



WILSON BENESCH

PRESS RELEASE

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February 2008
UK Retail Price:
£2,500

nanotube one *another World's first.*



Nano tube technology is quite literally going to transform the world we live in.

Wilson Benesch is delighted to announce, the latest results of its on going research and development of carbon composites in audio structures. Wilson Benesch has only ever released three tonearms in its 18 year history of analogue development, so you can be confident that this tonearm is something quite special.

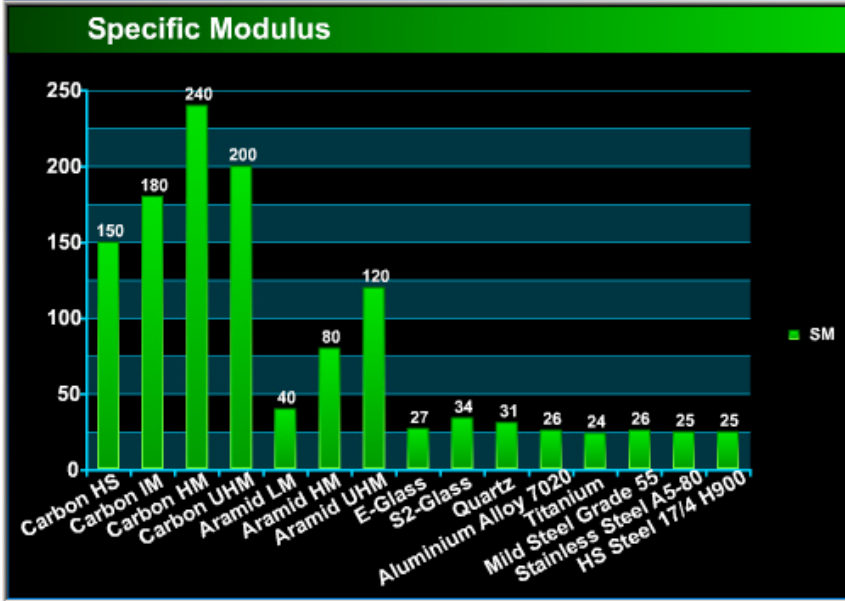
Like all Wilson

Benesch designs, the name of the product is taken from materials technology, or geometrical terms. The Nanotube One takes its name from the nanotubes, that have been used to enhance the high modulus aerospace quality



pre-preg carbon fibre epoxy resin matrix.

The Nanotube One, is a tonearm that defies belief. The structural performance of the A.C.T. Series of tonearms, have set the standard in terms of stiffness to weight ratio, as well as damping, since their introduction 17 years ago. Nanotube One is much more complex. The tube is



derived from the ideal natural form, of a hyperbolic curve, and so places the material, in exactly the place where the beam requires it to be, in order to achieve the stiffest structure, with the least amount of material. The tube itself, is composed of a woven helix of carbon fibre, to provide the stiffest torsional strength and the most damping, from the billions of carbon fibre filaments. Further localised stiffening, has been determined by computer modelling. Super high modulus uni-directional fibres, are deployed in these regions, adding immense stiffness with virtually no additional mass. The Epoxy resin matrix is then enhanced with nanotubes. After its creation, the tube is improved still further by the addition of low mass, high compression internal bulkheads. These enhance tube stiffness and also provide high performance, cross axial damping. The internal wire is isolated by these structures also, providing the ideal disposition for the low level signals. No additional finishing is added to the tube for aesthetic considerations

as this would add mass that has no sonic benefit.

The result sees a structure that is more than an order of magnitude superior to its predecessors in terms of stiffness and damping. An amazing achievement given the previous benchmark, that in our opinion, was already more than several orders of magnitude superior to any metal or ceramic design!

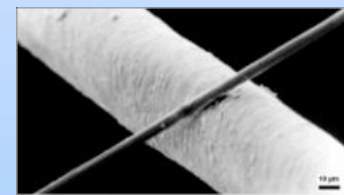
The Nanotube One benefits from other research results, that make the whole system less audible as well as more user friendly. The counter balance looks similar to its predecessor but has been totally redeveloped. It now sees a two stage compliant mounting to thwart any potential resonance in the metal and carbon structures from which it is created. The mass of the counter balance has also been optimised so as to match exactly the requirements of the Wilson Benesch carbon fibre cartridges. A small collection of other metal



Carbon.

The adjacent graph, clearly shows the difference in stiffness, between the basic carbons and metals. Significantly, simply by adding nanotubes, improvements in stiffness, in the order of 30% can be achieved. Nano tubes are structures that are measured at the molecular level. The “buckyball” in the main product image shows the carbon molecules organised into the geometrical form that was patented as an engineering structure by Buckminster Fuller.

On the almost visible scale, the image below shows a human hair, and a carbon fibre filament.



Typically, carbon is twenty five times smaller in diameter than a human hair. In each bundle that you see in a carbon fibre sheet, there are 25,000 fibres. In the A.C.T. tonearm there are literally billions of energy consuming boundaries! In the Nanotube Tonearm, damping and stiffness is being dramatically enhanced it is thought, by crosslinking at the molecular level.

structures have been replaced by carbon fibre also, including all the anti skate systems. V.T.A. is also now fully adjustable to one, one hundredth of a millimetre.