

Don't Miss These Booths!

We've contacted many of the gear industry's leading suppliers to find out what they'll be showing at Gear Expo 99.

Booth numbers are current as of July 31, 1999, but they are subject to change.

A current list of exhibitors and booth information is available at the AGMA Web site at www.agma.org.

Acme Gear Company, Inc.—Booth #420. ACME Gear Company has over 70 years of specialized manufacturing experience in the prototyping and mass production of high quality precision ground or cut gears. They manufacture machine products as original equipment for machinery manufacturers, transit authorities, aerospace, defense and other related high-tech industries. They manufacture ground helical and spur gears up to 32.67" OD, 32–2.5 DP. Gears are manufactured up to AGMA class 13 for production and AGMA class 15 for prototypes. Acme also manufactures worms and worm gears, internal gears, involute and square splines, sprockets, ratchets and timing belt pulleys.

Amarillo Gear Company—Booth #514. Amarillo Gear Co. will exhibit a variety of spiral bevel gears, partially demonstrating the range of products available from their facility. Their catalogs of standard spiral bevel gears, right angle pump drives, and right angle cooling tower fan drives will also be available in the booth.

American Gear Manufacturers Association—Booth #602. The American Gear Manufacturers Association (AGMA), the sponsor of Gear Expo 99, is a trade association representing more than 400 manufacturers of gears and related gearing and coupling products, as well as suppliers and consultants to the industry. As secretariat of ISO technical committee 60, AGMA is the primary organization responsible for the development of gearing standards.

American Metal Treating Co.—Booth #622. American Metal Treating provides contour induction hardening services for the largest parts the gear industry is producing. American Metal specializes in just one method—precision induction hardening. For parts such as gears, shafts and sprockets, precision induction hardening is an ideal method for protecting those areas exposed to excessive wear. Induction-hardened parts retain their original characteristics because there is less distortion when compared with parts hardened by other heat treating methods. The parts treated with this method also perform better and last longer.

American Wera, Inc.—Booth #734. The WERA Deburr Machine KEM 500 CNC was developed in order to provide pre-

cise and defined workpiece edge deburring for bevel and special gears and other complex shapes. The WERA KEM 500 reduces the manual work required for deburring (especially bevel gears), is capable of machining a large number of different workpieces with simple tooling and has short change over times with high productivity.

Applied Process Inc.—Booth #1109. Applied Process is a world leader in the austempering process, a heat treatment that makes iron and steel parts tougher, stronger, quieter, lighter and more wear resistant than conventional heat treatments. Austempered irons and steels offer gear and shaft manufacturers the benefits of near-net shape and reduced machining cost. Also see how austempered ductile iron (ADI) is quietly outperforming steel. Applied Process has operations in Livonia, MI; Oshkosh, WI; Elizabethtown, KY; and licensees in England and Australia. Customers include General Motors, John Deere, Caterpillar, Dana, Meritor, Purolator, Eaton, Citation, Internet, Thyssen/Budd, Freightliner, Ford Vermeer, Masco, Oshkosh Truck, Navistar, hundreds of other OEMs and first- and second-tier suppliers in 38 states and 5 Canadian provinces.

Arrow Gear Company—Booth #535. Arrow Gear Company is a privately held company that has been in business for 52 years. The company was started by James J. Cervinka and the late Frank E. Pielsticker in 1947. The company has since grown to 265 employees with approximately \$35 million in sales. The main plant in Downers Grove, IL, has 124,000 square feet; Plant #2 has 24,000 square feet and Plant #3 in Lincoln, NE, has 56,000 square feet. Arrow Gear manufactures loose gears and enclosed gearboxes. Arrow Gear services the aerospace and high-precision commercial gear markets. The large aerospace sector of the business services such customers as Allied Signal, Allison Engine Company, Boeing Aircraft, Boeing Helicopter, Curtiss-Wright, Dowty Aerospace, FiatAvio, Inc., GEC Marconi, General Electric, Pratt & Whitney, Robinson Helicopter, Rocketdyne, Rolls-Royce, Schweitzer Helicopter and Williams International. The majority of Arrow Gear's work is in loose gearing. However, they also supply complete gearboxes. Johnson Gear Division of Arrow Gear, located in Lincoln, NE, has been in the complete enclosed gearbox business since 1905, serving the commercial gear industry worldwide, producing over one-half million gear

drives for irrigation, cooling towers, printing presses, and centrifuge gearboxes for the medical industry. Arrow Gear has its own in-house heat treat capability and, to our knowledge, is still the first and only company in the world, according to The Gleason Works and Zeiss Hofler, to have under-roof a completely integrated, closed-loop system for the design, manufacture, electronic transfer and inspection of bevel gears.

Arte Corporation—Booth #723. With the motto of "a proud past, a productive relationship and a promising future," Arte Corporation has been in the manufacturing business since 1982. Arte is committed to providing its customers with defect-free products, as well as to continuously improving every process in the operation, according to specifications, at competitive prices. Arte is a member of AGMA and specializes in the plastic injection molding of precision gears up to 40 grams.

ATA Gears U.S.A. Inc.—Booth #517. ATA specializes in the production of spiral bevel gears and the manufacture of custom-designed gear units and water turbines. Based in Finland, the company has been producing gears for more than half of a century. Today more than 80% of ATA's output is exported, and gears are supplied to customers all over the world.

