



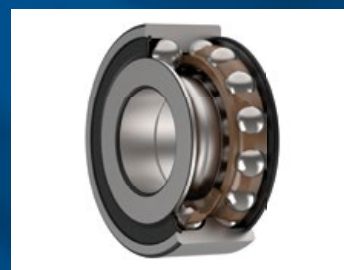
## YEAR 2022: 101 YEARS OF BEARING PRODUCTION IN THE CZECH REPUBLIC



Ongoing investments  
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**1921** – Klášterec plant

**1947** – Brno plant

## Opening speech

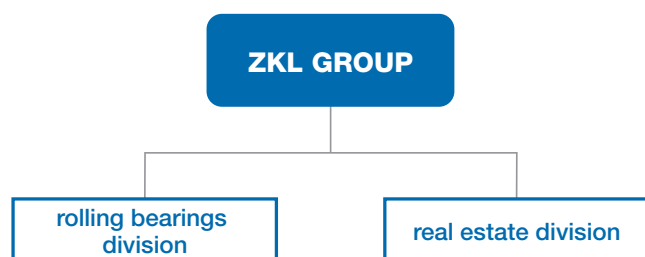


### *Dear business partners,*

I am glad to greet you again in the new issue of the ZKL News magazine and to provide you with information on the results and plans of the ZKL Group for the coming period.

The ZKL brand has been associated with the production of rolling bearings for more than 100 years. During this time, many social changes have occurred in the Czech Republic, Europe and the world, which included wars, revolutions, but also new inventions and significant technological progress.

In this context, it is important to mention that the development, production and sale of rolling bearings under the ZKL brand has survived this period and has been operating in a new organisational structure until the present day. The current organisational structure consists of a division of the Group into divisions according to their business activities:



The rolling bearings division focuses on research, development, production and sales of rolling bearings supplied under the ZKL brand, specializing in:

- large-sized bearings up to 2,000 mm diameter,
- thrust spherical roller bearings and ball bearings,
- bearings for vibration environments, etc.

The current state of the branch and its future plans prove the validity of its functioning, because – as a quality product – it fulfils the function of an irreplaceable assembly branch for engineering and related industries.

The real estate division develops activities in the field of real estate activities aimed at:

- management of rental housing in Brno and Klášterec nad Ohří,
- management of office buildings,
- development activities in the field of rental housing development in the form of construction of residential buildings and family houses.

As part of its business activities, this division responds to the current social demand in the Czech Republic and thus helps to address the development of housing, especially for young families.

The activities of the rolling bearings division and the real estate division are reflected in the economic results as shown in the table below.

As you can see from these figures, since 2015, there has been a steady growth in all the plan indicators, which we use to create a competitive position on the market in the Czech Republic, Europe and the world.

Our plans for the future follow the company's vision, which includes the commitment:

- to be a reliable partner to our customers,
- to be a leader in the field of large-size bearings.

Our efforts in 2022-2024 are oriented in this direction with specific plans, which are:

#### **A. Rolling bearing division**

- the project for the construction of Hall 5 – approx. 10,000 m<sup>2</sup> at ZKL Brno plant,
- the photovoltaic power plant on the roofs of production halls at ZKL Brno and ZKL Klášterec nad Ohří factories,
- the modernisation of technologies at the ZKL companies in Brno and Klášterec nad Ohří.

#### **B. Real estate division**

- the completion of a residential building with 50 residential units in Brno,
- the reconstruction of a telephone exchange building into 4 residential units in Klášterec nad Ohří,
- the project documentation for the development project of ZKL Park 1 and ZKL Park 2 in Klášterec nad Ohří, etc.

Dear business partners, in my opening speech I wanted to show that, despite the very difficult times caused by the crisis in Ukraine, cost inflation associated with rising energy prices and instability in material supplies, we remain committed to resolving the situation and meeting our 2022 and medium-term objectives. Therefore, I would like to thank you for your cooperation and ask you to remain supportive of our efforts.

Ing. Jiří Prášil, CSc.  
CEO of ZKL, a.s.

Indicator/ Division		2015 reality	2016 reality	2017 reality	2018 reality	2019 reality	2020 reality	2021 reality	2022 outlook
Sales (in thousand CZK)	<b>ZKL TOTAL</b>	974 135	1 068 643	1 053 295	1 068 895	1 112 304	1 183 304	1 352 867	1 458 617
	<b>ZKL BEARINGS</b>	905 381	998 237	979 652	993 442	1 036 645	1 100 165	1 263 036	1 358 676
	<b>ZKL REAL ESTATE</b>	68 754	70 406	73 643	75 453	75 659	83 139	89 831	99 941
EBITDA (in thousand CZK)	<b>ZKL TOTAL</b>	51 063	96 190	123 282	133 623	157 965	159 388	190 860	185 419
	<b>ZKL BEARINGS</b>	624	47 428	66 645	77 322	104 475	98 809	125 288	114 357
	<b>ZKL REAL ESTATE</b>	50 439	48 762	56 637	56 301	53 490	60 579	65 572	71 062



# Entering the second century of bearing production in the Czech Republic

*This year it is 101 years since the start of bearing production in the Klášterec nad Ohří area and 75 years since the construction of the Brno-Líšeň plant. How it all began, what were the milestones that have fundamentally influenced our present, and what visions we have to enter the second century of bearing production – you can find all these in the following article.*

## FROM PAST TO PRESENT

The first bearings were produced in the Czech Republic in the small town of Perštejn, near Klášterec nad Ohří, in the then factory of the German company Fichtl and Sachs from 1921. This plant was later taken over by the Swedish company SKF. After the war, the production from this plant was transferred to Klášterec nad Ohří, where the national enterprise was established in 1952 – ZKL, n.p. Klášterec nad Ohří – which was transformed into a joint-stock company in the process of privatisation in the 1990s. In 1999, this company was incorporated into the ZKL Group.



