

Cornerstone of ZKL

– Research and Development

- Development of Hybrid bearings (steel rings and ceramic roller elements)
- Development of special coating for current insulation and corrosion and wear resistance increase
- Grease test capabilities and equipment for tribology research
- New calculation methods based on stress state in the bearing and usage of special fatigue criteria
- Development of new types of bearing

– Testing Laboratory

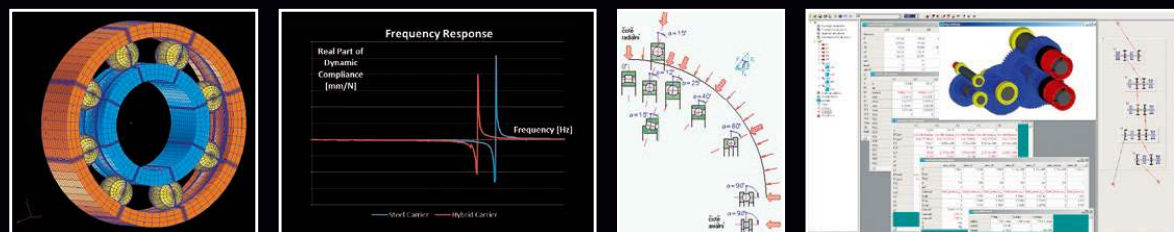
- Basic dynamic load tests
- Limiting speed tests
- Metallographic tests
- FEM results verification



ZKL Services

– Application Engineering Department

- Finding solutions for more challenging engineering and design issues in cooperation with the design department
- Customer support – recommendation of a proper bearing for the assembly
- Customer support – mounting process
- Customer support – operational bearing issues
- Customer support – lubrication
- Technical training



– Diagnostics Department

Most common types of bearing damage which can lead to shortened life of bearings or applications are often caused by:

- Improper maintenance procedures
- Improper installation and setup
- Inadequate lubrication

Don't solve immediate problem only by simple installation of the new bearings – solve cause of bearing failure.

Using the data from the diagnostics we are able to evaluate the current fatigue state of the bearing and then to estimate the failure and by this to make the service intervals longer. This leads to higher productivity and lower maintenance costs. Diagnostics also helps with solving the issues and identification of starting defects during the bearing and assemblies operating time.

References



ZKL-CI 09/16/UK

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History is the basis of the present and a challenge for the **future**.



