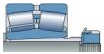
Nominal Bore diameter d		Radial clearance prior to mountining						Reduction in radial clearance		Axial displacement on 1:12 Taper				Axial displacement on 1:30 Taper				Smallest radial clearance after mounting		
		CN (normal)		C3		C4				Shaft		Sleeve		Shaft		Sleeve		CN	C3	C4
over	to	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	min	min
mm		mm		mm		mm												mm	mm	mm
30	40	0.035	0.05	0.05	0.065	0.065	0.085	0.02	0.025	0.35	0.4	0.35	0.45					0.015	0.025	0.04
40	50	0.045	0.06	0.06	0.08	0.08	0.1	0.025	0.03	0.4	0.45	0.45	0.5					0.02	0.03	0.05
50	65	0.055	0.075	0.075	0.095	0.095	0.12	0.03	0.04	0.45	0.6	0.5	0.7					0.025	0.035	0.055
65	80	0.07	0.095	0.095	0.12	0.12	0.15	0.04	0.05	0.6	0.75	0.7	0.85					0.025	0.04	0.07
80	100	0.08	0.11	0.11	0.14	0.14	0.18	0.045	0.06	0.7	0.9	0.75	1	1.7	2.2	1.8	2.4	0.35	0.05	0.08
100	120	0.1	0.135	0.135	0.17	0.17	0.22	0.05	0.07	0.7	1.1	0.8	1.2	1.9	2.7	2	2.8	0.05	0.065	0.1
120	140	0.12	0.16	0.16	0.2	0.2	0.26	0.065	0.09	1.1	1.4	1.2	1.5	2.7	3.5	2.8	3.6	0.055	0.08	0.11
140	160	0.13	0.18	0.18	0.23	0.23	0.3	0.175	0.1	1.2	1.6	1.3	1.7	3	4	3.1	4.2	0.055	0.09	0.13
160	180	0.14	0.2	0.2	0.26	0.26	0.34	0.08	0.11	1.3	1.7	1.4	1.9	3.2	4.2	3.3	4.6	0.06	0.1	0.15
180	200	0.16	0.22	0.22	0.29	0.29	0.37	0.09	0.13	1.4	2	1.5	2.2	3.5	4.5	3.6	5	0.07	0.1	0.16
200	225	0.18	0.25	0.25	0.32	0.32	0.41	0.1	0.14	1.6	2.2	1.7	2.4	4	5.5	4.2	5.7	0.08	1.12	0.18
225	250	0.2	0.27	0.27	0.35	0.35	0.45	0.11	0.15	1.7	2.4	1.8	2.6	4.2	6	4.6	6.2	0.09	0.13	0.2
250	280	0.22	0.3	0.3	0.39	0.39	0.49	0.12	0.17	1.9	2.6	2	2.9	4.7	6.7	4.8	6.9	1	0.14	0.22
280	315	0.24	0.33	0.33	0.43	0.43	0.54	0.13	0.19	2	3	2.2	3.2	5	7.5	5.2	7.7	0.11	0.15	0.24
315	355	0.27	0.36	0.36	0.47	0.47	0.59	0.15	0.21	2.4	3.4	2.6	3.6	6	8.2	6.2	8.4	0.12	0.17	0.26
355	400	0.3	0.4	0.4	0.52	0.52	0.65	0.17	0.23	2.6	3.6	2.9	3.9	6.5	9	6.8	9.2	0.13	0.19	0.29
400	450	0.33	0.44	0.44	0.57	0.57	0.72	0.2	0.26	3.1	4.1	3.4	4.4	7.7	10	8	10.4	0.13	0.2	0.31
450	500	0.37	0.49	0.49	0.63	0.63	0.79	0.21	0.28	3.3	4.4	3.6	4.8	8.2	11	8.4	11.2	0.16	0.23	0.35
500	560	0.41	0.54	0.54	0.68	0.68	0.87	0.24	0.32	3.7	5	4.1	5.4	9.2	12.5	9.6	12.8	0.17	0.25	0.36
560	630	0.46	0.6	0.6	0.76	0.76	0.98	0.26	0.35	4	5.4	4.4	5.9	10	13.5	10.4	14	0.2	0.29	0.41
630	710	0.51	0.67	0.67	0.85	0.85	1.09	0.3	0.4	4.6	6.2	5.1	6.8	11.5	15.5	12	16	0.21	0.31	0.45
710	800	0.57	0.75	0.75	0.96	0.96	1.22	0.34	0.45	5.3	7	5.8	7.6	13.3	17.5	13.6	18	0.23	0.35	0.51
800	900	0.64	0.84	0.84	1.07	1.07	1.37	0.37	0.5	5.7	7.8	6.3	8.5	14.3	19.5	14.8	20	0.27	0.39	0.57
900	1000	0.71	0.93	0.93	1.19	1.19	1.52	0.41	0.55	6.3	8.5	7	9.4	15.8	21	16.4	22	0.3	0.43	0.64
1000	1120	0.78	1.02	1.02	1.3	1.3	1.65	0.45	0.6	6.8	9	7.6	10.2	17	23	18	24	0.32	0.48	0.7
1120	1250	0.86	1.12	1.12	1.42	1.42	1.8	0.49	0.65	7.4	9.8	8.3	11	18.5	25	19.6	26	0.34	0.54	0.77
1250	1400	0.94	1.22	1.22	1.55	1.55	1.96	0.55	0.72	8.3	10.8	9.3	12.1	21	27	22.2	28.3	0.36	0.59	0.84
1400	1600	1.06	1.38	1.38	1.75	1.75	2.2	0.62	0.81	9.3	12.2	10.6	13.8	23.6	30.8	24.8	32.4	0.44	0.66	0.94
1600	1800	1.18	1.54	1.54	1.95	1.95	2.5	0.69	0.93	10.4	14	11.7	15.8	26.2	35.3	27.6	37.2	0.48	0.73	1.02
1800	2000	1.31	1.71	1.71	2.15	2.15	2.75	0.77	1.04	11.6	15.6	13.1	17.7	29.3	39.5	30.8	41.6	0.54	0.81	1.11
2000	2250	1.45	1.9	1.9	2.4	2.4	3.05	0.85	1.15	12.7	17.2	14.5	19.5	32.4	43.9	34	46	0.6	0.95	1.55
2250	2500	1.6	2.1	2.1	2.65	2.65	3.35	0.95	1.28	14.3	19.2	16.2	21.8	36.2	48.8	38	51.2	0.65	1.15	1.7