ZKL Klášterec nad Ohří

The history of Brno bearing production is somewhat younger. The production of bearings started in 1947, using the licence of the English company Hoffmann, within the former Zbrojovka company in Brno-Líšeň. The constant need for new types of bearings and new quality requirements for the technical level in the field of design, technology and quality gave rise to the establishment of the Research Institute of Rolling Bearings (ZKL VÚVL – Výzkumný ústav valivých ložisek). The production of bearings at the former Zbrojovka Brno and the research and development activities at ZKL VÚVL became the basis of the current joint stock companies, ZKL Brno, a.s. and ZKL – Výzkum a vývoj, a.s.

The modern history begins in 1999, when the joint stock company ZKL was founded, integrating Czech bearing manufacturers producing bearings under the trademark ZKL. Today, the ZKL Group is a completely Czech private company integrating production companies, namely ZKL Brno, a.s., ZKL Klášterec nad Ohří, a.s., and also specialized companies ZKL – Výzkum a vývoj, a.s. and ZKL Bearings CZ, a.s.

## PRESENT

We are aware that we cannot live on history alone, therefore we regularly invest in research and development of new products, modern technologies and management systems as well as in training of our employees to keep up with the times and to ensure long-term prosperity of the company and competitiveness of our products on the global market.

We are proud that we have managed to

keep traditional engineering production and know-how in Czech hands. In the context of the current business and political situation in the world, we are increasingly aware of the importance of maintaining traditional industrial production at home – in the Czech Republic. Production based on the years of experience of previous generations and the new innovative approach of the present generation. Our bearings have been used for centuries in a number of products of well-known, iconic brands or are associated with them.

We have a stable network of long-term business partners with many new orders and we are growing together with them. This growth creates the opportunity for new investments in premises, digitalisation, as well as for recruiting new employees.



ZKL Brno

We develop, design and manufacture bearings for the most demanding applications and for new growing and environmentally sustainable sectors of the global economy such as wind energy and rail transport.

## VISION FOR THE FUTURE

**We are creators of motion, we are ZKL**

As the new slogan suggests, at ZKL we not only manufacture and supply products, but above all we provide comprehensive solutions for modern industry and future trends, especially in the fields of energy, the use of natural energy sources and sustainable, effi-



cient and environmentally friendly transport. We build on the centuries of experience of our employees in development, production and trade, passed down from generation to generation.

We see the environmentally friendly approach to energy production and sustainability as one of the most important challenges of our time. We are pleased that our employees feel the same way. Not everyone is lucky enough to develop, manufacture or sell wind turbine bearings for the world's most important manufacturers. Or for trains running on several continents. At the same time, as part of the company's development, we are investing in state-of-the-art technologies that are environmentally friendly and ensure maximum production efficiency with respect to limited raw material and energy resources.



ZKL VÚVL



As in the past, large-size bearings are produced in ZKL Brno

# Ongoing investments

## INVESTMENTS IN INFRASTRUCTURE

### • Preparation of the Hall 5 reconstruction

In 2021, we decided to start preparatory works for the revitalisation of the original part of Hall 5, whose premises were no longer suitable for the further development of the technical level of such precision bearing components as rolling elements. The grinding plant for the production of rolling elements was moved to the already renovated Hall 4 and its premises offer everything that can be



New grinding machine BB 10 ST CNC

expected from modern production.

The move itself was preceded by extensive preparation. It was not just a matter of relocating one production centre, but it was necessary to build an area for the support facilities. A number of offices had to be moved and the office area was rebuilt as the measurement control centre. This created a new, centralised facility for the storage, management, adjustment and dispensing of production gauges. The machines that were located in the new production area were relocated to other areas of Hall 4 to maintain and improve the logistical flow of materials. These steps were the right ones in terms of logistics and availability of gauges, which is confirmed by the high operability and the reduction of unproductive, secondary machine set-up times and unnecessary prolongation of the process flow.

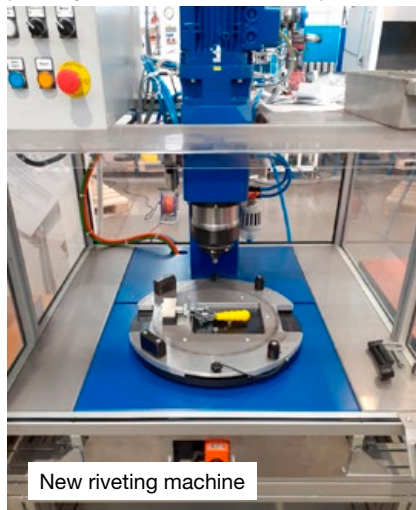
Subsequently, the actual moving of the machines took place. It was necessary to move 54 machines to the new premises. Prior to the actual move, the individual machines were assessed in terms of their technical condition and usability in production. The placement of the machines was planned so that the entire technological and production flow was as efficient as possible and the logistics between the particular operations was as short as possible. The individual technological operations are thus linked and increase the efficiency of the production process. At the same time, environmental and safety considerations were taken into account in the planning of the new workplaces to increase the comfort and safety of the workers and to minimise the environ-

mental risks and the burden of the operation. As the grinding plant for the serial production of double row spherical roller bearing rings is located next to the future production of rolling elements, it was necessary to separate these two different production facilities. This created two independent productions. In addition to it, the entire area for the future rolling element grinding plant was equipped with a full-space extraction system.

### • Conversion of Hall 32

The history of Hall 32 dates back to the mid-1950s. The owner at the time, the company Zetor, built it as an office complex with tire storage facilities. Over time, the building was used only as an office building, and the storage area with the basement was unused for many years. After the division of the company, the building was acquired by the company ZKL Brno, which used it partly as an office building and partly as changing rooms for its employees. As part of the development of the company ZKL Brno, the possibility of expanding the premises with additional production facilities was considered to meet the increasing demand of our customers for the bearings produced by the ZKL Group.

