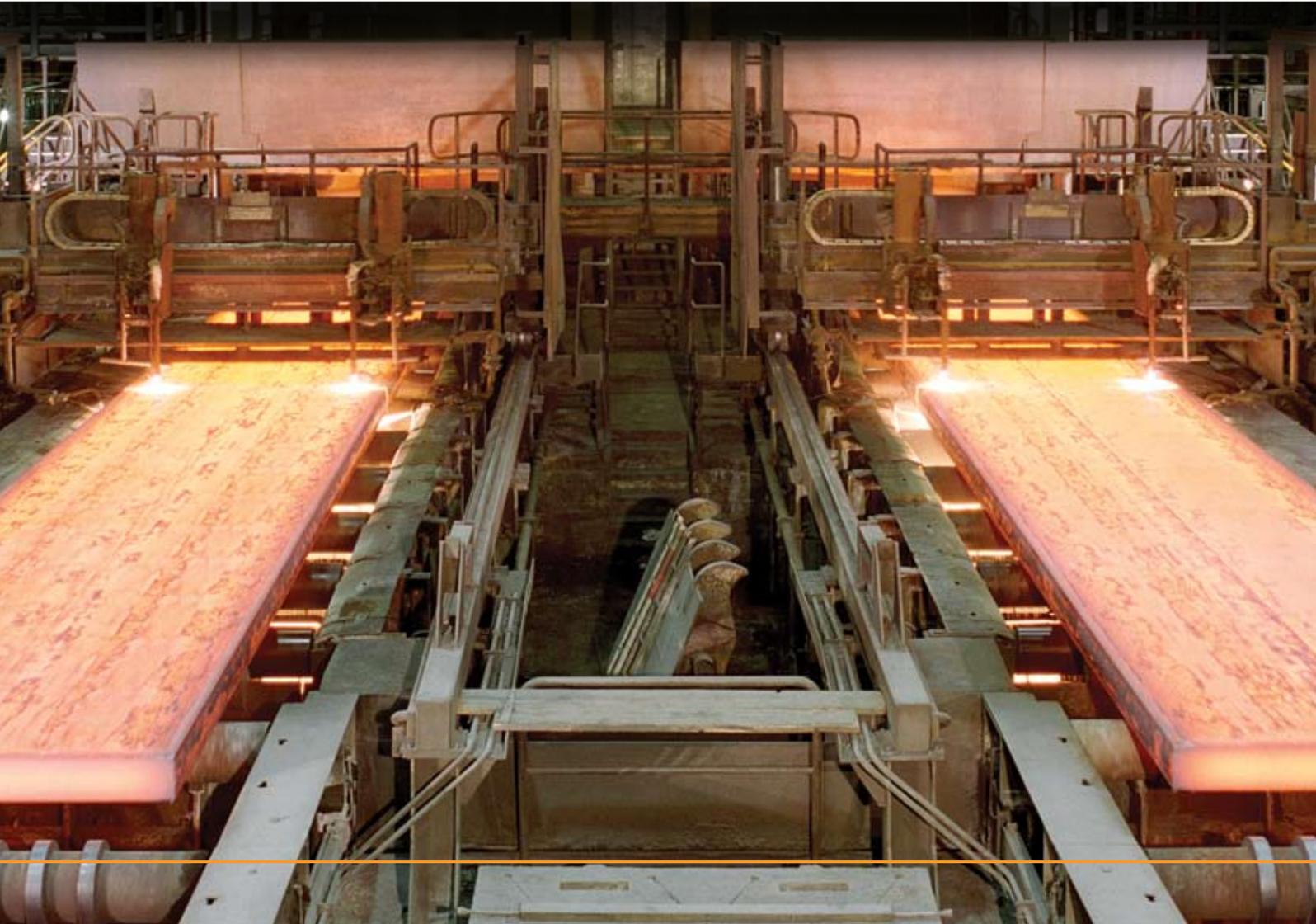


TIMKEN
Where You Turn

Reliable Solutions for Continuous Casters



For More Than A Century, Our Standards Have Set The Standard

Around the world, companies turn to Timken for innovation and reliability. With expertise in materials science and precision manufacturing, we leverage more than 100 years of experience helping our customers solve their toughest technical problems in the world's most demanding applications.



Industry Experience

The continuous caster is one of the most challenging environments for bearings. In many critical positions, they are subject to high loads and low rotational speeds, often at elevated temperatures. Many bearings must also perform in an environment heavily contaminated with water, steam and scale.

As a steelmaker, Timken understands the challenges of this high-capacity, high-heat application. We know that every bearing in the caster – from the ladle turret, down through the bender and segments, to the discharge area – must deliver reliable performance. That is why the industry's leading machine builders and operators turn to Timken for their continuous caster solutions.

Technology and Innovation

As an innovation leader, Timken invests more than \$50 million annually in our global technology organization. This investment provides a significant return, allowing Timken to develop innovative new products and technologies that set standards within the primary metals industry.

Friction Management Solutions – A Total System Approach

At Timken, we integrate bearings, lubrication, seals, repair services, maintenance practices, gears, condition monitoring and training to address a variety of customer requirements. As your needs change, we continue to leverage our capabilities to offer a broader array of bearings, related products and integrated services.

Global Presence

With nearly 200 technology, manufacturing, sales and distribution facilities in 26 countries, Timken has a global network and commitment to quality to meet our customers' needs throughout the world. Timken worldwide quality standards are implemented in every plant to ensure global consistency in design and manufacturing.



The Caster Challenge

- Cost associated with machine operation and downtime and the impact on downstream operations
- Maintenance and repair of segment roll bearings and housings
- Controlling costs per ton and maintenance budgets

The Timken Solution

- Improved product reliability and performance increases mill uptime and productivity
- Advanced product design allows for quick and easy segment rebuild and reinstallation
- Application knowledge associated with 40 years of experience supplying to the continuous casters market
- Reclamation services extend bearing life and reduce operating cost
- Field engineering support provides on-site trouble-shooting, technical assistance and training

An insider's knowledge of steelmaking and continuous casting makes Timken a trusted resource for your operations.

Photos taken from inside Timken's Harrison Steel Plant.

