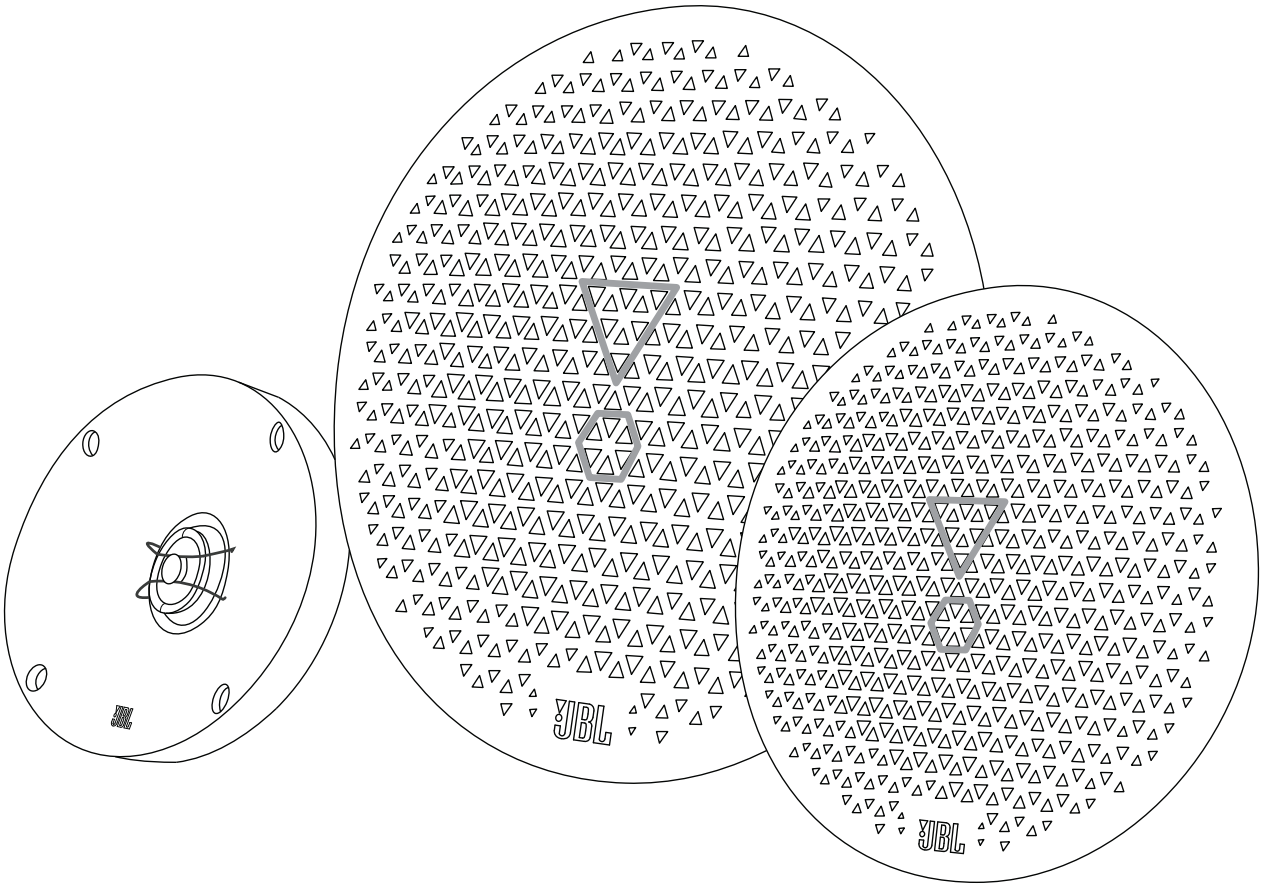
JBL Arena X Component System



reddot winner 2021

Owner's Manual EN

Mode d'emploi FR

Manual de propietario ES

用户手册 ZH-CN

Congratulations!

You have just purchased ARENA X 75 years in the making!

“You only live once!” Live it with Great JBL Sound

Thank you for choosing a JBL Arena X component system. To get the best performance from your new speakers, it is strongly recommended that you have a qualified professional install it. Although this manual provides general instructions about installing the speakers, 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.

PRODUCT OVERVIEW

The JBL Arena X is our 75th Anniversary flagship automotive loudspeaker and is the recipient of the 2021 CES Innovation Award. It is a 3-way system designed to be part of an active DSP system. The attractive magnetic grilles and innovative mounting rings allow for seamless, elegant installation with no visible fasteners.

