

# B&W CM10

This new floorstander follows B&W's CM range recipe but with a big helping of high-end 800 Series technology

Review: **Steve Harris** Lab: **Keith Howard**

**E**ver since the dramatic appearance of the Nautilus 801 in 1998, B&W's 800 Series has showcased innovations that could later be incorporated in less expensive ranges. Coming in below the 800 line today is the CM Series, which, as the company's web blurb puts it, 'uses Bowers & Wilkins refined driver technology to hone the loudspeakers down to their purest essentials. Ideal for home theatre or hi-fi'.

For the 800 Series itself, the next great leap forward after Nautilus came in 2005, with the new 800D flagship and its diamond dome tweeter. After this, the other 800 Series models were progressively replaced by new Diamond versions. Inevitably, those new models turned out to be much more expensive than their predecessors, and new speakers were needed to bridge the price gap. Now, though, B&W has launched a floorstander that extends the CM Series upwards and fits into the price slot vacated by the old 804S. This, of course, is the £3000 CM10, reviewed here.

## SAVE THAT TWEETER!

Like the 804, the CM10 uses a separate tweeter module. The tweeter itself is new, and as with the one developed earlier for the PM1 [see p40], it's an intermediate design between the standard aluminium dome and B&W's diamond type. For the PM1 unit, an aluminum dome is braced by a carbon-fibre ring around the voice-coil. This has a higher moving mass and hence lower sensitivity than the standard aluminium dome. So, to maintain sensitivity for the CM10, B&W found a different solution.

This time, a standard 50µm-thick dome with most of the centre removed forms a stiffening ring, equivalent to the PM1 tweeter's carbon brace, and on the front of this is stuck a full dome only 35µm thick. This gives a higher first breakup frequency, said to be 38kHz, yet with a similar moving mass, compared to the standard 50µm dome.

As with the 800 Series models, the tweeter is decoupled from its housing. A Nautilus tapered tube is screwed to the back of the magnet, and the combination is supported by isolating gel mounts. The tweeter housing is decoupled from the main cabinet by further gel elements encircling its mounting pillar.

One final tweeter innovation is nothing to do with sound quality. 'It is a sad fact,' says B&W's senior product manager Mike Gough, 'that retailers report a significant amount of malicious damage to the tweeter domes of demonstration products in the stores.' So B&W has added a strong steel mesh in front of the dome, which can only be removed using the tool provided!

Displaying the familiar yellow cone of woven Kevlar, the midrange unit is of the 'surroundless' or FST type that first appeared in the Nautilus 800 Series [see boxout]. This FST driver is also used in the CM9 and even in the 683, top model in B&W's more mainstream 600 Series. But the CM10 still breaks new ground as it's the first speaker below the 800 Series to have an FST driver decoupled from the cabinet. Its gel mountings are suitably compressed by a tensioning rod running from the back panel.

