

Canton Reference 7K

For 50 years and two generations Germany's Canton has been building 'audiophile' loudspeakers. We catch up...

Review: **Jamie Biesemans** Lab: **Paul Miller**

The Reference lineup from Canton marks the apex of its engineering thinking, combining years of experience with new computer modelling software and a freshly built testing laboratory. Given 'free rein', its designers came up with no fewer than nine separate models for the new Reference K series, including six floorstanders, one standmount, a centre channel speaker and a 750W-rated active subwoofer for home theatre applications.

In common with B&W's 800 D4 series [*HFN* Nov '21 & Feb '22], Canton has adopted a two-tier approach with its 'crown jewel' models – the £24,000 1K, £15,750 2K and £11,500 3K – featuring a complex cabinet construction with a tapered baffle that grows wider towards the base. The 5K, 8K and £5700 7K we have here all sport more traditional, but still very attractively curved, cabinets.

SMALL IS RELATIVE

The 7K is 'slender' compared to the very muscular-looking Reference 3K, but standing a little over 1m tall, this three-way loudspeaker's 42cm depth and 33kg weight (including base) ensures it will still need manoeuvring with some caution. In practice, the cabinet depth and weight are informed by design decisions, Canton's engineers starting with the premise that the enclosure should be as rigid as possible, which has led to the use of a stiff, 50mm multilayer composite wood material for the monocoque cabinet construction.

This composite can be formed into curvy (or as Canton puts it, 'organic') but sturdy shapes that afford both a high degree of self-damping and an asymmetry that dissuades internal standing waves. Hence the 7K's depth, bringing with it a visual advantage. Sitting in the listening area, the Reference 7K doesn't look its size, even though the interior cabinet volume is a roomy 49.5 litres.

This is also a vented loudspeaker design, not that you'll detect a traditional port on either the baffle or cabinet rear. Instead, the dual woofers output via a downward-

firing port across the top front and rear surface of the speakers' plinth. This diffused port output not only minimises chuffing but also confers a little more freedom if you need to site the speakers close to side or rear room boundaries. In addition, the heavy plinth not only lowers the 7K's centre of gravity, improving stability, but comes with a choice of spikes and 'decoupling' polymer feet.

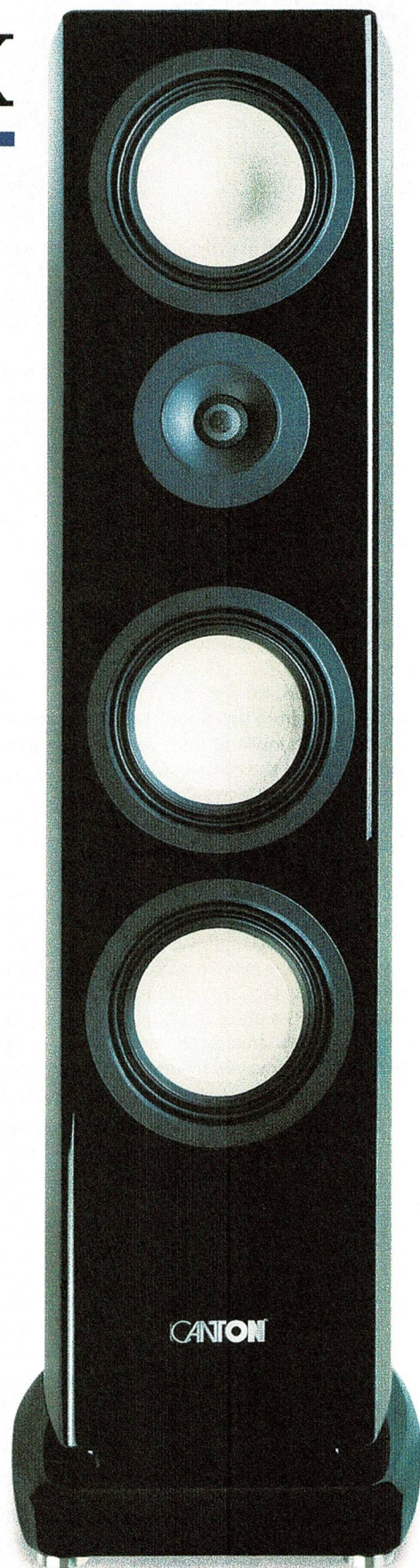
Internally the 7K is divided into two chambers, although the configuration isn't necessarily what you might expect, with the top-of-the-baffle 174mm midrange driver isolated from the lightweight 25mm ceramic (aluminium oxide) tweeter and pair of 174mm woofers below. These mid and bass drivers are newly designed and mark an evolution over Canton's hallmark aluminium-coned units. Here the outer surface of the alloy cone is oxidised into a ceramic and 'dusted' with tungsten (a rare but hard and dense metal).

