

# Bearing NEWS

2021

SEPTEMBER  
ISSUE 32

BEARING INDUSTRY MAGAZINE

## BEARINGS ON BLOCKCHAIN



OAV  
MURAT ERTURK



CMI  
SHOUMING WU



CPM  
SIMONE FANTIN



SKF  
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**BEARINGNEWS COMMV**

Camille Huysmanslaan 27/15

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Phone : +32 (0)489 32 85 21

Fax : +32 (0)3 303 52 82

E-mail : [info@bearing-news.com](mailto:info@bearing-news.com)

Web : [www.bearing-news.com](http://www.bearing-news.com)



: [linkedin.com/company/bearingnews](https://www.linkedin.com/company/bearingnews)



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## New Technologies help fight counterfeit bearings

This new edition of BearingNews headlines the strategic solutions being implemented to stop counterfeit bearings. Explore how Blockchain, a distributed ledger technology (DLT), represents a valid and innovative tool to beat counterfeits. Hear from Mr. Johan Bravert, Director of Brand Protection at SKF, who addresses the subject of fake bearings with a profound emphasis on awareness initiatives. And in our final segment on this topic, read how SIC Marking is facilitating traceability to help ensure all bearings are genuine.

Further in this issue, we are proud to release the Bearing Industry Events Agenda (2021-2022). This comprehensive list of upcoming bearing industry events will pinpoint the dates, times and formats of future bearing events. The coronavirus pandemic has altered the structure of many traditional events by accelerating digitalization. Find opportunity within the unique variety of events, both in-person and online, beginning OCT 05 with the 1st international Bearing World Day, followed by a series of other important industry events.

Finally, explore stories of achievement and ingenuity through our interviews with key members of the bearing community. We speak to the board of directors at ISB as they celebrate their 40th anniversary. Mr. Shouming

Wu, founder of CMI, details his 50-year journey in the bearing industry. Bearings fully made in Italy explained by Mr. Simone Fantin, Vice general Manager of CPM bearings. And to conclude our discussions, hear from Mr. Murat Erturk, Chief Executive at OAV.

## What's Rolling..

What's Rolling further in the Bearing Industry. See what has happened in the last 6 months, learn details about key companies and trends, announcements, product developments, and exciting technological advancements. All this and more can be found in this September issue of BearingNews magazine.

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

**Kenan M. Özcan**  
Editor in Chief



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## Art Director

Diydem Deniz KOÇ

## Photography & Illustrations

Ksenia Shamanaeva

## Web & IT

Canbey Bilgili  
Birsan Aydın  
Onur Uz

## Subscriptions

[info@bearing-news.com](mailto:info@bearing-news.com)

## Editor-in-Chief

Kenan M. Özcan

## Editorial Team

Thomas Johnson  
Mia Mctigue Rodriguez  
Dize Purde

## Guest Editor

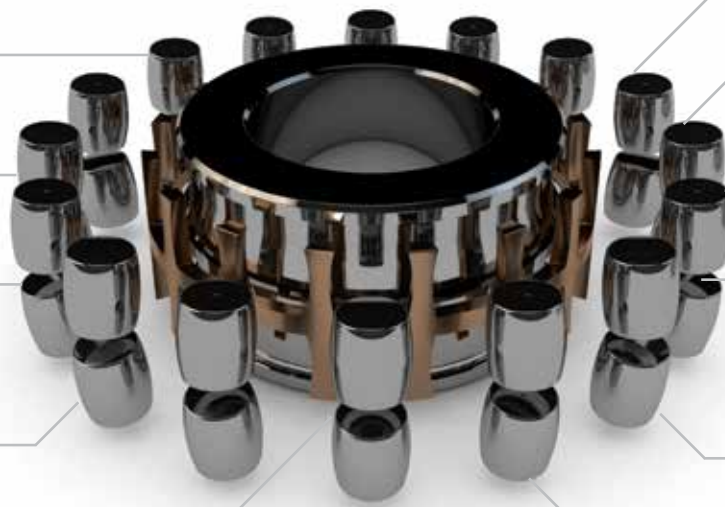
Mike Brandt

## Marketing

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# What's Rolling...

*What  
Happened*  
in the  
**Bearing Industry**  
**THE FIRST  
6 MONTHS**



page

13

## **COMPANY:**

ABF APPOINTS BEN VAN OOSTERHOUT AS CEO



page

23

## **COMPANY:**

CARTER ANNOUNCES FURTHER GLOBAL EXPANSION WITH  
THE OPENING OF A NEW EUROPEAN LOGISTICS HUB



page

24

## **COMPANY:**

INSIDE ACORN®



page

28

## **TECHNOLOGY:**

SCHAEFFLER AND SIEMENS TO COOPERATE ON  
INTELLIGENT DIAGNOSTICS FOR DRIVE SYSTEMS



page

31

## **RESEARCH:**

HOW WATER KILLS BEARINGS



page

35

## **TECHNOLOGY:**

BLOCKCHAIN TECHNOLOGY TO BEAT COUNTERFEIT  
BEARINGS & TO GUARANTEE TRACEABILITY



page

38

## **INTERVIEW WITH JOHAN BRAVERT:**

THE WAR ON COUNTERFEIT BEARINGS



page

42



# lling...

## **FEATURE:**

TO PREVENT COUNTERFEITING, THE BEARING GIANTS ARE ADOPTING SIC MARKING TRACEABILITY SOLUTIONS



page

49

## **COMPANY:**

PREDICT THE UNPREDICTABLE WITH RKB



page

52

## **ACADEMIC RESEARCH:**

EFFECT OF EDDY GROOVES ON  
TILTING PAD JOURNAL BEARINGS



page

55

## **INTERVIEW WITH ISB:**

ISB TURNS 40!



page

58

## **PRODUCT:**

MCB UNVEILS ITS UPGRADED STATE-OF-THE-ART ADVANCED MULTI-PURPOSE  
GREASE SOLUTION FOR THE AUTOMOTIVE AND INDUSTRIAL AFTERMARKET



page

65

## **CASE STUDY:**

PRECISION LUBRICATION WITH LUBEXPERT



page

67

## **COOPERATION:**

RACE TRANSMISSIONS RENEWS ABB AGREEMENT TO  
SUPPLY DODGE PRODUCTS



page

71

## **EVENTS:**

BEARING INDUSTRY EVENTS AGENDA



page

74

## **EVENT:**

1ST INTERNATIONAL BEARING WORLD DAY 2021



page

77

**EVENT:**  
BEARING APPLICATION WORLD 2021



page

78

**EVENT:**  
BEARING WORLD 2022



page

80

**EVENT:**  
SHANGHAI BEARING FAIR 2022



page

83

**INTERVIEW WITH SHOUMING WU:**  
A 50 YEAR JOURNEY TO THE GLOBAL STAGE



page

86

**APPLICATION:**  
CROSS-FERTILIZING SEAL TECHNOLOGY FROM  
AUTOMOTIVE TO AGRI-MACHINES



page

93

**LUBRICATION:**  
READY TO LIFT OFF TO THE WORLD OF MAINTENANCE WITH  
SIMALUBE - THE NEXT LEVEL OF AUTOMATIC LUBRICATION



page

97

**INTERVIEW WITH SIMONE FANTIN:**  
SPECIAL BEARINGS FULLY MADE IN ITALY



page

100

**COMPANY:**  
TRELLEBORG EXPANDS ITS SEAL-SHOP TO INCLUDE  
MARINE SEALS AND BEARINGS



page

105

**CASE STUDY:**  
AUTOMOTIVE PLANT SAVES €577,000 A YEAR BY  
SWITCHING TO NSK LINEAR GUIDES



page

107

**INTERVIEW WITH MURAT ERTURK:**  
OAV AIR BEARINGS FOR NANONEWTON AND MICRO FORCE  
CONTROL APPLICATIONS AND TESTING



page

108

**KNOW-HOW:**  
HOW TO CHOOSE THE RIGHT CNC MACHINE TOOLS FOR  
BEARING MANUFACTURING: AN ULTIMATE GUIDE



page

115

**COMPANY:**  
125 YEARS OF KREBS & RIEDEL - INNOVATIVE GRINDING  
TECHNOLOGY SINCE 1895



page

119



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**February 17, 2021** // W+A Wälzlager- und Antriebstechnik GmbH is proud to announce a new partnership with Ewellix, formerly SKF Motion Technology. Through this cooperation, W+A is further expanding its expertise in the area of linear components. Ewellix is a leading supplier of Linear Motion Components and actuation solutions. The Ewellix Group operates nine manufacturing centers in Europe, North America, and Asia as well as 16 sales locations worldwide. Founded over fifty years ago as part of the SKF Group, Ewellix is still engineering solutions for industrial automation, medical equipment, mobile machinery, industrial distribution, and other industrial applications. W+A has been a wholesaler of rolling bearings and drive technology for 20 years. W+A works with selected partners like Ewellix. This enables W+A to exploit market potential nationwide; deliver faster, deliver comprehensively and react very specifically to detailed requests. With the new partnership, W+A continues its journey towards customer solutions for better performance, reliability, energy efficiency, and safety.



**February 18, 2021** // Timken Engineers Design Bearings for the Next Mars Rover. On 18 February 2021, a new rover landed on Mars with a mission to search for signs of ancient microbial life. The Curiosity rover used Timken bearings in its descent to the planet, as did the two rovers before it, Spirit and Opportunity. Curiosity also had Timken bearings in the centre hub of its carousel system, as it rotated to position sample cups for gathering and analysing rock, soil, and atmosphere. In addition, two 1/4



inch (6.35 mm) Timken bearings run its tiny vacuum pump, which supports the rover's analytical equipment.

**February 25, 2021** // Auburn Bearing & Manufacturing Inc, an American-based designer and manufacturer of thrust bearings, custom bearings and precision components, is excited to announce that it has acquired the assets of Aurotek TSB, Inc. Aurotek TSB, Inc. is specialized in the production of precision thin section bearings for a broad array of industries. These bearings are used in a variety of applications, namely, for use in defence weapon systems, medical equipment, radar equipment, aerospace guidance systems, packaging machines, industrial assembly machines, and robotics for security, medical, nuclear and defence systems. Peter Schroth, President of Auburn Bearing & Manufacturing, notes that this acquisition aligns with our strategy to expand our product offerings to include American-made precision radial bearings, along with our current thrust ball and roller bearings, in low- to mid- volume production runs and with reasonable lead times.

**March 01, 2021** // Schaeffler is investing around 80 million euros in a new central laboratory complex in Herzogenaurach as part of the company's Roadmap 2025 strategy announced last year. The investment is aimed at securing the Schaeffler Group's competitiveness and ability to realise future opportunities, as well as strengthening the position of its Herzogenaurach campus as a centre of technological excellence. The complex, currently in the detailed planning phase, is scheduled for completion in 2023. Schaeffler's headquarters in Herzogenaurach will soon be home to a cross-divisional central laboratory complex that will span around 15,000 square metres of gross floor space and house 15 laboratories and more than 360 employees. The new laboratory facility will centralise and consolidate the Schaeffler Group's core competencies and capabilities in key areas of technology, including measurement, testing and calibration systems, materials research and design, electrochemistry, and optimisation of product lifespan, strength, and reliability. It will also



house a new electronics laboratory. The company's aims in consolidating all these activities under one roof include improving the transfer of knowledge and technology between its divisions and enhancing performance through shared use of resources.



**March 09, 2021** // SKF is investing SEK 400 million in expanding and modernizing its manufacturing facility in Airasca, Italy. The investment will bring the manufacturing of super-precision bearings (SuPBs) for industrial applications into the Group's largest manufacturing site in Italy, through a significant new-build expansion. As part of the investment, fully automated manufacturing channels for the production of SuPBs will be installed in Airasca. The first of these is expected to be operational during 2022. The investments in automated manufacturing processes will enable the consolidation of the Group's existing manufacturing sites in Northern Italy, impacting two other factories. The factory in Pianezza, currently manufacturing super-precision bearings, will be consolidated into Airasca. The factory in Villar Perosa, which currently manufactures a range of products, will continue to focus on bearings for the railway and aerospace industries, with production of super-precision bearings transferred to Airasca.

**15 March, 2021** // Timken expands Xiangtan manufacturing plant. The company held a ground-breaking ceremony for a new project in Xiangtan High-Tech Industrial Development Zone



(PRC, Hunan Province) on March 15 to expand its existing manufacturing base. The ceremony marked the start of the construction of the second phase of large bearing production for wind power industry at the Xiangtan site. Timken Xiangtan was founded in conjunction with the Chinese engineering company Xiangtan Electric Manufacturing Co. (XEMC) in 2008. It mainly manufactures large size bearings for wind power industry, which can also meet the needs of heavy industries such as metallurgy and mining. Since the announcement of the expansion in December 2020, the total investment in this project will exceed RMB 300 million. With the completion of the new plant, the Xiangtan area will be expanded by 120% and additional lines will be introduced to expand the product range and significantly increase the production capacity.

**18 March, 2021** // 2021's online Bearing Expo & B2B Meetings event, which took place on 15-18 March, hosted 1,057 guests from all around the world, covered multiple time-

zones, and set a precedent for future shows. The new revolutionary format was widely embraced by the global bearing community and retained an impressive 73% of registered guests. The large turnout was coupled by a remarkably high amount of user interaction across a variety of features.

**Bearing  
EXPO**

Participants were free to come and go at their convenience, but on average spent a total of 569 minutes on the platform at any given time. With access to video and chat functionality, attendees participated in over 653 video meetings and shared over 5,014 messages. A hefty majority of time was also spent participating in the B2B networking section of the event, along with the main expo area where attendees explored exhibitor booths. Furthermore, significant interaction took place at the stage section of







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the event where expert speakers provided unique industry insights and answered questions during Q&A sessions. The upcoming Bearing Expo events for 2022 are detailed further in this issue on page 74.

**March 25, 2021** // Nomo, part of Axel Johnsons International, strengthens its position further on the Norwegian market by acquiring ABRA Kulelagersenteret in Trondheim. Established in 1962, ABRA has a leading market position and is known as a multi-brand distributor with high availability and service levels. Its offering is primarily focused on rolling bearings along with seals and other related power transmission products. The company is based in the south of Trondheim and serves mainly the Norwegian MRO market, complementing Nomo's presence in Norway.



**01 April, 2021** // Martin Klein is heading Schaeffler's Automotive Aftermarket Sales in Central Europe, Middle East, and Africa. The 56-year-old business economist has assumed the newly created position effective as of April 1, 2021 and is responsible for a total of 44 countries. In addition, Klein will also take over the tasks of Stefan Knaack, Vice President Global Key Account Management Schaeffler Automotive Aftermarket, who has been responsible for the Western Europe region (Germany, Austria, Switzerland, and the Benelux countries).

**02 April, 2021** // EPTDA welcomes SMS Bearings FZCO as a new member. Established in 1978, SMS Bearings is a renowned global supplier of ball and



roller bearings for automotive and industrial applications. Its product portfolio consists of well-known international bearing brands such as TIMKEN, KOYO, SKF, FAG, NACHI, and JAF as an official distributor. SMS Bearings is highly dedicated to its customers and a step-by-step approach in reaching its goals sealed its reputation by being a member of EPTDA (EMEA Power Transmission Distributors Association). Its presence and membership at EPTDA serves as a catalyst in creating brand awareness, networking opportunities, and advancements amongst its many valuable features within BearingNEWS Network.

**11 April, 2021** // Nachi-Fujikoshi plans to relocate some of its standard bearing production to Thailand from the facilities in Toyama and Taiwan. The move is in response to the declining demand from automakers for standard bearings, which are shifting to using electric engines instead of combustion engines.



Nachi-Fujikoshi will build a new 10 billion yen (\$ 80.74 million) plant next to its existing facility in Thailand's Rayong province. The production of the standard bearings will be relocated to the new plant. The facility is planned to start the activities in February 2022. The aim of the project is seen as production

cost reduction. The company plans to use the savings for new investment projects for the machine tool and non-automotive manufacturing industries. The transfer of production to Thailand is expected to require the reduction of about 200 jobs at the Toyama plant, including contract workers. According to the company's financial statements, at the end of November 2020, the Toyama plant employed approximately 2,200 workers, including temporary workers. Nachi-Fujikoshi plans to double the share of bearings manufactured in Thailand to 40% of total production by the end of 2022. The rest of the factories in Japan and other countries are planned to focus mainly on custom-made bearings, while the Toyama line will focus on products with increased durability. Due to the increasing number of car manufacturers who change from internal combustion engines into electric drives, the consumption of bearings is decreasing in the automotive industries. Traditionally, cars with internal combustion engines have 100 to 150 bearings, which is 30% to 40% less in electric vehicles. This prompts major component manufacturers to optimize their manufacturing operations.

**16 April, 2021** // SDT Ultrasound Solutions announced the release of Vigilant, the newest addition to its family of permanent condition monitoring solutions. Vigilant is an 8-channel online condition monitoring solution that combines the versatility of ultrasound diagnostics with the analytics of vibration data. An additional 4 channels allow inputs for more conventional machinery information such as temperature, RPM, and other process data. Vigilant is a



stand-alone solution. With its own embedded software contained within the measurement pod, anyone with network credentials has access to critical asset health via a web browser. Using standard communications protocols like Ethernet, OPC, and Modbus TCP, Vigilant's communication capabilities makes the sharing of asset data to other information systems easy.

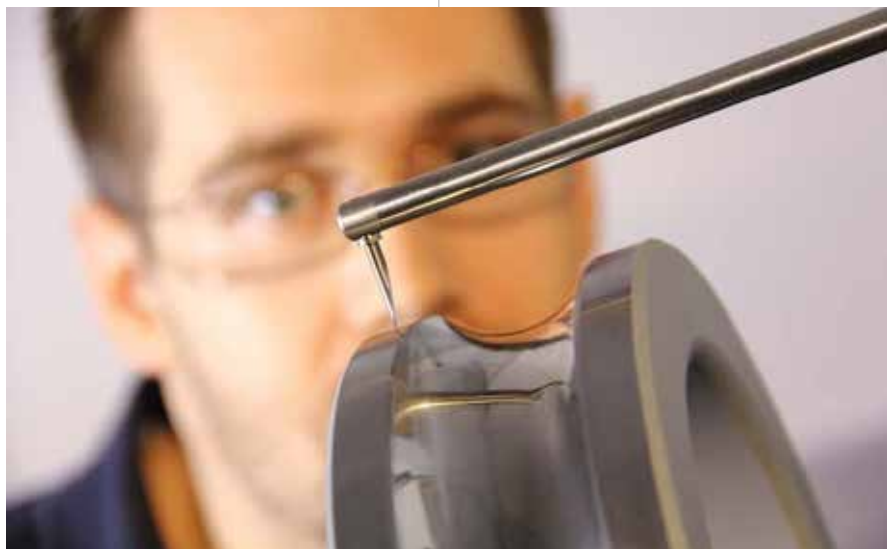
**19 April, 2021** // The largest professional range of Eco Cleaners available from one source. T&T Eco are able to improve safety, remove hazardous solvents from the workplace as well as enable customers to rationalise their supply & reduce their total cost. The company has brought together several technically leading brands into the EMEA market to form a unique and professional range of degreasers, absorbents & cleaning solutions that are non-toxic and safe to use, as well as ecologically clean and biodegradable. Making them a practical and competitive solution without compromising performance. T&T Eco products are used throughout most sectors around the globe & are widely acknowledged by engineers, technicians, maintenance staff & H&S managers as high performing quality maintenance chemicals. Their supplies are cost-effective, safe & sustainable maintenance solutions for specialty industry & service applications.

**26 April, 2021** // In April 2021, bearing manufacturer NKE Austria GmbH was again honoured to receive the Austria Quality Seal. The accredited quality seal is awarded by the Austrian association for the promotion of quality (ÖQA) after successful quality inspections. Quality Seal bearers receive with the commendation a certificate as proof of the distinguished quality of the products and services from domestic companies. This certificate entitles NKE to display the quality seal on all of its products and documents for the next two years.

**05 May, 2021** // NSK has developed a third generation ultra high speed ball bearing for electric vehicle (EV)



motors capable of operating at over 1.8 million dmN\*1. The new bearing is the world's fastest grease-lubricated deep groove ball bearing for automotive



applications, enabling longer vehicle range and higher energy (fuel) economy. The bearing also facilitates motor and component downsizing for gains in vehicle interior space. NSK is targeting 12 billion yen in sales by 2030. \*1 dmN: A measure of bearing rotational performance. The product of bearing pitch diameter (dm) in millimeters and rotational speed (N).

