Customer reference case

Elevators and escalators

Gearless direct drive elevators

SKF Explorer sealed spherical roller bearings

SKF Explorer sealed spherical roller bearings enable new generation of gearless, direct drive elevators

The recent rapid pace of high rise construction in China has driven the country's leading elevator manufacturer, Shanghai Mitsubishi Elevators, to explore every way to provide faster, quieter and more space-efficient designs, without compromising passenger comfort and safety.

Switching from a geared motor to a direct drive, gearless design would enable higher speed and greater energy efficiency in a more compact arrangement. But the gearless design also created a challenge: with no gearbox and no gear oil, the open bearings supporting the rotating shaft would have to be regularly lubricated –a difficult and costly regimen that could potentially jeopardize brake function due to grease leakage.

The solution was switching to SKF Explorer sealed spherical roller bearings.

Designed to accommodate very heavy radial and heavy axial loads in applications where misalignment or shaft deflection can occur, these virtually maintenance-free bearings can have a service life as long as that of the drive system itself, 20 years or more, depending on operating conditions. Made of an extremely clean, reduced-oxygen level steel that provides greater

strength, SKF Explorer spherical roller bearings even exceeded the customer's requirements for heavy loads, low noise, effective lubrication, and protection against solid contaminants and moisture.

Switching to a gearless motor requires stronger bearings. SKF Explorer sealed spherical roller bearings are a good choice which also yield a number of other important benefits. In addition to downsizing of the total system, reductions in total friction, energy consumption and grease usage made the application more environmentally friendly. And, finally, virtually maintenance-free bearings cut maintenance costs and eliminated the need for workers to access sheaves in difficult positions.

After 3 months of endurance and function testing, the manufacturer was so impressed by the performance of the sealed spherical roller bearing that they switched their entire production to this type of bearing and entered into deeper development talks with SKF. As a consequence, SKF and Shanghai Mitsubishi are partnering on the shaft system and bearing requirements for the development of the company's newest elevator design. With a descending speed of 6 metres per second, it will be the fastest elevator in China.

SKF Explorer
sealed spherical roller bearings

- improved raceway surface finish increases lubricant effectiveness for a smoother, cooler running bearing
- proven double lip seals provide excellent protection
- higher surface hardness and dimensional stability at high temperatures
- factory filled, high quality grease
- self-guiding rollers enable lower operating temperature and improved operating conditions for the lubricant
- increased reliability and service life

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SKF Explorer sealed spherical roller bearings cut maintenance in gearless, direct drive elevators

Benefits:

- high load carrying capacity
- low noise level
- more compact design
- less friction, lower operating temperatures
- reduced energy use
- reduced need for maintenance
- no relubrication needed

Typical applications:

- gearless designs
- machine room less designs
- applications where compact designs are required

SKF Explorer sealed spherical roller bearings enable higher speeds and loads in a more compact, low maintenance design

In high rise construction, space is always at a premium, and energy savings always a goal. So manufacturers of elevators are moving to direct drive, gearless designs that enable higher speeds and greater energy efficiency in a more compact solution. But new gearless designs also create a new challenge: with no gearbox and no gear oil, the open bearings supporting the gear shaft have to be regularly lubricated – a difficult and costly regimen. Not to mention, a potential safety hazard for workers accessing sheaves in difficult positions.

Designed for heavy loads

The answer for many manufacturers is switching to SKF Explorer sealed spherical roller bearings.

Designed to accommodate very heavy radial and heavy axial loads in applications where misalignment or shaft deflection can occur, these sealed bearings could have a service life as long as that of the elevator's drive system itself, 20 years or more depending on operating conditions. SKF Explorer sealed spherical roller bearings meet application requirements for heavy loads, low noise levels, effective lubrication, and protection against solid contaminants.

More environmentally friendly

Switching to SKF sealed bearings also yields other important benefits. In addition to the downsizing of the total system, reductions in friction and energy consumption make the application more environmentally friendly. Sealed-for-life bearings also cut maintenance costs and improve worker safety by eliminating the need to relubricate bearings in hard-to-reach places.

For more information about SKF products and solutions for the material handling industry, contact your SKF representative or SKF Authorized Distributor.

Applying SKF knowledge engineering to improve elevator performance

Drawing on decades of experience with elevator systems – industrial, commercial, municipal, and residential – SKF is helping manufacturers and maintenance providers improve reliability, safety and efficiency. Whatever your application goals, SKF solutions can help you achieve them.

