

# Bearing NEWS

2025

SEPTEMBER  
ISSUE 43

BEARING INDUSTRY MAGAZINE

## Achieving optimal Bearing life accuracy



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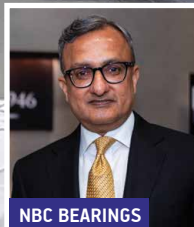
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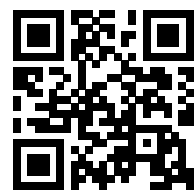
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# Bearing solutions for robotics industry



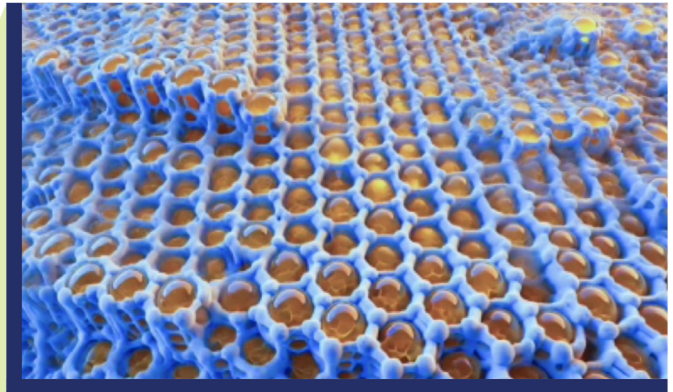
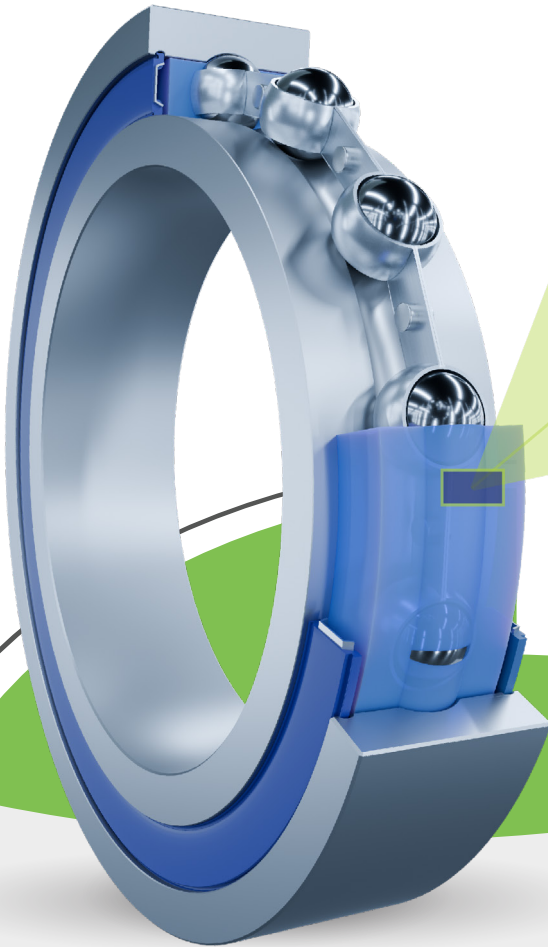
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## The Transformation Continues in Fast Pace

The bearing industry is not just evolving, it's transforming at unprecedented speed together with the ongoing accelerating rate of technological and societal change, particularly in areas like artificial intelligence, where innovation is rapidly reshaping industries and daily life. What once required decades of gradual improvement is now happening in cycles of months or even weeks. Innovations in artificial intelligence, smart maintenance, sustainability, and next-generation materials are driving this change, reshaping the way we design, produce, inspect, and use bearings across industries.

In this edition of BearingNews Magazine, we explore how this fast-paced transformation is taking root across the entire value chain. From AI-powered visual inspection systems to aerospace-grade bearing innovations and smart lubrication strategies that reduce energy waste. The momentum is undeniable. The pace of progress is also being accelerated by strategic investments, as highlighted in our analysis of the financial transformation in China's bearing industry and the global expansion strategies of companies.

We also dive into real-world applications, whether it's enhancing drone performance, ensuring food safety in hygienic environments, optimizing cold rolling in steel production, or improving agricultural uptime. Each

story reflects a broader truth: innovation in the bearing industry is no longer optional; it is essential.

### What's Rolling..

What's rolling across our industry is a wave of transformation powered by intelligence, collaboration, and innovation. The recent panel discussion on the implementation of artificial intelligence across power transmission industries is a good example of this. Meanwhile, the Bearing & Power Transmission World Meetings continue to serve as a critical hub for our global community, combining B2B matchmaking, commercial and technical forums, and a thriving Exhibition to foster both commercial growth and engineering excellence.

This issue is a testament to the companies, engineers, and visionaries who are not just keeping up, but helping define the future our industry.

**I hope that you will enjoy it!**

**Kenan M. Özcan**  
Editor in Chief



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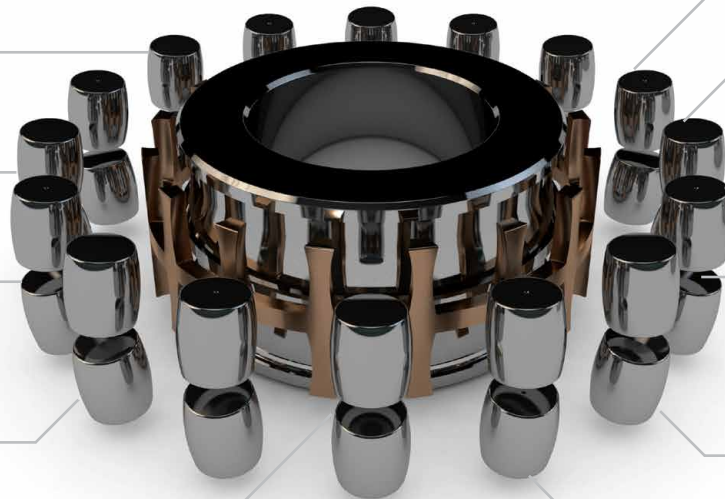
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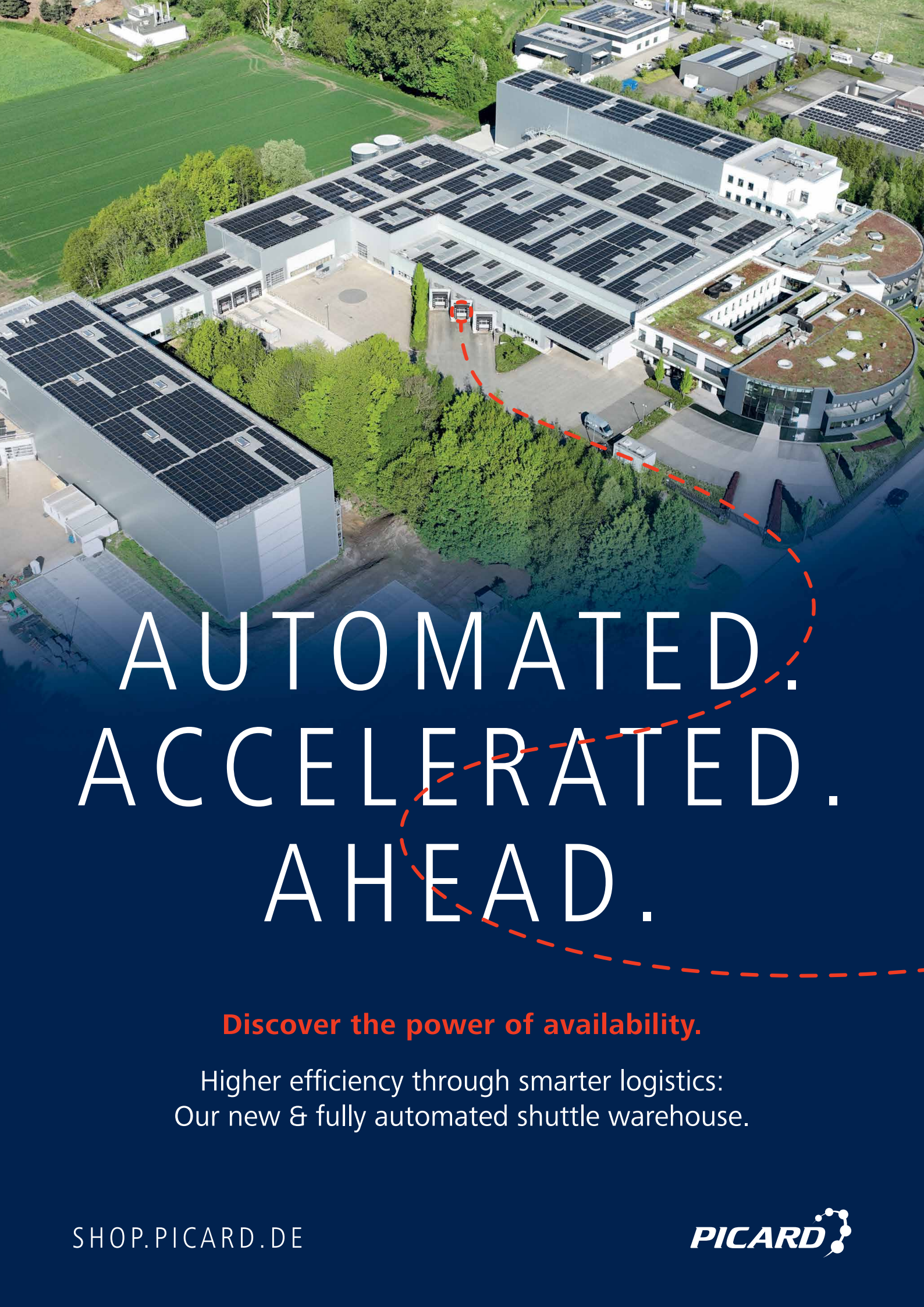


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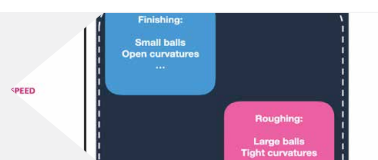
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**March 28, 2025** // JTEKT launches advanced mounting & dismounting tools for industrial bearings. JTEKT Bearings (formerly Koyo Bearings) unveiled a comprehensive toolkit designed for safe, efficient installation and removal of industrial components such as bearings, bushings, seal rings, cam wheels, and pulleys. The offering includes four distinct tool categories: Impact tool sets for quick, durable mounting on parts 10–60 mm in diameter; Induction heaters that deliver fast and controlled shrink-fit heating—safer and greener than ovens or oil baths; Mechanical pullers that simplify shaft component removal; and Hydraulic pullers equipped with 2- or 3-arm configurations for more challenging environments. The tools emphasize precision and operational safety, aiming to reduce wear, prevent damage during maintenance, and minimize downtime. This launch signals JTEKT's investment in hands-on maintenance efficiency, giving technicians more control and reliability in demanding industrial contexts.

<https://www.bearing-news.com/jtekt-launches-advanced-mounting-dismounting-tools-for-industrial-bearings/>



**April 1, 2025** // Fersa expands global footprint with new high-tech manufacturing facility in China. Fersa has officially opened a state-of-the-art 30,000 m<sup>2</sup> manufacturing site in Jiaxing, China—built with a €37 million investment spanning five years, designed to double its existing production capacity in the region. This next-generation plant brings automated production lines, cutting-edge testing and validation equipment, precision quality-control labs, R&D centers, and digital tools to the table. The opening was a public affair, featuring a plaque unveiling by local Chinese officials alongside Fersa's board members, underscoring the company's deepening strategic ties in Asia. Since launching operations in Jiaxing back in 2011, Fersa has seen steady growth—and now this expansion not only supports key OEM and Tier 1 relationships, but also strengthens its role in the global bearing and mobility solutions market, serving customers across more than 100 countries.

<https://www.bearing-news.com/fersa-expands-global-footprint-with-new-high-tech-manufacturing-facility-in-china/>



**April 3, 2025** // I-care strengthens its global leadership with the acquisition of SDT International. Belgium's I-care has acquired long-standing ultrasound-predictive-maintenance pioneer SDT International in a deal dubbed "Harmonizing Waves." SDT will keep its Forest HQ and operational autonomy, while its ultrasound tech joins I-care's expertise in vibration diagnostics. The merger folds both modalities into

the unified I-see platform, aiming to simplify customer experience with a single diagnostic tool. Capital-wise, the acquisition was fully equity-financed, signalling I-care's resources and commitment to investing in strategic growth. Governance changes come gently: leadership remains intact, with I-care's CEO taking the board chair role and lineage leadership retained in SDT. Long-term, this could cement Belgium's role as a global innovation hub for predictive maintenance.

<https://www.bearing-news.com/i-care-strengthens-its-global-leadership-with-the-acquisition-of-sdt-international/>



**April 5, 2025** // The Timken Company announces CEO transition. Tarak B. Mehta steps down immediately as CEO and board director "by mutual agreement due to personal reasons," handing the reins to Richard G. Kyle as interim president and CEO—a familiar face who led the company from 2014 to 2024. The board swiftly launched a comprehensive CEO search with Crist Kolder Associates to find a worthy successor, ensuring strategic continuity as they push forward with Timken's industrial diversification roadmap. Amid this shift, board chair John M. Timken Jr. emphasized the resilience of the business, calling it "stronger today than any time in our 125-year history," with a capable leadership team poised to maintain growth momentum.

<https://www.bearing-news.com/the-timken-company-announces-ceo-transition/>



**April 6, 2025** // Schaeffler offers key components for humanoid robots. At Hannover Messe, Schaeffler showcased how its deep motion-technology expertise is shaping the future of humanoid robotics. Drawing from eight product families, the company is providing components such as lightweight XZU angular-contact needle bearings (redesigned for compactness and efficiency in humanoid joints), rotary gearboxes, linear and planetary roller-screw drive assemblies, electric drives (scalable from its e-mobility portfolio), and sensitive linear sensors for nuanced movement detection. The merger with Vitesco Technologies enhanced its vertical integration, helping it act as both supplier and early adopter of humanoid systems.

<https://www.bearing-news.com/schaeffler-offers-key-components-for-humanoid-robots/>



**April 7, 2025** // Hayley Dexis has broken ground on its new 42,000 sq ft National Distribution Centre in Halesowen, a modern facility set to replace six older warehouses on Shelah Road. Designed to expand stockholding for the company's 50

UK branches, it will also feature a training space to support staff development. Local MP Alex Ballinger joined the ceremony, and Joint MDs Ben Noakes and Gary Quinlan emphasised the investment as part of a long-term growth strategy. The centre is scheduled for completion in 2026, coinciding with the company's 50th anniversary.

<https://www.bearing-news.com/hayley-dexis-breaks-ground-on-new-42000-square-foot-national-distribution-centre/>



**April 10, 2025** // PFI Fersa Automotive and SEG Automotive unveiled their next-gen "Redrive" high-voltage drive unit for the Renault Zoe at Rematec 2025 in Amsterdam—a fully remanufactured replacement aimed at extending vehicle life and lowering total ownership costs. Assembled in Spain and leveraging PFI's bearing expertise for improved durability and efficiency, the unit supports a circular-economy approach and is positioned at roughly 30% less than new OEM replacements, making it attractive to independent workshops and fleets as more Zoe models hit major service milestones. Commercial availability is slated by the end of Q2 2025, underscoring growing momentum for high-quality reman solutions in the BEV aftermarket.

<https://www.bearing-news.com/pfi-fersa-automotive-and-seg-automotive-to-launch-next-gen-redrive-bev-unit-for-renault-zoe/>



**April 11, 2025** // Timken India celebrated the inauguration of an adjacent expansion to its Bharuch manufacturing plant, marking a major step in boosting local production of spherical and cylindrical roller bearings. Spanning 55,465 m<sup>2</sup>, the sustainable facility incorporates solar roofing, zero-liquid discharge systems, rainwater harvesting, electric handling equipment, and state-of-the-art automated grinding and superfinishing lines, all set amidst over 900 onsite trees. This expansion strengthens Timken's capacity to meet rising domestic and export demand, while significantly lowering its environmental footprint. Designed for future scalability, the plant can accommodate additional production lines as market needs grow, underscoring Timken's long-term commitment to sustainable innovation and positioning India as a key hub in its global supply network.

<https://www.bearing-news.com/timken-expands-bearing-manufacturing-plant-in-bharuch-india/>



**April 17, 2025** // Rubix has struck an agreement to acquire ERIKS UK & Ireland, a move that brings together two multi-specialist industrial distribution heavyweights and notably boosts Rubix's presence in flow-technology sectors like hoses, valves, seals, and custom technical services. The deal is expected to increase the combined revenues of Rubix's UK, Ireland, and Iceland operations to over €850 million, making it the group's second-largest regional market—while offering customers a broader, more integrated supplier experience. The announcement featured words from



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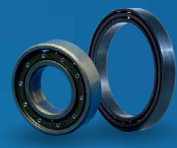
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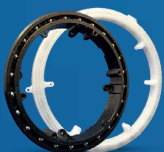
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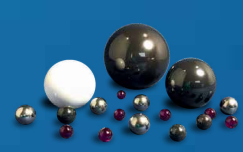
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both CEOs: Rubix's Vince McGurk touted the combined value released by their shared commitment to customer needs, while ERIKS UK & Ireland's Pamela Bingham saw it as a gateway to enhanced service delivery across sectors. Closing is anticipated by year-end, pending regulatory approvals, and will include involvement from private equity partners such as Neuberger Berman and BlackRock.

<https://www.bearing-news.com/rubix-reaches-agreement-to-acquire-eriks-uk-ireland/>



**April 29, 2025** // I-care Group earned the Factory Innovation Award for Digital Transformation at Hannover Messe - Europe's top smart-factory honor, presented by GITO Publishing, Hannover Messe, and the University of Potsdam. Their recognized innovation? A wireless sensor system for industrial equipment that tracks vibration, temperature, and impacts—all without disrupting existing machinery. It's built to integrate seamlessly with IT systems, enabling speedy access to machine data and empowering predictive maintenance strategies across operations. I-care's Vice President of Marketing, Maxime Limbourg, accepted the award live, framing the achievement as a validation of their mission to harness AI and data-driven insights for early failure detection. With over 850 employees in 36 offices worldwide and a monitoring footprint spanning 55 countries, this recognition cements I-care's position as a global leader advancing both operational reliability and industrial sustainability.

<https://www.bearing-news.com/i-care-group-wins-prestigious-factory-innovation-award-2025-for-digital-transformation-at-hannover-messe>



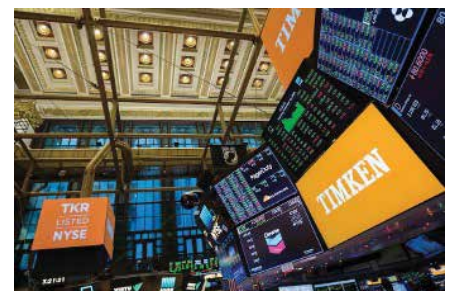
**April 30, 2025** // SKF reported resilient performance in its Q1 2025, posting net sales of SEK 23,966 M despite a 3.5% drop in organic growth—less severe than the 7% fall seen a year earlier. The company managed to slightly improve its adjusted operating margin to 13.5%, supported by effective pricing strategies, smart portfolio management, tight cost controls, and favorable currency effects, even as volume declined. Industrial operations led the way with a 16.9% margin, while Automotive held at 5.2%, both under challenging conditions. Positive growth reappeared in China and Northeast Asia for the first time in seven quarters, though Europe, the Americas, and Southeast Asia remained soft. SKF also shared that separate, streamlined structures for its Automotive and Industrial segments are taking shape, improving focus and efficiency. While operating cash flow fell back to SEK 977 M due to working capital fluctuations, the company remains confident that its decentralized setup and disciplined execution will help it navigate ongoing market uncertainty.

<https://www.bearing-news.com/skf-q1-2025-strong-margin-in-turbulent-markets/>



**May 1, 2025** // Timken released its first-quarter 2025 results: revenue fell to \$1.14 billion, a 4.2% decline year-over-year, driven by weaker end-market demand and unfavorable currency trends, though partially offset by acquisitions. Net income landed at \$78.3 million (or \$1.11 per diluted share), down from \$103.5 million, while adjusted EPS dropped to \$1.40, reflecting cost pressures and muted volume. The company posted an adjusted EBITDA margin of 18.2%, down from 20.7%, as both its Engineered Bearings and Industrial Motion segments faced lower volume and mix, though cost actions and synergies from acquisitions helped cushion the impact the cash side, operations generated \$58.6 million, with free cash flow rising to \$23.4 million—stronger than the prior year thanks to improved working capital and lower CapEx. Timken also returned \$48.2 million to shareholders through dividends and repurchases, showcasing disciplined capital management despite soft market conditions. The updated full-year outlook now projects EPS in the range of \$3.90–\$4.40 (adjusted EPS \$5.10–\$5.60), incorporating expected tariff impacts (~\$25M), cost reduction measures, and the offsetting effects of acquisitions.

<https://www.bearing-news.com/timken-reports-first-quarter-2025-results/>



**May 5, 2025** // Schaeffler released its first-quarter financial results, reporting €5.924 billion in revenue—a 2.9% decrease in constant currency compared to the pro-forma prior year figure of €6.141 billion. Despite softer volumes in Europe, the Americas, and Greater

China, growth in the Asia/Pacific region (up 5.7%) helped stabilize the numbers. The group maintained an EBIT margin before special items at 4.7%, generating €276 million in earnings, and pointing to disciplined cost management and resilient operational performance across challenging markets. Notably, the E-Mobility division saw nearly 10% revenue growth, driven by ramp-ups in Europe, the U.S., and Asia, with order intake hitting €3.0 billion, underscoring strong demand in electric drivetrain components.

<https://www.bearing-news.com/schaeffler-reports-first-quarter-2025-financial-results/>



**May 8, 2025** // Premium manufacturers raise bearing prices in China amid geopolitical and economic shifts. SKF, NTN, NSK, and Schaeffler issued coordinated price hikes (around 8–10%), citing tariffs and raw material cost inflation. Fueled by surging costs and shifting trade policies, SKF's raise was linked to new U.S. customs duties imposed on April 11, while NTN and NSK cited rising raw materials costs. Schaeffler followed suit, implementing the hikes for all pending and unfulfilled orders as part of a move toward a "fair pricing policy" and to reinforce contract alignment with Shanghai arbitration terms. The announcement has already triggered renegotiations among major industrial buyers and raised interest in local alternatives—though analysts note that imported, high-precision bearings remain hard to match. In the long run, observers see this as a structural shift away from ultra-competitive pricing toward market

realism, with potential paths splitting between further price increases, industry consolidation, or a gradual stabilization driven by logistics recalibration.

<https://www.bearing-news.com/premium-manufacturers-raise-bearing-prices-in-china-amid-geopolitical-and-economic-shifts/>



**May 10, 2025** // Timken opened a new Groeneveld-BEKA manufacturing facility in Suzhou's high-tech district, bringing together the strengths of its GGB, Rollon, and Groeneveld-BEKA divisions under one roof. Designed to produce advanced automatic lubrication systems, the plant rolled out six new products tailored for energy, environmental, and food processing industries—key areas prioritizing automation and sustainability. The ribbon-cutting event drew senior executives, including Timken VP Christopher Coffin and Timken China President Yu Lan, along with regional officials led by District Secretary Sun Chanjiao—highlighting the strategic importance of localizing production in China's dynamic manufacturing hub. This move is both a vote of confidence in Suzhou's long-term industrial potential and a calculated effort by Timken to align with national priorities and reduce supply chain friction—delivering quicker response times to customers while embedding itself more deeply into China's modernization efforts.

[https://www.bearing-news.com/timken-opens-new-lubrication-systems-plant-in-suzhou-to-](https://www.bearing-news.com/timken-opens-new-lubrication-systems-plant-in-suzhou-to-boost-local-manufacturing/)

[boost-local-manufacturing/](https://www.bearing-news.com/timken-opens-new-lubrication-systems-plant-in-suzhou-to-boost-local-manufacturing/)



**May 15, 2025** // Chinese authorities, prompted by Harbin Bearing Group's investigations, raided Taizhou YinYe Bearing Co. and seized over 3,000 counterfeit bearings across more than 160 models wrongly labeled as HRB products. Unlike genuine bearings, these fakes bypassed crucial quality checks, posing risks of catastrophic equipment failure and endangering human safety. Wu Minde, CEO of Jianlong HRB, pointed out that counterfeit goods may look identical at a glance—but without performance validation, they become industrial hazards. Under Chinese law, such violations carry severe penalties, and HRB is responding by expanding its surveillance and enforcement efforts. This case serves as a stark reminder that vigilance, verified sourcing, and stronger enforcement are indispensable for protecting both brand integrity and lives on the factory floor.

