18P1200Nd

Beyma proudly presents the new benchmark in low frequency reproduction units: the 18P1200Nd. This model is the result of an extensive and intense research of every single constituent part of an electro-dynamic loudspeaker, rethinking the basics and taking care of every detail, to withstand the extreme power conditions it has been designed to work in. All this investigation is reflected in the new and innovative technologies developed by Beyma and applied in this new transducer.

Key feautures

- Sensitivity: 99 dB @ 2.83V
- Real 1200W AES power capacity.
- Forced air convection circuit for low power compression.
- Low resonance frequency: 30 Hz.
- Extended controlled displacement: Xmax ± 9.5 mm.
- Massive mechanical displacement capability: 2" X_{pp} (51 mm.)
- Exclusive Beyma Mechanical Mirror Suspension System (MMSS)
- 4" double inner/outer voice coil winding.

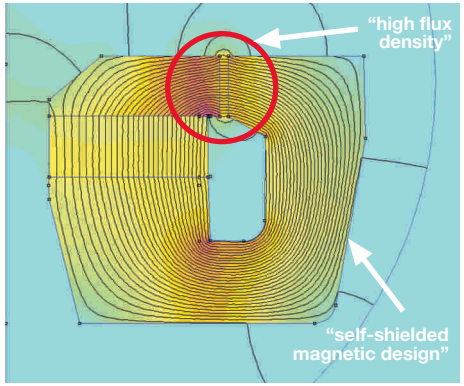
Beyma Duo technology 4" voice coil:

1) Laminated former which combines two different advanced technology materials, taking advantage of its respective mechanical and thermal properties, combined to enhance the voice coil life.
2) Voice coil winding coiled over the two faces of the former.
3) Double Presspan insulation paper (inner and outer) for optimum force transmission from the voice coil to the cone, offering perfect adhesion for the critical joint between spiders, former and cone.
4) Superficial treatment of the voice coil winding to provide further protection to the voice coil wire when working in extreme conditions.

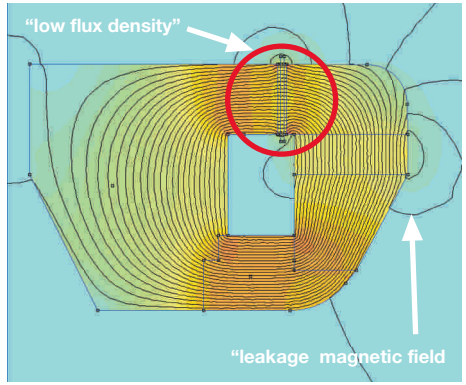
Beyma Duo Tech high power voice coil

Under-pole neodymium magnet topology:

1) F.E.A. optimized under-pole magnet topology. This geometry maximizes the flux density in the air-gap to increase the Bl force factor and completely eliminate the leakage magnetic field, avoiding any possible magnetic interference with other equipment.
2) High temperature neodymium magnets.



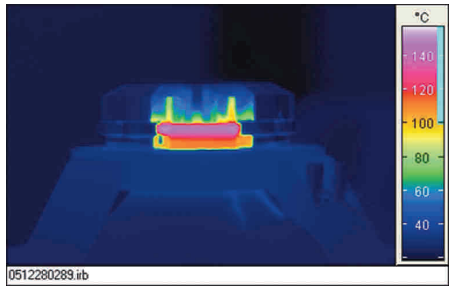
High efficiency under-pole magnetic design.



Low efficiency external magnetic design.

Heat dissipation:

Low power compression due to the use of a forced convection mechanism based on the evacuation of the hot air near the voice coil. This design has been optimized with the extensive use of miniature high temperature probes and real-time temperature acquisition systems, together with a thermo-graphic camera to obtain real images of the heat distribution in the voice coil and forced convection effects.



Thermo-graphic image of voice coil heating process.

Voice coil forced air convection circuit.

Diaphragm and spider:

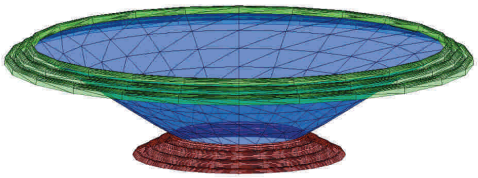
1) High stiffness weather resistant paper cone.

2) Beyma Double Conex Spider technology (D.C.S.): the conex is a fireproof material that insures the preservation of the spider mechanical properties under extreme power conditions. Moreover, the two spiders are combined with a special adhesive product that assures the perfect synthesis of the two spiders, even at very high temperatures and maximum elongations. This combination is clearly superior to the commonly used double silicon cotton spiders. The D.C.S. technology, although allowing a low resonance frequency for sub application, perfectly controls and keeps the voice coil centered in the air gap even under extreme displacement conditions, avoiding the rubbing and scratching of the voice coil.

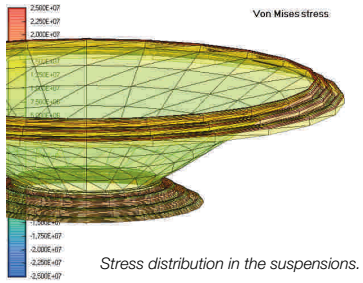
Typical double silicon cotton spider.

High quality double Conex spider.

3) Beyma Mechanical Mirror Suspension System (MMSS): the diaphragm surround and the double spider have been carefully designed with the assistant of Finite Element calculations, in order to match as its mirror reflected image in their force-displacement compliance function. The adequate match of the suspensions enables long and controlled cone displacements.



F.E.M. High excursion simmulation.



Stress distribution in the suspensions.

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beyond making sound