

# 18LW1400

## Extended Low Frequency Transducer

### Key Features

- 98 dB SPL 1W / 1m average sensitivity
- 100 mm (4 in) Interleaved Sandwich Voice coil (ISV)
- 1000W AES power handling
- Double Silicon Spider (DSS) for improved excursion control and linearity
- Double Demodulating Rings (DDR) for lower distortion
- Improved heat dissipation via unique basket design and multiple backplate vents
- Weather protected cone and plates for outdoor usage
- Ideal for high SPL subwoofer designs



### General Description

The 18LW1400 is an extended low frequency loudspeaker which sets an industry standard in 18" (460 mm) high performance transducers. It has been designed for use as a low bass or sub-woofer component, in either a reflex, bandpass or horn loaded configuration, in high power auditorium or arena loudspeaker systems.

The transducer provides clean, undistorted low frequency reproduction at very high sound pressure levels and is able to withstand high power levels without damage.

18LW1400 design features include a large displacement suspension system which, in conjunction with a carbon fiber reinforced, straight ribbed cone and the Double Silicon Spider (DSS), assure an ultra-linear piston action and provide full control across the entire working range.

A 100mm copper voice coil based on Interleaved Sandwich Voice coil (ISV) technology increases this control, providing high levels of thermal stability and durability. ISV technology is based on a high strength fiberglass former with half the coil wound on the outside and half on the inside and bonded together using unique high temperature resin adhesives. Hence, a balanced linear motor unit, exerting an exceptionally high force factor is achieved.

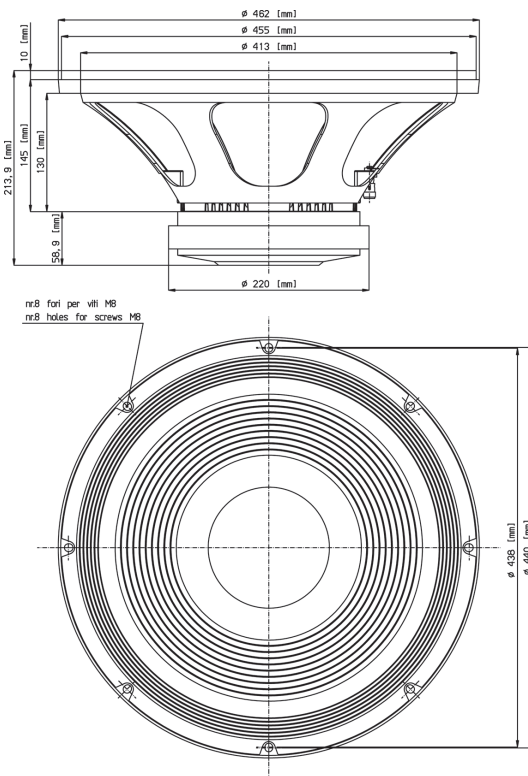
The low distortion and unmatched sound quality of the 18LW1400 has been significantly improved by the Double Demodulating Rings (DDR) embedded in the pole piece of the magnetic structure. These have been designed to dramatically reduce the intermodulation and harmonic distortion while improving the transient response.

Excellent heat dissipation has been achieved from the special basket design which incorporates air channels between the basket and the magnetic top plate. In addition, 8 air vents incorporated into the back plate are aligned with the voice coil to force air into the lower part of the gap.

Maximum flux density in the gap is assured by the top and back plate design, resulting in a high BL factor.

18LW1400 is able to perform properly under inclement weather conditions. The exclusive cone treatment improves pulp strength and gives water repellent properties to both sides of the cone. In addition, the special treatment applied to top and back plates of the magnetic structure is far more resistant to the corrosive effects of salts and oxidation.

0221883110 8 Ohm  
0221843110 4 Ohm



FERRITE LF-MB-MF TRANSDUCERS

# 18LW1400

Extended Low Frequency Transducer

## GENERAL SPECIFICATIONS

NOMINAL DIAMETER	460 mm (18 in)
RATED IMPEDANCE	8 Ohm
AES POWER	1000 W
PROGRAM POWER (1)	1400 W
PEAK POWER (2)	7000 W
SENSITIVITY (3)	98 dB
FREQUENCY RANGE (4)	28 - 2500 Hz
POWER COMPRESSION @-10DB (5)	0,8 dB
POWER COMPRESSION @-3DB	2,1 dB
POWER COMPRESSION @FULL POWER	3,0 dB
MAX RECOMM. FREQUENCY	500 Hz
RECOMM. ENCLOSURE VOLUME	130 ÷ 350 lt. (4,59 ÷ 12,36 cuft)
MINIMUM IMPEDANCE	6,4 Ohm 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
SUSPENSION	Triple roll, Polycotton
CONE	Straight Ribbed, paper

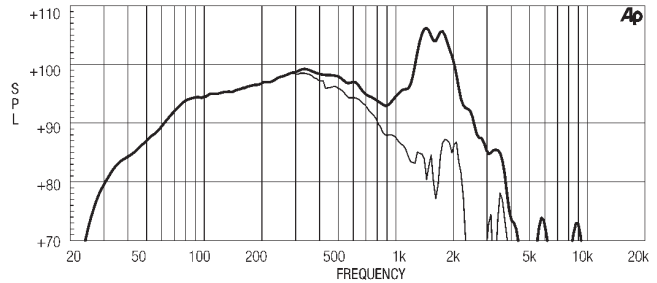
## THIELE SMALL PARAMETERS (6)

Fs	31 Hz
Re	5 Ohm
Sd	0,1225 sq. mt. (189,88 sq. in.)
Qms	7,2
Qes	0,31
Qts	0,29
Vas	297 lt. (10,49 cuft)
Mms	190 gr. (0,42 lb)
BL	24,7 Tm
Linear Mathematical Xmax (7)	± 9 mm (± 0,35 in)
Le (1kHz)	2,3 mH
Ref. Efficiency 1W@1m (half space)	96,5 dB

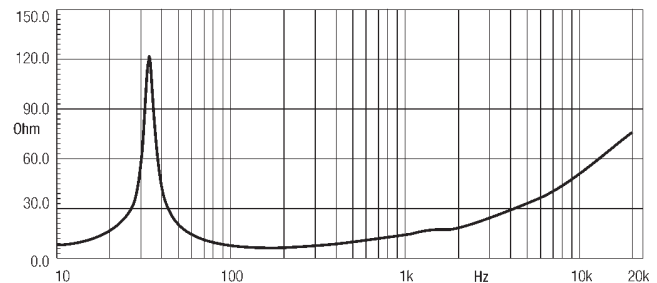
## MOUNTING INFORMATION

Overall diameter	462 mm (18,18 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 ø	416 mm (16,38 in)
Rear mount baffle cutout ø	422 mm (16,61 in)
Total depth	213,9 mm (8,42 in)
Flange and gasket thickness	26 mm (1,02 in)
Net weight	13,3 kg (29,36 lb)
Shipping weight	14,9 kg (32,9 lb)
CardBoard Packaging dimensions	482 x 482 x 257 mm (19 x 19 x 10,1 in)

**FREQUENCY RESPONSE CURVE OF 18LW1400 MADE ON 180 LIT. ENCLOSURE TUNED 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) Program power rating is measured in 180 lit enclosure tuned 35Hz using a 40 - 400Hz 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 1000 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.

