

SKF Explorer spherical roller bearings

Setting the industry standard – again

Presented for:

Presented by:

Version 2014-09-11



0

Index

Index

1. Product overview
2. SKF Explorer performance
3. Features and benefits
4. Additional product information
5. Applications
6. Market communications material overview

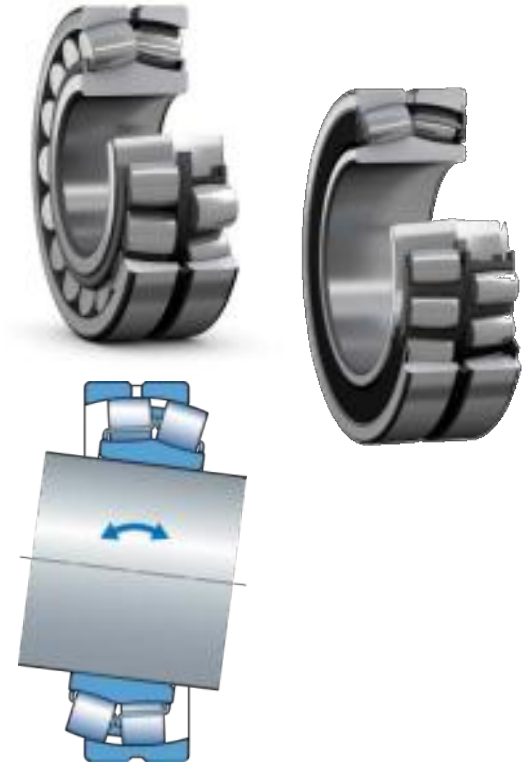
1

Product overview

Product overview

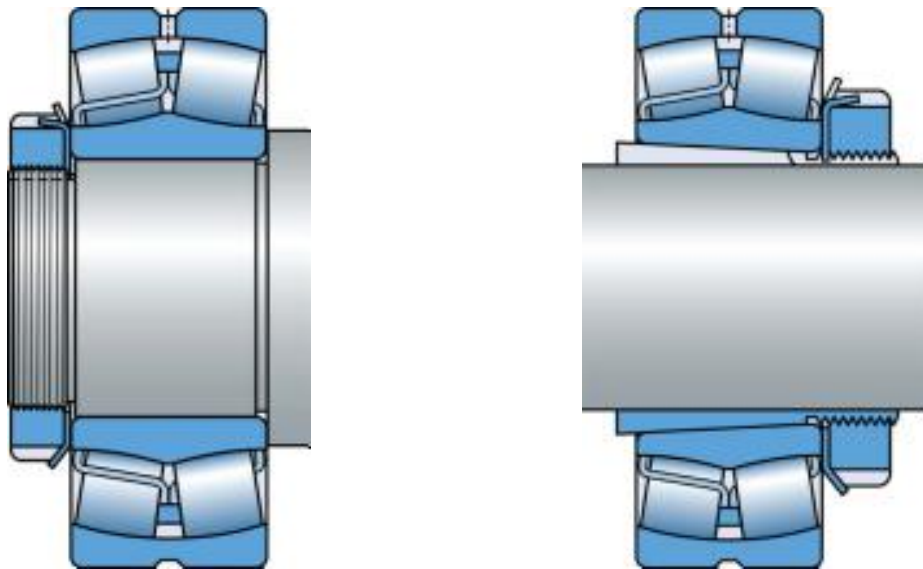
Spherical roller bearings were introduced by SKF in 1919 and are widely used in the industry. SKF is the largest manufacturer of spherical roller bearings – more than twice as large as the closest competitor.

- Accommodate heavy radial and axial loads, and misalignment
- Available in sizes ranging from 20 mm bore to 1800 mm bore diameter. Weights from 260 g to more than 4 tonnes
- Available open and sealed
- Upgraded SKF Explorer performance with improved wear resistance
- Cylindrical or tapered bore to facilitate mounting



Introduction

The assortment of SKF spherical roller bearings is the widest on the market and includes standard bearings and application-specific bearings. Almost all SKF spherical roller bearings are available with either a cylindrical or tapered bore.



