



### Just the Facts

#### **International Manufacturing Technology Show 2008**

September 8–13, 2008

#### **McCormick Place**

2301 S. Lake Shore Drive, Chicago, IL 60616

Sponsored by the Association for Manufacturing Technology (AMT)

[www.imts.com](http://www.imts.com)

[www.meetinchicago.com](http://www.meetinchicago.com)

(the official visitors' site for Chicago)

### Show Hours:

Lakeside Center— 9 a.m. to 5 p.m.

North, South and West buildings—10 a.m. to 6 p.m.

### Pavilions:

Abrasive Machining/Sawing/Finishing—North Building, Hall B

Controls & CAD-CAM—East Building, Hall D

EDM—East Building, Hall D

Gear Generation—North Building, Hall B

Machine Components/Cleaning/Environmental—  
East Building, Hall D

Metal Cutting—South Building, Hall A

Metal Forming & Fabricating/Laser—North Building, Hall B

Quality Assurance—East Building, Hall D

Tooling & Workholding Systems—West Building, Hall F

## **IMTS 2008 The Focus— Global Technology**

*Lindsey Snyder, Assistant Editor*

It's that even-numbered-year time-of-the-year again. The International Manufacturing Technology Show, IMTS 2008, is right around the corner. This 27th installment of the biennial trade show is focusing on connecting global technology, and visitors can expect to see exhibits from 1,500 companies spanning 1.2 million net square feet of space at Chicago's McCormick Center. Over 90,000 buyers and sellers typically come from 119 countries to look at more than 15,000 machine tools, controls, computers, software, components, systems and processes.

IMTS planners have been busy at work filling the schedule and extending the show's features. This year's conference, the Manufacturing Business and Technology Forum, has expanded. The forum sessions provide current technical information surveying the latest technologies that impact how companies manufacture and enhance the effectiveness of workforce efficiency and productivity. Forum sessions are designed to supplement what is seen on the trade show floor and are conducted by several industry partners: Society of Manufacturing Engineers (SME),

*continued*



Center for Automotive Research (CAR), American Society for Precision Engineering (ASPE), National Tooling and Machining Association (NTMA), ToolingU and the Association for Manufacturing Technology (AMT).

"By expanding the number of partners participating in our educational efforts, we can offer broad and relevant content to our IMTS attendees," says Peter Eelman, IMTS vice president-exhibitions. "More than ever before, we are designing this education experience for the end user."

One special session will be showcasing MTConnect, a new communication technology that provides an open standard for passing information between devices, equipment, systems and higher level applications. MTConnect combines manufacturing technology and computer science to access data on a regular basis. The goal is to create "a seamless 'manufacturing pipeline' from design to production," according to [mtconnect.org](http://mtconnect.org). MTConnect will be open and free of royalties. The session will provide an overview of MTConnect with detailed presentations

demonstrating how to develop an adapter for retrieving data from a device or piece of equipment. IMTS 2008 will be the first public demonstration of the standard's use. The forum session is free and sponsored by the AMT on Wednesday from 10 a.m. to 11:30, Thursday from 2 p.m. to 3:30 p.m. and Friday from 10 a.m. to 11:30 a.m.

"MTConnect may be the most exciting development in our industry since the introduction of NC almost 40 years ago," Eelman says. "We are mirroring the success occurring in the information technology world. That is, allowing devices, equipment and systems to output data in an understandable format that can be read by any other device using the same standard format to read the data. MTConnect will enable everyone in the production supply chain to be part of making the manufacturing enterprise more productive."

MTConnect will also be featured in several ways at the Emerging Technology Center (B-1000). At this location, people who are not familiar with the standard can watch a video presentation, learn about where it currently stands

and watch live demonstrations where about 20 exhibitors, including Gleason, will connect from their booths on the show floor, and an illustrative computer dashboard will show MTConnect in action.

