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Vanguard

V24 Stereo Valve Microphone



Vanguard's new stereo mic is an exclusive tribute to an even more exclusive original.

SAM INGLIS

There are manufacturers who recreate vintage gear to an ever more obsessive degree of accuracy, and there are manufacturers who see classic mics and studio hardware as inspirations rather than templates. Derek Bargaehr of Vanguard Audio Labs is in the latter camp. Most of his designs are obviously informed by historic models from the likes of Neumann and AKG, but they're not intended as clones or copies. Rather, Derek's goal is to make the best mic he can within the same broad set of design parameters, whilst keeping the end result affordable.

At first glance, though, the new V24 stereo microphone might seem like a departure from this philosophy. For one thing, it's recognisably based on a particular

vintage model. And for another, it would be hard to describe it as 'affordable'...

Twice Twelve?

Introduced in the late 1950s, the AKG C24 remained in production for nearly two decades, though it's thought that fewer than 800 were ever made. It is often described as a stereo version of the C12, and used the same capsule, valve and transformers as that mic, but with an alternative circuit topology that gave it a slightly different sound. The C24 was the only production stereo mic to employ the celebrated 'brass ring' version of AKG's CK12 capsule; when it was discontinued in the late '70s, it was replaced by the solid-state C422, which used the then-new 'nylon ring' CK12. There was one major revision of the C24 during its long career, when for some reason AKG replaced the original diamond-pattern grille mesh with

a reportedly inferior grid-like mesh that is said to cause resonance problems.

Like most single-point stereo mics, the C24 has one fixed capsule and one that can be freely rotated. Turning this upper capsule allows any mutual angle between zero and 180 degrees to be configured. Pattern control is remote, either from a dedicated controller or the power supply depending on the version, with nine switchable patterns running the usual range from omni to figure-8 with cardioid in the middle.

Although the C24 perhaps doesn't quite have the same legendary status as the C12 or the related Telefunken ELA M 251, its rarity and its similarity to those mics means that it is nevertheless highly sought-after. Yet, having analysed and repaired several C24s, Derek Bargaehr concluded that there was room to improve on the design, both mechanically and electrically. On a C24, there are no

detents or markings to guide you when setting the mutual angle of the capsules, and the mechanism places a Meccano-like strut right in front of each capsule, which presumably affects the sound. Derek found this mechanism unreliable and prone to failure, and consequently, his stereo mics use a new and more robust 'tank turret' rotation system with a 120-degree span that is divided into 15-degree steps, and with nothing in front of the capsules.

Derek's analysis also led him to conclude that the C24 had a problem with crosstalk between the two channels, thanks to their sharing a power rail for the B+ voltage. His design eliminates this, reportedly delivering better stereo imaging as a result. Going further, the Vanguard V24 replaces the Haufe T14/1 transformers used in the C12 and C24 with larger ones, with the aim of extending the original design's rather constrained low-frequency response. And there are several other ways in which Derek's design cheerfully departs from the original, the most obvious being the addition of a pair of filter switches on the mics itself. These do not, as you might expect, cut low frequencies, but introduce a very gentle high-frequency attenuation that is intended to make the frequency response more akin to that of a typical ELA M 251. So, although the V24 is more closely inspired by a specific vintage design than other Vanguard models are, it's still not intended as a straightforward clone of the C24 — as if such a thing could ever be straightforward.

Let's Twist Again

The basic V24 'chassis' and rotation mechanism were actually introduced in Vanguard's V44S Gen2, which I reviewed back in 2022 (www.soundonsound.com/reviews/vanguard-audio-v44s-gen2). Whereas that mic was finished in the company's trademark 'pinot noir' gloss, however, the V24 is stripped back to bare steel and polished, which gives it a purposeful look, and brings it somewhat closer to the C24 in appearance. It is, however, larger than the C24 in all dimensions, and has the same unusually open, single-layer headbasket mesh as the V44S. I do worry that this might not offer enough protection to the capsules under all circumstances, though it was not a problem at all during the review period.

