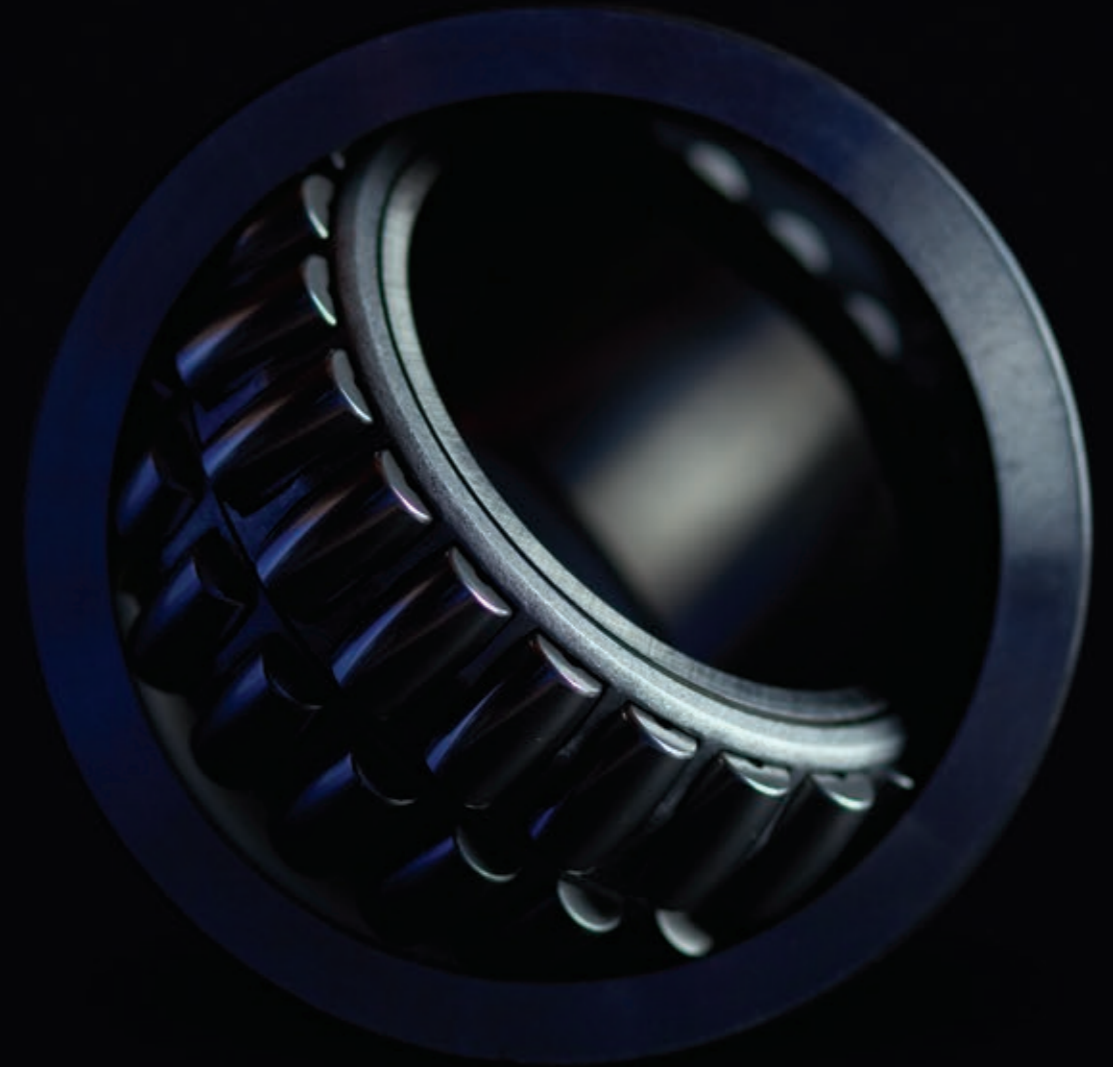




**ZKL** GROUP

**The history** is cornerstone  
of the present time as well



as challenge to the **future.**



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# ZKL GROUP

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**Branch of Activity:** Research, development, production and distribution of rolling bearings, production of special bearings and components for railway and automotive industry.