SKF Explorer
sealed spherical roller bearings

- improved raceway surface finish increases lubricant effectiveness for a smoother, cooler running bearing
- proven double lip seals provide excellent protection
- higher surface hardness and dimensional stability at high temperatures
- factory filled, high quality grease
- self-guiding rollers enable lower operating temperature and improved operating conditions for the lubricant
- increased reliability and service life

PUB 53/S7 10070 EN • July 2009

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Customer reference case

Mineral industry

SKF sealed spherical roller bearing

SKF sealed spherical roller bearings increase service life 100 %

Lignite mine operator achieves over 100 % increase in bearing service life with SKF sealed spherical roller bearings.

RWE, an open-cast mine operator in Germany, mines lignite (coal) estimated to be 30 million years old. The mine runs around the clock, 365 days a year, extracting 600 million tons of material from the mine annually. 500 million tons of non-lignite material is returned to the extraction site to rebuild the mine. Every day, the company extracts approximately 240 000 m^3 of coal. Each level of the mine is 40 meters deep and RWE must dig through 8 levels before reaching the coal.

Lignite and other materials are transferred to and from the mine on conveyors. The company operates 250 km of conveyors with the longest conveyor section being 5,6 km. Each conveyor section includes approximately 40 bearing positions in the head and tail pulleys, and the impact idlers. RWE was using open cylindrical roller bearings, and experiencing continual problems with premature bearing failure due to the ingress of grit and contaminants into the bearing. To keep the bearings operating, large amounts of grease were being used, presenting additional concerns related to grease disposal, and German environmental regulations.

RWE's goals were to reduce operating costs by 3 % per year, and to keep the bearings operating at least until the time when lagging rework was needed on the pulleys. SKF application specialists suggested a test of SKF sealed spherical roller bearings on the impact idlers.

The open cylindrical roller bearings on the impact idlers were replaced with SKF sealed spherical roller bearings (SSRB 23228). The housings were filled with grease, and a labyrinth seal was added at the end of the roller.

While the previous open bearings typically lasted an average of 730 days, the SKF sealed solution lasted more than 4 full years, offering a 200 % increase in service life, and allowing RWE to achieve its goal of performing bearing maintenance at the same time as lagging (drum coating) rework. Additional benefits included the cost savings to dispose of used grease; and with SKF sealed spherical roller bearings, maintenance personnel were able to decrease mounting time. Mounting time was reduced from 4 hours with the previous open bearing, to just 2 hours with the SKF sealed solution.

Performance comparison	Previous solution Open cylindrical roller bearing	SKF solution Sealed spherical roller bearing, SSRB 23228
Bearing service life	Approx. 2 years (730 days)	4 years + 100 % improvement
Grease	Costs incurred for grease purchase and disposal	Greased for life. No additional relubrication costs e.g. purchase or disposal of used greasing.
	Maintenance time required for regular re-greasing	Maintenance staff can now focus on more critical mine applications
Mounting	4 hours	2 hours

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Customer reference case

Mineral industry

SKF sealed spherical roller bearing

Reduce costs with the SKF conveyor solution

Sand and mineral processor extends bearing life, reduces costs with SKF conveyor solution.

Askania is a leading worldwide manufacturer and supplier of industrial sand, industrial minerals, sodium silicate and products for cleaning water, air and gases. At the company's main processing facility in Sweden, more than 35 000 000 kg of sand are processed annually.

11 vertical conveyors and 11 horizontal conveyors move the sand from its source up hill and over to the processing facilities.

Each conveyor was equipped with 4 open spherical roller bearings in the head and tail pulleys, for a total of 88 bearing positions. At every step of the way, the bearings were exposed to contamination from the ingress of sand, dust and grit. These contaminants continually damaged the bearing seals, resulting in reduced bearing service life. Askania operators found it necessary to replace the bearings every 9 months, and the housings every 18 months. Downtime for planned maintenance took two hours, and twice that if a bearing failed unexpectedly. Costs for parts replacement, lost production and manpower were difficult to control.

SKF application specialists suggested that Askania test an SKF conveyor solution including a sealed spherical roller bearing, which is designed to protect the bearing from contaminants. As shown in the chart below, the Askania test compared the cost and performance of the open bearing currently used, with an open bearing equipped with a Taconite seal, and an SKF sealed spherical roller bearing.

