

The Machine Tool World, All in One Place



Photo: Deutsche Messe AG, Hannover

Soon, machine tool users will again be able to visit the machine tool world by going to one place: Fairgrounds Hannover in Germany.

EMO Hannover 2005: The World of Machine Tools will open on the fairgrounds Sept. 14 and continue through Sept. 21.

One of the world's largest trade shows, EMO is a chance for machine tool users to see a wide range of machinery, with more than 14 buildings featuring equipment, including milling machines, lathes, forming machines, machining centers, grinding machines, and gear cutting machines.

Attendees from the gear industry should find interesting products in the exhibits on cutting, splitting and milling machines; precision tools, diamond tools, and measuring tools; coolants and lubricants; surface finishing technology and thin-film processes; and robotics and automation.

Admission prices vary. A day ticket costs 25€, a season ticket 45€, and a student ticket 10€.

Additional information can be obtained via www.emo-hannover.de.

A symposium, "Cutting Edge Machine Tools for Tomorrow's Production," will be held Sept. 15–16.

The discussion will be divided into five themes: "The Future of the Machine Tool," "Micro and Precision Machining," "Simulation and Optimization," "Modularization" and "Automation." The information is based on research projects funded by Germany's Federal Ministry for Education and Research (BMBF) and is being held by The German Machine Tool Builders' Association (VDW) and the Research Centre Karlsruhe's production and manufacturing technologies division (PFT).

The symposium costs 95€ for admission for one day, 150€ for both days. Its languages will be German and English.

EMO Hannover 2005: The World of Machine Tools

Dates: September 14–21, 2005

Hours: 9 a.m.–6 p.m.

Site: Fairgrounds Hannover, Germany

Organizer: The German Machine Tool Builders' Association (VDW)

Web: www.emo-hannover.de

Admission Fee

Day ticket	25€
Season ticket	45€
Student ticket	10€

Hall 2 hosts

many gear machine tool exhibitors, including:

• Doimak	A57
• Fässler	A36
• Frencos	A73
• Gleason	A56
• Höfler	A58
• Kapp	B56
• Klingelnberg	C42
• Koepfer	C43
• Lambert	A59
• Liebherr	C42
• Reishauer	A72
• Samputensili	D40
• Wera Werk	B59

EMO Hannover 2005 will have exhibits on:

- Machine tools for cutting, splitting and milling
- Precision tools, diamond tools, measuring tools
- Coolants, lubricants
- Welding, cutting, hardening, heating
- Surface finishing technology, thin-film processes
- CAD/CAM
- Instrumentation and control technology
- Robotics and automation
- Mechanical, hydraulic, electrical and electronic accessories for manufacturing technology
- Industrial electronics, sensor and diagnostic technology
- Sheet metal, wire and tube working machines, metal forming machine tools
- Machine tools for thermal, electrochemical and other processes
- Software for entire manufacturing technology area
- Control systems
- Components for flexible automation
- Quality management systems
- Material flow and storage technology
- Metal forming machine tools
- Machines and systems for tool and mold construction, rapid prototyping, model construction



Attendees of the free "New Technology Broaching Seminar" will learn about technologies for making parts like these better, faster and cheaper.

Broaching Seminar to Attract Leading Experts

Manufacturers can learn about the latest technologies in broaching by attending the free "New Technology Broaching Seminar" being held by Broachman LLC in Dearborn, MI, on October 11.

"The seminar will provide attendees with the basics of broaching as well as educate them on the newest technologies that will result in broaching parts faster, better and at a lower cost per piece broached," says Ken Nemec, president of Broachman.

The seminar will include presentations from people at a wide variety of broaching industry companies, including Stenhøj Hydraulik, Broachman LLC, Triple E Manufacturing, Parma Broach, Katexim Broach and Berghaus Broach.

In addition, many related technologies will be covered by presenters from companies that are involved with materials, coatings, lubrication, inspection and deburring, including Bohler Uddeholm Specialty Metals, Gold Star Coatings, Master Chemical, Balzers, Process Equipment Co. and On-Line Services.

