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Magico's S3 speaker is pure musical... magic!



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Magico S3 2023

A decade since the S3 was launched, and then surpassed by the MkII, this three-way has been reborn with trickledown tech from Magico's flagship M9 loudspeaker
 Review: **Andrew Everard** Lab: **Paul Miller**

The latest version of Magico's S3 speaker, which was first reviewed in these pages a decade ago [HFN Nov '14], isn't what you'd call a mild refresh. Just as the company's MkII version was a major reworking of the original, so this new arrival has been comprehensively redesigned, drawing both on the technology of the flagship M9 model and the measurement abilities of Magico's enhanced development tools. It's yours for a couple of pounds short of £57,000 a pair in the five powder-coat M-Cast finishes Magico offers, or £66,000 in a choice of six high-gloss M-Coat shades, including the striking blue colourway pictured here.

It stands some 112cm tall, weighs a very substantial 101kg and, despite the familiar model number, is basically an entirely new speaker. Given that the S3 has long been one of Magico's most popular models, the

'The new S3s are designed and assembled in California'

thinking was clearly to keep it that way as Magico hits its 20th anniversary. Significant updates have been facilitated by the latest equipment now added to Magico's R&D arsenal at its 'campus' in the San Francisco Bay area, at Hayward, California. It's here that its products are designed,

engineered and hand-assembled, a tradition dating back to the company's first product, the Mini standmount of 2004, and including the massive four-way, six-driver M9, standing over 2m tall, tipping the scales at

454kg, and delivered with an offboard analogue crossover to take the all-up weight of a pair to just over a tonne.

PRECIOUS METAL

Newcomers to the Magico way of doing things are likely to be surprised at how the S3 2023 is constructed, with the beautifully finished cabinet being the

most obvious initial eye-catcher. Whereas many speakers use either a wood-based enclosure or some exotic material such as carbon fibre, Magico is all about heavy metal, with four extruded aluminium panels ranging in thickness from around 12mm to the better part of 5cm forming the structure, the pieces precision-milled to give the impression of a design that's all but seamless [see PM's boxout, below]. There'd be a good few car manufacturers pleased to achieve panel-gaps this tight.

Crowned by a hefty top-plate, curved to control diffraction and tackle internal



BRACE YOURSELF

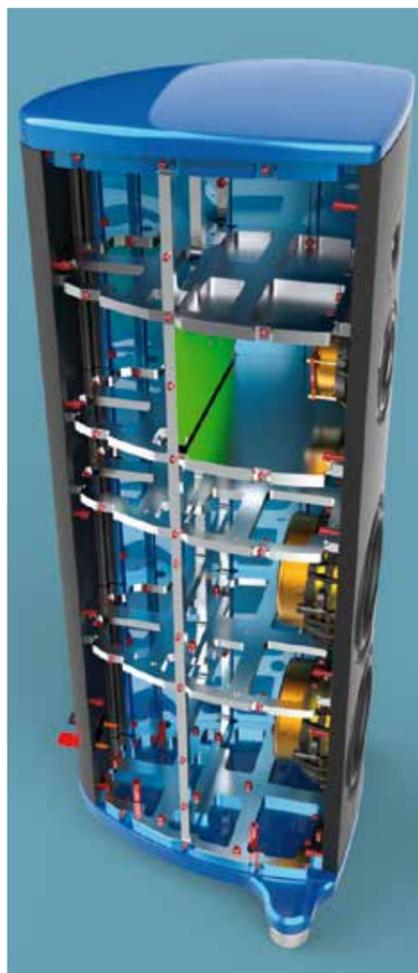
All-alloy cabinets have long been a hallmark of Magico's loudspeakers, whether in the form of an extruded section, like the original S3 [HFN Nov '14], or the machined castings used for the enclosure walls of the S3 2023. Five thick aluminium horizontal plates divide up the internal volume here, as well as bracing and damping the enclosure, but this speaker's choice of materials isn't solely about weight and stiffness. Rather than 'bracing the hell out of it', quipped Magico CEO Alon Wolf, 'we now brace it right'. During my call with him during our review, he explained that 'our new 3D laser interferometry system enabled a very efficient analysis of the cabinet surfaces. We could see where the vibrations – the main panel modes – were occurring, and this informed the placement and forces applied by our bracing, and position of our constrained-layer damping'.

