12.1 SINGLE ROW BALL BEARINGS

Due to the versatility of applications, single row ball bearings are among the most frequently used types of rolling bearings. They are made as non-separable without a filling slot. Simple design predetermines them for a wide range of operating conditions. They are provided with deep grooves in rings, diameters of which are just a little bigger than those of balls. Due to big ball diameters and high attachment, single row ball bearings feature relatively high dynamic load capacity in both radial and axial directions. Therefore they suit well combined load in both directions. In order to capture axial forces in high revolutions they conveniently substitute axial ball bearings.

Dunlop BTL offer single row ball bearings in many designs and sizes. The chart part of the catalogue states the standard assortment of bearings with parameters divided as follows:

- Uncovered bearings in standard version
- Bearings with shields and seals
- Bearings with snap ring groove
- Separable E and BO type bearings.

Main dimensions

With the exception of E and BO type separable single row ball bearings, main dimensions comply with the standard ISO 15. Dimensions of grooves for snap rings comply with the ISO 464 standard.

Uncovered bearings in standard version

The Dunlop BTL single row ball bearings in standard version are uncovered and without seals. For manufacturing reasons, also bearings with grooves for shields or seals may get among the standard version of these bearings. Use of these bearings does not require any special provisions.

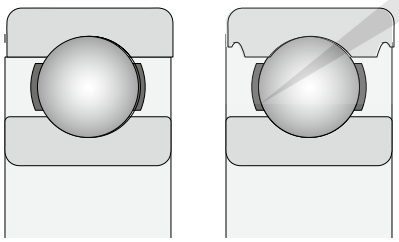

Fig. 12.1.1

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Bearings with shields and seals

Part of the ball bearing assortment is produced as non-separable bearings with cover sheets, or with contact seal on one or both sides. Chart No.12.1 shows detail information about the suitability of individual seal types for different conditions. See chapter 7.5 for additional information.

Depending on the design series and size, bearings are supplied filled with standard grease. The standard grease used is not stated in the bearing identification. Grease fills about 25 to 35 % of the free bearing space. Supply of bearings with other than grease has to be agreed with Dunlop BTL.

Tab. 12.1.1

instructions for selection of sealing			
Requirement	Shields	Contact seal	
	Z	RS	RSR
Low friction	+++	o	o
High revolutions	+++	o	o
Retention of plastic lubricant	o	+++	++
Against dust penetration	o	+++	+++
Against water penetration			
Static	-	+++	++
dynamic	-	+	+
high pressure	-	+++	o

Symbols: +++ excellent | ++ very good | + good | o sufficient | unsuitable

Bearings with shields

Single row ball bearings with cover sheets have an additional identification Z, 2Z, ZR or 2ZR (see fig. 12.1.2). Covered bearings are mostly used to be seated with rotary inner ring. Rotation of outer ring represents a risk of leak of grease in higher revolutions. Cover sheets are made of steel plate. They are seated firmly in outer ring. In Z or 2Z version, cover sheet is embedded in the inner ring recess; ZR or 2ZR variants have cover sheet overlapping a bit above the edge of the inner ring.

Bearings with contact seals

Bearings with contact seal (see fig. 12.1.3) are designated by RS, 2RS, RSR or 2RSR identification, depen-ding on the design series and size of the bearing. Seals are pressed in the outer ring recess, and ensure reliable sealing in given position, without outer ring deformation. In extreme conditions, e.g. at high tempe-ratures or revolutions, grease on inner ring might leak. In locations where such lubricant leak is undesirable, different design solution has to be chosen. In these cases we recommend that you contact the Dunlop BTL technical and consultancy services.

Bearings versions with additional identification RS or 2RS are provided with a seal the tip of which leans on the recess on the inner ring front. The RSR or 2RSR versions have seals the tip of which leans on the cylindrical surface of the inner ring flange.

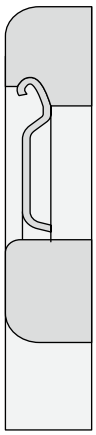
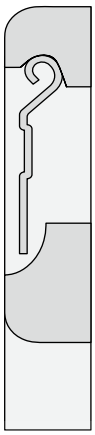
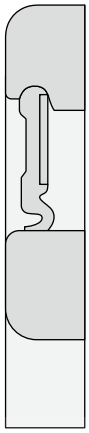


Fig. 12.1.2





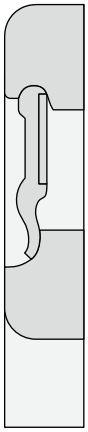


Fig. 12.1.3

Bearings with snap ring groove

Single row ball bearings with a groove for snap ring on outer ring serve simple protection against axial displacement in the location element. Thos design has additional designation N. If bearing is supplied with added snap ring, it is identified with NR. Bearings with snap ring groove can be delivered also in combination with mounted covers.

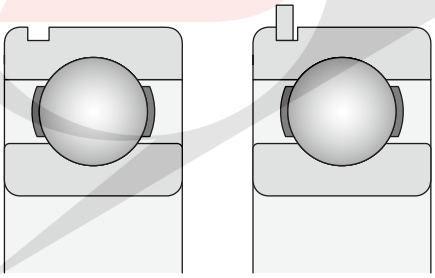


Fig. 12.1.4

Separable bearings

Outer ring of separable single row ball bearings of E and BO type is designed so as to allow separable moun-ting of inner ring with cage and rolling elements. Bearings are made up to the bore diameter of d = 20 mm, and are suitable for lower load and fast running applications.

Accuracy

Single row ball bearings are made in normal accuracy level P0 whilst this symbol is not presented. The accu-racy of dimensions and run comply with the standard ISO 492. Exception is only separable single row ball bearings of E and BO type where the outer diameter has limit deviation of +0.01/0.00 mm. Limit tolerance values are stated in charts 7.2 and 7.3. Limit tolerance values for bearings of higher accuracies are stated in charts 7.4 to 7.8. Limit tolerance values of installation fillet are stated in chart 7.1. These values comply with the standard ISO 582.

Radial clearance

As standard, single row ball bearings are supplied with normal radial clearance. Majority of bearings are also supplied with bigger radial clearance C3. Some bearings can be also offered with a substantially bigger clea-rance C4 or C5, or with smaller clearance C2. Sizes of radial clearances comply with the standard ISO 5753. The values are stated in chart 7.17a. The stated values apply to non-mounted bearings at zero measuring load. Indicative dependence of radial and axial clearance is stated in Fig. 7.4. See chapter 7.2.3 for additional information.

Vibration level

Commonly made single row ball bearings have normal vibration level checked by the manufacturer. Bearings with P5 and higher accuracy level have reduced vibration level C6. Special cases of location require bearings with specially reduced vibration level C06 and C66.

Tapered bore

For some less demanding locations, some sizes of single row ball bearings of 62 and 63 type with tapered bore and taper ratio 1:12 can be produced. Fixing the bearings onto cylindrical pin is performed using a adapter sleeve or directly on the tapered pin.

Cages

The standard version of single row ball bearings features a cage of steel plate, riveted or pressed, which is guided on balls. Bigger bearing sizes have massive brass cage. Special locations require polyamide cages.

Bearings for locations with high service temperatures

For locations working at service temperature of up to 400 °C we supply single row ball bearings with adequa-tely big radial clearance as per technical conditions agreed between the manufacturer and the customer, and with stabilisation for operation at high temperatures S0 to S5. Stabilisation however reduced the hardness of bearing components and thus also the value of the basic dynamic load capacity, as stated in Tab. 5.9.

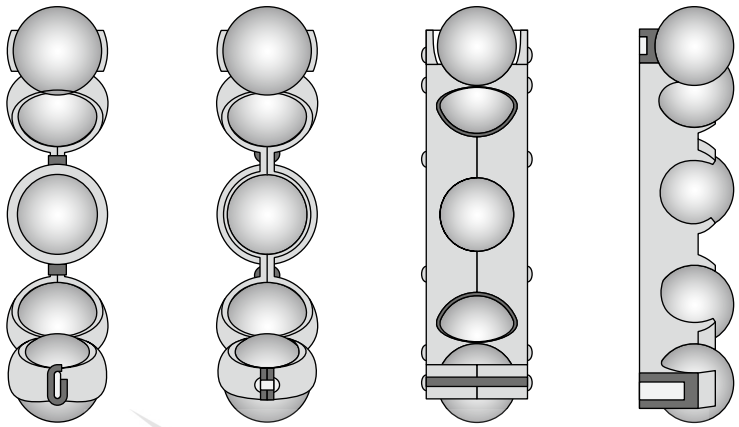


Fig. 12.1.5

Misalignment

Only small mutual tipability of bearing rings is admissible for single row ball bearings, therefore the concen-tricity deviation of location points can be only very small. The size of it depends on radial clearance in the bearing, its dimensions and load. Misalignment induces additional load of bearing which shortens its service life. Any tilting of bearing rings will also increase the noise level of the bearing.

Tab. 12.1.2

Bearing type	Load	
	low ($F_r < 0{,}15C_{or}$)	high ($F_r \geq 0{,}15C_{or}$)
618, 619, 160, 60	2´ to 6´	5´ to 10´
62, 63, 64	5´ to 10´	8´ to 16´

Minimum load

Bearings with spot or line contact must be exposed to certain minimum load in order to ensure their proper operation. This applies also to ball bearings working at high revolutions where high acceleration occurs, or in sudden changes of acting load. Insufficient load may cause damage to rolling surfaces and balls due to slip and friction which cause acting of inertial force on the cage and balls. In location with ball bearings axial prestress can be achieved through mutual adjustment of the inner and outer ring against each other, or by means of springs.

The recommended size of minimum load of bearing depending on the dynamic load capacity of it is defined by the below relation:

$$P/C_r > 0.01$$

Axial load capacity

If only axial load acts on ball bearings, it should not exceed 0.5 C_{or}. Smaller bearings (with bore diameter up to 12mm) and bearings of light series (diameter of series 8, 9, 0 and 1) should be exposed to axial load of over 0.25 C_{or}. Excessive axial load may cause substantial shortening of the service life of the bearing.

Equivalent radial load

Single row ball bearings:

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

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

where:

P_r . . . . . is equivalent radial load (kN)

C_r . . . . . dynamic load rating of bearing (kN)

C_{or} . . . . . static load rating of bearing (kN)

F_r . . . . . radial load

F_a . . . . . axial load

Values of coefficients e and Y in dependency to the F_a/C_o relation is determined by chart 12.3. Determination of values also depends in the size of radial clearance. Bigger radial clearance allows transferring of bigger axial load. Intermediate values are defined by interpolation.

Tab. 12.1.3

Radial clearance															
F_a/C_{or}	normal					C3					C4				
		$F_a/F_r \leq e$		$F_a/F_r > e$			$F_a/F_r \leq e$		$F_a/F_r > e$			$F_a/F_r \leq e$		$F_a/F_r > e$	
	e	X	Y	X	Y	e	X	Y	X	Y	e	X	Y	X	Y
0,025	0,22	1	0	0,56	2	0,31	1	0	0,46	1,75	0,4	1	0	0,44	1,42
0,04	0,24	1	0	0,56	1,8	0,33	1	0	0,46	1,62	0,42	1	0	0,44	1,36
0,07	0,27	1	0	0,56	1,6	0,36	1	0	0,46	1,46	0,44	1	0	0,44	1,27
0,13	0,31	1	0	0,56	1,4	0,41	1	0	0,46	1,3	0,48	1	0	0,44	1,16
0,25	0,37	1	0	0,56	1,2	0,46	1	0	0,46	1,14	0,53	1	0	0,44	1,05
0,5	0,44	1	0	0,56	1	0,54	1	0	0,46	1	0,56	1	0	0,44	1

Values of coefficients X and Y apply on condition that bearings will be on pin and in body located within the tolerances recommended for low and medium load (Tab. 8.3) and that during the operation no significant decrease of radial clearance occurs due to service temperature (the temperature difference between the inner and outer ring of max 10 °C).

Separable single row ball bearings:

$$P_r = F_r \qquad \text{for } F_a/F_r \leq 0.2$$

$$P_r = 0.5\ F_r + 2.5\ F_a \qquad \text{for } F_a/F_r > 0.2$$

Radial equivalent static load

Single row ball bearings:

$$P_{or} = 0.6\ F_r + 0.5\ F_a \qquad (P_{or} \geq F_r)$$

$$P_{or} = F_r \qquad (P_{or} < F_r)$$

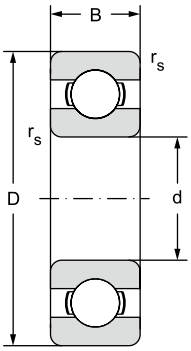
Separable single row ball bearings:

$$P_{or} = 0.9\ F_r + 0.3\ F_a \qquad (P_{or} \geq F_r)$$

$$P_{or} = F_r \qquad (P_{or} < F_r)$$

Single row ball bearings d = 2 to 1060 mm

d = 2 to 10 mm



12.1.1

Main dimensions				Basic load rating		Fatique load limit
				Dynamic	Static	P_u
d	D	B	r_s	C_r	C_{or}	
mm				kN		kN
2	6	2,3	0,1	0,279	0,09	0,004
3	10	4	0,15	0,645	0,229	0,01
4	9	2,5	0,2	0,54	0,18	0,007
	11	4	0,2	0,715	0,232	0,01
	12	4	0,2	0,806	0,28	0,012
	13	5	0,2	1,168	0,412	0,019
	16	5	0,3	1,875	0,677	0,031
5	11	3	0,15	0,637	0,255	0,011
	13	4	0,2	1,079	0,432	0,02
	16	5	0,3	1,875	0,677	0,031
	19	6	0,3	2,838	1,078	0,049
6	13	3,5	0,15	0,884	0,345	0,015
	15	5	0,2	1,47	0,599	0,027
	19	6	0,3	2,838	1,078	0,049
7	14	3,5	0,15	0,956	0,4	0,017
	17	5	0,3	1,48	0,56	0,024
	19	6	0,3	2,838	1,078	0,049
	22	7	0,3	3,282	1,356	0,062
8	16	4	0,2	1,55	0,722	0,033
	19	6	0,2	1,9	0,735	0,031
	22	7	0,3	3,282	1,356	0,062
	24	8	0,3	3,9	1,66	0,071
9	17	4	0,2	1,43	0,64	0,027
	20	6	0,3	2,08	0,865	0,036
	24	7	0,3	3,668	1,64	0,075
	26	8	0,3	4,557	1,955	0,089
10	19	5	0,3	1,38	0,585	0,025
	22	6	0,3	2,08	0,85	0,036
	26	8	0,3	4,557	1,955	0,089
	28	8	0,6	4,62	1,96	0,083
	30	9	0,6	6,047	2,51	0,114
	30	14	0,6	6,047	2,51	0,114
	35	11	0,6	8,072	3,43	0,156

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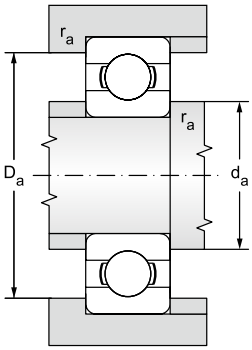

Limiting speed for lubrication with		Bearing designation	Abutment and Fillet Dimensions			Weight
Grease	Oil		d_a	D_a	r_a	~
			min	max	max	
min^{-1}			mm			kg
63000	79000	**619/2**	3,2	4,8	0,1	0,0004
40000	50000	**623**	4,2	8,5	0,1	0,0015
63000	75000	**618/4**	4,6	8,4	0,1	0,0007
60000	71000	**619/4**	4,8	10,2	0,1	0,0017
53000	63000	**604**	5,4	10,6	0,2	0,0021
38000	45000	**624**	5,6	11,2	0,2	0,0032
35000	42000	**634**	6,2	13,4	0,3	0,0050
53000	63000	**618/5**	5,8	10,2	0,1	0,0012
47000	56000	**619/5**	6,6	11,5	0,2	0,0025
35000	42000	**625**	7	14	0,3	0,0047
35000	42000	**635**	7,2	15,8	0,3	0,0090
48000	56000	**618/6**	6,8	12,2	0,1	0,0020
42000	50000	**619/6**	7,8	13	0,2	0,0040
35000	42000	**626**	8,2	17	0,3	0,0080
44000	51000	**618/7**	7,8	13,2	0,1	0,0022
41000	47000	**619/7**	9	15	0,3	0,0049
35000	42000	**607**	9	17,2	0,3	0,0090
35000	42000	**627**	9,2	19	0,3	0,012
35000	42000	**618/8TNH**	9,8	14	0,2	0,0030
39000	46000	**619/8**	10	17	0,3	0,0071
35000	42000	**608**	10	20	0,3	0,015
31000	36000	**628**	10,4	21,6	0,3	0,017
38000	45000	**618/9**	10,4	15,6	0,2	0,0034
37000	44000	**619/9**	11	18	0,3	0,0076
35000	42000	**609**	11	22	0,3	0,018
35000	42000	**629**	11	24	0,3	0,020
36000	43000	**61800**	12	17	0,3	0,0055
34000	40000	**61900**	12	20	0,3	0,0100
28000	33000	**6000**	12	24	0,3	0,019
28000	34000	**16100**	14,2	23,8	0,3	0,022
25000	30000	**6200**	14	26	0,6	0,031
25000	30000	**62200**	14	26	0,6	0,040
22000	27000	**6300**	14	31	0,6	0,054

