

Icon Audio MB90 MkIIIm-150

Introducing the brand-new KT150 output tube, the most powerful yet in its class, this latest version of Icon Audio's big monoblock looks to be something rather special
 Review: **Steve Harris** Lab: **Paul Miller**

Like the hardy perennials of audio horticulture, the standard valve amplifier circuits keep coming up fresh year after every year. Time-honoured varieties are blossoming like never before, thanks to the grafting-on of new tubes that are bigger and better than the previous standard types.

Most exotic perhaps is KR Audio's T1610, the prize marrow of a tube used in the Kronzilla power amp [see *HFN* Aug '13]. But there has also been a new flowering in the family of beam tetrode tubes that started, in the UK at least, with the venerable KT66. This is the new Tung-Sol KT150, and the first amplifier manufacturer to feature it is Icon Audio.

The KT150 is now an option with Icon's Stereo 60 Mk IIIIm, both integrated and power amp versions, and with the single-ended MB30 monoblock. You can have two pairs of KT150s in the MB150 monoblock, giving 150W in ultralinear mode and 100W even in triode mode.

NEW DESIGN, OLD CONCEPT

But arguably, this new tube is shown off to best advantage in the MB90 MkIIIm monoblock power amplifier. Still also available with KT120 tubes at £2700 a pair, the design has been re-worked to suit the KT150, and in this form, reviewed here as the MkIIIm-150, it sells at £2900 per pair.

Although this amp is a recent design and comes with brand-new tubes, both the 'KT' concept and the basic circuit date back to the 1930s. In the early days of valves, the addition of a fourth element called the screen grid, between the grid and anode (or plate), had made a triode into a tetrode. Adding a further element, the suppressor grid, between this and the anode, created the pentode.

The suppressor grid got rid of a kink in the characteristic performance curve of the tetrode. But as the pentode had been

RIGHT: With its perspex cage removed, the MB90 MkIIIm's complement of 6SL7 and 6SN7 triodes are revealed in front of the pair of KT150 beam tetrodes. Note manual bias adjust points

patented by Philips, engineers at EMI came up with another solution, using beaming plates to guide the electron stream, and so the 'kinkless' or 'beam tetrode' was born. Then, in 1937, came the 'ultralinear' circuit invented by Blumlein, with the screen grid connected to a tapping on the output transformer. As the name suggests, this exploits the power of a pentode or beam tetrode while giving low distortion. However, it's also possible to run the tube as a triode, with the screen grid connected to the anode. Like many of today's audiophile amplifiers, the Icon gives you this option too.

Built in Icon's factory in China but, like all the company's products, finished and tested in Leicestershire, the MB90 MkIIIm looks solid and handsomely-proportioned. The tubes spring proudly from a chunky 6mm-thick copper-coloured plinth, although this is actually anodised aluminium.

On the right is the small 6SL7 double-triode for the first stage of amplification, while the 6SN7 on the left is the phase-splitter, creating the two 'halves' of the audio signal to be fed to the two KT150s in the push-pull output stage. In the middle, adding its own pale blue glow, is a 0D3 ionising voltage regulator.

Underneath the chassis, as with all Icon products, the circuitry is built up by

traditional point-to-point wiring, with never a printed circuit board in sight.

DUAL-USE RETRO METER

You expect a valve amp to be a bit more complicated in use than a solid-state one, just as a vintage Bentley is more demanding to drive than an electric car. But Icon Audio seems to know how to make valve amplifiers simple and comfortable to use. You get some additional controls, but everything is well thought out for the non-techy user and, incidentally, well explained in the instruction manual.

While the main power switch is on the side, the front panel controls start with a standby switch. In standby mode, the valves' heaters are kept on so the amplifier is

ready to come to life almost instantly. It's sensible to use this mode when listening intermittently during the day, but Icon doesn't recommend leaving the amplifier in standby for more than 24 hours.

Next comes the Triode/Ultralinear switch. Running the valves as triodes may be expected to produce the best subjective sound quality, even though the claimed power output is then reduced from 115W to just 60W.

