

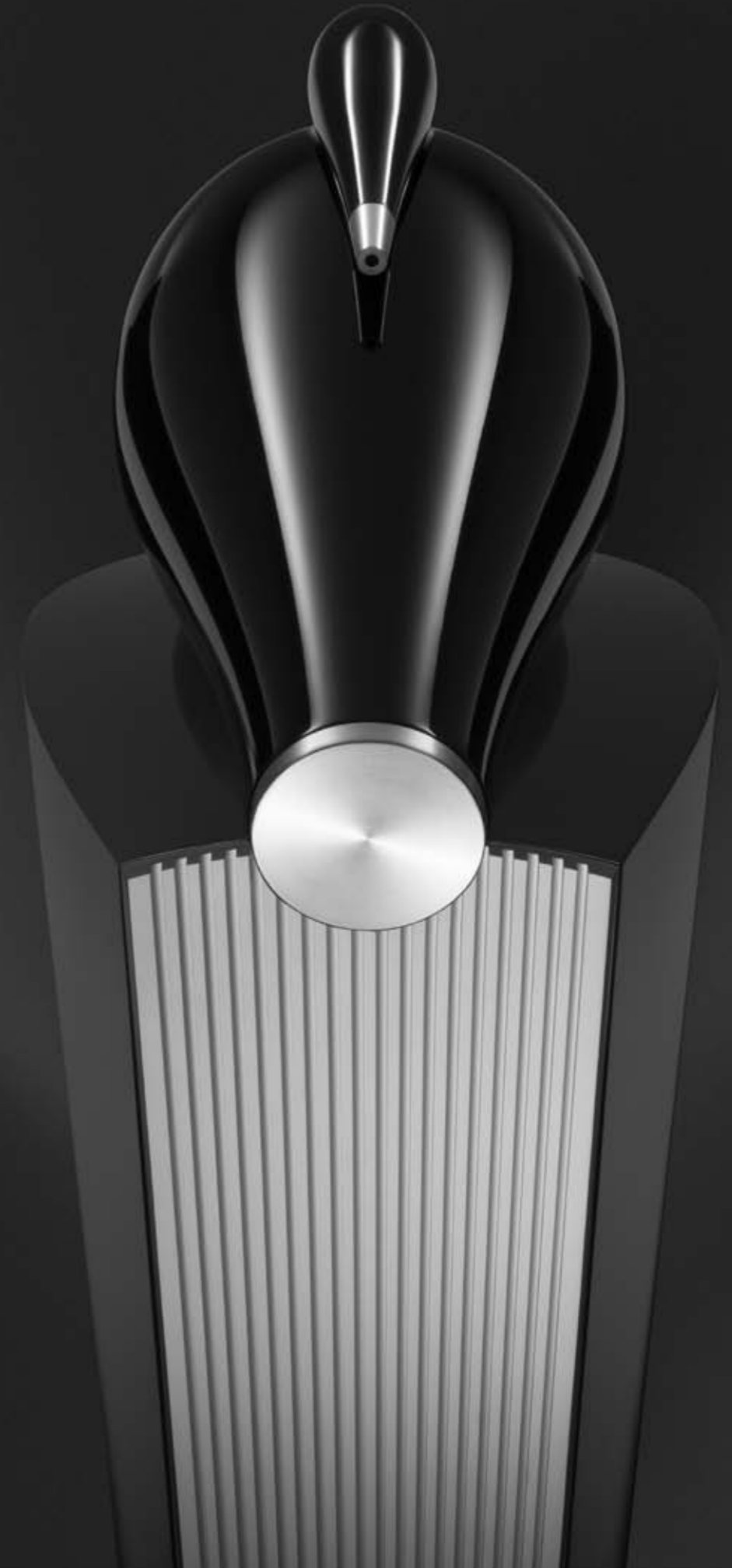


For some people,
it's enough just to
hear music.

But some of us want more. We want to experience it – in its purest, most unadulterated form. To savour every nuance and detail. To feel as close to a musical performance as if we were there, with the artist at the moment it was recorded. At Bowers & Wilkins, we've been pursuing this dream for half a century. And now we've made our biggest leap forward yet. Welcome to the 800 Series Diamond.

