

# Timken E Series high performance spherical roller bearings

With more than more than 60 years of experience in the design and manufacture of [spherical roller bearings](#), timken® spherical roller bearings are used in a wide range of industries and are widely

Recognized. In recent years, combined with our advances in materials technology, design capabilities and manufacturing processes, Timken has upgraded its spherical roller bearings and pushed the market

Out of the entire new generation of e-series spherical roller bearings, to provide our customers with better performance products. This paper introduces the design features and characteristics of Timken's new e-series spherical roller bearings.

can be interpreted in detail.

The first is the cage design, the cage is an important part of the bearing, the material and design of the bearing reliability and overall performance has a vital role. The New Timken Company

E-Series Spherical roller bearings have two forms of cage design, one is the EJ type stamped steel cage, the other is an EM or EMB machined brass cage.

Compared to the traditional steel cage design, the Timken®ej type stamped steel cage adopts a unique innovative design with the following key features:

The A.ej type pressed steel cage is guided by the inner ring, reducing the load of the rolling element, and the cage support beam is designed to be above the diameter of the rolling element centerline, allowing the cage beam to have a wider

Design width, increase the strength and rigidity of the cage, reduce the stress in the cage under high impact load or frequent acceleration and deceleration conditions.

The B.ej type Cage adopts advanced stamping process to ensure good manufacturing precision control, and the cage pocket is integrated with the guide function of the rolling body, which can guide the rolling body into and out of bearing bearing area.

? More space is needed to design longer rolling bodies, increase load capacity and reduce bearing stress, since no guide ring alignment is required, and more interior space improves lubrication

To take away the heat from the bearing work.

C.ej-type stamped steel cage surface using nitriding hardening process, improve the strength and wear resistance of the cage, so that the bearings can be normal operation in the harshest

application conditions.

D.ej-type stamped steel cage end faces have unique slotting treatment, which can improve lubricant fluidity, reduce bearing operating temperature, prolong bearing service life, and also benefit

Clean the internal bearing impurities. At the same time, this innovative design allows for a lighter weight and smaller centrifugal force in the cage, which is more conducive to bearing operation in high-speed application conditions.

The other cage is designed with an EM or EMB type brass cage. This type of cage is a precision machined one-piece open-frame cage, as shown in the lower left and

As shown in the lower right image, they have a precise form factor, a better guide to the rolling element, and an open finger design that makes the lubricant easily accessible to all working surfaces that require lubrication.

Ensure that the bearing is fully lubricated and the operating temperature of the bearing is lowered. In addition, the brass cages are of high strength and have good properties for absorbing vibration and shock loads. These features

[The EM-and EMB-type spherical roller bearings](#) are ideal for use in harsh environments such as high temperature, high speed, shock loads, poor lubrication and serious pollution.

The main design features of the Timken®e series spherical roller bearing EJ, EM and EMB cages are described in detail above. In addition to the design improvements and innovations in cages, the E-series

Roller bearings also optimize the internal geometry of the bearing, including optimizing the fit of the raceway and rolling contact surfaces, optimizing the trimming of the raceway surface and the rolling element, and in the manufacturing process

The surface roughness and surface texture of the raceway surface and the rolling element are improved.

The improved design and innovation make the overall performance of Timken®e series spherical roller bearings be improved to a great extent, mainly reflected in the following aspects: bearing capacity Average

increased by 18%; bearing design life can be improved by nearly 75% under the same application conditions, reducing friction torque, reducing bearing operating temperature, prolonging lubricant life and bearing service life

The thermal speed rating of the bearing has also been greatly improved, the average reference speed increased by 17%.