Housed in a smart wooden box (from which it can be annoyingly hard to remove), the V24 ships in a large Pelicase along with its shockmount, cable and power supply, and a spare 6072 valve. The PSU is very nicely made and, like the N24S supplied with later C24s, has the pattern controls integrated rather than on a separate remote. Unlike the N24S, it also has a duplicate polarity-inverted output for the top capsule, which is intended to allow Mid/Sides decoding on the fly. The supplied cable appears to be of good quality, albeit rather prone to retaining its coiled shape, and connects at either end using 10-pin Neutrik XLRs.

The shockmount is the same model developed for the V44S, and I'm still not enamoured of it. It attaches using a threaded ring that is fiddly to get into place, and because it holds the mic only at its very base, there is considerable potential for droop when used horizontally. Given the price and the fact that Vanguard

“When you consider what goes into building something like this, using premium parts and handbuilt capsules, it's obvious that it could never have been a cheap microphone.”

have attempted to improve on the basic C24 design in other ways, it's a bit disappointing that they haven't come up with a better alternative, especially as the original C24 standmount is a brilliant piece of engineering. The older mic will also fit into something like a Rycote InVision suspension, whereas the V24 is too girthy.

Capsule Wardrobe

The key issue for anyone seeking to recreate the classic AKG large-diaphragm sound is the availability of suitable capsules. The 'brass ring' CK12 was notoriously difficult to manufacture, with a very high rejection rate. AKG themselves gave up on it in 1979, and today, only a handful of boutique manufacturers have the skills and experience to make authentic replicas. Look up the prices of these, and the waiting lists, and you'll begin to understand why the V24 costs as much as it does. For the V24, Vanguard are using the Australian-made BeesNeez CK12, which seems to be well regarded.

AKG tinkered with the design of the CK12 throughout its run, making numerous changes to diaphragm material and

Vanguard V24

\$8999

PROS

- An excellent modern interpretation of the classic AKG C24 design, with sympathetic modifications.
- Handmade using high-quality parts.
- Has the same versatility and sonic strengths as the original.

CONS

- Scarily expensive.
- Mounting system isn't great.

SUMMARY

Inspired by what is probably the greatest stereo valve mic ever made, the V24 is a labour of love that actually improves upon the original in some respects.

thickness, and to the depth of the backplate chamber. These, added to the inevitable variation brought about by handbuilding something so complex, meant that there could be significant sonic differences between CK12s from different eras or

even from the same batch.

It's hard to make useful generalisations, especially when you consider the possible effect of ageing on 60-year-old capsules, but most experts seem to agree that the final variant of the 'brass ring' CK12 with

red paint around the edge, as used in the C414 EB microphone, was typically brighter than earlier versions.

I raise this point partly because I love nerdy microphone facts, but partly because it relates to my evaluation of the Vanguard V24. I was lucky enough to have an AKG C24 around for comparison, but this particular C24 is a bit of a Franken-mic, and although it has authentic CK12 capsules, they are the abovementioned final version, which are not strictly period-correct for the C24. I'm not sure which iteration of the CK12 BeesNeez have tried to replicate in their copies.

Side By Side

In terms of specifications, the most eye-catching number quoted by Vanguard is a self-noise figure of less than 13dB (A-weighted). That's very impressive for a valve microphone, and not only improves on the C24 but on quite a few classic solid-state models too. Other specifications are fairly typical, with sensitivity given at 9mV/Pa, and 0.5% TDH reached at a sound pressure level of 126dB. In comparison to my test C24,

»

» the V24 was about 3-4 dB more sensitive. How did it compare sonically?

In terms of imaging, this was a frustratingly difficult question to answer, because it's hard to persuade the two mics to present the same stereo perspective. The V24 is a very large mic, and its bulky shockmount makes it awkward to position another mic next to it. It's also challenging to ensure that two mics of this type are pointing in exactly the same direction. The lack of accurate visual cues makes it hard to precisely identify the 'front' of each mic, never mind line the two up perfectly. They can't easily be swapped out without moving the stand, because each requires its own specific mount. And, though I'm not sure how much difference it makes, the spacing between the two capsules is perhaps a centimetre greater in the V24. The upshot is that although the stereo picture often seemed slightly different for the two mics, it's hard to know whether this is down to their intrinsic properties or the inevitable differences in placement.

