



Subcontract Case Study 01/2019

Company: Leeds Bronze Engineering

..... Xtreme

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As more and more businesses are reaping the benefits of inspecting manufactured components closer to the point of production, the trend towards shop-floor based inspection continues to accelerate.

Whereas in the past, Coordinate Measuring Machines (CMMs) would be used only in dedicated inspection departments, increasingly a new generation of robust CNC CMMs can now be found located on companies' shop-floors. To enable these advanced CMMs to deliver the required levels of accuracy they include features such as automatic temperature compensation.

The speed of today's shop-floor CNC CMMs means that, when located next to a machine tool they are able to make fully automated measurements of manufactured components well within machine tool cycle times. Also, as pre-programed inspection routines can be started at the press of a button, minimum operator involvement is needed. The instant feed-back provided of for example, components' features that are drifting from their nominal dimensional conditions, enables rapid interventions to be made and scrap conditions to be eliminated.

Rather than dedicating a shop-floor CMM to a single machine tool or manufacturing cell, some businesses position their shop-floor CMM in a central location. In this instance, each of the company's machine operators are able to use the CMM for tasks such as verifying the quality of first-off components and also for performing periodic inspection routines. As a typical manufacturer would normally be producing multiple components on several machine tools at any given time, when starting a measuring routine, each machine operator simply places a part on the bed of the CMM, recall the relevant program, then the press of a button instigates an automatic measuring routine.

Typical of the forward-looking companies who have recently embraced the use of shop-floor CMMs is Yorkshire based Leeds Bronze Engineering, a specialist producer of bronze bearings and bushes. Leeds Bronze Engineering's 2,800 m² facility houses 15 CNC lathes, 6 CNC machining centres and a wide range of conventional turning, milling and grinding machines.

As the business serves a long list of customers working in challenging sectors including the global Oil and Gas, Marine, Defence and Power Generation industries, the quality of its output is of paramount importance. As a recent significant increase in production volumes had the potential to place a strain on Leeds Bronze Engineering's inspection provision, a decision was made to invest in an advanced CNC CMM that would provide an accurate and efficient means of inspection on the company's shop-floor. After considering several alternatives machines, an advanced Xtreme CNC CMM was purchased from UK manufacturer Aberlink.

Leeds Bronze Engineering Chief Inspector, Tony Friend explained, "As a company we set and regularly review our quality objectives to meet our evolving business goals. For example, to ensure that our inspection tasks were able to keep-pace with increased production levels, we recently looked at a couple of alternative shop-floor CMMs, on reflection we believed that Aberlink's Xtreme CNC CMM was the most suitable for our needs. In addition to its robust construction and ease of use, the Xtreme delivers impressive levels of accuracy and operational speed.

"Now installed centrally on our shop-floor, our quality personnel have written and stored a range of inspection programs on the Xtreme's computer. Now, when measuring first-offs or performing other inspection tasks, our machine operators simply place the part under inspection on the Xtreme's component support, quickly recall the relevant program and then start an automatic CNC inspection routine. In addition to providing our shop-floor personnel with instant feed-back and reducing our already low scrap-levels, the use of our new extremely fast and accurate Xtreme CMM has taken much of the stain off our busy inspection department's CMMs."

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

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 measuring speeds and ensures that it does not suffer from the accumulative inaccuracies that occur in conventional 3-axis Cartesian arrangements.

Aberlink's cost-effective Xtreme CMM 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 a single day, making the easy to use CMM the ideal 'plug and go' shop-floor measuring 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. 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, making it ideal for use by both quality and production personnel.

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