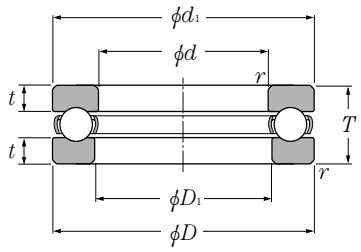
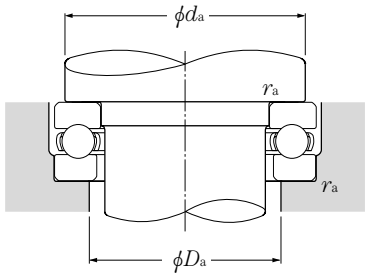
Single Direction Thrust Ball Bearings





Equivalent bearing load
dynamic
$P_a = F_a$

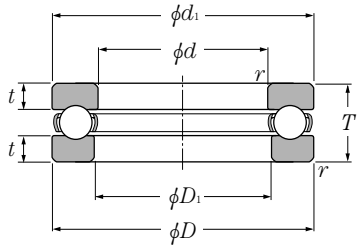
static
$P_{oa} = F_a$

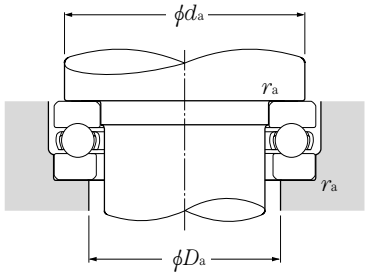
d 10～50mm

Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers	Dimensions mm			Abutment and fillet dimensions mm			Mass kg
d	D	T	$r_{s\,min}$ [1]	C_a	C_{oa}	C_a	C_{oa}	grease	oil		$d_{1s\,max}$ [2]	$D_{1s\,min}$ [3]	t	d_a min	D_a max	r_{as} max	(approx.)
10	24	9	0.3	10.0	14.0	1 020	1 420	6 700	9 500	**51100**	24	11	2.5	18	16	0.3	0.021
	26	11	0.6	12.7	17.1	1 290	1 740	5 800	8 300	**51200**	26	12	3.3	20	16	0.6	0.03
12	26	9	0.3	10.3	15.4	1 050	1 570	6 400	9 200	**51101**	26	13	2.5	20	18	0.3	0.023
	28	11	0.6	13.2	19.0	1 340	1 940	5 600	8 000	**51201**	28	14	3.3	22	18	0.6	0.034
15	28	9	0.3	10.5	16.8	1 070	1 710	6 200	8 800	**51102**	28	16	2.5	23	20	0.3	0.024
	32	12	0.6	16.6	24.8	1 690	2 530	5 000	7 100	**51202**	32	17	3.5	25	22	0.6	0.046
17	30	9	0.3	10.8	18.2	1 100	1 850	6 000	8 500	**51103**	30	18	2.5	25	22	0.3	0.026
	35	12	0.6	17.2	27.3	1 750	2 780	4 800	6 800	**51203**	35	19	3.5	28	24	0.6	0.054
20	35	10	0.3	14.2	24.7	1 450	2 520	5 200	7 500	**51104**	35	21	2.5	29	26	0.3	0.04
	40	14	0.6	22.3	37.5	2 270	3 850	4 100	5 900	**51204**	40	22	4.1	32	28	0.6	0.081
25	42	11	0.6	19.6	37.0	1 990	3 800	4 600	6 500	**51105**	42	26	3	35	32	0.6	0.06
	47	15	0.6	27.8	50.5	2 830	5 150	3 700	5 300	**51205**	47	27	4.3	38	34	0.6	0.111
	52	18	1	35.5	61.5	3 650	6 250	3 200	4 600	**51305**	52	27	5	41	36	1	0.176
	60	24	1	55.5	89.5	5 650	9 100	2 600	3 700	**51405**	60	27	6.9	46	39	1	0.33
30	47	11	0.6	20.4	42.0	2 080	4 300	4 300	6 200	**51106**	47	32	3	40	37	0.6	0.069
	52	16	0.6	29.3	58.0	2 990	5 950	3 400	4 900	**51206**	52	32	5	43	39	0.6	0.139
	60	21	1	43.0	78.5	4 350	8 000	2 800	3 900	**51306**	60	32	6.4	48	42	1	0.269
	70	28	1	72.5	126	7 400	12 800	2 200	3 200	**51406**	70	32	8.3	54	46	1	0.516
35	52	12	0.6	20.4	44.5	2 080	4 550	3 900	5 600	**51107**	52	37	3.5	45	42	0.6	0.085
	62	18	1	39.0	78.0	4 000	7 950	2 900	4 200	**51207**	62	37	5.2	51	46	1	0.215
	68	24	1	55.5	105	5 650	10 700	2 400	3 500	**51307**	68	37	7.2	55	48	1	0.383
	80	32	1.1	87.0	155	8 850	15 800	1 900	2 800	**51407**	80	37	9.6	62	53	1	0.759
40	60	13	0.6	26.9	63.0	2 740	6 400	3 500	5 000	**51108**	60	42	3.8	52	48	0.6	0.125
	68	19	1	47.0	98.5	4 800	10 000	2 700	3 900	**51208**	68	42	5.5	57	51	1	0.276
	78	26	1	69.0	135	7 050	13 700	2 200	3 100	**51308**	78	42	7.6	63	55	1	0.548
	90	36	1.1	112	205	11 500	20 900	1 700	2 500	**51408**	90	42	10.7	70	60	1	1.08
45	65	14	0.6	27.9	69.0	2 840	7 050	3 200	4 600	**51109**	65	47	4	57	53	0.6	0.148
	73	20	1	48.0	105	4 850	10 700	2 600	3 700	**51209**	73	47	6	62	56	1	0.317
	85	28	1	80.0	163	8 150	16 700	2 000	2 900	**51309**	85	47	8.3	69	61	1	0.684
	100	39	1.1	130	242	13 200	24 700	1 600	2 200	**51409**	100	47	11.6	78	67	1	1.43
50	70	14	0.6	28.8	75.5	2 930	7 700	3 100	4 500	**51110**	70	52	4	62	58	0.6	0.161
	78	22	1	48.5	111	4 950	11 400	2 400	3 400	**51210**	78	52	7	67	61	1	0.378

