

NORD

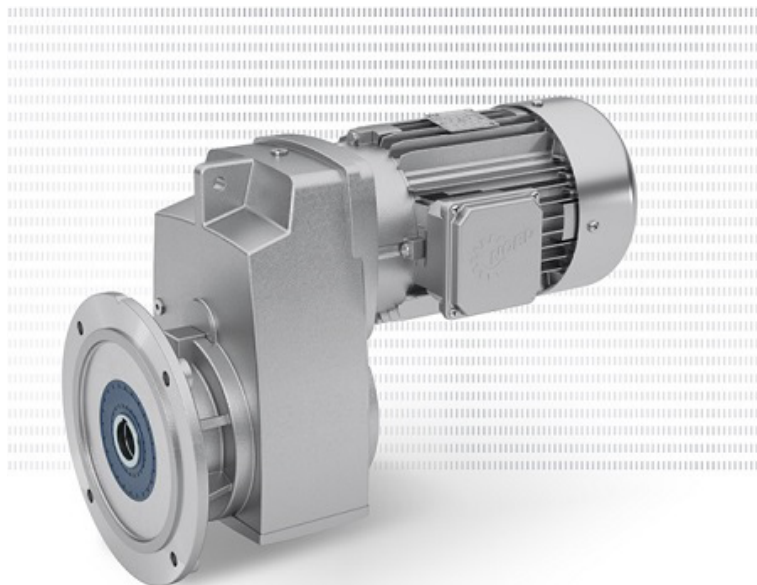
CLINCHER GEAR UNITS PROVIDE POWER AND FLEXIBILITY

NORD's redesigned line of small CLINCHER parallel gear units showcase increased power and torque capacity for a variety of applications. These re-engineered versions will be replacing the existing SK0182NB, 0282NB, and 1382NB units. They are lightweight, have improved heat dissipation, are more cost-effective, and are available with NORD nsd tupHTM sealed surface conversion for washdown and extreme environments.

These parallel shaft gear units are reliable, compact, and powerful. When combined with centralized or decentralized variable frequency drives, CLINCHER units provide ultimate efficiency and economy for a wide range of system solutions along with a rigid UNICASE one-piece housing to guarantee long service life, quiet operation, and low maintenance.

Small CLINCHER units include the SK0182.1, 0282.1, and 1282.1/1382.1 and are offered with a standard die-cast aluminum housing. Additionally, the SK1282.1/1382.1 units are also available with a cast-iron housing, which is required for the NORD Screw Conveyor Package and Spread Bearing Designs (VL2/VL3). Additional design flexibility has been made possible by offering two mounting executions: a B14 face flange/foot mounted version and a B5 flange version. Within each mounting style, there is an execution to match the mounting and shaft dimensions of legacy NORD product and an execution to match common competitor equivalents.

NORD's new CLINCHER models also come with extensive shaft designs including solid keyed, hollow keyed, shrink disc, GRIPMAXXTM (1282.1/1382.1 only), and screw conveyor (1282.1/1382.1 only). There are also a variety of input options including direct mount motors, universal motor



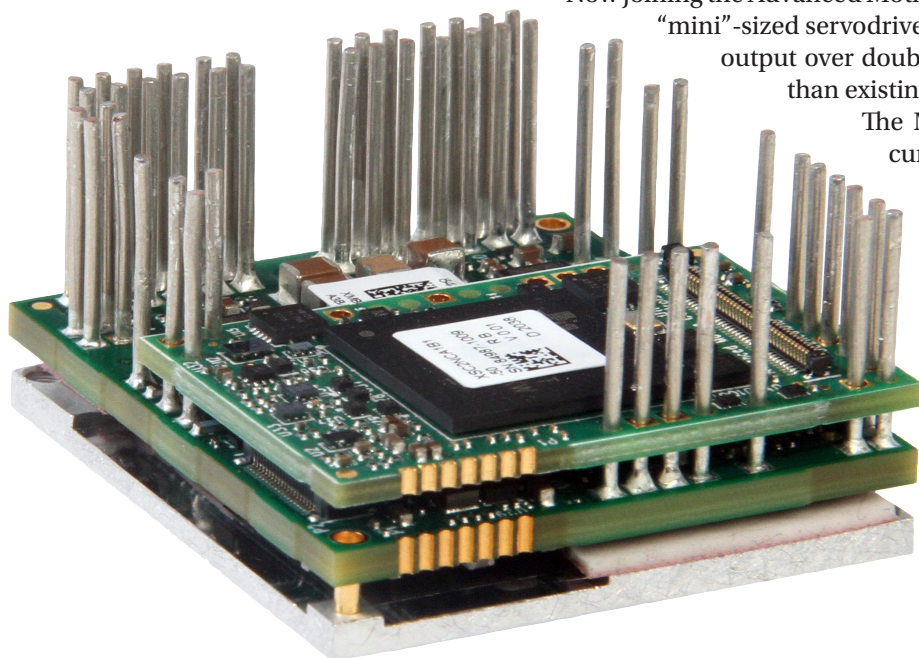
adapters—NEMA or IEC, and solid input shafts. This increases system flexibility and reduces installation space due to the units' slim design.

