

15NMB420

Low Frequency Neodymium Transducer

Key Features

- 99 dB SPL 1W / 1m average sensitivity
- 75 mm (3 in) Interleaved Sandwich Voice coil (ISV)
- 450 W continuous pink noise power handling
- External neodymium magnet assembly
- Single Demodulating Rings (SDR) for lower distortion
- Weather protected cone and plates for outdoor usage
- Specially designed for compact two way systems



General Description

The 15NMB420 is a 15" midbass transducer designed for professional monitoring and sound reinforcement. At the heart of this speaker is a carefully engineered drive system. Its design assures linear, low-distortion output, high power capability and efficient heat transfer. The most extended bass, lowest distortion and best control is usually realized in properly designed vented enclosures. In such designs, the vent, or port, actually provides the lowest octave of output. The vent is driven to full acoustic output by a relatively small motion of the speaker cone itself, acting through the air contained within the enclosure. The excursion of the 15NMB420 at these frequencies is much reduced compared to sealed enclosures, directly reducing harmonic distortion and the possibility of speaker bottoming. Typical enclosure sizes range from 80lit. up with tunings from 40 to 50Hz; low-frequency equalization is suggested and normally added in order to improve the bass output. Speaker applications are from subwoofers to 2 way systems. A conservative idea of amplifier size ranges from 400-800W. Amplifiers of this size will allow maximum output with minimal risk of speaker damage when properly used.

Incorporated into the design is the SDR(Single Demodulating Ring), used to reproduce instantaneous peak on mid frequencies, reducing intermodulation distortion.

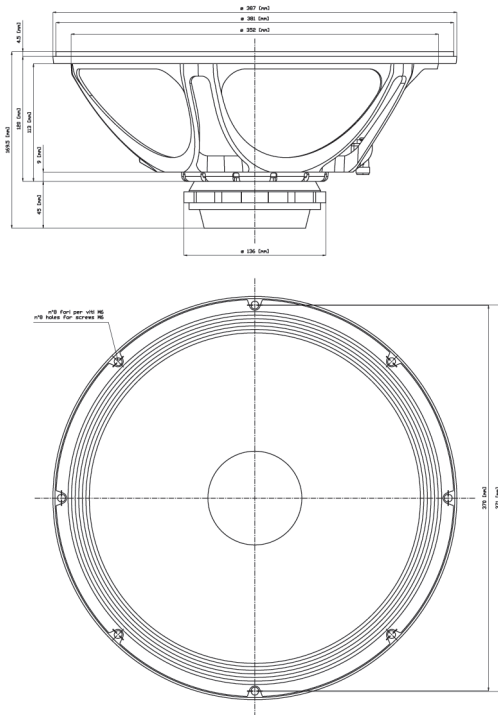
The external magnet typology neodymium magnet assembly assures high flux concentration, low power compression and excellent heat exchange, since the external magnet configuration is considerably more efficient than the traditional under-pole magnet topology. This allows to obtain high levels of force factor and power handling with a power to weight ratio at the upper level of the category.

The high quality paper cone has a smooth, curvilinear profile design that eliminates bell-mode resonances within the intended frequency range. This is carried by a specially treated and damped double triple-roll linen suspension designed to control excursion maintaining the piston action linearity.

The 15NMB420 employs a 75mm Interleaved Sandwich Voice coil (ISV), in which a high strength fiberglass former carries windings on both the outer and inner surfaces to achieve a mass balanced coil, resulting in an extremely linear motor assembly.

A proprietary humidity-block cone treatment has been implemented in order to perform in outdoor environments under adverse weather conditions. In addition, special treatment of both the face and back plates results in a product which is far more resistant to the corrosive effects of salts and oxidization than any other treatment in use.

