

Spherical roller bearings

Features

Spherical roller bearings are double row inseparable bearings, including outer rings with spherical raceways, inner rings with double raceways and drum rollers with cages. It has the characteristic of compensating the misalignment of the shaft. They're suitable for heavy load conditions. There are two types of inner rings, cylindrical bore and tapered bore.

Spherical roller bearings provide: E-type design, CC-type design, CA-type design.

E-type structure design: It consists of symmetrical rollers, a floating guide ring between two rows of rollers, an inner ring without ribs, two hardened stamped steel cages and an outer ring.

This type of bearing is a patented product of KMR. Its dynamic load rating has been increased by an average of 25% to 35%. Therefore, under the same conditions, the rated life of the bearing is 2.0-3.5 times that of the traditional structure bearing of the same type

CC type structure design: It consists of symmetrical rollers, two stamped steel cages, an inner ring without ribs, a floating guide ring between two rows of rollers and an outer ring.

CA-type structural design: It consists of symmetrical rollers, fork-shaped machined brass or steel cages, inner and outer rings with ribs.

Radial and axial load carrying capacity

Spherical roller bearings can bearing bidirectional axial forces and extremely high radial forces. The optimized fit between the rollers and the raceways ensures a uniform stress distribution in the bearing.

Bearings with Tapered bore

The inner ring of the spherical roller bearing has a tapered bore design.

Seals

KMR has a sealed series of spherical roller bearings.

Bearings with Cylindrical bore

All series of spherical roller bearing inner rings have a cylindrical bore design.

Spherical Roller Bearings for Vibrating Machinery

For machines that required eccentric motion, such as vibrating screens and compactors, KMR has developed a series of spherical roller bearings suitable for applications in vibration situations. These bearings are in the 223 series, with a cylindrical or tapered bore, with shaft diameters ranging from 40 to 240 mm, and a standard radial internal clearance of C4.

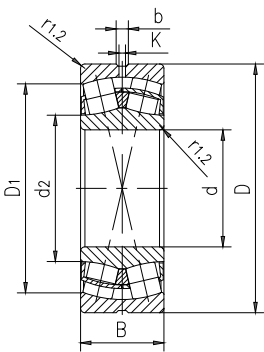
Existing bearings for vibrating machinery have been tested and verified to prove that they can greatly reduce the temperature and prolong the service life of the machine. KMR spherical roller bearings for vibration machinery have the following advantages: Applied in all kinds of vibrating machinery, it shows excellent performance. The performance of KMR bearings allows the design of more compact arrangements. High wear resistance even in polluted environments.



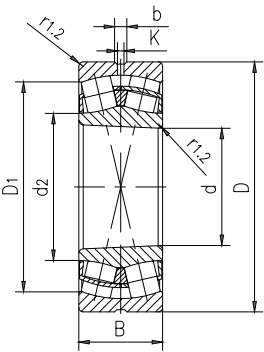
suffix for an existing design

Suffix	Meaning
BC	Bearing for wind turbine main shafts with roller-guided cast iron cage
CA CAC	Retaining langes on the inner ring, guide ring centred on the inner ring, machined brass
CC(J) CJ	Flangeless inner ring, guide ring centred on the inner ring, two stamped steel cages
CCJA EJA	Flangeless inner ring, guide ring centred on the outer ring raceway, two stamped steel cages
E	Optimized internal design for increased load carrying capacity 213, 222 and 223 series: Flangeless inner ring and two stamped steel cages Annular groove and three lubrication holes in the outer ring d ≤ 65 mm: Guide ring centred on the inner ring d > 65 mm: Guide ring centred on the cage
-CS -2CS	Contact seal, NBR, on one or both sides
-CS2 -2CS2	Contact seal, FKM, on one or both sides
-CS5 -2CS5	Contact seal, HNBR, on one or both sides
-RS -2RS	Contact seal, NBR, on one or both sides
-RS5 -2RS5	Contact seal, HNBR, on one or both sides
K	Tapered bore, taper 1:12
K30	Tapered bore, taper 1:30
F	Machined steel cage, inner ring centred
FA	Machined steel cage, outer ring centred
J	Stamped steel cage, inner ring centred
JA	Stamped steel cage, outer ring centred
MA	Machined brass cage, outer ring centred
C08	Running accuracy to P5 tolerance class
C083	C08 + C3
C084	C08 + C4
C2	Radial internal clearance smaller than Normal
C3	Radial internal clearance greater than Normal
C4	Radial internal clearance greater than C3
C5	Radial internal clearance greater than C4
P5	Dimensional and running accuracy to P5 tolerance class
P6	Dimensional and running accuracy to P6 tolerance class
P62	P6 + C2
235220	Case-hardened inner ring with a helical groove in the bore
HA3	Case-hardened inner ring

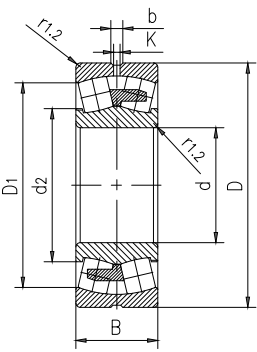
Spherical roller bearings



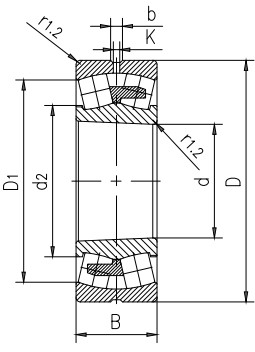
Cylindrical bore (CC)



Tapered bore(CC)

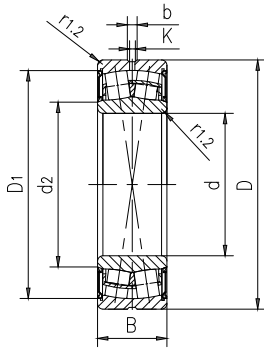


Cylindrical bore (CA)

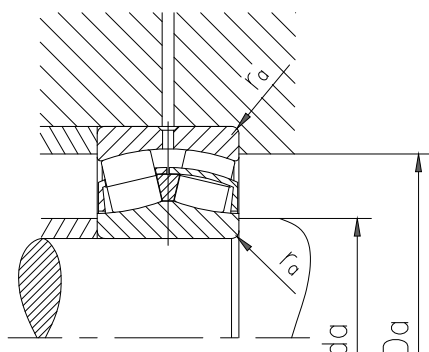


Tapered bore(CA)

