



JBL Arena Series Component Subwoofer Owner's Manual

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JBL Arena Series Component Subwoofer



Product Information – Arena Subwoofer

Language	Manual
EN	Owner's Manual
FR	Mode d'emploi
ES	Manual del propietario
RU	
ZH-CN	
ID	Manual Pengguna
TH	

Product Usage Instructions – Arena Subwoofer

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 over excursion. 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.

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:

- Straightforward construction
- Forgiving of errors in volume calculation
- 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:

- Requires more power to achieve a given acoustic output
- 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. 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:

- Improved low-frequency extension
- Higher efficiency compared to sealed enclosures
- 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:

- More complex construction
- 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 fiber board (MDF), glue, and screws to construct the enclosure, and seal all joints with silicone caulk.

RECOMMENDATION

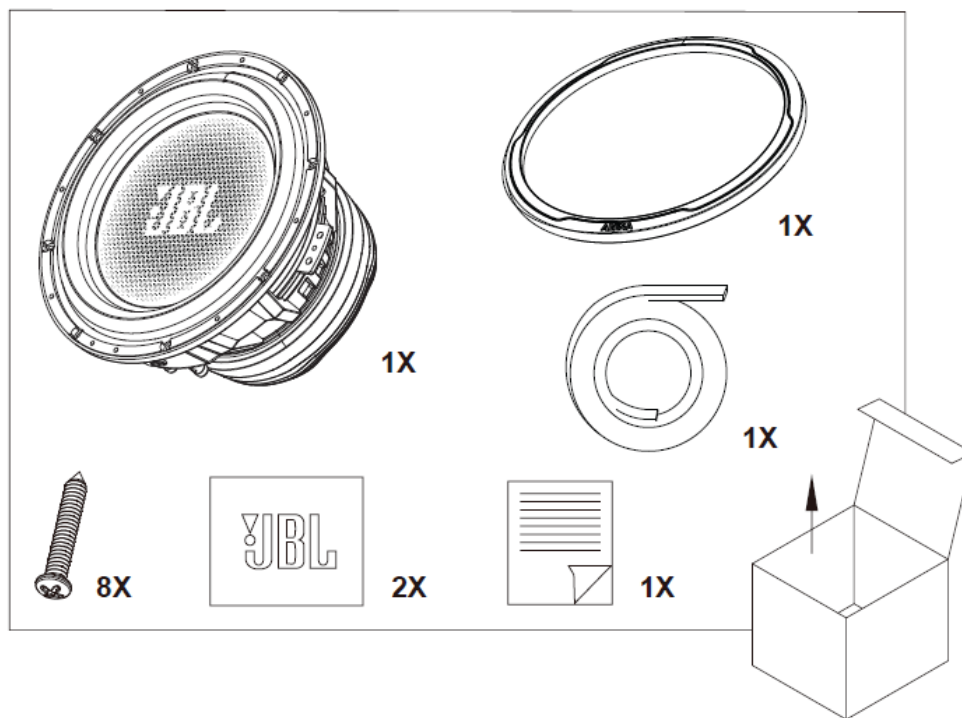
Subwoofers in vented enclosures are recommended for enthusiasts who prefer accentuated bass response, for those who have plenty of cargo space to devote to a subwoofer enclosure and for those who will use a less powerful amplifier to drive their subwoofer. The volume and port dimensions indicated must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

THANK YOU FOR CHOOSING A JBL ARENA 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

