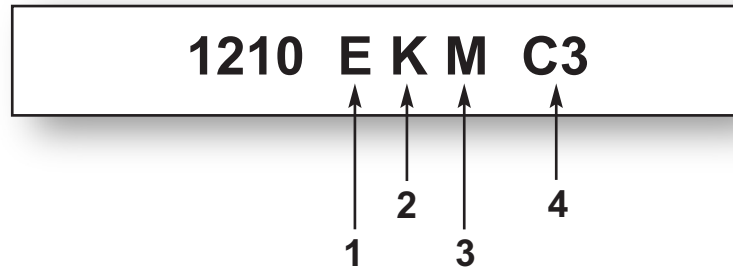




# Self-Aligning Ball Bearings



<h3 style="border-top: 1px solid black; border-bottom: 1px solid black; margin: 0;">1. Internal Design</h3> <p><b>No suffix</b> Standard internal design</p> <p><b>E</b> Reinforced ball set (increased capacity)</p>	<h3 style="border-top: 1px solid black; border-bottom: 1px solid black; margin: 0;">4. Clearance</h3> <p><b>C2</b> Radial internal clearance &lt; normal</p> <p><b>CN</b> Normal clearance not shown</p> <p><b>C3</b> Radial internal clearance &gt; normal</p> <p><b>C4</b> Radial internal clearance &gt; C3</p>
<h3 style="border-top: 1px solid black; border-bottom: 1px solid black; margin: 0;">2. Variations</h3> <p><b>K</b> Bearing with 1:12 tapered bore</p> <p><b>2RS1</b> 2 rubber seals with metal backing</p>	<h3 style="border-top: 1px solid black; border-bottom: 1px solid black; margin: 0;">Lubrication</h3> <p><b>MT33</b> Lithium, Medium temp. 74 cSt @ 40°C, -30°C to + 120°C</p> <p><b>MT47</b> Lithium, Medium temp. 70 cSt @ 40°C, -30°C to + 110°C</p>
<h3 style="border-top: 1px solid black; border-bottom: 1px solid black; margin: 0;">3. Cage Designations</h3> <p><b>TN9</b> Fibreglass reinforced Polyamide, ball centred</p> <p><b>M</b> Machined brass cage, ball centred</p> <p><b>No symbol</b> Steel, ball centred</p>	

## Self-aligning ball bearings

### Technical Features

**Boundary Dimensions** In accordance with ISO 15-1981

**Tolerances** ABEC 1 (Normal)

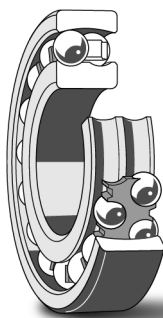
**Heat Stabilization** 257°F (125°C)

<b>Misalignment</b>	Series 1200	2.5 degrees
	Series 1300	3.0 degrees
	Series 2200	2.5 degrees
	Series 2200-2RS1	1.5 degrees
	Series 2300	3.0 degrees
	Series 2300-2RS1	1.5 degrees

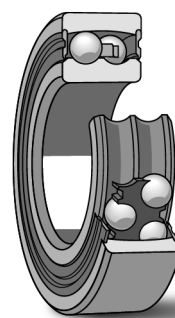
<b>Cage Material</b>	
<b>Standard</b>	Polyamide (TN9)
<b>Optional</b>	Machined brass (M) large bearings Steel no symbol

<b>Axial Load – max on sleeves</b>	$F_{ap} = 3 \times B \times d$ where B = bearing width in mm d = bearing bore in mm $F_{ap}$ = axial load in Newtons
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**Seals** 2RS1 synthetic rubber seals