Over the 24-month test period, the unsealed bearing failed every nine months. The open bearing with the Taconite seal and the SKF sealed spherical roller bearing performed equally well and did not fail during the 24 months test period. However, the SKF sealed solution offered the advantages of lower overall costs, and trouble-free operation without the need for the expensive, environmentally unfriendly grease required with Taconite seals.

Components	**Design**	**Customer solution** Open bearing (22211 EK)	**Tested solution 1** Open bearing with taconite seal (22211 EI)	**Tested solution 2** SKF sealed spherical roller bearing (BS2-2211-2CSK)
		(Euro)	(Euro)	(Euro)
Bearing	22211	87	87	136
Sleeve	H311E	19	19	24
Housing	SNL 511-609	84	84	84
Housing seal	TSN 511 L	10	0	10
Taconite seal	TSN 511 ND	0	128	0
Guide rings	2 × FRB 8/100	6	6	6
Cost for one unit		**206**	**324**	**260**
Cost over 24 months[1)]		**524**[2)]	**324**	**260**
		Bearing life 9 months.	No bearing failure after 24 months	No bearing failure after 24 months

[1)] Over a 24-month period, 3 new bearings, sleeves and guide rings were required. Two new housings and housing seals were required (3 bearings @ 17 ea., 3 sleeves @ 4 ea., 2 housings @ 16 ea., 2 seals@ 3 ea., and 3 guide rings @ 1,5 ea.)
[2)] 107 includes costs for replacing bearings, sleeves, housing, housing seal and guide ring over 24 months

Cost for 88 bearing units over 24 months (22 conveyors @ 4 bearing positions each)	
Open Bearing	€ 46 112
SKF sealed spherical roller bearing	€ 22 880
Cost savings of SKF conveyor solution	€ 23 232

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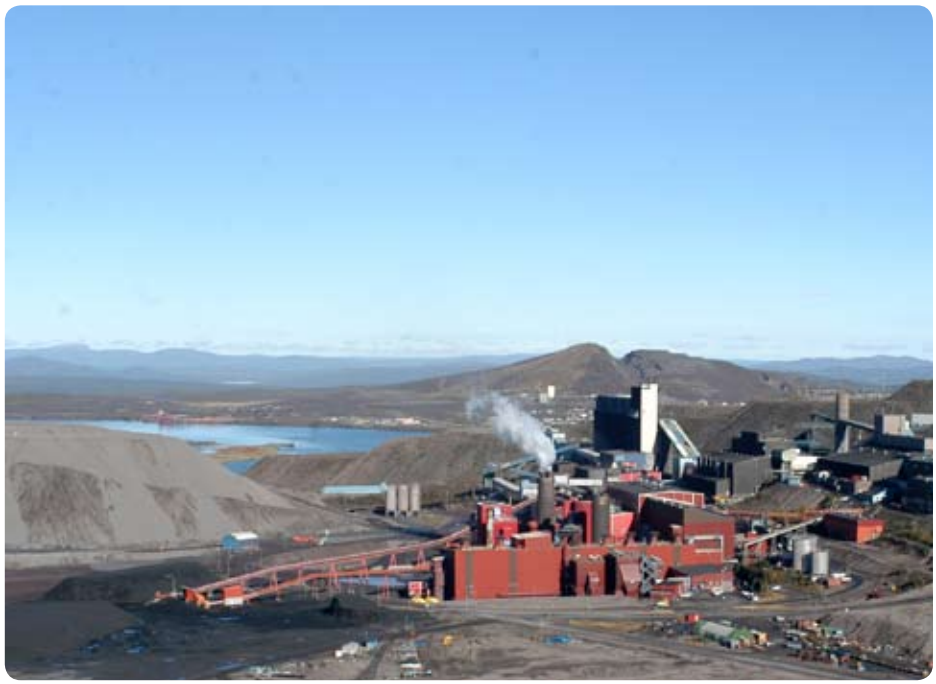
Customer reference case

Mineral industry

SKF sealed spherical roller bearing



Iron ore mining operation eliminates need for re-grease, with SKF sealed spherical roller bearings

The LKAB mine in Malmberget, Sweden, is one of the most modern operations in the world. The company extracts iron ore from underground mines going down as far as 900 meters. The mine runs non-stop, 24 hours a day, seven days a week.

