



ABS

**GLOBAL BEARING
SOLUTIONS**

CATALOGUE



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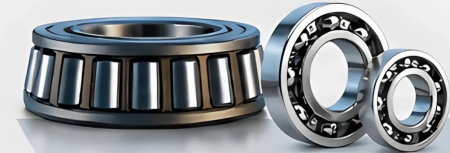
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ABOUT ABS BEARING

Accurate Bearings Set CO., Ltd (ABS) is a leading Italian bearing manufacturer, specializing in high-quality tapered roller bearings and deep groove ball bearings. With advanced production technology, strict quality control, and a commitment to innovation, we deliver reliable solutions for industrial applications worldwide.



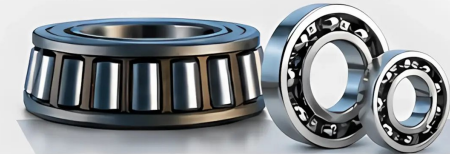
PRECISION ENGINEERED
High performance, built to last.

CERTIFIED QUALITY
IATF 16949:2016 Certified.

GLOBAL SOLUTIONS
Trusted by industries around the world



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TAPERED ROLLER BEARING

ABS

Engineered for high radial and axial load applications, ABS tapered roller bearings offer exceptional performance, precision, and durability in demanding environments.

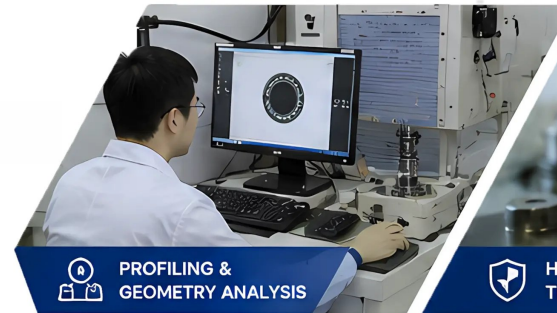


QUALITY ASSURANCE & TESTING

At ABS, quality is engineered into every stage of production. Our state-of-the-art testing laboratory ensures that every bearing meets international standards and delivers reliable performance..



DIMENSIONAL MEASUREMENT



PROFILING & GEOMETRY ANALYSIS



HARDNESS TESTING



NOISE & VIBRATION TESTING



DURABILITY & LIFE TESTING

Through advanced testing procedures and strict quality control, ABS bearings provide long service life, high reliability, and consistent performance worldwide.



ADVANCED TESTING EQUIPMENT



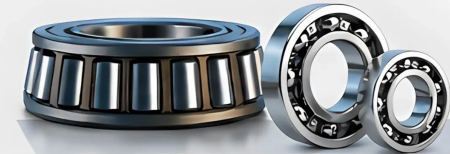
STRICT QUALITY CONTROL



HIGH PRECISION



INTERNATIONAL STANDARDS



1. Materials



1.From the source to control the quality of steel,"Fixed-point procurement" and regularly send staff"inspection supervision"
2.Each batch of steel for sampling testing.Among them: trace element content.non-metallic inclusions and high and low times the organization are higher than the national standard.

2. Forging



1.High speed forging and cold rolling process,So that the material is dense and the carbides are evenly distributed, As far as possible to improve the bearing life.

6. Assembly



1.The combination of automatic and semi-automatic assembly, To achieve the best supporting bearings
100% automated equipment inspection, and thus ensure a stable product quality

3. Turning

1.Tuning using a reliable automated production lines, high efficiency, quality and stability.



5. Grinding

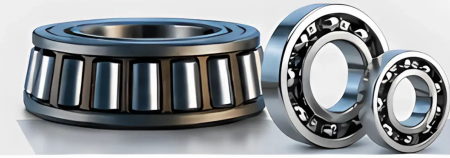


1.Grinding process in strict accordance with ISO/TS16949 system quality control, The equipment, operators, processes, such as quantitative, transparent control
2.Adopt advanced automatic grinding processing production line, Improve efficiency, reduce errors, optimize the performance of the product

4. Heat Treatment



1.Use Salt martensite quenching , Effectively improve the product microstructure, fatigue strength and other properties, then improve the service life of bearing.



