

Deep Groove Ball Bearing	Self-Aligning Ball Bearing	Angular Contact Ball Bearing	
Cylindrical Roller Bearing	Tapered Roller Bearing	Spherical Roller Bearing	
Thrust Ball Bearing	Spherical Roller Thrust Bearing	Accessories Adapter & Withdrawal Sleeve	Technical & Related Information



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Information

Thrust ball bearings are available in single and double acting versions. They sustain axial loads only, and therefore should not be used where radial loads are present.

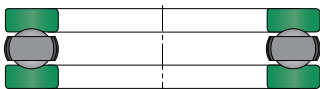
The thrust loading should not drop below a minimum axial load, maintaining contact between the balls and the track when centrifugal forces are present.

They are manufactured in the following series: 511, 512, 513, 514, 522, 523 and 524.

Dimensions in accordance with ISO 104-2002

Single-acting thrust ball bearings

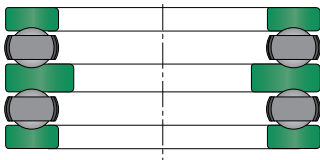
Single acting thrust ball bearings are used to carry thrust loads in only one direction and cannot carry radial loads. They are made up of a shaft washer, a flat housing washer and a ball and cage assembly. These bearings can be easily mounted by separately fitting each washer.



Prefix
511, 512, 513, 514

Double-acting thrust ball bearing

These bearings can carry thrust loadings in both directions. They are fitted with an extra thrust washer and two ball and cage assemblies. See technical section for further information.



Prefix
522, 523, 524

Minimum load

The thrust ball bearing requires a minimum axial load, so that the rolling elements maintain rolling contact and sliding is minimized. "Fam" can be obtained from formula:

$$F_{am} = M \left[\frac{n \text{ Max}}{1000} \right]^2 \text{ [N]}$$

where:

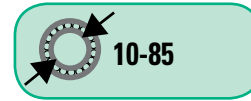
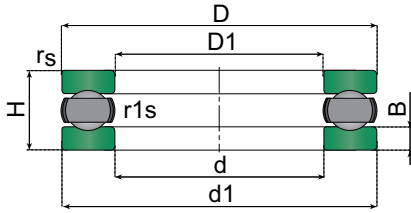
- F_{am} = minimum thrust load (N)
- M = Factor for minimum load
- n = speed in RPM

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50100a

Single Row Thrust Ball Bearing

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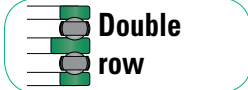


