Reduce mean time to repair. Improve uptime and safety.

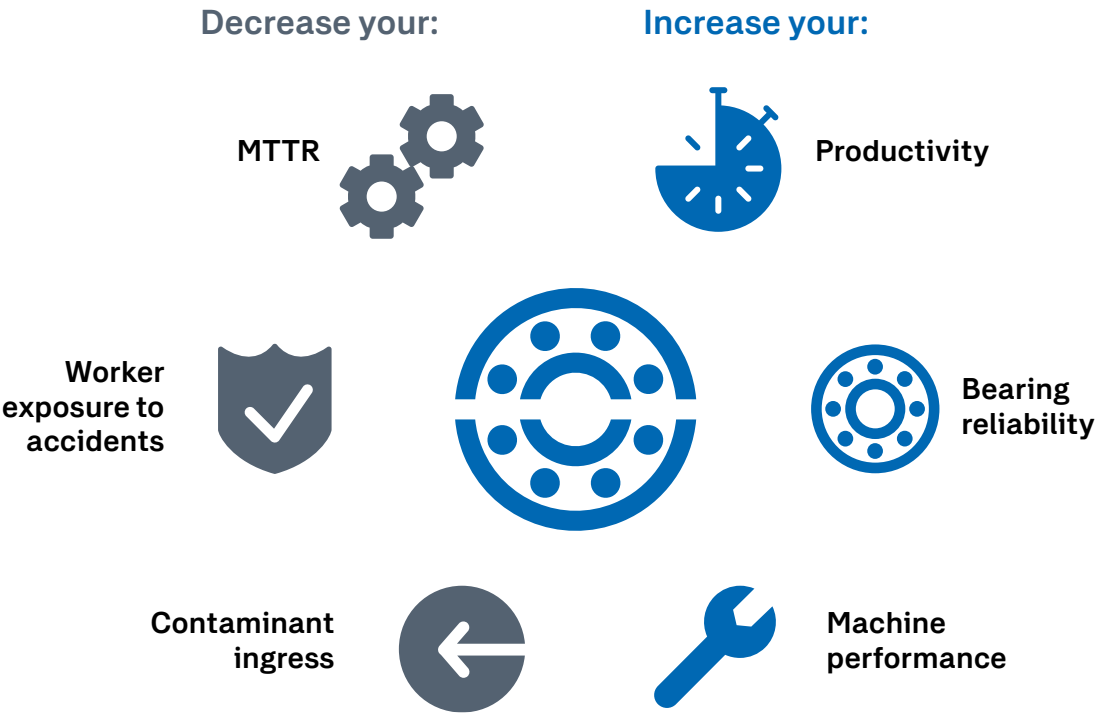
SKF Cooper sealed split spherical roller bearings, smaller diameter

Shorten repair time by 70%

MTTR:
FROM OVER 12 HOURS TO 3.5 HOURS*

For customers looking for bearings designed to be easily replaced in situ with little disturbance to the shaft alignment or driveline, SKF Cooper sealed split spherical roller bearings offer a solution – typically reducing mean time to repair (MTTR) by 70%*.

- Allows safer and time-saving in situ bearing replacements in the trapped position on conveyor pulleys, bucket elevators, escalators and other applications
- Sealed solutions available as standard, for increased protection against contamination and for reduced maintenance
- Compatible with competitors' split block housings
- Longer service life (MTBF) compared to other split bearings, thanks to the wire cut inner and outer ring manufacturing technique and sealing
- Compatible with SKF metric and inch split block housings such as SNLD, SMS and SAF / SDAF
- Reduced risk of shaft fretting and better clamping against axial movement

