

Productive purchase

In pursuit of increased productivity, investment in machining centre technology is a common thread, although the drivers takes many forms, as Andrew Allcock discovers

A new range of Avery Weigh-Tronix weighing products based on digital load cells, designed to fit to the axles of commercial vehicles to prevent them being overloaded, prompted a comprehensive review of its prismatic metalcutting equipment.

The result has been the appearance at the company's Smethwick factory during 2008 of three vertical machining centres from Hurco Europe, each fitted with the manufacturer's proprietary, conversational control system.

Avery Weigh-Tronix calculates that the

prismatic metalcutting meant that Avery Weigh-Tronix had to replace some of its older machining centres. Either they were not big enough to produce the new components, or they were too slow in terms of the feeds and speeds to achieve the required production levels. One machine was of the right size and had a high speed spindle, but the torque was not sufficient to mill EN19T.

Mr Bates continues: "Three years ago we had over 10 machining centres on site with a variety of CNC systems – Fanuc, Heidenhain and in a couple of instances, the manufacturer's own control. However, we have almost lost the G- and M-code skills needed to program them. Added to which batch sizes have become smaller – typically 30 to 60 for larger components rising to 120-off for smaller parts – so we need to be able to program and change over machines faster.

"We now produce smaller batch sizes with higher variation. Due to our loss of conventional programming expertise, it took a long time to write the programs and cutting cycles were not as efficient as they should have been. Combined with the slowness of some of our older equipment, it had the effect of limiting production output."

TWICE AS FAST

Now, with the Max conversational control on the Hurco machining centres, programming is at least twice as fast and the resulting cycles are optimal. Six Avery Weigh-Tronix staff have been trained to write programs on the shopfloor using the touchscreen navigation, drop-down menus, question-and-answer routines and scaleable colour graphics, without



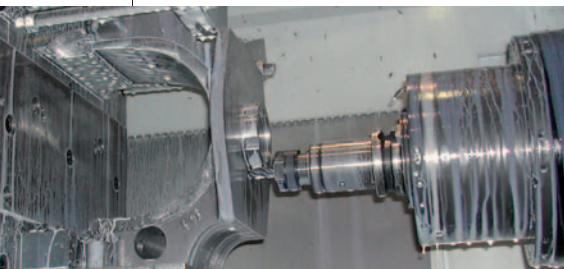
recourse to conventional programming methods.

And as for machine performance, picking three components at random – not from the on-board weighing project – Mr Bates highlights that their machining times on the Hurco VMX30, VM2 and VM1, compared with those on the machines formerly used, were reduced by 70, 50 and 45 per cent.

Marquin Engineering Co, Wolverhampton, has become a committed Mori Seiki machining centre user. Formed in 1964, the company specialises in machining castings and forgings for companies in the transportation, construction equipment, overhead electrification, commercial refrigeration, defence and rail industries. Notably, it has supplied parts for NATO peacekeeping vehicles and to London Underground.

George Spencer, director at Marquin Engineering, says: "Our customers are demanding greater flexibility and shorter lead times, so we have to be able to react very quickly to their changing requirements." A bad experience with a previous machining centre, which was out of action for six weeks, led the company to investigate the market very carefully when it was looking for replacements. "We cannot afford to have unreliable machines, as it can very easily result in lost business."

The company installed its first Mori Seiki NH4000 DCG, a horizontal, in 2003. At the time it was the first of this model to be commissioned in the UK; within 18



Marquin Engineering has multiple Mori Seiki machines, supporting its disaster recovery plan

machines will have paid for themselves in less than a year. "We are ramping up production of the digital underbody weighing systems to 70 per month by the first quarter of 2009, and there are between four and six load cells per system, each requiring a tough EN19T steel body to be machined," says production engineering manager Paul Bates. "In addition, we have to machine the aluminium bodies of the in-cab indicators, plus there are even newer weighing systems on the way for tipper and skip lorries."

The consequent sharp increase in



Having lost its traditional G and M code programming skills, Avery Weigh-Tronix is benefiting from the Hurco conversational control fitted to its recent investments

months the company had purchased a further two NH4000 DCGs.

"Floor space is at a premium in our factory, so the small footprint of these machines, thanks to their box-in-box construction, was very important to us," says Mr Spencer. "The NH4000 DCG is very easy to maintain, as all the solenoids can be easily accessed by simply removing the guards. We are spending our own money, so the decision to add more Mori Seiki machines demonstrates our confidence in their products and service. Also, like many others, we have always associated the Mori Seiki name with high quality, good value machinery."

SWIFT SERVICE

And when the company needed a new motor on one of its NH4000 DCG machines, the replacement part was delivered overnight by DHL and the repair was completed within half a day. For peace of mind, Marquin Engineering has purchased Mori Seiki's breakdown insurance on all its machines. This allows the company to plan running costs and keep its machines in the best possible condition.

For larger castings Marquin Engineering purchased a Mori Seiki NH6300 DCG in early 2007 and is just taking delivery of a new NH6300 DCG II to replace an existing machine that had reached the end of its useful life. This second machine has a work envelope 1.1 times wider than the previous model, yet 11 per cent less floor space is required.

Customers require a disaster recovery

plan so, by having two NH6300 DCG and three NH4000 DCG machines, the company can ensure continuity of supply in the event of a problem by switching parts between the machines without delay. "We work hard 24 hours/day to provide a reliable service to our customers, and our choice of Mori Seiki machines ensures that we have a back-up plan. The commonality and reliability of the equipment that we use plays a key role in building their confidence in us," the director concludes.

Stenhousemuir-based Drysdale Brothers has over 20 per cent of its business coming from customers in the USA. Concerned about a weakening dollar, the company invested to counter the situation, choosing to install a Variaxis 500-5X II 5-axis machining centre with a twin pallet configuration.

The company, which specialises in

manufacturing fully machined bronze and aluminium bronze components from castings produced in its own, on-site foundry, already had seven machine tools from Yamazaki Mazak, in fact.

"The components that we manufacture are destined for a wide range of customers who supply the oil and gas, pump and valve, power generation and many other industry sectors," says Eddie Ward, Drysdale Brothers' machine shop manager. "One of our biggest customers, though, is involved in the supply of valve systems for fire hydrants and the familiar New York-style fire trucks. And, with the recent weakness of the Dollar we knew we had to do something to protect that business. While we are confident that the quality of the work is second-to-none, having won awards from the customer, we are well aware that a sudden rise in manufacturing costs, even if they are beyond our control would not be acceptable.

"While many of the components that we manufacture on the Variaxis machine do not require the full extent of the machine's simultaneous 5-axis capability, we are taking full advantage of its ability to machine more than four sides of the component in a single set-up.

The time and cost we are saving by eliminating secondary operations is more than offsetting any movement in the currency exchange rate," concludes Mr Ward. □



Mazak machining centres are countering the US Dollar's slide for Drysdale Brothers