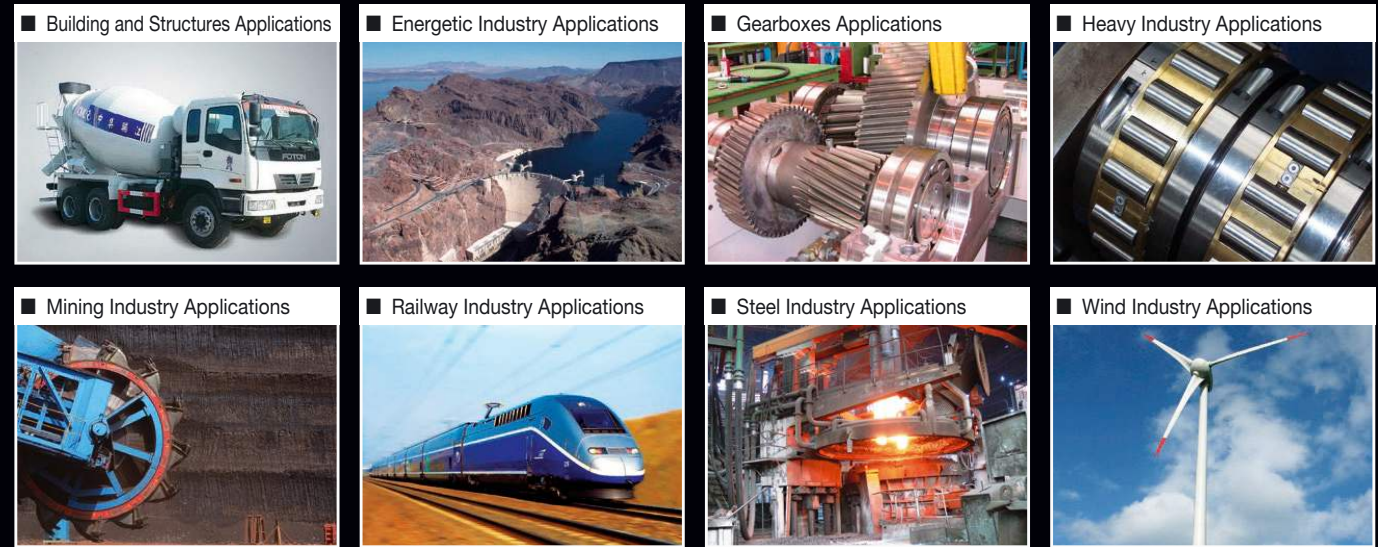
ZKL GROUP



for
CEMENT INDUSTRY

ZKL is the biggest manufacturer of large-scale spherical-roller, special and split bearings in Central Europe. In its more than sixty-year history, ZKL is a proven and reliable manufacturer and supplier of certified bearings for an entire range of industrial businesses. The manufactured series of standard and specialized ZKL bearings meets stringent demands of technically advanced customers and a wide array of industrial fields.

ZKL Know-How comes out from most challenging projects:



If You Have These Applications, You Need ZKL Bearings...

ZKL is a reliable and certified supplier of standard bearings as well as special and large size bearings. Standard ZKL bearings consist of ball bearings, spherical roller, cylindrical roller bearings, tapered roller bearings.

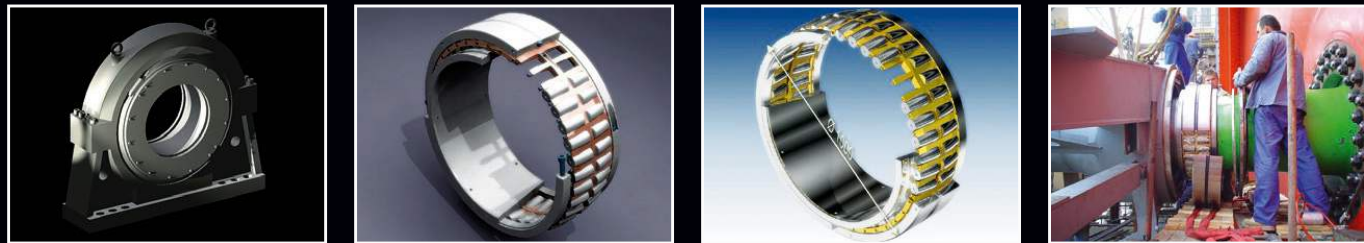


ZKL special bearings are used in the most challenging applications. ZKL produces bearings “made – to – measure”, which are developed according to customer requirements. Where other bearing suppliers stopped, ZKL starts and these bearings have the highest added value for ZKL Brand.



Split bearings are designed for easy mounting and maintenance.

- Easy mounting and dismounting of cross-split bearing
- Easy maintenance of cross-split bearing

