

**URB GROUP**



**BEARINGS**  
**FOR CRUSHING STONES**

**SPECIAL AND STANDARD BEARINGS**



**Introduction**

Stone crushers are used extensively in mining applications. The type of crusher used will depend on a variety of factors including the type of mine in terms of what ore is being mined, the size of the required finished product to be produced by the mine, the industrial applications of the mine ore, and the type of mine in terms of how the ore is mined.

Various types of crushers are used in the stone crushing industry such as Jaw Crushers, Roller Crushers, Cone Crushers, Impactor, etc. Generally, only Jaw crushers are used as primary crushers. For secondary and tertiary crushing application either of Jaw, cone, roller, Impactor type crushers are used.

**Conditions of operation**

The bearings in these applications are subjected to very severe operating conditions such as:

- Heavy load
- Shock load and vibration
- Dusty environment
- Shaft deflection
- Continuous operation
- Poor maintenance system

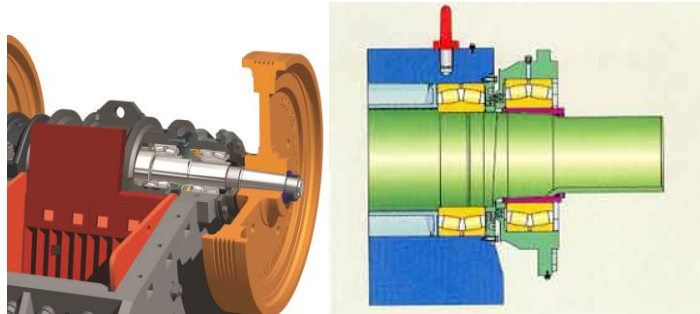
URB studied bearing failure analysis in stone crusher and developed the range of strong and robust spherical roller bearings for these applications. The sealed variant of URB spherical roller bearings keeps lubricant inside the bearing and contaminants out extending bearing service life.

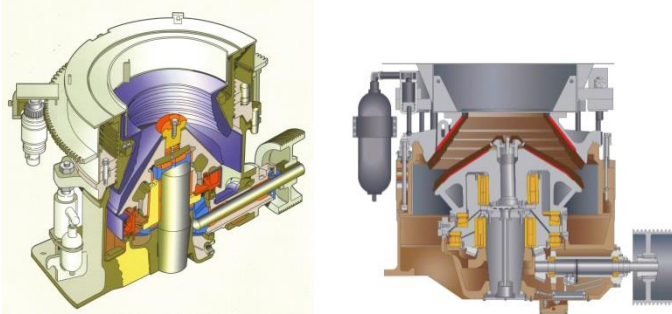
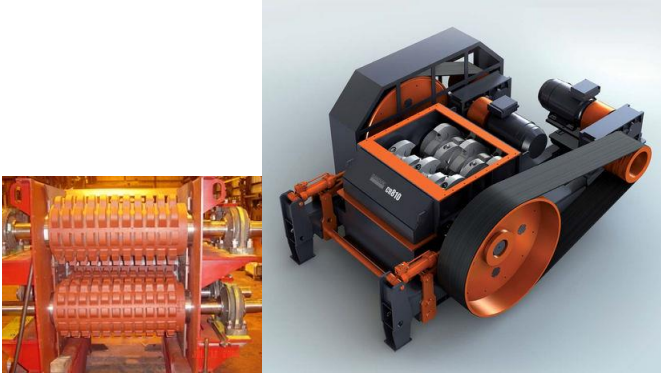

An important factor of quality improvement of cylindrical roller bearings is continuing design improvement (tapered ribs and roller end crowning to increase the axial load capacity), optimizes lubrication, increases loading capacity and minimizes edge stresses.

The bearings are designed to support high loads and misalignment, shock and other heavy duty using high quality steel bearings with optimum mechanical properties and purity.

Our company provides technical support through counseling and guidance on mounting and dismounting of bearings, recommendations on suitable lubricants and inspection of bearings used properly.


**Applications:**

<b>Type machine</b>	<b>Recommended bearings</b>
<p style="text-align: center;"><i>Jaw crushers</i></p> 	<p><i>Standard spherical roller bearings, type MB</i>  <i>Specialized spherical roller bearings for vibrating applications</i></p>

<p style="text-align: center;"><i>Cone crusher</i></p> 	<p><i>Spherical roller bearings(standard and sealed)</i>  <i>Tapered roller bearings</i>  <i>Cylindrical roller bearings (single and double row)</i>  <i>Cylindrical roller thrust bearings (single and double row)</i>  <i>Tapered roller thrust bearings</i></p>
<p style="text-align: center;"><i>Roller Crushers</i></p> 	<p><i>Spherical roller bearings (standard and sealed)</i>  <i>Spherical roller thrust bearings</i>  <i>Four-row cylindrical roller bearings</i></p>
<p style="text-align: center;"><i>Impactors</i></p> 	<p><i>Spherical roller bearings, standard and specialized spherical roller bearings for vibrating applications</i></p>

