

Timken #1 in Comparison Test: Tapered Roller Bearings Commonly used in Heavy-Truck Axles and Wheel-Ends

TIMKEN

Where You Turn

Setting new standards in bearing life

Since its beginning, Timken has led the industry with significant breakthroughs in bearing technology designed to enhance bearing life. Every Timken® bearing is the result of more than 100 years of experience, knowledge and analysis. This gives us the expertise to explain and, most critically, to analyze and predict bearing life.

While determining bearing life sounds simple enough, it is actually a complex problem that demands a range of technological solutions. At Timken, we have developed highly sensitive tests that help us analyze and validate bearing life.

Timken case-carburized tapered roller bearings: #1 in comparison test

We originally formulated the case-carburizing process for our alloy steel in 1924 to produce a hard, fatigue-resistant surface and a tough, crack-resistant core. Material composition and microstructure play a significant role in enhancing bearing life. Controlled retained austenite optimizes surface hardness of high-carbon steels and improves surface ductility, resulting in better rolling-contact fatigue life.



We recently tested case-carburized tapered roller bearings commonly used in heavy-truck axles and wheel-ends. All the bearings tested were case-carburized and all are commercially available and produced in North America.

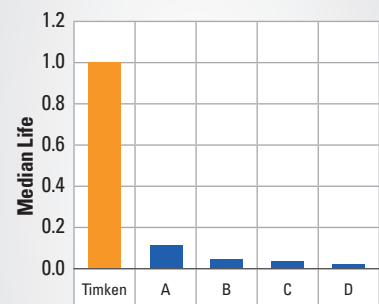
The result: Timken bearings outperformed all others. The bearing life of the closest competitor was 13% of that of Timken product. In other words, the life of Timken product was more than 7 times longer than that of the closest competitor.

Are we proud? Absolutely. Surprised? Not a bit. Timken engineers and scientists work around the world continuing the push toward new levels of bearing life.

Comparison of Bearing Life:

Case-carburized tapered roller bearings commonly used in heavy-truck axles and wheel-ends

Bearing Life Test Results: Median Life Relative to Timken



All the bearings tested* were case-carburized and all are commercially available and produced in North America. Bearings A, B, C and D are manufactured by top competitors. Information derived from Timken Standard Life Testing, using significant statistical samplings of bearings in a controlled test environment.

*HM212049/011; 594A/592A; 580/572; 575/572; NP840302/NP053874

Factors that can affect tapered roller bearing life

Uniform Internal Geometry

Industry bearing standards set only I.D., O.D., overall bearing width and cup angle of a tapered roller bearing. The angle of contact for cones and rollers varies by brand. Timken internal geometry is uniform and consistent regardless of the plant in which our bearings are manufactured, helping to ensure a perfect match every time. Tight manufacturing tolerances on the cup, cone and rollers help to optimize bearing life.

Enhanced Surface Finishes

We employ advanced finishing processes, which result in more consistent, smoother surface finishes on our bearing races and rollers. Smoother surface finishes mean less friction and greater efficiency.



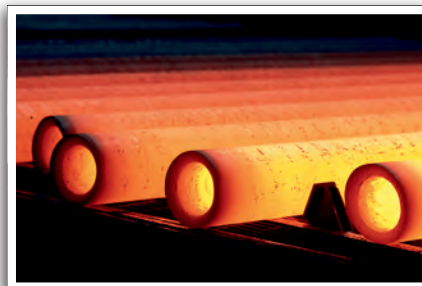
Special Profiles

Special profiles reduce stress on Timken bearing races and rollers by providing more even distribution of loads across contact surfaces, increasing load-carrying capacity.



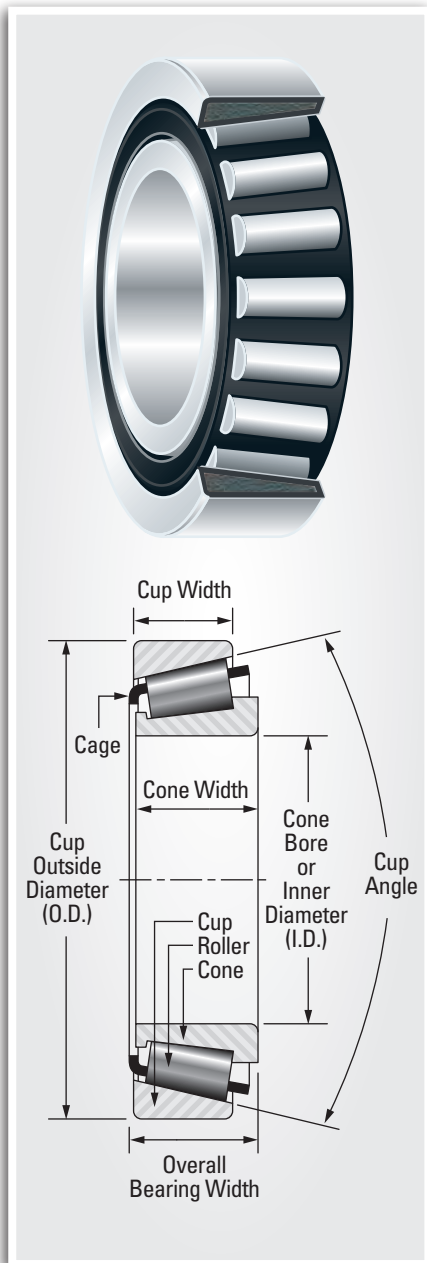
Steel Quality

Timken provides customers around the world with high-quality steel. Capitalizing on the synergy between our bearing and steel businesses, we use our expertise to select bearing materials that meet the most demanding application requirements and help extend bearing life.



Timken – The Right Choice

Timken technology offers uniform internal geometry, enhanced surface finishes, special profiles and quality steel to help fleets maximize bearing life. Can your fleet afford downtime associated with lower bearing life?



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