1) Smallest allowable dimension for chamfer dimension r. 2) Maximum allowable dimension for shaft washer outer dimension d_1.
3) Smallest allowable dimension for housing washer inner dimension D_1.

Single Direction Thrust Ball Bearings





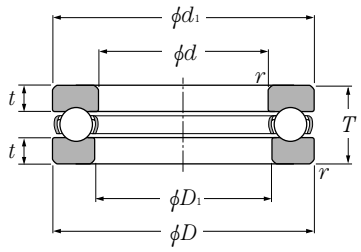
Equivalent bearing load
dynamic
$P_a = F_a$

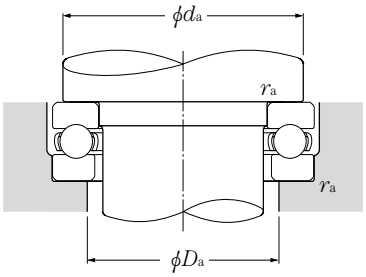
static
$P_{oa} = F_a$

d 50～90mm

Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers	Dimensions mm			Abutment and fillet dimensions mm			Mass kg
d	D	T	$r_{s\,min}$ [1]	C_a	C_{oa}	C_a	C_{oa}	grease	oil		$d_{1s\,max}$ [2]	$D_{1s\,min}$ [3]	t	d_a min	D_a max	r_{as} max	(approx.)
50	95	31	1.1	96.5	202	9 850	20 600	1 800	2 600	**51310**	95	52	9.2	77	68	1	0.951
	110	43	1.5	148	283	15 100	28 800	1 400	2 000	**51410A**	110	52	12.9	86	74	1.5	1.9
55	78	16	0.6	35.0	93.0	3 550	9 500	2 800	4 000	**51111**	78	57	5	69	64	0.6	0.226
	90	25	1	69.5	159	7 100	16 200	2 100	3 000	**51211**	90	57	7.5	76	69	1	0.608
	105	35	1.1	119	246	12 200	25 100	1 600	2 300	**51311**	105	57	10.2	85	75	1	1.29
	120	48	1.5	178	360	18 200	36 500	1 300	1 800	**51411**	120	57	14.8	94	81	1.5	2.52
60	85	17	1	41.5	113	4 200	11 500	2 600	3 700	**51112**	85	62	5	75	70	1	0.296
	95	26	1	73.5	179	7 500	18 200	2 000	2 800	**51212**	95	62	8	81	74	1	0.676
	110	35	1.1	123	267	12 600	27 200	1 600	2 300	**51312**	110	62	10.2	90	80	1	1.37
	130	51	1.5	214	435	21 800	44 500	1 200	1 700	**51412**	130	62	15.3	102	88	1.5	3.12
65	90	18	1	41.5	117	4 250	12 000	2 400	3 500	**51113**	90	67	5.5	80	75	1	0.338
	100	27	1	75.0	189	7 650	19 200	1 900	2 700	**51213**	100	67	8.4	86	79	1	0.767
	115	36	1.1	128	287	13 000	29 300	1 500	2 200	**51313**	115	67	10.7	95	85	1	1.51
	140	56	2	232	495	23 600	50 500	1 100	1 600	**51413**	140	68	17.2	110	95	2	3.96
70	95	18	1	43.0	127	4 400	12 900	2 400	3 400	**51114**	95	72	5.5	85	80	1	0.356
	105	27	1	76.0	199	7 750	20 200	1 800	2 600	**51214**	105	72	8.4	91	84	1	0.793
	125	40	1.1	148	340	15 100	34 500	1 400	2 000	**51314**	125	72	12	103	92	1	2.01
