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MAGIC MUSIC

MAGICO Q3 SPEAKERS: SOLID METAL MASTERS

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Three-way, sealed-box floorstanding loudspeaker
Made by: Magico, Berkeley, CA, USA
Supplied by: Absolute Sounds Ltd
Telephone: 0208 971 3909
Web: www.magico.net; www.absolutesounds.com

Magico Q3 (£34,900)

Utilising over 100kg of aluminium per speaker, the Q3 is as solid an engineering solution as we might envisage

Review: **Paul Miller** Lab: **Keith Howard**

For a brand that's very vocal in its distaste for the hocus-pocus, the flim-flam and hype that still lives in the verges of high-end audio, 'Magico' might seem an unusual choice of masthead. For there's no magical mystery about Magico's Q3 floorstander even if its astonishingly musical sound does promise a truly transcendental listening experience. No, the Q3 like its bigger brother the Q5, represents a root-and-branch engineering re-think of the 'art' of loudspeaker design, from the very bolts that hold the cabinet together to the bespoke 'Nano-Tec' drivers and beryllium dome tweeter.

It's almost easier to describe what the Q3 is not. It's absolutely not some daft 'concept speaker', for example, where form overrides function in an effort to delude the ear by tickling the eye. Indeed, there's nothing especially touchy-feely about the huge black slabs of aluminium that clad the outside of the Q3's layered cabinet or the 287 steel bolts that bind this composite and its internal alloy matrix together.

And before you ask, yes, the Q3 is available in any colour you want provided that colour is black. 'It's impossible to get the consistency if we anodise in anything other than black' Alon Wolf, chief architect and Magico's driving force, confided as we shuffled his latest creation across the room. 'With a rejection rate of 30% after anodising, almost 20% of the cost of the cabinet goes into the finishing.'

Speaking of which, the Q3 is no starter solution, for even by high-end audio standards the £35k ticket is not trivial. But then, and I'll confess not to have looked up the raw cost of aluminium, a couple of hundred kilos of the stuff plus machining and finishing just has to be worth inordinately more than the costliest, thickest plywood used in any conventional loudspeaker cabinet.

BRUTAL ATTRACTION

With function clearly the paramount priority, the Q3's form is still not inelegant. The curved low-diffraction baffle is not a casting but is machined from a solid billet of aluminium, bead-blasted and anodised to a very hard finish. You can leave a mark on the surface but it'll not easily scratch and neither will a fevered buffing with the supplied 3M cloth leave a shiny patch on its glowing matt surface. But while the Q3 is both brutally attractive and very practical to keep clean, the lack of any protective grille warns against small fingers or inquisitive claws.

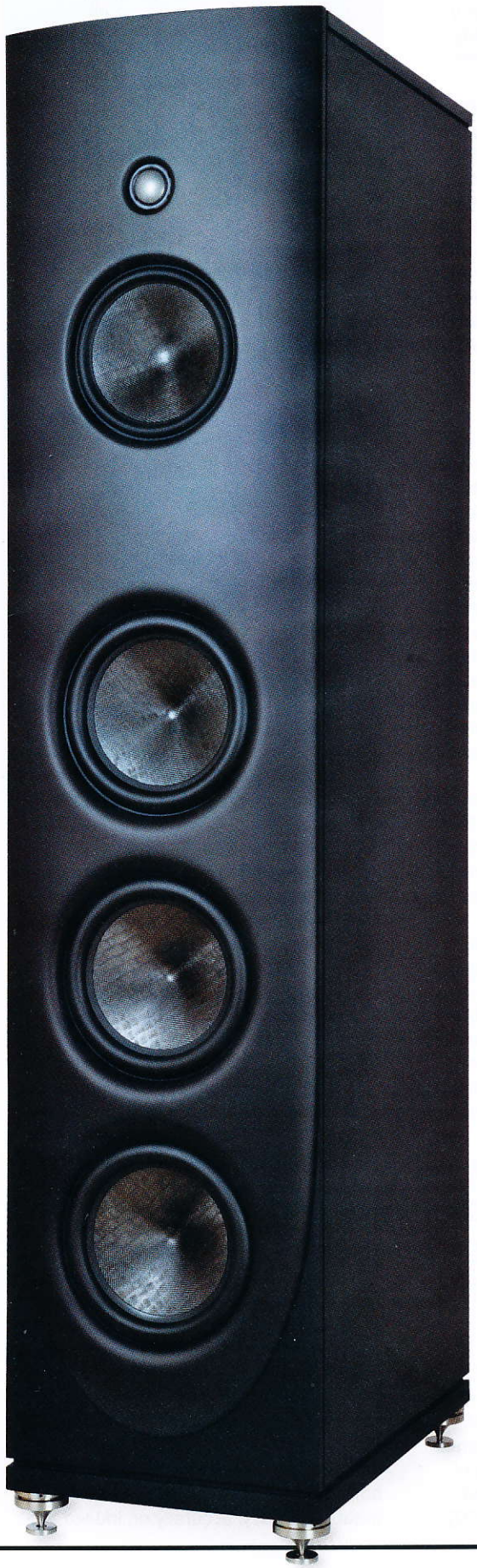
In common with the £69k Q5, the Q3 employs a very sophisticated 'Q design platform' as the mainstay of its cabinet. This platform is Magico's solution to the conundrum of a cabinet that's simultaneously stiff, massive and critically damped. Fortunately, aluminium can be made very stiff relative to its weight and is an easy material to damp. But building a box that has the stiffness to support multiple bass drivers while damping a resonant frequency that's being pushed upwards is still a tricky proposition.

