

MOTION DRIVES

POWER TRANSMISSION & INDUSTRIAL MOTION MAGAZINE



JUNE
2023
02/06

motion-drives.com



**Gearbox
Development**
*Based on
the Latest Research*



+ Derek Forney
FENNER DRIVES



+ Chris Ward
FENNER DRIVES



+ Michael Britzger
EMERSON



+ Alejandro Pardinás
ABS

**Bearing
NEWS**

Special Edition

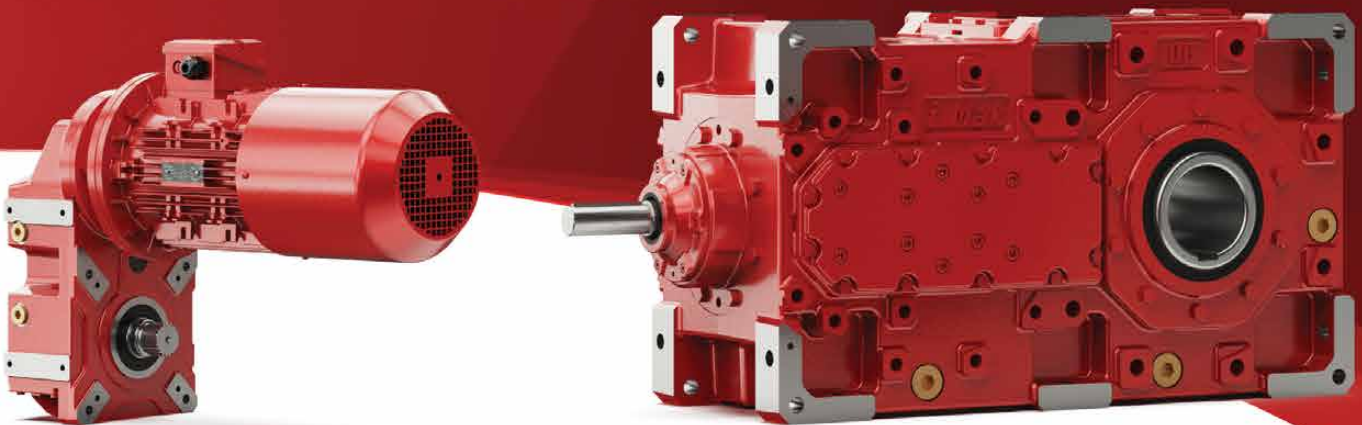
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The Bearing & Power Transmission World Meetings 2023



Mike Brandt
Editor-in-Chief

Motion + Drives Magazine begins this new edition with the highly anticipated Bearing & Power Transmission World Meetings. This unique in-person event, created and hosted by the Motion + Drives team, is the World's first dedicated meetup at the global level where 30+ countries from all continents will be represented by delegations of bearing and power transmission professionals.

The event is scheduled to take place on 04-06 June 2023 in Istanbul and will run for 3 days, with table meetings, welcome dinner, lunches and many more networking opportunities among distributors, manufacturers, solution -and service providers. We look forward to seeing you there!

What's in Motion...

What's in motion for the PT industry. Learn details about key companies, trends, and advanced product solutions specifically for high-power density motors, bearings, collars, couplings, and timing belts. Read about new energy efficient drive systems, state-of-the-art repair tooling, and AI infused remanufacturing strategies. All this and more can be found in this new edition of Motion + Drives Hannover Messe 2023 special edition.

I hope that you will enjoy it.

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Pull-off solution for electric motors

Electric drives are used in almost every area of life. KUKKO ensures that electric motors keep running and guarantees the removal of bearings of any size and type.

The picture shows the disassembly of a ball bearing on the angular gear of an electric drive with a 201 series lug puller.

Original and premium pullers created by KUKKO.



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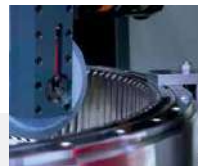
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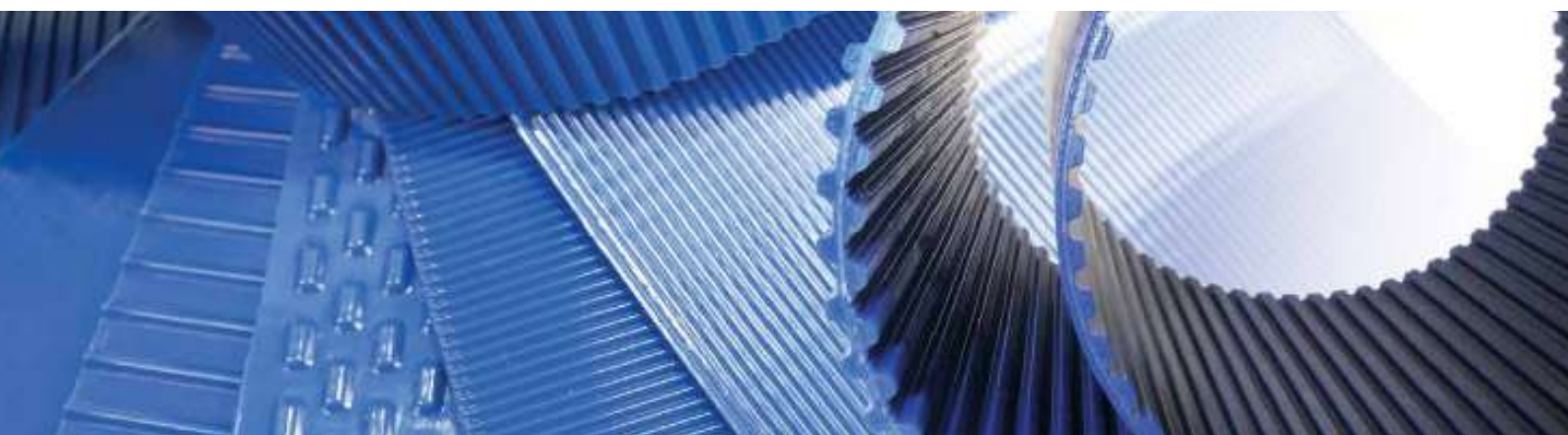
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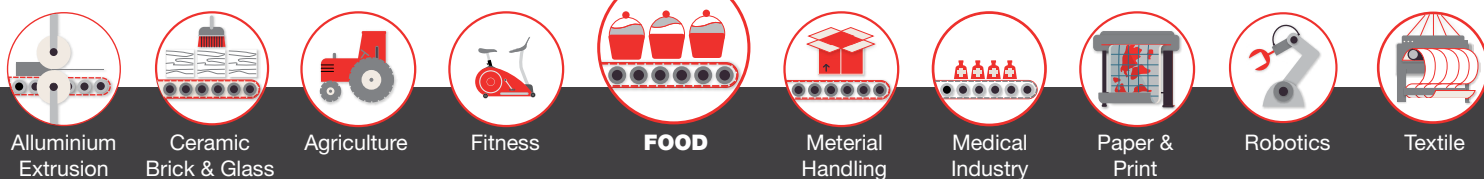


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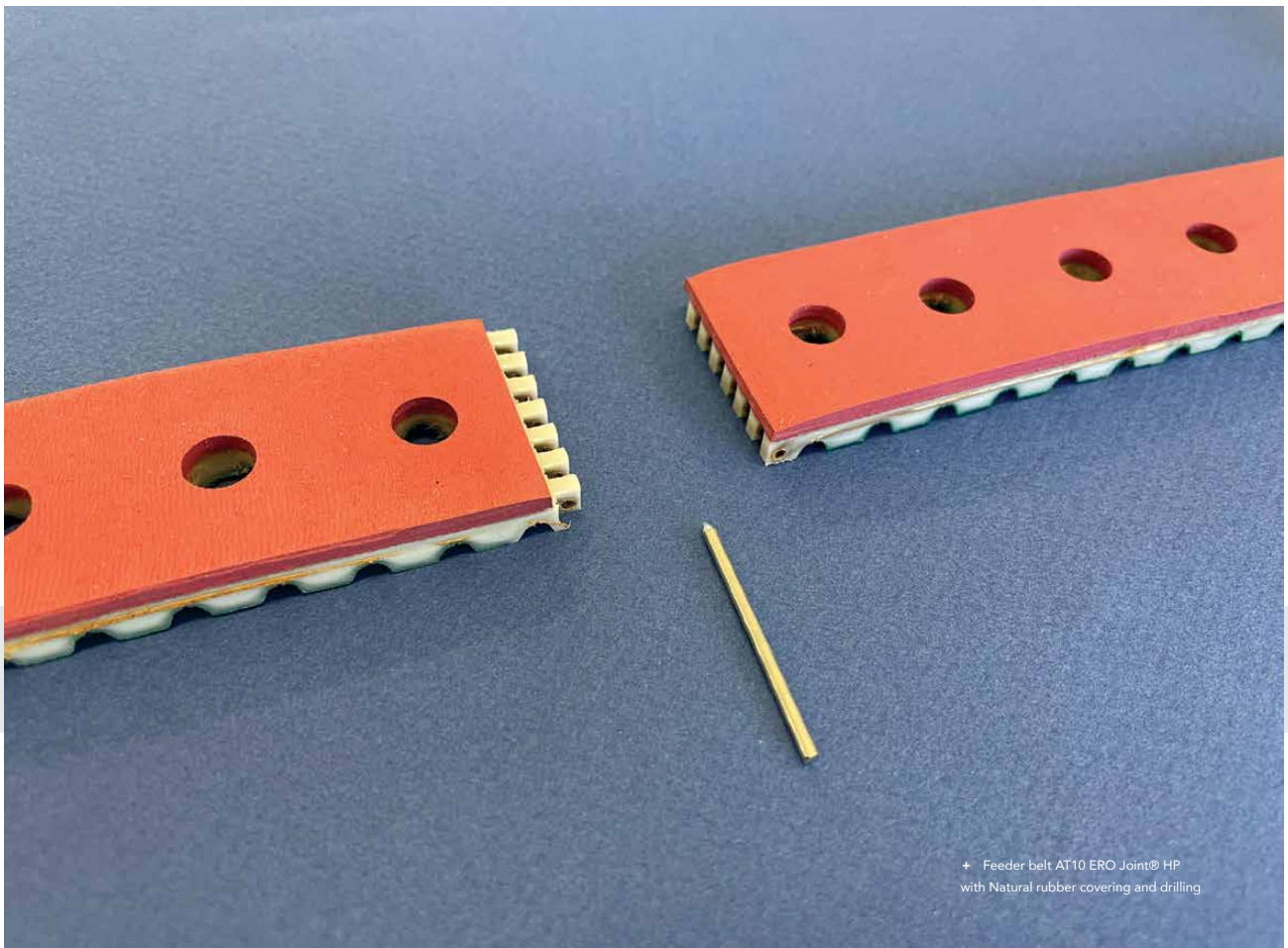
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– Still using endless belt?

+ + + + +

Since 1936, Tanals has been manufacturing and distributing timing belts & conveyor belts. French manufacturer located in the eastern part of France, near the border of Germany and Switzerland, Tanals combines the expertise and know-how of a manufacturer, the creativity of a start-up and the flexibility of a distributor.

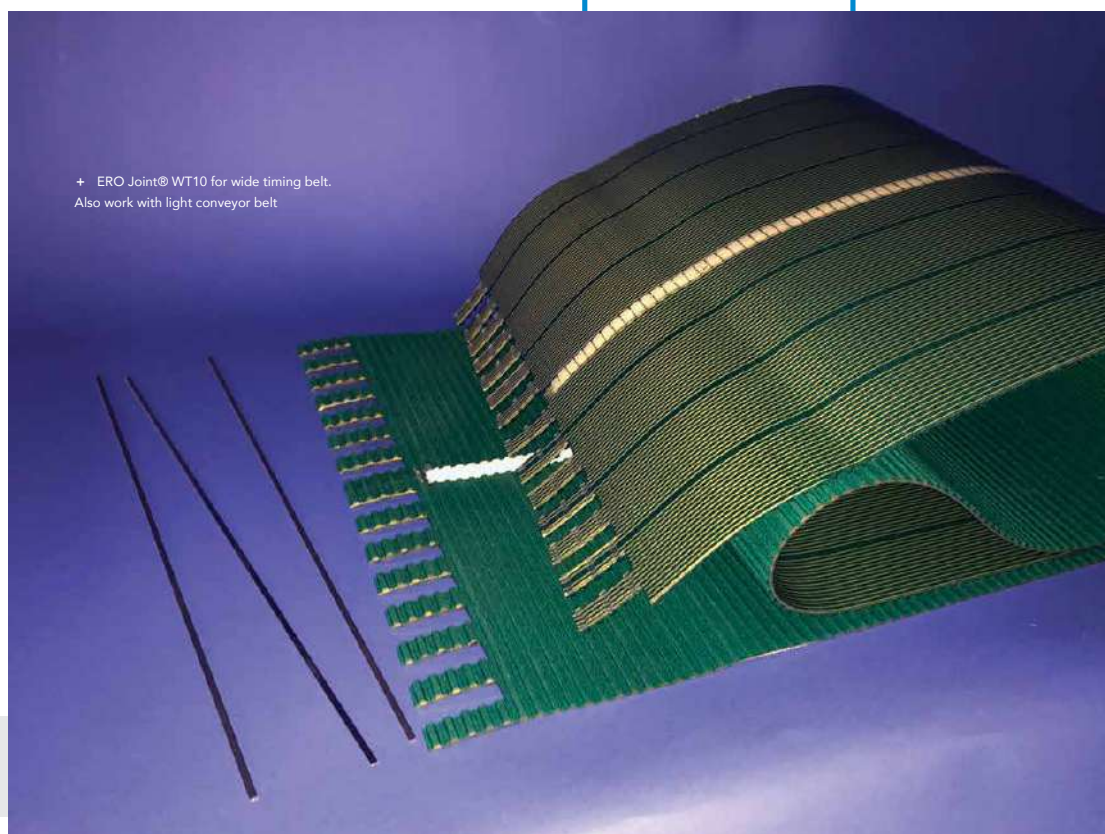


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+ Innofill Glass DRS - The KHS Innofill Glass DRS filler that can process up to 60,000 bottles per hour is part of the glass line in Mannheim.

– Well sorted

Coca-Cola in Mannheim: new returnable glass line from KHS optimizes highly complex sorting processes

+ + + + +

Within the space of just three years, Coca-Cola in Germany has invested around 50 million euros in one of its biggest plants in Mannheim. KHS has contributed a returnable glass line to the project – one that also manages highly complex sorting tasks.



+ Innoclean DM -The Innoclean DM double bottle washer scores with its greatly reduced water and energy consumption.

When in July 1950 beverage retailer Wilhelm Müller procured the bottling rights for Coca-Cola in Germany, he established the entrepreneurial basis for the production site that can still be found in Mannheim. Initially, lots of tasks such as sorting and quality assurance were performed manually until in 1965 the first fully-automatic setup went into operation; this lifted empty bottles from the

beverage crates, placed full ones back into the same and automatically inspected every single container with the help of test equipment.

In the 1960s and 1970s Müller held the sales record of all independent Coca-Cola franchisees in Germany 18 years in a row. Following his death at the height of his success in 1971, his wife took over the running



+ Innopal PKT - At the start of the sorting process the Innopal PKT depalletizer removes the returned crates of deposit bottles from the pallet.



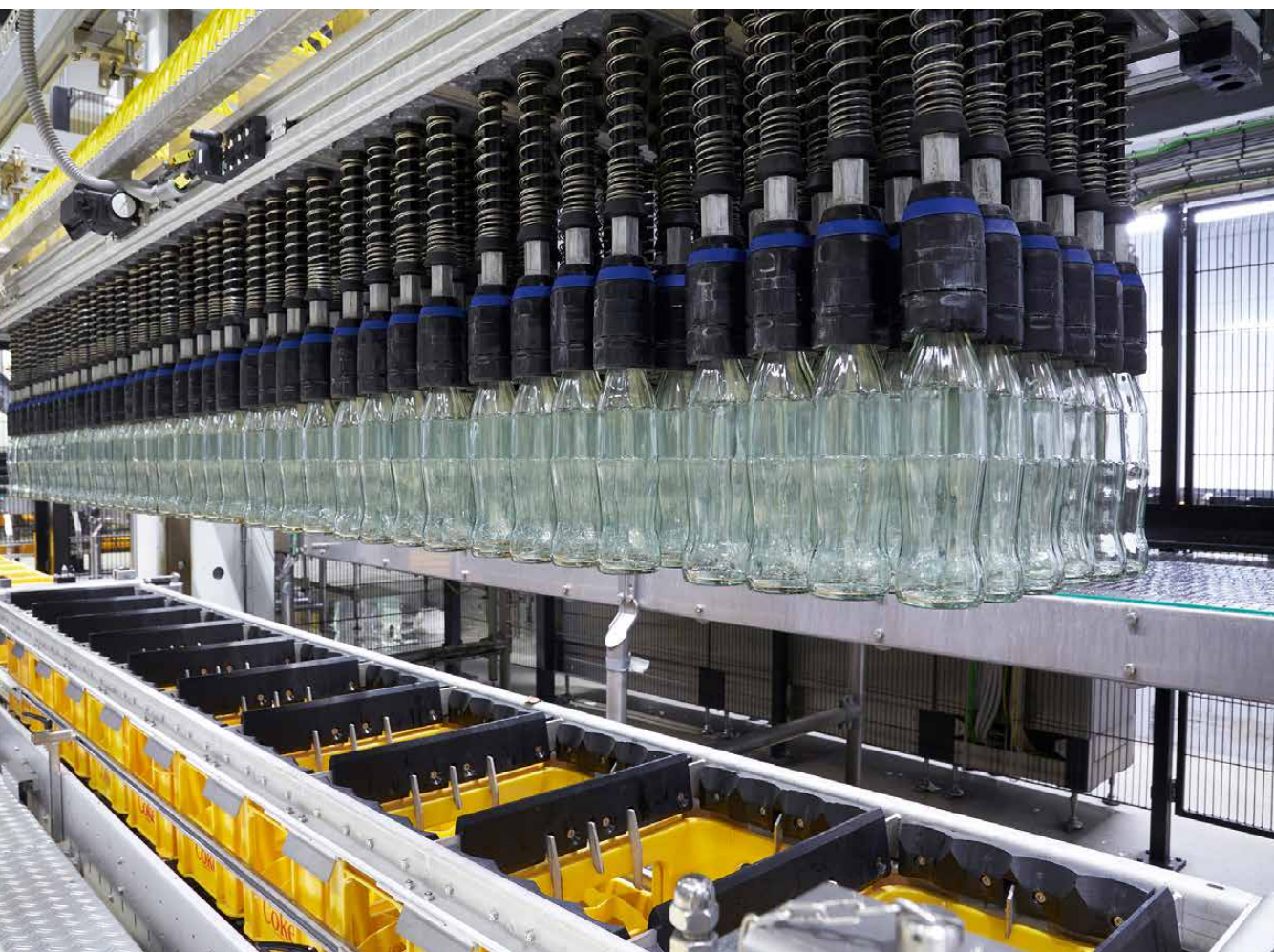
of the business. In 1983 she then made the bold decision to build a completely new factory – at the present location in Mannheim-Vogelstang. Very soon after its opening, over 30,000 bottles per hour were being filled on new plant engineering.

High-tech in Mannheim

Today, the production plant is part of Coca-Cola Europacific Partners Germany (CCEP DE), the biggest beverage producer in the Federal Republic. "Among our older employees there are still plenty who fondly look back to what's known as the Cola Müller era," smiles Christopher Bee. The 39-year-old has worked in Mannheim for seven years and was made plant manager in September 2021. The extensive company premises do indeed still belong to the Wilhelm Müller Foundation, with the lease extended for another 30 years just two years ago. "There's nothing old-fashioned about our technical equipment, however," he grins. "In 2018 and 2019 we invested around 50 million euros in two new filling lines. These were the biggest investments ever to be made in the history of our production site. This makes us here in Mannheim one of the most technically advanced Coca-Cola plants in Germany and Europe."

One of the two new production lines is a returnable glass system from Dortmund systems supplier KHS. "We fill a total of six different bottles on this line: four in 200-milliliter and two in 330-milliliter format. The smaller sizes are primarily destined for the hospitality trade, where the packaging has to be a bit more impressive than for retail. This is why the Coca-Cola, Fanta, Sprite and mezzo mix brands on this line have their own respective bottle designs. We process two formats for the bigger containers that are also sold in the retail trade: what's known as the contour bottle for products in the Coca-Cola family and our green multibottle for Fanta, Sprite and mezzo mix."

One outstanding feature of the KHS line is the sorting system that can feed the empty bottles by type to the washing and filling process fully automatically. "In principle, the sorting and filling processes take place on two separate systems. We use a segment to combine both sections with one another specifically for our main product types, the 200- and 330-milliliter Coca-Cola bottle. Here, the containers that are largely returned from the market by type are sent straight from sorting to production. They no longer have to take a detour through the empties warehouse. This reduces the amount of effort needed for handling." The other five product types from the



+ Innopack PPZ - The intelligent KHS Innopack PPZ decrater places the unpacked bottles onto different conveyor belts.

sorting process are first packed into beverage crates and then onto pallets before being temporarily stored until they are filled.

Intelligent decrater

Thanks to the system's high degree of automation, the only manual task required takes place right at the start of sorting. When the crates arrive, they're scanned from above. If they're found to contain foreign objects such as paper cups or film, the crates can't be identified. The obstacle must then be removed by hand before the crate can be fed back into the automatic process. "The decrater is so intelligent that it places the biggest bottle type on one conveyor," explains Bee. "The smaller bottles are set down on a different conveyor where they're separated and guided to different lanes with the help of camera systems and pushers. Here, we aim to manipulate the containers as little as possible: in other words, to ensure that they have very little contact with the machine. In this way, we can keep the risk of something falling over at such high speed to a minimum." With an output of up to 66,000 bottles per hour the sorting system has a greater capacity

than the returnable glass line that can fill a maximum of 60,000 bottles every 60 minutes. This means that CCEP in Mannheim seldom suffers any downtime with its empties – even during the peak season.

Great flexibility

The irregular return of empties often results in peaks, says Bee. One good example are music festivals, at the end of which more empty glass bottles are to be expected than usual. "What's special about this system is that it can individually react to these peaks," he states. "In order to facilitate this, during commissioning we ran a live simulation with an external service provider. On the basis of the results, in close cooperation with KHS we were then able to make a number of optimizations and fine adjustments to the layout that improved performance. This was extremely helpful, especially as we couldn't work under real-life conditions during the pandemic due to closures in the hospitality trade."

For Christopher Bee, one highlight of the new returnable glass line from KHS is the Innoclean DM double-end bottle washer. "On average we save



up to 40% in water and energy for each filled bottle compared to previous-generation systems,” Bee emphasizes. This is enabled by the fresh water control, for instance, that’s automatically adjusted to the current machine capacity by a control valve. The new ECO carriers are also good for the energy balance: they weight about a quarter less than the previous bottle pockets and have side openings that permit better rinsing. This reduces the amount of caustic and heat carryover and thus the cooling requirement within the machine. If at any point no empties are available, the bottle washer switches to an energy-saving idle state: its new standby mode. To this end, the Liquid Efficiency Spraying System (LESS) lowers the pressure of the spray pumps to 0.3 bar during downtime and thus cuts electricity consumption by up to 80%.

All set for net zero

As in an increasing number of companies, the issue of sustainability plays a big role at CCEP. By 2030 greenhouse gas emissions in Europe are to drop by 30% compared to 2019. By 2040 CCEP wants to reach its net zero emissions target and have no more impact on the climate. Not only the emissions from its main line of business are accounted for here; rather, significant areas of potential for reducing greenhouse gas emissions are being sought throughout the entire value chain. This includes investing in an energy- and resource-saving machine park and fully converting the company’s 2,300 service and commercial vehicles to electric drives by 2025. Coca-Cola in Germany avoids further emissions with its close-knit production and distribution network that manufactures and supplies beverages on a mostly regional basis. Where this isn’t possible, the beverage producer

+ Sophisticated sorting process - Like on the platforms of a huge railroad station, the sorted crates of deposit bottles await further processing.





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+ Product portfolio in Mannheim - The product portfolio produced on the KHS line in Mannheim comprises four product types, two beverage sizes and six different bottles.

is relying more and more on the railroad. In 2021 a freight network was set up with DB Cargo that links 13 sites with one another, allowing 1.7 million truck kilometers and 1,000 metric tons of CO₂ to be saved in the same year.

Coca-Cola and KHS: successful cooperation at several sites

Within the Coca-Cola network, Mannheim is the most recent of three major projects for more climate-friendly production that KHS has implemented with CCEP Germany in the last few years. A canning line for Karlsruhe about 70 kilometers away marked the start of the undertaking in 2015. "This line with its capacity of up to 120,000 cans per hour is convincing with our resource-saving tunnel pasteurizer, for example," says Robert Fast, project manager at KHS. "It uses water collected from the empty can rinser.

And the use of ionized air in the process water enables the amount of chemicals to be reduced compared to the standard process." The packaging machine is just as climate-friendly, he adds; the gas burner in the shrink tunnel cuts the consumption of electrical energy by up to 75% and carbon emissions by up to 60%.

In 2017 KHS installed a non-returnable PET line with a capacity of up to 42,000 bottles per hour in Mönchengladbach on the Lower Rhine. "One of the reasons we won the contract was our extensive electricity-, water- and gas-saving concept," Fast reports. "One example of this is the InnoPET Blomax stretch blow molder. The near infrared or NIR technology of the heater, where the preforms are heated upstream of the actual stretch blow molding process, cuts the amount of energy needed."



“

Mannheim is now one of the most technically advanced Coca-Cola plants in Germany and Europe

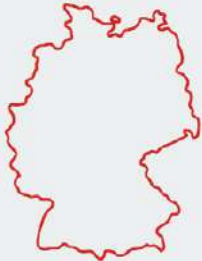
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Christopher Bee of course also knows that investments of this magnitude are not the rule. He thus considers himself all the luckier that he's been able to experience this at 'his' plant. "To see how a production site develops to represent the entire production range is something really special," he says happily. "It's of course clear that we'll return the trust placed in us in the form of extremely good performance." 'Cola Müller' would have undoubtedly echoed this sentiment.

At a glance: Coca-Cola Europacific Partners

With 33,200 employees and 1.75 million customers in 29 countries, Coca-Cola Europacific Partners (CCEP) is one of the world's leading consumer goods companies. The beverage bottler produces and sells popular beverage brands such as Coca-Cola, Fanta and Sprite in Europe, the Pacific and Indonesia. CCEP Deutschland GmbH is part of CCEP and with a sales volume of over 3.5 billion liters (2021) is the biggest beverage company in Germany. The bottler employs around 6,500 people throughout the Federal Republic.