As is the trend these days, the composite alloy Canton uses to create its midrange and low-frequency drivers is therefore both light and rigid. Ceramic also 'stiffens' the ADT-25 dome tweeter, optimised here to improve bandwidth and dispersion. Finally, the three-way 220Hz/3kHz crossover network features custom-made internal wiring and passive components that are tested to 'reference-grade tolerance guidelines'.

BREATHTAKING BEAUTY

Although I'm not particularly fond of high-gloss finishes that leave you having to break out the duster every few days, the quality of the multi-layer piano-lacquer applied to the Reference 7K is worth the occasional gentle buffing... Canton states its lacquering technique involves no fewer than 12 layers of varnish, each

RIGHT: Available in piano gloss black lacquer (pictured), white lacquer and cherry veneer finishes, the '50mm multi-layer laminate' cabinet is internally reinforced and damped with a fleece material. The downward-firing port diffuses out through a slot above the plinth



A HALF CENTURY OF SOUND

Although the name Canton might seem to suggest Asian origins, it's very much a German company, founded by four partners, including Günther Seitz, in Weilrod, Hessen in 1972. Its first product was the LE 250 in 1974, a compact two-way loudspeaker, and this was followed by a subwoofer and satellite system in 1979, possibly one of the first such designs. Canton quickly grew to be a well-known brandname in its own country, thanks to its diverse research and development activities and by pragmatically offering both affordable and high-end products.

Celebrating its 50th birthday in 2022, Canton has undergone a considerable shift in gear over the past decade. Seitz' son-in-law Christoph Kraus is the current CEO, keeping the firm in family hands, with a younger generation of engineers and product specialists at the helm. And although absent in the UK in recent years, Canton remains one of the largest loudspeaker brands in Germany, and a 'top tier' presence in many European countries. Its focus is still primarily on passive loudspeakers and in-wall models, but it has recently invested in its own 'smart' platform and built up a range of streaming products, including active versions of its passive cabinets, plus soundbars and wireless speakers. Canton also designs bespoke audio systems for automotive brand Skoda.

applied while the previous layer is still wet. Considering the price tag of the Reference 7K, and the less elaborate finishes of some notable rivals, it's all very impressive and pleasing to the eye.

Indeed, these speakers just ooze refinement and a high level of build quality – the seamless integration of the drivers in the front baffle, the height-adjustable shock-absorbing stainless steel feet under the base plate and the solid bi-amp-ready terminals at the back are all details that enhance the feel of money well-spent. We had the black version, but there are also white piano lacquer and cherry ('Kirsche') veneer options available.

EXPLOSIVE AUDIO

The slick piano lacquer finish of the Reference 7K might lead you into thinking these are polite/refined-to-a-fault loudspeakers, but that would be a mistake. They are certainly capable of presenting delicate recordings in a sensitive fashion, but they really come into their own when pressed into playing explosive, dynamic tracks. The bass these slender-ish floorstanders produce is deceptively rich and punchy, underpinning a very solid midrange performance [see PM's Lab Report, p63].

