中国市场 China

江苏　山东　广东　天津　浙江　河南　广西　北京　上海　河北
福建　四川　湖南　山西　贵州　重庆　湖北　江西　云南　内蒙古

海外市场 Overseas

North America	U.S.A	Canada	
South America	Brazil	Chile	
Oceania	Australia		
Europe	German	Italy	Spain
	Belgium	Poland	Ukraine
	Bulgaria		
Asia	Indonesia	India	Malaysia
	Kazakhstan	Korea	Singapore



WGB®

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V2604

WGB CATALOG & ENGINEERING

WGB®

An Expert on
Spherical Roller Bearings
Since 1969
始于1969年的调心滚子轴承专家



江苏锡滚轴承科技有限公司
WGB Bearing Co., Ltd.

企业概况

江苏锡滚轴承科技有限公司，原无锡市滚动轴承有限公司，始建于1969年，是国内领先的专门研发和制造调心滚子轴承的高新技术企业。
公司于1989年创立轴承品牌WGB®。目前是国内最大的调心滚子轴承制造厂商之一。

企业愿景
成为世界一流的调心滚子轴承研发和制造企业；为各行业的经销商，主机用户和终端用户提供专业的轴承解决方案。

核心产品
主要生产P6和更高级别（P5*）的调心滚子轴承，圆柱滚子轴承，轴承单元；静音深沟球轴承；以及各种非标轴承；生产能力200+万套/年。

行业应用
长期服务各行业主机用户和终端用户，包括：电梯扶梯，流体设备，矿山水泥，大型工业洗涤设备，冶金，造纸，传动设备，工程机械…

市场占有率
根据中国轴承工业协会之权威数据，WGB®品牌调心滚子轴承年产销量在全国轴承行业同类企业的同类产品中常年排名前三位，其中2005年–2010年连续六年排名第一。

WGB Profile

WGB was established in 1969 and now is a leading bearing technology company specialized in spherical roller bearings. WGB® brand was founded in 1989.

Company Vision
Committed to being a world leader on spherical roller bearings and a bearing solution provider for various industries.

Core Products
P6 and higher precision (P5*) spherical roller bearings, cylindrical, SRB with longer inner ring, mounted SRBs; low noise ball bearings; and non–standard bearings.

Various Industries
Serving for decades OEM and end users in elevator/escalator, fluid equipment, power transmission, mining/concrete, metal processing, paper/pulp, textile, construction…

Market Shares
WGB sale volume is always ranked top 3 in China's market, especially ranked NO. 1 from 2005 to 2010, according to China Bearing Industry Association (CBIA).



产品目录 Catalog

03 调心滚子轴承
Spherical Roller Bearings

21 长内圈调心滚子轴承
Long Inner Ring Spherical Roller Bearings

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Cylindrical Roller Bearings

35 带密封调心滚子轴承
Sealed Spherical Roller Bearings

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Spherical Roller Bearings for Vibrating Screens

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Deep Groove Ball Bearings

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Fits

58 润滑、轴承的使用
Lubricating and Bearing Handling

84 轴承的损伤与对策
Bearing Damage and Countermeasures

WGB®

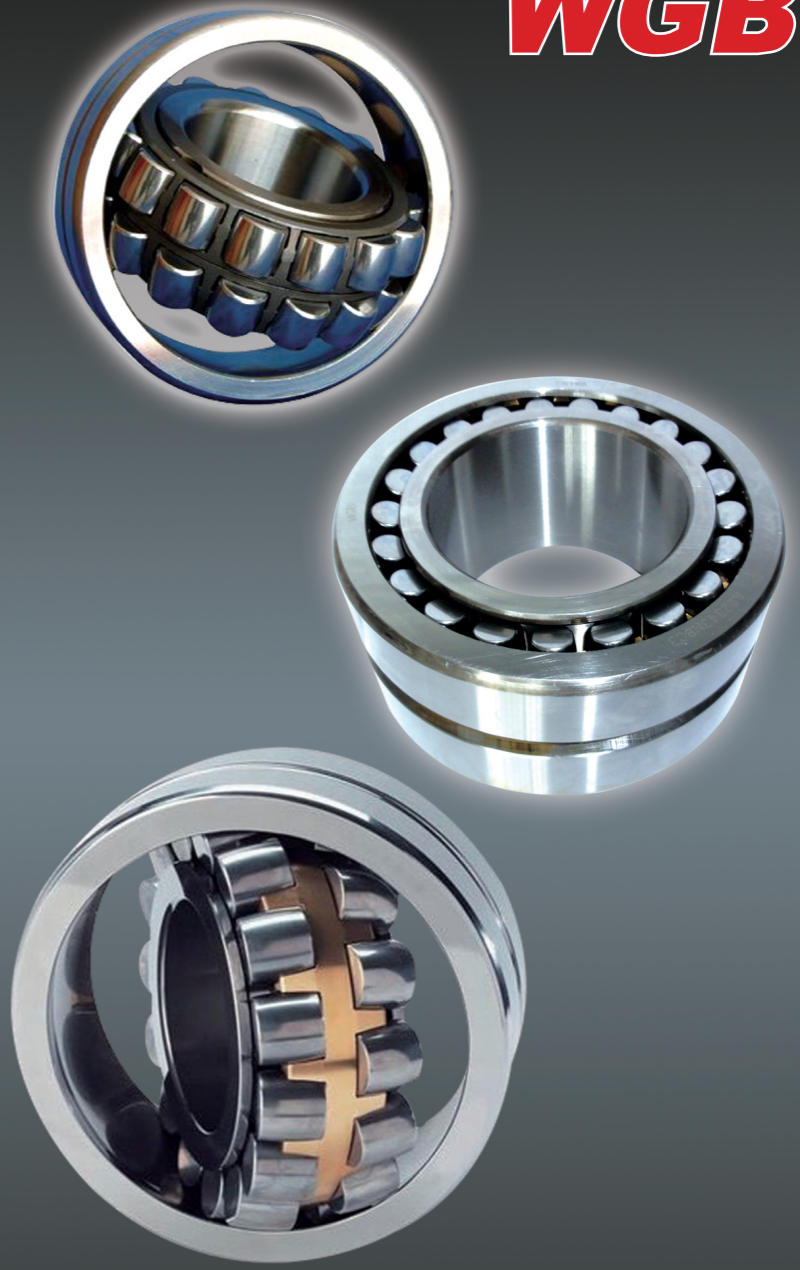
产品目录
Catalog

调心滚子轴承主要用来承受径向负荷，同时也能承受一定的轴向负荷。有较高的径向载荷能力，调心性能好，能补偿同轴度误差，广泛用于矿山机械、减速机、流体行业、冶金、造纸机械、纺织机械、印染机械、港口机械、水泥机械、电梯、石油化工等行业。

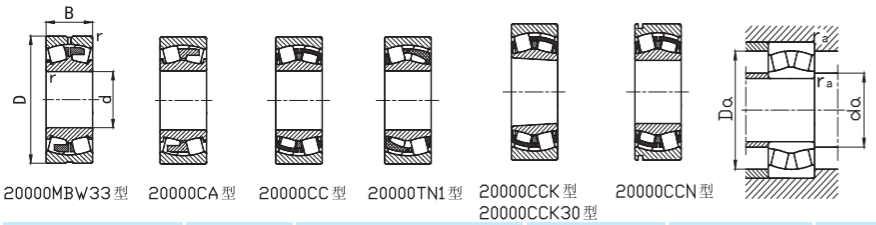
Spherical roller bearings is mainly used to bear radial load,It also can bear certain axial load. It boasts big load capacity and good efficiency of self-aligning. Can compensate error of coaxial degree. It is widely used in mining machinery, power machines, heavy machines and textile machines.



WGB®

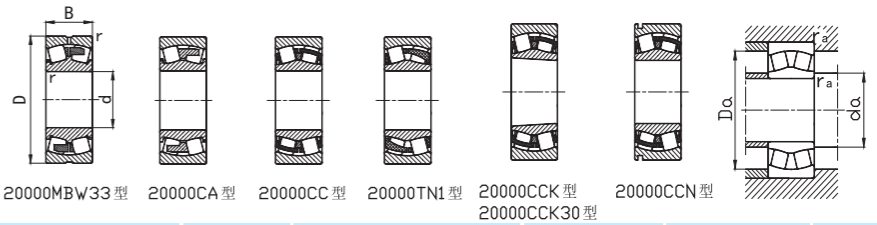


Spherical Roller Bearings



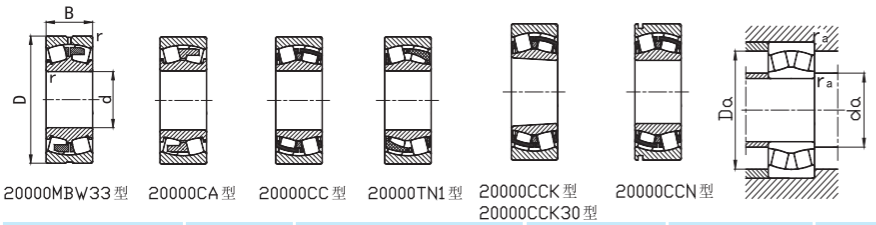
20000MBW33型 20000CA型 20000CC型 20000TN1型 20000CCK型 20000CCK30型 20000CCN型

主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		轴承代号 Bearing No.		极限转速 Limiting speeds(r/min)		安装尺寸 Mounting dimensions (mm)			质量 Mass (kg)
										da	Da	ra	
d	D	B	rsmin	Cr	Cor	圆柱孔 cylindrical bore	圆锥孔 tapered bore	脂润滑 grease	油润滑 oil	min	max	max	
20	52	15	1.1	34	32	21304CA	21304CAK	9500	12000	27	45	1.0	0.18
	52	15	1.1	34	32	21304CC	21304CCK	9500	12000	27	45	1.0	0.18
25	52	18	1.0	48	45	22205CC	22205CCK	10000	13000	30	46	1.0	0.18
	52	18	1.0	48	45	22205CA	22205CAK	10000	13000	30	46	1.0	0.18
	62	17	1.1	48	49	21305CA	21305CAK	8000	10000	32	55	1.0	0.28
	62	17	1.1	48	49	21305CC	21305CCK	8000	10000	32	55	1.0	0.28
30	62	20	1.0	63	61	22206CA	22206CAK	8500	11000	36	56	1.0	0.30
	62	20	1.0	63	61	22206CC	22206CCK	8500	11000	36	56	1.0	0.28
	72	19	1.1	61	63	21306CA	21306CAK	6500	9000	37	65	1.0	0.41
	72	19	1.1	61	63	21306CC	21306CCK	6500	9000	37	65	1.0	0.41
35	72	23	1.1	86	85	22207CA	22207CAK	8000	10000	42	65	1.0	0.45
	72	23	1.1	86	85	22207CC	22207CCK	8000	10000	42	65	1.0	0.44
	80	21	1.5	70	75	21307CA	21307CAK	6000	8500	44	71	1.5	0.54
	80	21	1.5	70	75	21307CC	21307CCK	6000	8500	44	71	1.5	0.54
40	80	23	1.1	90	91	22208MB	22208MBK	7000	9000	47	73	1.0	0.55
	80	23	1.1	95	94	22208CA	22208CAK	7000	9000	47	73	1.0	0.54
	80	23	1.1	95	94	22208CC	22208CCK	7000	9000	47	73	1.0	0.52
	90	23	1.5	103	109	21308CA	21308CAK	5500	8000	49	81	1.5	0.75
	90	23	1.5	103	109	21308CC	21308CCK	5500	8000	49	81	1.5	0.74
	90	33	1.5	138	123	22308MB	22308MBK	6000	7500	49	81	1.5	1.03
	90	33	1.5	149	142	22308CA	22308CAK	6000	7500	49	81	1.5	1.00
	90	33	1.5	149	142	22308CC	22308CCK	6000	7500	49	81	1.5	1.02
45	85	23	1.1	96	99	22209MB	22209MBK	6500	8000	52	78	1.0	0.59
	85	23	1.1	100	102	22209CA	22209CAK	6500	8000	52	78	1.0	0.58



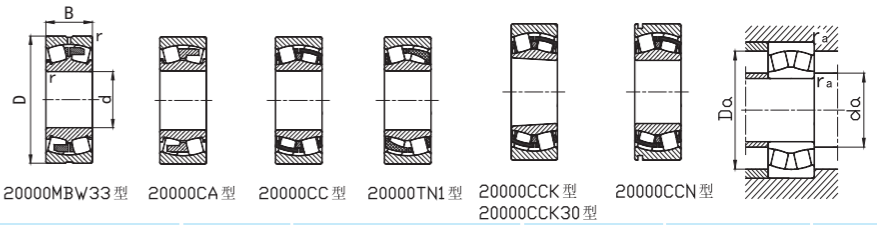
20000MBW33型 20000CA型 20000CC型 20000TN1型 20000CCK型 20000CCK30型 20000CCN型

主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		轴承代号 Bearing No.		极限转速 Limiting speeds(r/min)		安装尺寸 Mounting dimensions (mm)			质量 Mass (kg)
										da	Da	ra	
d	D	B	rsmin	Cr	Cor	圆柱孔 cylindrical bore	圆锥孔 tapered bore	脂润滑 grease	油润滑 oil	min	max	max	
	85	23	1.1	100	102	22209CC	22209CCK	6500	8000	52	78	1.0	0.57
	100	25	1.5	125	127	21309CA	21309CAK	5300	7500	54	91	1.5	1.02
	100	25	1.5	125	127	21309CC	21309CCK	5300	7500	54	91	1.5	1.00
	100	36	1.5	165	175	22309MB	22309MBK	5000	6500	54	91	1.5	1.40
	100	36	1.5	180	180	22309CA	22309CAK	5000	6500	54	91	1.5	1.38
	100	36	1.5	180	180	22309CC	22309CCK	5000	6500	54	91	1.5	1.37
50	90	23	1.1	96	110	22210MB	22210MBK	6000	7800	57	83	1.0	0.68
	90	23	1.1	101	112	22210CA	22210CAK	6000	7800	57	83	1.0	0.62
	90	23	1.1	101	112	22210CC	22210CCK	6000	7800	57	83	1.0	0.61
	110	27	2.0	150	166	21310CA	21310CAK	5000	6300	60	100	2.0	1.30
	110	27	2.0	150	166	21310CC	21310CCK	5000	6300	60	100	2.0	1.30
	110	40	2.0	200	210	22310MB	22310MBK	4600	5800	60	100	2.0	1.85
	110	40	2.0	220	225	22310CA	22310CAK	4800	6000	60	100	2.0	1.81
	110	40	2.0	220	225	22310CC	22310CCK	4800	6000	60	100	2.0	1.79
55	100	25	1.5	120	135	22211MB	22211MBK	5500	7000	64	91	1.5	0.86
	100	25	1.5	125	139	22211CA	22211CAK	5500	7000	64	91	1.5	0.84
	100	25	1.5	125	139	22211CC	22211CCK	5500	7000	64	91	1.5	0.85
	120	29	2.0	158	175	21311CA	21311CAK	4500	6000	65	110	2.0	1.65
	120	29	2.0	158	175	21311CC	21311CCK	4500	6000	65	110	2.0	1.65
	120	43	2.0	236	266	22311MB	22311MBK	3800	4500	65	110	2.0	2.40
	120	43	2.0	270	280	22311CA	22311CAK	4100	5000	65	110	2.0	2.35
	120	43	2.0	270	280	22311CC	22311CCK	4100	5000	65	110	2.0	2.31
60	110	28	1.5	139	158	22212MB	22212MBK	4500	6300	69	101	1.5	1.22
	110	28	1.5	156	166	22212CA	22212CAK	4800	6500	69	101	1.5	1.20



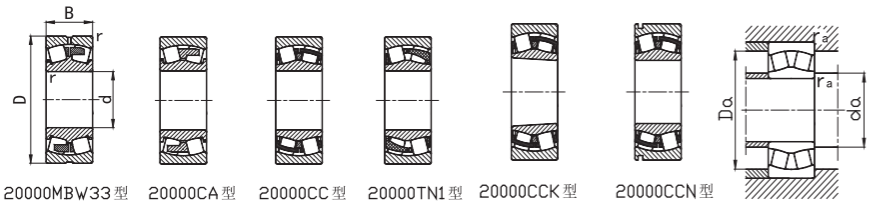
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主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		轴承代号 Bearing No.		极限转速 Limiting speeds(r/min)		安装尺寸 Mounting dimensions (mm)			质量 Mass (kg)
										da	Da	ra	
d	D	B	rsmin	Cr	Cor	圆柱孔 cylindrical bore	圆锥孔 tapered bore	脂润滑 grease	油润滑 oil	min	max	max	
	110	28	1.5	156	166	22212CC	22212CCK	4800	6500	69	101	1.5	1.15
	130	31	2.1	210	241	21312CA	21312CAK	4000	5000	72	118	2.1	2.08
	130	31	2.1	210	241	21312CC	21312CCK	4000	5000	72	118	2.1	2.08
	130	46	2.1	288	310	22312MB	22312MBK	3800	4500	72	118	2.1	3.00
	130	46	2.1	300	320	22312CA	22312CAK	4000	4800	72	118	2.1	2.95
	130	46	2.1	300	320	22312CC	22312CCK	4000	4800	72	118	2.1	2.88
65	120	31	1.5	198	206	22213MB	22213MBK	4000	5800	74	111	1.5	1.63
	120	31	1.5	210	215	22213CA	22213CAK	4300	6000	74	111	1.5	1.60
	120	31	1.5	210	215	22213CC	22213CCK	4300	6000	74	111	1.5	1.54
	140	33	2.1	220	270	21313CA	21313CAK	3500	4500	77	128	2.1	2.57
	140	33	2.1	220	270	21313CC	21313CCK	3500	4500	77	128	2.1	2.57
	140	48	2.1	310	350	22313MB	22313MBK	3500	4000	77	128	2.1	3.53
	140	48	2.1	340	360	22313CA	22313CAK	3900	4500	77	128	2.1	3.50
	140	48	2.1	340	360	22313CC	22313CCK	3900	4500	77	128	2.1	3.47
70	125	31	1.5	186	218	22214MB	22214MBK	3800	5300	79	116	1.5	1.66
	125	31	1.5	200	225	22214CA	22214CAK	4000	5500	79	116	1.5	1.70
	125	31	1.5	200	225	22214CC	22214CCK	4000	5500	79	116	1.5	1.60
	150	35	2.1	268	300	21314CA	21314CAK	3300	4300	82	138	2.1	3.11
	150	35	2.1	268	300	21314CC	21314CCK	3300	4300	82	138	2.1	3.11
	150	51	2.1	365	410	22314MB	22314MBK	3300	4300	82	138	2.1	4.40
	150	51	2.1	380	426	22314CA	22314CAK	3500	4500	82	138	2.1	4.40
	150	51	2.1	380	426	22314CC	22314CCK	3500	4500	82	138	2.1	4.34
75	115	40	1.1	177	230	24015CA	24015CAK30	2500	3500	81	109	1.0	1.52
	130	31	1.5	190	228	22215MB	22215MBK	3500	4500	84	121	1.5	1.75



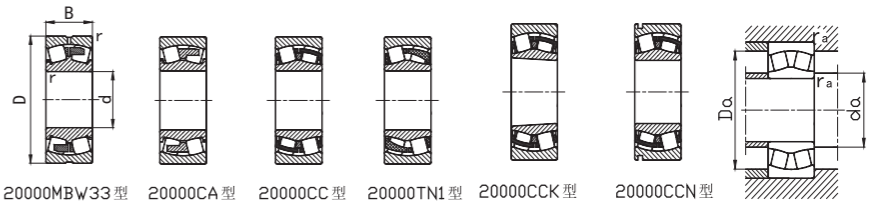
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主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		轴承代号 Bearing No.		极限转速 Limiting speeds(r/min)		安装尺寸 Mounting dimensions (mm)			质量 Mass (kg)
										da	Da	ra	
d	D	B	rsmin	Cr	Cor	圆柱孔 cylindrical bore	圆锥孔 tapered bore	脂润滑 grease	油润滑 oil	min	max	max	
	130	31	1.5	202	238	22215CA	22215CAK	4000	5000	84	121	1.5	1.71
	130	31	1.5	202	238	22215CC	22215CCK	4000	5000	84	121	1.5	1.69
	160	37	2.1	272	320	21315CA	21315CAK	3000	4000	87	148	2.1	3.76
	160	37	2.1	272	320	21315CC	21315CCK	3000	4000	87	148	2.1	3.76
	160	55	2.1	340	430	22315MB	22315MBK	3200	3800	87	148	2.1	5.40
	160	55	2.1	390	460	22315CA	22315CAK	3500	4000	87	148	2.1	5.25
	160	55	2.1	390	460	22315CC	22315CCK	3500	4000	87	148	2.1	5.28
80	140	33	2.0	210	260	22216MB	22216MBK	3300	4600	90	130	2.0	2.20
	140	33	2.0	230	270	22216CA	22216CAK	3500	4800	90	130	2.0	2.20
	140	33	2.0	230	270	22216CC	22216CCK	3500	4800	90	130	2.0	2.13
	170	39	2.1	325	375	21316CA	21316CAK	2800	3800	92	158	2.1	4.47
	170	39	2.1	325	375	21316CC	21316CCK	2800	3800	92	158	2.1	4.47
	170	58	2.1	426	510	22316MB	22316MBK	3000	3600	92	158	2.1	6.38
	170	58	2.1	460	532	22316CA	22316CAK	3300	3800	92	158	2.1	6.32
	170	58	2.1	460	532	22316CC	22316CCK	3300	3800	92	158	2.1	6.32
85	150	36	2.0	241	312	22217MB	22217MBK	3200	4000	95	140	2.0	2.80
	150	36	2.0	270	330	22217CA	22217CAK	3300	4300	95	140	2.0	2.70
	150	36	2.0	270	330	22217CC	22217CCK	3300	4300	95	140	2.0	2.67
	180	41	3.0	326	390	21317CA	21317CAK	2300	3200	99	166	2.5	5.23
	180	41	3.0	326	390	21317CC	21317CCK	2300	3200	99	166	2.5	5.23
	180	60	3.0	450	550	22317MB	22317MBK	3000	3300	99	166	2.5	7.40
	180	60	3.0	500	590	22317CA	22317CAK	3200	3500	99	166	2.5	7.25
	180	60	3.0	500	590	22317CC	22317CCK	3200	3500	99	166	2.5	7.27
90	140	50	1.5	289	411	24018CA	24018CAK30	2000	3000	98	130	1.5	2.89



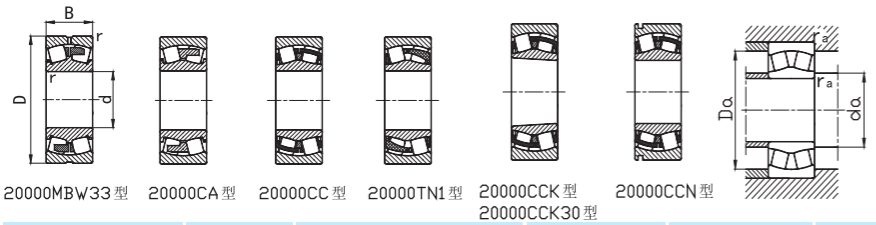
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主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		轴承代号 Bearing No.		极限转速 Limiting speeds(r/min)		安装尺寸 Mounting dimensions (mm)			质量 Mass (kg)
										da	Da	ra	
d	D	B	rsmin	Cr	Cor	圆柱孔 cylindrical bore	圆锥孔 tapered bore	脂润滑 grease	油润滑 oil	min	max	max	
	160	40	2.0	262	360	22218MB	22218MBK	3000	4000	100	150	2.0	4.00
	160	40	2.0	298	375	22218CA	22218CAK	3300	4300	100	150	2.0	3.28
	160	40	2.0	298	375	22218CC	22218CCK	3300	4300	100	150	2.0	3.38
	160	52.4	2.0	365	497	23218CA	23218CAK	2500	3200	100	150	2.0	4.60
	160	52.4	2.0	365	497	23218CC	23218CCK	2500	3200	100	150	2.0	4.40
	190	43	3.0	380	450	21318CA	21318CAK	2000	2800	104	176	2.5	6.17
	190	43	3.0	380	450	21318CC	21318CCK	2000	2800	104	176	2.5	6.17
	190	64	3.0	530	620	22318MB	22318MBK	2500	3200	104	176	2.5	8.80
	190	64	3.0	550	660	22318CA	22318CAK	2900	3400	104	176	2.5	8.60
	190	64	3.0	550	660	22318CC	22318CCK	2900	3400	104	176	2.5	8.63
95	170	43	2.1	329	410	22219MB	22219MBK	2700	3500	107	158	2.1	4.20
	170	43	2.1	362	420	22219CA	22219CAK	3000	3800	107	158	2.1	4.10
	170	43	2.1	362	420	22219CC	22219CCK	3000	3800	107	158	2.1	4.20
	200	45	3.0	430	500	21319CA	21319CAK	1900	2600	109	186	2.5	7.15
	200	45	3.0	430	500	21319CC	21319CCK	1900	2600	109	186	2.5	7.15
	200	67	3.0	589	710	22319MB	22319MBK	2300	2800	109	186	2.5	10.30
	200	67	3.0	630	735	22319CA	22319CAK	2700	3200	109	186	2.5	10.00
	200	67	3.0	630	735	22319CC	22319CCK	2700	3200	109	186	2.5	9.97
100	150	37	1.5	263	350	23020CA	23020CAK	2800	3500	110	140	1.5	2.28
	150	37	1.5	263	350	23020CC	23020CCK	2800	3500	110	140	1.5	2.27
	165	52	2.0	366	540	23120CA	23120CAK	2300	3000	110	155	2.0	4.42
	165	52	2.0	366	545	23120CC	23120CCK	2300	3000	110	155	2.0	4.31
	165	65	2.0	465	685	24120CA	24120CAK30	2000	2700	110	155	2.0	5.50
	165	65	2.0	465	685	24120CC	24120CCK30	2000	2700	110	155	2.0	5.51



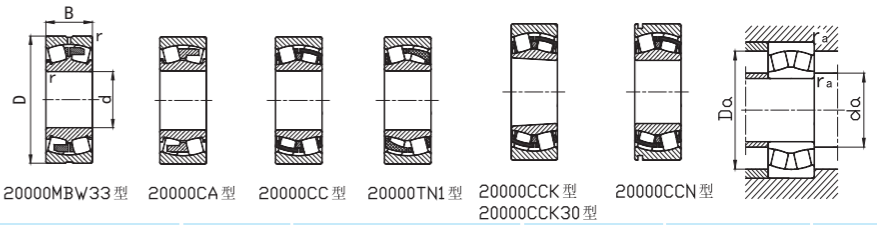
20000MBW33型 20000CA型 20000CC型 20000TN1型 20000CCK型 20000CCK30型 20000CCN型

