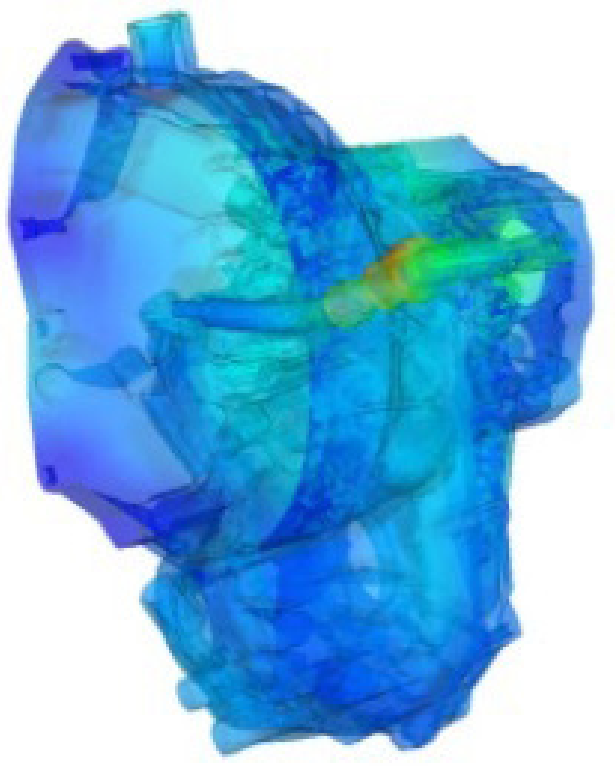
Romax Technology

CONNECTS WITH VCOLLAB SYSTEM

The Romax product suite now connects with the VCollab Computer Aided Engineering (CAE) reporting system to capture multi-physics product engineering analyses in 3D Digital Reports, helping transmission and powertrain engineering teams collaborate efficiently with any team member, supplier or customer through a web browser.



Electrification is driving the need for increased use of simulation earlier in the transmission design lifecycle, bringing together all the physics areas that can improve power density. The Romax product suite combines more than 30 years of experience in electromechanical simulation in an integrated, cloud-enabled MBSE (model-based systems engineering) workflow so engineering teams can design, simulate and deliver energy efficient power transmission systems for eMobility, renewable energy and aerospace. But since bringing a new transmission to market always requires the use of several simulation tools, an ability to integrate these different applications together, and in particular to share and present results from the various tools, is essential.

The Romax ecosystem is the result of more than 100 partnerships with high quality software tools that help customers break down barriers and achieve better results, faster. One recent addition is VCollab, a partnership which will help Romax users to share actionable simulation insights with business and technical stakeholders across the enterprise to aid in the review and understanding of CAE results while simultaneously improving the productivity of their analysts. It does this by automating the processing and reporting of analysis results through 3D Digital CAE Reports.

VCollab can now process key NVH results directly from the Romax product suite, presenting information in its 3D Digital Reports so that the results can be easily shared with team members that don't have access to a given tool. The interactive reports can be shared in a portable html-based format that any supplier or customer can open and review, reducing bottlenecks and helping more collaborative and engaging product development workflows from concept to sourcing and engineering project delivery.

Chris Baker, head of system dynamics, Hexagon's Manufacturing Intelligence division commented: "As development timescales are compressed and efficient cross-functional engineering and supply chain collaboration becomes critical, we are always looking for ways to improve our customers' processes and maximize their return on their Romax investments. VCollab provides one such solution. It can be deployed quickly and easily and can be used as a unifying post-processor to present multiple physics, calculated with multiple tools, in one report. Democratizing this information with VCollab's 3D digital reports can help transform traditional 2D collaborative workflows to bring better and more innovative products to market faster."

Prasad Mandava, CEO, VCollab commented: "VCollab is excited to announce our new support of the Romax product suite. By combining the power of Romax with many other solvers, VCollab's unique 3D digital CAE reporting is helping companies to streamline the way they process and share simulation results with product design stakeholders."

This collaboration is the first step for VCollab with Romax products, with further functionality planned in the near future.

www.romaxtech.com

Miki Pulley

OFFERS MICRO BRAKES

Fast braking response in small, precision torque applications are the primary benefit of Miki Pulley Micro Brakes. Where high performance braking for small motion control applications are required, these Micro Brakes provide the solution.