This changes everything

Change. It's what we do at Bowers & Wilkins. Our approach to acoustic design and engineering has always been driven by relentless innovation – by questioning what went before, in order to make things better. With the 800 Series Diamond, our approach was no different. But this time, we've gone further than ever before. And the result is something truly radical.



Reimagining an icon



The 800 Series isn't just another speaker range. For decades, it's served as the benchmark for high-end audio performance. So how do you improve on the best? Answer: you start from the beginning. So when we set out to create the new 800 Series Diamond, we went back to the drawing board, embarking on one of the most ambitious research and development projects we have ever undertaken.

We've introduced
a few changes.
Eight hundred and
sixty-eight of them,
to be exact.

Using new computer modelling techniques, we examined every single element of the speaker, searching for the smallest weaknesses so we could understand how to overcome them. As a result, almost every component of every speaker has been reimagined from the ground up, from drive unit materials all the way to the position of screw fixings. The new 800 Series Diamond isn't an evolution. It's a revolution.



Almost every aspect of each 800 Series Diamond has been entirely redesigned. Of each speaker's major components, only the diamond tweeter domes remain unchanged.



Product range

We believe the way you hear music matters.

And if you care about hearing music the way it was intended, this range was designed for you. Whether you're a recording engineer or a home audio enthusiast, you'll find a model to suit your listening requirements. Introducing the world's most advanced loudspeaker range.



802 D3

Reveal your music If you are looking for stunning realism, then the 802 D3 is the loudspeaker for you. The beneficiary of all the technical innovation the new 800 Series Diamond has to offer – from the innovative Turbine head and Continuum cone to the radical new plinth design – at home or in the studio, it will reveal depth and detail in music you never knew existed.



803 D3



True sound comes home The 803 D3 is the first of its kind: a full-range, studio-quality speaker built for the home, and the most compact headed unit we've ever produced. While this elegant speaker comes in a living room-friendly size, it shares the same revolutionary technologies and design features as its larger sibling, including our Turbine head and reverse-wrap cabinet.

804 D3

Wolf in sheep's clothing It might have a more traditional appearance than other speakers in the range, but don't let that fool you. The 804 D3 delivers incredible acoustic transparency, thanks to unique 800 Series Diamond features such as our Continuum cone and augmented Matrix bracing system. So while its looks may be conventional, its performance is anything but.