○ Single and double row tapered roller bearings



○ Deep groove ball bearing stainless steel bearing



○ Spherical Roller Bearings



○ Automatic, Oil seals, Bushing



○ Truck reducer hub unit bearing

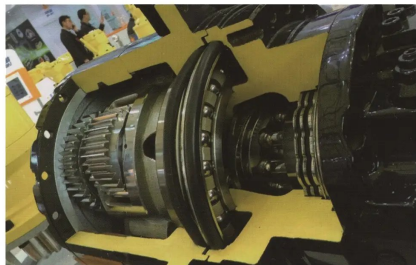
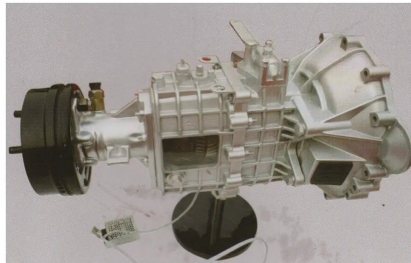
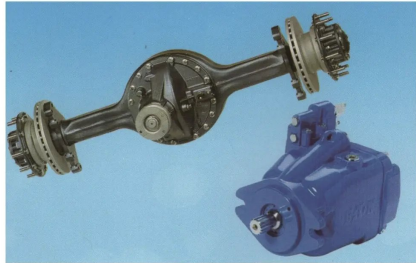


○ Agricultural machinery and outer spherical bearing



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AUTOMOBILE

Car steering gear, differential, axles, chassis systems.

ENGINEERING MACHINERY

Excavator, loader, roller, mixer, hoist, mining chassis, axle, reducer, gear box.

CERAMICS, STONE MACHINERY

Furnace, milling machine, ball mill, press, tile automatic polishing machine..

ELEVATOR

Reduced friction, Increased efficiency, Enhanced load capacity, Improved durability,

HEAVY MINING, PETROLEUM MACHINERY

Petroleum drilling, oil pumping machinery, mining-machinery crushing equipment drilling machine, Tunneling machine, etc.

AIR-BLOW

High, medium and low fan, mechanical blower, sidestream blower, multi-stage centrifugal blower.

AGRICULTURAL MACHINERY

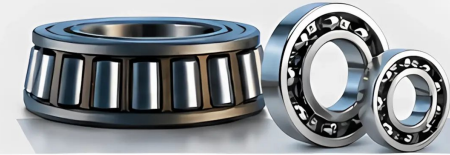
Automatic grain harvester, rice cutting machinery combine harvester, wheatcorn harvesters, etc.

MECHANICAL

Textile machinery, food machinery, packaging machinery, wind power equipment ships, paper machinery, printing machinery.



GLOBAL BEARING SOLUTIONS



BEARING STEEL MATERIAL TRADE-MARK & COMPOSITION

Steel	CHIAN	International	U.S.A	Germany	Japan	Sweden
	GB	ISO	ANSI/ABMA	DIN	JIS	SKF
铬钢	GCr15	1(683/XVII)	ASTM52100	100Cr6	SUJ2	SKF3

材料牌号 Steel NO.	C	Cr	Si	Mn	MO	S	P
GcR15	0.95~1.05%	1.30~1.65%	0.15~0.35%	0.20~0.40%	≤0%	≤0.02%	≤0.03%
GCr15SiMn	0.95~1.05%	1.40~1.65%	0.45~0.75%	0.95~1.25%	≤0.8%	≤0.025%	≤0.025%