**Self-Aligning  
Ball Bearing (open design)**  
(data tables on page 102)



**Self-Aligning  
Ball Bearing (sealed design)**  
(data tables on page 105)

Table 1 Radial internal clearance of self-aligning ball bearings

Bore diameter d over incl. mm	Radial internal clearance																								
	C2				Normal				C3				C4												
	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max									
μm	in			μm	in			μm	in			μm	in												
<b>Bearings with cylindrical bore</b>																									
2.5 6	1 8	0.0000	0.0003	5 15	0.0002	0.0006	10 20	0.0004	0.0008	15 25	0.0006	0.0010	6 10	2 9	0.0001	0.0004	6 17	0.0002	0.0007	12 25	0.0005	0.0010	19 33	0.0007	0.0013
10 14	2 10	0.0001	0.0004	6 19	0.0002	0.0007	13 26	0.0005	0.0010	21 35	0.0008	0.0014	14 18	3 12	0.0001	0.0005	8 21	0.0003	0.0008	15 28	0.0006	0.0011	23 37	0.0009	0.0015
18 24	4 14	0.0002	0.0006	10 23	0.0004	0.0009	17 30	0.0007	0.0012	25 39	0.0010	0.0015	24 30	5 16	0.0002	0.0006	11 24	0.0004	0.0009	19 35	0.0007	0.0014	29 46	0.0011	0.0018
30 40	6 18	0.0002	0.0007	13 29	0.0005	0.0011	23 40	0.0009	0.0016	34 53	0.0013	0.0021	40 50	6 19	0.0002	0.0007	14 31	0.0006	0.0012	25 44	0.0010	0.0017	37 57	0.0015	0.0022
50 65	7 21	0.0003	0.0008	16 36	0.0006	0.0014	30 50	0.0012	0.0020	45 69	0.0018	0.0027	65 80	8 24	0.0003	0.0009	18 40	0.0007	0.0016	35 60	0.0014	0.0024	54 83	0.0021	0.0033
80 100	9 27	0.0004	0.0011	22 48	0.0009	0.0019	42 70	0.0017	0.0028	64 96	0.0025	0.0038	100 120	10 31	0.0004	0.0012	25 56	0.0010	0.0022	50 83	0.0020	0.0033	75 114	0.0030	0.0045
120 140	10 38	0.0004	0.0015	30 68	0.0012	0.0027	60 100	0.0024	0.0039	90 135	0.0035	0.0053													
<b>Bearings with tapered bore</b>																									
18 24	7 17	0.0003	0.0007	13 26	0.0005	0.0010	20 33	0.0008	0.0013	28 42	0.0011	0.0017	24 30	9 20	0.0004	0.0008	15 28	0.0006	0.0011	23 39	0.0009	0.0015	33 50	0.0013	0.0020
30 40	12 24	0.0005	0.0009	19 35	0.0007	0.0014	29 46	0.0011	0.0018	40 59	0.0016	0.0023	40 50	14 27	0.0006	0.0011	22 39	0.0009	0.0015	33 52	0.0013	0.0020	45 65	0.0018	0.0026
50 65	18 32	0.0007	0.0013	27 47	0.0011	0.0019	41 61	0.0016	0.0024	56 80	0.0022	0.0031	65 80	23 39	0.0009	0.0015	35 57	0.0014	0.0022	50 75	0.0020	0.0030	69 98	0.0027	0.0039
80 100	29 47	0.0011	0.0019	42 68	0.0017	0.0027	62 90	0.0024	0.0035	84 116	0.0033	0.0046	100 120	35 56	0.0014	0.0022	50 81	0.0020	0.0032	75 108	0.0030	0.0043	100 139	0.0039	0.0055

## Mounting Bearings with Tapered Bore

Self-aligning ball bearings with a tapered bore are always mounted with an interference fit on a tapered shaft seating or an adapter 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 its tapered seating is used.

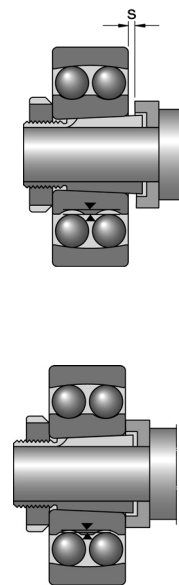
Suitable methods for mounting self-aligning ball bearings with tapered bore are:

- measuring the clearance reduction,
- measuring the lock nut tightening angle,
- measuring the axial drive-up.

