



M&K SOUND 300 SERIES

STEREO & HOME CINEMA LOUDSPEAKERS

A couple of years ago, M&K Sound had a demonstration set up in a side room at the Darling Harbour Convention Centre in Sydney, during the annual Integrate event technology show. It was a large room, but I was alone there with Lars Johansen, the company President, who was telling me about the rebirth of the company in Denmark, its long experience as the choice of Hollywood professionals, and the new drive to deliver the company's key technologies to both consumer and professional markets.

The system in the room was a full complement of the new S300 monitors in surround configuration, including support for the immersive audio of Dolby Atmos. One of the demonstrations was the opening of *Mad Max: Fury Road*, freshly released on the then brand-new UHD Blu-ray format, though

already the darling of equipment demonstrators — this was perhaps the tenth system on which I'd heard this opening *Mad Max* sequence with its collage of sound effects and its deep grumbling narration.

Except — this was the first time I had heard it properly. Besides the clarity and accurate placement of the collage effects, the narration was a revelation. It hovered, stage central above our heads, a Voice of God position, all the more impressive in that Atmos layouts don't have a central Voice of God speaker. But the M&K system rendered it precisely in position, richly toned, close-miked and absolutely massive. It was far superior to the previous demonstrations I'd heard; this was 'real' movie sound, as much as a complex movie mix can be described as real.

And there's a good reason for that. M&K speakers are, as Mr Johansen said, the choice of professionals. *The Lord Of The Rings* was mixed on M&K speakers. *Star Wars* Episodes I, II and III — mixed on M&K speakers. *King Kong*, *The Incredibles*, *Pearl Harbor*, *Black Hawk Down* — all mixed on M&K speakers. And do you know what else those movies all have in common? They're all also Academy Award winners for their sound.

Something of a pattern there, then, reinforcing M&K's claim to Hollywood acceptance. It certainly has M&K Sound impressively positioned to bring the full reality of cinema

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sound, as created by the sound engineers on the movies, to your own home.

And now it's a Danish firm. The company, also known widely as Miller & Kreisel, was US-based for most of its history, since 1969 when teenage audiophile Ken Kreisel teamed up with Jonas Miller, who had opened one of the world's first true high-end audio salons. They got a big boost after being asked by Walter Becker of Steely Dan to design a studio monitor system for the mixdown of *Pretzel Logic*. Other landmarks include the first sub-sat system, the 'David and Goliath' in 1974, and in 1977 the first self-powered subwoofer. The company's sound quality in Hollywood screening rooms became legendary.

But in 2007 the company closed its factory, and when Lars Johansen took over the company with his partners, he set about rejuvenating the brand, reducing what was then an unmanageably large range of models to something more realistic — and relocating to Denmark.

A NEW REFERENCE

One design not in any danger of mothballing at that time was the company's iconic S150 loudspeaker, built by M&K Sound since 1995. THX-certified and recently given a tech refresh in a new edition, the S150 shows one of the company's points of difference. For the last few decades high fidelity loudspeakers have tended towards a taller, narrower and deeper form, with a simple arrangement of drivers stacked vertically. The latest S150 speakers have three 25mm tweeters in a vertical stack, with two 135mm bass/mid-range drivers in another stack

next to them. That front baffle layout with its triple-tweeter array alongside dual woofers has become instantly recognisable as the M&K 'look'.

So when the company introduced a new reference range, the S300, it followed this iconic layout, but done larger — "double the performance and quality", it said when launching them in 2014. They are based on a larger enclosure, sonically able to fill larger rooms and to play "louder than ever before", while maintaining the same accurate sound reproduction on which the S150 design has built its reputation. M&K is quick to point out that the S300, although larger, is nevertheless more compact (at 40 x 34 x 33cm) than any rival monitors capable of rendering their level of impact, clarity and detail.

In order to cater to the varied requirements of home cinema designs, there are three implementations of the S300 — the monitor version with that iconic triple tweeter and dual woofer front array, but also the S300T tripole model for use in side or rear positions, and a shallower, wall-mount MP300 (more overleaf).