The company was experiencing high costs and poor reliability in the pinion drive bearings of the mills where the iron ore is crushed. The pinion drives were equipped with open bearings. Grit, dust and contaminants were a constant threat to the bearings. To keep the bearings operating, large amounts of grease were continually pumped into the bearings. LKAB had a total of 100 bearing positions in the pinion drives and was using 100 kg of grease per year, per bearing. The extraordinary amounts of grease resulted in high costs for both the purchase of the grease, and its disposal, in accordance with environmental requirements.

In addition to high costs, the use of large volumes of grease resulted in a work environment hazard, as grease dripping from the bearing units often caused slippery floors. This problem was addressed by using high pressure water to wash the pinion units, which in turn pushed water and dust into the bearing housing. The washing created an additional hazard as water could seep into nearby electrical motors.

In a test of SKF sealed spherical roller bearings, LKAB found that they could completely eliminate the need for re-greasing, and no longer needed to invest in a central lubrication system. As shown in the chart below, bearing service life for an open bearing that was continually regreased, was almost the same as for the SKF sealed spherical roller bearing. However, while the cost for the SKF solution was initially higher, breakeven was reached in just one year, and over a five-year period LKAB achieved significant cost savings.

Additional savings were realized by reducing downtime related to bearing replacement. By eliminating the relubrication system

Cost/Designation	Open bearing	SKF sealed spherical roller bearing
Net price, bearing	€ 3 225 (two bearings)	€ 3 247
Grease, 10 years	€ 4 635	€ 14
Total running cost, 10 years	€ 7 860	€ 3 262

and washdowns related to regreasing, LKAB's now preliminary estimates indicate that SKF sealed spherical roller bearings will last 10 years – double the prior 5-year service life. Previously, it had taken two men approximately 24 hours to change a bearing at a cost of 5,500 Euros per bearing. Now, instead of replacing bearings at 5-year intervals and cleaning grease spills, LKAB personnel can focus on critical gearbox maintenance.

Total savings over 10 years for reduced grease usage	
Cost for open bearing with grease	€ 7860
Cost for SKF Sealed Solution	€ 3262
Total savings for one bearing position	**€ 4598**
Total savings for 100 bearing positions	**€ 459 800**

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Increase reliability and decrease environmental impact with the SKF conveyor solution.

OEM Benefits

- Adds value
- Increases MTBF
- Enables downsizing
- Enhances productivity
- Reduces costs
- Simplifies design
- Avoid expensive secondary seals

Typical industries

- Mines
- Ports
- Steel mills
- Cement and aggregates
- Pulp and paper

The problem

The typical operating environment for a bulk conveyor often leads to premature

bearing failures in the head and tail pullies, the take-up pulley and the impact idlers. In these locations, the ingress of dirt, sand and other abrasive contaminants into the bearing is virtually impossible to stop unless special steps are taken.

One way to increase Mean Time Between Failures (MTBF) is to continuously pump large quantities of grease into the housing to protect the bearing. While re-greasing can extend MTBF, it is costly in terms of the initial cost of the lubricant and its disposal, not to mention the cost of manpower. It is also costly in terms of environmental impact. Other ways to increase the service life of the bearings is to use either a solid lubricant in the bearing or, if space allows, auxiliary seals e.g. taconite seals. Though effective in most cases, these two alternatives can be very expensive.

The solution

The SKF solution for conveyors is an environmentally friendly, cost-effective bundle of products that can extend bearing service life without solid lubricants, taconite seals or large quantities of grease.

The solution consists of four basic components:

- Sealed SKF Explorer spherical roller bearings and sealed SKF CARB bearings
- SKF plummer (pillow) block housings
- Standard SKF L or S-type seals
- SKF LGGB2 biodegradable grease

Three layers of protection

The effectiveness of the SKF conveyor solution is in its simplicity. When installed, the solution provides the bearing with three layers of protection during assembly and operation.

Integral bearing seals – These highly effective integral bearing seals keep the lubricant in and contaminants out of the bearing cavity.

SKF L-seal or S-seal – Protects against extremely fine contaminants and can eliminate the need for expensive taconite seals. For very abrasive environments, SKF recommends using S seals in combination with SKF bearings with integral bearing seals.

Housing grease – The housing, on both sides of the sealed bearing, can be packed with grease. SKF recommends LGGB2, a biodegradable, environmentally-friendly solution.

For additional information about SKF products and solutions for the material handling industry, contact your local SKF representative.