FACT CHECK → CCEP GERMANY

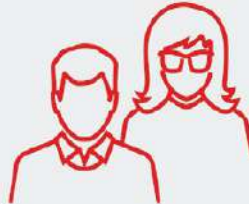


THROUGHOUT ALL OF GERMANY

- 14 production sites and
- 14 further facilities
(primarily logistics centers)

**Around
6,500**

employees
in Germany



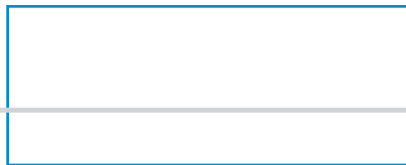
60 different beverages

— soft drinks such as Coca-Cola, Fanta and Sprite; mineral waters, spritzers, organic beverages; energy drinks; tea and coffee beverages. In cans, returnable glass or PET and non-returnable PET bottles holding between 200 milliliters and two liters.

HOW MUCH? More than 3.5 billion liters in sales volume in 2021 make CCEP Germany one of the biggest German beverage producers.

www.cocacolaep.com

+ Fact check: CCEP Germany



About the KHS Group

The KHS Group is one of the world's leading manufacturers of filling and packaging systems for the beverage and liquid food industries. Besides the parent company (KHS GmbH) the group includes various subsidiaries outside Germany, with production sites in Ahmedabad (India), Waukesha (USA), Zinacantepec (Mexico), São Paulo (Brazil) and Kunshan (China). It also operates numerous sales and service centers worldwide. KHS manufactures modern filling and packaging systems for the high-capacity range at its headquarters in Dortmund, Germany, and at its factories in Bad Kreuznach, Kleve, Worms and Hamburg. The KHS Group is a wholly owned subsidiary of the SDAX-listed Salzgitter AG corporation. In 2021 the KHS Group and its 4.954 employees achieved a turnover of around €1.245 billion.

For more information go to: www.khs.com/en

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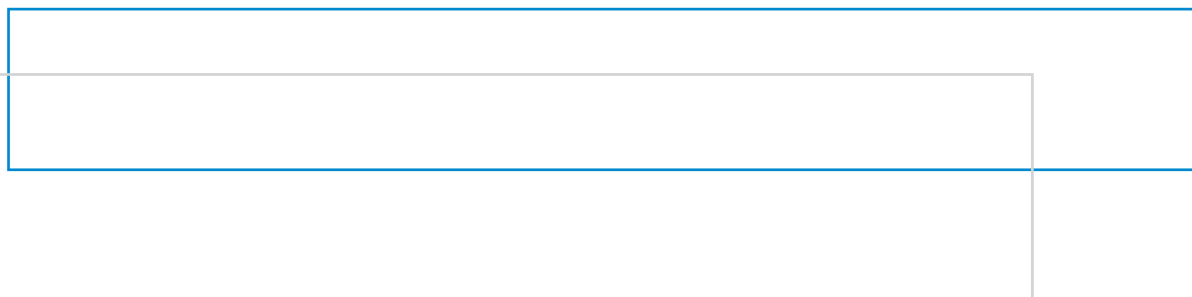
Belt Spend, Maintenance Cost & Down Time



What happens when a world-renowned tire manufacturer acquires a global engineered solutions leader? The answer is a revolutionary product line that is transforming the belting industry. In 2018, The Michelin Group purchased Fenner Precision Polymers and the two joined forces on high-tech material development. Using technology derived from the polymers and reinforcements found in tires, Fenner's belting division developed a belt with 6x longer life, 4x greater load carrying, and a 99% roller-to-roller efficiency. In this exclusive Motion+Drives interview, Derek Forney and Chris Ward explain the significance of their company's newly released product Eagle XLD.



+ Derek Forney - Senior Product Manager for our belting division



Can you tell us more about your position at Fenner?

Derek Forney- I'm the Senior Product Manager for our belting division. I'm heavily involved in product development and work closely with our colleagues at Michelin to make sure we have the right product-market fit and that we are supporting the needs of our customers.

Chris Ward – I'm the Senior Applications Engineering Manager. My team deals with the customer-facing side of the business from a technical standpoint. We are extremely knowledgeable about how our products are used in the field. We make recommendations to customers and make sure the products are being used correctly.

What is XLD and why did you want to launch this product?

We were acquired by Michelin about 4 years ago as part of a broader transition of the Fenner Group and we ended up within the high-tech materials division of Michelin. When asked what knowledge sets Michelin could transmit to Fenner, immediately it was polymers and reinforcements. There is a lot of technology around a tire that can transfer to a belt. Coming out of that, **why did we make Eagle XLD?**

Out in the marketplace today within big distribution centers there are miles and miles of conveyors, usually steel rollers that are all driven a couple of different ways. The main way is with a small elastic-like band that has some stretch to it and connects 1 roller to another. When one roller is powered, obviously the other rollers will also drive. The problem with an elastic band is that over time it stretches and becomes very inefficient, but it installs

easily. There are millions and millions and they are changed out very quickly depending on the load and other factors. **The idea was, can we make a product that can carry a similar load or higher load while giving significantly more life than what is being used today.** We have a lot of customers, especially on the end-user level who have a major pain point around these belts not lasting very long.

Overall, this is a problem solver. XLD can drive 15 rollers in each direction rather than 5, cutting down on the number of motors needed to install. Aftermarket users don't have to keep changing belts, and OEMs can effectively make a cheaper, more efficient long-term system.

Standard O-rings have lots of lengths and colors. How does XLD compare, and does it have similar options?

This is one of the factors we looked at when we designed the product. Today, there are a lot of different install tensions that drive a belt length and because most belts are fairly simple, you can make many different sizes from a production side without complexity in production. The reality is there are only about a dozen common center distances, however, the industry has thousands of skews with different lengths and colors which doesn't make much sense. XLD takes the install tension out of the equation. By simplifying the belt length to focus on the center distance we can cut down on the number of belts. We went from thousands of belt sizes down to 15. And that is a game changer for the distribution side of the market. It reduces the complexity around inventory and makes it simple for customers. Facilities may only need 2 or 3 sizes. The distributors can now stock the right sizes and avoid having to order the perfect size making sure the customer doesn't go line down.



+ Chris Ward, Senior Applications Engineering Manager



**Why would customers want to switch?
Why would a customer want to use XLD
instead of a Poly-V?**

O-rings are a U.S. market-centric product. Europe in general has transitioned more to Poly-V. Poly-V has a substantially higher load transition capability and for whatever reason, the US has not gotten there yet, but Poly-V is a growing piece of the U.S. distribution market (still a fairly small piece in comparison). As conveyer lines get faster, OEMS want to run lines sooner. The belts are going to wear out faster and won't be able to carry the necessary loads.

They have 2 options. They can go to Poly-V or continue to run on their existing platform and have a lot of failures. XLD lasts substantially longer. And through our many other product lines we know that if we add a reinforcement, the product will be able to handle a greater load.

With standard o-rings you only get 90% transfer efficiency, so your losing 10% transfer efficiency from one roller to the next. If your first band is at 100%, your next roller is at 90%, the next is stepping down another 10%, and so on and so forth. So, you only get 5 rollers per motor as a typical recommendation. That's not because of the capability of the motor, it's because of the inefficiency of the current product they are using today. And once it doesn't have enough power anymore, once you drop down to 60-70% of the original power transmission, those packages on the conveyer aren't going to move. They are going to start to stall out and then it really becomes an issue. **With XLD, we can maintain a 99% transfer efficiency. We can make sure we can go a**

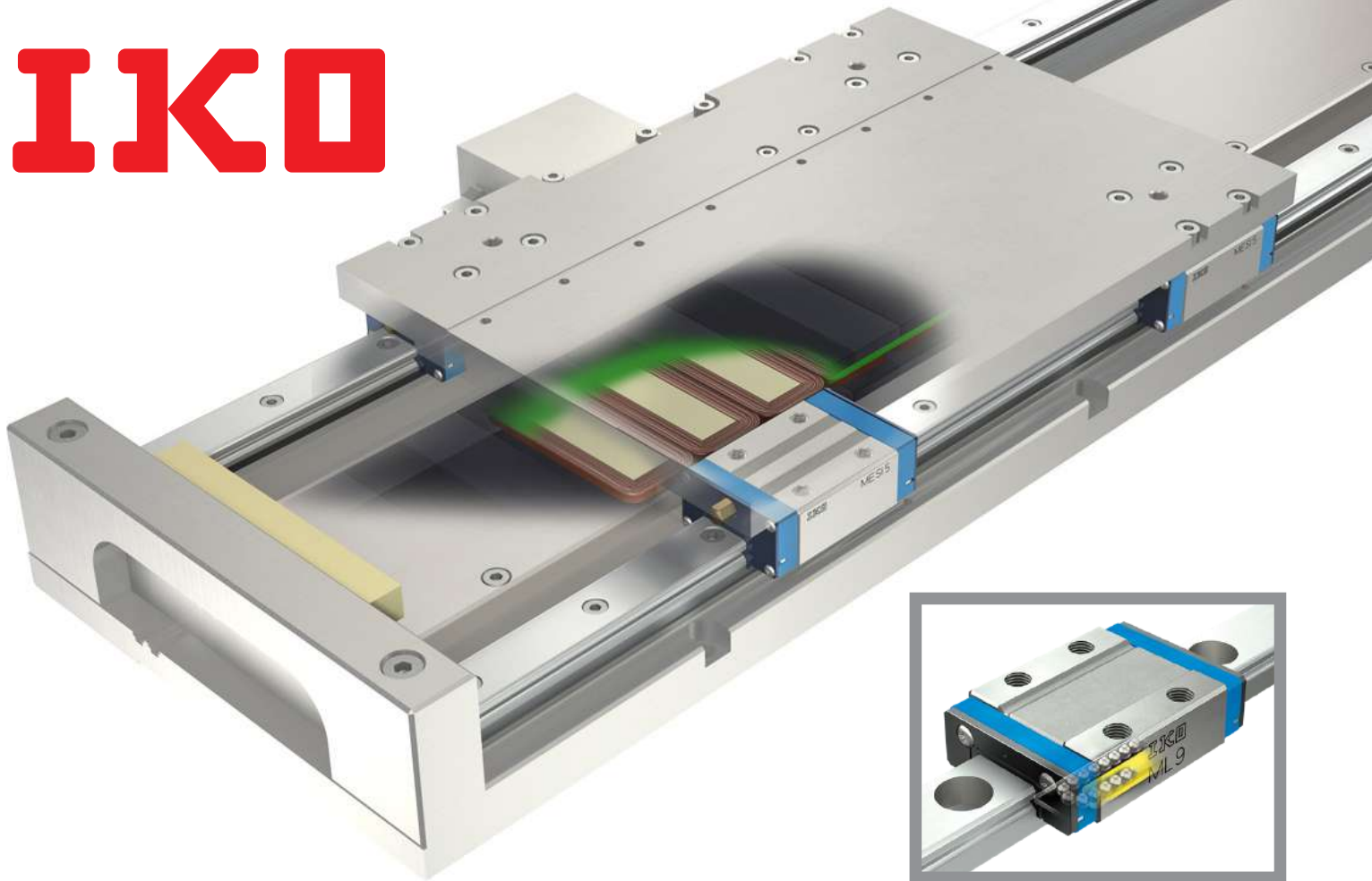
substantially longer zone at higher speeds at higher loads, and the belts are going to last substantially longer. From a unique product position, you don't need to go to a Poly-V, you can use XLD and it gives you nearly the same type of capability without having to change out your conveyer, assuming that your motor can transmit the load.

**You have touched upon efficiency –
why does this matter?**

One of the key pieces we saw as we talked to our customers, they want efficiency. When asked if they could have 1 thing what would it be? The answer is always efficiency. The total cost of ownership for that entire line. That's where the lower long-term cost matters (less downtime).

One of our larger distributors is working with one of the e-commerce giants and their concern was that they weren't even costing these items, they were just considering them variable overhead parts. It's a high waste item because in 3-6 months they likely wear out and, in some cases, it might be days. Over the last 2-3 years. We saw a massive e-commerce boom. Every time these belts fail, a company like Amazon has to shut down a line and it costs tens of thousands of dollars each time. It's not just product cost, it's downtime.

Fenner Precision Polymers is a trusted supplier of engineered solutions for performance-critical applications. For more information on bi-modulus reinforced belting, please reach out to our applications or sales team. email: AE@fennerppd.com



RAPID AND STABLE LINEAR MOTION IN ANALYSING DEVICES, THANKS TO **IKO** LINEAR WAYS.

An increasing number of tested samples per hour and zero failures are the most important factors in bioscience analysers. Nowadays, linear motion mechanism is an indispensable part in these devices which are used widely in medical and researching facilities. Though dozens of linear bearing manufactures provides small size linear guides in the market, IKO Nippon Thompson brings unique technology and solutions to these high-end devices with our unique technology and the solution we offer:

- Excellent and accurate repeatability
- Maintenance-free
- Made from corrosion resistant stainless steel

The engineer from one of IKO's Miniature Linear Way ML users who is responsible for designing the precision scanners for their medical devices explains: "Smooth and stable linear movement without a mechanical clearance is absolutely a crucial factor for our device performance. A linear motor-driven table must have zero-compromise speed stability in order to achieve a high quality scanning of the biological membrane. IKO Linear Way brought the solution to our high demands." During the prototype designing, the engineer and IKO discussed numerous factors and finalized the specification. In addition, the end users or maintenance engineers of the devices are free from a re-lubrication thanks to IKO C-Lube technology. In addition to providing the above mentioned technical solutions, IKO worked together with the customer to plan and arrange optimized delivery control in a recently problematic supply chains system, successfully securing the customer's on-schedule production.

IKO Miniature Linear Way ML does not stop in the field of mechanical parts, but has evolved to IKO linear motor tables by incorporating their excellent performances. IKO provides the extremely thin and compact structured linear motor tables that are suitable for bio-medical, semiconductor, small automation devices. These positioning tables achieve quick positioning from A to B with more than 80% reduction of the settling time compared to the ball screw driven mechanism.

IKO provides the following size range
Miniature Linear Way ML : 1mm to 42mm in width
Linear Motor Table NT : 38mm to 88mm in width
Linear Motor Table LT : 100mm to 170mm in width

experts in
MOTION

For more information on how IKO can support your new and current projects,
visit www.ikont.eu or email nte@ikonet.co.jp,
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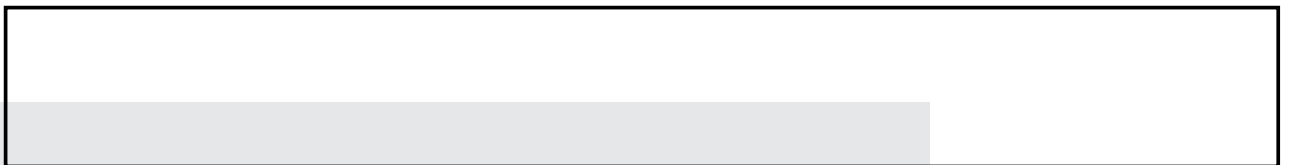


acorn®
industrial services limited

— MEGADYNE MEGASYNC™ TITANIUM the new Flagship High Performance Power Transmission Belt

+ + + + +

Megadyne, a global manufacturer of rubber and polyurethane power transmission belts, is excited to announce the launch of Megasync™ Titanium. Titanium, now Megadyne's new flagship belt, delivers a new level of performance for Synchronous timing belt drive applications.





According to Anna Villalta, Global R&D Manager of Rubber Power Transmission Belts, "The new belt design surpasses the current industries offerings with an enhanced carbon cords, unique cross linked elastomer construction, and a new low friction self-lubricating tooth facing. One of the most important features however, is that the belt is anti-static."

The combination of materials and belt design used to create Titanium have been tested against industry leading belt brands and proven to deliver outstanding results.

The belt's anti-static features, high strength cords and wide temperature range make Titanium the right choice for high performance needs across a broad range of industries and applications such as HVAC, Material

Handling & Logistics, Agriculture, Wood, Marble & Heavy industry, Textile and Machine Tools.

To learn more about Titanium visit megadynegroup.com
To schedule an in-plant audit of your problem drive applications, contact us and fill out the form on the website.

About Megadyne

Headquartered in Italy, Megadyne is one of the world's leading companies in power transmission systems. An industry leader in both R&D and in its service platform, Megadyne designs, manufactures, and distributes, belting solutions for a wide range of applications covering nearly every major industry. Megadyne is Member of Ammega Group.

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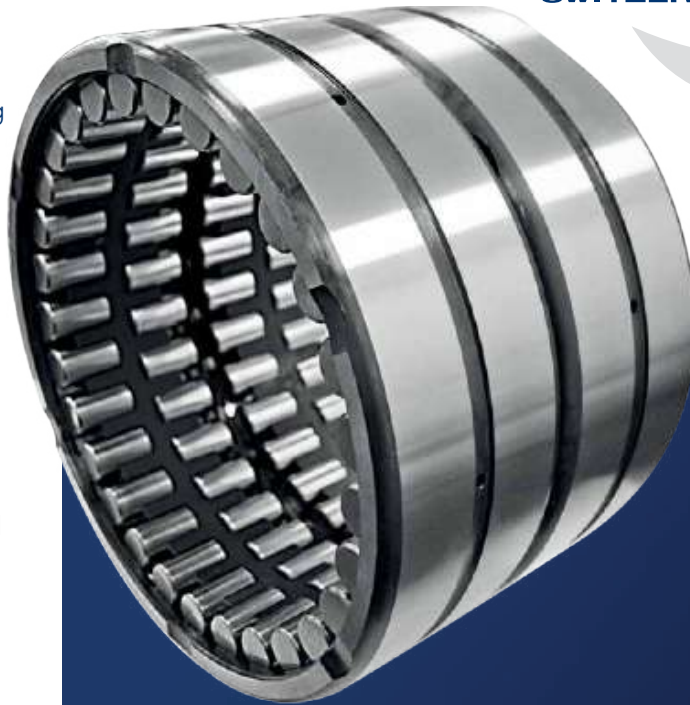


RKB: THE **SWISS** PREMIUM BEARINGS

The RKB Bearing Industries Group is the **Swiss manufacturing** organization which has been operating in the **bearing industry** since 1936, with a monthly production capacity exceeding 350 tons of machined steel.

- **Development** and **manufacture** of technological industrial bearings
- RKB offers reliable **cost-effective solutions**
- **Huge stock** availability and short delivery time
- **Worldwide distribution** network and exports to more than 60 countries

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PRODUCTS

RKB offers a wide assortment of **industrial rolling bearings** and accessories that best meet **customers' performance needs**. Our catalogue, which boasts a product range of over **12.000 part numbers**, is conventionally subdivided into three main segments: miniature and small size precision ball bearings **up to 35 mm bore diameter**; standardized bearings **up to 1.925 mm outer diameter**; and technological and optimized bearings for special applications.

SERVICES

In today's business scenario, the effective management of assets is crucial to deliver value-added solutions, improve productivity and **reduce the total cost of ownership**. RKB offers a wide array of services expressly worked out to **support customers over the entire life cycle of the asset**, from early consulting projects to after-sales maintenance.

MARKETS

RKB serves a **full range of industries all around the world**, having developed specific **knowledge** and **expertise** in each of them. Understanding the unique attributes and requirements of every industry is at the base of our **manufacturing** and marketing philosophy.



TOGETHER WE ARE WORTH MORE!

Motion Control Solutions

from **RegalRexnord**

Creating A Better Tomorrow

+ + + + +





Regal Rexnord™ Corporation is a global leader in the engineering and manufacturing of industrial powertrain solutions and power transmission components, serving customers throughout the world. Our solutions are found in cement, food and beverage, intralogistics, agriculture, material handling, construction, mining, automotive, forestry, and more. Our essential products help keep systems running in mission-critical applications worldwide, while being sustainable and energy efficient.

Trusted Brands, Expert Knowledge

Our teams of expert engineers have years of industry knowledge and experience, ensuring innovative solutions that target your most specific needs. We know the ins and outs of these applications, from the

smallest bearing to the largest belt. Regal Rexnord partners with our customers to carefully select the products that solve their toughest challenges. Our flagship brands have amassed billions of hours of reliable operation and are well-known throughout the industry for their high quality.



Rex® high performance roller, leaf, and engineered chain exhibit outstanding performance in challenging conditions. Rex RN Series metric mounted spherical roller bearings with SHURLOK tapered adapter were designed shaft-ready for ease of use and durability.



CENTA® is the world's leading manufacturer of torsionally soft couplings, primarily used in marine, industrial, and wind.



Euroflex™ has a strong reputation of high-performance disc couplings, used in power generation, gas compression, and industrial process machinery.



Jaure™ family of flexible couplings and transmission elements include the LAMIDISC, MT, and BAREFLEX European brand leaders since 1958.



McGill® Metric Camrol® cam followers feature LUBRI-DISC® seals that provide positive protection against contamination and loss of lubricant.



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Sealmaster® mounted ball bearings are engineered to reduce downtime. The IP69K-rated PN Gold™ offers corrosion resistant solutions for washdown environments.



System Plast® is a global leader in high quality plastic conveyor chains, modular plastic belts, and industry-leading conveying components.



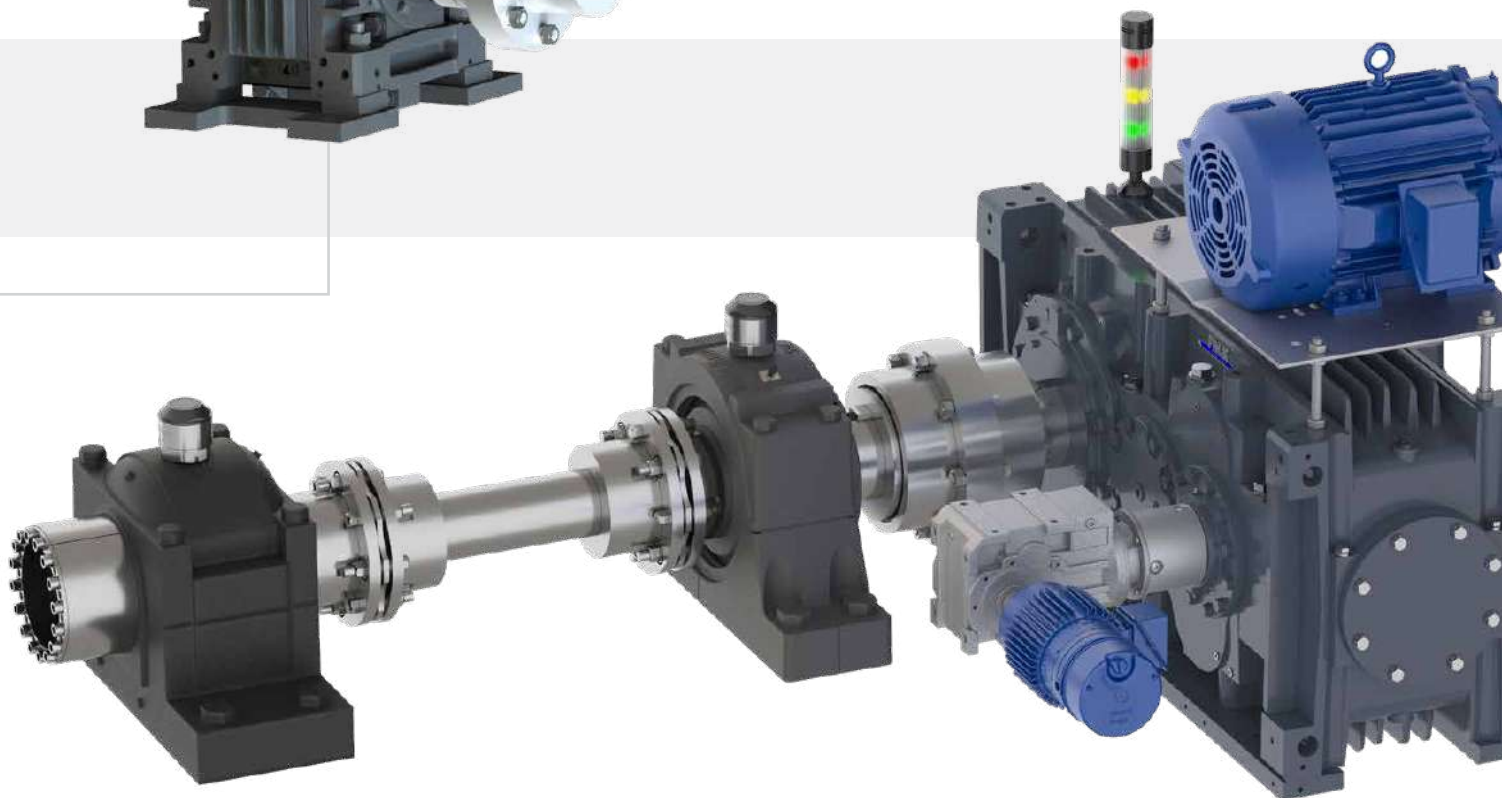
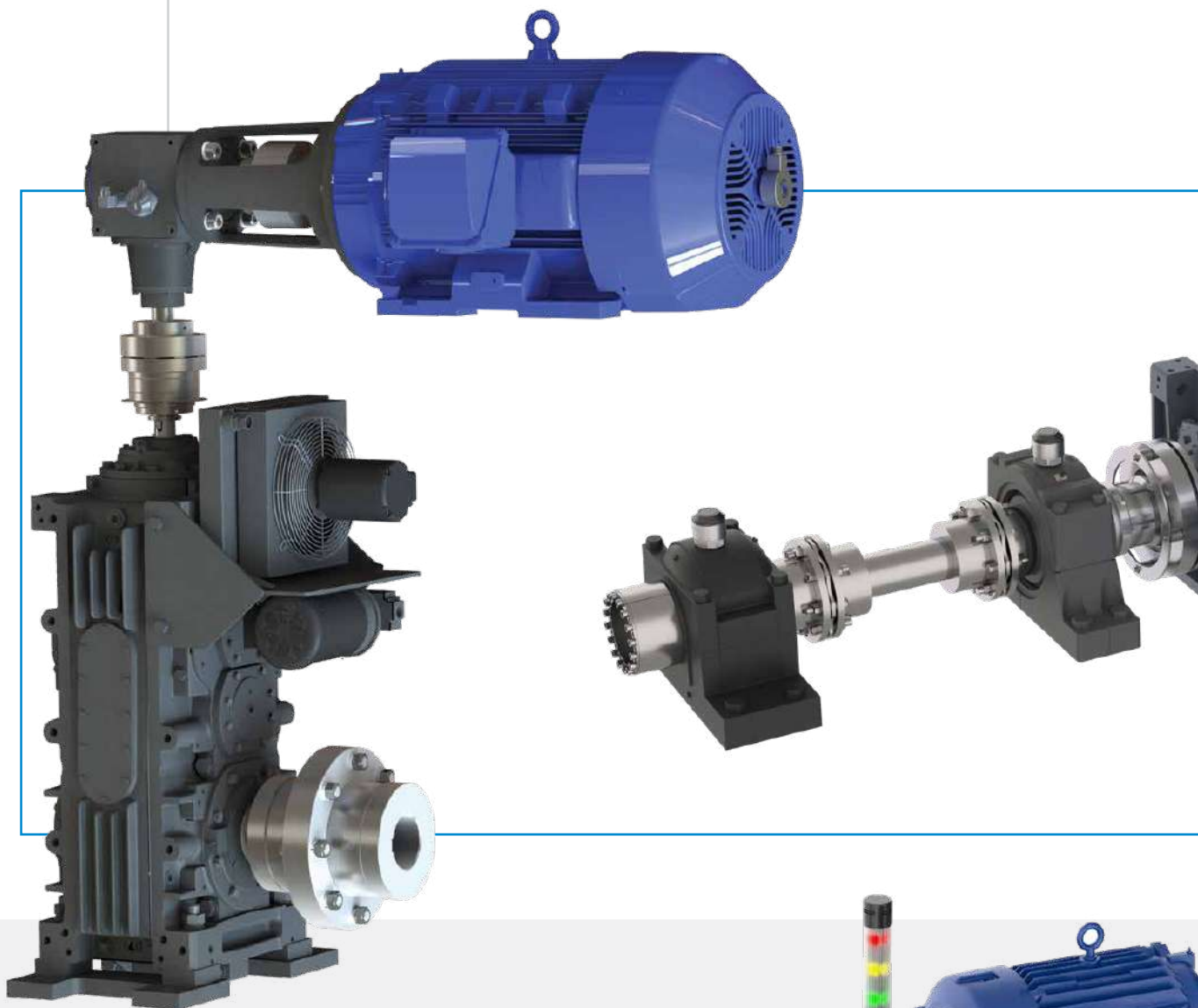
Rexnord® KleanTop® belts provide a plastic modular belting solution for conveyor applications requiring adherence to strict hygiene regulations.

