



## CYLINDRICAL ROLLER THRUST BEARINGS



## CYLINDRICAL ROLLER THRUST BEARINGS

*Cylindrical roller thrust bearings are suitable for arrangements that are stiff and can carry high loads, they are resistant to shock loads.*

Cylindrical roller thrust bearings have simple component shapes, what make them easy to use in various combinations, with or without bearing rings or by creating a raceway in the connecting components.

Cylindrical roller thrust bearings are used in arrangements, where other thrust bearings designs have insufficient load carrying capacity. Cylindrical roller thrust bearings can carry axial load only.



## DESIGN SPECIFICATION

### MAIN DIMENSIONS

Cylindrical roller thrust bearings main dimensions specified in the dimension tables are in accordance with the international standard ISO 104.

### STRUCTURE

Cylindrical roller thrust bearings series 811 and 812 have usually three parts - cylindrical roller thrust cage, shaft washer (WS) and housing washer (GS). The most important part is a bearing cage (K811, K812). If the front surfaces of connecting components are produced in sufficient tolerance, it is possible to use them as raceways and to use only cylindrical roller thrust cage for acting forces transmission. A significant saving of the housing area is possible in this arrangement.

### TOLERANCES

Cylindrical roller thrust bearings are commonly produced in the basic P0 tolerance class. Production of bearings with higher tolerance class should be discussed in advance with the manufacturer. The limit values of deviations in tolerances and the operation of these bearing types are in accordance with the international standards, while their values are given in table part of this catalogue (table 17a, 17b and 17c).

### DESIGN OF BEARING ASSOCIATED COMPONENTS

The support surfaces in the housing and on the shaft provide support for the bearing washers across the whole extent and width of the raceways. Hardness of housing and shaft raceways for thrust bearing cages without washers should be 58-64 HRC. Dimension and shape tolerance of raceways has to comply with the figures in table part of this catalogue dedicated to thrust bearings rings.

### CAGE

Cylindrical roller thrust bearing cages are produced of glass fiber reinforced polyamide 6.6 (designation TNG) or brass (without designation). Specific design for individual part numbers is specified in table part.

### EQUIVALENT DYNAMIC LOAD

$$P_a = F_a$$

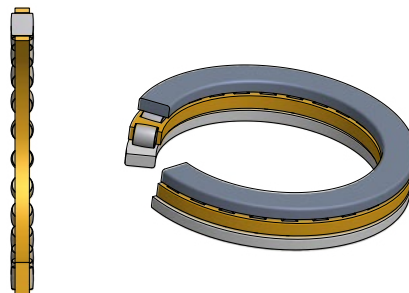
### EQUIVALENT STATIC LOAD

If static load is applied to the cylindrical bearing, then:

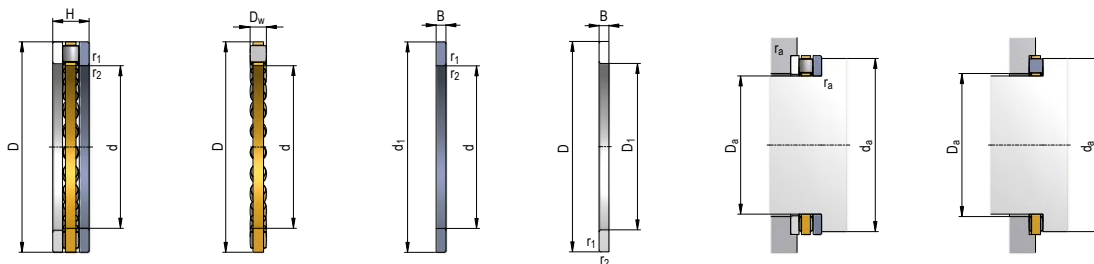
$$P_{oa} = F_a$$

### LIMITING SPEED

The limiting speed specified in this catalogue represents the maximum number of revolutions acceptable for bearing to be able to operate trouble-free at certain safety level.



