



ENGINEERED SOLUTIONS FOR THE TUNNEL BORING INDUSTRY

TIMKEN'S SOLUTIONS HELP ENHANCE THE EFFICIENCY AND UPTIME OF YOUR EQUIPMENT

Higher efficiency. Less cost. Fewer repairs.

Enhance your shield tunneling operations with engineered solutions from Timken.

Whether you work in hard-rock or soft-rock geologies, we can help your shield tunneling projects last longer, operate more efficiently and cost less with fewer cutter head repairs. Keep construction on time – or ahead of schedule – with Timken® high-performance tapered roller bearings. They help minimize downtime by reducing the frequency of bearing replacement.

Because of our global quality standards, you gain consistent and reliable product performance. We can meet the special needs of your equipment through customized products and solutions - and the expertise of our engineering team.



Timken Advantages

- **Reliable performance.** Timken's depth of experience in tunnel boring positions allows us to tackle solutions that accommodate misalignment, fatigue, cracking or breakage and spalling.
- **Sales and service support.** The Timken team is dedicated to supporting tunnel boring customers at every stage of the product development process – from application engineering and robust product launches to supply chain and end-user customer service.
- **Manufacturing excellence.** We deliver products with precision and reliability through our manufacturing standards, enhanced coatings and bearing customization. Additionally, we strive to meet tunnel boring demands by offering a broad line of tapered roller bearings.

Gain Solutions That Give You:

Product when you need it.

When you choose Timken, you can expect consistent, quality products that are available when and where you need them. We have inventory and off-the-shelf products specifically for tunnel boring applications.

Best-in-class products.

Global design and quality standards help us produce and deliver consistent, reliable and high-performance products anywhere in the world. Using the latest material science technology, manufacturing and innovation, we develop the right products for your application.




Longer bearing life – and longer tunneling.

Enhanced internal geometries help distribute load and minimize bearing stresses, increasing bearing load ratings in a power-dense package. You also get the performance you require through premium materials like ultra-clean steel, which helps extend bearing fatigue life.

Customized solutions.

If you have specific requirements for your bearings, we offer custom design and manufacturing solutions. From materials – including case-carburized and through-hardened steel – to coatings, we offer enhancements that can help ensure your operations perform at their best.

AN IDEAL FIT FOR TUNNEL BORING

Application Condition	Damage Mode	Timken Solution	Use Advantages
Heavy loads	Bearing fatigue and misalignment	 <p>Timken® tapered roller bearings with enhanced internal geometries and profiling</p>	<ul style="list-style-type: none"> • High load-carrying capacity in a compact envelope • Enhanced profiles increase load ratings, offering more performance in a smaller, lighter bearing
Debris and contamination	Spalling and surface damage	 <p>Timken® tapered roller bearings with case-carburized rings and rollers, Timken® debris-resistant bearings</p>	<ul style="list-style-type: none"> • Case-carburized rings and rollers provide great protection and performance in demanding conditions • Debris-resistant bearings provide up to 3.5 times longer bearing life than standard Timken options
Impact and shock loading	Cracking or breakage	 <p>Timken® tapered roller bearings with case-carburized rings and rollers</p>	<ul style="list-style-type: none"> • Premium materials and heat treatment help prevent premature bearing damage • Case-carburized rings and rollers provide great protection and performance in demanding conditions

TIMKEN

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.

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