

HUGH ROBJOHNS

German microphone manufacturers Schoeps started at the very end of the 1940s, and can be considered among the 'founding fathers' of capacitor microphone technology. The company's products are highly regarded, particularly among classical and location recording engineers all around the world, and comprise entirely of small-diaphragm capacitor mics in one form or another. Schoeps microphones have an enviable reputation for being very accurate and transparent, with low noise and an innate musicality, and that's why they are so popular for main-pair and spot-mic applications in the classical field.

One application you would be unlikely to see a Schoeps mic in, though, is capturing pop vocals in a recording studio — if for no other reason than that most artists expect to see a physically imposing, large-diaphragm mic in that role; something Schoeps have never made. So the launch at the recent IBC exhibition in Amsterdam of a new, purpose-designed, studio vocal mic — and one that has been in development for five years — came as a bit of a surprise!

The V4U is a side-address, cardioid-pattern capacitor mic measuring 194mm in length and weighing a solid 302g. The main cylindrical body is 34mm in diameter, while the wider and flatter capsule head is 45mm across at its widest point. The front of the microphone is indicated by the Schoeps logo on a metal ring around the top of the body, while an XLR connector is recessed into its base, where an etched serial number can also

# Schoeps V4U

## Capacitor Microphone

Schoeps's unusual new vocal mic could give some of the long-established studio stalwarts a serious run for their money.



### Schoeps V4U £2042

#### PROS

- Schoeps precision and quality.
- Superb technical performance and sonic character.
- Distinctive vintage styling.
- Unusually refined off-axis response.

#### CONS

- Only the expense.

#### SUMMARY

An unusual and unexpected offering from Schoeps, but one which lives up to the company's standards in every way. The V4U is capable of far more than being 'just' a vocal mic — but it is also an exceptional vocal mic!

be found. Available in two colours (an anonymous matte grey or an attractive satin blue) and in two packages, the V4 USM set includes the microphone itself, in a very nice foam-lined wooden box, along with a separate Rycote USM cradle suspension mount. The alternative V4 SGV set features the mic (in the same wooden case), along with a simple stand clamp. I'm a big fan of the Rycote suspension, which I've found to be extremely effective and easy to use, and I'm pleased to see Schoeps making this option available.

From a styling perspective, the V4U looks distinctly retro, borrowing heavily from the Art Deco aesthetics of a microphone Schoeps produced over 60 years ago called the CM51/3. The fat body of this modern reinvention narrows to a short, square, metal stalk which supports a flattened, avocado-shaped head grille. Polished bars splay out across the grille to support an internal multi-layered fine wire-mesh pop screen. Amusingly — and again borrowing from the mic that inspired its styling — the entire capsule can be tilted forwards

or backwards by 20 degrees relative to the body itself, the simple mechanism being sufficiently stiff not to droop or move accidentally. This seems an unnecessary gimmick to me — I've never had a problem altering the angle of the mounting bracket to change the capsule position when necessary — but I'm sure this feature will appeal to some potential owners.

In designing the V4U, the Schoeps engineers wanted to find a way of combining the technical advantages of a small-diaphragm capsule (with which they are intimately familiar) with the sonic character of a large-diaphragm design. This was achieved in essence by setting a directional small-diaphragm capsule within a bevelled pressure plate. This configuration increases the capsule's effective diameter to around 33mm, and provides a similar pressure build-up effect for off-axis sounds to that associated with a large-diaphragm capsule. Similar ideas have long been employed with omnidirectional (pressure) transducers — most notably in the Neumann M50,

## Alternatives

Schoeps have priced the V4U to compete with some popular high-end vocal mics, such as the **Telefunken AK47** or **AR51**, **Peluso's P67** valve mic, **AEA's A840** active ribbon, **Blue's Kiwi** multi-pattern mic, and **Microtech Gefell's M1030**. For a similar outlay you could also acquire stereo pairs of **AKG C414 XLII**s, or even **Coles 4038** ribbons.

for example — but I've not come across it used with pressure-gradient capsules before.

The result is a very smooth on-axis response, which is substantially flat between 150Hz and 2kHz. The bottom end rolls off almost imperceptibly, reaching about 2dB down at 50Hz (dependent on source proximity, of course), while the top end has a very gentle 2dB lift between about 4 and 15 kHz, returning to unity by 22kHz. The overall response extends between 50Hz and 22kHz within  $\pm 2$ dB.

Looking at the off-axis response, this is also remarkably smooth and linear, showing a gentle roll-off above about 7kHz. Impressively, the polar pattern

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The capsule, as viewed from the rear. You can clearly see the pressure ring outside the diaphragm, as well as the FET impedance-conversion circuitry.

» remains entirely consistent around the front hemisphere from 50Hz all the way up to 7kHz, above which it narrows slightly. Below about 1kHz it is a perfect cardioid, while above that it develops a small rearward tail as it moves towards a super-cardioid character. Even so, the rearward rejection is never less than 14dB, and below 1kHz it is well in excess of 25dB.

In addition to this brand new and innovative capsule design, the V4U features newly developed transformerless electronics, too. The circuitry is divided into two sections, with a compact circuit board carrying a surface-mount FET impedance converter affixed directly on the back of the capsule itself. The power and balanced signal wires are passed down through the tilting stalk to the rest of the powering and output driver circuitry housed in the main body. Phantom power is required, of course, but the current drain is a very moderate 3.3mA, which is easily within the capabilities of even the most feeble phantom power supplies.