A skeletal alloy frame is bolted to the inside of the cabinet panels, pulling them together and applying a specific tension at intervals. As a rule, resonances are unavoidable but this pushes them higher in frequency, and Q, making them easier to damp. This is achieved using BH5 (Black Hole 5) damping sheets – a laminate of vinyl, elastomer and foam layers – applied to all exposed surfaces on the inside of the walls. In addition, an alloy/elastomer constrained layer (known as EAR), 'tuned' to specific frequency bands, is applied between the drivers on the rear of the baffle. The mix of these techniques is calibrated to selectively 'suffocate' unwanted noise emanating from these huge panels. The laser interferometry provides a window onto the vibration, and provides proof of concept, enabling Magico to claim its new S3 enclosure is '30% quieter' than its predecessor. PM



'The precision-milling gives the impression of a design that's all but seamless'

LOUDSPEAKER



LEFT: The S3's skeletal internal bracing [see boxout, p42] also forms a separate compartment for the 5in/125mm mid unit. The latter's honeycomb aluminium cone is further stiffened with outer and inner layers of graphene and carbon fibre

with a graphene and carbon fibre skin that aims to improve both stiffness, also without adding any weight and, by virtue of its profile, enhance dispersion. In classic Magico style, it's driven by an underhung motor system combining extra-large neodymium magnets and a pure copper pole-cap. A key feature of the new unit is a (stable) lightweight foam roll surround in place of the rubber used before – again to boost efficiency and transient performance.

The 9in/230mm cones of the twin bass drivers are, in practice, larger versions of the midrange cones with their alloy honeycomb core sandwiched between stiffening layers of carbon fibre/graphene. A 125mm titanium voice coil, with a pure copper cap, combines with the suspension to give over 12mm of excursion, delivering deep, low-distortion bass at high output [see PM's Lab Report, p47].

WORTH THE WEIGHT

Heavyweight hi-fi typically requires assistance in its unboxing and installation, and the S3 2023 is no exception given the weight and the sheer size of the wooden packing crate in which it's delivered [see p41]. The instruction manual has a nine-step photographically illustrated sequence should you wish to try it for yourself. There are also detailed instructions for positioning the speakers, opening with some daunting advice: 'All that's required is a tape measure, a pen, a calculator, a ball of string, a couple of demo CDs, and some patience'.

I ended up with the S3 2023s about half-a-metre proud of the rear wall, well clear of side walls, and with the slightest of toe-in towards the listening position. The front-end was a familiar set-up – a DCS Vivaldi One APEX player running straight into Constellation's mighty Centaur II stereo power amp [HFN Dec '19], located between the speakers for the classic 'long

RIGHT: Magico's pair of 9in/230mm bass drivers, again featuring graphene-stiffened alloy cones, are placed close to the floor to benefit from boundary (bass) reinforcement



interconnect run/short speaker cables' layout, with all cabling from Transparent Audio. Controlling the system with the excellent DCS Mosaic app [HFN Feb '24], the music was hosted and sourced from USB-connected SDD storage, the cost of which was almost comical in the light of what was a truly glorious six-figure system. But then that's high-quality listening, 2024-style. Or possibly S3 2023-style...

MAGICAL SOUNDS

The Espen Eriksen Trio/Andy Sheppard's recording of 'In The Mountains', from the album of the same title [Rune Grammophon RCD2227] was a perfect choice for Magico's S3 2023 to set out its stall – the immediate impression being of presence and three-dimensionality, along with fine instrumental timbres, especially in Sheppard's sax. Similarly, Anais Reno's atmospheric *Live At Pizza Express*, on the venue's own PX Records label [PXRC1008], arrived with all its ambience intact. It was a real 'you are there' experience, with Reno's voice almost tangible.

The recent Lang Lang *Saint-Saëns* album [Deutsche Grammophon 4875019] is so deceptively easy to listen to via these speakers that it's easy to overlook the sheer amount of information on offer, from the scale and delicacy of the soloist's piano to the accompanying orchestra. There was a lovely light airiness to the woodwind in the 'Aviary' section, plus tight control of the plucked strings, while the 'Fossils' section proved joyous with its xylophone and exuberant finale.

