



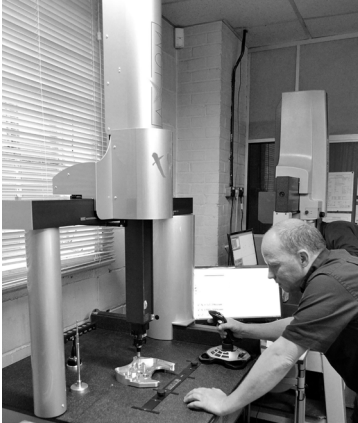
Aerospace Case Study 10/2015

Company: Leemark Engineering

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Aerospace Case Study

Leemark Engineering  
Axiom too



Established nearly 50 years ago, Middlesex based [Leemark Engineering](#), remains a family run subcontract Precision Engineering business. The AS9100 approved company supplies high-quality machined components to a variety of demanding sectors, primarily the aerospace industry, but also the pharmaceutical, satellite communications and motor sport sectors.

By employing a highly skilled workforce, continually investing in the latest technology and implementing modern manufacturing techniques, Leemark is able to undertake a variety of work, from the production of single prototypes and complex assemblies, through to high tolerance batch work, and is able to offer its customers short lead times and outstanding levels of quality and service.

Recently, due to the ever increasing amount of work undertaken for existing customers and also as a result of several contracts gained from new customers, the Lemark's inspection department was beginning to struggle to keep-pace with production. To rectify this situation the company's Director / Production Manager, Neil Stockwell began a search for an additional high-precision Coordinate Measuring Machine (CMM) that could match the accuracy needs of the company's customers. In addition, the proposed machine needed to have the ability to perform speedy CNC inspection routines.

Neil explained. "As our manufactured products are so diverse in nature, from complex 5 axis machined components for the aerospace and motor sport sectors to extremely high tolerance components for our customers in the satellite industry, we use a comprehensive range of shop-floor inspection aids. In addition, our manufacturing facilities are backed by an approved inspection department that houses a manual CMM. As increasing levels of production had the potential to create inspection bottle necks, we recently concluded that we needed a second CMM."

"Given that much of our work consists of repeat production runs, we began a search for an accurate, programmable CMM that was able to carry out fully automatic CNC component inspection. All of the CMMs that we had shortlisted were being exhibited at the Southern Manufacturing and Electronics Exhibition, as Leemark was also exhibiting at the show we had the ideal opportunity to closely examine and have demonstrations on each CMM we were considering. After comparing their performances and ease of use, we concluded that the [Aberlink Axiom too machine](#) was the ideal CMM for our high-precision, high-volume needs and an order was placed."

"Having reorganised our inspection department to accommodate our new Aberlink CMM, and following CMM training, our inspectors soon became familiar with the Axiom too's operation. To enable efficient inspection to be undertaken our inspection staff have written multiple part programs for the new CMM. After parts pass initial first article inspection, our production staff take responsibility for the quality of their own output throughout their batch runs. Within production cycle times they are now able to recall a pre-written program, load parts onto the CMM and start a fully-automatic CNC inspection routine."

"In addition to our new Aberlink CMM being used for first-off and production operator in-process measurement, our inspection staff also use the machine to perform final inspection routines on components and to generate AS9102 reports."

"The ease of use and speed of our new Aberlink CMM has enhanced our quality functions and totally removed the potential for hold-ups in our inspection department. In addition, our customers appreciate the detailed inspection reports that the Axiom too generates."

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Available in both [manual](#) and [CNC](#) variants, the recently upgraded Axiom too is the best-selling CMM from the largest UK owned Coordinate Measuring Machine manufacturer. Aberlink's Axiom too CMM can truly be described as the complete Inspection Centre; high measuring accuracies are achieved through the use of the latest metrology techniques and advanced in-house manufacturing methods. The Axiom too boasts an aluminium bridge with a very low thermal mass, rendering the machine ideal for use either in controlled environments or within less than perfect shop-floor conditions. Thanks to the Axiom too's use of advanced materials, the machine's reduced inertia results in class leading speed of operation. For increased accuracy air bearings of optimised stiffness are employed on all axes, whilst a granite Y Beam allows preloading of bridge bearings in both directions. Borrowed from the Aerospace industry, the CMM's sturdy component support consists of an advanced granite/aluminium honeycomb construction, this technology, provides natural damping and further improves the machine's thermal properties. Despite the Axiom too's generous measuring volume of 640x600x500 or 640x900x500, the machine's compact design occupies a relatively small footprint, with the controller and all peripherals are housed within the Axiom too's workbench.

Equally rewarding when used by the novice or an experienced CMM operator, the easy to use Axiom too utilises [Aberlink's famous, intuitive 3D software](#), ensuring greater user productivity and profitability. A welcome bi-product of any Aberlink CMM 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, are then 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 CMM software currently available, as a result a complete novice is usually able to perform relatively involved measurement routines after minimum training.

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