**16 May, 2021** // BearingNEWS magazine is bringing the global bearing industry closer than ever



# What Happened in the Bearing Industry? THE FIRST 6 MONTHS



before with the launch of the China Bearing Industry Directory. This limited time publication will be made available for 2 years and will showcase a selection of world-class Chinese manufacturers competing in a variety of product ranges to the global bearing industry. China is a major manufacturing center for the global bearing industry with thousands of companies constantly changing, growing and adapting. In an effort to help companies navigate the vast expanse of manufacturers, each product category will highlight only 3 to 4 manufacturers across a spectrum of product offerings. This includes but is not limited to, bearings, components, seals, materials, equipment, machine tools and services. Through a concise

company snapshot, customers can easily determine the product offerings, capabilities, and other valuable information necessary to qualify a new potential partner. The publication is available at [bearing-expo.com/halls/12-asian-manufacturers](http://bearing-expo.com/halls/12-asian-manufacturers)

**May 24, 2021** // Schaeffler is ramping up its business activities in the Chinese wind power sector and is putting a new production hall with an area of 22,000 square meters into operation at its Nanjing location in Jiangsu Province, eastern China. The focus in Nanjing – a location operated by the Industrial division – is on the production of large-size bearings with a diameter of more than 800 millimeters, which are primarily used in wind turbines,

gearboxes, and in heavy industry. The production of 12,500 units per year is planned. By opening the new hall, Schaeffler is expanding its production capacities at the location, which now has a total area of 260,000 square meters. As a result, Nanjing is now the largest production location for wind power bearings within the Schaeffler Group. The location employs more than 2,000 people.

**May 28, 2021** // Axel Johnson International enters Hungarian power transmission market. The company's business group Power Transmission Solutions has acquired KTT, effective 31 May. KTT is a leading Hungarian distributor and manufacturer of seals, serving both end-users and international OEM customers. Founded in 1980, KTT is a leading distributor and manufacturer of sealing technology, offering a wide range of rotating seals, hydraulic seals and o-rings. The head office is located in Sopron in Western Hungary, in close proximity to the Austrian border. As a well-known expert in the sealing industry, KTT has established and maintained a loyal international customer base. For 20 years, the company has been an approved distributor of Freudenberg sealing solutions and its product offering includes radial seals, pneumatic- and hydraulic seals, and o-rings. With a complimentary mix of own production and distribution, KTT can offer a valuable one-stop-shop with expertise and tailored solutions to its customers.

**09 June, 2021** // SKF's oil regeneration service made available to customers in Mexico. The Double Separation Technology (DST) system removes particulates from industrial oil, allowing it to be regenerated rather than replaced – which improves environmental performance and reduces costs. Industrial end-users in Mexico will now be able to make use of regenerated oil services using a unique and recently developed system from







4,874 pcs. counterfeit bearings were confiscated by the local authorities. The bearings were illegally marked with the trademarks of FAG, NSK, SKF and other brands. The total weight of the confiscated products reached 2 tons, with an estimated value of 60,000 Euro. The counterfeit bearings were packed and prepared for shipment across Russia.



SKF. Molecular Oil Technology (MOT) has purchased, and will operate under license, a RecondOil Double Separation Technology (DST) stand-alone unit from SKF.

**28 June, 2021** // NTN has announced an investment of €14.5 million over three years to modernise its plant near Turin, Italy. Specialising in the development and production of spherical roller bearings, the Italian NTN plant aims to capture new market shares and increase its global reach. The aim of this modernisation project is to (re)develop the plant's activity and enable NTN to capture new market shares.



**30 June, 2021** // EPTDA AGM appointed a new Board of Directors for 2021-2022. Following the 2021 Ordinary Annual General Meeting that took place online at the end of June 2021, the EPTDA AGM appointed a new Board of Directors for 2021-2022.

More precisely, the EPTDA AGM re-elected the Board of Directors for a term of office of one year, starting on September 17, 2021 and ending on September 18, 2022. There will be two changes in the membership – the EPTDA Manufacturer Council (MC) leaders who were recently elected and will start their mandate in September as well. The new Manufacturer Council Chair will be Mr. Paul Kerfoot from Gates Industrial Europe and the new Vice Chair, Mr. Paul Weeda from Diamond Chain.

**04 July, 2021** // Counterfeit bearings confiscated in St. Petersburg. At the warehouse of one of the bearing sellers, in St. Petersburg (Russia),

**11 July, 2021** // Trelleborg expands its Seals-Shop to include marine seals and bearings. Seals-Shop Marine, is a section within the existing Trelleborg Seals-Shop, offering seals and bearings for a full range of marine applications, including ships, boats, and hydroelectric power plants. In addition to dynamic and static seals, the Orkot® portfolio of fabric-reinforced composite bushings and semi-finished products, which is widely used in the marine environment, is listed and available for purchase.



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Jean-Pierre Bouchard



# What Happened in the Bearing Industry? THE FIRST 6 MONTHS



**18 July, 2021** // Dalian port customs seizes 236 counterfeit bearings. According to the Chinese media, customs officials in the Dalian port area have launched an investigation into an intellectual property infringement case. A batch of bearings with illegal trademarks were discovered during the operation. When customs officials were reportedly inspecting goods for export with the stated name “Wafangdian Bearings”, the batch of bearings was found to be packed in blue cardboard boxes with the words “SKF” and “HCH” clearly printed on the outer side. 236 bearing kits marked with the trademarks were suspected of copyright infringement. The customs clearance of goods was suspended, and evidence was collected on site.

**01 August, 2021** // 726 counterfeit bearings confiscated in Shenzhen. Shekou\* Customs said it had seized a large batch of counterfeit bearings. 726 bearings are suspected of infringement of NSK brand trademark rights in cross-border e-commerce and export. The case is being processed by the customs clearance department. During an on-site inspection of consignments such as e-commerce shipments and



gift boxes declared by the Dongguan businesses, customs officials found packages containing dense and heavy metal products. A detailed inspection showed that these boxes contained in total 726 bearings, which were not declared. There were two types of bearings: small goods, packed in a blue box with the NSK printed on it, and large, packed in a film with the brand NSK. An inquiry to the trademark owner confirmed that the product did indeed infringe intellectual property.



**04 August, 2021** // Schaeffler has acquired BEGA International B.V. (Bega), a leading manufacturer of special tools for mounting and dismounting rolling bearings. The acquisition marks another step in the expansion of Schaeffler’s lifecycle service portfolio. Access to the IIoT platform created for Schaeffler’s OPTIME condition monitoring solution also opens up new possibilities for

Bega’s intelligent maintenance tools. Customers will also benefit. They will have a common user interface for all touchpoints, which will help ensure a seamless user experience across the rolling bearing lifecycle, from installation to monitoring and maintenance, right through to repair. Customers and partners will be able to source solutions and services for rolling bearing maintenance and monitoring from a single provider and will benefit from more streamlined access to a range of upkeep and repair solutions.

**14 August, 2021** // Schaeffler intends to sell global chain drive business. The company has signed a contract through which the global business with chain drive systems is sold to the private equity fund Lenbach Equity Opportunities II. GmbH & Co. KG (LEO II fund) from Munich. The DUBAG Group advised and represented the fund comprehensively at the closing of the transaction. Behind the fund are institutional investors with a long-term investment horizon. The aim of the transaction is to further expand its market position as the world’s leading system supplier and partner for OEMs for high-quality drive chains in international competition. With its many years of management experience, the DUBAG Group will provide long-term advisory support to the chain business as a permanent partner.



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## **ABF** *appoints* **Ben van Oosterhout as CEO**

ABF, a group of technical trading companies based in Roosendaal and a major European player in the bearings and electric motors sector, has appointed Ben van Oosterhout as their new CEO. Van Oosterhout, who has worked for the organisation as Commercial Director for eight years, has succeeded owner Quirijn Fabrie since June 1st.

This appointment is part of several organisational changes and improvements. As a result, the family business, founded in 1992 by Aad Fabrie, is even better prepared for the future. "The position requires someone who has proven to be capable in all facets of strong leadership," says Quirijn. "We found Ben van Oosterhout is that someone. In him, strategic and commercial management skills are combined with solid ethical insight. That is what companies need in 2021 in order to be sustainable and competitive."

Quirijn Fabrie, having spent more than twenty years ensuring the growth of ABF into a company with a 30 plus million euro turnover and 90 employees, indicates that the time has come for change. Now that

he has found the perfect successor, he can shift his attention to other aspects of the organisation. "From now on, I can focus on projects of my choice and put more time and effort into them. Something I particularly enjoy doing."

The new CEO is looking forward to his new role. "ABF is a dynamic company I enjoy working for," Van Oosterhout explains. "I take great pleasure in building and motivating our team in the best possible way. Particularly, our daring entrepreneurship and out-of-the-box thinking makes me enjoy my work every day."

The next few years will see the company continuing on its growth path, further

automating and optimising its logistics processes. ABF wants to be a modern and unique company where people feel appreciated and where mutual trust is important.

### **About ABF**

*ABF, based in Roosendaal and Rotterdam, is a group of technical trading companies with an annual turnover of 30 million euros and a staff of over 90. Today, ABF has one of the largest bearing and electric motor stocks in Europe with more than ten million items. The company's international team serves customers worldwide through the multilingual web shop [www.abf.store](http://www.abf.store) and a 24-hour service.*



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to the decision. The region of Valencia was selected as it offered excellent transport and logistic capabilities for the whole of Europe. With two major ocean freight ports and the international airports of Valencia and Alicante within a forty-five Kilometer radius.

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Karl Brundell Carter Managing Director, commented "We are incredibly proud to have been able to make this happen during a global pandemic. This investment ensures continuity of high quality of service and supply of goods to all of our customers in the European Union."

"We look forward to supporting new and existing clients from this new European location and are excited to see the growth this investment will help us achieve."

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# SCHAEFFLER

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- Axial needle roller bearings
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- Self aligning ball bearings
- Spindle bearings
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# Inside ACORN®

After three decades in business, ACORN's key focus is still centred on the personal service that it offers to its customers. Although the company has expanded significantly over the years, its account managers still take the time to get to know every customer as an individual, allowing for a completely personalised experience that meets their distinct business needs.

With ten branches covering the entirety of the UK, ACORN is perfectly placed to offer friendly local service to businesses across the country. A dedicated export division along with access to world-class logistics networks means that ACORN can also offer an unparalleled delivery service to its international customers around the globe.

Part of Swedish corporate group Axel Johnson International, Acorn Industrial Services Ltd benefits from being part of a global network of over 150 companies who specialise in technical components and industrial process solutions. This means that ACORN's customers profit from the shared knowledge and global supply chain of Axel Johnson's wider network.

Sustainability is a key guiding principle both at ACORN, and across the wider Axel Johnson group. ACORN actively supports customers in improving the sustainability of their business by identifying areas where energy efficiency could be improved, or grease consumption could be reduced within their machinery.

ACORN's continued success as an industry leader is thanks to its core value of service. Every business function revolves around providing customers with outstanding service, no matter where in the world they are located.

One of the ways in which ACORN ensures superior service is through its team of product specialists who are experts in their fields. These knowledgeable and highly experienced product experts are





on hand to offer personalised advice to customers, both over the phone and in person during site visits. They work hand-in-hand with customers, helping them to reduce costs and maximise productivity.

ACORN holds over six million MRO products in stock at its central distribution centre in Rotherham, from world leading manufacturers including SKF, Timken, NSK and THK. This makes ACORN one of the largest stockists of bearings, linear motion systems, power transmission products and maintenance equipment in Europe. This large stockholding enables customers to have same day access to critical machine components when they need them the most, keeping businesses up and running and keeping downtime to a minimum.

Not only is ACORN a great place to buy from, it's also a great place to work. This is evidenced by the 35 staff members who



have each racked up between 10 to 30 years of service within the company.

Sales Director, Gavin Stacey, also has decades of experience within the business, having joined ACORN back in 1995. Gavin's innate understanding of the business, along with his breadth of experience and industry knowledge, mean that he is perfectly placed to steer the company through the ever-changing business landscape whilst ensuring that ACORN continues to provide the highest possible levels of service to its customers.

Over the past four decades, ACORN's success has been down to its unique ability to adapt to change, taking advantage of the advancements in technology whilst continuing to build supportive relationships with both customers and suppliers alike.

ACORN's goal going forward is simple: to continue to support businesses to become more innovative, more successful, and more profitable through Industry 4.0 and whatever comes next.





Bearings



Power Transmission



Couplings



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# Schaeffler and Siemens to cooperate on intelligent diagnostics for drive systems

- Together with Siemens Large Drives Applications, Schaeffler is advancing the digitization of industry with a focus on customer benefits
- Digital service for automated bearing diagnostics from Schaeffler is now integrated into Siemens' IIoT platform Sidrive IQ
- Bearing condition's analysis results as part of overall motor health status support informed operation and maintenance decisions to reduce unplanned downtimes



— The collaboration between Siemens and Schaeffler combines Siemens' IIoT platform Sidrive IQ with Schaeffler's decades of experience and expertise in designing, manufacturing, and servicing bearings. (Picture: Siemens)

## Services seamlessly integrated in one platform

The collaboration between Siemens and

Schaeffler combines Sidrive IQ – the digital platform for drive systems and solutions from Siemens – with Schaeffler's decades of experience and expertise in

designing, manufacturing, and servicing bearings. Sidrive IQ integrates a number of functionalities into one seamless solution and augments drive systems



with AI-based analytics and digital content. For the customer, this means the ability to make better decisions when it comes to operation, maintenance, and maintenance measures for drive systems.

#### **New dimensions of collaboration in the industrial IoT**

The integration of Schaeffler's analysis service for automated bearing diagnostics in Sidrive IQ makes it possible to determine the bearing condition with greater certainty and precision. "This cooperation and automated exchange of algorithm-based diagnostic data is one of the first of its kind in the industrial IoT. It's a great example of a new dimension of cooperation among established technology companies," says Hermann Kleinod, CEO of Siemens Large Drives Applications.

With the help of well-founded insights and specific information, operators can quickly determine whether the drive system can continue to operate or whether, in the event of impending damage, the bearing needs to be replaced immediately or can wait for the next maintenance interval. This reduces maintenance effort and cost, and most importantly, unplanned and costly downtimes can be prevented.

“ This partnership between Schaeffler and Siemens is based on a solid foundation of product knowledge and specific expertise. Both companies are playing an instrumental role in driving digitalization forward in the industry while keeping their entire focus on customer value.

*Dr. Stefan Spindler, CEO Industrial of Schaeffler AG.*

”

*Siemens AG (Berlin and Munich) is a global technology powerhouse that has stood for engineering excellence, innovation, quality, reliability and internationality for more than 170 years. Active around the world, the company focuses on intelligent infrastructure for buildings and distributed energy systems and on automation and digitalization in the process and manufacturing industries. Siemens brings together the digital and physical worlds to benefit customers and society. Through Mobility, a leading supplier of intelligent mobility solutions for rail and road transport, Siemens is helping to shape the world market for passenger and freight services. Via its majority stake in the publicly listed company Siemens Healthineers, Siemens is also a world-leading supplier of medical technology and digital health services. In addition, Siemens holds a minority stake in Siemens Energy, a global leader in the transmission and generation of*

*electrical power that has been listed on the stock exchange since September 28, 2020.*

*In fiscal 2020, which ended on September 30, 2020, the Siemens Group generated revenue of €55.3 billion and net income of €4.2 billion. As of September 30, 2020, the company had around 293,000 employees worldwide. Further information is available on the Internet at [www.siemens.com](http://www.siemens.com).*

**Siemens Large Drives Applications** (LDA) engineers and produces heavy-duty electrical drive systems for the medium- and high-voltage ranges: electrical motors, converters, and generators. LDA is one of Siemens' Portfolio Companies. These units are agile, flexible, and decentralized and offer fast decision-making and reaction times. This allows them to be more competitive in their respective markets with a greater focus on their customers in different industries.



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Volution Sp. z o.o. will begin operation in Poland in late 2021 to better serve our European customers



# How?

## Water kills bearings

Out of all contaminants known to affect bearing life, water arguably does the most harm. It only takes a small amount to lessen the oil's ability to properly do its job, creating friction, oxidation and more. Recognizing water-related failure modes can help you determine the optimum lubricants, seals and bearings to protect your equipment's oil.

### **Where Is It Coming from?**

In a circulating oil system, water can enter in a variety of places. For instance, the reservoir headspace typically breathes into the environment. If a proper breather arrangement is not implemented or there are other breathing locations, humid air will condense in the headspace and water will drain into the oil. Pipe junctions and flanges can also

allow ingress of water and other contaminants. Internal and external seals should be considered as well. These may include nearby steam joint leaks, leakage past seals and gland seams, heat exchangers, seal water zones, seals being washed down by high-pressure hoses, etc.

### **Water-Related Failure Modes**

Knowing what each failure mode looks like

and its cause can help you prolong bearing life by identifying a means of defence.

### **Corrosion**

Bearings corrode when met with oxygen and water. Once corrosion occurs, the bearings begin to flake and crack over time. This can lead to pitting, a more irreversible form of damage that can cause machine failure.



## Oxidation

When high temperatures meet metal particles and water, the antioxidants in the lubricant can be consumed at rapid rates. Oil oxidation comes with an array of negative consequences including varnish, sludge corrosion, and impaired oil flow.

## Hydrogen-Induced Fractures

In theory, water is drawn to microscopic cracks in the surface of the bearing by capillary forces. The contact between the water and metal allows hydrogen particles to break free and cause an even deeper fracture. Furthermore, the sulphur found in additives, mineral oils, and environmental hydrogen sulphide can accelerate this process.

## Aeration and Foam

Water impacts oil's ability to handle air. This means when water and oil meet, oil films are weakened, causing excess heat, induced oxidation, cavitation, and restricted oil flow—all of which can cause serious harm to the bearing. The worst part is it doesn't take much. Amounts as small as 1,000 ppm of water are enough to create air bubbles that prevent oil slingers, ring oilers, and collar oilers from operating efficiently.



## Oil Flow Restrictions

Due to its polarity, water attracts impurities such as particles, dead additives, carbon fines and resin. This attraction results in the formation of sludge and emulsions, which can enter oil ways meant to provide lubrication to bearings. The blockage then causes bearing starvation, and as we know, a starved bearing rarely lives a long life.

## Additive Depletion

There's no sense in using quality additives if water contamination is going to rid them of all their benefits. Depending on the type (AW, EP, rust inhibitors, detergents, dispersants, etc.), water can either hydrolyse, agglomerate, or wash additives out of the oil and onto sump floors. If you





use sulphur-phosphorous EP additives, water can even increase an oil's acid number (AN) by breaking the substance into sulfuric and phosphorous acids.

### Preventing Contamination

Undoubtedly, the best way to avoid these moisture-related problems is to prevent the contamination from occurring. Effort expended in this area can have significant effects on reliability and availability.

**Steam joints:** Leaking steam joints are a major source of water contamination. Typically, escaping steam is blown against bearing housings on the back side of dryer sections. The resulting condensate contaminates the oil system.

**Seals:** Most bearing housings are fitted with a labyrinth-type seal that allows water to pass through into the bearing housing. Flingers or stationary add-on shields improve the protection afforded to the bearing.

**Inspections:** Check lubrication drainage systems for holes or openings that allow water or water vapor to get into the system. Such problems are commonly found in vents. Consistently check piping for holes.

**Oil/water heat exchangers:** The purpose of these units is to cool the oil as it returns to the reservoir. The design of modern systems is usually such that the oil pressure is higher than the pressure of the cooling water so that any leaks should result in oil contaminating the water, rather than the other way around. Severe leaks of this kind can be a serious problem, but it's usually of a different kind (e.g., environmental).

### Monitoring for water contamination using Ultrasound technology

Measuring and preventing water contamination requires an investment in time and resources, but in the long run, it is imperative to maintaining bearing health.

In the meanwhile, what you can do to avoid bearing failures is monitoring them. And ultrasound is just the perfect technology: because water contamination will increase the bearings' friction levels, and friction generates high frequency sound, an ultrasonic instrument will be able to indicate what's going on with the bearing.

Either by measuring dB levels and comparing them to a dB baseline, or

by simply assessing the sound quality coming from the bearing, an ultrasonic instrument will inform the inspector about the condition of the bearing. This is particularly useful for facilities with water contamination issues – you can then easily monitor your bearings, observing which ones are above their dB baseline. Instruments such as the Ultraprobe 10000 or Ultraprobe 15000 from UE Systems are recommended for this application.

Solutions to monitor your bearings remotely are also available, via ultrasonic sensors connected to data processing devices. This can be a big time saver, allowing maintenance teams to focus their efforts on tackling the water contamination issue. The OnTrak SmartLube, for example, is effective in reducing the time spent lubricating bearings – in many cases by 95%. It will provide alerts as soon as friction is detected, giving inspectors the opportunity to regrease remotely with the touch of a button.

Having this technology in place allows you more time and energy to focus on addressing pesky water contamination and other areas in need of improvement in your plant.

