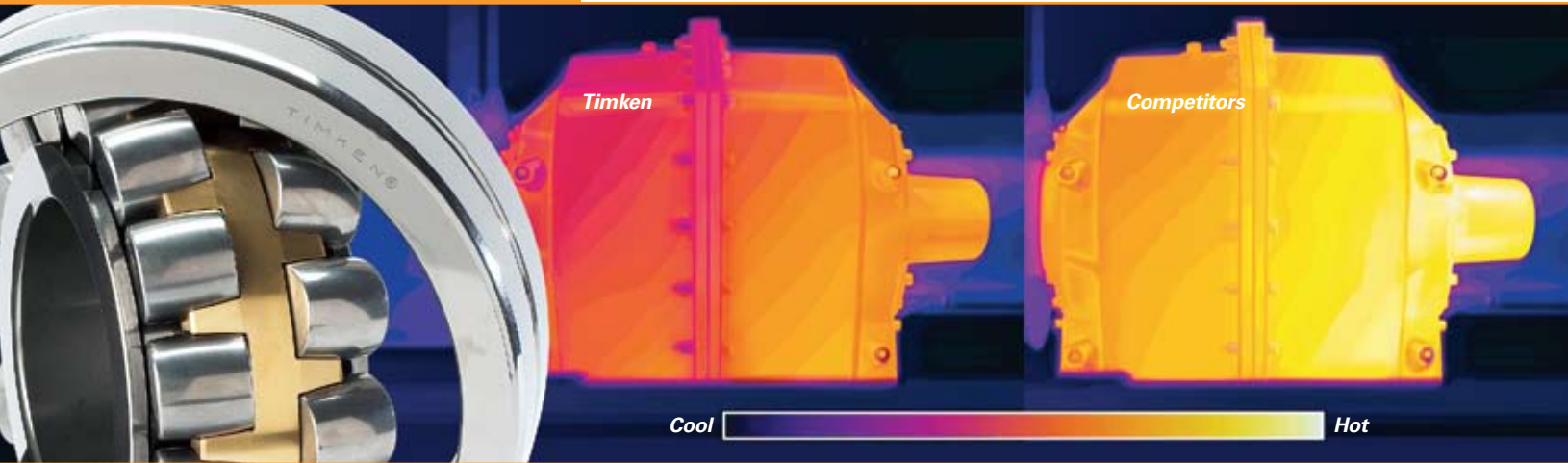


# A Cool Approach to Optimized Bearing Performance

# TIMKEN

Where You Turn



**Timken® spherical roller bearings run cooler in high temperature applications such as industrial gear drives and shaker screens. Above, the graphic representation of thermographic readings in a typical shaker screen application is based on actual test results.**

## The Temperature Challenge

Excessive heat generation is a leading cause of bearing damage and performance problems. High temperatures can lower the viscosity of a bearing's lubricant, causing a reduction in lubricant film thickness. In turn, this may lead to asperity contact between the rollers and raceways, creating an unstable operating system – and possible bearing damage and failure. The result is unplanned downtime, maintenance costs and reduced equipment reliability.

Proper bearing selection, lubrication and maintenance practices can help reduce operating temperatures while maximizing your bearing investment and total system performance.

## Timken® Spherical Roller Bearings Beat the Heat

Timken® spherical roller bearings are designed to run cooler in heavy duty appli-

cations subject to high temperatures, such as gear drives and aggregate shaker screens. These bearings are engineered for maximum load capacity and are able to support combinations of radial and axial loading, even under significant misalignment conditions.

