

15NLW9500

Extended Low Frequency Neodymium Transducer

Key Features

- 96 dB SPL 1W / 1m average sensitivity
- 100 mm (4 in) Interleaved Sandwich Voice coil (ISV)
- 1000 W continuous pink noise power handling
- External neodymium magnet assembly
- Double Silicon Spider (DSS) for improved excursion control and linearity
- Double Demodulating Rings (DDR) for lower distortion and improved heat dissipation
- Improved heat dissipation via Active Cooling System
- Weather protected cone and plates for outdoor usage
- Ideal for very low distortion subwoofer usage



General Description

The 15NLW9500 is an extended low frequency loudspeaker which sets a new industry standard in 15" (380mm) neodymium 4" voice coil high performance transducers. The 15NLW9500 is derived from our flagship 15LW1500, after in-depth studies on magnetic circuit design which focused on dissipating the heat generated by the powerful 4" voice coil. Extensive care has been taken in order to symmetries both mechanical and electromagnetic non linear behaviour. The 15NLW9500 has been designed to cover the low frequency band in vented, bandpass and horn loaded configurations. Thanks to improved speaker design and the use of high grade materials, its applications range from studio monitors up to cinema subwoofers as well as professional sound reinforcing systems, where deep low frequencies are required. The 15NLW9500 has remarkable 35Hz downwards extension with 96dB average sensitivity and achievable peak power levels of 7kW. It can be used in enclosures from 90 liters in size upwards, with tuning frequencies of about 33Hz. It requires low frequency equalization in small enclosures, while bigger volumes require slightly less equalization for a similar output. Amplifier sizes of 700 to 1400W allow a maximum output from the loudspeaker with minimal risks when properly used.

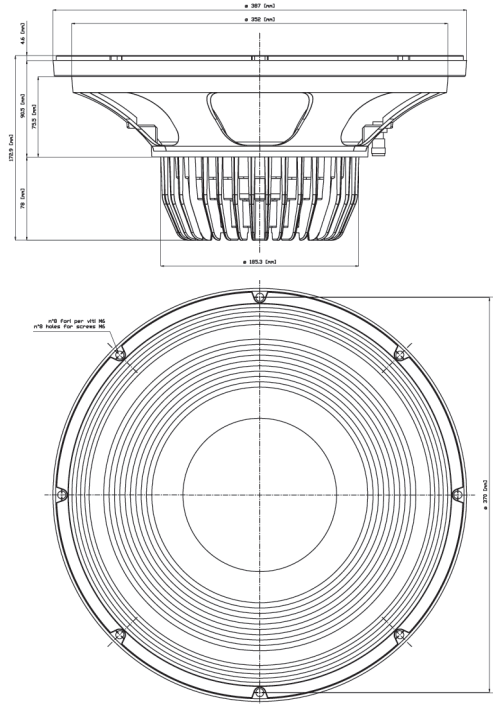
The neo magnet assembly assures high flux concentration, low power compression and excellent heat exchange. In fact, the external magnet configuration is considerably more efficient than the traditional under-pole magnet topology. This results in high levels of force factor and power handling with an optimum power to weight ratio. The heatsink has been specifically studied using F.E.A. simulators and the necessary heat transfer to the dissipative structure has been improved. The heatsink concept has been further improved by using an air-diffractor that offers high thermal capacity and has been designed to force air moved by the dust cap through the heat sink fins and cool it down. The direct contact between the heat sink and the basket, together with the magnetic structure, represents a fundamental improvement in heat dissipation, increasing power handling capabilities and lowering the power compression figure.

The carbon fiber reinforced, straight-sided ribbed cone has been adopted in order to enable the transducer to withstand high loading designs as well as high power peaks.

Maximum strength, smooth response and high displacement piston motion have been obtained using Double Silicon Spider technology (DSS) and a large excursion surround.

The rubber suspension system has been designed to provide symmetric large signal behaviour throughout the whole working range, providing low harmonic distortion at different excitation levels.

022158N140



NEODYMIUM LF-MB-MF TRANSDUCERS

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Extended Low Frequency Neodymium Transducer

GENERAL SPECIFICATIONS

NOMINAL DIAMETER	380mm (15 in)
RATED IMPEDANCE	8 ohms
CONTINUOUS PINK NOISE (1)	1000W
CONTINUOUS POWER (2)	700W
PROGRAM POWER (3)	1400W
PEAK POWER (4)	7000W
SENSITIVITY (5)	96dB
FREQUENCY RANGE (6)	42 - 2000 Hz
POWER COMPRESSION @ -10 DB (7)	(70 W) 0,7 dB
POWER COMPRESSION @ -3 DB	(350 W) 1,5 dB
POWER COMPRESSION @ FULL POWER	(700 W) 2,6 dB
MAX RECOMM. FREQUENCY	500 Hz
RECOMM. ENCLOSURE VOLUME	70 ÷ 150 lt. (2,47 ÷ 5,3 cuft)
MINIMUM IMPEDANCE	6,4 ohms at 25°C
MAX PEAK TO PEAK EXCURSION	35 mm (1,5 in)
VOICE COIL DIAMETER	100 mm (3,9 in)
VOICE COIL WINDING MATERIAL	copper

