

Single-row angular contact ball bearings

Single-row angular contact ball bearings can only carry pure axial loads in one direction, and the capacity increases with contact angle. The nominal contact angles are 15° , 25° and 40° . When the bearings carry radial loads, the inner and outer rings will be separated because of additional axial force. They are normally mounted in pairs.

Single-row angular contact ball bearings have two structures: separable and nonseparable, because of more balls in bearings, high loading capacity and stiffness can be gained.

The basic type of separable angular contact ball bearings is type S70000. Type SN70000 has separable inner ring, and the inner and outer ring can be mounted respectively when the installation conditions are restricted.

There are several basic types of nonseparable angular contact ball bearings as follows:

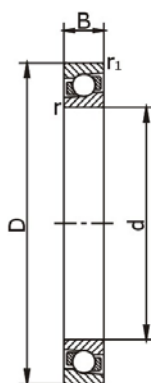
Type 70000C, in which, contact angle is 15° , and the counter bore is in outer ring.

Type 70000AC, in which, contact angle is 25° , and the counter bore is in outer ring.

Type 70000B, in which, contact angle is 40° , and the counter bore is in outer ring.

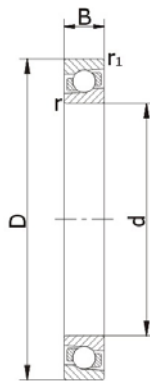
Metal solid cages are mainly used in single-row angular contact ball bearings. Phenolic cloth laminated tube solid cages are usually used for high speed applications, and the maximum temperature is 120°C .

Single-row angular contact ball bearings

Type 70000
(Type 6000)

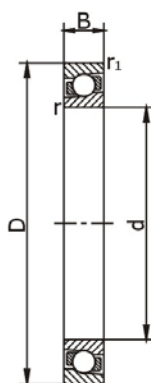
Boundary dimensions					Basic load ratings		Designations		Mass	Limiting speeds	
mm					kN					r/min	
d	D	B	r _{min}	r _{1min}	Cr	Cor	Current	Original	kg	Grease	Oil
150	190	20	1.1	0.6	53.5	74.5	71830AC	—	1.32	2400	3400
	210	28	2	1	90	120	71930AC	—	3	2400	3400
	225	35	2.1	1.1	153	130	7030AC	46130	4.83	2000	3000
	270	45	3	1.1	241	218	7230AC	46230	12.1	1800	2600
	320	65	4	1.5	360	375	7330AC	46330	25.8	1700	2400
	320	65	4	1.5	310	310	7330B	66330	25.8	1600	2200
160	240	38	2.1	1.1	161	139	7032AC	46132	5.81	2000	3000
	279	40	2.1	1.1	204	182	—	46932	11.6	2000	2800
	290	48	3	1.1	262	247	7232C	36232	14.5	1800	2600
	290	48	3	1.1	249	232	7232AC	46232	14.5	1700	2400
170	215	22	1.1	0.6	80	110	71834C	—	2	2000	2800
	230	28	2	1	110	140	71934C	—	3.3	2000	3000
	260	42	2.1	1.1	193	171	7034AC	46134	8.25	2000	2800
	310	52	4	1.5	282	275	7234AC	46234	17.4	1600	2200
	310	52	4	1.5	320	325	7234C	36234	17.2	1700	2400
180	280	46	2.1	1.1	194	230	7036AC	46136	9.8	1600	2200
	320	52	4	1.5	335	345	7236C	36236	18.1	1500	2000
	320	52	4	1.5	315	325	7236AC	46236	18.1	1500	2000
	380	75	4	1.5	405	445	7336B	66336	37	1300	1800
190	260	33	2	1	139	177	71938AC	1046938	4.45	1800	2200
	290	46	2.1	1.1	214	200	7038AC	46138	10.7	1600	2200
	340	55	4	1.5	280	370	7238B	—	23	1500	2000
200	250	24	1.5	1	90	130	71840C	—	2.5	1800	2200
	280	38	2.1	1.1	150	210	71940AC	—	7.1	1600	2200
	310	51	2.1	1.1	253	248	7040AC	46140	14	1500	2000
	360	58	4	1.5	375	410	7240C	36240	25.2	1400	1900
	360	58	4	1.5	355	385	7240AC	46240	25.2	1300	1800
	360	58	4	1.5	310	325	7240B	66240	25.8	1200	1700
210	240	15	1.1	1.1	30	50	70842X3	—	1	1800	2200
220	300	38	2.1	1.1	200	250	71944AC	—	7.2	1800	2200
	400	65	4	1.5	358	482	7244AC	46244	38.5	1100	1600
240	320	38	2.1	1.1	203	285	71948C	1036948	8.37	1200	1700
	320	38	2.1	1.1	181	260	71948AC	1046948	8.37	1100	1600
	320	38	2.1	1.1	161	233	71948B	1066948	8.43	1000	1500
	320	48	2.1	1.1	184	190	72948AC	2046948	10	1100	1600
	440	72	4	1.5	420	490	7248B	66248	50.9	1000	1500
260	320	28	2	1	127	190	71852AC	1046852	4.85	1400	1900
	360	46	2.1	1.1	242	345	71952AC	1046952	13.5	1300	1800