<https://www.bearing-news.com/counterfeit-bearings-seized-in-major-industrial-safety-operation/>



**May 20, 2025** // Ovako appointed Larisa Gyllenrapp as its new Executive Vice President of Global Sales, a move that



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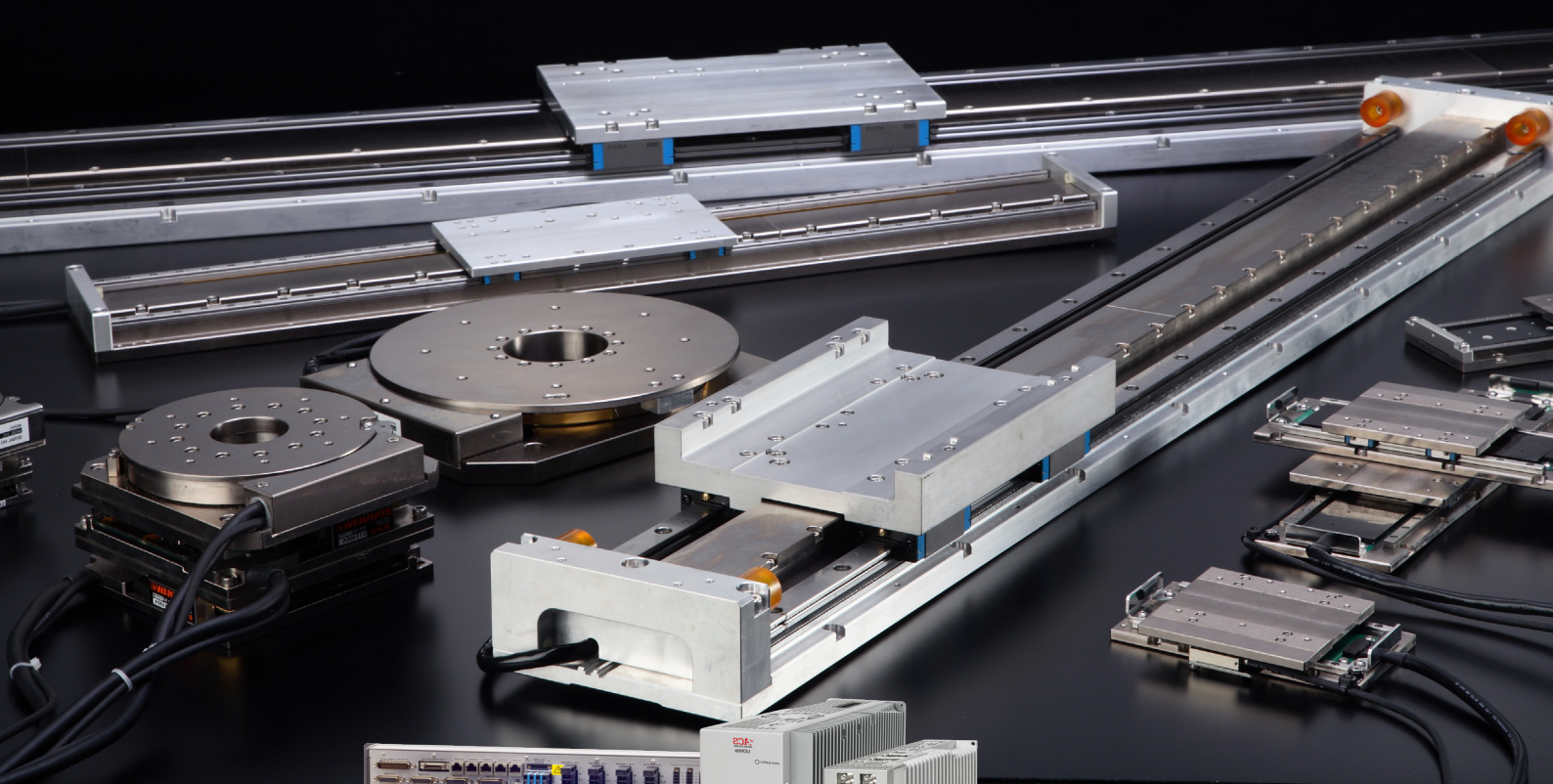
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# **IKO** & **VARIO** DRIVE

Nippon Thompson and VarioDrive have teamed up to enhance their offerings by combining Nippon Thompson's advanced motion technology with VarioDrive's innovative drive systems. This collaboration aims to deliver high-performance, reliable solutions that meet the growing demand for precision and efficiency in industries like automation, robotics, medical and semiconductor markets across Europe.

**IKO**'s positioning tables offer a tailor made solution to any application imaginable, together with their trusted Linear Motion Rolling Guide technology, now can offer the support with VarioDrive's who will guide you through the complex landscape of solutions and components with motion control systems.

experts in  
**MOTION**

**NIPPON THOMPSON EUROPE**



[www.ikont.eu](http://www.ikont.eu)



will add substantial leadership depth to the company's commercial engine. With over 20 years of international experience—including leading Wood Division operations across Europe, the Middle East, and Africa at Bruks Siwertell, and senior roles at BillerudKorsnäs—she brings a proven track record in strategic sales, market expansion, and organizational development. The appointment reinforces Ovako's ambition to elevate customer value and sharpen commercial execution in key markets. Larisa will join the Executive Management Team and officially assume the role in November, while President and CEO Marcus Hedblom steps in as acting EVP until then.

<https://www.bearing-news.com/ovako-appoints-larisa-gyllenrapp-as-evp-global-sales/>

**OVAKO**



**May 25, 2025** // Quality Bearings Online, based in Leeds, secured a **£500,000 NPfII loan** to expand its export footprint into South America—already a strong market, accounting for over 90% of current turnover. The funds will support strategic entry into aerospace, defense, and advanced engineering sectors, while also enabling the addition of three skilled staff roles to support the scaling effort. CEO David Wells described the investment as a significant step forward, blending local grit with global ambition. This move not only positions the company for long-term growth but also reinforces Leeds' role as a center for high-quality industrial exports and specialty-bearing expertise.

<https://www.bearing-news.com/bearings-supplier-sets-sights-on-south-america-after-500k-npif-ii-loan/>



**May 28, 2025** // Bearing & Power Transmission World Meetings 2025 wrapped up in Istanbul, bringing together professionals from over 40 countries at the Pullman Hotel & Convention Center for three days of industry exchange and insight. Participants—from manufacturers and component suppliers to distributors, OEMs, and service providers—connected through a vibrant combination of B2B table meetings, speed networking, and a bustling exhibition floor. A standout feature was the Forum program, where over 20 expert speakers led technical sessions and strategic panels on critical topics like AI-driven innovation, bearing quality, failure analysis, distributor profitability, and supply chain resilience. The event reinforced its reputation as a premier global gathering for knowledge exchange and partnership building across the mechanical power transmission value chain.

<https://www.bearing-news.com/bearing-power-transmission-world-meetings-2025-conclude-with-great-success-in-istanbul/>



**June 1, 2025** // Permaglide® unveiled its new P180 material, hailed as the latest “all-rounder” in high-performance plain bearings. In rigorous wear testing—across dry, wet, and erosion conditions—it

consistently outperformed all other P1-category materials with the lowest wear rates, delivering reliable performance in environments from fluid pumps to proportional solenoids. Its strength lies in low maintenance and versatility: ideal for high-speed fluid pumps demanding tight clearances and chemical resistance, as well as solenoids requiring minimal friction and energy loss over long operating cycles. Complementing P180, the P200 variant also made headlines for its lead-free formula, offering similarly rugged durability in simpler applications like agricultural steering components. P180's balance of longevity, adaptability, and efficiency positions it as a go-to solution for industries seeking dependable, low-wear bearing materials in tough, demanding systems.

<https://www.bearing-news.com/introducing-permaglide-p180-the-new-all-rounder-in-high-performance-bearings/>



**June 5, 2025** // Daubert Cromwell introduced the world's first 100% biodegradable and recyclable corrosion-inhibiting films, branded as Daubert VCI Films with BioNatur®. These innovative films are designed to biodegrade in landfill environments within 8–12 years, breaking down into soil, gases, and water without leaving behind microplastics. Simultaneously, they are fully recyclable with standard polyethylene materials, offering manufacturers a sustainable packaging solution that does not compromise performance. The films are available in various product lines, including Premium Metal-Guard®, Clear Pak®, and Ferro-Film®, all incorporating BioNatur® additives. These additives

transform the polyethylene into a digestible food source for microbes found in landfills, ensuring complete biodegradation. Side-by-side testing has confirmed that the BioNatur® films maintain the same physical strength and corrosion protection as conventional VCI films.

<https://www.bearing-news.com/daubert-cromwell-launches-worlds-first-100-biodegradable-and-recyclable-vci-films-with-bionatur-technology/>



**June 8, 2025** // Axel Johnson International's Power Transmission Solutions (PTS) business group announced the strategic acquisition of FIMO S.p.A., a leading distributor of mechanical components and services in Italy, with a strong focus on the ceramic tile manufacturing sector. Founded in 1969 by Sergio Tassi and Giulio Fontana, FIMO is a family-owned company headquartered in Sassuolo, Emilia-Romagna, an area renowned for its ceramic tile industry. With over 50 years of experience, FIMO has established itself as a recognized solutions provider, offering a comprehensive range of products and services tailored to the ceramic tile production process. Their product portfolio includes electrical and mechanical drives, pneumatics and hydraulics, cooling systems, and air compressors. This acquisition aligns with PTS's long-term strategic ambitions in the region, enhancing its market position and customer offering in Italy. By integrating FIMO's

specialized expertise and established customer base, PTS aims to strengthen its presence in the ceramics industry and expand its capabilities in providing comprehensive mechanical solutions. The acquisition also reflects PTS's commitment to organic growth and strategic partnerships, as emphasized by both parties involved.

<https://www.bearing-news.com/axel-johnson-international-grows-its-power-transmission-offering-in-italy-through-the-acquisition-of-fimo-s-p-a/>



**June 10, 2025** // Timothy A. Graham as President of Industrial Motion and an officer of the company, effective immediately. Graham succeeds Christopher A. Coughlin, who announced his retirement earlier this year and will remain with the company through his planned retirement to help ensure a seamless transition. Since joining Timken in 2003, Graham has built an impressive track record leading complex global operations. Most recently, as Vice President of Operations for Engineered Bearings, he led a worldwide network of bearing manufacturing and distribution facilities. His responsibilities also included companywide leadership of supply chain, sourcing, quality, continuous improvement, environmental, health and safety (EH&S), and sustainability. Graham also served as acting president for American Roller Bearing and Aurora Bearing following their acquisitions and gained valuable international experience leading European operations from Colmar, France.

<https://www.bearing-news.com/timken-names-timothy-a-graham-president-of-industrial-motion/>

**TIMKEN**



**June 12, 2025** // NTN Europe invests €30 million and announces 100 new hires to strengthen the aeronautical industrial capacity of its SNR brand. NTN Europe, world leader in bearings, announces a major investment to develop its Argonay production site in France, dedicated to the aerospace industry. The aim is to meet the growing demand in this sector, and to enable this strategic division, which is celebrating its 60th anniversary, to grow by 40% by 2030. The investment focuses on modernizing the digital ecosystem, developing cutting-edge industrial processes, and promoting man-machine collaboration to enhance competitiveness. The integration of robots, cobots, and artificial intelligence will assist teams in their tasks, allowing them to concentrate on their core expertise. This transformation is aligned with the principles of Industry 4.0, aiming to produce more efficiently and effectively.

<https://www.bearing-news.com/ntn-europe-invests-30-million-euros-and-announces-100-new-hires-to-strengthen-the-aeronautical-industrial-capacity-of-its-snr-brand/>





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**June 20, 2025** // Rollon Corp announced the expansion of its operations in the United States with the opening of a new manufacturing facility in Norton Shores, Michigan, and a business office in New Jersey. The Michigan facility, covering 147,000 square feet, will serve as the U.S. manufacturing hub for Rollon's linear components, actuators, robotic transfer units (RTUs), and multi-axis systems and gantries. This expansion aims to optimize service for customers across North and South America. The New Jersey office will house Rollon's engineering, marketing, customer service, HR, product management, and purchasing teams in a central location. The move reflects Rollon's commitment to enhancing its manufacturing capabilities and customer service in the Americas. By leveraging digital systems and smart manufacturing processes, Rollon aims to meet the changing demands and conditions of customers and the overall supply chain. The company serves a wide range of industries, including manufacturing, packaging, aerospace, factory automation, logistics, material handling, and healthcare.

<https://www.bearing-news.com/rollon-corp-expands-manufacturing-operations-in-michigan-opens-office-in-new-jersey/>



**June 24, 2025** // Major shipment of counterfeit bearings seized in Dongguan. Authorities raided Dongguan Bearing Assembly Company (Hachzhou) and confiscated about 30,000 fake HRB-branded bearings—across 300+ models—worth over ¥800,000 (~\$110,000 USD). Authorities have classified the

company's activities as violations of Chinese law, including the Trademark Law and the Anti-Unfair Competition Law, as the counterfeit goods misled consumers regarding their origin. The scale of the operation suggests a potential breach of Article 140 of the Criminal Law of the People's Republic of China, which penalizes the manufacture and distribution of counterfeit or substandard goods on a large scale. If substantiated, the case could lead to significant fines, asset confiscation, and even criminal prosecution. An administrative investigation is currently underway to determine the full scope and legal consequences of the violation.

<https://www.bearing-news.com/major-shipment-of-counterfeit-bearings-seized-in-dongguan/>



**July 3, 2025** // Fersa unveiled a unified corporate identity and launched its first dedicated website, consolidating its global operations under a single cohesive structure. This rebranding integrates Fersa Bearings, PFI Bearings, and NKE Bearings into streamlined entities: Fersa, PFI Fersa, and NKE Fersa, each aligned with specific market segments. Fersa Bearings now leads the heavy-duty automotive division, PFI Fersa focuses on high-performance solutions for passenger and electric vehicles, and NKE Fersa specializes in advanced bearing technologies for the wind, railway, and industrial sectors. The new website serves as the group's digital hub, supporting its growing ecosystem and complementing recently launched Fersa and NKE Fersa webshops.

<https://www.bearing-news.com/fersa-aligns-brands-under-one-vision-with-new-identity-and->



[website-launch/](https://www.bearing-news.com/fersa-aligns-brands-under-one-vision-with-new-identity-and-website-launch/)

**July 8, 2025** // CW Bearing USA, Inc. announced significant advancements at its manufacturing and technology center in Apaseo El Grande, Guanajuato, Mexico. Following the completion of the facility's physical expansion in 2022, the company has focused on enhancing equipment, capacity, and capabilities, leading to a wave of new production and innovation over the past year. This progress marks the successful execution of Phase 2 of CW Bearing's Mexico expansion plan, with Phase 3 already on the horizon. The Mexico facility, originally opened in 2018, is now part of a broader North American network that includes manufacturing and sales operations in Northville, Michigan, a corporate office in Irvine, California, and warehousing and distribution centers in Michigan, North Carolina, Texas, and Virginia. In 2022, CW Bearing doubled the size of its Mexico facility from 55,000 to 110,000 square feet, laying the foundation for a multi-year capability buildout that is now delivering tangible results.

<https://www.bearing-news.com/cw-bearing-builds-on-mexico-expansion-with-new-capabilities-equipment-and-regional-impact/>



**July 23, 2025** // At DSEI 2025, Carter Manufacturing is set to showcase its advanced precision engineering capabilities at ExCeL London, Stand S2-102. With over two decades of experience, the company has established itself as a trusted partner to major defense contractors and aerospace organizations worldwide. Carter Manufacturing specializes in delivering critical components for demanding aerospace and defense applications, where precision, reliability, and durability are paramount. The company's product portfolio includes specialized bearing solutions designed to perform flawlessly under extreme conditions. These components are integral to numerous advanced systems, including aircraft, spacecraft, optical sighting equipment, and laser range-finding technologies. Carter Manufacturing's engineering team has developed solutions that excel in challenging environments, providing the necessary stiffness and torque performance while remaining lightweight and space-efficient—crucial for applications where every gram matters and space is at a premium.

<https://www.bearing-news.com/carter-manufacturing-showcases-advanced-precision-engineering-at-dsei-2025/>



**August 5, 2025** // Chinese authorities have recently intercepted a significant shipment of counterfeit automotive bearings at the Port of Ningbo, highlighting the nation's commitment to protecting intellectual property and ensuring product safety. During a routine inspection, customs officers at Meishan Port identified suspicious goods labeled as "automotive bearings" bearing the SKF logo. Subsequent analysis confirmed that all 3,500 units were counterfeit. This seizure is part of China's broader efforts to combat the production and export of fake industrial components,

particularly those posing safety risks.  
<https://www.bearing-news.com/china-intensifies-crackdown-on-counterfeits-major-shipment-of-fake-bearings-seized-at-ningbo-port/>



**August 6, 2025** // The Timken Company (NYSE: TKR) announced its second-quarter 2025 financial results, reporting net sales of \$1.17 billion, a slight decrease of 0.8% compared to the same period in 2024. This decline was primarily due to lower end-market demand across both segments, partially offset by revenue from the CGI acquisition, favorable pricing, and foreign currency translation. Organically, sales decreased by 2.5% year-over-year. Net income for the quarter was \$78.5 million, or \$1.12 per diluted share, compared to \$96.2 million, or \$1.36 per diluted share, in the second quarter of 2024. Adjusted earnings per share (EPS) were \$1.42, down from \$1.63 in the prior year. Adjusted EBITDA margin declined to 17.7% from 19.5% in the same period last year.

<https://www.bearing-news.com/timken-reports-second-quarter-2025-results/>



**August 11, 2025** // BearingCloud Auctions is currently hosting a significant surplus bearing auction, featuring over 200,000 items across more than 1,800 product types. This presents a valuable opportunity for buyers seeking

cost-effective solutions or looking to liquidate excess inventory. The auction encompasses a wide range of bearing categories, including ball bearings, roller bearings, and specialized components, catering to various industries such as agriculture, food and beverage, material handling, mining, construction, and machine tools.

<https://www.bearing-news.com/280000-surplus-bearings-now-in-auction-on-bearingcloud/>



**August 20, 2025** // Schaeffler India launched its fifth manufacturing facility in Shoolagiri, Tamil Nadu, marking a major milestone in its "Make in India" growth strategy. The initial phase spans 16,500 m<sup>2</sup> within a larger 108,000 m<sup>2</sup> site and is set to reach full production by Q4 2025—focusing on conventional and hybrid powertrain and chassis components like planetary gears and hybrid transmission parts tailored to the Indian market. The event was graced by global and regional leadership, including Georg F. W. Schaeffler, Matthias Zink, and Dharmesh Arora, signifying its strategic weight. Schaeffler India has poured ₹1,700 crore into local capacity expansion since 2022, exceeding its initial ₹1,500 crore pledge, and further elevated its presence with the acquisition of the B2B platform Koovers.

<https://www.bearing-news.com/schaeffler-opens-high-tech-bearings-plant-in-india-as-part-of-make-in-india/>





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BEARINGS ■ POWER TRANSMISSION ■ LINKAGES



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#Precisionengineeringexcellence





Male Rod Ends



Female Rod Ends



Spherical Bearings



Ball Joints



Clevis Joints



Linkages



Ball Studs



Rubber Dust Seals & Spacers

## Linkage Components

Dunlop linkage components such as Rod Ends, Spherical Bearings & Ball Joints are proudly manufactured in the UK and are used to transfer mechanical motion. Whether that motion is shifting the cutting height in a lawnmower or controlling the exhaust valve on an articulated lorry, we specialise in the supply of these products to bearing distributors and to some of the World's most well-known original equipment manufacturers.

A wide range of materials are available, steel, stainless steel, plastic, bodies with options of bronze, nylon, PU and PTFE liners and with over 100 plating specifications we are sure to meet your customers heat or corrosion resistant requirements.

We believe our range of Dunlop rod ends, spherical bearings & ball joints are the largest range available throughout Europe.

Please visit [www.btl-uk.com](http://www.btl-uk.com) for further information.



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# **Friction as a cost trap:**

## **How to save energy and costs with automatic lubrication**

At a time when energy efficiency, CO<sub>2</sub> reduction, and sustainability are top priorities in the industrial sector, even seemingly minor components are coming into focus – such as automatic lubrication. What many don't realize: continuous lubrication using the simalube lubricant dispenser from simatec not only reduces maintenance efforts but also enables significant energy savings.



# Friction



# Automatic Lubrication



## Friction – The Invisible Energy Drain

"Today, one fifth of all energy is used to overcome friction."

This is the conclusion of a study by the VTT Technical Research Centre of Finland in cooperation with the OECD/IEA. Friction is omnipresent in industrial operations – and costly. In machinery, conveyor systems, and production lines, it not only leads to wear and tear, but also results in substantial energy losses. Without proper lubrication, the coefficient of friction can range from 0.5 to 1.0. With continuous lubrication, it drops to 0.01 to 0.1 – a difference that has a direct impact on energy consumption.

### simalube: Automatic Lubrication for Maximum Efficiency

The solution from simatec: the simalube lubricant dispenser. It supplies bearings, chains, guides, and other components with continuous and precise lubrication – maintenance-free for up to one year.



## Energy Savings Through Lubrication

Numerous studies confirm: targeted lubrication can prevent 10–20% of energy losses in machinery.

This also applies to chains. A well-selected and continuously applied chain lubricant not only reduces wear, but also lowers the power consumption of the drive system. Friction in the chain joints decreases, leading to measurable energy savings.

### Practical Example: Conveyor Technology in Logistics

In modern logistics centers, 25,000 or more pallets are transported via conveyor systems every day. According to an estimate by the Austrian Federal Ministry for Innovation, Mobility and Infrastructure, the energy required per pallet per day is 0.1 – 0.3 kWh/day. With a reduction of 15%, or 0.03 kWh as an average per pallet, the result is:

Daily energy savings: 750 kWh  
Annual energy savings: 270,000 kWh  
Annual energy cost savings: EUR 48,600  
(Ø cost in Europe: EUR 0.18/kWh)

### Your Benefits:

- **Reduced friction** → lower energy consumption
- **Prevention of dry running** → extended service life
- **Automation** → no manual lubrication intervals
- **Time savings** → less personnel required
- **CO<sub>2</sub> reduction** → through lower power consumption



## Sustainability Starts at Production and Conveyor Systems

simatec takes responsibility – not only for efficiency, but also for the environment. Our products actively contribute to CO<sub>2</sub> reduction by:

- reducing power consumption
- avoiding maintenance trips
- optimizing lubricant usage
- extending the service life of components

The average CO<sub>2</sub> emission per kWh in Europe is 213 g. Through the use of simalube lubricators and the resulting energy savings, 57.5 tons of CO<sub>2</sub> are saved annually in the example above. This corresponds to the emissions from heating more than 70 households or driving 480,000 kilometers by car.

## Responsibility for the Future

As a Swiss family-owned company with a global focus, simatec stands for quality, innovation, and responsibility. Our products – simalube, simatherm, and simatool – are developed and manufactured in Switzerland with the goal of making maintenance more efficient and sustainable worldwide.



## Saving Energy Starts with Lubrication

simalube is more than just a lubricant dispenser – it is a key to saving energy, saving time, and reducing CO<sub>2</sub> emissions. For companies looking to optimize their maintenance processes, reduce costs, and contribute to sustainability at the same time, simalube is the ideal solution.

Act Now: Boost Efficiency with simalube  
Visit simatec – or contact us directly  
for a personalized consultation.



**"Because true responsibility begins with smart maintenance."**



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# Shaping the Future: How PICARD is Driving Innovation with New Infrastructure



PICARD is positioning itself for growth, not just economically but also in terms of its infrastructure. With the official commissioning of two new buildings, the company is making a bold statement about its future direction. The state-of-the-art shuttle warehouse, 1,212 m<sup>2</sup> of new office space, and an additional extension featuring an in-house fitness studio, a unique Biophilic Room, and expansive social areas are not only increasing available space but also opening up new opportunities for more efficient processes and an enhanced working environment. After an intensive planning and construction phase, PICARD is now unveiling its new facilities at its premises in Bochum.



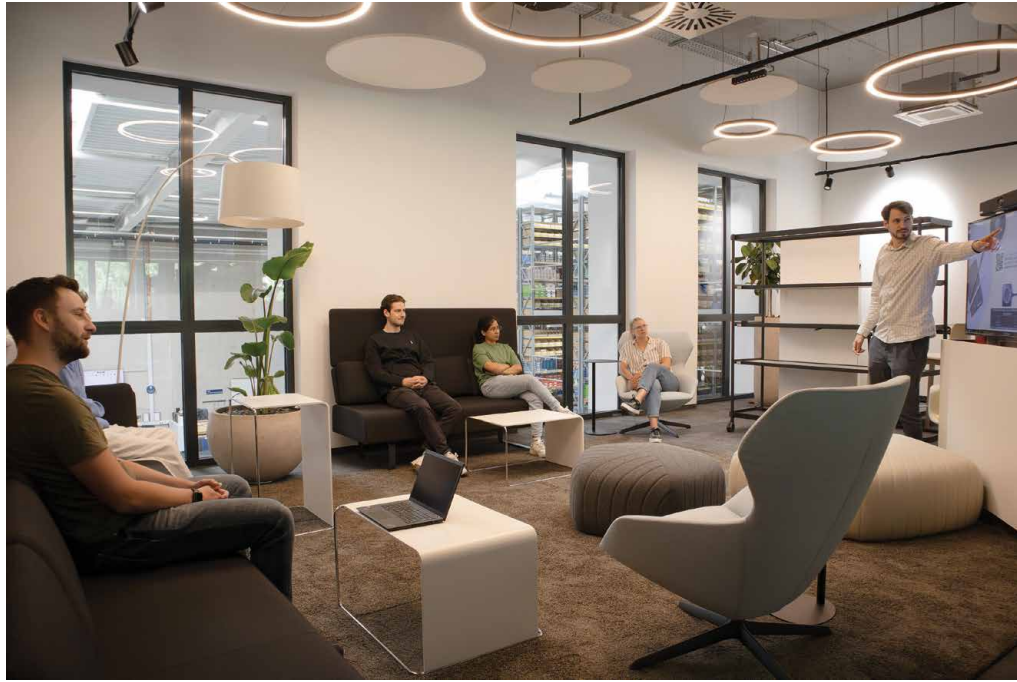


### The Shuttle Warehouse: Cutting-Edge Technology Meets Maximum Efficiency

Innovation and digital solutions are firmly embedded in PICARD's DNA. As early as the late 1990s, the company introduced the first online shop in the bearing industry for wholesalers – and continues to rely on advanced technologies today. A particularly notable example of this forward-thinking approach is the new fully automated shuttle warehouse. This is the largest single investment in logistics at PICARD, setting new standards for efficiency.

