

Modern Maintenance

New maintenance products and services help machine tools keep on cutting.

In today's throwaway economy, many products are replaced rather than maintained. Not so with machine tools. Many shops and manufacturers carefully maintain and recalibrate their machine tools for many years, getting the most mileage possible out of these key assets. As a result, new machine tool maintenance and service products are designed to boost manufacturing efficiency.

ABSOLUTE MACHINE TOOLS INC., Lorain, Ohio, offers machine tool services that include applications engineering, training and preventive-maintenance (PM) programs. The company, which provides products and services for production applications, mold and die machining and other operations, distributes a line of machine tools, including Johnford machining and turning centers, You Ji vertical turning centers, Argo-Seiki mill/drill/tap centers and Ecosa turning centers.

Absolute works with toolmakers and software developers to guarantee that tooling and software optimize machine performance. Its PM program offers:

- ISO-certified inspection reports,
- Pitch error compensation reports through certified Optodyne laser,
- Servo tuning and backlash reports through Renishaw precision ball bar,
- Machine leveling, and
- Machine squaring.

The company's specialty programs for high-speed machining centers include:

Servo tuning programs. Basic servo tuning can significantly increase machine performance by switching servo gains and other parameters based on an end user's tolerance and finish requirements.

Absolute technicians work with hundreds of parameters to servo tune a high-speed machining center to specific precision and speed requirements. A critical tool used in servo tuning is the grid encoder/ball bar, which dynamically models the accuracy characteristics of a machine tool. The grid ball bar can detect errors that are too subtle for a standard

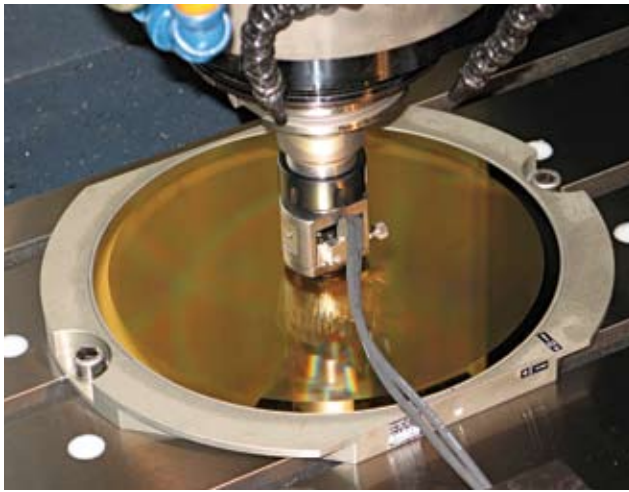


Absolute Machine Tools

Technicians performing servo tuning.

ball-bar test and identify actual CNC problems.

Thermal compensation: All high-speed machines have thermal issues. Heat can distort machine components and make it difficult to produce accurate parts. Spindle growth is of particular concern in the mold and die industry, where tolerances are especially tight. Absolute uses temperature-



A key tool in servo tuning is the grid encoder/ball bar.

mapping techniques to measure thermal growth in the axes of its Johnford Hi-Net machining centers. Temperature sensors mounted on a machine casting and spindle head send dynamic data to the CNC, where it is processed on the fly. The control calculates the thermal deviation using factory-developed algorithms and feeds new offsets to the relevant machine axes.

ZETTL MIMATIC INC., Mount Prospect, Ill., offers

German-standard factory service in the U.S. on all Mimatic driven toolholders, machining center toolholders and 3-jaw mill/drill clamping chucks. Zettl Mimatic also services all Mimatic toolholder accessories for major machine tool brands, such as Mazak, Okuma and Mori Seiki. Mimatic will quote on fixing most non-Mimatic OEM toolholding equipment as well. Mimatic factory tool repairs are warranted for 6 months on parts and labor. Non-Mimatic products receive a 30-day repair warranty.

Shops and manufacturers using these services send their repairs to Mimatic with a description of the problem. There is a \$75 nonrefundable inspect/estimate charge for standard tools, which is credited towards the repair. Higher inspect/estimate fees apply for nonstandard repairs.

WALTER NORTH AMERICA, Waukesha, Wis., through its TDM business unit, offers a new version of a software solution that supports maintenance processes at manufacturing plants. TDM Facility and Maintenance Management (FMM) already included integrated solutions for managing tools, gages and calibration equipment fixtures, workholding devices and other resources within the plant. The new version helps manage inspection, maintenance and repair schedules for plant equipment and facilities. The software was created in collaboration with Arburg, a manufacturer of plastic injection molding machines.

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Using a unified system of identification numbers and a graphic user interface, FMM identifies a company's equipment inventory, from items as small as battery-powered screwdrivers to CNC machines and ceiling hoists. FMM manages maintenance tasks, including planning and cost evaluation. It stores schedules for inspection, maintenance and repair and links them with plant resources. If repairs or un-

planned maintenance are required, employees can report it electronically to the company's service center through FMMonline.

FMM stores and categorizes reports (including test results, results of government inspections and documentation of previous repairs), records downtime and tracks replacement parts, providing the means to evaluate maintenance and repair costs.

FMM can function as a stand-alone system or together with TDM tool data management software. Companies already using TDM software to manage tool data, toolcrib and inventory management or for tracking measurement and testing equipment can integrate the two software systems.

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Agathon technician remotely accessing a machine tool via the Internet.

AGATHON MACHINE TOOLS Inc., Bethel, Conn., reports that its new CNC insert grinding machines and CNC centerless grinding machines are now equipped with a teleservice option. This feature allows Agathon to remotely access and troubleshoot customers' machines via the Internet, according to Roland Merk, the company's sales manager—machinery. Today, nearly 200 Agathon grinding machines equipped with the teleservice option are in operation worldwide. All companies that purchase new Agathon CNC machines are using the new service feature, Merk said.

