

# Why SKF?

# CARB toroidal roller bearings



The CARB toroidal roller bearing is a revolutionary bearing type that is self-aligning like a spherical roller bearing, and axially free like a cylindrical roller or needle roller bearing. SKF developed the CARB bearing specially for the non-locating position in a self-aligning bearing system.

A CARB bearing accommodates misalignment and axial displacement within the bearing, without inducing internal axial loads with virtually no increase in friction. This eliminates the need to compromise between tight fit and axial freedom, permitting tight fits to be used to eliminate “creep” and fretting corrosion, common with conventional bearing arrangements. The results are lower operating temperatures and reduced vibration levels, and improvements in reliability, bearing and lubricant life, and energy consumption.

## Upgraded self-aligning SKF Explorer bearings

CARB toroidal bearings are manufactured for the upgraded SKF Explorer performance class. Combining the clean and homogenous high-quality steel used in the original SKF Explorer bearings with an improved heat treatment process, upgraded CARB bearings provide longer service life, particularly under operating conditions, where the bearings are subjected to contaminants or poor lubrication conditions.

## Common applications

- Paper machines
- Continuous casters
- Fans and blowers
- Crushers and grinding mills
- Industrial transmissions
- Conveyors
- Hydraulic motors and pumps
- Wind turbines

## Product features

- Made of super-clean and tough upgraded steel
- Angular and axial self-alignment
- Very high radial load capacity
- Available in needle roller bearing dimensions

## Bearing system benefits

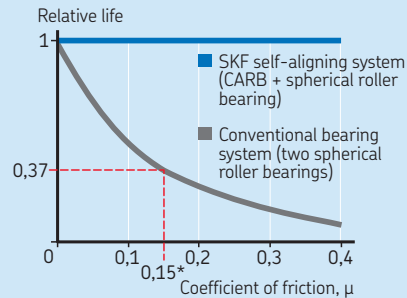
- Reduced noise and vibration levels
- Reduced operating temperatures

## User benefits

- Improved machine reliability
- Significantly longer bearing service life
- On the non-locating side without major modifications
- Eliminates stick-slip
- Improved resistance to surface damage

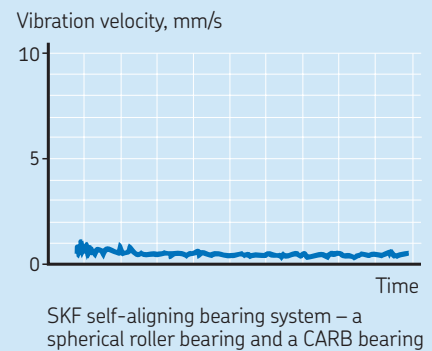
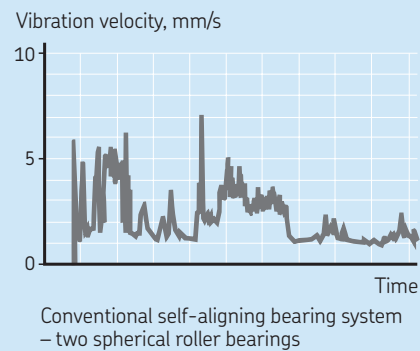
# Boosts bearing system life

Life comparison of an SKF self-aligning system and a conventional system as a function of housing friction coefficient



\* Bearing outer ring sliding in a cast iron housing

Fan vibration was radically reduced after the SKF self-aligning bearing system was installed



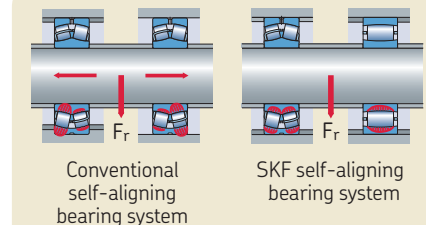
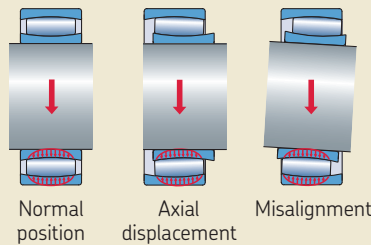
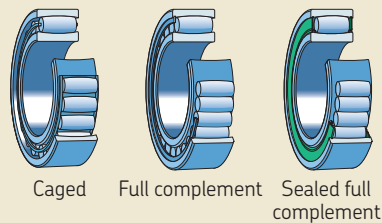
## CARB bearing assortment

The SKF standard assortment of CARB bearings comprises bearings in 13 ISO dimension series. Bore diameters range from 25 to 1 800 mm.

## Unique features of the SKF self-aligning bearing systems

- Unique internal geometry provides an optimal load distribution between the rollers and raceways, irrespective of misalignment, to provide the best possible operating conditions.
- Allowed axial displacement ~10 % of the bearing width
- Can accommodate up to 0,5° of misalignment
- Misalignment does not reduce service life or increase friction
- Compact design

### Variants of CARB bearings

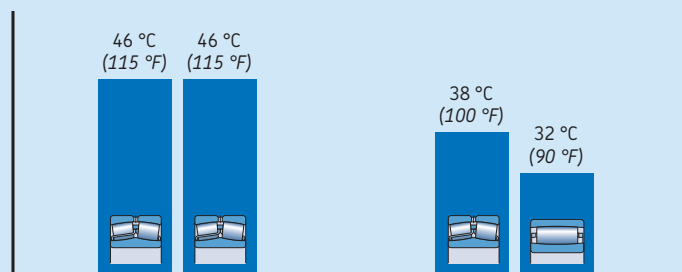


## Upgraded self-aligning SKF Explorer bearings

The upgraded self-aligning bearings are identified on the packaging, and the bearing outer rings are marked "WR".

For more information about CARB toroidal roller bearings, go to [skf.com/carb](http://skf.com/carb)

Lower operating temperatures extend relubrication intervals for the SKF self-aligning bearing system in an industrial fan application (interval doubles per 15 °C)



Conventional bearing system, i.e. two spherical roller bearings.

SKF self-aligning bearing system – a spherical roller bearing and a CARB bearing

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