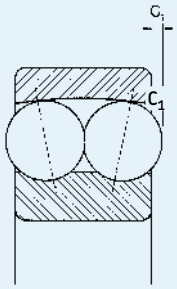
Introduction

Special feature

Self-aligning ball bearings of series 12 (K) and 13 (K) have balls which protrude somewhat from the bearing; the actual values are given in the adjacent table. This should be remembered when designing adjacent components.

Protrusion of balls from bearing side faces



Bearing	Protrusion C1	
	mm	in
1224(K)	1.3	0.0512
1226	1.4	0.0551
1318(K)	1.1	0.0433
1319(K)	1.5	0.0591
1320(K)	2.5	0.0984
1322(K)	2.6	0.1024

Clearance

Radial internal clearance

SKF self-aligning ball bearings are produced with Normal radial internal clearance (CN or C0, not marked on bearing) as standard. Radial clearance selection is based on factors such as high speed, operating temperature, shaft fits and axial movement limitations. Bearings with a tapered bore are normally supplied with a C3 radial internal clearance (marked on the bearing). Bearings having clearances that are greater than (C3 or C4) or less than (C2) Normal are available on request.

The clearance values are given in **Table 1**. They are valid for unmounted bearings without measuring load, and conform to ISO 5753-1991.

Loads

Equivalent dynamic bearing loads

$P = F_r + Y_1 F_a$ where $F_a / F_r \leq e$
$P = 0.65\ F_r + Y_2\ F_a$ when $F_a / F_r > e$

Values of factors e, Y_1 and Y_2 for each individual bearing are given in the bearing **Table 2**, page 96.

Minimum load

In order to provide satisfactory operation of all ball and roller bearings they must always be subjected to a given minimum load. This is also true of self-aligning ball bearings, particularly if they run at high speeds where the inertia forces of the balls and cage, and the friction in the lubricant can have a detrimental influence on the rolling conditions in the bearing and may cause damaging sliding movements to occur between the balls and the raceways.

The requisite minimum radial load to be applied in such cases can be determined by using the Interactive Engineering catalog on the SKF website www.skf.com or by contacting SKF Applications Engineering. However, the weight of the components supported by the bearing, together with the external forces, often exceeds the requisite minimum load. If this is not the case, an additional radial load must be applied to the bearing; for example, by increasing belt tension or similar means.

Mounting bearings with tapered bore

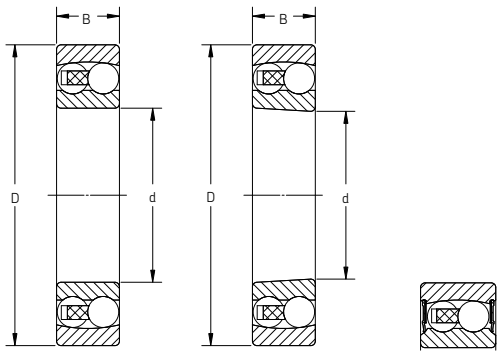
Bearings with a tapered bore are always mounted with an interference fit on the shaft, adapter sleeve or withdrawal sleeve. As a measure of the degree of interference of the fit, either the reduction in radial internal clearance of the bearing or the axial displacement of the inner ring on the tapered bearing seating can be used.

The mounting of self-aligning ball bearings with tapered bore calls for experience and skill as they have a relatively small internal clearance, and a reliable measurement of the clearance reduction is not always possible. There are specific mounting instructions for these bearings in the SKF Bearing Installation and Maintenance Guide (140-710) or by visiting the SKF website www.skf.com/mount for exact mounting instructions.

Frequency vibration data

Frequency vibration data is available on the SKF website **skfusa.com.** Select Engineering Tools under the Support menu. Or contact SKF Applications Engineering.

Double row
Sealed, cylindrical and tapered bore
Series: 2200 E 2RS1 – 2214 E 2RS1
Size: 10 mm – 70 mm
0.3937 in – 2.7559 in



Cylindrical bore | Tapered bore | 2RS1

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Designation		Mass	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed			Tapered bore	Adapter sleeve		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb			kg	lb
2200 E-2RS1TN9	10	0.3937	30	1.1811	14	0.5512	5530	1 240	1 180	270	5 530	17 000	0.048	0.11	–	–	–	–
2201 E-2RS1TN9	12	0.4724	32	1.2598	14	0.5512	6240	1 400	1 430	320	6 240	16 000	0.053	0.12	–	–	–	–
2202 E-2RS1TN9	15	0.5906	35	1.3780	14	0.5512	7410	1 670	1 760	400	7 410	14 000	0.058	0.13	–	–	–	–
2203 E-2RS1TN9	17	0.6693	40	1.5748	16	0.6299	8840	1 990	2 200	490	8 840	12 000	0.089	0.20	–	–	–	–
2204 E-2RS1TN9	20	0.7874	47	1.8504	18	0.7087	12700	2 850	3 400	760	12 700	10 000	0.14	0.31	–	–	–	–
2205 E-2RS1TN9	25	0.9843	52	2.0472	18	0.7087	14300	3 210	4 000	900	14 300	9 000	0.16	0.35	2205 E-2RS1K	H 305 E	0.07	0.20
2206 E-2RS1TN9	30	1.1811	62	2.4409	20	0.7874	15600	3 510	4 650	1 040	15 600	7 500	0.26	0.57	2206 E-2RS1K	H 306 E	0.10	0.30
2207 E-2RS1TN9	35	1.3780	72	2.8346	23	0.9055	19000	4 270	6 000	1 350	19 000	6 300	0.41	0.90	2207 E-2RS1K	H 307 E	0.14	0.40
2208 E-2RS1TN9	40	1.5748	80	3.1496	23	0.9055	19900	4 470	6 950	1 560	19 900	5 600	0.5	1.10	2208 E-2RS1K	H 308 E	0.17	0.40
2209 E-2RS1TN9	45	1.7717	85	3.3465	23	0.9055	22900	5 150	7 800	1 750	22 900	5 300	0.53	1.17	2209 E-2RS1K	H 309 E	0.23	0.60
2210 E-2RS1TN9	50	1.9685	90	3.5433	23	0.9055	22900	5 150	8 150	1 830	22 900	4 800	0.57	1.26	2210 E-2RS1K	H 310 E	0.27	0.60
2211 E-2RS1TN9	55	2.1654	100	3.9370	25	0.9843	27600	6 200	10 600	2 380	27 600	4 300	0.79	1.74	2211 E-2RS1K	H 311 E	0.32	0.80
2212 E-2RS1TN9	60	2.3622	110	4.3307	28	1.1024	31200	7 010	12 200	2 740	31 200	3 800	1.05	2.32	2212 E-2RS1K	H 312 E	–	–
2213 E-2RS1TN9	65	2.5591	120	4.7244	31	1.2205	35100	7 890	14 000	3 150	35 100	3 600	1.4	3.09	2213 E-2RS1K	H 313 E	0.42	1.00
2214 E-2RS1TN9	70	2.7559	125	4.9213	31	1.2205	35800	8 040	14 600	3 280	35 800	3 400	1.45	3.20	–	–	–	–

Consult SKF USA Inc. prior to design change or order placement.