

## MIKE VALENTINE

The innovative engineer and producer on the art of better recordings

## Q ACOUSTICS CONCEPT 50

Martin Colloms is hugely impressed by this elegant floorstanding speaker's sound – and value for money

## ICON 4 PRO

A high-quality – and highly flexible – line controller for the audio purist

## AUDIOLAB OMNIA AND MARANTZ MODEL 40N

Two very different approaches to creating an all-in-one, 'just add speakers' system

## HOW TO MEASURE A SPEAKER

As Keith Howard explains, you have to start by getting the bass right

## PLUS

Dynaudio's dynamic EMIT 20, PrimaLuna's superb EVO 400 valve amp, and speakers from Aretai, Ophidian and Russell K. And is Mark Levinson trying too hard to please with its first-ever headphone design?

## MAGICO A3

*Martin Colloms finds this neat floorstander, designed as a more affordable addition to the range, makes minimal concessions in either build or sound quality*



# Magico's A-game

CAN MAGICO BRING ITS MAGIC TO WHAT IS – AT LEAST IN ITS OWN TERMS – A RELATIVELY COMPETITIVELY-PRICED FLOORSTANDING DESIGN? MARTIN COLLOMS HAS SPENT SOME TIME WITH THE A3 MODEL, AND IS CONVINCED IT'S ANOTHER SUCCESS

**Even without accounting for the many years of Magico's loudspeaker research, and subsequent production of models with truly heroic enclosure build quality, the A3 is the least costly floorstanding model the company has ever made, selling – despite Brexit and UK exchange rate issues and shipping – at a comparatively modest price of £18,000. But without a doubt this design is a full-range example, employing two powerful 178mm bass units per enclosure. And as it is constructed of solid aluminium extrusions fixed together with machine screws in classic Magico style, it's substantial, too, at no less than 50 kg per speaker.**

Attaining this lower price sector required a revised approach to Magico production methods. These new A series designs are heavy, yes, but not to the degree that they need the specialised handling techniques required for their more costly brothers. Lowered mass has also helped reduce manufacturing cost and have allowed increased production volumes, bringing the 'A' range into a radically new lower price sector for Magico.

I first heard the A3 in early production form back in 2018 at a press launch at KJ's West End high end showroom, and while Magico has traditionally inhabited the world of high-end audio with essentially bespoke, to order manufacture, with small batch quantities of raw materials and labour-intensive, hand-crafted assembly, company founder Alon Wolf came over to show what could be done if you invest in manufacturing greater quantities. Larger companies do this all the time and reap the economies of scale, often to the benefit of the consumer.

Taking the ambitious decision to crack what was then the \$10,000-a-pair floorstander market, Magico commissioned its first batch of A3s as a test run. Having offered this first production to its dealers it sold out immediately, such was the compelling value equation in its class. Certainly \$10,000 for a pair of loudspeakers is not a peccadillo, but in context the A3 jumped right into the mainstream of high quality floorstanders, such as those from the likes of B&W, Focal, Sonus, Faber, KEF, Monitor Audio and others. Cost-saving mass-production beckoned.

While not employing all the build features of – for example – the Magico S3II, which design remains a noted £37,000 loudspeaker, the production specification of the A3 is not all that remote from this particular reference. It has that all-alloy, braced and fabricated enclosure, and a four-driver, sealed-

box-loaded line-up, fitted with proprietary Magico drive units. The planned sales targets for the A3 newcomer were substantially greater than those for earlier more costly designs and would have to be met if the project was to be profitable. Now we know that this venture has paid off and planned production and sales are already some ten times those for their previous equivalent models of more weighty and elaborate construction.

