Introduction

SKF produces two types of thrust bearings – ball and roller – both of the separable design. The thrust ball bearings are manufactured in single direction and double direction designs and are specifically designed into applications in which there is no radial load.

The spherical roller thrust bearings are capable of handling shaft misalignment, very heavy axial loads, small radial loads and relatively high speeds.

Basic design

Single direction thrust ball bearings

Thrust ball bearings of this type are suitable for the accommodation of axial loads in one direction only and can locate a shaft in one direction; **they may not, however, be subjected to any radial load.**

Single direction thrust ball bearings comprise a shaft washer with raceway groove, a ball and cage thrust assembly and a housing washer with raceway groove. The housing washer can have a flat or sphered seating surface as required. Bearings with a sphered housing washer can compensate for initial misalignment if they are used together with a seating washer which has a correspondingly sphered surface.

The bearings are separable and mounting is simple as the components can be mounted individually.

Double direction thrust ball bearings

Thrust ball bearings of this type can accommodate axial loads acting in both directions and consequently can be used to locate a shaft in both directions. They should not be subjected to any radial load.

Double direction thrust ball bearings comprise one shaft washer with a raceway groove in each face, two ball and cage thrust assemblies and two housing washers with raceway groove. The housing washers can have a flat or sphered seating surface as required. Bearings with sphered housing washers can compensate for initial misalignments if they are used together with seating washers which have a correspondingly sphered surface. The sphered seating washers must be ordered separately. See bearing tables for designations.

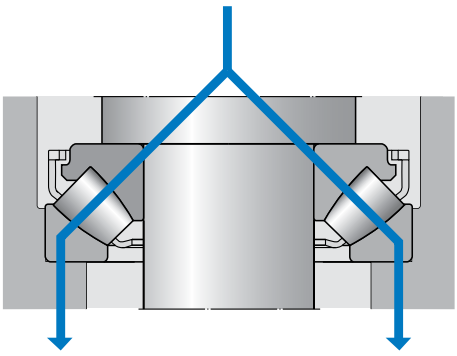
The bearings are separable. The housing washers and ball and cage thrust assemblies are the same as those of the corresponding single direction bearings.

Spherical roller thrust bearings

In spherical roller thrust bearings the load is transmitted from one raceway to the other at an angle to the bearing axis **(Figure 1)**. They are therefore suitable, in contrast to the other thrust bearings shown in this catalog, for the accommodation of radial loads in addition to simultaneously acting axial loads. Another important characteristic of spherical roller thrust bearings is their self-aligning capability. This makes the bearings insensitive to shaft deflection and to errors of alignment of the shaft relative to the housing.

Spherical roller thrust bearings are of separable design; the shaft washer with roller and cage assembly, and the housing washer, can be mounted individually.

Figure 1



Product highlights

Thrust ball

Purely for thrust loads
SKF thrust ball bearings are designed for purely thrust loads and are used in applications in which there is no radial load. These bearings are separable to facilitate easy mounting.

High speed capabilities
SKF thrust ball bearings offer higher speed capabilities than the spherical roller thrust bearings.

Large product assortment
Single and double direction designs are available also with sphered seating washers to compensate for alignment errors. Size range includes 10 to 800 mm inside diameter.

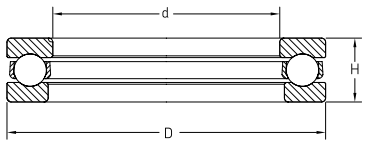
Spherical roller thrust

Accommodates heavy combined load at high speeds
Spherical roller thrust bearings are used extensively in applications where heavy axial and simultaneous radial loads need to be supported. These heavy loads are often accompanied by relatively high speeds.

Unaffected by misalignment
Spherical roller thrust bearings are also insensitive to misalignments allowing for equipment machining error without reduced service life.

Application flexibility
Used in a wide range of machinery including gearboxes, water turbines, steering propellers and propeller thrust blocks, wind power stations, electric motors, pumps, fans, crushers, machine tools, rolling mills, extrusion machines refiners, injection molding machines, hydraulic motors, cranes and tunneling.