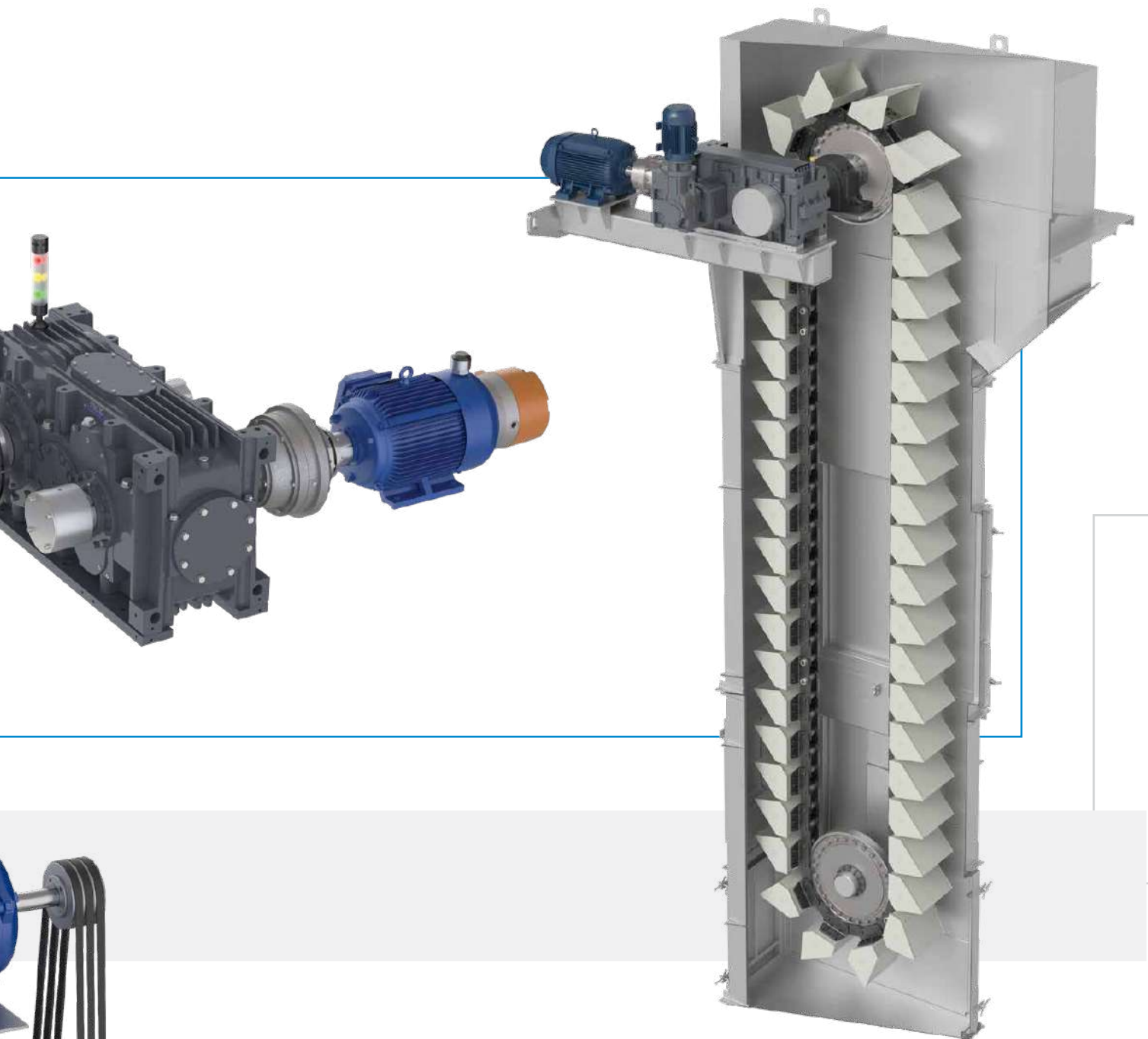
Rexnord MatTop® & TableTop® chains are engineered to satisfy a wide range of conveyor applications, with straight running and side-flexing chain designed to convey flawlessly.



Perceptiv™ condition monitoring enables our customers to improve productivity, increase uptime, and enhance safety by monitoring equipment from a distance.

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Worldwide Reliability

With manufacturing, service centers, and engineering support across the world, Regal Rexnord can meet you where you are. We maintain stock in Europe to ensure our customers have what they need. Our global reach ensures that wherever our customers are in the world, they receive the same expert level of service and reliability.

Regal Rexnord designs and manufactures the products that keep your applications running. Our expertise and our strong portfolio of brands make us a trusted source for sustainable, durable, problem-solving solutions. Our brands and products have the longevity needed to maintain industries around the world.

More information about Regal Rexnord™ can be found at www.regalrexnord.com



+ Dr. Michael Britzger, Director IIoT Engineering at Emerson

Five questions for **Dr. Michael Britzger –** **The future of intelligent energy management with SMART Pneumatics**

+ + + + +

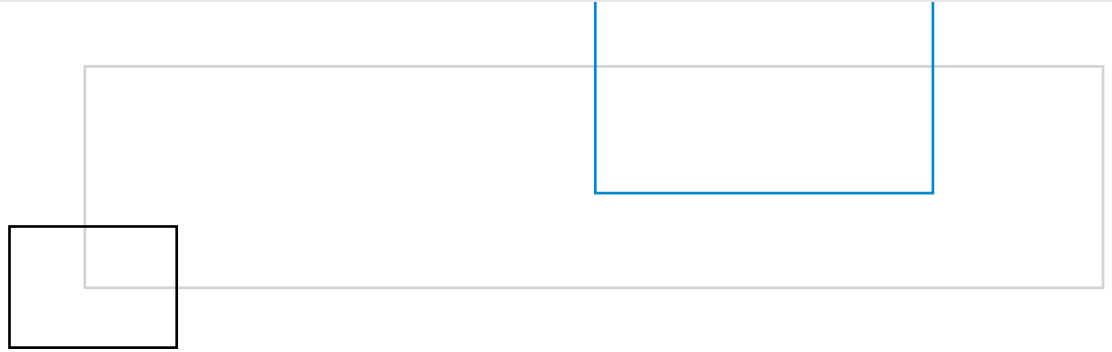
Mr. Britzger, the overall economic situation has now come to a head for many industries. What challenges are manufacturers currently facing?

Currently, we are witnessing immense pressure across various industries: This is stemming from the megatrends of digitalization and sustainability, as well as from bottlenecks in global supply and high energy prices. Manufacturers are growing increasingly concerned over their competitiveness

and are having to find alternatives for raw materials, implement energy-saving measures, and curb production costs. This is particularly challenging for small and medium sized companies, as they do not have the financial or human capacity for extensive, complex digitalization projects that could boost their plant and process efficiency.

So how can manufacturers tackle this situation?

“
Our vision is driving innovation that makes the world
healthier, safer, smarter and more sustainable.
”



When it comes to efficient production, industrial energy consumption is an essential consideration – particularly in the field of pneumatics, where up to 30 percent of the compressed air in manufacturing plants is lost due to leaks. This not only results in machine downtime, but also pushes up energy consumption and costs. Unfortunately, many companies are not even aware of what the optimum compressed air consumption is for their manufacturing processes – yet by lowering the pressure in the pneumatic system, the air throughput can be reduced while the cycle time remains unchanged. The effects can be felt immediately: Not only can compressed air consumption and costs be reduced by 10 to 20 percent, but CO₂ emissions can also be slashed by 10 percent. A win-win situation for both plant efficiency and the environment.

How does Emerson address the challenges of sustainability, overall plant effectiveness and connectivity?

Here at Emerson, we want to help users and process owners visualize, understand and ultimately optimize their environmental footprint. This means using intelligent systems that monitor machine processes and overall efficiency, analyze relevant data and detect technical problems, leaks and anomalies at an early stage. This allows users to perform predictive, even preventive maintenance, which reduces unplanned downtime and improves the operation time of machines.

That's where we come in. We remove the technical barrier faced by process planners and plant controllers by providing easy-to-configure, automated tools that offer intelligent monitoring and reliable forecasts. The energy-related data from different lines of business is fed into a digital ecosystem that displays comprehensive savings potential. As this is an open platform solution, a variety of hardware components can be easily integrated into the energy management system.

What role does the merging of operational and information technology (OT and IT) play here?

All of these processes require a particular IT structure, which is something of a challenge considering the widespread shortage of skilled workers. This increased integration of OT and IT is enabling innovative solutions for industrial automation. Instead of relying on a complex network of fragmented IT expertise, we can pool the required know-how in one place and make it accessible to every process planner and plant controller.

What vision does Emerson pursue when it comes to driving its technologies forward?

Exciting times lie ahead for us as automation technologies are set to continue evolving at a rapid pace. Today, we can provide real-time diagnostics with intelligent solutions and the synergy of OT and IT, but in the future, there will be predictive analytics. This will reliably predict upcoming events based on historical and real-time data. Not only applying to compressed air consumption, in the long term, we will have the ability to monitor entire plant-related energy management systems. To make this a reality we need solutions that provide the entire energy consumption of plants both intelligently and in line with demand. Our vision is driving innovation that makes the world healthier, safer, smarter and more sustainable.

Dr. Michael Britzger, *Director IIoT Engineering at Emerson, focuses on IIoT business development for new products and services based on smart pneumatics and data-driven technology. Michael studied economics and physics in Austria, Spain and Germany. He earned a diploma from Leibniz University Hannover (Germany) and completed a Doctorate degree (Ph.D.) in experimental gravitational physics at the Albert Einstein Institute Hannover (Max Planck Institute). Michael is an expert in digitalization and technology communication, working for startups, as well as in industrial and private equity environments. He is well-versed in agile management strategies designed to harness the full digital capacity of both teams and organizations.*








Race finishing for the perfect surface

Superfinishing of antifriction bearings – Inner and outer rings

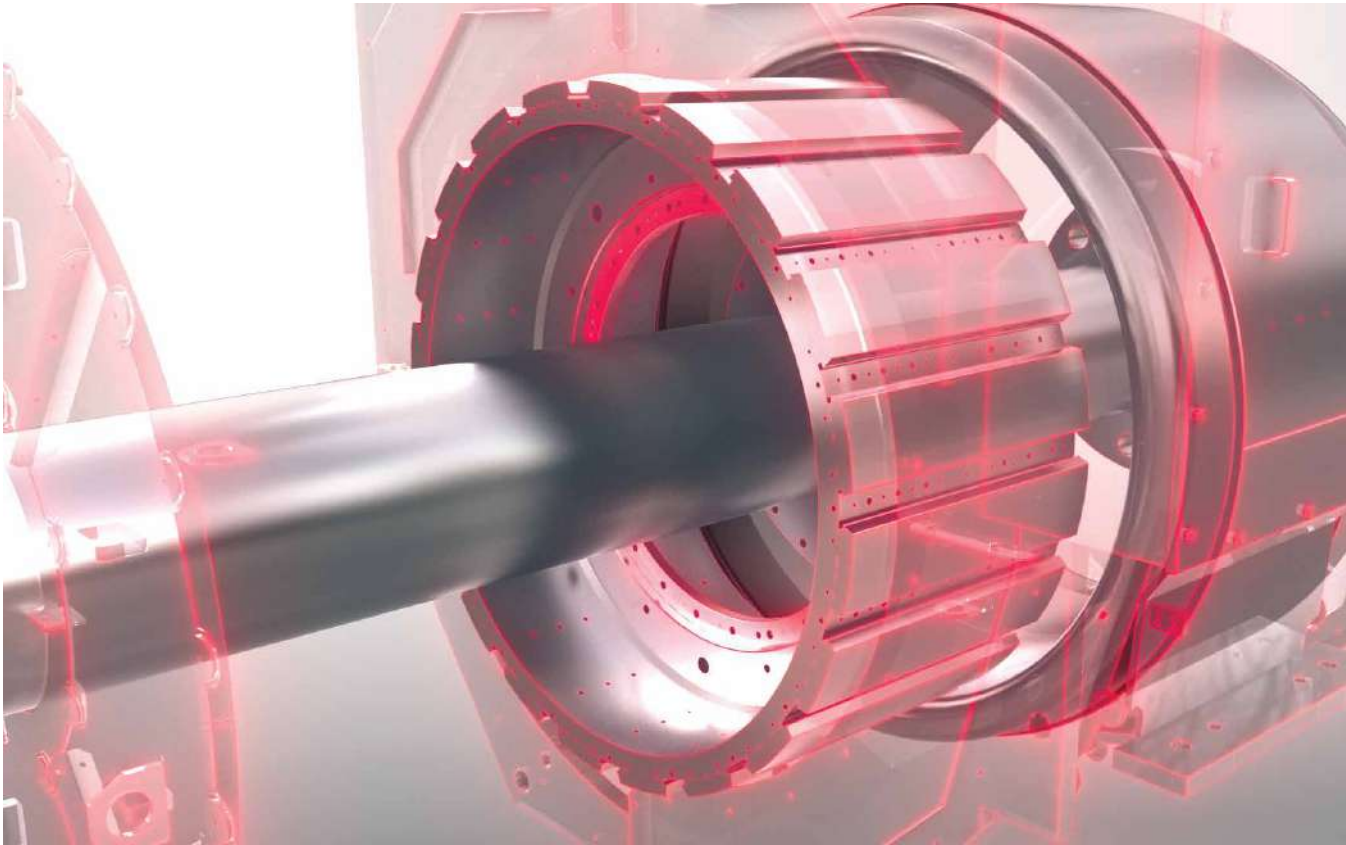
The world of rolling bearings is almost endless. From the gigantic bearings of offshore wind turbines to the micro bearings of the smallest variable displacement motors in our cars, a wide variety of shapes and sizes are used.

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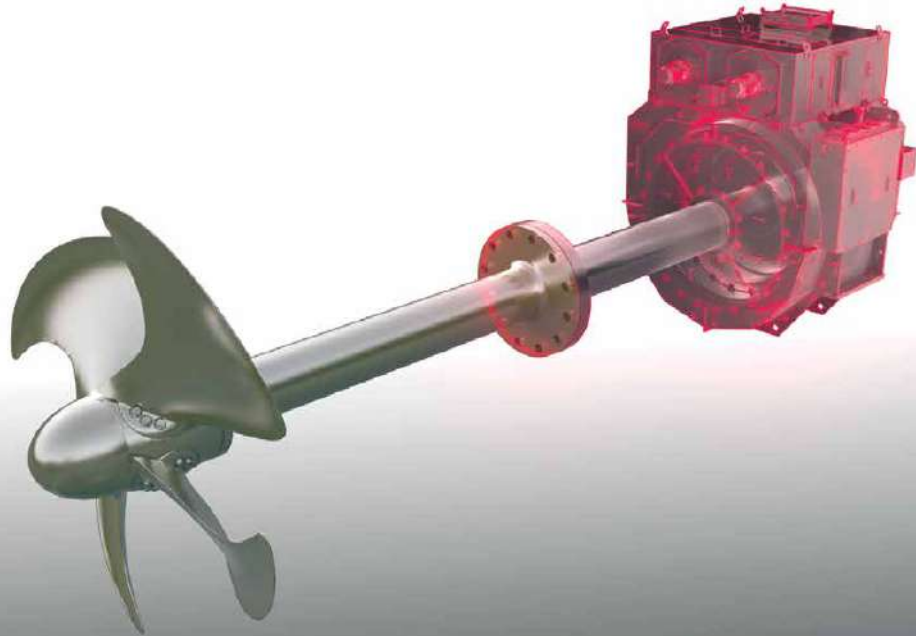
Are you looking for the right solution?
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– New shaft generator technology boosts marine energy efficiency

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- ABB permanent magnet shaft generator will enhance the efficiency, performance and reliability of ocean-going vessels
- Innovative design cuts fuel costs by up to 4 percent
- In-line generator is now up to 20 percent smaller and 30 percent lighter



The latest in-line shaft generator from ABB will enable ship operators to benefit from the efficiency, performance and reliability advantages of permanent magnet technology. The new generator brings flexibility and ease of installation to a wide range of vessels including bulk carriers, container carriers, liquid natural gas tankers and ferries transporting passengers and cars.

The AMZ 1400 permanent magnet shaft generator is optimized for converter control and enables better efficiency than either induction or electrically excited synchronous machines at both full and partial loading. This helps to cut fuel costs by up to 4 percent, offering a payback period of two to four years. It also significantly reduces CO₂ emissions by several tons for each day at sea.

Its compact size shrinks the footprint of the equipment package by around 20 percent compared to a conventional synchronous or induction type shaft

generator. At the same time, the weight is reduced by around 30 percent. The unit is also simpler to install at the shipyard, as the intermediate propulsion shaft is mounted to the generator and then lifted into the vessel for the alignment.

Juha-Pekka Kivioja, ABB Global Product Manager, Large Motors and Generators, said: "ABB permanent magnet technology has proved to be inherently reliable over three decades in large motors and generators, especially in offshore wind turbines and propulsion applications. Applying it to shaft generators is a significant step in helping vessel energy systems to align with the goals set out in the International Maritime Organization (IMO) for Energy Efficiency Design Index (EEDI), Energy Efficiency Existing Ship Index (EEXI) and Carbon Intensity Indicator (CII). Its potential to increase energy efficiency makes the permanent magnet shaft generator an important method for reducing emissions for larger vessels."



There are three possible modes of operation for the shaft generator in conjunction with the main propulsion engine. In Power Take Out (PTO) mode it supplies the main power for the vessel's electrical network. This optimizes the use of the large engine, while reducing the need to run auxiliary generators, saving on fuel costs and lowering emissions.

In Power Take In (PTI) mode the shaft generator acts as a synchronous motor for an additional power boost for propulsion. It can also provide Power Take Home (PTH) for emergency propulsion should the main engine fail.

The permanent magnet shaft generator and drive combination can also power thruster motors, enable shore to ship connections and connect other DC power sources or DC power consumers. Under its first order, ABB will supply the permanent magnet shaft generators for a fleet of twelve 210,000 dwt dual-fuel bulk carriers owned by Bermuda-based Himalaya Shipping.

ABB (ABBN: SIX Swiss Ex) is a leading global technology company that energizes the transformation of society and industry to achieve a

more productive, sustainable future. By connecting software to its electrification, robotics, automation and motion portfolio, ABB pushes the boundaries of technology to drive performance to new levels. With a history of excellence stretching back more than 130 years, ABB's success is driven by about 105,000 talented employees in over 100 countries. www.abb.com

ABB Motion keeps the world turning - while saving energy every day. We innovate and push the boundaries of technology to enable the low-carbon future for customers, industries and societies. With our digitally enabled drives, motors and services our customers and partners achieve better performance, safety and reliability. We offer a combination of domain expertise and technology to deliver the optimum drive and motor solution for a wide range of applications in all industrial segments. Through our global presence we are always close to serve our customers. Building on over 130 years of cumulative experience in electric powertrains, we learn and improve every day.



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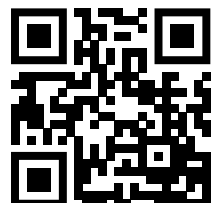


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The Arntz Optibelt Group opens new production site in Mexico

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By launching a production company in Mexico, the Arntz Optibelt Group is consolidating its growth on the American continent.



Construction work on the “Optibelt Production Mexico” manufacturing project began at the end of last year. “Since the 1970s, our company’s own sales organization has already positioned itself successfully in the USA and the other large markets on the American continent. This greenfield project in Mexico underlines our wish to support and accelerate our growth in the region by manufacturing our product ranges locally,” says Management Board CEO Reinhold Mühlbeyer while explaining the rationale behind the company’s activities.

Managing Director Konrad Ummen, of the Arntz Optibelt Group, adds, “When it comes to our new production facility, we are ambitiously pursuing our goal to launch our standard drive belt range, geared particularly to the general mechanical engineering and agricultural machinery segments, in an initial phase in Mexico, despite the prevailing difficulties with supply chains and procurement markets. We intend to have this site up and running, and producing the initial planned range of products by no later than the beginning of 2024.” The first phase of the project will have a modern production facility of over 10,000 square meters (100,000 square

feet), along with office space for administration and support teams. The site also offers considerable room for expansion and future growth to expand from the initial range of products in the initial phase and also increase the overall production capacity.

About Optibelt

The Arntz Optibelt Group is one of the leading global manufacturers of high-performance drive belts and develops sophisticated drive solutions for use in mechanical engineering, automotive industry, agricultural machinery, lawn and garden, household appliances and the medical sector. The family-run company controls eight production sites in six countries from its headquarters in Höxter and maintains its own logistics and sales centres in Europe, North and South America, as well as in Southeast Asia, Australia and New Zealand. Worldwide, more than 2,400 employees provide the best possible service, excellent customer proximity and the highest quality and safety standards.

www.optibelt.com



+ The new factory of the Arntz Optibelt Group in Mexico.

Designed for the future of safety.
Performance for a longer life.



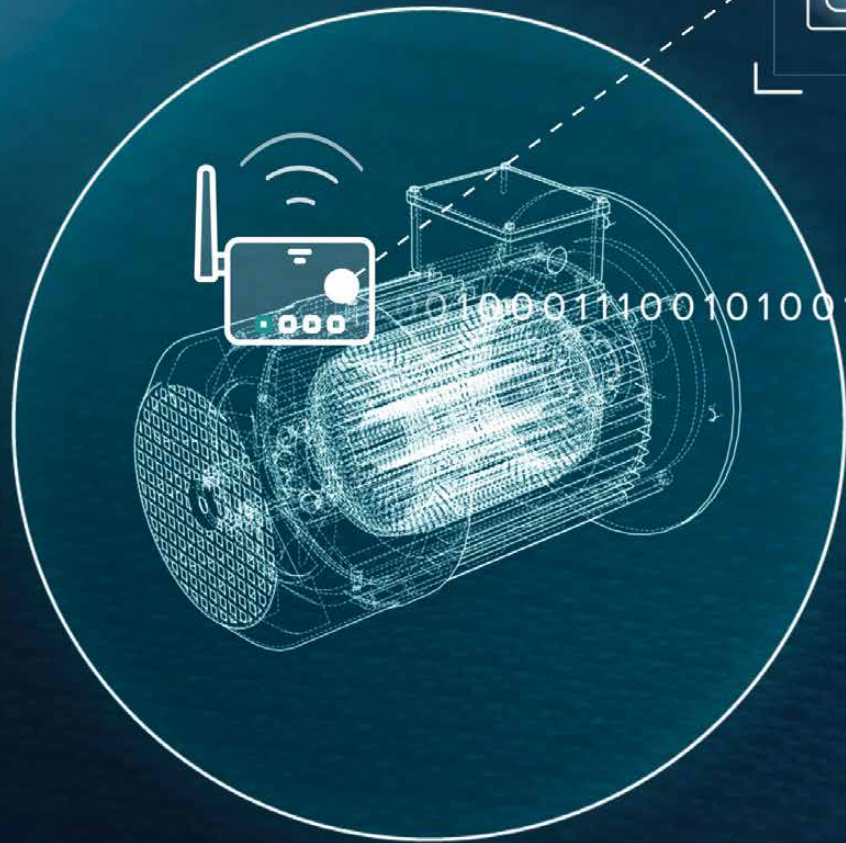
COC INC.