Small CLINCHER gear units are quite versatile, providing ratios of 4.85–356.89:1 and a power range of 0.16 hp–5 hp. With torque up to 3,540 lb-in they are the perfect solution for high efficiency operations where low operating costs are essential. With increased torque capacity of up to 33%, CLINCHER specifications match or exceed equivalent competitor units and provide more power in a smaller package.

www.nord.com

Advanced Motion Controls

OFFER 100 AMPS PEAK FLEXPRO SERVODRIVES



Now joining the Advanced Motion Controls FlexPro family are the first of their “mini”-sized servodrives. With a slight size increase, these drives can output over double the current and operate on higher voltage than existing micro-sized FlexPro drives.

The Mini Size FlexPro drives boast a continuous current rating of 50 amps and a peak current rating of 100 amps. The unrivaled power density will allow engineers to take advantage of FlexPro's advanced features in higher power applications, unlocking new possibilities in robotics, warehouse automation, machining, aerospace, and more.

Also available is the development board version designed to make development and prototyping as easy as possible.

www.electromate.com/catalogsearch/result/index/?index=1&q=FE100-50

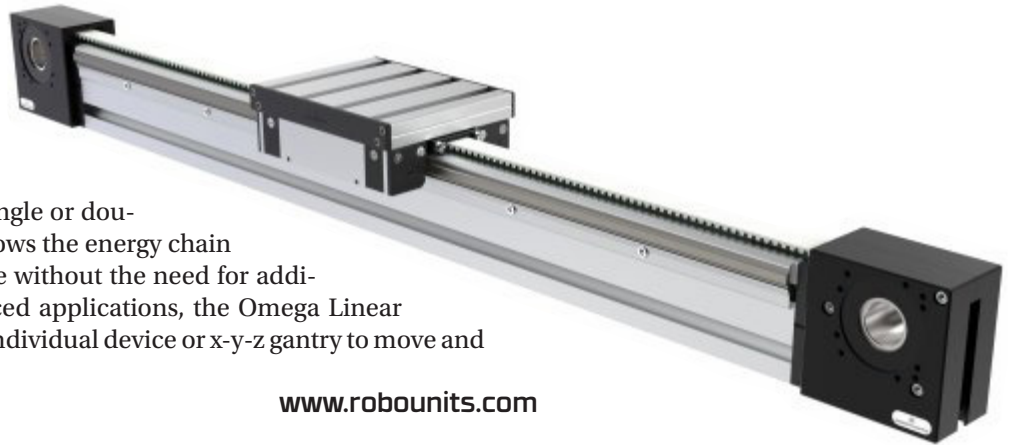
Robotunits

INTRODUCES LINEAR MOTION SYSTEM

The Robotunits Linear Motion System is designed to connect easily with the company's other systems, components and accessories to allow the easy creation of complete modular automation systems while reducing assembly time. This addresses the demands of plant operators for production systems that can be built, rebuilt and rearranged quickly to respond to changing needs.

The standard Linear Motion Unit includes 50-millimeter aluminum extrusions and a common 14-millimeter T-slot, making it compatible with other Robotunits systems. These key elements — along with the company's proprietary fastening technology — enable the Linear Motion System to work in combination with Robotunits' conveyors, material handling components, safety fencing and machine frames.

