

## Power Transmission Engineering

### Engineering Showcase 2014

One of our goals at *Power Transmission Engineering* is to help you understand, identify and select the best technology for your mechanical power transmission or motion control applications. With every project, you have to decide which components to use, and which suppliers, based on functionality, quality and price. We aim to help you make those decisions *informed* by providing the latest information on current technology, especially when it comes to mechanical components.

With that in mind, we are pleased to present our first annual Engineering Showcase, a celebration of some of the leading products and companies in mechanical power transmission. In the pages that follow, you'll find examples of engineering excellence and technological know-how in the field of gears, drives, couplings, machine parts and other mechanical components.

This guide is meant as a complement to our annual Buyers Guide and our permanent online directory of suppliers at [powertransmission.com](http://powertransmission.com). In this special section, we have the opportunity to go into more depth in describing the products and capabilities that make each of these suppliers unique.

So please browse through the section and read about the latest these suppliers have to offer. If you have an upcoming project that matches their manufacturing capabilities, we're confident that giving one of them the opportunity to bid will be well worth your efforts.



**Randy Stott,**  
**Associate Publisher & Managing Editor**

# Cincinnati Gearing Systems Inc.

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**CINCINNATI GEARING SYSTEMS INC.** has over 100 years of experience in producing high quality, reliable and cost effective gear units for a wide range of industries and applications including marine propulsion, off road transportation, automotive, oil and gas, and power generation.

All CGS industrial components and transmissions are designed and manufactured to the latest applicable standards and certifications. As one of the founding members of the AGMA, Cincinnati Gearing Systems continues to build on a foundation that ensures customers enduring product quality, reliability, and value.

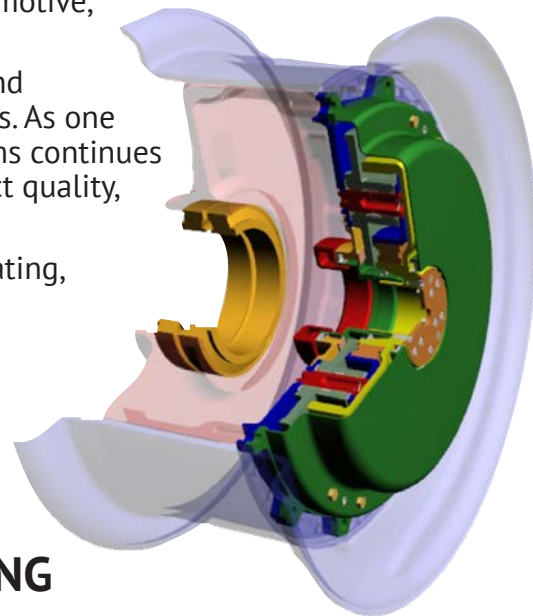
In house capabilities include full service manufacturing, heat treating, testing, as well as engineering.

## TESTING

- Noise and Vibration Analysis
- Full-Speed Testing Full/Partial Load
- Oil Flow & Temperature Monitoring
- Gear Tooth Inspection
- Non-Destructive Testing  
Magnetic Particle Inspection  
Nital Etch

## ENGINEERING

- Standard & Custom Product Design
- Design Analysis
- Failure Analysis
- FEA Analysis



## 2013 T.D.E.C. AWARD RECIPIENT ENGINEERING EXCELLENCE IN EPICYCLIC GEARING

The TDEC award is presented annually to two individuals who have made noteworthy contributions towards the advancement of gear design.

**TOM MILLER**, CGS' Chief Engineer and AGMA's Secretary of the Epicyclic Committee has been a main contributor to the engineering community for over the last forty years. In 2013, AGMA awarded Miller with the Technical Division Executive Committee Award due to his contributions and insight on drawing and technical manuals.



# 2014 Engineering Showcase

## Delta Family of Companies

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### Prototype Quality & Speed

Delta Research is a world-class provider of CNC 3-Axis, 4-Axis and 5-Axis precision machining, jig grinding, cylindrical grinding and complete assemblies for automotive, aerospace and industrial applications. From complete automotive prototype transmissions or components, to defense, to aerospace machining and assembly, you will be impressed by our capabilities and commitment to quality. Registered to ISO 9001 & AS 9100 quality standards, Delta Research does more than produce high precision gears up to 20". Our complement to Delta Gear is that we make the homes for the gears. So whether you need carriers, machined housings, synchronizers or other engine and transmission components, you can rely on our 60+ years of knowledge and expertise as a prototype and short-run production machining and production gear facility.



