

E15NEO-COMP WOOFER**EMPHASER Competition Woofer E15NEO-COMP**

To sum it up: EMPHASER's 15"/38 cm E15NEO-COMP is built to win SPL competitions. And the woofer's motto is: "Spare no resources" – and the price is irrelevant.

The ultimate goal in constructing woofers that are honed for dB maximum performance is the highest possible efficiency. The basis of the construction specifications for the E15NEO-COMP while pursuing this goal is:

- > high efficiency with an enormous magnet as well as a large displacement volume resulting from high cone excursion
- > high efficiency because of lowest possible moving mass (cone/voice coil unit).

The E15NEO-COMP implements these specifications without compromise: with its unbelievably strongly driven segmented 216 ounce (= over 6 kg) neodymium magnet, a massive copper short circuit ring against self induction (Faraday & Kellog), a stiff and very lightweight compound fibreglass cone with carbon dust cap, the dual largely-sized 3.5"/89 mm voice coil (2 x 2 ohms impedance) with a 45 mm high, 4-layer coil of copper-clad aluminium wire (CCAW), as well as a massive optimally ventilated aluminium die-cast basket.

Specifications E15NEO-COMP

Nominal power handling*	2500 W RMS
Peak power handling*	5 kW
Frequency response*	20 – 150 Hz
Sensitivity (2.00 V)	93.5 dB/1W/1m
Nominal impedance	2 x 2 ohms
Voice coil diameter	3.5" / 88.6 mm
Mounting diameter	358 mm
Mounting depth	249 mm

*depends on enclosure

Features E15NEO-COMP

- massive, deep drawn aluminium die-cast basket with well thought-out ventilation and cooling
- unbelievably strong 216 oz. (= over 6 kg) neodymium magnet comprised of 6 segments
- massive copper short circuiting rings against self induction (Faraday & Kellog)
- stiff, very lightweight compound fibreglass cone with a carbon dust cap
- broad polyether surround, sewn together with the cone for increased structural strength
- four large Nomex centring spiders (2 x 2 quad)
- precisely milled front pole plate, rear pole plate with large center core drill hole
- laminated black anodised aluminium voice coil carrier
- 3.5"/89 mm double voice coil with 2 x 2 ohms nominal impedance, 4 layer, 45 mm high CCAW voice coil
- Push-terminals for large gauge speaker wires

Thiele/Small Parameters

Free-Air Resonance	(Fs)	28.0 Hz
DC Resistance	(Re)	2 x 1.74 Ohms
Electrical Damping	(Qes)	0.13
Mechanical Damping	(Qms)	2.24
Total Damping	(Qts)	0.12
Equivalent Volume of Compliance	(Vas)	78.8 l
Moving Mass incl. Air Load	(Mms)	352.4 g
Electrically Limited Cone Excursion	(Xmax)	20.0 mm (p-p)
Effective Cone Surface	(Sd)	780 cm ²
Volume Displacement of Cone	(Vd)	1560 cm ³
Voice Coil Inductance @ 1kHz	(Le)	2.00 mH (series)

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Basket Construction

The massive aluminium die-cast basket of the bass giant is designed for SPL output. The deep drawn basket with a very large distance between the centring spider support and the inner basket base allows for extreme cone excursions in both directions.

The basket construction with optimal ventilation and cooling is also designed for high power: Large windows protected by grilles in the basket below the centring provide optimal air circulation – this helps the voice coil to stay cool even under the most extreme conditions. Interference that might otherwise arise at high levels because of compression effects due to the large excursion are, therefore, passé.

Magnet

The magnet components signal: Pure efficiency and power. The E15NEO-COMP uses an unbelievably strongly driven 216 ounce (= over 6 kg) neodymium magnet comprised of 6 segments. The open structure of the driver system enables perfect heat dissipation. The neodymium drive is equipped with massive copper short circuit rings against self induction (Faraday & Kellog): They contribute to the stabilisation of the magnetic field and to measurably and audibly minimise the total distortion level.

Cone & Surround

EMPHASER's competition woofer uses a fibreglass cone with a carbon dust cap. The cone is very light so that it can follow fast impulses, while it is also very stiff in order to withstand the enormous acceleration forces of the heavy driver.

The wide surround of the E15NEO-COMP is made of polyether, which is a lightweight, very elastic, and heat-resistant material – optimally suited for a maximum movement control of the cone and perfectly suited to deal with the extreme cone excursions of the competition woofer.

Surround and cone are sewn together, strengthening their structure.

Spider

Four large Nomex spiders (2 x 2 quad) are used in the E15NEO-COMP: These guarantee an absolutely linear and precise guiding of the voice coil system as well as an improved distribution of the load onto the centring and surround – especially when the hard core driver runs at top levels.

The progressive spider characteristic significantly increases the load and ensures that distortions – especially with SPL outputs – are completely eliminated.

Voice Coil

A further highlight is the double voice coil that is very generously sized with a diameter of 3.5"/89 mm and has 2 x 2 ohms nominal impedance. The carrying material is laminated black anodised aluminium, a material that dissipates heat very well. Instead of the often-used round copper wire, the E15NEO-COMP uses copper-clad aluminium wire (CCAW) for the 45 mm high, 4-layer coil. This enables a significant reduction of the voice coil's bulk: A weight advantage that is noticeable in its higher efficiency.

Pole Plates

The front pole plate is precisely CNC milled out of the full material. The rear pole plate has a moulding that prevents the coil mount from hitting during large cone excursions. The rear pole plate has a large central core drill hole that provides optimal cooling and ventilation of the voice coil.

The features of the hard core driver speak a clear unambiguous language that is reflected in the performance data: In a suitable ported enclosure, the short-term load capacity of the E15NEO-COMP is over 10 kW. The B/L of over 40 (with dual voice coil connected in series = 4 ohms) resulting from the extreme drive is just as unique as the reference level of efficiency of 93.5 dB with an Xmax of 20 mm!

These results make it distinctly clear – the E15NEO-COMP is a powerful statement to everyone who wants to personally experience and witness massive bass power.