主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		轴承代号 Bearing No.		极限转速 Limiting speeds(r/min)		安装尺寸 Mounting dimensions (mm)			质量 Mass (kg)
										da	Da	ra	
d	D	B	rsmin	Cr	Cor	圆柱孔 cylindrical bore	圆锥孔 tapered bore	脂润滑 grease	油润滑 oil	min	max	max	
	150	50	1.5	278	448	24020CA	24020CAK30	2100	2800	110	140	1.5	3.04
	150	50	1.5	278	448	24020CC	24020CCK30	2100	2800	110	140	1.5	3.04
	180	46	2.1	380	450	22220MB	22220MBK	2500	3300	112	168	2.1	5.00
	180	46	2.1	400	480	22220CA	22220CAK	2800	3500	112	168	2.1	5.00
	180	46	2.1	400	480	22220CC	22220CCK	2800	3500	112	168	2.1	5.01
	180	60.3	2.1	480	640	23220CA	23220CAK	2200	2800	112	168	2.1	6.70
	180	60.3	2.1	480	640	23220CC	23220CCK	2200	2800	112	168	2.1	6.52
	215	47	3.0	438	546	21320CA	21320CAK	1800	2500	114	201	2.5	8.81
	215	47	3.0	438	546	21320CC	21320CCK	1800	2500	114	201	2.5	8.81
	215	73	3.0	700	840	22320MB	22320MBK	2200	2800	114	201	2.5	13.00
	215	73	3.0	750	880	22320CA	22320CAK	2500	3000	114	201	2.5	12.88
	215	73	3.0	750	880	22320CC	22320CCK	2500	3000	114	201	2.5	12.80
110	170	45	2.0	310	456	23022CA	23022CAK	2200	3000	120	160	2.0	3.90
	170	45	2.0	310	456	23022CC	23022CCK	2200	3000	120	160	2.0	3.68
	170	60	2.0	410	624	24022CA	24022CAK	2000	2600	120	160	2.0	4.96
	170	60	2.0	410	624	24022CC	24022CCK	2000	2600	120	160	2.0	4.88
	180	56	2.0	450	620	23122CA	23122CAK	2200	2800	120	170	2.0	5.57
	180	56	2.0	450	620	23122CC	23122CCK	2200	2800	120	170	2.0	5.51
	180	69	2.0	530	798	24122CA	24122CAK30	1800	2500	120	170	2.0	6.63
	180	69	2.0	530	798	24122CC	24122CCK30	1800	2500	120	170	2.0	6.63
	200	53	2.1	460	598	22222MB	22222MBK	2500	3000	122	188	2.1	7.40
	200	53	2.1	500	651	22222CA	22222CAK	2600	3300	122	188	2.1	7.20
	200	53	2.1	500	651	22222CC	22222CCK	2600	3300	122	188	2.1	7.32
	200	69.8	2.1	600	810	23222CA	23222CAK	2000	2500	122	188	2.1	9.70



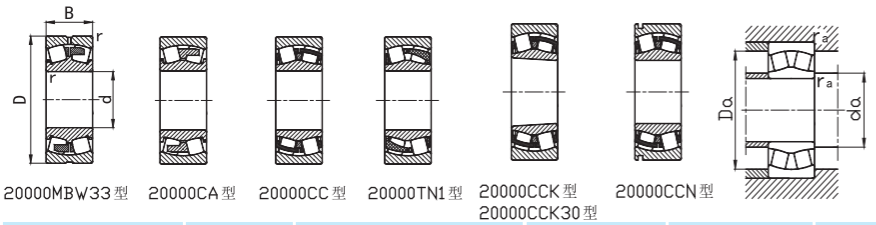
20000MBW33型 20000CA型 20000CC型 20000TN1型 20000CCK型 20000CCK30型 20000CCN型

主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		轴承代号 Bearing No.		极限转速 Limiting speeds(r/min)		安装尺寸 Mounting dimensions (mm)			质量 Mass (kg)
										da	Da	ra	
d	D	B	rsmin	Cr	Cor	圆柱孔 cylindrical bore	圆锥孔 tapered bore	脂润滑 grease	油润滑 oil	min	max	max	
	200	69.8	2.1	600	810	23222CC	23222CCK	2000	2500	122	188	2.1	9.46
	240	50	3.0	480	635	21322CA	21322CAK	1600	2300	124	226	2.5	11.80
	240	50	3.0	480	635	21322CC	21322CCK	1600	2300	124	226	2.5	11.80
	240	80	3.0	820	960	22322MB	22322MBK	1800	2200	124	226	2.5	18.10
	240	80	3.0	880	1020	22322CA	22322CAK	2000	2500	124	226	2.5	18.00
	240	80	3.0	880	1020	22322CC	22322CCK	2000	2500	124	226	2.5	17.50
120	180	46	2.0	359	565	23024CA	23024CAK	2100	2800	130	170	2.0	4.30
	180	46	2.0	359	565	23024CC	23024CCK	2100	2800	130	170	2.0	3.98
	180	60	2.0	436	700	24024CA	24024CAK30	1800	2500	130	170	2.0	5.05
	180	60	2.0	436	700	24024CC	24024CCK30	1800	2500	130	170	2.0	5.05
	200	62	2.0	510	710	23124MB	23124MBK	1800	2500	130	190	2.0	7.63
	200	62	2.0	531	780	23124CA	23124CAK	2000	2600	130	190	2.0	7.60
	200	62	2.0	530	780	23124CC	23124CCK	2000	2600	130	190	2.0	7.61
	200	80	2.0	655	1028	24124CA	24124CAK30	1600	2200	130	190	2.0	9.65
	200	80	2.0	655	1028	24124CC	24124CCK30	1600	2200	130	190	2.0	9.65
	215	58	2.1	539	730	22224MB	22224MBK	2200	2800	132	203	2.1	9.20
	215	58	2.1	570	740	22224CA	22224CAK	2400	3000	132	203	2.1	9.00
	215	58	2.1	570	740	22224CC	22224CCK	2400	3000	132	203	2.1	9.10
	215	76	2.1	700	970	23224CA	23224CAK	1800	2300	132	203	2.1	12.00
	215	76	2.1	700	970	23224CC	23224CCK	1800	2300	132	203	2.1	11.70
	260	86	3.0	920	1160	22324MB	22324MBK	1600	2100	134	246	2.5	22.40
	260	86	3.0	950	1190	22324CA	22324CAK	1900	2300	134	246	2.5	22.10
	260	86	3.0	950	1190	22324CC	22324CCK	1900	2300	134	246	2.5	22.20
130	200	52	2.0	440	682	23026CA	23026CAK	2000	2700	140	190	2.0	6.01



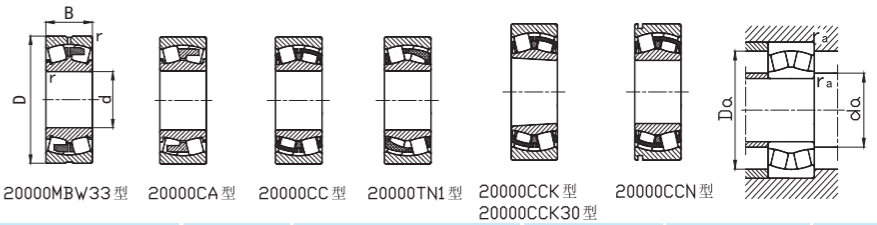
20000MBW33型 20000CA型 20000CC型 20000TN1型 20000CCK型 20000CCK30型 20000CCN型

主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		轴承代号 Bearing No.		极限转速 Limiting speeds(r/min)		安装尺寸 Mounting dimensions (mm)			质量 Mass (kg)
										da	Da	ra	
d	D	B	rsmin	Cr	Cor	圆柱孔 cylindrical bore	圆锥孔 tapered bore	脂润滑 grease	油润滑 oil	min	max	max	
	200	52	2.0	440	682	23026CC	23026CCK	2000	2700	140	190	2.0	5.95
	200	69	2.0	553	852	24026CA	24026CAK30	1800	2300	140	190	2.0	7.55
	200	69	2.0	553	852	24026CC	24026CCK30	1800	2300	140	190	2.0	7.55
	210	64	2.0	570	815	23126CA	23126CAK	1900	2400	140	200	2.0	8.49
	210	64	2.0	570	815	23126CC	23126CCK	1900	2400	140	200	2.0	8.49
	210	80	2.0	680	1043	24126CA	24126CAK30	1500	2000	140	200	2.0	10.30
	210	80	2.0	680	1043	24126CC	24126CCK30	1500	2000	140	200	2.0	10.30
	230	64	3.0	632	860	22226MB	22226MBK	2000	2600	144	216	2.5	11.20
	230	64	3.0	670	910	22226CA	22226CAK	2200	2900	144	216	2.5	11.20
	230	64	3.0	670	910	22226CC	22226CCK	2200	2900	144	216	2.5	11.20
	230	80	3.0	780	1193	23226CA	23226CAK	1600	2200	144	216	2.5	14.00
	230	80	3.0	780	1193	23226CC	23226CCK	1600	2200	144	216	2.5	13.80
	280	93	4.0	1055	1356	22326MB	22326MBK	1300	1900	148	262	3.0	29.00
	280	93	4.0	1150	1430	22326CA	22326CAK	1700	2200	148	262	3.0	28.50
	280	93	4.0	1150	1430	22326CC	22326CCK	1700	2200	148	262	3.0	27.50
140	210	53	2.0	466	732	23028CA	23028CAK	1900	2500	150	200	2.0	6.40
	210	53	2.0	466	732	23028CC	23028CCK	1900	2500	150	200	2.0	6.31
	210	69	2.0	575	911	24028CA	24028CAK30	1600	2100	150	200	2.0	8.01
	210	69	2.0	575	911	24028CC	24028CCK30	1600	2100	150	200	2.0	8.01
	225	68	2.1	622	900	23128MB	23128MBK	1400	2000	152	213	2.1	10.71
	225	68	2.1	641	915	23128CA	23128CAK	1600	2100	152	213	2.1	10.23
	225	68	2.1	641	915	23128CC	23128CCK	1600	2100	152	213	2.1	10.20
	225	85	2.1	766	1170	24128CA	24128CAK30	1400	1800	152	213	2.1	12.50
	225	85	2.1	766	1170	24128CC	24128CCK30	1400	1800	152	213	2.1	12.50



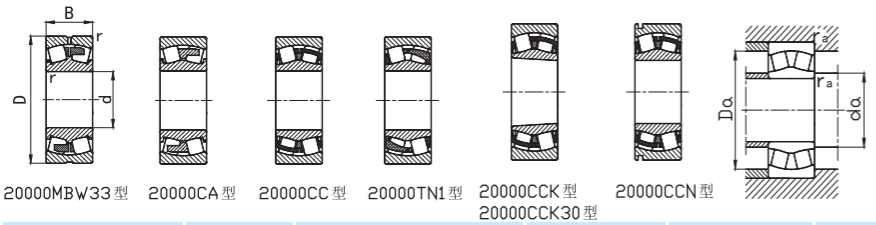
20000MBW33型 20000CA型 20000CC型 20000TN1型 20000CCK型 20000CCK30型 20000CCN型

主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		轴承代号 Bearing No.		极限转速 Limiting speeds(r/min)		安装尺寸 Mounting dimensions (mm)			质量 Mass (kg)
										da	Da	ra	
d	D	B	rsmin	Cr	Cor	圆柱孔 cylindrical bore	圆锥孔 tapered bore	脂润滑 grease	油润滑 oil	min	max	max	
	250	68	3.0	700	911	22228MB	22228MBK	1900	2500	154	236	2.5	14.50
	250	68	3.0	720	990	22228CA	22228CAK	2100	2700	154	236	2.5	14.30
	250	68	3.0	720	990	22228CC	22228CCK	2100	2700	154	236	2.5	14.20
	250	88	3.0	922	1325	23228CA	23228CAK	1500	2000	154	236	2.5	18.20
	250	88	3.0	922	1325	23228CC	23228CCK	1500	2000	154	236	2.5	18.10
	300	102	4.0	1210	1570	22328MB	22328MBK	1300	1700	158	282	3.0	35.20
	300	102	4.0	1300	1670	22328CA	22328CAK	1600	1900	158	282	3.0	34.50
	300	102	4.0	1300	1670	22328CC	22328CCK	1600	1900	158	282	3.0	34.60
150	225	56	2.1	500	800	23030MB	23030MBK	1500	2000	162	213	2.1	8.14
	225	56	2.1	530	820	23030CA	23030CAK	1800	2200	162	213	2.1	7.98
	225	56	2.1	530	820	23030CC	23030CCK	1800	2200	162	213	2.1	7.84
	225	75	2.1	660	1095	24030CA	24030CAK30	1600	1900	162	213	2.1	10.60
	225	75	2.1	660	1095	24030CC	24030CCK30	1600	1900	162	213	2.1	10.10
	250	80	2.1	810	1200	23130MB	23130MBK	1200	1600	162	238	2.1	16.10
	250	80	2.1	835	1280	23130CA	23130CAK	1400	1900	162	238	2.1	16.10
	250	80	2.1	835	1280	23130CC	23130CCK	1400	1900	162	238	2.1	15.70
	250	100	2.1	1030	1560	24130CA	24130CAK30	1300	1600	162	238	2.1	19.00
	250	100	2.1	1030	1560	24130CC	24130CCK30	1300	1600	162	238	2.1	19.00
	270	73	3.0	823	1030	22230MB	22230MBK	1700	2200	164	256	2.5	18.50
	270	73	3.0	855	1101	22230CA	22230CAK	2000	2400	164	256	2.5	18.30
	270	73	3.0	855	1101	22230CC	22230CCK	2000	2400	164	256	2.5	18.10
	270	96	3.0	1100	1586	23230CA	23230CAK	1300	1800	164	256	2.5	24.00
	270	96	3.0	1100	1586	23230CC	23230CCK	1300	1800	164	256	2.5	23.20
	320	108	4.0	1360	1760	22330MB	22330MBK	1200	1600	168	302	3.0	43.00



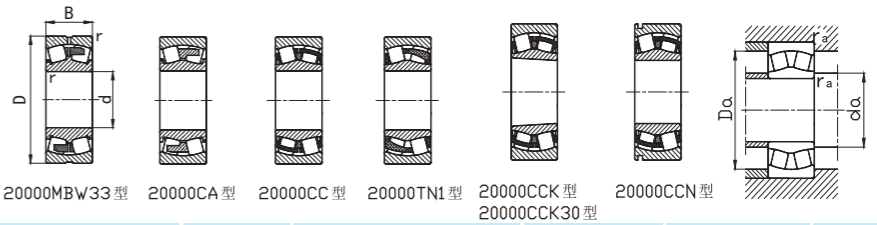
20000MBW33型 20000CA型 20000CC型 20000TN1型 20000CCK型 20000CCK30型 20000CCN型

主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		轴承代号 Bearing No.		极限转速 Limiting speeds(r/min)		安装尺寸 Mounting dimensions (mm)			质量 Mass (kg)
										da	Da	ra	
d	D	B	rsmin	Cr	Cor	圆柱孔 cylindrical bore	圆锥孔 tapered bore	脂润滑 grease	油润滑 oil	min	max	max	
	320	108	4.0	1500	1850	22330CA	22330CAK	1400	1700	168	302	3.0	42.50
	320	108	4.0	1500	1850	22330CC	22330CCK	1400	1700	168	302	3.0	42.00
160	220	45	2.0	320	61	23932CA	23932CAK	1600	2200	170	210	2.0	5.50
	240	60	2.1	590	925	23032MB	23032MBK	1400	1900	172	228	2.1	9.73
	240	60	2.1	600	1000	23032CA	23032CAK	1600	2100	172	228	2.1	9.46
	240	60	2.1	600	1000	23032CC	23032CCK	1600	2100	172	228	2.1	9.43
	240	80	2.1	760	1303	24032CA	24032CAK30	1400	1800	172	228	2.1	12.20
	240	80	2.1	760	1303	24032CC	24032CCK30	1400	1800	172	228	2.1	12.20
	270	86	2.1	910	1380	23132MB	23132MBK	1000	1500	172	258	2.1	19.79
	270	86	2.1	988	1460	23132CA	23132CAK	1200	1700	172	258	2.1	19.61
	270	86	2.1	988	1460	23132CC	23132CCK	1200	1700	172	258	2.1	19.51
	270	109	2.1	1200	1920	24132CA	24132CAK30	1200	1500	172	258	2.1	24.60
	270	109	2.1	1200	1920	24132CC	24132CCK30	1200	1500	172	258	2.1	24.40
	290	80	3.0	990	1260	22232MB	22232MBK	1600	2000	174	276	2.5	22.20
	290	80	3.0	1020	1330	22232CA	22232CAK	1900	2200	174	276	2.5	23.10
	290	80	3.0	1020	1330	22232CC	22232CCK	1900	2200	174	276	2.5	22.90
	290	104	3.0	1220	1802	23232CA	23232CAK	1200	1600	174	276	2.5	30.00
	290	104	3.0	1220	1802	23232CC	23232CCK	1200	1600	174	276	2.5	29.40
	340	114	4.0	1510	1985	22332MB	22332MBK	1000	1400	178	322	3.0	51.00
	340	114	4.0	1660	2060	22332CA	22332CAK	1200	1500	178	322	3.0	51.00
	340	114	4.0	1660	2060	22332CC	22332CCK	1200	1500	178	322	3.0	51.00
170	230	45	2.0	402	679	23934CA	23934CAK	1500	2000	180	220	2.0	5.32
	260	67	2.1	710	1086	23034MB	23034MBK	1300	1700	182	248	2.1	13.00
	260	67	2.1	726	1150	23034CA	23034CAK	1500	1900	182	248	2.1	12.91



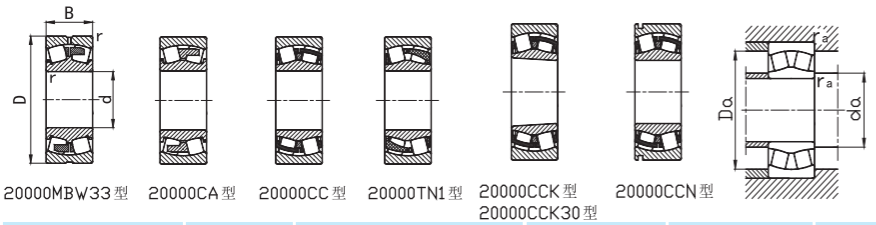
20000MBW33型 20000CA型 20000CC型 20000TN1型 20000CCK型 20000CCK30型 20000CCN型

主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		轴承代号 Bearing No.		极限转速 Limiting speeds(r/min)		安装尺寸 Mounting dimensions (mm)			质量 Mass (kg)
										da	Da	ra	
d	D	B	rsmin	Cr	Cor	圆柱孔 cylindrical bore	圆锥孔 tapered bore	脂润滑 grease	油润滑 oil	min	max	max	
	260	67	2.1	726	1150	23034CC	23034CCK	1500	1900	182	248	2.1	12.80
	260	90	2.1	940	1517	24034CA	24034CAK30	1300	1700	182	248	2.1	16.70
	260	90	2.1	940	1517	24034CC	24034CCK30	1300	1700	182	248	2.1	16.70
	280	88	2.1	1100	1620	23134CA	23134CAK	1100	1500	182	268	2.1	21.10
	280	88	2.1	1100	1620	23134CC	23134CCK	1100	1500	182	268	2.1	21.10
	280	109	2.1	1300	1970	24134CA	24134CAK30	1100	1400	182	268	2.1	25.50
	280	109	2.1	1300	1970	24134CC	24134CCK30	1100	1400	182	268	2.1	25.50
	310	86	4.0	1030	1400	22234MB	22234MBK	1400	1800	188	292	3.0	29.00
	310	86	4.0	1120	1495	22234CA	22234CAK	1600	2000	188	292	3.0	29.00
	310	86	4.0	1120	1495	22234CC	22234CCK	1600	2000	188	292	3.0	28.10
	310	110	4.0	1420	1997	23234CA	23234CAK	1100	1500	188	292	3.0	35.70
	310	110	4.0	1420	1997	23234CC	23234CCK	1100	1500	188	292	3.0	35.70
	360	120	4.0	1676	2100	22334MB	22334MBK	1000	1300	188	342	3.0	60.00
	360	120	4.0	1770	2200	22334CA	22334CAK	1100	1400	188	342	3.0	60.00
180	250	52	2.0	433	836	23936CA	23936CAK	1400	1900	189	240	2.0	7.90
	280	74	2.1	829	1269	23036MB	23036MBK	1200	1600	192	268	2.1	17.30
	280	74	2.1	840	1350	23036CA	23036CAK	1400	1800	192	268	2.1	17.00
	280	74	2.1	840	1350	23036CC	23036CCK	1400	1800	192	268	2.1	16.90
	280	100	2.1	1130	1866	24036CA	24036CAK30	1200	1500	192	268	2.1	22.10
	280	100	2.1	1130	1866	24036CC	24036CCK30	1200	1500	192	268	2.1	22.10
	300	96	3.0	1150	1800	23136MB	23136MBK	900	1300	194	286	2.5	27.10
	300	96	3.0	1250	1927	23136CA	23136CAK	1000	1400	194	286	2.5	27.00
	300	96	3.0	1250	1927	23136CC	23136CCK	1000	1400	194	286	2.5	26.90
	300	118	3.0	1500	2221	24136CA	24136CAK30	1000	1300	194	286	2.5	32.00
	300	118	3.0	1500	2221	24136CC	23136CCK30	1000	1300	198	286	2.5	32.00
	320	86	4.0	1100	1560	22236MB	22236MBK	1300	1500	198	302	3.0	30.00



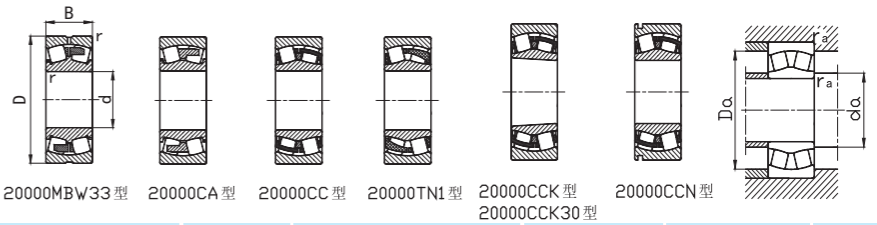
20000MBW33型 20000CA型 20000CC型 20000TN1型 20000CCK型 20000CCK30型 20000CCN型

主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		轴承代号 Bearing No.		极限转速 Limiting speeds(r/min)		安装尺寸 Mounting dimensions (mm)			质量 Mass (kg)
										da	Da	ra	
d	D	B	rsmin	Cr	Cor	圆柱孔 cylindrical bore	圆锥孔 tapered bore	脂润滑 grease	油润滑 oil	min	max	max	
	320	86	4.0	1200	1591	22236CA	22236CAK	1500	1700	198	302	3.0	30.00
	320	86	4.0	1200	1591	22236CC	22236CCK	1500	1700	198	302	3.0	29.40
	320	112	4.0	1510	2120	23236CA	23236CAK	1000	1400	198	302	3.0	37.90
	320	112	4.0	1510	2120	23236CC	23236CCK	1000	1400	198	302	3.0	37.90
	380	126	4.0	2000	2600	22336MB	22336MBK	950	1250	198	362	3.0	70.20
	380	126	4.0	2000	2600	22336CA	22336CAK	1000	1300	198	362	3.0	70.00
190	260	52	2.0	420	833	23938CA	23938CAK	1400	1800	199	251	2.0	8.30
	290	75	2.1	860	1350	23038MB	23038MBK	1100	1400	202	278	2.1	20.00
	290	75	2.1	877	1490	23038CA	23038CAK	1300	1600	202	278	2.1	20.00
	290	75	2.1	877	1490	23038CC	23038CCK	1300	1600	202	278	2.1	17.70
	290	100	2.1	1160	1945	24038CA	24038CAK30	1100	1400	202	278	2.1	23.00
	290	100	2.1	1160	1945	24038CC	24038CCK30	1100	1400	202	278	2.1	23.00
	320	104	3.0	1300	2000	23138MB	23138MBK	900	1200	204	306	2.5	35.30
	320	104	3.0	1400	2100	23138CA	23138CAK	1000	1300	204	306	2.5	35.11
	320	104	3.0	1400	2100	23138CC	23138CCK	1000	1300	204	306	2.5	35.00
	320	128	3.0	1600	2655	24138CA	24138CAK30	950	1200	204	306	2.5	40.20
	320	128	3.0	1600	2655	24138CC	24138CCK30	950	1200	204	306	2.5	40.20
	340	92	4.0	1270	1825	22238CA	22238CAK	1300	1600	208	322	3.0	35.30
	340	92	4.0	1270	1825	22238CC	22238CCK	1300	1600	208	322	3.0	35.30
	340	120	4.0	1700	2520	23238CA	23238CAK	900	1300	208	322	3.0	46.10
	400	132	5.0	2060	2810	22338CA	22338CAK	900	1200	212	378	4.0	81.00
	400	132	5.0	1820	2680	22338MB	22338MBK	850	1100	212	378	4.0	81.00
200	280	60	2.1	550	1100	23940CA	23940CAK	1300	1700	1700	269	2.0	11.50
	310	82	2.1	1050	1707	23040CA	23040CAK	1100	1500	1500	298	2.1	24.00
	310	82	2.1	1050	1707	23040CC	23040CCK	1100	1500	1500	298	2.1	22.70
	310	109	2.1	1300	2165	24040CA	24040CAK30	1000	1300	1300	298	2.1	29.30



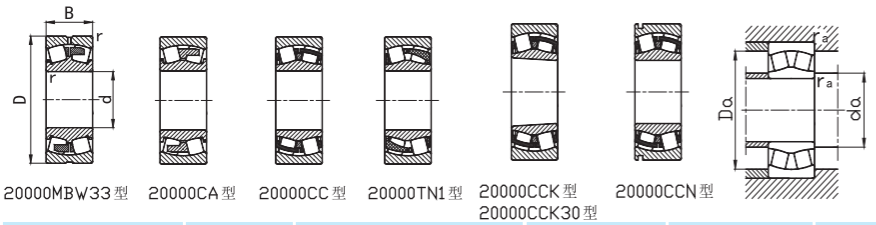
20000MBW33型 20000CA型 20000CC型 20000TN1型 20000CCK型 20000CCK30型 20000CCN型