The assortment of SKF spherical roller bearings



Open bearings



Sealed bearings



Bearings for vibratory applications



SKF Energy efficient (E2) bearings



High temperature spherical roller bearings



Solid Oil bearings

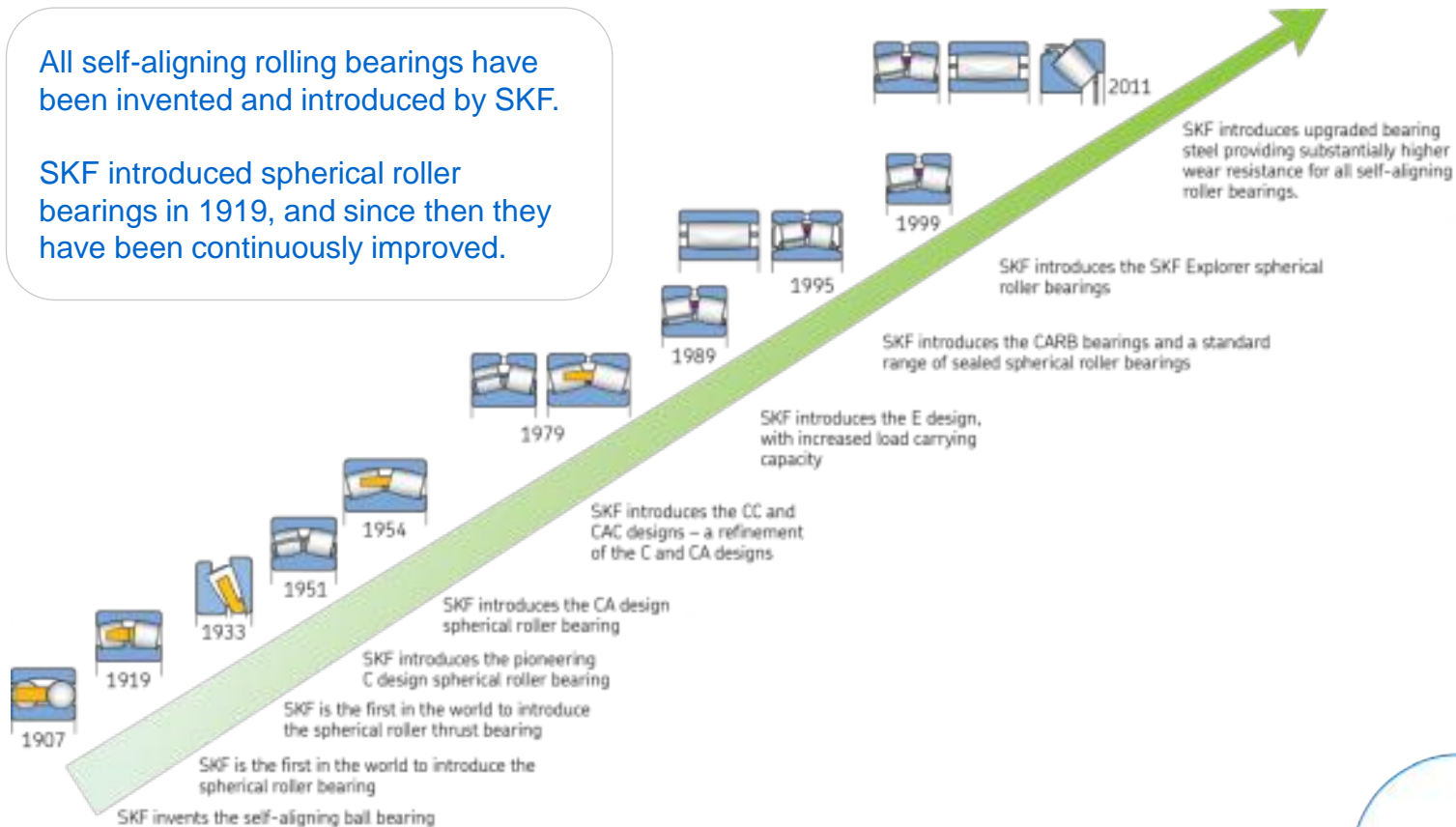
2

SKF Explorer performance

All self-aligning bearings are upgraded SKF Explorer

All self-aligning rolling bearings have been invented and introduced by SKF.