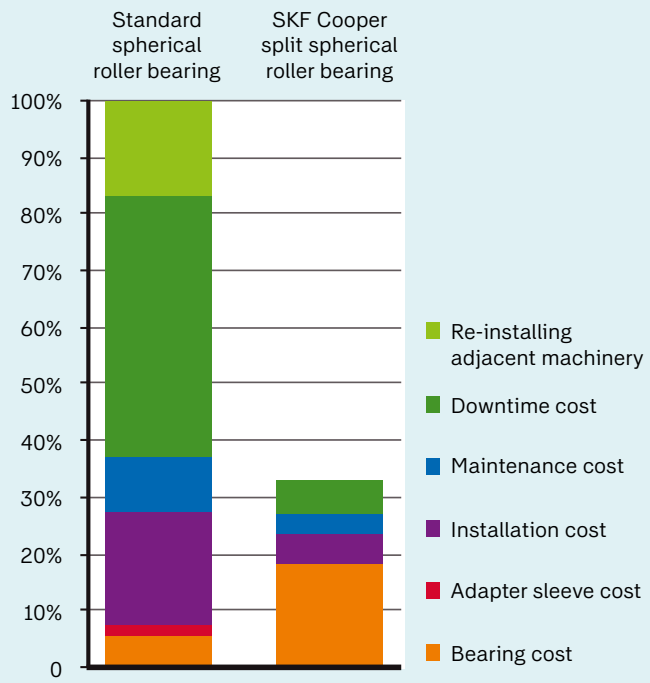


* In-field reports of bearing changes for mining customers

Simplify maintenance to improve safety

With the SKF Cooper split spherical roller bearings, there is no need to dismount the drive coupling or the cantilevered drive to replace the bearing thus avoiding realignment. This greatly reduces the safety risk to workers. 43% of accidents in the mining and cement industry occur while workers perform maintenance or checks on conveyors.

Cost savings



Saving over 10 hours of downtime – a hundred thousand dollars from lost production.

A coal mine in the USA has conveyor head pulleys that operate for around 18 hours per day. Unplanned downtime is a critical KPI, but with traditional bearings, any unexpected problems in operation cause lengthy bearing replacements. On the trapped bearing positions on the shaft, unplanned downtime is typically around one day.

To reduce downtime, the coal mine replaced the traditional bearing with an SKF Cooper sealed split spherical roller bearing. Without changing the shaft alignment or disturbing the driveline, the customer saved over 10 hours of downtime and, at a downtime cost of USD 10,000 per hour, avoided over USD 100,000 in lost production. After the replacement, vibration and temperature levels also look great, running exactly where the customer wants them to be.

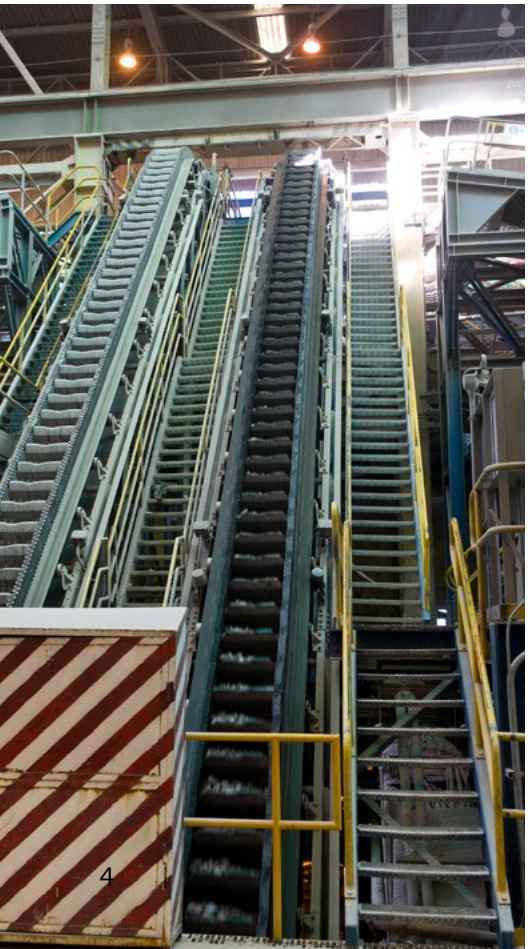
Ready to meet high demands

Tough enough for heavy-duty industries

- Mining
- Mineral processing
- Cement
- Pulp and paper
- Metals
- Power generation
- Food and beverage

Applications:

- Conveyor pulleys
- Bucket elevators
- Escalators
- Mixers and agitators
- Horizontal grinding mill pinions
- Others...



Precision and versatility

SKF Cooper split spherical roller bearings are manufactured to ISO Normal precision and running accuracy. The mounted internal radial clearance of the split bearing is based on the mounted clearance of a standard (CN) spherical roller bearing mounted on an adapter sleeve but can be slightly more or less. Other bearing internal clearances (e.g. C3) are available upon request.

