



The history is cornerstone of the present time
as well as challenge to the **future**



**ZKL Bearings for the
Mining Industry**



ZKL GROUP

Bearings for the Mining Industry



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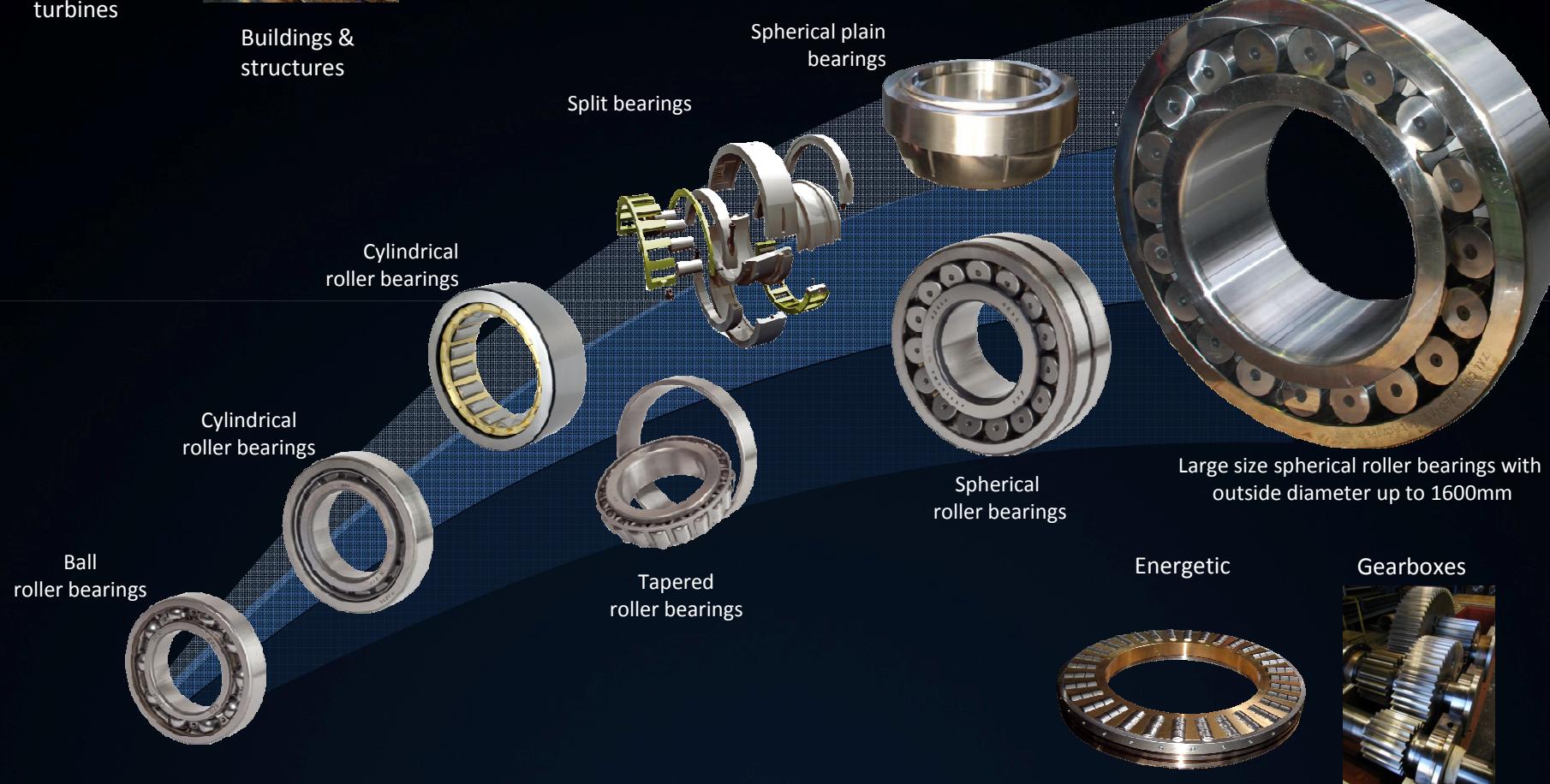


Wind turbines



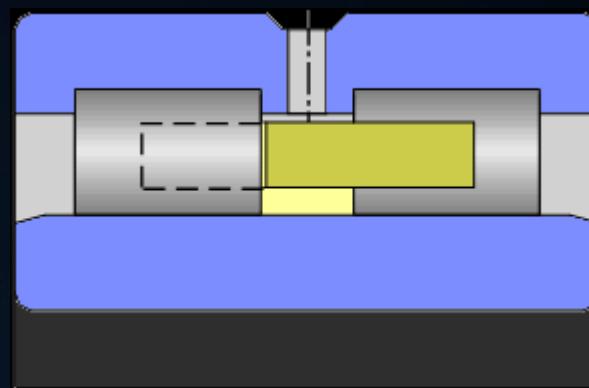
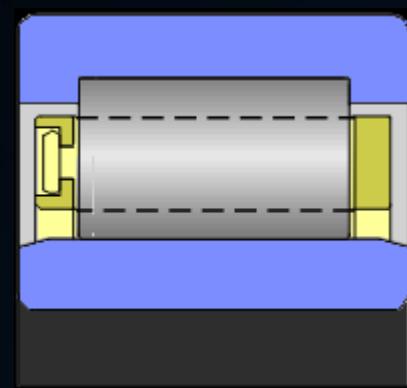
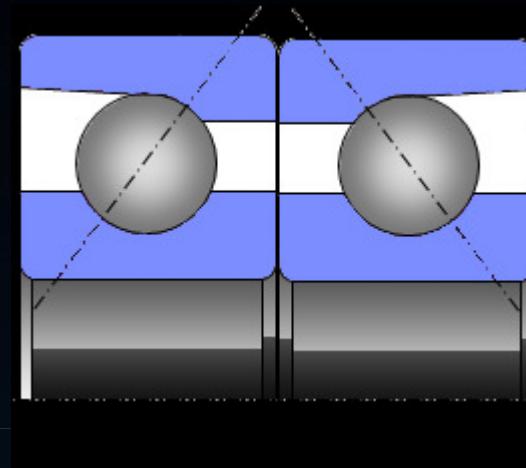
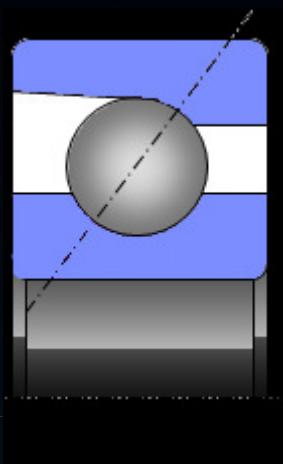
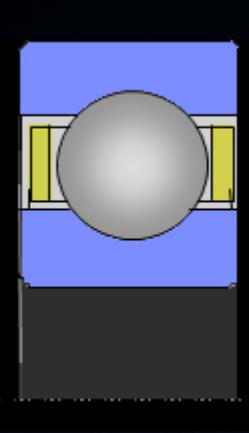
Buildings & structures

Comprehensive Product Range for Industrial Applications



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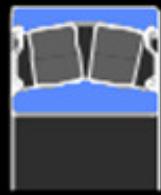
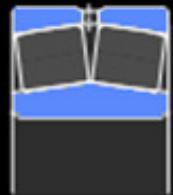
Standard Bearings for Mining Industry