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Type 70000
(Type 6000)

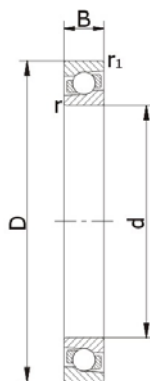
Boundary dimensions					Basic load ratings		Designations		Mass	Limiting speeds	
mm					kN					r/min	
d	D	B	r _{min}	r _{1min}	Cr	Cor	Current	Original	kg	Grease	Oil
260	320	28	2	1	127	190	71852AC	1046852	4.85	1400	1900
	360	46	2.1	1.1	242	345	71952AC	1046952	13.5	1300	1800
	400	65	4	1.5	291	431	7052B	66152	28.5	1000	1500
	480	80	5	2	456	702	7252B	66252	66	900	1300
270	330	30	2.1	1.1	90.8	144	7654B	66754	5.75	1300	1700
280	350	33	2	1	140	216	71856AC	1046856	7.2	1200	1700
	380	46	2.1	1.1	226	337	71956AC	1046956	15	1100	1600
	420	65	4	1.5	287	450	7056B	66156	30	900	1400
320	400	38	2.1	1.1	190	290	71864	—	10	800	1000
	440	56	3	1.1	350	550	71964	—	25.5	800	1000
340	460	56	3	1.1	292	510	71968B	1066968	27.5	800	1000
	520	82	5	2	410	700	7068B	66168	63	800	1000
360	480	56	3	1.1	350	600	71972	—	29	800	1000
	540	82	5	2	530	960	7072C	36172	62.4	800	1000
	540	82	5	2	468	855	7072AC	46172	62.5	850	1200
	650	95	6	3	585	1125	7272B	66272	145	700	950
380	440	25	3	1.1	110	178	7676B	66776	7.1	960	1200
	480	31	2	1	171	310.5	70876AC	7046876	13.5	850	1200
	480	46	2.1	1.1	261.9	450	71876AC	1046876	18	1700	2400
	520	65	4	1.5	369	661.5	71976AC	1046976	40.5	850	1200
	520	82	4	1.5	407	733	72976AC	2046976	48.9	700	900
	560	82	5	2	456	855	7076AC	46176	65.5	800	1100
	560	82	5	2	421	792	7076B	66176	65.5	750	1000
400	540	65	4	1.5	380.7	702	71980AC	1046980	42	800	1100
	600	90	5	2	544.5	1062	7080AC	46180	90.5	750	1000
	600	90	5	2	474	918	7080B	66180	90.5	700	950
	720	103	6	3	656.2	1350	7280B	66280	190	600	800
420	560	65	4	1.5	380.7	720	71984AC	1046984	44.5	750	1000
	560	65	4	1.5	327	603	71984B	1066984	44.5	700	950
	620	90	5	2	544.5	1062	7084AC	46184	95	750	1000
	620	90	5	2	486	954	7084B	66184	95	670	900
440	600	74	4	3	456.3	936	71988AC	1046988	61	750	1000
	650	94	6	3	585	1186	7088AC	46188	100	700	950
	650	94	6	3	514	1060	7088B	66188	100	630	850
460	540	35	2.1	1.5	280	520	S7692	6792	14	750	1000
	580	37	2.1	1	230	504	70892AC	7046892	24.5	750	1000
	580	56	3	3	334	689	71892AC	1046892	34.5	750	1000
	620	74	4	1.5	456	936	71992AC	1046992	58	850	1200
	680	100	6	3	620	1314	7092AC	46192	120	670	900
	680	100	6	3	556	1160	7092B	66192	120	600	800