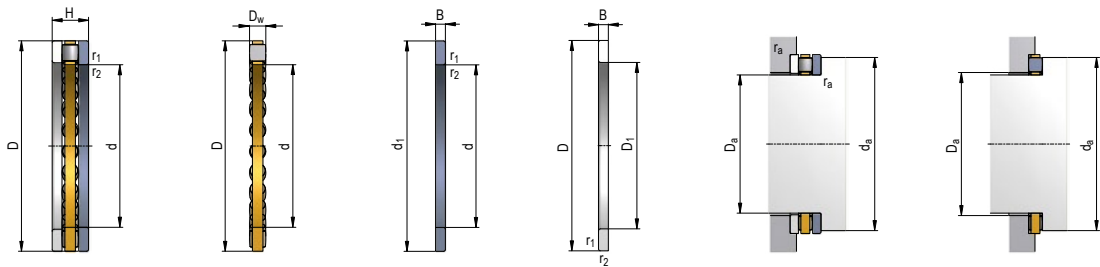
# CYLINDRICAL ROLLER THRUST BEARINGS



Complete Bearing    Cage with Rollers    Shaft Washer    Housing Washer

Dimensions mm					Basic Load Rating kN		Limiting Speed for Lubrication min <sup>-1</sup>		Bearing Designation	Weight kg	Bearing Component Designation			Abutment and Fillet Dimensions mm						
d	D	H	r <sub>1 min</sub>	r <sub>2 min</sub>	C	Co					Cage with Rollers	Shaft Washer	Housing Washer	d <sub>1</sub>	D <sub>1</sub>	D <sub>w</sub>	B	d <sub>a min</sub>	D <sub>a max</sub>	r <sub>a max</sub>
15	28	9	0,3	0,3	11,00	27,00	8200	11000	81102	0,024	K81102TNG	WS81102	GS81102	28	16	3,5	2,75	27	16	0,3
17	30	9	0,3	0,3	11,20	28,70	7500	10000	81103	0,027	K81103TNG	WS81103	GS81103	30	18	3,5	2,75	29	18	0,3
20	35	10	0,3	0,3	17,60	43,00	6300	8500	81104	0,037	K81104TNG	WS81104	GS81104	35	21	4,5	2,75	34	21	0,3
25	42	11	0,6	0,6	24,00	66,00	5200	7000	81105	0,053	K81105TNG	WS81105	GS81105	42	26	5	3	41	26	0,6
30	47	11	0,6	0,6	27,00	77,00	4500	6000	81106	0,057	K81106TNG	WS81106	GS81106	47	32	5	3	46	31	0,6
30	52	16	0,6	0,6	50,00	134,00	3900	5200	81206	0,123	K81206TNG	WS81206	GS81206	52	32	7,5	4,25	50	31	0,6
35	52	12	0,6	0,6	29,00	93,00	4100	5500	81107	0,073	K81107TNG	WS81107	GS81107	52	37	5	3,5	51	36	0,6
35	62	18	1	1	60,00	190,00	3300	4400	81207	0,195	K81207TNG	WS81207	GS81207	62	37	7,5	5,25	58	39	1
40	60	13	0,6	0,6	42,00	136,00	3600	4800	81108	0,105	K81108TNG	WS81108	GS81108	60	42	6	3,5	58	42	0,6
40	68	19	1	1	81,00	237,00	3000	4000	81208	0,249	K81208TNG	WS81208	GS81208	68	42	9	5	66	43	1
45	65	14	0,6	0,6	42,30	138,20	3300	4400	81109	0,130	K81109TNG	WS81109	GS81109	65	47	6	4	63	47	0,6
45	73	20	1	1	85,00	255,00	2800	3700	81209	0,287	K81209TNG	WS81209	GS81209	73	47	9	5,5	70	48	1
50	70	14	0,6	0,6	42,50	146,00	3000	4000	81110	0,140	K81110TNG	WS81110	GS81110	70	52	6	4	68	52	0,6
50	78	22	1	1	91,00	295,00	2500	3400	81210	0,356	K81210TNG	WS81210	GS81210	78	52	9	6,5	75	53	1
55	78	16	0,6	0,6	69,00	285,00	2700	3600	81111	0,218	K81111TNG	WS81111	GS81111	78	57	6	5	77	57	0,6
55	90	25	1	1	119,00	365,00	2300	3000	81211	0,568	K81211TNG	WS81211	GS81211	90	57	11	7	85	59	1