### Measuring the clearance reduction

When mounting basic design self-aligning ball bearings with the relatively small Normal radial internal clearance, it is generally sufficient to check clearance during the drive-up by turning and swivelling out the outer ring. When the bearing is properly mounted the outer ring can be easily turned but there should be a slight resistance when the outer ring is swivelled out. The bearing will then have the requisite interference fit. In some cases the residual internal clearance may be too small for the application, and a bearing with C3 radial internal clearance should be used instead.

### Mounting self-aligning ball bearings with a tapered bore



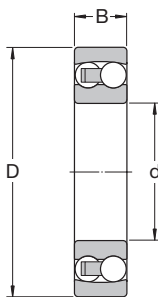
Bore diameter d mm	Tightening angle <sup>1)</sup> a degrees	Axial drive-up s mm
20	80	0,22
25	55	0,22
30	55	0,22
35	70	0,30
40	70	0,30
45	80	0,35
50	80	0,35
55	75	0,40
60	75	0,40
65	80	0,40
70	80	0,40
75	85	0,45
80	85	0,45
85	110	0,60
90	110	0,60
95	110	0,60
100	110	0,60
110	125	0,70
120	125	0,70

<sup>1)</sup> Valid for bearings with Normal radial clearance. For bearings with C3 radial clearance the guideline values can be increased by approximately 15 to 20°

