Continuous performance in extreme conditions

SKF Spherical roller bearings for continuous casters.



Engineered for high static load carrying capacity and wear resistance

Extreme temperatures, very high loads and contamination are just some of the challenges that continuous casting lines face. Frequent and costly shutdowns for maintenance are inevitable as water, mold powder and scale get into bearing housings.

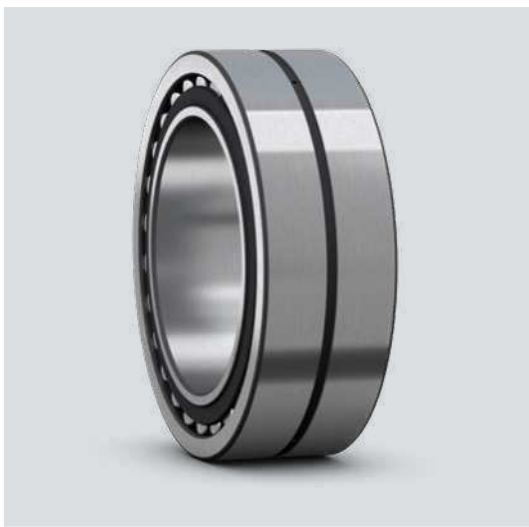
If a bearing fails, all production must be stopped causing costly, unplanned downtime. At the same time, there is constant pressure to optimize production and cut costs per ton.

The performance of rotating equipment is a major factor in reaching the production and cost-reduction targets of steel plants. Given the intense global competition in the steel industry, smooth mill operation is important. SKF has tapped into our years of experience in the steel industry to develop the SKF Spherical roller bearings for continuous casters. The bearings are designed to provide excellent performance, wear resistance and cost efficiency in the extreme operating conditions.

Designed specifically for continuous casting applications, they provide a number of advantages, including:

- **High static load carrying capacity**
- **Good wear resistance**
- **Superior crack resistance**
- **Optimized for lubrication**
- **Fully interchangeable with standard spherical roller bearings**







Increased bearing life

The SKF Spherical roller bearings for continuous casters are optimized to provide excellent performance in the continuous casting machine environment.

The bearing is designed for robust performance. Superior, high-grade steel helps to prevent unplanned downtime and catastrophic machinery failure. The cage design is optimized for low-speed rotation. The internal design of the bearing includes a larger grease reservoir that provides an average of 10% increase in grease capacity as well as enhanced oil flow for air-oil lubrication.

During its life cycle, the bearing design reduces grease consumption, making the SKF Spherical roller bearings for continuous casters an environmentally friendly and cost effective choice. The sum of these improvements contribute to increased uptime and a lower total cost of ownership.

Reduced maintenance time

Lower production cost per ton

Reduced environmental impact

SKF's Continuous Caster Portfolio

SKF is committed to driving innovation to increase bearing service life, and creating cost efficiencies to enable price reduction. Continuous improvement allows this portfolio of superior application-specific bearings to solve customer pain points at a competitive price point.

SKF solutions for your continuous casting applications:

- SKF Explorer SRB
- SKF CARB Toroidal Roller Bearings
- Cylindrical Roller Bearings
- Needle Roller Bearings
- Slewing Ring Bearings
- Mounted Bearings
- SKF Cooper Split Roller Bearings
- CR Seals
- Lincoln Lubrication Systems
- Maintenance Tools
- SKF Bearing Remanufacturing

Reality check – two field tests prove their performance

Tests in a live environment are an integral part of our product development process. For the SKF Spherical roller bearings for continuous casters, two customer tests have been carried out with excellent results. In case A, the failure rate was 0 out of 12 pieces. In case B, 1 out of 42 pieces. It is important to note that one bearing failure was due to a blocked lubrication pipe and not a consequence of a fault in the rotating equipment. (→ **table 1 and 2**).

Table 1

Field validation – Case A:
Excellent performance of SKF bearings

Caster OEM	Primetals (VAI)
Roll type	Common shaft
Bearings	12 pcs 23220 VA9B1
Volume produced	600 000 ton
Production benchmark	450 000 ton
Failure rate	0 out of 12 pcs for 23220 VA9B1

Table 2

Field validation – Case B:
Excellent performance of SKF bearings

Caster OEM	SMS Group
Roll type	Double split
Bearings	42 pcs 24030 VA9B1
No. heats completed	9000+
Benchmark heats	8500
Failure rate	1* out of 42 pcs

**Bearing failed due to blocked/choked lubrication pipe.*

Caster spherical roller bearing designation system

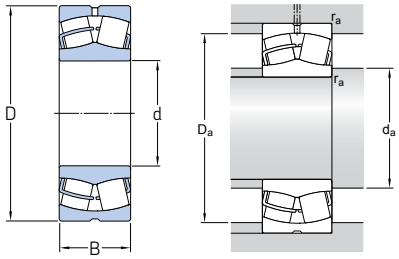
					C	4	W	3	3	V	A	9	A	1
Series		Shaft size x5			Radial clearance (available in C3 & C4)		Annular groove with three lubrication holes			Suffix for caster specific design				