主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		轴承代号 Bearing No.		极限转速 Limiting speeds(r/min)		安装尺寸 Mounting dimensions (mm)			质量 Mass (kg)
										da	Da	ra	
d	D	B	rsmin	Cr	Cor	圆柱孔 cylindrical bore	圆锥孔 tapered bore	脂润滑 grease	油润滑 oil	min	max	max	
	310	109	2.1	1300	2165	24040CC	24040CCK30	1000	1300	212	298	2.1	29.30
	340	112	3.0	1650	2500	23140CA	23140CAK	900	1200	214	326	2.5	50.70
	340	112	3.0	1650	2500	23140CC	23140CCK	900	1200	214	326	2.5	47.60
	340	140	3.0	1900	3082	24140CA	24140CAK30	900	1100	214	326	2.5	49.55
	340	140	3.0	1900	3082	24140CC	24140CCK30	900	1100	214	326	2.5	49.90
	360	98	4.0	1500	2052	22240CA	22240CAK	1200	1500	218	342	3.0	47.70
	360	128	4.0	1880	2883	23240CC	23240CCK	800	1200	218	342	3.0	55.40
	420	138	5.0	2330	3090	22340CA	22340CAK	900	1100	222	398	4.0	94.00
	420	138	5.0	2100	2960	22340MB	22340MBK	850	1000	222	398	4.0	94.00
220	300	60	2.1	546	1080	23944CA	23944CAK	1500	1900	231	289	2.0	12.50
	340	90	3.0	1220	2020	23044CA	23044CAK	1200	1500	234	326	2.5	28.80
	340	90	3.0	1220	2020	23044CC	23044CCK	1200	1500	234	326	2.5	29.70
	340	118	3.0	1560	2600	24044CA	24044CAK30	950	1300	234	326	2.5	38.10
	370	120	4.0	1800	2940	23144CA	23144CAK	1000	1300	238	352	3.0	55.00
	370	120	4.0	1800	2940	23144CC	23144CCK	1000	1300	238	352	3.0	51.50
	370	150	4.0	2120	3670	24144CC	24144CCK30	700	1000	238	352	3.0	62.30
	400	108	4.0	1760	2510	22244CA	22244CAK	1200	1500	238	382	3.0	61.50
	400	144	4.0	2320	3515	23244CC	23244CCK	800	1100	238	382	3.0	78.50
	460	145	5.0	2650	3530	22344CA	22344CAK	700	1000	242	438	4.0	120.00
	460	145	5.0	2460	3300	22344MB	22344MBK	700	1000	242	438	4.0	120.90
240	320	60	2.1	564	1160	23948CA	23948CAK	1200	1600	251	309	2.0	13.5
	360	92	3.0	1290	2155	23048CA	23048CAK	1100	1500	253	347	2.5	33.5
	360	118	3.0	1600	2930	24048CA	24048CAK30	900	1200	253	347	2.5	43.6
	400	128	4.0	2100	3400	23148CA	23148CAK	900	1200	257	383	3.0	66.1
	400	128	4.0	2100	3400	23148CC	23148CCK	900	1200	257	383	3.0	65.7
	400	160	4.0	2400	4090	24148CA	24148CAK30	800	1000	257	383	3.0	82.0



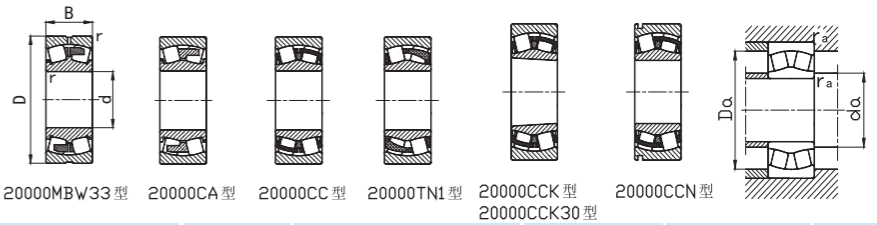
20000MBW33型 20000CA型 20000CC型 20000TN1型 20000CCK型 20000CCK30型 20000CCN型

主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		轴承代号 Bearing No.		极限转速 Limiting speeds(r/min)		安装尺寸 Mounting dimensions (mm)			质量 Mass (kg)
										da	Da	ra	
d	D	B	rsmin	Cr	Cor	圆柱孔 cylindrical bore	圆锥孔 tapered bore	脂润滑 grease	油润滑 oil	min	max	max	
	400	160	4.0	2220	3900	24148MB	24148MBK30	800	1000	257	383	3.0	83.2
	440	120	4.0	2020	3100	22248CA	22248CAK	1000	1400	257	423	3.0	82.0
	440	120	4.0	1900	3000	22248MB	22248MBK	1000	1400	257	423	3.0	83.6
	440	120	4.0	2020	3100	22248CC	22248CCK	1000	1400	257	423	3.0	83.1
	440	160	4.0	2900	4600	23248CA	23248CAK	800	1000	257	423	3.0	107.3
	440	160	4.0	2800	4400	23248MB	23248MBK	800	1000	257	423	3.0	107.3
	500	155	5.0	3200	4100	22348CA	22348CAK	700	900	260	480	4.0	153.0
	500	155	5.0	3100	2960	22348MB	22348MBK	700	900	260	480	4.0	154.9
260	360	75	2.1	880	1800	23952CA	23952CAK	1300	1700	271	349	2	23.5
	400	104	4.0	1600	2650	23052CA	23052CAK	1100	1400	275	385	3	48.5
	400	140	4.0	2050	3650	24052CA	24052CAK30	900	1200	275	385	3	65.5
	440	144	4.0	2550	3900	23152MB	23152MBK	800	1000	277	423	3	92.6
	440	144	4.0	2600	4100	23152CA	23152CAK	800	1000	277	423	3	90.5
	440	180	4.0	3000	5200	24152CA	24152CAK30	700	900	277	423	3	107.6
	480	130	5.0	2700	3600	22252CA	22252CAK	900	1200	280	460	4	110
	480	130	5.0	2600	3500	22252MB	22252MBK	900	1200	280	460	4	110.0
	480	174	5.0	3250	4800	23252CA	23252CAK	700	950	280	460	4	140
	480	174	5.0	3100	1760	23252MB	23252MBK	700	950	280	460	4.0	142.0
	540	165	6.0	3650	4600	22352CA	22352CAK	600	850	286	514	5.0	191.0
	540	165	6.0	3430	4400	22352MB	22352MBK	600	850	286	514	5.0	194.0
280	380	75	2.1	845	1760	23956CA	23956CAK	1100	1400	291	369	2.0	25.0
	420	106	4.0	1730	2850	23056CA	23056CAK	900	1300	295	405	3.0	52.5
	420	140	4.0	2160	3900	24056CA	24056CAK30	800	1100	295	405	3.0	69.5
	460	146	5.0	2650	4410	23156CA	23156CAK	700	1000	300	440	4.0	97.0
	460	146	5.0	2430	4160	23156MB	23156MBK	700	1000	300	440	4.0	98.0
	460	180	5.0	3100	5200	24156CA	24156CAK30	650	900	300	440	4.0	120.0



20000MBW33型 20000CA型 20000CC型 20000TN1型 20000CCK型 20000CCK30型 20000CCN型

主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		轴承代号 Bearing No.		极限转速 Limiting speeds(r/min)		安装尺寸 Mounting dimensions (mm)			质量 Mass (kg)
										da	Da	ra	
d	D	B	rsmin	Cr	Cor	圆柱孔 cylindrical bore	圆锥孔 tapered bore	脂润滑 grease	油润滑 oil	min	max	max	
	500	130	5.0	2700	3850	22256CA	22256CAK	900	1100	300	480	4.0	112.3
	500	130	5.0	2560	3700	22256MB	22256MBK	900	1100	300	480	4.0	112.3
	500	176	5.0	3250	4900	23256CA	23256CAK	800	1000	300	480	4.0	150.0
	500	176	5.0	3100	1750	23256MB	23256MBK	800	1000	300	480	4.0	150.0
	580	175	6.0	4000	5200	22356CA	22356CAK	700	950	300	480	4.0	235.0
	580	175	6.0	3800	4920	22356MB	223MBCAK	700	950	306	554	5.0	236.0
300	380	60	2.1	656	1600	23860CA	23860CAK	1300	1500	311	369	2.0	16.5
	420	90	3.0	1200	2500	23960CA	23960CAK	1200	1400	313	407	2.5	39.5
	460	118	4.0	2120	3450	23060CA	23060CAK	900	1300	315	445	3.0	71.5
	460	160	4.0	2700	4750	24060CA	24060CAK30	600	950	315	445	3.0	97.0
	500	160	5.0	3200	5100	23160CA	23160CAK	600	950	320	480	4.0	125.0
	500	160	5.0	2990	4900	23160MB	23160MBK	600	950	320	480	4.0	127.0
	500	200	5.0	3750	6300	24160CA	24160CAK30	600	850	320	480	4.0	145.0
	500	200	5.0	3500	6000	24160MB	24160MBK30	600	850	320	480	4.0	145.0
	540	140	5.0	3150	4260	22260CA	22260CAK	900	1100	320	520	4.0	145.0
	540	140	5.0	3000	4050	22260MB	22260MBK	900	1100	320	520	4.0	145.0
	540	192	5.0	3900	5850	23260CA	23260CAK	600	850	320	520	4.0	190.0
	540	192	5.0	3730	5580	23260MB	23260MBK	600	850	320	520	4.0	190.0
320	440	90	3.0	1430	2700	23964CA	23964CAK	1000	1300	333	427	2.5	42.0
	480	121	4.0	2240	3800	23064CA	23064CAK	950	1200	335	465	3.0	78.0
	480	160	4.0	2850	5100	24064CA	24064CAK30	800	1050	335	465	3.0	100.0
	540	176	5.0	3750	6000	23164CA	23164CAK	650	900	340	520	4.0	165.0
	540	218	5.0	4250	7100	24164CA	24164CAK30	550	750	340	520	4.0	210.0
	580	150	5.0	3600	4900	22264CA	22264CAK	700	950	340	560	4.0	175.0
	580	150	5.0	3400	4700	22264MB	22264MBK	700	950	340	560	4.0	175.0
	580	208	5.0	4400	6700	23264CA	23264CAK	600	800	340	560	4.0	240.0



20000MBW33型 20000CA型 20000CC型 20000TN1型 20000CCK型 20000CCK30型 20000CCN型

主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		轴承代号 Bearing No.		极限转速 Limiting speeds(r/min)		安装尺寸 Mounting dimensions (mm)			质量 Mass (kg)
										da	Da	ra	
d	D	B	rsmin	Cr	Cor	圆柱孔 cylindrical bore	圆锥孔 tapered bore	脂润滑 grease	油润滑 oil	min	max	max	
340	460	90	3.0	1460	2800	23968CA	23968CAK	950	1250	353	447	2.5	45.5
	520	133	5.0	2700	4550	23068CA	23068CAK	850	1100	358	502	4.0	105.0
	520	180	5.0	3450	6200	24068CA	24068CAK30	700	950	358	502	4.0	140.0
	580	190	5.0	4250	6800	23168CA	23168CAK	650	900	360	560	4.0	210.0
	580	243	5.0	5300	8650	24168CA	24168CAK30	550	750	360	560	4.0	280.0
	620	165	6.0	3800	5450	22268CA	22268CAK	600	800	366	594	5.0	224.0
	620	165	6.0	3600	5200	22268MB	22268MBK	600	800	366	594	5.0	224.0
	620	224	6.0	5100	7800	23268CA	23268CAK	550	750	366	594	5.0	295.0
360	480	90	3.0	1400	2750	23972CA	23972CAK	900	1200	373	467	2.5	46.0
	540	134	5.0	2750	4800	23072CA	23072CAK	770	1050	378	522	4.0	110.0
	540	180	5.0	3550	6550	24072CA	24072CAK30	600	850	378	522	4.0	145.0
	600	192	5.0	4300	6950	23172CA	23172CAK	600	850	380	580	4.0	220.0
	600	243	5.0	5600	9300	24172CA	24172CAK30	520	750	350	580	4.0	280.0
	650	170	6.0	4300	6200	22272CA	22272CAK	600	800	386	624	5.0	255.0
	650	170	6.0	4100	5900	22272MB	22272MBK	600	800	386	624	5.0	255.0
	650	232	6.0	5400	8300	23272MB	23272MBK	500	700	386	624	5.0	335.0
380	520	106	4.0	1960	3800	23976CA	23976CAK	850	1100	395	505	3.0	69.2
	560	135	5.0	2900	5000	23076CA	23076CAK	750	1000	398	542	4.0	115.5
	560	180	5.0	3600	6800	24076CA	24076CAK30	550	800	398	542	4.0	150.0
	620	194	5.0	4400	7100	23176CA	23176CAK	550	850	400	600	4.0	230.0
	620	243	5.0	5700	9800	24176CA	24176CAK30	520	750	400	600	4.0	300.0
	680	240	6.0	5850	9150	23276MB	23276MBK	500	700	406	654	5.0	375.0
400	540	106	4.0	2000	3900	23980CA	23980CAK	850	1100	415	525	3.0	71.2
	600	148	5.0	3250	5700	23080CA	23080CAK	750	1000	418	582	4.0	150.5
	650	200	6.0	4650	7650	23180MB	23180MBK	550	830	426	624	5.0	265.3
	650	250	6.0	6200	10600	24180MB	24180MBK30	500	700	426	624	5.0	340.0

长内圈调心滚子轴承
Long Inner Ring
Spherical Roller Bearings

长内圈调心滚子轴承除了具有一般调心滚子轴承的优点外，还具有滚子长、承载能力大、调心性能好、滚子与滚道摩擦小等特点，特别适用于林业机械、木工机械及森林开发机械等重要机械的配套。

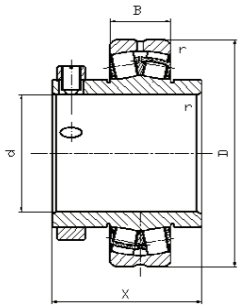
In addition to common advantages of normal spherical roller bearing, extended inner ring spherical roller bearing has some more favourable features, such as longer roller, strong load-bearing capacity, nice efficiency of self-aligning, much less friction between roller and raceway, etc. It is especially suitable to match such important machines as forestry machine, carpent machine and forest developming machine.



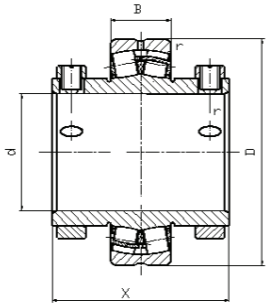
WGB®



Long Inner Ring Spherical Roller Bearings



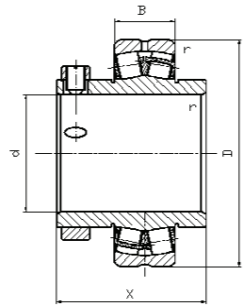
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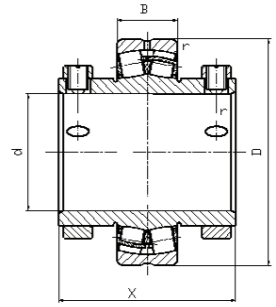
476200B-000VSB

轴承代号 Bearing No.	主要尺寸 Boundary dimensions (mm)					额定负荷 Load ratings (KN)		质量 Mass (kg)
	d	D	B	X	rsmin	Cr	Cor	
476208B-107	36.513	80	23	69.85	1.1	95	94	1.12
476208B-107VSB	36.513	80	23	88.9	1.1	95	94	1.56
476208B-108	38.100	80	23	69.85	1.1	95	94	1.11
476209B-040	40.000	85	23	73.03	1.1	100	102	1.17
476209B-111	42.863	85	23	73.03	1.1	100	102	1.16
476209B-112	44.450	85	23	73.03	1.1	100	102	1.14
476209B-045	45.000	85	23	73.03	1.1	100	102	1.12
476210B-050	50.000	90	23	73.03	1.1	101	112	1.15
476210B-115	49.213	90	23	73.03	1.1	101	112	1.19
476210B-115VSB	49.213	90	23	95.26	1.1	101	112	1.53
476210B-200	50.800	90	23	73.03	1.1	102	112	1.12
476211B-203	55.563	100	25	79.38	1.5	125	139	1.55
476211B-204	57.150	100	25	79.38	1.5	125	139	1.52
476213B-065	65.000	120	31	85.73	1.5	210	215	2.36
476213B-060	60.000	120	31	85.73	1.5	210	215	2.98
476213B-207	61.913	120	31	85.73	1.5	210	215	2.46
476213B-208	63.500	120	31	85.73	1.5	210	215	2.75
476213B-208VSB	63.500	120	31	107.96	1.5	210	215	3.71
476215B-075	75.000	130	31	92.08	1.5	202	238	3.24
476215B-211	68.263	130	31	92.08	1.5	202	238	3.38
476215B-212	69.850	130	31	92.08	1.5	202	238	3.31

长内圈调心滚子轴承
Long Inner Ring Spherical Roller Bearings
WGB®

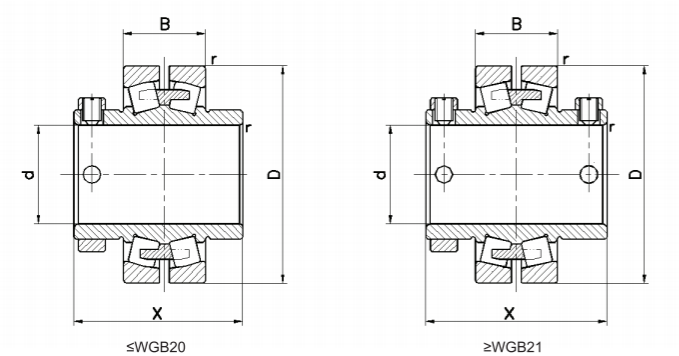


476200B-000



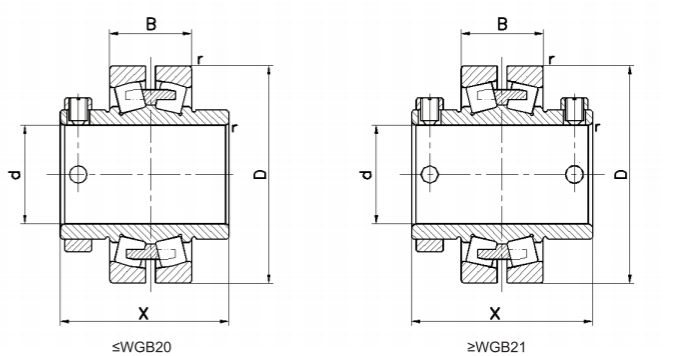
476200B-000VSB

轴承代号 Bearing No.	主要尺寸 Boundary dimensions (mm)					额定负荷 Load ratings (KN)		质量 Mass (kg)
	d	D	B	X	rsmin	Cr	Cor	
476215B-215	74.613	130	31	92.08	1.5	202	238	3.28
476215B-215VSB	74.613	130	31	120.66	1.5	202	238	4.39
476215B-300	76.200	130	31	92.08	1.5	202	238	3.17
476218B-085	85.000	160	40	102.39	2	298	375	6.01
476218B-307	87.313	160	40	102.39	2	298	375	5.72
476218B-307VSB	87.313	160	40	131.72	2	298	375	7.18
476218B-308	88.900	160	40	102.39	2	298	375	5.80
476220B-100	100.000	180	46	116.69	2.1	400	486	8.23
476220B-315	100.013	180	46	116.69	2.1	400	486	8.23
476220B-315VSB	100.013	180	46	150.82	2.1	400	486	10.43
476220B-400	101.600	180	46	116.69	2.1	400	486	8.21
476222B-407VSB	112.713	200	53	155.58	2.1	500	651	13.14
476222B-408VSB	114.300	200	53	155.58	2.1	500	651	14.59
476226B-415VSB	125.413	230	64	168.28	3	670	910	18.46
476226B-500VSB	127.000	230	64	168.28	3	670	910	18.04



轴承代号 Bearing No.	主要尺寸 Boundary dimensions (mm)					额定负荷 Load ratings (KN)		质量 Mass (kg)
	d	D	B	X	rsmin	Cr	Cor	
WGB07-107	36.513	72	33	73	1.1	98	115	0.97
WGB07-108	38.100	72	33	73	1.1	98	115	0.95
WGB09-111	42.863	85	40.08	79.38	1.1	129	145	1.50
WGB09-112	44.450	85	40.08	79.38	1.1	129	145	1.40
WGB10-050	50.000	90	37	79.2	1.1	157	170	1.48
WGB10-115	49.213	90	37	79.2	1.1	157	170	1.47
WGB10-200	50.800	90	37	79.2	1.1	157	170	1.43
WGB11-203	55.563	100	41	84.2	1.5	200	218	2.04
WGB11-204	57.150	100	41	84.2	1.5	200.2	218	1.96
WGB13-060	60.000	110	44	89	1.5	207	245	2.58
WGB13-207	61.913	110	44	89	1.5	206.8	245	2.50
WGB13-208	63.500	110	44	89	1.5	207	245	2.43
WGB15-075	75.000	130	53	101.6	1.5	295	358	3.98
WGB15-211	68.263	130	53	101.6	1.5	295	358	4.33
WGB15-212	69.850	130	53	101.6	1.5	295	358	4.21
WGB15-215	74.613	130	53	101.6	1.5	295	358	3.95
WGB15-300	76.200	130	53	101.6	1.5	295	358	3.81
WGB17-085	85.000	150	59	111	2	342	416	5.96
WGB17-307	87.313	150	59	111	2	342	416	5.78
WGB20-100	100.000	180	69	128.59	2.1	514	595	9.91
WGB20-315	100.013	180	69	128.59	2.1	514	595	9.90

长内圈调心滚子轴承
Long Inner Ring Spherical Roller Bearings
WGB®

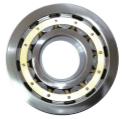


轴承代号 Bearing No.	主要尺寸 Boundary dimensions (mm)					额定负荷 Load ratings (KN)		质量 Mass (kg)
	d	D	B	X	rsmin	Cr	Cor	
WGB20-400	101.600	180	69	128.59	2.1	514	595	9.84
WGB21-407	112.713	190	75	171.45	2.1	589	726	12.73
WGB21-408	114.300	190	75	171.45	2.1	589	726	12.61
WGB24-415	125.413	215	86	184.2	2.1	800	1024	18.78
WGB24-500	127.000	215	86	184.2	2.1	800	1024	18.66

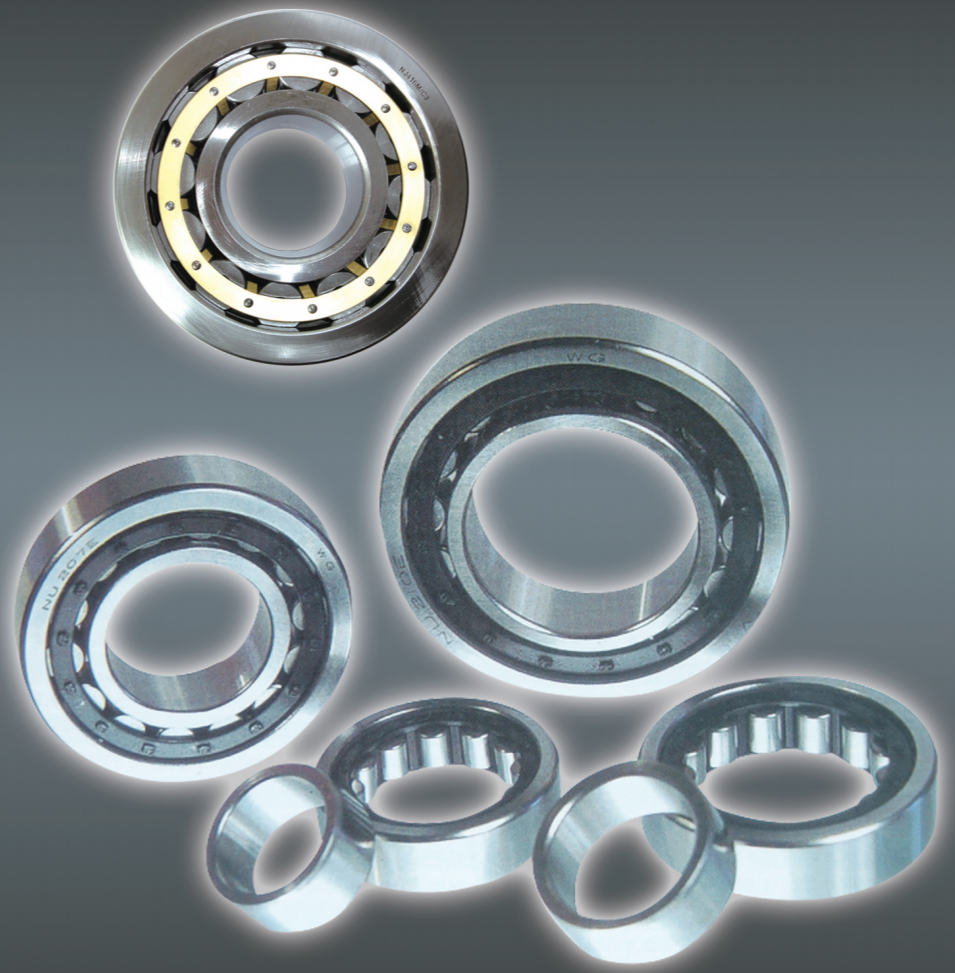
圆柱滚子轴承
Cylindrical Roller Bearings

圆柱滚子轴承一般只用于承受径向负荷，有较大的径向截荷能力，广泛用于动力机械、工程机械、汽车行业、流体行业、石油机械等。

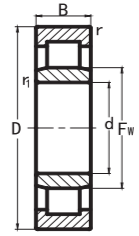
Cylindrical roller bearings are generally only used to bear radial load, there is a large radial load capacity, widely used in power machinery, construction machinery, auto--motive industry, fluid industry, petroleum machinery, etc..