The SKF Cooper split spherical roller bearing can be used with SKF metric and inch split block housings. The split bearing outer ring has the same external dimension as a standard ISO spherical bearing outer ring.

Minimum load

The requisite minimum load to be applied to spherical roller bearings can be estimated using $P_m = 0.01\ C_0$ where:

- P_m = Equivalent minimum load, kN
- C_0 = basic static load rating, kN

Shaft and housing fitting

- Shaft ISO h9 (IT5/2 and surface roughness, Ra = 0,8)
- Housing ISO G7 (IT6/2)

Grease lubrication (grease ordered separately)

Fill the bearing with one of the following recommended SKF greases at assembly:

Ambient conditions

- Normal LGEP 2
- High temperatures (to +120 °C *(+248 °F)*) LGHB 2
- Cold temperatures (to –30 °C *(–22 °F)*) LGWM 2

Alternative Lithium/Lithium Complex NLGI 2 greases with suitable base oil viscosity can be used.

The bearing should be relubricated with grease through its W33 groove.

Guidance on the quantity and the relubrication interval required for grease can be found on skf.com. Although supplied with sealing as standard, relubrication should be in accordance with the schedule for non-sealed bearings.

SKF SYSTEM24 lubricators with SKF LGWA 2 grease can be used to relubricate the bearings.

Oil lubrication

Use ISO VG 220 oil or ISO VG 320 oil as required.

Temperature limits

Bearing components are heat stable up to 120 °C at continuous operation. The seals have a limit of –40 to +90 °C (*–40 °F to +194 °F*). Check that the bearing is adequately lubricated for normal operating conditions.

Bearing rating life

SKF Cooper uses ISO 281:2007 to calculate the L_{10m} modified rating life of the split spherical roller bearing. Incorporation of bearing sealing as standard typically increases the rating life by at least two times longer than the rating life of open (unsealed) bearings because of the improved exclusion of contamination.

Bearing equivalent load, P_r

The bearing equivalent dynamic load is calculated the same as a standard (non-split) spherical roller bearing with a dynamic factor (fd). See table.

- $P_r = fd\ (X F_r + Y F_a)$

ISO modified rating life, L_{10mh}

The modified rating life is calculated the same as a standard spherical bearing using the following:

$$L_{10mh} = a_{ISO} \left(\frac{C_r}{P_r} \right)^{\frac{10}{3}} \frac{1000000}{60n}$$

Contact the SKF application engineering service through your local SKF representative for assistance.

Permissible axial load

The steel inner ring clamping rings permit the SKF Cooper split spherical roller bearing to sustain higher axial loading than other forms of split bearing. However, the maximum permissible axial loading is not generally as high as a non-split spherical roller bearing mounted on an adapter sleeve, so it should be checked against application requirements.

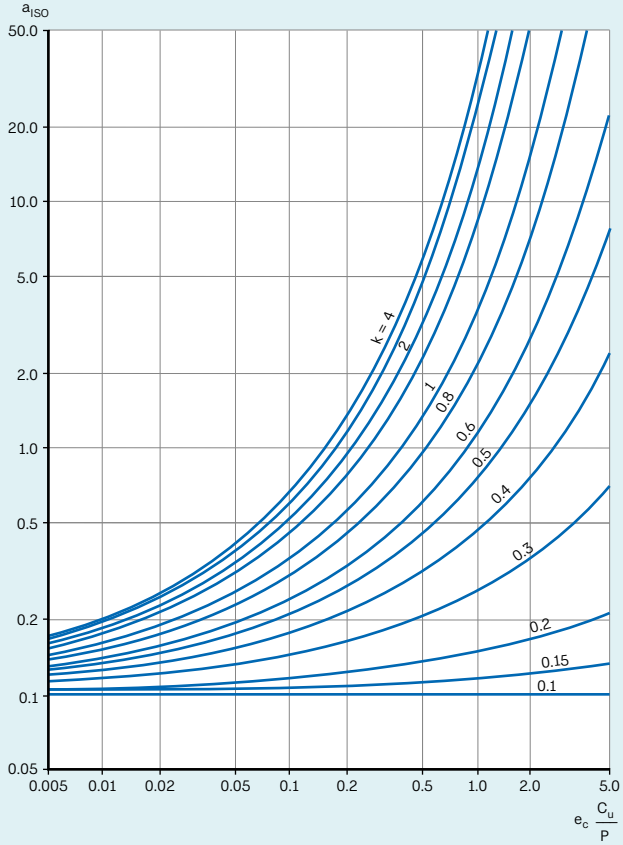
Misalignment

The permissible misalignment is determined by the seals, which accommodate misalignment of ± 0.5°. This is the same permissible misalignment as the SKF Taconite seal mounted in the SKF split block housings.