Timken® Bearings for Continuous Casters

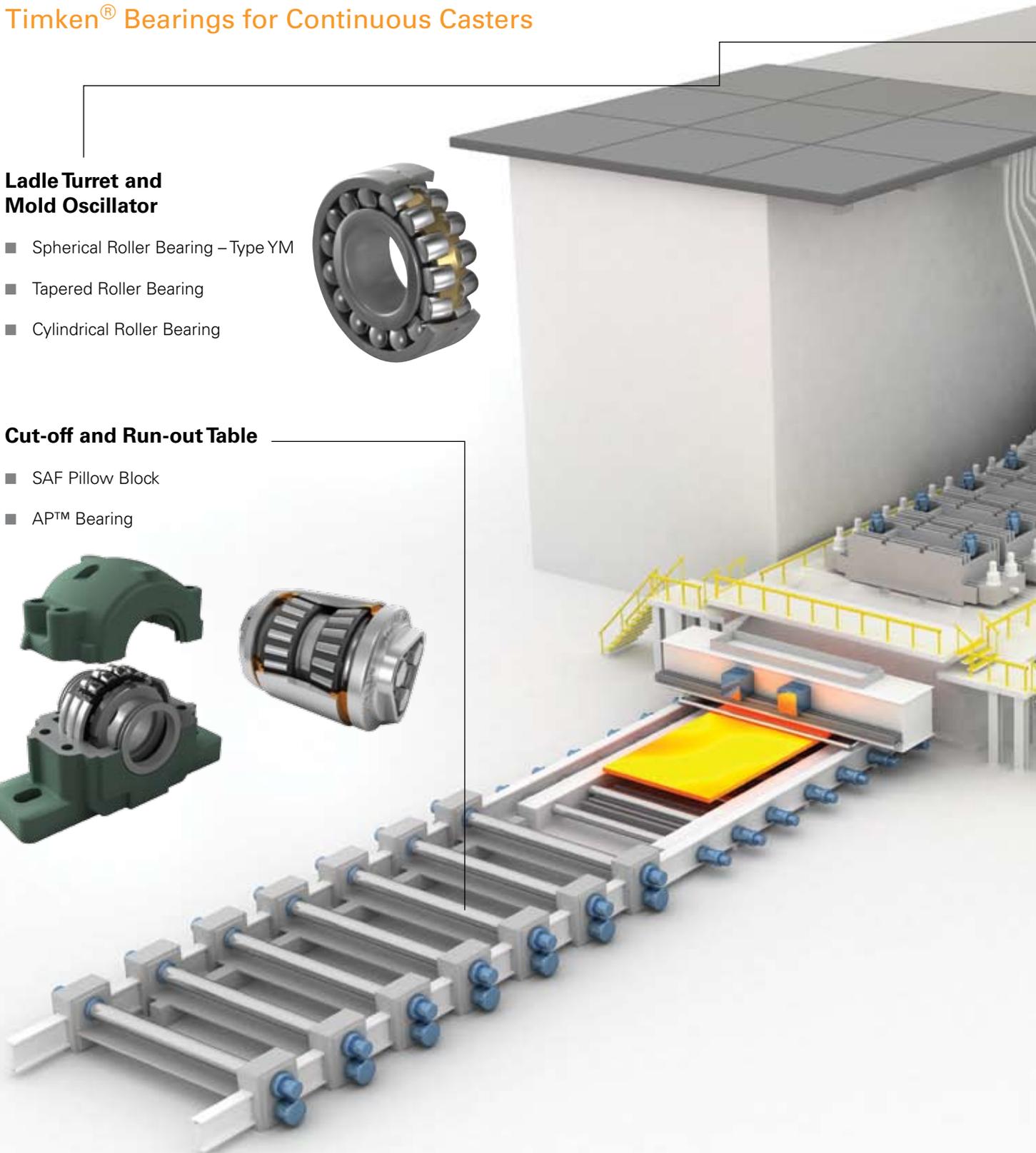
Ladle Turret and Mold Oscillator

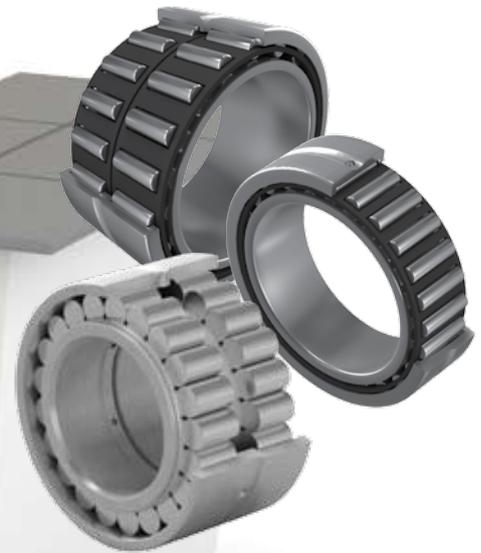
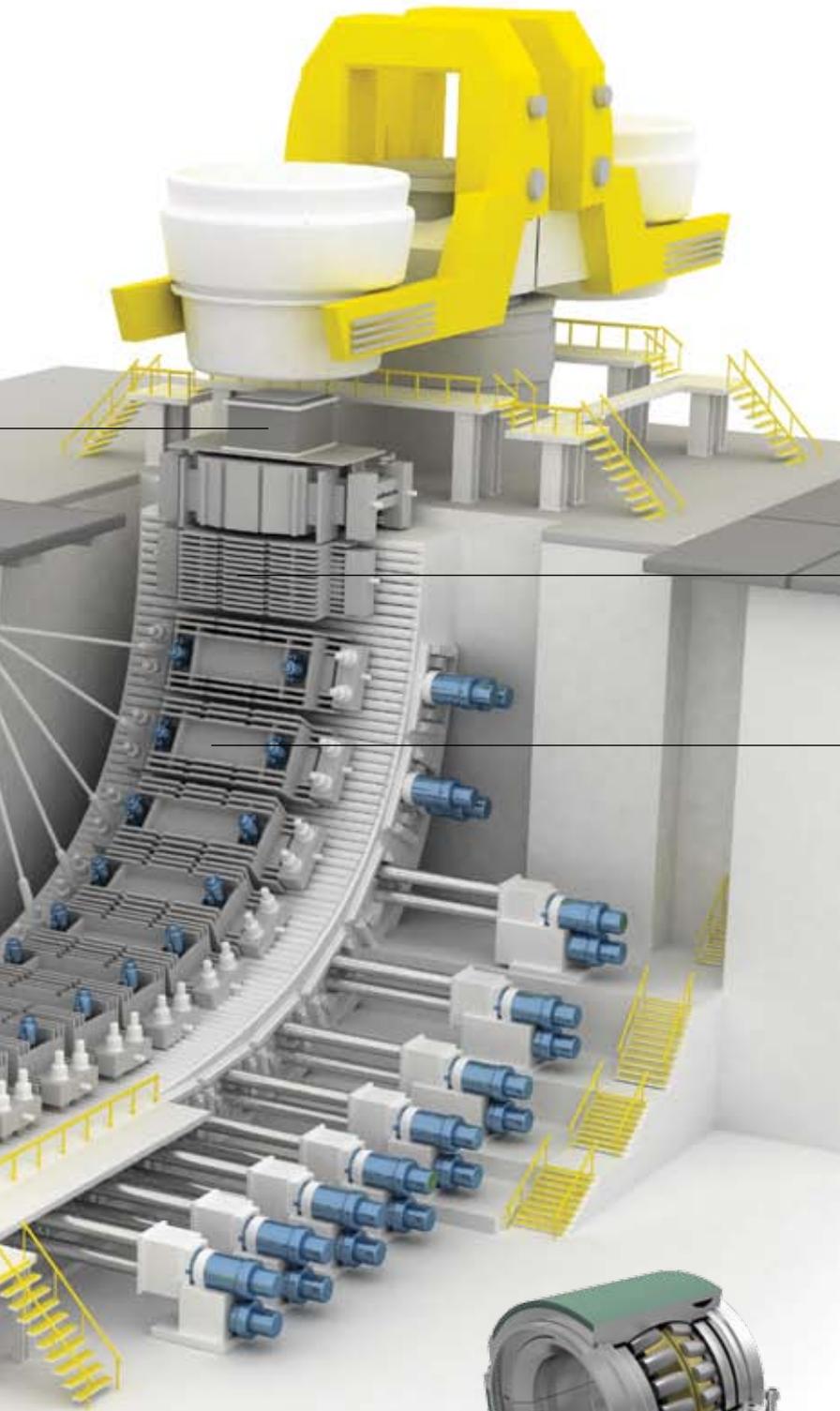
- Spherical Roller Bearing – Type YM
- Tapered Roller Bearing
- Cylindrical Roller Bearing



Cut-off and Run-out Table

- SAF Pillow Block
- AP™ Bearing





Foot Rolls and Bender

- NA49 Needle Roller Bearing
- NA69 Needle Roller Bearing
- Spherical Roller Bearing - Type CJ
- Cylindrical Roller Bearing - NNCF

Segments

- Split Spherical Roller Bearing
- Split Cylindrical Roller Bearing
- Spherical Roller Bearing – Type CJ and YM
- AP Bearing
- Cylindrical Roller Bearing
- Water Cooled Housing



Contact your Timken representative for more information on proper mounting and lubrication practices for your application.