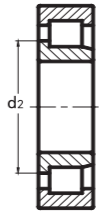
WGB®



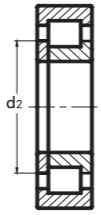
Cylindrical Roller Bearing



NU0000型

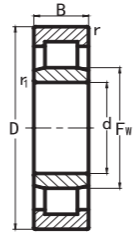


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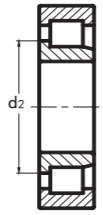


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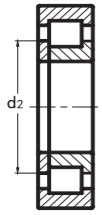
主要尺寸 Boundary dimensions (mm)					额定负荷 Load ratings (KN)		轴承代号 Bearing No.			极限转速 Limiting speeds(r/min)		其它尺寸 Other dimensions (mm)		质量 Mass (kg)
d	D	B	rsmin	r1smin	Cr	Cor	NU0000型	NJ0000型	NUP0000型	脂润滑 Grease	油润滑 Oil	Fw	d2	
40	68	15	1	0.6	25.1	26.0	NU1008EM	NJ1008EM	—	9000	16000	47	—	0.22
	80	18	1.1	1.1	62.0	53	NU208EM	NJ208EM	NUP208EM	8000	9500	49.5	54.2	0.39
	80	23	1.1	1.1	81.5	75	NU2208EM	NJ2208EM	NUP2208EM	8000	9500	49.5	54.2	0.51
	90	23	1.5	1.5	93	78.0	NU308EM	NJ308EM	NUP308EM	7000	9000	52	57.7	0.68
	90	33	1.5	1.5	129	120.0	NU2308EM	NJ2308EM	NUP2308EM	6300	8500	52	57.7	0.97
	110	27	2	2	96.8	90	NU408EM	NJ408EM	NUP408EM	6000	7500	58	64.8	1.25
45	75	16	1	0.6	44.6	52	NU1009EM	NJ1009EM	—	7000	9000	52.5	—	0.26
	85	19	1.1	1.1	69.5	64.0	NU209EM	NJ209EM	NUP209EM	6800	8500	54.5	59.2	0.45
	85	23	1.1	1.1	85	81.5	NU2209EM	NJ2209EM	NUP2209EM	6800	8500	54.5	59.2	0.55
	100	25	1.5	1.5	112.0	100	NU309EM	NJ309EM	NUP309EM	6100	7500	58.5	64.7	0.93
	100	36	1.5	1.5	160	153	NU2309EM	NJ2309EM	NUP2309EM	6100	7500	58.5	64.7	1.34
	120	29	2	2	106	102.0	NU409EM	NJ409EM	NUP409EM	5500	6800	64.5	71.8	1.80
50	90	20	1.1	1.1	73.5	69.5	NU210EM	NJ210EM	NUP210EM	6500	8000	59.5	64.2	0.51
	90	23	1.1	1.1	90.0	88	NU2210EM	NJ2210EM	NUP2210EM	6500	8000	59.5	64.2	0.59
	110	27	2	2	127	112	NU310EM	NJ310EM	NUP310EM	5800	7200	65	71.2	1.20
	110	40	2	2	186	186.0	NU2310E	NJ2310EM	NUP2310EM	5800	7200	65	71.2	1.79
	130	31	2.1	2.1	130	127.0	NU410EM	NJ410EM	NUP410EM	5300	6500	70.8	78.8	2.30
55	90	18	1.1	1	57.2	69.5	NU1011EM	NJ1011EM	—	6100	7500	64.5	—	0.45
	100	21	1.5	1.1	96.5	95	NU211EM	NJ211EM	NUP211EM	5800	7200	66	70.9	0.68
	100	25	1.5	1.1	114	118.0	NU2211EM	NJ2211E	NUP2211EM	5800	7200	66	70.9	0.81
	120	29	2	2	156	143.0	NU311EM	NJ311EM	NUP311EM	5300	6500	70.5	77.4	1.53



NU0000型

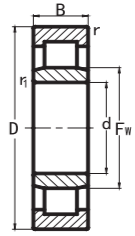


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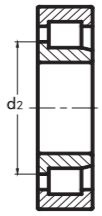


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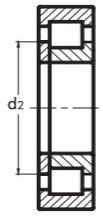
主要尺寸 Boundary dimensions (mm)					额定负荷 Load ratings (KN)		轴承代号 Bearing No.			极限转速 Limiting speeds(r/min)		其它尺寸 Other dimensions (mm)		质量 Mass (kg)
d	D	B	rsmin	r1smin	Cr	Cor	NU0000型	NJ0000型	NUP0000型	脂润滑 Grease	油润滑 Oil	Fw	d2	
	120	43	2	2	232.0	232	NU2311EM	NJ2311EM	NUP2311EM	5300	6500	70.5	77.4	2.28
	140	33	2.1	2.1	142	140	NU411EM	NJ411EM	NUP411EM	4800	5800	77.2	85.2	2.80
60	95	18	1.1	1	38.5	45.0	NU1012EM	NJ1012EM	—	5800	7200	69.5	—	0.48
	110	22	1.5	1.5	108	102.0	NU212EM	NJ212EM	NUP212EM	5500	6800	72	77.7	0.86
	110	28	1.5	1.5	146.0	153	NU2212EM	NJ2212EM	NUP2212EM	5500	6800	72	77.7	1.12
	130	31	2.1	2.1	173	160	NU312EM	NJ312EM	NUP312EM	5000	6100	77	84.3	1.87
	130	46	2.1	2.1	260	265.0	NU2312EM	NJ2312EM	NUP2312EM	5000	6100	77	84.3	2.81
	150	35	2.1	2.1	168	173.0	NU412EM	NJ412EM	NUP412EM	4500	5500	83	91.8	3.40
65	100	18	1.1	1	62.7	81.5	NU1013EM	NJ1013EM	—	5300	6500	74.5	—	0.51
	120	23	1.5	1.5	122	118	NU213EM	NJ213EM	NUP213EM	5000	6100	78.5	84.6	1.08
	120	31	1.5	1.5	170	180.0	NU2213EM	NJ2213EM	NUP2213EM	5000	6100	78.5	84.6	1.48
	140	33	2.1	2.1	212	196.0	NU313EM	NJ313EM	NUP313EM	4500	5500	82.5	90.6	2.31
	140	48	2.1	2.1	285.0	290	NU2313EM	NJ2313EM	NUP2313EM	4500	5500	82.5	90.6	3.34
	160	37	2.1	2.1	183	190	NU413EM	NJ413EM	NUP413EM	4300	5300	89.5	98.5	4.00
70	110	20	1.1	1	76.5	93.0	NU1014EM	NJ1014EM	—	5300	6500	80	—	0.71
	125	24	1.5	1.5	137	137.0	NU214EM	NJ214EM	NUP214EM	4800	5800	83.5	89.6	1.20
	125	31	1.5	1.5	180.0	193	NU2214EM	NJ2214EM	NUP2214EM	4800	5800	83.5	89.6	1.56
	150	35	2.1	2.1	236	228	NU314EM	NJ314EM	NUP314EM	4300	5300	89	97.5	2.86
	150	51	2.1	2.1	315	325.0	NU2314EM	NJ2314EM	NUP2314EM	4300	5300	89	97.5	4.10
	180	42	3	3	229	240.0	NU414EM	NJ414EM	NUP414EM	3900	4800	100	110	5.90
75	115	20	1.1	1	58.3	71	NU1015EM	NJ1015EM	—	5000	6100	85	—	0.74



NU0000型

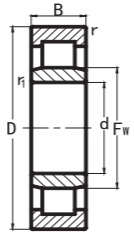


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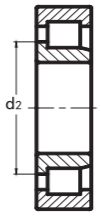


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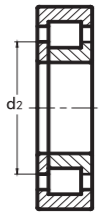
主要尺寸 Boundary dimensions (mm)					额定负荷 Load ratings (KN)		轴承代号 Bearing No.			极限转速 Limiting speeds(r/min)		其它尺寸 Other dimensions (mm)		质量 Mass (kg)
d	D	B	rsmin	r1smin	Cr	Cor	NU0000型	NJ0000型	NUP0000型	脂润滑 Grease	油润滑 Oil	Fw	d2	
	130	25	1.5	1.5	150	156	NU215EM	NJ215EM	NUP215EM	4500	5500	88.5	94.6	1.32
	130	31	1.5	1.5	186	208.0	NU2215EM	NJ2215EM	NUP2215EM	4500	5500	88.5	94.6	1.64
	160	37	2.1	2.1	280	265.0	NU315EM	NJ315EM	NUP315EM	4100	5000	95	104.2	3.43
	160	55	2.1	2.1	380.0	400	NU2315EM	NJ2315EM	NUP2315EM	4100	5000	95.5	104	5.40
	190	45	3	3	264	280	NU415EM	NJ415EM	NUP415EM	3700	4500	104.5	116	7.10
80	125	22	1.1	1	66	81.5	NU1016EM	NJ1016EM	—	4800	5800	91.5	—	1.00
	140	26	2	2	160	166.0	NU216EM	NJ216EM	NUP216EM	4300	5300	95.3	101.1	1.58
	140	33	2	2	212.0	245	NU2216EM	NJ2216EM	NUP2216EM	4300	5300	95.3	101.1	2.05
	170	39	2.1	2.1	300	290	NU316EM	NJ316EM	NUP316EM	3900	4800	101	110.1	4.05
	170	58	2.1	2.1	415	440.0	NU2316EM	NJ2316EM	NUP2316EM	3900	4800	103	111	6.40
	200	48	3	3	303	320.0	NU416EM	NJ416EM	NUP416EM	3500	4300	110	122	8.30
85	130	22	1.1	1	68.2	86.5	NU1017EM	NJ1017EM	—	4500	5500	96.5	—	1.05
	150	28	2	2	190	200	NU217EM	NJ217EM	NUP217EM	4100	5000	100.5	107.1	2.00
	150	36	2	2	250	280.0	NU2217EM	NJ2217EM	NUP2217EM	4100	5000	100.5	107.1	2.58
	180	41	3	3	340	335.0	NU317EM	NJ317EM	NUP317EM	3700	4500	108	117.4	4.82
	180	60	3	3	455.0	490	NU2317EM	NJ2317EM	NUP2317EM	3700	4500	108	117	7.40
	210	52	4	4	319	335	NU417EM	NJ417EM	NUP417EM	3300	4100	113	126	9.80
90	140	24	1.5	1.1	80.9	104.0	NU1018EM	NJ1018EM	—	4300	5300	103	—	1.36
	160	30	2	2	208	220.0	NU218EM	NJ218EM	NUP218EM	3900	4800	107	113.9	2.44
	160	40	2	2	280.0	315	NU2218EM	NJ2218EM	NUP2218EM	3900	4800	107	113.9	3.26
	190	43	3	3	365	360	NU318EM	NJ318EM	NUP318EM	3500	4300	113.5	123.7	5.59



NU0000型

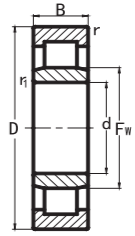


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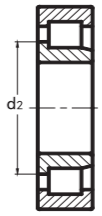


NUP0000型

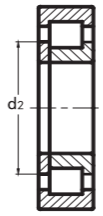
主要尺寸 Boundary dimensions (mm)					额定负荷 Load ratings (KN)		轴承代号 Bearing No.			极限转速 Limiting speeds(r/min)		其它尺寸 Other dimensions (mm)		质量 Mass (kg)
d	D	B	rsmin	r1smin	Cr	Cor	NU0000型	NJ0000型	NUP0000型	脂润滑 Grease	油润滑 Oil	Fw	d2	
	190	64	3	3	500	540.0	NU2318EM	NJ2318EM	NUP2318EM	3500	4300	115	125	8.40
	225	54	4	4	380	415.0	NU418EM	NJ418EM	NUP418EM	2900	3700	123.5	137	11.00
95	145	24	1.5	1.1	84.2	110	NU1019EM	NJ1019EM	—	4100	5000	108	—	1.40
	170	32	2.1	2.1	255	265	NU219EM	NJ219EM	NUP219EM	3700	4500	112.5	120.2	2.96
	170	43	2.1	2.1	325	375.0	NU2219EM	NJ2219EM	NUP2219EM	3700	4500	112.5	120.2	3.97
	200	45	3	3	390	390.0	NU319EM	NJ319EM	NUP319EM	3300	4100	121.5	131.7	6.52
	200	67	3	3	530.0	585	NU2319EM	NJ2319EM	NUP2319EM	3300	4100	121.5	132	10.40
	240	55	4	4	413	455	NU419EM	NJ419EM	NUP419EM	2700	3500	133	147	14.00
100	150	24	1.5	1.1	85.8	114.0	NU1020EM	NJ1020EM	—	3900	4800	113	—	1.50
	180	34	2.1	2.1	285	305.0	NU220EM	NJ220EM	NUP220EM	3500	4300	119	127	3.58
	180	46	2.1	2.1	380.0	450	NU2220EM	NJ2220EM	NUP2220EM	3500	4300	119	127	4.86
	215	47	3	3	450	440	NU320EM	NJ320EM	NUP320EM	3100	3700	127.5	139.1	7.89
	215	73	3	3	670	735.0	NU2320EM	NJ2320EM	NUP2320EM	3100	3700	129.5	140	13.50
	250	58	4	4	429	475.0	NU420EM	NJ420EM	NUP420EM	2500	3300	139	153	16.00
110	170	28	2	1.1	128	166.0	NU1022EM	NJ1022EM	—	3500	4300	125	131	2.30
	200	38	2.1	2.1	335	365.0	NU222EM	NJ222EM	NUP222EM	3100	3900	132.5	141.3	5.02
	200	53	2.1	2.1	440.0	520	NU2222EM	NJ2222EM	NUP2222EM	3100	3900	132	141	7.50
	240	50	3	3	530	540	NU322EM	NJ322EM	NUP322EM	2500	3300	143	155	11.00
	240	80	3	3	780	900.0	NU2322EM	NJ2322EM	NUP2322EM	2500	3300	143	155	17.50
	280	65	4	4	532	585.0	NU422EM	NJ422EM	NUP422EM	2300	2900	155	171	22.00
120	180	28	2	1.1	134.0	183	NU1024EM	NJ1024EM	—	3100	3900	135	—	2.96



NU0000型

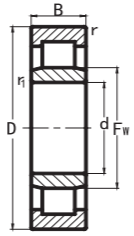


NJ0000型

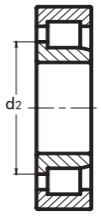


NUP0000型

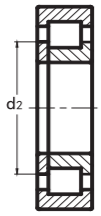
主要尺寸 Boundary dimensions (mm)					额定负荷 Load ratings (KN)		轴承代号 Bearing No.			极限转速 Limiting speeds(r/min)		其它尺寸 Other dimensions (mm)		质量 Mass (kg)
d	D	B	rsmin	r1smin	Cr	Cor	NU0000型	NJ0000型	NUP0000型	脂润滑 Grease	油润滑 Oil	Fw	d2	
	215	40	2.1	2.1	390	430	NU224EM	NJ224E	NUP224EM	2700	3500	143.5	153	6.11
	215	58	2.1	2.1	520	630.0	NU2224EM	NJ2224EM	NUP2224EM	2700	3500	143.5	153	9.50
	260	55	3	3	610	620.0	NU324EM	NJ324EM	NUP324EM	2400	3100	154	168	14.00
	260	86	3	3	915.0	1040	NU2324EM	NJ2324EM	NUP2324EM	2400	3100	154	168	22.50
	310	72	5	5	644	735	NU424EM	NJ424EM	NUP424EM	2200	2700	170	188	30.00
130	200	33	2	1.1	165	224.0	NU1026EM	NJ1026EM	—	2900	3700	148	—	3.70
	230	40	3	3	415	455.0	NU226EM	NJ226EM	NUP226EM	2500	3300	156	165	7.00
	230	64	3	3	610.0	735	NU2226EM	NJ2226EM	NUP2226EM	2500	3300	156	—	11.50
	280	58	4	4	720	750	NU326EM	NJ326EM	NUP326EM	2200	2700	167	182	18.00
	280	93	4	4	1060	1250.0	NU2326EM	NJ2326EM	NUP2326EM	2200	2700	167	182	28.50
	340	78	5	5	782	942.0	NU426EM	NJ426EM	NUP426EM	2000	2400	185	—	39.00
140	210	33	2	1.1	172.0	245	NU1028EM	NJ1028EM	—	2500	3300	158	—	4.00
	250	42	3	3	450	510	NU228EM	NJ228EM	NUP228EM	2300	2900	169	179	9.10
	250	68	3	3	655	830.0	NU2228EM	NJ2228EM	NUP2228EM	2300	2900	169	179	15.00
	300	62	4	4	780	830.0	NU328EM	NJ328EM	NUP328EM	2100	2500	180	196	22.00
	300	102	4	4	1200.0	1430	NU2328EM	NJ2328EM	NUP2328EM	2100	2500	180	192	37.00
150	225	35	2.1	1.5	194	275	NU1030EM	NJ1030EM	—	2400	3100	169.5	—	4.80
	270	45	3	3	510	600.0	NU230EM	NJ230EM	NUP230EM	2200	2700	182	193	11.00
	270	73	3	3	735	930.0	NU2230EM	NJ2230EM	NUP2230EM	2200	2700	182	193	17.00
	320	65	4	4	900.0	965	NU330EM	NJ330EM	NUP330EM	2000	2400	193	209	26.00
	320	108	4	4	1370	1630	NU2330EM	NJ2330EM	NUP2330EM	2000	2400	193	209	45.00



NU0000型



NJ0000型



NUP0000型

主要尺寸 Boundary dimensions (mm)					额定负荷 Load ratings (KN)		轴承代号 Bearing No.			极限转速 Limiting speeds(r/min)		其它尺寸 Other dimensions (mm)		质量 Mass (kg)
d	D	B	rsmin	r1smin	Cr	Cor	NU0000型	NJ0000型	NUP0000型	脂润滑 Grease	油润滑 Oil	Fw	d2	
	380	85	5	5	912	1100.0	NU430EM	NJ430EM	NUP430EM	1800	2200	209	—	53.00
160	240	38	2.1	1.5	229	325.0	NU1032EM	NJ1032EM	—	2300	2900	180	—	6.00
	290	48	3	3	585.0	680	NU232EM	NJ232EM	NUP232EM	2100	2500	193	206	14.00
	290	80	3	3	930	1200	NU2232EM	NJ2232EM	NUP2232EM	2100	2500	193	205	25.00
	340	68	4	4	1000	1080.0	NU332EM	NJ332EM	NUP332EM	1900	2300	208	—	31.60
	340	114	4	4	1250	1730.0	NU2332EM	NJ2332EM	NUP2332EM	1900	2300	208	—	55.80
170	260	42	2.1	2.1	275.0	400	NU1034EM	NJ1034EM	—	2200	2700	193	—	8.14
	310	52	4	4	695	815	NU234EM	NJ234EM	NUP234EM	2000	2400	208	220	17.10
	360	72	4	4	952	1180.0	NU334EM	NJ334EM	NUP334EM	1800	2200	220	—	36.00
	360	120	4	4	1450	2040.0	NU2334EM	NJ2334EM	NUP2334EM	1800	2200	220	—	63.00
180	280	46	2.1	2.1	336.0	475	NU1036EM	NJ1036EM	—	2100	2500	205	215	10.10
	320	52	4	4	720	850	NU236EM	NJ236EM	NUP236EM	1900	3300	218	230	18.00
	380	75	4	4	1020	1290.0	NU336EM	NJ336EM	NUP336EM	1700	2100	232	252	42.00
	380	126	4	4	1610	2240.0	NU2336EM	NJ2336EM	NUP2336EM	1700	2100	230	252	71.20
190	340	55	4	4	800.0	965	NU238EM	NJ238EM	NUP238EM	1800	2200	231	244	23.00
	340	92	4	4	1220	1600	NU2238EM	NJ2238EM	NUP2238EM	1800	2200	228	—	38.50
	400	78	5	5	1140	1500.0	NU338EM	NJ338EM	NUP338EM	1600	2000	245	—	50.00
200	310	51	2.1	2.1	380	570.0	NU1040EM	NJ1040EM	—	1900	2300	229	239	14.30
	360	58	4	4	850.0	1020	NU240EM	NJ240EM	NUP240EM	1700	2100	244	258	26.00
	360	98	4	4	1370	1800	NU2240EM	NJ2240EM	NUP2240EM	1700	2100	—	—	49.00
	420	80	5	5	1230	1630.0	NU340EM	NJ340EM	NUP340EM	1500	1900	260	—	62.00

带密封调心滚子轴承

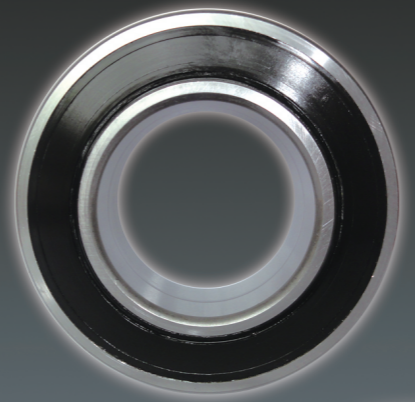
Sealed Spherical Roller Bearings

带密封调心滚子轴承是一种两侧带骨架密封圈的闭式结构轴承。该轴承具有调心滚子轴承的功能外，还具有内部运转环境优良的特点，利于轴承的长寿命。广泛用于工程机械和电梯上。

Seals on spherical roller bearings can extend life by helping to keep contamination out and lubricant in.



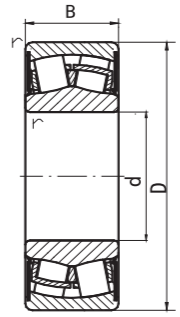
WGB®





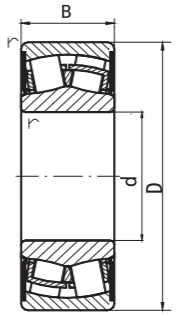


Sealed Spherical Roller Bearings



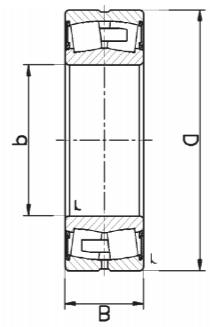
2CS（钢板冲压保持架）

轴承代号 Bearing No.	主要尺寸 Boundary dimensions (mm)				极限转速 Limiting speeds(r/min)	额定负荷 Load ratings (KN)		质量 Mass (kg)
	d	D	B	rsmin	脂润滑 Grease	Cr	Cor	
BS2-2205-2CS	25	52	23	1	3700	48	48	0.26
BS2-2206-2CS	30	62	25	1	3200	63	61	0.34
BS2-2207-2CS	35	72	28	1.1	2700	86	85	0.52
BS2-2208-2CS	40	80	28	1.1	2600	95	94	0.57
BS2-2209-2CS	45	85	28	1.1	2400	100	102	0.66
BS2-2210-2CS	50	90	28	1.1	2300	101	112	0.70
BS2-2211-2CS	55	100	31	1.5	2000	125	130	1.00
BS2-2212-2CS	60	110	34	1.5	2000	156	166	1.31
BS2-2213-2CS	65	120	38	1.5	1900	210	215	1.60
BS2-2214-2CS	70	125	38	1.5	1800	200	225	1.80
BS2-2215-2CS	75	130	38	1.5	1700	202	238	2.10
BS2-2216-2CS	80	140	40	2	1600	230	270	2.40
BS2-2217-2CS	85	150	44	2	1500	270	330	3.00
BS2-2218-2CS	90	160	48	2	1400	298	378	3.70
BS2-2220-2CS	100	180	55	2.1	1300	399	486	5.50
BS2-2222-2CS	110	200	63	2.1	1200	510	651	7.60
BS2-2224-2CS	120	215	69	2.1	1150	583	740	9.75
BS2-2308-2CS	40	90	38	1.5	2300	144	136	1.20
BS2-2309-2CS	45	100	42	1.5	1900	171	175	1.60
BS2-2310-2CS	50	110	45	2	1800	220	225	2.10
BS2-2311-2CS	55	120	49	2	1800	258	260	2.80



2CS（钢板冲压保持架）

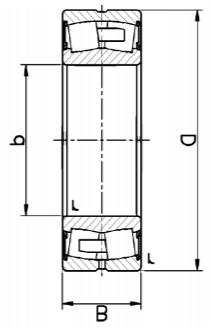
轴承代号 Bearing No.	主要尺寸 Boundary dimensions (mm)				极限转速 Limiting speeds(r/min)	额定负荷 Load ratings (KN)		质量 Mass (kg)
	d	D	B	rsmin	脂润滑 Grease	Cr	Cor	
BS2-2312-2CS	60	130	53	2.1	1500	290	320	3.40
BS2-2313-2CS	65	140	56	2.1	1400	326	360	4.15
BS2-2314-2CS	70	150	60	2.1	1300	385	426	5.10
BS2-2315-2CS	75	160	64	2.1	1350	422	456	6.50
BS2-2316-2CS	80	170	67	2.1	1200	476	532	7.20
22324-2CS	120	260	86	3	900	1008	1190	23.00
23022-2CS	110	170	45	2	1200	340	440	3.80
23024-2CS	120	180	46	2	1150	390	510	4.20
23120-2CS	100	165	52	2	1150	388	490	4.40
23122-2CS	110	180	56	2	1100	470	585	5.75
23128-2CS	140	225	68	2.1	680	600	860	10.25
23218-2CS	90	160	52.4	2	1050	380	440	4.65
23220-2CS	100	180	60.3	2.1	980	510	600	6.85
23222-2CS	110	200	69.8	2.1	920	650	765	9.85
23224-2CS	120	215	76	2.1	880	730	930	12.00
24020-2CS	100	150	50	1.5	1080	310	415	3.20
24022-2CS	110	170	45	2	950	450	620	5.00
24024-2CS	120	180	60	2	950	468	670	5.45
24120-2CS	100	165	65	2	950	500	640	5.65
24122-2CS	110	180	69	2	900	560	750	7.10
24124-2CS	120	200	80	2	850	710	950	10.50



2RS（铜保持架）

轴承代号 Bearing No.	主要尺寸 Boundary dimensions (mm)				极限转速 Limiting speeds(r/min)	额定负荷 Load ratings (KN)		质量 Mass (kg)
	d	D	B	rsmin	脂润滑 Grease	Cr	Cor	
BS2-2208CAW33-2RS	40	80	28	1.1	2600	92.3	93	0.58
BS2-2209CAW33-2RS	45	85	28	1.1	2400	99.2	102	0.69
BS2-2210CAW33-2RS	50	90	28	1.1	2300	102	110	0.72
BS2-2211CAW33-2RS	55	100	31	1.5	2000	123	130	1.02
BS2-2212CAW33-2RS	60	110	34	1.5	2000	140	166	1.35
BS2-2213CAW33-2RS	65	120	38	1.5	1900	188	215	1.66
BS2-2214CAW33-2RS	70	125	38	1.5	1800	191	225	1.79
BS2-2215CAW33-2RS	75	130	38	1.5	1700	206	238	2.16
BS2-2216CAW33-2RS	80	140	40	2	1600	222	273	2.50
BS2-2217CAW33-2RS	85	150	44	2	1500	265	320	3.08
BS2-2218CAW33-2RS	90	160	48	2	1400	318	378	3.88
BS2-2220CAW33-2RS	100	180	55	2.1	1300	399	486	5.65
BS2-2222CAW33-2RS	110	200	63	2.1	1200	510	651	7.82
BS2-2224CAW33-2RS	120	215	69	2.1	1150	583	740	9.81
BS2-2308CAW33-2RS	40	90	38	1.5	2300	144	136	1.29
BS2-2309CAW33-2RS	45	100	42	1.5	1900	171	175	1.76
BS2-2310CAW33-2RS	50	110	45	2	1800	220	225	2.22
BS2-2311CAW33-2RS	55	120	49	2	1800	258	260	2.93
BS2-2312CAW33-2RS	60	130	53	2.1	1500	290	320	3.55
BS2-2313CAW33-2RS	65	140	56	2.1	1400	326	360	4.33
BS2-2314CAW33-2RS	70	150	60	2.1	1300	385	426	5.27

带密封调心滚子轴承
Sealed Spherical Roller Bearings
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2RS（铜保持架）

轴承代号 Bearing No.	主要尺寸 Boundary dimensions (mm)				极限转速 Limiting speeds(r/min)	额定负荷 Load ratings (KN)		质量 Mass (kg)
	d	D	B	rsmin	脂润滑 Grease	Cr	Cor	
BS2-2315CAW33-2RS	75	160	64	2.1	1350	422	456	6.74
BS2-2316CAW33-2RS	80	170	67	2.1	1200	476	532	7.36
22324CAW33-2RS	120	260	86	3	900	1008	1190	23.60
23022CAW33-2RS	110	170	45	2	1200	340	440	3.82
23024CAW33-2RS	120	180	46	2	1150	390	510	4.11
23120CAW33-2RS	100	165	52	2	1150	388	490	4.55
23122CAW33-2RS	110	180	56	2	1100	470	585	5.87
23128CAW33-2RS	140	225	68	2.1	680	600	860	10.33
23218CAW33-2RS	90	160	52.4	2	1050	380	440	4.66
23220CAW33-2RS	100	180	60.3	2.1	980	510	600	6.87
23222CAW33-2RS	110	200	69.8	2.1	920	650	765	9.96
23224CAW33-2RS	120	215	76	2.1	880	730	930	12.10
24020CAW33-2RS	100	150	50	1.5	1080	310	415	3.33
24022CAW33-2RS	110	170	45	2	950	450	620	5.22
24024CAW33-2RS	120	180	60	2	950	468	670	5.65
24120CAW33-2RS	100	165	65	2	950	500	640	5.71
24122CAW33-2RS	110	180	69	2	900	560	750	7.26
24124CAW33-2RS	120	200	80	2	850	710	950	10.60

振动筛调心滚子轴承

Spherical Roller Bearings for Vibrating Screens

振动机械专用轴承主要用于矿山机械装置和一些振动压力设备。例如：振动筛、压路机和锯齿形的切割机械等。

Vibratory screens used for grading meterials and other vibratory machinery. Such as road rollers and saw frames ect.