# Self-aligning ball bearings

d 5 - 35 mm

d 0.197 - 1.378 in



Principal dimensions						Basic load ratings		Fatigue load limit $P_u$	Speed ratings		Mass	Designations	
d	D	B	d	D	B	dynamic	static		Refer-ence speed	Limiting speed		Bearing with cylindrical bore	tapered bore
mm			in			kN	$C_0$	kN	r/min		kg	–	
5	19	6	0.197	0.748	0.236	2.51	0.48	0.025	63 000	45 000	0.009	135 TN9	–
6	19	6	0.236	0.748	0.236	2.51	0.48	0.025	70 000	45 000	0.009	126 TN9	–
7	22	7	0.276	0.866	0.276	2.65	0.56	0.029	63 000	40 000	0.014	127 TN9	–
8	22	7	0.315	0.866	0.276	2.65	0.56	0.029	60 000	40 000	0.014	108 TN9	–
9	26	8	0.354	1.024	0.315	3.9	0.82	0.043	60 000	38 000	0.022	129 TN9	–
10	30	9	0.394	1.181	0.354	5.53	1.18	0.061	56 000	36 000	0.034	1200 ETN9	–
	30	14		1.181	0.551	8.06	1.73	0.09	50 000	34 000	0.047	2200 ETN9	–
12	32	10	0.472	1.260	0.394	6.24	1.43	0.072	50 000	32 000	0.04	1201 ETN9	–
	32	14		1.260	0.551	8.52	1.9	0.098	45 000	30 000	0.053	2201 ETN9	–
	37	12		1.457	0.472	9.36	2.16	0.12	40 000	28 000	0.067	1301 ETN9	–
	37	17		1.457	0.669	11.7	2.7	0.14	38 000	28 000	0.095	2301	–
15	35	11	0.591	1.378	0.433	7.41	1.76	0.09	45 000	28 000	0.049	1202 ETN9	–
	35	14		1.378	0.551	8.71	2.04	0.11	38 000	26 000	0.06	2202 ETN9	–
	42	13		1.654	0.512	10.8	2.6	0.14	34 000	24 000	0.094	1302 ETN9	–
	42	17		1.654	0.669	11.9	2.9	0.15	32 000	24 000	0.12	2302	–
17	40	12	0.669	1.575	0.472	8.84	2.2	0.12	38 000	24 000	0.073	1203 ETN9	–
	40	16		1.575	0.630	10.6	2.55	0.14	34 000	24 000	0.088	2203 ETN9	–
	47	14		1.850	0.551	12.7	3.4	0.18	28 000	20 000	0.12	1303 ETN9	–
	47	19		1.850	0.748	14.6	3.55	0.19	30 000	22 000	0.16	2303	–
20	47	14	0.787	1.850	0.551	12.7	3.4	0.18	32 000	20 000	0.12	1204 ETN9	1204 EKTN9
	47	18		1.850	0.709	16.8	4.15	0.22	28 000	20 000	0.14	2204 ETN9	–
	52	15		2.047	0.591	14.3	4	0.21	26 000	18 000	0.16	1304 ETN9	–
	52	21		2.047	0.827	18.2	4.75	0.24	26 000	19 000	0.22	2304 TN	–
25	52	15	0.984	2.047	0.591	14.3	4	0.21	28 000	18 000	0.14	1205 ETN9	1205 EKTN9
	52	18		2.047	0.709	16.8	4.4	0.23	26 000	18 000	0.16	2205 ETN9	2205 EKTN9
	62	17		2.441	0.669	19	5.4	0.28	22 000	15 000	0.26	1305 ETN9	1305 EKTN9
	62	24		2.441	0.945	24.2	6.55	0.34	22 000	16 000	0.36	2305	–
	62	24		2.441	0.945	27	7.1	0.37	22 000	16 000	0.34	2305 ETN9	–
30	62	16	1.181	2.441	0.630	15.6	4.65	0.24	24 000	15 000	0.22	1206 ETN9	1206 EKTN9
	62	20		2.441	0.787	23.8	6.7	0.35	22 000	15 000	0.26	2206 ETN9	2206 EKTN9
	72	19		2.835	0.748	22.5	6.8	0.36	19 000	13 000	0.39	1306 ETN9	1306 EKTN9
	72	27		2.835	1.063	31.2	8.8	0.45	18 000	13 000	0.5	2306	2306 K
35	72	17	1.378	2.835	0.669	19	6	0.31	20 000	13 000	0.32	1207 ETN9	1207 EKTN9
	72	23		2.835	0.906	30.7	8.8	0.46	18 000	12 000	0.4	2207 ETN9	2207 EKTN9
	80	21		3.150	0.827	26.5	8.5	0.43	16 000	11 000	0.51	1307 ETN9	1307 EKTN9
	80	31		3.150	1.220	39.7	11.2	0.59	16 000	12 000	0.68	2307 ETN9	2307 EKTN9