Single-row angular contact ball bearings

Type 70000
(Type 6000)

Boundary dimensions					Basic load ratings		Designations		Mass	Limiting speeds	
mm					kN					r/min	
d	D	B	r _{min}	r _{1min}	Cr	Cor	Current	Original	kg	Grease	Oil
480	600	56	3	1.1	415	820	71896	—	35.5	850	1200
	700	100	6	3	632	1377	7096AC	46196	125	630	850
	700	100	6	3	561	1200	7096B	66196	125	560	750
500	620	37	2.1	1.1	248	558	708/500AC	70468/500	27	670	900
	620	56	3	1.1	351	765	718/500AC	10468/500	38	670	900
	670	78	5	2	498	1098	719/500AC	10469/500	78	630	850
	720	100	6	3	644	1440	70/500AC	461/500	130	600	800
	720	100	6	3	573	1260	70/500B	661/500	130	560	750
508	600	30	2.1	1.5	150	320	76/508	—	16.5	670	900
530	650	56	3	1.1	369	837	718/530AC	10468/530	39.5	1100	1600
	650	56	3	1.1	351	810	718/530B	10668/530	39.5	630	850
	710	82	5	2	556	1206	719/530AC	10469/530	92	1000	1500
	760	100	6	6	680	1500	307368B	—	150	560	750
	780	112	6	3	813	1944	70/530AC	461/530	175	560	750
780	112	6	3	666	1530	70/530B	661/530	175	500	670	
560	680	56	3	1.1	341	837	718/560AC	10468/560	41.5	600	800
	750	85	5	2	533	1161	719/560AC	10469/560	105	560	750
	820	115	6	3	814	1944	70/560AC	461/560	195	530	700
600	730	42	3	1.1	304	662	708/600AC	70468/600	38.5	560	750
	730	60	3	1.1	421	1044	718/600AC	10468/600	47	560	750
	800	90	5	2	644	1557	719/600AC	10469/600	125	900	1300
	870	118	6	3	796	1944	70/600AC	461/600	230	480	630
630	920	128	7.5	4	860	2205	70/630AC	461/630	270	430	560
670	820	69	4	1.5	498	1161	718/670AC	10468/670	77	850	1200
	980	136	7.5	4	1053	2790	70/670AC	461/670	340	430	560
710	870	74	4	1.5	546	1467	718/710AC	10468/710	93.5	800	1100
	950	106	6	3	767	1980	719/710AC	10469/710	195	800	1100
	1030	140	7.5	4	1071	2925	70/710AC	461/710	370	400	530
750	920	78	5	2	585	1620	718/750AC	10468/750	110	400	530
	1090	150	7.5	4	1170	3285	70/750AC	461/750	445	360	480
800	1150	155	7.5	4	1197	3420	70/800AC	461/800	500	340	450
850	1030	82	5	2	620	1674	718/850AC	10468/850	140	340	450
	1220	165	7.5	4	1377	4185	70/850AC	461/850	595	300	400
900	1180	122	6	3	940	2670	719/900	—	350	300	400
	1280	170	7.5	4	1404	4410	70/900AC	461/900	665	280	380
950	1360	180	7.5	4	1467	4680	70/950AC	461/950	805	240	340
980	1100	60	4	2	515	1450	719/980X1	—	65.6	240	340
1000	1220	100	6	3	831	2475	718/1000AC	10468/1000	245	260	360
	1420	185	7.5	4	1467	4860	70/1000AC	461/1000	890	220	320