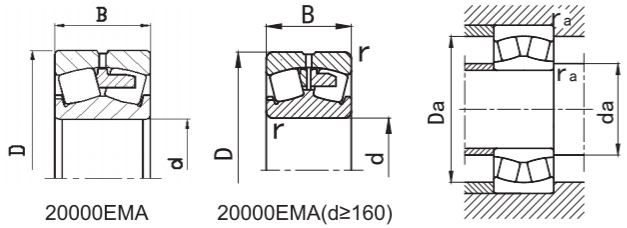


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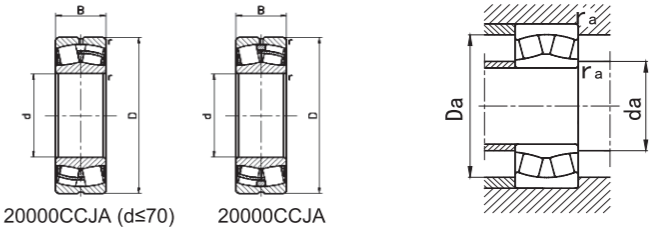
Spherical Roller Bearings for Vibrating Screens



20000EMA　　20000EMA(d≥160)

轴承代号 Bearing No.		主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		极限转速 Limiting speeds(r/min)		安装尺寸 Boundary dimensions (mm)			质量 Mass (kg)
										da	Da	ra	
圆柱孔 cylindrical bore	圆锥孔 tapered bore	d	D	B	rsmin	Cr	Cor	脂润滑 grease	油润滑 oil	min	max	max	
22308EMA	22308EMAK	40	90	33	1.5	149	142	6000	7500	52	78	1.5	1.04
22309EMA	22309EMAK	45	100	36	1.5	180	180	5000	6500	56	91	1.5	1.44
22310EMA	22310EMAK	50	110	40	2.0	220	225	4800	6000	60	100	2.1	1.93
22311EMA	22311EMAK	55	120	43	2.0	270	280	4100	5000	65	110	2.1	2.46
22312EMA	22312EMAK	60	130	46	2.1	300	320	4000	4800	72	118	2.1	3.09
22313EMA	22313EMAK	65	140	48	2.1	340	360	3900	4500	77	128	2.1	3.71
22314EMA	22314EMAK	70	150	51	2.1	380	426	3500	4500	82	138	2.1	4.50
22315EMA	22315EMAK	75	160	55	2.1	390	460	3500	4000	87	148	2.1	5.55
22316EMA	22316EMAK	80	170	58	2.1	460	532	3300	3800	92	158	2.1	6.54
22317EMA	22317EMAK	85	180	60	3.0	500	590	3200	3500	99	166	2.5	7.54
22318EMA	22318EMAK	90	190	64	3.0	550	660	2900	3400	104	176	2.5	9.06
22319EMA	22319EMAK	95	200	67	3.0	630	735	2700	3200	109	186	2.5	10.43
22320EMA	22320EMAK	100	215	73	3.0	750	880	2500	3000	114	201	2.5	13.34
22322EMA	22322EMAK	110	240	80	3.0	880	1020	2000	2500	124	226	2.5	18.62
22324EMA	22324EMAK	120	260	86	3.0	950	1190	1900	2300	134	246	2.5	23.17
22326EMA	22326EMAK	130	280	93	4.0	1150	1430	1700	2200	148	262	3.0	28.78
22328EMA	22328EMAK	140	300	102	4.0	1300	1670	1600	1900	158	282	3.0	36.18
22330EMA	22330EMAK	150	320	108	4.0	1500	1850	1400	1700	168	302	3.0	43.35
22332EMA	22332EMAK	160	340	114	4.0	1510	1985	1100	1500	178	322	3.0	51.76
22334EMA	22334EMAK	170	360	120	4.0	1695	2188	1000	1400	188	342	3.0	61.39
22336EMA	22336EMAK	180	380	126	4.0	2011	2602	930	1200	198	362	3.0	71.25
22338EMA	22338EMAK	190	400	132	5.0	2161	2814	900	1100	208	382	4.0	81.02
22340EMA	22340EMAK	200	420	138	5.0	2330	3090	880	1050	220	400	4.0	95.90

WGB®
振动筛调心滚子轴承
Spherical Roller Bearing for Vibrating Screen



20000CCJA (d≤70)　　20000CCJA

轴承代号 Bearing No.		主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		极限转速 Limiting speeds(r/min)		安装尺寸 Boundary dimensions (mm)			质量 Mass (kg)
										da	Da	ra	
圆柱孔 cylindrical bore	圆锥孔 tapered bore	d	D	B	rsmin	Cr	Cor	脂润滑 grease	油润滑 oil	min	max	max	
22308CCJA	22308CCJAK	40	90	33	1.5	149	142	6000	7500	52	78	1.5	1.02
22309CCJA	22309CCJAK	45	100	36	1.5	180	180	5000	6500	56	91	1.5	1.34
22310CCJA	22310CCJAK	50	110	40	2.0	220	225	4800	6000	60	100	2.1	1.88
22311CCJA	22311CCJAK	55	120	43	2.0	270	280	4100	5000	65	110	2.1	2.33
22312CCJA	22312CCJAK	60	130	46	2.1	300	320	4000	4800	72	118	2.1	3.01
22313CCJA	22313CCJAK	65	140	48	2.1	340	360	3900	4500	77	128	2.1	3.62
22314CCJA	22314CCJAK	70	150	51	2.1	380	426	3500	4500	82	138	2.1	4.43
22315CCJA	22315CCJAK	75	160	55	2.1	390	460	3500	4000	87	148	2.1	5.45
22316CCJA	22316CCJAK	80	170	58	2.1	460	532	3300	3800	92	158	2.1	6.44
22317CCJA	22317CCJAK	85	180	60	3.0	500	590	3200	3500	99	166	2.5	7.51
22318CCJA	22318CCJAK	90	190	64	3.0	550	660	2900	3400	104	176	2.5	8.99
22319CCJA	22319CCJAK	95	200	67	3.0	630	735	2700	3200	109	186	2.5	10.31
22320CCJA	22320CCJAK	100	215	73	3.0	750	880	2500	3000	114	201	2.5	13.22
22322CCJA	22322CCJAK	110	240	80	3.0	880	1020	2000	2500	124	226	2.5	18.55
22324CCJA	22324CCJAK	120	260	86	3.0	950	1190	1900	2300	134	246	2.5	22.85
22326CCJA	22326CCJAK	130	280	93	4.0	1150	1430	1700	2200	148	262	3.0	28.46
22328CCJA	22328CCJAK	140	300	102	4.0	1300	1670	1600	1900	158	282	3.0	35.89
22330CCJA	22330CCJAK	150	320	108	4.0	1500	1850	1400	1700	168	302	3.0	43.11
22332CCJA	22332CCJAK	160	340	114	4.0	1660	2060	1200	1500	178	322	3.0	50.99
22334CCJA	22334CCJAK	170	360	120	4.0	1770	2200	1100	1400	188	342	3.0	60.01
22336CCJA	22336CCJAK	180	380	126	4.0	2000	2600	1000	1300	198	362	3.0	70.85
22338CCJA	22338CCJAK	190	400	132	5.0	2060	2810	900	1200	208	382	4.0	80.36
22340CCJA	22340CCJAK	200	420	138	5.0	2330	3090	880	1050	220	400	4.0	95.90

深沟球轴承
Deep Groove Ball Bearings

深沟球轴承是应用最广泛的一种滚动轴承。其特点是摩擦阻力小，适用于高转速行业；能用于承受径向负荷或径向和轴向同时作用的联合负荷的机件上，也可用于承受轴向负荷的机件上

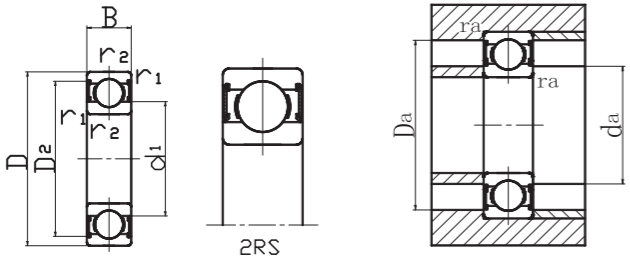
Deep groove ball bearings are the most widely-used bearing type. It is featured with low friction and suitable for high speed application. Also, this type of bearing is capable of accommodating radial and axial loads in both directions while requiring little maintenance.



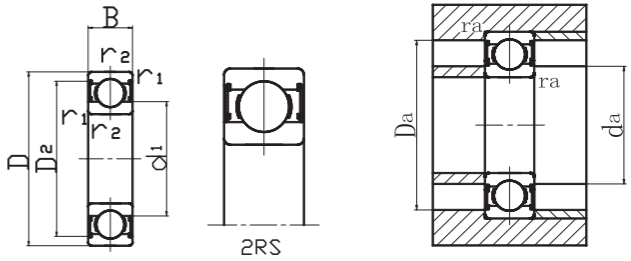
WGB®



Deep Groove Ball Bearings



主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		轴承代号 Bearing No.		极限转速 Limiting speeds (r/min)	安装尺寸 Mounting dimensions (mm)			质量 Mass (kg)
									da	Da	ra	
40	68	15	1.0	17.8	11.6	6008-2RS	6008-RS	6300	44.6	63.4	1.0	0.19
45	75	16	1.0	22.1	14.6	6009-2RS	6009-RS	5600	50.8	69.2	1.0	0.25
	85	19	1.1	35.1	21.6	6209-2RS	6209-RS	5000	52	78	1.0	0.41
	100	25	1.5	55.3	31.5	6309-2RS	6309-RS	500	54	91	1.5	0.83
50	90	20	1.1	37.1	23.2	6210-2RS	6210-RS	4800	57	83	1.0	0.46
	110	27	2.0	65.0	38.0	6310-2RS	6310-RS	4300	61	99	2.0	1.05
55	90	18	1.1	29.6	21.2	6011-2RS	6011-RS	4500	61	84	1.0	0.39
	100	21	1.5	46.2	29.0	6211-2RS	6211-RS	4300	64	91	1.5	0.61
	120	29	2.0	74.1	45.0	6311-2RS	6311-RS	3800	66	109	2.0	1.35
	95	18	1.1	30.7	23.2	6012-2RS	6012-RS	4300	66	89	1.0	0.42
	110	22	1.5	55.3	36.0	6212-2RS	6212-RS	4000	69	101	1.5	0.78
	130	31	2.1	85.2	52.0	6312-2RS	6312-RS	3400	72	118	2.0	1.7
65	100	18	1.1	31.9	25.0	6013-2RS	6013-RS	4000	71	94	1.0	0.44
	120	23	1.5	58.5	40.5	6213-2RS	6213-RS	3600	74	111	1.5	0.99
	140	33	2.1	97.5	60.0	6313-2RS	6313-RS	3200	77	128	2.0	2.1
70	110	20	1.1	39.7	31.0	6014-2RS	6014-RS	3600	76	104	1.0	0.6
	125	24	1.5	63.7	45.0	6214-2RS	6214-RS	3400	79	116	1.5	1.1
	150	35	2.1	111.0	68.0	6314-2RS	6314-RS	3000	82	138	2.0	2.5
75	115	20	1.1	41.6	33.5	6015-2RS	6015-RS	3400	81	109	1.0	0.64
	130	25	1.5	68.9	49.0	6215-2RS	6215-RS	3200	84	121	1.5	1.2
	160	37	2.1	119.0	76.5	6315-2RS	6315-RS	2800	87	148	2.0	3
80	125	22	1.1	49.4	40.0	6016-2RS	6016-RS	3200	86	119	1.0	0.85
	140	26	2.0	72.8	55.0	6216-2RS	6212-RS	3000	91	129	2.0	1.4
	170	39	2.1	130.0	86.5	6316-2RS	6316-RS	2600	92	158	2.0	3.6
85	130	22	1.1	52.0	43.0	6017-2RS	6017-RS	3000	92	123	1.0	0.89
	150	28	2.0	87.1	64.0	6217-2RS	6217-RS	2800	96	139	2.0	1.8
	180	41	3.0	140.0	96.5	6317-2RS	6317-RS	2400	99	166	2.5	4.25
90	140	24	1.5	60.5	50.0	6018-2RS	6018-RS	2800	97	133	1.5	1.15
	160	30	2.0	101.0	73.5	6218-2RS	6218-RS	2600	101	149	2.0	2.15



主要尺寸 Boundary dimensions (mm)				额定负荷 Load ratings (KN)		轴承代号 Bearing No.		极限转速 Limiting speeds (r/min)	安装尺寸 Mounting dimensions (mm)			质量 Mass (kg)
									da	Da	ra	
	190	43	3.0	151.0	108.0	6318-2RS	6318-RS	2400	104	176	2.5	4.9
95	145	24	1.5	63.7	54.0	6019-2RS	6019-RS	2800	102	138	1.5	1.2
	170	32	2.1	114.0	81.5	6219-2RS	6219-RS	2400	107	158	2.0	2.6
	200	45	3.0	159.0	118.0	6319-2RS	6319-RS	2200	109	186	2.5	5.65
100	150	24	1.5	63.7	54.0	6020-2RS	6020-RS	2600	107	143	1.5	1.25
	180	34	2.1	127.0	93.0	6220-2RS	6220-RS	2400	114	201	2.5	3.15
110	170	28	2.0	85.2	73.5	6022-2RS	6022-RS	2400	119	161	2.0	1.95
120	180	28	2.0	88.4	80.0	6024-2RS	6024-RS	2200	129	171	2.0	2.05

WGB®

工程技术
Enginnering

公 差 Tolerance

不同的使用场合要求不同的轴承精度。

按公差等级，P0级使用于正常情况下的滚子轴承，P6及以上等级适用于要求精度更高的滚子轴承。

符号—内圈

△dmp：单一平面平均内径的偏差（对于圆锥孔△dmp仅指内孔的理论小端）

Vdsp：单一径向平面内径变动量

Vdmp：平均内径变动量（只适用于圆柱孔）

Kia：成套轴承内圈的径向跳动

△Bs：内圈单一宽度偏差，即宽度公差

VBS：内圈宽度变动量，即平行差

Different applications need different procisions.

According to the tolerance grade, P0 is applicable to the roller bearings for general conditions, while P6 is applicable to roller bearings for demanding applications.

Code-inner ring

△dmp: single plane mean bore diameter deviation (For the tapered bore, △dmp refers to the theoretical small end only.)

Vdsp: variation in a single radial plane

Vdmp: mean bore diameter variation (applicable for straight bore only)

Kia: radial runout of assembled bearing inner ring

△Bs: deviation of a single inner ring width, i.e. width tolerance

VBs: variation of inner ring width, i.e. parallel tolerance

表1 内圈公差 Table 1 Inner Ring Tolerance (μm)

轴承内径 Bearing Bore d(mm)		Δd_{mp} (1) 0–		Vdsp直径系列 Dia.Series				Vdmp max		Kia max		ΔBs 0–		VBs max	
				0.1	2,3,4	0.1	2,3,4								
超过 Over	至 incl	P0	P6	P0		P6		P0	P6	P0	P6	P0	P6	P0	P6
18	30	–10	–8	10	8	8	6	8	6	13	8	–120	–120	20	20
30	50	–12	–10	12	9	10	8	9	8	15	10	–120	–120	20	20
50	80	–15	–12	19	11	15	9	11	9	20	10	–150	–150	25	25
80	120	–20	–15	25	15	19	11	15	11	25	13	–200	–200	25	25
120	180	–25	–18	31	19	23	14	19	14	30	18	–250	–250	30	30
180	250	–30	–22	38	23	28	17	23	17	40	20	–300	–300	30	30
250	315	–35	–25	44	26	31	19	26	19	50	25	–350	–350	35	35
315	400	–40	–30	50	30	38	23	30	23	60	30	–400	–400	40	40

1.本表公差符合GB/T307. 1–2017等效应采用IOS492-2014滚动一向心承一公差

2. Dmin（内径的最小值）和dmax（内径的最大值）可能超出范围，但$\frac{dmin+dmax}{2}$必须符合要求。

1.This table is built on the basis of GB/T307.1-2017, identical of ISO492-2014

2.The figures of dmin and dmax may be out of scale, but the value of $\frac{dmin+dmax}{2}$ must conform to the requirement.

符号—外圈

△Dmp：单一平面平均外径的偏差，即外径公差

VDsp：单一径向平面外径变动量

VDmp：平均外径变动量

Kea：成套轴承外圈的径向跳动

△Cs：外圈单一宽度偏差，即宽度公差

VCs：外圈宽度变动量，即平行差

Code-Outer ring

△Dmp: deviation of mean outside diameter, i.e. outside dia. tolerance

VDsp: single plane outside dia. variation

VDmp: mean outside dia. variation

Kea: radial runout of assembled bearing outer ring

△Cs: deviation of a single outer ring width, i.e. width tolerance

VCs: outer ring width variation, i.e. parallel tolerance

表2 外圈公差 Table 2 Outer Ring Tolerance (μm)

轴承外径 Bearing 0.D D(mm)		ΔD_{mp} (1) 0–		VDsp直径系列 Dia.Series				VDmp max		Kea max		ΔCs 0–		VCs max	
				0.1	2,3,4	0.1	2,3,4								
超过 Over	至 incl	P0	P6	P0		P6		P0	P6	P0	P6	P0	P6	P0	P6
30	50	–11	–9	11	8	9	7	8	7	20	10				
50	80	–13	–11	13	10	11	8	10	8	25	13				
80	120	–15	–13	19	11	16	10	11	10	35	18				
120	150	–18	–15	23	14	19	11	14	11	40	20				
150	180	–25	–18	31	19	23	14	19	14	45	23				
180	250	–30	–20	38	23	25	15	23	15	50	25				
250	315	–35	–25	44	26	31	19	26	19	60	30				
315	400	–40	–28	50	30	35	21	30	21	70	35				
400	500	–45	–33	56	34	41	25	34	25	80	40				
500	630	–50	–38	63	38	48	29	38	29	100	50				
630	800	–75	–45	94	55	56	34	55	34	120	60				

与同一轴承内圈的△Bs及VBs相同

The △Bs and VBs of bore in the same bearing are identical

1.本表公差符合GB/T307.1–2017等效应采用IOS492–2014滚动一向心承一公差

2. Dmin（内径的最小值）和Dmax（外径的最大值）可能超出范围，但 $\frac{Dmin+Dmax}{2}$ 必须符合要求。

1.This table is built on the basis of GB/T307.1-2017, identical of ISO492-2014

2.The figures of Dmin (O.D.max) and Dmax (O.D.max) may be out of the value of $\frac{Dmin+Dmax}{2}$ must conform to the requirement.

径向游隙 Radial Internal Clearance

径向游隙是指轴承内部的径向游隙，是允许轴承在紧配合装配后，在正常条件下有宽裕的内部游隙。

带有锥孔的调心滚子轴承则要求其配合时的过盈量比圆柱孔的更大一些，更大的过盈量则引起径向游隙的减少，所以对于锥孔调心滚子轴承，选择时要考虑到径向游隙的减少量，这一点很重要。

例：22328K/C3轴承，内径为140mm，C3组径向游隙是装在锥轴上的。用塞尺测量后，径向游隙为0.178mm，下表显示径向游隙减少0.064~0.089mm时达到合适的配合，装配后的游隙（0.178–0.076=0.102am）所以锁紧螺母旋至径向游隙达到0.102mm为止。

下表列出了径向游隙的最大、最小值，每一单列代表相邻径向游隙的界限。例如：ZC5的最小值为C4的最大值，C4的最小值也是C3的最大值等等。

Internal clearance means Radial Clearance, it allows a sufficient internal clearance inside the bearing under normal conditions after its tight fit installation.

As to the spherical roller bearing with tapered bore, its interference should be larger than that of a cylindrical bore, therefore, this will reduce the radial clearance and the reduction of radial internal clearance should be taken into account when a tapered bore spherical roller bearing is chosen. This is very important.

Take the bearing K/C3 as an example: the bore diameter is 140mm and the radial internal clearance of group C3, which is mounted on a tapered shaft is measured at 0.178mm. The table as below shows that the radial internal clearance should be reduced by 0.064 to 0.089mm to get the proper fit and the adjusted clearance should be 0.178-0.076=0.102mm. Screw the nut until the radial internal clearance is 0.102mm.

The table indicates the max. and min. values of the radial internal clearance and the correlation between them. For example, the minimum of C5 is the maximum of C4 while the minimum of C4 is the maximum of C3 etc.

表3 圆柱滚子轴承 Table 3 Cylindrical Ring Bearing

径向游隙 Radial Internal Clearance (μm)

公称内径 Nominal Bore d(mm)		C2		C0		C3		C4		C5	
超过 Over	至 incl	min	max	min	max	min	max	min	max	min	max
	10	0	25	20	45	35	60	50	75	–	–
10	24	0	25	20	45	35	60	50	75	65	90
24	30	0	25	20	45	35	60	50	75	70	95
30	40	5	30	25	50	45	70	60	85	80	105
40	50	5	35	30	60	50	80	70	100	95	125
50	65	10	40	40	70	60	90	80	110	110	140
65	80	10	45	40	75	65	100	90	125	130	165
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

表4 调心滚子轴承 Table 4 Spherical Roller Bearing

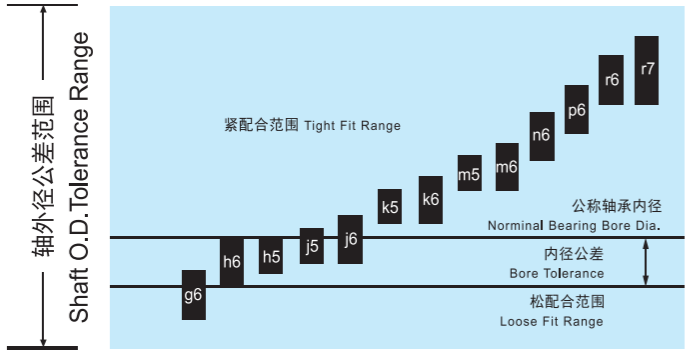
径向游隙 Radial Internal Clearance (μm)

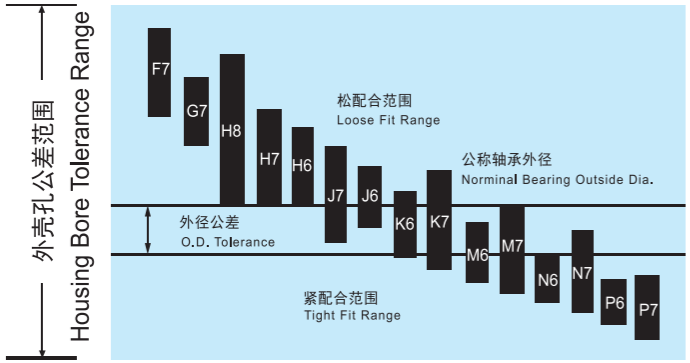
公称内径 Nominal Bore d(mm)		圆柱孔 Cylindrical bore						圆锥孔 Tapered bore						安装时建议径向游隙的减少量 Recommended Reduction of Radial internal Clearance in Instalation		安装后的建议游隙 Recommended Radial Internal Clearance After Installation
		C0 min max		C4 min max				C0 min max		C4 min max						
超过	至	C2		C3		C5		C2		C3		C5				
Over	incl	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
18	24	10	20	35	45	60	75	15	25	35	45	60	75	10	15	10
24	30	15	25	40	55	75	90	20	30	40	55	75	95	15	20	15
30	40	15	30	45	60	80	100	25	35	50	65	85	105	20	25	15
40	50	20	35	55	75	100	125	30	45	60	80	100	130	25	30	20
50	65	20	40	65	90	120	150	40	55	75	95	120	160	30	38	25
65	80	30	50	80	110	145	180	50	70	95	120	150	200	38	51	25
80	100	35	60	100	135	180	225	55	80	110	140	180	230	46	64	36
100	120	40	75	120	160	210	260	65	100	135	170	220	280	51	71	51
120	140	50	95	145	190	240	300	80	120	160	200	260	330	64	89	56
140	160	60	110	170	220	280	350	90	130	180	230	300	380	76	102	56
160	180	65	120	180	240	310	390	100	140	200	260	340	340	76	114	61
180	200	70	130	200	260	340	430	110	160	220	290	370	470	89	127	71
200	225	80	140	220	290	380	470	120	180	250	320	410	520	102	140	76
225	250	90	150	240	320	420	520	140	200	270	350	450	570	114	152	89
250	280	100	170	260	350	460	570	150	220	300	390	490	620	114	165	102
280	315	110	190	280	370	500	630	170	240	330	430	540	680	125	180	128
315	355	120	200	310	410	550	690	190	270	360	470	590	740	140	210	135
355	400	130	220	340	450	600	750	210	300	400	520	650	820	160	240	155

配 合 Fits

为了防止轴承内圈与轴，轴承外圈与轴承外壳孔在机器运转中产生打滑现象，选择和保持正确的配合非常重要。下图是符合国家标准的轴承与轴及外壳的配合的选择。这些标有g6、h6等的块标表示在不同负荷和套圈旋转的情况下，为满足不同松和紧配合的要求，轴和外壳的直径和公差范围。

In order to prevent the bearing from malfunctioning, the inner ring and the axle, the outer ring and the housing bore should be kept in good coordination. The table as below, which is based on the China National Standard shows fits among the bearing, the axle and the housing. All the columns marked as g6, h6, etc. indicate the range of diameters and tolerances for the axle and housing that meet different loose or tight fit requirements at different load and rotating speed.