The unit is available with a single or double carriage, and the system allows the energy chain to attach directly to the carriage without the need for additional components. For advanced applications, the Omega Linear Motion Unit can be used as an individual device or x-y-z gantry to move and position parts with precision.



www.robounits.com

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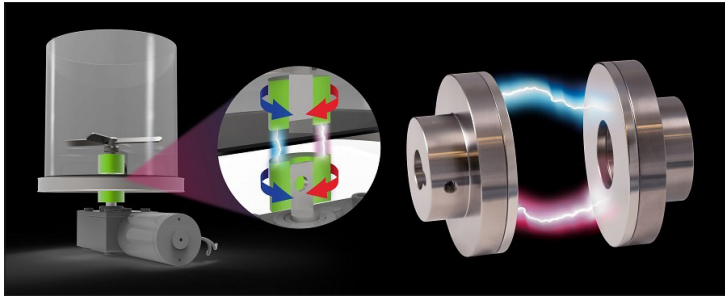
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Miki Pulley

OFFERS NEW MAGNETIC COUPLINGS

Magnetic couplings from Miki Pulley are ideal for machine designs involving food, pharmaceutical and laboratory applications requiring clean, non-contact connection between motor and shafts.

The mechanically isolated magnetic coupling transmits torque through the air. This occurs through both input and output hubs of the coupling which contain powerful rare-earth neodymium magnets. These magnets create a magnetic field that transmits torque through plastic, glass, alu-



minum, and other minimally ferrous materials without physical engagement.

Miki Pulley's Magnetic Coupling's non-contact design is particularly important where cleanliness and motor isolation is required in the mixing system design. The coupling

is clean and operates with no vibration. There is no dust, debris or mechanical wear using this coupling compared to conventional couplings. Also important, this coupling has a "softer" start/stop function compared to conventional, general-purpose couplings. In addition to mechanically isolating the connecting shafts and motor, the coupling also isolates thermal and electrical occurrences.

These magnetic couplings have an intended engineered torque limit at a specific air gap. The transmittable maximum torque may be adjusted by increasing/decreasing distance between coupling hubs. Depending on model, size, and installed air-gap, the magnetic couplings' maximum torque limit may be exceeded without mechanical damage. The hub simply slips to the next magnetic pole, without noise or mechanical wear.

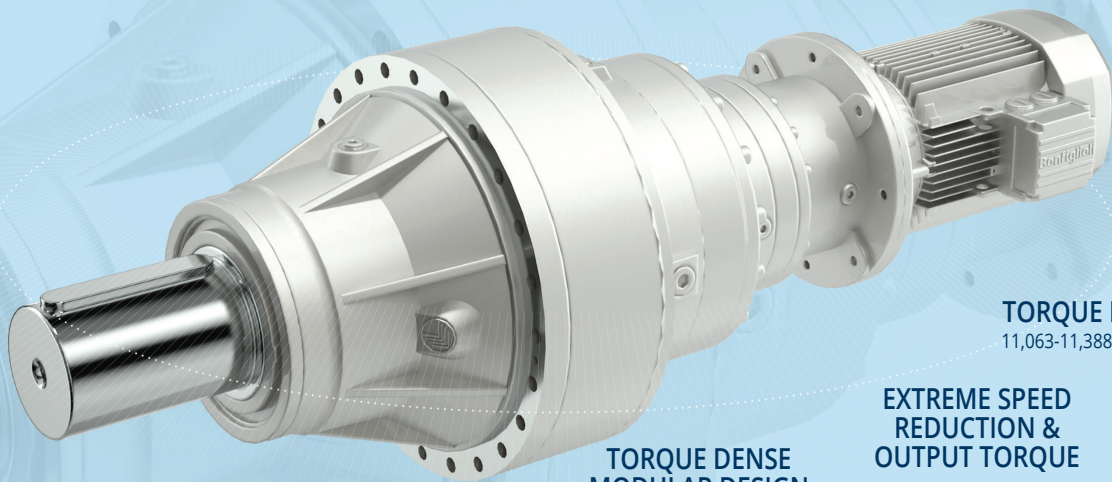
While the magnetic field between the two hubs will transmit rotational force, it can also act as a torque limiter in an over-load event. The transmittable-torque and slip-torque may be metered by adjusting the distance between the hubs. After slipping, the hubs will re-engage each other and continue to transmit torque. This feature produces no mechanical wear on components.