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Standard Bearings for Mining Industry

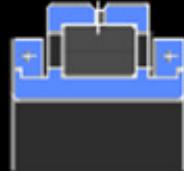
Spherical roller bearings



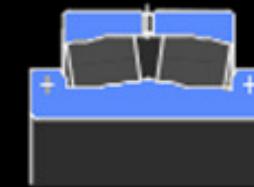
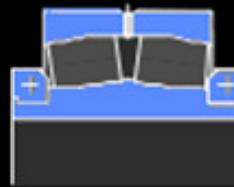
Spherical roller thrust bearings



Split cylindrical roller bearings



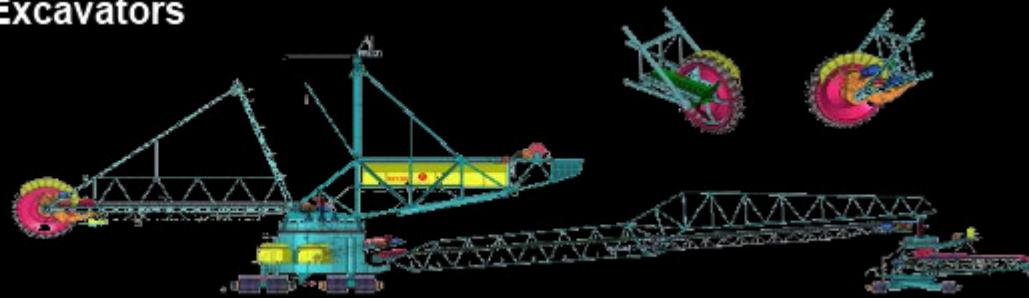
Split spherical roller bearings



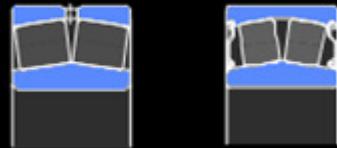
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ZKL Bearings for the Mining industry

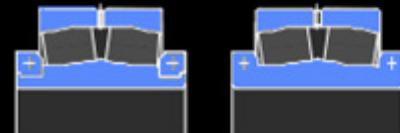
Surface Mining Excavators



Spherical roller bearings



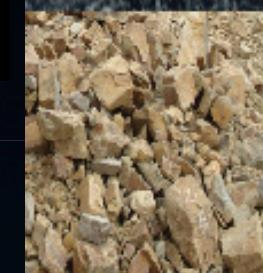
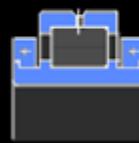
Split spherical roller bearings



Spherical roller thrust bearings

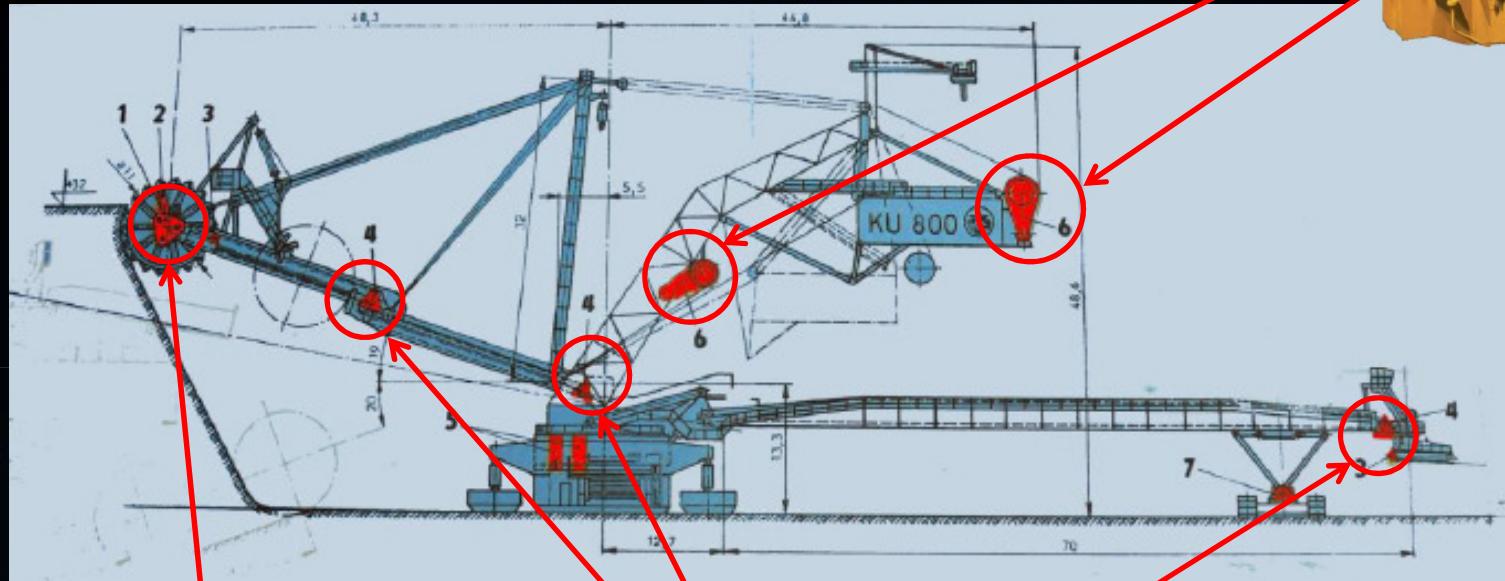
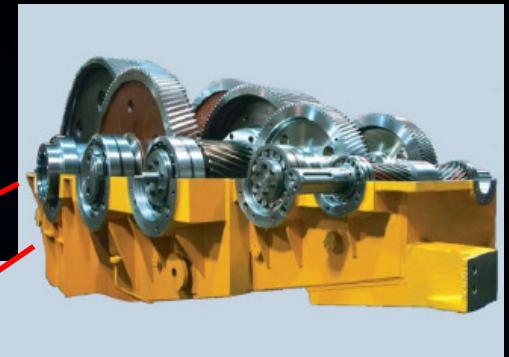
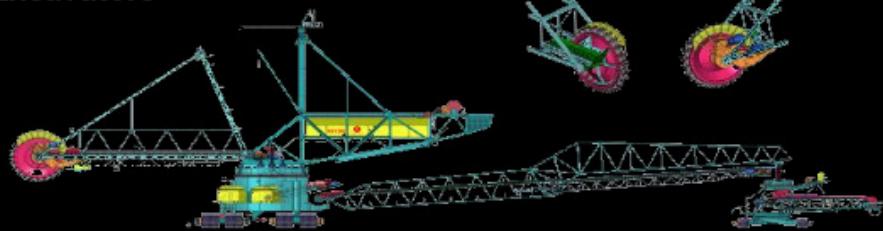


Split cylindrical roller bearings



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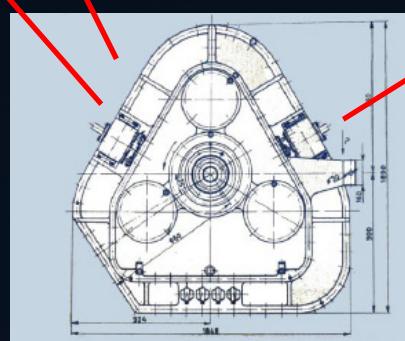
Surface Mining Excavators