The power of SKF knowledge engineering

Drawing on five technology competences and 100 years of application-specific expertise, SKF brings innovative solutions to industrial equipment designers. These five competence areas include bearings and units, seals, lubrication systems, mechatronics (combining mechanical and electronics into intelligent systems), and a wide range of technical services, from 3-D computer modeling to advanced condition monitoring and reliability systems.

Benefits

Meet customer needs
The SKF conveyor solution offers a cost-effective way for you to build additional value into your conveyor without the need to make expensive modifications. Customers will appreciate that all components are in stock and available worldwide.

Reduce costs
Help customers cut costs and increase MTBF with replacement parts that are standard and priced accordingly.

Downsize
Due to design and manufacturing refinements, SKF Explorer spherical bearings typically enable downsizing of the bearing, housing and shaft.

Faster production
All components are available from stock in most popular configurations, speeding installation by eliminating delays related to back-orders.

SKF conveyor industry study: The cost of bearing failures

SKF recently studied the performance of large conveyors in port and mining applications to determine the causes of bearing failure and the cost of down-time and repairs.

The study, which included five major mining operations and seven ports, focused on head pulley bearings in conveyors with an average of 20 positions. The study revealed that operators prefer to replace the bearings every four years during pulley replacement.

However, the bearings often fail prematurely and unplanned downtime is the result. In most cases, premature failures were due to inadequate sealing and the ingress of contaminants into the bearing cavity.

Mining operations have the highest costs related to unplanned bearing replacement, often losing a full eight hours of production. As shown below, that unplanned downtime can result in costs of more than EUR 87 000.

Cost of bearing replacement (EUR)	Planned maintenance interval	Unplanned bearing failure
Bearing cost	1 000	1 000
Labour (3 men x 8 hrs.)	1 300	1 300
Cost of production loss	0	87 000
Total cost of bearing failure	2 300	89 300

Publication 6588 EN • June 2007

Increase reliability and decrease environmental impact with the SKF conveyor solution.

Benefits

- Increased reliability
- Increased service life
- Reduced lubricant consumption
- Reduced environmental impact
- Reduced maintenance costs
- Avoid expensive secondary seals

Typical industries

- Mining
- Ports
- Steel mills
- Forestry
- Cement and aggregates
- Pulp and paper

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The typical operating environment for a bulk conveyor often leads to premature

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For more information about SKF products and solutions for the material handling industry, contact your SKF Authorized Distributor.

Increase the return on your maintenance investment with SKF.

The whole idea behind the SKF 360° solution is to help you get more out of your plant machinery and equipment investment.

This may mean lowering your maintenance costs, raising your productivity, or both! Here's an example of the SKF 360° solution at work in the material handling industry.

Increased MTBF
The SKF conveyor solution with sealed spherical roller bearings keep contaminants out during assembly and operation, to offer extended bearing service life. If needed, the bearings, housings and housing seals can be changed out during regularly scheduled lagging rework.

Enhanced ROI
The SKF conveyor solution with sealed spherical roller bearings cut costs by reducing unplanned downtime and the related costs for replacement components.

Reduce lubrication consumption
Sealed SKF spherical roller bearings, which contain a relubrication groove as standard, are filled with a high-performance grease at the factory and will require less frequent relubrication. Under good conditions they may not require any relubrication. This will reduce the costs for lubricant, lubricant disposal and manpower.

SKF conveyor industry study: The cost of bearing failures

SKF recently studied the performance of large conveyors in port and mining applications to determine the causes of bearing failure and the cost of downtime and repairs.

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Labour (3 men x 8 hrs.)	1 300	1 300
Cost of production loss	0	87 000
Total cost of bearing failure	23 000	89 300

SKF 360° Solution ROI calculations are from the SKF Documented Solutions Program. Ask your SKF Authorized Distributor for more details.

Publication **6553 EN** • June 2007

Sealed, self-aligning bearings for continuous casters

Benefits

- Extended bearing service life
- Increased productivity
- Less planned and unplanned stops
- Reduced grease consumption

Another SKF solution for improving roll line service life

In continuous casters, thermal variations in the roll frequently induce internal thrust loads on the bearings, eventually resulting in bearing failure. Additionally, bearing lubricants can contaminate the water cooling system, increasing the risk of blocked water-spray nozzles and ultimately, blocked roll lines or break-downs. To help protect against these conditions and extend roll line service life, SKF offers sealed, self-aligning bearings for continuous casters.

