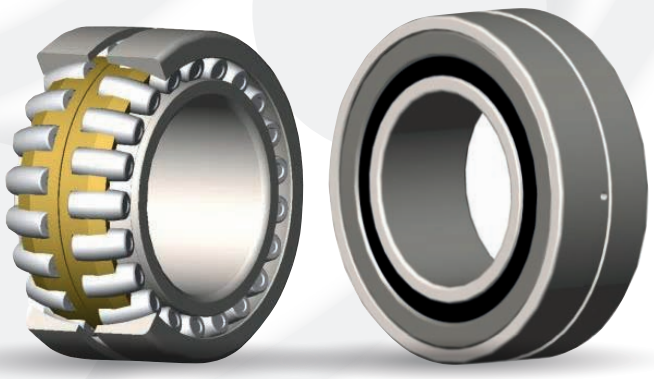
URB

*The wise choice for* **U**ltra **R**eliable **B**earings

# URB GROUP

# BEARINGS FOR CEMENT INDUSTRY

## Special and Standard Bearings



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## Introduction

Bearings for cement industry are designed to answer the requirements of the cement industry such as: high temperatures, debris, heavy loads and corrosive environments.

The cement making process has applications such as the Rotary Kilns, clinker coolers, Roller presses, vertical and horizontal mills, conveyors, etc.

| Machinery/Equipment | Operating conditions | Requirements for bearings |
|---|---|---|
| **Conveyors**<br> <br>***Conveyor belts move the ore from one machinery process to another. Conveyor performance is often a major concern for mining and mineral processing companies.*** | *- Heavy duty*<br>*- Shock loads*<br>*- Harsh working environments* | *- High load-carrying capacity*<br>*- Wear resistance*<br>*- Black-oxide coated*<br>*- Low noise and vibration* |
| **Kilns**<br> <br>***The kiln is used to make cement clinker and iron ore pellets and is critical to the iron and cement making process.*** | *- High temperature*<br>*- Non-stop smooth working* | *- Special heat treatment*<br>*- Increase capacity of bearings*<br>*-Wear resistance* |
| **Mills**<br> <br>***Grinding mills are used to pulverize the ore material and are exposed to quite severe environments.*** | *- Hot and cold temperature*<br>*- Heavy loads*<br>*- High moment loads*<br>*- Extreme debris*<br>*- Heavy shocks and vibrations* | *- Optimized internal geometry*<br>*- Sealing design*<br>*- Special heat treatment*<br>*- High load-carrying capacity*<br>*- High operational reliability*<br>*- Customized bearings* |

| Machinery/Equipment | Operating conditions | Requirements for bearings |
|---|---|---|
| **Roller press**<br> <br>***The roller press is specially designed for grinding clinker and raw meal.*** | *- Extreme heavy loads*<br>*- Low speed*<br>*- Contaminated environment* | *- Sealing design*<br>*- High axial and radial capacity*<br>*- Black-oxide coated*<br>*- Low noise and vibration* |