A/W Systems Co.—Booth #424. A/W Systems Company will be displaying an array of spiral gear cutting blades, hardware and bodies 5" to 9" in diameter, including Ridg-Ac®, Tri-Ac®, Helix® and Hard-Ac®; straight bevel gear generating cutters; roughing blades for Ridg-Ac®, Wedg-Ac® and soft bodies 5" to 9" in diameter; finisher blades for Helix® bodies 5" to 9" in diameter; and stick blades for Tri-Ac® bodies. (Ridg-Ac, Tri-Ac, Helix, Hard-Ac and Wedg-Ac are registered trademarks of Gleason Corporation).

B&R Machine & Gear Corp.—Booth #121. B&R Machine & Gear is a family owned and operated gear company founded in 1974. A custom job shop specializing in breakdown services, B&R manufactures gears to customer specifications or samples. They have their own material warehouse, gearbox repair facility and full in-house heat treating.

Balzers Tool Coating—Booth #1207. The focal point of Balzers' booth will be the new Balinit HARDLUBE Coating, which was recently developed to provide wear advantages in the wet, mist and dry machining of gears. The product is a combination of Balzers' TiAlN (a coating designed for excellent oxidation resistance) and Balzers' WC/C (designed to combat adhesive wear and seizure problems). This unique combination provides an extremely hard, thermally stable TiAlN coating with the sliding and lubricating properties of an outer WC/C coating. HARDLUBE coating is on tools such as hobs and shaper cutters used to manufacture gears, while WC/C coating is applied to the gears themselves to ensure continuous smooth operation. In addition to protecting cutting edges from wear, HARDLUBE also assures

reliable chip evacuation. This results in improved reliability in drilling and tapping as well as the potential of dry-machining steel and aluminum alloys.

Barit International Corp.—Booth #529. Barit has been supplying the gear industry with tools since 1989. From either their manufacturing facility or on-the-shelf inventory, they can supply hobs, shaper cutters, broaches and shaving cutters. Visit the booth for more details.

Bourn & Koch Machine Tool Co.—Booth #705. Bourn & Koch will be exhibiting the 100H CNC 4-axis gear hobbing machine. The machine has incremental hob shift, full enclosure and 2500 hob spindle. It was designed to hob AGMA class 10 gears up to 5" in diameter and 30" in length with an optional bed extension.

Chamfermatic Inc.—Booth #1042. Chamfermatic Inc. will be demonstrating their new concept in gear deburring. The model 1600 gear deburring machine uses carbide deburring, brushing or grinding wheels. This new technology will be seen for the first time at Gear Expo 99.

Cincinnati Gear Co.—Booth #715. Cincinnati Gear and BHS-Cincinnati are an international team of manufacturers specializing in high-performance gearboxes and power transmission components for industrial and marine applications. They will showcase couplings, turning gears, bearings and precision components for markets such as load gears and the automotive industry. On display will be an epicyclic gear set, a differential gear and TWINTORS diaphragm couplings.

Colonial Saw Company—Booth #1217. Colonial Saw will have on display the UTMA LC35-CNC NC tool grinder that can sharpen end mills, milling cutters, shaper cutters and hobs. The machine will handle straight or helical gashes, and it can sharpen high speed steel or carbide tools.

Crown Gear B.V.—Booth #1017. The Cylkro® angular face gear transmissions manufactured by the Dutch company Crown Gear B.V. have seen some significant additions and improvements in both technical features and applications since the show two years ago. The free choice of shaft angle, starting at 0°, has been widened from 110° up to 135°. The gear ratio to be realized in one stage is 20:1, for some applications even larger. Especially in the automotive and machine tools areas, several new designs were successfully completed using these new features. Visitors to the booth will be shown all new developments. Crown Gear welcomes visitors to bring drawings or designs to the booth to have a Cylkro layout drawn up.

Dura-Bar—Booth #1110. Dura-Bar is North America's only manufacturer of continuous cast iron bar stock and is the largest producer in the world. Dura-Bar is an engineered metal