*New Spherical Roller Bearing Units
& New Stainless Ball Bearing Units
with innovative new designs
from JAPAN*







RVmagnetics

WHEN SCIENCE MATTERS

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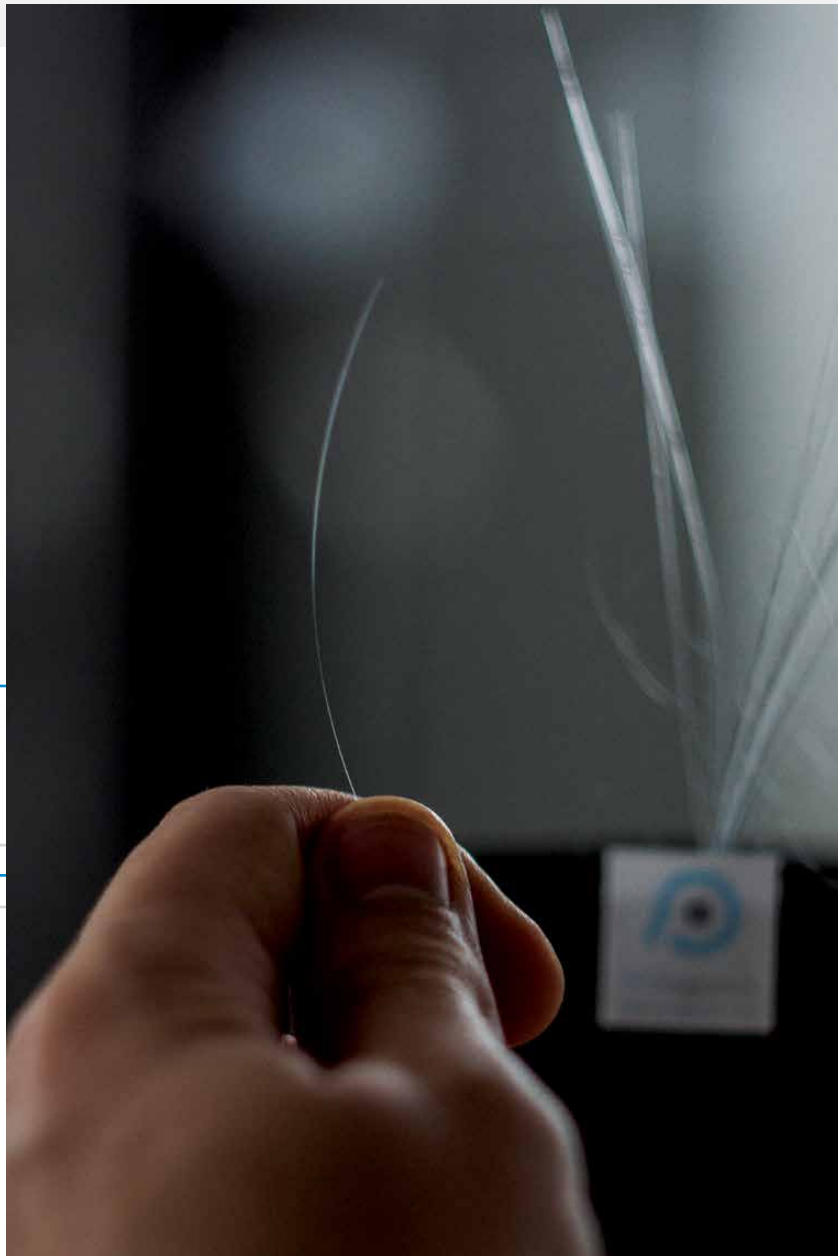
- **RVmagnetics Introduces Glass-Coated MicroWire Sensors *for* Magnetic Field Measurements**

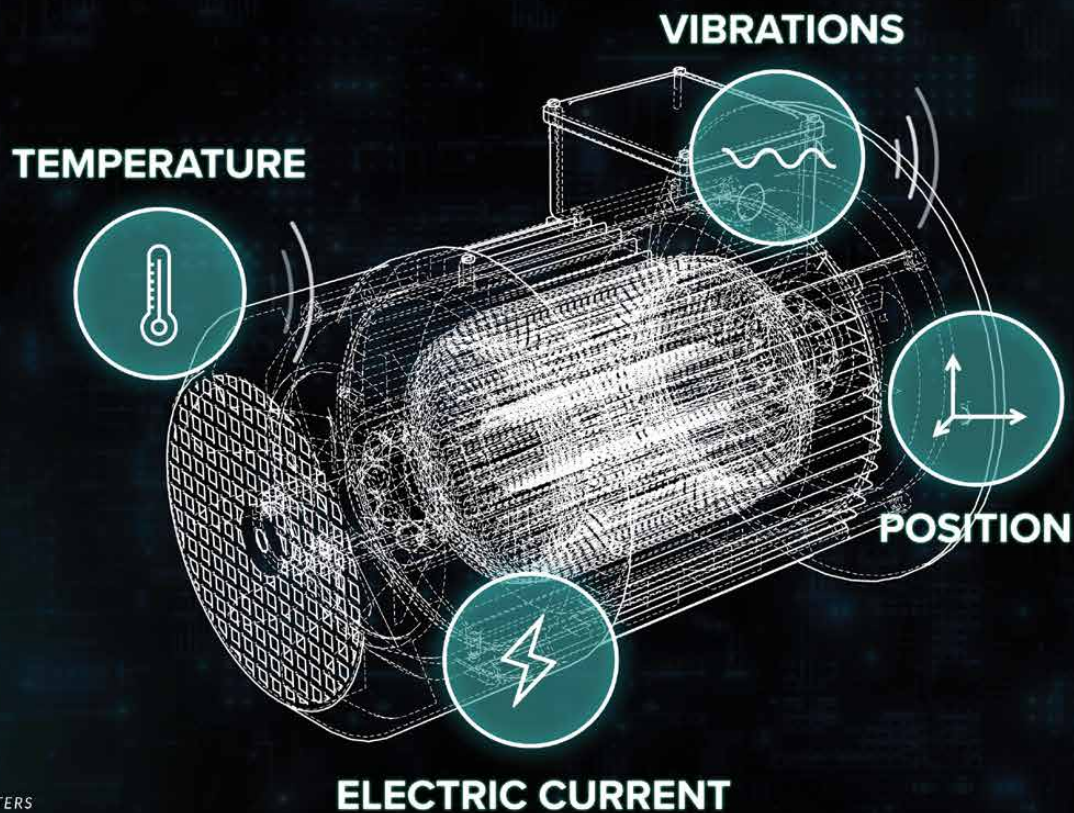


Data being processed from afar

RVmagnetics, a.s., a leading developer and producer of magnetic sensors and magnetic field measurement systems, is proud to introduce their latest innovation, the Glass-Coated MicroWires sensors. These sensors provide highly accurate and reliable measurements of magnetic fields, without the need for contact, making them ideal for a wide range of applications in various industries.







The Glass-Coated MicroWire sensors are essentially thin iron wires, only a few micrometres in diameter, coated with a thin layer of glass insulation. When a magnetic field is applied - the wire can be measured to determine its straining, compression, position or temperature.

RVmagnetics develops the MicroWires and the contactless sensing systems which make detecting various physical quantities (including but not limited to **vibration, torque, position, temperature, bending, wear & tear**) possible and making MicroWires a versatile tool for industries such as automotive, aerospace, and electronics.

These MicroWire sensors are highly sensitive, and their glass coating provides additional protection against environmental factors such as humidity, temperature, acidic or alkaline conditions. This enables them to provide accurate and reliable measurements in even the harshest environments. Unlike traditional contact-based sensors, the Glass-

Coated MicroWire sensors are magnetic in nature, which eliminates the need for contact, and thus, reduces the risk of wear and tear, allowing for longer-lasting performance.

*"At RVmagnetics, a.s., we are dedicated to providing high-quality miniature sensors and whole measurement systems based on MicroWire sensors, to meet the needs of our clients. Our MicroWire sensors offer a range of potential applications, including the use in **electric motors, to detect motor vs rotor position, torque, vibrations - from otherwise inaccessible locations**. We are excited to offer our clients a reliable and effective solution for their unsolved measurement requirements."*

For more information about RVmagnetics' Glass-Coated MicroWire sensors, please visit the rvmagnetics.com



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+ The SOTO robot autonomously brings several small load carriers from the central warehouse to the assembly line.

Strong partnership in the field of **Production Logistics**

Cooperation between cts and Magazino



+ Cts warehouse



cts GmbH, the automation specialist from Burgkirchen in Upper Bavaria, has entered into a long-term and strategic partnership with the robotics company Magazino GmbH from Munich.

Magazino complements the cts logistics portfolio with the supply chain robot "SOTO" which brings materials to the assembly line, just-in-time and completely autonomously. The range of mobile robots is thus extended by an additional option. Together, the companies offer solutions that further drive the development towards a living "Smart Factory".



The SOTO robot combines these elementary logistical process steps into a single, fully autonomous solution: picking up KLTs of different sizes from a warehouse or into one, autonomously transporting multiple KLTs from source to sink, and exchanging containers at machines or delivering them to line-side flow racks at different heights. The combination of these capabilities clearly sets the SOTO robot apart from the market environment and enables true end-to-end automation in material handling for the first time.

"We are pleased to have Magazino as a technology partner in the field of production logistics. The industry is constantly facing new challenges that make it necessary to develop innovative solutions. We can

offer our customers an overall concept tailored to their needs thanks to our high level of expertise and extensive experience," reports Alfred Pammer, Head of Sales and Marketing at cts GmbH.

"Working with a strong integration partner like cts GmbH provides our customers with a reliable service in planning, commissioning and support. With this support, the SOTO solution as a complete package becomes an economical and reliable tool in production," added Andreas Marx, Senior Partner Manager at Magazino GmbH. "We are very pleased to have cts GmbH as a first class partner at our customers' side."

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We are pleased to have Magazino as a technology partner in the field of production logistics. The industry is constantly facing new challenges that make it necessary to develop innovative solutions. We can offer our customers an overall concept tailored to their needs thanks to our high level of expertise and extensive experience

Alfred Pammer,
Head of Sales and Marketing at cts GmbH

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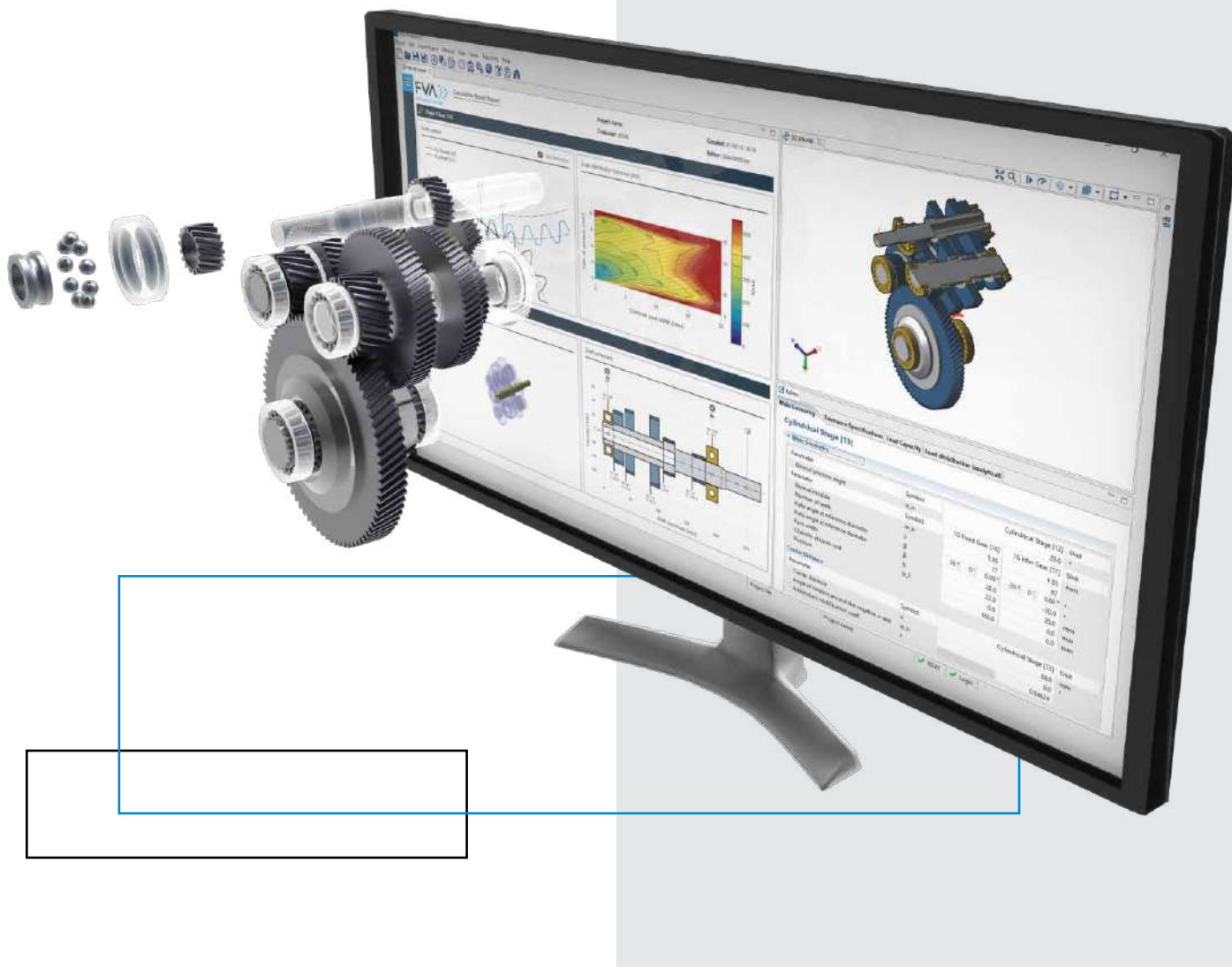
– REXS at ZF

Gearbox Development Based on the Latest Research

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The FVA-Workbench is the leading software tool for calculation and simulation of individual gear elements and complex gear systems. It bundles the knowledge from over 50 years of research from the world's leading drive technology research and innovation network: Forschungsvereinigung Antriebstechnik e.V. (FVA). New research findings are continuously defined, developed, and validated in cooperative industrial research projects and systematically integrated into the FVA-Workbench. Thus, the software always reflects the current state of research along with classic calculation methods according to standards.

The FVA-Workbench can be used to design and configure complex gear systems and features modules for performing extensive calculations. This approach assists users with calculation selection and parameterization.



REXS – the standardized interface for the simple exchange of gear unit data

A key milestone for Industry 4.0 is establishing industry-wide standards. Combining software systems with end-to-end processes simplifies day-to-day work and reduces the likelihood of errors. Very specific questions often arise, such as the coordinate systems, definition ranges, or interfaces. But even if all of these questions can be clarified in advance, the development of such interfaces can be a complex task that requires both engineering and IT expertise.

FVA e.V. has committed itself to the goal of establishing an industry-wide standard for the simple exchange of data in gearbox development. Since 2017, FVA has been working closely with industry and research to develop the Reusable Engineering

EXchange Standard (REXS) - an open source data interface with tailored solutions for drive technology applications. REXS defines a unified modeling and nomenclature for the gearbox and its components across standards and industries, based on the detailed terminology of 25 FVA project committees.

As reference software for the development of the interface, the FVA-Workbench can always import and export gear models in the current REXS format. This makes it possible to transfer models between different CAE systems in order to take advantage of their respective strengths. The aim of the REXS initiative is to provide a "digital twin" in gearbox development and calculation. With many years of experience and close ties to industry and research, FVA is in a unique position to develop a standard that can be adopted industry-wide.



REXS 1.5 published

Adaptations to the specification resulting from user requirements are published annually in a new release. Requirements and change requests are collected in a public ticket system and presented to the Change Control Board (CCB), which oversees and guides the REXS development process. This ensures target-oriented development of the standard.

The latest release, REXS 1.5, makes it possible to reference external data sources. For example, components and their subcomponents and relations can now be used in a REXS file without duplicating them. This allows for a more modular structure to REXS files.

Transferring data from calculation programs often leads to redundancy and overdetermination. This leads to the question of which data was provided by the user and which was calculated. The new "origin" tag can be used to define whether a value was calculated or user-specified. This makes it easier to decide which values should be taken from the model when importing the data.

Furthermore, it was also determined how REXS models can be represented in JSON file format.

REXS design principles

- + **Free and open**
Detailed, non-proprietary documentation that is available to everyone free of charge.
- + **Comprehensive and clear**
Modeling of the complete gearbox, including all available data (inputs and results). All components of the model are modeled as explicitly as possible ("gearbox snapshot").
- + **Well documented**
All concepts, conventions, and parameters used must be well documented in order to avoid ambiguity or misunderstandings.
- + **Standardized**
Use of specific, unambiguous definitions as well as general rules and conventions. Avoidance of special cases and exceptions. Based on common file formats (XML, JSON, ZIP).
- + **Simple and generic**
The structure of the interface format as well as the underlying gearbox model should be as simple and generic as possible, depend on few meta-elements, and allow extensions of the model without introducing new structures.
- + **Bilaterally extensible**
It should be possible to extend REXS with mutually-agreed data in order to consider special requirements for exchanging data between two software environments.



REXS – the standard for gearbox development's digital twin

The REXS standard interface has been developed since 2017 on behalf of FVA (Forschungsvereinigung Antriebstechnik e.V.) under an open source license. Research institutes such as TU Dresden IMM, RWTH Aachen WZL, and TU Munich FZG, as well as leading drive technology companies such as SEW-Eurodrive, Schaeffler AG, and ZF are involved in the development. REXS has been developed with the common goal of exchanging and enriching data along the value chain in order to create a complete digital twin of a drive. The FVA-Workbench simulation software supports importing and exporting of all versions. "Thus, the FVA-Workbench will be a data donor for the digital twin in gearbox development," explained Norbert Haefke, Managing Director of FVA GmbH.

REXS in use at ZF

The commitment of FVA companies and their many years of experience in the field of gearbox software ensure the suitability of the developed concepts to the industrial environment. Numerous OEMs, Tier 1 suppliers, and CAE software providers have already implemented the REXS interface in their tools and software products. In addition to commercial calculation programs, gearbox manufacturers such as ZF Friedrichshafen AG use the standard in their internal software development projects. For example, ZF relies on the free standard for automated calculations in their internal calculation environment.

Based on extensive research and practical know-how, ZF Friedrichshafen AG developed its own load-bearing capacity methods several decades ago, which it has continuously updated to reflect current knowledge. The application of these methods in product development has made a significant contribution to the high quality and performance density of ZF gearbox systems. In the past, these methods were maintained in in-house engineering tools and rolled out to product development. However, as both maintaining and supporting this

internal software requires significant cost and effort, commercial tools such as the FVA-Workbench are increasingly being used for product development. Therefore, these internal calculation methods have been integrated into the FVA-Workbench to ensure that all engineers have continued access to these in-house methods.

In order to protect the company's internal knowledge, the ZF-specific methods were not provided to FVA GmbH during the integration. Thus, ZF made the decision to package the calculations in its own plugin which communicates bilaterally with the FVA-Workbench via a REXS file.

Beyond this specific use case, automated workflows can also be realized across various simulation tools. This makes REXS an important milestone toward independence from manufacturer-specific file formats.

"We rely on a combination of internal and commercial tools in product development at ZF. REXS makes it possible for us to keep models in sync without having to worry about end-to-end changes to the simulation models." – Dr. Johannes König, Head of Fundamentals & Digitalization in Gear Development, ZF Friedrichshafen AG

Conclusion

The requirements of the world's leading powertrain and suspension technology company, ZF Friedrichshafen AG, played a decisive role in shaping REXS. ZF's own load capacity methods have been implemented in the FVA-Workbench, which supports REXS as a data interface. Thus, REXS makes it simple to exchange ZF models with customers and process them in the FVA-Workbench.

For a simple introduction to REXS, sample datasets are available at <https://www.rexs.info>. Exported datasets can also be validated using the free tool. This is an easy way to verify conformity with the specification and ensure that the REXS files can also be used in other programs.

— The Story of Atlantic Bearing Services

A Vision That Turned into Reality



Atlantic Bearing Services started its journey almost 25 years ago and became just during the first 3 years one of the 100 fastest-growing start-ups in the USA. With local presence in 15 countries spread over 4 continents, the company just had the best year in economic and growth terms in its history.

The Bearing News team had the chance to discuss the journey and story behind ABS during an exclusive interview with its Founder and CEO, Alejandro Pardinás.

What is the story of Atlantic Bearing Services?

ABS' growth has been an exciting adventure filled with stories and coincidences that are hard to sum up in a few words. Above all, it showcases the effort and sacrifice of a firm commitment to developing its vocation of commercializing technical knowledge and engineering capabilities.

Our business began to take shape more than 30 years ago, in my native Cuba, after I had recently graduated in mechanical engineering, when two ideas resounded strongly in my head. The first was to look for a natural space to develop my entrepreneurial vocation in this admired country that has welcomed me and in which I am fully integrated. The second was to turn that dream into reality.



+ Alejandro Pardinas, CEO at ABS and ABS Wind Member of the ABMA Board of Directors



We currently have a local presence in 15 countries spread over 4 continents, but our greatest commercial strength is in the USA and Latin America.



Shortly after that, in 1999, already in Miami, and together with businessmen Alvaro Ortega and Juan Manuel Ortega from Royse (Rodamientos y Servicios) and Luigi Valagussa from ZVL Italy, we founded the company Atlantic Bearing Services, which is the center point of the group of companies that make today, almost 25 years later, the international corporation of ABS.

We detected a gap in the supply of spare parts for heavy industry. We first identified the opportunities offered by the logistical coverage of the collection of bearings and other mechanical components. We set out to address the growing demand of the Latin American industry and some territories of the United States, accessing extensive inventories of bearings globally.

Not long has passed, but those were different times with different technology and systems. There was hardly any access to the Internet, and acquiring spare parts, original or not, for obsolete bearings was a challenging and costly endeavor.

We were also aware that many of the local companies in the United States needed engineering departments. When needed, they depended on the engineering

service of the manufacturers themselves. This meant a new window of opportunity: integrating an engineering department into ABS to help complement supply management, offering our customers expert and independent technical assistance.

Subsequently, coming about naturally, we assumed the need to increase our competitiveness by fully controlling the supply chain. From our engineering department, we began to custom design bearings and other mechanical components for the power transmission, identified reliable external suppliers for the manufacture of the different components, and located in our Miami facilities the assembly process of the parts and the quality control laboratory. This way, the finished products were fully prepared and certified by ABS and ready for shipment.

Soon after, we had the opportunity to consolidate our first major collaboration agreement with SKF, a leading company in the sector, to complement its product offering in the Latin American market; this allowed us to accumulate, in record time, a technological and business knowledge base for which other companies would have needed more than a decade.

SPECIAL BEARINGS

for the Heavy Industry



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ACB
ATLANTIC CUSTOM BEARINGS

In just three years, ABS became one of the 100 fastest-growing start-ups in the US market. Since then, we have been progressively increasing our scope of activity, both territorially and sectorally, to become what we are today: a global benchmark for the supply of customized power transmission products and a solution for the heavy and wind energy sectors.

We have overcome many uncertainties in recent years, making ABS a reference brand in more than 15 countries on four continents. In economic and growth terms, 2022 was the best year in the company's history, and 2023 presents even better prospects.

Which are the main products, brands, and services of ABS?

At ABS, we are specialists in designing, manufacturing, repairing, maintaining, and supplying customized engineering products and solutions for power transmission in heavy industry. This includes bearings, gearboxes, gears, couplings, engineered chains, and cardan shafts.

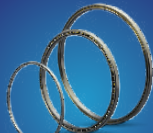
We currently have three custom manufacturing brands that result from close collaboration with each of our clients: ACB (Atlantic Custom Bearings), AEC (Atlantic Engineering Chains), both established in Miami, and



SPECIALIZED BEARING SOLUTIONS



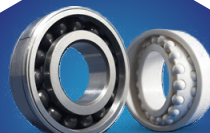
CUSTOM AEROSPACE



THIN SECTION



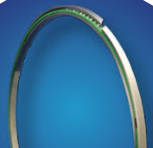
AEROSPACE BEARING TOOLS



HYBRID & CERAMIC



LIGHTWEIGHT SLEWING RINGS



THIN SECTION-SPLIT



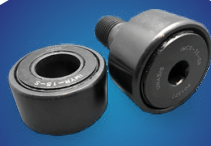
HIGH TEMPERATURE



CUSTOM & MADE TO ORDER



CAM FOLLOWERS - IMPERIAL



CAM FOLLOWERS - METRIC



SUPER PRECISION



PLASTIC BEARINGS



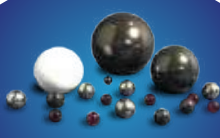
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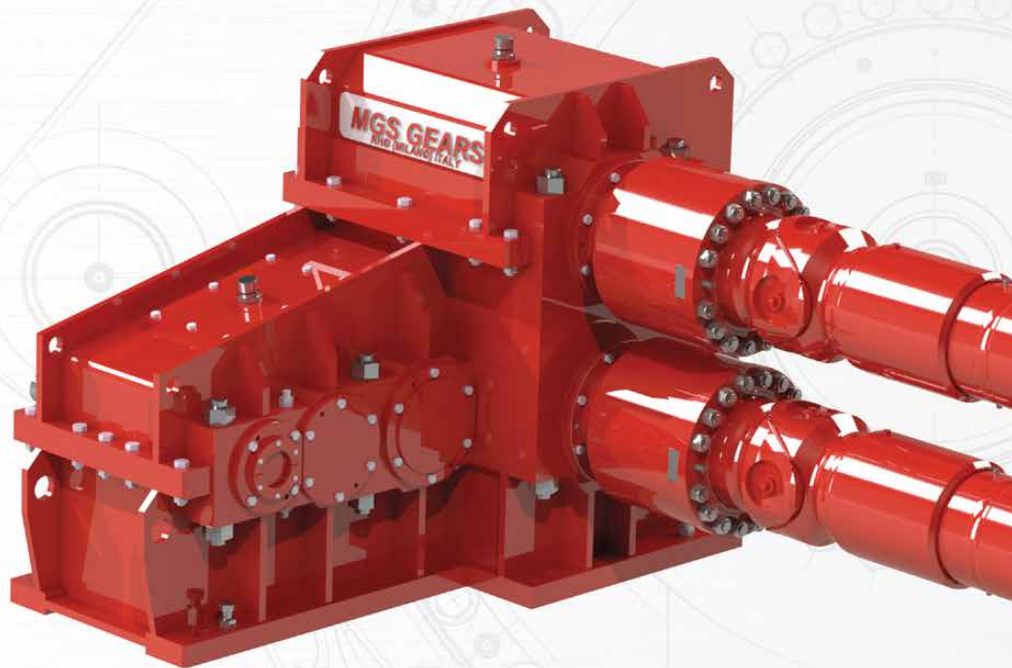
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FERSAGROUP

SPECIAL GEARS AND GEARBOXES

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MGS Gears, whose main offices are in Milan, Italy. All its products are highly engineered mechanical components that undergo the most stringent quality control to operate at full performance and with high guarantees for various industrial applications.

More than 17 years ago, outside the US, we opened our first wind sector-oriented workshop in Cartago (Costa Rica), integrating ourselves into developing a local and pioneering effort for the Costa Rican wind industry. This new line of business quickly expanded to other territories, giving rise to the global ABS Wind brand.