Miki Pulley Magnetic Couplings are available in different configurations including shaft-to-shaft, parallel cylinder, perpendicular and well as stainless and plastic clad versions for food/washdown environments.

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Siemens Digital

PROVIDES SOFTWARE SOLUTIONS FOR SOLAR RACE CAR

Siemens Digital Industries Software is sponsoring Team Sonnenwagen Aachen—a German student initiative focused on developing new sustainable mobility concepts—in the design and development process of the Sonnenwagen 3 solar race car. Sonnenwagen leverages Siemens' *Teamcenter* software to address their challenge of coordinating and optimizing the interdependent areas of aerodynamics, mechanical and electrical systems, and vehicle structure on a tight schedule. By streamlining the exchange between *NX* software and *Simcenter* software including *Simcenter STAR-CCM+* software and *Simcenter Amesim* software, *Teamcenter* allows Sonnenwagen to exchange design models across applications more easily and efficiently.

Sonnenwagen is using *Teamcenter*, a tool within Siemens' *Xcelerator* portfolio of integrated software and services, to speed up their design process and limit the additional need for planning and coordination. Designing a solar car like the Sonnenwagen 3 requires a team to handle many different parts that need to be integrated into the main assembly. By using *Teamcenter* as a data management tool, Sonnenwagen has been able to accelerate

iteration loops and design a better Sonnenwagen 3.

"In past product development phases, we regularly ran into issues transferring models and data between different software solutions. This slows our designing process down and creates an additional need for planning and coordination," says Simon Quinker, vice chairman and head of marketing at Team Sonnenwagen. "The pivotal point of our development came from *Teamcenter*. In addition to software, Siemens has been very supportive with their know-how expertise and helped us overcome hurdles and get the best out



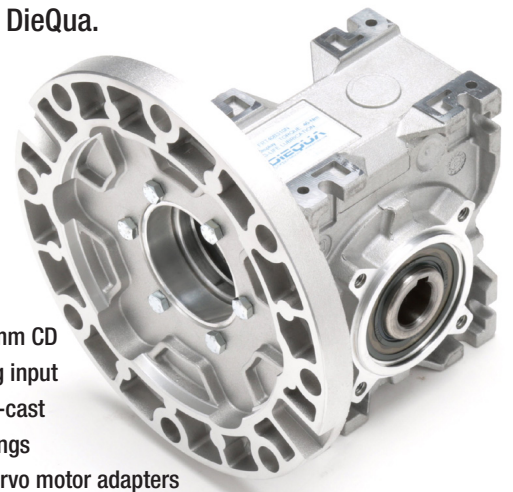
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of the software.”

Sonnenwagen has benefitted largely from the highly integrated software portfolio in combination with powerful simulation tools. Siemens’ NX software allowed Sonnenwagen to design a new outer shell of the Sonnenwagen 3 solar car, where they were able to transfer it to Simcenter STAR CCM+ and assess its aerodynamic efficiency. With Teamcenter allowing for efficient exchange of models across applications, the team can then take

those results back to Siemens’ NX software to optimize the design and initiate the iteration loop once again. Additionally, by utilizing *Siemens Amesim*, the team can quickly simulate components designed in NX according to their functionality and use the results for the optimization of the component in NX.

“We are very pleased with the developments Sonnenwagen has been able to make by utilizing Siemens’ software solutions as a whole,” said Naz Aydemir,

academic business development consultant for Siemens Digital Industries Software. “By working closely with the Siemens software product family throughout the development process, it’s great to see the Sonnenwagen overcome challenges and allow us as a proud sponsor to offer solutions that they can benefit from.”

www.sw.siemens.com

NTN

ANNOUNCES RELEASE OF KIZEI SPHERICAL ROLLER BEARINGS

NTN Bearing Corporation of America is pleased to announce the release of its latest innovation, the KIZEI (pronounced kee-zee) spherical roller bearing. KIZEI spherical roller bearings, developed by the NTN-SNR team in Annecy, France, are the first spherical roller bearings with metallic shields that protect the bearing from solid contamination such as dust, pebbles, and other debris.



