

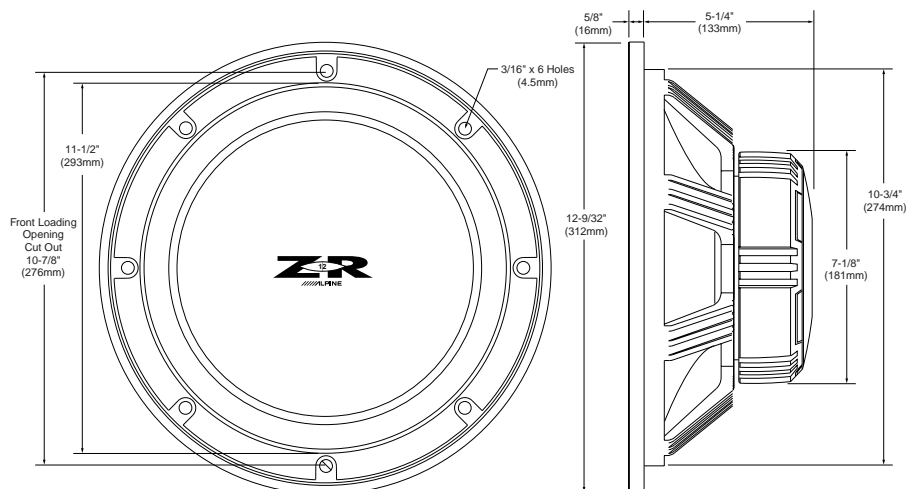
SWR-304E

12" ZR Series Subwoofer (4 ohm)

FEATURES

General

- Large Strontium Ferrite Magnet
- Brass Voice Coil Bobbin
- 3" Diameter Voice Coil
- OFC Edge Wound Voice Coil
- One-Piece Inverted Dome Cone
- Parabolic Cone
- Epoxy-Coated Non-Pressed Pulp Cone
- Dual Spider Suspension
- Diecast Aluminum Magnet Heat Sink
- Extended and Vented Pole
- Bumped Backplate
- Soft Clip Design
- Rubber Surround
- Aluminum Diecast Frame
- Large Gold Plated Screw Terminals



SPECIFICATIONS

Power Handling

Power Handling Capacity(RMS) 300W RMS
Power Handling Capacity(Peak) 1000W RMS
Recommended Amplifier Output Up to 300W RMS

Thiel Small Parameters

Impedance(Nominal) 4 ohms
DC Resistance 4 ohms
Free Air Resonance(Fs) 30Hz
Equivalent Suspension Stiffness(Vas) 69liters(2.44cu.ft.)
Mechanical Q 6.64
Electrical Q 0.35
Total Loudspeaker Q(Qts) 0.33
Linear Excursion(X linear) 4.0mm
Maximum Excursion(X peak) 16.0mm

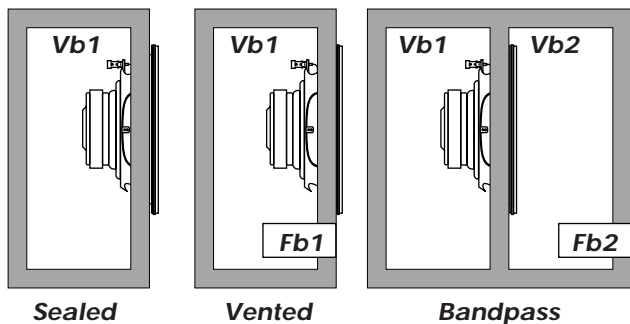
General

Diaphragm Material Epoxy Coated Nonpressed Pulp
Diaphragm Shape Inverted Dome
Cone Area 511sq.cm.(79.2sq.in.)
Surround Material Rubber
Magnet Material Strontium Ferrite
Magnet Weight 1.5kg(52oz.)
Voice Coil Diameter 75mm(3 in.)
Mounting Depth(top mount) 133mm(5-1/4in.)
Mounting Depth(bottom mount) 149mm(5-7/8in.)
Cutout Diameter 275mm(10-13/16in.)
Driver Physical Volume(top mount) 3.2liters(.11cu.ft.)
Driver Physical Volume(bottom mount) 4.4liters(.16cu.ft.)
Driver Weight 5.9kg(13lb.)