WELCOME TO THE MATRIX

In practice, Magico's internal bracing network – a matrix of aluminium rods and sections [see p20] – elevates the resonant frequency(s) of the structure, these high-Q modes then quelled by its constrained layer damping. The aim is a very quiet box with minimal losses from driver interaction.

So the Q3 cabinet is not simply slabs of aluminium bolted together. Specifically, the three 7in bass and one 6in midrange driver are all bolted directly onto the main cabinet faceplate while an intermediate polymer/mastic 'filling' is squeezed between this and the curved baffle. Only the 1in beryllium tweeter, which requires the separate mass for its own damping, is directly bolted to the front baffle. This constrained layer principle involving sheets of aluminium pressed across a layer of mastic is also employed variously along the side and rear walls of the cabinet.

RIGHT: The sandwich cabinet is an exercise in constrained layer damping; the main drivers are bolted onto the cabinet proper while the MBe-1 beryllium tweeter is connected to the baffle



BESPOKE DRIVERS

Magico's 'Nano-Tec' drivers are as distinctive as its black-anodised aluminium cabinets. Developed almost five years ago, the cones are an asymmetrical three-layer sandwich of carbon skins with a Rohacell centre, embedded in a nanotube thermoplastic resin. More commonly used in helicoptor rotor blades, the composite is claimed to be the lightest, stiffest material on the market. Increasing stiffness still further, the cones are machined to a point rather than be weakened by a dust cap. This makes centring the cone more difficult than usual but Magico has built a jig for the process where the 3in titanium former (for the voice coil) is bonded precisely into position. This huge voice coil offers greater support for the cone which is powered by a very efficient iridium-based magnet assembly.

The mid and treble drivers operate into an entirely separate enclosure that also houses Magico's 'elliptical' crossover network. The crossover components are all top-of-the-line Mundorf parts sourced from Germany. 'We spend more money on one coil than some companies spend on the entire crossover', Alon remarked, 'especially the copper coil, copper foil coils, at a minimum of 12 gauge.' All Magico's inductors are air-cored while the elliptical filter type allows a steeper roll-off to be achieved with fewer components and maintaining a decent sensitivity.

'We simulate everything in a virtual environment', continued Alon, 'we have a system that allows us to emulate the sound in real time using virtual parts that can be changed, heard and measured through an active system'. Our rear panel shot [p23] suggests that the crossover panel can be removed. All well-heeled but inveterate tweakers please be warned: it cannot.

On the subject of tweaking, there's very little available to the Q3. Its single speaker terminals dismiss any opportunity for bi-wiring, while the collar-locking spikes, complete with floor-protecting discs, are an integral component rather than an option.

ON YOUR MARKS...

I've already described the fun and games we had during the installation of the Q3s [see p90] so we'll begin where I left off in my Opinion page, with the speakers thoroughly run-in and evidently ready for some musical action. In a nutshell, the Q3s sound very quick, clean and unfussy; there's no bloom or overhang at any point in the spectrum but while they are ruthlessly insightful neither are they clinical, cold or dispassionate.