The fully automated system allows for highly precise and rapid picking – even around the clock if necessary. Thanks to cutting-edge technology, containers move at speeds of up to 4 m/s from the shelves to the pick locations, enabling up to 1,200 containers to be processed per hour.

Another standout feature of the shuttle warehouse is the optimized use of space: with a shelf height of 15.8 meters, a ceiling height of 16.5 meters, and a triple-deep, high-density storage system, the warehouse accommodates nearly 58,000 container positions across 42 levels. This expansion significantly boosts storage capacity and streamlines logistics processes – without requiring additional personnel.



### Expanding Infrastructure: Modern Office Spaces for a Growing Workforce

As PICARD continues to grow, so do the demands on its infrastructure. To meet these needs, the company has added 1,212 m<sup>2</sup> of new office space, located on three floors above the picking zone of the shuttle warehouse. This expansion has

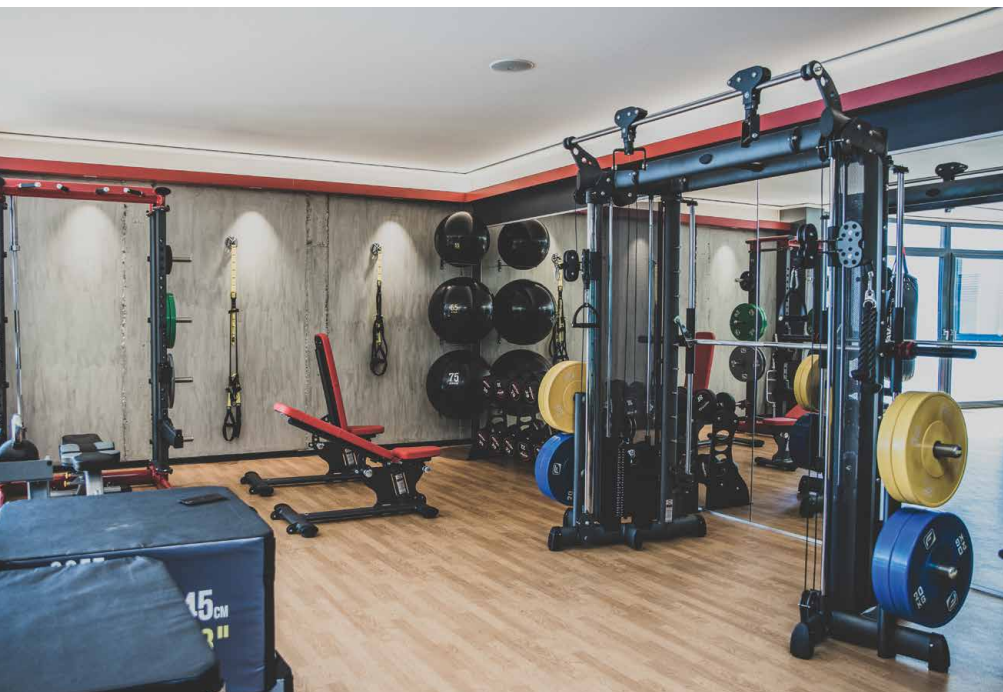
created a modern workspace with 67 new workstations, providing employees with even more room for productive work and creative collaboration.

The office areas combine functionality with a thoughtful layout, featuring new conference rooms, meeting areas, and comfortable lounges for short breaks. These spaces not only encourage communication but also enhance employee well-being. Special attention was paid to accessibility: a passenger elevator and accessible restrooms ensure that all employees, regardless of physical limitations, have unhindered access to every area.

### A Holistic Approach to Well-being: Fitness Studio, Social Spaces, and More

PICARD recognizes the importance of balancing work, movement, and relaxation. The company's second expansion includes a 451 m<sup>2</sup> in-house gym, equipped with modern cardio and strength training areas, a dedicated group fitness room, and direct access to a loggia. This facility offers employees the ideal environment for focused workouts as well as relaxing outdoor breaks after exercise.

Adjacent to the gym is the Biophilic Room, a designated space for relaxation designed with unique interior architecture to foster







a calming environment. The large rooftop terrace offers a perfect setting for internal events or informal meetings, providing a scenic view of the surrounding greenery.

The company has also expanded its social spaces, which now include new changing facilities, lockers, and showers, as well as accessible, gender-neutral restrooms. A particular highlight is the "Kauenhimmel" – an area inspired by the "Kauen" from former coal mines, where miners would store their clothing. PICARD incorporated the original baskets from the former washrooms of "Zeche Hugo" in Gelsenkirchen, which now serve to dry towels. The "Kauenhimmel" is not only a striking design feature but also a functional space, reflecting PICARD's deep regional ties to the Ruhr area.

#### **Sustainable Mobility: Expanding Parking and EV Charging Infrastructure**

With the company's continued expansion comes a growing need for additional parking facilities. PICARD has significantly increased its parking capacity, from 90 to

148 spaces. The charging infrastructure for electric vehicles (EVs) is also being upgraded. In the future, eight charging stations with two charging points each will be available – another step toward sustainable mobility at PICARD. Additionally, the company is expanding its infrastructure to accommodate its growing fleet of electric company vehicles.

#### **Focus on Sustainable Energy: Large Photovoltaic System on PICARD Roofs**

Sustainability is a key priority in PICARD's construction efforts. Large-scale photovoltaic systems have been installed on the roofs of both new and existing buildings, with the aim of utilizing the available roof area of approximately 9,300 square meters to generate up to 1.2 megawatts of peak power.

This investment in renewable energy is not only reducing PICARD's CO<sub>2</sub> emissions but also fulfilling key requirements in its ESG (Environmental, Social, and Governance) sustainability strategy. The surplus electricity generated will potentially be

stored in energy storage systems or fed into the local Bochum city grid – further advancing the company's commitment to energy efficiency and climate protection.

By using its own solar power, PICARD is also improving its energy cost structure, making the company less dependent on energy price fluctuations and strengthening its long-term economic sustainability. Additionally, in the event of an extended power outage, PICARD is prepared with a mobile backup power system to ensure continued operations and reliable customer service.

#### **A Future-Proof Investment: Enhancing Competitiveness and Employee Well-being**

With the new operational buildings, PICARD is not only strengthening its competitiveness but also enhancing its high-tech working environment for employees. This investment ensures that PICARD remains a reliable partner for its global customers and an attractive employer in Bochum for years to come.

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## Featured products

### Mounted bearings

- ISN (spherical roller)
- Type E (tapered roller)
- Set screw (ball)

### Couplings

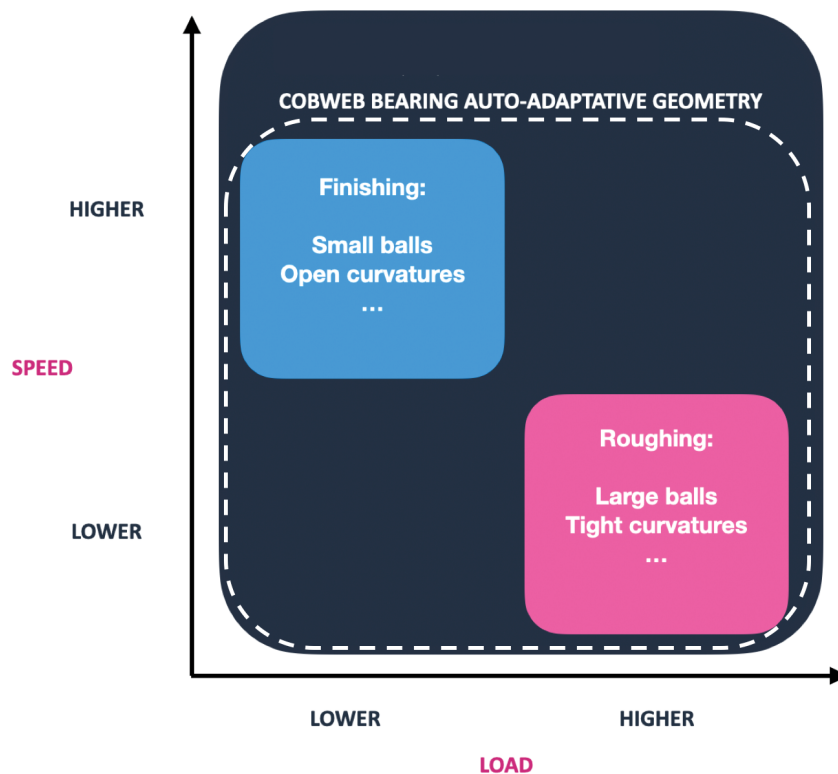
- Raptor (split tire)

### Gearboxes

- Torque-Arm II (shaft mount)
- Tigear<sup>®</sup>-2 (worm gear)



# APO-GEE introduces the Cobweb bearing for spindles: No more trade-off between Speed and Load



APO-GEE, the deep-tech start-up specializing in advanced bearing engineering, introduces the Cobweb bearing for spindles, an innovation featuring a unique auto-adaptive geometry that delivers both high-speed capability and high-load resistance, within a single bearing.

In the world of machine tool spindles, two trends dominate:

- High-speed operations, faster cuts without sacrificing accuracy or surface quality.
- Multi-purpose machining, versatility to

handle a wide range of materials and cutting conditions, all in one setup.

Bearings have followed accordingly, enabling higher speeds, better precision, and lower energy consumption. However, a fundamental limitation remains: the need to choose between high speed for finishing operations and high load capacity for heavy machining. Different bearings. Different setups. Or settle for an unsatisfactory compromise.

This limitation is now addressed through the development of the Cobweb bearing, an

innovation by APO-GEE featuring a unique self-adaptive geometry that eliminates the traditional compromise between speed and load. It delivers both more finishing capability (speed), and more cutting power (load). In one bearing. One spindle. One solution.

More information can be found at [www.apo-gee.tech](http://www.apo-gee.tech)



# How AI Will Transform the Future of Bearing and Power Transmission Industries

## *Industry Experts Panel Discussion*

The power transmission and motion control (PTMC) industries are undergoing a transformative shift, largely driven by advancements in Artificial Intelligence (AI). A recent panel discussion at the **Bearing & Power Transmission Forum 2025** provided key insights into how AI is reshaping manufacturing, quality control, design, and operational efficiency within these traditionally mechanical engineering-driven sectors. The session was expertly moderated by **Seda Danaci** from **BEARINGCLOUD**, and featured an esteemed group of industry leaders:

- **Thiago Camargo** from **JTEKT**, discussing the role of AI in enhancing bearing and power transmission manufacturing.
- **Sean Fang** from **K2TECH**, a company specializing in AI-based visual inspection and machine learning solutions.
- **Salim Hafar** from **I-MAK GEARBOXES**, who shared insights from a manufacturer's perspective.
- **Andreas Massouras** from **AUGMENTED FUTURE AI**, offering expertise on AI tools for industrial applications.

These experts came together to explore the current and future impact of AI in the bearing and power transmission industries, providing a comprehensive overview of AI's potential to improve manufacturing processes and drive innovation.

### **AI's Impact on Manufacturing Efficiency**

One of the most compelling applications of AI in the power transmission industry is in the area of defect detection. As Sean



— Seda Danaci, BEARINGCLOUD

Fang from K2TECH highlighted, AI-based visual inspection systems are significantly more efficient than traditional methods. Traditional systems can take days or

even weeks to identify and adjust for new defects. AI, however, can configure defect detection systems in just a few hours, minimizing machine downtime and





drastically improving production efficiency. The ability of AI to handle complicated surfaces and subtle defect patterns is also a major advantage, particularly in high-speed production lines where precision is critical.

#### **Practical Examples: Reducing Scrap Rates and Improving Quality**

AI's impact extends beyond defect detection and into broader manufacturing processes. For example, in the automotive industry, even a single defective bearing in a batch of hundreds of thousands of parts can lead to costly returns and customer complaints. Through AI-driven inspection, manufacturers can detect defects early, reducing scrap rates and preventing returns. Fang shared a case study where, after implementing AI-based inspection systems, manufacturers saw a complete reduction in product returns, leading to significant savings and improved customer satisfaction.

In addition to visual inspection, AI plays a crucial role in predictive maintenance. Salim Hafar of I-MAK GEARBOXES explained that AI-driven systems help manufacturers predict when maintenance is needed for complex machinery, such as CNC and grinding machines. This allows for preventive measures that can

extend machine life and reduce downtime. Furthermore, AI aids in optimizing material usage and energy consumption, which not only reduces costs but also supports sustainability efforts.

#### **AI in Design: Unlocking New Potential**

Looking forward, AI promises to revolutionize design processes in the bearing and power transmission industries. Thiago Camargo from JTEKT discussed the growing role of AI in generative design, particularly for gears. By analyzing operating conditions and design specifications, AI can generate optimized products tailored to specific applications. For example, AI can help design gears that are more durable and efficient based on precise parameters such as load conditions and operating environments.

AI's potential in quality control is also expanding. Camargo shared a case study where AI models analyzed over 300 parameters to predict bearing noise before products were delivered to customers. This predictive capability ensures that manufacturers can deliver top-tier products with greater confidence, helping to reduce defects and improve product reliability.

#### **Overcoming Challenges: Data, Workforce, and Cybersecurity**

Despite the immense potential of AI, its adoption comes with challenges. Andreas Massouras from AUGMENTED FUTURE AI pointed out that many companies face difficulties with data availability and quality. For AI systems to work effectively, companies need clean, reliable data. However, many organizations struggle with siloed or unstructured data, which can hinder the accuracy and reliability of AI solutions. To successfully implement AI, businesses must invest in data management and quality assurance.

Another significant challenge is the impact of AI on the workforce. As Massouras emphasized, the introduction of AI raises concerns about job displacement. However, the panelists agreed that AI should be seen as a tool to augment human capabilities rather than replace workers. Hafar added that over-reliance on AI could erode essential mechanical expertise, and companies must balance AI integration with ongoing workforce training to preserve valuable tacit knowledge.

Cybersecurity is also a critical concern. As manufacturing operations become



— Thiago Camargo, JTEKT



— Sean Fang, K2TECH



— Andreas Massouras, AUGMENTED FUTURE AI



— Salim Hafar, I-MAK GEARBOXES

more digitized, the risk of cyberattacks increases. AI systems, which often require access to vast amounts of data, can make companies more vulnerable to cyber threats. Panelists stressed the importance of robust cybersecurity measures to protect intellectual property and maintain operational continuity.

#### The Path Forward: Strategic Advice for AI Adoption

To successfully integrate AI into their operations, panelists offered several strategic recommendations. One key piece of advice was to start with small-scale projects that deliver quick wins. This "crawl, walk, run, fly" approach allows companies to demonstrate the value of AI without taking on overly ambitious projects from the outset. As Fang suggested, beginning with a pilot project, such as quality control or predictive maintenance, can provide a clear return on investment (ROI) and build confidence in AI's capabilities.

Another recommendation was fostering cross-department collaboration to ensure that AI tools are validated and adopted effectively. AI solutions that are developed without input from the departments that will use them risk poor adoption and inaccurate outputs. Engaging teams in the problem-definition process helps ensure that AI solutions meet the actual needs of the business.

Finally, panelists highlighted the importance of internal champions—employees who can lead AI initiatives within the organization. Having a designated AI expert or advocate within the company ensures that AI projects stay on track and align with business objectives.

#### Summary of Key Insights

The panel discussion provided valuable insights into how AI is already transforming the bearing and power transmission

industries and the challenges companies face in adopting these technologies. Here are some of the key takeaways:

- **AI dramatically improves defect detection speed and accuracy** in high-speed production lines, allowing manufacturers to reduce downtime and improve production efficiency.
- **AI excels at identifying complex surface defects and subtle fault patterns**, which are difficult for traditional inspection methods to detect, especially in multi-layered components like generation-three hubs.
- **Practical AI applications extend beyond defect detection** to include predictive maintenance, material optimization, energy management, and adaptive inventory stocking.
- **AI supports sustainability** through carbon footprint calculations and resource optimization, helping



companies meet regulatory and corporate environmental goals.

- **Workforce augmentation tools** help bridge experience gaps by providing support for less experienced operators and improving decision-making in manufacturing environments.
- **Risks of AI adoption** include the potential loss of mechanical expertise, lack of AI decision transparency (black-box effect), and cybersecurity threats as manufacturing becomes more digitized.
- **Successful AI adoption** requires clean data, internal leadership, a phased approach, and cross-functional collaboration to ensure the tools meet the real needs of the business.
- **AI can transform not only manufacturing** but also sales, marketing, and administrative functions, automating lead generation, customer engagement, and document handling.
- **Generative design powered by AI** is poised to revolutionize component

engineering, optimizing gear geometry and performance based on specific application and operating conditions.

- **AI is a tool to augment, not replace, engineering expertise**, and successful integration requires engineers who understand both their domain and AI capabilities.
- **Effective communication and change management** are essential to overcoming resistance to AI, with clear messaging around AI's potential to enhance productivity rather than replace jobs.

#### Looking Ahead: The Path to AI-Driven Success

The panel discussion concluded with a call to action for companies in the bearing and power transmission industries. To fully capitalize on AI's potential, companies must embrace the technology incrementally, starting with clear, manageable use cases. Whether it's improving manufacturing efficiency, enhancing design capabilities,

or optimizing energy use, AI offers immense value.

As the industry continues to evolve, AI will be central to overcoming challenges such as rising costs, increased competition, and the need for sustainability. By adopting AI strategically, manufacturers can enhance their competitiveness, improve product quality, and drive the future of bearing and power transmission technologies.

AI is not just a tool for the future—it's already transforming the industry today. With careful implementation and a clear understanding of its potential, companies can position themselves at the forefront of this technological revolution, ensuring continued success in a rapidly changing landscape.

You can watch the full 45min. video of the panel on [www.bearing-news.com/cat/bearing-videos/](http://www.bearing-news.com/cat/bearing-videos/)





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# World-Leading AI Vision Machine Supplier

## Challenges and Opportunities in Visual Inspection of Bearings for New Energy Vehicles

*Featured Products: Ceramic Ball and Wheel Hub Bearing AI Visual Inspection Equipment*

### 1. Core Challenges in Bearing Inspection for New Energy Vehicles

#### Dual Challenges of High-Precision Manufacturing and New Material Properties

The manufacturing precision requirements for core components such as motors generally reach the micrometer level. Minor surface scratches can lead to severe failures. For instance, surface defects (e.g., pits, scratches) on ceramic ball bearings may directly impact bearing lifespan. Additionally, the anti-rust oil layer on wheel hub bearing surfaces creates strong reflections, making it difficult for traditional vision systems to distinguish between oil stains and defects like dents or scratches.

#### Complex Production Environments and Efficiency Bottlenecks

New energy vehicle production lines often operate under extreme conditions, such as high temperatures (>85°C) and humidity (>90%). Meanwhile, production line cycle times demand inspection systems to process single frames in <100ms, rendering manual inspection inadequate for large-scale, high-quality output requirements.



— Ceramic Ball Bearing



—Wheel Hub Bearing



## 2. Opportunities for Visual Inspection Technology in the New Energy Vehicle Sector

### Market Expansion and Policy Drivers

The bearing market for new energy vehicles is projected to exceed ¥100 billion by 2025, with traditional contact-based inspection methods being replaced by intelligent visual systems. Upgraded industry standards and policies like the New Energy Vehicle Operational Safety Performance Inspection Regulations are driving demand for high-end inspection equipment.



— Automotive

### Technological Innovation and Intelligent Upgrades

The integration of AI and edge computing has improved the accuracy of visible defect recognition in images

to 100%, while reducing false detection rates by 5%–10%. For example, K2 TECH's AI inspection system can accurately identify complex surface defects such as cage claw damage, oil stains, missing characters on wheel hub bearing bolt surfaces, and black spots. Additionally, operational convenience and compatibility have significantly improved, with new defect types added in just 5–8 minutes.

### Industry-Wide Penetration and Application Scenarios

Visual inspection has expanded from traditional appearance defect identification to process optimization and quality traceability. For instance, K2 TECH's 4680 cylindrical lithium battery inspection line integrates OCV voltage detection with visual defect recognition, achieving a detection speed of 200PPM and an overkill rate of just 3%.



— Battery Cell

## 3. K2 TECH's Technical Solutions and Industry Impact

### Breakthrough in Ceramic Ball Inspection

To address the mirror-like reflections on ceramic ball surfaces, K2 TECH continuously optimizes neural network structures, achieving a defect recognition accuracy of over 99.5% for scratches, pits, and other flaws. The system quickly adapts to ceramic balls of varying specifications and materials, improving detection precision for minor defects (<0.1mm) to 98.7%. The equipment supports 360° continuous overlay imaging, with an inspection speed of 2,000 pcs/hour, while simultaneously outputting defect type, location, and size data—meeting the stringent quality control standards of aerospace-grade ceramic bearings.



— Ceramic Ball Bearing Inspection Machine



— AI Inspection System



— Ceramic Ball

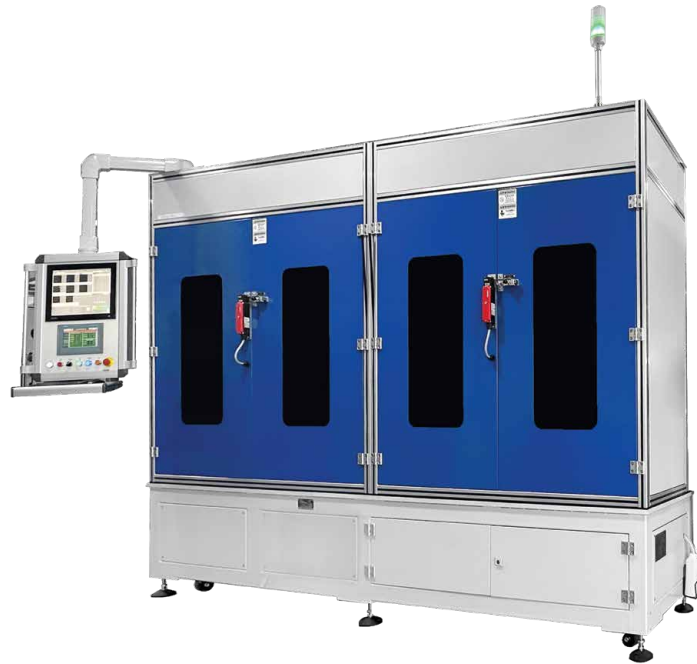


## Setting the Benchmark for Hub Bearing Inspection

To tackle challenges like anti-rust oil reflections and diverse defect types (over 20 categories), K2 TECH developed a specialized algorithm library. By combining OCR character recognition with segmentation algorithms, the system accurately distinguishes contaminants, dents, rust, and other defects. With an inspection speed of 300 pcs/hour, it ensures efficiency while preventing secondary damage.



— Wheel Hub Bearing



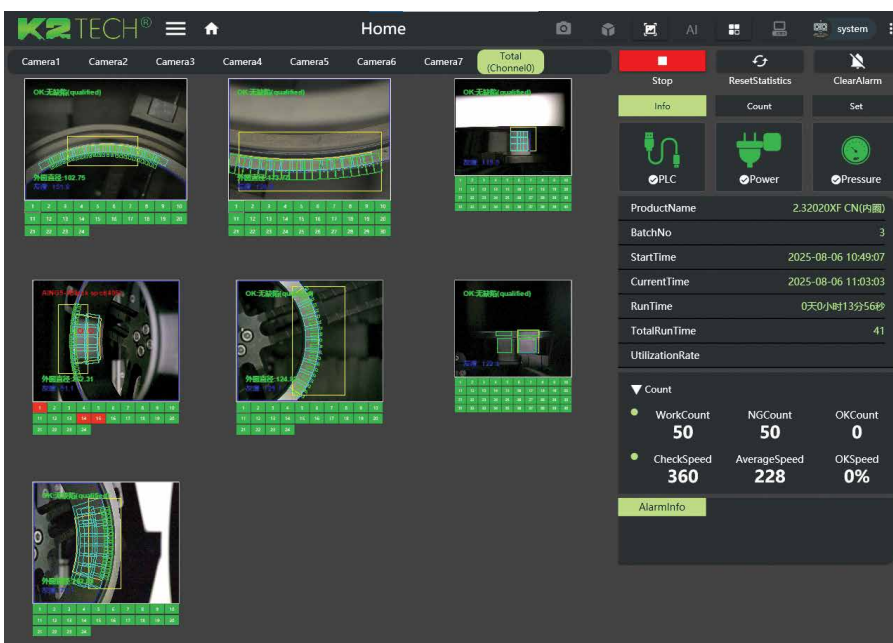
— Wheel Hub Bearing Inspection Machine

## Smart Production Line Integration and Data Loop

K2 TECH's AI visual inspection equipment seamlessly integrates with MES systems, providing real-time feedback for process adjustments. The system also supports edge computing and cloud storage, enabling customers to perform defect trend analysis and root-cause tracing through the AI platform, facilitating predictive maintenance.