According to Vanguard, the elimination of crosstalk in the V24 design means that the stereo field should have appeared wider for the V24, assuming the same pattern settings on both mics. Because I was expecting this, I listened out for it, but inasmuch as it was present in the recordings I made, it was often overshadowed by the aforementioned other differences. Assuming Derek is correct, the crosstalk in the C24 is as high as -25dB, which sounds alarming — but if you think about it, that's around the same level as the maximum off-axis rejection that AKG claim for each capsule at 1kHz, and much lower than the typical off-axis rejection at, say, 5kHz. So although this level of electrical crosstalk looks ugly on paper, it's likely to be lower than the 'acoustic crosstalk' under most circumstances, and especially at high frequencies where the detail that helps us locate sources within a stereo image resides.

What matters is that in practice I have no complaints about the stereo imaging of either mic; and, as a lover of coincident stereo techniques, what's particularly

ALTERNATIVES

If this review had gone to press a month earlier, I'd have said there were no direct alternatives to the V24. However, at this year's NAMM Show, **Peluso** introduced a stereo valve mic called the **P24**, which is also based on the AKG C24, and which is said to be shipping now.



■ The Vanguard V24 (right) is larger in all dimensions than its inspiration (left). Note the Meccano-like struts in front of the capsules on the C24!

great about both is the availability of those intermediate patterns between cardioid and figure-8. For me, the happy place for roles like drum overheads and piano recording is usually to be found somewhere in the crossed hyper or supercardioid region, and this is equally true of the C24 and the V24.

High Society

What, then, about the tone of the V24? The C24 I used for comparison purposes is the only one I've ever heard, so I don't know how representative it is, but it's definitely a bright mic, and noticeably more so than the V24. The degree of tonal similarity was quite dependent on the polar pattern, but typically I found that the C24 had more going on above 5kHz, while the V24 was fuller in the low mids and beefier in the 1-3 kHz range. There was enough of a difference that I often had a clear preference on any given

source, but not consistently in favour of one mic or the other. Instruments and voices that sounded perfect on the C24 sometimes came across as a little harder on the V24, while those that suited the V24 could be over-bright on the C24. Many things sounded great on both — and in both cases, you don't need to be making stereo recordings to benefit from a stereo mic. For vocal recording, for example, there's a lot to be said for putting both capsules in cardioid, setting the mutual angle to zero and running them through different outboard setups, giving you either a choice of sounds or chains separately optimised for loud and quiet sections.

As I mentioned earlier, the capsules in my test C24 are from the brightest period of CK12 manufacture, so I can well believe that the V24's slightly more balanced tonality is actually more representative of the true C24 sound, if there is such a thing. Both mics' on-axis tonality varies with polar pattern; the V24 was clearly preferable in figure-8, where my test C24 got pretty fierce in the upper mids, but I marginally preferred the C24 in omni. And, whether or not you can hear a difference in the stereo presentation, some of Vanguard's other changes to the design are undeniably improvements, most noticeably the lower noise floor, the detented rotation system and the addition of the filter switches, which do just enough to usefully modify the high-frequency response without totally changing the character of the mic. Most importantly, these changes have been made without undermining the core strengths of the C24: the unique on- and off-axis response of the CK12, and the slight softness and forgiving quality introduced by the use of a valve as the impedance converter.

Although it's probably less expensive than an original AKG C24, there's no denying that the V24 is a very costly microphone. But when you consider what goes into building something like this, using premium parts and handbuilt capsules, it's obvious that it could never have been a cheap microphone. The Vanguard V24 is a serious investment, and if you're seriously considering it, you should arrange to try one out in your own studio. There's no other microphone like it on the market — and only 800 or so mics like it anywhere in the world. ■■■

\$ \$8999

W www.vanguardaudiolabs.com

Sontronics Apollo 2

Spotlight

Stereo Mics

There's a huge array of dedicated stereo mics on the market. We round up some of the best current options.