Miki Pulley's ultra-compact brake design features a stator with integrated mounting flange, proprietary composite

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friction liner and armature complete with ring plate spring and hub. Field proven, these Miki Pulley Micro Brakes halt rotation mechanically by utilizing an electro-magnetic field to connect friction surfaces, thus creating mechanical resistance. With fast response, the brake's armature engages the stator when the coil is energized. A constant-force plate spring transfers torque to the rotating brake body halting all motion.

Additional features include: quiet operation, high holding torque for its size, space saving design configuration, long service life, stable and reliable braking power. Easily installed, these Miki Pulley Micro Brakes require no maintenance. They are available in three armature assembly options depending on application requirements.

Typical applications include: ATM's, office copiers, weighing and packaging equipment, optical mechanisms, paper binding mechanisms and many others.

www.mikipulley-us.com

NORD

OFFERS DRIVE SOLUTIONS FOR INTRALOGISTICS AND WAREHOUSING

NORD's innovative drive solutions are designed to meet the demands of the intralogistics and warehousing industries. Their high efficiency gear units, motors, and VFDs work in unison to transport items quickly with precise control and lower energy consumption. Regardless of the application, all

NORD solutions focus on three core areas: energy efficiency, reliability, and safety. They are engineered to lower Total Cost of Ownership, reduce the number of system variants, and reduce overall maintenance time and costs.

Conveyors are essential to intralogistics and supply chain operations. NORD components assist in transporting from start to finish and can handle anything from light packing units to heavy loads and industrial containers. Their full-featured drive solutions are based on a modular concept that allows incredible flexibility without the need for costly custom components and each gear unit is selected to integrate into the specific system requirements provided by the customer.

NORD offers over 20,000,000 standard drive configurations that have multiple mounting and shaft designs, extensive input options, environmental protection options, and more.

NORD's primary products for Intralogistics include:

LogiDrive Complete Drive Solution—LogiDrive is an energy-efficient, maintenance-friendly solution consisting of an efficient gearbox, IE4/IE5+ permanent magnet synchronous motor (PMSM), and a decentralized variable frequency drive. Gear unit standardization and spare part reduction are easily achieved without sacrificing your ability to obtain modular replacements. Variable frequency drives and IE4/IE5+ motors provide constant torque over large speed ranges through a single gear unit/motor combination. In addition, Plug-&-Play decentralized technology makes installation and maintenance a breeze. The LogiDrive system also maintains operational efficiency at partial load and low speeds, making it the ideal solution for the ever-changing demands of intralogistics systems.

Condition Monitoring for Predictive Maintenance—The Industrial Internet of Things (IIoT) is ushering in a new era that focuses on the acquisition and accessibility of data from intelligent, connected devices to increase operational efficiency, reduce costs, and accelerate processes. With condition monitoring, drive and status data are recorded periodically or continuously to optimize the operational safety and efficiency of machines and plants. Condition monitoring provides valuable information for predictive maintenance to proactively maintain machines and plant facilities, reduce downtime, and increase the efficiency of the entire plant.

NORCON APP with NORDAC ACCESS BT—The NORDCON APP and corresponding Bluetooth stick "NORDAC ACCESS BT" is a mobile commissioning and service solution for all NORD drives. The app and Bluetooth stick work together to offer a wireless solution that assists with commissioning, drive optimization, and service requests, including management of extension units. With this system, maintenance can be simplified, enabling issues to be resolved quickly to reduce costly downtime. The NORDCON app also has a dashboard-style interface that is useful for drive monitoring and fault diagnosis. Parametrization of drives is easy via a Help function and rapid access to parameters. The app also offers other convenient functions such as backup, recovery, and an oscilloscope function for drive analysis.

www.nord.com

Thomson Linear

BALL SCREWS DRIVE OPTIMIZATION FOR 5G FIBER OPTIC FILAMENT PRODUCTION

Fundamental ball screw technology hasn't changed much since 1929 when Rudolph G. Boehm patented what he called an "anti-friction" nut. The ability to move heavy loads smoothly and precisely is a key process which continues to enable engineering innovation today. Nowhere is this more evident than in the production of fiber optic filaments, where ball screws are helping manufacturers meet the growing de-

mand for fiber optic cables generated by 5G communications.