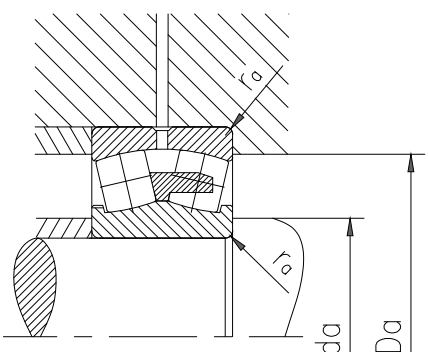
Type		Main dimensions			Dimensions					Shoulder and chamfer dimensions			
Bearing with cylindrical bore	Taper Hole												
		d	D	B	d ₂ ≈	D ₁ ≈	b	K	C	r _{1.2} min.	d _a min.	d _a max.	r _a max.
-		mm			mm					mm			
22356CC/W33	22356CCK/W33	280	580	175	354	492	22.3	12	6	306	—	554	5
23960CC/W33	23960CCK/W33	300	420	90	333	385	11.1	6	3	313	—	407	2.5
23060CC/W33	23060CCK/W33	300	460	118	340	414	16.7	9	4	315	—	445	3
23060-2CS5/VT143	23060-2CS5K/VT143	300	460	118	334	433	16.7	9	4	315	334	445	3
24060CC/W33	24060CCK30/W33	300	460	160	331	400	13.9	7.5	4	315	—	445	3
24060-2CS5/VT143	—	300	460	160	325	416	13.9	7.5	4	315	325	445	3
23160CC/W33	23160CCK/W33	300	500	160	345	434	16.7	9	5	320	—	480	4
23160-2CS5/VT143	23160-2CS5K/VT143	300	500	160	337	451	16.7	9	5	320	337	480	4
24160CC/W33	24160CCK30/W33	300	500	200	338	422	13.9	7.5	5	320	—	480	4
24160-2CS5/VT143	24160-2CS5K30/VT143	300	500	200	330	447	13.9	7.5	5	320	330	480	4
22260CC/W33	22260CCK/W33	300	540	140	354	477	22.3	12	5	311	—	520	4
23260CC/W33	23260CCK/W33	300	540	192	356	461	22.3	12	5	320	—	520	4
23964CC/W33	23964CCK/W33	320	440	90	354	406	11.1	6	3	333	—	427	2.5
23064-2CS5/VT143	23064-2CS5K/VT143	320	480	121	354	448	16.7	9	4	335	354	465	3
23064CC/W33	23064CCK/W33	320	480	121	360	434	16.7	9	4	335	—	465	3
24064CC/W33	24064CCK30/W33	320	480	160	354	423	13.9	7.5	4	335	—	465	3
23164CC/W33	23164CCK/W33	320	540	176	370	465	22.3	12	5	340	—	520	4
23164-2CS5/VT143	23164-2CS5K/VT143	320	540	176	361	483	22.3	12	5	340	361	520	4
24164CC/W33	24164CCK30/W33	320	540	218	364	455	16.7	9	5	340	—	520	4
22264CC/W33	22264CCK/W33	320	580	150	379	513	22.3	12	5	340	—	560	4
23264CC/W33	23264CCK/W33	320	580	208	382	493	22.3	12	5	340	—	560	4
23968CC/W33	23968CCK/W33	340	460	90	373	426	11.1	6	3	353	—	447	2.5
23068CC/W33	23068CCK/W33	340	520	133	385	468	22.3	12	5	358	—	502	4
24068CC/W33	24068CCK30/W33	340	520	180	377	453	16.7	9	5	358	—	502	4
23168CC/W33	23168	340	580	190	394	498	22.3	12	5	360	—	560	4
23168-2CS5/VT143	23168-2CS5K/VT143	340	580	190	385	515	22.3	12	5	360	385	560	4
24168ECCJ/W33	24168ECCK30J/W33	340	580	243	383	491	16.7	9	5	360	—	560	4
23268CA/W33	23268CAK/W33	340	620	224	427	528	22.3	12	6	366	—	594	5
23972CC/W33	23972CCK/W33	360	480	90	394	447	11.1	6	3	373	—	467	2.5
23072CC/W33	23072CCK/W33	360	540	134	404	483	22.3	12	5	378	—	522	4
24072CC/W33	24072CCK30/W33	360	540	180	397	474	16.7	9	5	378	—	522	4
23172CC/W33	23172CCK/W33	360	600	192	418	524	22.3	12	5	380	—	580	4
23172-2CS5/VT143	23172-2CS5K/VT143	360	600	192	408	541	22.3	12	5	380	408	580	4
24172ECCJ/W33	24172ECCK30J/W33	360	600	243	404	511	16.7	9	5	380	—	580	4
22272CA/W33	22272CAK/W33	360	650	170	454	568	22.3	12	6	386	—	624	5
23272CA/W33	23272CAK/W33	360	650	232	449	552	22.3	12	6	386	—	624	5



Sealed (CC / 2CS5)



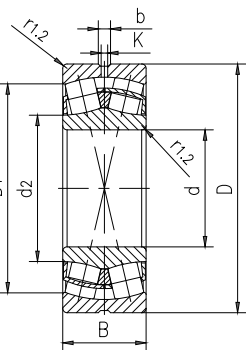
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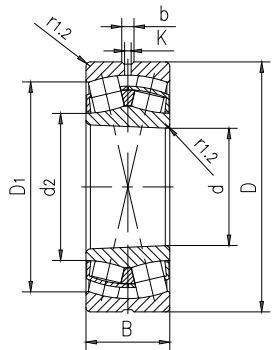
CA

Type		Weight	Basic load rating		Fatigue load limit	Rated speed		The allowable acceleration of oil lubrication		Calculate the coefficient			
Bearing with cylindrical bore	Taper Hole		Dynamic	Static		reference speed	Maximum speed						
			C	C ₀				P _u	Spin	Linear	e	Y ₁	Y ₂
-		kg	kN			r/min		m/s ²		-			
22356CC/W33	22356CCK/W33	235	4365.9	5460	383.25	840	1155	—	—	0.3	2.3	3.4	2.2
23960CC/W33	23960CCK/W33	39.5	1483.65	2625	210	1470	1680	—	—	0.19	3.6	5.3	3.6
23060CC/W33	23060CCK/W33	71.5	2329.95	3622.5	278.25	1260	1575	—	—	0.23	2.9	4.4	2.8
23060-2CS5/VT143	23060-2CS5K/VT143	71.5	2333.1	3622.5	278.25	-	336	—	—	0.22	3	4.6	2.8
24060CC/W33	24060CCK30/W33	97	2962.05	4987.5	372.75	892.5	1260	—	—	0.33	2	3	2
24060-2CS5/VT143	—	95	2968.35	4987.5	372.75	-	252	—	—	0.31	2.2	3.3	2.2
23160CC/W33	23160CCK/W33	125	3536.4	5355	399	997.5	1260	—	—	0.3	2.3	3.4	2.2
23160-2CS5/VT143	23160-2CS5K/VT143	125	3541.65	5355	399	-	273	—	—	0.28	2.4	3.6	2.5
24160CC/W33	24160CCK30/W33	160	4069.8	6615	488.25	588	840	—	—	0.4	1.7	2.5	1.6
24160-2CS5/VT143	24160-2CS5K30/VT143	156	4075.05	6615	488.25	-	222.6	—	—	0.37	1.8	2.7	1.8
22260CC/W33	22260CCK/W33	135	3400.95	4462.5	341.25	1050	1470	—	—	0.26	2.6	3.9	2.5
23260CC/W33	23260CCK/W33	190	4254.6	6142.5	446.25	787.5	1050	—	—	0.35	1.9	2.9	1.8
23964CC/W33	23964CCK/W33	42	1554	2835	222.6	1470	1575	—	—	0.17	4	5.9	4
23064-2CS5/VT143	23064-2CS5K/VT143	7.55	2465.4	3990	299.25	-	336	—	—	0.23	2.9	4.4	2.8
23064CC/W33	23064CCK/W33	78	2465.4	3990	299.25	1155	1470	—	—	0.23	2.9	4.4	2.8
24064CC/W33	24064CCK30/W33	100	3117.45	5355	420	840	1260	—	—	0.31	2.2	3.3	2.2
23164CC/W33	23164CCK/W33	165	4119.15	6300	462	892.5	1155	—	—	0.31	2.2	3.3	2.2
23164-2CS5/VT143	23164-2CS5K/VT143	165	4125.45	6405	462	-	273	—	—	0.3	2.3	3.4	2.2
24164CC/W33	24164CCK30/W33	210	4614.75	7455	535.5	525	735	—	—	0.4	1.7	2.5	1.6
22264CC/W33	22264CCK/W33	175	3893.4	5145	393.75	997.5	1365	—	—	0.26	2.6	3.9	2.5
23264CC/W33	23264CCK/W33	240	4837.35	7035	498.75	735	997.5	—	—	0.35	1.9	2.9	1.8
23968CC/W33	23968CCK/W33	45.5	1564.5	2940	226.8	1365	1470	—	—	0.17	4	5.9	4
23068CC/W33	23068CCK/W33	105	2952.6	4777.5	351.75	1050	1365	—	—	0.24	2.8	4.2	2.8
24068CC/W33	24068CCK30/W33	140	3802.05	6510	498.75	787.5	1155	—	—	0.33	2	3	2
23168CC/W33	23168	210	4667.25	7140	504	840	1050	—	—	0.31	2.2	3.3	2.2
23168-2CS5/VT143	23168-2CS5K/VT143	210	4674.6	7140	514.5	-	252	—	—	0.3	2.3	3.4	2.2
24168ECCJ/W33	24168ECCK30J/W33	280	5761.35	9082.5	661.5	451.5	661.5	—	—	0.4	1.7	2.5	1.6
23268CA/W33	23268CAK/W33	295	5630.1	8190	577.5	588	840	—	—	0.35	1.9	2.9	1.8
23972CC/W33	23972CCK/W33	46	1528.8	2887.5	231	1260	1365	—	—	0.15	4.5	6.7	4.5
23072CC/W33	23072CCK/W33	110	2992.5	5040	362.25	997.5	1260	—	—	0.23	2.9	4.4	2.8
24072CC/W33	24072CCK30/W33	145	3890.25	6877.5	514.5	735	1050	—	—	0.31	2.2	3.3	2.2
23172CC/W33	23172CCK/W33	220	4740.75	7297.5	514.5	787.5	1050	—	—	0.3	2.3	3.4	2.2
23172-2CS5/VT143	23172-2CS5K/VT143	214	4747.05	7297.5	514.5	-	231	—	—	0.28	2.4	3.6	2.5
24172ECCJ/W33	24172ECCK30J/W33	280	6023.85	9765	703.5	420	630	—	—	0.4	1.7	2.5	1.6
22272CA/W33	22272CAK/W33	255	4651.5	6510	462	661.5	892.5	—	—	0.26	2.6	3.9	2.5
23272CA/W33	23272CAK/W33	335	5946.15	8715	598.5	556.5	787.5	—	—	0.35	1.9	2.9	1.8