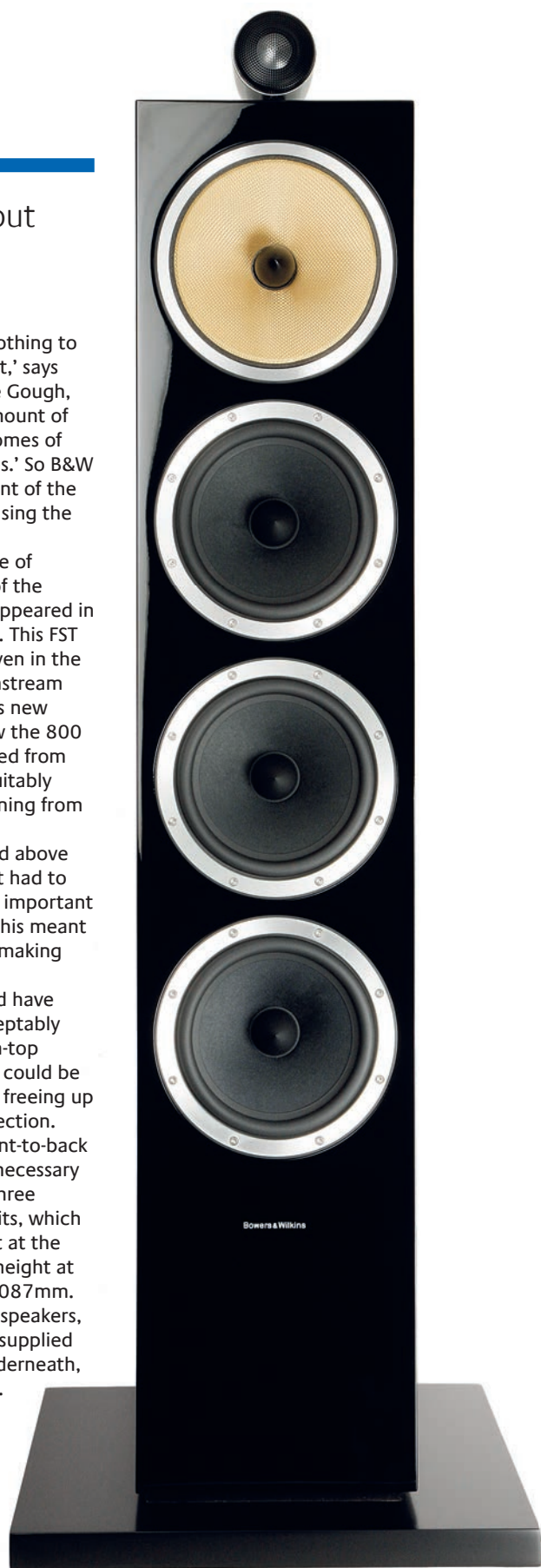
As the CM10 was to be positioned above the three-way, twin-bass-unit CM9, it had to outperform the existing model in all important aspects. When it came to the bass, this meant enhancing the bottom end without making the speaker a great deal larger.

Just adding a third bass unit could have produced a speaker that was unacceptably tall. But with the CM10's tweeter-on-top format, the midrange compartment could be moved up to the top of the cabinet, freeing up more space for the bass enclosure section.

Along with a small increase in front-to-back depth, this was enough to give the necessary increase in internal volume for the three 165mm paper/Kevlar-coned bass units, which are reflex-loaded by a B&W Flowport at the back. The cabinet itself is the same height at 990mm, but *overall* height is now 1087mm.

With these tall, slim and weighty speakers, safe stability is assured by using the supplied flat plinths, which simply bolt on underneath, and extend each speaker's footprint. Carpet-piercing spikes are provided,

**RIGHT:** With a new tweeter mounted in its own housing, the CM10 combines a 150mm FST Kevlar midrange unit with three parallel-connected 165mm paper/Kevlar bass units





## THE FST DRIVER

Next year will be the 40th anniversary of B&W's first use of Kevlar. It was proved early on that woven Kevlar cones had an advantage over homogeneous plastic ones, giving less coloration from the reflections within the material. But there were still unwanted effects caused by the junction of the cone and the flexible roll surround. To overcome this, B&W developed its 'surroundless' Kevlar drive unit, which it called FST or Fixed Suspension Transducer. As the cone excursion in a midrange unit is relatively small, the surround could be replaced by a support ring of foamed material, chosen to have a mechanical impedance matching that of the cone, placed under the edge. Instead of flexing, the foam just compresses and stretches slightly with the cone movement. Energy from bending waves reaching the surround passes through into the speaker chassis to be dissipated harmlessly as heat, instead of reflecting back into the cone. The CM10's FST driver is decoupled from the cabinet, though in this speaker by means of a tensioning rod instead of a Nautilus tube.

along with rubber feet as an alternative for use with polished wood floors. B&W's instructions tell you to place the CM10 at least 0.5m from back and side walls, and I found myself moving these speakers further out into the room than usual to get the best results. Once this is done, though, you will be rewarded with a very open stereo stage, with an even and seemingly undistorted bass.



## A SMOOTH BALANCE

With the CM10s set up, I sat down to listen, initially using a Gato AMP-150 integrated amplifier. Like most speakers, the CM10 has double terminals for bi-wiring or bi-amping, although they are supplied connected by links. When I tried removing the links, I found that in this case there were certain benefits to be had from bi-wiring.

