owens & Wilkins’ latest ‘flagship’ range of 800-series models look, from the outside at least, almost identical to their predecessors, apart perhaps from a little extra brightwork around the drive units. In fact the detail differences are largely hidden, and their cumulative effect on the sound quality has been very significant.

The key changes for the latest series – all of which are now suffixed Diamond – is that all the models now have diamond dome tweeters, and these second generation versions have also undergone significant improvements over their predecessors. This is why the significant price increases across the whole range seem proportionately greater for the less expensive models, which previously had alloy dome tweeters.

The range structure has undergone some changes, the most significant perhaps being that the ‘classic’ 801 model based on a single 15-inch (380mm) bass driver is no longer part of the line-up. Instead, just two models now feature the separate Marlan midrange ‘head’ enclosure – the £11,500 802 Diamond and the £18,500 800 Diamond, the former with twin 8in bass drivers, while the latter with twin 10-inchers, is significantly larger and more substantially built than its junior brother.

The 802 Diamond was clearly one of the first into production. It was the model that Bowers & Wilkins used as a demonstrator during our visit, and was also the first to arrive at Messenger Towers for review. I therefore enjoyed the numerous positive aspects of this smaller model before big brother could destroy its pretensions.

Whether or not the circular black fabric grille is used to cover up the bright yellow Kevlar diaphragm, that Marlan ‘head’ does rather dominate the appearance of both these models, especially when its high gloss black finish contrasts with a wood veneered bass enclosure. The review 802 Diamonds came finished in a very pretty reddish (roosnut?) veneer, while the 800s arrived fully dressed all over in high gloss piano black, which according to Bowers & Wilkins is the height of fashion and demand this year.

The 802 Diamond and 800 Diamond have much in common, at least above the waistline, where both look – and apparently are – essentially identical. Indeed, it seems that the only difference lies in the crossover section that feeds the midrange driver, as the 800 Diamond uses superior quality components here.

One of their more unusual characteristics lies in their use of separate enclosures for bass, midrange and treble drivers. Each is optimised for the task it has to perform, and is mechanically decoupled from its neighbours. The midrange and treble are both as narrow as practical, in order to promote wide dispersion, while a crucial bonus is the ability to adjust the relative fore-and-aft spacing of each section at the design stage in order to optimise time alignment.

**Midrange and Top End**

Both the midrange and treble drive units are decidedly unconventional and very much Bowers & Wilkins proprietary design concepts. The FST (fixed suspension transducer) midrange unit is actually unchanged from that used in the previous ’D-series. It’s decidedly unusual in using a large (140mm diameter) woven Kevlar diaphragm without a conventional surround suspension.

A cone type drive unit surround is usually formed as some sort of rubber half-roll shape, so that it can fulfil the multiple roles of locating the cone concentrically with respect to the frame; of permitting significant fore’n’aft motion; and of providing a measure of mechanical damping for vibrations travelling radially out from the voice-coil to the cone edge. However, because the FST is expressly designed as a midrange-only driver, there’s no need to have a surround that allows for significant cone excursion. Instead its characteristics may be optimised to the absorption of the spectrum of vibrations that reach the cone edge.

The massively heavy teardrop shaped enclosure housing the midrange unit is made from a high density ‘artificial stone’ material called Marlan. It’s carefully shaped internally, effectively commencing with a sphere and leading to a tapering cone; the combination absorbs the rearward radiation without the need for damping materials, with their tendency to store energy and create time-smear. The complete head is mechanically decoupled from the bass section on a lossy resilient mounting.

Sitting on the very top, in a groove moulded into the top of the midrange ‘head’, the 25mm tweeter is mounted on the front end of a substantial tapered metal tube, again smartly finished in high gloss black. The absorbent-filled tube acts as a transmission line, designed to terminate the rearward radiation from the diamond dome diaphragm, and in its turn mechanically decoupled from the Marlan ‘head’. Diamond has the highest stiffness-to-density ratio of any known material, and this pushes the first dome breakup mode up to a claimed 74kHz – way above the audio band. However, it’s also very expensive (and, to keep the mass low, is very thin and fragile). Protective detachable mesh covers are provided, are held in place...
**Review System**

The speakers were mostly driven from a system comprising Naim NAC552 pre-amp with NAP500 and NAP135 power amplifiers. Speaker cables were Vertex AQ Moncayo, HiRez Moncayo and Chord Signature; Mini Moncayo bi-wire links were also used. Sources included Rega Valve Isis and Naim CD53/555PS CD players, a Magnum Dynalab MD106T FM tuner, and a Linn/Rega/ Soundsmith vinyl record player.

Magnetically, and should in my opinion be kept handy and used frequently.

This diamond dome remains unchanged, but using an alternative supplier for its peripheral suspension led to wider dispersion at the top end of the working range. This is considered subjectively preferable, but does somewhat reduce the on-axis sensitivity. To compensate, the motor section is heavily revised, and now requires four small, strategically positioned NeFeB (neodymium/iron/boron) magnets rather than just one.

