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SGS Series 33 picks the pocket of productivity at Craftsman Tools

Using the recently launched Series 33 high performance 3-flute end mills for difficult materials and challenging applications, from SGS Carbide Tool (UK), Craftsman Tools has significantly reduced the machining cycle time for an established component produced from high tensile alloy steel.

Based in Otley, West Yorkshire, Craftsman Tools is an established precision engineering company with an enviable reputation for the development and manufacture of workholding, tool holders and fixturing systems. The company has successfully grown organically through considered manufacturing technology investments and by applying advanced engineering techniques.

As well as investing in EDM wire CNC machines and component quality and inspection with a new CMM, the company has purchased smart machine tools with the latest versions of the Mazak Nexus and Integrex CNC machines.

While two new Nexus 510 vertical machining centres are supporting the manufacture of tool holding products, an Integrex 400 mill-turning centre is primarily used to manufacture work holding and oil field products. Craftsman Tools has many years' experience of the advanced manufacturing solutions provided by Mazak, having used the machine tool company's products for over 20 years. Today, a total of three Integrex machines and eight other advanced Mazak machine tools provide reliable and productive service on the shopfloor.

The machines are programmed at the CNC interface, and the company's engineers are skilled enough to take full responsibility for the complete manufacturing process, from loading and setting the raw material to programming the part and checking measurements to ensure the finished quality. Of course, a percentage of the work is repeat orders and this was the case with a floating collet workpiece driver for a customer that manufactures crankshaft grinding machines. Project Engineer, Peter Woodthorpe, says: "We have produced these complex components for around six years."

Producing the components for the fully assembled completed unit in batches of 20, from machining to final assembly takes between 8 and 10 weeks. With ongoing engineering support the time required to machine the aluminium body has been significantly reduced. "However", Peter Woodthorpe states, "each spindle mounting plate was taking up to 8 hours to machine the new Mazak Integrex 400 until we applied the high performance SGS Series 33 cutting tool supplied by SGS Carbide Tool (UK) Limited. This has now been reduced to around 3 hours, which releases an enormous amount of manufacturing time on the machine. Each of the three deep oval pockets on the rear face of the EN24T (a through-hardened high tensile alloy steel) plate were previously taking an hour each, thanks to the high performance cutting capability of the Series 33 this has been reduced to just over 1 minute per pocket."

He continues: "It has been very impressive to see the tool in action and the return on the investment has been amazing. Each pocket has a lot of material that needs to be removed and the initial tool we purchased has completed the batch of 20 parts, showing no signs of wear. As well as the reduction in the machining time, we have been surprised by the tool life achieved."

Before Craftsman's engineering team applied the new cutting tool to a production part, SGS simulated the machining operation in its technical centre at the company's European headquarters in Wokingham. Area Sales Manager, Tony Theaker, captured the cutting trial on video and presented it to the team in Otley.

"The results looked impressive enough for us to try the cutting tool on the actual product. Speeds and feeds are much higher for the Series 33 even though the cut depth is much deeper, and there is no chatter or vibration," Peter Woodthorpe says.

The finish achieved by the Series 33 cutting tool during machining is so good that a final finishing pass is not required. The Series 33 tool remains in the toolchanger of the Mazak Integrex so the engineer running the machine is starting to apply it to other jobs, with further time

savings to follow. Peter Woodthorpe adds: “For an engineering company such as ours any performance gains are important and the increases provided by the SGS Series 33 are tangible and significant, and we are looking forward to further benefits in the future.”

The future is certainly something the company considers carefully. It has recently won the MTA’s ‘Best Training Scheme’ award for its apprentice training school in conjunction with the University of Sheffield AMRC (Advanced Manufacturing Research Centre) with Boeing. There are 10 apprentices currently going through the training programme, about one sixth of the company’s total workforce and they are making a big contribution to Craftsman Tools. The scheme has also been recognised in Parliament and Craftsman recently attended an event for National Apprentice Day with Deputy Prime Minister Nick Clegg.

Peter Woodthorpe concludes: “It represents a significant investment. However, the management team at Craftsman Tools is all too aware of the aging workforce that the whole engineering industry has to consider. We see this as an important step towards ensuring the future of the company.”

***Images**:*

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