60	85	17	1	1	80,00	300,00	2500	3300	81112	0,266	K81112TNG	WS81112	GS81112	85	62	7,5	4,75	82	62	1
60	95	26	1	1	135,00	466,00	1900	2600	81212	0,642	K81212TNG	WS81212	GS81212	95	62	11	7,5	91	64	1
65	90	18	1	1	83,00	320,00	2300	3100	81113	0,310	K81113TNG	WS81113	GS81113	90	67	7,5	5,25	87	67	1
65	100	27	1	1	140,00	490,00	1750	2300	81213	0,721	K81213TNG	WS81213	GS81213	100	67	11	8	96	69	1
70	95	18	1	1	86,50	345,00	2100	2900	81114	0,332	K81114TNG	WS81114	GS81114	95	72	7,5	5,25	92	72	1
70	105	27	1	1	146,00	530,00	1500	2000	81214	0,768	K81214TNG	WS81214	GS81214	105	72	11	8	102	74	1
75	100	19	1	1	87,00	347,00	2000	2700	81115	0,393	K81115TNG	WS81115	GS81115	100	77	7,5	5,75	97	78	1
75	110	27	1	1	150,00	570,00	1350	1800	81215	0,800	K81215TNG	WS81215	GS81215	110	77	11	8	106	79	1
80	105	19	1	1	89,00	351,00	1900	2600	81116	0,400	K81116TNG	WS81116	GS81116	105	82	7,5	5,75	102	83	1
80	115	28	1	1	160,00	610,00	1200	1600	81216	0,900	K81216TNG	WS81216	GS81216	115	82	11	8,5	112	84	1
85	110	19	1	1	92,00	365,00	1800	2500	81117	0,420	K81117TNG	WS81117	GS81117	110	87	7,5	5,75	108	87	1
85	125	31	1	1	170,00	640,00	1100	1400	81217	1,260	K81217TNG	WS81217	GS81217	125	88	12	9,5	119	90	1
90	120	22	1	1	110,00	450,00	1700	2300	81118	0,620	K81118TNG	WS81118	GS81118	120	92	9	6,5	117	93	1
90	135	35	1,1	1,1	232,00	865,00	950	1300	81218	1,770	K81218TNG	WS81218	GS81218	135	93	14	10,5	129	95	1
100	135	25	1	1	148,00	600,00	1500	2000	81120	0,950	K81120TNG	WS81120	GS81120	135	102	11	7	131	104	1
100	150	38	1,1	1,1	250,00	1 050,00	850	1100	81220	2,200	K81220TNG	WS81220	GS81220	150	103	15	11,5	142	107	1
110	145	25	1	1	153,00	630,00	1400	1900	81122	1,040	K81122TNG	WS81122	GS81122	145	112	11	7	141	114	1
110	160	38	1,1	1,1	260,00	1 080,00	670	900	81222	2,290	K81222TNG	WS81222	GS81222	160	113	15	11,5	152	117	1
120	155	25	1	1	170,00	700,00	750	1000	81124	1,230	K81124	WS81124	GS81124	155	155	10	7	126	149	1
120	170	39	1,1	1,1	270,00	1 100,00	600	800	81224	2,700	K81224	WS81224	GS81224	170	123	15	12	162	127	1
130	170	30	1	1	185,00	790,00	680	920	81126	1,830	K81126	WS81126	GS81126	170	170	12	8	133	169	1
130	190	45	1,5	1,5	350,00	1 200,00	530	700	81226	4,200	K81226	WS81226	GS81226	187	133	19	13	181	137	1,5