Modernisation was proposed for the entire building with the aim of reducing the carbon footprint. The newly created premises were equipped with triple-glazed windows and the floor was reinforced for higher loads. A central hot water heating system was installed; each heater is individually controlled by a computer system and allows the temperature to



New riveting machine

be optimised in different areas of the hall. The lighting is LED-based, distributed in 5 sections. The foreman's office is located in an elevated position above the entire area, giving them a complete overview of the ongoing production process.

### • Revitalisation of the premises in Klášterec nad Ohří

The company ZKL Reality continues to revive and modernize the unused buildings on the ZKL premises in Klášterec nad Ohří. In the second quarter of 2022, the reconstruction of

the office part of the previously reconstructed production Hall 3 and the reconstruction of the garages was completed. After the reconstruction, income from external entities is expected.

An application has been submitted to change the zoning plan of the area around the former incinerator, where a new part of Klášterec nad Ohří is to be created. As part of the preparatory works, the first stage of demolition of the disused buildings was carried out. The possible start of the new construction is scheduled for 2025.

## INVESTMENTS IN TECHNOLOGY

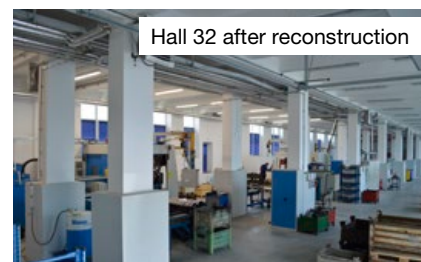
### • Investments in the ZKL Brno technologies

At the beginning of 2022, a new pointless grinding machine BB 10ST CNC was handed over to production, which enables grinding of rolling elements of all designs – spherical, tapered and cylindrical rollers. Due to its range and the possibility of use in 2, 3, 4 and 5-pin grinding, this is a completely unique machine. Its scope breaks down the established division into serial and piece production.

It is a pointless grinding machine designed for slot grinding of cylindrical roller bearing bodies with top loading by means of a manipulator equipped with vacuum grippers, a system for compensating grinding wheel loss and a tubular coolant supply to the grinding area. The loading method, already proven by the operation of BB 400ST CNC, brings easier set-up, more stable and faster machine operation and the avoidance of surface defects on the manufactured parts. It also allows grinding of square and sub-square rolling elements, or those which, due to their low weight, could not be fed into the machine in the current way. The operator panel is equipped with a touch panel and physical buttons guaranteeing long service life and certainty in operating the machine, its interface allows connection to the network, thus taking advantage of the possibility of remote service support. The entire machine and system are designed to be intuitive and as simple as possible to operate.

In 2021, a riveting machine for brass rivets was acquired, expanding the technological possibilities especially in the segment of roller bearings with a brass cage.

The machine operates with a range for riveted bearings from 100-400 mm outside diameter with a maximum height of 150 mm and is equipped with a rotary table in addition to the riveting unit. Thanks to the rotary adjustable table, the machine becomes an automatic



Hall 32 after reconstruction

## Ongoing investments



Ongoing reconstruction of Hall 32

workstation where, after the adjustment, it is enough to insert the bearing into the machine, clamp it and start the riveting cycle. Safety is very important at this machine, so the entire workplace is equipped with light barriers and other features that comply with current safety standards. In addition to expanding the technological possibilities at ZKL Brno, the investment brings an increase in riveting productivity.

For rolling bearings, a small dispersion of diameters and lengths of rolling elements is very important; it guarantees their uniform loading and thus longer service life of the bearings. Therefore, the correct classification of rolling elements according to the prescribed diameter and height dispersion is the key to

more efficient bearings.

As part of continuous improvement, innovation, acceleration and streamlining of production of individual components, a new sorting machine from a Czech manufacturer of measuring automation lines was delivered to ZKL Brno at the beginning of 2022.

The sorting machine consists of three main parts: the input conveyor belt, which transports the rolling elements to the second part, which is the measuring point. The last part of the machine is an output conveyor which sorts the rolling elements into different diameter and height classes. The centre of the whole system is the above-mentioned measuring point, which works on the principle of passing the measured rolling

element through guide rails with inductive sensors that are able to determine the diameter and height of the measured piece. The part is pulled through the measuring point by means of a servo drive to the output conveyor where it is sorted into diameter and height classes after evaluation of the measured dimensions. The inductive measuring sensors are capable of a resolution of 0.1  $\mu\text{m}$ . The speed of one rolling element is up to 3 seconds, depending on the part size and program settings. Of course, this equipment also offers archiving of the measurement data. These data will then be used for internal analyses to further improve the quality of the rolling element production.

The quality of the automation of the rolling element sorting, which we gain with the new equipment, will be reflected in lower unit costs for the output inspection, lower error rates and, last but not least, above all, the improvement of the quality of all bearings produced in both production plants, as this is how the spherical, tapered and cylindrical rollers will be sorted.

### • Investments in the technology at ZKL Klášterec nad Ohří

In 2021, we acquired another project for the ZKL Klášterec nad Ohří production plant, which will be the continuation of the newly built "Centre for Industrial Development and Innovation of Thrust Bearings" in recent years, and two new CNC machines and measuring devices will be purchased for it.

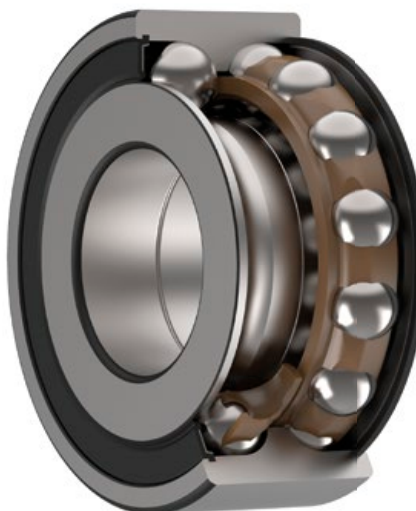
*Collective of authors*

## Innovative design of special bearings for a Turkish customer

ZKL is a traditional Czech manufacturer with most types of catalogue rolling bearings in its portfolio. In addition to the production and innovations of standard assortment, ZKL is also engaged in the development of special, customized bearings. Where standard bearings fail to perform their function safely and in the long term, there is room for innovations and development of special designs. This is exactly what happened in the case of a major Turkish customer who manufactures worm gearboxes for elevator drives.