## Modest amplifier requirements

The quoted A3 sensitivity is 88dB/1m 2.83V, an industry average, the amplifier load impedance is 4 Ohms (dipping to not less than 3.2 ohms), while the very wide 'nominal' frequency response is quoted as 22 Hz – 50 kHz, here presumably -6dB limits. It measures a trim 112cm tall by 27cm wide and 23cm deep, and while the minimum recommended amplifier power is quite high at 50 watts RMS, I'd suggest 100W per channel is probably a good idea. Alon himself has reported good results for the A3 with a relatively modest Hegel H3901 250W channel integrated amplifier, noting that more complex and ambitious high-end systems can so easily get top-heavy, and detrimentally overcomplicated with a plain-speaking design such as this.

Nevertheless, good output current from the chosen amplifier and short signal paths for the audio system will suit this design very well. Conversely the maximum rated input power is a massive 300W, so it should play loudly, in theory to over 110dB at one metre, and thus will drive larger room spaces to a useful 104dBA when required.

Since introduction the A3 has been joined by several additions forming a range, for example the A1 stand mount/bookshelf design, a compact two-way (also suitable for rear channel operation), then a properly designed centre channel (ACC),





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and finally a powerful subwoofer. Notably the ACC is a no-compromise design and is a full three-way with symmetrical sound radiation. Still more recently there is the A5, a still larger version of the A3 priced closer to £35,000 a pair.

### Design details

The A3 enclosure is made from 6061 T6 aircraft grade aluminium, also used for the costly Q Series. The highly braced internal structure and framing is panelled with thick alloy extrusions finished in a superfine brushed satin black anodised exterior. High frequencies are allocated to a proprietary 28 mm beryllium dome diaphragm tweeter with an augmented profile based on work done for the M-Project flagship.

Here a Magico-designed neodymium magnetic motor includes a revised rear chamber with improved damping materials, while also facilitating a greater linear excursion. There's also a shallow waveguide designed to smooth the acoustic transition from dome to front baffle, as is apparent on a front plate fully rewarding close examination with its exquisite finely-milled profile.

Likewise, no economies are to be found in the well-sized 152.5mm midrange, which uses a low mass laminated carbon fibre cone with XG nanographene reinforcement. Both this driver and the pair of 178mm bass drivers have powerful overhung neodymium-based magnets aimed at lowering distortion, while the contribution of their high-power oversize 75mm titanium former voice coils should not be underestimated, denoting an increased thermal power capacity, reducing compression towards full power working.

The composite low-frequency diaphragms also have nanographene fibre reinforcement to extend their range and control vibrational behaviour, and all have die-cast chassis while first break-up modes are well beyond the working range and are well damped.

The four vertical-in-line drive units of the A3 are combined using Magico's proprietary *Elliptical Symmetry* crossover topology, the network itself custom-built by noted specialist supplier Mundorf, using high quality, low coloration, and saturation-free components in an optimised layout. This three-way design features a 24dB per octave Linkwitz-Riley filter target that helps optimise acoustic phase linearity which also reduces intermodulation distortion between the drivers.

The crossover is located inside on a windowed alloy chassis of thick plate. I counted 18 electrical components in this complex, three-way assembly, which included high quality high voltage rated polypropylene film capacitors together with air core inductors, the latter inherently saturation free and thus of unlimited dynamic range.

Taken overall the A3 enclosure is best considered as a simplified Q Series design, with similar materials, the same craftsmanship, and much the same detailed attention to design and build. Unostentatious in appearance, finished in a fine brushed satin black aluminium alloy, the whole gives an impression of precision machining, with near perfect joints. There are no visible bolts or screws, and you can't get a razor blade in the panel gaps, never mind a fingernail, leading one to ponder how it's all put together. Inside there are multiple circumferential reinforcements, also machined from thick plate and firmly bolted into place, with closely-controlled torque settings for a consistent sound quality. Access for build or service is via the apertures for the front-mounted drivers and needs training and expertise.

The vertical driver line-up embodies a design feature to moderate the usual interference floor dip, this achieved by the chosen driver spacing between bass and mid, working in conjunction with the calculated crossover frequency. Essentially the bass section, with its twin drivers, is 'nearfield' to the floor, while the midrange unit is far enough away to largely avoid the prime reflection frequency in its bandpass, thus achieving negligible floor bounce aberration for the coupled system.