In Japan, “Kisei” with an “s,” means “regulation.” Since the shields on the bearing “regulate” how much contamination is going in and how much grease is going out, it made for a fitting name. However, we switched out the “S” for a “Z” because in bearing part number terminology, metal shields, like those used in this new series, are commonly symbolized by a “Z”



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suffix—hence the name KIZEI. A “ZZ” suffix is added to the standard ULTAGE part number to identify a shield on both sides of the KIZEI series.

“We are thrilled to be able to offer our customers the newest of our cutting-edge solutions,” exclaimed James Misch, Director of Marketing and Technical Services, NTN. “Over the last four years, KIZEI spherical roller bearings have undergone extensive research, development, and real-world testing to get to this point, and we are pleased to finally be able to offer this revolutionary product to our customers at large.”

The unique design of KIZEI spherical roller bearings incorporates the metallic shields with the bearing retainer to form a one-piece protective barrier to keep contaminants out. Additionally, the metallic shields improve grease retention which helps improve bearing life.

In addition to the integration of the metallic shields into the design, KIZEI products also maintain the new standards set forth by NTN’s ULTAGE® spherical roller bearings. Featuring the industry’s highest speed and load ratings, as well as wide operating temperatures, ULTAGE is the newest generation of high-performance bearings from NTN and is the new standard in its spherical roller bearing offering.

Furthermore, KIZEI products come in standard ISO dimensions, ensuring interchangeability with 22200 series spherical roller bearings. Unlike the larger sealed spherical roller bearing models that require special tools & accessories for installation, KIZEI utilizes the same mechanisms used with standard open bearings — housing, accessories, mounting, grease, etc. — reducing maintenance costs.

NTN’s KIZEI spherical roller bearings have been proven to provide superior performance in demanding industries such as mining, metals manufacturing, wood processing, aggregate, cement, infrastructure, and construction.

Additional information on KIZEI spherical roller bearings can be found on Bearing Finder. Designed to aid distributors, design engineers, and end users in finding the perfect bearing or related product to use in any

application, Bearing Finder is hosted on a proprietary platform that offers a customizable part search tool, interactive and downloadable CAD illustrations, comprehensive part interchanges, and exhaustive data sets.

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Heidenhain

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With the release of new MULTI Degrees-of-Freedom (MULTI-DOF) encoders, Heidenhain offers machine manufacturers a better way to implement metrology designs to obtain multiple measurements simultaneously and facilitate correcting deviations on the fly. Conventional encoders offer



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one degree of motion, but these three new encoders do more to serve the demanding requirements of machines in the semiconductor and electronics industry, among others. They include the new LIP 6031 Dplus, the GAP 1081 and the MKV 1/9×30.

Traditionally, an encoder is only able to measure deviations along a single axis and although these can be corrected via some controllers, they can still be blind to common but unavoidable effects of guideway error or thermal linear expansion (to name a few) which would cause deflection along multiple axes. Using multiple reader heads allows for the detection of these deflections as in these new products, allowing for the necessary compensation at the inception and ensuring the integrity of the machine.

Users of these high accuracy MULTI-DOF encoders can expect high reproducibility and consistent quality in their systems.

