

Pearl ELM-C

Offering a more angular approach to the more commonly encountered round diaphragms, Pearl is one of the best kept secrets in microphone manufacture. **JON THORNTON** likes what he hears and he tells you why.

PEARL'S ELM-C is the second microphone I've reviewed recently that features a rectangular diaphragm — and they've both come from the land that gave us ABBA and Saab. Admittedly, there is some shared corporate DNA in the history of Pearl and Milab (the other company), and they both offer some strong justifications for the approach.

In brief, the traditional circular diaphragm, although easy to make consistently, has a significant disadvantage in that its symmetry tends to make its primary resonance quite pronounced. Although this resonance can be reduced by careful damping, it can still have some effects on the linearity of the microphone's frequency response. Added to this is the trade-off between diaphragm size and signal to noise ratios — larger diaphragms offer better signal to noise performance than smaller diaphragms, but the larger a traditional circular diaphragm becomes, the lower in frequency the primary resonance becomes, making it more noticeable in the audio frequency range.

Pearl has manufactured microphones with rectangular diaphragms for some time now and claims to offer the same signal to noise benefits of large diaphragms but with less noticeable resonance effects — or a least a variety of smaller, more evenly spaced resonances. The ELM-C, however, takes this approach a step further, by using a diaphragm with an extremely high (7:1) length/width ratio. At roughly 70mm long by 10mm wide, this gives about twice the surface area of a typical large circular diaphragm.

The ELM-C (UK£811 + VAT) is a fixed pattern, cardioid capacitor microphone — tidily packaged in a black metal housing measuring approximately 19cm in length and 3cm in diameter — and comes with a similarly tidy aluminium case. The diaphragm is side addressed, and on the face of it that's all there is to it. No filter or pad switches clutter up the rather minimalist finish, although a rather funky red LED located at the rear of the microphone just inside the black mesh surrounding the capsule lights up when phantom power is applied.

Setting the microphone up for the first time and cranking the preamp gain on the console confirms that this is indeed a very quiet microphone. Pearl quotes 9dBA for self noise, which is no doubt attributable to the larger than normal surface area of the diaphragm. Plonking a singer in front of it at about 20cm distance allowed me to gain some initial impressions of tonality, which are closer to what you might expect from a small diaphragm microphone than a large diaphragm one. While the ELM-C didn't sound quite as flat and neutral as a DPA 4011, it certainly lacked the mid-range lift and gradually tapering high frequency response of a Neumann U87, and is probably best described as neutral without sounding clinical — although it did seem quite susceptible to popping on vocals. Quoted frequency response is 20Hz-25kHz, although no deviation figures are supplied in this range.

The real party piece of the ELM-C is in its polar response and directivity. Although nominally a cardioid microphone, one of the other characteristics of the extreme aspect ratio of the diaphragm is the way in which this response is 'flattened'. In other words; its lateral response is smooth, wide and consistent at high frequencies — giving a very wide working angle to the microphone, with very little colouration to the sound even at the extremes. Off-axis rejection seems to happen quite suddenly, but very progressively in this lateral plane. Move in the vertical plane, however, and HF rejection kicks in quite sharply almost as soon as you are out of the line of sight of the diaphragm — almost unnervingly so — and goes some way to explaining the 'linear' designation of these microphones. The result of this is a mic that can be put to work very effectively to tame a less than ideal acoustic.

As an example, a technique I like to use

on drums, particularly when a more 'organic' sound is needed, is to position a stereo pair in front of the kit, and raised ever so slightly higher than the cymbals. Typically, this requires some pretty careful positioning, and is always at the mercy of the room acoustic, which in some cases can lead to some pretty unflattering effects caused by the microphones picking up the early reflections from floor and ceiling almost as well as the direct sound.

Luckily for me, I was supplied with a pair of ELM-Cs, together with a shockmount for each and a stereo bar, which makes short work of setting up either a coincident or near coincident pair. The result was pretty staggering, yielding a kit sound that had great focus and space, but with none of the room 'honk' that you generally need to dial out with EQ and then supplement with individual microphones. Moreover, I was able to move the stereo pair quite some distance away to tame a slight splashiness to the cymbal sound without losing too much of the detail of the direct sound. Duly impressed, I put a single ELM-C to work as a distant microphone on a guitar amp, lifted off the floor on a flightcase. Mixed with the ubiquitous SM57 as a close microphone, the resulting sound was tight, detailed and big and would ordinarily have entailed much work with baffles and blankets in this particular live room.

The ELM-C has a sibling in the range, the ELM-B. The same construction principles apply, with the same 'flattened' polar response, but this time based on a fig-8 pattern — which should lend itself very neatly to MS stereo configurations.

It does take a while to adjust to the way this microphone behaves — at first the vertical rejection seems almost unnatural. But working with its slightly unusual characteristics is well worth the effort. I think I've found a new favourite for drum overheads... ■

PROS

Quiet; neutral sound without being too clinical; impressive reach and focus.

CONS

No pad or HPF; unusual polar response takes some getting used to.

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