

# Oldies but

Although the 150 series from Miller & Kreisel is not brand new, it has never been featured in audiovision before.

An omission that we are rectifying with this test.

## M&K SOUNDS S150

- ⊕ Extremely neutral but by no means sterile sound image
- ⊕ Precise spatial imaging
- ⊕ Dynamic, clean and deep bass reproduction
- ⊖ Center omnidirectional pattern asymmetrical

The S150 speakers from M&K Sounds are used for the centre and the two front main channels. They have a somewhat unusual form factor, but one that makes physical sense. The silk matt black surfaces are all immaculate. The X10+ subwoofers takes care of the low tones, which is represented twice in our test set - although only one is shown here.

▶ Miller & Kreisel or M&K Sound - as the manufacturer called itself after changing its name in Denmark - has never gotten beyond the status of an insider tip in this country. They were better known in their country of origin, the USA, because many music studios used their speakers. This is also where the company originated: Jonas Miller and Ken Kreisel built their first speakers, a subwoofer satellite system, for Donald Fagen and Walter Becker from the cult band Steely Dan to master their LP "Pretzel Logic". Word of the quality of Steely Dan loudspeakers quickly spread throughout the industry, resulting in more and more orders for monitors and screening rooms for the film and music industry, which ultimately led to the official founding of the the company and series production in Los Angeles in 1974

In the course of subsequent developments, M&K's typical construction methods gradually crystallised: the array of three tweeters, for example, which makes this manufacturer's speakers so unmistakable, was introduced with the S-100B as early as 1989. The first subwoofer with a push-pull driver arrangement also came onto the market that year. And the first edition of the S150 saw the light of day in 1995, even then with THX certification. After Miller & Kreisel moved to Denmark (including a change of ownership), the company also tried to gain a foothold in the neighbouring market. To date, this has not really been successful. In addition, only the smaller loudspeaker models were known, if at all. In order to change this in the long term, the Danes have now provided the audiovision editorial team with a loudspeaker set that emphatically demonstrates the company's philosophy. In addition to the speakers for front and centre (the aforementioned S150) as well as surround and surround back (S150T) and the two X10+ subs, M&K also packed four MP150s for the atmos channels on the truck. True to the motto: if you're going to do it, do it right. This has its price, which in this case is 32,000 euros for the complete set.



**audiovision**  
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# Goldies



## TECHNOLOGY

As already mentioned, the S150 is something of a Miller & Kreisel trademark - and for good reason: firstly, it is extremely compact for a high-quality speaker and looks unusual with its three tweeters arranged one above the other and the two woofers sitting next to them. Despite the high recognition value, the developers did not choose this design to stand out. The compact cube shape results in the smallest possible baffle, so that any edge reflections and surface directional effects are minimised. The baffle size was ultimately determined by the dimensions of the drivers to be accommodated.

So why three tweeters on top of each other instead of just one, as is the case with most loudspeakers? So that the S150 has a powerful vertical directivity in the high frequency range and thus limits reflections from the floor and ceiling. To refine the vertical directivity, the centre tweeter is also given a higher level than the outer tweeters. Three tweeters can also be coupled lower via a crossover, here at just over one kilohertz instead of the usual two to two and a half, which is a critical range for human hearing. In this range, pick-up problems such as phase errors and discontinuities

in omnidirectional behaviour become particularly audible. The power handling capacity also increases. A vertical directivity effect is hardly noticeable with the two woofers sitting on top of each other; the aim here was simply to utilise as little front panel surface area as possible.

## UNUSUAL ARRANGEMENT

The S150 is equally unusual in another aspect: the woofers and tweeters are not positioned above each other as usual, but next to each other. This is also due to the resulting omnidirectional behaviour; the speakers play very evenly in the direction in which the tweeters are positioned and have a wide dip in the mid-range towards the other side. This is also about avoiding reflections, this time from the side walls. It is clear that the speakers for the right and left sides are different and that the tweeters definitely belong on the inside. There is no special version for the centre speaker; here the Danes use the speaker for the right-hand side, which puts listener sitting to the right at a slight disadvantage due to the asymmetrical dispersion pattern. However both the left and right version can be used as center channel.

Incidentally, if you think you've seen the drivers used in this or a similar way in other - in some cases much cheaper - speakers before, you're wrong: yes, the drivers are built by Scan Speak in Denmark and are based on their widely used standard types. However, M&K left nothing but their outer shape and developed them from scratch. The 13-centimetre woofers, for example, were given a stable die-cast aluminium basket and a membrane made of coated fibreglass fabric. Aluminium short-circuit rings in their magnet system ensure minimal distortion even with large excursions. The tweeters were given a common mounting flange, in which a short waveguide is incorporated for each of the three domes. In order to reduce their resonance frequency and enable the low crossover frequency, they have a small, dampened housing flange-mounted behind their drilled-through pole piece, which gives the silk dome tweeter more room to breathe.