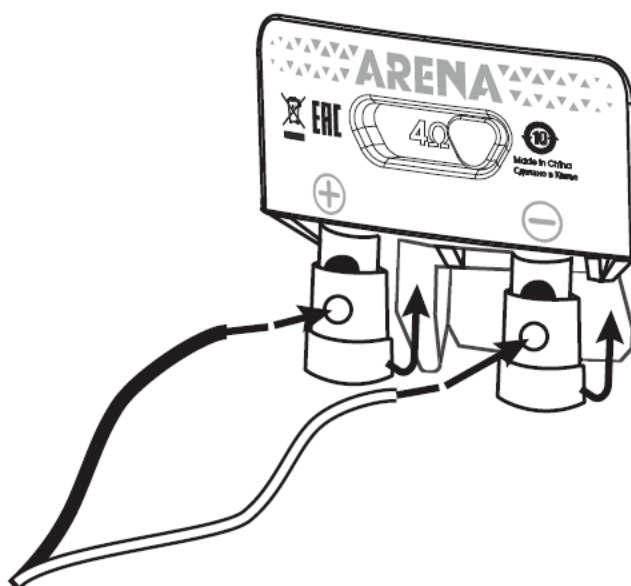
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MOUNTING THE SUBWOOFER

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.

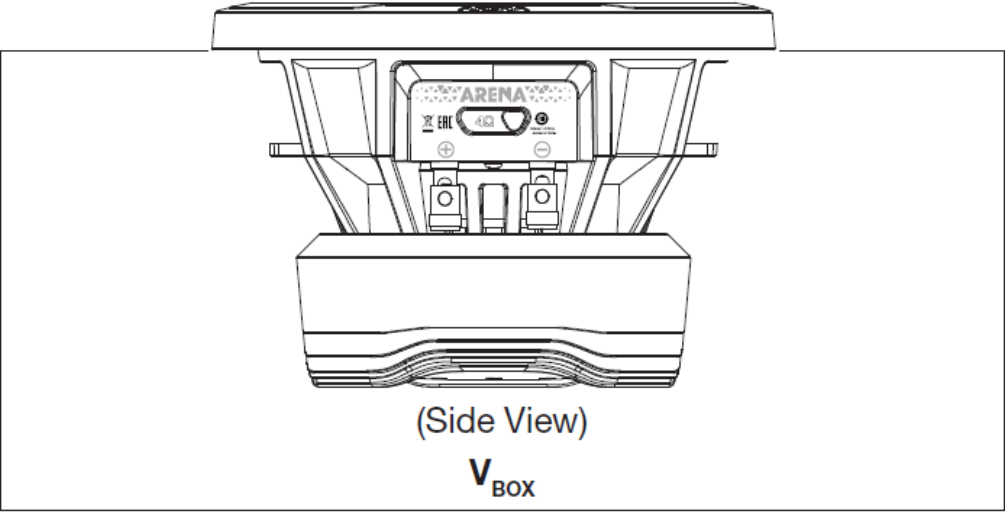


TECHNICAL DATA

THIELE-SMALL PARAMETERS

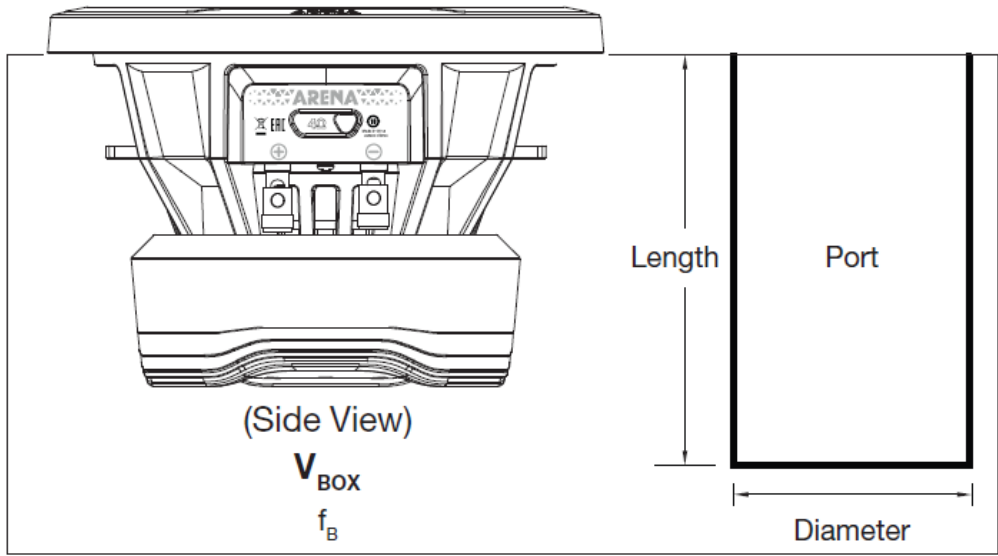
SKUs		Arena 8 inch		Arena 10 inch		Arena 12 inch	
		SSI 2Ohm	SSI 4Ohm	SSI 2Ohm	SSI 4Ohm	SSI 2Ohm	SSI 4Ohm
Voice coil DC resistance:	REVC (OHMs)	1.81	3.52	2.15	4.23	2.24	4.4
Voice coil inductance @ 1kHz:	LEVC (mH)	0.666	0.213	1.252	0.586	1.291	0.621
Driver radiating area:	SD (IN ²)	32.742	32.742	51.159	51.159	79.160	79.160
	SD (CM ²)	211.24	211.24	330.06	330.06	510.71	510.71
Motor force factor:	BL (TM)	9.036	11.467	10.21	11.574	10.231	13.299
Compliance Volume:	VAS (FT ³)	0.269	0.287	0.587	0.616	1.287	1.343
	VAS (Liters)	7.612	8.123	16.621	17.436	36.438	38.042
