

BOWERS & WILKINS 802 D3 LOUDSPEAKERS REVIEW



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One of my favourite audio quotes is nearly 50 years old, and the man who said it, John Bowers, died nearly 30 years ago. That quote is: “The best loudspeaker isn’t the one that gives the most; it’s the one that loses the least.” As you undoubtedly already knew, or have just guessed, Bowers was one of the two men who in 1966 founded what is arguably Britain’s most famous loudspeaker company: Bowers and Wilkins. (Confusingly, the other founding partner was not Roy Wilkins – he was Bowers’ partner in a previous retail enterprise – but Peter Hayward. Why didn’t they name the new company Bowers & Hayward? That’s a long story for another day, but

one likely reason was that the abbreviation 'B&H' had been taken by another famous British enterprise – cigarette manufacturer Benson & Hedges!)



At the time of this review, the B&W 802 D3 is Bowers & Wilkins' top-of-the-line loudspeaker in its 800 Series Diamond, with the company waiting until its 50th anniversary year (2016) to release the official 800 Series flagship, the B&W 800 D3. Also next year will come a satin white version (shown above), a quite radical variation

for this Series. B&W's absolute range-topper is still the Nautilus, which fetch more than \$100,000 per pair.

Nautilus DNA

Readers familiar with the Nautilus will have already recognised one similarity between the 802 D3 and the Nautilus, which is that tapered tube behind the 802 D3's tweeter... though whereas the 802 D3 has only one, the Nautilus has three (or four if you include the one behind the bass driver). This tube works as an 'inverse horn', extracting unwanted energy from the rear of the diaphragm by moving it away to be dissipated inaudibly as it moves down the tube. It's required because if the sound coming from the back of a diaphragm is not removed, it will interfere with the correct motion of the diaphragm.

But it isn't only the tapered tubes that are unusual: so too are the tweeter and the midrange driver. The 25mm diameter surface of the dome tweeter on the 802 D3 is not made of cloth, plastic, or metal, but of diamond. As a result, the dome is so hard that it does not enter its 'break-up' mode until nearly 70kHz. This is far higher than for any other material used to make tweeters, and means that the dome will remain rigid, exhibiting the desired piston-like behaviour not only within the audio band, but also for at least an octave above it.

One problem with diamond domes (apart from their cost and a slight weight penalty over other exotic materials!) is that they're so fragile that a protective grille is fitted, and this grille has a very tiny effect on the tweeter's frequency response. Although the 802 D3's tweeter is the same as on previous 802 models, B&W says it's improved the protective grille to make it more acoustically transparent, so it has less effect on the sound waves as they pass through it.



The midrange driver also uses an unusual material for its 150mm diameter cone... so unusual that B&W isn't saying what it is (at least until the patents are in place), other than to tell us that: "it's not Kevlar... it's even better than Kevlar". B&W calls the material 'Continuum' and says it has a 'unique composite construction.' B&W's preliminary brochure suggests that whatever material is used is woven into the desired shape, but doesn't specifically state that this is the case. Whatever it is, the new material "displays remarkably predictable behaviour right across the frequency range" according to B&W, sufficient to make that material "one of our most radical innovations in acoustic design in 30 years".

The midrange cone uses the same FST 'suspension' principle as previous 802s. 'FST' stands for Fixed Suspension Transducer. Essentially it means that instead of having a roll surround suspension around the circumference of the cone to allow cone movement, the outer circumference is fixed to a narrow ring of polymer foam

that instead stretches whenever the cone moves. Using a tiny foam ring means that far less bending-wave energy is reflected back into the cone than with a normal surround, and that reduces distortion. Also, fixing the cone's circumference in this way improves transient response, since the mass and compliance of the surround is eliminated. It also allows greater high-frequency extension, so the actual crossover to the tweeter can be at a higher frequency than normal.

Just as
B&W is
silent
about
the
material
used for
its



midrange driver, it's equally unforthcoming about the up-for-a-patent material used to make the cones of the two 200mm-diameter bass drivers fitted to the 802 D3, other than to say it's a composite cone with two layers of outer material enclosing a foam core, which it calls an 'Aerofoil' cone. This construction seems not too dissimilar from a material B&W has been using for years, called Rohacel, which sandwiches a hard foam core between two carbon-fibre skins. But in the case of this new driver,

B&W is now varying the thickness of the foam over the cone's diameter, which it says extends the cone's pistonic behaviour further than would have been possible had the

cone had a uniform thickness.

B&W isn't only using the output of the front of the bass drivers to deliver bass: it's harnessed the output from the rear of the cones as well, which it re-directs through a 'Flowport' mounted in the base of the speaker, which fires downwards, and thus omni-directionally throughout the room.



The 802 D3 is a very large speaker (it stands 1.2 metres tall) and very heavy (each cabinet weighs 95kg), but despite this size and weight the cabinets are supremely easy to move around. B&W has fitted castor wheels underneath, and once you've used the wheels to manoeuvre each speaker to the ideal position in your listening room, you then reach underneath and spin three 'wheels' that force spikes down into the floor so the speaker can't move, and to ensure vibration isn't transmitted from the speaker to the floor or vice versa.

Listening Sessions

They say beauty is in the eye of the beholder, and to my mind, the 802 D3s speakers are truly beautiful... at least when viewed from any angle where you can't see the wide expanse of fluted aluminium that runs down the spine of the speaker at the rear. Luckily, the curvature of the cabinet means the aluminium is almost completely invisible except when the cabinet is viewed from behind. This fluted aluminium spine is apparently an essential component of the upgraded matrix bracing inside the

cabinet, and also fundamental to the integrity of the cabinet's construction, as it constrains the curved side walls.