Through ABS Wind, we are supplying major

components and spare parts, as well as repair and maintenance solutions for the main wind turbine models installed in the market. We currently have a local presence on four continents and workshops equipped with test benches for wind gearboxes in Macaiba-RN (Brazil), Puebla (Mexico), and Texas (USA). The first of these, with a capacity to carry out tests of up to 2.6 MW, has the highest capacity in Latin America dedicated exclusively to the wind industry.

Concerning our Texas workshop came about because of the acquisition of a wind turbine workshop from Moventas (recently acquired by Flender/Winery), where we still retained all key personnel.



Servicing and Improving the Mechanical Drive Train

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How big is the ABS team and which markets are you serving mainly?

At ABS, we understand that our team's training, availability, and proximity are the company's most important parts. All our sales representatives are engineers with a wealth of experience and technical qualifications in their industrial sectors.

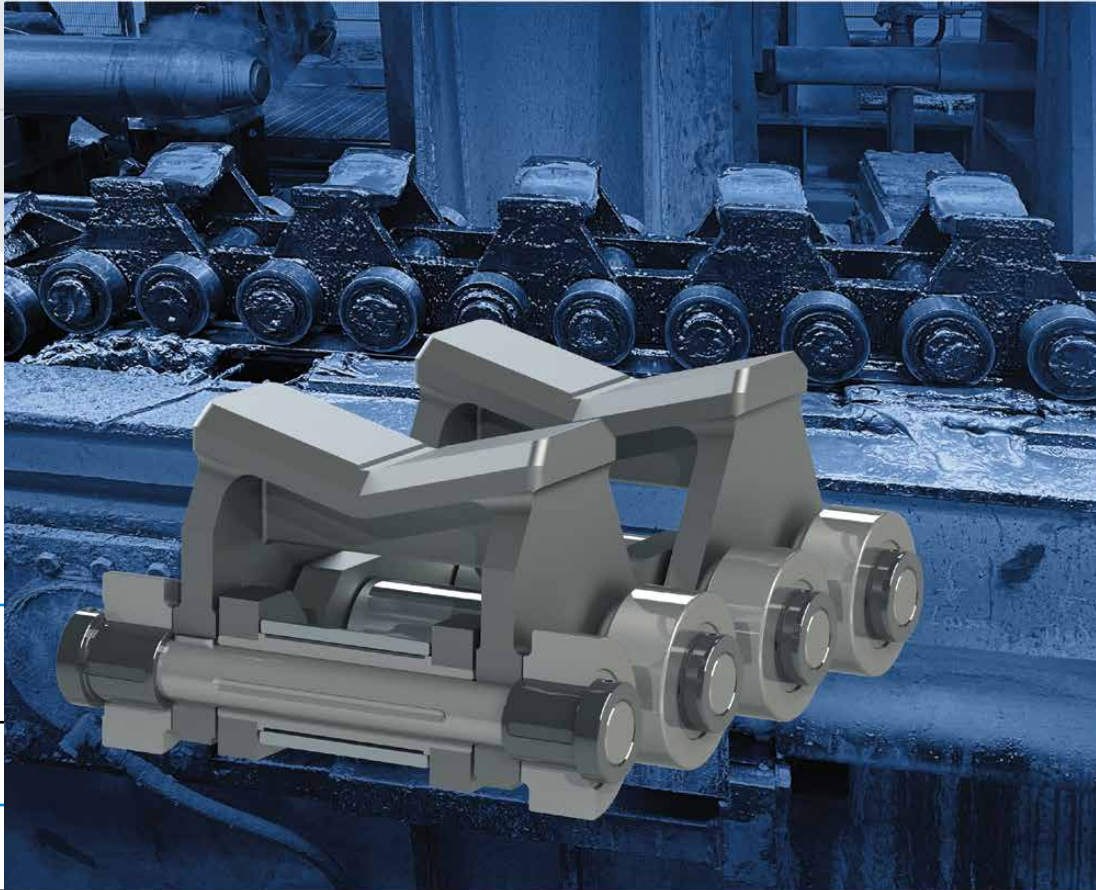
Being part of a global company gives us access to all the experience and expertise of our network of specialized workshops and engineers and to a

worldwide supply management system that ensures demand is always met. As mentioned, we currently have a local presence in 15 countries spread over 4 continents, but our greatest commercial strength is in the USA and Latin America.

This scope, together integrated with advanced, up-to-date simulation technologies, allows us to address the particularities of each project from different approaches to offer precise, proven, and reliable technical solutions.

ENGINEERING CHAINS

for the Heavy Industry



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AEC
ATLANTIC ENGINEERING CHAIN

In addition, for the analysis of complex projects, we rely on the input and analysis of our R&D department, which has contributed to the success of more than 700 engineering projects, proving to be one of the company's most important and celebrated intellectual assets.

Can you share some industries and applications where ABS's products and services are used?

You will find the ABS logo or any brands printed

on any industrial work system where lifting, repositioning, turning, or moving is required. We regularly work with many companies in the following industries: Steel, Sugar, Cement and Aggregates, Paper, Oil & Gas, Mining, and Renewable Energies (wind, solar, geothermal, etc.)

In any case, I must emphasize the high capacity of our engineering again, the years of experience accumulated in a wide range of industries, and the full control of the supply chain; all factors that allow us to analyze any power transmission need, no matter



how complex, and provide a customized solution for any industry and anywhere in the world.

We have noticed the many case studies where ABS is dealing in with design, repair, and maintenance projects. Can you share more information about these operations?

That's right. We periodically share case studies, technical articles, and projects of interest for clients from different industries through our website and social networks. Throughout our history, we have been accumulating documentation of all the projects we have carried out, and we believe that in a more informative format can help our clients and potential clients better understand the experience and capabilities of our company.

As you can imagine, this is a challenging task. We have material from more than two thousand technical projects that need to be ordered and elaborated, but little by little we are managing to share this type of content on our website and social networks.

We saw that in 2022 you joined the ABMA (American Bearing Manufacturers Association) board of directors. What does it mean for a company like ABS to be integrated into the main industry associations?

I am extremely grateful for this election which I humbly accept as an extension of my more than 30 years of dedication to the design and custom manufacturing of bearings, gears, and other industrial components. What ABMA and AGMA have provided and continue to provide to the bearing and gear sector is invaluable. This is a unique opportunity to work on the front line alongside other outstanding

colleagues to develop and disseminate the industry, and a further step in recognition of our ABS company and our ACB bearing brand.

Our concern to understand and meet our clients' demands in the most efficient way and our commitment to the improvement and recognition of the industry have prompted us to join and actively interact with the most relevant associations and research networks in the sectors and territories in which we operate.

How do you see the future of the industry further developing in the coming years?

The bearing industry will continue evolving and developing in the coming years. Some potential growth and advancement areas include using alternative, smart materials that can improve and modify their properties depending on their application; new manufacturing techniques that reduce overall process time and further improve accuracy; or developing improved sensors and applications for remote monitoring and diagnostics. In addition, increasing demand for renewables and international environmental awareness and agreements may drive the development of bearings with a lower carbon footprint. In this regard, the reuse and reconditioning of old components will likely increase.

New sectors are also arriving, such as industrial robotics, which will imply growth in demand and new designs. Of course, we will follow how artificial intelligence is incorporated into the different industrial production processes.

More information about Atlantic Bearing Services can be found at www.atlantic-bearing.com and www.abswind.com



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The Right Amount of Lubricant at the Right Interval

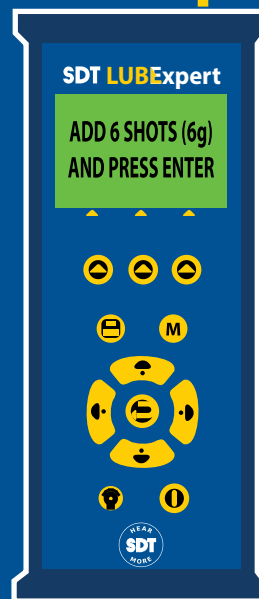


UAS3



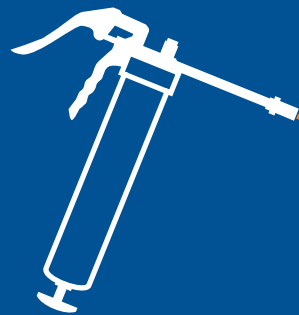
Manage, Trend and Analyze
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LUBExpert



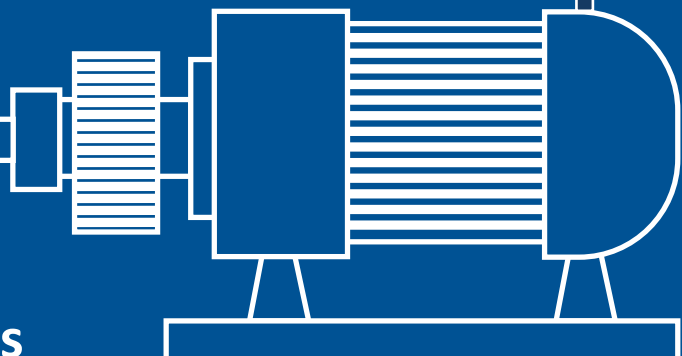
LUBExpert alerts you
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increase, guides you
during re-lubrication,
and prevents over and
under lubrication.

Ultrasound



LUBEAdapter

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Ultrasound Solutions



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– Grind ‘em cool: **Premium solution for grinding large gears**



The precision shaped abrasive grain Blue Moon™ TZ for maximum material removal rate.

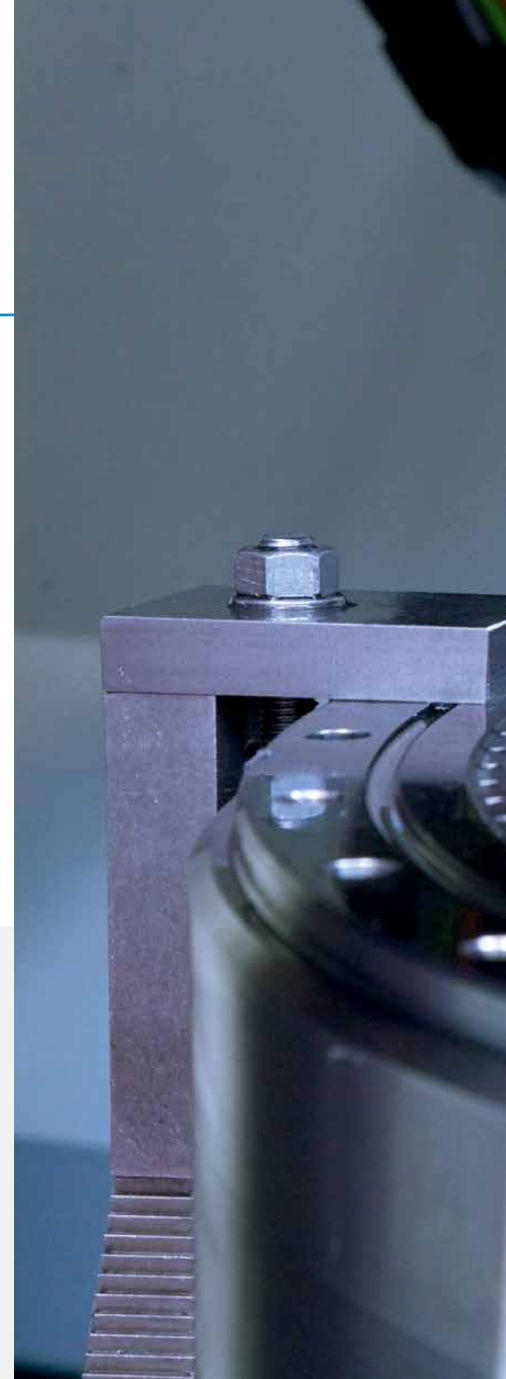
Serial production of large gears requires a high level of quality, excellence and continuity in production. Particular emphasis is placed on maximum synergy between the grinding machine, the grinding process and the grinding wheel. After several successful trials on various Klingelnberg Höfler Rapid grinding machines carried out by Krebs & Riedel with customers in their production facilities, Krebs & Riedel has received several large orders for grinding large gears from abroad and has introduced the new premium grinding wheels with high process reliability. Krebs & Riedel is one of the world's leading manufacturers of grinding wheels for gear grinding in the automotive and EV sector. The family-owned company is also expanding into other sectors where large gears are manufactured with the new Blue Moon™ TZ premium product range.

In recent years, wind power has been an important factor in reducing CO2 emissions. Wind turbines are getting bigger and more powerful, while production costs have to be reduced. This requires production methods that can produce the gears cost-effectively and in high quality, even with complex flank modifications. Gear sizes in wind power typically

range from 800 to 4000 mm. Some gears can even reach a diameter of 8000 mm and weigh up to 100 tonnes. The most common size in the field of external gears is 1200 mm in diameter and ranges from module 12 to module 52. The profile grinding wheels typically have a diameter of 100 - 450 mm.



+ © Krebs & Riedel



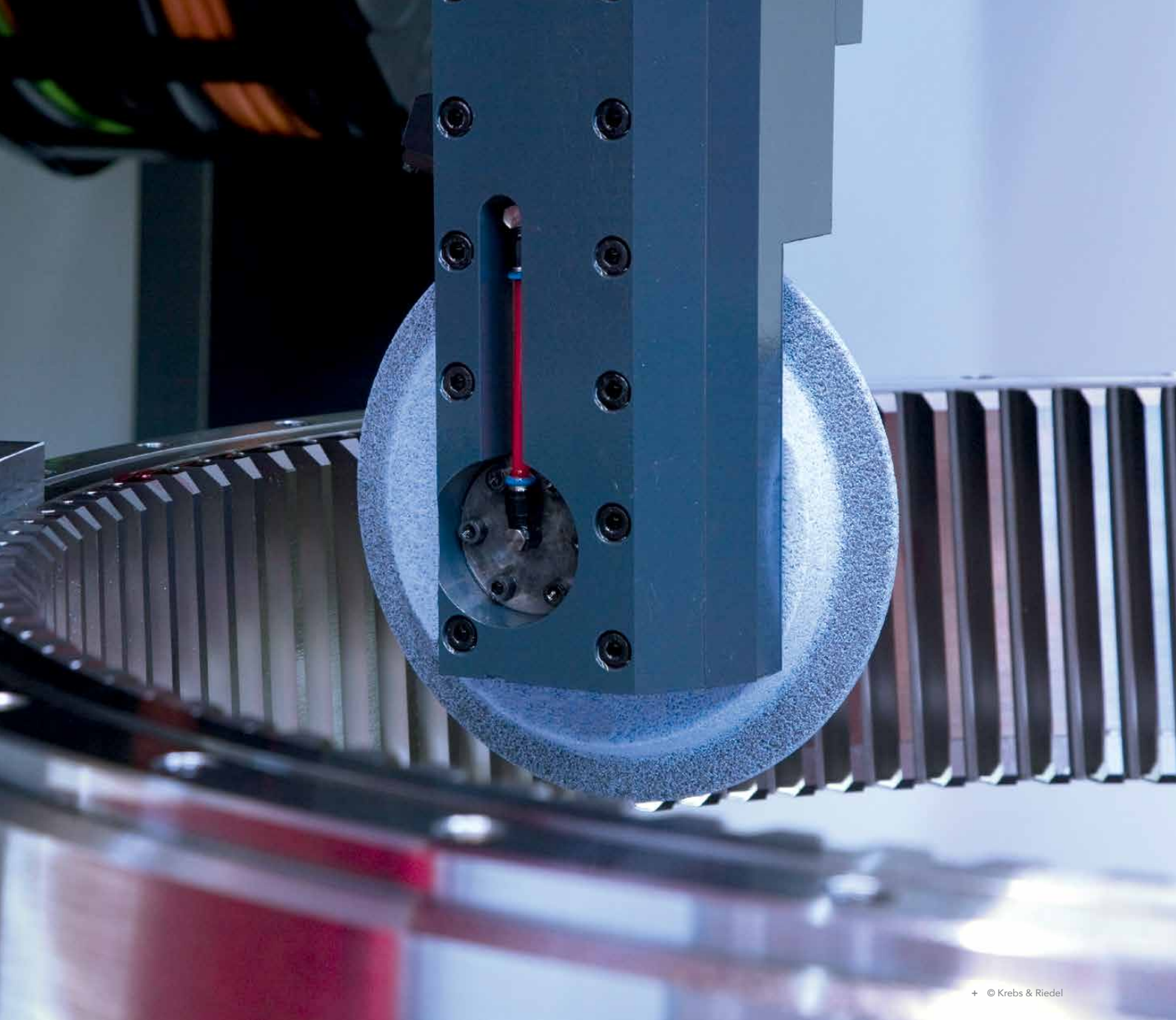
Synergy between the grinding machine, the grinding process and a premium grinding wheel is very important.

Only a perfectly ground gear geometry ensures optimum power transmission for high wind turbine efficiency and smooth running. Grinding burn must be avoided under any circumstances, because the forces in the gearbox are very high and tooth breakage is very expensive. High-precision gear quality is a matter of course at Klingelnberg and Krebs & Riedel. It increases the service life of the individual gear components and makes a significant contribution to reducing maintenance and production

costs. To achieve maximum synergy between the grinding machine and the grinding wheel, Krebs & Riedel optimises the process with application support at customers sites around the world and offers with the Blue Moon™ TZ, a new premium grinding wheel with a precision-shaped abrasive grain.

Grind 'em cool: Precision-shaped abrasive grain ensures a very cool grind

Blue Moon™ TZ is characterised by a very high cutting performance and a very high material removal rate. "In some trials, the material removal rate (Q'w) was more than 30 mm³/mms," says Sigurd De Ridder,



+ © Krebs & Riedel

Senior Application Engineer at Krebs & Riedel, who conducts trials and process optimisation for customers worldwide. He says: "Precision-shaped abrasive grains are state of the art today. Blue Moon™ TZ is comparable in performance to other precision-shaped abrasive grains on the market. It is self-sharpening, very sharp-edged, microcrystalline and has an elongated trapezoidal shape." The homogeneous pore structure of Blue Moon™ TZ contributes to an extreme improvement of the entire cooling system during the grinding process. Due to the open structure, the entire grinding wheel is immediately flooded by the cooling liquid. Even with extreme material removal rate, the chip is transported

away from the contact surface. This avoids heat input that could lead to thermal damage to the gear.

Grinding large gears in serial production with the highest quality while reducing production time.

On average of all tests on Klingelnberg Höfler Rapid 2500 machines, Sigurd De Ridder had the following grinding results: A cooler grind and a longer tool life, combined with up to 20% faster grinding time compared to standard grinding wheels. The longer tool life and higher grinding performance helps to reduce costs while achieving the same, or even better,



quality of the gear. On average of all dressing tests, Sigurd De Ridder achieved the following results: 20% longer dressing intervals, 30% less infeed, which also leads to a longer tool life of the dressing wheel. Another side effect is that the machines have a lower power consumption after the optimisation.

Huge profile grinding machines with absolute precision, speed, and flexibility

The profile grinding machines of the RAPID series for large workpiece sizes are designed for component diameters up to 8,000 mm. Depending on individual requirements, they are equipped with an extended stroke range (L variant) and are also available in two variants. In addition to the standard configuration, the machine is also available with a small grinding head to accommodate very small grinding wheel diameters

of 300-20 mm (K variant). In all configurations, machines of the RAPID series can be converted from external to internal gears in a very short time by means of optional internal gear grinding arms. In addition, the special arrangement of the machine axes, a thermally stable and almost vibration-free machine bed made of mineral casting, as well as wear-free torque drives in the machine table and the grinding head for 5-axis grinding contribute to the proven precision, consistent quality and enormous flexibility. Thanks to the highly flexible grinding head with integrated 3D probe and adjustment of the helix angle during the grinding process, gears can be topologically modified in 1-flank grinding or 2-flank grinding, depending on the permissible deviations. The measurements with the optionally available testing devices ensure a controlled grinding result already during the grinding process.



Choose a premium grinding wheel for large gears

Serial production of large gears requires many hours of workpiece set-up, programming, grinding, dressing and quality control. It is important to use a premium grinding wheel with precision-shaped abrasive grain. The dressing and grinding processes should be perfectly set up on the grinding machine and optimised by application support. The Blue Moon™ TZ premium grinding wheels have not only proven themselves in the grinding of planetary gears, spur gears and IR outer and inner rings. They have also led to a reduction in production costs when grinding drive shafts, automotive gears and conveyor screws.

www.krebs-riedel.com

Author: Philipp Bötte



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- + Packed and exported all over the world.
- + In addition to the above, the ICT balls for wind mill bearings boast an incredibly competitive price unmatched in the market.

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+ The Quick Flex elastomeric coupling's design allows easy access to the elastomer insert

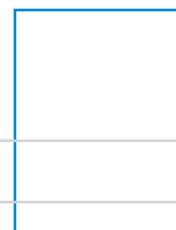
– Quick Flex elastomeric couplings **reduce roller table downtime at steel mills**

+ + + + +

The harsh environmental conditions in steel mills place extreme requirements on components. Quick Flex elastomeric couplings from Lovejoy, manufactured by R+L Hydraulics GmbH in Werdohl, Germany, are used by a well-known European steelmaker to drastically reduce downtime. The couplings transmit torque to drive the roller tables in a hot rolling mill. The thermally stable couplings are low-wear, low-maintenance, and help minimise downtime.



+ Example from a hot rolling mill: A glowing slab is transported on a roller table



In the steelmaking process, molten pig iron produced in the blast furnace is transformed into crude steel in converters. The crude steel is then cast into long strips called slabs in continuous casting lines. The slabs, up to 10 m long and weighing as much as 25 tons, are rolled and shaped to form strip steel or steel wire rolls. Glowing from heat, these slabs are transported on roller tables. To avoid high heat damage to the conveying rollers, the slabs must move continuously on the rollers until they cool down or are ready to enter the next processing step.

Surrounding equipment component reliability is crucial: "If a roller table coupling fails, it may be possible to continue working until the next planned stoppage, but this risks damaging the roller," says Detlef Peick, Business Development Manager for the couplings division at R+L Hydraulics in Werdohl. "This leads to longer downtimes for subsequent repairs, and high roller replacement costs. Stopping the roller table avoids damage to the roller, but creates a production bottleneck for the downstream line operations."

Typically in the past, this application has used gear couplings that are good at handling shaft displacements that occur due to the regular temperature fluctuations. Simultaneously, gear

couplings safely transmit high turning moments.

"However, gear couplings have disadvantages," says Detlef Peick. "They need frequent lubrication, and must be opened regularly for inspection at high cost and inconvenience. When the coupling hubs or sleeve bodies need replacement, the gearbox must be removed from the drive shaft and possibly even the electric motor must be removed from its base first. After replacement, the gear mechanism and the electric motor must be realigned to ensure proper functioning. These activities take a lot of time – time which in steelmaking is very expensive."

This is where Quick Flex elastomeric couplings help. Their torque transmission capabilities equal those of gear couplings. But the elastomer inserts used in Quick Flex couplings eliminates metal-on-metal contact that can cause damage and wear to the hubs. The coupling's design allows easy access to the elastomer insert. After loosening a few screws on the easy-to-remove covers, inserts can be inspected or replaced in a matter of moments. Different cover options meet a range of application needs.

"It's easy to inspect and maintain the couplings without taking the line out of service for long periods," says Detlef Peick. "Expensive stocks of spare metallic coupling components are no longer

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needed. Only elastomer inserts must be held in stock. Should a failure occur despite the ease of inspection and servicing, it may still be possible to continue production without jeopardising the roller, because a ruptured elastomer insert interrupts the flow of forces, so the roller table can continue to operate by using the adjacent rolls to move the slabs. The insert can be replaced later in just a few minutes, without removing the gearbox or drives."

Since Quick Flex couplings do not require lubrication, regular oil checks and relubrication are no longer needed. The elastomer inserts are available in three degrees of hardness and a high temperature-resistant material that protects against overheating if a slab stays on the roller table longer than planned.

The Quick Flex coupling series was designed specifically to withstand harsh operating conditions and require only minimal service. In addition to steelmaking, the couplings are ideal for use in mining, oil and gas, food processing, and pulp and

paper applications – wherever tough environments place extreme demands on components.

About R+L Hydraulics GmbH / Lovejoy, LLC

Lovejoy, LLC is a US-based manufacturer of couplings and power transmission components. In Europe, Lovejoy is represented by their local subsidiary R+L Hydraulics GmbH, based in Werdohl, Germany. In July 2016, The Timken Company (NYSE: TKR; www.timken.com) acquired Lovejoy. Timken engineers, manufactures and markets bearings, gear drives, belts and industrial chains and other industrial motion and power transmission components. In addition to Lovejoy and R+L Hydraulics, the Timken product and services portfolio includes the brand names of Groeneveld, Rollon, Cone Drive, ABC Bearings, EDT, PT Tech, Torsion Control Products, and Diamond Chain.

For more information R+L HYDRAULICS GmbH to visit www.rl-hydraulics.com



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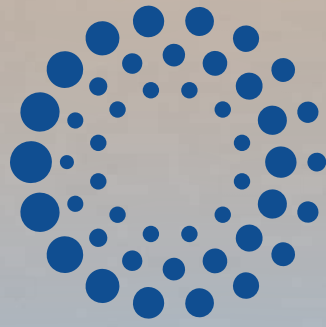
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Connect in-person with the global bearing and power transmission supply chain by meeting distributors, manufacturers and solution providers



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- ▶ Service & Solution providers
- ▶ OEM Companies & End-Users
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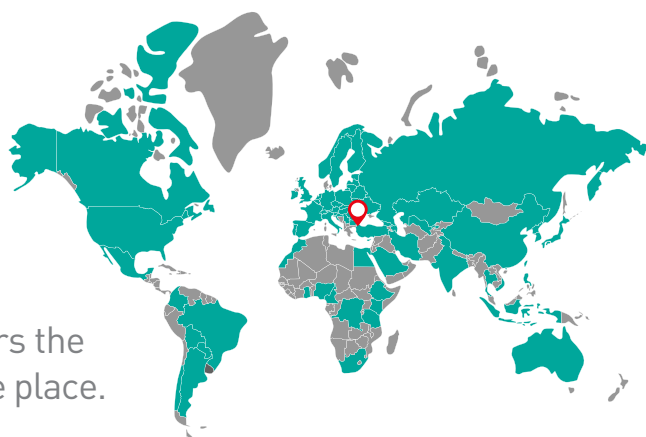
The World Bearing & Power Transmission Meetings is the World's first dedicated meetup at global level where 30+ countries from all continents will be represented by delegations and the main players of the bearing and power transmission industry. The event will run for three days, with table meetings, welcome dinner, lunches and many more networking opportunities among distributors, manufacturers,

solution- and service providing companies. The event is created out of need in the current challenging global conjuncture and is a merger of all the local events which were organized earlier under the name of Bearing Expo & B2B Meetings, Conferences since 2016 in Hannover, Mumbai, Dortmund, Istanbul and Shanghai with in total 1,200 participants worldwide. The main theme at the Bearing & Power Transmission World Meetings will be the

global DISTRIBUTORSHIP, MANUFACTURING, OUTSOURCING, SOLUTIONS & SERVICES. In addition to the Bearing & Power event, the participation can optionally be extended with visiting the WIN Eurasia exhibition (07 - 10 June), organized by Hannover Fairs Turkiye, which is the largest and most important regional industry event. A bus transfer for participants will be organized on 07 June for this purpose.

