



# JBL Arena X Subwoofer



reddot winner 2021



**Owner's Manual**

EN

**Manual del propietario**

ES

**Mode d'emploi**

FR

**用户手册**

ZH-CN

**Manual Pengguna**

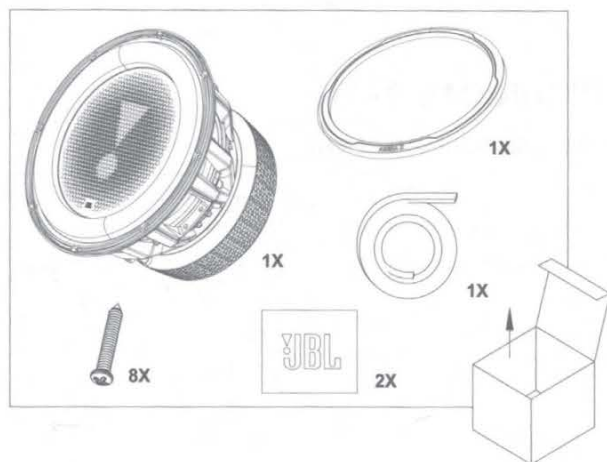
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## THANK YOU FOR CHOOSING A JBL ARENA X SUBWOOFER

It has been designed to suit a broad range of car audio applications and can be used in a wide variety of enclosure types to produce extended, powerful bass in a limited amount of vehicle space. To get the most performance from your new subwoofer, it is strongly recommended that you have a qualified professional install it. Although this manual provides general instructions about installing the subwoofer, it does not include enclosure construction details or exact installation methods for any particular vehicle. If you do not feel that you have the necessary experience, do not attempt the installation yourself, but instead ask your authorized JBL dealer about professional installation options.

Remember to keep your sales receipt in a safe place, along with this manual, so that both are available for future reference.

## WHAT'S IN THE BOX



## WARNING

Playing loud music in a vehicle can hinder your ability to hear traffic and can permanently damage your hearing. The maximum volume levels achievable by JBL speakers when combined with high-power amplification may exceed safe levels for extended listening. Using low-volume levels is recommended when driving. JBL, Inc., accepts no liability for hearing loss, bodily injury, or property damage as a result of use or misuse of this product.

## REPRODUCING BASS IN VEHICLES

Depending on the size of your vehicle's interior listening space, reproduced bass frequencies below 80Hz will be boosted by nearly 12dB per octave as frequency decreases. This phenomenon, known as the vehicle's transfer function (or cabin gain), plays an important role in shaping the subwoofer's frequency response in your vehicle.

## SUBWOOFER ENCLOSURE TYPES

The subwoofer is designed to perform best in moderately sized sealed enclosures, vented enclosures, and prefabricated bandpass enclosures. Infinite-baffle mounting is possible, but the subwoofer's mechanical power-handling will be reduced because

there will be no volume of air to stiffen the subwoofer's suspension and prevent overexcursion. If you choose infinity-baffle mounting, consider the RMS and peak power-handling ratings to be half of what is listed in the specifications in this manual.

You should choose an enclosure type based on the amount of cargo space you can devote to the enclosure, the amount of power you will use to drive your subwoofer(s), and your listening habits.

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## SEALED ENCLOSURES

The air trapped inside a sealed enclosure is compressed when the subwoofer moves rearward and is rarefied when the subwoofer moves forward. In both cases, the air inside and outside the box will seek equilibrium by pushing and pulling on the subwoofer cone. The result is a stiffer suspension when compared to the subwoofer operating in free air. This means that the subwoofer's cone will be harder to move at low frequencies, a condition which protects the subwoofer from physical overexertion, but requires more power than other designs to achieve a given acoustic output.

## SEALED ENCLOSURE PERFORMANCE ADVANTAGES

- The in-vehicle performance will have the flattest overall frequency response.
- The in-vehicle response will have the widest bandwidth. (Usable low-frequency response inside the vehicle will be below 20Hz.)
- An optimum sealed enclosure will always be smaller than an optimum enclosure of another type.

## SEALED-ENCLOSURE PERFORMANCE TRADE-OFFS

- An optimum sealed enclosure will have lower overall efficiency than an optimum enclosure of another type.
- A subwoofer in an optimum sealed enclosure will require more amplifier power to achieve a given acoustic output than in an optimum enclosure of another type.

## SEALED-ENCLOSURE CONSTRUCTION

Sealed-enclosure construction is straightforward and forgiving of errors in volume calculation, but air leaks should be avoided. Use medium-density fiberboard (MDF), glue and screws to construct the enclosure, and seal all joints with silicone caulk.

## RECOMMENDATION

Subwoofers in sealed enclosures are recommended for enthusiasts who prefer accurate music reproduction and flat frequency response, for those who have a smaller space to devote to a subwoofer enclosure, and for those who have plenty of amplifier power devoted to driving the subwoofer. The sealed-enclosure design indicated in this manual represents the best compromise between low-frequency extension and flat response.