# Self-aligning ball bearings

d 40 - 85 mm

d 1.575 - 3.346 in

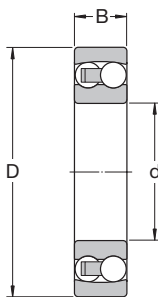


Principal dimensions						Basic load ratings		Fatigue load limit P <sub>u</sub>	Speed ratings		Mass	Designations	
d	D	B	d	D	B	dynamic	static		Refer-ence speed	Limiting speed		Bearing with cylindrical bore	tapered bore
			in				kN		kN	r/min	kg	–	
<b>40</b>	80	18	<b>1.575</b>	3.150	0.709	19.9	6.95	0.36	18 000	11 000	0.42	<b>1208 ETN9</b>	<b>1208 EKTN9</b>
	80	23		3.150	0.906	31.9	10	0.51	16 000	11 000	0.51	<b>2208 ETN9</b>	<b>2208 EKTN9</b>
	90	23		3.543	0.906	33.8	11.2	0.57	14 000	9 500	0.68	<b>1308 ETN9</b>	<b>1308 EKTN9</b>
	90	33		3.543	1.299	54	16	0.82	14 000	10 000	0.93	<b>2308 ETN9</b>	<b>2308 EKTN9</b>
<b>45</b>	85	19	<b>1.772</b>	3.346	0.748	22.9	7.8	0.4	17 000	11 000	0.47	<b>1209 ETN9</b>	<b>1209 EKTN9</b>
	85	23		3.346	0.906	32.5	10.6	0.54	15 000	10 000	0.55	<b>2209 ETN9</b>	<b>2209 EKTN9</b>
	100	25		3.937	0.984	39	13.4	0.7	12 000	8 500	0.96	<b>1309 ETN9</b>	<b>1309 EKTN9</b>
	100	36		3.937	1.417	63.7	19.3	1	13 000	9 000	1.25	<b>2309 ETN9</b>	<b>2309 EKTN9</b>
<b>50</b>	90	20	<b>1.969</b>	3.543	0.787	26.5	9.15	0.48	16 000	10 000	0.53	<b>1210 ETN9</b>	<b>1210 EKTN9</b>
	90	23		3.543	0.906	33.8	11.2	0.57	14 000	9 500	0.6	<b>2210 ETN9</b>	<b>2210 EKTN9</b>
	110	27		4.331	1.063	43.6	14	0.72	12 000	8 000	1.2	<b>1310 ETN9</b>	<b>1310 EKTN9</b>
	110	40		4.331	1.575	63.7	20	1.04	14 000	9 500	1.65	<b>2310</b>	<b>2310 K</b>
<b>55</b>	100	21	<b>2.165</b>	3.937	0.827	27.6	10.6	0.54	14 000	9 000	0.71	<b>1211 ETN9</b>	<b>1211 EKTN9</b>
	100	25		3.937	0.984	39	13.4	0.7	12 000	8 500	0.81	<b>2211 ETN9</b>	<b>2211 EKTN9</b>
	120	29		4.724	1.142	50.7	18	0.92	11 000	7 500	1.6	<b>1311 ETN9</b>	<b>1311 EKTN9</b>
	120	43		4.724	1.693	76.1	24	1.25	11 000	7 500	2.1	<b>2311</b>	<b>2311 K</b>
<b>60</b>	110	22	<b>2.362</b>	4.331	0.866	31.2	12.2	0.62	12 000	8 500	0.9	<b>1212 ETN9</b>	<b>1212 EKTN9</b>
