

Technology driven

Aberlink is the largest UK-owned manufacturer of CMMs and has recently moved to a new, larger factory. Andrew Allcock was at the combined official opening and product launch

Friday 11 July saw the official opening of Aberlink's new headquarters in Stroud, Gloucestershire. Unveiling the company's latest CNC CMM, hints were given of more technology to come.

Local MP David Drew (Labour and Co-operative Party) officiated, underlining that manufacturing employment in the Stroud valley was higher than the national average and higher than in Gloucester itself.

Aberlink's new headquarters, some four times larger than its previous facilities, are located in a former quarry and saw mill overlooking a picturesque valley, so you would hardly guess the significance of local manufacturing while enjoying the view.

Formed in 1994 by Marcus Eales and Gavin Bailey, the 35-employee company makes cost-effective, aluminium construction CMMs (with granite tables) and optical measuring systems, complemented by easy-to-use software (see box item).

TURNOVER GROWTH

Since the introduction of the company's first CMM – the manual Axiom, in 1997 – Aberlink has enjoyed average year-on-year increases in turnover of more than 28 per cent. It is the largest UK-owned manufacturer of CMMs, producing some 350 units last year in total – 250 CMMs, plus 100 optical systems (the company's Project X machine). CNC CMMs, first introduced in 1999, constitute some two-thirds of its CMM production now.

The company's products are sold into virtually every country throughout the industrialised world and exports now

account for 81 per cent of output – the company recently opened a subsidiary in South Korea, in fact.

Indeed, this very high export ratio was a major driver in the development of the new product unveiled at the event. The new Zenith Too CMM features a separate, mainly aluminium, bridge and guide assembly that can be married with its granite table in or near to the country of installation.

Mr Eales pointed up this particular feature, highlighting also that the granite could be locally sourced and processed, thus eliminating the costly transport of a large, heavy lump of granite. Previous designs of CMM from the company could not be locally assembled in this manner.

The bridge assemblies can be error mapped at Stroud, shipped, and then simply positioned and attached to the granite base locally. If required or necessary, a further simple error mapping can be undertaken there, adds Mr Bailey.

The previous generation Zenith table featured a raised side on which the Y-axis sat and travelled, effectively



forming an L section granite structure with table and sidewall.

The Zenith Too comes in a family of 10 machines with X, Y and Z capacities ranging from 1,000 by 1,000 by 600 to 1,000 by 3,000 by 800 mm compared to the previous Zenith's 1,200 by 1,000 by 800 mm (one model only).

The separate bridge approach not only offers benefits in reduced transport costs but also delivers improved accuracy and repeatability. Although trials are yet to be completed, Mr Bailey believes that the results will show the machine to be capable of

Software helps paint a picture

A by-product of any Aberlink CMM inspection routine is that a simultaneous picture of the measured component is created on the computer screen. In essence, this 'smart' software represents an intelligent measuring system that is able to automatically recognise and define the various features being measured. Aberlink 3D is claimed to be the easiest to use CMM software currently available, and a complete novice is usually able to perform relatively involved measurement routines after just five minutes' training.



A mass gathering at Aberlink's new Gloucestershire headquarters in Stroud was witness to the company's unveiling of the innovative Zenith Too CMM. More developments won't be long behind

offering 2.9 micron +L/250 against the previous Zenith's 4 micron +L/250.

And this compares with the previous 3.5 micron +L/250 (standard) or 2.9 micron +L/250 (high accuracy) of the smaller Axiom Too units. The smaller Axiom Too, two-model range (soon to be four) has working ranges of 640 by 600 by 500 and 640 by 900 by 500 mm.

PRICE:PERFORMANCE RATIO

This improved accuracy for the new, larger machine is possible courtesy of a mechanical preloaded guide system that provides for a more rigid assembly once the bridge is in position. Previously, the bridge assembly was held rigid simply by virtue of its own weight. Air bearings are used to support linear movement in Y.

But apart from offering higher accuracy for its larger machines, it offers what the company claims to be the industry's best price:performance ratio for this class of machine. Price for a Zenith Too 1,000 by 1,000 by 800 mm machine fitted with Renishaw TP8 is

£25,000. For a unit with toolchanger and PH10, an additional £7,500 is required. For the largest machine with probe changing, the price would be £50,000. "Prices like these should cause a few ripples," Mr Bailey offers.

Quizzed about the company's use of aluminium, he said that only fully stress relieved material is employed, so eliminating any propensity for it to move asymmetrically as temperature changes. Further, he argues that aluminium is better than steel in a poor environment because it reacts to

temperature change faster and so stabilises more quickly. And the fact that bridge uprights, bridge and quill are all aluminium offers an environment where all elements are changing at the same speed and stabilising at the same time, as opposed to a mixed material structure where there are differences. "You've got to use the same material throughout, otherwise you will get differential expansion," he confirms.

ERROR MAPPING APPROACH

On the use of a real-time error map to deliver accuracy, he flatly brushes away suggestions that this is a problematic approach. Aberlink has been using it since day one: indeed, the company won a DTI SMART award on the basis of its novel and jealously guarded approach to error mapping in the mid-1990s which kick-started its CMM journey.

Dismissed as "fatuous" are suggestions that because there is no standard test applied to error map software itself from different vendors, this implies variation between error-mapped CMMs from different manufacturers. Final calibration of the machine, to the same standard as used by others, is undertaken using the error mapped machine, that is, using compensated data, Mr Bailey explains. "The very fact that you are getting the right data is proof that the error is being compensated. Error maps have been around for a long time."

The company's prolific product development is set to continue apace. It is currently patenting more technology which, it says, will be unveiled soon. □

Technology development

Aberlink's subsidiary company, Aberlink Technology, has earned a reputation for its independent technical consultancy work. Having overseen DTI development programmes within the field of interferometry and other advanced metrology-related subjects, Aberlink Technology has recently completed several successful assignments, including developing high tech gas detection equipment on behalf of the multi-national Siemens company, designing an advanced vehicle head-up display and the development of a laser height gauge for a Formula One racing team.