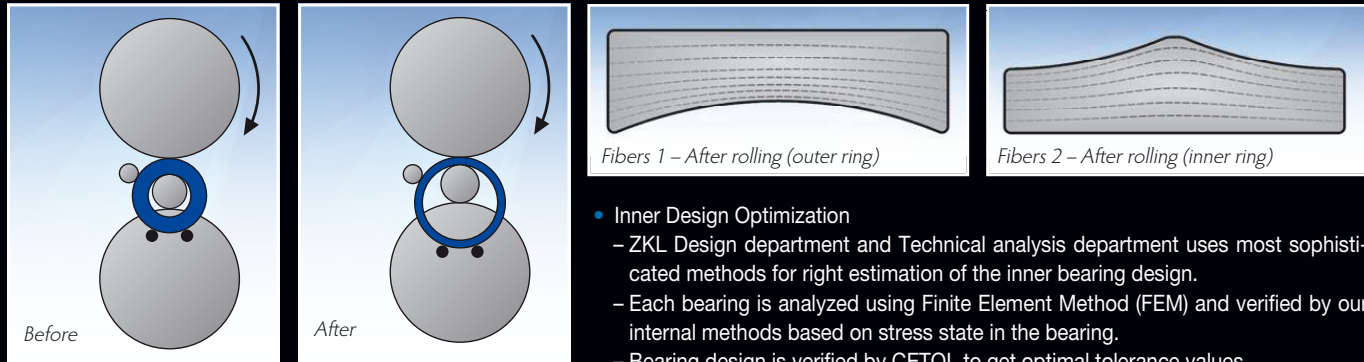


New Force bearings constitute a new generation of ZKL Bearings. The application of these bearings brings longer service life of bearings, higher operation safety, prolongation of service intervals and thus a substantial reduction of operational cost for users.



Chemical composition of the material		C %	Si %	Mn %	P max. %	S max. %
ISO 683-17	100CrMnSi6.4	0.93-1.05	0.15-0.35	1.00-1.20	0.025	0.015
ISO 683-17	100Cr6	0.93-1.05	0.15-0.35	0.25-0.45	0.025	0.015
	Cr	Mo max. %	Al max. %	Ti max. %	Cu max. %	O max. %
100CrMnSi6.4	1.40-1.65	0.10	0.050	0.004	0.30	0.0015
100Cr6	1.35-1.60	0.10	0.050	0.004	0.30	0.0015

- Technology of cold and hot rolling of bearing parts
 - Higher forming degree results in optimal fiber distribution in rolled rings and positive residual stress. This technology has significant positive influence on fatigue behavior.

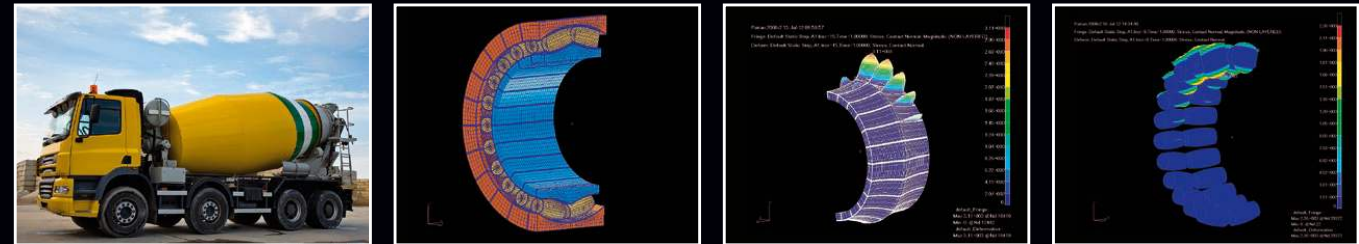
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- This solution saves millions in maintenance cost and increases production.

- Surface treatment of bearing parts
 - carbonitriding
 - phosphating



Concrete mixer truck gearbox is highly overloaded mounting.

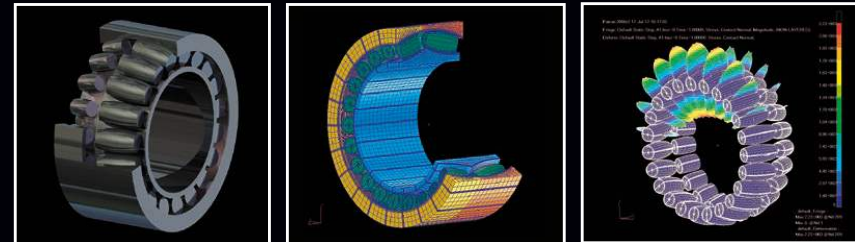


ZKL has few very sophisticated solutions for this application:

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- Future:
 - Double row spherical roller bearings with nonsymmetrical arrangement. This leads to better load distribution in the bearing and longer life time of the bearing.



ZKL can supply certain applications:

