18ND9300

Extended Low Frequency Neodymium Transducer

Key Features

98 dB SPL 1W / 1m average sensitivity

100 mm (4 in) Interleaved Sandwich Voice coil (ISV)

1000 W continuous pink noise power handling

Neodymium magnet assembly

Weather protected cone and plates for outdoor usage

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 unique basket design and finned rear cover

General Description

The 18ND9300 is an extended low frequency loudspeaker which sets a new industry standard in 18" (460 mm) neodymium high performance transducers. The speaker has been derived from our flagship 18LW1400, after in-depth studies on magnetic circuit design, which focused on dissipating the heat generated by the powerful 4" coil.

The loudspeaker design provides clean and undistorted LF reproduction at a very high SPL and enables the speaker to withstand high power levels without damage.

The neo magnet assembly assures high flux concentration, low power compression and excellent heat exchange. The external magnet configuration is considerably more efficient than 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 heat sink 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 specially designed basket, together with the magnetic structure, represents a fundamental improvement in heat dissipation, increasing power handling capabilities and lowering power compression figure.

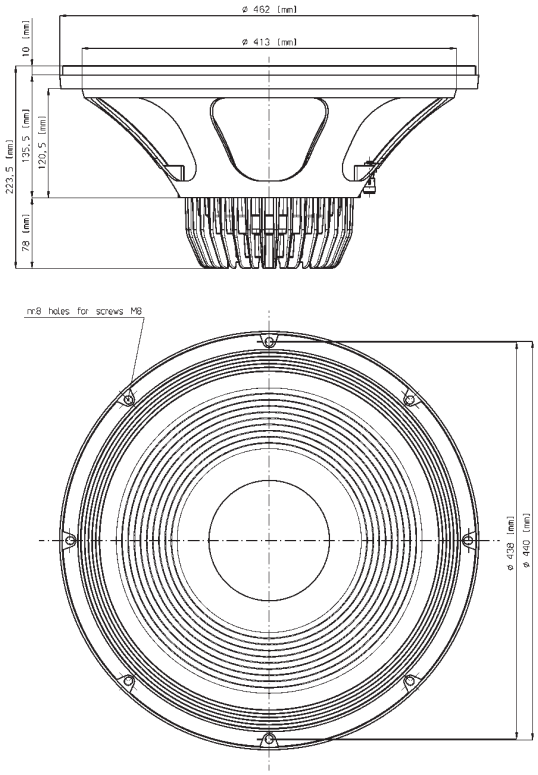
18ND9300 design features include an exceptional displacement suspension system which, in conjunction with a carbon fibre reinforced, straight ribbed cone and a Double Silicon Spider (DSS), result in an ultra-linear piston action, providing full control across the entire working range.

The state-of-the-art voice coil, based on Interleaved Sandwich Voice coil (ISV) technology, provides high levels of thermal stability and durability. The ISV technology achieves a balanced linear motor unit exerting an exceptionally high force factor. This is realised through a high strength fiberglas former with half the coil wound half on the outside and half on the inside and bonded together using unique high-temperature resin adhesives.

The low distortion and unmatched sound quality of the 18ND9300 have been further improved by Double Demodulating Rings (DDR) embedded in the pole piece of the magnetic structure.

A proprietary humidity-block cone treatment makes the transducer suitable for outdoor use in adverse weather conditions. In addition, a special coating applied to both the top and back plates makes the 18ND9300 far more resistant to the corrosive effects of salts and oxidization.

022188N100 8 Ohm



NEODYMIUM LF-MB-MF TRANSDUCERS

info@eighteensound.com
www.eighteensound.com

18ND9300

Extended Low Frequency Neodymium Transducer

GENERAL SPECIFICATIONS

NOMINAL DIAMETER	460mm (18 in)
RATED IMPEDANCE	8 ohms
CONTINUOUS PINK NOISE (1)	1000W
CONTINUOUS POWER (2)	700W
PROGRAM POWER (3)	1400W
PEAK POWER (4)	7000W
SENSITIVITY (5)	98 dB
FREQUENCY RANGE (6)	28 - 2500 Hz
POWER COMPRESSION @ -10 DB (7)	(70 W) 0,8 dB
POWER COMPRESSION @ -3 DB (8)	(350 W) 2,1 dB
POWER COMPRESSION @ FULL POWER (9)	(700 W) 3,2 dB
MAX RECOMM. FREQUENCY	500 Hz
RECOMM. ENCLOSURE VOLUME	100 ÷ 300 lt. (3,53 ÷ 10,6 cuft)
MINIMUM IMPEDANCE	6,3 ohms at 25°C
MAX PEAK TO PEAK EXCURSION	50 mm (1,97 in)
VOICE COIL DIAMETER	100 mm (4 in)
VOICE COIL WINDING MATERIAL	copper
POLARITY	positive voltage on red terminal gives forward cone motion

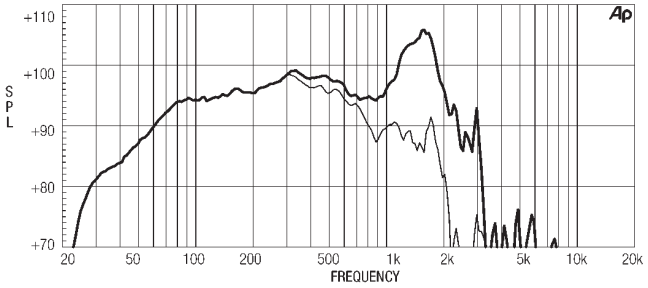
THIELE SMALL PARAMETERS (10)

Fs	30 Hz
Re	5 ohms
Sd	0,1225 sq.mt. (189,88 sq.in.)
Qms	7,86
Qes	0,29
Qts	0,28
Vas	316 lt. (11,16 cuft)
Mms	184 gr. (0,41 lb)
BL	24,4 Tm
Linear Mathematical Xmax (11)	±9,5 mm (±0,37 in)
Le (1kHz)	2,02 mH
Ref. Efficiency 1W@1m (half space)	96,7 dB

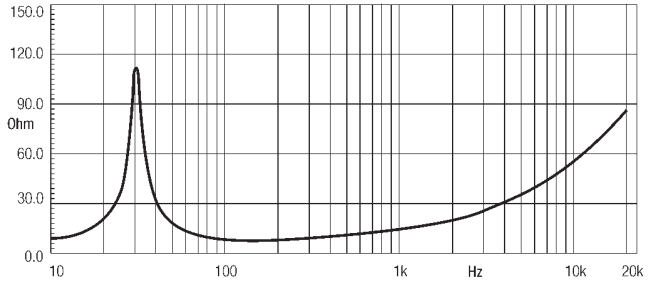
MOUNTING INFORMATIONS

Overall diameter	462 mm (18,19 in)
N. of mounting holes	8
Mounting holes diameter	8,5 mm (0,33 in)
Bolt circle diameter	438-440 mm (17,24-17,32 in)
Front mount baffle cutout diameter	416 mm (16,38 in)
Rear mount baffle cutout diameter	422 mm (16,61 in)
Total depth	223,5 mm (8,8 in)
Flange and gasket thickness	26 mm (1,02 in)
Net weight	7,6 kg (16,78 lb)
Shipping weight	9 kg (19,78 lb)
CardBoard Packaging dimensions	482x482x257 mm (18,98x18,98x10,12 in)

FREQUENCY RESPONSE CURVE OF 18ND9300 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.

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(10) 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.

(11) Linear Mat. Xmax is calculated as; (Hvc-Hg)/2 + Hg/4 where Hvc is the coil depth and Hgis the gap depth.