An international student competition will take place where contestants are challenged to use MTConnect to develop inventive theories. This competition concludes in October 2009 at EMO Milano in Italy. The Emerging Technology Center will also showcase recent research from universities and research labs including the Penn State Machine Dynamics Research Lab, University of New Hampshire, University of Kentucky, the Machine Tool Research Center at the University of Florida, the American Society for Precision Engineering, the Industrial Diamond Association and many others.

A new feature of IMTS this year is the Innovation Center, which will feature theater-style presentations each day between 11 a.m. and 2 p.m. Located in the Lakeside Center (East Building), the Innovation Center aims to bring specific themes to life by industry experts. The theme will differ from day-to-day as follows: Monday's theme is automotive, sponsored by Ward's Automotive Group; Tuesday is quality, sponsored by *Quality* magazine; Wednesday is aerospace/aeronautics, sponsored by *Aerospace Manufacturing and Design* magazine; Thursday is power generation/green day, sponsored by *Today's Energy Solutions*; Friday's theme is medical, sponsored by *Today's Medical Developments* magazine; and Saturday is job shop day, sponsored by *American Machinist* magazine.

"As we continually assess the desires of our exhibitors, it is clear that to increase the attendance at IMTS, we must market to specific industries," Eelman says. "For the future we will be offering more and more industry-specific information and programs



to make the IMTS experience highly meaningful for our attendees.”

For the second time, IMTS will present a battle of the robots at two locations. Robots will show off their skills on office equipment and kitchen appliances at the Lakeside Center in the East Building. Bots battle each other at the “You Drive Them” station in the North Building, and there will be a live bot-on-bot competition using robots built by manufacturing companies from the Midwest. Battles will take place daily.

Students from middle school through vocational college levels are invited to be special guests at IMTS as part of the Student Summit, sponsored by the National Institute for Metalworking Skills (NIMS) and the AMT. Educators and their students can attend the Career Development Center (CDC) and a self-guided tour of the exhibition for free. The NIMS Student Summit gives students the opportunity to approach student-friendly exhibitors—such as Haas Automation, Agie Charmilles, L.S. Starrett, ToolingU and Mastercam—and inquire about career opportunities

and other questions pertaining to the precision manufacturing industry.

“By offering the opportunity for students and educators to experience IMTS and interact with exhibitors, as well as take advantage of the outstanding program NIMS has planned for our student attendees, we hope that students will see first-hand the outstanding, well-paying career opportunities precision manufacturing has to offer,” Eelman says.

At the CDC, students will hear young professionals speak about their experiences in the industry, and they will see exhibits from colleges and universities, companies, human resource representatives and industry associations. Door prizes will be awarded, and CDs containing industry-related career information will be distributed. New to this year’s show, graduating high school and college students are invited to drop-off their resumes for participating companies to review for entry-level job openings. More than 6,600 students and educators participated in the 2004 NIMS Student Summit at IMTS.

continued

## Registration:

- For individuals, \$25; \$50 after August 1
- Groups of 5 or more from the same company, \$15 per person, before August 1
- Unlimited conference and exhibit floor access all week, \$600; \$700 after August 1
- Single-day conference pass includes full exhibit floor access, \$400; \$500 after August 1
- Free registration for international manufacturing industry visitors
- Free registration for educators and students with proper identification; students without a group must register on-site in the NIMS Student Summit Area (West Building)
- IMTS Registration Customer Service Department:  
[imt081.attendee@experient-inc.com](mailto:imt081.attendee@experient-inc.com), Phone: (301) 694-5243

## Watch Your Production Multiply.



The New RZ 303C CNC Continuous Generating Gear Grinding Machine is designed for large production lot size gears. It features an integrated primary loading system.

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See a Preview at  
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# RZ303C

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Email inquiries to:

[alex@dragon.co.kr](mailto:alex@dragon.co.kr)

#### Headquarters

36B-11L, Namdong Industrial Complex, Namdong-Gu, Incheon, Korea

PHONE: +82.32.814.1540

FAX: +82.32.814.5381

## Product Preview

### Liebherr Focuses on Efficiency and Wind Energy Technology B-7016



With three machines in tow, Liebherr Gear Technology, Inc. will highlight flexibility, lean standards and a new contribution to wind energy applications.