Suspension compliance:	CMS (mm/N)	0.121	0.129	0.108	0.113	0.099	0.103
Moving mass, air load:	MMS (Grams)	97.625	92.094	199.537	191.29	260.86	251.57
Free-air resonance:	FS (Hz)	46.4	46.2	34.3	34.2	31.4	31.3
Mechanical Q:	QMS	13.157	4.019	9.577	5.175	11.919	5.518
Electrical Q:	QES	0.635	0.716	1.146	1.3	1.1	1.229
Total Q:	QTS	0.601	0.608	1.023	1.039	1.007	1.005
Magnetic- gap height:	HAG (IN)	0.315	0.315	0.315	0.315	0.394	0.394
	HAG (mm)	8	8	8	8	10	10
Voice coil height:	HVC (IN)	1.339	1.339	1.181	1.181	1.260	1.260
	HVC (mm)	34	34	30	30	32	32
Maximum excursion:	XMAX (IN)	0.512	0.512	0.433	0.433	0.433	0.433
	XMAX (mm)	13	13	11	11	11	11

SEALED-BOX VOLUME (INCLUDES DRIVER DISPLACEMENT)



SKUs	Arena 8 inch	Arena 10 inch	Arena 12 inch
VBOX	0.58 ft³ (16.4 Liters)	0.96 ft³ (27.1 Liters)	1.51 ft³ (42.8 Liters)
fc	56.4Hz	43.6Hz	42.7Hz