VIBRATION ACCELERATION)DB AND VIBRATION (SPEED)UM/S

Bearing	Deep Groove Ball Bearings Vibration(Acceleration)db																							
	bore	Diameter Series(0)				Diameter Series(2)				Diameter Series(3)				Diameter Series(8)				Diameter Series(9)						
d (mm)	Z	Z1	Z2	Z3	Z	Z1	Z2	Z3	Z4	Z	Z1	Z2	Z3	Z4	Z1	Z2	Z3	Z4	Z1	Z2	Z3	Z4		
5~6	37	36	34	30	38	37	34	32	-	39	37	35	33	-	-	-	-	-	-	-	-	-		
7~8	39	38	35	31	40	38	36	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
9	41	40	36	32	42	40	37	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
10	43	42	38	33	44	42	39	35	30	46	44	40	37	32	42	40	37	34	41	39	36	33		
12	44	43	39	34	45	43	39	35	30	47	45	40	37	32	42	40	37	34	41	39	36	33		
15	45	44	40	35	46	44	41	36	31	48	46	42	38	33	44	42	39	36	43	41	38	35		
17	46	44	40	35	47	45	41	36	31	49	47	42	38	33	44	42	39	36	43	41	38	35		
20	47	45	41	36	48	46	42	38	33	50	48	43	39	34	45	43	40	37	44	42	39	35		
25	48	46	42	38	49	47	43	40	36	51	49	44	41	37	47	45	42	39	46	44	41	36		
28	49	47	43	39	50	48	44	41	37	52	50	45	42	38	48	46	43	40	47	45	42	37		
30	50	47	43	39	50	48	44	41	37	52	50	45	42	38	48	46	43	40	47	45	42	37		
32	51	48	44	40	51	49	45	42	38	53	51	46	43	39	49	47	44	41	48	46	43	38		
35	52	49	45	41	52	50	46	43	39	54	52	47	44	40	50	48	45	42	49	47	44	39		
40	53	51	46	42	54	52	47	44	40	56	54	49	45	41	52	50	46	44	51	49	47	42		
45	55	53	48	45	56	54	49	46	43	58	56	51	47	44	55	53	48	45	56	54	49	46		
50	57	54	50	47	58	55	51	48	45	60	57	53	49	46	57	54	50	47	58	55	51	48		
55	59	56	52	49	60	57	53	50	47	62	59	54	51	48	-	-	-	-	-	-	-	-		
60	61	58	54	51	62	59	54	51	48	64	61	56	53	50	-	-	-	-	-	-	-	-		

VARIOUS TYPES OF BEARING PERFORMANCE COMPARISON TABLE

BEARING TYPE	DEEP GROOVE BALL BEARING	ANGULAR CONTACT BALL BEARING			FOUR POINT CONTACT BALL BEARING	SELF ALIGNING BALL BEARING	CYLINDRICAL ROLLER BEARING				
		SINGLE ROW	PAIRED	DOUBLE ROW			NU,N	NJ,NF	NUP,NH	NNU,NN	
LOAD CAPACITY	RADIAL LOAD	○	○	★	★	○	○	★	★	★	★
	AXIAL LOAD	○	★	★	★	★	△	△	△	△	×
	COMBINED LOAD	○	○	★	★	○	△	△	△	△	×
	SHOCK RESISTANCE	△	△	△	△	△	△	★	★	★	★
HIGH-SPEED ROTATION	★	★	★	○	★	△	★	★	★	★	
HIGH-PRECISION ROTATION	★	★	★	★	★	△	★	★	★	★	
LOW NOISE AND LOW TORQUE	★						○				
RIGIDITY			○		○		○	○	○		★
ALLOWABLE INNER AND OUTER RING MISALIGNMENT	○	△	△	×	×	★	△	△	△	△	△
INNER AND OUTER RING SEPARATION	×	×	×	×	■	×	■	■	■	■	■
CONFIGURATION	FIXED END USE	■	■	■	■	■	×	■	■	■	×
	FREE END USE	□	□	□	□	□	■	□	□	□	■

