

Product Preview 2011

Matthew Jaster, Associate Editor

There will be plenty of time to talk shop, learn about the latest educational and research endeavors and network with peers. But the real reason the gear industry comes together every two years is to see all the new products and technology offerings. Gear Expo 2011, taking place November 1–3 at the Duke Energy Convention Center in Cincinnati, has its fair share of manufacturing ingenuity. Here's a peek at some “can't miss” opportunities you need to check out while roaming the exhibit floor:



Exterior tooththing with gear wheel stylus kit.

Carl Zeiss Booth # 909

With DuraMax, Carl Zeiss offers a compact 3-D coordinate measuring machine. DuraMax Gear marks the evolution of DuraMax into a shop floor gear wheel measuring machine. “This enables us to fulfill the requests of many customers and introduce gear wheel measuring technology with small machines that can be used as close to production as possible,” says Alexander Dollansky, product manager at Carl Zeiss Industrial Metrology. The key features of DuraMax Gear are its suitability for a rough production environment, the high permissible temperature fluctuations, the proven and pioneering *Zeiss* measuring software, its small footprint and the attractive price. DuraMax—as a gear wheel measuring machine—is suited for process control on the production floor, for quick in-between

inspections of small workpieces and for testing volume parts directly in production. Because of its accuracy, DuraMax is also suitable for many requirements in gear wheel measuring technology. DuraMax Gear comes with the required software and hardware, including stylus material for a broad range of applications. If the product being tested changes, standard inspection procedures often require new, expensive modifications. DuraMax Gear, however, is a CNC all-rounder that, when combined with CAD-based *Calypso* and *Gear Pro* involute measuring software, quickly, easily and reproducibly measures all changes. DuraMax Gear is available as a tabletop machine or with an optional base. Its design enables part loading from four sides.

For more information:

Carl Zeiss Industrial Metrology
6250 Sycamore Lane North
Maple Grove, MN 55369
Phone: (800) 327-9735
www.zeiss.com

EMAG LLC Booth # 327

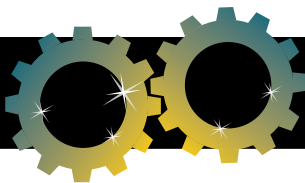
The EMAG Group products cover a wide spectrum of machining processes in the metalworking industry. Whether chucked, shaft-type or cubic components, the companies under the

EMAG umbrella offer solutions for many customer requirements. With its variety of technology centers EMAG has become an important partner in the realization of complete process streams for the manufacture of transmission, engine and chassis components. The company's focus is on complete machining processes that allow the customer to machine everything in one set-up.



EMAG's VT 2 is suitable for the machining of small chucked components and shafts.

“EMAG will be presenting a new machining platform called the VT. We are hoping to get the word out about this incredible new line and allow the attendees of Gear Expo to see how EMAG is continuing to produce state-of-the-art...
continued



GEAREXPO
The Worldwide Gear Industry Event
2011

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of-the-art manufacturing systems for precision metal components,” says Peter Loetzner, CEO of EMAG LLC.

With its VT 2, EMAG is introducing a vertical turning machine specially developed for the machining of small chucked components and shafts. The machine is offered in two

versions: equipped with pendular technology, for the high-output machining of chucked components of maximum 100 mm diameter; or featuring a tailstock, for the machining of shaft-type components with a maximum length of 400 mm.

For more information:

EMAG LLC
38800 Grand River Avenue
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www.emag.com



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Emuge Booth # 510

At Gear Expo, Emuge Corp., a manufacturer of precision workholding devices for many industries, will showcase their comprehensive line of clamping solutions. Emuge's workholding division specializes in providing solutions for applications from low volume job shops to high volume automotive production environments.

The precision workholding lineup on display will include Emuge's System SG used in many machining operations such as hobbing, shaping and shaving for gear production, as well as milling and inspection. The System SG's large surface area in contact with the workpiece provides a clamping solution which is very rigid, accurate and repeatable. The high precision System SP is used not only to clamp workpieces but also to clamp tools. By applying an axial force, the



This device is used for grinding the teeth of a gear (courtesy of Emuge).

clamping sleeves move in the direction of the force and expand radially. This eliminates the clearance between clamping sleeve and body, and between clamping sleeve and workpiece. System SP achieves concentricity of < 0.002 mm (corresponding to < 0.0001 inch).