The S300 series met predictable acclaim both in the industry and through their use in high-end home cinemas. THX chose the S300 as their new reference loudspeaker and installed the system in their test facilities in California. And indeed the monitors meet and exceed THX's highest THX Ultra2 specifications. As M&K puts it, "As an utterly neutral conduit, the S300 Series neither adds nor subtracts. It simply reveals."

The larger cabinet of the S300 houses driver units that have been developed and custom-built in cooperation with fellow Danes Scan-Speak, whose legendary drivers have for decades been a 'go-to' for designers of the highest-end speakers. The one-inch tweeters are dual polymer (silk and polyester)-coated domes with large suspension rolls, while the 6.5-inch woofers have glassfibre cones with polymer coatings and glass-fibre dustcaps. Their positioning synchronises sound from both sets of drivers, says M&K Sound.

THE POWER OF THREE

But why three tweeters? You might think that a single unit would be a more reliable point source, but a vertical tweeter array with well-designed waveguides delivers the beginnings of a line array, the vertical stacking resulting in a large effective surface area, while the horizontal dispersion is much wider and more uniform across the height of the tweeter array. This promotes an even coverage of the listening area, but also reduces vertical spread, thereby controlling reflections off floor and ceiling to the listening area. The combination is ideal for improving clarity and generating a larger sweet spot.

Further, with three tweeters connected in parallel, the power load and displacement for each is reduced to a third, reducing distortion,

▽ READY TO PLAY – M&K SOUND'S S300 SYSTEM IN A HOME CINEMA CONFIGURATION, WITH THREE S300 MODELS, TWO TRIPLES, PLUS THE X12 FROM THE COMPANY'S RANGE OF SUBWOOFERS READY TO SUPPORT THE LOWS.





◀ TAILORED SPECIFICALLY TO FULFIL M&K SOUND'S AMBITIOUS PERFORMANCE REQUIREMENTS, THE X SERIES OF SUBWOOFERS PROVIDE THE PERFECT LOW-END TO SUPPORT THE S300 SERIES.

with tight tolerances and high power handling include high-power polypropylene capacitors with thick copper wire connections, and air-core inductors wound from 1.2mm high-purity copper for virtually flat frequency response with optimal phase characteristics. The relatively low crossover point requires larger component values but minimises electrical phase delay, further improving the timing between the two arrays and the overall accuracy of sound.

Meanwhile the dual 6.5-inch mid/woofers combine to deliver the equivalent of a single 9-inch driver woofer, but again two separate cones and motor systems share the load, running cooler and with greater speed and dynamic agility, as well as power handling. The cones are formed with a hyperbolic curve profile and single-synthetic butyl rubber roll surrounds optimised for minimal mass. At the rear behind the soft-steel top-plate, a high-grade strontium ferrite magnet and "distortion killing" aluminium shorting ring back the Miller & Kreisel custom-made aluminium basket, which allows full ventilation under the ultra-linear Conex spider (Conex is a compound of cotton and heat-resistant polyfibres). A soft steel T-yoke with vented pole piece aims to minimise compression and distortion while evacuating captive air behind dust cap, allowing the low-mass, high-conductance vented 32mm voice coil to achieve linear travel up to ± 6 mm during transients. The promised result of all this is fast transient response and minimal compression even at large excursions.

CABINET BRIEFING

Separate tweeter and woofer mounting brackets are used, with a solid-steel woofer mounting bracket ensuring a tightly sealed connection to the inside of the front baffle, and the mid/woofers slightly recessed in the baffle. A specially designed rigid cast-aluminium mounting flange for the tweeters includes integrated waveguides.