The reason for the requirement to develop a special bearing was the unreliability of the original catalogue bearing. It had insufficient load capacity in the axial direction and when the gearbox revolution was reversed, the bearing increased its noise, and it had a significantly reduced service life.

The objectives were clear – to offer the customer a bearing with increased axial load capacity while maintaining radial load capacity and to achieve reduced noise levels. All this, while maintaining the existing bearing dimensions, was achieved without any problems. The team of designers from the Technology



Centre of ZKL Group – Výzkum a vývoj, a.s., using many years of know-how and simulation models, some of them developed in-house, designed a special double-row sealed ball bearing with an angular contact and split inner ring with the designation PLC 12-06-03.

Thanks to its design, it cannot be disassembled which greatly facilitates assembly at the customer's site. Thanks to the large, 45° contact angle axial load capacity was successfully increased. The increased prescribed internal bearing cleanliness combined with higher precision internal geometry and a special lubricant ensures low vibration and reduced acoustic noise during operation.

The production is provided by ZKL Klášterec nad Ohří, a.s., which has a hundred-year tradition in the production of ball bearings and, within the Group, it specializes in the production of various types of bearings of smaller dimensions and bearings for rolling stock. Thanks to the use of modern development approaches, it was possible to start the production of prototypes and subsequently also of verification batches for customer tests within a few months. This innovation strengthens the cooperation with the existing customer and develops the business presence of the ZKL brand in the Turkish market.

Ing. David Macháček  
Bearing Designer  
ZKL – Výzkum a vývoj, a.s.

## Strategic pillars – a step in the right direction

The development of human civilization has been largely dependent on the exchange of experience, mutual trade and the transport of people and goods across continents. This is



doubly true in the current globalised world. Business is a constant journey forward that requires us to occasionally step to the side or cross an imaginary river; to weave in and out, depending on what challenges

we are facing at the moment. This was evident earlier this year when the energy crisis, the beginnings of an economic recession started and the conflict in Ukraine made it more visible. At first glance, this situation presents a number of serious problems, but also opportunities, with everything in motion on the globalised market and new challenges appear.

**We asked Ing. Libor Nohál, Technical Director and CEO of ZKL – Výzkum a vývoj (ZKL – Research and Development), what ZKL Group is focusing on in the second century of its existence.**

“At the ZKL Group we are able to cope with the given situation thanks to the flexibility and great determination of all our employees, and we are really grateful for them. At the same time, it has been confirmed that the strategic pillars of the Group, which were set by the management in the previous period, reflect with the needs of our customers.”

**What are these pillars?**

### • Customized bearings and bearings for special operating conditions

Over the past twelve months, several special bearings projects have been implemented. These include new customized spherical roller

bearings of the 222, 223 series for vibration environments – the “EMHD2” version, where the ZKL brand was preferred by customers due to their technical parameters, comprehensive services, including testing, analysis and application consulting.

Furthermore, these were special ball bearings – PLC 11-08-01, PLC 12-06-03 – designed for specific operating conditions of our customers.



### • Thrust spherical roller bearings

In line with our long-term strategy to innovate thrust spherical roller bearings, the 294 series continues to be upgraded in 2022 up to an outer diameter of 300 mm. In addition to bearing design, manufacturing processes are also being innovated, which includes progressive investments in machinery that will be implemented in the coming years. All these steps are aimed at increasing the utility value of ZKL thrust spherical roller bearings as well as increasing production efficiency, including energy savings.

### • Large-size bearings and bearings for wind power

Despite the collapse of the US-European wind power market and a significant decline in wind power production, projects are being implemented in the power and metallurgical industries. This year, the projects have included the radial spherical roller bearings – 231/560, 249/1060, 232/750. For the next year, new projects for wind power plants are being implemented both with spherical roller bearings and the development of tapered roller bearings for the main rotor of wind power plants.

### • Bearings for railway vehicles

The importance of rolling stock will grow in the coming years, given the need to transport various commodities and people. The ZKL companies are investing in automation and optimization of axle bearing production in the field of metrology and Non-Destructive Testing (NDT) at both its production plants, in Klášterec nad Ohří and Brno. This year, new types of tapered bearing units for axles (TBU) and a complete range of bearings for mounting in traction motors have been developed. These include several bearing series of QJ, NU, NJ type, including special single row tapered roller bearings – PLC 81-XX-XX. At the same time, new production capacities are being built which will increase the production of this type of bearings in the next year.



### • Electromobility

The production of electric vehicles is growing at a breakneck speed in Europe. The introduction of this type of vehicles raises a number of technical issues relating to the reliability of the bearings and the impact of the passage of electric current on the service life of the bearings. Within the framework of research and development activities, the ZKL Group therefore cooperates on the innovation of ball bearings in electric vehicle drives.



# Renovation of bearings by remanufacturing

At ZKL we see sustainability as one of the most important current tasks. The company must develop not only with regard to the economic aspect, but also with regard to the quality of life and environmental protection. The concept of a circular economy is part of the so-called sustainable development. The aim of this concept is to return as much material as possible that has already been used into circulation. In other words, to use a product that is no longer in use, formerly waste, as a raw material for further use in production, or to repair a product through reconditioning and thus extend its service life.

Before we start talking about remanufacturing, it is worth recalling one of the causes of bearing failures. From long-term observation of bearing failures, it is possible to identify one of the significant causes which is the non-professional assembly of bearings. This means that the bearing is already damaged at run-in, in an improper position or loaded in a non-standard way.