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Moticont

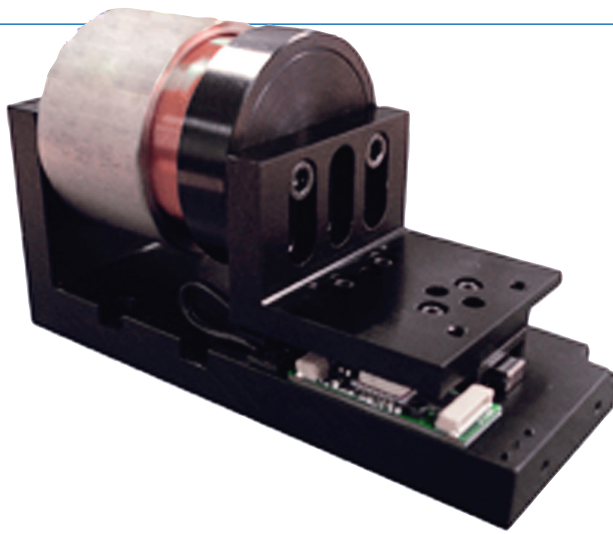
INTRODUCES HIGH PRECISION,
LINEAR VOICE COIL STAGES

Moticont has introduced two high performance linear DC motor driven stages. The VCDS-051-032-01-B1-30 (pictured) and the VCDS-051-032-01-F1-30 linear voice coil stages feature high speed, high acceleration/deceleration, zero backlash, smooth motion, precise positioning of 30 microns, high reliability and low cost. These non-commutated stages are clean room friendly, quiet, and available off-the-shelf. With a 0.97 in. (24.6 mm) travel length, a continuous force rating of 6.3 lbs (28.2N) and a peak force of 20.0 lbs (89.9 N) at a 10% duty cycle, these compact voice coil stages measuring just 2.000 in. (50.8 mm) wide by 5.000 in. (127.0 mm) long by 2.875 in. (73.0 mm) high, are ideal for applications such as: Positioning, assembly, laser cutting, welding and drilling, clamping, medical diagnostics and testing, and wafer handling.

Each of these linear voice coil stages features an optical quadrature encoder and home switch, and ball bearing linear guides. Easily accessible counter-sunk holes in the base allows for flexible and easy integration into new and existing applications. The 2.000 in. (50.4 mm) by 1.509 in. (38.3 mm) tables have a pattern of 8-32 UNC-2B threaded mounting holes for mounting tooling or fixtures.

If a longer travel, higher force, multi-axis configuration, or customized mounting are required consult Moticont's team of engineers. All of Moticont's voice coil stages are available as complete plug-and-play systems, including: Position sensor, servo controller, amplifier, power supply, and an optional return spring.

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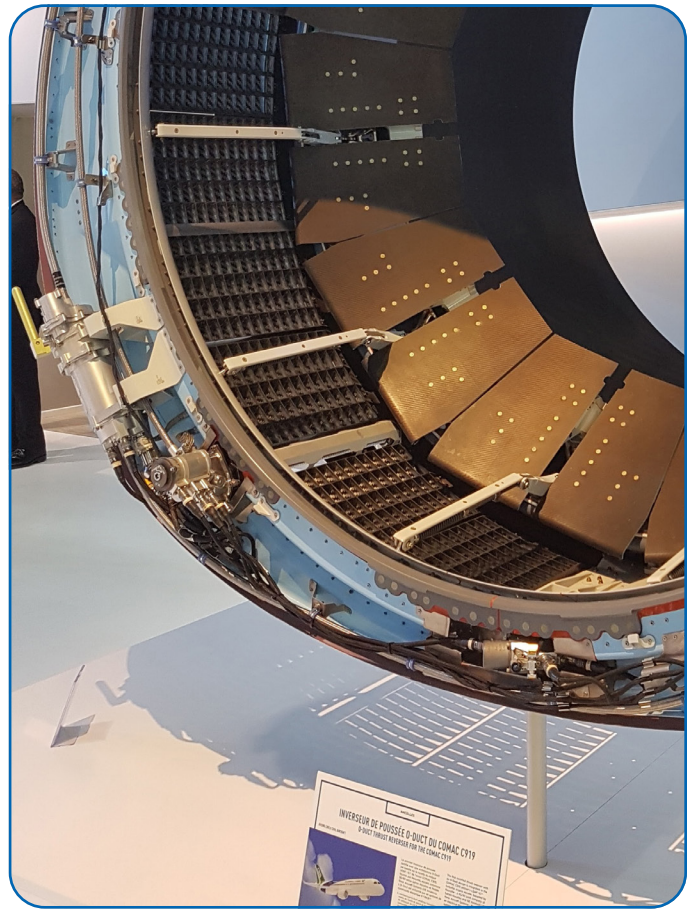
ROTARY SHAFTS PASS 250 MILLION FLIGHT HOURS OF SERVICE

S.S. White Technologies, the leading provider of flexible rotary shafts for the aerospace industry is the supplier of flexible shafts that transmit power to activate the critical Collins Aerospace Thrust Reverser Actuation Systems (TRAS) on the Pratt & Whitney (IAE) V2500 turbofan engines that just passed 250 million flight hours of service.