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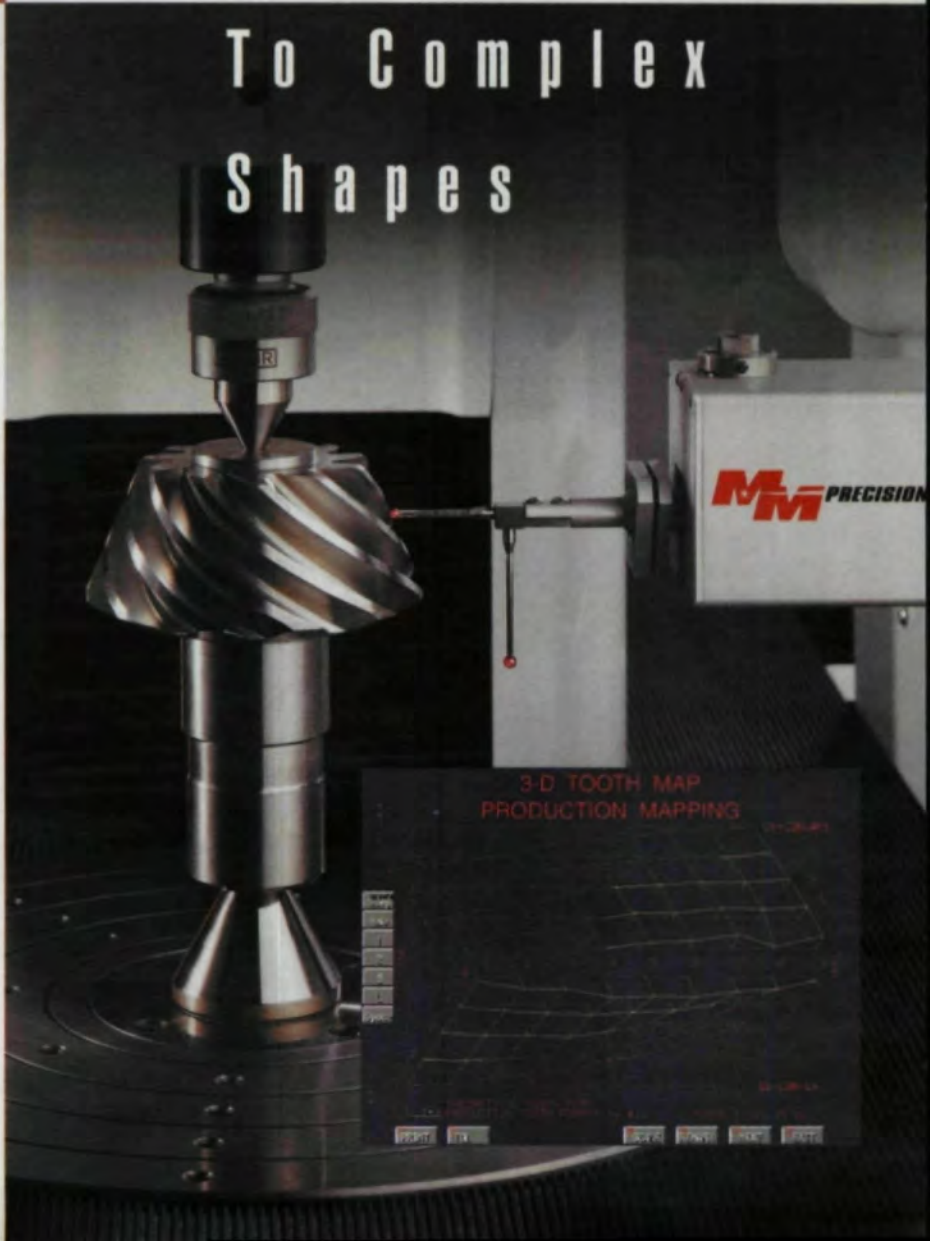
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CIRCLE 165



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CIRCLE 157

32 GEAR TECHNOLOGY

SHOW COVERAGE

with superior noise and vibration damping properties making it 3-10 times quieter than steel and 20-40% more machinable. This results in extended tool life. The continuous casting process produces a uniform, fine-grained microstructure. This eliminates the scrap from shrinkage, porosity, and tool-wear-inclusions that frequently occur in traditional castings. Dura-Bar can be austempered, through-hardened, flame-hardened, or induction hardened for added wear resistance. Dura-Bar is available in ductile, gray or special alloyed irons, in round bars from 5/8" to 20" diameters and lengths from 6' to 20'. It is also available in machined gear blanks. Dura-Bar, a division of Wells Manufacturing Company, has a nationwide network of distributors who maintain extensive inventories.

Emuge Corporation—Booth #1006. Emuge precision workholding/clamping technology products include mandrels, chucks, spindles, drawbars and diaphragm chucks. All are suitable for turning, grinding, hobbing, milling, drilling, lapping, balancing, centering, checking and assembling. They also offer mechanical clamping systems, mechanical-hydraulic clamping systems, hydraulic clamping systems, strain-gauge controlled clamping force and movement control, Emuge milling and threading tools, gear hobs, endmills, milling cutters, taps, tap holders, thread mills and thread gages.

Equotip Associates—Booth #1234. Equotip will be showing the ASTM-approved Equotip portable metal hardness tester, manufactured by Proceq S.A. They will also feature their Impact Device DL, which has an extremely slim and long front section (4 mm x 50 mm) for measuring hardness in hard-to-reach places like between gear teeth or on the teeth themselves.

Euro-Tech Corp./Frenco GmbH—Booth #1116. Euro-Tech will be exhibiting workholding and gaging products. Frenco is a German manufacturer of spline arbors and shop floor inspection gages for splines and gears. Product lines include the simple SPC compatible "Series V" indicating spline gages. The Universal Rotational Measurement (URM) gage simultaneously analyzes up to 8 individual shaft profiles (splines, gears, diameters, etc.) in an 8-second cycle time on the shop floor. Also displayed will be the Frenco dynamic spline gage system, measuring a complete internal or external toothed profile over its entire length. This system is capable of collecting 16,000 measurements per second over the entire length of the spline and feeding data into a PC utilizing Frenco dynamic gaging software, which displays complete profile and SPC charts and data. Euro-Tech will also display their line of hydraulic expansion chucks for quick change hobbing applications (arbor change in seconds), gear grinding arbors, gear hobbing arbors, gear shaving arbors, gear shaping arbors and gear inspection arbors. Typical runouts of these rupture-proof hydraulic expansion tools is less than .0001".

Power Integrated Pop-up™

Lift/Rotate Induction Heat-Treating System

Radyne's Power Integrated Pop-up™ heat-treat center is a self-contained system for hardening and tempering components in a lift/rotate, submerged quench method to meet the specific needs of the heat treater. A user-friendly machine interface panel and PLC control enable quick and easy setup and operation. An integrated, modern, efficient, transistorized inverter power supply can match a wide variety of heating coils with easy-to-change tuning capacitors and a multitap output isolation transformer.