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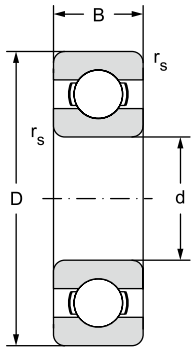
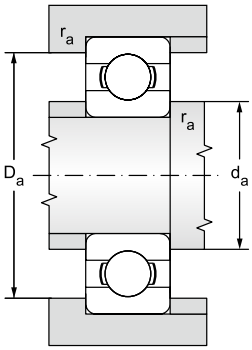
Single row ball bearings

d = 12 to 20 mm



12.1.1

Main dimensions				Basic load rating		Fatique load limit
				Dynamic	Static	P_u
d	D	B	r_s	C_r	C_{or}	
mm				kN		kN
12	21	5	0,3	1,43	0,67	0,028
	24	6	0,3	2,25	0,98	0,043
	28	7	0,3	5,094	2,36	0,107
	28	8	0,3	5,094	2,36	0,107
	30	8	0,3	5,07	2,36	0,1
	32	10	0,6	6,905	3,1	0,141
	32	14	0,6	6,905	3,1	0,141
	37	12	1	9,759	4,235	0,193
15	24	5	0,3	1,56	0,8	0,034
	28	7	0,3	4,36	2,24	0,095
	32	8	0,3	5,594	2,86	0,13
	32	9	0,3	5,594	2,865	0,13
	35	11	0,6	7,718	3,745	0,17
	35	14	0,6	7,718	3,745	0,17
	42	13	1	11,31	5,33	0,242
17	26	5	0,3	1,68	0,93	0,039
	30	7	0,3	4,62	2,55	0,108
	35	8	0,3	5,999	3,265	0,148
	35	10	0,3	6,001	3,267	0,149
	40	12	0,6	9,534	4,734	0,215
	40	16	0,6	9,534	4,734	0,215
	47	14	1	13,565	6,56	0,298
	62	17	1,1	22,9	10,8	0,455
20	32	7	0,3	4,03	2,32	0,104
	37	9	0,3	6,37	3,65	0,156
	42	8	0,3	9,371	4,972	0,226
	42	12	0,6	9,371	4,972	0,226
	47	14	1	12,774	6,553	0,298
	47	18	1	12,774	6,553	0,298
	47	20,6	1	12,774	6,553	0,298
	52	15	1,1	15,866	7,811	0,355
	72	19	0,6	30,7	15	0,64
	52	21	1,1	15,866	7,811	0,355



Limiting speed for lubrication with		Bearing designation	Abutment and Fillet Dimensions			Weight
Grease	Oil		d_a	D_a	r_a	~
			min	max	max	
min^{-1}			mm			kg
32000	38000	**61801**	14	19	0,3	0,0063
30000	36000	**61901**	14	22	0,3	0,011
25000	30000	**16001**	14	26	0,3	0,020
25000	30000	**6001**	14	26	0,3	0,022
26000	32000	**16101**	14,4	27,6	0,3	0,023
22000	27000	**6201**	16	28	0,6	0,037
22000	27000	**62201**	16	28	0,6	0,045
20000	24000	**6301**	17	32	1	0,061
28000	34000	**61802**	17	22	0,3	0,0074
24000	30000	**61902**	17	26	0,3	0,016
21000	25000	**16002**	17	30	0,3	0,027
21000	25000	**6002**	17	30	0,3	0,030
20000	24000	**6202**	19	31	0,6	0,046
20000	24000	**62202**	19	31	0,6	0,054
18000	21000	**6302**	20	36	1	0,085
24000	30000	**61803**	19	24	0,3	0,0082
22000	28000	**61903**	19	28	0,3	0,018
20000	24000	**16003**	19	33	0,3	0,032
20000	24000	**6003**	19	33	0,3	0,040
18000	21000	**6203**	21	36	0,6	0,073
18000	21000	**62203**	21	36	0,6	0,083
16000	19000	**6303**	23	41	1	0,12
12000	15000	**6403**	23,5	55,5	1	0,27
19000	24000	**61804**	22	30	0,3	0,018
18000	22000	**61904**	22	35	0,3	0,038
17000	20000	**16004D**	22	40	0,3	0,050
17000	20000	**6004**	24	38	0,6	0,070
15000	18000	**6204**	25	42	1	0,11
15000	18000	**62204**	25	42	1	0,13
15000	18000	**63204**	25	42	1	0,15
14000	17000	**6304**	26	45	1	0,15
10000	13000	**6404**	29	63	1	0,40
14000	17000	**62304**	26	45	1	0,20

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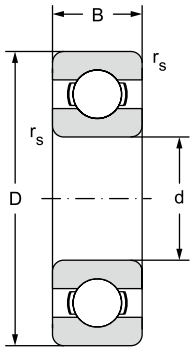
Single row ball bearings

d = 25 to 40 mm



12.1.1

Main dimensions				Basic load rating		Fatique load limit
				Dynamic	Static	P_u
d	D	B	r_s	C_r	C_{or}	
mm				kN		kN
25	37	7	0,3	4,36	2,6	0,125
	42	9	0,3	7,02	4,3	0,193
	47	8	0,3	6,95	4,55	0,207
	47	8	0,3	10,07	5,806	0,264
	47	12	0,6	10,07	5,806	0,264
	52	15	1	14,029	7,94	0,361
	52	18	1	14,029	7,94	0,361
	62	17	1,1	21,123	10,806	0,491
	62	24	1,1	21,123	10,806	0,491
	80	21	1,5	36	19,2	0,873
30	42	7	0,3	4,49	2,9	0,146
	47	9	0,3	7,28	4,55	0,212
	55	9	0,3	11,2	7,36	0,335
	55	13	1	13,243	8,25	0,375
	62	16	1	19,443	11,186	0,508
	62	20	1	19,443	11,186	0,508
	72	19	1,1	29,701	15,678	0,713
	90	23	1,5	43	23,7	1,077
35	47	7	0,3	4,75	3,2	0,17
	55	10	0,6	9,56	6,8	0,29
	62	9	0,3	9,96	7,362	0,335
	62	14	1	15,956	10,328	0,469
	72	17	1,1	25,663	15,227	0,692
	80	21	1,5	33,367	19,23	0,874
	100	25	1,5	55,2	31	1,409
40	52	7	0,3	4,94	3,45	0,19
	62	12	0,6	13,8	10	0,43
	68	9	0,3	12,667	9,617	0,437
	68	15	1	16,824	11,493	0,522
	80	18	1,1	32,633	19,887	0,904
	80	18	1,1	35,8	20,8	0,88
	90	23	1,5	40,76	24,17	1,099
	110	27	2	63,1	36,2	1,645

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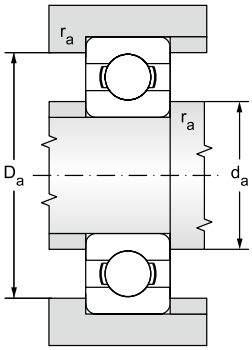
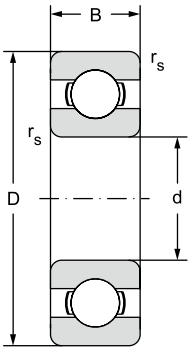


Limiting speed for lubrication with		Bearing designation	Abutment and Fillet Dimensions			Weight
Grease	Oil		d_a	D_a	r_a	~
			min	max	max	
min^{-1}			mm			kg
17000	20000	**61805**	27	35	0,3	0,022
16000	19000	**61905**	27	40	0,3	0,045
14000	17000	**16005**	27	43	0,3	0,053
14000	17000	**16005D**	27	43	0,3	0,053
14000	17000	**6005**	28	43	0,6	0,082
12000	15000	**6205**	30	47	1	0,13
12600	15000	**62205**	30	47	1	0,15
11000	13000	**6305**	31	55	1	0,23
11000	13000	**62305**	31	55	1	0,32
9400	11000	**6405**	34	70	1,5	0,53
15000	18000	**61806**	32	40	0,3	0,027
14000	17000	**61906**	32	45	0,3	0,051
12000	14000	**16006**	32	53	0,3	0,087
12000	14000	**6006**	34	50	1	0,12
11000	13000	**6206**	35	57	1	0,20
11000	13000	**62206**	35	57	1	0,24
10000	12000	**6306**	36	65	1	0,33
8400	10000	**6406**	39	80	1,5	0,73
13000	16000	**61807**	37	45	0,3	0,030
11000	14000	**61907**	38,2	51,8	0,6	0,080
10600	12600	**16007**	37	60	0,3	0,11
10600	12600	**6007**	39,5	57	1	0,15
9400	11000	**6207**	42	65	1	0,28
8400	10000	**6307**	42	71	1,5	0,45
7500	8900	**6407**	44	90	1,5	0,95
11000	14000	**61808**	42	50	0,3	0,034
10000	13000	**61908**	43,2	58,8	0,6	0,12
9400	11000	**16008**	42	62	0,3	0,13
9400	11000	**6008**	44	63	1	0,19
8400	10000	**6208**	47	73	1	0,35
8500	10000	**6208**	47	73	1	0,34
7900	9400	**6308**	47	81	1,5	0,63
6700	7900	**6408**	50	97	2	1,12

DUNLOP

Single row ball bearings

d = 45 to 65 mm



12.1.1

Main dimensions				Basic load rating		Fatique load limit
				Dynamic	Static	P_u
d	D	B	r_s	C_r	C_{or}	
mm				kN		kN
45	58	7	0,3	6,63	6,1	0,26
	68	12	0,6	14	10,8	0,47
	75	10	0,6	15,659	12,172	0,553
	75	16	1	21,1	15,3	0,695
	85	19	1,1	32,678	20,325	0,924
	100	25	1,5	52,804	31,715	1,442
	120	29	2	76,5	44,7	2,032
50	65	7	0,3	6,76	6,8	0,285
	72	12	0,6	14,6	11,8	0,5
	80	10	0,6	16,092	13,147	0,598
	80	16	1	21,72	16,65	0,757
	90	20	1,1	35,066	23,226	1,056
	110	27	2	61,754	37,754	1,716
	130	31	2,1	87,4	52,1	2,368
55	72	9	0,3	9,04	8,8	0,38
	80	13	1	16,5	14	0,6
	90	11	0,6	20,3	14	0,7
	90	18	1,1	28,216	21,318	0,969
	100	21	1,5	43,35	29,397	1,336
	120	29	2	71	44,7	2,032
	140	33	2,1	100	61,9	2,814
60	78	10	0,3	11,9	11,4	0,49
	85	13	1	16,5	14,3	0,6
	95	11	0,6	20,8	15	0,74
	95	18	1,1	29,343	23,256	1,057
	110	22	1,5	52,846	35,786	1,627
	130	31	2,1	81,5	52,1	2,368
	150	35	2,1	110	69,4	3,079
65	85	10	0,6	12,4	12,7	0,54
	90	13	1	17,4	16	0,68
	100	11	0,6	21,2	19,6	0,891
	100	18	1,1	30,5	25,1	1,141
	120	23	1,5	57,21	40,011	1,819
	140	33	2,1	92,6	59,6	2,676
	160	37	2,1	117,95	78,329	3,357

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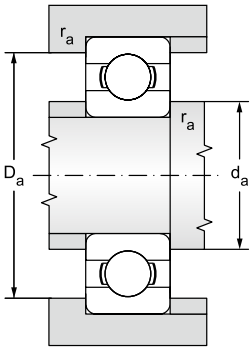
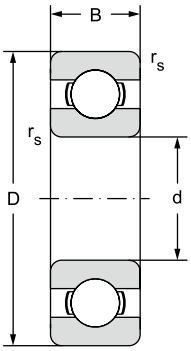


Limiting speed for lubrication with		Bearing designation	Abutment and Fillet Dimensions			Weight
Grease	Oil		d_a	D_a	r_a	~
			min	max	max	
min^{-1}			mm			kg
9500	12000	**61809**	47	56	0,3	0,040
9000	11000	**61909**	48,2	64,8	0,6	0,14
8400	10000	**16009**	49	71	1	0,17
8400	10000	**6009**	49	70	1	0,24
7900	9400	**6209**	52	78	1	0,40
7100	8400	**6309**	52	91	1,5	0,83
6000	7100	**6409**	55	107	2	1,54
9000	11000	**61810**	52	63	0,3	0,052
8500	10000	**61910**	53,2	68,8	0,6	0,14
7900	9400	**16010**	54	76	0,6	0,19
7900	9400	**6010**	54	75	1	0,26
7100	8400	**6210**	57	83	1	0,46
6300	7500	**6310**	60	100	2	1,06
5600	6700	**6410**	63	116	2	1,89
8500	10000	**61811**	57	70	0,3	0,083
8000	9500	**61911**	59,6	75,4	1	0,19
7500	9000	**16011**	58,2	86,8	0,6	0,26
7100	8400	**6011**	60	84	1	0,38
6700	7900	**6211**	62	91	1,5	0,60
5600	6700	**6311**	65	110	2	1,38
5300	6300	**6411**	68	126	2	2,29
7500	9000	**61812**	62	76	0,3	0,11
7500	9000	**61912**	64,6	80,4	1	0,20
6700	8000	**16012**	63,2	91,8	0,6	0,28
6700	7900	**6012**	65	88	1	0,41
6000	7100	**6212**	67	101	1,5	0,77
5300	6300	**6312**	72	118	2	1,72
4700	5600	**6412**	73	136	2	2,76
7000	8500	**61813**	68,2	81,8	0,6	0,13
6700	8000	**61913**	69,6	85,4	1	0,22
6300	7500	**16013**	69	96	0,6	0,30
6300	7500	**6013**	70	93	1	0,44
5300	6300	**6213**	72	111	1,5	1,00
5000	6000	**6313**	76	128	2	2,10
4500	5300	**6413**	78	146	2	3,28

DUNLOP

Single row ball bearings

d = 70 to 90 mm



12.1.1

Main dimensions				Basic load rating		Fatique load limit
				Dynamic	Static	P_u
d	D	B	r_s	C_r	C_{or}	
mm				kN		kN
70	90	10	0,6	12,4	13,2	0,56
	100	16	1	23,8	21,2	0,9
	110	13	0,6	27,6	25,1	1,141
	110	20	1,1	37,96	30,959	1,407
	125	24	1,5	62	43,8	1,991
	150	35	2,1	104	63,1	2,735
	180	42	3	144	104	4,228
75	95	10	0,6	12,7	14,3	0,61
	105	16	1	24,2	19,3	0,965
	110	12	0,6	28,6	27	1,14
	115	13	0,6	28,7	26,6	1,209
	115	20	1,1	39,747	33,17	1,508
	130	25	1,5	66,179	49,311	2,214
	160	37	2,1	114	76,4	3,204
	190	45	3	152,525	112,922	4,459
80	100	10	0,6	13	15	0,64
	110	16	1	25,1	20,4	1,02
	125	14	0,6	32,9	31,6	1,419
	125	22	1,1	47,5	39,8	1,787
	140	26	2	72,2	53,1	2,301
	170	37	2,1	122,85	86,226	3,506
	200	48	3	163,587	124,984	4,801
85	110	13	1	19,5	20,8	0,88
	120	18	1,1	31,9	30	1,25
	130	14	0,6	34,1	32,9	1,442
	130	22	1,1	49,794	42,609	1,868
	150	28	2	83,299	63,675	2,67
	180	41	3	132,507	96,069	3,794
	210	52	4	174	136	5,09
90	115	13	1	19,5	22	0,915
	125	18	1,1	33,2	31,5	1,23
	140	16	1	43,6	39	1,56
	140	24	1,5	58,4	49,2	2,085
	160	30	2	96,2	70,8	2,878
	190	43	3	144	108	4,149
	225	54	4	192	158	5,723

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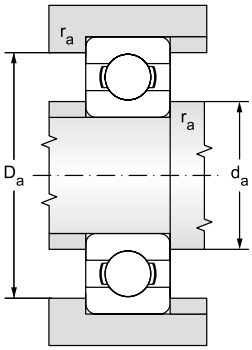