**The Bottom Ends**

New neodymium magnet motors replacing much larger and heavier ferrites go to the heart of the bass drivers of both the **800 Diamond** and **802 Diamond** models. Prices apart, the bass units, enclosure and plinth are really the most significant differences between the two models (along with that midrange crossover component change).

One clue to the effect of changing from ferrite to neodymium is seen by comparing the overall weights of the previous **800D** and the new **800 Diamond** models, the latter shaving something like 20kg off the c120kg of the former. The ultra-compact nature of powerful neodymium magnets allows them to be located inside the bass driver voice coils and positioned symmetrically either side of the coil, ensuring balanced low distortion drive.

The twin 8-inches used in the smaller **802 Diamond** have 38mm voice coils and 150mm diameter diaphragms, formed as a sandwich with thick cores of Rohacell structural foam between thin woven carbon fibre. Much of the same also applies to the **800 Diamond**, though most of the figures are significantly larger. This model uses twin 10-inches with 75mm voice coils, still more powerful magnets, and 200mm diameter sandwich diaphragms.

Flowport flared and stippled ports (to reduce turbulence) fire downwards, between the bases and a plinth that, in the case of the **802 Diamond**, mimics the size and shape of the enclosure. Since the width and depth of its enclosure are also significantly smaller that those of its bigger brother, the end result definitely wins out on sheer elegance compared to the 800 **Diamond** with its much bigger, rectangular plinth. The sides and back of the **802 Diamond** bass enclosure are formed from a single piece of 26mm plywood, whereas the significantly larger bass enclosure of the **800 Diamond** is built from thicker 38mm plywood. Inside, proprietary Matrix ‘honeycomb’ cell type bracing further increases the strength and rigidity of the bass sections. Both speakers are available with their carcases finished in rosenut fabricated or cherrywood natural wood veneers, or in high gloss piano black.

The speakers are intended to be firmly coupled to the listening room floor. However, on delivery the plinths are fitted with ball castors, so that the speakers may be moved easily in order to establish the siting that gives best acoustic performance. Only after positioning has been finalised is it time to fit the supplied and very substantially engineered spike/stud reversible feet, that fasten securely into threads that are integral with the cast alloy plinths.

Said plinths house the crossover networks, which use a number of fancy components, mostly from German specialist Mundorf, including a new type of capacitor constructed from gold-plated silver foil with oil-impregnated insulation. Two pairs of socket/binder terminals are fitted, separating the bass from the midrange and top for bi-wiring or bi-amping. Following superior results obtained in listening tests, Bowers & Wilkins now sources its own exclusive terminals made from oxygen free copper (OFC), a metal which is a much more difficult to machine than the almost universal brass. A minor criticism of these, however, is that the gap parts are smooth and almost spherical – a hex-nut or similar machined finish would make it much easier to tighten the terminals properly.

**Measurements**

The measurements I take are simple and relatively crude, but the results are interesting nonetheless, especially as I’m able to compare the **802 Diamond** and **800 Diamond** directly with their **802D** and **800D** predecessors from 2005.

The most obvious difference between old and new is that the **Diamonds** have substantially higher sensitivities, some 3–4dB greater than their predecessors, and this increase has been achieved without compromising the load (minimum 4ohms, average 6ohms) seen by the amplifier.

The far-field in-room frequency responses of both new models are remarkably similar, the only substantive differences being that the larger model has a little more low bass (~30Hz) than mid-bass (50–60Hz), whereas the situation for the **802 Diamond** is reversed.

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**SPECIFICATIONS & MEASUREMENTS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Bowers &amp; Wilkins 802 Diamond</th>
<th>Bowers &amp; Wilkins 800 Diamond</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>3-way port-loaded loudspeaker</td>
<td>3-way port-loaded loudspeaker</td>
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<tr>
<td>Drive Units</td>
<td>1x 25mm diamond dome HF</td>
<td>1x 25mm diamond dome HF</td>
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<tr>
<td></td>
<td>1x 150mm Kevlar FST midrange</td>
<td>1x 150mm Kevlar FST midrange</td>
</tr>
<tr>
<td></td>
<td>2x 200mm Rohacell bass</td>
<td>2x 250mm Rohacell bass</td>
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<td><strong>Crossover Frequencies</strong></td>
<td>350Hz, 4kHz</td>
<td>350Hz, 4kHz</td>
</tr>
<tr>
<td><strong>Frequency Response</strong></td>
<td>60Hz–17kHz +/- 4dB</td>
<td>60Hz–17kHz +/- 4dB</td>
</tr>
<tr>
<td>(measured in-room, far-field)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bass Extension</strong></td>
<td>+1dB @ 20Hz</td>
<td>+1dB @ 20Hz</td>
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<tr>
<td>(measured in-room, far-field)</td>
<td></td>
<td></td>
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<tr>
<td><strong>Sensitivity</strong></td>
<td>93dB/W</td>
<td>93dB/W</td>
</tr>
<tr>
<td><strong>Impedance</strong></td>
<td>4ohm min, 6ohm ave</td>
<td>4ohm min, 6ohm ave</td>
</tr>
<tr>
<td><strong>Finishes</strong></td>
<td>cherry or rosenut veneer;</td>
<td>cherry or rosenut veneer;</td>
</tr>
<tr>
<td></td>
<td>piano black glass</td>
<td>piano black glass</td>
</tr>
<tr>
<td><strong>Dimensions (WxHxD)</strong></td>
<td>37x115x56cm</td>
<td>45x119x65cm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>72kg</td>
<td>102kg</td>
</tr>
</tbody>
</table>
Neither delivers a particularly flat or smooth response, both showing some loss of energy at around 350Hz and 2.8kHz, but in both cases the overall in-room far-field averaged response holds within a respectable +/-4dB from 60Hz up to the limits of audibility. Pair matching was good for our samples of both models.