# Bearings on Blockchain

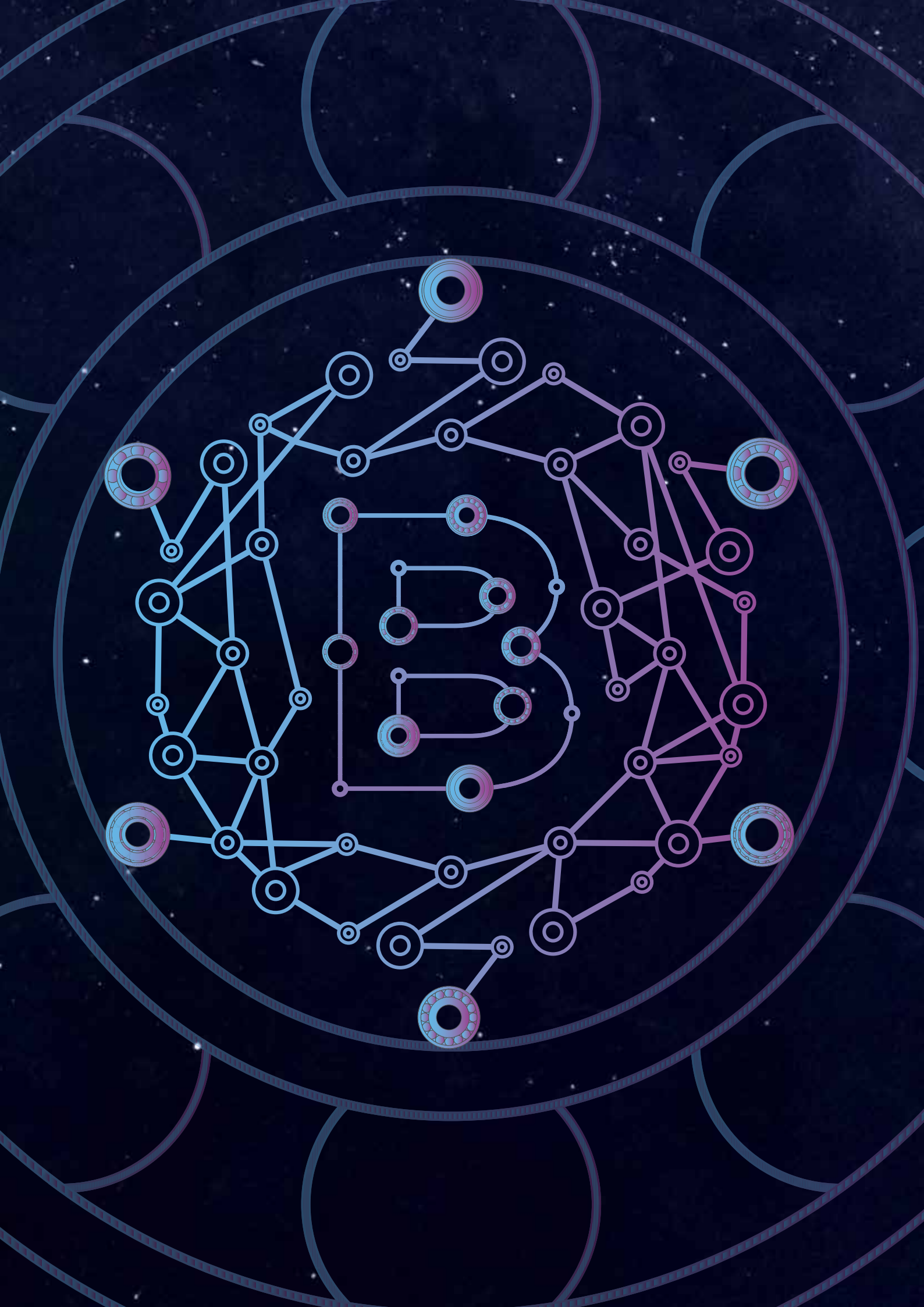
to beat  
counterfeit  
bearings & to  
guarantee  
traceability

Counterfeit bearings are unfortunately a quite popular phenomena worldwide that creates each year **damages for hundreds of millions Euro** to the premium bearing brands and, according to the World Bearing Association, jeopardizes more than 5 million regular jobs in the world, besides it represents serious risk for users safety in many critical applications.

**Blockchain** is a **Distributed Ledger Technology (DLT)** that may represent a valid tool to fight and to beat the counterfeit bearings phenomena. It consists in a **digital public ledger** for data validation, **without centralized control**, containing all the transactions made by the users of a certain network. Such database is **safe**

**and transparent**, is shared among all the network nodes, without any intermediation, in such a way that any participant can check the validity of transactions chain and get aware if anything wrong is entered into the chain. Each ledger is **immutable**, i.e. the info cannot be changed by anyone without the consensus of the network nodes.

Known to the public mostly for the cryptocurrencies (Bitcoin, Ethereum, etc.), indeed DLT may be very useful in several contexts: to guarantee the proper traceability in the supply chains, to assure transparency to the final users, to reinforce the brand identity and to protect the branded products from counterfeiting.







**ICT srl** is an Italian technical, organizational and commercial consulting company specialized in bearings and bearing components industry and has recently developed **Blockchain solution to record all the main steps in the supply chain of bearings industry** (from raw material to the finished product sales to final user) and to associate a **digital token** to the phisycal good that makes impossible to clone it. The buyer who is proposed to acquire a product without the digital token knows authomatically that a fake bearing has been offered to him.

The increase of transparency of supply chain – especially in those cases in which it is very fragmented – can be a very important tool to provide value to the bearing quality and **to guarantee that all the steps of the processes have been done according to the specifications**, complying with materials origins and with certain standards. Also aspects of **sustainability** and **ethics** can be made transparent to the market: e.g. the usage of renewable energy sources and recycled raw materials, the respect of human rights in the management of workforce and in the relationships with local communities.

Potential synergies of such approach with **Environmental Product certifications** (EPD, Ecolabel and others) and with **ISO 26000** for management of social responsibility of companies are quite evident.

Thanks to **smart contracts** (i.e. codes that translates contracts between two or more parts in such a way that they can work autonomously, without intervention of third parties) each bearing part moves from one operation to the following one only if certain criteria are effectively verified: e.g. the production place, certian



process and/or product parameters, a time interval between the process steps. Of course the integration of DLT with **Internet of Things, Artificial Intelligence** and proper sensors capable to identify quantitative KPI to support the products traceability may be important. Similarly it is fundamental to build a wide nodes network, “scalable”, assuring participation of all players as guarantee of its transparency and reliability.

The final user shall award who makes available as more details as possible on origin and manufacturing of bearings: more the

product is transparent and guarantees on its origin, more he will be available to pay. ICT has a **team of professionals** able to support the bearings manufacturers and distributors in enhancing the perceived quality of products, reinforcing the traceability system and providing a tool to avoid bearings counterfeiting and to assure the final clients on products quality. In addition to DLT based solutions, ICT team can also:

- Create or improve the products traceability management within the company Quality system according to ISO 9001, IATF 16949, ISO/TS 22163 or ISO 9100;

- Assess the value chain of the customer, optimizing the flows also through the new digital tools;
- Consult on Environmental Products Certifications for finished bearings and components, completing **Carbon Footprint** and **Lyfe Cycle Assessment (LCA)** on current and/or projected status and supporting in reaching Carbon Neutrality.

*For more information, please get in touch with ICT team calling the number +39 (0)121 376811 or writing to [info@consulting-trading.com](mailto:info@consulting-trading.com).*





**Johan Bravert,**  
*Director of Brand Protection at SKF*



*The War on*  
**Counterfeit**  
**Bearings**



Counterfeit bearings are a major issue all over the world. The production and distribution of fake bearings routinely victimize both the end user and OEM, and above all else, can significantly jeopardize safety. This dangerous, illegal, and highly unethical practice is far more prevalent than most would assume, occurring in every market segment. Luckily, for consumers, and to the benefit of the entire industry, companies like SKF have taken their own initiatives to fight back.

In this interview, the Bearing News team speaks with Johan Bravert, the Director of Brand Protection at SKF to discuss the topic in more detail. Johan Bravert provides an overview of the actions being taken by SKF to combat this elusive practice. Learn how and why SKF dedicates significant resources towards stopping counterfeit bearings. From awareness campaigns designed to better inform customers, to teams of individuals working with authorities, SKF is determined to stop fake bearings.





**Johan Bravert,**  
*Director of Brand Protection at SKF*

**Can you please describe your role at SKF? What would you say the primary responsibility is for the Director of Brand Protection?**

I am leading a team here at SKF with the main purpose of protecting SKF and its customers against counterfeit products. We are not limited to certain regions; we cover the entire world from our headquarters. We are taking legal action against producers and sellers

of counterfeit bearings on a global basis. We initiate and drive awareness campaigns, and I would say that raising awareness is one of the most important areas to make people in the supply chain aware of counterfeit bearings and their risks. Helping customers to understand how they can protect themselves and avoid counterfeits is extremely crucial. That is the simplified main purpose of my role and my team in SKF.

**What are counterfeit bearings? What are their negative effects and how do they impact the industry?**

A counterfeit bearing is an illegal product, it is made by someone taking a product not produced by SKF and marking it with “SKF” or any other brand we own. The products are of unknown origin and unknown quality, so you really don’t know what you are getting. I think the biggest issue here is that customers believe they are







buying a genuine SKF product and using it as if it is a genuine bearing that fulfils the expectations of a genuine bearing, which can result in both unexpected failures in the applications, and in worst cases, it can even lead to human injuries if the bearing fails unexpectedly.

#### **Where do counterfeit bearings come from?**

We see counterfeit production in quite a lot of different countries. If we were to look at customs statistics for instance, it is quite clear that a lot of the customs seizures coming into both the European Union and the US originates out of China, however, we also see it originating from a number of other countries. I would say sometimes there is quite a lot of focus on where the counterfeits are coming from, however, the focus should be on where can you find counterfeit products, and there I would say you can find it in every single market. Historically, I would say not every country in the world, but we have supported law enforcement in performing raids against counterfeit sellers in most European countries, in the U.S., as well as many countries in Latin American, Africa and Asia. So, there are a lot of counterfeit products and it is not limited to certain regions, nor product types or sizes. It is not uncommon that

we also find large size products, so it is not limited to small size bearings.

#### **What tools and strategies are being implemented by SKF to stop fake bearings? What tools are most effective?**

I think awareness is very much the key. Raising awareness out in the market that first of all that counterfeit bearings exist. A lot of people are aware there are counterfeit bags, watches, clothes and things like

that, but a bearing is assumed to be too complicated, no one can counterfeit that. No, that is not the case. Counterfeiters don't need to produce it; they just need to mark it and pack it. Someone else can produce the product. There are counterfeit bearings and it is fairly easy actually to make a counterfeit bearing, and there are risks to using them. Especially if you are using SKF or another premium brand, you very likely have a quite high demanding application. It can be high speeds, high temperature, high



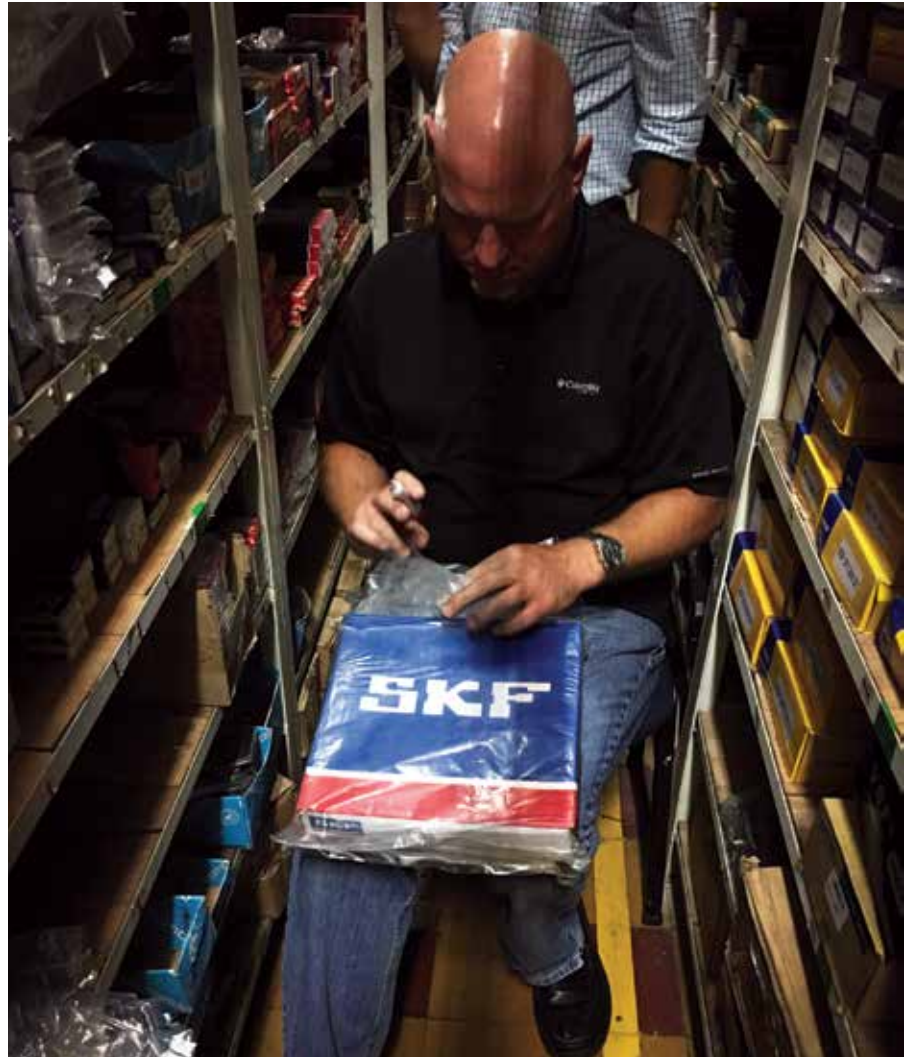
loads and so on. By installing a counterfeit bearing there are a lot of risks. That could be an unexpected failure that could cause you a lot of down time, which is a financial loss, or even more concerning, it could be a safety issue. The best way to safeguard authenticity is to buy from distributors authorized by SKF. I would say raising awareness about counterfeits is the most effective solution. The other leg is of course taking legal actions against producers and sellers, which is extremely important in order to remove counterfeit products from the market. But that only works to a certain degree. If the customer is still not keen on trying to buy genuine products, there will always be counterfeits popping up. So, it's always a challenge. Working on both parallel tracks is the most successful and the most effective way to combat counterfeiting.

#### **How can bearing users differentiate between counterfeit vs genuine SKF bearings?**

We recommend customers do not try to see or determine authenticity by themselves. Come to SKF and we will help you free of charge. We feel it is our corporate responsibility to support our customers by helping them to not get cheated with counterfeits. Counterfeit bearings are really good lookalikes, and usually look identical to genuine products, so it is really, difficult for bearing users to see the difference. Don't assume the product is genuine just because it looks nice. The counterfeiters are very skilled in copying what we are doing. We have a trained team of highly skilled experts who know what different types of things to look for, however, we don't go into detail about what that is because it would be a very good blue print for the counterfeiters to further replicate our products. In addition to this, we have a huge assortment of products which makes it extremely difficult to describe how certain products should look. To support bearing users in case they suspect that an SKF product might be counterfeit we offer a free verification service using the 'SKF Authenticate' app.

#### **What can consumers do to prevent purchasing counterfeit parts?**

The best way to safeguard authenticity



is to buy directly from the manufacturer or from a distributor authorized by the manufacturer. SKF have a worldwide network of authorized distributors that is found on [www.skf.com](http://www.skf.com). Bearing users should also be observant for unusual good offers, e.g. unusual short delivery time or high availability on rate items. If the offer sounds too good to be true it probably isn't. Be vigilant when selecting your bearing supplier.

#### **What do you predict will be the outcome of this war on counterfeits?**

By raising awareness, I would like to see fewer customers getting cheated by counterfeits and we are taking steps in that direction. I think there will always be people who will try to benefit from those who are not aware. There will always be counterfeiters trying to cheat unknowing customers, so I don't

think we will eliminate counterfeiting completely, but we can definitely reduce the number of counterfeit products in the market, and reduce the number of customers being affected. Through awareness campaigns, we will continue helping customers authenticate their products and support them in finding where to buy genuine products.

#### **Resources**

*SKF has a very strong commitment to support both customers and law enforcement in order to remove counterfeits from the market. Customers can check the authenticity of their products using the SKF Authenticate app, available both on IOS and Android (download free of charge). SKF further provides an email address; [genuine@SKF.com](mailto:genuine@SKF.com) where anyone can raise questions related to counterfeit bearings as well as report suspicious activities.*





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# To prevent counterfeiting, *the bearing giants are adopting* **SIC MARKING** traceability solutions

The bearing market has been facing a scourge of counterfeiting for many years leading to huge consequences. No less than 5.4 million jobs are at stake, as well as a loss of 36 billion euros for the global economy (figures from the World Bearing Association).

These alarming figures are prompting major bearing manufacturers around the world to mark their components. On the one hand to facilitate internal traceability and maintenance actions, but above all to improve their corporate identity, by offering distinctive and aesthetic signs.

## **Various marking requirements.**

Every year, millions of bearings are manufactured for numerous sectors such as the automotive and aerospace industries, but also for the energy and medical sectors. Obviously, this large demand generates a wide variety of products, in terms of used materials (steel, ceramic or other treated metals) but also in terms of dimensions (larger or smaller diameters or widths). As a result, marking solutions must easily adapt to these differences. The marking type is also different. The bearings are marked with a variety of information, ranging from alphanumeric production codes or product data (site or date of manufacture) to Datamatrix codes or logos. The inscriptions must be clear, readable and unalterable. This last point is

especially true if the bearings are subject to significant mechanical or thermal stress.

In addition to their great modularity, the marking solutions used must be able to adapt to the different parts' shapes. Consisting, among other things, of an outer and inner ring, it is common to engrave both. This involves flat, circular, concave and convex markings. All of this while considering cycle times that can sometimes be in the order of a second.

## **Laser marking, a cutting-edge technology.**

SIC MARKING, the world leader in industrial traceability, has been committed for over 30 years to providing the most appropriate marking solutions to meet the challenges of industry. Its experience has enabled the French group to offer a technically superior range of laser marking machines as well as a large number of automatic reading solutions (Datamatrix).

SIC MARKING's integrated lasers are

particularly well suited to marking ball bearings, providing clean and permanent results on all materials, from plastics to ceramics to hard metals. The various options available, including the 3D function and Autofocus, ensure perfect marking on all bearing surfaces (outer or inner ring).

The range is completed by 3 workstations (L-BOX, XL-BOX and XXL-BOX) allowing a dedicated marking station. This can be integrated into a production line or used as a stand-alone marking station. The production of small, medium and even large series is possible. The resizing of the boxes, the creation of specific tooling, the addition of additional movements (Z axis, rotary axis) are options available on request.

Personalized support around the world. What makes the strength of the 300 employees' company, apart from its product quality, is its ability to adapt to the different needs of its customers, perfectly illustrating its knowledge of tailor-made solutions.





SIC MARKING has 3 competence centres in Europe, America and Asia, enabling it to offer specific solutions, developed and studied locally. Thus, the team dedicated to the customer's needs is perfectly capable of adapting to the various contacts, whether they are multi-site, process, workshop or line managers. The particulars of the different sites are carefully studied whether it's the surface area available, the technologies for conveying parts or the environmental constraints. This ability to provide multi-site support is highly appreciated by the ETIs and large international groups that place their trust in SIC MARKING.

The laser marking specialist had the opportunity to prove the qualities of its solutions by taking up the challenges proposed by a major Swedish ball bearing manufacturer with a presence in Germany. The manufacturer wanted to mark an alphanumeric and Datamatrix

code on steel bearings with diameters ranging from 150 to 600mm. In addition to adapting to the different part sizes, the solution had to be integrated directly into the production line and be able to mark the bearings in two places at the same time, while ensuring that the Datamatrix was read back.

With its many years of experience, SIC MARKING was able to offer a customised station, equipped with an IPG 50W laser, marking on the bearing face and an IPG 3D laser, automatically controlled on 2 axes, capable of marking on the part radius. A proofreading system was also integrated in order to proofread the marking directly, as well as a conveyor belt, allowing the machine to be integrated into the production line.

In addition to a solution that perfectly met the specifications, SIC MARKING was able to convince the customer

thanks to its dedicated organisation, local support via its German subsidiary and a major marking test campaign that mobilised its Laser experts.

### SIC Marking

*SIC Marking is an expert in marking and traceability for the automotive, aerospace, mechanical and energy sectors. The company has more than 300 employees worldwide with a turnover of 55m €. It operates in more than 50 countries and has 9 subsidiaries. Its offering consists of standard and customized solutions in laser, dot-peen and scribing technologies as well as various associated services (customer support, spare parts, training, retrofit, maintenance contracts). SIC Marking has a customer-oriented culture and promotes operational excellence to enhance the customer experience.*

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# Predict the unpredictable with **RKB**

Although they are not everyday occurrences, bearing failures can affect the manufacturers, resulting in substantial losses. To avoid these unpleasant events, RKB offers customers its help and advisory services at each phase of the asset life cycle, from bearing design and selection to technical recommendations for equipment already in operation. We can especially craft our bearings for each customer.

In case of emergencies, we also have an impressive stock of products all over the globe. We rely on a network of modern logistics hubs in the world's most strategic areas. The last addition to our network is the new regional warehouse in UAQ Free Trade Zone (photo MENA). At RKB, we offer important attention to our warehouses, and the new one from UAE is not an exception.



— New RKB / MENA warehouse in UAE





Our large and locally based warehouses solved many critical situations that our clients across the world were facing. They made possible RKB prompt reactions to many urgent clients' requests and confirmed our just-in-time delivery commitment.