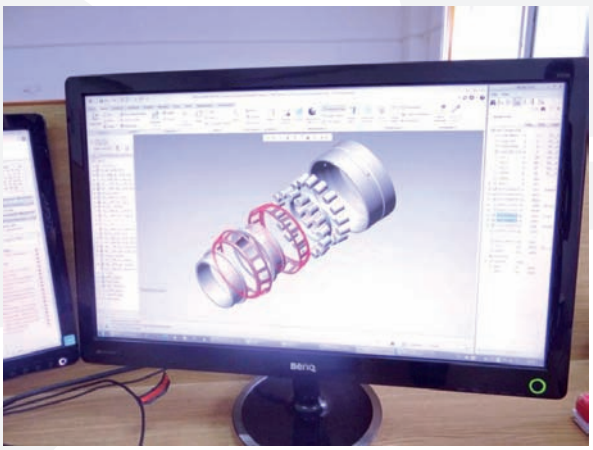
## Research and development

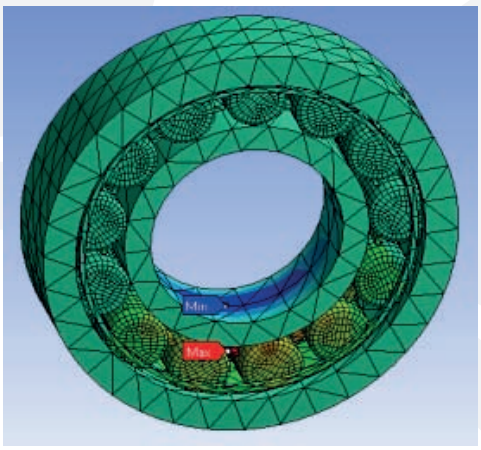
URB's engineers are very familiar with the requirements of this sector and have successfully developed solutions for numerous cement machinery manufacturers.

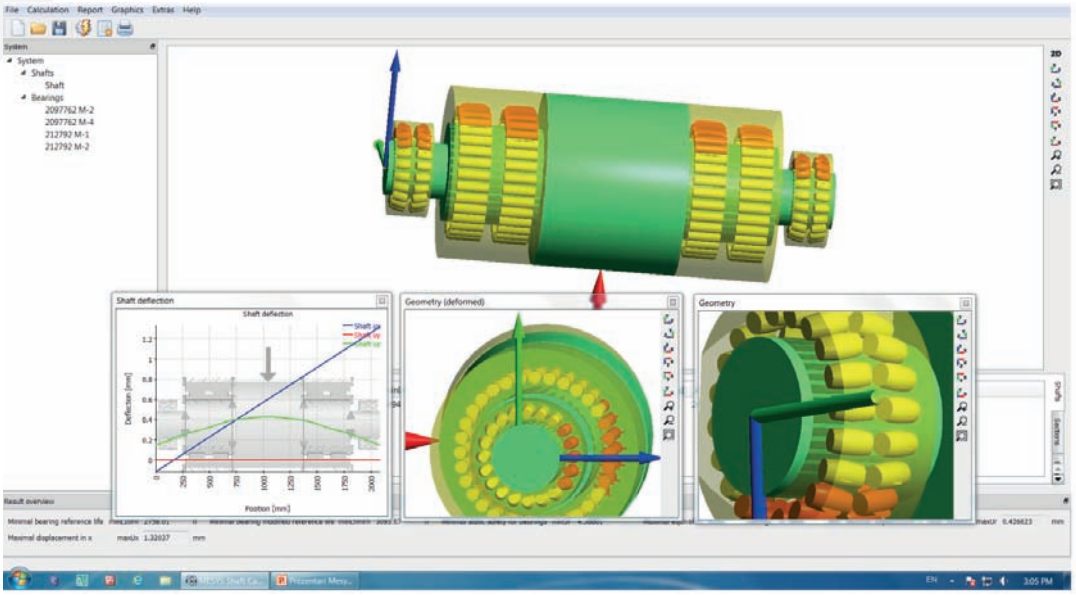
Optimizing interior construction is performed using specialized simulation programs **"Rolling Bearing Calculation"** and **"Shaft Calculation"**. These programs calculate the lubricant film thickness in elastomeric - hydrodynamic contacts optimizing quality finished surfaces extending bearing durability in severe working conditions.

For special applications used Finite Element Analysis (FEA) that enables parametric studies, simulation of operating conditions and optimization the bearing design in requirements of use set.

Bearings for special applications are designed to withstand high loads, misalignment, shock and other heavy duty bearings using high quality steel with optimum mechanical properties and purity.