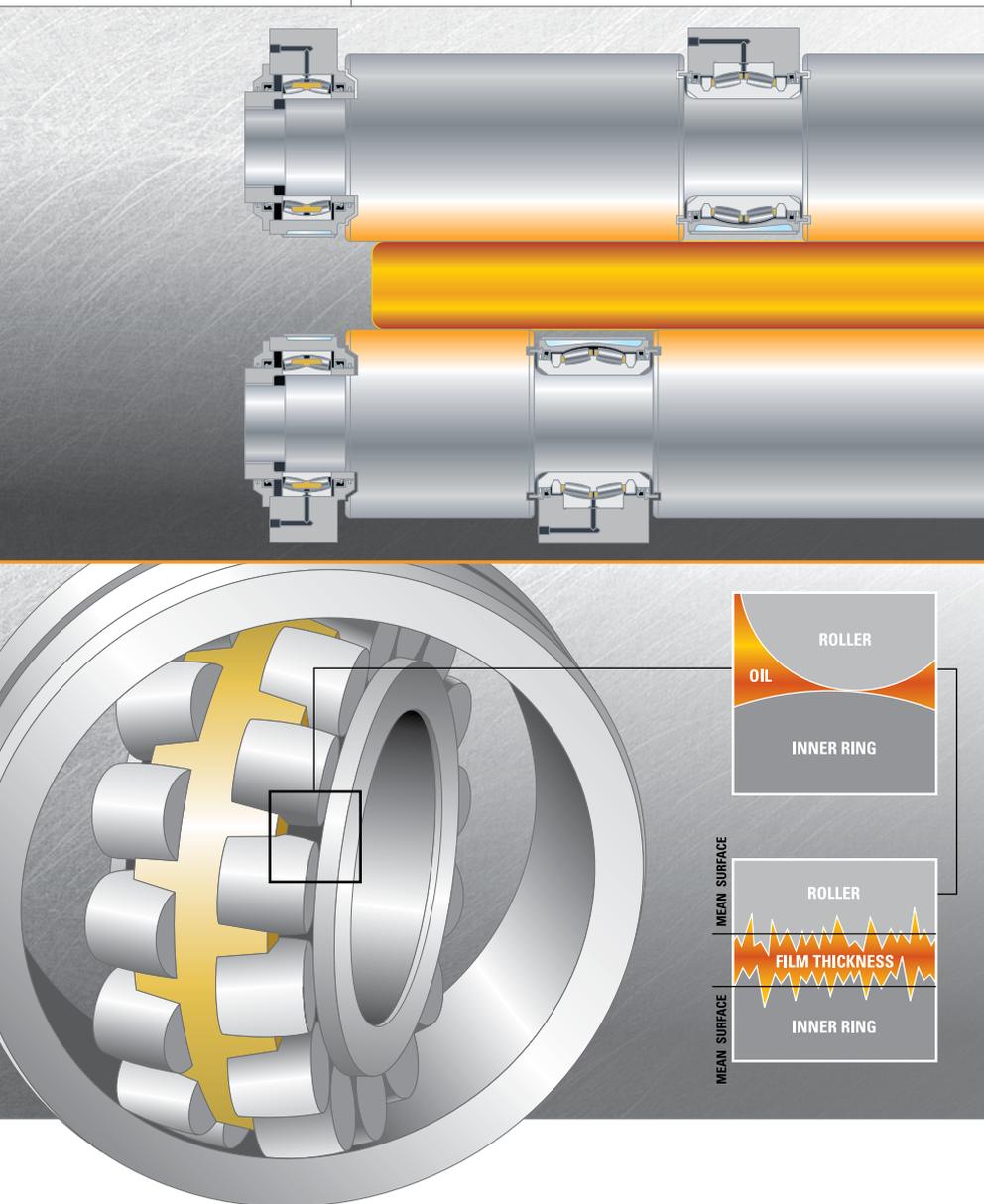
Mounting

The majority of bearing applications in a continuous caster adopt standard fitting practices, which is to tight fit the bearing ring that rotates and to loose fit the stationary ring.

There are some exceptions, that can vary by supplier. For example, the foot roll bearings located immediately beneath the mold are often replaced on a regular schedule, regardless of condition. This process can be simplified by using loose or transition fits for the rotating ring of the bearing.

This exception also applies to split spherical roller bearings that are used for intermediate support of the driven segment rolls. These positions must be able to accommodate axial float because the roll will change in length according to temperature. This is achieved by loose fitting the bearing inner ring on the roll journal, allowing it to move back and forth through the bore of the bearing.

Mounting tools are highly recommended to ensure proper bearing installation and removal. Timken offers a full line of tools designed to help extend bearing life and ease maintenance practices. Induction heaters provide a fast, controlled and environmentally friendly heating method to aid in bearing mounting. Pullers are recommended for the removal of many kinds of shaft-fitted parts. Timken has a wide range of self-contained portable hydraulic pulling systems with capacities from four to 30 tons.



Lubrication

Proper lubrication is critical to bearing and machine performance. Timken application and environment-specific grease lubricants have been developed from our knowledge of tribology, anti-friction bearings and how these two properties affect overall system performance. Timken offers a choice of premium ISO460 grease for continuous casters.

For continuous casters, the most widely used lubrication method is the centralized grease distribution system. Several separate systems are used serving a discrete caster section. These systems pump a relatively small amount of grease at frequent intervals to the bearing. The grease quantity is typically less than 5cc (0.3 in³), but the frequency is typically six to 10 times per hour. This frequent cycle keeps the bearing full with fresh grease while also purging old grease and contaminants.

An alternative is the air-oil system, which uses compressed air to drive a film of oil through distribution pipes to the bearings. These systems operate continuously to keep fresh lubricant flowing while purging the bearing. The air-oil systems can operate with significantly reduced lubricant consumption. Consult with a Timken engineer for air-oil application.

The bearing positions associated with the support of the slab combine high loads and elevated temperatures with low rotational speed. This presents difficulties in creating a lubricant film between the bearing's rollers and raceways. A lubricant viscosity of more than 3000cSt/15000SUS would be required to maintain a lubricant film, but distribution systems are limited to a maximum of about 600cSt/2000SUS. High viscosity

base oil greases in the segment positions must also be selected to resist corrosion and aid in sealing as a result of continuous exposure to secondary cooling water spray and hard debris contamination.

Bearing Reclamation

With nearly 90 years of experience owning and operating our own steel mills, Timken understands the maintenance needs of today's mills from the inside out. We leverage this knowledge to develop and refine maintenance services for the primary metals industry that extend component life and lower costs per ton.

Developed for continuous caster bearings, Timken's bearing reclamation services are ideal for smaller bearings used in large quantities. Segment roll maintenance is expensive. Our bearing reclamation services can reduce your cost of operation by returning refurbished bearings to service for the fraction of the cost. Regardless of the original manufacturer or type of bearing, our services are backed by the Timken name and quality standards.

Our skilled repair specialists are experienced in recognizing various types of damage and the operating conditions that impact bearing performance. Our process begins with an initial inspection to determine the level of service required. Serviceable bearings are disassembled, run through our proprietary polishing agent, reassembled and preserved. Reclaimed bearings are then returned to the customer with a written report and one-year limited warranty. A typical turn-around time is generally two weeks or less.



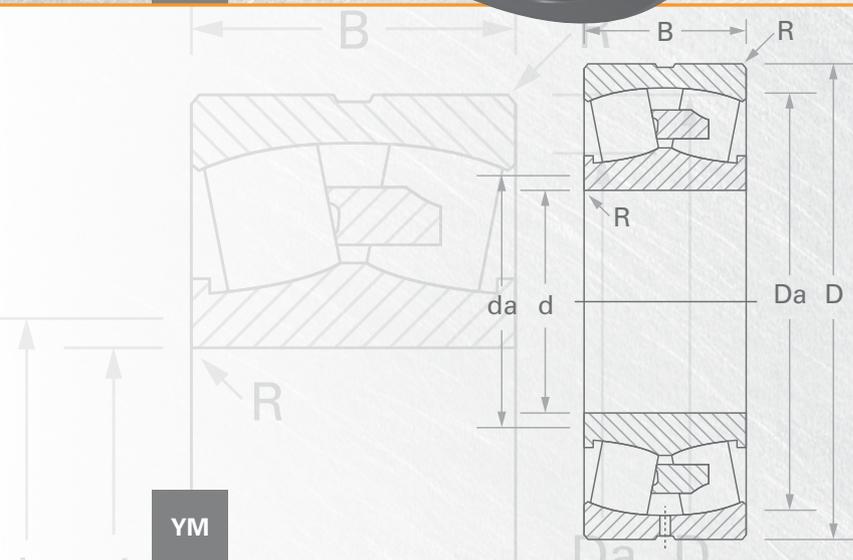
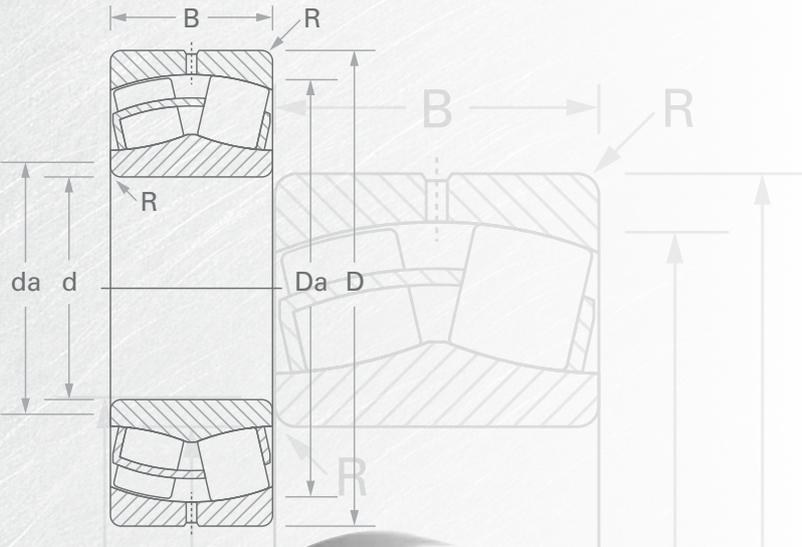
Timken's bearing reclamation services can reduce your cost of operation by returning refurbished bearings to service.

The bearing designs chosen for this catalog represent common products found in continuous casters. Contact your Timken sales representative or visit www.timken.com/catalogs to learn more about our complete line of products for your application.