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been replaced by gleaming skyscrapers and major banks, the city remains one of the world's premier business destinations. This prime location helped the city to grow rapidly into a cross-continental trading hub, paving the way for its distinction as the premier international business destination it is today. Now, still thanks in part to its thriving port, Istanbul is responsible for over a half of the regional trade, making it an important meeting point for representatives from all industries.



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– Additive manufacturing *of the* Industrial Component

+ + + + +

When talking about manufacturing, various methods can be grouped into the three big families of methods: Subtractive manufacturing (e.g. machining), formative (e.g. molding) and finally **additive manufacturing**: this last one involves adding material in layers, in order to create the final product.



Some of the main benefits of additive, especially when compared to subtractive and formative manufacturing, can be:

- + **Customization:** components can be highly customized in an economically viable way and with low turnaround times.
- + **New and complex designs & flexibility:**
The potential to create complex structures without impact on the cost to manufacture is a trademark benefit of 3D printing. Without the limitations injection molding or CNC machining, users are able to create intricate designs that do not depend on tooling suppliers or MOQ
- + **Cost and time savings:** as mentioned, though elimination of molds, additional equipment and tools that are both expensive and require some lead-times to be manufactured and delivered. Also, any design change can be done almost in a click and the new edited batch of parts can be good to go in days or a week, instead of weeks or months.

Obviously, even among different 3D Printer providers, the **selection** of the right technology is one the main drivers for success: in order to manufacture very

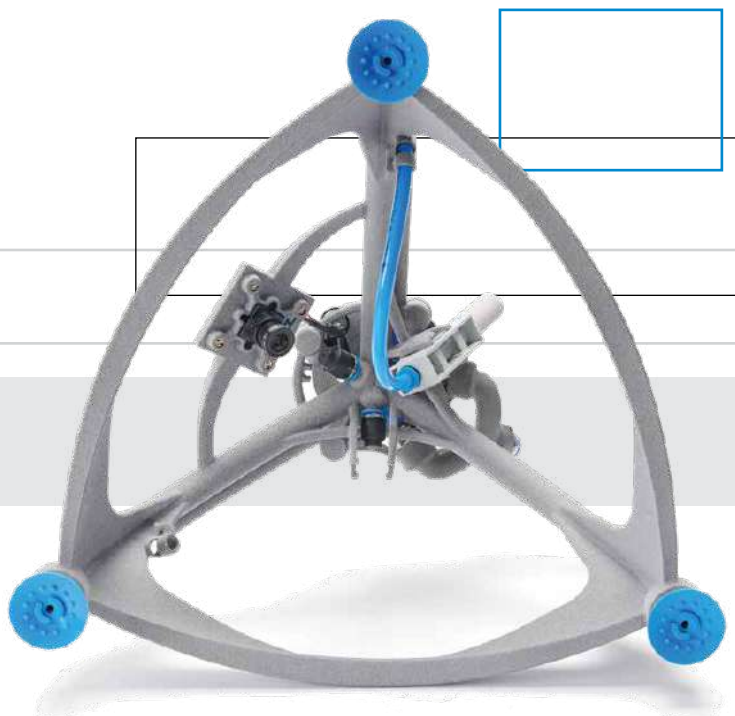
large parts, like end-of-arm-tooling or big jigs and fixtures, the technology with the sufficient capacity must be sought out. And a similar consideration must be done regarding very small parts that need very high dimensional accuracy, like small needle bearing cages, where the margin of error must be minimum. Not all technologies will be up to the task!

If the focus is on **final parts** with a need for high **quality** and **precision**, or components that will be used consistently, a powder bed technology might work better, because it allows lower margins of error, and most importantly **flexibility** in terms of **productivity**.

That is because powder bed technologies allow as many parts as can fit on the same surface to be placed into the building area, and the print job (per layer) will take the same time as only printing one. Moreover, parts can be **stacked** one over the other inside the build unit and the user can control at what distance, **monitoring heat** and **temperature**, everything can be set based on specific requirements or needs. Finally, managing to stack parts without filling the unit to the top will reduce the hours needed to print the job.



+ image: ThinkTec3D





What most of HP 3D Printing's users do after installing the technology in their facilities, is to look at parts which were designed for CNC Machining or Inject Moulding and try to switch those designs to 3D. But, of course, parts designed for traditional manufacturing technologies will have shapes and properties that are different from what one would come up with if it were to directly design a part for additive. So, at that point, parts' designs are normally made **hollow**, or **lattice structures** are introduced, which are both very effective methods in reducing material usage and, consequentially, weight of the parts as well as the cost.

But as users get more comfortable with 3D printing technologies, what happens is a more intricate approach towards design. A typical upgrade from traditional design to additive is **part consolidation**: when an assembly of parts is re-designed in a single component, which allows savings in terms of assembly times and costs for the tooling, and is a very effective way to reduce the risk of liquid or air leakage. Any junction from a component that is supposed to be fluid tight can be dangerous for the performance of the part: by transitioning to one component this is obviously not a concern anymore.

And as they become experts in the technology that they use, parts start being directly and specifically designed for 3D. Not adapted, but **re-imagined** starting from design to final series production.

But 3D Printing does not stop at the end of the printing phase: to complete the manufacturing process, there are several **post-processing** options. When considering

HP Multi Jet Fusion Technology, parts that come out of the printer need to be cleaned through sand blasting or any option that will remove the excess unused powder still attached to them, reaching a clean, rough-surfaced, grey part. Then, depending on requirements, there are different options:

- + Enhancing scratch and colour resistance for frequently handled parts through dying and graphite blasting;
- + Applying a gloss finishing through the technology of chemical polishing;
- + Customizing with any graphical pattern that will not shrink, will be weatherproof and will eliminate cutting edges through the process of hydrographics;
- + Protecting parts against corrosion, improving electrical conductivity, reducing friction or preparing a surface for better paint adhesion with electroplating.

And many more.

In conclusion, when talking about 3D Printing and additive manufacturing, it is important to mention how this method is only extremely powerful when paired up with the right material, the right technology and the right partnership; nevertheless, its objective isn't to replace other technologies outright, but to **complement the traditional processes** and is going to **change the way that we produce**. Therefore, it is crucial to be aware of the different additive technologies on the market and become familiar enough with them to actually take advantage of the benefits they enable.

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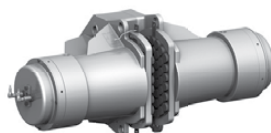
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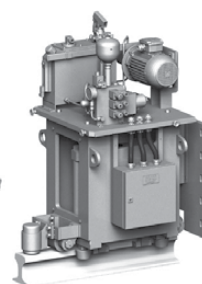
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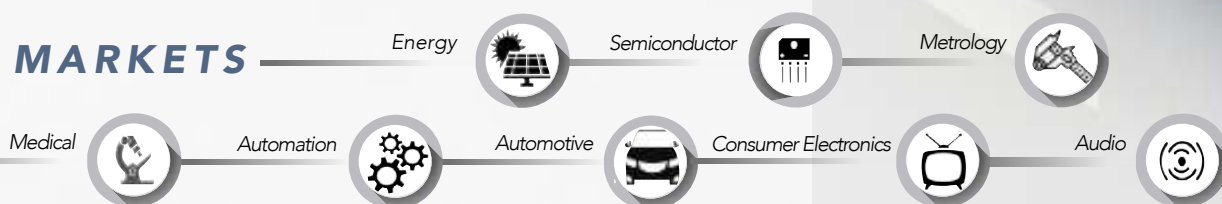
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- **High power density motors create new opportunities for machine builders**

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- **High Dynamic Performance (HDP) motors have been upgraded to offer even higher power density and a broader scope for machinery applications**
- **Motors are offered as part of a complete package with variable speed drives (VSDs) for precise control and maneuvering capabilities**

ABB has upgraded its extensive range of High Dynamic Performance (HDP) induction motors. This creates new opportunities for machine-building OEMs seeking motor and drive solutions with excellent dynamic response and high power density. The motors are typically used in plastic and rubber extrusion, injection molding, winders, lifting, conveyors, test benches and machine tools.

The upgraded HDP motor range enables ABB to offer machine builders frame sizes between 80 and 400, and output capacities up to 2 megawatts (MW) – as well as alternative variants such as high-speed and water-cooled motors. The motors are designed for use with a VSD and ABB can provide matching motor and VSD packages across the frame-size range.

“ABB is well known for its optimized motor and VSD packages that provide precise motor control and maneuvering capabilities in a wide variety of general industrial applications,” said Marcus Westerlund, Product Manager, Special Motors at ABB. “The HDP motors now bring the same advantages to machine builders who need the extra boost in power provided by a high-torque design and exceptional power density.”

High power density benefits both retrofits and new build machinery

Machine builders can capitalize on the high power density of HDP motors in two ways. They can retrofit an existing machine with a more powerful replacement motor to boost performance; or they could select a more compact, yet equally powerful motor when designing a new machine to reduce its footprint.

Low inertia and high overload capacity

HDP motors are designed to enable fast motion control and high maneuvering precision due to their low inertia and high overload capacity. Low-inertia motors are ideal for applications requiring fast changes in rotational direction to enable, for example, faster back-and-forth machine motion.

Easy installation

ABB has prioritized ease of installation as an integral element of the HDP design. That makes it easy to install a replacement HDP motor into an existing machine without excessive engineering work. Furthermore, ABB has considered simplicity in everything from accessible connection points to installation of accessories, such as cooling fans, encoders and brakes, whether from ABB or a third party.

Customization

The upgraded HDP motor range includes all the commonly-requested frame sizes and technology variants such as water-cooled, high-speed and megawatt-class alternatives to allow ABB to meet most machine-building requirements without extended delivery times. Should the standard design not meet a machine builder's specific needs then it can be customized.

HDP motors are compliant with the IEC 60034 standard and suitable for unrestricted global use. Worldwide technical support is provided to OEMs and end users through ABB's global services organization.

To learn more about ABB's high dynamic performance motors: <https://new.abb.com/motors-generators/iec-low-voltage-motors/high-dynamic-performance-motors>

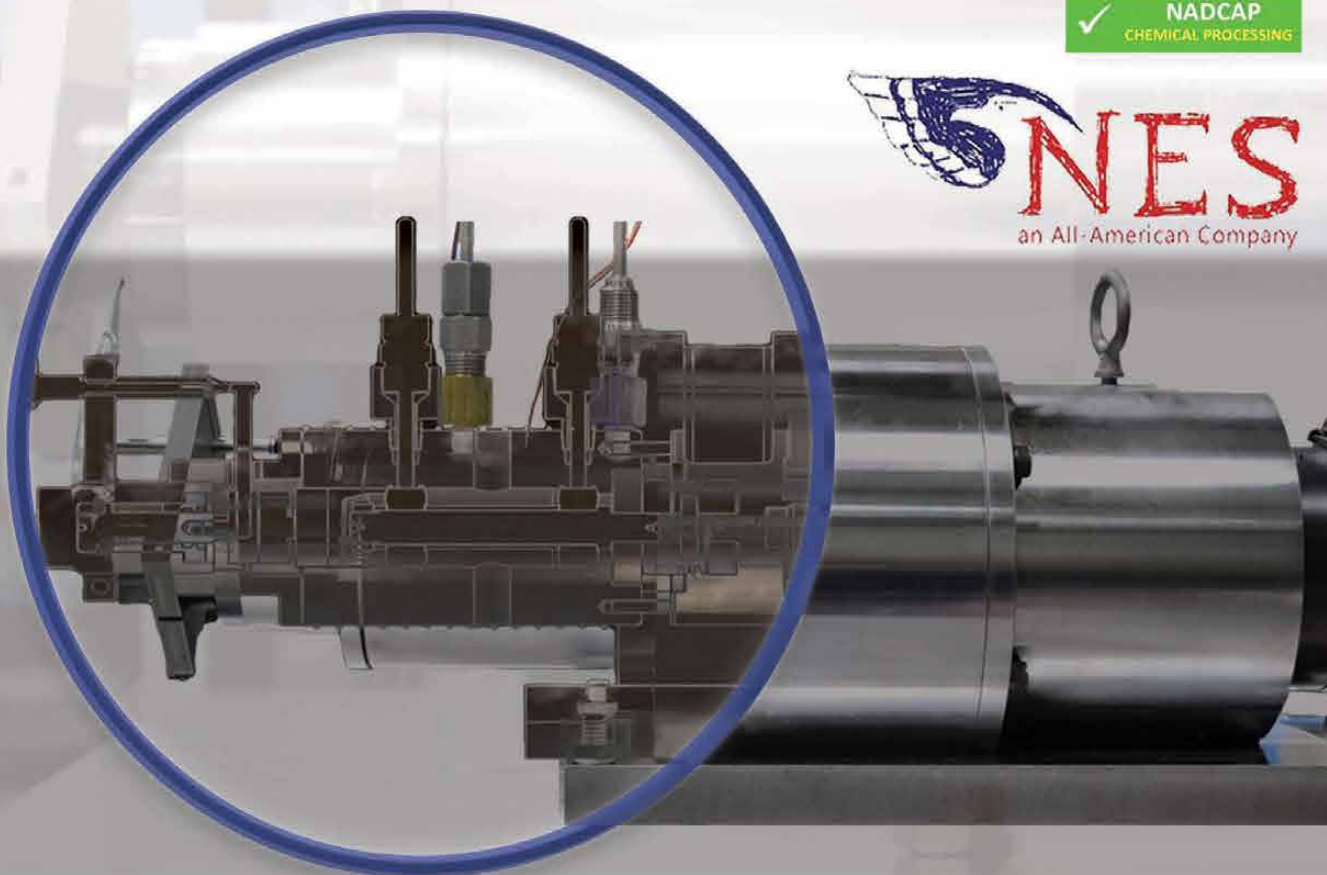
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SWISS MADE

Quick clamping shaft collars for packaging applications

+ + + + +



+ Ruland offers quick clamping shaft collars in a wide variety of sizes, styles and materials for packaging equipment. Quick clamping shaft collars require no tools for installation, adjustment or removal.



Ruland quick clamping shaft collars require no tools for installation, adjustment or removal, making them a convenient and efficient choice for a variety of packaging equipment and applications.

Designers and operators of packaging machines such as wrappers, bundlers and cartoners benefit from the faster, tool-less adjustment of quick clamping shaft collars.

Ruland offers two types of quick clamping shaft collars: collars with cam levers and collars with clamping levers. Quick clamping shaft collars with cam lever have an integral lever that sits flush with the outside diameter and is finger actuated. The design features a tension-adjustment screw that can be adjusted to tailor axial holding power to application needs. These collars are one-piece clamp style and require shaft end access to be installed properly. They are best suited for light duty and low rpm applications with frequent change-outs of items like guide rails or other setup fixturing.

Quick clamping shaft collars with clamping lever feature a Ruland manufactured shaft collar combined with an adjustable clamping lever that replaces standard hardware. The final assembly is a shaft collar with a ratcheting handle that can be easily installed, removed or repositioned without tools. They have the benefits of traditional Ruland shaft collars such as not marring the shaft, tight controlled face-to-bore perpendicularity (TIR of $\leq .002$ inch or 0.05 mm), and a fine burr-free finish, allowing them to be used in a wide variety of packaging applications. These shaft collars with clamping levers are offered in one- and two-piece clamping styles and with outer diameter flats and holes for easier mounting of other components.

Quick clamping shaft collars with cam levers are manufactured from 6061 anodized aluminium bodies and 6063 aluminium handles with bore sizes from ¼ inch to 3 inches and 6 mm to 75 mm. Quick clamping shaft collars with clamping levers are offered in standard materials including 1215 lead-free steel with black oxide or zinc plated finish, 303 and 316 stainless steel, high strength 2024 aluminium,

and engineered plastic. The lever is sourced from JW Winco and features a zinc plated handle with a stainless steel threaded stud and internal components.

All Ruland shaft collars are manufactured from select North American bar stock in Ruland factory in Marlborough, MA, under strict controls using proprietary processes. Full product information, 2D and 3D CAD files, installation videos, and more are available on ruland.com.

Summary

- Quick clamping shaft collars require no tools for installation, adjustment or removal
- Two types available: with integrated cam lever and with removal clamping lever
- Quick clamping shaft collars with clamping lever are available in a variety of materials and styles to fit a variety of packaging applications
- RoHS3 and REACH compliant
- Carefully made in Ruland's Marlborough, Massachusetts factory and available for immediate delivery

About Ruland

Ruland Manufacturing Co., Inc. is a privately owned family company founded in 1937. Ruland has carefully and responsibly manufactured high performing shaft collars, rigid couplings, and motion control couplings for the past 40 years. Ruland's product line was recently expanded to include a variety of machine components from select manufacturers that align with Ruland's performance and quality standards.



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Couplings in construction machinery powertrains

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+ Spring coupling from Torsion Control Products

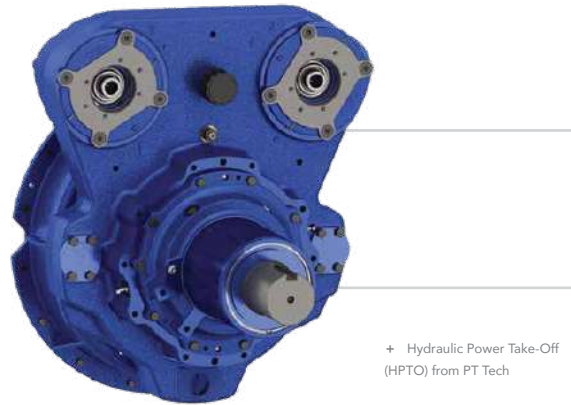


Spring couplings from Torsion Control Products (TCP) are ideal for use in construction machines powered by modern diesel engines. Thanks to their special torsional elasticity, these durable, robust couplings damp the vibration from the powertrain and remain serviceable even under the harshest operating conditions. Torsion Control Products is part of the US manufacturing corporation The Timken Company. Within the organisation of roller bearings specialist Timken, a division was created for further powertrain components, including the Torsion Control Products brand couplings as well as couplings and components from PT Tech und Lovejoy. These are now presented here for use in the powertrains of mobile construction and process machines.

"The variety of different powertrains fitted in construction machines is enormous," says Dr.-Ing. Peter Jaschke, head of Business Development at Torsion Control Products in Werdohl, Sauerland.

"As a rule, the objective of every construction machine manufacture is to develop a long-lasting powertrain that is perfectly compatible with the construction vehicle and its work process, and that functions reliably in the harsh operating conditions. This requires working side by side with a partner which not only knows and can deliver a component, but also develops, manufactures and distributes many different products. This makes it possible to derive added value from the very beginning when developing a powertrain, through professional consultation and the technical implementation of customer requirements."

Using the example of a conceptualised powertrain, Dr. Jaschke presents a few core competencies of the brands cited above. Torsional vibration is certainly generated by the diesel-engine drives in construction machines, but also by many process machines such as the milling drums in road planers, the chipper drum

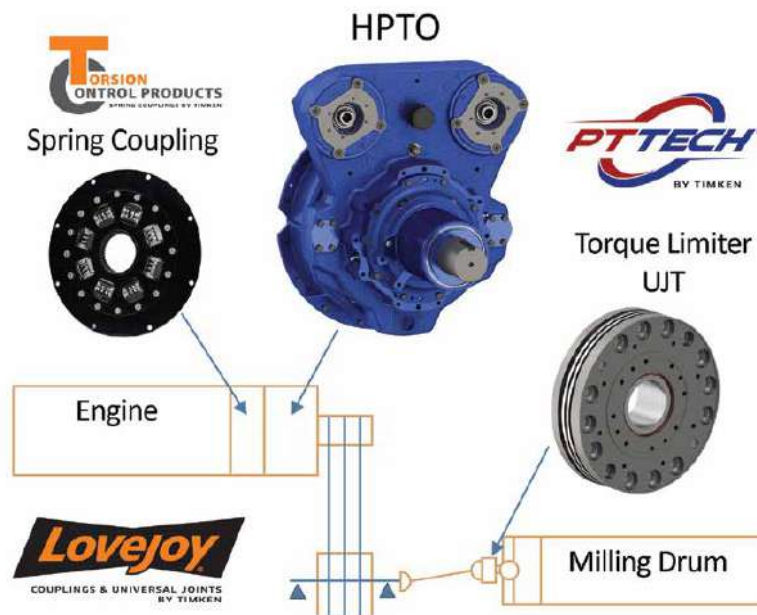


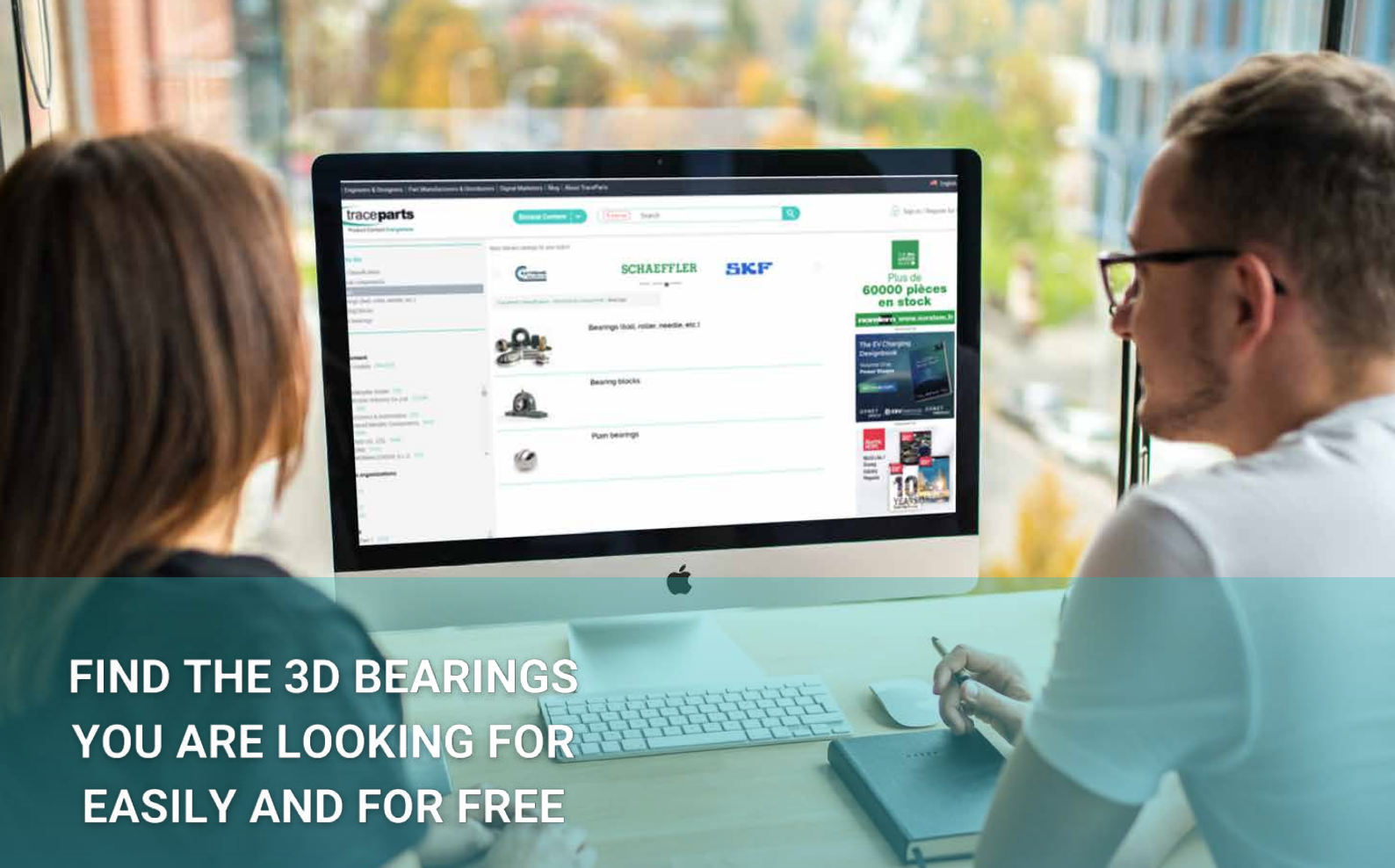
in wood chippers, or even crusher drives. "The aim is to influence these vibrations in such a way that none of the powertrain components suffer any damage. The steel spring couplings from Torsion Control Products are ideal for precisely this purpose." They can be adapted to the specific requirements through a wide range of different configurations. Particularly the spring characteristic and the damping property are important in this context, and an optimised selection is made on the basis of a torsional vibration calculation. The Smart Damping technology is especially effective here in suppressing undesirable transmission chatter.

Hydraulic Power Take-Offs (HPTO) from PT Tech engage the power take-off. "Besides the sophisticated design of their vanes, they are also equipped with a specially developed controller, which enables them to accelerate high moments of inertia without causing the vanes to overheat," says Dr. Jaschke. If hydraulic pumps also need to be driven, the HPTOs can also be fitted with up to four additional power take-offs. Special adapters are available to enable the pumps to be connected directly.

If the drive has to be protected from high overloads, Dr. Jaschke recommends torque limiters from PT Tech, or – depending on the specification – shear pin couplings from Lovejoy: "It is most important, particularly in the case of overload couplings, to ensure that they function reliably and protect the powertrain. The torque limiters operate on the basis of spring-loaded friction discs. Presettable spring assemblies allow the pressing forces to be applied extremely precisely over long periods of time, thereby ensuring a even mode of action."

As part of Timken since 2017, Torsion Control Products has been developing, producing and distributing a wide range of torsionally soft couplings for mobile machinery for more than 30 years. The spring coupling series is available in various variants, and covers a torque range from 27 Nm to 27.000 Nm. Besides construction and roadbuilding machinery, typical application areas include agricultural vehicles, transmissions, hydrostatic pump drives, powershift transmissions and hybrid drives in mining machinery and industrial plants.





