PRESS

INFORMATION

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TWIN TURRET TORNADO TT6 GIVES 'DOUBLE' BOOST TO GRAHAM ENGINEERING

Investment in a Colchester-Harrison Tornado TT6 Twin Turret CNC turn-mill centre from 600 UK is paying handsome dividends in machining accuracy, speed and cost-value for one of the largest stainless steel engineering specialists in the north of England.

Graham Engineering Ltd, of Nelson, Lancashire, which has a workforce of 140, selected the 100% British designed and manufactured Tornado TT6 to boost productivity in its automated, 'single hit' machining of high-volume, small-to-medium sized parts.

With eight-axes, twin 12-station driven-tool turrets and two identical 15kW integrated spindle units, the TT6 plays a key role in producing threaded pipe fittings for stainless steel domestic hot water cylinders used in new house building.

Including Graham Engineering's own Hot Spring range for either vented or unvented systems, which it supplies directly to the construction sector, hot water cylinders represent a substantial part of the company's output.

"To say that the building trade has been so badly affected by the economic situation, I'm pleased to say that we are very busy in this area," says Shaun Riley, Graham Engineering's Machine Shop Manager who has worked at the Lancashire company for well over 30 years.

With its precision engineering business spanning the nuclear, aerospace, satellite dish industries, as well as hot water cylinders, Graham Engineering's team is particularly impressed by the fast set-up times, minimal operator man-hours and high accuracy of the Tornado TT6: "The machine is running for up to 22 hours a day, including unmanned running through the night. Basically, the operator only needs to re-load the bar feeder and replace the coolant between machining runs."

Each hot water cylinder manufactured at the 100,000 sq ft Nelson factory has up to 25 pipe fittings, bolted or laser-welded to the unit, so machining times, unit costs, accuracy and highly consistent repeatability are all critical issues. These are the items which are machined on the new Tornado TT6 and Graham Engineering's other Colchester-Harrison CNC machine, a Tornado T8MSYB.

"The TT6 is a brand new, state-of-the art machine which gives us this high accuracy over very long runs. With the twin spindles and twin turrets it can be set up so that one spindle is finishing one component while the other spindle starts to work on the next one.

"The advantage can be seen in the faster time to make each item on the new machine. The saving is around five minutes per item compared with eight minutes. We are currently making about 220 items per day on the machine," says Shaun Riley.

When it comes to comes to operating cost-effectiveness, the TT6 is literally a 'money spinner': "The pipe fittings are made by machining solid bars, not from pipes. Approximately two-thirds of the material is machined out and the swarf is sold. Together with the low operator cost and the time-saving, the machine is able to pay for itself!" he says.

The high-performance Tornado TT6 is the first true twin upper and lower driven-tool turret machine to be introduced into the Tornado family by 600 UK, based at Heckmondwike, West Yorkshire.

Newly-developed 'from the ground up' by Britain's largest machine tool company, it offers the flexibility of two totally independent, but simultaneous tool paths with the higher productivity capability derived from overlapped or twin turning tool sequences.

This multi-tasking capability is considerable, with the ability for the three-axis upper turret and two-axis lower turret to service either of the 15kW, 6,000rpm full C-axis spindles with balanced cutting sequences or dedicated machining cycles.

To ensure maximum stability and absorb cutting forces and vibration, a single three-tonne, 45º slant bed casting has been designed specially for the TT6, incorporating a wedge-angle configuration for the Y-axis for maximum strength and rigidity.

As part of the build specification, only leading European and Japanese suppliers are used for the cartridge spindles, all-driven turrets (Sauter), linear guide roller bearings and hydraulic systems. The top-of-the-range drives are supplied by Fanuc-GE, which also supplies the machine's 31*i*-TA control, featuring a 15-inch LCD screen, high levels of operability and PC-like file editing functions.

Available with 175mm diameter chuck or 52mm bar capacity, spindle bore is 65mm and the 30 VDI tool turrets have a maximum driven speed of 5,000rpm from 3.7kW high-torque motors. The Y-axis stroke is ±40mm and the right hand spindle can be used as a tailstock for long shaft work. Rapid traverse rates are 30m/min in each axis.

600 UK's unique Human-Machine Interface (HMI) control screen, with its own menu structure, incorporates lights-out production and production-planning software. It also has simple graphics for tool setting with options for cut/measure or auto-probing. There is also on-line help, enhanced diagnostics with identifiable service intervals reminder and auto switch-off when the programmed batch cycle is completed.

The COLCAM off-line programming package – also unique to Colchester-Harrison – is offered as part of the Tornado TT6 machine specification.

Mike Berry, Managing Director of 600 Europe, says: "The Tornado TT6 is at the very forefront of a new era of 'single hit' machining and gives operators the ability to machine even the most complex workpieces simply, accurately and without set-up changes.

"It has been developed with medium- and large-batch machining operations in mind and designed specifically to reduce our customers' machining costs and their component floor-to-floor cycle times, whilst guaranteeing high-precision repeatability time after time.

"We are delighted that such a long-established and respected engineering specialist as Graham Engineering has opted for the Tornado TT6 and I'm very confident that this exciting new British CNC machine from 600 UK will play an important part in their future success."

RELEASE ENDS

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Note to Editors

600 UK is part of 600 Group PLC, the UK's largest machine tool company, which operates from a number of locations worldwide and sells its products into more than 180 countries. The Group has two core areas of business activity centred on machine tools and laser marking excellence:

- Machine Tool Division: 600 Group is one of the world's leading names in the manufacture and global distribution of state-of-the-art machine tools. Principal products within the internationally renowned **Colchester-Harrison** range include **Tornado CNC** turning centres, **Alpha CNC** combination lathes, **Storm** vertical machining centres and conventional centre lathes. Important parts of this division are:

- The 600 Europe operations in West Yorkshire and Stuttgart, Germany, distribute 600 Group products throughout the UK, Continental Western and Central Europe. Additionally, it distributes workholding accessories under the **Parat** brand.

- 600 North America, based in Michigan, supplies Group products throughout the USA and Canada, including the **Clausing** range of machine tools.

- The Group's international distribution centres also stock and ship a wide range of workholding accessories manufactured for other machine builders, most of which are manufactured in the Group's UK facilities. These accessories include manual and power chucking products from **Pratt Burnerd**, workholding products from **Crawford Collets** and precision machine tool bearings from **Gamet Bearings**.

- To support these comprehensive product ranges, a complete technical support service is available for all customers, including on-site service engineering and extensive spare parts stockholding for the installed base of existing machines.

- Laser Marking Division: **Electrox** provides laser marking solutions for a huge range of materials and applications, through its operations in the UK and USA. Electrox is one of the few truly integrated manufacturers of laser marking systems in the world, taking end-to-end responsibility for every aspect of design, development and production of both hardware and software technologies.