



# 圆锥滚子轴承

Tapered Roller Bearings

圆锥滚子轴承的内外圈具有锥形滚道，滚道之间装有锥形滚子。如果将锥形面延伸，最终将会聚于轴承轴线上一点。该类轴承主要用于承受以径向负荷为主的径向、轴向联合复负荷。轴承的轴向承载能力由接触角 $\alpha$ ，即外圈滚道的角度决定， $\alpha$ 角越大，轴向承载能力就越大。圆锥滚子轴承为分离型轴承，带滚子和保持架的内圈构成内组件，外圈为外组件，内外组件可以分开安装。根据滚动体排列情况，可以把这类轴承划分为单列、双列和多列。

单列圆锥滚子轴承只能限制轴或外壳的一个方向的轴向位移，承受一个方向的轴向负荷。

双列圆锥滚子轴承在承受径向负荷的同时也可承受双向轴向负荷。可在轴承的轴向游隙范围内限制轴或外壳的双向轴向位移。

四列圆锥滚子轴承的性能与双列圆锥滚子轴承基本相同，可以承受较大的径向负荷，但极限转速低，主要用于重型机械，如轧钢机等。

圆锥滚子轴承不允许轴对外壳有倾斜，轴向游隙的大小，对其能否正常工作关系很大。轴向游隙过小时，温升较高；轴向游隙过大时，轴承容易损坏。所以在安装时要特别注意调整好单列轴承的轴向游隙，双列、四列轴承的游隙已在产品出厂时给定，不须用户再调整。

这类轴承主要应用于汽车前轮、后轮、变速器、差速器、小齿轮轴、机床主轴、建筑机械、大型农业机械、铁路车辆齿轮减速装置、轧钢机辊颈减速装置等。

## Tapered Roller Bearings

Tapered roller bearings have taper-formed raceways on inner and outer rings, and have taper-formed rollers between raceways. When the tapered sliding surfaces of the outer and inner rings as well as the rolling elements are extended, they would converge towards the same single point on the bearing axis line. These bearings can accommodate radial-axial combined loads replying mainly on radial load. The capacity of carrying axial load varies with the contact angle  $\alpha$  of the outer ring raceway, the greater the angle, the larger the capacity. Tapered roller bearings are separable formed bearings. Their rollers, cage and inner ring are called as cone, outer ring are named as cup. Cone and cup can be mounted respectively. The bearings are classified by elements as single row, double row and multiple row bearings.

Single row tapered roller bearings can limit only axial displacement of axis or housing in one direction, and carry axial load in one direction.

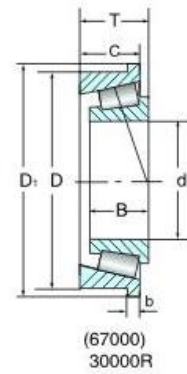
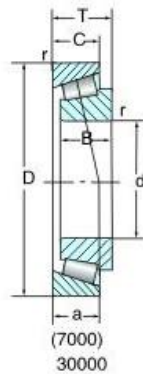
Double row tapered roller bearings can accommodate simultaneously radial load and also axial load in double directions. This design is possible to limit the axial displacement of the shaft or the housing in double directions within the scope of the axial clearance.

Four row tapered roller bearings are basically the same as the double row design in the functions and features. However, they can carry heavier load than the double row bearings, but with slightly slower limit rotational speed. Applications of these bearings can be found in the heavy machines such as the rolling mills etc.

Usually for tapered roller bearings there should be no angle misalignment between the shaft and the housing bore. Their axial clearances are important for the bearings operating normally. When the axial clearances are tighter, the temperature would be higher; when the axial clearances are looser, the bearings would be damaged easily. Therefore, the axial clearance of single row bearings should be paid particular attention to be turned well suitable while mounting. When being delivered ex works, the clearances for double and four row bearings have been fixed, so they are needless to be turned more by the users.