Thrust ball bearings
Single direction
Standard
Series: 51200 – 51228
Size: 10 mm – 140 mm
0.3937 in – 5.5118 in



Single direction

Designation	Principal dimensions						Basic load ratings				Minimum load factor	Speed rating		Mass	
	Bore d		Outside diameter D		Height H		Dynamic C		Static C_0			Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	A	r/min	r/min	kg	lb
51200	10	0.3937	26	1.0236	11	0.4331	12 700	2 850	18 600	4 180	1.8	8 000	11 000	0.03	0.07
51201	12	0.4724	28	1.1024	11	0.4331	13 300	2 990	20 800	4 670	2.2	8 000	11 000	0.03	0.07
51202	15	0.5906	32	1.2598	12	0.4724	15 900	3 570	25 000	5 620	3.8	7 000	10 000	0.04	0.10
51203	17	0.6693	35	1.3780	12	0.4724	16 300	3 660	27 000	6 070	4.7	6 700	9 500	0.05	0.12
51204	20	0.7874	40	1.5748	14	0.5512	21 200	4 760	37 500	8 430	8.5	6 000	8 000	0.08	0.18
51205	25	0.9843	47	1.8504	15	0.5906	26 500	5 960	50 000	11 240	15	5 300	7 500	0.11	0.24
51206	30	1.1811	52	2.0472	16	0.6299	25 100	5 640	51 000	11 460	13	4 800	6 700	0.13	0.29
51207	35	1.3780	62	2.4409	18	0.7087	35 100	7 890	73 500	16 520	28	4 000	5 600	0.22	0.49
51208	40	1.5748	68	2.6772	19	0.7480	44 200	9 930	96 500	21 690	58	3 800	5 300	0.28	0.62
51209	45	1.7717	73	2.8740	20	0.7874	39 000	8 760	86 500	19 440	38	3 600	5 000	0.30	0.66
51210	50	1.9685	78	3.0709	22	0.8661	49 400	11 100	116 000	26 070	69	3 400	4 500	0.37	0.82
51211	55	2.1654	90	3.5433	25	0.9843	58 500	13 150	134 000	30 110	110	2 800	4 000	0.59	1.30
51212	60	2.3622	95	3.7402	26	1.0236	59 200	13 300	140 000	31 460	120	2 800	3 800	0.65	1.43
51213	65	2.5591	100	3.9370	27	1.0630	60 500	13 600	150 000	33 710	140	2 600	3 600	0.72	1.59
51214	70	2.7559	105	4.1339	27	1.0630	62 400	14 020	160 000	35 960	160	2 600	3 600	0.79	1.74
51215	75	2.9528	110	4.3307	27	1.0630	63 700	14 310	170 000	38 200	170	2 400	3 400	0.83	1.83
51216	80	3.1496	115	4.5276	28	1.1024	76 100	17 100	208 000	46 740	220	2 400	3 400	0.91	2.01
51217	85	3.3465	125	4.9213	31	1.2205	97 500	21 910	275 000	61 800	390	2 200	3 000	1.20	2.65
51218	90	3.5433	135	5.3150	35	1.3780	112 000	25 170	290 000	65 170	550	2 000	2 800	1.70	3.75
51220	100	3.9370	150	5.9055	38	1.4961	119 000	26 740	325 000	73 030	620	1 800	2 400	2.20	4.85
51222	110	4.3307	160	6.2992	38	1.4961	125 000	28 090	365 000	82 020	790	1 700	2 400	2.40	5.29
51224	120	4.7244	170	6.6929	39	1.5354	127 000	28 540	390 000	87 640	1 000	1 600	2 200	2.65	5.84
51226	130	5.1181	190	7.4803	45	1.7717	186 000	41 800	585 000	131 460	1 800	1 400	2 000	4.00	8.82
51228	140	5.5118	200	7.8740	46	1.8110	190 000	42 700	620 000	139 330	2 000	1 400	1 900	4.35	9.59

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