TIMKEN



ENGINEERED SOLUTIONS FOR SURFACE MINING

IMPROVE EQUIPMENT PRODUCTIVITY AND UPTIME WITH TIMKEN

The Timken Company offers one of the broadest ranges of bearing products, industrial motion components, services and support for the mining industry and its harsh environments.

Through our relationships with original equipment manufacturers (OEMs), we play a key role in designing and manufacturing bearings that deliver reliable, long-lasting performance. Our portfolio of high-performance bearings – and industrial motion components used in surface mining deliver results that matter: improving productivity and uptime while reducing maintenance and replacement costs.

Across the industry, customers trust our unmatched engineering expertise and customized solutions help make mining more productive.

SMART SOLUTIONS FOR ALL MINING EQUIPMENT:

- Draglines
- Electric rope shovels
- Hydraulic mining shovels
- Haul trucks
- Wheel loaders
- Dozers
- Drills
- Motor graders
- Excavators

Timken Advantages

- **Extensive product portfolio.**
  We offer a full portfolio of bearings and industrial motion components to help you extend equipment uptime and avoid unplanned outages.
- **Dynamic sales and service support.**
  As a Timken customer, you have access to one of the largest service engineering teams in the industry. Our engineering team understands the unique demands placed on surface mining equipment – including extreme loads, heavy contamination and high operating temperatures. This knowledge helps us select and design the right product for each mining application.
- **Problem-solving.**
  Our surface mining customers bring Timken their greatest challenges. And we deliver – leveraging our engineering expertise and extensive field experience to provide the right solutions.

Gain Solutions That Give You:

Reliable performance.

Our full range of premium products keeps your mining operations up and running. Each product offers performance you can count on, due to our use of premium materials, debris-resistant designs and special coatings engineered for superior performance in highly contaminated surface mining environments.

Product – when you need it.

Timken bearings and industrial motion products are available where you need them. We have authorized distributors operating from thousands of branch locations around the world, supported by regional warehouses with local inventory.

More value.

Timken has a track record for consistent quality and performance, with rigorous global manufacturing standards. Global customer support. Fast response to customer requests. On-site troubleshooting and technical assistance. A total-system approach for specifying the right product for each application. It's all part of the value that Timken delivers to the mining industry.

Application Challenge	Timken Solution		Mining Equipment
Debris and Contamination	**Case-carburized rings and rollers** deliver greater debris resistance, which can extend bearing life. **Timken® tapered roller bearings with enhanced or improved surface finishes** deliver greater debris and wear resistance, which can extend bearing life. **Timken ES coatings** provide a diamond-like surface on rollers to enhance performance in thin-film and debris-heavy environments. **Advanced heat treatment and material grade** delivers greater debris and wear resistance, which can extend bearing life.		• All surface mining equipment*
Contamination, maintenance and relubrication interval challenges	**Timken Solid Lube** can help increase uptime and avoid damage caused by poor lubrication from standard grease or oil by continually providing lubricant exactly where it's needed.		• Draglines • Electric Rope Shovels • Hydraulic Mining Shovels
Heavy application loads, which can cause shaft deflection and misaligment	**Timken roller bearings with enhanced internal geometries and profiling** minimize bearing stresses, increasing bearing load ratings – and bearing life – in a power-dense package. We offer special cage designs to allocate more rollers. **Timken spherical roller bearings** are designed to handle misalignment and high loads.		• All surface mining equipment*
Low speeds	**Enhanced surface finishes** help prevent metal-to-metal contact and extend bearing life. **Timken ES coatings** provide a diamond-like surface on rollers to enhance performance in thin-film and debris-heavy environments.		• All surface mining equipment*
High speeds	**Optimized internal bearing geometry** produces bearings with tighter tolerances. This design allows for easier bearing assembly and to achieve and maintain proper setting range for operating conditions. **Enhanced surface finishes** help decrease heat generation.		• Draglines • Electric Rope Shovels • Hydraulic Mining Shovels • Wheel Loaders
Elevated G-forces	**Enhanced cage designs for Timken tapered, spherical and cylindrical roller bearings** can handle elevated G-forces inherent in final drives – leading to increased performance. Using our proprietary analysis tools, we use decades of testing and analysis data to develop and back up our designs.		• Haul Trucks • Wheel Loaders
Oscillating conditions under high load	**Timken spherical plain bearings** are designed to carry radial and axial loads in a small envelope. They're ideal for static and oscillatory applications where moderate misalignment may exist. Metric and inch sizes from 12.7 mm to 600 mm bore (0.5 in. to 23.622 in.) are available. They're offered in standard, heavy-duty or sealed versions and feature a single- or double-fractured outer race.		• Draglines • Dozers • Excavators
Reversing direction	**The expanded line of Timken roller bearings with robust cage designs** extends equipment life and reduces maintenance cost.		• Draglines • Electric Rope Shovels • Hydraulic Mining Shovels
Light loads	**Proper bearing cage and internal clearance recommendations** from our application engineers can help you with bearing selection. Also, our automated setting procedures can reduce installation time.		• Haul Trucks • Electric Rope Shovels • Hydraulic Mining Shovels
High axial loading and shock loading	**Timken thrust bearings** carry thrust load from drilling and tolerate high shock from hitting rock, while also tolerating thin lubricant film from low speeds and debris.		• Drills

*All surface mining equipment listed on page one.

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The Timken team applies their know-how to improve the reliability and performance of machinery in diverse markets worldwide. The company designs, makes and markets bearings, gear drives, automated lubrication systems, belts, brakes, clutches, chain, couplings, linear motion products and related industrial motion rebuild and repair services.

Stronger. By Design.

www.timken.com

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