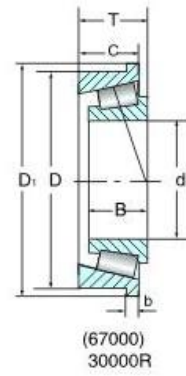
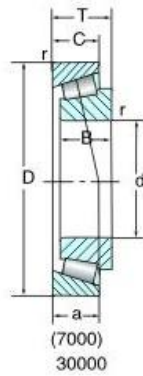
Applications of these bearings are found in automobile wheels (both rear and front), variable speed devices, differential mechanisms, small gear shafts, machine tool spindles, construction machines, large-sized agricultural machines, gear deceleration devices for railway vehicles, and the deceleration devices for mill roll necks etc.

# 单列圆锥滚子轴承



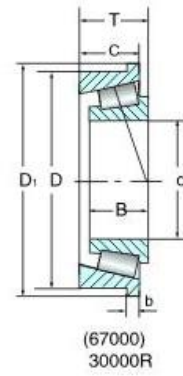
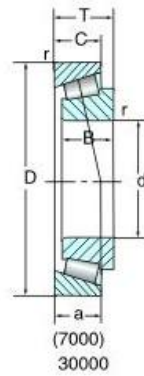
轴承型号 Bearing Designations		主要尺寸 Principal Dimensions (mm)								额定负荷 Rated Loads (kN)		极限转速 Limiting Speed (r/min)		质量 Mass (=kg)
旧型号 GPZ	新型号 SKF	d	D	T	B	C	b	D1	r min	动负荷 Dynamic Cr	静负荷 Static Cor	脂 Grease	油 Oil	
	32018	90	140	32	32	24			2	150	255	2200	3200	1.770
2007118*	2007118*		140	32.4	30	26			2	136	196	2200	3200	1.710
	33118X2(TRA181504)		150	38.5	36	30			2.5	190	310	2000	3000	2.57
	33118		150	45	45	35			2.5	220	390	2000	3000	3.22
	33118/YB2		150	45	45	35			2.5	220	390	2000	3000	3.22
	33118/HA		150	45	45	35			2.5	270	424	2000	3000	3.15
7218E	30218		160	32.5	30	26			2.5	173	238	2000	3000	2.73
	32218		160	42.5	40	34			2.5	237	310	2000	3000	3.610
67518*	67518*		160	42.5	40	34	16.5	168	2.3	197	293	2000	3000	3.47
7518*	7518*		160	43	40	34			2.3	197	293	2000	3000	3.36
7718*	7718*		160	50	46	39			3	214	321	2000	3000	3.82
7818*	7818*		170	62	59.5	49			2.5	327	524	2000	3000	6.04
27318E*	31318		190	46.5	43	30			4	251	327	2000	3000	5.53
7318E*	30318		190	46.5	43	36			4	307	408	1800	2600	5.76
7618E*	32318		190	67.5	64	53			4	439	651	1700	2400	8.97
2007119*	2007119*	95	145	32.4	30	26			2	146	248	2200	3200	1.80
3007119*	33019		145	39	39	32.5			2	191	345	2200	3200	2.32
7819*	7819*		160	47	47	38			3	260	460	2200	3200	3.79
7819E*	7819E*		160	47	47	38			3	295	435	2200	3200	3.73
7219E	30219		170	34.5	32	27			3	212	303	1900	2800	3.270
7519E*	32219		170	45.5	43	37			3	271	414	1900	2800	4.34
27319E*	31319		200	49.5	45	32			4	278	369	1900	2800	6.84
7319E*	30319		200	49.5	45	38			4	332	444	1800	2600	6.91
7619E*	32319		200	71.5	67	55			4	474	704	1700	2400	10.0
2007920*	2007920*	100	140	25	25	20			1.5	93	167	2000	3000	1.13
	32020		150	32	32	24			2	173	281	1600	2200	1.870
	33020		150	39	39	32.5			2		390	2000	3000	2.360
7220E	30220		180	37	34	29			3		338	1900	2800	3.560