The electronics housed within the main body are also implemented with surface-mount components, and the audio path is configured as a fully symmetrical, balanced 'bridge' design, which is not only transformerless but employs no coupling capacitors either — both omissions maximising transparency and accuracy. The design boasts an unusually high headroom margin too, able to accommodate 144dB SPL at the capsule, which generates a corresponding output voltage of 4.8V or about +16dBu!

The microphone's sensitivity is a healthy 16mV/Pa, which means it will play nicely with a wide range of preamps without needing high gain or high overload margins in most applications. The self-noise figure is typical of a small-diaphragm mic at 15dB (A-weighted). A typical large-diaphragm microphone, in comparison, might be expected to have a self-noise figure comfortably under 10dBA, and this highlights one of the few disadvantages inherent with small-diaphragm capsules. However, for its intended application as a close studio vocal mic, a self-noise figure of 15dBA isn't going to trouble anyone and, given the mic's maximum SPL



capability of 144dB (for 0.5 percent total harmonic distortion), the V4U boasts an impressive dynamic range capability of 129dB — which is more than most digital converters can accommodate!

### In Use

Using the microphone, I was immediately impressed with its natural presentation and smooth character. There is a presence boost but it is very gentle and delicate, adding a little clarity and focus to voices, but without over-emphasising sibilants or fricatives. The fine multi-layer grille mesh and, I suspect, the central outer bar, proved extremely effective against plosive blasting and popping too. The bottom end is affected by the distance to the source, as all pressure-gradient mics are, but at a typical working distance I found the mic had a very gentle bass boost that was musically flattering without being blatant, and I found that the mic gave unusually consistent results with a range of male and female voices, thanks to its very well-controlled and predominantly flat frequency response. As a result, I expect this microphone may well become a reliable all-rounder, rather than a fussy vocal mic that favours some voices and not others.

A large part of Schoeps' design effort went into shaping and controlling the off-axis response, and it is instantly clear just how smooth and neutral it is — especially when compared to some

popular large-diaphragm vocal mics. In situations where there is no spill to worry about, the quality of the off-axis response is of little importance, but where spill is unavoidable — such as when tracking a whole band at once — the typical coloration imposed on off-axis sounds by many large-diaphragm mics can make mixing difficult. Although the V4U's cardioid polar pattern is quite broad, and will therefore capture a higher level of spill than, say, a hypercardioid mic, the spill sounds very neutral and uncoloured, except for some gentle dulling of the extreme HF. As a result, the spill sounds natural and sits in the mix in a very benign way. This characteristic is something that I've come across before with Schoeps' cardioid and hypercardioid Collette mics employed on TV location filming. If you have to cope with unavoidable off-axis spill, it is tolerated much better if it sounds clean and natural!

Although designed as a vocal mic, the V4U's innate smoothness, both on and off axis, combined with its high SPL capability, expands its potential applications considerably. It works well on electric guitar cabs, for example, and I particularly liked what it produced on percussion, and especially on pianos where its extended HF response really brings the transients into focus.

### V For You?

Overall, then, I'd say Schoeps have a great success on their hands with the V4U. This mic builds on all the sonic qualities and technical finesse we have come to associate with the Schoeps brand, to deliver a novel microphone design that easily lives up to the marketing claims and is likely to become a great industry all-rounder alongside such ubiquitous mics as Neumann's U87 and AKG's C414.

The V4U is physically imposing and quirkily attractive enough to satisfy any vocalist's ego, while delivering their vocals with precision and a hint of flattery thanks to a very smooth and transparent on-axis response, a wonderfully neutral off-axis response, and an enormous headroom margin. If that's not clear enough, I like it a great deal! **///**

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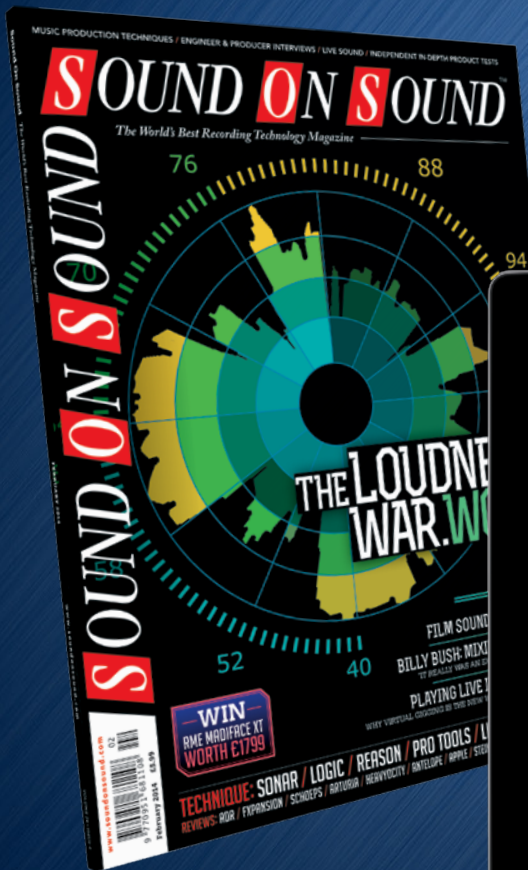


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