Limiting speed for lubrication with		Bearing designation	Abutment and Fillet Dimensions			Weight
Grease	Oil		d_a	D_a	r_a	~
			min	max	max	
min^{-1}			mm			kg
6700	8000	**61814**	73,2	86,8	0,6	0,14
6300	7500	**61914**	74,6	95,4	1	0,35
5600	6700	**16014**	74	106	0,6	0,43
5600	6700	**6014**	75	103	1	0,60
5300	6300	**6214**	77	116	1,5	1,07
4700	5600	**6314**	81	138	2	2,54
4000	4700	**6414**	85	164	2,5	4,85
6300	7500	**61815**	78,2	91,8	0,6	0,15
6000	7000	**61915**	79,6	100	1	0,37
5500	7800	**16115**	77	108	0,3	0,38
5300	6300	**16015**	79	111	0,6	0,46
5300	6300	**6015**	80	108	1	0,64
5000	6000	**6215**	82	122	1,5	1,18
4200	5000	**6315**	86	148	2	3,06
3800	4500	**6415**	90	174	2,5	5,74
6000	7000	**61816**	83,2	96,8	0,6	0,15
5600	6700	**61916**	84,6	105	1	0,40
5000	6000	**16016**	84	121	0,6	0,60
5000	6000	**6016**	85	118	1	0,85
4700	5600	**6216**	90	130	2	1,40
4000	4700	**6316**	91	158	2	3,63
3500	4200	**6416**	95	184	2,5	6,72
5300	6300	**61817**	89,6	105	1	0,27
5300	6300	**61917**	91	114	1	0,55
4700	5600	**16017**	89	126	0,6	0,63
4700	5600	**6017**	90	123	1	0,89
4200	5000	**6217**	95	140	2	1,80
3800	4500	**6317**	98	166	2,5	4,20
3300	4000	**6417**	105	190	3	7,88
5300	6300	**61818**	94,6	110	1	0,28
5000	6000	**61918**	96	119	1	0,59
4800	5600	**16018**	94,6	135	1	0,85
4500	5300	**6018**	96	132	1,5	1,17
4000	4700	**6218**	100	150	2	2,16
3500	4200	**6318**	103	176	2,5	4,95
3200	3800	**6418**	110	205	3	11,4

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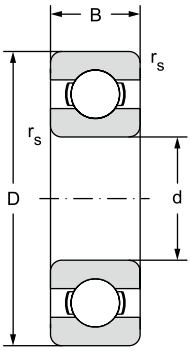
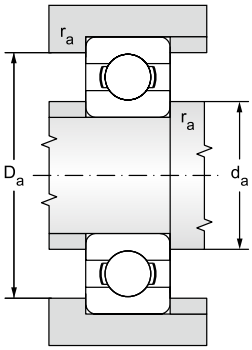
Single row ball bearings

d = 95 to 130 mm



12.1.1

Main dimensions				Basic load rating		Fatique load limit
				Dynamic	Static	P_u
d	D	B	r_s	C_r	C_{or}	
mm				kN		kN
95	120	13	1	19,9	22,8	0,93
	130	18	1,1	33,8	33,5	1,43
	145	16	1	42,3	41,5	1,722
	145	24	1,5	60,7	54,1	2,245
	170	32	2,1	108	81	3,199
	200	45	3	152,444	117,366	4,393
100	125	13	1	19,9	24	0,95
	140	20	1,1	42,3	41	1,63
	150	16	1	44	43,8	1,781
	150	24	1,5	60,096	54,244	2,205
	180	34	2,1	123	92,6	3,557
	215	47	3	174	141	5,107
105	130	13	1	20,8	19,6	1
	145	20	1,1	44,2	44	1,7
	160	18	1	54	51	1,86
	160	26	2	72,2	65,6	2,59
	190	36	2,1	132,927	104,833	3,924
	225	49	3	185	153	5,414
110	140	16	1	28,1	26	1,25
	150	20	1,1	43,6	45	1,66
	170	19	1	57,6	56,2	2,159
	170	28	2	82,5	72,2	2,774
	200	38	2,1	144	117	4,272
	240	50	3	203	180	6,185
120	150	16	1	29,1	28	1,29
	165	22	1,1	55,3	57	2,04
	180	19	1	61	63,1	2,342
	180	28	2	85	79,4	2,947
	215	40	2,1	144	117	4,109
	260	55	3	208	186	5,7
130	165	18	1,1	37,7	43	1,6
	180	24	1,5	65,503	67,193	2,453
	200	22	1,1	83,2	81,5	2,7
	200	33	2	106,986	99,667	3,527
	230	40	3	153	133	4,506
	280	58	4	229	216	6,3



Limiting speed for lubrication with		Bearing designation	Abutment and Fillet Dimensions			Weight
Grease	Oil		d_a	D_a	r_a	~
			min	max	max	
min^{-1}			mm			kg
5000	6000	**61819**	99,6	115	1	0,30
4800	5600	**61919**	101	124	1	0,61
4200	5000	**16019**	100	140	1	0,89
4200	5000	**6019**	102	137	1,5	1,22
3800	4500	**6219**	107	158	2	2,60
3300	4000	**6319**	109	186	2,5	5,72
4800	5600	**61820**	105	120	1	0,31
4500	5300	**61920**	106	134	1	0,83
4200	5000	**16020**	105	145	1	0,91
4200	5000	**6020**	106	142	1,5	1,27
3500	4200	**6220**	112	169	2	3,13
3200	3800	**6320**	113	201	2,5	7,07
4500	5300	**61821**	110	125	1	0,32
4300	5000	**61921**	111	139	1	0,87
4000	4800	**16021**	110	155	1	1,20
4000	4700	**6021**	113	151	2	1,59
3300	4000	**6221**	117	178	2	3,74
3000	3500	**6321**	119	211	2,5	8,00
4300	5000	**61822**	115	135	1	0,60
4000	4800	**61922**	116	144	1	0,90
3800	4500	**16022**	115	165	1	1,46
3800	4500	**6022**	118	161	2	1,95
3200	3800	**6222**	122	188	2	4,37
2600	3200	**6322**	123	227	2,5	9,58
3800	4500	**61824**	125	145	1	0,65
3600	4300	**61924**	126	159	1	1,20
3300	4000	**16024**	125	175	1	1,80
3300	4000	**6024**	128	171	2	2,10
3000	3500	**6224**	132	203	2	5,15
2400	3000	**6324**	134	246	2,5	12,5
3600	4300	**61826**	136	159	1	0,93
3200	3800	**61926**	137	172	1	1,86
3200	3800	**16026**	136	192	1	2,35
3200	3800	**6026**	138	191	2	3,26
2800	3300	**6226**	144	216	2,5	6,20
2200	2800	**6326M**	147	263	3	17,5

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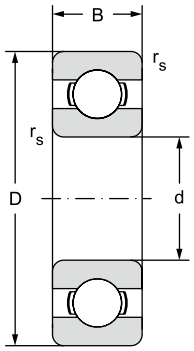
Single row ball bearings

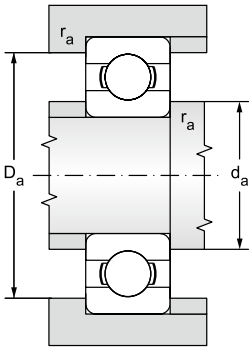
d = 140 to 190 mm



12.1.1

Main dimensions				Basic load rating		Fatique load limit
				Dynamic	Static	P_u
d	D	B	r_s	C_r	C_{or}	
mm				kN		kN
140	175	18	1,1	39	46,5	1,66
	190	24	1,5	66,3	72	2,36
	210	22	1,1	80,6	86,5	2,8
	210	33	2	110	108	3,711
	250	42	3	166	150	4,883
	300	62	4	251	245	7,1
150	190	20	1,1	48,8	61	1,96
	210	28	2	88,4	93	2,9
	225	24	1,1	92,2	98	3,05
	225	35	2,1	126	126	4,183
	270	45	3	190	181	5,677
	320	65	4	276	285	7,8
160	200	20	1,1	49,4	64	2
	220	28	2	92,3	98	3,05
	240	25	1,5	99,5	108	3,25
	240	38	2,1	143	143	4,3
	290	48	3	186	186	5,3
	340	68	4	276	285	7,65
170	215	22	1,1	61,8	78	2,4
	230	28	2	93,6	106	3,15
	260	28	1,5	119	129	3,75
	260	42	2,1	168	171	5,301
	310	52	4	212	224	6,1
	360	72	4	312	340	8,8
180	225	22	1,1	62,4	81,5	2,45
	250	33	2	119	134	3,9
	280	31	2	138	146	4,15
	280	46	2,1	190	200	5,6
	320	52	4	229	240	6,4
	380	75	4	351	405	10,4
190	240	24	1,5	76,1	98	2,8
	260	33	2	117	134	3,8
	290	31	2	148	166	4,55
	290	46	2,1	195	216	5,85
	340	55	4	255	280	7,35
	400	78	5	371	430	10,8

DUNLOP

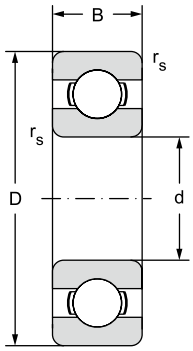


Limiting speed for lubrication with		Bearing designation	Abutment and Fillet Dimensions			Weight
Grease	Oil		d_a	D_a	r_a	~
			min	max	max	
min^{-1}			mm			kg
3400	4000	**61828**	146	169	1	0,99
3200	3800	**61928MA**	147	183	1,5	1,70
3000	3600	**16028**	146	204	1	2,50
3000	3500	**6028**	148	200	2	3,39
2500	3000	**6228**	154	236	2,5	7,56
2000	2600	**6328M**	157	283	3	22,0
3000	3600	**61830**	156	184	1	1,40
2800	3400	**61930MA**	159	201	2	3,05
2600	3200	**16030**	156	219	1	3,15
2700	3200	**6030**	159	213	2	4,16
2200	2700	**6230**	164	256	2,5	9,85
1900	2400	**6330M**	167	303	3	26,0
2800	3400	**61832**	166	194	1	1,45
2600	3200	**61932MA**	169	211	2	3,25
2400	3000	**16032**	167	233	1,5	3,70
2400	3000	**6032**	169	231	2	5,90
1900	2400	**6232**	174	276	2,5	14,5
1800	2200	**6332M**	177	323	3	29,0
2600	3200	**61834**	176	209	1	1,90
2400	3000	**61934MA**	179	221	2	3,40
2200	2800	**16034**	177	253	1,5	5,00
2200	2700	**6034**	179	248	2	6,91
1900	2400	**6234M**	187	293	3	17,5
1700	2000	**6334M**	187	343	3	34,5
2400	3000	**61836**	186	219	1	2,00
2200	2800	**61936MA**	189	241	2	5,05
2000	2600	**16036**	189	271	2	6,60
2000	2600	**6036M**	190	270	2	10,5
1800	2200	**6236M**	197	303	3	18,5
1700	2000	**6336M**	197	363	3	42,5
2200	2800	**61838**	197	233	1,5	2,60
2200	2800	**61938MA**	199	251	2	5,25
2000	2600	**16038**	199	281	2	7,90
2000	2600	**6038M**	200	280	2	11,0
1700	2000	**6238M**	207	323	3	23,0
1600	1900	**6338M**	210	380	4	49,0

DUNLOP

Single row ball bearings

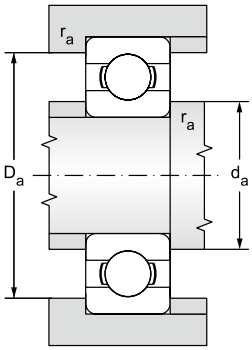
d = 200 to 320 mm



12.1.1

Main dimensions				Basic load rating		Fatique load limit
				Dynamic	Static	P_u
d	D	B	r_s	C_r	C_{or}	
mm				kN		kN
200	250	24	1,5	76,1	102	2,9
	280	38	2,1	148	166	4,55
	310	34	2	168	190	5,1
	310	51	2,1	216	245	6,4
	360	58	4	270	310	7,8
220	270	24	1,5	78	110	3
	300	38	2,1	151	180	4,75
	340	37	2,12	174	204	5,2
	340	56	3	247	290	7,35
	400	65	4	296	365	8,8
	460	88	5	410	520	12
240	300	28	2	108	150	3,8
	320	38	2,1	159	200	5,1
	360	37	2,1	178	220	5,3
	360	56	3	255	315	7,8
	440	72	4	358	465	10,8
	500	95	5	442	585	12,9
260	320	28	2	111	163	4
	360	46	2,1	212	270	6,55
	400	44	3	238	310	7,2
	400	65	4	291	375	8,8
	480	80	5	390	530	11,8
280	350	33	2	138	200	4,75
	380	46	2,1	216	285	6,7
	420	44	3	242	335	7,5
	420	65	4	302	405	9,3
	500	80	5	423	600	12,9
300	380	38	2,1	172	245	5,6
	420	56	3	270	375	8,3
	460	50	4	286	405	8,8
	460	74	4	358	500	10,8
	540	85	5	462	670	13,7
320	400	38	2,1	172	255	5,7
	440	56	3	276	400	8,65
	480	50	4	281	405	8,65
	480	74	4	371	540	11,4

DUNLOP

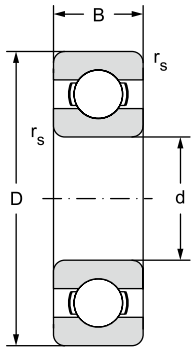


Limiting speed for lubrication with		Bearing designation	Abutment and Fillet Dimensions			Weight
Grease	Oil		d_a	D_a	r_a	~
			min	max	max	
min^{-1}			mm			kg
2200	2800	**61840**	207	243	1,5	2,70
2000	2600	**61940MA**	210	270	2	7,40
1900	2400	**16040**	209	301	2	8,85
1900	2400	**6040M**	210	300	2	14,0
1700	2000	**6240M**	217	343	3	28,0
1900	2400	**61844**	227	263	1,5	3,00
1900	2400	**61944MA**	230	290	2	8,00
1800	2200	**16044**	230	330	2	11,5
1800	2200	**6044M**	233	327	2,5	18,5
1500	1800	**6244M**	237	383	3	37,0
1300	1600	**6344M**	240	440	4	72,5
1800	2200	**61848**	249	291	2	4,50
1800	2200	**61948MA**	250	310	2	8,60
1700	2000	**16048MA**	250	350	2	14,5
1700	2000	**6048M**	253	347	2,5	19,5
1300	1600	**6248M**	257	423	3	51,0
1300	1600	**6348M**	260	480	4	92,5
1700	2000	**61852**	269	311	2	4,80
1600	1900	**61952MA**	270	350	2	14,5
1500	1800	**16052MA**	273	387	2,5	21,5
1500	1800	**6052M**	277	383	3	29,5
1100	1400	**6252M**	280	460	4	65,5
1600	1900	**61856**	289	341	2	7,40
1500	1800	**61956MA**	291	369	2	15,0
1400	1700	**16056MA**	293	407	2,5	23,0
1400	1700	**6056M**	296	404	3	31,0
1100	1400	**6256M**	300	480	4	71,0
1400	1700	**61860MA**	309	371	2	10,5
1300	1600	**61960MA**	313	407	2,5	24,5
1200	1500	**16060MA**	315	445	3	32,0
1200	1500	**6060M**	315	445	3	44,0
1200	1500	**6260M**	320	520	4	88,5
1300	1600	**61864MA**	332	388	2	11,0
1200	1500	**61964MA**	333	427	2,5	25,5
1100	1400	**16064MA**	335	465	3	34,0
1100	1400	**6064M**	335	465	3	46,0

DUNLOP

Single row ball bearings

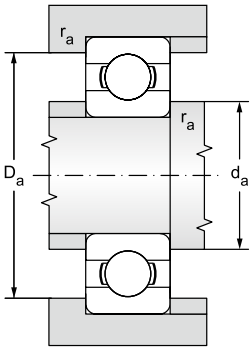
d = 340 to 500 mm



12.1.1

Main dimensions				Basic load rating		Fatique load limit
				Dynamic	Static	P_u
d	D	B	r_s	C_r	C_{or}	
mm				kN		kN
340	420	38	2,1	178	275	6
	460	56	3	281	425	9
	520	57	4	345	520	10,6
	520	82	5	423	640	13,2
360	440	38	2,1	182	285	6,1
	480	56	3	291	450	9,15
	540	57	4	351	550	11
	540	82	5	462	735	15
380	480	46	2,1	242	390	8
	520	65	4	338	540	10,8
	560	57	4	377	620	12,2
	560	82	5	462	750	14,6
400	500	46	2,1	247	405	8,15
	540	65	4	345	570	11,2
	600	90	5	520	865	16,3
420	520	46	2,1	251	425	8,3
	560	65	4	351	600	11,4
	620	90	5	507	880	16,3
440	540	46	2,1	255	440	8,5
	600	74	4	410	720	13,2
	650	94	6	553	965	17,6
460	580	56	3	319	570	10,6
	620	74	4	423	750	13,7
	680	100	6	582	1060	19
480	600	56	3	325	600	10,8
	650	78	5	449	815	14,6
	700	100	6	618	1140	20
500	620	56	3	332	620	11,2
	670	78	5	462	865	15
	720	100	6	605	1140	19,6