Spherical Roller Bearings – Type CJ and YM



CJ



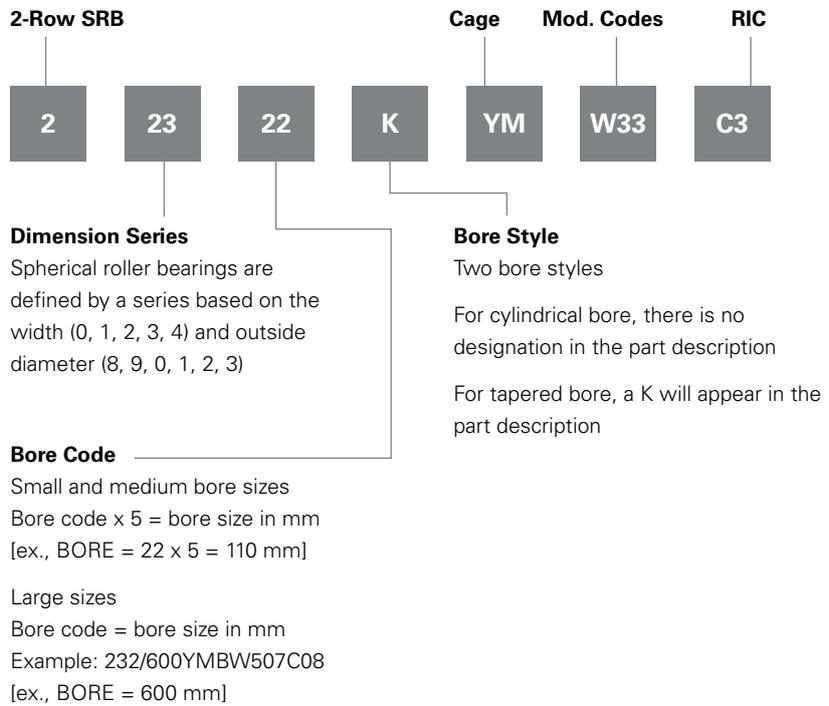
YM



Design Benefits:

- Advanced bearing steel offers improved cleanliness and heat stability for high load capacity and wear resistance.
- Rugged steel and brass retainers provide high static load capacity with maximum number of large rollers.
- Advanced geometry reduces friction and heat generation.
- Expanded internal clearance tolerates higher operating temperatures.
- Improved surface finishes promote lubrication at slow speeds.
- Plain O.D. outer ring option deters fractures from high static loads and impact.

Nomenclature



W33



W841



W901



W33W89



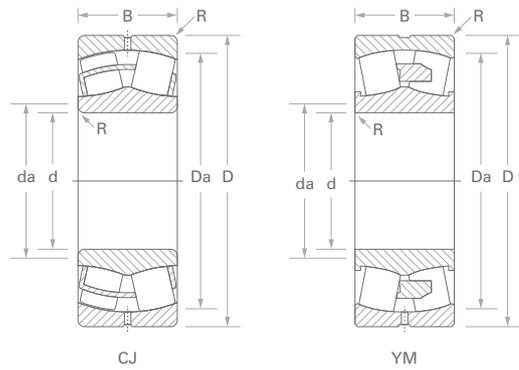
W33W94

Modification Codes

Timken	SKF	FAG	Timken General Definition
W20	W20	SY	Outer ring with standard lubrication holes
W31	W31	*****	Bearing inspected to certain quality control requirements
W33	W33	S	Outer ring with standard lube groove and lube holes
W89	W26	H40AA	Inner ring with lube groove and lube holes, lube grooves in faces of retainer
W94	W26	H40A	Inner ring with lube holes, lube grooves in faces of retainer
W841	*****	*****	Plain outer-ring O.D. (no lube groove or holes) plus W31
C1 to C5	C1 to C5	C1 to C5	Radial internal clearance code
K	K	K	Standard tapered bore (refer to Note 1)
Note 2	S1	S1	Inner and outer rings stabilized for operation up to 200° C / 392° F
S2	S2	S2	Inner and outer rings stabilized for operation up to 250° C / 482° F
S3	S3	S3	Inner and outer rings stabilized for operation up to 300° C / 572° F
S4	S4	S4	Inner and outer rings stabilized for operation up to 350° C / 662° F

Note 1: Standard taper for 222, 223, 230, 231, 232 and 239 series is 1:12
Standard taper for 248, 249, 240, 241 and 242 series is 1:30

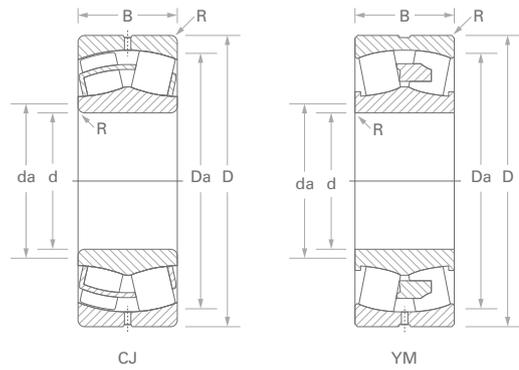
Note 2: Timken standard heat stabilizing treatment is S1



Spherical Roller Bearings – Type CJ and YM

Bearing Number	d Bore	D O.D.	B Width	R Fillet(1) (max)	Backing Diameter		Load Ratings	
					d _a Shaft	D _a Housing	Static Load Rating C ₀	Dynamic Load Rating C
					mm	mm	kN	kN
22205CJ	25	52	18.0	1.0	30	47	43.0	44.0
22206CJ	30	62	20.0	1.0	38	56	61.0	58.0
22207CJ	35	72	23.0	1.0	45	65	88.0	78.0
22208CJ	40	80	23.0	1.0	50	72	100	90.0
22308CJ	40	90	33.0	1.5	53	81	148	133
22209CJ	45	85	23.0	1.0	55	77	108	94.0
22209YM	45	85	23.0	1.0	55	77	101	90.0
22309CJ	45	100	36.0	1.5	58	90	182	162
22210CJ	50	90	23.0	1.0	59	82	118	101
22310CJ	50	110	40.0	2.0	64	98	226	197
22211CJ	55	100	25.0	1.5	66	91	142	120
22311CJ	55	120	43.0	2.0	69	107	248	221
22212CJ	60	110	28.0	1.5	72	100	174	146
22312CJ	60	130	46.0	2.0	75	117	312	269
22213CJ	65	120	31.0	1.5	78	109	217	177
22313CJ	65	140	48.0	2.0	82	126	333	290
22214CJ	70	125	31.0	1.5	84	115	231	184
22314CJ	70	150	51.0	2.0	87	131	385	331
22215CJ	75	130	31.0	1.5	88	120	241	191
22315CJ	75	160	55.0	2.0	93	140	456	387
22216CJ	80	140	33.0	2.0	95	129	278	218
22316CJ	80	170	58.0	2.0	97	148	510	427
22217CJ	85	150	36.0	2.0	101	139	320	255
22317CJ	85	180	60.0	2.5	106	158	591	474
22317YM	85	180	60.0	2.5	106	158	591	474
22218CJ	90	160	40.0	2.0	105	146	388	303
23218CJ	90	160	52.0	2.0	104	146	504	369
22318CJ	90	190	64.0	2.5	110	167	642	529
22219CJ	95	170	43.0	2.0	112	152	383	289
22319CJ	95	200	67.0	2.5	122	180	774	587
23120YM	100	165	52.0	2.0	112	151	575	379
22220CJ	100	180	46.0	2.0	119	160	484	373
23220YM	100	180	60.3	2.0	118	165	646	463

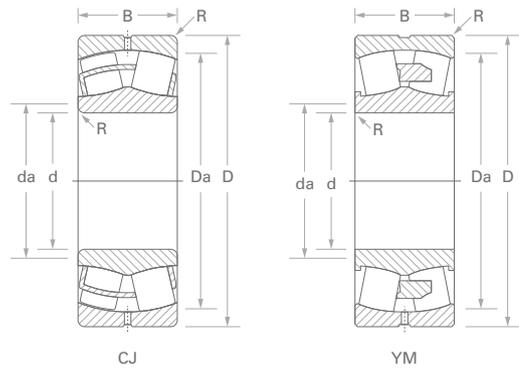
(1) Maximum shaft or housing fillet radius that bearing corners will clear
For additional information, visit www.timken.com/catalogs