**Vision:** Being the traditional supplier of bearings and other engineering products under ZKL trademark, to satisfy constantly the demands of technically advanced clients.

**Group Genesis:** ZKL Group came to existence by integration of Czech bearing industry of over 60 years' tradition providing research, development, production and sale of ZKL bearings. The Group start dates back to July 1, 1999. The Group is holder of EN ISO 9001:2000 certificate, the suppliers for automotive industry within the Group are certified under ISO/TS 16 949:2002.

**Information about ZKL Group:** The joint stock company ZKL, a.s. is integrating Czech rolling bearings manufacturers producing the bearings under ZKL trademark. It was founded in year 1999 as purely Czech private company, embodying three production companies: ZKL Brno, a.s., ZKL Klášterec nad Ohří, a.s. and ZKL Hanušovice, a.s., plus specialized companies ZKL Výzkum a vývoj, a.s. and ZKL Bearings CZ, a.s.

Bearing manufacture in each of these companies has its own sound history which we avow and by propping ourselves upon these traditions our production units secure the continuity of research and development of ZKL rolling bearings line in Czech Republic. Namely the continuity of ZKL bearings research and development is considered as an important factor as a source of knowledge and experience influencing by positive manner the company advancement dynamics today. Therefore it suits to mention some of important historic milestones.

The first bearings in Czech republic started to be manufactured in year 1923 in a small town of Pernštejn nearby Klášterec nad Ohří, by then existing German company Fichtl and Sachs. This plant was later taken over by Swedish company SKF. After the second world war the production was transferred to Klášterec nad Ohří, where ZKL originated as national enterprise ZKL, n.p. Klášterec nad Ohří in year 1952. It was transformed to joint stock company in the nineties within the privatization process and in the year 1999 this company was incorporated in ZKL Group.

History of bearing production in Brno is slightly younger. It started in year 1947 in connection with use of license acquired from English company Hoffman, in frame of the then company Zbrojovka in Brno – Líšeň. Incessant need of new types of bearings and new quality requirements for technical level, forward facing in designing, technologies and quality, gave impetus to establish rolling bearings research institute ZKL VÚVL, situated also in Brno. Thus the bearing production in then Zbrojovka Brno and research and development activities of ZKL VÚVL became the nucleus of present joint stock companies ZKL Brno, a.s. and ZKL Výzkum a vývoj, a.s.



*„Being the traditional supplier of bearings and other engineering products under ZKL trademark, to satisfy constantly the demands of technically advanced clients.“*