Gearbox of lifting boom drive



Planetary transmission
of drive of wheel



Planetary transmission
of drive of belt

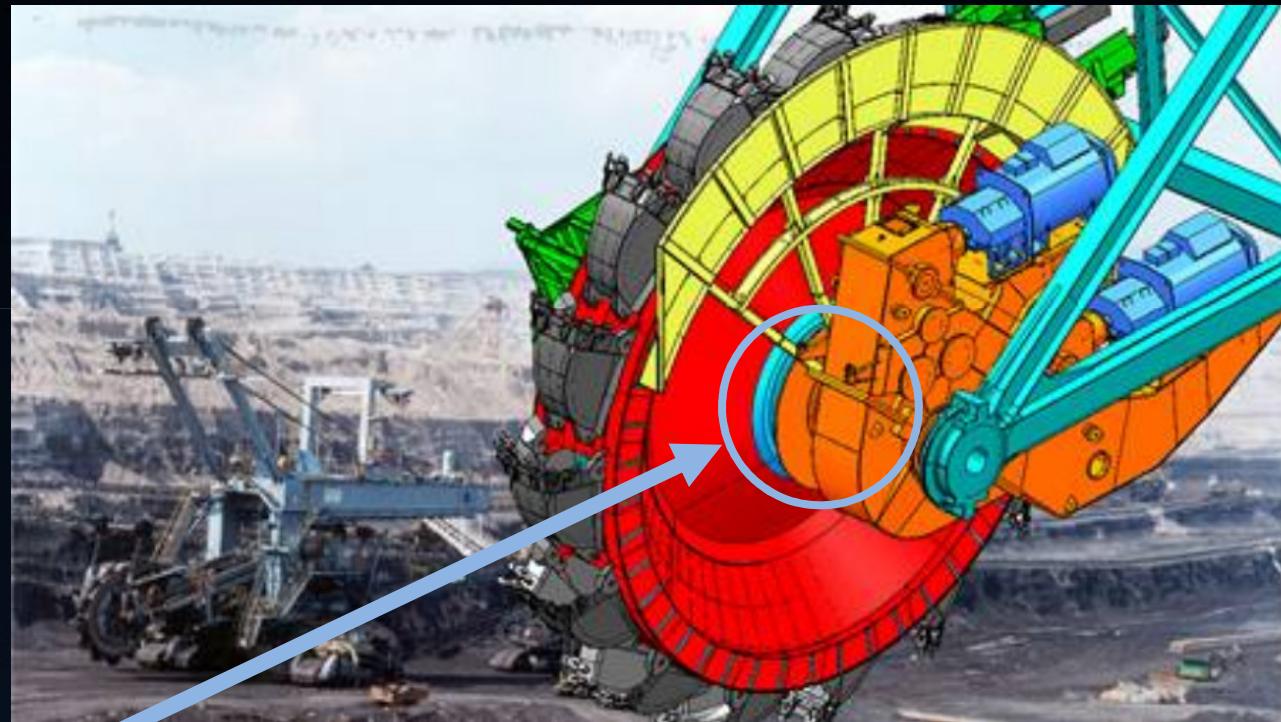
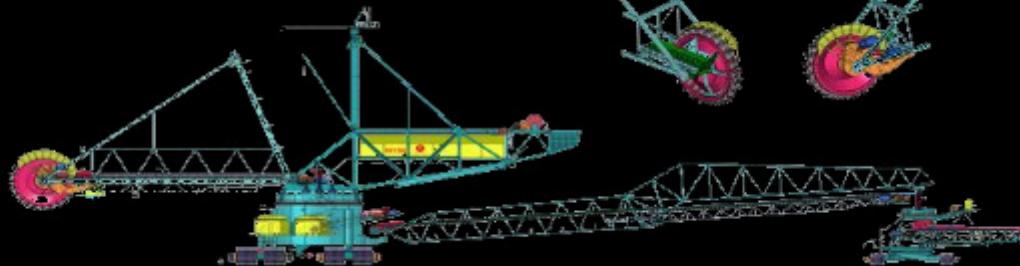
Application of ZKL Bearings in main gearboxes:

Spherical roller bearings Series 239, 240, 241
Cylindrical roller bearings NU, NJ
Special roller bearings PLC



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Surface Mining Excavators

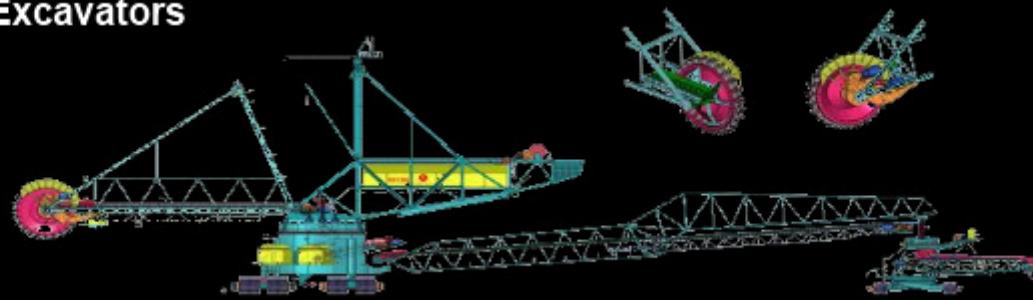


Application of ZKL PLC 512 – 37 in excavator KU 800
Special Split Spherical Bearing

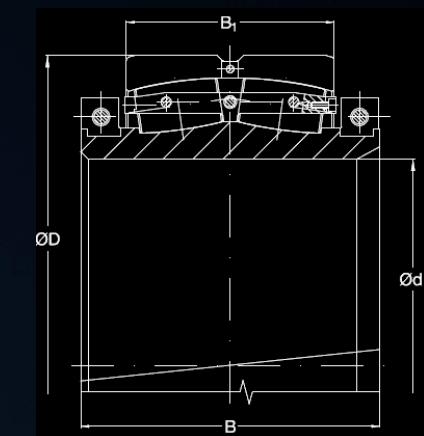
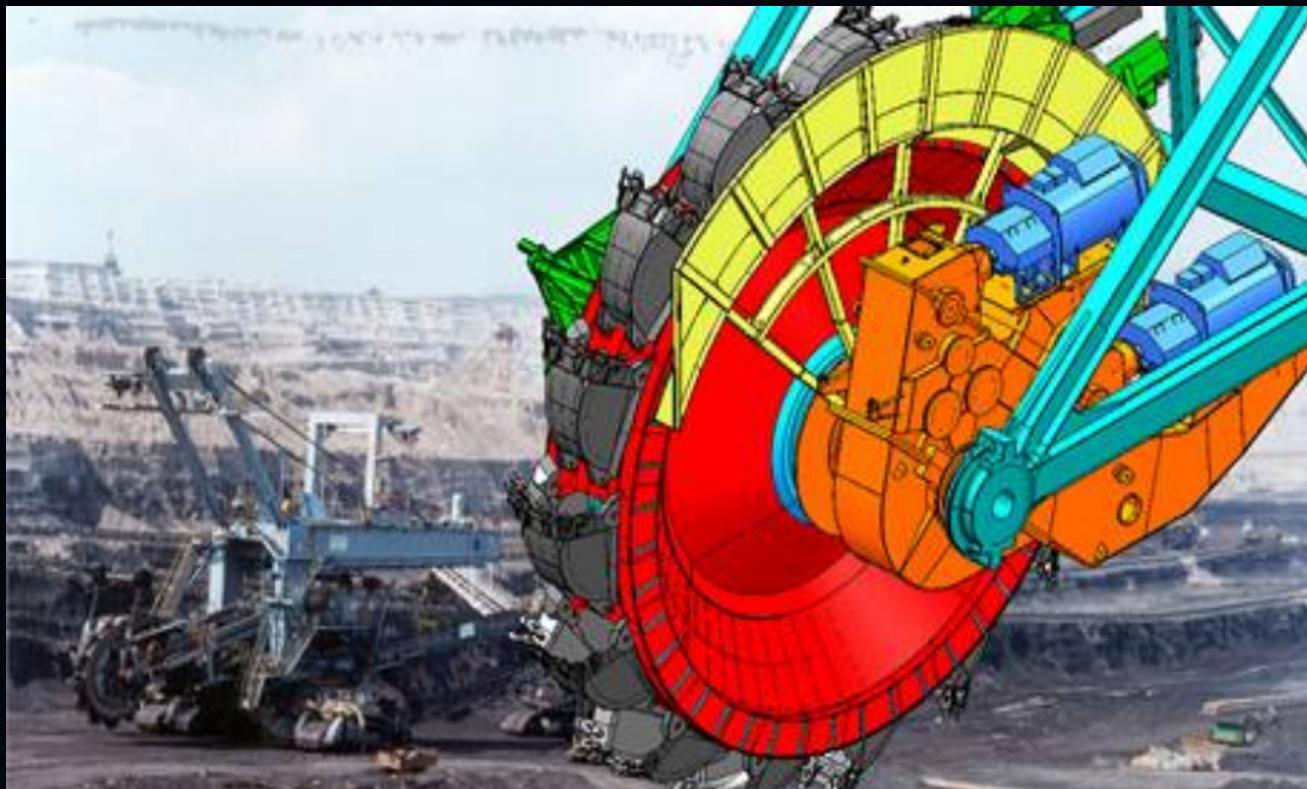