Radial Clearance Reduction of Spherical Roller Bearings with Tapered Bore

Spherical Roller bearings with tapered bore (taper 1:12 and taper 1:30) are either fitted directly on a tapered seat or a cylindrical shaft seat with an adapter or withdrawal sleeve.

Taper Sleeve

Taper Shaft



Withdrawal Sleeve

The Required Tolerance is acquired by forcing the bearing up the tapered seat or sleeve. The reduction in clearance indicates the tightness of the bearing on the shaft. In cases where it is unable to measure the radial clearance the distance the bearing is moved up the taper is measured.

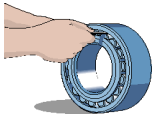
During mounting the radial clearance or the axial drive up distance must be constantly measured until the specified value is reached. The mounted bearings clearance must not be smaller than the "Smallest radial clearance after mounting".

The values indicated on this chart is only applicable to solid steel shafts or hollow shafts whose bore diameter does not exceed half the diameter. Please contact the bearing manufacturer if shafts of different materials or thin walled shafts are being used.

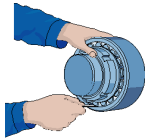
Example: Spherical Roller Bearing 22232EK.C3
Bore diameter: 160mm
Taper: 1:12
Radial clearance reduction: min 0.075mm; max 0.1mm
Axial displacement: on the shaft min 1.2mm; max 1.6mm
on the sleeve min 1.3mm; max 1.7mm
Smallest radial clearance after mounting: 0.09mm

Feeler gauges are to be used during drive up to measure the radial clearance across both rolling elements. Prior to measuring rotate the inner or outer ring a few times. The rings and the rolling Elements should be centrically arranged with respect to each other.

When the first measurement is made use a slightly thinner blade than the minimum value. During measuring the blade should be moved back and forth until it can be inserted to the middle of the roller. Repeat this procedure with thicker blades until a certain amount for friction is felt.



Measuring Prior to Mounting



Measuring During Mounting

Hydraulic nuts should be used for mounting larger bearings, these nuts are available from Wide Range Engineering.
Quick and easy high drive-up forces that is required when driving up larger size bearings is achieved with the Hydraulic nut.

wide range engineering

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