Delivering Fiber Optic Strands for 5G Communications

Wireless carriers are just beginning to roll out 5G communications, but expectations with even the most conservative estimates are projecting at least a 10-fold speed increase over 4G. This will impact everything from cell phones and laptops to driverless cars. The realization of 5G communications is boosting the demand for high-bandwidth fiber optic cable, which requires continuous improvement in the fiber optic manufacturing process. This begins with the creation of highly treated, multilayered silicon rods called preforms. These provide the silicon that will eventually be drawn into filaments approximately the width of a human hair and joined with hundreds of similar strands to produce the fiber optic transmission cables that will carry the 5G signals.

To start the conversion of the preform into a single strand, a technician climbs to the top of a drawing tower and loads it into a feed mechanism that will lower it into a high-temperature furnace. Once the preform arrives at the heating element, gravity takes over, and the molten silicon drips and narrows to its intended diameter. As it cools and hardens, the filament passes through a laser micrometer to assure 99 percent width consistency. It is then pulled onto a take-up spool that will gather as much as 10 kilometers of filament before transfer to a fabricator for incorporation into the final cable.

Critical to the success of the process is the control over the speed with which the system feeds the preform. Due to the thin nature of the fiber, slow and steady movement of the feed unit (one meter per hour) ensures that the production is stable. Any faster than that, and the furnace will be unable to melt the preform fast enough. Anything slower will break the continuity of the stream. Many of the world's leading fiber optic wire producers accomplish this with ball screw technology, which provides high stability and smooth movement at such low speeds.

Selecting Ball Screws for Fiber Optic Drawing Towers

In a typical ball screw configuration, the feed mechanism anchors to the ball screw nut with a rod. The nut rides down the vertically oriented ball screw, carrying the preform feed mechanism with it toward the heating unit. Requisite travel distance from the top of the drawing tower to the furnace is 6-8 meters, which requires a long screw.

To optimize production of fiber optic cable, three important factors must be taken into account:

Pitch diameter. Speed control and efficiency are impacted by pitch. Standard dimensions such as 50 x 10 mm, 63 x 10 mm and 80 x 10 mm are ideal to ensure slow and steady fiber optic filament production.

Long strokes. Travel length of the preform from insertion to heating the element is about six meters. It is best to do this with only a ball screw, which requires shafts of up to eight meters long.

Diameter. The diameter of the screw is also a factor in the robustness, operation, stability and durability of the motion. Diameters of 50, 63 and 80 mm are best to avoid screw bend due to the long stroke.

Driving Next-Generation Communications

Automated production of fiber optic cable is just one way that ball screws are enabling a new generation of communications technology. Thomson Industries, for example, has customers using ball screws on the doors of furnaces used to process sapphire for mobile phone screen protectors and feeding electrodes to winding machines for lithium batteries that will be used in electric cars.

Although the fundamentals are the same, ball screw technology continues to advance in flexibility and applicability. Companies such as Thomson are supporting even more advanced innovation in other industries by consistently pushing the envelope in heavy load handling, stroke lengths, compactness and onboard intelligence, which will provide the motion control needed to support the emergence of 5G and future generations as well.

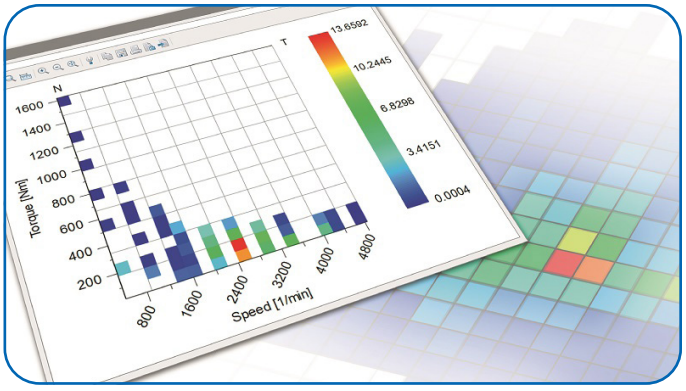
www.thomsonlinear.com

KISSsoft

EXAMINES GEAR STRENGTH CALCULATION WITH LOAD COLLECTIVES

Load spectra can be derived from time series - a measured time-torque-speed curve or one derived from simulations. For time series with only positive torque, the "Simple Count" method is used to obtain a load spectrum with torque-speed bins. The refinement of the resolution in load spectrum bins (grid) can be specified.

