

Gear Manufacturing in Motion

MPT Expo Highlights Latest and Greatest Innovations

Matthew Jaster, Senior Editor

Electric and fluid power has expanded the focus recently at the Motion+Power Technology Expo—September 14–16, St. Louis, Missouri—but gear manufacturing remains the core of AGMA's biennial trade show. The following is an overview of many of the services and technologies being exhibited by some of the leading gear manufacturers at MPT:

Bevel Gears India Booth # 2420

Bevel Gears India has manufactured and designed bevel gears and bevel gear boxes for over 40 years. With over 75 bevel gear grinding, cutting, testing and lapping machines, customers' bevel gears are manufactured to DIN and AGMA standards using the Gleason and Klingelnberg systems.

Bevel Gears India caters to the requirement of end users of ground spiral bevels, spiral bevels, straight bevels, zero bevels, angular bevels and hypoids.

Customers are invited to leverage our capabilities, decades of experience, Gleason CAGE prepared summaries, CNC gear testing and production facilities to develop the gearing solutions they need for demanding applications.

www.bevelgearsindia.com

Brelie Gear Co. Booth #3520

Brelie Gear is a full-service gear manufacturer, specializing in fine- and medium-pitch spur and helical gears, worms, worm gears, and worm shafts. The company offers gear crowning and carbide re-hobbing to improve gear quality and reduce gearbox noise. Components are produced using state-of-the-art Koepfer and Mitsubishi hobbing equipment. This equipment, along with ISO 9001 registered systems, allows Brelie to produce gears up to AGMA 12. In addition to its gearing capabilities, Brelie offers complete in-house turning and machining.

www.breliegear.com

Cincinnati Gearing Systems Booth #1907

Founding American Gear Manufacturing Association member, Cincinnati Gearing Systems Inc., (CGS) announces a series of facility improvements and additional machines in response to new contracts and to meet ever increasing demand for precision gear manufacturing and design engineering.

CGS component gears and enclosed drives are manufactured, assembled and tested by a skilled workforce in Cincinnati, OH. CGS products support a variety of applications such as automotive drive gearing, diesel engine gearing, military and commercial marine propulsion, turbine powered generator drives, wind energy, pump drives and expander/compressor drives. CGS is ISO 9001:2015 and IATF 16949:2016 certified.

CGS assembly and test facility improvements include the installation of two 20-ton cranes with 5-ton auxiliary and one 10-ton crane. In the same facility there is a new dedicated full load test cell supported by a 1,500 hp motor.

Within the last two years, Cincinnati Gearing Systems has purchased 7 additional machines:

Kapp-Niles gear grinder offers unique tooling for grinding double helical gears with limited clearance between the gear faces.

Liebherr CNC shaper cutter doubles current cutting speeds and has laser apex alignment, increasing gear quality. This shaper cutter is capable of cutting tapered splines and any helix angle without the need for additional tooling.

Höfler Porta internal and external gear grinder; The OD/ID grinding wheel finish grinds diameters and thrust faces in the same setup as tooth grinding, combining three separate machine operations into one.

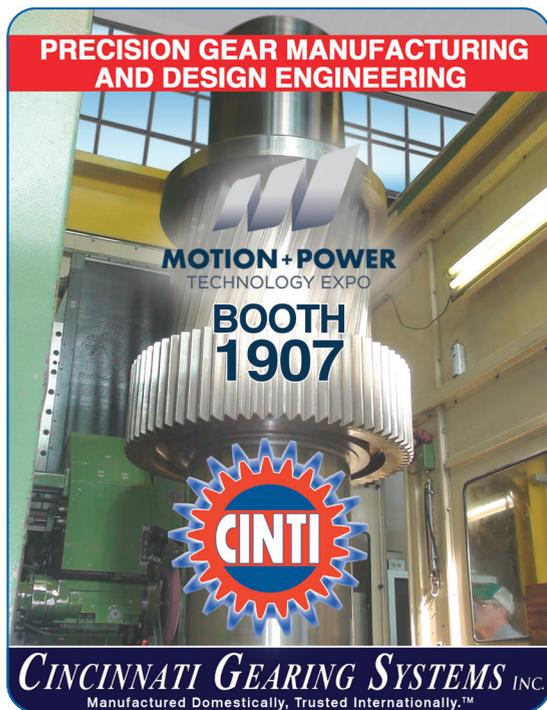
Other machines recently installed include a Hyundai horizontal boring mill, Hyundai vertical mill, Hyundai CNC turning center and a Gleason GMS gear analyzer.