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Part number	Principal dimensions			Basic load ratings		Speed limits		Weight	Radius	Dimensions		
	Bore	Outer	Height	Dynamic	Static	Grease	Oil			D1	d1	M
	d	D	H	C	Co	rpm						
mm			kN		1 min ⁻¹		Kg	rs min	mm			
51100	10	24	9	10,0	14,0	6300	9000	0,02	0,3	11	24	0,001
51101	12	26	9	10,2	15,2	6000	8500	0,02	0,3	13	26	0,001
51201	12	28	11	13,2	19,0	5300	7500	0,03	0,6	14	28	0,002
51102	15	28	9	10,5	16,8	5600	8000	0,02	0,3	16	28	0,001
51202	15	32	12	16,5	24,8	4800	6700	0,04	0,6	17	32	0,004
51103	17	30	9	10,8	18,2	5300	7500	0,02	0,5	18	30	0,002
51203	17	35	12	17,0	27,2	4500	6800	0,05	0,6	19	35	0,004
51104	20	35	10	14,2	24,5	4800	6700	0,04	0,3	21	35	0,003
51204	20	40	14	22,2	37,5	3800	5300	0,08	0,6	22	40	0,008
51105	25	42	11	15,2	30,2	4300	6000	0,06	1,0	26	42	0,005
51205	25	47	15	27,8	50,5	3400	4300	0,11	0,6	27	47	0,013
51305	25	52	18	35,5	61,5	3000	4300	0,17	1,0	27	52	0,019
51106	30	47	11	16,0	34,2	4000	5600	0,06	0,6	32	47	0,007
51206	30	52	16	28,0	54,2	3200	4500	0,13	0,6	32	52	0,014
51306	30	60	21	42,8	78,5	2400	3600	0,26	1,0	32	60	0,028
51107	35	52	12	18,2	41,5	3800	5300	0,08	0,6	37	52	0,009
51207	35	62	18	39,2	78,2	2800	4000	0,21	1,0	37	62	0,028
51307	35	68	24	55,2	105,0	2000	3200	0,37	1,0	37	68	0,050
51108	40	60	13	26,8	62,8	3400	4800	0,11	0,6	42	60	0,016
51208	40	68	19	44,8	91,8	2400	3600	0,26	1,5	42	68	0,050
51308	40	78	26	69,2	135,0	1900	3000	0,53	1,0	42	78	0,080
51109	45	65	14	27,0	66,0	3200	4500	0,14	0,6	47	65	0,020
51209	45	73	20	47,8	105,0	2200	3400	0,30	1,0	47	73	0,043
51309	45	85	28	75,8	150,0	1700	2600	0,66	1,0	47	85	0,120
51110	50	70	14	27,2	69,2	3000	4300	0,15	0,6	52	70	0,024
51210	50	78	22	48,5	112,0	2000	3200	0,37	1,0	52	78	0,070
51310	50	95	31		202,0	1600	2400	0,92	1,1	52	95	0,180
51111	55	78	16	33,8	89,2	2800	4000	0,22	1,0	57	78	0,038
51211	55	90	25	67,5	158,0	1900	3000	0,58	1,0	57	90	0,110
51311	55	105	35	115,0	242,0	1500	2200	1,28	1,1	57	105	0,260
51112	60	85	17	40,2	108,0	2600	3800	0,27	1,0	62	85	0,053
51212	60	95	26	73,5	178,0	1800	2800	0,66	1,0	62	95	0,120
51312	60	110	35	118,0	262,0	1400	2000	1,37	1,1	62	110	0,280
51113	65	90	18	40,5	112,0	2400	3600	0,31	1,0	67	90	0,060
51213	65	100	27	74,8	188,0	1700	2600	0,72	1,0	67	100	0,140
51313	65	115	36	115,0	262,0	1300	1900	1,18	1,1	67	115	0,320
51114	70	95	18	40,8	115,0	2200	3400	0,33	1,5	72	95	0,067
51214	70	105	27	73,5	188,0	1600	2400	0,75	1,0	72	105	0,160
51314	70	125	40	148,0	340,0	1200	1800	1,98	1,1	72	125	0,530
51115	75	100	19	48,2	140,0	2000	3200	0,38	1,0	77	100	0,095
51215	75	110	27	74,8	198,0	1500	2200	0,82	1,0	77	110	0,180
51315	75	135	44	162,0	380,0	1100	1700	2,58	1,5	77	135	0,750
51116	80	105	19	48,5	145,0	1900	3000	0,40	1,0	82	105	0,100
51216	80	115	28	83,8	222,0	1400	2000	0,90	1,0	82	115	0,220
51316	80	140	44	160,0	380,0	1000	1600	2,69	1,5	82	140	0,800
51117	85	110	19	49,2	150,0	1800	2800	0,42	1,0	87	110	0,120
51217	85	125	31	102,0	280,0	1300	1900	1,21	1,0	88	125	0,180
51317	85	150	49	208,0	495,0	950	1500	3,47	1,5	88	150	1,100

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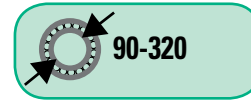
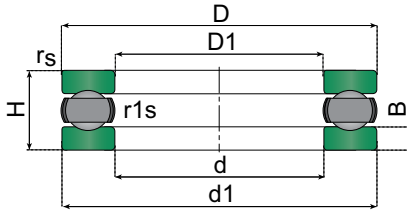


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50100b

Single Row Thrust Ball Bearing

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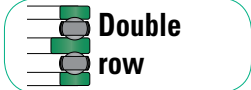