Part of the services offered by ZKL is also the supervision of bearing assembly by our experts. They guarantee correct and professional installation. By eliminating this possible cause of premature bearing failure, the main theme of our time – sustainable development and resource management – is also supported.

## ■ What are the reasons for bearing remanufacturing?

In many applications, adverse conditions prevail and therefore the actual service life of the bearing does not always reach the calculated life. However, this does not mean that the bearing must be replaced immediately with a new bearing. The way to extend the service life of older bearings is to renew them by remanufacturing.

There are several reasons to re-use bearings – ecological, economic and quality reasons. The renewed bearings reduce the cost of extending the service life of the machine due to wear on critical parts, energy requirements, raw material requirements, and they minimise the burden on the environment. This reduces your operating costs. Repair is faster and cheaper than manufacturing a new bearing.

Speed in particular is a critical parameter during planned downtime.



Remanufacturing therefore supports the sustainability efforts of companies.

Quality is an equally important aspect there. During bearing remanufacturing by experts, it is possible to detect a non-standard appearance of functional parts that may indicate a problem in the bearing assembly. This can then be resolved in a timely manner, thereby preventing damage to the next new bearing and the associated loss of time, energy and financial loss.

## ■ When is the right time to remanufacture a bearing?

In the case a bearings assembly for a machine should be designed for dismantling and remanufacturing, it is recommended to have at least a basic bearing diagnostic system available. This means knowing the vibration level and operating temperature of the new bearing after installation. It is necessary to suggest a limiting increase of vibration level or bearing temperature. The moment the bearing starts to reach this limit on a regular basis, it is advisable to schedule a shut-down and have the bearing dismantled and inspected. This procedure can avoid more difficult repairs or higher bearing destruction when remanufacturing is no longer possible.

If the bearing is not excessively damaged, it is also possible to remanufacture the bearing repeatedly. Depending on the condition of the bearing during the first and repeated remanufacturing, the chance of extending the service life of the bearing is almost three times longer.

Another option to have the condition of the bearings checked is during an overhaul of the machine. You need to bring in bearing experts to repair the bearing the moment it is removed from the machine or send the bearing in for inspection and remanufacturing. A stitch in time saves nine. This will reduce downtime, eliminate repeated disassembly and reassembly, and will speed up the process of getting the machine up and running again.

## ■ Which bearings are suitable for remanufacturing?

Remanufacturing is suitable for medium and large bearings as well as railway bearings. The bearing to be remanufactured may be oxidised and have used lubricant, which is removed and replaced during the reconditioning process.

The bearings must not be excessively worn or damaged by operation. Typically, material flaking – pitting – may occur in the raceways. This condition is no longer compatible with bearing reuse. The crystal lattice in the material has already been significantly disrupted and further use of the bearing is risky.

Before starting the remanufacturing process, it is recommended to have photographs of the bearing condition and information about the application ready to assess the suitability of the reconditioning – in which machine the bearing has been used, under what conditions it has been used (rotational speed, load, continuous operation or intermittent use, lubrication method and type of lubricant), how long the

bearing has been used and whether it has already been remanufactured or installed as new.

At ZKL, thanks to our many years of knowledge and experience in the field, we offer a professional inspection of used bearings, including their subsequent remanufacturing, to our existing and new customers too.

Almost all types of bearings can be remanufactured, including special bearings – multi-row cylindrical roller or tapered roller bearings, slewing bearings, split bearings. For rail axle bearings, bearing inspection and reconditioning is part of the maintenance manual for each level of wagon repair.

At ZKL, we usually perform remanufacturing of the following types of bearings:

- double-row radial spherical roller bearings
- cylindrical roller bearings
- large-size ball bearings, both radial and thrust
- special bearings
- railway axle bearings (cylindrical roller and tapered roller bearings – TBU)

## ■ What services does ZKL offer for bearing remanufacturing?

In the first phase, we determine the condition of the bearing, assess the cause of the existing wear and evaluate the possibilities of bearing remanufacturing in terms of application and extent of damage.

### Level of reconditioning:

#### 0 Inspection

Cleaning, visual and microscopic inspection, dimensional inspection. Opinion on the possibility of bearing remanufacturing or excessive damage.

#### 1 Repair

Inspection and disassembly, minor repairs (polishing, minor surface re-polishing, grinding out surface defects), demagnetisation, assembly, verification of the functionality of the internal geometry and other functional parameters, non-destructive testing (NDT) of cracks as required by the customer, lubrication, preservation, packaging.

#### 2 Renovation

Inspection and repair with necessary replacement of parts (rolling elements, cage, seals), repair of surfaces by polishing or grinding, polishing of raceways.

We cooperate with the ZKL production plants and can provide you with spare parts for ZKL bearings directly according to the design documentation. For more information on bearing repair options, please contact us:



### Contact details:

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## New website

### New slogan, look and functionality

For the last two years, our personal and professional lives have been affected by the Covid-19 infection worldwide. A number of companies have been forced to adjust or change their business and marketing strategy and long-established rules as a result of the anti-epidemic rules. ZKL was no exception.

From one day to the next, we could not hold conferences, participate in foreign or Czech trade fairs or travel to business meetings. We had to quickly adapt to the situation, learn how to operate in the online environment, where most of the marketing activities of companies soon moved.

We accepted the new situation as a challenge. We focused more on our internal processes and decided to devote our time, energy and, last but not least, finances into creating a new

website. Our goal was to create a modern, up-to-date, well-arranged and interactive website for our business partners, engineers and technical employees. An important target group of visitors to our website, are also the potential job seekers. On the new website we try to present our work, benefits and references of our colleagues working in various positions to them.