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Machining Capabilities:

- Turning 1"-106"
- Hobbing and Shaping 0.5"-149"
- OD Grinding 0.75"-138"
- ID Grinding 0.5"-134"
- Tooth Grinding 16 DP-0.75 DP (2"-130")
- Milling Up to 200"

Improvements to CGS's testing, assembly and manufacturing facilities have significantly increased capacity and production process flow while decreasing lead time. Visit **Booth #1907** at the Motion + Power Technology Expo to see how Cincinnati Gearing Systems' in-house engineering, manufacturing, assembly and testing and heat-treating services can support your future gear and gearbox needs.

www.cincinnatigearingsystems.com

Circle Gear Booth #3429

Circle Gear is a leader in quality custom gearing, specializing in small to medium lot production. They are one of the only companies in the country that will reverse engineer and manufacture spiral bevel gear sets. Circle Gear services include: Bevel Gears (Straight & Spiral up to 36" diameter), Spur Gears, Helical Gears, Herringbones (up to 60" diameter), Internals, Racks, Sprockets, Worm and Worm Gears, to all other types of power transmission products. Circle Gear provides servicing on Splines (involutes & straight-sided, internal & external). They offer reverse engineering as well as breakdown services on many products. Circle Gear currently resides in a 125,000 sq. ft. full-service production facility. They house a full-service gearbox rebuild division, QRS, Quality Reducer Service. QRS specializes in rebuilds of all major brands of gear reducers as well as manufacturing of custom designed units.

www.circlegear.com

Columbia Gear Corporation Booth #2230

Columbia Gear Corporation is a premier supplier of custom gearing and power transmission products including precision spur and helical gears, splined gears and shafts and complete gearboxes. They are continually adapting to today's customer needs. Columbia continually analyzes manufacturing processes, builds upon proven design solutions, streamlines production and assembly schedules — always taking ground gearing quality to higher levels. Conveniently located in Central Minnesota, the facility encompasses 235,000 sq. ft. Columbia Gear manufactures gears, shafts and power transmission products for the agricultural, aviation, construction, compressor, locomotive, mining, rail, oil & gas and wind power industries.

www.columbiagear.com

Croix Gear & Machining Booth #2931

The COVID-19 pandemic continues to cause major disruption to supply chains around the world. While a global pandemic is not your typical supply chain event, the root causes of the current supply chain issues are not limited to just pandemic stress. Post-pandemic demand, transportation breakdowns, workforce shortages, and raw material scarcities have further exposed existing supply chain vulnerabilities. Unfortunately, the gear manufacturing supply chain is not immune to these challenges.

In fact, a recent Accenture study on "Supply Chain Disruption" reported that "94% of Fortune 1000 companies are seeing supply chain disruptions from COVID-19" and "75% of companies have had negative or strongly negative impacts on their businesses."



Over the past several months, Croix Gear & Machining has been conducting in-depth conversations with key OEM customers to better understand what they are experiencing and what we can do to combat it. Not surprising, the single most challenge coming out of COVID-19 is that supply chain disruptions are preventing OEMs from fulfilling customer orders, creating inefficiencies on their manufacturing floor, and ultimately putting their business at risk. In addition, the recent trend of offshoring gear manufacturing only exacerbated the problem, in that they failed to establish secondary domestic suppliers as a "safety net." In the near term,

procurement leaders are requesting better information so they can make the quick, better-informed decisions needed to sustain manufacturing operations. In the long-term, they are looking for “outside the box” thinking to improving gear supply chain relationships that can provide resiliency, agility, and reliability.

In the coming weeks, leading up to the 2021 Motion + Power Technology Expo, the company will share more about the best practices they have discovered to help meet these challenges.

To discuss navigating your particular supply chain challenges, be sure to visit the Croix Gear & Machining Team at the Motion + Power Technology Expo **Booth #2931**.

www.croixgear.com

Forest City Gear Booth #2513

Forest City Gear is a family-owned and operated business in the gear manufacturing industry since 1955. They manufacture fine and medium pitch custom gears for a diverse array of industries covering a wide range of applications.

Forest City Gear’s team of experts will be available at Motion + Power Technology Expo to discuss trends, technologies and best practices in gear manufacturing, and to review blueprints and provide on-the-spot manufacturability consultation.



Forest City Gear offers two primary manufacturing options. “Cut Teeth Only” is a cost-effective, quick turn option for customers who provide the gear blank and need gear-cutting only. Lead time is very reasonable, typically 2 weeks or less, assuming a special-order cutter is not required. With an inventory of over 7,000 cutters in stock, Forest City Gear is able to keep lead time as short as possible and to support small lots up to high-volume orders with ease and flexibility.

For customers who need a partner to manufacture gears to their specifications, Forest City Gear offers “Make Complete” services. A dedicated team manages the entire process: ordering the raw materials, turning the blanks, machining (everything from gear cutting to finish grinding), and managing any outside services such as plating or heat treating. Lead times for these orders vary depending on availability of materials and quantity ordered.

Forest City Gear is so well known for their quality to have been selected by NASA to support every Mars Rover project to date, including supplying over 100 gears for the Perseverance rover. The company manufactured gears for every actuator on the vehicle, from the wheel drive systems to the focusing optics. All the gear-driven motion systems

that the rover utilizes to move or to articulate a part of its scientific instruments, including the Sky Crane that worked to lower Perseverance to the surface, are driven by gears from Forest City Gear.