The procedure is more complicated for time series with positive and negative torques since the tooth root is then subjected to alternating loads. First, the "Rainflow" method is used to find all significant torque changes over time. A load spectrum, which also contains alternating bending factors YM, is then derived from the resulting Rainflow triangular matrix. In addition to extended reports on the calculation



details, graphical displays are now available in matrix form for torque and speed distribution with frequency. The same display can also be used for the direct input of load spectra. The evaluation and control of the collective are thus much clearer.

Dr. Ulrich Kissling will give an (online) presentation (in English) on "Use of duty cycles or measured torque-time data with AGMA ratings" at this year's AGMA **Fall Technical Meeting** (Nov 1–3, 2021) in the United States.

www.kisssoft.com

KHK

ANNOUNCES LINE OF METRIC HELICAL GEARS

KHK USA Inc., distributor of the market leading KHK brand of metric gears, announces its extensive line of helical gears, manufactured to the highest quality standards by Kohara Gear Industry Co., of Japan. KHK's large selection of stock helical gears are suitable wherever high-speed rotation is required, including in machine tools, speed reducers and other industrial machinery.

Helical gears are cylindrical disks which have involute-shaped teeth cut into their face at a helix angle. By slanting the teeth, helical gears can obtain a large contact ratio and the gradual change to the contact surface load which give helical gears their characteristic of smooth transmission of rotation. Consequently, compared to spur gears, helical gears generate less vibration and noise and perform better in high-speed rotation and high-load applications.

Two categories of KHK helical gears are available. Ground Helical Gears (KHG) feature exceptional strength and wear resistance that allow designs to be more compact. KHG ground helical gears use a "transverse" module. The assembly distance is the same as spur gear pairs with the same module and number of teeth, and therefore KHG ground helical gears are often used as drop-in replacements for spur gears to achieve all of the advantages of helical gears without the need to change the rest of the gear train.

KHK also offers Helical Gears (SH) that feature larger contact ratios compared to stainless steel spur gears. SH helical gears are very effective in reducing noise and vibration.

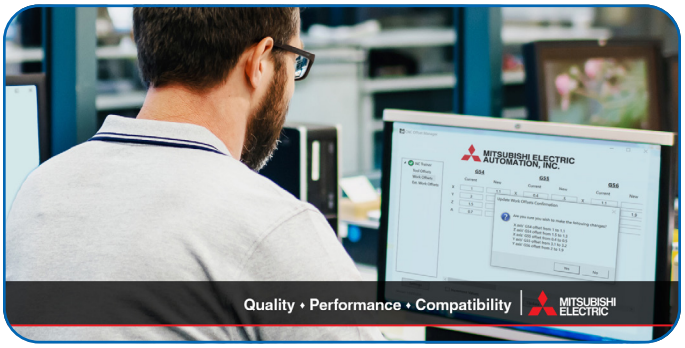
KHK helical gears are offered in alloy steel and carbon steel, with many configurations of modules and numbers of teeth.