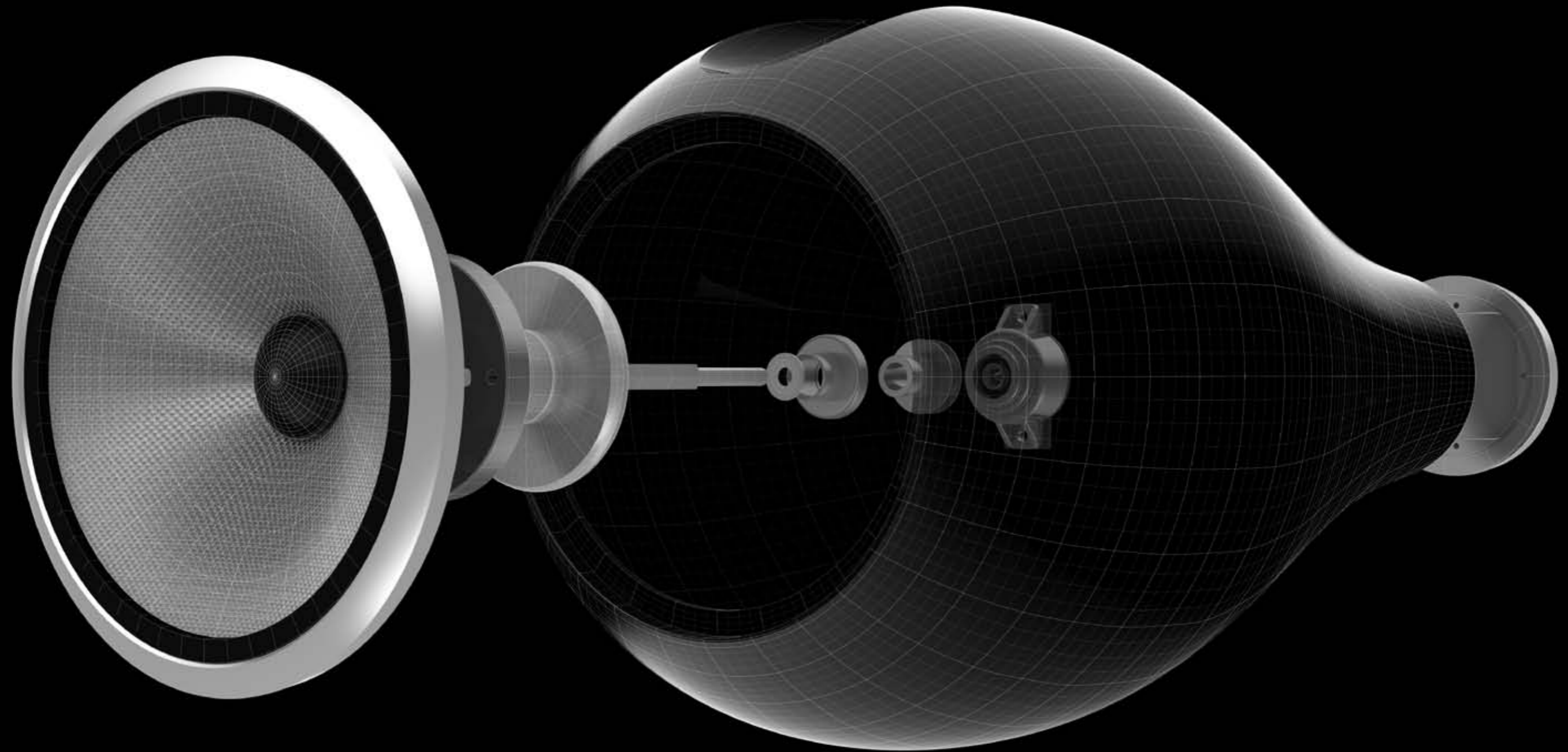
805 D3



Small sounds beautiful The smallest speaker in the 800 Series Diamond range is also one of the most groundbreaking. Packed with cutting-edge technologies never seen before in a speaker of its class, it's the only stand-mounted speaker in the world to feature a diamond dome tweeter. For lifelike spaciousness and detail, no other small speaker comes close.

Technologies

Welcome to the future. The 800 Series Diamond is a game-changer in terms of technological innovation. From drive units to cabinet geometry, every major component has been rethought and reinvented. And the rulebook for loudspeaker design has been ripped up and rewritten in the process. The future of loudspeaker technology starts here.



Turbine head Hear the sound, not the cabinet. That's the principle behind our separate head units – a feature we introduced when we launched the first 800 Series speaker in 1979. Now, thanks to a radical redesign, the 800 Series Diamond head unit performs better than ever. Constructed from a single piece of aluminium, braced with internal radial fins and with a raised, slimmer profile, the Turbine head is almost totally inert, producing a sound that's free from cabinet coloration.



Solid body tweeter Vibration is the enemy of good sound. To minimise vibrations, you need components that are as stiff as possible. For the 800 Series Diamond, we created our stiffest tweeter enclosure yet. The tweeter assembly for the new range is housed in a solid piece of aluminium, while an improved gel decoupling system isolates the tweeter from the effects of cabinet resonance. The result? Pin-sharp acoustic detail, and new levels of insight into a musical performance.

Continuum cone For decades, we thought that nothing could beat Aramid Fibre as a midrange cone material. But now, following eight years of intensive development, we've finally come up with something even better. Thanks to its composite construction, the Continuum cone avoids the abrupt transitions in behaviour that can impair the performance of a conventional drive unit. The result is a more open, neutral performance. And a giant leap forward for loudspeaker design.



Aerofoil cone Sometimes, new technologies allow us to achieve things in engineering that wouldn't have been possible a few years ago. The Aerofoil bass cone is a perfect example. By using advanced computer modeling and a new syntactic core material, we've been able to produce a cone of varying thickness, with maximum stiffness where it's needed most. This optimised shape means the cone displays pistonic behaviour further up the audible range, producing bass that's precise, controlled and utterly lifelike.



Reverse wrap cabinet When it came to designing the ideal shape for the 800 Series Diamond cabinet, we did a U-turn. Quite literally. Instead of a flat-fronted speaker with a curving back, we produced a cabinet with a front and sides formed of one continuous curve, held together with a spine of solid aluminium. Fewer joins make for a stiffer, more inert structure, and a curved front means less baffling around the drive units. So sound dispersion is improved, and cabinet reflection is reduced.