	110	28		4.331	1.102	48.8	17	0.88	11 000	8 000	1.1	<b>2212 ETN9</b>	<b>2212 EKTN9</b>
	130	31		5.118	1.220	58.5	22	1.12	9 000	6 300	1.95	<b>1312 ETN9</b>	<b>1312 EKTN9</b>
	130	46		5.118	1.811	87.1	28.5	1.46	9 500	7 000	2.6	<b>2312</b>	<b>2312 K</b>
<b>65</b>	120	23	<b>2.559</b>	4.724	0.906	35.1	14	0.72	11 000	7 000	1.15	<b>1213 ETN9</b>	<b>1213 EKTN9</b>
	120	31		4.724	1.220	57.2	20	1.02	10 000	7 000	1.45	<b>2213 ETN9</b>	<b>2213 EKTN9</b>
	140	33		5.512	1.299	65	25.5	1.25	8 500	6 000	2.45	<b>1313 ETN9</b>	<b>1313 EKTN9</b>
	140	48		5.512	1.890	95.6	32.5	1.66	9 000	6 300	3.25	<b>2313</b>	<b>2313 K</b>
<b>70</b>	125	24	<b>2.756</b>	4.921	0.945	35.8	14.6	0.75	11 000	7 000	1.25	<b>1214 ETN9</b>	–
	125	31		4.921	1.220	44.2	17	0.88	10 000	6 700	1.5	<b>2214</b>	–
	150	35		5.906	1.378	74.1	27.5	1.34	8 500	6 000	3	<b>1314</b>	–
	150	51		5.906	2.008	111	37.5	1.86	8 000	6 000	3.9	<b>2314</b>	–
<b>75</b>	130	25	<b>2.953</b>	5.118	0.984	39	15.6	0.8	10 000	6 700	1.35	<b>1215</b>	<b>1215 K</b>
	130	31		5.118	1.220	58.5	22	1.12	9 000	6 300	1.6	<b>2215 ETN9</b>	<b>2215 EKTN9</b>
	160	37		6.299	1.457	79.3	30	1.43	8 000	5 600	3.55	<b>1315</b>	<b>1315 K</b>
	160	55		6.299	2.165	124	43	2.04	7 500	5 600	4.7	<b>2315</b>	<b>2315 K</b>
<b>80</b>	140	26	<b>3.150</b>	5.512	1.024	39.7	17	0.83	9 500	6 000	1.65	<b>1216</b>	<b>1216 K</b>
	140	33		5.512	1.299	65	25.5	1.25	8 500	6 000	2	<b>2216 ETN9</b>	<b>2216 EKTN9</b>
	170	39		6.693	1.535	88.4	33.5	1.5	7 500	5 300	4.2	<b>1316</b>	<b>1316 K</b>
	170	58		6.693	2.283	135	49	2.24	7 000	5 300	6.1	<b>2316</b>	<b>2316 K</b>
<b>85</b>	150	28	<b>3.346</b>	5.906	1.102	48.8	20.8	0.98	9 000	5 600	2.05	<b>1217</b>	<b>1217 K</b>
	150	36		5.906	1.417	58.5	23.6	1.12	8 000	5 600	2.5	<b>2217</b>	<b>2217 K</b>
	180	41		7.087	1.614	97.5	38	1.7	7 000	4 800	5	<b>1317</b>	<b>1317 K</b>
	180	60		7.087	2.362	140	51	2.28	6 700	4 800	7.05	<b>2317</b>	<b>2317 K</b>