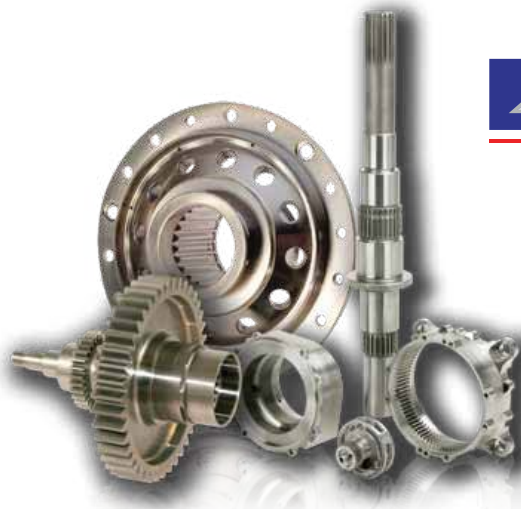
[www.deltaresearch.com](http://www.deltaresearch.com)



### Aerospace Precision

As an AS 9100 & ISO 9001 Registered company, Delta Gear provides aircraft quality gears and machined components at automotive prices. Since 1964, Delta Gear (formerly Tifco Gage & Gear) has been producing precision parallel-axis gears. Whether you are looking for jet engine pump gears, starter gears, propeller shafts or master gears, Delta Gear can help. Additionally, our Delta family of companies complements Delta Gear by offering high-precision machining and inspection so that your projects are completed on time, on budget and to your requirements.

[www.delta-gear.com](http://www.delta-gear.com)



### Inspection & Testing

Our newest addition to the Delta family of companies is Delta Inspection, which has been introduced to meet your gear inspection and testing needs. Whether it is a need for gear inspection sourcing, sorting, composite testing or prototype inspection, our full-service staff and complete arsenal of new inspection equipment provide the new benchmark for accredited gear inspection. Our abilities include gear inspection up to 39 inches (1 meter) for prismatic inspection of machined components, roundness, laser guided concentricity analysis, surface testing, material testing, Nadcap certified magnetic particle inspection, nital etch and much more.

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



# Siemens Industry, Inc.

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SIMOGEAR® gear motors help you save time, effort and energy. Quick configuration, drawings on demand, fast delivery from our SC assembly plant, easy installation, simple unit identification, 24/7 support, highly efficient designs—these are just some of the ways SIMOGEAR can help you deliver the results your company expects.

SIMOGEAR is designed for automation engineering. As such, it integrates smoothly with Siemens drives and automation products, resulting in simpler commissioning and faster start-ups.

Options such as encoders and brakes give users the tools to meet the exacting demands of a wide breadth of applications. The patented Modulog mounting system allows users to add these motor options even after installation. Other options like motor connectors and SIMOLOC—Siemens keyless tapered bushing hollow shaft mounting system—support fast installation.

Energy efficiency was one of the key design criteria for the new series. The SIMOGEAR two-stage helical bevel unit, with a mechanical efficiency of up to 96%, averages 2% higher efficiency than competitive three-stage units. It is available in a wide range of ratios, so it is ideal for replacing inefficient worm and spiroid units commonly found in conveying applications.

SIMOGEAR integral gear motors incorporate high efficiency or NEMA Premium motors. Notably, stepping up from high efficiency to NEMA Premium does not involve an increase in motor frame size or diameter.

When it comes to ease of use, online configuration and tracking of shipments is only the beginning. RFID name plates, readable from several feet away, contain pertinent identification and service data. Smart Numbers completely identify each unique standard configuration down to the mounting position and color. The Smart Number is all that is required to get an exact duplicate of any standard SIMOGEAR unit assembled in the USA. Couple this with Siemens extensive 24/7 service network for easy-to-access support across the country and around the world.



**Raising the bar on end-to-end conveyor solutions**



# SIEMENS

# 2014 Engineering Showcase

## SDP/SI

### Stock Drive Products/Sterling Instrument



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# SDP/SI

STOCK DRIVE PRODUCTS/STERLING INSTRUMENT

SDP/SI consists of Stock Drive Products (ISO 9001 Registered) and Sterling Instrument (AS9100 Registered), both of which are Designatronics companies. Stock Drive Products offers an astounding selection of standard and custom components, including timing belts and pulleys, and Sterling Instrument boasts a world-class facility for gear-cutting and assembly that serves the biggest names in the Defense and Aerospace Industries. But it's about more than that. SDP/SI

is committed to having the latest manufacturing technology and the brightest engineers around to ensure that you can find or design your perfect drive component every single time.