S.S. White provides a set of hydraulically activated flexible rotary shafts per IAE V2500 that transfer power and enable safe operation of the Collins Aerospace TRAS during flight and deployment of the TRAS during landing.

In addition, all aerospace flexible shaft products are designed to one of the industry's highest performance criteria by utilizing a unique computer modeling software program developed by S.S. White called PERFLEXION. This program allows the design engineers to more fully model the behavioral characteristics of the wire bundles within the shaft core and arrive at an optimum product that provides maximum bending flexibility and torsion strength while allowing minimal torsion deflection with up to a 30 percent improvement above current industry standards.

www.sswwhite.net



TSN

CONTINUES ADVANCING INDUSTRIAL ETHERNET COMMUNICATIONS

Time-Sensitive Networking (TSN) is paving the way for industrial Ethernet to support the industrial communications needs of the future by providing innovative, highly beneficial functionalities. Companies are well aware of this potential, with multiple key developments happening to fully realize TSN-driven digital manufacturing strategies.

Arno Stock, Business Development Manager at CC-Link Partner Association (CLPA) member Renesas Electronics,

looks at what TSN can offer and the latest achievements that are shaping the future of industrial Ethernet.

TSN is an extremely promising technology that will allow industrial Ethernet to reach new levels. Operating at Layer 2 of the Open Systems Interconnection (OSI) model, it enhances standard Ethernet as we know it by making it deterministic by design. This characteristic, in turn, will benefit end users in a variety of industries by offering the ability to merge different types of data traffic, leading to more flexible and collaborative environments. At the same time, this creates simplified, more economical network architectures as well as unified hardware and software systems.

Therefore, the crucial role of TSN in future-proof, digital manufacturing is clear. This technology is the precondition needed to support key Industry 4.0 applications and trends, such as Edge and Cloud computing.

A smooth transition

In addition to these most obvious advantages, an instrumental feature of TSN is its continuity with existing network technology. In effect, while it offers unprecedented capabilities, it does so by evolving conventional Ethernet rather than by substantially disrupting the sta-



tus quo. As a result, businesses can seamlessly transition towards TSN-compatible industrial Ethernet systems.

This also means that TSN is compatible with legacy standards. Furthermore, it can be combined with additional solutions that are already available for conventional industrial Ethernet, such as gigabit bandwidth, which is key to support ever-increasing data throughput. In addition, it can accommodate the higher number of network devices and nodes resulting from converged architectures.

Additional advantages of mixing TSN and gigabit Ethernet include the ability to shorten cycle times, increase the accuracy and precision of control loops as well as strengthening the ability of a network to transfer various types of data, such as video. Such a solution can also reduce the complexity of distributed control systems, as it is possible to reliably move more functions to a single controller, also making the intended applications more robust as well as easier to set up and maintain.

End users are ready for TSN

The multiple benefits of TSN are evident to machine builders and end users. In particular, Renesas is noticing a high level of interest from its customers, who are aware the technology will be a must in the years to come. A key aspect that is extremely appealing to most of them is the standardization/simplification of protocols, enabling the connection of all parts within an enterprise.

In order to successfully implement TSN, it is necessary

to use a network technology with higher-level protocols, as these are needed to complete the OSI reference model and support TSN applications. An example is the open industrial Ethernet CC-Link IE TSN. In addition, companies require suitable hardware that can utilize this Layer 2 technology, such as Renesas' R-IN32M4-CL3 large scale integration (LSI) that leverages CC-Link IE TSN. Driver-level support is also important, as real-time TSN-compatible systems require a close interaction between low-level driver software and hardware equipment.

To address these aspects with leading solutions, automation vendors need to team up to deliver devices with TSN capabilities that meet customers' expectations and needs. Being part of an extensive partnership network, such as the CLPA, is thus extremely beneficial, as it offers a forum where solution providers come together to drive the development and consolidation of key automation products.

