

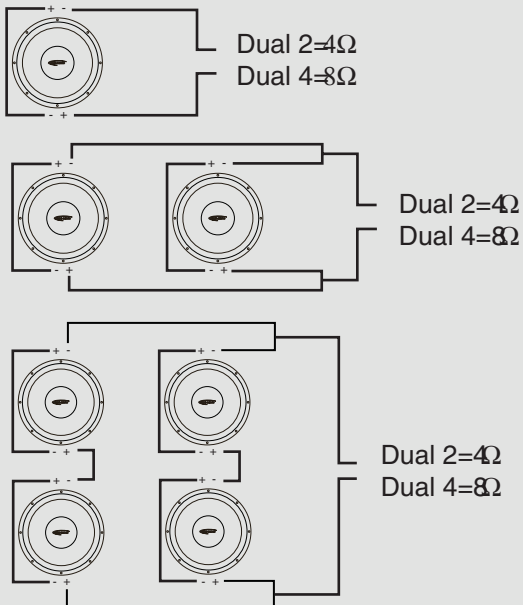
26hz

36hz

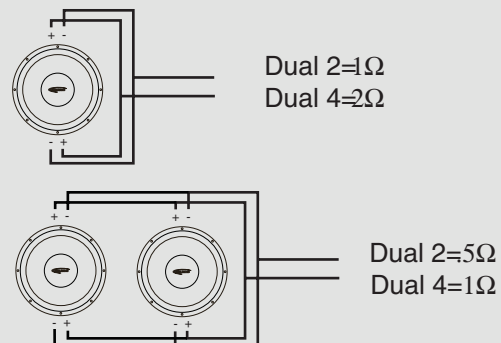


Wiring Options

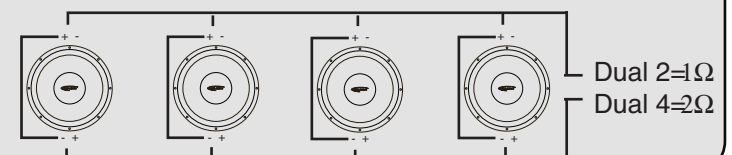
Wired in Series



Wired in Parallel



Wired in Series Parallel



Useful Information

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 ARC Audio 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

ARC Audio 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.

Physics

"Energy cannot be created or destroyed, only change forms". What does this mean? Your amp does not make power, it takes power from your battery and converts it into a different form. The subwoofer is just another kind of converter. It changes AC voltage from the amp into changes in air pressure (that's all sound is) and HEAT. The more energy being converted the more heat. A speaker can not reproduce DC voltage (produced when an amp clips) but this energy must go somewhere. It is all converted into heat. This is why clipping is so dangerous to a speaker.

A great deal of energy can also be lost in the enclosure. If your box is not strong enough the sides will flex. It takes 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. So build it Strong.

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

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 them 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

Speaker Specifications and Parameters

	ARC10D2	ARC10D4	ARC12D2	ARC12D4
Revc(In Series)-	4.030 ohms	7.810 ohms	4.040 ohms	7.88 ohms
Fo-	23.375 Hz	23.484 Hz	22.852 Hz	23.178 Hz
Sd-	31.400m	31.400m	47.000m	47.000m
Krm-	3.447m ohm	6.354m ohm	5.147m ohm	8.035m ohm
Erm-	.956	.938	.933	.935
Kxm-	80.024 mh	114.966 mh	84.351 mh	151.007 mh
Exm-	.650	.661	.659	.640
Vas-	45.756 Ltr	48.366 Ltr	74.430 Ltr	76.276 Ltr
Cms-	326.811 uM/N	345.454 uM/N	237.282 uM/N	243.165 uM/N
Mmd-	138.659mKg	129.757mKg	198.556mKg	188.038mKg
Mms-	141.858 g	132.956 g	204.415 g	193.897 g
BL-	13.949	18.355	15.895	20.423
Qms-	4.094	3.865	3.679	3.833
Qes-	.431	.455	.469	.533
Qts-	.390	.407	.416	.468
No-	.131%	.133%	.183%	.172%
Splo	14.437k	14.560k	17.067k	16.553k

Arc Audio Warranty and Service Guidelines

Arc Audio warrants all new products against defects in material and workmanship for a period of **ONE (1) YEAR** from the original date of purchase from an **AUTHORIZED ARC AUDIO RETAILER**. This warranty is not transferable and applies to the **original retail purchaser** of the product from an **AUTHORIZED ARC AUDIO RETAILER**. Upon inspection by ARC AUDIO, should services be necessary under this warranty for any reason due to manufacture defects ARC AUDIO will, at its sole discretion, repair or replace the defective product with new or similar conditioned product at no charge.

THIS WARRANTY DOES NOT COVER INSTALLATION OR DAMAGE RESULTING FROM ACCIDENT, MISUSE, ABUSE, IMPROPER WIRING, OPERATION OUTSIDE OF MANUFACTURES SPECIFICATIONS, OR AGAINST INSTRUCTIONS IN OWNERS MANUAL. IN ADDITION ANY PRODUCT THAT HAS BEEN OPENED, TEMPERED WITH OR MODIFIED, OR IF THE SERIAL NUMBERS HAVE BEEN REMOVED OR ALTERED WILL NOT BE COVERED BY ANY PART OF THE MANUFACTURES WARRANTY.

All warranty returns should be sent to ARC AUDIO freight prepaid and must be accompanied by proof of purchase (a copy of the original printed sales receipt). Direct returns from consumers or non-authorized retailers will be refused unless specifically authorized by ARC AUDIO with a valid return authorization number. **All warranty returns must be packed in the original packaging and be accompanied by a copy of the original printed sales receipt. Product damaged in shipment due to improper packaging will not be covered under this warranty and the customer or retailer will be charged full cost to repair the specific piece of product to a like new or similar condition.**

In no event will ARC AUDIO be liable for incidental, consequential or other damages resulting from the use of this product, this includes but is not limited to, damage or hearing, property or person, damage based upon inconvenience or on loss of use of the product, and to no extent permitted by law, damages for personal injury. This warranty gives you specific legal rights, and you may have other rights, which vary from state to state. This warranty applies to products sold and used in the United States of America. In other countries please contact your distributor.

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