DUNLOP



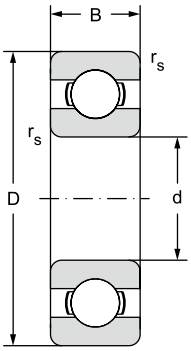
** Bearings in the new standard NEW FORCE

Limiting speed for lubrication with		Bearing designation	Abutment and Fillet Dimensions			Weight
Grease	Oil		d_a	D_a	r_a	~
			min	max	max	
min^{-1}			mm			kg
1200	1500	**61868MA**	352	408	2	11,5
1100	1400	**61968MA**	353	447	2,5	26,5
1000	1300	**16068MA**	355	505	3	45,0
1000	1300	**6068M**	360	500	4	62,0
1100	1400	**61872MA**	372	428	2	12,0
1100	1400	**61972MA**	373	467	2,5	28,0
1000	1300	**16072MA**	375	525	3	49,0
1000	1300	**6072MA**	378	522	4	64,5
1000	1300	**61876MA**	392	468	2	20,0
1000	1300	**61976MA**	395	505	3	40,0
950	1200	**16076MA**	395	545	3	51,0
950	1200	**6076M**	398	542	4	67,5
1000	1300	**61880MA****	412	488	2	20,5
950	1200	**61980MA****	415	525	3	41,5
900	1100	**6080M****	418	582	4	87,5
950	1200	**61884MA****	432	508	2	21,5
900	1100	**61984MA****	435	545	3	43,0
900	1100	**6084M****	438	602	4	91,5
900	1100	**61888MA****	452	528	2	22,5
900	1100	**61988MA****	455	585	3	60,5
850	1000	**6088M****	463	627	5	105
900	1100	**61892MA****	473	567	2,5	35,0
850	1000	**61992MA****	476	604	3	62,5
800	950	**6092MB****	483	657	5	120
850	1000	**61896MA****	493	587	2,5	36,5
800	950	**61996MA****	498	632	4	74,0
750	900	**6096MB****	503	677	5	125
800	950	**618/500MA****	513	607	2,5	40,5
750	900	**619/500MA****	518	652	4	77,0
750	900	**60/500MA****	523	697	5	135

DUNLOP

Single row ball bearings

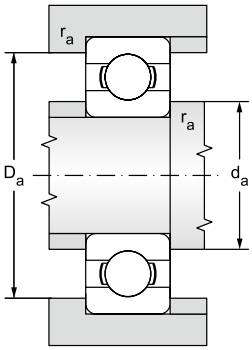
d = 530 to 1060 mm



12.1.1

Main dimensions				Basic load rating		Fatique load limit
				Dynamic	Static	P_u
d	D	B	r_s	C_r	C_{or}	
mm				kN		kN
530	650	56	3	332	655	11,2
	710	82	5	488	930	15,6
	780	112	6	650	1270	20,8
560	680	56	3	345	695	11,8
	750	85	5	494	980	16,3
	820	115	6	663	1470	22
600	730	60	3	364	765	12,5
	800	90	5	585	1220	19,6
630	780	69	4	442	965	15,3
	850	100	6	624	1340	21,2
	920	128	7,5	819	1760	27
670	820	69	4	442	1000	15,6
	900	103	6	676	1500	22,4
	980	136	7,5	904	2040	30
710	870	74	4	475	1100	16,6
	950	106	6	663	1500	22
	1030	140	7,5	956	2200	31,5
750	920	78	5	527	1250	18,3
	1000	112	6	761	1800	25,5
800	980	82	5	559	1370	19,3
	1060	115	6	832	2040	28,5
	1150	155	7,5	1010	2550	34,5
850	1030	82	5	559	1430	19,6
900	1090	85	5	619	1530	22,047
1000	1220	100	6	637	1800	22,8
1060	1280	100	6	728	2120	26,5

DUNLOP



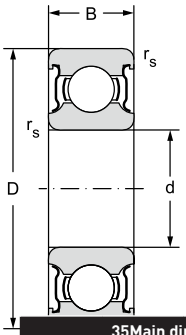
** Bearings in the new standard NEW FORCE

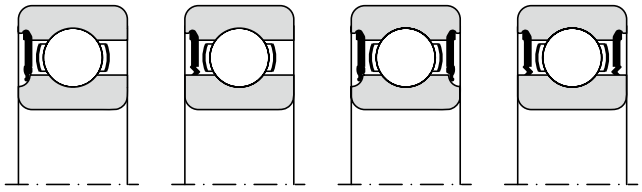
Limiting speed for lubrication with		Bearing designation	Abutment and Fillet Dimensions			Weight
Grease	Oil		d_a	D_a	r_a	~
			min	max	max	
min^{-1}			mm			kg
750	900	**618/530MA****	543	637	2,5	39,5
700	850	**619/530MA****	548	692	4	90,5
670	800	**60/530MA****	553	757	5	185
700	850	**618/560MA****	573	667	2,5	42,0
670	800	**619/560MA****	578	732	4	105
630	750	**60/560MA****	583	797	5	210
670	800	**618/600MA****	613	717	2,5	52,0
630	750	**619/600MA****	618	782	4	125
630	750	**618/630MA****	645	765	3	73,0
600	700	**619/630MA****	653	827	5	160
560	670	**60/630MB****	658	892	6	285
560	670	**618/670MA****	685	805	3	83,5
530	630	**619/670MA****	693	877	5	185
500	600	**60/670MA****	698	952	6	345
530	630	**618/710MA****	725	855	3	93,5
500	600	**619/710MA****	733	927	5	220
480	560	**60/710MA****	738	1002	6	375
500	600	**618/750MA****	768	902	4	110
480	560	**619/750MA****	773	977	5	255
450	530	**618/800MA****	818	962	4	130
420	500	**619/800MA****	823	1037	5	275
400	500	**60/800MA****	828	1122	6	535
430	500	**618/850MA****	868	1012	4	140
380	450	**618/900MA****	920	1070	4	165
340	400	**618/1000MA****	1023	1197	5	245
300	360	**618/1060MA****	1083	1257	5	260

DUNLOP

Single Row Ball Bearings with Seals or Shields d = 3 to 160 mm

d = 3 to 10 mm

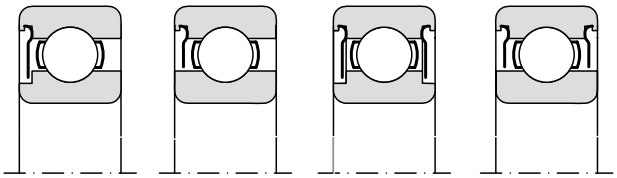


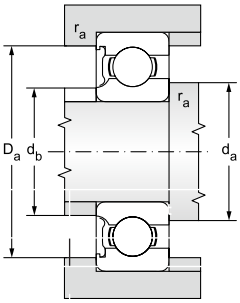


RS RSR 2RS 2RSR

35Main dimensions				Basic Load Rating		Fatigue Load Limit	Bearing designation	
				Dynamic	Static			
d	D	B	r_s	C_r	C_{or}	P_u	Z, ZR	2Z, 2ZR
			min	max	max	max		
mm				kN		kN	RS, RSR	2RS, 2RSR
3	10	4	0.15	0.645	0.229	0.01	623-ZR	623-2ZR
4	13	5	0.2	1.17	0.412	0.02	624-ZR	624-2ZR
	16	5	0.3	1.88	0.677	0.03	634-ZR	634-2ZR
5	16	5	0.3	1.88	0.677	0.03	625-ZR	625-2ZR
	19	6	0.3	2.84	1.08	0.05	635-ZR	635-2ZR
6	19	6	0.3	2.84	1.08	0.05	626-ZR	626-2ZR
7	19	6	0.3	2.84	1.08	0.05	607-RSR	607-2RSR
	19	6	0.3	2.84	1.08	0.05	607-ZR	
	22	7	0.3	3.28	1.36	0.06	627-ZR	
8	22	7	0.3	3.28	1.36	0.06	608-ZR	608-2ZR
	22	7	0.3	3.28	1.36	0.06	608-RSR	608-2RSR
9	24	7	0.3	3.67	1.64	0.07	609-ZR	609-2ZR
	24	7	0.3	3.67	1.64	0.07	609-RSR	609-2RSR
	26	8	0.3	4.56	1.96	0.09	629-ZR	629-2ZR
	26	8	0.3	4.56	1.96	0.09	629-RSR	629-2RSR
10	19	5	0.3	1.38	0.59	0.025	-	61800
	19	5	0.3	1.38	0.59	0.025	-	61800-2RSR
	22	6	0.3	2.08	0.85	0.036	-	61900-2Z
	22	6	0.3	2.08	0.85	0.036	-	61900-2RSR
	26	8	0.3	4.56	1.96	0.09	6000-ZR	6000-2ZR
	26	8	0.3	4.56	1.96	0.09	6000-RSR	6000-2RSR
	26	12	0.3	4.62	1.96	0.083	-	63000-2RSR
	30	9	0.6	6.05	2.51	0.11	6200-ZR	6200-2ZR
	30	9	0.6	6.05	2.51	0.11	6200-ZR	6200-2RSR
	30	14	0.6	6.05	2.51	0.11	6200-RSR	62200-2ZR
	30	14	0.6	6.05	2.51	0.11	62200-ZR	62200-2RSR
	35	11	0.6	8.07	3.43	0.16	6300-ZR	6300-2ZR
	35	11	0.6	8.07	3.43	0.16	6300-RS	6300-2RS
	35	17	0.6	8.06	3.4	0.143	-	62300-2RSR

DUNLOP





Limiting speed for lubrication with			Abutment and Fillet Dimensions					Weight
Grease		Oil						
Z, 2Z	RS, 2RS	Z	d	d_a	d_b	D_a	r_a	~
			min	max	max	max		
R S, RSR	min^{-1}		mm					kg
40000	-	50000	3	4.2	4.8	8.5	0.1	0.002
38000	-	45000	4	5.5	5.8	11.2	0.2	0.004
35000	-	42000		6.2	6.5	13.4	0.3	0.005
35000	-	42000	5	7	7	14	0.3	0.006
35000	-	42000		7.2	7.5	15.8	0.3	0.009
35000	-	42000	6	8.2	8.3	17	0.3	0.01
-	24000	42000	7	9	9	17	0.3	0.01
35000	-	42000		9	9	17	0.3	0.01
35000	-	42000		9.2	9.8	19.5	0.3	0.012
35000	-	42000	8	10	10	20	0.3	0.015
-	24000	-		10	10	20	0.3	0.015
35000	-	42000	9	11	12	22	0.3	0.018
-	24000	-		11	12	22	0.3	0.018
35000	-	42000		12	12.5	22.5	0.3	0.02
-	24000	-		12	12.5	22.5	0.3	0.02
36000	-	43000	10	12	12	17	0.3	0.006
-	20000	-		11.8	11.8	17	0.3	0.006
34000	-	40000		12	12	20	0.3	0.01
-	19000	-		12	12	20	0.3	0.01
28000	-	33000		12	12.5	24	0.3	0.02
-	19000	-		12	12.5	24	0.3	0.02
-	19000	-		12	12	24	0.3	0.025
25000	-	30000		14	14.4	26	0.6	0.032
-	17000	-		14	14.4	26	0.6	0.032
25000	-	30000		14	14.4	26	0.6	0.04
-	17000	-		14	14.4	26	0.6	0.04
22000	-	27000		14	15	21	0.6	0.053
-	15000	-		14	15	31	0.6	0.053
-	15000	-		14.2	14.2	30.5	0.6	0.06

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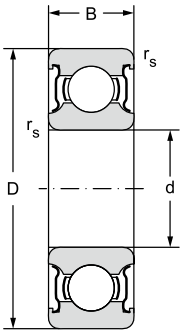
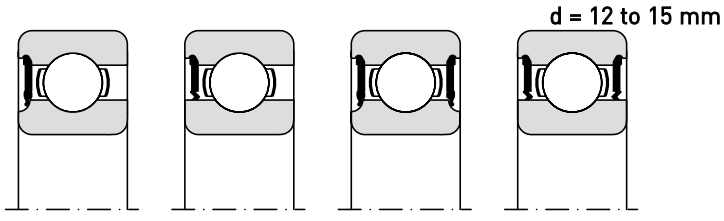
Single Row Ball Bearings with Seals or Shields





Main Dimensions				Basic Load Rating		Fatigue Load Limit	Bearing Designation	
				Dynamic	Static			
d	D	B	r_s	C_r	C_{or}	P_u	Z, ZR	2Z, 2ZR
mm								
mm				kN		kN	RS, RSR	2RS, 2RSR
12	21	5	0.3	1.43	0.67	0.028	-	**61801-2Z**
	21	5	0.3	1.43	0.67	0.028	-	**61801-2RSR**
	24	6	0.3	2.25	0.98	0.043	-	**61901-2Z**
	24	6	0.3	2.25	0.98	0.043	-	**61901-2RSR**
	28	8	0.3	5.09	2.36	0.11	**6001-ZR**	**6001-2ZR**
	28	8	0.3	5.09	2.36	0.11	**6001-RSR**	**6001-2RSR**
	28	12	0.3	5.07	2.36	0.1	-	**63001-2RSR**
	30	8	0.3	5.07	2.36	0.1	-	**16101-2RSR**
	32	10	0.6	6.91	3.1	0.14	**6201-ZR**	**6201-2ZR**
	32	10	0.6	6.91	3.1	0.14	**6201-RSR**	**6201-2RSR**
	32	14	0.6	6.91	3.1	0.14	**62201-ZR**	**62201-2ZR**
	32	14	0.6	6.91	3.1	0.14	**62201-RS**	**62201-2RS**
	37	12	1	9.76	4.24	0.19	**6301-ZR**	**6301-2ZR**
	37	12	1	9.76	4.24	0.19	**6301-RS**	**6301-2RS**
	37	17	1	9.75	4.15	0.176	-	**62301-2RSR**
15	24	5	0.3	1.56	0.8	0.034	-	**61802-2Z**
	24	5	0.3	1.56	0.8	0.034	-	**61802-2RSR**
	28	7	0.3	4.36	2.24	0.095	-	**61902-2Z**
	28	7	0.3	4.36	2.24	0.095	-	**61902-2ZR**
	28	7	0.3	4.36	2.24	0.095	-	**61902-2RSR**
	32	9	0.3	5.59	2.86	0.13	**6002-ZR**	**6002-2ZR**
	32	9	0.3	5.59	2.86	0.13	**6002-RS**	**6002-2RS**
	32	13	0.3	5.59	2.85	0.12	-	**63002-2RSR**
	35	11	0.6	7.72	3.75	0.17	**6202-Z**	**6202-2Z**
	35	11	0.6	7.72	3.75	0.17	**6202-RS**	**6202-2RS**
	35	14	0.6	7.72	3.75	0.17	**62202-ZR**	**62202-2ZR**
	42	13	1	11.3	5.34	0.24	**6302-ZR**	**6302-2ZR**
	42	13	1	11.3	5.34	0.24	**6302-RS**	**6302-2RS**
	42	17	1	11.4	5.4	0.228	-	**62302-2RSR**

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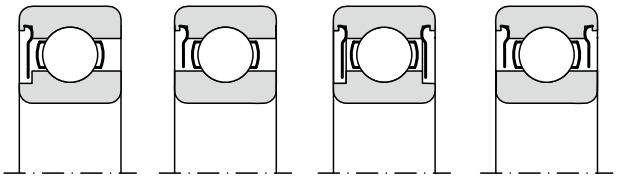

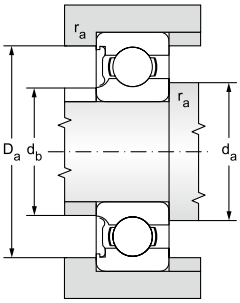

Limiting speed for lubrication with			Abutment and Fillet Dimensions					Weight
Grease		Oil						
Z, 2Z	RS, 2RS	Z	d	d_a	d_b	D_a	r_a	~
			min	max	max	max		
R S, RSR	min^{-1}		mm					kg
32000	-	38000	12	14	14	19	0.3	0.006
-	19000	-		14	14	19	0.3	0.006
30000	-	36000		14	14	22	0.3	0.011
-	18000	-		14	14	22	0.3	0.011
25000	-	30000		14	14.5	26	0.3	0.022
-	17000	-		14	14.5	26	0.3	0.022
-	17000	-		14	14	26	0.3	0.029
-	16000	-		14.4	14.4	27.6	0.3	0.023
22000	-	27000		16	16.5	28	0.6	0.037
-	15000	-		16	16.5	28	0.6	0.037
22000	-	27000		16	16.5	28	0.6	0.045
-	15000	-		16	16.5	28	0.6	0.045
20000	-	24000		17	17	32	1	0.06
-	13000	-		17	17	32	1	0.06
-	14000	-		17.6	17.6	31.4	1	0.07
28000	-	34000	15	17	17	22	0.3	0.007
-	17000	-		17	17	22	0.3	0.007
24000	-	30000		17	17	26	0.3	0.016
24000	-	30000		17	17	26	0.3	0.016
-	16000	-		17	17	26	0.3	0.016
21000	-	25000		17	18	30	0.3	0.031
-	14000	-		17	18	30	0.3	0.031
-	14000	-		17	17	30	0.3	0.039
20000		24000		19	19.5	31	0.6	0.045
-	13000	-		19	19.5	31	0.6	0.045
20000	-	24000		19	19.5	31	0.6	0.054
-	13000	-		19	19.5	31	0.6	0.054
18000	-	21000		20	20.5	36	1	0.082
-	12000	-		20	20.5	36	1	0.082
-	12000	-		20.6	20.6	36.4	1	0.11