M&K Sound calls the S150T surround speakers "Tripole": they have a two-way system consisting of one woofer and one tweeter at the front, which emit the sound directly to the listener. A full-range driver works on the bevelled sides on the left and right. The two are driven in antiphase and therefore work as a dipole.



### The Atmos channels

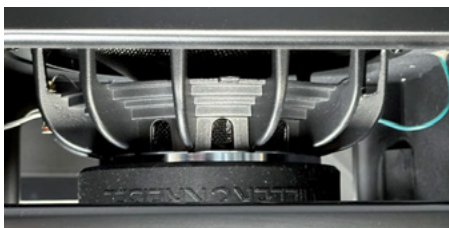
was handled by four MP150 speakers in our 7.2.4 speaker set.

### The surround stage

was handled by four S150T models in our 7.2.4 speaker set.



The X10+ subwoofer has plenty of connections and controls. There are balanced inputs and outputs as well as a phase adjuster and a switch for low bass equalisation. Even the low-pass filter can be deactivated or simply set to THX



The drivers of the subwoofer impress with fat magnets and ample ventilation openings for heat dissipation. The one pictured is housed with its front facing upwards in the base of the closed housing and thus emits sound with the rear of the cone.

Miller & Kreisel hopes that this design will create an enveloping film sound, just like in the cinema, while still allowing precise localisation and minimized distortion for both music and film experiences. For the Atmos channels, M&K used the MP150, which has the same layout as the S150, but a smaller and angled housing. They are designed for use on wall or on the ceiling. We used the atmos variation for the test. Two X10+ subwoofers were used, featuring two 25-centimetre bass drivers in a so-called push-pull arrangement.

As usual, one driver is mounted with the cone facing forwards, while the other is mounted with the magnet facing outwards and, in this case, on the underside of the closed cabinet. The drivers are wired in antiphase, so if the cone of the front driver moves outwards, away from the magnet, the cone of the other driver also swings outwards, but towards the magnet. According to the developers, this largely compensates for any non-linearities in the drives and reduces distortion. To ensure that the X10+ is stable despite the driver magnet protruding from the underside, the housing was extended downwards and provided with generous openings for low-resistance sound dispersion. The Danes chose a wall thickness of 25 millimetres, but stiffened the inside of the cabinet even more, resulting in a total weight of 41 kilos. The drivers are powered by an ICE Power module, a switching amplifier with a full 500 watts of continuous power. The balanced XLR connections are also commendable and professional. There are also RCA inputs, as well as a low-pass filter that can be adjusted between 50 and 125 Hertz and completely switched off, and a phase adjustment that can be tuned between 0 and 180 degrees. The low bass can also be increased by a few decibels using a switch, which we used for measurements and listening tests - because this enabled a linear response. The sub is THX Select certified, unlike the S150 and S150T, which have THX Ultra2 certification. The MP150s have to make do without THX altogether.

**Surround Sound quality**

The X10+ performed convincingly in our test lab: A full 112 decibels maximum level and a lower cut-off frequency of 20 hertz promise plenty of clean low bass. The X10+ performed convincingly in our test lab: A full 112 decibels maximum level and a lower cut-off frequency of 20 hertz promise plenty of clean low bass. Although the frequency response began to drop off at 40 hertz, this was very slow - typical for closed cabinets. Experience has shown that this is largely compensated for by placing the speakers on the floor.



With a little additional mechanics, the MP150 can be accommodated under the ceiling. This can certainly be made even more attractive for a permanent installation.

The frequency responses of the satellite speakers intentionally drop early, the S150 THX-compliant at 80 Hertz, the S150T and MP150 a little earlier. What they all have in common is a very even response up to 20 kilohertz. As already mentioned, the omnidirectional behaviour of the centre speaker is asymmetrical; towards the left side it is even, towards the right there is a dip in the mid-range (see box on the right). The testers were particularly excited about the sound, especially as many people from the studio sector had expressed their enthusiasm for the 150 speakers. Fortunately, the very first sounds in the listening room showed that these opinions were not generated by the Danes' marketing department: The set plays effortlessly, naturally and with tremendous precision, without making listening even the slightest bit tiring. It doesn't matter what you listen to, the set delivers the entry into the Shire in "The Lord of the Rings" just as easily and naturally as passages with a heavy bass boom, such as the tow truck scene from "Terminator - Salvation". The two subs are particularly impressive, performing their work with great depth, a rich level and very cleanly. Even at overall levels in the far unreasonable range, there is no recognisable dynamic compression or even distortion.