Single-row angular contact ball bearings



Type 70000
(Type 6000)

Boundary dimensions					Basic load ratings		Designations		Mass	Limiting speeds	
mm					kN					r/min	
d	D	B	r _{min}	r _{1min}	Cr	Cor	Current	Original	kg	Grease	Oil
1060	1500	195	9.5	5	1512	5130	70/1060AC	461/1060	1050	200	300
1120	1360	106	6	3	954	3375	718/1120AC	10468/1120	320	200	300
	1580	200	9.5	5	1548	5265	70/1120AC	461/1120	1150	190	280
1140	1380	106	6	3	1180	3830	718/1140AC	10468/1140	318	190	280
1180	1660	212	9.5	5	1566	5580	70/1180AC	461/1180	1350	170	240
1250	1500	80	6	3	725	2430	708/1250AC	70468/1250	295	180	260
	1500	112	6	3	1026	3510	718/1250AC	10468/1250	390	180	260
	1750	218	9.5	5	1602	5895	70/1250AC	461/1250	1600	160	220

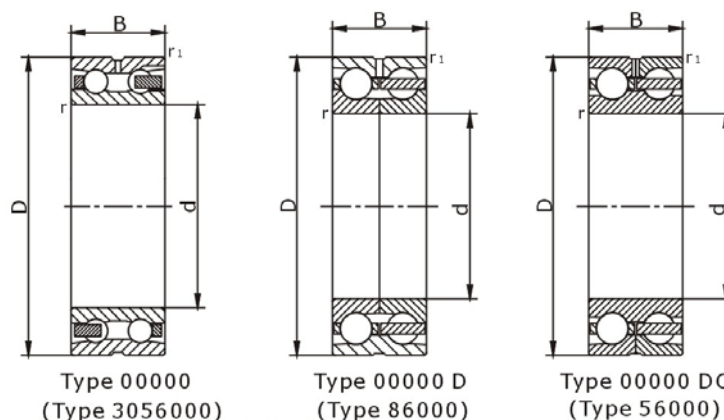
Double-row angular contact ball bearings

Double-row angular contact ball bearings are nonseparable. They can carry combined loads which is main in radial and moment loads, and limit axial displacement of shafts or housings in two directions, the nominal contact angle is 30° , they have higher stiffness comparing with single-row angular contact ball bearings. They correspond to a pair of single-row angular contact ball bearings mounted back to back, but the width is narrower. Therefore, they are especially suitable for applications required high stiffness.

Double-row angular contact ball bearings usually have fitting slot, the side of the raceway without fitting slot must carry main loads when bearings are in use.

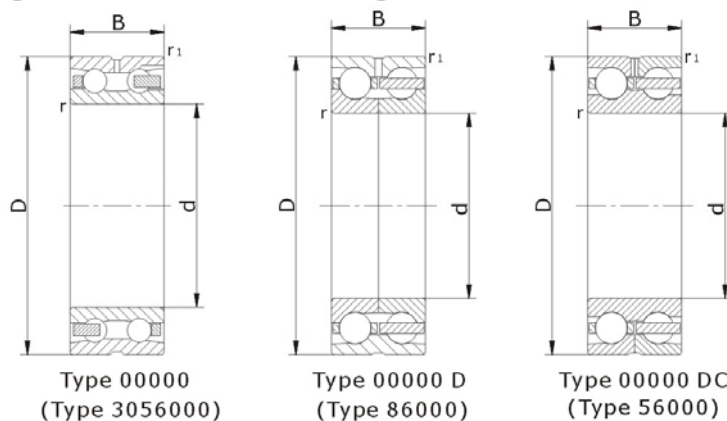
The obliquity is limited between inner and outer rings of double-row angular contact ball bearings, the permissible slant angles depend on the internal clearance, dimensions, internal design, the forces and the moments of the bearings. It must be ensured that higher additional stress can't be formed in bearings when the permissible slant angle is maximum. The bearing life will be shortened, the running accuracy will be reduced and the noise will be increased if there was slant angle between inner and outer rings. Nylon or brass solid cages are generally used in double-row angular contact ball bearings.