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# ZKL GROUP

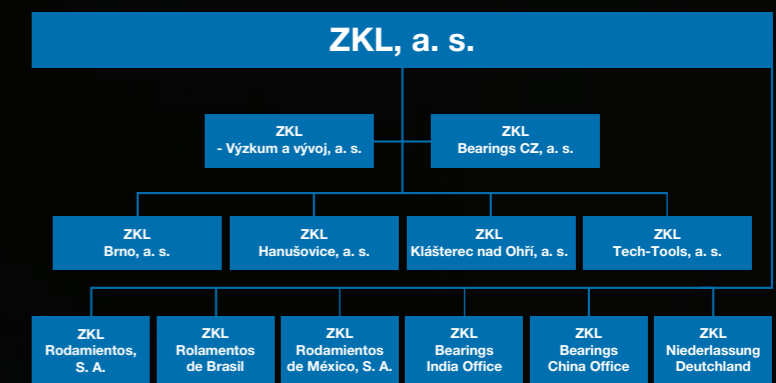
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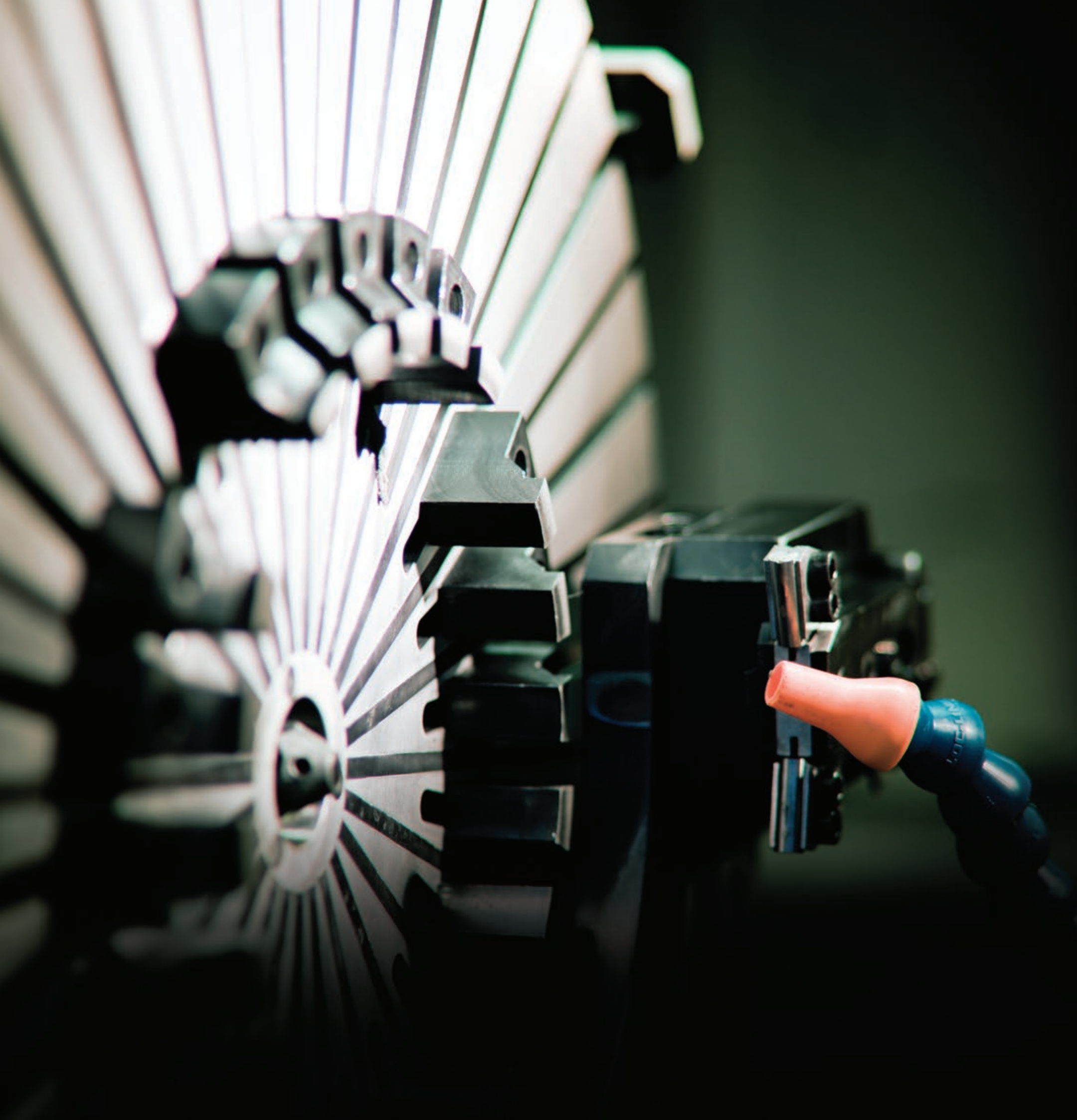
Engineering manufacture in Hanušovice started in year 1957 and gradually oriented to production of machinery parts for brakes and wide assortment of pipes for air and hydraulic systems. In year 1999 the company was transformed to joint stock company and in frame of pragmatic restructuring the company ZKL Hanušovice, a.s., was founded. It is specialized in production of rolling bearings components and namely spherical rollers and pressed steel sheet cages as well as brass machined cages. Hanušovice company has also a very successful production program of fuel and hydraulic pipes for automotive industry.