"Sharing technologies will be a key to the success of our seminar," Nemec says. "Our focus will be sharing ideas and innovation to reduce costs and improve quality and the bottom line."

The seminar, which includes lunch, will be held at the Holiday Inn Fairlane-Dearborn in Detroit, and the organizers are expecting as many as 300 attendees. The format will be 10-15 minute mini-presentations until lunch, followed by several break-out meetings including question-and-answer sessions.

Registration is available online at www.broachman.com.

For more information:
Broachman LLC
16900 Candy Road
LeRoy, MI 49655

Phone: (231) 768-5860
Fax: (231) 768-4381
E-mail: ken@broachman.com
Website: www.broachman.com

HIGH SPEED Gear Inspection

ITW Heartland introduces the Model 5823 Gear Inspection Machine for automatic high speed inline gear inspection, offering greater flexibility with 6 axis robot loading and sorting of gears.

MACHINE FEATURES INCLUDE:

- Greater flexibility in running complete families of different gears on the same machines.
- Part change over is done very quickly requiring no tools or special skills.
- Setting masters are stored in quick change trays. The robot automatically selects the setting masters and returns them to the same location after calibration.
- Production capability up to 600 gears per hour depending on the style of the gear.
- Inspecting total composite, tooth-to-tooth action, runout, nicks, DOB size, lead, lead variation, taper along with other gear and part geometry measurements custom-ized to your particular needs.



Manufactured in the USA
TURN-KEY SYSTEMS AVAILABLE
CUSTOMIZED TO YOUR APPLICATION
BURNISHING + WASHING + INSPECTION

For additional information on our full line of **Functional Gear Inspection** and **Gear Burnishing**, visit our website at: www.itwgears.com

ITW Heartland

1104 Hwy 27 West
 Alexandria, MN 56308 U.S.A.
 Ph: (320) 762-8782
 Fax: (320) 762-5260
 E-mail: itwgears@rea-alp.com

Visit us at Gear Expo 2005, Booth #272

HIGH PRECISION GROUND GEARS

- Bevel and Hypoid
- Spur and Helical
- Taper Rack and Pinion
- Worms & Wormwheels
- CURVIC® Couplings
(registered trademark of The Gleason Works)



ISO-9001: 2000 CERTIFIED
ISO-14001: 1996 CERTIFIED

Est. 1944

SIG

SUDA International Gear Works Ltd.
www.sudaintlgear.com

Head Office: 119-1 Kumaiden
 Shimizu-cho, Sunto-gun, Shizuoka
 Japan Fax: +81-55-972-4553
 E-mail: sig-suda@po2.across.or.jp

Contact: (North America)
 P.O. Box 4, Pittsford, NY 14534 USA
 Fax: (585) 385-8537
 E-mail: lgknndy@att.net

Visit us at Gear Expo 2005, Booth #549

KISSsoft

**Leading calculation software
for efficient gear box design**

KISSsys

**Dimensioning and optimization
of gearboxes**

**Fast analysis of variants and
switched gears**

Automatic documentation

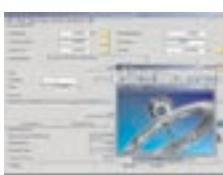


KISSsoft

**Dimensioning and design
optimization of machine elements**

Various unique calculation tools

**Rating according to
ISO, ANSI, DIN, AGMA,
VDI, FKM**



Tel: +41 55 264 20 30
info@KISSsoft.ch
<http://www.KISSsoft.ch>



KISSsoft AG
Frauwis 1
8634 Hombrechtikon
Switzerland



GROUND GEARS – Ten or Ten Thousand

For small to medium quantities of spurs or helicals that have to meet close-tolerance AGMA or DIN specs, our Reishauer grinders and M&M gear analysis systems are the perfect combination.

For Long runs, we offer the unique Liebherr CBN grinding process with full SPC quality control and documentation.