Suitably retro in design, the illuminated analogue meter in the centre is primarily

'Voice, piano and guitar each had a glossy perfection of their own'





LEFT: Tung-Sol's new, egg-shaped KT150 tubes are said to give better heat dissipation, superior vacuum and freedom from microphony. They can be run in ultralinear or triode modes

with the excellent B&W CM10 speakers, for example, I found the 4ohm setting preferable. But there's also one more toggle switch, which gives the choice of High or Low sensitivity.

'Low' is the standard setting, designed to work with normal valve and solid-state preamps while giving the best damping factors for difficult speaker loads. 'High' gives more gain (as there is less feedback) and is suitable for use with passive preamps or other source devices with a volume control. But also, says Icon, 'purists may prefer this low feedback sound.'

GETTING HIGH

It was fascinating first of all to compare the sound on its Triode and Ultralinear mode settings. I found that the triode mode was often just more atmospheric-sounding, and ultralinear was generally just not quite so sweet. With Marta Gomez and *Entre Cada Palabra* [Chesky JD301] the vocals could appear to be more focused, as, with the ultralinear, the singer seemed almost to be splashed across the stage rather than placed clearly. In triode mode, the bass was seemingly not so deep and at the same time perhaps less well-controlled, but somehow with a coherent connection to the upper registers that made it satisfying.

Experimenting with the High and Low sensitivity settings (allowing for the change in level of course) I did find myself preferring the 'low feedback sound' of the High position. With the amplifier set to Low, there was still depth in the soundstage, but it lost some of the great overall sense of freedom and perspective you got with High. There was just a bit more ambience, a bit more air around each of the instruments.

On the 'Maria Mulata' track, for example, you really got more of the quick slapping and cracking sounds of the various percussion instruments. Conversely, the Low position was fine on the voice and smoother on the bright, sharp solo flute sound, which on the High setting seemed to be on the verge of spitting at you. But overall, it was the High setting for me, and I continued to listen that way...

For me a good system is one that gets the best out of all material, not just the finest recordings. So I put on Elmore James's 'Dust My Blues', recorded in mono in the 1950s and remastered much later by Ted Carroll of Ace Records [*Let's Cut It*,

an output power meter, although rather than watts or dB, it's just marked with a scale of 0 to 100 where 100 corresponds to maximum output. In practice, as the average power to the speakers will be quite low, you will hardly see it move.

But it does have another and much more useful function, which is to make it easy to check the bias on the output tubes, using the three-position toggle switch on the right. Switch it up for 'V1' or down for 'V2' and the meter will indicate the bias level on one or other of the output

tubes. If the meter needle moves into or at least very near the black section between 60 and 70 on the scale, all is well. If not, you can adjust the bias up or down as necessary by using a small screwdriver on the little preset adjacent to the valve. There will be OCD enthusiasts who'll flip this switch on a daily basis, but Icon suggests that once a month is enough.

On the back of the amp is a single unbalanced (phono) input socket and set of three speaker terminals, providing 4 and 8ohm matching options. Listening