Spherical Roller Bearings – Type CJ and YM

Bearing Number	d Bore	D O.D.	B Width	R Fillet(1) (max)	Backing Diameter		Load Ratings	
					d _a Shaft	D _a Housing	Static Load Rating C ₀	Dynamic Load Rating C
					mm	mm	kN	kN
22320CJ	100	215	73.0	2.5	125	187	756	586
23122CJ	110	180	56.0	2.0	127	169	615	377
24122CJ	110	180	69.0	2.0	124	164	676	448
22222YM	110	200	53.0	2.0	132	179	627	475
23222YM	110	200	69.8	2.0	130	183	853	596
22322YM	110	240	80.0	2.5	139	208	962	733
23024CJ	120	180	46.0	2.0	134	169	564	352
24024CJ	120	180	60.0	2.0	131	164	642	393
23124CJ	120	200	62.0	2.0	142	189	803	524
24124CJ	120	200	80.0	2.0	136	181	923	590
22224CJ	120	215	58.0	2.0	142	192	667	475
22324CJ	120	260	86.0	2.5	151	225	1090	825
23026CJ	130	200	52.0	2.0	146	187	703	446
24026CJ	130	200	69.0	2.0	144	182	795	501
23126CJ	130	210	64.0	2.0	149	195	888	562
24126CJ	130	210	80.0	2.0	147	190	967	608
22226CJ	130	230	64.0	2.5	152	206	805	562
22326CJ	130	280	93.0	3.0	161	242	1270	952
23028CJ	140	210	53.0	2.0	156	197	764	471
24028CJ	140	210	69.0	2.0	154	192	899	527
23128YM	140	225	68.0	2.0	159	209	1010	636
24128CJ	140	225	85.0	2.0	156	203	1120	701
22228CJ	140	250	68.0	2.5	166	225	930	646
22328CJ	140	300	102.0	3.0	174	262	1520	1120
23030YM	150	225	56.0	2.0	169	211	872	521
24030CJ	150	225	75.0	2.0	166	206	1000	603
23130YM	150	250	80.0	2.0	172	230	1320	837
24130CJ	150	250	100.0	2.0	169	225	1400	901
22230CJ	150	270	73.0	2.5	179	242	1100	752
23230YM	150	270	96.0	2.5	175	247	1590	1060
22330CJ	150	320	108.0	3.0	186	280	1720	1260
23032YM	160	240	60.0	2.0	179	225	979	591
24132CJ	160	270	109.0	2.0	181	248	1736	1069

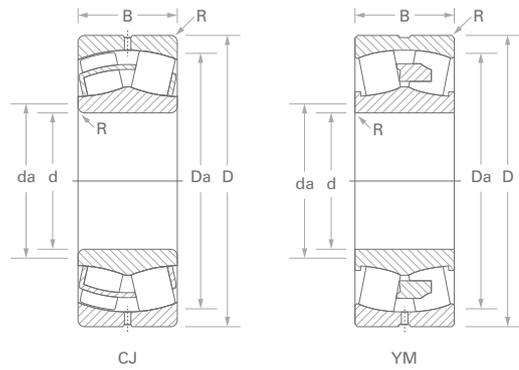
(1) Maximum shaft or housing fillet radius that bearing corners will clear
For additional information, visit www.timken.com/catalogs



Spherical Roller Bearings – Type CJ and YM

Bearing Number	d Bore	D O.D.	B Width	R Fillet(1) (max)	Backing Diameter		Load Ratings	
					d _a Shaft	D _a Housing	Static Load Rating C ₀	Dynamic Load Rating C
					mm	mm	kN	kN
24032CJ	160	240	80.0	2.0	173	224	1100	665
23132YM	160	270	86.0	2.0	189	244	1560	968
22232CJ	160	290	80.0	2.5	192	260	1280	864
23232YM	160	290	104.0	2.5	187	260	1680	1090
22332CJ	160	340	114.0	3.0	198	298	1920	1400
23034YM	170	260	67.0	2.0	192	243	1220	724
24034CJ	170	260	90.0	2.0	185	242	1430	851
23134YM	170	280	88.0	2.0	194	255	1670	1010
24134CJ	170	280	109.0	2.0	191	252	1840	1110
22234CJ	170	310	86.0	3.0	201	278	1450	999
23234YM	170	310	110.0	3.0	200	276	1960	1240
23036YM	180	280	74.0	2.0	204	261	1420	851
24036CJ	180	280	100.0	2.0	198	260	1700	992
23136YM	180	300	96.0	2.5	205	273	1810	1100
24136CJ	180	300	118.0	2.5	201	275	2050	1250
22236CJ	180	320	86.0	3.0	213	288	1540	1030
23236YM	180	320	112.0	3.0	209	288	2110	1330
22336YMB	180	380	126.0	3.0	222	334	2460	1760
23038YM	190	290	75.0	2.0	213	271	1540	901
24038CJ	190	290	100.0	2.0	211	264	1810	957
23138YM	190	320	104.0	2.5	218	290	2090	1250
24138CJ	190	320	128.0	2.5	211	286	2310	1350
22238YM	190	340	92.0	3.0	224	306	1810	1200
23238YM	190	340	120.0	3.0	221	306	2390	1490
22338YMB	190	400	132.0	4.0	236	350	2730	1900
23040YM	200	310	82.0	2.0	225	289	1760	1040
24040CJ	200	310	109.0	2.0	223	284	2080	1120
23140YM	200	340	112.0	2.5	230	308	2300	1390
24140YMB	200	340	140.0	2.5	226	308	2950	1690
22240YMB	200	360	98.0	3.0	236	323	2030	1330
23240YM	200	360	128.0	3.0	233	323	2720	1670
22340YMB	200	420	138.0	4.0	247	369	2950	2070
23044YM	220	340	90.0	2.5	247	313	1990	1130

(1) Maximum shaft or housing fillet radius that bearing corners will clear
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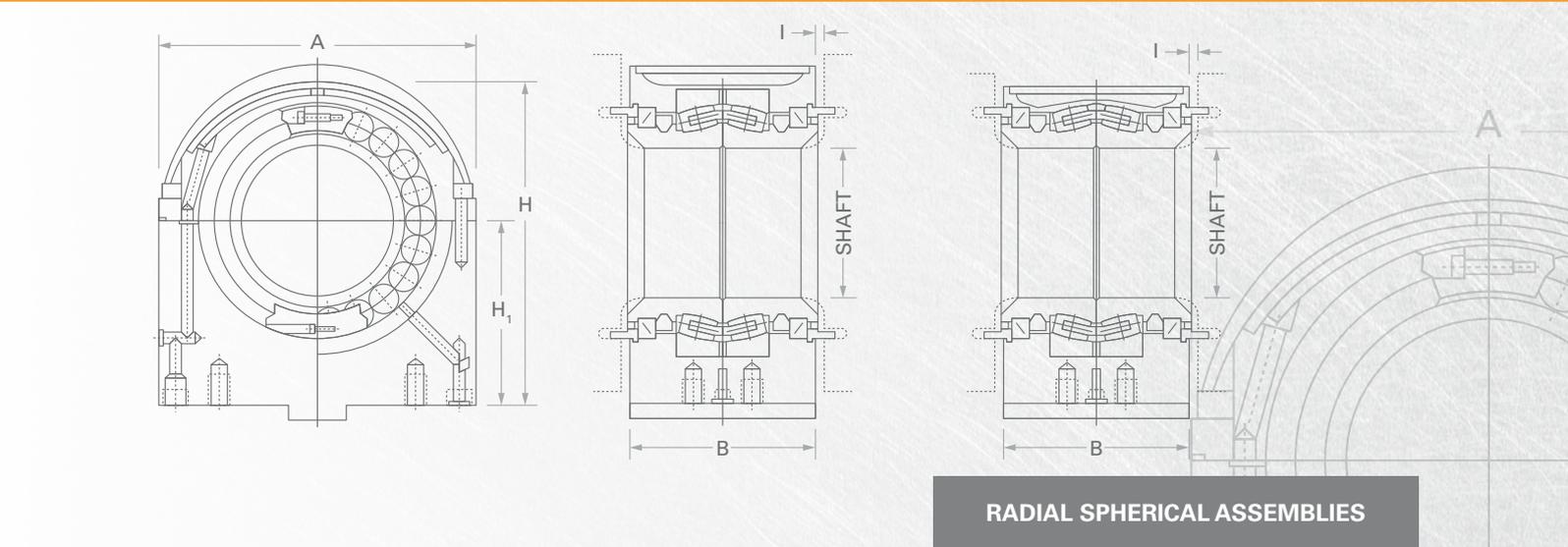
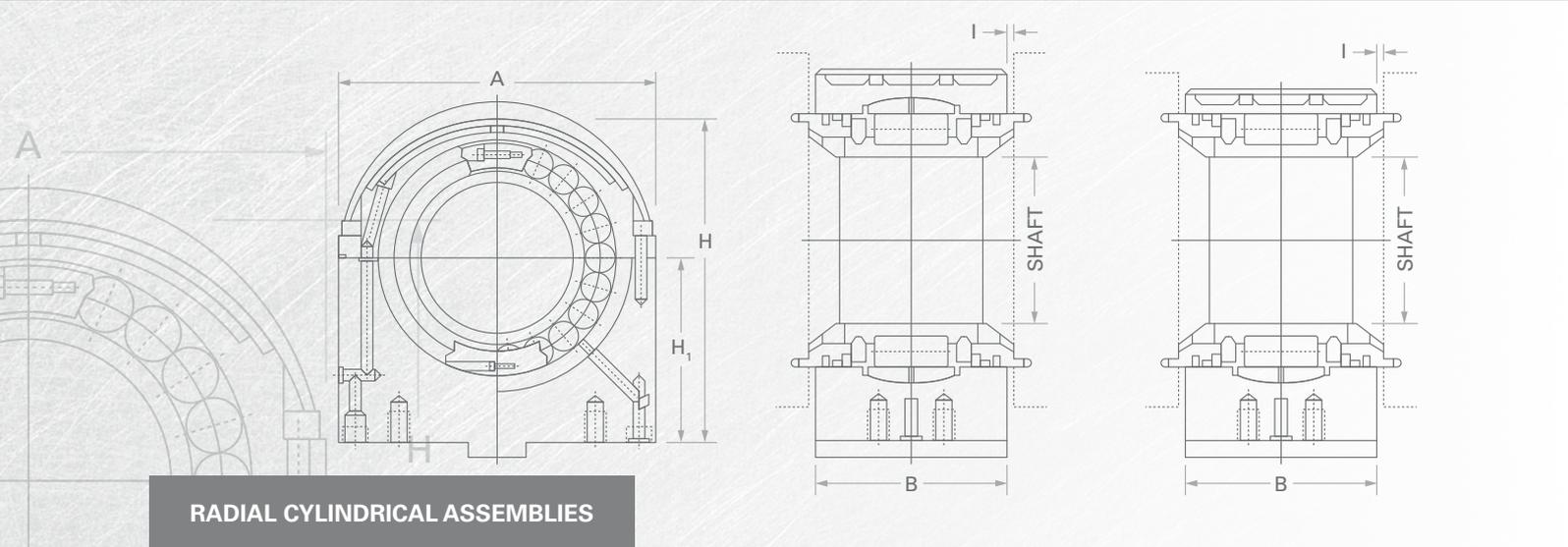