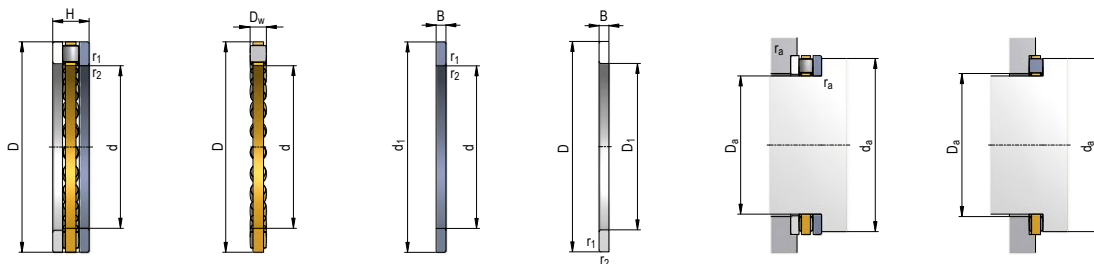
# CYLINDRICAL ROLLER THRUST BEARINGS



Complete Bearing    Cage with Rollers    Shaft Washer    Housing Washer

Dimensions mm				Basic Load Rating kN		Limiting Speed for Lubrication min <sup>-1</sup>		Bearing Designation	Weight kg	Bearing Component Designation			Abutment and Fillet Dimensions mm							
d	D	H	r <sub>1</sub> min	r <sub>2</sub> min	C	Co				Cage with Rollers	Shaft Washer	Housing Washer	d <sub>1</sub>	D <sub>1</sub>	D <sub>w</sub>	B	d <sub>a</sub> min	D <sub>a</sub> max	r <sub>a</sub> max	
140	180	31	1	1	193,00	850,00	670	900	81128	1,950	K81128	WS81128	GS81128	178	142	12	9,5	175	145	1
140	200	46	1,5	1,5	360,00	1 400,00	530	700	81228	4,550	K81228	WS81228	GS81228	197	143	19	13,5	191	147	1,5
150	190	31	1	1	200,00	900,00	630	850	81130	2,050	K81130	WS81130	GS81130	188	152	12	9,5	185	155	1
150	215	50	1,5	1,5	465,00	1 900,00	480	630	81230	5,900	K81230	WS81230	GS81230	212	153	21	14,5	211	158	1,5
160	200	31	1	1	204,00	965,00	630	850	81132	2,200	K81132	WS81132	GS81132	198	162	12	9,5	195	165	1
160	225	51	1,5	1,5	480,00	2 000,00	450	600	81232	6,200	K81232	WS81232	GS81232	222	163	21	15	220	168	1,5
170	215	34	1,1	1,1	260,00	1 180,00	600	800	81134	2,950	K81134	WS81134	GS81134	213	172	14	10	209	176	1
170	240	55	1,5	1,5	540,00	2 280,00	430	560	81234	7,700	K81234	WS81234	GS81234	237	173	22	16,5	235	180	1,5
180	225	34	1,1	1,1	270,00	1 270,00	560	750	81136	3,050	K81136	WS81136	GS81136	222	183	14	10	219	185	1
180	250	56	1,5	1,5	550,00	2 400,00	430	560	81236	8,250	K81236	WS81236	GS81236	247	183	22	17	245	190	1,5
190	240	37	1,1	1,1	310,00	1 460,00	530	700	81138	3,850	K81138	WS81138	GS81138	237	193	15	11	233	197	1
190	270	62	2	2	695,00	2 900,00	380	500	81238	10,500	K81238	WS81238	GS81238	267	194	26	18	265	200	2
200	250	37	1,1	1,1	310,00	1 500,00	530	700	81140	4,000	K81140	WS81140	GS81140	247	203	15	11	243	206	1
200	280	62	2	2	700,00	3 100,00	380	500	81240	12,000	K81240	WS81240	GS81240	277	204	26	18	275	210	2
220	270	37	1,1	1,1	335,00	1 700,00	500	670	81144	4,500	K81144	WS81144	GS81144	267	223	15	11	263	226	1
220	300	63	2	2	750,00	3 350,00	360	480	81244	13,000	K81244	WS81244	GS81244	297	224	26	18,5	296	230	2
240	300	45	1,5	1,5	475,00	2 450,00	430	560	81148	7,250	K81148	WS81148	GS81148	297	243	18	13,5	296	248	1,5
240	340	78	2,1	2,1	1 045,00	4 655,00	280	380	81248	22,000	K81248	WS81248	GS81248	335	244	32	23	335	261	2
260	320	45	1,5	1,5	490,00	2 600,00	400	530	81152	7,850	K81152	WS81152	GS81152	317	263	18	13,5	316	268	1,5
260	360	79	2,1	2,1	1 140,00	5 300,00	280	380	81252	24,000	K81252	WS81252	GS81252	355	264	32	23,5	353	280	2
280	350	53	1,5	1,5	680,00	3 550,00	360	480	81156	10,500	K81156	WS81156	GS81156	347	283	22	15,5	346	288	1,5
280	380	80	2,1	2,1	1 160,00	5 500,00	260	360	81256	26,000	K81256	WS81256	GS81256	375	284	32	24	373	300	2
300	380	62	2	2	850,00	4 400,00	320	430	81160	16,500	K81160	WS91160	GS81160	376	304	25	18,5	373	315	2
300	420	95	3	3	1 453,50	6 840,00	220	320	81260	40,500	K81260	WS81260	GS81260	415	304	38	28,5	413	328	2,5
320	400	63	2	2	880,00	4 650,00	300	400	81164	18,000	K81164	WS81164	GS81164	396	324	25	19	394	334	2
320	440	95	3	3	1 560,00	7 500,00	200	300	81264	42,500	K81264	WS81264	GS81264	435	325	38	28,5	434	348	2,5
340	420	64	2	2	900,00	4 900,00	280	380	81168	19,500	K81168	WS81168	GS81168	416	344	25	19,5	414	354	2
340	460	96	3	3	1 630,00	8 000,00	200	300	81268	47,000	K81268	WS81268	GS81268	455	345	38	29	452	367	2,5
360	440	65	2	2	915,00	5 000,00	280	380	81172	19,500	K81172	WS81172	GS81172	436	364	25	20	434	374	2
360	500	110	4	4	2 160,00	10 400,00	163	212	81272	65,500	K81272	WS81272	GS81272	495	365	45	32,5	492	393	3
380	460	65	2	2	930,00	5 300,00	260	360	81176	22,000	K81176	WS81176	GS81176	456	384	25	20	453	393	2
380	520	112	4	4	2 200,00	10 800,00	160	210	81276	70,000	K81276	WS81276	GS81276	515	385	45	33,5	511	413	3
400	480	65	2	2	965,00	5 600,00	260	360	81180	23,000	K81180	WS81180	GS81180	476	404	25	20	473	413	2
400	540	112	4	4	2 240,00	11 200,00	160	210	81280	73,000	K81280	WS81280	GS81280	535	405	45	33,5	531	433	3
420	500	65	2	2	980,00	5 850,00	240	340	81184	24,000	K81184	WS81184	GS81184	495	424	25	20	493	433	2
420	580	130	5	5	2 850,00	14 000,00	155	205	81284	95,500	K81284	WS81284	GS81284	575	425	52	39	571	459	4
440	540	80	2,1	2,1	1 430,00	8 000,00	200	300	81188	39,500	K81188	WS81188	GS81188	535	444	32	24	533	459	2
440	600	130	5	5	2 900,00	14 600,00	155	205	81288	110,000	K81288	WS81288	GS81288	595	445	52	39	591	479	4

