



Aerospace Case Study 06/2016

Company: Jamestan Engineering

..... Xtreme

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The recent launch of Aberlink's ground-breaking, robust Coordinate Measuring Machine, the Xtreme, caused quite a stir at [MACH 2016](#). As the [Xtreme](#) has a unique configuration, unlike that of any other CMM, the innovative new machine attracted many curious visitors to Aberlink's exhibition stand.

The development of the innovative new Xtreme CMM was prompted by the growing trend for component inspection being performed at the point of manufacture, also by the increasing requirement for machine operators to measure parts within the cycle time of their machine tools.

Working from a challenging remit to create an inexpensive, accurate, easy to use, CNC driven CMM that could stand-up to the rigours of harsh operating environments and be able to undertake rapid automated measuring routines, it took less than two years for the demanding brief to be achieved. To help ensure that the CMM delivered on all of its aims, prior to launch an early Xtreme model was situated on the shop floor of what was considered a typical target user, North Devon based [Jamestan Engineering](#).

Jamestan Engineering supplies precision machined components to the Aerospace, Autosport and Oil & Gas industries. Services provided include 2 Axis and Multi-Axis Turning, 2,3, 4 and 5-Axis Milling; Surface and Cylindrical Grinding in addition to Wire and Spark Erosion.

Centrally located on the shop-floor, the Xtreme trial model was available to all of Jamestan Engineering's machine operators. Paul Jeffery, Jamestan Engineering Ltd. Managing Director explained. "In addition to other tasks, we decided to use the Xtreme to take in-process measurements of the high volumes of tight tolerance aluminium rings that we produce for an aerospace customer.

"Our Quality Management System meets the requirements of both [ISO 9001:2008](#) and [AS/EN9100 Rev C](#). As the quality of our output is all important, we were originally sceptical about the Xtreme's ability to provide the levels of accuracy we require in such a harsh environment. Given the safety critical nature of our aluminium parts and the potential for shop-floor temperature variations, we were initially worried about the ability of the Xtreme's temperature compensation function.

"Although, by cross referencing the Xtreme's results with those we achieved on the CMMs within our dedicated inspection department, our early fears were soon dispelled and we quickly gained complete confidence in the Xtreme's results.

"As Aberlink's management asked us to place the CMM within a challenging environment, to work it hard and to report any problems, we were happy to oblige. Given that the Xtreme was so easy to use, our operators were soon able to recall the relevant program for the part they were machining and to perform accurate, fast, automated CNC inspection routines.

"At the end of the 6-month pre-launch evaluation period, we were happy to report that despite the harsh surroundings and the sheer amount of work it performed, the new Aberlink CMM had completed thousands of very fast and accurate measuring routines and that we had not encountered a single problem.

"In fact, so impressed were we by the speed, accuracy and robustness of the Xtreme, and as the use of a shop-floor based CMM had given us so many advantages, we gave the machine the ultimate endorsement by purchasing the pre-production model from Aberlink.

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“Now, the use of our Xtreme CMM has enabled our inspection department to concentrate on tasks such as final inspection, as all in-process checks are now made on the shop-floor. Also, as components are now measured so soon after production our already low scrap levels have been further reduced.”

Chris Davies, Aberlink Business Development Manager added, “We are very grateful for the invaluable pre-launch assistance given to us by Jamestan Engineering. Although we had carried out exhaustive in-house trials and were confident that the Xtreme would deliver the required accuracy and speed within harsh environments, it was gratifying to know that it performed perfectly within the kind of production situation it was intended for.”

The Aberlink Xtreme CMM was designed with a novel non-Cartesian structure and uses linear motors and mechanical bearings, this advantageous arrangement ensures that it maintains its accuracy at very fast measurement rates and does not suffer from the accumulative inaccuracies that occur in conventional 3-axis Cartesian arrangements.

As the [inexpensive Xtreme](#) requires no compressed air and has the shortest learning curve of any equivalent system - just one day without prior CMM experience - the robust Xtreme represents an ideal ‘plug and go’ solution. In addition, the CMM’s integral temperature control function ensures that accuracy is maintained even when surrounding ambient temperature is not controlled.

Ensuring greater user productivity and profitability, the Xtreme utilises [Aberlink’s renowned 3D software](#). A welcome bi-product of any Aberlink 3D inspection routine is that a simultaneous picture of the measured component is created on the computer screen. Dimensions between the measured features, mirroring those that appear on the component drawing, can be simply picked off as required. 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 the easiest to use and most intuitive CMM software currently available.



[Watch the MTD CNC Jamestan Engineering case study.](#)

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