With all drivers rear mounted to the brackets and the brackets rear-mounted to the baffle, the front remains free of reflective edges near the drivers, and offers a clean front aesthetic without a screw in sight. The cabinets themselves are sealed, with a 'box-inside-a-box' construction, an internal 9mm MDF enclosure separated from an outer set of 12mm MDF panels by a vibration- and resonance-damping 3mm layer of tar between (and joining) the two cabinets. Tar? Yep,

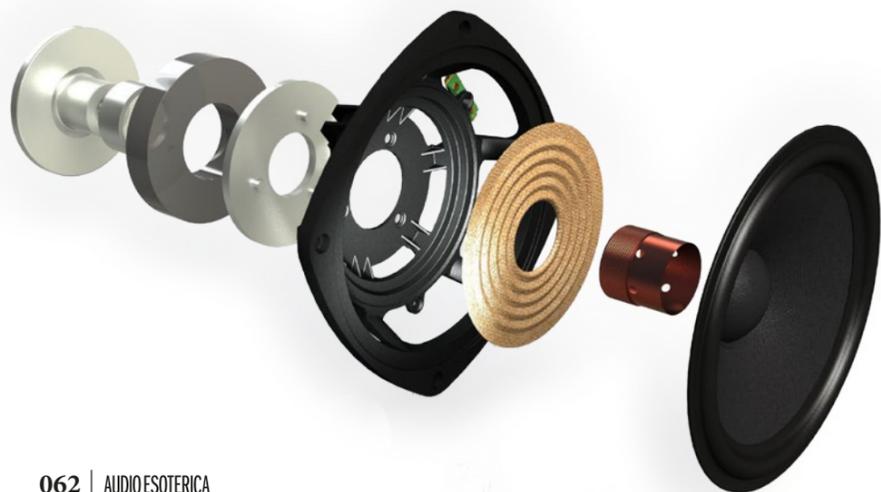
and further assisted by a felt air-flow resistor pad that prevents reflected sound from returning to the dome, while a precisely positioned pole-flow resistor between the rear chamber and the felt pad prevents any captive air mass in the vented pole, so that there is no undesirable loading of the dome, while still allowing airflow.

It's worth highlighting the crossovers, as this is a point of distinction for M&K, which refers to its combination of arrangements as its exclusive transient-optimised Phase-Focused crossover, optimising response in both the time and frequency domains, and crucially not only considering the response on one axis but in three dimensions at a wide range of angles in both the vertical and horizontal planes. It's a key element in the delivery of the speakers' coherent response.

The reduced dome motion from tripling the tweeters also allows a lower crossover point of 1500Hz to the twin woofers, with the two driver arrays integrated electrically by a crossover with a 4th-order (24dB per octave) roll-off of the mid/bass section, meeting a 2nd-order (12dB) tweeter filter. Audiophile-grade components



△ ABOVE: THE 6.5-INCH WOOFER OF THE S300 MONITOR AND BELOW, DECONSTRUCTED, SHOWING THE LAYERS FROM SOFT-STEEL TOP-PLATE TO POLYMER-COATED GLASS-FIBRE CONES & DUSTCAP.



If you've already encountered an M&K S150 system, then the impact of the S300 system is easy to quantify — just double it..

tar — but only after extensive testing of what might be considered higher-tech alternatives like rubber, silicone rubber, PVC and polyurethane foams. Tar is the best, says M&K, and the longest-lasting too. The solid yet absorbent nature of this arrangement lowers the mechanical noise floor drastically, says the company, delivering a rock-solid foundation from which the drivers can perform to their highest abilities.

While the S150 has a useful 90dB/W/m speaker sensitivity, the S300 makes still more of your amplifier power at 93dB (remembering that a 3dB difference represents a doubling of effective power), while the 4-ohm impedance assists further in making them friendly even to relatively lowly partnering equipment. The power requirement here is listed as starting at 25W, though they'll clearly relish more (the upper figure is 500W).

"It doesn't take tens of thousands of pounds in amplification to get the best out of it, with even modest AVRs able to drive this sub/sat system," said AVForums when giving its Editors' Choice to a system of MP300 and S 300 Ts, combined with the company's mighty X12 subwoofer.