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– Digitalisation in drive technology:

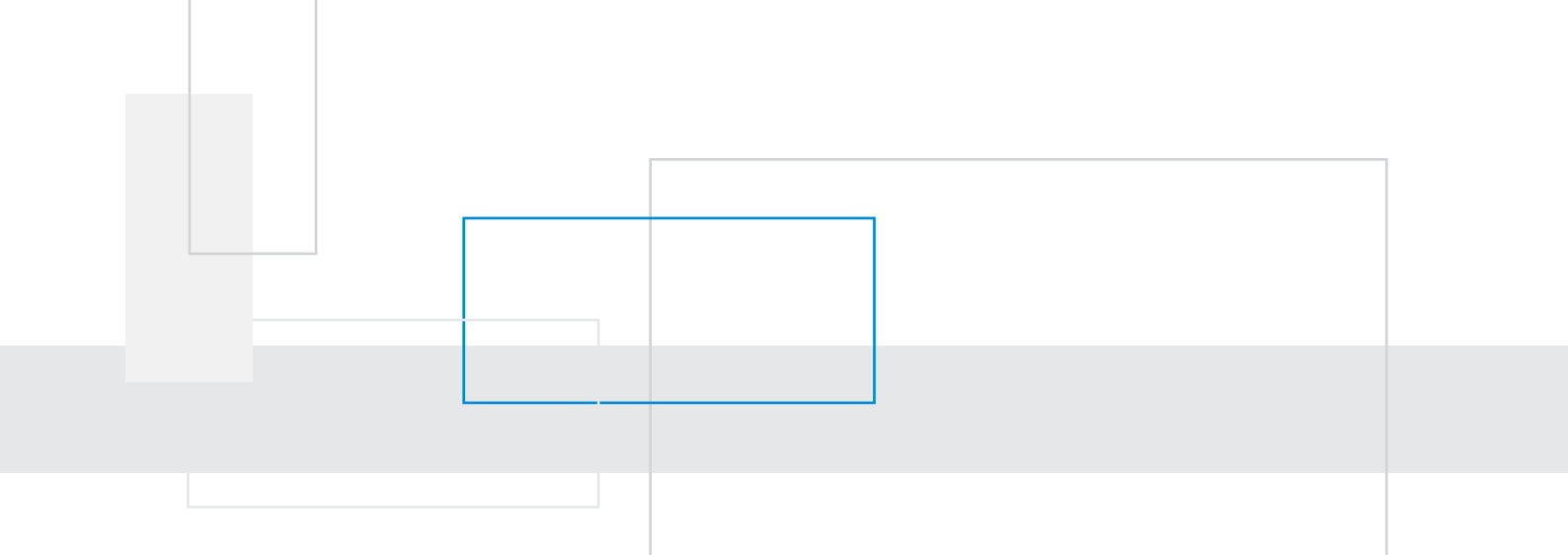
Customer added value from drive dataSaving Transmission Belt System

How intelligent drives from NORD DRIVESYSTEMS improve availability

+ + + + +

+ Fast, efficient and comprehensive evaluation of analogue and digital data by the intelligent PLC in the NORD drive technology forms the basis for condition monitoring and predictive maintenance.
Image: NORD DRIVESYSTEMS





Predictive maintenance is the systematic continuation of condition maintenance with the aim of proactively maintaining machinery and equipment and detecting changes, reducing downtimes and increasing the efficiency of the entire plant. A status-oriented maintenance replaces the traditional time-based maintenance.

Especially for drive systems in demanding production environments where industrial gear unit installations are usually used in sensitive applications and their failure can cause severe damage, for example in intralogistics, the food industry or the heavy duty sector, condition monitoring supplements the triad of gear unit, electric motor and frequency inverter with improved safety and reliability. This is where condition monitoring for predictive maintenance comes into play: Based on intelligent algorithms and software in an IIoT environment, the networked drive units can collect their condition data in the inverter's own PLC and pre-process it together with data of connected sensors and actuators. The result of the pre-processing or the complete data can be optionally transmitted to an edge device. There, data of all subsystems is managed and evaluated. It is then available as pre-selected and edited smart data for further use and clear visualisation.

Data analysis instead of just data reading

A concrete application example is the sensorless determination of the optimum oil change time based on the oil temperature. This is based on the fact that the oil temperature is a key factor for oil ageing in gear units. This information in combination with available gear unit parameters and specific operational parameters make it possible to precisely

calculate the oil change time. A physical temperature sensor is not required. The pre-processing of drive data takes place in the NORD frequency inverter's integrated PLC that is used as an evaluation unit. The customer can access the calculated data via all common interfaces.

The right PLC software architecture for each solution

The drive equipment can be optionally extended and adjusted to the respective automation task. Customers can select what tasks (drive monitoring, drive control, process control) they want to directly shift into the drive. In smaller production areas, this scalability offers the possibility to gain first experiences before reorganising the plant. There are three configuration levels available. At the first level, the drive unit PLC only performs the drive monitoring. The drive parameters are pre-processed in the PLC and communicated to the higher level control system that is responsible for drive and process control. At the medium level, the PLC integrates the drive control and also runs drive-related functions. At the higher configuration level, the inverter PLC completely replaces the higher level control system. Apart from the communication to a control unit, a local data management without internet connection can optionally apply the data.

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– Garlock GUARDIAN®

labyrinth seals, the perfect solution for mechanical engineering applications, such as machine tools and milling machines, to avoid bearing oil leakage and debris inclusions.



Lubricant contamination is a common issue in mechanical engineering applications. Labyrinth seals offer good possibilities to avoid these problems.

A major advantage of labyrinth seals is that they are mostly wear-free and thus particularly durable. They also function safely and reliably: Moisture, dirt and dust get caught in the zigzag labyrinth paths of the seal due to flow resistance. Leaks, which can become a hazard to employees and the environment, are avoided.

The labyrinth profile consists of radial and axial spaces that give a recirculating effect during rotation, resulting in reliable protection. The labyrinth is constructed to give a non-contact seal without wear parts - for long service life and with reduced drag on the shaft.

Machine builders are often on the lookout for a suitable solution for their specific applications. In the process, many aspects must be considered.

To give an example: A company, that develops, designs and sells 3-spindle Machine Tools was looking for sealing solutions to avoid bearing oil leakage and debris inclusions. They offer over 3 times greater productivity with a single robot and its 3-spindle system ensures much lower running costs, saving on space, energy and specialist intervention. These are unique machines with a high degree of specialization and specific requirements. Garlock GUARDIAN® labyrinth seals have been installed between the housings and their spindles. Bearing oil leakage and debris inclusions were eliminated. The company specified GUARDIAN® in all machines of a special model replacing the original labyrinth seals. The introduction of GUARDIAN® simplified the overall design and related installations. Machine reliability increased reducing the total cost of production.



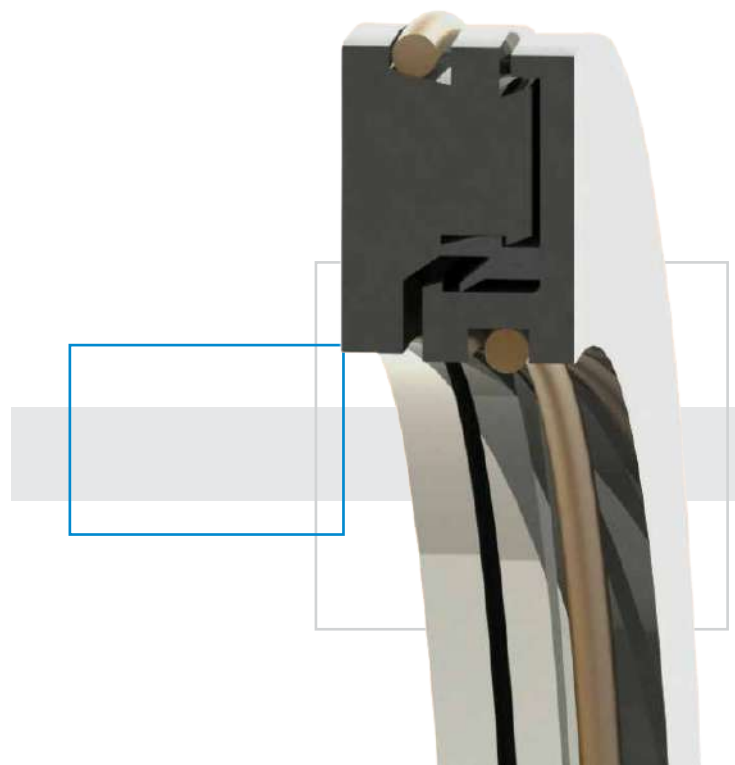
As a second example, consider the following case: A company, that offers milling solutions designed for the most demanding production environments, such as the power generation, automotive, aerospace, and railway industries, introduced new milling heads in their 5-axis machines and were looking for a specially designed bearing isolator. By offering the widest range of milling solutions on the market, including bed machines, gantry machines, floor type machines and machines with a T-shaped configuration, the demands were high. As it was a 5-axis machine, orientation of the head was constantly changing. Additionally, it is critical that the bearing isolator does not increase temperature in the bearing chamber as this could impact in the performance of the bearings. Garlock GUARDIAN® bearing isolators have been selected for the ability to provide a specially designed isolator, adapted to the customer's new heads and for its great performance after intensive testing. GUARDIAN® protects a high speed 6000 rpm / 80 mm diameter shaft (25 m/s) of their new milling heads, avoiding turbulent air-oil mist flow to get into the grease-lubricated bearings. GUARDIAN® mastered the requirements of the 5-axis machines and their heads and did not increase temperature in the bearing chamber. Prototypes were successfully tested in their test heads for several months. The customer has specified GUARDIAN® for their new head design, which is being introduced in all their new machines.

Garlock GUARDIAN® labyrinth seals are general-purpose seals designed to reduce downtime. The bi-directional seal provides both inlet and outlet protection. GUARDIAN® applications include auxiliary equipment in dirty, dusty, and wet environments. Split GUARDIAN® are fitted without dismantling the equipment. When uptime and mean time between repairs (MTTR) are critical, split seals are the right choice.

About Garlock

Garlock, an Enpro Company, is one of the leading international companies in the field of sealing technology and is regarded as a specialist for the sealing of critical and demanding media in innovative mechanical and plant engineering. More than 1,500 employees work for the company worldwide, of which around 240 work in Europe. Garlock is also represented by sales partners and specialist dealers in over 90 countries. Garlock supports a wide range of industries with an integrated range of services. In addition to standard seals, Garlock primarily develops and produces special solutions for customer-specific applications.

More information about Garlock solution can be found at www.garlock.com or by contacting garlockgmbh@garlock.com



www.cmibearing.com

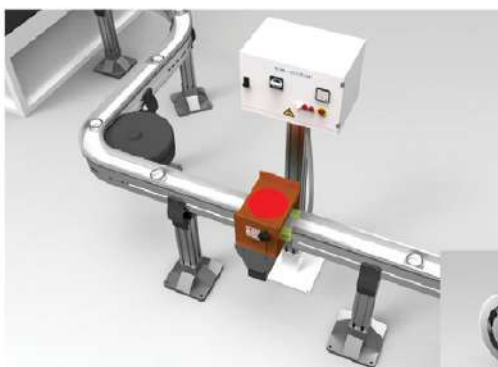


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EXTEND BEARING LIFE WITH BUSSI ELECTRONIC DEMAGNETIZERS



During the manufacturing process, the demagnetization, as magnetic pre-washing, is the optimal preparation for the bearing components cleanliness.

Bussi Demagnetizers prevent from friction, limited fluency, early wear and reduced life of the bearings.



DISCOVER OUR SOLUTIONS DEDICATED TO THE BEARING INDUSTRY

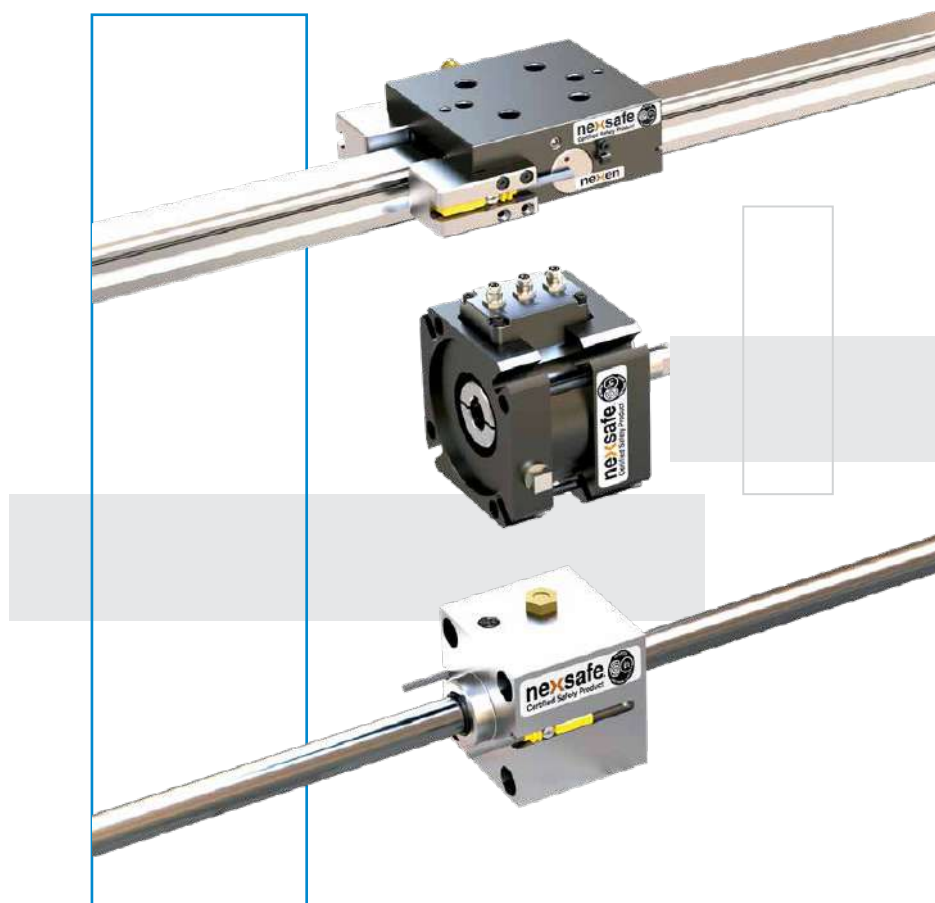
DISCOVER BUSSI DEMAGNETIZERS KEY TECHNICAL ADVANTAGES:

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- MINIMUM ENERGY CONSUMPTION
- HIGH DEMAGNETIZING VALUES
REPEATABILITY
- EASY PARTS TRANSFER WITH NO
MAGNETIC RETENTION
- EASY IN PROCESS INTEGRATION
WITH I/O INTERFACE
- STANDARD A DEDICATED
SOLUTION DESIGN
- HIGHLY DURABLE INVESTMENT

Making safety a priority: NexSafe brakes with functional safety certification

+ + + + +

Nexen Group, Inc. now offers three of its brakes products with functional safety certification under its NexSafe trademark name. NexSafe functional safety certified rod locks, rail brakes and servomotor brakes can be used for machine operations such as holding, emergency stopping or positioning. They are ideal for applications where safety is a priority.



+ From top to bottom: NexSafe rail brake for installation on profiled guide rails on linear axes; NexSafe servo brake for installation between servomotors and their gearboxes; NexSafe rod lock for installation with or on pneumatic cylinders.

Functional safety

Functional safety reduces the risk of injury posed by the use of machinery in the face of operator error or mechanical failure. Building functional safety requires the design and fabrication of protective features responding to human errors, hardware failures, operational or environmental stress. ISO 13849-1 is a safety of machinery standard that assists in the design and integration of safety related parts of control systems or machines. This standard includes a system of categorizing the risk a machine poses, and the safety functions to mitigate that risk.

Certification program for industrial automation

Intertek, a company headquartered in London, provides assurance, inspection, product testing and certification. In July 2020 Intertek launched its Functional Safety Conformity Assessment Program for industrial automated machinery and robotics. The program offers manufacturers design evaluation, testing and certification with the Intertek Functional Safety (FS) Mark to signify compliance with rigorous standards for product safety and performance. The first products in North America to earn the FS Mark are Nexen's NexSafe rail brakes, servomotor brakes and rod locks.



+ The NexSafe servo brake has failsafe mechanical connections with the servomotor and gearbox; patented frustoconical friction-facing structures with tapers on both the outer and inner surfaces for simultaneous engagement with two mating surfaces; and optional sensors for feedback.

Emergency stopping and holding applications

NexSafe functional safety certified brakes provide a verified, reliable solution that machine builders can depend on. With ISO 13849-1 Functional Safety Certification, NexSafe rod locks, rail brakes and servomotor brakes are ideal for operations such as holding, emergency stopping or positioning. They are an ideal fit for applications where safety is a priority. Optional operating mode sensors further ensure NexSafe products are a fit for safety channels designed for ISO 13849-1 categories B through 4 and performance levels PLa through PLc. In addition, NexSafe brakes are certified to meet IEC 61508, ISO 12100, ISO 13850, and ISO 4414 standards.

Rail brakes: compatible with most profile guide rails and carriages

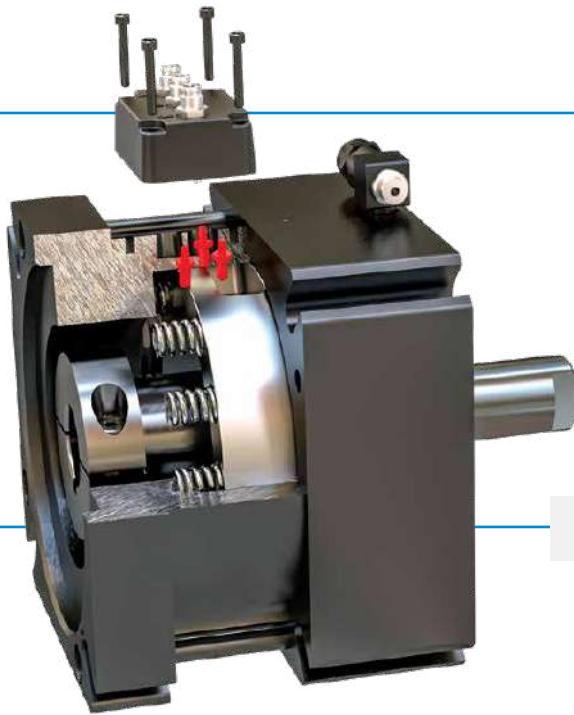
Rail Brakes grip and hold profile guide rails in linear motion systems. The NexSafe rail brake is a compact, powerful brake compatible with most profile guide rails and carriages. Rail brakes can be equipped with sensors to detect engagement and disengagement. Guide rail brakes with mounted sensors are ideal for E-stop and redundant safety braking applications such as gantry axis braking, industrial door open/close locking, medical equipment and hospital beds, primary and secondary packaging, and window and door manufacturing.

Servomotor brake: powerful high torque brake between servomotor and driven load

Servomotor brakes have been developed for braking on the shaft end of a servomotor or between a motor and gear reducer. The NexSafe servomotor brakes stop the load quickly and enhance safety with bidirectional braking capabilities. Typical applications include the production of automotive parts, cyclical operations, food production (IP67) and packaging, gantry routing, robotics, and semiconductors.

Rod locks: precision holding with guide rod systems and pneumatic cylinders

Rod locks can operate on round rails, linear rods, round shafts, and linear guide systems, or they can be mounted directly to an NFPA and ISO pneumatic cylinder. They are designed to grip and hold the piston rod of a pneumatic cylinder or a guide rod with extremely low backlash. They meet IP67



+ + +

+ The NexSafe servo brake shown here can include up to three sensors to monitor the disengagement condition, engagement condition, and wear. This feedback helps the brake satisfies the requirements for functional safety certification and deliver IIoT connectivity.

standards and can be equipped with sensors to detect engagement and disengagement. Rod locks are used for applications that require precise holding, fast engagement, and high cycle rates over millions of cycles such as automotive production, cyclical operations, food production (IP67), gantry routing, and platen presses.

Functional safety features

Brake features to help achieve high levels of functional safety include multiple engagement springs that default to lock. The friction surfaces are equipped with a proprietary friction facing, tapered on both the inner and outer friction surfaces. Those surfaces apply the braking (locking) force via springs concurrently to both the rotating shaft and brake housing to hold the shaft from rotating, all with zero backlash. To ensure safe emergency stopping and holding, there are up to three operating-mode sensors for feedback. These are essentially inductive proximity sensors to sense three different brake conditions: First, disengagement: the proximity sensor in the brake activates when rated air pressure enters the brake's the piston circuit to essentially pull the friction-facing pair apart, for a disengaged (free-running motor torque) axis condition.

Second, engagement: the proximity sensor in the brake activates when the piston and facing friction-surface pair move into engagement and application of braking (stopping) torque. Third, wear: this proximity sensor in the brake activates when the brake is engaged but the friction facing is worn enough to necessitate replacement.

Time-tested technology, Industry 4.0 ready

With spring-engaged, air-released functionality, NexSafe devices default to the locked position, making them ideal for holding a load in position or for emergency stopping situations. They can be used in any orientation. Nexen has manufactured thousands of rail brakes, servomotor brakes and rod locks for a wide range of applications. NexSafe builds on that experience, retaining form, fit, and functionality, while seeking enhanced safety. Industry 4.0 is a standard option all on NexSafe devices. More information about Nexen solutions can be found at www.nexengroup.com

About Nexen Group, Inc.:

Nexen Group, Inc. is a worldwide leader in power transmission, linear and rotary motion, and tension control components. Nexen holds 120 US and international patents. A privately held company, Nexen traces its origins back to 1902. For 50 years, Nexen has been producing industrial brakes, clutches, torque limiters, overload protection devices and control systems for a variety of industrial applications ranging from packing equipment to sawmills and automobile conveyor systems. Nexen's customers span every industry – from multi-national corporations to small businesses – and range from design engineers to plant maintenance. Headquartered in the USA and with its European office based in Wommel, Belgium, Nexen has more 40 sales offices and more than 1,500 distributor outlets worldwide.

The Couplings which you can **Fit and Forget**



+ TCAE-R-2



In its 20-year history, Australian based Thompson Couplings Limited has seen great success with its innovative range of couplings which handle load misalignment and the associated vibration. In stark contrast to the industry-standard method of laser alignment procedures for rotating equipment these couplings with misalignment ability solve many difficult problems involving situations such as soft foot and vibration due to shaft misalignment. Most couplings within the range are **"fit and forget"** requiring no maintenance and take far less time to install and operate compared to traditional shaft couplings.

The Thompson "Alignment eliminator" or TCAE coupling has proven successful with companies such as Pulp & Paper Mills, Steel industries, Gearbox drives and more recently Power Take Off units solving a variety of often difficult installations.

The TCAE range of products can manage misalignment angles up to a total of 10° and the new V series can operate in vertical applications.

Its distinctive double-jointed hinge mechanism provides the TCAE coupling with high radial and axial flexibility thereby reducing damaging side loads to the supporting drive shafts. As a result, the TCAE is far less damaging to pump seals, bearings and other expensive rotating parts compared to traditional "flexible" couplings when operating with some small degree of shaft misalignment.

In process plants, many pumps are rigidly bound by connected pipework and failures frequently occur with traditional couplings from thermal growth, soft foot and other misalignment forces. By contrast, the TCAE can eliminate these damaging loads by allowing the pump to freely move as the pipework "grows" or as the motor flexes on its mounts.



Tests have been conducted by the Australian group to demonstrate the potential greenhouse emission savings from a reduction in wasted energy compared to traditional “flexible” couplings. The more axially and radially compliant nature of the TCAE coupling means there is significantly less energy wasted when shafts are slightly out of alignment compared to the “stiffer” nature of elastomeric or disc type couplings.

The extensive range of models within the TCAE series can handle un-factored loads of up to 7,000 kW. A carefully developed spreadsheet selection method has also been introduced to allow users to easily choose the appropriate TCAE for their unique application. Since it was first introduced in 2009 the TCAE-R series coupling has become the product of choice for Australia’s largest pulp & paper manufacturers now with hundreds in various process pump applications. Similarly, one of Indonesia’s large paper mills has made the TCAE-R coupling the product of choice for their process pumps and gearbox drives.

The benefits these two companies realise is the **“fit and forget”** nature of the coupling as well as the quick installation and worry-free operation. Furthermore, they are seeing the real cost savings in their maintenance budgets from reduced equipment downtime and quicker time return to line. An Australian manufacturer of open cut gold mining vehicles has recently ordered the thirteenth TCAE-R-2 coupling for the power take off (PTO) drive for a hydraulic pump. Due to the demanding nature and restricted space available in the engine

compartment other shaft couplings were unable to cope with the imposed alignment angle between the diesel engine PTO and the hydraulic pump. According to the design engineer Jake Schliebs *“The TCAE-2 has been a dream – the whole process with working with Thompson couplings has been smooth as butter, so thanks for that – we’ll be in contact in the future for further orders then, since it seems like we’ll have more trucks built before we even need to look at them, cheers”*

Along with the “Regular” TCAE -R series the company has newly released the TCAE-V series range for challenging vertical applications including wastewater process pumps and deep well mining plants. The TCAE-V- series will accommodate up to 5 degrees misalignment angles between the vertically mounted motor and pump.

Another unique product in the company’s line is the Thompson Constant Velocity Joint or TCVJ. Its patented design features a double cardan joint with zero length intermediate shaft and distinctive spherical centering mechanism. This coupling is designed to transmit power at angles up to 20 degrees with the highest efficiency and at true constant velocity. Since its commercialisation in 2005 this product has seen great success as a propulsion shaft coupling in the marine industry.

More information about Thompson Coupling solutions can be found at www.thompsoncouplings.com

– The Wave Spring Advantage



When considering a spring element for your technical application, it is worth comparing the familiar and traditional spring options to another innovative spring element, a wave spring. Most engineers have experience with traditional coil or disc springs, whilst wave springs remain somewhat of a mystery. Flat wire wave springs offer the best balance of size and spring force and in many applications, offers considerable advantages over their more traditional and well-known counterparts.





One of the main reasons to specify wave springs is the impressive force-to-work height ratio as they can produce the same or even greater forces as coil springs, whose work heights are up to twice as large. These axial space savings are perhaps the most immediately visible advantages of flat-wire wave springs. In static applications, a wave spring will typically need just 50% of the work height of coil springs to deliver an equivalent force. In dynamic applications, the work height advantage is typically about 30% less than the static applications, but still substantial. Wave springs can also save space in the radial direction compared to using disc or coil springs with larger diameters.