**SUBWOOFER-PIONEER**

Miller & Kreisel very self-confidently took credit for the invention of an element that has become an integral part of home cinema today - and also of many stereo systems and soundbars: the subwoofer with integrated amplifier. The manufacturer launched it on the market in 1974 and called it the not very American "Volkwoofer" (probably a reference to the VW cars that were just coming into fashion). They also equipped it with technology that is quite sophisticated and elaborate, even from today's perspective: They also equipped it with technology that is quite sophisticated and elaborate, even from today's perspective:

Namely, a servo feedback system that monitors the movements of the cone and largely compensates for any distortion that occurs. Incidentally, M&K no longer use this technology in their current subwoofers. Even though the concept of an active subwoofer was "up in the air" at the time and other manufacturers, such as Infinity, were also working on it, M&K still did pioneer work here. Because they are rightly proud of this, the manufacturer has launched a special limited edition of 100 Volkwoofers for this year's 50th anniversary, albeit with the latest technology and without a servo. Nevertheless, the special model shown on the right is sure to become a collector's item.

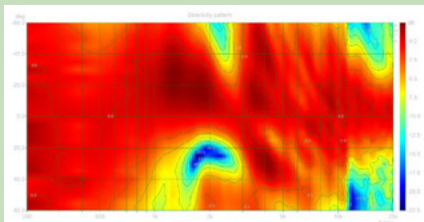


To mark its 50th anniversary, M&K Sound is launching a special limited-edition model of its Volkwoofer, one of the first self-powered subwoofers

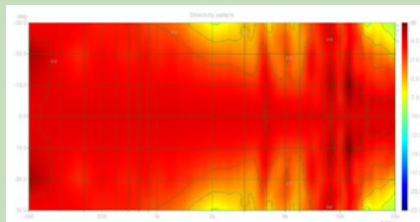
## THE RADIATION BEHAVIOR OF THE S150

The unusual driver arrangement and control led the testers to take a closer look at the omnidirectional behaviour of the S150 from Miller & Kreisel, with some surprising results: the manufacturer wants to reduce reflections from the floor and ceiling with the triple tweeter array. However, as the directional diagram we determined shows, this is only partially successful. In the mid-range from around one kilohertz, the S150 begins to direct a little vertically; at 2 kilohertz, the level drop compared to the axis is 7.5 decibels. Above this, however, the level increases significantly again, and at 7 kilohertz there is hardly any directivity left. However, it is also clear that the vertical characteristic is very even, which experience has shown to have a positive effect on-

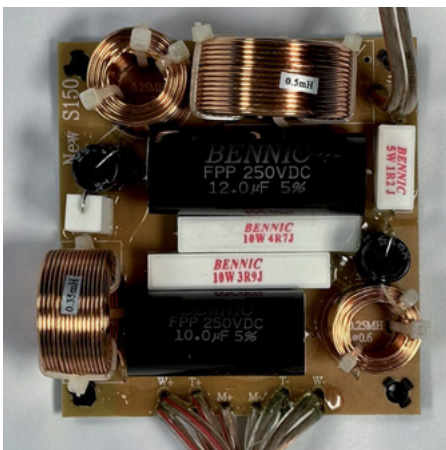
sound balance and colouration. The horizontal measurement, which we carried out up to angles of plus minus 60 degrees, shows a completely different picture: At negative angles, i.e. towards the listening position, the right-hand speaker measured here shows only a comparatively small drop in level in the mid-range, which is particularly important for spatiality. At positive angles, however, i.e. towards the side wall, there is a clear "hole" between 1.5 and 3 kilohertz with level losses of over 22 decibels, which significantly reduces the disturbing reflections from the sides. This is probably exactly what gives the S150 its excellent spatial reproduction and localisation accuracy.



In the mid-range, the S150 radiates little sound towards the side walls, which tames interference from reflections.



Vertically, the S150 radiates quite evenly and is only moderately focussed in the mid-range.



For a two-way speaker, the crossover of the S150 is quite complex - no wonder, as the outer and centre tweeters have to be controlled separately. The components used are of high quality.

They perform at a full level and very cleanly. Even at overall levels in the far unreasonable range, they do not noticeably allow themselves to be carried away by dynamic compression or even distortion.

The set really comes into its own with Atmos material, where it can fully exploit its airy, precise spatiality. The directional effects are great when ships and cars fall from the sky in "Transformers: Age of Extinction". Even more impressive is the fascinatingly enveloping spatiality that the set produced in "Gravity", among other things.