A sealed, self-aligning bearing system

The SKF sealed, self-aligning bearing system for continuous casters consists of a sealed spherical roller bearing in the locating position and a sealed CARB toroidal roller bearing in the non-locating one.

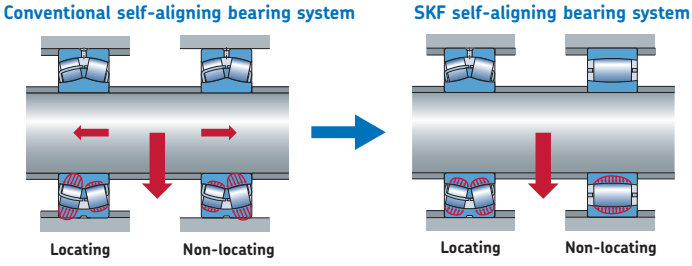
The CARB bearing accommodates axial displacement of the shaft within the bearing. This eliminates the problem of induced axial loads, which is common in conventional bearing systems, where the outer ring needs to move on its seat in the housing.

The combination also offers a very high load-carrying capacity, even under caster roll line deflection. The results are improved reliability and increased bearing system life.

Sealed-for-life for a longer, more productive service life

SKF sealed self-aligning bearings are delivered with the appropriate type and quantity of grease. As proper lubrication contributes to optimal bearing service life, customers can expect increased productivity through less maintenance and fewer stops.

SKF sealed-for-life bearings also reduce grease consumption and costs. A typical two-strand caster can save more than 20 tonnes of grease per year. Less lubricant consumption means reduced risk of contamination of the water cooling system, less hazardous waste and lower disposal costs.



For more information about SKF products and solutions for the metals industry, contact your SKF Authorized Distributor.

Increase the return on your maintenance investment with SKF

The whole idea behind the SKF 360° Solution is to help you get more out of your plant machinery and equipment investment. This may mean lowering your maintenance costs, raising your productivity, or both! Here's an example of the SKF 360° Solution at work in the metals industry.

Applying SKF knowledge engineering to improve machine reliability and efficiency in the metals industry

Few environments can match the demands placed on equipment used in the metals industry, from continuous casters and vessels to traveling cranes and ventilation systems. SKF engineers work closely with steel mills to meet application challenges and deliver benefits they need to stay competitive.

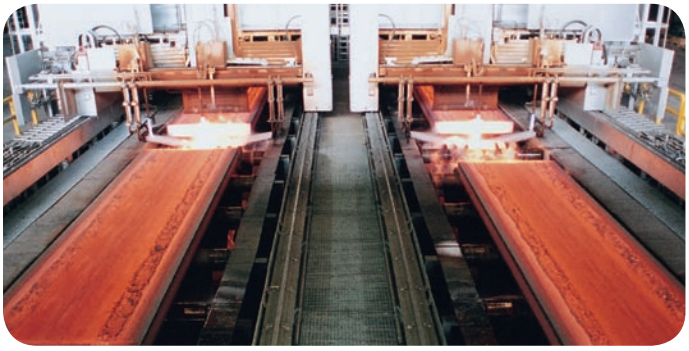
These benefits include increased machine reliability, extended maintenance intervals and reduced costs, increased productivity, reduced energy consumption and optimized life cycle costing. Below is just one example of how SKF knowledge engineering helped a metals industry customer improve efficiency and profitability.

SKF saves Italian steel producer more than 500 000 euros annually

With several companies involved in iron and steel production, the Riva Group is the sector leader in Italy, sixth in Europe, and ninth in the world. ILVA Taranto is the group's largest plant, with a production capacity of 12 million tonnes of steel per year. When plant managers wanted to reduce total operating costs and increase plant availability, they turned to SKF.

The challenge

The plant houses six converters and five continuous slab casting machines. Each caster operates with hundreds of bearings and consumes between 30 and 70 tonnes of grease per year. To help ILVA Taranto achieve its larger goals, SKF sought to extend service life and cut grease consumption for the plant's thousands of caster bearings.



The SKF solution

Initially, SKF replaced all open bearings in one caster with sealed, spherical roller bearings and CARB toroidal roller bearings. Subsequently, all casters were fitted with this SKF sealed, self-aligning bearing system.

The results

ILVA Taranto's annual grease consumption dropped by up to 47 tonnes per caster and bearing consumption fell by an average of 40 percent. These reductions resulted in annual cost savings of 105 000 euros per caster. Reduced cooling water cleaning costs helped the plant achieve additional savings.

