

Single Row Deep Groove Ball Bearings



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The single row deep groove ball bearings have relatively deep raceways on both rings without a filling slot and are non-separable. High load ratings are achieved by optimum sizes of balls and by their conformity to the raceways. They can carry axial and radial loads in both directions and are suitable even for high rotational speeds. These bearings are manufactured in a broad assortment and are the most common rolling bearing type.

The outer ring with one rib of separable single row ball bearings, types E and BO, is designed so that the inner ring with a cage and rolling elements can be mounted separately. The bearings are manufactured with a bore diameter up to $d = 20$ mm and are suitable for lighter loads and high-speed applications.

Boundary Dimensions

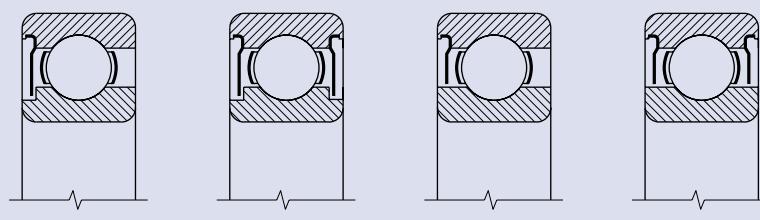
Boundary dimensions of the single row deep groove ball bearings given in the dimension tables with the exception of separable single row ball bearings of types E and BO, correspond to the international standard ISO 15.

The snap ring groove dimensions comply with the international standard ISO 464.

Bearings with Shields or Seals

The single row deep groove ball bearings with sealing on one or on both sides are manufactured with metallic shields (Z, -2Z or ZR, -2ZR) or with seals (RS, -2RS or RSR, -2RSR).

Bearings with shields have a non-contact sealing. The bearings are manufactured in the original design with steps for shields on the inner ring (Z, -2Z) or, in the new design, with a shield and a smooth rib on the inner ring (ZR, -2ZR).



Z

-2Z

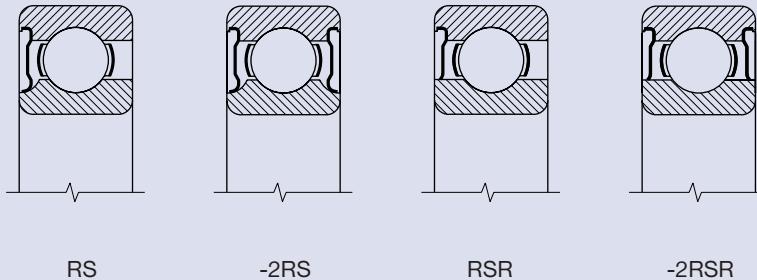
ZR

-2ZR

The sealing rings made of rubber, vulcanized on metallic reinforced rings, provide an effective friction type seal. The bearings are manufactured in the design with rounded steps on the inner ring (RS, 2RS) or, in a new design, with a seal and a smooth rib on the inner ring (RSR, -2RSR).

Bearings with seals can be used within the temperature range from -30 °C to 100 °C.

Supplies of bearings with seals within the operating temperature range from -60 °C to 150 °C (RS2, 2RS2) should be negotiated with the supplier in advance.



Shields and seals are firmly fixed in the groove of the outer ring and these are not removable.

Bearings with sealings on both sides (-2Z, -2RS or -2ZR, -2RSR) are filled with a quality grease the properties of which usually ensure the lubrication during the whole bearing life under normal operating conditions. The bearings of this design cannot be relubricated and can be used within the operating temperature range from -30 °C to 100 °C. The supply of bearings with a different grease should be negotiated with the supplier in advance.

Grease

For bearings sealed on both sides, the designation of the grease filling different from standard grease is indicated by a symbol combination the first two letters of which indicate the operating temperature range (a symbol in accordance with STN 02 4608) and the third symbol identifies the grease name.

TL – Grease for low operating temperatures (from -60 °C up to 100 °C)

TM – Grease for medium operating temperatures (from -30 °C up to 110 °C)

TH – Grease for high operating temperatures (from -30 °C up to 200 °C)

TW – Grease for low and high operating temperatures (from -40 °C up to 150 °C)

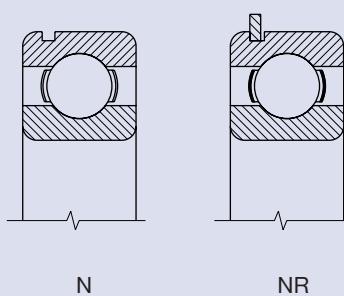
Note: The symbols of greases for medium operating temperatures need not be marked on the bearings.

Bearings with Snap Ring Groove

The single row deep groove ball bearings with a snap ring groove (N) can be axially fixed in the housings easily and without high requirements on the space available simplifying the arrangement design.

For bearings with a groove in the outer ring, snap rings corresponding to STN 02 4605 are used (commercial designation R and the number indicating the outside diameter D of the corresponding bearing, e. g. R47).

Bearings with a snap ring groove and a locking snap ring are designated by the suffix NR, e. g. 6204NR. Locking snap rings for the bearings with a snap ring groove are supplied separately.



The bearings with a snap ring groove can also be supplied in the modification with shields or seals (ZN, -2ZN or RSN, -2RSN). The supply of these bearings must be negotiated in advance.

Tapered Bore

For some less demanding applications, e. g. in agricultural machines, etc., some sizes of single row deep groove ball bearings of type 62 and 63 with a tapered bore (K), taper 1:12, are manufactured. These bearings are also manufactured in a design with shields on both sides. The bearings are fixed on the cylindrical shaft by means of adapter sleeves of types H2, H3 or directly on the tapered shaft.