FCG supports gears for aerospace, defense, dental, medical, racing, recreation, robotics, off-highway, offshore and outer space applications and more

www.forestcitygear.com

Gear Motions Booth #2925

The team at Gear Motions is energized and ready to reconnect with the gear industry in person at Motion+Power Technology Expo Booth #2925. Show attendees will get a glimpse into the future as the company introduces some exciting new accomplishments in precision manufacturing.



First, Gear Motions will be sharing the latest details on a brand-new gear manufacturing facility in Buffalo, NY. This world class facility will bring Gear Motions’ two Buffalo divisions, Niagara Gear and Oliver Gear, together under one roof and will provide plenty of manufacturing and office space for the company’s growing and changing needs.

In new equipment and capabilities, Gear Motions recently added a trio of ultramodern gear grinding systems from Reishauer; two model RZ260s, and one RZ550, all equipped with advanced robotic automation systems from Felsomat. These high-performance grinders, paired with multi-pallet automation, have greatly improved gear grinding performance and efficiency. New capabilities include super finishing and polish grinding on parts ranging in size from 0.5 to 27.5 inches in diameter and accommodating a variety of part types including spur gears, helical gears, and assemblies.

In product news, past attendees of MPT Expo may remember that in 2019 Gear Motions introduced Kinatech, the groundbreaking non-backdriveable gearbox technology. The organization will not only be demonstrating the next generation gearbox at MPT 2021, but will also be ready to start taking orders.

What has not changed at Gear Motions is its knowledgeable, experienced team of employee owners who will be available at the show to do what they do best; work with you to solve problems and meet your gear manufacturing needs.

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& many more

www.drivetrain-symposium.world/us

In the middle of the hustle and bustle of the show floor, they will have a dedicated meeting space in the booth for in-person discussion, dive into customer challenges, and offer solutions.

Gear Motions is a leading gear manufacturer specializing in supplying custom cut and ground gears for OEMs all around the world. Kinatech is a new mechanical locking system that will hold any load in place without using electricity, pneumatics, hydraulics, friction, or any other external braking system. Learn more here:

garmotions.com.

Omni Gear & Machine Corp. Booth #3536

Omni Gear manufactures power transmission systems for agricultural, off-highway, and industrial equipment manufacturers. They maintain manufacturing and assembly centers around the world to design and distribute enclosed gear drives utilizing straight bevel, spur, spiral bevel, helical and



worm gearing. They began by supplying power transmission equipment for agricultural machinery in 1958. Today, they are a leading manufacturer providing gearboxes, specialty forgings, and custom gears for a variety of industries and applications. Industries include agriculture, on highway, construction, forestry and more.

www.omnipowertrain.com

Philadelphia Gear: Power Systems by Timken Booth #3532

As a part of Timken Power Systems, Philadelphia Gear combines over a century of OEM experience with the expertise of six other leading service providers to deliver complete electromechanical support from a single trusted source. So whether it's gears grinding to a halt, burned-out motors, worn out bearings, or malfunctioning controllers, you get every result you need — all from one name.

Timken Power Systems' suite of electromechanical repair services includes over 125 years of design and manufacturing expertise for new and replacement gearboxes; gearbox, electric motor, generator, and bearing repair and upgrade services; OEM and aftermarket gearbox replacement parts



and open gearing; electric motor and generator replacement parts; onsite technical services for gearboxes, electric motors, generators, and bearings and more.

Philagear.com

Rave Gears Booth #2416

Rave Gears and Machining is committed to providing high quality, precision CNC machining, prototyping and supply of gears and gear shafts with shared customer focus on meeting delivery commitments through transparency and trust. The company believes in employee development, investment in advanced technology and continuous improvement. They offer CNC milling and machining centers, CNC turning, CNC turn/mill centers for spiral bevel and Zerol bevel gears.

ravegears.com.

Schafer Industries Booth #2507

For more than 85 years, Schafer has solved some of the toughest challenges with its custom-engineered gear and driveline solutions. Working with Schafer Gear Works, Schafer Aerospace or Schafer Driveline, customers can build better performance, greater cost-savings and higher satisfaction into your products. This is why Schafer's gear and driveline innovations power some of the most respected products and vehicles in the world. It's why companies in an ever-expanding list of industries from aerospace to underground mining turn to Schafer's engineers and manufacturing teams to help them stand out from their competition. ISO 9001:2015 and AS9100:2016 certification combined with lean cell-based manufacturing processes ensure you of strict compliance to quality and delivery standards. From in-house engineering support teams to on-the-line machine operators to after-sales customer service, Schafer can listen and respond to your needs. **PTE**

www.schaferindustries.com

For additional Motion + Power Technology Expo coverage visit our websites, social media channels and the official M+PT Expo 2021 Show Guide.