www.khkgears.us/products/internal-gears/

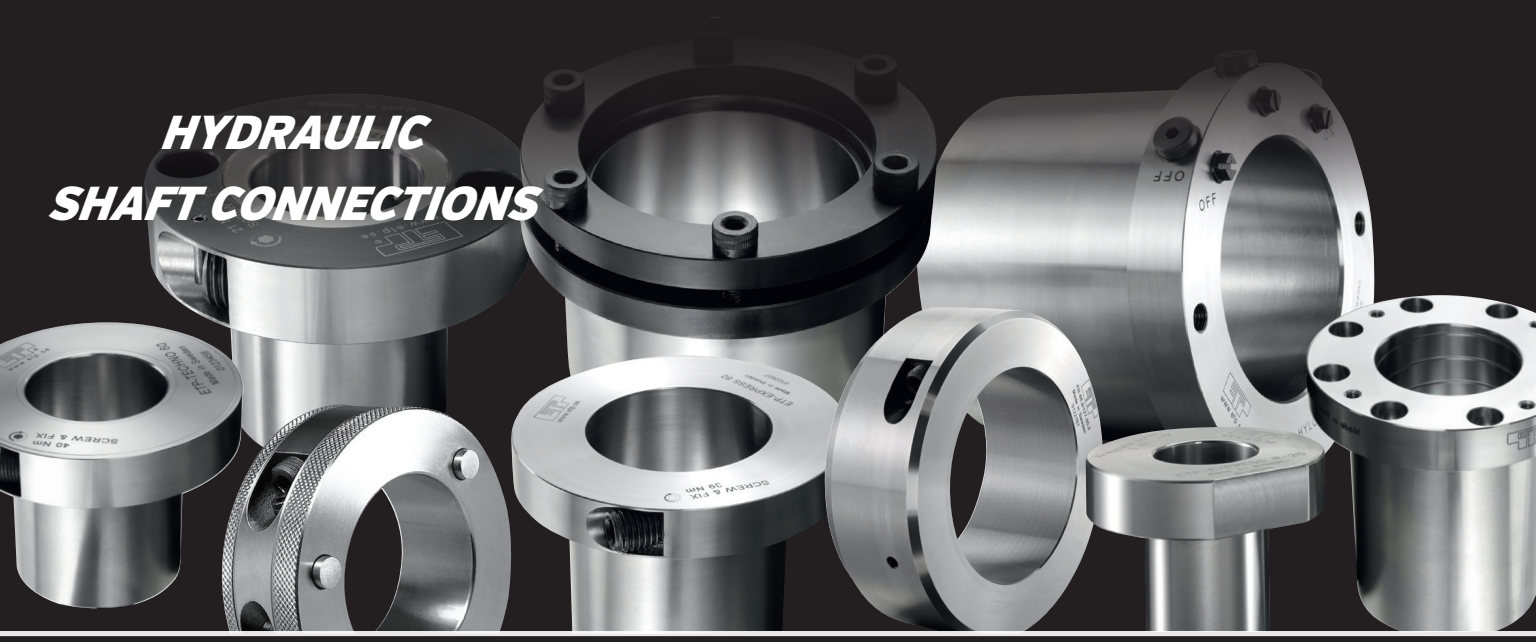
Mitsubishi Electric

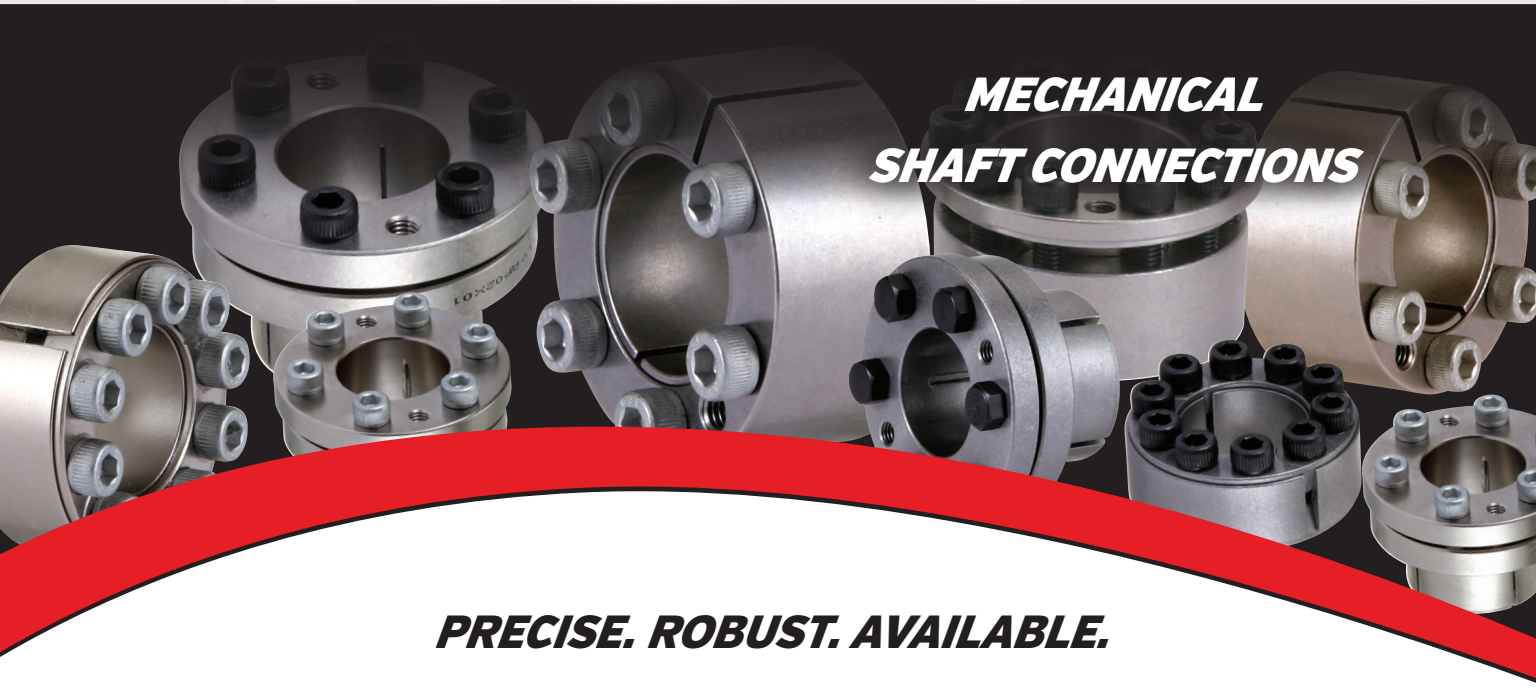
RELEASES CNC OFFSET MANAGER SOFTWARE

Mitsubishi Electric is announcing the release of its CNC Offset Manager software for remote modification of computerized numerical control (CNC) tool and work offsets. With the push towards automation and central control, machining facilities are searching for more efficient ways to manage their CNC machines. The software can introduce increased



efficiency in multiple ways: for instance, it allows one operator to manage more machines, speeding up machine setup and tool wear changes, or adjusts for parts out of tolerance, as well as centralizing this work so operators don't need to move between machines or into robot cells. CNC Offset Manager is thus geared towards production managers and supervisors on factory floors across various industries, as well as towards CNC automation software companies. CNC Offset Manager runs on Windows and is networked to the Mitsubishi Electric CNC via Ethernet. It also has a feature that allows other automation software or systems to interface with the CNC to fully automate the offset management process, or make the changes from a central cell-management software. This allows software companies to interface





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their software with Mitsubishi Electric CNC for automation and remote offset management, and allows manufacturers with CNC equipment to automate their machine-tending CNC cells and testing or measuring equipment, or centralize the offset management operation so operators and floor workers can work more efficiently.

"The release of CNC Offset Manager is coming at a good time," said Rob Brodecki, services product manager at Mitsubishi Electric Automation. "The ability to remotely modify CNC offsets will help our CNC end-users increase their productivity. We see its use becoming commonplace in factories that use our CNC equipment."

us.mitsubishielectric.com/fa/en

Heidenhain

OFFERS LATEST CNC CONTROL TECHNOLOGY AT EASTEC AND SOUTHTEC