Cages

The single row deep groove ball bearings of the basic design are equipped with a pressed cage made of steel sheet, guided on balls, which is not designated.

These bearings are produced with different types of cages for special applications. Namely, bearings with a solid polyamide cage (TNH, TNGH), with a solid cage of fabric reinforced phenolic resin (TB) and a machined brass cage (M, MA). The supply of these bearings should be negotiated in advance.

Tolerances

Single row deep groove ball bearings are commonly manufactured within the tolerance class P0 and P6. For special applications requiring high accuracy or for applications with a high rotational speed, the bearings in the higher tolerance classes P6, P5 and P4 are used. The bearings in higher tolerance class P6E are used for rotating electric machines.

The limiting values of the dimensional and running accuracy deviation correspond to ISO 492. An exception is made only for the separable single row ball bearings of types E or B0 the outer diameter D of which has the limiting deviation +0.01/0.00 mm.

The bearings in the tolerance classes P5 and P4 are made of higher quality materials such as electroslag or vacuum remelted bearing steels.

Radial Clearance

The commonly manufactured single row deep groove ball bearings have a normal radial clearance which is not indicated. For special arrangements the bearings with a reduced radial clearance (C2) or with an increased radial clearance (C3, C4, C5) are supplied.

Vibration Level

The currently manufactured single row deep groove ball bearings have a normal vibration level determined by the manufacturer. For special applications with high requirements on noiseless operation, bearings with reduced vibration level are supplied (C6).

Symbol Combination

The symbols for the tolerance classes, bearing internal clearances and vibration levels are combined with the simultaneous omission of the symbol C in the second and the following bearing special characteristics, e. g.:

P6 + C3 = P63	6004 P63
C3 + C6 = C36	6303-2RS C36
P6 + C3 + C6 = P636	6204-2Z P636

Stabilisation for Operation at Higher Temperature

For arrangements with a higher operating temperature than 120 °C, special heat treated-stabilised-single row deep groove ball bearings are supplied the form stability of which at operating temperature 150 °C up to 400 °C (S0, S1, S2, S3, S4, S5) is ensured.

The supply of stabilised bearings should be negotiated with the supplier in advance.

Misalignment

For single row deep groove ball bearings only small mutual misalignment of bearing rings is permissible, therefore alignment deviation of seating surfaces can be very small. Misalignment causes additional loading of the bearing and thus its life is shortened.

Values of permissible misalignment at normal operating conditions are shown in the table.

Bearing Type	Load	
	light ($F_r < 0,15 C_{or}$)	heavy ($F_r \geq 0,15 C_{or}$)
618, 619, 160, 60	2' až 6'	5' až 10'
62, 63, 64	5' až 10'	8' až 16'

Radial Equivalent Dynamic Load

Single row deep groove ball bearings:

$$P_r = F_r \text{ for } F_a/F_r \leq e$$

$$P_r = 0,56 F_r + Y F_a \text{ for } F_a/F_r > e$$

Separable single row ball bearings:

$$P_r = F_r \text{ for } F_a/F_r \leq 0,2$$

$$P_r = 0,5 F_r + 2,5 F_a \text{ for } F_a/F_r > 0,2$$

Calculation factors

F_a/C_{or}	e	Y
0.025	0.22	2
0.040	0.24	1.8
0.070	0.27	1.6
0.130	0.31	1.4
0.250	0.37	1.2
0.500	0.44	1

Radial Equivalent Static Load

Single row deep groove ball bearings:

$$P_{or} = 0,6 F_r + 0,5 F_a \text{ (} P_{or} \geq F_r \text{)}$$

Separable single row ball bearings:

$$P_{or} = 0,9 F_r + 0,3 F_a \text{ (} P_{or} \geq F_r \text{)}$$

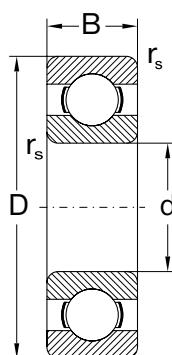
Designation

The bearing designation in the basic or current modified design is indicated in the dimension tables. The modification of the basic design is designated by additional symbols (prefixes and suffixes) in accordance with STN 02 4608. The meaning of the most frequently used symbols for the single row deep groove ball bearings is indicated in the table.