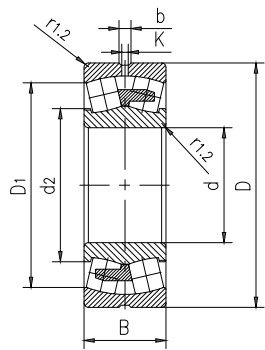
Spherical roller bearings



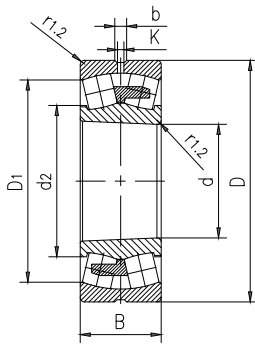
Cylindrical bore (CC)



Tapered bore(CC)

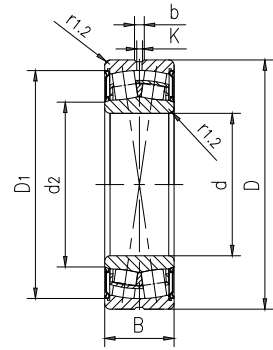


Cylindrical bore (CA)

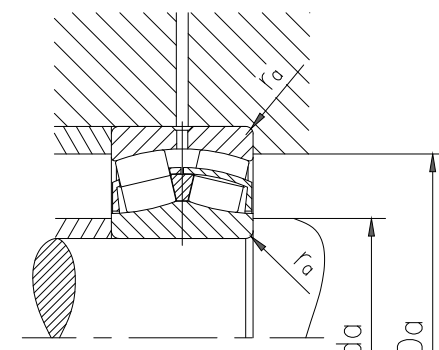


Tapered bore(CA)

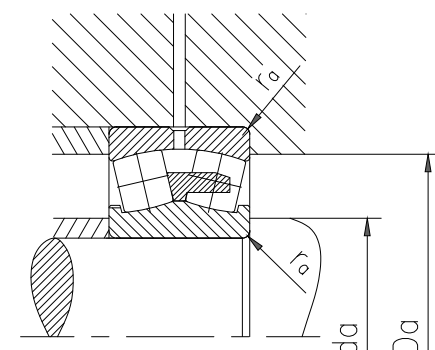
Type		Main dimensions			Dimensions					Shoulder and chamfer dimensions			
Bearing with cylindrical bore	Taper Hole	d	D	B	d ₂ ≈	D ₁ ≈	b	K	C	r _{1,2} min.	d _a min.	d _a max.	r _a max.
-		mm			mm					mm			
23976CC/W33	23976CCK/W33	380	520	106	419	481	13.9	7.5	4	395	—	505	3
23076CC/W33	23076CCK/W33	380	560	135	426	509	22.3	12	5	398	—	542	4
24076CC/W33	24076CCK30/W33	380	560	180	419	497	16.7	9	5	398	—	542	4
23176-2CS5/VT143	23176-2CS5K/VT143	380	620	194	438	573	22.3	12	5	400	438	600	4
23176CA/W33	23176CAK/W33	380	620	194	454	541	22.3	12	5	400	—	600	4
24176ECA/W33	24176ECAK30/W33	380	620	243	444	532	16.7	9	5	400	—	600	4
23276CA/W33	23276CAK/W33	380	680	240	473	581	22.3	12	6	406	—	654	5
23980CC/W33	23980CCK/W33	400	540	106	439	500	13.9	7.5	4	415	—	525	3
23080CC/W33	23080CCK/W33	400	600	148	450	543	22.3	12	5	418	—	582	4
23080-2CS5/VT143	23080-2CS5K/VT143	400	600	148	443	557	22.3	12	5	418	443	582	4
24080ECCJ/W33	24080ECCJ30/W33	400	600	200	442	527	22.3	12	5	418	—	582	4
23180-2CS5/VT143	23180-2CS5K/VT143	400	650	200	458	587	22.3	12	6	426	458	624	5
23180CA/W33	23180CAK/W33	400	650	200	475	566	22.3	12	6	426	—	624	5
24180ECA/W33	24180ECAK30/W33	400	650	250	467	559	22.3	12	6	426	—	624	5
23280CA/W33	23280CAK/W33	400	720	256	500	615	22.3	12	6	426	—	694	5
22380CA/W33	22380CAK/W33	400	820	243	534	697	22.3	12	7.5	432	—	788	6
23984CC/W33	23984CCK/W33	420	560	106	459	520	16.7	9	4	435	—	545	3
23084CA/W33	23084CAK/W33	420	620	150	487	563	22.3	12	5	438	—	602	4
24084ECA/W33	24084ECAK30/W33	420	620	200	477	547	22.3	12	5	438	—	602	4
23184-2CS5K/VT143		420	700	224	490	634	22.3	12	6	446	490	674	5
23184CJ/W33	23184CKJ/W33	420	700	224	483	607	22.3	12	6	446	—	674	5
24184ECA/W33	24184ECAK30/W33	420	700	280	494	597	22.3	12	6	446	—	674	5
23284CA/W33	23284CAK/W33	420	760	272	526	649	22.3	12	7.5	452	—	728	6
23284-2CS5/VT143	23284-2CS5K/VT143	420	760	272	500	676	22.3	12	7.5	452	500	728	6
23988CC/W33	23988CCK/W33	440	600	118	484	553	16.7	9	4	455	—	585	3
23088CA/W33	23088CAK/W33	440	650	157	511	590	22.3	12	6	463	—	627	5
23088-2CS5/VT143	—	440	650	157	505	614	22.3	12	6	463	505	627	5
24088ECA/W33	24088ECAK30/W33	440	650	212	499	572	22.3	12	6	463	—	627	5
23188CA/W33	23188CAK/W33	440	720	226	529	632	22.3	12	6	466	—	694	5
23188-2CS5/VT143	23188-2CS5K/VT143	440	720	226	513	664	22.3	12	6	466	513	694	5
24188ECA/W33	24188ECAK30/W33	440	720	280	516	618	22.3	12	6	466	—	694	5
23288CA/W33	23288CAK/W33	440	790	280	549	676	22.3	12	7.5	472	—	758	6
24892CAMA/W20	24892CAK30MA/W20	460	580	118	505	541	—	7.5	3	473	—	567	2.5
23992CA/W33	23992CAK/W33	460	620	118	516	574	16.7	9	4	475	—	605	3
23092CA/W33	23092CAK/W33	460	680	163	533	617	22.3	12	6	483	—	657	5
24092ECA/W33	24092ECAK30/W33	460	680	218	524	601	22.3	12	6	483	—	657	5



Sealed (CC / 2CS5)