## 4. Conclusion

K2 TECH's equipment has been widely adopted by suppliers for Toyota, Volkswagen, Hyundai, and GM, as well as secondary suppliers for BYD and Tesla. Its technological approach aligns with the new energy industry's shift towards "zero-defect manufacturing." Companies that invest in intelligent inspection during capacity expansion cycles will gain a significant competitive edge in the supply chain.



— MES Systems



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# Ensure the smooth operation of the agricultural sector with



In the demanding world of agriculture, every minute matters. Even brief interruptions can jeopardise an entire season. That's why **NTN Europe**, with over 40 years of expertise in the agricultural sector, offers robust, reliable, and ready-to-use technical solutions. Among them, the **AGRIHUB** from the **SNR brand** stands out as a concrete response to the daily challenges faced by farmers.



**A solution designed for real-life conditions.**

The **SNR AGRIHUB** has been specifically designed for **independent disc harrows**, a key tool in soil preparation. Thanks to its wide compatibility with many agricultural machinery models, it integrates easily into existing equipment without requiring complex adaptations. This interchangeability with equivalent products from other brands facilitates adoption and reduces maintenance or replacement costs.







without compromising their budget. It's a solution that combines **performance, durability, and profitability.**

#### Tested and approved performance

At NTN Europe, quality goes beyond design. All disc hubs are **tested in dedicated centres** that replicate real-life usage conditions. These rigorous tests ensure compliance with the **strictest standards** and guarantee an **extended product lifespan.** This quality approach is the result of decades of experience and a continuous commitment to innovation.

#### A trusted partner for industry professionals

NTN Europe is no newcomer to the agricultural world. For over four decades, the company has supported farmers, machinery manufacturers, and distributors with technical solutions tailored to real-world needs. This close relationship with professionals enables the development of products that meet the sector's concrete requirements: **reliability, simplicity, and performance.**

#### Quick installation, immediate efficiency

One of the major advantages of the AGRIHUB lies in its **ease of installation.** Delivered ready to mount, it saves valuable time during maintenance or replacement operations. This simplicity allows farmers to focus on what truly matters: the success of their crops. Less time in the workshop means more time in the field.

#### Reinforced sealing for maximum protection

Agricultural environments are among the harshest: dust, moisture, mud, plant debris... all of which can compromise the longevity of mechanical components. To counter this, the AGRIHUB features **advanced sealing technology**, with **eight protective lips** on the side exposed to contamination. This innovative system acts

as a true shield against particle intrusion, ensuring long-lasting bearing protection.

#### Unmatched robustness

The hub housing, made from **thick section forged steel**, is built to withstand shocks, vibrations, and tough ground. This material choice ensures **high mechanical strength** and enhanced sealing stability, even in the most extreme conditions. Whether on rocky, wet, or dry soils, the SNR AGRIHUB maintains its performance without fail.

#### An optimised quality/price ratio

In a challenging economic context, every investment counts. The SNR AGRIHUB hub stands out for its **excellent value for money.** It delivers **cutting-edge technology** at a controlled cost, allowing farmers to benefit from a premium product

#### A sustainable commitment to agriculture

Beyond technical performance, NTN Europe is committed to sustainable agriculture. By offering robust components, the group helps reduce maintenance needs, limit machine downtime, and optimise resources. Fewer replacements also mean more time dedicated to core farming activities.

The promise of a season with a total peace of mind. With the **SNR AGRIHUB**, NTN Europe offers more than just a mechanical component. It's a **comprehensive solution**, designed to support farmers in their daily work, secure their operations, and maximise their yields. Thanks to its quick installation, reinforced protection, proven robustness, and broad compatibility, it stands as a **trusted ally** for successful soil cultivation.



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# Strategic Financing Drives Transformation in China's Bearing Industry

## *Analysis*



— On March 14, 2024, the main bearings and gearbox bearings for the world's first 25 MW wind turbine rolled off the production line at Luoyang Bearing Science and Technology Co., Ltd. (Photo by Liu Yanfeng/People's Daily Online)

In 2025, China's bearing industry, a backbone of the country's machinery sector, entered a new phase of technological modernization. This shift from mass production to high-tech manufacturing is being propelled by targeted government financial policies, designed to meet the rising demands of advanced sectors like wind energy, electric vehicles, and precision machinery, where quality and reliability are critical.

A leading example of this transformation is Luoyang Bearing Group. In the first half of the year, the company secured major funding from state banks: an 800 million yuan long-term loan to build intelligent production lines and a 127 million yuan targeted loan to acquire advanced equipment. These investments aim to improve product stability and support the production of next-generation bearings, lighter, more precise, and longer-lasting.

Government support, however, goes beyond enterprise loans. In May, China launched a new "Technology Bond Platform" on the financial markets, enabling innovative companies, including industrial component manufacturers, to raise approximately 600 billion yuan.



— A worker produces micro bearings in a plant of a tech firm in Nantong, east China's Jiangsu province. (Photo by Zhai Huiyong/People's Daily Online)

This platform offers long-term, lower-cost capital essential for accelerating R&D and technological upgrades. These measures reflect a coordinated national strategy. At a recent press conference, the People's Bank of China reaffirmed its commitment to a “moderately flexible” monetary policy, with a sharp focus on channeling capital into strategic sectors – a principle known domestically as *jingzhun*, or “precision-targeted” financing.

Far from being one-off initiatives, these efforts represent a systemic approach to industrial renewal. Analysts believe this policy is not only helping factories overcome technological hurdles but is also driving qualitative growth across China's manufacturing base – strengthening its global competitiveness in the process.



— Bearings for new energy vehicles are manufactured at Luoyang LYC Automobile Bearing Technology Co., Ltd. in Luoyang, central China's Henan province. (Photo by Zhang Guanghui/People's Daily Online)

## Customs Data Analysis of Chinese Import and Export of Rolling Bearings

According to customs statistics, from January to December 2024, China imported **rolling bearings** worth **35.19 billion USD**, a **6.73% decrease** compared to the same period last year. The import volume totaled **16.62 million tons**, down by **9.14%**. The average import price of bearings increased, reaching **2.12 million USD per ton**, roughly four times higher than the average price of exported Chinese bearings.

HS Code	Product Name	Import Quantity (kg)	Import Value (USD)
84821010	Self-aligning ball bearings	882 913	27 891 161
84821020	Radial ball bearings	30 887 923	83 3974 570
84821030	Thrust ball bearings	9 437 729	288 555 046
84821040	Thrust ball bearings	2 411 454	56 845 852
84821090	Other ball bearings	8 620 449	312 786 656
84822000	Tapered roller bearings, including units	18 627 841	301 649 151
84823000	Spherical roller bearings	7 574 106	123 504 343
84824000	Needle roller bearings, including separators and units	2 558 666	97 771 519
84825000	Other cylindrical roller bearings, including separators and units	22 512 735	682 786 703
84828000	Other rolling bearings, incl. ball-roller bearings	1 126 417	84 752 664
84829100	Balls, needles, and rollers	7 437 322	90 584 670
84829900	Other parts of rolling bearings	54 096 762	618 343 478
<b>Total</b>		<b>166174317</b>	<b>3519 445 813</b>

— Table 1: Bearing Import Data 2024



### Main Types of Bearings by Import

The highest volumes of imports were in the following types of bearings:

- **Deep groove ball bearings**
- **Other cylindrical roller bearings**, including separators and roller units
- **Other rolling bearing components**
- **Other ball bearings**
- **Tapered roller bearings**, including tapered roller units

Less in demand were **thrust ball bearings** and **self-aligning ball bearings**.

### Main Supplier Countries

The leading countries by import volume were:

- Japan
- Germany
- Taiwan
- Thailand
- USA

Significant imports also came from **South Korea**, **Austria**, **France**, **Italy**, and **Romania**.

## Export of Rolling Bearings

In 2024, China exported **rolling bearings** worth **64.40 billion USD**, a **1.92% increase** compared to last year. The export volume was **121.55 million tons**, up by **7.1%**. The average export price decreased to **0.53 million USD per ton**.

HS Code	Product Name	Export Quantity (kg)	Export Value (USD)
84821010	Self-aligning ball bear-ings	10 359 074	66 252 592
84821020	Radial ball bearings	341 935 934	2 095 706 164
84821030	Thrust ball bearings	42 170 786	302 527 551
84821040	Thrust ball bearings	6 629 947	53 905 801
84821090	Other ball bearings	130 072 276	705 392 640
84822000	Tapered roller bearings, including units	127 049 868	638 742 385
84823000	Spherical roller bear-ings	47 492 371	259 537 864
84824000	Needle roller bearings, including separators and units	17 628 563	248 047 521
84825000	Other cylindrical roller bearings, including separators and units	47 748 359	400 364 905
84828000	Other rolling bearings, incl. ball-roller bear-ings	35 152 311	207 876 880
84829100	Balls, needles, and roll-ers	123 719 993	391 160 034
84829900	Other parts of rolling bearings	285 580 121	1 070 263 253
<b>Total</b>		<b>1 215 539 603</b>	<b>6 439 777 590</b>

— Table 2: Bearing Export Data 2024

### Main Types of Bearings by Export

The highest export volumes were in the following types of bearings:

- **Deep groove ball bearings**
- **Other rolling bearing components**
- **Other ball bearings**
- **Tapered roller bearings**, including tapered roller units
- **Other cylindrical roller bearings**, including separators and roller units

Less in demand were **self-aligning ball bearings** and **thrust ball bearings**.

# AI POWERED

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## Typical Applicable Products



Steel Ball



Roller



Needle Roller



SRB Roller



Seal Ring



Wind Power Roller



Bearing Ring



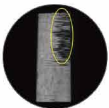
Bearing



Wheel Hub 3



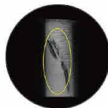
## Typical defects and more...



Under-Polishing  
on Raceway



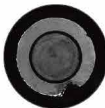
Crack on  
Raceway



Scrap on  
Raceway



Extruding Marks



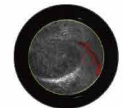
Short Shots



Under-Grinding



Grinding Marks



Breaking Marks

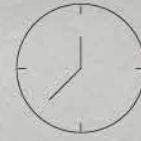
## Partner



SCHAEFFLER







AISI 420 AC+  
after 120h of Salt  
Spray Test.



## **Surface Treatments that Double the Bearing Life, Solid Oil, and 100% Hygienic Protection**

*Meet the Stars of the ZEN's Food-Safe Bearing Line.*

In earlier issues, we unveiled ZEN's breakthrough Food-Safe Bearing Line. Now, it's time to shine a spotlight on two standout stars: the AISI 420 AC+ bearings, which offer a cutting-edge surface treatment that doubles their lifespan, and the FBS bearings equipped with Solid Oil.

Both products deliver unbeatable, 100% hygienic protection, proving that durability and cleanliness can go hand in hand. Let's take a closer look!

## Quick Recap: Why the FBS Line Stands Out

All products within the new ZEN FBS Line tackle:

- **Corrosion:** Offering excellent protection against moisture, cleaning agents, and food acids.
- **Regulatory Compliance:** All materials comply with regulatory standards (FDA, NSF), ensuring the bearings meet hygiene and legal requirements.
- **Hygiene and Cleanability:** Non-porous surfaces, smooth finishes, and accessible cavities make the FBS Line easy to clean, minimising risks of bacterial growth, cross-contamination, and non-compliance.
- **Extreme Temperatures:** Specially

suited for equipment operating in harsh temperature conditions.

## The Stars of the Show STAINLESS STEEL FBS AISI 420 AC+ BEARINGS:

These bearings are enhanced by ZEN's exclusive surface treatment, offering superior rust protection compared to standard AISI 420 and AISI 440 stainless steels.

They comply with FDA and RoHS standards and **last twice as long** as standard stainless steel bearings, reducing replacement costs and downtime due to corrosion.

As you can see, after 120 hours of testing, the AISI 420 stainless steel with AC+ treatment remained virtually untouched by

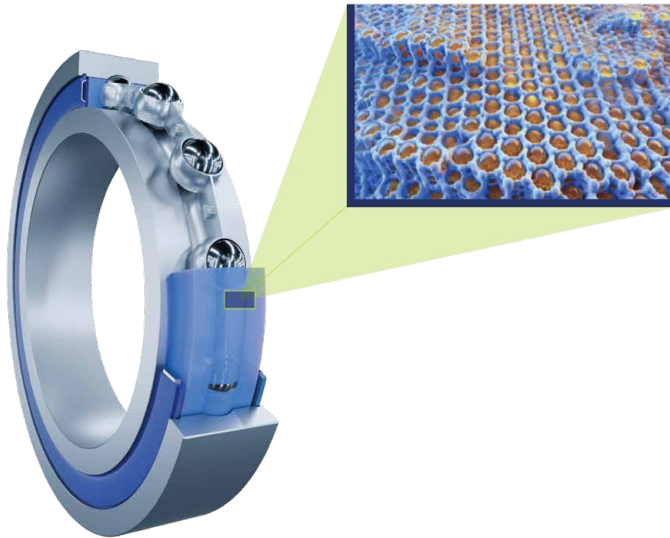
corrosion. No rust was found on the inner or outer rings—only minor rust spots appeared in the oil groove.

## FBS BEARINGS WITH SOLID OIL:

- **What is Solid Oil?**  
Solid oil is a special lubricant made of a polymer material with millions of micropores that hold the oil by molecular tension.
- **How Does it Work?**  
The oil fills the bearing's internal space and moves with the retainers and rolling elements. During operation, small amounts of oil are released from the polymer to lubricate surfaces. When the bearing stops, the oil is reabsorbed into the micropores.







## Advantages of FBS Bearings with Solid Oil

### 1. Effective Contamination Prevention

- Fills the internal space, leaving no gaps for bacterial growth.
- Prevents solid, powdery, or liquid contaminants from entering.
- Doesn't leak or drip—even under steam, water, or aggressive cleaning

### 2. Low Maintenance

- Solid oil bearings can contain up to four times as much oil as grease-

lubricated bearings, allowing them to be lubricated for life.

### 3. Superior Low-Temperature Resistance

- Thanks to the polymer in the lubricant, bearings can resist lower temperatures than those that use standard lubricants.

### 4. Higher Chemical Resistance

- The solid oil increases the bearings' chemical inertness, making them more resistant

to cleaning agents and harsh sanitisation, ensuring a longer lifespan.

## 5. Minimised Condensation and Corrosion Risk

- This lubrication system eliminates air gaps that cause condensation, reducing internal rust risk and making these bearings ideal for humid, washdown, or refrigerated environments.

## More about the FBS line:

### → Other Products Available:

- Stainless steel, ceramic, and hybrid bearings
- Thermoplastic and stainless steel housings
- Stainless steel inserts

### → Materials:

- AISI 304 and 420 stainless steel, AISI 420 AC+ (surface treatment), thermoplastic and ceramic.

### → Seals and Shields:

- FDA-approved synthetic rubber (NBR) with metal shields.
- PTFE.
- AISI 304 Shields.
- Housings with end caps.

### → Lubrication:

- Pre-lubricated with Mobilgrease™ FM—FDA-compliant, NSF H1 registered, and certified Kosher/Parve and Halal. Also, solid oil is available for certain references.

Download the brochure and explore the full line or get in touch with them at [sales.uk@zen.biz](mailto:sales.uk@zen.biz)!

If you are looking for bearings that thrive in the food industry's harsh conditions, the ZEN FBS Line is the answer!





# Specialised bearings and tools are critical to overall landing gear performance

The importance of landing gear is certainly a big deal among today's airline manufacturers with initial global sales valued at \$10.79 Billion and predicted to grow to \$22.90 Billion by 2030 (Fortunebusinessinsights). Regarded by some aviation experts as 'mechanical marvels' landing components and systems have to meet the huge demands of operational safety and efficiency even in the most demanding and extreme conditions. Typical lifespans of today's most popular aircraft models (Airbus 320 family and Boeing 737) are around 20 to 25 years or 60,000 – 75,000 flight cycles, although many exceed their design life with proper maintenance. Aerospace landing gear maintenance represents around 20% of total maintenance costs as it directly impacts safety, reliability and performance, where even minor defects or failures could lead to catastrophic consequences.

Bearings are an essential component in today's landing gear systems and correct installation is critical to harness the full potential of a bearing's performance and safe operation, as the consequences of a poorly installed bearing could be far reaching. This applies to initial installation into an airframe assembly, a main shaft on a jet engine, or a suspension system.

**Precision bearing specialists CARTER MANUFACTURING** are approved aerospace bearing suppliers to industry leading landing gear manufacturers and are accredited to ISO9001 incorporating the requirements of AS9120 with flow down from AS9100. Carter also offers the full range of **UNASIS Aerospace Bearing Tools**, giving customers the ability to correctly install bearings, first time, every time.

With a comprehensive range of tools

in stock, along with the ability to work with a customer to design bespoke tools for one-off applications, UNASIS cater for all Aerospace bearing tooling needs. The UNASIS installation, removal and testing tools are proven to optimise the installation of bearings, resulting in both cost and time saving benefits. Due to the extreme loads and forces occurring in landing gear systems, spherical plain bearings are an ideal option and are typically larger than in other aerospace applications, which can also present challenges in tooling design. Many of the larger landing gear applications require the tooling to be portable - without compromising tool performance and often cannot be mounted in a pillar drill, or drill press to install, or replace the bearing. Therefore, portable tools have to be utilised, similar to avionics and aircraft wing repairs where standard MRO tools are used.



Attention to detail is critical so careful consideration of all aspects of tooling design, such as the number of cutting teeth, their profile in our portable cutting tools and for our swage tools we may increase the number of rolling elements due to the larger circumferences of the bearings used. Tooling must also be as user-friendly as possible, so we generally design with the focus on the end-user to ensure that tools can be used with just a single fitter / operator.

As the preferred choice for most landing gear systems, it's important to understand why spherical plain bearings are the best option:

**Load Distribution** - Aircraft landing gear must support the entire weight of the aircraft. As an example, an Airbus A320, one of the Worlds most used aircraft has an approximate take-off weight of around 77,000 kg. This is obviously a substantial load and spherical bearings are designed to handle both radial and axial loads ensuring

that the weight of the aircraft is distributed evenly across the landing gear components.

**Articulation** - Landing gear components need to articulate or pivot to accommodate the various angles and forces encountered during take-off, landing and taxiing. Spherical plain bearings allow for this, enabling the landing gear to move in multiple directions, while maintaining structural integrity.

**Shock Absorption** - During landing, aircraft experience significant shock loads as they touchdown on the runway. Spherical plain bearings help absorb and dampen these shocks, reducing the transmission of impact forces to the rest of the aircraft structure.

**Corrosion Resistance** - Aircraft often operate in challenging environmental conditions, including exposure to moisture, salt and other corrosive elements, which is why spherical plain bearings are typically made from corrosion resistant materials.

**Weight Considerations** - As in many engineering applications, engineers and designers are always looking to minimise the weight of system components to improve energy-efficiency and performance. Spherical plain bearings are chosen for their ability to provide the necessary load-bearing capacity, whilst keeping weight to a minimum.

**More here:** <https://www.carterbearings.co.uk/industries/aerospace>



**Contact:** Karl Brundell, Carter Manufacturing Ltd, Unit 7 Isis Court, Abingdon Business Park, Oxon OX14 1DZ

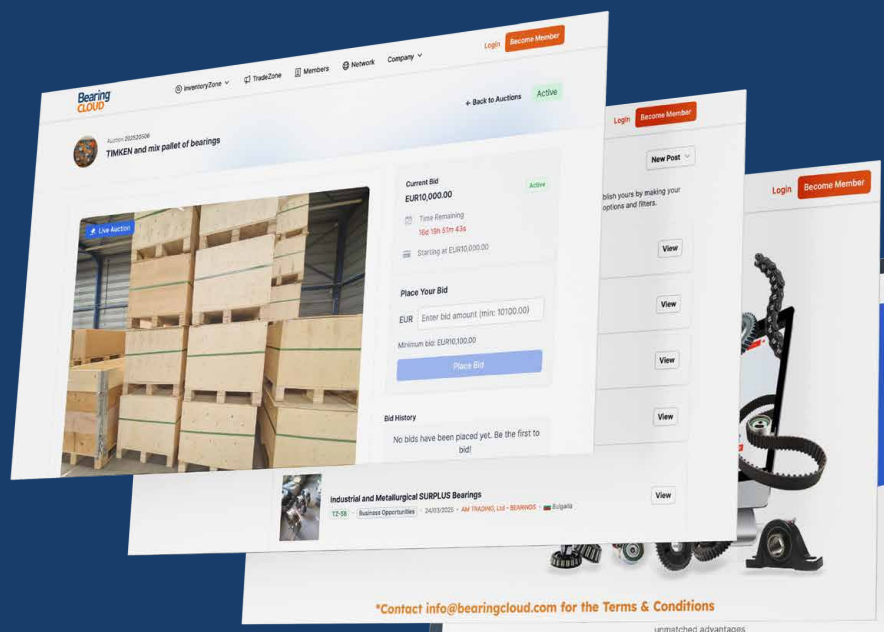
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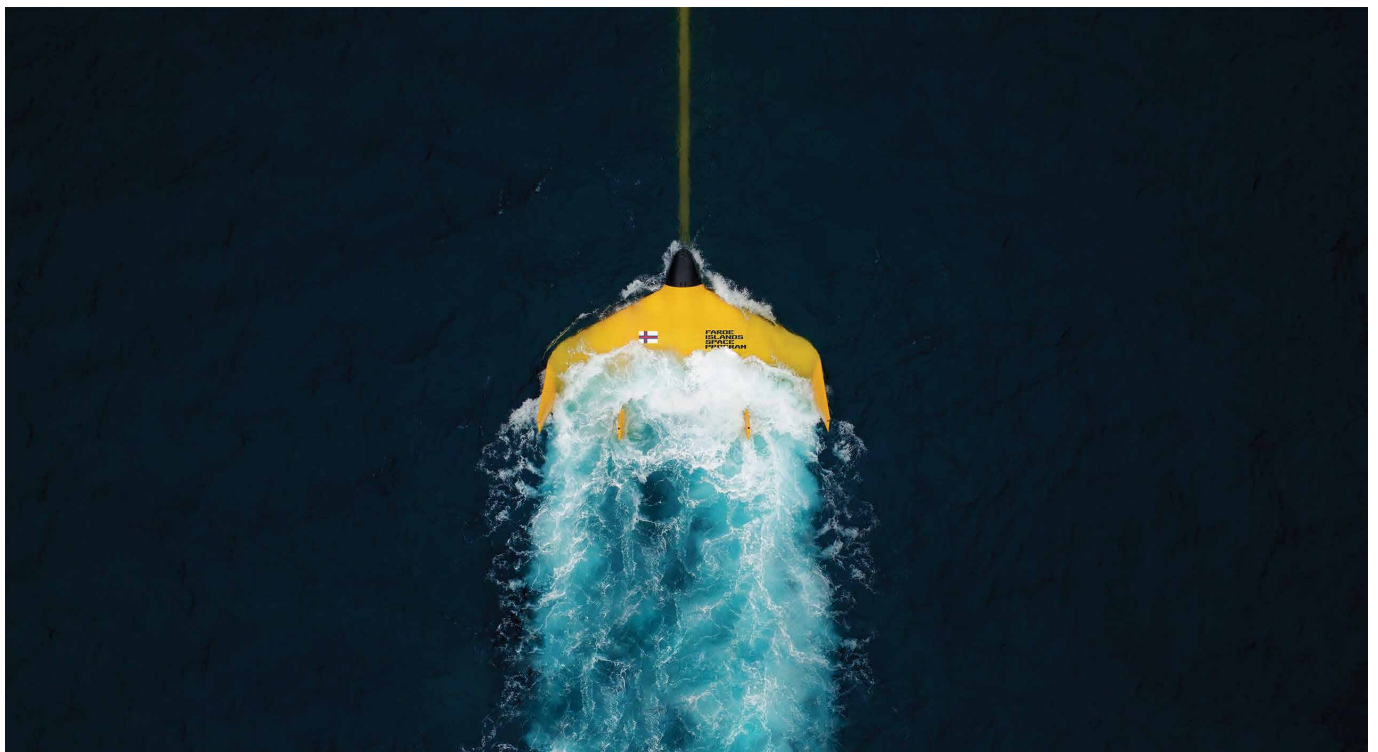
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# Harnessing the Power of the Moon: **SKF®'s Role in the Faroe Islands Space Program**

As the world accelerates its transition toward renewable energy, innovative collaborations are reshaping how we think about power generation. One such groundbreaking initiative is the Faroe Islands Space Program—an Earth-bound venture that leverages the Moon's gravitational pull to generate clean electricity through tidal forces. At the heart of this project is the Dragon 12 (LUNA), an advanced tidal kite developed by ocean energy company Minesto, with critical support from global bearing and technology leader SKF. By integrating smart bearing systems, real-time monitoring sensors, and sustainability-focused software tools, SKF is helping optimize the kite's performance while minimizing its environmental footprint.

