



TIMKEN®

Timken® Thin Dense Chrome™ Bearings

Superior corrosion protection

Timken® Thin Dense Chrome™ bearings use a proprietary coating to provide superior corrosion resistance and superior performance in wet or corrosive environments.

Timken can supply TDC enhancement for virtually any design or style of bearing we manufacture – including large bearings up to 40 inches in outer diameter.

***Superior
corrosion
resistance***

***Increased
bearing life***

***No system
redesign***

***Lower
maintenance
costs***

***Reduced
downtime***

Corrosion Resistance

Timken TDC bearings are specifically designed to provide increased performance in harsh, corrosion environments.

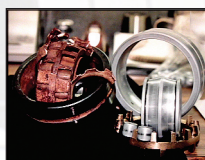
This includes acidic and basic solutions, where standard, unprotected bearings will experience premature damage and failure.

On standard bearings, corrosion damage typically initiates as light etching on the races at the roller spacing and progresses rapidly to fatigue spalling.

Our TDC bearings are proven to prevent rust and etching beyond that of standard bearings, mitigating the effects of corrosive elements.



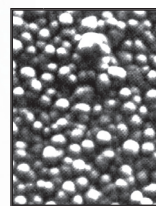
***Roller-spaced
etching***



***Effects of corro-
sion on TDC bear-
ing versus stan-
dard bearing***

Design and Durability

The Timken TDC bearing coating is uniquely designed with a tightly controlled nodular structure for greater strength, hardness and with stronger adhesion to the bearing surface.

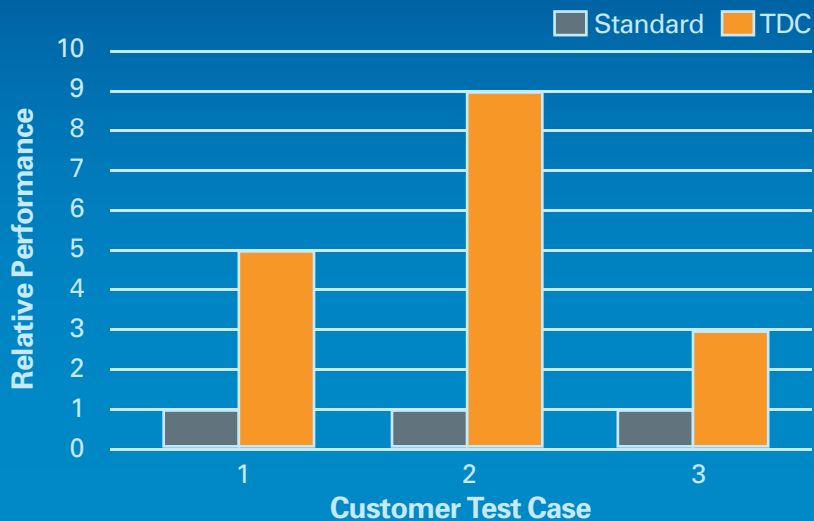


***Timken TDC
bearing sur-
face under
1,000x mag-
nification***

The TDC coating will not crack or peel under known application conditions, providing proven reliability in harsh environments.

Final TDC bearing properties include a high hardness of approximately Rc 70, a high wear resistance, and approximately a 50 percent lower coefficient of friction for less heat generation, less wear and lower operating temperature.

TDC Bearings Versus Standard Bearings – Customer Results



Tested Application Performance

Timken customers have experienced high levels of success when using Timken TDC bearings in demanding corrosion environments.

For example (see chart above), performance increases three to nine times the life of standard, unprotected bearings were documented at three separate customers.

With Timken TDC bearings, significant customer savings are achieved. The result is reduced bearing consumption, lower maintenance and change-out costs and reduced equipment downtime.

One customer estimated such savings at a single mill of more than \$100,000 annually.

Customer Testimonial

Scott Paper's team in Crabtree, Quebec, was becoming increasingly frustrated by the lack of corrosion-resistant bearings needed to withstand 24-hours-per-day production in wet, high-temperature mill environments.

In some applications, Scott's team was replacing conventional bearings

every 14 to 16 months due to extensive corrosion problems.

On the breast rolls, the bearings were lasting an average of 150 days or five months because of high humidity.

Torrington, now a part of The Timken Company, fitted the breast roll application with its TDC-coated spherical roller bearings.

Scott Paper was relieved to learn these highly corrosion-resistant bearings last years as opposed to months.

Annually, bearing corrosion often resulted in unscheduled equipment shutdowns costing thousands of dollars a year, says Pierre Prud' Homme, maintenance manager of Scott Paper.

"After using TDC bearings, we found the extended service life of the bearings was up to five times that of the conventional bearings," Prud' Homme continues.

"With this product performance and service support, we are considering other applications for TDC that would allow us to greatly improve our performance and reduce maintenance costs in other areas of our operations, as well," says Prud' Homme.

*Excerpt from Canadian Papermaker, October 1996.
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Prime TDC Bearing Applications

Timken TDC bearings have been successfully applied for more than 20 years in a broad range of customer applications.

Typical applications that can benefit from our TDC bearings include:

Paper mills – breast rolls, felt rolls, wire return rolls

Heavy movable structures – dam gates, bridge lifts, sheaves, turrets

Food and beverage plants – pillow blocks, seaming heads, conveyor rolls

Maritime – engines, linkages, sheaves

Farm and construction – wheels, pivots

Metal mills – conveyor rolls

Summary

Timken's research and development of superior coatings and materials for bearings has resulted in new standards of performance in the industry.

We continue to offer our customers optimum solutions to the most difficult bearing problems.

For more information, or to order Timken TDC bearings, contact your Timken sales representative, visit www.timken.com or call 1.330.438.3000.

Disclaimer: Performance benefits are dependant on the customer's application conditions and actual results may vary.

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