Making the comparison while listening to Myriam Alter's delightful *Where Is There* [Enja 9312] from 2007, I thought that there was a slightly freer-breathing and more dynamic quality to the bass. I also felt that there was an enhanced sense of space, with perhaps a little more air around the instruments and a more tactile quality to Joey Baron's gentle cymbals. After this I stuck to bi-wiring.

Turning to classical music, I was impressed by the CM10's ability to produce natural, free-sounding string timbres, whether in orchestral or chamber music. It could produce a very big sound when appropriate, conveying the huge acoustic around the Pacific

Symphony Orchestra as they played Respighi's *Church Windows* [Reference Recordings RR-15CD], but it did well on more intimate recordings too.

In the Mozart oboe quartet recording heard on *The Art Of Janet Craxton* [BBC Records BBC CD 635], there was a real feeling of bows on strings. From the same disc, the Poulenc sonata and Britten's *Temporal Variations* showed that the CM10 could reproduce the lower registers of a piano convincingly, in different acoustic settings.

One very attractive aspect of the CM10's sound was an ability to present acoustic instruments or voices, and the signature clues of the recorded acoustic, in pure and natural relief against an inky-black background. Presumably this must be credited mainly to

'The CM10 really brought out the pure sound of that gorgeous voice'

the FST midrange, and to its decoupled mounting which reduces unwanted output from the cabinet.

Listening to Rosa Passos and her beautiful 2005 solo album *Rosa* [Telarc CD-83646], I felt that the CM10 really brought out the pure sound of that gorgeous voice along with the rich timbres of her guitar, conveying the calm insulated silence of the studio as well as its subtly supportive acoustic.

Even on what might be called slightly quirky recordings, the speaker always maintained a feeling of smooth balance from top to bottom. It wasn't fazed by Chesky's 'church' recording, *Entre Cada Palabra* [JD301] from Marta Gomez. Here there was a fairly good sense of depth and scale, and the often unruly-sounding bass guitar was kept under control. ➔

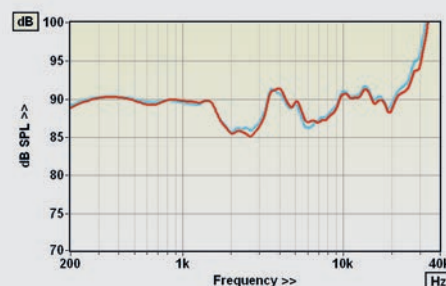


## LAB REPORT

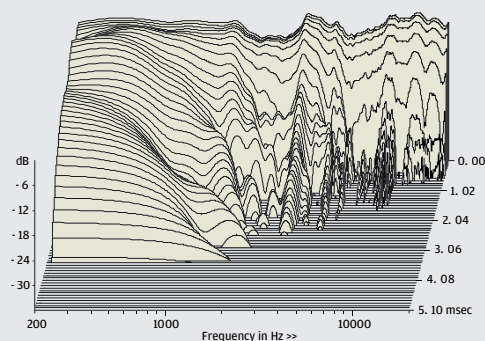
### B&W CM10

B&W's provisional sensitivity for the CM10 is quoted at 90dB but our pink noise figure of 89.3dB, coupled with our 'music' figure of 88.9dB (based on the average programme spectrum specified in IEC 60268), suggests that 89dB would perhaps be more accurate. Despite the large cabinet, low impedance has been used to help achieve this sensitivity, the modulus dipping to a measured minimum value of 2.9ohm at 129Hz. In concert with high impedance phase angles at low frequency this gives rise to a minimum EPDR (equivalent peak dissipation resistance) of 1.2ohm at 95Hz, an indicator that the CM10 presents a notably challenging amplifier load, exacerbated by a further dip to 1.6ohm at 559Hz.