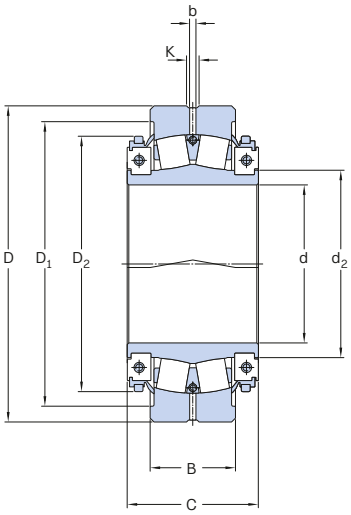
Dynamic factor

The appropriate dynamic factor (fd) may be taken from the chart.

Conditions	fd
Steady load or small fluctuations	1.0 – 1.3
Light impact load	1.3 – 2.3
Heavy impact load, vibration or reciprocation	2.0 – 3.5



Life modification factor, also for radial roller bearings based on ISO 281



INSTALLATION

Mount the split spherical bearing according to the instructions provided with the packaging. **Safety is very important. Read all installation instructions carefully before starting work.**

Follow all warnings and precautions and wear proper PPE as required.

Principal dimensions				Dimensions					Basic load ratings dynamic	static	Fatigue load limit	Speed rating Limiting speed	Designations
d	D	B	C	d_2	D_1	D_2	b	K	C_r	C_o	P_u		
Shaft diameter													
mm/*in.*	mm			mm					kN			r/min	–
140 ***5 7/16*** ***5 8/16***	290	80	124	165.0	250	241	14	8	590	850	80	300	**222S140M-2SRS** **222S507-2SRS** **222S508-2SRS**
150 ***5 15/16*** ***6***	310	86	129	178.5	270	260	14	8	715	1 030	100	260	**222S150M-2SRS** **222S515-2SRS** **222S600-2SRS**
160 ***6 7/16*** ***6 8/16***	320	86	136	190.5	290	278	16	8	830	1 220	115	250	**222S160M-2SRS** **222S607-2SRS** **222S608-2SRS**
170 ***6 15/16*** ***7***	340	92	154	204.0	310	294	16	8	940	1 400	130	235	**222S170M-2SRS** **222S615-2SRS** **222S700-2SRS**
180	360	98	154	213.0	320	303	16	8	945	1 415	130	225	**222S180M-2SRS**
200 ***7 15/16*** ***8***	400	108	166	237.0	360	328	16	8	1 215	1 830	160	210	**222S200M-2SRS** **222S715-2SRS** **222S800-2SRS**

Calculation factors					Designations open
e	Y_1	Y_2	Y_0	Mass	
mm				kg	–
0.26	2.6	3.9	2.5	33	**222S140M-2SRS** **222S507-2SRS** **222S508-2SRS**
0.26	2.6	3.9	2.5	39	**222S150M-2SRS** **222S515-2SRS** **222S600-2SRS**
0.26	2.6	3.9	2.5	43	**222S160M-2SRS** **222S607-2SRS** **222S608-2SRS**
0.27	2.5	3.7	2.5	55	**222S170M-2SRS** **222S615-2SRS** **222S700-2SRS**
0.26	2.6	3.9	2.5	60	**222S180M-2SRS**
0.26	2.6	3.9	2.5	79	**222S200M-2SRS** **222S715-2SRS** **222S800-2SRS**

Consult SKF for availability of inch dimension bearings and other series and sizes.

Maximize your potential

SKF Explorer spherical roller bearings

SNL and SNLD housings

SAF and SDAF inch dimension split block housings

Split roller bearing

SKF split machined housing seals

SKF SYSTEM24

SKF Automated lubrication systems

SKF Machine health and remote diagnostic service

SKF Maintenance products

SKF Power transmission products

SKF Remanufacturing and inspection service

skf.com

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