Without doubt, the S3 2023 can 'do bass' – as much as you could ever want, but ruthlessly controlled while it's shaking the room. Play Dizze Rascal's 'What You Know Bout That', from his *Don't Take It Personal* album [Big Dirte3 Records BDR1CD], and the low-end is simply thunderous, but with unstoppable drive and Mr Rascal's chatty vocals entirely intelligible. Change tack to Anna Lapwood's magnificent take on Britten's 'Sea Interludes' [*Images*; Signum Classics SIGCD688], and the delicate 'Moonlight' section has a real sense of the air moving in the pipes of the Ely Cathedral organ. The S3 2023 unleashed the tumultuous 'Storm' interlude with real sonic power, pressurising the air in the listening room and mimicking the instrument itself inside the huge acoustic.

Sticking with keyboards, and the immaculate sound – for a live event – of Jean-Michel Jarre's *Versailles 400 (Live)* [Columbia 48kHz/24-bit download]

sounded hyper-realistic, in true Jarre style, through the Magico speakers. The sound of matches being struck and the panned effects at the beginning of 'Oxygene 2' appeared to come from all round the listening room, not just the plane of the loudspeakers. And as the music swells and the bass kicks in, it does so in a truly chest-thumping manner – even at 'sensible' listening levels – while still leaving plenty of space for Jarre's synth lead.

As the set segues into movements from 'Equinoxe', that feeling of a full, rich sound continues: the bass fills the room, effects cannon and whoosh about the space, and the rapid rhythms are tight and crisp. So is the solidity of image between and way beyond the speakers.

HELLO, SQUIRE

Strip things back to voices and 'real' instruments with Liam Gallagher and John Squire's eponymous album [Warner Records 5054197893995], and it's impressive the way these speakers open up the big dense mix of 'I'm So Bored',

delivering it with bags of texture and speed. Meanwhile the simpler 'Mother Nature's Song' has that 'sitting in the studio' impact and detail. The sound is redolent of The Beatles and George Martin, which I'm sure was part of the intention.

Talking of studio ambience, Mike Scott's piano demo version of 'The Whole Of The Moon', from The Waterboys' 1985 box-set [Chrysalis ENCLB5 0810098504638], is a wonderfully evocative recording. Once Scott asks for the drums to be taken out, it's just voice and piano in a lively, reverberant space, and all the more exciting for that – especially with the superb resolution these speakers deliver.

With the Ukrainian Freedom Orchestra's recording of Beethoven's Ninth under Keri-Lynn Wilson [Deutsche Grammophon ↗]

RIGHT: Magico's 28mm diamond-coated beryllium dome tweeter includes a shallow waveguide, allowing the chassis plate to be mounted flush with the speaker's gently curved, one-piece alloy baffle

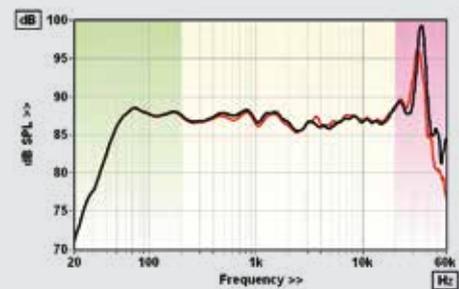


LAB REPORT

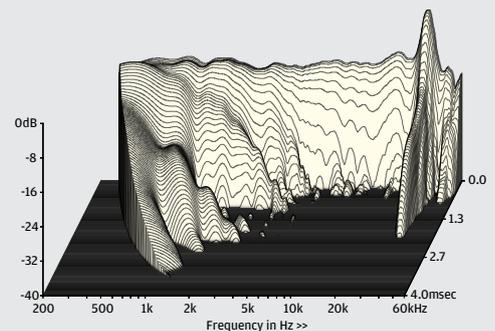
MAGICO S3 (2023)

Magico's original S3 [*HFN* Nov '14] demonstrated a slightly dished mid/presence response but the 2023 model further flattens out the trend with errors of just ± 1.7 dB and ± 1.6 dB, respectively, and a tight 0.6dB pair matching [see Graph 1]. The extended treble is also very well controlled, reaching all the way out to 35kHz where the 28mm diamond-coated beryllium dome finally betrays its breakup mode [pink shaded area, Graph 1 and CSD waterfall, Graph 2] at ~ 10 dB above the mean midband output. A slight dip at 1kHz reduces sensitivity to 86.7dB but the averaged 500Hz-8kHz figure of 87.0dB is just a little closer to Magico's rated 88dB (though no input level or frequency is specified here). The power handling of Magico's 125mm '8th Gen' mid and treble units has been improved and this is reflected in the low $\sim 0.2\%$ THD (re. 90dB/1m) – a fine result bearing in mind the conservative sensitivity of this sealed-box design.