The lift actuator assembly includes a ball bearing linear way mounted under a stainless steel sink through double lip wave seals. A chrome-plated stainless steel spindle is mounted on a tapered roller bearing, enclosed in a steel housing. The lift mechanism allows load/unload, heat and quench positions.

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Fairfield Manufacturing Co.—Booth #526. Fairfield Manufacturing Company, the largest manufacturer of gears and gear products in North America, will be displaying a wide range of gear types including spiral bevel gear sets, spur gears, helical gears, spur gear shafts, ring gears and several custom-designed gear assemblies. This display will be representative of their full range of capabilities including in-house heat treatment.



Fässler AG—Booth #328. Fässler will exhibit their all-new K-400-A gear honing machine with its new revolutionary force-controlled "Direct Honing"® process. Fässler claims this machine is setting new standards for stock removal, form geometry, gear durability and surface finish. Also on exhibit will be the unique HS-100 hard broaching machine used for improving or calibrating hardened internal splines and profiles.

Fellows Corporation—Booth #240. Fellows Corporation manufactures gear shaping machines, cutters, adapters and fixtures. The company offers full process integration and support. Complete Fellows machine remanufacture and retrofit is a specialty. A wide range of gear shaping machines stems from two basic lines: high performance Hydrostroke models, and traditional, crank-type 10-4 and 20-4 shapers. All are available with CNC control and equipment for fully automated production. Stock cutters and special designs are offered with competitive prices and deliveries.

GA-Heartland Machine Tool, L.L.C.—Booth #334. GA Heartland will display two models of high speed, dry hobbing gear cutting machinery: the XEROCUT 50H and 100H. Both models will be operational at the show. Notable features include a patent-pending chip disposal system that prevents the negative effects of heat buildup, minimal floor space, thru-the-spindle manufacturing capabilities, and built-in automation. The 50H

will cut gears 3" in diameter, while the 100H will cut gears 5" in diameter. Both models will meet AGMA class requirements of 8 or greater. Additional information on these and other models will be available at the show.

GCTS, Inc.—Booth #716. GCTS represents the Swiss gear machinery manufacturers Lambert and Wahli AG. GCTS will bring three machines to the show. The Wahli 100 CNC is a new generation of high-speed gear hobbing machines developed for high precision pinion and face gear manufacturing with cutter rotation speeds up to 20,000 rpm. The Lambert 124 CNC is used in worm & thread milling shops around the world. Most of its benefits are in the flexible loading systems for high-volume, three-shift runs. The Lambert 7500 CNC is a flexible, fine pitch gear hobber with 8-axis control and a small footprint.

Gear Motions, Inc.—Booth #522. By combining a diverse group of specialized custom gear shops into one organization, Gear Motions offers its customers a broad range of solutions to their gearing problems. Nixon Gear offers state-of-the-art gear grinding on Reishauer and Gleason grinders as well as a commitment to continuous improvement. Nixon Gear is ISO 9002 registered. Oliver Gear manufactures large diameter, coarse pitch spurs, helicals, bevel gears, and racks. Reishauer gear grinding services now available. OEM and MRO services also available. Rawling Gear provides quick turnaround for short runs of commercial work. OEM and MRO services available.

Gear Technology—Booth #618. Stop by our booth for a chance to win a custom-made, one-of-a-kind gear clock. We'll tell you how *Gear Technology*, along with our Web sites, *The Gear Industry Home Page*™ and *powertransmission.com*,



can help your company sell more of your products to your customers. No one else reaches the makers and buyers of gears like we do. We're the Gear Industry's Information Source.

Gleason Pfauter Hurth—Booth #100. Gleason Pfauter Hurth Worldwide Sales will exhibit a pair of new machines, the Gleason Pfauter GP130S gear shaper and a Gleason Honing Demo Module. A key focus of the exhibit will be a video wall with eight application videos focusing on



wet and dry hobbing, optimizing the process, bevel gear Power Dry cutting and shaving in one-half the time on the new Hurth ZS130 T gear shaving machine.

GMI—Booth #500. GMI will feature carbide and HSS hobs, Maag cutting tools, bevel gear cutting tools, gear testers (flank rolling and over pins), hard turning machines, robotic deburring, robotic induction hardening, hob honing machines, hard gear finishing tools/wheels, diamond dressing gear forms, diamond dressing cylindrical forms, CBN tooth profile grinding wheels and gear deburring machines.

Great Taiwan Gear—Booth #823. Great Taiwan Gear Ltd. will be showing the following products at Gear Expo 99: Gear heads for AC, DC, stepping, and induction motors; fine pitch gears with crown and skive hobbing after heat treatment to reduce noise and compensate for misalignment; gears for aerospace, automotive (transmission gears), machine tools, gear pumps and other power transmission applications; worm and worm gears for Hitachi elevators; gear reducing/increasing boxes; hobs and shaving cutters. They also produce bevel gears, coarse pitch gears, and herringbone gears.

Hermes Abrasives—Booth #608. Hermes Abrasives, Ltd. will be featuring a variety of precision grinding wheels specific to the gear industry. Continuous gear grinding wheels, as well as inner-toothed and outer-toothed honing rings, will be on hand for viewing. Technical product engineers will be on-site to discuss and recommend solutions to your grinding problems.