The Klingelnberg P 26 Gear Measuring Center will be at Liebherr's booth representing the P series of analytical gear inspection machines equipped to handle gears with diameters as large as three meters. The line was designed with wind energy applications in mind. A surface sensor developed by Klingelnberg measures the surface roughness of gears, in place of a stylus, by functioning right on the 3D sensing head.

The measurement system logs roughness values alongside the gear measuring tasks. This feature eradicates the use of non-automated measurements that require separate equipment. With cylindrical gears, the tooth flank roughness can be documented in both the profile and longitudinal flank axes.

## Get Your Addendum On!



While the Addendum column is both entertaining and fun to write, our staff will occasionally sit and stare at each other in meetings attempting to generate story ideas for the back page. If you're knowledgeable in the gear industry and have an idea to share, we'd love to hear about it. We only ask that your anecdote is **60% entertaining, 40% informative** and **deals specifically with the gear industry.**

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Please help us start talking to each other again by submitting your ideas to:  
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or [wrs@geartechnology.com](mailto:wrs@geartechnology.com).



The P 26 is compact and intended for smaller workpieces with diameters up to 260 mm. The measurement center is appropriate to test spur and helical gears, hobs, shaper and shaving cutters, worm gears, bevel gears and other workpieces. Ted Klemm, a regional sales manager for Liebherr, will be demonstrating the Klingelnberg P 26 Gear Measuring Center.

The LCS 150 generating and profile grinding machine is capable of applying CBN or corundum grinding tools. Tool use is combined, so generating grinding can be applied alone or along with profile grinding. Productivity was the key in designing the LCS 150 with loading and meshing idle times cut in half. The machine bed was designed to perform grinding using 35 percent less floor space.

Liebherr will also feature the PHS 1500, a flexible pallet handling system for machining centers capable of manual or fully automatic loading. Versatility was crucial in this system, which features a modular design and *Soflex* software. Maximum part dimensions are 1,150 x 1,000 x 1,050 mm pallet with part. The buffer has nine storage slots that can each store 1,500 kg-pallet with part.

## For more information:

Liebherr Gear Technology, Inc.  
1465 Woodland Drive  
Saline, MI 48176  
Phone: (734) 429-7225  
Fax: (734) 429-2294  
[www.liebherr.com](http://www.liebherr.com)  
[info.lgt@liebherr.com](mailto:info.lgt@liebherr.com)

## Seven CNC Machines Showcased by Star-SU, B&K Open House in Rockford B-6912

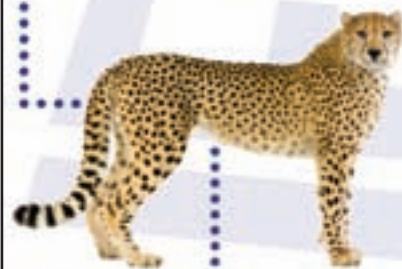


In addition to displaying machines from Bourn & Koch, Samputensili S.p.A., Star Cutter Company, Sicmat and Process Equipment on the show floor, Star SU is inviting attendees to an open house at the new Bourn & Koch facilities 88 miles west in Rockford, IL. The open house, on Friday and Saturday, September 12-13 from 10 a.m. to 3 p.m., offers tours of the 25,700-square-foot office and engineering center and the 800-square-foot demonstration center. Visitors can view a Blanchard 11-20AD rotary surface grinder and a B&K 100H CNC horizontal hobbing machine in action. Reservations are strongly recommended, and Bourn & Koch will offer van trips from the bus station in Rockford to the plant and back. For information about transportation, including driving directions, contact Cathy Manske at [cmanske@bourn-koch.com](mailto:cmanske@bourn-koch.com) or call (815) 965-4013 ext. 2305.