Visually, I found the silvery, space-age finish of the Continuum cone a huge improvement over the yellowish tinge of the previously-used Kevlar. I also loved the look of the bass drivers, whose surface looked like carbon-fibre to me. It all looks so good that if I owned a pair of 802 D3s I'd leave the speaker grilles in their boxes.

I've been a huge fan of B&W's diamond tweeter ever since it was first introduced. The glorious deliciousness of the high-frequency sound made my spine tingle all those years ago, and the deliciousness of that sound has never diminished... the clarity and purity of the treble issuing from those diamond tweeters is always a revelation. There's none of the 'zinginess' in the extreme highs that is the signature sound of most hard-dome tweeters (the result of their resonant frequency being too close to the audio band).

B&W must agree that these revelatory powers are impeccable, as the diamond dome is one of only a handful of components remaining from the previous 800 Series (the terminals are the other main carry-over). B&W says the other 868 components are brand new.

The quality of midrange sound from the B&W 802 D3 was indistinguishable from that issuing from the tweeter. For the first time I found myself unable to detect even a hint of the point on the audio spectrum where the midrange driver was transitioning to the tweeter. I thought it might be revealed if I moved off-axis from the speakers, due to the different directional characteristics of the two drivers, but even the most extreme off-axis positions did not expose the crossover point. They did, however, reveal that the B&W 802 D3's dispersion is unbelievably good, which I put down to a combination of the FST driver technology and the fact the driver is effectively baffle-less, mounted as it is in its new reinforced and braced cast aluminium 'head', so there are none of the response aberrations, reflections and timing errors that occur when a midrange driver is mounted on a baffle. The result was a sound-field that was suspended in my listening room so three-dimensionally intact that the sonic 'sweet spot' was almost everywhere.

Listening to the 24/192 version of Winds of Change (Soundkeeper Recordings SR1005), Art Halperin's voice was absolutely realistic and perfectly spatially positioned, irrespective of whether he was singing solo, or with his back-up harmony vocalists – just listen to the harmonies on "September Nights" (which sounds a bit too much like Otis Redding's "Sitting on the Dock of the Bay" for me to really enjoy it). The combination of the high-res recording and the B&W 802 D3 made it seem as if Jon Rosenblatt's pedal-steel guitar was right there in front of me, particularly on

“On My Way to You”, and the acoustic guitar sound on “Another Day Without You” was perfect. The transients of the picking on the nylon strings, the movements of fingers over frets, and the different resonances of the different guitars being played... the tiniest details of the performance were all made absolutely and transparently crystal-clear. The percussion is tasteful and true to the original by remaining in the background when played through the 802 D3s, but did serve to perfectly reveal the acoustic of the small church in which this album was recorded live direct to stereo, without overdubs, equalisation or mixing.

As for the bass, you might guess it may be ‘big’ just from the sheer size of the cabinets and the diameters of the two bass drivers, but to my ears it was not so much ‘big’ as ‘just right’... as well as being completely effortless. Those two drivers deliver everything from the delicate sound of the low strings on a cello or double bass – be they plucked or bowed – to the mighty sound of an orchestra at ffff, with kettle drums being beaten to within an inch of their lives. The usual deep bass ‘stretchers’, such as electric bass and kick drum, were just a stroll in the park for the B&W 802 D3s... and the lowest notes I could find on a pipe-organ recording were delivered with authority at sound pressure levels that I would not have thought possible.

But I have left the best for the last, and that’s the ability of the B&W 802 D3s to sound more like a real piano than any loudspeaker I’ve ever heard. Listen to Simone Dinnerstein’s recording of Bach’s Goldberg Variations (Telarc CD-80692) and you will really think there’s a 1903 Hamburg Steinway D sitting in the middle of your listening room. For a more Australian flavour, listen to Gerard Willems’ recordings of Beethoven’s piano sonatas, all recorded on various pianos made by Australian piano manufacturer Stuart & Sons. I didn’t listen to all 36, but every sonata I did play made it seem as though I had a Stuart & Sons grand in my room, not a pair of loudspeakers. (And yes, 36 sonatas, not 32. Willems adds the three Electoral sonatas plus the “Fantasy Sonata in D”, a reconstruction by Dutch musicologist Cees Nieuwenhuizen of Beethoven’s 1792 “Composition in D major/minor for piano”.)

Conclusions

The good news is that if you love the sound of the piano, a pair of B&W 802 D3s is going to cost you a whole lot less than a Steinway or a Stuart & Sons... as well as take up a whole lot less space in your room. But if you simply love the sound of music, you’re going to fall in love with the sound of B&W’s new 802 D3s.



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B&W 802 D3

FREQUENCY RANGE: 14Hz–35kHz

FREQUENCY RESPONSE: 17Hz–28kHz ± 3 dB

SENSITIVITY: 90dB SPL (2.83V@1m)

DISTORTION: <0.3% (2nd/3rd harmonics, 100Hz–20kHz)

NOMINAL IMPEDANCE: 8 ohms

MINIMUM IMPEDANCE: 3 ohms

TWEETER: 1 × 25mm diamond dome

MIDRANGE: 1 × 150mm Continuum cone FST

BASS: 2 × 203mm Aerofoil cone

MAX. REC CABLE RESISTANCE: 0.1 ohms

DIMENSIONS (HWD): 1212 x 390 x 583mm

WEIGHT: 94.5kg

CABINET: 4-driver, 3-way vented-box

FINISH: Rosenut or Gloss Black; Satin White to come

PRICE: \$35,900 per pair

WARRANTY: Five years

POSTSCRIPT: If you plan on using a subwoofer in conjunction with these speakers, read an article on how to correctly tune that subwoofer's volume, phase and crossover frequency controls to exactly match the B&W 802 D3 speakers [HERE](#)

Who Sells What: [Bowers & Wilkins](#)