"Our workholding group stays close to our customers to learn about their unique challenges and production environments. Doing so helps us develop the best solutions for their applications," says David Jones, precision workholding manager at Emuge Corp.

For more information:

Emuge
1800 Century Drive
West Boylston, MA 01583
Phone: (800) 323-3013
www.emuge.com

Gleason Corporation Booth # 815

Gleason Corporation products and services include machinery for the production, finishing and testing of gears as well as a worldwide support system which provides cutting tools, workholding, replacement parts, field service, application development services, gear design and inspection software, training programs, engineering support and machine rebuild and upgrade services.

"Gleason will be presenting our full array of solutions, including new products like the Genesis 260H Hobber and the 475GMM Analytical Gear Inspection Machine," says John M. Terranova, vice president, sales. "We will also exhibit cutting tools, workholding and Gleason Global

Services in the booth."

The 475GMM Gear Measuring Machines offer all the advantages of Gleason Metrology Systems technology in gear measurement, including four-axis, generative motion, state-of-the-art 3-D scanning probe systems, linear drive motors and

Gleason Metrology Systems *GAMA* (Gleason Automated Measurement & Analysis) software.

The Genesis 260H Vertical Hobbing Machine, on display for the first time, is a new addition to the highly popular Genesis Series of gear hobbing machines. Its compact
continued

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See us at Gear Expo
Booth #526

November 1-3

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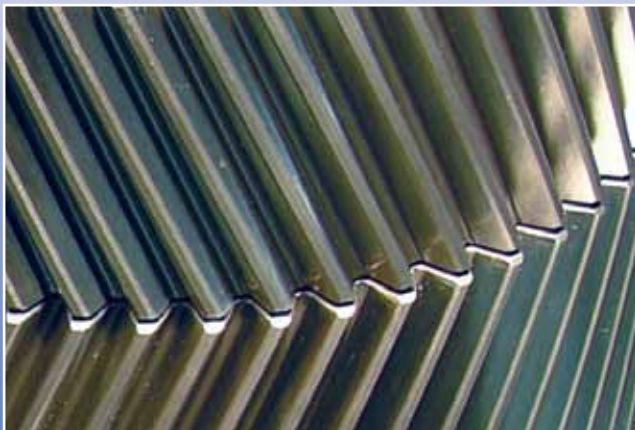
Koepper America LLC
Tel: 847-931-4121
sales@koepperamerica.com
www.koepperamerica.com

footprint and slim profile, optimized workholding and tool change, and universal automation make it suitable for the widest range of user requirements, whether small batch or automated high volume production.

Additionally, the 260H is available with two different direct-drive

workspindles, three different high-performance hob heads, multiple tool interfaces and integrated chamfering, making it the most versatile solution today for the production of spur and helical gears and shafts up to 260 mm in diameter. A larger Genesis 400H model also is available for workpieces

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www.sw-gearmachines.de



The Gleason 350GMS provides accuracy and flexibility to gear inspection.
(courtesy of Gleason).

up to 400 mm in diameter. Both models are designed as well to help customers meet the need for greater sustainability, with a host of features that greatly reduce energy consumption.

Also on display at the show will be one of a new family of GMS Series inspection systems (with models available for gears up to 3,000 mm in diameter). The 350GMS Analytical Gear Tester features a Renishaw 3-D probe head to provide maximum accuracy and flexibility for the complete inspection of all kinds of gears and gear-cutting tools. All Gleason analytical gear testers are equipped with the new Windows VB.NET-based Gleason GAMA 2.0 software for simple input screens for programming of workpiece and cutting tool data.

For more information:

Gleason Corporation
1000 University Avenue
Rochester, NY 14692
Phone: (585) 473-1000
sales@gleason.com
www.gleason.com



The Ingersoll 2-Start Hob can be designed for rough, pre-grind and finish applications.