More than once I was left feeling that I was listening to the electromechanical embodiment of the Devialet amplifier [*HFN* Apr '10] – such was the definition, the taut clarity and explicit resolution of the sound that bowled into the room. But this wasn't just a 'sound', it was music at its most compelling: a broad and deep canvas alive with detail and vivid with colour. And the energy that the Q3s can convey is truly astonishing.

...GET SET ...GO!

I squeezed Yello's *Race* remixes from my media server [*HFN* Aug '11] into the Devialet's digital input and the Q3s responded with a turn of speed that would have left Usain Bolt dazed on the starting blocks.

> 'Their turn of speed would leave Usain Bolt dazed in the blocks'

There's more than a nod to Motorhead in the remix of 'Tied Up In Gear' but its astonishingly quick bass rhythm utterly failed to trip-up the Q3s which powered both the impossibly quick drum line and reverb-fuelled guitar riff without pausing for breath. On almost every occasion I've heard this adrenalin-pumped remix, the speakers or system have all but collapsed into a tangle of synthetic strings and drums.

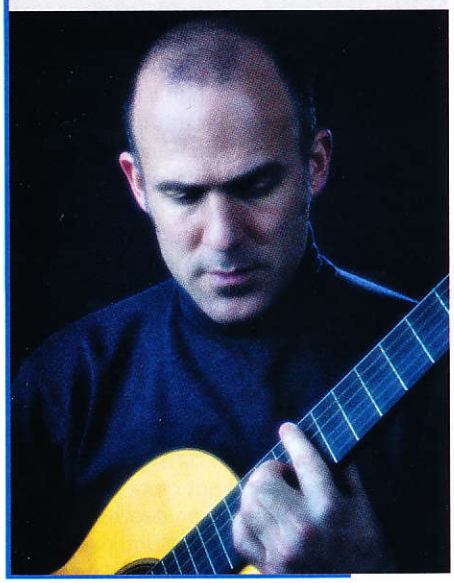
Not this time. And with the 'Break Light' remix of the classic title track, while the Q3 did not quite reach into the subterranean depths of its bass, the sheer unremitting pace of the percussion was rendered with ⇨

NO MAGIC ACT

'Our first real success was with the Mini standmount', remembers Alon Wolf, 'this used a stacked birch ply core with our key technology of aluminium plates, sandwiching the core. It was an apparatus where the drivers themselves were attached to the aluminium and this was pressed to the wooden core. At no point was there any hardware connection between the wood and the moving parts of the system.

'Check the driver screws in a conventional cabinet and you will see what I am talking about. In all these wooden products, the most torque you can put on them is 3-4lbs Newton. It stays securely coupled for a couple of days, but that's all. Coupling drivers to our aluminium plates allows us to achieve around 11lbs. The sound gets clearer, tighter and it stays like this.

'We are really pushing R&D in all areas but there seems very little of it going on in our industry. If you look at products from some leading high-end manufacturers you can see that it is mainly about integration. Drivers that can be bought off the shelf, cabinets that are built from MDF with the veneers on them – it is more like furniture building. We should be more like the car industry: driven by technology and not by gurus that think they know what sounds best because they woke in the middle of the night and saw the light. It doesn't work like this. Speakers are a technical product and are not best developed by intuition.'



an uncanny clarity – every note ringing with a distinctive hue that could easily be discerned from within its incredibly complex, multi-layered soundstage.

Moreover, and I've said this on more than a few occasions when recalling the sound of the best high-end equipment, here was a performance that lived and breathed quite separately from the two monolithic black boxes sitting in the corners of my room. It's the first but vital step on the route to a performance that verges on reality – music that fills every nook and cranny of the room in believable proportion driven by, but not necessarily anchored to, the speakers.

LIQUID LUXURY

This free-form presentation, natural and transparent in delivery, was just as evident with far subtler recordings. The contrast with those Yello remixes and John Gorka's *The Gypsy Life* [24-bit/96kHz AIX download, see p80] could hardly be more marked but the change in pace was reflected absolutely in the sedate rhythm of that acoustic guitar, Gorka's unprepossessing vocals and the lush backing harmonies. While this was easy-listening at its most luxurious, the Q3s steadfastly refused to add any obvious colour of their own, recreating this intimate, beguiling acoustic without artifice.