Symbol	Example označenia of designation	Meaning
X	X 625 P5	Stainless steel
RS	6002RS	Single seal
-2RS	6300-2RS	Double seal
RSR	6210RSR	Seal on one side adhering to flat rib surface of inner ring
-2RSR	6210-2RSR	Seals on both sides adhering to flat rib surface of inner ring
Z	6317Z	Metallic shield on one side
ZN	6204ZN	Metallic shield on one side and snap ring groove on the opposite side
-ZZ	6308-ZZ	Metallic shields on both sides
-2ZR	6005-2ZR	Metallic shields on both sides resting on the flat rib of inner ring
K	6204-2ZK	Tapered bore with taper 1:12
N	6416N	Snap ring groove in outer ring
NR	6310NR	Snap ring groove in outer ring and inserted snap ring
Y	X 623Y P5	Pressed brass cage, rolling element centered
TNH	6002TNH	Balls guided plastic cage
M	6319M	Solid brass cage guided on balls
MA	6209MA	Solid brass cage guided on outer ring
TB	6308TB	Solid cage made of textite, guided on inner ring
P6	6303 P6	Tolerance class higher than normal
P6E	6204-2Z P6E	Higher tolerance class for rotating electric machines
P5	6208 P5	Tolerance class higher than P6
P4	6007 P4	Tolerance class higher than P5
C2	6003 C2	Radial clearance smaller than normal
C3	6302-2ZR C3	Radial clearance greater than normal
C4	6005-2RS C4	Radial clearance greater than C3
C5	6303-2ZR C5	Radial clearance greater than C4
C6	6300 C6	Reduced vibration level
R...	6210 R10-20	Radial clearance in non-standardized range (range in μm)
S0	6204 S0	Stabilization for operation at temperature up to 150 °C
S1	6301 S1	Stabilization for operation at temperature up to 200 °C
S2	6303-2ZR C5S2	Stabilization for operation at temperature up to 250 °C
S3	6303-2ZR C5S3	Stabilization for operation at temperature up to 300 °C
S4	6306-2ZR C5S4	Stabilization for operation at temperature up to 350 °C
S5	6306-2ZR C5S5	Stabilization for operation at temperature up to 400 °C
TPF	6204-2Z P6E TPF	Bearings manufactured according to special technical terms agreed upon with the customer

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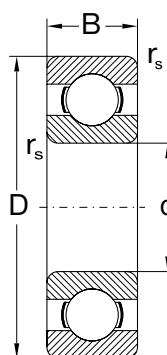
d = 2 – 25 mm



Dimensions				Basic load ratings		Limiting speed		Bearing designation	Mass	Ident. symbol of the producer
d	D	B	r_s min	dynamic C_r	static C_{or}	for lubrication with grease	oil			
mm				kN		min ⁻¹			kg	
2	6	2,3	0,10	0,279	0,090	63 000	79 000	619/2	0,0004	S
3	10	4	0,15	0,645	0,229	40 000	50 000	623	0,0015	S
4	13	5	0,20	1,168	0,412	38 000	45 000	624	0,0032	S
5	13	4	0,20	1,079	0,432	47 000	56 000	619/5	0,0025	S
	16	5	0,30	1,875	0,677	35 000	42 000	625	0,0047	S
6	15	5	0,20	1,470	0,599	42 000	50 000	619/6	0,0040	S
	19	6	0,30	2,838	1,078	35 000	42 000	626	0,0080	S
7	19	6	0,30	2,838	1,078	35 000	42 000	607	0,0090	S
	22	7	0,30	3,282	1,356	35 000	42 000	627	0,0123	S
8	22	7	0,30	3,282	1,356	35 000	42 000	608	0,0150	S
9	24	7	0,30	3,668	1,640	35 000	42 000	609	0,0180	S
	26	8	0,30	4,557	1,955	35 000	42 000	629	0,0200	S
10	26	8	0,30	4,557	1,955	28 000	33 000	6000	0,0190	S
	30	9	0,60	6,047	2,510	25 000	30 000	6200	0,0310	S
	35	11	0,60	8,072	3,430	22 000	27 000	6300	0,0540	S
12	28	7	0,30	5,094	2,360	25 000	30 000	16001	0,0200	S
	28	8	0,30	5,094	2,360	25 000	30 000	6001	0,0220	S
	32	10	0,60	6,905	3,100	22 000	27 000	6201	0,0370	S
	37	12	1	9,759	4,235	20 000	24 000	6301	0,0610	S
15	32	8	0,30	5,594	2,860	21 000	25 000	16002	0,0270	S
	32	9	0,30	5,594	2,860	21 000	25 000	6002	0,0300	S
	35	11	0,60	7,718	3,744	20 000	24 000	6202	0,0460	S
	42	13	1,00	11,310	5,330	18 000	21 000	6302	0,0850	S
17	35	8	0,30	5,999	3,265	20 000	24 000	16003	0,0320	S
	35	10	0,30	6,001	3,267	20 000	24 000	6003	0,0400	S
	40	12	0,60	9,534	4,734	18 000	21 000	6203	0,0730	S
	47	14	1	13,565	6,560	16 000	19 000	6303	0,1150	S
	62	17	1,10	22,680	10,890	12 600	15 000	6403	0,2710	S
20	42	8	0,30	9,371	4,972	17 000	20 000	16004D	0,0500	S
	42	12	0,60	9,371	4,972	17 000	20 000	6004	0,0700	S
	47	14	1	12,774	6,553	15 000	18 000	6204	0,1080	S, N
	52	15	1,10	15,866	7,811	14 000	17 000	6304	0,1450	S, N
25	47	8	0,30	10,070	5,806	14 000	17 000	16005D	0,0530	S, N
	47	12	0,60	10,070	5,806	14 000	17 000	6005	0,0820	S, N
	52	15	1	14,029	7,940	12 600	15 000	6205	0,1290	S, N
	62	17	1,10	21,123	10,806	11 000	13 000	6305	0,2300	S, N
	80	21	1,50	36,000	19,200	9 400	11 000	6405	0,5300	N

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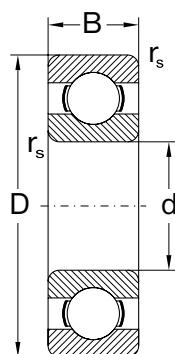
d = 30 – 65 mm