Ingersoll Cutting Tools Booth # 215

“We will be displaying new product offerings for shaping, finish gashing and hobbing, including our new 2-Start hob and indexable shaper in sizes starting at 6 DP,” says Frank Berardi, product manager gear machining. The 2-Start indexable carbide insert Hob nearly doubles productivity for machining gears with large numbers of teeth when compared to single-start ICI hobs. The Ingersoll 2-Start hob features inserts with four cutting edges and simple set-up with no shims or adjustment required. The unique segmented design provides an expandable assembly, and simplifies repair. Ingersoll’s 2-Start Hob can be designed for rough, pre-grind, and finish applications depending on the gear quality requirement.

Solutions offered include ID and OD roughing gashers for modules six and up, ID and OD finishing gashers for modules six and up, roughing and finishing gashers with through-tool coolant channels, carbide insert hobs for modules 6 and up, including multi-start hobs and shapers in modules 6–12.

For more information:

Ingersoll Cutting Tools
845 S. Lyford Road
Rockford, IL 661108-2749
Phone: (815) 387-6600
info@ingersoll-imc.com
www.ingersoll-imc.com

Kapp Technologies Booth # 723

The Kapp Group will display their Niles ZE 800 Gear Center at Gear Expo. Grinding demonstrations will also be shown via live video links from

different locations including, Indiana Tool and Machine Company’s facility in Plymouth, Indiana, where their Niles ZPI/E 25 machine will demonstrate grinding of very large gears. The Niles ZE 800 Gear Center is a compact, ergonomic machine designed

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for precise grinding of external and internal gears with a tip diameter of up to 800 mm. Dressable ceramic tools as well as non-dressable CBN tools can be used. The ZE machine is engineered for high quality with maximum grinding torque. It comes fully equipped with a tailstock, CNC dressing device,

and on-board measuring. High-speed measuring for full-contact grinding, and high-feed-rate grinding are available on all ZE Series machines, and nearly 400 ZE machines have been delivered to date.

Kapp and Niles application and tool design engineers will be present on-site



Niles ZE 800 Gear Center.

to answer questions about specific applications. Machine modules will aid in understanding the basic processes and a display of CBN and diamond-plated tools will be showcased as well. The company invites attendees to see a presentation, "Considerations for Optimum Methods of Gear Finishing," on Tuesday, November 1, at 2:30 pm in the Solutions Center, and to stop by the Kapp booth to meet with their specialists in gear grinding solutions.

For more information:

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

KISSsoft USA, LLC.
Booth # 408

KISSsoft is a software provider for gear design to AGMA, ISO and DIN Standards as well as intuitive custom inputs. They offer shaft and bearing analysis to the latest DIN and ISO Standards utilizing FEA core components as well as an entire

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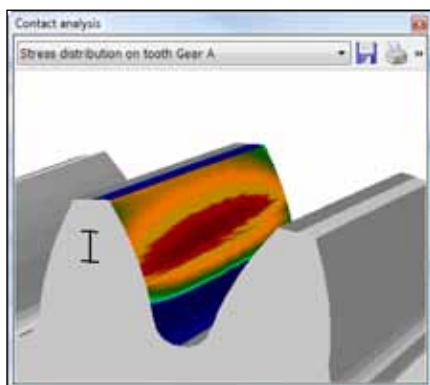
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range of machine components. Design parameters include spur, helical, planetary, worm, crossed axis helical, bevel, spiral bevel, face gears, gear pumps, master gears with complete contact, stress and life analysis.

"We will be highlighting the latest software release 03/2011 at Gear Expo 2011," says Dan Kondritz, general manager. "Included will be the enhancements to contact analysis and micropitting solutions."



In the contact analysis of *KISSsoft*, the effects of shaft deformations may now be precisely evaluated (module ZA30). The results of shaft calculations can also be directly imported to the contact analysis. Bending and torsion of shafts are furthermore calculated load-dependent and considered in the tooth contact. In the *KISSsys* calculation, the shaft classification is done automatically. Additionally, the face load factor $KH\beta$ is calculated according to ISO 6336-1, Annex E. Another new feature is to combine the profile and lead correction factor within defined areas. Thus all variants are automatically analyzed in respect of the load distribution, transmission error, safety against micropitting, wear and flash temperature, and the stress curve (module ZA33).