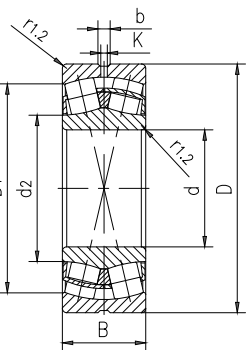
CC



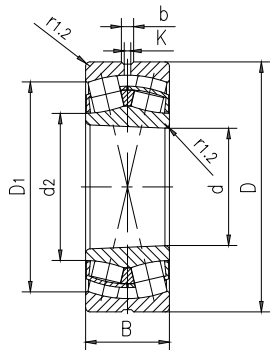
CA

Type		Weight	Basic load rating		Fatigue load limit	Rated speed		The allowable acceleration of oil lubrication		Calculate the coefficient			
Bearing with cylindrical bore	Taper Hole		Dynamic	Static		reference speed	Maximum speed	Spin	Linear	e	Y ₁	Y ₂	Y ₀
			C	C ₀									
-		kg	kN			r/min		m/s ²		-			
23976CC/W33	23976CCK/W33	69	2111.55	3990	299.25	1155	1260	—	—	0.17	4	5.9	4
23076CC/W33	23076CCK/W33	115	3133.2	5250	378	945	1260	—	—	0.22	3	4.6	2.8
24076CC/W33	24076CCK30/W33	150	3975.3	7140	498.75	703.5	997.5	—	—	0.3	2.3	3.4	2.2
23176-2CS5/VT143	23176-2CS5K/VT143	232	4789.05	7455	525	-	168	—	—	0.3	2.3	3.4	2.2
23176CA/W33	23176CAK/W33	230	4789.05	7455	525	588	1050	—	—	0.3	2.3	3.4	2.2
24176ECA/W33	24176ECAK30/W33	300	6232.8	10290	745.5	378	556.5	—	—	0.37	1.8	2.7	1.8
23276CA/W33	23276CAK/W33	375	6432.3	9607.5	651	525	787.5	—	—	0.35	1.9	2.9	1.8
23980CC/W33	23980CCK/W33	71	2139.9	4095	304.5	1155	1260	—	—	0.16	4.2	6.3	4
23080CC/W33	23080CCK/W33	150	3686.55	6142.5	435.75	892.5	1155	—	—	0.23	2.9	4.4	2.8
23080-2CS5/VT143	23080-2CS5K/VT143	144	3690.75	6142.5	435.75	-	252	—	—	0.21	3.2	4.8	3.2
24080ECCJ/W33	24080ECCJ30/W33	205	4732.35	8400	588	661.5	945	—	—	0.3	2.3	3.4	2.2
23180-2CS5/VT143	23180-2CS5K/VT143	255	5107.2	8032.5	556.5	-	157.5	—	—	0.28	2.4	3.6	2.5
23180CA/W33	23180CAK/W33	265	5107.2	8032.5	556.5	556.5	997.5	—	—	0.28	2.4	3.6	2.5
24180ECA/W33	24180ECAK30/W33	340	6647.55	11130	771.75	357	525	—	—	0.37	1.8	2.7	1.8
23280CA/W33	23280CAK/W33	450	7225.05	10920	714	504	703.5	—	—	0.35	1.9	2.9	1.8
22380CA/W33	22380CAK/W33	650	8223.6	10920	703.5	451.5	787.5	—	—	0.3	2.3	3.4	2.2
23984CC/W33	23984CCK/W33	74.45	2187.15	4357.5	315	1050	1155	—	—	0.16	4.2	6.3	4
23084CA/W33	23084CAK/W33	155	3718.05	6300	435.75	630	1155	—	—	0.22	3	4.6	2.8
24084ECA/W33	24084ECAK30/W33	210	4840.5	8715	614.25	556.5	945	—	—	0.3	2.3	3.4	2.2
23184-2CS5K/VT143		350	6214.95	9765	651	-	199.5	—	—	0.3	2.3	3.4	2.2
23184CJ/W33	23184CKJ/W33	350	6214.95	9765	651	504	945	—	—	0.3	2.3	3.4	2.2
24184ECA/W33	24184ECAK30/W33	445	7955.85	13125	892.5	336	504	—	—	0.4	1.7	2.5	1.6
23284CA/W33	23284CAK/W33	535	8060.85	12180	803.25	472.5	661.5	—	—	0.35	1.9	2.9	1.8
23284-2CS5/VT143	23284-2CS5K/VT143	535	8067.15	12180	803.25	-	134.4	—	—	0.35	1.9	2.9	1.8
23988CC/W33	23988CCK/W33	99.5	2631.3	5145	362.25	997.5	1050	—	—	0.16	4.2	6.3	4
23088CA/W33	23088CAK/W33	180	4022.55	6877.5	472.5	588	1050	—	—	0.22	3	4.6	2.8
23088-2CS5/VT143	—	178	4025.7	6877.5	472.5	-	199.5	—	—	0.21	3.2	4.8	3.2
24088ECA/W33	24088ECAK30/W33	245	5236.35	9607.5	661.5	525	892.5	—	—	0.3	2.3	3.4	2.2
23188CA/W33	23188CAK/W33	360	6525.75	10500	703.5	472.5	892.5	—	—	0.3	2.3	3.4	2.2
23188-2CS5/VT143	23188-2CS5K/VT143	360	6531	10500	703.5	-	189	—	—	0.28	2.4	3.6	2.5
24188ECA/W33	24188ECAK30/W33	460	8165.85	13860	945	315	472.5	—	—	0.37	1.8	2.7	1.8
23288CA/W33	23288CAK/W33	590	8557.5	13125	840	451.5	630	—	—	0.35	1.9	2.9	1.8
24892CAMA/W20	24892CAK30MA/W20	75.5	2186.1	5145	362.25	661.5	1155	—	—	0.17	4	5.9	4
23992CA/W33	23992CAK/W33	105	2685.9	5250	372.75	630	1050	—	—	0.16	4.2	6.3	4
23092CA/W33	23092CAK/W33	205	4268.25	7297.5	488.25	588	997.5	—	—	0.22	3	4.6	2.8
24092ECA/W33	24092ECAK30/W33	275	5671.05	10500	703.5	504	840	—	—	0.28	2.4	3.6	2.5

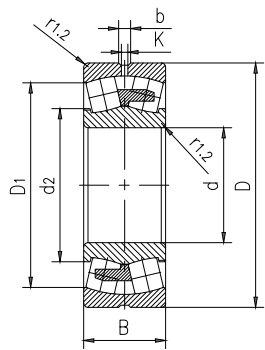
Spherical roller bearings



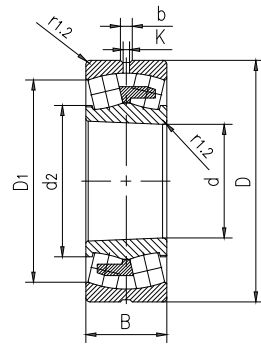
Cylindrical bore (CC)



Tapered bore(CC)

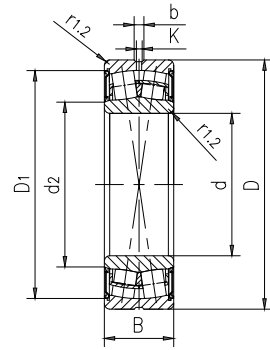


Cylindrical bore (CA)

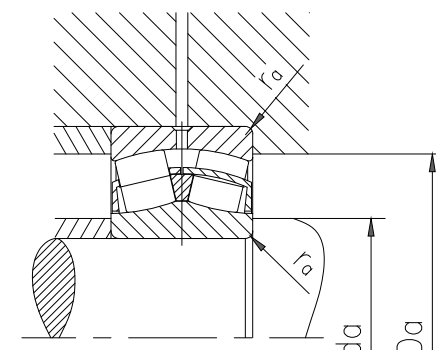


Tapered bore(CA)