Spherical Roller Bearings – Type CJ and YM

Bearing Number	d Bore	D O.D.	B Width	R Fillet(1) (max)	Backing Diameter		Load Ratings	
					d _a Shaft	D _a Housing	Static Load Rating C ₀	Dynamic Load Rating C
					mm	mm	kN	kN
24044YM	220	340	118.0	2.5	245	313	2740	1450
23144YM	220	370	120.0	3.0	252	336	2760	1630
24144YMB	220	370	150.0	3.0	248	337	3250	1870
22244YMB	220	400	108.0	3.0	261	359	2330	1550
23244YM	220	400	144.0	3.0	257	359	3380	2080
22344YMB	220	460	145.0	4.0	273	404	3490	2400
23048YM	240	360	92.0	2.5	267	334	2150	1180
24048YM	240	360	118.0	2.5	265	334	2920	1500
23148YMB	240	400	128.0	3.0	276	364	3200	1850
24148YMB	240	400	160.0	3.0	271	364	4090	2250
22248YMB	240	440	120.0	3.0	284	395	2970	1960
23248YM	240	440	160.0	3.0	281	394	4190	2540
22348YMB	240	500	155.0	4.0	297	439	3990	2740
23052YM	260	400	104.0	3.0	291	369	2770	1540
24052YM	260	400	140.0	3.0	288	369	3870	1990
23152YMB	260	440	144.0	3.0	302	400	3970	2240
24152YMB	260	440	180.0	3.0	296	398	4840	2630
22252YMB	260	480	130.0	4.0	309	430	3530	2300
23252YM	260	480	174.0	4.0	308	430	4880	2930
22352YMB	260	540	165.0	5.0	321	475	4590	3130
23056YMB	280	420	106.0	3.0	312	389	2830	1540
24056YMB	280	420	140.0	3.0	310	388	4130	2030
23156YMB	280	460	146.0	4.0	320	419	4200	2330
24156YMB	280	460	180.0	4.0	319	419	5100	2670
22256YMB	280	500	130.0	4.0	331	449	3780	2360
23256YMB	280	500	176.0	4.0	329	450	5290	3070
22356YMB	280	580	175.0	5.0	345	511	5320	3590
23060YMB	300	460	118.0	3.0	336	425	3600	1970
24060YMB	300	460	160.0	3.0	334	423	5230	2560
23160YMB	300	500	160.0	4.0	345	453	5160	2810
24160YMB	300	500	200.0	4.0	338	455	6320	3380
22260YMB	300	540	140.0	4.0	355	484	4430	2760
23260YMB	300	540	192.0	4.0	353	482	6210	3510

(1) Maximum shaft or housing fillet radius that bearing corners will clear
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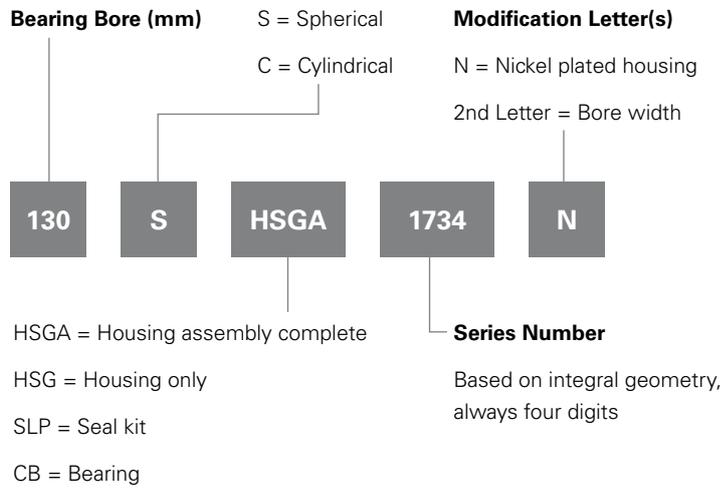
Split Spherical and Cylindrical Roller Bearings and Housing Assemblies

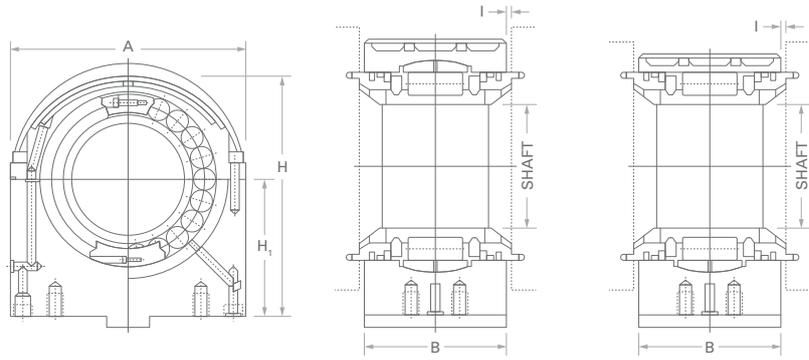


Design Benefits:

- Engineered specifically for challenging continuous slab caster environment.
- Available as full complement cylindrical or caged spherical roller bearings. The spherical bearing characteristics accommodate normal levels of misalignment. In cylindrical roller bearing assemblies, the housing accommodates misalignment.
- “Half-outer” ring design reduces cap height to maximize clearance between the cast slab.
- Water-cooled housings utilize Timken’s patented cooling chamber design, which maximizes the cooling area without introducing dead zones and subsequent hot spots.
- Triple sealing elements protect the bearing from contamination while also allowing lubricant purging in centralized grease and air-oil type systems.
- Super-finished rollers and races for improved operation at extremely slow speeds.

