

Cylindrical Roller Bearings



Cylindrical roller bearings are available with Radial Internal Clearance designations per either of the following tables: “Timken ‘R’ Clearance” or “ISO/ABMA ‘C’ Clearance.” Non-standard values are also available by special request. Standard radial internal clearance values are listed in the following tables based on bore size. The clearance required for a given application depends on the desired operating precision, rotational speed of the bearing, and the fitting practice used. Most applications use a normal or C0 clearance. Typically, larger clearance reduces the operating zone of the bearing, increases the maximum roller load and reduces the bearing’s expected life.

CYLINDRICAL ROLLER BEARING RADIAL INTERNAL CLEARANCE LIMITS											CYLINDRICAL ROLLER BEARING RADIAL INTERNAL CLEARANCE LIMITS												
Bore, mm		R.I.C. (0.0001 inch and μm)										Bore, mm		R.I.C. (0.0001 inch and μm)									
		C2		C0		C3		C4		C5				C2		C0		C3		C4		C5	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
over	incl.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	over	incl.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.		
-	10	0	25	20	45	35	60	50	75	-	-	225	250	45	110	110	175	170	235	235	300	330	395
		0	10	8	18	14	24	20	30	-	-			18	43	43	69	67	93	93	118	130	156
10	24	0	25	20	45	35	60	50	75	65	90	250	280	55	125	125	195	190	260	260	330	370	440
		0	10	8	18	14	24	20	30	26	35			22	49	49	77	75	102	102	130	146	173
24	30	0	25	20	45	35	60	50	75	70	95	280	315	55	130	130	205	200	275	275	350	410	485
		0	10	8	18	14	24	20	30	28	37			22	51	51	81	79	108	108	138	161	191
30	40	5	30	25	50	45	70	60	85	80	105	315	355	65	145	145	225	225	305	305	385	455	535
		2	12	10	20	18	28	24	33	31	41			26	57	57	89	89	120	120	152	179	211
40	50	5	35	30	60	50	80	70	100	95	125	355	400	100	190	190	280	280	370	370	460	510	600
		2	14	12	24	20	31	28	39	37	49			39	75	75	110	110	146	146	181	201	236
50	65	10	40	40	70	60	90	80	110	110	140	400	450	110	210	210	310	310	410	410	510	565	665
		4	16	16	28	24	35	31	43	43	55			43	83	83	122	122	161	161	201	222	262
65	80	10	45	40	75	65	100	90	125	130	165	450	500	110	220	220	330	330	440	440	550	625	735
		4	18	16	30	26	39	35	49	51	65			43	87	87	130	130	173	173	217	246	289
80	100	15	50	50	85	75	110	105	140	155	190	500	560	120	240	240	360	360	480	480	600	690	810
		6	20	20	33	30	43	41	55	61	75			47.2	94.5	94.5	141.7	141.7	189.0	189.0	236.2	271.7	318.9
100	120	15	55	50	90	85	125	125	165	180	220	560	630	140	260	260	380	380	500	500	620	780	900
		6	22	20	35	33	49	49	65	71	87			55.1	102.4	102.4	149.6	149.6	196.9	196.9	244.1	307.1	354.3
120	140	15	60	60	105	100	145	145	190	200	245	630	710	145	285	285	425	425	565	565	705	865	1005
		6	24	24	41	39	57	57	75	79	96			57.1	112.2	112.2	167.3	167.3	222.4	222.4	277.6	340.6	395.7
140	160	20	70	70	120	115	165	165	215	225	275	710	800	150	310	310	470	470	630	630	790	975	1135
		8	28	28	47	45	65	65	85	89	108			59.1	122.0	122.0	185.0	185.0	248.0	248.0	311.0	383.9	446.9
160	180	25	75	75	125	120	170	170	220	250	300	800	900	180	350	350	520	520	690	690	860	1095	1265
		10	30	30	49	47	67	67	87	98	118			70.9	137.8	137.8	204.7	204.7	271.7	271.7	338.6	431.1	498.0
180	200	35	90	90	145	140	195	195	250	275	330	900	1000	200	390	390	580	580	770	770	960	1215	1405
		14	35	35	57	55	77	77	98	108	130			78.7	153.5	153.5	228.3	228.3	303.1	303.1	378.0	478.3	553.1
200	225	45	105	105	165	160	220	220	280	305	365												
		18	41	41	65	63	87	87	110	120	144												

These values indicate the expected range of mounted RIC following suggested push up values. Timken suggests that customers consult with our engineers to evaluate unique applications or requirements for special operating conditions.