### Sound Quality

After some hiatus I finally had a pair of A3s back at base for a full evaluation including acoustic measurements, and recalled those early demonstrations some four years ago. Then, Alon Wolf played a variety of established programme excerpts from a server, feeding a DCS Vivaldi digital audio stack. The DCS digital volume control was set to full, and the audio was then handled by a D'Agostino Momentum two-box preamp, then driving two D'Agostino Progression power amplifiers configured for mono option. Including the Transparent MM series speaker cables which were used, this system cost about 20 times these new Magicos. As it turned out, logistical reasons had led to this resident high-end set at KJ being pressed into service, and so the demo system could not possibly be accused of compromising the demo the press contingent experienced.

Unquestionably the resulting sound was modern Magico: it was so neutral as to be self-effacing, soundstages were wide and deep and there was very little unwanted localisation in the vicinity of the loudspeakers themselves. They played loud when required, seemingly without constraint: vocals, acoustic guitar, classical piano and even a full symphony orchestra were reproduced without drama or strain and with natural timbres. Stereo images were well detached from the enclosures,



*Cutaway of the Magico A3 shows the 'chambering' of the treble and midrange sections, and the use of extensive bracing*

### The System

Townshend Allegri Reference control unit, Naim NAP250DR power amplifier, D'Agostino Progression integrated amplifier, Naim SuperLine-Supercap DR phono pre with Linn LP12 player with Keel chassis, Karousel main bearing and Radikal motor control, Naim ARO arm, Lyra Delos cartridge, Naim UnitiCore network server and S/PDIF source, Roon Nucleus Plus server control with Qobuz; Linn Klimax DSM streamer-DAC, Naim ND555 Streamer-DAC, 555 PS x2 (DR), Wilson Audio Sabrina X, Magico S-5II, FinkTeam KIM, BBC LS3/5a (15ohm), loudspeakers, Naim 4 tier FRAIM racks; Transparent XL MM2, Naim NAC A5 speaker cables, Naim Super Lumina, Transparent MM2 and van den Hul Carbon TFU interconnect cables.

and there was an easy transparency, together with little acoustic signature ascribable to the drivers in operation. Asked about the origin of the source material Alon confirmed that it was standard 16 bit/44.1kHz, and when, after the main demo, I got an hour or so of the A3 to myself, I still felt no need to revise the above observations.

A feature of the more recent Magicos is their multi-parameter approach to engineering design. Here almost every variable is optimised interactively to deliver a target sound objective – where aspects such as timbre or frequency balance, on and off axis sound output, subjective distortion over frequency, are modelled en masse while cognisant of audibility thresholds. The path to an idealised target function is then much shortened, enabling more time for subtle refinements.

### Consistency of sound

You hear this extra quality in the consistency of sound over the room space, also with variations in loudness. The intrinsic timbre and clarity was remarkably stable over the dynamic range, and considered consistently natural. The powerful, large-scale sound belied the slim profile of these floorstanders, which delivered very natural soundscapes with satisfying image focus, depth and width – quite theatrical in fact. Accurate timbres and an evenly radiated energy response support such a performance, and the specific images were notably focused and stable. Despite the significant height I was not aware of the vertical spacing between the drivers: they seemed to be well blended and integrated, both vertically and horizontally.

Now with the A3 back home, with well run-in shop demo loaners, I found right away that familiar music spoke of an upbeat quality of swing, with fine expression of rhythm, supported by expressive fatigue-free dynamics and an impressive loudness potential. The musical timing was very good combined with a driving, foot-tapping beat, and yet the A3 was agnostic of music type, proving to be as happy with medieval plainchant as it was with heavy rock. *Raw Like Sushi*, the debut studio album by Neneh Cherry, remains a killer for timing and dynamics, and rendered poorly it can edge towards an untidy crashing racket. Not so with the A3: here it rocked, approaching a transportive sensory overload for my listening panel.