THE KT150 TUBE

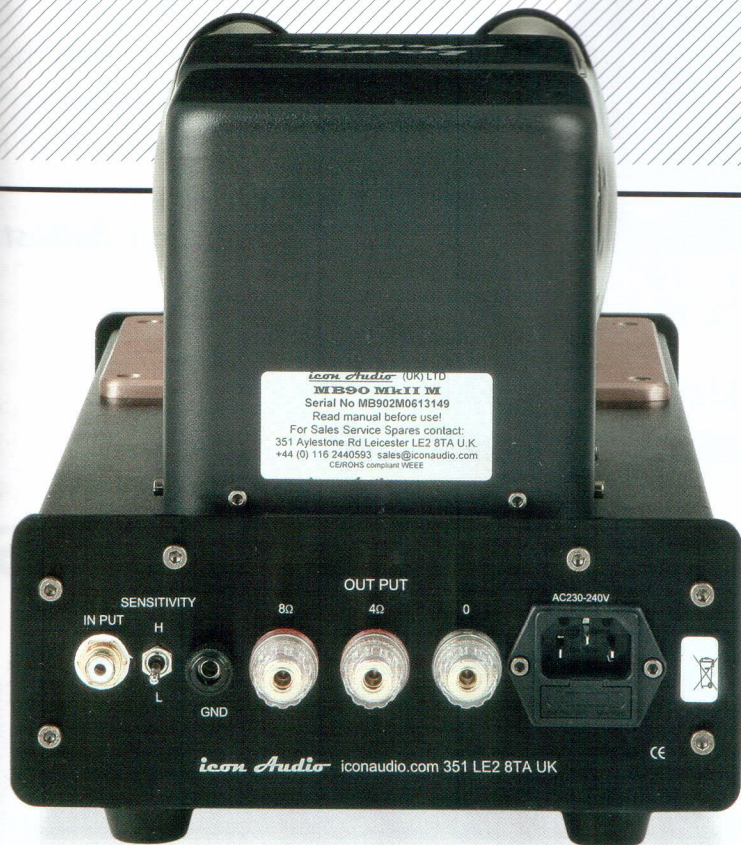
Looking rather different from its predecessors, the KT150 still follows the line of development that started in the late 1930s with the first beam tetrodes, RCA's 6L6 and EMI/Marconi's 'kinkless tetrode', the KT66. Higher-power versions, the 6550 in the US and the KT88 in the UK, were introduced in the mid-1950s and the 1990s brought the beefed-up KT90. Then, in 2009, Tung-Sol, now part of the New Sensor empire that embraces the main Russian brands, launched its substantially more powerful KT120. Now, Tung-Sol's KT150 is billed as 'the most powerful octal beam tetrode ever produced', with a plate (anode) dissipation of 70W, against 60W for the KT120, or about 40W for a KT88. It's said that a pair of KT150s can give an amplifier output 'approaching 300W', while the egg-shaped glass envelope improves thermal dissipation and reduces microphony.

LAB REPORT

ICON AUDIO MB90 MKIIM-150

There are a handful of hi-fi companies including Audio Research, VTL, McIntosh and Icon Audio that regular demonstrate how tube amps need not be weedy, speaker-shy apparitions. The MB90 MkIIM, with its KT150 output tubes, is a case in point as it delivers a full 120W into both 8/4ohm loads (via 8/4ohm taps respectively) in Ultralinear mode, increasing to 135W into 8/4ohm and 185W into 2ohm (4ohm tap) under dynamic conditions [see Graph 1, below]. Distortion is reasonably constant at ~0.05% from 1-10W/8ohm through the midrange but steadily increases at higher output to the notional 1% clipping point at 120W. Distortion also increases at the frequency extremes, reaching 1.1% at 20kHz/10W even though Icon specifies enough iron in its transformers to hold THD down to 0.2% at 20Hz/20kHz. Distortion rises very quickly at subsonic bass frequencies, as we might expect [see Graph 2, below].

Via its 8ohm tap, the MB90 MkIIM-150 offers a reasonably uniform 1ohm output impedance from 20Hz-20kHz but there is still some load-dependent variation in frequency response. Into 8ohm, the amp offers a slightly 'sweetened' -1.1dB/20kHz treble but this increases to -3.3dB/20kHz into 4ohm via the 4ohm tap. The knee in response before the transformer resonance at ~50kHz makes the HF roll-off more obvious into lower impedance loads. Otherwise the MB90 MkIIM-150 offers some impressive numbers - including a fine 95.6dB A-wtd S/N ratio (re. 0dBW) and an idle power consumption of 110W (low by tube standards). Readers may view a comprehensive QC Suite test report for Icon Audio's MB90 MkIIM-150 by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Rear socketry includes the usual 4 and 8ohm speaker connections, plus a switch to select High or Low sensitivity settings for the inputs. This helps make the amplifier suitable for use with passive preamplifiers too

Ace CDCH 192]. It was loud, exciting and vibrant, just as I'd hoped.