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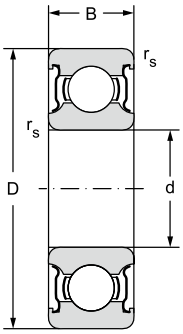
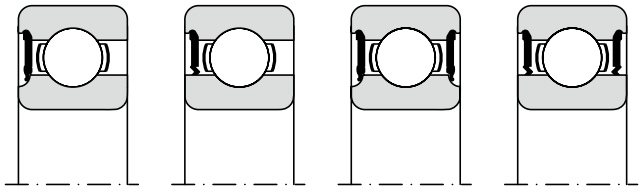
Single Row Ball Bearings with Seals or Shields

d = 17 to 22 mm





RS RSR 2RS 2RSR

Main dimensions				Basic Load Rating		Fatigue Load Limit	Bearing designation	
				Dynamic	Static			
d	D	B	r_s	C_r	C_{or}	P_u	Z, ZR	2Z, 2ZR
			min					
mm				kN		kN	RS, RSR	2RS, 2RSR
17	26	5	0.3	1.68	0.93	0.039	-	61803-2Z
	26	5	0.3	1.68	0.93	0.039	-	61803-2ZR
	26	5	0.3	1.68	0.93	0.039	-	61803-2RSR
	30	7	0.3	4.62	2.55	0.108	-	61903-2Z
	30	7	0.3	4.62	2.55	0.108	-	61903-2ZR
	30	7	0.3	4.62	2.55	0.108	-	61903-2RSR
	35	10	0.3	6	3.27	0.15	6003-ZR	6003-2ZR
	35	10	0.3	6	3.27	0.15	6003-RS	6003-2RS
	35	14	0.3	6.05	3.25	0.137	-	63003-2RS
	40	12	0.6	9.53	4.73	0.22	6203-Z	6203-2Z
	40	12	0.6	9.53	4.73	0.22	6203-RS	6203-2RS
	40	16	0.6	9.53	4.73	0.22	62203-Z	62203-2Z
	40	16	0.6	9.53	4.73	0.22	62203-RS	62203-2RS
	47	14	1	13.6	6.55	0.3	6303-ZR	6303-2ZR
	47	14	1	13.6	6.55	0.3	6303-RS	6303-2RS
	47	19	1	13.5	6.55	0.275	-	62303-2RSR
20	32	7	0.3	4.03	2.32	0.104	-	61804-2ZR
	32	7	0.3	4.03	2.32	0.104	-	61804-2RSR
	37	9	0.3	6.37	3.65	0.156	-	61904-2ZR
	37	9	0.3	6.37	3.65	0.156	-	61904-2RSR
	42	12	0.6	9.37	4.97	0.23	6004-ZR	6004-2ZR
	42	12	0.6	9.37	4.97	0.23	6004-RS	6004-2RS
	42	16	0.6	9.36	5	0.212	-	63004-2RSR
	47	14	1	12.8	6.55	0.3	6204-Z	6204-2Z
	47	14	1	12.8	6.55	0.3	6204-RS	6204-2RS
	47	18	1	12.8	6.55	0.3	62204-Z	62204-2Z
	47	18	1	12.8	6.55	0.3	62204-RS	62204-2RS
	47	20.6	1	12.8	6.55	0.3	63204-Z	63204-2Z
	47	20.8	1	12.8	6.55	0.3	63204-RS	63204-2RS
	52	15	1.1	15.9	7.81	0.36	6304-Z	6304-2Z
	52	15	1.1	15.9	7.81	0.36	6304-RS	6304-2RS
	52	21	1.1	15.9	7.81	0.36	62304-Z	62304-2Z
	52	21	1.1	15.9	7.81	0.36	62304-RS	62304-2RS
22	50	14	1	14	7.65	0.325	-	62/22-2RSR

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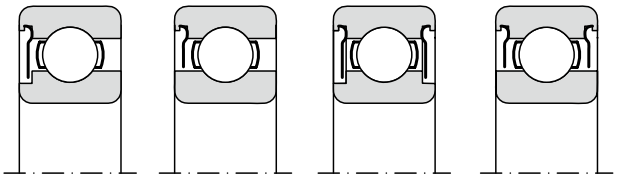

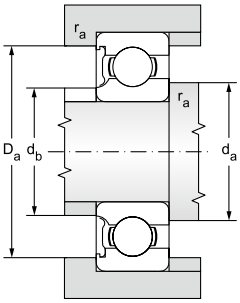

Limiting speed for lubrication with			Abutment and Fillet Dimensions					Weight
Grease		Oil						
Z, 2Z	RS, 2RS	Z	d	d_a	d_D	D_a	r_a	~
			min	max	max	max		
R S, RSR	min^{-1}		mm					kg
24000	-	30000	17	19	19	24	0.3	0.008
24000	-	30000		19	19	24	0.3	0.008
-	16000	-		19	19	24	0.3	0.008
22000	-	28000		19	19	28	0.3	0.018
22000	-	28000		19	19	28	0.3	0.018
-				19	19	28	0.3	0.018
20000	-	24000		19	20	33	0.3	0.04
-	13000	-		19	20	33	0.3	0.04
-	13000	-		19	19	33	0.3	0.052
18000	-	21000		21	21.4	36	0.6	0.065
-	12000	-		21	21.4	36	0.6	0.065
18000	-	21000		21	21.4	36	0.6	0.083
-	12000	-		21	21.4	36	0.6	0.083
16000	-	19000		23	23	41	1	0.12
-	10600	-		23	23	41	1	0.12
-	11000	-		22.6	22.6	41.4	1	0.15
19000	-	24000	20	22	22	30	0.3	0.018
-	13000	-		22	22	30	0.3	0.018
18000	-	22000		22	22	35	0.3	0.038
-	12000	-		22	22	35	0.3	0.038
17000	-	20000		24	24.5	38	0.3	0.07
-	11000	-		24	24.5	38	0.3	0.07
-	11000	-		23.2	23.2	38.8	0.06	0.086
15000	-	18000		25	25.5	42	0.6	0.11
-	10000	-		25	25.5	42	0.6	0.11
15000	-	18000		25	25.5	42	0.6	0.13
-	10000	-		25	25.5	42	0.6	0.13
15000	-	18000		25	25.5	42	0.6	0.15
-	10000	-		25	25.5	42	0.6	0.15
14000	-	17000		26	26.6	45	1	0.14
-	9400	-		26	26.6	45	1	0.14
14000	-	17000		26	26.6	45	1	0.2
-	9400	-		26	26.6	45	1	0.2
-	9500	-	22	27.6	27.6	44.4	1	0.12

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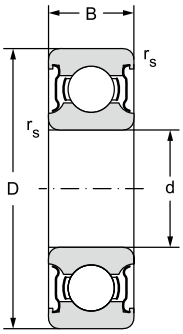
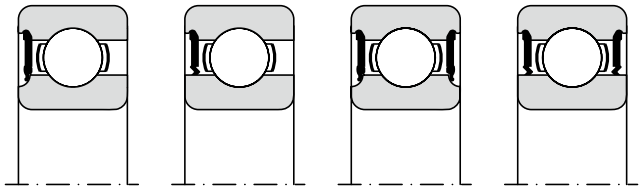
Single Row Ball Bearings with Seals or Shields

d = 25 to 30 mm





RS RSR 2RS 2RSR

Main dimensions				Basic Load Rating		Fatigue Load Limit	Bearing designation	
				Dynamic	Static			
d	D	B	r_s	C_r	C_{or}	P_u	Z, ZR	2Z, 2ZR
			min					
mm				kN		kN	RS, RSR	2RS, 2RSR
25	37	7	0.3	4.36	2.6	0.125	-	61805-2ZR
	37	7	0.3	4.36	2.6	0.125	-	61805-2RSR
	42	9	0.3	7.02	4.3	0.193	-	61905-2ZR
	42	9	0.3	7.02	4.3	0.193	-	61905-2RSR
	47	12	0.6	10.1	5.81	0.26	6005-ZR	6005-2ZR
	47	12	0.6	10.1	5.81	0.26	6005-RS	6005-2RS
	47	16	0.6	11.2	6.55	0.275	-	63005-2RS
	52	15	1	14	7.94	0.36	6205-Z	6205-2Z
	52	15	1	14	7.94	0.36	6205-RS	6205-2RS
	52	18	1	14	7.94	0.36	62205-Z	62205-2Z
	52	18	1	14	7.94	0.36	62205-RS	62205-2RS
	62	17	1.1	21.1	10.8	0.49	6305-Z	6305-2Z
	62	17	1.1	21.1	10.8	0.49	6305-RS	6305-2RS
	62	24	1.1	21.1	10.8	0.49	62305-Z	62305-2Z
	62	24	1.1	21.1	10.8	0.49	62305-RS	62305-2RS
30	42	7	0.3	4.49	2.9	0.146	-	61806-2ZR
	42	7	0.3	4.49	2.9	0.146	-	61806-2RSR
	47	9	0.3	7.28	4.55	0.212	-	61906-2ZR
	47	9	0.3	7.28	4.55	0.212	-	61906-2RSR
	55	13	1	13.2	8.25	0.38	6006-Z	6006-2Z
	55	13	1	13.2	8.25	0.38	6006-RS	6006-2RS
	55	19	1	13.3	8.3	0.355	-	63006-2RSR
	62	16	1	19.4	11.2	0.51	6206-Z	6206-2Z
	62	16	1	19.4	11.2	0.51	6206-RS	6206-2RS
	62	20	1	19.4	11.2	0.51	62206-Z	62206-2Z
	62	20	1	19.4	11.2	0.51	62206-RS	62206-2RS
	72	19	1.1	29.7	15.7	0.71	6306-Z	6306-2Z
	72	19	1.1	29.7	15.7	0.71	6306-Z	6306-2Z
	72	27	1.1	28.1	16	0.67	-	62306-2RSR

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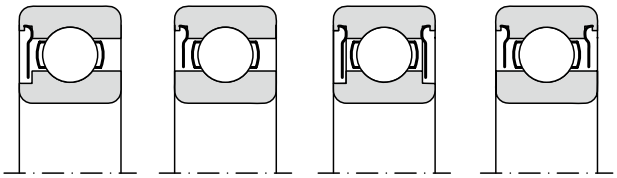

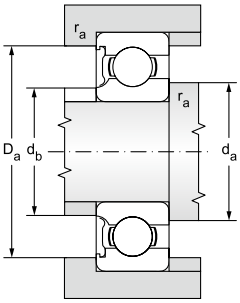

Limiting speed for lubrication with			Abutment and Fillet Dimensions					Weight
Grease		Oil						
Z, 2Z	RS, 2RS	Z	d	d_a	d_D	D_a	r_a	~
			min	max	max	max		
R S, RSR	min^{-1}		mm					kg
17000	-	20000	25	27	27	35	0.3	0.022
-	11000	-		27	27	35	0.3	0.022
16000	-	19000		27	27	40	0.3	0.045
-	10000	-		27	27	40	0.3	0.045
14000	-	17000		28	29	43	0.6	0.081
-	9400	-		28	29	43	0.6	0.081
-	9500	-		29.2	29.2	43.8	0.6	0.1
12600	-	15000		30	30.5	47	1	0.13
-	8400	-		30	30.5	47	1	0.13
12600	-	15000		30	30.5	47	1	0.15
-	8400	-		30	30.5	47	1	0.15
11000	-	13000		31	33	55	1	0.23
-	7500	-		31	33	55	1	0.23
11000	-	13000		31	33	55	1	0.32
-	7500	-		31	33	55	1	0.32
15000	-	18000	30	32	32	40	0.3	0.027
-	9500	-		32	32	40	0.3	0.027
14000	-	17000		32	32	45	0.3	0.051
-	8500	-		32	32	45	0.3	0.051
12000	-	14000		34	35	50	1	0.12
-	7900	-		34	35	50	1	0.12
-	8000	-		34.6	34.6	50.4	1	0.16
11000	-	13000		35	36.7	57	1	0.2
-	7500	-		35	36.7	57	1	0.2
11000	-	13000		35	36.7	57	1	0.24
-	7500	-		35	36.7	57	1	0.24
10000	-	12000		36	38.9	65	1	0.35
-	6700	-		36	38.9	65	1	0.35
-	6300	-		37	37	65	1	0.48

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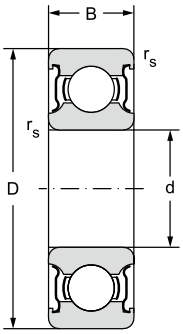
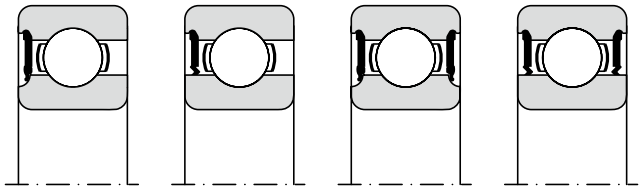
Single Row Ball Bearings with Seals or Shields

d = 35 to 45 mm





RS RSR 2RS 2RSR

Main dimensions				Basic Load Rating		Fatigue Load Limit	Bearing designation	
				Dynamic	Static			
d	D	B	r_s	C_r	C_{or}	P_u	Z, ZR	2Z, 2ZR
			min					
mm				kN		kN	RS, RSR	2RS, 2RSR
35	47	7	0.3	4.75	3.2	0.166	-	61807-2ZR
	47	7	0.3	4.75	3.2	0.166	-	61807-2RSR
	55	10	0.6	9.56	6.8	0.29	-	61907-2ZR
	55	10	0.6	9.56	6.8	0.29	-	61907-2RSR
	62	14	1	16	10.3	0.47	6007-Z	6007-2Z
	62	14	1	16	10.3	0.47	6007-RS	6007-2RS
	62	20	1	15.9	10.2	0.44	-	63007-2RSR
	72	17	1.1	25.7	15.2	0.69	6207-Z	6207-2Z
	72	17	1.1	25.7	15.2	0.69	6207-RS	6207-2RS
	72	23	1.1	25.5	15.3	0.655	-	62207-2RSR
	80	21	1.5	33.4	19.2	0.87	6307-Z	6307-2Z
	80	21	1.5	33.4	19.2	0.87	6307-RS	6307-2RS
	80	31	1.5	33.4	19.2	0.87	-	62307-2RSR
40	52	7	0.3	4.94	3.45	0.186	-	61808-2ZR
	52	7	0.3	7.94	3.45	0.186	-	61808-2RSR
	62	12	0.6	13.8	10	0.425	-	61908-2ZR
	62	12	0.6	13.8	10	0.425	-	61908-2RSR
	68	15	1	16.8	11.5	0.52	6008-Z	6008-2Z
	68	15	1	16.8	11.5	0.52	6008-RS	6008-2RS
	68	21	1	16.8	11.6	0.49	-	63008-2RSR
	80	18	1.1	32.6	19.9	0.9	6208-Z	6208-2Z
	80	18	1.1	32.6	19.9	0.9	6208-RS	6208-2RS
	80	23	1.1	30.7	19	0.8	-	52208-2RSR
	90	23	1.5	40.8	24	1.09	6308-Z	6308-2Z
	90	23	1.5	40.8	24	1.09	6308-RS	6308-2RS
	90	33	1.5	41	24	1.02	-	62308-2RSR
45	58	7	0.3	6.63	6.1	0.26	-	61809-2ZR
	58	7	0.3	6.63	6.1	0.26	-	61809-2RSR
	68	12	0.6	14	10.8	0.465	-	61909-2ZR
	68	12	0.6	14	10.8	0.465	-	61909-2RSR
	75	16	1	21.1	15.3	0.7	6009-Z	6009-2Z
	75	16	1	21.1	15.3	0.7	6009-RS	6009-2RS
	75	23	1	20.8	14.6	0.64	-	63009-2RSR
	85	19	1.1	32.7	20.3	0.92	6209-Z	6209-2Z
	85	19	1.1	32.7	20.3	0.92	6209-RS	6209-2RS
	85	23	1.1	33.2	21.6	0.915	-	62209-2RSR
	100	25	1.5	52.8	31.7	1.44	6309-Z	6309-2Z
	100	25	1.5	52.8	31.7	1.44	6309-RS	63092RS
	100	36	1.5	52.7	31.5	1.34	-	62309-2RSR