Bearing	Deep Groove Ball Bearings Vibration(Acceleration)db																							
	bore	Diameter Series(0)				Diameter Series(2)				Diameter Series(3)				Diameter Series(8)				Diameter Series(9)						
d (mm)	Z	Z1	Z2	Z3	Z	Z1	Z2	Z3	Z4	Z	Z1	Z2	Z3	Z4	Z1	Z2	Z3	Z4	Z1	Z2	Z3	Z4		
5~6	37	36	34	30	38	37	34	32	-	39	37	35	33	-	-	-	-	-	-	-	-	-		
7~8	39	38	35	31	40	38	36	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
9	41	40	36	32	42	40	37	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
10	43	42	38	33	44	42	39	35	30	46	44	40	37	32	42	40	37	34	41	39	36	33		
12	44	43	39	34	45	43	39	35	30	47	45	40	37	32	42	40	37	34	41	39	36	33		
15	45	44	40	35	46	44	41	36	31	48	46	42	38	33	44	42	39	36	43	41	38	35		
17	46	44	40	35	47	45	41	36	31	49	47	42	38	33	44	42	39	36	43	41	38	35		
20	47	45	41	36	48	46	42	38	33	50	48	43	39	34	45	43	40	37	44	42	39	35		
25	48	46	42	38	49	47	43	40	36	51	49	44	41	37	47	45	42	39	46	44	41	36		
28	49	47	43	39	50	48	44	41	37	52	50	45	42	38	48	46	43	40	47	45	42	37		
30	50	47	43	39	50	48	44	41	37	52	50	45	42	38	48	46	43	40	47	45	42	37		
32	51	48	44	40	51	49	45	42	38	53	51	46	43	39	49	47	44	41	48	46	43	38		
35	52	49	45	41	52	50	46	43	39	54	52	47	44	40	50	48	45	42	49	47	44	39		
40	53	51	46	42	54	52	47	44	40	56	54	49	45	41	52	50	46	44	51	49	47	42		
45	55	53	48	45	56	54	49	46	43	58	56	51	47	44	55	53	48	45	56	54	49	46		
50	57	54	50	47	58	55	51	48	45	60	57	53	49	46	57	54	50	47	58	55	51	48		
55	59	56	52	49	60	57	53	50	47	62	59	54	51	48	-	-	-	-	-	-	-	-		
60	61	58	54	51	62	59	54	51	48	64	61	56	53	50	-	-	-	-	-	-	-	-		

★: Excellent ○: Good △: Average ×: Poor →: Single Direction ↔: Bi-Direction □: Suitable ■: Suitable, but axial elongation must be avoided



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TECHNICAL CONDITIONS FOR VIBRATION OF TAPERED ROLLER BEARINGS

Tapered Roller Bearings															
Bearing	Vibration (Acceleration) db								Vibration (Speed) um/s						
	Diameter Series (30200, 32200)				Diameter Series (30300, 32300)				All Series						
	Z	Z1	Z2	Z3	Z	Z1	Z2	Z3	V1			V2			
d (mm)										Low	Medium	High	Low	Medium	High
15	-	-	-	-	56	54	50	-	310	500	500	220	360	360	
17	56	54	50	-	58	56	52	-	330	550	550	240	400	400	
20	57	55	51	-	61	58	53	-	330	550	550	240	400	400	
25	58	56	53	-	64	61	56	-	360	590	600	280	440	450	
30	59	56	54	-	67	64	59	-	360	590	600	280	440	450	
35	61	58	54	-	68	65	60	-	400	640	670	320	480	500	
40	63	60	55	-	69	66	61	-	440	690	740	360	530	560	
45	65	62	57	-	69	66	61	-	440	690	740	360	530	560	
50	67	64	59	-	71	68	63	-	480	750	810	400	600	620	
55	69	66	61	-	74	71	66	-	480	750	810	400	600	680	
60	71	68	63	-	77	74	69	-	530	850	1000	450	680	760	