Integral part of traditions in research, development and production of rolling bearings is also the history of ZKL bearings sales network formation. In this field we continue in earlier activity of former foreign trade corporation Investa, which had been in charge of sales of ZKL bearings worldwide till the year 1978. The continuity of that activity nowadays secures ZKL Bearings CZ, a.s., the member of ZKL Group, and continuator of earlier trade division specialized in bearings sales of the said corporation.

The present structure of ZKL Group enables to efficiently develop and strengthen its competitiveness in comparison with world-leading bearing producers, which means that it keeps at disposal effective design and development basis, sufficient production capacities, well-educated and qualified staff and dynamically advancing sales system formed by network of distributors appointed for each individual territory, reflecting specific conditions of each national market.

## ZKL GROUP ORGANIZATION STRUCTURE:





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# NEW TECHNOLOGIES

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ZKL Group exploits technologies of leading European manufacturers, first of all of Germany, Czech Republic and Italy.

#### **CNC lathe turning**

- Vertical lathes with automatic work-piece collection from endless supply bin
- Lathes for machining of bearing rings before and after hardening up to 400 mm diameter
- Lathes for machining of bearing rings before and after hardening up to 800 mm diameter
- Lathes for machining of cages and rings before and after hardening up to 1600 mm diameter

#### **Cold rolling**

- Bearing rings rolling machine to dimensions before hardening up to 250 and 450 mm diameters with optimum structure of raceways

#### **Forging Press**

- Single-stage forging press designed for the production of rolling elements in the diameter from 10 mm to 30 mm

#### **CNC grinding**

- Double-wheel grinding machines for grinding of inner and outer rings faces and of rolling elements
- Grinding machines for grinding of raceways and rings orifices for railway bearings program
- Grinding machines for grinding of surfaces and raceways of inner rings for railway bearings program
- Grinding machines aggregate for grinding of raceways of spherical roller bearing outer rings with work-piece supply bin and automatic manipulation
- Grinding center for combined grinding of surfaces and orifices of bearing outer and inner rings
- Centreless grinding machines for grinding of rolling elements surfaces

#### **CNC superfinishing**

- Machine for raceways inner and outer surfaces

#### **Cleaning System**

- Ultrasonic cleaning machine for cleaning of bearing parts

#### **Packaging**

- Automatic horizontal packaging and labeling line for bearings up to the diameter 120 mm
- Automatic horizontal packaging line with floating transverse welding group for bearings up to the diameter 300 mm

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# PRODUCT PORTFOLIO

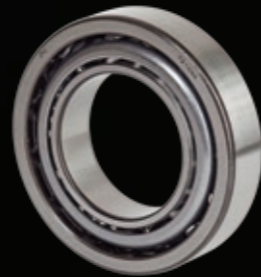
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**Double row self-aligning ball bearings**  
- with cylindrical bore  
- with tapered bore



**Single row deep groove ball bearings**  
- with shields or sealing  
- with snap ring groove



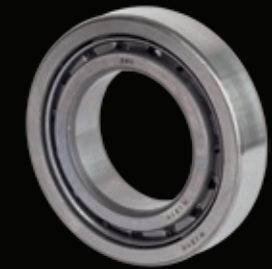
**Single row angular contact ball bearing**



**Double row angular contact ball bearing**



**Single row taper roller bearings**  
- in metric dimensions  
- in inch dimensions



**Single row cylindrical roller bearings**  
- N, NU, NJ, NUP type



**Thrust ball bearings**  
- single direction  
- double direction



**Double row spherical roller bearings**  
- with cylindrical bore  
- with tapered bore



**Spherical roller thrust bearings**



**Special bearings**

*„We surpass all...  
...starting with automotive up to steel industry  
and power engineering.“*

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# RESEARCH AND DEVELOPMENT

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## **Technical support department, Training center**


The center of Technical support department is ready to assist the clients in solution of their needs. The professional expert advisers are prepared to operatively handle the requirements and questions in the field of rolling mountings. Technical support department provides information to users in the field of bearings, their accessories and tribology.