Dimensions				Basic load ratings		Limiting speed		Bearing designation	Mass	Ident. symbol of the producer
d	D	B	r_s min	dynamic C_r	static C_{or}	for lubrication with grease	oil			
mm				kN		min ⁻¹			kg	
30	55	9	0,3	11,200	7,360	12 000	14 000	16006	0,087	N
	55	13	1	13,243	8,250	12 000	14 000	6006	0,119	S, N
	62	16	1	19,443	11,186	11 000	13 000	6206	0,200	S, N
	72	19	1,1	29,701	15,678	10 000	12 000	6306	0,331	S, N
	90	23	1,5	43,000	23,700	8 400	10 000	6406	0,725	N
35	62	9	0,3	12,300	8,740	10 600	12 600	16007	0,111	N
	62	14	1	15,956	10,328	10 600	12 600	6007	0,154	S, N
	72	17	1,1	25,663	15,227	9 400	11 000	6207	0,284	S, N
	80	21	1,5	33,367	19,230	8 400	10 000	6307	0,447	S, N
	100	25	1,5	55,200	31,000	7 500	8 900	6407	0,954	N
40	68	9	0,3	13,200	10,200	9 400	11 000	16008	0,125	N
	68	15	1	16,824	11,493	9 400	11 000	6008	0,191	S, N
	80	18	1,1	32,633	19,887	8 400	10 000	6208	0,349	S, N
	90	23	1,5	40,760	24,170	7 900	9 400	6308	0,625	S, N
	110	27	2	63,100	36,200	6 700	7 900	6408	1,230	N
45	75	10	0,6	15,660	12,170	8 400	10 000	16009	0,170	N
	75	16	1	21,100	15,300	8 400	10 000	6009	0,241	N
	85	19	1,1	32,678	20,325	7 900	9 400	6209	0,404	S, N
	100	25	1,5	52,804	31,715	7 100	8 400	6309	0,828	S, N
	120	29	2	76,500	44,700	6 000	7 100	6409	1,540	N
50	80	10	0,6	16,200	13,100	7 900	9 400	16010	0,188	N
	80	16	1	22,000	16,500	7 900	9 400	6010	0,260	N
	90	20	1,1	34,800	23,300	7 100	8 400	6210	0,460	N
	110	27	2	61,754	37,754	6 300	7 500	6310	1,060	S, N
	130	31	2,1	87,400	52,100	5 600	6 700	6410	1,890	N
55	90	11	0,6	19,300	16,200	7 100	8 400	16011	0,260	N
	90	18	1,1	28,200	21,100	7 100	8 400	6011	0,383	N
	100	21	1,5	43,350	29,397	6 700	7 900	6211	0,597	S, N
	120	29	2	71,000	44,700	5 600	6 700	6311	1,380	N
	140	33	2,1	100,000	61,900	5 300	6 300	6411	2,290	N
60	95	18	1,1	29,300	23,300	6 700	7 900	6012	0,411	N
	110	22	1,5	52,100	35,900	6 000	7 100	6212	0,771	N
	130	31	2,1	81,500	52,100	5 300	6 300	6312	1,720	N
	150	35	2,1	110,000	69,400	4 700	5 600	6412	2,760	N
65	100	11	0,6	21,100	19,600	6 300	7 500	16013	0,300	N
	100	18	1,1	30,500	25,100	6 300	7 500	6013	0,437	N
	120	23	1,5	57,300	39,800	5 300	7 500	6213	0,997	S, N
	140	33	2,1	92,600	59,600	5 000	6 000	6313	2,100	N
	160	37	2,1	119,000	77,900	4 500	5 300	6413	3,280	N

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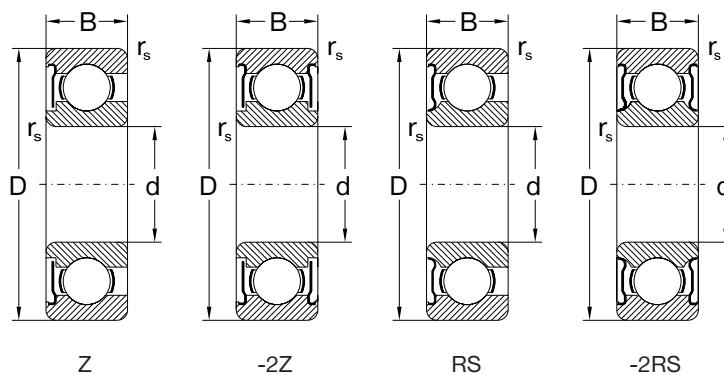
d = 70 – 170 mm