For more information:

KISSsoft USA, LLC
3719 North Spring Grove Road
Johnsburg, Illinois 60051
Phone: (815) 363-8823
www.kisssoft.ch

Reishauer Booth # 239

"We plan to exhibit the RZ 260 Two-spindle Gear Grinding machine that can be used for high production runs utilizing the continuous generation

style of grinding or for small lot sizes or parts with features that don't allow the use of a large diameter wheel using the single index or form grinding technique," says Dennis Richmond, vice president. "Also on display will be the small spindle which allows the

continued

Reishauer is growing, we're looking for the talent to grow with us!

Reishauer is a world leader of highly productive gear manufacturing machine tools and factory automation solutions with their US headquarters located in the Chicago suburbs.

We are in search of qualified individuals to fill the following positions:

Service Technicians

Seeking individuals capable of installing and diagnosing/repairing electrical/electronic, hydraulic and mechanical systems of sophisticated machines tools and material handling equipment. Travel throughout the US, Canada and Mexico required. German speaking a plus, salary and benefits commensurate with experience.

Application Engineer

Seeking individual with theoretical and practical knowledge of gear manufacturing to interface with customers to establish machining parameters, provide production estimates, tool life studies, determine best suitable clamping means, work with suppliers to establish optimum machine configuration and generate technical proposals. Hobbing experience an advantage. German speaking a plus, salary and benefits commensurate with experience.

Project Manager

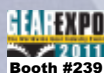
Seeking individual to manage project resource allocation and project staff, provide direction and support to project team, track deliverables, monitor and report on progress of projects. In addition this individual must also manage and implement changes and interventions to achieve project output goals. Automotive project experience an advantage. German speaking a plus, salary and benefits commensurate with experience.

Please send resume to:

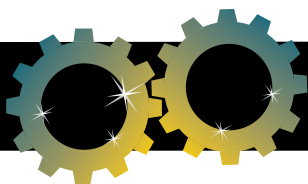
Human Resources at **Reishauer Corporation**

1525 Holmes Road, Elgin, Illinois, 60123 or
email to usa@reishauer.com.

Inquires call **Dennis Richmond** at
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machine to use wheels as small as 60 mm. Our booth wouldn't be complete without an array of diamond and CBN tools that Reishauer has become well known for when it comes to accuracy, quality and usable life.

The RZ 260 is available in four versions. In the basic version, the RZ

260 is equipped with one work spindle. For loading, this is automatically moved into a well-accessible loading position. For very high productivity demands, the machine can be equipped with two work spindles. In this configuration, the ground gear can be exchanged while another gear is ground



Reishauer's RZ 260.

on the second spindle. The machine is equipped with a fixed dressing unit if only a small variety of gears is ground. Different gear geometries can be ground using workpiece specific dressing tools. Maximum flexibility can be reached by using a pivoting dressing unit. With this version, the dressing tools can be used for a larger range of gears.



"Visitors to booth 239 will also learn about our newest alliance with Felsomat, a company specializing in gear manufacturing cells (machines and automation) that eliminate idle time, dramatically reduce floor space and offer exceptional productivity for high volume applications," Richmond adds.

For more information:


Reishauer Corporation
1525 Holmes Road
Elgin, IL 60123
Phone: (847) 888-3828
www.reishauer-us.com

Sandvik Coromant Booth # 827

Sandvik Coromant will showcase a number of its new gear tooling solutions and offers, ranging from roughing, semi-finishing and finishing disc cutters, conventional indexable


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Contact.leitz@hexagonmetrology.com
www.leitz-metrology.com

insert hobs and unique indexable insert hobs at Gear Expo 2011. Among the highlighted products is the CoroMill 170 high performance gear milling cutter used for precision and reliability in roughing external and internal gears. The disc cutter allows manufacturers to cut time in gear machining, leaving minimal and even allowance for subsequent operations. The high-precision cutter body and insert tip seats allow for secure insert mounting, resulting in improved productivity and longer tool life. The CoroMill 176, a new full-profile hob for gear milling, will be on hand at the booth to demonstrate how the indexable carbide insert hob can reduce cutting time and double tool life compared to traditional high speed steel cutters. For roughing, semi-finishing and finishing, the innovative hob tool solution covers a range of gear profiles. The iLock interface technology between the body and insert ensures tool precision and prevents any inserts from movement.