To learn more about the cutting-edge technology and sustainable impact behind this pioneering effort, we spoke with Annika Ölme, Chief Technology Officer and Senior Vice President of Technology Development at SKF. In this conversation, she shares insights on SKF's role in the project, the future of tidal energy, and how cross-industry collaboration is unlocking new pathways to cleaner, more reliable power solutions.





**SKF has developed cutting-edge bearing and sensor technologies for the Dragon 12 tidal kite—can you elaborate on the most challenging technical innovations involved in adapting these components for underwater use?**

Since the Dragon 12 tidal kites operate deep down in the Atlantic Ocean, there were great challenges we needed to tackle from a parts perspective. The kites fly at speeds of up to 16 knots at a depth of 60 meters. During operation the turns are smooth, but the system must also be able to handle acceleration. So, designing the right bearings and seals to endure these conditions was critical. That involved not

just choosing the most suitable bearing type but also dimensioning the bearing to be robust and reliable, while at the same time optimizing bearing arrangement for minimal friction. In terms of the sealing arrangement, we faced challenges related to shaft deflection, water pressure, and low friction. In combination with the design, a sealing material with good friction properties is needed in an environment with limited lubrication and high wear resistance to avoid being worn down by particles present in seawater. All of these factors were considered as we developed the bearings installed in the applications within the kite including the rudders and turbine, as well as the sealing system.

**How does SKF's SimPro Quick software enhance the efficiency and durability of tidal energy systems like LUNA? Can you give examples of its impact in this project?**

Our SimPro Quick software evaluates and optimizes bearing arrangements, which allows SKF and Minesto to perform detailed performance evaluations of the bearing arrangements within the Dragon 12 tidal kites based on specific requirements and conditions. With this project taking place in the depths of the Atlantic Ocean, we have to account for various marine conditions like salinity, water temperature and water pressure. Being able to analyze bearing performance in real time



“

*It takes trust, courage and creativity to embark on a daring, yet 'down-to-earth' project like the Faroe Islands Space Program.*

”

*Annika Ölme, Chief Technology Officer and Senior Vice President of Technology Development at SKF*



is critical so that we can adjust and improve, ensuring the kites are operating with the least amount of friction possible.

**Real-time monitoring seems to be a key feature of this system. How do SKF's vibration and temperature sensors contribute to preventive maintenance and operational reliability in such a harsh marine environment?**

Since this project is focused on harnessing energy and fueling the villages of the Faroe Islands, preventing downtime is imperative. SKF's sensors, which are installed on the turbine in the Dragon 12 kites, measure vibrations and temperature during operation to monitor the turbine and detect abnormal frequencies. This enables planned maintenance and avoids bearing damage and unplanned downtime.

**SKF emphasizes sustainability in its approach. How does your Product Select tool support customers in reducing CO2 emissions through better bearing choices?**

Our product select software tool calculates bearing rating life and estimates CO2 emissions, among other attributes, so that different solutions can be compared not only from a technical standpoint but also through the lens of sustainability. Providing this level of support when it comes to decision-making for our customers reinforces our mission to drive innovation in renewable energy.



**How do you measure and verify the environmental impact reductions achieved through SKF's technologies in the Dragon 12 project?**

Research shows 20% of all energy consumed globally is used to overcome friction, and this is particularly important when producing energy as you want all production to go to the electrical grid and not disappear as friction. Our bearings and seals are designed to reduce the amount of friction produced, which is also monitored through SKF sensors mounted in the kites. By measuring the operational data, we get a good basis for optimizing the system so that the kites can perform more efficiently.

**What has the collaboration with Minesto taught SKF about cross-industry innovation, and how might it shape future projects?**

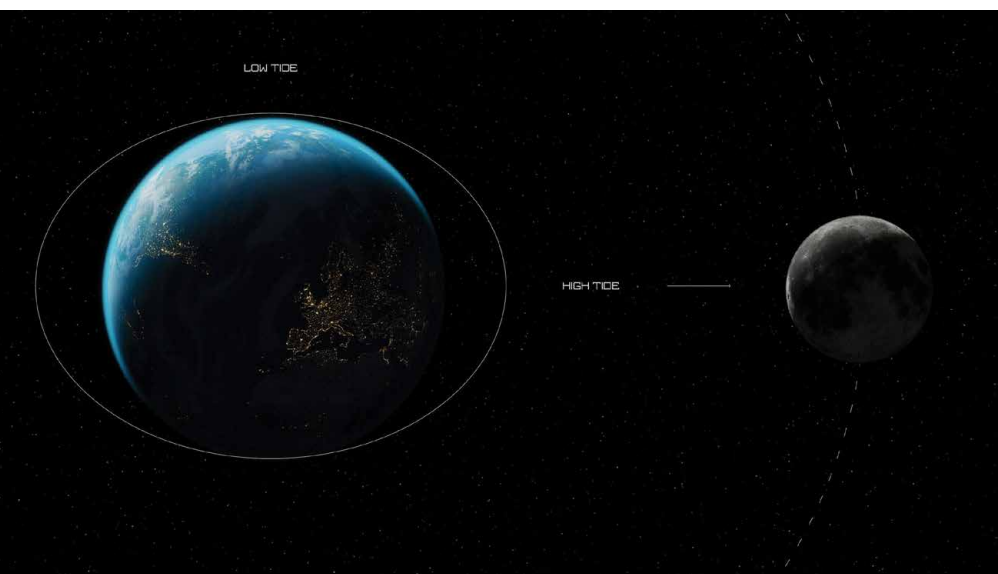
This project has truly underscored the critical role of cross-industry collaboration and knowledge-sharing in accelerating innovation, advancing the shift to renewables, and shaping a more sustainable energy future. It takes trust, courage and creativity to embark on a daring, yet "down-to-earth" project like the Faroe Islands Space Program. All of us – SKF, Minesto and Sev – were aligned on our goals from the start and that propelled us forward together. We believe that our program serves as a blueprint for broader cooperation across sectors.

**In what ways is the partnership with Sev and the Faroe Islands helping demonstrate a model for tidal power adoption in other remote or coastal regions?**

Through the Faroe Islands Space Project, we're showing the world that there are untapped renewable energy sources still to be explored. Sev and the Faroe Islands share the same vision as SKF of a clean, responsible, net-zero future. Ocean energy currently is a small part of the renewable energy mix. But Minesto estimates there are at least 3,000 more "Faroe Islands" out there qualifying for our space program. Our program demonstrates that harnessing the energy of the moon is possible and coastal regions can start exploring this avenue for sustainability today.

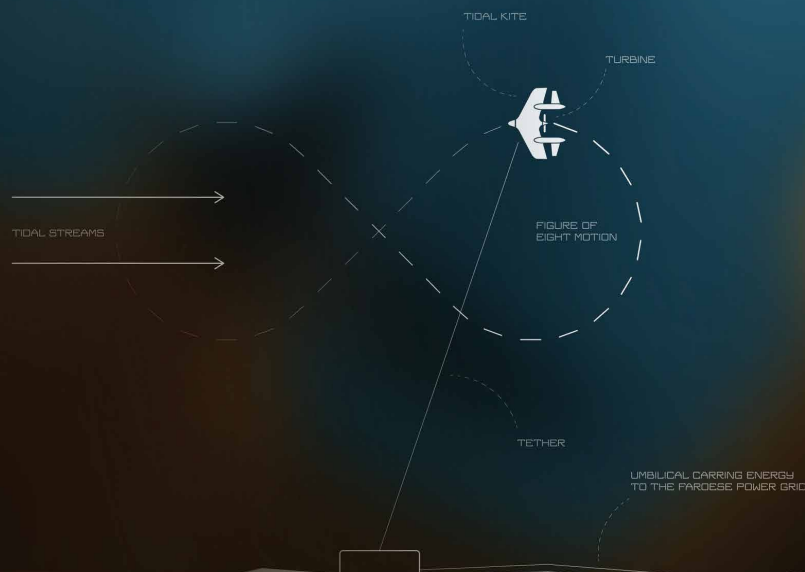
**Do you see SKF's technologies being adapted for other ocean energy projects beyond tidal kites—such as wave energy converters or offshore wind installations?**

The Faroe Islands Space Project is one of a few that SKF is involved in regarding ocean energy. We believe it's an energy of the future and are eager to explore different avenues



# TIDAL KITE

When attached to the seabed, the kite follows a predetermined figure-of-eight trajectory, flying through the water at a speed several times higher than the actual stream. As tidal streams are forced through the kite's turbine, renewable ocean energy is generated—right here on Earth.



of optimizing and preparing ocean energy technologies for commercialization. We're a part of multiple EU-sponsored projects that are exploring the use of turbines, floating tidal energy systems and sub-sea tidal farms. Ocean energy is expected to supply at least 10% of global energy in the future. Additionally, a new report from Ocean Energy Europe characterizes ocean energy as an opportunity to deliver on decarbonization and deliver home-grown renewable power in the EU. SKF is committed to supporting this evolving industry through the development of cutting-edge technologies and bringing them to market.

**Given the potential to replicate this system in "3,000 more Faroe Islands," what role do you envision SKF playing in scaling up this technology worldwide?**

It has been such a rewarding partnership with Sev and Minesto, and our goal is to bring more qualifying nations into the space program. If all of the 3,000 others join the program, ocean power could replace all coal power capacity currently under development globally. We are collecting and analyzing data from Luna's condition monitoring sensors as it flies in the ocean, so that we can learn and improve the performance of the kite. Minimizing the friction in each individual piece of the kite, as well as optimizing and industrializing the assembly of all components, will have a huge impact when scaling the technology. We see our roles in engineering as well as delivering premium components as key enablers of the scaling of this technology and we're committed to playing a part in its growth.

**Looking ahead to 2030 and beyond, how does SKF's investment in projects like the Faroe Islands Space Program align with your long-term vision for industrial sustainability and clean energy?**

Our commitment to sustainability is rooted in projects like the Faroe Islands Space Program. It's just one example of how SKF works with customers to advance new approaches and innovations in energy technology development and across other sectors. We recognize the powerful role we can play in reducing friction in projects and applications worldwide. We're focused on developing more and more of our products to become lighter, more efficient, longer lasting, repairable, and, ultimately, recyclable. So that wherever bearings are used, we have the opportunity to enhance efficiency and reduce friction.







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The Bearing & Power Transmission World Meetings is a B2B meet up, exhibition and forum at global level attended by professionals from 40+ countries. Key distributors, manufacturers, solution providers and end-users from the bearing and power transmission industry will come together for three days during the B2B table meetings, Expo, lunches, dinners, and many more networking activities.

- **Global Participation:** Expecting 250+ companies, 450+ delegates from 42+ countries for the 2026 edition.
- **Unity in Diversity:** Distributors, Manufacturers, and Industrial Solution Providers communing together to craft connections and fostering partnerships.
- **Beyond Meetings:** Beyond the core B2B meetings, the event includes an exhibition area to showcase solutions and a Forum focusing on commercial and technical presentations and workshops.
- **Networking Perfected:** Our welcome dinner, networking lunches, farewell dinner, and other activities proved that business thrives not just in meetings but in shared moments of interaction.
- **World Power Transmission Association:** The upcoming 2026 edition will host the third annual meeting of the World Power Transmission Association (WorldPTA). WorldPTA aims to foster global collaboration and networking within the power transmission industries, covering the entire value chain from raw-materials, components, finished products to distribution and services.

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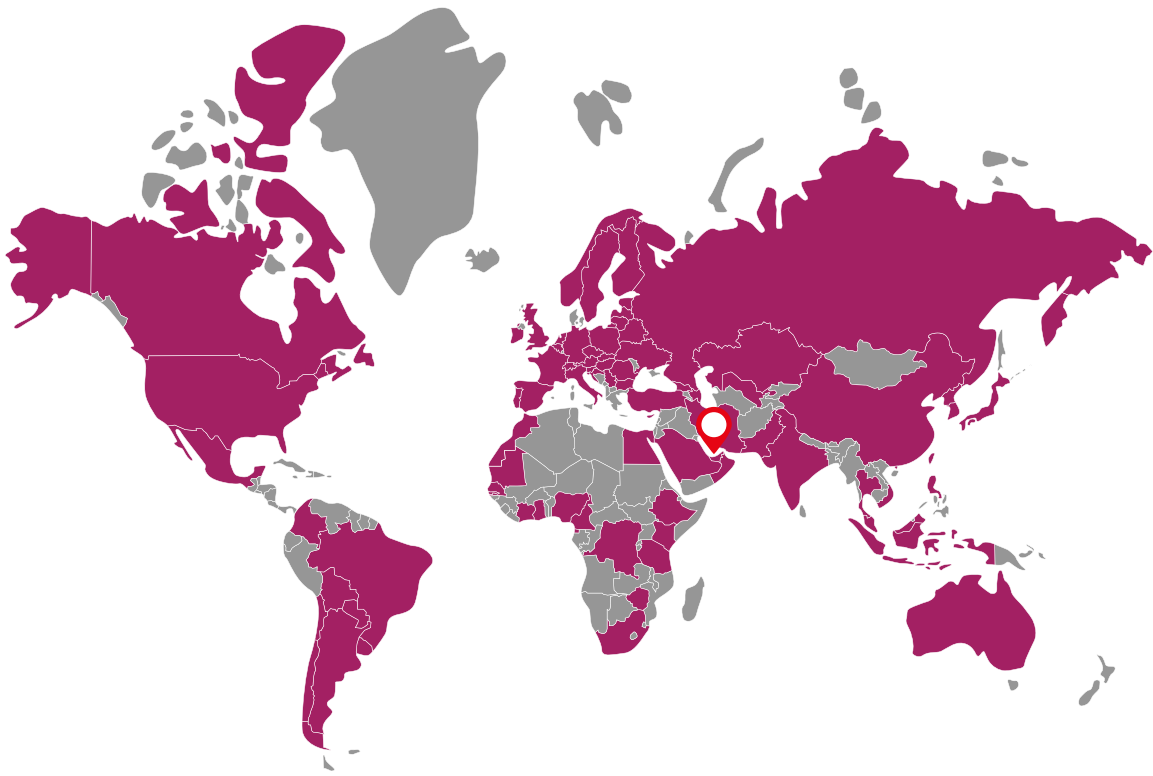
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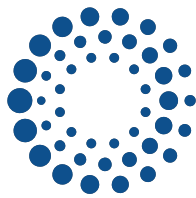
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Transmission**

**FORUM**

The Bearing & Power Transmission World Meetings 2026 will once again host a high-level Forum designed specifically for the Power Transmission and Motion Control (PT/MC) industry.

Following the success of the 2025 edition with over 20 speakers, a full day of technical presentations, a second day dedicated to commercial insights, and targeted workshops for reliability engineers and end-users, we are now inviting speakers, researchers, solution providers, and innovators to present at the upcoming 2026 Forum.

#### **Main Topics Include:**

- ✓ Supply Chain Strategies: From raw materials to assembled products
- ✓ Technical Workshops for End-Users & Reliability Engineers
- ✓ Market Expansion Tactics & Global Entry Strategies
- ✓ Artificial Intelligence in the PT/MC Sector: Challenges & Opportunities
- ✓ Investment Opportunities in the Power Transmission Industry
- ✓ Innovative Procurement & Supplier Development Models
- ✓ Industry and Application Case Presentations

#### **Why Present?**

- ✓ Gain visibility in front of a global audience of manufacturers, distributors, OEMs, engineers, and industry leaders, both in-person and online
- ✓ Share your expertise and contribute to industry development
- ✓ Network with peers and potential business partners
- ✓ Position yourself and your company as a thought leader

#### **Submit Your Abstract**

If you have innovative solutions, technical research, insightful case studies, or workshop ideas relevant to the PT/MC industry, we want to hear from you!

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# Location

Located at the heart of the ever-dynamic city of Dubai, the Bearing & Power Transmission World Meetings 2026 is set to deliver an unmatched blend of innovation, industry collaboration, and global exchange. Dubai's status as a global logistics and trade hub makes it the perfect backdrop for forward-looking discussions in power transmission and motion control. The city's world-class infrastructure, rich clustering of related industries, and outstanding accessibility for international attendees elevate your experience beyond the ordinary.

Jafza One Convention Centre, nestled within the Jebel Ali Free Zone (Jafza) offers a versatile selection of event spaces, including a grand auditorium, large exhibition halls, and 29 fully equipped meeting and boardrooms with business amenities, all contributing to an organized, inspiring, and productive event environment.



## Points of interest

- ① Expo 2020 Dubai - 21km
- ② DWC Airport - 22km
- ③ Ibn Battuta Mall - 13km
- ④ Jumeirah Beach Residences - 24km
- ⑤ Dubai Marina - 17km
- ⑥ Faisl Jumeirah - 14km
- ⑦ Burj Al Arab - 27km
- ⑧ Dubai Mall - 43km
- ⑨ Burj Khalifa - 45km
- ⑩ Dubai World Trade Centre - 38km
- ⑪ Dubai International Airport - 51km

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# What if *traditional maintenance* didn't go hand in hand with *improved motor energy efficiency*?

Electric and combustion motors are the heartbeat of industrial operations. From compressors and conveyors to pumps and fans, they power the processes that keep factories running.

However, motors also account for a significant portion of global energy consumption—around 65% of industrial electricity use—and this makes them both a vital asset and a major cost center. When motors become inefficient, even slightly, the consequences ripple across energy bills, carbon footprints, and maintenance budgets.



### The energy cost of motors in industry

Motor inefficiency often creeps in unnoticed. Misalignments, bearing degradation, lubrication breakdowns, and mechanical looseness gradually reduce performance, increasing friction and heat. These subtle issues may only cost a few percentage points in performance, but over time, that translates into thousands of euros in wasted energy and premature wear. For instance, a single 100 hp electric motor operating 24/7 can consume over €110,000 worth of electricity annually. Improving that motor's efficiency by just 5% can yield savings of over €5,000–€15,000 each year. Multiply that across a site with dozens or hundreds of motors, and the numbers become impossible to ignore.

### The overlooked factor in efficiency

Traditional maintenance strategies, such as reactive or scheduled preventive

maintenance, fall short in addressing these challenges. Waiting for a motor to fail before intervening is costly, not only in repair expenses but also in unplanned downtime. Scheduled maintenance, while better, often results in unnecessary interventions or missed problems that occur between intervals. What's needed is a smarter approach: predictive maintenance based on condition monitoring, especially using advanced technologies like ultrasound and vibration analysis.

**Ultrasound** stands out for its ability to detect high-frequency signals generated by friction, impacting, and turbulence, signals that often precede vibration and thermal anomalies. It is particularly effective for **identifying bearing faults, lubrication** problems, and mechanical instability, all of which directly impact motor performance and energy efficiency. When combined with vibration monitoring, ultrasound provides a powerful toolkit for early fault detection.

### The key role of the Vigilant

**Vigilant** is a fully integrated, real-time monitoring system designed for continuous condition assessment of rotating assets like motors. It uses a combination of ultrasound and vibration technologies to capture a full picture of motor health. The system includes eight dynamic channels for high-frequency acoustic and vibration data, along with four static channels for additional sensors such as temperature, tachometers, or process indicators. Vigilant's embedded software analyzes and trends these signals, providing early warnings for conditions that could lead to energy inefficiency or catastrophic failure.

By installing Vigilant, factories can identify problems such as increasing friction in bearings due to lubrication breakdown, minor shaft misalignments that raise vibration and energy draw, or resonance conditions that may lead to fatigue. These







issues are often invisible to the naked eye or even to basic monitoring tools, but they manifest clearly in the ultrasonic and vibration signatures that Vigilant captures and interprets. More importantly, Vigilant operates autonomously, continuously collecting data and integrating with existing SCADA, CMMS, and digital platforms via open protocols like OPC and HTTP.

#### **Bridging the gap between reliability and sustainability**

Beyond reliability, there is a strong environmental and sustainability case for adopting this kind of smart maintenance approach. As governments and industries pursue carbon reduction goals, energy optimization becomes a critical pathway. A reduction of even 5% in motor energy use contributes directly to a facility's carbon footprint reduction and ESG commitments. Predictive maintenance also reduces waste: fewer emergency repairs,

fewer unnecessary part replacements, and longer-lasting equipment mean less material usage and disposal. These factors align directly with initiatives like the European Green Deal and ISO 50001 energy management standards.

Vigilant empowers maintenance teams to make better decisions faster. For example, if a motor begins showing signs of early bearing wear or load imbalance, the system alerts the team before efficiency drops *significantly* or failure occurs. Maintenance can then be scheduled proactively, minimizing impact on production. Over time, data from multiple assets can even be used to optimize lubrication schedules, balance workloads, or detect systemic issues across entire facilities.

#### **A smart investment with measurable ROI**

The return on investment is compelling.

In one documented case, predictive maintenance with ultrasound reduced bearing replacement by 20%, and in another, it cut unplanned motor breakdowns by 80%. Combined with the energy savings, extended asset life, and improved reliability, it's clear that systems like Vigilant aren't just monitoring tools, they are strategic assets.

At a time where uptime, energy costs, and sustainability all matter more than ever, condition-based maintenance powered by ultrasound and vibration is not just a "nice to have." It's an essential part of operating smarter and greener. With Vigilant, SDT delivers a solution that empowers industries to meet their efficiency goals without compromising on performance or reliability.

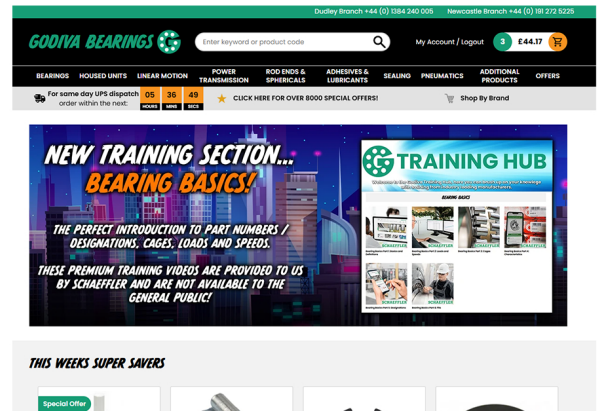
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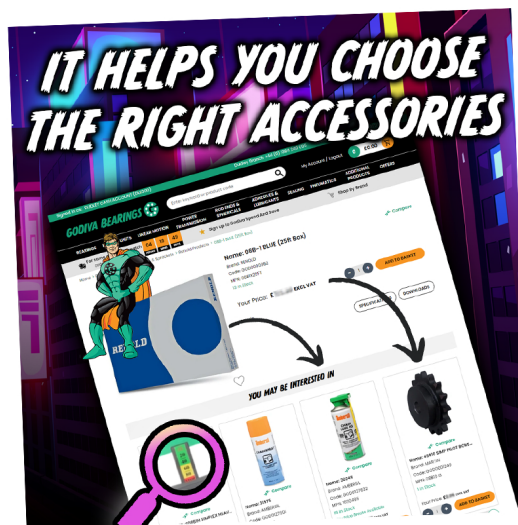


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# Achieving optimal bearing life accuracy

*The importance of bearing inspection to ensure accurate life calculations*



When considering basic bearing life, there are certain assumptions that one might make.

One could surmise, for instance, that the bearing is adequately lubricated and has been properly mounted and aligned. You might also presume that the bearing contains no debris, possesses “conventional” loading, rotational speed, operating temperature and design of internal (rolling contact) geometry, and has encountered proper manufacturing processes.

These might be among the assumptions when performing a load rating or life calculation using the ISO 281 standard, And, to a degree, that's okay. The rating life associated with this standard is reliable for a bearing manufactured with commonly-used, high-quality, hardened steel and which retains sound manufacturing quality and function under conventional operating conditions. "This can be very valuable from a high-level bearing selection perspective," Andrew Hvizdzak, senior bearing engineer at Napoleon Engineering Services (NES) said. "If you're in the early stages of selecting bearings for your application and you need to compare different general bearing sizes against your applied load and speed conditions, then ISO 281 is a quick and easy way to down select based on bearing size."

**BUT WHAT IF** your bearing deviates from any of these assumptions?

Under those circumstances, it's important to note: the accuracy of that life calculation could well be compromised.

Or suppose that one or more of the following is true: You possess detailed knowledge about a bearing's specific geometry; you're comparing a seemingly identical bearing from two different suppliers; or, you have an extensive understanding of your application conditions. In any of those instances, it would be appropriate for an individual to incorporate the following ISO standards to improve the accuracy of their bearing

performance estimations: ISO/TR 1281-1 (for load rating) and ISO/TS 16281 (for life).

ISO/TS 16281 is a more advanced and sophisticated method for estimating fatigue life for a specific application. With ISO/TS 16281, many of the limitations associated with the assumptions related to ISO 281 are either removed altogether or improved upon, producing a more accurate bearing life calculation.