**Our products for the most popular types of crushers:**

### STANDARD BEARINGS

<i>Type Bearings</i>	<i>Improved design</i>	<i>Benefits</i>
 <p><b><i>Cylindrical Roller Bearings</i></b>  <b><i>Size range: 30 mm ÷ 1000 mm</i></b></p>	<ul style="list-style-type: none"> <li>➤ <i>Premium raw material</i></li> <li>➤ <i>Optimized shoulders geometry</i></li> <li>➤ <i>Crowing profile of inner ring raceway</i></li> <li>➤ <i>Smaller roughness and roundness values</i></li> <li>➤ <i>Superior surface finish of roller, logarithmic profile</i></li> <li>➤ <i>Increased rollers number</i></li> <li>➤ <i>Cage optimization to allow extra rollers</i></li> <li>➤ <i>Simulation on specialized software</i></li> </ul>	<ul style="list-style-type: none"> <li>➤ <i>Working temperature up to 150<sup>o</sup>C</i></li> <li>➤ <i>Reduced friction in bearing</i></li> <li>➤ <i>Capability to take greater axial load</i></li> <li>➤ <i>Improved lubricant film formation</i></li> <li>➤ <i>Reduced contact pressure</i></li> <li>➤ <i>Increase of load ratings</i></li> <li>➤ <i>Increase of life ratings</i></li> </ul>

 <p><b>Spherical Roller Bearings</b> Size range: 80 mm ÷ 620 mm</p>	<ul style="list-style-type: none"> <li>➤ High clean steel and heat treatment process</li> <li>➤ Optimized internal geometries</li> <li>➤ Improved manufacturing processes. (texture of surface in contact)</li> <li>➤ Reduce stress concentrations using finite element analysis (ANSYS)</li> <li>➤ Massive and rigid brass cage to accommodate high shocks and vibrations. Optimized spherical profile of rollers</li> </ul>	<ul style="list-style-type: none"> <li>➤ Longer life and greater rigidity</li> <li>➤ Small values for residual austenite</li> <li>➤ Reduce wear</li> <li>➤ Increasing load carrying capability</li> <li>➤ Lowering operating temperatures</li> <li>➤ Optimum oil film between the contacting surfaces</li> </ul>
 <p><b>Tapered Roller Bearings</b> Size range: 50 mm ÷ 300 mm</p>	<ul style="list-style-type: none"> <li>➤ High clean steel and heat treatment process</li> <li>➤ Optimized internal geometry used Mesys simulation software</li> <li>➤ Low surface roughness of the rings and the rollers</li> <li>➤ Improved of geometry of the inner ring ribs and the roller end faces</li> </ul>	<ul style="list-style-type: none"> <li>➤ Lowering operating temperature</li> <li>➤ Reduced friction in bearings</li> <li>➤ Optimized load distribution in the bearing</li> </ul>
 <p><b>Cylindrical Roller Thrust Bearings</b> Size range: 24 mm ÷ 420 mm</p>	<ul style="list-style-type: none"> <li>➤ Modify the contact line between the raceways and rollers</li> <li>➤ Low surface roughness</li> </ul>	<ul style="list-style-type: none"> <li>➤ High axial load carrying capacity</li> <li>➤ High operating shock</li> <li>➤ Smaller stress at the roller ends</li> </ul>
 <p><b>Spherical roller thrust bearings</b> Size range: 100 mm ÷ 400 mm (outer diameter)</p>	<ul style="list-style-type: none"> <li>➤ Optimized conformity</li> <li>➤ Large number of asymmetrical rollers</li> </ul>	<ul style="list-style-type: none"> <li>➤ Self-aligning capability</li> <li>➤ Very heavy axial loads and high speed operation</li> </ul>

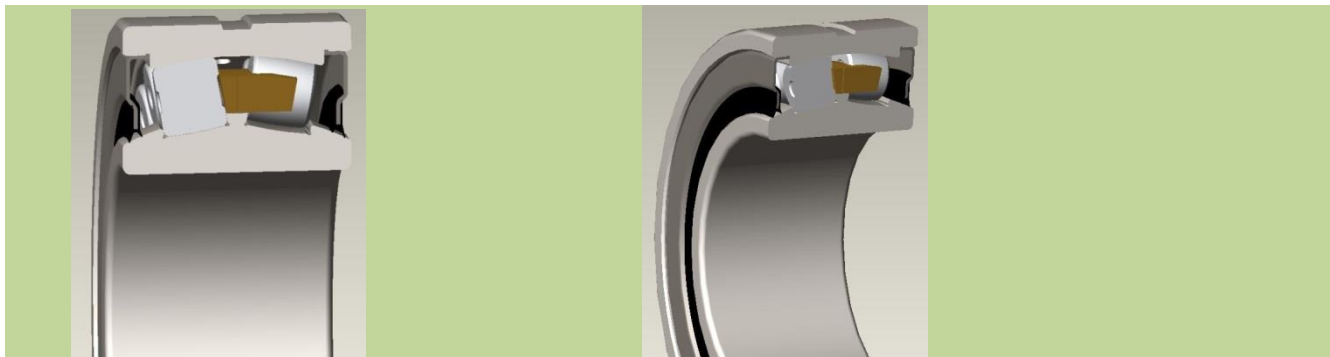
## SPECIAL BEARINGS

### Sealed Spherical Roller Bearings

These bearings are sealed with acrylonitrile rubber that assure special characteristics for wear to friction resistance to petroleum products and physical - mechanical properties and working temperature -50.....+200°C.

These bearings have greater width than standard bearings.

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



### 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.



### Application: Roller Crushers

#### Recommended greases

Grease	Manufacturer	Remark
KLUBERLUB BE 41-1501	Kluber	Wear protection, for low-speed and high load
KLUBERLUB BE 41-542	Kluber	High-load, wear protection, low to medium speeds
KLUBERLUB BE 41-1002	Kluber	For low-speed and high load

## URB GROUP

320 Republicii Street, Code 731108, Barlad, ROMANIA  
phone: +40 235 / 411120, 412120 fax: +40 235 / 413838, 308200  
e-mail: [sales@urb.ro](mailto:sales@urb.ro) web: <http://www.urbgroup.com>