Double-row angular contact ball bearings



Boundary dimensions					Basic load ratings		Designations		Mass	Limiting speeds	
mm					kN					r/min	
d	D	B	r _{min}	r _{1min}	Cr	Cor	Current	Original	kg	Grease	Oil
100	180	60.3	2.1	2.1	142	220	3220	3056220	6.1	2000	3000
	215	82.6	3	3	230	355	3320	3056320	13.5	1800	2600
110	200	69.8	2.1	2.1	170	270	3222	3056222	8.8	1900	2800
	240	92.1	3	3	262	425	3322	3056322	19	1700	2400
140	210	69	2	2	178	237	4028D	4086128	8.2	1700	2400

Double-row angular contact ball bearings



Boundary dimensions					Basic load ratings		Designations		Mass	Limiting speeds	
mm					kN					r/min	
d	D	B	r _{min}	r _{1min}	Cr	Cor	Current	Original	kg	Grease	Oil
150	209.5	55	2	2	160	250	—	86930	6	1700	2400
	225	73	2	2	180	255	4030X2D	86730	10.7	1600	2200
	230	70	2	2	212	325	4030X3D	86830	11.5	1600	2200
160	240	76	2.1	1.1	230	320	4032X2D	305183	10.6	1600	2200
	240	58	2.1	2.1	185	286	3032X2D	3086132	9.6	1600	2200
	240	80	2.1	2.1	224	306	4032D	4086132	12.6	1600	2200
170	230	56	2.1	2.1	165	255	4934X3D	86734	7.5	1600	2200
	260	90	2.1	2.1	228	385	4034X2D	4086134	18	1400	1900
180	280	92	2.1	2.1	290	440	4036X2D	4086136	22	1300	1800
	280	100	2.1	2.1	290	440	4036D	4086136	24	1400	1900
190	290	92	2.1	2.1	284	424	4038X2D	15638	22.4	1200	1700
	290	100	2.1	2.1	284	424	4038D	4086138	22.3	1300	1800
200	310	109	2.1	2.1	340	538	4040D	4086140	29.5	1200	1700
	310	96	2.1	2.1	340	538	4040X2DC	4056140	29.5	1300	1800
220	309.5	76	2.1	2.1	259	400	4944X3D	86744	17.2	1000	1500
	340	118	3	3	361	591	4044D	4086144	37.2	1000	1500
230	330	80	2.1	2.1	110	500	4946X1D	86746	11	1000	1500
240	360	118	3	3	383	661	4048D	4086148	43.5	950	1400
	440	144	4	4	576	1060	3248X2D	86748	101	800	1100
260	359.5	92	2.1	2.1	650	1100	4952X2D	86952	28	800	1100
	369.5	92	4	4	325	560	4952X3D	86752	32.9	850	1200
	400	140	3	3	410	720	4052D	4086152	69.9	950	1300
280	389.5	92	4	4	367	658	4956X3D	86756K	35.3	850	1200
	420	140	3	3	441	892	4056D	4086156	82.5	800	1100
300	460	160	3	3	475	1090	4060D	4086160	101	800	1100
320	459.5	140	4	4	504	1010	4064X3D	86764	73.9	750	1000
	480	160	3	3	496	1200	4064D	4086164	120	750	1000
340	520	180	3	3	525	1360	4068D	4086168	132	700	950