The Star PTG-6 tool and cutter grinder is equipped with six axes to grind, sharpen and recondition a variety of cutting tools. The 60 kW direct-drive grinding spindle has six-station HSK grinding wheel mounting that places the grinding wheel on the B-axis pivot's center. Using the *NUMROTOplus* software package, the PTG-6 makes

continued

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cross-sectional representations with 2D simulation, and there is an optional 3D grinding simulation that can detect machine collision. Heat build-up in the direct drive headstock and the grinding spindle is controlled by a closed-loop chiller, and glass scale feedback is provided for all linear axes. The new

CTG3 tool and cutter grinder offers most of the same features but with a small footprint and a three-station HSK grinding wheel pack.

The Bourn & Koch 400H CNC horizontal hobbing machine has 7 axes capable of hobbing spur and helical gears and splines and threads on



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cylindrical blanks or shafts. A standard model features a NUM 1060H CNC control, tail center with variable load control, and it can hob wet or dry.

The Samputensili S 400 G generating and profile grinding machine was designed to mass-produce gears and shafts with straight and helical gear teeth. The machine is modular and has a small footprint. It features a Siemens CNC Sinumerik 840D control with more safety features and internet connections.

The B&K Fellows MS450-125 CNC gearless gear shaper has six axes, direct drive spindles, electronic indexing, optional electronic helix setting, and elevating cutter spindle housing. The mechanical stroking gear shaper was designed to shape both internal and external gears. Features with the standard model include storage for approximately 100 part programs, a Fanuc 30iB CNC system, hydrostatic spur guide, 15" color LCD touch screen, GFI duplex outlet and a manual pulse generator.

For shaving shafts and gears in varying sizes, the RASO 400 from Sicmat uses an open "C" structure. Combining internal and external automation allows the machine to manage auxiliary operations such as chamfering, deburring, and centrifugation marking. The RASO 400 is strong and stiff enough to shave gears with large modules and face widths like those in agricultural equipment, earthmovers and industrial vehicles.

The PECo ND300 is a 4-axis



CNC-controlled inspection system that measures gears, splines, worms and gear-cutting tools. The system features non-contact, linear motor technology and a "Crash Protected" precision scanning probe head by Renishaw to make a



variety of measurements including profile-total, form and slope/angle; helix-tooth alignment (lead)-total, form and slope/angle; pitch, index, spacing and pitch-line runout; tooth thickness and size over/under pins; and datum geometry roundness, form and runout per ANSI and ISO geometric standard callouts.

## For more information:

Star-SU LLC  
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Suite 100  
Hoffman Estates, IL 60192  
Phone: (847) 649-1450  
Fax: (847) 649-0112  
[sales@star-su.com](mailto:sales@star-su.com)  
[www.star-su.com](http://www.star-su.com)

## Large Capacity Hob Sharpening from Koepfer America B-6907

The KFS 250S is a new product from Koepfer America which sharpens large hobs using a high-speed, direct-drive grinding spindle. Other features

include a GE Fanuc CNC panel, software equipped for conversational programming and an integrated crane to load and unload large hobs without difficulty.

"The KFS 250S offers several advantages," says Dennis Gimpert, president of Koepfer America. "Importantly, the machine has a maximum grinding capacity of 254 mm hob diameter and 305 mm hob length. The KFS 250S sharpens to AGMA 'AAA' quality, is suitable for either high-speed steel or carbide tools and has pre-loaded linear guide ways."

Several other machines will also be displayed at Koepfer's booth. The Monnier & Zahner MZ 130 CNC gear hobbing and worm milling machine produces spur gears, worm gears, worms and threads in large and small amounts. The Wenzel WGT 350 gear inspection machine has air-bearing technology on all four axes of CNC control standard, and the Koepfer Model 300 gear hobbing machine uses new technology flexibly in eight square meters of area.

## For more information:

Koepfer America, LLC  
635 Schneider Drive  
South Elgin, IL 60177  
Phone: (847) 931-4121  
Fax: (847) 931-4192  
[www.koepferamerica.com](http://www.koepferamerica.com)  
[sales@koepferamerica.com](mailto:sales@koepferamerica.com)

## Mitsubishi's Gear Hobber Employs Environmentally Friendly Cutting Tools B-7025

The fully automated GE15A gear hobbing machine will be on display by Mitsubishi Heavy Industries of

continued

## Harness Power and Control.



The new RZ 303C brings together modern control engineering and sophisticated mechanical designs making it truly a state-of-the-art gear grinding machine.

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America, Inc., Machine Tool Division. Mitsubishi's SuperDry II cutting tools are used in a coolant-free, high-speed cutting process. The features were designed to promote flexibility with quick-change pallet adapters and cutter arbors as well as an enhanced operator screen. The pallet conveyor was

supplied by Creative Automation, Inc. (B-6445).

Mitsubishi is also displaying the ZE15A generating type gear grinder for rapid, high-quality machining. Its features include fully automatic 8-axis control, ring type automatic loader, automatic dressing and grinding wheel



balancing units, in addition to direct-drive motors.

### For more information:

Mitsubishi Heavy Industries  
America, Inc.  
Machine Tool Division  
46992 Liberty Drive  
Wixom, MI 48393  
Phone: (248) 669-6136  
Fax: (248) 669-0614  
[www.mitsubishitoday.com](http://www.mitsubishitoday.com)



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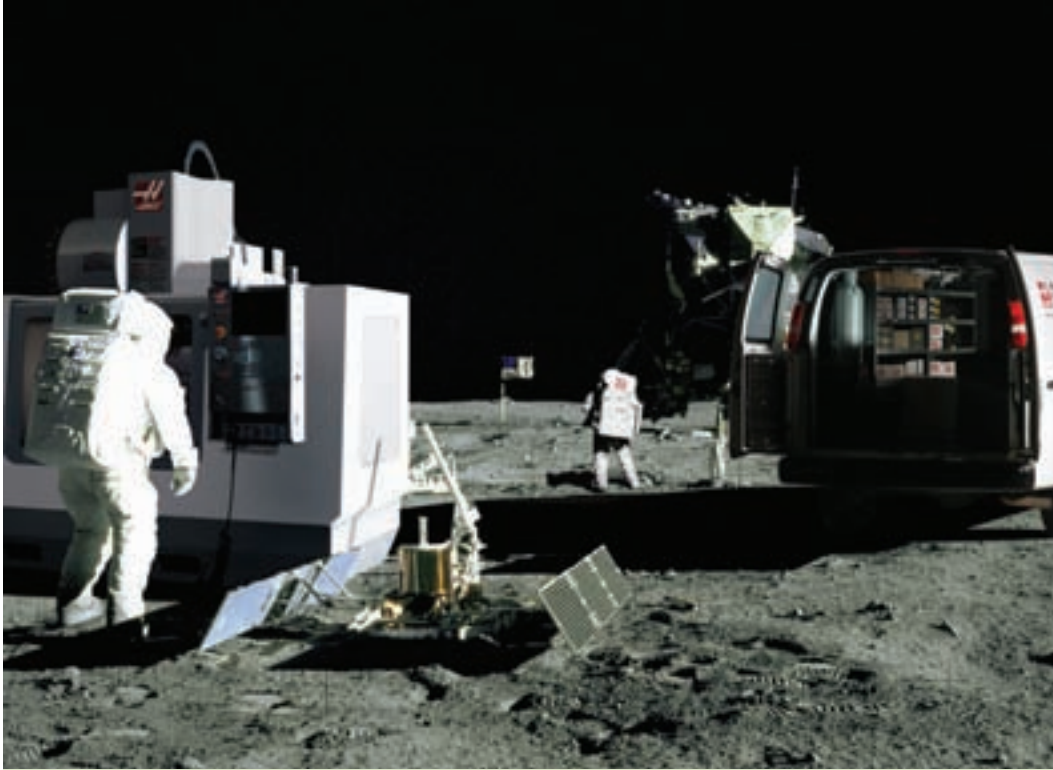
\* Difficulty not included.