	150	60	2	250	555	25 500	56 500	1 000	1 500	**51414**	150	73	18.6	118	102	2	4.86
75	100	19	1	44.5	136	4 550	13 900	2 200	3 200	**51115**	100	77	6	90	85	1	0.399
	110	27	1	77.5	209	7 900	21 300	1 800	2 600	**51215**	110	77	8.4	96	89	1	0.874
	135	44	1.5	171	395	17 400	40 500	1 300	1 800	**51315**	135	77	13.4	111	99	1.5	2.61
	160	65	2	269	615	27 400	63 000	940	1 400	**51415**	160	78	20.4	125	110	2	5.97
80	105	19	1	44.5	141	4 550	14 400	2 200	3 100	**51116**	105	82	6	95	90	1	0.422
	115	28	1	78.5	218	8 000	22 300	1 700	2 400	**51216**	115	82	8.9	101	94	1	0.916
	140	44	1.5	176	425	18 000	43 000	1 200	1 800	**51316**	140	82	13.4	116	104	1.5	2.72
	170	68	2.1	270	620	27 500	63 500	890	1 300	**51416**	170	83	21.3	133	117	2	7.77
85	110	19	1	46.0	150	4 700	15 300	2 100	3 000	**51117**	110	87	6	100	95	1	0.444
	125	31	1	95.5	264	9 700	26 900	1 600	2 200	**51217**	125	88	9.8	109	101	1	1.25
	150	49	1.5	201	490	20 500	50 000	1 100	1 600	**51317**	150	88	15	124	111	1.5	3.52
	180	72	2.1	288	685	29 400	70 000	840	1 200	＊**51417**	177	88	22.7	141	124	2	9.17
90	120	22	1	59.5	190	6 100	19 400	1 900	2 700	**51118**	120	92	7	108	102	1	0.687
	135	35	1.1	117	325	11 900	33 000	1 400	2 000	**51218**	135	93	11.2	117	108	1	1.7
	155	50	1.5	198	490	20 200	50 000	1 100	1 600	**51318**	155	93	15.5	129	116	1.5	3.74
	190	77	2.1	305	750	31 500	76 500	790	1 100	＊**51418**	187	93	24.5	149	131	2	11

1) Smallest allowable dimension for chamfer dimension r. 2) Maximum allowable dimension for shaft washer outer dimension d_1. 3) Smallest allowable dimension for housing washer inner dimension D_1. Note: Bearing numbers marked " ＊ " signify bearings where the bearing shaft washer outer diameter is smaller than the housing shaft washer outer diameter. Therefore when using these bearings, it is possible to use the housing bore as is, without providing a ground undercut on the outer diameter section of the bearing shaft washer as shown in the drawing.