Höfler Maschinenbau GmbH—Booth #122. Höfler will introduce at Gear Expo in Nashville the completely new Helix 400 gear grinder for gears up to 16 inches in diameter. Höfler claims that the Helix is "most likely faster, more accurate, more flexible and more affordable than any other gear grinder."

Holroyd—Booth #217. Holroyd, part of Renold Precision Technologies, demonstrates its worm and thread milling/grinding capabilities with a display of precision components manufactured on Holroyd machines. Holroyd is also demonstrating its on-machine coordinate measuring systems—which eliminate the need for off-machine inspection—and its capabilities for sub-contract helical screw and worm gear manufacture. The company supplies helical screws from 0.3" to 33" diameter, screws for compressors and pumps, worm gears up to 41" centers, and adjustable backlash worm gears. Worm gear accuracies up to AGMA 14 can be supplied.

ITW Heartland—Booth #900. ITW has been a pioneer in the gear inspection industry since 1936. Today ITW Heartland remains a worldwide leader in functional gear inspection and gear burnishing. ITW Heartland builds a full line of functional gear inspection equipment from simple, hand-roll composite gear testers to high speed, fully automatic inspection machines.



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With Universal Honing it is possible to finish a family of gears having the same tooth characteristics with varying numbers of teeth.

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SHOW COVERAGE

At this year's Gear Expo, they will display the Model 2375 (course pitch) and Model 2306 (fine pitch) in-process gear inspection equipment. These units will demonstrate the latest developments in gear inspection software. In addition, ITW will be demonstrating the effectiveness of their burnishing process for improving the quality of the active tooth profile surface of the gear.

JRM International—Booth #314. JRM International is a customer driven, highly responsive supplier to the gear industry. They represent manufacturers that allow them to provide single-source standard solutions to your manufacturing challenges. Visit booth #314 to see Saacke hobs and hob sharpener machines, Kesel rack milling machines, Burka-Kosmos grinding wheels, and Schrem locking nuts.

Kapp GmbH—Booth #340. Kapp GmbH, along with affiliated companies Niles, Kapp Sales & Service and Kapp Tech, will display machine modules demonstrating external and internal gear and profile hard finishing. Kapp and Niles machines are capable of hard finishing gears and profiles using four technology concepts: form grinding with CBN profile grinding wheels; form grinding with dressable grinding wheels; form generation with dressable or non-dressable wheels; and coroning. Coroning is a unique, efficient, hard gear finishing process using non-dressable CBN coroning rings.

Koepfer America LLC—Booth #320. Since 1867, Jos. Koepfer & Sohne, GmbH, has provided quality machines and cutting tools for the parallel axis gear industry. The complete range of Koepfer cutting tools will be displayed, including hobs of high speed steel, powdered metal and carbide materials. The Koepfer Model MZ120 is a new CNC fine pitch hobbing and milling machine that offers total flexibility with the ability to hob gears as well as mill single or multi-start worms. A universal loading and unloading system will be fitted to the machine. The Koepfer Model 160 CNC hobbing machine offers high speed wet or dry hobbing. The Koepfer Model KFS100 CNC hob sharpening machine with four-axis control is suitable for straight gash hobs of high speed steel or carbide materials.

Liebherr Gear Technology—Booth #812. Liebherr Gear Technology Co. is your North American access point to Sigma Pool's broad range of technically advanced gear manufacturing technologies and processes, including your gear hobbing, generating, shaping, inspection and testing challenges. Liebherr is an ISO 9001 certified manufacturer of CNC gear cutting machines and material handling automation. They are also a Ford Q1 preferred supplier. At the booth you'll also find equipment from Liebherr's Sigma Pool partners, including Klingelnberg CNC Gear Measuring Centers, Lorenz CNC gear shapers and Oerlikon CNC spiral bevel gear manufacturing and testing equipment.

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CIRCLE 108

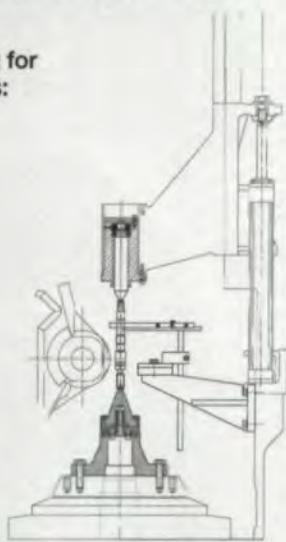
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CIRCLE 198

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SEE US AT GEAR EXPO BOOTH #1234

CIRCLE 195

SHOW COVERAGE

M&M Precision Systems Corp.—Booth #216. M&M Precision Systems will display a complete line of computerized analytical and functional gaging systems, plus the exclusive GearNet™ server that automatically shares data for SPC, remote analysis and archiving. M&M CNC Process Control Systems offers full four-axis flexibility, unsurpassed accuracy and up to 20% faster throughput. A wide selection of gear inspection software includes a bevel gear machine correction package.

Machine Tool Builders, Inc.—Booth #1236. Machine Tool Builders, Inc. will be displaying modular tooling designed to meet the needs of end users. The tooling on display will demonstrate the flexibility of modular tooling design. End users will be able to remove workpiece specific portions of the fixture and quickly adapt different fixturing specific to the individual workpiece with a minimal amount of setup time. MTB can offer tooling design consultation and will custom design fixturing to meet your needs. MTB has over ten years of automation design experience and can help you with your part handling and production requirements. MTB will have sample drawings on display exemplifying their capabilities in the tooling and fixture fields.