TRIPLES AND ON-WALLS

While the monitor version of the S300 is the star of the series and the choice for stereo use, for many home cinema applications it may be the on-wall and tripoles of the S300 series which achieve the sonic results.

M&K has a claim to the invention of the tripole configuration, which in the S300T employs one each of the S300's cone and tweeter on the front face (and the same crossover technology too, so delivering an acoustic match with the S300), but it adds independent side chambers each housing a pair of 4-inch drivers. The spread of sound delivers a combination of diffuse and focused sound, highly effective with ambient soundtracks but also enhancing the positioning of effects and voices as the soundfield passes to the rears.

The on-wall MP300 keeps the drivers of the S300 but uses a shallow cabinet which M&K intended for placement directly on the wall behind an acoustically transparent screen, but which will also suit other installations and décors where a shallower cabinet may be preferred or required — to this end the MP300s (and the tripoles) are available in a satin white finish, as well as the black of the main S300 monitors. The sensitivity falls back to 89dB, while the lower end of the quoted frequency response (-3dB) lifts to 80Hz compared with the 60Hz of the monitor S300. Of course in a full system they would be supplemented by one or several of the company's X-series subwoofers of renown.

But the MP300 on-walls remain THX Ultra2-certified, their success attested to by that 2017 Editor's Choice award from AVForums, concluding "Music and movies are brought to life with incredible accuracy and detail, along with stunning dynamics. The soundstage is massive with amazing depth and outstanding cohesion and envelopment, mixed with frighteningly fast transitional changes in volume and dynamics."

Which seems the right note on which to conclude our study of the S300 series. And if perhaps you've already encountered an M&K S150 system, M&K's longstanding success story, then the impact of the S300 system is easy to quantify — just double it. Jez Ford

◀ THE TRIPOLE AND ON-WALL MODELS OF THE S300 SERIES ALLOW FLEXIBILITY IN BOTH POSITIONING AND DECOR FOR THOSE BUILDING A FULL S300 SYSTEM.

SPECIFICATIONS

S300 L/C/R - \$4799 each

DRIVERS: 3 × 25mm tweeter, 2 × 6.5-inch woofer
CROSSOVER: 1.5kHz
IMPEDANCE: 4Ω
QUOTED FREQUENCY RESPONSE: 60Hz-22kHz, ± 3 dB
SENSITIVITY: 93dB/W/m
RECOMMENDED POWER: 25-500 watts
FINISH: Black Satin
DIMENSIONS (HWD): 39.5 × 34 × 33cm
WEIGHT: 18.2 kg

S300T TRIPOLE - \$5999 each

DRIVERS: 1 × 25mm tweeter, 1 × 6.5-inch woofer, 4 × 4-inch mid-woofers
CROSSOVER: 1.8kHz
IMPEDANCE: 4Ω
QUOTED FREQUENCY RESPONSE: 80Hz-22kHz, ± 3 dB
SENSITIVITY: 89dB/W/m
RECOMMENDED POWER: 25-400 watts
FINISH: Black Satin or White Satin
DIMENSIONS REAR SIDE (HWD): 34.5 × 34.5 × 18cm
DIMENSIONS FRONT SIDE (HWD): 34.5 × 22.5 × 18cm
WEIGHT: 12kg

MP300 ON-WALL - \$4499 each

DRIVERS: 3 × 25mm tweeter, 2 × 6.5-inch woofer
CROSSOVER: 1.5kHz
IMPEDANCE: 4Ω
QUOTED FREQUENCY RESPONSE: 80Hz-22kHz, ± 3 dB
SENSITIVITY: 92dB/W/m
RECOMMENDED POWER: 25 - 500 watts
FINISH: Back Satin or White Satin
DIMENSIONS TOP (HWD): 39.5 × 34 × 16cm
DIMENSIONS BOTTOM (HWD): 39.5 × 34 × 12cm
WEIGHT: 18.2kg

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