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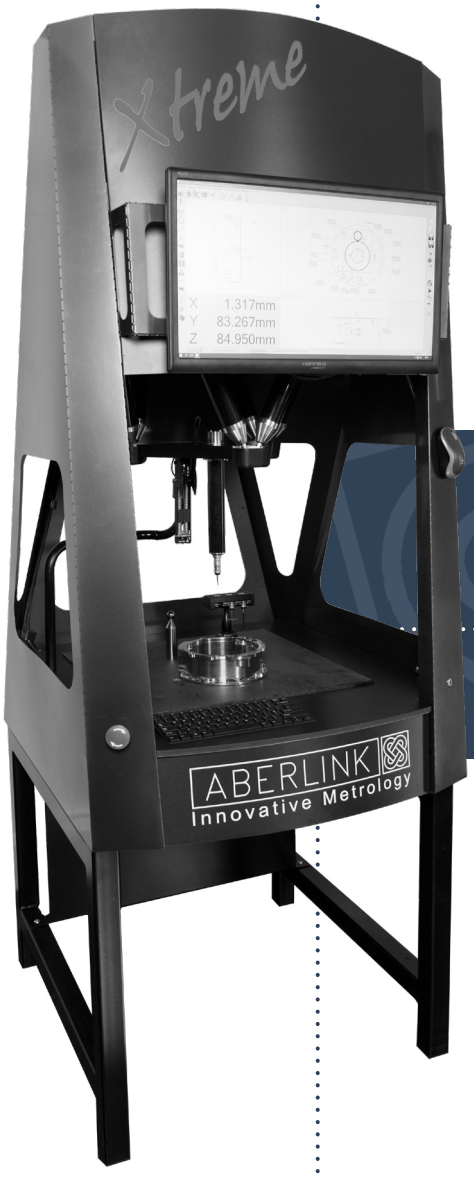
Case Study



Aerospace Case Study 01/2018

Company: Martin Aerospace

Xtreme

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Martin Aerospace
Xtreme

Established in 1993 in Lanark, Central Scotland, over the past 24 years Martin Aerospace has developed into a respected supplier of precision manufactured products to the global aerospace and quality critical industries. Martin Aerospace manufacture a wide range of components, from relatively simple parts to the production of components with complex geometrical shapes, on the company's advanced five-axis machine tools.

Operations such as turning, milling and drilling are completed on machine tools with the benefit of live in process probing that continually monitors quality. The company's machines are linked to central computerised systems which are used to manage work scheduling and machining programmes, also to permanent record actual component dimensions.

Martin Aerospace use two CNC CMMs located in an environmentally controlled area to perform 100% final inspection on the company's output. Although, in accordance with its policy of supplying production staff with the best available inspection aids, a search was recently made for an additional CMM that had the ability to deliver the required standards of inspection accuracy on the company's shop-floor. Having considered the offerings from leading CMM manufacturers, an Xtreme CNC CMM was purchased from Aberlink.

Martin Aerospace Quality Manager Colin Tonnar explained. "Quality is central to all of Martin Aerospace's activities, in addition to consistently delivering parts and kits on-time and on budget, our quality ethos and recording and traceability systems are amongst our key competitive advantages. As well as enabling us to consistently achieve 100% score cards from the most demanding of our global customers, our strict quality regime assists us in driving down internal costs through achieving right first time production and by the reduction of scrap levels.

"We ensure that our production personnel have quality uppermost in their minds and support them by delivering on-going training, by using state of the art Q-Pulse quality managements systems and by providing them with the latest inspection equipment.

"Following a trouble free installation in a central location on our shop-floor and operator training, our new Aberlink CMM is now being used by our production staff for in-process inspection procedures. Now, rather that lose valuable prodution time taking machined parts to our inspection department and waiting for a CMM to complete its current task, instant accurate inspection results can now be achieved close to the point of manufacture. This faster feed-back enables machine adjustments to be made when component dimensions drift from nominal conditions.

"Another typical use for our new Xtreme CMM is, our machine operators are now able to place first-off machined components on the new CMM's bed, the relevant program is then quickly selected and the start button pressed. Following rapid and precise, fully automated CNC measuring routines, captured inspection data is archived by our electronic system. Paper documents with all relevant information are also produced by the CMM for inclusion in our machinists' work folders.

"Having now installed a CNC CMM that is able to deliver our required levels of precision on our shop-floor, we have been able to reduce the time between the machining of components and the verification of their dimensions. In addition to allowing the quicker capture of data and increasing machine tool productive times, the use of our Aberlink Xtreme CMM has allowed our inspection department's CMMs to concentrate on their important final inspection duties."

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Launched in a blaze of publicity at the MACH 2016 exhibition, the Xtreme CNC Coordinate Measuring Machine was designed to provide accuracy, ease of use and speed of measurement in production environments. The global success of the Xtreme means that Aberlink's Gloucestershire based manufacturing facility is now working flat-out to keep pace with both UK and overseas demand for this unique CMM.

The Xtreme has a novel non-Cartesian structure and makes use of linear motors and mechanical bearings, this advantageous arrangement guarantees that the CMM maintains its impressive accuracy performance at very fast measurement rates and ensures that it does not suffer from the accumulative inaccuracies that occur in conventional 3-axis Cartesian arrangements.

As the inexpensive CNC Xtreme requires no compressed air and boasts the shortest learning curve of any equivalent system – an inexperienced operator is normally able to become competent in the Xtreme's use in just one day, meaning that the robust CMM represents an ideal 'plug and go' solution. In addition, the Xtreme's integral temperature control function ensures that accuracy levels are maintained even when the 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 CMMs 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 claimed to be the easiest to use and most intuitive CMM software currently available making it ideal for use by both quality and production personnel.

Visit us at: www.aberlink.com email: sales@aberlink.com
or call: +44 (0)1453 884461 for more information.