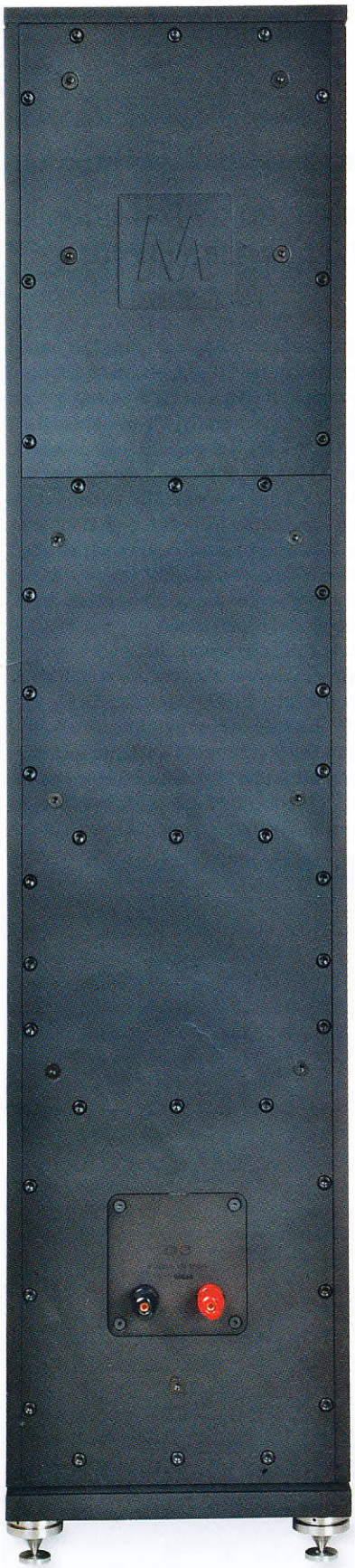
The close-miking and modest ambience of Steve March Tormé's 'Born To Be Blue' [AIX Records 83042] was equally striking via the Q3s as was the focused intensity of the brass, the instrument possessed of a rasping energy that was just, well, so very 'real' – loud but not rough or harsh. The pitter-patter of percussion was equally realistic, the delicacy of each note's arrival and decay causing me to catch my breath as these fleeting metallic sparks would rise and then blink from the musical scene. Just as quickly, Tormé's vocal improvisation would shatter the stillness with a raw physicality that, once again, was adroitly handled by the Q3s. Tormé has a set of lungs on him, no doubt, but the speakers would roll with these acoustic punches while simultaneously spinning some rather fragile instrumental plates.

I can find no better illustration of the Q3's inherent stillness, the freedom from panel resonances or other sources of bloom than in its rendering of Reference Recordings latest release, premieres of Brubeck and Gandolfi by the Concord Chamber Music Society [RR-122 HDCD].

ABOVE: Magico's 'Q design platform' applies varying levels of force to its multiple-thickness damping layers, addressing specific areas of resonance across the cabinet structure

Recorded by 'Prof' Johnson with elevated microphones, the exquisite acoustic of the Mechanics Hall in Massachusetts is still easily curdled by loudspeakers with the merest hint of boxy coloration. Not so the Q3. The depth of the acoustic was astonishing as violins emerged as a shimmering but articulate haze in the far distance while the bolder insistence of clarinet punctuated the motionless air stage right. You could almost visualise the low notes from bowed bass rippling out into the venue, its vaulted aspect illuminated by the gentle tap of percussive blocks and rattle of tambourine. Brubeck's *Danza Del Soul* is an exquisite and very personal composition – I can barely imagine hearing it revealed with greater delicacy, accuracy or, indeed, ⇨

> 'Fleeting metallic sparks would rise then blink from the musical scene'



ABOVE: Single 4mm terminals are wired to the crossover in the Q3's top section

passion than I was rewarded with here by the Devialet/Q3 combination.

Power, clarity, a clean and extended bandwidth – the Q3 offers all this and more because its dynamic highs and lows are bound into an effortless and cohesive whole. Every piece of music is conveyed as a discrete event, reflecting the genre and tenor of the recording itself rather than any character on the part of the speaker.

THE PERFECT PARTNER

This might not always be the case should you play fast and loose with the choice of partnering amplifier, of course. Our lab report suggests that while the Q3s are sensitive enough for a sealed-box design of this size and volume, they are also a fairly unforgiving load. Now, the Q3's phase angles and low impedance are well within the compass of the Devialet D-Premier and Krell S-1500 amplifiers I use by way of reference, but I'd not be tempted to torture a lower output, higher output impedance (valve) amplifier.