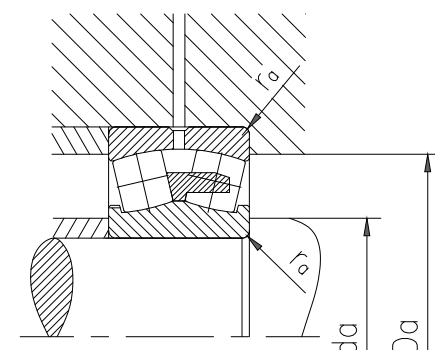
Type		Main dimensions			Dimensions					Shoulder and chamfer dimensions			
Bearing with cylindrical bore	Taper Hole	d	D	B	d ₂ ≈	D ₁ ≈	b	K	C	r _{1.2} min.	d _a min.	d _a max.	r _a max.
-		mm			mm					mm			
23192-2CS5/VT143	23192-2CS5K/VT143	460	760	240	536	704	22.3	12	7.5	492	536	728	6
24192ECA/W33	24192ECAK30/W33	460	760	300	543	649	22.3	12	7.5	492	—	728	6
23292CA/W33	23292CAK/W33	460	830	296	574	706	22.3	12	7.5	492	—	798	6
23996CA/W33	23996CAK/W33	480	650	128	537	602	16.7	9	5	498	—	632	4
23096CA/W33	23096CAK/W33	480	700	165	549	633	22.3	12	6	503	—	677	5
24096ECA/W33	24096ECAK30/W33	480	700	218	542	619	22.3	12	6	503	—	677	5
23196CA/W33	23196CAK/W33	480	790	248	579	692	22.3	12	7.5	512	—	758	6
23196-2CS5/VT143	23196-2CS5K/VT143	480	790	248	560	723	22.3	12	7.5	512	560	758	6
24196ECA/W33	24196ECAK30/W33	480	790	308	564	678	22.3	12	7.5	512	—	758	6
23296CA/W33	23296CAK/W33	480	870	310	602	741	22.3	12	7.5	512	—	838	6
239/500CA/W33	239/500CAK/W33	500	670	128	561	622	22.3	12	5	518	—	652	4
230/500CA/W33	230/500CAK/W33	500	720	167	573	658	22.3	12	6	523	—	697	5
240/500ECA/W33	240/500ECAK30/W33	500	720	218	566	644	22.3	12	6	523	—	697	5
231/500CA/W33	231/500CAK/W33	500	830	264	605	726	22.3	12	7.5	532	—	798	6
241/500ECA/W33	241/500ECAK30/W33	500	830	325	588	713	22.3	12	7.5	532	—	798	6
232/500CA/W33	232/500CAK/W33	500	920	336	633	779	22.3	12	7.5	532	—	888	6
CAMA/W20248/530	CAK30MA/W20	530	650	118	573	612	—	7.5	3	543	—	637	2.5
239/530CA/W33	239/530CAK/W33	530	710	136	594	661	22.3	12	5	548	—	692	4
230/530CA/W33	230/530CAK/W33	530	780	185	613	710	22.3	12	6	553	—	757	5
240/530ECA/W33	240/530ECAK30/W33	530	780	250	601	687	22.3	12	6	553	—	757	5
231/530CA/W33	231/530CAK/W33	530	870	272	638	763	22.3	12	7.5	562	—	838	6
241/530ECA/W33	241/530ECAK30/W33	530	870	335	623	748	22.3	12	7.5	562	—	838	6
232/530CA/W33	232/530CAK/W33	530	980	355	670	836	22.3	12	9.5	570	—	940	8
239/560CA/W33	239/560CAK/W33	560	750	140	627	697	22.3	12	5	578	—	732	4
230/560CA/W33	230/560CAK/W33	560	820	195	646	746	22.3	12	6	583	—	797	5
240/560BC	—	560	820	258	640	739	53.2	15	6	583	—	797	5
240/560ECA/W33	240/560ECAK30/W33	560	820	258	637	728	22.3	12	6	583	—	797	5
231/560CA/W33	231/560CAK/W33	560	920	280	675	809	22.3	12	7.5	592	—	888	6
241/560ECJ/W33	241/560ECK30J/W33	560	920	355	634	796	22.3	12	7.5	592	—	888	6
232/560CA/W33	232/560CAK/W33	560	1030	365	706	878	22.3	12	9.5	600	—	990	8
239/600CA/W33	239/600CAK/W33	600	800	150	671	744	22.3	12	5	618	—	782	4
230/600CA/W33	230/600CAK/W33	600	870	200	685	789	22.3	12	6	623	—	847	5
240/600BC	—	600	870	272	682	784	46.1	15	6	623	—	847	5
240/600ECA/W33	240/600ECAK30/W33	600	870	272	675	774	22.3	12	6	623	—	847	5
231/600CA/W33	231/600CAK/W33	600	980	300	722	863	22.3	12	7.5	632	—	948	6
241/600ECA/W33	241/600ECAK30/W33	600	980	375	702	845	22.3	12	7.5	632	—	948	6
232/600CA/W33	232/600CAK/W33	600	1090	388	754	929	22.3	12	9.5	640	—	1050	8



Sealed (CC / 2CS5)



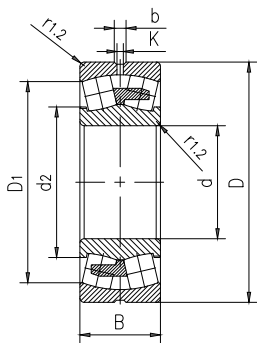
CC



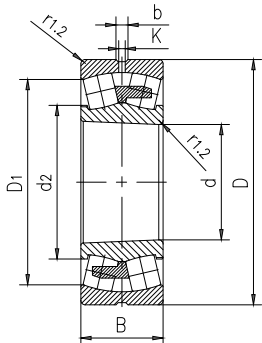
CA

Type		Weight	Basic load rating		Fatigue load limit	Rated speed		The allowable acceleration of oil lubrication		Calculate the coefficient			
Bearing with cylindrical bore	Taper Hole		Dynamic	Static		reference speed	Maximum speed						
			C	C ₀				P _u	Spin	Linear	e	Y ₁	Y ₂
-		kg	kN			r/min		m/s ²	-				
23192-2CS5/VT143	23192-2CS5K/VT143	427	7103.25	11340	714	-	134.4	—	—	0.3	2.3	3.4	2.2
24192ECA/W33	24192ECAK30/W33	560	9038.4	15330	1050	294	451.5	—	—	0.37	1.8	2.7	1.8
23292CA/W33	23292CAK/W33	695	9405.9	14385	924	420	588	—	—	0.35	1.9	2.9	1.8
23996CA/W33	23996CAK/W33	125	3139.5	5985	425.25	588	1050	—	—	0.18	3.8	5.6	3.6
23096CA/W33	23096CAK/W33	215	4195.8	7140	472.5	556.5	997.5	—	—	0.21	3.2	4.8	3.2
24096ECA/W33	24096ECAK30/W33	285	5800.2	10920	729.75	472.5	787.5	—	—	0.28	2.4	3.6	2.5
23196CA/W33	23196CAK/W33	485	7730.1	12600	819	420	787.5	—	—	0.3	2.3	3.4	2.2
23196-2CS5/VT143	23196-2CS5K/VT143	485	7735.35	12600	819	-	178.5	—	—	0.3	2.3	3.4	2.2
24196ECA/W33	24196ECAK30/W33	605	9657.9	16380	1092	273	420	—	—	0.37	1.8	2.7	1.8
23296CA/W33	23296CAK/W33	800	10295.25	15750	997.5	399	556.5	—	—	0.35	1.9	2.9	1.8
239/500CA/W33	239/500CAK/W33	130	3115.35	6300	435.75	556.5	997.5	—	—	0.17	4	5.9	4
230/500CA/W33	230/500CAK/W33	225	4575.9	8190	535.5	525	945	—	—	0.21	3.2	4.8	3.2
240/500ECA/W33	240/500ECAK30/W33	295	6065.85	11550	771.75	451.5	735	—	—	0.26	2.6	3.9	2.5
231/500CA/W33	231/500CAK/W33	580	878.85	13545	871.5	399	735	—	—	0.3	2.3	3.4	2.2
241/500ECA/W33	241/500ECAK30/W33	700	10629.15	17850	1176	273	399	—	—	0.37	1.8	2.7	1.8
232/500CA/W33	232/500CAK/W33	985	11742.15	18165	1113	378	525	—	—	0.35	1.9	2.9	1.8
CAMA/W20248/530	CAK30MA/W20	248/530	5565	399	556.5	997.5	90.3	—	—	0.15	4.5	6.7	4.5
239/530CA/W33	239/530CAK/W33	155	3473.4	7035	488.25	525	945	—	—	0.17	4	5.9	4
230/530CA/W33	230/530CAK/W33	310	5530.35	9765	640.5	472.5	840	—	—	0.22	3	4.6	2.8
240/530ECA/W33	240/530ECAK30/W33	410	7321.65	13860	871.5	420	703.5	—	—	0.28	2.4	3.6	2.5
231/530CA/W33	231/530CAK/W33	645	8952.3	14700	924	378	703.5	—	—	0.3	2.3	3.4	2.2
241/530ECA/W33	241/530ECAK30/W33	830	11454.45	19950	1281	252	378	—	—	0.37	1.8	2.7	1.8
232/530CA/W33	232/530CAK/W33	1200	13931.4	21420	1281	336	504	—	—	0.35	1.9	2.9	1.8
239/560CA/W33	239/560CAK/W33	175	3749.55	7560	525	472.5	892.5	—	—	0.16	4.2	6.3	4
230/560CA/W33	230/560CAK/W33	355	6067.95	10710	703.5	451.5	787.5	—	—	0.22	3	4.6	2.8
240/560BC	—	445	7906.5	14700	1029	21	52.5	—	—	0.3	2.3	3.4	2.2
240/560ECA/W33	240/560ECAK30/W33	465	8002.05	15330	1029	399	661.5	—	—	0.28	2.4	3.6	2.5
231/560CA/W33	231/560CAK/W33	740	10075.8	16800	1029	357	661.5	—	—	0.3	2.3	3.4	2.2
241/560ECJ/W33	241/560ECK30J/W33	985	12984.3	22680	1407	231	336	—	—	0.35	1.9	2.9	1.8
232/560CA/W33	232/560CAK/W33	1350	14637	23100	1386	294	451.5	—	—	0.35	1.9	2.9	1.8
239/600CA/W33	239/600CAK/W33	220	4223.1	8715	598.5	451.5	787.5	—	—	0.17	4	5.9	4
230/600CA/W33	230/600CAK/W33	405	6564.6	11970	771.75	420	735	—	—	0.22	3	4.6	2.8
240/600BC	—	519	8927.1	17115	1155	21	47.25	—	—	0.3	2.3	3.4	2.2
240/600ECA/W33	240/600ECAK30/W33	520	9009	17850	1134	357	588	—	—	0.3	2.3	3.4	2.2
231/600CA/W33	231/600CAK/W33	895	11274.9	18900	1155	336	588	—	—	0.3	2.3	3.4	2.2
241/600ECA/W33	241/600ECAK30/W33	1200	14198.1	24780	1533	210	315	—	—	0.37	1.8	2.7	1.8
232/600CA/W33	232/600CAK/W33	1600	16434.6	26775	1533	273	420	—	—	0.35	1.9	2.9	1.8