## Commonly used bearing types in cement industry:

### STANDARD BEARINGS

***Application:***

### *Deep groove ball bearings*

*Size range: 30 mm ÷ 320 mm (outer diameter)*

***Series:*** *6200: 6200 ÷ 6240*
*6300: 6300 ÷ 6317*
*6400: 6400 ÷ 6410*
*6000: 6000 ÷ 6032*

- *Fans*
- *Crushing*
- *Conveyers*
- *Blending*

### *Angular contact ball bearings*

*Size range: 30 mm ÷ 320 mm (outer diameter)*

***Series:*** *7200: 7206 ÷ 7208*
*7300: 7308 ÷ 7323*

- *Crushing*
- *Grinding*
- *Blending*

### *Cylindrical roller bearings*

*Size range: 35 mm ÷ 910 mm (outer diameter)*

***Series:*** *NU: NU2xx, NU3xx, NU4xx,*
*NU22xx, NU10xx*
*NJ: NJ2xx, NJ3xx, NJ22xx*
*NUP: NUP2xx, NUP3xx, NUP22xx*
*NN: NN30xx*
*NNU: NNU49xx,*

- *Vertical mills*
- *Kilns*
- *Horizontal mills*
- *Material preparation*

### *Spherical roller bearings*

*Size range: 80 mm ÷ 650 mm (outer diameter)*

***Series:*** *213xx*
*222xx*
*223xx*
*231xx*
*232xx*
*240xx*
*241xx*

- *Vertical mills*
- *Roller presses*
- *Ball mills*
- *Kilns*
- *Vibrating screen*

### *Taper roller bearings*

*Size range: 42 mm ÷ 420 mm (outer diameter)*

***Series:*** *30xxx*
*31xxx*
*32xxx*
*33xxx*

- *Vertical mills*
- *Ball mills*
- *Crushing*
- *Conveyers*
- *Blending*

### *Thrust ball bearings - Single direction*

***Size range: 24 mm ÷ 420 mm (outer diameter)***

***Series: 511xx***
***512xx***

- *Crushers*

### *Self-aligning ball bearings*

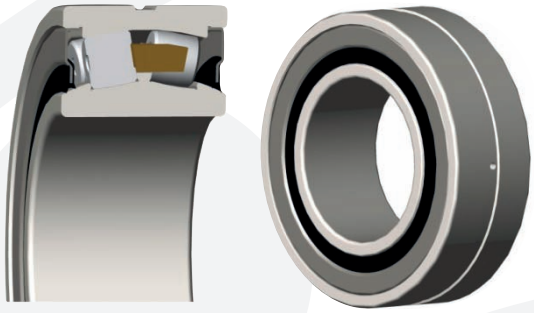
***Size range: 42 mm ÷ 240 mm (outer diameter)***

***Series: 12xx***
***13xx***
***22xx***

- *Conveyers*
- *Material preparation*
- *Mills*

## SPECIAL BEARINGS

### *Sealed Spherical Roller Bearings*



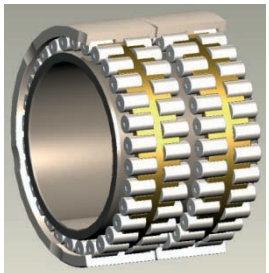
*Seals protect the bearings and lubricant from contaminants and increase bearing service life.*

### *Special cylindrical roller bearing (with black oxide treatment)*

*Black oxide treatment offers the following benefits:*

- *slight improvement of corrosion protection;*
- *reduced friction and wear;*
- *minor dimensional changes;*
- *good lubrication characteristics;*
- *reduction of chemical attack from aggressive oil additives on the bearing steel;*
- *reduced maintenance costs.*

### *Four-row cylindrical roller bearings*



*These bearings are designed for extremely high radial load capacity with case-carburized steel materials for race and rollers maximize resistance to shock, wear and debris. Optimized internal design and improved surface quality extended the service life of bearing.*

# URB GROUP

The company was set-up on May 1953 and it has a long tradition in manufacturing of bearings over 60 years, being one of the important bearing manufactures in the Central and South-East Europe.

The key to success has been a consistent emphasis on maintaining the highest quality of our products and services and investment in research and development.

We include the respect for clients and the satisfaction of their needs among our fundamental principles. Therefore we tried to respond better to the market requirements by offering, besides the bearings with standardized shapes and sizes, a large range of non-standardized bearings, specific to various applications.