## CYLINDRICAL ROLLER THRUST BEARINGS



Complete Bearing    Cage with Rollers    Shaft Washer    Housing Washer

Dimensions mm					Basic Load Rating kN		Limiting Speed for Lubrication min <sup>-1</sup>		Bearing Designation	Weight kg	Bearing Component Designation			Abutment and Fillet Dimensions mm						
d	D	H	r <sub>1 min</sub>	r <sub>2 min</sub>	C	Co					Cage with Rollers	Shaft Washer	Housing Washer	d <sub>1</sub>	D <sub>1</sub>	D <sub>w</sub>	B	d <sub>a min</sub>	D <sub>a max</sub>	r <sub>a max</sub>
460	560	80	2,1	2,1	1 460,00	8 500,00	200	300	81192	41,000	K81192	WS81192	GS81192	555	464	32	24	553	479	2
460	620	130	5	5	3 000,00	15 300,00	150	200	81292	118,000	K81292	WS81292	GS81292	615	465	52	39	611	499	4
480	580	80	2,1	2,1	1 460,00	8 650,00	190	280	81196	43,000	K81196	WS81196	GS81196	575	484	32	24	573	500	2
480	650	135	5	5	3 350,00	17 000,00	145	195	81296	128,000	K81296	WS81296	GS81296	645	485	56	39,5	641	520	4
500	600	80	2,1	2,1	1 530,00	9 150,00	190	280	811/500	44,000	K811/500	WS811/500	GS811/500	595	505	32	24	592	519	2
500	670	135	5	5	3 400,00	17 600,00	140	190	812/500	133,000	K812/500	WS812/500	GS812/500	665	505	56	39,5	661	540	4
530	640	85	3	3	1 700,00	10 400,00	180	260	811/530	55,500	K811/530	WS811/530	GS811/530	635	535	34	25,5	632	554	2,5
530	710	140	5	5	3 650,00	18 600,00	130	180	812/530	154,000	K812/530	WS812/530	GS812/530	705	535	60	40	701	572	4
560	670	85	3	3	1 760,00	10 800,00	180	260	811/560	58,000	K811/560	WS811/560	GS811/560	665	565	34	25,5	662	584	2,5
560	750	150	5	5	3 800,00	20 000,00	120	170	812/560	187,000	K812/560	WS812/560	GS812/560	745	565	60	45	741	611	4
600	710	85	3	3	1 750,00	11 200,00	170	240	811/600	62,000	K811/600	WS811/600	GS811/600	705	605	34	25,5	702	624	2,5
600	800	160	5	5	4 400,00	24 000,00	100	150	812/600	240,000	K812/600	WS812/600	GS812/600	795	605	64	48	789	651	4
630	750	95	3	3	2 160,00	13 700,00	160	220	811/630	80,000	K811/630	WS811/630	GS811/630	746	634	38	29,5	732	650	2,5