Part of the technical specification was to use the latest security certificates to operate the site so that it can be opened in all corners of the world. Of course, responsive design and comfortable display of the content not only on computers, but also on tablets and smartphones are also a matter of course. In order to offer simple, fast and accessible information in one place and in the same look and feel, the new site is connected to individual applications – Analysis module

for engineers and technicians, Teamio used to display job vacancies and the entire partner section retrieves data from the SAP information system.

The aforementioned Partner section allows selected customers to have a quick overview of the ZKL stock with the possibility of electronic ordering, itemization of their

orders and the possibility to download current marketing materials in electronic form such as company brochures, catalogues or presentations. The Partner section has seen several changes. In the Order section, we now provide information on items awaiting shipment. We have also expanded the options for multiple users to log in under one partner, so that each can have their own account. We are also currently working on bringing back the popular “production schedule” report, which we would like to introduce with new functionality.

#### Along with the new website we also have a new visual and slogan

During the preparation of the new website project, we had the opportunity to analyse the perception of the ZKL brand, revise the current status and set a new direction of communication. Graphically, we returned to the “brand” blue colour. Throughout the website, we present ZKL as a leading global manufacturer of technologically advanced bearings.

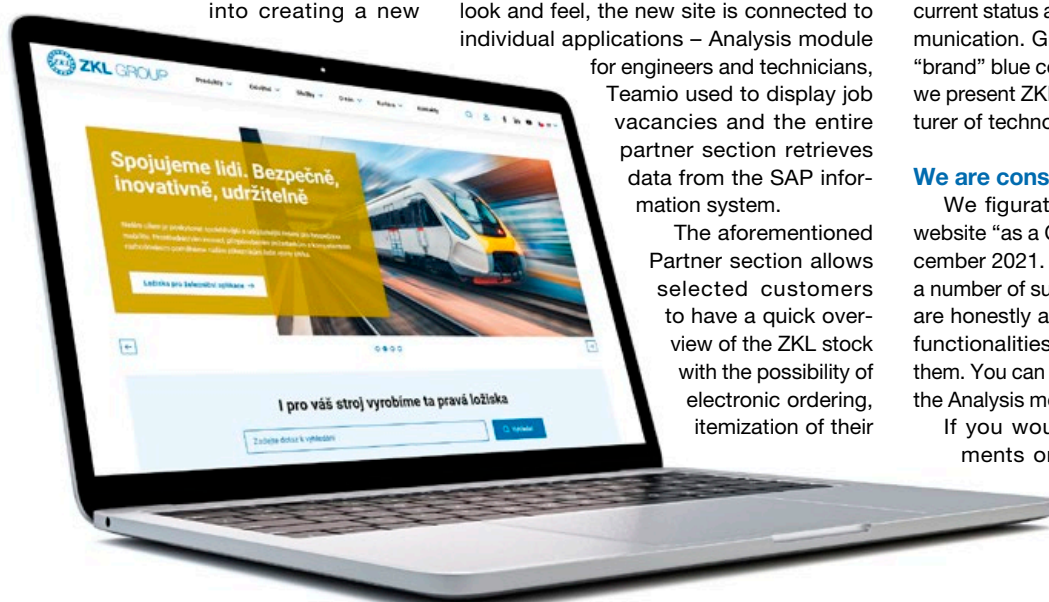
#### We are constantly working to improve

We figuratively gave ourselves a new website “as a Christmas present” in mid-December 2021. Since then, we have received a number of suggestions from you, which we are honestly analysing and planning further functionalities or improvements based on them. You can look forward to new features in the Analysis module or in the Partner section.

If you would like to share your comments or recommendations related to the website, please send us a message to: [hana.luxova@zkl.cz](mailto:hana.luxova@zkl.cz)

Ing. Hana Luxová  
Marketing

ZKL Bearings CZ, a.s.



## ZKL Golf Cup 2022

On 23 July, the 4th edition of the ZKL Golf Cup golf tournament took place at the golf course “Kloster Kamp” in Kamp-Lintfort, Germany. This year we again managed to significantly increase the number of participants on the golf course and at the evening event, where the most successful players of the tournament were announced. In total, we welcomed 200 guests from among businessmen, politicians and prominent golf fans. The ZKL Golf Tournament has already become a fixed date in the golf calendar in the western part of Germany, and ZKL is becoming more and more well-known there every year.

The event also included a fund-raiser in support of the Stups children's hospice in Krefeld. Thanks to donations from the tournament participants, companies from Kamp-Lintfort and ZKL Group, a total of EUR 1,800 was raised, which the tournament organiser was able to donate to the institution.

We would like to thank the donors for their support and all the guests for their participation in the tournament. We are already looking forward to the next year.

Heiko Rothe  
Head of ZKL Deutschland



## New web-based module for technical bearing analysis

ZKL started the year 2022 with its new website [www.zkl.cz](http://www.zkl.cz). Since ZKL has its own research and development with know-how for technical bearing analysis, we wanted to make it available to our clients on the new website. This idea led to the creation of an analysis module. You can access this analysis module on the website from the selected bearing or you can use the QR code next to this article.

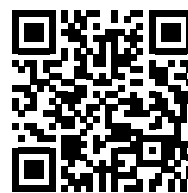
For several years, we at ZKL – Výzkum a vývoj, a.s., have been developing in-house software for technical analysis of bearings called EoL. As soon as a new website started to be created, we got an idea to implement this internal software there. The question was how to do that. The most suitable solution was to create the so-called API, which will enable EoL to communicate with the web.

The web developers only needed to create a user interface for the analysis module. This approach turned out to be the most suitable, especially because it allows our researchers to continuously develop the module and the web environment always adapts dynamically to it.

The analysis module allows for most types of bearings to calculate

- the basic rating life and basic modified rating life according to ISO 281,
  - static safety factor according to ISO 76,
  - as well as minimum load or
  - fault characteristic frequencies of parts.
- For selected bearings it is possible to calculate
- the clearance after mounting and
  - the operating clearance (including the effect of temperature).