#### ***And this is important. But why?***

A typical design engineer might not understand the presumptions that are being made when using the ISO 281 standard, or that those assumptions might not apply to their particular bearing or application, resulting in a life calculation with considerable inaccuracy.

"With ISO/TS 16281, we can accommodate for misalignment, material properties, internal bearing geometry and load distribution for each rolling element, among other things," Chris Napoleon, NES president and chief engineer, said. "One critical element for accurate life calculation is inspecting the bearing to define the design and manufacturing characteristics of the bearing itself."

In most cases, one would be better suited to take this next step. To do so, you need all available inspection data, bearing software and, oftentimes, a bearing engineer who's specifically experienced in this area.



And that's where Napoleon Engineering Services comes in.

"We have those three things," Napoleon said. "You can't get from ISO 281 to ISO/TS 16281 without NES. Because you need the inspection data, you need the software capability, and oftentimes, the knowledge of a bearing engineer to bring those two things together – the understanding the 16281 standard and the inspection data – to determine your most accurate life."

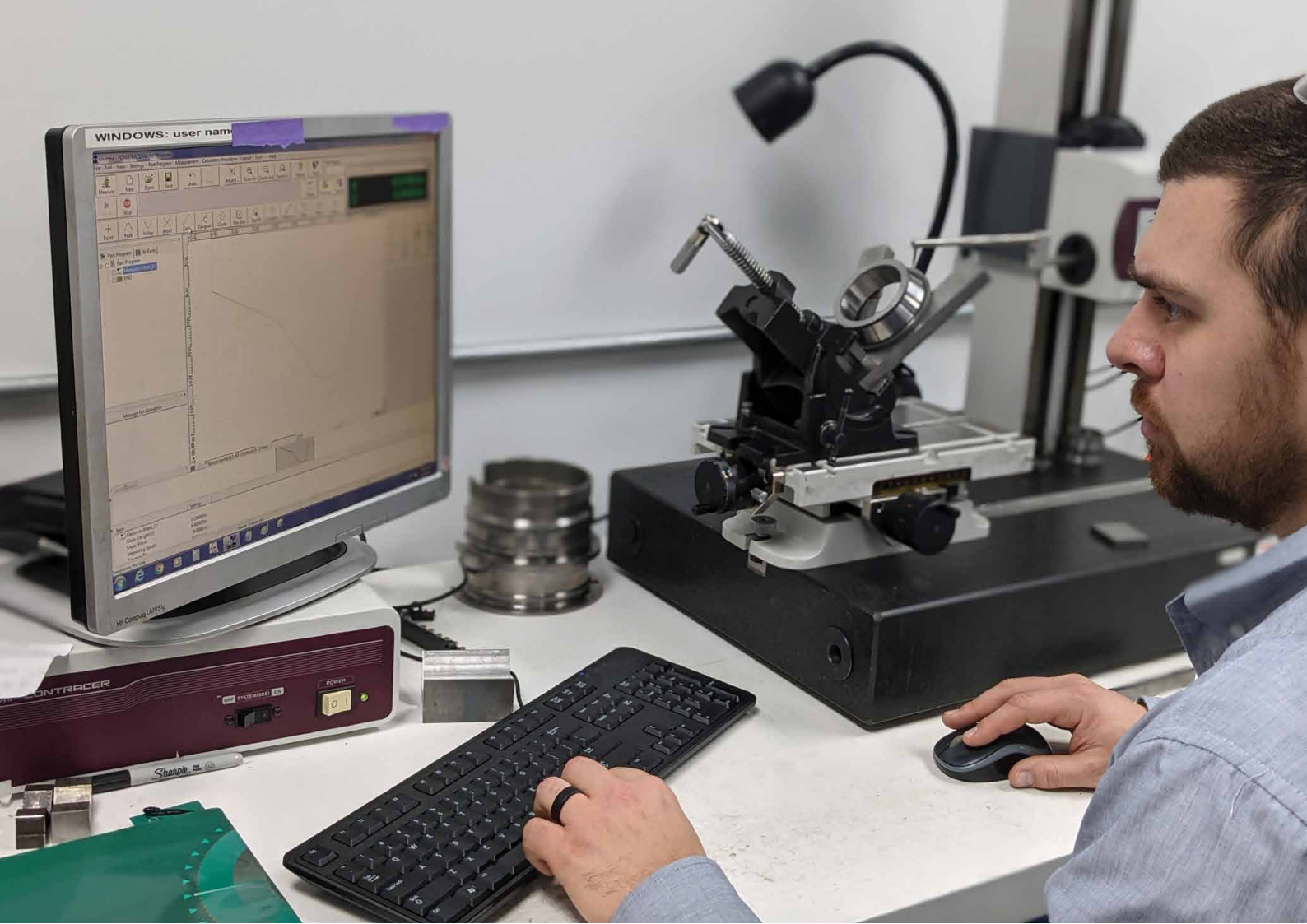
***"That's what we're here to help you with."***

**NES UTILIZES** bearing expertise and equipment to develop valuable technical information so that customers can make informed decisions about bearing and supplier performance.

The most reliable way to meet this standard is through testing. But testing generally comes with a significant cost. To offset this, NES has long boasted a first step that customers can take toward the implementation of ISO/TS 16281 for a more accurate estimate of bearing life: its renowned Source Qualification Inspection (SQI). A unique industrial reverse engineering







program, its objective is three-fold: to define design intentions, determine manufacturing capability and evaluate quality of workmanship. Among its many advantages is that it allows original equipment manufacturers (OEMs) to eliminate costly physical test programs using known deficient product, openly communicate design issues with a bearing manufacturer and determine why suppliers might perform differently. As noted, the ISO/TS 16281 standard requires more sophisticated calculation methods. And there are commercially available software programs that can assist one in incorporating those techniques. NES, however, can also take that practice a notch further through its bearing modeling service, which allows it to translate those inspection characteristics into potential operational performance.

**BOTH STANDARDS** – ISO 281 and ISO/TS 16281 – are readily accessible. Anyone can open a bearing catalog, consult a reference sheet

or download available software. The question is, how does a potential customer go about navigating those standards, understanding the difference, and forging further ahead by implementing the more advanced standard?

That's the important thing. And that's where NES sets itself apart.

"We're going to help you summit this mountain," Napoleon said. "We are experts at bearing inspection, know how to interpret the standards, possess the necessary bearing modeling software, and our bearing engineers know what to inspect so that an accurate stress distribution can be calculated."

Additionally, as part of the company's services, NES also houses a 15,000-square-foot area dedicated specifically to bearing dynamic testing, which includes 100 available test rigs for a variety of bearings.

"We're the guides," Napoleon went on.

"We know how to utilize the ISO/TS 16281 standard to determine the most accurate (bearing) life."

And it starts with NES' Source Qualification Inspection program.

"If you're a design engineer for an OEM who's using a large volume of bearings, your exposure is significant. You're at risk," Napoleon said. "You need to be more accurate with your life calculation. You must put your best foot forward; you've got to have a game plan."

***"NES is  
your game plan."***

(Courtesy of J.P. Butler,  
Marketing Coordinator, Napoleon  
Engineering Services)



# Enhancing drone performance with BOCA Bearings

size, material, and performance requirements unique to their spinning drone application. Specifically, the team required a broad range of bearing options—including metal, ceramic, plastic, and glass materials—to optimize actuation systems within their drone. The limited availability of suitable components from other suppliers threatened to constrain design flexibility and overall system performance.

## Solution

Angel Aerial Systems partnered with Boca Bearings, recognizing the company's extensive product portfolio and ability to provide bearings in custom sizes and diverse materials. Boca Bearings' broad selection proved invaluable, furnishing the exact bearing specifications necessary to meet the multifunctional needs of the drone's actuation systems.

Moreover, Boca's technical expertise and responsive customer service supported the innovative aerospace team in selecting the most appropriate bearing materials and lubrication options—tailored to withstand the demanding operational environment of the UAV. Collaboration with Boca's bearing experts and sales engineers allowed the drone manufacturer to optimize grease and oil formulations for precise application requirements.

## Implementation

Boca Bearings were integrated throughout the drone's actuation systems from the earliest stages of the Trio airframe development. This built-in support ensured that every actuation point—critical for maneuvering and system responsiveness—

benefited from bearings precisely matched to the aircraft's design parameters.

## Results

Since integration, the aerospace company has observed considerable advancements in drone performance and reliability:

**Unmatched Durability:** In harsh operational conditions, including crash scenarios, the bearings have maintained structural integrity without damage. This durability significantly enhances aircraft reliability and reduces downtime.

**Material and Weight Optimization:** Recognizing the paramount importance of weight in aerospace design, the client continues to collaborate with Boca to evaluate alternative bearing materials that might further reduce weight without sacrificing performance or durability—an ongoing process reflecting the partnership's innovative mindset.

## Business Impact

While cost remains an important factor, the Angel Aerial Systems team emphasize that having access to the exact bearing size and material needed is far more critical to their success. The ability to leverage Boca's comprehensive product range and personalized service translated into smoother design workflows and prevented costly delays associated with sourcing unsuitable components. When asked about recommending Boca Bearings, the Angel Aerial Systems team was emphatic: "Definitely. Boca has the best selection of bearings we've found, and their team is a great technical partner, especially as we push the boundaries of robotics and aerospace systems."

## Client Overview- Angel Aerial Systems

Angel Aerial Systems has developed an innovative spinning drone capable of up to two hours of hover time—three to six times longer than traditional quadcopters.

Its groundbreaking Trio™ airframe delivers a reliable, continuous aerial surveillance platform purpose built for lifesaving and missioncritical operations.

As a pioneer in next-generation unmanned aerial vehicles (UAVs), Angel Aerial Systems is redefining drone endurance for public safety, defense, and national security missions.

## Challenge

During the initial design phase of the Trio airframe, the engineering team encountered significant challenges sourcing bearings that met the stringent





### Conclusion

This collaboration underscores the critical role of partnering with a bearing supplier that understands and supports

cutting-edge aerospace applications. Boca Bearings' extensive and off-the-shelf product range, combined with expert technical insight and responsive service, have enabled the successful development

and deployment of the Trio airframe's advanced actuation systems—delivering durable, reliable, and high-performance UAV operations.



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A woman with long dark hair is sitting on a brown leather sofa, reading an open book. She is wearing a white long-sleeved top and light-colored trousers. A large white fur throw is draped over her lap. The room is warmly lit by a lamp on the left and an air conditioner is mounted on the wall above her. The background features a wall with framed art and a potted plant in the foreground.

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# Understanding the Forces and Effects Causing Grease Migration – The Weissenberg Effect

***Presented by David Beattie and Rhys Morgan, DASH Engineering  
Bearing & Power Transmission World Meetings 2025***

At the Bearing & Power Transmission World Meetings 2025, DASH Engineering delivered a presentation that challenged long-standing industry perceptions about bearing reliability. David Beattie and Rhys Morgan, both experienced specialists in bearing failure analysis, presented their findings on grease migration in labyrinth seals and revealed how the Weissenberg effect, a little-known scientific phenomenon, explains why traditional grease-filled labyrinths are inherently unreliable.

For more than 13 years, DASH Engineering has investigated over 1,000 conveyor pulley bearing failures, primarily in heavy industries such as mining, steel, and power generation. Their data consistently showed that contamination ingress through labyrinth seals, not misalignment, overload, or poor bearing quality, is the predominant cause of premature bearing failure.

## The Problem with Grease-Filled Labyrinths

Labyrinth seals have been used in industry for over six decades, with widespread belief that they effectively protect bearings from contaminants. Conventional wisdom suggests that grease acts as a protective barrier, supported by the so-called three-barrier solution (sealed bearing, grease in the housing, and grease-filled labyrinth). However, DASH Engineering's inspections revealed a different reality. Bearings often showed severe water and dust contamination despite these measures. Instead of protecting against ingress, grease frequently stagnated inside housings and allowed contaminants to bypass the labyrinth.

### Scientific Validation – The Wessenberg Effect

Recognizing that industry perceptions were misleading, DASH Engineering set out to **scientifically prove the mechanics behind grease migration.**

In 2017, engaged by Rio Tinto to address catastrophic failures in a 23 km conveyor system, the company built a dedicated test rig. Their experiments showed that grease does not consistently purge outward as expected. Instead, grease migrates inward toward the shaft, eventually carrying contamination directly into the bearing. This counterintuitive movement is explained by the **Weissenberg effect**.



Grease, being a non-Newtonian fluid with viscoelastic properties, behaves differently under rotational forces. Rather than being expelled by centrifugal force, it is drawn inward and can even climb along rotating surfaces. In practical terms, this means that grease-filled labyrinth seals are **pumping contaminants into the very components they are meant to protect.**

### Engineered Solutions for Reliability

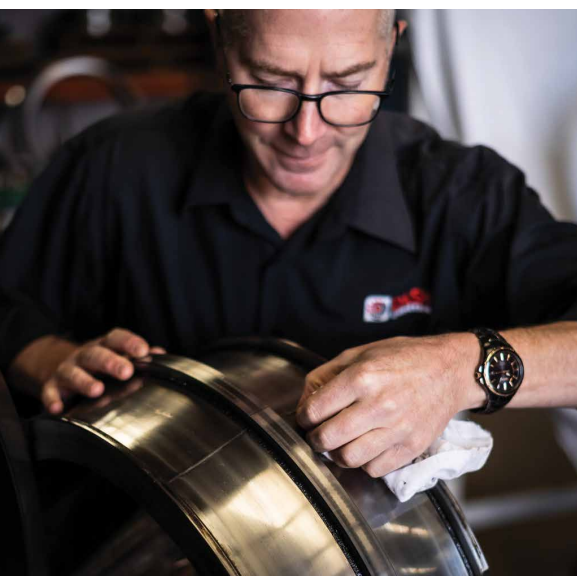
Armed with scientific proof, DASH Engineering shifted focus from identifying failure modes to designing engineered sealing solutions that overcome the limitations of grease-filled labyrinths.

- **The SAPO Seal** – Originally developed for Rio Tinto's conveyor pulley systems,

the SAPO seal is a closed oil system designed to eliminate excuses for seal failure. It is maintainable, monitorable, and proven to drastically extend bearing life. To date, its implementation has saved Rio Tinto more than **AUD 7.8 million** in avoided bearing failures.

- **The G-Series Seal** – A more recent development, this version incorporates the same knowledge of grease migration but is optimized for compatibility with conventional lubrication systems. It provides a practical upgrade path for industries heavily reliant on grease-based maintenance practices.

Both solutions have been widely adopted across Australian mining operations, including iron ore and coal, with outstanding results in reliability and cost reduction.



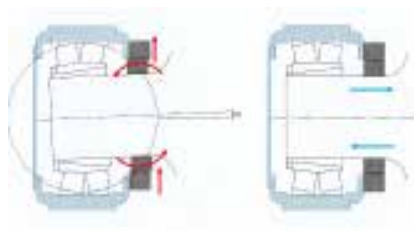




— P1: Premature bearing failure from contamination ingress



— P2: SAPO® Seal



— P3: SAPO® Seal articulation and axial float



— P4: Before SAPO® Seals



— P5: After SAPO® Seals



— P6: Installation of critical pulley with SAPO® Seals



— P7: Bearing housing endoscopic monitoring with the SAPO® Scope



— P8: SAPO® Seal in operation

## Industry Impact

The implications of DASH Engineering's work are profound. By uncovering the true mechanism of grease migration and addressing it with innovative sealing designs, they have not only extended bearing life but also reduced downtime, improved safety, and delivered millions in savings to their clients.

Their findings also highlight a critical industry lesson: **long-held maintenance practices must be continuously challenged with scientific investigation and real-world data.** Myths and assumptions, left unchecked, can perpetuate costly inefficiencies.

## Conclusion

The presentation at the Bearing & Power Transmission World Meetings 2025 made one fact clear: grease-filled labyrinth seals, despite decades of use, are fundamentally flawed as a sealing solution in harsh environments. Thanks to the pioneering work of DASH Engineering, industries now have proven alternatives that address the root cause of contamination ingress.

By combining rigorous failure analysis, practical field experience, and advanced engineering design, DASH Engineering has

redefined best practice in bearing reliability—turning scientific insight into tangible industry solutions.

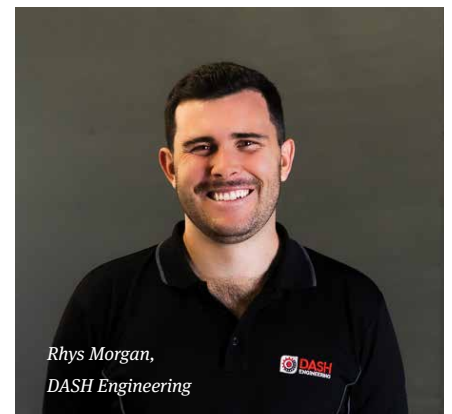
In summary, DASH Engineering's presentation underscores that grease-filled labyrinth seals, long regarded as standard in heavy industries, are not reliable barriers against contamination. Through more than 1,000 inspections and controlled experiments, the company demonstrated that grease migration draws contaminants inward rather than expelling them outward, directly causing premature bearing failures. By disproving the myth of the “three barrier solution” and introducing engineered sealing technologies such as the SAPO seal, DASH Engineering has provided industries with



more robust, monitorable, and maintainable solutions. The results speak for themselves: improved reliability, significant cost savings, and enhanced safety across critical operations in mining and other demanding sectors.



David Beattie,  
DASH Engineering



Rhys Morgan,  
DASH Engineering

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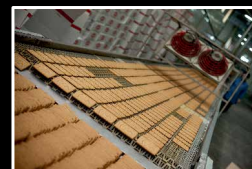
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Conveyor Chains



Mining Chains



Sugar Chains

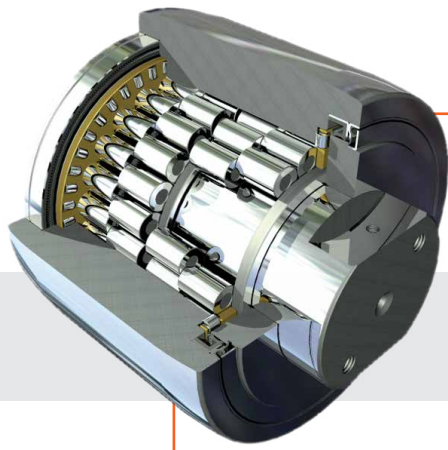


Timber Chains



Water Treatment Chains





— Backup rollers with integrated stud for cold rolling



— Backup roller with integrated stud for straightening machine

# Revolutionizing Cold Rolling: The Role of Backup Rolls in Tension Levellers

One of the important applications of steel plants is cold rolling, used to process high grade steel strips and other type of strips. Due to high requirement on the finished products, the demand on the backup rollers has also increased a lot.

The backup rollers are used in cold working machines for straightening, levelling, and other flattening operations. It is subjected to very high radial forces, sometimes in combination with axial forces. These backup rolls are application specific and comes in various types of internal and external design. They can be lubricated for life or can be lubricated periodically. They should also have a low starting torque to overcome friction. In many cases these rolls are used in wet conditions with a large quantity of water and oil, mostly in an adverse environment with lot of pollutants. In such applications, there is a possibility for premature corrosion & wear, so to face this problem a rigid sealing system has to be used. Much attention must be done to the lubricant and the sealing system.

Since the past 15 years TTS is developing backup rolls of various designs specific to the applications. The longest backup roll which TTS can produce is of 400mm shaft length. Based on the application and the usage, the technical department of TTS performs the technical calculations, finalize the internal design and other technical parameters which are necessary to run the bearing successfully. The technical department of TTS is well equipped with the state of art modelling & analysis software's and uses CMM and advanced roundness metrology for measuring the back-up rollers. An alternate check is carried out to measure the starting torque values post mounting. TTS can also provide special surface coatings and also manufacture using special materials such as stainless steel.

TTS is proud to have successfully delivered many projects involving the design and supply of back-up rollers for various applications and would continue to do so.

Each step of the component production process is monitored by quality control which carries out both dimensional and geometric measurements using specific instrumentation.

In addition to the design and construction of back-up rollers, TTS has activated a revamping service on used back-up rollers (both its own production and those of other manufacturers).

Normally the life span of a bearing is determined by the appearance of signs of fatigue on the raceways and rolling elements,

while in these applications, very often the deterioration of the outer surface of the outer rings (which occurs much earlier) can cause a decline in the quality level of the finished product. Therefore, The backup rollers are used in cold working machines for straightening, levelling, and other flattening operations. It is subjected to very high radial forces, sometimes in combination with axial forces. These backup rolls are application specific and comes in various types of internal and external design. They can be lubricated for life or can be lubricated periodically. They should also have a low starting torque to overcome friction. In many cases these rolls are used in wet conditions with a large quantity of water and oil, mostly in an adverse environment with lot of pollutants. In such applications, there is a possibility for premature corrosion & wear, so to face this problem a rigid sealing system has to be used. Much attention must be done to the lubricant and the sealing system.

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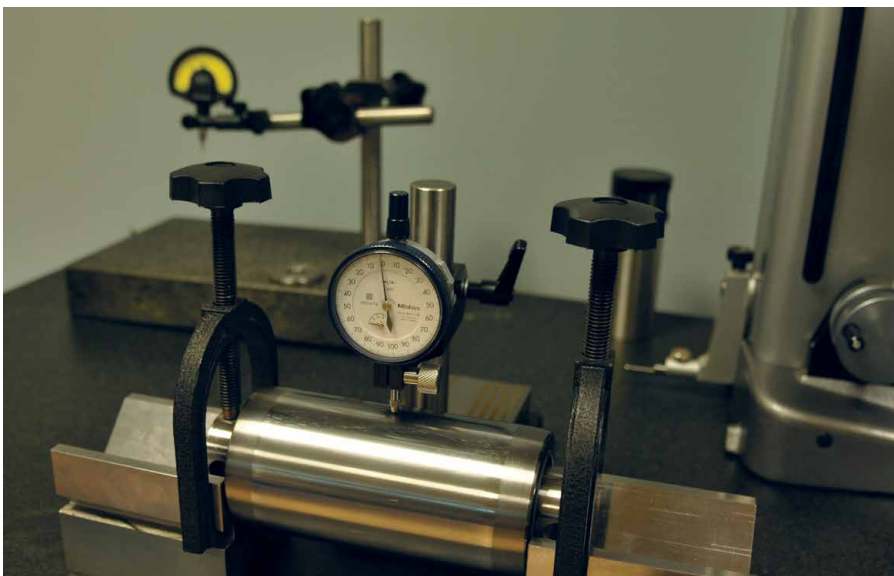
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— Backup rollers tested and ready to be packed



— Measurement of radial runout

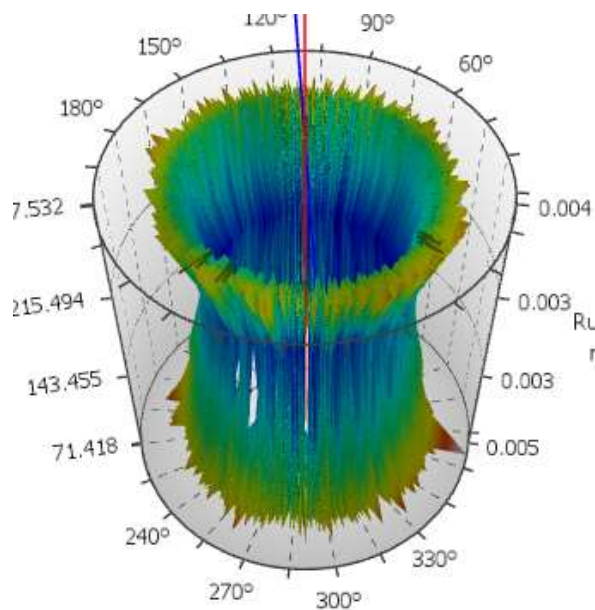


— Taylor Hobson - Ultra-high precision roundness measurement

determined by the appearance of signs of fatigue on the raceways and rolling elements, while in these applications, very often the deterioration of the outer surface of the outer rings (which occurs much earlier) can cause a decline in the quality level of the finished

product. Therefore, restoring the contact surface between the work rollers and the back-up rollers allows the life of the backups to be significantly extended, with a consequent economic saving for users together with a reduction in environmental impact.