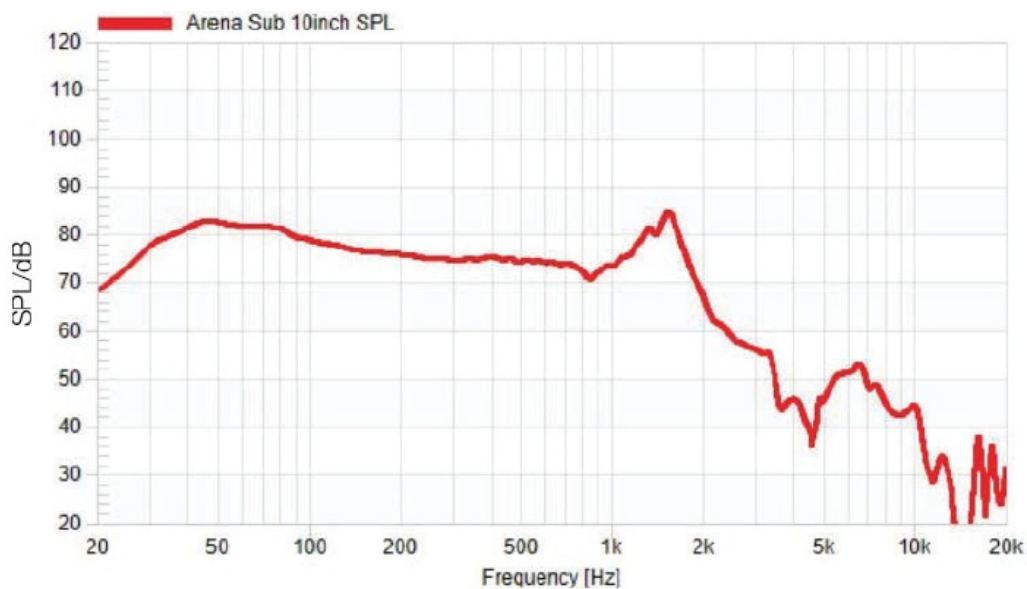
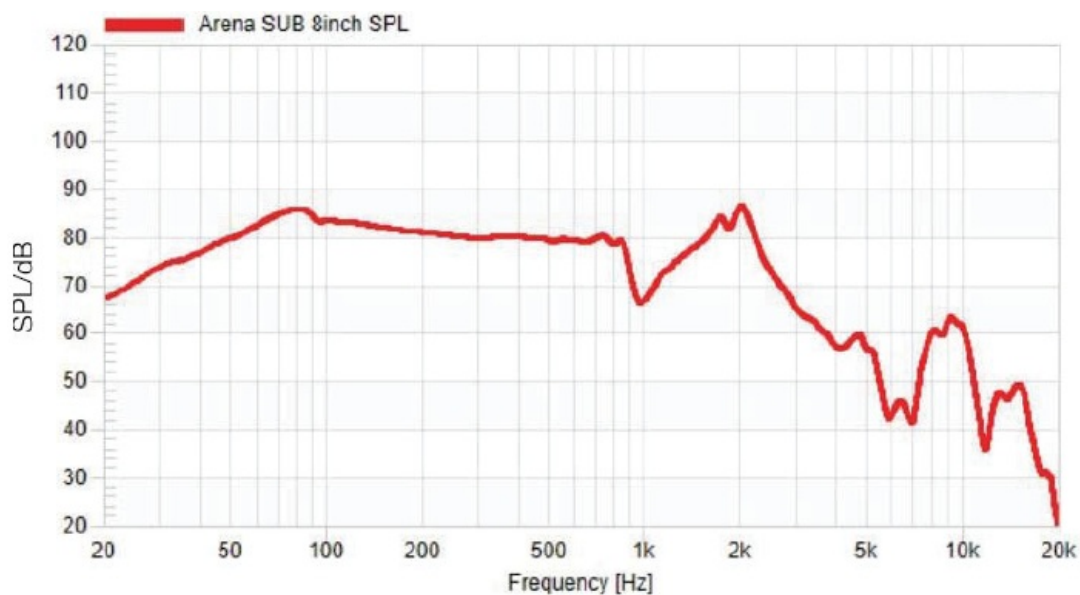
VENTED-BOX VOLUME (INCLUDES DRIVER DISPLACEMENT)