Heidenhain recently took part in both the EASTEC and SOUTHTEC machine tool trade shows. Heidenhain hosted booths to showcase CNC controls and more from multiple motion control component brands — including both ACU-RITE and Heidenhain.

The ACU-RITE MILLPWRG2 control is today's easiest-to-operate CNC for vertical knee and bed mills. It is available with an optional AMI (auxiliary machine interface) offering users the ability to interface as well as control its host machine tool's spindle. Full 3-D contouring is part of the MILLPWRG2's capabilities. It is available as a complete retrofit package for two- or three-axis knee or bed mills or on a new mill from a machine builder. It continues to provide machinists the convenience of straightforward 2½-axis conversational shop floor programming as well as powerful calculators, eliminating the need for time-consuming manual calculations and to learn complicated programs.

Heidenhain's TNC 640 high performance mill-turn control is popular with users thanks to its workshop-oriented operational design. Its milling-turning, HSC and capability to do 5-axis machining on machines with up to 18 axes also makes it a popular control. The TNC 640 also utilizes

a groundbreaking touch technology that supplements its field-proven cycles and functions, allowing the user to operate the control screen with gestures, similar to smartphones or tablets.

www.acu-rite.com, www.heidenhain.us

GAM

INTRODUCES ROBOTIC CYCLOIDAL GEARBOX

GAM recently announced the release of the new GCL cycloidal gearboxes. The new gearboxes provide high precision and rigidity for horizontal and vertical robotic and motion control applications.

The GCL is designed to withstand the frequent start-stop impact loads of industrial robots and other motion control applications with impact resistance five times nominal torque. The GCL series is available in a wide range of sizes with ratios from 36:1 to 192:1.

Output options for the GCL series include component boxes with a solid flanged output (GCLC F) or a hollow shaft flanged output (GCLC-H). In addition, the solid flanged output gearbox is available with a cover and motor mount (GCL-F). The GCL series can be used in a variety of applications, from robotics and automation to medical equipment, where zero-backlash and high tilting and torsional rigidity are required.

www.electromate.com