



Subcontract Case Study 08/2018

Company: VES Precision

Axiom too HS

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Based in Crewkerne, Somerset, VES Precision was established in 1991 to provide a range of precision engineering and subcontract machining services to local companies, such as Westland Helicopters (now Leonardo Helicopters) and Normalair Garrett (now Honeywell Aerospace), both of which are located in nearby Yeovil.

Prompted by customer demand, over the past three decades the company has considerably expanded its footprint and now operates from a modern 14,500 square feet production facility. Having considerably expanded its range of competences, VES Precision now offers an all-embracing machining service with a wide range of capabilities including CNC milling, turning, EDM Wire Erosion, grinding, lapping and surface blasting. VES is able to produce components from a broad range of materials, including plastics, stainless steel, high-speed steel, brass, copper, bronze, tungsten and aluminium. The company also has considerable experience in machining exotic materials such as Nimonic 90, Inconel, Stellite and MAR-M-247.

Recent substantial investments in advanced, high-yield machine tools have enabled VES Precision to significantly increase its output. As this rise in production had started to place a strain on the company's inspection provision, VES Quality Assurance Manager, Steve Trigg recently investigated the available, precise and high-speed CNC Coordinate Measuring Machines (CMMs). After evaluating the merits of CMMs from several leading manufacturers, an advanced Axiom too HS machine was purchased from Aberlink. Steve Trigg explained. "Most engineering subcontractors are either geared-up for high-volume work or for one-offs and small batch work. Our success is based largely on our flexibility and our ability to offer complete, one-stop-shop machining solutions, embracing from one-off bespoke jobs, through to large, repeat order production. We use a wide range of techniques including 5-axis milling, 3 and 4 axis mill-turning, dedicated CNC milling and CNC turning, EDM wire erosion, surface and cylindrical grinding, lapping and grit/glass bead blasting.

"Prompted by an ever increasing work-load, several months ago we opened a new, purpose-built milling hall that includes an advanced 5-axis machine with a pallet loader, 3 and 4 axis CNC mills and an overhead gantry crane. The additional capacity provided by our new milling hall has enabled us to considerably increase our output.

"Although our inspection system has been able to keep-pace with our increased output, as it was working at full capacity we were aware of the need to boost our measuring capabilities. Having weighed-up the available high-specification CMMs against our list of requirements, we decided that Axiom too HS CNC CMM was the ideal machine for our needs, therefore we placed an order with Aberlink.

"As our new Aberlink CMM is very easy to use, our operators were soon up and running. In addition to the Axiom too HS's improved accuracy specification being able to accommodate our high precision parts, our new CMMs' automated CNC nature and speed of operation has resulted in considerably quicker throughput in our inspection department.

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“Not only has the Axiom too HS satisfied our current inspection requirements, our new CMM’s speed will enable it to handle any foreseeable increases in production. Also, its impressive accuracy specification will enable the inspection of all the most demanding of our high-precision components now in the future.

Available in several capacity variants, the cost effective Axiom too HS, from Aberlink, the largest UK owned Coordinate Measuring Machine manufacturer, can truly be described as the complete, high-speed, high-precision inspection centre. Impressive measuring accuracy and speed of operation is achieved through the use of the latest metrology techniques and advanced in-house manufacturing methods.

The Axiom too HS boasts an aluminium bridge with a very low thermal mass, making it ideal for use either in controlled environments or within less than perfect shop-floor conditions. Thanks to the use of advanced materials, the CMM’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.

The Axiom too HS utilises Aberlink’s famous, intuitive 3D software. 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 just 5 minutes training.

Although the Axiom too HS boasts a comprehensive standard package, to ensure that customers are able to receive a machine to match their exact needs, a wide range of touch probes, a CMM camera system and several software options are also available.

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