# 单列圆锥滚子轴承



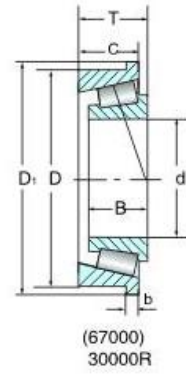
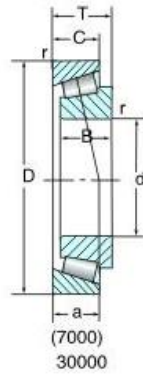
轴承型号 Bearing Designations		主要尺寸 Principal Dimensions (mm)							额定负荷 Rated Loads (kN)		极限转速 Limiting Speed (r/min)		质量 Mass (=kg)	
旧型号 GPZ	新型号 SKF	d	D	T	B	C	b	D1	r min	动负荷 Dynamic Cr	静负荷 Static Cor	脂 Grease	油 Oil	
7520E	32220		180	49	46	39			3	314	491	1800	2600	5.310
7320E*	30320		215	51.5	47	39			4	370	496	1700	2400	8.09
7620E	32320		215	77.5	73	60			4	556	842	1600	2200	13.20
2007121*	2007121*	105	160	35.4	33	28			2.5	155	256	1800	2600	2.5
	33021		160	43	43	34			2.5	242	405	1900	2800	2.98
	7221E		190	39	36	30			3	265	368	1800	2600	4.470
7521E*	32221*		190	53	50	43			3	352	557	1800	2600	6.340
7721*	7721*		215	78	73	60			3	500	755	1900	2800	12.3
7321E*	30321*		225	53.5	49	41			4	394	530	1600	2200	9.38
7621E*	32321*		225	81.5	77	63			4	600	914	1500	2000	15.0
2007922*	2007922*	110	150	25.4	24	20			1.5	80	138	2000	3000	1.18
	32022		170	38	38	29			2.5	210	365	1800	2600	3.080
2007122*	2007122*		170	38.4	36	31			2.5	180	297	1800	2600	3.1
	33022		170	47	47	37			2.5	275	465	1800	2600	3.750
	33122		180	56	56	43			2.5	310	595	1800	2600	5.56
	30222		200	41	38	32			3	292	430	1700	2400	5.270
7522E	32222		200	56	53	46			3	393	630	1700	2400	7.620
7522E1*	7522E1*		200	56	53	46			3	378	598	1400	1900	7.58
7322E*	30322		240	54.5	50	42			4	430	579	1600	2200	11.1
27322E*	31322		240	63	57	38			4	426	593	1600	2200	12.5
7622E	32322		240	84.5	80	65			4	672	1031	1400	1900	18.00
7723*	7723*	115	190	49	49	35			2.5	256	439	1600	2200	5.13
	32924	120	165	29	29	23			1.5	172	320	1600	2200	1.79
	32024		180	38	38	29			2.5	215	395	1700	2400	3.31
2007124*	2007124*		180	38.4	36	31			2.5	209	328	1700	2400	3.66
7224E*	30224		215	43.5	40	34			3	301	445	1600	2200	6.32
7524E*	32224*		215	61.5	58	50			3	437	720	1600	2200	9.6
7524*	7524*		215	62	58	50			2.5	391	663	1600	2200	9.04

