SKF Explorer
angular contact ball bearings
SKF Explorer angular contact ball bearings
- your key to a longer service life

High rotating speeds, combined radial and axial loads, a high degree of stiffness and running accuracy - these are the application requirements where angular contact ball bearings excell.

The great variety of applications and operating conditions calls for unique bearing solutions made possible by a wide range of angular contact ball bearings.

**Standard features**
- Improved materials
- Optimised internal geometry
- Higher precision
- Higher ball quality
- Improved cages
- Single bearings, which can be paired universally
- New shields for double row bearings

**Application benefits**
- Up to three times longer life
- High load-carrying capacity and high speeds
- High degree of stiffness
- High degree of running accuracy
- Low heat generation
- Quiet running
- Technical support

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**Bearings for universal matching**

**Universal matching**
- CA, CB, CC, GA, GB, GC, CB and GA are standard clearance and preloaded

**Product benefits**
- Two or more bearings can always be matched together
- Equal load sharing
- Fix predetermined clearance or preload

**Your benefits**
- Easier and safer handling and mounting
- Reduced inventory
- Extended service life

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**Material development**

**Steel quality**

**Product benefits**
- Extremely clean and homogenous steel
- Reduced oxygen level content
- Improved steel quality

**Your benefits**
- Explorer bearings made of steel with an absolute minimum of inclusions
- Increased bearing performance life
- Reduced possibility of fatigue failure

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**New heat treatment**

**SO standard**

**Product benefits**
- Maximum operating temperature of +150°C
- Minimum dimensional changes
- Constant predetermined clearance or preload also after 10,000 hours at 110°C

**Your benefits**
- Increased safety factor at unchanged design
- Longer service intervals
- Increased machine uptime
- Increased power density
- Extended service life

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**New crown cage**

**Product benefits**
- Better ball guidance
- Improved lubrication film formation
- Lower friction

**Your benefits**
- Higher speed rating
- Reduced vibration and noise
- Higher safety factor
- Lower heat generation
- Extended service life
### Improved raceway shoulder contact

<table>
<thead>
<tr>
<th>Ground transition raceway/shoulder</th>
<th>Product benefits</th>
<th>Your benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Higher thrust load capability</td>
<td>• Increased power density, higher load rating and increased thrust load capability</td>
<td></td>
</tr>
<tr>
<td>• Lower contact stresses</td>
<td>• Higher safety factor</td>
<td></td>
</tr>
<tr>
<td>• Reduced edge stresses</td>
<td>• Extended service life</td>
<td></td>
</tr>
</tbody>
</table>

### Upgraded balls

<table>
<thead>
<tr>
<th>Upgraded balls</th>
<th>Product benefits</th>
<th>Your benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balls of a least one ISO grade better</td>
<td>• Improved running accuracy</td>
<td>• Higher speed rating</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reduced vibration and noise</td>
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<tr>
<td></td>
<td></td>
<td>• Extended service life</td>
</tr>
</tbody>
</table>

### Improved polyamide cage

<table>
<thead>
<tr>
<th>Improved polyamide cage</th>
<th>Product benefits</th>
<th>Your benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Better ball guidance</td>
<td>• Lower heat generation</td>
<td></td>
</tr>
<tr>
<td>• Lower friction</td>
<td>• Higher speed rating and acceleration</td>
<td></td>
</tr>
<tr>
<td>• Lower mass/lower inertia</td>
<td>• Higher safety factor</td>
<td></td>
</tr>
<tr>
<td>• Stronger design</td>
<td>• Extended service life</td>
<td></td>
</tr>
<tr>
<td>• Optimised number of balls</td>
<td></td>
<td></td>
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</tbody>
</table>

### Improved machined brass cage

<table>
<thead>
<tr>
<th>Improved machined brass cage</th>
<th>Product benefits</th>
<th>Your benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Improved cage/ball contact</td>
<td>• Reduced vibration and noise</td>
<td></td>
</tr>
<tr>
<td>• Lower imbalance forces</td>
<td>• Lower heat generation</td>
<td></td>
</tr>
<tr>
<td>• Better surface roughness, especially cage pockets</td>
<td>• Extended service life</td>
<td></td>
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<tr>
<td>• Cleaner cage surface</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Smoother running</td>
<td></td>
<td></td>
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</tbody>
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### Improved running and dimensional accuracy

<table>
<thead>
<tr>
<th>Improved accuracy</th>
<th>Product benefits</th>
<th>Your benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved running accuracy</td>
<td>• Reduced vibration</td>
<td></td>
</tr>
<tr>
<td>• SRACBB - Defined as ISO P5</td>
<td>• Lower heat generation</td>
<td></td>
</tr>
<tr>
<td>• DRACBB - Defined as ISO P6</td>
<td>• Longer service intervals</td>
<td></td>
</tr>
<tr>
<td>Improved dimensional accuracy</td>
<td>• Higher speed capability</td>
<td></td>
</tr>
<tr>
<td>• SR - and DRACBB - Defined as ISO P6</td>
<td>• Extended service life</td>
<td></td>
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</tbody>
</table>