Macsteel—Booth #1120. Macsteel is an engineered bar producer headquartered in Jackson, MI, with world-class steel manufacturing plants in Jackson, MI, and Fort Smith, AR. Steel processing plants are located in Huntington, IN, and Pleasant Prairie, WI. Macsteel utilizes electric arc furnaces, ladle furnace refining, vacuum arc degassing, advanced rotary continuous casting, direct twist-free rolling, turning and grinding, and heat treating to produce engineered SBQ carbon and alloy hot rolled and bright cold finished seam-free® steel bar products. Macsteel customizes each batch of steel to specific end applications.

Mahr Corporation—Booth #206. Mahr's involvement in gear testing dates to 1923, when Carl Mahr developed the world's first involute profile instrument featuring variable adjustment of the base circle. Today, Mahr Corporation is an ISO 9001 certified supplier providing hand-held gear measuring tools including base pitch testers, snap gages and tooth span gages, plug gages, ball and anvil type bore gages, thread gages, PC-controlled double flank roll testers, CNC analytical gear and form testers, surface finish test equipment for gear tooth profiles, and their exclusive WinGear control and evaluation PC software. They also provide technical service, replacement parts and instrument calibration services.

Merit Gear Corporation—Booth #501. A full service gear producer, manufacturing custom powertrain components, specializing in spur and helical gears, splined shafts, couplings and sprockets. Capabilities include CNC ground gearing up to AGMA class 12 supported by a complete modern gear lab with state-of-the-art CNC gear inspection. Merit also offers a modern heat treating facility specializing in gear hardening with special attention given to distortion control and dimensional stability.

Milwaukee Gear Company—Booth #1124. Milwaukee Gear is a leading manufacturer of custom, high quality gearing. They offer an array of hobbled, shaved and precision ground gearing with a capability to produce up to AGMA class 14 ground gears in pitch diameters from .25" to 63". Using the latest, most sophisticated metallurgical testing equipment and personnel, Milwaukee Gear consistently achieves customer requirements with tighter control on production.

Mitsubishi Machine Tools USA Inc.—Booth #532. Mitsubishi Machine Tools will display their GN10 and GN20 "Super Dry" dry gear hobbing machines, which eliminate the need for coolant, double productivity and reduce production costs by 40% with a cutting speed twice as fast as standard hobbers. The Super Dry machines also extend tool life five times over wet cutting due to Mitsubishi's distinctive hob made of MACH 7 material and treated with a proprietary coating for sustained gear quality. Mitsubishi will also display their ST25CNC gear shaper, which eliminates the need for helical guides with a revolutionary mechanism that allows helical gears to be cut by setting the helix angle on the Windows-based CNC control.

Moore Measurement Solutions—Booth #941. Moore measurement solutions is a leading supplier of precision dimensional measurement systems for the gear industry, specializing in tight mesh (double flank) gear inspection equipment. Their pre-engineered solutions include fully automatic in-line gear checkers, semi-automatic operator-loaded gages, manual gear rolling fixtures, manual pitch diameter (over ball) gages, and automatic gear blank/bore size gages.

Multi-Arc, Inc.—Booth #701. Multi-Arc is a worldwide supplier of thin coating services and equipment with operations in North America, Europe and Asia. Their coatings provide increased wear resistance, corrosion resistance and performance to industrial cutting tools, metal forming dies, plastic molds, wear parts and medical devices. Multi-Arc coating centers offer the latest in thin film coatings and surface enhancement technology. Cathodic Arc PVD, enhanced arc PVD, unbalanced magnetron sputtering, chemical vapor deposition (CVD) and vacuum heat treatment services are available through Multi-Arc. In addition, many coating centers are equipped to provide edge conditioning, polishing services and tool grinding. Multi-Arc has also implemented coating standards at all ION BOND® centers worldwide. A first of its kind in the thin film coating industry, this program has established standards for hardness, adhesion, surface finish and color. Customers are assured of receiving consistent coating properties regardless of which Multi-Arc facility coats their parts.

National Broach & Machine Co.—Booth #300. National Broach & Machine Company will be demonstrating their latest low-cost internal & surface NBV broaching machines and their space saving high quality CNC gear shaving machine.

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Also, they will demonstrate the latest in precision gear grinder enhancements. "Red-Ring"/Kashifuji hobbing machines will also be showcased in addition to all "Red-Ring" brand quality gear generating and finishing tools.

Nissei Corporation of America—Booth #1121. Nissei is a designer and manufacturer of precision fine pitch gears and gear assemblies supplying OEM customers. Visit the Nissei booth to see examples from the automotive, general industrial, hand power tool and electric motor marketplaces including steering, actuator, automation and armature shaft applications.

Nye Lubricants, Inc.—Booth #621. Nye Lubricants, Inc. is an engineering company dedicated to formulating high quality synthetic lubricants. Their gear greases and oils are specified in a full range of industries, including automotive, aerospace, appliance, textile, paperboard manufacturing, medical & dental equipment, power tools and recreation equipment. Founded in 1844, they maintain regional engineering offices throughout the United States, and they have agents and distributors around the world.

On-Line Services—Booth #135. Stop by the OLS booth to see the latest in deburring and chamfering. Highlights include information and examples on a variety of deburring processes for a wide range of parts. This year's focus will be on the use of brushes in gear deburring. OLS deburrs more than gears, and they'll be available to talk about your burr problems.