LUKE WOOD

At first thought, stereo microphones might seem like a solution looking for a problem. Setting up a pair of 'normal' mics for a stereo recording isn't a particularly difficult task, after all. However, an all-in-one stereo mic actually offers a number of significant benefits. Firstly, two capsules housed in a single assembly can be placed closer together than is often possible with a pair of individual mics, minimising time-of-arrival differences and resulting in more accurate stereo imaging. There are practical benefits, too: rigging a single mic on one stand is quicker and easier than configuring a stereo bar or wrestling with a pair of stands, for example. It's also easy to move a single mic around in search of the best possible placement, something which would be very awkward to attempt with a pair of large mics set up on two stands! There are plenty of stereo mics on the market, and although lots of them are boom- or camera-mounted types aimed at production sound duties, there's a healthy selection of studio-focused models, too. So, let's take a look at what's on offer.

AEA Nuvo N28, R88 MkII & R88A

AEA's first offering comes in the form of the Nuvo N28, a phantom-powered mic that houses a pair of matched ribbon transducers in a fixed



AEA Nuvo N28



AEA R88 MkII

Blumlein configuration. With a mid-forward frequency response, precise stereo imaging and 'tamed' proximity effect, the mic is said to excel at everything from close-miking strings to drum overheads or room-mic duties, while its compact design makes it easier to position. Next up is the larger R88 MkII, which is said to be a stereo version of AEA's N8. Featuring two of the company's Big Ribbon transducers in a Blumlein configuration, the mic has been designed with far-field applications in mind, and will retain a natural-sounding frequency response even when used at a distance. Like its mono counterpart, the R88 MkII boasts the widest frequency response of any AEA mic, and promises to effortlessly capture complex and powerful sources such as drums, strings and pianos. There's also the R88A, a phantom-powered version that offers an additional 12dB at the output.

\$ Nuvo N28 \$2499, R88 MkII \$2299, R88A \$2699.
W aearibbonmics.com

Audio-Technica AT4050ST

Audio-Technica's AT4050ST features independent cardioid and figure-8 capsules configured in a Mid-Sides arrangement, and mounted in a robust housing that has been designed to minimise internal reflections. The company say that the dual-diaphragm capsules maintain



Audio-Technica AT4050ST

a precise polar pattern across the mic's full frequency range, while transformerless circuitry virtually eliminates low-frequency distortion. A three-way selector switch offers a choice of three operation modes: Stereo 90, Stereo 127 and M-S. The first two modes offer a traditional left/right output courtesy of an onboard Mid-Sides matrix, with the option of selecting either 90- or 127-degree stereo acceptance angles; setting the switch to M-S mode will deliver discrete Mid and Sides signals at the mic's outputs, making it possible to adjust the stereo image in post-production. The AT4050ST also features a -10dB pad and an 80Hz high-pass filter.

\$ \$1399.

W www.soundonsound.com/reviews/audio-technica-at4050-st

W www.audio-technica.com

Avantone CK-40

The Avantone CK-40

employs a pair of 35mm pressure-gradient transducers that promise to deliver accurate stereo imaging without suffering from proximity-based phase issues. Both capsules can be independently switched between cardioid, omni and figure-8 polar patterns, and there's an 80Hz high-pass filter along with a -10dB pad. The upper capsule and grille assembly



Avantone CK-40

Royer Labs SF-12, SF-24 & SF-24V

Royer are a popular name in the world of ribbon mics, and their current range includes three stereo models. The first, the SF-12, places a matched pair of ribbons in a Blumlein configuration, with their controlled frequency response and polar patterns helping to minimise coloration of off-axis sources. The mic is said to be a great choice for everything from drum overhead duties to capturing whole ensembles — the Royer website features a demo recording of an entire orchestra captured with a single SF-12! The SF-24 is a phantom-powered version of the SF-12, with a 14dB increase in sensitivity helping the mic to provide an output that's more in line with a capacitor-based mic. Finally, there's the flagship SF-24V, a version of the SF-24 that's equipped with the same valve-based circuitry found in Royer's award-winning R-122V.