We have one of the most substantial stocks of rolling bearings worldwide. With over 12.000 part numbers ranging from small to extra-large sizes, the current stock reflects RKB's commitment to supporting customers from various industries worldwide. Besides a well-stocked warehouse that offers bearing diversity and availability, a strong logistics organization is strictly necessary to serve efficiently.

For this reason, a proprietary software system runs all RKB stocks. ASSM—Active Stock System Management optimizes the lead time and drastically decreases machine downtime for the customer. Finally, the RKB stock strategy features the JIT(Just-in-time) bundle, which supports a particular form of in-house consignment stock program to ease the customer's financial position and ensure the availability of requisite spare

parts based on a partnership approach. RKB has an ever-growing network of local warehouses directly run in cooperation with its regional partners to ensure proximity and fast delivery. All storage areas are under controlled environmental conditions to guarantee perfect conservation of the bearings.

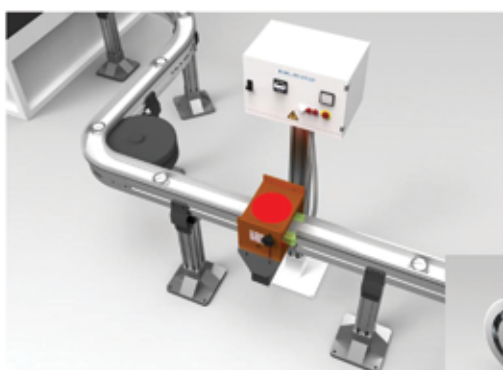
Besides, RKB highly specialized packaging, specifically created to protect the bearings in unfavourable conditions, is straightforwardly recognizable and ensures brand identity worldwide.

*Visit [www.rkbbearings.com](http://www.rkbbearings.com) for more information.*



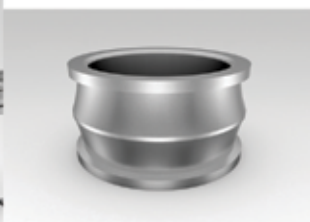


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During the manufacturing process, the demagnetization, as magnetic pre-washing, is the optimal preparation for the bearing components cleanliness.

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- EASY IN PROCESS INTEGRATION  
WITH I/O INTERFACE
- STANDARD A DEDICATED  
SOLUTION DESIGN
- HIGHLY DURABLE INVESTMENT

# Effect of Eddy Grooves on Tilting Pad Journal Bearings

By Stephan Faulhaber and Eckhard Schueler, Miba Industrial Bearings

Tilting pad journal bearings are used in turbomachinery like turbo compressors, turbo gears, gas turbines or steam turbines. There is an ongoing and growing customers' demand for bearings with increased load carrying capacity or power density. Certainly, this goal must be achieved without an impairment of bearing functionality and operational reliability. Traditional bearings or better standard bearing designs have their performance limits and all too often Miba experiences that these limits are reached or even exceeded in turbomachinery applications, due to numerous reasons. To overcome conservative operational limits, it is helpful to reduce the oil film temperatures. This can be done by certain design modifications or optimizations.

## Heat dissipation

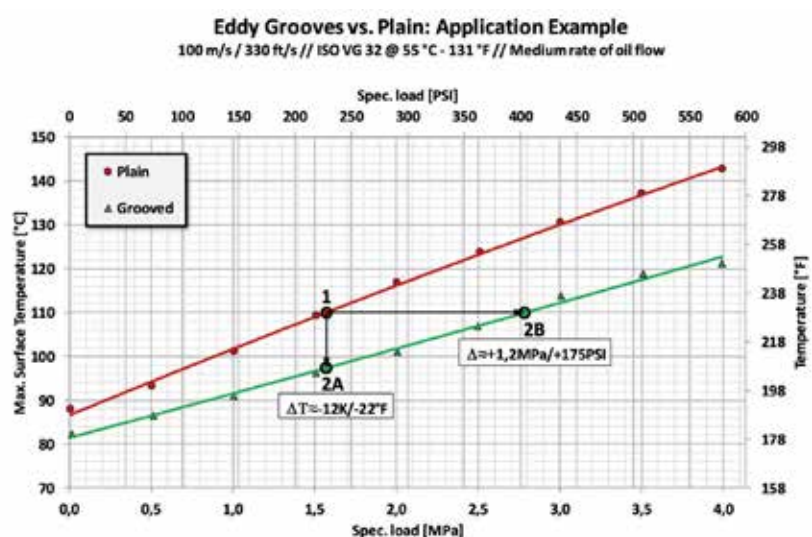
A basic prerequisite for the safe and reliable operation of bearings is a sufficient lubricant film thickness, which basically depends on the occurring load, speed and the selected lubricant. During operation, heat is generated in both the oil and parts of the bearing. Following, the temperature of the oil and the bearing are important parameters. An increase of heat dissipation, which means heat is transferred from hotter to colder areas, so away from the loaded pads or areas of the bearing is key to improve bearing performance. It is common practice to accommodate design features to adapt the bearing accordingly.

To increase the heat dissipation, it is common practice to use features like directed lubrication and pad base materials with a high thermal conductivity. If this approach is still insufficient, there are geometric options like an increase of the axial length or the bore diameter of the bearing although such changes could increase oil demand, power loss and space requirements increase. That is why in some cases, geometric modifications of bearings in operation in turbomachinery are not feasible.

## Eddy Grooves

Next to the traditional design adaptations the new Miba Eddy Groove technology can be used. Physically, robust grooves are machined into a specific area of the bearing material. The grooves are optimized to disturb the laminar lubricant flow, which is converted into a turbulent

flow and thus create the cooling effect, by improving temperature exchange between cooler oil near the shaft and warmer oil near the bearing surface. The foundation of this technology has been known for more than 30 years. Therefore, the possibilities of improvement are clear. It is possible to push performance limits upwards without changing the bearing or bearing housing



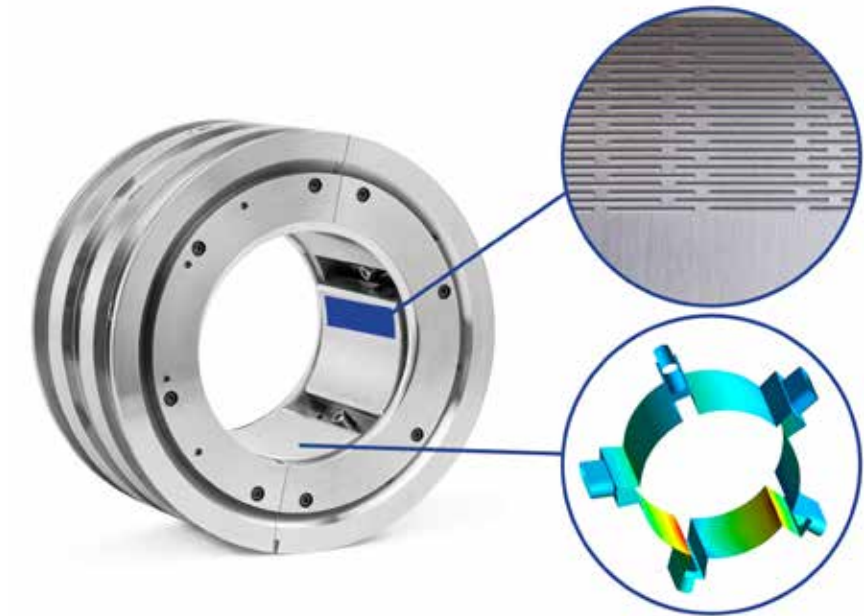
— Fig.1: Comparison of the maximum running surface temperatures of a bearing with and without Eddy Grooves at  $v=100$  m/s,  $T_{in}=55$  °C and approx. 21K oil temperature increase.



design and thus maintain or even improve the reliability and operational safety of the bearing and the turbomachine.

### Performance improvement

To investigate on the exact design and position of the grooves, Miba carried out a study (Schüler, E.; Berner, O. 2020) on a journal bearing test rig using a 5-tilting pad journal bearing with 120 mm shaft diameter at a speed of 50 – 110 m/s and a load of 0-4MPa. Temperature sensors close to the sliding surface enabled Miba to precisely determine the maximum temperatures. The results of the study confirmed a significant surface temperature reduction. Figure 1 is a Miba Eddy Groove application example at  $v = 100$  m/s,  $T_{in} = 55$  °C and medium oil flow rate. With the Miba Eddy Groove modification of the bearing, opportunities arise to either use the benefit solely for a temperature reduction by 12K and thereby increase the operational safety of the bearing, indicated by point 2A, or use the full benefit to increase the bearing load at a constant maximum temperature, shown as point 2B. A new point of operation between 2A and 2B would result, compared to point 1, in a reduced bearing temperature in combination



— Fig. 3: Miba Eddy Grooves increases the heat dissipation

with an increased bearing load. The technology has only been tested on bearings with shaft diameter from 120 to 500 mm. The effects on other bearing sizes are yet to prove. In theory, smaller bearings with smaller pad size and consequently tinier grooves could face the problem of not

reaching a sufficient flow change. Stephan Faulhaber, Technical Manager at Miba Industrial Bearings Germany argues: “From the very beginning, we were convinced that we could successfully develop this technology. Of course, intensive preliminary consideration has been put into design of the Miba



— Fig. 2: Radial tilting pads equipped with Miba Eddy Grooves



— Fig4: Miba Industrial Bearing Germany 5 Tilting Pad Bearing can be equipped with Miba Eddy Grooves.

Eddy Grooves. In addition, many tests on our own test rig were necessary to determine the exact design parameters. However, the positive effect on the overall temperature level in the bearing was observed from the very first tests on.”

### Advantages

The application of the Miba Eddy Groove technology could be especially beneficial for highly loaded bearings that operate near to their performance limits. The use of this technology can help to increase the reliability and slow down the aging of the lubricating oil. This means, it is possible to operate bearings at higher loads without an increase of maximum temperatures or reduce the bearing diameter or the axial length with the aim of reducing the necessary oil supply and the power loss without having to accept an increase in the maximum bearing temperatures.

For example, when designing different compressor types, engineers often face problems regarding the limited space for the bearing housing. Here, Miba Eddy Grooves bearings can provide a solution, with smaller sizes than conventional bearings while reaching the same temperature level.

The technology is already available to the market and the first bearings with Miba Eddy Grooves have already been successfully installed at customers’ plants.

### Conclusion

Eddy Grooves is a hydrodynamic bearing feature which improves operational safety and performance. The effectiveness of this technology was proved experimentally on a Miba journal bearing test rig on a Ø120 mm, 5-tilting pad bearing: in the entire test range at speeds between 50 m/s–110 m/s, and loads between 0 MPa–4 MPa, a significant reduction of maximum bearing temperatures due to eddy grooves was achieved, especially at higher bearing loads, under otherwise identical operating conditions. The reduced bearing temperatures, induced by eddy grooves, can be utilized to:

- Increase the safety margin of the bearing and slow down

the lubricating oil aging

- Operate bearings at higher loads without an increase of maximum temperatures
- Decrease the bearing diameter or the axial length to reduce the power loss and the necessary rate of oil supply without an increase of maximum bearing temperatures

### Miba Industrial Bearings

Miba’s Industrial Bearing Branch produces hydrodynamic bearings and labyrinth seals for use in rotating equipment, such as turbines, compressors, gear boxes, generators and industrial pumps. Miba’s hydrodynamic bearings and seals are used in power generation as well as in the oil and gas and the petrochemical industry. Our roots date back to the year 1919, when the bearing production first started in Germany. More than 100 years of experience makes us a reliable partner when it comes to bearing design, analysis, repair, as well as engineering solutions.

### Authors



— Stephan Faulhaber, Technical Manager at Miba Industrial Bearings Germany

**Dipl.-Ing. Stephan Faulhaber**, Technical Manager at Miba Industrial Bearings Germany, a company based in Göttingen,

Germany that manufactures tilting pad journal bearings including the Miba Eddy Groove technology. He worked more than 20 years in the turbomachinery industry prior to joining Miba in 2017.



— Eckhard Schueler works at Miba Industrial Bearings Germany as a Senior R&D Engineer

**Dipl.-Ing. Eckhard Schueler** works at Miba Industrial Bearings Germany as a Senior R&D Engineer. He received his degree from the Ruhr University Bochum in 2002 and has since been working in the field of fluid-film bearings for turbomachinery.

### Contact links:

<https://www.miba.com/en/product-areas/industrial-bearings/>

### References

Schüler, E.; Berner, O. *Improvement of Tilting-Pad Journal Bearing Operating Characteristics by Application of Eddy Grooves*. *Lubricants* 2021, 9, 18. <https://doi.org/10.3390/lubricants9020018>. Received: 22 December 2020. Accepted: 7 February 2021. Published: 10 February 2021



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TURNS 40

1981 - 2021









This year, ISB Group, commonly known worldwide as the “Green Brand,” celebrates its 40th anniversary. Bearing News had the distinct privilege of speaking with ISB’s Board of Directors to uncover the details behind this milestone achievement. Leaders of the Group: Mr. Bartolomeo Ghirardini (Founder and Chairman), Mrs. Chiara Ghirardini (CFO), and Mr. Giuseppe Vernetti (CEO) detail how the company has evolved, adapted to change, and most important what is in store for the future.

**Above all, congratulations to ISB for the milestone anniversary of 40 years! What does this achievement represent for the company?**

It is such a strong feeling to reach this 40th achievement. It immediately brings us to

remember many unforgettable milestones. These perceptions are crossed with a pragmatic vision that will bring us to reach our next anniversary. Operations are so intense in all the companies within the ISB group, that it is only when we force ourselves to stop and think we can realize

how long and crisp was this path to get here today. Surely feelings are intense and, in some way, nostalgic, beside we can step out from the landscape and look forward to the next steps. That’s the good end of every anniversary celebration!



— ISB new Technical Solution Center, Rubiera, Italy





— Mrs. Chiara Ghirardini (CFO), Mr. Bartolomeo Ghirardini (Founder and Chairman) and Mr. Giuseppe Vernetti (CEO)

**With innovations and investments being at the forefront, please tell us how the company has evolved since its establishment in 1981.**

Looking back across several decades, the ISB Company has evolved from a local distributor to an emerging worldwide organization which has achieved international recognition as the “Green Brand” ISB. A key factor to the company’s success is the development of a solid reputation, through continuous investments, strategic locations, specializations, and a focus on reliability and professionalism. Today the structure of this process remains ongoing. Fresh, new additions are coming, including the new Technical Center (2021) along with another specialized company focused on Power Transmission Components (2022).

**What are the core products and services of the ISB Group today?**

ISB industries is a group of companies that trust specialization: every part of the big team has a specific role and follow ideas of development and leadership in its own sector. Always beginning with the products core that is represented by ITALCUSCINETTI Co. – Headquarter with industrial bearings and components, oil seals full range with OT SEALS Co., linear system solutions with TRM Co, power transmission (rigid and elastic) with EUROTRASMISSIONI Co. All ready to serve customers at the highest level of logistics and support, with tops like co-engineering and special products prototyping. Together with a constellation of ISB dealers in more than 100 countries

around the world, importantly, our parts are made by our own PRODUCTION PLANTS Co., with reliability, capability and automations ready to push ISB Group to constant high quality preformances.

**How does ISB distinguish itself from market competitors?**

ISB Group has distinguished itself from the very beginning through the power of innovation; high performance products, new line-ups, developing human capacities, straight marketing and owners’ passions. Constant learning and improvements are the foundation where we feed ideas and energy for better operations with new investments and projects that make every single component of our ISB Group part of a successful story.

— OT SEALS Co., Rubiera, Italy



— MAC POWER Co., Maranello, Italy



— TRM Co., Bologna, Italy



— EUROTRASMISSIONI Co., Rubiera, Italy







—ISB Headquarter in Rubiera, Italy

**What potential growth do you see for the Green Brand? Are there any immediate future plans?**

Many seeds have been planted during the last years, with the 2018 long term plan issued after a sales & investment record year. With current markets that are still discounting the Pandemic's effect, but full of hopes and support for the next couple of years, we expect to grow inside our best product segment, expand our market share in main markets, and win some new important tenders that will bring out ISB on top of competition list. Last but not least, new Power Transmission challenge, that recall 20 years of experience in that field, will put the final drop on an unmatched range of opportunities.

**After 40 years, the company has retained its family character and maintains a high**

**degree of social responsibility. Can you explain how family and social consciousness plays a role in the Green Brand?**

Sure, we have created a solid base on family components and cooperation. This direct connection with every operation of each company in our Group brings us plenty of information and options to make the best investment choices. Also, this allows us to be closely linked with each territory and most important with the people, which we feel is the real inner power of every company. At the same time, during last years, our headquarters in particular adopted a new internal organization, with new departments and team work, linked with the latest communications and project management technology. A mix of traditional and advanced processes is pushing the Group every day to higher levels of speed and customer service.

**What difficulties did the company face during the pandemic? How did the company navigate this difficult time?**

What happened from the end of 2019 (and is still not finished) had the strongest effect on the people's consciousness and attitude. ISB Group worked hard to put every ISB single person within the company, and in the world, in a quiet and safe atmosphere with updated information and maximum sanitary support. As said, this strategy paid off, our locations are considered safe and controlled places to work with someone always ready to help. ISB company guided all the crew and maintained a solid presence and response to market demands.

**How do you see the future of the industry as a whole in the coming years?**

Real industrial perspective is faded. This has not happened in the last 15 years. Looking at current moments, bulls are on the field and post-pandemic optimism is online, but no one knows how long this will last, and if the markets will rebound heavily. ISB Group is keeping itself ready for stronger results; brand expansion, new markets, new logistics and production projects are already on the table for 2022-2025 future campaigns. Further than that? We will be ready for the next, great . . . Gold Anniversary! Follow Green, follow ISB!

— ISB production Plant





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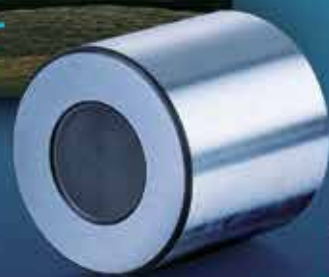
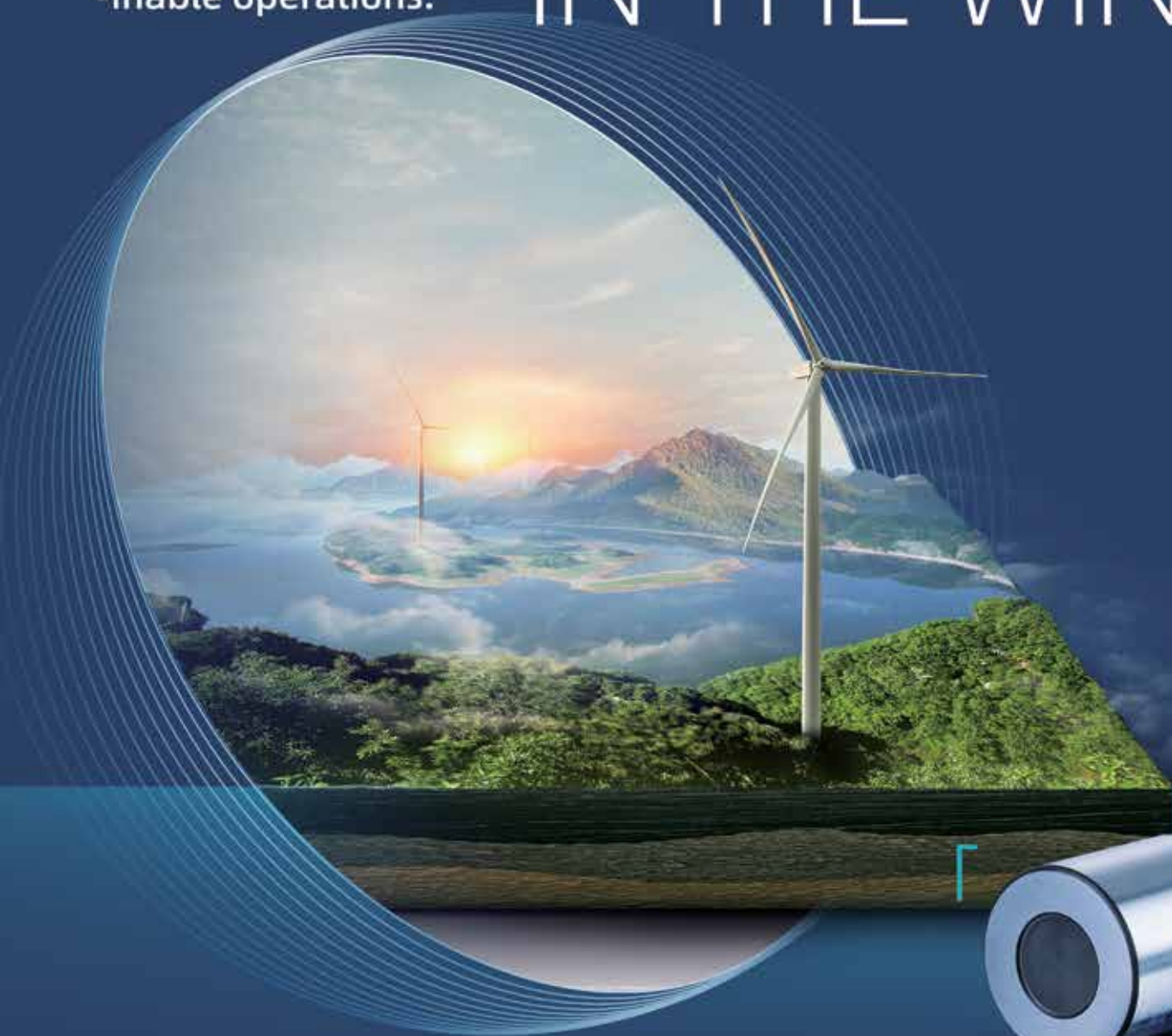
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# MCB Unveils Its Upgraded State-of-the-Art Advanced Multi-purpose Grease Solution For The Automotive and Industrial Aftermarket

MCB proudly introduced its upgraded multi-purpose grease to the public with its advanced formula for a wide range of automotive and industrial applications. This major upgrade is a brainchild of the collaborative efforts of MCB's in-house Engineers to address the lubrication demand of general applications. Manufactured in the UAE, this grease solution offers highly competitive and premium qualities that are formulated to withstand either simple and even demanding or arduous operating conditions.