Sound Quality
After installation (not a trivial procedure), the 802 Diamonds immediately seduced me with a superb ability to deliver a generously dimensioned soundstage rich in musical detail into the room, without drawing attention to the speakers themselves. If I was seduced, my better half was rather less convinced, as the strong top end is very revealing.

By the time the 802 Diamonds were replaced by the 800 Diamonds, seduction had given way to true love, as the bottom end now delivered the sort of drama and authority that the top end detail demanded. Even my partner was mollified by the change, especially after Vertex AQ’s sweeter HiRez Moncayo speaker cables (see Subjective Sounds) were introduced to the mix.

While the aural memory is not particularly reliable, the one thing that immediately struck me was that the 802 Diamonds were a considerable improvement over their predecessors, especially in their superior temporal coherence.

Whereas the previous generation always seemed to be working hard to try and glue the output of the three very different driver/enclosure elements together, without quite succeeding, superior top-to-bottom coherence is very much what both these new 800 Diamonds bring to the party.

While the new 802 Diamond doesn’t match the superior bass grip and authority of the earlier, larger 800D model, it is unquestionably superior in overall out-of-the-box transparency, low level articulation and stereo image precision.

The 802 Diamond’s bass works well enough, though it is a little self-effacing, so the attention is inevitably focuses itself on the top part of the band. That in turn places an obligation on the components ahead of the speakers in the chain to deliver a relatively sweet sound. The 802 Diamond takes no prisoners, and if the signal itself is harsh, that harshness will be faithfully reproduced.

Something of the same is true of the 800 Diamond, but to a rather lesser extent, as significantly greater bass authority, dynamic tension and poise provides a much stronger focus of attention, and one is less drawn towards the top end.

The 802 Diamond is a very good loudspeaker indeed by any standards, and very good value too in an overall marketplace context. But the 800 Diamond is a whole lot better. It’s all about power with control: it has a rare grip and tautness that pays as much attention to the decay as the start of a note, while the dynamic range here is also exceptionally wide. I’m tempted to compare it to the much larger and more costly JBL Everest – it might not quite match the latter’s easy headroom, but in terms of dexterity and authority it gets pretty close.

Where the Bowers & Wilkins designs differ considerably from that JBL is in their imaging, which brings the listening room acoustics much more into the total performance, diluting the focus of a recording or broadcast slightly while promoting the impression of performers being present in the room. Indeed, after installing HiRez Moncayo cables it became clear that image focus and depth perspective were potentially very good – the surprise was that in my situation this had rather more to do with the cables than the speakers!

One might anticipate that the measured response unevenness might cause significant coloration, but this didn’t seem to be the case subjectively in practice. The reason, in my opinion, is to do with the relationship between time-smear and tonal balance-generated colorations: reduce the former and the latter seems to become increasingly innocuous and unintrusive – even substantially irrelevant. And because these new Bowers & Wilkins models have truly excellent coherence, residual coloration is barely noticeable.

Conclusions
The improvement in overall time and driver coherence is the major advance over their predecessors, but these speakers also have excellent dynamic vigour and expression, precise, stable and spacious imaging, and an exceptionally wide dynamic range – especially the larger 800 Diamond model, which fully maintains these major strengths right across the whole audio spectrum.

Both are great fun and very involving, and therefore deserve my confident recommendation. They offer true high-end performance at lower prices than much of the more pretentious competition, and I’m hoping to persuade the 800 Diamonds to hang around as a long term reference.

Aesthetics are a matter of personal taste, but these new Bowers & Wilkins models follow strict form-follows-function rules, so who’s arguing?

Two caveats remain. These speakers have bright tonal balances that will ruthlessly reveal any signal shortcomings, so do make sure that the driving system is of commensurate quality. And don’t even consider auditioning the 800 Diamond if you can only afford the 802 Diamonds, as this will only generate dissatisfaction!