

## **Faster Technology International April/May 2012 issue Having The Right Axes Solves Problems**

*Harvinder Singh*

Taking the correct steps to ensure sustained production improvement means looking for the ultimate in mill/turn technology involving multiple-axis capabilities.

Fastener manufacturers are always on the lookout for cost-reducing, productivity-enhancing solutions for their operations. A proper review of the key performance metrics often uncovers the economic utility of improved process benefits. Often it's just a case of applying the right number of axes to the job at hand.

### **Multi-Axis Turning Machines**

Ganesh Machinery offers a comprehensive line of unique multi-axis turning machines designed to reduce fastener production cost and increase productivity by getting the complete job done in just one operation. The company's value-priced three-axis, 6000 RPM, 10 HP, gang-tooled, CNC lathe with 1" diameter ballscrews and hydraulic collet actuation is the strongest, heaviest and most powerful machine in its class. For CNC machines, the gang-tooled solution is the fastest way to make fasteners, with the quickest tool-to-tool time available.

The Ganesh Cyclone GT-32 features rigid tapping, a bar capacity of 1-3/8" and offers quick-changeover tool bars and high tool-density solutions. When additional tooling is needed, an eight-station tool turret is available that has the unique ability to mount multiple tools in each tool station. For those machining cross holes, wire holes or Nylok slots on their fasteners, the GT-32 features a high-performance C axis, and both high-speed driven tools and unique servo-driven tools are available that can even rigid tap to get the job done in just one handling. A Traub A-32 or 5C collet chuck can be used and a 5" diameter, three-jaw hydraulic chuck is also available for larger work. Ganesh is the only builder offering all of these flexible solutions on its value-priced gang-tooled CNC lathe.

For customers requiring a subspindle to complete their parts, Ganesh offers the GT-32 features on the unique six-axis, 6000 RPM, Cyclone GTS-32, which is the only 1-3/8" bar-capacity, dual-slide, gang-tooled, subspindle lathe on the market, providing the fastest CNC solution to produce your fasteners. Each of the twin opposed spindles features a synchronized C axis and facilitates the transfer of the part so the job can be completed in one operation. The twin independent gang-tool slides mount the tooling needed to finish the front and back side of the part simultaneously. The integral parts catcher places the finished part on a conveyor belt that removes the completed part from the machine. The GTS-32 features quick-setup tool bars and the ability to perform all of the operations necessary to make the volumes and varieties of the complete part package in just a single operation.

When a full Y axis is required to machine the features on your fasteners, Ganesh offers the 1-3/8" bar-capacity, four-axis, 6000 RPM, Cyclone NCY-32 that features 18 tool positions with seven servo-driven live tools mounted in 1/2" ER-20 collet spindles. There are four radial live tools and three axial live tools in the standard machine configuration. Angular-driven tool capability is also available for those applications that require the machining of a feature at any angle. The Y axis feature can be used on all of the tooling, and because of the way the axes are arranged, multiple insert tools can also be employed to augment the tool count. In addition to the servo-driven live tools with rigid tapping capability, high-speed spindles can be easily added to the machine to finish additional operations.

### **Complex Fastener Production**

For more complex fastener work, Ganesh offers the 1-3/8" bar-capacity, seven-axis, 6000 RPM, Cyclone CS-32 with 27 tool positions and 11 driven tools and a subspindle. A synchronized C axis on both spindles orients the workpiece in the exact radial position required for transfer to the subspindle, and both the main and subspindle can machine the part simultaneously. There are 18 tools available to machine on the front side of the part and 9 tools available for the back side. The tool count can be increased by double tooling the static ID tool stations. Fast 1181-IPM rapid moves cut the tool-to-tool time to a minimum to maximize the productivity of the machine. The CS-32 is the strongest, heaviest and most powerful machine in its class, and offers the largest in-class ballscrews providing the strength to support the use of rotary broaching to complete the part in just one operation.

For fasteners requiring up to 2" bar stock, Ganesh offers the eight-axis, 6000 RPM, Cyclone-52 TTM with two 16-station tool turrets with a Y axis on the upper turret. All 32 tool stations can have 7 HP, 4000 RPM driven tools. The BMT-65 tool system allows each tool station to have multiple cutting tools by having tools mounted on the front and back of the holder, and even side-by-side on a toolholder to greatly increase the tool count. This not only provides all the tooling for a complex workpiece, but also provides the opportunity to have multiple jobs setup on the machine at

one time to minimize changeover time.

The Cyclone-52 machines the front and back side of the part simultaneously and ejects the part into a part gripper that places it on the integral conveyor belt to move it outside of the machine. The powerful Mitsubishi M-720L seamlessly controls the entire process.

#### Maximum Productivity

When even greater productivity is required, Ganesh offers the 11-axis, 6000 RPM, Cyclone 3TMY with three 16-station tool turrets. This 48-tool station machine has all of the advantages of the TMY machine, with the ability to put three tools in the work simultaneously. Ample tooling availability makes it easier to take complete control of the process and optimize production, creating the balance needed to address your customers' needs and keep you a step ahead of the competition.

The 2" bar diameter, nine-axis, Cyclone 52-BY2 B-axis machine provides 35 tool positions with 12 B-axis live tools that can be used at any angle on both the main and subspindle. The 12 live B-axis tools can also be used for cross and axial machining, and all 18 live tool stations include 4000 RPM, 1/2", ER-20 collet spindles. The 20 HP, 6000 RPM, machine provides a separate Y axis for the main and subspindle to maximize the amount of work that can be performed simultaneously. The Cyclone 52-BY2 allows for more process options and the ability to quote more complex geometries in a single handling for better production flow.

For even larger bar work, the four-axis Ganesh 7612-TMY offers 3" bar capacity and a 35 HP, 3500 RPM, spindle with a 12-station VDI-40 tool turret featuring quick-change toolholders. Any station can support the 7 HP live tooling in an axial or radial tool orientation. The 4", Y-axis travel allows multiple ID or OD tools to be used in any static tool station. There is also a 2" bar capacity version of the machine available.

#### Ergonomics & Efficiency

Ergonomics is clearly a big part of the design art at Ganesh. Of course, the substance underlying the style is what leads to the productivity improvements that really matter. Benefits of the Ganesh machines shown here include a better use of floor space as well as improved machine access for setup and operation. But the bottom line is improved work flow and increased production through-put along with reducing set-up labor and changeover time.

Integral parts catchers, chip conveyors and coolant flow confirmation monitors are all standard equipment with the high-production custom solutions offered by Ganesh for your fastener work. Bar feeders, bar loaders, bowl feeders, automation, high-pressure coolant and a host of other solutions are available to increase your production on all Ganesh machines.

At Ganesh we find that work has a tendency to gravitate to the shop with the most competitive solutions.

Taking the correct steps to ensure sustained production improvement should be a part of your growth plan. A call to have Ganesh review your work and suggest a solution that fulfills your cost/benefit analysis should be the first step in your process improvement plan. [www.ganeshmachinery.com](http://www.ganeshmachinery.com)

Company Profile: Ganesh Machinery offers machine solutions including milling machines, machining centers, lathes and screw machines. Ganesh understands the challenges involved in picking the right machines and the right options. Its team of Applications Engineers can help in making the right decisions to improve manufacturing processes. [www.ganeshmachinery.com](http://www.ganeshmachinery.com)