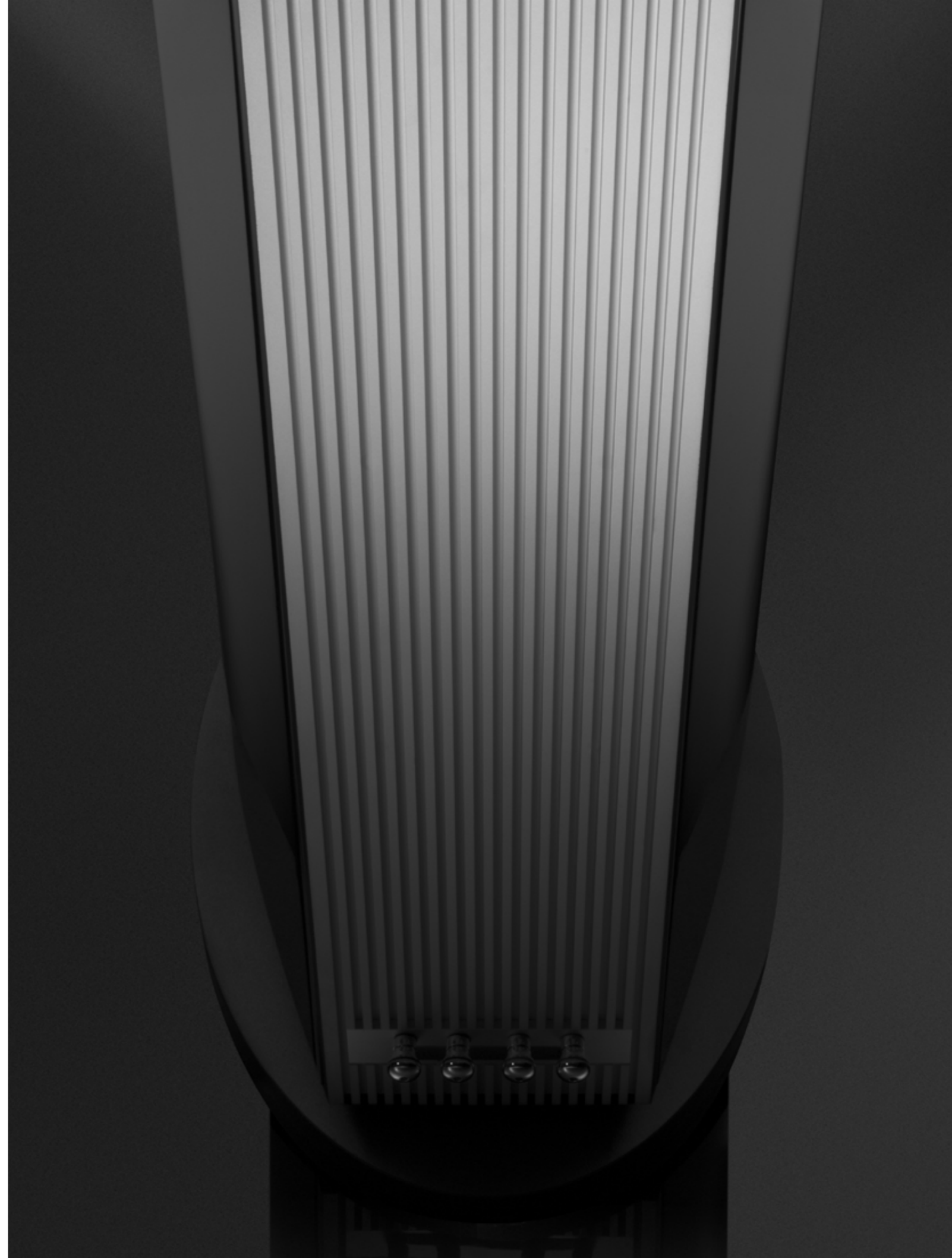


Matrix™ Matrix provides the backbone for our speakers. It's an internal structure that works like the bracing of a ship's hull, with criss-crossed interlocking panels keeping our cabinets rigid and inert. For the 800 Series Diamond, we've introduced our most radical rethink of the Matrix concept yet. The internal panels are thicker, solid plywood has replaced MDF, and metal components have been added to reinforce key stress points. All together it's the most solid Matrix system we've ever built.