On-axis frequency response was measured at 92.5cm above the cabinet base rather than on the tweeter axis (a little higher) as this produced a flatter frequency response [see Graph 1, below], which despite its undulations achieves better than average response error figures of  $\pm 3.2$ dB and  $\pm 3.0$ dB, respectively. The pair matching error of  $\pm 0.9$ dB over the same frequency range is also commendably low. Immediately above 20kHz the response begins a steep rise due to the first breakup mode of the aluminium tweeter at about 37kHz – significantly higher than achieved by conventional 25mm aluminium domes due to B&W's use of a stiffer dual-layer dome construction. Low frequency extension of 58Hz ( $-6$ dB re. 200Hz, determined using a diffraction corrected near-field measurement) is a little disappointing given the cabinet size. The cumulative spectral decay waterfall [Graph 2] shows what appear to be breakup modes of the FST midrange unit above 3kHz. KH



ABOVE: The CM10's forward response is flattest just below the tweeter axis. Note steep ultrasonic peak



ABOVE: Internal bracing keeps cabinet resonances damped although FST driver modes are visible  $>3$ kHz

### HI-FI NEWS SPECIFICATIONS

<b>Sensitivity</b> (SPL/1m/2.83Vrms – Mean/IEC/Music)	89.5dB/89.4dB/88.9dB
<b>Impedance modulus min/max</b> (20Hz–20kHz)	2.9ohm @ 123Hz 22.8ohm @ 59Hz
<b>Impedance phase min/max</b> (20Hz–20kHz)	$-68^\circ$ @ 72Hz $47^\circ$ @ 1.2kHz
<b>Pair matching</b> (200Hz–20kHz)	$\pm 0.9$ dB
<b>LF/HF extension</b> ( $-6$ dB ref 200Hz/10kHz)	58Hz / $>40$ kHz/ $>40$ kHz
<b>THD 100Hz/1kHz/10kHz</b> (for 90dB SPL/1m)	0.4% / $<0.1\%$ / 0.1%
<b>Dimensions</b> (HWD)	992x200x337mm

**LEFT:** Seen near top here is the end of the tensioning rod for the mid unit's decoupling. Moulding below combines B&W's dimpled, profiled Flowport vent with bi-wirable terminal panel

a sense of lively attack that hadn't been apparent before. This more zesty quality suited some music very well and it was apparent on that wonderfully straightforward and clean-sounding jazz recording from 1957, *Art Pepper Meets The Rhythm Section* [Contemporary 0025218633826], famously recorded using a few microphones in the record company's stock room-cum-studio.

### ENVELOPING WAVES

It was easy to imagine the shelves full of brown cardboard boxes that provided such a benign acoustic. Here the bottom end had a fairly satisfying weight although on the double-bass sound I had the feeling that somehow I wanted more cohesion between the fundamental and the higher-range detail, the upper harmonics of the notes.

On more modern recordings, the CM10 showed no sign of running out of steam when powered by the Classé. With *Simple Minds* and *Cry* [Eagle EAGSACD196], the sound became truly enveloping as wave after wave of electronic sounds washed over you. The speakers were great on more visceral music too, and with Florence And The Machine's 'Dog Days Are Over' [*Lungs*, Island/Moshi Moshi], the stunning contrasts and massive drum sounds made it a glorious *tour de force*. ☺

### HI-FI NEWS VERDICT

Thanks to its pod-mounted tweeter and FST mid driver, the CM10 offers a beautifully clean, detailed midrange and treble, with a big, open and impressive soundstage. I would have liked to discover a more organic quality in the bass, though, and it needs a capable amp to give of its best. But, while facing stiff competition at this price point, the CM10 is a worthy stepping-stone to B&W's flagship 800 Series.

Sound Quality: 83%



In fact, I was impressed by the CM10's ability to handle vocals, both male and female. It could be exquisite – as for example on a relatively late gem from the brilliant and accomplished Mel Tormé. On 'What Are You Doing The Rest Of Your Life' recorded live with Al Porcini and orchestra [*The Very Best Of Mel Tormé*, Rhino 5144215752] you could really feel the way he was holding the audience spellbound.

After spending some pleasant hours with the CM10 connected to the Gato AMP-150, I switched to the dependable Classé CAP-2100. It was instantly clear that the sound coming from the speakers had more punch, and there was