## VENTED ENCLOSURES

A vented enclosure acts like a sealed enclosure at frequencies above its tuned (resonance) frequency. At resonance (which is defined by the vent), the vent produces the majority of sound- the subwoofer cone is nearly stationary while the air inside the vent vibrates. This provides greater mechanical power handling at and above resonance, but reduced mechanical power handling below resonance. Since the subwoofer cone and voice coil do not move much at resonance, airflow across the voice coil is minimized and thermal power handling is reduced slightly at resonance.

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Vented enclosures provide better efficiency in the 40Hz – 60Hz range, at the expense of sound output in the lowest octave (below 40Hz). The use of an infrasonic filter is recommended with vented enclosures. An optimum vented enclosure for a Series subwoofer is larger than an optimum sealed enclosure.

## VENTED-ENCLOSURE PERFORMANCE ADVANTAGES

- An optimum vented enclosure has greater efficiency and higher output in the 40Hz – 60Hz range than an optimum sealed enclosure.
- An optimum vented enclosure provides a greater sensation of bass than an optimum sealed enclosure.
- A subwoofer in an optimum vented enclosure will require less amplifier power to achieve a given acoustic output (down to the enclosure's resonance frequency) than in an optimum sealed enclosure.

## VENTED-ENCLOSURE PERFORMANCE TRADE-OFFS

- Reduced output in the lowest octave (below 40Hz).
- Reduced mechanical power handling below the enclosure's resonance frequency. The use of an electronic infrasonic filter is strongly recommended to reduce the chance of overdriving the subwoofer below the enclosure's resonance frequency.
- An optimum vented enclosure will always be larger than an optimum sealed enclosure.

## VENTED-ENCLOSURE CONSTRUCTION

Vented-enclosure construction is more difficult than the construction of a sealed enclosure. The enclosure volume and port dimensions have a specific relationship with the physical and electromechanical characteristics of the subwoofer, requiring that the recommended enclosure volume and port characteristics be strictly observed. As with sealed enclosures, use medium-density fiberboard (MDF), glue and screws to construct the enclosure, and seal all joints with silicone caulk.

## RECOMMENDATION

Subwoofers in vented enclosures are recommended for enthusiasts who prefer accentuated bass response, for those who have plenty of cargo space to devote to a subwoofer enclosure and for those who will use a less powerful amplifier to drive their subwoofer. The volume and port dimensions indicated must be followed precisely to ensure optimum performance.

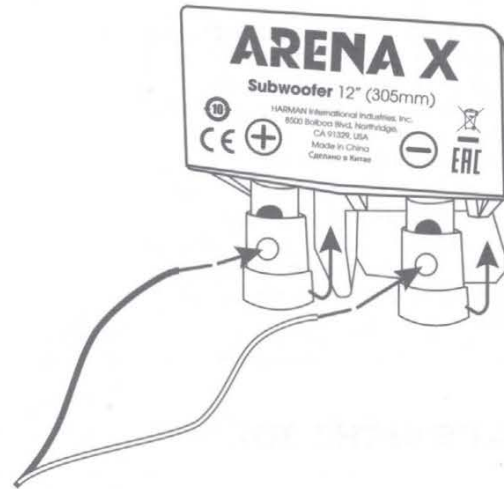
## MOUNTING THE SUBWOOFER

The subwoofers should be mounted from the outside of the enclosure. Use the included foam mounting gasket to ensure a leak-free seal between the subwoofer frame and the enclosure.

## CONNECTING THE AMPLIFIER

The subwoofer connectors are compatible with bare wire ends. The recommended wire gauge is between 14AWG and 8AWG, depending on the length of the wire run between the amplifier and woofer. Heavier gauge wire is preferred for runs over 6' (2m).

To connect the speaker wire coming from your amplifier, push down on the terminal to expose the connection hole. Thread the bare wire end through the hole, then release the terminal to secure. Be sure to observe proper wire polarity for maximum performance.