\$ SF-12 \$2699, SF-24 \$3999, SF-24V \$4999.

W www.soundonsound.com/reviews/royer-labs-sf24v

W www.royerlabs.com



Royer Labs SF-12

Royer Labs SF-24

Samar Audio AL959, VL373 & VL373A

Designed by Samar Audio founder Dr Mark Fouxman, the AL959 promises to couple high-end performance with a price tag that's unheard of for a US-made stereo ribbon mic. It features a pair of the company's 'piston' corrugated ribbons, which are said to offer lower noise, a higher output, higher SPL handling and a fuller, more controlled bass response than their traditionally made counterparts. The ribbons are mounted in a Blumlein configuration, and the company say that the mic's modern design and linear response make it a great choice for everything from orchestral and choir recordings to smaller pop, rock and jazz ensembles. The VL373 then

Samar Audio AL959

takes the motor structure and tuning of the company's flagship MF65, and features a rotating top assembly that allows the angle between the two ribbons to be set between 60 and 120 degrees to facilitate a greater choice of stereo configurations. There's also the VL373A, a phantom-powered version that boasts a hotter output and slightly lower self-noise.

\$ AL959 \$1299, VL373 \$2199, VL373A \$2399.

W www.samaraudiodesign.com



Samar Audio VL373



Schoeps MSTC 74

Schoeps MSTC 74

For obvious reasons, the vast majority of stereo mics tend to have their capsules arranged in coincident configurations. The sole stereo offering in the Schoeps line-up, though, takes a slightly different approach, offering an all-in-one solution for ORTF recordings. The rather unusual-looking MSTC 74 employs a pair of the company's MK4 cardioid capsules with the 170mm spacing and 110-degree angle required by the near-coincident technique. The fixed design makes it possible to rig a perfect ORTF array quickly using a single stand, with no additional mounting hardware required, while Schoeps' renowned capsules help the MSTC 74 deliver a natural sound with great sound localisation and spatial qualities.

\$ \$3656.

W www.schoeps.de

Sontronics Apollo 2

The latest iteration of Sontronics' stereo ribbon mic has been designed to strike a balance between the warm, smooth characteristics of vintage ribbons with the clarity and detail that's expected of modern mics. The Apollo 2 employs a matched pair of the company's hand-tuned ribbon elements in a fixed Blumlein configuration, and



Sontronics Apollo 2

boasts a phantom-powered design that delivers capacitor-like sensitivity and low self-noise figures. Its frequency response extends from 20Hz to 15kHz, and Sontronics say that its accurate, expansive stereo image makes it a great choice for capturing a huge range of instrument and vocal ensembles.

\$ \$2999.99.

W www.sontronics.com

Vanguard V44S Gen2 & V24

The second-generation version of Vanguard's FET-based V44S builds on the success of the original, introducing a redesigned capsule assembly that rotates through 120 degrees with detents at every 15 degrees. Thanks to independently selectable omni, cardioid and figure-8 patterns for each capsule, the V44S Gen2 allows for a variety of configurations including X-Y, Mid-Sides and Blumlein — the included splitter box offers an additional polarity-reversed output from the top capsule, making it simpler to capture Mid-Sides recordings. A newer addition to the range is the flagship V24, a vintage-style valve mic built around a pair of BeesNeez CK12 capsules that each offer a choice of nine polar patterns. If you're keen to find out more, then you're in luck, as the V24 is reviewed in this very issue!

\$ V44S \$1299, V24 \$8999.

W www.soundonsound.com/reviews/vanguard-audio-v44s-gen2
W www.soundonsound.com/reviews/vanguard-audio-v24
W www.vanguardaudiolabs.com

Regrettably, in last month's Spotlight we neglected to mention Yorkville, whose portable PA range includes no fewer than nine battery-powered models! We've updated the article on the SOS website, so do take a look if you're in the market for a mains-free gigging system.



Vanguard V44S Gen2



Vanguard V24