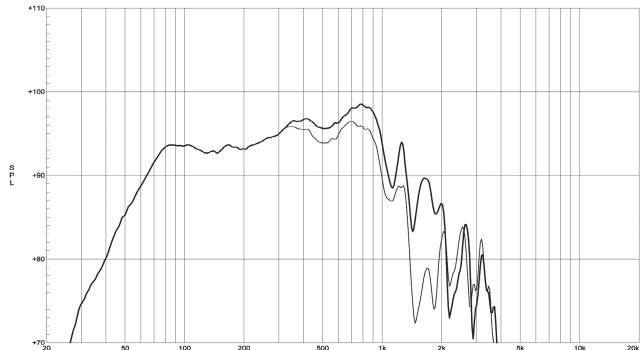
THIELE SMALL PARAMETERS (8)

Fs	35 Hz
Re	4,9 ohms
Sd	0,091 sq.mt. (141,1 sq.in.)
Qms	6
Qes	0,34
Qts	0,32
Vas	163 lt. (5,8 cuft)
Mms	146 gr. (322,3 lb)
BL	21,6 Tm
Linear Mathematical Xmax (9)	±9 mm (±0,35 in)
Le (1kHz)	0,8 mH
Ref. Efficiency 1W@1m (half space)	95 dB

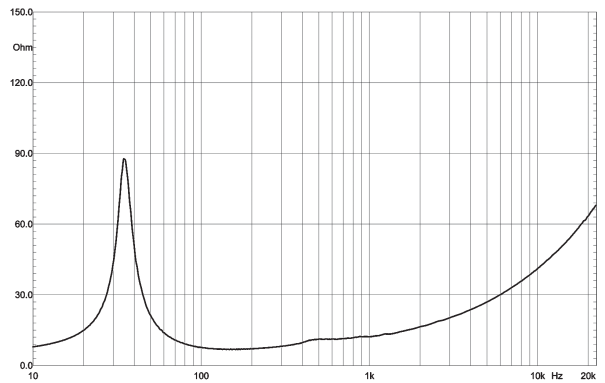
MOUNTING INFORMATIONS

Overall diameter	387 mm (15,2 in)
N. of mounting holes	8
Mounting holes diameter	7,15 mm (0,3 in)
Bolt circle diameter	370-371 mm (14,55-14,6 in)
Front mount baffle cutout diameter	353 mm (13,9 in)
Rear mount baffle cutout diameter	357 mm (14,1 in)
Total depth	179 mm (7 in)
Flange and gasket thickness	24 mm (0,9 in)
Net weight	7 kg (15,5 lb)
Shipping weight	7,8 kg (17,2 lb)
CardBoard Packaging dimensions	405x405x214 mm (15,94x15,94x8,43 in)

FREQUENCY RESPONSE CURVE OF 15NLW9500 MADE ON 180 LIT. ENCLOSURE TUNED AT 35HZ IN FREE FIELD (4PI) ENVIRONMENT. ENCLOSURE CLOSES THE REAR OF THE DRIVER. THE THIN LINE REPRESENTS 45 DEG. OFF AXIS FREQUENCY RESPONSE.



FREE AIR IMPEDANCE MAGNITUDE CURVE



NOTES

- (1) AES standard
- (2) Continuous power rating is measured in 180 lit enclosure tuned 35Hz using a 40-400Hz band limited pink noise test signal applied continuously for 2 hours.
- (3) Program power rating is measured as for 2 above but 50% duty cycle.
- (4) The peak power rating is based on a 10dB crest factor above the continuous power rating and represents the maximum permitted instantaneous peak power level over a maximum period of 10ms which will be withstood by the loudspeaker without damage.
- (5) Sensitivity represents the averaged value of acoustic output as measured on the forward central axis of cone, at distance 1m from the baffle panel, when connected to 2,83V sine wave test signal swept between 100Hz and 500Hz with the test specimen mounted in the same enclosure as given for 2 above.
- (6) Frequency range is given as the band of frequencies delineated by the lower and upper limits where the output level drops by 10 dB below the rated sensitivity in half space environment.
- (7) Power compression represents the loss of sensitivity for the specified power, measured from 50-500 Hz, after a 5 min pink noise preconditioning test at the specified power.
- (8) Thiele - Small parameters are measured after the test specimen has been conditioned by 1000 W AES power and represent the expected long term parameters after a short period of use.
- (9) Linear Mat. Xmax is calculated as $(Hvc-Hg)/2 + Hg/4$ where Hvc is the coil depth and Hg is the gap depth.

Eighteen Sound engages in research and product improvement. New materials and design refinements can be introduced into existing products without notice.