DEEP GROOVE BALL BEARING RADIAL CLEARANCE

Inner diameter d (mm)	C2	C0		C3		C4		C5	
		Exceed	Arrive	min	max	min	max	min	max
2.5	6	0	7	2	13	8	23	-	-
6	10	0	7	2	13	8	23	14	29
10	18	0	9	3	18	11	25	18	33
18	24	0	10	5	20	13	28	20	36
24	30	1	11	5	20	13	28	23	41
30	40	1	11	6	20	15	33	28	46
40	50	1	11	6	23	18	36	30	51
50	65	1	15	8	28	23	43	38	61
65	80	1	15	10	30	25	51	46	71
80	100	1	18	12	36	30	58	53	84
100	120	2	20	15	41	36	66	61	97
120	140	2	23	18	48	41	81	71	114
140	160	2	23	18	53	46	91	81	130
160	180	2	25	20	61	53	102	91	147
180	200	2	30	25	71	63	117	107	163
200	225	2	35	25	85	75	140	125	195
225	250	2	40	30	95	85	160	145	225
250	280	2	45	35	105	90	170	155	245
280	315	2	55	40	115	100	190	175	270
315	355	3	60	45	125	110	210	195	300
355	400	3	70	55	145	130	240	225	340
400	450	3	80	60	170	150	270	250	380
450	500	3	90	70	190	170	300	280	420
500	560	10	100	80	210	190	330	310	470
560	630	10	110	90	230	210	360	340	520
630	710	20	130	110	260	240	400	380	570
710	800	20	140	120	290	270	450	430	630
800	900	20	160	140	320	300	500	480	700
900	1000	20	170	150	350	330	550	530	770
1000	1120	20	180	160	380	360	600	580	850
1120	1250	20	190	170	410	390	650	630	920

RADIAL CLEARANCE OF TAPERED BORE SELF-ALIGNING BALL BEARING

Inner diameter d (mm)	C2		C0		C3		C4		C5	
	Exceed	Arrive	min	max	min	max	min	max	min	max
18	24	7	17	13	26	20	33	28	42	37
24	30	9	20	15	28	23	39	33	50	44
30	40	12	24	19	35	29	46	40	59	52
40	50	14	27	22	39	33	52	45	65	58
50	65	18	32	27	47	41	61	56	80	73
65	80	23	39	35	57	50	75	69	98	91
80	100	29	47	42	68	62	90	84	116	109
100	120	35	56	50	81	75	108	100	139	130
120	140	40	68	60	98	90	130	120	165	155
140	160	45	74	65	110	100	150	140	191	180

THE RADIAL CLEARANCE OF THE SELF-ALIGNING BALL BEARING WITH A CYLINDRICAL BORE IS

Inner diameter d (mm)	C2		C0		C3		C4		C5	
	Exceed	Arrive	min	max	min	max	min	max	min	max
2.5	6	1	8	5	15	10	20	15	25	21
6	10	2	9	6	17	12	25	19	33	27
10	14	2	10	6	19	13	26	21	35	30
14	18	3	12	8	21	15	28	23	37	32
18	24	4	14	10	23	17	30	25	39	34
24	30	5	16	11	24	19	35	29	46	40
30	40	6	18	13	29	23	40	34	53	46
40	50	6	19	14	31	25	44	37	57	50
50	65	7	21	16	36	30	50	45	69	62
65	80	8	24	18	40	35	60	54	83	76
80	100	9	27	22	48	42	70	64	96	89
100	120	10	31	25	56	50	83	75	114	105
120	140	10	38	30	68	60	100	90	135	125
140	160	15	44	35	80	70	120	110	161	150

RADIAL CLEARANCE OF CYLINDRICAL ROLLER BEARING WITH CYLINDRICAL BORE

Inner diameter d (mm)	C2		C0		C3		C4		C5	
	Exceed	Arrive	min	max	min	max	min	max	min	max
10	24	0	25	20	45	35	60	50	75	-
24	30	0	25	20	45	35	60	50	75	65
30	40	5	30	25	50	45	70	60	85	80
40	50	5	35	30	60	50	80	70	100	95
50	65	10	40	40	70	60	90	80	110	110
65	80	10	45	40	75	65	100	90	125	130
80	100	15	50	50	85	75	110	105	140	155
100	120	15	55	50	90	85	125	125	165	180
120	140	15	60	60	105	100	145	145	190	200
140	160	20	70	70	120	115	165	165	215	225
160	180	25	75	75	125	120	170	170	220	250
180	200	35	90	90	145	140	195	195	250	275
200	225	45	105	105	165	160	220	220	280	305
225	250	45	110	110	175	170	235	235	300	330
250	280	55	125	125	195	190	260	260	330	370
280	315	55	130	130	205	200	275	275	350	410
315	355	65	145	145	225	225	305	305	385	455
355	400	100	190	190	280	280	370	370	460	510
400	450	110	210	210	310	310	410	410	510	565
450	500	110	220	220	330	330	440	440	550	625