So whether your needs are for ten or tens of thousands, we invite you to join the growing list of INSCO customers who rely on us for consistent quality, reasonable costs, and reliable delivery.



PHONE: 978-448-6368
FAX: 978-448-5155
WEB: insecocorp.com

412 Main Street, Groton, Massachusetts 01450

ISO 9001 Registered

EVENTS

Making Bevels and Hypoids Right Requires Training

Machine tools, cutting tools and other needed supplies—that's the easier part of making bevel and hypoid gears. With settings from well designed gears and gear blanks of the right tolerances, the machine tools will do their jobs.

The harder part is creating the good designs and figuring the right tolerances. That requires understanding from gear engineers, and understanding requires training.

Gleason Corp., however, offers that training via two courses on designing and manufacturing bevels and hypoids.

The first course, "Fundamentals of Bevel Gear Design," is recommended for people currently designing and engineering gears. It emphasizes design elements of bevels and hypoids, with lectures on gear theory, terminology, selection of gear size, tooth design parameters and cutting methods.

Students calculate a gear dimension sheet using Gleason computer programs and evaluate the resulting stress data. They also learn about gear lubrication, gear mountings, types of failures, gear blank dimensions, gear blank tolerances, and calculating gear life.



The course includes machine and process demonstrations on Gleason's latest equipment and software.

"At the end of the course, the student will have learned enough of the basics to be able to design a gear set," says Richard Jaworski, application engineer, customer support—Asia/Pacific. Jaworski is the main teacher for both bevel/hypoid courses.

The first course should be taken after attending Gleason's more general course on gear process theory. Likewise, people should take the fundamentals course before the second bevel/hypoid course, "Applied Gear Engineering."

"The applied gear engineering course is an extension of the fundamentals course," Jaworski says.

Attendees of the applied course should be designers of bevel and hypoid gears or be responsible for creating cutting or grinding summaries.

According to Jaworski, the applied course promises to provide students with a working knowledge of the theory of tooth contact pattern development and the use of Gleason computer

programs for tooth contact analysis—TCA, undercut checks and machine summary settings.

Like in the first course, instructors teach via lectures, discussions and hands-on workshops with Gleason computer programs.

Also, students learn about product application testing, software for loaded tooth contact analysis (LTCA) and finite element analysis (FEA), and methods of hard finishing bevels and hypoids.

Each 12-student course is taught in the same classroom, which features 12 computer work stations with wireless connections to Gleason's local training network.

In both courses, students can bring specific design problems to discuss with instructors. The problems can be reviewed either in class as a group or individually after class depending on the nature of the problem and the design's confidentiality.

"We take the time to work with the individuals after class on their designs if they wish," Jaworski says.

In the fundamentals course, students bringing problems should make sure their data include horsepower, speed, ratio and torque loads.

In the applied course, they should bring the following for their existing or future applications: horsepower, speed, torque loads and size restrictions.

In both courses, attendees should bring electronic calculators.

The remaining sessions for the fundamentals course are Aug. 22–26 and Nov. 7–11, and for the applied course Aug. 29–Sept. 2 and Nov. 14–18. Attendees must submit their registration forms so Gleason receives them 30 days or more before the starting date of the first course.

"Usually these classes book within 30–60 days before start of class," says George Baldwin, manager of Gleason's customer/dealer training department.

The courses are taught at The Gleason Works in Rochester, NY. Attendees can stay at any of nine hotels in the Rochester area. Gleason can reserve hotel rooms for students, or they can make their own reservations. When making them, attendees should ask for the Gleason corporate room rate. Hotel information, including rates and distances to The Gleason Works, is available on Gleason's website.

For more information:

George Baldwin
The Gleason Works
1000 University Ave.
Rochester, NY 14692
Phone: (585) 256-6688
Fax: (585) 256-6729
E-mail: gbaldwin@gleason.com
Internet: www.gleason.com

SPIRAL BEVEL GEARS

(Transmissions)

**Spiral & Straight Bevel Gear Manufacturing.**

Commercial to aircraft quality gearing.