This is great stuff if you're into music that's percussion-driven and

'It's not easy to pack a punch and remain this nimble'


painted on a huge canvas, such as the rousing medieval folk metal of *Memento Mori* [Napalm Records NPR1087EB] from Germany's Feuerschwanz, a band with an armour-wearing Hauptmann-esque lead singer and assorted band members that are as likely to pick up an electric guitar as a hurdy-gurdy. Canton's substantial cabinets and smart down-firing port ensure the anthemic tracks on this album never ran out of steam or sounded muddled.

Driven by NAD's Purifi Eigentakt-equipped C 298 power amplifier [HFN Oct '21], the Reference 7Ks created a taut bass which propelled the music but never overpowered it. This is really an accomplishment, certainly at this price point – it's not easy to pack a punch like this and remain

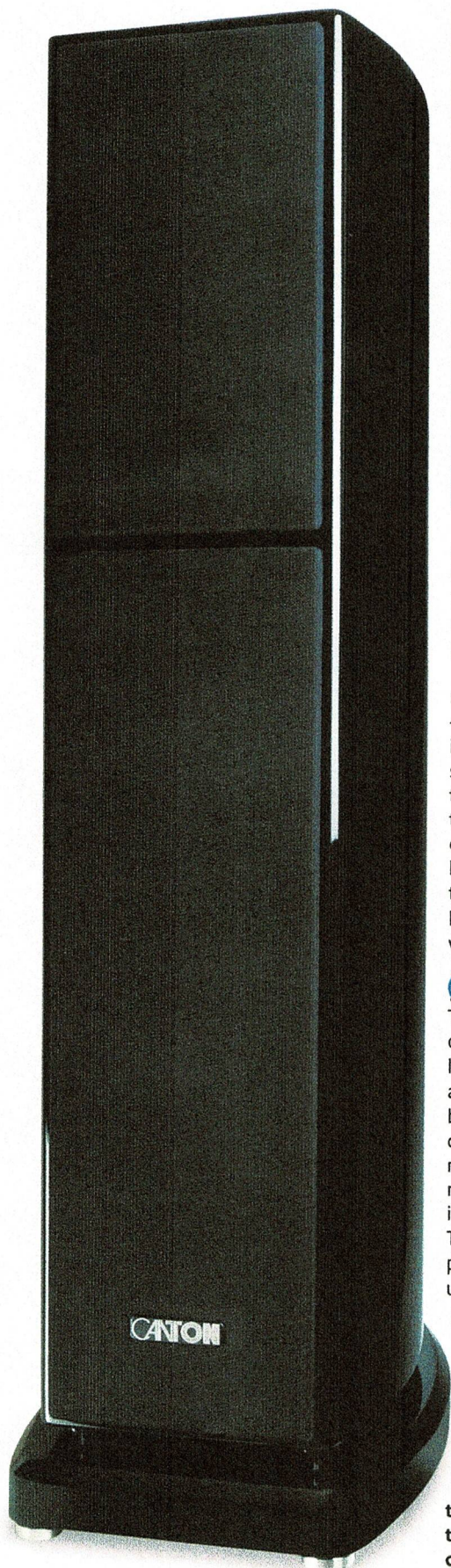
nimble, serving up a spectacular cover of Manowar's 'Warriors Of The World Unite'.

AT THE MOVIES

You might not be into Germanic battle themes, but these heavy metal-friendly qualities serve the Reference 7Ks equally well when playing *The Berlin Concert* set [Deutsche Grammophon 00289 486 1713], a fine recording of John Williams' greatest hits played by the Berliner Philharmoniker and with the composer himself conducting. The temptation is there to fast-forward to the final track, a momentous rendition of *Star Wars* 'The Imperial March' that the 7Ks presented in such a way that I expected Stormtroopers to start kicking down the door.