### Parametri cilindricità

Filtrare: Gaussiano, 1-500 upr

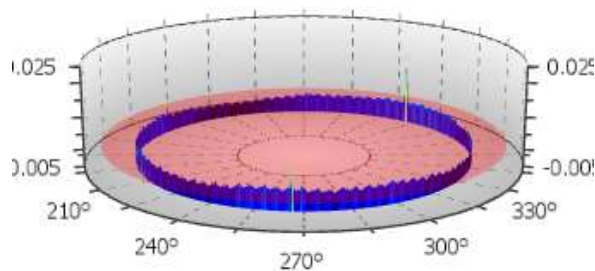
Cilindro di riferimento: Cilindro ai minimi quadrati

Datum di riferimento: Mandrino

#### ISO 12180-1

CYLp	0.005	mm	
CYLp Pos	5.580	°	
CYLv	0.003	mm	
CYLv Pos	86.700	°	
CYLt	0.008	mm	

— Results of roundness measurements of outer ring at diff. planes



### Parametri di planarità

Filtrare: Gaussiano, 1-500 upr

Piano di riferimento: Piano minimi quadrati

Datum di riferimento: Assi cilindro

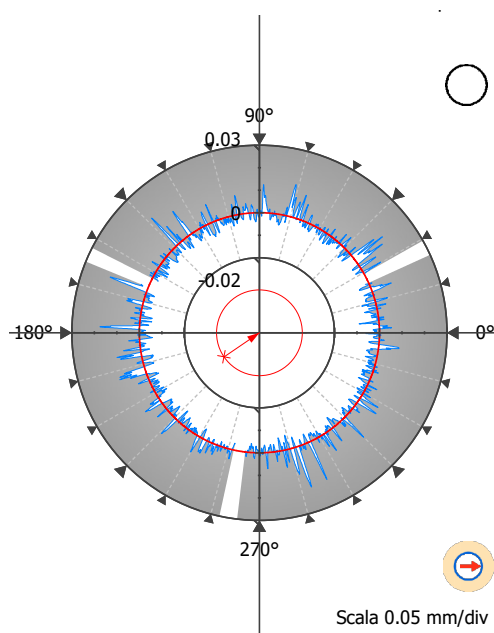
#### ISO 12781

FLTt	0.023	mm	
FLT Pos	199.520	°	
FLTp	0.021	mm	
FLTp Pos	47.740	°	
FLTv	0.002	mm	
FLTv Pos	114.840	°	

#### Ortogonalità

Sqr	0.005	mm	
Sqr Ang	0.001	°	

— Results of planarity measurements



### Parametri di rotondità

Filtrare: Gaussiano, 1-500 upr

Cerchio di riferimento: Cerchio dei minimi quadrati totali (TLSCI)

Datum di riferimento: Assi cilindro

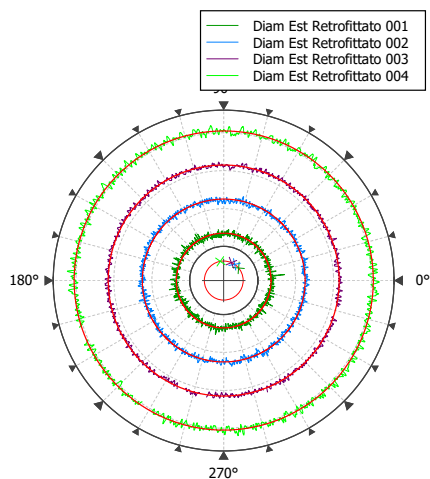
#### ISO 12181

RONt	0.028	mm	
RONp	0.009	mm	
RONp Pos	5.100	°	
RONv	0.019	mm	
RONv Pos	288.660	°	

#### Eccentricità

Ecc	0.003	mm	
Ecc Pos	34.128	°	
Conc	0.006	mm	

— Results of roundness measurements of inner ring at diff. planes



Parametri di rotondità multi-piano					
Filtrare: Gaussiano, 1-500 upr					
Cerchio di riferimento: Cerchio dei minimi quadrati totali (TLSCI)					
Datum di riferimento: Mandrino					
ISO12181					
RONt	mm	0.005	0.003	0.003	0.004
RONp	mm	0.004	0.002	0.001	0.002
RONp Pos	°	5.580	300.520	20.460	176.600
RONv	mm	0.002	0.002	0.001	0.002
RONv Pos	°	40.640	191.700	86.700	224.820
Eccentricità					
Ecc	mm	0.002	0.001	0.001	9.458e-04
Ecc Pos	°	220.299	235.705	246.783	279.919

— Results of roundness measurements of outer ring at diff. planes



— Backup roller before revamping

The reconditioning of back-up rollers requires considerable know-how since after disassembly, washing and identification of the individual parts (necessary because interchangeability is not guaranteed), an accurate instrumental analysis of each individual component is carried out to guarantee the dimensional and geometric characteristics envisaged by the project.

After all the analysis it is possible to evaluate the economic aspect of the reconditioning which includes:

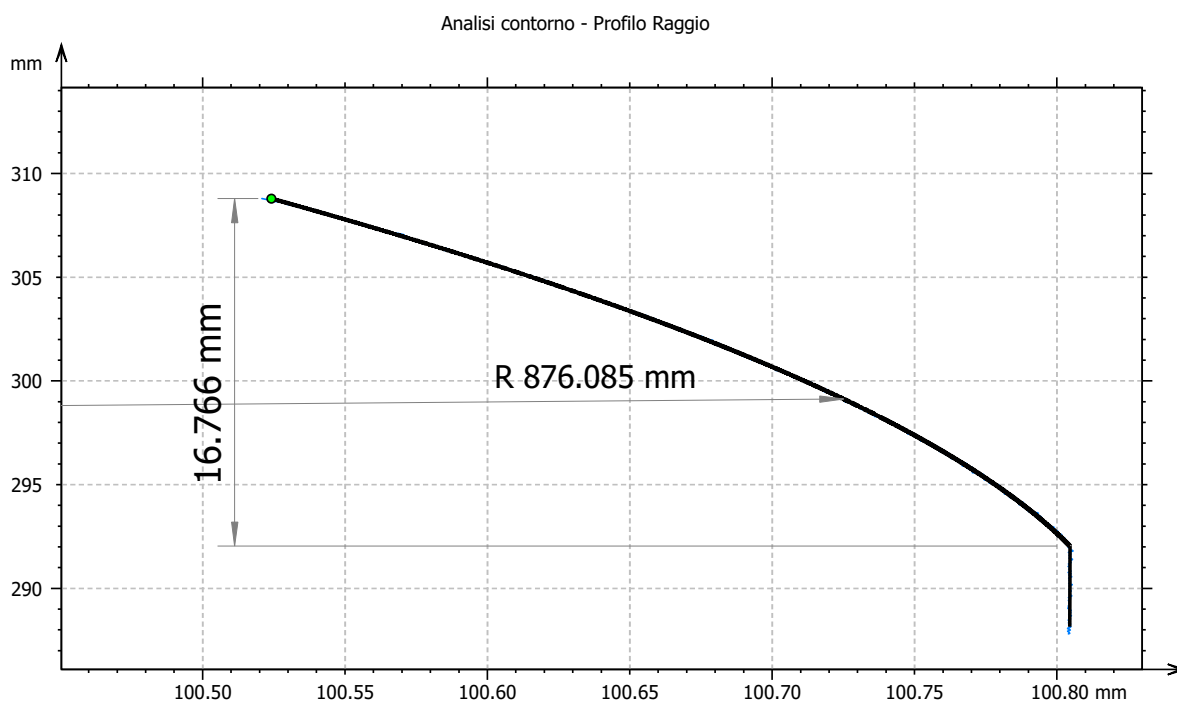
- grinding of the external diameter of the outer rings
- replacement of damaged components
- washing and assembly
- final testing and certification

The technical department of TTS is always available for helping the users of back up rolls for revamping and designing new bearings tailor made as per their application.

They can be easily reached on [nfo@tts-europe.com](mailto:nfo@tts-europe.com). For further information please visit their website, [www.tts-europe.com](http://www.tts-europe.com).



— Backup roller after revamping



— Outer ring profile after revamping





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# New **NSK** gas turbine generator bearing promotes longer eVTOL flights for on-site use

NSK has launched a new gas turbine generator bearing specifically for use in electric vertical take-off and landing (eVTOL) aircraft, including large drones. Among the major advances of the bearing are higher speed revolution performance and a new mechanism that reduces the necessary lubricant supply by around 80%, providing a significant contribution to longer eVTOL flight range.

New developments mean that eVTOLs are making significant progress as a means of transportation, with a predicted market size of €124 billion by 2035. Previously, mainstream eVTOL propulsion systems featured complete motorisation. However, to meet the growing need for longer flight range and improved transportation capabilities, most expect the demand for high-output, compact, lightweight hybrid motors to continue growing.

Gas turbine generators stand out from other hybrid motor designs because they can use fuel sources such as biofuels and hydrogen, making them attractive from a carbon neutrality perspective. Today, gas turbine generators are the strongest contender for practical propulsion mechanisms in eVTOL aircraft.

Extending the flight range of eVTOL aircraft hinges on a variety of factors, including the high-speed revolution performance of its gas turbine generator bearings. To meet this demand, NSK set about developing a bearing capable of delivering over 2.5 million dmn (the product of bearing pitch diameter and rotational speed). In addition, the company succeeded in supporting this high-speed revolution performance with minimal yet optimal lubrication needs.

The problem with jet lubrication, the most common lubrication mechanism



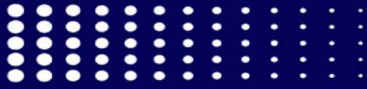
— Extending the flight range of eVTOL aircraft hinges on a variety of factors, including the high-speed revolution performance of its gas turbine generator bearings. Photo: Aero Development Japan, Inc.

for high-speed bearings, is that it requires a large amount of lubricating oil and promotes high power loss. Among the alternatives is under-race lubrication, which uses dedicated flow channels in the shaft and bearing inner race to supply oil. While this method offers minimal power loss and oil usage, it has low versatility and comes at a high cost.

To overcome these limitations, NSK's new lubrication mechanism features an improved spacer shape. Following temporary storage of lubricating oil in the spacer, the mechanism

supplies the minimal yet optimal amount of oil to the inside of the bearing using centrifugal force.

NSK's innovative solution reduces the amount of lubricating oil that the bearing requires to just 25% of that needed by conventional jet lubrication, while also cutting power loss by a third. The new design also yields a highly versatile, low-cost lubrication solution in comparison with under-race lubrication. As another advantage for OEMs, oil supply scavenge pumps and the lubricant tank can now be lighter in weight, contributing further to the flight range of eVTOL aircraft.

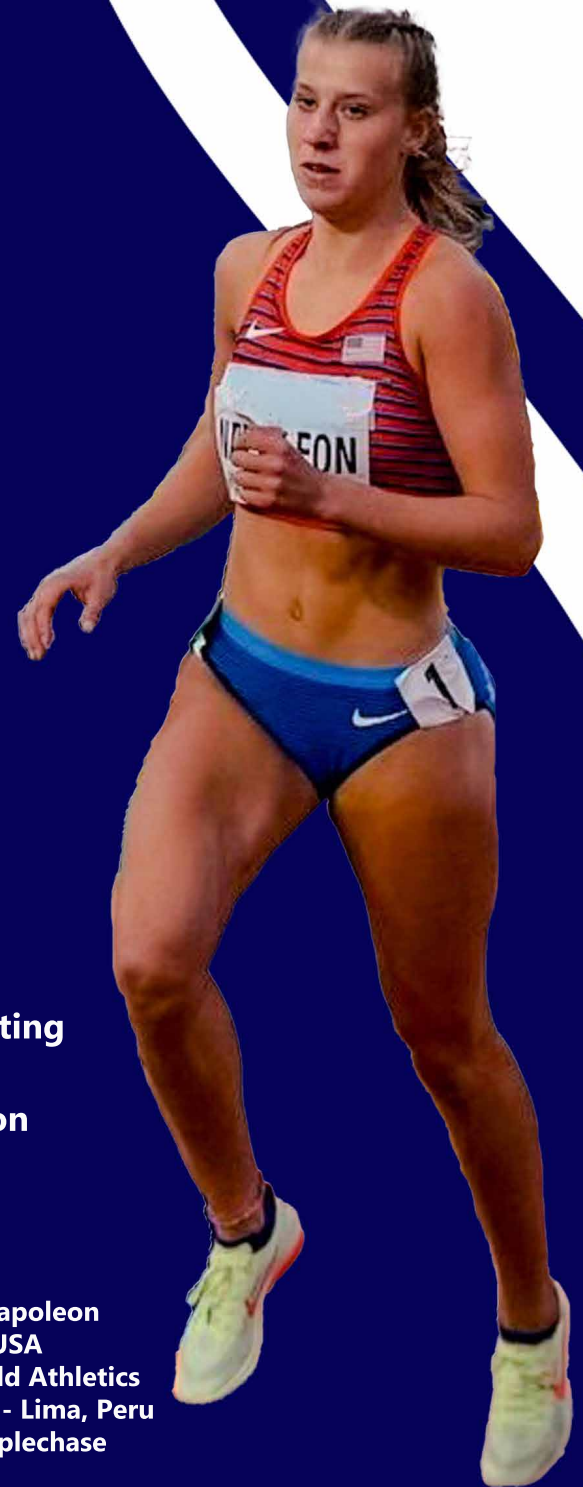


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# Smarter Maintenance of Industrial Assets

## *How I-care and MVP One are Transforming Industrial Reliability*

In an industry where every hour of downtime costs millions, industrial manufacturers are under growing pressure to move away from reactive fixes and towards proactive reliability. A new partnership between I-care, a global leader in predictive maintenance, and MVP One, a provider of advanced computerized maintenance management systems (CMMS), aims to change the rules of the game.

### From Reactive Maintenance to Predictive Insight

For decades, maintenance strategies have relied heavily on CMMS tools that track work orders and manage spare parts. But these systems often stop short of delivering the forward-looking insights manufacturers need. Predictive maintenance, powered by AI and IoT, can spot failures months in advance—yet too often, those insights remain trapped in data silos.

That's where the I-care/MVP One integration comes in. By combining MVP One's CMMS platform with I-care's AI-driven predictive analytics, the two companies are building a **complete reliability ecosystem**. Instead of reacting to machine failures, reliability engineers can now **plan interventions in advance**,

prioritize repairs based on severity, and schedule them during planned downtime.

### "A Smarter Maintenance Capability"

"Manufacturers face a double threat: unplanned downtime from reactive maintenance, and the complexity of managing labor, parts, and compliance across facilities," explains **Ben Detober, Deputy CEO of I-care Group**. "To overcome this disjointed environment, I-care and MVP One have created a smarter maintenance capability that uses predictive analytics to transform industrial asset management."

I-care brings decades of expertise in predictive maintenance, using vibration analysis, AI, and IoT sensors, while MVP One offers the structured backbone of a CMMS, ensuring that every maintenance

task is tracked, prioritized, and executed efficiently. Together, they enable engineers to not only **see problems before they occur** but also **act on them immediately** within a single platform.

### Reliability Without Surprises

The result is a system that puts reliability engineers back in control. "By combining MVP One's CMMS with I-care's AI-based predictive analytics, we have created a seamless reliability ecosystem, spanning work orders from waveforms," says **Jonathan Clark, CEO of MVP One**. "Customers will be able to triage maintenance and repairs in real time, dramatically reducing the cost of unexpected production-stopping failures."

This proactive approach doesn't just save time and money, it extends the

lifespan of industrial assets, ensures smoother operations, and ultimately gives manufacturers a competitive edge.

### Part of a Larger Vision

For I-care, this partnership represents more than just a technical integration, it's part of a larger ambition to become the **single source of predictive maintenance data** for reliability engineers worldwide. By embedding predictive insights directly into CMMS workflows, I-care is ensuring that vital data moves out of silos and into the hands of those who can use it to keep plants running at peak efficiency.

### About MVP One

*MVP One CMMS/EAM software is a market leader in turnkey maintenance management,*

*empowering organizations with easy-to-use software that boosts asset lifespan. Connecting maintenance teams with innovative technology and expert guidance to work more efficiently, boosting their competitive edge.*

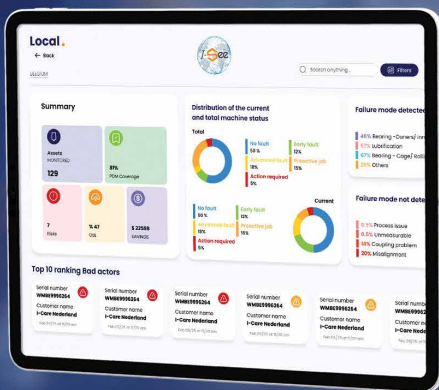
For more information, visit [www.mvppone.com](http://www.mvppone.com)

### About I-care

*The I-care Group is a global leader in predictive maintenance, monitoring hundreds of thousands of industrial machines worldwide with advanced technologies—including our own Wi-care™ vibration sensors. Our mission is to change the way the world performs. I-see™, our AI-driven platform, integrates effortlessly with I-care solutions and external systems thanks to its open API. It gathers data from all PdM*

*techniques, delivers equipment failure prediction months ahead, and feeds external systems with essential insights to optimize maintenance operations. Founded in 2004 in Belgium, I-care employs more than 950 people, operates 36 offices across 16 countries (Asia-Pacific, EMEA, and USA), and delivers worldwide expertise in reliability and predictive maintenance to customers in more than 55 countries. I-care has won several awards for its innovations, including ADM's 2024 Supplier Award for reliability services, the Factory Innovation Award at Hannover Messe, and the 2025 Solutions Award at The Reliability Conference. For more information on I-see, Wi-care and I-care's reliability technologies, visit [www.icareweb.com](http://www.icareweb.com)*

More information can be found on I-care web portal (<https://www.icareweb.com/resource/icare-mvppone-integration/>).



**MVP One is now integrated in I-see™.**

**Streamline your maintenance, thanks to predictive insights.**







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- ✓ Testing & analysis capabilities





*Rohit Saboo,  
President & CEO at NBC Bearings*

# Driving Excellence: The Story of NBC Bearings' Leadership in Indian and Global Markets

Established in 1946, National Engineering Industries Ltd. (NEI), part of the renowned CK Birla Group, stands as a beacon of excellence in India's bearing manufacturing and distribution industry. Known for its NBC brand, NEI has become India's largest bearing manufacturer and exporter, producing 250 million bearings annually across 3,100+ variants. Headquartered in Jaipur, the company serves automotive, railway, aerospace, and industrial sectors in over 30 countries, cementing its global reputation for quality and reliability.

With five state-of-the-art manufacturing facilities in India and advanced R&D capabilities, NEI has set benchmarks in precision engineering and innovation. The company's groundbreaking achievements include being the only bearing manufacturer globally to receive the prestigious Deming Grand Prize in 2015. Its commitment to sustainability and cutting-edge technology, coupled with strategic acquisitions like Kinex Bearings in Europe, further showcases NEI's pursuit of excellence and global leadership.

As part of this special edition of BearingNews, we explore with the President & CEO Mr. Rohit Saboo how NBC Bearings has not only shaped the Indian bearing manufacturing landscape but also emerged as a trusted partner to leading automotive OEMs, railways, and industrial giants worldwide. Join us as we delve into NEI's journey, innovations, and vision for the future in this exclusive interview.

### What makes NBC Bearings a leader in the Indian and global bearing manufacturing markets?

NBC Bearings has established itself as a global leader through its dedication to innovation, quality, and sustainability. With over 75 years of expertise, NBC produces 250 million bearings annually across 3,100+ variants, catering to automotive, railway, aerospace, and industrial sectors. Our international footprint spans over 30 countries, supported by a Global Technology Centre in Germany, offices in Switzerland, and a new warehouse

and office in the USA. These global touchpoints enable us to serve diverse markets with localized solutions.

Our leadership is also reinforced by our technological advancements, such as high-speed and sensor-integrated bearings for electric vehicles (EVs), and our recognition as the world's only bearing manufacturer to win the prestigious Deming Grand Prize. This commitment to excellence ensures that NBC Bearings remains a trusted partner for leading OEMs and industrial giants worldwide.

“

*Digital transformation is at the heart of NBC's growth strategy.*

”

**Rohit Saboo, President & CEO at NBC Bearings**





## How does NBC ensure sustainability in its manufacturing processes?

Sustainability is a cornerstone of NBC's operations. We have implemented several initiatives to minimize our environmental impact, including:

- Generating 10 MW of solar power annually, contributing significantly to renewable energy usage. This is going to increase substantially with our upcoming manufacturing facility.
- Conserving over 6 million liters of water each year through advanced water management systems.
- Achieving zero wastewater discharge and maintaining low carbon emissions across all facilities.

These efforts are part of our broader Environmental, Social, and Governance (ESG) project, "PLANET," which aims to embed sustainability into every aspect of our operations. By aligning with global sustainability goals, we not only reduce our environmental footprint but also create long-term value for our stakeholders.



## What role does digital transformation play in your manufacturing and operational strategies?

Digital transformation is at the heart of our growth strategy. By integrating Industry 4.0 technologies, such as IoT, AI, and advanced analytics, we have transformed our manufacturing processes into

connected factories. This enables real-time data collection and analysis, improving efficiency, quality, and decision-making.

For example, our supply chain operations are now fully digitized, offering enhanced visibility and agility. Additionally, systems like Digital Performance Management (DPM) and Customer Relationship Management





“ NBC produces 250 million bearings annually across 3,100+ variants, catering to automotive, railway, aerospace, and industrial sectors. ”

**Rohit Saboo, President & CEO at NBC Bearings**

(CRM) have reached maturity, becoming integral to our operations. These digital initiatives not only optimize productivity but also support our sustainability goals by reducing waste and energy consumption.

#### **Could you provide insights into your R&D center and its contributions to product innovation?**

Our R&D capabilities are pivotal to our leadership in the bearing industry. With over 150 skilled engineers and advanced facilities in India and Germany, our R&D focuses on:

- Developing cutting-edge solutions, such as high-speed bearings and sensor-integrated bearings for EVs.
- Rapid prototyping using 3D printing technology, reducing lead times and accelerating innovation.
- Leveraging global expertise to introduce advanced materials and manufacturing processes.

The establishment of the Global Technology Centre in Germany exemplifies our commitment to staying ahead of industry trends, ensuring that we deliver innovative and reliable products to our global customers.

#### **How has the acquisition of Kinex Bearings strengthened NBC's global presence?**

The acquisition of Kinex Bearings in Slovakia has significantly bolstered our global footprint. This strategic move has enabled us to:

- Access advanced European manufacturing technologies and processes.
- Strengthen our presence in critical markets like Europe, particularly in the railway and industrial sectors.
- Expand our product portfolio to include specialized bearings, meeting the unique demands of diverse industries.

This acquisition aligns with our vision of becoming a global leader, allowing us to integrate the best practices from Kinex into our operations and enhance our offerings worldwide.

#### **What inspired the establishment of the Global Technology Centre in Germany, and what are its key objectives?**

The Global Technology Centre in Germany was established to leverage Europe's advanced technological ecosystem. Its primary objectives include:

- Driving innovation by collaborating with global industry leaders and academic institutions.
- Introducing cutting-edge technologies, such as sensor-integrated and high-speed bearings, to meet the evolving needs of the automotive and industrial sectors.
- Strengthening our R&D capabilities to support both global and Indian markets.

By bridging the gap between global advancements and local requirements, the centre plays a crucial role in maintaining NBC Bearings' competitive edge.

#### **How does NBC Bearings cater to the specific needs of automotive, railway, and industrial customers?**

NBC Bearings adopts a customer-centric approach to cater to diverse sectors:

- Automotive: We provide high-performance bearings for EVs and ICE vehicles, focusing on low noise, high RPM, and durability.
- Railways: As India's largest supplier of railway bearings, we deliver solutions designed for safety and reliability under extreme conditions.
- Industrial: Our offerings include robust and efficient bearings for applications



- in steel, cement, power, construction and paper industries, supported by customized solutions to address critical operational challenges.

Collaborating closely with customers, we co-develop products that meet their specific requirements, ensuring optimal performance and satisfaction.

### Could you discuss NBC Bearings' network of authorized stockists and its role in serving the Indian aftermarket?

NBC Bearings has a robust network of over 550 authorized stockists and 18,000 retail outlets across India. This extensive distribution network ensures:

- Timely availability of our products in every corner of the country.
- Seamless service and support for our customers in the aftermarket segment.
- Strengthened brand trust and loyalty through consistent quality and reliability.

Our stockists are not just partners but integral to our growth, helping us maintain our leadership in the Indian bearing market. To extend its reach beyond India, NBC also has distributor partners in SAARC countries, Europe, and the Middle East, ensuring seamless access to its high-quality bearings for customers in these regions.

### How does NBC Bearings maintain excellence in quality and precision across its diverse product portfolio?

Quality is embedded in our DNA. As the world's only bearing manufacturer to win both the Deming Award and Deming Grand Prize, we uphold stringent quality standards through:

- State-of-the-art testing and inspection equipment.
- Rigorous quality control processes at every stage of production.
- Continuous training programs for our workforce to ensure adherence to global benchmarks.

This unwavering focus on quality ensures that every bearing we produce meets the highest standards of precision and reliability.



### What are some of the emerging trends in the bearing industry, and how is NBC Bearings preparing to adapt?

Key trends shaping the industry include:

- **Electrification:** The rise of EVs demands high-speed, low-noise, and sensorized bearings, areas where NBC has already established expertise.
- **Digital Transformation:** Industry 4.0 technologies are driving efficiency and innovation in manufacturing.
- **Sustainability:** Growing emphasis on eco-friendly practices aligns with our ESG initiatives.

NBC Bearings is well-prepared to adapt to these trends through continuous R&D, digital adoption, and a commitment to sustainability, ensuring that we remain a step ahead in this dynamic industry.