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○ RADIAL CLEARANCE OF CYLINDRICAL BORE SELF-ALIGNING ROLLER BEARING

Inner diameter d (mm)		C2		C0		C3		C4		C5	
Exceed	Arrive	min	max	min	max	min	max	min	max	min	max
14	18	10	20	20	35	35	45	45	60	60	75
18	24	10	20	20	35	35	45	45	60	60	75
24	30	15	25	25	40	40	55	55	75	75	95
30	40	15	30	30	45	45	60	60	80	80	100
40	50	20	35	35	55	55	75	75	100	100	125
50	65	20	40	40	65	65	90	90	120	120	150
65	80	30	50	50	80	80	110	110	145	145	180
80	100	35	60	60	100	100	135	135	180	180	225
100	120	40	75	75	120	120	160	160	210	210	260
120	140	50	95	95	145	145	190	190	240	240	300
140	160	60	110	110	170	170	220	220	280	280	350
160	180	65	120	120	180	180	240	240	310	310	390
180	200	70	130	130	200	200	260	260	340	340	430
200	225	80	140	140	220	220	290	290	380	380	470
225	250	90	150	150	240	240	320	320	420	420	520
250	280	100	170	170	260	260	350	350	460	460	570
280	315	110	190	190	280	280	370	370	500	500	630
315	355	120	200	200	310	310	410	410	550	550	690
355	400	130	220	220	340	340	450	450	600	600	750
400	450	140	240	240	370	370	500	500	660	660	820
450	500	140	260	260	410	410	550	550	720	720	900
500	560	150	280	280	440	440	600	600	780	780	1000
560	630	170	310	310	480	480	650	650	850	850	1100
630	710	190	350	350	530	530	700	700	920	920	1190
710	800	210	390	390	580	580	770	770	1010	1010	1300
800	900	230	430	430	650	650	860	860	1120	1120	1440
900	1000	260	480	480	710	710	930	930	1220	1220	1570

○ RADIAL CLEARANCE OF TAPERED BORE SELF-ALIGNING ROLLER BEARING

Inner diameter d (mm)		C2		C0		C3		C4		C5	
Exceed	Arrive	min	max	min	max	min	max	min	max	min	max
18	24	15	25	25	35	35	45	45	60	60	75
24	30	20	30	30	40	40	55	55	75	75	95
30	40	25	35	35	50	50	65	65	85	85	105
40	50	30	45	45	60	60	80	80	100	100	130
50	65	40	55	55	75	75	95	95	120	120	160
65	80	50	70	70	95	95	120	120	150	150	200
80	100	55	80	80	110	110	140	140	180	180	230
100	120	65	100	100	135	135	170	170	220	220	280
120	140	80	120	120	160	160	200	200	260	260	330
140	160	90	130	130	180	180	230	230	300	300	380
160	180	100	140	140	200	200	260	260	340	340	430
180	200	110	160	160	220	220	290	290	370	370	470
200	225	120	180	180	250	250	320	320	410	410	520
225	250	140	200	200	270	270	350	350	450	450	570
250	280	150	220	220	300	300	390	390	490	490	620
280	315	170	240	240	330	330	430	430	540	540	680
315	355	190	270	270	360	360	470	470	590	590	740
355	400	210	300	300	400	400	520	520	650	650	820
400	450	230	330	330	440	440	570	570	720	720	910
450	500	260	370	370	490	490	630	630	790	790	1000
500	560	290	410	410	540	540	680	680	870	870	1100
560	630	320	460	460	600	600	760	760	980	980	1230
630	710	350	510	510	670	670	850	850	1090	1090	1360
710	800	390	570	570	750	750	960	960	1220	1220	1500
800	900	440	640	640	840	840	1070	1070	1370	1370	1690
900	1000	490	710	710	930	930	1190	1190	1520	1520	1860