Dimensions				Basic load ratings		Limiting speed		Bearing designation	Mass	Ident. symbol of the producer
d	D	B	r _s min	C _r	C _{or}	for lubrication with grease	oil			
mm				kN		min ⁻¹			kg	
70	110	13	0,6	27,600	25,100	5 600	6 700	16014	0,433	N
	110	20	1,1	38,300	31,000	5 600	6 700	6014	0,604	N
	125	24	1,5	62,000	43,800	5 300	6 300	6214	1,090	N
	150	35	2,1	104,000	68,100	4 700	5 600	6314	2,540	N
	180	42	3	144,000	104,000	4 000	4 700	6414	4,850	N
75	115	13	0,6	28,700	26,600	5 300	6 300	16015	0,457	N
	115	20	1,1	39,750	33,170	5 300	6 300	6015	0,640	N
	130	25	1,5	66,179	49,311	5 000	6 000	6215	1,180	N
	160	37	2,1	114,000	76,400	4 200	5 000	6315	3,060	N
	190	45	3	153,000	114,000	3 800	4 500	6415	5,740	N
80	125	14	0,6	32,900	31,600	5 000	6 000	16016	0,597	N
	125	22	1,1	47,500	39,800	5 000	6 000	6016	0,860	N
	140	28	2	72,200	53,100	4 700	5 600	6216	1,400	N
85	130	14	0,6	34,100	32,900	4 700	5 600	16017	0,626	N
	130	22	1,1	49,790	42,700	4 700	5 600	6017	0,890	N
	150	28	2	83,000	64,300	4 200	5 000	6217	1,800	N
	210	52	4	174,000	136,000	3 300	4 000	6417	7,880	N
90	140	16	1	41,500	39,100	4 500	5 300	16018	0,848	N
	160	30	2	96,200	70,800	4 000	4 700	6218	2,160	N
	190	43	3	144,000	108,000	3 500	4 200	6318	4,950	N
	225	54	4	192,000	158,000	3 200	3 800	6418	11,400	N
95	145	16	1	42,300	41,500	4 200	5 000	16019	0,890	N
	170	32	2,1	108,000	81,000	3 800	4 500	6219	2,600	N
100	150	16	1	44,000	43,800	4 200	5 000	16020	0,910	N
	180	34	2,1	123,000	92,600	3 500	4 200	6220	3,130	N
	215	47	3	174,000	141,000	3 200	3 800	6320	7,070	N
105	225	49	3	185,000	153,000	3 000	3 500	6321	8,000	N
	110	170	19	57,600	56,200	3 800	4 500	16022	1,460	N
	200	38	2,1	144,000	117,000	3 200	3 800	6222	4,370	N
120	180	19	1	61,000	63,100	3 300	4 000	16024	1,800	N
	215	40	2,1	144,000	117,000	3 000	3 500	6224	5,150	N
	130	180	24	65,503	67,193	2 500	3 150	61926	1,860	N
130	230	40	3	153,000	133,000	2 800	3 300	6226	6,200	N
	140	210	33	110,000	108,000	3 000	3 500	6028	3,390	N
	250	42	3	166,000	150,000	2 500	3 000	6228	7,560	N
150	225	24	1,1	92,600	98,100	2 700	3 200	16030	3,580	N
	225	35	2,1	126,000	126,000	2 700	3 200	6030	4,160	N
	270	45	3	190,000	181,000	2 200	2 700	6230	9,850	N
170	260	42	2,1	168,000	171,000	2 200	2 700	6034	6,910	N

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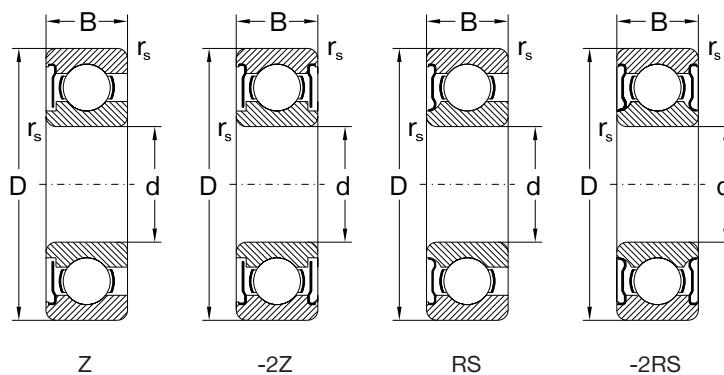
d = 10 – 40 mm



d	Dimensions			Basic load ratings		Limiting speed for lubrication with				Bearing designation				Mass	Ident. symbol of the producer
	D	B	r _s min	C _r	C _{or}	grease	Z, -2Z	RS, -2RS	oil	Z	Z, ZR	-2Z, -2ZR	RS	-2RS	
	mm			kN		min ⁻¹								kg	
10	30	9	0,6	6,047	2,510	25 000	17 000	-	-	6200-2ZR	-	6200-2RSR	0,033	S	
	30	9	0,6	6,047	2,510	-	17 000	-	-	-	-	62200-2RSR	0,041	S	
	35	11	0,6	8,072	3,430	22 000	15 000	27 000	6300ZR	6300-2ZR	6300RS	6300-2RS	0,053	S	
12	37	12	1	9,759	4,234	20 000	13 000	24 000	6301ZR	6301-2ZR	6301RS	6301-2RS	0,060	S	
15	32	9	0,3	5,594	2,860	21 000	14 000	25 000	6002ZR	6002-2ZR	6002RS	6002-2RS	0,031	S	
	35	11	0,6	7,718	3,745	20 000	-	-	6202-2ZR	-	-	-	0,045	S	
	42	13	1	11,310	5,335	18 000	12 000	21 000	6302ZR	6302-2ZR	6302RS	6302-2RS	0,082	S	
17	35	10	0,3	5,999	3,265	20 000	13 000	24 000	6003ZR	6003-2ZR	6003RS	6003-2RS	0,040	S	
	40	12	0,6	9,534	4,734	18 000	-	-	6203-2ZR	-	-	-	0,065	S	
	40	17,5	0,6	9,534	4,734	-	12 000	-	-	-	-	63203-2RSR	0,064	S	
	47	14	1	13,565	6,563	16 000	10 600	19 000	6303ZR	6303-2ZR	6303RS	6303-2RS	0,116	S	
20	42	12	0,6	9,371	4,972	17 000	11 000	20 000	6004ZR	6004-2ZR	6004RS	6004-2RS	0,070	S	
	42	16	0,6	9,371	4,972	17 000	11 000	-	-	63004-2ZR	-	63004-2RS	0,090	S	
	47	14	1	12,774	6,553	15 000	10 000	18 000	6204Z	6204-2Z	6204RS	6204-2RS	0,107	S, N	
	47	18	1	12,774	6,553	-	10 000	-	-	-	-	62204-2RS	0,133	S	
	47	20,6	1	12,774	6,553	-	10 000	-	-	-	-	63204-2RS	0,154	S	
	52	15	1,1	16,000	7,940	14 000	9 000	17 000	6304Z	6304-2Z	6304RS	6304-2RS	0,145	N	
25	47	12	0,6	10,070	5,806	14 000	9 400	17 000	6005ZR	6005-2ZR	6005RS	6005-2RS	0,081	S, N	
	52	15	1	14,100	7,940	12 600	8 400	15 000	6205Z	6205-2Z	6205RS	6205-2RS	0,129	N	
	62	17	1,1	20,700	11,200	11 000	7 500	13 000	6305Z	6305-2Z	6305RS	6305-2RS	0,230	N	
30	55	13	1	13,300	8,250	12 000	7 900	14 000	6006Z	6006-2Z	6006RS	6006-2RS	0,119	N	
	62	16	1	19,600	11,200	11 000	7 500	13 000	6206Z	6206-2Z	6206RS	6206-2RS	0,200	N	
	72	19	1,1	30,000	15,800	10 000	6 700	12 000	6306Z	6306-2Z	6306RS	6306-2RS	0,331	N	
35	62	14	1	16,000	10,200	10 600	7 100	12 600	6007Z	6007-2Z	6007RS	6007-2RS	0,154	N	
	72	17	1,1	25,600	15,300	9 400	6 300	11 000	6207Z	6207-2Z	6207RS	6207-2RS	0,284	N	
	80	21	1,5	33,500	19,200	8 400	5 600	10 000	6307Z	6307-2Z	6307RS	6307-2RS	0,447	N	
40	68	15	1	16,800	11,400	9 400	6 300	11 000	6008Z	6008-2Z	6008RS	6008-2RS	0,191	N	
	80	18	1,1	32,900	20,000	8 400	5 600	10 000	6208Z	6208-2Z	6208RS	6208-2RS	0,349	N	
	90	23	1,5	40,600	23,700	7 900	4 700	9 400	6308Z	6308-2Z	6308RS	6308-2RS	0,625	N	