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Part number	Principal dimensions			Basic load ratings		Speed limits		Weight Kg	Radius rs min mm	Dimensions				
	Bore	Outer	Height	Dynamic	Static	Grease	Oil			D1	d1	M		
	d	D	H	C	Co	rpm				mm				
mm											kN		1 min ⁻¹	
51118	90	120	22	65,0	200,0	1700	2600	0,65	1,0	92	120	0,190		
51218	90	135	35	115,0	315,0	1200	1800	1,65	1,1	93	135	0,530		
51318	90	155	50	205,0	495,0	900	1400	3,69	1,5	93	155	1,200		
51120	100	135	25	85,0	268,0	1600	2400	0,95	1,0	102	135	0,360		
51220	100	150	38	132,0	375,0	1100	1700	2,21	1,1	103	150	0,670		
51320	100	170	55	235,0	595,0	800	1200	4,86	1,5	103	170	1,800		
51122	110	145	25	87,0	288	2500	2200	1,03	1,0	112	145	0,430		
51222	110	160	38	138,0	412	2000	1600	2,39	1,1	113	160	0,800		
51224M	120	170	39	135,0	412	950	1500	2,62	1,1	123	170	0,480		
51324 M	120	210	70	347,0	977	800	1100	10,71	2,1	123	205	1,000		
51126 M	130	170	30	111,0	316	1400	1900	1,86	1,0	170	170	0,750		
51226 M	130	190	45	212,0	620	950	1400	4,44	1,5	133	187	1,700		
51128 M	140	180	31	107,0	377	1300	1800	0,90	2,0	142	178	0,850		
51228 M	140	200	46	215,0	669	950	1400	2,00	4,5	143	197	1,900		
51130 M	150	190	31	109,0	402	1200	1700	1,00	2,2	152	188	0,900		
51230 M	150	215	50	257,0	795	900	1300	5,21	5,6	153	212	2,800		
51330 M	150	250	80	377,0	1200	670	900	9,00	15,7	154	245	9,000		
51430 M	150	300	120	668,0	2242	-	650	42,00	4,0	154	295	20,000		
51132 M	160	200	31	112,0	427	1200	1700	1,00	2,3	162	198	1,000		
51232 M	160	225	51	247,0	803	850	1200	3,20	6,5	163	222	3,200		
51134 M	170	215	34	134,0	512	1100	1600	1,40	3,3	172	213	1,400		
51234 M	170	240	55	269,0	874	800	1100	4,50	8,1	173	237	4,500		
51334 M	170	280	87	463,0	1570	600	800	13,00	22,0	174	275	13,000		
51136 M	180	225	34	135,0	528	1000	1500	1,50	3,4	183	222	1,500		
51236 M	180	250	56	294,0	986	800	1100	5,00	8,7	183	247	5,000		
51336 M	180	300	95	463,0	1580	560	750	28,10	3,0	184	295	18,000		
51138 M	190	240	37	170,0	657	950	1400	2,40	4,0	193	237	2,400		
51238 M	190	270	62	357,0	1019	750	1000	11,00	2,0	194	267	8,400		
51338 M	190	320	105	607,0	1662	700	800	33,50	4,0	195	315	30,000		
51140 M	200	250	37	169,0	602	950	1400	2,40	4,2	203	247	2,400		
51240 M	200	280	62	333,0	1207	750	1000	8,00	12,5	204	275	8,000		
51144 M	220	270	37	177,0	739	900	1300	3,00	4,7	223	267	3,000		
51244 M	220	300	63	342,0	1308	700	950	9,50	13,5	224	295	9,500		
51148 M	240	300	45	230,0	91	850	1200	5,00	7,5	243	297	5,000		
51248 M	240	340	78	463,0	1889	600	800	18,00	23,5	244	335	18,000		
51152 M	260	320	45	236,0	984	750	1000	5,60	8,1	263	317	5,600		
51252 M	260	360	79	473,0	1967	560	750	22,00	25,5	264	355	22,000		
51156 M	280	350	53	337,0	1435	700	950	10,00	12,0	283	347	10,000		
51256 M	280	380	80	506,0	2168	560	750	24,00	27,5	284	375	24,000		
51160 M	300	380	62	400,0	1530	630	850	14,00	17,5	304	376	14,000		
51260 M	300	420	95	625,0	2872	480	630	40,00	43,0	304	415	40,000		
51164 M	320	400	63	390,0	1580	600	800	16,00	19,0	324	396	16,000		

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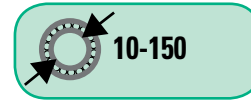
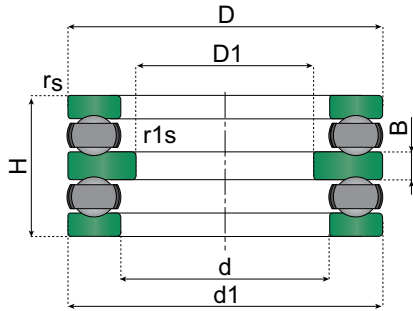