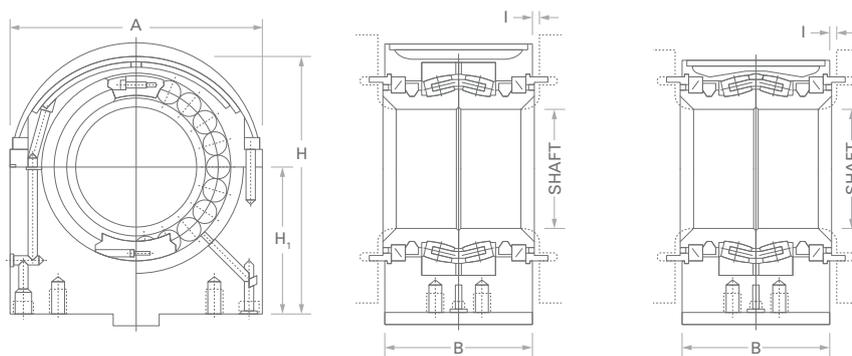
Nomenclature





Radial Cylindrical Assemblies

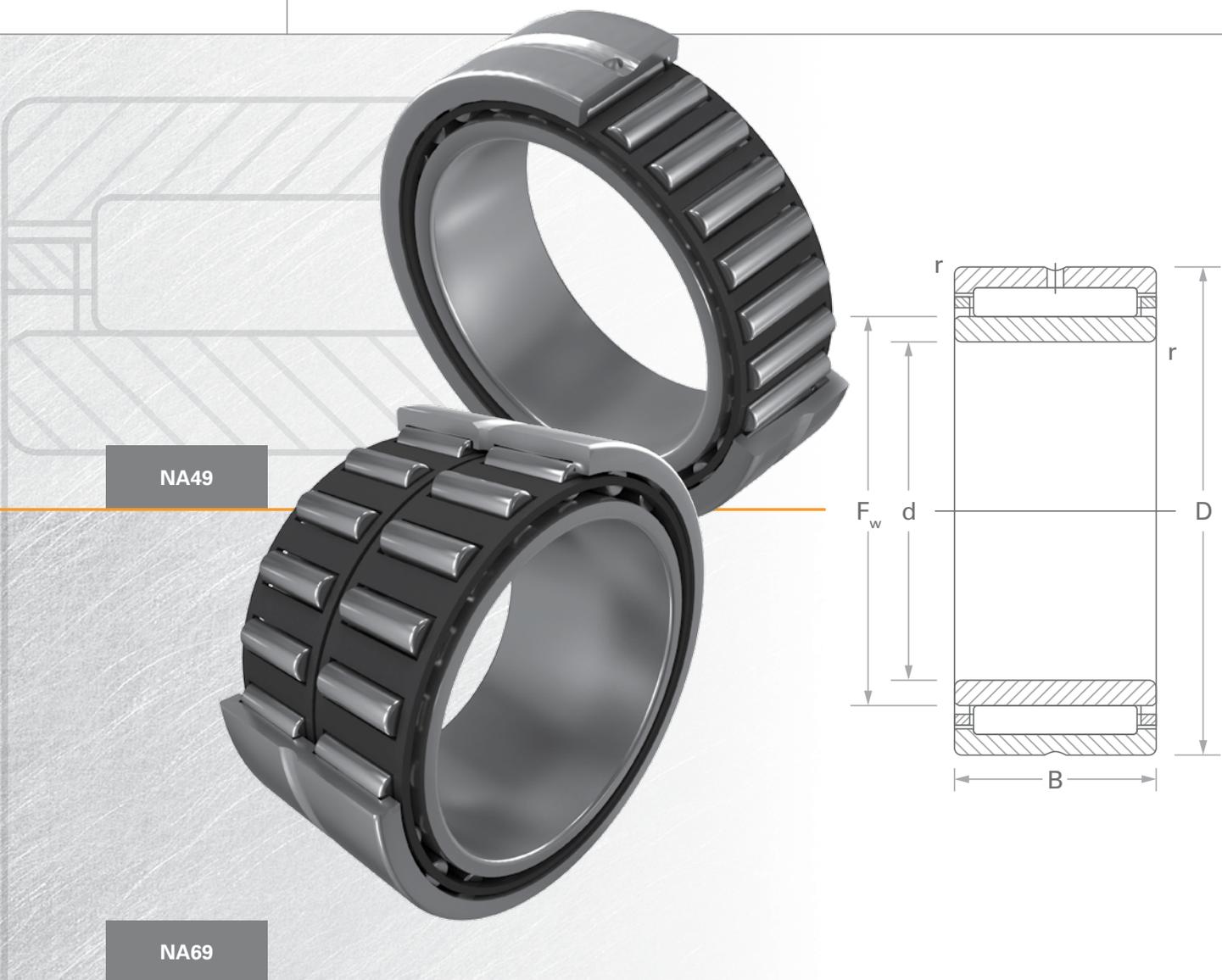
Housing Numbers	Shaft Dia.	A (max.) Width	B (max.) Length	H (max.) Height	H ₁ Shaft Height	I Side Clearance
	mm	mm	mm	mm	mm	mm
75CHSGA0610	75	175	59	202	130	3
75CHSGA0611	75	175	66	202	130	5
75CHSGA0914	75	175	94	202	130	5
90CHSGA0610	90	190	59	217	137.5	3
90CHSGA0611	90	190	66	217	137.5	5
90CHSGA1016	90	190	108	217	137.5	7.5
110CHSGA1320	110	240	134	275	175	6
130CHSGA1323	130	270	150	291	175	7
130CHSGA1323A	130	270	150	291	175	7
140CHSGA1216	140	271	140	310	180	10
140CHSGA1423	140	235	129	283	175	8.5
145CHSGA1624	145	300	170	306	175	7.5
150CHSGA1318	150	291	150	330	190	10
150CHSGA1624	150	300	170	306	175	7.5
150CHSGA2031	150	330	180	363	220	9
160CHSGA1722	160	311	170	370	220	10
160CHSGA1726	160	320	180	353	210	2



Radial Spherical Assemblies

Housing Numbers	Shaft Dia.	A (max.) Width	B (max.) Length	H (max.) Height	H ₁ Shaft Height	I Side Clearance
	mm	mm	mm	mm	mm	mm
120SHSGA1218	120	270	132	290	170	1.5
120SHSGA1522	120	233.7	144	290	181	8
130SHSGA1521	130	290	144	310	180	1.5
130SHSGA1526	130	265	170	275	160	7.5
130SHGA1725	130	270	130	260	145	7
130SHSGA1734	130	270	170	298	180	8
140SHSGA1628	140	285	175	285	160	7.5
140SHSGA1723	140	310	153	330	190	2
140SHSGA1725	140	265	163	323.75	202.5	11
140SHSGA1935	140	285	175	318	192.5	8
150SHSGA1936	150	305	180	333	202.5	8
150SHSGA1936EN	150	305	180	336	205	8
150SHSGA2129	150	327.5	182	367.5	210	2.5
160SHSGA1729	160	310	185	310	170	7.5
160SHSGA2028	160	290	178	348.75	215	11
160SHSGA2030	160	310	176	310	170	7
160SHSGA2037	160	330	185	365	225	8
160SHSGA2037AN	160	330	185	365	225	8
170SHSGA2139	170	345	195	383	230	8

Needle Roller Bearings - NA49 and NA69



Design Benefits:

- Available in single row construction (series 49) and double row construction (series 69).
- Meets ISO standard 492 covering radial bearings. Radial internal clearance is in accordance with ISO Standard 5753.
- Low radial cross section with high radial dynamic and static load rating. Must be used with an axial bearing.
- Available with special clearance and higher stabilizing heat treatment to accommodate conditions normally found in continuous casters.
- Steel cage improves roller guidance and lubricating grease capacity. Available as sealed assembly (single or double) 110° C / 230° F maximum continuous operating temperature.
- Lubricating groove and holes in outer ring improve grease flow.

