

# 21NLW9600

## Extended Low Frequency Neo Transducer

### Key Features

- 97 dB SPL 1W / 1m average sensitivity
- 135 mm (5.3 in) split winding four layers ISV copper coil
- 3600 W program power handling
- Ultra high force neodymium magnet
- Triple Silicon Spider (TSS) for improved excursion control and linearity
- Single Demodulating Ring (SDR) for lower distortion
- Low noise forced ventilation design for low power compression
- Weather protected cone and plates for outdoor usage
- Suitable for high loading, high SPL subwoofer systems



### General Description

The 21NLW9600 is a 21 inch neodymium high performance transducer. The transducer is suitable for high loading, ultra-low frequency horn loaded or bandpass subwoofer designs.

For optimum results recommended amplifier should be able to deliver 3600 Watt program power without clipping.

Eighteen Sound engineers have obtained the best possible results with today's available materials in terms of clean and undistorted LF reproduction at a ultra high SPL, with the lowest possible power compression figure.

The transducer design features include a large displacement suspension system specifically designed for matching the carbon fiber reinforced, straight ribbed cone.

The state-of-the-art 5,3" diameter ISV copper voice coil shows a inside-outside split winding, four layers design, enabling the 21NLW9600 to handle up to 3600W program power.

Thanks to the Triple Silicon Spider (TSS) technology, the 21NLW9600 is able to control the moving mass with high linearity, showing an exceptional stability of mechanical parameter values in the long term. Bl force factor as well as all electro-dynamic parameters of 21NLW9600 are linear within the working range. This, together with the high excursion behavior - 70 mm before damage,  $\pm 14$  mm linear  $X_{max}$  - makes the 21NLW9600 an extremely low distortion, highly dynamic transducer.

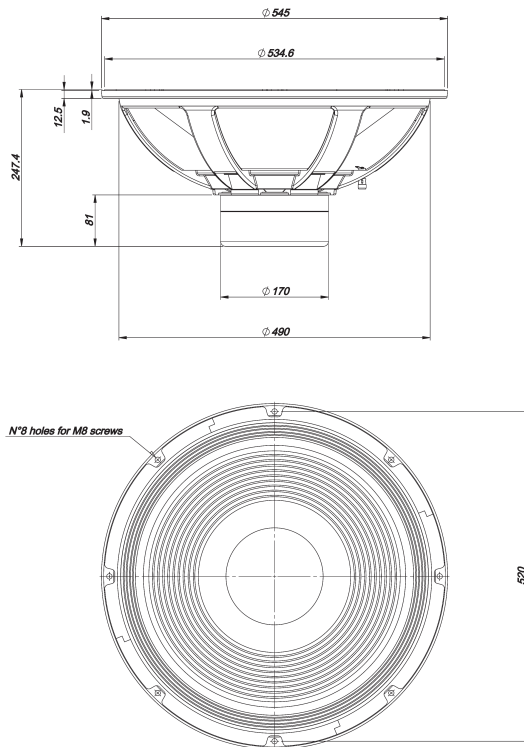
The already low distortion and sound quality are further improved by an aluminum Single Demodulating Ring (SDR technology) that flatten impedance and phase with a constant power transfer.

The 21NLW9600 has been developed after intense FEA and fluido-dynamics simulation and testing, focusing on dissipating the heat generated by the powerful 5.3" coil. Special attention was given to the optimization of air flow into the gap without introducing audible noise. A special low density material air diffractor placed into the backplate acts as a cooling system, increasing the power handling capability and lowering the power compression figure.

Weight reduction was a key development aspect of the 21NLW9600, resulting in a net value of 14kg (30,9lb).

The exclusive cone treatment improves pulp strength and gives water repellent properties to both sides of the straight ribbed cone. A special coating applied to both the top and back plates makes the transducer far more resistant to the corrosive effects of salts and oxidation.