SKF introduced spherical roller bearings in 1919, and since then they have been continuously improved.



SKF Explorer spherical roller bearings

All SKF spherical roller bearings, CARB toroidal bearings and most spherical roller thrust bearings are manufactured to SKF Explorer performance class.



Spherical roller bearings



CARB® toroidal roller bearings



Spherical roller thrust bearings

SKF Explorer spherical roller bearings

In response to the ever-demanding performance requirements of modern machinery, SKF developed the SKF Explorer performance class of rolling bearings.

SKF Explorer spherical roller bearings is a substantial improvement in performance. This was achieved by optimizing the internal geometry and surface finish of all contact surfaces, combining the extremely clean and homogenous steel with a unique heat treatment, improving the cage, roller profile and the geometry of the raceways.

These improvements provide the following benefits:

- Higher dynamic load carrying capacity compared to conventional design bearings
- Improved wear-resistance
- Reduced noise and vibration levels
- Less frictional heat
- Significantly extended bearing service life



Upgraded SKF Explorer bearings offer up to twice the service life

- All SKF spherical roller bearings are manufactured to upgraded SKF Explorer performance class
- A new patented heat treatment increases hardness while maintaining toughness
- Under contaminated or poor lubrication conditions, service life can be up to twice as long as for previous SKF Explorer bearings



Light loads CP = 20
Heavy loads CP = 6

Estimated service life factor for upgraded SRB and DSRB bearings (for CP 4 to 20)

K	K ₁	Estimated service life factor for upgraded SRB and DSRB bearings (for CP 4 to 20)										
		0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	
4.0	1.0	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
	1.5	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
3.0	1.0	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
	1.5	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
2.0	1.0	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
	1.5	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
1.5	1.0	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
	1.5	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
0.5	1.0	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
	1.5	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
0.8	1.0	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
	1.5	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
0.7	1.0	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
	1.5	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
0.6	1.0	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
	1.5	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
0.4	1.0	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
	1.5	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
0.3	1.0	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
	1.5	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
0.2	1.0	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
	1.5	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
0.1	1.0	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
	1.5	2.0	1.5	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2
		0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0		

Publication 12896/1 contains calculation methods for improvement factors.

Identification of upgraded SKF Explorer bearings

Label

- Marked WR
(Position can vary slightly)



Bearing

- Bearing outer ring/housing washer marked WR after the year letter



Packaging

- Printed cardboard boxes with two promotional logos



SKF Energy Efficient (E2) spherical roller bearings

SKF E2 spherical roller bearings are characterized by a frictional moment that is at least 30% lower when compared to a same-sized SKF Explorer bearings.

Reduced operating temperatures improve lubrication conditions and enable extended lubrication intervals or up to 40% higher speeds.

The enhanced performance characteristics require the following conditions:

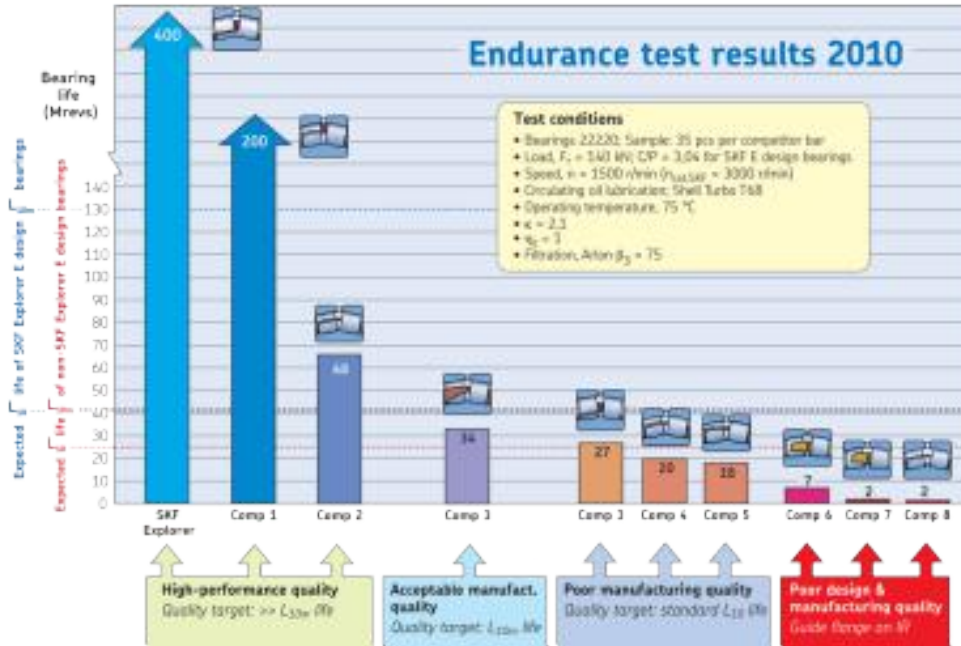
- speed $n > 500$ r/min
- operating temperature ≤ 110 °C (230 °F)
- load $P \leq 0,067 C$
- lubrication with SKF LESA 2 grease only



SKF performance

SKF spherical roller bearings have proven its performance both in the field and in our internal benchmark tests.

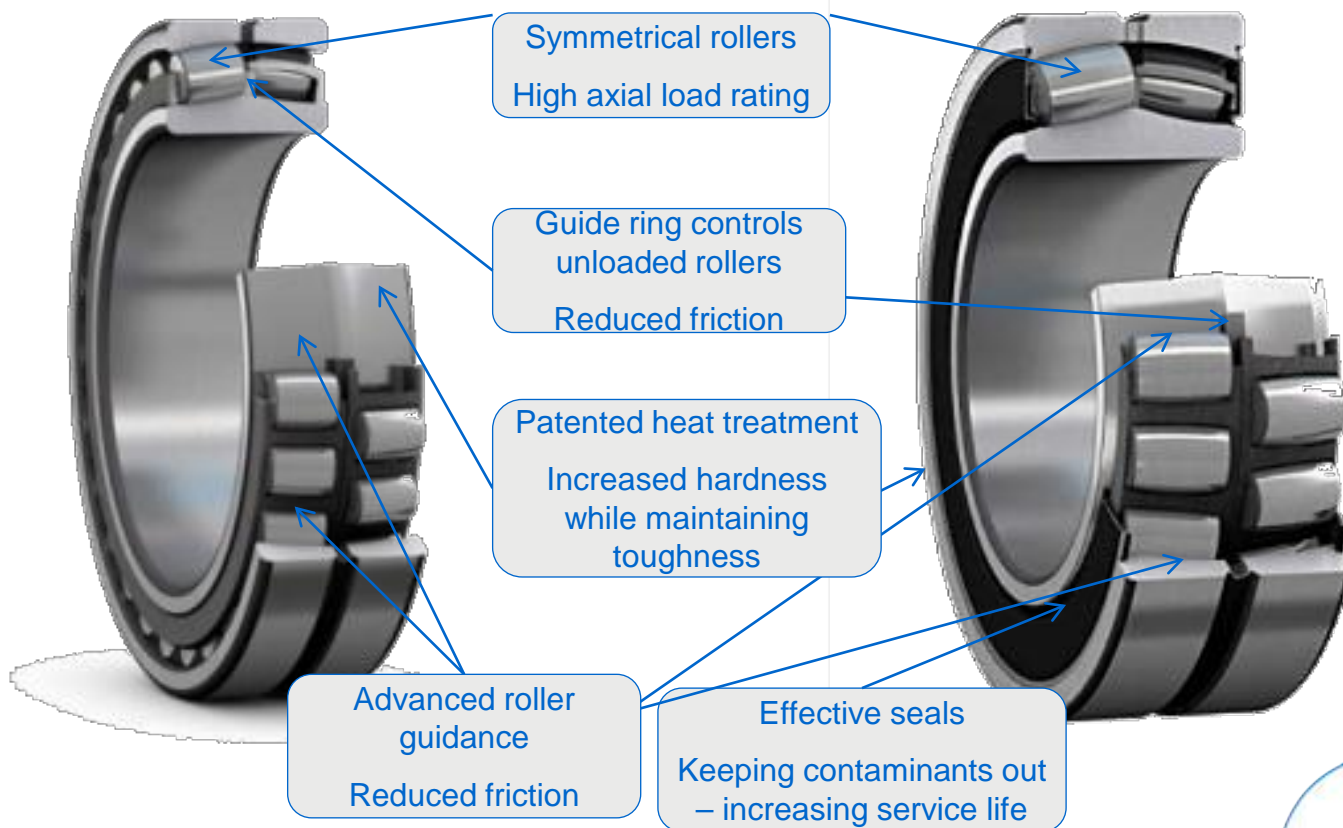
Some of our competitors use designs that SKF used and left 50 years ago.