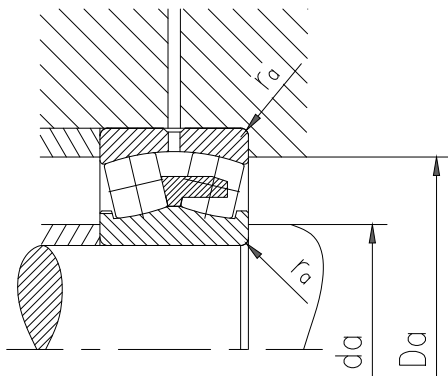
Spherical roller bearings



Cylindrical bore (CA)



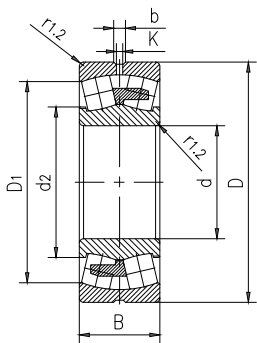
Tapered bore(CA)



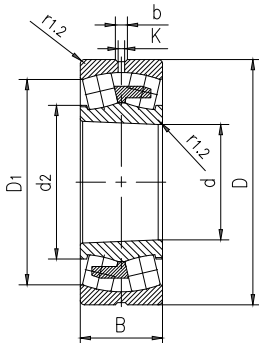
Type		Main dimensions			Dimensions					Shoulder and chamfer dimensions			
Bearing with cylindrical bore	Taper Hole												
		d	D	B	d ₂ ≈	D ₁ ≈	b	K	C	r _{1,2} min.	d _a min.	d _a max.	r _a max.
-		mm			mm					mm			
239/630CA/W33	239/630CAK/W33	630	850	165	708	787	22.3	12	6	653	—	827	5
230/630CA/W33	230/630CAK/W33	630	920	212	727	839	22.3	12	7.5	658	—	892	6
240/630ECJ/W33	240/630ECK30J/W33	630	920	290	697	823	22.3	12	7.5	658	—	892	6
240/630BC	—	630	920	290	718	828	56.5	15	7.5	658	—	892	6
231/630CA/W33	231/630CAK/W33	630	1030	315	755	918	22.3	12	7.5	662	—	998	6
241/630ECA/W33	241/630ECAK30/W33	630	1030	400	738	885	22.3	12	7.5	662	—	998	6
238/670CAMA/W20	—	670	820	112	724	778	—	9	4	685	—	805	3
248/670CAMA/W20	—	670	820	150	726	772	—	9	4	685	—	805	3
239/670CA/W	33239/670CAK/W33	670	900	170	752	835	22.3	12	6	693	—	877	5
230/670CA/W	33230/670CAK/W33	670	980	230	772	892	22.3	12	7.5	698	—	952	6
240/670ECA/W33	240/670ECAK30/W33	670	980	308	758	866	22.3	12	7.5	698	—	952	6
231/670CA/W33	231/670CAK/W33	670	1090	336	804	959	22.3	12	7.5	702	—	1058	6
241/670ECA/W33	241/670ECAK30/W33	670	1090	412	782	942	22.3	12	7.5	702	—	1058	6
232/670CA/W33	232/670CAK/W33	670	1220	438	832	1	28	22.3	12	12	718	—	1172
238/710CAMA/W20	—	710	870	118	766	826	—	12	4	725	—	855	3
239/710CA/W33	239/710CAK/W33	710	950	180	794	882	22.3	12	6	733	—	927	5
249/710CA/W33	249/710CAK30/W33	710	950	243	792	868	22.3	12	6	733	—	927	5
230/710CA/W33	230/710CAK/W33	710	1030	236	816	941	22.3	12	7.5	738	—	1002	6
240/710ECA/W33	240/710ECAK30/W33	710	1030	315	809	918	22.3	12	7.5	738	—	1002	6
240/710BC	—	710	1030	315	810	931	61.8	15	7.5	738	—	1002	6
231/710CA/W33	231/710CAK/W33	710	1150	345	851	1017	22.3	12	9.5	750	—	1100	8
241/710ECA/W33	241/710ECAK30/W33	710	1150	438	826	989	22.3	12	9.5	750	—	110	8
232/710CA/W33	232/710CAK/W33	710	1280	450	875	1097	22.3	12	12	758	—	1232	10
238/750CAMA/W20	—	750	920	128	812	873	—	12	5	768	—	902	4
239/750CA/W33	239/750CAK/W33	750	1000	185	838	930	22.3	12	6	773	—	977	5
249/750CA/W33	249/750CAK30/W33	750	1000	250	830	916	22.3	12	6	773	—	977	5
230/750CA/W33	230/750CAK/W33	750	1090	250	859	998	22.3	12	7.5	778	—	1062	6
240/750ECA/W33	240/750ECAK30/W33	750	1090	335	855	970	22.3	12	7.5	778	—	1062	6
240/750BC	—	750	1090	335	856	984	72.8	15	7.5	778	—	1062	6
231/750CA/W33	231/750CAK/W33	750	1220	365	900	1080	22.3	12	9.5	790	—	1180	8
241/750ECA/W33	241/750ECAK30/W33	750	1220	475	875	1050	22.3	12	9.5	790	—	1180	8
248/800CAMA/W20	248/800CAK30MA/W20	800	980	180	865	921	—	12	5	818	—	962	4
239/800CA/W33	239/800CAK/W33	800	1060	195	891	986	22.3	12	6	823	—	1037	5
249/800CA/W33	249/800CAK30/W33	800	1060	258	887	973	22.3	12	6	823	—	1037	5
230/800CA/W33	230/800CAK/W33	800	1150	258	917	1053	22.3	12	7.5	828	—	1122	6
240/800ECA/W33	240/800ECAK30/W33	800	1150	345	910	1028	22.3	12	7.5	828	—	1122	6