Plinth A great speaker needs a rock-solid foundation. By moving the crossover from the plinth to the main body of the speaker, we've been able to create a base for the 800 Series Diamond that's more stable and resonance-resistant than ever. Replacing the original open-box design, the new plinth is constructed from a solid piece of aluminium weighing in at a mighty 17kg. This improves stability by lowering the centre of mass and counter-balancing the weight of the Turbine head.



The base of larger 800 Series Diamond models are fitted with castors to allow you to manoeuvre your speakers into position easily. Replacing these castors with floor spikes used to be a tricky proposition, involving tipping your speaker on its side. Not so with new 800 Series Diamond speakers, which come with integrated floor spikes that can be lowered or raised with a simple twist of a cog.





Diamond domes

Some things don't change. While almost every component of the 800 Series Diamond has been reinvented, the element that gave the range its name remains unchanged: the speaker's diamond tweeter domes. Our diamond domes remain the ultimate in tweeter technology, capable of unrivalled acoustic detail, naturalism and spaciousness.

Diamond: the super-material

The properties of diamond are prized in highly specialised industrial applications, from neurosurgery to CERN's Large Hadron Collider. Its unique stiffness-to-lightness ratio also makes diamond the perfect tweeter material. Developed especially for the 800 Series Diamond, diamond tweeter domes push the break-up frequency threshold to a remarkable 70kHz, resulting in superb clarity and detail.

Making diamond the natural way takes seismic pressures, volcanic temperatures and around two billion years. Thankfully, science has found a way to shortcut the process. Using chemical vapour deposition, our diamond domes are grown like crystals in super-heated furnaces under laboratory conditions, before being cut to produce the perfect tweeter dome shape.



A diamond is born. Above: each dome is precision-cut by laser to remove any surface irregularities, and then measured to ensure a uniform shape. Right: a set of finished domes, complete with their protective platinum coating.





The making of 800 Series Diamond

How did you first approach the challenge of improving the 800 Series Diamond?

Fundamentally, no loudspeaker is perfect; elements of it are imperfect in different degrees. So you start with what you think are the biggest imperfections first. And as you remove one imperfection, the veil of noise and distortion and coloration lifts. That then reveals other imperfections.

So it is a developmental process?

It is, and also new technologies come online. For example the Continuum cone has been something we have been investigating for many years. We were finally in a place where we were exceptionally excited about its performance, and the new 800 Series Diamond is the perfect platform for it. Another long development process was involved in the internal Matrix bracing system. Anecdotal evidence suggested it could be improved, and we investigated two approaches: using fewer, thicker braces or many more thin braces. We discovered that thick braces and fewer of them were the way to go with this new range.

How did that inform the next steps?

That, along with the main simulation, told us what sort of structure we wanted and then that, combined with a new industrial design, led to some challenges about how to incorporate the structure. This in turn led to all the steel and aluminium elements that have been incorporated into the new models in the range. So the final Matrix structure – which is optimised for each model in the range – was the result of a long development process.

What are the main innovations that really made a difference to the sound of the new 800 Series Diamond?

All the elements work together to produce the final product, and all play important parts, but I would have to say that the Continuum cone plays a massive role. Its development was like taking a veil away, and allowed us to see more clearly what else needed attention. Also, all the cabinets have improved, and the new Turbine

head design is definitely a big step up from where we were previously.

In what way do advances in speakers reflect similar advances in other industries such as the world of automotive?

We search for many of the same things that our automotive partners look for. We are after stiffness and low mass and high damping, and we are after noise attenuation and high performance. All those things are very automotive, aerospace even.

Where can we see that informing developments in the new range?

The new Aerofoil cone is very much an aerospace kind of structure. Less the shape, more the construction technique, syntactic foam, carbon skin, and so forth. It allowed a big jump in performance in terms of fidelity and low distortion.

Only the Diamond dome has remained. Has the new solid body tweeter assembly aided its performance?

Yes it has overall. It is different approach from where we were before, but by making the tweeter housing solid and reducing resonances we ended up with a system that resulted in less coloration.

Listening plays a big role in how you refine your products. Can you describe Steyning's culture of listening?