I've no doubt you'd enjoy some rich tunes but any color will likely reflect the amp/speaker interface as much as the recording at hand. I imagine any enthusiast lucky enough to entertain the purchase of these speakers will also be of the mindset to marry them with a capable and very neutral solid-state power amp. If tubes are part of the plan then I'd stick with big models from ARC, McIntosh and EAR – brands with the discipline to design real-world performers for out-of-this-world loudspeakers like the Magico Q3.

HI-FI NEWS VERDICT

Engineered with a passion, but a passion for accuracy, the Magico Q3 demonstrates that the familiar moving-coil loudspeaker template still offers room for wholesale improvement. Realised here in its intelligent use of modern materials and construction taken to a logical extreme, the Q3 has the capacity to render traditional wooden boxes obsolete. Once heard, the Q3 'experience' is not easily forgotten.

Sound Quality: 88%

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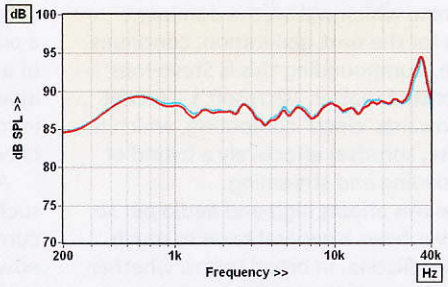
LAB REPORT

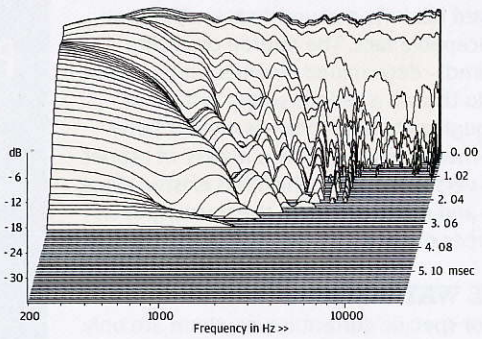
MAGICO Q3 *(£34,900)*

Magico's specified 90dB sensitivity for the Q3 is a little on the high side according to our measurements, which elicited a pink noise figure of 87.8dB. Given that the Q3 is a closed box design, albeit quite a large one, this isn't entirely surprising, although its unusually low impedance helps the cause. Magico quotes a nominal impedance of 5ohm with a minimum of 2.8ohm at 75Hz. We measured a minimum modulus of 2.3ohm at 76Hz, which suggests that a 3ohm nominal rating is more appropriate. Moreover, the Q3 has very large impedance phase angles at low frequencies, reaching –71° at 53Hz, making this a tough load to drive at bass frequencies. In fact the minimum EPDR (equivalent peak dissipation resistance) emerged as a scary 0.9ohm at 64Hz.

The Q3 has an unusually flat on-axis response with only a mild concave trend [see Graph 1, below]. (Ignore the roll-off below 400Hz, which is an artefact of the short measurement window enforced by not being able to lift the Q3s off the floor.) Frequency response error 300Hz to 20kHz was an impressive ±1.9dB, and pair matching error was no less excellent at a remarkable ±0.5dB over the same frequency range. I'd expected the resonance peak of the beryllium tweeter to be rather higher than about 34.5kHz but its output still extends comfortably beyond the 40kHz test limit. Bass extension of 42Hz (–6dB re. 200Hz, obtained using a diffraction-corrected near-field measurement) is perhaps a little disappointing. Distortion figures are low, though, and the cumulative spectral decay waterfall [Graph 2] is pretty clean apart from a hint of low-level cone breakup in the midrange driver. **KH**



ABOVE: The Q3 boasts a remarkably flat response (treble peak at 35kHz) with excellent pair-matching



ABOVE: The cumulative spectral decay shows little or no cabinet resonance and only mild mid-driver modes

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83Vrms – Mean/IEC/Music)	87.8dB/87.8dB/86.6dB
Impedance modulus min/max (20Hz–20kHz)	2.3ohm @ 76Hz 15.5ohm @ 45Hz
Impedance phase min/max (20Hz–20kHz)	–71° @ 53Hz 31° @ 850Hz
Pair matching (200Hz–20kHz)	±0.5dB
LF/HF extension (–6dB ref 200Hz/10kHz)	42Hz / >40kHz/>40kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.4% / 0.1% / 0.2%
Dimensions (HWD)	1194x267x416mm