○ RADIAL CLEARANCE OF FOUR-ROW CYLINDRICAL ROLLER BEARINGS

Inner diameter d (mm)		C2		C0		C3		C4		C5	
Exceed	Arrive	min	max	min	max	min	max	min	max	min	max
80	100	15	50	50	85	75	110	105	140	155	190
100	120	15	55	50	90	85	125	125	165	180	220
120	140	15	60	60	105	100	145	145	190	200	245
140	160	20	70	70	120	115	165	165	215	225	275
160	180	25	75	75	125	120	170	170	220	250	300
180	200	35	90	90	145	140	195	195	250	275	330
200	225	45	105	105	165	160	220	220	280	305	365
225	250	45	110	110	175	170	235	235	300	330	395
250	280	55	125	125	195	190	260	260	330	370	440
280	315	55	130	130	205	200	275	275	350	410	485
315	355	65	145	145	225	225	305	305	385	455	535
355	400	100	190	190	280	280	370	370	460	510	600
400	450	110	210	210	310	310	410	410	510	565	665
450	500	110	220	220	330	330	440	440	550	625	735
500	560	120	240	240	360	360	480	480	600	—	—
560	630	140	260	260	380	380	500	500	620	—	—
630	710	145	285	285	425	425	565	565	705	—	—
710	800	150	310	310	470	470	630	630	790	—	—
800	900	180	350	350	520	520	690	690	860	—	—
900	1000	200	390	390	580	580	770	770	960	—	—
1000	1120	220	430	430	640	640	850	850	1060	—	—
1120	1250	230	470	470	710	710	950	950	1190	—	—
1250	1400	270	530	530	790	790	1050	1050	1310	—	—

○ RADIAL CLEARANCE OF DOUBLE-ROW AND FOUR-ROW TAPERED ROLLER BEARINGS

Inner diameter d (mm)		C1		C2		C0		C3		C4		C5	
Exceed	Arrive	min	max	min	max	min	max	min	max	min	max	min	max
—	30	0	10	10	20	20	30	40	50	50	60	70	80
30	40	0	12	12	25	25	40	45	60	60	75	80	95
40	50	0	15	15	30	30	45	50	65	65	80	90	110
50	65	0	15	15	30	30	50	50	70	70	90	90	120
65	80	0	20	20	40	40	60	60	80	80	110	110	150
80	100	0	20	20	45	45	70	70	100	100	130	130	170
100	120	0	25	25	50	50	80	80	110	110	150	150	200
120	140	0	30	30	60	60	90	90	120	120	170	170	230
140	160	0	30	30	65	65	100	100	140	140	190	190	260
160	180	0	35	35	70	70	110	110	150	150	210	210	280
180	200	0	40	40	80	80	120	120	170	170	230	230	310
200	225	0	40	40	90	90	140	140	190	190	260	260	340
225	250	0	50	50	100	100	150	150	210	210	290	290	380
250	280	0	50	50	110	110	170	170	230	230	320	320	420
280	315	0	60	60	120	120	180	180	250	250	350	350	460
315	355	0	70	70	140	140	210	210	280	280	390	390	510
355	400	0	70	70	150	150	230	230	310	310	440	440	580
400	450	0	80	80	170	170	260	260	350	350	490	490	650
450	500	0	90	90	190	190	290	290	390	390	540	540	720
500	560	0	100	100	210	210	320	320	430	430	590	590	790
560	630	0	110	110	230	230	350	350	480	480	660	660	880
630	710	0	130	130	260	260	400	400	540	540	740	740	910
710	800	0	140	140	290	290	450	450	610	610	830	830	1100
800	900	0	160	160	330	330	500	500	670	670	920	920	1240
900	1000	0	180	180	360	360	540	540	720	720	980	980	1300
1000	1120	0	200	200	400	400	600	600	820				
1120	1250	0	220	220	450	450	670	670	900				
1250	1400	0	250	250	500	500	750	750	980				