MCB's advanced multi-purpose grease is expected to simplify the lubricant selection game for both end-users and mechanics given its viability, and its flexibility in terms of the scope of applications it can accommodate and the advantages it offers.

## The secret formulation behind your successful operation

Generally, grease efficacy heavily relies on its chemical formula may it be for big types of machinery or small appliances such as washing machines. The required technical knowledge behind choosing the right lubrication is the reason behind most users' unending reluctance, which later on leads to wrong decisions. These conditions and factors were put into consideration

during the formulation stage of MCB's advanced multi-purpose grease. MCB managed to craft a general lubrication solution that can certainly "do it all".

## Care to know the formula behind this viable general solution? It's all in the grease!

- **Special lithium soap thickener** – binds well with mineral oil making the grease possess high- **oxidation stability, and strong resistance against high speed, water, rust, and high temperature.**
- **Mineral Oil** – a multi-purpose lubrication solution that has high solubility with additives and suitable viscosity which makes the grease **highly resistant to a temperature of up to 150°C.**
- **NLGI grade 3 consistency** – allows the grease to **withstand operations exposed to humid environments and high temperatures** while at the same time **reduces the risk of wearing.**
- **Extreme pressure additives** - its extreme pressure characteristics serve as a **protective agent against wear, friction, heavy loads, pressure, and vibrations.**

"MCB advanced multi-purpose grease was

formulated and designed for professionals involved in maintenance, repair, and operations to maximize their uptime and profitability. Our formulation aimed to simplify grease selection by offering a lubrication solution that can address a wider range of applications in both automotive and industrial industry," Hassanein Alwan, MCB's In-House Engineer, mentioned when asked about the main objective of their brand's brainchild.

"Years of research were put into this work, and now we're able to introduce a state-of-the-art lubricant solution that's competitive on both quality and price," he added.

MCB has just released a comprehensive and easy-to-understand digital technical data sheet and MSDS that provide a wealth of information regarding its key advantages and chemical composition.

Anyone can get their free copy just by visiting the website's catalog page.

## Availability

MCB advanced multi-purpose grease is now available for domestic and international orders with its limited special introductory price.

For more information or technical consultations, please reach out to MCB's in-house Engineers via WhatsApp +971 4 886 5100 or e-mail via [export@mcb.ae](mailto:export@mcb.ae).

## About MCB

*Founded in 2002, MCB offers economical and cost-effective automotive and industrial aftermarket solutions globally. It's an ISO-compliant brand with strict quality control standards that delivers innovative product designs and manufacturing solutions with the best product quality and reliability.*

**MCB**

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# CASE STUDY Precision Lubrication with LUBExpert

**Author:** Ken Mitchell, SDT Ultrasound Solutions

Implementation of an ultrasonic lubrication program in a paper mill to acoustically grease bearings right. The LUBExpert system has allowed the maintenance team to shift away from unreliable calendar-based lubrication to on-condition lubrication with instant feedback to the technician as each bearing is greased.



Dryer section felt rolls – previously greased on a time-based schedule delivering 40 grams of grease every 4 weeks before the ultrasound program was implemented.

Ultrasonic greasing program started; first dryer felt roll greased from an RMS of 14.1 dBμV down to 12.2 dBμV after delivering only 20 grams of grease.

One month later, ultrasound shows the RMS has increased to 17.2 dBμV,

again the bearing is greased, this time delivering 25 grams total quantity to reduce to 11.7 dBμV. Initial greasing saved over lubrication of 20 grams (50%) and a further 15 grams (37.5%) to the first roll. The

Ultranalysis® Suite 3 software provides trending and initial/base line readings each time the bearing is greased.

An absolute alarm at 15 dBμV was added to indicate whether the bearing needs

	Level Name	RMS	Max RMS	Peak	Crest Factor	Lube Alarm	Lube Alarm Level	Grease Name	Nb. Grease Shot
●	Normal	11.7	12.6	28	6.52	●	lubrication success F	SHP 460	15
●	Normal	11	14.6	36.2	18.19		free mode	SHP 460	10
●	Alert	17.2	20.5	35.7	8.42		initial reading	SHP 460	0
●	Normal	12.2	14.1	36.6	16.61	●	Lubricationsuccess	SHP 460	20
●	Normal	14.1	16	32.4	8.22		initial reading	SHP 460	0



lubrication (over and the LUBExpert will prompt for greasing, under it will return a message of “lubrication not needed”).

This eliminates the need to inject any grease if the bearing does not require it.

Additionally, we can see process statistics to quickly see how often we successfully lubricate this bearing.

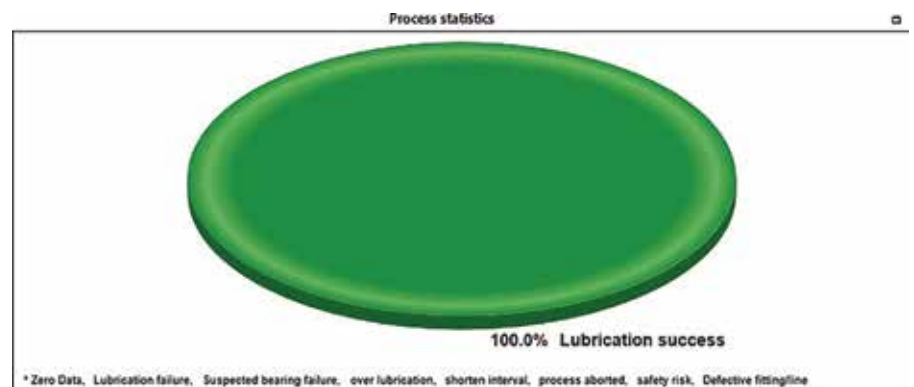
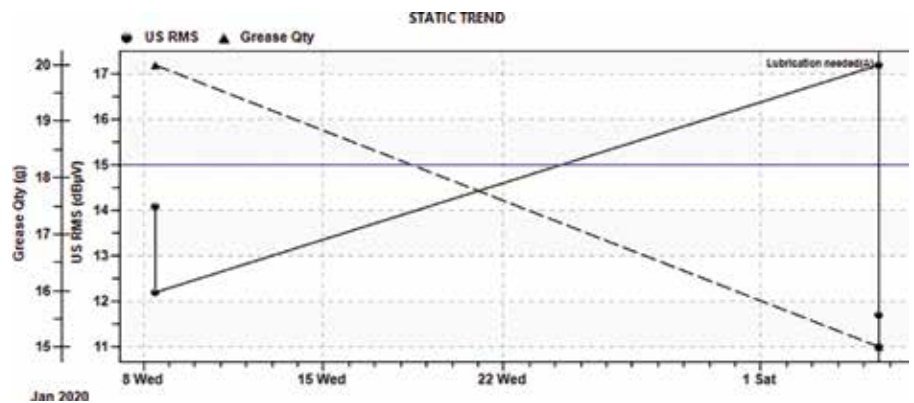
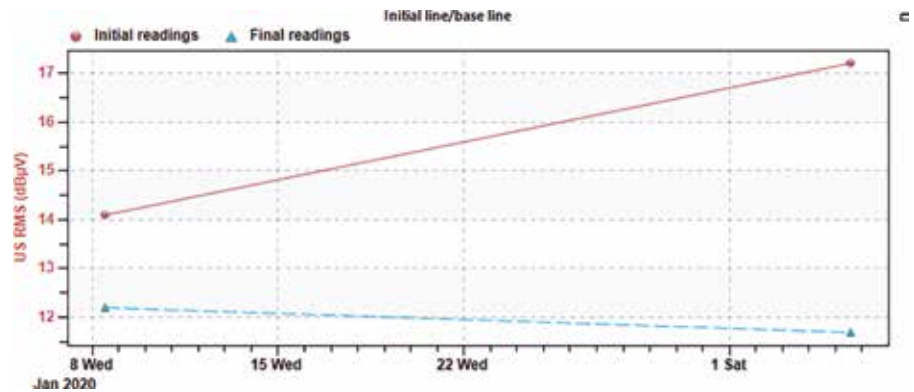
In a different dryer section of the machine, a felt roll was visited for the first time with the LUBExpert, one month had passed since last greasing.

Not knowing the lubrication status of this bearing, an initial injection of 10 grams was delivered and the RMS immediately increased to 27.1 dBμV.

On the onset, it would appear that we have done something bad to this bearing by entering an over lubrication status on the LUBExpert.

However, keeping in mind that we were previously delivering 40 grams to this bearing, we have effectively prevented an additional 30 grams of unnecessary grease being injected into this bearing which would have increased friction levels, heat and wear even further.

As more data is taken on this bearing and how it reacts to greasing, alarms can be set up to inform the operator that lubrication is not needed before injecting any grease, that will be the final setup of the program.



Level Name	RMS	Max RMS	Peak	Crest Factor	Lube Alarm	Lube Alarm Level	Grease Name	Nb. Grease Shot
27.1	30.4	47.4	10.35		over lubrication F		SHP 460	10
24.7	31.5	52.5	24.55		initial reading		SHP 460	0

Suction pick-up roll bearings failed one month prior due to improper lubrication resulting in a bearing change at a cost of CAD \$16 000 (10 865€), 8 hours of labor and loss production time to change the bearing out.

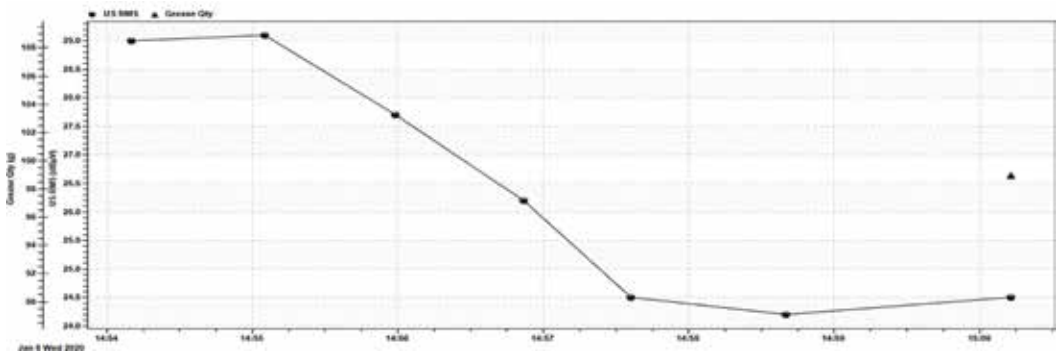
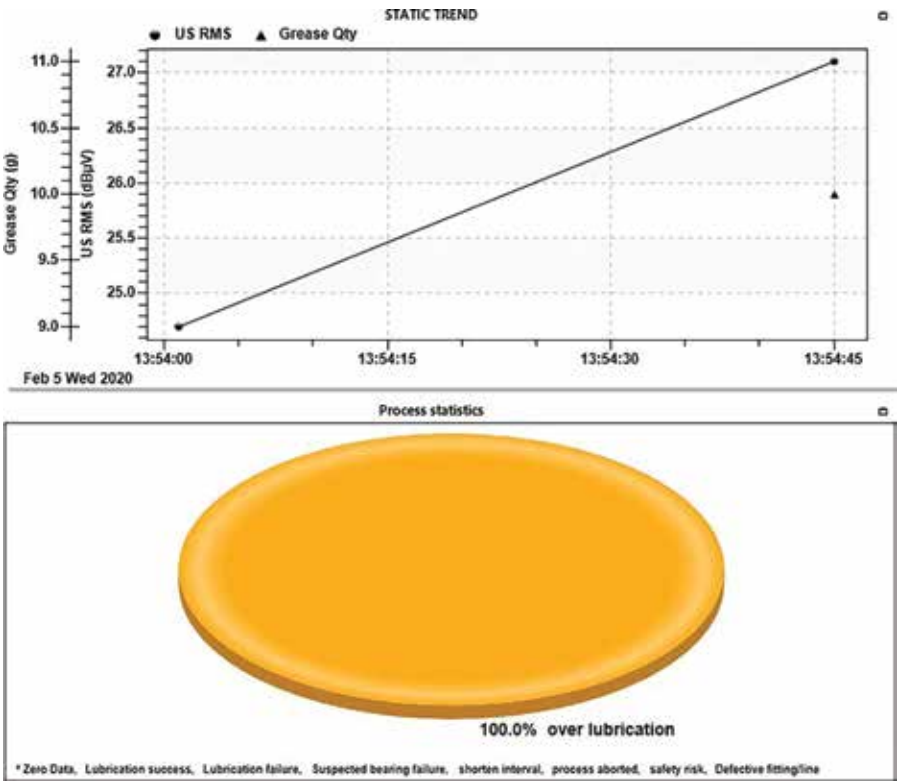
The bearing was checked upon startup using the LUBExpert and it was discovered that it was not greased properly, resulting in an under greased status which could have led to another premature bearing failure.

A total of 99 grams was effectively delivered to the bearing (total capacity is 271 grams) upon startup, indicating that the bearing was initially filled to only 63% of the required capacity.

The bearing initially showed an RMS of 29 dBμV and was reduced to an RMS of 24.5 dBμV through ultrasonic greasing with the LUBExpert.

The Ultranalysis® Suite 3 trend shows us successfully greasing the bearing down to the optimum level as expected.

This initial check prevented what could have been another catastrophic failure during production, increasing reliability on this roll and ensuring proper lubrication, reduced friction and wear on this bearing.



Level Name	RMS	Max	Peak	Crest	Lube Alarm	Lube Alarm Level	Grease Name	Nb. Grease Shot
	24.5	24.9	36.5	3.98		lubrication success F	SHP 460	99
	24.2	24.8	36.3	4.03		free mode	SHP 460	19
	24.5	25	37.8	4.62		free mode	SHP 460	20
	26.2	26.8	37.8	3.8		free mode	SHP 460	20
	27.7	28.3	39.5	3.89		free mode	SHP 460	20
	29.1	29.5	40.2	3.59		free mode	SHP 460	20
	29	29.4	40.1	3.59		initial reading	SHP 460	0





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# Race Transmissions renews ABB agreement to supply Dodge products

West Midlands-based Race Transmissions has extended its agreement with ABB to remain as an ABB Value Provider for a further two years.

Race Transmissions has renewed its contract to remain as the sole accredited UK ABB Value Provider for ABB's Dodge mechanical power transmission products. First awarded Value Provider status in 2016, the company, with the new agreement, has been recognised for its distinguished track record in providing outstanding service and support for customers. Confirmation of the agreement comes following a difficult year in which parts of the market have struggled against the backdrop of the COVID-19 pandemic. The extension to the agreement reflects the strength of the partnership between the two companies, and their ongoing resilience in adapting and thriving within a challenging market.

The ABB Value Provider program is a network of approved third parties that are afforded special accreditation to offer sales, service and engineering support for ABB products. Value Providers can access extensive stock offering and call upon dedicated support from ABB engineers.

For customers, the Value Provider network provides a guaranteed badge of quality and integrity. It offers peace of mind that accredited companies such as Race Transmissions can be trusted to deliver authentic ABB products along with extensive engineering and application knowledge.

The close collaboration between the two companies has allowed Race Transmissions, which serves the UK and Europe as well as further afield, to amass the largest stockholding of Dodge bearings and transmission products outside of the USA and valued at £1,200,000. Qualifying to be an ABB Value Provider is no easy task, as



“ The vetting process is rigorous, as is the product and application knowledge required to meet ABB's high integrity standards. Customers can rest assured that wherever they see the ABB Value Provider logo, they are buying into safety, security and guaranteed genuine spare parts. ”

*Tristin Hurst, UK Channel Manager ABB*





ABB's Tristin Hurst explains: "The vetting process is rigorous, as is the product and application knowledge required to meet ABB's high integrity standards. Customers can rest assured that wherever they see the ABB Value Provider logo, they are buying into safety, security and guaranteed genuine spare parts."

Race Transmissions supplies and supports the full range of Dodge bearings – including mounted E Type taper roller bearings, Grip Tight, E-Z Kleen and the S2000 series spherical bearings. According to Race Transmissions' Chris Fell, the company is well poised to continue delivering for its customers: "We have a ready-stocked UK warehouse and our fleet of vehicles is supported by overnight carriers to ensure speedy, efficient delivery worldwide. We offer just-in-time delivery, so no one needs to wait for anything. We're very pleased to have been given the opportunity to deepen our relationship with ABB

and are optimistic about developing our partnership in the future." "We pride ourselves on our user-friendly approach", adds Race Transmissions' Tony Harris. "Our team's vast knowledge of the many applications using Dodge products ensures that we can offer an incredibly rapid turnaround for product purchases and technical support. Although it has been operating in the UK bearings market for 36 years, Race Transmissions was formed in 2016, following a restructuring, which saw it divest its lubrication business. Since then, Race has grown the business in excess of 200 percent, which led to ABB offering the company the opportunity to renew its Value Provider status and refresh the commitment from both companies to each other from 2021 and into the future.

#### **Race Transmissions**

*Race Transmissions is based at Brierley Hill in the West Midlands,*

*UK and can be contacted at [www.racetransmissions.co.uk](http://www.racetransmissions.co.uk), or at [sales@racetransmissions.co.uk](mailto:sales@racetransmissions.co.uk), or on 01384 262 615.*

#### **ABB**

*ABB (ABBN: SIX Swiss Ex) is a leading global technology company that energizes the transformation of society and industry to achieve a more productive, sustainable future. By connecting software to its electrification, robotics, automation and motion portfolio, ABB pushes the boundaries of technology to drive performance to new levels. With a history of excellence stretching back more than 130 years, ABB's success is driven by about 110,000 talented employees in over 100 countries.*

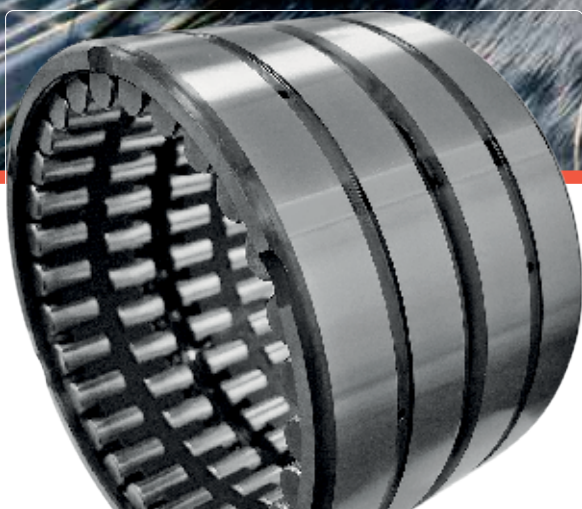
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# BEARING INDUSTRY

## 2021 - 2022

# EVENTS AGENDA

### Online & In-Person

Stay up to date with the latest bearing industry event information. This agenda highlights upcoming events, both in-person and online, occurring throughout the world in 2021 & 2022. COVID-19 has challenged the traditional trade show format. In many countries, the cancellation and re-direction of physical events remains necessary to ensure public safety. The industry has responded by providing a series of online opportunities congruent with in-person formats.

One new and exciting event format will arrive early next year. **The Bearing EXPO 2022 & Matchmaking Meetings** are re-defining the future of industry events. Using artificial intelligence (AI) algorithms, suppliers and potential leads will match

effortlessly. Attendees simply specify what they produce, who they are looking to meet, and the algorithm will do the rest. As technology and digitalization molds our trade shows, the ability to exchange information and network is creating new opportunities for growth not yet seen within the bearing industry.

The Bearing Industry Events Agenda will help you navigate the event landscape by providing the dates, locations, and important aspects of each event. You can always contact **[info@bearing-expo.com](mailto:info@bearing-expo.com)** for further questions or visit **[bearing-expo.com/events](https://bearing-expo.com/events)** for more information regarding the upcoming bearing industry events.