On user's request Technical support department renders supervision in mounting and dismounting of bearings directly at the client and gives professional lectures and trainings of user's staff in the newly established training center. Technical support department collaborates with producers of machineries in designing the rolling mountings. It elaborates professional expertise of bearing breakdowns, determines their reasons and suggests solutions for their avoidance.

## **Research and Development, Testing laboratory**

ZKL Group has its own research and development to solve projects of further technical advancement in the process of innovation and expansion of product assortment. In frame of development it carries out the inner geometry analysis of rolling bearings, contact stress calculations and amelioration of utility parameters of all types of rolling bearings.

The testing laboratory conducts dynamic tests of bearings to verify their quality parameters, both in frame of the research and within the standard series production as well. The test results are exploited as an information source for conduct of technical advancement and bearings production.



*„Our Technical support department is fully available to handle the customers' needs.“*



### ZKL Bearings Main Catalogue

The new catalogue first of all contains the updated production program of individual ZKL companies. There are included all types of bearings of NEW FORCE standard – either being in series production or which are in such stage of development that they can be offered to clients in factual delivery time. The users will newly find in its table sections also the parameter of fatigue load limit  $P_u$  indicating the bearing load value at which the fatigue wear no more occurs and the bearing has service life of an interminable number of cycles. The end of bearing service life is then caused by other factor. The users will certainly also appreciate tabs simplifying the search in the publication.

# NEW CATALOGUE OF BEARINGS

### Specialized catalogues


ZKL also offers several separate catalogues of the products for specialized industries or specific applications.

- Catalogue ZKL for Mining
- Catalogue ZKL for Steel Industry
- Catalogue ZKL for Cement Industry
- Catalogue ZKL Research and Development
- Catalogue ZKL Sealed Spherical Roller Bearings NEW FORCE
- Catalogue ZKL Spherical Roller Bearings for vibration machinery and equipment
- Catalogue Specification and Application of Single and Double Direction Thrust Ball Bearings







# REFERENCES


 **Argentina** – Tecmaq S.R.L., Maca S.R.L., Fabbro Hnos. Saic, Adsor S.A., Franco Fabril S.A., Lentax S.A., Indra S.A. Talleres Metal. Rochetti, Tausem S.A., Mercomarve Saci Y F, Pazima S.A., Techint S.A., Zuchelli Nestor Juan, Forvis S.R.L., E.R.H.S.A., Tur S.C.A.Ypf, Felix Di Ninno E Hijos S.A., Ramirez Omar Luis, Trenes De Buenos Aires S.A., Emprendimientos Ferroviarios S.A., A. J. Horowicz E Hijos S.A.

 **Brasil** – Piacentini & Cia. Ltda., Zara Redutores Ltda., Mecânica Bonfanti S.A., Berliner Luft S.A., Renk & Cia. Ltda., Vale S.A., Petrobras Brasileira S.A., Cst - Arcelor Mittal, Lds Máquinas E Equipamentos Ltda., Máquinas Muller Ltda., Wieser, Picler & Cia. Ltda., Indústria De Marombas Gelinski Ltda., Ferbasa, Bricon Indústria E Comércio Ltda., Irmãos Zen S.A., Remabor Ltda., Máquinas Botteon, Ceagra Ltda., Piorotti Técnico Mecânico Ltda.