JBL has long been the go to brand professionals use for recording, performing and installed sound. The JBL Arena X is JBL's Expression of the perfect three-way component system for in-vehicle applications. Virtually every component was engineered to deliver the finest details, the highest level of performance to provide the listener with a truly immersive audio experience.

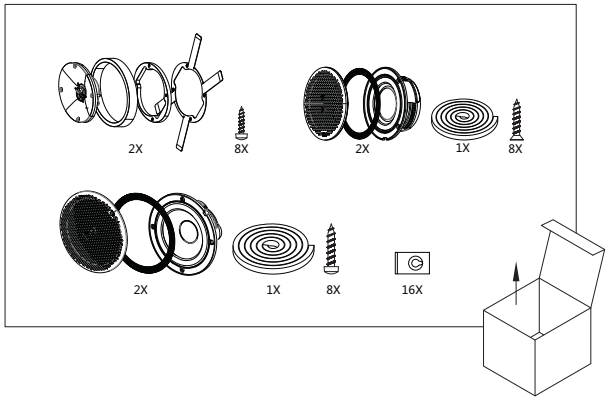
Beryllium - Element 4 on the Periodic Table - is a rare earth metal that is renowned for its remarkable physical properties that make it the ideal material for a high-frequency transducer. Compared to aluminum and titanium tweeter diaphragms, Beryllium offers 4.5 times the stiffness and three times more damping, and does so at only half of the weight. Beryllium tweeters are the centerpiece of the ARENA automotive loudspeaker series.

The 3.5-inch (90mm) midrange and 6.5-inch (165mm) aluminum basket woofers utilize woven carbon fiber cones for improved performance. The stiff lightweight cones combine with optimized motor magnetics to deliver memorable mid- and low-frequency performance.

This product has been given the Hi-Resolution certification on high-frequency bands, capability of reproducing 40 kHz or above. This is driven by the 25mm (1-inch) beryllium dome, and a powerful neodymium motor for the ultimate in lightweight performance. The powerful all-new tweeter and 6th-generation ceramic-coated, cast-aluminum acoustic lens waveguide seamlessly integrates with the directivity of the companion midrange drivers resulting unparalleled efficiency, improved dynamic range, reduced distortion, and increased power handling.

JBL Arena X Component System

WHAT'S IN THE BOX



JBL ARENA X INSTALLATION

Installing the Beryllium dome tweeters.

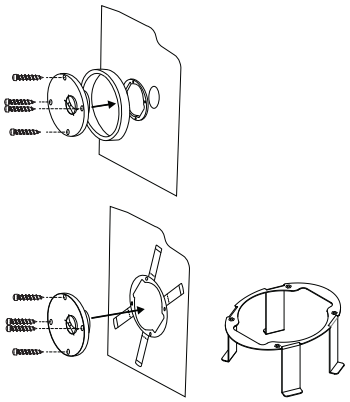
It is important to choose a mounting location and tweeter orientation high on the door panel or A-pillar that provides optimum disbursement of the high frequencies for excellent stereo imaging and sound staging. Recommendations include:

- Using your vehicle's factory tweeter locations, if it has them, and the tweeters will fit in those locations.
- Mounting the tweeters at the top of the door panels or A-pillars.
- Mounting the tweeters on top of the door panel, on the A-pillar, or on the dash in a custom enclosure (wood or fiberglass, for example) that you manufacture.

Using the tweeter-mounting accessories included in the box

The package includes an oval ring, an oval plate, and a metal plate.

- The oval ring and plate should be used in custom mounting applications. Secure the oval plate to the custom mount, push the tweeter into the oval ring, then use the supplied screws to secure the tweeter to the oval plate.
- The metal plate can be adapted to secure to factory tweeter locations, or welded to metal mounts in the door panel. When the metal plate is secured in the mounting location, use the included screws to secure the tweeter to the metal plate.

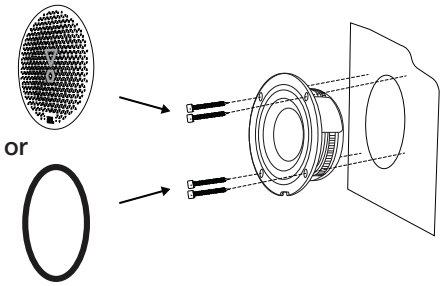


Installing the 3.5" midrange drivers

It is important to choose a mounting location for the 3.5" midrange driver that provides good linearity and proximity to your ears. Recommendations include:

- Using your vehicle's factory midrange locations, if it has them, and the drivers will fit in those locations.
- Mounting the near the top of the doors or on the A-pillar in a custom enclosure (wood or fiberglass, for example) that you manufacture.