Type		Weight	Basic load rating		Fatigue load limit	Rated speed		The allowable acceleration of oil lubrication		Calculate the coefficient			
Bearing with cylindrical bore	Taper Hole		Dynamic	Static		reference speed	Maximum speed						
			C	C ₀				P _u	Spin	Linear	e	Y ₁	Y ₂
-		kg	kN			r/min		m/s ²		-			
239/630CA/W33	239/630CAK/W33	280	4981.2	10290	661.5	420	735	—	—	0.17	4	5.9	4
230/630CA/W33	230/630CAK/W33	485	7242.9	13125	819	399	703.5	—	—	0.21	3.2	4.8	3.2
240/630ECJ/W33	240/630ECK30J/W33	645	9607.5	18900	1176	336	556.5	—	—	0.28	2.4	3.6	2.5
240/630BC	—	623	9772.35	18480	1239	21	47.25	—	—	0.3	2.3	3.4	2.2
231/630CA/W33	231/630CAK/W33	1050	13230	21840	1281	273	556.5	—	—	0.3	2.3	3.4	2.2
241/630ECA/W33	241/630ECAK30/W33	1400	15751.05	28350	1711.5	199.5	294	—	—	0.37	1.8	2.7	1.8
238/670CAMA/W20	—	130	2775.15	6720	451.5	420	735	—	—	0.11	6.1	9.1	6.3
248/670CAMA/W20	—	172	3777.9	9975	687.75	420	735	—	—	0.16	4.2	6.3	4
239/670CA/W	33239/670CAK/W33	315	5403.3	11340	714	378	703.5	—	—	0.17	4	5.9	4
230/670CA/W	33230/670CAK/W33	600	8314.95	15330	924	357	630	—	—	0.21	3.2	4.8	3.2
240/670ECA/W33	240/670ECAK30/W33	790	10956.75	21420	1354.5	315	525	—	—	0.28	2.4	3.6	2.5
231/670CA/W33	231/670CAK/W33	1250	13756.05	23520	1386	252	525	—	—	0.3	2.3	3.4	2.2
241/670ECA/W33	241/670ECAK30/W33	1600	17200.05	30450	1848	189	273	—	—	0.37	1.8	2.7	1.8
232/670CA/W33	232/670CAK/W33	2270	19582.5	32025	1785	231	378	—	—	0.35	1.9	2.9	1.8
238/710CAMA/W20	—	153	3163.65	7875	525	378	703.5	—	—	0.11	6.1	9.1	6.3
239/710CA/W33	239/710CAK/W33	365	5987.1	12600	787.5	357	630	—	—	0.17	4	5.9	4
249/710CA/W33	249/710CAK30/W33	495	7203	16380	976.5	315	525	—	—	0.22	3	4.6	2.8
230/710CA/W33	230/710CAK/W33	670	9102.45	17115	1013.25	315	588	—	—	0.21	3.2	4.8	3.2
240/710ECA/W33	240/710ECAK30/W33	895	11722.2	23940	1501.5	273	472.5	—	—	0.27	2.5	3.7	2.5
240/710BC	—	843	11724.3	23100	1501.5	21	42	—	—	0.3	2.3	3.4	2.2
231/710CA/W33	231/710CAK/W33	1450	15468.6	27300	1606.5	252	472.5	—	—	0.28	2.4	3.6	2.5
241/710ECA/W33	241/710ECAK30/W33	1900	18831.75	34125	1995	168	252	—	—	0.37	1.8	2.7	1.8
232/710CA/W33	232/710CAK/W33	2610	22268.4	36225	2100	210	336	—	—	0.35	1.9	2.9	1.8
238/750CAMA/W20	—	185	3575.25	8925	577.5	357	630	—	—	0.11	6.1	9.1	6.3
239/750CA/W33	239/750CAK/W33	420	6444.9	13860	840	336	588	—	—	0.16	4.2	6.3	4
249/750CA/W33	249/750CAK30/W33	560	8083.95	18900	1155	294	504	—	—	0.22	3	4.6	2.8
230/750CA/W33	230/750CAK/W33	795	1114.05	19530	1155	294	556.5	—	—	0.21	3.2	4.8	3.2
240/750ECA/W33	240/750ECAK30/W33	1070	12846.75	26250	1533	252	451.5	—	—	0.28	2.4	3.6	2.5
240/750BC	—	1010	12924.45	25725	1606.5	21	42	—	—	0.3	2.3	3.4	2.2
231/750CA/W33	231/750CAK/W33	1700	17343.9	30450	1785	231	451.5	—	—	0.28	2.4	3.6	2.5
241/750ECA/W33	241/750ECAK30/W33	2100	21455.7	39375	2268	157.5	231	—	—	0.37	1.8	2.7	1.8
248/800CAMA/W20	248/800CAK30MA/W20	300	5019	13545	871.5	336	588	—	—	0.15	4.5	6.7	4.5
239/800CA/W33	239/800CAK/W33	470	6924.75	15015	908.25	294	556.5	—	—	0.16	4.2	6.3	4
249/800CA/W33	249/800CAK30/W33	640	8542.8	20265	1113	252	451.5	—	—	0.21	3.2	4.8	3.2
230/800CA/W33	230/800CAK/W33	895	10851.75	21000	1218	273	504	—	—	0.2	3.4	5	3.2
240/800ECA/W33	240/800ECAK30/W33	1200	14102.55	29925	1743	231	420	—	—	0.27	2.5	3.7	2.5

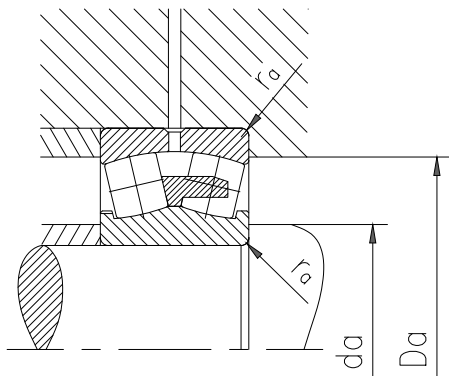
Spherical roller bearings



Cylindrical bore (CA)



Tapered bore(CA)