022218N000 8ohm  
022214N000 4ohm



NEODYMIUM LF-MB-MF TRANSDUCERS

# 21NLW9600

Extended Low Frequency Neo Transducer

## GENERAL SPECIFICATIONS

|                                |                                  |
|--------------------------------|----------------------------------|
| NOMINAL DIAMETER               | 533mm (21 in)                    |
| RATED IMPEDANCE                | 8 ohms                           |
| AES POWER                      | 1800W                            |
| PROGRAM POWER (1)              | 3600W                            |
| PEAK POWER (2)                 | 10000W                           |
| SENSITIVITY (3)                | 97 dB                            |
| FREQUENCY RANGE (4)            | 24 - 2000 Hz                     |
| POWER COMPRESSION @ -10 DB (5) | 0.7 dB                           |
| POWER COMPRESSION @ -3 DB      | 1.3 dB                           |
| POWER COMPRESSION @ FULL POWER | 2.2 dB                           |
| MAX RECOMM. FREQUENCY          | 100 Hz                           |
| RECOMM. ENCLOSURE VOLUME       | 120 ÷ 500 lt. (4,24 ÷ 17,7 cuft) |
| MINIMUM IMPEDANCE              | 8,2 ohms at 25°C                 |
| MAX PEAK TO PEAK EXCURSION     | 70 mm (2,75 in)                  |
| VOICE COIL DIAMETER            | 135 mm (5,3 in)                  |
| VOICE COIL TECHNOLOGY          | split winding, 4 layers copper   |
| SUSPENSION                     | Triple Roll, Polycotton          |
| CONE                           | Straight Ribbed, Treated Paper   |

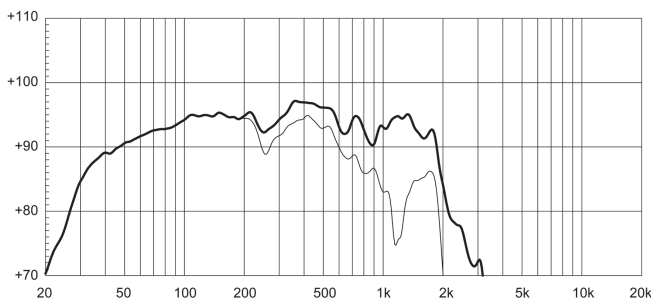
## THIELE SMALL PARAMETERS (6)

|                                    |                              |
|------------------------------------|------------------------------|
| Fs                                 | 29 Hz                        |
| Re                                 | 6 ohms                       |
| Sd                                 | 0,1662 sq.mt. (257,6 sq.in.) |
| Qms                                | 9,32                         |
| Qes                                | 0,23                         |
| Qts                                | 0,22                         |
| Vas                                | 304 lt. (10,4 cuft)          |
| Mms                                | 390 gr. (0,86 lb)            |
| BL                                 | 43,5 Tm                      |
| Linear Mathematical Xmax (7)       | ±14 mm (±0,55 in)            |
| Le (1kHz)                          | 3 mH                         |
| Ref. Efficiency 1W@1m (half space) | 97,0 dB                      |

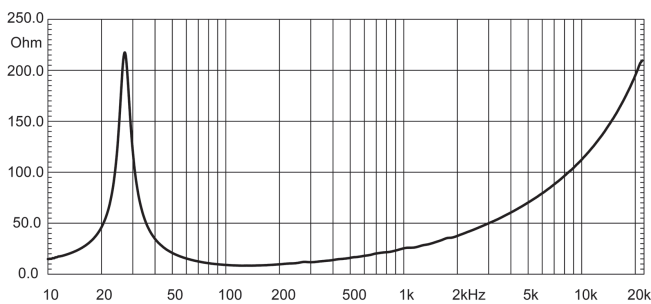
## MOUNTING INFORMATION

|                                    |                                    |
|------------------------------------|------------------------------------|
| Overall diameter                   | 545 mm (21,46 in)                  |
| N. of mounting holes               | 8                                  |
| Mounting holes diameter            | 8,5 mm (0,33 in)                   |
| Bolt circle diameter               | 520 mm (20,47 in)                  |
| Front mount baffle cutout diameter | 492 mm (19,37 in)                  |
| Rear mount baffle cutout diameter  | 490 mm (19,29 in)                  |
| Total depth                        | 250 mm (9,8 in)                    |
| Flange and gasket thickness        | 18 mm (0,7 in)                     |
| Net weight                         | 14 kg (30,9 lb)                    |
| Shipping weight                    | 15,5 kg (34,2 lb)                  |
| CardBoard Packaging dimensions     | 570x570x290 mm (22,4x22,4x11,4 in) |

FREQUENCY RESPONSE CURVE OF 21NLW9600 MADE ON 250 LIT. ENCLOSURE TUNED AT 28HZ 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) Program power rating is measured in 250 lit enclosure tuned 28Hz using a 30-300Hz band limited pink noise test signal with 50% duty cycle, applied for 2 hours.
- (2) The peak power rating represents the maximum permitted instantaneous peak power level over a maximum period of 10ms which will be withstood by the loudspeaker without damage.
- (3) 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 (1) above.
- (4) 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.
- (5) 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.
- (6) Thiele - Small parameters are measured after the test specimen has been conditioned by 1800 W AES power and represent the expected long term parameters after a short period of use.
- (7) Linear Math. 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.