**BEARING WORLD**  
by FVA

**1st International BEARING WORLD Day**  
05 October 2021

• Online



**BEARING APPLICATION WORLD 2021**  
26 – 28 October 2021

• Online



**BEARING EXPO 2022 MatchMaking Meetings**  
21 - 25 February 2022

• Online

**BEARING WORLD**  
by FVA

**BEARING WORLD 2022**  
05 – 06 April 2022 (Würzburg, Germany)

• In-Person



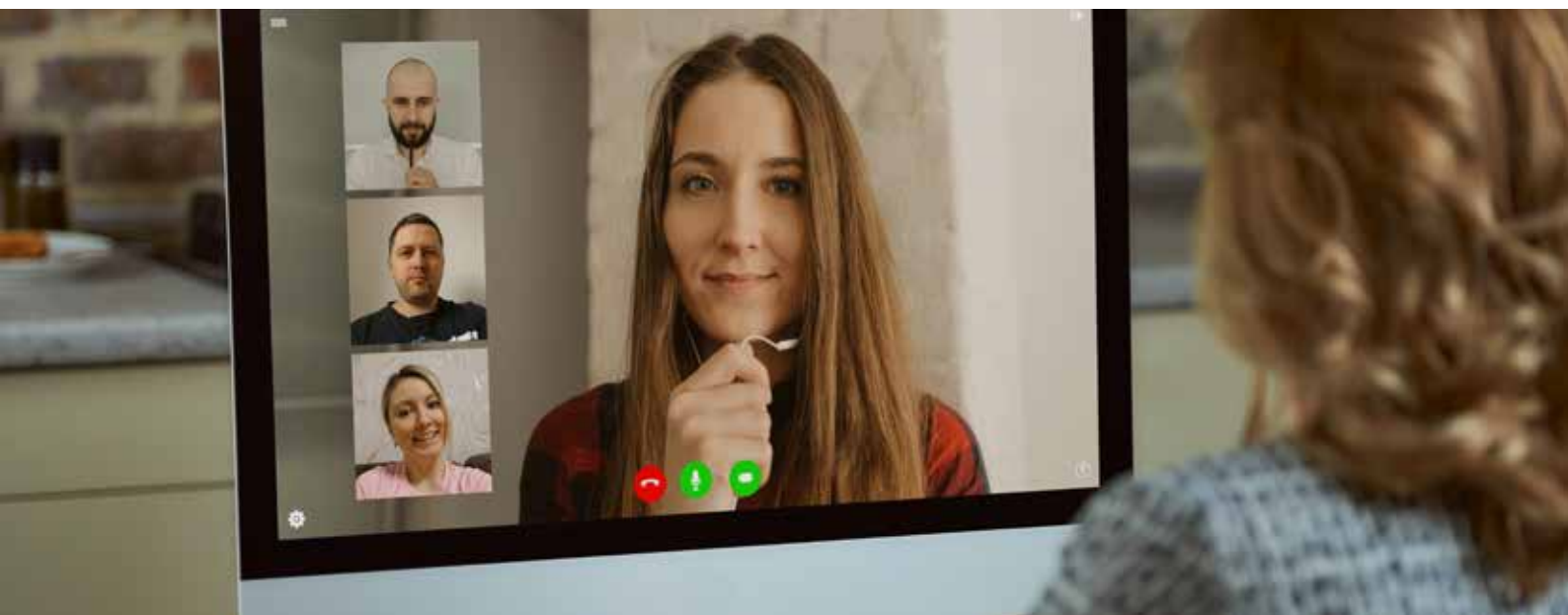
**BEARINGNET Users Meeting**  
29 - 31 May 2022 (Dublin, Ireland)

• In-Person



**SHANGHAI INTERNATIONAL BEARING EXPO 2022**  
08 – 11 December 2022 (Shanghai, China)

• In-Person







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Viewable on any network connected device; pc, laptop, tablet, phone using a standard browser

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# BEARING LUBRICATION REIMAGINED

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BEARING WORLD Day  
by FVA

ONLINE LIVE EVENT

# 1st International BEARING WORLD Day

A Day of Online Presentations  
for Rolling and Plain Bearing Experts!

5 October, 2021 | Online

With this year's BEARING WORLD Day, we are offering the community cutting-edge information on topics related to rolling and plain bearings!

Join the 1st International BEARING WORLD Day, featuring presentations by:

- Schaeffler Technologies AG & Co. KG
- SKF Group
- Leibniz University Hannover, Institute of Machine Design and Tribology (IMKT)
- TU Kaiserslautern, Department of Mechanical and Process Engineering (MEGT)
- And more!

Stay up-to-date with the latest information on bearings: [www.event.fva-net.de/en](http://www.event.fva-net.de/en)

We look forward meeting you there!



# - Bearing Application World - international digital trade fair for rolling bearing technology

Application.  
Operation.  
Solution.

26.-28. October 2021  
Virtual



Information about the  
Steinbeis-Transferzentrum  
Wälzlagertechnik

Steinbeis-Transferzentrum  
Wälzlagertechnik

The Corona pandemic has once again accelerated the digitalization of the industry. Now it's time to find innovative solutions for trade fair concepts and initiate exchange within the industry. The BAW shows how.

Almost every sector of the economy has been transformed by the Corona pandemic. The Steinbeis-Transferzentrum Wälzlagertechnik, which specializes in services and solutions in the field of rolling bearing technology, is responding to the changed circumstances with the concept of the Bearing Application World (BAW): BAW will take place for the first time from October 26th - 28th, 2021 - a digital trade fair from and for rolling bearing industry. Exhibitors and visitors can look forward to current and future-oriented topics and solutions related to rolling bearing technology. The program includes presentations by experts as well as virtual booths and a virtual networking lounge. With the slogans "Application - Operation - Solution", the BAW combines research and practice and primarily addresses companies in the international rolling bearing market, employees and

researchers who are interested in the current developments within the industry.

## Digitalization of the rolling bearing and exhibition industry

"I am sure that the trade fair business will not be the same after Corona as before," says Dominik Helfrich, head of the Steinbeis-Transferzentrum Wälzlagertechnik. "Therefore, we combine the advantages of a physical trade fair with those of a virtual one. This is a challenge we are happy to take on." Virtual trade fairs are often unfairly met with prejudice, he said, instead the focus should be on the advantages of digitalization. Comparing virtual and physical trade fairs directly, is problematic, he says. Thanks to the latest technical possibilities, the BAW trade fair platform offers space for entrepreneurs, exhibitors and speakers to present their products,

solutions and services in order to reach an international audience, no matter where the interested parties are at the moment of the trade fair. The time component is also more flexible here - the trade fair platform will also remain open "on demand" at least until November 9th, 2021.

## Thematic days with specialist presentations

Each day of the BAW focuses on a core topic of rolling bearing technology, with various exhibitors supporting the program with their expertise. The first theme day, "Measuring and Inspection Technology for Rolling Bearing Components," will include a presentation on profile and roughness measurement of rolling bearings by Robert Schmidt of T&S Gesellschaft für Längenprüftechnik mbH. Prof. Dr. Stephan Sommer from the University of Applied Sciences Würzburg-Schweinfurt



(FHWS) will talk about new bearing systems in mechatronic drive trains. Innovative solutions for "Rolling Bearings in Windpower" will be presented by SKF GmbH, among others, with a stand webinar and technical presentations. Thomas Peuschel will complement the program with a presentation on experiences and examples related to White Etching Cracks (WECs). The last day of the BAW is dedicated to "Electrical Current Passage and Lubricants." The University of Applied Sciences Würzburg-Schweinfurt as well as other companies from the industry will contribute their scientific expertise through lectures on electrical engineering.

#### **Focus on exchange: The BAW Community**

"We aim to establish BAW as the leading virtual trade fair in the rolling bearing industry and create a community from this trade fair platform that refers to research but clearly has a practical focus." In parallel to the virtual trade fair platform, the exhibition booths and the technical presentations, there will be an online networking lounge. In various areas, participants will be able to exchange information about various topics spontaneously and without obligation via audio, video and chat functions. In addition, exhibitors and visitors will have

access to the BAW Community, which offers the opportunity for exchange even before the trade fair begins.



— Dipl.-Ing. (FH) Dominik Helfrich

#### **Schweinfurt, the capital city of rolling bearings: three good reasons**

There are good reasons why Schweinfurt was chosen as the location for BAW: Two of the leading manufacturers in the rolling bearing industry are represented here with production sites. As a result,

many small and medium-sized companies are located here, as suppliers and service providers, which are closely linked to the rolling bearing industry based there. The University of Applied Sciences Würzburg-Schweinfurt (FHWS) is also oriented towards the industrial location of Schweinfurt with its courses of study. The FHWS is one of the largest universities of applied sciences in Bavaria and trains the engineers of tomorrow. In addition, the university offers a master's degree course called Product and System Development with a focus on rolling bearing technology, which is unique in Germany. Interested persons can find out more about the wide range of education opportunities at the FHWS booth.

*The Steinbeis-Transferzentrum Wälzlagertechnik offers high-quality services and solutions in the field of rolling bearing technology. The service portfolio includes failure analysis, product validation, consulting and design of rolling bearing applications. The Steinbeis-Transferzentrum Wälzlagertechnik is directed by Dipl.-Ing. (FH) Dominik Helfrich and Prof. Dr.-Ing. Stephan Sommer.*





# BEARING WORLD

by FVA

## The Expert Forum for Rolling and Plain Bearings

5-6 April, 2022 in Würzburg, Germany

BEARING WORLD presented by FVA – Fourth expert forum on “Industrial Research and Science in Dialogue with Practical Application,” focusing on the topic of bearings in theory and application.

In technology, wherever there is movement, rolling element and plain bearings are essential. This is true for general mechanical engineering, the automotive industry and others. Bearings transmit operating forces between moving machine components, and therefore play a crucial role in the functionality, efficiency, and service life of the overall machine or system. The stresses on rolling bearings in particular are very high, and will continue to increase in the future, as will expectations of reliability. Therefore, appropriate bearing selection and dimensioning as well as the optimal design of the bearing environment are indispensable. This requires constant growth in expertise based on practical experience and scientific knowledge. This includes, for example, bearing installation to ensure optimum clearance and preload, lubrication and sealing design, corrosion protection, condition monitoring, and targeted improvements based on extensive failure analysis.

### PRIMARY TOPICS

- ▷ Drive technology applications and challenges to bearings
- ▷ Calculation and bearing dimensioning
- ▷ Life and durability
- ▷ Energy efficiency
- ▷ Rolling bearing dynamics
- ▷ NVH (noise, vibration, harshness)
- ▷ Bearing damage
- ▷ Protective seals for rolling bearings
- ▷ Manufacturing aspects, tolerances
- ▷ Validation
- ▷ Lubrication
- ▷ Lab testing vs. field performance
- ▷ Smart bearings
- ▷ Model-based systems engineering



Image Sources: FVA e.V., juergenmai.com, Daniel Pilar-Photography, Schaeffler Technologies AG

BEARING WORLD focuses on all aspects of bearings.

The goal of BEARING WORLD is to promote the exchange of knowledge and experience between universities and engineers from the industry who are involved in or responsible for the design, development, manufacturing and assembly, or the practical operation or maintenance of bearings. Be part of it!

Contribute to the program by providing your knowledge and experience, and take advantage of the opportunity to share information! We look forward to receiving your proposals for the FVA-BEARING WORLD.



### **BENEFITS FOR PRESENTERS**

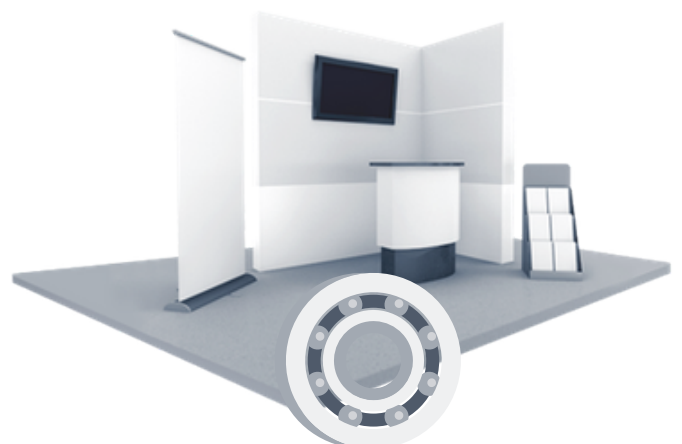
- ▷ The opportunity to publish your contribution as an extended paper in the Peer-Reviewed “Bearing World Journal,” which will be published after the conference.
- ▷ Free participation in the conference
- ▷ Free copy of the conference proceedings
- ▷ Free copy of “Bearing World Journal”

### **TRADE EXHIBITION**

Offer participants additional information about your presentation at your company’s stand at the trade fair. Information on the exhibition can be found at [bearingworld.org](http://bearingworld.org)

### **Submission deadline for abstracts:**

30 September, 2021 with more information at [www.bearingworld.org](http://www.bearingworld.org)







## **The Superior Quality Bearing Manufacturer of China is Looking for New Distributors Worldwide**

China's well-known and largest bearing manufacturing company ZWZ Group is expanding its global distributors network by announcing new distributors cooperation plan. The company is currently present in more than 100 countries and aims to increase this number in the coming period by appointing new distributors.



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# 2022 CHINA INTERNATIONAL BEARING INDUSTRY EXHIBITION



**DECEMBER 08-11 2022**

National Exhibition and Convention Center (Shanghai)



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## Join Shanghai Bearing Expo 2022!

**We would like to invite you to join the Bearing Expo pavilion or to become part of the foreign delegation at the China International Bearing Industry Exhibition!**

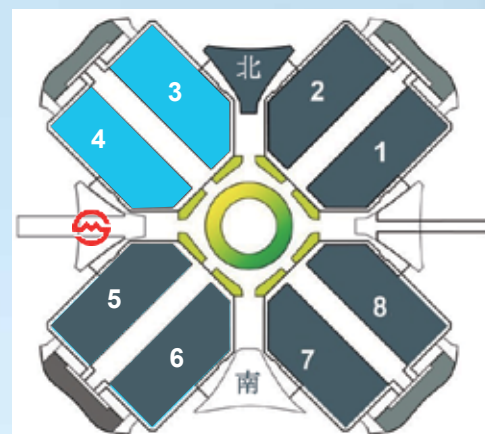
The world economy is facing unprecedented changes unseen in a century. With the rapid development of science and technology, the global bearing market is also undergoing profound changes.

In order to further promote the business interaction, exchange of bearings among related industries, and to highlight the latest technologies and achievements in the field of industrial bearing products, the 18th China International Bearing Industry Exhibition will be held in the National Convention and Exhibition Center (Shanghai) from December 8 to 11, 2022.

Exploring opportunities for entering the Chinese bearing market and finding reliable suppliers for sourcing can be realized for the foreign delegation members during the B2B matchmaking sessions, with factory visit programs before or after the event and by joining the Bearing Expo pavilion.

**Five different events and programs will be held simultaneously with the trade show in various location or in parallel halls at the same date and venue:**

- ✓ Matchmaking meetings for each type of bearing and related products
- ✓ Matchmaking meetings for bearing production equipment
- ✓ Bearing factory visits before or after the tradeshow
- ✓ 11th China International Fluid Machinery Exhibition
- ✓ Bearing technical seminars and Forum





# Join the Bearing Expo pavilion or delegation at China International Bearing Industry Exhibition

Delegation and Bearing Expo pavilion program options will include:

- Pre-event matchmaking program ✓
- Welcome dinner with the management of prominent Chinese bearing manufacturers ✓
- Organization of factory visits before and after the event ✓
- Bearing Expo booth at discounted price ✓
- Matchmaking meeting sessions before, during or after the event ✓
- Support with official invitation letter for your VISA application ✓
- Free entrance badge without queuing ✓
- Hotel reservation at discounted price ✓

Contact Us: [info@bearing-expo.com](mailto:info@bearing-expo.com)

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# A **50**year Journey *to the Global Stage*

*Interview with Mr. Shouming Wu, Founder of CMI Bearings*



*Mr. Shouming Wu at bearings production line in 1970s*



Few interviews capture the heart and soul of the bearing industry quite like this one. Mr. Shouming Wu, Founder of CMI, candidly details his personal journey of 50 years working with bearings. From humble beginnings helping local farmers and families, to his key role in the world-famous bearing town of Xinchang, Mr. Wu's personal story and positive messaging provides key insight into the culture and success of CMI.

**You have worked with bearings for half of a century. How did you start?**

In 1968, when we encountered an unprecedented drought, the water pump in the field was unable to operate due to bearing damage. At that time, China was in an era of material shortage so we could not find replacement bearings. Farmers and their families had to hand carry buckets to water the crops in the hot sun day after day. This situation deeply burned the heart of the people and local government leaders, who became determined to make their own bearings.

At the beginning of 1969, with an investment of 10,000 RMB and 10 workers from the county agricultural machinery maintenance depot, the bearing factory was formed inside a local ancestral temple. I was the first worker reported to duty. Knowing

the livelihood of the people was on the line, we all worked very hard, sometimes jumped over the fence to get into the factory to work overtime. The first batch of 6309 bearings were produced only a few months later and used on the pumps to irrigate the fields.

**When did you found CMI and how was your experience growing the company?**

Started in 1979, China ushered in a great opportunity of reform and opening to the outside world. This started the growth of many industries and companies including Xinchang Bearing. By 1989, Xinchang Bearing reached 100 million RMB in sales, established branches in China and Thailand, and set up overseas sales channels. I was promoted to be the general manager of Zhejiang Xinchun Bearing Co., Ltd. and led the effort to export "ZXZ" brand bearings to Europe and the US. In

1993, I invented a new way to cold extrude bearing rings and enabled the company to sell high volume bearing rings to many world bearing producers. In 1995, Xinchun Bearing formed a joint venture with Peer Co. from the US and I became the chairman of the board. The joint venture successfully entered the US OEM markets and became major suppliers to GM, Ford, John Deere, CNH and other multinational companies.

During the growth, our Peer joint venture faced a big challenge of obtaining high volume, high quality, and cost competitive bearing rings. To solve the problem, I started CMI company in 2001. We invested and setup advanced processes and equipment, including 4 Sakamara High Speed Forging machines. CMI played a key role in the success of the Peer joint venture during this time of rapid growth, and was later recognized by





**Mr. Shouming Wu,**  
*Founder of CMI*



other multinational bearing companies. Many customers knew me from my time at Xinchun Bearing and started to source more bearing rings, with higher grades and more precision, from CMI because they saw our new processes and equipment, as well as what we had done for Peer.

**Xinchang is a small town in a mountainous region not connected by railway. What is the reason your company can grow so rapidly on the global stage?**

We had to be creative and very hard working as we did not have anything else to rely on. When we first established our factory in 1969, we had to use a homemade salt melting crucible instead of a professional salt bath furnace, borrow lathes from others at night when they were not working, convert belt lathes into grinding machines, etc. We could not rely on suppliers far away, so we developed suppliers locally. Over time we developed a culture of innovation and hard work with our employees and suppliers, which eventually expanded to our regional industry. Many other bearing and component companies were developed in Xinchang county in the past 30 years, by our employees and suppliers' employees. Here people talk about bearings at work, at home, at parks, at dinner tables, etc. Everyone knows something and together we have made Xinchang a world-famous bearing town. The local talents and ecosystem of the bearing industry is also a major reason for the success of CMI.



**How do you feel about retirement after 50 years working on bearings, how do you spend your time nowadays, and what advice would you like to give to the next generation of leaders in the bearing industry?**

Today CMI has grown to a company of 1200 employees, has an annual revenue of US \$150 million, and is supplying finished bearings to world renowned companies in agricultural, construction

equipment, and other major industries globally, in addition to bearing rings. We have full manufacturing and development capabilities from forging, turning, heat treatment, to grinding and assembly, as well as seals manufacturing. So, I am very lucky and happy to retire at this stage of the company. I am spending most of my time now with my family, meeting old friends, and going places around the town enjoying relaxing moments. Of course, I still talk about bearings, as it still makes me feel happy and energetic. I feel the bearing industry is one that "you can check out but can never leave."

Even though I founded the company and made some satisfactory achievements in business and technology, I do not feel people should follow in my footsteps as different times and places all have their own opportunities and challenges that should require different approaches. If I have to say something here, I would like to say "providing true values to customers" should never change. At the end of the day, it does not matter how "good" you have become and how many expensive machines you have if you do not deliver the values customers truly need at the time and place.