Radial Cylindrical Roller Bearings



Min./Max. values for each RIC are shown in the two adjacent columns directly beneath the selected RIC. Each single column represents a boundary between adjacent RICs. For example, the minimum values shown for R5 are also the maximum values for R4; minimum values for R4 are also the maximum values for R3, etc. The desired RIC code (R1, R2, etc.) must be added to the bearing number, FOLLOWING ALL OTHER SUFFIXES.

RADIAL INTERNAL CLEARANCE LIMITS								RADIAL INTERNAL CLEARANCE LIMITS							
Bore (nominal)		R2		R4				Bore (nominal)		R2		R4			
		Min.	Max.	Min.	Max.					Min.	Max.	Min.	Max.		
		R1		R3		R5				R1		R3		R5	
Over	Incl.	Min.	Max.	Min.	Max.	Min.	Max.	Over	Incl.	Min.	Max.	Min.	Max.	Min.	Max.
mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
80 3.1496	100 3.9370	0.013 0.0005	0.041 0.0016	0.081 0.0032	0.13 0.0051	0.196 0.0077	0.272 0.0107	300 11.8110	350 13.7795	0.081 0.0032	0.127 0.0050	0.198 0.0078	0.279 0.0110	0.376 0.0148	0.483 0.0190
100 3.9370	120 4.7244	0.013 0.0005	0.046 0.0018	0.091 0.0036	0.152 0.0060	0.226 0.0089	0.31 0.0122	350 13.7795	400 15.7480	0.107 0.0042	0.165 0.0065	0.236 0.0093	0.318 0.0125	0.414 0.0163	0.521 0.0205
120 4.7244	140 5.5118	0.023 0.0009	0.056 0.0022	0.104 0.0041	0.17 0.0067	0.256 0.0101	0.353 0.0139	400 15.7480	450 17.7165	0.14 0.0055	0.203 0.0080	0.279 0.0110	0.361 0.0142	0.457 0.0180	0.564 0.0222
140 5.5118	160 6.2992	0.025 0.0010	0.066 0.0026	0.124 0.0049	0.196 0.0077	0.284 0.0112	0.384 0.0151	450 17.7165	500 19.685	0.152 0.0060	0.216 0.0085	0.292 0.0115	0.381 0.0150	0.508 0.0200	0.645 0.0254
160 6.2992	180 7.0866	0.028 0.0011	0.069 0.0027	0.132 0.0052	0.208 0.0082	0.3 0.0118	0.401 0.0158	500 19.6850	560 22.0472	0.165 0.0065	0.229 0.0090	0.305 0.0120	0.406 0.0160	0.533 0.0210	0.671 0.0264
180 7.0866	200 7.8740	0.036 0.0014	0.081 0.0032	0.152 0.0060	0.234 0.0092	0.33 0.0130	0.437 0.0172	560 22.0472	630 24.8031	0.178 0.0070	0.254 0.0100	0.356 0.0140	0.483 0.0190	0.61 0.0240	0.747 0.0294
200 7.8740	220 8.6614	0.041 0.0016	0.086 0.0034	0.157 0.0062	0.239 0.0094	0.335 0.0132	0.4421 0.0174	630 24.8031	710 27.9528	0.19 0.0075	0.279 0.0110	0.381 0.0150	0.508 0.0200	0.635 0.0250	0.772 0.0304
220 8.6614	260 10.2362	0.056 0.0022	0.102 0.0040	0.173 0.0068	0.254 0.0100	0.351 0.0138	0.455 0.0180	710 27.9528	800 31.4961	0.216 0.0085	0.33 0.0130	0.457 0.0180	0.584 0.2300	0.711 0.0280	0.848 0.0334
260 10.2362	300 11.8110	0.061 0.0024	0.107 0.0042	0.178 0.0070	0.259 0.0102	0.356 0.0140	0.462 0.0182								

All data on this chart are in millimeters/inches.