In the end, the SKF sealed, self-aligning bearing system helped boost plant availability and productivity by achieving double the service life of the conventional open bearing system that it replaced.

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SKF self-aligning solutions for continuous casters

Spherical roller bearing | CARB toroidal roller bearing

SKF self-aligning bearing systems: Comparative benefits

	Arrangement[1]	Arrangement[2]
Extended bearing life	X	XX
Reduced maintenance costs	X	XX
Reduced downtime	X	XX
Increased productivity	X	XX
Reduced operating costs	X	XX
Reduced axial loads	–	X
Reduced hazardous waste	X (sealed)	X (sealed)
Reduced lubricant consumption	X (sealed)	X (sealed)

[1] Combination of two spherical roller bearings
[2] Combination of a spherical roller bearing and a CARB toroidal roller bearing

Another SKF approach to improved roll line service life

In continuous casters, thermal variations in the roll can induce internal thrust loads on the bearings, eventually resulting in bearing failure. To fight these stresses and extend service life, SKF offers two different self-aligning bearing system solutions:

- A combination of two spherical roller bearings.
- A combination of a spherical roller bearing and a CARB toroidal roller bearing.

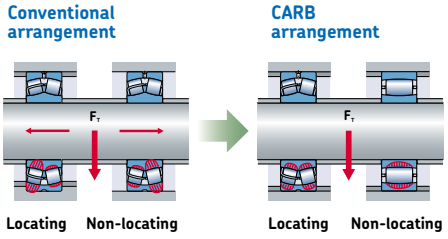
A combination of two spherical roller bearings

SKF spherical roller bearings are inherently robust and self-aligning. One spherical roller bearing acts as a locating bearing and the other as a non-locating bearing. The locating bearing is secured in the housing and on the shaft. The non-locating bearing moves axially on its seating in the housing when the roll expands or contracts.

A combination of a spherical roller bearing and a CARB toroidal roller bearing

The CARB toroidal roller bearing features a compact design combining the self-aligning capability of a spherical roller bearing with the axial displaceability of a cylindrical roller bearing. The spherical roller bearing is the locating bearing and the CARB toroidal roller bearing is the non-locating one.

Contrary to the conventional arrangement with two spherical roller bearings, the combination with a CARB toroidal roller bearing virtually eliminates sliding friction between bearing rings and seatings. This minimizes the risk of fretting corrosion, common with traditional bearing arrangements. The results



are improved reliability and increased bearing and lubrication life.

Sealed variants

Both SKF spherical roller bearings and CARB toroidal roller bearings are available in sealed-for-life alternatives. The integral seals keep the lubricant inside the bearing and protect it from contaminants even under very tough operating conditions.

For more information about SKF products and solutions for the metals industry, contact your SKF representative.

Applying SKF knowledge engineering to improve machine reliability and efficiency in the metals industry

Few environments can match the demands placed on equipment used in the metals industry, from continuous casters and vessels to travelling cranes and ventilation systems. SKF engineers work closely with steel mills to meet application challenges and deliver benefits they need to stay competitive.

These benefits include increased machine reliability, extended maintenance intervals and reduced costs, increased productivity, reduced energy consumption and optimized life cycle costing. Below is just one example of how SKF knowledge engineering helped a metals industry customer improve efficiency and profitability.

SKF saves Australian steel producer half a million Euro annually

In an ongoing technical partnership spanning 15+ years, SKF has been helping BlueScope Steel Australia (formerly known as BHP Steel), forge ongoing improvements to its continuous casters.

From triple ring to spherical roller bearings

Initially, the company asked SKF for help with segment rolls in two continuous casters. SKF replaced triple ring bearings with spherical roller bearings in the locating and non-locating positions. The redesign improved roll performance and increased bearing service life, so the company converted all roll positions in the segment. The result: an annual reduction in bearing purchases of €510 000.

The CARB solution for heavy loads

Over the next several years, SKF identified improvement opportunities in the lower segments. Overloading was the typical failure mode, due partly to internal axial loads on the bearings. SKF installed CARB bearings on one segment for a ten-month trial. The results proved so successful that some 500 CARB bearings were subsequently installed. In the three years after the initial trial, not one bearing failed.

Today, improvements like better heat treatment of the rolls, rotary joint Improvements, together with ongoing SKF support, is helping the mill enhance machine reliability, maximize productivity and reduce costs.

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