# Self-aligning ball bearings

d 90 - 240 mm

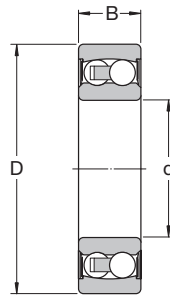
d 3.543 - 9.449 in



Principal dimensions						Basic load ratings		Fatigue load limit $P_u$	Speed ratings		Mass kg	Designations	
d	D	B	d	D	B	dynamic C	static $C_0$		Refer- ence speed	Limiting speed		Bearing with cylindrical bore	tapered bore
mm			in			kN		kN	r/min		kg	–	
<b>90</b>	160	30	<b>3.543</b>	6.299	1.181	57.2	23.6	1.08	8 500	5 300	2.5	<b>1218</b>	<b>1218 K</b>
	160	40		6.299	1.575	70.2	28.5	1.32	7 500	5 300	3.4	<b>2218</b>	<b>2218 K</b>
	190	43		7.480	1.693	117	44	1.93	6 700	4 500	5.8	<b>1318</b>	<b>1318 K</b>
	190	64		7.480	2.520	153	57	2.5	6 300	4 500	8.45	<b>2318 M</b>	<b>2318 KM</b>
<b>95</b>	170	32	<b>3.740</b>	6.693	1.260	63.7	27	1.2	8 000	5 000	3.1	<b>1219</b>	<b>1219 K</b>
	170	43		6.693	1.693	83.2	34.5	1.53	7 000	5 000	4.1	<b>2219 M</b>	<b>2219 KM</b>
	200	45		7.874	1.772	133	51	2.16	6 300	4 300	6.7	<b>1319</b>	<b>1319 K</b>
	200	67		7.874	2.638	165	64	2.75	6 000	4 500	9.8	<b>2319 M</b>	–
<b>100</b>	180	34	<b>3.937</b>	7.087	1.339	68.9	30	1.29	7 500	4 800	3.7	<b>1220</b>	<b>1220 K</b>
	180	46		7.087	1.811	97.5	40.5	1.76	6 700	4 800	5	<b>2220 M</b>	<b>2220 KM</b>
	215	47		8.465	1.850	143	57	2.36	6 000	4 000	8.3	<b>1320</b>	<b>1320 K</b>
	215	73		8.465	2.874	190	80	3.25	5 600	4 000	12.5	<b>2320 M</b>	<b>2320 KM</b>
<b>110</b>	200	38	<b>4.331</b>	7.874	1.496	88.4	39	1.6	6 700	4 300	5.15	<b>1222</b>	<b>1222 K</b>
	200	53		7.874	2.087	124	52	2.12	6 000	4 300	7.1	<b>2222 M</b>	<b>2222 KM</b>
	240	50		9.449	1.969	163	72	2.75	5 300	3 600	12	<b>1322 M</b>	<b>1322 KM</b>
<b>120</b>	215	42	<b>4.724</b>	8.465	1.654	119	53	2.12	6 300	4 000	6.75	<b>1224 M</b>	<b>1224 KM</b>
<b>130</b>	230	46	<b>5.118</b>	9.055	1.811	127	58.5	2.24	5 600	3 600	8.3	<b>1226 M</b>	
<b>150</b>	225	56	<b>5.906</b>	8.858	2.205	57.2	23.6	0.88	5 600	3 400	7.5	<b>13030</b>	
<b>180</b>	280	74	<b>7.087</b>	11.024	2.913	95.6	40	1.34	4 500	2 800	16	<b>13036</b>	
<b>200</b>	280	60	<b>7.874</b>	11.024	2.362	60.5	29	0.97	4 300	2 600	10.7	<b>13940</b>	
<b>220</b>	300	60	<b>8.661</b>	11.811	2.362	60.5	30.5	0.97	3 800	2 400	11	<b>13944</b>	
<b>240</b>	320	60	<b>9.449</b>	12.598	2.362	60.5	32	0.98	3 800	2 200	11.3	<b>13948</b>	