Let's say we never trust a measurement! But if we see a good measurement then we will have a good listen to it. Conversely, if we hear something good then we will measure it to understand why it sounds good. These days we've got advanced simulation tools as well. So we predict something, we measure it, and then if things look good we listen to it as well. Those three elements of information work together extremely well, and you can certainly hear the benefits in the new 800 Series Diamond.

What inspired you to start working with Bowers & Wilkins back in 1988?

They have a unique approach to sound. John Bowers' approach dictated that whatever was recorded, or intended in the recording studio, is what Bowers & Wilkins is trying to reproduce authentically within their loudspeakers. If they were eyewear, they would be the most clear, most vivid, most transparent pair of glasses you could possibly wear.

What did the 800 Series Diamond redesign brief demand?

Everything on this loudspeaker is performance driven. So every feature, every component is interrogated to understand what impact it has on the sound reproduction. There were certain key points though; Bowers & Wilkins had engineered a smaller head, one that could be scaled so that it worked on both the larger and smaller speakers. We also wanted the head to be created from an authentic, sustainable material such as aluminium. There was a vast amount of work carried out on this.

Explain how you collaborate with the engineers at the Steyning Research Establishment.

In 2018 we will have continually worked with Bowers & Wilkins for 30 years. That has enabled us to understand each other: we are almost obligated to dissent with each other and often great things come from that. We know from Steyning about shapes and forms that have a very good acoustic impact. We were brainstorming and sketching with the acoustic engineers and new directions started to appear. For example, as soon as we discussed a curved fronted cabinet, the engineers became very excited about where that could take us.

And what was your bravest decision?

The cabinet being reversed was the biggest decision. Now it is much more sculptural and has a more aesthetic appearance.

Why was this reverse wrapped cabinet so exciting?

Through studies that were done many, many years ago we've always known the less surface area around the driver the better the accuracy of sound reproduction. We re-visited some of that thinking and that in turn triggered more changes. It literally is just the diamond tweeter dome that didn't change. Every other single component and material that you can see has been redesigned.

Such a premium product demands flawless attention to detail, can you elaborate on how that impacted on the design process.

The major challenge was getting that crispness of fit between components normally associated with high-end, well-engineered and crafted products. There needs to be a lot of attention to that fit and finish; to those gaps and those tolerances that just make a product feel better and tighter. The original goal was to improve on that precision on the previous range, negotiating the minimum of tolerance gaps, and ensuring that everything fits as well as it can was really important.

Now, after all the changes, how do you feel about the new range?

Overall I think this range is very successful because it has managed to keep key DNA aspects of the very original Nautilus™ 800 Series whilst being 100% new and improved. In my mind the 800 Series Diamond is similar in philosophy to the Porsche 911. It has evolved over decades, getting better and better and better - and I think the 800 Series has grown in a very similar way. And this series is probably the best expression of any product Bowers & Wilkins has ever made.



