

Giving vinyl the edge

High-tech record turntables probably wouldn't have featured in anybody's long-term manufacturing plans in the 1990s. But one company has built a business on it. *Machinery* reports



Music technology for the connoisseur – a high price is gladly paid for such quality

When the UK Government talks about high value manufacturing, it is probably not thinking about high performance, leading edge turntables for playing vinyl records! But since 1996, AVID HIFI has been pursuing this niche market successfully.

Now one of the premier turntable manufacturers in the world, key to its products' performance is mechanical isolation from vibration for highest quality sound transmission of the record groove's analogue sound wave form.

The company is located in the ultra-secure industrial zone of a former USAF base at Alconbury in Cambridgeshire. It occupies 15,000 ft² of fully RF-screened buildings that once housed the people who sent high-altitude spyplanes to over-fly the Soviet Union. Today a small nameplate on a nondescript side door is all that identifies a very successful

privately owned business that exports its high-tech turntables to 36 countries.

Winner of many accolades, including a 'best turntable' award from *Hifi Choice* magazine and a 'best buy' recommendation in a recent edition of *The Mail on Sunday's* magazine, Acutus (see box item) continues to lead the AVID product line. It has been joined by Volvere, which uses many elements of the original design at a more affordable price; Sequel, which is a development of Volvere; and Diva, a lower-cost turntable commissioned by TEAC, which distributes AVID products in Japan.

NO COMPROMISE

A 20-year home-based research and development programme transformed a hobby into an obsession and then into a thriving business with its first commercial product being the Acutus turntable.

Although not a trained engineer, AVID's founder Conrad Mas refuses to compromise on his design objectives and has made extensive use of Cranfield College of Technology's advanced research facility to verify his theories.

The company's uncompromising approach demands component tolerances so tight that all parts are interchangeable with other units. And should a replacement part ever be needed, it will fit with no need for adjustment or alteration. "Apart from superb sound quality, our turntables do not require continuous re-calibration and, because of the accuracy of their components parts, they can be shipped anywhere in the world and re-assembled like a jigsaw puzzle ready for immediate use. This attention to detail makes AVID the natural choice for those who demand the best in performance, sound and styling," Mr Mas stresses.

Metal parts for AVID's products were being made by a sub-contractor but, as Mr Mas explains: "The sub-contracting



Product perfection

Acutus – a belt-drive, sprung sub-chassis design where vibration normally transmitted by the stylus to the turntable platter is absorbed by the sub-chassis. External vibrations are isolated by a unique suspension system, and a purpose-designed power supply coupled to a unique hand-made motor – 10 times more powerful than that normally used – drives a massive 10 kg platter;

Volvere – similar to Acutus with different clamping, bearing and suspension design and a 5 kg platter;

Volvere Sequel – incorporates the power supply and motor from the Acutus; the improvement in sound quality is instantly noticeable;

Diva – Similar to the above models, but has the option of fitting more than one arm. Most arms from 9" to 12" can be mounted, allowing different arm/cartridge combinations to be fitted.

Vibration isolating shelving is another product made by AVID HIFI.

company we were working with was expanding and we were becoming less important. Delivery times were lengthening and our costs were increasing. So, inevitably, we began to think about buying our own equipment within the next two to three years.

"However, once the idea took hold, that timeframe became a matter of weeks rather than years or even months. We invited sales reps in, saw several machines with the required capability and based our assessment on machine performance, ease of use, build quality and supplier's understanding of our specific requirements. We decided that XYZ as a company and its range of machine tools were right for us." The company has installed a vertical machining centre and a turning centre – a XYZ 1010 VMC and a XYZ 200 TC turning centre.

"Bringing machining in-house inevitably means taking on people to operate the machines, so at the moment there is no real cost advantage. But we now have total control of our production processes, delivery times and component quality. We are not into high volume work, so machine price, while competitive, was not an overriding consideration because AVID's prices reflect the quality of the products and the aspirations of our target market.

"Our customers buy an AVID

turntable because of what it does and the sound quality it provides ... and because it looks good and is relatively expensive. And the demand is such, particularly within Japan and North America, that we are now in a position where we have to build units as fast as we can in order to meet a growing worldwide demand."

ON DEMAND MANUFACTURE

Batch sizes of components machined on the 12 hp, 1,125 rpm XYZ 200 TC turning centre and the 15 hp, 80-8,000 rpm XYZ 1010 VMC vertical machining centre range from one-offs to 100s-off. These are now produced as needed, which has had a positive effect on cash flow. "Previously we were ordering anything up to a year's supply of material to maintain cost," Mr Mas adds, "and this meant paying for more material than we needed at any point in time and incurring the expense of holding finished machined components in stock."

With AVID lacking hands-on knowledge of CNC machining, ease of programming was a major influence on the eventual purchases. The XYZ machines are equipped with Siemens 810D CNC controls running ShopTurn and ShopMill conversational programming software, and AVID's founder acknowledges the ease of use that the 'plain speaking' programming

procedures provide. He acknowledges, too, the value of the training and support provided by Barry Thorne, one of XYZ Machine Tools' most experienced application engineers. "I'm not interested in all the technical detail but Barry made programming look very easy and I was most impressed. This has given us the confidence to get on with making the most of our investment, including the flexibility to insert prototype machining as often as necessary."

AVID's turnover is currently around £400,000 but Mr Mas says that by 2008 the company should be turning over £1.2 million. "We are now doing our own sub-contracting work and looking to buy another XYZ machine."

Audio tapes, then CDs and now MP3 files (which can be used to make home-made CDs, of course), attempted a challenge, but vinyl records have not been beaten.

Yet Mr Mas is not anti-CD; indeed as he explains, he has much to be grateful for: "The compact disc is really a replacement for cassette tape. In fact, it is the best kick up the backside that the vinyl industry could have had, because vinyl replay equipment has improved hugely since the introduction of CDs and its sound quality is far superior." □

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