Spur, helical, splined shafts, internal & external, shaved & ground gears. Spiral bevel grinding.

Midwest Transmissions & Reducers.

ISO compliant.



**MIDWEST GEAR
& TOOL, INC.**

15700 Common Rd.

Roseville, MI 48066 midwestgear@sbcglobal.net

CONTACT:
CRAIG D. ROSS
(586) 779-1300
FAX (586) 779-6790



PAULO

Visit us at Gear Expo 2005, Booth #504

**PAULO Provides Innovative
Engineered Solutions in
Heat Treating, Brazing
and Metal Finishing**

ISO/TS 16949:2002

ISO9001:2000

QS-9000

Ford HTX

Nadcap

AS9100

Ph: (314) 647-7500

Fax: (314) 647-7518

www.paulo.com

sales@paulo.com

Cleveland **Kansas City**
Murfreesboro **St. Louis** **Nashville**

EVENTS

Portable CNC gear pitch tester ES 4100



The new portable pitch measuring instrument ES 4100 offers an extremely exact method of measurement.

A high degree of operational convenience is possible by the built in processing of the measured data and the tilt and Swivel display touch-screen. ISO, DIN or AGMA standards evaluation software. The measurements can be stored and printed out on an external PC.

Existing pitch measuring instrument ES401 from the former MAAG company can also be updated on request.

Representative USA:
GEAR METROLOGY, Inc.
Tel: 585-586-5746
gearmet@frontiernet.net

Donner + Pfister AG
Switzerland Tel: +41 554402032
www.dpag.ch info@dpag.ch

Corrections

In the May/June issue, on page 19, two equations and a number of in-text variables didn't appear as they should have in the leftmost column. Equation 1 should have appeared as it does below. Also, the arrows somewhat above Equation 2 should have been just above its x and x' variables. Likewise, the arrows elsewhere in the column's text should have appeared just above their nearby x , x' and x_0 variables.

$$\sum_i^{\rightarrow} (|x_i - x_0| - d_i)^2 \rightarrow \text{Min} \quad (1)$$

In the May/June Industry News section, *Gear Technology* reported that Star SU consolidated sales with Bourn & Koch and Winco. In the case of the Winco consolidation, the sales of each company's tool product line will be affected, not their gear tool product lines.

We apologize for these inconveniences.

—The Editors

September 6–9—9th International Conference on Shot Peening.

UMLV, Copernic Building, Paris, France. Focuses on shot peening, deep rolling, laser peening, ultrasonic peening, combined and cold work processes. 750€. Fees are reduced to 700€ for members of universities. For more information, contact IIIT International by e-mail at nikulari@iit.com or on the Internet at www.icsp9.iit.com.

September 13–14—Advances in P/M Gear Technology Seminar.

Crowne Plaza at Detroit Metro Airport, Romulus, MI. Presents a future outlook for P/M gearing as well as the automotive industry's changing requirements. Also covers P/M heat treating, gear design, material selection, tooling, manufacturing inspection and applications. For registration before Aug. 12, \$825 for MPIF members, \$925 for members of APMI and \$1,025 for non-members of either organization. For registration after Aug. 13, \$925 for MPIF members, \$1,025 for APMI members and \$1,150 for non-members of either. For more information, contact MPIF by telephone at (609) 987-8523 or on the Internet at www.mpif.org.

September 13–15—Basic Gear Noise Short Course.

Department of Mechanical Engineering, Ohio State University, Columbus, OH. Aimed at gear designers and noise specialists who encounter noise and transmission problems. \$1,390. For more information, contact the Gear Lab by telephone at (614) 292-5860 or on the Internet at www.gearlab.org.

September 14–16—International Conference on Gears.