### What is NBC's vision for the next decade, and how does it plan to continue leading the bearing industry?

Our vision is to solidify NBC Bearings' position as a global leader by:

- Expanding into high-growth markets, particularly in the industrial and aerospace sectors.
- Leveraging digital technologies and AI to enhance operational efficiency and customer experience.
- Driving sustainability through renewable energy, resource

conservation, and circular economy principles.

- Strengthening our global presence through strategic acquisitions and partnerships.

By focusing on innovation, sustainability, and global competitiveness, we aim to shape the future of the bearing industry while contributing to India's vision of becoming a global manufacturing powerhouse.

NBC envisions a future where it leads the global bearing industry by setting benchmarks in innovation, sustainability, and customer satisfaction. Over the next decade, NBC aims to expand its international footprint through strategic partnerships, acquisitions, and investments in high-potential markets.

The company is deeply committed to sustainability, focusing on renewable energy, water conservation, and waste management. NBC also plans to stay at the forefront of technological innovation by leveraging Industry 4.0, AI, and advanced analytics to enhance operational efficiency and develop next-generation bearing solutions for electric vehicles, railways, aerospace, and industrial applications. By aligning its strategies with global trends and investing in employee development, NBC is poised to not only maintain its leadership but also redefine the possibilities in the bearing industry.



# FERSA expands global footprint with *new high-tech manufacturing facility in China*

- State-of-the-art Jiaxing site features next-generation technologies and equipment as well as industry-leading labs and R&D centres
- Advanced facility will double Fersa's regional production capacity
- Investment of €37 million over five years reinforces Fersa's commitment to growth, innovation and market leadership
- New plant supports Fersa's partnerships with leading OEMs and Tier 1 suppliers

Fersa, a global leader in high-performance bearings and mobility solutions, has opened a state-of-the-art manufacturing facility in Jiaxing, China. Marking a significant investment in the region, the new production site reinforces Fersa's commitment to continued growth, innovation and market leadership in the automotive and industrial sectors.

The new factory, spanning 30,000 square meters, represents a €37 million investment by Fersa over five years and, when operating at full capacity, it will double the company's previous production capacity in China.

The total investment has ensured the new site features next-generation manufacturing lines, automated production processes and all-new test and validation equipment. The

facility is also home to industry-leading innovation and precision quality control labs, cutting-edge R&D centres and the very latest in digitalization tech.

The ceremony was attended by various Spanish authorities and the Government of Jiaxing, including representatives of the Spanish Economic and Commercial Office, the Spanish Chamber of Commerce



in Shanghai and the Rectorate of the University of Zaragoza.

During the event, Jianfeng Wang, Director of Foreign Affairs of Jiaxing, and Luis Antonio Calvo Castaño, Consul of Spain in Shanghai, unveiled a commemorative plaque of the ceremony, together with Carlos Oehling, Chairman of the Board of Directors of Fersa.

"This new facility underscores our dedication and focus on meeting growing demand for high-performance solutions in the automotive and industrial sectors," said Miguel Alquezar, General Manager of Fersa China. "With this ambitious expansion, we will not only substantially increase our production capacity in China but also deepen our relationships with key partners and customers in the region."



"Our continued presence in Jiaxing is vital to maintaining our strong growth momentum and reinforcing the Fersa brand as a global leader in bearing technology and mobility solutions."

Since establishing operations in Jiaxing in 2011, Fersa has played a vital role in the region's economic development. The new facility, which replaces Fersa's existing plant, underscores the company's continued confidence in the Chinese

market and its long-term vision for global expansion.

With a focus on seamless efficiency, sustainability and innovation, Fersa's operations in Jiaxing have helped nurture partnerships with leading OEMs and Tier 1 suppliers based in the region. This latest expansion reinforces the company's mission to optimise production capabilities while ensuring a more streamlined and sustainable supply chain.

“

*Our continued presence in Jiaxing is vital to maintaining our strong growth momentum and reinforcing the Fersa brand as a global leader in bearing technology and mobility solutions.*

”

Fersa's investment in China is part of a broader strategy to solidify its presence across key global markets. The company now operates six manufacturing plants across Europe and Asia, underscoring its ability to deliver high-quality mobility solutions to over 100 countries.

Fersa closed 2024 with €187 million in revenue, marking a 13% growth compared to 2022, and is on track to surpass €200 million in 2025.

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Our **SUSTAINABILITY PROGRAM** is in alignment with Paris Agreement, and being enhanced by the setting of Science Based targets, for a sustainable future and growth.

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# 15 years of **RKB** in Türkiye

In 2025, RKB celebrates 15 years since the start of RKB Rulman Türkiye. The decision to enter the Turkish market in May 2010 was based on a clear recognition of the country's industrial relevance, particularly in heavy sectors like steel and cement. From the beginning, RKB's goal was not just to supply bearings, but to build a long-term presence grounded in technical competence, reliability, and close customer support.

## Strategic entry into a growing economy

Türkiye's industrial landscape was already evolving in 2010, and since then, it has continued to expand its role in global manufacturing. The steel industry, for example, has positioned the country among the top producers in Europe, driven by modernisation and export growth. The cement industry, supported by large-scale infrastructure projects, has reached a comparable level. These developments aligned well with RKB's focus on heavy industry and formed a solid foundation for long-term investment.

## Why a local branch was essential

Establishing RKB Rulman Türkiye was more than a commercial move. It was a commitment to the market. A physical presence enabled faster response times, stronger partnerships, and better logistical support. It also signalled trust and accountability, which are essential in sectors where reliability and engineering assistance matter as much as the product itself.

## Overcoming early challenges

Like many new entrants, RKB faced initial

barriers, like brand recognition and a lack of established local relationships. The Turkish bearing market was already competitive and relationship-driven, so the absence of an in-country footprint could easily have stalled progress. To overcome this, RKB focused on direct engagement: participating in fairs, organising joint customer visits, and offering hands-on technical support. These efforts helped bridge the trust gap and gradually built a reputation grounded in performance rather than promotion.

As RKB celebrates its 15th year in Türkiye, our goal is to become a lasting



brand and deliver long-term value. Our greatest strengths are our continuous field presence, extensive inventory, and fast delivery. However, we strive to be our customers' preferred choice not only because of these advantages but also due to the high quality of our products and the added value of our services.  
Emre Cırık - CRM RKB Rulman Türkiye



### Focused growth through technical strength

RKB's early strategy in Türkiye centred on the metals and cement sectors, two industries that demand durability and precision. Rather than compete on price alone, the company emphasised product reliability, field support, and local availability. This focus allowed RKB to identify underserved needs and differentiate itself through tailored solutions and consistent technical backup. As the operation matured, RKB broadened its reach. While steel remains the largest sector served, from upstream to downstream in both long and flat products, other industries such as aluminium, cement, and specialised construction have become important contributors to the business. This diversification has made the operation more resilient and reinforced RKB's role as a trusted technical partner.

### Milestones that defined the market position

The opening of the Istanbul branch was

a turning point, allowing the company to stock and deliver products locally. Securing long-term supply agreements with major steel producers further cemented RKB's position. Active involvement in events such as Ankiros and ISRS 2025, where RKB served as a silver sponsor, helped raise visibility and connected the brand to ongoing industry developments. Organizing training seminars and offering on-site technical support have also been central to the company's growth. In line with RKB's market development strategy, the ongoing and dynamic collaboration between RKB Europe and RKB Rulman has played a vital role. Regular training sessions held at the European headquarters have kept the extended network and customers informed about the latest technological advancements while providing practical, hands-on experience. This continuous exchange of knowledge and expertise has fostered a unified approach and significantly strengthened RKB's market presence.

### Product applications and engineering value

RKB bearings are used in some of the most critical components of industrial operations. In steel production, for example, they are installed in 2Hi rolling mill stands, continuous slab caster segment rollers, WR and BUR of 4Hi rolling mills, WR, BUR, and IMR of 6Hi rolling mills, as well as other critical and non-critical equipment throughout the process flow. In the aluminium sector, RKB supplies four-row tapered and multi-row bearings for WR and BUR in cold, hot, and foil rolling mills. These are products developed through years of collaboration with OEMs. In cement production, RKB bearings are installed in equipment such as vertical mills, crushers, and roller presses. Here, performance and uptime are critical, especially as production lines often run continuously under heavy loads. RKB's stock and technical support in Türkiye have helped meet these demands, frequently stepping in when other suppliers were unable to fulfil delivery or performance requirements.

### Custom solutions and project highlights

RKB's flexibility as a manufacturer allows

it to address non-standard requests with tailored solutions. One example is a revamp project in the aluminium industry, where a customer aimed to increase rolling line speeds without changing the core machine structure. RKB helped redesign the bearing arrangement in the WR of the related 4Hi aluminium mill, replacing the standard TQO four row tapered roller bearing setup with a multiroll/four row cylindrical roller bearing combined with an axial bearing. The new design handled higher temperatures, enabled the targeted increase in production speed, and mitigated the risk of potential damage in production, with continuous support from RKB's TTU department during the testing and operational stages. Another key project from the steel upstream division involved supplying more than 20 tons of TORB bearings for twin-strand continuous slab caster segment rollers in a major steel plant. Following a successful trial in 2020, the customer transitioned to RKB as its main supplier, ending a long-standing monopoly by a major competitor.

### Support that goes beyond the product

RKB's value in Türkiye extends well beyond manufacturing. The team provides full technical assistance, including bearing selection, calculation, installation guidance, and training. Engineers from the Technical Team Unit work directly with maintenance crews when needed, ensuring practical, on-site guidance. In addition, RKB maintains a strategic stock in Istanbul to enable just-in-time delivery and flexible supply agreements. This has helped clients manage downtime risk and operate more efficiently, especially in industries where time-sensitive maintenance is a constant concern.

- - -

RKB's 15-year journey in Türkiye reflects a steady, grounded approach, built on technical expertise, local presence, and responsiveness to real industrial needs. The focus remains the same as in 2010: supporting demanding applications with reliable products and dependable service. As Türkiye continues to strengthen its industrial base, RKB is positioned to grow with it, not through short-term tactics, but through long-term commitment and technical strength.



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## Active Workgroups



## Membership Benefits

- 1. Visibility & Authority** | Take the lead in your specialty by heading a workgroup aligned with your core business. Create and share valuable content to boost your company's profile and influence.
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## IRIF 2025

International Reliability Improvement Forum

October 7th – 9th  
Borovets, Bulgaria



Mark Gurney



Tom Rombouts



Fabrice Brion



Haris Trobradovic



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Noman Khan



Dr Ninoslav Zuber



Benoit Degraeve



Martin Williamson



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Alperen Derin



Mateusz Bujak



Vasile Nitu



Samuel Quintero



Bart De Moor



Valentina Taneva



Now in its third edition, IRIF 2025 offers a deep dive into the evolving world of **Reliability, Maintenance, and Asset Management**. Taking place in the serene mountain setting of Borovets, Bulgaria, just 70 km from Sofia, IRIF is not your typical technical conference — it's an experience designed to inspire, connect, and empower.

### Why IRIF?

In an industry where downtime costs millions and knowledge gaps stifle innovation, **IRIF delivers hands-on learning and actionable insights**. The agenda spans **16 expert presentations**, **16 immersive workshops**, and dynamic networking moments that blend technical depth with genuine human connection.

From foundational Reliability practices to AI-driven Condition Monitoring, smart inspections, lubrication strategies, and real-world case studies, IRIF provides the tools, and the motivation, to drive lasting change inside your plant.

### What Makes IRIF 2025 Different?

- ✓ **Non-profit & knowledge-first:** Created by passionate experts, not corporations
- ✓ **Accessible pricing:** Full access, hotel stay, meals & gala for only €650
- ✓ **World-class speakers:** Learn directly from leaders from the field
- ✓ **4 Track Workshop Day:** Dive deeper into the practical "HOW" of Reliability
- ✓ **Final Day Surprise:** One lucky attendee will leave with a complete Ultrasound CM package!

### Who Should Attend?

IRIF welcomes:

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**Date:** October 7–9, 2025

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# IRIF 2025

## International Reliability Improvement Forum

October 7th – 9th  
Borovets, Bulgaria



Mark Gurney



Fabrice Brion



Wim  
Vancauwenberghe



Haris Trobradovic



Tom Rombouts



Martin Williamson



Giovanni Gagliardi



Noman Khan



Alperen Derin



Dr Ninoslav Zuber



Benoit Degraeve



Mateusz Bujak



Vasile Nitu



Samuel Quintero



Bart De Moor



Valentina Taneva

# Programme

## 7 October, Tuesday

Welcome to Borovets!

19:30 [Dinner and Official Opening of IRIF 2025](#)  
[Presentation of Partners, Sponsors and Speakers.](#)

## 8 October, Wednesday

08:45 [Good morning – Let's get to work](#)  
ORGANIZERS

09:00 [Maintenance autopilot](#)  
[Fabrice Brion](#)

09:30 [Driving Industrial Competitiveness through Maintenance Leadership – The Added Value of a Maintenance Society](#)  
[Wim Vancauwenberghe](#)

09:50 [Reliability on proper foundations](#)  
[Haris Trobradovic](#)

10:10 [Optimally using reliability metrics on your historical records for improvement project selection](#)  
[Tom Rombouts](#)

10:30 [Coffee break](#)

11:00 [Strategic Planning as a System for Results](#)  
[Valentina Taneva](#)

11:20 [Electric Motors: Measuring and Mitigation Strategies of Bearing Currents](#)  
[Mark Gurney](#)

11:40 [The importance of lubrication to achieve your reliability goals](#)  
[Martin Williamson](#)

12:00 [Condition-Based Lubrication](#)  
[Haris Trobradovic](#)

12:30 [Achieving More with Less: The Industrial Benefits of Synthetic Lubricants](#)  
[Giovanni Gagliardi](#)

13:00 [Working/Learning lunch](#)

14:00 [Infrared Thermography](#)  
[Noman Khan](#)

14:20 [Drone-Powered Electrical Pole Inspections in Türkiye & Azerbaijan](#)  
[Alperen Derin](#)

14:40 [The importance of acceptance tests as a part of reliability culture improvement](#)  
[Ninoslav Zuber](#)

15:00 [Ultrasound, the first line of defense](#)  
[Haris Trobradovic / Benoit Degraeve](#)

15:30 [Machine Health from vibration measurements – is sensor the most important?](#)  
[Mateusz Bujak](#)

15:50 [Coffee break](#)

16:20 [Right bearing for the right application. Selection and Installation](#)  
[Vasile Nitu](#)

16:40 [Motion Amplification: Making Vibration Analysis Easier in the Field](#)  
[Samuel Quintero](#)

17:00 [End of sessions Day 1 – Dress-up for the dinner](#)

19:30 [DINNER, QUIZ & Awards for winners](#)





# Programme

9 October, Thursday

	Rila Hall 2	Zahari Zograf Hall	Hall Hawk	Musala Hall
08:45	Good morning – Let's get to work			
09:00	<a href="#">Strategic Planning: Inside the System – From Plan to Practice</a> Valentina Taneva	<a href="#">Ultrasound, the first line of defense</a> Haris Trobradovic / Benoit Degraeve	<a href="#">Electric Motors: Measuring and Mitigation strategies of Bearing Currents</a> Mark Gurney	<a href="#">Oil Speaks – Learn to Listen: Unlocking the Power of Used Oil Analysis</a> Giovanni Gagliardi
10:15	Short break			
10:30	<a href="#">WaaS implementation</a> Fabrice Brion	<a href="#">Implementing a Best Practice Lubrication Programme</a> Martin Williamson	<a href="#">Welcome to the Reliability world</a> Tom Rombouts / Haris Trobradovic	<a href="#">The importance of acceptance tests as a part of reliability culture improvement</a> Ninoslav Zuber
11:45	Coffee break			
12:15	<a href="#">From Field to Office: Drone-Enabled Asset Mapping Workflow</a> Alperen Derinn	<a href="#">Infrared Thermography</a> Noman Khan	<a href="#">Vibration measurement tools verification</a> Mateusz Bujak	<a href="#">Driving Industrial Competitiveness through Maintenance Leadership – The Added Value of a Maintenance Society</a> Wim Vancauwenberghe
13:15	Working/Learning lunch			
14:15	<a href="#">Condition-Based Lubrication</a> Haris Trobradovic	<a href="#">Unlocking the Full Potential of Motion Amplification: Tools, Techniques, and Applications</a> Samuel Quitero	<a href="#">Acoustic Imaging as the Future of Ultrasound in Asset Management</a> Bart De Moor	<a href="#">Right bearing for the right application. Selection and Installation</a> Vasile Nitu
15:15	Coffee break			
15:45	Success stories – presented by our implementation champions			
16:45	Awards / Closing speech See you in 2026!!!			

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flexibility, extending service life and reducing replacement costs.

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- **Robust environmental resistance** - designed to withstand exposure to water, oil, and harsh weather, ensuring consistent performance in diverse conditions.
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# BMI Bearings India LLP Honoured as Exporter of the Year by EEPC India

In a significant recognition of its global export excellence, BMI Bearings India LLP has been awarded the prestigious “Exporter of the Year” award by the Engineering Export Promotion Council of India (EEPC India). The award, based on export volume and the number of countries served, was presented at a special ceremony held in Mumbai on June 24, 2025.

EEPC India, the country’s premier trade and investment promotion body for the engineering sector, has long celebrated India’s top-performing exporters through its

highly regarded awards program. This year, BMI Bearings stood out for its outstanding export achievements, serving more than 27 countries across multiple continents.

An **ISO 9001-certified** company, **BMI Bearings India LLP** manufactures over **2,000 types of bearings**, including spherical, taper, cylindrical, and mounted bearings. In addition to standard catalogue offerings, BMI also develops **customized bearing solutions** based on customer specifications and industrial applications.

Serving both **OEM and MRO clients** in key industries such as steel, cement, mining, material handling, and aggregates, BMI has cemented its reputation as a trusted engineering partner. With its dedicated **sales and distribution centre in Charlotte, North Carolina (BMI Bearings USA Inc.)**, the company is strategically positioned to support its growing North American customer base.

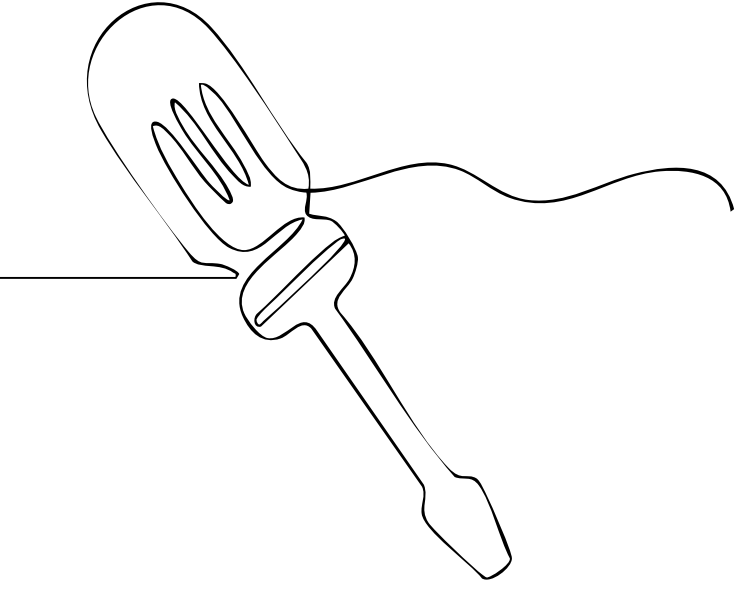
This award marks a new milestone in BMI’s continued commitment to engineering excellence and global service.

# A world first in maintenance:

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**Pump grease with the cordless screwdriver**

In the construction, agricultural and industrial sectors, unplanned machine breakdowns due to neglected lubrication repeatedly lead to high costs. Lutz Pumpen has therefore developed a filling tool called Lutz Lube Drive, which considerably simplifies the maintenance process.

The idea: A commercial cordless screwdriver becomes the motor of a pump tube.

Stress breaks out on a building site in Berlin. The concrete for the basement of an office building is to be poured in three days. Now, of all times, the excavator has broken down. The reason is bearing damage to the blade - caused by insufficient lubrication. "Although operators generally know the benefits of regular maintenance, centralised lubrication systems are often filled improperly, which leads to unexpected and costly failures," says Andreas Rössler, Sales Manager at Lutz Pumpen.

#### **Grease pumps with manual drive often hinder maintenance**

According to Rössler, one of the reasons why relubrication is an unpleasant task is that the technical aids that make it more convenient are often missing. It is still common practice to fill grease from above with a spatula, hand pumps or pneumatic pumps from containers into the centralised lubrication systems of construction machinery and equipment in agriculture and industry. Rössler: "Filling this by hand is a laborious undertaking, and pneumatic connections are usually not available and very bulky."







To simplify this filling process, Lutz Pumpen has therefore developed a new type of filling tool called the Lutz Lube Drive. "This is the world's first eccentric screw pump tube that can be driven by a commercially available cordless screwdriver," says Rössler. "This makes pumping grease much more relaxed, without the user having to transport a system with a heavy and expensive

pneumatic motor." The pumps will be available on the market this spring.

**Pumping up to 2 kg of grease per minute with the power of the cordless screwdriver**

Lube Drive works as follows: The user places the eccentric screw pump tube made of steel in a container with a

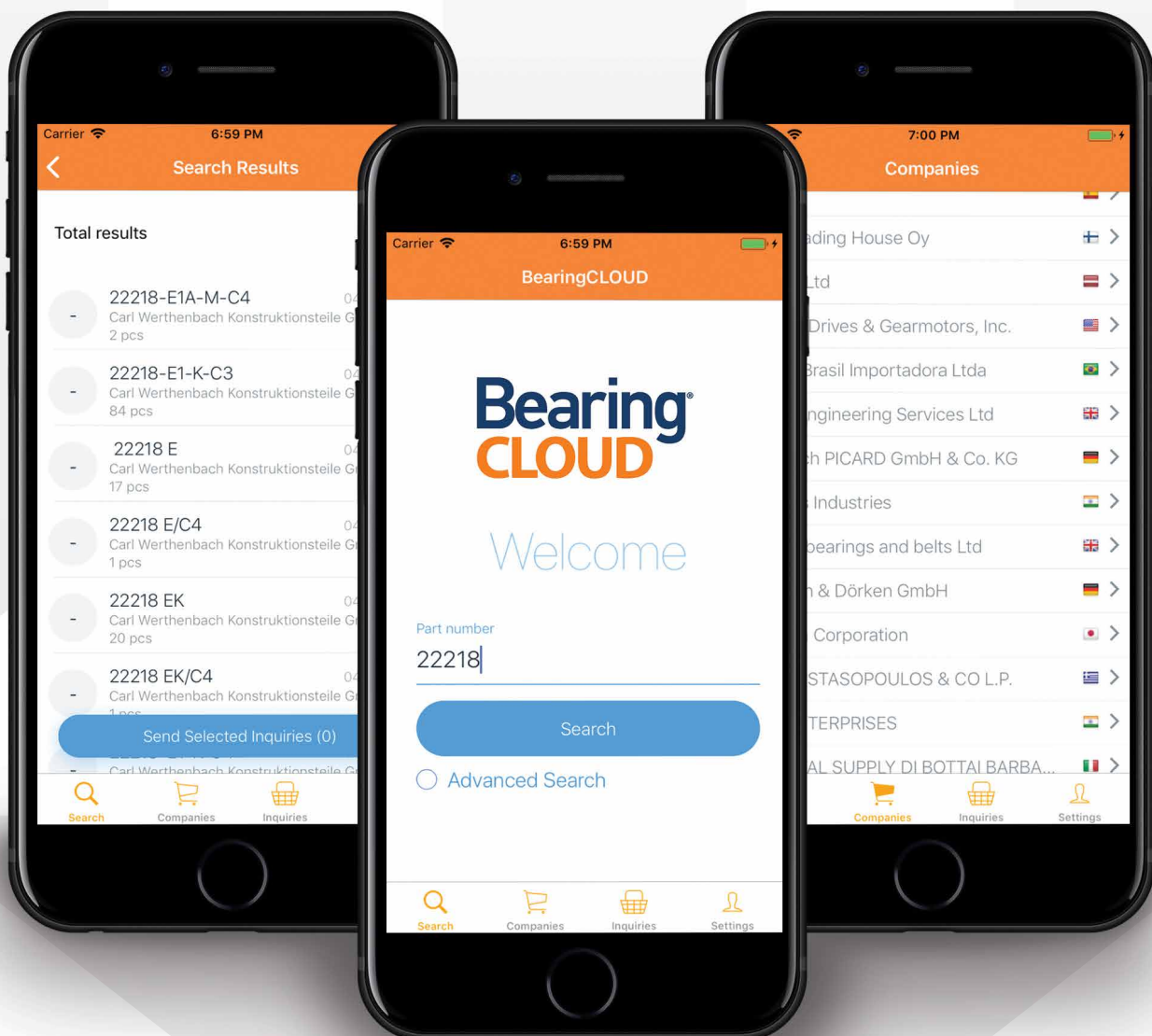
capacity of 10 to 60 kg of grease. You can then place a cordless screwdriver with bit holder on the pump tube and start pumping. The cordless screwdriver drives a metal rotor that feeds the grease evenly and gently from the container through a hose into the central lubrication system. The delivery volume is up to 2 kg/min. The system is suitable for all commercially available greases up to NLGI-2.



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