Equivalent bearing load
dynamic
$P_a = F_a$

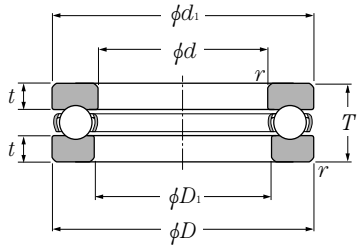
static
$P_{oa} = F_a$

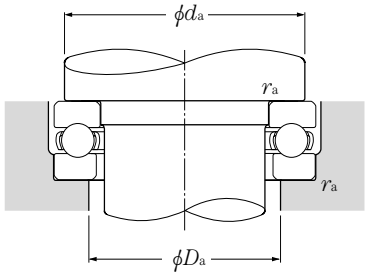
d 100～200mm

Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers	Dimensions mm			Abutment and fillet dimensions mm			Mass kg
d	D	T	$r_{s\,min}$ 1)	C_a	C_{oa}	C_a	C_{oa}	grease	oil		$d_{1s\,max}$ 2)	$D_{1s\,min}$ 3)	t	d_a min	D_a max	r_{as} max	(approx.)
100	135	25	1	85.0	268	8 700	27 300	1 700	2 400	**51120**	135	102	7.5	121	114	1	0.987
	150	38	1.1	147	410	14 900	42 000	1 300	1 800	**51220**	150	103	11.7	130	120	1	2.29
	170	55	1.5	237	595	24 100	60 500	990	1 400	**51320**	170	103	17.3	142	128	1.5	4.88
	210	85	3	370	970	37 500	99 000	710	1 000	＊ **51420**	205	103	26.6	165	145	2.5	14.7
110	145	25	1	87.0	288	8 900	29 400	1 600	2 300	**51122**	145	112	7.5	131	124	1	1.07
	160	38	1.1	153	450	15 600	46 000	1 200	1 800	**51222**	160	113	11.7	140	130	1	2.46
	190	63	2	267	705	27 300	72 000	870	1 200	＊ **51322**	187	113	20	158	142	2	7.67
120	155	25	1	89.0	310	9 100	31 500	1 500	2 200	**51124**	155	122	7.5	141	134	1	1.11
	170	39	1.1	154	470	15 700	48 000	1 200	1 700	**51224**	170	123	12.2	150	140	1	2.71
	210	70	2.1	296	805	30 000	82 500	780	1 100	＊ **51324**	205	123	22.3	173	157	2	10.8
130	170	30	1	104	350	10 600	36 000	1 300	1 900	**51126**	170	132	9	154	146	1	1.73
	190	45	1.5	191	565	19 400	57 500	1 000	1 500	＊ **51226**	187	133	13.9	166	154	1.5	4.22
	225	75	2.1	330	960	33 500	97 500	720	1 000	＊ **51326**	220	134	24.2	186	169	2	12.7
140	180	31	1	107	375	10 900	38 500	1 300	1 800	＊ **51128**	178	142	9.5	164	156	1	1.9
	200	46	1.5	193	595	19 700	60 500	980	1 400	＊ **51228**	197	143	14.4	176	164	1.5	4.77
	240	80	2.1	350	1 050	35 500	107 000	670	960	＊ **51328**	235	144	26	199	181	2	15.3
150	190	31	1	109	400	11 100	41 000	1 200	1 800	＊ **51130**	188	152	10	174	166	1	2
	215	50	1.5	220	685	22 400	70 000	900	1 300	＊ **51230**	212	153	15.8	189	176	1.5	5.87
	250	80	2.1	360	1 130	37 000	115 000	660	940	＊ **51330**	245	154	26	209	191	2	16.1
160	200	31	1	112	425	11 400	43 500	1 200	1 700	＊ **51132**	198	162	10	184	176	1	2.1
	225	51	1.5	223	720	22 800	73 000	870	1 200	＊ **51232**	222	163	16.3	199	186	1.5	6.32
	270	87	3	450	1 470	45 500	150 000	600	860	＊ **51332**	265	164	27	225	205	2.5	20.7
170	215	34	1.1	134	510	13 700	52 000	1 100	1 600	＊ **51134**	213	172	10.5	197	188	1	2.77
	240	55	1.5	261	835	26 600	85 000	810	1 200	＊ **51234**	237	173	17.3	212	198	1.5	7.81
	280	87	3	465	1 570	47 000	160 000	590	840	＊ **51334**	275	174	27	235	215	2.5	21.6
180	225	34	1.1	135	525	13 700	54 000	1 100	1 500	＊ **51136**	222	183	10.5	207	198	1	2.92
	250	56	1.5	266	875	27 100	89 000	780	1 100	＊ **51236**	247	183	17.8	222	208	1.5	8.34
	300	95	3	490	1 700	50 000	174 000	540	780	＊ **51336**	295	184	29.7	251	229	2.5	27.5
190	240	37	1.1	170	655	17 400	67 000	980	1 400	＊ **51138**	237	193	11	220	210	1	3.75
	270	62	2	310	1 060	31 500	108 000	710	1 000	＊ **51238**	267	194	19.6	238	222	2	11.3
	320	105	4	545	1 950	55 500	199 000	500	710	＊ **51338**	315	195	33.5	266	244	3	35
200	250	37	1.1	172	675	17 500	69 000	960	1 400	＊ **51140**	247	203	11.5	230	220	1	3.92

1) Smallest allowable dimension for chamfer dimension r. 2) Maximum allowable dimension for shaft washer outer dimension d_1. 3) Smallest allowable dimension for housing washer inner dimension D_1. Note: Bearing numbers marked " ＊ " signify bearings where the bearing shaft washer outer diameter is smaller than the housing shaft washer outer diameter. Therefore when using these bearings, it is possible to use the housing bore as is, without providing a ground undercut on the outer diameter section of the bearing shaft washer as shown in the drawing.