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Surface Mining Excavators



ZKL split bearing
PLC 512-37



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Details of ZKL Split Bearings

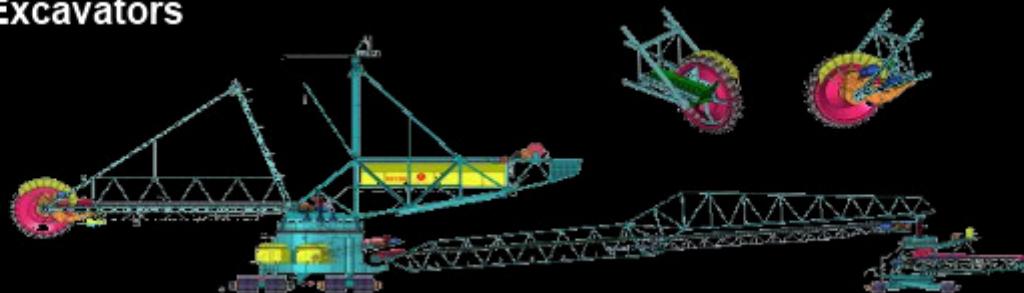
Advantages:

- easy mounting
- costs saving
- development and production according to customer requirements
- delivery time 4-5 months from order



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Surface Mining Excavators



Mounting process of PLC 512-37 on excavator KU 800 in surface mine Tušimice

Placement:

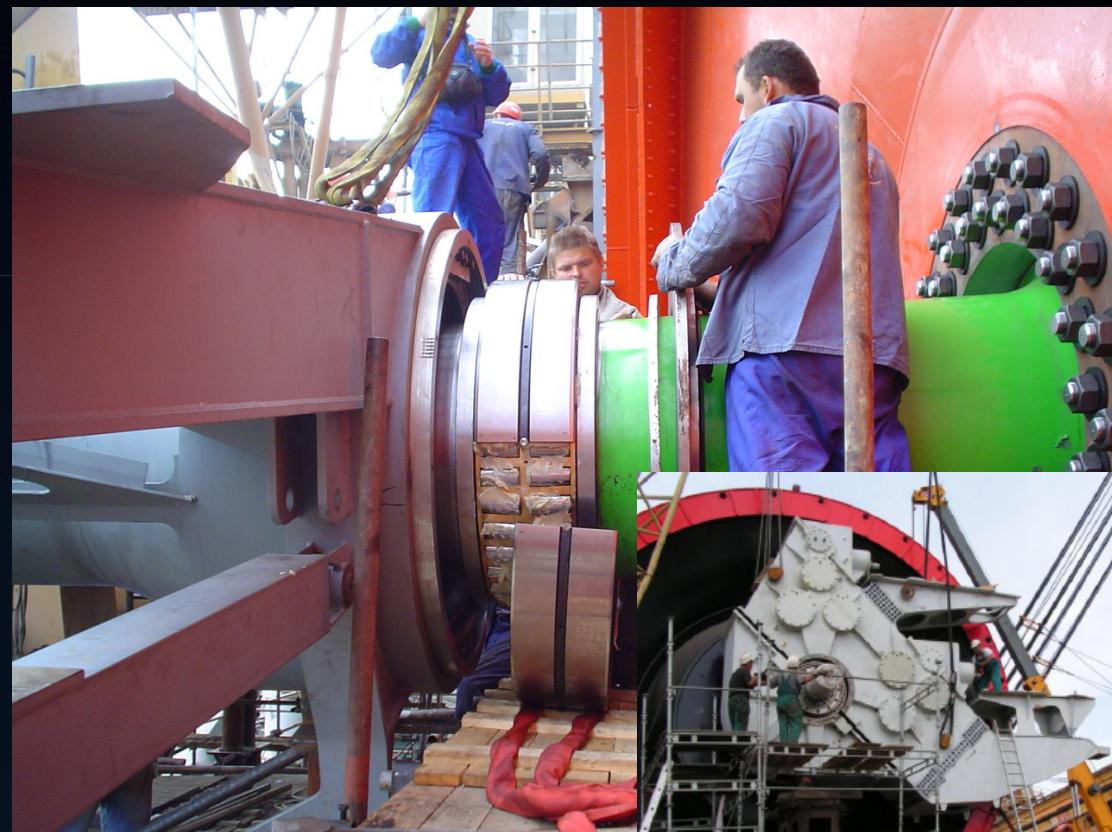
- main shaft of wheel

Details about shaft:

- length 10,5m
- weight 10t including bearings

Details about bearing

- split spherical roller bearing
- outer diameter 1000mm
- weight 1220kg



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ZKL Bearings for the Mining industry

Power Loaders



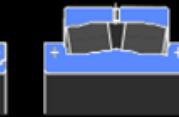
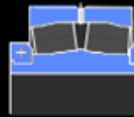
Spherical roller bearings