## Reishauer Displays Hard Gear Finishing and Automation Technology B-7005

The RZ 303C Precision Gear Grinding Machine from Reishauer Corporation uses gearless planetary drives, acoustic sensors to align dressing diamonds, and low noise shifting (LNS), which prevents excitation on gear teeth. The work area helps make quick changeovers. Fast machine uptime is achieved by the dressing unit's setup location, ease of wheel change and nearly unrestricted location of the gear on the shaft or arbor. The machine axis is used to move the wheel to produce

continued





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root, flanks and tip modifications. The main onboard loading system transports un-ground parts in the gear grinder, and they are organized in stacks of steel or plastic baskets, which are served by an in-plant conveyor style, table or basket buffering handling systems. The cell utilizes decoupling individual processes for flexibility and efficiency.

#### For more information:

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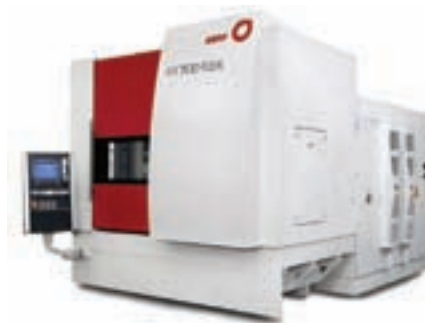
## Kapp Gear Center Combines Application Production Solutions

### B-6748

Two machines and a range of CBN and diamond-plated tools will be on display by the Kapp Group. The new Kapp KX 500 FLEX provides continuous generating grinding, discontinuous profile grinding or a combination of both. The 500 FLEX is capable of



grinding external spur and helical gears up to 10 mm with an outside diameter of maximum 500 mm and gear width up to 520 mm. The machine is suitable for single- or twin-spindle dresser use, and automation options are available. The gear center has a multi-station turntable and twin-spindle dresser, so different tooling concepts can be used, such as dressable and non-dressable ceramic tools for prototype machining and grinding of medium- to high-volume series.



The NILES ZE 400 machine will also be at the Kapp booth, which has been one of the company's best selling products. The bed casting of the NILES ZE 400 is fashioned from thermally-optimized ductile iron to support a maximum workpiece weighing 2,650 pounds. The machine includes tailstock, CNC dressing device, on-board measuring and a Siemens 840D control. Siemens 611D simo-drives run the

axes while data is placed directly into the control or prepared for transfer via network.

#### For more information:

The Kapp Group  
2870 Wilderness Place  
Boulder, CO 80301  
Phone: (303) 447-1130  
Fax: (303) 447-1131  
[info@kapp-niles.com](mailto:info@kapp-niles.com)  
[www.kapp-usa.com](http://www.kapp-usa.com)

## Modular Honing Machine Sizes, Finishes Bores to Submicron Accuracy

### B-7200

The SV-1000 vertical CNC honing machine series from Sunnen is capable of scaling up from a single-spindle machine to a fully automated multi-spindle unit for precise bore sizing and finishing with accuracies of 0.25  $\mu\text{m}$ . The machine is designed for diameters of 3–65 mm for gears, diesel fuel injectors, small engine cylinders or connecting rods, hydraulic or pneumatic components and medical devices in medium to high volumes.