Morten Warren
Founder of Native Design





Specifications



	802 D3	803 D3	804 D3
Technical features	Diamond Tweeter Continuum Cone FST™ Turbine head Aerofoil cone bass units Flowport™ Optimised Matrix Solid body tweeter Anti-Resonance plug Tweeter on top	Diamond Tweeter Continuum Cone FST Turbine head Aerofoil cone bass units Flowport Optimised Matrix Solid body tweeter Anti-Resonance plug Tweeter on top	Diamond Tweeter Continuum Cone FST Aerofoil cone bass units Flowport Optimised Matrix Solid body tweeter Anti-Resonance plug Tweeter on top
Description	3-way vented-box system	3-way vented-box system	3-way vented-box system
Drive Units	1× ø25mm (1 in) diamond dome high-frequency 1× ø150mm (6 in) Continuum cone FST midrange 2× ø200mm (8 in) Aerofoil cone bass units	1× ø25mm (1 in) diamond dome high-frequency 1× ø130mm (5 in) Continuum cone FST midrange 2× ø180mm (7 in) Aerofoil cone bass units	1× ø25mm (1 in) diamond dome high-frequency 1× ø130mm (5 in) Continuum cone FST midrange 2× ø165mm (6.5 in) Aerofoil cone bass units
Frequency range	14Hz to 35kHz	16Hz to 35kHz	20Hz to 35kHz
Frequency response (+/-3dB from reference axis)	17Hz to 28kHz	19Hz to 28kHz	24Hz to 28kHz
Sensitivity (1m on axis at 2.83Vrms)	90dB	90dB	89dB
Harmonic distortion	2nd and 3rd harmonics (90dB, 1m on axis) <1% 80Hz – 20kHz <0.3% 100Hz – 20kHz	2nd and 3rd harmonics (90dB, 1m on axis) <1% 70Hz – 20kHz <0.3% 100Hz – 20kHz	2nd and 3rd harmonics (90dB, 1m on axis) <1% 70Hz – 20kHz <0.3% 120Hz – 20kHz
Nominal impedance (min)	8Ω (minimum 3.0Ω)	8Ω (minimum 3.0Ω)	8Ω (minimum 3.0Ω)
Recommended amplifier power	50W – 500W into 8Ω on unclipped programme	50W – 500W into 8Ω on unclipped programme	50W – 200W into 8Ω on unclipped programme
Max. recommended cable impedance	0.1Ω	0.1Ω	0.1Ω
Dimensions	Height: 1212mm (not including feet) Width: 390mm Depth: 583mm	Height: 1160mm (not including feet) Width: 334mm Depth: 498mm	Height: 1019mm (not including feet) Width: 238mm Depth: 345mm
Net weight	94.5kg (208lb)	65.5kg (144lb)	33kg (73lb)
Finishes	Cabinet: Rosenut Gloss black Grille: Black Black	Cabinet: Rosenut Gloss black Grille: Black Black	Cabinet: Rosenut Gloss black Grille: Black Black



	805 D3	HTM1 D3	HTM2 D3	
Technical features	Diamond Tweeter Continuum cone bass mid Flowport Optimised Matrix Solid body tweeter Anti-Resonance plug Tweeter on top	Diamond Tweeter Continuum Cone FST Aerofoil cone bass units Flowport Optimised Matrix Solid body tweeter Anti-Resonance plug Tweeter on top	Diamond Tweeter Continuum Cone FST Aerofoil cone bass units Flowport Optimised Matrix Solid body tweeter Anti-Resonance plug Tweeter on top	
Description	2-way vented-box system	3-way vented-box system	3-way vented-box system	
Drive Units	1x ø25mm (1 in) diamond dome high-frequency 1x ø165mm (6.5 in) Continuum cone bass midrange	1x ø25mm (1 in) diamond dome high-frequency 1x ø150mm (6 in) Continuum cone FST midrange 2x ø200mm (8 in) Aerofoil cone bass	1x ø25mm (1 in) diamond dome high-frequency 1x ø130mm (5 in) Continuum cone FST midrange 2x ø165mm (6.5 in) Aerofoil cone bass	
Frequency range	34Hz to 35kHz	20Hz to 35kHz	33Hz to 35kHz	
Frequency response (+/-3dB from reference axis)	42Hz to 28kHz	28Hz to 28kHz	45Hz to 28kHz	
Sensitivity (1m on axis at 2.83Vrms)	88dB	91dB	90dB	
Harmonic distortion	2nd and 3rd harmonics (90dB, 1m on axis) <1% 70Hz – 20kHz <0.6% 120Hz – 20kHz	2nd and 3rd harmonics (90dB, 1m on axis) <1% 80Hz – 20kHz <0.3% 110Hz – 20kHz	2nd and 3rd harmonics (90dB, 1m on axis) <1 % 80Hz – 20kHz <0.3% 130Hz – 20kHz	
Nominal impedance (min)	8Ω (minimum 4.6Ω)	8Ω (minimum 3.0Ω)	8Ω (minimum 3.0Ω)	
Recommended amplifier power	50W – 120W into 8Ω on unclipped programme	50W – 500W into 8Ω on unclipped programme	50W – 200W into 8Ω on unclipped programme	
Max. recommended cable impedance	0.1Ω	0.1Ω	0.1Ω	
Dimensions	Height: 424mm Width: 238mm Depth: 345mm	Height: 330mm (not including feet) Width: 850mm Depth: 342mm	Height: 302mm (not including feet) Width: 720mm Depth: 326mm	
Net weight	12.6kg (28lb)	30.4kg (67lb)	20kg(44lb)	
Finishes	Cabinet: Rosenut Gloss black	Grille: Black Black	Cabinet: Rosenut Gloss black	Grille: Black Black









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