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NEODYMIUM LF-MB-MF TRANSDUCERS

15NMB420

Low Frequency Neodymium Transducer

GENERAL SPECIFICATIONS

NOMINAL DIAMETER	380mm (15 in)
RATED IMPEDANCE	8 Ohm
CONTINUOUS PINK NOISE (1)	450W
CONTINUOUS POWER (2)	350W
PROGRAM POWER (3)	700W
PEAK POWER (4)	1400W
SENSITIVITY (5)	99dB
FREQUENCY RANGE (6)	40 - 5000 Hz
POWER COMPRESSION @-10DB (7)	(35 W) 0,7 dB
POWER COMPRESSION @-3DB	(175 W) 2,1 dB
POWER COMPRESSION @FULL POWER	(350 W) 3,4 dB
MAX RECOMM. FREQUENCY	1700Hz
RECOMM. ENCLOSURE VOLUME	60 ÷ 140 lt. (2,1 ÷ 4,9 cuft)
MINIMUM IMPEDANCE	6,9 Ohm at 25°C
MAX PEAK TO PEAK EXCURSION	36 mm (1,4 in)
VOICE COIL DIAMETER	75 mm (3 in)
VOICE COIL WINDING MATERIAL	aluminum

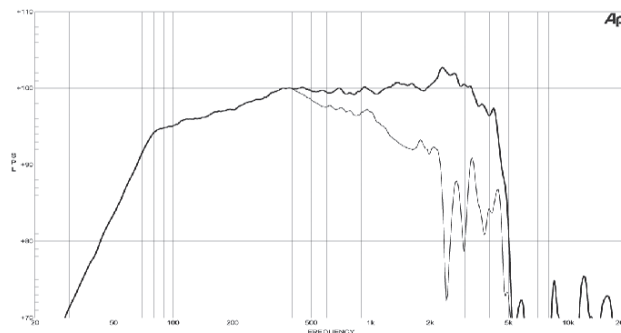
THIELE SMALL PARAMETERS (8)

Fs	42 Hz
Re	5,6 Ohm
Sd	0,09 sq.mt. (139,5 sq.in.)
Qms	6
Qes	0,3
Qts	0,29
Vas	225 lt. (7,9 cuft)
Mms	73gr. (161,1 lb)
BL	19 Tm
Linear Mathematical Xmax (9)	± 6,5 mm (±0,26 in)
Le (1kHz)	0,8 mH
Ref. Efficiency 1W@1m (half space)	99,3 dB

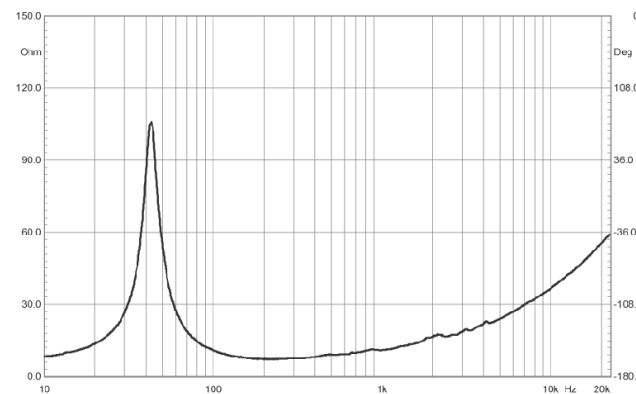
MOUNTING INFORMATIONS

Overall diameter	387 mm (15,2 in)
N. of mounting holes	8
Mounting holes diameter	7,15 mm (0,3in)
Bolt circle diameter	370-371 mm (14,57-14,6 in)
Front mount baffle cutout ø	353mm (13,9 in)
Rear mount baffle cutout ø	357 mm (14,1 in)
Total depth	169,5 mm (6,7 in)
Flange and gasket thickness	11,5 mm (0,5 in)
Net weight	3,9 kg (8,6 lb)
Shipping weight	4,8 kg (10,6 lb)
CardBoard Packaging dimensions	405 x 405 x 214 mm(15,94 x 15,94 x 8,43 in)

FREQUENCY RESPONSE CURVE OF 15NMB420 MADE ON 125 LIT. ENCLOSURE TUNED 50HZ 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 50 lit enclosure tuned 60Hz 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 6dB 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 300 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.