Type		Main dimensions			Dimensions					Shoulder and chamfer dimensions			
Bearing with cylindrical bore	Taper Hole												
		d	D	B	d ₂ ≈	D ₁ ≈	b	K	C	r _{1,2} min.	d _a min.	d _a max.	r _a max.
-		mm			mm					mm			
231/800CA/W33	231/800CAK/W33	800	1280	375	949	1141	22.3	12	9.5	840	—	1240	8
241/800ECA/W33	241/800ECAK30/W33	800	1280	475	930	1111	22.3	12	9.5	840	—	1240	8
232/800CAF/W33	232/800CAKF/W33	800	1420	488	995	1218	22.3	12	15	858	—	1362	12
238/850CAMA/W20	238/850CAKMA/W20	850	1030	136	912	981	—	12	5	868	—	1012	4
239/850CA/W33	239/850CAK/W33	850	1120	200	946	1046	22.3	12	6	873	—	197	5
249/850CA/W33	249/850CAK30/W33	850	1120	272	940	1029	22.3	12	6	873	—	197	5
230/850CA/W33	230/850CAK/W33	850	1220	272	972	1117	22.3	12	7.5	878	—	1192	6
240/850BC	—	850	1220	365	966	1105	67.9	15	7.5	878	—	1192	6
240/850ECA/W33	240/850ECAK30/W33	850	1220	365	957	1088	22.3	12	7.5	878	—	1192	6
241/850ECA/W33	241/850ECAK30F/W33	850	1360	500	988	1182	22.3	12	12	898	—	1312	10
232/850CAF/W33	—	850	1500	515	1049	1284	22.3	12	15	908	—	1442	12
248/900CAMA/W20	248/900CAK30MA/W20	900	1060	190	969	1029	—	12	5	918	—	1072	4
239/900CA/W33	239/900CAK/W33	900	1180	206	996	1101	22.3	12	6	923	—	1157	5
230/900CA/W33	230/900CAK/W33	900	1280	280	1025	1176	22.3	12	7.5	928	—	1252	6
240/900ECA/W33	240/900ECAK30/W33	900	1280	375	1015	1149	22.3	12	7.5	928	—	1252	6
240/900BC	—	900	1280	375	1024	1164	69.1	15	7.5	928	—	1252	6
241/900ECA/W33	241/900ECAK30F/W33	900	1420	515	1043	1235	22.3	12	12	948	—	1372	10
239/950CA/W33	239/950CAK/W33	950	1250	224	1056	1164	22.3	12	7.5	978	—	1222	6
249/950CA/W33	249/950CAK30/W33	950	1250	300	1051	1150	22.3	12	7.5	978	—	1222	6
230/950CA/W33	230/950CAK/W33	950	1360	300	1086	1246	22.3	12	7.5	978	—	1332	6
240/950CAF/W33	240/950CAK30F/W33	950	1360	412	1077	1214	22.3	12	7.5	978	—	1332	6
240/950BC	—	950	1360	412	1076	1230	85.9	15	7.5	978	—	1332	6
241/950ECA/W33	241/950ECAK30F/W33	950	1500	545	1102	1305	22.3	12	12	998	—	1452	10
238/1000CAMA/W20	238/1000CAKMA/W20	1000	1220	165	1079	1161	—	12	6	1023	—	1197	5
249/1000CA/W33	249/1000CAK30/W33	1000	1320	315	1109	1212	22.3	12	7.5	1028	—	1292	6
240/1000CAF/W33	240/1000CAK30F/W33	1000	1420	412	1136	1278	22.3	12	7.5	1028	—	1392	6
231/1000CAF/W33	231/1000CAKF/W33	1000	1580	462	1185	1403	22.3	12	12	1048	—	1532	10
241/1000ECA/W33	241/1000ECAK30F/W33	1000	1580	580	1159	1373	22.3	12	12	1048	—	1532	10
238/1060CAMA/W20	—	1060	1280	280	1137	1219	—	12	6	1083	—	1257	5
239/1060CAF/W33	239/1060CAKF/W33	1060	1400	250	1171	1305	22.3	12	7.5	1088	—	1372	6
249/1060CAF/W33	249/1060CAK30F/W33	1060	1400	335	1168	1286	22.3	12	7.5	1088	—	1372	6
240/1060CAF/W33	240/1060CAK30F/W33	1060	1500	438	1199	1349	22.3	12	9.5	1094	—	1466	8
249/1120CAF/W33	249/1120CAK30F/W33	1120	1460	335	1231	1350	22.3	12	7.5	1148	—	1432	6
240/1120CAF/W33	240/1120CAK30F/W33	1120	1580	462	1268	1423	22.3	12	9.5	1154	—	1546	8
240/1120BC	—	1120	1580	462	1259	1436	104	15	9.5	1154	—	1546	8
238/1180CAFA/W20	238/1180CAKFA/W20	1180	1420	180	1264	1355	—	12	6	1203	—	1397	5

Type		Weight	Basic load rating		Fatigue load limit	Rated speed		The allowable acceleration of oil lubrication		Calculate the coefficient			
Bearing with cylindrical bore	Taper Hole		Dynamic	Static		reference speed	Maximum speed						
			C	C ₀				P _u	Spin	Linear	e	Y ₁	Y ₂
-		kg	kN			r/min		m/s ²		-			
231/800CA/W33	231/800CAK/W33	1920	18934.65	33075	1890	210	420	—	—	0.28	2.4	3.6	2.5
241/800ECA/W33	241/800ECAK30/W33	1300	22666.35	42525	2436	147	210	—	—	0.35	1.9	2.9	1.8
232/800CAF/W33	232/800CAKF/W33	1280	26221.65	45150	2478	189	294	—	—	0.33	2	3	2
238/850CAMA/W20	238/850CAKMA/W20	240	4076.1	10500	661.5	273	556.5	—	—	0.11	6.1	9.1	6.3
239/850CA/W33	239/850CAK/W33	560	7425.6	16380	976.5	273	504	—	—	0.16	4.2	6.3	4
249/850CA/W33	249/850CAK30/W33	740	9859.5	23940	1438.5	231	420	—	—	0.22	3	4.6	2.8
230/850CA/W33	230/850CAK/W33	1050	11855.55	22680	1312.5	252	472.5	—	—	0.2	3.4	5	3.2
240/850BC	—	1360	15831.9	32550	1995	21	42	—	—	0.28	2.4	3.6	2.5
240/850ECA/W33	240/850ECAK30/W33	1410	15942.15	33075	1995	210	378	—	—	0.27	2.5	3.7	2.5
241/850ECA/W33	241/850ECAK30F/W33	2770	25018.35	47250	2625	136.5	199.5	—	—	0.35	1.9	2.9	1.8
232/850CAF/W33	—	3940	29017.8	50400	2730	168	273	—	—	0.33	2	3	2
248/900CAMA/W20	248/900CAK30MA/W20	370	5699.4	16065	997.5	252	504	—	—	0.14	4.8	7.2	4.5
239/900CA/W33	239/900CAK/W33	605	8034.6	17850	1050	252	472.5	—	—	0.15	4.5	6.7	4.5
230/900CA/W33	230/900CAK/W33	1200	12602.1	24360	1386	231	420	—	—	0.2	3.4	5	3.2
240/900ECA/W33	240/900ECAK30/W33	1570	16994.25	36225	252	199.5	357	—	—	0.26	2.6	3.9	2.5
240/900BC	—	1520	17025.75	35700	2142	21	42	—	—	0.27	2.5	3.7	2.5
241/900ECA/W33	241/900ECAK30F/W33	3350	26575.5	51450	2835	126	189	—	—	0.35	1.9	2.9	1.8
239/950CA/W33	239/950CAK/W33	755	9036.3	20580	1176	231	451.5	—	—	0.15	4.5	6.7	4.5
249/950CA/W33	249/950CAK30/W33	120	11236.05	27300	1575	189	357	—	—	0.21	3.2	4.8	3.2
230/950CA/W33	230/950CAK/W33	1450	15081.15	29925	1680	210	399	—	—	0.2	3.4	5	3.2
240/950CAF/W33	240/950CAK30F/W33	1990	18739.35	40950	2352	178.5	315	—	—	0.27	2.5	3.7	2.5
240/950BC	—	1880	19139.4	39900	2352	21	36.75	—	—	0.3	2.3	3.4	2.2
241/950ECA/W33	241/950ECAK30F/W33	3540	29286.6	57750	3150	115.5	168	—	—	0.35	1.9	2.9	1.8
238/1000CAMA/W20	238/1000CAKMA/W20	410	5675.25	15015	892.5	231	420	—	—	0.12	5.6	8.4	5.6
249/1000CA/W33	249/1000CAK30/W33	1200	12535.95	30450	1533	178.5	336	—	—	0.21	3.2	4.8	3.2
240/1000CAF/W33	240/1000CAK30F/W33	2140	19521.6	42525	2352	168	294	—	—	0.26	2.6	3.9	2.5
231/1000CAF/W33	231/1000CAKF/W33	3500	26932.5	50400	2677.5	147	294	—	—	0.28	2.4	3.6	2.5
241/1000ECA/W33	241/1000ECAK30F/W33	4300	32732.7	65100	3517.5	105	157.5	—	—	0.35	1.9	2.9	1.8
238/1060CAMA/W20	—	435	5832.75	15750	908.25	210	399	—	—	0.11	6.1	9.1	6.3
239/1060CAF/W33	239/1060CAKF/W33	1100	11899.65	27300	1501.5	189	378	—	—	0.16	4.2	6.3	4
249/1060CAF/W33	249/1060CAK30F/W33	1400	14021.7	34125	1890	168	294	—	—	0.21	3.2	4.8	3.2
240/1060CAF/W33	240/1060CAK30F/W33	2520	21760.2	47775	2572.5	157.5	273	—	—	0.26	2.6	3.9	2.5
249/1120CAF/W33	249/1120CAK30F/W33	1500	14403.9	36225	1921.5	147	273	—	—	0.2	3.4	5	3.2
240/1120CAF/W33	240/1120CAK30F/W33	2930	23482.2	52500	2835	136.5	252	—	—	0.26	2.6	3.9	2.5
240/1120BC	—	2770	24082.8	51450	2887.5	21	36.75	—	—	0.28	2.4	3.6	2.5
238/1180CAFA/W20	238/1180CAKFA/W20	575	7011.9	19530	1134	178.5	336	—	—	0.11	6.1	9.1	6.3