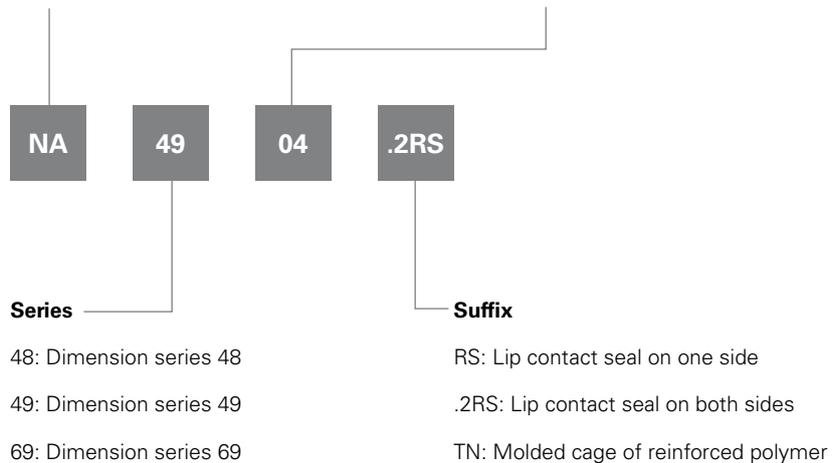
Nomenclature

Prefix

NA: Needle roller bearing with inner ring
 NJK: Needle roller bearing with inner ring
 NJKS: Needle roller bearing with inner ring
 NAO: Needle roller bearing with inner ring, without flanges

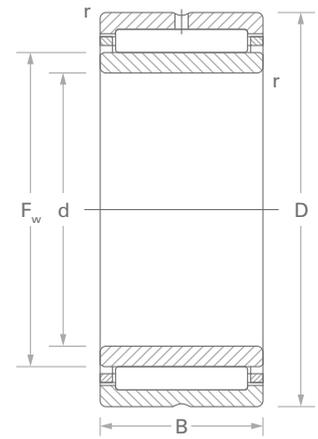
Inner Ring Bore Diameter

(for NA49, NA69: <17 mm bore)
 00 10 mm 00 10 mm
 01 12 mm 00 10 mm
 (for NA48, NA49, NA69: ≥20 mm bore)
 bore code x 5 = bore diameter



Modification Codes

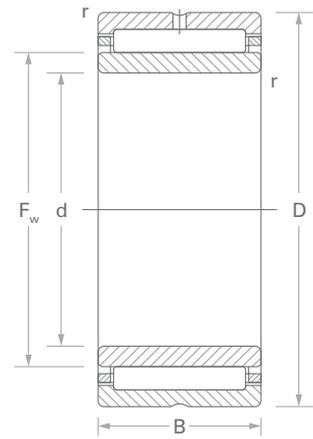
Timken	SKF	FAG	Timken General Definition
.200.250	.200.250	.200.250	Special radial internal clearance .min.max (micron)
.RS	.RS	.RS	One seal, nitrile rubber
.2RS	.2RS	.2RS	Two seals
S3	S3	S3	Inner and outer rings stabilized for operation up to 300° C / 572° F
S4	S4	S4	Inner and outer rings stabilized for operation up to 350° C / 662° F
TH	TH	TH	Molded cage of reinforced polymer



Needle Roller Bearings - NA49 and NA69

Dimensions mm						Bearing Designation	Load Ratings kN	
d	D	B	F _w	r _s min	s(1)		Dynamic	Static
							C	C ₀
25	42	17	30	0.3	1.5	NA4905	24.3	31.7
25	42	30	30	0.3	1.5	NA6905	39.7	59.6
28	45	17	32	0.3	1.5	NA49/28	25.1	33.8
28	45	30	32	0.3	1.5	NA69/28	37.1	55.4
30	47	17	35	0.3	1.5	NA4906	25.9	36
30	47	30	35	0.3	1	NA6906	42.6	68.2
32	52	20	40	0.6	1.5	NA49/32	32	49.3
32	52	36	40	0.6	1	NA69/32	48.6	84.5
35	55	20	42	0.6	1.5	NA4907	32.8	51.7
35	55	36	42	0.6	1	NA6907	49.9	88.7
40	62	22	48	0.6	1.5	NA4908	44.2	67.8
40	62	40	48	0.6	1.5	NA6908	70.8	124
45	68	22	52	0.6	2	NA4909	46.8	74.8
45	68	40	52	0.6	1.5	NA6909	74.7	137
50	72	22	58	0.6	2	NA4910	48.9	82
50	72	40	58	0.6	1.5	NA6910	75.7	144
55	80	25	63	1	2.5	NA4911	62	107

(1) See engineering section of the Timken Products Catalog for instructions on use
For additional information, visit www.timken.com/catalogs



Needle Roller Bearings - NA49 and NA69

Dimensions mm						Bearing Designation	Load Ratings kN	
d	D	B	F _w	r _s min	s(1)		Dynamic C	Static C ₀
55	80	45	63	1	2.5		NA6911	94.2
60	85	25	68	1	1.5	NA4912	64.8	116
60	85	45	68	1	2	NA6912	99.3	189
65	90	25	72	1	1.5	NA4913	66	121
65	90	45	72	1	2	NA6913	107	213
70	100	30	80	1	2.5	NA4914	86.3	157
70	100	54	80	1	2	NA6914	137	286
75	105	30	85	1	2.5	NA4915 (2)	92.4	175
75	105	54	85	1	2	NA6915	143	308
80	110	30	90	1	2.5	NA4916	91.5	176
80	110	54	90	1	2	NA6916	126	320
85	120	30	100	1.1	2.5	NA4917	110	230
85	120	63	100	1.1	2	NA6917	150	416
90	125	35	105	1.1	2.5	NA4918	114	245
90	125	63	105	1.1	2	NA6918	175	427

(1) See engineering section of the Timken Products Catalog for instructions on use

(2) Equivalent to part number AJ64029/RA64029

For additional information, visit www.timken.com/catalogs

Contact your Timken representative to learn more about our complete line of SAF pillow blocks, AP bearings and cylindrical roller bearings for continuous caster applications.



SAF Pillow Blocks

SAF Pillow Blocks

Design Benefits:

- Convenient split design facilitates assembly and disassembly.
- Timken spherical roller bearings develop maximum load capacity and can handle dynamic misalignment.
- Precision machined housing seat provides even load distribution and dependable float mountings.
- Can accommodate both inch and metric shafting.
- Allows grease or oil bath and can be easily adapted to circulating oil systems.
- Wide range of innovative designs provides effective sealing for different conditions and speeds.
- Timken engineers can help optimize performance for standard to specialized applications.
- Can accommodate condition monitoring and temperature sensors.

AP™ Bearings

Design Benefits:

- Self-contained, sealed and compact assembly offers savings in design and installation.
- Two-row tapered roller bearing configuration provides high dynamic and static radial load capacity together with thrust capacity.
- Case-carburized bearing components combine durable rolling surfaces with a ductile core to offer fracture toughness and wear and fatigue resistance.
- Large range of accessories and options facilitates flexibility in machine design.
- Assemblies are repairable, offering operational cost savings.

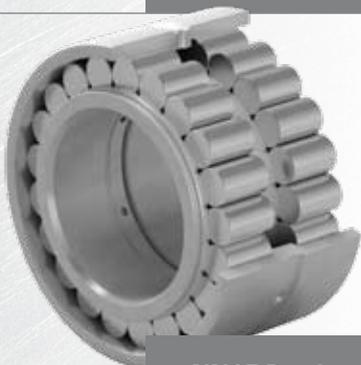


AP Bearings

Cylindrical Roller Bearings

Design Benefits:

- Single and double-row, full-complement cylindrical roller bearings (example NNCF5008 DA.V.C4.S3).
- Features include integral flanges on the inner and outer rings.
- Can manage axial loads in one direction and permit small axial displacements.
- Lubricating groove and holes in outer ring improve grease flow.



NNCF Bearings

Timken's friction management solutions for the primary metals industry extend beyond the bearing. From condition monitoring equipment to industrial greases, our full portfolio of related products and services are designed to boost your mill's productivity and increase bearing life.

Related Friction Management Solutions



Condition Monitoring

Timken's industrial portfolio of integrated services help customers to monitor and improve overall system performance. Our line of condition monitoring equipment evaluates the condition of a bearing, lubrication quality and machine vibration to identify potential system issues before bearing damage occurs.

Industrial Seals

Timken's line of seals feature a leading combination of quality, technology and coverage. These seals are developed using innovative material and process solutions to help protect machinery, prevent contamination and minimize plant downtime.

Lubricators

Timken G-Power and M-Power single-point lubricators deliver periodic grease or oil to bearings and other industrial equipment components. C-Power multi-point lubricators are a centralized lubrication system capable of delivering grease to up to six lubrication points. A full line of accessories offer easy installation and a host of mounting options for hard-to-reach locations.

Industrial Greases

Timken has a broad range of application and environment-specific grease lubricants, developed by leveraging our knowledge of tribology, anti-friction bearings, and how these two properties affect overall system performance.

Maintenance Tools

Timken understands the importance of proper maintenance procedures in maximizing product and equipment life. High-quality Timken maintenance tools help to extend bearing life in your application through proper installation, removal and service.

Customer Training

From mounting and advanced setting techniques to maintenance and damage analysis, Timken training seminars can provide practical hands-on knowledge and a comprehensive understanding of proper maintenance practices.

The Timken Company keeps the world turning, with innovative friction management and power transmission products and services, enabling our customers to perform faster and more efficiently. Timken is Where You Turn™ for better performance.

Timken is your source for continuous caster solutions. For more information, contact your Timken representative or visit timken.com.

Front cover photo courtesy of SMS Demag.

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Where You Turn

Bearings • Steel •
Precision Components • Lubrication •
Seals • Remanufacture and Repair •
Industrial Services

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