SDP/SI was founded by engineers with one idea in mind: "Customer satisfaction is our goal." We pride ourselves on having some of the most knowledgeable engineering staff around. These engineers are ready to aid you in any way possible. If you need a custom part made, we'll not only make it for you, but create an open dialogue with you to ensure you get exactly what you need at the best possible price. We also publish a large amount of technical documentation on the function, application, and advantages of our many product lines to help you make your own informed decision.

Any engineer knows that a great mind is limited by the tools at its disposal. That is why SDP/SI spares no expense when it comes to maintaining a technologically advanced manufacturing facility. We have everything from injection molding machines to sophisticated multi-axis CNC milling machines, which allows us to fabricate high volumes of all kinds of plastic and metal components. We can also create complex assemblies, particularly precision gear assemblies. Our manufacturing staff is just as knowledgeable as our engineering staff, which assures that the parts we make always adhere to the high quality standards our customers have come to expect.

Most important of all, engineers are never satisfied with something just because it works fine. Whether it's a more efficient way to manufacture a part, a design improvement to boost performance, or a way to expand into new markets, SDP/SI is always looking to innovate. Contact us today, and let us set your ideas in motion.



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**Elgin Fastener Group** is your leading provider of specialty and semi-standard fasteners in North America. We can guarantee fast response, consistent quality, and streamlined innovation for any of the following:

**CAPABILITIES:**

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- Metal finishing
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**THE RIGHT FASTENER RIGHT NOW**

# QBC – Quality Bearings and Components

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Quality Bearings and Components, a division of Designatronics Inc., is an industry leader for all things bearing related. We offer a wide selection of all types of commercial and precision grade bearings, as well as a number of bearing maintenance products.

QBC's extensive selection of bearings is available in inch and metric sizes, many different metal and plastic materials, and various precision grades. Depending on the individual bearing type, a variety of other options, such as shielding and lubrication type, are also available. We can also provide custom bearings, and host a class 1000 clean room for all our lubrication capabilities.



QBC is also the USA exclusive distributor of BEGA Special Tools for maintenance of bearings and other transmission components. Induction heaters provide safe, even heating for easy mounting and dismounting; bearing monitoring tools have digital displays that accurately measure and display various conditions to help optimize bearing performance; mechanical and hydraulic pullers are ideal for effectively removing large transmission components; hydraulic lift equipment is a space efficient way to lift and reposition heavy machinery; digital alignment equipment takes the guesswork out of the alignment process and provides smoother operation.



At QBC, we understand that your application requires more than just a high-quality part to succeed. That's why we provide for you every way we can when it comes to bearings. Next time you have a bearing requirement, give us a call and we'll make it happen.

# 2014 Engineering Showcase

## QTC – Quality Transmission Components



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Quality Transmission Components (QTC), a division of Designatronics Inc., is a leading supplier of nearly 13,000 gear products designed for power transmission in industrial automation applications. QTC is the largest North American distributor of stock metric gears. This includes spur gears, helical gears, racks, miter gears, bevel gears, worms, worm gears, gear couplings and gearboxes. All products are detailed in catalog Q420, and at [www.qtcgears.com](http://www.qtcgears.com).

The United States is the only country that uses English units as an official standard of measurement. Naturally, this presents problems when dealing with international products. A common scenario is when a machine is purchased from overseas, and a component needs to be replaced. Traditionally, it was difficult to source these replacements, or lead times would be excessive. Quality Transmission Components (QTC) was established in 1993 in response to this issue. We serve as the exclusive North American distributor of Kohara Gear from Japan, and as a licensed distributor of Davall Gears from the United Kingdom. Having such a wide selection of stock metric components in one place makes it easy for the customer to get everything they need with significant time and cost savings. Overall, when it comes to metric power transmission components, QTC is the obvious choice.



## R+W Coupling Technology

### Leading coupling technology for engineers.

One of the most well received advancements in coupling technology brought about by R+W was the development of extremely compact, light weight, ball-detent safety couplings. The SL series represents a 50% reduction in mass and moment of inertia versus classic designs, and an average increase in torque capacity of 50% for a given size. This becomes important as there is increasingly limited space for the integration of mechanical overload protection, especially when the need for it hasn't been anticipated. This is also advantageous to engineers developing smaller, faster, and more energy efficient devices.

40% of R+W products are customized. This benefits engineers looking for the optimal technical solution. But off the shelf product is also very important to R+W, helping keep cost and lead time to a minimum. This balance keeps R+W agile, also speeding up the delivery of special designs.

Your coupling requirement may be something we're already prepared to address with our established product. If not, put our resources to work and help us develop a better connection.

# R+W

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