### New shield

<table>
<thead>
<tr>
<th>New shield</th>
<th>Product benefits</th>
<th>Your benefits</th>
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<tbody>
<tr>
<td></td>
<td>• Improved shielding function, less dirt ingress</td>
<td>• Less maintenance</td>
</tr>
<tr>
<td></td>
<td>• Improved grease retention</td>
<td>• Lower heat generation</td>
</tr>
<tr>
<td></td>
<td>• Better performance on vertical shaft applications</td>
<td>• Higher safety factor</td>
</tr>
<tr>
<td></td>
<td>• Improved anchorage</td>
<td>• Reduced noise</td>
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<tr>
<td></td>
<td></td>
<td>• Extended service life</td>
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</tbody>
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Benefits, performance and endurance

Over the years, manufacturing and materials research, together with process improvements have enabled machine components to get smaller without decreasing power output. At each milestone in the development, engineers were given a choice: either downsize the application or increase power output.

Explorer bearings represent the next significant improvement in performance. But this is not just a short hop to the next level. This is a quantum leap in bearing performance.

The higher load carrying capacity of Explorer angular contact ball bearings opens up a new world of possibilities.

If you size down with an Explorer bearing not only will you be able to reduce noise, vibration and warranty costs, but you’ll also be able to build value into each component by increasing speed, improving service life, reducing heat and power consumption, together with controlling maintenance costs.

Power up or size down - the option you choose will depend on whether you’re developing a new design or making improvements within existing parameters.

Increase service life of existing designs

Don’t need to increase power output?
Use an Explorer bearing of equal size to:
- Increase the reliability
- Reduce vibration
- Reduce heat generation
- Increase service intervals
- Increase machine uptime

Maintain power output of new designs

Use a smaller Explorer bearing to:
- Reduce overall dimensions to save on material cost and weight
  - Reduce heat generation
  - Increase speeds

Increase power output of existing designs

Avoid costly redesign by using an Explorer bearing of equal size to:
- Increase power density (output)
- Increase speeds
- Increase loads

Increase power density of new designs

Use a lower cross section Explorer bearing with the same outside diameter to:
- Increase shaft size
- Achieve a stiffer design
- Operate at the same or higher speeds
Lower friction, quieter running and, above all, improved reliability in complex applications with combined loads make SKF angular contact ball bearings indispensable in many areas.

Long service life and reliable performance have earned SKF angular contact ball bearings an excellent reputation in a variety of industries ranging from gearboxes to turbines.

Nevertheless, the most common applications for angular contact ball bearings are pumps and compressors. These applications are not just the most common, they are also the most demanding. For example, the bearings used in both pumps and compressors must be able to accommodate combined axial and radial loads, high speeds, poor lubrication and contaminated conditions.

If you're replacing a conventional bearing with an Explorer bearing, the Explorer will run quieter and longer - much longer than the bearing you just replaced.

If you buy new machinery that has been sized-down with an Explorer bearing, you’ll see the benefits immediately. Your new machine will run quieter, and cooler, with less vibration. It will consume less power, require less maintenance, and run for longer.

So, the next time you’re replacing a bearing, or specifying the bearings for a new piece of equipment, ask for SKF Explorer angular contact ball bearings.

Typical applications for Explorer bearings

Compressors
Replacing traditional bearings with Explorer bearings will further support the demand for accuracy and increased power output in a compressor.

Windmills
Explorer bearings can be used to upgrade power output, or size-down the design of gearboxes in windmill applications.

Turbines
Increase the safety factor in turbine applications with Explorer bearings.

Fans
When traditional bearings are replaced with Explorer bearings, fan applications run quieter and achieve a longer service life.

Gearboxes
Existing gearbox designs can be upgraded with Explorer bearings, providing a 15 to 25% higher power rating.

Pumps
Replacing traditional bearings in water and hydraulic pumps with Explorer bearings reduces maintenance costs and extends service intervals.
Related products, systems and solutions

**Asset Efficiency Optimisation**
AEO recognises the importance of treating machinery and equipment as plant assets. SKF takes a system approach to optimising these customer assets.

**Total Shaft Solutions**
Decades of troubleshooting experience in virtually every industrial sector, enables SKF to provide solutions that improve machine performance and productivity.

**Technical consultancy**
SKF provides sophisticated calculation, design and product development services to industry.

**Electrically insulated bearings**
INSOCOAT bearings have a ceramic coating applied either to the outer or inner ring of the bearing. This isolates the bearing in electric drives from stray currents.

**Mechanical tools**
A range of specialist tools designed to help reduce bearing failures, thereby increasing plant performance and profitability.

**Lubricants**
SKF greases have been specially developed for rolling bearings. The range includes fifteen environmentally friendly greases and covers practically all application requirements.

**Condition monitoring**
SKF incorporates condition monitoring technologies into its overall service and product solutions according to industry needs.

**NoWear bearings**
Consists of steel rings, with the rolling elements and, if necessary, the raceways coated with a diamond-like carbon. Typically used in applications with special operating conditions.

**Hybrid bearings**
These bearings combine steel rings with ceramic balls. Typically used in applications where there is inadequate lubrication, excessive amounts of contamination or stray electric currents.