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Vehicle	Sound	Box	Vb1(Unfilled)	Vb1(Filled)	F(B1)	Q(tc)	Vb2	Fb2	Vent Description
Size	Type	Type	(cu ft)	Cu. Ft.	(Hz)	-	(cu ft)	(Hz)	
Compact 6' to 7.5' 87 Hz	Low & Tight	Sealed	0.89	0.76	-	0.67	-	-	-
		Vented	-	-	-	-	-	-	Not Recommended
		Bandpass	1.17	0.99	-	0.6	1	72	two 3" ports, each 4.25" long
	Balanced	Closed	0.64	0.55	-	0.78	-	-	-
		Vented	0.64	0.59	36	0.78	-	-	one 2" port, 10.75" long
		Bandpass	0.89	0.76	-	0.67	0.9	77	two 3" ports, each 4.0" long
	Loud &Boomy	Sealed	0.49	0.43	-	0.9	-	-	-
		Vented	0.54	0.50	39	0.85	-	-	one 2" port, 11.5" long
		Bandpass	0.70	0.60	-	0.75	0.8	84	two 3" ports, each 3.75" long
Mid Size 7.5' to 10' 66 Hz	Low & Tight	Sealed	0.96	0.82	-	0.65	-	-	-
		Vented	1.17	1.07	30	0.6	-	-	one 2" port, 7.5" long
		Bandpass	1.41	1.19	-	0.56	0.92	65	two 3" ports, each 6.75" long
	Balanced	Closed	0.76	0.65	-	0.72	-	-	-
		Vented	0.86	0.79	33	0.68	-	-	one 2" port, 9.0" long
		Bandpass	0.96	0.82	-	0.65	0.82	71	two 3" ports, each 6.25" long
	Loud &Boomy	Sealed	0.63	0.54	-	0.79	-	-	-
		Vented	0.70	0.64	35	0.75	-	-	one 2" port, 10.5" long
		Bandpass	0.70	0.60	-	0.75	0.75	78	two 3" ports, each 5.25" long
Large 10' to 12' 48 Hz	Low & Tight	Sealed	1.03	0.88	-	0.63	-	-	-
		Vented	1.28	1.17	34	0.58	-	-	one 3" port, 12.0" long
		Bandpass	1.48	1.25	-	0.55	0.8	60	two 3" ports, each 10.25" long
	Balanced	Sealed	-	-	-	-	-	-	Not Recommended
		Vented	1.07	0.99	38	0.62	-	-	one 3" port, 11.5" long
		Bandpass	1.07	0.91	-	0.62	0.69	65	two 3" ports, each 10.0" long
	Loud &Boomy	Sealed	-	-	-	-	-	-	Not Recommended
		Vented	0.89	0.82	42	0.67	-	-	one 3" port, 11.75" long
		Bandpass	0.81	0.69	-	0.7	0.6	71	two 3" ports, each 9.5" long



Notes:

Vehicle Size = Longest measurement in the vehicle

Sound Type

Low - Typically a real "light" sound, Qtc near 0.505 very accurate bass

Neutral - Good balance between "boom" and "light". Qtc near 0.707

Loud - "Boom" type system. Loud but not low (Hz). Qtc near 0.9

Qtc = The total "Q" of the closed box system. The lower the Q, the smoother the bass

Vb1 (Unfilled) = "Build-to" volume. accounts for speaker and port displacement

Vb1 (Filled) = "Build-to" volume. 20% box volume reduction when using filling

F(b1) = Tuning frequency of Vb1 (Vented Enclosures)

F(b2) = Tuning frequency of Vb2 (Bandpass enclosures)

Recommended Crossover Points.

Sealed enclosures as low as possible - 65 Hz or below

Vented enclosures - 80 Hz or below

Bandpass enclosures - 100 Hz or below

Enclosure Filling: In sealed boxes it is recommended to fill with acoustic fiberglass or Dacron batting in order to minimize sound reflections inside the box. Filling an enclosure can allow for approximately a 20% smaller box due to its thermodynamic capabilities. The calculated box volumes above, Vb1 (filled), have taken this reduction into consideration. Vented Enclosures: It is recommended that the interior walls of a vented enclosure be lined with 1/2" to 1" fiberglass sheeting or polyester batting. This will greatly reduce sound reflections in the enclosure. Loose filling in a vented enclosure is not recommended as it can impede air flow through the vent.

Vehicle Size: Since installing a speaker into a vehicle is like putting a box inside of another box, the calculations above take into consideration the vehicles sound properties. Just as a woofer/box combination must be matched for the best sound, so must the woofer/box and vehicle. To find out the proper size of the vehicle to use in the chart above, simply measure the longest length in the vehicle. This is typically from the left corner of the front windshield to the right corner of the rear window. Using this method will help produce consistent predictable results, with the desired bass performance.

Box Construction: Use 3/4" to 1" wood, preferably MDF (Medium Density Fiberboard), or Marine-Grade Plywood. Glue and nail, or screw the enclosure together. Seal all potential air leaks. A box with air leaks creates allot of noise and can cause speaker damage. Round the edges of the ports to reduce port noise (whistling), and keep the openings of the ports free from obstructions.