To mount the midrange driver to the mounting location, place the driver against the mounting surface and use the supplied screws to secure. Take care not to overtighten the screws, to prevent damage. If mounting in the door panel, make sure the magnet protrusion does not interfere with window or door latch operation. In a custom location, if the midrange driver is visible, use the included grille to cover the screws and protect the speaker cone.



NOTE: If mounting in a custom enclosure that you manufacture, recommend that the sealed volume of the enclosure is more than 0.07 cubic feet (>2L).

TIP: It is recommended to use an insulating material between the mounting surface and the mounting ring of the midrange to absorb vibrations and help produce the cleanest sound possible.

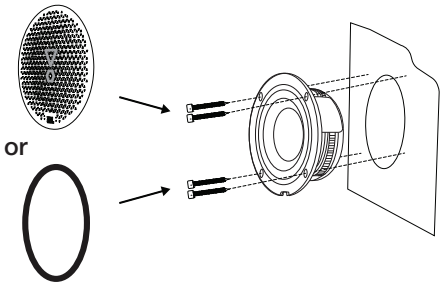
Installing the 6.5" woofers

The woofers are typically mounted in the doors. Mounting them higher in the doors will raise the soundstage, while mounting them lower in the doors will provide excellent bass response. Recommendations include:

- Using your vehicle's factory woofer locations, if it has them, and the drivers will fit in those locations.
- Mounting in the door panels using a custom enclosure (wood or fiberglass, for example) that you manufacture.

EN

To mount the woofer to the mounting location, place the driver against the mounting surface and use the supplied screws to secure. Take care not to overtighten the screws, to prevent damage. If mounting in the door panel, make sure the magnet protrusion does not interfere with window or door latch operation. In a custom location, if the woofer is visible, use the included grille to cover the screws and protect the speaker cone.



NOTE: If mounting in a custom enclosure that you manufacture, recommend that the sealed volume of the enclosure is more than 0.7 cubic feet (>20L).

TIP: It is recommended to use an insulating material between the mounting surface and the mounting ring of the woofer to absorb vibrations and help produce the cleanest sound possible.

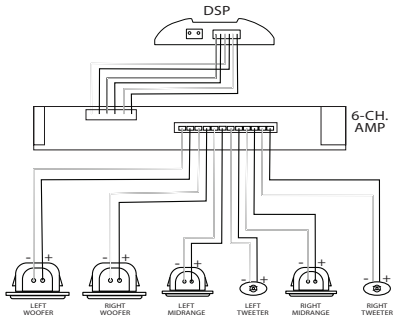
POWERING THE JBL ARENA X SPEAKERS

To power your Arena X component system, we recommend using a digital signal processor (DSP) and either a 6-channel amplifier or a combination of a 4-channel and a 2-channel amplifier. You can also consider using an amplifier with a built-in DSP and at least 6 channels of amplification. **NOTE:** Make sure the amplifier(s) you choose do not exceed or dramatically fall short of the power-handling specifications of the drivers (see "SPECIFICATIONS").

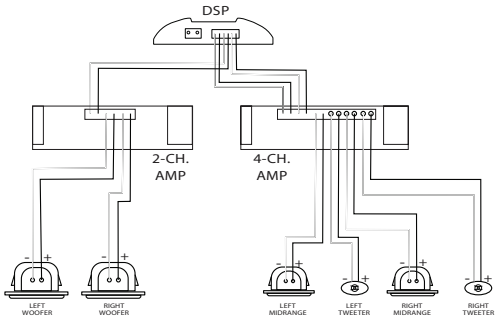
- Use the DSP to provide each channel of the amplifier the appropriate frequency range for the driver it will be powering (adjust as desired within the designated frequency range):
  - o Tweeters: 1kHz – 40kHz
  - o Midrange drivers: 200Hz – 6kHz
  - o Woofers: 60Hz – 6KHz
- Connect each driver – tweeter, midrange, and woofer – directly to its own channel on the amplifier(s). **IMPORTANT:** Because of the lower impedance of the JBL Arena X drivers, do not wire two or more of them in parallel on the same amplifier channel; doing so can cause overheating and damage.
- Use the appropriate wire gauge for each driver to maximize performance:
  - o Tweeters: 16-14 gauge.
  - o Midranges and woofers: 14-12 gauge.
  - o **NOTE:** use larger gauge wire for longer wire runs.

