Bearings for Mining & Construction

Mining and construction equipments are important to improve our daily living, provide resources to be used to create electricity, roads, and communities.

- Typically, mines are located apart from where most people work, some of them can be found as much as 2,000 meters below ground. The equipments such as cutting equipment, screening machinery, stockpiling equipment and conveying equipment are usually to be seen on field.
- Construction operations play a critical role in the improvement of our society. From houses to highways to sewers, construction machineries, such as cranes, excavators and dozers help us to build a better world.

Accordingly, the operating environments of mining and construction industries for bearings are extremely severe. The following characteristics are common:

- heavy and shock loads
- light loads with high speed rotation
- heavy loads with low speed rotation

### Mining Industries

KML bearings offer mine operators longer service life under the most challenging operating conditions to maximize uptime and reduce maintenance costs for improved productivity at mining sites.

### Construction Industry

Construction equipment used in harsh environments risk contamination from dust, mud, and huge loads, and require a certain degree of ruggedness that is different from the requirements of a common passenger vehicle. KML has developed bearings for such equipment. These bearings provide long life and higher limiting speeds exceeding that of conventional bearings.

### Jaw Crusher

Working principle: Jaw crusher is a kind of stone crusher which is used widely in many industrial departments including mining, smelt metal, building materials, public road, railway, water conservation, chemical industry and so on, and it is also called rock crusher. Primary jaw crusher is typically of the square opening design, and secondary jaw crusher is of the rectangular opening design. Jaw Crusher reduces large size rocks or ore by placing the rock into compression. A fixed jaw board, mounted in a “V” alignment is the stationary breaking surface, while the movable jaw exerts force on the rock by forcing it against the stationary plate. The space at the bottom of the “V” aligned jaw plates decides the crusher product size gap, or the size of the crushed product from the jaw crusher. The rock remains in the jaw until it is small enough to pass through the gap at the bottom of the jaws.
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### Round Vibrating screen

The vibrating screen consists of a case with a shaft and housing installed inside, with springs supporting the case. The swing and rotation of the shaft is produced by the attached unbalanced weight, which generates vibration.

This vibration sifts the material set on the screen on the top of the case.

- **Bearings:** four sets cylindrical roller bearing
  - Cone and ball materials: bearings steel (Gcr15)
  - Cage materials: Solid brass
  - Clearance: C3 or C4
  - Operation temperature: work temperatures 75 °C, allowed maximum temperature-rise 45 °C

### Bearing Maintenance and Inspection

#### Common issue:
Bearing temperature excursion during no-load running.

#### Causes:
- Inadequate clearance: common reasons includes bearing clearance is too small, bore size of inner ring is too small, shaft in pairing is too big, which caused the amount of interference increases.
- Lubrication insufficient or contamination.
- Improper installation.

#### Solutions:
- Adjust the radial run out of bearing.
- Add or change grease.
- Improve the mounting method.

### Application Bearing reference Quantity/set

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<th>Application</th>
<th>Bearing reference</th>
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### Application Bearing (Round vibrating screen) Reference Quantity/set

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</table>

### Bearings: four sets of bearings, primarily are

**Spherical Roller Bearings**
- Cone and ball materials: bearings steel (Gcr15)
- Cage materials: Solid brass
- Clearance: C3
- Operation temperature: maximum working temperature 30 °C

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