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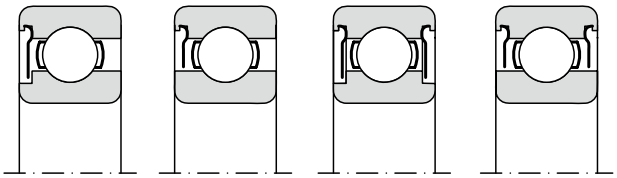

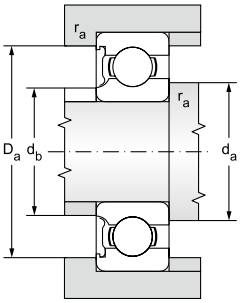

Limiting speed for lubrication with			Abutment and Fillet Dimensions					Weight
Grease		Oil						
Z, 2Z	RS, 2RS	Z	d	d_a	d_b	D_a	r_a	~
			min	max	max	max		
R S, RSR	min^{-1}		mm					kg
13000	-	16000	35.37	37	37	45	0.3	0.03
-	8000	-		37	37		0.3	0.03
11000	-	14000		38.2	38.2	51.8	0.6	0.08
-	7500	-		38.2	38.2	51.8	0.6	0.08
10600	-	12600		39.5	39.5	57	1	0.16
-	7100	-		39.5	39.5	57	1	0.16
-	7000	-		39.6	39.6	57.4	1	0.21
9400	-	11000		42	42	65	1	0.29
-	6300	-		42	42	65	1	0.29
-	6300	-		42	42	65	1	0.37
8400	-	10000		42	44	71	1.5	0.46
-	5600	-		42	44	71	1.5	0.46
-	6000	-		44	44	71	1.5	0.66
11000	-	14000	40	42	42	50	0.3	0.034
-	7500	-		42	42	50	0.3	0.034
10000	-	13000		43.2	43.2	58.8	0.6	0.12
-	6700	-		43.2	43.2	58.8	0.6	0.12
9400	-	11000		44	46	63	1	0.2
-	6300	-		44	46	63	1	0.2
-	6300	-		44.6	44.6	63.4	1	0.26
8400	-	10000		47	48	73	1	0.37
-	5600	-		47	48	73	1	0.37
-	5600	-		47	47	73	1	0.44
7900	-	9400		47	50.6	81	1.5	0.64
-	5300	-		47	50.6	81	1.5	0.64
-	5000	-		49	49	81	1.5	0.89
9500	-	12000	45	47	47	56	0.3	0.04
-	6700	-		47	47	56	0.3	0.04
9000	-	11000		48.2	48.2	64.8	0.6	0.14
-	6000	-		48.2	48.2	64.8	0.6	0.14
8400	-	10000		49	51.5	70	1	0.25
-	5600	-		49	51.5	70	1	0.25
-	5600	-		50.8	50.8	69.2	1	0.34
7900	-	9400		52	52.5	78	1	0.41
-	5300	-		52	52.5	78	1	0.41
-	5000	-		52	52	78	1	0.48
7100	-	8400		52	56	91		
-	4700	-		52	56	91	1.5	0.83
-	4500	-		54	54	91	1.5	1.15

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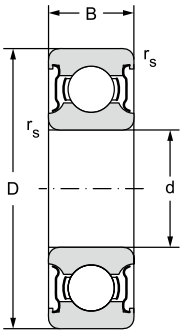
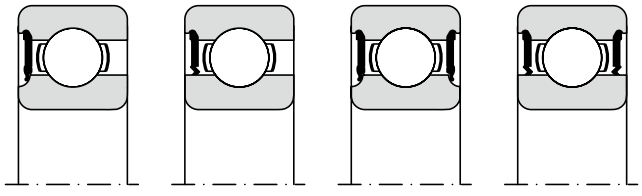
Single Row Ball Bearings with Seals or Shields

d = 50 to 60 mm





RS RSR 2RS 2RSR

Main dimensions				Basic Load Rating		Fatigue Load Limit	Bearing designation	
				Dynamic	Static			
d	D	B	r_s	C_r	C_{or}	P_u	Z, ZR	2Z, 2ZR
			min					
mm				kN		kN	RS, RSR	2RS, 2RSR
50	65	7	0.3	6.76	6.8	0.285	-	61810-2ZR
	65	7	0.3	6.76	6.8	0.285	-	61810-2RSR
	72	12	0.6	14.6	11.8	0.5	-	61910-2ZR
	72	12	0.6	14.6	11.8	0.5	-	61910-2RSR
	80	16	1	21.7	16.7	0.76	6010-Z	6010-2Z
	80	16	1	21.7	16.7	0.76	6010-RS	6010-2RS
	80	23	1	21.7	16	0.71	-	63010-2RSR
	90	20	1.1	35.1	23.3	1.06	6210-Z	6210-2Z
	90	20	1.1	35.1	23.3	1.06	6210-RS	6210-2RS
	90	23	1.1	35.1	23.3	0.98	-	62210-2RSR
	110	27	2	61.8	37.7	1.72	6310-Z	6310-2Z
	110	27	2	61.8	37.7	1.72	6310-RS	6310-2RS
	110	40	2	61.8	38	1.6	-	62310-2RSR
55	72	9	0.3	9.04	8.8	0.375	-	61811-2ZR
	72	9	0.3	9.04	8.8	0.375	-	61811-2RSR
	80	13	1	16.5	14	0.6	-	61911-2ZR
	80	13	1	16.5	14	0.6	-	61911-2RSR
	90	18	1.1	28.2	21.3	0.97	6011-Z	6011-2Z
	90	18	1.1	28.2	21.3	0.97	6011-RS	6011-2RS
	100	21	1.5	43.4	29.4	1.34	6211-Z	6211-2Z
	100	21	1.5	43.4	29.4	1.34	6211-RS	6211-2RS
	100	25	1.5	43.6	29	1.25	-	62211-2RSR
	120	29	2	71	44.7	2.03	6311-Z	6311-2Z
	120	29	2	71	44.7	2.03	6311-RS	6311-2RS
	120	43	2	71.5	45	1.9	-	62311-2RSR
60	78	10	0.3	11.9	11.4	0.49	-	61812-2ZR
	78	10	0.3	11.9	11.4	0.49	-	61812-2RSR
	85	13	1	16.5	14.3	0.6	-	61912-2ZR
	85	13	1	16.5	14.3	0.6	-	61912-2RSR
	95	18	1.1	29.3	23.3	1.06	6012-Z	6012-2Z
	95	18	1.1	29.3	23.3	1.06	6012-RS	6012-2RS
	110	22	1.5	52.5	35.8	1.63	6212-Z	6212-2Z
	110	22	1.5	52.5	35.8	1.63	6212-RS	6212-2RS
	110	28	1.5	52.7	36	1.53	-	62212-2RSR
	130	31	2.1	81.5	52.1	2.37	6312-Z	6312-2Z
	130	31	2.1	81.5	52.1	2.37	6312-RS	6312-2RS
	130	46	2.1	81.9	52	2.2	-	62312-2RSR

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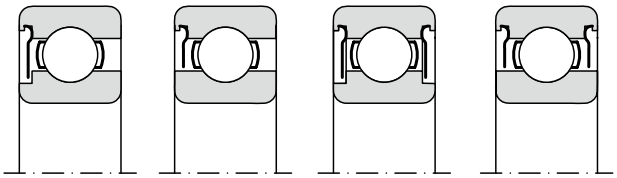

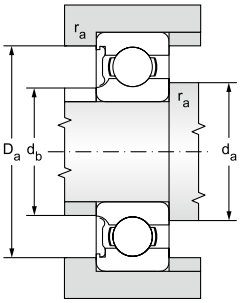

Limiting speed for lubrication with			Abutment and Fillet Dimensions					Weight
Grease		Oil						
Z, 2Z	RS, 2RS	Z	d	d_a	d_b	D_a	r_a	~
			min	max	max	max		
R S, RSR	min^{-1}		mm					kg
9000	-	11000	50	52	52	63	0.3	0.052
-	6000	-		52	52	63	0.3	0.052
8500	-	10000		53.2	53.2	68.8	0.6	0.14
-	5600	-		53.2	53.2	68.8	0.6	0.14
7900	-	9400		54	56.5	75	1	0.26
-	5300	-		54	56.5	75	1	0.26
-	5000	-		54.6	54.6	75.4	1	0.37
7100	-	8400		57	58	83	1	0.46
-	4700	-		57	58	83	1	0.46
-	4800	-		57	57	83	1	0.52
6300	-	7500		60	61.8	100	2	1.08
-	4200	-		60	61.8	100	2	1.08
-	4300	-		61	61	99	2	1.55
8500	-	10000	55	57	57	70	0.3	0.083
-	5300	-		57	57	70	0.3	0.083
8000	-	9500		59.6	59.6	75.4	1	0.19
-	5000	-		59.6	59.6	75.4	1	0.19
7100	-	8400		60	62.5	84	1	0.39
-	4700	-		60	62.5	84	1	0.39
6700	-	7900		62	65	91	1.5	0.61
-	4500	-		62	65	91	1.5	0.61
-	4300	-		64	64	91	1.5	0.7
5600	-	6700		65	67	110	2	1.38
-	3800	-		65	67	110	2	1.38
-	3800	-		66	66	109	2	1.95
7500	-	9000	60	62	62	76	0.3	0.11
-	4800	-		62	62	76	0.3	0.11
7500	-	9000		64.6	64.6	80.4	1	0.2
-	4500	-		64.6	64.6	80.4	1	0.2
6700	-	7900		65	68	88	1	0.42
-	4500	-		65	68	88	1	0.42
6000	-	7100		67	70.2	101	1.5	0.79
-	4000	-		67	70.2	101	1.5	0.79
-	4000	-		69	69	101	1.5	0.97
5300	-	6300		72	75	118	2	1.72
-	3500	-		72	75	118	2	1.72
-	3400	-		72	72	118	2	2.5

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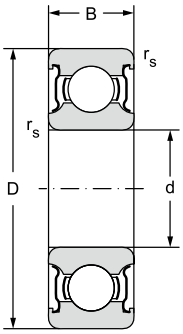
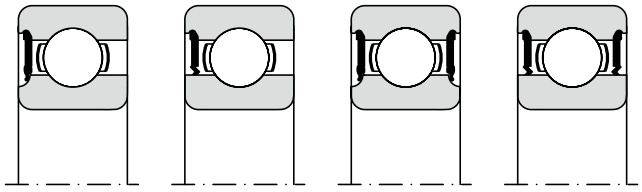
Single Row Ball Bearings with Seals or Shields

d = 65 to 75 mm





RS RSR 2RS 2RSR

Main dimensions				Basic Load Rating		Fatigue Load Limit	Bearing designation	
				Dynamic	Static			
d	D	B	r_s	C_r	C_{or}	P_u	Z, ZR	2Z, 2ZR
			min					
mm				kN		kN	RS, RSR	2RS, 2RSR
65	85	10	0.6	12.4	12.7	0.54	-	61813-2ZR
	85	10	0.6	12.4	12.7	0.54	-	61813-2RSR
	90	13	1	17.4	16	0.68	-	61913-2ZR
	90	13	1	17.4	16	0.68	-	61913-2RSR
	100	18	1.1	30.5	25.1	1.14	6013-Z	6013-2Z
	100	18	1.1	30.5	25.1	1.14	6013-RS	6013-2RS
	120	23	1.5	57.2	40	1.82	6213-Z	6213-2Z
	120	23	1.5	57.2	40	1.82	6213-RS	6213-2RS
	120	31	1.5	55.9	40.5	1.73	-	62213-2RSR
	140	33	2.1	92.6	59.6	2.68	6313-Z	6313-2Z
	140	33	2.1	92.6	59.6	2.68	6313-RS	6313-2RS
	140	48	2.1	92.3	60	2.5	-	62313-2RSR
70	90	10	0.6	12.4	13.2	0.56	-	61814-2ZR
	90	10	0.6	12.4	13.2	0.56	-	61814-2RSR
	100	16	1	23.8	21.2	0.9	-	61914-2ZR
	100	16	1	23.8	21.2	0.9	-	61914-2RSR
	110	20	1.1	38	31	1.41	6014-Z	6014-2Z
	110	20	1.1	38	31	1.41	6014-RS	6014-2RS
	125	24	1.5	62	43.8	1.99	6214-Z	6214-2Z
	125	24	1.5	62	43.8	1.99	6214-RS	6214-2RS
	125	31	1.5	60.5	45	1.9	-	62214-2RSR
	150	35	2.1	104	68.1	2.95	6314-Z	6314-2Z
	150	35	2.1	104	68.1	2.95	6314-RS	6314-2RS
	150	51	2.1	104	68	2.75	-	62314-2RSR
75	95	10	0.6	12.7	14.3	0.61	-	61815-2ZR
	95	10	0.6	12.7	14.3	0.61	-	61815-2RSR
	105	16	1	24.2	19.3	0.965	-	61915-2ZR
	105	16	1	24.2	19.3	0.965	-	61915-2RSR
	115	20	1.1	39.7	33.2	1.51	6015-Z	6015-2Z
	115	20	1.1	39.7	33.2	1.51	6015-RS	6015-2RS
	130	25	1.5	66.2	49.3	2.21	6215-Z	6215-2Z
	130	25	1.5	66.2	49.3	2.21	6215-RS	6215-2RS
	160	37	2.1	114	76.4	3.2	6315-Z	6315-2Z
	160	37	2.1	114	76.4	3.2	6315-RS	6315-2RS

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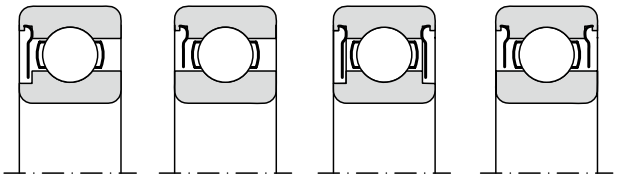
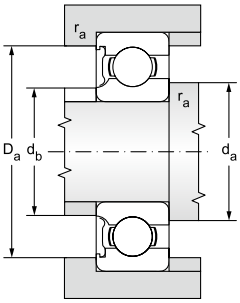


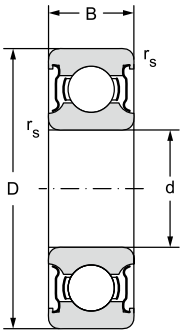


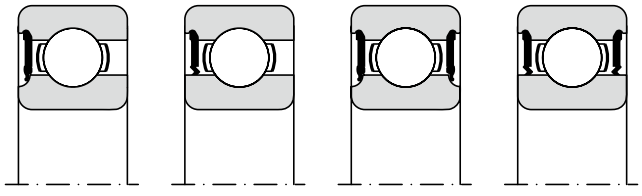
Limiting speed for lubrication with			Abutment and Fillet Dimensions					Weight
Grease		Oil						
Z, 2Z	RS, 2RS	Z	d	d_a	d_D	D_a	r_a	~
			min	max	max	max		
R S, RSR	min^{-1}		mm					kg
7000	-	8500	65	68.2	68.2	81.8	0.6	0.13
-	4500	-		68.2	68.2	81.8	0.6	0.13
6700	-	8000		69.6	69.6	85.4	1	0.22
-	4300	-		69.6	69.6	85.4	1	0.22
6300	-	7500		70	73	93	1	0.44
-	4200	-		70	73	93	1	0.44
5300	-	6300		72	77	111	1.5	1
-	3500	-		72	77	111	1.5	1
-	3600	-		74	74	111	1.5	1.25
5000	-	6000		76	78	128	2	2.1
-	3300	-		76	78	128	2	2.1
-	3200	-		77	77	128	2	3
6700	-	8000	70	73.2	73.2	86.8	0.6	0.14
-	4300	-		73.2	73.2	86.8	0.6	0.14
6300	-	7500		74.6	74.6	95.4	1	0.35
-	4000	-		74.6	74.6	95.4	1	0.35
5600	-	6700		75	78	103	1	0.62
-	3800			75	78	103	1	0.62
5300	-			77	82	116	1.5	1.09
-	3500			77	82	116	1.5	1.09
-	3400			79	79	116	1.5	1.3
4700	-	5600		81	85	138	2	2.53
-	3200	-		81	85	138	2	2.53
-	3000	-		82	82	138	2	3.55
6300	-	7500	75	78.2	78.2	91.8	0.6	0.15
-	4000	-		78.2	78.2	91.8	0.6	0.15
6000	-	7000		79.6	79.6	100	1	0.37
-	3600	-		79.6	79.6	100	1	0.37
5300	-	6300		80	83	108	1	0.64
-	3500	-		80	83	108	1	0.64
5000	-	6000		82	85	121	1.5	1.19
-	3300	-		86	85	121	1.5	1.19
4200	-	5000		86	93	148	2	3.03
-	2800	-		86	93	148	2	3.03