Recommended wiring diagrams

6 Channels



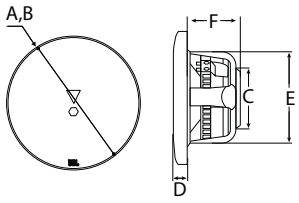
4 Channels & 2 Channels



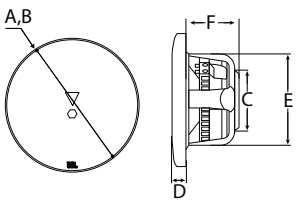
DRIVER DIMENSIONS

	Woofer	Midrange	Tweeter
A. Frame Outer Diameter	6-15/16 in (176mm)	4-1/8 in (104.5mm)	3.88" (101.49mm), 5.2" (132.2mm)
B. Grille Tray Outer Diameter	6-15/16 in (176mm)	4-1/8 in (104.5mm)	N/A
C. Magnet Outer Diameter	1-2/3 in (43.00mm)	1-7/16 (37mm)	N/A
D. Front Grille Protrusion	9/16 in (13.9mm)	1/4 in (6.8mm)	N/A
E. Mounting Hole Diameter	5-5/16 in (135mm)	3-1/8 (79mm)	3.88" (101.49mm) 5.2" (132.2mm)
F. Mounting Depth	2-13/16 in (72mm)	1-1/2 in (37.5mm)	1.52" (38.5mm)

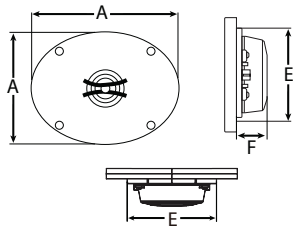
WOOFER



MIDRANGE

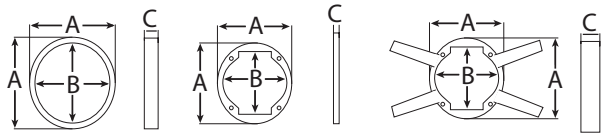


TWEETER



TWEETER MOUNTING ACCESSORIES DIMENSIONS

	Oval ring	Oval plate	Metal Plate
Fixture Outer Diameter (A)	5.88" (149.6mm) 4.67" (118.8mm)	5.18" (131.8mm) 3.99" (101.4mm)	5.20" (132.3mm) 4.16" (105.7mm)
Fixture Mounting Hole Diameter (B)	5.25" (133.6mm) 4.08" (103.8mm)	4.08" (103.8mm) 3.62" (92.2mm)	5.20" (132.3mm) 4" (101.6mm)
Fixture Mounting Depth (C)	0.76" (19.5mm)	0.31" (8mm)	2.2" (56mm)



SPECIFICATIONS

	Arena X 1" Tweeter	Arena X 3.5" Midrange	Arena X 6.5" woofer
Dome/ Cone material	Beryllium dome	Coated Carbon Fiber	Coated Carbon Fiber
Wave guide / Grille	Aluminum Die-casting	SPCC	SPCC
Basket material	Aluminum Die-casting	Aluminum Die-casting	Aluminum Die-casting
Power Handling	50Wrms	50Wrms	100Wrms
Frequency Response	1KHz – 40kHz	200Hz – 6kHz	60Hz – 6kHz
Sensitivity (2.83V/1m)	96dB	87dB	91dB
Impedance	4ohm	4ohm	4ohm
Fs	1.35KHz	125Hz	60Hz
Vas	-	0.78L	8L
Mounting depth/cutout	38mm/101mm *132mm	37mm/80mm	70mm / 140mm

NOTES OF CAUTION

- Because of the nature of Beryllium, do not touch the tweeter domes with your finger or any other body part.
- Do not expose the Beryllium tweeters to open flame, to avoid the possibility of poisoning by inhalation.
- We have meticulously chosen certain glues for their adhesive and more importantly their acoustic properties. Over time some reddening can occur to the glue edge at the dust cap, depending on your environment.

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ARENA X

1", 3-1/2" and 6-1/2" (165mm) 3-way active component speaker system

The Ultimate Music Experience. Dare to Listen!