Spherical roller thrust bearings



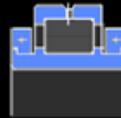
Split spherical roller bearings



Cylindrical roller bearings



Split cylindrical roller bearings



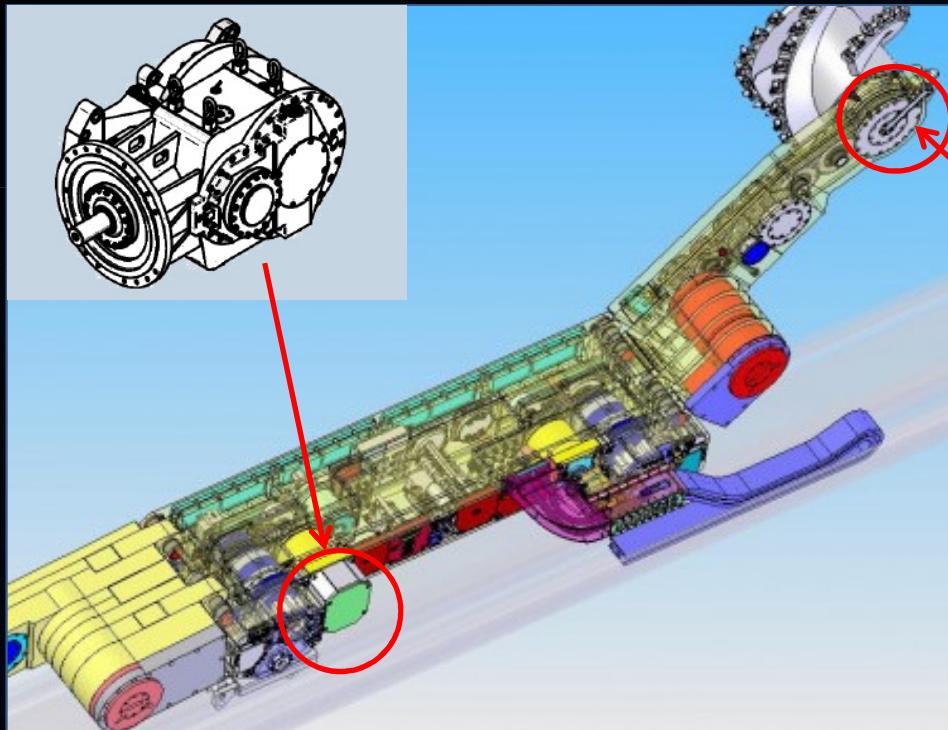
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Power Loaders



Application of
ZKL Bearings
in planetary
gearboxes:

Transmission of drive of comb conveyor



Spherical roller bearings Series 239, 240, 241
Cylindrical roller bearings NU, NJ
Special roller bearings PLC

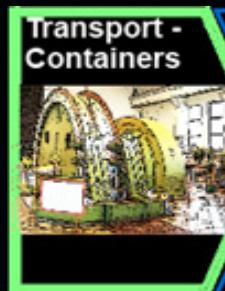


Planetary gearbox for turning of
head of mining combine



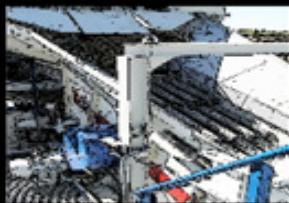
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ZKL Bearings for the Stone treatment making process

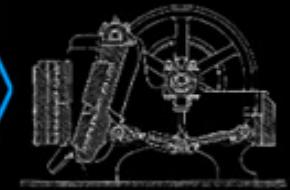


Transport -
Containers

Screens



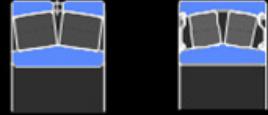
Crushers



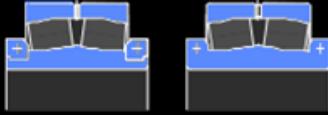
Belt Conveyors



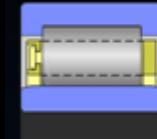
Spherical roller bearings



Split spherical roller bearings



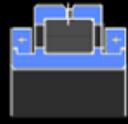
Cylindrical roller bearings



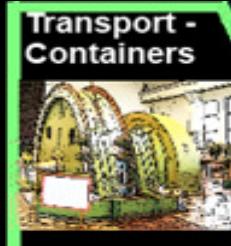
Spherical roller thrust bearings



Split cylindrical roller bearings



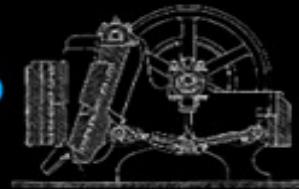
ZKL GROUP



Screens



Crushers



Belt Conveyors



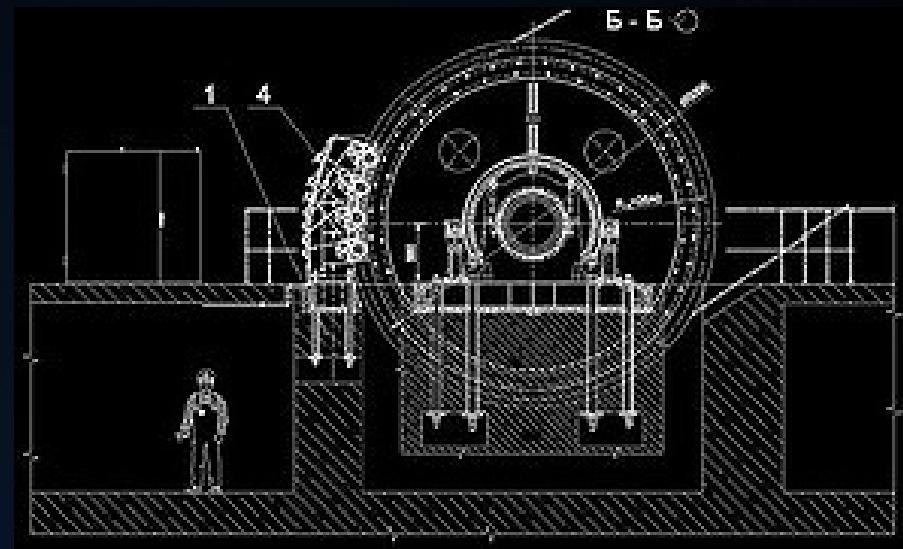
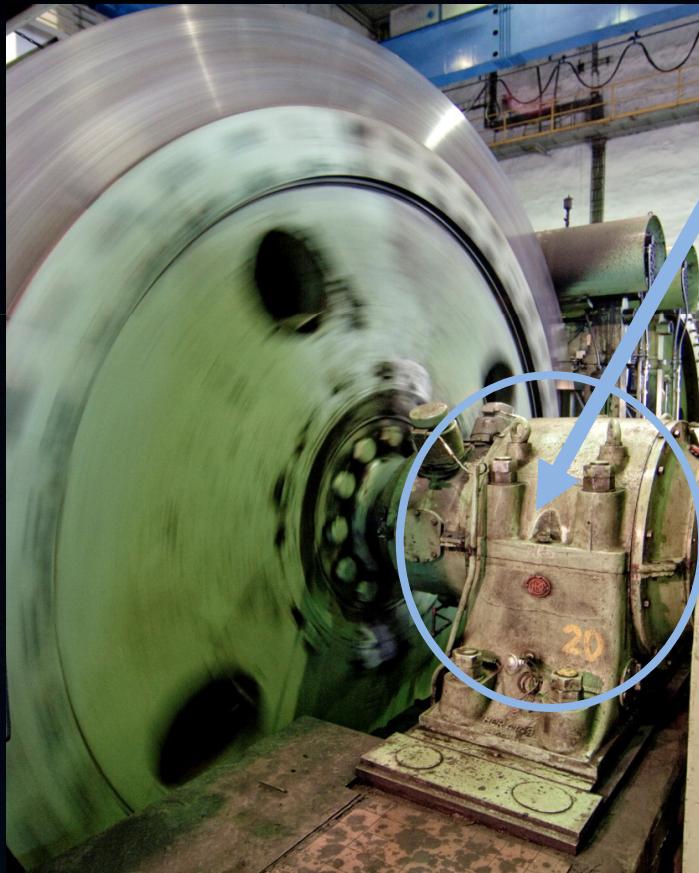
Transport - Containers