 **Peru** – Hidrostal S.A.


 **Colombia** – Alfagres


 **Uruguay** – Funsa, Conaprole, Cervecería Pilsen

 **Mexico** – Petroleos Mexicano - Pemex, Comision Federal Electricidad C.F.E., Tren Ligero Guadalajara, Constructora Maquinaria El Triunfo S.A., Cipsa S.A., Altos Hornos Mexico S.A., Sicartsa - Mittal Steel


 **India** – Oil & Natural Gas Commission., Indian Oil Corporation, Hindustan Petroleum Corporation, Fertilizer Corporation Of India Ltd., Indian Farmers Fertilizer Corporation, Gas Authority Of India Ltd., Indian Petro-Chemicals Ltd., Madras Refineries Ltd., Oil India Ltd., Bharat Petroleum Corporation, Engineers India Ltd., National Fertilizer Corporation, Indo Gulf Fertilizers Corporation., InDraprastha Gas Limited, Bongaigaon Refineries & Petro-Chemicals Ltd., Cochin Refineries Ltd., Tamil Nadu Petro-Chemicals Ltd., Premium Energy Transmission Unit - Gear Box Manufacturer, Elecon - Gearbox Manufacturer, Bharat Heavy Electricals Ltd., Larsen & Turbo - Construction, Vedanta Group, Aditya Birla Group, Bharat Aluminium Co. Ltd, NLC


 **Germany** – AS Baumaschinen, DR – Schulze, Harlander Landtechnik


 **France** – Ensival Moret


 **Spain** – Irizar Forge, Grupo Ulma

 **Czech & Slovak Republics** – ČEZ, a.s., Sandvik Chomutov Precision Tubes, Buzuluk Komárov, Lostr, a.s., České Dráhy, a.s., Bonatrans Group, a.s., Zís Sabinov, Sauer – DaNfoss Povážská Bystrica, Arcelor Mittal, Bonfiglioli, ČKD Blansko, OKD Třinecké Železárny, Víkov Hronov, Czech Coal Group, Slovenské elektrárne, a.s., Severočeské doly, a.s., Sokolovská uhelná, a.s., PSP Engineering, a.s., Moravia Steel, U. S. Steel Košice, ŽĎAS, a.s., Vítkovice Machinery Group, a.s., Europarts Martin, Hříňovské strojárně, a.s., MKV ozubená kola, s.r.o., Škoda Transportation, Tatragonka, a.s., Železničná spoločnosť Cargo Bratislava, SEW – Eurodrive CZ, a.s., Papcel, a.s.

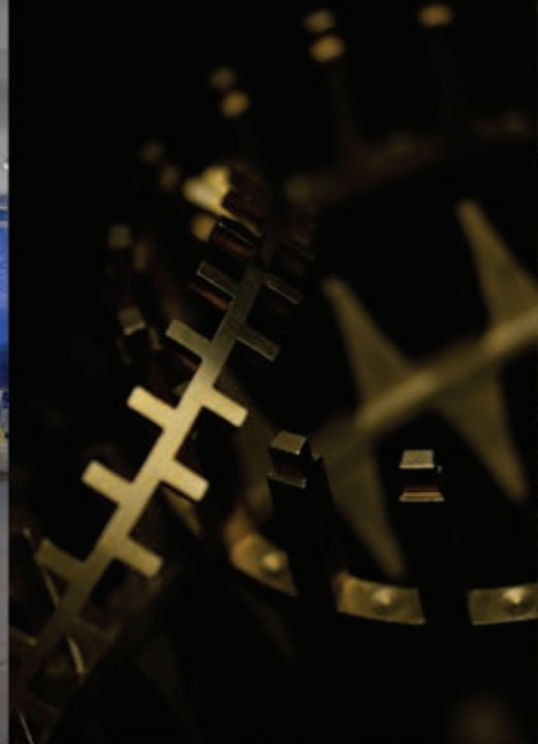
 **Polsko** – Alstom Power, Sudezucker, Pioma, Sefako, PGE Elektrowia Belchatów, PAK Kopalnia węgla brunatnego Konin, S.A.

 **Hungary** – Bombardier MÁV Kft.

 **Russia** – Saranskiy zavod Rezinotekhnika

 **China** – JIDD, Yancon Group, CITIC Group

 **Saudi Arabia** – Al Hanoo



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