The SV-1000 series' base is made of polymer, allowing for vibration damping and rigid structure. For fixture control, it is available with a fixed tooling plate or servo rotary table with 12-position rotary air union, and up to four spindles are offered. Integrated post-process air gaging provides closed-loop control of bore size and geometry to 0.25  $\mu\text{m}$  accuracy.

continued



**Gear Technology**  
**September/October**  
**2008 Issue**

**FOCUS**



**Our Reliably**  
**Comprehensive Show**  
**Coverage Continues**  
**Next Issue.**



A servo-controlled stroking drive responds smoothly to the control's motion profiles. This feature provides the capability to perform conventional honing and single-pass honing using adapters and any Sunnen tool. The high-torque spindle is driven by a belt and is rated at 7.5 kW, so a range of sizing and finishing work can be performed from 100–4,000 rpm.

Sunnen will introduce the VSS Series Single Stroke Honing systems at the show. The spindles on these machines are factory aligned independently in order to achieve precision centering of the spindles and tooling plate. The VSS-2's alignment accuracy exceeds DIN 8635 requirements for vertical honing machines. As many as six spindles can be incorporated to size and finish part bores with tools that have preset diameter and grit size. Precision sizing of bores 3.9–50 mm diameter in stamped parts such as hydraulic valve bodies, gears, sprockets, parking pawls, rocker arms and turbocharger housings are ideal for the series.

"The VSS Series 2 sets a new standard for single-pass bore sizing efficiency," says Phil Hanna, product manager for machines at Sunnen. "If a part is best suited for single-pass honing, the VSS-2 provides a level of precision not available in other designs. And, with the new touch screen control, this machine is very operator friendly. No

custom electronics or special training are needed and the control is designed to interface with part handling automation systems."

**For more information:**  
Sunnen Products Company  
7910 Manchester Ave.  
St. Louis, MO 63143  
Phone: (314) 781-2100  
Fax: (314) 951-2718  
[www.sunnen.com](http://www.sunnen.com)

## Mahr Gear Tester Analyzes Wide Range of Gears D-4324



The GMX 400 Universal Gear Tester will be displayed by Mahr Federal. The GMX 400 is a class 1 gear tester capable of evaluating gear and gear tool applications with maximum ODs of 400 mm. It combines a four-axis



power PC controller with an automatic tailstock and 3D scanning probe head to automatically inspect straight and helical cylindrical gears; spiral and hypoid bevel gears; crown gears; cylindrical worm shafts; conical cylindrical gears; gear segments; shaving cutters and hobs; pinion-shaped cutters; beveloid gears; synchronous gears; 3D geometry; and form and positional measurements, diameters and distances. The GMX 400 is appropriate for both stand-alone shop floor and gear lab use.

A similar machine from Mahr was introduced a few years ago, but this latest version offers some new features. "It has a new controller and is therefore faster than it was," says Pat Nugent, Mahr Federal vice president of Metrology Systems. "The biggest change is in the development of software since that time. That was why we were waiting to bring it back to the U.S.

market. We felt that we needed substantially more software option packages and features within those packages. We believe that we now have those, and this is the time to bring this back to the U.S. market under the Mahr banner."

Mahr is also bringing to IMTS the MarSurf WS 1 Optical Surface Metrology System, which records surface topography on a range of materials, air gages for machine tool tapers and the Digimar 817 CLM Height Measuring Instrument that offers three measurement modes.

### For more information:

Mahr Federal Inc.  
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 Acme Manufacturing Co., B-7241  
 Advent Tool & Manufacturing, F-2750  
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 AM Machinery Sales, Inc., B-6746  
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 Anderson Cook Inc., B-6439  
 Applied Recovery Systems, LLC D-4623  
 Automated Precision, Inc. D-4652  
 Automation Innovation, Inc., D-4409  
 Bates Technologies, Inc., B-7535  
 Blum Laser Measuring Technology Inc., D-4558  
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 Blum-Novotest GmbH, D-4558  
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**Broaching Machine Specialties Co., B-7220**  
**Broach Masters/Universal Gear, B-7103**  
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 Carl Zeiss IMT, D-4501  
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 Ceratizit, F-2886  
 Dan di De Antoni Srl, B-7144  
 Dr. Kaiser, B-7121  
 Drake Manufacturing Services Co., B-7407  
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