## Sealed self-aligning ball bearings

d 10 - 70 mm  
d 0.394 - 2.756 in

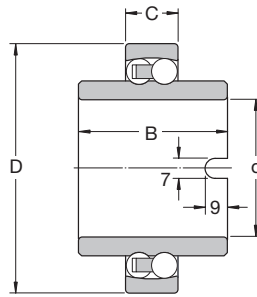


Principal dimensions						Basic load ratings		Fatigue load limit $P_u$	Limiting speed	Mass kg	Designations	
d	D	B	d	D	B	C	$C_0$				Bearing with cylindrical bore	tapered bore
mm			in			kN		kN	r/min		–	
10	30	14	<b>0.394</b>	1.181	0.551	5.53	1.18	0.06	17 000	0.048	<b>2200 E-2RS1TN9</b>	–
12	32	14	<b>0.472</b>	1.260	0.551	6.24	1.43	0.08	16 000	0.053	<b>2201 E-2RS1TN9</b>	–
15	35	14	<b>0.591</b>	1.378	0.551	7.41	1.76	0.09	14 000	0.058	<b>2202 E-2RS1TN9</b>	–
	42	17		1.654	0.669	10.8	2.6	0.14	12 000	0.11	<b>2302 E-2RS1TN9</b>	–
17	40	16	<b>0.669</b>	1.575	0.630	8.84	2.2	0.12	12 000	0.089	<b>2203 E-2RS1TN9</b>	–
	47	19		1.850	0.748	12.7	3.4	0.18	11 000	0.16	<b>2303 E-2RS1TN9</b>	–
20	47	18	<b>0.787</b>	1.850	0.709	12.7	3.4	0.18	10 000	0.14	<b>2204 E-2RS1TN9</b>	–
	52	21		2.047	0.827	14.3	4	0.21	9 000	0.21	<b>2304 E-2RS1TN9</b>	–
25	52	18	<b>0.984</b>	2.047	0.709	14.3	4	0.21	9 000	0.16	<b>2205 E-2RS1TN9</b>	<b>2205 E-2RS1KTN9</b>
	62	24		2.441	0.945	19	5.4	0.28	7 500	0.34	<b>2305 E-2RS1TN9</b>	–
30	62	20	<b>1.181</b>	2.441	0.787	15.6	4.65	0.24	7 500	0.26	<b>2206 E-2RS1TN9</b>	<b>2206 E-2RS1KTN9</b>
	72	27		2.835	1.063	22.5	6.8	0.36	6 700	0.51	<b>2306 E-2RS1TN9</b>	–
35	72	23	<b>1.378</b>	2.835	0.906	19	6	0.31	6 300	0.41	<b>2207 E-2RS1TN9</b>	<b>2207 E-2RS1KTN9</b>
	80	31		3.150	1.220	26.5	8.5	0.43	5 600	0.7	<b>2307 E-2RS1TN9</b>	–
40	80	23	<b>1.575</b>	3.150	0.906	19.9	6.95	0.36	5 600	0.5	<b>2208 E-2RS1TN9</b>	<b>2208 E-2RS1KTN9</b>
	90	33		3.543	1.299	33.8	11.2	0.57	5 000	0.96	<b>2308 E-2RS1TN9</b>	–
45	85	23	<b>1.772</b>	3.346	0.906	22.9	7.8	0.4	5 300	0.53	<b>2209 E-2RS1TN9</b>	<b>2209 E-2RS1KTN9</b>
	100	36		3.937	1.417	39	13.4	0.7	4 500	1.3	<b>2309 E-2RS1TN9</b>	–
50	90	23	<b>1.969</b>	3.543	0.906	22.9	8.15	0.42	4 800	0.57	<b>2210 E-2RS1TN9</b>	<b>2210 E-2RS1KTN9</b>
	110	40		4.331	1.575	43.6	14	0.72	4 000	1.65	<b>2310 E-2RS1TN9</b>	–
55	100	25	<b>2.165</b>	3.937	0.984	27.6	10.6	0.54	4 300	0.79	<b>2211 E-2RS1TN9</b>	<b>2211 E-2RS1KTN9</b>
60	110	28	<b>2.362</b>	4.331	1.102	31.2	12.2	0.62	3 800	1.05	<b>2212 E-2RS1TN9</b>	–
65	120	31	<b>2.559</b>	4.724	1.220	35.1	14	0.72	3 600	1.4	<b>2213 E-2RS1TN9</b>	<b>2213 E-2RS1KTN9</b>
70	125	31	<b>2.756</b>	4.921	1.220	35.8	14.6	0.75	3 400	1.45	<b>2214 E-2RS1TN9</b>	–

## Self-aligning ball bearings with extended inner ring

d 20 - 60 mm

d 0.787 - 2.362 in



Principal dimensions								Basic load ratings		Fatigue load limit $P_u$	Limiting speed	Mass	Designation
d	D	C	B	d	D	C	B	dynamic	static				
mm				in				kN		kN	r/min	kg	—
20	47	14	40	<b>0.787</b>	1.850	0.551	1.575	12.7	3.40	0.18	9 000	0.18	<b>11204 ETN9</b>
25	52	15	44	<b>0.984</b>	2.047	0.591	1.732	14.3	4.00	0.21	8 000	0.22	<b>11205 ETN9</b>
30	62	16	48	<b>1.181</b>	2.441	0.630	1.890	15.6	4.65	0.24	6 700	0.35	<b>11206 TN9</b>
35	72	17	52	<b>1.378</b>	2.835	0.669	2.047	15.9	5.10	0.27	5 600	0.54	<b>11207 TN9</b>
40	80	18	56	<b>1.575</b>	3.150	0.709	2.205	19.0	6.55	0.34	5 000	0.72	<b>11208 TN9</b>
45	85	19	58	<b>1.772</b>	3.346	0.748	2.283	21.6	7.35	0.38	4 500	0.77	<b>11209 TN9</b>
50	90	20	58	<b>1.969</b>	3.543	0.787	2.283	22.9	8.15	0.42	4 300	0.85	<b>11210 TN9</b>
60	110	22	62	<b>2.362</b>	4.331	0.866	2.441	30.2	11.6	0.6	3 400	1.15	<b>11212 TN9</b>