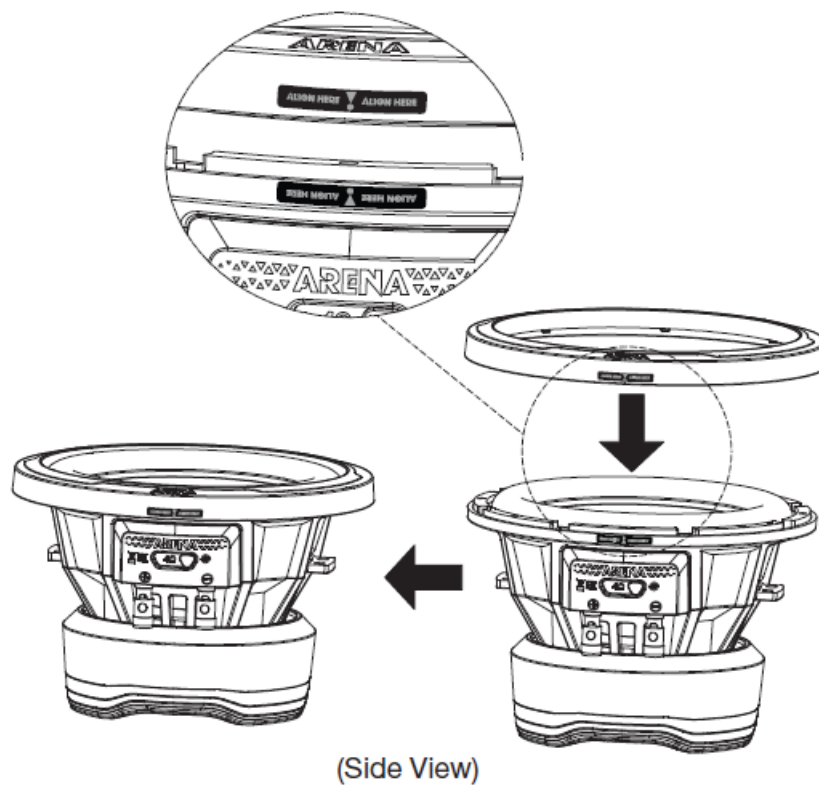
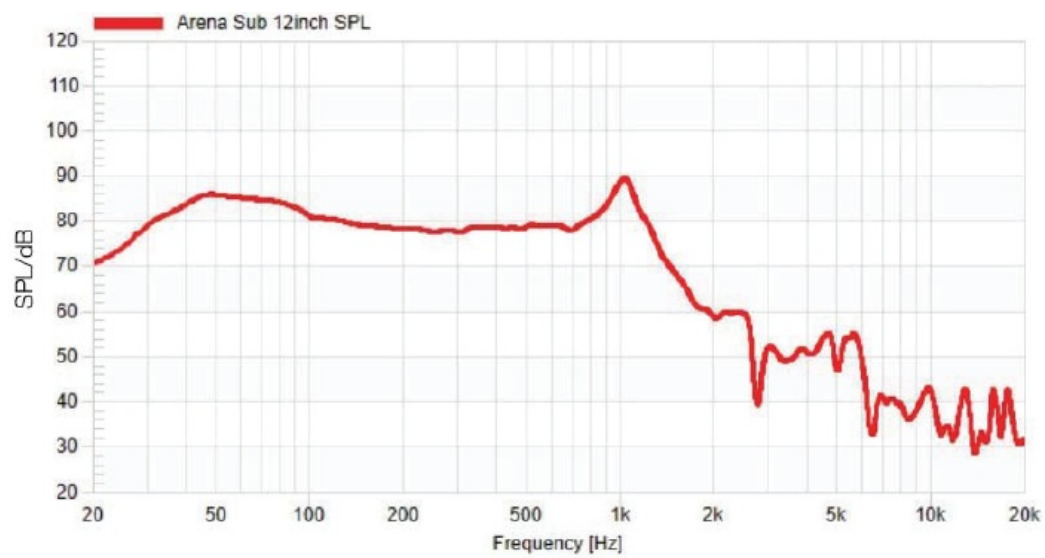


SKUs	Arena 8 inch	Arena 10 inch	Arena 12 inch
VBOX	0.58 ft³ (16.4 Liters)	0.96 ft³ (27.1 Liters)	1.51 ft³ (42.8 Liters)
fB	47.1Hz	37.9Hz	34.3Hz
Length	7.87 inch (200 mm)	8.66 inch (220 mm)	8.66 inch (220 mm)
Diameter	2.56 inch (65 mm)	2.76 inch (70 mm)	3.15 inch (80 mm)