In stature and driver line-up, the A3 is not too dissimilar to Magicos I have owned: the S3 II and the S5 I, then the S5 II. Notwithstanding the advantage of the larger 250 mm bass drivers of the S5 II, my first impressions of the A3 in that same room space were most promising. It largely held its own against those larger references, perhaps only betrayed by the smaller bass drivers when they were so

obviously driven beyond their healthy limits, at over 100W peak programme. Nevertheless, the A3 could play really loudly even in my sizeable listening room and proved to be very tolerant of high power inputs.

At first instance, the intrinsic sound quality is so high that the addition of a powered 'A' series sub-woofer could well be a logical further investment if still more bass power was felt necessary. As it was, I felt that there was no lack of bass. Towards those maximum levels which are possible for the larger Magico S5II, the A3 bass understandably began to show mild compression, but made no rude noises, and I was more than happy to back off the levels slightly and reset my expectations. These speakers sound so transparent that undue volume levels are not necessary to hear the detail, image depth and far stage ambience in familiar programme.

Now we had a contest on our hands. What awkward content could we throw at the A3? Hildegard's medieval plainchant. Or perhaps *Koyaanisqatsi* from Philip Glass: all singing all dancing, with deep powerful bass and hugely complex percussion, and then on to the wailing alto sax from Jan Garbarek on *Rites*, or perhaps the calmer, *A Knot in Space and Time*.

### Thriving on demanding material

The A3 loudspeaker just thrived on material that in the past many contenders have tripped over. This suggests several qualities working in concert, such as a notably uniform and well-balanced frequency response, both on and off axis, also very good phase and frequency integration between the drive units, and finally low colouration, derived from minimal energy storage both for the electro mechanicals, the designed alignments and finally the enclosure. Each of these would seem to contribute cumulatively to our rich musical experiences.

As the A3 settled in, its location finally optimised in the room, I found that my listening panel had been taken over and were unwilling to break the spell. Fatigue effects were low, and we listened for hours on end. And for myself I considered that it was worth that extended wait for its return for a full evaluation.

### Conclusions

Still a high achiever even at the necessarily revised pricing, the Magico A3 is a well-balanced design, technically and musically. This accomplished loudspeaker performs beyond expectations of price and size and is so easy to recommend.

### Lab report

#### Sensitivity and frequency response

The A3 output was not perfectly flat on axis and this aspect, judged within reasonable amplitude

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tolerances, may in fact be correct for this design, as it will help define the optimum timbre which was associated with the fine uniformity of output heard over the listener region. While the bass is nominally extended to 45Hz -3dB, and -6dB at 35 Hz, in practice it sounds quite powerful at 35Hz with negligible harmonic distortion.

The room average response suggests an even full-bodied sound, extended to 30Hz, and that was found to be the case. On axis it measured a very good 40Hz to 40kHz +/-3dB. As might be expected the less important output seen above axis has a mild 4dB dip at crossover, at about 2.5kHz, but this dip was held to a mild 2dB below axis, this the favoured result. Laterally off-axis the acoustic outputs were excellently balanced right out to 60 degrees, indicative of a particularly natural timbre in respect of side wall reflections. Even at 60 degrees, laterally off axis, it measured an excellent +/- 2dB from 50Hz to 6kHz... a neutral sound all round.

Above 12kHz there are some minor perturbations on axis, but even with this raw measurement, satisfactory +/-4dB limits remain applicable right out to 40kHz and with a notable absence of the oft found metal dome first mode resonance. There is some evidence of it at an inaudible 28kHz, for example at 45 degrees. Pair matching was excellent typically +/-1dB accurate, assessed in third octave resolution. Our sensitivity rating was 87dB for 2.83V, close to specification and an industry average, though note the 4ohm rated impedance which indicates 83dB/W. The sealed box LF driver resonance is at a surprisingly low 40Hz considering the compact dimensions, also confirming the extended bass we found on audition.