The latter also plays into the S3's improved (bass) transient response and extension where the ~ 75 Hz peak of the two 230mm 'Graphene Nano-Tec' sandwich cones rolls away very gently – closer to a first-order than second-order slope here – to yield a diffraction-corrected 38Hz (-6 dB re. 200Hz). In-room, especially with the two woofers placed close to the boundary (the floor), the S3 will deliver deeper bass still. However, there is some penalty in amplifier loading – Magico's nominal 4ohm rating is realised in a sub-5ohm trend from 53Hz-1.7kHz, and a minimum of 2.85ohm/75Hz and < 2.5 ohm above 18kHz. This is toughest in the deep bass where a big swing in phase angle of $-66^\circ/48$ Hz precipitates a minimum EPDR of 1.09ohm/62Hz. PM



ABOVE: Response inc. nearfield summed bass drivers [green], freefield corrected to 1m at 2.83V [yellow], ultrasonic [pink]. Left channel, black; right, red



ABOVE: Cabinet is solid (!), and driver modes all but banished. Note the dome's ultrasonic resonant peak

LEFT: Magico's proprietary Elliptical Symmetry Crossover (ESXO) includes capacitors, inductors and resistors made by Mundorf EB GmbH. As usual, a single set of 4mm cable terminals is fitted, so bi-wiring/bi-amping is not supported

spinning fairground ride. The sound was super-crisp but with that era-appropriate vintage feel, these latest Magico S3s making it both satisfying and hugely enjoyable.

The demanding Dallas Winds/Jerry Junkin recording of the march from '1941' [*John Williams At The Movies*; Reference Recordings RR-142SACD] is a test these speakers pass with flying colours, right down to the rattle of the snares and dynamic punch of the bass drum, set in a broad, deep soundstage. Yet switch to the location 'field recordings' of Billy Bragg and Joe Henry's *Shine A Light* album [Cooking Vinyl COOKCD623], and the S3 2023 delivers just what you'd expect.

BORN IN THE USA

The sound is a long way off studio perfection, having been captured using a minimalist rig on the pair's travels on 'The Great American Railroad', but the immediacy shines through as does the sense of things going on around the duo as they perform, conveyed excellently by the revealing nature of the speakers. And that's what this re-imagined version of the Magico S3 does so well, drawing the listener into the music almost without any sense that it's happening, and rewarding close attention with a fabulously detailed, but above all totally involving, presentation. 🇺🇸

HI-FI NEWS VERDICT

Magico's S3 2023 lives up to its manufacturer's name with a sound as vivid as it is refined, and as compelling as it is analytical. The finish is immaculate, and the construction as solid as you'd expect, and while these may only be 'mid-range' in the catalogue, there's nothing middling about their performance. Drive them with an amplifier commensurate with their capabilities, and prepare to be enthralled.

Sound Quality: 90%



4866011], the S3 2023 gave full weight to the massed forces when required, but also showcased a delicate touch, making the sound of the soloists and choir truly thrilling. The former were imaged beautifully, while the choir, set back in the soundstage, wrapped around them to spine-tingling effect.

CINEMATIC SPARKLE

This attention to detail played a major part in conjuring up the big, blowsy vintage sound of the John Wilson Orchestra on *Rodgers & Hammerstein At The Movies* [Warner Classics 3193012]. The 'Carousel' waltz had bags of sparkle, serious bass in the middle section, and that sense of propulsion of the titular,

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83V - 1kHz/Mean/IEC)	86.7dB / 87.0dB / 84.9dB
Impedance modulus: minimum & maximum (20Hz-20kHz)	2.85ohm @ 75Hz 22.6ohm @ 38Hz
Impedance phase: minimum & maximum (20Hz-20kHz)	-66° @ 48Hz $+36^\circ$ @ 27Hz
Pair matching/Resp. error (200Hz-20kHz)	0.6dB / ± 1.7 dB/ ± 1.6 dB
LF/HF extension (-6 dB ref 200Hz/10kHz)	38Hz / 65kHz/47kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.55% / 0.2% / 0.35%
Dimensions (HWD) / Weight (each)	1120x300x430mm / 101kg