轴承与轴的配合

轴承与轴的配合采用基孔制，轴承与外壳的配合采用基轴制。轴承与轴的配合与机器制造业采用的公差配合制不同，轴承的内径公差多为负公差，因此，在采用相同配合的条件下，轴承内径与轴的配合比通常的配合较为紧密。轴承的外径虽为负公差，但其公差取值与一般公差带也不相同。

表5显示g6，h6，h5，j5，j6，k5，k6等轴的公差和轴承内径的公差及它们之间的差值。（L代表间隙，T代表过盈）

The fit of the bearing and shaft is based on the bore, while that of the bearing and housing is based on the shaft. The fit between the bearing and shaft is different from the tolerance fitting system applied in the manufacturing industry, consequently the bearing bore tolerance is usually in minus values. Under those conditions, the fit is tighter than usual.

Bearing and Shaft Fits

Table 5 shows the shaft tolerance of g6, p6, h5, j5, j6, k5, k6 etc., and bearing inner bore tolerance as well as their differences. (L stands for clearance and T stands for interference)

表5 轴承与轴的配合 Table 5 Bearing & Shaft Fits (μm)

轴承内径 Bearing Bore			g6			h6			h5			j5			j6			k5			k6		
公称 Nominal		公差 Tol.0	轴直径 Shaft Dia.		配合 Fit	轴直径 Shaft Dia.		配合 Fit	轴直径 Shaft Dia.		配合 Fit	轴直径 Shaft Dia.		配合 Fit	轴直径 Shaft Dia.		配合 Fit	轴直径 Shaft Dia.		配合 Fit	轴直径 Shaft Dia.		配合 Fit
超过 Over	至 incl	至 To	最小 min	最大 max		最小 min	最大 max		最小 min	最大 max		最小 min	最大 max		最小 min	最大 max		最小 min	最大 max		最小 min	最大 max	
mm	mm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm
3	6	-8	-4	-12	12L 4T	0	-8	8L 8T	0	-5	5L 8T	+3	-2	2L 11T	+6	-2	2L 14T	+6	+1	1L 14T			
6	10	-8	-5	-14	14L 3T	0	-9	9L 8T	0	-6	6L 8T	+4	-2	2L 12T	+7	-2	2L 15T	+7	+1	1L 15T			
10	18	-8	-6	-17	17L 2T	0	-11	11L 8T	0	-8	8L 8T	+5	-3	3L 13T	+8	-3	3L 16T	+8	+1	1L 17T			
18	30	-10	-7	-20	20L 3T	0	-13	13L 10T				+5	-4	4L 15T	+9	-4	4L 19T	+11	+2	2T 21T			
30	50	-12	-9	-25	25L 3T	0	-16	16L 12T				+6	-5	5L 18T	+11	-5	5L 23T	+13	+2	2T 25T	+18	+2	2T 30T
50	80	-15	-10	-29	29L 5T	0	-19	19L 15T				+6	-7	7L 21T	+12	-7	7L 27T	+15	+2	2T 30T	+21	+2	2T 36T
80	120	-20	-12	-34	34L 8T	0	-22	22L 20T				+6	-9	9L 26T	+13	-9	9L 33T	+18	+3	3T 38T	+25	+3	3T 45T
120	180	-25	-14	-39	39L 11T	0	-25	25L 25T				+7	-11	11L 32T	+14	-11	11L 39T	+21	+3	3T 46T	+28	+3	3T 53T
180	200	-30	-15	-44	44L 15T	0	-29	29L 30T				+7	-13	13L 37T	+16	-13	13L 46T	+24	+4	4T 54T			
200	225	-30	-15	-44	44L 15T	0	-29	29L 30T				+7	-13	13L 37T	+16	-13	13L 46T	+24	+4	4T 54T			
225	250	-30	-15	-44	44L 15T	0	-29	29L 30T				+7	-13	13L 37T	+16	-13	13L 46T	+24	+4	4T 54T			
250	280	-35	-17	-49	49L 18T	0	-32	32L 35T				+7	-16	16L 42T	+16	-16	16L 51T	+27	+4	4T 62T			
280	315	-35	-17	-49	49L 18T	0	-32	32L 35T				+7	-16	16L 42T	+16	-16	16L 51T	+27	+4	4T 62T			

轴承与轴的配合

表6显示m5，m6，n6，p6，r6，r7等轴的公差和轴承内径的公差及它们之间的差值。（L代表间隙，T代表过盈）

Bearing and Shaft Fits

Table 6 shows the shaft tolerance of m5, m6, n6, p6, r6, r7 etc., and bearing inner bore tolerance as well as their differences. (L stands for clearance and T stands for interference)

表6 轴承与轴的配合 Table 6 Bearing & Shaft Fits

(μm)

轴承内径 Bearing Bore			m5			m6			n6			p6			r6			r7		
公称 Nominal		公差 Tol.0	轴直径 Shaft Dia.		配合 Fit	轴直径 Shaft Dia.		配合 Fit	轴直径 Shaft Dia.		配合 Fit	轴直径 Shaft Dia.		配合 Fit	轴直径 Shaft Dia.		配合 Fit	轴直径 Shaft Dia.		配合 Fit
超过 Over	至 incl	至 To	最小 min	最大 max		最小 min	最大 max		最小 min	最大 max		最小 min	最大 max		最小 min	最大 max		最小 min	最大 max	
mm	mm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm
3	6	-8	+9	+4	4T 17T															
6	10	-8	+12	+6	6T 20T															
10	18	-8	+15	+17	7T 23T															
18	30	-10	+17	+8	8T 27T															
30	50	-12	+20	+9	9T 32T	+25	+9	9T 37T												
50	80	-15	+24	+11	11T 39T	+30	+11	11T 45T	+39	+20	20T 54T									
80	120	-20	+28	+13	13T 42T	+35	+13	13T 55T	+45	+23	23T 65T	+59	37	37T 79T						
120	180	-25	+33	+15	15T 58T	+40	+15	15T 65T	+52	+27	27T 77T	+68	43	43T 93T	90	65	65T 115T			
180	200	-30	+37	+17	17T 67T	+46	+17	17T 76T	+60	+31	31T 90T	+79	50	50T 109T	106	106	106T 136T			
200	225	-30	+37	+17	17T 67T	+46	+17	17T 76T	+60	+31	31T 90T	+79	50	50T 109T	109	109	109T 139T	126	80	80T 156T
225	250	-30	+37	+17	17T 67T	+46	+17	17T 76T	+60	+31	31T 90T	+79	50	50T 109T	113	113	113T 143T	130	84	84T 160T
250	280	-35	+43	+20	20T 78T	+52	+20	20T 87T	+66	+34	34T 101T	+88	56	56T 123T	126	126	126T 161T	146	94	94T 181T
280	315	-35	+43	+20	20T 78T	+52	+20	20T 87T	+66	+34	34T 101T	+88	56	56T 123T	130	130	30T 165T	150	98	98T 185T

表中公差与ISO标准一致。

The tolerance in above table is same as ISO standard.

轴承与外壳的配合

表7显示F7、G7、H8、H7、H6、J6、J7、K6、K7等外壳公差和轴承外径的公差及它们之间的差值。（L代表间隙，T代表过盈）

Bearing and Housing Fits

Table 7 shows the housing tolerance of F7, G7, H8, H7, H6, J6, J7, K6, K7 etc., and bearing O.D. tolerance as well as their differences. (L stands for clearance and T stands for interference)

表7 轴承与外壳的配合 Table 7 Bearing & Housing Fits

(μm)

轴承内径 Bearing Bore			F7			G7			H8			H7			H6			J6			J7			K6			K7		
公称 Nominal		公差 Tol.0	轴直径 Shaft Dia.		配合 Fit	轴直径 Shaft Dia.		配合 Fit	轴直径 Shaft Dia.		配合 Fit	轴直径 Shaft Dia.		配合 Fit	轴直径 Shaft Dia.		配合 Fit	轴直径 Shaft Dia.		配合 Fit	轴直径 Shaft Dia.		配合 Fit	轴直径 Shaft Dia.		配合 Fit	轴直径 Shaft Dia.		配合 Fit
超过 Over	至 incl	至 To	最小 min	最大 max		最小 min	最大 max		最小 min	最大 max		最小 min	最大 max		最小 min	最大 max		最小 min	最大 max		最小 min	最大 max		最小 min	最大 max		最小 min	最大 max	
mm	mm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm
10	18	-8	+16	+34	16L 42L	+6	+24	6L 32L	0	+27	0L 35L	0	+18	0L 26L	0	+11	0L 19L	-5	+6	5T 19L	-8	+10	8T 18L	-9	+2	9T 10L	-12	+6	12T 14L
18	30	-9	+20	+41	20L 50L	+7	+28	7L 37L	0	+33	0L 42L	0	+21	0 30	0	+13	0L 22L	-5	+8	0T 22L	-9	+12	9T 21L	-11	+2	11T 11L	-15	+6	15T 15L
30	50	-11	+25	+50	26L 61L	+9	+34	9L 45L	0	+39	0L 50L	0	+25	0 36	0	+16	0L 27L	-6	+10	0T 27L	-11	+14	11T 25L	-13	+3	13T 14L	-18	+7	18T 18L
50	80	-13	+30	+60	30L 73L	+10	+40	10L 53L	0	+46	0L 59L	0	+30	0 43	0	+19	0L 32L	-6	+13	0T 32L	-12	+18	12T 31L	-15	+4	15T 17L	-21	+9	21T 22L
80	120	-15	+36	+71	36L 86L	+12	+47	12L 62L	0	+54	0L 69L	0	+35	0 50	0	+22	0L 37L	-6	+16	0T 37L	-13	+22	13T 37L	-18	+4	18T 19L	-25	+10	25T 25L
120	150	-18	+43	+83	43L 101L	+14	+54	14L 72L	0	+63	0L 81L	0	+40	0 58	0	+25	0L 43L	-7	+18	0T 43L	-14	+26	14T 44L	-21	+4	21T 22L	-28	+12	28T 30L
150	180	-25	+43	+83	43L 108L	+14	+54	14L 79L	0	+63	0L 88L	0	+40	0 65	0	+25	0L 50L	-7	+18	0T 50L	-14	+26	14T 51L	-21	+4	21T 29L	-28	+12	28T 37L
180	250	-30	+50	+96	50L 126L	+15	+61	15L 91L	0	+72	0L 102L	0	+46	0 76	0	+29	0L 59T	-7	+22	0T 59L	-16	+30	16T 60L	-24	+5	24T 35L	-33	+13	33T 43L
250	315	-35	+56	+108	56L 143L	+17	+69	17L 104L	0	+81	0L 116L	0	+52	0 87	0	+32	0L 67L	-7	+25	0T 67L	-16	+36	16T 71L	-27	+5	27T 40L	-36	+16	36T 51L
315	400	-40	+62	+119	62L 159L	+18	+75	18L 115L	0	+89	0L 129L	0	+57	0 97	0	+36	0L 76L	-7	+29	0T 76L	0	+39	18T 79L	-29	+7	29T 47L	-40	+17	40T 57L
400	500	-45	+68	+131	58L 176L	+20	+83	20L 128L	0	97	0L 142L	0	+63	0 108	0	+401	0L 85L	-7	+33	0T 85L	20	+43	20T 88L	-32	+8	32T 53L	-45	+18	45T 63L

表中公差与ISO标准一致。

The tolerance in above table is same as ISO standard.

轴承与外壳的配合

表8显示M6、M7、N6、N7、P6、P7等外壳公差和轴承外径的公差及它们之间的差值。（L代表间隙，T代表过盈）

Bearing and Housing Fits

Table 8 shows the housing tolerance of M6、M7、N6、N7、P6、P7 etc., and bearing O.D. tolerance as well as their differences. (L stands for clearance and T stands for interference)

表8 轴承与外壳的配合 Table 8 Bearing & Housing Fits

(μm)

轴承内径 Bearing Bore			M6			M7			N6			N7			P6			P7		
公称 Nominal		公差 Tol.0	外壳直径 Housing Bore		配合 Fit	外壳直径 Housing Bore		配合 Fit	外壳直径 Housing Bore		配合 Fit	外壳直径 Housing Bore		配合 Fit	外壳直径 Housing Bore		配合 Fit	外壳直径 Housing Bore		配合 Fit
超过 Over	至 incl	至 To	最小 min	最大 max		最小 min	最大 max		最小 min	最大 max		最小 min	最大 max		最小 min	最大 max		最小 min	最大 max	
mm	mm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm	μm
10	18	-8	-15	-4	15T 4L	-18	0	18T 8L	-20	-9	20T 1L	-23	-5	23T 7T	-26	-15	26T 7T	-29	-11	29T 3T
18	30	-9	-17	-4	17T 5L	-21	0	21T 9L	-24	-11	24T 2L	-28	-7	28T 9T	-31	-18	31T 9T	-35	-14	35T 5T
30	50	-11	-20	-4	20T 7L	-25	0	25T 11L	-28	-12	28T 1L	-33	-8	33T 10T	-37	-21	37T 10T	-42	-17	42T 6T
50	80	-13	-24	-5	24T 8L	-30	0	30T 13L	-33	-14	33T 1L	-39	-9	39T 13T	-45	-26	45T 13T	-51	-21	51T 8T
80	120	-15	-28	-6	28T 9L	-35	0	35T 15L	-38	-16	38T 1L	-45	-10	45T 15T	-52	-30	52T 15T	-59	-24	59T 9T
120	150	-18	-33	-8	33T 10L	-40	0	40T 18L	-45	-20	45T 2L	-52	-12	52T 18T	-61	-36	61T 18T	-68	-28	68T 10T
150	180	-25	-33	-8	33T 17L	-40	0	40T 25L	-45	-20	45T 5L	-52	-12	52T 11T	-61	-36	61T 11T	-68	-28	68T 3T
180	250	-30	-37	-8	37T 22L	-46	0	46T 30L	-51	-22	51T 8L	-60	-14	60T 11T	-70	-41	70T 11T	-79	-33	79T 3T
250	315	-35	-41	-9	41T 26L	-52	0	52T 35L	-57	-25	57T 10L	-66	-14	66T 12T	-79	-47	79T 12T	-88	-36	88T 1T
315	400	-40	-46	-10	46T 30L	-57	0	57T 40L	-62	-26	62T 14L	-73	-16	73T 11T	-87	-51	87T 11T	-98	-41	98T 1T
400	500	-45	-50	-10	50T 35L	-63	0	63T 45L	-67	-27	67T 18L	-80	-17	80T 10T	-95	-55	95T 10T	-108	-45	108T 0T

表中公差与ISO标准一致。

The tolerance in above table is same as ISO standard.

润　滑

滚动轴承是一种重要的机械元件。一台机械设备的性能能否充分发挥出来要取决于轴承的润滑是否适当，可以说，润滑是保证轴承正常运转的必要条件，它对于提高轴承的承载能力和使用寿命起着重要作用。

润滑目的

轴承润滑的目的是使滚动体表面或滑动表面间形成一层薄薄的油膜，以防止金属直接接触。

润滑作用

减少金属间摩擦，减缓其磨损；

油膜的形成增大接触面积，减小接触应力；

确保滚动轴承能在高频接触应力下，长时间地正常运转，延长疲劳寿命；

消除摩擦热，降低轴承工作表面温度，防止烧伤；

起防尘、防锈、防蚀作用。

润滑方式

滚动轴承的润滑方式主要分为油润滑和脂润滑。

油润滑

油润滑适用于高速轴承并可耐一定程度的高温，而且还起到减小轴承振动和降低噪音的作用。

油润滑大体分为：

1）油杯滴油润滑

油杯滴油润滑是通过油杯中的节流口向轴承滴油，达到对轴承的润滑。节流口根据用油量可以调节。

此种润滑方式的优点是：结构简单，使用方便；缺点是：粘度不易过高，否则滴油不畅，影响润滑效果。所以一般用于低速轻载的滚动轴承润滑。

2）油浴润滑

油浴润滑也叫浸油润滑，就是把轴承部分浸入润滑油中，使轴承在运转中每个滚动体都能进入一次润滑油中，并把润滑油带到轴承的其他工作部位。考虑到搅拌损耗及温升，为减缓润滑油的老化速度，一般油浴润滑不易在高转速轴承中采用。

3）飞溅润滑

飞溅润滑是在闭式齿轮传动装置中滚动轴承常用的润滑方式。它是利用旋转部件

如齿轮、甩油盘等将润滑油溅起。散落到轴承上或沿箱壁流入预先设计好的油槽进入滚动轴承内，对滚动轴承进行润滑，经使用的润滑油又可汇集箱体内循环重复使用。由于滚动轴承在采用飞溅润滑时，不需要任何辅助设施，故常被结构简单及紧凑的齿轮传动装置所采用。但在采用飞溅润滑时应注意以下三点：

a. 润滑油面不能太高，否则搅油耗损过大，及会将油池中的沉淀物如磨屑等带入轴承部位，从而引起磨粒磨损。

b. 箱体内的润滑油应经常保持清洁，油池内可用磁性吸附器及时清除磨屑和异物，减少磨粒磨损的发生。

c. 在结构设计时，可在箱壁上设置贮油槽及向轴承导通的节流口，以使轴承有类似处于油浴润滑或滴油润滑的状态，补充润滑，防止供油不足。

4）油循环润滑

油循环润滑是一种对滚动轴承部位进行积极润滑的一种方式。它是利用油泵将润滑油从油箱中吸出，通过油管、油孔导入滚动轴承座中，再通过轴承座的回油口，将油返回油箱经冷却和过滤后再使用。因此，此种润滑方式能够在排除较多热量的同时有效地排出摩擦热，故适用于负荷量大、转速高的轴承支承。

5）喷油润滑

喷油润滑是油循环润滑的一种。但是，为了能够使润滑油充分地进入高速轴承的内部相对运动表面，同时又要避免由于高速运转条件下循环给油量过大而产生温升过高及摩擦阻力过大，在轴承座进油口增设了喷嘴，并提高供油压力。依靠喷嘴把油喷射到轴承上，达到轴承的润滑和冷却。所以，喷油润滑是一种良好的润滑方式，主要用于高速运转的滚动轴承，可用于滚动轴承的dmN值大于2x106 r.p.m的场合。喷油润滑的油泵压力一般约为3～5bar，为了克服和避免高速状况下的附壁效应，还必须使喷嘴出口的喷油速度达到滚动轴承线速度的20%以上。

6）油雾润滑

油雾润滑是一种微量润滑，是用很少量的润滑油来满足滚动轴承的润滑要求。油雾润滑是将润滑油在油雾发生器中变成油雾，通过油雾对轴承进行润滑。由于油雾在滚动轴承工作表面凝聚成油滴，实际上滚动轴承仍保持着稀油润滑状态。当轴承滚动体线速度很高时，常采用油雾润滑，以避免其他润滑方法由于供油过多，油的内摩擦增大而增高滚动轴承的工作温度。一般油雾压力约为0.05～0.1bar。但是，使用这种润滑方式应注意以下两点：

a. 油的粘度选择一般不应高于340mm2/s（40℃），因为过高粘度将达不到雾化效果。

b. 润滑过的油雾可能部分地随空气散逸污染环境。必要时可用油气分离器来收集油雾或者采用通风装置来排除废气。

7）油气润滑

用活塞式定量分配器，每隔一定时间将微量油送到管内的压缩空气流中，在管壁上形成连续流动的油流提供给轴承。由于经常送进新的润滑油，因而油不会老化。压缩空气使得外部杂质不易侵入轴承内部。油的微量供给减少了对周围环境的污染，油气润滑比油雾润滑油量少且稳定、摩擦力矩小、温升低，特别适用于高速轴承。

脂润滑

脂润滑可以做到充填一次润滑脂后长时间不需补充，而且其密封装置的结构也较简单，因此使用广泛。

脂润滑有预先在密封型轴承中充填润滑脂的密封方式，以及在外壳内部充填适量润滑脂，每隔一段时间进行补充或更换的充填供脂方式。

此外，对有多处轴承需要润滑的机械，还采用管道连接至各润滑处的集中供脂方式。

脂润滑的应用是直接将润滑脂涂抹到滚动轴承各个运动表面间，但是在给滚动轴承的滚道和滑动工作表面输入润滑脂时，必须遵循以下原则：

1）润滑脂必须贯穿轴承的工作表面和轴承的内部空隙，这样才能使润滑脂充分起到润滑作用。

2）在滚动轴承的工作表面应保留一定数量的润滑脂，并持续一定的时间，但又要防止因润滑脂过多流失。

3）润滑脂的输入和排出的流向应和密封要求一致，这有利于入侵污物的排出。

4）在保证良好的润滑的前提下，尽量减少润滑脂的用量。

5）在润滑脂流向尽头开设出口孔，以便使新补充的润滑脂能挤走旧的润滑脂，确保良好的润滑。

润滑油的选择原则

从油润滑的滚动轴承失效实例可知，失效多数是由于润滑油粘度不足引起的。润滑油的粘度越低，则油膜的承载能力越差，油膜容易破裂，滚动轴承内部相对运动表面的金属材料会发生直接接触，导致摩擦增大、磨损加剧、滚动轴承的使用寿命明显缩短或发生轴承的烧伤、断裂事故。但是，润滑油的粘度过高，会使摩擦阻力加大，因搅拌润滑剂而产生的热量增多，系统的能耗增加。另一方面，对于高速、高负荷及高温等特殊条件下运转的滚动轴承，可能会有防锈、抗氧化、抗磨及提高润滑油的吸附能力的特殊要求。所以，润滑油的选择主要是润滑油的粘度等级的确定和所用添加剂种类或选择带有一定添加剂的不同润滑油品的确定。

润滑油的一般选择原则如下：

1）工作温度

工作温度影响着润滑油的粘度变化和润滑效果。故当工作温度较低时，应选用粘度较低的润滑油；工作温度很高时，应选用高粘度或有适当添加剂的润滑油。环境温

度不同，所选的润滑油的粘度也应随着变化。例如润滑同一轴承或处于冬季，应比南方或夏季选用粘度较低的润滑油。当工作温度经常变化时，还应选用粘温特性优良的润滑油，即所用的润滑油粘度随工作温度的上升或下降变化不大，以保证油膜厚度稳定在一定范围。

2）运动速度

转速越高，越应选用粘度低的润滑油，以避免运动阻力增大，产生热量过多；反之，在低速情况下，则应采用粘度较高的润滑油，以利提高承载能力。

3）运动性质

运动中有冲击、振动、经常变载、变速，起动、停车、反转频繁、以及做往复或间歇运动时，都不利于油膜的形成，故应选用粘度较高的润滑油。有时宁可采用润滑脂，甚至固体润滑剂，以保证可靠的润滑。

4）工作载荷

滚动轴承承受的载荷越大，润滑油粘度也应选得越高，并应具有较好的油性和极压性，以免润滑油从摩擦中挤出，或产生金属间的直接接触。

5）结构特点

滚动轴承的径向间隙越小，摩擦面的加工精度愈高，润滑油的粘度应愈低。

6）环境条件

当轴承在潮湿、有腐蚀性气体、低温、尘埃、强辐射条件下工作时，润滑油易被污染变质，此时应选用抗水、抗磨、抗蚀、耐寒、抗辐射性强的润滑油。在有流水溅污、乳化液喷射、潮湿空气或灰尘屑沫严重处，一般不宜选用润滑油，而选用润滑脂。

7）轴承精度

轴承运动摩擦表面粗糙时，一般适用粘度大的油品，以便承受由于接触不良而形成局部较大的压力，而运动摩擦表面精度高时，应选用低粘度的润滑油，以减小不必要的能耗损失和温升。

8）轴承硬度

轴承运动摩擦表面硬度低时，应选用粘度高的润滑油，而且油量要充足；反之，润滑油的粘度可降低。

润滑油的选择原则

润滑脂是由基油、稠化剂和添加剂所组成的半固体状的润滑剂。其中基油约占70～95%，稠化剂占30～50%，添加剂仅占微量。

润滑脂的选择原则和润滑油选择原则类同。主要根据滚动轴承的类型和工作条件，诸如环境潮度、工作温度、速度参数dmN值及负荷大小和脂润滑方法来选择润滑脂的种类、基油粘度及锥入度等。同时，还应注意以下几点：

a. 所选润滑脂的滴点必须高过工作温度20～30℃，以保证润滑效果。

b. 由于润滑脂的流动性差、摩擦阻力大、机械效率较低导热系数也较小，故不宜作循环润滑剂。用于干油集中润滑时，脂的锥入度一般应在300（1/10mm）以上。

c. 因润滑脂对一般温度影响不敏感，对载荷性质、运动速度的变化等有较大的适应性，故宜用于温度、速度变化较大或有反转、间歇运动的机械，以及农业、建筑、矿山等机械中。

d. 因润滑脂不易流失或被挤出，又不需经常更换，故所需密封简单，且其本身也有一定的密封作用，特别适用于不易经常加油、不易安装复杂密封、不许润滑剂污染的产品，以及灰尘屑沫很多的地方。

常用润滑脂一般特性

润滑脂按稠化剂的不同可分为钙基、钠基、钙钠基、锂基、铝基、钡基等多种。同是一个种类的润滑脂，也会因牌号的不同而特性相差很大。

所以在选用时应特别注意：

1）钙基润滑脂：其特点是不溶于水、滴点低，适用于温度较低、环境潮湿的轴承部件中；

2）钠基润滑脂：其特点是耐高温、易溶于水，适用于温度较高、环境干燥的轴承部件中；

3）锂基润滑脂：其特点是有较高的抗水性、滴点较高，可用于潮湿与水接触的机械部位；

4）铝基润滑脂：其特点是耐高温，可用于与水接触的部位，适用于集中润滑系统和航运机械部位的润滑及防蚀；

5）钡基润滑脂：其特点是有良好的抗水性、滴点较高，不溶于汽油和醇等有机溶剂，适用于油泵、水泵等摩擦部位润滑。

轴承的使用

使用注意事项

与一般的机械零件相比，滚动轴承的精度较高，因此使用时也相应地应小心谨慎。

1）保持轴承及其周边的清洁

2）使用时仔细认真

若使用时粗心大意给轴承以强烈冲击，会使轴承出现裂痕，压痕，断裂等损伤。

3）使用合适的工具

4）注意轴承的防锈

避免在潮湿的场所使用，而且为不使汗水沾上，应戴手套。

5）使用者应熟悉轴承

6）制定轴承使用的作业规范

◆轴承的保管
◆轴承及其周边的清洗
◆安装部位的尺寸与加工质量的检验
◆安装作业
◆拆卸作业
◆维护保养(定期检查)
◆润滑剂的补充

轴承的保管

轴承在出厂时均涂有适量的防锈油并用防锈纸包装，只要该包装不被破坏，轴承的质量将得到保证。

但长期存放时，拟在湿度低于65%、温度为20℃左右的条件下，存放在高于地面30cm的架子上为宜。另外，保管场所应避开直射阳光或寒冷的墙壁接触。

带密封圈或防尘盖的轴承经过长期存放后，轴承内润滑脂的特性会受到影响。在原包装中取出后的轴承，应妥善保护以防止受到腐蚀和污染。

大型滚动轴承以水平的位置摆放，轴承套圈的整个侧面都应受到支撑。如果轴承以垂直的位置摆放，轴承套圈的厚度相对较小，轴承套圈和滚动体的重量可能会导致轴承的永久变形。

轴承的安装

1 轴承安装前的准备工作

1.1 轴承安装的环境

安装轴承应尽量在干燥、无尘的室内进行，并应远离金属加工或其它会产生金属碎屑和灰尘的设备。当必须在无保护的环境下安装轴承时（较大型轴承经常会碰到的情况），必须采取适当的措施保护轴承和相关部件免受灰尘或湿气等的污染，直至安装完成为止。