Single Row Deep Groove Ball Bearings with Shields or Seals

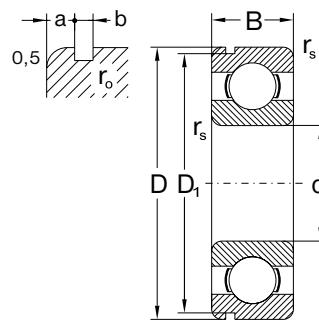
d = 45 – 85 mm



d	Dimensions			Basic load ratings		Limiting speed for lubrication with			Bearing designation				Mass	Ident. symbol of the producer	
	D	B	r _s min	C _r	C _{or}	grease	Z, -2Z	RS, -2RS	oil	Z	Z, ZR	-2Z, -2ZR	RS	-2RS	
	mm			kN		min ⁻¹									kg
45	75	16	1	21,100	15,300	8 400	5 600	10 000	6009Z	6009-2Z	6009RS	6009-2RS	0,241	N	
	85	19	1,1	32,900	20,300	7 900	5 300	9 400	6209Z	6209-2Z	6209RS	6209-2RS	0,404	N	
	100	25	1,5	53,100	31,600	7 100	4 700	8 400	6309Z	6309-2Z	6309RS	6309-2RS	0,828	N	
50	80	16	1	22,000	16,500	7 900	5 300	9 400	6010Z	6010-2Z	6010RS	6010-2RS	0,260	N	
	90	20	1,1	34,800	23,300	7 100	4 700	8 400	6210Z	6210-2Z	6210RS	6210-2RS	0,460	N	
	110	27	2	61,900	37,600	6 300	4 200	7 500	6310Z	6310-2Z	6310RS	6310-2RS	1,060	N	
55	90	18	1,1	28,200	21,100	7 100	4 700	8 400	6011Z	6011-2Z	6011RS	6011-2RS	0,383	N	
	100	21	1,5	43,000	29,300	6 700	4 500	8 400	6211Z	6211-2Z	6211RS	6211-2RS	0,597	N	
	120	29	2	71,000	44,700	5 600	3 800	6 700	6311Z	6311-2Z	6311RS	6311-2RS	1,380	N	
60	95	18	1,1	29,300	23,300	6 700	4 500	7 900	6012Z	6012-2Z	6012RS	6012-2RS	0,411	N	
	110	22	1,5	52,100	35,900	6 000	4 000	7 100	6212Z	6212-2Z	6212RS	6212-2RS	0,771	N	
	130	31	2,1	81,500	52,100	5 300	3 500	6 300	6312Z	6312-2Z	6312RS	6312-2RS	1,720	N	
65	100	18	1,1	30,500	25,100	6 300	4 200	7 500	6013Z	6013-2Z	6013RS	6013-2RS	0,437	N	
	120	23	1,5	57,300	39,800	5 300	3 500	7 500	6213Z	6213-2Z	6213RS	6213-2RS	0,997	N	
	140	33	2,1	92,600	59,600	5 000	3 300	6 000	6313Z	6313-2Z	6313RS	6313-2RS	2,100	N	
70	110	20	1,1	38,300	31,000	5 600	3 800	6 700	6014Z	6014-2Z	6014RS	6014-2RS	0,604	N	
	125	24	1,5	62,000	43,800	5 300	3 500	6 300	6214Z	6214-2Z	6214RS	6214-2RS	1,090	N	
	150	35	2,1	104,000	68,100	4 700	3 200	5 600	6314Z	6314-2Z	6314RS	6314-2RS	2,540	N	
75	115	20	1,1	39,750	33,170	5 300	3 500	6 300	6015Z	6015-2Z	6015RS	6015-2RS	0,640	N	
	130	25	1,5	66,180	49,310	5 000	3 300	6 000	6215Z	6215-2Z	6215RS	6215-2RS	1,190	N	
	160	37	2,1	114,000	76,400	4 200	2 800	5 000	6315Z	6315-2Z	6315RS	6315-2RS	3,060	N	
80	125	22	1,1	47,500	39,800	5 000	3 300	6 000	6016Z	6016-2Z	6016RS	6016-2RS	0,860	N	
	140	26	2	72,200	53,100	4 700	3 200	5 600	6216Z	6216-2Z	6216RS	6216-2RS	1,400	N	
85	130	22	1,1	49,790	42,700	4 700	3 200	5 600	6017Z	6017-2Z	6017RS	6017-2RS	0,890	N	
	150	28	2	83,000	64,300	4 200	2 800	5 000	6217Z	6217-2Z	6217RS	6217-2RS	1,800	N	