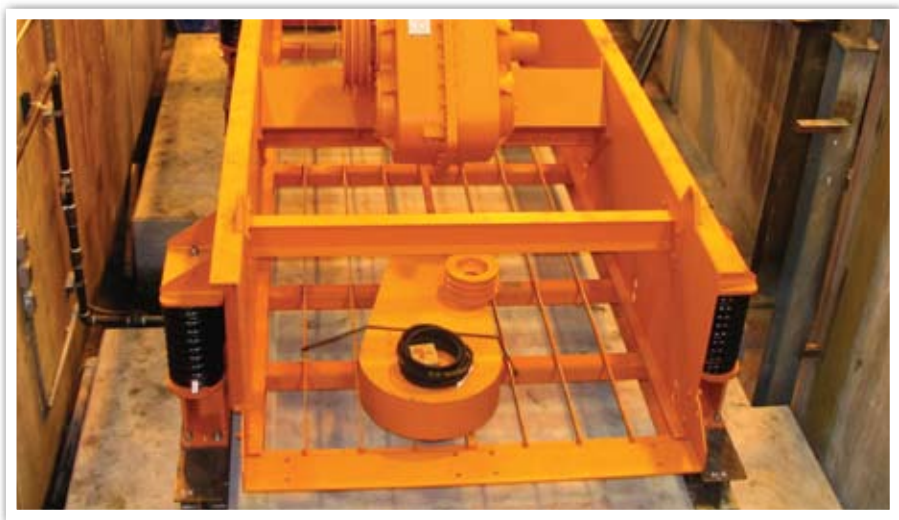
## Features and Benefits

- *High quality steel minimizes the impact of debris contamination*
- *Optimized roller end geometry improves roller guidance*
- *Enhanced roller and race surface finishes reduce friction and heat generation*
- *Centrifugally cast, fully-machined brass cage provides improved roller interaction under marginal lubrication, which helps reduce operating temperatures*

## Recommended Lubrication and Maintenance

During operation, additional heat is generated by the viscous interaction of the cage and rolling elements with the lubricant. The amount of heat generated depends on lubricant viscosity and operating speed. Lubricant viscosity should be sufficient to produce the desired minimum film thickness at the bearing operating temperature. If a bearing temperature issue is identified, the original equipment manufacturer's lubrication specifications should be reviewed to ensure they are being followed for the current equipment operating conditions.

In addition, properly maintaining bearings can help maximize performance in high temperature applications. At a minimum, the original equipment manufacturer's maintenance recommendations should be followed.

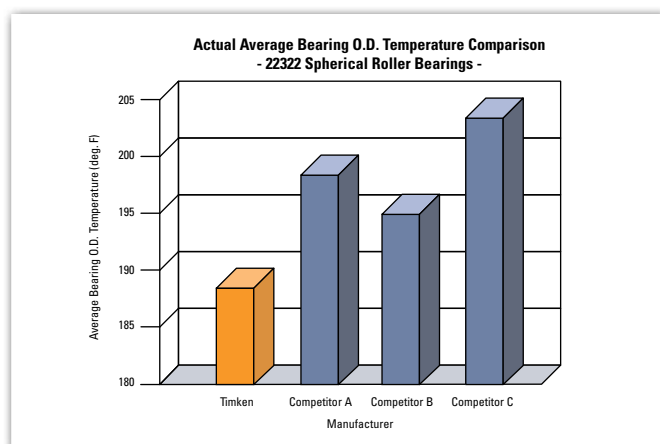


**Timken conducted testing on an actual shaker screen at its North Canton, Ohio Technology Center.**

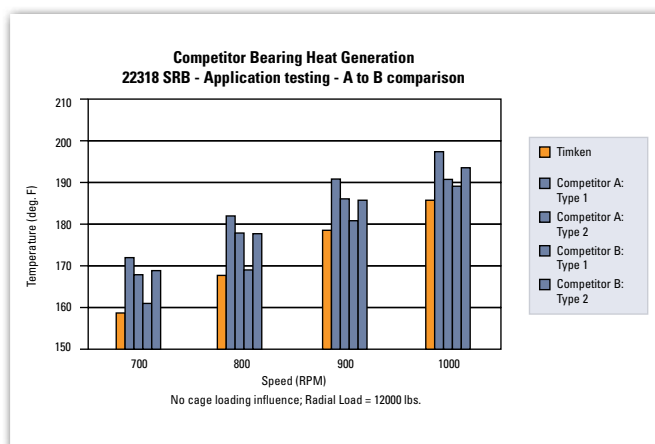
## Cooler than the Competition

To learn more about how operating temperatures affect bearing performance, and how Timken bearings compare to competing brands, Timken engineers performed several tests. A shaker screen was operated using Timken spherical roller bearings and comparable products from three leading competitors.

The results showed that in shaker screen applications, Timken bearings consistently ran cooler at the outside diameter (O.D.) position and generated less heat.



**The bearing outside diameter (O.D.) temperature shown here is an average of the temperatures measured at the bearing O.D. of four competing bearings included in the test. Timken spherical roller bearings ran up to 14°F cooler than the competition.**



**Timken engineers ran tests on bearing loads to determine respective heat generation. The results showed that operating temperature increases with speed and loads. Timken spherical roller bearings consistently ran cooler than competing brands.**

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