But it was 'Hedwig's Theme', 'Marion's Theme' and 'Elegy for Cello and Orchestra' 

LEFT: Behind the magnetically attached grilles are three 174mm alloy-coned drivers, all stiffened with a ceramic/tungsten layer. The two lower units work up to 220Hz and the upper – with refined cone profile – handles the mid, crossing over at 3kHz to a 25mm alloy/ceramic dome tweeter with waveguide

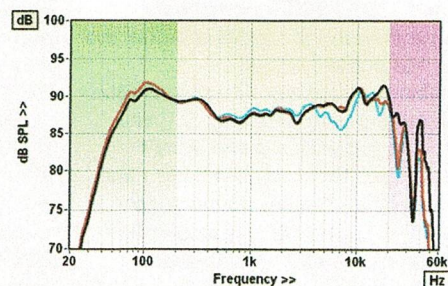


LAB REPORT

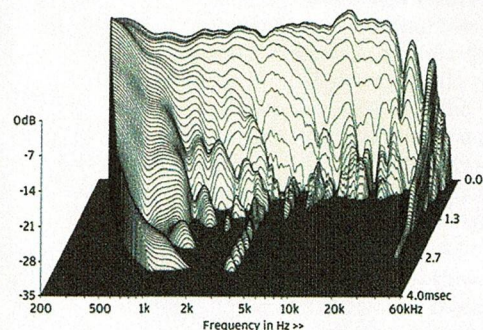
CANTON REFERENCE 7K

Measured on the Reference 7K's midrange axis – its most likely listening position – the loudspeaker's forward response [Graph 1] indicates both a boost to bass (below 500Hz) and treble (above 8kHz). It's also worth noting that the -1.5dB dip just prior to the 3kHz crossover increases to -3dB on the tweeter axis, so the speaker is certainly engineered to offer a smoother response on or above the midrange unit. That said, there's some fine structure visible at 3-6kHz that's also evident on the CSD waterfall [Graph 2], possibly indicative of modes from those 174mm 'ceramic tungsten' cones. Otherwise the Reference 7K's response uniformity is good to ± 2.4 dB and ± 2.5 dB, respectively, with a superb 0.6dB pair matching up to 14kHz, beyond which there's a more marked difference in treble response between our two samples. The magnetically attached grilles bring a further ~3dB disruption in presence band output [blue trace].

Sensitivity is only 0.8dB shy of Canton's rated 88.5dB at 87.7dB (1kHz) and 87.8dB (500Hz-8kHz) while the nominal impedance is a 'medium-tough' 4ohm. Intriguingly, the 7K includes a subsonic high-pass filter that causes a rising impedance/falling phase angle at very low bass frequencies, but it's most challenging through the mid-bass, with a 4.8ohm/-37° load at 88Hz. The lowest impedance modulus of 3.1ohm/335Hz should not trouble good amplifiers at this price point. And what about that bolstered bass output? The two woofers operate over a tight 58-170Hz bandwidth (-6dB), supplemented by a broad 25-109Hz from the downward-firing port, yielding a diffraction-corrected nearfield extension of 43Hz (-6dB re. 200Hz). PM



ABOVE: Response inc. nearfield summed driver/port [green], freefield corrected to 1m at 2.83V [yellow], ultrasonic [pink]. Left, black; right, red; w. grille, blue



ABOVE: Cabinet modes are well controlled but mild, high-Q resonances in the cones are visible at 3-6kHz

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83V - 1kHz/Mean/IEC)	87.7dB / 87.8dB / 86.3dB
Impedance modulus: minimum & maximum (20Hz-20kHz)	3.1ohm @ 335Hz 10.1ohm @ 3.2kHz
Impedance phase: minimum & maximum (20Hz-20kHz)	-54° @ 20Hz +31° @ 835Hz
Pair matching/Resp. error (200Hz-20kHz)	2.3dB / ± 2.4 dB/ ± 2.5 dB
LF/HF extension (-6dB ref 200Hz/10kHz)	43Hz / 29.8kHz/22.8kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.25% / 0.4% / 0.7%
Dimensions (HWD) / Weight (each)	1010x250x380mm / 33kg

LEFT: The bi-wire/bi-amp terminals may be combined with a solid link. Canton's three-way crossover includes own-branded capacitors and inductors and also boasts custom internal wiring

it's the versatile voice of Rosalía that's the true highlight – as it should be. (A pity the producer felt it necessary to use autotune at moments, as the Barcelona-based singer really doesn't require it.) And when she eventually does return to her traditional roots on 'Bulerías', hitting some impressively high notes, the Reference 7Ks don't falter. Her sublime vocals are positioned up front and centre, the male backing positioned way behind. The sense of depth is noteworthy.