Perry Technology Corporation—Booth #908. Perry Technology Corp. advertises itself as "The Gear and Spline Experts." Their staff will be available to talk about your future gearing requirements and the design and manufacturing options for your product. View highlights of their state-of-the-art 50,000 square foot manufacturing facility and see samples of the various complex gear forms they produce.

Presrite Corporation—Booth #626. Presrite has invested millions of dollars to build a world-class gear forging plant, a dedicated facility equipped with a state-of-the-art gear lab, high-capacity presses and the latest in sophisticated machinery. Presrite hot forges gears to near-net shapes weighing as much as 300 pounds and measuring up to 450 mm in diameter. Little or no hobbing is required because of the tight tolerances achieved. The inherent strength of the forging is maintained while costly roughing and finishing operations can be eliminated.

Process Equipment Co.—Booth #1030. Process Equipment Company has been designing and manufacturing special machines for over 50 years. They will be displaying the ND 430 "Next Dimension"™ gear measurement system. The ND 430 utilizes a Renishaw® 3-dimensional scanning probe head to measure tooth alignment, profile, index and root radius in its linearly and volumetrically mapped measuring envelope. Other

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products include their laser and capacitor discharge welding machines, which are used to join gears or other rotary components to like or dissimilar metals.

Profile Engineering—Booth #1005. Profile Engineering will unveil their newest model in double flank computer composite gear analyzing. The PC-8 Composite Gear Analyzer® will feature versatility of design for checking internal gears. The latest software will demonstrate automatic nick removal.

Quality Transmission Components—Booth #1137. Quality Transmission Components (QTC) has been the exclusive North American distributor for Kohara Haguruma Kogyo K.L. (KHK Co., Ltd.) of Saitama, Japan, since 1985. KHK (Kohara Gear) is the largest independent gear manufacturer in Japan, manufacturing over 3400 standardized coarse pitch metric gears and related items. Well equipped with the most up-to-date, sophisticated gear cutting and grinding equipment, KHK serves the gear needs of many Japanese OEM manufacturers. Their stock catalog includes spur gears, racks, bevel gears, internal gears, spiral bevel gears, helical gears, involute splines, pawls, ratchets, worms and worm wheels, ranging in sizes from module 0.5 to module 10. Quality Transmission Components is a leading supplier of metric gears throughout the United States, Mexico and Canada. They maintain a complete inventory of KHK's product line at their warehouse in New Hyde Park, New York, and require a minimal time to access the factory's inventory. In addition to the standardized QTC product line, QTC can also provide custom gearing with a minimum quantity of one and a maximum quantity of 500 per month.

Reishauer Corporation—Booth #138. Reishauer will be demonstrating the new RZ 300E, the machine that paved the way for one of the most popular and successful lines of continuous generating gear grinders on the market today. The RZ 300E is capable of grinding spur and helical gears to AGMA quality 15 economically and productively. In addition, the Richardson R200CNC hobbing machine will be on display, offering fast setup, large work envelope, high quality and excellent machining times.

Reliance Gear Corporation—Booth #619. Reliance Gear specializes in spiral bevel gears up to 33" in diameter with equipment that can produce, verify and chart through AGMA Class 13. They produce the "cut" gear using CNC 6-axis Gleason Phoenix Generators. Their CNC 463 and late model 463 Gleason Grinders produce the spacing and surface finishes that AGMA Class 13 tolerances demand. They are "on line" with The Gleason Works, allowing their setup men to have the very latest technological assistance at their finger tips. They can also produce straight, coniflex, hypoid and zerol bevel types. Parallel axis capabilities go to 26" and include spurs, helicals, splines, worms and worm gears. They produce most of their own gear blanks in a CNC lathe and machine center.

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REM Chemicals—Booth #1138. Rem Chemicals is a provider of a specialized metal finishing process to reduce both friction and wear in moving parts such as gears, pistons, crankshafts and rocker arms. The chemically accelerated mass finishing process forms a smooth, randomly patterned surface rather than the ridge lines that are commonly left by standard mechanical finishing such as grinding. This type of isotropic finish has become the standard in aerospace manufacturing, reducing friction and heat on operating turbine compressor blades and other components.

Roto-Technology, Inc.—Booth #920. Roto-technology, Inc. will be introducing its newest CNC analytical automatic gear tester, the Model RC-400-16. This system will test gears, hobs, camshaft gears, worms, splines, ring gages, internal and external gears. This system utilizes a Pentium computer, an SVGA color monitor and a high speed laser printer. It is a new low-cost system that is easy to use and accurate. The tester is built on a granite base and steel stand with high frequency vibration pads, which makes it stable and durable. The linear axes, X, Y, and Z provide smooth and accurate movements and positioning for various types of inspection requirements. The basic system includes software to inspect index, pitch space variation, lead (TAV) and involute profiles on spur and helical gears. System sizes range from 6" up to 84". A line of CNC rotary tables will also be on display.

S.L. Munson & Co.—Booth #233. The S.L. Munson booth will feature Dr. Kaiser precision diamond products for gear dressing. Dr. Kaiser produces direct plated and sintered construction products in a full range of modules and pressure angles. Applications available for most dressing systems including Reishauer, Fässler, Gleason, Hodlund, Normac, G11, Liebherr, Csepel and Niles.

