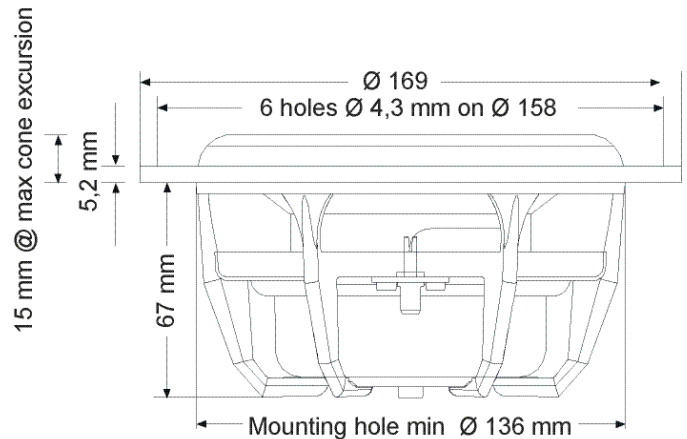


Woofers Esotar² 650

The Esotar² 650 is a medium sized reference grade mid/woofer designed to be utilized in ultra-high performance 2-way or 3-way autosound systems.

The driver exhibits a very linear frequency response and excellent dispersion up to 3.5 kHz, even at 60 degrees off-axis. This, combined with the extremely low distortion and the linear impedance, makes it possible to achieve amazing results in a wide range of systems or applications. The driver may also integrate with a subwoofer.

- Geometrically optimized one-piece cone diaphragm for controlled dispersion and improved transient and phase response
- Large 75 mm voice coil ensures high power handling and superb dynamics
- Powerful internal double magnet system with neodymium magnet and vented pole piece
- Aluminium voice coil wire provides for a low moving mass and perfect control of the cone, and is wound on Kapton former
- Rigid die-cast frame with aerodynamically shaped ribs to reduce back-wave reflections
- Materials and parameters are optimized for the harsh environmental conditions in a car
- Smooth high-frequency roll-off
- Natural midrange reproduction
- Incredible midbass impact free of coloration or distortion



Thiele Small Parameters		
Nominal impedance	Znom	4 Ω
DC resistance	Re	3,4 Ω
Voice coil inductance	Le	0,33 mH
Resonance frequency	Fs	49,6 Hz
Mechanical Q factor	Qms	6,2
Electrical Q factor	Qes	0,47
Total Q factor	Qts	0,44
Mechanical resistance	Rms	1 kg/s
Moving mass (incl. air load)	Mms	20,0 g
Suspension compliance	Cms	0,52 mm/N
Effective cone diameter	D	123 mm
Effective piston area	Sd	120 cm ²
Equivalent volume	Vas	10,5 l
Force factor	Bl	6,73 Tm
Recommended frequency range		50-4000 Hz
Recommended closed box volume		6,8-19 l

Magnet and Voice Coil Properties		
Voice coil diameter	dc	75 mm
Voice coil height	hc	14 mm
Voice coil layers	nc	2
Magnetic gap height	hg	5 mm
Linear excursion, peak to peak		9 mm
Max. excursion, peak to peak		21 mm
Magnet weight:		
Neodymium	wm	0,1 kg
Ferrite		0,24 kg

Power Handling	
Nominal long term IEC	200 W
Transient (10 ms)	1000 W

Mechanical Properties	
Net weight	1.25 kg
Overall dimension	Ø169x78 mm

All specifications subject to change without notice

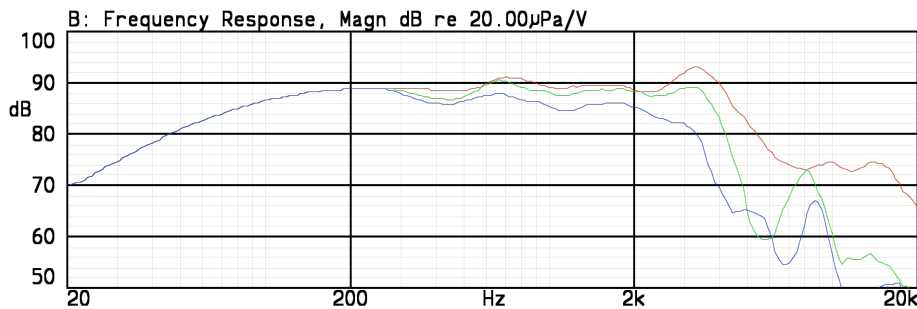
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Woofer Esotar² 650

Frequency response • on-axis, 30° and 60° off-axis



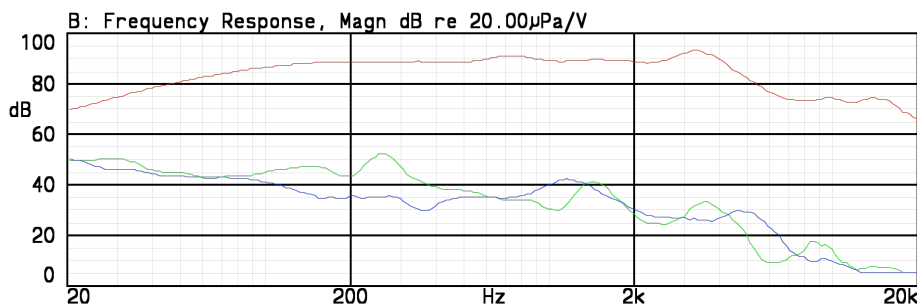
Red line: on-axis response
Green line: 30° horizontal
Blue line: 60° horizontal

Measurement conditions

Level: 2.83 V
Distance: 1 m
Box volume: 15.6 l



Frequency response • 2nd and 3rd harmonic distortion



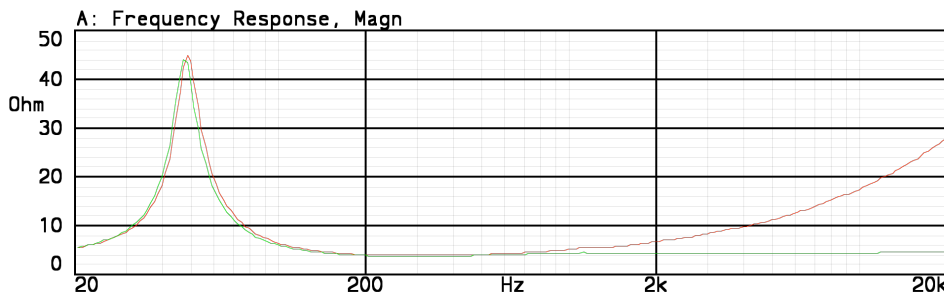
Red line: on-axis response
Green line: 2nd harmonic
Blue line: 3rd harmonic

Measurement conditions

Level: 2.83 V
Distance: 1 m
Box volume: 15.6 l



Impedance • with and without impedance correction circuit



Red line: impedance, free air
green line: impedance, free air with compensation. See drawing below.

Measurement conditions

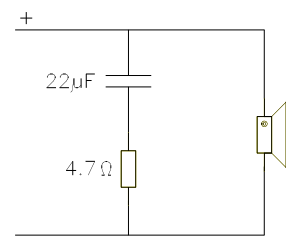
Level: 3,16 V, 50 ohm
Driver in free air



The Esotar² 650 is a simple load for the amplifier and the use of an impedance correction circuit will make it an even easier load to drive.

The low suspension compliance makes the driver suitable for small enclosures as typical of automotive installations, while also allowing for free-air mounting without a dedicated enclosure, e.g. in a rear deck or in a door.

Impedance correction circuit



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