But then again, the amplifiers did sound great on more obviously audiophile selections. With Patricia Barber's *The Cole Porter Mix* [Blue Note 50999 5 01468 2 6] it seemed that the voice, piano and guitar each had a glossy perfection of their own. On Barber's song 'Snow', which nestles un intimidated among the Porter standards, the timbral correctness and fine yet unexaggerated detail of the vocal made this a gripping performance.

DIVINE INDEED

In classical music, I always felt that the Icon really did justice to recordings where there is delicacy, space and subtlety. It was delightful in *Les Nuits d'été* with Dame Janet Baker [Virgin Classics 7243 5 61489 2], with just the right sensation of height in a slightly distant but appropriate perspective that gave a real feeling of performers on a stage.

On familiar rock tracks, it seemed that the Icon could always give the music a lively bounce, rather than the effect of a weighty grind. With Kings Of Leon and *Come Around Sundown* [Sony 88697782412] the Icons gave you the power of the drums and bass, even though the bass weight was moderate, and seemed to revel in the over-the-top

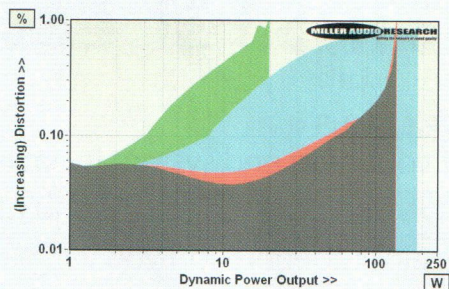
guitar sounds too. And the amplifier could convey real joy in music. I put on Gwyneth Herbert's *Clangers And Mash* [NaimEdge, NaimCD137], and I really enjoyed the lovely, buoyant feeling of the track 'Perfect Fit'. It was all there, as the ukelele sound possessed real substance and the handclaps had an immediate, genuinely fleshy quality.

And the first few bars of 'April In Paris', from *Sarah Vaughan With Clifford Brown*, recorded in glorious Mercury mono in 1954 [Emarcy 814 641-2], were enough to remind me why Sarah Vaughan was called 'The Divine One'. With the Icons, she was divine indeed. ☺

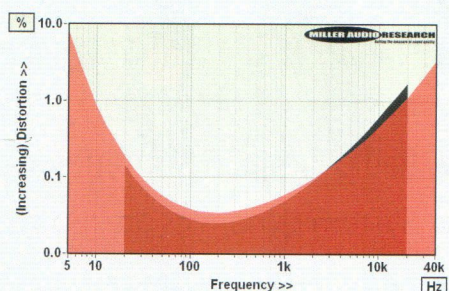
HI-FI NEWS VERDICT

With ample power for most systems, freedom from noise and user-friendly operation, there's also a great sound that justifies Icon's design approach. It's tremendously inviting, smooth as silk without being at all 'rounded'. Stereo images have convincing depth and a tactile quality, instruments and voices almost tangible within the soundstage. These enjoyable amplifiers are very easy to recommend.

Sound Quality: 85%



ABOVE: Dynamic power versus distortion into 8ohm (black trace, 8ohm tap), 4ohm (red, 4ohm tap), 2ohm (cyan, 4ohm tap) and 1ohm (green, 4ohm tap) loads



ABOVE: Distortion versus frequency at 10W/8ohm (20Hz-20kHz, black) and 5W/8ohm (5Hz-40kHz, red)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	120W 120W
Dynamic power (<1% THD, 8/4/2/1ohm)	135W 135W 185W 165W
Output impedance (20Hz-20kHz)	0.083-1.1ohm
Freq. response (20Hz-20kHz/100kHz)	+0.15dB to -1.1dB/-10.5dB
Input sensitivity (for 0dBW/115W)	88mV 952mV
A-wtd S/N ratio (re. 0dBW/115W)	95.6dB 116.2dB
Distortion (20Hz-20kHz re. 10W/8ohm)	0.025-1.7%
Power consumption (Idle/Rated o/p)	110W/250W
Dimensions (WHD) / Weight	200x220x500mm / 50kg