Application of ZKL PLC 512-39 in deep coal mine Darkov

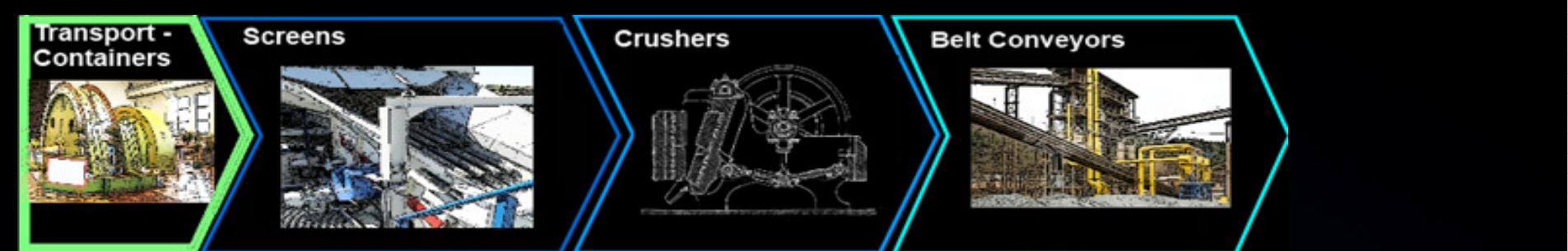
Bearing type: Special Split Spherical roller Bearing

Dimensions:

- outer diameter 1150mm
- weight 1710kg



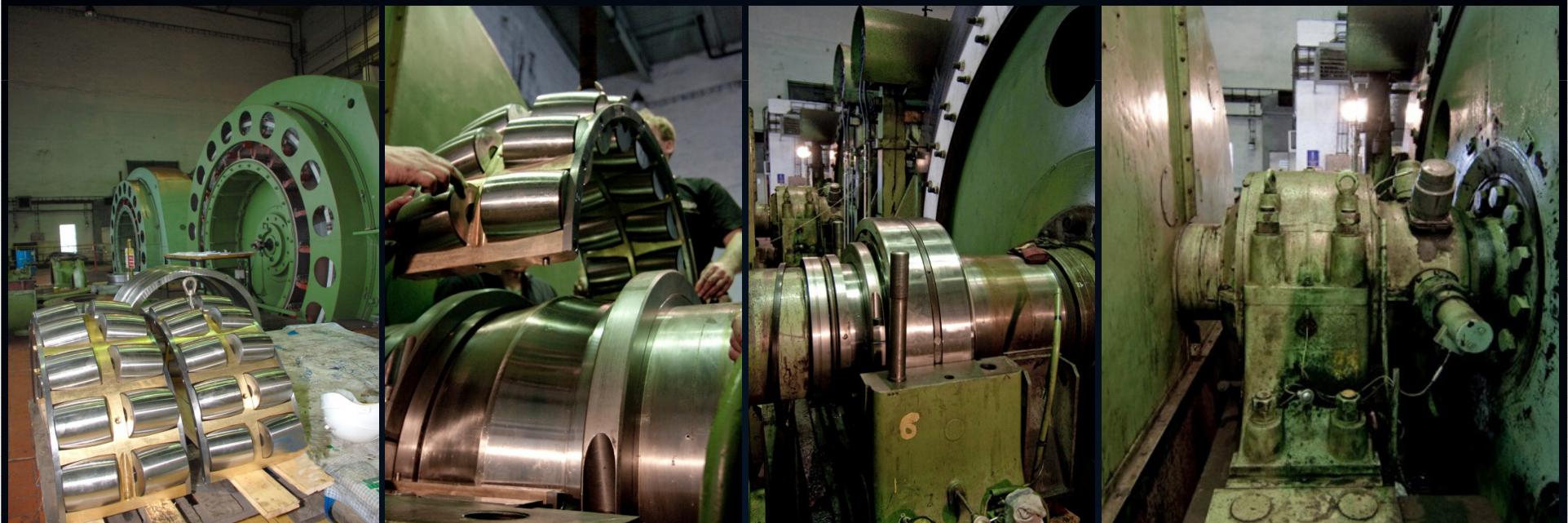
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Transport - Containers

Mounting process of ZKL PLC 512-39

Bearing is placed on the shaft of main transport elevator in deep coal mine Darkov which is for transporting coal from deep around 1000m. This special type of bearing replaced in mentioned application standard FAG bearing.



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ZKL Bearings for the Stone treatment making process

Transport - Containers



Screens



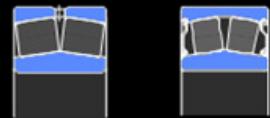
Crushers



Belt Conveyors



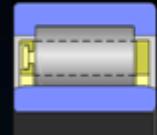
Spherical roller bearings



Split spherical roller bearings



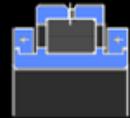
Cylindrical roller bearings



Spherical roller thrust bearings



Split cylindrical roller bearings



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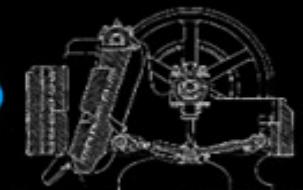
**Transport -
Containers**



Screens



Crushers



Belt Conveyors



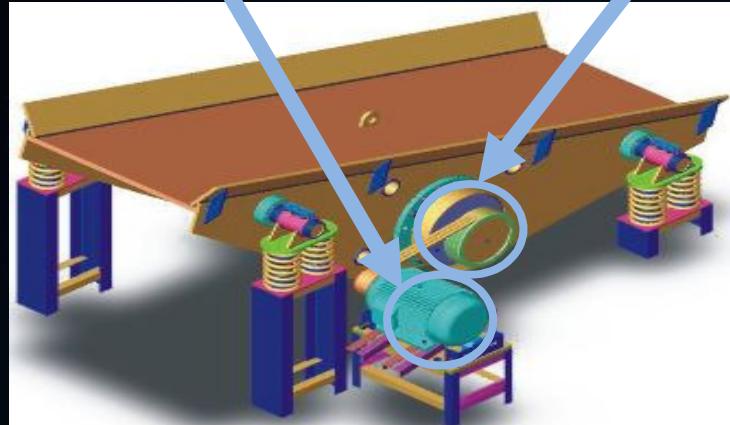
Screens

Spherical roller bearings Series 239, 240, 241

Spherical roller bearing for vibration machines serie 223 EMHD2

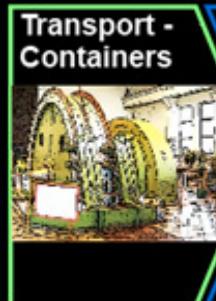
Ball bearings serie 6xxx,
cylindrical roller bearings NU

Spherical roller bearing ZKL
22319EMHD2



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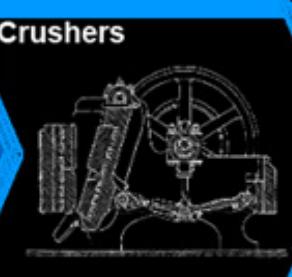
ZKL Bearings for the Stone treatment making process