—Mr. Wu made a lantern for a family member's child in his retirement



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



**CMI BEARING CO., LTD**

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# DEALERS WANTED



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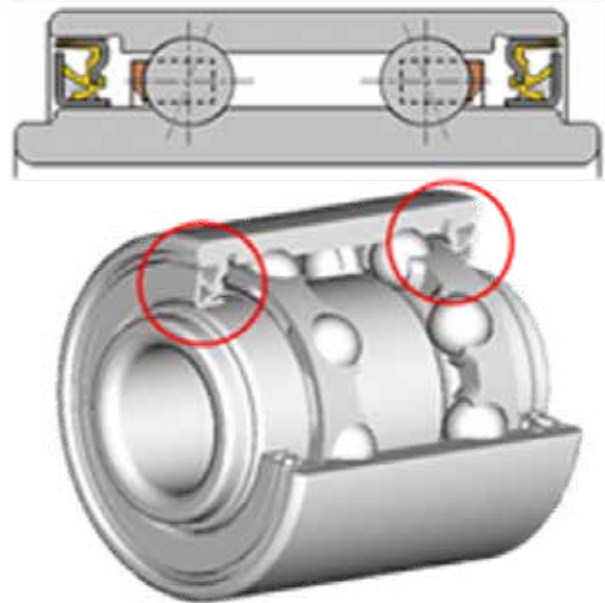
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www.enluse.com

# Cross-fertilizing seal technology from Automotive to Agri-machines

Koyo Bearings, a division of JTEKT Corporation has achieved significant improvements in muddy water resistance by developing new seals for ball bearings used in agricultural machinery that are normally operating in very harsh environments. This technology was originally developed for use in automotive hub units and is now also available for the agricultural sector.



Koyo's automotive bearing technology, which has been developed for road conditions that vary strongly in all countries across the world, will now contribute to the stable operation and reduced maintenance frequency of agricultural machinery, as well.

## Background of the development

Tractors and planters (the attachment to a tractor for sowing seeds) are normally used under harsh, muddy water conditions and it has been taken for granted, so far,

that they should be replaced or overhauled after a relatively short life cycle.

Recently, in order to meet the new, more stringent needs of agricultural machinery manufacturers to provide bearings that are resistant to breakage,

Koyo has developed a ball bearing with high muddy water resistant seals by applying the same seal technology used in automotive wheel hub units.



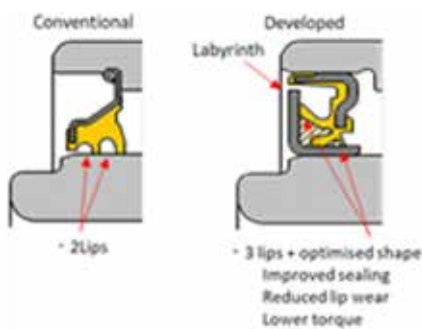
## Results after 400 hours of muddy water test

The left bearing clearly shows muddy water intrusion after removing the conventional seal. The right bearing shows no muddy water intrusion after removing the newly developed special seal.

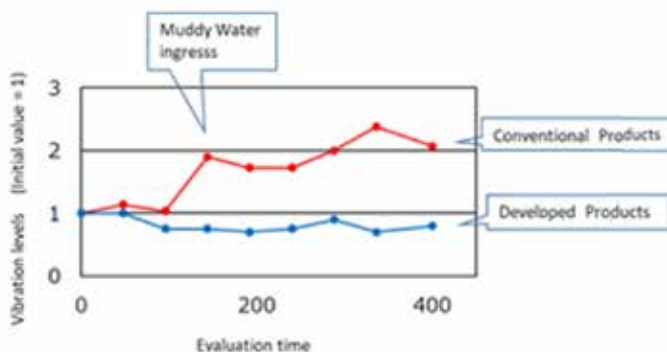


## Features of the new product

Conventional sealed bearings for agricultural machine attachments have two radial lips for improved mud resistance, but our new product has an additional axial lip in addition to the radial lip to optimize the geometry, reduce torque and achieve high sealing performance. The picture on the right shows the new 3-lips version with shape optimization and a shield labyrinth, resulting in more than doubling of the mud resistance.

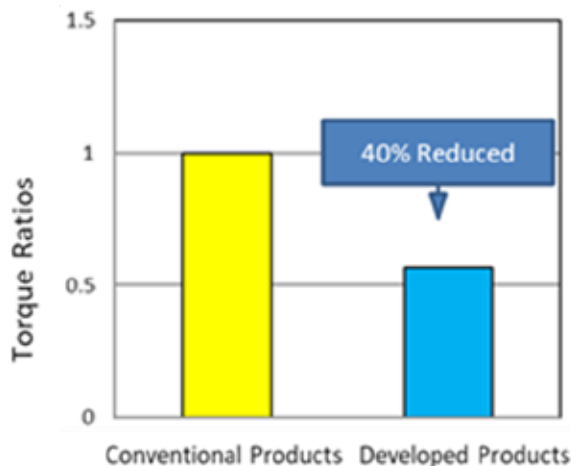


The vibration level is a clear indicator of the performance deterioration of the bearing, due to muddy water ingress. As can be seen in this evaluation test chart, the vibration level increases significantly over time when the conventional seal is used. Based on such bench tests we can say that the muddy water resistance of the seal is expected to increase with at least a time-factor 2.



## Optimized seal geometry reduces torque by 40%

An additional benefit of the newly developed seal is that the rotation torque is reduced by 40% which provides a positive contribution to better fuel consumption and therefore to reduction of CO<sub>2</sub>-emissions.



## Availability of this product

This product is in serial production for a large Agricultural machine maker since October 2020 and the related types/sizes can be made available for other customers, as well.

*Please do not hesitate to contact us, in case you would like to have more information about our company, products and services.*

Get to know our bearings at  
[www.koyo.eu](http://www.koyo.eu)



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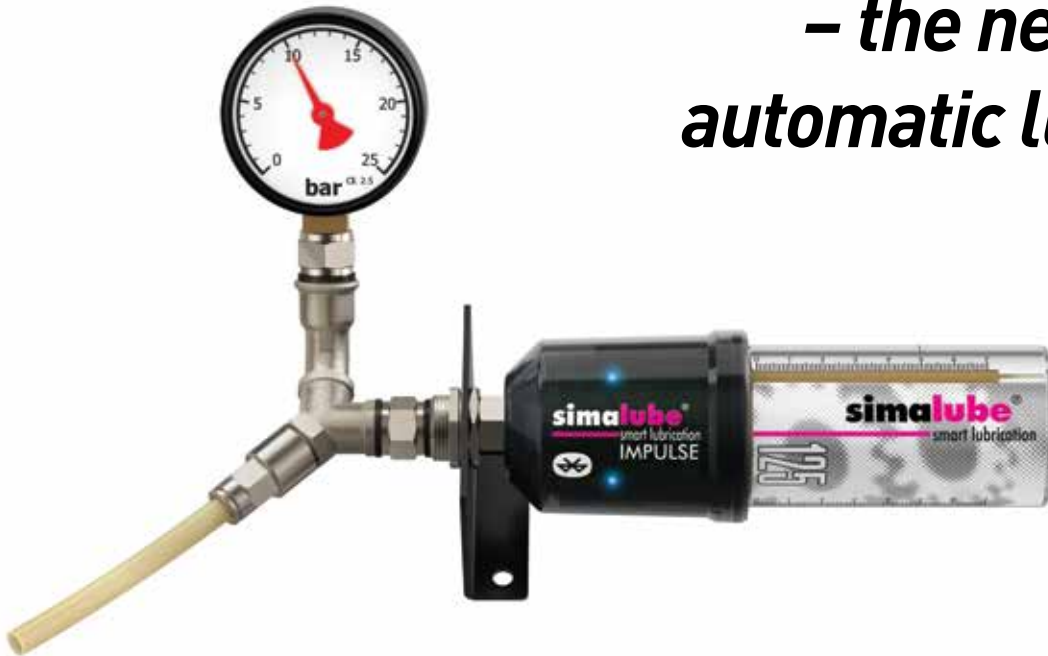
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# Ready to lift off to the world of maintenance with **simalube**

## – the next level of automatic lubrication



The simalube IMPULSE connect is the latest generation of the pressure booster from the simalube family. The proven functions of the IMPULSE have been supplemented with the option of connecting the device to a smartphone via **Bluetooth®**. In connection with the newly developed «simattec world of maintenance» app, the devices can be easily configured and then monitored without having to be directly at the lubrication point. Information such as general status, fill level, lubricant, size, start and change date etc. is displayed to the user and easy to read in the app. It also enables the customer to manage the lubrication points digitally.

Every industry has lubrication points with requirements that can be optimally solved by using the new simalube IMPULSE connect. The initial installation as well as the subsequent monitoring can be carried out quickly and easily thanks to the support provided by the «simattec world of maintenance» app. Together with the proven functions of the simalube automatic lubricant dispenser and the pressure booster IMPULSE connect, lubrication points are supplied with the required amount of lubricant with the greatest reliability, while at the same time reducing costs.







### Compelling customer benefits

Faster, easier and safer inspection rounds can save costs in the long run. The dispenser's status and error displays can be read directly in the app, and the lubrication points can also be managed in Lubechart via the app. Animated installation and operating instructions assist with a correct installation. Continuous lubrication ensures less wear on the components, which also leads to cost savings. Production downtimes for maintenance and monitoring purposes are eliminated, resulting in higher availability of the production equipment.

Together with the simalube lubricant dispensers in sizes 60, 125 or 250 ml, the simalube IMPULSE connect ensures reliable lubrication at high counterpressures and in lubrication lines up to four meters long. Regular lubrication triggers supply the lubrication point with 0.5 ml of oil or grease up to NLGI 2 at a pressure of up to 10 bar. This is gentle on the lubricant, as only the dosing quantity is under pressure. The operating status can be easily monitored with the «simatec world of maintenance» app. The intelligent pressure booster also provides continuous information about the current operating status.

### Simple installation and operation

As soon as the battery pack is inserted and the lubricant dispenser screwed in, the simalube IMPULSE connect is operational. The IMPULSE connect is connected to the «simatec world of maintenance» app via Bluetooth. The runtime, the size of the lubricant dispenser and the lubricant can then be selected and saved in the app. The system then works with the settings selected by the customer. When the lubricant dispenser is changed, the simalube IMPULSE connect remains permanently installed on the lubrication point. Only a new battery pack needs to be inserted before a new simalube







lubricant dispenser is screwed on. This way, the connection point remains sealed even when the dispenser is changed and no lubricant runs back. The settings saved in the app remain the same, but can be changed if necessary. The new start date is set automatically after the new battery pack is inserted.

#### **Versatile and – thanks to reusability – very cost-efficient**

The compact design of the simalube IMPULSE connect allows installations in confined spaces and in all positions; even under water. As an IP68 protection class device, the pressure booster is dustproof, waterproof and suitable for use in a wide range of industries. Equipped with a new battery pack at each refilling, the simalube IMPULSE connect can be used for ten dispensing cycles of simalube 125 ml or for up to three years.

#### **«simatec world of maintenance» app**

With the «simatec world of maintenance» app, simatec ag has created a platform for easier and more efficient management of lubrication work. The app offers the user the possibility to record lubrication points, to set the necessary parameters for the lubrication and to control or monitor all activities around the lubrication. The simalube IMPULSE connect equipped with Bluetooth® can be configured directly via the app, the current operating status can be viewed from a distance of up to 20 m via the app.

#### **Short profile of simatec ag**

*simatec is an independent, globally operating family business in Switzerland and has been managed in the second generation by Mischa N. Wyssmann since 2005. Since its foundation in 1983, a motivated team has*

*been developing and producing innovative products for the maintenance of roller bearings under the brand names simatherm, simatool and simalube. At the end of 2007, the simatec inc. subsidiary in Charlotte, NC, USA, and in 2017 simatec gmbh in Pforzheim, Germany, successfully started operations.*

*The simatherm induction heating devices enable rapid heating and the simatool tools facilitate the simple mounting and dismounting of roller bearings and other ring-shaped metal parts. And simalube lubricant dispensers automatically and reliably lubricate machinery and equipment around the globe.*

*With the launch of the simalube grease and oil lubricator, simatec opened up an extremely successful business segment and became one of the leading suppliers on the world market. The foundation for this success was the development of a special drive system: The patented gas producing dry cell enables a clean, safe, maintenance-free and long-term lubrication of bearings. This new technology simplifies complex processes and reduces the maintenance requirements on thousands of machines and systems.*

#### **Manufacturer and Distributor**

*simatec ag, Stadthof 2, CH-3380 Wangen a. Aare, Switzerland  
Tel. +41 32 636 50 00, Fax +41 32 636 50 19  
Website: [www.simatec.com](http://www.simatec.com)  
Email: [welcome@simatec.com](mailto:welcome@simatec.com)*

*If you have any questions about this press release, please contact:  
Angela Kalousek, Marketing & Communications,  
simatec ag, Tel: +41 32 636 50 00,  
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# ***SPECIAL BEARINGS***

***fully made in Italy***



**Simone Fantin,**  
*Vice General Manager and  
Sales Manager of CPM S.p.A.*



Staking on the product innovation, on a shrewd resource management and on the upgrading of its machine fleet, CPM S.p.A. has succeeded in keeping its production in Italy and now it makes programmes for the future.



— Angular contact ball bearing.

It is one of the company's feathers in the cap, having managed to keep the production in Italy completely. A long-term choice that the management of **CPM S.p.A.** made in the troubled years of the world financial and economic crisis and that it is pursuing with determination. The company, with headquarters at Nova Milanese, in province of Monza and Brianza, is focused on the design and manufacturing of special bearings for numerous application ambits. Thanks to

the strategy pursued in the last decade and to a highly shrewd management of the company's economic balance, today CPM approaches its customers as partner, with a dynamic attitude, making available a solid know-how gained in half century of activity. "Being always competitive is our great challenge" – started Simone Fantin, Vice General Manager and Sales Manager of CPM – "We want to be that in a complex, fragmented and rapidly evolving market,

offering products with high quality-price ratio. We are constantly oriented towards innovation, through an attentive selection of raw materials and the use of advanced manufacturing technologies, to be able to grant the quality and the customizations demanded by the market".

#### **Tailor-made products and services**

CPM was founded in 1967 and today its core activity consists in the manufacturing

“

Another sector on which we are focusing is the Oil & Gas, although it is currently affected by a crisis phase, owing to the oil price decrease. This is an ambit that we discovered five years ago: the samples we have supplied are waiting for their homologation. Besides, we have widened our range with the introduction of tapered roller and cross roller bearings.

”

*Simone Fantin, Vice General Manager and Sales Manager of CPM S.p.A.*



**1** *Bearing for cement mixer reduction gear.*



**2** *Crossed roller bearing.*



**3** *Cylindrical roller bearing for big-size planetary gearboxes.*

in medium and big batches of highly customized special bearings, in a dimensional range from 10 to 800 millimetres of external diameter. Special ball, cylindrical roller, tapered roller and needle roller bearings find application in numerous industrial fields worldwide, from the automotive to robotics, from mechanical transmissions to textile, from renewable energy sources to agricultural and earth handling machines. Every year, in the factory at Nova Milanese, organized to manage in-house all manufacturing phases, according to the lean production principles, they produce over 3 million special bearings, slewing rings and u-joint bearings. This approach represents an added-value that grants both the constant monitoring of the entire process quality and of each single component produced, and the necessary flexibility to manage the high customization requested. “Your needs...our actions is our business claim” – specified Fantin – “A concept that expresses our capability of supplying national and international customers collaborating with them, thanks to



— State-of-the-art grinding machine.

our technical office, since the early development phases of a new solution”. Another highlight of CPM is its extreme flexibility: “A right decision today perhaps will be no longer valid within

three years” – adds Simone Fantin – “Therefore, on one hand it is essential to rely on a long-term strategy, on the other hand we must be versatile to suit the changeable external market conditions”.



## Reference sectors and markets

About 65% of CPM production is intended for the Italian market, actually for manufacturers that export 70% of their technologies, while the remaining 35% is sold abroad, a percentage, the latter, that the Lombard company aims at rising. “We foresee a quite challenging 2022-2023. About 70% of our turnover is destined to the power transmission field” – explained the Sales Manager – “We are working to widen our reference outlets and to achieve new business opportunities. We are betting, for instance, on the mini wind power, we address the manufacturers of 10, 20 and 30 KW generators, even if it is a field whose development will notably depend on governmental funding”.

“Another sector on which we are focusing is the Oil & Gas, although it is currently affected by a crisis phase, owing to the oil price decrease. This is an ambit that we discovered five years ago: the samples we have supplied are waiting for their homologation. Besides, we have widened our range with the introduction of tapered roller and cross roller bearings”.

In geographical terms, the company is trying its expansion by proposing its solutions in Asia, especially in China and India, two outlets with high expansion potential. “We are carrying out some market surveys to understand how to approach these areas. Domestic Asian enterprises tend to outsource components locally but the difficulty resides in identifying companies that are not too attentive to price but hold instead quality in high esteem. We pay attention to Indian and Chinese OEM selling in Europe and therefore obliged to comply with our reliability and safety standards and to certify their products to compete with the various European players”. In general, macroeconomic prospects for 2022 are significantly recovering from the bad



— Simone Fantin, Vice General Manager and Sales Manager of CPM S.p.A.



— Lapping machine for rolling raceways.

period we went through due to the Covid virus; yet, 2021 is already showing a steep increase in sales, thus we can think of 2022 with optimism: we intend to consolidate what we are undertaking and in the course of the next 5 years we expect to rise the export to 50% of the turnover”.

## Quality and Certifications

To grant a high competitiveness level, CPM has focused on the maintenance of a high constant quality level. “Our products undergo strong mechanical stresses that can damage the operation of entire plants” – explained the sales manager – “Besides having the UNI EN ISO 9001:2008 and UNI EN ISO 14001:2015

certifications, we have made some investments to adopt modern SPC systems that allow us to monitor manufacturing processes constantly. During all phases, our control laboratory monitors and analyses if each bearing complies with the geometrical characteristics and all applicative and technical reference standards”. In the past years, CPM has also started the procedures to attain the UNI EN ISO/TS 16949 certification for the automotive industry: “More and more customers, and not only in the automotive field, ask to certify that all processes are under control, in order to grant qualitative and reliability constancy of the final product” - ended Simone Fantin – “For our company it is an important challenge that has involved human resources and has implied the purchase of new technologies to automate some testing phases.

“ Our products undergo strong mechanical stresses that can damage the operation of entire plants

*Simone Fantin, Vice General Manager and Sales Manager of CPM S.p.A.*

”

*More information about CPM's production capabilities can be found at [www.cpmbearings.com/en](http://www.cpmbearings.com/en)*



# Seals-Shop Marine

## Trelleborg Expands its Seals-Shop to Include Marine Seals and Bearings

Trelleborg Sealing Solutions expands its online store to include Seals-Shop Marine, which makes seals and bearings for the marine industry available to order direct at the click of a mouse or swipe of the finger.

Christian Pachur, Manager Distribution and Online Sales, says: "Trelleborg's Seals-Shop is highly successful. On average, we are seeing more than 150 transactions per month and with the addition of Seals-Shop Marine we expect that to increase. The Seals-Shop offers over 16,000 seals for standard and special applications, and through its clear structure and easy-to-use search interface, we know that visitors appreciate being able to quickly find the right sealing solution for their needs."

Seals-Shop Marine, is a section within the existing Trelleborg Seals-Shop, offering seals and bearings for a full range of marine applications, including ships, boats, and hydroelectric power plants. In addition to dynamic and static seals, the Orkot® portfolio of fabric-reinforced composite bushings and semi-finished products, which is widely used in the marine environment, is listed and available for purchase.

In Seals-Shop Marine, an extensive range of application-specific products can be searched, according to a variety of criteria such as material, diameter or width. Prices and availability are immediately displayed,

meaning even complex orders can be rapidly expedited.

The Seals-Shop Marine is an expansion on the existing Seals-Shop. Through this online store, which serves customers in the EU, Norway, Switzerland and the United Kingdom, Trelleborg Sealing Solutions has been providing direct access to its sealing products for several years. By registering to the shop, users can submit orders for seals, gain access to detailed product data and installation guides and reach out to a knowledgeable customer service team.

*The Seals-Shop Marine can be found here: [www.seals-shop.com/eu/en/marine-shop](http://www.seals-shop.com/eu/en/marine-shop)*





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For applications involving heavy dry/wet contamination or thrust loads, McGill® TRAKROL® bearings can help prevent downtime and are available in ball and tapered roller types and with multiple roller configurations. Additionally, Heavy Duty cam followers feature large diameter cylindrical rollers, higher radial load ratings than conventional cam followers, and can solve issues such as incidental thrust.

For more information on McGill cam followers or other McGill products, visit:

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**REGAL®**

# Automotive plant saves €577,000 a year by switching to **NSK** linear guides

After suffering an average of four linear guide failures a month on its process-critical component washing machines, a major automotive plant in Mexico is enjoying significant savings having switched to NH series linear guides from NSK. Taking into account previous costs associated with production downtime, parts replacement, labour and extra lubrication, calculations show that the facility is recouping \$696,155 (approximately €577,314) per annum.



— NSK NH series linear guides offer high dynamic load rating for extended fatigue life

The two automatic parts washers perform essential roles in the automotive plant's engine build process. One machine washes engine blocks of impurities after machining, while the second performs the same task on motor heads. A full AIP (Added Value Programme) application review performed by expert NSK engineers revealed that the two component washers were suffering from high levels of

corrosion, prompted by wash solution containing a mixture of metal residue, coolant and cleaning chemicals. This oxidation was prematurely damaging the bearings within the four linear guides mounted on the underside of the machine, leading to seizures. NSK's team of specialists therefore recommended the adoption of NH series linear guides.