[www.zkl.cz/en/vypoctovy-modul](http://www.zkl.cz/en/vypoctovy-modul)

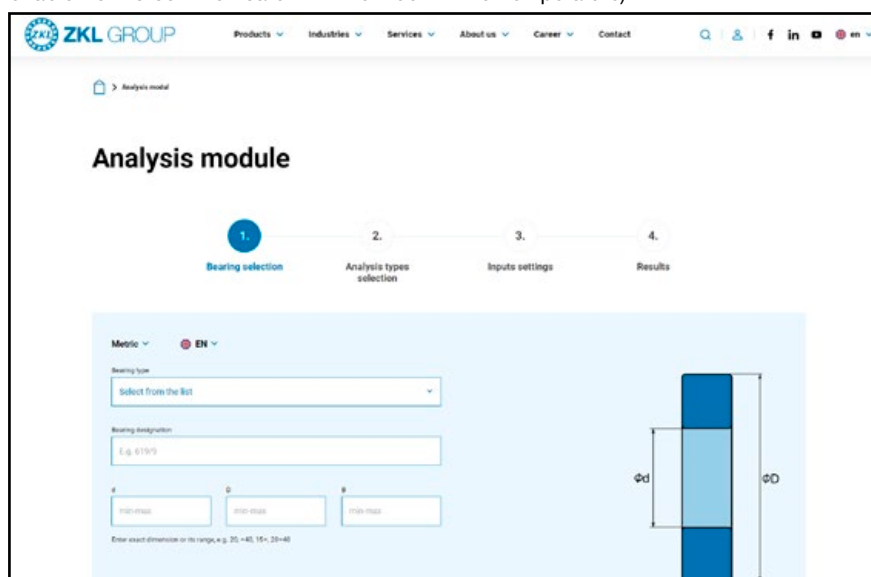


The user can enter variable loads as input, e.g. in the form of a histogram. The module counts with the frequencies of load states in the calculation of the rating life. For the calculation of modified rating life, it is possible to select the lubricant properties, count with different bearing ring temperatures or set the required reliability of rating life.

Other functions of the analysis module include bearing selection using filter. For example, you can set the range for the mounting dimensions. Another function is switching between the metric and imperial units or selecting the language. A special feature is also the generation of a report of the calculation in a PDF document, where you can find a summary of all input and output data. So you can easily record your calculation.

As already mentioned, we are constantly developing the analysis module. For example, we are currently working on the implementation of the calculation of parameters for the assembly of sealed spherical roller bearings by the method of pressurized oil. There are many other ideas for the types of calculations that can be implemented. We believe that this module will help our customers to select the right bearing, lubricant or other parameters.

Ing. Miroslav Vaculka  
Technical Calculation Manager  
ZKL – Výzkum a vývoj, a.s.



## Introducing an authorized dealer of the ZKL bearing products in the Czech Republic: Prumex s.r.o.

The Czech family company Prumex s.r.o. has been on the market since 1992, when it was founded by Ing. Lubomír Hoňka. The company initially focused on trading in bearings and gradually added other associated products and services. Currently, the company operates in South Moravia and supplies its range of products to smaller retailers, industrial companies and agricultural enterprises.

The cooperation between Prumex s.r.o. and ZKL has been going on since the establishment of the first mentioned company. Prumex s.r.o. has been working with ZKL bearings for a long time and the representatives of the company considered establishing even closer cooperation. This happened in April 2021, when Prumex s.r.o. became an official distributor of ZKL.

This decision was not accidental. As confirmed by Ing. Ondřej Hoňka, the Managing Director of Prumex s.r.o., they cooperate with a number of brands in the field of bearings. "However, it was ZKL that we really liked because of the quality and reliability of its products, favourable prices and stock availability. We also praise the overall professional approach, top technical advice, which only confirms that ZKL is one of the leading professionals in the field. In addition, we get first-hand information, we have access to a central warehouse and we can go for the goods at any time, which is very practical for us."

Just like ZKL, a.s., we at Prumex s.r.o. believe in sustainability



based on quality parts that last. We are fully stocked with the ZKL brand and regularly stock more goods. Although we have only been an official distributor since last year, we already feel the benefits associated with it and look forward to continuing this cooperation and the benefits it brings to our customers.

Prumex s.r.o.

## Authorized Distributors Conference 2022

After a two-year covid break, the ZKL Authorized Distributors Conference was held on 2 June; this year only for Czech and Slovak business partners. It was like going back in time to 1993, when this tradition was started with the first meeting of the Czechoslovak distribution network in the beautiful surroundings of the Brno dam in the hotel Koží Horka.

The official part of the conference with business and technical presentations was followed by a tour of the ZKL Brno production plant. The guests got acquainted with new products, saw the modernized production halls and newly acquired machinery.

The afternoon and evening programme took place in the South Moravian village of Kurdějov near Hustopeče. The beautiful summer weather directly encouraged a walk through the local vineyards. A pleasant get-together with a view of Pálava hills, nice company and an engaging story of the local



winemaker was a refreshing change of the whole day. During the tasting of wine samples from local winemakers, a cheerful discussion developed, which our guide enriched with a demonstration of expert sabrage of a bottle of champagne. Expert explanations about wine growing and funny stories supported the good mood. Nobody wanted to go down to the valley, where another program was prepared for us.

We enjoyed the late evening in a competitive spirit. A bowling tournament was arranged for the guests, which was of great interest. There was also music to dance and listen to, and a good glass of wine was often enjoyed as we debated until late.

We would like to thank all the participants for their participation and look forward to the next meeting.

Ing. Hana Luxová  
Marketing ZKL Bearings CZ, a.s.



## Group Cycle Tour 2022



On 10 and 11 June 2022, the ZKL Group Cycle Tour 2022 took place. This time it was to South Moravia, to the charming pension Mlýn Sedlec, located close to the Austrian border.