# 单列圆锥滚子轴承



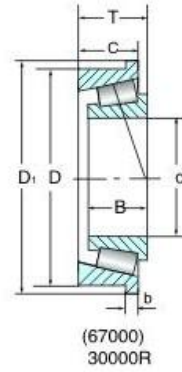
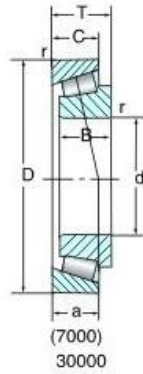
轴承型号 Bearing Designations		主要尺寸 Principal Dimensions (mm)							额定负荷 Rated Loads (kN)		极限转速 Limiting Speed (r/min)		质量 Mass (=kg)	
旧型号 GPZ	新型号 SKF	d	D	T	B	C	b	D1	r min	动负荷 Dynamic Cr	静负荷 Static Cor	脂 Grease	油 Oil	
7324E*	30324*		260	59.5	55	46			4	515	710	1500	2000	14.2
27324E*	31324*		260	68	62	42			4	491	689	1500	2000	15.6
7624E*	32324*		260	90.5	86	69			4	768	1190	1300	1800	22.4
2007926*	2007926*	130	180	32.5	30	26			2	136	249	1700	2400	2.31
2007126*	2007126*		200	45.5	42	36			2.5	246	420	1500	2000	4.66
7226E*	30226*		230	43.75	40	34			4	327	480	1500	2000	7.02
7526E	32226		230	67.75	64	54			4	506	847	1500	2000	11.8
7526EY*	7526EY*		230	67.75	66	54			4	520	810	1500	2000	11.9
7326E*	30326*		280	63.75	58	49			5	588	816	1300	1800	17.4
27326E*	31326*		280	72	66	44			5	564	803	1300	1800	18.9
7626*	7626*		280	99.5	93	78			3.7	793	1250	1100	1600	26.4
2007928*	2007928*	140	190	32.5	30	26			2	140	257	1600	2200	2.43
	32028E		210	45	45	34			2.5	300	560	1600	2200	5.84
2007128*	2007128*		210	45.5	42	36			2.5	251	442	1600	2200	4.94
67728*	67728*		230	58	57	45	23	238	3	363	661	1600	2200	9.20
7728*	7728*		230	58	57	45			3	363	661	1600	2200	8.97
7228E*	30228*		250	45.75	42	36			4	366	540	1400	1900	8.80
7528E*	32228*		250	71.75	68	58			4	593	1004	1400	1900	14.7
7328E*	30328*		300	67.75	62	53			5	671	944	1200	1700	21.2
27328E*	31328*		300	77	70	47			5	630	899	1200	1700	23.4
7828*	7828*		300	90	82	60			3.7	600	916	1200	1700	29.0
2007930*	2007930*	150	210	38.5	36	31			2.5	199	384	1500	2000	4.56
2007130*	2007130*		225	48.5	45	38			3	254	454	950	1400	6.84
7230E*	30230*		270	49	45	38			4	409	606	1300	1800	11.2
7530E*	32230*		270	77	73	60			4	669	1142	1200	1700	18.4
7330E*	30330*		320	72	65	55			5	744	1050	1100	1600	25.5
7630E*	32330*		320	114	108	90			5	1168	1876	950	1400	42.2
2007932*	2007932*	160	220	38.5	36	31			2.5	211	400	1500	2000	3.79

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轴承型号 Bearing Designations		主要尺寸 Principal Dimensions (mm)								额定负荷 Rated Loads (kN)		极限转速 Limiting Speed (r/min)		质量 Mass
旧型号 GPZ	新型号 SKF	d	D	T	B	C	b	D1	r min	动负荷 Dynamic Cr	静负荷 Static Cor	脂 Grease	油 Oil	(=kg)
2007132*	2007132*		240	51.5	48	41			3	343	629	1100	1600	7.67
7232E*	30232*		290	52	48	40			4	466	696	1100	1600	13.4
7532E*	32232*		290	84	80	67			4	797	1392	1100	1600	23.3
27332*	27332*		340	88	79	54			3.7	750	1081	1000	1500	29.9
7632E*	32332*		340	121	114	95			5	1400	2230	1000	1500	51.7
7832*	7832*		375	87.3	79.4	50.3			4.7	790	1057	1000	1500	40.7
2007934*	2007934*	170	230	38.5	36	31			2.5	214	415	1400	1900	3.864
2007134*	2007134*		260	57.5	54	46			3	391	752	1400	1900	10.1
7634*	7634*		360	128	120	100			3.7	1296	2116	950	1400	63.5
2007136*	2007136*	180	280	64.5	60	52			3	473	860	950	1400	13
7736*	7736*		290	65	63.5	48			2.3	489	920	950	1400	15.6
7236E*	30236*		320	57	52	43			5	537	823	1000	1500	17.8
	32236		320	91	86	71			5	931	1675	950	1400	32.3
	32938X2A	190	260	45.5	42	36			2.5	675	1040	1100	1600	6.52
7138*	7138*		290	51	46	40			3	349	610	950	1400	10.5
2007138*	2007138*		290	64.5	60	52			3	473	882	1000	1500	15.28
	30238		340	60	55	46			5	675	1040	950	1400	20.6
	32238		340	97	92	75			5	1000	1080	950	1300	36.1
2007940K*	2007940K*	200	280	51.5	48	41			3	348	742	1000	1500	8.7
2007940*	2007940*		280	51.5	48	41			3	348	742	1000	1500	8.86
2007140*	2007140*		310	70.5	66	56			3	525	1040	950	1400	18.2
7240E*	30240*		360	64	58	48			5	710	1098	900	1300	25.4
7540E*	32240*		360	104	98	82			5	1235	2144	900	1300	42.6
2007944*	2007944*	220	300	51.5	48	41			3	354	835	900	1400	10.1
2007144*	2007144*		340	76.5	72	62			4	709	1336	950	1400	23.3
7244E*	30244*		400	72	65	54			5	887	1373	900	1300	36.8
7244*	7244*		400	73	65	54			3.7	780	1181	900	1300	37.6
7544E*	32244*		400	114	108	90			5	1445	2641	900	1300	62.7