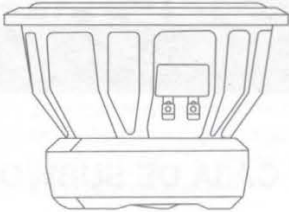


## TECHNICAL DATA

### THIELE-SMALL PARAMETERS

|                               |                             |         |
|-------------------------------|-----------------------------|---------|
| Voice coil DC resistance:     | $R_{EVC}$ (OHMs)            | 1.56    |
| Voice coil inductance @ 1kHz: | $L_{EVC}$ (mH)              | 0.9     |
| Driver radiating area:        | $S_D$ (IN <sup>2</sup> )    | 76.085  |
|                               | $S_D$ (CM <sup>2</sup> )    | 490.87  |
| Motor force factor:           | $BL$ (T <sub>M</sub> )      | 10.287  |
| Compliance Volume:            | $V_{AS}$ (FT <sup>3</sup> ) | 2.203   |
|                               | $V_{AS}$ (Liters)           | 57.345  |
| Suspension compliance:        | $CMS$ (μM/N)                | 168     |
| Moving mass, air load:        | $M_{MS}$ (Grams)            | 223.241 |
| Free-air resonance:           | $F_S$ (Hz)                  | 26      |
| Mechanical Q:                 | $Q_{MS}$                    | 8.813   |
| Electrical Q:                 | $Q_{ES}$                    | 0.537   |
| Total Q:                      | $Q_{TS}$                    | 0.507   |
| Magnetic-gap height:          | $H_{AG}$ (IN)               | 0.394   |
|                               | $H_{AG}$ (mm)               | 10      |
| Voice coil height:            | $H_{VC}$ (IN)               | 1.57    |
|                               | $H_{VC}$ (mm)               | 40      |
| Maximum excursion:            | $X_{MAX}$ (IN)              | 0.591   |
|                               | $X_{MAX}$ (mm)              | 15      |

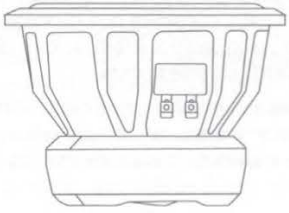
SEALED-BOX VOLUME (INCLUDES DRIVER DISPLACEMENT)



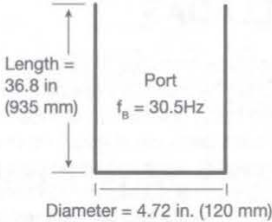
(Side View)

$V_{\text{BOX}} = 0.954 \text{ ft}^3$  (27 liters)  $f_c = 46\text{Hz}$

VENTED-BOX VOLUME (INCLUDES DRIVER DISPLACEMENT)

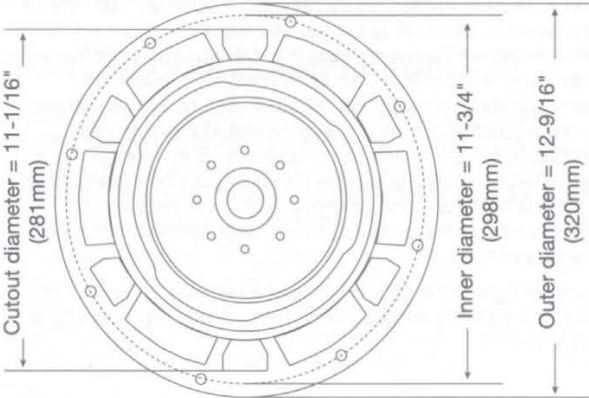
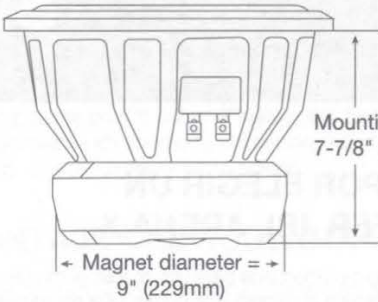


(Side View)



$V_{\text{BOX}} = 1.27 \text{ ft}^3$  (36 liters)

DIMENSIONES



SPECIFICATIONS

|                             |               |
|-----------------------------|---------------|
| Diameter:                   | 12"           |
| Sensitivity (2.83 V @ 1 M): | 86.4 dB       |
| Power handling:             | 800 watts RMS |
| Frequency response:         | 25 Hz - 1 kHz |
| Nominal impedance:          | 2 Ohms        |
| Voice coil diameter:        | 2.5"          |

# 哈曼产品保修卡



机身编号

产品型号: \_\_\_\_\_

销售(安装调试)日期: 20\_\_年\_\_月\_\_日

发票号码: \_\_\_\_\_ (销售者印章)

用户姓名: \_\_\_\_\_

联系电话: \_\_\_\_\_

地址(邮编): \_\_\_\_\_

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合格证

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JBL/INFINITY汽车音响产品提供一年的保修期,自消费者在本公司授权经销商、授权安装点购买之日(即,购买发票所述的日期)起算。

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| 部件名称 | 目标部件             | 有害物质或元素   |           |           |                 |               |                 |
|------|------------------|-----------|-----------|-----------|-----------------|---------------|-----------------|
|      |                  | 铅<br>(Pb) | 汞<br>(Hg) | 镉<br>(Cd) | 六价铬<br>(Cr(VI)) | 多溴联苯<br>(PBB) | 多溴二苯醚<br>(PBDE) |
| 喇叭   | 磁铁, 音盆, 音圈, 金属件等 | ○         | ○         | ○         | ○               | ○             | ○               |
| 喇叭   | 接线柱, 连接线, 盆架     | X         | ○         | ○         | ○               | ○             | ○               |
| 附件   | 说明书, 螺丝包, 包装等    | ○         | ○         | ○         | ○               | ○             | ○               |

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○:表示该有害物质在该部件所有均质材料中的含量均在GB/T 26572规定的限量要求以下。

X:表示该有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572规定的限量要求。



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圆圈中的数字代表产品的正常环保使用年限。

合格证



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