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.

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

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.
Boosts bearing system life

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

![Graph showing life comparison](image)

- SKF self-aligning system (CARB + spherical roller bearing)
- Conventional bearing system (two spherical roller bearings)

* Bearing outer ring sliding in a cast iron housing

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

![Graph showing vibration velocity](image)

**Conventional self-aligning bearing system**

- Vibration velocity, mm/s

**SKF self-aligning bearing system**

- Vibration velocity, mm/s

**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**

- 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**

- Caged
- Full complement
- Sealed full complement

**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

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PUB BU/P9 06550/2 EN - September 2013