A look at the future of industrial communications

A number of major milestones have been reached to support the use of TSN. In particular, the IEEE 802.1 standards defining the technology are now complete and accessible. Also, the first network solutions have been released to the market, namely CC-Link IE TSN — the first open Ethernet that combines gigabit bandwidth and TSN capabilities.

Finally, the first prototypes and complete products have already appeared, with actual devices available and ready



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for use now. More testbeds are also ongoing or planned to take place in the short term. These contribute to making the technology more mature and support its large-scale implementation.

The sector is working towards the finalization of IEEE profiles, particularly for industrial automation as well as the development of new applications for wider use, not confined solely to industrial settings. To support the global adoption of TSN, it will soon be essential to set up unified conformance testing to make sure that different solutions are interoperable, hence truly leveraging the full potential of TSN. Open technologies, such as CC-Link IE TSN, are therefore likely to be favored.

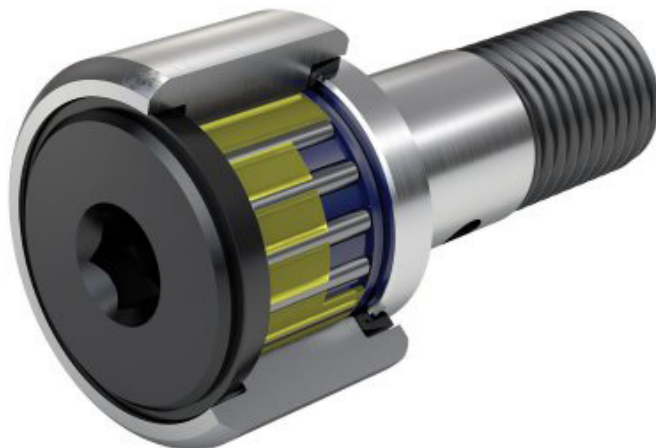
The transition towards TSN will be particularly exciting, as it is a natural evolution of Ethernet that will support its continuous improvement. Ultimately, we will be able to benefit from more and more building blocks that will open up new functions and higher performance while supporting existing, still functioning systems.

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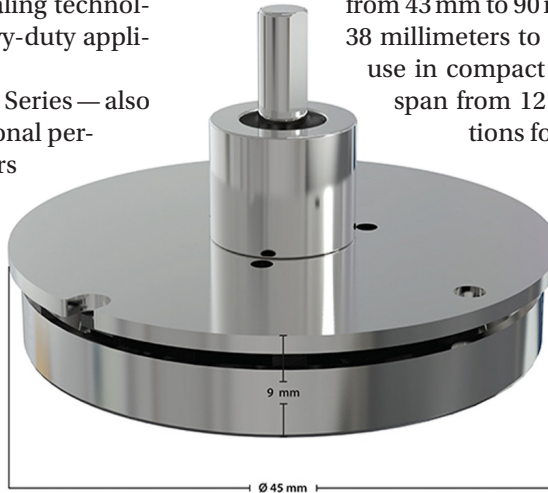
INTRODUCES NEW LINE OF BRUSHLESS DC FLAT MOTORS

The Orbex Group, a leading manufacturer of high-performance electric motors and slip rings, is pleased to announce a new line of flat brushless DC motors.

These compact motors, available with or without encoders, are useful for applications that require high torque density and have space limitations—including robotics, packaging, security, medical and more.

These high-performance motors feature a range of sizes, voltages and speeds to give you the best performance in space-limited installations. Motor diameters range from 43 mm to 90 mm and lengths range from 9 to 38 millimeters to give many options for efficient use in compact spaces. Available power levels span from 12 to 220 watts with winding options for different supply voltages.

www.orbexgroup.com



This ThrustDisk seal special seal slides into the outer ring's contact areas and handles axial loads caused by misalignment. It also resists heat and contamination to improve bearing life.

C-Lube. CR...BSE bearings are lubricated with a thermo-setting solid-type lubricant which fills the inner space of the bearing. This lubricant helps provide long-term, maintenance-free operation.

The cam followers' ability to handle thrust loads allows them to handle higher loads, while their sealing technology ensures the high performance that heavy-duty applications demand.

CR...BSE cam followers—part of IKO's Inch Series—also offer a low coefficient of friction, good rotational performance and easy mounting. Stud diameters range from 0.19 to 0.375 inches.

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