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50100c

Double Row Thrust Ball Bearing

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Information

Part number	Principal dimensions			Basic load ratings		Speed limits		Weight Kg	Radius		Dimensions	
	Bore	Outer	Height	Dynamic	Static	Grease	Oil		rs min	r1s min	D1	B
	d	D	H	C	Co	rpm			mm		mm	
	mm			kN		1 min ⁻¹						
52202	10	32	22	17	25	5000	6700	0,09	0,6	0,3	17	5
52204	15	40	26	22	38	4300	5600	0,15	0,6	0,3	22	6
52405	15	60	45	56	89	2600	3600	0,63	1,0	0,3	27	11
52205	20	47	28	28	50	3800	5000	0,23	0,6	0,3	27	7
52305	20	52	34	36	61	3200	4300	0,33	1,0	0,3	27	8
52406	20	70	52	73	126	2000	3000	1,00	1,0	0,6	32	12
52206	25	52	29	28	54	3600	4800	0,27	0,6	0,3	32	7
52306	25	60	38	43	79	2800	3800	0,49	1,0	0,3	32	9
52407	25	80	59	87	155	1800	2600	1,44	1,1	0,6	37	14
52207	30	62	34	41	84	3000	4000	0,42	1,0	0,3	37	8
52208	30	68	36	47	98	2800	3800	0,54	1,0	0,6	42	9
52307	30	68	44	56	105	2400	3400	0,71	1,0	0,3	37	10
52308	30	78	49	69	135	2000	3000	1,06	1,0	0,6	42	12
52408	30	90	65	113	205	1700	2400	2,08	1,1	0,6	42	15
52209	35	73	37	48	105	2600	3600	0,62	1,0	0,6	47	9
52309	35	85	52	81	163	1900	2800	1,29	1,0	0,6	47	12
52409	35	100	72	130	242	1600	2200	2,71	1,1	0,6	47	17
52210	40	78	39	49	111	2400	3400	0,71	1,0	0,6	52	9
52310	40	95	58	92	186	1800	2600	1,86	1,1	0,6	52	14
52410	40	110	78	148	283	1500	2000	3,56	1,5	0,6	52	18
52211	45	90	45	69	159	1900	2800	1,12	1,0	0,6	57	10
52311	45	105	64	119	246	1600	2200	2,51	1,1	0,6	57	15
52411	45	120	87	178	359	1300	1800	4,70	1,5	0,6	57	20
52212	50	95	46	74	179	1900	2800	1,25	1,0	0,6	62	10
52312	50	110	64	124	267	1600	2200	2,68	1,1	0,6	62	15
52412	50	130	93	201	397	1100	1600	6,33	1,5	0,6	62	21
52413	50	140	101	232	493	1000	1500	8,03	2,0	1,0	68	23
52213	55	100	47	75	189	1800	2600	1,36	1,0	0,6	67	10
52214	55	105	47	74	189	1800	2600	1,48	1,0	1,0	72	10
52313	55	115	65	128	287	1500	2000	2,90	1,1	0,6	67	15
52314	55	125	72	148	339	1400	1900	3,90	1,1	1,0	72	16
52215	60	110	47	77	209	1700	2400	1,57	1,0	1,0	77	10
52315	60	135	79	171	396	1200	1700	4,83	1,5	1,0	77	18
52216	65	115	48	79	218	1700	2400	1,69	1,0	1,0	82	10
52316	65	140	79	176	424	1200	1700	5,06	1,5	1,0	82	18
52217	70	125	55	92	251	1600	2200	2,34	1,0	1,0	88	12
52317	70	150	87	206	489	1100	1600	6,43	1,5	1,0	88	19
52218	75	135	62	117	326	1500	2000	3,22	1,1	1,0	93	14
52318	75	155	88	213	524	1000	1500	6,60	1,5	1,0	93	19
52420	80	210	150	368	983	700	950	26,60	2,0	1,0	103	33
52220	85	150	67	147	410	1300	1800	4,29	1,1	1,0	103	15
52320	85	170	97	236	596	950	1400	8,90	1,5	1,0	103	21
52322	95	90	110	280	754	850	1200	13,80	2,0	1,0	113	24
52222	95	160	67	148	431	1200	1700	4,68	1,1	1,0	113	15
52224	100	170	68	154	472	1100	1600	5,24	1,1	1,1	123	15
52324	100	210	123	325	931	800	1100	17,20	2,1	1,1	123	27
52226	110	190	80	203	622	950	1400	7,74	1,5	1,1	133	18
52228M	120	200	81	215	669	950	1400	8,95	1,5	1,1	143	18
52230M	130	215	89	244	768	900	1300	10,60	1,5	1,1	153	20
52330M	130	250	140	377	1200	670	900	27,10	2,1	1,1	154	31
52232M	140	225	90	247	803	850	1200	12,20	1,5	1,1	163	20
62332M	140	250	140	470	1570	630	850	26,20	2,1	1,1	154	31
52234M	150	240	97	269	874	800	1100	15,20	1,5	1,1	173	21

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BEARING STEEL 100Cr6