1.2 轴承的准备

由于轴承经过防锈处理并加以包装，因此不到安装前不要打开包装。另外，轴承上涂布的防锈油具有良好的润滑性能，对于一般用途的轴承或充填润滑脂的轴承，可不必清洗直接使用。但对于仪表用轴承或用于高速旋转的轴承，应用清洁的清洗油将防锈油洗去。这时轴承容易生锈，不可长时间放置。

1.3 安装工具的准备

安装时所用的工具应以木制或轻金属制品为主，避免使用其它易产生碎屑的东西，应保持工具的清洁。

1.4 轴与外壳的检验

清洗轴与外壳，确认无伤痕或机械加工留下的毛刺，如有应用油石、细砂纸除去。外壳内绝对不得有研磨剂型砂、切屑等。

其次检验轴与外壳的尺寸、形状和加工质量是否与图纸符合。

如图1和图2所示，分几处测量轴径与外壳孔径。还要认真检验轴承与外壳的圆角尺寸及挡肩的垂直度。为了使轴承更加容易装配、减少冲撞，安装轴承前，在检验合格的轴与外壳的各配合面应涂布机械油。

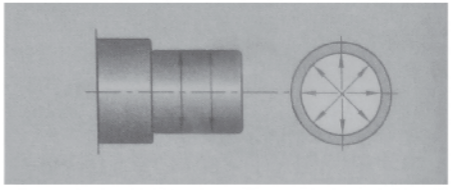


图1 轴径的测量位置

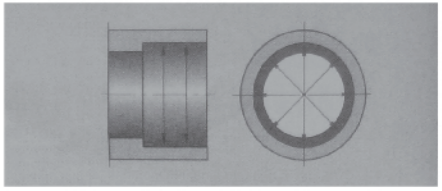
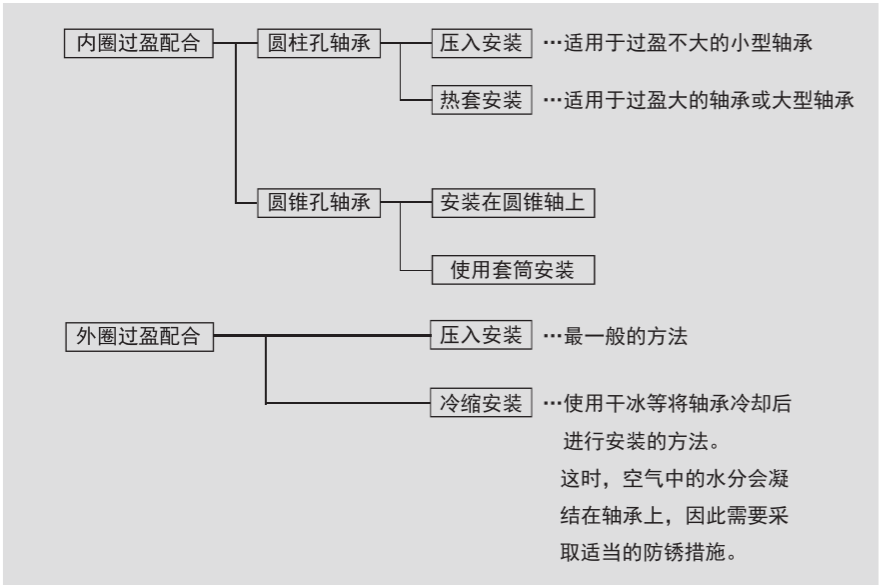


图2 外壳孔径的测量位置

2 轴承的安装方法分类

轴承的安装方法因轴承类型及配合条件而有所不同。由于一般多为轴旋转，因此内圈与外圈可分别采用过盈配合与间隙配合，而外圈旋转时，则外圈采用过盈配合。采用过盈配合时轴承安装方法主要可分为以下几种（详细如下表所示）：

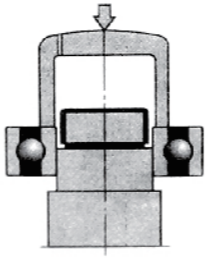


3 圆柱孔轴承的安装

3.1 压入安装

压入安装一般利用压力机，也可利用螺栓与螺母等。

当轴承为内圈过盈配合，安装在轴上时，需在轴承内圈施加压力；当轴承为外圈过盈配合安装在外壳上时，需在轴承外圈施加压力；当轴承内、外圈均为过盈配合时，应当使用垫板，务必使压力能同时施加在轴承的内、外圈上。



3.2 热套安装

将轴承加热，使其膨胀后再安装在轴上的热套方法可以使轴承避免受不必要的外力，在短时间内完成安装作业。加热的方法主要有油浴加热和电感应加热两种。

油浴加热注意事项

1）一般加热不要超过100℃；

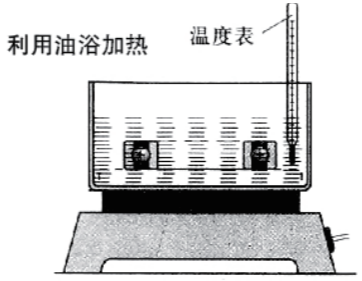
2）不允许轴承接触油槽底部。

电感应加热的优点：

1）清洁无污染；

2）定时、定温；

3）操作简单。



轴承加热到期望的温度（100℃以下）后。将轴承取出，迅速套进轴上，轴承会随着冷却而收缩，有时轴肩与轴承端面之间会产生间隙，因此，需使用工具将轴承往轴肩方向压紧。

带防尘盖或密封圈的轴承，由于预先填充的润滑脂或密封圈材料对温度有一定的限制，加热的温度不可超过80℃，并且不能采用油浴加热的方式。加热轴承时应确保轴承受热均匀，不会产生局部过热的情况。

4 圆锥孔轴承的安装

内孔为圆锥孔的轴承，其内圈大部分是以过盈配合的方式来安装的。

圆锥孔轴承可以直接安装到圆锥形轴上或通过紧定套、退卸套安装在圆柱轴上。

通过测量轴承的游隙减小量或内圈在圆锥形轴颈上的轴向位移量来确定过盈的程度。在某些情况下，也可以用测量锁紧螺母的锁紧角度或测量内圈膨胀量的方式来确定过盈量。

对于圆锥孔轴承，随着内圈在锥轴、紧定套或退卸套上轴向压入的同时，过盈量增大，径向游隙减少，通过测量径向游隙的减少量便可推断过盈量。

4.1 测量游隙减少量

使用塞尺测量安装前后的径向游隙仅适用于中型到特大型的轴承。测量的游隙必须是在没有承受负荷的滚子和外圈滚道之间的位置，在测量前，将外圈转动数圈，并必须确定内、外圈和滚子组的中心线彼此重叠。在第一次测量中。应选择比游隙最低值略薄的塞尺片，然后选用一个稍厚的塞尺片来反复测量，直至塞尺在以下情况移动时感觉到一定阻力。

安装前——在外圈与最高的滚子之间；

安装后——根据不同的保持架，在内圈或外圈与最低的滚子之间。

5 外圈的安装

用过盈配合将外圈安装到轴承箱上时，对于小型轴承，可在常温下将外圈压入。过盈量大时，则采用加热轴承箱或冷却外圈的方式压入。在用干冰或其它冷却剂时空气中的湿气会凝聚在轴承上，必须采用相应的防锈措施。

轴承的拆卸

定期检查或更换零件需要拆卸轴承，通常轴和轴承箱几乎都要继续使用，轴承也往往要继续使用。因此，在机械的结构设计时就应考虑到拆卸轴承时，不至损坏轴承、轴、轴承箱及其他零部件，同时还要准备适当的拆卸工具。拆卸过盈配合的套圈时，只能将拉力加在该套圈上，不得通过滚动体拉拔套圈。

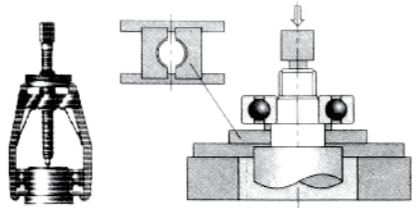
轴承的拆卸工具

最合适的拆卸轴承的工具是压力机，另外还有一些简单手动的轴承拆卸工具，

使用起来也非常方便。

圆柱孔轴承的拆卸方法

对非分离型轴承，首先从较松配合面（一般是外圈与壳体孔径的配合面）将轴承拆出，然后使用压力机将轴承从紧配合表面压出。



若轴承拆下后还将再次使用。则绝不允许通过滚动体传递拆卸力，否则滚动体和套圈滚道都会被压伤。

圆锥孔轴承的拆卸

安装在圆锥形轴颈上的中小型轴承，只需普通的拉拔器拉拔内圈，便可以轻易将其卸下。使用一些有自动对中设计的拉拔器，可以避免在拉出轴承时把轴颈的表面弄坏。在圆锥形轴颈卸下来的轴承会松脱得很快，因此应加上一些装置以防止轴承从轴上掉下来。

配用紧定套安装在圆柱型光轴上的中小型轴承，可以先将紧定套的螺母松开数圈，然后使用锤子通过冲头敲击轴承的侧面来进行拆卸。

配用紧定套在阶梯轴上靠着一个支承环的中小型轴承，可以使用锤子通过一个特制的套筒来敲击紧定套的小端面来进行拆卸，但同样需要先把螺母松开数圈。

利用液压螺母拆卸在紧定套上的大型轴承，是一种简单和实用的方法，但必须是轴承靠在一个支承环的情况下才可以采用。注油法是更简单的方法，但必须使用带有油道和油槽的紧定套。

拆卸退卸套上的轴承时，必须先拆除一些轴向锁定装置，如锁紧螺母或端盖等。对于中小型的轴承，可以利用锁紧螺母、钩形扳手或冲击扳手来进行拆卸。

轴承的维护保养

使轴承充分发挥并长期保持其应有的性能，必须切实地做好定期维护保养（定期检查）。

通过适当的定期检查，做到早期发现故障，防范事故于未然，对提高生产率和经济性十分重要。

轴承清洗

将轴承拆下检查时，先用摄影等方法做好外观记录。

另外，要确认剩余润滑剂的量并对润滑剂采样，然后再清洗轴承。

◆轴承的清洗分粗洗和精洗进行，并可在使用的容器底部放上金属网架。

◆粗洗时，在油中用刷子等清除润滑脂或粘着物。此时若在油中转动轴承，注意会因异物等损伤滚动面。

◆精洗时，在油中慢慢转动轴承，须仔细地进行。

通常使用的清洗剂为不含水柴油或煤油，根据需要有时也使用温性碱液等。不论使用哪种清洗剂，都要经常过滤保持清洁。

清洗后，立即在轴承上涂布防锈油或防锈脂。

轴承的检查与判断

为了判断拆下的轴承能否重新使用，要着重检查其尺寸精度、旋转精度、内部游隙以及配合面、滚道面、保持架和密封圈等，关于检查结果，可由专业人员进行判断。

判断的标准根据机械性能和重要度以及检查周期等有所不同。如有以下损伤，轴承不得重新使用，必须更换：

轴承零部件的断裂和缺陷；

滚道面或滚动面的剥离。

LUBRICATION

Purposes of Lubrication

The main purposes of lubrication are to reduce friction and wear inside the bearings that may cause premature failure. The effects of lubrication may be briefly explained as follows:

(1) Reduction of Friction and Wear

Direct metallic contact between the bearing rings, rolling elements and cage, which are the basic components of a bearing, is prevented by an oil film which reduces the friction and wear in the contact areas.

(2) Extension of Fatigue Life

The rolling fatigue life of bearings depends greatly upon the viscosity and film thickness between the rolling contact surfaces. A heavy film thickness prolongs the fatigue life, but it is shortened if the viscosity of the oil is too low so the film thickness is insufficient.

(3) Dissipation of Frictional Heal and Cooling

Circulation lubrication may be used low carry away frictional heat or heat transferred from the outside to prevent the bearing from overheating and the oil from deteriorating.

(4) Others

Adequate lubrication also helps to prevent foreign material from entering the bearings and guards against corrosion or rusting.

Lubricating Methods

The various lubricating methods are first divided into either grease or oil lubrications. Satisfactory bearing performance can be achieved by adopting the lubricating method which is most suitable for the particular application and operating condition. In general, oil offers superior lubrication, however, grease lubrication allows a simpler structure around the bearings. A comparison of grease and oil lubrication is given in Table 9.

Grease Lubrication

(1) Grease Quantity

The quantity of grease to be packed in a housing depends on the housing design and free space, grease characteristics, and ambient temperature. For example, the bearings for the main shafts of machine tools, where the accuracy may be impaired by a small temperature rise, require only a small amount of grease. The quantity of grease for ordinary bearings is determined as follows.

Sufficient grease must be packed inside the bearing including the cage guide face. The available space inside the housing to be packed with grease depends on the speed as follows:

Table 9 Comparison of Grease and Oil Lubrication

Item	Grease Lubrication	Oil Lubrication
Housing Structure and Sealing Method	Simple	May be complex, Careful maintenance required.
Speed	Limiting speed is 65 to 80% of that with oil lubrication	Higher limiting speed.
Cooling Effect	Poor	Heat transter is possible using forced oil circulation.
Fluidity	Poor	Good
Fuil Lubricant Replacement	Sometimes difficult	Easy
Removal of Foreign Matter	Removal of particles from grease is impossible.	Easy
External Contamination due to Leakage	Surroundings seldom contaminated by leakage.	Often leaks without proper countermeasures. Not suitable if external contamination must be avoided.

1/2 to 2/3 of the space…When the speed is less than 50% of the limiting speed.

1/3 to 1/2 of the space…When the speed is more than 50% of the limiting speed.

(2) Replacement of Grease

Grease, once packed, usually need not be replenished for a long time; however, for severe operating conditions, grease should be frequently replenished or replaced. In such cases, the bearing housing should be designed to facilitate grease replenishment and replacement.

When replenishment intervals are short, provide replenishment and discharge ports at appropriate positions so deteriorated grease is replaced by fresh grease. For example, the housing space on the grease supply side can be divided into several sections with partitions. The grease on the partitioned side gradually passes through the bearings and old grease forced from the bearing is discharged through a grease valve.

Oil Lubrication

(1) Oil Bath Lubrication

Oil bath lubrication is a widely used with low or medium speeds. The oil level should be at the center of the lowest rolling element. It is desirable to provide a sight gauge so the proper oil level may be maintained

(2) Drip-Feed Lubrication

Drip feed lubrication is widely used for small ball bearings operated at relatively high speeds.

(3) Splash Lubrication

With this lubricating method, oil is splashed onto the bearings by gears or a simple rotating disc installed near bearings without submerging the bearings in oil. It is commonly used in automobile transmissions and final drive gears.

(4) Circulating Lubrication

Circulating lubrication is commonly used for high speed operation requiring bearing cooling and for bearings used at high temperatures.

(5) Jet Lubrication

Jet lubrication is often used for ultra-high speed bearings, such as the bearings in jet engines with a dmn valve (dm: pitch diameter of rolling element set in mm; n: rotational speed in min-1) exceeding one million. Lubricating oil is sprayed under pressure from one or more nozzles directly into the bearing.

(6) Oil Mist Lubrication

Oil mist lubrication, also called oil fog lubrication, utilizes an oil mist sprayed into a bearing. This method has the following advantages:

(a) Because of the small quantity of oil required, the oil agitation resistance is small, and higher speeds are possible.

(b) Contamination of the vicinity around the bearing is slight because the oil leakage is small.

(c) It is relatively easy to continuously supply fresh oil; therefore, the bearing life is extended.

(7) Oil/Air Lubricating Method

Using the oil/air lubricating method, a very small amount of oil is discharged intermittently by a constant-quantity piston into a pipe carrying a constant flow of compressed air. The oil flows along the wall of the pipe and approaches a constant flow rate.

The major advantages of oil/air lubrication are:

(a) Since the minimum necessary amount of oil is supplied, this method is suitable for high speeds because less heat is generated.

(b) Since the minimum amount of oil is fed continuously, bearing temperature remains stable. Also, because of the small amount of oil, there is almost no atmospheric pollution.

(c) Since only fresh oil is fed to the bearings, oil deterioration need not be considered.

(d) Since compressed air is always fed to the bearings, the internal pressure is high, so dust, cutting fluid, etc. cannot enter.

For these reasons, this method is used in the main spindles of machine tools and other high speed applications.

BEARING HANDLING

Precautions for Proper Handling of Bearings

Since rolling bearings are high precision machine parts, they must be handled accordingly. Even if high quality bearings are used, their expected performance cannot be achieved if they are not handled properly.

The main precautions to be observed are as follows:

(1) Keep bearings and surrounding area clean

Dust and dirt, even if invisible to the naked eye, have harmful effects on bearings. It is necessary to prevent the entry of dust and dirt by keeping the bearings and their environment as clean as possible.

(2) Careful handling

Heavy shocks during handling may cause bearings to be scratched or otherwise damaged possibly resulting in their failure. Excessively strong impacts may cause brinelling, breaking, or cracking.

(3) Use proper tools

Always use the proper equipment when handling bearings and avoid general purpose tools.

(4) Prevent corrosion

Since perspiration on the hands and various other contaminants may cause corrosion, keep the hands clean when handling bearings. Wear gloves if possible.

Pay attention to rust of bearing caused by corrosive gasses.

Mounting

The method of mounting rolling bearings strongly affects their accuracy, life, and performance, so their mounting deserves careful attention. Their characteristics should first be thoroughly studied, and then they should be mounted in the proper manner. It is recommended that the handling procedures for bearings be fully investigated by the design engineers and that standards be established with respect to the following items:

(1) Cleaning the bearings and related parts.

(2) Checking the dimensions and finish of related parts.

(3) Mounting

(4) Inspection after mounting.

(5) Supply of lubricants.

Bearings should not be unpacked until immediately before mounting. When using ordinary grease lubrication, the grease should be packed in the bearings without first cleaning them. Even in the case of ordinary oil lubrication, cleaning the bearings is not required. However, bearings for instruments or for high speed operation must first be cleaned with clean filtered oil in order to remove the anti-corrosion agent.

After the bearings are cleaned with filtered oil, they should be protected to prevent corrosion.

Pre-lubricated bearings must be used without cleaning.

Bearing mounting methods depend on the bearing type and type of fit. As bearings are usually used on rotating shafts, the inner rings require a tight fit.

Bearings with cylindrical bores are usually mounted by pressing them on the shafts (press fit) or heating them to expand their diameter (shrink fit). Bearings with tapered bores can be mounted directly on tapered shafts or cylindrical shafts using tapered sleeves.

Bearings are usually mounted in housings with a loose fit. However, in cases where the outer ring has an interference fit, a press may be used. Bearings can be interference-fitted by cooling them before mounting using dry ice. In this case, a rust preventive treatment must be applied to the bearing because moisture in the air condenses on its surface.

Mounting of Bearings with Cylindrical Bores

(1) Press fits

Fitting with a press is widely used for small bearings. A mounting tool is placed on the inner ring as shown in Fig. 14.1 and the bearing is slowly pressed on the shaft with a press until the side of the inner ring rests against the shoulder of the shaft. The mounting tool must not be placed on the outer ring for press mounting, since the bearing may be damaged. Before mounting, applying oil to the fitted shaft surface is recommended for smooth insertion. The mounting method using a hammer should only be used for small ball bearings with minimally tight fits and when a press is not available. In the case of tight interference fits or for medium and large bearings, this method should not be used. Any time a hammer is used, a mounting tool must be placed on the inner ring.

When both the inner and outer rings of non-separable bearings, such as deep groove ball bearings, require tight-fit, a mounting tool is placed on both rings as shown in Fig. 14.2, and both rings are fitted at the same time using a screw or hydraulic press. Since the outer ring of self-aligning ball bearings may deflect a mounting tool such as

that shown in Fla. 14.2 should always be used for mounting them.
In the case of separable bearings, such as cylindrical roller bearings and tapered roller bearings, the inner and outer rings may be mounted separately. Assembly of the inner and outer rings, which were previously mounted separately, should be done carefully to align the inner and outer rings correctly. Careless or forced assembly may cause scratches on the rolling contact surfaces.

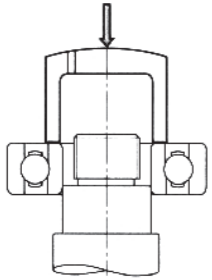


Fig.14.1 Press Fitting Inner Ring

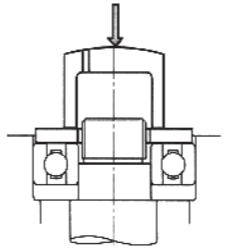


Fig.14.2 Simultaneous Press Fitting of Inner and Outer Rings

(2) Shrink fits
Since press fitting large bearings requires a large force, a shrink is widely used. The bearings are first heated in oil to expand them before mounting.
This method prevents an excessive force from being imposed on the bearings and allows mounting them in a short lime.

Fig. 14.3.
The precautions to follow when making shrink fits are as follows:
(a) Do not heat bearings to more than 100℃.
(b) Put the bearings on a wire net or suspend them in an oil tank in order to prevent them from touching the tank's bottom directly.
(c) Heat the bearings to a temperature 20 to 30℃ higher than the lowest temperature required for mounting without interference since the inner ring will cool a little during mounting.
(d) After mounting, the bearings will shrink in the axial direction as well as the radial direction while cooling. Therefore, press the bearing firmly against the shaft shoulder using locating methods to avoid clearance between the bearing and shoulder.

Mounting of Bearings with Tapered Bores

Bearings with tapered bores are mounted on tapered shafts directly or on cylindrical shafts with adapters or withdrawal sleeves (Figs. 14.4 and 14.5). Large spherical roller bearings are often mounted using hydraulic pressure. Fig. 14.6 shows a bearing mounting utilizing a sleeve and hydraulic nut. Fig. 14.7 shows another mounting method. Holes are drilled in the sleeves which are used to feed oil under pressure to the bearing seat. As the bearing expands radially, the sleeve is inserted axially with adjusting bolts.
Spherical roller bearings should be mounted while checking their radial-clearance reduction and referring to the push-in amounts listed in Table 4. The radial clearance must be measured using clearance gauges.
In this measurement, as shown in Fig. 14.8, the clearance for both rows of rollers must be measured simultaneously, and these two values should be kept roughly the same by adjusting the relative position of the outer and inner rings.
When a large bearing is mounted on a shaft, the outer ring may be deformed into an oval shape by its own weight. If the clearance is measured at the lowest part of the deformed bearing, the measured value may be bigger than the true value. If an incorrect radial internal clearance is obtained in this manner and the values in Table 4 are used, then the interference fit may become too tight and the true residual clearance may become too small. In this case, as shown in Fig. 14.9. one half of the total clearance at points a and b (which are on a horizontal line passing through the bearing center) and c (which is at the lowest position of the bearing) may be used as the residual clearance.
When a self-aligning ball bearing is mounted on a shaft with an adapter, be sure that the residual clearance does not become too small. Sufficient clearance for easy alignment of the outer ring must be allowed.

Operation Inspection

After the mounting has been completed, a running test should be conducted to determine if the bearing has been mounted correctly. Small machines may be manually operated to assure that they rotate smoothly.
Items to be checked include sticking due to foreign matter or visible flaws, uneven torque caused by improper mounting or an improper mounting surface, and excessive torque caused by an inadequate clearance, mounting error, or seal friction. If there are no abnormalities, powered operation may be started.



Fig. 14.4 Mounling with Adapter

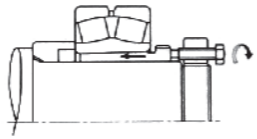


Fig. 14.5 Mounting with Withdrawal Sleeve

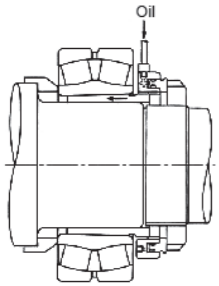


Fig. 14.6 Mounting with Hydraulic Nut

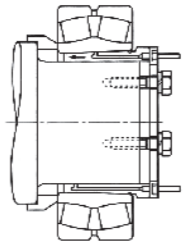


Fig. 14.7 Mounting with Special Sleeve and Hydraulic Pressure

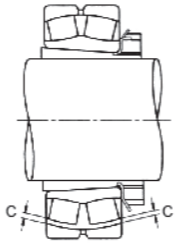


Fig. 14.8 Clearance Measurement of Spherical Roller Bearing

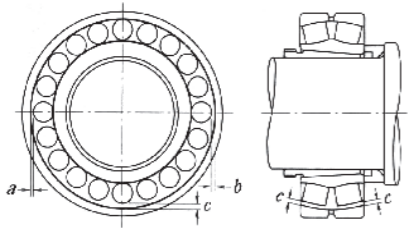


Fig. 14.9 Measuring Clearance in Large Spherical Roller Bearing

Large machines, which cannot be turned by hand, can be started after examination with no load, and the power immediately cutoff and the machine allowed to coast to a stop. Confirm that there is no abnormality such as vibration, noise, contact of rotating parts, etc.

Powered operation should be started slowly without load and the operation should be observed carefully until it is determined that no abnormalities exist, then gradually increase the speed, load, etc. to their normal levels. Items to be checked during the test operation include the existence of abnormal noise, excessive rise of bearing temperature, leakage and contamination of lubricants, etc. If any abnormality is found during the test operation, it must be stopped immediately and the machine should be inspected. If necessary, the bearing should be dismounted for examination.

Although the bearing temperature can generally be estimated by the temperature of the outside surface of the housing, it is more desirable to directly measure the temperature of the outer ring using oil holes for access.

