

Drake's Newest Thread Grinder Utilizes Robot Load/Unload System

The GS: TE-LM thread grinder from Drake Manufacturing is fitted with a robot load/unload system that provides maximum throughput for high-volume production of ground threads.

The machine was first introduced at IMTS 2004, and Drake has been tweaking its features to unveil to the manufacturing community in time for IMTS 2006.

According to the company's press release, the machine will be tooled to grind the gear and worm profiles and bearing journals on a power steering pinion with vitrified CBN wheels. The machine is a full helix thread grinder equipped with a 180° power helix, linear motors and ways. It also will have the latest Fanuc controls programmed with customer parts, acoustic touch dressing, automatically generated wheel forms and a mineral-filled cast polymer base.

CEO John Drake says the company aims for cross-market appeal to both low-volume and high-volume manufacturers, from job shops to automotive customers. The grinder comes tooled for power steering of ball screws and worms. Drake adds the grinder is suitable for taps, multi-start worms, electronic steer-



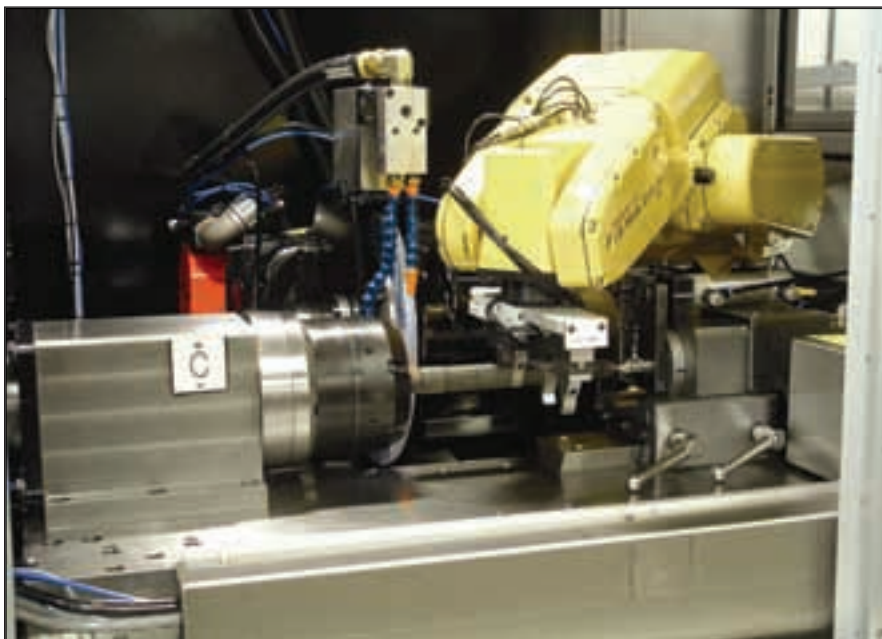
ing components, fast lead ball screws, medical bone screws as well as gearbox, transmission and speed reducer components.

"The gear machine that's generally offered is the 350 mm. However, we've

built up to one meter in overall length, and it's capable of going up to two or three meters now. The ballscrew manufacturers target a one, two, or three meter length product, and we can provide a longer bed length for them than for gear manufacturers," says Drake.

The auto load system consists of an infeed conveyor, robot with dual grippers and exit conveyor. The infeed conveyors allow faster changeovers on a family of parts. During the cycle, the robot loader lifts a new blank off the infeed conveyor and deposits a finished part on the exit conveyor at the same time.

Also, robot cycles are coordinated with Drake PartSmart programs for faster changeovers. The robot system is pre-programmed to automatically respond to part dimension changes as entered in the menu during changeover. The system can conform to customer restocking intervals and can be integrated in manufacturing cells. Drake has programmed the grinding and load/unload sequence into



the control. Changes in part lengths are accommodated by adjusting the conveyor width and headstock position.

The company has integrated robot systems in its machines for years as part of its package for higher volume customers. The GS: TE-LM is the latest and

most sophisticated of the robot-integrated machines.

“We have historically been a ball screw house,” says Drake. “Today’s speeds require competitive linear motors, so we’re offering low maintenance and much lower moving parts. So far, we’ve

experienced great acceptance in the screw and worm grinding market and are excited to offer the same technology for gear customers.”

Drake also plans to bring to IMTS a “mini” thread grinder that targets smaller parts. With a workpiece envelope of 100 mm x 100 mm, this new grinder is designed for high volume, precision threaded parts manufacturers in the cutting tool, automotive, aerospace and medical equipment industries.

The company recently shipped a “mini” with a cycling autoloader configured to grind M0.8–0.25 taps for threading holes in cell phone circuit boards. The mini is suitable for grinding small taps, thread roles, thread gages, worms, ball screws, e-steering components, aerospace fasteners and surgical bone screws.

The mini is also equipped with the PartSmart software, so customers’ parts are pre-programmed into its system. Operators follow the screen prompts and enter values.

With a footprint of 1.2 m x 1.8 m and weighing 3,000 kg, the grinder can be integrated into manufacturing cells and transported via forklift.

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