The Danes handle "little things" such as very good dialogue intelligibility and precise left-right and front-back positioning with ease and with exceptional competence.

The Miller & Kreisel set proves once again that the old prejudice that you can't achieve low-colour music reproduction with THX speakers is outdated: the voices of Jane Monheit and John Pizarelli on "They Can't Take that Away From Me" prove it realistically and with crisp spatial imaging. The Danes don't shy away from classical music either and present Aaron Copland's "Appalachian Spring" interpreted by the San Francisco Symphony with verve, great joy and harmonious sound colours.

### Stereo sound quality

Of course, as a THX speaker, the S150 cannot manage without a subwoofer. But that doesn't matter in this case, because the two X10+ speakers integrate so seamlessly into the overall sound image that there are no noticeable limitations compared to full-blown floor standing speakers. Crisp rock music such as "Hands in Your Pocket" by Richard Marx comes across dynamically, precisely and "in the face", while quieter music such as Michael Ruff's "Watching Like Angels" comes across with such natural relaxation and localised spatial imaging that the speakers quickly become the secondary focus and the music the main focus

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## AV-FAZIT

What lasts a long time: The great performance of the Miller & Kreisel speakers gives us hope that this brand will also be adequately recognised on the German market under the new name M&K Sound. They certainly deserve it, as shown by the S150 set, which enters our reference class.

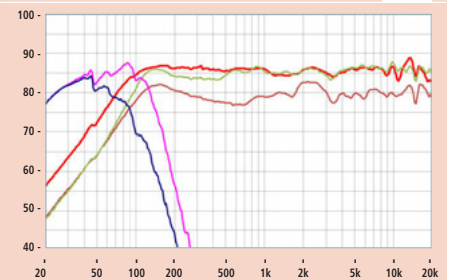
## M&K SOUNDS S150

Equipment	
Price (MRP)	32.000 Euro
Color choices	Black, Atmos speakers also white
Dimensions / weight front	31,8 x 26,8 x 31,8 cm / 11 kg
Dimensions / weight center	31,8 x 26,8 x 31,8 cm / 11 kg
Surround dimensions / weight	26,7 x 20,3 16,5 cm / 4,6 kg
Dimensions / weight Atmos	30,8 x 26,7 x 16,5 cm / 7,9 kg
Dimensions / weight subwoofer	64,7 x 40 x 34 cm / 40 kg
Sub / Sat-Set	Yes
Number of speakers / Setup	7.2.4
Technology Front / Center / Surround	
Number of paths	2 / 2 / 2
Minimum impedance	3,4 Ohm / 3,14 Ohm / 4,2 Ohm
Sensitivity	85,7 dB SPL / 79,3 dB SPL / 85,2 dB SPL
Bi-wiring	No
Subwoofer technology	
Functional principle	Closed
Remote control	no
Amplifier power (specified)	500 Watt
Diaphragm diameter	2 x 25 cm (10 inch)
Phase control	yes, adjustable
High-pass filter	no
Low-pass filter	50 Hz to 125 Hz

## RATING

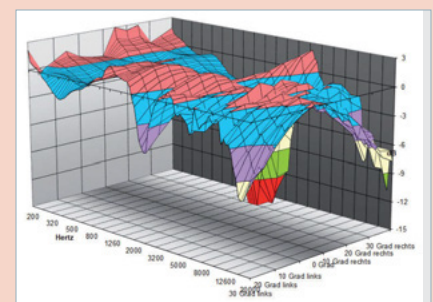
SOUND QUALITY 5.1 MULTICHANNEL very good 57 / 60

Neutrality	11 / 12
Dynamics	11 / 12
Speech intelligibility	12 / 12
Resolving Power	11 / 12
Low bass characteristics	4 / 4
Lower cut-off frequency front	20 Hz (with Sub) 4 / 4
Maximum SPL bass	112 dB SPL (Pink Noise 40-80Hz) 4 / 4



Front Center Surround Atmos Sub maximum crossover frequency  
Sub minimum crossover frequency

The frequency response of the M&K set is very clean up to 20 kilohertz. As expected, the S150Ts are significantly quieter than the front and Atmos speakers.



To the left, the M&K S150 emits a fairly balanced sound; to the right, there are clear dips in the mid-range.

SOUND QUALITY STEREO very good 25 / 25

Neutrality	5 / 5
Dynamics	5 / 5
Speech intelligibility	5 / 5
Resolving Power	5 / 5
Low bass characteristics	5 / 5

MATERIAL & PROCESSING very good 9 / 10

EQUIPMENT very good 4 / 5

AV Rating very good 95 von 100  
REFERENCE CLASS