3

Features and benefits

Features and benefits



4

Additional product information

Sealed SKF Explorer spherical roller bearings

Sealed SKF Explorer spherical roller bearings are designed to keep lubricant in and contaminants out of the bearing.

SKF offers the widest assortment of sealed spherical roller bearings on the market.



Product features:

- Made of super-clean and tough upgraded steel
- Highly effective double-lip seals
- Can accommodate up to 0.5° of misalignment
- Same load rating as open bearings

Product benefits include:

- Significantly reduced need for maintenance
- Minimized grease consumption and environmental impact
- Substantially increased uptime



Learn more about the widest assortment on the market in publication No. 7053

The SKF self-aligning bearing system

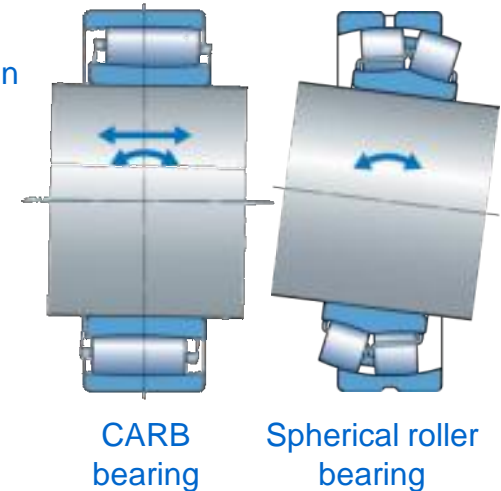
SKF developed the CARB bearing specially for the non-locating position in a self-aligning bearing system. A CARB bearing accommodates misalignment and axial displacement within the bearing, without inducing internal axial loads with virtually no increase in friction.

System features:

- Eliminates the risk of induced axial load between the bearings
- Increased reliability
- Reduced operating temperatures
- Reduced vibration and noise levels

User benefits:

- Significantly longer bearing service life
- Can replace a spherical roller bearing on the non-locating side without major modifications
- Eliminates stick-slip
- Improved resistance to surface damages
- Reduces vibrations



Self-aligning system

Bearings for vibratory applications – VA405/VA406

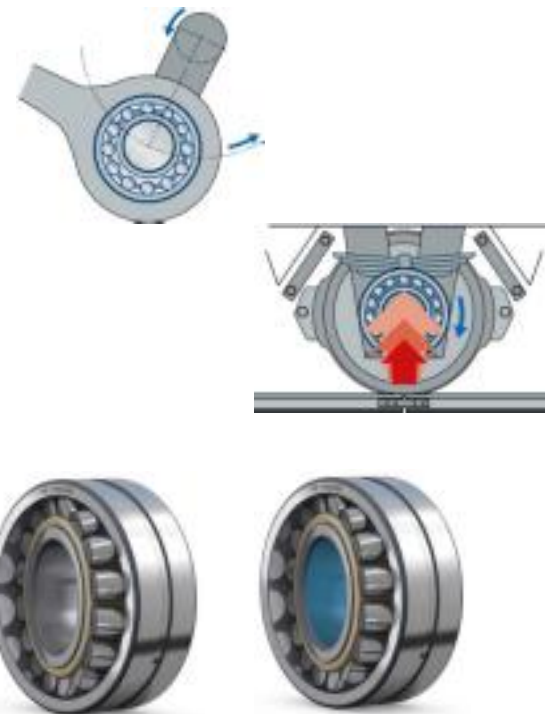
SKF Explorer spherical roller bearings for vibratory applications are designed to accommodate very high vibration levels. These bearings are so robust that they can last several times longer than other spherical roller bearings under typical heavy-duty conditions.