### Distortion

Only cursory checks were possible for this recommissioned assessment. For 1W 2.83v input at 1kHz, third harmonic distortion was 0.08%, and second just 0.04%, these being fine results. At 90dB SPL with a 50Hz low frequency, that awkward 2nd harmonic was well tamed reading approximately 0.8% and considered inaudible. Third harmonic was still lower at 0.08%. Very little distortion was present at higher frequencies, these results indicating that these custom drive units are very well designed for low audible distortion.

### Energy Decay Waterfall and Phase

If you seek evidence of low coloration and subjective transparency look to the energy decay over frequency, and here there is evidence of excellent energy decay behaviour combined with fine phase linearity. This confirms the fine focus and transparency experienced.

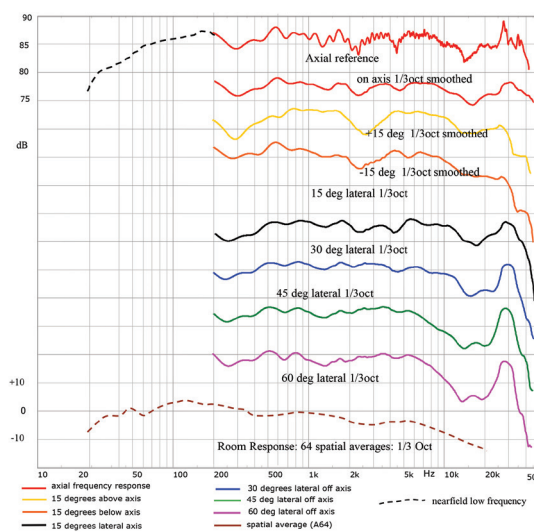
### Load Impedance

A current-capable amp is required: the average impedance is about 4ohms with a minimum of 2.5ohms from 70 to150Hz. However, phase angles are moderate, easing the load demand somewhat.

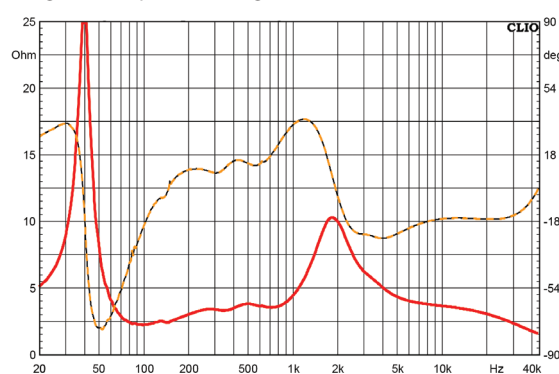
### Pair matching

Excellent pair matching was found in the important central range, namely +, - 0.5dB from 200Hz to 10kHz contributing to the impressively focused stereo images.

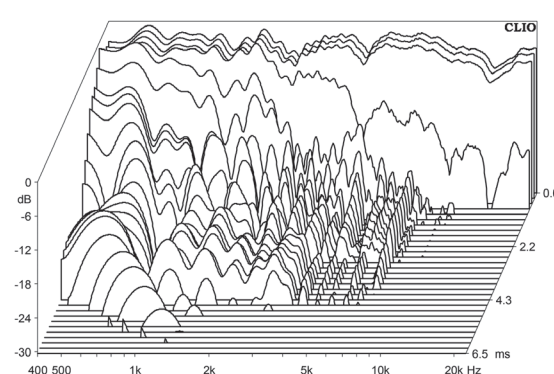
Magico A3 Frequency Responses (87.4dB/W 8ohm ref.)



Magico A3 Impedance: Magnitude and Phase



Magico A3 Time Frequency Analysis



### Specifications

Magico A3	88dB
Type	Floorstanding speaker
Price	£18,000/pr
Sensitivity	88dB
Impedance	4 Ohms
Frequency Response	22 Hz – 50 kHz nominal
Minimum Recommended Power	50 Watts RMS
Maximum	300 Watts RMS
Dimensions (HxWxD)	112 x 27 x 23cm
Weight	50Kg
magicoaudio.com	
UK distribution: absolutesounds.com	