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The New 800 Series

Overview

In simultaneous launch events in London and New York, Bowers & Wilkins has announced a new 800 Series, available globally from B&W's authorised 800 Series dealers on January 15 2005. Promising an even greater advance in performance than was heralded in 1997 by the introduction of the Nautilus™ 800 Series, these remarkable loudspeakers redefine the reproduction of recorded sound.

Under their elegantly curved exterior, the new 800 models contain a mixture of brand new technologies, refinements to existing ideas, and all of the detail improvements made in the Signature™ 800 Series, possibly the best acclaimed range in B&W's 38 year history.

Technology

Diamond dome tweeter

Perhaps the most radical innovation is the use of a diamond dome tweeter in the six top models (denoted with 'D' suffix). In typical B&W style, the use of diamond domes began as a lengthy research project with the aim of creating a better understanding of the relationship between drive unit behaviour and actual sound quality. This research is detailed at length in the 800D Development Paper and is simply explained by B&W's Dr Gary Geaves (Head of Research) in the B&W DVD.

Crucially, B&W believes that it has made a significant advance in the journey towards the ultimate ambition of its founder, John Bowers - to create a transducer that truly neither adds to nor subtracts from the original signal. Subjectively, listeners report that the diamond dome tweeter affects every aspect of performance, but most notably creates an absolute

transparency and seamlessness to the whole midrange and treble region, bringing the listener closer to that elusive ideal of actually 'being there'.

The remaining models in the 800 Series (denoted with a 'S' suffix) use the alloy domes that were developed for the Signature Series and improve considerably on the original Nautilus 800 iterations.

B&W's pioneering use of Nautilus™ tweeter tubes continues in the new 800 Series.

Moreover, in all models, the mechanical design has undergone further refinement and is considerably better damped and more isolated from energy in the main cabinet.

FST midrange driver

All the 3-way systems in the new 800 Series use an improved version of B&W's FST™ midrange driver. This incorporates the improvements already made for the Signature 800 (aluminium phase plug and neodymium magnet system) as well as an improved chassis design. On the flagship products, the iconic Marlan® sphere/tube 'head' continues with detail changes to the interface with the tweeter tube.

Bass drivers

A dramatic change in the new 800 Series is the design of the bass drive units. To achieve dynamic and rhythmic low frequency performance, B&W has long believed in the use of stiff materials such as metal and a paper/Kevlar® mix. Advancing this principle has resulted in a new cone, having a sandwich construction using carbon fibre skins and a Rohacell® core. Rohacell® is a rigid foam, often used in the aircraft industry due to its light weight and high strength.

Although Rohacell® cones are not unique to B&W, up to now manufacture has been limited to the 1 - 2mm (0.04 – 0.08 in) thickness range. The new 800 bass drivers are 8mm (0.3 in) thick, which greatly increases the suppression of sound transmission through the bass unit itself (see the 800D Development Paper for measurement plots).

Crossovers

The development of the crossover design and component choice in all of the new 800 models represents a major proportion of the development time and improvement in performance.

Extended listening tests are vital to distinguish between components that have superficially similar specifications, enabling the optimum choice for each application. For many years, B&W's crossover philosophy has been to strive to optimise every aspect of a speaker's mechanical design so that only the simplest electronic adjustment is required to balance the system acoustically and musically. It makes good engineering sense, as electrical components in the path cannot add to the signal's basic quality.

The crossover that feeds the tweeter section in all of the new 800 Series products best exemplifies this philosophy. It uses, for the first time in the 800 Series, a single series capacitor developed in conjunction with one of the foremost manufacturers in Europe.

B&W's Senior Product Manager, Mike Gough, comments, "One of the listening sessions I took part in with the development engineers was to judge the specific change wrought by moving to a single component tweeter filter on the new 804s. To my ears, that change alone could have justified a change of generation let alone the range of improvements that would come later".

As a result of the move to 1st-order tweeter filters, the physical placement of the tweeter has moved forward towards the front of the baffle in order to achieve phase coherence with the midrange driver.

Cabinets

The striking curved cabinets of the 800 Series, manufactured in B&W's cabinet factory in Denmark, have undergone refinements throughout the lifetime of Nautilus 800 Series. On all models in the new series, the main curved part of the cabinet is formed from a single piece of layered ply, eliminating a join at the rear of the cabinet. All models continue to use B&W's patented Matrix™ bracing system.

A key development in two of the 800 Series subwoofers is the introduction of digital room correction, developed from B&W's Listening Room Optimiser (LRO). Led by B&W's Dr Peter Fryer, in collaboration with world-leading digital and psycho-acoustic consultants, the LRO concept resulted from a three-year research project and is the subject of several patents. It drastically improves the performance and integration of a subwoofer into real-world rooms by optimising the frequency response to deal with measured room acoustics.

The full range of 800 Series technologies is dealt with in detail in the 800D Development Paper.