In addition, Sandvik Coromant also offers the conventional hob designed for high metal removal rates with maintained reliability. Redesigned with indexable carbide inserts, the tool offers superior productivity and reduced cycle times compared to HSS cutters. In collaboration with Heller Machine Tool, Sandvik Coromant offers flexible, productive and cost efficient solutions for a wide range of bevel gear sizes. Sandvik Coromant has also collaborated with machine tool

builders to supply a flexible solution for spur and helical gear manufacturing.

"Although we are still fairly new to the gear industry, we hope to provide attendees with the cutting-edge knowledge and the state-of-the-art technology to optimize overall gear

manufacturing," says Ken Accavallo, gear industry and milling specialist at Sandvik Coromant US. "Working in close cooperation with the customer, we not only have an entire tooling offer, but we can provide the technical support required in turn-key gear operations."


continued



Sandvik will showcase a number of its gear tooling solutions.

Leistritz

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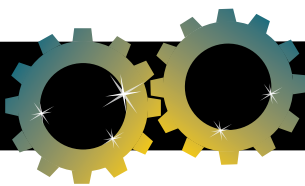
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Phone: (800) SANDVIK
www.sandvik.coromant.com/us

Star Su/Bourn &
Koch/MAG
Booth # 1329

Star SU offers a wide variety of gear cutting machinery, tools and services including: hobbing, gear grinding, chamfering and deburring, shaping and shaving machines; tool grinding machines; hobs, milling cutters, shaper cutters and shaving tools; chamfer and deburring tools; gundrills and reamers; form tools and PCD tools; carbide performs; remanufactured machinery, retrofits and recontrols; and tool life cycle management services. Star SU is the cooperative partnership of Star Cut Sales, Inc. of Farmington Hills, Michigan, SU America, Inc., the U.S. sales and manufacturing unit to Samputensili, S.p.A., and Bourn & Koch Inc. of Rockford, Illinois. Star SU also represents Galdabini, Federal Broach and Sicmat in the United States, Canada and Mexico, selling straightening systems, broaching equipment and tools, and gear shaving equipment; and MAG, selling hobbing and chamfering/deburring machines.

"For Gear Expo, we will be featuring new machine technology and combined machining applications such as turning, drilling, milling and gear cutting as well as enhanced gear tool coating technology for improved quality and tool life," says David Goodfellow, president.

In addition, Balinite Alcrona Pro, the second generation of AlCr-based coatings, is now available on new and re-sharpened tools from Star SU. Developed by Oerlikon Balzers, Alcrona Pro can be used in a wider range of applications than other aluminum-based coatings because it provides better heat resistance for high temperatures and better wear resistance for tough cutting applications. Lower thermal conductivity allows Alcrona Pro-coated tools to work well in low temperature applications and allows faster hobbing speeds—200 m/min is the new base speed.

Bourn & Koch. The Bourn & Koch 400 H CNC horizontal hobbing



is a World Class manufacturer of high precision machine tools and automation systems used in high volume precision gear manufacturing.

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- ▶▶ Vertical twin spindle hard turning machines
- ▶▶ Modular automation systems for loading machine tools

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We seek engineers who are experienced in designing in AutoCad, and in windows based 3D/solids. Responsibilities will include application or modification of standard Felsomat automation modules, tooling, fixtures, integrated automation systems, and maintaining project timelines and budgets. Position will be based in Schaumburg, Illinois.

Service Technicians – Electro-Mechanical:

The candidates we seek will have experience in installing, setting up, and tooling high precision machine tools, performing acceptance tests, and machine operator training. Also important is the ability and experience to quickly and accurately diagnose electro-mechanical, pneumatic, or hydraulic faults through a logical process of elimination. Position will be based in Schaumburg Illinois, and travel throughout North America, or to Germany may be required.