High-quality NH/NS linear guides offer far greater service life due to the inclusion of innovative features like specially developed ball groove geometry. In addition, up to 30% more dynamic load rating helps to provide users with double the fatigue life of previous generation products in a compact and lightweight format.

Importantly, the NH series is available with a selection of innovative coatings to provide protection from harsh operating conditions.

At the automotive plant, NSK recommended hard chrome plating to provide both corrosion resistance and increased durability. The NH linear guides, supplied in lengths of 360 mm to suit the automatic parts washers, also feature a double seal, metal protector and NSK's K1 lubrication unit for long-term maintenance-free operation. The K1 is ideal for applications where regular grease replenishment is difficult or where it can easily wash away.

Following a successful trial period with no failures whatsoever, the use of NH series linear guides on the component washing machines is providing considerable year-on-year savings.

A new video about NH/NS linear guides is available on YouTube at [https://youtu.be/\\_62TERdoodU](https://youtu.be/_62TERdoodU)



— NSK's NH series linear guides for the parts washers feature hard chrome plating to protect them from the highly corrosive operating environment



**Murat Erturk,**  
*Chief Executive / Lead Innovation and  
Technology at OAV Air Bearings and  
Chairman of the Board at OAVCO*





# OAV Air Bearings

*for nanonewton and micro force control*  
**applications and testing**





Micro and nano-scale sensing became of primary importance for efficient characterization of nanostructures such as semiconductors, micro-robotics, biomechanics, CMM machines, and so on. This is one of the major achievements in the air bearing industry, and OAV focuses particularly on the evolution of measurement technologies regarding the requirements for micro-robotics applications, semiconductors, and CMM machines. We had a brief discussion about the latest developments regarding these high-tech air bearings with Murat Erturk, the Chief Executive / Lead Innovation and Technology at OAV Air Bearings and Chairman of the Board at OAVCO.

Measuring forces below the micronewton level for the manipulation of highly complex materials, embedding force sensors within microgrippers to increase dexterity and reducing the influence of

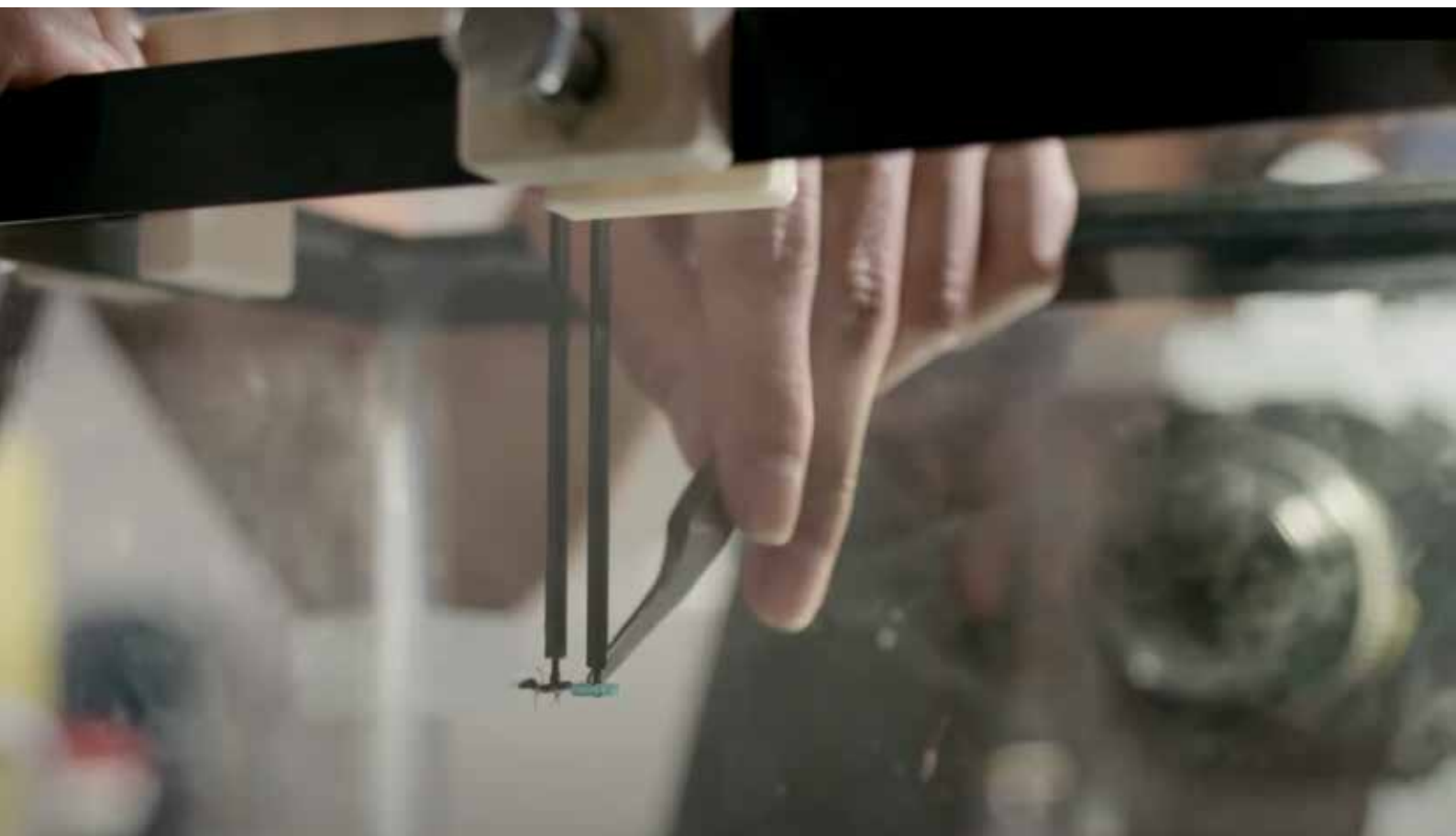
external noise to improve measurement resolution are among some of OAV's most recent successes. Generally, a guidance task can be done with or without direct mechanical contact between

the object and the system. Contactless guidance techniques have the advantage of not generating forces of adhesion between the object and the system. OAV Air Bearings are essentially

**Murat Erturk,**  
*Chief Executive / Lead Innovation and  
Technology at OAV Air Bearings and  
Chairman of the Board at OAVCO*







frictionless, and when coupled with a direct drive motor or a voice coil, they become ideal for nanonewton and micro force controlled applications. Our current focus is the development of techniques dedicated to measuring and testing physical properties of certain objects.

#### **How are air bearings and nanotechnology changing the world?**

Nanonewton and micro force-controlled applications are becoming increasingly common in today's world as technological advancements require refined forms of motion, measurement, and accuracy. Newer and more efficient innovations are necessary to accommodate advancements in technology. Air bearings have become essential in precision coordination at nano levels, which in turn has opened pathways to newer and more innovative advancements. Nano technology requires the manipulation of molecules and atoms

and is critical in creating advancements in many fields including health care, science, energy, and many others. Air bearings play a crucial role in providing for the efficiency in nanoscale technology. Their stability and zero-friction motion allows for the air bearings to provide precision required in many applications. Additionally, the use of air bearings in applications related to the advancement of equipment for metrology and precision at the sub-micron level ensures an extremely low likelihood of error and provides incredible precision.

Nanotechnological applications are becoming increasingly popular in today's world, and many applications rely on air bearings due to their stability, precision, and zero-friction motion at the submicron level.

Here is an interesting case study at [www.oavco.com/case-studies](http://www.oavco.com/case-studies). By replacing the traditional roller bearing at the fulcrum of

the dual rigid pendulum test assembly with the OAV Air Roller Bearing, customer was able to overcome the hurdle presented by traditional bearings in collecting quality test data. "friction has a large effect on energy measurement at these scales (micro-joules) ...and...the amount of energy measured using the OAV air bearings is at least six times greater than when we used traditional ball bearings."

OAV Air Bearings are nearly frictionless, and when coupled with a direct drive motor or a voice coil, they become ideal for nanonewton and micro force-controlled applications. OAV's new 100,000 sq ft Motor and Mechatronics Center of Excellence facility is currently focused on serving our customers with applications for micro-forced controlled testing at the nanonewton level.

*Visit [www.oavco.com](http://www.oavco.com) for more information.*



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**ON** the road or **OFF**-  
we'll fail your bearings  
and lubricant formulations,  
so your customers don't.



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Bearing Testing and Inspection Facility



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CHEMICAL PROCESSING





## How to Choose the Right CNC Machine Tools for Bearing Manufacturing: **An Ultimate Guide**

CNC machines are a powerful workhorse when it comes to performing a diverse set of engineering and manufacturing processes. From injection molding plastic bottles to machining aerospace components - there is nothing that a CNC machine cannot achieve. Equipment like **tabletop milling machines** can single-handedly deliver economies of scale, making them an indispensable element of your workshop.

However, given its versatility, it can be confusing to know when to use which tool while operating a CNC machine. Luckily, we have a comprehensive guide on choosing the right machining tools.



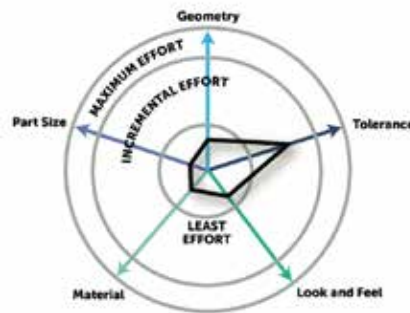
## 1. Assess the Existing Setup

Before you get ready to make changes to your CNC machine, start by evaluating your existing tool setup. Test out the functioning of the machines to see whether they can deliver the desired results. Look for any performance gaps and map them against the machine lifespan. Perform cost analysis of using the current machines and tools versus the cost of replacing them.

Most importantly, in addition to examining your CNC machine, gauge the proficiency of the operator and their corresponding experience to have a more holistic outlook. In some cases, their skills could be the greatest limitation that restricts your manufacturing capacity. Hence, you may discover new capabilities within your existing floor setup simply by upgrading your operator!

## 2. Part Design and Complexity

Part design, size, and complexity are some of the key controlling factors that dictate the use of certain CNC machine tools over the others. When working on simpler designs, you



could stick to something as basic as a lathe. However, if you are manufacturing parts for critical industries such as defense, automotive, medicine, and aerospace, you may have no margin for error. As a result, they may require highly advanced CNC milling machines to maintain greater accuracy, reliability, and repeatability.

These machines are often compatible with a wide range of spindles that can cut, bore, shape, turn, or maneuver parts across multiple axes.

## 3. Nature of Raw Material

While part design and complexity concern

the final finishing of the workpiece, the nature of the raw material determines the required horsepower, spindle speed, torque, and tool type during the machining process. Of course, the effort that goes into cutting aluminum would not be the same that is required while cutting hardened steel. CNC machine tools can work on almost all materials ranging from wood to titanium.

So choose a tool that complements the rigidity of the material and offers a good amount of tolerance to maintain performance, durability, precision, and load-bearing capacity. Apart from the physical properties of the feed, the cutting conditions also play an influential role in the machining process.

## 4. Type of CNC Control System

While choosing the right tools for your CNC machine, you also need to match it with the right set of CNC controls. And this is where the CNC control system enters the picture. Your CNC control system is a powerful terminal that can carry out everything, from automation to switching tools to changing axis during production.



Rather than settling for a big, fancy-looking screen that offers minimum value, prioritize features like reliability, software stability, user-friendliness, and effectiveness of the control system.

initial capital investment, machine depreciation value, interest on loans, etc. On the other hand, the moving component encompasses the material cost, labor cost, maintenance cost, equipment servicing

of space it will occupy. Maximizing floor space utilization, minimizing physical movement of goods or operators, streamlining material flow, chip disposal, power supply availability, and room for further expansion are a few considerations that help manage safety, efficiency, and productivity.



5. Average Cost Per Part

Simply investing in an expensive or high-value CNC machine does not guarantee that you will make instant profits. The same applies conversely as well. To figure out whether the production process is actually raking in any profits, one needs to accurately calculate the cost per part, which includes the variable, fixed, and hidden costs that come into play. The fixed cost could be in the form of

cost, spare part costs, tooling costs, etc. Finally, the hidden cost could be any monetary or non-financial losses, such as poor efficiency, delayed cycle times, performance issue, breakdowns, which could hurt your bottom line.

6. Space Available on the Floor

When you are ready to make a new CNC milling machine a part of your workshop, you need to assess the amount

Concluding Thoughts

Choosing the right CNC machining tool is the foundation of a project’s success. Hence, dedicate the time and effort to understand the project requirements and choose a tool accordingly. The “perfect fit” will grant you higher efficiency, improved job quality, enhanced accuracy, and greater profitability.

Getting familiar with the tools and their functionality can be a great start to making an informed decision while selecting the machine tool up for the task.

About the Author:



Peter Jacobs

*Peter Jacobs is the Senior Director of Marketing at CNC Masters. He is actively involved in manufacturing processes and regularly contributes his insights for various blogs in CNC machining, 3D printing, rapid tooling, injection molding, metal casting, and manufacturing in general.*







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# 125 years of Krebs & Riedel

## Innovative grinding technology since 1895

The cornerstone of the Krebs & Riedel grinding wheel factory in Bad Karlshafen was laid some 125 years ago. Today the family-owned company operates worldwide as a manufacturer of individually manufactured precision grinding wheels and impresses with innovation and solution-oriented application technology advice.



— Ceramic bonded CBN and diamond tools.

Above all, customers from the automotive, aerospace, mechanical engineering, medical technology and wind power sectors rely upon the high-precision products manufactured by Krebs & Riedel. In addition to conventional grinding wheels, cutting wheels, cup grinding wheels and grinding segments with ceramic and synthetic resin bonds, Krebs & Riedel also manufactures CBN and diamond tools with ceramic bonds, as well as honing rings. The medium-sized family business with over 250 committed employees has an annual turnover of 31 million euros. Krebs & Riedel is one of the global innovation leaders in abrasives and has subsidiaries in China and India and a strong distribution network in more than 30 countries worldwide.

### **A family-owned company, strengthened by crises.**

In the company's history there have been many crises in which the management has withstood external influences. The company survived two world wars and the Great Depression of 1929. In 1965 Bad Karlshafen was hit by the Heinrich flood and afterwards various buildings were demolished, rebuilt and numerous employees were hired. In 2008, the bankruptcy of the Lehmann Brothers bank plunged the world into a severe economic crisis and many thousands of

people lost their jobs. In 2020, COVID-19 will cause another global economic

collapse but despite the pandemic, the company is well positioned for the future.



— Investments regarding the expansion of the factory and in sustainability management are currently being planned.

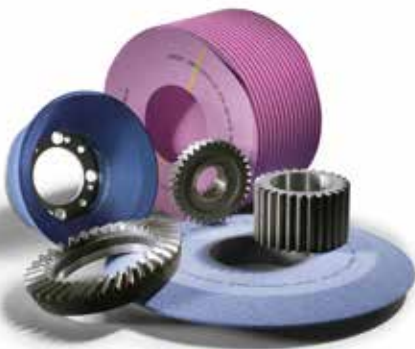
### **Strong investments in the future.**

Krebs & Riedel has subsidiaries in China and India, as well as 30 international distributors. A team of application technology consultants looks after customers worldwide. Krebs & Riedel emphasizes the importance of research & development and works closely with several research institutions. Important investments in sustainability management and the expansion of the Bad Karlshafen plant are ongoing.



## Diverse portfolio, individual products and special solutions with special quality requirements.

At Krebs & Riedel, high-quality products are created with special quality standards and maximum safety. Krebs & Riedel is a member of the VDS (Verband Deutscher Schleifmittelwerke e.V.). As a founding member of the oSa (organization for the safety of abrasives), safety comes first. The production program includes corundum and silicon carbide wheels with a ceramic bond and synthetic resin bond for most industrial grinding applications up to 900 mm outside diameter for round, flat, tool, centerless, gear and rough grinding applications. Cut-off wheels in synthetic resin bond with and without fiber reinforcement up to 800 mm outside diameter for chop cut, pendulum cutting and rotary cutting. Roughing and pendulum grinding with and without fibre reinforcement for the cleaning shop and the foundry industry; Grinding wheels for pendulum grinding machines, grinding wheels for bench grinders and grinding wheels for grinding manipulators. Diamond and CBN grinding media in vitrified bond with a working speed of up to 200 m / s for internal, flat, circular, tool grinding and special grinding processes.



— Solutions for profile grinding, continuous generating grinding applications.

### Krebs & Riedel is a specialist in gear applications.

Krebs & Riedel is a specialist in the field of gear applications and supplies top gear manufacturers around the globe. These grinding wheels are used on many gear grinding machines, including those from the manufacturers Gleason, Kapp-Niles, Klingelnberg, Liebherr, Mitsubishi, Reishauer and Samputensili.

For customers in the automotive industry, aerospace, mechanical engineering, medical technology and wind power, Krebs & Riedel offers the right tools for the perfect machining of gears in continuously reliable quality. Our experience ranges from grinding the smallest gears in the field of medical technology to large planetary gears in wind turbines.

From continuous generating grinding to single profile grinding and bevel gear grinding to power honing, we also offer customized grinding solutions. Whether you want to increase your productivity, improve tool life or optimize your surface finishes, you can rely on Krebs & Riedel's consistent grinding performance.



— Continuous generating grinding with fine and polishing zone. Picture copyright: Kapp-Niles

### The effective Blue Moon™ wheels for continuous generating grinding

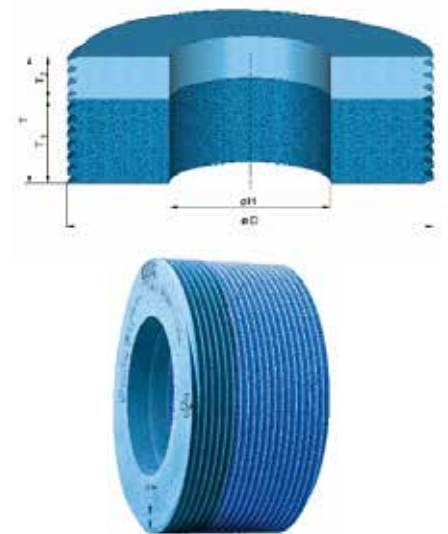
Blue Moon™ 147A and 148A - specifications for increased economic efficiency through extended dressing cycles and increased removal rates in the grinding process. By using special abrasive grain geometries and proportions in connection with an optimized pore space design, a very high level of ease of cutting with little heat input and high cutting performance is achieved. Krebs & Riedel produces unprofiled or pre-profiled worm wheels for modules 1 - 12 in the highest quality according to customer specifications up to 80 m / s.

### Typical specifications of the Blue Moon™

Module	Specifications
2 - 12	148A 80 J 11 V174-30
1,5 - 3	148A 100 J 11 V174-30
0,8 - 1,5	148A 120 J 11 V174-30

### Continuous generating grinding with fine and polishing zone.

Krebs & Riedel produces a wide range of dressable grinding worms with a ceramic bond for your gear machining. All specifications guarantee the highest profile accuracy with the lowest thermal loads on the workpieces. The combination of our grinding worms with fine-grain or polishing worms creates powerful tools that enable grinding and polishing in one application. The following design variants of the compound screws are possible: Unprofiled or pre-profiled for module 0.8 - 5, larger modules possible upon customer request.



### Re-coatable CBN worm grinding wheels on a carbon carrier.

Krebs & Riedel was one of the manufacturers who offered a carrier variant for CBN and diamond abrasives. The proportion of carbon fiber guarantees maximum strength with the lowest weight. The body is up to 75% lighter than a comparable steel body. In addition to easy handling during assembly, extremely smooth running is achieved. This

Module area	Grinding zone	Finish zone	Achievable surface
$m < 2$	70A 120 I12 V170-30	KR800B 35A 400 V	$Ra < 0,1$ , $Rpk$ ca. 0,05, $Rk < 0,25$ $Ra < 0,2$
$m = 2 - 5$	70A 80 I12 V170-30	KR800B 35A 400 V	$Ra < 0,1$ , $Rpk$ ca. 0,05, $Rk < 0,25$ $Ra < 0,2$
$m = 2 - 5$	148A 80 J11 V174-30	KR800B 35A 400 V	$Ra < 0,1$ , $Rpk$ ca. 0,05, $Rk < 0,25$ $Ra < 0,2$
$m = \geq 4$	147A 80 I11 V174-30	KR800B 35A 400 V	$Ra < 0,1$ , $Rpk$ ca. 0,05, $Rk < 0,25$ $Ra < 0,2$



—Re-coatable CBN grinding wheel with a Carbon base body.

means that the load on the grinding spindle is lower. In addition, they offer significantly better damping properties than conventional base bodies. In addition, the carbon base bodies are often used when machining small filigree components. The grinding behaviour is more harmonious and leads to improved

surface quality. With the new CBN worm grinding wheels, an increase in productivity can be achieved through increased stock removal with an improved service life.

Thanks to the fact that the base body can be re-assigned, good economic efficiency is also

achieved, despite the higher material price. Therefore, it is not just a short-term thought, but a trend that will also prevail over the long term. The working speeds are up to 100 m/s. Depending on the composition, higher working speeds can also be achieved.

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