DUNLOP

Single Row Ball Bearings with Seals or Shields

d = 80 to 95 mm

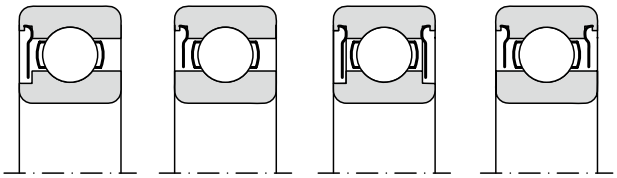


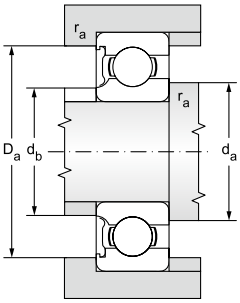


RS RSR 2RS 2RSR

Main dimensions				Basic Load Rating		Fatigue Load Limit	Bearing designation	
				Dynamic	Static			
d	D	B	r_s	C_r	C_{or}	P_u	Z, ZR	2Z, 2ZR
			min					
mm				kN		kN	RS, RSR	2RS, 2RSR
80	100	10	0.6	13	15	0.64	-	61816-2ZR
	100	10	0.6	13	15	0.64	-	61816-2RSR
	110	16	1	25.1	20.4	1.02	-	61916-2ZR
	110	16	1	25.1	20.4	1.02	-	61916-2RSR
	125	22	1.1	47.5	39.8	1.79	6016-Z	6016-2Z
	125	22	1.1	47.5	39.8	1.79	6016-RS	6016-2RS
	140	26	2	72.2	53.1	2.3	6216-Z	6216-2Z
	140	26	2	72.2	53.1	2.3	6216-RS	6216-2RS
	170	39	2.1	123	86.2	3.51	6316-Z	6316-2Z
	170	39	2.1	130	86.5	3.25	6316-RSR	6316-2RSR
85	110	13	1	19.5	20.8	0.88	-	61817-2ZR
	110	13	1	19.5	20.8	0.88	-	61817-2RSR
	130	22	1.1	49.8	42.6	1.87	6017-Z	6017-2Z
	130	22	1.1	52	43	1.76	6017-RSR	6017-2RSR
	150	28	2	83.3	63.7	2.67	6217-Z	6217-2Z
	150	28	2	83.3	63.7	2.67	6217-RS	6217-2RS
	180	41	3	133	96.1	3.79	6317-Z	6317-2Z
	180	41	3	140	96.5	3.55	6317-RSR	6317-2RSR
90	115	13	1	19.5	22	0.915	-	61818-2ZR
	115	13	1	19.5	22	0.915	-	61818-2RSR
	140	24	1.5	60.5	50	1.96	6018-Z	6018-2Z
	140	24	1.5	60.5	50	1.96	6018-RSR	6018-2RSR
	160	30	2	96.2	70.8	2.88	6218-Z	6218-2Z
	160	30	2	101	73.5	2.8	6218-RSR	6218-2RSR
	190	43	3	143	104	4	6318-Z	6318-2Z
	190	43	3	151	108	3.8	6318-RSR	6318-2RSR
95	120	13	1	19.9	22.8	0.93	-	61819-2ZR
	120	13	1	19.9	22.8	0.93	-	61819-2RSR
	130	18	1.1	33.8	33.5	1.43	-	61919-2RSR
	145	24	1.5	63.7	54	2.08	6019-Z	6019-2Z
	145	24	1.5	63.7	54	2.08	6019-RSR	6019-2RSR
	170	32	2.1	114	81.5	3	6219-Z	6219-2Z
	170	32	2.1	114	81.5	3	6219-RSR	6219-2RSR
	200	45	3	159	118	4.15	6319-Z	6319-2Z
	200	45	3	159	118	4.15	6319-RSR	6319-2RSR

DUNLOP



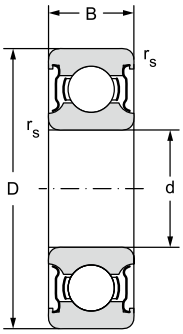


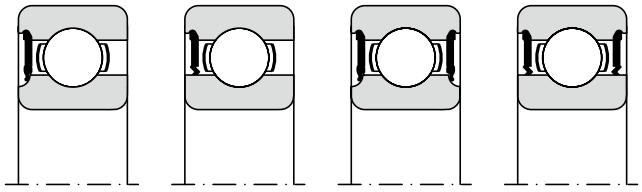
Limiting speed for lubrication with			Abutment and Fillet Dimensions					Weight
Grease		Oil						
Z, 2Z	RS, 2RS	Z	d	d_a	d_b	D_a	r_a	~
			min	max	max	max		
R S, RSR	min^{-1}		mm					kg
6000	-	7000	80	83.2	83.2	96.8	0.6	0.15
-	3600	-		83.2	83.2	96.8	0.6	0.15
5600	-	6700		84.6	84.6	105	1	0.4
-	3400	-		84.6	84.6	105	1	0.4
5000	-	6000		85	90	118	1	0.86
-	3300	-		85	90	118	1	0.86
4700	-	5600		90	92	130	2	1.41
-	3200	-		90	92	130	2	1.41
4000	-	4700		91	99	158	2	3.62
-	2600	-		92	92	158	2	3.6
5300	-	6300	85	89.6	89.6	105	1	0.27
-	3400	-		89.6	89.6	105	1	0.27
4700	-	5600		90	95	123	1	0.89
-	3000	-		92	92	123	1	0.89
4200	-	5000		95	99	140	2	1.79
-	2800	-		95	99	140	2	1.79
3800	-	4500		98	103	166	2.5	4.26
-	2400	-		99	99	166	2.5	4.25
5300	-	6300	90	94.6	94.6	110	1	0.28
-	3200			94.6	94.6	110	1	0.28
4800	-			97	97	133	1.5	1.15
-	2800			97	97	133	1.5	1.15
4000	-			100	105	150	2	2.16
-	2600			101	101	149	2	2.15
3400	-			103	108	176	2.5	5.15
-	2400			104	104	176	2.5	4.9
5000	-	6000	95	99.6	99.6	115	1	0.3
-	3000	-		99.6	99.6	115	1	0.3
-	2800	-		101	101	124	1	0.61
4500	-	5300		102	102	138	1.5	1.2
-	2800	-		102	102	138	1.5	1.2
3600	-	4300		107	107	158	2	2.6
-	3000	-		107	107	158	2	2.6
3200	-	3800		109	109	186	2.5	5.65
-	2800	-		109	109	186	2.5	5.65

DUNLOP

Single Row Ball Bearings with Seals or Shields

d = 100 to 130 mm

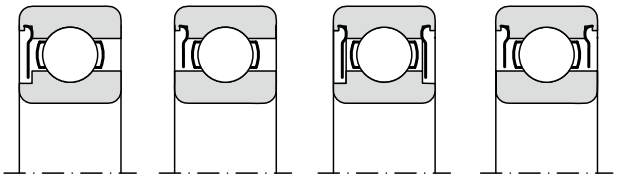


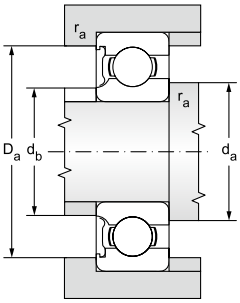


RS RSR 2RS 2RSR

Main dimensions				Basic Load Rating		Fatigue Load Limit	Bearing designation	
				Dynamic	Static			
d	D	B	r_s	C_r	C_{or}	P_u	Z, ZR	2Z, 2ZR
			min					
mm				kN		kN	RS, RSR	2RS, 2RSR
100	125	13	1	19.9	24	0.95	-	61820-2ZR
	125	13	1	19.9	24	0.95	-	61820-2RSR
	150	24	1.5	60	54	2.2	6020-Z	6020-27
	150	24	1.5	63.7	54	2.04	6020-RSR	6020-2RSR
	180	34	2.1	127	93	3.35	6220-Z	6220-2Z
	180	34	2.1	127	93	3.35	6220-RSR	6220-2RSR
	215	47	3	174	140	4.75	6320-Z	6320-2Z
105	130	13	1	20.8	19.6	1	-	61821-2ZR
	130	13	1	20.8	19.6	1	-	61821-2RSR
	160	26	2	76.1	65.5	2.4	6021-Z	6021-2Z
	160	26	2	76.1	65.5	2.4	6021-RSR	6021-2RSR
	190	36	2.1	140	104	3.65	6221-Z	6221-2Z
	190	36	2.1	140	104	3.65	6221-RSR	6221-2RSR
	225	49	3	182	153	5.1	6321-Z	6321-2Z
110	140	16	1	28.1	26	1.25	-	61822-2ZR
	140	16	1	28.1	26	1.25	-	61822-2RSR
	170	28	2	85.2	73.5	2.4	6022-Z	6022-2Z
	170	28	2	85.2	73.5	2.4	6022-RSR	6022-2RSR
	200	38	2.1	151	118	4	6222-Z	6222-2Z
120	150	16	1	29.1	28	1.29	-	61824-2ZR
	150	16	1	29.1	28	1.29	-	61824-2RSR
	180	28	2	88.4	80	2.75	6024-Z	6024-2Z
	180	28	2	88.4	80	2.75	6024-RSR	6024-2RSR
	215	40	2.1	146	118	3.9	6224-Z	6224-2Z
130	165	18	1.1	37.7	43	1.6	-	61826-2ZR
	165	18	1.1	37.7	43	1.6	-	61826-2RSR
	200	33	2	112	100	3.35	6026-Z	6026-2Z
	200	33	2	112	100	3.35	6026-RSR	6026-2RSR
	230	40	3	156	132	4.15	6226-Z	6226-2Z

DUNLOP



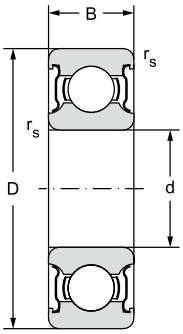


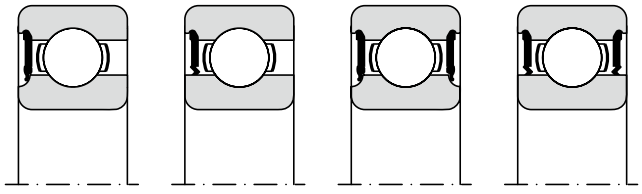
Limiting speed for lubrication with			Abutment and Fillet Dimensions					Weight
Grease		Oil						
Z, 2Z	RS, 2RS	Z	d	d_a	d_b	D_a	r_a	~
			min	max	max	max		
R S, RSR	min^{-1}		mm					kg
4800	-	5600	100	105	105	120	1	0.31
-	3000	-		105	105	120	1	0.31
4200	-	5000		106	110	142	1.5	1.27
-	2600	-		107	107	143	1.5	1.25
4300	-	5000		112	112	168	2	3.15
-	2400	-		112	112	168	2	3.15
3000	-	3600		114				
4500	-	5300	105	110	110	125	1	0.32
-	2800	-		110	110	125	1	0.32
4000	-	4800		116	116	149	2	1.6
-	2400	-		116	116	149	2	1.6
3200	-	3800		117	117	178	2	3.7
-	2200	-		117	117	178	2	3.7
2800	-	3400		119	119	211	2.5	8.25
4300	-	5000	110	115	115	135	1	0.6
-	2600	-		115	115	135	1	0.6
3800	-	4500		119	119	161	2	1.95
-	2400	-		119	119	161	2	1.95
3000	-	3600		122	122	188	2	4.35
3800	-	4500	120	125	125	145	1	0.65
-	2400	-		125	125	145	1	0.65
3400	-	4000		129	129	171	2	2.05
-	2200	-		129	129	171	2	2.05
2800	-	3400		132	132	203	2	5.15
3600	-	4300	130	136	136	159	1	0.93
-	2200	-		136	136	159	1	0.93
3200	-	3800		139	139	191	2	3.15
-	2000	-		139	139	191	2	3.15
2600	-	3200		144	144	216	2.5	5.8

DUNLOP

Single Row Ball Bearings with Seals or Shields

d = 140 to 160 mm

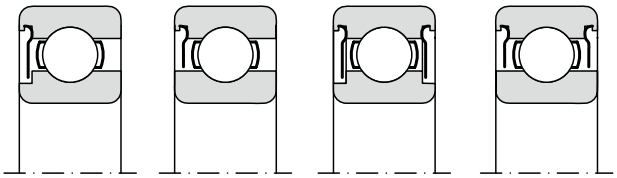


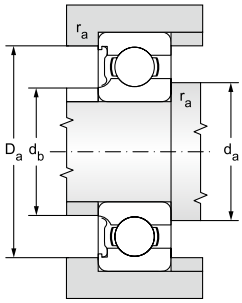


RS RSR 2RS 2RSR

Main dimensions				Basic Load Rating		Fatigue Load Limit	Bearing designation	
				Dynamic	Static			
d	D	B	r_s	C_r	C_{or}	P_u	Z, ZR	2Z, 2ZR
			min					
mm				kN		kN	RS, RSR	2RS, 2RSR
140	175	18	1.1	39	46.5	1.66	-	61828-2ZR
	175	18	1.1	39	46.5	1.66	-	61828-2RSR
	210	33	2	111	108	3.45	6028-Z	6028-2Z
	210	33	2	111	108	3.45	6028-RSR	6028-2RSR
150	225	35	2.1	125	125	3.9	6030-Z	6030-2Z
	225	35	2.1	125	125	3.9	6030-RSR	6030-2RSR
160	240	38	2.1	143	143	4.3	6032-Z	6032-2Z
	240	38	2.1	143	143	4.3	6032-RSR	6032-2RSR

DUNLOP



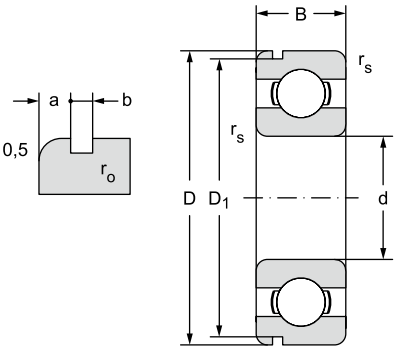


Limiting speed for lubrication with			Abutment and Fillet Dimensions					Weight
Grease		Oil						
Z, 2Z	RS, 2RS	Z	d	d_a	d_b	D_a	r_a	~
			min	max	max	max		
R S, RSR	min^{-1}		mm					kg
3400	-	4000	140	146	146	169	1	0.99
-	2000	-		146	146	169	1	0.99
3000	-	3600		149	149	201	2	3.35
-	1800	-		149	149	201	2	3.35
2600	-	3200	150	160	160	215	2	4.8
-	1700	-		160	160	215	2	4.8
2400	-	3000	160	169	169	231	2	5.9
-	1600	-		169	169	231	2	5.9

DUNLOP

Single row ball bearings with groove for snap ring on outer race d = 12 to 120 mm

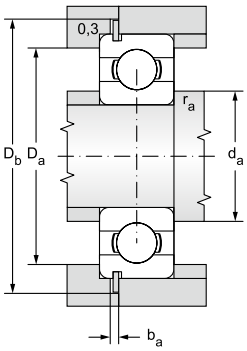
d = 12 to 45 mm



12.1.3

Main dimensions								Basic load rating		Fatique load limit
								Dynamic	Static	
d	D	B	r_s	D_1	a	b	r_o	C_r	C_{or}	P_u
			min	max	max	min	max			
			mm					kN		kN
12	32	10	0,66	30,15	2,06	1,35	0,4	6,905	3,100	0,141
	32	14	0,66	30,15	2,06	1,35	0,4	6,905	3,100	0,141
15	35	11	0,60	33,17	2,06	1,35	0,4	7,718	3,745	0,170
	35	14	0,60	33,17	2,06	1,35	0,4	7,718	3,745	0,170
17	40	12	0,60	38,10	2,06	1,35	0,4	9,534	4,734	0,215
	40	16	0,60	38,10	2,06	1,35	0,4	9,534	4,734	0,215
	47	14	1,00	44,60	2,46	1,35	0,4	13,565	6,563	0,298
20	42	12	0,60	39,75	2,06	1,35	0,4	9,371	4,972	0,226
	47	14	1,00	44,60	2,46	1,35	0,4	12,774	6,553	0,298
	52	15	1,10	49,73	2,46	1,35	0,4	15,866	7,811	0,355
	52	21	1,10	49,73	2,46	1,35	0,4	15,866	7,811	0,355
25	47	12	0,60	44,60	2,06	1,35	0,4	10,070	5,806	0,264
	52	15	1,00	49,73	2,46	1,35	0,4	14,029	7,940	0,361
	52	18	1,00	49,73	2,46	1,35	0,4	14,029	7,940	0,361
	62	17	1,10	59,61	3,28	1,90	0,6	21,123	10,806	0,491
	62	24	1,10	59,61	3,28	1,90	0,6	21,123	10,806	0,491
	80	21	1,50	76,81	3,28	1,90	0,6	36,000	19,200	0,873
30	55	13	1,00	52,60	2,08	1,90	0,4	13,243	8,253	0,375
	62	16	2,00	59,61	3,28	1,90	0,6	19,443	11,186	0,508
	62	20	2,00	59,61	3,28	1,90	0,6	19,443	11,186	0,508
	72	19	1,10	68,81	3,28	1,90	0,6	29,701	15,678	0,713
	90	23	1,50	86,79	3,28	2,70	0,6	43,000	23,700	1,077
35	62	14	1,00	59,61	2,06	1,90	0,6	15,956	10,328	0,469
	72	17	1,10	68,81	3,28	1,90	0,6	25,663	15,277	0,694
	80	21	1,50	78,81	3,28	1,90	0,6	33,367	19,230	0,874
	100	25	1,50	96,80	3,28	2,70	0,6	55,200	31,000	1,409
40	68	15	1,00	64,82	2,49	1,90	0,6	16,824	11,493	0,522
	80	18	1,10	76,81	3,28	1,90	0,6	32,633	19,887	0,904
	90	23	1,50	86,79	3,28	2,70	0,6	40,760	24,017	1,092
	110	27	2,00	106,81	3,28	2,70	0,6	63,100	36,200	1,645
45	75	16	1,00	71,83	2,49	1,90	0,6	21,100	15,300	0,695
	85	19	1,10	81,81	3,28	1,90	0,6	32,687	20,325	0,924
	100	25	1,50	96,80	3,28	2,70	0,6	52,804	31,715	1,442
	120	29	2,00	115,21	4,06	3,10	0,6	76,500	44,700	2,032