Model range

The new 800 Series is a much bigger range than ever before, with new models added to reflect the continued growth of the home theatre category.

The 800D is the flagship: a 3-way system comprising 2x 250mm (10 in) Rohacell bass drivers, 1x 150mm (6 in) Kevlar FST mid driver and a 1x 25mm (1 in) diamond dome tweeter. As befits a flagship, the 800D contains several unique refinements, most notably the ultimate in crossover capacitors using silver and gold metals.

The 801D is already installed in Abbey Road's Studio 3 and, for those that relish the sheer power of a 15-inch bass driver, is the ultimate studio or large room monitor. A 3-way system, it comprises 1x 380mm (15 in) Rohacell bass driver, 1x 150mm (6 in) Kevlar FST mid driver and 1x 25mm 1 in) diamond dome tweeter. The new 801's cabinet is larger than that of the outgoing Nautilus 801 to improve the bass performance, yet looks less daunting due to the changes in the styling of the base of the cabinet and the plinth.

The 802D continues as the most domestically sized model of the 'headed' products. A 3-way system, it comprises 2x 200mm (8 in) Rohacell bass drivers, 1x 150mm (6 in) Kevlar FST mid driver and 1x 25mm (1 in) diamond dome tweeter.

The 803D is a completely new speaker introduced as result of market feedback with the aim of providing something of the performance levels of the flagship 800 models but using a more conventional looking cabinet. Of slightly larger dimensions than the 803S, the 803D is a 3-way system comprising 3x 180mm (7 in) Rohacell bass drivers, 1x 150mm (6 in) Kevlar FST mid driver and 1x 25mm (1 in) diamond dome tweeter.

The 803S is a 3-way system comprising 2x 180mm (7 in) Rohacell bass drivers, 1x 150mm (6 in) Kevlar FST mid driver and 1x 25mm (1 in) alloy dome tweeter. The 803S's cabinet, and internal Matrix, have been revised to increase stiffness, which has resulted in an increase in weight of 11kg (25 lb).

The 804S is the entry-level 3-way model in the 800 Series and comprises 2x 165mm (6.5 in) Rohacell bass drivers, 1x 150mm (6 in) Kevlar FST mid driver and 1x 25mm (1 in) alloy dome tweeter.

The 805S builds on the huge success of the Signature 805, offering greatly improved performance from the same cabinet design. It is a 2-way system comprising 1x 165mm (6.5 in) Kevlar bass/midrange driver and 1x 25mm (1 in) alloy dome tweeter, and a matching speaker stand is available.

The SCMS is based on the 805S and designed to offer 800 Series performance from an on-wall location. Ideal for Plasma based systems, for front, centre or rear location, it comprises 1x 165mm (6.5 in) Kevlar bass/midrange driver and 1x 25mm (1 in) baffle-mounted alloy dome tweeter. The SCMS comes complete with a wall bracket that allows both vertical and horizontal adjustment.

The HTM1D is the new flagship centre channel of the 800 Series. Referred to internally as the 'Hummer', it, for the first time, offers the Marlan head unit of the flagship 800 models in a

centre channel. It comprises 3x 200mm (8 in) Rohacell bass drivers, 1x 150mm (6 in) Kevlar FST driver and 1x 25mm (1 in) diamond dome tweeter.

The HTM2D is also a new model offering the diamond tweeter in a more conventional cabinet. It comprises 2x 180mm (7 in) Rohacell bass drivers, 1x 150mm (6 in) Kevlar FST driver and 1x 25mm (1 in) diamond dome tweeter.

The HTM3S builds on the outgoing Nautilus HMT1 and comprises 2x 165mm (6.5 in) Rohacell bass drivers, 1x 150mm (6 in) Kevlar FST driver and 1x 25mm (1 in) alloy dome tweeter.

The HTM4S builds on the outgoing Nautilus HTM2 and is near identical acoustically to the 805S. It comprises 1x 165mm (6.5 in) Kevlar mid/bass driver and 1x 25mm (1 in) alloy dome tweeter.

The DS8 is a new rear channel speaker designed for both dipole or monopole operation, selectable via a 12V trigger or mechanical switch. It comprises 1x 165mm (6.5 in) Kevlar bass/midrange driver, 2x 100mm (4 in) Kevlar midrange drivers and 3x 25mm (1 in) alloy dome tweeters.

The ASW875 (1x 380mm / 15 in) and ASW865 (1x 300mm / 12 in) both use Rohacell bass drivers, coupled to the same 1000w power amplifier and B&W's digital room correction system. The ASW825 is identical to the outgoing ASW800, except for the upgrade of a 300mm (12 in) Rohacell cone driver.

All 800 Series models are available in Cherrywood, Rosenut and Black Ash finishes.

Available press resources:

'Development of the 800D' White Paper
B&W 800 brochure
B&W: A Sound Experience DVD
B&W 800 photo files
www.bwspeakers.com

Trademark Acknowledgements:

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