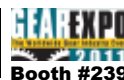
Software Engineers:

We seek software engineers who are experienced in programming Siemens 840D CNC control Systems, Siemens Step 7 PLC, and Siemens HMI programs. Our software engineers must also be capable of diagnosing and correcting software faults. Industrial controls design experience is a plus. Position will be based in Schaumburg Illinois, and travel throughout North America, or to Germany may be required.

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- ☐ Experience in the Automotive Power Train and Drive Train industries.
- ☐ German language skills.

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Booth #239



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Human Resources at Felsomat USA, Inc., 1700 N. Penny Lane, Schaumburg, IL, 60173
or e-mail to hr@felsomat.com



Bourn & Koch 400 H CNC.

machine is a 7-axis CNC machine that can hob spur gears, helical gears, splines and threads on cylindrical blanks or shafts. Its powerful, direct-drive work spindle and extremely stable, steel-polymer composite components make it suitable for manufacturing large and heavy shaft parts up to 406 mm in diameter and 6.4 module. Shaft lengths up to 76" can be processed by the extended bed version on display at AGMA's Gear Expo. The standard model comes equipped with a NUM, Siemens or Fanuc CNC control; CNC operated tail center with variable load control; and it can hob wet or dry. Machine length extensions are also available.

MAG-IAS. MAG will be introducing integrated gear cutting capability on its VTC 2500H (vertical turning center) for workpieces up to 2,700 mm diameter. The new multi-axis machine combines gear hobbing and milling capabilities with the VTC's wide range of turning, milling, drilling, perform standard and hard turning, as well as live-spindle machining, contouring and threading and contouring capabilities. It can turn blanks and subsequently cut gear teeth, all in one setup.

Gear production capabilities include hobbing, form milling (of external and internal gears), turn-milling of gear teeth with carbide end mills, and chamfering/deburring. This system is ideal for the part making requirements of the wind and power generation industries, mining equipment, marine

and other heavy machinery.

In addition to gear cutting, MAG's VTCs can do part probing operations on multiple sides and the full diameter of a part. Customer-driven features include use of standard modular tooling, such as KM 80 and Coromant Capto solutions, as well as

automatic tool changers; green design with minimal hydraulics; minimal or flat-floor foundation requirements for many models; and innovative chip management and removal that minimizes operator intervention. A full machine enclosure meets CE


continued

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Facts: Large range of spindle speeds,
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Primary Duties and Responsibilities:

- Help design and develop new products, and re-design existing products to enhance performance.
- Design parallel axis gears, planetary gear sets, bevel gears, and spline & polygon connections.
- Analyze and rate multiple gear and planetary systems.
- Work with gear suppliers to develop prototype and production requirements.
- Review and approve gear production drawings.
- Select for use and evaluate ball & roller bearing L10 life and appropriate fitting practice.
- Design and evaluate shafts for adequate stiffness, torque capacity, and fatigue strength.
- Evaluate lubrication effectiveness, including lubrication life factors and scoring probabilities for gears & bearings.
- Analyze root-cause of gear, bearing and shaft failures, and develop appropriate solutions.
- Participate in customer & supplier meetings.

Required Skills:

- Four year degree in Mechanical Engineering (BSME), Mechanical Engineering Technology (BSMET) minimum.
- 3-5 years minimum experience with design in parallel axis and straight / spiral bevel gearing.
- Experience with design programs such as KissSoft, MASTA, or Romax.
- Understanding of AGMA design and quality standards.

Required Education:

- Four year degree in Mechanical Engineering (BSME), Mechanical Engineering Technology (BSMET) minimum.



Please send resumes to dmalacho@joy.com

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MAG will demonstrate gear cutting on its VTC 2500H.

specifications and ensures a dry floor environment.

MAG offers horizontal turning centers, inverted-spindle VTCs and vertical twin-table turning centers equipped for integrated gear processing, along with a full range of gear cutting tools, including solid hobs and milling cutters, heavy-duty hobs, inserted-blade hobs and milling cutters, as well as carbide end mills. In addition, MAG produces a line of dedicated gear production machines and related technology at its facility in Chemnitz, Germany. Star SU LLC provides sales and service for all MAG gear manufacturing machines and tooling.

For more information:

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