A group of 20 cyclists set off on an 80 km route from Brno from the ZKL building. Successfully leaving the centre of Brno, the group joined the cycle route leading to Vienna. Along the way, the cyclists could enjoy the view of the Pálava Mountains, which is a dominant



feature of South Moravia. After crossing the Nové Mlýny dam, more and more vineyards and wine cellars began to appear. At a wine cellar in the village of Novosedly, a group of cyclists stopped and tasted the best that the local winemaker had to offer. After a short rest, the cyclists set off on the last leg of their journey. Soon a view of the castle and the hill Svatý kopeček in Mikulov opened up, which accompanied the group almost to the guest house.

As most of the walkers are from Brno and its surroundings, they formed several groups according to the destination. Some wanted to see Mikulov, others Valtice or Lednice.

Finally, everyone gathered at the premises of Mlýn Sedlec, where a piglet was roasted, a rich buffet, drinks and a DJ as entertainment were prepared.

The next day after breakfast everyone went home on their own. The weather was beautiful and the bike trip was a success. Thank you all for your participation and we look forward to the next year.

Iveta Macháčková  
CEO Assistant



## Latin America 2021 – Mission accomplished

In our last post we talked about our ability and need to adapt to new ways of working due to the ongoing pandemic and its variants that have emerged during the year. In 2021, however, there were additional challenges that we had to face, given the specificities of the Latin American region.

In addition to the import obstacles that Argentina had suffered from for several years, in the first part of last year we had to deal with the consequences of the disruption of global logistics chains. There was a lack of container availability, which affected the frequency of sea transport, increased transport costs, and delayed the delivery of some raw materials for production. All these negative effects resulted in certain complications for the market, which soon became apparent.



We analysed the market situation in each country in the Latin America region individually to anticipate potential customer demand and needs, including required delivery times. We became accustomed to working with program orders that were already partially adapted to

the new conditions. But given the new situation, we had to adapt our working style even more to the new market requirements. With our importers and official distributors, we exchanged knowledge and shared our assumptions for further developments in Latin America and discussed how to further set up and implement a systematic business plan in the region. In this sense, we have decided to work with importers to develop their purchasing plans and at the same time coordinate to ensure that the delivery times, affected by longer production deadlines and transport problems, including increased freight costs, are in line with the real needs of the industries and end users.

Thanks to the new trade policy, its timely launch and the exemplary cooperation with our importers and strategic partners in each country of the region, we have achieved an interesting success in this complicated period. Our company managed to overcome the new challenges of 2021 and achieved 36% higher sales in the Latin American region than in the previous year. Currently, we continue to organize workshops with our customers, users and maintenance personnel from various important industries. We try to ensure that our importers and distributors feel sufficiently supported by ZKL and have effective tools and facilities to continue to grow as representatives of our brand.

There are new expectations, of course. There will certainly be other challenges.... But ZKL is not standing still in Latin America, it is moving forward efficiently. Being able to adapt, make decisions quickly and find solutions is the basis for long-term success.

Pablo Méndez

*President ZKL Rodamientos S.A.*



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## ZKL NEWS

ZKL Group Magazine  
 This Issue: November 2022

Run by Editorial Board

For needs of ZKL Group published  
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 628 00 Brno

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**Editor in Chief:**

Ing. Hana Luxová

Registered at Ministry  
 of Culture of Czech Republic  
 under Ref. No. E 11989.

**Type Setting and Print:**

Ideal Graphics s. r. o.  
 www.ideal-studio.cz

## ZKL Family Day



The Family Day at ZKL is one of the traditional company events for our employees and their family members. The event, which we organize every year in June, is of great interest among our employees. And not only among families with small children, but also among our former colleagues who like to enjoy the novelties in the plants where they worked for years.

### Family Day in Brno

On Saturday 25 June 2022, after 3 long years, the Family Day took place at ZKL Brno. After all the government restrictions caused by Covid-19, we were able to enjoy a pleasant day at our production company again.



For some parents and their children, it was the first time they could visit the plant, try out the assembly of smaller bearings of mass production and at the same time enjoy the many attractions we had prepared for them, whether it was a bouncy castle with a slide, face painting, airbrush tattoos, a funny clown and his disciplines with balloons or a competition for prizes in painting pictures. As part of the production tour, a treasure hunt was prepared for the children, where they deciphered the type dimension of the NU0048M bearing

in exchange for collecting clues, followed by a sweet prize. Older children and adults were able to test their endurance on a rodeo bull. The best ones got a nice prize.

This year's corporate event was well attended and with ideal weather, everyone enjoyed it. We look forward to seeing you next year.

Dagmar Vymazalová,  
head of the event team

### Family Day in Klášterec nad Ohří

The long tradition and popularity of the Family Day in Brno inspired our colleagues to organize the first Family Day at the ZKL Klášterec nad Ohří plant. It took place on Saturday, 4 June 2022.

The programme was arranged for all age categories, from the youngest children, who had prepared competitions and a wide range of attractions, for the older ones. Horseback riding, face painting and target shooting with air soft or air rifle were popular. There were also competitions related to bearings or painting on pebbles and snail shells. After completing all, or at least most, of the prepared tasks, the children exchanged their competition cards for colourful prizes they had chosen and a helium-filled balloon. But

the local fire department made the children the happiest by giving them a tour of the fire trucks and quad bikes. Every child enjoyed the fire-fighter foam, which then filled much of the grassy area.

In addition to the children's program, tours of the roller production line were arranged, where the director, who personally guided the interested visitors, introduced the visitors to the interesting facts of not only the production of bearings, but also the history of the company.



The highlight of the whole event was the drawing of a rich raffle, in which all the arriving employees were involved.

Despite the very bad weather, when it rained most of the time, the participants left satisfied. They evaluated the pilot event very positively and are already looking forward to next year.

On behalf of the entire event team, I am very pleased that the first ever Family Day was attended by more than 180 participants from among employees and their families. See you again next year!

Jarmila Bůchová,  
head of the event team