Transport-
Containers



Screens



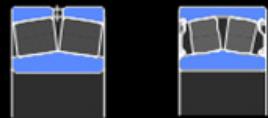
Crushers



Belt Conveyors



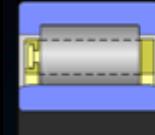
Spherical roller bearings



Split spherical roller bearings



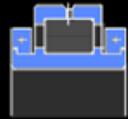
Cylindrical roller bearings



Spherical roller thrust bearings



Split cylindrical roller bearings



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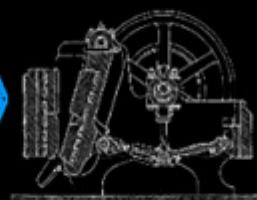
Transport -
Containers



Screens



Crushers



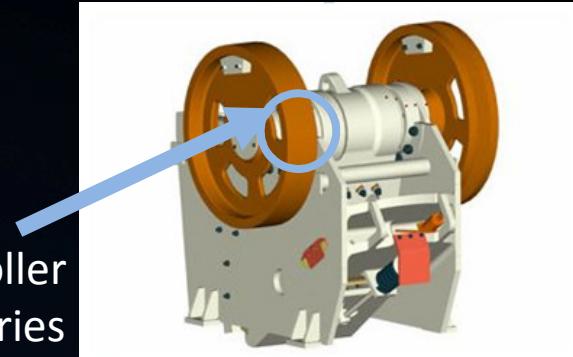
Belt Conveyors



Crushers

Stone crushers are widely used in mining, metallurgy, construction, highway, railroad, etc.

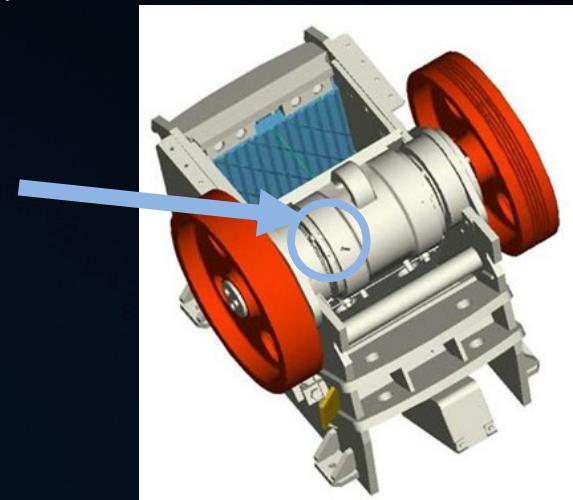
Spherical roller
bearings series



230, 231, 240, 241



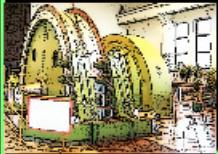
2x 23172KW33MC3
2x23264W33MC3



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ZKL Bearings for the Stone treatment making process

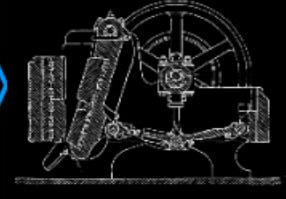
Transport -
Containers



Screens



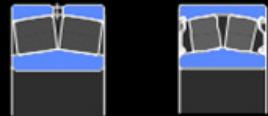
Crushers



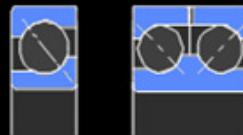
Belt Conveyors



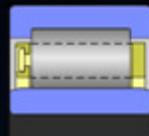
Spherical roller bearings



Angular contact ball bearings



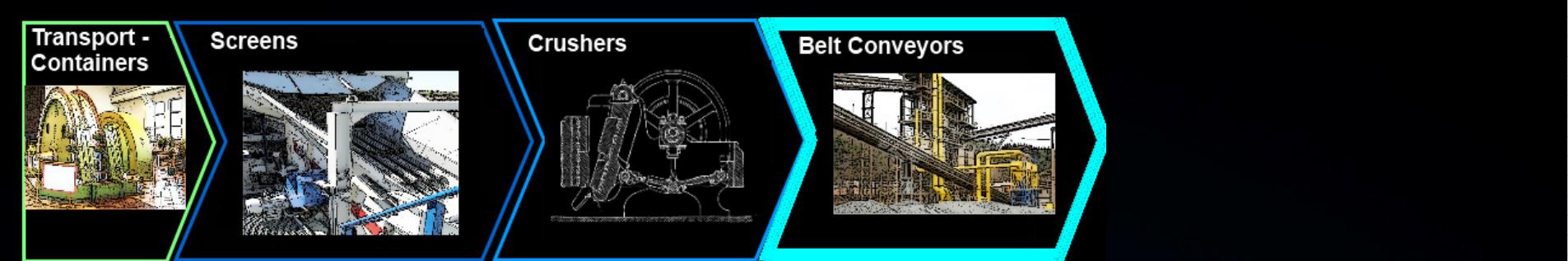
Cylindrical roller bearings



Deep groove ball bearings



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Belt Conveyor



ZKL Bearings in main gearboxes:

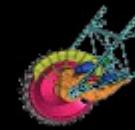
spherical roller bearings series 239, 240, 241
cylindrical roller bearings NU, NJ

ZKL Bearings in belt conveyor:
spherical roller bearings series 222, 223



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Surface Mining Excavators

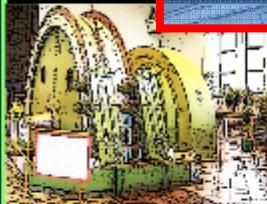


Power

Various Application !
Different Bearing Designs !

The more important
to select the right bearing
for a certain application

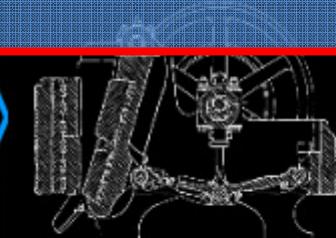
Transport-
Containers



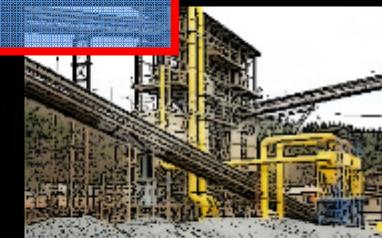
Screens



Crushers



Belt Conveyors

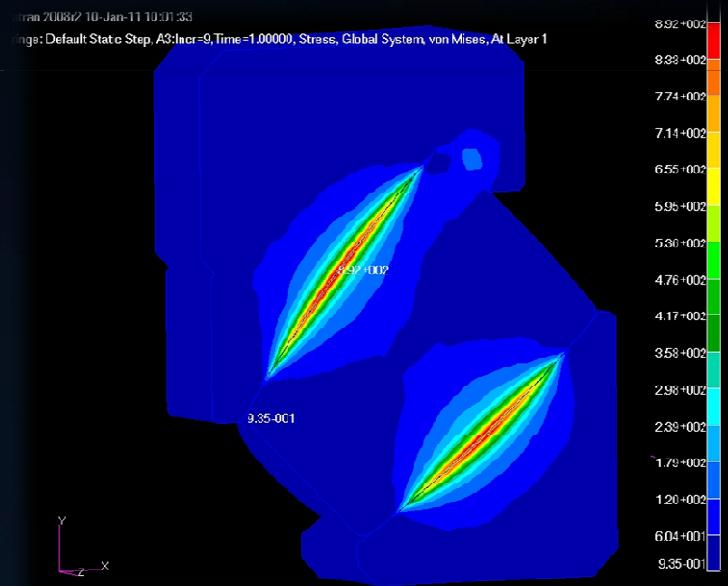


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Application Engineering

- Customer support in selection and calculation of bearings
- Application specific bearing designs, intensive product support, complete product range
- Support for selection of lubrication and fits
- Application specific mounting instructions
- Customer support on the spot
- Handles application related training and presentations