Technical University of Munich, Garching, Germany. Keynote addresses and presentations for manufacturers, developers, engineers, designers, researchers, users and suppliers of all types of gears, gear components and gear materials from throughout the world. The official language of the conference is English, although some presentations will be in German. Conference fee is 980€ and is reduced to 882€ for VDI members or members of sponsoring organizations. For more information, contact the conference headquarters on the Internet at www.vdi-wissens-forum.de.

September 19–20—14th Annual Gear Failure Analysis Seminar.

Big Sky Resort, Big Sky, MT. Sponsored by AGMA, this seminar explores various types of gear failure, such as macropitting, micropitting, scuffing, tooth wear and breakage. Handouts include a 272-page manual, which has copies of seminar presentations, reference technical papers and an atlas of 36 photographs showing and explaining all failure modes. \$625 for AGMA members, \$845 for non-members. Class size is limited to 30 participants. For more information, contact AGMA by telephone at (703) 684-0211 or by e-mail at tech@agma.org.

EVENTS

September 27-29—Wisconsin Manufacturing & Tool Expo.

Wisconsin Expo Center at Wisconsin State Fair Park, Milwaukee, WI. Seminars concentrate on metalworking technology for both large and small job shops as well as business management practices. New product areas include plastics manufacturing and production. \$10 for all three days. For more information, contact Expo Productions by telephone at (800) 367-5520 or on the Internet at www.expoproductions.com.

October 10-13—Gear School 2005.

Gleason facility, Rockford, IL. A blend of shop time, classroom study and lectures covering fundamentals, high speed steels and coatings, gear cutting and inspection. \$895. For more information, contact Gleason Cutting Tools at (815) 877-8900 or on the Internet at www.gleason.com.

October 18-20—Expo Metalmechanica 2005.

Expo Guadalajara Center, Guadalajara, Mexico. Part of International Manufacturing Week of Mexico. Product categories consist of machinery and supplies; robotics and automation; metal joining and assembly; material handling and storage; quality control, calibration and testing; software and systems; surface finishing tools and supplies; engineering and maintenance; and plant safety and environmental protection. Registration is free through the pre-registration period, which ends Oct. 11. For more information, contact Roc Exhibitions by telephone at (630) 271-8210 or by e-mail at info@roceexhibitions.com.

October 18-20—Mid-Atlantic Machine Tool Show.

Fort Washington Expo Center, Fort Washington, PA. Attendees evaluate machining centers, metalworking equipment, robotics, metal cutting tools, quality control and inspection, among other technologies. Attendance is free. For more information, contact the American Machine Tool Distributors' Association by telephone at (800) 878-2683 or on the Internet at www.amtda.org.

TRUE DIMENSION GEAR INSPECTION™



- 0-12" OD CAPACITY
- 0-9" ID CAPACITY
- SHAFT CAPABLE
- SHOP HARDENED
- LOWEST COST IN THE INDUSTRY

Unite-A-Matic™
P.D. GEAR INSPECTION

Visit us at Gear Expo 2005,
Booth #648

Call to use gage for your next machine run off
90 Days at NO CHARGE

UNITED TOOL SUPPLY
851 OHIO PIKE • CINCINNATI, OH 45245
TOLL FREE: (800) 755-0516
FAX: (513) 752-5599 • EMAIL: unitedtool1@aol.com

Get your Fellows machines back in shape

Your single source for Fellows
10-2, 10-4, 20-4 and 20-5 Gear
Shaper Rebuild/Retrofit programs:

- 5-Axis CNC retrofit fully integrates an Electronic Helical Guide capability
- 4-Axis CNC retrofit helps reduce costly machine setup times
- Both programs deliver machine in "like new" condition with 12-month warranty
- Manufacture of highly accurate mechanical helical shaping guides for Fellows machines also available!

Gleason

1000 University Ave., P.O. Box 22970
Rochester, NY 14692-2970 U.S.A.

Phone: 585/473-1000 Fax: 585/461-4348
Web site: www.gleason.com E-mail: sales@gleason.com

www.gleason.com