The teleservice option significantly reduces machine downtime, and software upgrades are performed remotely. Operator programming errors can be corrected immediately. Agathon no longer needs to deploy factory service engineers to rectify electrical-, electronic- or software-related machine issues, saving money for both Agathon and its customers. The service is provided by Agathon free of charge during the 24-month factory warranty period. After the expiration of the factory warranty, customers can continue the teleservice option for an annual fee.

The teleservice option allows

Agathon service professionals to remotely inspect several conditions, including:

- Machine parameters,
- Workpiece parameters,
- Program syntax,
- Drive systems (axes),
- Functions of measuring systems,
- Possible mechanical axis drag and conditions of leadscrews,
- Sensors, inputs and outputs,
- Operating system, and
- Robot functions.

MAKINO INC., Mason, Ohio, offers a variety of machine tool service and support packages that can be customized to ensure maximum uptime, including:

- Life-cycle services, such as preventive maintenance, service con-

tracts, calibration and diagnostic services, machine relocation and production support;

- Second-shift, third-shift or weekend service to minimize downtime;
- Technical support;
- Parts support; and
- Operations, maintenance and application training.

Makino has assumed responsibility for predictive, preventive and routine machine tool maintenance for many of its customers. By shifting these maintenance activities to Makino, the manufacturers can focus on their own core competencies.

MAG MAINTENANCE TECHNOLOGIES, Hebron, Ky., offers single-source capability for productivity

The following companies contributed to this report:

Absolute Machine Tools Inc.
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Haas Automation Inc.
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MAG Maintenance Technologies
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Walter North America
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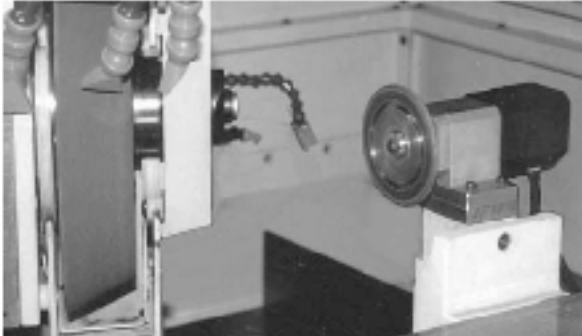
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enhancements—as well as core contract maintenance services—to operators of more than 50 machine tool brands. Through support and access to factory-direct parts and service expertise, manufacturers can achieve maximum uptime, which helps to reduce cost per piece, according to the company. MAG Maintenance Technologies has parts and service operations and 250 service engineers located throughout the world.

MAG Maintenance Technologies focuses on minimizing the total cost of ownership of capital equipment throughout the machine's life cycle. Services range from helping customers select the right cutting tools to supplying factory-optimization software solutions and sensory technologies.



Machine tool parts being shipped from a MAG Maintenance Technologies warehouse.

MAG Maintenance Technologies

MAG Maintenance Technologies offers parts, technical support, technical training, machine certification, preventive maintenance contracts, repair and exchange of critical units, rebuild, retrofit and manufacturer services, and machine relocation, as well as software solutions.

MAG Maintenance Technologies has a global inventory of more than \$80 million and one million part numbers, providing greater than a 90 percent off-the-shelf availability. Within MAG Maintenance Technologies, the Productivity Solutions group provides rotary cutting tools for machining aerospace alloys and composite materials. The tools include solid-carbide, brazed-carbide, HSS and PCD roughing and finishing tools. A tool reconditioning service (retipping, regrinding and recoating) is also offered.

HAAS AUTOMATION INC., Oxnard, Calif., operates a consignment program that helps keep spare parts readily

available for its customers, regardless of size or location. Haas Factory Outlets (HFOs), most of which are independently owned and operated, stock a wide range of parts on consignment, with Haas Automation retaining ownership of the parts until they are sold to a customer or used in warranty service.

“Spare parts availability had been a knock on this industry long before Haas got into the game,” said Troy White, field service manager for Haas Automation. “Often, if your machine needed service, a technician would come out and say, ‘No problem, sir. You need a spindle, and you’ll have it in 3 weeks.’ When we set up our HFOs, we decided to consign the spare parts to them. For the most part, we let the HFOs put anything on their shelves that they ask for. There is no maximum, but we do have minimum parts requirements—we want the HFOs to have all the spare parts they need. The HFOs inventory the parts and tell us how they used them.”

If a dealer does not have a part as a stock item, it sends a purchase order to Haas, which can ship it the same day about

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98 to 99 percent of the time. Haas ships about 200 spare parts per day. “We keep track of our shipments and if we see a trend, we will recommend to the HFO that they change the part from an order item to a stock item,” said White.

“We want every HFO to carry about 3 months’ supply of spare parts,” added Loel Martinez, spare parts supervisor. “We can do that because we have a record of every part that an HFO has on consignment.” Haas Automation’s spare parts tracking system was recently transitioned from multiple databases to a new SAP system that, among other things, tracks spare parts usage.

Haas Automation also receives copies of all service calls on customers’ machines, and White’s staff calls customers to survey them about each service call. Customers are asked:

- How long did it take for your service technician to arrive?
- Did your service technician arrive when he said he would?
- Did the technician have all of the required parts?
- Was the machine fixed when the technician left?
- Was your service technician professional?

“We measure our HFOs on their consignment usage, and we measure them based on those surveys,” said White. “We want to have as many machines as possible fixed the same day they are serviced.” △

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