Features:

- Designed for high vibration levels
- Made of super-clean and tough upgraded steel
- Reduced dimensional tolerances
- Special cage design
- C4 Clearance as standard
- Available with a PTFE coated bore (designation suffix VA406)

User benefits:

- Lower operating temperatures
- Increased bearing service life
- Improved wear and contamination resistance
- Excellent high speed performance
- PTFE coated bore virtually eliminates the risk of fretting corrosion and induced axial preload

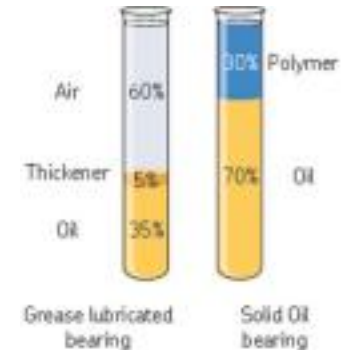


Solid Oil bearings

Solid Oil bearings are lubricated by an oil-saturated polymer matrix that completely fills the free space in the bearing, encapsulating both the rolling elements and cage.

Advantages include:

- Contains twice as much oil as a grease lubricated bearing
- Consistent lubricant supply
- Keeps contaminants out
- Eliminates relubrication
- Can be combined with bearing seals
- Resistant to many chemicals



SKF bearings for high temperatures

SKF bearings for high temperatures are designed to operate in temperatures up to 250°C (380°F)

SKF bearings for high temperatures provide the following benefits:

- Effective lubrication for high temperature applications
- Low start-up torque at any temperature and low frictional moment during operation
- Lubricated for the life of the bearing
- Minimal lubricant loss
- Suitable for extremely slow rotating speeds and oscillating movements
- Improved worker safety
- Environmentally friendly compared to many oils and greases



5

Applications

Application examples

SKF Explorer spherical roller bearings are used in a wide range of applications and industries. Some typical examples are listed below.



Pulp & Paper



Metals



Railway



Material handling



Construction



Fluid power



Industrial transmission

6

Market communications material overview

Market communications material overview

Hyperlink to the MarCom publication list on Spider

Pub #	Title	Type
6078 EN	Double the service life of screen bearings, ... (360)	LEAFLET
6100 EN	SKF spherical roller bearings	BROCHURE
6102 EN	CARB toroidal roller bearings	BROCHURE
6121/1 EN	The SKF self-aligning bearing system	BROCHURE
6138 EN	SKF mounting solutions for large bearings reduce ... (360)	LEAFLET
PUB BU/P9 06547/2 EN	Why SKF? SKF Explorer spherical roller bearings	LEAFLET
PUB53/S6 10113 EN	SKF Explorer sealed sperical roller bearings	LEAFLET
PUBBU/S6 06577/1 EN	SKF sealed spherical roller bearings increase	LEAFLET
PUB BU/P9 06546/1 EN	Why SKF? SKF Explorer sealed spherical roller bearings	LEAFLET
PUBBU/P2 10704/1 EN	Sealed SKF Explorer spherical roller bearings	BROCHURE
PUBBU/P4 07021 EN	Increase uptime	POSTER
PUBBU/P4 07022 EN	Reduce maintenance in the long run	POSTER
PUBBU/P4 07023 EN	Environmentally friendly	POSTER
PUBBU/P8 12896 EN	SKF Explorer self-aligning roller bearings upgraded for ...	LEAFLET
PUBBU/P9 11642/1 EN	SKF Explorer self-aligning roller bearings	BROCHURE
PUBBU/S2 07053 EN	Sealed SKF Explorer spherical roller bearings	POCKETFOLDER