The bearing temperature should rise gradually to the steady state level within one to two hours after the operation starts. If the bearing or its mounting is improper, the bearing temperature may increase rapidly and become abnormally high. The cause of this abnormal temperature may be an excessive amount of lubricant, insufficient bearing clearance, incorrect mounting, or excessive friction of the seals.

In the case of high speed operation, an incorrect selection of bearing type or lubricating method may also cause an abnormal temperature rise.

The sound of a bearing may be checked with a noise locater or other instruments. Abnormal conditions are indicated by a loud metallic sound, or other irregular noise, and the possible cause may include incorrect lubrication, poor alignment of the shaft and housing, or the entry of foreign matter into the bearing. The possible causes and measures for irregularities are listed in Table 10.

Table 10 Causes of and measures for Operating Irregularities

Irregularities		Possible Causes	Measures
Noise	Lound Metallic Sound (1)	Abnormal Load	Improve the fit, internal clearance, preload, position of housing shoulder etc.
		Incorrect mounting	Improve the machining accuracy and alignment of shaft and housing, accuracy of mounting method.
		Insulficient or improper Lubricant	Replenish the lubricant or select another lubricant.
		Contact of rotating parts	Modify the labyrinth seal etc.
	Lound Regular Sound	Flaws, corrosion, or scratches on raceways	Replace or clean the bearing, improve the seals, and use clean lubricant.
		Brinelling	Replace the bearing and use care when handling bearings.
		Flaking on raceway	Replace the bearing
	Irregular Sound	Excessive clearance	Improve the fit, clearance and preload.
		Penetration of foreign particles	Replace or clean the bearing, improve the seals, and use clean lubricant.
		Flaws or flaking on balls	Replace the bearing.
Abnormal Temperature Rise		Excessive amount of lubricant	Reduce amount of lubricant, select stiffer grease.
		Insufficient or improper lubricant	Replenish lubricant or select a better one.
		Abnormal load	Improve the fit, internal clearance, preload, position of housing shoulder.
		Incorrect mounting	Improve the machining accuracy and alignment of shaft and housing, accuracy of mounting, or mounting method.
		Creep on fitted surface, excessive seal friction	Correct the seals, replace the bearing, correct the fitting or mounting.
Vibration (Axial runout)		Brinelling	Replace the bearing and use care when handling bearings.
		Flaking	Replace the bearing.
		Incorrect mounting	Correct the squareness between the shaft and housing shoulder or side of spacer.
		Penetration of foreign particles	Replace or clean the bearing, improve the seals.
Leakage or Discoloration of Lubricant		Too much lubricant, Penetration by foreign matter or abrasion chips	Reduce the amount of lubricant, select a stiffer grease. Replace the bearing or lubricant. Clean the housing and adjacent parts.

Note(1) Intermittent squeal or high-pitch noise may be heard in medium-to large-sized cylindrical roller bearings or ball bearings that are operating under grease lubrication in low-temperature environments. Under such low-temperature conditions, bearing temperature will not rise resulting in fatigue nor is grease performance affected. Although intermittent squeal or high-pitch noise may occur under these conditions, the bearing is fully functional and can continue to be used. In the event that greater noise reduction or quieter running propedies are needed, please contact your nearest WGB branch office.

Dismounting

A bearing may be removed for periodic inspection or for other reasons. If the removed bearing is to be used again or it is removed only for inspection, it should be dismounted as carefully as when it was mounted. If the bearing has a tight fit, its removal may be difficult. The means for removal should be considered in the original design of the adjacent parts of the machine. When dismounting, the procedure and sequence of removal should first be studied using the machine drawing and considering the type of mounting fit in order to perform the operation properly.

Dismounting of Outer Rings

In order to remove an outer ring that is tightly fitted, first place bolts in the push-out holes in the housing at several locations on its circumference as shown in Fig. 14.10, and remove the outer ring by uniformly tightening the bolts. These bolt holes should always be fitted with blank plugs when not being used for dismounting. In the case of separable bearings, such as tapered roller bearings, some notches should be made at several positions in the housing shoulder, as shown in Fig. 14.11, so the outer ring may be pressed out using a dismounting tool or by tapping it.

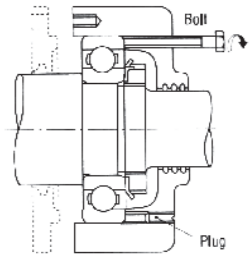


Fig. 14.10 Removal of Outer Ring with Dismounting Bolts

Dismounting of Bearings with Cylindrical Bores

If the mounting design allows space to press out the inner ring, this is an easy and fast method. In this case, the withdrawal force should be imposed only on the inner ring (Fig. 14.12). Withdrawal tools like those shown in Figs. 14.13 and 14.14 are often used.

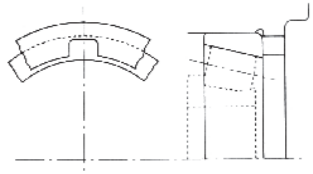


Fig. 14.11 Removal Notches

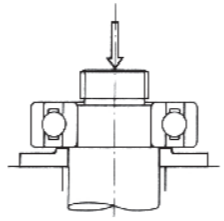


Fig. 14.12 Removal of Inner Ring Using a Press

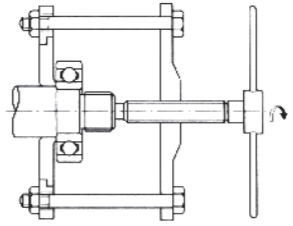


Fig. 14.13 Removal of Inner Ring Using Withdrawal Tool(1)

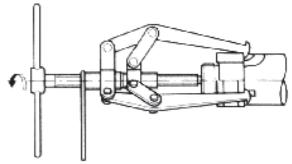


Fig. 14.14 Removal of Inner Ring Using Withdrawal Tool(2)

In both cases, the claws of the tools must substantially engage the face of the inner ring: therefore, it is advisable to consider the size of the shaft shoulder or to cut grooves in the shoulder to accommodate the withdrawal tools (Fig.14.14).

The oil injection method is usually used for the withdrawal of large bearings. The withdrawal is achieved easily by mean of oil pressure applied through holes in the shaft. In the case of extra wide bearings, the oil injection method is used together with a withdrawal tool.

Induction heating is used to remove the inner rings of NU and NJ types of cylindrical roller bearings. The inner rings are expanded by brief local heating, and then withdrawn (Fig. 14.15). Induction heating is also used to mount several bearings of these types on a shaft.

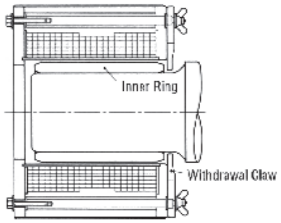


Fig. 14.15 Removal of Inner Ring Using Induction Heater

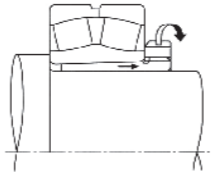


Fig. 14.16 Removal of Withdrawal Sleeve Using Withdrawal Nut (1)

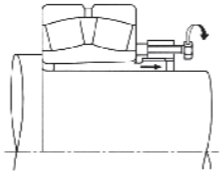


Fig. 14.17 Removal of Withdrawal Sleeve Using Withdrawal Nut (2)

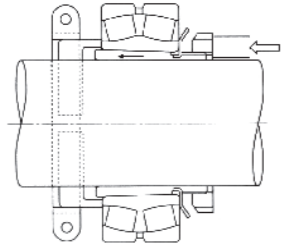


Fig. 14.18 Removal of Adapter with Stop and Axial Pressure

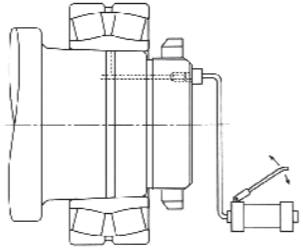


Fig. 14.19 Removal Using Oil Injection Hydraulic Pump

Dismounting of Bearings with Tapered Bores

When dismounting relatively small bearings with adapters, the inner ring is held by a stop fastened to the shaft and the nut is loosened several turns. This is followed by hammering on the sleeve using a suitable tool as shown in Fig. 14.18. Fig. 14.16 shows one procedure for dismounting a withdrawal sleeve by tightening the removal nut. If this procedure is difficult, it may be possible to drill and tap bolt holes in the nut and withdraw the sleeve by tightening the bolts as shown in Fig. 14.17.

Large bearings may be withdrawn easily using oil pressure. Fig. 14.19 illustrates the removal of a bearing by forcing oil under pressure through a hole and groove in a tapered shaft to expand the inner ring. The bearing may suddenly move axially when the interference is relieved during this procedure so a stop nut is recommended for protection. Fig. 14.20 shows a withdrawal using a hydraulic nut.

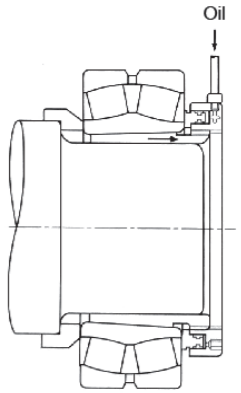


Fig. 14.20 Removal Using Hydraulic Nut

Inspection of Bearings

Bearing Cleaning

When bearings are inspected, the appearance of the bearings should first be recorded and the amount and condition of the residual lubricant should be checked.

After the lubricant has been sampled for examination, the bearings should be cleaned. In general, light oil or kerosene may be used as a cleaning solution.

Dismounted bearings should first be given a preliminary cleaning followed by a finishing rinse. Each bath should be provided with a metal net to support the bearings in the oil without touching the sides or bottom of the tank. If the bearings are rotated with foreign matter in them during preliminary cleaning, the raceways may be damaged. The lubricant and other deposits should be removed in the oil bath during the initial rough cleaning with a brush or other means.

After the bearing is relatively clean, it is given the finishing rinse. The finishing rinse should be done carefully with the bearing being rotated while immersed in the rinsing oil. It is necessary to always keep the rinsing oil clean.

Inspection and Evaluation of Bearings

After being thoroughly cleaned, bearings should be examined for the condition of their raceways and external surfaces, the amount of cage wear, the increase in internal clearance, and degradation of tolerances. These should be carefully checked, in addition to examination for possible damage or other abnormalities, in order to determine the possibility for its reuse.

In the case of small non-separable ball bearings, hold the bearing horizontally in one hand, and then rotate the outer ring to confirm that it turns smoothly.

Separable bearings such as tapered roller bearings may be checked by individually examining their rolling elements and the outer ring raceway.

Large bearings cannot be rotated manually; however, the rolling elements, raceway surfaces, cages, and contact surface of the ribs should be carefully examined visually. The more important a bearing is, the more carefully it should be inspected. The determination to reuse a bearing should be made only after considering the degree of bearing wear, the function of the machine, the importance of the bearings in the machine, operating conditions, and the time until the next inspection. However, if any of the following directs exist, reuse is impossible and replacement is necessary.

(a) When there are cracks in the inner or outer mgs, rolling elements, or cage.

(b) When there is flaking of the raceway or rolling elements.

(c) When there is significant smearing of the raceway surfaces, ribs, or rolling elements.

(d) When the cage is significantly worn or rivets are loose.

(e) When there is rust or scoring on the raceway surfaces or rolling elements.

(f) When there are any significant impact or brinell traces on the raceway surfaces or rolling elements.

(g) When there is significant evidence of creep on the bore or the periphery of the outer ring.

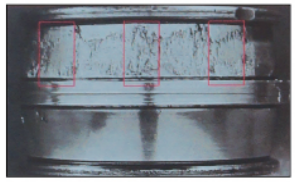
(h) When discoloration by heat is evident.

(i) When significant damage to the seals or shields of grease sealed bearings has occurred.

轴承的损伤与对策 Damage of bearing and Countermeasures

运转中无法直接观察轴承，但通过噪声、振动、温度润滑剂等的状况可察知轴承异常。表中所示为轴承损伤的代表列：

项目	现象	原因	措施
剥离	滚动面剥离 剥离后呈明显凹凸状	负荷过大，使用不当 安装不良 轴或轴承精度不良 游隙过小 异物侵入 发生生锈 异常高温造成的硬度下降	重新研究使用条件 重新选择轴承 重新考虑游隙 检查轴和轴承加工精度 研究轴承周围设计 检查安装时的方法 检查润滑剂及润滑方法
烧伤	轴承发热变色进而 烧伤不能旋转	游隙过小（包括变形部分游隙过小） 润滑不足或润滑剂不当 负荷过大（预压过大） 滚子偏斜	设定适当游隙（增大游隙） 检查润滑剂种类确保注入量 检查使用条件 防止定位误差 检查轴承周围设计（包括轴承受热） 改善轴承组装方法
裂纹缺陷	部分缺口 且有裂口	冲击负荷过大过盈过大 有较大剥离摩擦裂纹 安装侧精度不良 摩擦裂纹 使用不良（用铜锤、卡入大异物）	检查使用条件 设定适当过盈检查材质 改善安装及使用方法 防止摩擦裂纹（检查润滑剂） 检查轴承周围设计
保持架 破损	铆钉松动或断裂 保持架破裂	力矩负荷过大 高速旋转或转速变动频繁 润滑不良 卡入异物 振动大 安转不良（倾斜状态下安转） 异常升温（树脂保持架）	检查使用条件 检查润滑条件 重新研究保持架的旋转 注意轴承使用 研究轴和轴承箱刚性
擦伤卡伤	表面粗糙、伴有微小 溶敷套圈挡边与滚子 端面的擦伤	润滑不良 异物侵入 轴承倾斜造成的滚子偏斜 轴向负荷大造成的挡边面断油 表面粗糙度大 滚动体滑动大	再研究润滑剂、润滑方法 检查使用条件 设定适宜的预压 强化密封性能 正确使用轴承
生锈腐蚀	表面局部或全部生锈， 呈滚动体齿距状生锈。	保管状态不良 包装不当 防锈剂不足 水分、酸溶液等侵入 直接用手拿轴承	防止保管中生锈 强化密封性能 定期检查润滑油 注意轴承使用
腐蚀	配合面产生红锈色 磨损粉粒子	过盈量不够 轴承摇动角小 润滑不足（或处于无润滑状态） 非稳定性负荷 旋转中振动	检查过盈及润滑剂涂布状态 运输时内外圈分开包装 不可分开时则施加预压 重新选择润滑剂 重新选择轴承
磨损	表面磨损、造成尺寸变 化多伴有磨伤、磨痕	润滑剂中混入异物 润滑不良 滚子偏斜	检查润滑剂及润滑方法 强化密封性能 防止定位误差
电蚀	滚动面有喷火口状凹坑 进一步发展则呈波板状	滚动面通电	制作电流旁通阀 采取绝缘措施，避免电流 通过轴承内部
压痕 碰伤	卡入固体异物，或冲击 造成表面凹坑及安装时 的擦伤	固体异物侵入 卡入金属片 安装不良造成的撞击脱落 在倾斜状态下安装	改善安装、使用方法 防止异物混入 若因金属片引起，则需检 查其他部位
蠕变	内径面或外径面打滑，造 成镜面或变色，有时卡住	配合处过盈不足 螺母紧固不够 异常升温 负荷过大	重新研究过盈量 研究使用条件 检查轴和轴承箱精度

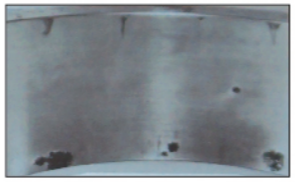


照片1



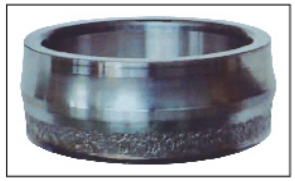
照片2

◆调心滚子轴承
◆沟道剥落区的间距为滚动间距
◆原因是由于锈蚀
Spherical roller bearing
Flaking of whole raceway width
The reason is rust



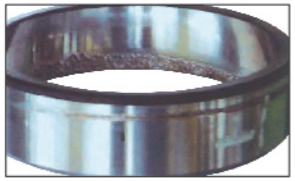
照片3

◆调心滚子轴承
◆在潮湿空气中存放轴承
◆原因是由于锈蚀
Spherical roller bearing
Bearing was stored in damp air
The reason is rust



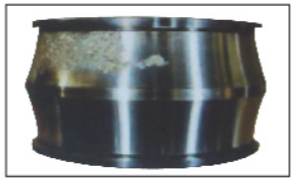
照片4

◆调心滚子轴承的内圈。
◆1列滚道面整周产生剥落。
◆过大轴向载荷造成的损伤。
Part: Inner ring of a spherical roller bearing
Symptom: Flaking of only one raceway over its entire circumference
Cause: Excessive axial load



照片5

◆调心滚子轴承的外圈。
◆1列滚道面整周产生剥落。
◆过大轴向载荷造成的损伤。
Part: Inner ring of a spherical roller bearing
Symptom: Flaking of only one raceway over its entire circumference
Cause: Excessive axial load



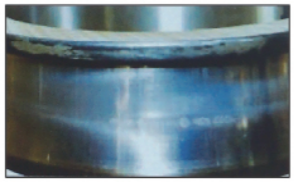
照片6

◆调心滚子轴承的内圈。
◆1列滚道面产生剥落。
◆润滑不良造成的损伤
Part: Inner ring of a spherical roller bearing
Symptom: Flaking of only one row of raceway
Cause: Poor lubrication



照片7

◆圆柱滚子轴承的滚子。
◆滚动面沿轴向产生的早期剥落。
◆安装不当造成的安装伤痕进一步发展而成。
Part: Rollers of a cylindrical roller bearing
Symptom: Premature flaking occurs axially on the rolling surfaces
Cause: Scratches caused during improper mounting



照片8

◆调心滚子轴承的内圈。
◆滚道面中央的圆形花纹状剥皮。
◆润滑不良造成的损伤。
Part: Inner ring of a spherical roller bearing
Symptom: Round shaped peeling pattern occurs on the center of the raceway surfaces
Cause: Poor lubrication



照片9

◆调心滚子轴承的球面滚子。
◆滚道面中央的圆形花纹状剥皮。
◆润滑不良造成的损伤。
Part: Convex rollers of a spherical roller bearing
Symptom: Round shaped peeling pattern occurs on the center of the rolling surfaces
Cause: Poor lubrication



照片10

◆调心滚子轴承的内圈。
◆滚道面上下整圈产生的剥皮。
◆润滑不良造成的损伤
Part: Inner ring of a spherical roller bearing
Symptom: Peeling occurs near the shoulder of the raceway over the entire circumference
Cause: Poor lubrication



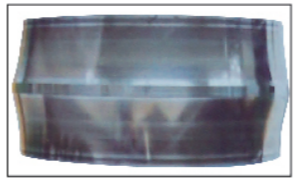
照片11

◆调心滚子轴承的内圈。
◆内圈大挡边上的擦伤。
◆原因是急加、减速造成的滚子打滑。
Part: Inner ring of a spherical roller bearing
Symptom: Scoring on large rib face of inner ring
Cause: Roller slipping due to sudden acceleration and deceleration



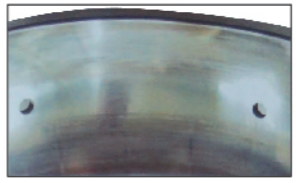
照片12

◆调心滚子轴承的球面滚子。
◆滚子端面上的擦伤。
◆原因是急加、减速造成的滚子打滑。
Part: Convex rollers of a spherical roller bearing
Symptom: Scoring on roller end face
Cause: Roller slipping due to sudden acceleration and deceleration



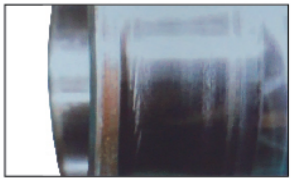
照片13

◆调心滚子轴承的内圈。
◆滚道面圆周方向上的轻微擦伤。
◆因润滑不良造成的。
Part: Inner ring of a spherical roller bearing
Symptom: Smearing occurs circumferentially on racrway surface
Cause: Poor lubrication



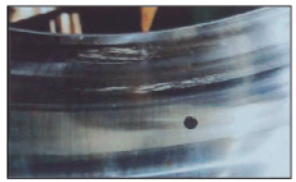
照片14

◆调心滚子轴承的外圈。
◆滚道面圆周方向上的轻微擦伤。
◆因润滑不良造成的。
Part: Outer ring of a spherical roller bearing
Symptom: Smearing occurs circumferentially on racrway surface
Cause: Poor lubrication



照片15

◆调心滚子轴承的内圈。
◆滚道面圆周方向上的轻微擦伤。
◆因润滑不良造成的。
Part: Inner ring of a spherical roller bearing
Symptom: Smearing occurs circumferentially on racrway surface
Cause: Poor lubrication



照片16

◆调心滚子轴承的外圈。
◆滚道面圆周方向上的轻微擦伤。
◆因润滑不良造成的。
Part: Outer ring of a spherical roller bearing
Symptom: Smearing occurs circumferentially on raceway surface
Cause: Poor lubrication



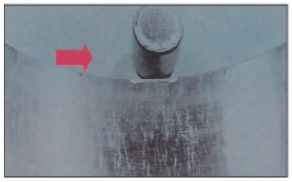
照片17

◆调心滚子轴承的球面滚子。
◆滚道面中央的轻微擦伤。
◆因润滑不良造成的。
Part: Convex rollers of a spherical roller bearing
Symptom: Smearing occurs at the center of the rolling surface
Cause: Poor lubrication

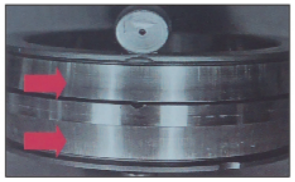


照片18

◆调心滚子轴承的内圈。
◆滚道面上的轴向裂纹。
◆原因是轴与内圈的温差造成配合应力过大。
Part: Inner ring of a spherical roller bearing
Symptom: Axial cracks occurs on raceway surface
Cause: Large fitting stress due to temperature difference between shaft and inner ring

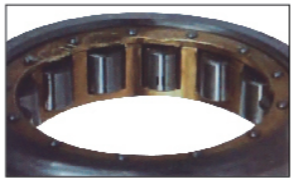


照片19



照片20

◆调心滚子轴承的内圈
◆挡边上的破裂
◆由安装时受到的
Inner ring of spherical roller bearing
Flange was brden
Burden during mounting



照片21

◆圆柱滚子轴承的保持架
◆高强度黄铜车制保持架端面的变形
◆安装时由过大的冲击载荷造成的
Part: Cage of a cylindrical roller bearing
Symptom: Deformation of the side face of a machined high-tension brass cage
Cause: Large shock during mounting



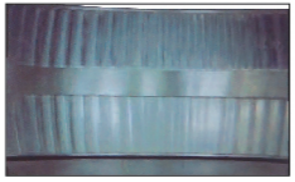
照片22

◆圆柱滚子轴承的保持架。
◆高强度黄铜车制保持架梁的磨损变形。
Part: Cage of a cylindrical roller bearing
Symptom: Deformation of the side face of a machined high-tension brass cage



照片23

◆圆柱滚子轴承的内圈。
◆因波状磨损和电蚀使滚道面上产生许多凹坑。
◆由电蚀进一步发展而成。
Part: Inner ring of a cylindrical roller bearing
Symptom:Many pits occur due to electrical corrosion and wave-shaped wear on raceway suface
Cause:Electrical corrosion



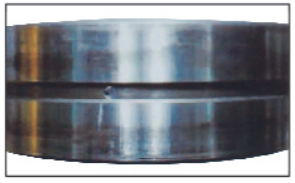
照片24

◆调心滚子轴承的内圈。
◆承载区滚道面上凹凸不平的波纹状磨损。
◆静止状态下反复震动，由异物侵入而成的损失。
Part: Outer ring of a spherical roller bearing
Symptom:Wear having a wavy or concave-and-convex texture on loaded side of raceway surface
Cause: Entry of debris under repeated vibration while stationary



照片25

◆调心滚子轴承的内圈。
◆内径上的蠕变，伴随有擦伤。
◆因过盈量不足而造成的。
Part: Inner ring of a spherical roller bearing
Symptom: Creep accompanied by scoring of bore surface
Cause: Insufficient intreference



照片26

◆调心滚子轴承的外圈。
◆外径面上整周的蠕变。
◆由外圈和轴承座的间隙配合造成的。
Part: Outer ring of a spherical roller bearing
Symptom: Creep occurs over entire circumference of outside surface
Cause: Loose fit between outer ring and housing



照片27

◆调心滚子轴承的内圈。
◆滚道面变色，保持架磨损粉末熔融后被碾轧，附着。
◆润滑不良造成的损伤。
Part: Inner ring of a spherical roller bearing
Symptom:Raceway is discolored and melted. Worn particles from the cage were rolled and attached to the raceway
Cause: Insufficient lubrication



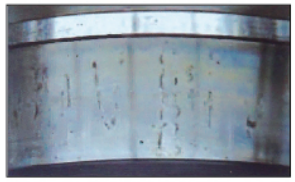
照片28

◆调心滚子轴承的球面滚子。
◆滚子滚动面变色，保持架磨损粉末熔融后被碾轧，附着。
◆润滑不良造成的损伤。
Part: Convex rollers of a spherical roller bearing
Symptom: Discoloration and melting of roller rolling surface,adhesion of worn particles from cage
Cause: Insufficient lubrication



照片29

◆圆柱滚子轴承的外圈。
◆滚道面及挡边上生锈。
◆原因是由于进水造成润滑不良。
Part: Outer ring of a cylindrical roller bearing
Symptom:Rust on the rib face and raceway surface
Cause: Poor lubrcation due to water entry



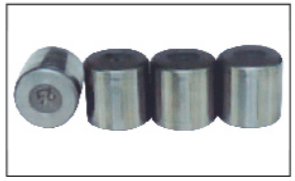
照片30

◆调心滚子轴承的内圈。
◆滚道面上的锈蚀呈滚子间距分布。
◆水分侵入润滑剂中造成的。
Part: Inner ring of a spherical roller bearing
Symptom: Rust on raceway surface at roller pitch
Cause: Entry of water into lubricant



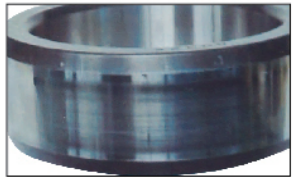
照片31

◆调心滚子轴承的滚子。
◆滚道面上产生的凹坑状锈蚀。
◆保管过程中水分凝结造成的。
Part: Rollers of a spherical roller bearing
Symptom: Pit-shaped rust on rolling contact surface. Corroded portions.
Cause: Moisture condensation during storage



照片32

◆圆柱滚子轴承的滚子。
◆滚道面上产生的轴向伤痕。
◆安装时内、外圈倾斜造成的。
Part: Rollers of a cylindrical roller bearing
Symptom: Axial scratches on rolling surface
Cause: Inclination of inner and outer rings during mounting



照片33

◆圆柱滚子轴承的内圈。
◆滚道面上产生的轴向伤痕。
◆安装时内、外圈倾斜造成的。
Part: Inner ring of a cylindrical roller bearing
Symptom: Axial scratches on raceway surface
Cause: Inclination of inner and outer rings during mounting