The JBL Arena X is the flagship automotive loudspeaker from our Arena Series. It includes a 25mm (1-inch) beryllium tweeter driven by a powerful neodymium motor structure for the ultimate in lightweight performance. The powerful all-new tweeter and 6th-generation ceramic-coated, cast-aluminum Acoustic Lens waveguide seamlessly integrate with the directivity of the companion midrange drivers resulting in greater efficiency, improved dynamic range, reduced distortion, and increased power handling compared to aluminum or titanium tweeters. Beryllium Element 4 on the Periodic Table is a rare earth metal that is renowned for its remarkable physical properties that make it the ideal material for a high-frequency transducer. Compared to aluminum and titanium tweeter diaphragms, Beryllium offers 4.5 times the stiffness and three times more damping, and does so at only half of the weight. Beryllium tweeters are the centerpiece of the ARENA automotive loudspeaker series. The 3.5-inch (90mm) midrange and 6.5-inch (165mm) aluminum basket woofers utilize woven carbon fiber cones for improved performance. The stiff lightweight cones combine with optimized motor magnetics to deliver memorable mid- and low-frequency performance and specially formulated acoustic adhesive chosen to provide superior strength and sound quality.

Features

- 1-inch Edge-Driven Pure Beryllium Dome Tweeter
- Proprietary Acoustic Lens Waveguide Geometry Tweeter
- Carbon Fiber Composite Cone Midrange and Woofers
- Nomex Spider Midrange and Woofers
- Seamless Perfect Active Speaker System
- Neodymium Magnet Motor
- Die-Cast Aluminum Basket
- Bi-Amp Capable Precision Outboard Crossover network
- Magnetic Absorption Design

ARENA X

1", 3-1/2" and 6-1/2" (165mm) 3-way active component speaker system

Features and Benefits

1-inch Edge-Driven Pure Beryllium Dome Tweeter
Beryllium offers 4.5 times the stiffness and three times more damping than more commonly used Aluminum and Titanium diaphragms, delivering extended high-frequency performance out to 40kHz. This benefits the listener by virtually eliminating all harshness in the audio band, delivering a smooth, precise and detailed performance, even at high output levels.

Proprietary Acoustic Lens Waveguide Geometry Tweeter
Ceramic-coated, cast-aluminum Acoustic Lens waveguide engineered to seamlessly integrate with the directivity of the companion midrange driver.

Carbon Fiber Composite Cone Midrange and Woofers
The ultra-rigid carbon fiber dustcap and cone body minimize unwanted cone flexing, ensuring smooth frequency response.

Nomex Spider Midrange and Woofers
Spider is specifically designed to ensure linear motion in both forward and rearward directions. This minimizes distortion caused by the speaker's suspension.

Seamless Perfect Active Speaker System
Seamless transducer integration design for use with high-quality DSP to eliminate technical compromises, allowing for the use of delay, crossover parameters, and precise equalization to adjust for speaker placement, cabin acoustics and target response.

Neodymium Magnet Motor
Provides high flux density and allows more room for larger steel motor components, providing critical heatsink mass for the voice coil.

Die-Cast Aluminum Basket
Rigid support for the motor structure allows for tighter tolerances, yielding reduced distortion and acoustic anomalies.

Bi-Amp Capable Precision Outboard Crossover Network
High tolerance components are used to ensure purity and low distortion with a 12dB per octave alignment on the mid/woofer and 24dB per octave alignment on the tweeter. It is also set up for bi-amping if so desired and a three position tweeter output is also included to optimize performance based on location and vehicle materials.

Magnetic Absorption Design
Strong magnetic field adsorption technology take you to the new case era. From now on, grille installing became a pleasure. It makes your loudspeakers stand out among crowd. Magnetic absorption technology makes installation a breeze.

What's in the box:

1 pair woofers
1 pair tweeters
1 pair midrange
1 pair woofer grille
1 pair midrange grille
1 pair woofer decoration ring
1 pair midrange decoration ring
1 pair tweeter plastic ring 1 fixture under tweeter
1 pair tweeter plastic ring 2 fixture around tweeter
1 pair metal plate bracket
1 pair woofer gaskets
1 pair of midrange gaskets
Screws bag
User Manual

Technical specifications:

- 6-1/2" (165mm) 3-way active car component speaker system
- 1" Beryllium dome tweeter with 6th-generation ceramic-coated acoustic lens waveguide
- 3.5" Carbon fiber cone midrange with cast frames
- 6.5" Carbon fiber cone woofer with cast frames
- Frequency Response (-6dB): 20Hz – 40kHz
- Power Handling: 100Wrms, 200W peak
- Crossover Frequencies: 250Hz; 3.5kHz
- Nominal Impedance: 4 ohms
- Sensitivity: 90dB (2.83V @1M)
- Woofer mounting depth: 2.83 in./72mm
- Midrange mounting depth: 1.47 in./37.5mm
- Tweeter flush mounting depth: 1.52 in./38.5mm

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