TEXTURED TONES

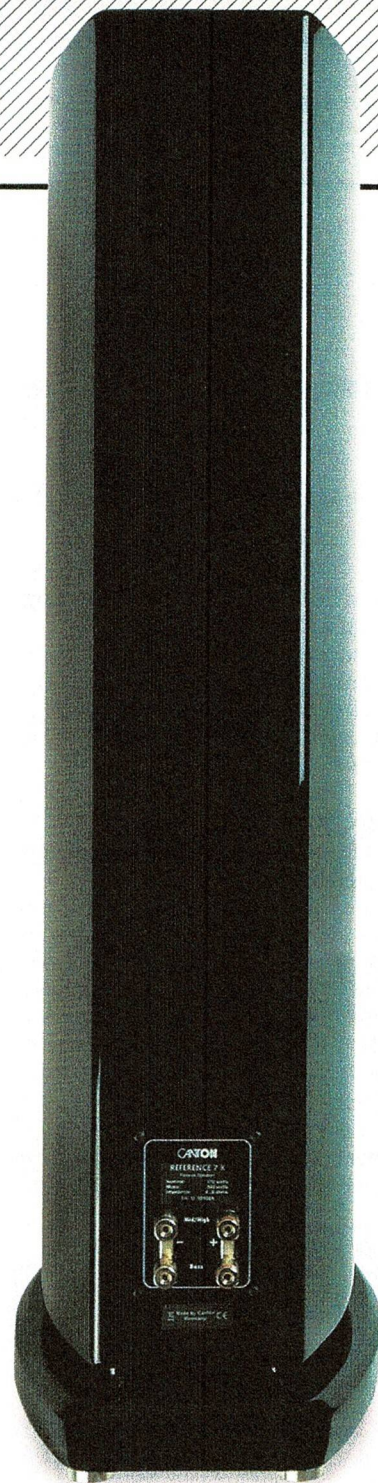
Returning to a darker mode of listening, I was in awe of the scale and tonal depth of the vocals on Wardruna's 'Tyr' and especially at the end of the haunting 'Runaljod' [Runaljod - Ragnarok, Norse Music BNM002CD]. Here the Reference 7Ks conjured deep, highly textured tones that I first thought were some sort of traditional Norwegian bugle, but on subsequent listening turned out to be the impressive vocal performances of a male choir.

There's a lot to like on this genre-transcending release, from bass heft to midband purity, and the same applies to the group's 2021 album *Kvittravn* [Sony Music 19439710082]. You might recognise some sounds and compositions from the *Vikings* TV series. It's rousing stuff, just like these Canton speakers. ☺

HI-FI NEWS VERDICT

Even the 'small' Reference 7Ks might be a bit much if your listening room is not very large, but if you have the space these mighty three-way floorstanders are astonishing in their ability to project power and excitement. Their overall sonic performance and high-quality build and finish represents particularly good value, the company's new UK distribution bringing the musical message to a wider audience.

Sound Quality: 86%



that showed off the 7K's ability to seduce and delight with full-bodied, textured violins. The solo celesta, which plays the opening notes of 'Hedwig's Theme', could perhaps sound a little more sparkly, but the general sense of space and soundstage size was excellent.

Anyone expecting a flamenco-inspired follow up to Rosalía's *Los Angeles* from 2017 will be quite surprised by her latest release, *MOTOMAMI* [Columbia B09RRHP9RW]. A veritable hotch-potch of influences, musically these tracks take you around the Latin world in just over 42 minutes, but regardless the style of a given track,