Wave springs can ensure a largely constant force over a large spring travel. Their deflection curves have wider, flatter linear force region than either coil or disc springs. Spring elements typically exhibit both linear and non-linear force behaviors, depending on their deflection. This linear behavior can be graphically shown on the spring's load-deflection curve. In general, the broader and flatter linear region of the curve, the easier it is to hit specific spring force requirements. Wave springs have a clear advantage in this department. They typically have a linear force between 30 and 70% deflections. Both coil and disc spring have much narrower linear force. Predictable spring forces can be a big benefit in many applications.

Another benefit of wave springs complete elimination of torsional loads. Whenever you compress a coil spring to its work height, loads are not just in the axis of compression but also torsional. These torsional loads can cause the pre-loaded component to rotate in use, potentially resulting in excess wear. Torsional

loads can also decrease the spring working load. Whilst many applications can suffer from this rotational wear problem, wave springs don't have this issue. Their wave forms can only compress axially.

Compared to a traditional disc spring, multi-turn wave springs offer far more travel. One multi-turn wave spring can easily replace the assemblies that use multiple disc springs to achieve the necessary travel. Replacing a stacked disc spring assembly with one wave spring can result in both cost and quality benefits. Not only will the single spring cost less to install, but it also reduces the chance of assembly error.

Wave springs can also be used to preload bearings, eliminate axial endplay, and minimize vibration. Applying a permanent thrust load to a bearing assembly is important for secure and successful installation. The bearing preload process extends component lifetime by eliminating unnecessary clearances, creating high stiffness, and reducing noise and vibration.

Unlike stamped produces, which require tooling, wave springs can be customized by changing the parameters of the coiling equipment. This ability allows you to specify custom wave springs without worrying about cost or delays associated with custom tooling. This capability is yet another cost factor weighing in favor of wave springs.

This unique spring element is the clear winners in a wide variety of engineered systems and in applications with high performance requirements.

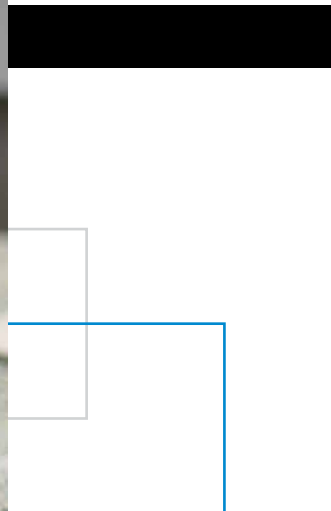
For more on wave springs, visit www.rotorclip.com or contact info@rotorclip.com



- Measuring technology for the highest demands **on rolling bearing quality**



In many applications, machines and systems, rolling bearings are among the components relevant to safety. Accordingly, their reliability and faultless operation are imperative. In this context, component tolerances are an important criterion and quality feature. This mechanical standard is defined by the relevant DIN/ISO norms.





Coordinate measuring technology



Shape measurement (contour, roundness)



Surface metrology (roughness)



Dynamic measurement



Noise testing (vibration analysis)



Bearing clearance



Metallography



However, measurement tasks required for rolling bearings and their components can be extensive and complex. Depending on requirements, different parameters must be measured under various bearing conditions on components or on the mounted rolling bearing. Typical tasks include dimensional and form tests (e.g., connection dimensions, contours, roundness and waviness), the measurement of surface characteristics (e.g., roughness), dynamic measurement tasks such as the checking of running deviations (e.g., radial and axial wall thickness variation, radial runout with different references), as well as special tests such as the measurement of radial internal clearance and noise testing. Performing measurements properly and in accordance with the standards guarantees reliable measurement results.

"BETC delivers fast, high-precision and standard-compliant measurements when customers experience bottlenecks due to a lack of equipment and know-how"

Measurement technology is an area where customers tend to experience bottlenecks. "Lack of equipment and know-how is often the problem. But capacity problems in the laboratories due to high utilization also lead to delays in the processes," notes Dominik Helfrich, Managing Director of BETC Bearing Engineering and Testing Center GmbH. The company's Rolling Bearing Metrology service area is attuned to deal with precisely such situations, both for order peaks and as a permanent service partner. BETC GmbH provides fast, high-precision, standard-compliant measurements as

a basis for reliable product and process development, initial sampling and as a basis for quality monitoring and qualification of rolling bearings. Using the latest measuring technology in monitored, air-conditioned laboratories, rolling bearings are fully measured as regards their dimensional and shape requirements. Trained personnel with over 40 years of experience implement customer-specific measurement tasks and, if required, evaluate the resulting measurements relative to the state of the art.

But demand for rolling bearing analysis extends well beyond Germany's borders. "We noticed an increase in requests for rolling bearing analysis in China. Through our strong group of companies, we have managed to respond to such requests and offer rolling bearing analytics directly on-site in China as a pre-shipment third-party. This gives our customers the advantage of testing QA issues directly at the supplier in China."

The customer receives substantiated measurement results in the form of an individual test report with included measurement protocols. Another option for documentation is the initial sample inspection report (ISIR). With this, customers can offset any defects in rolling bearing quality at an early stage and thus meet the quality requirements of their own customers.

More information can be found at www.betc-gmbh.com/en

– WIB SA: **Unleash The Power of Swiss Precision**

+ + + + +

For over 60 years, WIB has been at the forefront of precision ball bearing manufacturing, delivering high-quality solutions to high-end industries worldwide. Founded in Switzerland in 1961, the company has built its reputation on its Swiss heritage of precision and quality.

**SINCE
1961**





Swiss Precision & Performance

Precision is everything. In WIB facilities, every operation, from procurement to final assembly, has its own strict Swiss quality standards. The company works in increments of micrometers, and if a bearing doesn't meet those standards, it won't leave the company. Customers can trust in WIB's commitment of precision and performance every step of the way. WIB advanced manufacturing processes are empowered by robotics and other state-of-the-art technologies that enable optimal production speeds and performance.

Collaboration Facilitates Innovation

At WIB, the focus has always been on the customer. The company's application engineers work closely with customers to understand their needs and redefine possibilities, creating the best possible tailor-made bearing solution for high-demand applications. With decades of experience in designing and manufacturing precision ball bearings and subassemblies, WIB's engineers have the knowledge and expertise to take a concept from the drawing board to post-production, providing technical support every step of the way. The company also provides world-class customer experience at every phase of a project, from design specifications to on-time delivery.



Go Beyond Single Bearings

Drawing on decades of experience, the professionals at WIB have the expertise to produce sub-assemblies that deliver optimum precision, performance, and lifespan while making sure the solutions fit perfectly into your final assembly. Working with WIB ensures the quality of the final assembly as every component is manufactured with Swiss precision, using an advanced and proven production process.

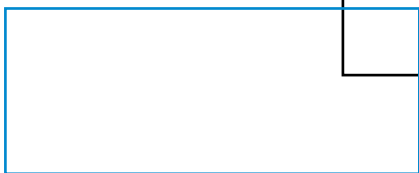




The Partner You Need

WIB SA is a company that embodies Swiss precision and performance in every aspect of its business. From collaboration and innovation to state-of-the-art manufacturing processes and unparalleled customer support, WIB is committed to delivering the highest-quality precision ball bearings and subassemblies to specific industries worldwide. With WIB as a partner, customers can rely on quality, innovation, and Swiss precision to meet their unique requirements.

Put your project in motion!
www.wib-bearings.com



The simatherm IH 045

World's first controllable induction heater with an app

+ + + + +



+ Figure 1: New simatherm IH 045

simatherm heaters efficiently heat bearings and other ring-shaped metal parts. They allow quick and clean assembly and replace conventional heating methods such as hot plates, hot oil baths, open flames and ovens. During the heating process, only the workpiece heats up, but the heater remains cold.

For which rolling bearing dimensions is the induction heater suitable?

Bearings weighing up to 45 kg can be heated with the newest heating device, the IH 045. Rolling bearings with a maximum outside diameter of up to 420 mm can be placed correctly on the device thanks to the extendable workpiece support.

Two-sensor technology

Two-probe technology enables stress-free heating of high-precision, pre-greased and sealed bearings. The temperature difference between the inner and outer ring can be selected. The following applies:

The smaller the temperature difference, the lower the mechanical stress that occurs in the bearing, which in turn significantly increases the service life of the rolling bearing.

More power thanks to external induction coil

The IH 045 has the smallest external induction coil in its performance class and enables extremely fast heating, saving time, energy and maintenance costs. Rolling bearings with a bore diameter of 90 mm can be heated up to 1.5 times faster over the coil than over the support yoke. At only 17 kg, including the three standard yokes, the IH 045 is lighter than the competition.

✦ Figure 2: simatherm IH 045 in action



Connectivity with the «simatec World of Maintenance» app

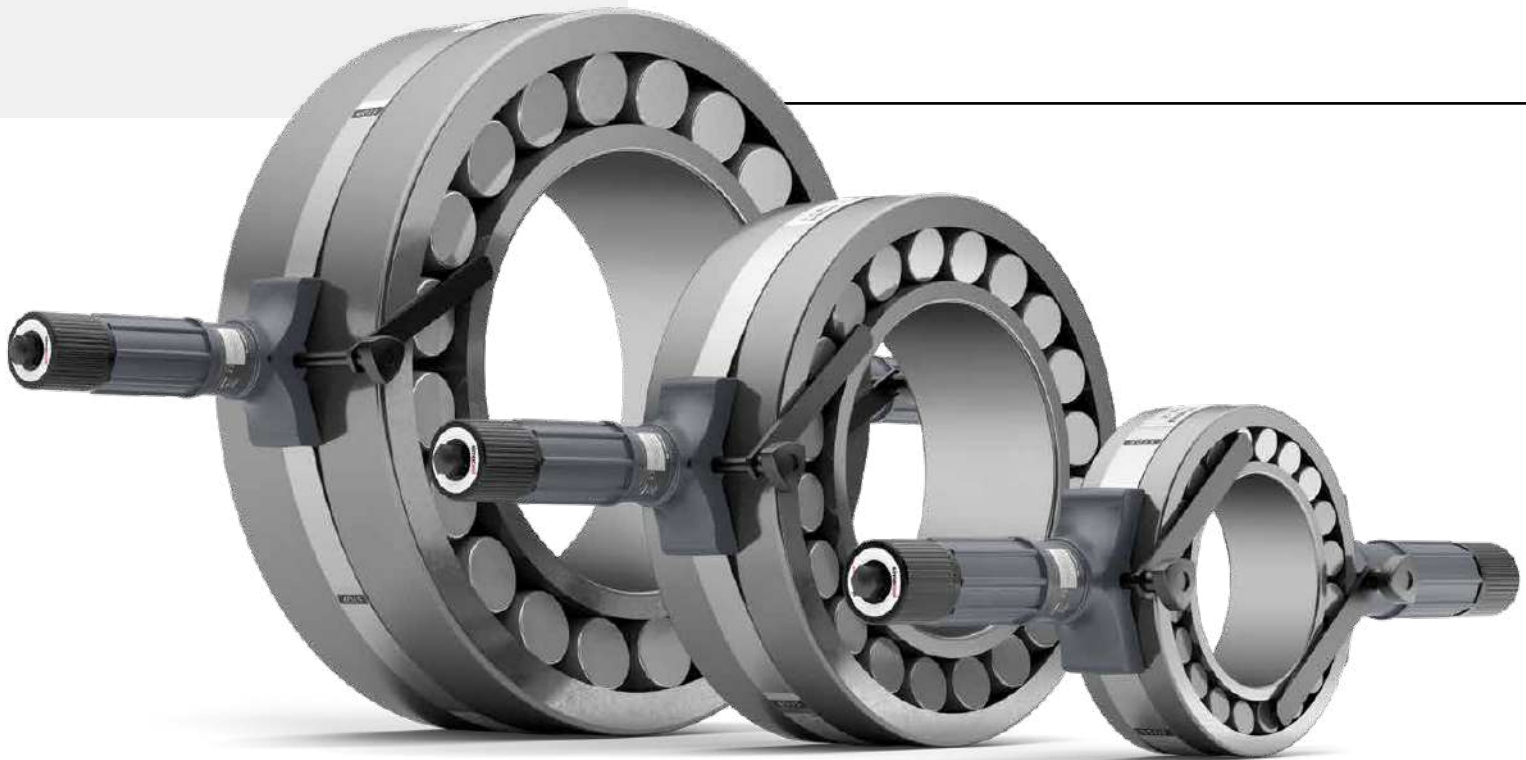
The simatherm IH 045 is the world's first induction heater to connect to a mobile phone via Bluetooth. This guarantees the user fast, intuitive operation with direct communication via the app for support, updates or advantages of digital operator guidance. The APP can also be used to record and visualise heating data for quality assurance purposes. The simatec World of Maintenance APP is available for Android and Apple users. It is up to the user whether the unit is operated via the integrated control panel or the mobile phone as remote control.

For handling heavy workpieces, simatec has developed the Bearing Handling Tools, the ideal complement to the simatherm induction heating devices.

Use of the Bearing Handling Tools (BHT) with an induction heater

The Bearing Handling Tools are ideal for professional and safe lifting of large and heavy bearings. With the BHT you avoid the risk of accidents and bearing damage. The workpieces are mechanically clamped on the outer ring by a steel band. Two opposing handles and two carrying straps allow easy handling with a crane. The bearings can be placed on a shaft both horizontally and vertically with the Bearing Handling Tool.

The bore remains free so that the bearing can be easily pushed onto a shaft. In addition, fixing the bearing enables more precise positioning. This ensures simple, fast and safe mounting of bearings on shafts.



+ Figure 3: Bearing Handling Tool Family



+ Figure 4: A large induction heating unit combined with BHT 300 - 500

The simatool Bearing Handling Tool is available in three versions:

- + BHT 200-400 for outside diameters of 200-400 mm; max. lifting force 150 kg
- + BHT 300-500 for outside diameters of 300-500 mm; max. lifting force 500 kg
- + BHT 500-700 for outside diameters of 500-700 mm; max. lifting force 500 kg

All three variants have been tested and certified by TÜV SÜD.

With the Bearing Handling Tool, workpieces can be lifted safely and easily onto or off the simatherm induction heaters.

The Bearing Handling Tool can be used for bearing temperatures of up to 160°C. Before lifting the

bearing from the heating device, the final tightening torque must be checked.

The use of simatec maintenance products results in the following advantages for users:

- + Easy handling
- + Increased work safety
- + Increased service life of components
- + Cost reduction due to fast and professional fitting of rolling bearings

Have we aroused your interest?

You can find more exciting articles and detailed information about our simatec products at <https://simatec.com>.



TOGETHER WE ARE WORTH MORE!



Since its founding in 1936, RKB has forged numerous relationships that have played a significant part in our journey to success. The strong partnerships we have formed with distributors and partners over the years have led to our continued organic growth, which has accelerated significantly in the last decade.



With more than 100 locations in over 60 countries on six continents, RKB has established itself as a trusted and reliable supplier of bearings for various industries. RKB's network of distributors and partners also provides fast and efficient service to customers worldwide. By partnering with local distributors, RKB can better understand each market's specific needs and requirements and provide customized solutions to meet those needs. Remaining ahead of the curve is mandatory in this continuously changing industry, which is why RKB has invested substantially in the ongoing optimization of all relevant areas (production, distribution, R&D, after-sales service, and training).

Our strategically located logistics warehouses enable us to provide customers with just-in-time delivery of RKB bearings. This major business objective is also sustained by the fact that RKB has one of the largest stocks of bearings in Europe. The focus on building genuine win-win partnerships is an important component of the RKB business model, enabling us to enter new countries and industrial sectors and increase our respective market share.

The good performance of our entire sales network is also reflected in competitive advantages in terms of increased RKB brand and range of products awareness. The continuous mutual flow of information represents another important pillar for a strong and effective on-the-ground presence of RKB. In this respect, apart from consistent online communication, we regularly invite our partners and distributors to visit our headquarters and meet us in person. We believe this experience can further improve their understanding of RKB and provide us with a chance to establish a more effective relationship and get to know each other better.

We enjoy the multicultural aspect of networking very much. In the last months, RKB HQ had visitors from Austria, Lithuania, Peru, Venezuela, and more. In return, RKB also makes regular visits to partners and distributors. Furthermore, if you want to meet us, we participate in numerous exhibitions every year. To summarize, networking is a critical component of success. RKB can produce high-quality bearings and deliver them quickly because of its reliable production standards and execution, as well as our well-established solid network.



RKB Sales Director Alessandro Russi directly witnessed the power of networking during his 16 years at RKB. He shared with us his perspective on why the network serves as a major growth resource for RKB and how it has played a pivotal role in our success.

"The network has been an indispensable asset for RKB, enabling the forging of strong connections and establishing fruitful collaborations with key industry players. I believe that the network's influence extends beyond professional collaborations. As RKB continues to navigate the ever-evolving business landscape, the network will undoubtedly remain a cornerstone of our achievements, enabling us to overcome challenges and continue RKB's upward trajectory. Together we are worth more!"

To learn more about our partners, please check <https://www.rkbbearings.com/partners>



To ensure that **BearingNews** and **Motion+Drives** magazines are doing their part to protect the environment, the parent company, **iMotion Media**, has developed a strategy to offset the carbon footprint of its printed magazines. The twofold approach includes a fully supported tree planting campaign in conjunction with each newly released edition, and the use of recycled paper in the printing process.

Sustainability is no longer just a buzzword. Members of the global community have become increasingly aware of human impact on the environment. As a result, a massive movement is driving private sector companies to responsibly manage their environmental, economic, and social resources to safeguard the well-being of future generations.

The term 'sustainability' encompasses a large swath of efficiency objectives that aim to go beyond the thresholds of carbon neutrality. Companies must fulfill further economic and social obligations by devising less wasteful practices. When discussing the printing of magazines, there is long-term value achieved by responsibly implementing environmentally friendly solutions associated with the use of paper. The paper industry has focused its efforts on the sustainability of raw materials, processes, and products. Highlighted

within the industry's strategy is the promotion of sustainable forestry practices and responsibly harvesting renewable raw materials. Tree planting is considered one of the most effective ways to combat global warming, as forests naturally reduce atmospheric carbon dioxide (CO₂) by removing it from the air through photosynthesis. In line with this strategy, iMotion Media has adopted 'tree planting for reforestation' as the most effective method to reduce the carbon footprint associated with the printing and distribution of Bearing News and Motion+Drives magazines. In careful coordination with the release of each printed edition, a tree planting campaign will be launched to help restore forests and offset the use of natural wood materials used in paper production. In addition, iMotion Media is supporting the use of recycled paper in the printing process to reduce dependence on new materials. It will also continue to promote the currently available digital magazine options.

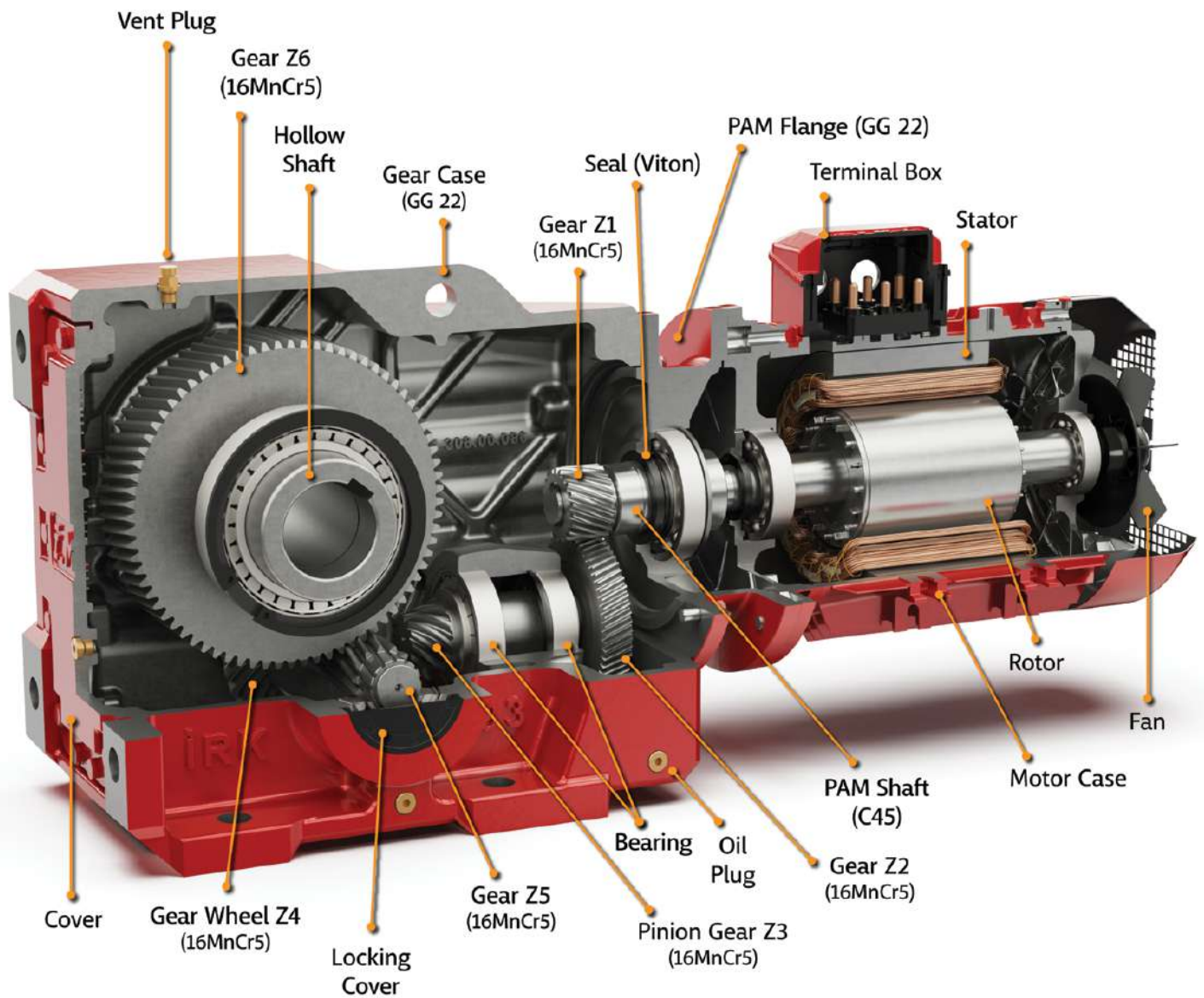


Thanks to the use of recycled paper and certified companies dedicated to carefully managing wood harvesting, there has been a decline in global deforestation. And while there are positives to both recycled paper and the responsible production of new paper, recycled material contributes significantly more to global social and economic sustainability goals.

iMotion Media is happy to be a part of a forward-thinking movement with ambitions for a greener future. Through its broad reach within the Bearing, Power Transmission, and Motion Control Industries, iMotion Media intends to create an infectious optimism that will compound progress towards greater sustainability.



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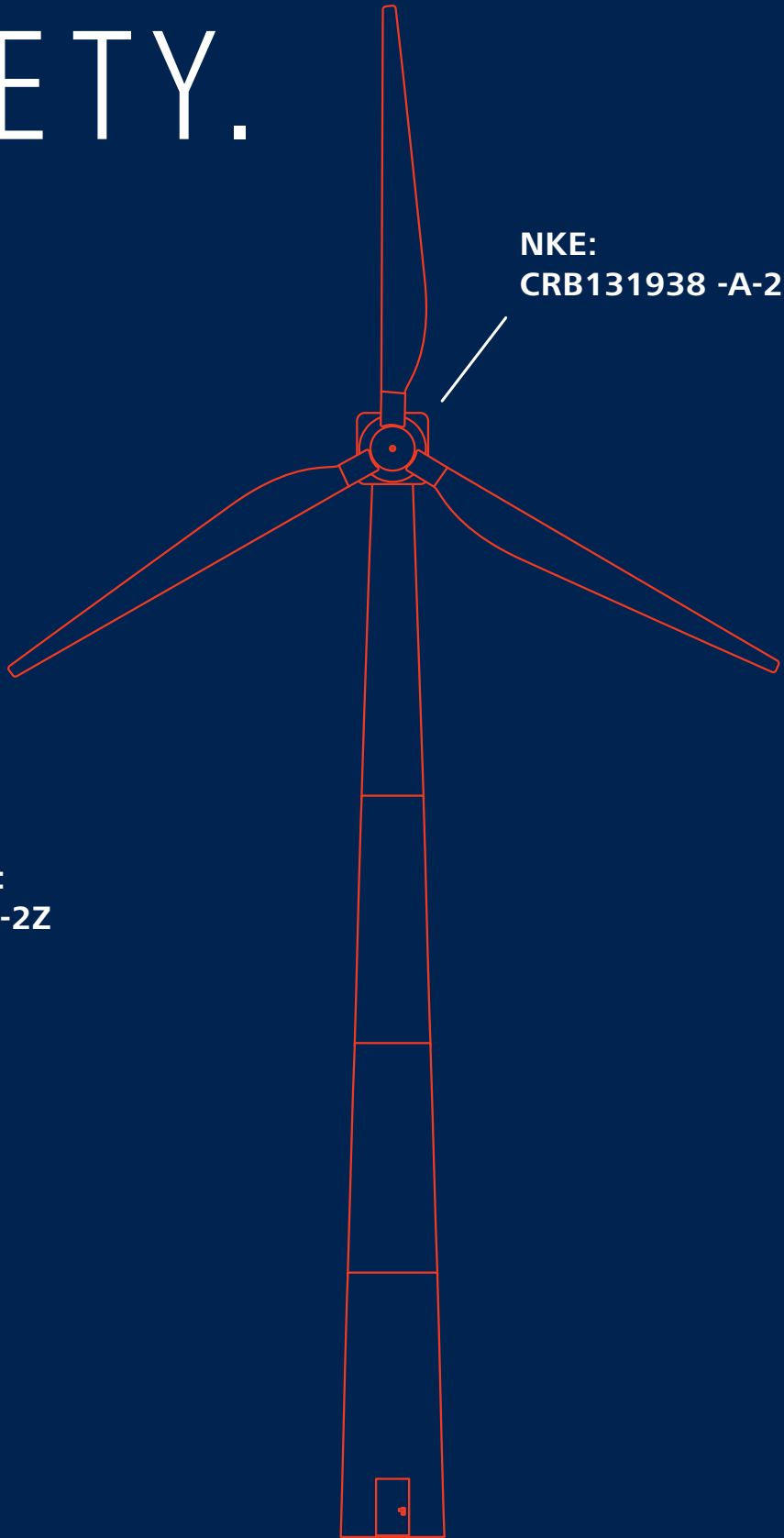
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