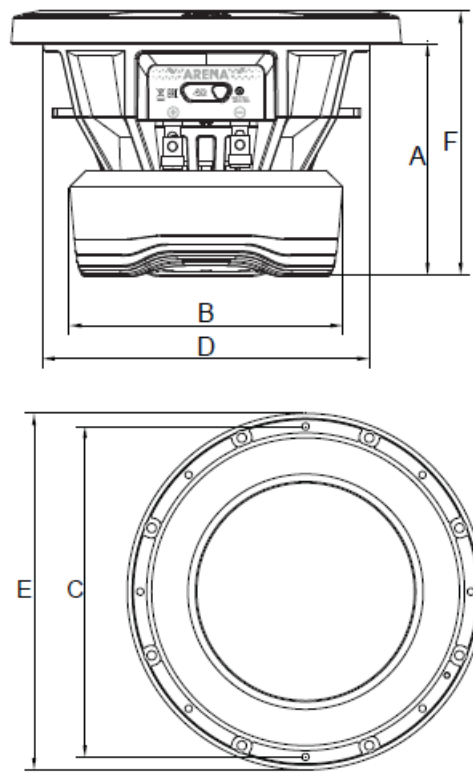
Recommended box inner size

Enc.		W		H		D	
		mm	in.	mm	in.	mm	in.
Arena 8 inch	Sealed Box	307	12.09	318	12.52	265	10.43
	Ported Box	307	12.09	318	12.52	283	11.14
Arena 10 inch	Sealed Box	373	14.69	363	14.29	301	11.85
	Ported Box	373	14.69	363	14.29	310	12.20
Arena 12 inch	Sealed Box	434	17.09	423	16.65	332	13.07
	Ported Box	434	17.09	423	16.65	339	13.35





DIMENSION



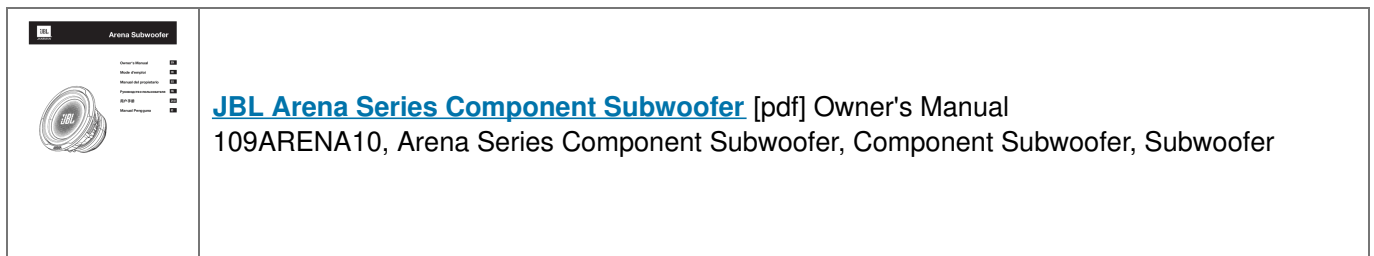
SPECIFICATIONS

SKUs	Arena 8 inch	Arena 10 inch	Arena 12 inch
Sensitivity (2.83V@1M):	89.3	85.4	87.6
Power handling:	400	700	800
Frequency response:	50~1.5K	36~1.5K	29~1.5K
Nominal impedance:	2Ω or 4Ω	2Ω or 4Ω	2Ω or 4Ω
Voice coil diameter:	50.8	65.5	65.5
Mounting depth (A):	131.5mm	156.5mm	171.7mm
Magnet diameter (B):	153.8mm	195.8mm	214.6mm
Inner diameter (C):	198mm	253mm	305mm
Cutout diameter (D):	185mm	235mm	287mm
Outer diameter (E):	220mm	276mm	330.4mm
Total height (F):	152mm	179mm	192.7mm

HARMAN International Industries, Incorporated 8500 Balboa Boulevard, Northridge, CA 91329 USA
www.jbl.com

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Documents / Resources



JBL Arena Series Component Subwoofer [pdf] Owner's Manual
109ARENA10, Arena Series Component Subwoofer, Component Subwoofer, Subwoofer

References

- [Official JBL Store - Speakers, Headphones, and More!](#)

Manuals+,