DUNLOP



Limiting speed for lubrication with		Bearing designation	Abutment and Fillet Dimensions						Weight	Suitable snap ring
Grease	Oil		d	d_a	D_a	D_b	b_a	r_a	~	
			min	min	max	min	min	max		
min^{-1}			mm						kg	
22000	27000	**6201N**	12	16,0	28,0	39,0	1,4	0,6	0,037	R32
22000	27000	**62201N**		16,0	28,0	39,0	1,4	0,6	0,045	R32
20000	24000	**6202N**	15	19,0	31,0	41,0	1,4	0,6	0,030	R35
20000	24000	**62202N**		19,0	31,0	41,0	1,4	0,6	0,054	R35
18000	21000	**6203N**	17	21,0	36,0	46,0	1,5	0,6	0,073	R40
18000	21000	**62203N**		21,0	36,0	46,0	1,5	0,6	0,083	R40
16000	19000	**6303N**		23,0	41,0	54,0	1,5	1,0	0,12	R47
17000	20000	**6004N**	20	24,0	38,0	47,5	1,5	0,6	0,070	R42
15000	18000	**6204N**		25,0	42,0	54,0	1,5	1,0	0,11	R47
14000	17000	**6304N**		26,0	45,0	59,0	1,5	1,0	0,15	R52
14000	17000	**62304N**		26,0	45,0	59,0	1,5	1,0	0,20	R52
14000	17000	**6005N**	25	28,0	43,0	54,0	1,5	0,6	0,082	R47
12600	15000	**6205N**		30,0	47,0	59,0	1,5	1,0	0,13	R52
12600	15000	**62205N**		30,0	47,0	59,0	1,5	1,0	0,15	R52
11000	13000	**6305N**		31,0	55,0	69,0	2,2	1,0	0,23	R62
11000	13000	**62305N**		31,0	55,0	69,0	2,2	1,0	0,32	R62
9400	11000	**6405N**		34,0	70,0	88,0	2,2	1,5	0,53	R80
12000	14000	**6006N**	30	34,0	50,0	62,0	1,5	1,0	0,12	R55
11000	13000	**6206N**		35,0	57,0	69,0	2,2	1,0	0,20	R62
11000	13000	**62206N**		35,0	57,0	69,0	2,2	1,0	0,24	R62
10000	12000	**6306N**		36,0	65,0	80,0	2,2	1,0	0,33	R72
8400	10000	**6406N**		39,0	80,0	98,0	3,0	1,5	0,73	R90
10600	12600	**6007N**	35	39,5	57,0	69,0	2,2	1,0	0,15	R62
9400	11000	**6207N**		42,0	65,0	80,0	2,2	1,0	0,28	R72
8400	10000	**6307N**		42,0	71,0	88,0	2,2	1,5	0,45	R80
7500	8900	**6407N**		44,0	90,0	108,0	3,0	1,5	0,95	R100
9400	11000	**6008N**	40	44,0	63,0	76,0	2,2	1,0	0,19	R68
8400	10000	**6208N**		47,0	73,0	88,0	2,2	1,0	0,35	R80
7900	9400	**6308N**		47,0	81,0	98,0	3,0	1,5	0,63	R90
6700	7900	**6408N**		50,0	97,0	118,0	3,0	3,0	1,23	R110
8400	10000	**6009N**	45	49,0	70,0	83,0	2,2	1,0	0,24	R75
7900	9400	**6209N**		52,0	78,0	93,0	2,2	1,0	0,40	R85
7100	8400	**6309N**		52,0	91,0	108,0	3,0	1,5	0,83	R100
6000	7100	**6409N**		55,0	107,0	131,0	3,5	2,0	1,54	R120

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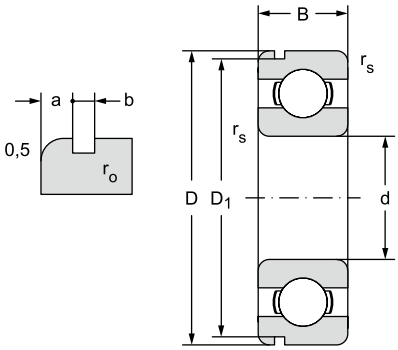
Single row ball bearings with groove for snap ring on outer race

d = 50 to 85 mm



12.1.3

Main dimensions								Basic load rating		Fatique load limit
								Dynamic	Static	
d	D	B	r_s	D_1	a	b	r_o	C_r	C_{or}	P_u
			min	max	max	min	max			
mm								kN		kN
50	80	16	1,00	76,81	2,49	1,90	0,6	21,720	16,650	0,757
	90	20	1,10	86,79	3,28	2,70	0,6	35,066	23,226	1,056
	110	27	2,00	106,81	3,28	2,70	0,6	61,900	37,600	1,709
55	90	18	1,10	86,79	2,87	2,70	0,6	28,200	21,318	0,969
	100	21	1,50	96,80	3,28	2,70	0,6	43,350	29,397	1,336
	120	29	2,00	115,21	4,06	3,10	0,6	71,000	44,700	2,032
	140	33	2,10	135,23	4,90	3,10	0,6	100,000	61,900	2,814
60	95	18	1,10	91,82	2,87	2,70	0,6	29,343	23,256	1,057
	110	22	1,50	106,81	3,82	2,70	0,6	52,486	35,786	1,627
	130	31	2,10	125,22	4,06	3,10	0,6	81,500	52,100	2,368
	150	35	2,10	145,24	4,90	3,10	0,6	110,000	69,400	3,079
65	100	18	1,10	96,80	2,87	2,70	0,6	30,500	25,100	1,141
	120	23	1,50	115,21	4,06	3,10	0,6	57,210	40,011	1,819
	140	33	2,10	135,23	4,90	3,10	0,6	92,600	59,600	2,676
	160	37	2,10	155,22	4,90	3,10	0,6	117,950	78,329	3,357
70	110	20	1,10	106,81	2,87	2,70	0,6	37,960	30,959	1,407
	125	24	1,50	120,22	4,06	3,10	0,6	62,000	43,800	1,991
	150	35	2,10	145,24	4,90	3,10	0,6	104,000	68,100	2,951
	180	42	3,00	173,66	5,69	3,50	0,6	114,000	104,000	4,228
75	115	20	1,10	111,81	2,87	2,70	0,6	39,747	33,170	1,508
	130	25	1,50	125,22	4,06	3,10	0,6	66,170	49,311	2,214
	160	37	2,10	155,22	4,90	3,10	0,6	114,000	76,400	3,204
	190	45	3,00	183,64	5,69	3,50	0,6	152,529	112,922	4,459
80	125	22	1,10	120,22	2,87	3,10	0,6	47,500	39,800	1,787
	140	26	2,00	135,23	4,90	3,10	0,6	72,200	53,100	2,301
	170	39	2,10	163,65	5,69	3,50	0,6	122,850	86,226	3,506
	200	48	3,00	193,65	5,69	3,50	0,6	163,587	124,984	4,801
85	130	22	1,10	125,22	2,87	3,10	0,6	49,794	42,609	1,868
	150	28	2,00	145,24	4,90	3,10	0,6	83,299	63,675	2,670
	180	41	3,00	173,66	5,69	3,50	0,6	132,507	96,069	3,794

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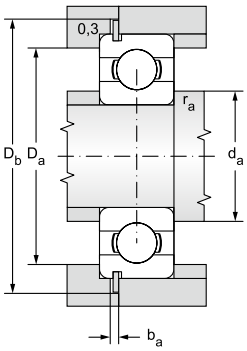

Limiting speed for lubrication with		Bearing designation	Abutment and Fillet Dimensions						Weight	Suitable snap ring
Grease	Oil		d	d_a	D_a	D_b	b_a	r_a	~	
			min	min	max	min	min	max		
min^{-1}			mm						kg	
7900	9400	**6010N**	50	54,0	75,0	88,0	2,2	1,0	0,26	R80
7100	8400	**6210N**		57,0	83,0	98,0	3,0	1,0	0,46	R90
6300	7500	**6310N**		60,0	100,0	118,0	3,0	2,0	1,06	R110
7100	8400	**6011N**	55	60,0	84,0	98,0	3,0	1,0	0,38	R90
6700	7900	**6211N**		62,0	91,0	108,0	3,0	1,5	0,60	R100
5600	6700	**6311N**		65,0	110,0	131,0	3,5	2,0	1,38	R120
5300	6300	**6411N**		68,0	126,0	151,0	3,5	2,0	2,29	R140
6700	7900	**6012N**	60	65,0	88,0	103,0	3,0	1,0	0,41	R95
6000	7100	**6212N**		67,0	101,0	110,0	3,0	1,5	0,77	R110
5300	6300	**6312N**		72,0	118,0	141,0	3,5	2,0	1,72	R130
4700	5600	**6412N**		73,0	136,0	162,0	3,5	2,0	2,76	R150
6300	7500	**6013N**	65	70,0	93,0	108,0	3,0	1,0	0,44	R100
5300	6300	**6213N**		72,0	111,0	131,0	3,5	1,5	1,00	R120
5000	6000	**6313N**		76,0	128,0	148,0	3,5	2,0	2,10	R140
4500	5300	**6413N**		78,0	146,0	172,0	3,5	2,0	3,28	R160
5600	6700	**6014N**	70	75,0	103,0	118,0	3,0	1,0	0,60	R110
5300	6300	**6214N**		77,0	116,0	136,0	3,5	1,5	1,07	R125
4700	5600	**6314N**		81,0	138,0	162,0	3,5	2,0	2,54	R150
4000	4700	**6414N**		85,0	164,0	195,0	4,5	2,5	4,85	R180
5300	6300	**6015N**	75	80,0	108,0	123,0	3,0	1,0	0,64	R115
5000	6000	**6215N**		82,0	121,0	141,0	3,5	1,5	1,18	R130
4200	5000	**6315N**		86,0	148,0	172,0	3,5	2,0	3,06	R160
3800	4500	**6415N**		90,0	174,0	205,0	4,5	2,5	5,74	R190
5000	6000	**6016N**	80	85,0	118,0	136,0	3,5	1,0	0,85	R125
4700	5600	**6216N**		90,0	130,0	151,0	3,5	2,0	1,40	R140
4000	4700	**6316N**		91,0	158,0	185,0	3,5	2,0	3,63	R170
3500	4200	**6416N**		95,0	184,0	215,0	4,5	2,5	6,72	R200
4700	5600	**6017N**	85	91,5	123,5	141,0	3,5	1,0	0,89	R130
4200	5000	**6217N**		95,0	140,0	162,0	3,5	2,0	1,80	R150
3800	4500	**6317N**		98,0	166,0	195,0	4,5	2,5	4,20	R180

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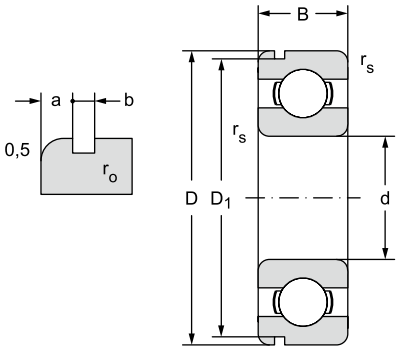
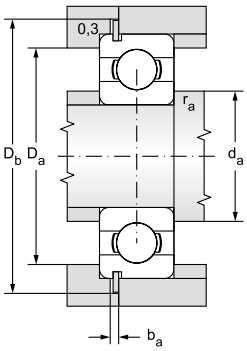
Single row ball bearings with groove for snap ring on outer race

d = 90 to 120 mm



12.1.3

Main dimensions								Basic load rating		Fatique load limit
								Dynamic	Static	
d	D	B	r_s	D_1	a	b	r_o	C_r	C_{or}	P_u
			min	max	max	min	max			
mm								kN		kN
90	140	24	1,50	135,23	3,71	3,10	0,6	58,400	49,200	2,085
	160	30	2,00	155,22	4,90	3,10	0,6	96,200	70,800	2,878
95	200	45	3,00	193,65	5,69	3,50	0,6	152,444	117,366	4,393
100	150	24	1,50	145,24	3,71	3,10	0,6	60,096	54,244	2,205
105	190	36	2,10	183,64	5,96	3,50	0,6	132,297	104,833	3,924
120	180	28	2,00	173,66	3,71	3,50	0,6	85,000	79,400	2,947



Limiting speed for lubrication with		Bearing designation	Abutment and Fillet Dimensions						Weight	Suitable snap ring
Grease	Oil		d	d_a	D_a	D_b	b_a	r_a	~	
			min	min	max	min	min	max		
min^{-1}			mm						kg	
4500	5300	**6018N**	90	96,0	132,0	151,0	3,5	1,5	1,17	R140
4000	4700	**6218N**		100,0	150,0	172,0	3,5	2,0	2,16	R160
3300	4000	**6319N**	95	109,0	186,0	215,0	4,5	2,5	5,72	R200
4200	5000	**6020N**	100	106,0	142,0	162,0	3,5	1,5	1,27	R150
3300	4000	**6221N**	105	117,0	178,0	205,0	4,5	2,0	3,74	R190
3300	4000	**6024N**	120	188,0	171,0	195,0	4,5	2,0	2,10	R180

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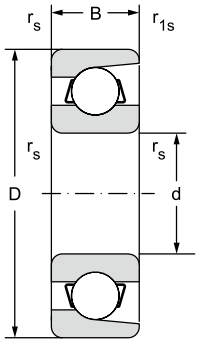
Separable single row ball bearings d = 10 to 20 mm



12.1.4

Main dimensions					Basic load rating		Fatique load limit
					Dynamic	Static	
d	D	B	r_s	r_{1s}	C_r	C_{or}	P_u
			min	min			
mm					kN		kN
10	28	8	0,3	0,15	6,448	2,914	0,13
12	32	7	0,3	0,15	6,363	3,369	0,15
15	35	8	0,3	0,15	8,395	4,584	0,21
	35	8	0,3	0,15	8,395	4,584	0,21
17	44	11	0,6	0,30	10,713	6,077	0,28
	44	11	0,6	0,30	14,723	8,066	0,37
20	47	12	1,0	0,60	15,876	9,149	0,42

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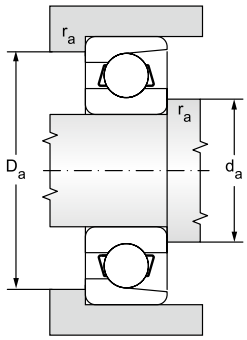

Limiting speed for lubrication with		Bearing designation	Abutment and Fillet Dimensions				Weight
Grease	Oil		d	d_a min	D_a max	r_a max	~
min^{-1}			mm				kg
25000	31000	**E10Y**	10	12,0	25,5	0,3	0,022
22000	28000	**E12TNG**	12	14,0	29,0	0,3	0,029
20000	24000	**E15**	15	17,2	31,8	0,3	0,034
20000	24000	**E15Y**		17,2	31,8	0,3	0,034
16000	19000	**E17**	17	22,0	39,0	0,6	0,079
14000	17000	**B017**		22,0	39,0	0,6	0,075
14000	17000	**E20**	20	26,0	42,0	1,0	0,089