Seitz Corporation—Booth #722. QS-9000 certified Seitz Corporation provides design, development, production, and contract assembly for gear driven and linear-motion products. Seitz manufactures injection molds for high-tolerance complex products and assemblies and specializes in complete gear train design utilizing Pro/Engineer and UTS software. Seitz can also convert drive systems from metals to plastics for cost reductions and higher performance. Connecticut, Illinois and Colorado locations.

Speedgrip/Cameron, Inc./Madison Face Driver—Booth #1020. Speedgrip Chuck, Inc. offers a standard line of I.D. gripping collet chucks that provide .0005" accuracy as standard. When standard chucks or arbors won't do, Speedgrip's design & build capabilities can provide special workholding solutions with I.D. and O.D. collet chucks, diaphragm chucks, hobbing arbors, and other made-to-order designs to meet your gear processing needs. Cameron, Inc. provides high accuracy hydraulic workholding solutions to meet your gear machining and inspec-

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tion needs when .0002" or better tolerance is an issue. Through the use of Cameron's sleeve design and grinding process, greater expansion and more accurate centralization can be achieved. Madison Face Driver provides "productivity solutions" with its line of hydraulic, elastomer and quick change face drivers. For hobbing applications, Madison uses a solid drive ring design to maintain rigid part position with no radial movement to ensure an accurate tooth form.

Star Cutter Company—Booth #800. Star Cutter Company will have the following on display: hobs, gun drills, gun reamers, milling cutters, diamond tools, carbide preforms, thin film coatings and solid carbide tools. They will also exhibit their UTG-1200 Universal Tool & Cutter Grinder, which grinds round broaches, flat broaches, hobs, and shaper cutters.

SU America—Booth #700. Samputensili (SU) employs 470 people worldwide. It is part of the Maccaferri Industrial Group, based in Bologna, Italy. Samputensili is present today in 11 different countries, 5 of which include manufacturing facilities for the production of gear cutting tools and machines. SU can design and build the entire gear cutting tool range, including solid hobs (HSS and carbide), shaper cutters, shaving cutters, chamfering tools, deburring tools and master gears, as well as provide several supporting services, including tool coating and resharpening, to meet all customers' needs. SU also provides CNC gear form grinders, CNC shaving cutter grinders and chamfering and deburring machines.

Ticona—Booth #936. Ticona is a leading supplier of high performance polymers used in gearing applications. With a broad product range and strong application development and technical support, Ticona helps customers worldwide realize the many benefits of using plastic gears, including cost, weight and noise reduction. Their product portfolio includes Celcon[®] acetal copolymer, Fortron[®] PPS, Celanese[®] nylon 6/6, Celanex[®] PBT, Impet[®] PET, Vectra[®] LCP and Celstran[®] long fiber reinforced thermoplastics.

Toolink Engineering—Booth #117. Toolink Engineering is the exclusive North American distributor of könig dorn hydraulic arbors, chucks and other specialized work holding devices manufactured by könig mtm in Wertheim, Germany. For more than 30 years, könig mtm has manufactured tooling customized for each application. Applications include turning, milling, grinding, balancing, drilling, measuring and inspection.

TSK America—Booth #832. The Radiance Radial Measuring System (RMS) from TSK America, Pine Brook, NJ, is designed as a solution to complex rotary measuring challenges. The Radiance can complete a full radial scan of parts without probe changes or reorientation. The machine design allows unrestricted rotary scanning of parts such as gears, cones, cylinders and other solids with reduced cycle times and

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Spur Gears Gear Cut	3/4" to 40" 25" Face	2-48	AGMA Class 10
Worm Gears Gear Cut	Up to 60"	2-48	Tangential up to 24" diameter
Worms	8" to 36"	2 P max.	Ground thread to 6" O.D.
Internal Gears Gear Cut	32" max.	4-48	AGMA Class 10
Involute & Square Splines	16" x 36"	4/8-32/64	
Sprockets	36"	1 1/2"	
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improved accuracy. The measuring range of the machine is one meter horizontal diameter and 0.6 m vertically. The machine occupies less than 2.5 square meters of floor space. The Radiance can measure all the features of a gear in a single setup such as teeth, shaft diameters, faces, and bolt hole circles, replacing the typical combination of coordinate measuring machine and gear checker. The machine can be supplied with proprietary gear software to facilitate complete, rapid, accurate gear inspection.

Unique Power Products—Booth #842. Unique Power Products, Inc. is a wholly owned subsidiary of Unique Mobility, Inc., a custom developer and manufacturer of brushless PM electric motors and controls, electronic assemblies, gears and gear assemblies for the automotive, industrial and aerospace markets. The UPPI Gear Division produces precision internal and external gears from AGMA 9–14 and has machine shop capabilities to manufacture complete parts or provide gear tooth or special form grinding on Kapp CNC gear grinders.



Universal Technical Systems—Booth #1113. UTS invites you to see GearLink, an easy and accurate means to create Pro/Engineer and AutoCAD models and engineering drawings of gears. Also being demonstrated are the latest versions of design and manufacturing software for metal and plastic gears. UTS is one of the leading providers of gear and other engineering software products.

Xtek, Inc.—Booth #503. Xtek custom designs, heat treats and manufactures spur, helical, double helical and bevel type gears. They are ISO 9001 certified and manufacture gears ranging from AGMA 6 to AGMA 12 quality levels. Their dimensional capabilities range from 10" to 216" in diameter and .375 to 16 DP. They will display their capabilities and distribute information at the show. Ⓞ

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