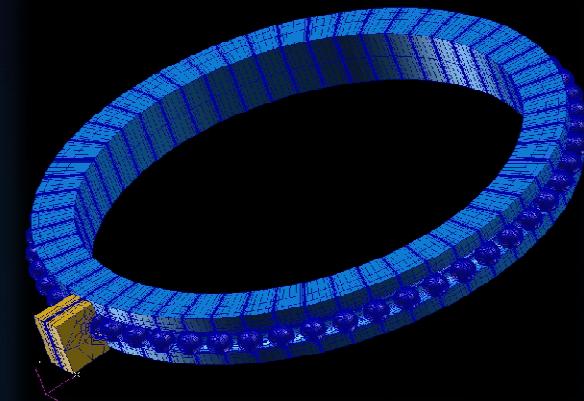
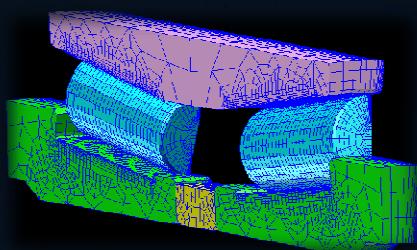
Construction optimization of the ring raceways of large-size bearings



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Research and Development

- **New materials**
- **Hybrid bearings** with steel rings and ceramic balls
- **Special rolling bearing coatings** to ensure current insulation and increase resistance to wear and corrosion
- **Grease test rigs** for testing the service life, friction and wear of rolling bearing greases
- **Special life calculation methods** which take into account various influencing factors



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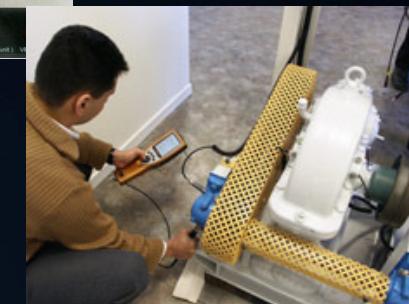
Diagnostics

Most common types of bearing damage which can lead to shortened life of the 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.

We are able to extend bearing life, increase productivity and reduce maintenance costs by identifying and resolving issues around the selection of bearings, mounting, lubrication and applications.



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Lubrication

ZKL recommend to use special lubrication systems to avoid following failures:



Advantages:

- Your machines will be maintained in their best lubrication condition
- You will make the lubricating process simpler
- You will save money by reducing of the consumption of expensive lubricants

Portable instrument for monitoring and control of machine lubrication

SAVE OUR ENVIRONMENT!
SAVE YOUR MONEY!



- Control of lubrication process
- Checking of correct lubrication
- Checking of bearing condition
- Stethoscope function - „listening of machine noise“
- Simple operation



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Testing

ZKL own testing laboratory in Brno



Testing of competitors bearings
Basic dynamic load tests
Limiting speed frequency tests
Metallographic tests

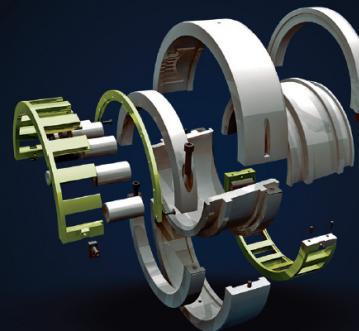


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Catalogues



ZKL GROUP



ZKL CROSS-SPLIT SPHERICAL AND CYLINDRICAL ROLLING BEARINGS



ZKL GROUP



ZKL LARGE-SIZE AND SPECIAL BEARINGS
NEW TECHNOLOGICAL OPPORTUNITIES



ZKL GROUP



NEW FORCE



ENG



ZKL GROUP



ROLLING BEARINGS

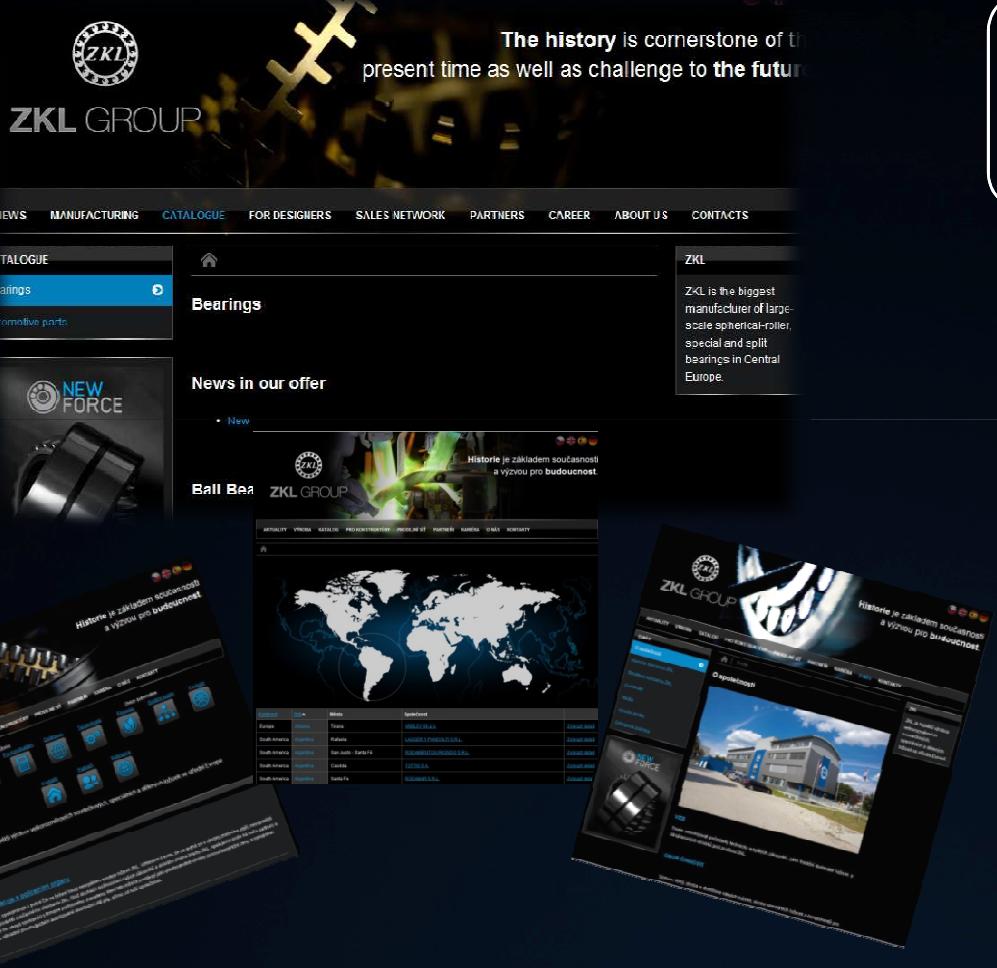


NEW FORCE



ZKL GROUP

ZKL - web pages



Compact information's about our
you should find on our web
pages: www.zkl.cz

- News
- Annual reports
- Catalogue and business information's
- Constructor manual
- Contact information's
- ... and more information's

Thank You for Your Attention



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