Example: 22216 / C4 W33 VA9A1
24026 / C3 W33 VA9B1

A1: Billet/bloom caster & multi-use
B1: Slab caster

SKF Spherical roller bearings for continuous caster applications

d **70 – 170** mm



Principal dimensions			Basic static load ratings	Abutment		Fillet	Designations
d	D	B	C_0	D_a min	D_a max	r_a max	
mm	mm	mm	lbf	mm	mm	mm	–
70	125	31	50,357	79	116	1.5	**22214/C3W33VA9A1**
70	125	31	50,357	79	116	1.5	**22214/C4W33VA9A1**
75	130	31	52,156	84	121	1.5	**22215/C3W33VA9A1**
75	130	31	52,156	84	121	1.5	**22215/C4W33VA9A1**
80	140	33	59,574	91	129	2	**22216/C3W33VA9A1**
80	140	33	59,574	91	129	2	**22216/C4W33VA9A1**
85	150	36	71,939	96	139	2	**22217/C3W33VA9A1**
85	150	36	71,939	96	139	2	**22217/C4W33VA9A1**
90	150	72	102,288	97	143	1	**BS2B 243359C/VA9B1**
90	160	40	80,931	101	149	2	**22218/C3W33VA9A1**
90	160	40	80,931	101	149	2	**22218/C4W33VA9A1**
95	170	43	96,668	107	158	2	**22219/C3W33VA9A1**
95	170	43	96,668	107	158	2	**22219/C4W33VA9A1**
100	165	52	110,156	111	154	2	**23120/C3W33VA9B1**
100	165	52	110,156	111	154	2	**23120/C4W33VA9B1**
100	180	46	106,784	112	168	2	**22220/C3W33VA9A1**
100	180	46	106,784	112	168	2	**22220/C4W33VA9A1**
100	180	60.3	134,885	112	168	2	**23220/C3W33VA9B1**
100	180	60.3	134,885	112	168	2	**23220/C4W33VA9B1**
110	170	60	139,382	119	161	2	**24022/C3W33VA9B1**
110	170	60	139,382	119	161	2	**24022/C4W33VA9B1**
110	200	53	139,382	122	188	2	**22222/C3W33VA9A1**
110	200	53	139,382	122	188	2	**22222/C4W33VA9A1**
110	180	56	131,513	121	169	2	**23122/C3W33VA9B1**
110	180	56	131,513	121	169	2	**23122/C4W33VA9B1**
110	180	69	168,607	121	169	2	**24122/C3W33VA9B1**
110	180	69	168,607	121	169	2	**24122/C4W33VA9B1**
120	215	58	168,607	132	203	2	**22224/C3W33VA9A1**
120	215	58	168,607	132	203	2	**22224/C4W33VA9A1**
120	260	86	251,786	134	246	2.5	**22324/C3W33VA9B1**
120	260	86	251,786	134	246	2.5	**22324/C4W33VA9B1**
120	180	60	150,622	129	171	2	**24024/C3W33VA9B1**
120	180	60	150,622	129	171	2	**24024/C4W33VA9B1**
130	200	69	183,219	139	191	2	**24026/C3W33VA9B1**
130	200	69	183,219	139	191	2	**24026/C4W33VA9B1**
130	210	80	224,809	141	199	2	**24126/C3W33VA9B1**
130	210	80	224,809	141	199	2	**24126/C4W33VA9B1**
140	210	69	202,328	149	201	2	**24028/C3W33VA9B1**
140	210	69	202,328	149	201	2	**24028/C4W33VA9B1**
140	225	85	260,778	152	213	2	**24128/C3W33VA9B1**
140	225	85	260,778	152	213	2	**24128/C4W33VA9B1**
150	225	56	168,607	161	214	2	**23030/C3W33VA9B1**
150	225	56	168,607	161	214	2	**23030/C4W33VA9B1**
150	225	75	233,801	161	214	2	**24030/C3W33VA9B1**
150	225	75	233,801	161	214	2	**24030/C4W33VA9B1**
150	250	100	343,958	162	238	2	**24130/C3W33VA9B1**
150	250	100	343,958	162	238	2	**24130/C4W33VA9B1**
160	340	114	440,626	177	323	3	**22332/C3W33VA9B1**
160	340	114	440,626	177	323	3	**22332/C4W33VA9B1**
160	240	80	269,771	171	229	2	**24032/C3W33VA9B1**
160	240	80	269,771	171	229	2	**24032/C4W33VA9B1**
160	270	109	395,664	172	258	2	**24132/C3W33VA9B1**
160	270	109	395,664	172	258	2	**24132/C4W33VA9B1**
170	260	90	328,221	181	249	2	**24034/C3W33VA9B1**
170	260	90	328,221	181	249	2	**24034/C4W33VA9B1**

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Heat treatment: Stabilization class S1, up to 392°F (200°C)
Recommended speed limit for continuous caster operations is <50 rpm

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