Single Direction Thrust Ball Bearings





Equivalent bearing load
dynamic
$P_a = F_a$

static
$P_{oa} = F_a$

d 200～530mm

Boundary dimensions mm				Basic load ratings dynamic kN	static kN	dynamic kgf	static kgf	Limiting speeds min^{-1}		Bearing numbers	Dimensions mm			Abutment and fillet dimensions mm			Mass kg
d	D	T	$r_{s\,min}$ [1]	C_a	C_{oa}	C_a	C_{oa}	grease	oil		$d_{1s\,max}$ [2]	$D_{1s\,min}$ [3]	t	d_a min	D_a max	r_{as} max	(approx.)
200	280	62	2	315	1 110	32 000	113 000	700	990	∗ **51240**	277	204	19.6	248	232	2	11.8
	340	110	4	595	2 220	61 000	227 000	470	670	∗ **51340**	335	205	34.7	282	258	3	41.8
220	270	37	1.1	177	740	18 100	75 500	920	1 300	∗ **51144**	267	223	11.5	250	240	1	4.27
	300	63	2	325	1 210	33 000	123 000	660	950	∗ **51244**	297	224	20.1	268	252	2	13
240	300	45	1.5	228	935	23 200	95 000	780	1 100	∗ **51148**	297	243	14	276	264	1.5	6.87
	340	78	2.1	415	1 650	42 500	168 000	550	790	∗ **51248**	335	244	25	299	281	2	22.4
260	320	45	1.5	232	990	23 600	101 000	750	1 100	∗ **51152**	317	263	14	296	284	1.5	7.38
	360	79	2.1	440	1 810	45 000	184 000	530	760	∗ **51252**	355	264	24.9	319	301	2	24.2
280	350	53	1.5	305	1 270	31 000	130 000	650	940	∗ **51156**	347	283	16	322	308	1.5	11.8
	380	80	2.1	460	1 970	47 000	201 000	510	730	∗ **51256**	375	284	25.4	339	321	2	26.1
300	380	62	2	355	1 560	36 000	159 000	580	820	∗ **51160**	376	304	19.5	348	332	2	17.2
	420	95	3	590	2 680	60 000	273 000	440	630	∗ **51260**	415	304	29.7	371	349	2.5	40.6
320	400	63	2	365	1 660	37 000	169 000	550	790	∗ **51164**	396	324	20	368	352	2	18.4
340	420	64	2	375	1 760	38 000	179 000	530	760	∗ **51168**	416	344	20.5	388	372	2	19.7
360	440	65	2	380	1 860	39 000	190 000	510	730	∗ **51172**	436	364	21	408	392	2	21.1
380	460	65	2	380	1 910	39 000	195 000	500	710	∗ **51176**	456	384	21	428	412	2	22.3
400	480	65	2	390	2 010	40 000	205 000	480	690	∗ **51180**	476	404	21	448	432	2	23.3
420	500	65	2	395	2 110	40 500	215 000	470	670	∗ **51184**	495	424	21	468	452	2	24.4
440	540	80	2.1	515	2 850	52 500	291 000	400	580	∗ **51188**	535	444	26	499	481	2	40
460	560	80	2.1	525	3 000	53 500	305 000	390	560	∗ **51192**	555	464	26	519	501	2	41.6
480	580	80	2.1	525	3 100	54 000	315 000	380	550	∗ **51196**	575	484	29.5	539	521	2	43.3
500	600	80	2.1	575	3 400	58 500	345 000	370	540	**511/500**	595	504	25	559	541	2	45
530	640	85	3	645	4 000	66 000	405 000	350	500	**511/530**	635	534	26	595	575	2.5	55.8

1) Smallest allowable dimension for chamfer dimension r. 2) Maximum allowable dimension for shaft washer outer dimension d_1. 3) Smallest allowable dimension for housing washer inner dimension D_1. Note: Bearing numbers marked " ∗ " signify bearings where the bearing shaft washer outer diameter is smaller than the housing shaft washer outer diameter. Therefore when using these bearings, it is possible to use the housing bore as is, without providing a ground undercut on the outer diameter section of the bearing shaft washer as shown in the drawing.