Single Row Deep Groove Ball Bearings with Snap Ring Groove on Outer Ring

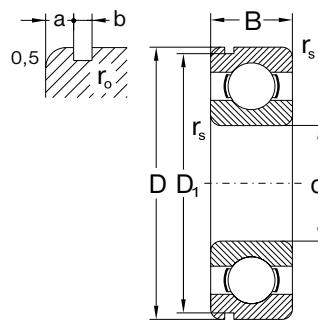
d = 12 – 45 mm



d	D	B	Dimensions					C_f	C_{or}	Basic load rating dynamic static	Limiting speed for lubrication with grease oil	Bearing designation	Mass	Appropriate snap ring	Ident. symbol of the producer		
			r_s min	D_1 max	a max	b min	r_o max										
mm															kN	min ⁻¹	kg
12	37	12	1	34,77	2,06	1,35	0,40	9,759	4,235	20 000	24 000	6301N	0,061	R37	S		
15	42	13	1	39,75	2,06	1,35	0,40	11,310	5,330	18 000	21 000	6302N	0,085	R42	S		
17	47	14	1	44,60	2,46	1,35	0,40	13,565	6,563	16 000	19 000	6303N	0,115	R47	S		
20	42	12	0,60	39,75	2,06	1,35	0,40	9,371	4,972	17 000	20 000	6004N	0,070	R42	S		
	47	14	1	44,60	2,46	1,35	0,40	12,774	6,553	15 000	18 000	6204N	0,108	R47	S		
	52	15	1,10	49,73	2,46	1,35	0,40	16,000	7,940	14 000	17 000	6304N	0,145	R52	N		
25	47	12	0,60	44,60	2,06	1,35	0,40	10,070	5,806	14 000	17 000	6005N	0,082	R47	S, N		
	52	15	1	49,73	2,46	1,35	0,40	14,100	7,940	12 600	15 000	6205N	0,129	R52	N		
	62	17	1,10	59,61	3,28	1,90	0,60	20,700	11,200	11 000	13 000	6305N	0,230	R62	N		
	80	21	1,50	76,81	3,28	1,90	0,60	36,000	19,200	9 400	11 000	6405N	0,530	R80	N		
30	55	13	1	52,60	2,06	1,35	0,40	13,300	8,250	12 000	14 000	6006N	0,119	R55	N		
	62	16	1	59,61	3,28	1,90	0,60	19,600	11,200	11 000	13 000	6206N	0,200	R62	N		
	72	19	1,10	68,81	3,28	1,90	0,60	30,000	15,800	10 000	12 000	6306N	0,331	R72	N		
	90	23	1,5	86,79	3,28	2,70	0,60	43,000	23,700	8 400	10 000	6406N	0,725	R90	N		
35	62	14	1	59,61	2,06	1,90	0,60	16,000	10,200	10 600	12 600	6007N	0,154	R62	N		
	72	17	1,10	68,81	3,28	1,90	0,60	25,600	15,300	9 400	11 000	6207N	0,284	R72	N		
	80	21	1,50	76,81	3,28	1,90	0,60	33,500	19,200	8 400	10 000	6307N	0,447	R80	N		
	100	25	1,50	96,80	3,28	2,70	0,60	55,200	31,000	7 500	8 900	6407N	0,957	R100	N		
40	68	15	1	64,82	2,49	1,90	0,60	16,800	11,400	9 400	11 000	6008N	0,191	R68	N		
	80	18	1,10	76,81	3,28	1,90	0,60	32,900	20,000	8 400	10 000	6208N	0,349	R80	N		
	90	23	1,50	86,79	3,28	2,70	0,60	40,600	23,700	7 900	9 400	6308N	0,625	R90	N		
	110	27	2	106,81	3,28	2,70	0,60	63,100	36,200	6 700	7 900	6408N	1,230	R110	N		
45	75	16	1	71,83	2,49	1,90	0,60	21,100	15,300	8 400	10 000	6009N	0,241	R75	N		
	85	19	1,10	81,81	3,28	1,90	0,60	32,900	20,300	7 900	9 400	6209N	0,404	R85	N		
	100	25	1,50	96,80	3,28	2,70	0,60	53,100	31,600	7 100	8 400	6309N	0,828	R100	N		
	120	29	2	115,21	4,06	3,10	0,60	76,500	44,700	6 000	7 100	6409N	1,540	R120	N		