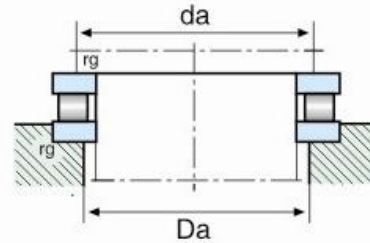
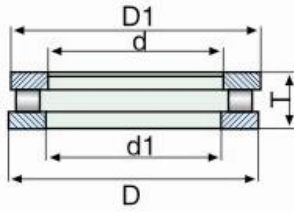
# 单列圆锥滚子轴承



轴承型号 Bearing Designations		主要尺寸 Principal Dimensions (mm)									额定负荷 Rated Loads (kN)		极限转速 Limiting Speed (r/min)		质量 Mass (≈kg)
旧型号 GPZ	新型号 SKF	d	D	T	B	C	b	D1	r min	动负荷 Dynamic Cr	静负荷 Static Cor	脂 Grease	油 Oil		
2007948*	2007948*	240	320	51.5	48	41			3	354	767	900	1300	10.8	
2007148*	2007148*		360	76.5	72	62			4	698	1414	850	1200	23.8	
2007148S*	2007148S*		360	76	76	57			4	768	1414	850	1200	24.9	
2007148SY*	2007148SY*		360	76	76	57			4	768	1414	850	1200	24.7	
7951*	7951*	254	422.27	86.1	79.8	66.7			4.7	1011	1762	850	1200	45.4	
2007952*	2007952*	260	360	64.5	60	52			3	528	1187	800	1100	19.2	
2007152*	2007152*		400	87.7	82	71			5	912	1835	800	1100	37.8	
7352*	7352*		540	114	102	85			6	1760	2727	670	900	113	
2007956*	2007956*	280	380	64.5	60	52			3	543	1257	800	1100	21.3	
2007156*	2007156*		420	87.7	82	71			5	987	1975	750	1000	39.6	
2007960*	32960*	300	420	74.5	72	62			4	646	1807	700	950	30.2	
2007160*	2007160*		460	100.7	95	77			5	3850	10200	700	950	57	
	32064	320	480	100	100	74			5	1400	2940	630	850	62.7	
2007972E*	2007972E*	360	480	76	76	57			4	879	2222	500	630	38.5	
7880*	7880*	400	500	60	57	47			4	421	954	400	500	25.1	
7184*	31084X2	420	620	95	91	67			5	1050	2130	380	480	88.3	
78/760*	78/760*	760	890	78	75	59			4.7	1241	3519	130	170	78.3	
71/900*	71/900*	900	1280	190	170	135			7.5	5860	14607	95	130	71.8	

# 推力圆柱滚子轴承

## Thrust Cylindrical Roller Bearings



轴承型号 Bearing Designations	主要尺寸 Principal Dimensions (mm)			其它尺寸 Other dimensions			额定负荷 Rated Loads (kN)		极限转速 Limiting Speed (r/min)		重量 Weight kg
	d	D	T	d1	D1	rmin	动负荷 Dynamic Cr	静负荷 Static Cor	脂 Grease	油 Oil	
9222H	110	160	38	113	160	1.1	240	250	900	1300	2.8
9124	120	155	25	120.2	155	1.1	115	145	950	1400	1.23
9140	200	250	37	203	247	1.1	2800	3600	700	900	3.74
9260	300	420	95	304	415	3	1400	1550	190	250	41.3
9188	440	540	80	444	535	2.1	1300	1680	170	230	41.5
812/500	500	670	135	505	665	5	3200	3600	140	190	137
75492/900	900	1180	125	905	1175	7.5	5500	8300	100	130	393
75491/1180	1180	1400	100	1185	1395	6	4300	7200	87	110	308