Single Row Deep Groove Ball Bearings with Snap Ring Groove on Outer Ring

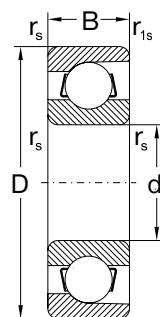
d = 50 – 85 mm



d	D	B	Dimensions						Basic load rating dynamic C _f	Basic load rating static C _{or}	Limiting speed for lubrication with grease	Bearing designation	Mass	Appropriate snap ring	Ident. symbol of the producer	
			r _s min	D ₁ max	a max	b min	r _o max									
mm																
50	80	16	1	76,81	2,49	1,90	0,60	22,000	16,500	7 900	9 400	6010N	0,260	R80	N	
	90	20	1,10	86,79	3,28	2,70	0,60	34,800	23,300	7 100	8 400	6210N	0,460	R90	N	
	110	27	2	106,81	3,28	2,70	0,60	61,900	37,600	6 300	7 500	6310N	1,060	R110	N	
55	90	18	1,10	86,79	2,87	2,70	0,60	28,200	21,100	7 100	8 400	6011N	0,389	R90	N	
	100	21	1,50	96,80	3,28	2,70	0,60	43,000	29,300	6 700	8 400	6211N	0,597	R100	N	
	120	29	2	115,21	4,06	3,10	0,60	71,000	44,700	5 600	6 700	6311N	1,380	R120	N	
	140	33	2,10	135,23	4,90	3,10	0,60	100,000	61,900	5 300	6 300	6411N	2,290	R140	N	
60	95	18	1,10	91,82	2,87	2,70	0,60	29,300	23,300	6 700	7 900	6012N	0,411	R95	N	
	110	22	1,50	106,81	3,28	2,70	0,60	52,100	35,900	6 000	7 100	6212N	0,771	R110	N	
	130	31	2,10	125,22	4,06	3,10	0,60	81,100	52,100	5 300	6 300	6312N	1,720	R130	N	
	150	35	2,10	145,24	4,90	3,10	0,60	110,000	69,400	4 700	5 600	6412N	2,760	R150	N	
65	100	18	1,10	96,80	2,87	2,70	0,60	30,500	25,100	6 300	7 500	6013N	0,437	R100	N	
	120	23	1,50	115,21	4,06	3,10	0,60	57,300	39,800	5 300	7 500	6213N	0,997	R120	N	
	140	33	2,10	135,23	4,90	3,10	0,60	92,600	59,600	5 000	6 000	6313N	2,100	R140	N	
	160	37	2,10	155,22	4,90	3,10	0,60	119,000	77,900	4 500	5 300	6413N	3,280	R160	N	
70	110	20	1,10	106,81	2,87	2,70	0,60	38,300	31,000	5 600	6 700	6014N	0,604	R110	N	
	125	24	1,50	120,22	4,06	3,10	0,60	62,000	43,800	5 300	6 300	6214N	1,090	R125	N	
	150	35	2,10	145,24	4,90	3,10	0,60	104,000	68,100	4 700	5 600	6314N	2,540	R150	N	
	180	42	3	173,66	5,69	3,50	0,60	144,000	104,000	4 000	4 700	6414N	4,850	R180	N	
75	115	20	1,10	111,81	2,87	2,70	0,60	39,750	33,170	5 300	6 300	6015N	0,640	R115	N	
	130	25	1,50	125,22	4,06	3,10	0,60	66,180	49,310	5 000	6 000	6215N	1,190	R130	N	
	160	37	2,10	155,22	4,90	3,10	0,60	114,000	76,400	4 200	5 000	6315N	3,060	R160	N	
	190	45	3	183,64	5,69	3,50	0,60	153,000	114,000	3 800	4 500	6415N	5,740	R190	N	
80	125	22	1,10	120,22	2,87	3,10	0,60	47,500	39,800	5 000	6 000	6016N	0,860	R125	N	
	140	26	2	135,23	4,90	3,10	0,60	72,200	53,100	4 700	5 600	6216N	1,400	R140	N	
	150	28	2	145,24	4,90	3,10	0,60	83,000	64,300	4 200	5 000	6217N	1,800	R150	N	

Separable Single Row Ball Bearings

$d = 10 - 20 \text{ mm}$



d	D	Dimensions		Basic load rating		Limiting speed		Bearing designation	Mass	Ident. symbol of the producer
		B	r_s min	r_{1s} min	C _r	C _{or}	for lubrication with grease	oil		
		mm		kN		min ⁻¹				
10	28	8	0,30	0,15	3,200	0,630	24 000	30 000	E10Y	0,022
12	32	7	0,30	0,15	3,410	0,722	22 000	28 000	E12TNG	0,029
13	30	7	0,30	0,15	3,410	0,720	22 000	28 000	E13ETNG	0,020
15	35	8	0,30	0,15	4,470	0,980	20 000	24 000	E15	0,034
	35	8	0,30	0,15	4,470	0,980	20 000	24 000	E15Y	0,034
	35	8	0,30	0,15	4,470	0,980	20 000	24 000	E15ETNG	0,031
17	44	11	0,60	0,30	5,620	1,260	16 000	19 000	E17	0,079
	44	11	0,60	0,30	8,910	2,030	14 000	17 000	B017	0,075
20	47	12	1,00	0,60	8,910	2,030	14 000	17 000	E20	0,089